

Warship in Rich Passage heading the the naval station, photo taken from Middle Point

Fort Ward — Harbor Defenses of Puget Sound 1899-1928

In 1894, an army board recommended the seacoast defense in-depth for the Puget Sound, with the first line around the entrance to Admiralty Inlet at Point Wilson, Admiralty Head, and Marrowstone Point; the second line at Double Point, Foulweather Point, and Tala Point near the entrance to Hood Canal; and the third line at Magnolia Bluff near Seattle, and on Bainbridge Island by the entrance to Rich Passage towards the new naval base. In 1896 Congress authorized the construction of the defenses, but only the Admiralty Inlet sites, with construction beginning the following year.

Admiralty Inlet proved to be too deep and swift for any mine defenses, and two minor entrances to the Puget Sound were not defended at this time. The second line defenses were eventually dropped and plans were developed for the third line defenses. Land was obtained at Magnolia Bluff and on both sides of Rich Passage leading to the Bremerton Naval Yard, where mines could be deployed to defend against attackers that got past or bypassed the main defenses at Admiralty Inlet.

Actual construction was slimmed down from the proposed 14 gun batteries to protect the mine facilities to one 3 inch battery being built at Orchard Point with the mine facilities, and four gun batteries being built at Bean Point with the garrison facilities. The plans for seacoast artillery at Magnolia Bluff was also abandoned, the site was later developed as Fort Lawton after 1902 for an infantry garrison.

While the post had a short life, it did have a fairly complete set of defense structures, some of which can still be seen today. The Orchard Point facility eventually became Manchester State Park where the mine casemate, torpedo storehouse, and Battery Mitchell remain. The Fort Ward reservation was broken into two parts—the northwestern half was transferred to the state and eventually to the city of Bainbridge Island and is now a park with the two 3-inch batteries, while the southeastern half was given to the City of Bainbridge and divided up into private lots. The mine facilities have been destroyed , but a number of the buildings and the other two batteries still remain in private hands. Of interest to the visitor is the restored bakery building which now functions as a community center and provides some historical information in the form of signs and pamphlets.

David Hansen's article on Fort Ward "Fortress Without Guns" was published in *The Coast Defense Study Group Journal*, Volume 9, Issue 3, August 1995, pp. 4-16, and is reprinted here as a lead in to the detailed material presented here on Fort Ward's tactical structures and buildings.

Alvin W. Lee prepared an extensivly illustrated manuscript in 1994 entitled *The Story of the Little Fort and Bean Point*. Readers interested in a detailed history of Fort Ward should consult this work, which is available from the Bainbridge Island Historical Museum.

Comments by Mark Berhow

"Fortress Without Guns"

David M. Hansen

Editor's Note: This article appeared originally in **Columbia**, the history magazine of the Washington State Historical Society, and is reprinted here in a slightly expanded version. The title refers to the opinion of a newspaper reporter who visited the post in the early 1930s.

While the text was written for a general audience, there is information and detail in it that may be of interest to readers of the **CDSG Journal** as well.

In the 1890s, when it was possible to conjure up images of foreign insult to American shores if not outright naval attack, the nation protected itself by fortifying its most important harbors. Puget Sound was one of those, and today the rambling concrete gun batteries that still occupy the bracketing headlands of Admiralty Inlet are distinct reminders of that antique scheme of defense.

The big posts of what the army called the Coast Defenses of Puget Sound—Fort Worden, Fort Casey, and Fort Flagler—were dramatic and exciting places when they entered service in the first years of the 20th century. They soldiered on until the early 1950s, but their true usefulness as defense positions had waned in the years following World War I and had played out by the close of World War II. Those large forts were joined by tiny Fort Whitman, slotted into the waters between Deception Pass and LaConner.

But there was one more position in the Puget Sound defenses. It was intended to be a major installation, as heavily armed as the forts at Admiralty Inlet. After construction began, however, the grand plans shrunk. The army decided it did not need the post after all, and abandoned the fort after World War I. Later used by the Navy during World War II as a radio school and listening post, and again briefly by the army in the 1950s as part of the Nike missile defenses, Fort Ward at the southern tip of Bainbridge Island had a curious past unique among all the coastal fortifications in Washington state.

The military engineer and artillery experts charged with designing the Puget Sound defenses clustered heavy guns and mortars thickly around Admiralty Inlet. With more than 100 cannon trained on the water approaches to the cities of Puget Sound, it was unlikely that any fleet afloat in the early 1900s could force its way past. Why build one more fort almost 50 miles away from where the action was to be? The answer to that question lay in what the military planners considered to be an adequate defense.

Steel cannon firing armor-piercing projectiles that could penetrate and explode inside a warship were not the only weapons available to the new coast defenses. There was something else which in some ways was even more threatening than heavy ordnance. Hidden beneath the water's surface, the submarine mine was an "unseen and dreaded force" which promised almost certain destruction. It was so persuasive a weapon that the submarine mine was an essential part of the defense for all the nation's important harbors. (1)

Mines had been used against ships since the Revolutionary War, and beginning in the late 1860s, the army's Corps of Engineers developed the mine to a high point of perfection. The mines were organized into networks called fields. Each mine field was made up of groups of individual mines placed at predetermined locations. Electrical cable connected all the mines and ran to a central control station on shore called a casemate. Troops in the casemate could explode any particular mine or set of mines at will.

These were controlled mines, and would not explode if accidentally struck by a floating object. As a result, there was no chance of a friendly vessel stumbling into the field and being unintentionally destroyed. Similarly, an enemy could not use valueless hulks to clear a path because the defense could allow decoy ships to pass over the mines, saving the submarine charges for a serious attack.

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The best place for a mine field would have been as part of the other defenses in Admiralty Inlet, but the waters were too deep and the currents too swift. There was another possibility. The entry to the naval shipyard at Bremerton, one of the locations the Puget Sound defenses were to protect, was through Rich's Passage, a narrow channel separating the south shore of Bainbridge Island from the mainland east of Port Orchard. The heavy guns of the Puget Sound defenses would be at Admiralty Inlet. The other necessary piece of the defense—the mine field—would be far to the south in Rich's Passage.

Mines may have been more lethal than cannon, but they were also vulnerable. A clever invader could slip into an unprotected field, drag for the control cables and sever them, or he could try to destroy the mines if they were exposed at low tide. An adequate mine defense needed guns and cannoneers on shore to guard against vessels which might be lingering beyond the edge of the field, waiting for darkness or fog to cover a dash through the obstruction. To be ready for just that eventuality, the plan for Rich's Passage proposed the most numerous collection of gun batteries of any fortification in Puget Sound.



The proposed 1899 plan for Fort Ward. The mining casemate was built at the location shown, although only a few of the batteries indicated were constructed. Author's collection.

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Between Orchard Point and Middle Point on the mainland side of the passage, the architects of the defense envisioned a battery of three ten–inch guns, two batteries of six–inch guns, several pairs of three–inch guns, and a half–dozen of a smaller size called a "six–pounder," after the weight of the projectile it fired. On the island side, the planners called for a battery of three eight–inch guns, a battery of 16 12–inch mortars, and other positions for six–inch, five–inch, three–inch, and six–pounder guns. All were to be fitted into heavy concrete structures that would protect the guns, their crews, and the apparatus and ammunition necessary to their operation. (2)

Had the army built all these batteries, the mine field would have been flanked by more than 50 guns and mortars arranged along a waterway a little more than a half mile wide. As it turned out, only five works took shape, and far less was expected of the Rich's Passage defense than had been first contemplated. No doubt the reduction was due to the desire to stop the heaviest and most threatening warships at Admiralty Inlet. Presumably those few vessels that might escape would be light and swift, and just as subject to destruction by the mine field and modest armament at Rich's Passage.



Construction began in 1899 under the supervision of Capt. Harry Taylor. Taylor (1862–1930) was a member of the Corps of Engineers, the branch of the army responsible for designing and building fortifications as well as river and harbor improvements. At the close of the century, fortification construction was the major activity of the Corps, and Taylor's own career reflected that emphasis. Before coming to Puget Sound in 1897, he had helped guide the construction of the new concrete gun emplacements that would protect the harbor of New York. He left his office in Seattle's Burke Building in 1900 to take up more fortification work in Boston. Several years later, he sailed for the Philippines to supervise the defenses being built in Manila Bay. He ended his career as Chief of Engineers, the highest position an engineering officer could attain in the army. (3)

Taylor was talented, and some of his ideas improved coast defenses in every harbor of the United States. His friends described him as earnest, modest, even bashful, and his New Hampshire twang set him apart from most in the Puget Sound country. He had a yen for hunting and fishing, and it is hard to imagine him missing a chance to try his hand in the Northwest. (4)

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Taylor already had work underway at the Admiralty Inlet forts before he began to consider where to begin at Rich's Passage. The Bean Point location on the south end of Bainbridge Island was remote, heavily timbered, and faced with a steep bluff. On the other side of Rich's Passage, however, there was a site that was less intimidating. Just east of Middle Point, a small shallow bay led up to a gentle beach and a clearing free of large trees. It would be easy to barge in supplies, and there he began work on the specialized shore establishment necessary to support a mine field.

It was a small collection of several parts, and it all had to work smoothly. In addition to the casemate, there had to be a storehouse for the mines when they were out of the water, a special water–filled basin for the control cable, a magazine for the explosive used in the mines, a light railway to move the mines and other equipment about, and a wharf that could be used to shift all the paraphernalia onto boats when the mines were put into service. Unfortunately for Harry Taylor, mine materiel began to arrive before he had begun any of the specialized structures.

Early in 1899, Taylor had on hand 31 reels of mine cable weighing 91 tons and no place to put them. The cable had to remain wet to keep it in proper condition for service, and it was intended to be stored in a large tank of water. Taylor of course had no such tank. With the cooperation of the Navy, he deposited the reels on the beach at the nearby naval station, the winter rains providing an adequate substitute for total immersion. (5)

Taylor built a cable tank that same year, and he began a storehouse at the Middle Point site in the spring of 1899. It was an impressive brick building, rectangular in plan, with tall round–arched windows arcaded along each of its long sides. It was large enough to accommodate all the 229 mines, anchors, and attaching cables intended for Rich's Passage, with room to spare to house the mines for an additional field at Agate Pass. (6)

Although Taylor had prepared plans for a mine casemate in 1897, it was not until 1902 that construction began, and by then the design had changed a great deal. Taylor's first sketch depicted a small concrete chamber set deeply into the side of a hill; a long, narrow, tunnel called a gallery connected it with the water. The intent was that the mine crew would drag the control cables by hand through the gallery and into the casemate, where they would attach the cables to the firing circuits. A heavy layer of earth was to cover the entire structure, which was devoid of any natural light; a small pipe poking up to the surface provided a little ventilation. The design represented then–current thought in regard to casemates: that they be difficult to find and destroy so that the mine defense could continue to operate even if the fortifications were overrun. (7)

However, underground structures were very damp, and the moisture also had an impact on the electrical equipment. Oil stoves placed in the casemates made the air drier but unbreathable. Revised designs coming from the office of the Chief of Engineers shifted to plans more friendly to humans, and the Middle Point casemate as actually built was a further improvement. Taking advantage of the natural protection offered by a high prominence of earth and rock, John Millis, Taylor's successor, placed the casemate behind the slope where it was safe from naval gunfire. Most remarkable, it was completely above ground. There were windows on three sides, which gave an abundance of light unheard of in other similar buildings.



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Work started on the Bainbridge Island defenses in 1900. Early on the morning of February 25 of that year, W. T. Preston left Seattle on board the tug Wilson, towing behind him a scow loaded with the materials necessary to put up two small frame buildings. One would be the engineer headquarters for the construction activity, and the other a place for Preston and his party to live. These plain wooden buildings would replace another structure which Preston condemned as filthy inside and out; the gov-ernment had acquired it when it purchased the Bean Point acreage in 1899. (8)

William Trutch Preston (1859–1919) was not a member of the army. Although military officers guided the construction, civilian engineers like Preston were on the site of each fortification, supervising the day-to-day business of bringing men and supplies together to produce the desired result. Preston's background was in railroad building. He had played an important role in bringing the Canadian Pacific line through the Fraser River canyon in British Columbia, and was himself an official of the Seattle, Lake Shore, and Eastern Railroad; the eastern King County town of Preston, located on a sweeping bend of the SLS&E, was named for him. Preston liked the work of the Corps of Engineers, which shifted to river and harbor improvements after the completion of the defenses. Preston was appointed district engineer of the Corps' Seattle District during World War I, a position which before and after that time was always held by a uniformed member of the Corps. (9)

Heavy construction at Bean Point was a challenge. There were no roads, and the land was rugged; Preston thought the place a wilderness. To make matters more difficult, the biggest gun batteries were to be built on the heights above the shore. The first task for the engineers had been to build a dock so they could land supplies. From the dock, Preston ran a narrow–gauge rail line up a steep and heavily wooded incline to the top of the bluff. A steam hoisting engine hauled goods and equipment up the incline, where rail cars were coupled to a small steam locomotive for the trip to the building sites.

Crews started on the battery for three eight—inch disappearing guns in April. Horse–drawn scrapers cleared and leveled the ground, and then carpenters erected the formwork for the concrete. At one end of the site, more workers set up the timbers needed for the concrete mixing plant. A tramway for concrete cars ran from the base of the mixing plant and up across the top of the formwork.

All the gun batteries were built after the same fashion, the complexity of the plant changing to meet the varying size and location of the construction jobs. In design, the batteries for the three–inch and five–inch guns were simple. They provided a foundation to support the weight of the gun and carriage mounted in each emplacement, a shelter for the ammunition, and a store room or two. The designers arranged the stairways to help enhance the man–handling of the ammunition from the interior rooms to the gun platform. The battery for the big eight–inch guns and their disappearing carriages was more elaborate. It was two stories in height, with a high protective wall in front of the guns and a thick concrete roof over the ammunition storage below. On the ground floor, there was a power plant and more specialized rooms, some connected by a ceiling trolley to help move the 300–pound projectiles to the hoists.

The battery for the eight–inch guns was finished in 1901. The others were completed in October of 1903, although a number of delays prevented the completion of the five–inch battery until January, 1904. Following a long practice, each battery received a name, usually memorializing a distinguished member of the military. In the same manner, the reservations on the south side of Rich's Passage and the Bainbridge Island side were called Fort Ward, named after Colonel George H. Ward, a Civil War figure who died at Gettysburg. (10)

The first artillery troops reached the Bean Point dock on November 27, 1903, a detail of 25 men and a lieutenant from Fort Flagler. Immediately, they ran into a problem. The mines aside, the only other element of the defense on the south shore of the channel was Battery Mitchell, a compact con-



struction for two three–inch guns. The bulk of the defenses and all of the garrison was on Bainbridge Island. Rich's Passage lay between them and blocked easy access from the main post. (11)

There was a small launch at Fort Ward, and in it a sergeant and two privates traveled back and forth to Middle Point as caretakers. However, the balance of the command was so busy maintaining the armament on the island that it had no time to drill with the mine equipment. No cables were laid; they all remained on the reels in the cable tank. The engines and instruments in the mine casemate were not kept in commission. The plant itself could be faulted as well since there was no overhead trolley at the cable tank to lift the reels out of the water, nor was there a tramway connecting the different buildings. The greatest failing of all was the lack of a wharf. Without it, there was no simple way to transfer the materiel to the vessels which would take the mines where they were needed.

Some of those limitations could be offset by more manpower, and the army's Chief of Artillery contemplated placing a garrison of 85 officers and men at Middle Point. That was little more than an idea since those forces were not available. The only real alternatives were to make good the effort at Middle Point and develop it completely, or abandon it and rebuild the entire mine plant on Bainbridge Island. A board convened in 1905 to make a decision. It reluctantly decided that matters would be improved by starting all over again at the main post.(12)

The Chief of Artillery did not care for the board's recommendation, and he continued to urge the completion of what had begun at Middle Point. Matters dragged on until 1908. Battery Mitchell had been finished for some time, but the guns became available only in that year. Instead of installing the weapons, a new Chief of Artillery recommended that the guns be transferred elsewhere and not mounted in Battery Mitchell. Viewed alone and without the companion need to support a gun battery, the idea of creating an embellished post at Middle Point collapsed. Work began on the new mine structures at Bean Point. (13)

The new plant, completed in 1910, was of uninspired design, yet it did meet the needs of a workable mine service. The majority of the new structures were clustered around the approach to the post wharf. Most impressive was the large concrete cable tank, straddled by a traveling crane. On the north side of the tank was the wooden mine storehouse; a tramway equipped with two flat cars linked the storehouse to the wharf, and turntables linked the buildings with the main track. The new casemate was close by, and fashions had changed since the Middle Point version had been built. The new edition was a light frame building, quite roomy, set behind a massive L–shaped concrete wall which was itself fronted by a gently rising slope of earth. Not visible from the buildings was the special station located high on the bluff from where observers could track vessels through the mine field. (14)

For coast artillery soldiers at Fort Ward, the days were filled with training and maintenance. About 150 men would be required to man all the guns, although the single company assigned to the post had only a little more than two-thirds that amount. It was also a mine company, which meant that the men concentrated on putting down mines and tracking targets through the field. Mines were detonated in Rich's Passage during annual exercises, but gun crews had to travel to the Admiralty Inlet forts to practice firing the weapons and to sharpen their skills. The water area in front of the gun batteries was so confined by the opposite mainland that the army had issued a standing order that the guns were never to be fired in peacetime without special authority to do so. (15)

The monotony of the duties, the isolation, and the hard burden of transforming raw construction sites into a military post prompted steady desertion at Fort Ward. The army worked hard to make its permanent reservations healthful and attractive homes for those stationed there. However, the isolation of Fort Ward was profound. The desertion rate remained high, and in 1912 was among the highest in the army. The addition of recreation buildings at all the Puget Sound posts was an attempt to



The mine plant as re-established in 1910 on the north or Bainbridge Island side of Rich's Passage. New homes have been built at this location and no evidence of these structures remains, save the wharf itself and the retaining wall for the casemate. The mine loading room, relocated to the upper portion of the post during the period of Navy occupancy, still survives. Drawing 103–38–27, Record Group 77, National Archives and Records Administration.

improve the atmosphere in the garrisons. The intense promotion of an inter-fort baseball competition probably also had its roots in the wish to make a better life for the soldiers. Those changes did not effect the greatest problem: the technical specialties required in coast defense service were also in great demand in civilian occupations, where the pay was much better. (16)

The pace quickened at the fort with the American entry into World War I in 1917. Day and night, a crew stood by one of the rapid–fire gun batteries near the shore. But no foreign navy threatened the harbors of the United States. Fort Ward and the other coast defenses were not necessary for national defense in their original role, and they were recast in another format.

During the war, many coastal cannon were removed from their emplacements to be remounted on wheeled carriages or tracked carriers for service overseas. Others, like the eight-inch guns of Battery Nash, were to be shifted to railway carriages. It was not unprecedented. The idea of borrowing guns from the fortifications for a purpose other than coast defense dated at least to 1906, but the thought had been that the guns would be returned. As it transpired, stripping the batteries in World War I was for the most part a one-way operation. (17)

In October of 1917, crews dismounted the five-inch guns of Battery Warner and the guns of Battery Nash. The guns from Battery Nash were taken away, but the guns from Warner sat on the dock. The plan was to mount them on the deck of the unarmed transport vessel Dix. However, the Dix could not be spared from carrying men and supplies across the Atlantic to support the U. S. build-up in France, and the armistice was signed before the ship ever reached Puget Sound. In 1919, the guns were returned to the emplacements of Battery Warner, the only cannon in the Puget Sound forts to be replaced once they had been removed. (18)

The three–inch guns of Batteries Thornburgh and Vinton remained during the war years, but they were taken out in 1920 as obsolete. The guns of Battery Warner were removed again and for the last time in 1926. Although the mine field was still important, it was difficult to justify the cost of main-taining the buildings, equipment, and troops when they were so distant from the core of the defense at Admiralty Inlet. Plans for improving the Puget Sound defenses by mounting bigger guns positioned seaward from the entrance to Admiralty Inlet made the mine field in Rich's Passage seem remote in-deed. (19)

There were no troops stationed at Fort Ward after World War I, other than a caretaking detachment. For a time there was talk about using the place as a home for disabled soldiers, or for homeless men from Seattle and Tacoma. The post was given over to week–long summer camps for underprivileged children in 1935, a pattern that the sponsoring American Legion and the state's Department of Public Welfare hoped to continue. But for the most part, the buildings and empty batteries lingered unused for 20 years. In 1938, the army transferred both pieces of Fort Ward on either side of Rich's Passage to the Navy. (20)

In retrospect, it seems odd that Fort Ward was built at all. Although the national scheme of coast defense held the mine field in high regard, the commitment to employ it at Rich's Passage ran counter to another and more forceful current. The centuries–old pattern had been to push the defense as far seaward as possible, making the best use of the range of the guns available at any time. Placing Fort Ward well behind the core of the defenses at Admiralty Inlet isolated it, both militarily and administratively. In peace, it was difficult to support and expensive to maintain. In case of war, the post could not help in the defense of Admiralty Inlet, nor could the weaponry of the Admiralty Inlet forts help protect Fort Ward should it come under attack. (21)







Fort Ward 1932, Signal Corps photos NARA

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The federal government sold most of Fort Ward to private buyers in 1960. Today, a good number of the army's buildings are gone, and new homes are being built in what was once open land. That future may have been apparent years ago. "Some time, Uncle Sam will sell this post," opined Sergeant E. W. Horinga, Fort Ward's caretaker in 1933, "and some real estate developer will come along and this will be the classiest summer home colony on the island."

"Mark my words," said Sergeant Horinga. (22)

NOTES

- 1. Lt. H. L. Hawthorne, "The Naval Attack on Sea–Coast Fortifications," *Journal of the United States Artillery* [hereafter cited as *JUSA*], vol. 6, no. 1 (July–August, 1896), 8.
- 2. "Torpedo Defense of Rich's Passage Entrance to the Port Orchard Naval Station," September 8, 1899, map in author's collection.
- 3. Dictionary of American Biography, s.v. "Taylor, Harry."
- 4. Biography typescript, Fort Casey miscellaneous file, Washington State Parks and Recreation Commission, Olympia, WA.
- 5. Letter of Harry Taylor to John Wilson, January 18, 1899, File 181–215, Box 252, Record Group 77, Records of the Office of the Chief of Engineers, National Archives and Records Administration [hereafter cited as RG 77].
- 6. John Millis to George Gillespie, April 9, 1903, File 2631, Box 242; outline project for the mine defense of Puget Sound, undated, File 1094–1150, Box 254, RG 77. Agate Pass (now called Agate Passage), west of Bainbridge Island, formed another approach to the naval station, although it could not be negotiated by heavy warships. A casemate, 36 mines, and two batteries of rapid–fire guns were to have formed the defenses. Land was acquired for the casemate but there was no plan to build it until time of war. Proposals to construct the gun batteries persisted until 1915 and then faded. The mines themselves, stored at Middle Point, were the only visible evidence of the intended barrier at Agate Pass. Endorsement of F. V. Abbot to letter of Hiram Chittenden to H. J. M. Baker, August 17, 1907, File 322.1, Box 298, RG 77.
- 7. Capt. Paul D. Bunker, "The Mine Defense of Harbors: Its History, Principles, Relation to Other Elements of the Defense, and Tactical Employment," *JUSA*, vol. 41, no. 2 (March–April, 1914), 159.
- 8. Report of Operations at Bean Point for February, 1900, Box 256, RG 77.
- 9. "William T. Preston Dies of Pneumonia," May 15, 1919, Seattle Post-Intelligencer.
- 10. General Order 84, June 12, 1903, Headquarters of the Army, Adjutant General's Office, Washington, D. C. The order applied only to the reservation at Bean Point. The Middle Point reservation was not formally named, although some drawings and correspondence of the period indicate that "Fort Ward" was applied loosely to mean the reservations on both sides of Rich's Passage.
- 11. Fort Ward Fort Record Book, Entry 289, Record Group 392, Records of United States Army Coast Artillery Districts, National Archives and Records Administration [hereafter cited as RG 392].
- 12. Report of Inspection by Major John P. Wisser, October 24, 1905, File 3205, Box 269, RG 77.
- 13. "Remarks of a Board Convened at the Artillery District of Puget Sound to Review Mine Defense at Rich's Passage," September 21, 1905, File 3171, Box 244, RG 77.
- 14. Site Plan of Fort Ward Military Reservation, May 1915, author's collection.
- 15. Chief of Ordnance to the Commanding Officer, Artillery District of Puget Sound, November 15, 1916, Fort Ward Fort Record Book, Entry 289, RG 392. There were a few small boats at Fort Ward to assist with mine work, typically submarine boats and distribution box boats. A mine planter was assigned to Puget Sound in 1909, but it was shared with the Columbia River defenses and not always available for work in Rich's Passage. Resourcefulness became the rule. Thus in 1913, when the mine planter *Major Samuel Rinngold* was meeting other demands, the mine command at Fort Ward had to create some method of getting its mines down. Providence provided an old scow, found abandoned on the beach at Fort Worden. It was patched up, made to float, and sent to Fort Ward. It served remarkably well in the stead of the mine planter, although it sank shortly after the exercises were

completed. So suitable was the scow that one was specially built for emergency mine service, and put into use in 1915. Unencumbered by the crowded decks typical of most vessels, the crew on the scow was able to plant three mines in 21 minutes, which was considered a very good showing. Annual Report of the Chief of Coast Artillery, 1901, Serial 5717, 308; Capt. Ernest A. Greenough, "Planting and Raising Mines From Scow," *JUSA*, vol. 46, no. 1 (July–August, 1916), 60 and 62.

- "Report of the Artillery Inspector, Department of the East," *JUSA*, vol. 16, no. 3 (November–December, 1901),
 324; Annual Report of the Adjutant General, 1912, Serial Records of Congress, Serial 6378, 452.
- 17. Capt. Edwin Landon, "The Needs of the Coast Artillery," *JUSA*, vol. 25, no. 2 (March–April, 1906), 147.
- 18. Charles L. Phillips to the Commanding Officer, Northern Pacific Coast Artillery District, November 15, 1918, File 355.4, Box 320, RG 77. Seven batteries at other locations were tapped to donate their armament for the protection of transport ships. In fort/battery/transport order they were Rodman/Cross/Kilpatrick, Delaware/Dodd/Sherman, Pickens/VanSwearigen/Sheridan, Morgan/Thomas/Logan, San Jacinton/Hogan/Thomas, Wint/Flake/Liscum and Merritt, and Wint/Jewell/Warren. File 355.4/74, memorandum for the Chief of Staff from F. W. Coe, December 26, 1918, RG 77.
- 19. Ordnance Officer, Ninth Corps, to Ordnance Officer, Harbor Defenses of Puget Sound, August 5, 1925, and fifth endorsement, June 3, 1926, File 355.4, Box 320, RG 77; Annual Report of the Chief of Coast Artillery, 1916, Serial 7140, 1174.
- 20. File 660.25, Box 313, RG 77. "Fort Ward Is Urged As Site For U. S. Home," July 13, 1930; "Fort Ward For Homeless Is Protested," December 7, 1934; "Fort Ward 'Rededicated' To Aid Needy Children," July 1, 1935, *Seattle Daily Times*.
- 21. Emmanuel Raymond Lewis, *Seacoast Fortifications of the United States: An Introductory History* (Washington: Smithsonian Institution Press 1970), 12–13.
- 22. "Gold–Winged Butterflies Dance in Sun Where Fort Ward's Guns Once Frowned," July 17, 1933, Seattle Sunday Times.



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The fortifications at Bean Point, Bainbridge Island, Washington, were named Fort Ward in honor of Colonel George H. Ward, 15th Massachusetts Volunteer Infantry, brevet brigadier general, U.S. Volunteers, who died July 3, 1863 of wounds received at the battle of Gettysburg, Pennsylvania, July 2, 1863. GO 84 June 12, 1903.

Gun Batteries

Battery Francis Nash

Three gun emplacements for 8-inch M1888 guns on M1896 disappearing carriages Named in honor of Brigadier General Francis Nash, Continental Army, died October 17, 1777 of wounds received in action at Germantown, Pennsylvania, October 4, 1777. GO 194 Dec 21, 1904

Battery Nash is in private hands today

Battery William Warner

Two gun emplacements for 5 inch M1900 guns on M1903 pedestal mount carriages Named in honor of Brevet Captain William H. Warner, US (1st Lt., U.S. Topographical Engineers) who served with distinction during the war with Mexico, who was killed in action against Indians in the Sierra Nevada Mountains, September 26, 1849. GO 194 Dec 21, 1904

Battery Warner is in private hands today and is fenced off.

Battery John Vinton

Two gun emplacements for 3-inch M1898 guns on M1898 masking parapet carriages Named in honor of Brevet Major John R. Vinton, U.S. Army (captain, 3rd U.S. Artillery) who was killed in action at Vera Cruz, Mexico on March 22, 1847. GO 194 Dec 21, 1904

Battery Vinton is in Fort Ward Park. The lower rooms have been filled in.

Battery Thomas Thornburgh

Four gun emplacements for 3-inch M1898 guns on M1898 masking parapet carriages Named in honor of Major Thomas T. Thornburgh, 4th U.S. Infantry, who was killed in action against the Ute Indians at Milk River, Colorado, September 29, 1879. GO 194 Dec 21, 1904

Battery Thornburg is in Fort Ward Park

Battery Robert Mitchell

Two emplacements for 3-inch guns (not armed) Named in honor of 1st Lieutenant Robert B. Mitchell, Artillery Corps, U.S. Army, who died May 17, 1904. GO 194 Dec 21, 1904

Battery Mitchell is in Manchester State Park

HEPC OF COM (Gun and M	PLETED Wortar Ba	ORKS - ; tteries	SEACOAS)	T FORTIFI	CAT	nons					HA FO BA	RBOR RT TTER	DE Wa Y	FENSE rd Franc	S OF	Puget ash (Dealer	Sound	3 - 8"	
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Battery comple	tod	:	1903										:			-			
Date of trans	fer	:	Jan. 1	8, '04.		: 1	Max.	kw.	re	quire	d 1	or	:						
		:	Ganama	**			Mer.	W	110	11g anire	hts d f	or	3 D	•17					
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Portland or R	osendale					:							\$						
	cement		Portla	nd		:							:						
Cost to date	of trans	ifer :	\$120,4 Yes	206		:	Pres	ento	om	ditio	n o	ſ	;						
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Connected to	sewer	:	Yes			:	Room	18 WO	t (or dry	1		: 1	et f	rom c	ondense	ation a	nd seep	age
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Photo believed to be of Battery Nash



Battery Nash 2020 Doug Christ

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SECTION A-A.

SECTION B-B.



5-inch M1903 pedestal carriage with gun (NARA)



Battery Warner in 1994







3-inch gun on M1898 Masking Parapet carrage



Battery Vinton circa 1994









Battery Thornburgh 1994



3-inch guns on M1898 Maskimg Parapet carriages at Battery Irwin, Fort Monroe (NARA)



		0 11			
	Middle	Point Res. tra	posterred t	S Nory Dept	May 31, 1925
REPORT OF COMPLETED WORKS - SE (Gum and Mortar Batteries	ACOAST FORTIFICA	TIONS	HARBOR DEFE	NSES OF Puget S	ound
			BATTERY ROL	bert Mitchell. (n middle point opposite Ft. Ward).
Form 1 Corrected to Septembe	r, 1925. Şemperet	; = = = = = = = = = = = = = = = = = = =	No. of guns	.None Freezer	
Battery commenced	1 1900	Sources of electric	al current	None	
Date of transfer \terial of construction	Jan. 18, 104	: , Max. kw. required f . Max. kw. required f	or lights		
Portland or Rosendale cement Cost to date of transfer	Portland \$9,473.00				
Connected to water supply Connected to sewer	1 NO 1 NO	: Present condition o : Rooms wet or dry	f battery	· •	-
Type of data transmission	: None	: How ventilated	5		
Trunnion elevation in battery	• • •	I S 1 Remarks	3		
Datum plane	ŧ	ARMAMENT: No guns	ever mom ted.		
	1	Designed	and emplacemen	ta built for 2 -	3" guns.
Guns or	Mortars (None)	•	Carria	ges (None).	
<u> </u>		HOISTS (ITCA)			
MI Batter	IDDLE POINT. ry Robert Mitc	hell,) Jan.18,	\$9,473.00	Garrisoned	
2 Empl	Lacements for	3-in.) 1904		Magazines we from condens	t
mount	s. (No guns or	mounts		ation.	
on Har	ha)	······································			
REPORT OF COMPLETED WORKS (Battery Plan.)	SEACOAST FORTIFI	CATIONS. HARB	RT WARD	OF PUGET SOUND.	
Corrected	to Sept. 1925	Ba⁻ Nº	ofGuns, 2. (MITCHELL on Middle Caliber,- Binch, 15p	Point opposite Fort Ward dr- Pedestal Mounts.
Form 7.	(32.0)	F7.10 5		<u>30 40</u> Scale,- 1″≈20′.	50 & 70 80
	A 4	₽≁Ţ		e t. 11 (
	72'-0"		To chory	ge to Mean Low Water, :	to Extreme Low Water Subtract 5.5 feet.
	(34.0)				
(35.0)				4	
			Az. 325-14	4-51 O	
<u>(31483)</u>	Maga 1	-6-+-7-6"+8-4"+ %		4.	
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(185)			4	· · · · · · · · · · · · · · · · · · ·	
REARELE	VATION FROM SECTIC	M C-1-2-D.		SECTION B-B	





Battery Mitchell 1994

Fire Control

A typical fire control set up with double mine primary stations with plotting rooms and a duel set of secondary statins located some 3,000 ft. to the north. This allowed for two separate targets to be tracked by the mine command using the same baseline.

The two 2-inch batteries both received coincidence range finder stations located adjacent to the gun batteries. Battery Nash had a single battery commander's station located 500 feet behind the battery on a elevated bluff. The plan was to establish a temporary fire control position on Orchard Point or Middle Point across the water way if a baseline was needed. Battery Warner did not receive any fire control stations, it would have been sited from the guns.

Searchlights

Fort Ward had one permanent 30-inch searchlight installed near the mine primary stations.



1	5	<i>y</i> 1	8
A) REPORT COMPLETED WORKS (Search light Form 4 Obrreated to Sep	- SEACOAST FORTIFICATIONS ts) ptember, 1925.	ED HARBOR DEFE FORT WARD, SEARCH LIGHT SIZE 36" MO	MSES OF PUCET SOUND.
PROJECTOR Location (Temporary) Manufacturer Type of projector Form of projector Serial No. of projector Type of lamp Serial No. of lamp Blectric or hand control Material of mirror Date received in district From whom received	1 1250' rear of Empl. #2 of Bat. William Warner (Oeneral Electric Co. 11.0. 36" 1N. 17, General Electric Co. 1#21935-D.L. 1916406 (Sperry Gyroscope 36" searchlight 1 lamp 19 1616 Hand 161ass 1Nov. 3, 1919 180ceived at Ft. Worden, Wash. Nov 1 3,1919, from Army Reserve Depot	1HSTALIATION : General Character : Date structure transform : troops : Cost to that date : Material of construction : Interior dimensions : Day Shelter : Height & type of towor : Means by which projector : Reference axis of project : Kind of protection in op : Ing position : Concealment of day sheld : from appreach channel	<pre>iTomporary shelter iTomporary shelter identify iter iter identify iter iter identify iter iter iter identify iter iter</pre>
Transforred Age of mirror Condition of mirror Date last repaired Switchboard, Serial No.	: Schnectady, N.Y. :From Q.M. at Ft. Worden to Arty. : Engr. at Ft.Ward, March 7,1921 ;Unknown :Soratched at center :Not repaired since received :G. E. No. 7146	: Dates & coat of extensive i modeling or reconstruct POWFER PLANT: Location i POWFER PLANT ON MACK TRUCH	to ro- : ction :Rono : :Power room right flank Bat. Nash :See Report of Completed Works : for 25 NW. Set Bat. Nash. K:
C'TES: (Bettery Nash) Type: Longth and size: In conduits or in air: Controller to light: <u>CABLES</u> : (Mack Truck) Type:	: Power plant in Bat. Nash to : searchlight :D.R.C. and A. :650 ft. :Trenched. :No cable- hand controlled : <u>Power plant on Mack Truck.</u> :Duplex, SL., No. 1, D&S. stranded : copper.	: Location : Maximum demand KW : Type and size : : : : : : : : : : : : :	<pre>iMack Truck stored at Ft. Ward :13 KW Gen.DC.,Gasoline Set :Cemerator, No. 84123,Burke : Elec.Co. fully equipped with : Switchboard, etc. : Hand controller.</pre>
Length and size: In conduits or in air:	:400 ft. :In air.(Windlass with 2 oranks for cable.)	:	

This searchlight is at present connected up to the 25 K.W. set of Battery Nash and to that extent is a "Fixed" light; but it is a part of the 15 K.W.Mack Truck Searchlight Unit assigned to Ft. Ward mounted on carriage with 4 Ford Lotor 30. the stand in a shed at that point. Truck registration No.52826, Notor No.563-31.

TRDODM	012	CONTRACTOR	WORKS -	SEACOAST	FORTIFICATIONS	
dir on r	05	(Se	earchligh	hts)		

Corrected to October, 1926.

HARBOR DEFENSES OF PUGET SOUND FORT WARD, WASHINGTON. SEARCHLIGHT NO. 1,132,659. SIZE 36" Mobile (Mack Truck).

		1	1
PROJECTOR	이 방법에 가지 않는 것 같은 것이 같이 많이 했다.	: INSTALLATION	•
Location	:Mobile unit.	: General character	Mack searchlight truck
Manufacturer	General Electric Co.	: USA. hea.	complete with 36" projector
Type of projector	:H.C. 36".	* Truck # 52226	stored in Quartermaster
Form of projector	N. 17, General Electric Co.	:	:Buildings. On September 7,
Serial No. of projector	:#21935-D.L. 1916406.	: Motor # 562 x31	:1926 it was shipped to
Type of lamp	Sperry Gyroscope 36" Searchlight	:	Fort Worden for repairs and
-	:: lamp.	1	:will be kept in storage
Model of lamp	19 Mark III	1	there although still con-
Serial No. of lamp	:616	1	sidered a part of the Fort
Electric or hand control	tHand	1	:Ward defenses.
Material of mirror	:Glass	 gender of data strategie 	:
Date received in district	tNov. 3, 1919	:	:
From whom received	:Received at Fort Worden, Wash. Nov.	:	1
	: 3, 1919, from Army Reserve	POWER PLANT ON MACK TRUCK	11
	: Depot., Schnectady, N.Y.	: Location	:Part of Mack searchlight
Transferred	From Q.M. at Ft. Worden to Arty.	:	; unit.
	: Engineer at Ft.Ward, March 7, 1921	a Maximum demand KW	:13 KW
Age of mirror	: Unknown	t Type and size	:Propelling motor (Serial No.
Condition of mirror	Scratched at center and upper	1	: 563-31) of truck used to
	: left	1	: drive 15 KW D.C.Generator
Date last repaired	Not repaired since received		: No. 84123 rated 900 R.F.M.,
	1 1.1 A second contraction of the second		: 135-150 Amps., 115 Volts
CABLES: (Mack Truck)		1	: purchased on Engr. Dept.
Type	Braided duplex	t .	: U.S.A. Order No. 21349
Length and size	:400 ft. #1 B.& S. gauge stranded	1 · · · · · · · · · · · · · · · · · · ·	: from the Burke Electric
	: copper	<u>.</u> .	: Co.

form 4

SPECIAL NOTES:
 Chassis No. 1,132,659. Chassis weight 9000 lbs. Max. body weight 2000 lbs. Live load capacity 1100 lbs. Corps of Engineers U.S.A. Special Transport Body, Model 1918, Serial No. 160.
 This mobile unit replaced a fixed 30" unit which was sold by the District Engineer under authority of 7th Ind. C. of E. 400.31 (PSD) F59 of July 19; 1920.

Replacement of S/L mirror requested - Regn. doted July 10,1930, Serial No. 925-2-31, Lug. file C. of E. 400.31 (Puget Sd.) 216.

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HARBOR DEFENSES OF Puget Sound RE T OF COMPLETED WORKS - SEACOAST FORTIFICATIONS (Fire control or Torpedo Structures). FORT Ward STRUCTURE Primary Station Nash. Corrected to September, 1925. Form 2. : 464' in rear of Battery : Type of data transmission : Telephone Location Tash : : : Date of transfer : June 28, 1905 Date of transfer : Cost of data transmission Cost to that date : \$6,252.28 equipment Type of construction : : Concrete : For tide stations give (a) Roof (b) Remainder of bldg. description of tide gage : 1 How concealed : Earth. Entirely concealed by: For datum points give Forts : from which visible : trees and brush. :For dormitories give stations .ow protected : Earth . served. For cable hut give S. C. Height above concealment :3" - 6" Height above protection :3" - 6" . type Conspicuous at yards :Not conspicuous ± :25 kwo set at Battery Nash : Source of electric current Kilowatts required : 0.18 : :Commercial Type of lighting fixtures : : Oil stove How heated Supports Connected to water mains : NO of Instrume : No Eler. 220.50 above Mean Low Water. Connected to sewer : None 1.6 Ceili Type of latrine : Permanent Permanent or temporary installation : : Good Present condition 1.10 52 16 : 209.67 eference of site eference of instrumental : (209.67) : 220,50 above M L W aris X Warner & Swasey, DP?
 Type, Mod. 1907, SN.
 109.
 X Whistler & Hearn, Mod. Type of observing inst. (209.0) conduity Type of plotting board : 1904, SN 87, Right Hand board FORT WARD, WASH. (NASH) Type and capacity of crane : None Scale 1'= 10 Max, dimensions of reel han- : dled

X Not mounted, both in storage in Ordnance Storehouse.



Primary Station Nash in the mid-1980s





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-1-

Fort Ward Mine Double Mine Primary, 1964, David Hansen



Fort Ward Mine Double Mine Primary, 1964, David Hansen



Fort Ward Mine Double Mine Primary foundations, 1985, Mark Berhow





Later replaced by a 36-inch searchlight installed on a mobile chassis.

Fort Ward Mine Facilities

Middle Point (1905): Torpedo Storehouse Cable Tank Mine Casemate Wharf Fort Ward (1910): Mine Wharf Mine Tramway Torpedo Store House Loading Room Mine Casemate

Name of Harbor		Name and Armament of battery	:	Date when turned over to Artillery:	: Total : cost to : that : date	REMARKS
x	1	MIDDLE POINT: Torpedo Storehouse complete.)))	Dec.4, 1905	\$9,000.00	Garrisoned Outside dim- ensions 53'x 78' Brick and
(x)	1	Mining casemate complete.))	Dec.4, 1905	\$5,900.00	concrete. Three rooms; 7'9"x22'; 11' 9"x 22'; and 11"x 22'.Out- side dimens- ions of build
	1	Cable tank, complete except apparatus for handling cable.)))	Dec.4, 1905	\$5 , 900 , 00	ing 26'x37'6" Outside dimensions 23'x 80' concrete tank with wooden roof.

x Dry. No provision made for heating or lighting.

•

(x) Damp.



Mine casemate at Middle Point



MINING CASEMATE





Torpedo Storehouse at Middle Point



New mine depot at Bean Point, Fort Ward, 1910

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Pore 2 Operation Description of Laples Lossion There Valuer Pype of data transmission Does Lossion There Valuer Pype of data transmission Does Lossion There Valuer Pype of data transmission Does Lossion Does of transfer Pype of data transmission Does (a) Bood Does of transfer Does Does (b) Sector transfer Does Does Does (c) Bood Does Does Does Description of this provide Does Does Does Descriptin of this provide Does<		Co Statotianol	Const Warming OF Figer Sound
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Lossion in ther what : 270 or data transmission : 1000 Date of transfer : 2000 (a) Boot : 2000 (b) Beachier of blag : 2000 (c) Beachier of blag : 2000 Bright abow concellat : 2000		1	1
Dete of transfer John 25, 1910 Obst of this date Ouncreie Type of construction Done Ar schedald Dot Br yportoosed Dot Connorsition Dot Connorsition Dot Connorsition Dot Dete of this port Dot	Location	Near Wharf	Type of data transmission : None
Cost to the data atterned in the data of the data of the data atterned in the data of	Date of transfor	J Rob 25 1010	1
Type of construction Output the information of this gauge (a) Bood Does (b) Boonthier of bldg. Does Ar consented Dot Bry protocold Dot Commonstitution Dot Dor handed Dot Commonstitution Does Present constitution Does Present constitution Does Presents of the statument income Does Structure for a fill Does Presents of the structure of real Presents of the structure of real Presents of the structure of real Presents of the structure of real Presents of the structure of real Presents of the structure of real Presents of the structure of real Presents of real Presents of the structure of real Presents of real Presents of real on structure of real Presents of real on structure of real Present real on structure of real structur	Cost to that date	1 100. 25, 1910	Date of transfer :
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Mines at Fort Ward Aaron Buda collection





Mine casemate control boards at Fort Wint, the Philippines (NARA)



Preparing to load up a mine planter, Fort Monroe, Virginia (NARA)

The Non-Tactical Buildings of Fort Ward

Bolling W. Smith



Headquarters. 2.- Post Exchange and Gymnasium. 11.- Fire Stolion. 14. - Barracks. 12. FORT WARD, WASH. Taken Sept. 1913.



Bakery. 27. - Amusement Hall. 10 Temp. - Guard House. 13. - Q.M. Storehouse. 16. - Con



Taken Sept. 1913.

Officers Quarters 18-19-20.

Civilians Quarters. 21.

Fort Ward, WA, 1928. NARA

Special	Issue
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Bldg. C-1, **Post Hospital**, 1919, adaptation of OQMG Plan No. 305-C. Frame walls, wood shingle roof. Two floors above the basement, 3900 sq. ft. Capacity: 12 men.

Bldg. 1, **Pump House**, 1911, OQMG Plan No. 4-975. Corrugated iron walls and roof. One floor, no basement, main building 16' x 16'.



Fort Ward, WA, Building C-1



Fort Ward, WA, Building 1

Bldg. 2, Administration Building, 1912, OQMG Plan No. 122-F. Brick walls, slate roof. Two floors, no basement, 2550 sq. ft.



Fort Ward, WA, Building 2 Bldgs. 3 and 4, **Officer's Quarters,** 1910, OQMG Plan No. 120-K. Brick walls, slate roof. Two floors, no basements, 6536 sq. ft. Capacity: two lieutenants per building.



Fort Ward, WA, Building 3

Bldg. 5, **Quartermaster Stable**, 1911, OQMG Plan No. 54-F. Frame walls, slate roof. One floor and loft, no basement, 4800 sq. ft. Capacity: 19 animals, 200 bales of hay, 3600 lbs. of oats.

Bldg. 6, **Wagon Shed**, 1912, OQMG Plan No. 60-G. Frame walls, corrugated iron roof. One floor, no basement, 90'10" x 30'. Capacity: 7 wagons.



Fort Ward, WA, Building 5

Fort Ward, WA, Building 6

Bldg. 9, **Quartermaster Workshop**, 1912, OQMG Plan No, 59-P. Frame walls, slate roof. One floor, no basement, 74' x 30'. Capacity, 6 workmen.

Bldg. 10, **Oil House,** 1912, OQMG Plan No. 92-B. Corrugated iron walls and roof. One floor, no basement. Capacity: 10,000 gallons of oil.



Fort Ward, WA, Building 9

Fort Ward, WA, Building 10

Bldg. 10-A, **Service Club**, 1922, no plan number. Weather board and plaster board walls, shingle roof. Two floors, no basement, 2922 sq. ft. Capacity: 200 men.



Fort Ward, WA, Building 10-A

Bldg. 11, Post Exchange and Gymnasium, 1910, OQMG Plan No. 190. Brick walls, slate roof. One floor, no basement, 3230 sq. ft.



Fort Ward, WA, Building 11



Bldg. 12, C.A.C. Barracks, 1910, OQMG Plan No. 46-D. Frame walls, slate roof. Two floors, no basement, 12,688 sq. ft. Capacity: 109 men.



Fort Ward, WA, Building 12



Fort Ward barracks in 1980s

Bldg. 13, **Guard House**, 1912, OQMG Plan No. 30-L. Brick walls, slate roof. One floor, no basement, 1161 sq. ft. Capacity: 2 large cells, 3 secondary cells.



Fort Ward, WA, Building 13



Bldg. 14, **Fire Station**, 1912, OQMG Plan No. 98-H. Frame walls, slate roof. One floor, 44' x 25', no basement. Capacity: 2 fire trucks. In May 1913, an electric light and power plant was installed in a corner of this building and the designation was changed to "Fire Station and Power House."



Fort Ward, WA, Building 14

Bldg 14 in 2018

Bldg. 15, **Coal Shed**, 1911, OQMG Plan No. 67-J. Frame walls, tin roof. One floor, 110' x 21', no basement. Capacity: 600 tons of coal.



Fort Ward, WA, Building 15

Special Issue

Bldg. 16, **Quartermaster and Commissary Storehouse**, OQMG Plan No. 91-G. Brick walls, slate roof. Two floors, no basement, 9936 sq. ft. Capacity: 30,000 cubic ft.



Fort Ward, WA, Building 16

Bldg 16 in 2022, Bldg 15 behind

Bldg. 17, **Wharf,** 1911, plan by U.S. Engineers, Seattle. Wood walls, tin roofs on buildings. One floor, no basement, 13,736 sq. ft. Included wharf, storehouse, and 2 boathouses, as well as junction box launch No. 13, 41.5' x 17.5'.



Fort Ward, WA, Building 17

Bldgs. 18, 19, and 20, **N.C.O. Quarters**, 1910, OQMG Plan No. 82-L. Frame walls, slate roofs. Two floors, no basements, 1017 sq. ft. Capacity: two N.C.O.s per building.

Bldg. 21, **Firemen's Quarters,** 1910, OQMG Plan No. 230-C. Frame walls, slate roof. One floor, no basement, 2690 sq. ft. Capacity two firemen.



Fort Ward, WA, Building 18

Fort Ward, WA, Building 21

Bldg. 23, **Water Tank**, date unknown, no plan number. Concrete walls and roof. 10' x 24'. Capacity: 30,000 gallons of water. Underground, no photo.

Bldg. 24, **Water Tank,** date unknown, no plan number. Concrete walls and roof. 6' x 10'. Capacity: 5000 gallons of water. Underground, no photo.

Bldg. 25, **Water Tank**, date unknown, no plan number. Concrete walls, concrete roof covered with sod. 37' x 12'. Capacity: 100,000 gallons of water. Underground, no photo.

Bldg. 27, **Bakery**, 1910, OQMG Plan No. 217. Brick walls, slate roof. One floor, no basement, 1914 sq. ft.



Fort Ward, WA, Building 27

Fort Ward Bakery, 2022

Bldg. 28, Flagstaff, 1912, no plan number. Iron flagstaff with concrete base. Capacity: 75' high.



Bldg. 29, **Quartermaster Corps Detachment Quarters**, 1915, no plan number. Frame walls, slate roof. One floor, no basement, 931 sq. ft. Capacity: 12 men. Constructing quartermaster authorized use for Q.M.C. detachment in 1915.



Bldg. 30, **Picket Guard House**, 1916, no plan number. Frame walls, slate roof. One floor, no basement, 168 sq. ft.



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Bldg. 31, **N.C.O. Quarters**, date unknown, no plan number. Existing farmhouse. Wood walls, shingle roof. One floor, no basement, 891 sq. ft. Capacity: one N.C.O.



Bldg. T-9, **Guard House**, 1908, no plan number. Wood walls, shingle roof. One floor, no basement, 100 sq. ft. Capacity: one cell. Converted to quarters for crew of steamer *Gurney*. No photo.

Bldg. T-10, **Detachment Quarters**, 1905, no plan number. Wood walls, shingle roof. One floor, no basement, 969 sq. ft. Capacity: 26 men. Converted to Amusement Hall. 19,200 cubic ft. No photo.





The Fort Ward Bakery in 2022. Extensively remodeled by the Navy in the 1940s, it has been restored to its original exterior condition for use as a community center in 2020-2022.







Restored porch overhang and doors









restored windows., doors and light fixtures

