2986

Diag. Cht. No. 6460-1

Department of Commerce and Labor

COAST AND GEODETIC SURVEY

O. H. Tittmann

Superintendent.

State: Washington

DESCRIPTIVE REPORT.

Hyd *Sheet No.* 2986

LOCALITY:

Commencement Bay

1909

CHIEF OF PARTY:

J. S. Engle

2986

Descriptive Report to accompany Hydrographic Sheet

Commencement Bay and Tacoma Harbor.

This sheet shows the Hydrography in connection with the resurvey of the Tacoma water-front, and is plotted to a scale of 1:10000. Sounding lines approximately 50 meters apart, were run-in normal to the wharf face and shore line to the 20 fathom curve, crossing a few lines parallel to the shore.

Commencement Bay, a broad deep harbor, is 4 miles across the entrance between Browns Pt. and Pt.Defiance. The average distance between the northern and southern shores is two miles, and from the tide flats at the head of the bay to the entrance is about two and half miles. Across the entrance the average depth is 85 fathoms, and the water is deep up to a short distance off the wharves of the city. Mud flats, bare at low water, extend across the head of the bay from north to south, and inland for a distance of 3/4 miles to swampy ground. Hylebos and Wapato creeks and the Pyallup river empty into the bay thru these mud flats. There is a small channel of Hybebos creek cutting the flats, but this is bare at extreme tides. The mouth of the Pyallup river is now being dredged to a depth of 31 feet below mean lower low water. This work is under the supervision of the U.S.Army Engineers.

North-east of the Pyallup river, are two freight docks of the Chicago, Milwaukee and Puget Sound R.R. The slip between these two docks is to be dredged to 38 feet below mean lower low water (or 35 feet below U.S.Army Engineers' datum plane). On the south-west side of the Pyallup River is an area, partly

filled in, belonging to the Tacoma Eastern R.R. South-west of this land is the St.Paul & Tacoma Lumber Co's. wharf, and beyond is a filled-in area extending to the city waterway and belonging to the Northern Pacific R.R. On both sides of the St.Paul wharf, there is an undredged waterway bare at low water. The beach off the Northern Pacific filled-land, is course sand with a gradual slope, and is used for beaching tugs and launches to overhaul and paint their hulls.

The City Waterway, is a dredged channel, 200 meters wide, extending about a mile in a E.S.E. direction. It is crossed by the 11th Street bridge 730 meters from the entrance; and between this bridge and the Railroad bridge, both shores are lined with boat houses. There are several sawmills above the railroad bridge, and log rafts are towed up to them by large tugs. The large tank steamers of the Standard Oil Co. go up the waterway to the Standard Oil dock, which is just north of the railroad bridge on the east side. There is a small waterway which is almost bare at low water, entering this channel from the east alongside of the Standard Oil Co's. wharf. Between the Railroad and 11th Street bridges, the bottom is almost uniform at a depth of 3½ fathoms, and from the 11th Street bridge to the entrance the depth is 5 fathoms. On the western side of the city waterway from the 11th Street bridge to the entrance, there is a long grain dock and warehouses, owned in sections by the following dock companies, in order: the Northwestern, the London, Balfour, Eureka, and the Commercial; the Northwestern section is leased to the Alaska Pacific Dock Co., and

to the U.S.Quartermasters Dept. At the entrance to the waterway is a Northern Pacific Coal bunker, seldom used except for storage of coal. A depth of 30 feet can be carried to these docks at low water.

The next dock on the water-front is 675 meters long. The first section is occupied by the Northern Pacific freight houses, and is also used by Seattle, Olympia, and local steamers On the farther section, know as the Oriential Dock, is the U.S. Bonded warehouse. There is a U.S.Custom Office in this warehouse. A sounding line run 5 meters off the face of this dock and corresponding to the keel of large steamers, gave a least depth of 5 fathoms and soft bottom. The 20 fathom curve was found to be 100 meters off this dock.

Adjacent to the northern end of the Oriental Dock, is the Northern Pacific Coal Bunker and wharf. This is a gravity bunker of 4000 tons capacity, with chutes for coaling ships. Across the railroad tracks there is a larger bunker built into the steep bank, which runs along this shore. This bunker has a capacity of 18000 tons, and an endless chain conveyor, travelling in a tunnel under the tracks, carries the coal to a loading chute on the next wharf to the northward. Off these wharves, the bottom runs off into deep water very quickly, the 20 fathom curve being 60 meters off. Along the face of the wharves there is 5 to 6 fathoms.

Three flour mills come next along the water-front, these are, in order: (1) the Tacoma Grain Co., whose buildings consists of a grain elevator with a storage capacity of 500,000 bushels, and a flour mill, capacity 4000 barrels a day; (2)

The Sperry mills, consisting of a flour mill, capacity 2500 barrels and an elevator with 700,000 bushels storage capacity; (3) the Puget Sound Flour Mill. There are two small T- shaped wharves off the two former mills, with over-head loading trams from the elevators. The warehouse of the last mill, is on the dock in the front of the mill. It is 250 meters long and, at the north-east end, the warehouse is two stories high and equipped with grain chutes for loading vessels.

The wharf north-west of the grain dock, is the Tacoma Lumber wharf, with a slip between the two wharves about 100 meters wide; this slip is used to store logs, and at times the log rafts extend to a distance of a 100 meters off the south-eastern corner of the lumber wharf. A mooring buoy planted by the Lumber Co. is located 140 meters off the south-eastern corner of this wharf and is anchored in 18 fathoms.

The next dock, 200 meters from the northern end of the lumber wharf, is a small dock used by local steamers. This section of Tacoma is known as Old Town. In the next half mile of the shore line there are three sawmills with wharves. Scattered piling and log rafts, moored on either side of the each wharf, made it impossible in many places to approach within meters of the beach. The depth of the water off the face of the wharves is 1½ fathoms.

To the westward for 1400 meters, the railroad trestle of the Chicago, Milwaukee & Puget Sound R.R. is in progress of construction. There is also to be a public roadway on this trestle also and it will move the waterfront line out from 50 to 75 meters. A freight ferry slip is to be put in opposite the

end of 43rd Street, and switch yards will extend inshore between 43rd and 41st streets. Along the line of this trestle the bottom is hard sand, baring at low water to a distance of 60 meters from the high water mark, and then sloping to the 20 fathom curve which is meters from the low water line.

At the western end of the trestle is the wharf of the Defiance Lumber Co., and along the face of this wharf the depth is 3¾ fathoms. The North End Lumber Co's. wharf is 300 meters further along. There is a line of piling between these two wharves and log rafts occupy the space between this piling and the beach, so that no soundings could be taken there. At the face of the latter wharf there is 4 fathoms, and the 20 fathom curve is, in general, parallel to the shore line at a distance of meters off.

Adjoining the North End Lumber Co's wharf are the wharves of the Tacoma Smelter. This company is dumping slag from its furnaces along the waterfront between the limits of its property lines, to extend the available area out to the harbor line, and is thus making a firm foundation for future construction. At the face of the wharves there is 4 fathoms, the bottom is soft and runs out to a distance of meters before reaching a depth of 20 fathoms.

To show any changes that might have occured since the last survey, soundings were taken on the north shore of the bay from the Gawley Mill to the tide flats. Off this shore the slope of the bottom is more gradual than it is off the opposite shore, the 20 fathom curve following the shore line at a distance of meters, until reaching the western limit of this

sheet, where it changes direction to run towards the beach for meters. Along the face of the mill wharf, the depth is 4 fathoms.

The best anchorgae is in the north-east section of the bay, in 16 to 20 fathoms with soft bottom. The head of the bay, off the tide flats, is also used, the ships anchoring in 25 to 30 fathoms and sandy bottom. Elsewhere, the harbor, though well protected from the prevailing winds, is too deep to afford good anchorage. Throughout the resurvey of the water-front, no currents were observed that would influence the navigation of vessels.

The City has provided two mooring buoys about 450 meters off the Northern Pacific freight dock; there is a buoy 250 meters off the coal bunkers, and three more off the saw mills at Old Town. The City buoys are anchored in the following manner:

Buoy No.1 has two 10,000 lb.mushroom anchors. The off-shore anchor, acting as a drag, is connected with the inner anchor by 15 fathoms of double chain. From the inner anchor, a cable is lead ashore and made fast to a dead-man, buried in the seawall. The buoy is made fast to the inner anchor, and the depth of the water is fathoms. Buoy No.2 is made fast in a similar manner except that the second anchor is a 5,000 Lb. long shank anchor. The depth of water at this buoy is fathoms. The Buoys off the sawmills are secured by two anchors each, and a chain leading to shore. The depth of water at these buoys is and fathoms respectfully.

On entering the bay, the most conspicious land mark is the Smelter chimney, reaching to a height of 300 feet above the sea level. The smoke, which rises from it continually, can be seen very often when the stack itself is obscured by a low haze. Browns Point light station, on the starboard hand, is on the western extremity of Browns Point, the light is a fixed white lens lantern, 20 feet above the sea level, and is visible from points in the Sound and Bay to the westward of S.x W.1/4 W. and N.x W.7/8 W.

After rounding Browns Point, the tower of the Court House is a prominent feature on the skyline of Tacoma about 2-1/2 miles southerly, and at night the illuminated tower of the City Hall is easily distinguished. The tower is lighted until 11:00PM.

In addition to the soundings taken out ~~of~~ to the 20-fathom curve, a number of lines were run over the charted location of a sunken wreck, shown in 30 fathoms N.E. of St.Paul wharf. Except for a very few, the soundings were "no bottom" soundings at 27 fathoms, the length of the leadline ~~being~~ used. Nothing was found that would indicate that any portion of the wreck extended to a depth of less than that amount.

The Hydrographic work was done in a whaleboat and in a steam cutter. Signals were erected along the shoreline, on the end of wharves,etc., cut in by the Officer running the topographic survey, and then plotted directly on the hydrographic sheet. A number of signals were located by the sounding party, by cutting positions in with sextants, or by tape measurements to some definite object, and at once plotted on the boat sheet. Tidal observations for reduction of soundings, were made

on a plane staff at Gawley Foundery wharf, in the waterway at 11th Street bridge.

F G Engle Aid,
In charge of Hydrographic Party.

Approved,
R B Brown
Chief of Party, C.& G.Survey.

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Hydrographic Sheet

of

Commencement Bay,

Washington.

Scale 1:10000

Note:

Soundings were taken off docks, wharves, tideflats and beach, to the twenty fathom curve.

On the South Shore (Tacoma Waterfront) From the Northern Pacific R.R.Bridge, City Waterway, to the Smelter Dock; on the North shore, from the Tide flats to the G awley Mill, and off the tide flats at head of Bay, between North and South Shores. Also an examination with leadline of locality of sunken wreck, shown on chart No.6451.

By the Party of the U.S.S."Gedney"

March 10th, to March 26th, 1909.

(Sgd.) R.B.Deuchon

Asst., Comdg.

F.G.Engle Aid,

Aid

in charge of Sounding Party.

Statistics - Ste Eudney

Date 1909	Sht	Letter	Sdgs	Angles	Miles	Boat
Mar 10	1	a	406	204	4.5	Whaleboat
" 11	1	b	244	190	3.0	"
" 12	1	c	53	64	1.0	"
" 13	1	d	120	44	2.0	"
" 15	1-2	e	463	161	5.5	"
" 16	2	f	788	141	9.0	"
" 17	2-3	g	284	157	5.5	"
" 18	3	h	200	78	4.0	"
" 19	3	i	141	110	3.2	"
" 20	3	j	100	28	1.2	"
" 22	3	k	198	164	4.0	"
" 23	3	l	84	56	1.5	"
" 24	3-4	m	192	170	4.3	Launch #27
" 25	4	n	218	110	3.5	Whaleboat
" 26	4	o	387	142	5.6	Launch #27
Total	4		3878	1819	57.8	

Soundings expressed in feet

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The ground within the limits of this survey is well covered with the exception of a small area between Long 122°29' and 122°30'.

The records are clear and well kept.

H L Simons