SCHOONER
WAWONA
Seattle, Washington

BUILT IN
1897

by
HANS D. BENDIXSEN
at
Fairhaven, California

Built for the Dolbeer & Carson Lumber Company of San Francisco, the 468-ton schooner WAWONA was launched September 27, 1897 at the Fairhaven, California yards of shipbuilder Hans D. Bendixsen. Though the WAWONA was one of scores of ships built to ferry lumber on the Pacific Coast in the late 19th century, she is one of two known to survive intact in 1985. (The other, the C.A.THAYER, was also built by Bendixsen and is now berthed in San Francisco.) Bendixsen was one of many skilled west coast shipbuilders. He produced 113 sailing vessels between 1869 and 1901, and his yard was well-known for its sturdy ships.

The WAWONA was constructed using a scale wooden half-model of the hull, not lines of the type presented here. Two sets of lines are contained in this drawing series, showing the WAWONA first as she was in 1985, and then as she probably was when built in 1897.

WAWONA's type was characterized by a single main deck and a large hold, which could easily be loaded through large deck hatches and two ports in the stern. She could carry well over her own weight in cargo, over half that load above deck. The sails and rigging were designed to permit easy maneuvering in small ports by her crew of 6 to 10 men.

The WAWONA sailed for Dolbeer & Carson until 1914, when she was sold to Robinson Fisheries of Anacortes, Washington. She then served as a "mother" ship for cod-fishing dories in the Bering Sea until the outbreak of World War II. At this time, her rigging and masts were removed, and she was used as a barge by the armed services until 1945. Following the war, she returned to a fishing industry where the "old methods" had become increasingly obsolescent, and she made her last commercial voyage in 1947. Several proposals to use her for passenger voyages and cattle transport were never realized, and in 1964 she was purchased for preservation by Save Our Ships of Seattle, Washington. She has been the subject of several successful partial restoration efforts, but at the time of this project, she was suffering from significant decay in her frames and hull planking above the water line. Northwest Seaport, Inc., her present owner, plans to mount a 2-million dollar restoration project to return her to sound condition.

This lines-lifting project was co-sponsored by the National Trust for Historic Preservation, the Washington State Office of Archeology and Historic Preservation, Northwest Seaport, Inc., the Lake Union Dry Dock Company (LUDDCo), and the Historic American Engineering Record (HAER) of the National Park Service, U.S. Department of the Interior. The project is an outgrowth of an increasing local and national interest in preserving large historic ships, and it is the first lines-lifting project in which HAER has participated. Using grants from the Washington State Office of Archeology and Historic Preservation, the Bullitt Foundation, the Seattle Foundation, Pacific Northwest Bell, Bayless Bindery and Safeco Insurance Company, the WAWONA was drydocked in October, 1985, at LUDDCo in Seattle where her hull contours were recorded by a combination of traditional surveying and hand-measurement techniques. The project costs totalled nearly $40,000.

The principal design team for the lines-lifting project included Fred J. Fischer, Jack Kutz, Jay W. Spearman, Gordon C. Snyder, Tom E. Sandry, Hobie Stebbins II, Jerry Rich, Jacob Thomas, and Mary Stiles Kline, all of the Seattle area. Richard K. Anderson, Jr., HAER Staff Architect, and Jet Lowe, HAER Staff Photographer, (both from the HAER Office in Washington, D.C.) produced final reports, the lines drawings, and the large format photographs.

Very able assistance was provided by a team of volunteers who participated in the field measurements at the shipyard: Garrett Eddy, Lee H. Ehrheart, Bruce L. Keefauver, Peter Mattson, Leon A. McIntyre, Roger Sanders, Stephen E. Sandry, Esther Schmall, Capt. David A. Webb, Ken R. Wheeler, and Adrian Winquist, all of the Seattle region. Dick M. Anderson and Loren Herrigstad provided additional photos.

Principal organizers of the project were Katherine M. Bullitt and Mary Stiles Kline (Northwest Seaport), Lynn A. Hickerson and Peter Neill (National Trust), Robert J. Kapsch (Chief, HAER) and Sally K. Tompkins (Deputy Chief, HAER) in cooperation with Jacob Thomas (Washington State Historic Preservation Officer) and Hobie Stebbins II, (President, Lake Union Dry Dock Company, Seattle). This project was the result of extensive cooperation among federal, state, and other public agencies, private foundations, in-kind contributors, and volunteers through the auspices of Northwest Seaport and the National Trust for Historic Preservation.

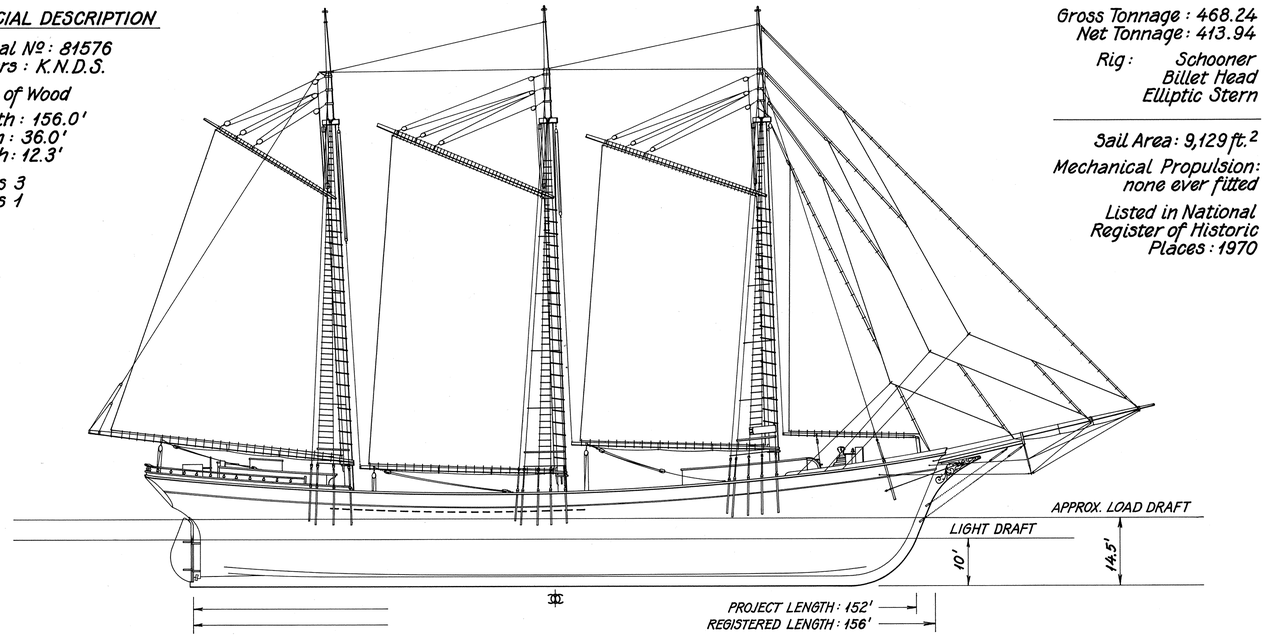
OFFICIAL DESCRIPTION

Official Nº: 81576
Letters: K.N.D.S.

Built of Wood

Length: 156.0'
Beam: 36.0'
Depth: 12.3'

Masts 3
Decks 1

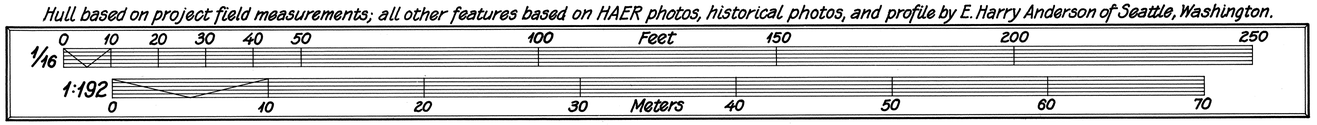


Gross Tonnage: 468.24
Net Tonnage: 413.94
Rig: Schooner
Billet Head
Elliptic Stern

Sail Area: 9,129 ft.²
Mechanical Propulsion: none ever fitted

Listed in National Register of Historic Places: 1970

Hull based on project field measurements; all other features based on HAER photos, historical photos, and profile by E. Harry Anderson of Seattle, Washington.



DELINEATED BY: Richard K. Anderson, Jr., 1986. Note: Cartouches flanking the title were devised by the delineator, not taken from the WAWONA.

WAWONA LINES-LIFTING PROJECT
HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

SCHOONER "WAWONA" (1897)
1018 VALLEY STREET
KING COUNTY
SEATTLE
WASHINGTON

SHEET 1 OF 7

HISTORIC AMERICAN ENGINEERING RECORD
WA-14

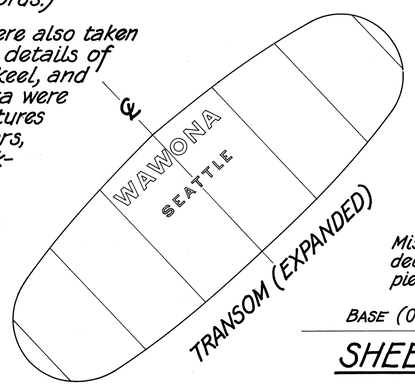
H.E

IF REPRODUCED, PLEASE CREDIT: HISTORIC AMERICAN ENGINEERING RECORD, NATIONAL PARK SERVICE, NAME OF DELINEATOR, DATE OF THE DRAWING

1985

NOTES

1. This drawing shows the hull contours or "lines" of WAWONA as measured in 1985. These lines define the outer surfaces of the keel, hull planking, bulwarks, and the top surface of the main deck planking.
2. Data for plotting WAWONA's lines were "lifted" in a drydock. Thirteen complete sections (port and starboard sides) of the ship were measured at intervals of roughly 12 feet along her keel. In addition, the profiles of the keel, outer rabbet line, bead, and bulwark cap were taken, along with bevels of the garboard plank and profiles of the bow and transom. An accuracy of ±⅛ inch was attempted, and all sections were plotted on site to verify measurements. A Body Plan composed of these field sections is presented on Sheet 4. (A detailed summary of the project's field procedures is contained in the field notes.)
3. Water lines and buttocks were produced by "fairing in" points between these sections which lay in planes parallel to the base plane or to the vertical centerline plane of the ship. All sections were tilted 1 inch in 24 feet to port before plotting lines to compensate for a slight list of the ship with respect to the reference planes set up in the drydock. Both port and starboard sides were plotted to check the hull's symmetry, however, only the starboard buttocks are shown here due to the port side's great similarity. (The port side plot is filed with the project field records.)
4. Measurements were also taken of construction details of WAWONA's bow, keel, and stern, but no data were recorded for features such as scuppers, chainplates, deckhouses, etc. The weather canopy temporarily erected over the main deck was neither measured nor drawn. (see HAER photos for more details).



(continued on Sheet 3)

Field Stations ➡ (see Note 2 below; see Sheet 4 for Body Plan)

1 — 12'-1" — 2 — 12'-0" — 3 — 11'-10" — 4 — 12'-2" — 5 — 12'-0" — 6 — 12'-0" — 7

DIAGONAL C

DIAGONAL B

DIAGONAL A

16'-0" W.L.
14'-0" W.L.
12'-0" W.L.
10'-0" W.L.
8'-6" W.L.
7'-0" W.L.
5'-6" W.L.
4'-0" W.L.

Transom

℄

Outer Rabbet Lines

12'-0" Buttock
8'-0" Buttock
4'-0" Buttock
4'-0" Water Line

MATCH LINE - SEE SHEET 3

Extreme Beam 36'-3½"±¾" (11.06 M ±0.02)

8'-6" W.L.
7'-0" W.L.
5'-6" W.L.
4'-0" W.L.

10'-0" W.L. Sheer 16'-0" W.L. 12'-0" W.L.

NOTE: 14'-0" W.L. not shown between Stations 3 and 10

HALF-BREADTH PLAN

Overall Length 166'-1½" ±1½" (50.63 M ±0.04)

Cabins not shown

Taffrail
Mizzen Mast
Bulwark Cap
Bulwark
Top of Deck at ℄
Bead
16'-0" Water Line
14'-0" W.L.
Port Sheer (dashed)
Starboard Sheer (solid)
12'-0" W.L.
10'-0" W.L.
8'-6" W.L.
7'-0" W.L.
5'-6" W.L.
4'-0" W.L.
Floating Water Line (Averaged Port and St'b'd)
Depth amidships 13'-8½"±¾" (4.18 M ±0.02)
Rudder
Sternpost
Deadwood
Missing or decayed pieces
Garboard Plank
Outer Rabbet Line
Worm Shoe
Base (0'-0" Water Line)

SEE SHEET 3

MATCH LINE

10" Hog, true (corrected for base line misalignment; see Note 5)

SHEER PLAN

1 — 2 — 3 — 4 — 5 — 6 — 7

152'-2" ±1½" 46.38 M ±0.04
Length at 1985 Floating Water Line

0 10 20 30 40 50 60 70 80 Feet
1/4"=1'-0"
0 5 10 15 20 Meters

DELINEATED BY: Richard K. Anderson, Jr., 1986.

WAWONA LINES-LIFTING PROJECT
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NATIONAL PARK SERVICE
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SCHOONER "WAWONA" (1897)
1018 VALLEY STREET
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SHEET 2 OF 7

HISTORIC AMERICAN ENGINEERING RECORD
WA-14

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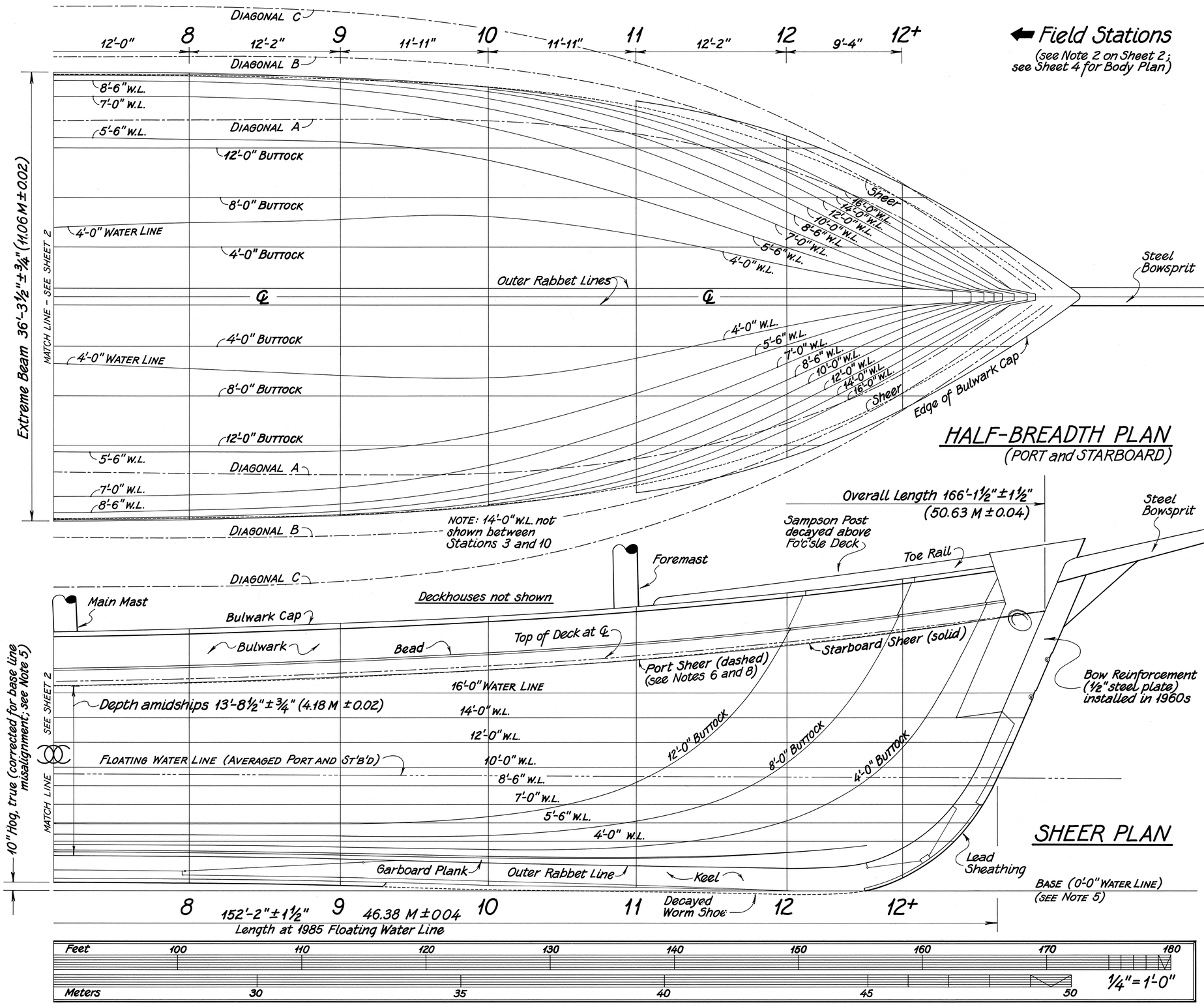

← Field Stations
(see Note 2 on Sheet 2; see Sheet 4 for Body Plan)

1985

HALF-BREADTH PLAN
(PORT and STARBOARD)

SHEER PLAN

(Notes continued from Sheet 2)

5. The base line (plane) used in this drawing was set in the drydock prior to WAWONA's hauling. The ship's partially decayed worm shoe resulted in a slight vertical misalignment with respect to the base plane when the ship settled evenly over the drydock keel blocks. As a result, the base line does not contact the extremes of the hogged keel as originally intended.
6. A "sheer line" is defined in this drawing as the intersection of the external hull surface and the main deck surface (not the top of the covering board or waterway).

(Jib Boom not shown)

7. The floating water line shown here is the average between port and starboard freeboards taken at Stations 4, 8, and 11. At the time, WAWONA was without sails, spars, running rigging, anchors, etc. She also had a list to port of about 1 degree, and a draft about 1 foot deeper at the stern than at the bow.
8. Maximum hog in WAWONA's keel measured 10". The 1"+ upward deflection of the deck beams amidships indicates that the hogging had done very little to distort the body sections of the hull. When superimposed, port and starboard sheer lines indicate slight twists in the hull (the difference between lines is less than 1½").
9. Details such as scuppers, chainplates, deckhouses, and other features have been omitted for clarity.
10. Accuracy: while the accuracy of most field measurements is estimated to be ± ⅛", plots inevitably introduce larger errors due to the smaller scale of drawings and the fairing of lines. Estimated accuracy of drawing (in scale inches: ± ¾" for beam and depth; ± 1½" for length; ± 2" for lean intersections of lines (less than 15 degrees).

DELINEATED BY: Richard K. Anderson, Jr., 1986.

WAWONA LINES-LIFTING PROJECT
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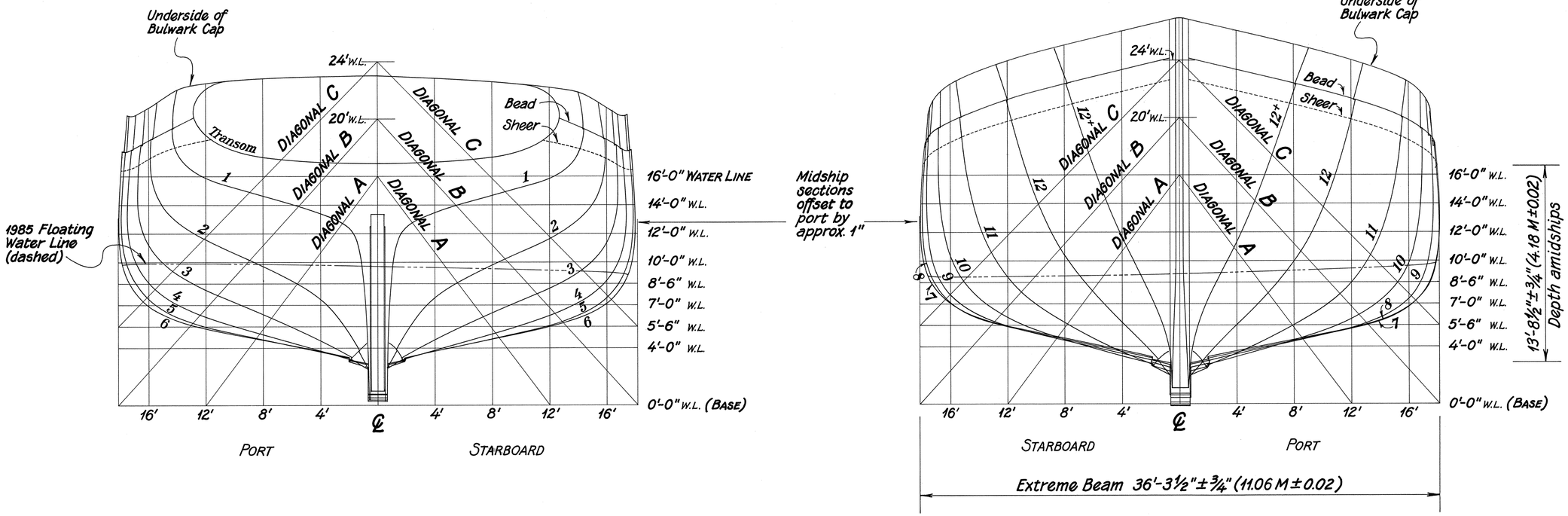
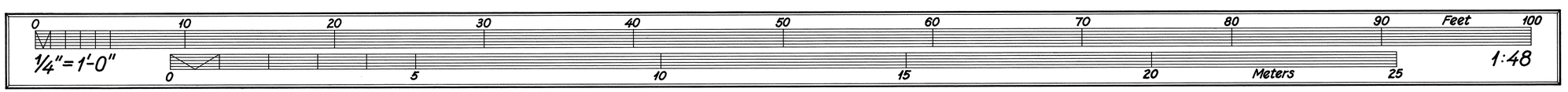
1985

NOTE: a Table of Offsets is not provided for 1985 conditions. See Sheet 6 for Table of Offsets for probable 1897 (original) conditions.



Field Stations 1-6 — BODY PLAN — Field Stations 7-12+



1. These body plans are plotted directly from field measurements of sections taken in 1985 at field stations 1 to 12+. Port and starboard sides are both shown as a check for symmetry.
2. All sections and the base plane were tilted to port 1 inch in 24 feet for the Body Plans in order to compensate for a slight list of the ship with respect to the reference planes used in the drydock. The sections were "pivoted" at the intersection of the base plane and the ship's centerline plane.
3. The base plane shown does not contact the extremes of the hogged keel as intended prior to WAWONA's hauling. The ship's partially decayed worm shoe resulted in a slight vertical misalignment with respect to the base plane when the ship settled evenly over the drydock keel blocks.
4. A "sheer line" is defined in this drawing as the intersection of the external hull surface and the main deck surface (not the top of the covering board, or waterway).
5. Maximum camber of the main deck is 4½"±¼" at (1985) Station 6. Deck beams amidships show a 1"+ upward deflection, an indication that only very slight changes in the body shapes resulted from the hogging.
6. The hog in WAWONA's keel measured 10" (0.25 M) maximum. For views of hull, keel, and keel hog, see HAER photos WA-14-23 and WA-14-27.
7. Accuracy (in scale inches) ± ¾" in beam and depth.

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SCHOONER "WAWONA" (1897)
1018 VALLEY STREET
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SEATTLE
DELINEATED BY: Richard K. Anderson, Jr., 1986.
WAWONA LINES-LIFTING PROJECT
HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR
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1897

NOTES

1. This lines drawing depicts WAWONA after an "on paper" removal of all hull distortions present in 1985. Hogging and twisting (whether due to age or construction error) were corrected in the belief that WAWONA's builder intended her to be constructed with a straight keel and symmetrical frames. It is believed that the lines at right closely represent the 1897 originals.

2. In "straightening out" the hull, it was assumed that the shape of the body plan sections had remained nearly unchanged since WAWONA's construction due to the exceptionally good condition of the hull below the water line and the intact 9" ceiling from the turn of the bilge to the clamp stringer. Only very slight changes in the section shapes due to hogging forces (as transmitted through the centerline stanchions) are indicated by an upward 1"± deflection of the deck beams. The 1897 sheer line thus has about 12" more spring than the 1985 sheer line.

3. In plotting the "original" buttocks and water lines, tangents were drawn to the hogged keel on the existing condition drawings at points where the 1985 field section planes intersected the keel. The angle between the tangent and section plane at each station was maintained when the ship's lines were redrawn with the keel straightened out. (Tangents were estimated by eye, not plotted mathematically.) Copies of these interim plots are contained in the project field records for reference.

4. Buttocks and water lines between field stations 3 and 10 were replotted with field sections tilted to port 1 inch in 16 feet. This usually produced symmetrical sections and the most correlation (port and starboard) between lines. Lines at other stations were plotted with the sections tilted only as far as necessary to achieve these same results. Only the starboard lines are shown since symmetry is assumed.

5. The base line (plane) used in this drawing is set at the bottom of the worm shoe and corresponds with existing draft marks on the hull. Water lines shown are relative to this base line, not the field base line or water lines used in the existing condition drawings (1985) on Sheets 2 to 4.

(continued on Sheet 6)

Stations ➡ 0 ½ 1 1½ 2 3 4 5

(15.20 ft. station spacing; see Note 10 on Sheet 6; see Sheet 7 for Body Plan)

DECK PLAN

Bulwark Cap

℄ ℄ Mizzen Mast Outer Rabbet Line ℄

4'-0" W.L. 5'-6" W.L. 7'-0" W.L. 8'-6" W.L. 10'-0" W.L. 12'-0" W.L. 14'-0" W.L. 16'-0" W.L. Sheer

4'-0" Buttock 8'-0" Buttock 12'-0" Buttock DIAGONAL A DIAGONAL B DIAGONAL C

4'-0" Water Line 5'-6" W.L. 7'-0" W.L. 8'-6" W.L. 10'-0" W.L. 12'-0" W.L. 16'-0" W.L. and Sheer (dashed)

NOTE: 14'-0" W.L. not shown between Stations 3 and 7

MATCH LINE - SEE SHEET 6

Extreme Beam 36'-3½" ± ¾" (11.06 M ± 0.02)

HALF-BREADTH PLAN

Overall Length 165'-6" ± 1½" (50.44 M ± 0.04)

Gabins not shown

Taffrail Bulwark Cap Top of Deck at ℄ Bead Bulwark Sheer (see Note 7)

16'-0" Water Line 14'-0" W.L. 12'-0" W.L. 10'-0" W.L. 8'-6" W.L. 7'-0" W.L. 5'-6" W.L. 4'-0" W.L.

12'-0" Buttock 8'-0" Buttock 4'-0" Buttock

Probable original light water line (see Note 8)

Depth amidships 13'-8" ± ¾" (4.17 M ± 0.02)

SEE SHEET 5 MATCH LINE

Rudder Sternpost (see Note 6) Deadwood Outer Rabbet Line Keel Garboard Plank

℄ 12'-0" B. 8'-0" B. 4'-0" Buttock TRANSOM (EXPANDED)

BASE (0'-0" WATER LINE)

SHEER PLAN

0 ½ 1 1½ 2 3 4 5 Worm Shoe

A.P. (AFT PERPENDICULAR) 152'-0" ± 1½" 46.33 M ± 0.04 Length at Probable Original Light Water Line

0 10 20 30 40 50 60 70 80 Feet

¼" = 1'-0"

0 5 10 15 20 Meters

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WAWONA LINES-LIFTING PROJECT
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SCHOONER "WAWONA" (1897)
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SHEET 5 OF 7

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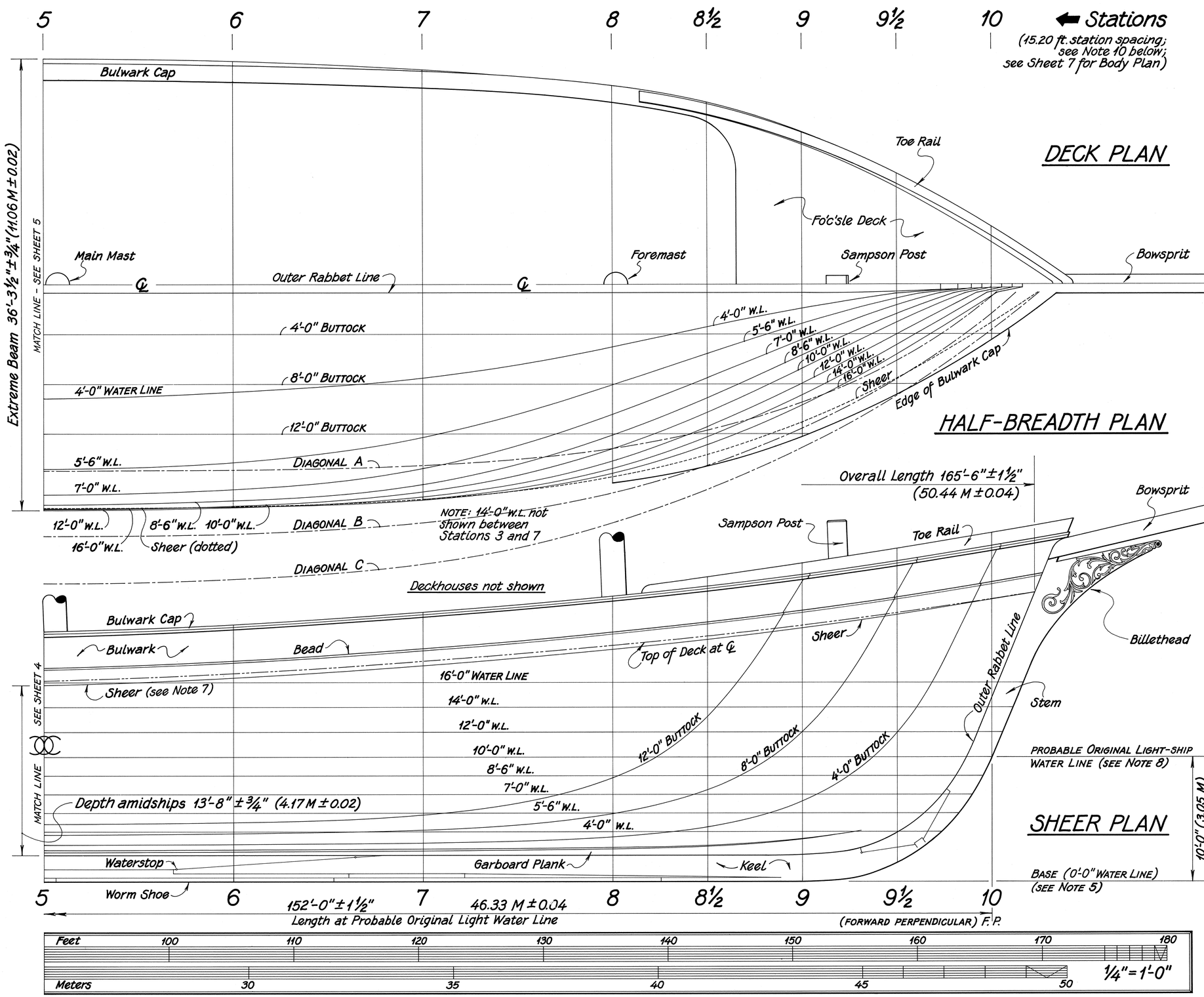
1897



(Notes continued from Sheet 5)

6. The sternpost was assumed to have been constructed square to the keel and to have remained square up to 1985.
7. A "sheer line" is defined in this drawing as the intersection of the external hull surface and the main deck surface (not the top of the covering board, or waterway).
8. The original light water line was assumed to be at the 10-foot water line (with the ship fully rigged). This lies very near the present floating water line (the ship being without sails, spars, running rigging, anchors, etc.).
9. WAWONA's length at the 10-foot water line in this drawing (152'-0", 46.33 M) was rounded to the nearest 3-inch interval, due to possible errors introduced by "reversing" the present hog.
10. Eleven new principal stations were established at ten equally spaced intervals (15.20 ft., 4.63 M) along the 10-foot water line to facilitate displacement calculations and other studies. Four half-stations were added to better define the hull at the bow and stern. A Body Plan based on these new stations appears on Sheet 7, accompanied by a Table of Offsets.
11. Bowsprit and stem-billet details were based on: (1) historical photographs published in Pacific Schooner WAWONA (Bellevue, Washington; 1985) by Harriet Tracy DeLong; (2) photograph taken of billethead in 1941 and maintained in photo collection of Northwest Seaport, Inc., Seattle, Washington.
12. Details such as scuppers, chainplates, deckhouses, and other features have been omitted for clarity.
13. Estimated accuracy of drawing (in scale inches): ± ¾" for beam and depth; ± 1½" for length; ± 2" for lean intersections of lines (less than 15 degrees).

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HISTORIC AMERICAN ENGINEERING RECORD
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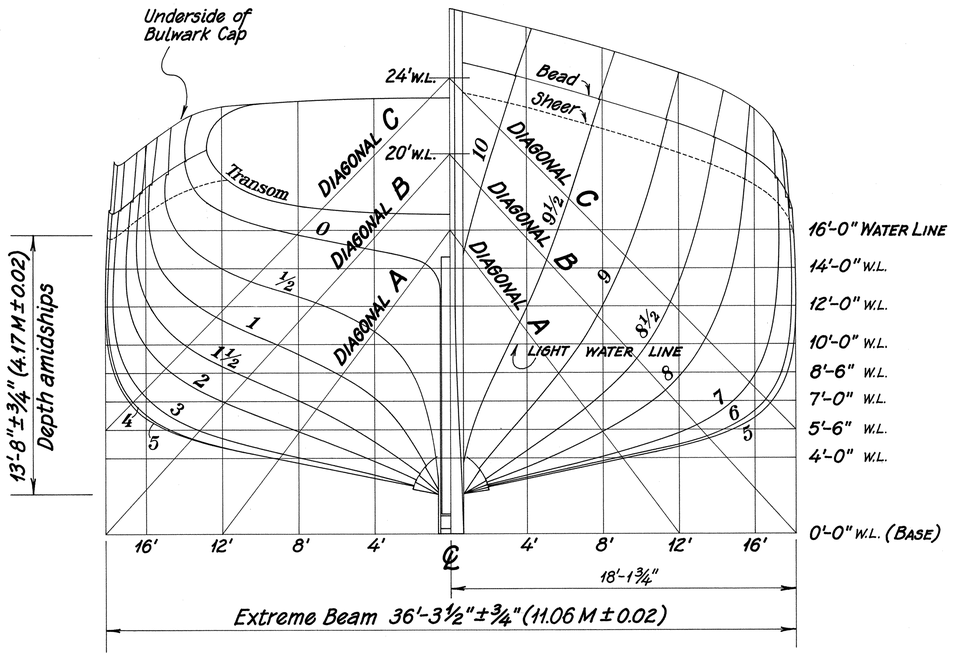
TABLE OF OFFSETS

ALL DIMENSIONS BELOW ARE GIVEN IN FEET, INCHES, AND EIGHTHS OF AN INCH
(See Notes 1 and 2)

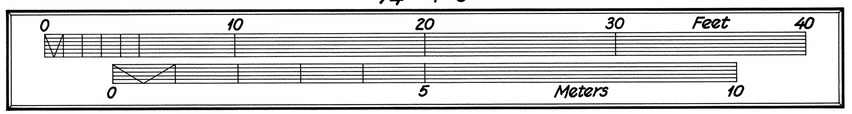
		STATIONS															
		0	½	1	1½	2	3	4	5	6	7	8	8½	9	9½	10
HEIGHTS ABOVE BASE	UNDERSIDE BUL. CAP	22-0-4	21-4-6	20-10-6	20-5-6	20-1-0	19-7-0	19-5-0	19-7-2	20-2-4	21-2-6	22-5-6	23-3-4	24-2-6	25-4-2	26-6-6
	SHEER	18-2-4	17-6-2	16-11-4	16-6-6	16-2-2	15-8-2	15-6-4	15-8-4	16-5-2	17-3-6	18-7-4	19-5-2	20-4-0	21-5-4	22-8-0
	16' BUTT.				12-5-0	9-10-6	7-2-4	6-3-2	6-1-0	6-6-0	8-4-2					
	12' BUTT.	17-0-0	14-0-0	11-3-2	8-10-0	7-0-2	5-0-4	4-6-6	4-6-4	4-8-4	5-3-6	8-3-2	13-2-6	24-1-6		
	8' BUTT.	15-9-0	12-6-0	9-5-4	7-0-4	5-4-4	4-0-2	3-9-0	3-9-0	3-10-2	4-1-0	5-4-4	7-4-4	12-0-4	23-4-0	
	4' BUTT.	14-11-2	10-8-0	7-1-6	4-10-0	3-9-6	3-1-2	2-11-0	2-11-0	2-11-4	3-1-0	3-6-2	4-4-6	6-5-0	11-11-0	25-9-0
	RABBET		2-11-0	2-4-4	2-2-0	2-1-6	←				→	2-1-6	2-2-0	2-2-2	3-11-6	14-9-4
HALF-BREADTHS	BUL. CAP	13-6-4	14-7-4	15-4-2	15-11-0	16-5-2	17-1-0	17-5-4	17-7-4	17-5-2	17-0-0	15-9-2	14-4-6	12-0-4	8-7-6	4-3-4
	SHEER	13-5-4	14-11-4	15-10-0	16-5-0	16-10-6	17-6-4	17-10-4	18-0-4	17-6-6	17-3-0	15-6-0	13-8-2	11-0-6	7-5-2	3-0-4
	26' W.L.															4-1-2
	24' W.L.													11-11-4	8-2-4	3-5-2
	22' W.L.	13-7-2										15-8-2	14-1-4	11-4-6	7-7-4	2-9-6
	20' W.L.	13-11-0	14-9-0	15-5-6	15-11-6	16-5-4				17-5-4	17-0-4	15-7-2	13-9-4	10-11-4	6-11-4	2-2-0
	18' W.L.	13-3-6	15-0-0	15-9-6	16-3-4	16-7-4	17-2-6	17-7-2	17-9-2	17-7-4	17-2-6	15-5-0	13-4-6	10-4-6	6-4-0	1-6-6
	16' W.L.	9-1-0	14-4-4	15-9-2	16-5-4	16-10-6	17-6-0	17-9-6	18-0-0	17-10-2	17-3-4	15-2-4	12-11-2	9-8-6	5-7-6	1-0-4
	14' W.L.	1-0-2	12-0-2	15-2-4	16-5-0	17-0-2	17-8-0	17-11-4	18-1-0	17-11-0	17-3-0	14-9-6	12-3-4	8-11-0	14-0-4	
	12' W.L.	0-6-4	6-7-0	13-2-4	15-9-2	16-10-4	17-8-4	18-0-0	18-1-6	17-11-0	17-1-0	14-2-4	11-5-4	7-11-4	4-0-2	
	10' W.L.	0-6-4	3-2-0	9-1-6	13-11-6	16-0-4	17-6-0	17-10-6	18-0-0	17-9-0	16-8-0	13-3-0	10-3-6	6-9-4	3-0-6	
	8'-6" W.L.	0-6-4	2-0-2	6-0-4	11-3-0	14-7-4	16-11-0	17-6-4	17-8-0	17-4-4	16-0-6	12-2-2	9-1-4	5-8-4	2-4-4	
	7' W.L.	0-6-4	1-5-0	3-9-4	7-11-0	12-0-0	15-9-0	16-8-4	16-10-6	16-6-0	14-10-2	10-7-0	7-6-4	4-6-0	1-8-2	
	5'-6" W.L.	0-6-4	1-0-4	2-5-4	5-0-2	8-3-0	13-3-4	14-8-6	14-10-6	14-4-2	12-5-0	8-2-0	5-7-0	3-2-4	1-1-6	
	4' W.L.	0-6-4	0-9-4	1-6-4	2-9-0	4-5-0	7-10-2	9-3-4	9-3-4	9-2-6	8-8-4	7-8-2	5-1-4	3-5-0	1-11-2	
	HALF-SIDING	0-6-4	0-8-0	←												0-8-0
DIAGONALS	A	2-2-2	6-8-0	9-7-0	11-9-0	13-3-0	14-8-6	15-0-4	15-0-4	14-11-2	14-7-4	13-3-2	11-9-0	9-5-4	6-0-6	1-3-0
	B	6-8-2	10-6-6	13-6-4	15-10-4	17-7-6	19-7-4	20-2-4	20-3-0	20-0-6	19-3-2	16-9-6	14-6-4	11-5-6	7-6-4	2-5-4
	C	11-6-4	14-11-4	17-7-0	19-9-0	21-4-2	23-1-6	23-10-0	23-11-6	23-8-2	22-5-4	19-2-0	16-6-2	13-1-4	8-10-4	3-8-6

1897



BODY PLAN

¼"=1'-0"



1. Example: 12-7-7 = 12'-7⅞"
2. Dimensions scaled from Body Plan to ± ¼ scale inch; Body Plan accurate to ± ¾ scale inch.
3. All offsets are to outside of side planking and top of deck planking.
4. The 10-foot water line was assumed to have been the original light water line.
5. Station spacing of 15.20' was produced by dividing WAWONA'S length at the 10-foot water line (152'-0" ± 1½") by 10. Four half-stations were added to better define the hull at the bow and stern.
6. In addition to the "1897" Half-breadth Plan (see Sheets 5 and 6), see intermediate sheer plan with buttocks at 1-foot intervals was used to plot this Body Plan, thus enabling greater accuracy than might have been achieved using buttocks on 4-foot intervals. (This intermediate sheer plan was also the base for the "1897" Sheer Plan on Sheets 5 and 6, and a copy is contained for reference in the project field records.)
7. The base line (plane) is set at the bottom of the worm shoe.
8. A "sheer line" is defined in this drawing as the intersection of the external hull surface and the main deck surface (not the top of the covering board, or waterway).
9. Maximum camber of the main deck was probably about 3½" originally, (between Stations 4 and 5), after taking into account the current (1985) 1"+ upward deflection of the deck beams amidships. (Maximum camber in 1985 was about 4½" ± ¼").
10. Bow extension is 4-5-6 forward of Station 10, at the intersection of the outer rabbet line and stem-head (underside of bowsprit).
11. Stern extension is 10-0-4 aft of Station 0, at the aftermost extremity of the transom planking (at centerline of the ship).
12. Bow and stern extensions of buttocks and water lines were not tabulated, since they may be scaled from the Half-breath and Sheer Plans, Sheets 5 and 6.

DELINEATED BY: Richard K. Anderson, Jr., 1986.

WAWONA LINES-LIFTING PROJECT
HISTORIC AMERICAN ENGINEERING RECORD
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UNITED STATES DEPARTMENT OF THE INTERIOR
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1018 VALLEY STREET
KING COUNTY
SEATTLE
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SHEET 7 OF 7

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WA-14