

Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, ~~Sailing Ship~~, Tanker
having Two decks and Shelter Deck
Complete Superstructure.
(Type of Superstructures.)

Port of Survey Sydney, N.S.W.
Date of Survey 3rd 4th 8th 29th August 1932.
Name of Surveyor James C. Irvine
Barton P. Fielden

Ship's Name T.S.M.S. HAURAKI. Nationality and Port of Registry British London. Official Number 146533. Gross Tonnage 7113 Date of Build 1922-3

Moulded Dimensions: Length 450 Breadth 58'2 Depth 34'-0"
Moulded displacement at moulded draught = 85 per cent. of moulded depth 16408 tons
Coefficient of fineness for use with Tables _____

Particulars of Classification + 100 A.L.
S.S. Syd. No. 2-30 Shelter deck
with freeboard.

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth <u>34'0</u>	(a) Where D is greater than Table depth (D - Table depth) R =	Moulded Breadth (B)
Stringer plate ... <u>50"</u>		Standard Round of Beam = $\frac{B \times 12}{50}$ =
Sheathing on exposed deck <u>NIL.</u>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	Ship's Round of Beam = <u>14'5"</u>
$T \left(\frac{L-S}{L} \right) =$		Difference
Depth for Freeboard (D) =	If restricted by superstructures	Restricted to
		Correction = $\frac{\text{Diff}^e}{4} \times \left(1 - \frac{S_1}{L} \right) =$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed	<u>21'25</u>		<u>8'-0"</u>			Standard Height of Superstructure
" overhang	<u>60'75</u>					" " R.Q.D.
R.Q.D. enclosed						Deduction for complete superstructure
" overhang						Percentage covered $\frac{S}{L} =$
Bridge enclosed <u>8' F.C.E.</u>	<u>356'75</u>		<u>8'-0"</u>			" " $\frac{S_1}{L} =$
" overhang aft	<u>6'75</u>					" " $\frac{E}{L} =$
" overhang forward						Percentage from Table, Line A. (corrected for absence of forecastle (if required))
F'cle enclosed						Percentage from Table, Line B. (corrected for absence of forecastle (if required))
" overhang						Interpolation for bridge less than .2L (if required)
Trunk aft						Deduction =
" forward						
Tonnage opening aft ...	<u>4'5</u>		<u>8'-0"</u>			
" forward						
Total	<u>450'0</u>					

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P.		1			<u>52</u>		1			Mean actual sheer aft =
$\frac{1}{8}$ L from A.P.		4			<u>24</u>		4			Mean standard sheer aft =
$\frac{3}{8}$ L "		2			<u>4</u>		2			Mean actual sheer forward =
Amidships		4			<u>0</u>		4			Mean standard sheer forward =
$\frac{3}{8}$ L from F.P.		2			<u>12</u>		2			Length of enclosed superstructure forward of amidships =
$\frac{1}{8}$ L "		4			<u>48</u>		4			" " aft of " =
F.P.		1			<u>114</u>		1			
Total										

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) =$

If limited on account of midship superstructure.

If limited to maximum allowance of $1\frac{1}{2}$ ins. per 100 ft.

Deduction for Tropical Freeboard.
Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = Ft.
Summer freeboard =
Moulded draught (d) =

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches =

Addition for Winter North Atlantic Freeboard (if required) =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta =$

Tons per inch immersion at summer load water line

$T =$

Deduction = $\frac{\Delta}{40 T}$ inches =

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

Depth Correction
Deduction for superstructures
Sheer correction
Round of Beam correction
Correction for Thickness of Deck amidships
Other corrections, scantlings, etc.

+	-

Summer Freeboard =

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~Wood~~, Steel, Deck:—

Tropical Fresh Water Line above Centre of Disc	Tropical Fresh Water Freeboard
Fresh Water Line " "	Fresh Water " "
Tropical Line " "	Tropical " "
Winter Line below " "	Winter " "
Winter North Atlantic Line " "	Winter North Atlantic " "

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										
FREEBOARD DECK					SUPERSTRUCTURE DECK					
Description of Hatchway	No 1	No 2	No 3	No 4	No 5	No 1	No 2	No 3	No 4	No 5
Dimensions of Hatchway	27'-0" x 18'-0"	31'-6" x 18'-0"	22'-6" x 18'-0"	27'-0" x 18'-0"	27'-0" x 18'-0"	27'-0" x 18'-0"	29'-3" x 18'-0"	22'-6" x 18'-0"	27'-0" x 18'-0"	27'-0" x 18'-0"
COAMINGS	Height above Deck	9"	9"	9"	9"	9"	2'-6" AT SIDES 2'-6"	2'-6"	2'-6"	2'-6"
	Thickness	50	50	50	50	50	2'-11" AT CENTRE 2'-11"	2'-11"	2'-11"	2'-11"
	Sides	50	50	50	50	50	50	50	50	50
	Stiffeners	50	50	50	50	50	50	50	50	50
HATCH BEAMS	Brackets, Stays			NONE			7" B.A.	7" B.A.	7" B.A.	7" B.A.
	Number	5	7	5	5	5	5	5	5	5
	Spacing	4'-6"	4'-0"	3'-9"	4'-6"	4'-6"	4'-6"	4'-11"	3'-9"	4'-6"
	Scantling and Sketch									
FORE AND AFTERS	Bearing Surface	17 1/2"	15"	15"	16"	15"	15"	16"	14"	15"
	Number									
	Spacing									
	Unsupported Lengths					NONE				
HATCH COVERS	Scantling* and Sketch									
	Bearing Surface									
	Material			WOOD.				WOOD.		
	Thickness			2 1/2"				2 1/2"		
Spacing of Cleats	How fitted			FORE & AFT.				FORE & AFT.		
	Bearing Surface			2 1/2"				3"		
	Number of Tarpaulins	2	2	2	2	2	2	2	2	2
		2	2	2	2	2	2	2	2	2

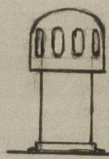
*Are wood fore and afters steel shod at all bearing surfaces? NONE FITTED.
 Are battens and wedges efficient and in good condition? Yes.
 Are tarpaulins in good condition and in accordance with rule requirements? Yes.
 Are lashings provided in accordance with rule requirements? Hatches on Superstructure Deck fitted with ring bolts for lashings.

Particulars of ~~funnel~~ funnel and ventilator coamings:— On top of deck house on superstructure deck.
 Motor ship:— Engine Room fitted with strong steel skylight with ring bolts for lashings.
 Funnel casing carried to full height of funnel.
 Ventilator of strong construction and passing through machinery casing.

Particulars of Flush Bunker Scuttles:— None.

Particulars of Companionways:— Two, enclosed within small deck houses at fore and main masts.
 Coaming 7" x 3" x 1/4" angle. Plating 38". Stiffeners 2 1/2" x 3/8" cope iron spaced 3'-6"
 opening 5'-3" x 1'-8". Sill 15". Doors of steel 32 in thickness and stiffened with 2 1/2" x 32 plate.
 One enclosed within after deck house, scantlings as above.
 Door of wood 1 1/2" in thickness. Sill 11".

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—
 Type vents on Forecastle and Shelter Decks as per sketch, 5" dia, 8" x 4" & 12" x 4" all 21" in height.
 Cowl ventilators:— On Forecastle 6-12"
 On Shelter deck 6-24", 4-19" and 4-12"
 all coamings 3'-0" in height and supplied with wood plugs and canvas covers.
 Efficient closing provided.



Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—
 Air pipes of mild steel swan neck type, varying from 2 1/2" to 4" diameters.
 2'-9" in height in way of open rails and 3'-3" in height secured to bulwarks.
 Fitted with fine mesh wire gauze at ends.

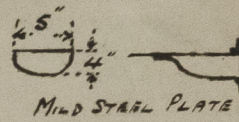
Particulars of Gangway Cargo and Coaling Ports:—
 Each side:— Two horse doors 5'-11" x 4'-2". Frame on shell 4" x 4" x 1/4" angle.
 2 vertical stiffeners 4" x 4" x 1/4" angle on door. Fitted with rubber joint and
 secured by two strongbacks 3" x 1 1/2" and 4-1 1/8" bolts.
 Two cargo doors 4'-0" x 2'-0". Frame on shell 4 1/2" x 4 1/2" x 1/4" angle.
 2 vertical stiffeners 4" x 3" x 1/4" on door. Fitted with rubber joint and
 secured by two strongbacks 3" x 1 1/4" and 2-1 1/8" bolts.

Particulars of Scuppers and Sanitary Discharge Pipes — Scuppers from shelter deck as per sketch —

Scuppers from freeboard deck; each side 5-4" and 4-6" diameter each fitted with one bronze automatic storm valve.

Sanitary discharges 2" and 4" dia. each fitted with one bronze automatic storm valve.

All discharges 6'-0" below freeboard deck.



Particulars of Side Scuttles:

10" side scuttles in shelter tween decks and in forecastle, with bronze frames and all fitted with cast iron hinged deadlights.

No side scuttles below freeboard deck.

Particulars of Guard Rails:—

Open 3-bar rails 3'-7" in height.

Bulkheads amidships 3'-7" in height with 4 freeing ports each side 24" x 19",

12" above deck edge and each fitted with hinged shutter and 2 horizontal bars.

Particulars of Gangways, Lifelines, etc.:—

Complete superstructure vessel

Particulars of Freeing Arrangements.

	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well Tonnage Opening			24" x 18"	1	3.0 sq. ft.	
Forward Well						

State position of each freeing port ... } After Well:—TONNAGE OPENING. - 13'-9" abaft bridge after bulkhead.
(F. and A. position and height above deck edge) } Forward Well:— 12" above deck edge.

State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— Hinged shutters. no bars.

Additional area where sheer is less than standard.

Particulars of Superstructures, Trunks, Casings, Deckhouses.

	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead	.38	.38	6" x 3" L	2'-8"	NONE.	NONE.	NONE	8'-0"
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	.32	.32	4 x 3 x 32 L	2'-6"	NONE.	6'-0" x 4'-0"	10"	8'-0"
Bridge, Forward Bulkhead								
Forecastle Bulkhead	.28	.28	5 x 2 1/4 x 32 L	2'-0"	NONE.	NONE.	✓	8'-0"
UPPER FORECASTLE BULKHEAD	.28	.28	2 1/2" x 5/8" D	2'-3"	NONE.	6'-0" x 3'-0"	10"	8'-0"
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks								
Exposed Machinery Casings on Superstructure Decks	Enclosed by deckhouse							
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	.38	.32	5 x 3 x 38 L	4'-6"	BRACKETS AT BOT DECK, LAPPED TO BARS AT BOTTOM.	NONE.	✓	8'-0"
Deckhouses on Main Deck	6 x 2 1/4 x 38 L	.25	4 x 2 1/4 x 32 L	4'-6"	LAPPED TO BARS AT TOP. BOTTOM NONE.	5'-9" x 2'-1 1/8 2'-4"	13"	8'-0"

Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead	No openings.
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	Shifting boards 3" thick in channels riveted to bulkhead, full height of opening. Can be manipulated from both sides.
UPPER FORECASTLE Bridge, Forward Bulkhead	Shifting boards 2 1/2" thick in channels riveted to bulkhead, full height of opening. Can be manipulated from both sides.
Forecastle Bulkhead	No openings.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	
Exposed Machinery Casings on Superstructure Decks	Enclosed by deckhouse.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	No openings.
Deckhouses on Main Deck	Hard wood doors 1 1/2" thick. Can be manipulated from both sides.

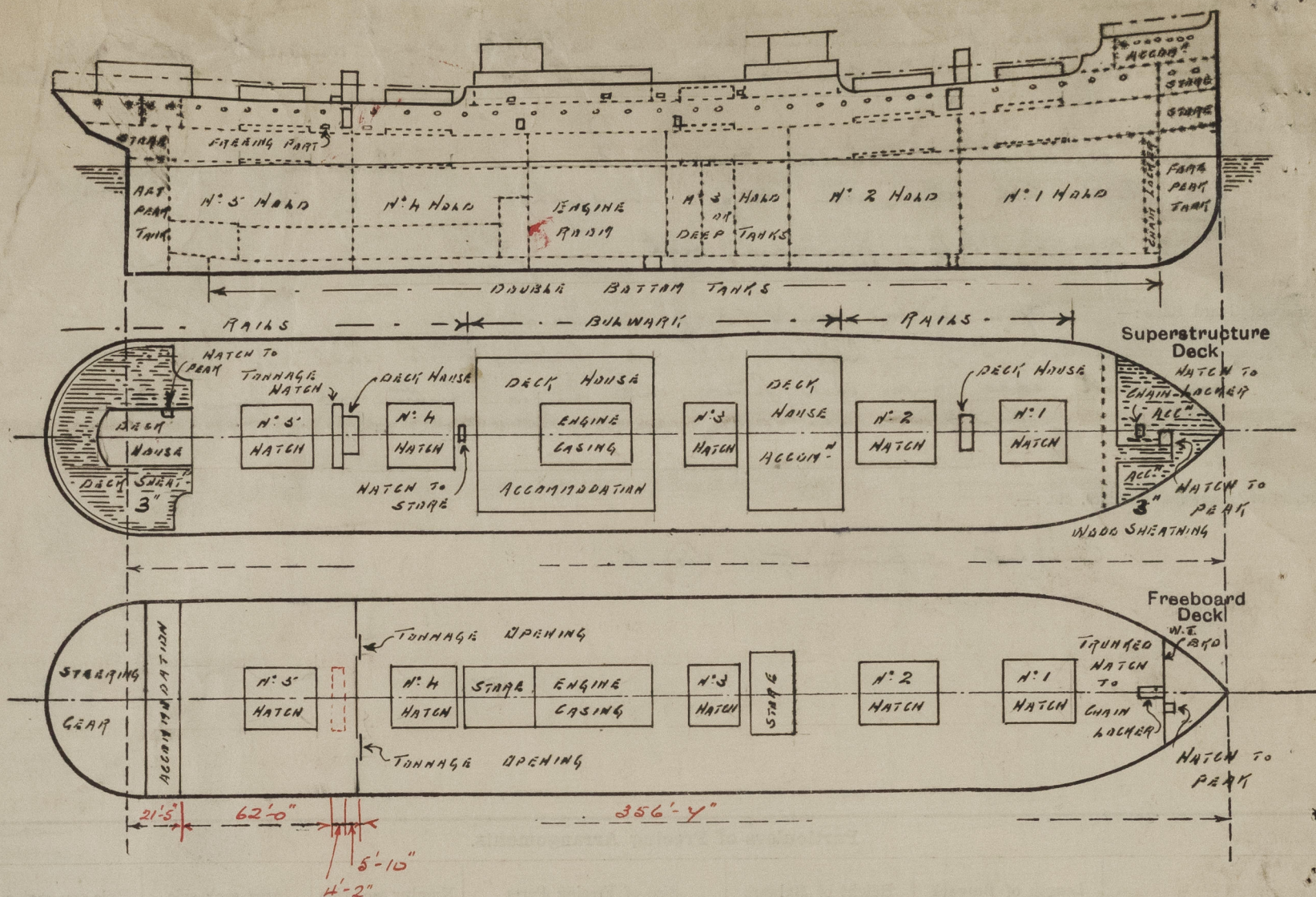


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Hauraki

Superstructure bulkheads, trunks, deckhouses, casings, cargo and coaling hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo and coaling ports, and any other openings, etc., which would affect the seaworthiness of the ship are to be shown on the following sketches:—



State any special features in the construction of the ship:— Cargo vessel. Usual trade Sydney N.S.W. to Vancouver via ports.
 Now surveyed afloat without including any part of Special Survey.
 Shelter deck vessel with tonnage opening aft, and forecastle 46 feet on shelter deck.
 Tonnage hatch: 4'-5" x 18'-0". Coaming 12" high by .38" thick. Wood hatches 2 3/4". Bearing surface 2".
 Hatches secured from below by keelp lashings. Breadth of ship at centre of tonnage hatch 53'-8".
 Hatches on Superstructure Deck:—
 To fore peak (within upper forecastle) 3'-6" x 3'-0". Coaming 1 1/2" above wood deck, .32" thick. Wood cover 2 3/4". Bearing surface 2 1/2".
 To chain locker (within upper forecastle) 2'-5" x 2'-2". Coaming 1 1/2" above wood deck, .32" thick. Trunked through shelter tween decks. Wood cover 2 3/4". Bearing surface 2 3/4".
 To after peak (within after deck house) 2'-6" x 2'-0". Coaming 7/8" bulk angle. Wood cover 2 3/4". Bearing surface 2 1/2".
 All above mentioned hatches with no cheats or battening arrangements.
 Hatch to store. 4'-9" x 2'-3". Coaming 2'-0" high by .38" thick. Bolted hinged steel cover with rubber joint.
 Hatches on Freeboard Deck:—
 To fore peak (forward of collision bulkhead) 3'-6" x 3'-0". Angle coaming 2" x 3" x .32". Wood hatch 2 3/4". Bearing surface 2 1/2". No battening arrangements.
 To after peak (within poop) 2'-10" x 2'-4". Angle coaming 2 1/2" x 2 1/2" x .38". Wood hatch 2 1/2". Bearing surface 2". Fitted with steel locking bar.
 Displacements and Tons per Inch from scale:—

Draught.	Displacement	Tons per Inch.
29'-10"	17000	52.63
29'-0 1/2"	16500	52.63
28'-3"	16000	52.63
27'-5 1/2"	15500	52.63
26'-8"	15000	52.63

Builder's name and yard number *W. Denny & Bros. Ltd. Dumbarton. 1089.*
 Names of sister ships
 Owners *Union S.S. Co. of New Zealand Ltd.*
 Fee £ *19 : 0 : 0* Received by me