

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having *one deck (steel) and shellie deck (steel)*

U/S NSW 4,155

MSW 5,455. No 3

(Type of Superstructures.)

Port of Survey *Newcastle N.S.W.*Date of Survey *11th December 1935*Name of Surveyor *Jas. C. B. Smith*Particulars of Classification *100A1
shellie deck with fuel tank
S.S. NSW N° 3. 4. 55.*

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
<i>IRON MASTER</i>	<i>British M. M. Smith</i>	<i>150170</i>	<i>3351</i>	<i>1921.10</i>
Moulded Dimensions: Length <i>330.5</i> - Breadth <i>47.75</i> - Depth <i>26.1</i>				
Moulded displacement at moulded draught = 85 per cent. of moulded depth <i>7868</i> tons				
Coefficient of fineness for use with Tables <i>787</i>				

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth <i>26.08</i>	(a) Where D is greater than Table depth (D-Table depth) R = <i>(26.11 - 22.03) 2.542</i> <i>= + 10.37"</i>	Moulded Breadth (B) <i>47.75</i>
Stringer plate <i>0.035</i>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R = <i>✓</i>	Standard Round of Beam = $\frac{B \times 12}{50} = \frac{47.75 \times 12}{50} = 11.46"$
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures <i>✓</i>	Ship's Round of Beam = <i>12"</i>
Depth for Freeboard (D) = <i>26.115</i>		Difference <i>Excess 0.54</i>
		Restricted to
		Correction = $\frac{\text{Diff}^e}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.54}{4} \times .0073 = .0098$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed	<i>28.01</i>	<i>28.00</i>	<i>7.104</i>	<i>✓</i>	<i>28.00</i>
" overhang	<i>1.01</i>	<i>.50</i>	<i>7.104</i>	<i>✓</i>	<i>.50</i>
R.Q.D. enclosed					
" overhang					
Bridge enclosed	<i>297.50</i>	<i>297.50</i>	<i>7.062</i>	<i>✓</i>	<i>297.50</i>
" overhang aft			<i>0</i>		
" overhang forward			<i>15</i>		
Fore enclosed	<i>26.0</i>		<i>7.083</i>	<i>✓</i>	
" overhang			<i>forward</i>		
Trunk aft					
" forward					
Tonnage opening aft	<i>4.0</i>	<i>2.09</i>	<i>7.10</i>	<i>✓</i>	<i>2.09</i>
" forward					
Total	<i>330.50</i>	<i>328.09</i>			<i>328.09</i>

Standard Height of Superstructure <i>6.805</i>	
" " R.Q.D. <i>✓</i>	
Deduction for complete superstructure <i>37.37</i>	
Percentage covered $\frac{S}{L} = 100.00\%$	
" " $\frac{S_1}{L} = 99.27\%$	
" " $\frac{E}{L} = 99.27\%$	
Percentage from Table, Line A. <i>99.10%</i>	
(corrected for absence of forecastle (if required))	
Percentage from Table, Line B.	
(corrected for absence of forecastle (if required))	
Interpolation for bridge less than 2L (if required)	
Deduction = <i>37.37 × .991 = 37.03</i>	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	<i>43.05</i>	<i>1</i>		<i>43.05</i>	<i>62.75</i>	<i>71.83</i>	<i>1</i>		<i>43.05</i>
$\frac{1}{2}$ L from A.P.	<i>19.16</i>	<i>4</i>		<i>76.64</i>	<i>11.0</i>	<i>20.08</i>	<i>4</i>		<i>76.64</i>
$\frac{3}{8}$ L "	<i>4.74</i>	<i>2</i>		<i>9.48</i>	<i>0</i>	<i>7.90</i>	<i>2</i>		<i>9.48</i>
Amidships	<i>✓</i>	<i>4</i>		<i>0</i>	<i>✓</i>	<i>✓</i>	<i>4</i>		<i>✓</i>
$\frac{3}{8}$ L from F.P.	<i>9.48</i>	<i>2</i>		<i>18.96</i>	<i>0</i>	<i>9.08</i>	<i>2</i>		<i>18.16</i>
$\frac{1}{2}$ L "	<i>38.32</i>	<i>4</i>		<i>153.28</i>	<i>21.5</i>	<i>30.58</i>	<i>4</i>		<i>122.32</i>
F.P.	<i>86.10</i>	<i>1</i>		<i>86.10</i>	<i>46.75</i>	<i>105.83</i>	<i>1</i>		<i>105.83</i>
Total				<i>387.51</i>	<i>79.08</i>				<i>375.48</i>

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{75-S}{2L} \right) = \frac{12.03}{18} \left(\frac{75-50}{2} \right) = +.17"$ 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.

Ft.
Depth to Freeboard Deck = *26.11*
Summer freeboard = *2.39*
Moulded draught (d) = *23.72*

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = *5.93* = *6"*
Addition for Winter North Atlantic Freeboard (if required) = *✓*

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta =$ *8556*
Tons per inch immersion at summer load water line

T = *32.58*
Deduction = $\frac{\Delta}{40T}$ inches = *6.57*
= *6 $\frac{1}{2}$ "*

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient *787+68*
136

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

51.13
55.16

+	-
<i>10.37</i>	<i>✓</i>
<i>37.03</i>	
<i>17</i>	
<i>10.54</i>	<i>37.03</i>
<i>26.49</i>	

Summer Freeboard = *28.67*SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, *Wood, Steel, Deck*:-

Tropical Fresh Water Line above Centre of Disc	<i>12$\frac{1}{2}$"</i>	Tropical Fresh Water Freeboard	<i>1-10$\frac{1}{4}$"</i>
Fresh Water Line " "	<i>6$\frac{1}{2}$"</i>	Fresh Water " "	<i>1-10$\frac{1}{4}$"</i>
Tropical Line " "	<i>6"</i>	Tropical " "	<i>1-10$\frac{3}{4}$"</i>
Winter Line below " "	<i>6"</i>	Winter " "	<i>2-10$\frac{3}{4}$"</i>
Winter North Atlantic Line " "	<i>✓</i>	Winter North Atlantic " "	<i>✓</i>

24 JAN 1936

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										
SUPERSTRUCTURE DECK					FORECASTLE DECK					
Description of Hatchway	N°1	N°2	N°3	N°4	N°5	N°1	N°2	N°3	N°4	N°5
Dimensions of Hatchway	24'0" x 28'0"	33'4 1/2" x 28'0"	5'7 1/2" x 18'0"	33'4 1/2" x 28'0"	22'0" x 28'0"	24'0" x 28'0"	33'4 1/2" x 28'0"	11'1 1/2" x 18'0"	33'4 1/2" x 28'0"	24'0" x 28'0"
COAMINGS	Height above Deck	30"	30"	30"	30"	30"	30"	9"	30"	30"
	Thickness Sides	60"	60"	60"	60"	60"	60"	44"	60"	60"
	Thickness Ends	40"	40"	40"	40"	40"	40"	44"	40"	40"
	Stiffeners	4" x 3.045	4" x 3.045	4" x 3.045	4" x 3.045	4" x 3.045	4" x 3.045	4" x 3.045	4" x 3.045	4" x 3.045
HATCH BEAMS	Number	4	5	1	4	4	5	5	4	4
	Spacing	4'10"	3'7"	4'4"	3'7"	4'10"	3'7"	3'7"	3'7"	4'10"
	Scantling and Sketch	21" x 38"	21" x 38"	15" x 38"	21" x 38"	21" x 38"	21" x 38"	16" x 38"	21" x 38"	21" x 38"
	Bearing Surface	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"
FORE AND AFTERS	Number			NONE				NONE		
	Spacing									
	Unsupported Lengths									
	Scantling and Sketch									
HATCH COVERS	Material			WOOD				WOOD		
	Thickness			2 1/2"				2 1/2"		
	How fitted			FORG AND ART				FORG AND ART		
	Bearing Surface			3 1/2"				3 1/2"		
Spacing of Cleats				24"				24"		
Number of Tarpaulins				3				1		

Particulars of fiddley, funnel and ventilator coamings:— On casing on superstructure Deck.
Engine casing fitted with strong steel skylights and fiddley gratings with efficient hinged steel steam covers.
Funnel casing full height of funnel.

Particulars of Flush Bunker Scuttles:—

None.

Particulars of Companionways:—

To accommodate in poop.
Opening in deck 7'8" x 4'0". Height of companion 5'9". Opening 4'2" x 3'8" set 17".
Plating 3/8", angles 3" x 3" x 3/8". Riveted to deck plating.
Fitted with 1 1/4" hinged hardwood doors which can be operated from both sides.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—

6'20", 2'16", 1'12", 1'10" and 16'9" dia. All coamings 36" high. Riveted to the deck plating and provided with wood plugs and canvas covers.

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—

All swan neck type.
Cnst. Vm:— 3'4" dia. to peaks. Height to flaring 12".
Mild Steel:— 2'5 1/2", 2'5", 4'2" dia. Height to flaring 10" fitted with furcated roses and all provided with canvas covers.

Particulars of Gangway Cargo and Coaling Ports:—

Two each side, above foreward deck.
Opening 5'1 1/2" x 3'4". Frame on shell 10" x 3 1/2" channel. Frame on doors 3 1/2" x 3 1/2" angles. Hinged steel doors with rubber joints and secured by two 6" x 3" channel strongbacks and 4-1 1/2" screw fastenings.

Particulars of Scuppers and Sanitary Discharge Pipes — Scuppers (each side):— 4 in shelter turn decks and one in bilgeage well. All 4" dia. with short steel open ends and fitted with wood plugs, as temporary closing appliances.
All Sanitary Discharge Pipes fitted with one gunmetal automatic steam valve.
No discharges overboard from spaces below the foreward deck.

Particulars of Side Scuttles:—

All 10" dia. with gunmetal frames and hinged dead lights.
No side scuttles below the foreward deck.

Particulars of Guard Rails:—

Guard rails forward and aft as shown in sketch. 3 bars. 3'4" in height.
Efficient bulwarks 3'0" in height forward and amid ships.

Particulars of Gangways, Lifelines, etc.:—

Cum bulwark aft.
Complete superstructure vessel.

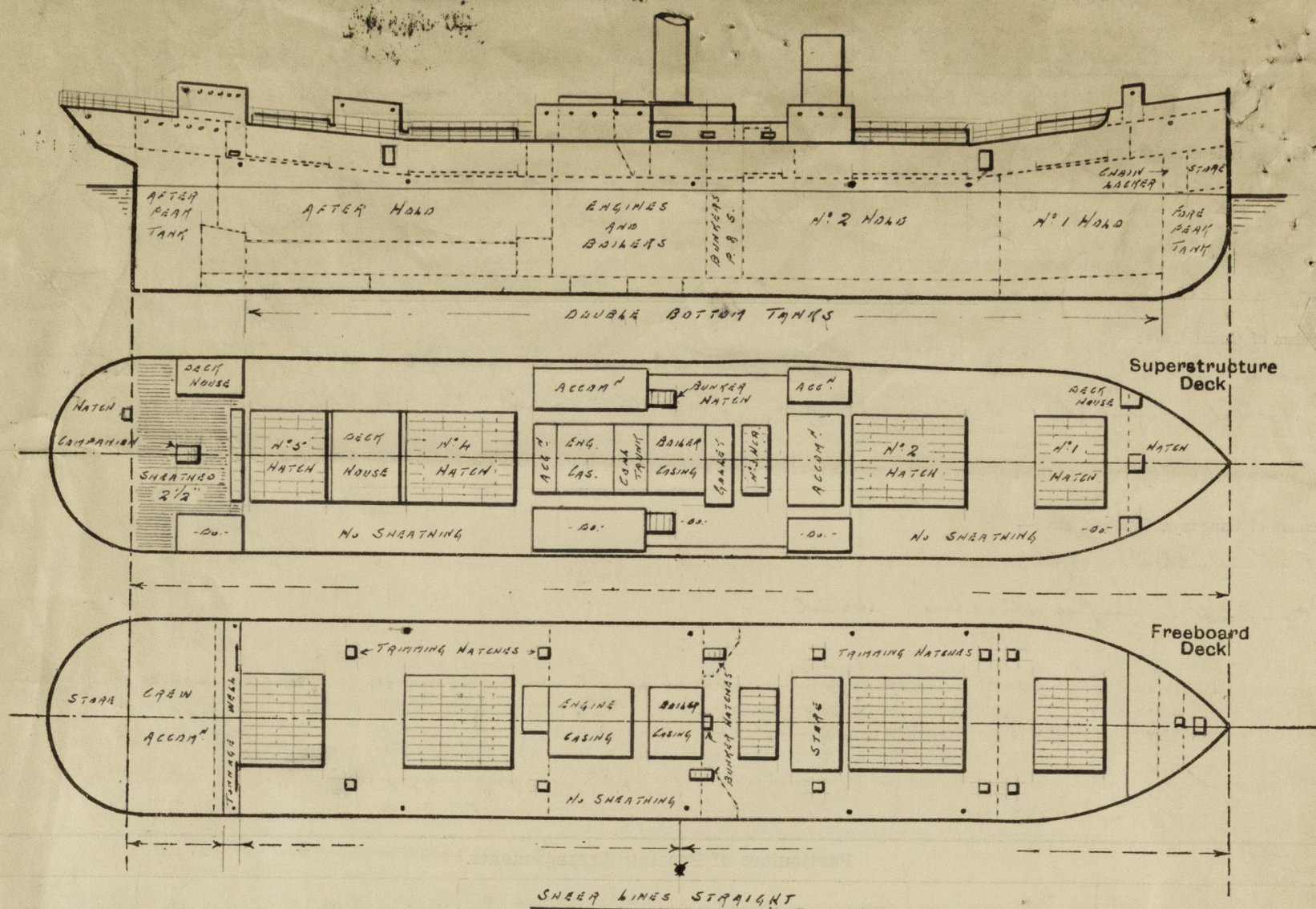
Particulars of Freeing Arrangements.						
	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well	5'0"		26" x 14"	1	2.52 sq	
Forward Well						

State position of each freeing port ...
(F. and A. position and height above deck edge)
State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:—
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	3'0"	3/8"	4" x 3" x 3/8"	45"	Beachels at top only	None	✓	4'1 1/4"
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	3'8"	3/8"	4" x 3" x 3/8"	36"	None	34" x 36"	16"	4'1 1/4"
Bridge, Forward Bulkhead								
Forecastle Bulkhead	4'4"	3/8"	4" x 3" x 3/8"	35"	Beachels at top only	None	✓	4'1"
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks								
Exposed Machinery Casings on Superstructure Decks	3'2"	3/8"	3" x 3" x 3/8"	36"	None	54" x 24"	19"	4'3"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	4'4"	3/8"	3" x 3" x 3/8"	36"	None	34" x 24"	22"	4'6 1/4"
Deckhouses on Superstructure	3'2"	3/8"	3" x 3" x 3/8"	36"	None	60" x 24"	18"	4'3"

Particulars of Closing Appliances (state if capable of being manipulated from both sides).	
Poop Bulkhead	No fittings.
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	2 3/4" shifting boards in riveted channels full height of opening.
Bridge, Forward Bulkhead	
Forecastle Bulkhead	No fittings.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	
Exposed Machinery Casings on Superstructure Decks	Hinged hardwood doors 1 3/4" thick and hinged steel doors.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	Hinged steel doors.
Deckhouses on Superstructure	Hinged hardwood doors 1 3/4" thick.

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:—



Cargo vessel usually trading on the Australian Coast, now surveyed upland without including any portion of a Special Survey.

State any special features in the construction of the ship:—

Tonnage Opening:— 4'0" x 23'0" Cumings 9" butt angle, 2 1/2" wood covers on 3 1/2" bearing, secured by hemp lashings. Breadth of deck at tonnage opening 43'0".
Bunker Hatch on casing on Superstructure Deck, 17'0" x 8'0", 8" butt angle cumings, 2 3/4" wood covers on 3" bearing, one hatch beam 7' x 3 1/2" butt angle, Cleats, buttens and lashings.
Hatches on Superstructure Deck:—
 To Forecastle:— 4'0" x 4'0" Cumings 24" x 38"
 Two Bunker Hatches:— 7'0" x 2'8", Cumings 30" x 44"
 To Transom Space:— 3'0" x 2'0", Cumings 8" butt angle, } Fitted with 2 1/2" wood covers on 2 1/2" bearing. Cleats, buttens and two lashings.
Hatches on Freeboard Deck:—
 To Fore Peak:— 4'4" x 4'4" } Forward of Collision Bulkhead. Fitted with 3'3" x 38" angle cumings.
 To Chain Lock:— 2'3" x 2'3" } 2 1/2" wood covers on 2 1/2" bearing. No buttressing arrangements.
 Two Bunker Hatches:— 5'6" x 2'6", 8" butt angle cumings, } Each fitted with 2 1/2" wood covers on 2 1/2" bearing. Cleats, buttens and lashings.
 Bunker Hatch at Centre:— 2'6" x 1'10" 9" butt angle cumings.
 Ten Trimming Hatches:— 2'6" x 2'6" 3'3" x 38" angle cumings.

	Draught	20'0"	21'0"	22'0"	23'0"	24'0"
<u>Builder's Displacements</u> :—	Displacement	7032	7417	7804	8193	8586
	Tons per Inch.	31.9	32.07	32.24	32.41	32.58

Builder's name and yard number Park and Steel Ltd. Port Adelaide Yard N° 1
 Names of sister ships Behunga, Owen Brown, Owen Frob, Owen Prince, Owen Warrior, Mangala, Mureka, Milolua, Mione, Mungana, Murada.
 Owners Broken Hill Proprietary Co. Ltd.

Fee £ 14 : 0 : 0 Received by me



© 2020

Lloyd's Register Foundation