

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Report No. 19230.

Computation of Freeboard for Steamer, ~~Sailing Ship, Tug~~
having Forecastle, Bridge & Poop

Port of Survey Swansea

Date of Survey 7th 8th + 11th April 1932

Name of Surveyor Hannish Welf. Paton

Particulars of Classification + 100 A1

Ship's Name "Vardulia" Nationality and Port of Registry British Glasgow Official Number 137833 Gross Tonnage 5735 Date of Build 1917

Moulded Dimensions: Length 420.47 Breadth 55.68' Depth 31'-3 3/4"

Moulded displacement at moulded draught = 85 per cent. of moulded depth 13630 tons

Coefficient of fineness for use with Tables .766

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth <u>31'-3 3/4"</u>	(a) Where D is greater than Table depth (D - Table depth) R = <u>(31.35 - 28.03) 3.00 = +9.96"</u>	Moulded Breadth (B) <u>55.68'</u>
Keel plate <u>1/2"</u>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = <u>✓</u>	Standard Round of Beam = $\frac{B \times 12}{50} = \underline{13.36"} \checkmark$
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures <u>✓</u>	Ship's Round of Beam = <u>14"</u> ✓
Depth for Freeboard (D) = <u>31.35</u>		Difference = <u>.64"</u> ✓
		Restricted to <u>✓</u>
		Correction = $\frac{\text{Diff}}{4} \times (1 - \frac{S_1}{L}) = \underline{\frac{.64}{4} (1 - .483) = -.08"} \checkmark$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S)	Height	Height Correction	Effective Length (E)	
Poop enclosed	<u>37'-10"</u>	<u>37.83</u>	<u>8'-0"</u>		<u>37.83</u>	Standard Height of Superstructure <u>7.50</u> ✓
" overhang	<u>4"</u>	<u>.17</u>			<u>.17</u>	" " R.Q.D. <u>✓</u>
R.Q.D. enclosed	<u>✓</u>					Deduction for complete superstructure <u>42.00</u> ✓
" overhang	<u>✓</u>					Percentage covered $\frac{S}{L} = \underline{48.34\%} \checkmark$
Bridge enclosed	<u>123'-4"</u>	<u>123.33</u>	<u>7'-10"</u>		<u>123.33</u>	" " $\frac{S_1}{L} = \underline{48.30\%} \checkmark$
" overhang aft	<u>NIL</u>					" " $\frac{E}{L} = \underline{48.30\%} \checkmark$
" overhang forward	<u>NIL</u>					Percentage from Table, Line A. <u>✓</u>
Fore enclosed	<u>41'-5"</u>	<u>41.42</u>	<u>8'-0"</u>		<u>41.42</u>	(corrected for absence of forecastle (if required))
" overhang	<u>4"</u>	<u>.33</u>			<u>.33</u>	Percentage from Table, Line B. <u>34.55%</u> ✓
Trunk aft	<u>✓</u>					(corrected for absence of forecastle (if required))
" forward	<u>✓</u>					Interpolation for bridge less than .2L (if required) <u>✓</u>
Tonnage opening aft	<u>✓</u>					Deduction = <u>42.00 × .3455 = -14.51"</u> ✓
" " forward	<u>✓</u>					
Total	<u>203.24</u>	<u>203.08</u>			<u>203.08</u>	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P.	<u>52.05</u>	1		<u>52.05</u>	<u>70.5</u>	<u>69.00</u>	1		<u>69.00</u>	Mean actual sheer aft = <u>Excess</u>
1/4 L from A.P.	<u>23.17</u>	4		<u>92.68</u>	<u>34</u>	<u>29.98</u>	4		<u>119.92</u>	Mean actual sheer forward = <u>Excess</u>
1/2 L "	<u>5.73</u>	2		<u>11.46</u>	<u>72</u>	<u>7.49</u>	2		<u>14.98</u>	Mean standard sheer forward
Amidships	<u>✓</u>	4		<u>✓</u>	<u>✓</u>	<u>✓</u>	4		<u>✓</u>	Length of enclosed superstructure forward of amidships = <u>.144</u>
3/4 L from F.P.	<u>11.45</u>	2		<u>22.90</u>	<u>26</u>	<u>14.99</u>	2		<u>29.98</u>	" " aft of " = <u>.149</u>
1/4 L "	<u>46.33</u>	4		<u>185.32</u>	<u>709</u>	<u>59.95</u>	4		<u>239.80</u>	
F.P.	<u>104.10</u>	1		<u>104.10</u>	<u>137</u>	<u>138.00</u>	1		<u>138.00</u>	
Total				<u>468.51</u>					<u>611.68</u>	

$$\text{Correction} = \frac{\text{Difference between sums of products}}{18} \left(\frac{.75 - S}{2L} \right) = \frac{143.17}{18} \left(\frac{.75 - .2417}{1} \right) = \underline{-4.04"} \checkmark$$

If limited on account of midship superstructure.

If limited to maximum allowance of 1 1/2 ins. per 100 ft. ✓

Deduction for Tropical Freeboard.

Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = 31.35 Ft.

Summer freeboard = 6.19

Moulded draught (d) = 25.16

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 6.29 = 6 1/4"

Addition for Winter North Atlantic Freeboard (if required =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

Tons per inch immersion at summer load water line

T = 44.9Deduction = $\frac{\Delta}{40T}$ inches= 7.14 = 7 1/4"

TABULAR FREEBOARD corrected for Fresh 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 amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:

Tropical Fresh Water Line above Centre of Disc

Fresh Water Line " "

Tropical Line " "

Winter Line below " "

Winter North Atlantic Line " "

13 1/2"7 1/4"6 1/4"6 1/4"✓

Tropical Fresh Water Freeboard

Fresh Water " "

Tropical " "

Winter " "

Winter North Atlantic " "

✓✓✓✓✓5'-0 3/4"5'-7"5'-8"6'-8 1/2"✓✓✓✓✓✓1906Freeboard assignedFreeboard assignedFreeboard assignedFreeboard assignedFreeboard assignedFreeboard assignedFreeboard assignedFreeboard assignedFreeboard assigned

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS											
Description of Hatchway		Nº1 Freeboard Deck	Nº2 Freeboard Deck	Nº3 Freeboard Deck	Nº4 Freeboard Deck	Nº5 Freeboard Deck	X Bulkhead Bridge deck	Side Bulkhead Fore deck Port	Side Bulkhead Fore deck Starboard	Side Bulkhead Aft deck 2 Port	Side Bulkhead Aft deck 2 Starboard
Dimensions of Hatchway		24'-9" x 18'-0"	30'-0" x 18'-0"	18'-0" x 18'-0"	33'-0" x 18'-0"	24'-0" x 18'-0"	18'-0" x 18'-0"	see below		2'-8" x 5'-10"	24'-0" x 18'-0"
COAMINGS	Height above Deck	30"	30"	14"	30"	30"	30"	X		30"	30"
	Thickness Sides	45"	50"	44"	50"	50"	44"	X		44"	44"
	Stiffeners Ends	45"	50"	44"	50"	50"	44"	X		44"	44"
	Brackets, Stays	NIL	✓	✓	✓	✓	✓	X		✓	✓
HATCH BEAMS	Number	3	4	2	5	3	2				
	Spacing	6'-2"	6'-0"	6'-0"	5'-6"	6'-0"	6'-0"				
	Scantling and Sketch	35 x 28 x 35 5 x 3 x 45 T & B	32 x 28 x 35 5 x 3 x 45 T & B	26 x 20 x 45 3 1/2 x 3 1/2 x 30 T & B	27 x 20 x 35 3 1/2 x 3 1/2 x 50 T & B	31 x 24 x 35 5 x 3 x 45 T & B	26 x 20 x 45 3 1/2 x 3 1/2 x 30 T & B			NIL	NIL
	Bearing Surface	JL	JL	JL plate 6"	JL	JL	JL				
FORE AND AFTERS	Number										
	Spacing										
	Unsupported Lengths										
	Scantling* and Sketch	NIL	✓	✓	✓	✓	✓			✓	✓
Bearing Surface											
HATCH COVERS	Material	W. Wood	W. Wood	W. Wood	W. Wood	W. Wood	W. Wood			W. Wood	W. Wood
	Thickness	2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"			2 1/2"	2 1/2"
	How fitted	F & A	F & A	F & A	F & A	F & A	F & A			p & s	p & s
	Bearing Surface	3"	3"	3"	3"	3"	3"			3"	3"
Spacing of Cleats		20"	21"	23"	20"	20"	23"			14"	23"
Number of Tarpaulins		3	3	3	3	3	3			2	2

*Are wood fore and afters steel shod at all bearing surfaces? ✓

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? yes

Particulars of fiddley, funnel and ventilator coamings :—

Steel deck, gratings with hinged steel covers /
Main funnel riveted to deck. Engine room /
Skylight steel flaps glass circles, Bunker Hatch 16'-10" x 6'-0" /
9" ^{8.44} Coaming, 2 1/2 Hatch covers 292 bearing Surface Hatches fitted F+A. /
3 Vents P/B to Stbd hold & Engine room

Particulars of ~~High~~ Bunker Scuttles :—

Side Bulkhead Hatches on Freeboard decks.

1 P+13 5'-6"x3'-0" 9' BR Coaming - 4 1/2" thick 2 1/2" Hatchies fitted Pr.s. 3" bearing in
1 P+13 11'-10"x3'-0" 9' BA " " " " " " " "
1 P+13 24'-0"x3'-0" 9' " " " " " " " "
Chairs spaced 23" x 20". 2 Tarpsaulins for each Hatch.

Particulars of Companionways :—

NIL ✓

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

After Well, 4 Vents 18" dia Coaming 33" high x .34. Forth Well 8 Vents 18" dia Coaming 36" high x .34
 " " 2 " 11 1/2" " 36" " x .34 Forecastle 1 " 8 1/2" " 9" " x .25
 " " 2 " deep Tank 11 1/2" dia Coaming 33" high 2 Stoketold 29" dia x .34. Coaming 3'-0" high
 All Vent Coamings provided with Wood plugs & canvas covers! 4 Eng Room 14" " x .25 " 3'-0" "

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

Fore Well, 2-Steel goosenecks ^{Pr.S.} 30" from deck, 1-C.I. gooseneck 15" from deck.
Bridge deck 2- C.I. goosenecks 10" " " 3/4 hole on top of pipe
Aft. Well 3-Steel goosenecks Pr.S. 30" from deck.
Poop 1 " " 16" from deck with filling cap on top. all air pipes
Forecastle 1 air pipe with screwed cap. no plugs or caps provided for goosenecks.
Board hatch for Smoking late

Particulars of Gangway Cargo and Coaling Ports :—

2 steel Cattle doors 1 P+15 in front well 4'-2" x 8'-0" with 3 x 3 x 3/8 angle frame secured by 4 ship bolts, fitted with steel hinges. Bottom of door 12" from deck & 2-steel Cattle doors on after well P+5 same as front well.

Particulars of Scuppers and Sanitary Discharge Pipes — 1-4" WC discharge from Crew quarters P/S no storm Valve fitted.

1 Post & 2 stand 4" W.C. discharges in Bridge space fitted with Cast Iron storm Valves ✓

1 " 9 2 " 2" Bath " " " " " no valves fitted.

1-4" W.C. discharge P.S. from Cattle mens w.c. fitted with Brass Storm Valve. All discharges are above the
 Freeboard deck. Scupper from freeboard deck through gunwale bar above deck. No valves

Particulars of Side Scuttles :

Pop. Glass ports in Brass frames fitted with C.I. hinged deadlights.
Forecastle Glass ports in Brass frames no deadlights fitted.

Particulars of Guard Rails :—

Steel rails two tier, stanchions spaced 5' 0" rails 8' 3" high /
fitted round forecandle and poop.

Particulars of Gangways, Lifelines, etc. :—

see page 4

Provisions made for raising lifelines in wells for the protection of the crew when the temporary cattle shelter is dismantled.

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	110'-0	4'-2"	2'-3" x 2'-3" 2'-6" x 1'-10"	3 } 3 }	23 13-5-4	22.59 ft
Forward Well	108'-0	4'-2"	2'-3" x 2'-3" 2'-6" x 1'-10"	3 } 2 }	24 9-0-9	21 1/4 sq ft

State position of each freeing port. A After Well :- 18'-5" 38'-9" 26'-5" 19'-0" 18'-5" - 37'-0" 48'-9" 24'-0"

(F. and A. position and height above deck edge) Forward Well :- 34'-0" 26'-1" 19'-0" 12'-0" 12'

State whether the Freeing ports are fitted with shutters, bars, or rails, and give particulars of such :- 2 Horizontal Bars 9" apart, and Hinged shutters

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	·45	·45	6½x3½x·35	2'-6"	NIL	5'-6"x5'-2" 5'-6"x3'-9"	18	8'-0"
Raised Quarter Deck Bulkhead ...	✓							
Bridge, After Bulkhead	·35	·35				4'-0"x6'-6"	18	7'-10
Bridge, Forward Bulkhead	·45	·45	8½x3½x35BA	2'-6"	Bracketed Top & Bottom	2'-11"x5'-4"	18	7'-10
Forecastle Bulkhead	·38	·38	3½x3½x25	3'-0"	NIL	5'-0"x4'-10	18	8'-0.
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...								
Exposed Machinery Casings on Super-structure Decks	·28	·28	3½x3½x25	2'-6"	Bracketed Top	2'-0"x5'-0	18"	7'-10
Machinery Casings within Superstructures not fitted with Class I Closing Appliances								
Deckhouses on Flush Deck Ships ...								

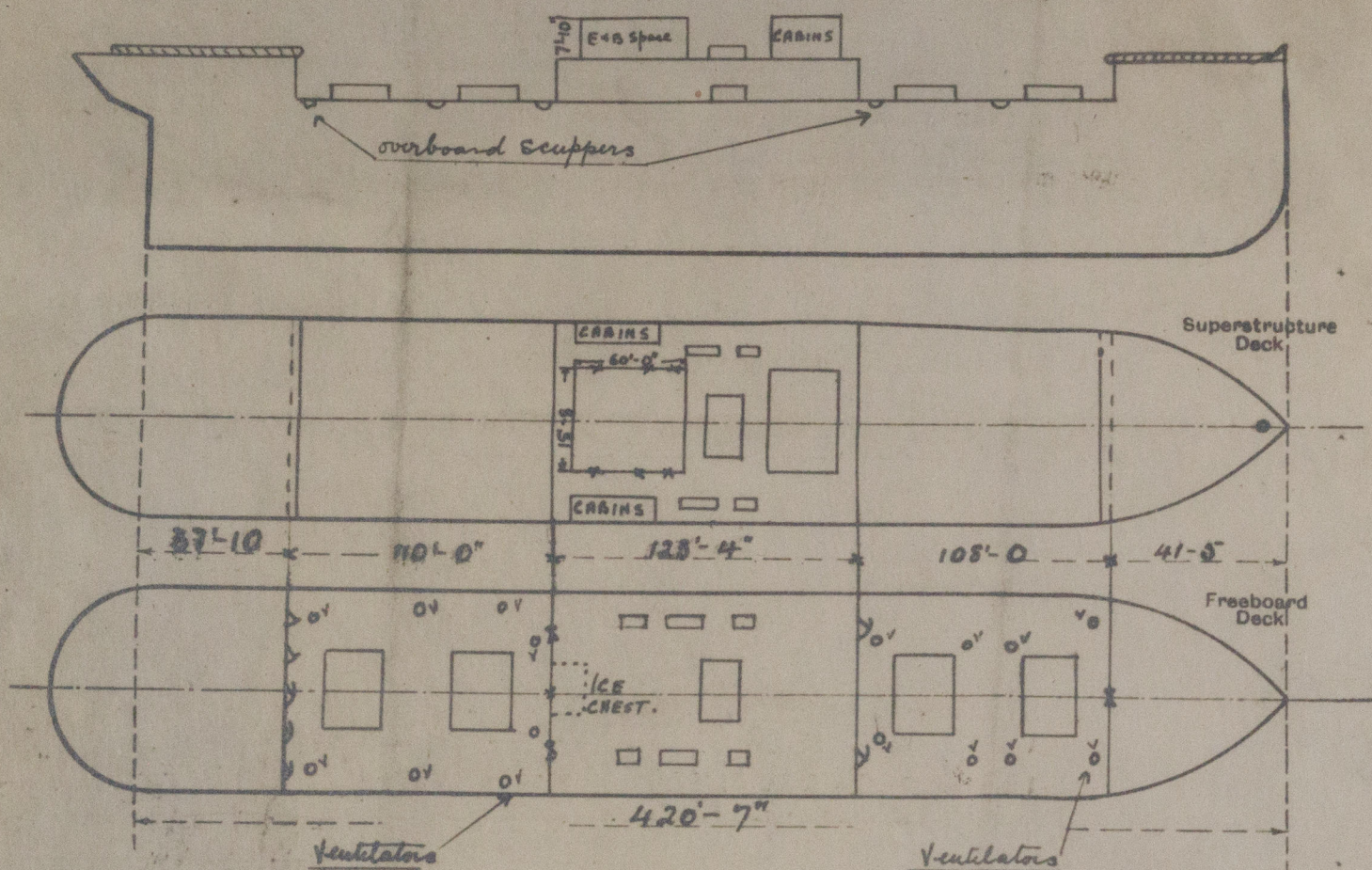
Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Pop Bulkhead	...	...	Teak Hinged doors to crew quarters manipulated both sides, glass ports brass frame C. & D. 11/12
Raised Quarter Deck Bulkhead	...	...	✓
Bridge, After Bulkhead	...	...	Riveted channels full height; weather boards. Small Hinged door to Ice box.
Bridge, Forward Bulkhead	...	...	Steel Hinged doors 45. Stools in frame & dogs. Manipulated from fore side only
Forecastle Bulkhead	...	...	Riveted channels full height for weatherboards, Hinged soft wood door in place
Exposed Machinery Casings on Fore- structure Decks	...	...	Manipulated from both sides.
Exposed Machinery Casings on Super- structure Decks	...	...	Steel Hinged doors to storeroom & galley, Teak wood door to Engine room
Machinery Casings within Superstruc- ture not fitted with Class I Closing Appliances	all worked from both sides.
Deckhouses on Flush Deck Ships	✓

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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 shewn on the following sketches:—



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

This vessel is fitted with a wood deck from Poop to Bridge + Bridge to Forecastle, the bulwarks in the wells being boarded up to the height of the wood deck. This arrangement is for carrying cattle. Wood slanchions with wires are fitted round the wood deck at side. No arrangement for gangways or life lines provided when this deck is removed.

Builder's name and yard number *Russel & Co. Port-Glasgow.*

Names of sister ships

Owners *Donaldson Line Ltd.*



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