

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

GLASGOW REPORT No. 5 2 9 2 0

 Computation of Freeboard for Steamer, ~~Sailing Ship, Tanker~~
 having *Poop and combined bridge and forecastle.*
Port of Survey *Glasgow.*Date of Survey *21st September 1932.*Name of Surveyor *A. O. Aitken.*Particulars of Classification *+100 A.I.**S.S. No. 2-30*

Ship's Name

(Type of Superstructures.)

Nationality and Port of Registry

Official Number

Gross Tonnage

Date of Build

"CITY OF DERBY"*British.
London.**146175**6676**1921-11.*Moulded Dimensions: Length *433'-0"* Breadth *57'-0"* Depth *32'-10"*Moulded displacement at moulded draught = 85 per cent. of moulded depth *15238* tonsCoefficient of fineness for use with Tables *774*

Depth for Freeboard (D)

Moulded depth ... *32'-10"* ... *32.83*Stringer plate ... *1/2"* ... *.04*

Sheathing on exposed deck

$$T \left(\frac{L-S}{L} \right) =$$

Depth for Freeboard (D) = *32.87*

Depth correction

(a) Where D is greater than Table depth

$$(D - \text{Table depth}) R = (32.87 - 28.84) 3 = 12.00$$

(b) Where D is less than Table depth (if allowed)

$$(\text{Table depth} - D) R =$$

If restricted by superstructures

Round of Beam correction

Moulded Breadth (B) *57'-0"*

$$\text{Standard Round of Beam} = \frac{B \times 12}{50} = 13.68$$

$$\text{Ship's Round of Beam } 14\frac{1}{2} = 14.25$$

$$\text{Difference} = 14.25 - 13.68 = .57$$

Restricted to

$$\text{Correction} = \frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.57^2}{4} (1 - .9168) = .01$$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<i>89.28</i>	<i>89.28</i>	<i>8'-16"</i>		<i>89.28</i>
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed ...	<i>307.72</i>	<i>307.72</i>	<i>8'-16"</i>		<i>307.72</i>
" overhang aft ...					
" overhang forward ...					
Fore enclosed ...					
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" forward ...					
Total ...	<i>397.00</i>	<i>397.00</i>			<i>397.00</i>

Standard Height of Superstructure *7.50*

" " R.Q.D.

Deduction for complete superstructure *42.00*

$$\text{Percentage covered } \frac{S}{L} = 91.68$$

$$\frac{S_1}{L} = 91.68$$

$$\frac{E}{L} = 91.68$$

Percentage from Table, Line A. *89.77*

(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 =

37.70.

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<i>53.30</i>	<i>1</i>	<i>53.30</i>	<i>64 1/2</i>	<i>64.50</i>	<i>64.50</i>	<i>1</i>	<i>64.50</i>	<i>64.50</i>
1/4 L from A.P. ...	<i>23.72</i>	<i>4</i>	<i>94.88</i>	<i>28</i>	<i>28.04</i>	<i>28.04</i>	<i>4</i>	<i>112.16</i>	<i>112.16</i>
1/2 L " ...	<i>5.86</i>	<i>2</i>	<i>11.72</i>	<i>7</i>	<i>7.01</i>	<i>7.01</i>	<i>2</i>	<i>14.02</i>	<i>14.02</i>
Amidships ...	<i>✓</i>	<i>4</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>4</i>	<i>✓</i>	<i>✓</i>
3/4 L from F.P. ...	<i>11.73</i>	<i>2</i>	<i>23.46</i>	<i>14</i>	<i>14.51</i>	<i>14.51</i>	<i>2</i>	<i>29.02</i>	<i>29.02</i>
1/4 L " ...	<i>47.44</i>	<i>4</i>	<i>189.76</i>	<i>57 1/2</i>	<i>58.06</i>	<i>58.06</i>	<i>4</i>	<i>232.24</i>	<i>232.24</i>
F.P. ...	<i>106.60</i>	<i>1</i>	<i>106.60</i>	<i>138 1/2</i>	<i>133.50</i>	<i>133.50</i>	<i>1</i>	<i>133.50</i>	<i>133.50</i>
Total ...			<i>479.72</i>					<i>585.44</i>	

$$\frac{\text{Mean actual sheer aft}}{\text{Mean standard sheer aft}} = \text{Ratio}$$

$$\frac{\text{Mean actual sheer forward}}{\text{Mean standard sheer forward}} = \text{Ratio}$$

$$\frac{\text{Length of enclosed superstructure}}{L} \text{ forward of amidships} = .50$$

$$\text{aft of } = .21$$

$$\text{Correction} = \frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{105.72}{18} (.75 - .4584) = 1.71$$

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.

$$\text{Depth to Freeboard Deck} = \text{Ft. } 32.87$$

$$\text{Summer freeboard} = 5.00$$

$$\text{Moulded draught (d)} = 27.87$$

Deduction for Tropical freeboard and addition for

$$\text{Winter freeboard} = \frac{d}{4} \text{ inches} = 6.97 = 7"$$

Addition for Winter North Atlantic Freeboard (if required)=

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$$\Delta = 15276$$

Tons per inch immersion at summer load water line

$$T = 51.02$$

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

$$7.48 = 7 \frac{1}{2}$$

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

$$\frac{774 + 68}{1.36}$$

Depth Correction ... 12.00

Deduction for superstructures ... 37.70

Sheer correction ... 1.71

Round of Beam correction01

Correction for Thickness of Deck amidships

Other corrections, scantlings, etc. ...

12.00 39.42

Summer Freeboard = 60.07

*81.83.**87.49.**81.83*
*23.9.32*SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~Steel~~, Steel, Deck:—

Tropical Fresh Water Line above Centre of Disc ...	<i>14 1/2</i>
Fresh Water Line " " ...	<i>7 1/2</i>
Tropical Line " " ...	<i>7 1/2</i>
Winter Line below " " ...	<i>7</i>
Winter North Atlantic Line " " ...	<i>7</i>

Tropical Fresh Water Freeboard ...	<i>5-0.</i>
Fresh Water " " ...	<i>3-9 1/2</i>
Tropical " " ...	<i>4-4 1/2</i>
Winter " " ...	<i>4-5</i>
Winter North Atlantic " " ...	<i>5-7</i>

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS												
Forecastle & Bridge							Freeboard					
Description of Hatchway	Nº1	Nº2	Nº3	Nº4	Nº5	Nº6	Nº1	Nº2	Nº3	Nº4	Nº5	Nº6
Dimensions of Hatchway	27'0" x 18'0"	30'0" x 18'0"	21'0" x 18'0"	12'0" x 18'0"	30'0" x 18'0"	27'0" x 18'0"	29'0" x 18'0"	30'0" x 18'0"	21'0" x 18'0"	12'0" x 18'0"	27'0" x 18'0"	27'0" x 18'0"
COAMINGS	Height above Deck	30"	30"	30"	30"	30"	18"	18"	18"	18"	18"	18"
	Thickness	50"	68"	66"	50"	68"	50"	64"	50"	44"	48"	48"
	Sides	44"	44"	44"	44"	44"	40"	44"	40"	40"	40"	40"
	Stiffeners	9" B.A.	9" B.A.	9" B.A.	9" B.A.	12" B.A.	9" B.A.	12" B.A.	9" B.A.	9" B.A.	9" B.A.	9" B.A.
HATCH BEAMS	Brackets, Stays	5 2 2 dia	4 2 2 dia	3 2 2 dia	1 2 2 dia	4 2 2 dia	5 2 2 dia	4 2 2 dia	2 2 2 dia	1 2 2 dia	4 2 2 dia	4 2 2 dia
	Number	5	5	4	2	5	5	5	3 x 8 1/4"	2	5	5
	Spacing	4'6"	5'0"	4'2 1/2"	4'0"	5'0"	4'6"	4'10 1/2"	5'0"	4'2 1/2"	4'0"	4'6"
	Scantling and Sketch	15" x 40"	12" x 32"	11 1/2" x 30"	11" x 30"	16" x 36"	11 1/2" x 30"	16" x 38"	16" x 34"	14 1/2" x 40"	14" x 40"	15 1/2" x 40"
FORE AND AFTERS	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"	3 1/2"	3 1/2"
	Number											
HATCH COVERS	Thickness											
	How fitted											
	Bearing Surface											
	Material											
*Are wood fore and afters steel shod at all bearing surfaces? Yes.												
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. Ring bolts fitted. (Weather deck only).												

Particulars of fiddle, funnel and ventilator coamings:— *Stokehold gratings covered by strong steel hinged covers. Fiddle and funnel ventilators in efficient condition. Engine skylight of steel strongly constructed.*

Particulars of Flush Bunker Scuttles:— *None.*

MINOR HATCHES. Bunker hatch on casing top. 16'3" x 6'6". Coaming 8". Covers 2 1/2". Rest 2 1/2". Tarps 2. Cleats 24". Hatch on fore to store. 3'9" x 4'4". Bolted steel plate with 3/4" bolts. 4" apart. Bolted manhole on top. 16" x 12". Coaming 15" x 30". Hatch on fore to store. 3'9" x 4'4". Coaming 15" x 30". Rest 2". Covers 2". Tarps 1. Cleats 18". Hatch on poop post aft. 4'0" x 4'3". do. 19" x 32". do. 2. do. 2. do. 2. do. 24". Turned to upper deck. Coal trimming hatches. Bridge dk. 10'15. 8'9" x 4'0". 10'15. 4'0" x 3'0". Coaming 30" x 35". Covers 2 1/4". Rest 2". Tarps 2. Cleats 20".

Particulars of Companionways:—

Two entrances to crew quarters from poop deck post only. 2 wood (teak) doors 4'9" x 21". 20" sill fitted with locks operated from both sides. Entrance to engine room from bridge deck teak wood door 12". fitted with lock operated from both sides.

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

1 to F.P. store. Coaming 3'0" x 32" 9" dia. 2 to coal. Coaming 36" x 32". 15" dia. 5 to Nº1 tank. do. 3'0" x 38" 24" dia. 2 deep tank. do. 16'0" x 50" 24" do. Protected by house. 2 to Nº2 tank. do. 3'6" x 40" 32" do. 1 Nº4 tank. do. 30" x 35". 20" dia. 2 to do. do. 3'0" x 32" 17" do. 5 swan hatches on poop 9" to opening. 11" to bend. 6" dia. 2 to do. do. do. 21" do. 24" do. 6" do. 2 to do. do. 9'0" x 50". 33" do. Protected by house. 16" do. do. bridge 21" do. 24" do. 6" do. 1 to coal. do. 3'0" x 45" 24". 6 do. do. do. 18" do. 28" do. 7 1/2" oval. 4 double do. do. 18" do. 21" do. 5 x 6" do. to B.R.

Wood plugs for all main ventilators & canvas for man holes.

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

4 to Nº1 tank. 10" high. 6" dia. 4 to Nº6 tank. 10" high. 5 1/2" dia. 6 to Nº2 tank. 9" do. 8" do. 4 to Nº7 tank. 8" do. 8" do. 4 to Nº3 tank. 15" do. 5" do. 4 to Nº8 tank. 10" do. 5" do. 2 to afterdamp. 15 1/2" do. 2" do. 1 to aptank. 15" do. 1 1/2" do. 2 to Nº4 tank. 16 1/2" do. 3" do. fanges on pipes to O.F. tanks. Canvas covers elsewhere. no shifting holes. 2 to Nº5 tank. 10" do. 3" do. 2 to afterdamp. 17" do. 2" do.

Particulars of Gangway Cargo and Coaling Ports:—

Two ports on port and starboard sides in bridge space. Door of steel, hinged, and fitted with two strongbacks. 5'0" x 3'0". 12" to sill. Strong & efficient. One port (on port side only) 2'0" x 2'0". One strongback. 15" to sill. Steel, hinged, strong & efficient. Cargo & coaling ports welded up opening for ashhoor welded) 5/57



City of Derby

Particulars of Scuppers and Sanitary Discharge Pipes:— *Sanitary discharges from officers quarters amidships discharge above freeboard deck and are fitted with non return valves. The scuppers from the bridge tween decks discharge at level of freeboard deck but are cemented over. Discharges from native crew quarters aft discharge below freeboard deck and are fitted with non return valves.*

Particulars of Side Scuttles:— *None below freeboard deck. In fore and bridge space and poop 9" glass fitted with deadlights (hinged).*

Particulars of Guard Rails:— *On fore and bridge steel bulwark from stern to fore end No. 1 Hatch 3'-4"-3'-0" then open rails with 3 rods steel 3'-0" high to aft end of bridge. Stanchions about 4'-6" apart. open rail on poop stanchions 3'-0" high. Stanchions about 4'-6" apart. Steel bulwark in well 4'-2" high.*

Particulars of Gangways, Lifelines, etc.:— *A wood gangway is fitted on port side over well 2'-9" broad with stanchions about 5'-6" apart and rails of steel wire rope.*

Particulars of Freeing Arrangements.

	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
Aft Well	36' 0"	4' 2"	1 2 2'-6" x 1'-9" 1 2 3'-0" x 2'-0"	1 1	10.375 sq. ft.	10.1. —
Forward Well	✓	✓	✓	✓	✓	✓
State position of each freeing port (F. and A. position and height above deck edge) } After Well:— from poop front 9" 3'-0" 14" above deck edge. State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— <i>hinged steel flap and one rod.</i>						
Additional area where sheer is less than standard.						

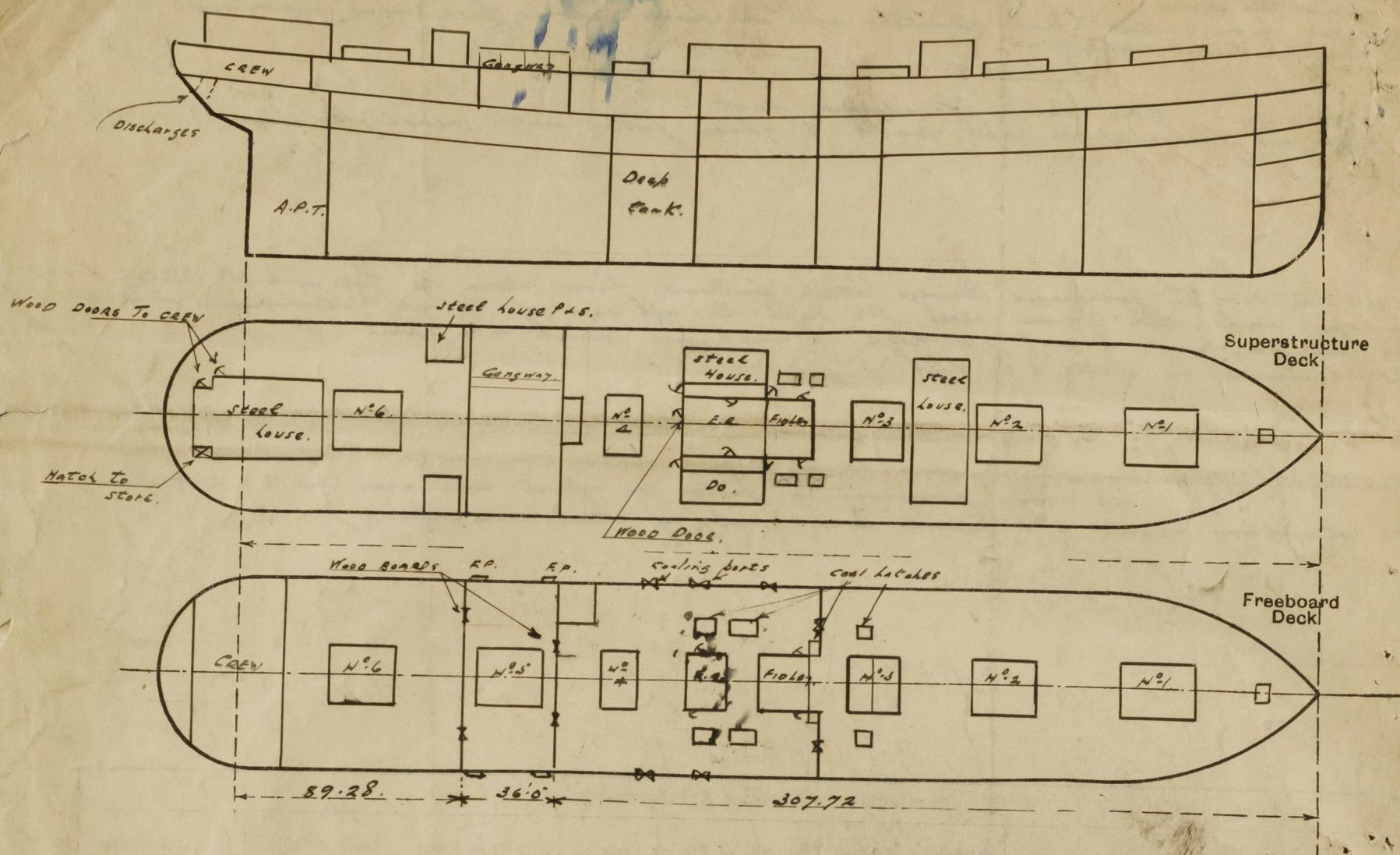
Particulars of Superstructures, Trunks, Casings, Deckhouses.

	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead	✓	.42"	7" x 3" x .40"	32"	Brackets top & bottom.	5'-6" x 4'-0"	17"	8'-2"
Raised Quarter Deck Bulkhead	✓	.32"	4" x 3" x .37"	30"	None.	5'-6" x 4'-0"	17"	8'-2"
Bridge, After Bulkhead	✓	.32"	4" x 3" x .37"	30"	None.	5'-6" x 4'-0"	17"	8'-2"
Bridge, Forward Bulkhead	✓	.32"	4" x 3" x .37"	30"	None.	5'-6" x 4'-0"	17"	8'-2"
Forecastle Bulkhead	✓	.32"	4" x 3" x .37"	30"	None.	5'-6" x 4'-0"	17"	8'-2"
Trunk, Aft	✓	.32"	4" x 3" x .37"	30"	None.	5'-6" x 4'-0"	17"	8'-2"
Trunk, Forward	✓	.32"	4" x 3" x .37"	30"	None.	5'-6" x 4'-0"	17"	8'-2"
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	✓	.32"	4" x 3" x .37"	30"	None.	5'-6" x 4'-0"	17"	8'-2"
Exposed Machinery Casings on Superstructure Decks	✓	.32"	4" x 3" x .37"	30"	None.	5'-6" x 4'-0"	17"	8'-2"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	18" x .40"	.30"	4" x 3" x .40"	36"	Brackets at top only.	5'-0" x 2'-0"	18"	7'-0"
Deckhouses on Flush Deck Ships	18" x .40"	.30"	4" x 3" x .40"	30"	None.	5'-0" x 2'-0"	18"	8'-2"

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

Poop Bulkhead	3" Wood boards in riveted channels full height & double.
Raised Quarter Deck Bulkhead	3" Wood boards in riveted channels full height & double.
Bridge, After Bulkhead	3" Wood boards in riveted channels full height & double.
Bridge, Forward Bulkhead	3" Wood boards in riveted channels full height & double.
Forecastle Bulkhead	3" Wood boards in riveted channels full height & double.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	Hinged steel door to fiddley. Manipulated from both sides.
Exposed Machinery Casings on Superstructure Decks	Wood door to engine room in passage. Manipulated from both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	Hinged steel door, manipulated from both sides.
Deckhouses on Flush Deck Ships	Hinged steel door, manipulated from both sides.

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:— *Timber freeboard not required.*

This survey has been held afloat and confined to an examination of the means for closing the openings in the decks and sides of the ship.

No part of a Special Survey has been held at this time.

OMIT.

Builder's name and yard number *W. Gray & Co (1918) Ltd. Sunderland. Yard N° 942.*

Names of sister ships *CITY OF ADELAIDE. Same builders N° 939. (See Glasgow report C.11. N° 52842.)*

Owners *Ellerman & Bucknall S.S. Co. Ltd.*

Fee £ *14 : 9 : 0.*
Expenses *5 : 0 : 0.*

Received by me

OMIT

