Rpt. C.11.

Index. No. 33019 (For London Office only.)

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14 JUN 1932

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD. No. 6690

Computation of Freeboard for ~~Steamer, Sailing Ship,~~ Tanker

having Poop – Bridge – Forecastle

~~HONG KONG~~

LACKLAN (Type of Superstructures.)

Port of Survey San Francisco

Date of Survey 19th May 1932

Name of Surveyor David Millard

Particulars of Classification & Loading: Carrying Petroleum in bulk.

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
"VACUOLINE" British London	~~BRITISH~~ LONDON	160633	8670	1929-1940

Moulded Dimensions: Length 458·5 Breadth 62·5 Depth 36·5

Moulded displacement at moulded draught = 85 per cent. of moulded depth (31·03) ~~19830~~ 19884 tons

Coefficient of fineness for use with Tables ~~·778~~ ·783

Depth for Freeboard (D)

Moulded depth	36·50
Stringer plate ...(·70)	·06
Sheathing on exposed deck $T\left(\frac{L-S}{L}\right)$ =	
Depth for Freeboard (D) =	36·56

Depth correction

(a) Where D is greater than Table depth 56
(D—Table depth) R = (36·56 – 30·~~69~~) × 3
= + ~~19·67~~ 18·60

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

If restricted by superstructures

Round of Beam correction

Moulded Breadth (B) 62·5

Standard Round of Beam $= \frac{B \times 12}{50} =$ 15"

Ship's Round of Beam = 15½

Difference ·5

Restricted to

Correction $= \frac{\text{Diff}^e}{4} \times \left(1 - \frac{S_1}{L}\right) = \frac{5}{4} \times 58^{21} = -·07$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S_1)	Height	Height Correction	Effective Length (E)
Poop enclosed	117·79	117·79	8'0"	✓	117·79
" overhang	✓	✓		✓	✓
R.Q.D. enclosed ...	✓	✓		✓	✓
" overhang ...	✓	✓		✓	✓
Bridge enclosed... ...	31·12	31·12	8'-0"	✓	31·12
" overhang aft ...	8·88	6·67	✓	✓	6·67
" overhang forward	2·00	1·00	✓	✓	1·00
F'cle enclosed OPEN...	41·21	35·03	8'0"	✓	35·03
" overhang	✓	✓	✓	✓	✓
Trunk aft ...	✓	✓	✓	✓	✓
" forward	✓	✓	✓	✓	✓
Tonnage opening aft ...	✓	✓	✓	✓	✓
" " forward	✓	✓	✓	✓	✓
Total	201·00	191·61			191·61

Standard Height of Superstructure 7'6"

" " R.Q.D. ✓

Deduction for complete superstructure ✓42·00

Percentage covered $\frac{S}{L}$ = 43·84%

" " $\frac{S_1}{L}$ = 41·79%

" " $\frac{E}{L}$ = 41·79%

Percentage from Table, Line A. Tank ✓ 32·79
(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 = 42·00 × ·3279 = – 13·77"

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P.	55·85 ~~56·00~~	1	55·85 ~~56·00~~	48·00	48·00	1	48·00
⅙L from A.P. ...	24·85 ~~24·64~~	4	99·40 ~~98·56~~	20·9~~8~~ 3	20·9~~8~~ 3	4	·72 83·~~60~~
⅔L " ...	6·14 ~~6·16~~	2	12·28 ~~12·32~~	5·23	5·23	2	10·46
Amidships ...	✓	4	✓	✓	✓	4	✓
⅔L from F.P. ...	12·29 ~~12·32~~	2	24·58 ~~24·64~~	10·4~~8~~ 7	10·4~~8~~ 7	2	20·9~~6~~ 4
⅙L " ...	49·71 ~~49·28~~	4	198·84 ~~197·12~~	41·8~~0~~ 7	41·8~~0~~ 7	4	·48 167·~~20~~
F.P.	111·70 ~~112·00~~	1	111·70 ~~112·00~~	96·00	96·00	1	96·00
Total ...			~~500·64~~ 502·65				426·22 60

Mean actual sheer aft / Mean standard sheer aft = ✓ Deficient

Mean actual sheer forward / Mean standard sheer forward = ~~252·84~~ / ~~296·80~~ = ~~85·18%~~ Deficient – 85%

Length of enclosed superstructure / L forward of amidships = ✓ } Does not apply

" " aft of " = ✓

Correction $= \frac{\text{Difference between sums of products}}{18}\left(·75 - \frac{S}{2L}\right) = \frac{\text{~~74·42~~ 76·05}}{18} \times \text{~~·525~~ ·5308} = +\text{~~2·17~~ 2·24}$

If limited on account of midship superstructure.

If limited to maximum allowance of 1½ ins. per 100 ft. ✓

Deduction for Tropical Freeboard.

Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = 36 – ~~6¾~~ Ft. 56

Summer freeboard = 7·46

Moulded draught (d) = 29·10

Deduction for Tropical freeboard and addition for Winter freeboard $= \frac{d}{4}$ inches = 7·27 = 7¼

Addition for Winter North Atlantic Freeboard (if required) = 4·58 = 4½

Deduction for Fresh Water.

Displacement in salt water at summer load water line

Δ = ✓ 18600

Tons per inch immersion at summer load water line

T = ✓ 57·4

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

= ✓ 8·10 = 8"

TABULAR FREEBOARD ~~corrected for Flush Deck (if required)~~

Correction for coefficient ~~1·458~~ / ~~1·36~~ 1·463 / 1·36 ·31 ~~77·70~~ 83·30 16

	+	–
Depth Correction	~~18·00~~ ~~19·67~~	✓
Deduction for superstructures	✓	13·77
Sheer correction	~~2·17~~ 2·24	✓
Round of Beam correction		·07
Correction for Thickness of Deck amidships ...	✓	
Other corrections, scantlings, etc.	20·24 ~~19·84~~	✓ 13·84

+ 6·40

Summer Freeboard = 89·56

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, [redacted], Steel, Deck:—

Tropical Fresh Water Line above Centre of Disc ...	15¼	Tropical Fresh Water Freeboard	7'-5½
Fresh Water Line " " ...	8	Fresh Water "	6'-2¼
Tropical Line " " ...	7¼	Tropical "	6'-9½
Winter Line below " ...	7¼	Winter "	6'-10¼
Winter North Atlantic Line " " ...	11¾	Winter North Atlantic "	8'-0¾
			8'-5¼

15·6·32

MARKING FORM RECEIVED 3 OCT 1930

MARKING FORM RECEIVED 16 SEP 1937

MARKING FORM RECEIVED 16 SEP 1932

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PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS

					36 OFF	4 OFF	4 OFF	6 OFF	1 OFF	1 OFF
Description of Hatchway		CARGO HATCH	HATCH TO CHAIN LOCKER	HATCH TO FORE PEAK	OIL TIGHT HATCHES CARGO TANKS	O.T. HATCHES FUEL OIL TANKS FOR^D & AFT	O.T. HATCHES FUEL OIL TANKS FOR^D & AFT PORT & STARB^D	W.T. HATCHES TO COFFERDAMS FOR^D & AFT PORT & STARB^D	CARGO HATCH FOR^D ON POOP DK TO DRY CARGO SPACE	HATCH TO STORE STARB^D SIDE ON POOP DECK
Dimensions of Hatchway		8'0"x7'0"	2'6"x2'3"	4'0"x4'0"	6'0"x4'0"	6'0"x4'0"	2'6"x2'6"	3'5"x2'2½"	6'0"x8'0"	3'0"x2'6"
COAMINGS	Height above Deck ...	32"	26"	26"	36"	36"	36"	36"	30"	30"
	Thickness Sides ...	·44	·375	·375	·40	·40	·40	·40	·375	·375
	Thickness Ends ...	·44	·375	·375	·40	·40	·40	·40	·375	·375
	Stiffeners	as per rule	as per rule	as per rule	as per rule	as per rule	as per rule	as per rule	as per rule	as per rule
	Brackets, Stays									
HATCH BEAMS	Number									
	Spacing									
	Scantling and Sketch ...	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bearing Surface									
FORE AND AFTERS	Number									
	Spacing									
	Unsupported Lengths ...									
	Scantling* and Sketch ...	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bearing Surface									
HATCH COVERS	Material	STEEL HINGED PLATE COVER	WOOD	WOOD	STEEL	STEEL	STEEL	STEEL	WOOD	WOOD
	Thickness	·50	3"	3"	·60	·60	·50	·50	3"	3"
	How fitted ...	5"x3"x4.0 ANGLE STIFFERS			CHANNEL FRAME	CHANNEL FRAME	BOLTED PLATE	BOLTED PLATE		
	Bearing Surface ...	1⅜" HEMP	2½"	2½"	1⅜" HEMP	1⅜" HEMP	3"	5"	2¾"	2½"
Spacing of Cleats		24"	15"	15"	13"	13"	BOLTS 3" APART	BOLTS 3" APART	20"	20"
Number of Tarpaulins		SWING BOLTS	TWO	TWO	SWING BOLTS	SWING BOLTS			TWO	TWO

*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: FIDDLEY:- Steel gratings with 3/16" hinged steel covers with flanged edges, steel coamings 25-26" above casing top. FUNNEL:- 15'0"x11'0" oval, no skirting riveted to casing top, supported by two bulb angle fore & aft 10"x3"x7/16" & athwartship by two casing bulkheads & four 6'0"x5'6"x3/8" deep brackets from casing sides P.S. VENTILATORS:- Coamings to engine room 3/16" unsupported 8'6"x24" DIA. Two 12" DIA-30" above casing top. ·375 coamings to passageways. Two to stokehold 3/16" coamings 8'6"x36" DIA. unsupported. GALLEY:- Two 6" DIA ·375 coaming 30" above casing top. ENGINE ROOM SKYLIGHT:- 30'0"x13'0" steel plates & angles, steel flaps with bulls eyes, mechanical lifting gear operated from the engine room, side brackets P.S. side from casing supporting the skylight 30"x40"x3/8" spaced 3'0" apart. Wood plugs & Canvas covers for closing ventilators

Particulars of Flush Bunker Scuttles:—

— None —

Particulars of Companionways: FORWARD PUMP ROOM PORT SIDE ONLY:- 6'0"x3'6"x6'7" high ·375 plating one W.T. steel door operated from both sides, coaming 8" above deck. ENTRANCE TO FOR^D HOLD UNDER POLE STARB^D SIDE ONLY:- 5'10"x3'0"x6'6" high ·375 plating NON W.T. steel door operable both sides coaming 19" above deck, 4 dogs fitted. MAIN PUMP ROOM AFT:- 20'0"x9'6"x8'0" high ·43 plating 4½"x3"x3/8" angle stiffs spaced 26" to 30" apart bracketed top & bottom 15"x15"x·375 brackets, steel W.T. door on aft side operated from both sides, 24" coaming above deck. On top P.S. sides steel skylights with 18" coamings & hinged steel flaps.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks: MAIN PUMP ROOM AFT:- 2-24" DIA-96" coamings ·40 efficiently attached P.S. to pump room sides by brackets & angles. 1-18" DIA-33" coamings ·40 on top of house. FORE HOLD:- Stbd side 1-24" DIA-36" coaming ·40. FOREDECK TO FORE HOLD:- Port side 1-24" DIA-36" coaming ·40. POOP DECK:- P.S. sides 1-12" DIA-33" coaming ·34 to seamens & firemen rooms, P.S. sides 1-12" DIA-33" coaming ·34 to passageways. Port side 1-8" DIA-33" coaming ·32 to refer. engine room. P.S. sides & at centre 3-24" DIA 16'0"x·40 coamings efficiently stayed by brackets & angles to aft end of deckhouse, these vents lead to the engine & dynamo rooms. At centre 1-6" CL 5'0" above deck approved Clarke's down type on top of steel skylight to steering engine room. POOP DECK WATERWAY P.S.:- For accommodation 8 in all C.I. oval 8"x4" Gooseneck vents 21" high openings 9" above steel deck canvas covers for closing. Wood plugs & canvas covers for closing ventilators

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks: POOP DECK:- Air pipes to the aft peak tank, double bottom tanks P.S. under the engines & boilers aft are of steel pipe 2½" diam, gooseneck openings 28" above deck. FORE DECK:- At centre fore^d of windlass a 6" steel pipe, opening 36" above deck for the Fore Peak tank. P.S. sides 3½" DIA air pipe to double bottom tanks in fore hold, openings above deck 15" gooseneck steel pipe. UPPER DECK:- P.S. sides the air pipes from the forward & aft fuel oil tanks have 3" DIA steel pipes with goosenecks, attached to side coamings of hatchways the openings are 4'0" above the deck aft & 3'0" above the deck forward, these pipes are efficiently stayed to hatch lifting stanchions. All the Main Cargo & Summer oil tanks are connected to a 4" steel pipe ventilating system which is led up the Foremast, a screw valve is fitted at each hatch. Automatic closing appliances fitted to all air pipes on freeboard deck.

Particulars of Gangway Cargo and Coaling Ports:—

— None —

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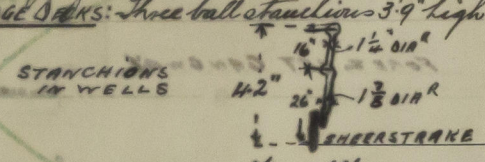
Particulars of Scuppers and Sanitary Discharge Pipes 3-5"x3½" openings thru stringer bar & sheerstrake above upper deck plate P & S sides in forward & aft wells. Sanitary discharges from bridge spaces led thru shell plating above freeboard deck C.I. non return valves fitted. A 4" overboard discharge from forward pump room in P side located 6'6" below freeboard deck fitted with non return screw valve operated from pump room. A 12" ballast discharge from main pump located on Stbd side 6'3" below freeboard deck fitted with 12" Gate valve with extension rod operated from above freeboard deck. A 3" pump room drain discharge on Stbd side 6'6" below freeboard deck fitted with 3" non return screw valve operated from pump room. Sanitary discharges from quarters in Poop led thru shell below freeboard deck, fitted with C.I. non return valves.

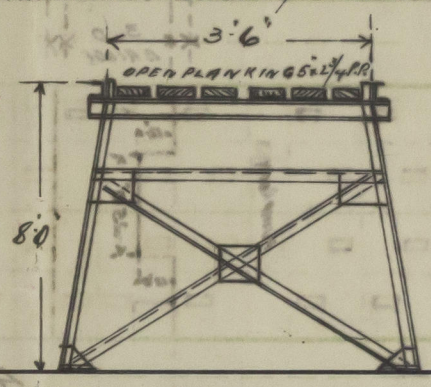
Particulars of Side Scuttles: All air ports for accommodation in the poop, poop front, bridge front & end bulkhds. Bridge side plating & F'cle side plating have permanently hinged deadlights

Particulars of Guard Rails: In wells two ball stanchions 3'6" high with 3/8" galv'd iron chain with 1½" turnbuckles. Stanchions spaced 60" to 68" apart. Socketed to upper edge of sheerstrake. F'cle Deck: Three ball stanchions 3'9" high spaced 38" to 50" apart top rail 1½" dia, two lower rails 3/4" dia. Stanchions taper from 1¾" to 1⅝" dia. POOP & BRIDGE DECKS: Three ball stanchions 3'9" high spaced 46" to 52" apart. top rail 1⅝" dia. two lower rails 3/4" dia stanchions taper from 1¾" to 1⅝" dia.



Particulars of Gangways, Lifelines, etc.: Fore & Aft gangway between F'cle & Bridge, between bridge & pump room & from pump room to Poop. The gangway stanchions are two balled 3'9" high with 5/16" galv'd iron chain with 1½" turnbuckles. Stanchions spaced 48" to 64" apart. Stanchions taper 1¾" to 1⅝" dia. socketed at heel to channel of fore & aft gangway.

FORE & AFT BRACING TWO IN EACH WELL
DIAGONALS 2½"x2½"x⅜" ANGLES
CENTRE GUSSET 18"x16"x9/16" PLATE
TOP & BOTTOM BRACKETS 12"x14"x 9/16"



FORE & AFT SIDE CHANNELS 6"x3½"x3½"x⅜"
BEAMS 6"x2½"x2½" CHANNELS. INTERMEDIATE BEAMS 2½"x2½"x⅜" ANGLES.
SIDE STANCHIONS 4"x3½"x½" TEE BARS. SPACED 8'0" APART
PIPE CARRIER BEAMS 2½"x2½"x⅜" ANGLES
DIAGONALS 2½"x2½"x⅜" ANGLES
CENTRE GUSSET 15"x10"x9/16" PLATE
TOP BRACKETS 10½"x5"x9/16" PLATE
BOTTOM BRACKETS 15"x12"x9/16" PLATE
DECK ANGLES 3½"x3½"x½"

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		Open rails & stanchions				
Forward Well		Open rails & stanchions				

State position of each freeing port ... ... (F. and A. position and height above deck edge) { After Well :— ✓ Forward Well :— ✓

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	·42	·42	BULB ANGLES 9½"x3½"x 9/16"	30"	TOP BRACKETS 20"x22"x3/8" TO DECK 6"x3½"x3/8" L's	ONE 4'6"x3'6"	30"	8'0"
Raised Quarter Deck Bulkhead ...	✓	✓	✓	✓	✓	✓	✓	✓
Bridge, After Bulkhead	·34	·34	4½"x3"x⅜" L's	38"	TOP BRACKETS 16"x12"x7/16" AT THE BOTTOM TO AN "ONLY" BACK ANGLE & RIVETS	TWO 5'0"x3'6"	20"	8'0"
Bridge, Forward Bulkhead	·50	·42	BULB ANGLES 9½"x3½"x½"	36"	TOP BRACKETS 22"x20"x7/16" TO DECK 6"x3½"x9/16" L's	TWO 2'6"x5'6"	24"	8'0"
Forecastle Bulkhead SIDE HOUSES ...	·375	·375	3"x3"x⅜" L's	36"	TOP BRACKETS ONLY 21"x24"x3/8"	OPEN 9'0" EACH SIDE OF CENTRE	✓	8'0"
Trunk, Aft	✓	✓	✓	✓	✓	✓	✓	✓
Trunk, Forward	✓	✓	✓	✓	✓	✓	✓	✓
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...	✓	✓	✓	✓	✓	✓	✓	✓
Exposed Machinery Casings on Superstructure Decks BOILER ROOM...	·38	·34	3"x3"x⅜" L's	36"	LARGE BRACKETS ON TOP 60"x66"	STEEL DOORS 27"x60"	ABOVE WOOD DECK 15"	8'0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	·38	·34	3"x3"x⅜" L's	36"	LARGE BRACKETS ON TOP 30"x40"	STEEL DOORS 27"x60"	15"	8'0"
Deckhouses on Flush Deck Ships ...	✓	✓	✓	✓	✓	✓	✓	✓

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

Poop Bulkhead 1 OPENING ...	3" shifting boards in channels riveted to bulkd. hook bolts thru steel portable plate.
Raised Quarter Deck Bulkhead ...	✓
Bridge, After Bulkhead 2 OPENINGS	3" shifting boards in channels riveted to bulkd. hook bolts thru steel portable plate
Bridge, Forward Bulkhead 2 OPENINGS	Sub Hinged N.S. doors can be operated from both sides
Forecastle Bulkhead	sides houses opening between 18'8" no closing appliances
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...	✓
Exposed Machinery Casings on Superstructure Decks BOILER ROOM...	operable from both sides
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ENGINE CASING...	ordinary steel doors in halves & Wood door at centre and to pass gangway ordinary
Deckhouses on Flush Deck Ships ...	ordinary steel doors into engine room.

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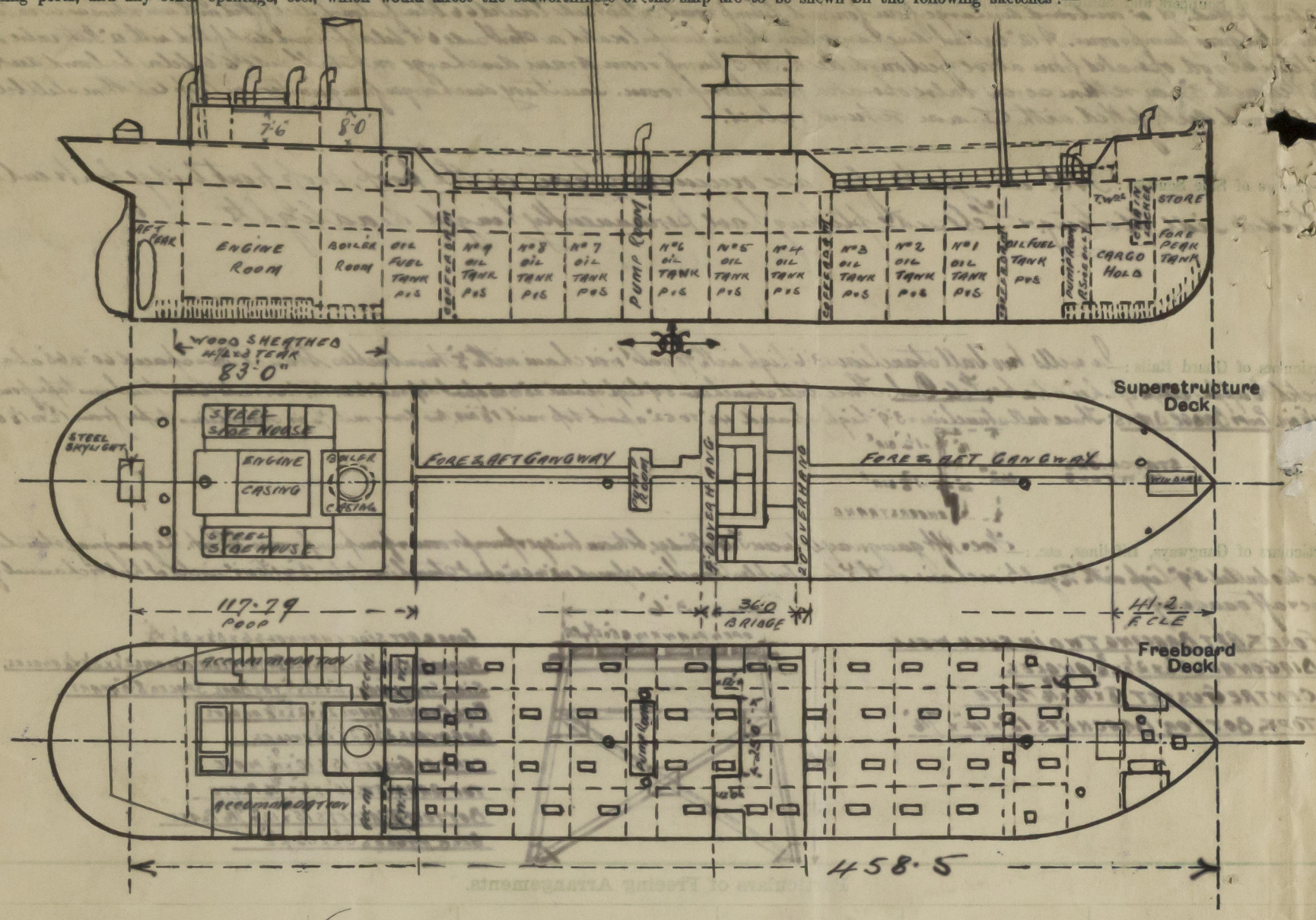
Superstructure bulkheads, trunks, deckhouses, casings, cargo and coaling hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo and coaling ports, and any other openings, etc., which would affect the seaworthiness of the ship are to be shewn on the following sketches :—



Vessel examined afloat

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

Builder's name and yard number Withgows Limited Yard No 820

Names of sister ships S/S Pulpit Point. Sfd Rpt No 6670. S/S Yarrqville. Sfd Rpt No 6689

Owners Standard Vacuum Transportation Coy. New York.

Received by me

Particulars of

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