

ferro-concrete cargo vessel (205' x 32' x 19.5')

Longitudinal Stresses in Hogging Condition

Scale for Vessel = $\frac{1}{8}'' = 1 \text{ foot}$

Scale for Buoyancy, Weights & Loads = $\frac{1}{4}'' = 1 \text{ ton}$

" " Shearing Forces = $\frac{1}{4}'' = 10 \text{ tons}$

" " Bending Moments = $\frac{1}{2}'' = 1,000 \text{ ft tons}$



Grid	1/2 area	Buoyancy	Tons for ft S.M.	Grid for def.	ft	Tons
1	0	0	1	0	0	0
2	52.0	2.97	4	202.5	1040	
3	157.0	10.69	2	374	1496	
15.2	4	243.0	13.90	4	972	2916
16.2	5	291.0	16.63	2	582	1164
19.5	6	312.0	17.83	4	1248	1248
18.2	7	291.0	16.63	2	582	7864
15.2	8	243.0	13.90	4	972	972
9	184.0	10.74	2	376	752	
10	95.0	5.43	4	380	1140	
11	0	0	1	0	0	
				5,694	2,864	

$$\frac{5,000 \times 20.5}{5,694} = 18$$

$$L.C.B. = 18' \text{ aft of } 7$$

$$L.C.B. = 2.5' \text{ fwd of } 8$$

$$\text{Mush for S.M.} = \frac{20.5}{5} \times \frac{2}{.85}$$

$$\text{Displacement} = 2,226 \text{ tons}$$

$$\text{Add } 15 \text{ tons for 100 ft} = 24 \text{ tons}$$

$$\text{Net Displacement} = 2,250 \text{ tons}$$

Hull	220
Prof.	80
Forecastle	20
Buttheads	50
Long Beams	30
Eng'g + Boiler + S	70
Anchors	20
Joiner + Carriage	30
Aux. Machinery	17
Boats	5
Remainder of outfit	30
Margin etc	17
Equipped Condition	1200
Coal	50
Deadweight	1000
Load Displ	2200

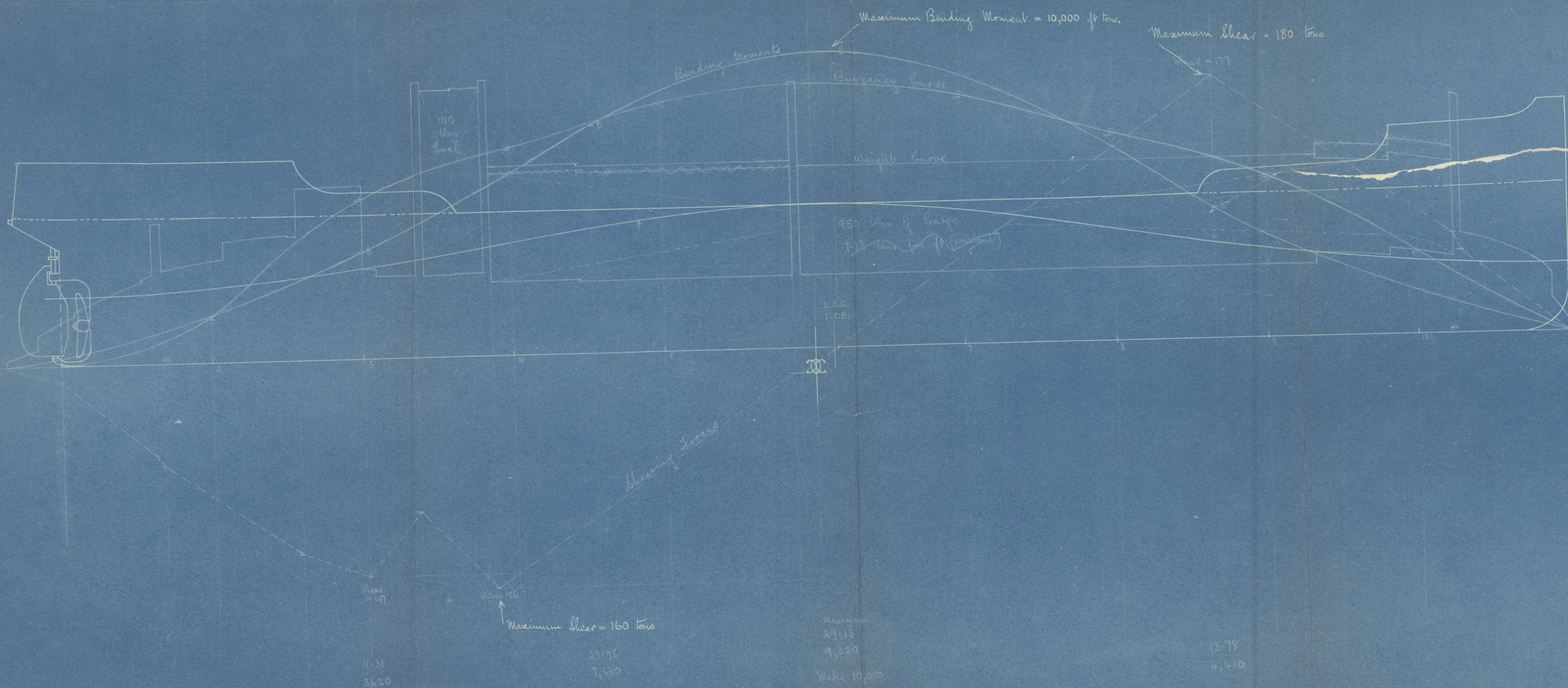
Normal load & cargo.
Modified on curves below.

$$\frac{205 \times 2250}{81775} = 5.5$$

These weights
worked to on
curves below.

Item	Tons	C.G. above	Moment	Item	Tons	C.G. above	Moment
Equipped Condition	1200	8.33	10,000				
Coal	100	48.5	4,850				
Cargo	950	21.6	20,500				
Laded Condition for Hogging Bending Moments	2250	25.2	56,700				

← aft moment too big by (15 x 1200) = 1800 ft tons.
Move 18 tons cargo through 100' = 1800 ft tons.



$$\frac{2000 \times 200}{4} = 10,000$$

$$K = 40$$



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Vicki's Cargo Return

Local Sendings

Hogmanay

RETAIN



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