

Camwell hands Yd 1298/9/1300

Freeing Port Area

	DECK AT SIDE ABOVE DATUM LINE	SHEER	SM.	PROD.	STANDARD SHEER	SM	PROD
A.P.	15'-4" ✓	10" ✓	1	10.00 ✓	18.80 ✓	1	18.80 ✓
1/6L	14'-4" ✓	-2" ✓	4	-8.00 ✓	8.37 ✓	4	33.48 ✓
1/3L	14'-2" ✓	-4" ✓	2	-8.00 ✓	2.07 ✓	2	4.14 ✓
X	14'-6" ✓	0 ✓	4	0	0	4	0
1/3L	15'-5" ✓	11 ✓	2	22.00 ✓	4.14 ✓	2	8.28 ✓
1/6L	16'-8" ✓	26 ✓	4	104.00 ✓	16.73 ✓	4	66.92 ✓
P.	18'-4" ✓	46 ✓	1	46.00 ✓	37.60	1	37.60 ✓
				<u>166.00 ✓</u>			<u>169.22 ✓</u>

$L = 88.00 \text{ ft}$

Freeing Port Area for push deck ship = $4.31' + 8.8' = 13.11 \text{ ft}^2$

Increase Area due to Shear Defic. = $0.5 \times 13.11 \left(1 - \frac{0.0170}{169.22}\right) = 1.2 \text{ ft}^2$

Freeing Port Area Required = 13.23 ft^2

Freeing Area provided as indicated on Plan N°22 - "Shell Expansion"

7 in N° 2'-6" x 6" freeing ports.

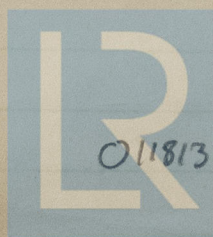
Area Provided = $7 \times 2.5' \times 0.5' = 8.75 \text{ ft}^2$

Increase freeing ports to 2'-10" x 8" minimum.

Area then provided = $7 \times 2.83' \times 0.23' = 13.20 \text{ ft}^2$

Area required 13.23 ft^2

Class A1 tug for service in Mersey Estuary
from ship papers



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