

LIST OF PLATES (Mild Steel)

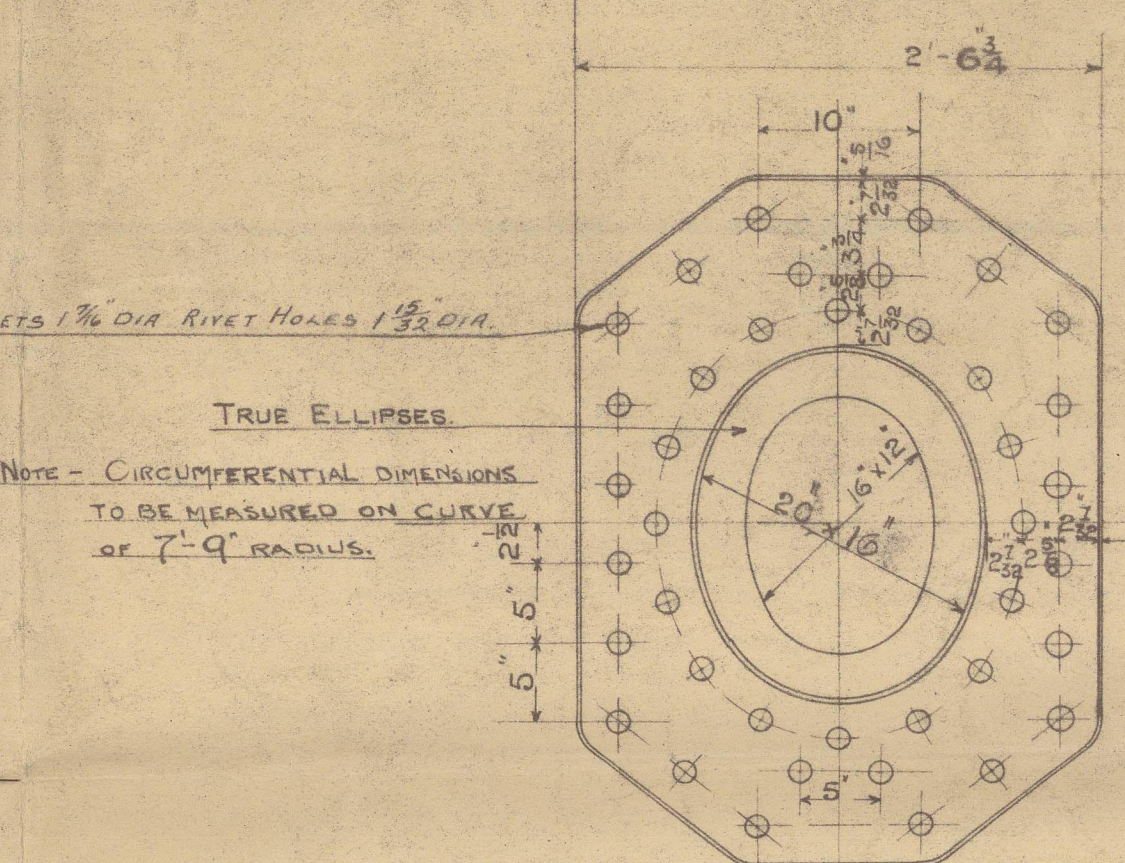
MARK	N <sup>o</sup> OFF	LENGTH	BREADTH	THICKNESS	PURPOSE
Z 457	A	15'-6"	11'-0"	1 1/2"	SHELL PLATE (TOP)
AA	4	33'-7 1/2"	11'-0"	1 1/2"	INSIDE BUTT STRAPS (BOTTOM)
B	8	10'-5"	22 1/2"	1 1/2"	INSIDE BUTT STRAPS
C	8	11'-0"	22 1/2"	1 1/2"	OUTSIDE
D	4	4'-3"	2'-7"	1"	COMB. CHAMBER BOTTOMS WING
E	4	7'-4"	2'-7 1/2"	1"	CENTRE
F	8	3'-6"	3'-3"	1 1/2"	DOUBLING PLATES
G	4	7'-0"	10 1/2"	1 1/2"	WASHERS
H	112	2'-11 1/2"	13 1/2"	3/8"	GIRDERS
I	8	20'-0"	2'-7"	3/8"	COMB. CHAMBER SIDES
J	4	10'-6"	2'-7 1/2"	3/8"	CENTRE
K	4	8'-9 1/2"	5'-10 1/2"	1 1/2"	BACK
L	4	11'-0"	5'-0 1/2"	1 1/2"	WING
M	8	8'-9 1/2"	5'-10 1/2"	1 1/2"	CENTRE
N	8	8'-9 1/2"	5'-10 1/2"	1 1/2"	TUBE PLATES
P	4	11'-0"	5'-0 1/2"	1 1/2"	CENTRE

LIST OF STAY BARS (Mild Steel)

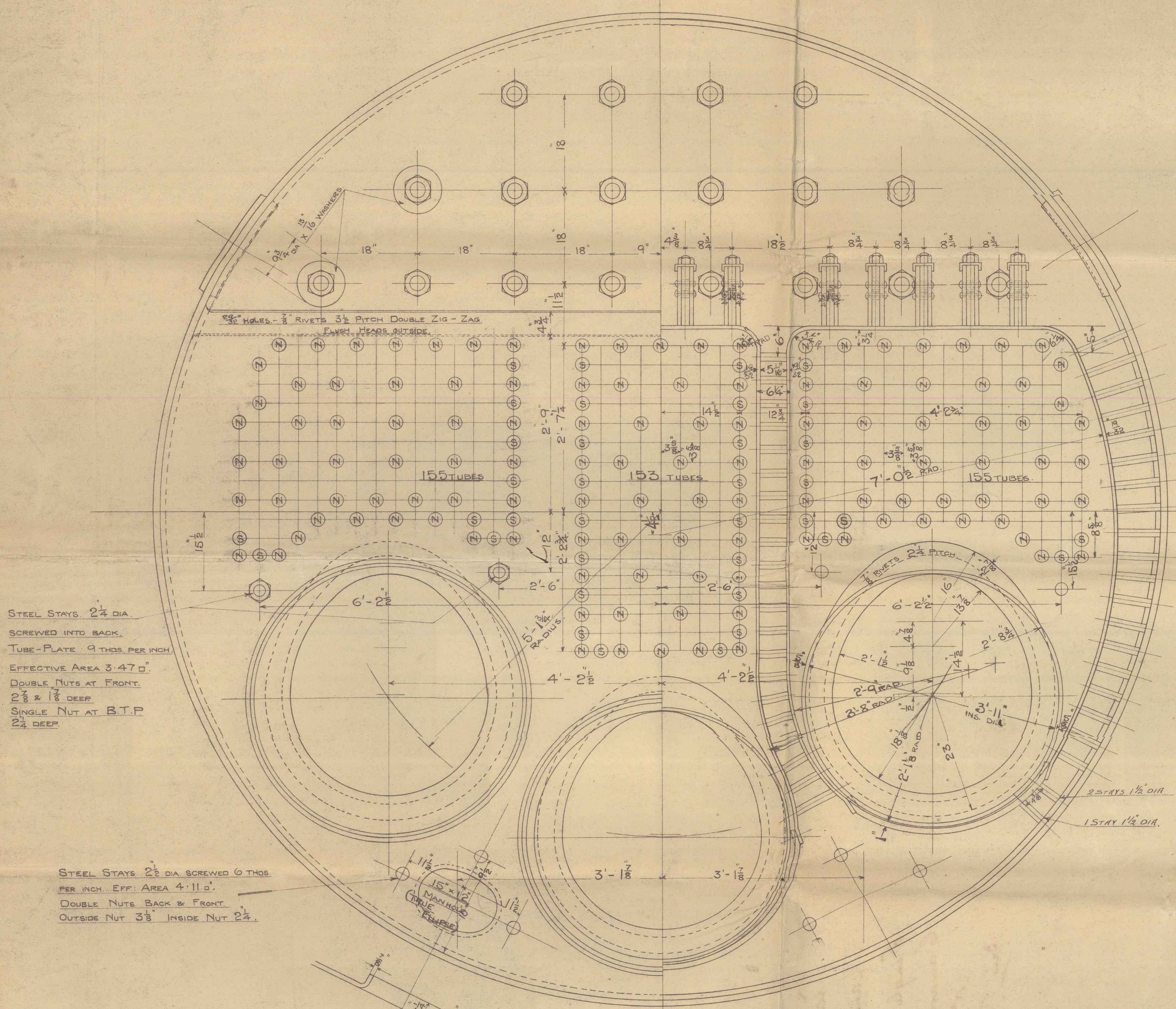
MARK	N <sup>o</sup> OFF	DIMENSIONS	THICKNESS	PURPOSE
Z 457/R	4	11'-0"	1 1/2"	FRONT END PLATE (TOP)
S	4	11'-0"	27"	FRONT TUBE PLATE
T	4	11'-0"	1 1/2"	BACK END PLATE (TOP)
U	4	11'-0"	27"	BACK END TUBE PLATE

LIST OF TUBES

MARK	N <sup>o</sup> OFF	DIA.	LENGTH	PURPOSE
Z 457	305	2 1/2"	12'-4"	STEAM SPACE STAYS
A	16	3 1/2"	12'-0"	BOUNDARY STAYS
B	24	2 1/2"	12'-0"	TUBE PLATE STAYS
C	8	1 1/2"	30'-0"	BOTTOM TUBES STAYS AT MANHOLE
D	11	1 1/2"	30'-0"	COMB. CHAMBERS (CENTRE WATER SPACES)
E	29	1 1/2"	30'-0"	(WING)
F	20	1 1/2"	30'-0"	(BACK STAYS)
G	8	1 1/2"	30'-0"	(BACK MARGIN STAYS)
H	8	1 1/2"	30'-0"	(GIRDER STAYS)



ALL PLATES MARKED \* TO BE FLANGING QUALITY. QUANTITIES GIVEN FOR 4 BOILERS.



STEEL STAYS 2 1/2" DIA. SCREWED INTO BACK. TUBE PLATE 9 THRS PER INCH. EFFECTIVE AREA 3.47 D. DOUBLE NUTS AT FRONT. 2 1/2" & 1 1/2" DEEP. SINGLE NUT AT B.T.P. 2 1/2" DEEP.

STEEL STAYS 2 1/2" DIA. SCREWED 9 THRS. PER INCH. EFF. AREA 4.11 D. DOUBLE NUTS BACK & FRONT. OUTSIDE NUT 3 1/2" INSIDE NUT 2 1/2".

PARTICULARS OF HEATING & GRATE SURFACES ETC.

	1 SET	4 SETS	2 SETS
TUBES	2342	18,736	
FURNACES	161 1/2	1291 1/2	
COMBUSTION CHAMBERS	260.6	2,084.8	
TOTAL	2764	22120	
BAR - 5'-0" x 4'-0"	70.5	560	
AREA THRU TUBES	10.5	84	
RATIO BAR TO HEATING SURFACE	1.34		
TUBE AREA TO BAR	1.66		
STEAM SPACE FROM COMB. CH. TOP	444	2440	
WATER TO	987	7122	
WEIGHT OF FRESH WATER	27 (TONS)	194 (TONS)	
ONE BOILER WITHOUT MOUNTINGS (EMPTY)	42 1/2 (TONS)		

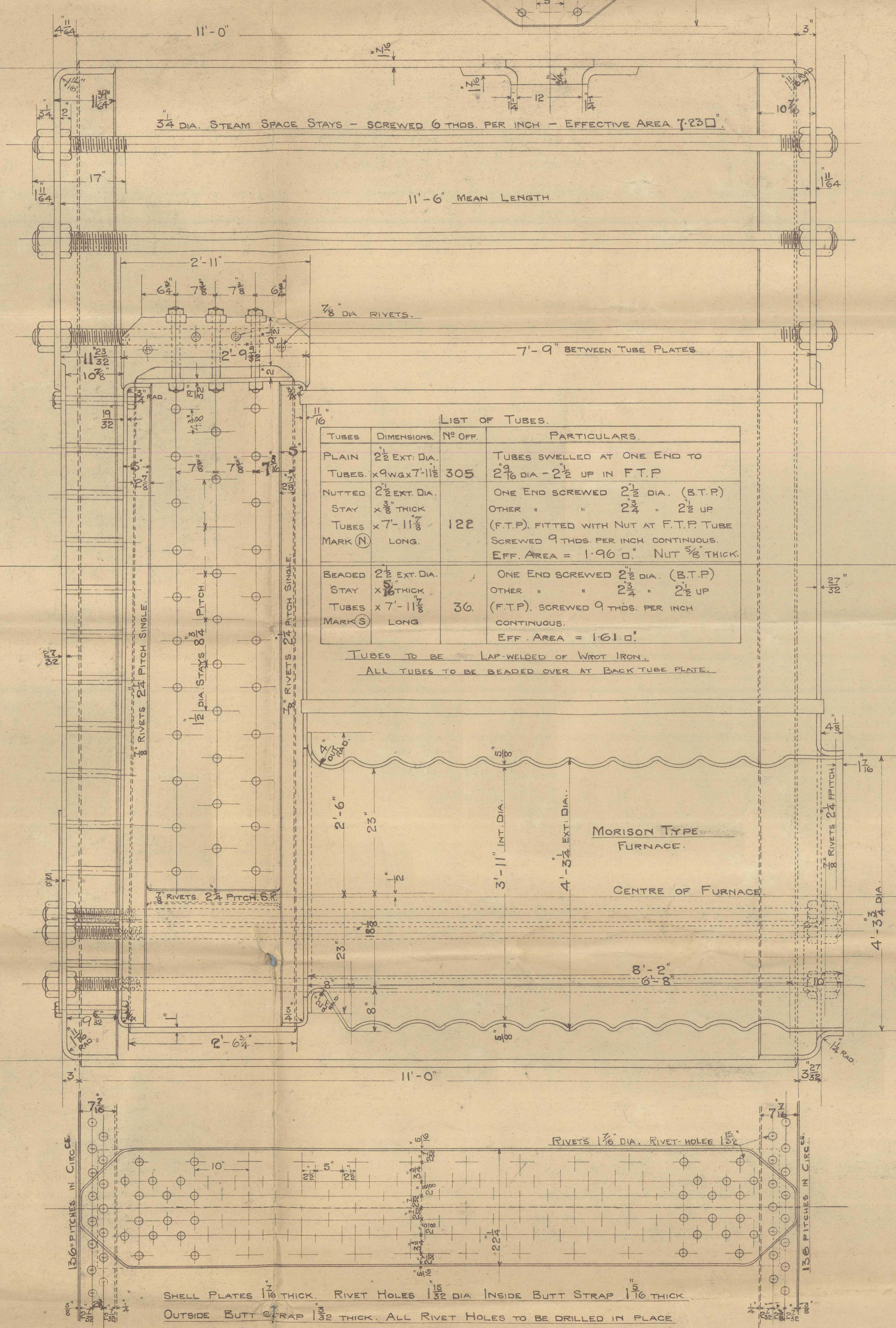
RIVETING

	SHELL	COMB. CH. JOINT	BUTT STRAPS
PITCH	10"	15 1/2"	4 1/2" (ABOUT)
DIA. OF RIVET HOLE	1 1/2"	1 1/2"	1 1/2"
PLATE	85.31	85.21	65.8
RIVET	92	87	51.85

SHELL PLATED - 28 TONS (MINIMUM TENSILE STRENGTH). ALL RIVETS, PLATES & COILS DONE OF MILD STEEL. TUBES & STAY NUTS OF WROUGHT IRON.

LIMITS OF TENSILE STRENGTH

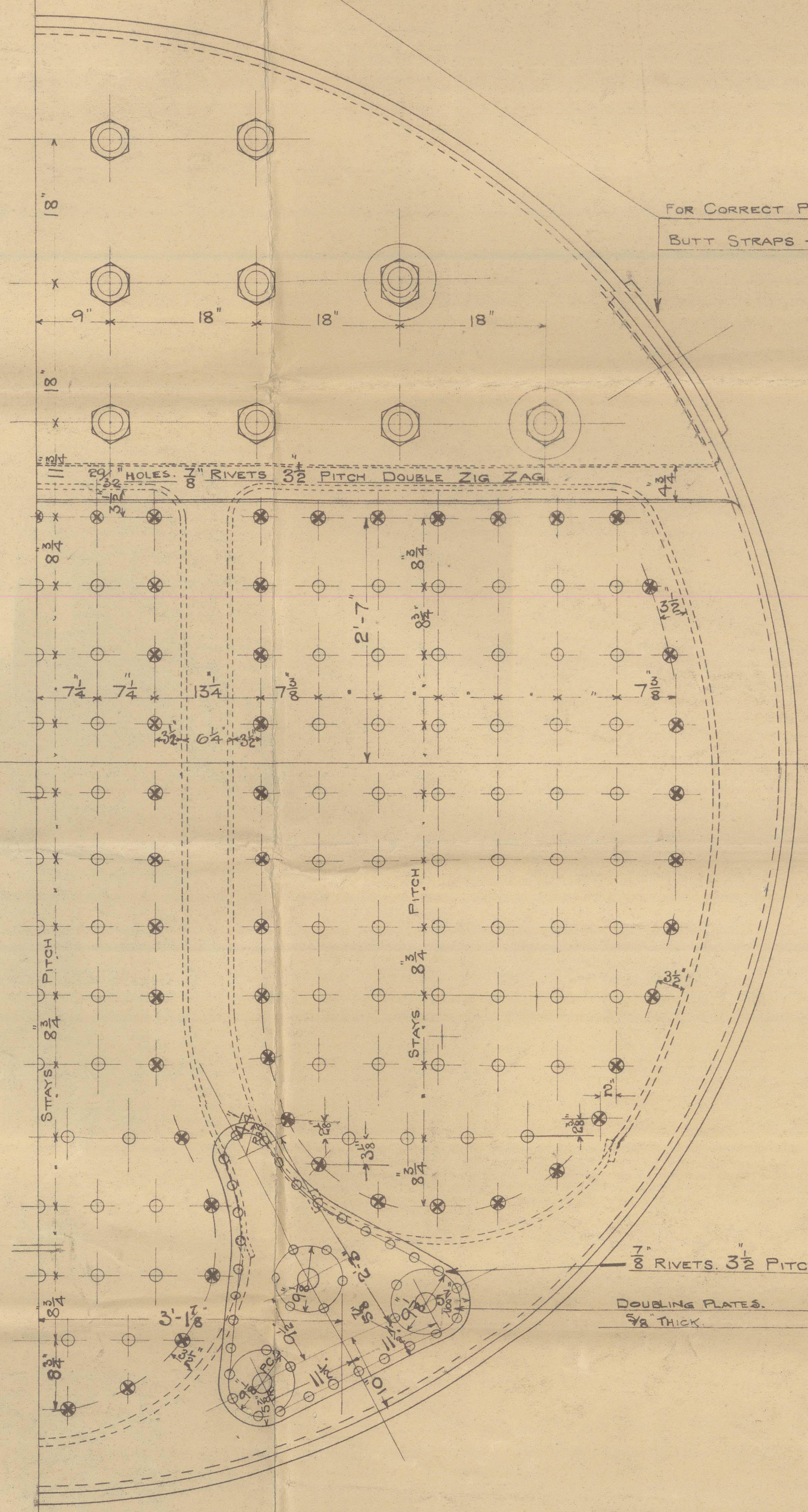
	28 TO 32 TONS	20% IN 8"
SHELL PLATES, BUTT STRAPS, DOUBLINGS, WASHERS & GIRDER STAYS	26 TO 30	23%
ALL OTHER PLATES	26 TO 30	23%
FURNACES	26 TO 30	20%
MAIN STAYS	26 TO 30	23%
SCREWED STAYS	26 TO 30	23%
RIVET BARS		



LIST OF TUBES

TUBES	DIMENSIONS	N <sup>o</sup> OFF	PARTICULARS
PLAIN	2 1/2" EXT. DIA.	305	TUBES SWELLED AT ONE END TO 2 1/2" DIA - 2 1/2" UP IN F.T.P.
TUBES	2 1/2" EXT. DIA.	305	ONE END SCREWED 2 1/2" DIA. (B.T.P.)
NUTTED	2 1/2" EXT. DIA.	122	OTHER " " 2 1/2" " 2 1/2" UP (F.T.P.) FITTED WITH NUT AT F.T.P. TUBE SCREWED 9 THRS PER INCH CONTINUOUS. EFF. AREA = 1.96 D. NUT 3/8" THICK.
STAY	2 1/2" THICK	122	
TUBES	2 1/2" THICK	122	
MARK (N)	LONG	122	
BEADED	2 1/2" EXT. DIA.	30	ONE END SCREWED 2 1/2" DIA. (B.T.P.)
STAY	2 1/2" THICK	30	OTHER " " 2 1/2" " 2 1/2" UP (F.T.P.) SCREWED 9 THRS PER INCH CONTINUOUS. EFF. AREA = 1.61 D.
TUBES	2 1/2" THICK	30	
MARK (S)	LONG	30	

TUBES TO BE LAP WELDED OF WROUGHT IRON. ALL TUBES TO BE BEADED OVER AT BACK TUBE PLATE.



STEEL STAYS MARKED THUS  $\bigcirc$  1 1/2" DIA. SCREWED 9 THRS PER INCH. EFF. AREA = 1.44 D. FITTED WITH NUTS BOTH ENDS. = 2.03 D.

TESTS.  
To B of T SPECIAL SURVEY & LLOYDS REQUIREMENTS.  
WORKING PRESSURE 180 LBS PER D.  
HYDRAULIC TEST " 360



S. E. MAIN BOILERS. — 4 — OFF.

SCALE 1" = ONE FOOT.

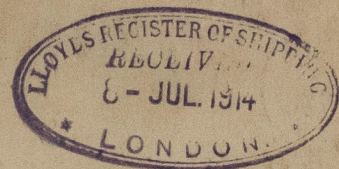
GENERATORS N<sup>o</sup> 457.

DRAWING N<sup>o</sup> 457/51.



Vickers Ltd  
Main Boilers  
Single Enda.  
Canadian Icebreaker  
No. 454.

Bxw.



I.S. Icebreaker "~~J.D. HAZEN~~"  
"Mikula Selianinovitch"

RETAIN