

SURFACES	ONE BOILER	3 BOILERS
TUBES	2,100	6,300
FIREBOX TOP & SIDES	158	474
BACK	82	246
TUBE PLATE	55	165
FURNACES	161	483
TOTAL HEATING SURFACE	2,556	7,668
GRATE AREA (5" x 6" BARS)	63.3	190
TUBE AREA	11.65	34.95
WATER	160	480
STEAM SPACE	514	1,542
GRATE AREA HEATING SURFACE	1:40	1:40
TUBE	1:33	1:33
AREA	5.23:1	5.23:1
WATER	1:2.52	1:2.52
STEAM SPACE	1:8.1	1:8.1
% BOILER ABOVE FIREBOX	32.2	32.2
WEIGHT OF WATER	26 TONS	79 TONS

RIVETING	LONG	BACK END	FRONT END
RIVET HOLE DIA	1 1/8"	1 1/8"	1 1/8"
PITCH	9.125"	3.54"	3.19"
% PLATE	85.6	63	63
% RIVET	88.3	51.9	46.5

LIMITS OF TENSILE STRENGTH & MATERIAL

SHELL BUTTSTRAPS & GIRDER	28 TO 32 TONS
OTHER PLATES	26 TO 30
FURNACES	26 TO 30
MAIN STAYS	28 TO 32
SCREWED STAYS	26 TO 30
RIVET BARS	26 TO 30

ALL RIVET HOLES DRILLED IN PLACE

MAIN STAYS SHELLED AT ENDS

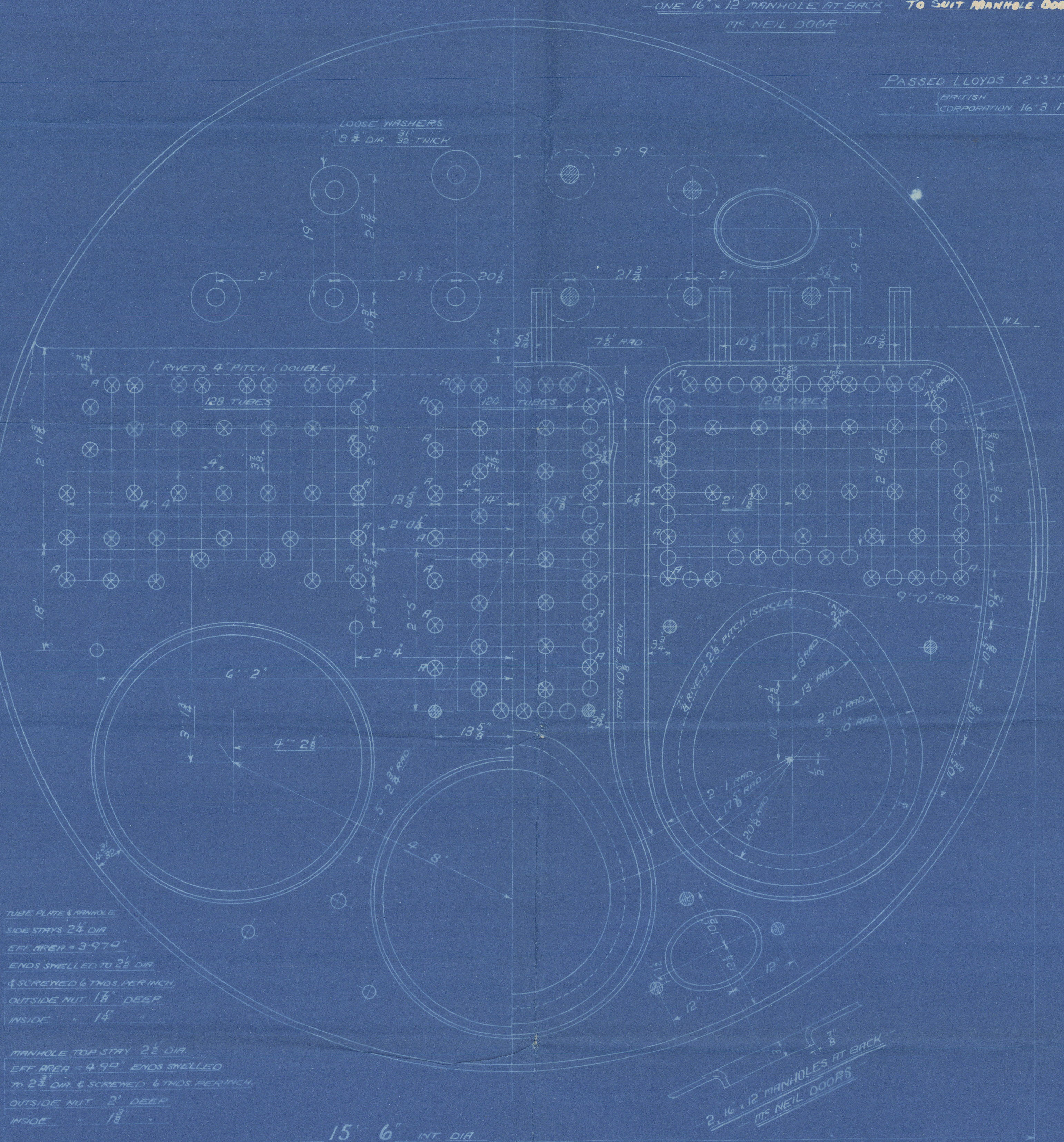
AND TURNED DOWN AS SHOWN

PLATE REDUCED AS SHOWN

ONE 16" x 12" MANHOLE AT BACK TO SUIT MANHOLE DOOR
MC NEIL DOOR

PASSED LLOYDS 12-3-17

BRITISH
CORPORATION 16-3-17



TUBE PLATE & MANHOLE
SIDE STAYS 2 1/2" DIA.
EFF. AREA = 3.974"
ENDS SHELLED TO 2 1/2" DIA.
& SCREWED 6 THDS PER INCH
OUTSIDE NUT 1 1/8" DEEP
INSIDE 1 1/4"

MANHOLE TOP STAY 2 1/2" DIA.
EFF. AREA = 9.92" ENDS SHELLED
TO 2 1/2" DIA. & SCREWED 6 THDS PER INCH
OUTSIDE NUT 2" DEEP
INSIDE 1 1/8"

15" 6" INT. DIA.

11" 10 1/2" OVERALL LENGTH OF MANHOLE STAYS

8" 1" TUBE PLATE STAYS

11" 11" OVERALL LENGTH OF MANHOLE STAYS

DETAIL OF MANHOLE & TUBE PLATE STAYS

END PLATE

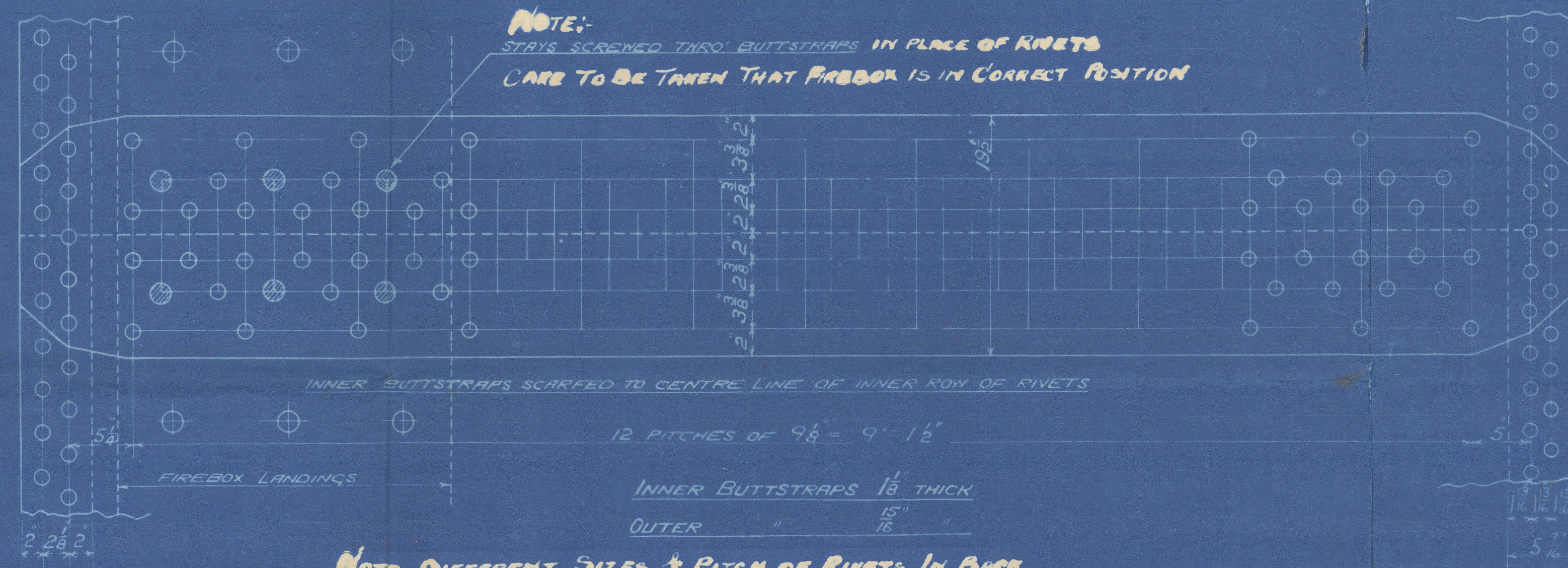
11" 11" OVERALL LENGTH OF MANHOLE STAYS

DETAIL OF MANHOLE & TUBE PLATE STAYS

END PLATE

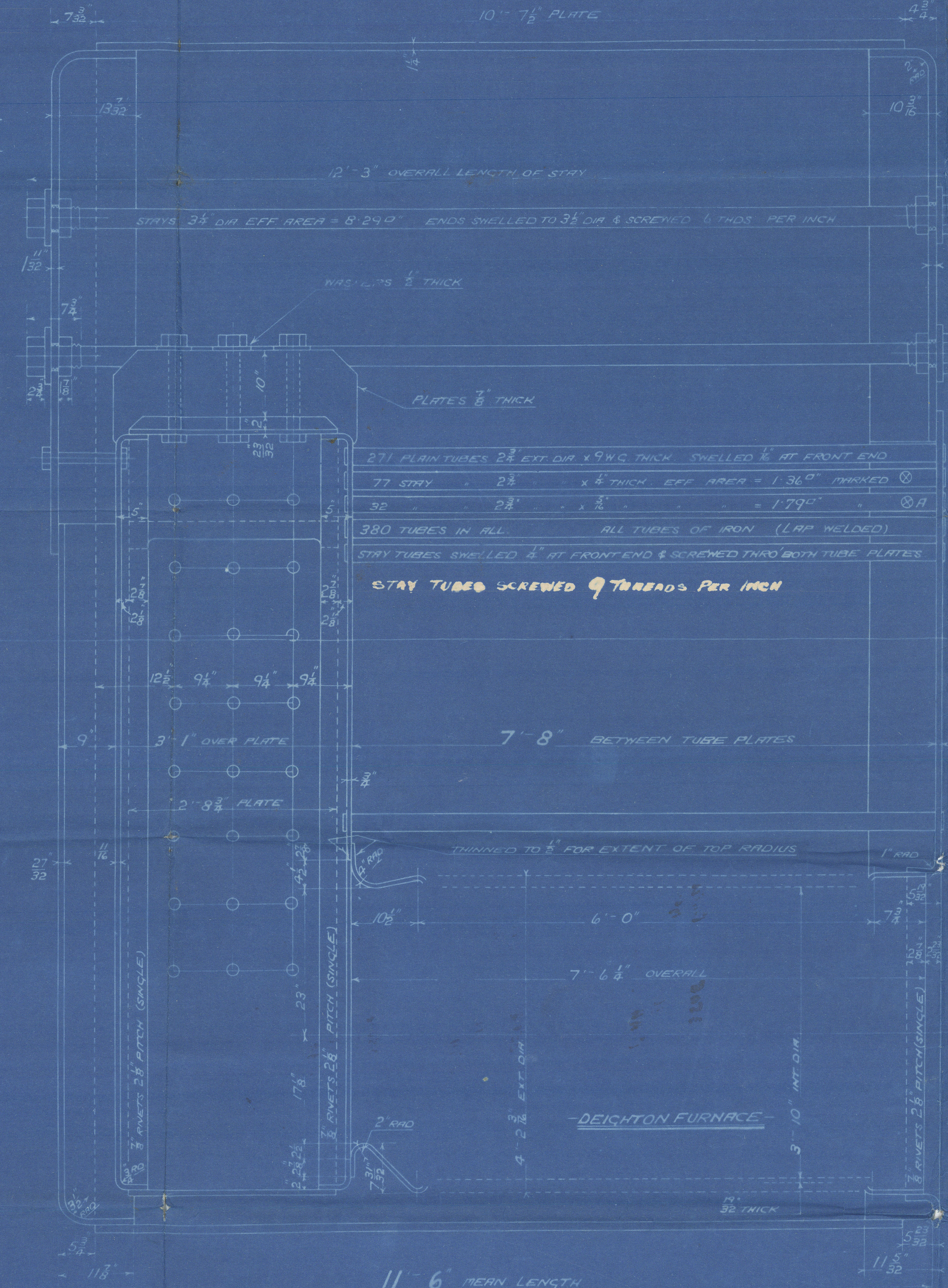
11" 11" OVERALL LENGTH OF MANHOLE STAYS

DETAIL OF MANHOLE & TUBE PLATE STAYS



NOTE:
STAYS SCREWED THRO BUTTSTRAPS IN PLACE OF RIVETS
CARE TO BE TAKEN THAT FIREBOX IS IN CORRECT POSITION

NOTE DIFFERENT SIZES & PITCH OF RIVETS IN BACK
AND FRONT CIRCUMFERENTIAL BEAMS



11" 6" MEAN LENGTH

MAIN BOILER (SECOND SERIES)

3 OFF

WORKING PRESSURE = 180 LBS PER SQ INCH

TO PASS LLOYDS SURVEY

SCALES 1" 1 1/2" = ONE FOOT

TRACING NO 4601

POSITION	MARK	DIA	EFF. AREA
BACK TOP & SIDES	1/8"	2.3954"	10 THDS PER INCH
WATER SPACE	2"	2.75 0"	9 THDS PER INCH
TUB. BOY	2 1/2"	3.49 0"	9 THDS PER INCH

ALL FIREBOX STAYS SCREWED THRO BOTH PLATES & NUT FITTED AT EACH END
EXCEPT STAYS FROM WING FIREBOX TO SHELL WHICH PROJECT 1/8" & ARE CHILLED.
ALL 1 1/2" NUTS 1 1/2" DEEP EXCEPT ON GIRDER TOPS WHERE THE OUTSIDE NUTS ARE 1 1/2" DEEP.

ALL 2" & 2 1/2" NUTS, 1 1/2" DEEP

CONTRACT NO 528

DAVID ROWAN & CO'S
REFERENCE
23496A
REGISTERED
10000 7th MARCH 1917

WS94-0091

SUNDERLAND.

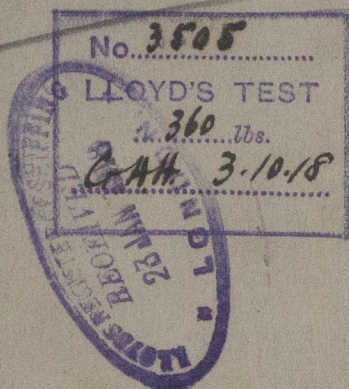
W. DOXFORD & SONS LB

(3) BOILERS NO 528

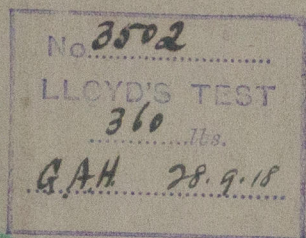
WP = 180 LBS

"A" TYPE

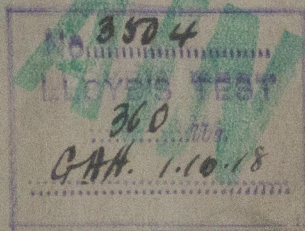
Caithness



*Central
Boiler*



*Port-
Boiler*



*Star.
Boiler*

Sutherland

SUNDERLAND RPT. NO. 27376

WS-14-00911

Lloyd's Register
Foundation