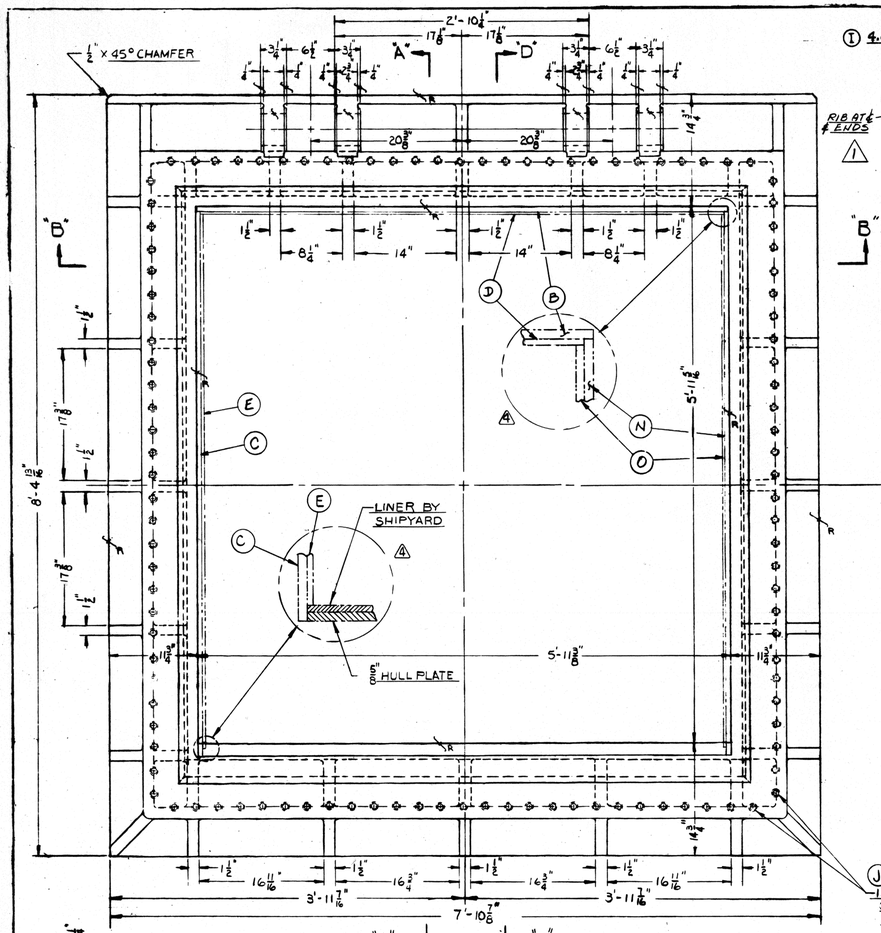
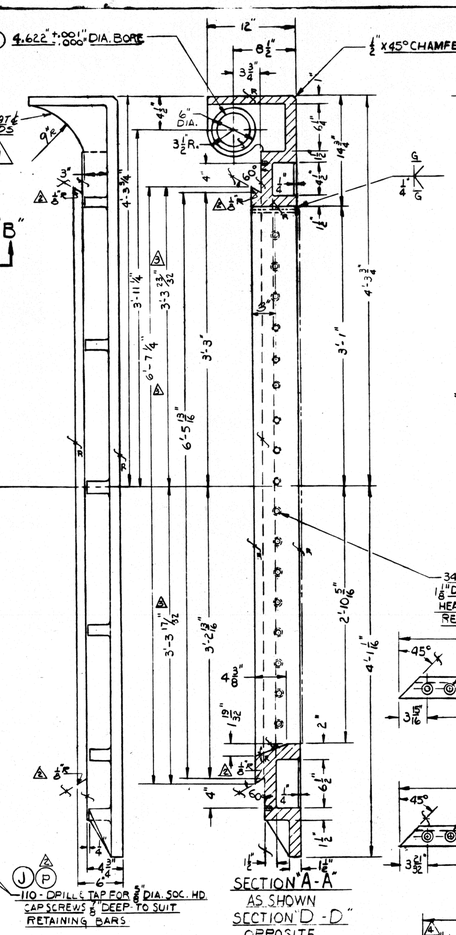
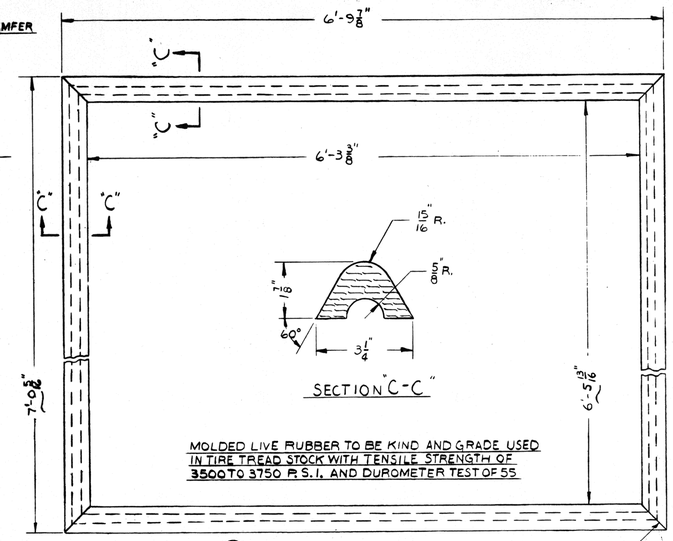
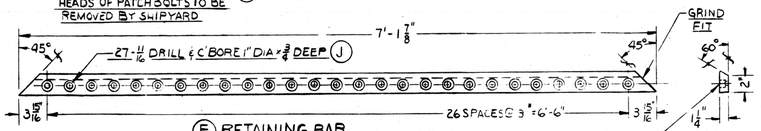
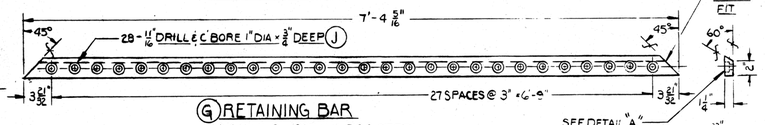




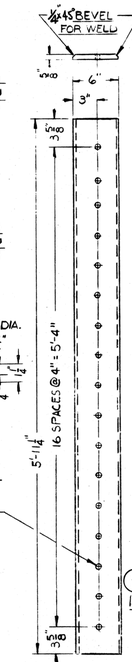


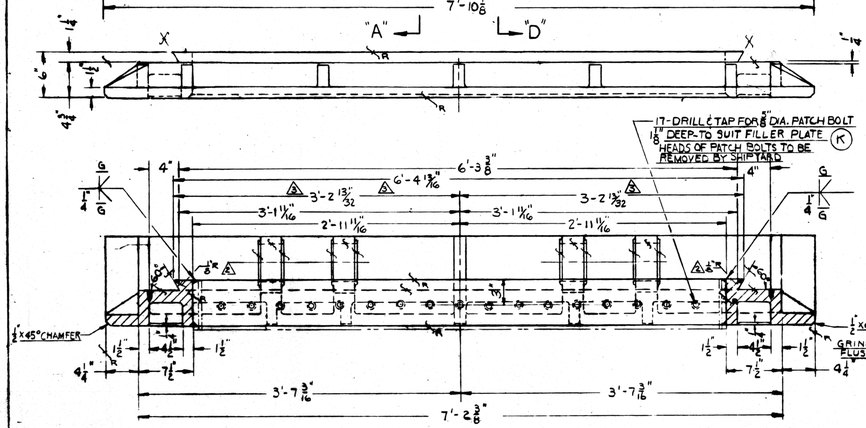


(F) RETAINING BAR
24 THUS-STAINLESS STEEL



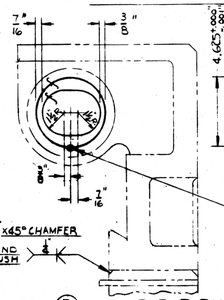
(G) RETAINING BAR
24 THUS-STAINLESS STEEL



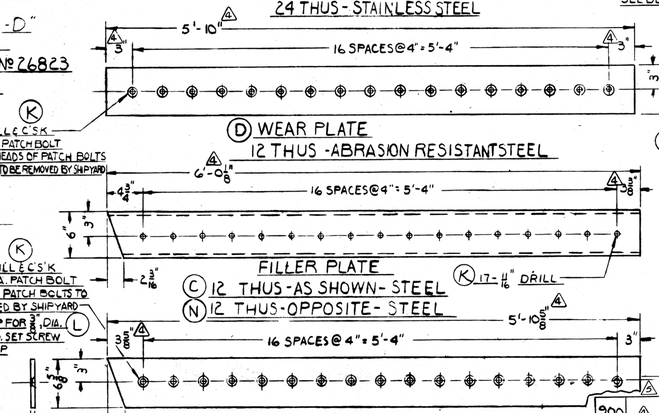


SECTION "B-B"

(A) HOPPER DOOR FRAME - PATT. No 26823
12 THUS-STEEL CASTING
EST. FINISHED WT. 3125 #



(I) HINGE PAD BUSHING
48 THUS-A.I.S.I. 4140
HEAT TREAT TO 300-350 BRINELL



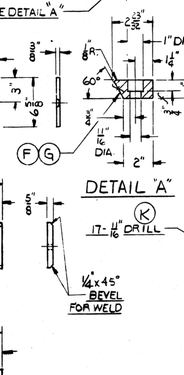
(D) WEAR PLATE
12 THUS-ABRASION RESISTANT STEEL

(C) 12 THUS-AS SHOWN-STEEL
(N) 12 THUS-OPPOSITE-STEEL

FILLER PLATE

(K) 17-11/16" DRILL

WEAR PLATE
(E) 12 THUS-AS SHOWN-ABRASION RESISTANT STEEL
(O) 12 THUS-OPPOSITE-ABRASION RESISTANT STEEL



DETAIL "A"

(B) FILLER PLATE
12 THUS-STEEL

BILL OF MATERIAL

ITEM LETR	No. REQD	NAME	PATT. NO.	MATERIAL	
A	12	HOPPER DOOR FRAME	26823	B-Q	STEEL CAST G
B	12	PLATE 6" x 5/8" x 5'-11 1/16" LG		D-Q	STEEL
C	12	PLATE 6" x 5/8" x 6'-0 1/16" LG		D-Q	STEEL
D	12	PLATE 6 7/8" x 3/8" x 5'-10" LG		D-Q	A.R. STEEL
E	12	PLATE 6 7/8" x 3/8" x 5'-10 1/16" LG		D-Q	A.R. STEEL
F	24	BAR 2 3/4" x 1 3/8" x 7'-1 1/8" LG		F-Q	STAINL. STEEL
G	24	BAR 2 3/4" x 1 3/8" x 7'-4 5/16" LG		F-Q	STAINL. STEEL
H	12	GASKET (SEE DETAIL) SEE NOTE No. 5		Q	RUBBER
I	48	BAR-300 TO 350 BRINELL 4 3/4" DIA. x 3 1/2" LG.		F-Q	AISI #140 STEEL H.R.
J	1320	5/8" SOC. HD. CAP SCREW 1 1/4" LG.		K-Q	MONEL METAL
K	612	5/8" PATCH BOLT-C'SK HD. 2" LG.		K	STEEL
L	48	3/8" HOLLOW SET SCREW 1 LG.		K-2	STAINL. STEEL
M	4	SETS OF GASKET BONDER FOR ITEM "H"		Q	
N	12	PLATE 6" x 5/8" x 6'-0 1/8" LG.		D-Q	
O	12	PLATE 6 7/8" x 3/8" x 5'-10 5/16" LG.		D-Q	
P	2	50 CC. BOTTLES "LOCTITE" SCREW LOCK		Q	

NOTE 1 - HOPPER DOOR FRAME ITEM (A) TO BE STEEL CASTING IN ACCORDANCE WITH FEDERAL SPECIFICATION QQ-S-681a, CLASS 05-55, ANNEALED

NOTE 2 - PLATES (B) (C) & (N) BE A.B.S. STEEL FOR SHIPS.

NOTE 3 - PLATES (D) (E) & (O) TO BE A.R. STEEL WITH THE FOLLOWING COMPOSITION AND PROPERTIES:

CHEMICAL COMPOSITION		PHYSICAL PROPERTIES	
CARBON	0.40%	TENSILE STENGTH	115,000 P.S.I.
MAGANESE	1.62%	YIELD POINT	70,000 P.S.I.
PHOSPHORUS	.018% - .033%	ELONGATION IN 8"	16%
SULPHUR	.013% - .030%	REDUCTION OF AREA	35%
SILICON	.020%	BRINNEL HARDNESS	235

NOTE 4 - ALL OTHER MATERIALS UNLESS NOTED TO BE STANDARD COMMERCIAL QUALITY

(5) NOTE 5 - FOR (H), BUY 100 PIECES OF MOLDED RUBBER PER DETAIL, EACH 7'-2" LONG. (4 PIECES MAKE ONE COMPLETE GASKET)

NOTE 6 - BARS (F) & (G) TO BE STAINLESS STEEL FEDERAL SPECIFICATION QQ-S-763b

NOTE 7 - ITEM (L) TO BE STAINLESS STEEL TYPE 316

CHG. NO.	ALT. NO.	DESCRIPTION	DATE	BY	CH'D
900	4	REVISED NOTE-5	9 MAY 1969	JAZ	HW
139	3	ITEM (B) WERE 5-3/8" WIDE, ITEM (C) WAS 5-3/8" WIDE, ITEM (D) WAS 5-3/8" WIDE, ITEM (E) WAS 5-3/8" WIDE	7/12/65	KFS	JH
466	2	DIMS. 6'-4 13/16", 3'-2 13/32", 6'-7 1/4", 3'-3 17/32", 3'-2 13/16" ADDED.	4-16-65	KFS	JAH
361	1	1/8" R. NOTE & ITEM (P) ADDED.	1-20-65	JKS	JH
		RIBS AT "D" OF FRAME ALTERED	12/21/64	JH	JKS

APPRVD. - BETHLEHEM STEEL CORP. [illegible]

APPRVD. - C. of E. 7-28-65

APPRVD. - A. B. S. 5/14/65

U. S. C. G. APPROVAL NOT REQ'D.

BETHLEHEM STEEL CO.
SPARROWS POINT, MARYLAND
HULL NO. 4608

HULL NO. 333
SEAGOING HOPPER AND BOOM TYPE
DREDGE - McFARLAND
U.S. ARMY ENGINEER DISTRICT
PHILADELPHIA
CORPS OF ENGINEERS
MARINE DESIGN DIVISION
PHILADELPHIA, PA.

CONTRACT No. 30250-1

ELLICOTT MACHINE CORPORATION
BALTIMORE, MD.

HOPPER DOOR FRAMES

9-7-1102

DRAWN BY K.F.S. APPROVED CL
TRACED BY APPROVED FJB
CHECKED BY JA SCALE 1/2" = 1'-0"
CHIEF ENGINEER DATE 12-23-64

STANDARD MANUFACTURING TOLERANCES
UNLESS OTHERWISE SPECIFIED
MACHINED SURFACES ± .015"
SHEARED OR BURNED SURFACES ± 1/32"

DRG. No. 47452 REV. 5

11-14-M-M 5474