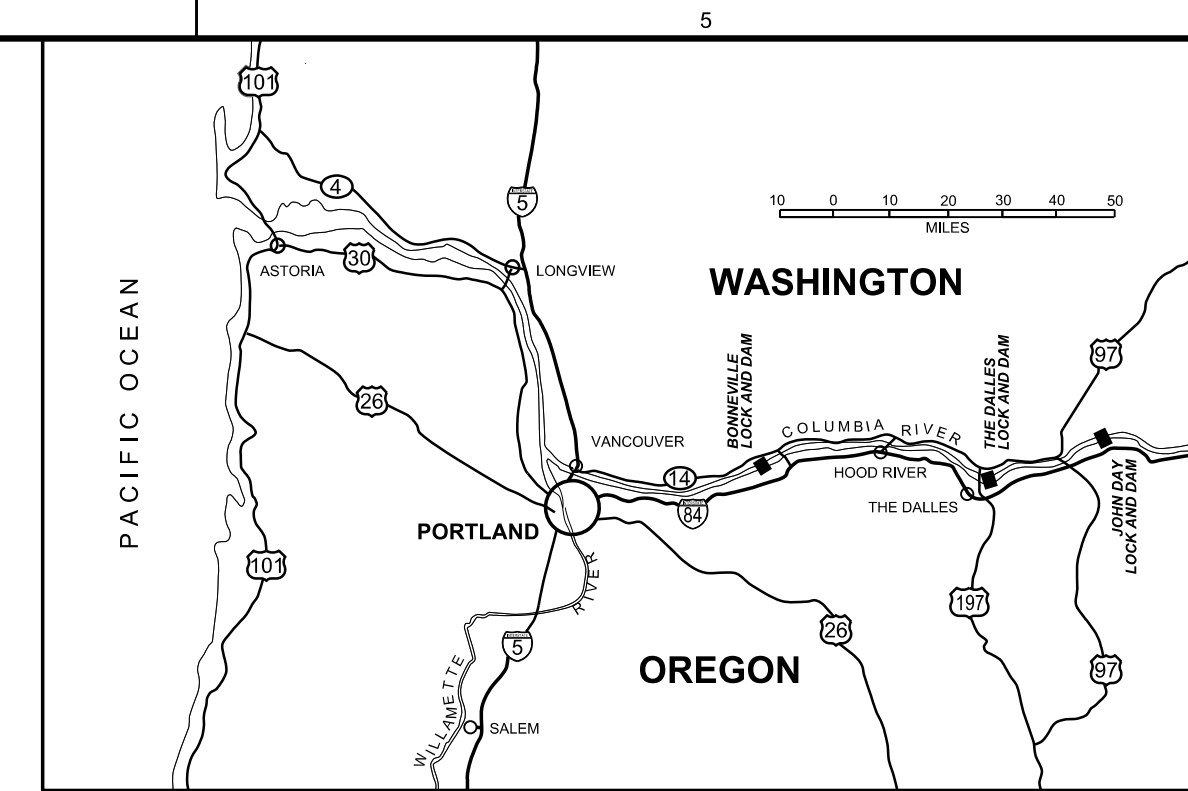


SOLICITATION NUMBER:
DATE:



U.S. ARMY CORPS OF ENGINEERS PORTLAND DISTRICT PORTLAND, OREGON	DESIGNED BY:		DATE:	
	DRAWN BY:	CHECKED BY:	SOLICITATION NO.:	
	SUBMITTED BY:		CONTRACT NO.:	
U.S. ARMY CORPS OF ENGINEERS HYDROELECTRIC DESIGN CENTER PORTLAND OREGON	PLOT SCALE:		DRAWING NUMBER:	
	6/20/2017			
	SIZE:	FILE NAME:		
	G44100N			

BONNEVILLE LOCK AND DAM
COLUMBIA RIVER
POWERHOUSE
AIR COOLER PH1 & PH11
COVER SHEET AND VICINITY MAPS

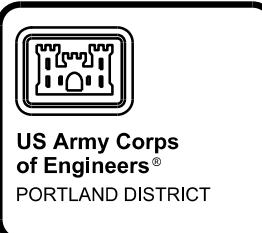
SHEET
IDENTIFICATION
G-001

DESIGN FILE: \\nwp-ap-eccae03.nwp.ds.usace.army.mil\CADD_Workspaces\NWP\Workspace\projects\Local Resource\

INDEX OF DRAWINGS

CONTRACT DRAWINGS

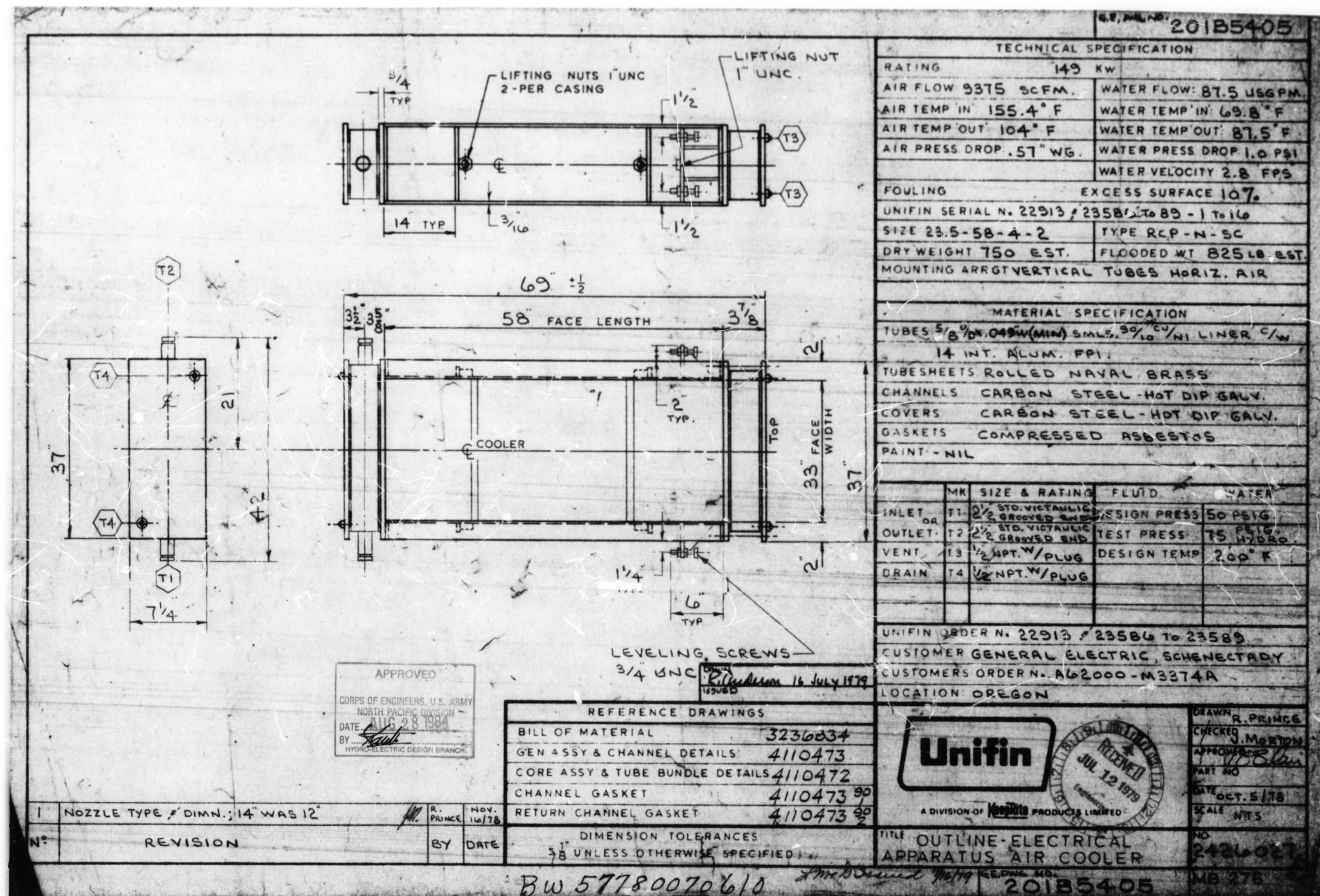
REFERENCE DRAWINGS

[illegible][illegible]

U.S. ARMY CORPS OF ENGINEERS PORTLAND DISTRICT PORTLAND, OREGON	DESIGNED BY: G2403639	CHECKED BY: STEVEN R. MILES, P.E.	SOLICITATION NO.: CONTRACT NO.:	DATE:
U.S. ARMY CORPS OF ENGINEERS HYDROELECTRIC DESIGN CENTER PORTLAND, OREGON	SUBMITTED BY: STEVEN R. MILES, P.E.	PLOT DATE: 6/20/2017	DRAWING NUMBER:	
	SIZE:	U.S. ARMY CORPS OF ENGINEERS NIP-CODE-FW-SHEET-SEED-0400		

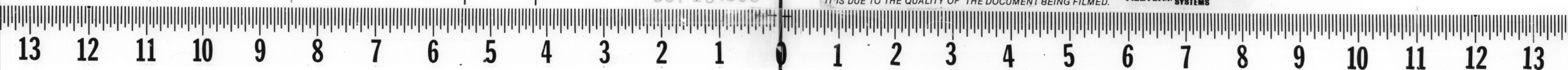
BONNEVILLE LOCK AND DAM
COLUMBIA RIVER
POWERHOUSE
AIR COOLER PH1 & PH11
DRAWING INDEX SHEET

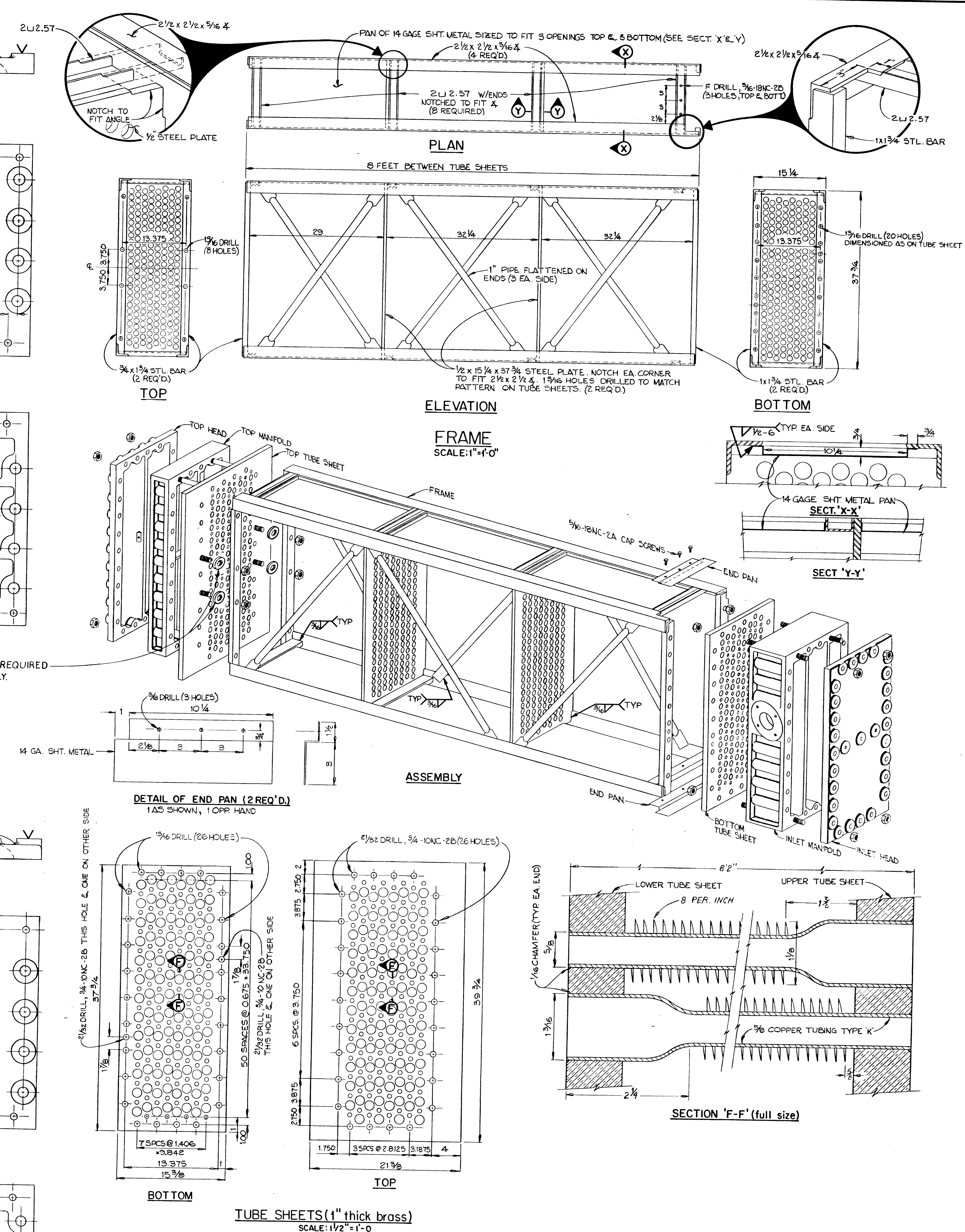
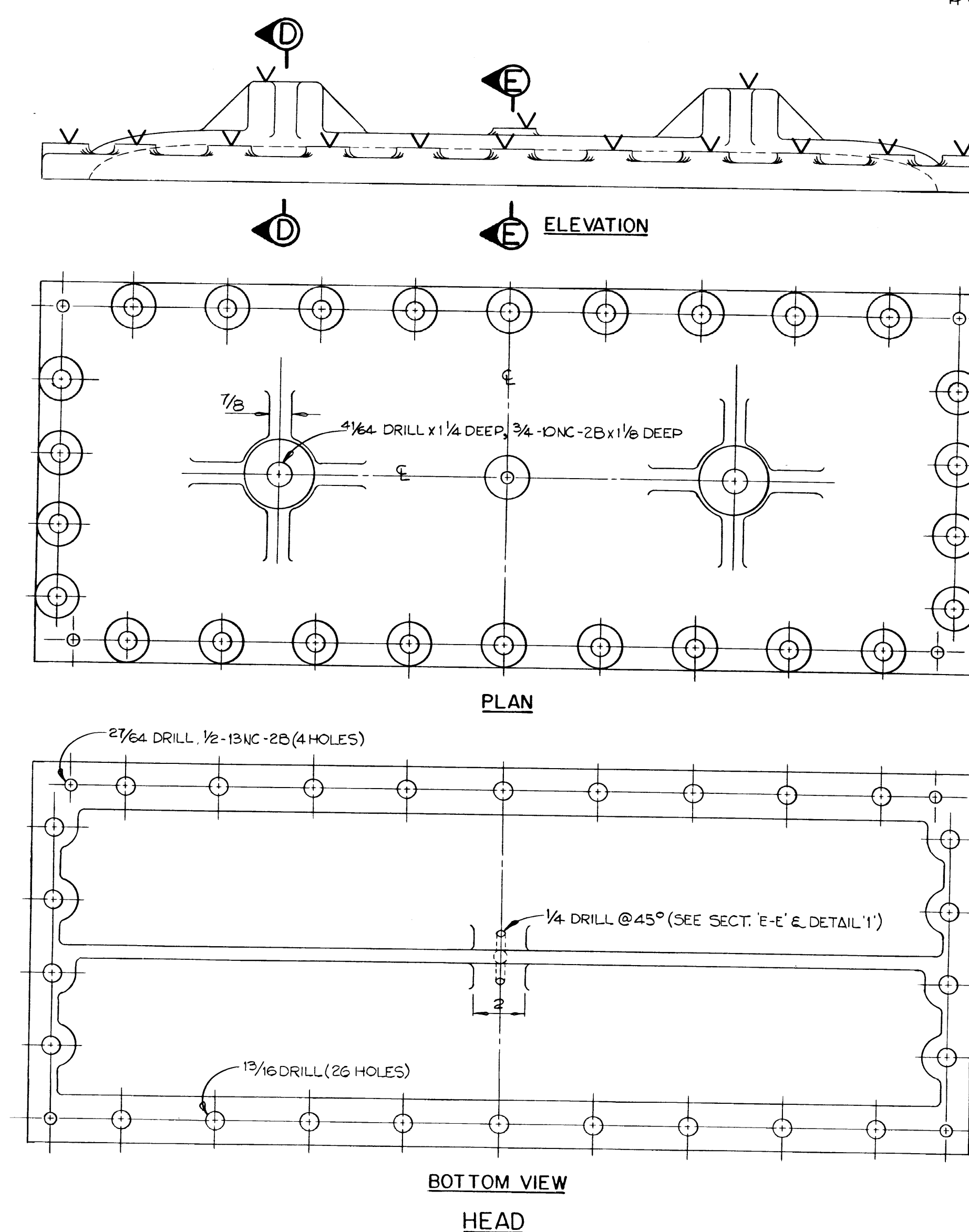
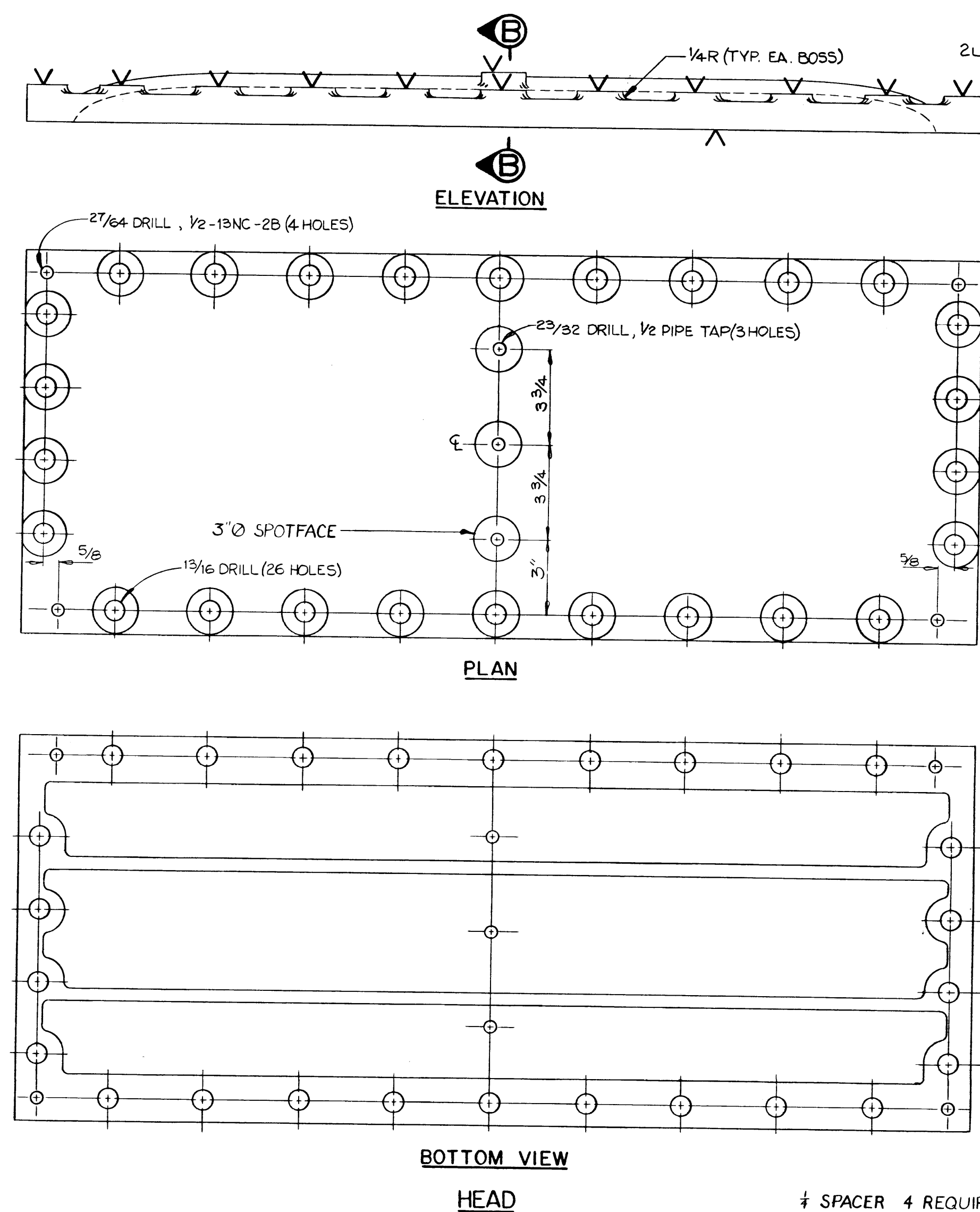
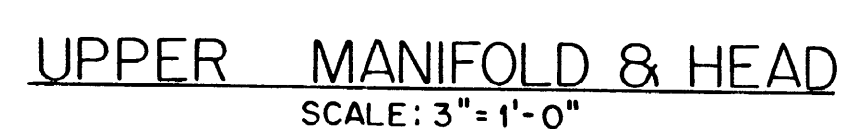
SHEET
IDENTIFICATION
G-002



OCT 15 1985

NOTICE: IF THE FILM IMAGE IS LESS CLEAR THAN THIS NOTICE, IT IS DUE TO THE QUALITY OF THE DOCUMENT BEING FILMED. WESTERN IMAGE SYSTEMS 503 777-3961





- NOTES**
1. All dimensions in inches. $\pm .156"$ tolerance for fractional dimensions.
 $\pm .01"$ decimal
 2. Heads & manifolds to be gray iron castings, ASTM specification A48, class 35A.
 3. Holes on inlet head & upper manifold & head to be located per dimensions on inlet manifold plan unless otherwise noted.
 - 4 204 Tube bundle
 - 5 Operating Pressure - 50 psi
 - 6 Test Pressure - 75 psi
 - 7 General Electric Cooler, Type SF, Class 1580-4-204, Form - G
 - 8 Gaskets - 2 Each End

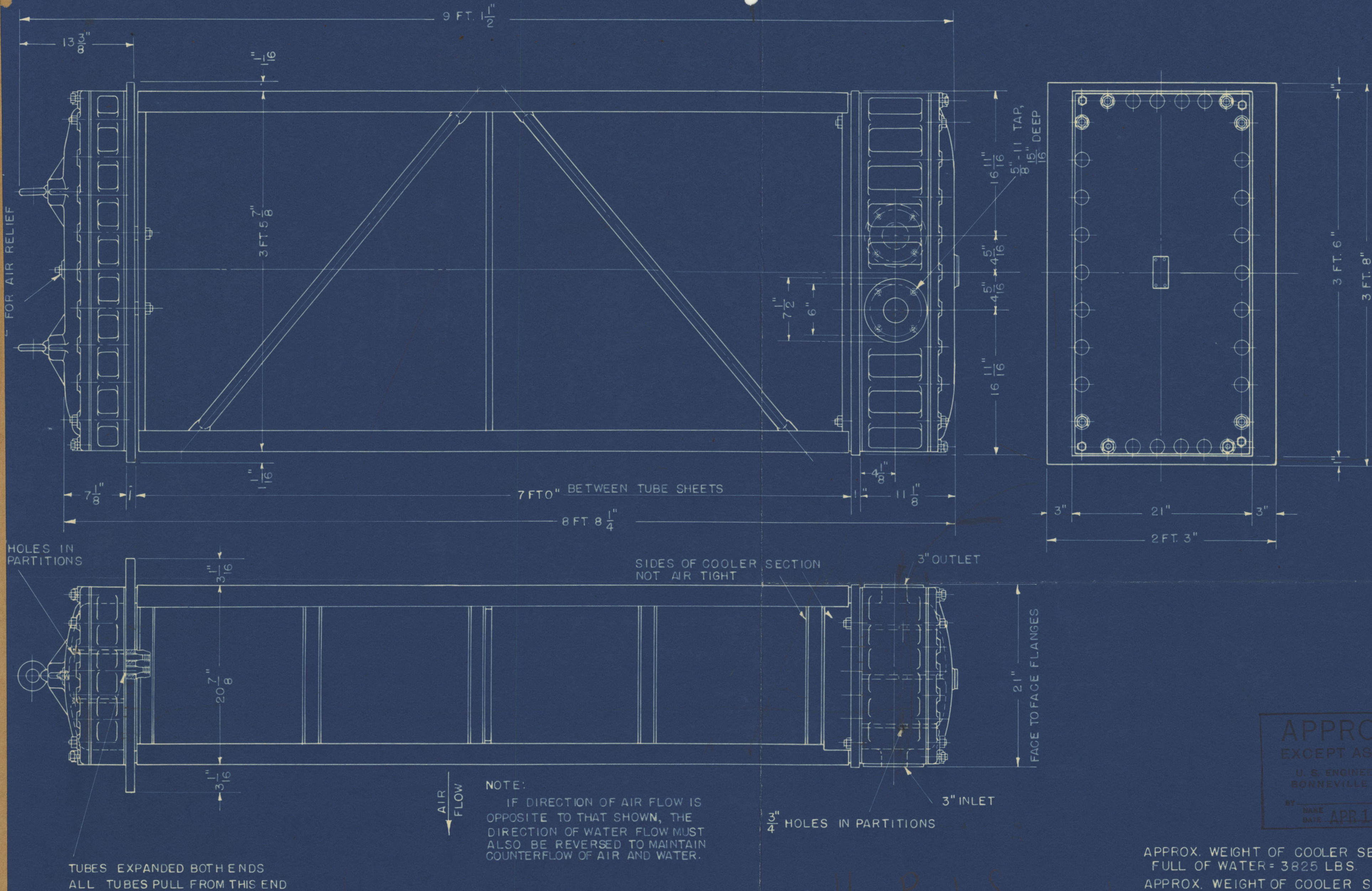
1	4/26/85	GENERAL REVISIONS, ADDED NOTE 8	DUM
2		Added Notes 4 Thru 7	
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, PORTLAND CORPS OF ENGINEERS OFFICE OF THE PROJECT ENGINEER, BONNEVILLE, OREGON DESIGNED BY DRAWN BY SCHUSTER TRACED BY SCHUSTER CHECKED BY DICKS REVIEWED: CHIEF, SAFETY BRANCH SUPERVISED: BONNEVILLE DAM PROJECT COLUMBIA RIVER OREGON-WASHINGTON SURFACE AIR COOLER UNITS 3-10			
SUBMITTED:		APPROVED: <i>Edw. E. Kelly</i>	DATE 8 May 85
		PROJECT ENGINEER	
RECOMMENDED:		SCALE AS SHOWN	SPEC. NO.
SUPERINTENDENT, OPERATIONS MAINTENANCE		ESD-141	
		SHEET	OF

P-5163199

THIRD ANGLE PROJECTION

T-4 ACCOWAY FILING TAPE
PATENT PENDING - ACCO PRODUCTS, INC., LONG ISLAND CITY, N. Y., U. S. A.

T-4 ACCOWAY FILING TAPE
PATENT PENDING - ACCO PRODUCTS, INC., LONG ISLAND CITY, N. Y., U. S. A.



APPROVED
EXCEPT AS NOTED
U. S. ENGINEER OFFICE
BORNEVILLE PROJECT
BY
DATE APR 13 1935

APPROX. WEIGHT OF COOLER SECTION
FULL OF WATER = 3825 LBS.
APPROX. WEIGHT OF COOLER SECTION
DRY = 3275 LBS.

This Print Supersedes
P-5163151

FILE COPY

FF 523 A 20M-6-14-35
IMPORTANT
TO AVOID DELAY IN MANUFACTURE
AND SHIPMENT, PLEASE APPROVE AND
RETURN ONE PRINT PROMPTLY
APPROVAL REQUIRED BEFORE **AT ONCE**

FF 523 B 40M-10-1-35
CHANGE NOTICE
SUBSTITUTE THIS FOR SIMILAR DATA
PREVIOUSLY APPROVED AND DELIVERED
TO YOU FOR THIS ORDER
FOR DESCRIPTION OF CHANGE REFER TO
CHANGE COLUMN, ITEM BACK OF PRINT

NOTICE TO PURCHASER
REFER TO CONTRACT FOR MATERIAL TO BE
SUPPLIED BY THE GENERAL ELECTRIC
COMPANY THE AMOUNT OF SUCH MATERIAL
IS NOT INCREASED BY ANYTHING SHOWN
UPON THIS DRAWING

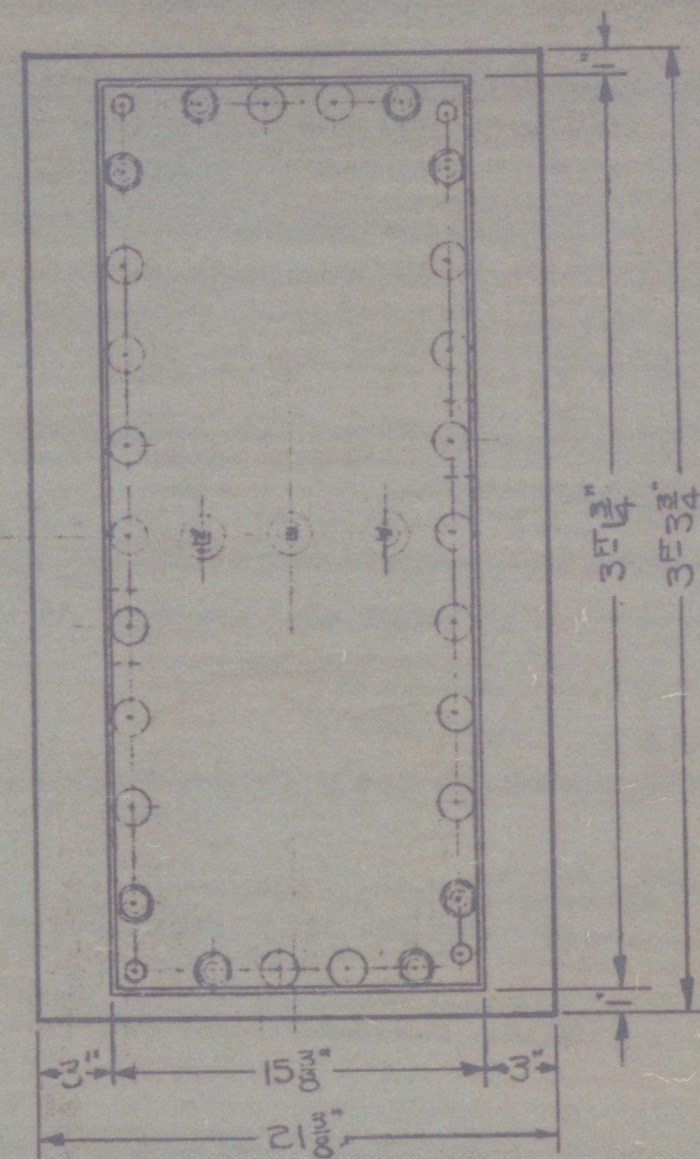
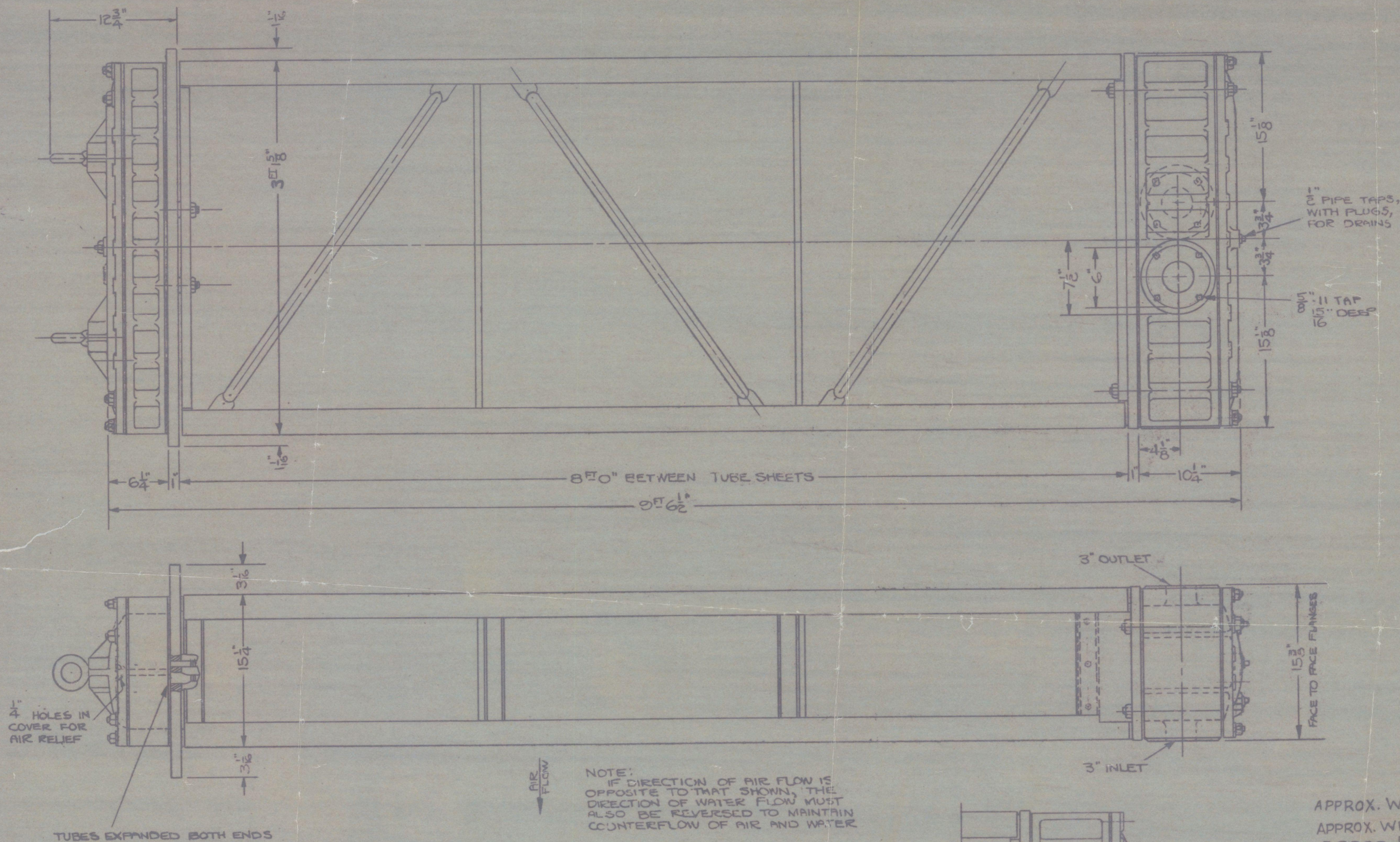
W. Y. GEN.	43200	48000	12			
	K.W.	K.V.A.	NUMBER OF SECTIONS PER MACHINE	OUTLINE DRAWING NUMBER	NUMBER OF SECTIONS PER MACHINE	OUTLINE DRAWING NUMBER
FOR	RATED	MAIN SECTIONS	AUXILIARY SECTIONS			
SURFACE AIR COOLER (OUTLINE)						
	TYPE	CLASS	FORM			
	SF	2000-6-294	G			
FIRST MADE FOR: WATERWHEEL GENERATOR						
BEGUN BY C. Wright Aug 23 '35 TRACED BY W. Richard Aug 27 '35						
FINISHED BY C. Wright Aug 23 '35 INSPECTED AUG 28 '35						
GENERAL ELECTRIC CO. SCHENECTADY WORKS					P-5163199	

G.E.

150	30P0500	1	
D	907692		
IT	CHANGE		
	(C) ITES	2	
	30P0500		
	(A-1) CORP OF		
	ENGINEER DWG		
	NO. W3178014037		
	WAS NOT ON.		
	D. ROUSIN ON 8-4-80		
	BY ROUSIN DWG		
	1/11/81 1/16/82		
	Handy rec-12		
	RAUSIN 1/18/80		

P-5923384

THIRD ANGLE PROJECTION



6 SURFACE AIR COOLER SECTIONS REQUIRED PER GENERATOR AS SHOWN

APPROX. WEIGHT OF COOLER SECTION EMPTY = 2550 LBS.
APPROX. WEIGHT OF COOLER SECTION FULL OF WATER = 2900 LBS.

NOTICE TO PURCHASER

REFER TO CONTRACT FOR MATERIAL TO BE SUPPLIED BY THE GENERAL ELECTRIC COMPANY. THE AMOUNT OF SUCH MATERIAL IS NOT INCREASED BY ANYTHING SHOWN UPON THIS DRAWING.

NOTES: APPROVED FOR UNITS 5 AND 6 BY LETTER DATED JANUARY 23, 1940

GEN.	59000	60000	12			
	KW	KVA	NUMBER OF OUTLINE SECTIONS PER MACHINE	NUMBER OF OUTLINE SECTIONS PER MACHINE	NUMBER OF OUTLINE SECTIONS PER MACHINE	NUMBER OF OUTLINE SECTIONS PER MACHINE
FOR	RATED	MAIN SECTIONS	AUXILIARY SECTIONS			
SURFACE AIR COOLER (OUTLINE)						
TYPE	CLASS	FORM				
SF	1580-4-204	G				

FIRST MADE FOR: WATER WHEEL GENERATORS, UNITS No. 3 AND No. 4
BEGUN BY C. Wright, Nov. 1, 38 TRACED BY
FINISHED BY C. Wright, Nov. 2, 38 INSPECTED Nov. 4, 1938
GENERAL ELECTRIC CO., SCHENECTADY WORKS P-5923384

SCE

REVISIONS	
1	Oct. 8, 1939. KM-1134
2	Mar. 31, 39. KM-1228
3	Mar. 10, 40. KM-1745
4	Oct. 19, 40. KM-1848

6 SURFACE AIR COOLER SECTIONS REQUIRED PER GENERATOR, WATER CONNECTIONS OPPOSITE HAND.

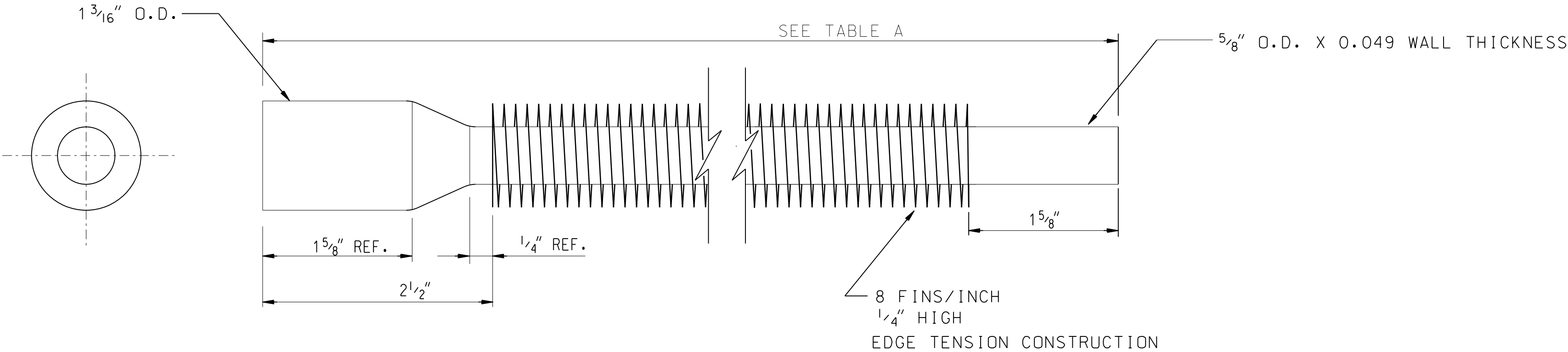


TABLE A

				REF. GE SURFACE COOLER TYPE SF; FORM G	
PART NO.	LENGTH	TOLERANCE	WHERE USED	GE DWG. NO.	CLASS
C-129-1	86"	+ 1/8" - 0"	PH I, UNITS 1 & 2	P-5163199	2000-6-294
C-129-2	98"	+ 1/8" - 0"	PH I, UNITS 3-10	P-5923384	1580-4-204

- NOTES:
- COOLING TUBE FOR USE IN SURFACE AIR COOLER ON GE GENERATORS, FIRST POWERHOUSE.
 - MATERIAL:
A. TUBE; 90/10 COPPER NICKEL
B. FINS; 0.018" THICK ALUMINUM
 - (INTERNAL NOTE) SEE ES-D-141 FOR ASSEMBLY OF TUBES INTO SURFACE COOLING UNIT.
 - OPERATING PRESSURE: 50 PSI; TEST PRESSURE: 75 PSI

REV.	DATE	DESCRIPTION	BY	APPR.
U. S. ARMY ENGINEERING DISTRICT, PORTLAND				
BONNEVILLE LOCK AND DAM COLUMBIA RIVER OREGON-WASHINGTON				
POWERHOUSE I SURFACE AIR COOLER COOLING TUBE				
FILE NAME MS-4-ESC129	SUPERVISED P. HUNTER		DESIGNED	DRAWN AMM
080-111	DATE 12 NOV 92	SHEET	ES-C-129	
			CHECKED WHM	PLATE