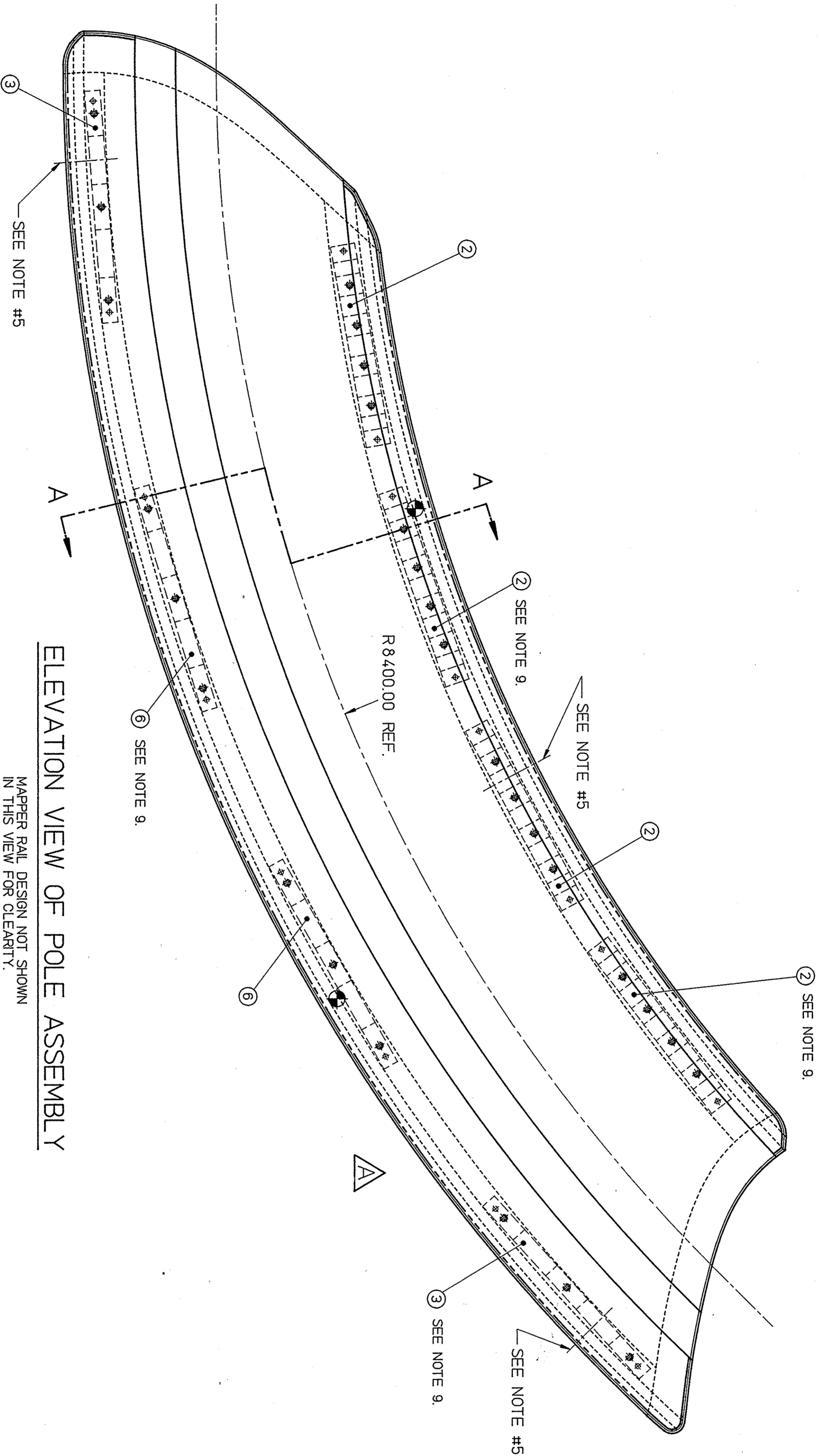


ZONE	REV.	DESCRIPTION	DATE	APPROVED
2C	A	CHANGED ENTRANCE & EXIT PROFILES. RELOCATED Ø80 DOWEL HOLES. GEOMETRY FOR SECTION A-A WAS CHANGED. SCALE WAS 1:7.	4/8/92	17 APR 92 S. ESP ARG
5C	8A	ADDED DETAIL B. MODIFIED NOTE #6. WAS 3 MM CLEARANCE. WAS FOUR LOCATIONS. ADDED NOTE #7.		
B		DRAWING NO. WAS 65114-D-13221-00.	5/11/92	12 MAY 92 S. ESP ARG
C		THIS DRAWING NOT AFFECTED BY REV. C.	10/13/92	15 OCT 92 S. ESP ARG
D		THIS DRAWING MODIFIED TO SUIT THE INSTALLATION OF MAPPER GUIDE RAILS.	1/11/93	12 JAN 93 D. KLUOK ARG
E		TWIN RAILS IN INNER RADIUS SPACER BAR REMOVED. UPPER AND LOWER RAIL DESIGN SHOWN IN THIS REVISION. SECTION A-A AND DETAIL B HAVE BEEN MOVED TO SHEET 3. DRAWINGS 65120-D-13221-07, 65120-C-13221-08, 65120-D-13221-09, 65120-D-13221-10, 65120-D-13221-11 AND 65120-C-13221-12 HAVE BEEN CANCELLED AND THE NEW DRAWINGS ARE REFLECTED IN THE LIST OF MATERIALS.	3/1/93	16 MAR 93 D. KLUOK ARG
F		THIS SHEET NOT AFFECTED BY REV. F.	3/18/93	22 MAR 93 D. KLUOK ARG
G		THIS SHEET NOT AFFECTED BY REV. G.	4/27/93	28 APR 93 D. KLUOK ARG



**ELEVATION VIEW OF POLE ASSEMBLY**  
MAPPER RAIL DESIGN NOT SHOWN IN THIS VIEW FOR CLARITY.

**NOTES:**

- 1) TOTAL MASS = 35.4 TONNES.
- 2) DIMENSIONS ARE IN MM.
- 3) O.A.L. IS 7.6 METERS.
- 4) TOLERANCE FOR FEATURE SIZE AND POSITION APPLIES TO MEASUREMENTS MADE ANYWHERE IN THE USEFUL GAP REGION.
- 5) DATUM PLANE [A] TO BE DETERMINED BY THE CENTERS OF (3) TOOLING BALLS INSTALLED IN DOWEL HOLES LOCATED IN SELECTED SPACER BLOCKS.
- 6) G-10 EPOXIED TO THE POLE TO MAINTAIN A 13 MM CLEARANCE BETWEEN THE POLE AND YOKE ASSEMBLIES. THE G-10 MUST BE OF UNIFORM THICKNESS OVER THE TWO LOCATIONS TO WITHIN ± 0.5 MM.
- 7) G-10 EPOXIED TO THE POLE TO MAINTAIN A 3 MM CLEARANCE BETWEEN THE POLE AND YOKE ASSEMBLIES. THE G-10 MUST BE OF UNIFORM THICKNESS OVER THE TWO LOCATIONS TO WITHIN ± 0.5 MM.
- 8) THE 'AS BUILT' DIMENSION IS TO BE USED TO DETERMINE THE FINAL THICKNESS DIMENSION FOR THE TOP AND BOTTOM RAILS IN THE IRON ASSEMBLY (SEE DRAWING NUMBER 65114-D-13220-00).
- 9) THESE PIECES ARE CALLED OUT AS MIRROR IMAGE OF LEFT VIEW IN DRAWINGS 65120-D-13221-02, 65120-C-13221-03, AND 65120-C-13221-06.

- 10) THE INNER RADIUS V GROOVE DETAIL ON SHEET THREE SHALL FOLLOW A 7960 MM RADIUS THRU THE HOLE POSITIONS 1 THRU 32 IN THE TABLE ON SHEET 2. THIS GROOVE SHALL BE MACHINED ACROSS BOTH PIECES 8 AND 9. THE RAIL WILL START 5 DEGREES OFF OF THE ENTRANCE VERTICAL LINE NOTED BY THE POINT AND ANGLE ON SHEET 2. THE RAIL (PIECE #15) WILL BE INSTALLED IN THREE 12.50 DEGREE ARCED SECTIONS CONFORMING TO THE V GROOVE AND ATTACHED WITH PIECES 12 AND 13. POSITION TOLERANCE OF THRU HOLES 1 THRU 32 MUST SATISFY RAIL ASSEMBLY REQUIREMENTS.
- 11) THE OUTER RADIUS V GROOVE DETAIL ON SHEET THREE SHALL FOLLOW A 8840 MM RADIUS THRU AN ARC OF 45 DEGREES THRU THE POINTS 35 THRU 59. THE RADIAL V GROOVE TRANSITIONS TO A LINEAR V GROOVE AT BOTH THE ENTRANCE AND EXIT AT THE POINTS NOTED ON SHEET 2. THESE LINEAR SECTIONS PASS THRU POINTS 33 AND 34 AT THE ENTRANCE (PIECE 9) AND 60 AND 61 AT THE EXIT (PIECE 10) OF THE POLE ASSEMBLY. THE RAIL (PIECE #15) WILL BE INSTALLED IN FIVE 9 DEGREE ARCED SECTIONS CONFORMING TO THE V GROOVE AND ATTACHED WITH PIECES 12 AND 13. POSITIONAL TOLERANCE OF THRU HOLES 33 THRU 61 MUST SATISFY RAIL ASSEMBLY REQUIREMENTS.
- 12) PIECE #4 SHALL BE TORQUED TO 230 FT-LBS USING LOCITITE THREADLOCKING ADHESIVE/SEALANT 271 (HIGH STRENGTH) ITEM NO. 27131.
- 13) PIECE #5 SHALL BE INSTALLED USING LOCITITE THREADLOCKING ADHESIVE/SEALANT 271 (HIGH STRENGTH) ITEM NO. 27131.

DIM & TOL PER ANSI Y14.5 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMAL ANGLES		CAD D. I.D. NO. 65120-D-13221-00	
MATERIAL NA		APPROVALS DRAWN: GAVVA YA 03/14/91 CHECKED: GAVVA YA 04/01/91 APPROVED/ORIGINATOR: AL CORN 04/02/91 APPROVED: MOUSEY 04/02/91	
FINISH: UNLESS NOTED OTHERWISE DEBUR & BREAK ALL SHARP EDGES		SIZE/DWG. NO. 65120-D-13221-00	
DO NOT SCALE DRAWING		SHEET 1 OF 3	

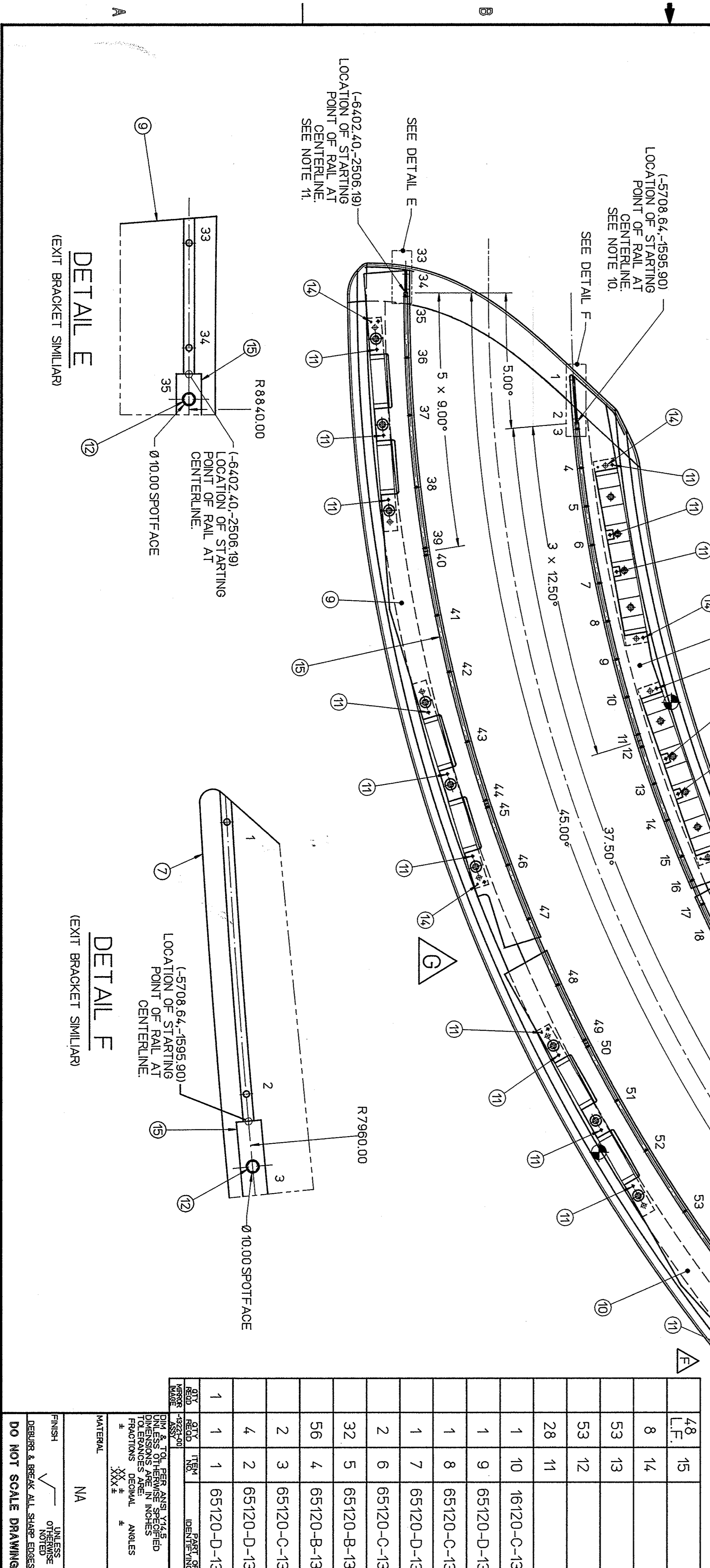
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The Continuous Electron Beam Accelerator Facility  
UNIVERSITY OF TENNESSEE  
DEPARTMENT OF ENERGY

**HRS DIPOLE IRON POLE ASSEMBLY**



INNER RADIUS			OUTER RADIUS		
THRU HOLES			THRU HOLES		
HOLE NO.	X CENTER	Y CENTER	HOLE NO.	X CENTER	Y CENTER
1	-5937.26	-1612.59	33	-6502.40	-2506.19
2	-5729.40	-1597.69	34	-6422.40	-2506.19
3	-5674.05	-1592.80	35	-6383.11	-2506.17
4	-5466.80	-1571.01	36	-6055.34	-2499.37
5	-5260.20	-1543.82	37	-5747.28	-2481.88
6	-5054.38	-1511.22	38	-5363.37	-2444.92
7	-4849.48	-1473.24	39	-5038.57	-2400.35
8	-4645.65	-1429.91	40	-5000.47	-2394.32
9	-4443.02	-1381.27	41	-4677.80	-2336.33
10	-4241.73	-1327.33	42	-4376.27	-2270.86
11	-4041.93	-1268.15	43	-4002.87	-2174.29
12	-3975.68	-1247.26	44	-3689.04	-2079.47
13	-3778.06	-1181.14	45	-3652.35	-2067.55
14	-3582.24	-1109.87	46	-3342.73	-1959.80
15	-3388.36	-1033.49	47	-3055.15	-1847.97
16	-3260.24	-979.77	48	-2701.45	-1694.18
17	-3133.08	-923.82	49	-2406.32	-1551.42
18	-3006.91	-865.65	50	-2371.95	-1533.91
19	-2819.62	-774.30	51	-2082.99	-1379.05
20	-2634.78	-678.08	52	-1816.44	-1223.61
21	-2452.52	-577.05	53	-1491.16	-1016.38
22	-2392.36	-542.32	54	-1221.99	-829.22
23	-2213.74	-434.99	55	-1190.79	-806.55
24	-2037.99	-323.03	56	-929.61	-608.39
25	-1865.23	-206.50	57	-690.66	-413.17
26	-1695.58	-85.49	58	-401.80	-157.60
27	-1529.15	39.92	59	-165.23	69.36
28	-1366.07	169.64	60	-137.43	97.13
29	-1206.43	303.59	61	-24.30	210.27
30	-1050.36	441.67			
31	-1009.36	479.18			
32	-958.47	526.47			

ZONE	REV.	DESCRIPTION	DATE	APPROVED
A		THIS SHEET DID NOT EXIST IN THIS REVISION	4/8/92	17 APR 92
B		THIS SHEET DID NOT EXIST IN THIS REVISION	5/11/92	12 MAY 92
C		THIS SHEET DID NOT EXIST IN THIS REVISION	10/3/92	15 OCT 92
D		THIS SHEET CREATED FOR INSTALLATION OF MAPPER GUIDE RAILS	12/22/92	13 JAN 93
E		TWIN RAILS IN INNER RADIUS SPACER BAR REMOVED. UPPER AND LOWER RAIL DESIGN SHOWN IN THIS REVISION. LIST OF MATERIALS CHANGED TO REFLECT NEW RAIL DESIGN.	3/1/93	16 MAR 93
F		INNER RADIUS AND OUTER RADIUS THRU HOLE FABULATED DATA CHANGED. ADDED MATERIAL SPECIFICATION TO ITEM NO. 15 IN LIST OF MATERIALS.	3/8/93	22 MAR 93
G		THIS SHEET REFLECTS CHANGES TO PIECE #9	4/27/93	28 APR 93



REV.	QTY.	UNIT	IDENTIFYING NO.	DESCRIPTION	MATERIAL SPECIFICATION	NOTES
1	1	1	65120-D-13221-01	POLE	IRON	
2	3	3	65120-C-13221-03	SPACER BAR 1, OUTER RADIUS	ALUMINUM 6061-T651	
3	4	4	65120-B-13221-04	BI-METALLIC Ø25x78.00 LG. PRECISION DOWEL	ST. STL./IRON	
4	5	5	65120-A-13221-05	SPACER BAR 2, OUTER RADIUS	ALUMINUM 6061-T651	
5	6	6	65120-C-13221-06	SPACER BAR 1, INNER RADIUS	ALUMINUM 6061-T651	
6	7	7	65120-D-13221-13	TOP RAIL PLATE - ENTRANCE	ALUMINUM 6061-T651	
7	8	8	65120-C-13221-14	TOP RAIL PLATE - EXIT	ALUMINUM 6061-T651	
8	9	9	65120-D-13221-15	BOTTOM RAIL PLATE - ENTRANCE	ALUMINUM 6061-T651	
9	10	10	16120-C-13221-16	BOTTOM RAIL PLATE - EXIT	ALUMINUM 6061-T651	
10	11	11		M10 x 1.5 x 50 LG. BOLT	BRASS	
11	12	12		M5 x 0.8 x 35 LG. BOLT	BRASS	
12	13	13		M5 x 0.8 NUT	BRASS	
13	14	14		Ø 5.00 x 50 LG. PRECISION DOWEL	BRASS	
14	15	15		3/4" EXTRUDED ROD CENTERLESS GROUND	MATERIAL 1025 TEF/ION/FIBERGLASS	

DESIGNER & CHECK ALL SHARP EDGES	APPROVED	DATE	SIZE/DWG. NO.	REV.
FINISH	LINESS	1/19/93	65120-D-13221-00	G
DO NOT SCALE DRAWING	OTHERWISE NOTED	1/19/93		

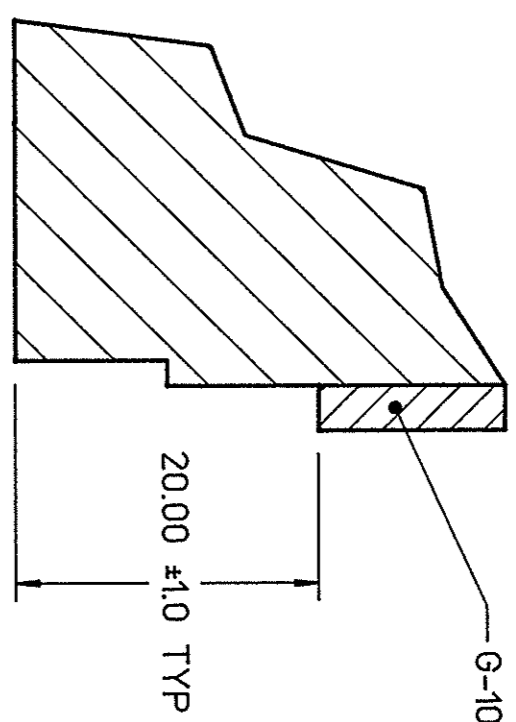
**DETAIL E**  
(EXIT BRACKET SIMILAR)

**DETAIL F**  
(EXIT BRACKET SIMILAR)

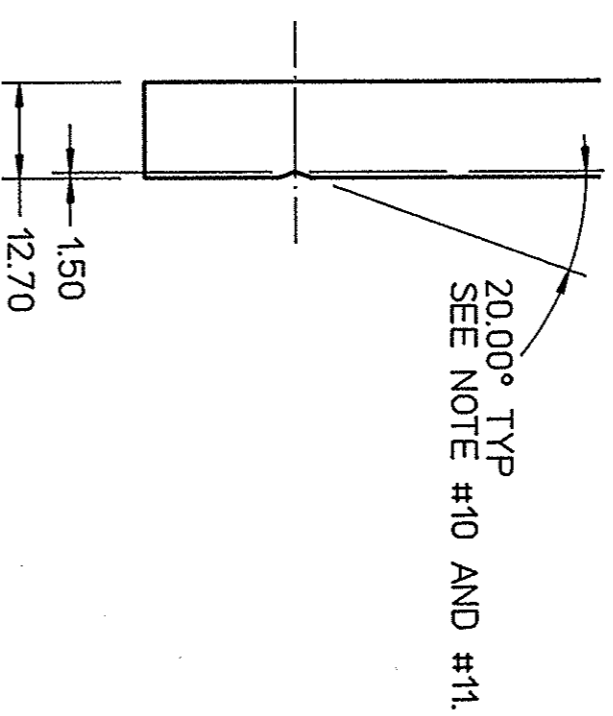
**HRS DIPOLE IRON POLE ASSEMBLY**

The Continuous Electron Beam Accelerator Facility  
UNIVERSITY OF VIRGINIA  
DEPARTMENT OF ENERGY

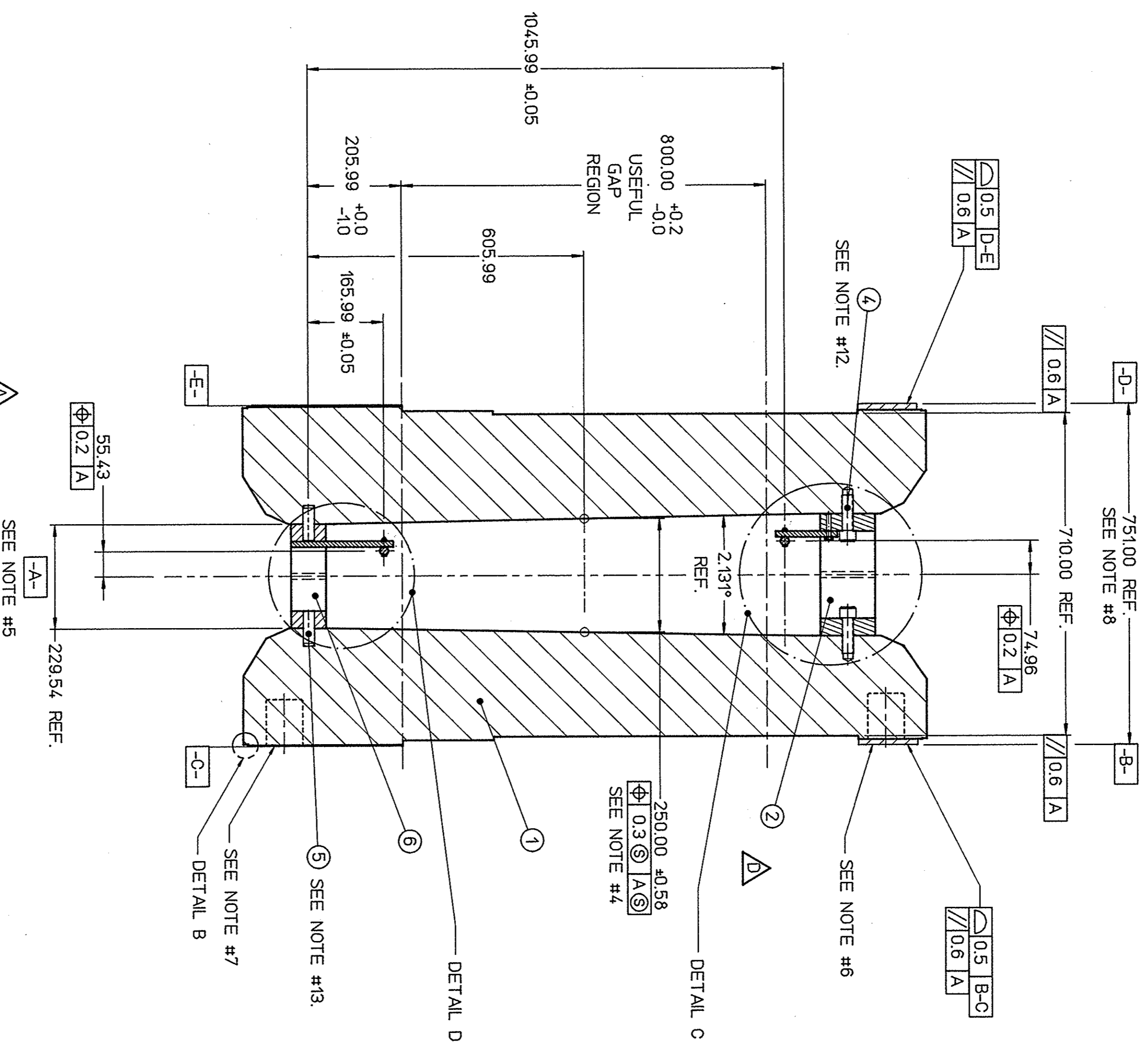
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A		THIS SHEET DID NOT EXIST IN THIS REVISION	4/8/92	17 APR 92 S. ESP ARG
B		THIS SHEET DID NOT EXIST IN THIS REVISION	5/1/92	12 MAY 92 S. ESP ARG
C		THIS SHEET DID NOT EXIST IN THIS REVISION	10/13/92	15 OCT 92 S. ESP ARG
D		THIS SHEET DID NOT EXIST IN THIS REVISION	12/22/92	13 JAN 93 D. KLOCK ARG
E		THIS SHEET WAS CREATED TO SHOW UPPER AND LOWER RAIL DETAILS AND TO PROVIDE MORE ROOM FOR THE DRAWING.	3/1/93	16 MAR 93 D. KLOCK ARG
F		THIS SHEET IS NOT AFFECTED BY REV. F.	3/18/93	22 MAR 93 D. KLOCK ARG
G		THIS SHEET IS NOT AFFECTED BY REV. G.	3/18/93	28 APR 93 D. KLOCK ARG



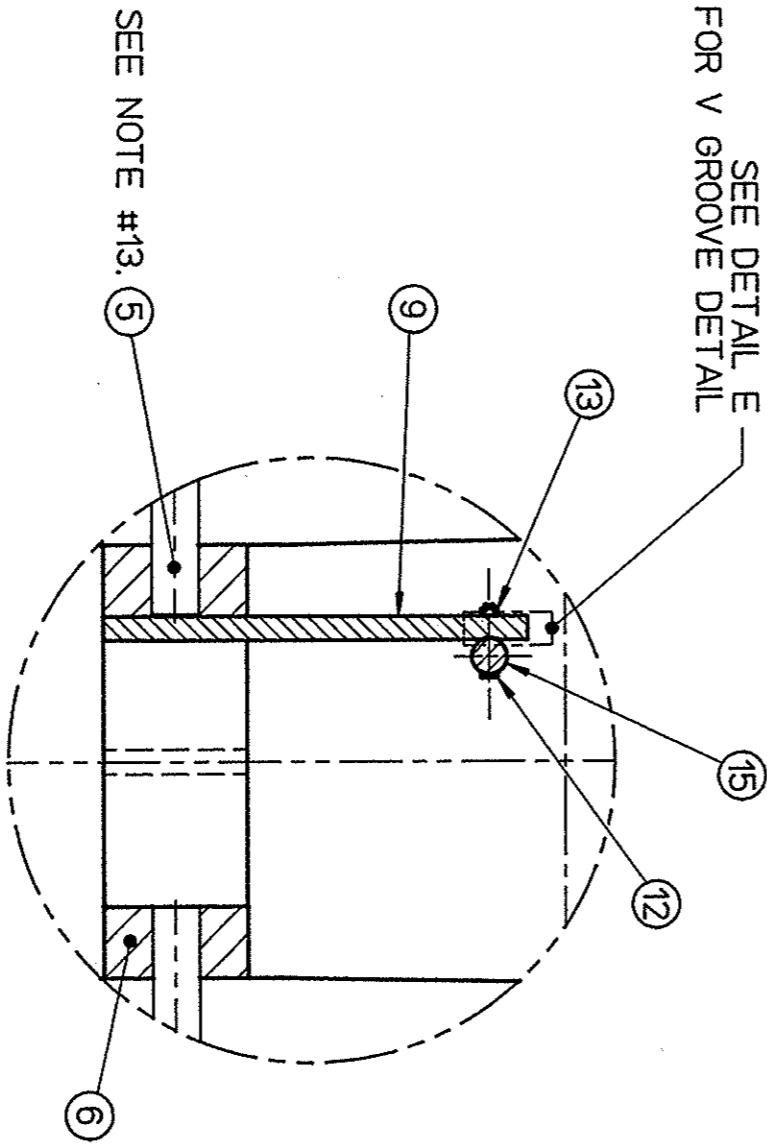
DETAIL B  
(SCALE 2:1)



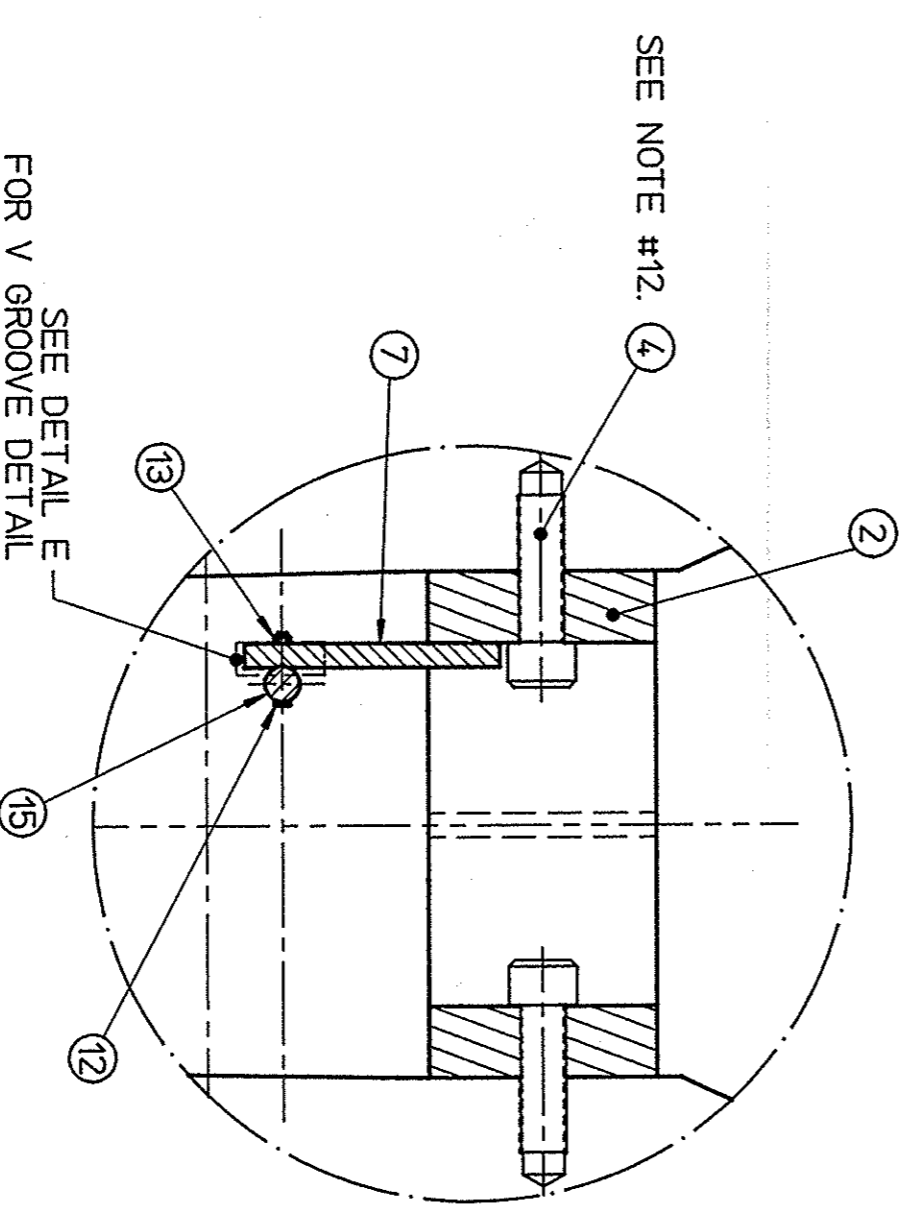
DETAIL E  
(SCALE 1:1)



SECTION A-A  
(SCALE 1:8)



DETAIL D  
(SCALE 1:4)



DETAIL C  
(SCALE 1:4)

FIN & TOL PER ANSI Y14.5 DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMAL ANGLES XXX ±		CADD ID. NO. JMB010510310201320013221000383g
MATERIAL NA		APPROVALS DATE
FINISH UNLESS OTHERWISE INDICATED DEBUR & BREAK ALL SHARP EDGES		DRAWN D. F. KLOCK 2/24/93
DO NOT SCALE DRAWING		DESIGNER D. F. KLOCK 3/16/93
APPROVED S. NANDA 3/16/93		SIZE DWG. NO. 65120-D-13221-00
SHEET 3 OF 3		REV. G

The Continuous Electron Beam Accelerator Facility  
 UNITED STATES DEPARTMENT OF ENERGY

HRS DIPOLE IRON  
 POLE ASSEMBLY