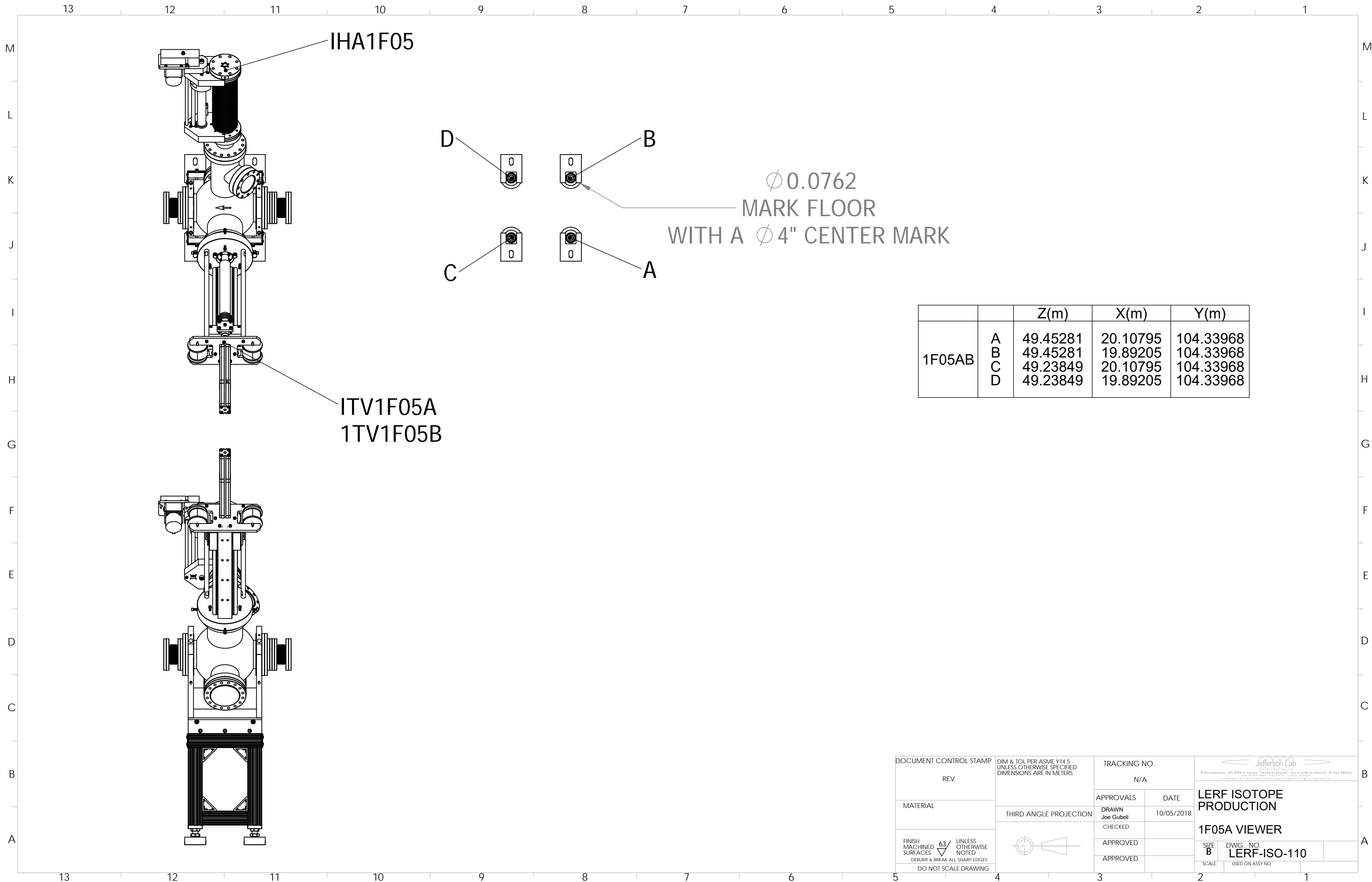

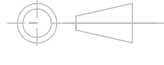


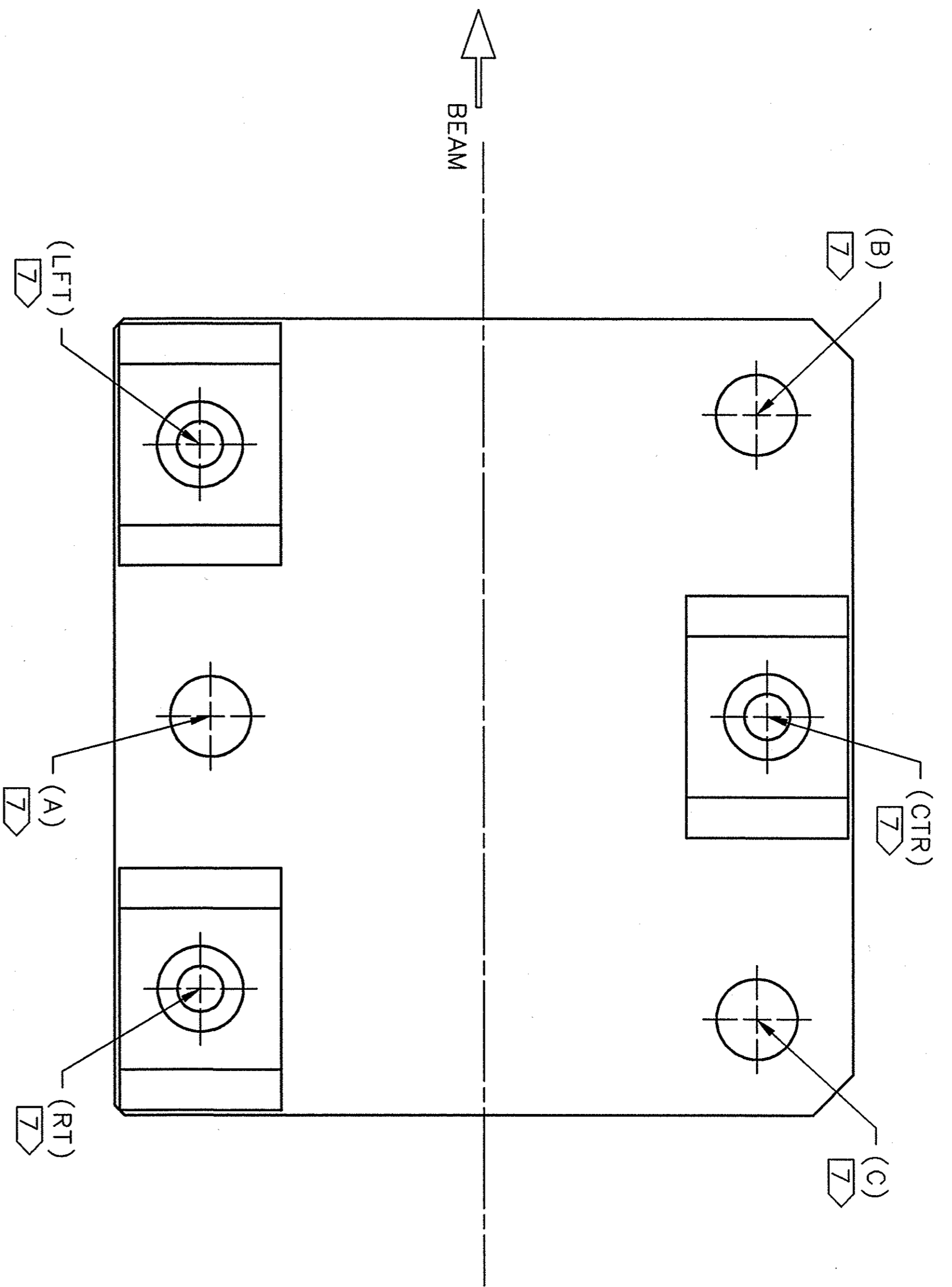
QUAD CENTER LOCATION (BFS)

	1F03A	1F03B	1F03C	1F04A	1F04B	1F04C	1F05A	1F05B	1F05C
X(m)	20.00000	20.00000	20.00000	20.00000	20.00000	20.00000	20.00000	20.00000	20.00000
Y(m)	105.00000	105.00000	105.00000	105.00000	105.00000	105.00000	105.00000	105.00000	105.00000
Z(m)	69.82400	69.30000	68.77600	61.10883	60.58483	60.06083	52.39365	51.86965	51.34565

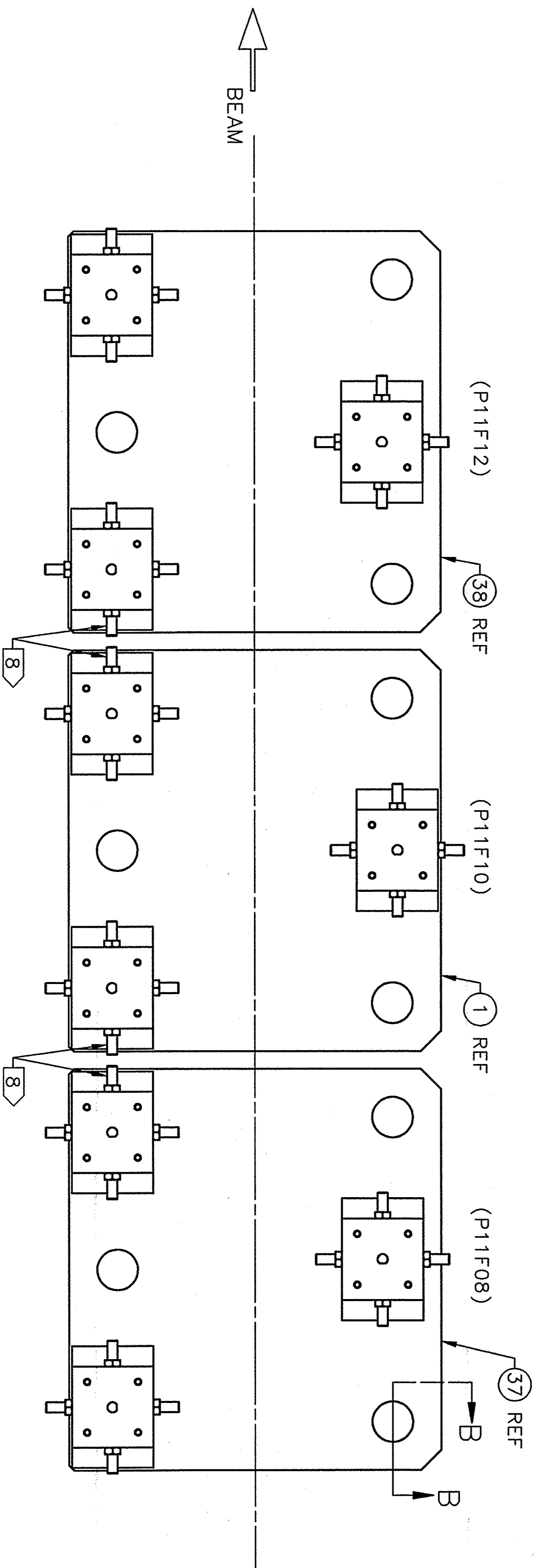
DOCUMENT CONTROL STAMP	REV	DIM & TOL PER ASME Y14.5 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN METERS	TRACKING NO. N/A	
	MATERIAL		APPROVALS	DATE
FINISH MACHINED SURFACES 63 UNLESS OTHERWISE NOTED DEBURR & BREAK ALL SHARP EDGES DO NOT SCALE DRAWING		THIRD ANGLE PROJECTION		 <small>Jefferson Lab Thomas Jefferson National Accelerator Facility UNIVERSITY OF CHICAGO, BROOKHAVEN NATIONAL LABORATORY, SLAC NATIONAL ACCELERATOR LABORATORY</small>
		APPROVED	10/05/2018	
		APPROVED		
			LERF ISOTOPE PRODUCTION 1F REGION LAYOUT	
			SIZE B SCALE:	DWG. NO. LERF-ISO-000 USED ON ASSY NO.



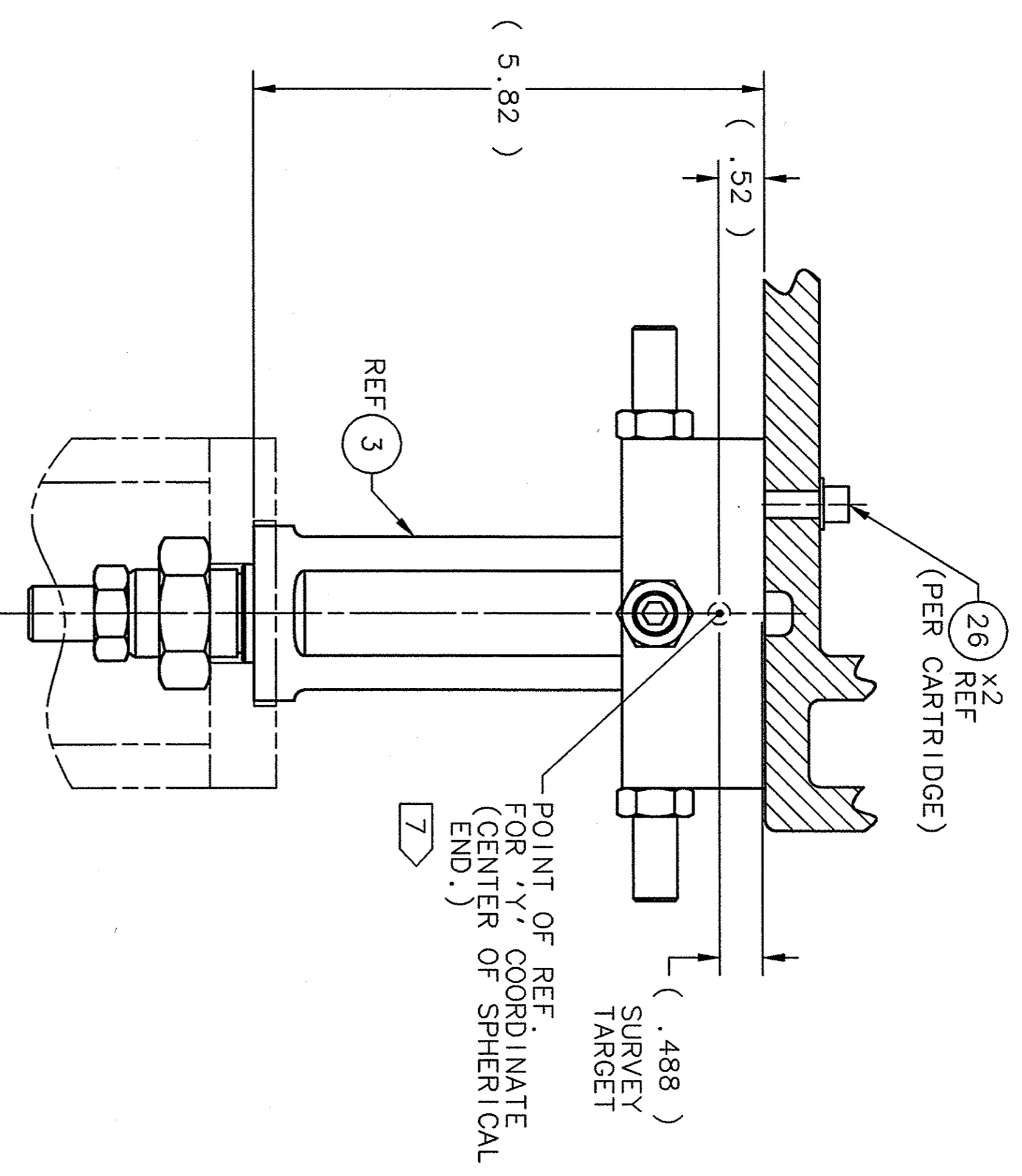
DOCUMENT CONTROL STAMP	DIM & TOL PER ASME Y14.5 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN METERS	TRACKING NO. N/A		 <small>Thomas Jefferson National Accelerator Facility</small> <small>UNIVERSITY OF MARYLAND SYSTEM</small>
		APPROVALS	DATE	
MATERIAL	THIRD ANGLE PROJECTION	DRAWN Joe Gubeli	10/05/2018	LERF ISOTOPE PRODUCTION 1F05A VIEWER
<small>FINISH MACHINED SURFACES</small> <small>DEBURR & BREAK ALL SHARP EDGES</small> <small>DO NOT SCALE DRAWING</small>			APPROVED	
		APPROVED		<small>SIZE B</small> <small>SCALE: USED ON ASSY NO.</small>



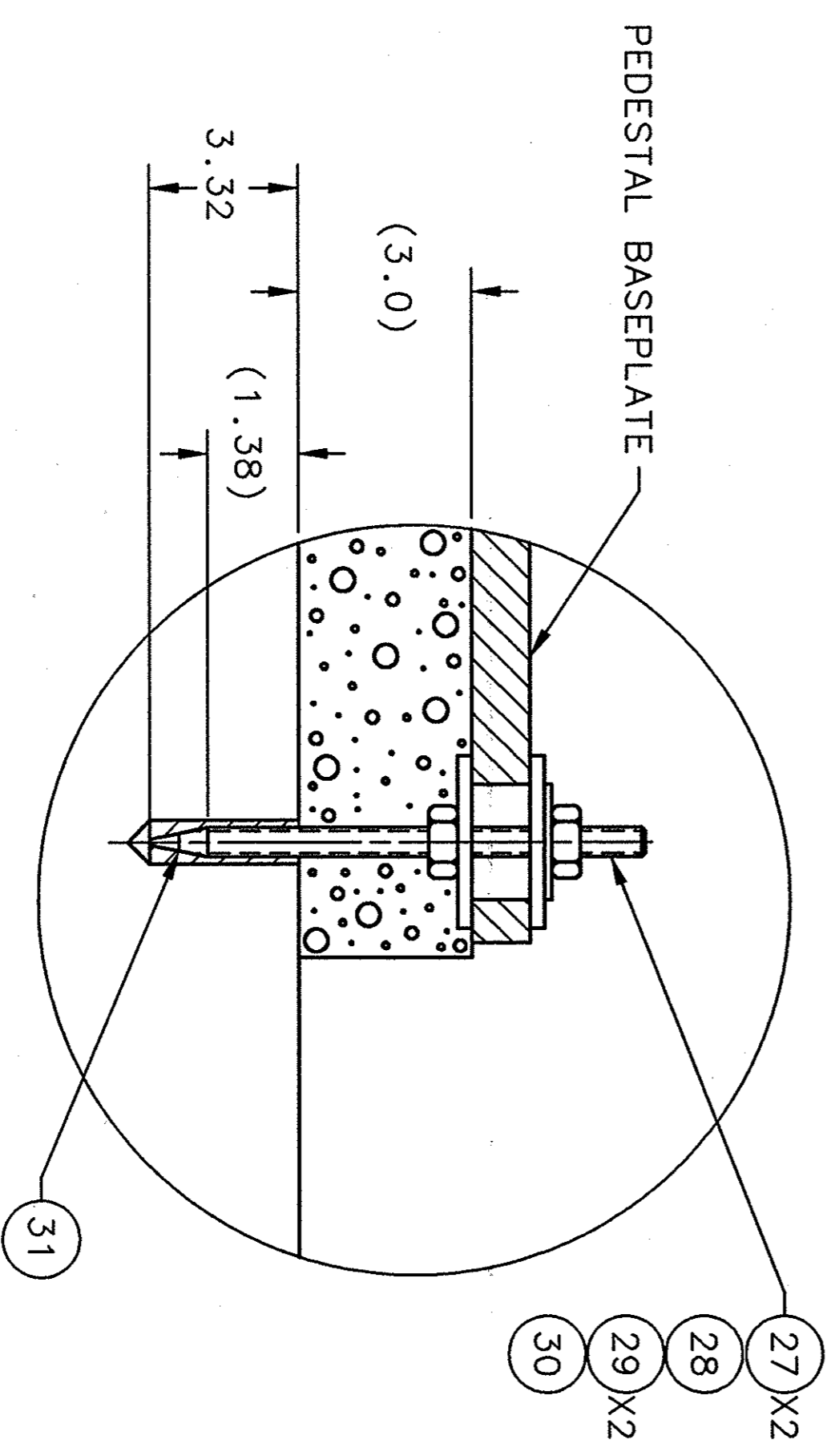
PEDESTAL & CARTRIDGE INSTALLATION
 PEDESTAL & CARTRIDGE CAP NOMENCLATURE DEFINITION
 W/ PEDESTAL ORIENTATION
 TYP 3 PLACES



PEDESTAL/CARTRIDGE ORIENTATION



CARTRIDGE ASSEMBLY
 TYP 9 PLACES



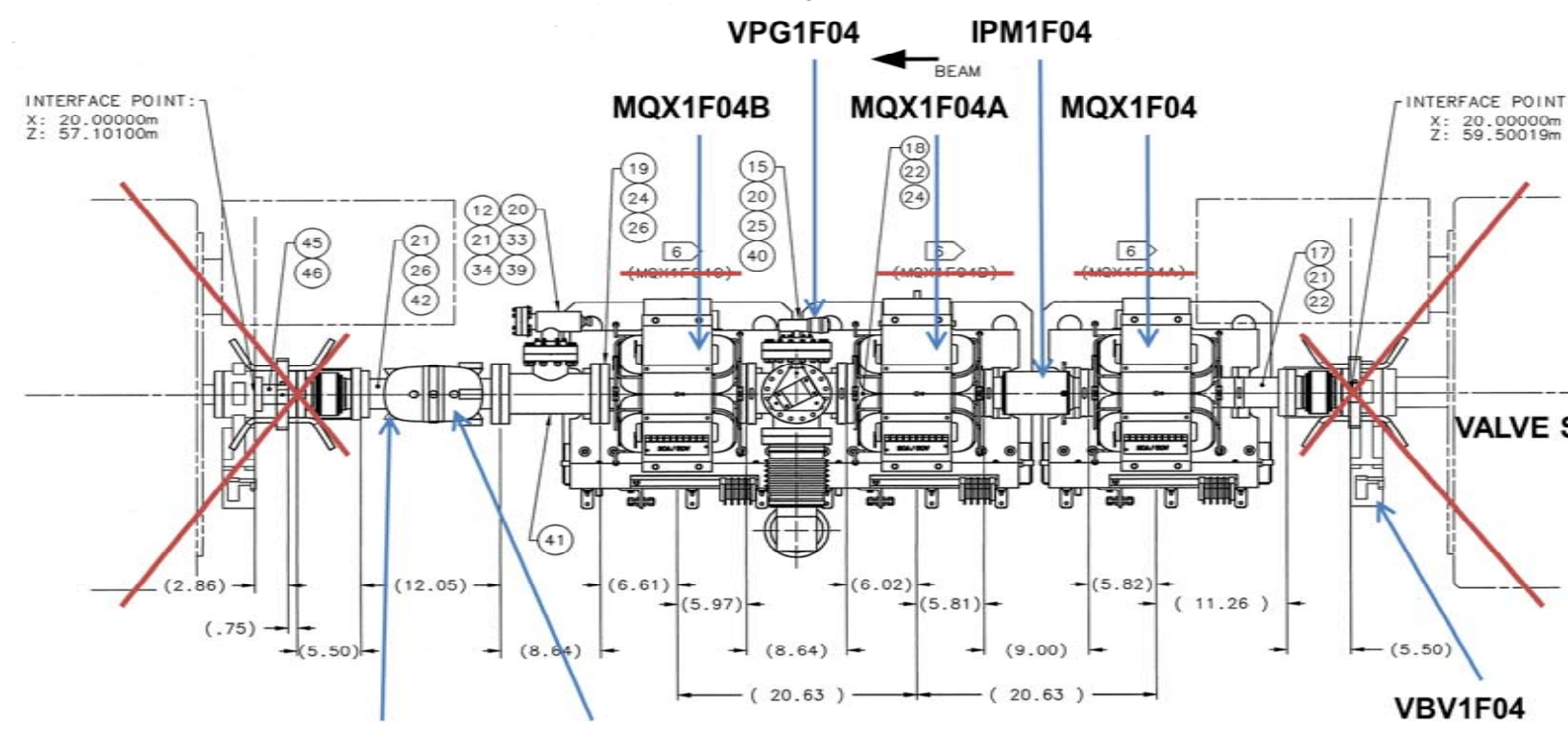
SECTION B-B
 TYPICAL 3 PLACES
 EACH PEDESTAL.

(COORDINATES IN METERS)

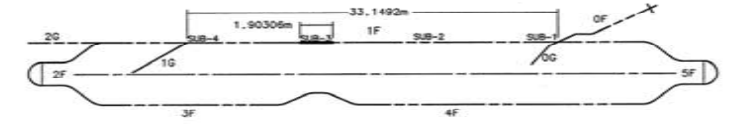
PED. BOLT LOCATION	REF. PT.	COORDINATES		
		Z	X	Y
P11F08-BOLT	A	69.82506	19.82833	104.4158
P11F08-BOLT	B	69.63456	20.17167	104.4158
P11F08-BOLT	C	70.01556	20.17167	104.4158
P11F10-BOLT	A	69.30104	19.82833	104.4158
P11F10-BOLT	B	69.11054	20.17167	104.4158
P11F10-BOLT	C	69.49154	20.17167	104.4158
P11F12-BOLT	A	68.77705	19.82833	104.4158
P11F12-BOLT	B	68.58655	20.17167	104.4158
P11F12-BOLT	C	68.96755	20.17167	104.4158

CARTRIDGE LOCATION	REF. PT.	COORDINATES		
		Z	X	Y
P11F08-CTR_CART	CENTER	69.81235	20.15919	104.7721
P11F08-LFT_CART	CENTER	69.65358	19.82176	104.7721
P11F08-RT_CART	CENTER	69.99672	19.82176	104.7721
P11F10-CTR_CART	CENTER	69.30105	20.17824	104.7721
P11F10-LFT_CART	CENTER	69.47272	19.82176	104.7721
P11F10-RT_CART	CENTER	69.12938	19.82176	104.7721
P11F12-CTR_CART	CENTER	68.78975	20.15919	104.7721
P11F12-LFT_CART	CENTER	68.60358	19.82176	104.7721
P11F12-RT_CART	CENTER	68.94872	19.82176	104.7721

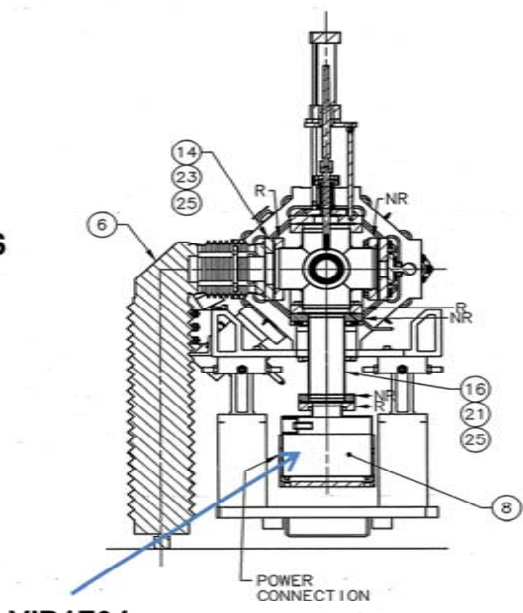
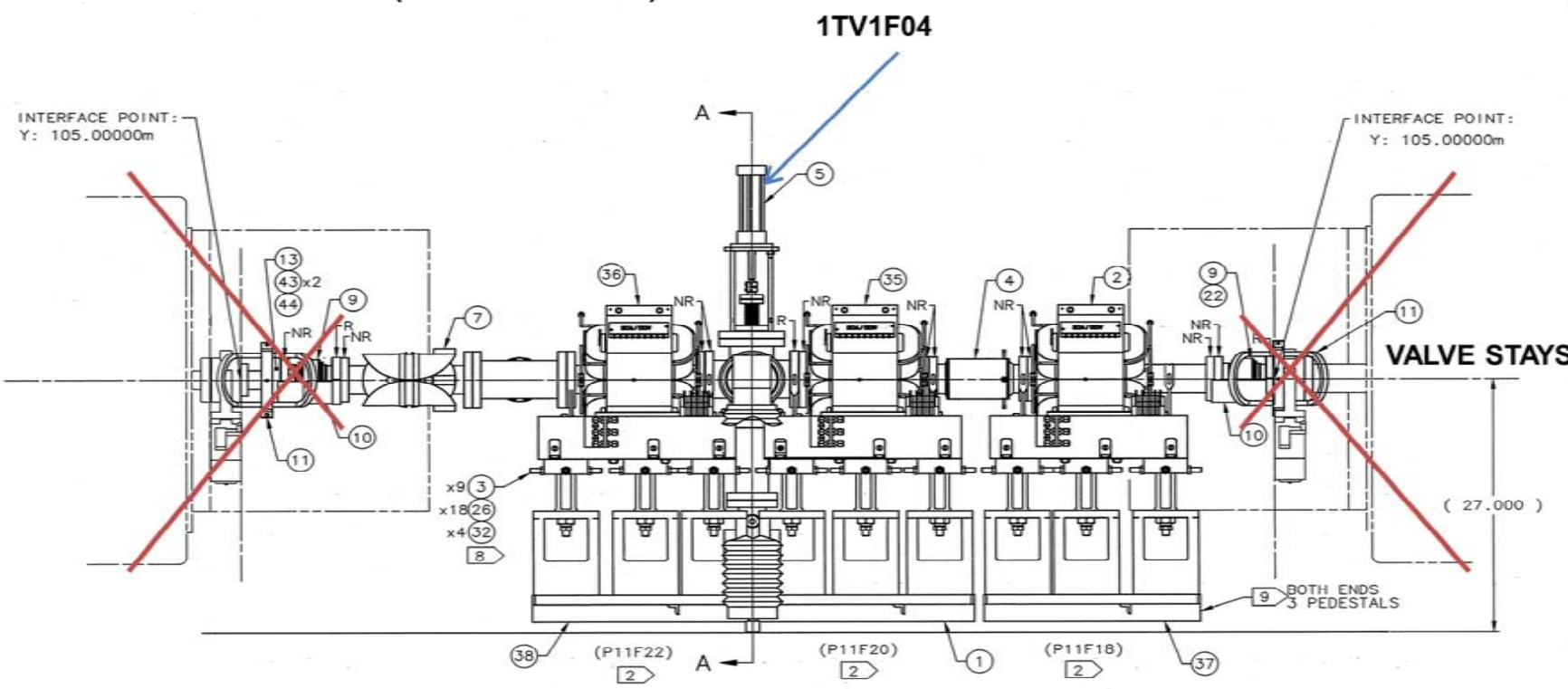
REVISION HISTORY					REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED	ZONE	REV	DESCRIPTION	DATE	APPROVED
B		CHANGED INTERFACE POINT TO 57.10100m LENGTH OF ITEM #44 FROM 2.50 TO 3.25. ADDED ITEMS #45 & 46. REPLACED PART# FOR ITEM #19. SLS AUG02	8/26/02	[Signature]	A		ADDED 'L'INAC' TO DRAWING NAME. UPDATED NOMENCLATURE & NOTE 7, REMOVED TORQUE REQUIREMENT FROM SHT 2, ADDED SHT 3- INSTALLATION COORDINATES. ADDED NOTE #9. BEMPHY TO SIGNATURE BLK & ITEMS #39, 40, 41, 42, 43 & 44. CHANGED NOTE #4, PART # FOR ITEMS #7, 13 & 19. QUANTITY FOR ITEMS #20, 22 & 25. RENAMED MATCHPOINTS TO INTERFACE POINTS IN LEADER NOTES. SLS MAY02	5/16/02	L.A.D.T.
								5/16/02	M.BEVINS



- NOTES:**
- CLEAN & HANDLE PER JLAB SPECIFICATION NO. 22631-S-001 & 22632-S-001.
 - ALL (P11FXX) TO BE INSTALLED PER PEDESTAL & CARTRIDGE INSTALLATION VIEW (SHT 2). P1 - PEDESTAL TYPE 1F - REGION XX - LOCATION
 - REFERENCE INFORMATION: BEAM ELEVATION IS 105.00000m
 - INTERFACE POINTS DEFINE THE CONNECTION BETWEEN SUB-REGIONS. MATCHPOINTS DEFINE THE CONNECTION BETWEEN REGIONS.
 - SUGGESTED SOURCE OR JLAB APPROVED ALTERNATE:
 - MDC VACUUM PRODUCTS
23842 CABOT BOULEVARD
HAYWARD, CA 94545-1651
1(800)443-8817
 - PHYSICAL ELECTRONICS
6509 FLYING CLOUD DRIVE
EDEN PRAIRIE, MN 55344
1(800)237-3603
 - VACUUM GENERATORS
1515 WORTHINGTON AVENUE
PITTSBURGH, PA 15025
1(412)233-4200
 - GRANVILLE-PHILLIPS
5675 ARAPAHOE AVENUE
BOULDER, CO 80303
1(800)776-6543
 - SEE SONGSHEET DWG #FEL-050-0550-0003 FOR COMPONENT NOMENCLATURE.
 - SEE SHT 3 FOR PEDESTAL BOLT & CARTRIDGE COORDINATES. COORDINATES ARE IN METERS.
- ELECTRONIC FILE ALSO AVAILABLE AT:
/group/ideas/jlablib/FEL/FEL0500440-0133_A.txt
- REPLACE SWIVEL CLAMP IN CARTRIDGE ASSY. ITEM #3 WITH ITEM #32 WHERE CARTRIDGE SPACING DOES NOT ALLOW ADJUSTMENT WITH HEX WRENCH. (SEE SHEET2, ZONE B-6)
 - CONTROL BOX MUST HAVE FULL ACCESS AT BOTH ENDS AFTER GROUTING. PRECAUTIONS MUST BE TAKEN TO PREVENT ANY GROUT FROM LEAKING IN. (CONTROL BOX IS LOCATED UNDER PEDESTAL)



QTY	ITEM NO.	DESCRIPTION	MATERIAL	NOTES
1	46	VAC-500-0133-0003-03	#3.38 CF HARDWARE, TAPPED HOLES W/ STUDS	
1	45	07705-0021-03	SPOOL #4.63 / #3.38 OFF-NR X 2.86 LG	
10	44	HARDWARE	STUD .313-24 UNF X 3.25 LG W/ NUT & WASHER	STUD-SILVER PLATED S/S WASHER-S/S NUT-SILICON BRONZE
2	43	MDC#191011 OR JLAB APPROVED	#4.63 GASKET, ID #3.01	5
1	42	VAC-555-5000-0001-13	SPOOL #6.0 OFF-NR THRU/ #4.63 OFF-NR THRU ASSEMBLY	
1	41	VAC-550-1212-6001	REDUCING TEE-SHEILDED, #6.0 OFF-NR X #4.63 OFF-R	
1	40	GRANVILLE-PHILLIPS #275238 & #007360 OR JLAB APPROVED	CONVECTION GAUGE #2.75 CFF AND CONNECTOR KIT	5
1	39	MDC#50012 OR JLAB APPROVED	#4.63/#2.75 CFF ZERO REDUCER	5
1	38	SPT-003-2040-1037	PEDESTAL, 1F STANDARD 3-LEG/DOWNSTREAM	
1	37	SPT-003-2040-1036	PEDESTAL, 1F STANDARD 3-LEG/UPSTREAM	
1	36	FEL-050-0220-0011	GIRDER ASSY QX, 3.0V-BLK, 6.0 V-BLK	
1	35	FEL-050-0220-0010	GIRDER ASSY QX, 4.63 V-BLK, 6.0 V-BLK	
1	34	VAC-500-0133-0001-03	#2.75 CF HARDWARE THRU HOLE W/ BOLTS	
1	33	MDC#110006 OR JLAB APPROVED	#2.75 CFF BLANK	5
4	32	SPT-001-0020-0003	SWIVEL CLAMP W/FLAT	8
9	31	HILTI#000457895	#.50 DROP-IN ANCHOR	
9	30	HARDWARE	#.50-13 UNC X 9.0 LG THREADED ROD	STEEL, ZINC COATED
18	29	HARDWARE	#.50-13 UNC HEX NUT	STEEL, ZINC COATED
9	28	HARDWARE	#.50 LOCKWASHER	STEEL, ZINC COATED
18	27	07210-0100-01	WASHER PLATE	
18	26	HARDWARE	#.313-18 UNC X 1.50 LG SHCS W/ WASHER	STAINLESS STEEL
5	25	VAC-500-0133-0001-07	#6.0 CF HARDWARE, THRU HOLE W/ BOLTS	
2	24	VAC-500-0133-0003-07	#6.0 CF HARDWARE, TAPPED HOLE W/ STUDS	
1	23	VAC-500-0133-0005-06	#4.63 CF HARDWARE, ZERO REDUCER W/ BOLTS	
4	22	VAC-500-0133-0003-06	#4.63 CF HARDWARE, TAPPED HOLE W/ STUDS	
4	21	VAC-500-0133-0001-06	#4.63 CF HARDWARE, THRU HOLE W/ BOLTS	
2	20	VAC-500-0133-0005-03	#2.75 CF HARDWARE, ZERO REDUCER W/ BOLTS	
1	19	VAC-555-5000-0048	SPOOL #6.0 NR THRU/#6.0 NR DIAPHRAGM TAPPED ASSEMBLY	
1	18	VAC-555-5000-0001-05	SPOOL #4.63 NR TAPPED/#6.0 NR DIAPHRAGM TAPPED ASSEMBLY	
1	17	VAC-555-5000-0002-04	SPOOL #4.63 NR THRU/#4.63 NR TAPPED ASSEMBLY	
1	16	VAC-555-5000-0018-01	SPOOL #6.0 NR THRU/#4.63 NR CFF ASSEMBLY	
1	15	MDC#150016 OR JLAB APPROVED	#6.0/#2.75 CF ZERO REDUCER	5
1	14	MDC#150019 OR JLAB APPROVED	#6.0/#4.63 CF ZERO REDUCER	5
1	13	VAC-550-1212-4000	GRAPHITE ABSORBER ASSEMBLY- #4.63 CF, #3.0-#2.0 REDUCER	
1	12	VACUUM GENERATORS #VZCR40R	#2.75 ROUGHING VALVE	5
2	11	MAG-005-0012-0002	SO ASSEMBLY 4.63 O.D. FLANGE	
2	10	SPT-003-2060-1000	BELLOWS SUPPORT ASSEMBLY	
2	9	VAC-012-0200-2000	BELLOWS-SHEILDED #4.63 FLG X 5.50 LG	
1	8	PhyElec# 2084040 OR JLAB APPROVED	40 L/S ION PUMP W/ #4.63 CF-R	5
1	7	MAG-001-5500-0003-03	DB/DH - #3.0 TUBE INSTALLED ASSEMBLY	
1	6	DIA-003-0050-0001	CAMERA ASSEMBLY	
1	5	DIA-007-0200-0100	VIEWER, #1.875 SHIELDED FOIL ASSEMBLY	
1	4	05130-D-2001	BPM, #3.0 STRIPLINE W/4.63 FLG	
9	3	SPT-001-0010-0101-04	STANDARD CARTRIDGE/ CAP ASSEMBLY	8
1	2	FEL-050-0220-0009	GIRDER ASSY QX, 3.0V-BLK, 4.63 V-BLK	
1	1	SPT-003-2040-1034	PEDESTAL, STANDARD 3 LEG	



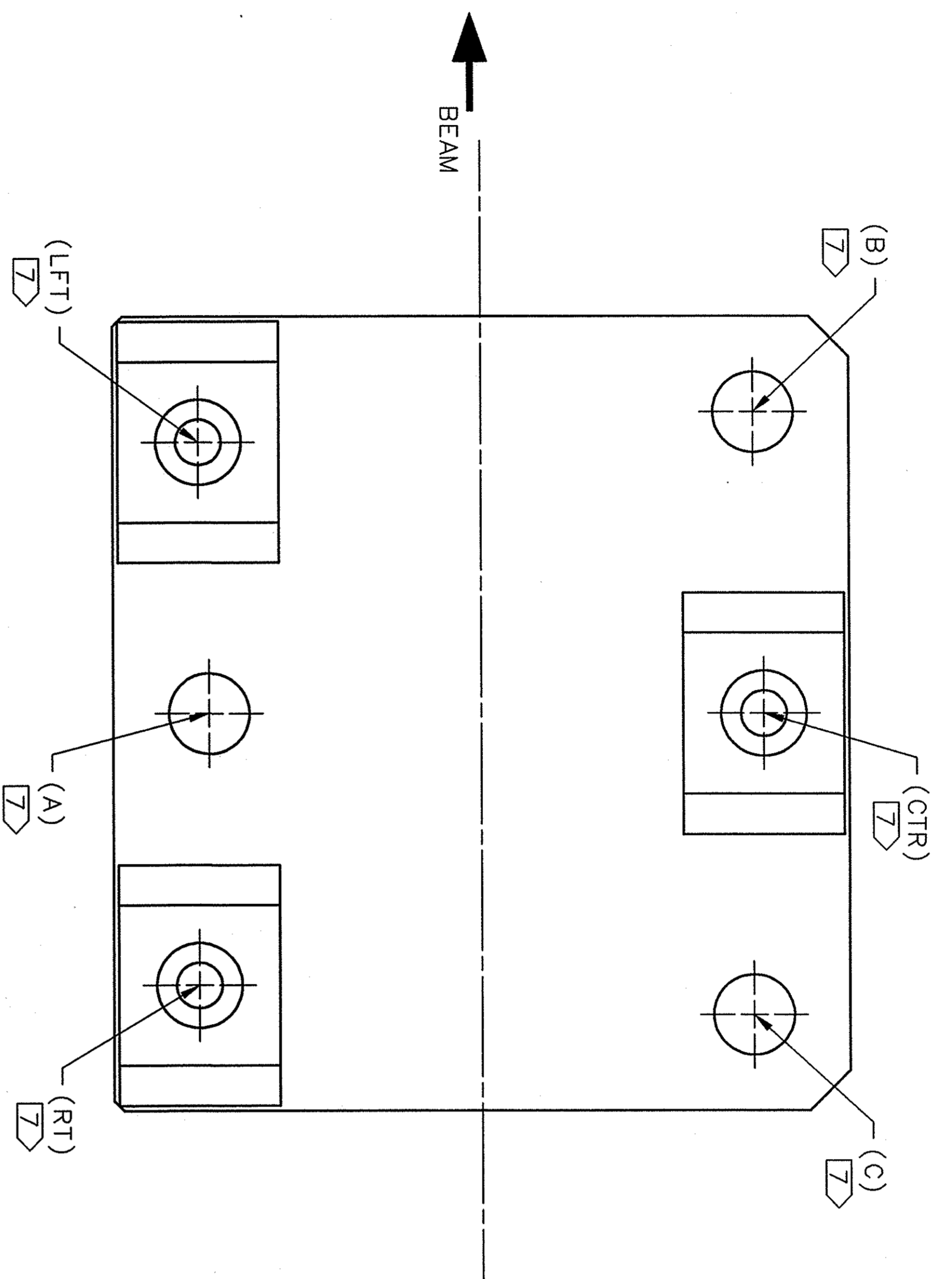
VIP1F04 SECTION A-A

AREA	SIGNATURE	DATE	APPROVALS	DATE
VAC	JOHN HECKMAN	1/28/02		
DIA	D. GRUBER/K. JORDAN	1/28/02		
MAG	N/A			
OPS	N/A			
ALIGN	CHRIS CURTIS	1/29/02		
INST	NEIL WILSON	1/29/02		
MFC	MIKE BEVINS	1/29/02		
BEMPHY	DAVE DOUGLAS	5/16/02		

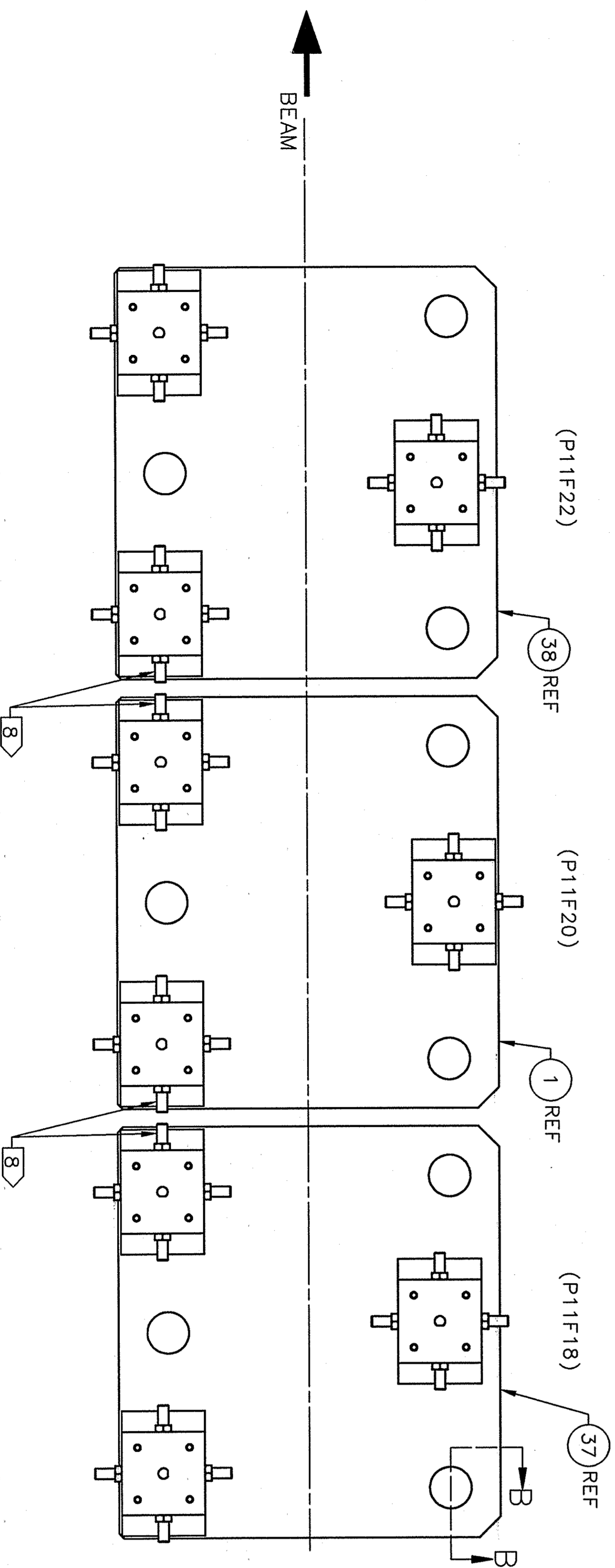
DRAWN: S. SLACHTOUSKI (SJM001)
 CHECKED: JACI SMITH (24JAN02)
 APPROVED: GEORGE BIALLAS (25JAN02)
 APPROVED: L.A. VILLOIN-TOMES (28JAN02)

Thomas Jefferson National Accelerator Facility
 UNITED STATES DEPARTMENT OF ENERGY
 FEL IR-INFRA RED REGION ASSEMBLY
 10 KW - 1F 'LINAC' SUB-REGION 3
 FEL-050-0440-0133

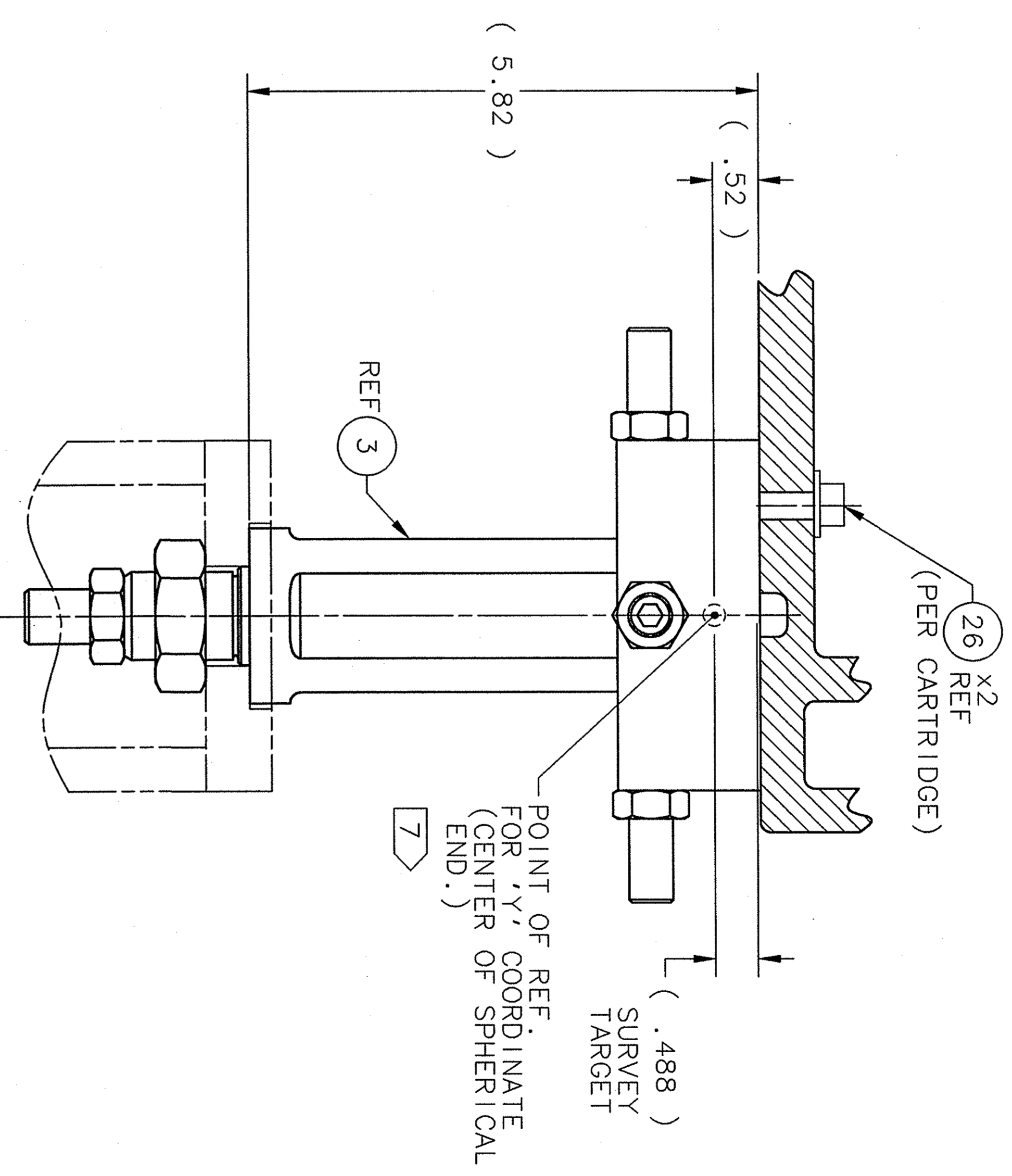
SHEET 1 OF 3
 DATE: 1/28/02



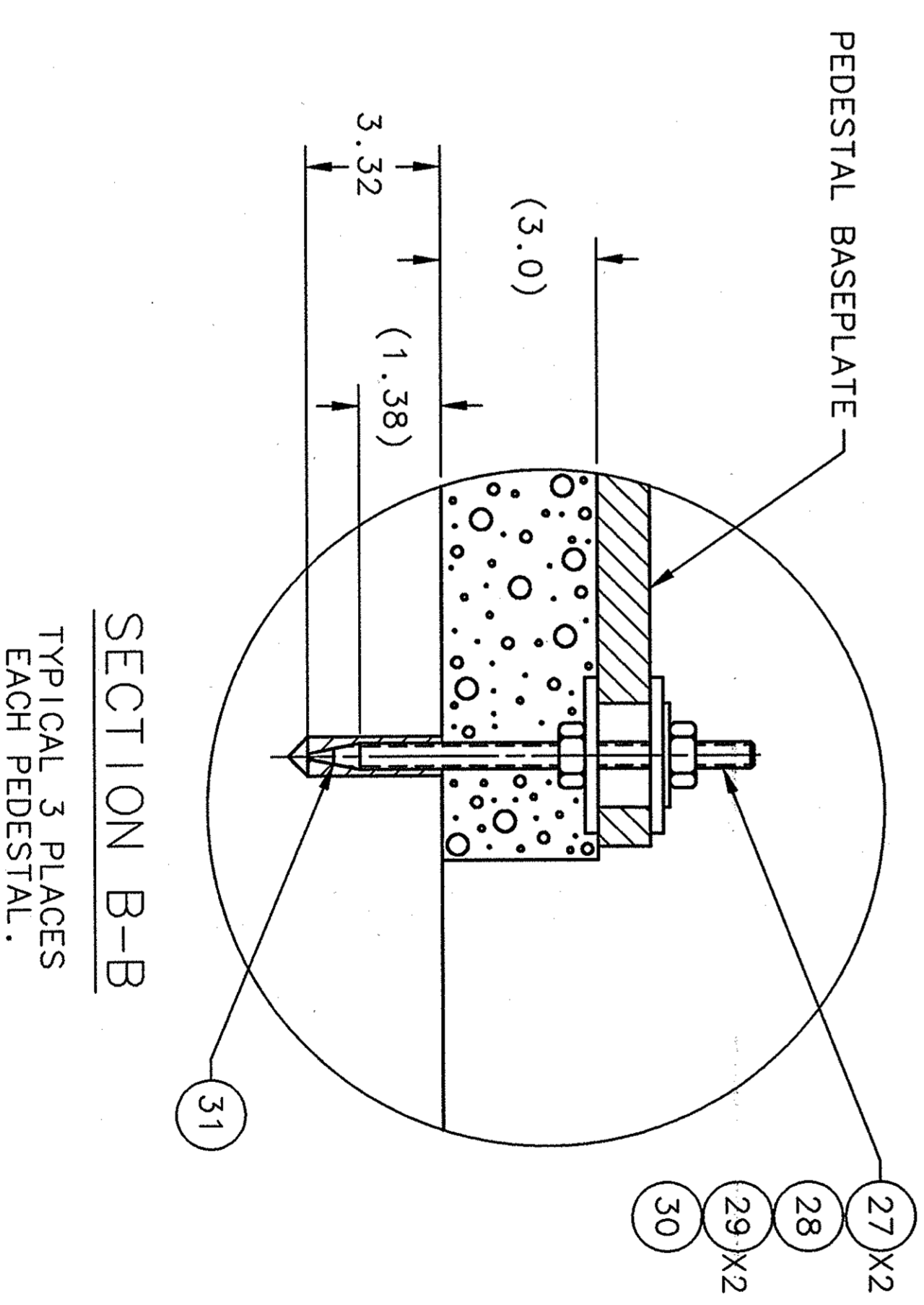
PEDESTAL & CARTRIDGE INSTALLATION
 PEDESTAL & CARTRIDGE CAP NOMENCLATURE DEFINITION
 W/ PEDESTAL ORIENTATION
 TYP 3 PLACES



PEDESTAL/CARTRIDGE ORIENTATION



CARTRIDGE ASSEMBLY
 TYP 9 PLACES



SECTION B-B
 TYPICAL 3 PLACES
 EACH PEDESTAL.

(COORDINATES IN METERS)

PED. BOLT LOCATION	REF. PT.	COORDINATES		
		Z	X	Y
P11F18-BOLT	A	59.07504	19.82833	104.4158
P11F18-BOLT	B	58.88454	20.17167	104.4158
P11F18-BOLT	C	59.26554	20.17167	104.4158
P11F20-BOLT	A	58.55104	19.82833	104.4158
P11F20-BOLT	B	58.36054	20.17167	104.4158
P11F20-BOLT	C	58.74154	20.17167	104.4158
P11F22-BOLT	A	58.02695	19.82833	104.4158
P11F22-BOLT	B	57.83645	20.17167	104.4158
P11F22-BOLT	C	58.21745	20.17167	104.4158

Z(m) (+2.03485m)

61.10989
60.91939
61.30039

60.58589
60.39539
60.77639

60.06180
59.87130
60.25230

CARTRIDGE LOCATION	REF. PT.	COORDINATES		
		Z	X	Y
P11F18-CTR_CART	CENTER	59.06234	20.15919	104.7721
P11F18-LFT_CART	CENTER	58.90338	19.82176	104.7721
P11F18-RT_CART	CENTER	59.24672	19.82176	104.7721
P11F20-CTR_CART	CENTER	58.55105	20.17824	104.7721
P11F20-LFT_CART	CENTER	58.37938	19.82176	104.7721
P11F20-RT_CART	CENTER	58.72272	19.82176	104.7721
P11F22-CTR_CART	CENTER	58.03965	20.15919	104.7721
P11F22-LFT_CART	CENTER	57.85528	19.82176	104.7721
P11F22-RT_CART	CENTER	58.19862	19.82176	104.7721

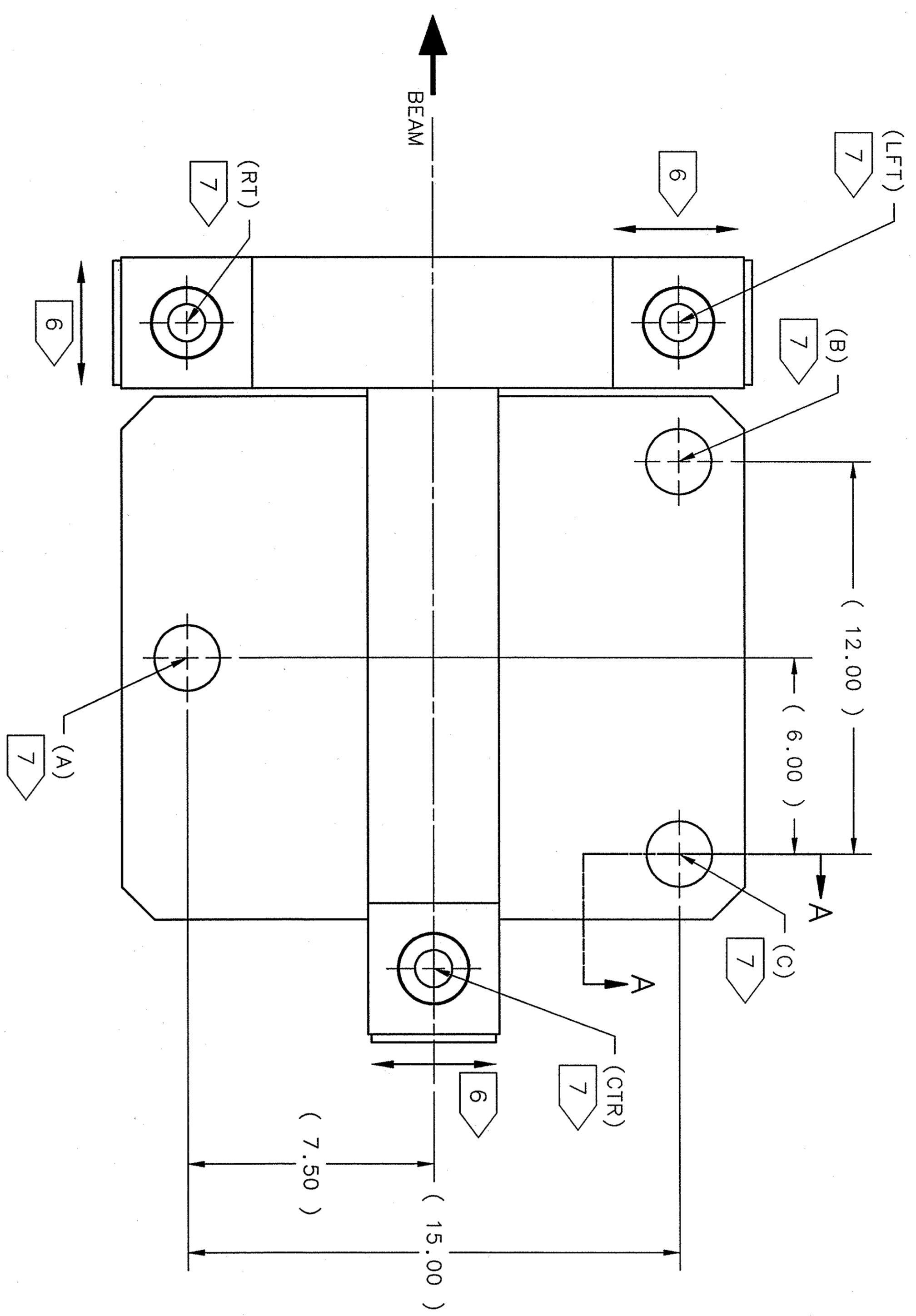
Z(m) (+2.03485m)

61.09719
60.93823
61.28157

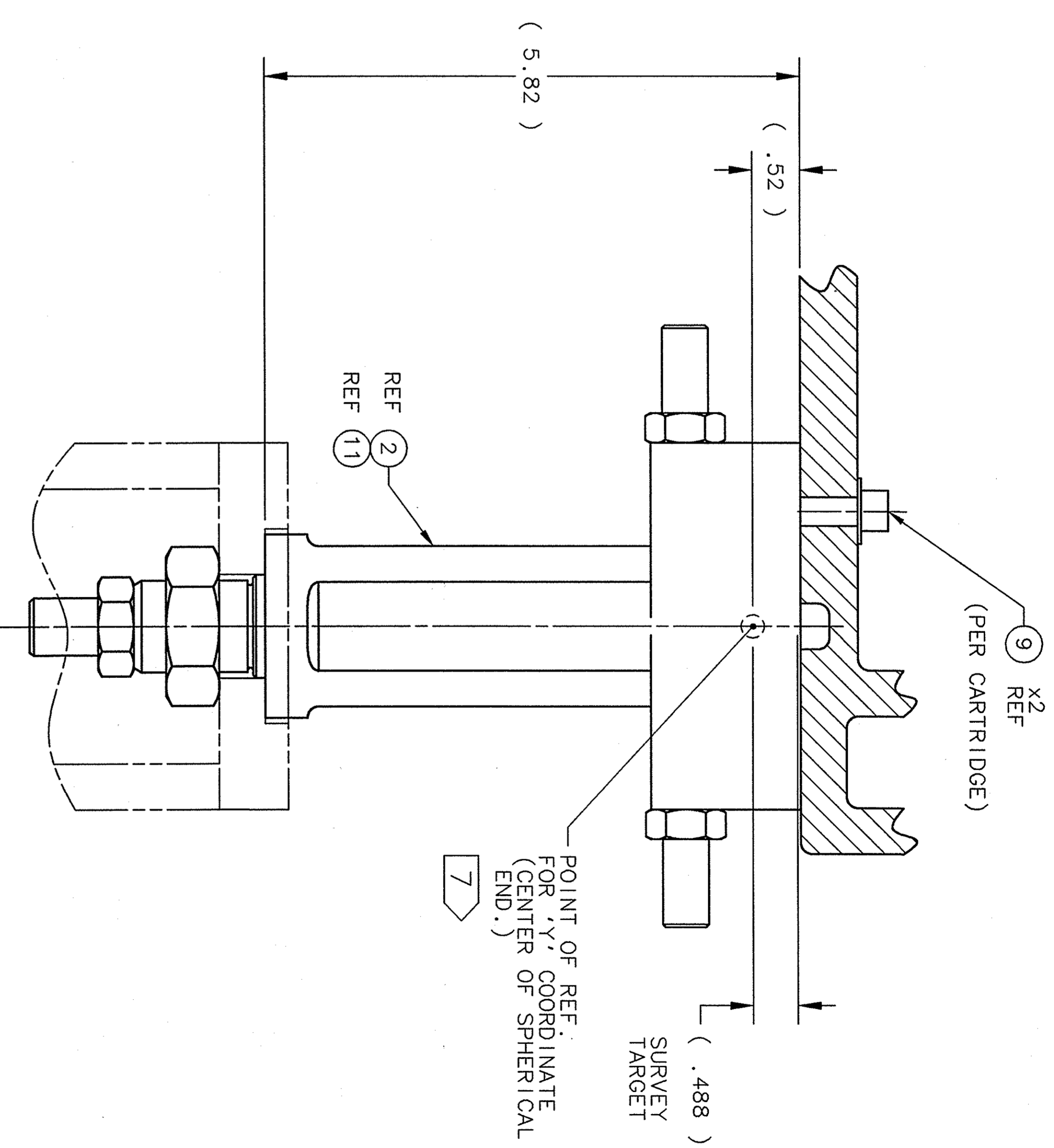
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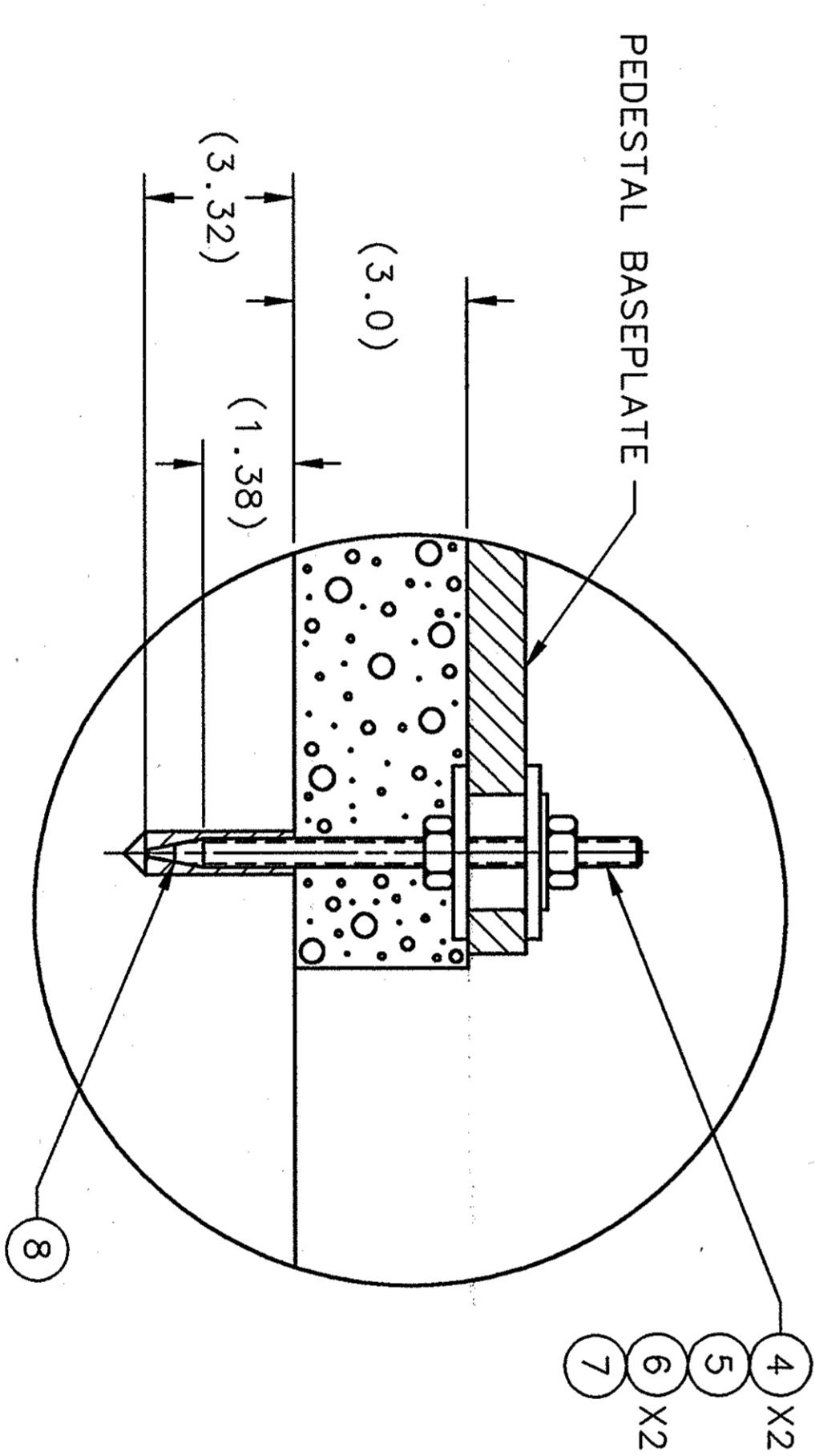




PEDESTAL & CARTRIDGE INSTALLATION
 PEDESTAL & CARTRIDGE CAP ORIENTATION
 W/ NOMENCLATURE DEFINITION
 NO SCALE



CARTRIDGE ASSEMBLY
 TYP 3 PLACES
 NO SCALE



SECTION A-A
 TYPICAL 3 PLACES
 EACH PEDESTAL
 NO SCALE

(COORDINATES IN METERS)

PED. BOLT LOCATION	REF. PT.	COORDINATES			Z(m) (+19.09147m)
		Z	X	Y	
7 P11F28_BOLT	A	48.0711	19.80950	104.4192	67.16258
P11F28_BOLT	B	47.91871	20.19050	104.4192	67.01018
P11F28_BOLT	C	48.22351	20.19050	104.4192	67.31498

CARTRIDGE LOCATION	REF. PT.	COORDINATES			Z(m) (+19.09147m)
		Z	X	Y	
7 P11F28-CTR_CART	Center	48.31251	20.00000	104.7721	67.40388
P11F28-LFT_CART	Center	47.81076	20.19050	104.7721	66.90223
P11F28-RT_CART	Center	47.81076	19.80950	104.7721	66.90223