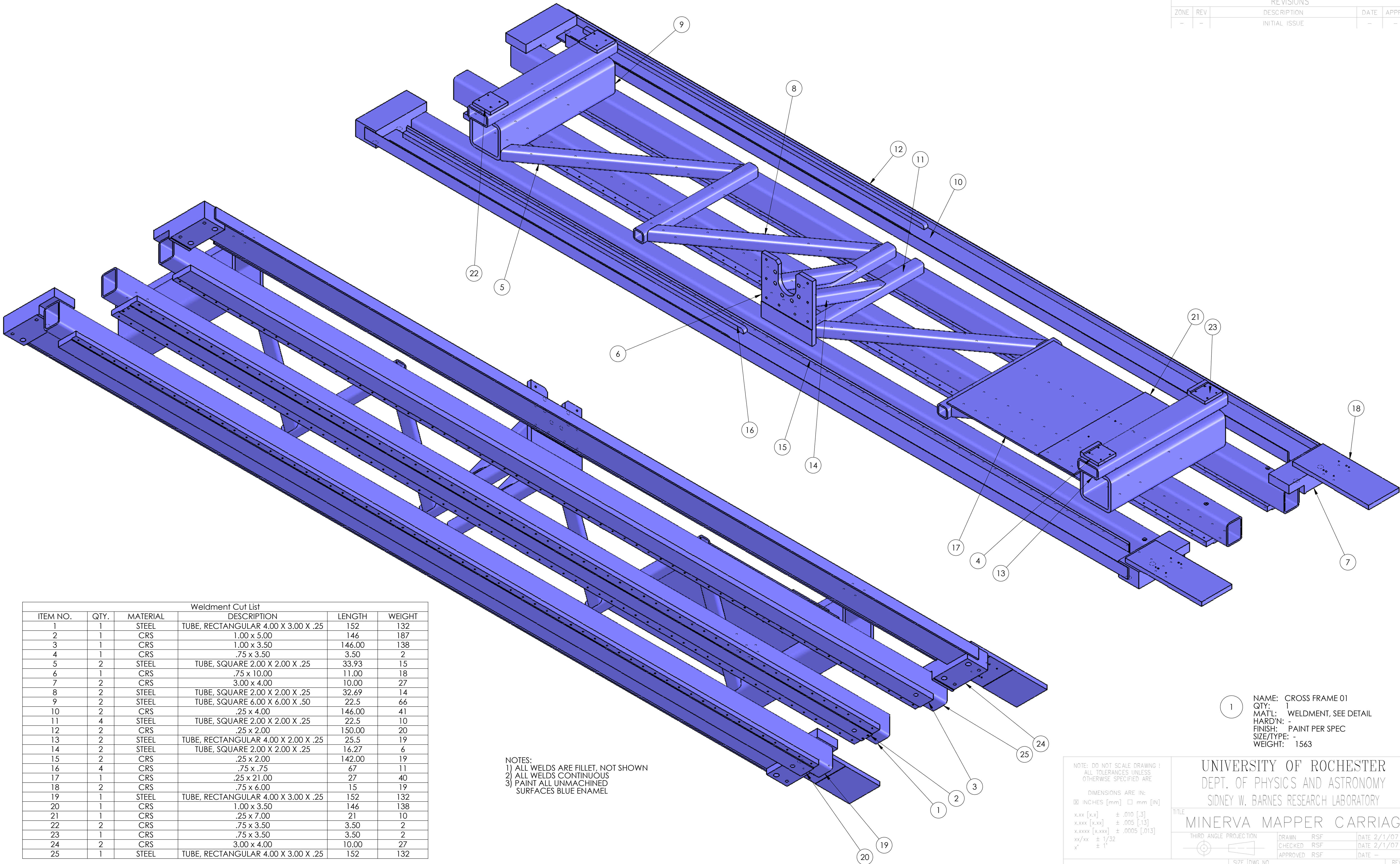


REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-



NOTES:
1) ALL WELDS ARE FILLET, NOT SHOWN
2) ALL WELDS CONTINUOUS
3) PAINT ALL UNMACHINED SURFACES BLUE ENAMEL

Weldment Cut List					
ITEM NO.	QTY.	MATERIAL	DESCRIPTION	LENGTH	WEIGHT
1	1	STEEL	TUBE, RECTANGULAR 4.00 X 3.00 X .25	152	132
2	1	CRS	1.00 x 5.00	146	187
3	1	CRS	1.00 x 3.50	146.00	138
4	1	CRS	.75 x 3.50	3.50	2
5	2	STEEL	TUBE, SQUARE 2.00 X 2.00 X .25	33.93	15
6	1	CRS	.75 x 10.00	11.00	18
7	2	CRS	3.00 x 4.00	10.00	27
8	2	STEEL	TUBE, SQUARE 2.00 X 2.00 X .25	32.69	14
9	2	STEEL	TUBE, SQUARE 6.00 X 6.00 X .50	22.5	66
10	2	CRS	.25 x 4.00	146.00	41
11	4	STEEL	TUBE, SQUARE 2.00 X 2.00 X .25	22.5	10
12	2	CRS	.25 x 2.00	150.00	20
13	2	STEEL	TUBE, RECTANGULAR 4.00 X 2.00 X .25	25.5	19
14	2	STEEL	TUBE, SQUARE 2.00 X 2.00 X .25	16.27	6
15	2	CRS	.25 x 2.00	142.00	19
16	4	CRS	.75 x .75	67	11
17	1	CRS	.25 x 21.00	27	40
18	2	CRS	.75 x 6.00	15	19
19	1	STEEL	TUBE, RECTANGULAR 4.00 X 3.00 X .25	152	132
20	1	CRS	1.00 x 3.50	146	138
21	1	CRS	.25 x 7.00	21	10
22	2	CRS	.75 x 3.50	3.50	2
23	1	CRS	.75 x 3.50	3.50	2
24	2	CRS	3.00 x 4.00	10.00	27
25	1	STEEL	TUBE, RECTANGULAR 4.00 X 3.00 X .25	152	132

1 NAME: CROSS FRAME 01
QTY: 1
MAT'L: WELDMENT, SEE DETAIL
HARD'N: -
FINISH: PAINT PER SPEC
SIZE/TYPE: -
WEIGHT: 1563

NOTE: DO NOT SCALE DRAWING!
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☒ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xxx] ± .005 [.13]
x.xxxx [x.xxxx] ± .0005 [.013]
xx/xx ± 1/32
x" ± 1"

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE
MINERVA MAPPER CARRIAGE

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

SIZE [DWG NO]
D 70003

SCALE	1:6	SHEET	1	OF	12
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REV
-

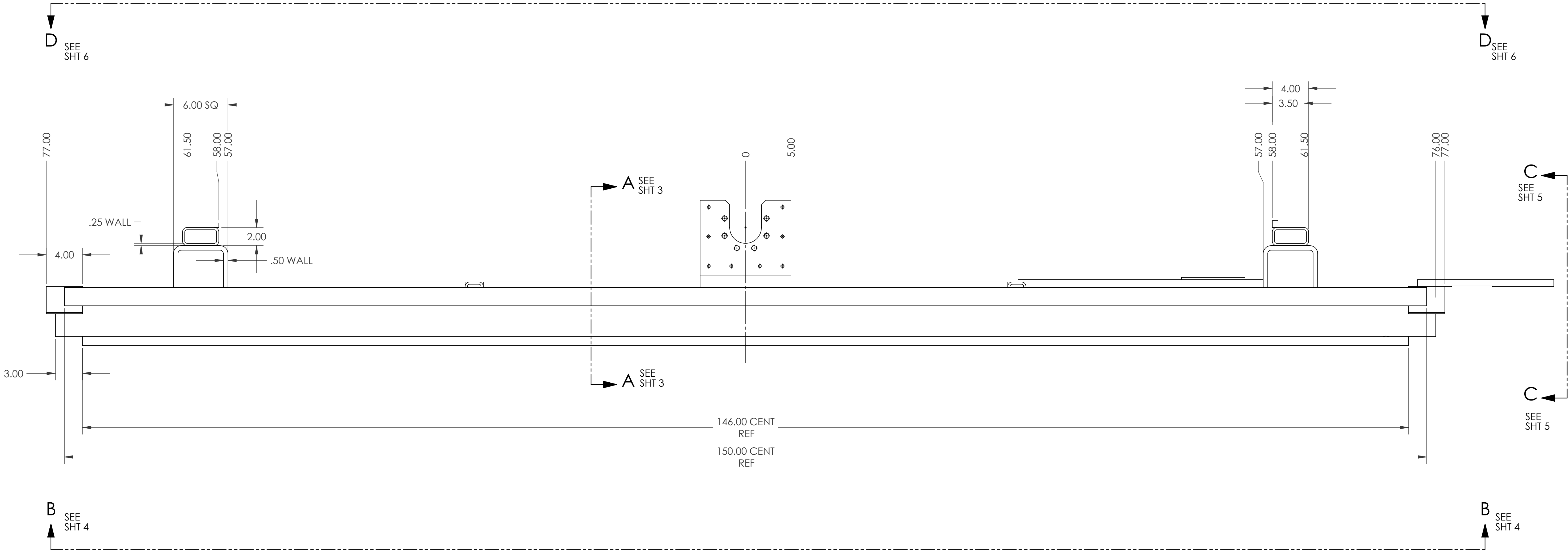
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WEIGHT: 1563 LBS

FILE: 70003-MAPPER FAB CARRIAGE ASSY

REVISIONS				
ZONE	REV	DESCRIPTION		DATE
-	-	INITIAL	ISSUE	-

B



B

A

FRONT VIEW
FABRICATION DIMENSIONS

A

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☒ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x" ± 1"

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TITLE
MINERVA MAPPER CARRIAGE

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

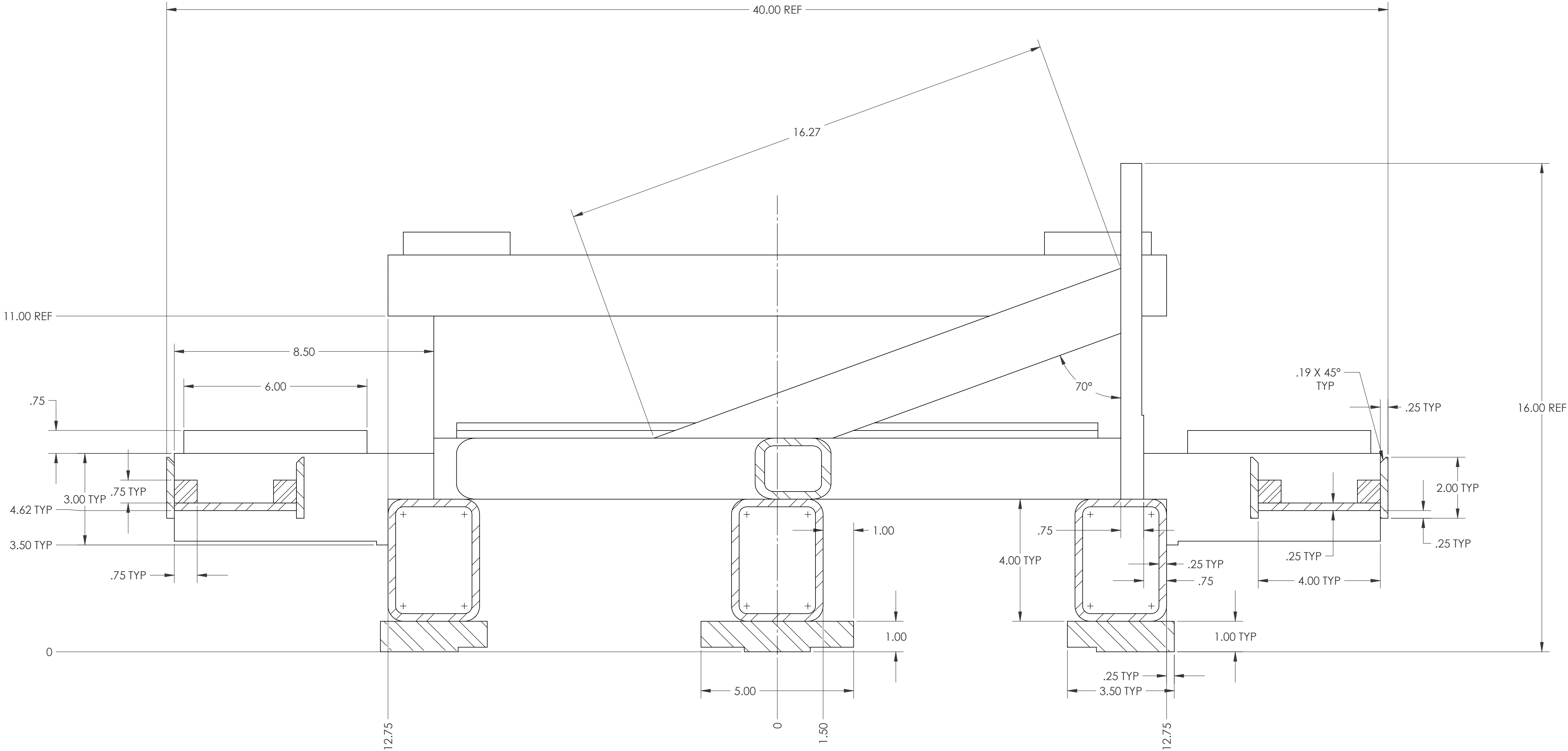
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SIZE [DWG NO]	70003	REV	-
SCALE	1:6	SHEET	2 OF 12

WEIGHT: 1563 LBS

FILE: 70003-MAPPER FAB CARRIAGE ASSY

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-



SECTION A-A
FABRICATION DIMENSIONS
FROM SHT 12

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☒ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xxx] ± .005 [.13]
x.xxxx [x.xxxx] ± .0005 [.013]
xx/xx ± 1/32
x" ± 1"

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TITLE
MINERVA MAPPER CARRIAGE

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

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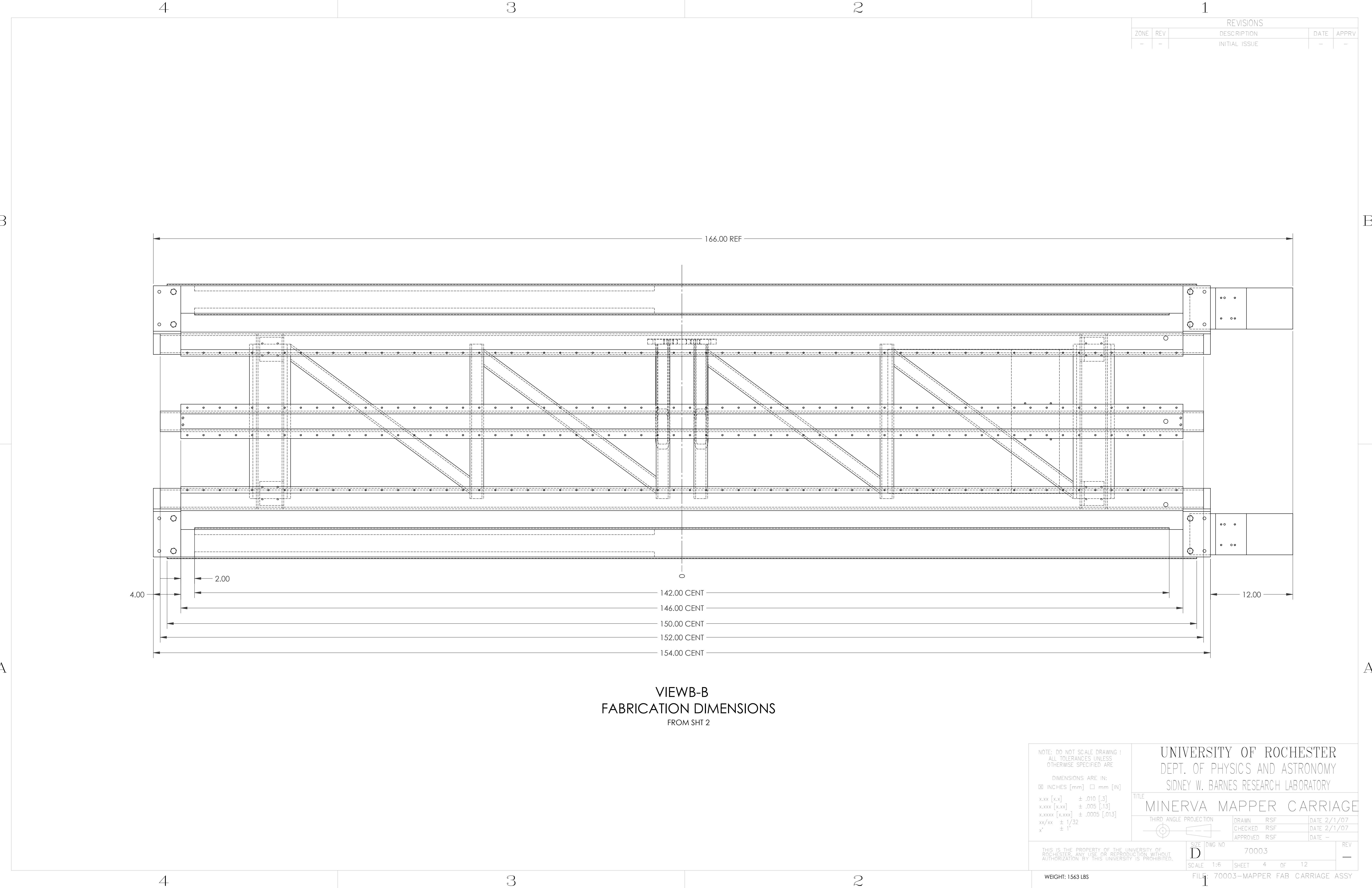
SIZE [DWG NO]
D 70003

SCALE 1:2 SHEET 3 OF 12

WEIGHT: 1563 LBS

1

FILE: 70003-MAPPER FAB CARRIAGE ASSY



REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☒ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x" ± 1"

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TITLE
MINERVA MAPPER CARRIAGE

THIRD ANGLE PROJECTION

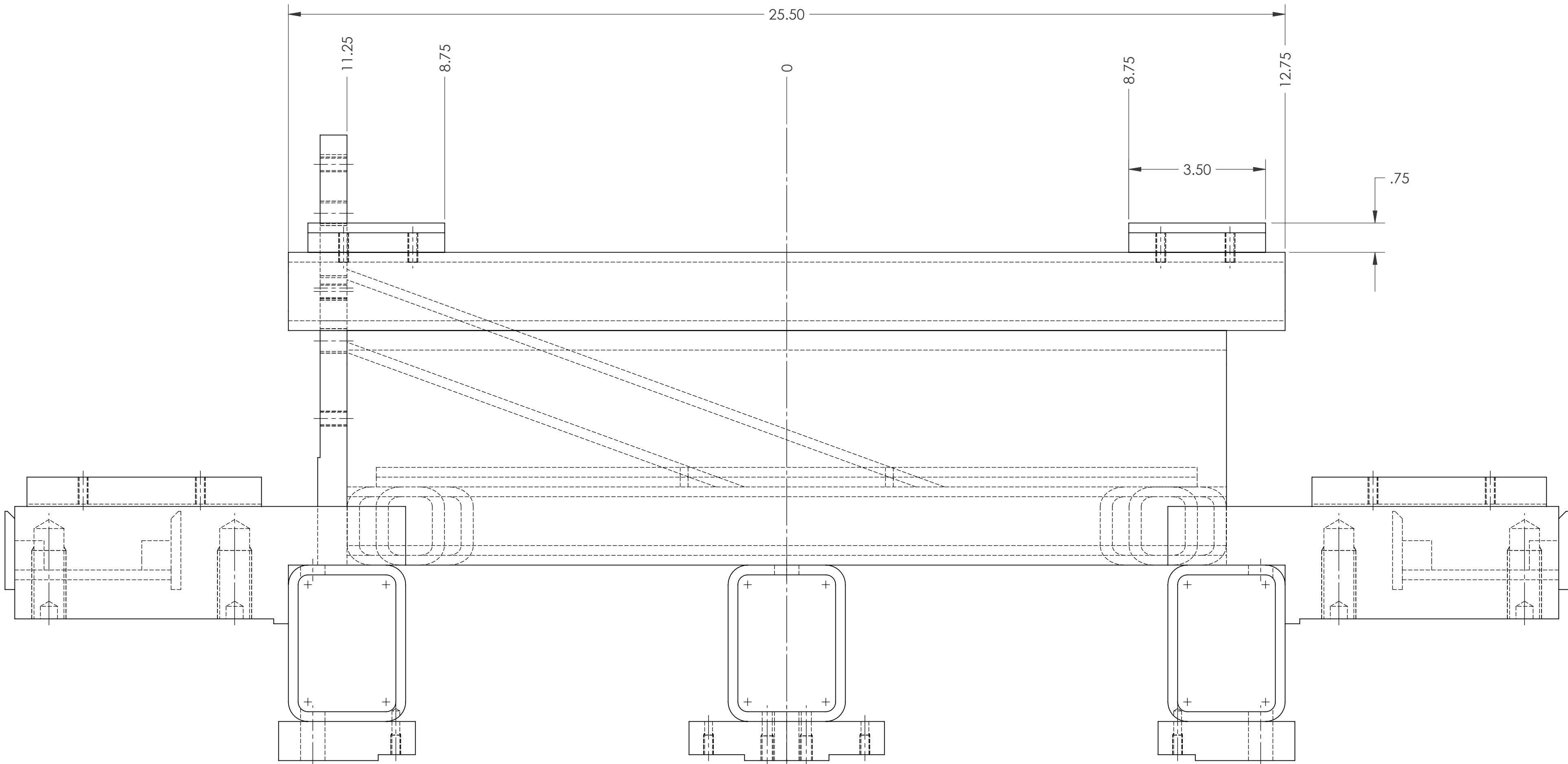
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CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

SIZE [DWG NO]	D	70003	REV	-
SCALE	1:6	SHEET	4 OF 12	

WEIGHT: 1563 LBS

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FILE: 70003-MAPPER FAB CARRIAGE ASSY



VIEW C-C
FABRICATION DIMENSIONS
FROM SHT 2

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☒ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xxx] ± .005 [.13]
x.xxxx [x.xxxx] ± .0005 [.013]
xx/xx ± 1/32
x" ± 1"

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TITLE
MINERVA MAPPER CARRIAGE

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	—

SIZE [DWG NO]
D 70003

SCALE	1:2	SHEET	5	OF	12	REV	—
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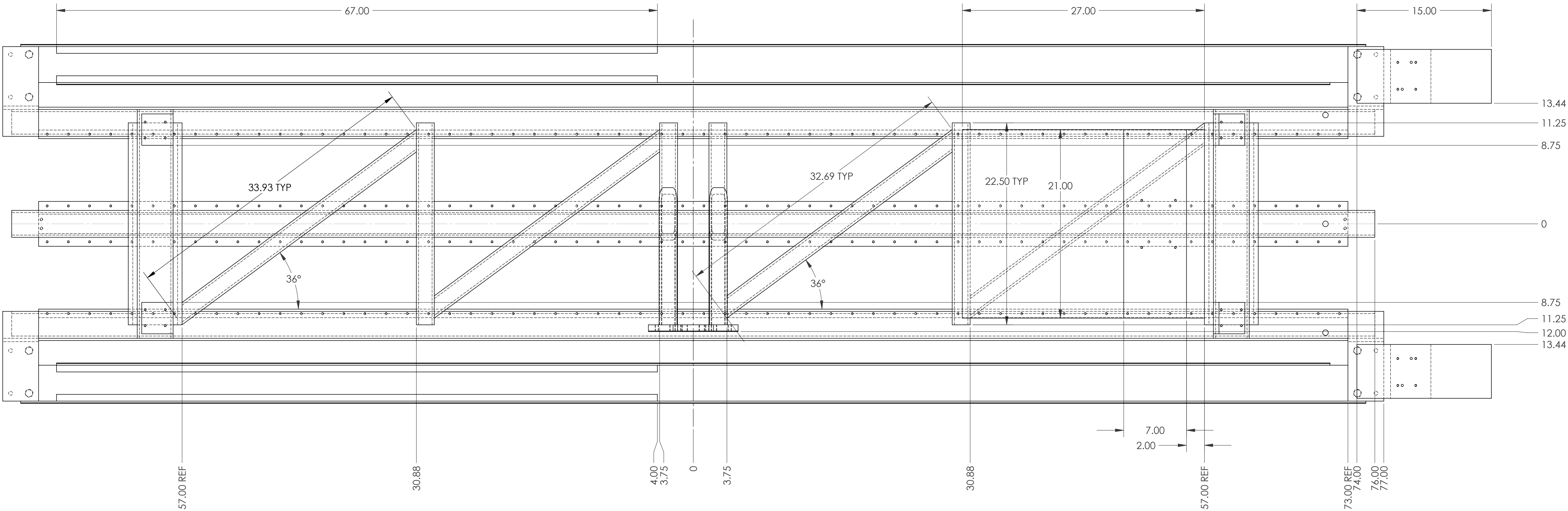
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WEIGHT: 1563 LBS

FILE: 70003—MAPPER FAB CARRIAGE ASSY

1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
—	—	INITIAL ISSUE	—	—



VIEW D-D
FABRICATION DIMENSIONS
FROM SHT 2

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☒ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xxx] ± .005 [.13]
x.xxxx [x.xxxx] ± .0005 [.013]
xx/xx ± 1/32
x" ± 1"

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TITLE
MINERVA MAPPER CARRIAGE

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	—

SIZE [DWG NO]
D 70003

SCALE	1:6	SHEET	6	OF	12
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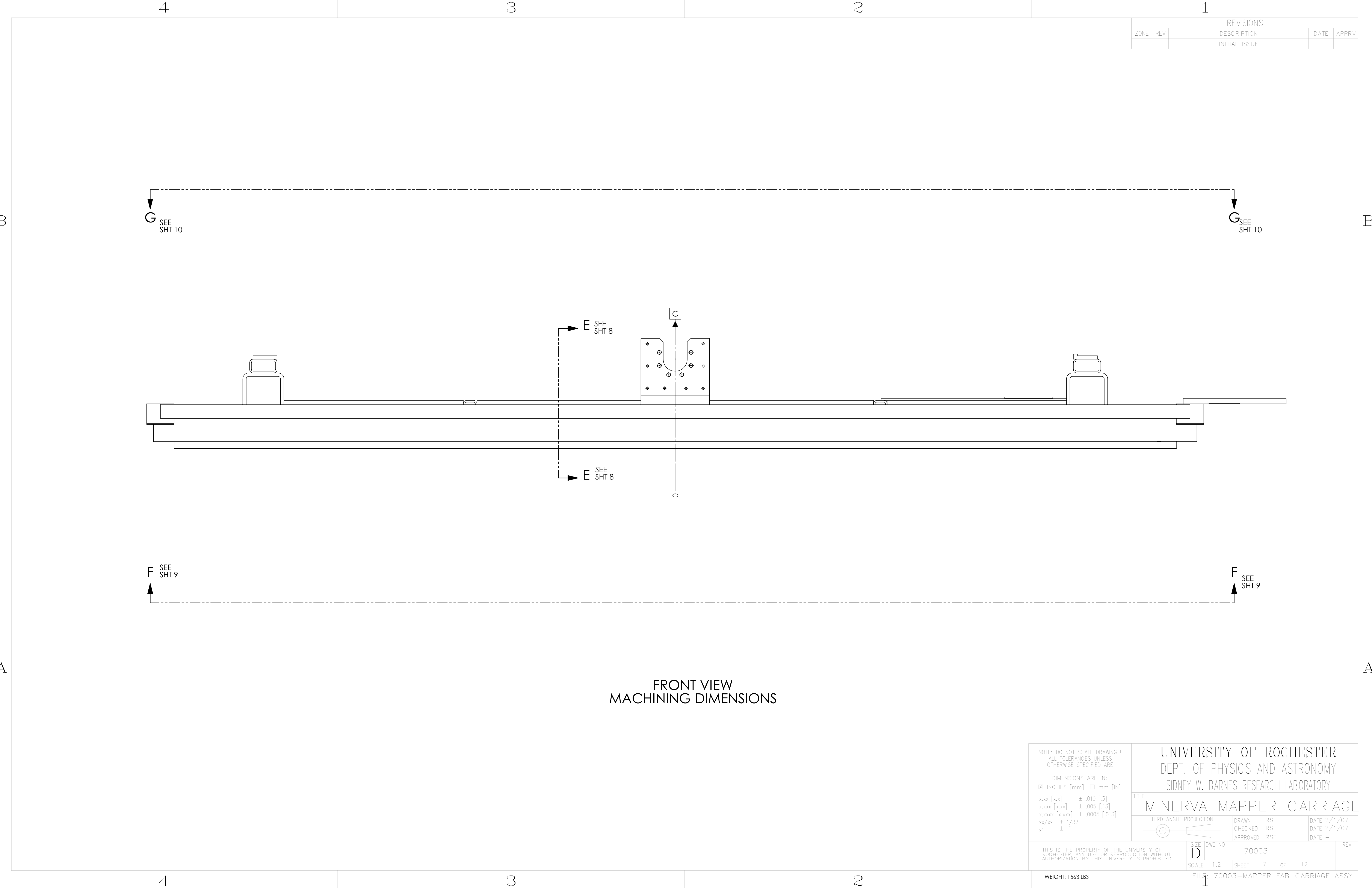
REV
—

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WEIGHT: 1563 LBS

FILE: 70003-MAPPER FAB CARRIAGE ASSY

1



REVISIONS				
ZONE	REV	DESCRIPTION		DATE
-	-	INITIAL	ISSUE	APPRV
-	-			-

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☒ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x" ± 1"

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TITLE
MINERVA MAPPER CARRIAGE

THIRD ANGLE PROJECTION

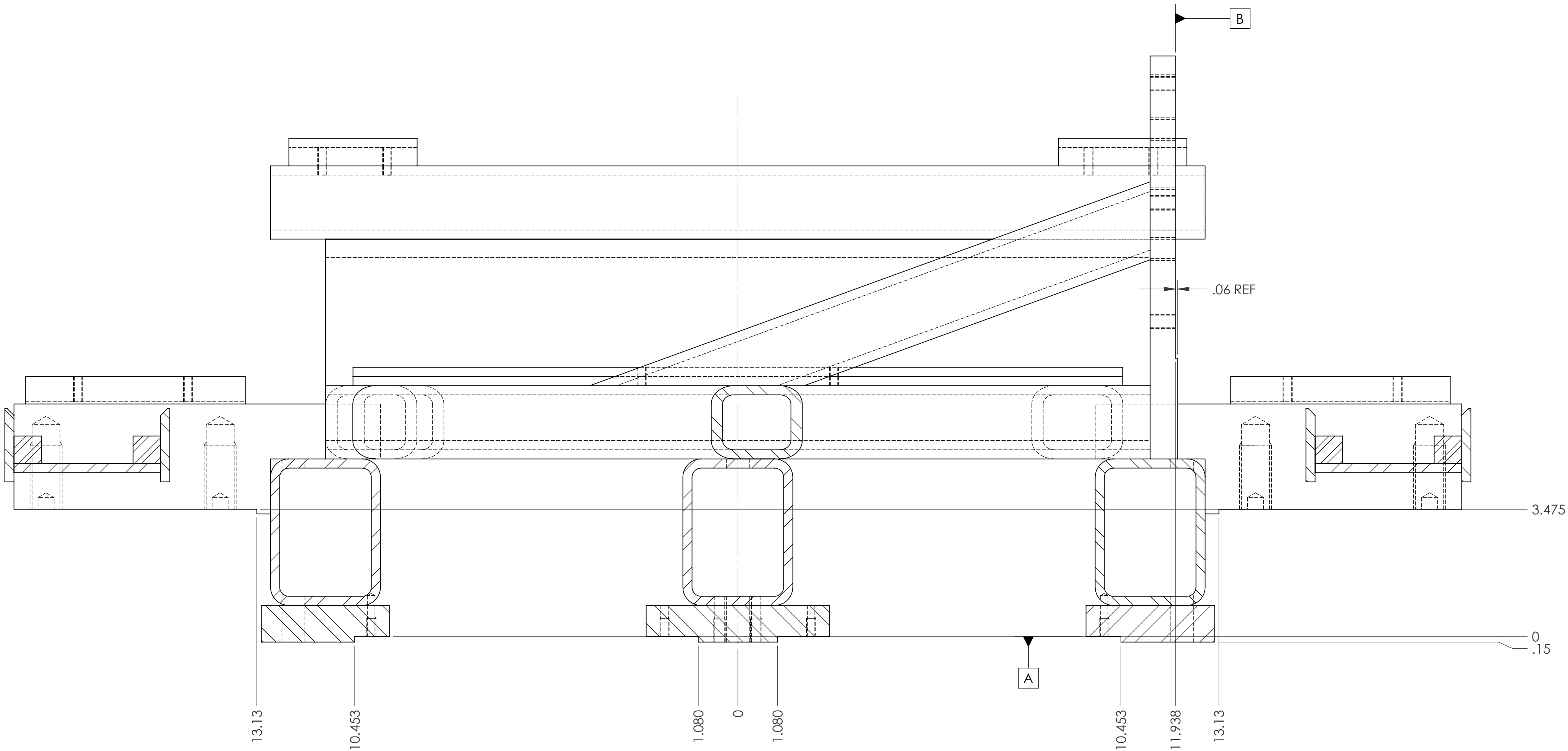
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CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

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SIZE	DWG NO	REV
D	70003	-
SCALE	1:2	SHEET 7 OF 12

WEIGHT: 1563 LBS

FILE: 70003-MAPPER FAB CARRIAGE ASSY



SECTION E-E
MACHINING DIMENSIONS
FROM SHT 7

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☒ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xxx] ± .005 [.13]
x.xxxx [x.xxxx] ± .0005 [.013]
xx/xx ± 1/32
x" ± 1"

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TITLE
MINERVA MAPPER CARRIAGE

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	—

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SIZE [DWG NO]
D 70003

SCALE 1:2 SHEET 8 OF 12

REV
—

WEIGHT: 1563 LBS

FILE: 70003-MAPPER FAB CARRIAGE ASSY

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
—	—	INITIAL ISSUE	—	—

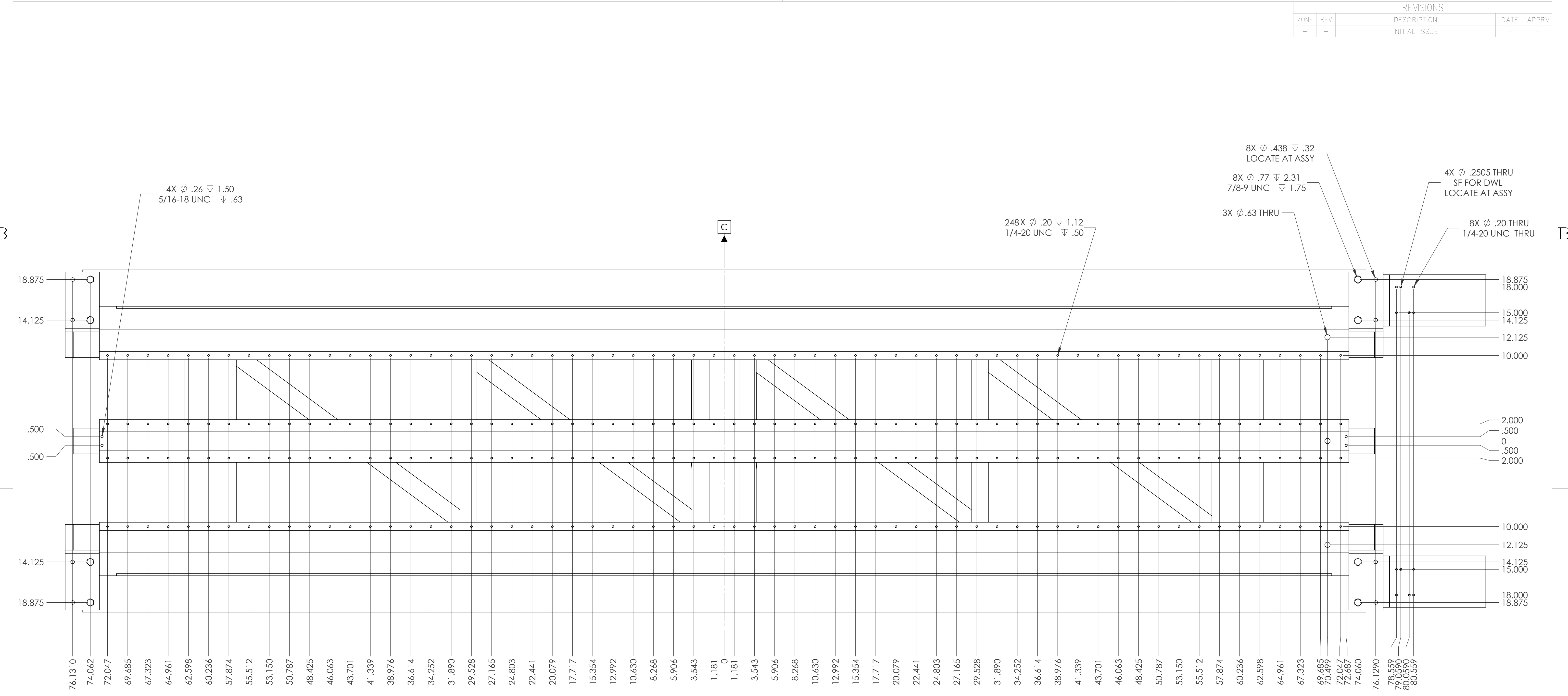
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-

B

A

B

A



VIEW F-F
MACHINING DIMENSIONS
FROM SHT 7

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☒ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x" ± 1"

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TITLE
MINERVA MAPPER CARRIAGE

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

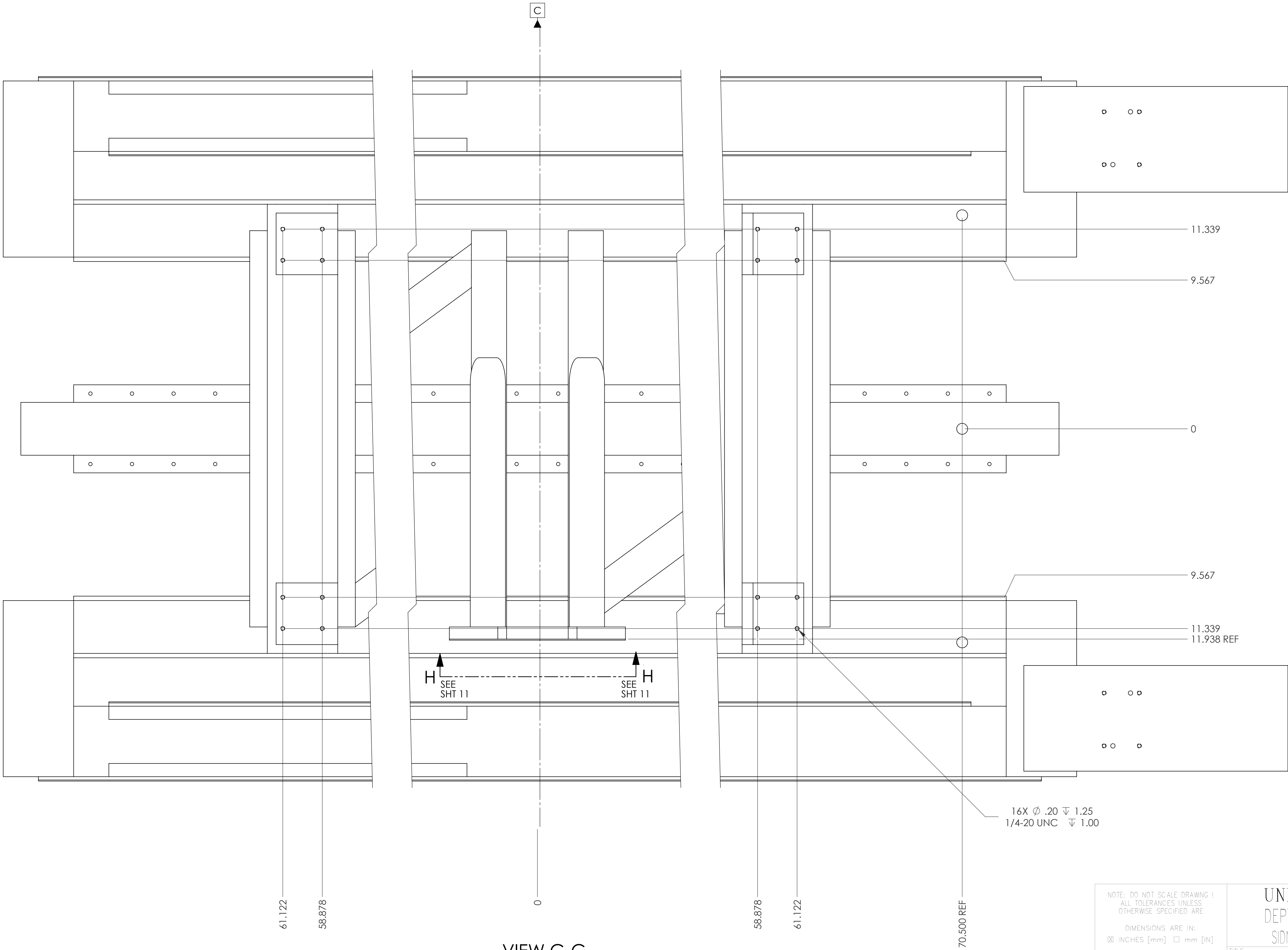
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WEIGHT: 1563 LBS

SIZE [DWG NO]	70003	REV	-
SCALE 1:5.5	SHEET 9 OF 12		

FILE: 70003-MAPPER FAB CARRIAGE ASSY

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-



VIEW G-G
MACHINING DIMENSIONS
FROM SHT 7

NOTE: DO NOT SCALE DRAWING !
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DIMENSIONS ARE IN:
☒ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x" ± 1"

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TITLE
MINERVA MAPPER CARRIAGE

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

SIZE [DWG NO]
D 70003

SCALE 1:3 SHEET 10 OF 12

REV
-

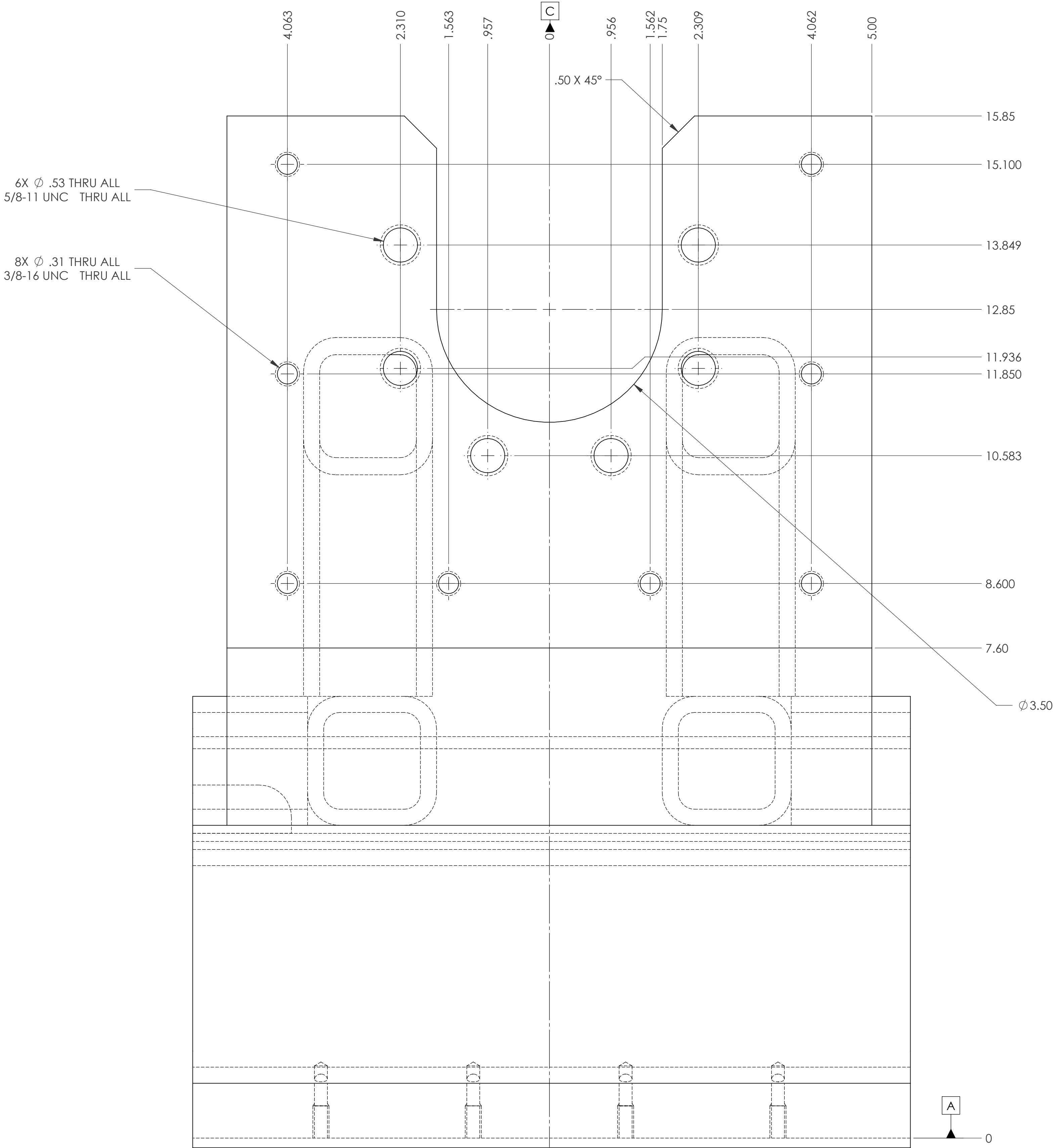
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WEIGHT: 1563 LBS

FILE: 70003-MAPPER FAB CARRIAGE ASSY

1

REVISIONS				
ZONE	REV	DESCRIPTION		DATE
—	—	INITIAL	ISSUE	—



SECTION H-H
MACHINING DIMENSIONS
FROM SHT 10

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
INCHES [mm] mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xxx] ± .005 [.13]
x.xxxx [x.xxxx] ± .0005 [.013]
xx/xx ± 1/32
x" ± 1"

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TITLE
MINERVA MAPPER CARRIAGE

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	—

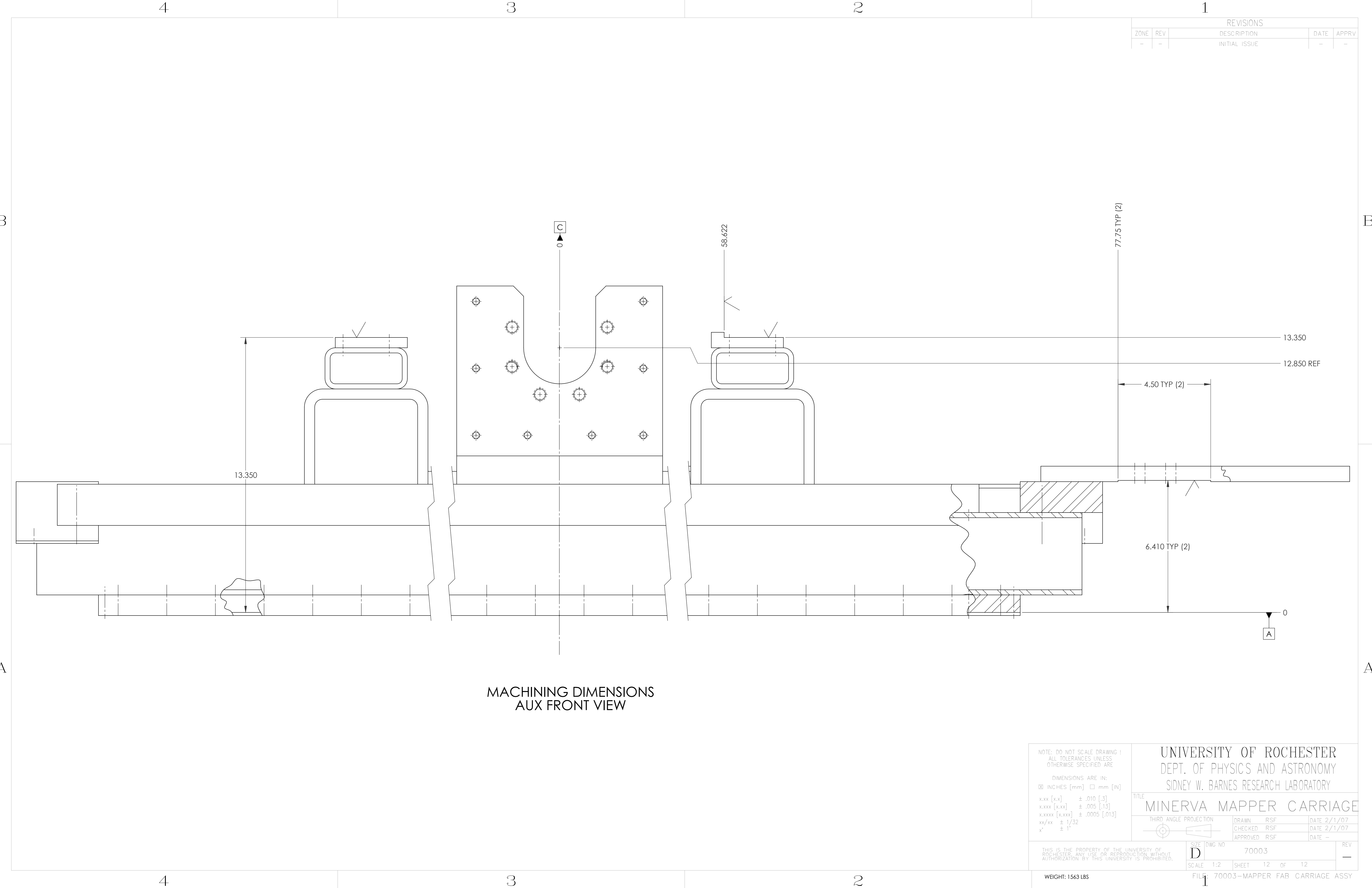
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WEIGHT: 1563 LBS

SIZE [DWG NO]
D 70003

SCALE 1:1 SHEET 11 OF 12

REV
—



REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
-	-	INITIAL ISSUE	-	-

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x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
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TITLE
MINERVA MAPPER CARRIAGE

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE	2/1/07
CHECKED	RSF	DATE	2/1/07
APPROVED	RSF	DATE	-

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SIZE [DWG NO]
D 70003

SCALE	1:2	SHEET	12	OF	12	REV	-
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WEIGHT: 1563 LBS

FILE: 70003-MAPPER FAB CARRIAGE ASSY