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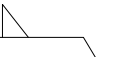
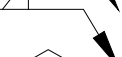







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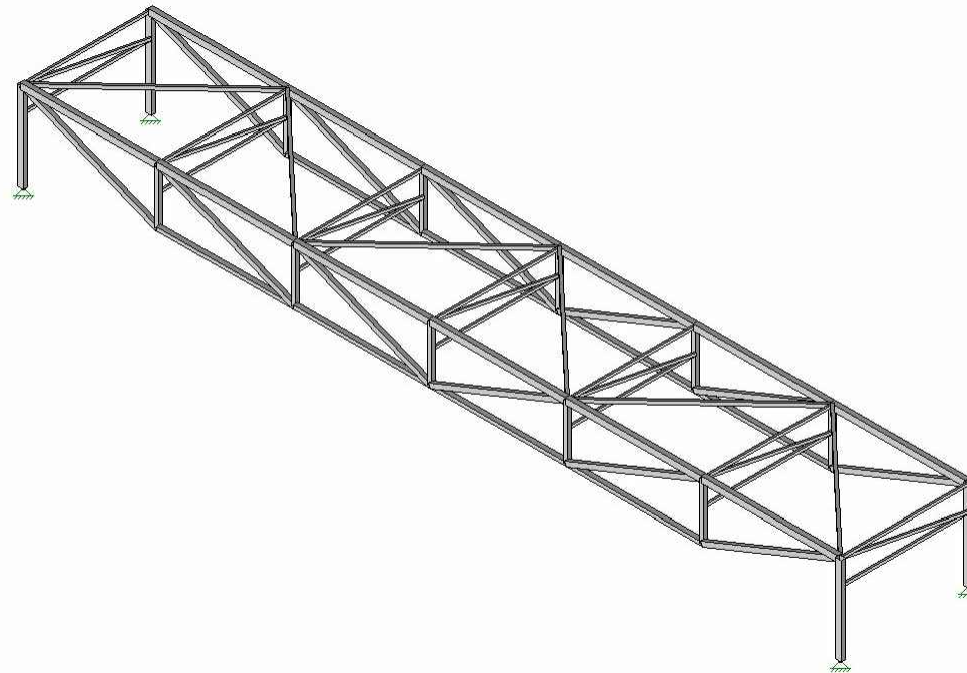
PAGE STEEL
 K-ZELL METALS, INC.
 COPPER STATE BOLT & NUT CO.

LEGEND:

- MEMBER 
 - PLATE 
 - WELD CONNECTION 
 - FILLET WELD (ARROW SIDE) 
 - FILLET WELD (OTHER SIDE) 
 - BOLT 
 - HIDDEN LINE 
 - MEMBER LABEL 
 - CONNECTION LABEL 
 - SECTION CALL OUT 
-  SHEET NUMBER
 SECTION CUT LABEL

2018 NAU ASCE STEEL BRIDGE

SENIOR DESIGN PROJECT FOR CENE 486C



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ABBREVIATIONS:

- GA GAUGE
- GRD GRADE
- Ø DIAMETER
- LF LINEAR FEET
- SF SQUARE FEET
- KSI KIPS PER SQUARE INCH
- EA EACH
- TYP TYPICAL

NOTES:

ALL BOLTS TO BE WELDED AT BOLT HOLES.

THESE PLANS ARE INTELLECTUAL PROPERTY OF THE 2017-2018 NORTHERN ARIZONA UNIVERSITY STEEL BRIDGE TEAM. THESE PLANS SHALL NOT BE USED FOR CONSTRUCTION OR ALTERED IN ANY FORM WITHOUT THE CONSENT OF THE 2017-2018 NORTHERN ARIZONA UNIVERSITY STEEL BRIDGE TEAM.

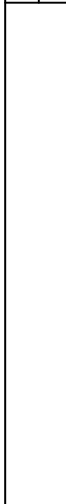
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DRAWN:	ITC	DESIGN:	ITC	CHECKED:	ITC
 College of Engineering, Forestry, and Natural Sciences					
REVISIONS		BY	DATE	NO.	DESCRIPTION
DRAWING NO.					
CVR					
SHT NO.		OF			
1		28			

TRUSS MEMBER SCHEDULE

MEMBER	MATERIAL	GAUGE	LENGTH	QUANTITY	TOTAL LENGTH
AA	1" X 1 1/2" HSS TUBE	11	1'-9 1/4"	4	3'-6 1/2"
AC	1" X 1 1/2" HSS TUBE	11	2'-10"	4	11'-4"
AF	1" X 1" HSS TUBE	16	2'-8 17/32"	4	10'-10 1/8"
BC	1" X 1 1/2" HSS TUBE	11	2'-10"	8	22'-8"
BD	1" X 1" HSS TUBE	16	1'-0 1/2"	2	2'-1"
CC	1" X 1" HSS TUBE	16	2'-10 7/8"	8	1'-11 1/4"
CE	1" X 1" HSS TUBE	16	1'-0 1/2"	2	2'-1"
CF	1" X 1" HSS TUBE	16	1'-0 1/2"	2	2'-1"
FE	1" X 1" HSS TUBE	16	2'-10"	8	22'-8"

PROJECT: 2018 NAU STEEL BRIDGE

JOB NO: CENE 486
DATE: Feb-18
SCALE: AS SHOWN
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NO.	DESCRIPTION	DATE	BY

DRAWING NO.
SC01

SHT NO.
2

OF
28

TRUSS MEMBER SCHEDULE

FLAGSTAFF

LATERAL BRACING MEMBER SCHEDULE

MEMBER	MATERIAL	GAUGE	LENGTH	QUANTITY	TOTAL LENGTH
GA	$\frac{1}{2}$ " X $\frac{1}{2}$ " HSS TUBE	16	2'-6 5/8"	2	5'-1 1/4"
GJ	$\frac{3}{4}$ " X $\frac{3}{4}$ " HSS TUBE	16	1'-10 7/16"	2	3'-8 7/8"
JG	$\frac{3}{4}$ " X $\frac{3}{4}$ " HSS TUBE	16	1'-10 5/8"	2	3'-9 1/4"
JH	$\frac{3}{4}$ " X $\frac{3}{4}$ " HSS TUBE	16	1'-10 31/32"	4	3'-9 15/16"
HJ	$\frac{3}{4}$ " X $\frac{3}{4}$ " HSS TUBE	16	1'-10 15/16"	4	3'-9 7/8"
HC	$\frac{1}{2}$ " X $\frac{1}{2}$ " HSS TUBE	16	2'-6 7/8"	5	5'-1 3/4"

PROJECT: 2018 NAU STEEL BRIDGE

JOB NO: CENE 486
DATE: Feb-18

SCALE: AS SHOWN
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CHECKED: ITC



NO.	DESCRIPTION	DATE	BY

DRAWING NO.
SC02


SHT NO. **3** OF **28**

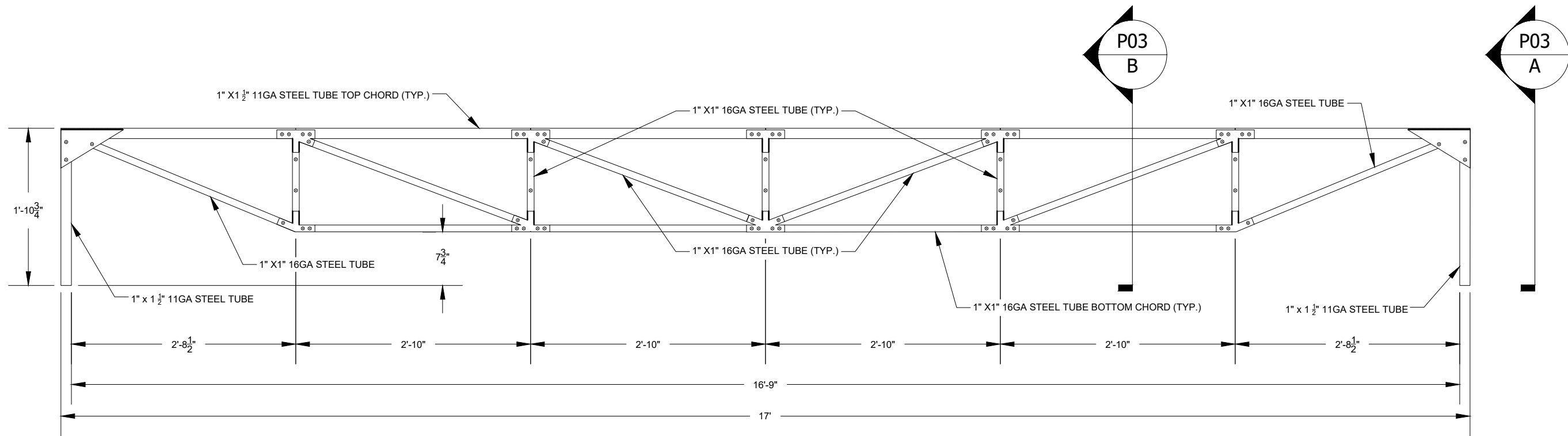
BRACING MEMBER SCHEDULE

FLAGSTAFF

CONNECTION SCHEDULE

MEMBER	MATERIAL	GAUGE	AREA	QUANTITY	TOTAL AREA
A	$\frac{1}{8}$ " PLATE	11	24.68 in ²	4	98.72 in ²
B	$\frac{1}{8}$ " PLATE	16	8.38 in ²	2	16.76 in ²
C	$\frac{1}{8}$ " PLATE	16	10.08 in ²	8	80.64 in ²
D	$\frac{1}{8}$ " PLATE	16	11.20 in ²	2	22.40 in ²
E	$\frac{1}{8}$ " PLATE	16	9.16 in ²	4	36.64 in ²
F	$\frac{1}{8}$ " PLATE	16	7.09 in ²	4	28.36 in ²
G	$\frac{1}{16}$ " PLATE	16	1.33 in ²	2	2.66 in ²
H	$\frac{1}{16}$ " PLATE	16	2.13 in ²	5	10.65 in ²
J	$\frac{1}{16}$ " PLATE	16	5.88 in ²	6	35.28 in ²

JOB NO: CENE 486	DATE: Feb-18	SCALE: AS SHOWN	DRAWN: ITC	DESIGN: ITC	CHECKED: ITC
 College of Engineering, Forestry, and Natural Sciences					
PROJECT: 2018 NAU STEEL BRIDGE					
FLAGSTAFF					
CONNECTION SCHEDULE					
REVISIONS	NO.	DESCRIPTION	DATE	BY	
DRAWING NO.					
SC03					
SHT NO.			OF		
4			28		



PROJECT: 2018 NAU STEEL BRIDGE

JOB NO: GENE 486
 DATE: Feb-18
 SCALE: 3/4" = 1'
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 DESIGN: ITC
 CHECKED: ITC

FLAGSTAFF

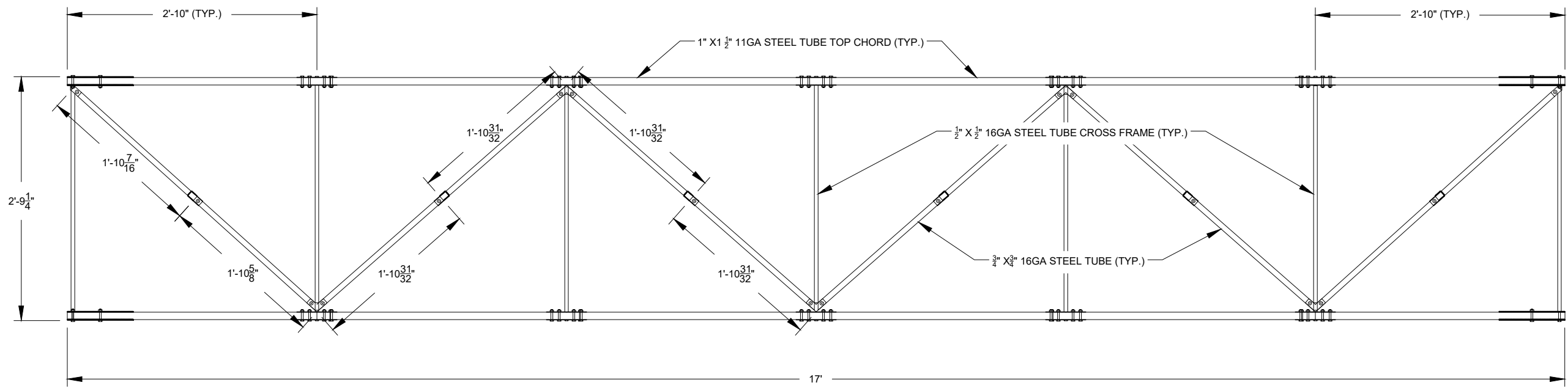
PROFILE VIEW



REVISIONS		DATE	BY
NO.	DESCRIPTION		

DRAWING NO.
P01

SHT NO. **5** OF **28**



PROJECT: 2018 NAU STEEL BRIDGE

JOB NO: CENE 486
 DATE: Feb-18
 SCALE: 3/4" = 1'
 DRAWN: ITC
 DESIGN: ITC
 CHECKED: ITC

FLAGSTAFF

PLAN VIEW

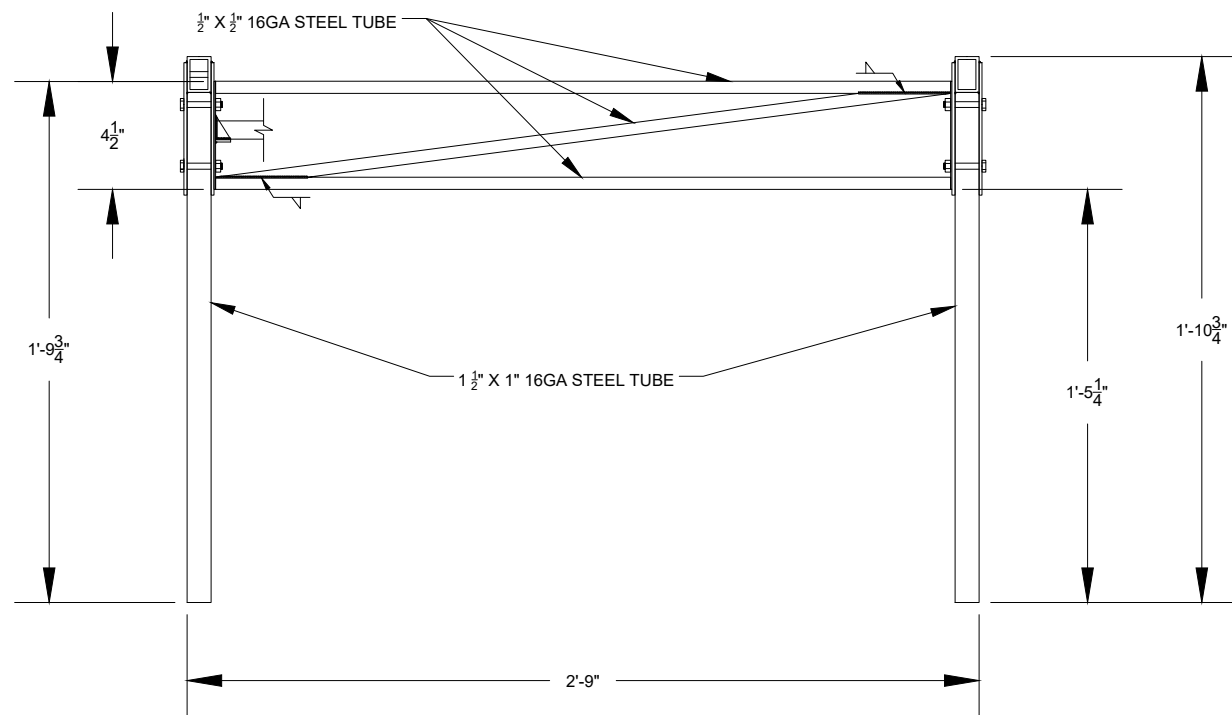


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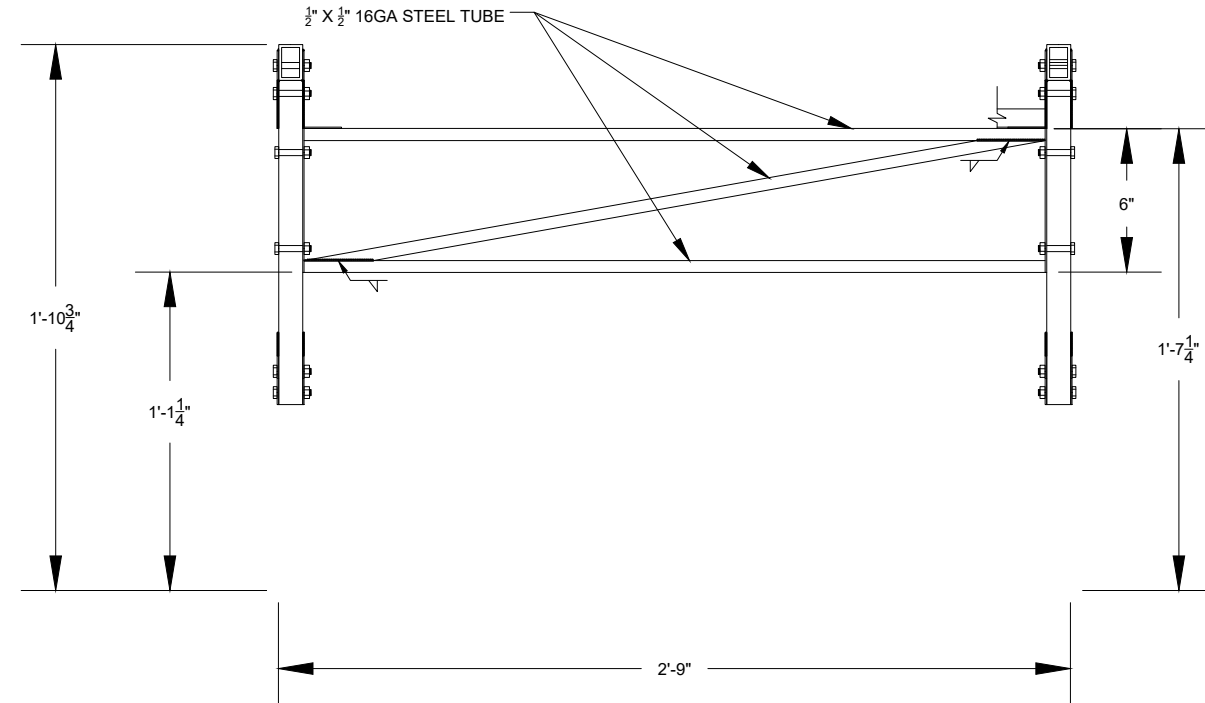
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SHT NO. **6** OF **28**



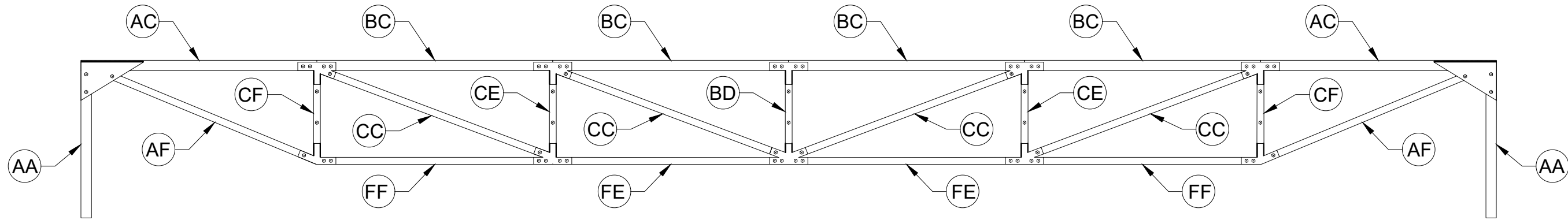
A SECTION A-A
Scale: 1-1/2" = 1'



B SECTION B-B
Scale: 1-1/2" = 1'

JOB NO: CENE 486		PROJECT: 2018 NAU STEEL BRIDGE		FLAGSTAFF	
DATE: Feb-18	SCALE: 1-1/2" = 1'	DRAWN: ITC		END VIEW	
DESIGN: ITC		CHECKED: ITC			
 College of Engineering, Forestry, and Natural Sciences					
REVISIONS		BY	DATE		
NO.	DESCRIPTION				
DRAWING NO.					
P03					
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PROFILE MEMBER KEY



PROJECT: 2018 NAU STEEL BRIDGE

JOB NO: CENE 486
 DATE: Feb-18
 SCALE: AS SHOWN
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 CHECKED: ITC

FLAGSTAFF

PROFILE MEMBER KEY

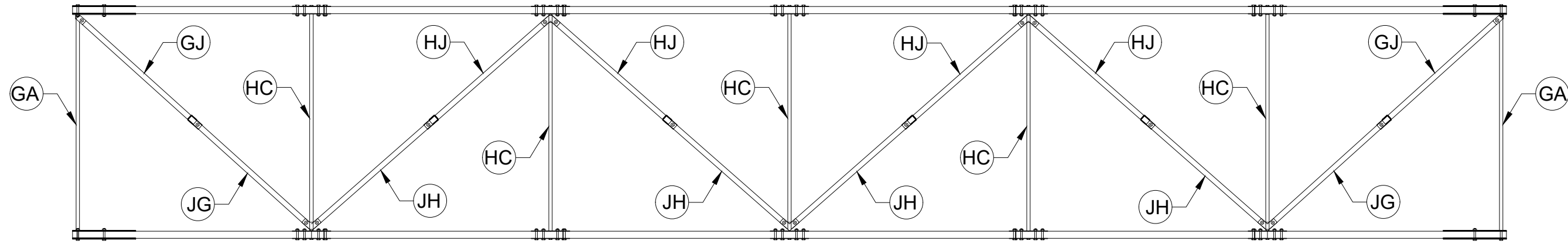


REVISIONS		DATE	BY
NO.	DESCRIPTION		

DRAWING NO.
KY01

SHT NO. **8** OF **28**

PLAN MEMBER KEY



PROJECT: 2018 NAU STEEL BRIDGE

JOB NO: CENE 486
 DATE: Feb-18

SCALE: AS SHOWN
 DRAWN: ITC
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 CHECKED: ITC

FLAGSTAFF

PLAN MEMBER KEY

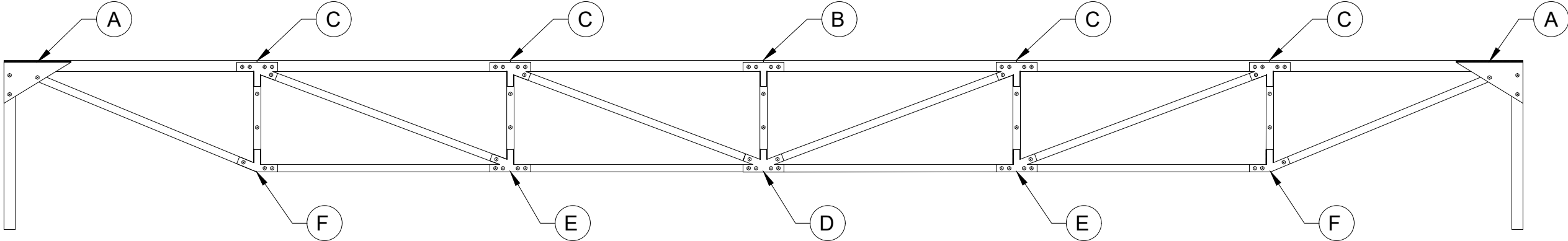


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DRAWING NO.
KY02

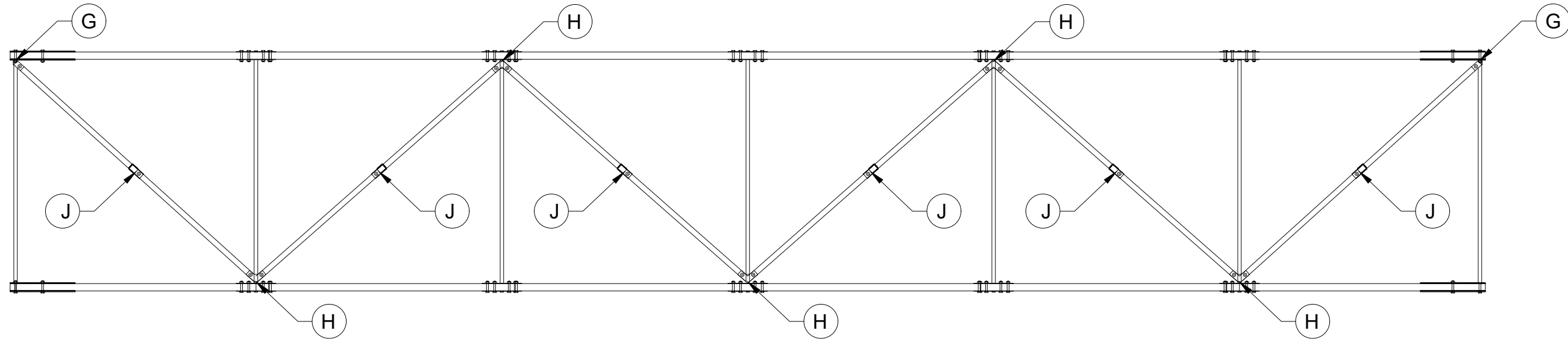
SHT NO. **9** OF **28**

PROFILE CONNECTION KEY



JOB NO: CENE 486		PROJECT: 2018 NAU STEEL BRIDGE		FLAGSTAFF																				
DATE: Feb-18		SCALE: AS SHOWN		PROFILE CONNECTION KEY																				
DRAWN: ITC		DESIGN: ITC																						
CHECKED: ITC																								
 College of Engineering, Forestry, and Natural Sciences																								
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NO.	DESCRIPTION	DATE	BY																					
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PLAN CONNECTION KEY



PROJECT: 2018 NAU STEEL BRIDGE

JOB NO: CENE 486
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 CHECKED: ITC

FLAGSTAFF

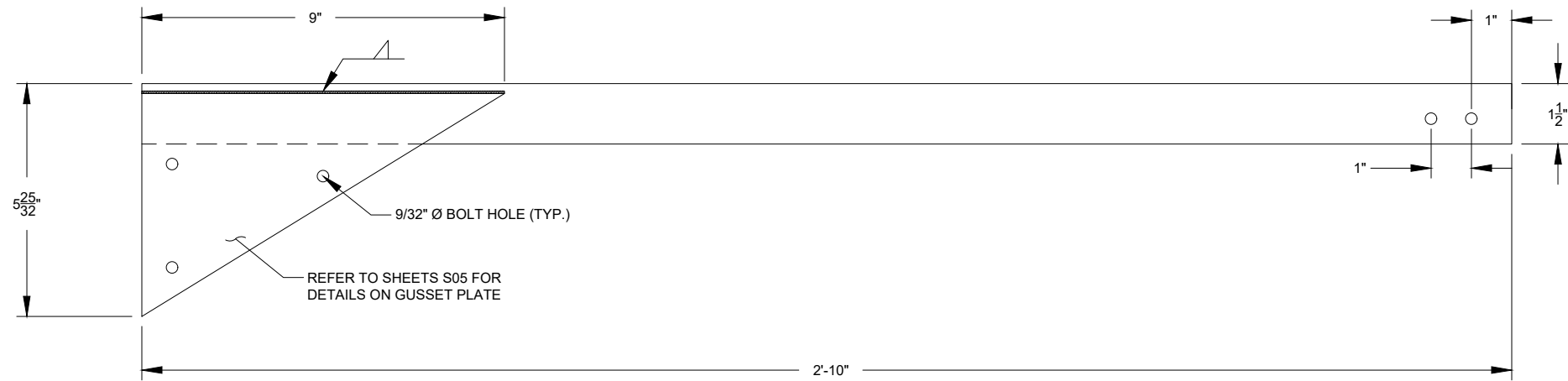
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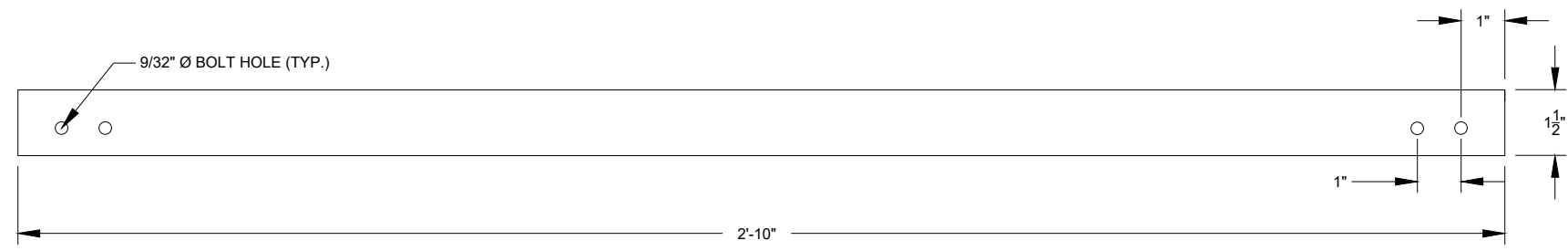
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SHT NO. 11 OF 28



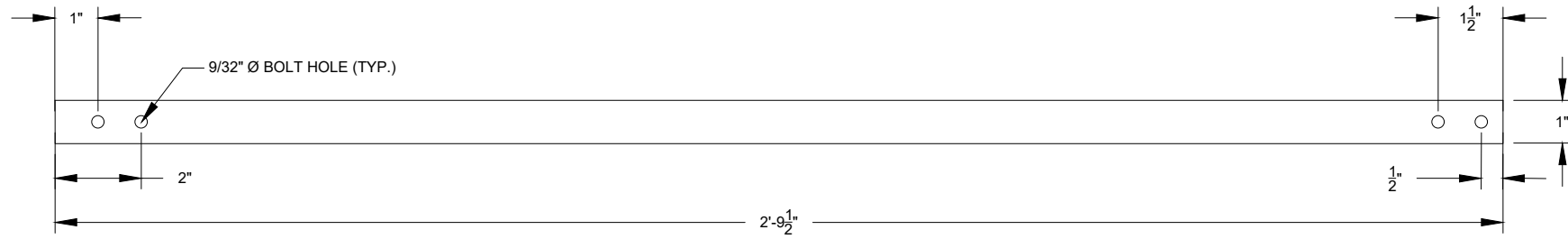
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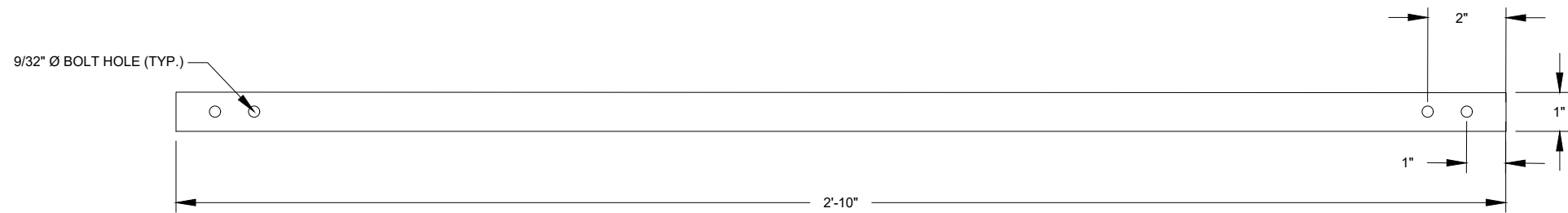
BC MEMBER BC (TYP.)
Scale: 3" = 1'

 College of Engineering, Forestry, and Natural Sciences		PROJECT: 2018 NAU STEEL BRIDGE FLAGSTAFF
JOB NO:	CENE 486	TOP CHORD DIMENSIONS
DATE:	Feb-18	
SCALE:	AS SHOWN	
DRAWN:	ITC	
DESIGN:	ITC	
CHECKED:	ITC	
DRAWING NO.		
S01		
SHT NO.	12	OF
		28

NO.	DESCRIPTION	DATE	BY



FF MEMBER FF (TYP.)
Scale: 3" = 1'



FE MEMBER FE (TYP.)
Scale: 3" = 1'

PROJECT: 2018 NAU STEEL BRIDGE

JOB NO: GENE 486
DATE: Feb-18
SCALE: AS SHOWN
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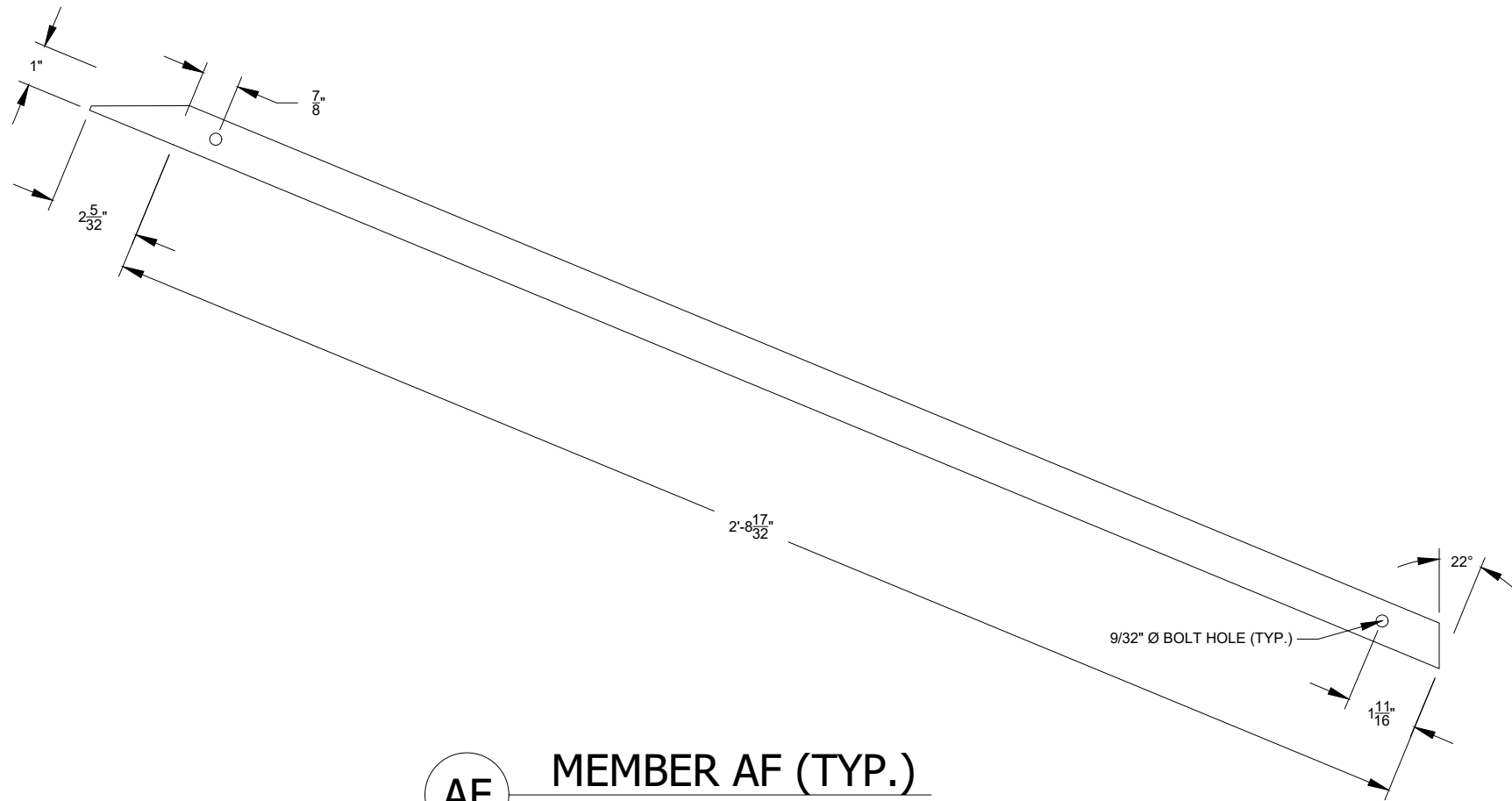
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DRAWING NO.
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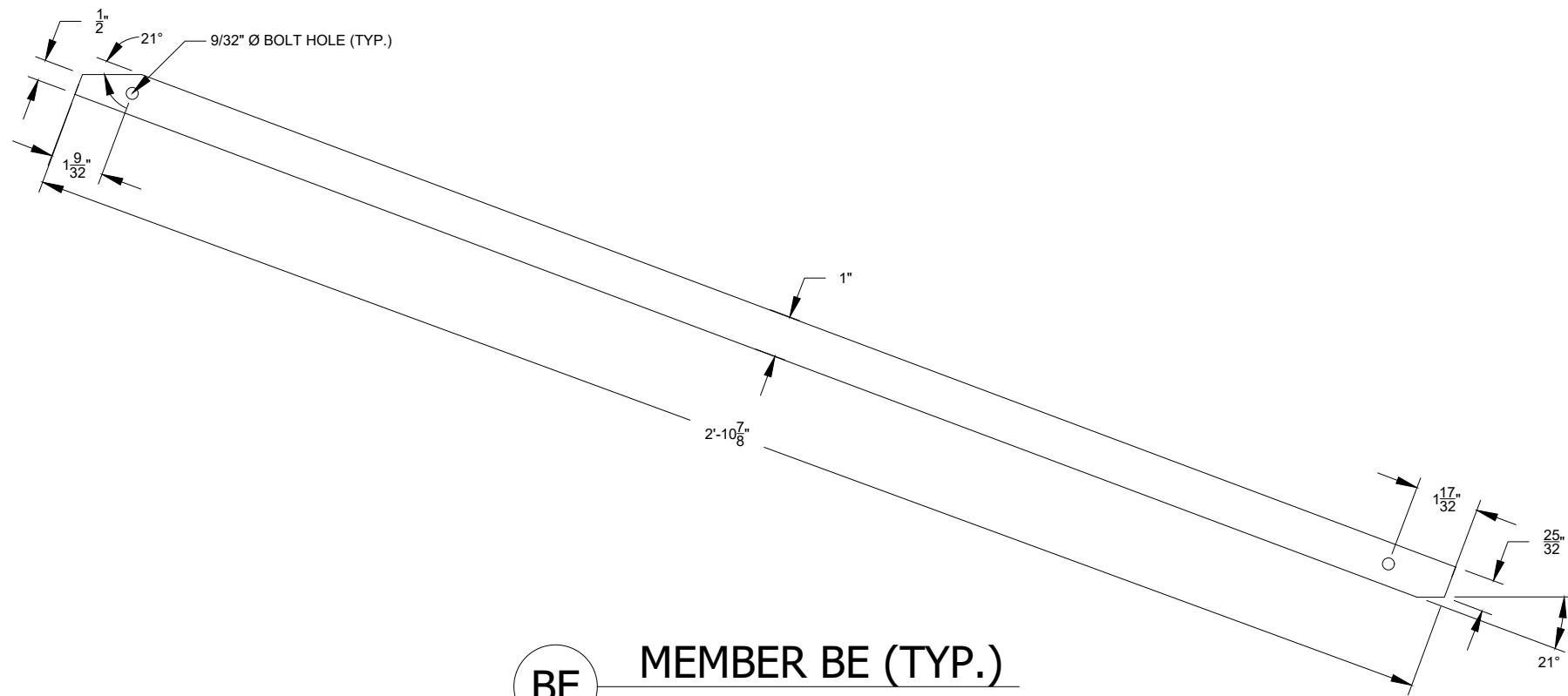
SHT NO. 13 OF 28

BOTTOM CHORD MEMBER DETAILS


FLAGSTAFF

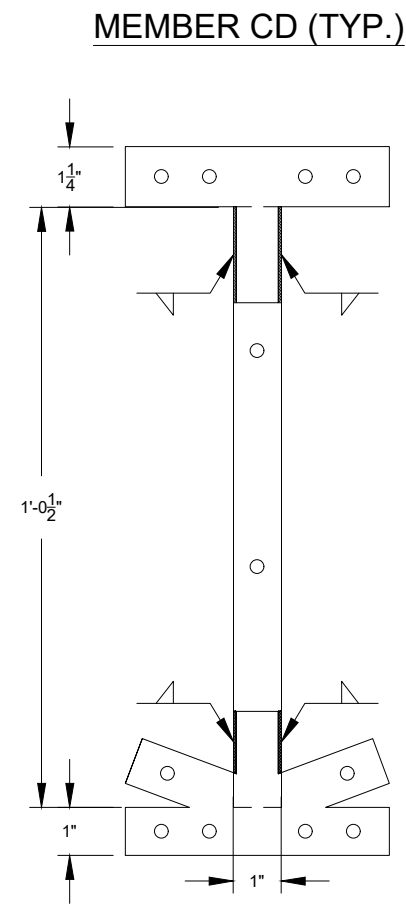
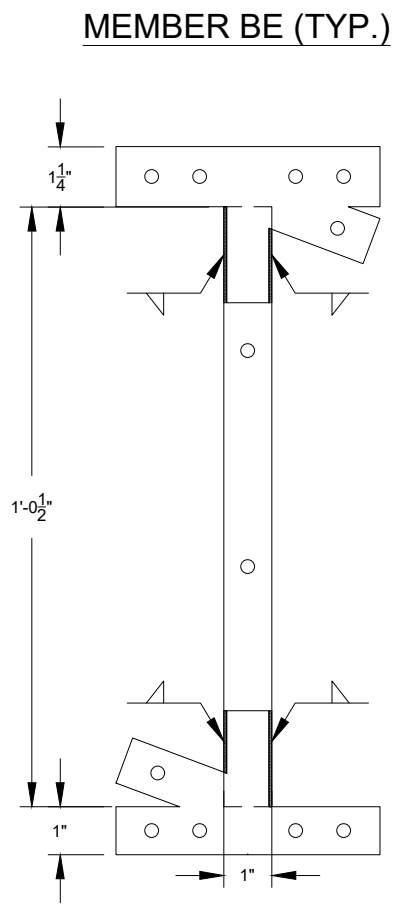
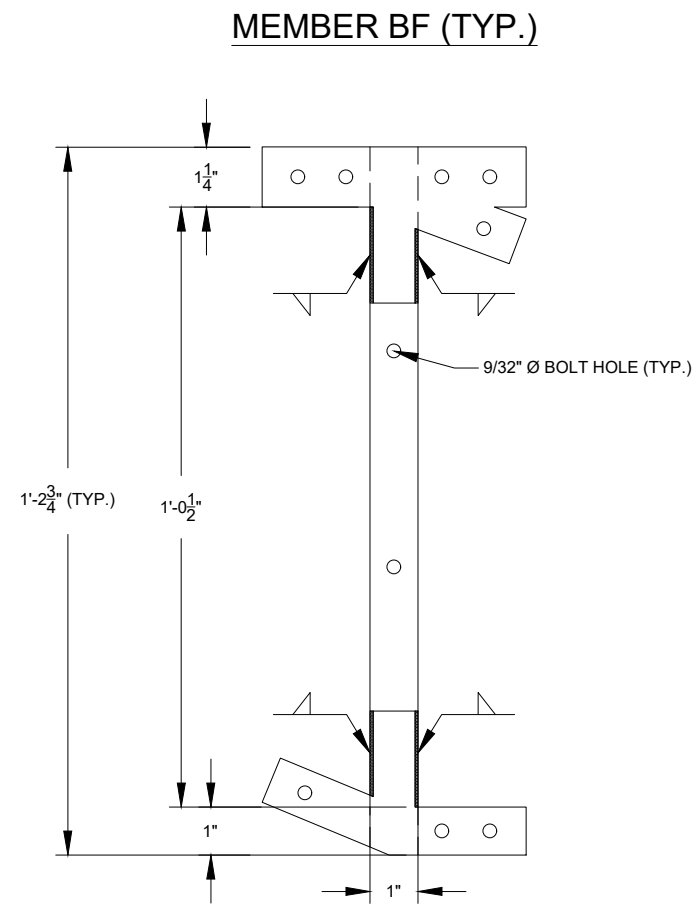


AF MEMBER AF (TYP.)
Scale: 3" = 1'



BE MEMBER BE (TYP.)
Scale: 3" = 1'

JOB NO: GENE 486		PROJECT: 2018 NAU STEEL BRIDGE		FLAGSTAFF	
DATE: Feb-18	SCALE: AS SHOWN	DRAWN: ITC		DESIGN: ITC	
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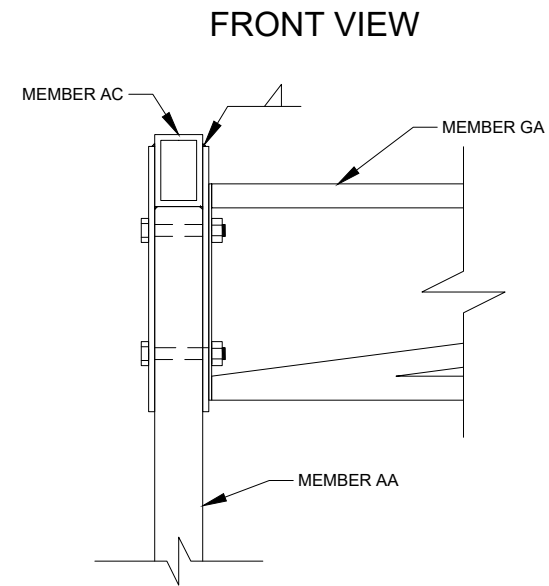
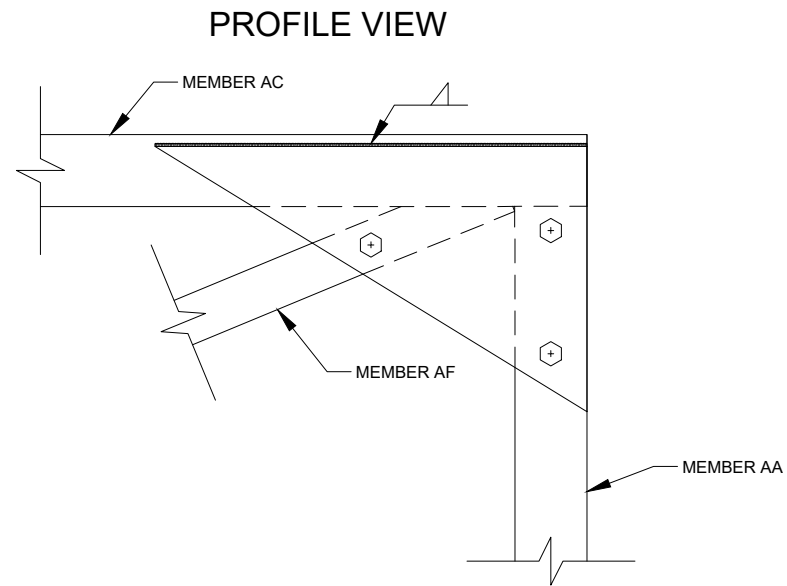
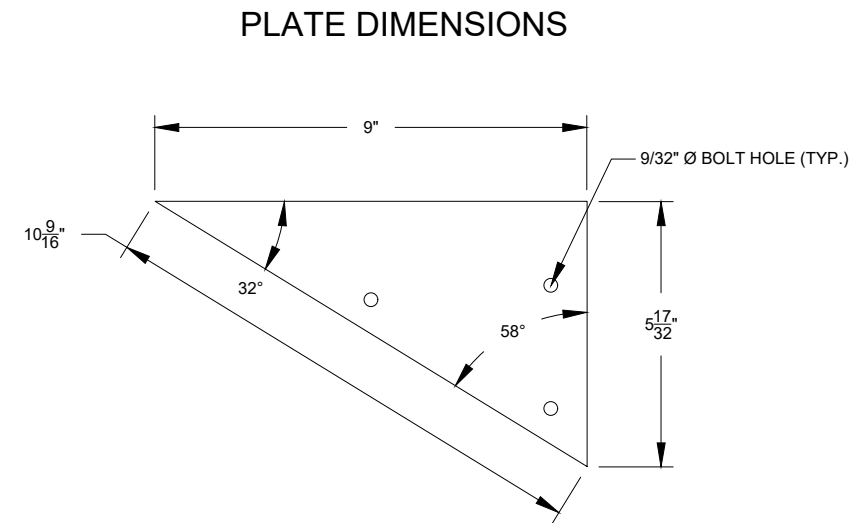
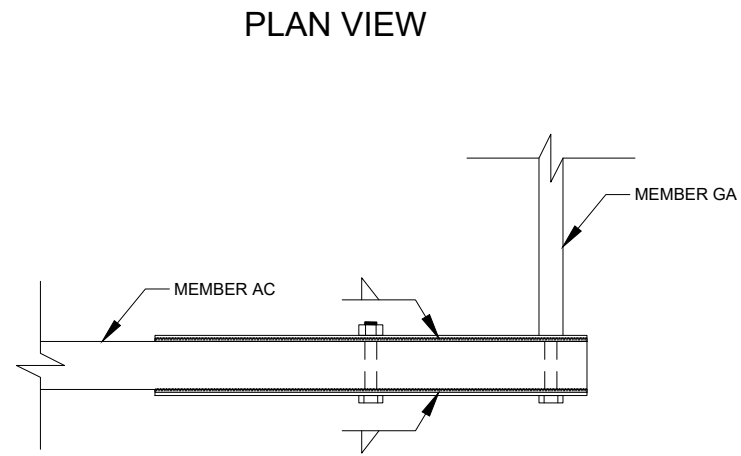


- **VERTICAL MEMBER VARIATIONS**
 Scale: 3" = 1'

NOTES:

- REFER TO SHEETS S05-S10 FOR PLATE DIMENSIONS AND DETAILS.

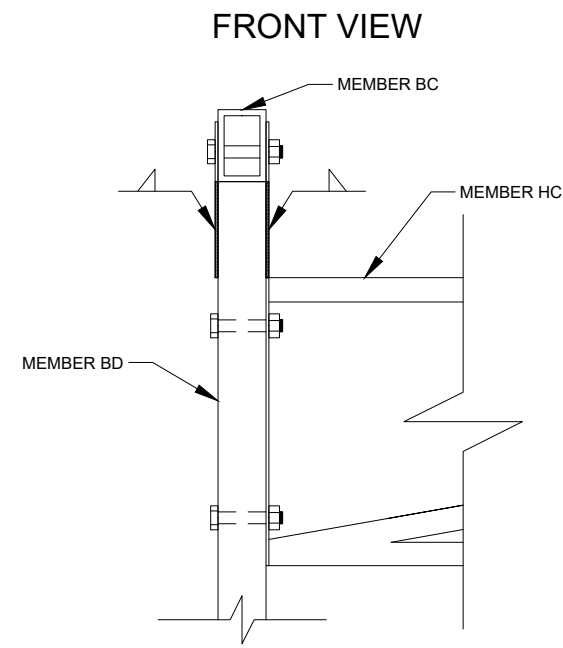
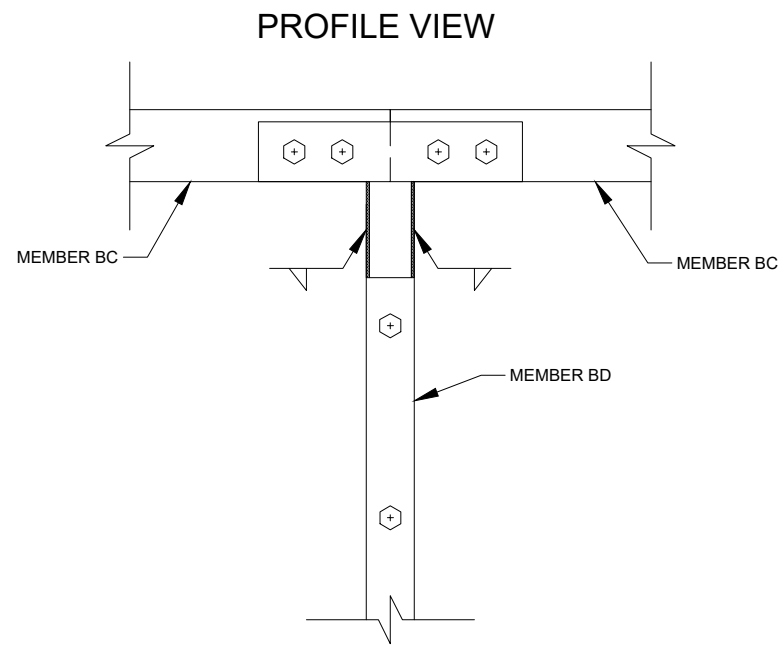
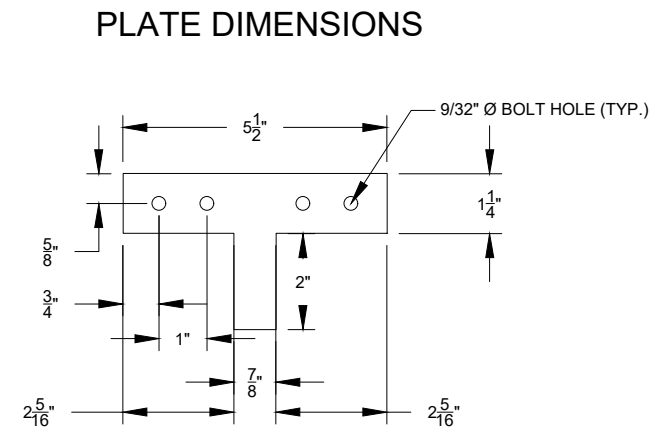
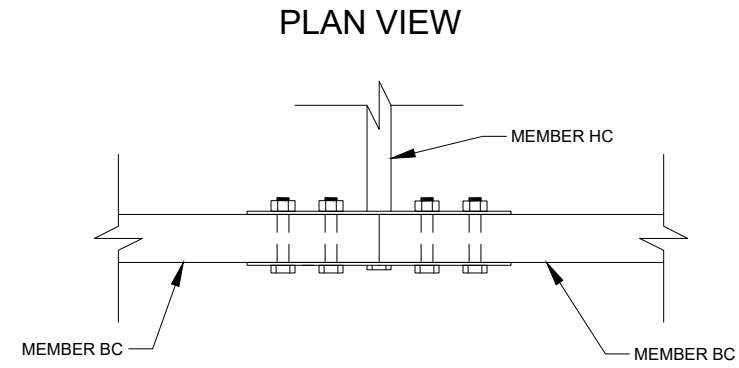
JOB NO: CENE 486		PROJECT: 2018 NAU STEEL BRIDGE		FLAGSTAFF
DATE: Feb-18		SCALE: AS SHOWN		VERTICAL PROFILE MEMBER DETAILS
DRAWN: ITC		DESIGN: ITC		
CHECKED: ITC				
NORTHERN ARIZONA UNIVERSITY		College of Engineering, Forestry, and Natural Sciences		
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NO.				
DRAWING NO.				S04
SHT NO.	15	OF	28	



A OUTER TOP CHORD GUSSET PLATE

Scale: 3" = 1'

JOB NO: CENE 486		PROJECT: 2018 NAU STEEL BRIDGE		FLAGSTAFF	
DATE: Feb-18	SCALE: AS SHOWN	DRAWN: ITC		DESIGN: ITC	
CHECKED: ITC		TOP CHORD GUSSET DETAIL - A			
 Northern Arizona University College of Engineering, Forestry, and Natural Sciences					
REVISIONS	DESCRIPTION	DATE	BY		
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DRAWING NO.					
S05					
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16		28			



B CENTER TOP CHORD GUSSET PLATE
Scale: 3" = 1'

PROJECT: 2018 NAU STEEL BRIDGE		FLAGSTAFF
JOB NO: CENE 486	DATE: Feb-18	SCALE: AS SHOWN
DRAWN: ITC	DESIGN: ITC	CHECKED: ITC
 College of Engineering, Forestry, and Natural Sciences		
REVISIONS	NO.	BY
DESCRIPTION	DATE	DATE
DRAWING NO.	S06	
SHT NO.	17	OF 28

PLAN VIEW

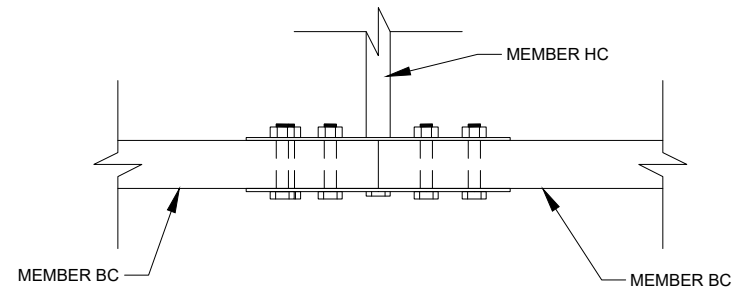
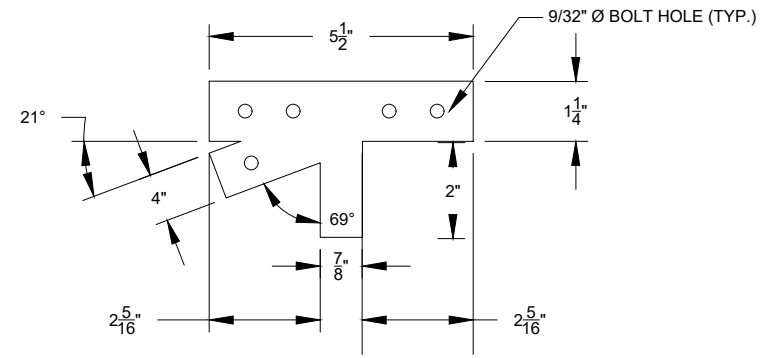
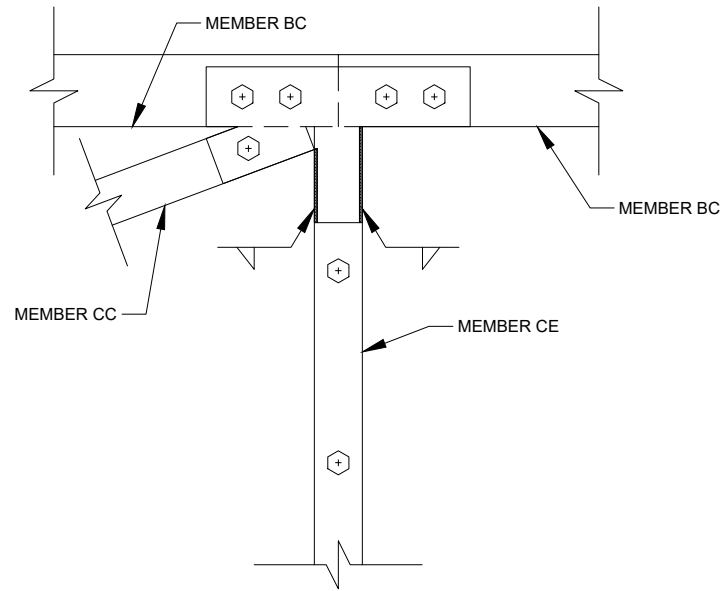


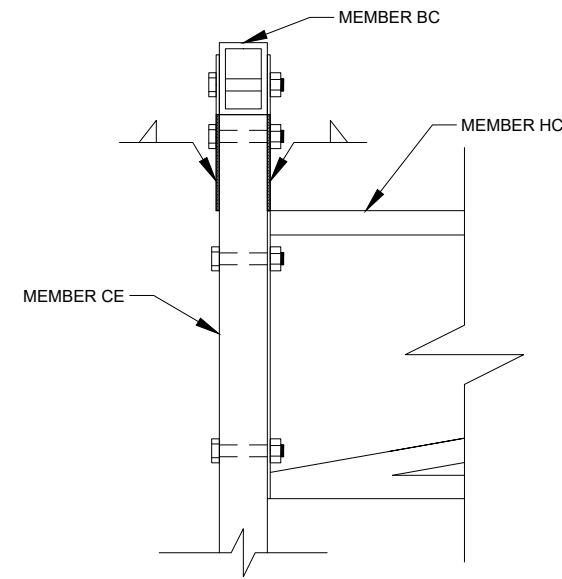
PLATE DIMENSIONS




PROFILE VIEW



FRONT VIEW



C TOP CHORD GUSSET PLATE
Scale: 3" = 1'

PROJECT: 2018 NAU STEEL BRIDGE		FLAGSTAFF
JOB NO: CENE 486	DATE: Feb-18	SCALE: AS SHOWN
DRAWN: ITC	DESIGN: ITC	CHECKED: ITC
 College of Engineering, Forestry, and Natural Sciences		
REVISIONS	DESCRIPTION	DATE
NO.	BY	DATE
DRAWING NO.	S07	
SHT NO.	OF	
18	28	

PLAN VIEW

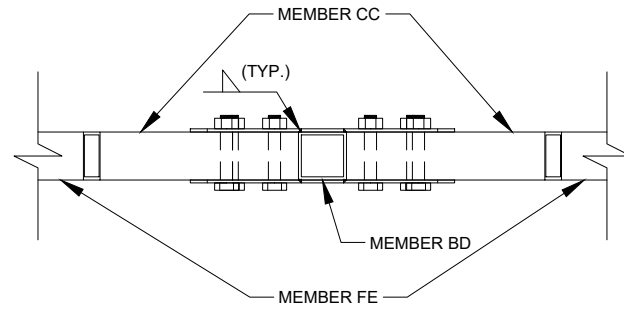
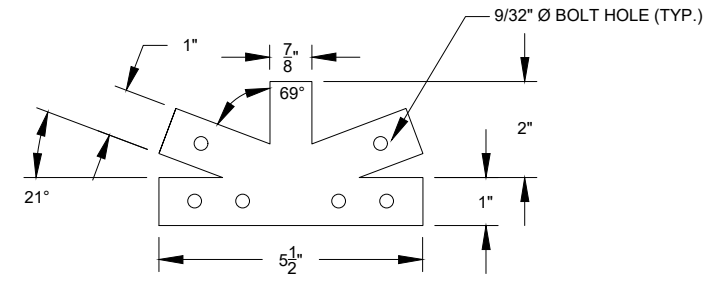
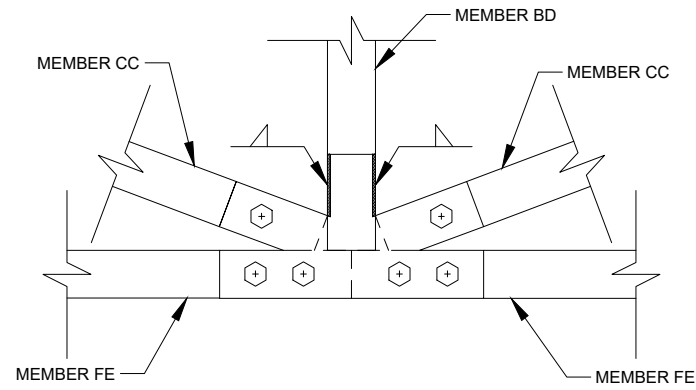


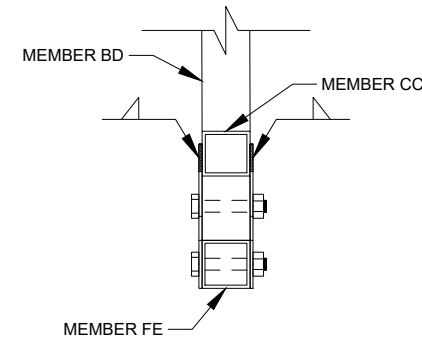
PLATE DIMENSIONS



PROFILE VIEW



FRONT VIEW



D

CENTER BOTTOM CHORD GUSSET PLATE

Scale: 3" = 1'

PROJECT: 2018 NAU STEEL BRIDGE

JOB NO: CENE 486
DATE: Feb-18
SCALE: AS SHOWN
DRAWN: ITC
DESIGN: ITC
CHECKED: ITC

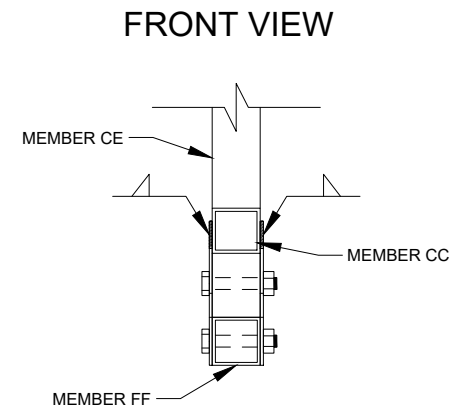
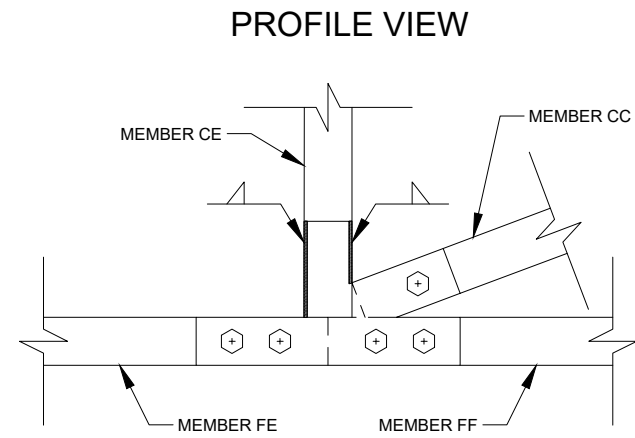
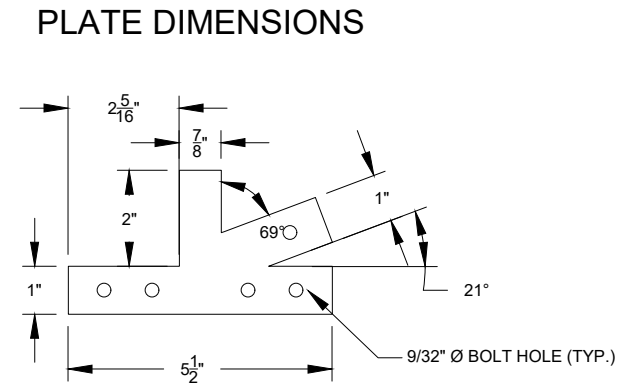
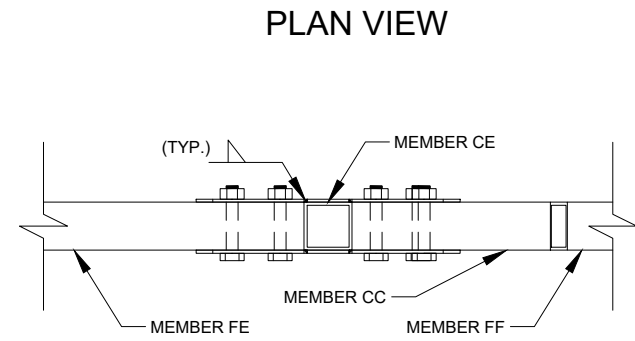


NO.	DESCRIPTION	DATE	BY

DRAWING NO.
S08

SHT NO. 19 OF 28

FLAGSTAFF
BOTTOM CHORD GUSSET DETAIL - D



E **BOTTOM CHORD GUSSET PLATE**
Scale: 3" = 1'

PROJECT: 2018 NAU STEEL BRIDGE		FLAGSTAFF
JOB NO: CENE 486	DATE: Feb-18	SCALE: AS SHOWN
DRAWN: ITC	DESIGN: ITC	CHECKED: ITC
 College of Engineering, Forestry, and Natural Sciences		
REVISIONS	DESCRIPTION	DATE
NO.	BY	DATE
DRAWING NO.	S09	
SHT NO.	OF	28
20		

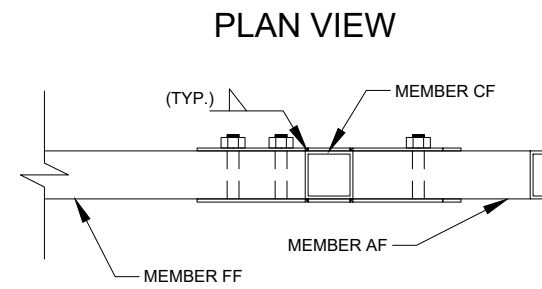
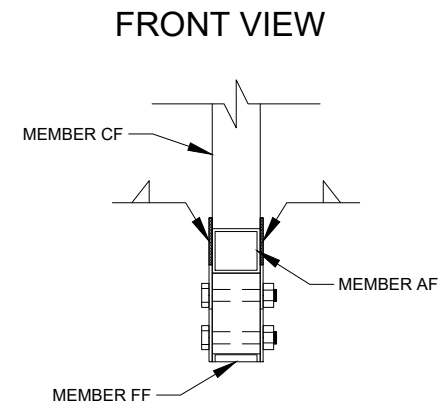
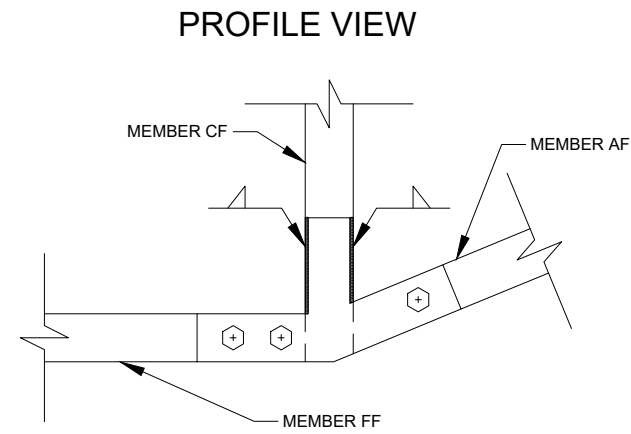
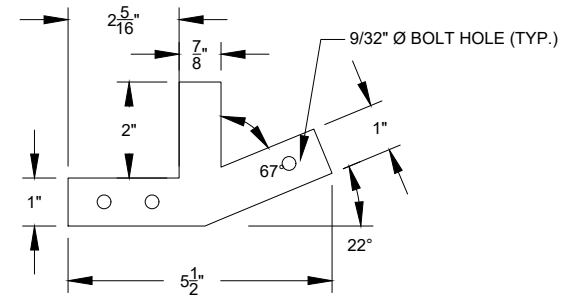

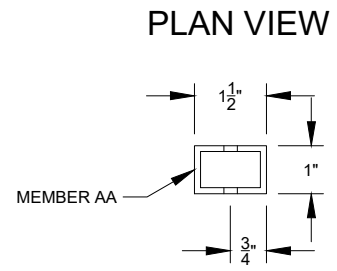


PLATE DIMENSIONS

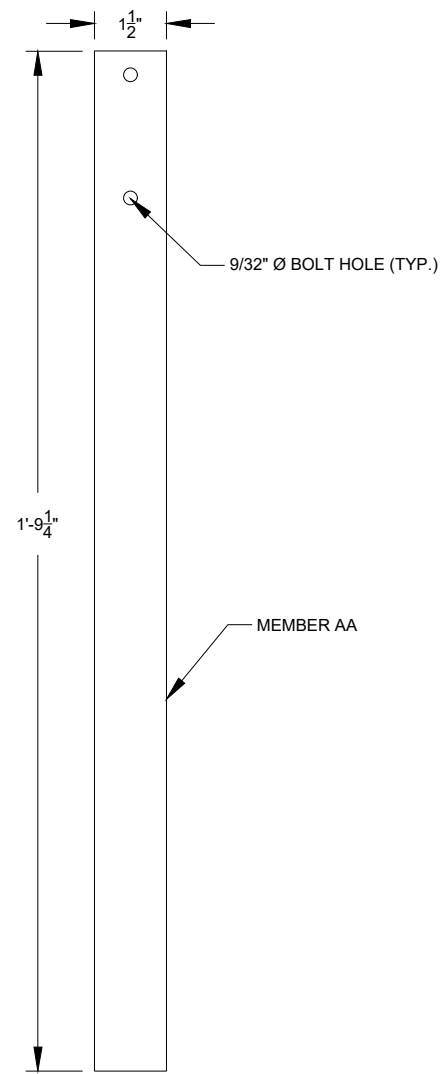


F OUTER BOTTOM CHORD GUSSET PLATE
Scale: 3" = 1'

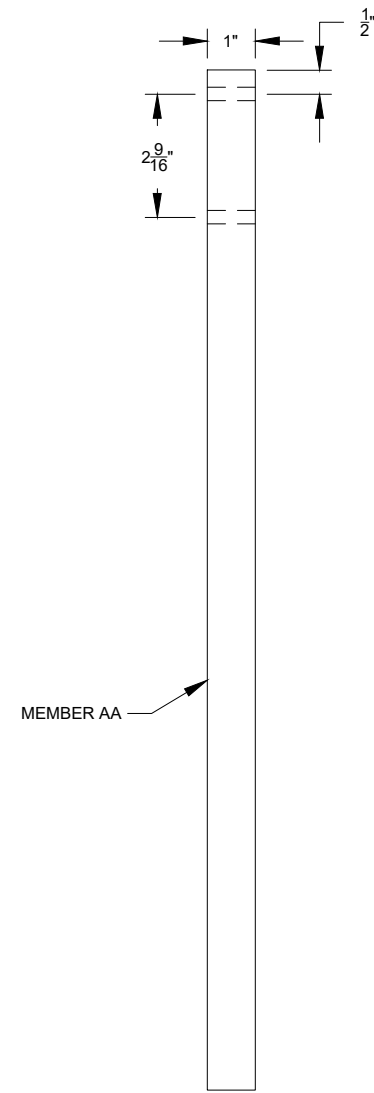
JOB NO: CENE 486		PROJECT: 2018 NAU STEEL BRIDGE		FLAGSTAFF
DATE: Feb-18	SCALE: AS SHOWN	DRAWN: ITC		BOTTOM CHORD GUSSET DETAIL - F
	DESIGN: ITC	CHECKED: ITC		
 Northern Arizona University College of Engineering, Forestry, and Natural Sciences				
REVISIONS				
NO.	DESCRIPTION	DATE	BY	
DRAWING NO.				
S10				
SHT NO.		OF		
21		28		




PROFILE VIEW

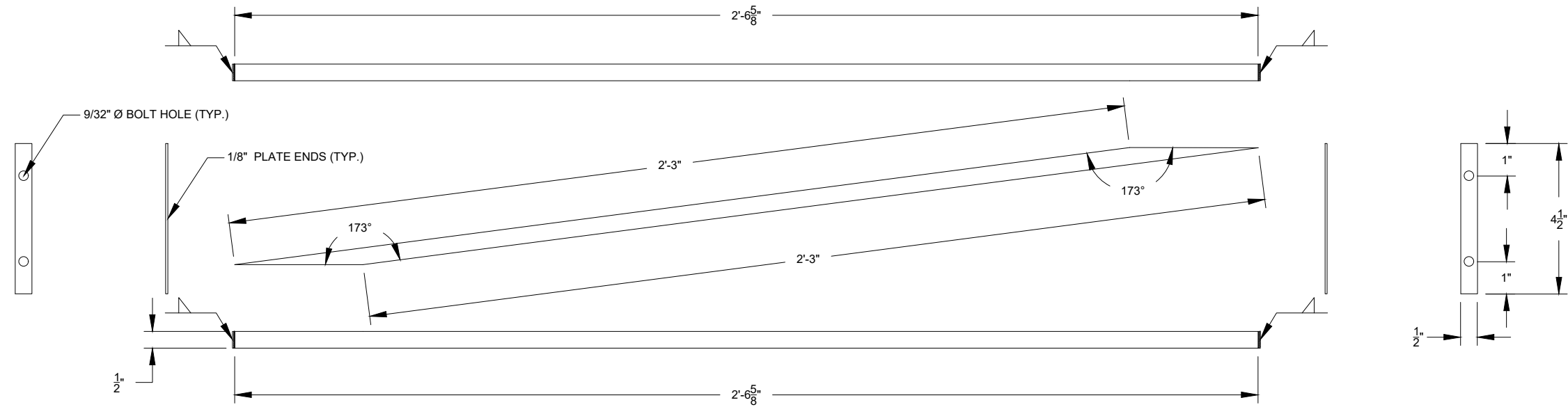


FRONT VIEW

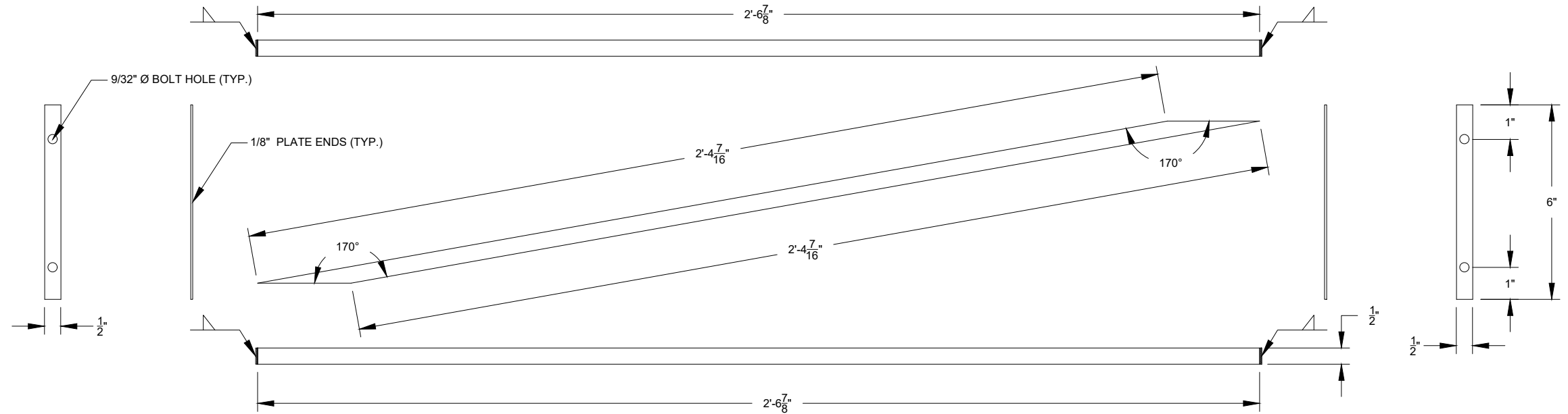


AA MEMBER AA (TYP.)
Scale: 3" = 1'


JOB NO: CENE 486		PROJECT: 2018 NAU STEEL BRIDGE		FLAGSTAFF
DATE: Feb-18	SCALE: AS SHOWN	DRAWN: ITC		COLUMN DETAIL
		DESIGN: ITC		
		CHECKED: ITC		
 College of Engineering, Forestry, and Natural Sciences				
REVISIONS		NO.	DATE	BY
DESCRIPTION				
DRAWING NO.				
S11				
SHT NO.		OF		
22		28		

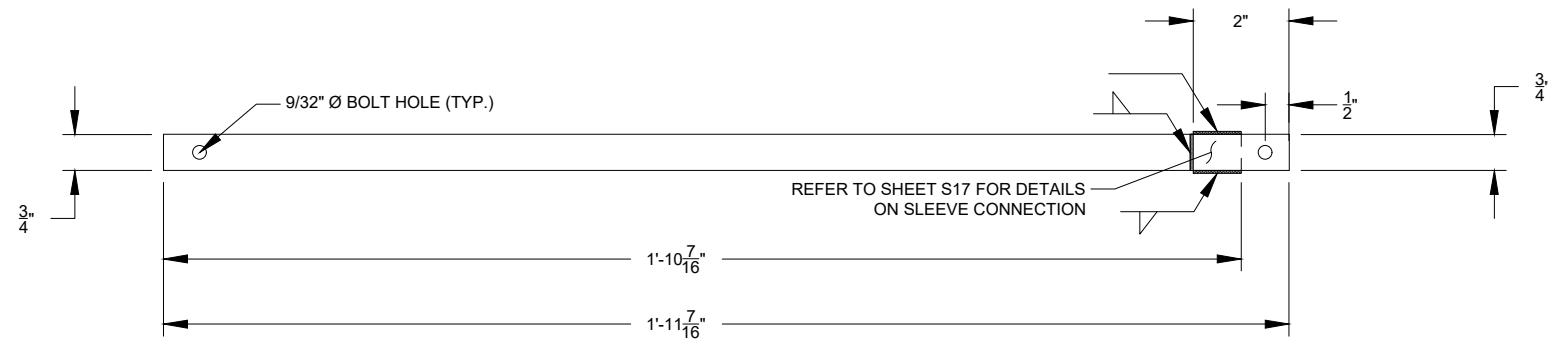


GA CROSS FRAME GA (TYP.)
Scale: 3" = 1'

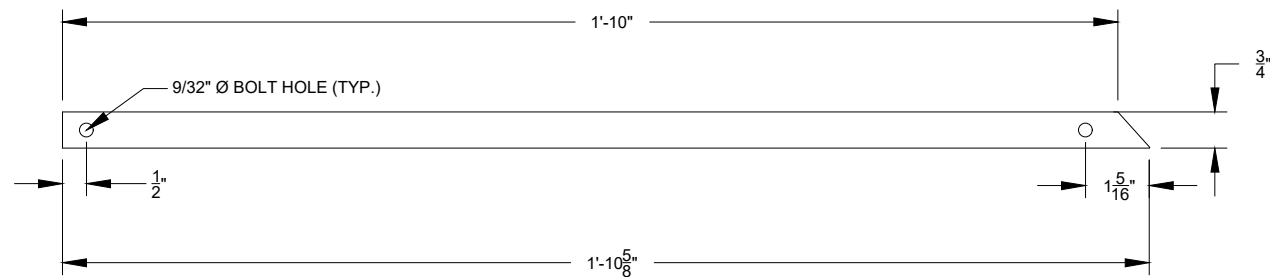


HC CROSS FRAME HC (TYP.)
Scale: 3" = 1'

JOB NO: CENE 486		PROJECT: 2018 NAU STEEL BRIDGE		FLAGSTAFF	
DATE: Feb-18	SCALE: AS SHOWN	DRAWN: ITC		DESIGN: ITC	
CHECKED: ITC		 College of Engineering, Forestry, and Natural Sciences			
REVISIONS					
NO.	DESCRIPTION	DATE	BY		
DRAWING NO.		S12			
SHT NO.	23	OF	28		



GJ MEMBER GJ (TYP.)
Scale: 3" = 1'



JG MEMBER JG (TYP.)
Scale: 3" = 1'

PROJECT: 2018 NAU STEEL BRIDGE FLAGSTAFF

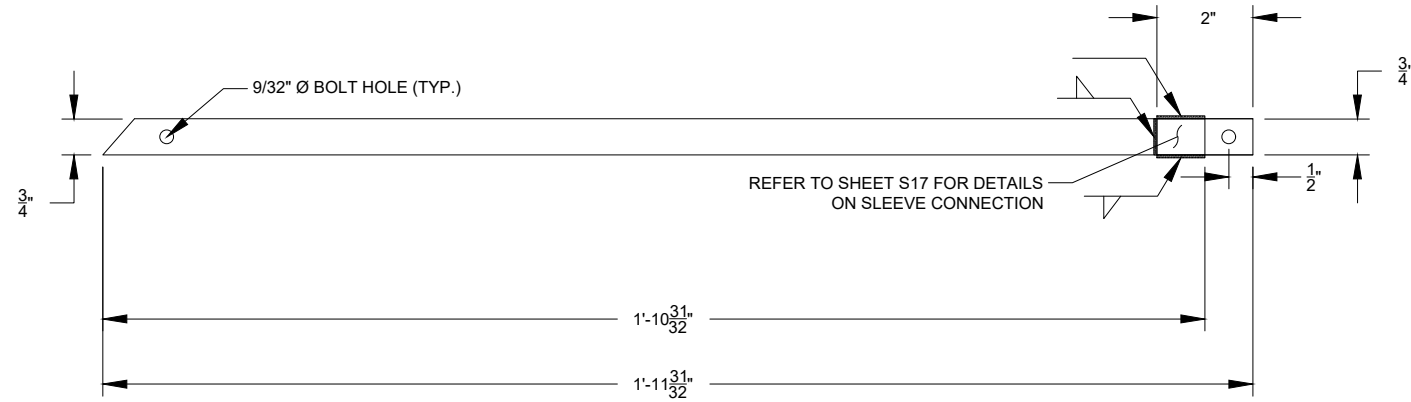
LATERAL BRACING DETAILS 1

JOB NO:	GENE 486
DATE:	Feb-18
SCALE:	AS SHOWN
DRAWN:	ITC
DESIGN:	ITC
CHECKED:	ITC

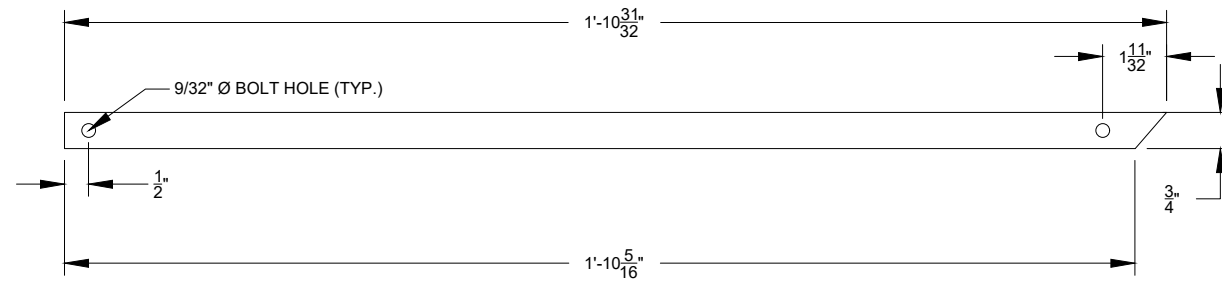


REVISIONS		NO.	DESCRIPTION	DATE	BY

DRAWING NO.
S13



HJ MEMBER HJ (TYP.)
Scale: 3" = 1'



JH MEMBER JH (TYP.)
Scale: 3" = 1'

PROJECT: 2018 NAU STEEL BRIDGE FLAGSTAFF

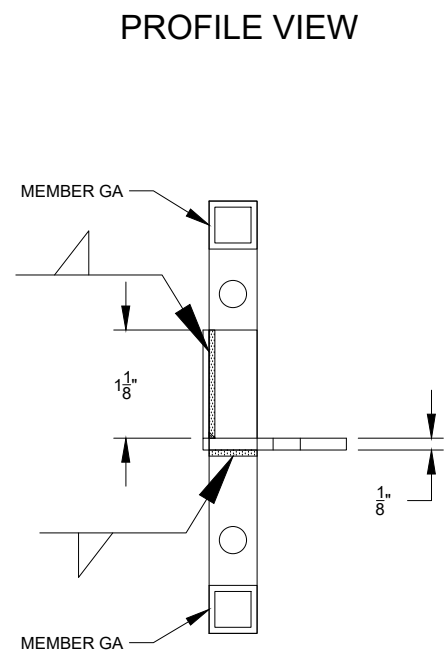
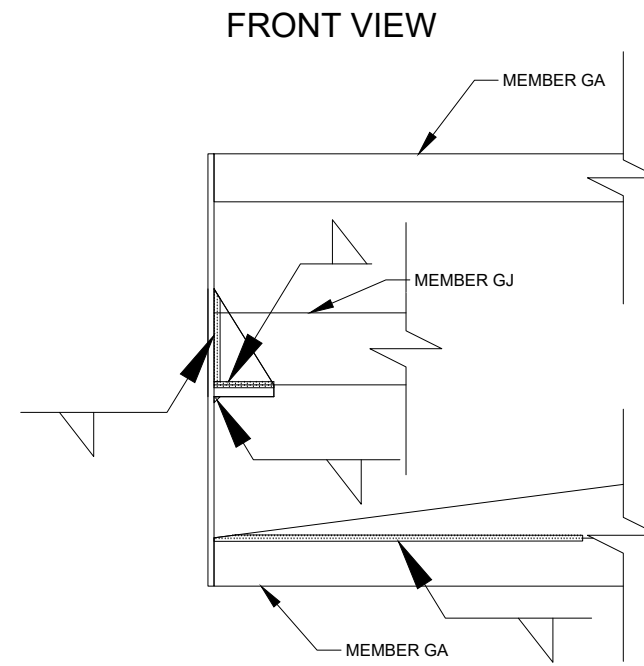
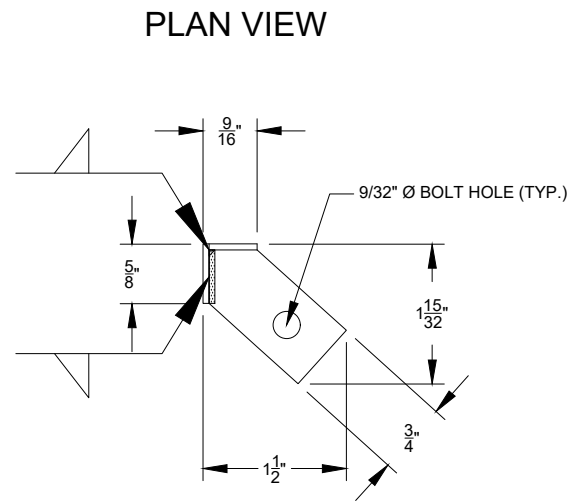
LATERAL BRACING DETAILS 2

JOB NO:	GENE 486
DATE:	Feb-18
SCALE:	AS SHOWN
DRAWN:	ITC
DESIGN:	ITC
CHECKED:	ITC



REVISIONS		NO.	DATE	BY

DRAWING NO.
S14



G

LATERAL BRACING CONNECTION AT ENDS

Scale: 6" = 1'

PROJECT: 2018 NAU STEEL BRIDGE

JOB NO: CENE 486
 DATE: Feb-18
 SCALE: AS SHOWN
 DRAWN: ITC
 DESIGN: ITC
 CHECKED: ITC

FLAGSTAFF



REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAWING NO.

S15

SHT NO.

26

OF

28

BRACING CONNECTION DETAIL - G

PLAN VIEW

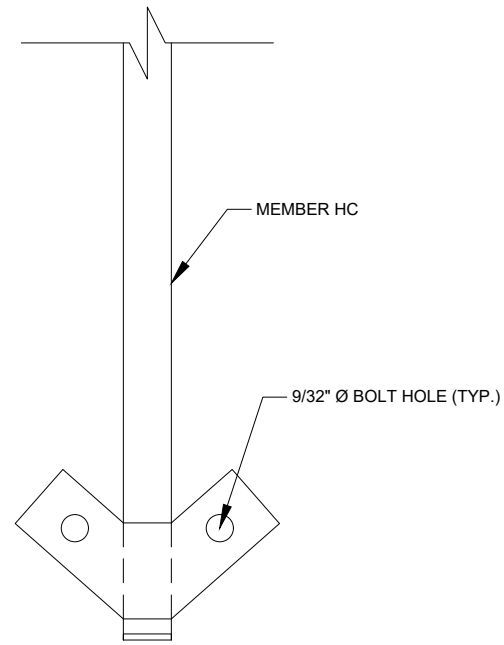
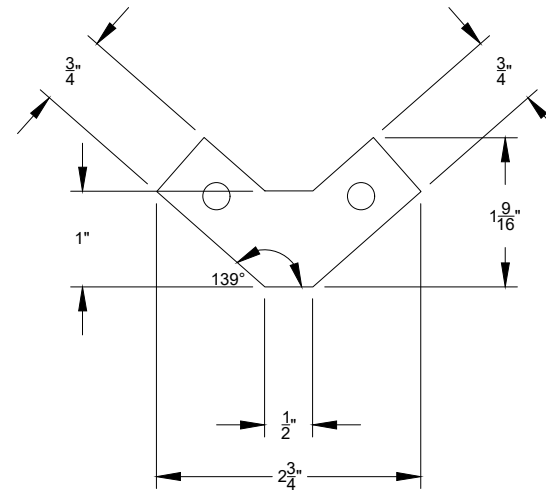
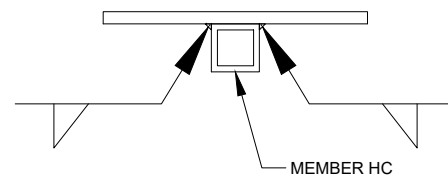


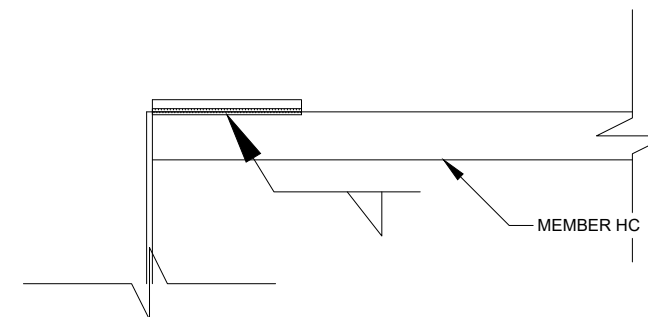
PLATE DIMENSIONS



PROFILE VIEW




FRONT VIEW



H

LATERAL BRACING CONNECTION AT CROSS FRAMES

Scale: 6" = 1'

 College of Engineering, Forestry, and Natural Sciences		PROJECT: 2018 NAU STEEL BRIDGE FLAGSTAFF	
JOB NO:	CENE 486	BRACING CONNECTION DETAIL - H	
DATE:	Feb-18		
SCALE:	AS SHOWN		
DRAWN:	ITC		
CHECKED:	ITC		
REVISIONS			
NO.	DESCRIPTION	DATE	BY
DRAWING NO.		S16	
SHT NO.	27	OF	28

PLAN VIEW

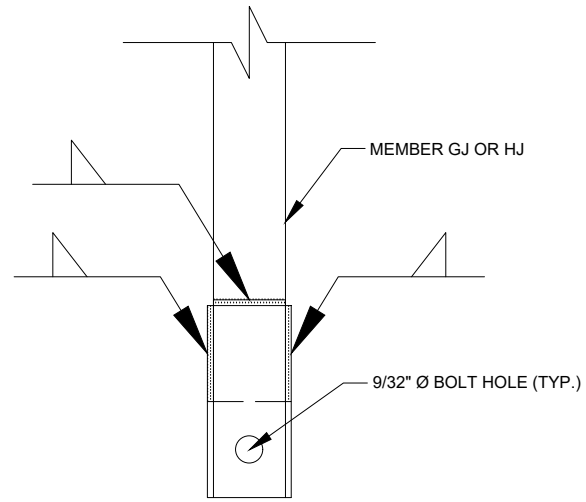
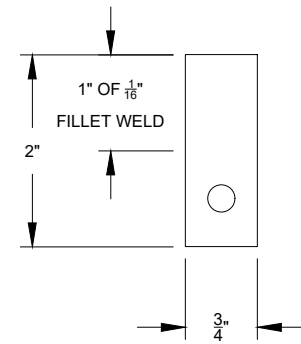
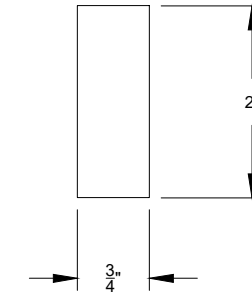


PLATE DIMENSIONS

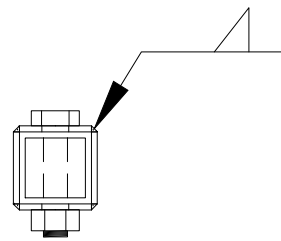
TOP PLATE



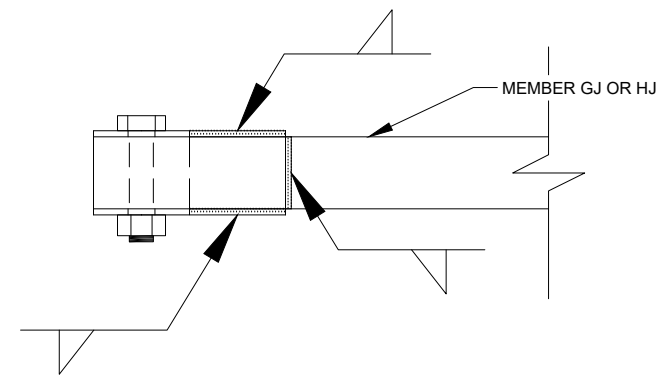
SIDE PLATE



PROFILE VIEW



FRONT VIEW



J

LATERAL BRACING SLEEVE CONNECTIONS

Scale: 6" = 1'

FLAGSTAFF

PROJECT: 2018 NAU STEEL BRIDGE

JOB NO: CENE 486
DATE: Jan 18

SCALE: AS SHOWN

DRAWN: ITC

DESIGN: ITC

CHECKED: ITC

NORTHERN ARIZONA UNIVERSITY
College of Engineering,
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REVISIONS

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S17

SHT NO. 28

OF 28

BRACING CONNECTION DETAIL - J