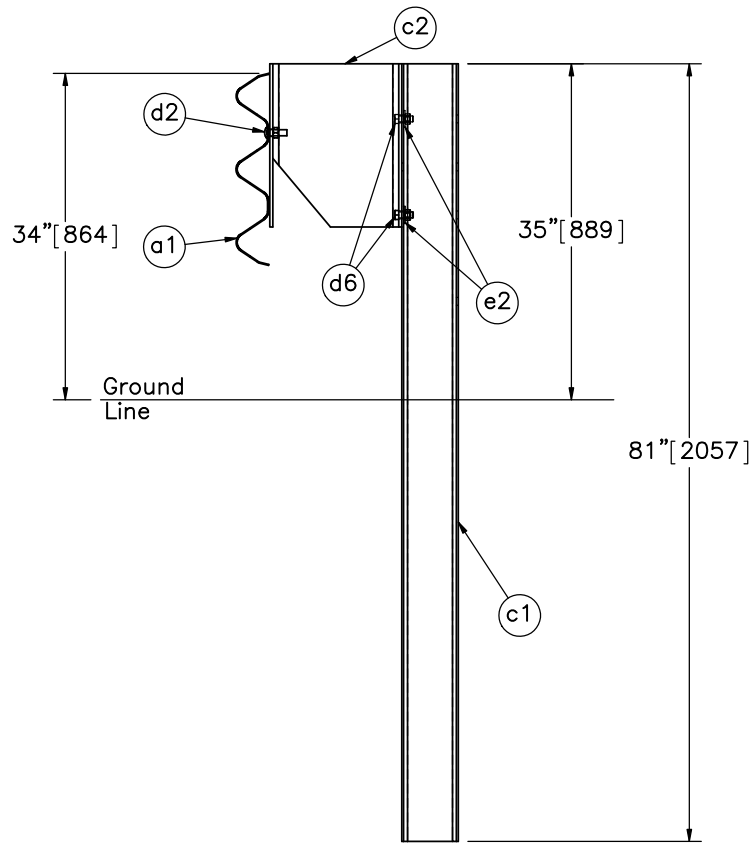
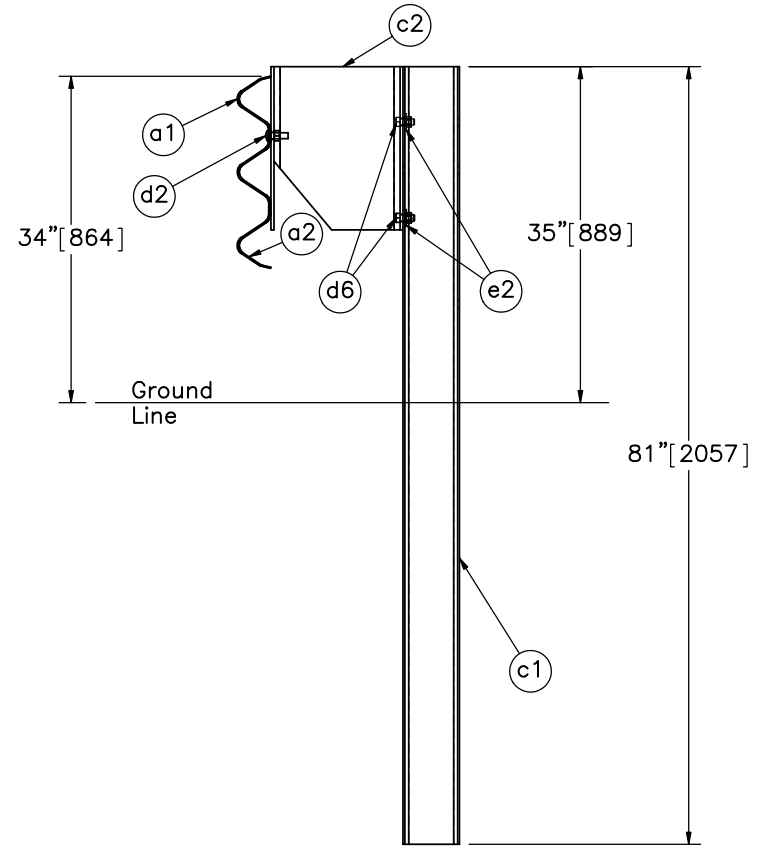




SECTION A-A
All Odd Post Nos. Excluding Post Nos. 1 & 29



SECTION B-B
All Even Post Nos. Excluding Post Nos. 2 & 28

Note: (1) Backup plates (part a2) are placed at non-splice post locations.
(2) Two post bolts (part d6) diagonally opposite (both sides) with washer (part e2) under post nut.



Midwest Roadside
Safety Facility

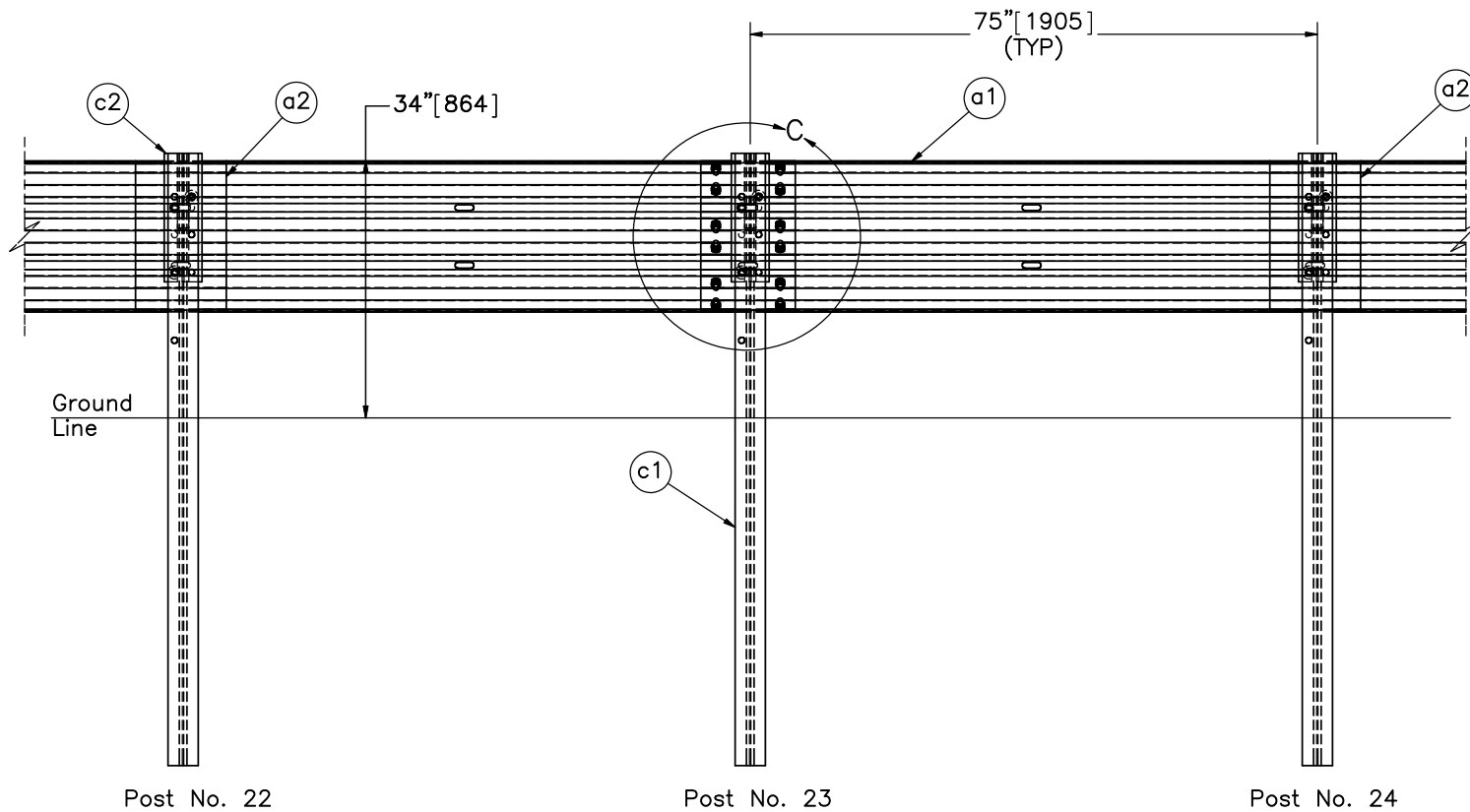
NJ/CA Modified
Thrie Beam
Test No. MTB-1

Section Views

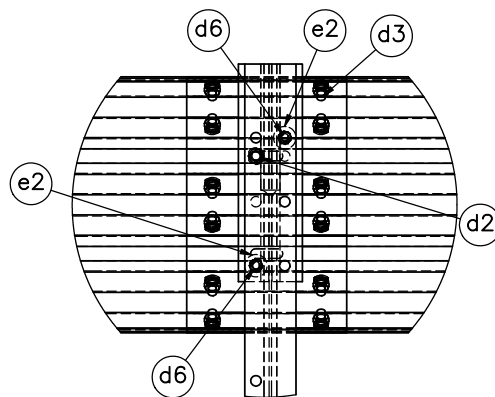
DWG. NAME.
NJ_CA_Modified_Thrie_Beam_R6

SCALE: 1:20
UNITS: in./mm

SHEET:
2 of 13
DATE:
8/29/2018
DRAWN BY:
MBD/GRL/
JEK
REV. BY:
JEK/RWB/
KAL/JCH



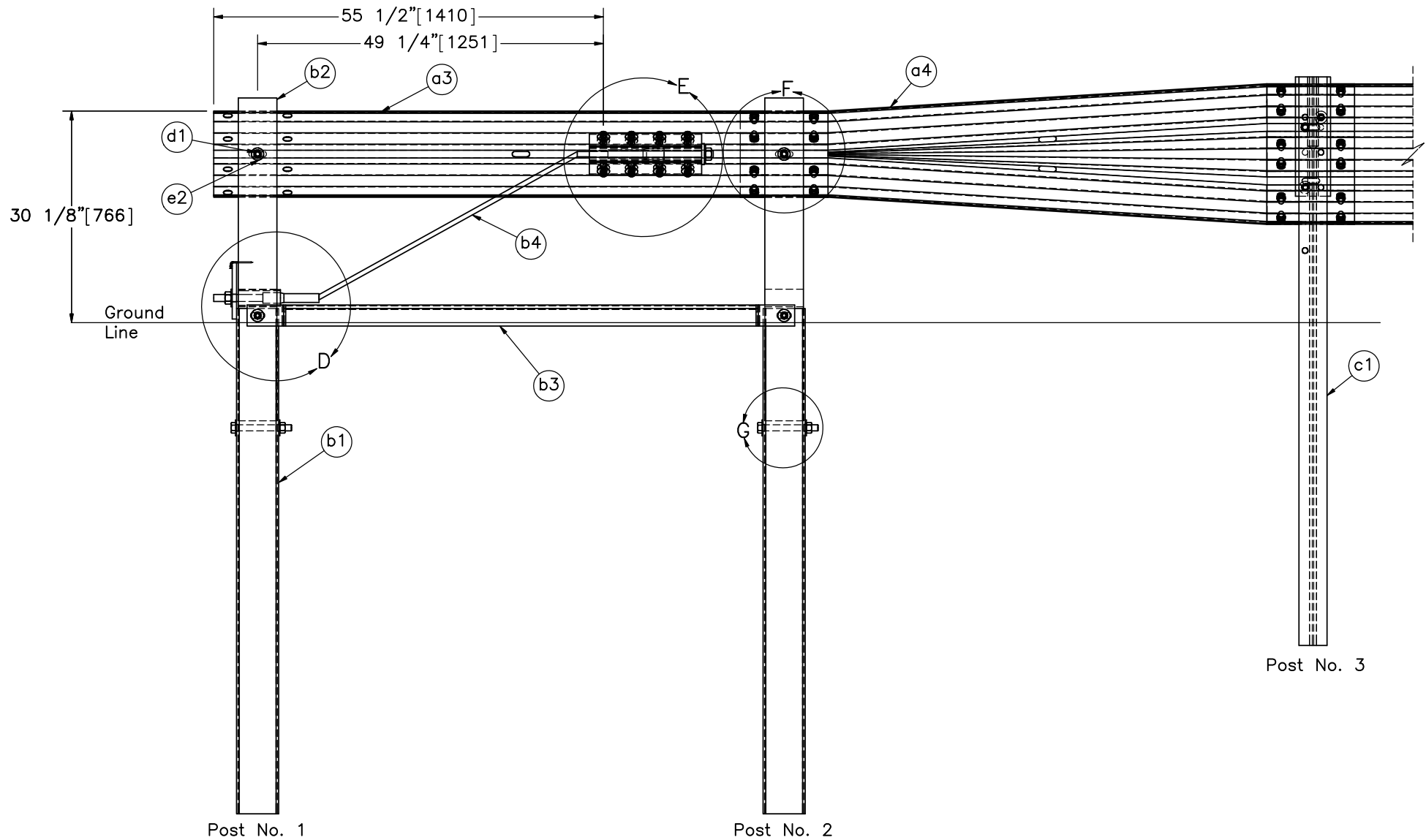
SPLICE DETAIL BACKSIDE



DETAIL C
SCALE 1:15

- Note: (1) Guardrail bolts (part d2) on the upstream side of the web.
 (2) Upper blockout attachment bolt (part d6) on the downstream side of the web. Lower bolt on upstream side of the web.

	NJ/CA Modified Thrie Beam Test No. MTB-1		SHEET: 3 of 13
	Splice and Post Detail		DATE: 8/29/2018
Midwest Roadside Safety Facility	DWG. NAME: NJ_CA_Modified_Thrie_Beam_R6		DRAWN BY: MBD/GRL/ JEK
	SCALE: 1:25 UNITS: in./mm		REV. BY: JEK/RWB/ KAL/JCH



END SECTION DETAIL
BACKSIDE

Note: (1) Downstream end section (post nos. 28 & 29) is mirrored.
(2) BCT post (part b2) is modified to achieve 30 1/8" [765] rail height.



Midwest Roadside
Safety Facility

NJ/CA Modified
Thrie Beam
Test No. MTB-1

End Section Details

DWG. NAME:
NJ_CA_Modified_Thrie_Beam_R6

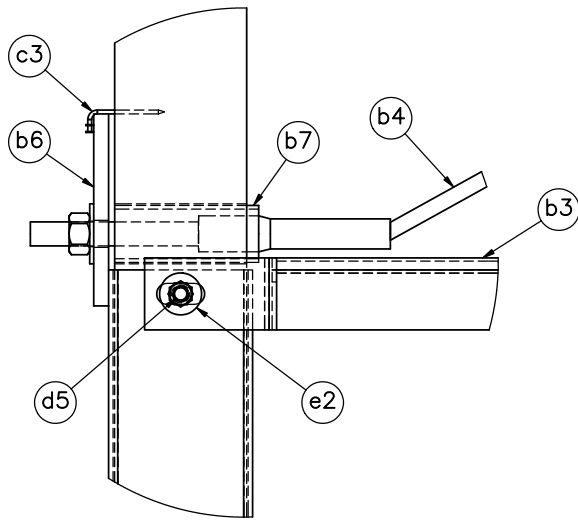
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UNITS: in./mm

SHEET:
4 of 13

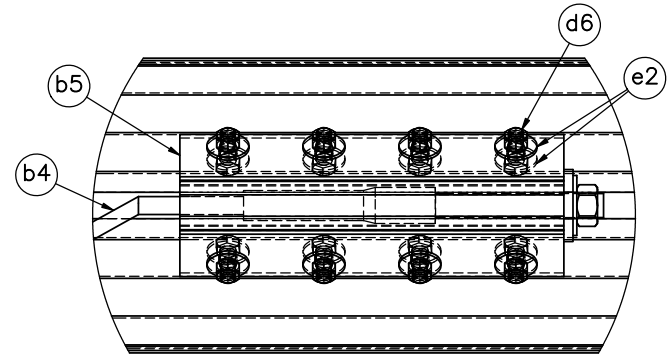
DATE:
8/29/2018

DRAWN BY:
MBD/GRL/
JEK

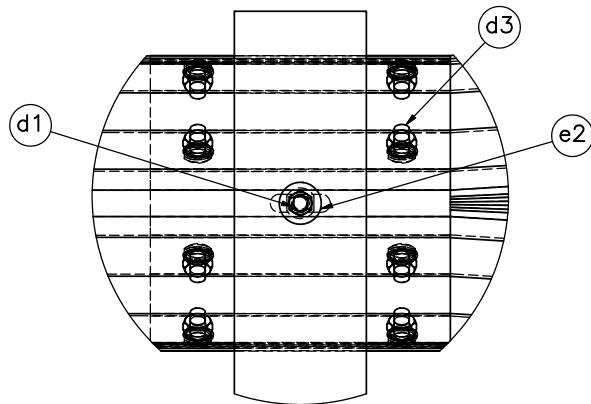
REV. BY:
JEK/RWB/
KAL/JCH



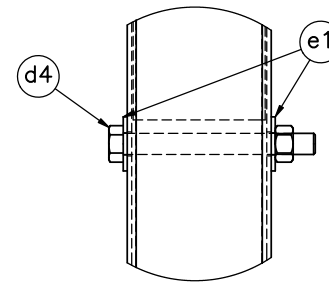
DETAIL D



DETAIL E



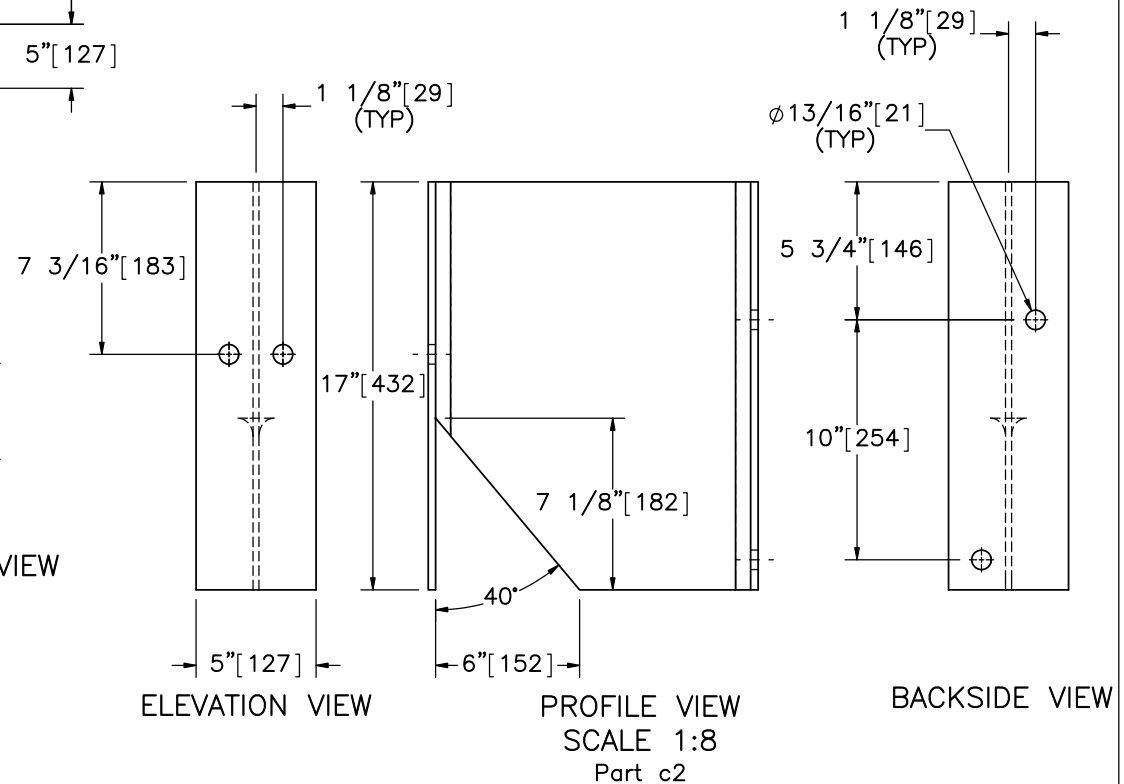
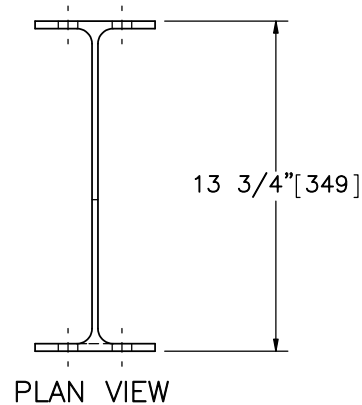
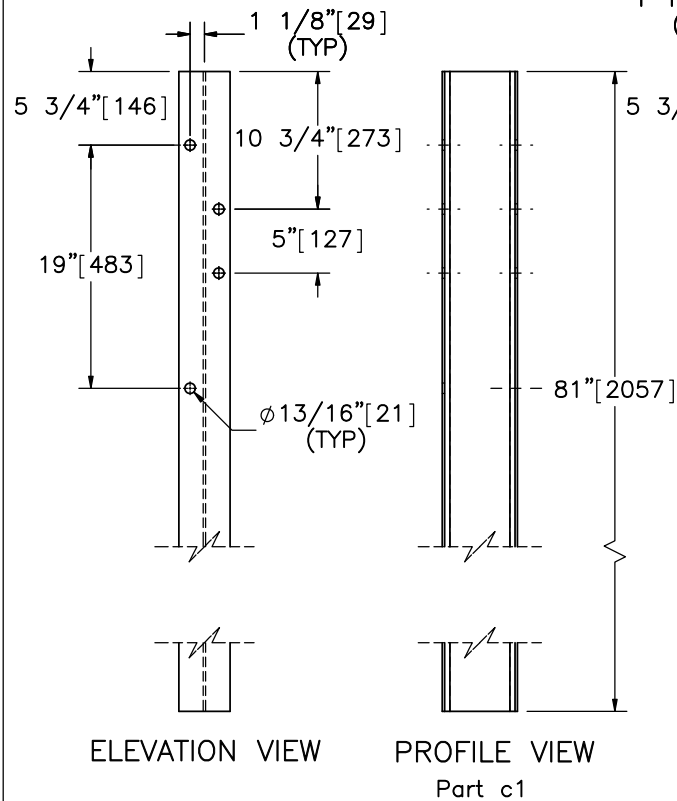
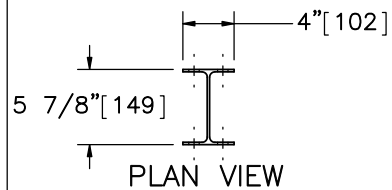
DETAIL F



DETAIL G

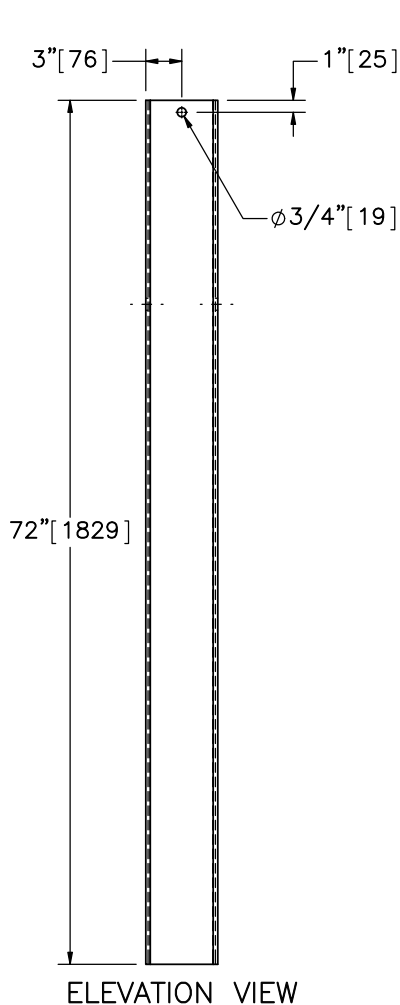
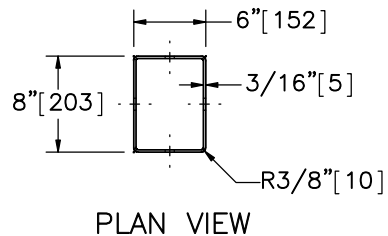
Note: (1) Additional washer (part e2) on the opposite side under the head of bolt (part d5).

	NJ/CA Modified Thrie Beam Test No. MTB-1		SHEET: 5 of 13
	BCT Anchor and Splice Details		DATE: 8/29/2018
Midwest Roadside Safety Facility	DWG. NAME: NJ_CA_Modified_Thrie_Beam_R6		DRAWN BY: MBD/GRL/ JEK
	SCALE: 1:8 UNITS: in./mm		REV. BY: JEK/RWB/ KAL/JCH

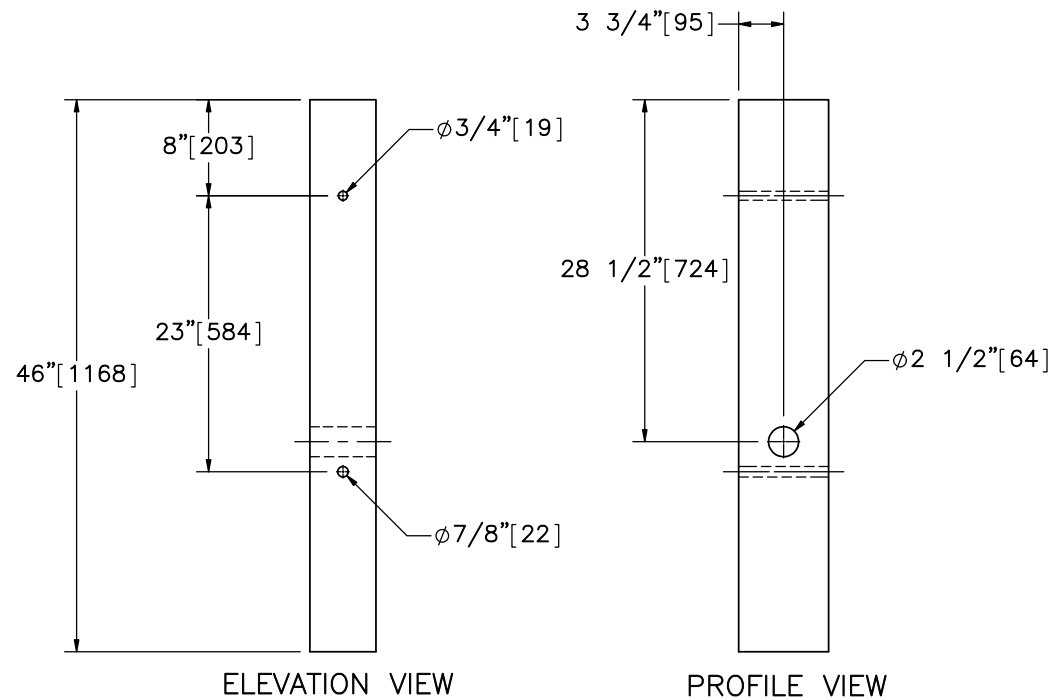
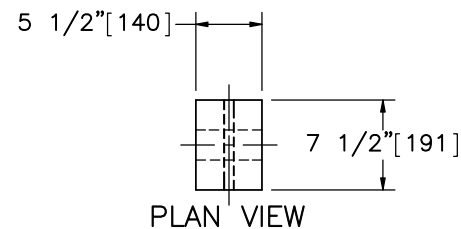
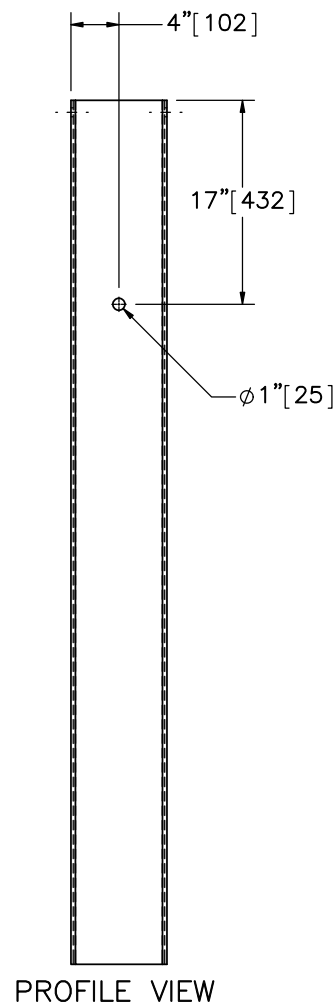


Midwest Roadside
Safety Facility

NJ/CA Modified Thrie Beam Test No. MTB-1		SHEET: 6 of 13
Post Nos. 3-27 Components		DATE: 8/29/2018
DWG. NAME: NJ_CA_Modified_Thrie_Beam_R6	SCALE: 1:15 UNITS: in.[mm]	DRAWN BY: MBD/GRL/ JEK
		REV. BY: JEK/RWB/ KAL/JCH



Part b1



Part b2

Note: (1) BCT post (part b2) is modified for new rail height.



Midwest Roadside
Safety Facility

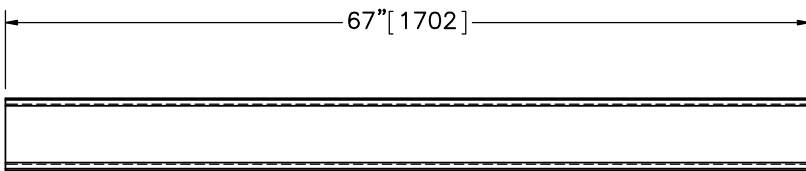
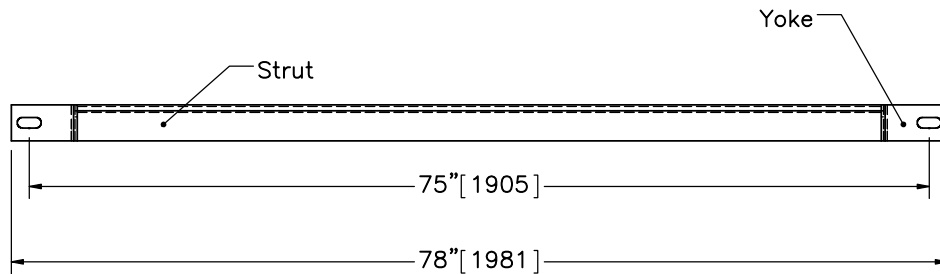
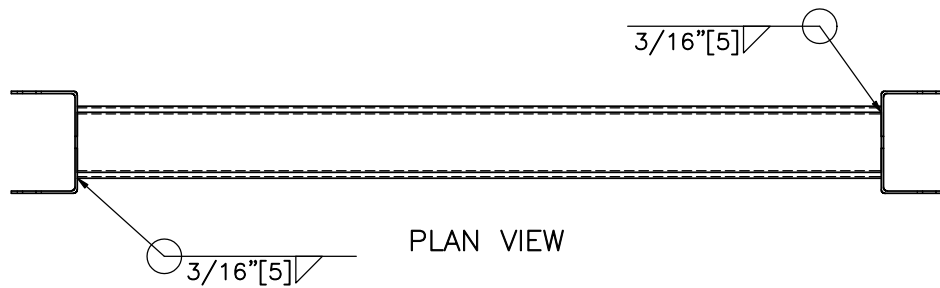
NJ/CA Modified
Thrie Beam
Test No. MTB-1

Foundation Tube and BCT
Timber Post Details

DWG. NAME:
NJ_CA_Modified_Thrie_Beam_R6

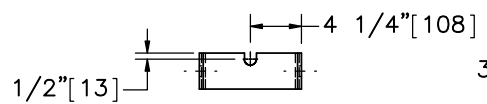
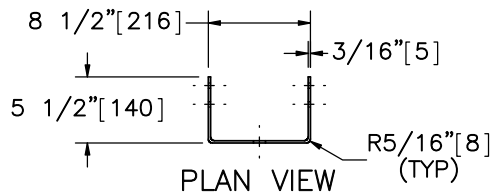
SCALE: 1:16
UNITS: in./mm

SHEET:
7 of 13
DATE:
8/29/2018
DRAWN BY:
MBD/GRL/
JEK
REV. BY:
JEK/RWB/
KAL/JCH



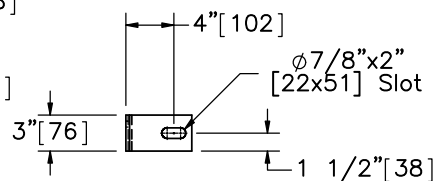
ELEVATION VIEW

6"x3" [152x76] 10-Gauge [3.4] Strut

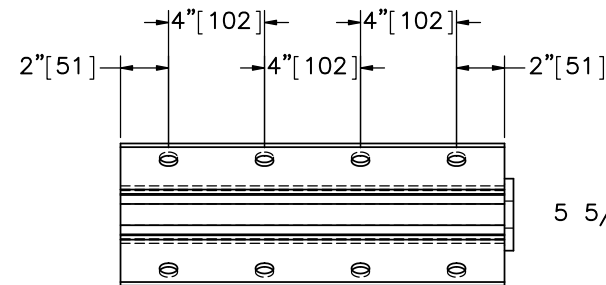
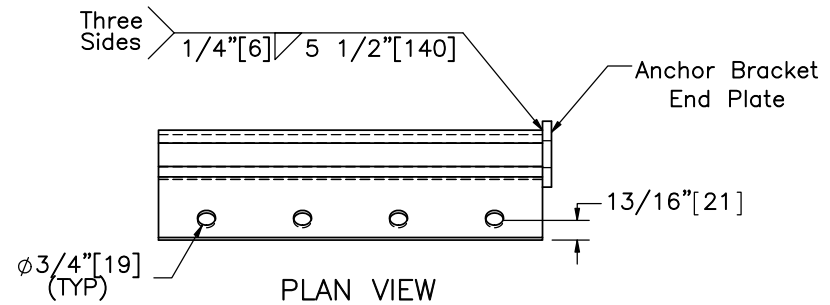


ELEVATION VIEW

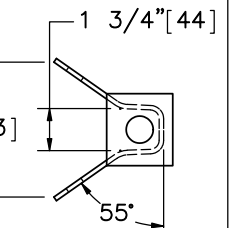
Yoke



PROFILE VIEW



ELEVATION VIEW



PROFILE VIEW

SCALE 1:8
Part b5



Midwest Roadside
Safety Facility

NJ/CA Modified
Thrie Beam
Test No. MTB-1

Ground Strut Details

DWG. NAME.
NJ_CA_Modified_Thrie_Beam_R6

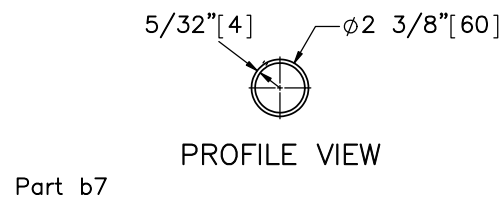
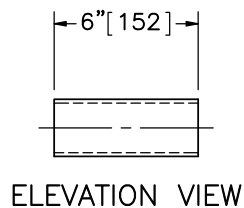
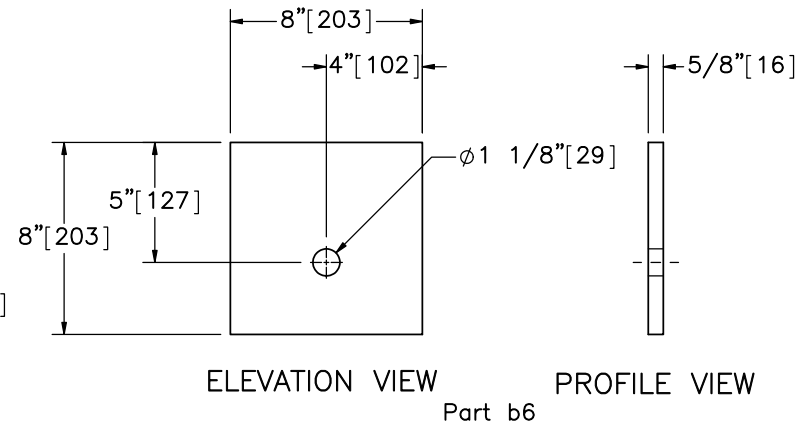
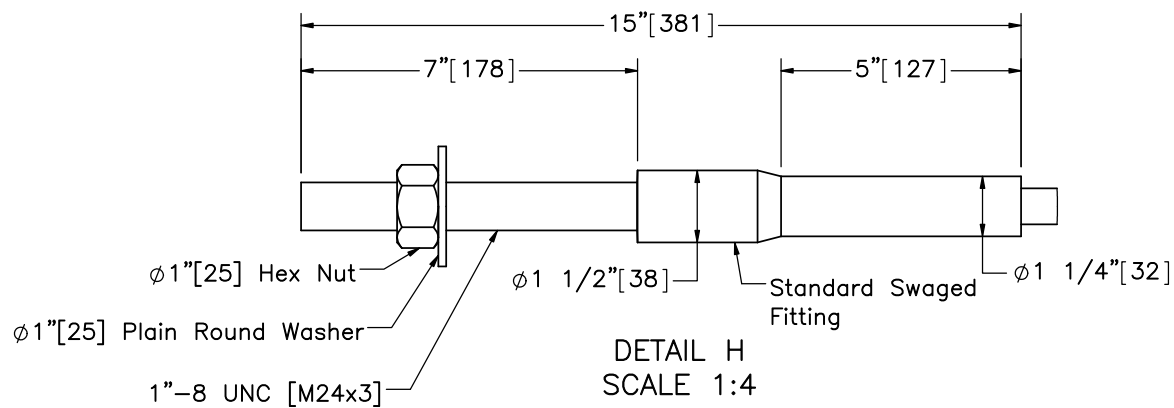
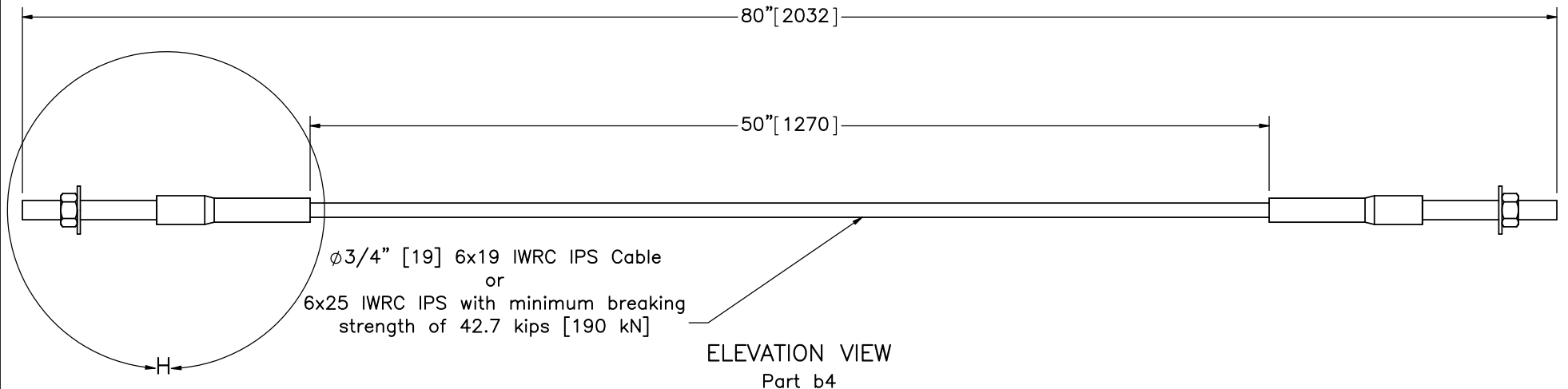
SCALE: 1:16
UNITS: in.[mm]

SHEET:
8 of 13

DATE:
8/29/2018

DRAWN BY:
MBD/GRL/
JEK

REV. BY:
JEK/RWB/
KAL/JCH



Midwest Roadside
Safety Facility

NJ/CA Modified
Thrie Beam
Test No. MTB-1

BCT Anchor Cable

DWG. NAME.
NJ_CA_Modified_Thrie_Beam_R6

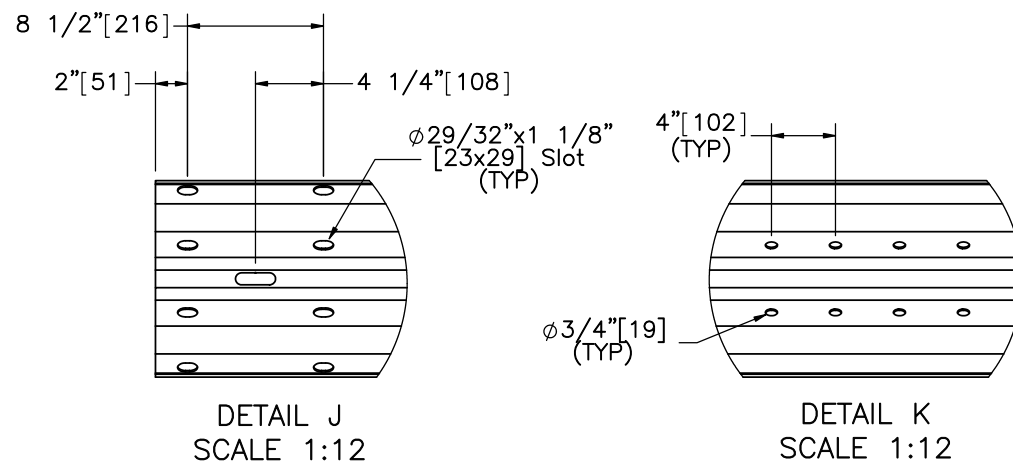
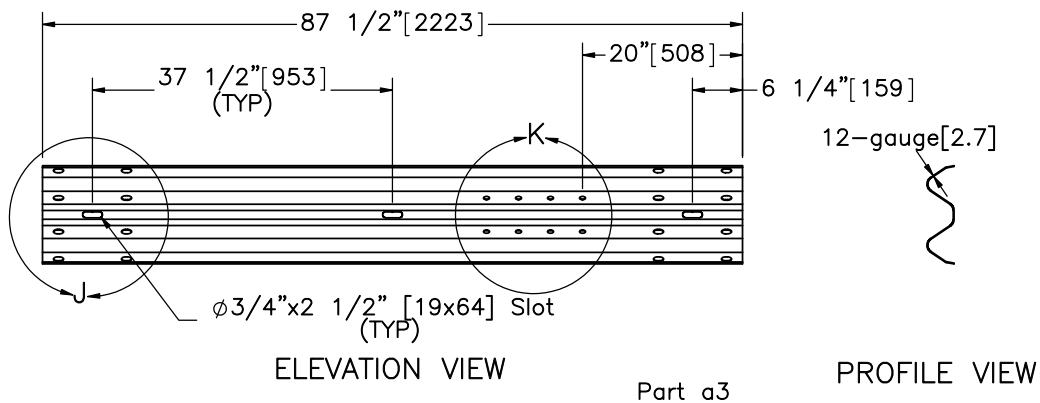
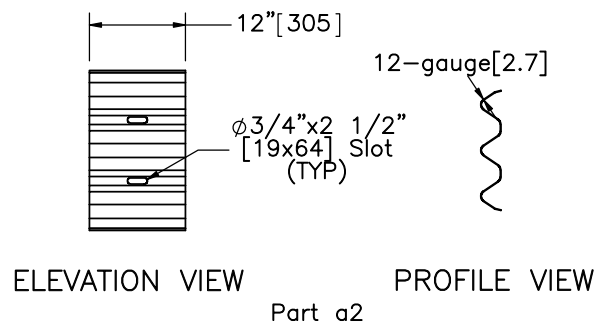
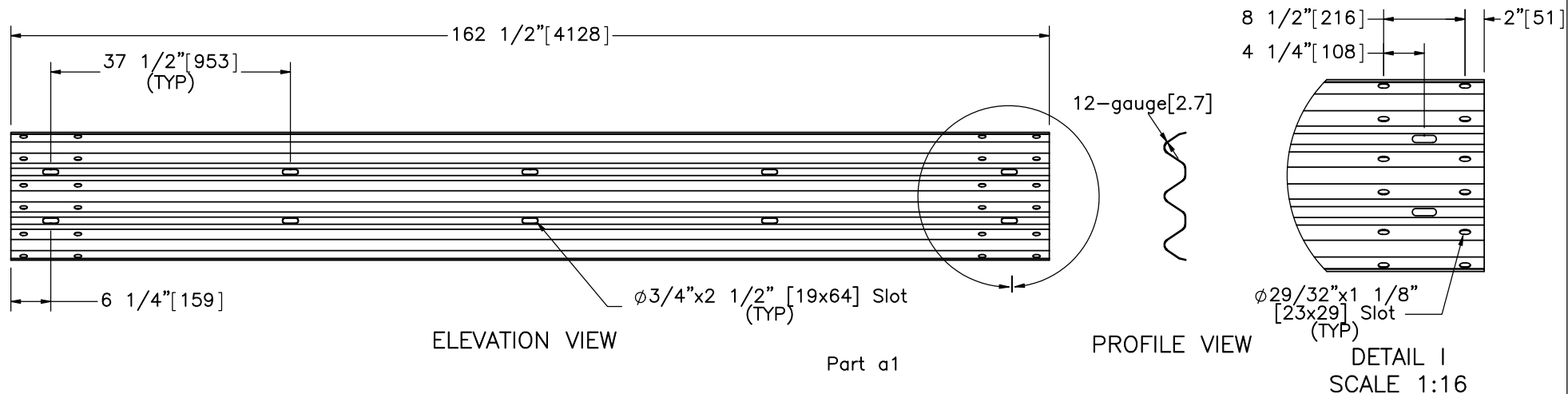
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UNITS: in./mm

SHEET:
9 of 13

DATE:
8/29/2018

DRAWN BY:
MBD/GRL/
JEK

REV. BY:
JEK/RWB/
KAL/JCH



Note: (1) Backup plate (part a2) placed at non-splice posts.



Midwest Roadside
Safety Facility

NJ/CA Modified
Thrie Beam
Test No. MTB-1

Guardrail Section Details

DWG. NAME:
NJ_CA_Modified_Thrie_Beam_R6

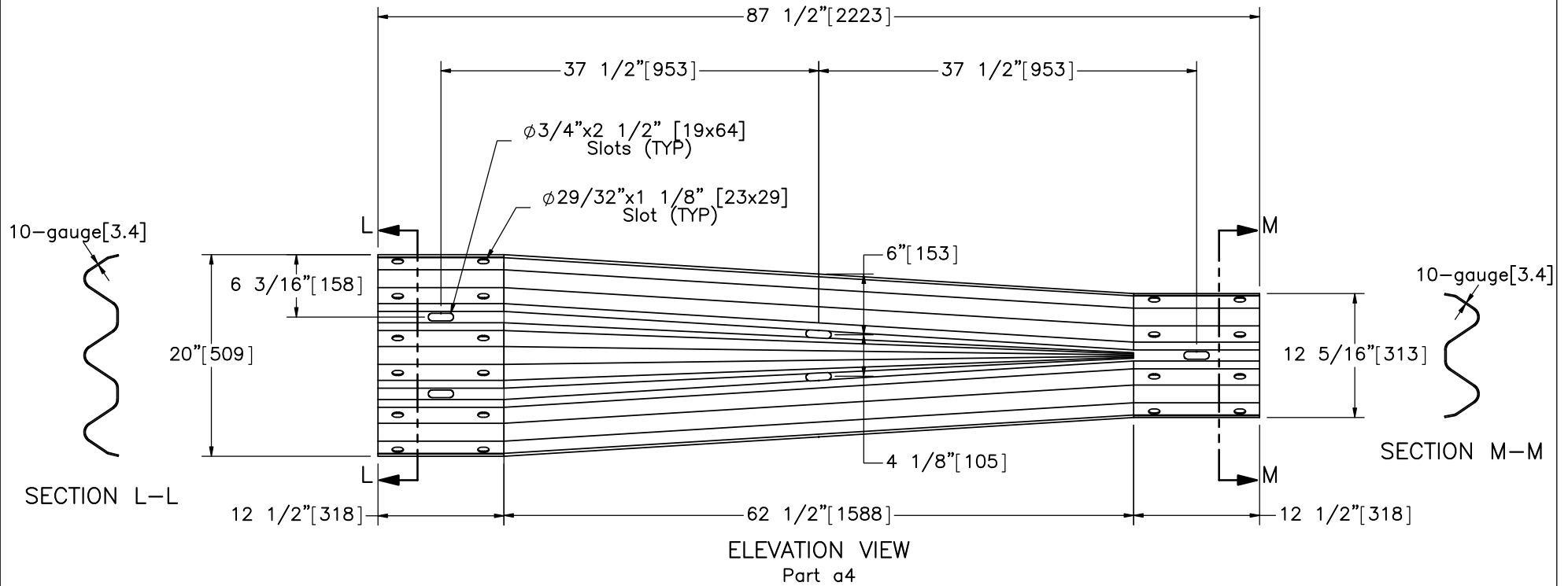
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UNITS: in./mm

SHEET:
10 of 13

DATE:
8/29/2018

DRAWN BY:
MBD/GRL/
JEK

REV. BY:
JEK/RWB/
KAL/JCH



Midwest Roadside
Safety Facility

NJ/CA Modified
Thrie Beam
Test No. MTB-1

Rail Transition Details

DWG. NAME:
NJ_CA_Modified_Thrie_Beam_R6

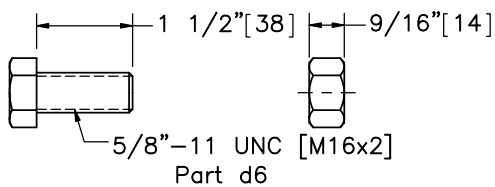
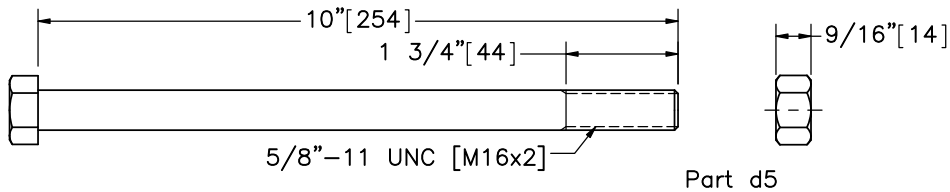
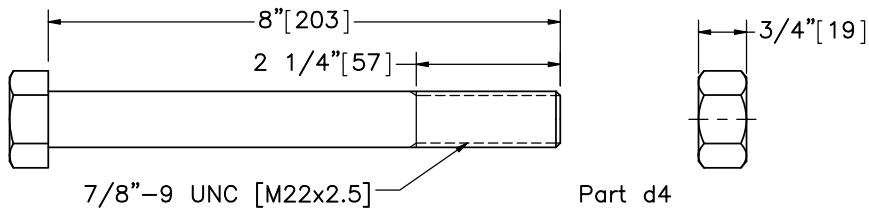
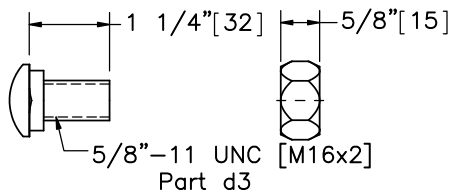
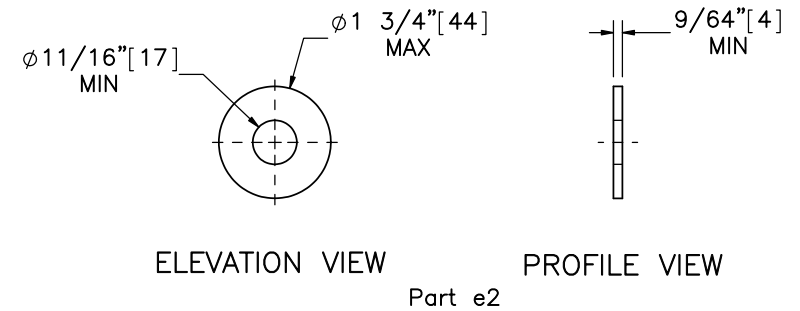
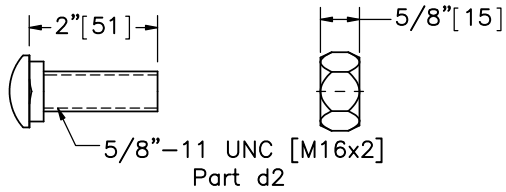
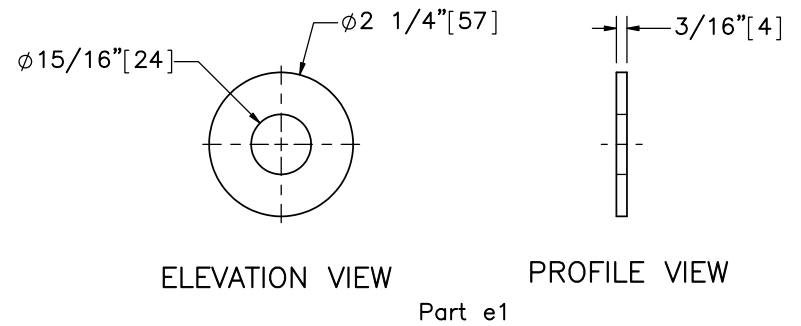
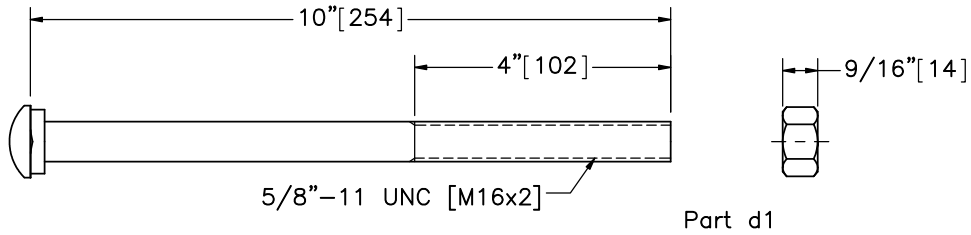
SCALE: 1:15
UNITS: in./mm

SHEET:
11 of 13

DATE:
8/29/2018

DRAWN BY:
MBD/GRL/
JEK

REV. BY:
JEK/RWB/
KAL/JCH



	NJ/CA Modified		SHEET:
	Thrie Beam		12 of 13
Midwest Roadside Safety Facility	Test No. MTB-1		DATE:
	Hardware		8/29/2018
DWG. NAME:	SCALE: 1:3	DRAWN BY:	
NJ_CA_Modified_Thrie_Beam_R6	UNITS: in.[mm]	MBD/GRL/ JEK	
		REV. BY:	
		JEK/RWB/ KAL/JCH	

Item No.	QTY.	Description	Material Specification	Treatment Specification	Hardware Guide
a1	12	12'-6" [3,810] 12-gauge [2.7] Thrie Beam Section	AASHTO M180	ASTM A123 or A653	RTM04a
a2	12	12" [305] 12-gauge [2.7] Thrie Beam Backup Plate	AASHTO M180	ASTM A123 or A653	RTB01a
a3	2	6'-3" [3,810] 12-gauge [2.7] W-Beam MGS End Section	AASHTO M180	ASTM A123 or A653	—
a4	2	10-gauge [3.4] Symmetrical W-beam to Thrie Beam Transition	AASHTO M180	ASTM A123 or A653	RWT01b
b1	4	72" [1,829] Long Foundation Tube	ASTM A500 Gr. B	ASTM A123	PTE06
b2	4	BCT Timber Post – MGS Height – Not Standard	SYP Grade No. 1 or better (No knots 18" [457] above or below ground tension face)	—	—
b3	2	Ground Strut Assembly	ASTM A36	ASTM A123	PFP01
b4	2	BCT Cable Anchor Assembly	—	—	FCA01
b5	2	Anchor Bracket Assembly	ASTM A36	ASTM A123	FPA01
b6	2	8"x8"x5/8" [203x203x16] Anchor Bearing Plate	ASTM A36	ASTM A123	FPB01
b7	2	2 3/8" [60] O.D. x 6" [152] Long BCT Post Sleeve	ASTM A53 Gr. B Schedule 40	ASTM A123	FMM02
c1	25	W6x8.5 [W152x12.6], 81" [2,057] Long Steel Post	ASTM A36	ASTM A123	—
c2	25	W14x22 [356x32.7], 17" [432] Long Steel Blockout	ASTM A992	ASTM A123	—
c3	2	16D Double Head Nail	—	—	—
d1	4	5/8"-11 UNC [M16x2], 10" [254] Long Guardrail Bolt and Heavy Hex Nut	Bolt – ASTM A307 Gr. A Nut – ASTM A563A	ASTM A153 or B695 Class 55 or F2329	FBB03
d2	25	5/8"-11 UNC [M16x2], 2" [51] Long Guardrail Bolt and Heavy Hex Nut	Bolt – ASTM A307 Gr. A or equivalent Nut – ASTM A563A or equivalent	ASTM A153 or B695 Class 55 or F2329	FBB02
d3	172	5/8"-11 UNC [M16x2], 1 1/4" [32] Long Guardrail Bolt and Heavy Hex Nut	Bolt – ASTM A307 Gr. A or equivalent Nut – ASTM A563A or equivalent	ASTM A153 or B695 Class 55 or F2329	FBB01
d4	4	7/8"-9 UNC [M22x2.5], 8" [203] Long Hex Head Bolt and Nut	Bolt – ASTM A307 Gr. A or equivalent Nut – ASTM A563A or equivalent	ASTM A153 or B695 Class 55 or F2329	—
d5	4	5/8"-11 UNC [M16x2], 10" [254] Long Hex Head Bolt and Nut	Bolt – ASTM A307 Gr. A or equivalent Nut – ASTM A563A or equivalent	ASTM A153 or B695 Class 55 or F2329	FBX16a
d6	66	5/8"-11 UNC [M16x2], 1 1/2" [38] Long Hex Head Bolt and Nut	Bolt – ASTM A307 Gr. A or equivalent Nut – ASTM A563A or equivalent	ASTM A153 or B695 Class 55 or F2329	FBX16a
e1	8	7/8" [22] Dia. Plain Round Washer	ASTM F844	ASTM A123 or A153 or F2329	—
e2	94	5/8" [16] Dia. Plain Round Washer	ASTM F844	ASTM A123 or A153 or F2329	—



Midwest Roadside
Safety Facility

NJ/CA Modified
Thrie Beam
Test No. MTB-1

Bill of Materials

DWG. NAME.

NJ_CA_Modified_Thrie_Beam_R6

SCALE: 1:20

UNITS: in.[mm]

SHEET:
13 of 13

DATE:
8/29/2018

DRAWN BY:
MBD/GRL/
JEK

REV. BY:
JEK/RWB/
KAL/JCH

REV.	DATE OF ISSUE	Page	NATURE OF CHANGES	REVIEWER	REVISED BY
0	7/31/2018	—	Original Drawing.	—	MBD
1	8/6/2018	1	Updated View. Moved Dimensions and Notes. Removed Note	JEK	MBD
		2	Modified Section View. Added Post Numbers.		
		3	Added Item numbers. Added and Modified Notes.		
		4	Updated Break Line. Modified Post Numbers.		
		5	Modified Item number.		
		6	Moved Dimensions. Hid holes on opposite side. Created break view.		
		7	Modified Dimensions.		
		8	Modified Note.		
		9	Added Notes.		
		10	Modified Notes. Added slots at midspans. Increased view size.		
		12	Modified Notes. Updated dimensions.		
		BOM	Modified Notes and quantities. Added parts d7 & e3		
2	8/6/2018	1	Tangent lines turned on for Elevation View.	JEK	MBD
		2	Note font size changed.		
		6	Linear Center Marks removed.		
		BOM	Removed parts d7 & e3.		
3	8/8/2018	4	View expanded. Label and note added.	RWB	GRL
		7	Note added.		
		BOM	Part b2 description edit. Part c1 description and material edit.		
4	8/16/2018	1	Impact location added. Note edit.	RWB	GRL
5	8/17/2018	2	Note add.	KAL/JCH	JEK
		6	Dim add.		
6	8/29/2018	2	Note added.	RWB	GRL
		3	Edit note.		
		BOM	Description: d1. Mtrl: d2–3.		