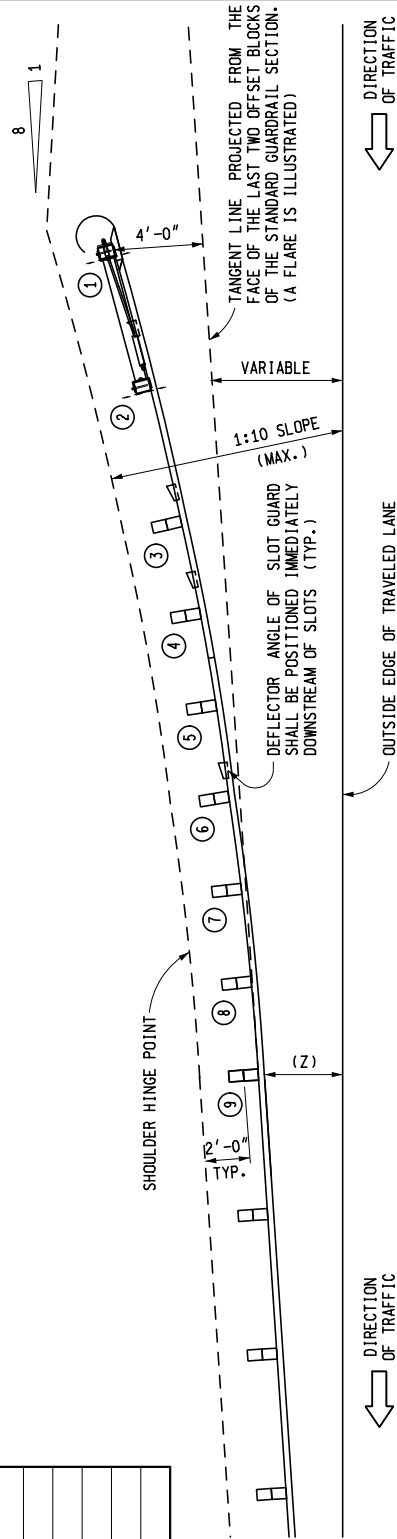


POST	** POST OFFSET DISTANCE (FROM TANGENT LINE TO CENTER OF POST)
1	52"
2	37 1/2"
3	33 1/4"
4	26 3/4"
5	21 1/2"
6	17 3/8"
7	14 3/8"
8	12 5/8"
9	12"

POSTS ARE TO BE SET APPROXIMATELY TANGENT TO THE
BEAM ELEMENT AT EACH POST LOCATION.
** FOR LAYOUT ON CURVES SEE DETAIL ON SHEET 19.

SEE END ANCHORAGE ASSEMBLY,
SHEET 3

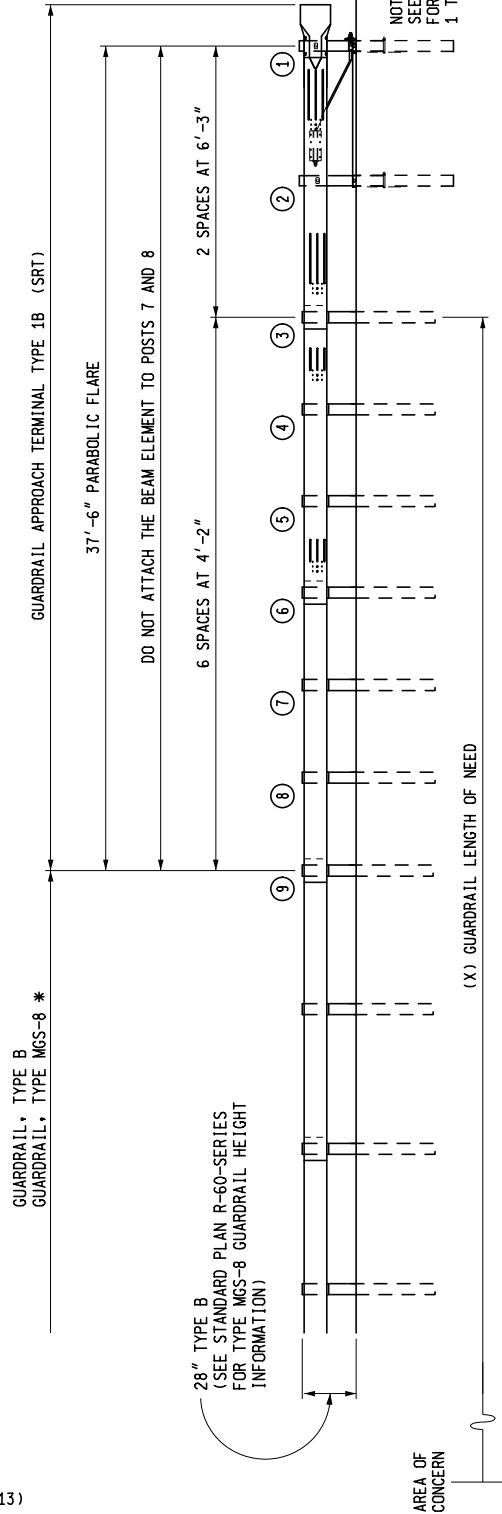


PLAN VIEW

* SEE STANDARD PLAN R-60-SERIES FOR POST SPACING AND GUARDRAIL
LAYOUT TO TRANSITION FROM GUARDRAIL, TYPE MGS-8 TO GUARDRAIL
APPROACH TERMINAL TYPE 1B

OPTION 1

(DETAILED ON SHEETS 1 THROUGH 7, 12 AND 13)



NOTE:
SEE SHEETS 4 AND 5
FOR DETAILS OF POSTS
1 THROUGH 9

ELEVATION GUARDRAIL APPROACH TERMINAL TYPE 1B "SRT"



PREPARED
BY
DESIGN DIVISION

DRAWN BY: B.L.T.

CHECKED BY: W.K.P.

DEPARTMENT DIRECTOR
Kirk T. Steudle

APPROVED BY: _____
ENGINEER OF DELIVERY

APPROVED BY: _____
ENGINEER OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

GUARDRAIL APPROACH TERMINAL TYPES 1B & 1T (SRT, FLEAT & X-LITE-FLARED)

F.H.W.A. APPROVAL

1-9-2017
PLAN DATE

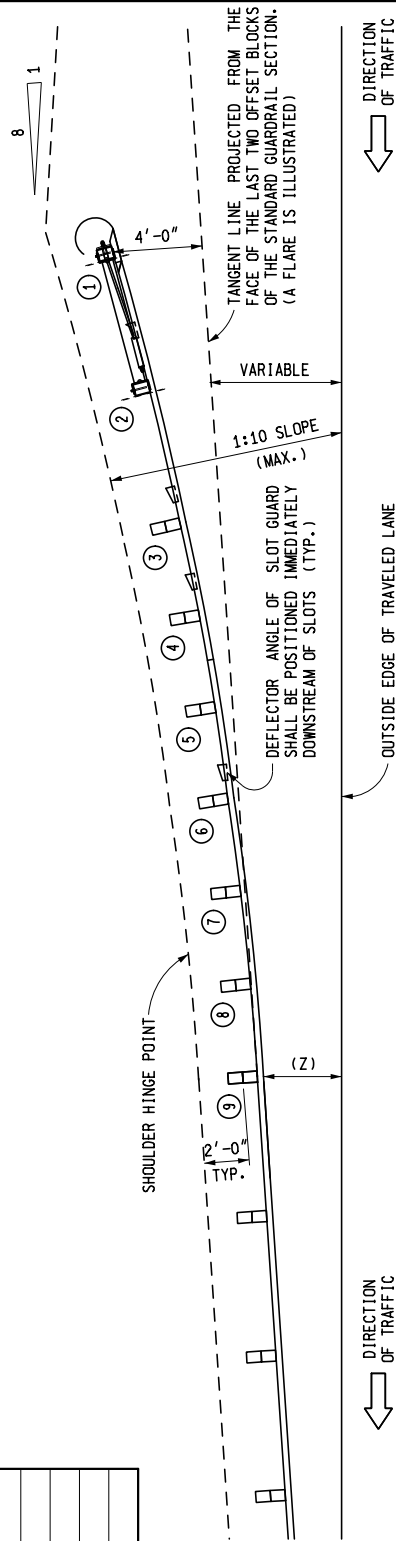
R-61-H

SHEET
1 OF 20

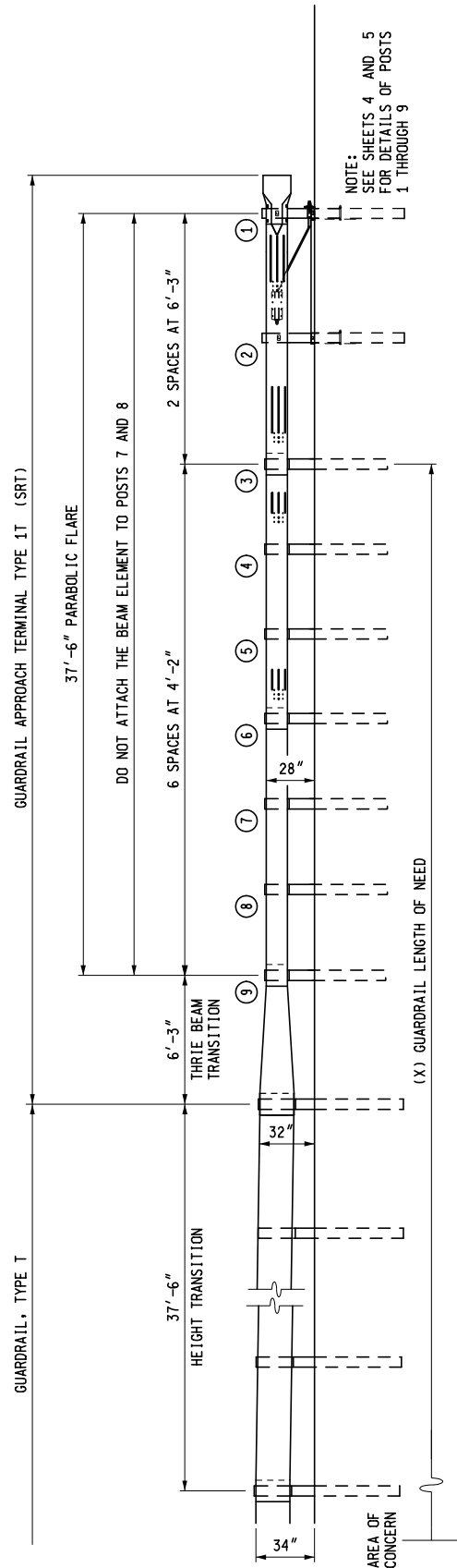
POST	** POST OFFSET DISTANCE (FROM TANGENT LINE TO CENTER OF POST)
1	52"
2	37 1/2"
3	33 1/4"
4	26 3/4"
5	21 1/2"
6	17 3/8"
7	14 3/8"
8	12 5/8"
9	12"

POSTS ARE TO BE SET APPROXIMATELY TANGENT TO THE
BEAM ELEMENT AT EACH POST LOCATION.
** FOR LAYOUT ON CURVES SEE DETAIL ON SHEET 19.

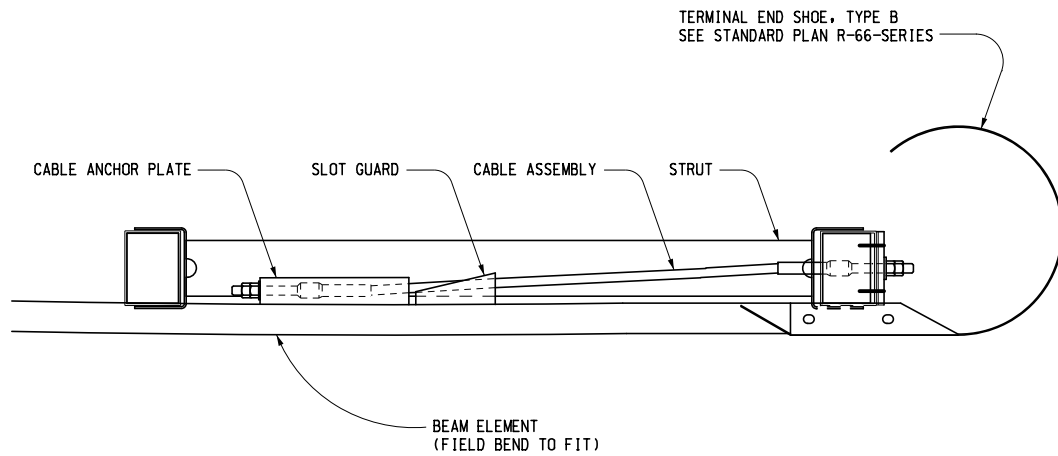
SEE END ANCHORAGE ASSEMBLY,
SHEET 3



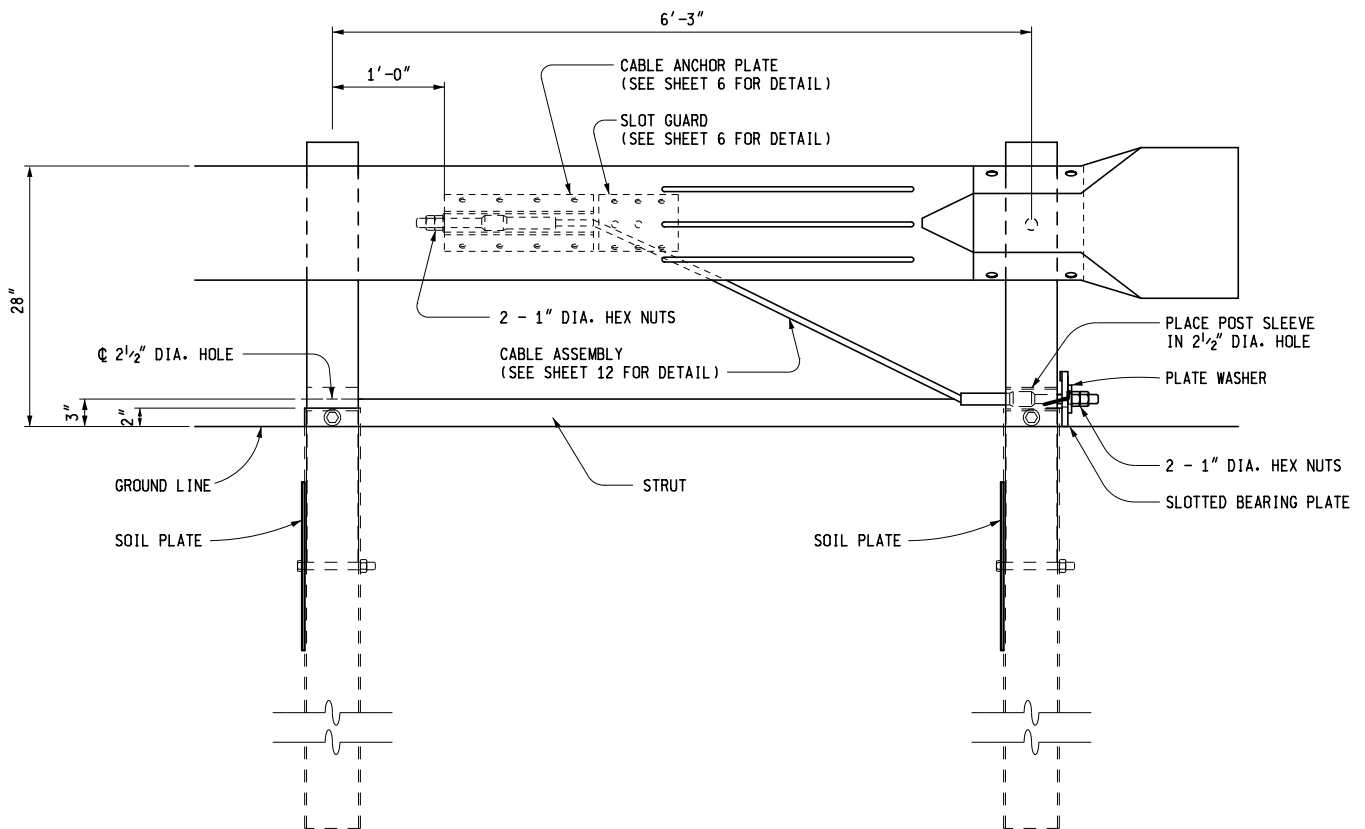
PLAN VIEW



ELEVATION
GUARDRAIL APPROACH TERMINAL TYPE 1T
"SRT"



PLAN VIEW



ELEVATION

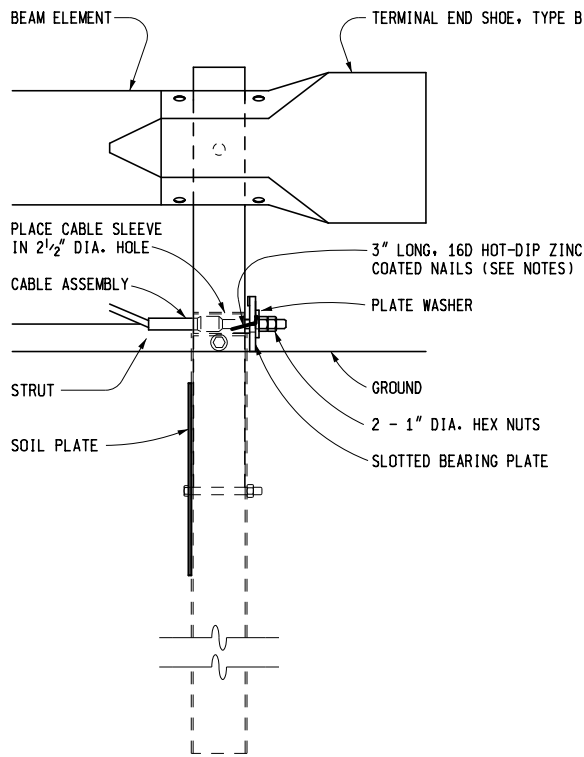
END ANCHORAGE ASSEMBLY (SRT)

NOTES:

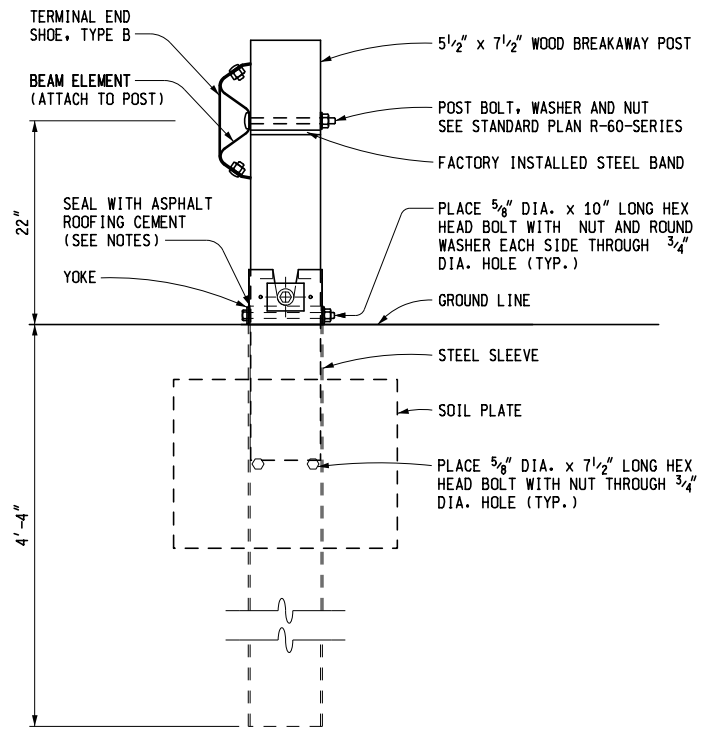
AFTER THE CABLE ASSEMBLY IS TAUT, A SECOND NUT SHALL BE INSTALLED ON EACH END OF THE CABLE SO THAT THE CABLE WILL NOT LOOSEN.

ASPHALT ROOFING CEMENT SHALL BE USED TO SEAL THE PERIMETER AREA BETWEEN THE STEEL SLEEVE (SOIL TUBE) AND THE WOOD BREAKAWAY POST.

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR		
GUARDRAIL APPROACH TERMINAL TYPES 1B & 1T (SRT, FLEAT & X-LITE-FLARED)		
F.H.W.A. APPROVAL	1-9-2017 PLAN DATE	R-61-H SHEET 3 OF 20

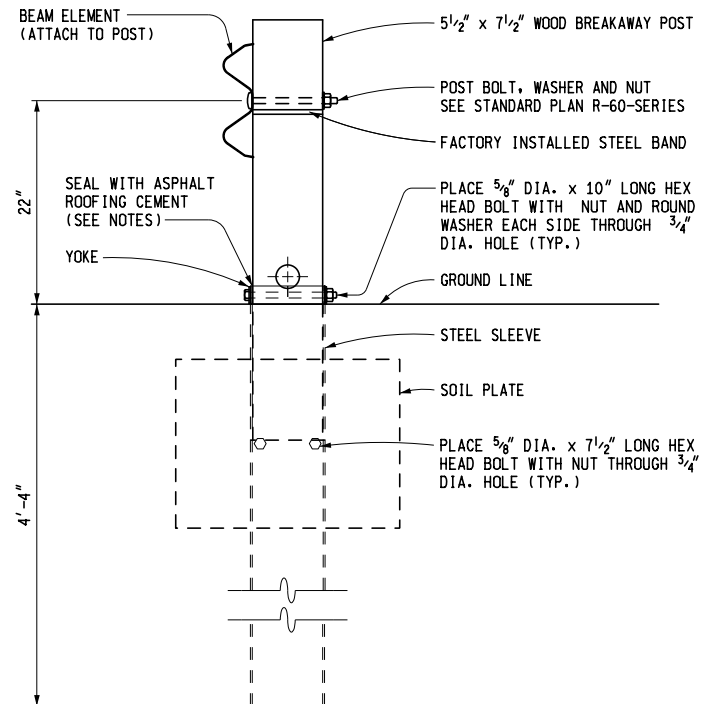


ELEVATION



SIDE

POST 1 DETAIL
(SRT)



POST 2 DETAIL
(SRT)

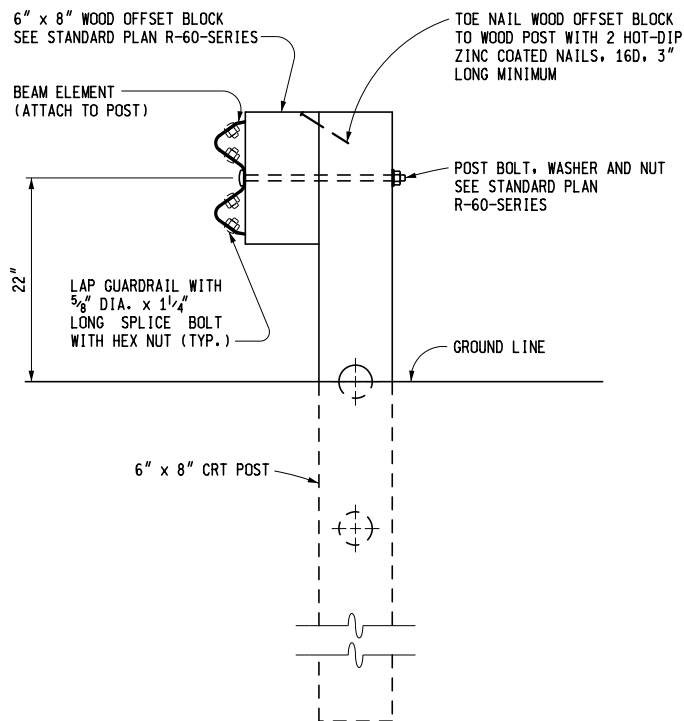
NOTES:

TWO 3" LONG, 16D HOT-DIP ZINC COATED NAILS SHALL BE DRIVEN INTO THE WOOD POST THROUGH THE HOLES IN THE SLOTTED BEARING PLATE ON POST 1 OF THE "SRT" TO KEEP THE PLATE FROM ROTATING.

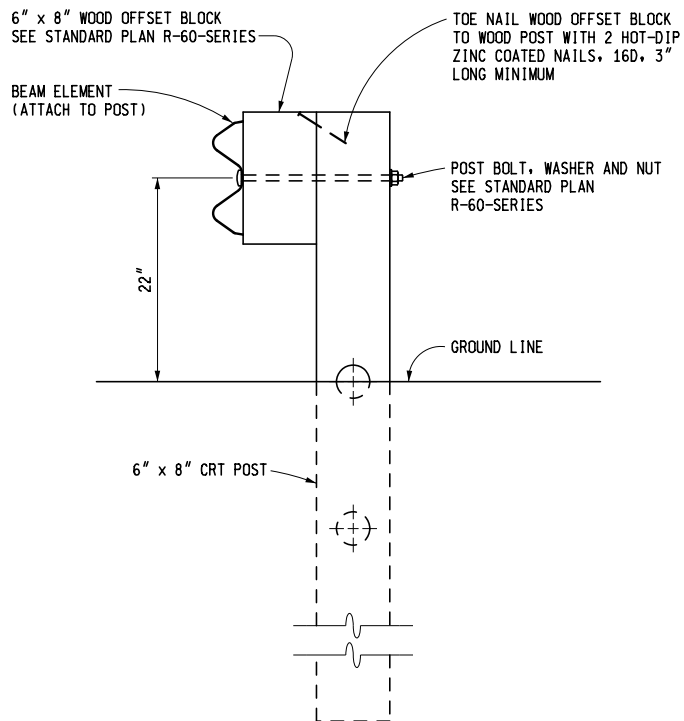
AFTER THE CABLE ASSEMBLY IS TAUT, A SECOND NUT SHALL BE INSTALLED ON EACH END OF THE CABLE SO THAT THE CABLE WILL NOT LOOSEN.

ASPHALT ROOFING CEMENT SHALL BE USED TO SEAL THE PERIMETER AREA BETWEEN THE STEEL SLEEVE (SOIL TUBE) AND THE WOOD BREAKAWAY POST.

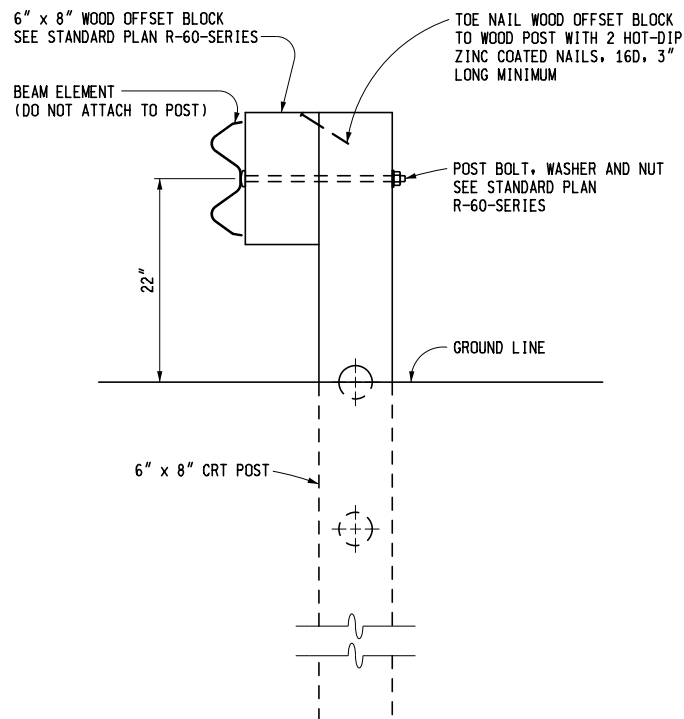
MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR			
GUARDRAIL APPROACH TERMINAL TYPES 1B & 1T (SRT, FLEAT & X-LITE-FLARED)			
F.H.W.A. APPROVAL	1-9-2017 PLAN DATE	R-61-H	SHEET 4 OF 20



POST 3 AND 6 DETAIL
(SRT)



POST 4 AND 5 DETAIL
(SRT)

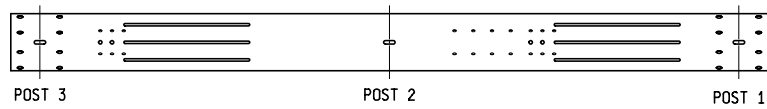


POST 7 AND 8 DETAIL
(SRT)

NOTE:

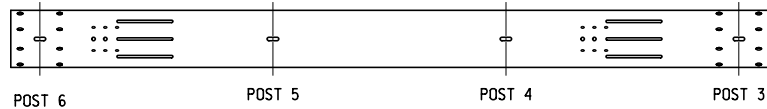
POST 9 IS A STANDARD LINE POST.

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR			
GUARDRAIL APPROACH TERMINAL TYPES 1B & 1T (SRT, FLEAT & X-LITE-FLARED)			
F.H.W.A. APPROVAL	1-9-2017	R-61-H	SHEET 5 OF 20
	PLAN DATE		



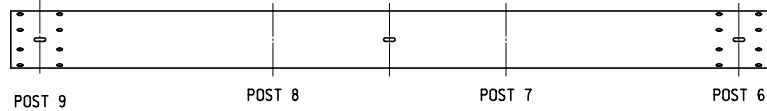
SLOTTED RAIL BEAM ELEMENT #1 *

(POST 1 THROUGH 3)
(SRT)



SLOTTED RAIL BEAM ELEMENT #2 *

(POST 3 THROUGH 6)
(SRT)

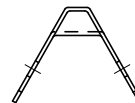
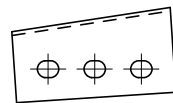


BEAM ELEMENT #3

(POST 6 THROUGH 9)
(SRT)

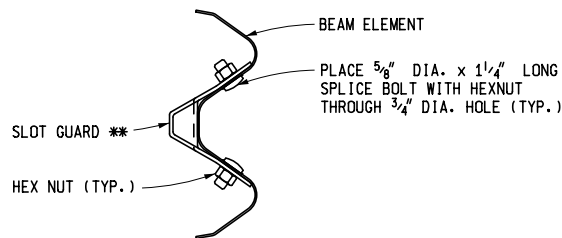
* INSTALL THE SLOTTED RAIL BEAM ELEMENTS IN THE ORDER AND ORIENTATION DETAILED ABOVE SO THAT THE SLOT GUARD ATTACHMENT HOLES ARE ON THE DOWNSTREAM END (AWAY FROM POST 1) OF THE ELONGATED SLOTS.

** PLACE THE SLOT GUARD SO THAT THE DEFLECTOR ANGLE GAP OPENS IN THE DIRECTION FACING THE ADJACENT SLOTS AND POST 1.



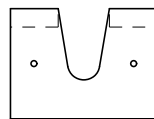
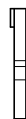
SLOT GUARD DETAILS

(SRT)



SLOT GUARD ASSEMBLY DETAIL **

(SRT)



SLOTTED BEARING PLATE

(SRT)

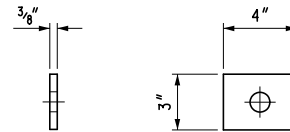
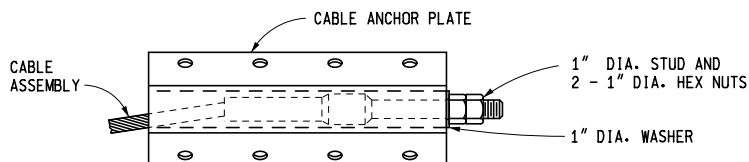


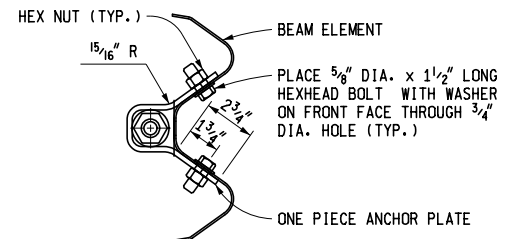
PLATE WASHER

(SRT)



CABLE ANCHOR PLATE DETAILS

(SRT)



NOTES:

ALL "SRT" ITEMS ILLUSTRATED WITHOUT DIMENSIONS SHALL BE ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

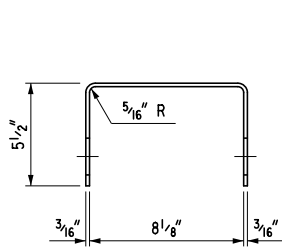
GUARDRAIL APPROACH TERMINAL TYPES 1B & 1T (SRT, FLEAT & X-LITE-FLARED)

F.H.W.A. APPROVAL

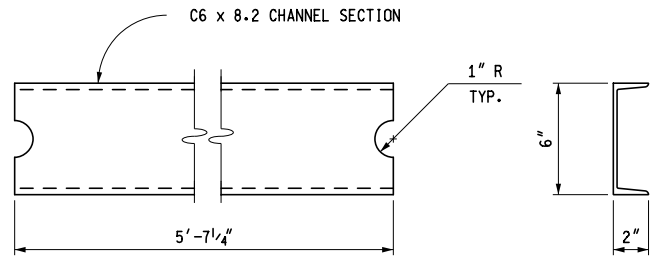
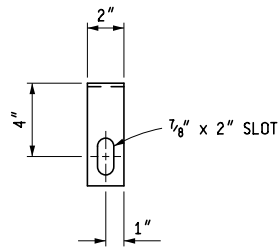
1-9-2017
PLAN DATE

R-61-H

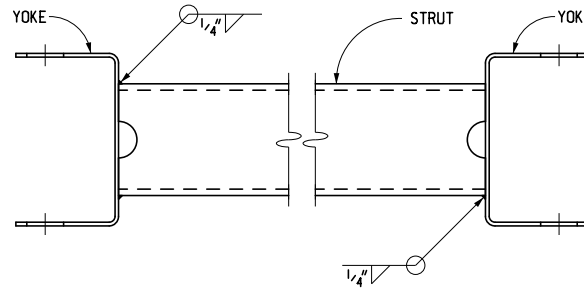
SHEET
6 OF 20



YOKE DETAIL



STRUT DETAIL

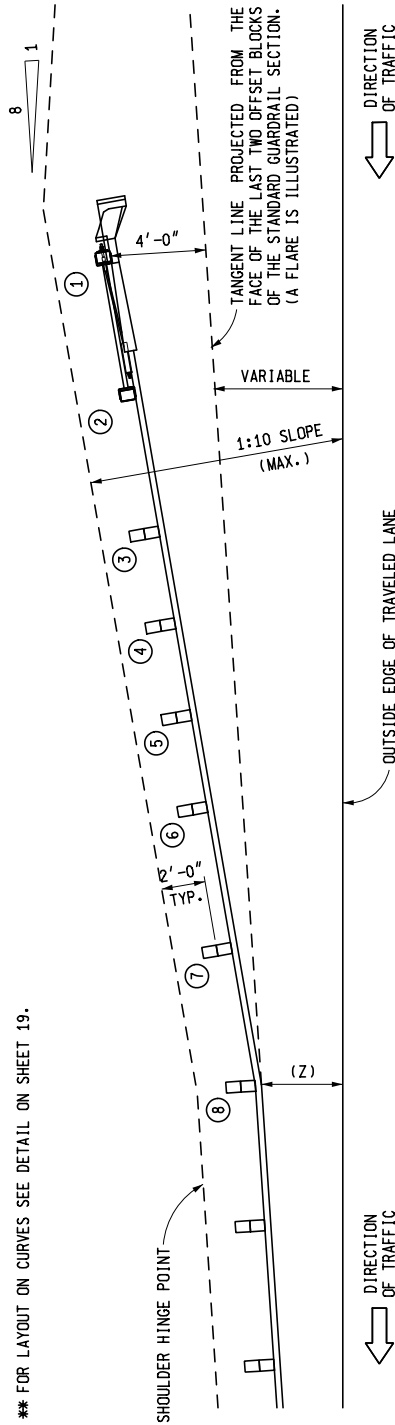


ASSEMBLY DETAIL
STRUT AND YOKE ASSEMBLY
(SRT)

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR		
GUARDRAIL APPROACH TERMINAL TYPES 1B & 1T (SRT, FLEAT & X-LITE-FLARED)		
F.H.W.A. APPROVAL	1-9-2017 PLAN DATE	R-61-H
		SHEET 7 OF 20

POST	** POST OFFSET DISTANCE (FROM TANGENT LINE TO CENTER OF POST)
1	52"
2	44"
3	44"
4	38 11/16"
5	33 5/16"
6	28"
7	20"
8	12"

POSTS ARE TO BE SET APPROXIMATELY TANGENT TO THE
BEAM ELEMENT AT EACH POST LOCATION.
** FOR LAYOUT ON CURVES SEE DETAIL ON SHEET 19.

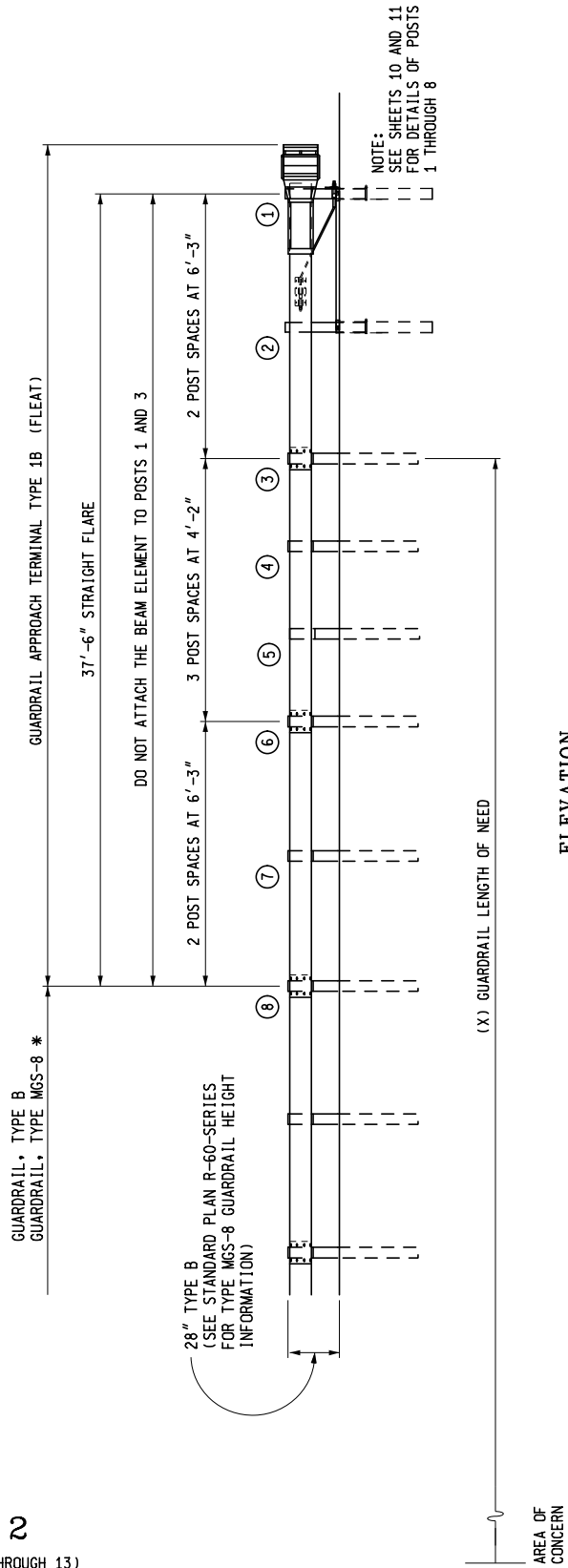


PLAN VIEW

* SEE STANDARD PLAN R-60-SERIES FOR POST SPACING AND GUARDRAIL
LAYOUT TO TRANSITION FROM GUARDRAIL, TYPE MGS-8 TO GUARDRAIL
APPROACH TERMINAL TYPE 1B

OPTION 2

(DETAILED ON SHEETS 8 THROUGH 13)

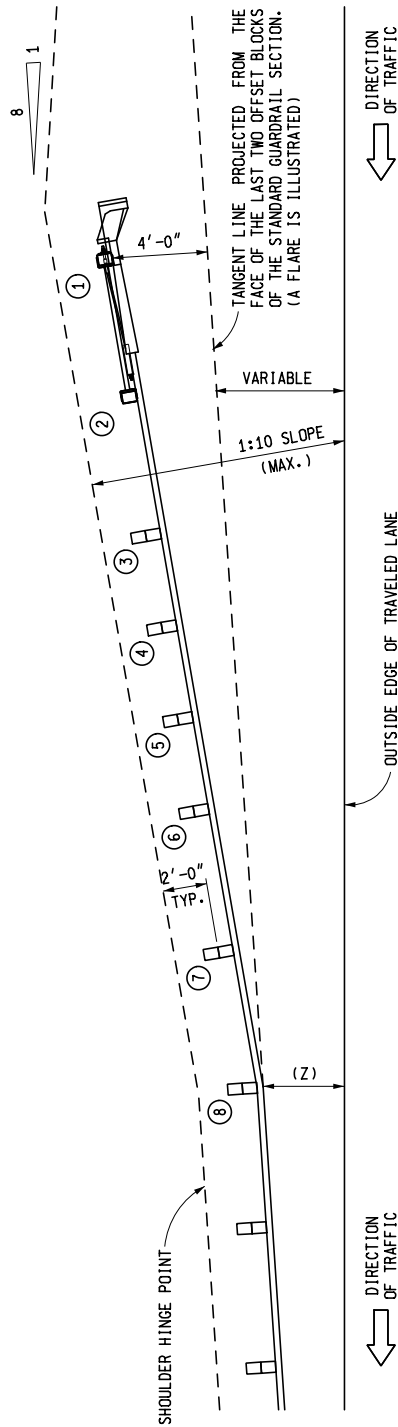


GUARDRAIL APPROACH TERMINAL TYPE 1B "FLEAT"

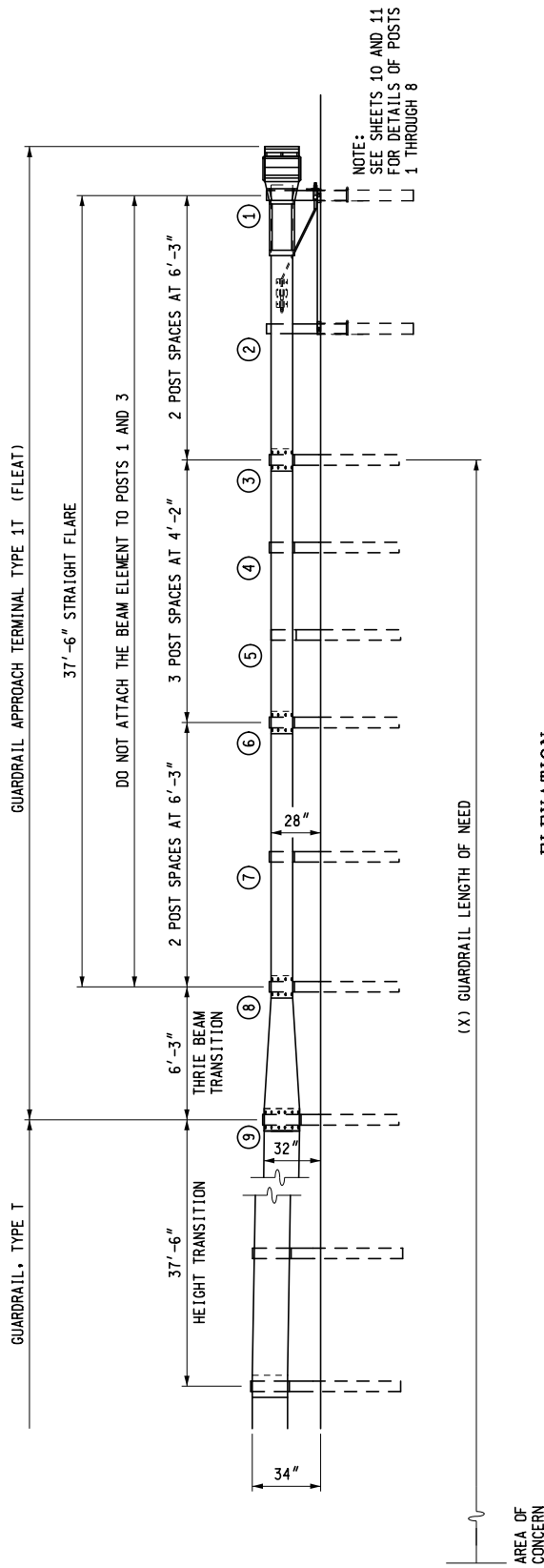
POST	** POST OFFSET DISTANCE (FROM TANGENT LINE TO CENTER OF POST)
1	52"
2	44"
3	44"
4	38 11/16"
5	33 5/16"
6	28"
7	20"
8	12"

POSTS ARE TO BE SET APPROXIMATELY TANGENT TO THE
BEAM ELEMENT AT EACH POST LOCATION.

** FOR LAYOUT ON CURVES SEE DETAIL ON SHEET 19.



PLAN VIEW



GUARDRAIL APPROACH TERMINAL TYPE 1T
"FLEAT"

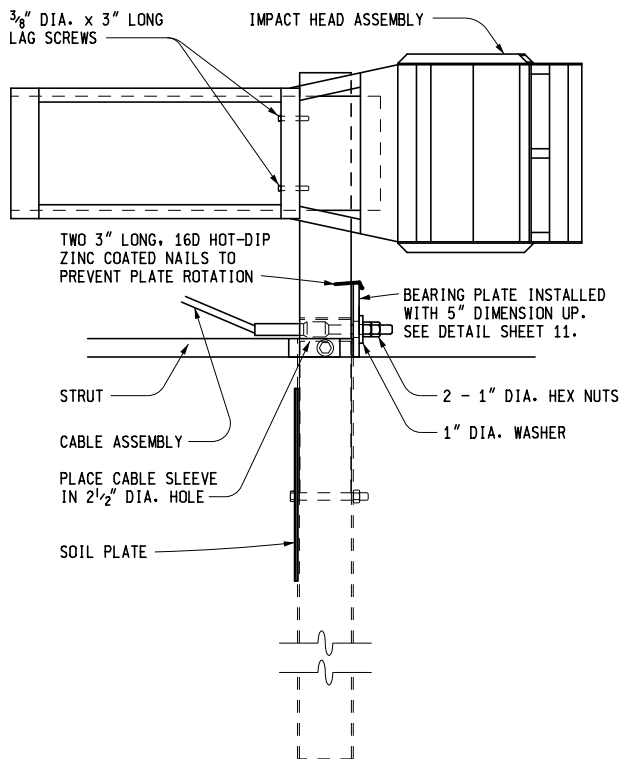
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR
**GUARDRAIL APPROACH
TERMINAL TYPES 1B & 1T
(SRT, FLEAT & X-LITE-FLARED)**

F.H.W.A. APPROVAL

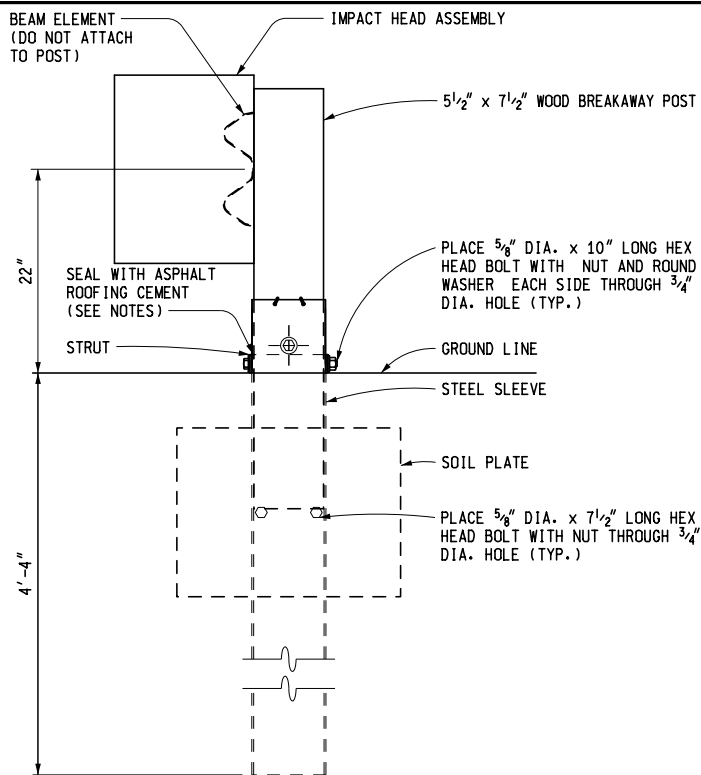
1-9-2017
PLAN DATE

R-61-H

SHEET
9 OF 20

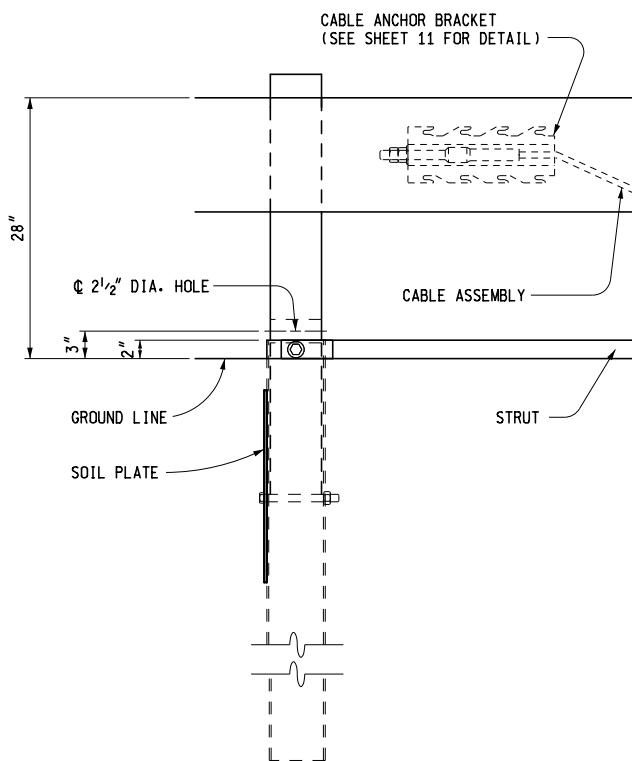


ELEVATION

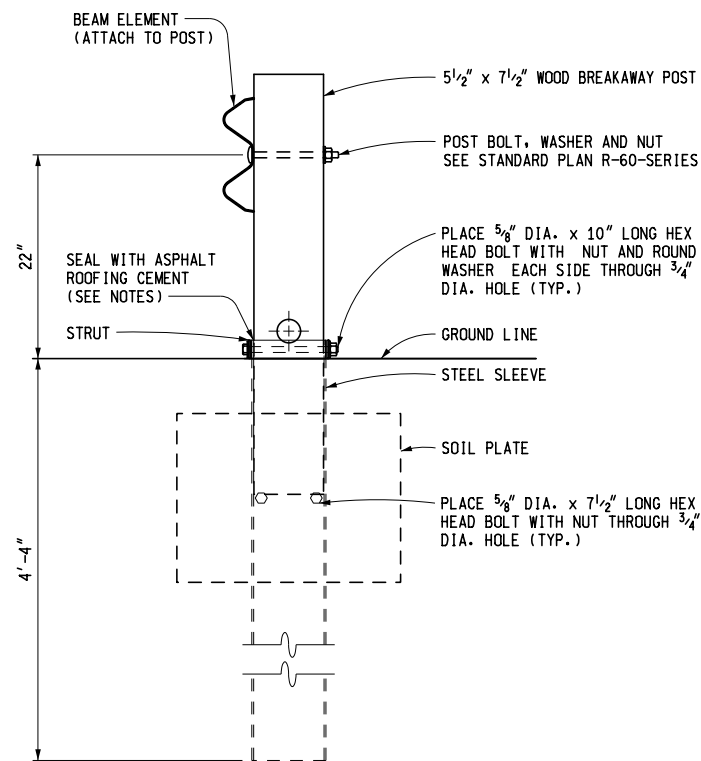


SIDE

POST 1 DETAIL
(FLEAT)



ELEVATION



SIDE

POST 2 DETAIL
(FLEAT)

NOTES:

AFTER THE CABLE ASSEMBLY IS TAUT, A SECOND NUT SHALL BE INSTALLED ON EACH END OF THE CABLE SO THAT THE CABLE WILL NOT LOOSEN.

ASPHALT ROOFING CEMENT SHALL BE USED TO SEAL THE PERIMETER AREA BETWEEN THE STEEL SLEEVE (SOIL TUBE) AND THE WOOD BREAKAWAY POST.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

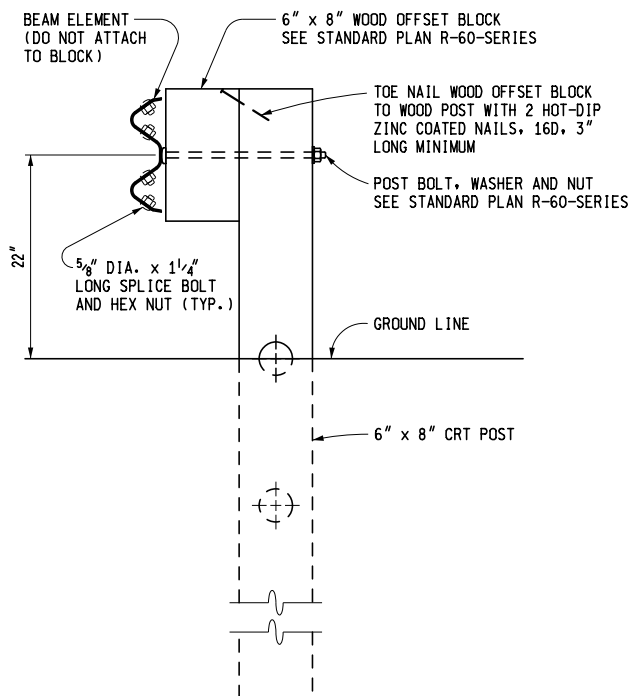
**GUARDRAIL APPROACH
TERMINAL TYPES 1B & 1T
(SRT, FLEAT & X-LITE-FLARED)**

F.H.W.A. APPROVAL

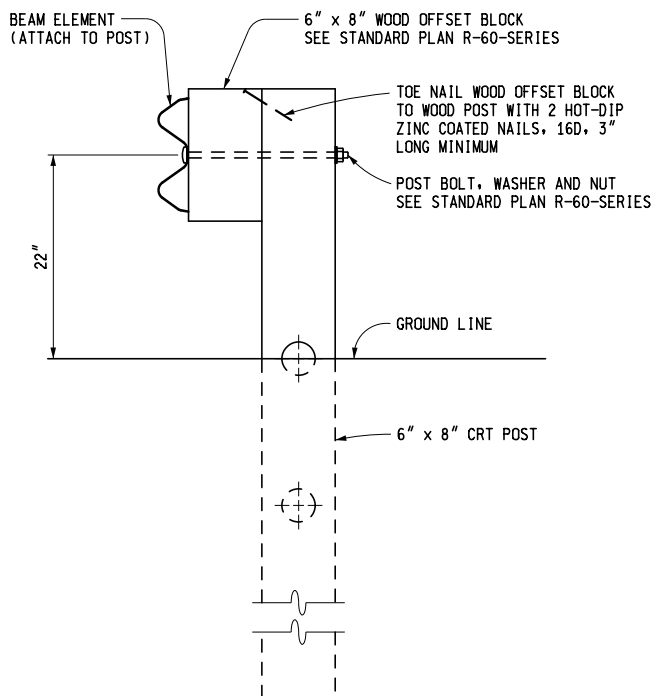
1-9-2017
PLAN DATE

R-61-H

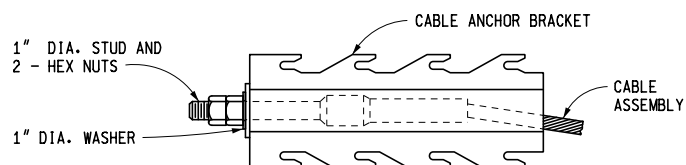
SHEET
10 OF 20



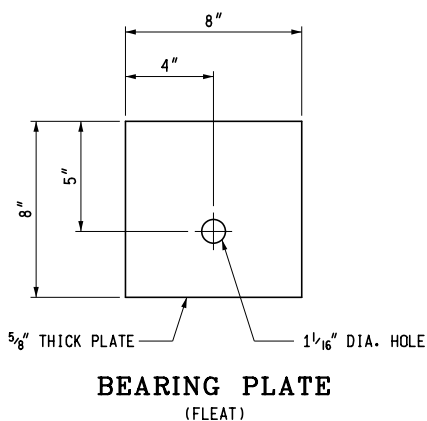
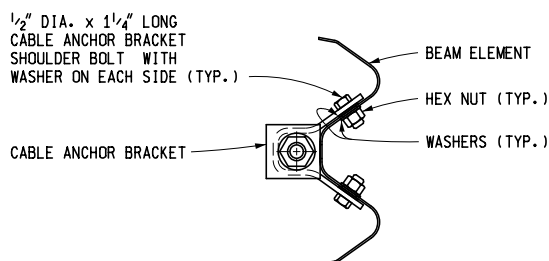
POST 3 DETAIL
(FLEAT)



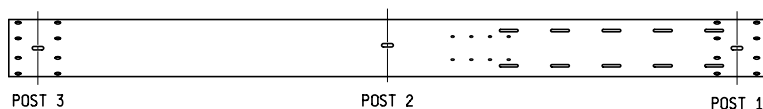
POST 4 THROUGH 7 DETAIL
(FLEAT)



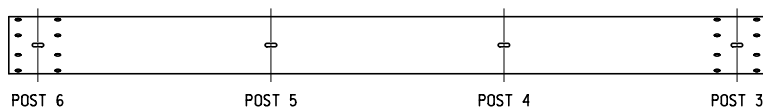
CABLE ANCHOR BRACKET DETAIL
(FLEAT)



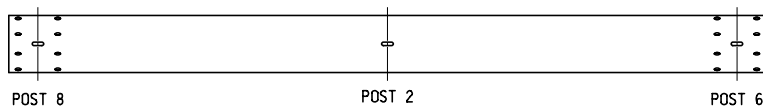
BEARING PLATE
(FLEAT)



BEAM ELEMENT #1 (SLOTTED RAIL)
(POST 1 THROUGH 3)
(FLEAT)



BEAM ELEMENT #2 WITH 4 POST BOLT SLOTS
(POST 3 THROUGH 6)
(FLEAT)



BEAM ELEMENT #3 WITH 3 POST BOLT SLOTS
(POST 6 THROUGH 8)
(FLEAT)

NOTES:

POST 8 IS A STANDARD LINE POST.

ALL "FLEAT" ITEMS ILLUSTRATED WITHOUT DIMENSIONS SHALL BE ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

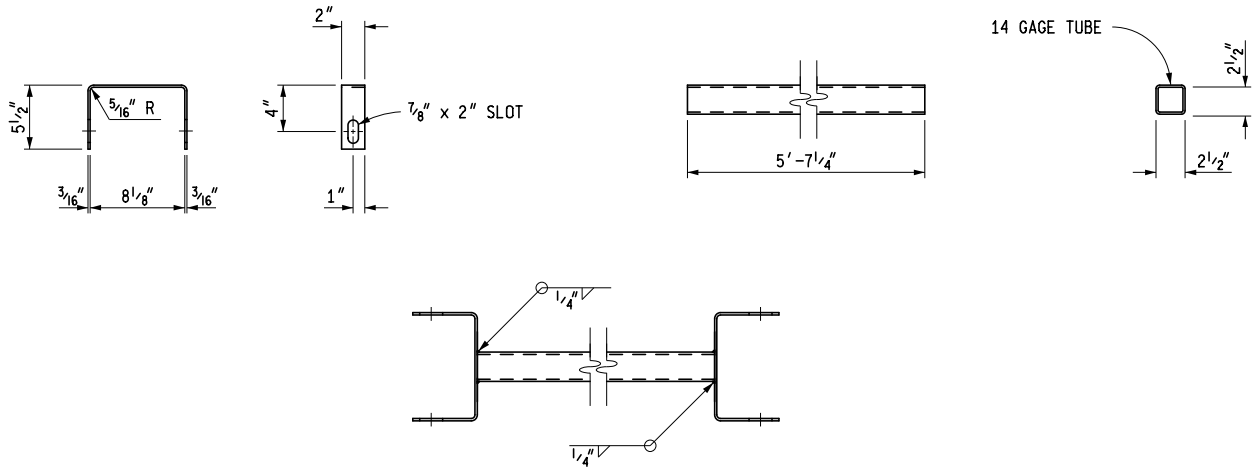
**GUARDRAIL APPROACH
TERMINAL TYPES 1B & 1T
(SRT, FLEAT & X-LITE-FLARED)**

F.H.W.A. APPROVAL

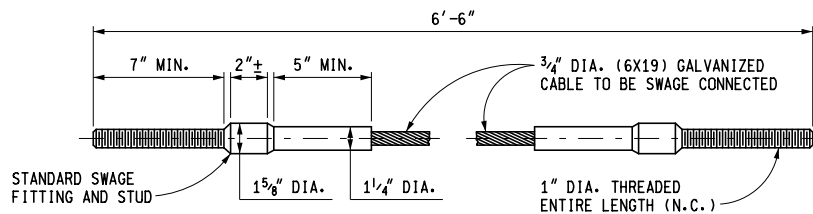
1-9-2017
PLAN DATE

R-61-H

SHEET
11 OF 20



ASSEMBLY DETAIL
STRUT DETAILS
(FLEAT)



CABLE ASSEMBLY
(SRT, FLEAT AND X-LITE-FLARED)

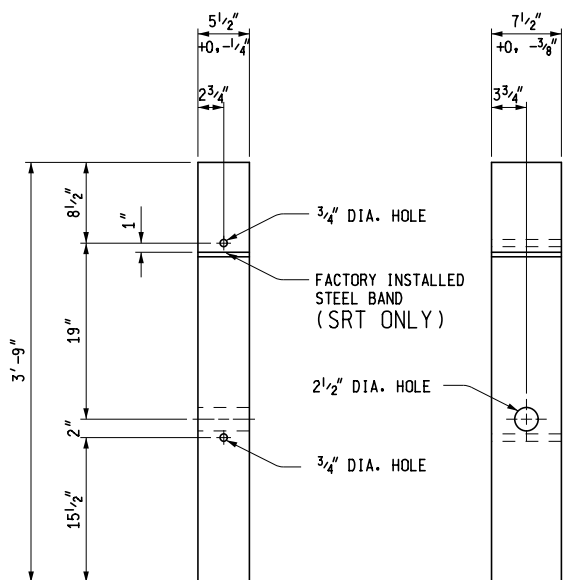
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR
**GUARDRAIL APPROACH
TERMINAL TYPES 1B & 1T
(SRT, FLEAT & X-LITE-FLARED)**

F.H.W.A. APPROVAL

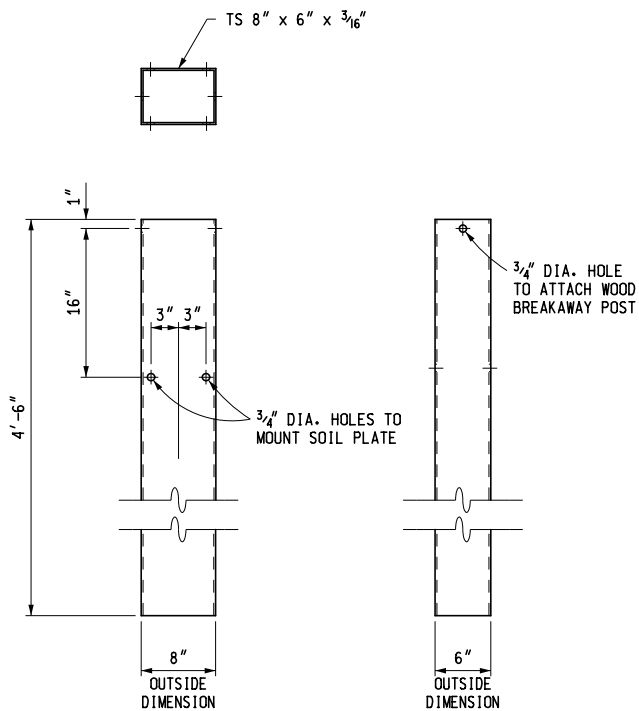
1-9-2017
PLAN DATE

R-61-H

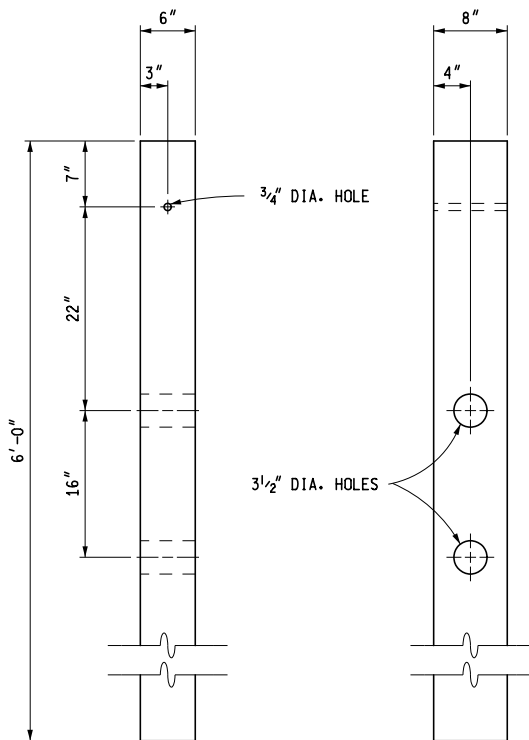
SHEET
12 OF 20



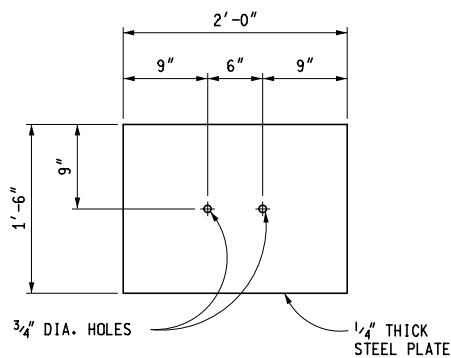
WOOD BREAKAWAY POST



STEEL SLEEVE



CRT POST



SOIL PLATE



CABLE SLEEVE
(FOR POST 1)

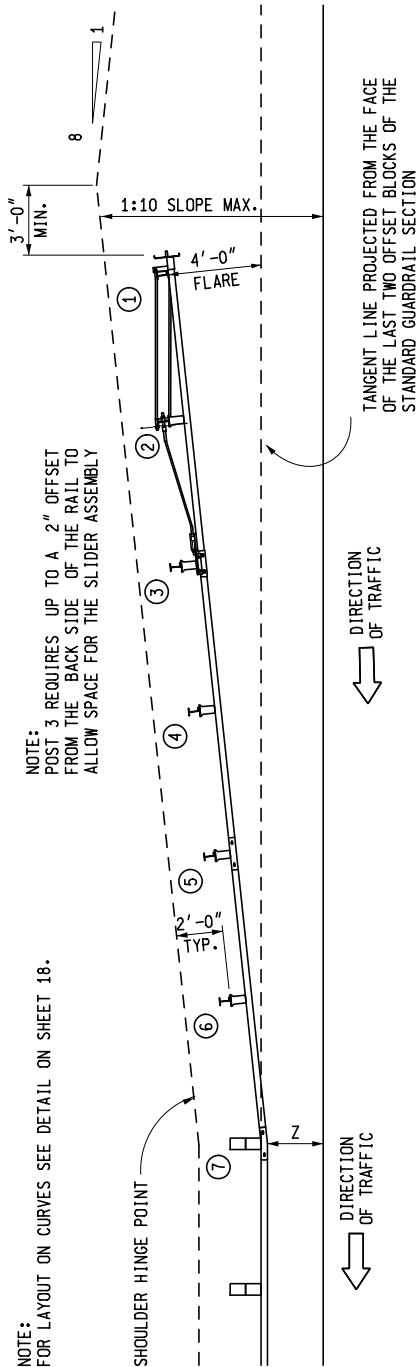
NOTES:

DETAILS ON THIS SHEET APPLY TO THE "SRT" AND "FLEAT" UNLESS OTHERWISE NOTED.

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR			
GUARDRAIL APPROACH TERMINAL TYPES 1B & 1T (SRT, FLEAT & X-LITE-FLARED)			
F.H.W.A. APPROVAL	1-9-2017 PLAN DATE	R-61-H	SHEET 13 OF 20

TRAILING END

NOTE:
FOR LAYOUT ON CURVES SEE DETAIL ON SHEET 18.

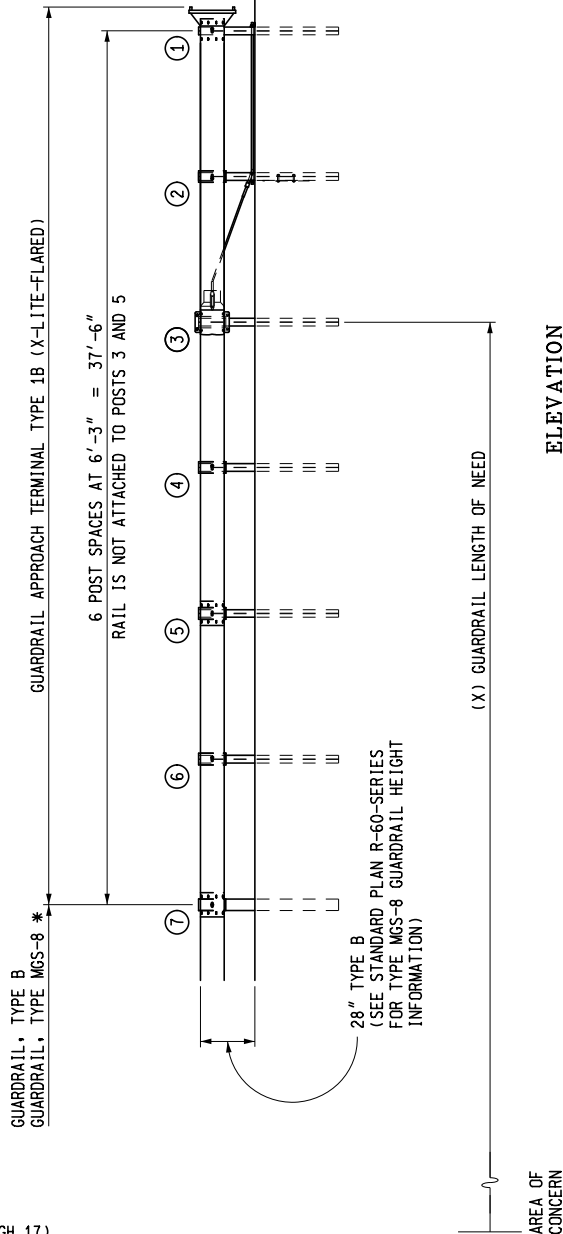


PLAN VIEW

* SEE STANDARD PLAN R-60-SERIES FOR POST SPACING AND GUARDRAIL LAYOUT TO TRANSITION FROM GUARDRAIL, TYPE MGS-8 TO GUARDRAIL APPROACH TERMINAL TYPE 1B

OPTION 3

(DETAILED ON SHEETS 13 THROUGH 17)



ELEVATION

GUARDRAIL APPROACH TERMINAL TYPE 1B "X-LITE-FLARED"

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR
**GUARDRAIL APPROACH
TERMINAL TYPES 1B & 1T
(SRT, FLEAT & X-LITE-FLARED)**

F.H.W.A. APPROVAL

1-9-2017
PLAN DATE

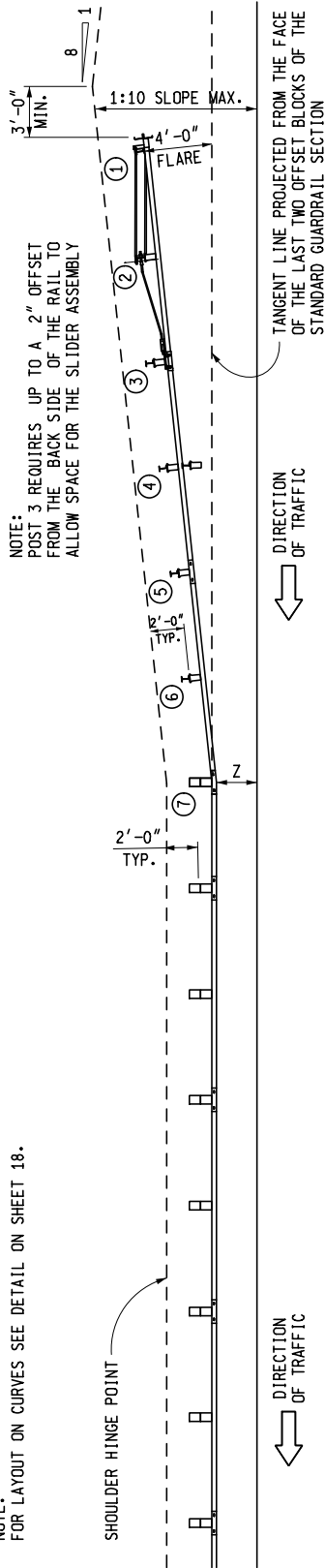
R-61-H

SHEET
14 OF 20

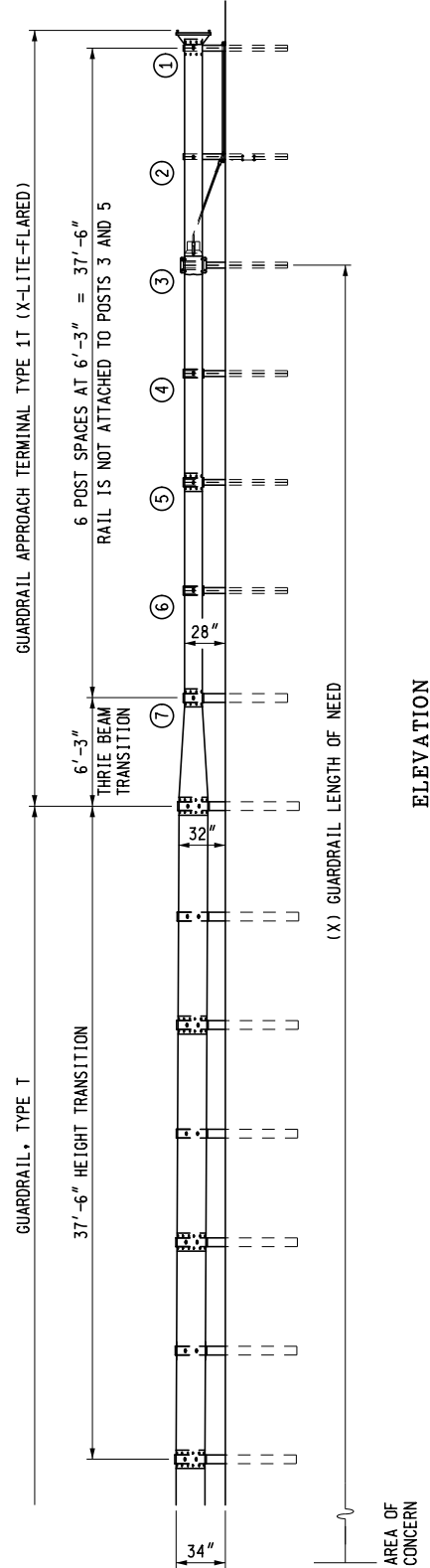
TRAILING END

APPROACH END

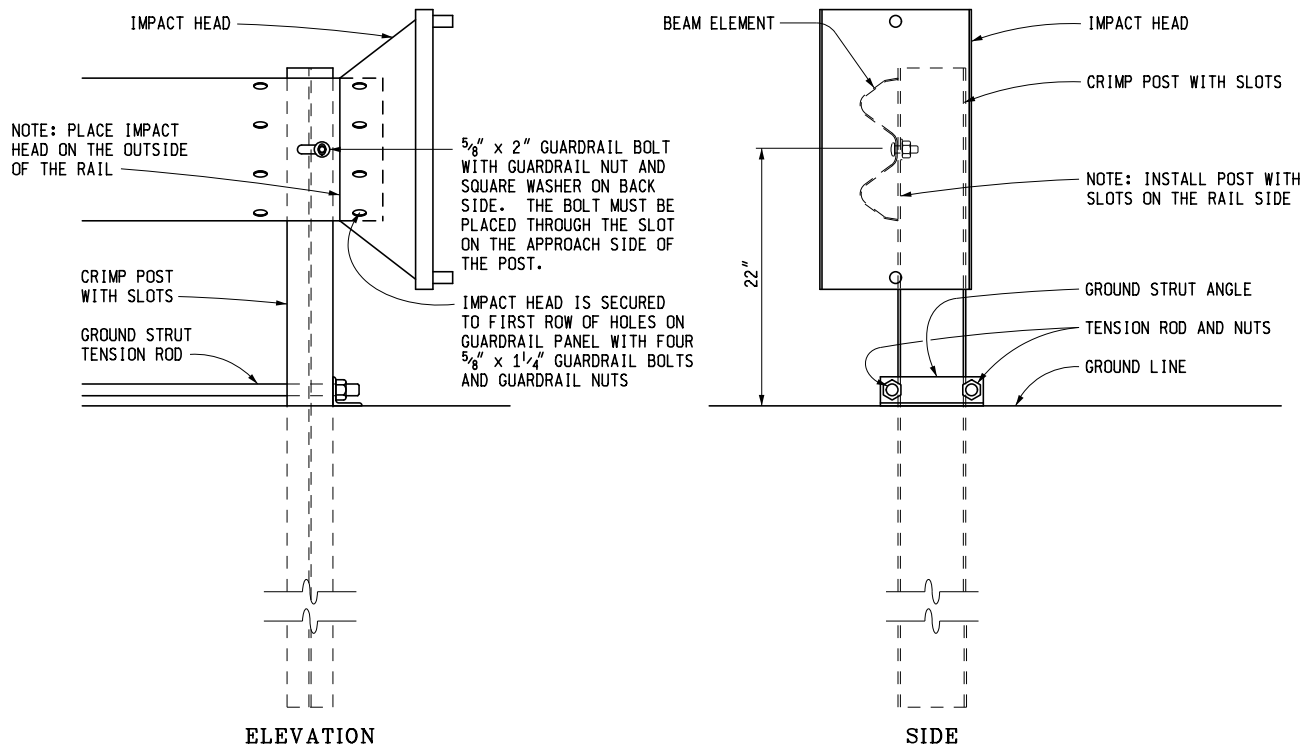
NOTE:
FOR LAYOUT ON CURVES SEE DETAIL ON SHEET 18.



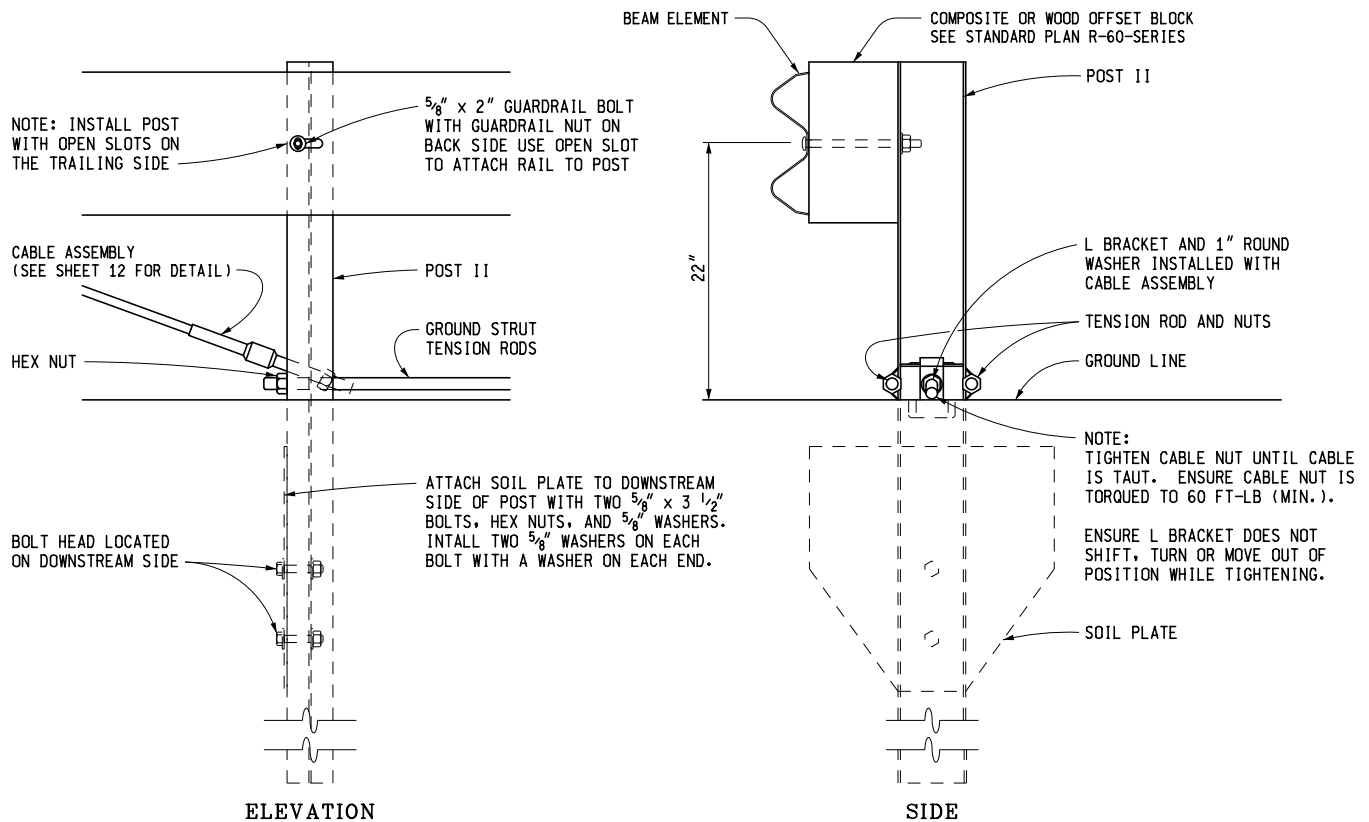
PLAN VIEW



GUARDRAIL APPROACH TERMINAL TYPE 1T
"X-LITE-FLARED"



POST 1 DETAIL

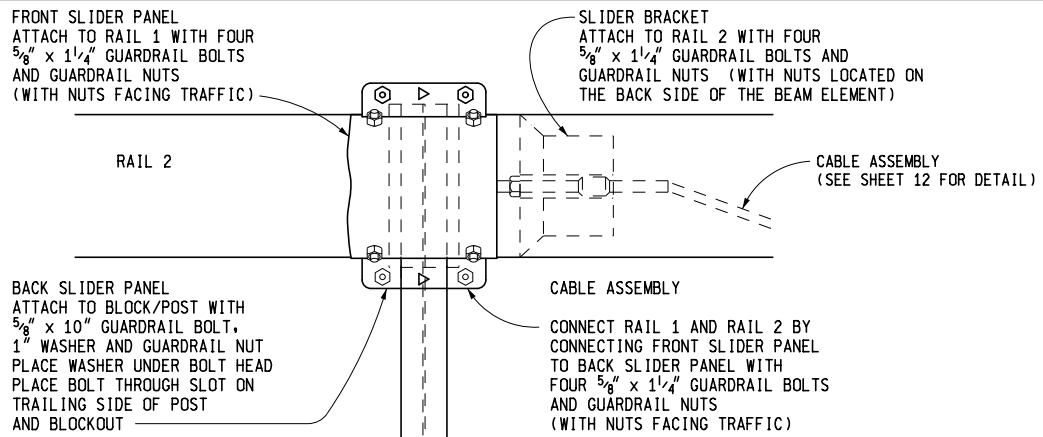


POST 2 DETAIL

NOTE:

DETAILS ON THIS SHEET ONLY APPLY TO "X-LITE-FLARED".

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR			
GUARDRAIL APPROACH TERMINAL TYPES 1B & 1T (SRT, FLEAT & X-LITE-FLARED)			
F.H.W.A. APPROVAL	1-9-2017 PLAN DATE	R-61-H	SHEET 16 OF 20



NOTES:

POST 3 REQUIRES UP TO AN ADDITIONAL 2" OFFSET BETWEEN THE RAIL AND THE OFFSET BLOCK TO ALLOW SPACE FOR THE SLIDER ASSEMBLY.

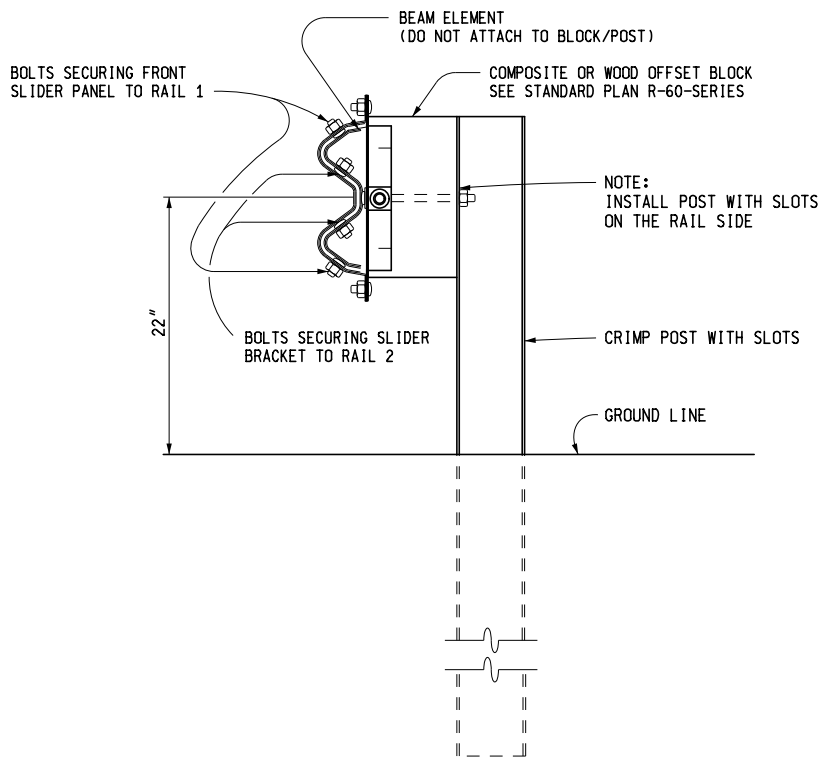
POST 3 REQUIRES GUARDRAIL BOLT TO BE ATTACHED TO SLOT ON TRAILING SIDE OF THE POST.

ENSURE OPEN END OF THE SLOT ON THE BACK SLIDER PANEL IS POINTING TOWARD THE APPROACH END.

ENSURE ANGLED PORTION OF THE FRONT SLIDER PANEL EXTENDS BEYOND THE END OF THE RAIL 1, AND IS FACING THE TRAILING END OF THE TERMINAL.

ARROWS ON FRONT AND BACK SLIDER PANELS NEED TO POINT TOWARD THE APPROACH END OF THE TERMINAL.

ELEVATION



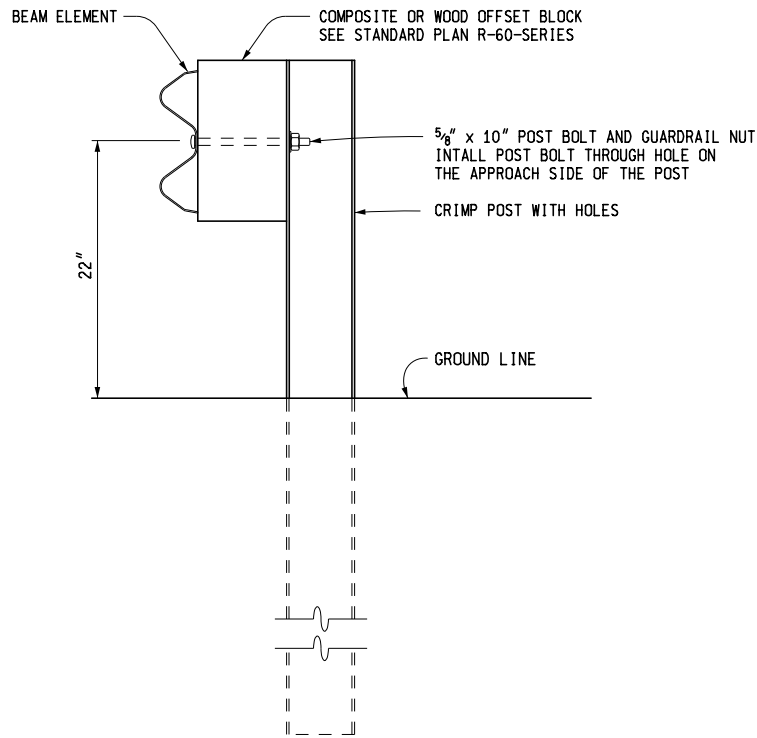
SIDE

POST 3 DETAIL

NOTE:

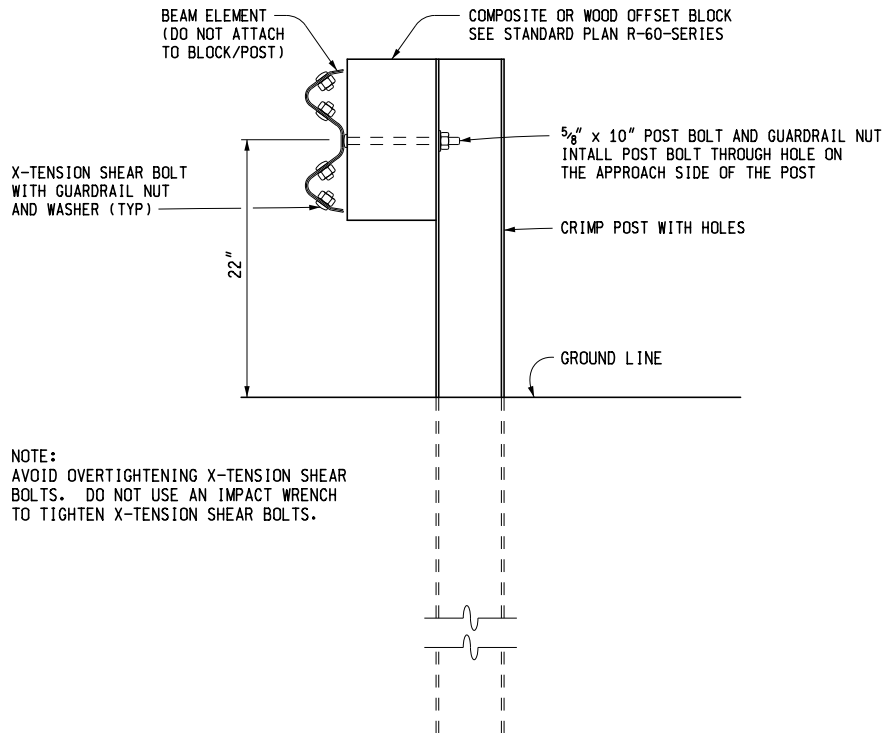
DETAILS ON THIS SHEET ONLY APPLY TO "X-LITE-FLARED".

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR		
GUARDRAIL APPROACH TERMINAL TYPES 1B & 1T (SRT, FLEAT & X-LITE-FLARED)		
F.H.W.A. APPROVAL	1-9-2017 PLAN DATE	R-61-H SHEET 17 OF 20



POST 4 AND 6 DETAIL

NOTE:
OVERLAP BEAM ELEMENTS WITH ELEMENTS
ON THE APPROACH END OVER ELEMENTS
ON THE TRAILING END.



NOTE:
AVOID OVERTIGHTENING X-TENSION SHEAR
BOLTS. DO NOT USE AN IMPACT WRENCH
TO TIGHTEN X-TENSION SHEAR BOLTS.

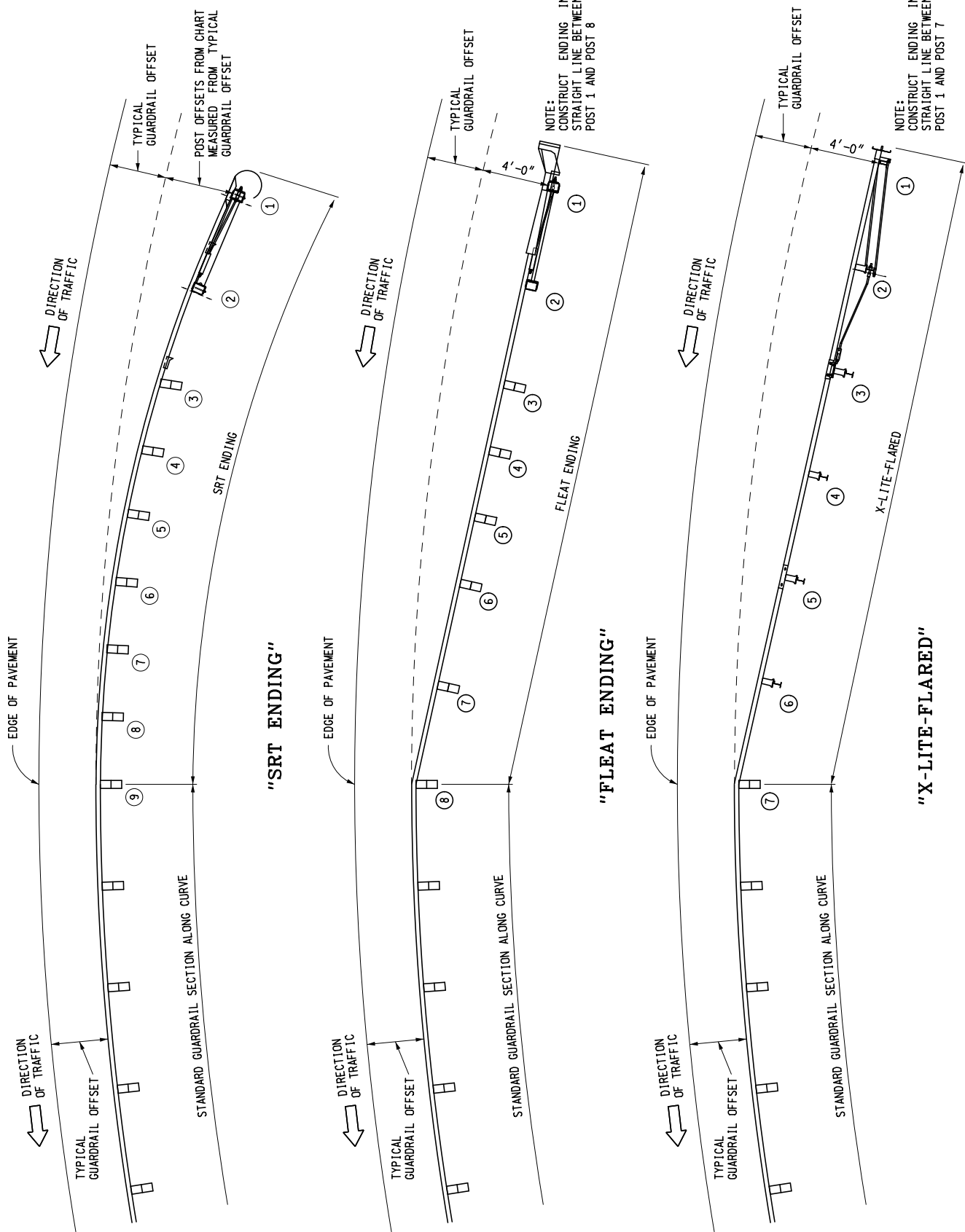
POST 5

NOTE:
POST 7 IS A STANDARD LINE POST.

NOTE:

DETAILS ON THIS SHEET ONLY APPLY TO "X-LITE-FLARED".

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR		
GUARDRAIL APPROACH TERMINAL TYPES 1B & 1T (SRT, FLEAT & X-LITE-FLARED)		
F.H.W.A. APPROVAL	1-9-2017 PLAN DATE	R-61-H SHEET 18 OF 20



LOCATION OF APPROACH GUARDRAIL ON CURVES

NOTES:

ALL POSTS, OFFSET BLOCKS, BEAM ELEMENTS, AND HARDWARE (INCLUDING BOLTS, NUTS, AND WASHERS) SHALL CONFORM TO THE CURRENT STANDARD SPECIFICATIONS AND TO THE CURRENT STANDARD PLAN R-60-SERIES, WHERE APPLICABLE, EXCEPT AS SPECIFIED ON THIS STANDARD.

ALL 1:10 SLOPES SHALL BE GRADED TO CLASS A SLOPE TOLERANCES.

GUARDRAIL REFLECTORS AND OTHER ATTACHMENTS ARE NOT TO BE USED ON THE GUARDRAIL APPROACH TERMINAL. PLACE REFLECTORS BEGINNING ON STANDARD RUN OF GUARDRAIL.

USE REFLECTIVE SHEETING ACCORDING TO THE FOLLOWING TRAFFIC CONDITIONS:
(NOTE: ALTERNATE 3" BLACK AND 3" YELLOW STRIPES ON A 45° ANGLE)



TRAFFIC PASSING ON
THE LEFT SIDE



TRAFFIC PASSING ON
BOTH SIDES



TRAFFIC PASSING ON
THE RIGHT SIDE

ON THE "SRT", THE CURVED PORTION OF THE TERMINAL END SHOE FACING TRAFFIC (HALF CIRCLE) SHALL BE COMPLETELY COVERED WITH HIGH INTENSITY ADHESIVE REFLECTIVE SHEETING.

ON THE "FLEAT" AND "X-LITE-FLARED", THE PORTION OF THE IMPACT HEAD ASSEMBLY FACING TRAFFIC SHALL BE COMPLETELY COVERED WITH HIGH INTENSITY ADHESIVE REFLECTIVE SHEETING.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**GUARDRAIL APPROACH
TERMINAL TYPES 1B & 1T
(SRT, FLEAT & X-LITE-FLARED)**

F.H.W.A. APPROVAL

1-9-2017
PLAN DATE

R-61-H

SHEET
20 OF 20