

7-06

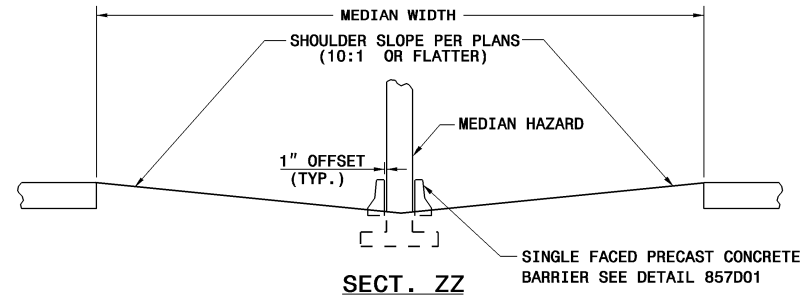
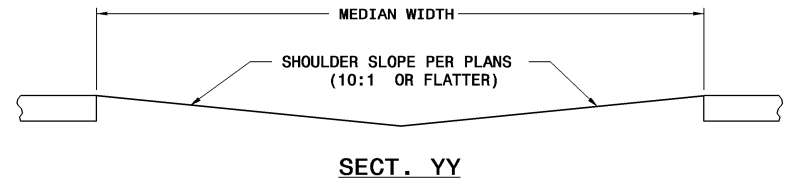
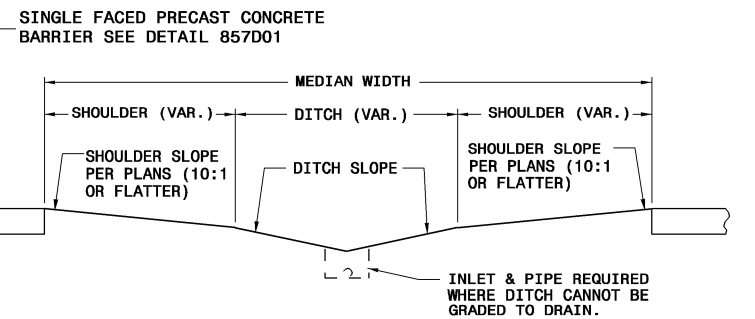
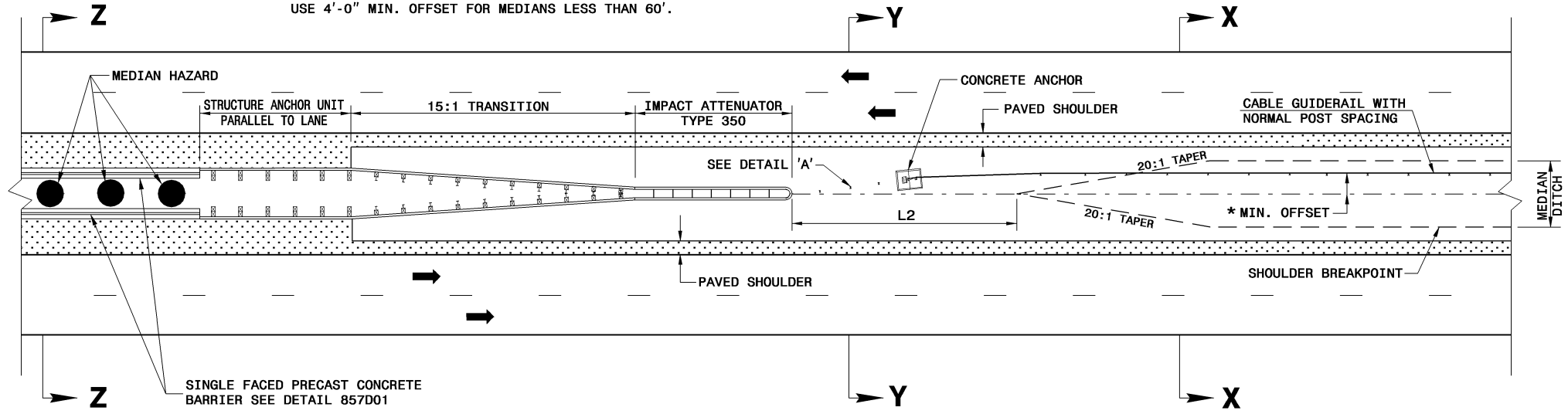
ENGLISH STANDARD DRAWING FOR

CABLE GUIDERAIL
MEDIAN HAZARD GUIDERAIL LAYOUT

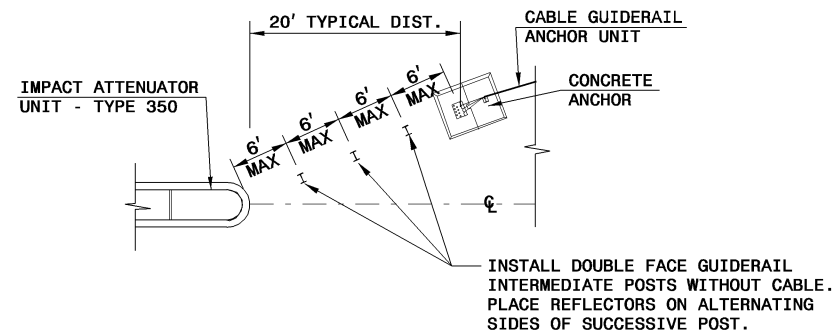
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ENGLISH STANDARD DRAWING FOR
CABLE GUIDERAIL
MEDIAN HAZARD GUIDERAIL LAYOUT

★ OFFSET GUIDERAIL TO EITHER SIDE OF MEDIAN ϕ .
USE 8'-0" MIN. OFFSET FOR MEDIANS 60' AND OVER.
USE 4'-0" MIN. OFFSET FOR MEDIANS LESS THAN 60'.



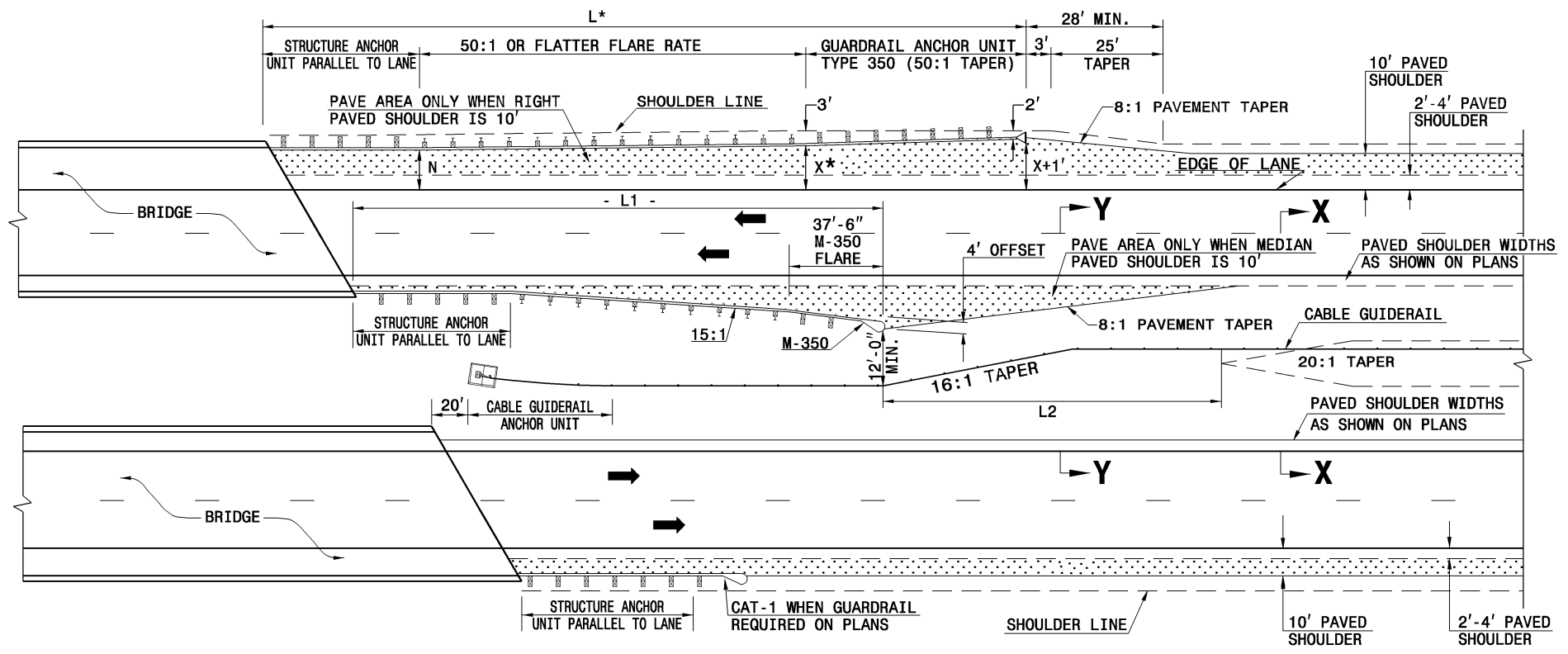
LIMITS OF -L2-	
MEDIAN WIDTH	-L2- DIMENSION
30'	80.0'
36'	60.0'
40' & ABOVE	40.0'



NOTE: POSTS WILL ONLY BE PLACED IN ONE OF THE TWO OPENINGS AT EACH MEDIAN HAZARD UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

DETAIL OF TREATMENT AT MEDIAN HAZARDS

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DIMENSIONS FOR LENGTH OF GUARDRAIL APPROACHING DUAL LANE BRIDGES

MEDIAN WIDTH	-L-*			-L1-			-L2- DIM.
	70 MPH	60 MPH	50 MPH	70 MPH	60 MPH	50 MPH	
46' & ABOVE	300.0'	250.0'	150.0'	212.5'	187.5'	137.5'	40.0'

NOTES: * BASED ON "X" OF 12'
 USE FLARE RATE AS THE CONTROL IF THE "X" DISTANCE IS NOT OBTAINED. ("X" IS BASED ON SHOULDER WIDTHS IN THE HIGHWAY DESIGN BRANCH MANUAL, PART 1, 1-4B, F1A).
 "N"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.
 THE DESIGN LAYOUT FOR LENGTHS SHOWN ON THIS STANDARD ARE MINIMUM DESIGN LENGTHS.
 SEE STANDARD 862.01 SHEET 1 FOR SECTIONS XX, YY
 SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

DETAIL OF CABLE GUIDERAIL AT DUAL LANE BRIDGES

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ENGLISH STANDARD DRAWING FOR

CABLE GUIDERAIL

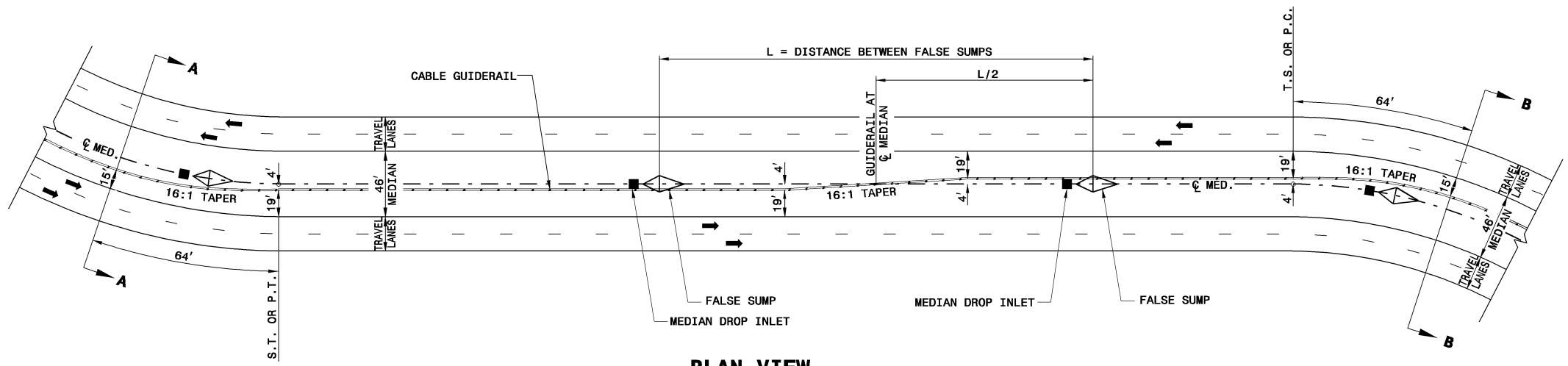
46' MEDIAN GUIDERAIL TRANSITIONS WITH SUPERELEVATION AND/OR FALSE SUMPS

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ENGLISH STANDARD DRAWING FOR

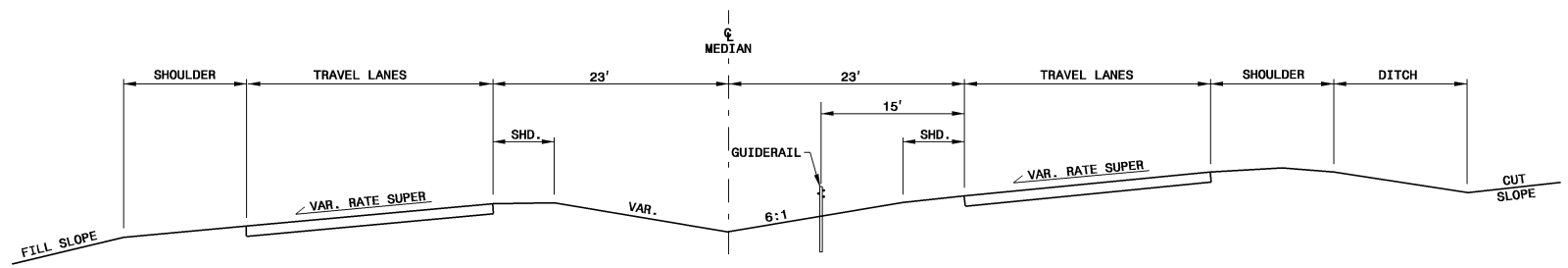
CABLE GUIDERAIL

46' MEDIAN GUIDERAIL TRANSITIONS WITH SUPERELEVATION AND/OR FALSE SUMPS

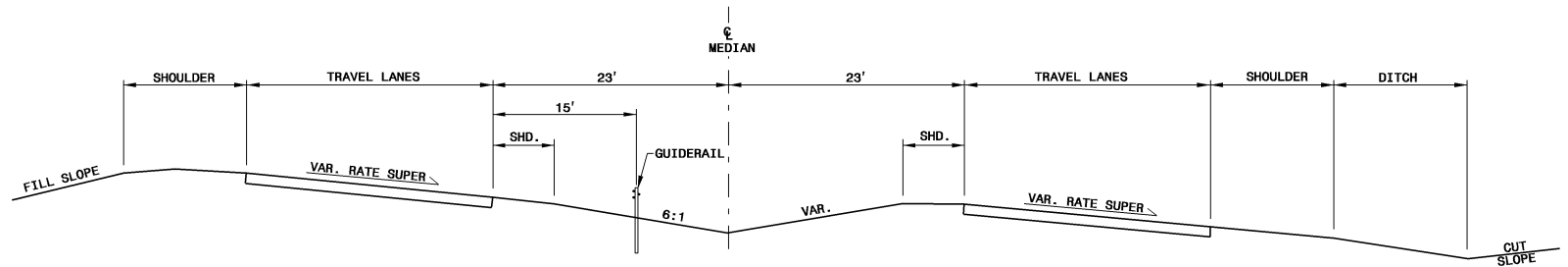


PLAN VIEW

- GENERAL NOTES: 1. FALSE SUMP DETAIL IS APPLICABLE TO ALL MEDIAN WIDTHS.
2. DO NOT TRANSITION GUIDERAIL FOR SUPERELEVATION WHEN THE RATE IS 2 PERCENT OR LESS.
3. DO NOT INSTALL GUIDERAIL ON SLOPES STEEPER THAN 6:1.

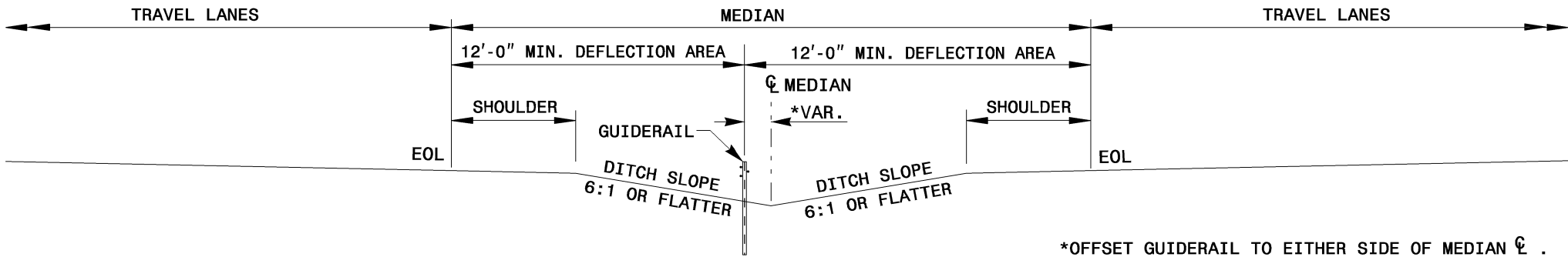


SECTION A-A



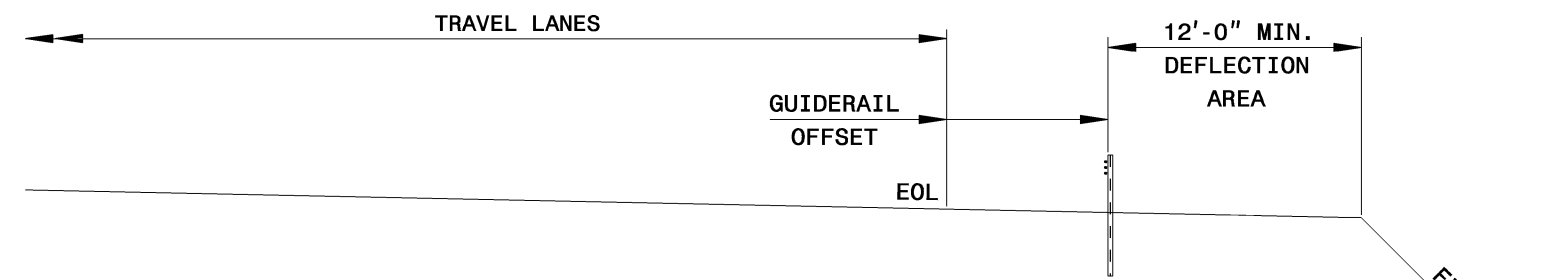
SECTION B-B

46' MEDIAN GUIDERAIL TRANSITIONS WITH SUPERELEVATION AND/OR FALSE SUMPS

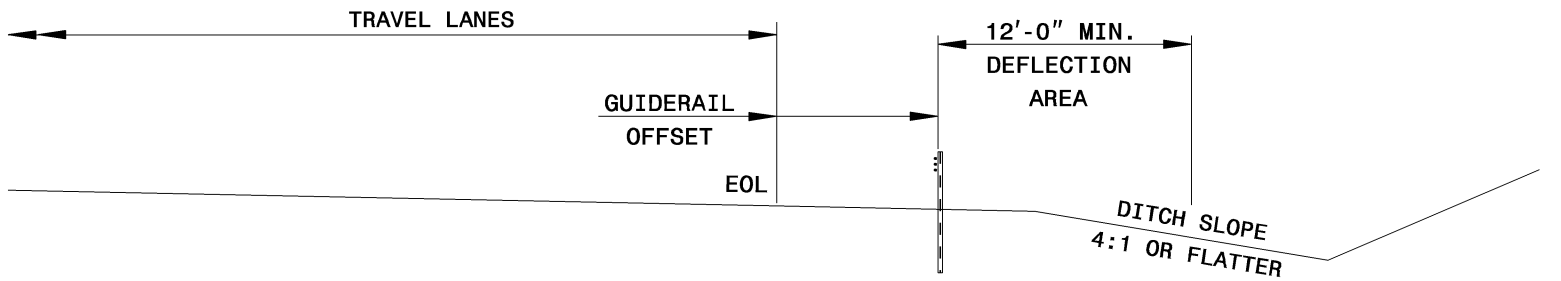


*OFFSET GUIDERAIL TO EITHER SIDE OF MEDIAN ϕ .
 USE 8'-0" MIN. OFFSET FOR MEDIANS 60' AND OVER,
 USE 4'-0" MIN. OFFSET FOR MEDIANS LESS THAN 60'.

TYPICAL SECTION
 (DEFLECTION AREA ON MEDIAN SLOPES)
DOUBLE FACE GUIDERAIL APPLICATION



TYPICAL SECTION
 (DEFLECTION AREA ON SHOULDER ONLY)



TYPICAL SECTION
 (DEFLECTION AREA ON SHOULDER AND DITCH SLOPE)
SINGLE FACE GUIDERAIL APPLICATION

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

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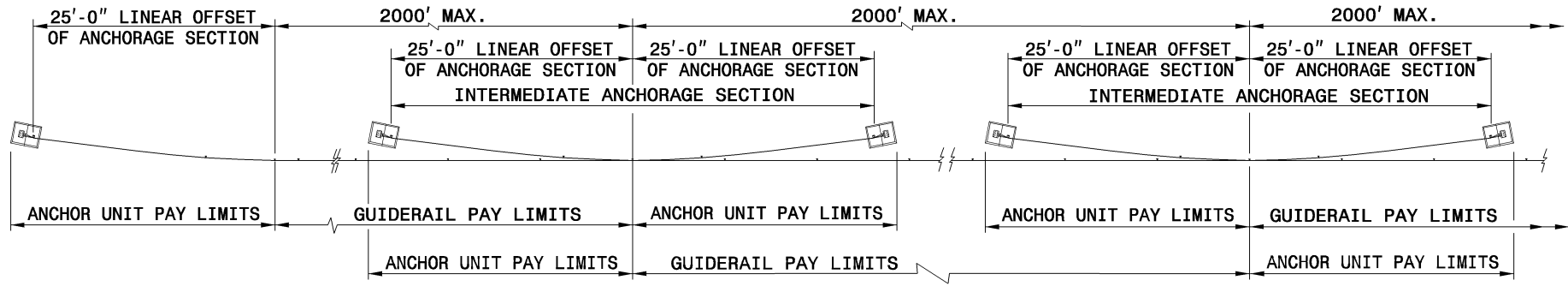
ENGLISH STANDARD DRAWING FOR
CABLE GUIDERAIL
 DESIGN AND PLACEMENT

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

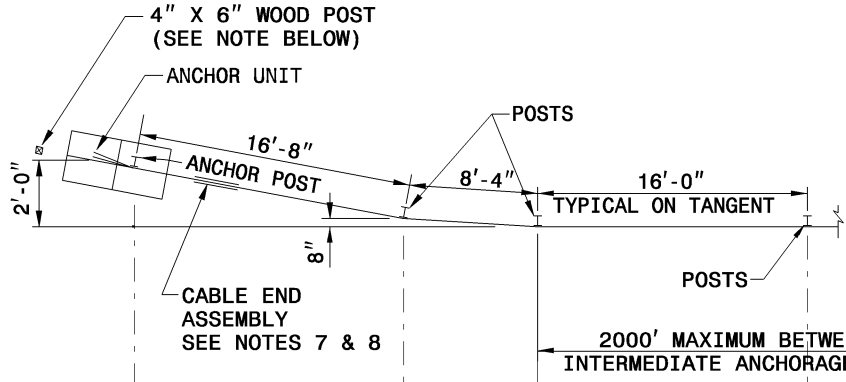
7-06

ENGLISH STANDARD DRAWING FOR
CABLE GUIDERAIL
 DESIGN AND PLACEMENT

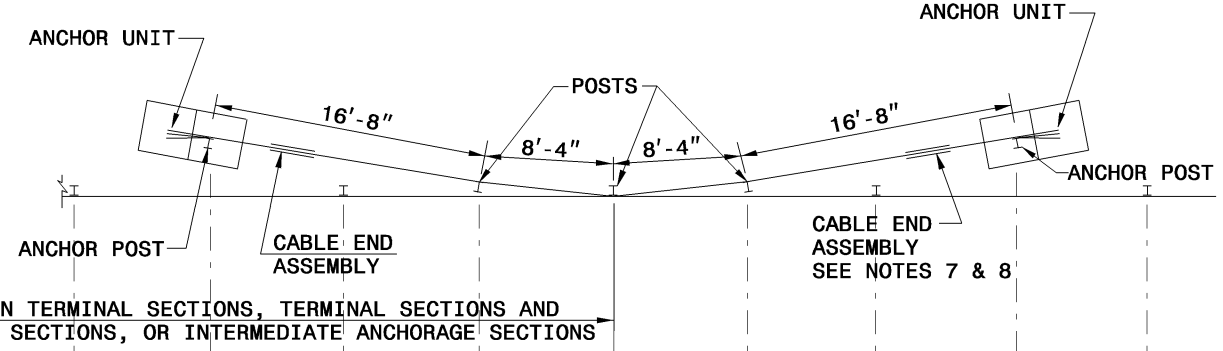
7-06



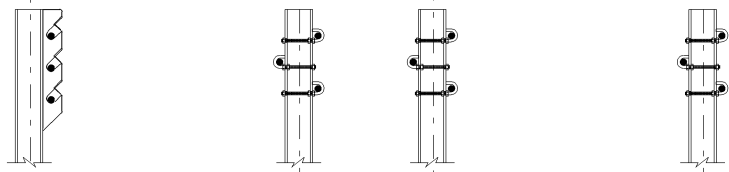
PLAN
TYPICAL LAYOUT



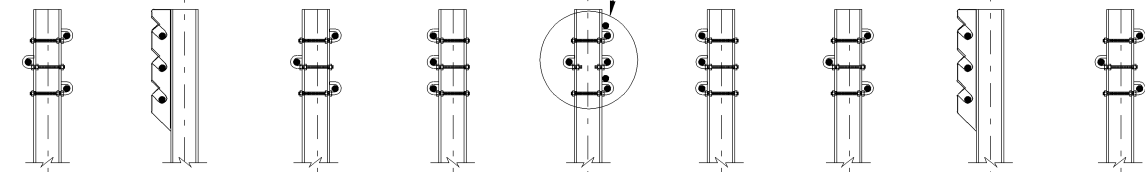
PLAN
TYPICAL APPROACH & TERMINAL SECTIONS



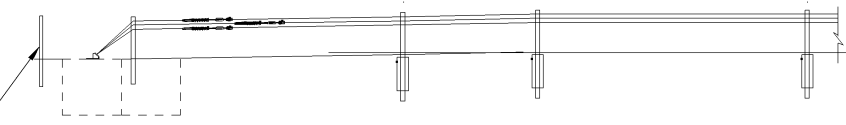
PLAN
TYPICAL INTERMEDIATE ANCHORAGE SECTION



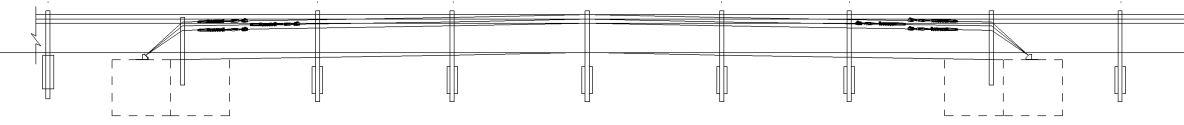
SIDE VIEW SHOWING CABLE WIRE PLACEMENT ON POST



SIDE VIEW SHOWING CABLE WIRE PLACEMENT ON POST



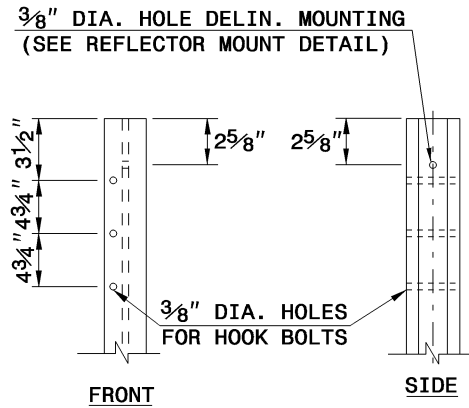
ELEVATION
TYPICAL APPROACH & TERMINAL SECTIONS



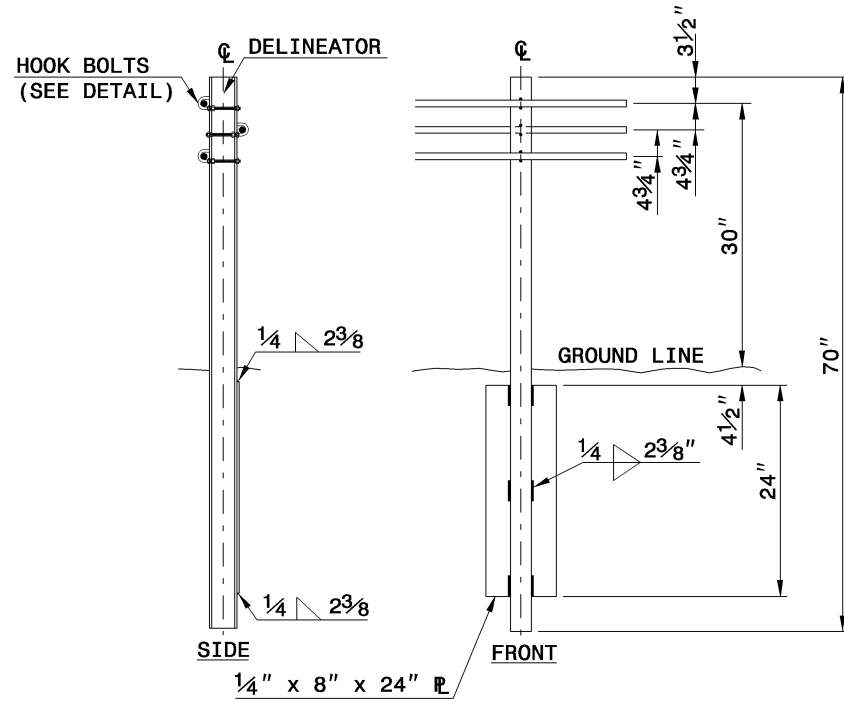
ELEVATION
TYPICAL INTERMEDIATE ANCHORAGE SECTION

WHEN USED AT A DRIVEWAY OR VEHICLE OPENING ONLY PLACE A 4" X 6" X 5'-4" WOOD POST 30" ABOVE GROUND LINE. PLACE POST 6" AHEAD OF CONCRETE ANCHOR.
*PROVIDE OPENINGS ONLY FOR AREAS AS DESIGNATED ON ROADWAY PLAN SHEETS.

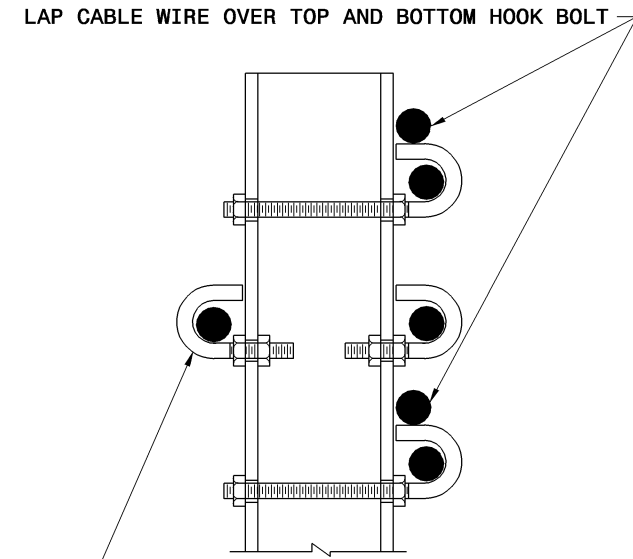
7-06



**DOUBLE FACE GUIDERAIL POST
HOLE PLACEMENT DETAIL
INTERMEDIATE POST**

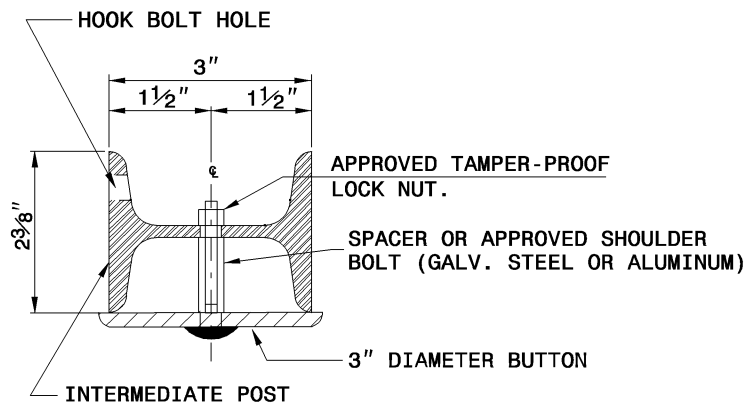


**DOUBLE FACE GUIDERAIL
INTERMEDIATE POST**

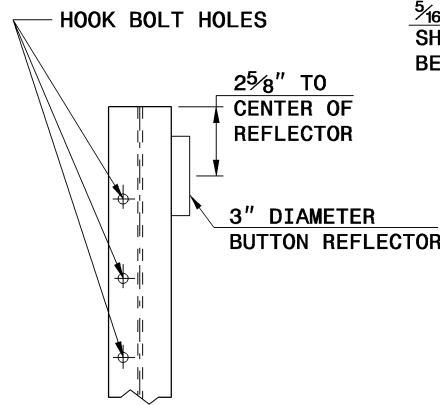


THE CENTER POST IN THE INTERMEDIATE ANCHORAGE SECTION WILL HAVE CABLE WIRE ON BOTH SIDES OF THE MIDDLE STRAND REQUIRING THE USE OF TWO 1 3/4" HOOK BOLTS FOR THIS APPLICATION.

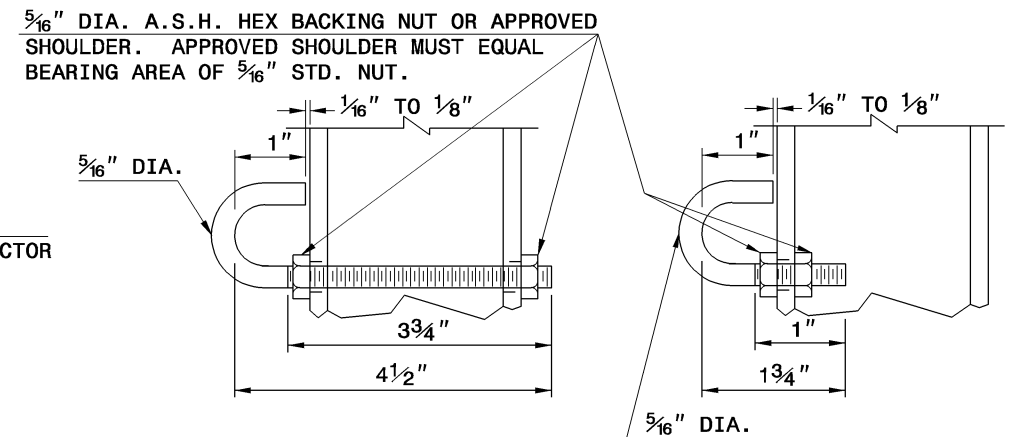
**DETAIL "A" CENTER POST
INTERMEDIATE ANCHORAGE SECTION**



**REFLECTOR MOUNT DETAIL
PLAN VIEW**



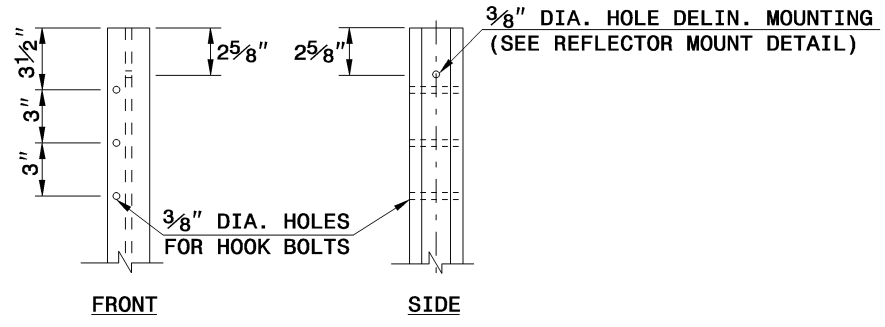
**REFLECTOR MOUNT DETAIL
ELEVATION VIEW**



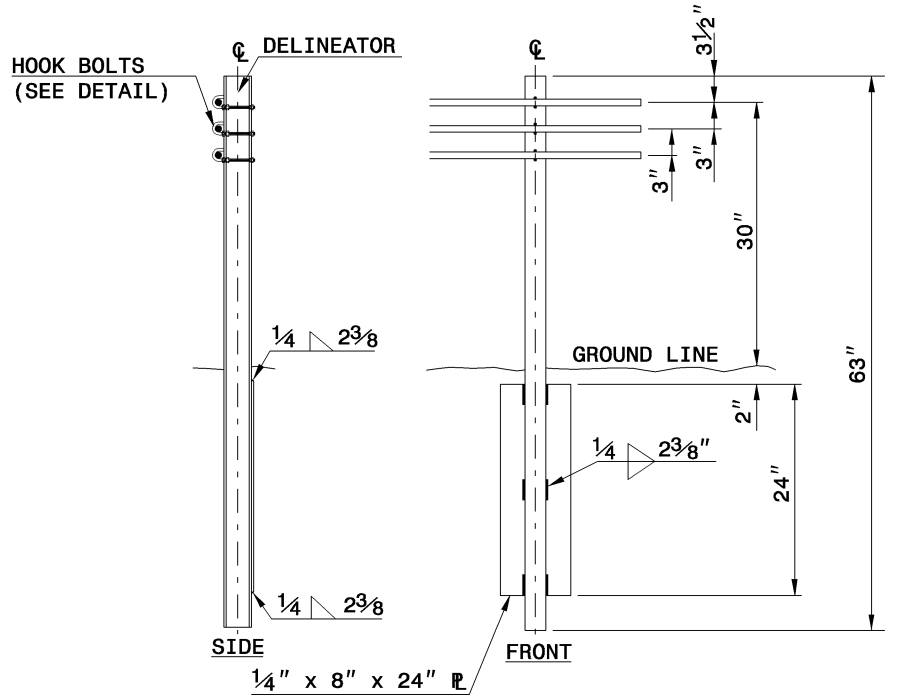
HOOK BOLT (ALTERNATES)

7-06

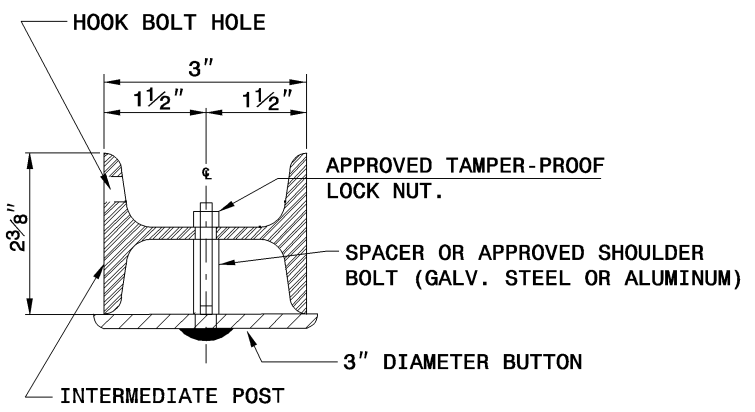
7-06



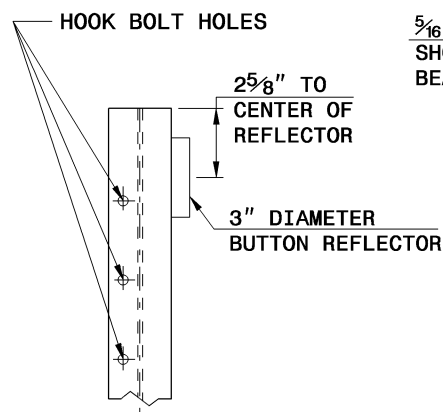
**SINGLE FACE GUIDERAIL POST
HOLE PLACEMENT DETAIL**



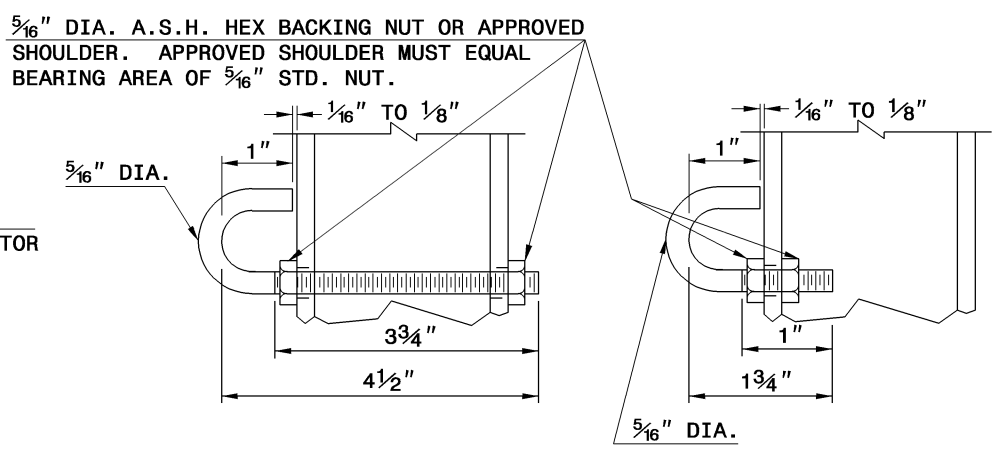
**SINGLE FACE GUIDERAIL
INTERMEDIATE POST**



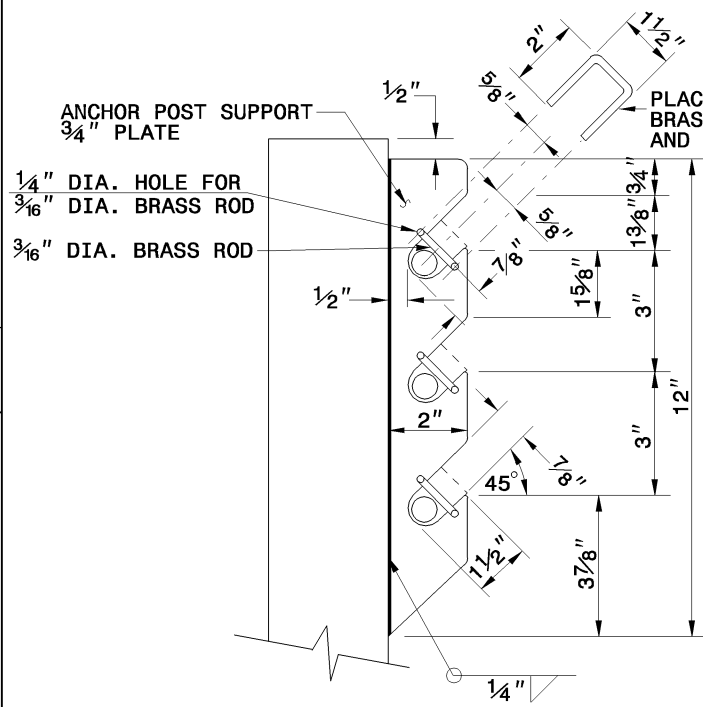
**REFLECTOR MOUNT DETAIL
PLAN VIEW**



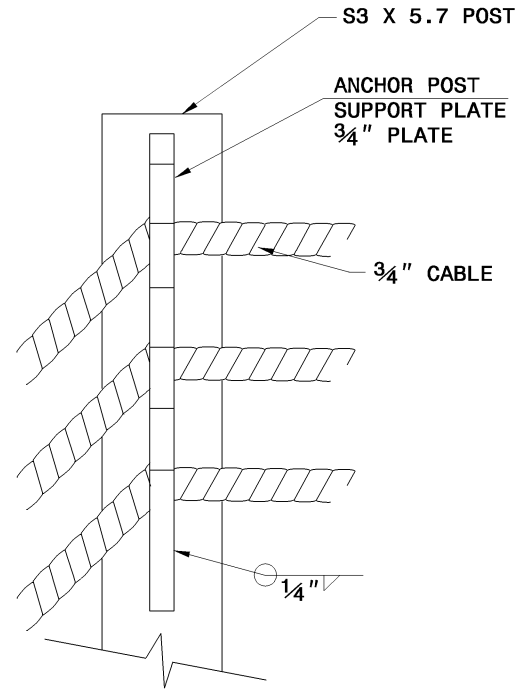
**REFLECTOR MOUNT DETAIL
ELEVATION VIEW**



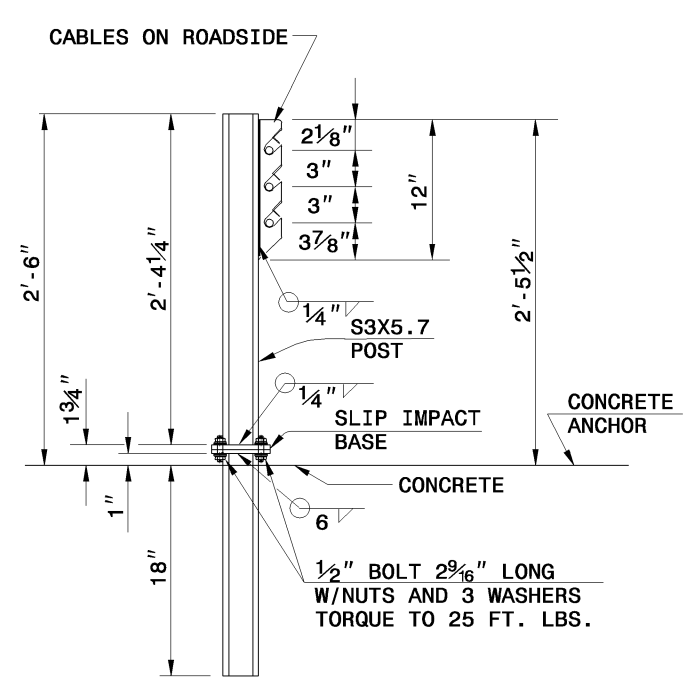
HOOK BOLT (ALTERNATES)



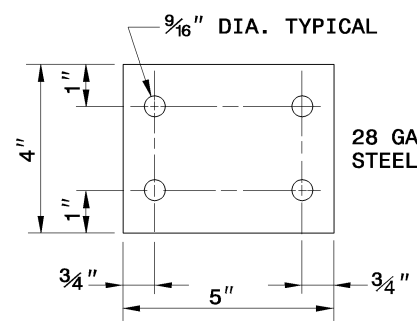
SIDE VIEW OF POST TOP



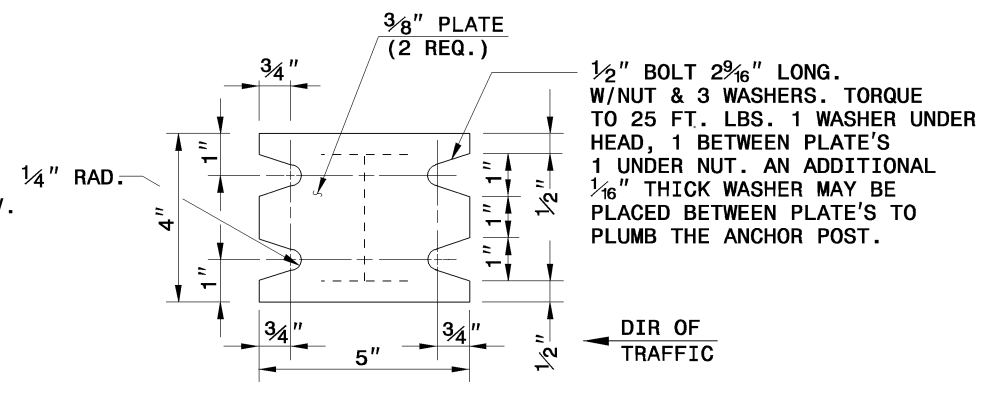
FRONT VIEW OF POST TOP
(ROAD SIDE)



ANCHOR POST DETAIL



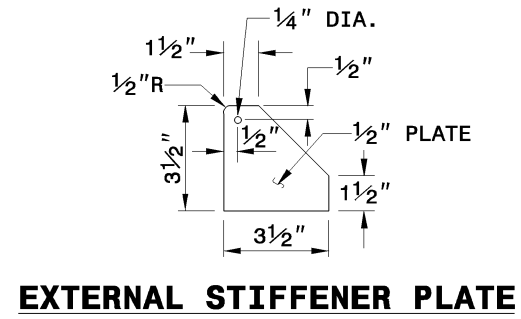
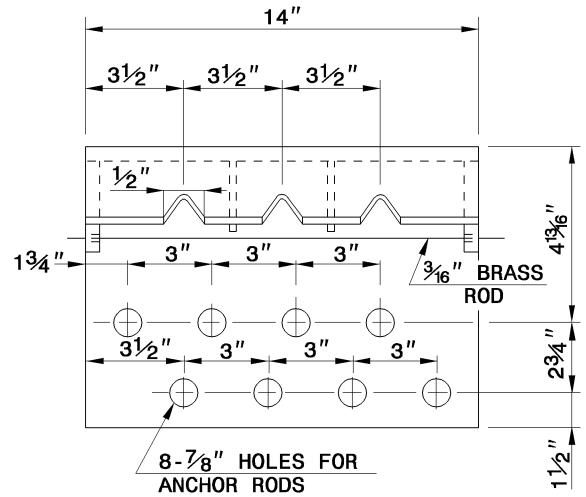
KEEPER PLATE



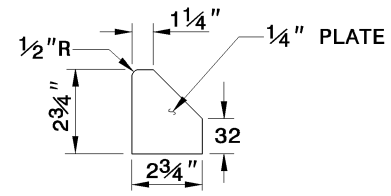
SLIP IMPACT BASE
(KEEPER PLATE NOT SHOWN)

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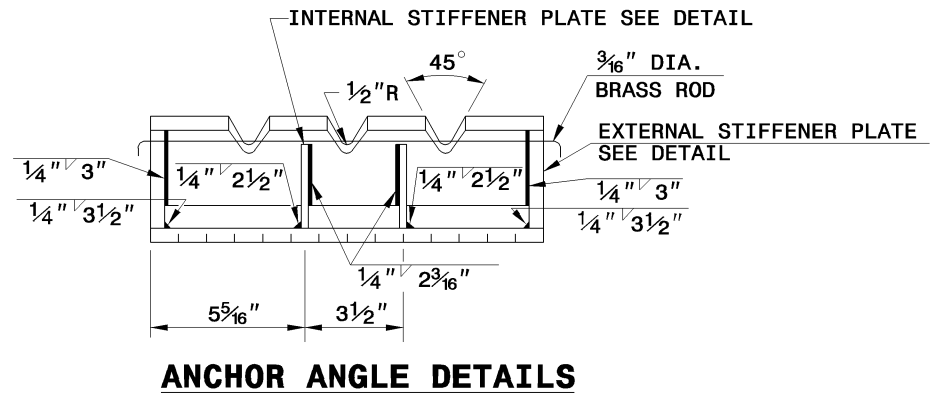
7-06



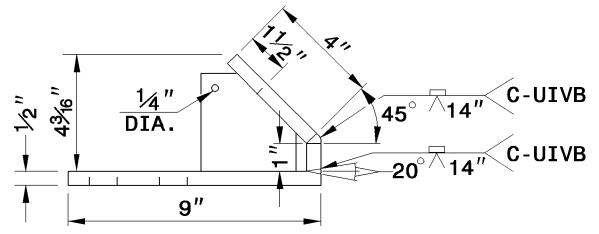
EXTERNAL STIFFENER PLATE



INTERNAL STIFFENER PLATE



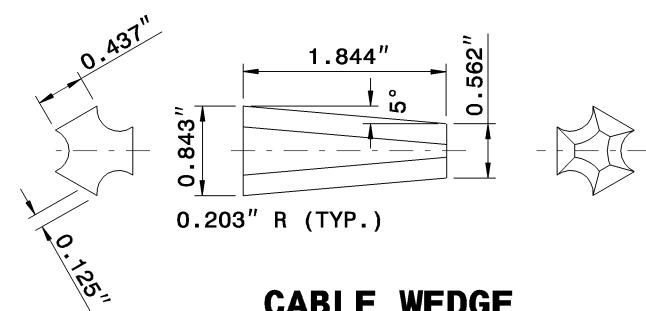
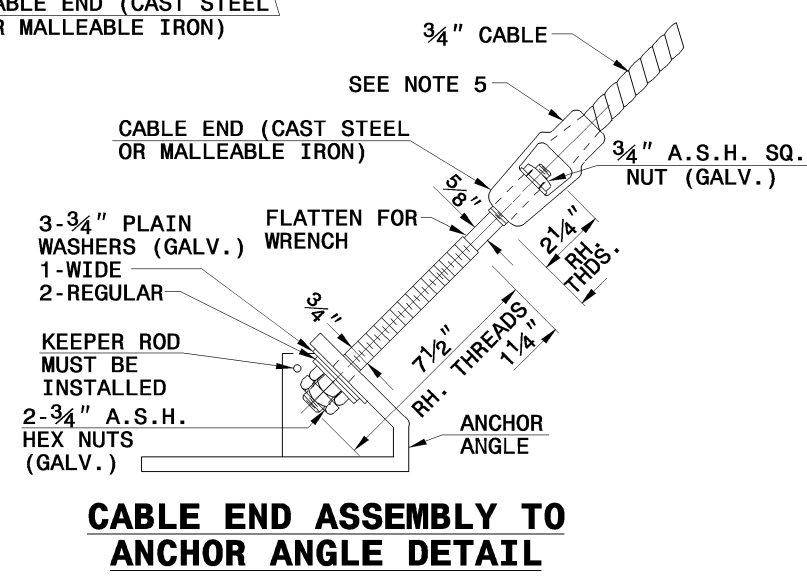
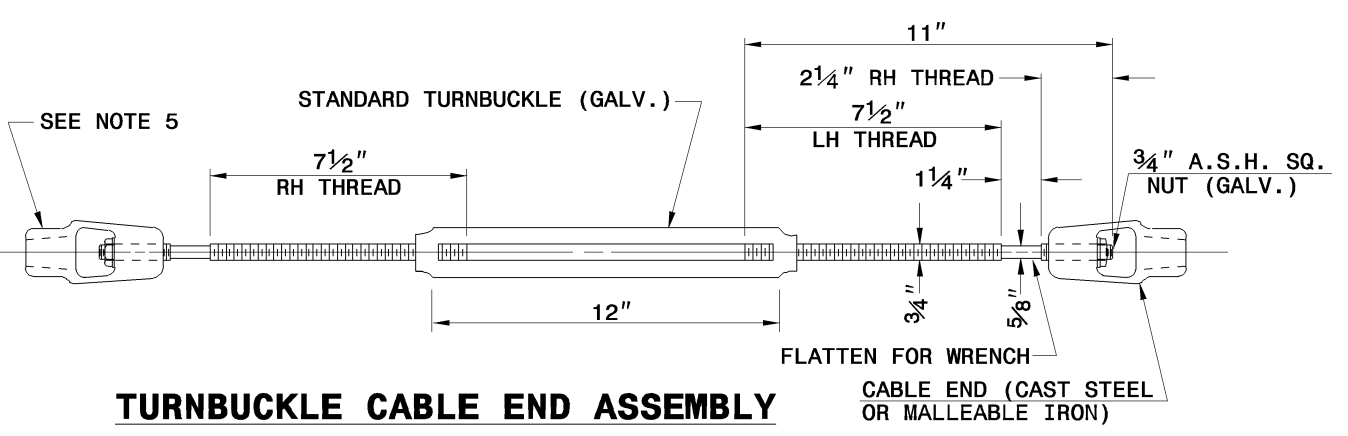
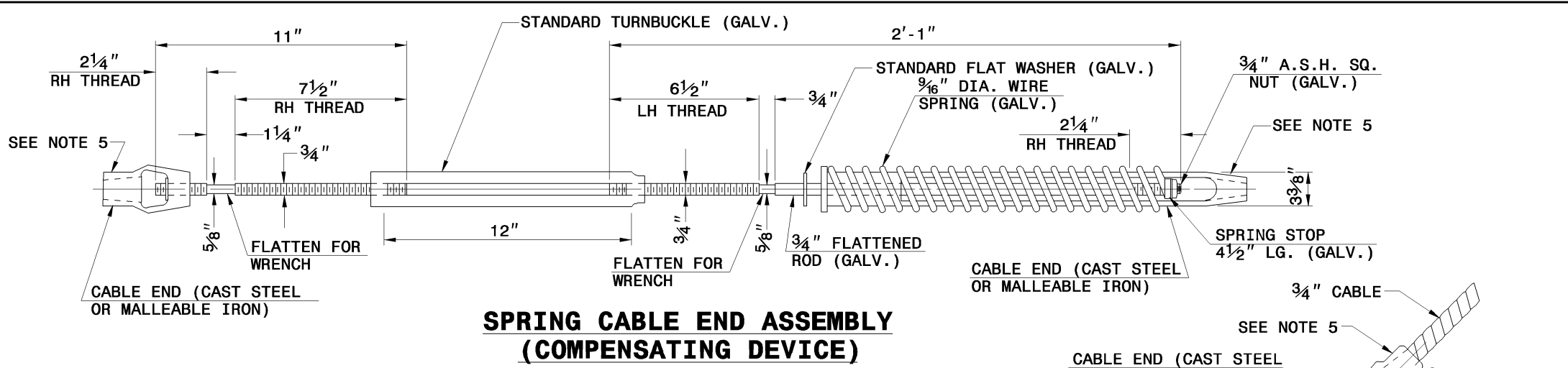
ANCHOR ANGLE DETAILS



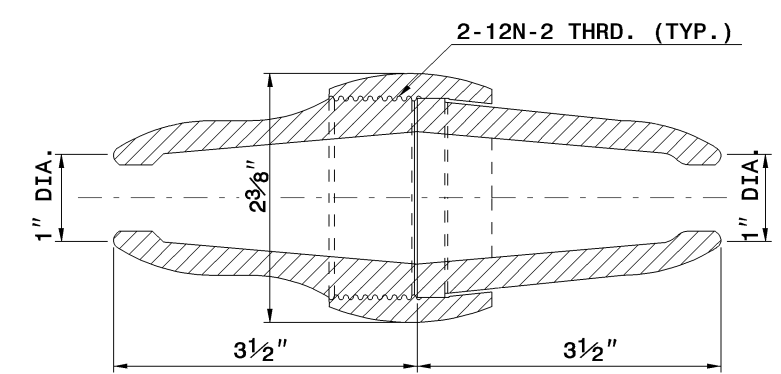
NOTE: SUBMIT ALTERNATE METHODS OF FABRICATING ANCHOR ANGLES FOR APPROVAL.

BREAKAWAY ANCHOR ANGLE

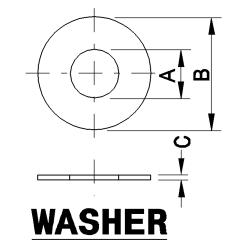
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TYPICAL WEDGE FOR ALL SPLICES AND CABLE FITTINGS



NOTE: USE WITH WEDGE



WASHER	WASHER SERIES	A INSIDE DIA.	B OUTSIDE DIA.	C THICKNESS
3/4"	REGULAR	7/8"	2"	5/32"
	WIDE	7/8"	2 9/16"	3/16"
1/2"	NARROW	17/32"	1"	3/32"

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GENERAL NOTES:

1. PROVIDE ALL S3x5.7 ROLLED STEEL SECTIONS IN ACCORDANCE WITH ASTM A-6. USE POSTS, PLATES AND ANCHOR ANGLES CONFORMING TO THE REQUIREMENTS OF SECTION 862 OF THE STANDARD SPECIFICATIONS. WHERE THE RAIL IS PARALLEL TO THE EDGE OF THE TRAVEL LANE, REFLECTORIZE EVERY 6th POST (96') (SEE STANDARD 1261.02 FOR DELINEATORS). FOR DOUBLE FACE GUIDERAIL, PLACE DELINEATOR VISIBLE ON EVERY 6th POST TO TRAFFIC IN EITHER DIRECTION. DO NOT REFLECTORIZE POSTS IN THE TYPICAL INTERMEDIATE ANCHORAGE SECTION, TYPICAL APPROACH OR TERMINAL SECTIONS.
2. PROVIDE ROUND 3/4" DIAMETER ZINC COATED CABLE WIRE CONSTRUCTED OF THREE STRANDS (7 WIRES PER STRAND) HAVING A MINIMUM TENSILE STRENGTH OF 25000 LBS. IN ACCORDANCE WITH AASHTO M-30 TYPE I CABLE, CLASS 'A' COATING.
3. PROVIDE MATERIALS INDICATED AS 'CAST STEEL' WHICH CONFORM TO AASHTO M103.
4. PROVIDE INSTALLED HOOK BOLTS WHICH DEVELOP AN ULTIMATE PULL OPEN STRENGTH OF 500 LBS TO 1000 LBS. APPLIED IN A DIRECTION NORMAL TO THE LONGITUDINAL AXIS OF THE POST.
5. DESIGN ALL FITTINGS, INCLUDING SPLICES, TO USE THE CABLE WEDGE AND DEVELOP THE FULL STRENGTH OF THE 3/4" CABLE. HOT DIP GALVANIZE ALL FITTINGS, EXCEPT THE CABLE WEDGE, ACCORDANCE WITH AASHTO M-30.
6. CRIMP ONE WIRE OF THE WIRE ROPE OVER THE BASE OF THE WEDGE TO HOLD IT FIRMLY IN PLACE AT ALL LOCATIONS WHERE THE CABLE IS CONNECTED TO A CABLE SPLICE CONNECTION.
7. DESIGNS FOR A COMBINATION OR SINGLE UNIT COMPENSATING DEVICE AND TURNBUCKLE ASSEMBLY MAY BE SUBMITTED FOR APPROVAL. COMPENSATING DEVICES MUST HAVE A SPRING RATE OF 450 LBS. PLUS OR MINUS 50 LBS. PER INCH WITH A MINIMUM TOTAL 'THROW' OF 6".
8. APPLY THE FOLLOWING CRITERIA FOR ARRANGEMENT OF SPRING CABLE END ASSEMBLIES (COMPENSATING DEVICES) AND TURNBUCKLE CABLE END ASSEMBLIES:

 LENGTH OF CABLE RUNS:

 TO 1000' - USE COMPENSATING DEVICE ON ONE END AND TURNBUCKLE ON THE OTHER END OF EACH INDIVIDUAL CABLE.

 1000' TO 2000' - USE COMPENSATING DEVICE ON EACH END OF EACH CABLE.

 OVER 2000' - START NEW STRETCH BY INTERLACING AT LAST PARALLEL POST (TYPICAL LAYOUT).

 PRIOR TO FINAL ACCEPTANCE BY THE STATE, USE THE FOLLOWING VALUES TO TIGHTEN THE TURNBUCKLES BASED ON THE TEMPERATURE AT THE TIME OF ADJUSTMENT.

TABLE "A"	
PAVEMENT ϵ CURVATURE	POST SPACING
8° OR LESS	16'
MORE THAN 8° TO 13° (440 FT. RAD.)	12'

TEMPERATURE (FAHRENHEIT)	SPRING COMPRESSION FROM UNLOADED POSITION IN EACH SPRING
110° - 120°	1"
100° - 109°	1 1/4"
90° - 99°	1 1/2"
80° - 89°	1 3/4"
70° - 79°	2"
60° - 69°	2 1/4"
50° - 59°	2 1/2"
40° - 49°	2 3/4"
30° - 39°	3"
20° - 29°	3 1/4"
10° - 19°	3 1/2"
0° - 9°	3 3/4"
-10° - -1°	4"
-20° - -11°	4 1/4"