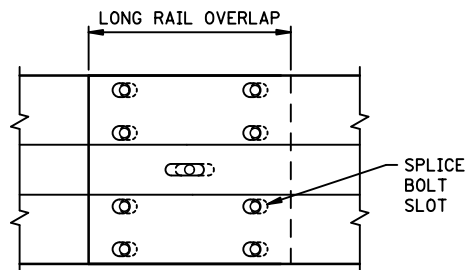
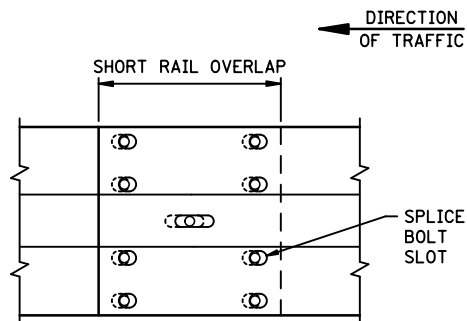


INSTALLATION



CLOSED



APART

DEFINITION OF APART AND CLOSED SPLICES

NOTES:

SEE CHAPTER 10 IN THE ROAD DESIGN MANUAL FOR END TREATMENT INFORMATION.

STEEL PLATE BEAM GUARDRAIL, TERMINAL SECTION, RAIL SPLICE, SPLICE BOLT SHAPES AND DIMENSIONS SHALL CONFORM TO AASHTO M 180. ALL GUARDRAIL SHALL BE CLASS A (12 GAUGE).

STEEL POSTS SHALL BE AASHTO M 270M (ASTM A 709) GRADE 36 STEEL. AFTER ALL THE HOLES ARE PUNCHED AND CUTS ARE MADE, POSTS SHALL BE ZINC (HOT-DIP GALVANIZED) COATED ACCORDING TO AASHTO M 111 (ASTM A 123).

GUARDRAIL INSTALLED ON CURVES WITH RADIUS OF 150 FT. OR LESS SHALL HAVE RAIL ELEMENTS SHOP CURVED.

USE THE SAME TYPE OF POST THROUGHOUT, ON NEW INSTALLATIONS.

WHEN RAIL SECTIONS USED FOR AN INSTALLATION ARE 12'6" LONG, CENTER THE 8 SPLICE BOLTS ON TOP OF EACH OTHER (OR 1/2 APART AND 1/2 CLOSED). SEE DEFINITION OF APART AND CLOSED SPLICES.

WHEN 25 FT. LONG RAIL SECTIONS ARE USED FOR AN INSTALLATION, SET THE 8 SPLICE BOLTS ACCORDING TO THE AIR TEMPERATURE AS FOLLOWS:

BELOW 10° F. - SET 3/4 OF THE SPLICES APART AND 1/4 CLOSED.

10° F. TO 95° F. - CENTER THE SPLICE BOLT SLOTS OR SET 1/2 OF THE SPLICES APART AND 1/2 CLOSED.

ABOVE 95° F. - SET 1/4 OF THE SPLICES APART AND 3/4 CLOSED.

APPROVED MARCH 23, 2011

Michael J. Henneman
STATE DESIGN ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
**W-BEAM GUARDRAIL &
END ANCHORAGES**
INSTALLATION WITH STEEL POSTS

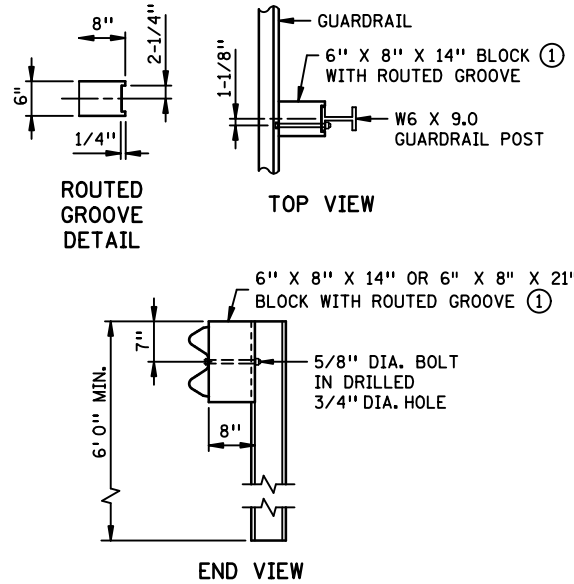
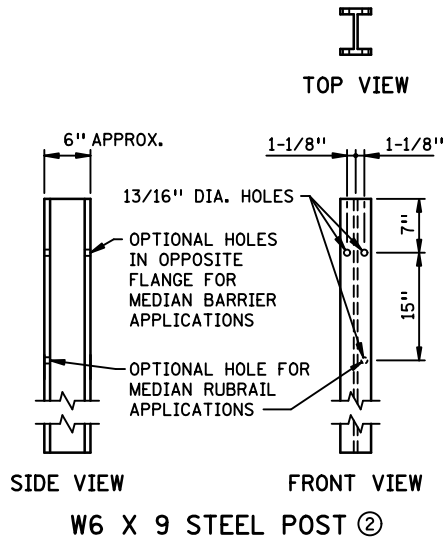
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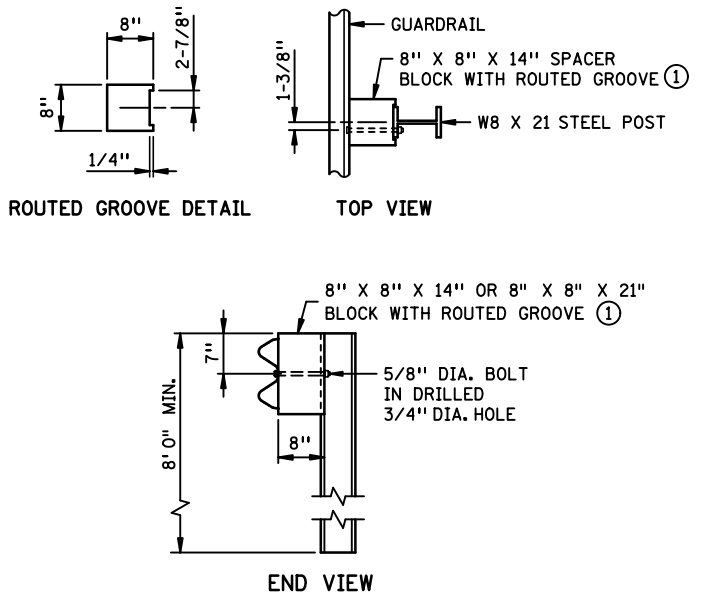
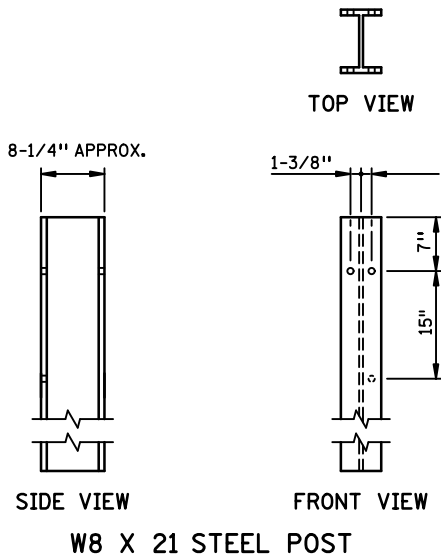
STANDARD
PLATE
NO.

8338D

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SPACER BLOCKS FOR W6 X 9 STEEL POST



SPACER BLOCKS FOR W8 X 21 STEEL POST

NOTES:

- ① USE A WOOD BLOCK OR A NCHRP 350 APPROVED ALTERNATE.
- ② W6 X 8.5 LBS/FT WIDE FLANGE STEEL POSTS ARE AN ACCEPTABLE ALTERNATIVE FOR W6 X 9 LBS/FT WIDE FLANGE STEEL POSTS.

APPROVED MARCH 23, 2011

Michael J. Henneman
STATE DESIGN ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
**W-BEAM GUARDRAIL &
END ANCHORAGES**
DETAILS FOR STEEL POSTS

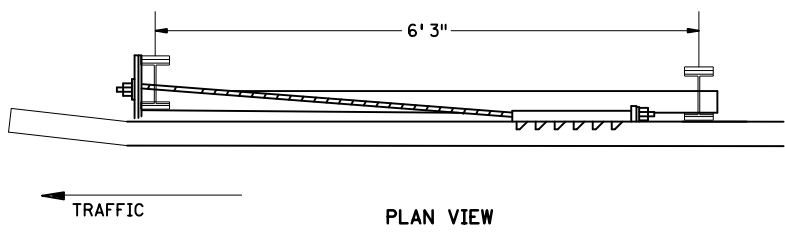
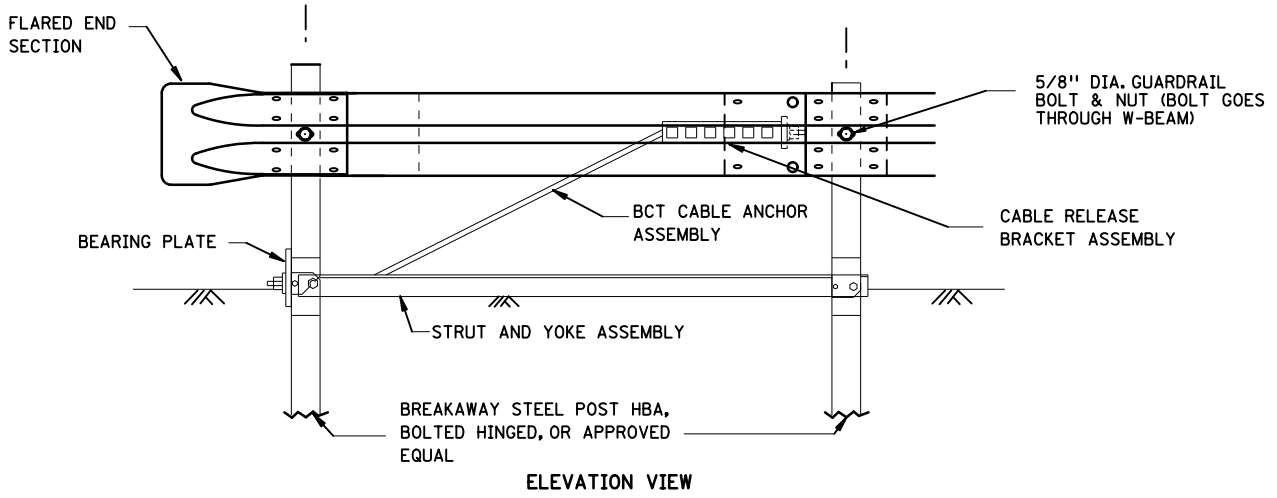
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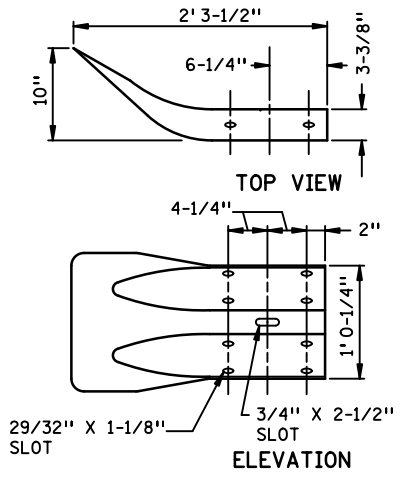
STANDARD
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NO.

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STRUT ANCHORAGE ASSEMBLY



FLARED END SECTION

NOTES:

THE STRUT ANCHORAGE ASSEMBLY MUST INCLUDE ALL OF THE COMPATIBLE PARTS OF THE TERMINAL, CABLE RELEASE BRACKET ASSEMBLY, BCT CABLE ANCHOR ASSEMBLY, THE GROUND STRUT AND POSTS THEY ARE ATTACHED TO. THIS WILL ASSURE THE PROPER FUNCTION OF THE TERMINAL ANCHORAGE. THE BOLTS SHALL PASS THROUGH THE RAIL ON THE LAST TWO POSTS. DO NOT MIX PARTS BETWEEN SYSTEMS.

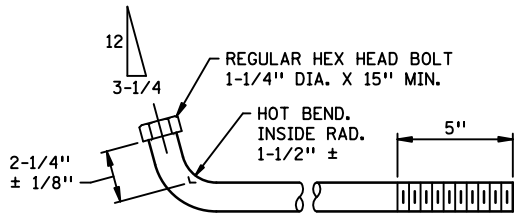
APPROVED MARCH 23, 2011

[Signature]
STATE DESIGN ENGINEER

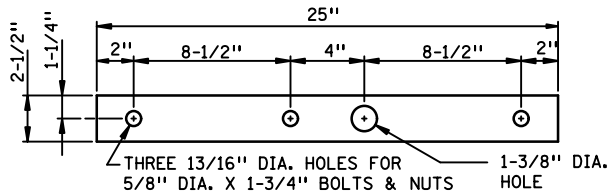
STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
**W-BEAM GUARDRAIL &
END ANCHORAGES**
STRUT ANCHORAGE ASSEMBLY DETAILS (STEEL POSTS)

SPECIFICATION
REFERENCE
2554

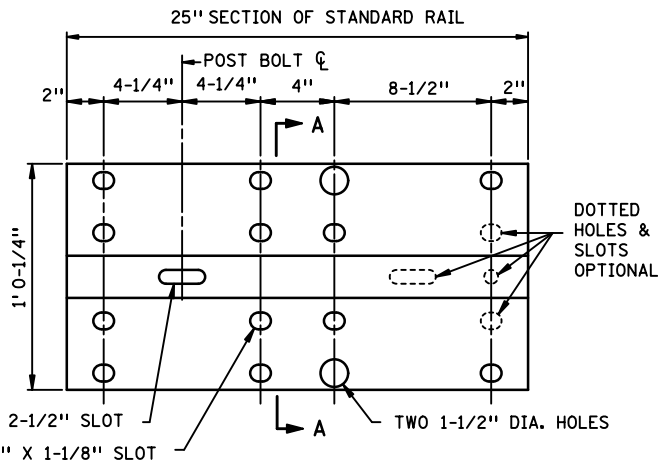
STANDARD
PLATE
NO.
8338D
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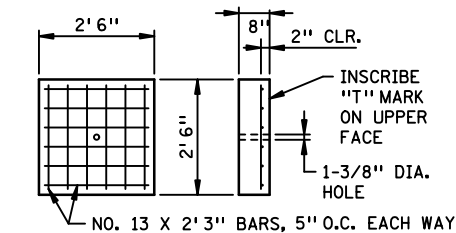
ANCHORAGE BOLT



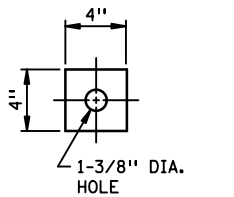
ANCHORAGE PLATE WASHER
3/8" X 2-1/2" X 25"



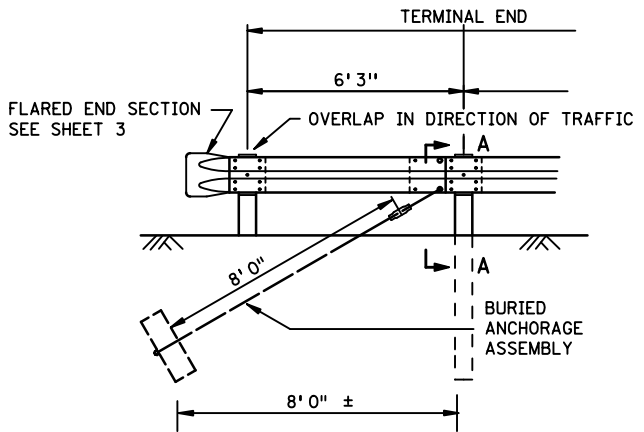
ANCHORAGE PLATE



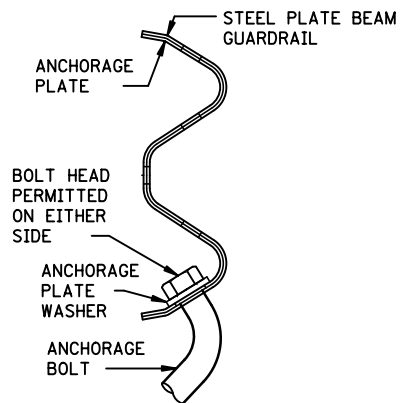
ANCHOR BLOCK
PRECAST REINFORCED CONCRETE



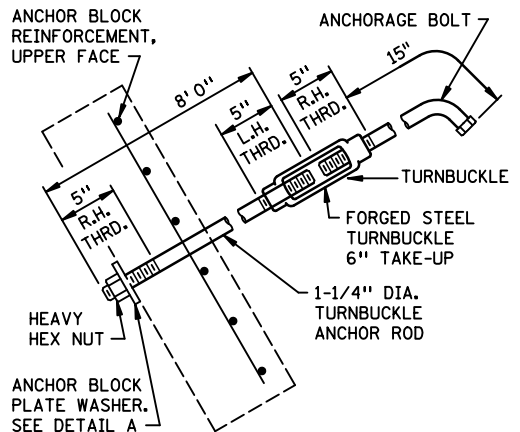
DETAIL A
ANCHOR BLOCK PLATE WASHER
1/2" THICK X 4" SQUARE



BURIED ANCHORAGE ASSEMBLY ELEVATION VIEW



SECTION A-A
SHOWING ASSEMBLY



TURNBUCKLE ANCHOR ROD ①

① THE ANCHORAGE ASSEMBLY TURNBUCKLE SHOULD BE INSTALLED SO THAT THERE IS FULL THREAD CONTACT AT BOTH ENDS OF THE TURNBUCKLE.

BURIED ANCHORAGE ASSEMBLY

APPROVED MARCH 23, 2011

Michael J. Henneman
STATE DESIGN ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
**W-BEAM GUARDRAIL &
END ANCHORAGES**
BURIED ANCHORAGE ASSEMBLY DETAILS (STEEL POSTS)

SPECIFICATION
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STANDARD
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8338D

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