

END VIEW

SECTION B-B

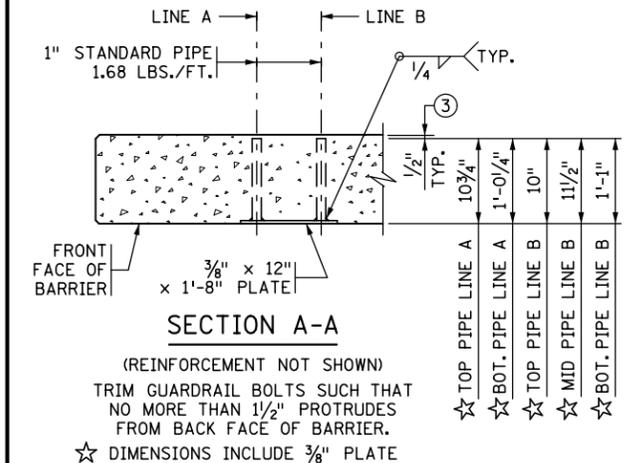
**DESIGNER NOTE**  
 (REMOVE PRIOR TO PLOTTING FINAL PLAN):  
 MINIMUM BARRIER LENGTH ON APPROACH PANEL IS 10'-8" WITH MINIMUM OF 22 R502E AND R503E DOWELS WITH ACCOMPANYING APPROPRIATE BARRIER VERTICAL BARS, 12" MAX. SPACING. VERIFY APPROACH BARRIER LENGTH, NEED FOR A GUARDRAIL CONNECTION, AND VERTICAL TAPER WITH ROADWAY DESIGNER. REFER TO MEMO TO DESIGNERS (2016-01) FOR ADDITIONAL REQUIREMENTS REGARDING BARRIER PLACEMENT.

**JOINT AT ABUTMENT**  
 (INTEGRAL OR SEMI-INTEGRAL ABUTMENT)

**INSIDE ELEVATION OF BARRIER**

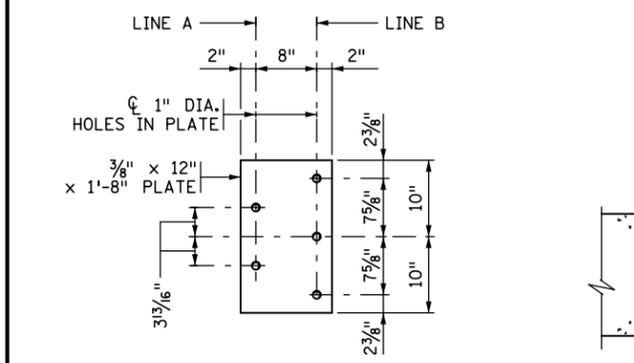
BARRIER MEETS NCHRP 350 TL-4 REQUIREMENTS ON BRIDGE DECK AND TL-3 ON APPROACH PANEL.

BILL OF REINFORCEMENT FOR BARRIER				
BAR	NO.	LENGTH	SHAPE	LOCATION
R501E		5'-7"		BARRIER DOWEL
R502E		5'-9"		BARRIER DOWEL
R503E		5'-8"		BARRIER DOWEL
R504E		7'-1"		BARRIER VERTICAL
R505E	-- SER. OF 4	6'-7" TO 6'-11"		BARRIER VERTICAL
R506E		6'-5"		BARRIER VERTICAL
R407E		10'-3"		BARRIER LONGIT.
R4...E				BARRIER LONGIT.
R4...E				BARRIER LONGIT.
R4...E				BARRIER LONGIT.
R4...E				BARRIER LONGIT.



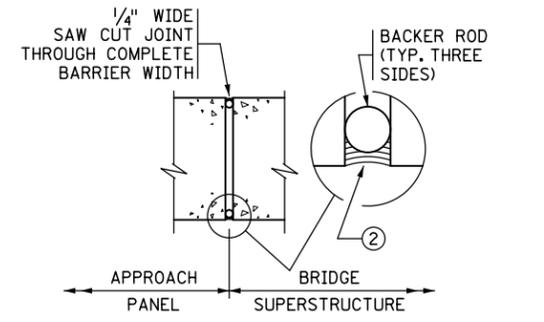
SECTION A-A

(REINFORCEMENT NOT SHOWN)  
 TRIM GUARDRAIL BOLTS SUCH THAT NO MORE THAN 1/2" PROTRUDES FROM BACK FACE OF BARRIER.  
 ☆ DIMENSIONS INCLUDE 3/8" PLATE

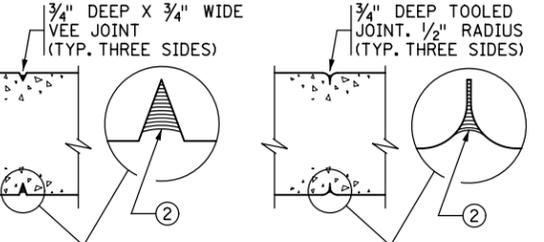


GUARDRAIL CONNECTION DETAIL  
 GALVANIZE AFTER FABRICATION PER SPEC. 3394  
 ESTIMATED WEIGHT = 34 LBS.

REVISION:  
 APPROVED: AUGUST 24, 2016  
 Kevin Weston  
 STATE BRIDGE ENGINEER



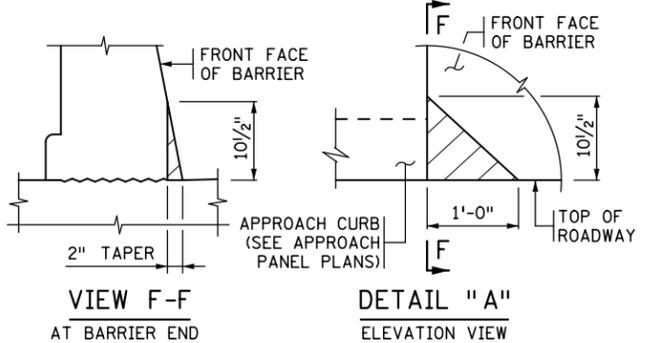
SECTION D-D



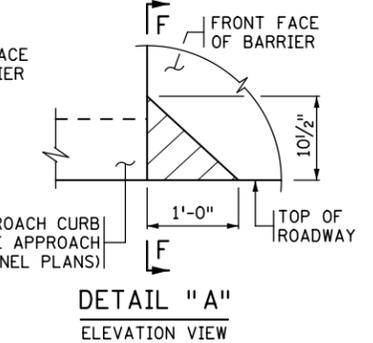
SECTION C-C

CONTRACTOR OPTION 1  
 CONTRACTOR OPTION 2

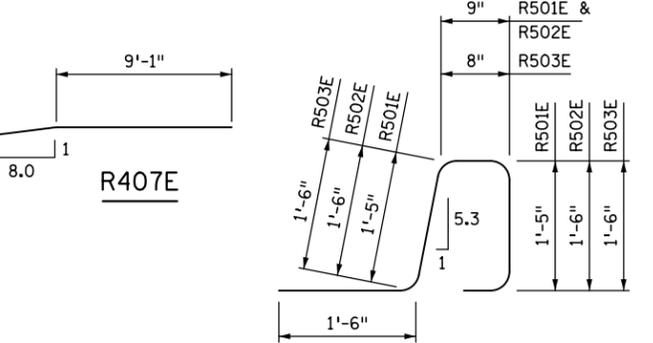
WHEN USING SLIP FORM METHOD TO PLACE THE CONCRETE, CUT JOINT 3 INCHES DEEP USING MARGIN TROWEL OR SIMILAR MEANS IMMEDIATELY AFTER CONCRETE PLACEMENT (TYP. THREE SIDES).



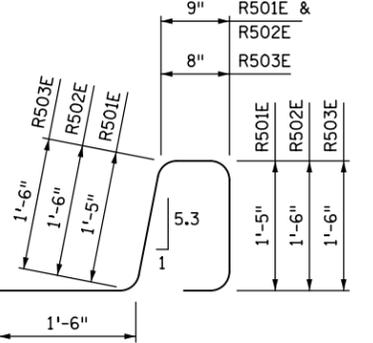
VIEW F-F AT BARRIER END



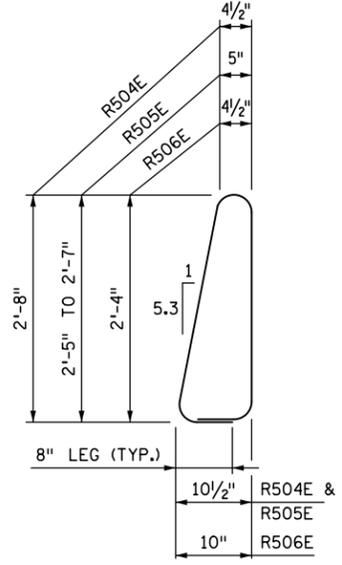
DETAIL "A" ELEVATION VIEW



R407E



R501E, R502E, R503E



R504E, R505E, R506E

**GENERAL NOTES**

- MEASURE PAYMENT LENGTH BETWEEN THE OUTSIDE ENDS OF THE BARRIER.
- CONCRETE BARRIER = 481 LBS./FT. (0.119 CU. YDS./FT.)
- FINISH ALL EDGES OF BARRIER WITH 1/2" CHAMFER, EXCEPT WHERE OTHERWISE NOTED.
- SPACE CONTROL JOINTS AT 10 FT. MAXIMUM. REFER TO SUPERSTRUCTURE SHEET FOR SPECIFIC SPACING INFORMATION.
- GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, SPEC. 3306.
- GUARDRAIL CONNECTION AND NAME PLATE TO BE CONSIDERED INCIDENTAL TO BARRIER.
- BARRIER QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.
- ① PLACE BAR ON TOP OF BOTTOM REINFORCEMENT MAT IN DECK.
- ② JOINT SEALANT PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST - CRACK AND JOINT MATERIALS - SILICONE JOINT SEALERS.
- ③ REMOVE CONCRETE FROM PIPE ENDS AFTER SLIPFORMING OR FORM REMOVAL.

CERTIFIED BY \_\_\_\_\_  
 LICENSED PROFESSIONAL ENGINEER DATE \_\_\_\_\_  
 NAME: \_\_\_\_\_ LIC. NO. \_\_\_\_\_

TITLE: SINGLE SLOPE CONCRETE BARRIER 36" (TYPE S, TL-4)  
 INTEGRAL OR SEMI-INTEGRAL ABUTMENT WITH BRIDGE SLAB SIDEWALK AND GUARDRAIL CONNECTION (WITHOUT CONCRETE WEARING COURSE)

DES: \_\_\_\_\_ DR: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
 CHK: \_\_\_\_\_ CHK: \_\_\_\_\_ BRIDGE NO. \_\_\_\_\_  
 SHEET NO. OF SHEETS

FIG. 5-397.138(C)