

\*\* DIMENSION SHOWN IS TO THE TOP OF THE WEARING COURSE AT GUTTERLINE.

\*\* DIMENSION SHOWN IS TO THE TOP OF THE WEARING COURSE AT GUTTERLINE.

**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 AND LINK WITH ADJACENT RETAINING WALLS.

**EXPANSION JOINT ⑤**  
 EXPANSION DEVICE NOT SHOWN

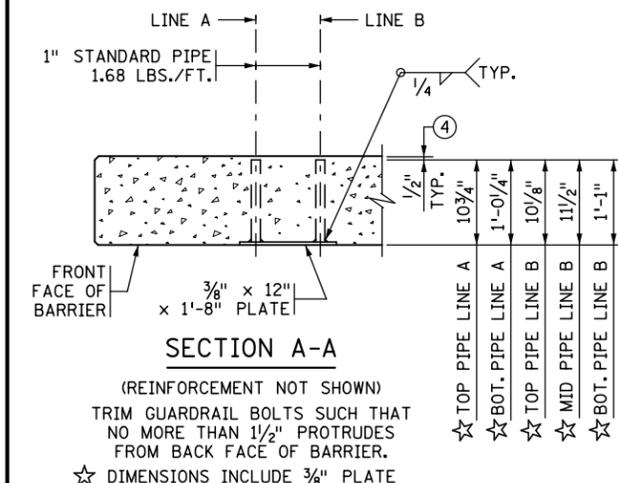
**CONTROL JOINT**

**INSIDE ELEVATION OF BARRIER**  
 CONCRETE WEARING COURSE NOT SHOWN

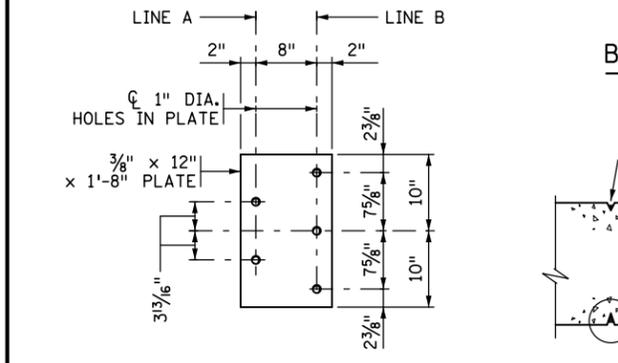
BARRIER MEETS NCHRP 350 TL-4 REQUIREMENTS ON BRIDGE DECK AND TL-3 ON APPROACH PANEL.

**BILL OF REINFORCEMENT FOR BARRIER**

| BAR   | NO.          | LENGTH         | SHAPE | LOCATION         |
|-------|--------------|----------------|-------|------------------|
| R501E |              | 5'-4"          |       | BARRIER DOWEL    |
| R502E |              | 5'-6"          |       | BARRIER DOWEL    |
| R503E |              | 5'-5"          |       | BARRIER DOWEL    |
| R504E |              | 7'-6"          |       | BARRIER VERTICAL |
| R505E |              | 5'-4"          |       | BARRIER VERTICAL |
| R506E | -- SER. OF 4 | 6'-7" TO 7'-5" |       | BARRIER VERTICAL |
| R507E | -- SER. OF 4 | 6'-1" TO 6'-5" |       | BARRIER VERTICAL |
| R508E |              | 5'-10"         |       | BARRIER VERTICAL |
| R408E |              | 11'-7"         |       | BARRIER LONGIT.  |
| R4_E  |              |                |       | BARRIER LONGIT.  |
| R4_E  |              |                |       | BARRIER LONGIT.  |
| R4_E  |              |                |       | BARRIER LONGIT.  |

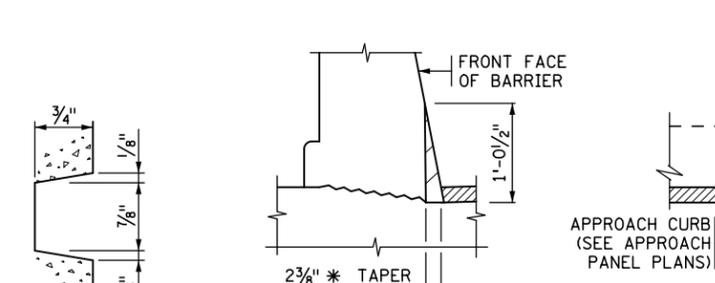


(REINFORCEMENT NOT SHOWN)  
 TRIM GUARDRAIL BOLTS SUCH THAT NO MORE THAN 1/2" PROTRUDES FROM BACK FACE OF BARRIER.  
 ☆ DIMENSIONS INCLUDE 3/8" PLATE

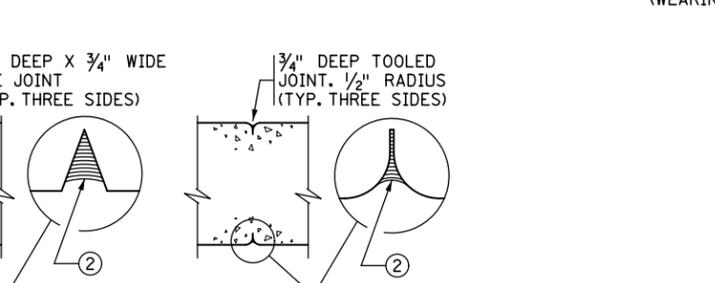


**GUARDRAIL CONNECTION DETAIL**  
 GALVANIZE AFTER FABRICATION PER SPEC. 3394  
 ESTIMATED WEIGHT = 34 LBS.

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

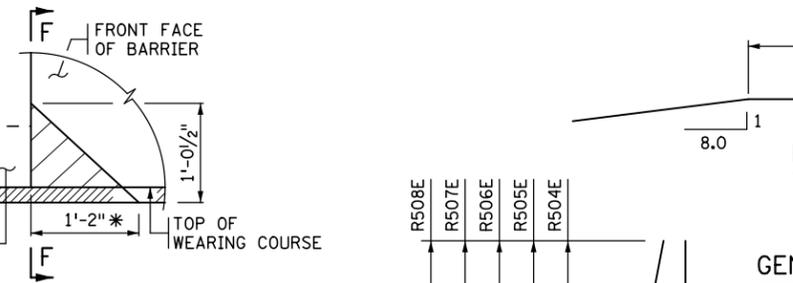


**BARRIER RUSTICATION**  
 VIEW F-F AT BARRIER END  
 \* AT TOP OF STRUCTURAL SLAB

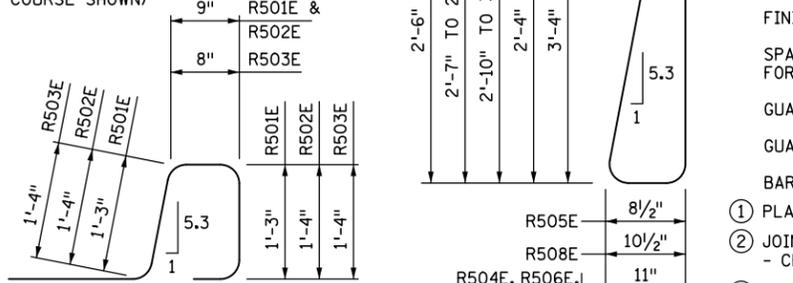


**SECTION C-C**  
 CONTRACTOR OPTION 1  
**SECTION C-C**  
 CONTRACTOR OPTION 2  
**CONTROL JOINT DETAILS**

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).



**DETAIL "A"**  
 ELEVATION VIEW  
 (WEARING COURSE SHOWN)



**R501E, R502E, R503E**

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

**GENERAL NOTES**

- MEASURE PAYMENT LENGTH BETWEEN THE OUTSIDE ENDS OF THE BARRIER.
- CONCRETE BARRIER = 556 LBS./FT. (0.137 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 DIMENSIONS TO BE DETERMINED BASED ON THE BRIDGE DECK SLOPE.
- ④ REMOVE CONCRETE FROM PIPE ENDS AFTER SLIPFORMING OR FORM REMOVAL.
- ⑤ REFER TO "WATERPROOF EXPANSION DEVICE" STANDARD PLANS FOR COVER PLATE DETAILS.

**FIG. 5-397.141(D)**

**SINGLE SLOPE CONCRETE BARRIER 42" (TYPE S, TL-4)**  
 PARAPET ABUTMENT WITH BRIDGE SLAB SIDEWALK AND GUARDRAIL CONNECTION (WITH 2" CONCRETE WEARING COURSE)

DES: \_\_\_\_\_ DR: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
 CHK: \_\_\_\_\_ CHK: \_\_\_\_\_ BRIDGE NO. \_\_\_\_\_

SHEET NO. OF SHEETS