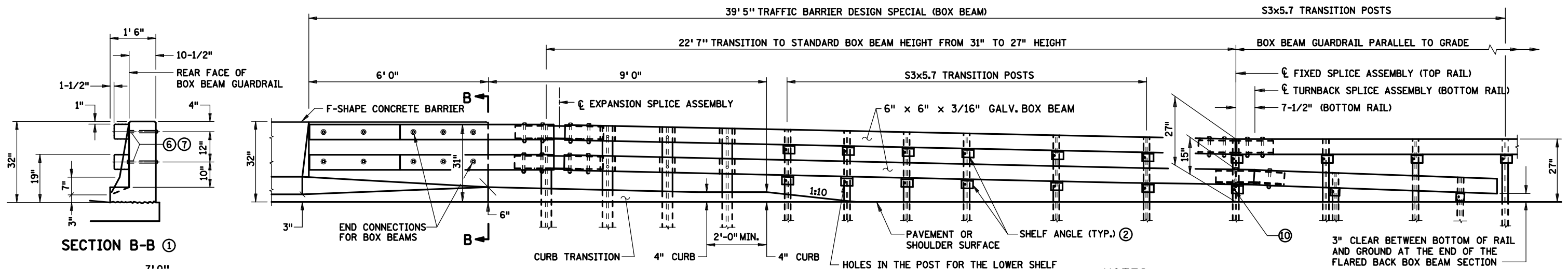
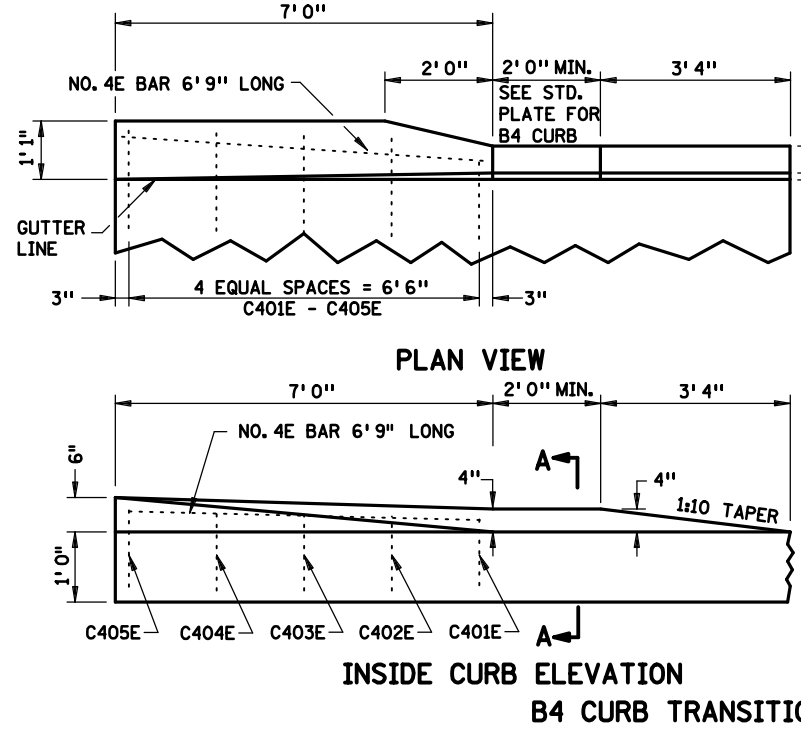


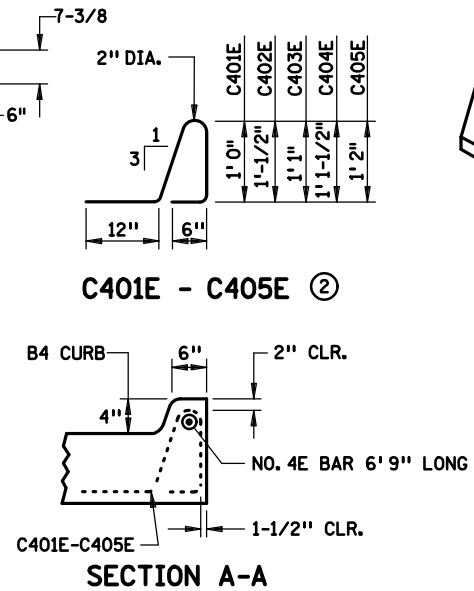
PLAN



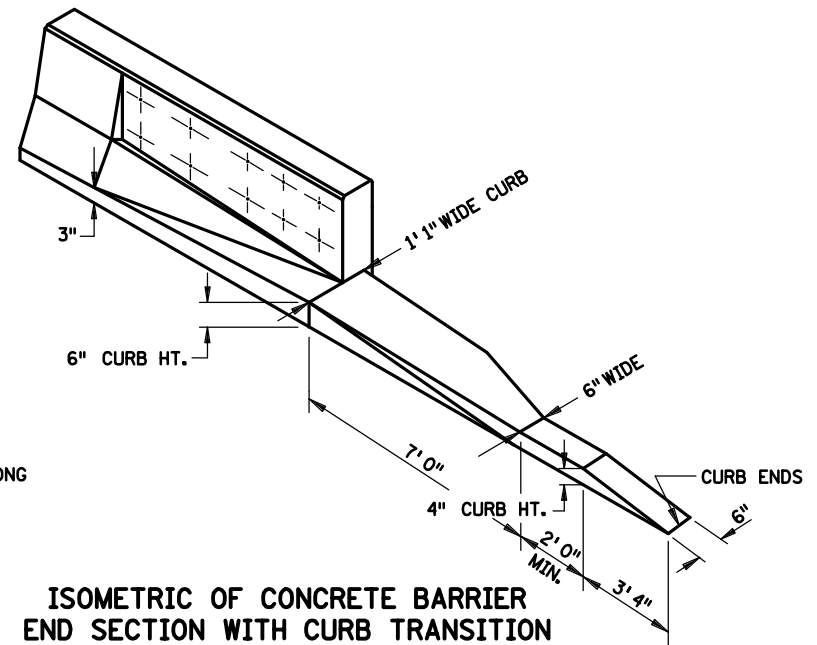
ELEVATION GENERAL ASSEMBLY DETAILS



INSIDE CURB ELEVATION  
B4 CURB TRANSITION DETAILS 9



C401E - C405E 2



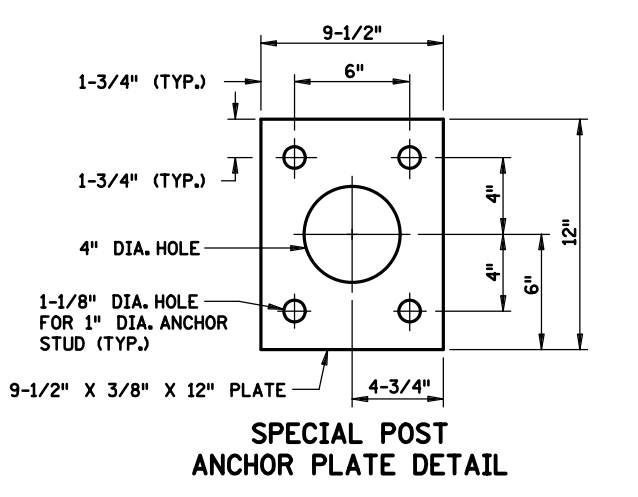
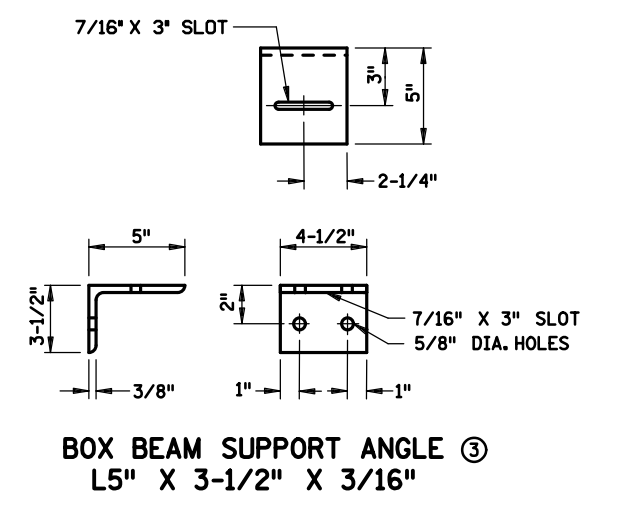
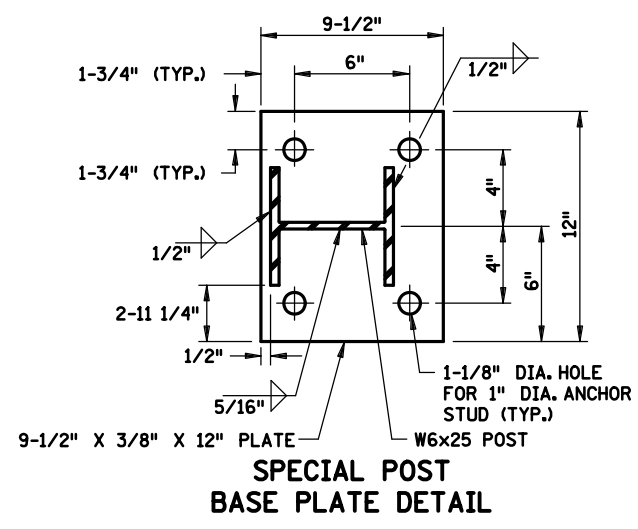
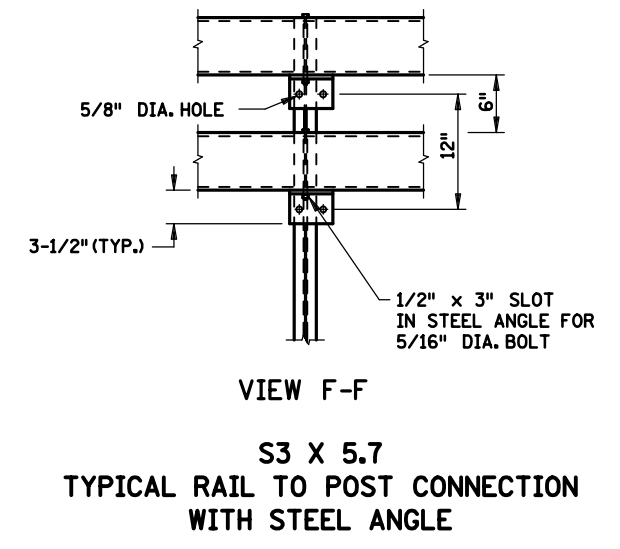
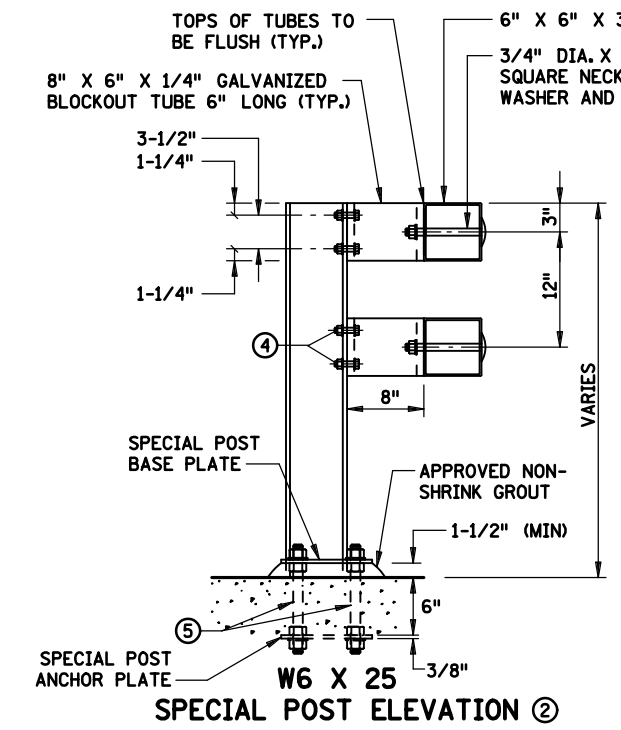
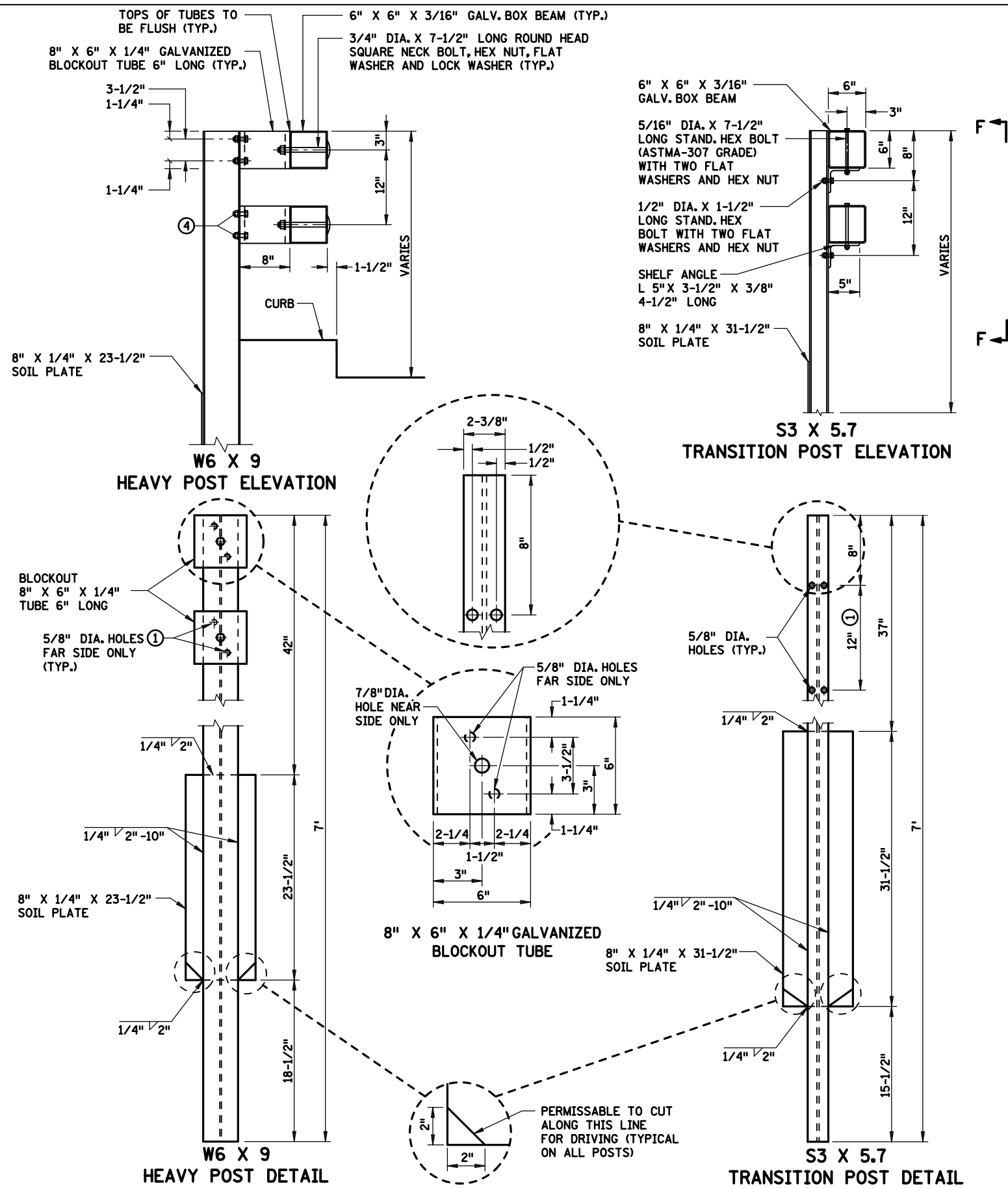
ISOMETRIC OF CONCRETE BARRIER  
END SECTION WITH CURB TRANSITION

NOTES:

- ALL MATERIAL AND FABRICATION SPEC. 2402, 2471
- STRUCTURAL STEEL SPEC. 3306
- STRUCTURAL STEEL TUBING ASTM A5000 GRADE B SPEC. 3361
- ALL GALVANIZING, SPEC. 2471
- HARDWARE ASTM 153, SPEC 3392
- STRUCTURAL STEEL ASTM 123, SPEC. 3394
- REPAIR OF GALVANIZED SURFACES, SPEC. 2471
- FOR FIELD MODIFICATIONS PREPARE STEEL PARTS PER SPEC. 2478.
- REINFORCEMENT NOT SHOWN FOR CLARITY.
- 1 SEE BRIDGE SHEET "CONCRETE BARRIER DETAILS FOR BOX BEAM TRANSITION".
- 2 SEE TYPICAL RAIL TO POST CONNECTION WITH STEEL ANGLE DETAIL ON SHEET 2.
- 3 SEE POST DETAILS ON SHEET 2.
- 4 USE SPECIAL POST DETAIL (SHEET 2) WHEN THERE IS NOT ADEQUATE VERTICAL AND SUBGRADE CLEARANCE BETWEEN THE SUBSTRUCTURE AND THE HEAVY POST. SEE BRIDGE PLAN FOR LOCATION OF THE SUBSTRUCTURE.
- 5 PAYMENT FOR CONCRETE BARRIER IS INCLUDED IN BRIDGE PLAN.
- 6 3/4" DIA. X 12" GALV. ANCHOR STUDS (ASTM F568 CLASS 8.8) WITH HEX NUTS AND FLAT WASHERS (ONE ON INSIDE AND ONE ON OUTSIDE FACE OF BARRIER). THE ANCHOR STUDS W/HEX NUTS ARE INCIDENTAL.
- 7 1" DIA. P.V.C. PIPE OR 1" DIA. GALVANIZED STEEL PIPE (ASTM A53 NPS 1" DIA.). THE COST OF FURNISHING AND INSTALLING THE PIPE IS INCIDENTAL. SEE BRIDGE PLAN.
- 8 PAY LIMIT FOR STANDARD BOX BEAM
- 9 ALL REINFORCEMENT IN CURB SHALL BE GRADE 60 AND EPOXY COATED AS PER SPEC. 3301.
- 10 THE 5/8" DIA. HOLE DRILLED IN THE SHELF ANGLE MAY BE FIELD DRILLED. 5/16" DIA. BOLTS ARE NOT REQUIRED IN BOX BEAM AT THIS POST ONLY.

TRAFFIC BARRIER DESIGN SPECIAL

BOX BEAM TRANSITION TO CONCRETE F-SHAPE BARRIER		APPROVED: 05-27-2014 REVISED:	<i>Christopher Roy</i> CHRISTOPHER ROY STATE DESIGN ENGINEER	STANDARD PLAN 5-297.686	1 OF 3
		STANDARD PLAN		STATE PROJ. NO.	SHEET NO.
				TRUNK HWY.	TOTAL SHEETS



- NOTES:**
- ① HOLES IN THE POST FOR THE LOWER RAIL MAY BE LOCATED AND DRILLED IN THE FIELD, AND THEN GALVANIZED PER SPEC. 2471.
  - ② THE SPECIAL POST IS A SUBSTITUTE FOR THE HEAVY POST WHEN IT IS NOT POSSIBLE TO PLACE THE HEAVY POST IN THE GROUND.
  - ③ RAIL SUPPORT ANGLES SHALL BE AASHTO M 270M (ASTM A 709) GRADE 36 STEEL. AFTER ALL THE HOLES ARE PUNCHED AND CUTS ARE MADE, ANGLES SHALL BE GALVANIZED PER SPEC. 3394.
  - ④ TWO - 9/16" DIA. X 1-1/2" LG. STD. HEX BOLT (ASTM A-307 GRADE A) WITH HEX NUTS AND FLAT WASHERS (ONE NEAR SIDE, ONE FAR SIDE) TYPICAL.
  - ⑤ FOUR - 1" DIA. ANCHOR STUDS FULLY THREADED (ASTM A-325 TYPE 1 OR 3, OR A-449 TYPE 1) 12" LONG WITH FOUR HEAVY HEX NUTS AND TWO FLAT WASHERS EACH. (ONE WASHER ON EACH SIDE OF BASE PLATE).

BOX BEAM TRANSITION TO CONCRETE F-SHAPE BARRIER DETAILS

APPROVED: 05-27-2014  
REVISED:

*Christopher Roy*  
CHRISTOPHER ROY  
STATE DESIGN ENGINEER

STANDARD PLAN  
5-297.686

2 OF 3

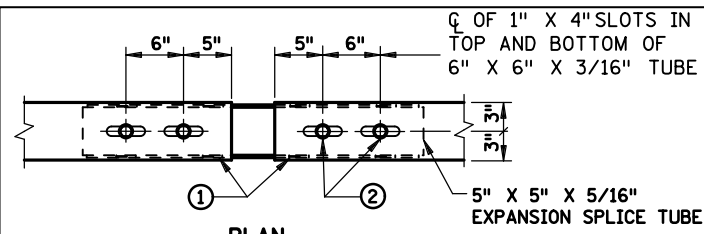


STANDARD PLAN

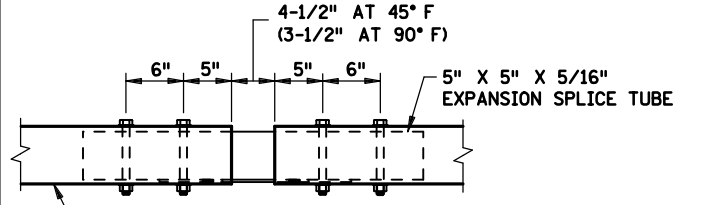
STATE PROJ. NO.  
TRUNK HWY.

SHEET NO.  
TOTAL SHEETS

TRAFFIC BARRIER DESIGN SPECIAL

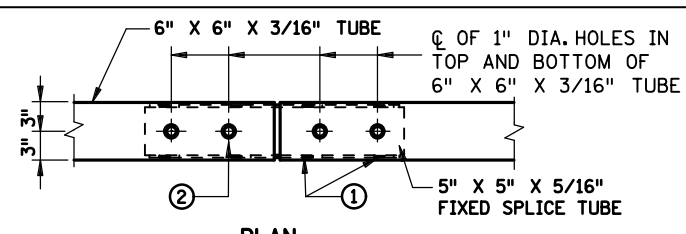


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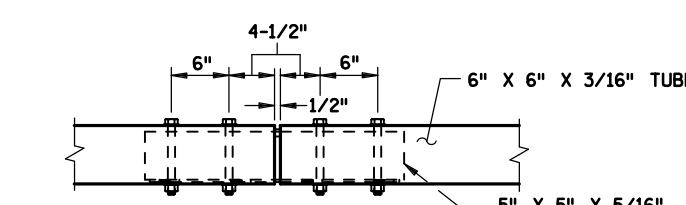


ELEVATION

EXPANSION SPLICE ASSEMBLY

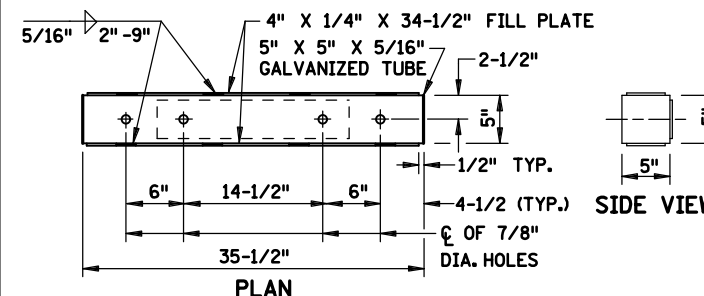


PLAN



ELEVATION

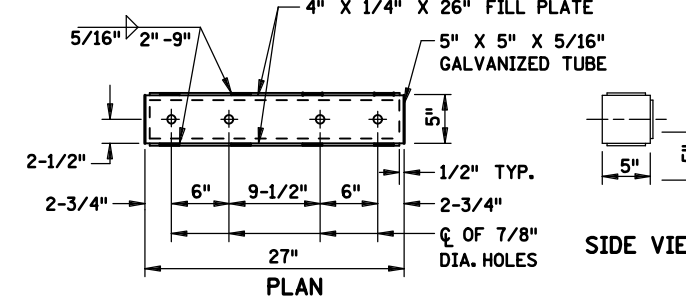
FIXED SPLICE ASSEMBLY



SIDE VIEW

PLAN

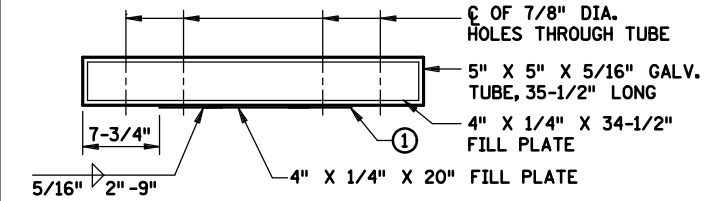
EXPANSION SPLICE TUBE



SIDE VIEW

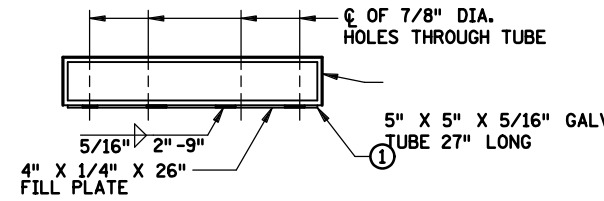
PLAN

FIXED SPLICE TUBE



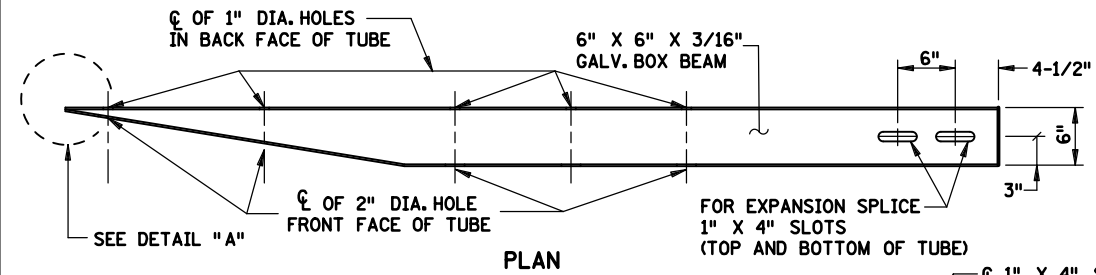
ELEVATION

EXPANSION SPLICE TUBE



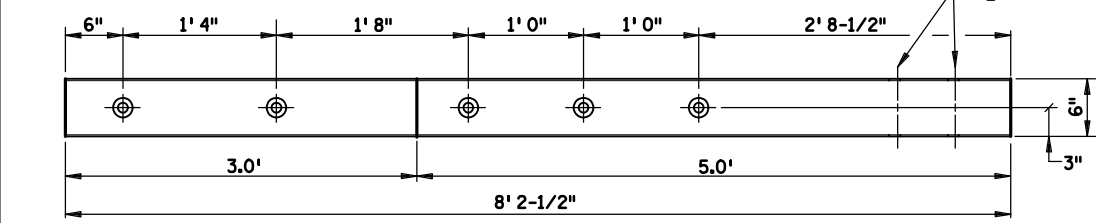
ELEVATION

FIXED SPLICE TUBE

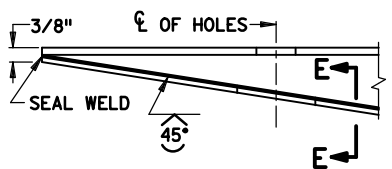


PLAN

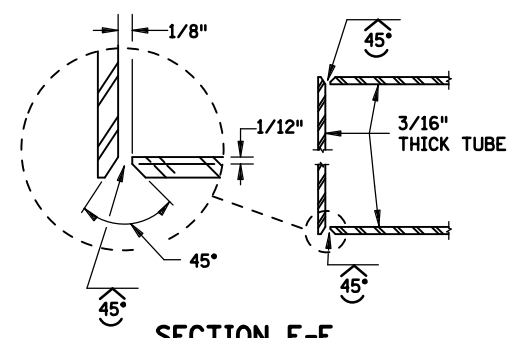
END CONNECTION FOR BOX BEAM GUIDE RAIL



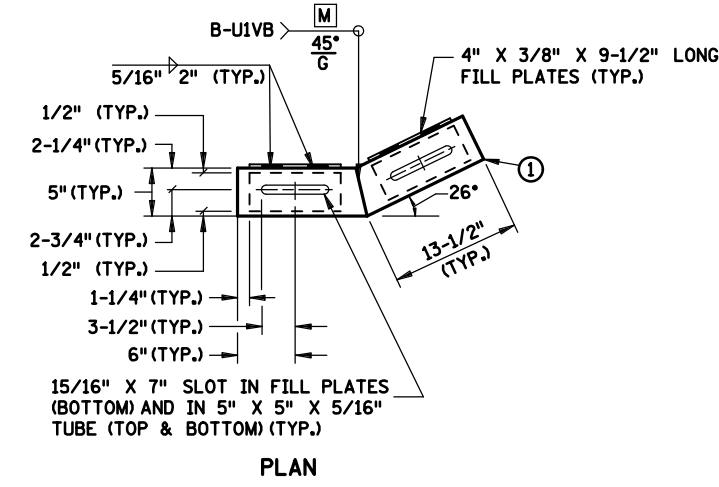
ELEVATION



DETAIL "A"  
NOT TO SCALE

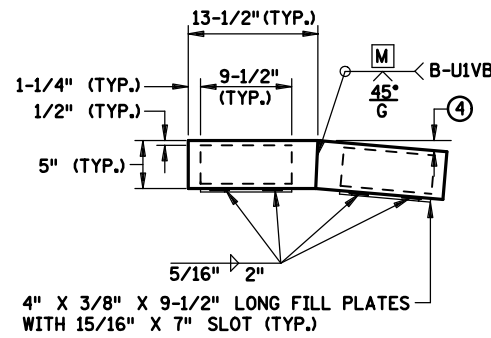


SECTION E-E  
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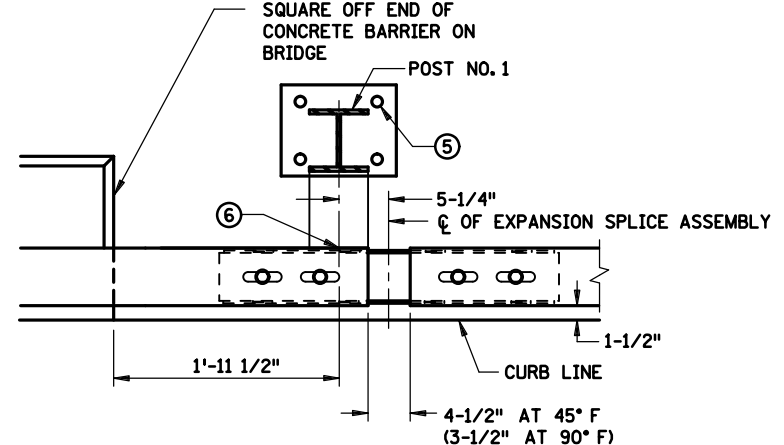


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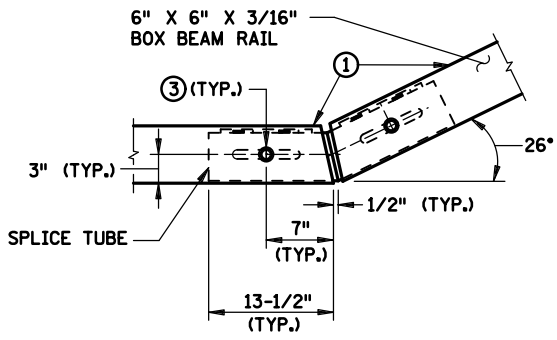
SPLICE TUBE DETAIL FOR TURN BACK



ELEVATION

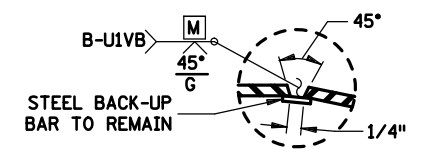


SPECIAL POST DETAIL FOR EXPANSION SPLICE



PLAN

SPLICE DETAIL AT TURN BACK IN LOWER TRANSITION GUIDE RAIL



WELD DETAIL FOR SPLICE TUBE  
NOT TO SCALE

NOTES:

- ① PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES, AND FILL PLATES.
- ② 3/4" DIA. FULLY THREADED BOLTS, 7-1/2" LONG (ASTM A-325 TYPE 1 OR 3, OR A-307 TYPE 3), TWO WASHERS, AND A HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT AND THE FIRST THREAD BELOW THE NUT TO BE DAMAGED AS ORDERED BY ENGINEER. FOUR BOLTS AT EACH SPLICE.
- ③ 7/8" DIA. HOLE IN BOX BEAM (TOP AND BOTTOM) FOR 3/4" DIA. BOLTS 7-1/2" LONG BOLTS (ASTM A-325 TYPE 1 OR 3, OR A-449 TYPE 1) W/NUTS, TWO STANDARD WASHERS (ONE TOP & ONE BOTTOM) AND ONE LOCK WASHER (GALVANIZED) (TYPICAL)
- ④ THIS ANGLE IS DETERMINED BY THE (3" CLEAR ...) NOTE AT THE END OF THE BOX BEAM. SEE "ELEVATION" DETAIL ON SHEET 1.
- ⑤ FOUR - 1" DIA. ANCHOR STUDS FULLY THREADED (ASTM A-325 TYPE 1 OR 3, OR A-449 TYPE 1) 12" LONG WITH FOUR HEAVY HEX NUTS AND TWO FLAT WASHERS EACH. (ONE WASHER ON EACH SIDE OF BASE PLATE.
- ⑥ NO BOLT IS REQUIRED BETWEEN THE BLOCKOUT AND THIS BOX BEAM ON THIS POST ONLY.

TRAFFIC BARRIER DESIGN SPECIAL

BOX BEAM TRANSITION TO CONCRETE F-SHAPE BARRIER CURB TRANSITION AND SPLICE DETAILS		APPROVED: 05-27-2014 REVISED:	<i>Christopher Roy</i> CHRISTOPHER ROY STATE DESIGN ENGINEER	STANDARD PLAN 5-297.686	3 OF 3
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STANDARD PLAN

STATE PROJ. NO.	SHEET NO.
TRUNK HWY.	TOTAL SHEETS