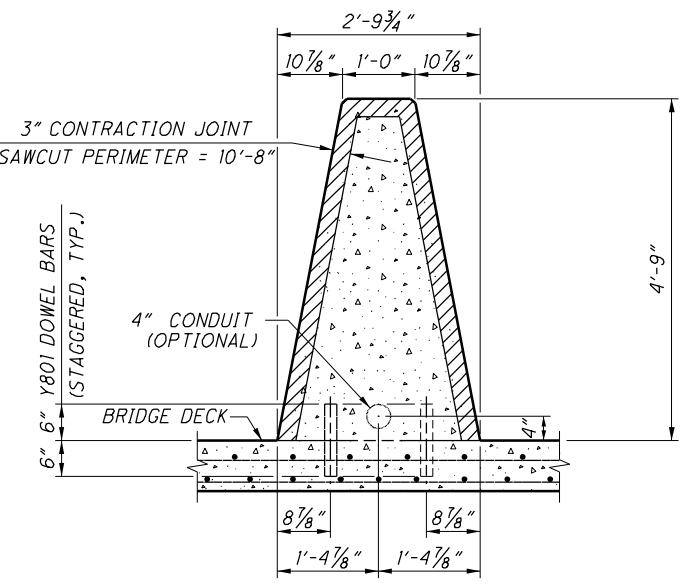


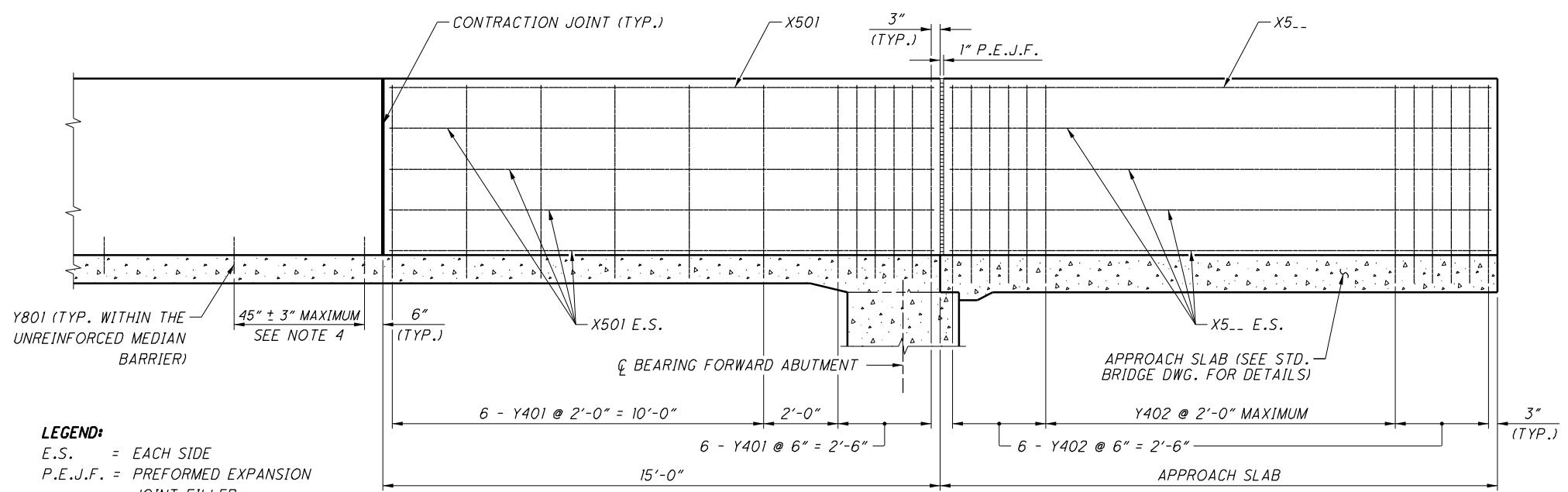
PLAN VIEW

57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING TYPE BI WITH SEMI-INTEGRAL ABUTMENT SHOWN (INTEGRAL ABUTMENT AND CAPPED PILE ABUTMENT SIMILAR) (FORWARD ABUTMENT SHOWN. REAR ABUTMENT SIMILAR, BUT OPPOSITE HAND)



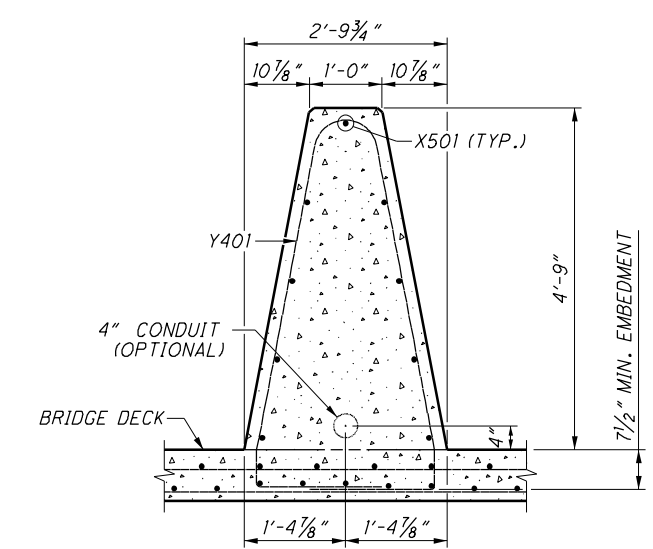
SECTION B-B (AREA = 9.05 SQ. FT.)

REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)



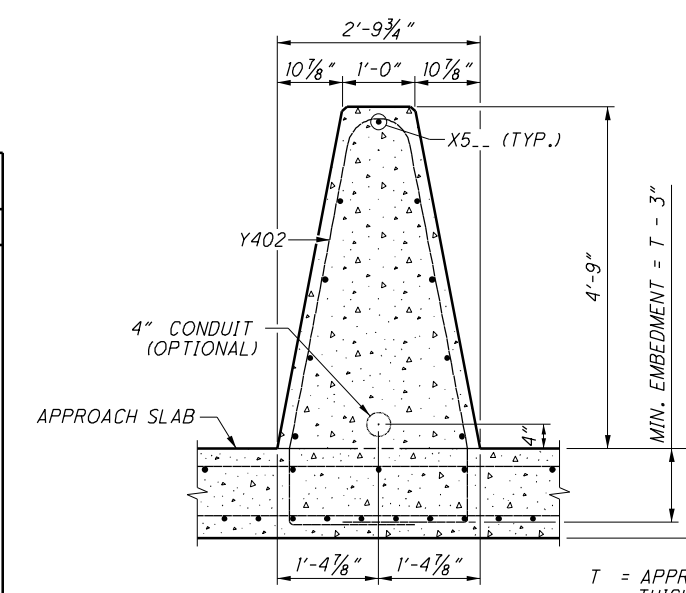
SECTION A-A

LEGEND:
 E.S. = EACH SIDE
 P.E.J.F. = PREFORMED EXPANSION JOINT FILLER



SECTION C-C

REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)

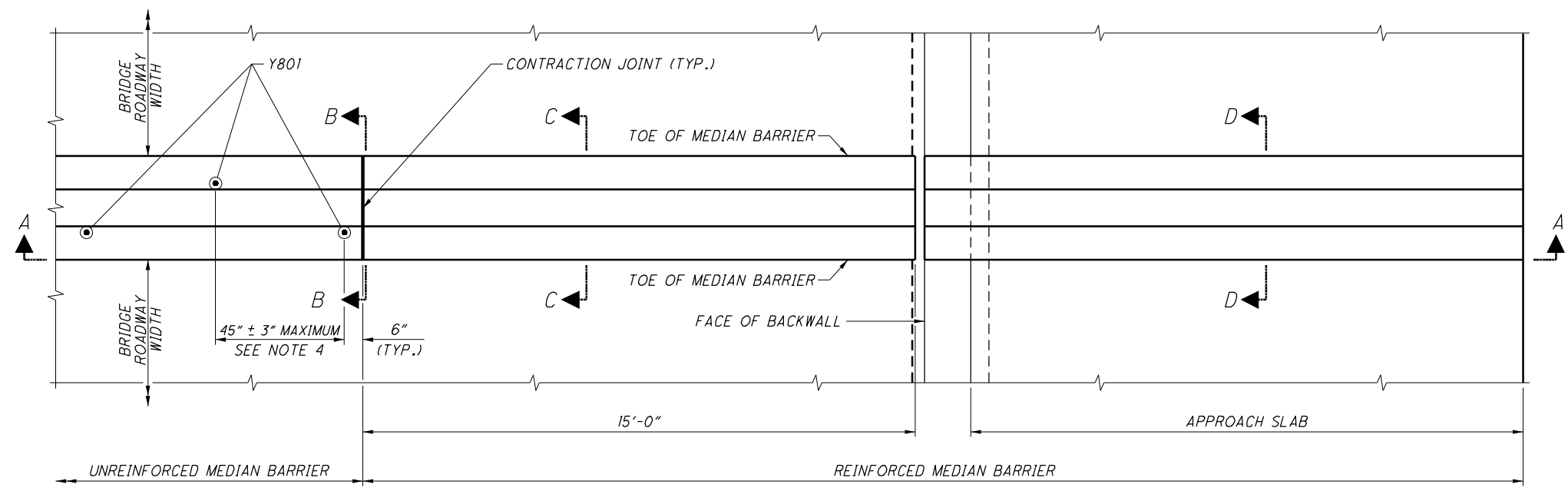


SECTION D-D

T = APPROACH SLAB THICKNESS

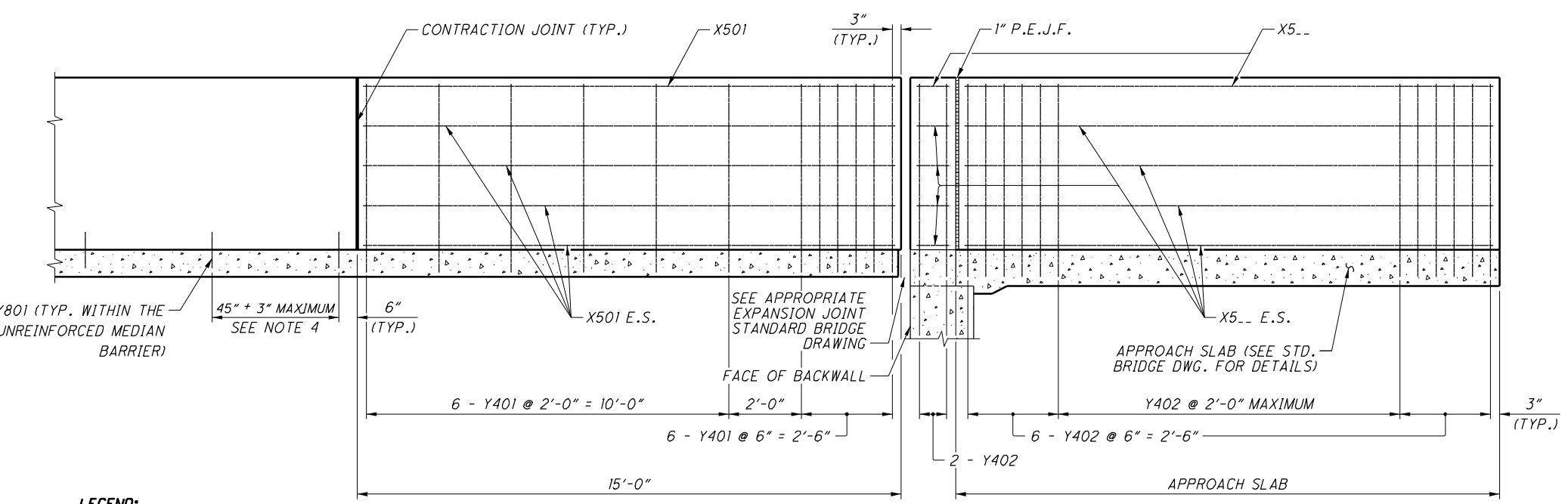
- NOTES:**
- FOR 57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING, PROJECT PLANS SHALL INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING WEIGHTS.
 - FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, PROJECT PLANS SHALL SHOW THE LOCATION OF CONTRACTION JOINTS, SPACED AT 20'-0" MAX.
 - CONTRACTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.
 - PLACE #8 EPOXY COATED DOWEL BARS (Y801 BARS), 12" LONG, SPACED AT 45" ± 3" MAXIMUM, AT STAGGERED LOCATIONS WITHIN THE UNREINFORCED MEDIAN BARRIER.
 - SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
 - FOR ROADWAY SINGLE SLOPE BARRIER, SEE STD. ROADWAY CONSTR. DWG. RM-4.3 THROUGH RM-4.5.
 - PROVIDE 3" OPEN GAP JOINT AT THE END OF APPROACH SLAB TO ACCOMMODATE THE LONGITUDINAL MOVEMENT FROM SUPERSTRUCTURE WITH SEMI-INTEGRAL OR INTEGRAL ABUTMENTS.
 - FOR GENERAL NOTES, SEE SHEET 5/5.

REINFORCING STEEL LIST			
MARK	LENGTH	TYPE	BENDING DIAGRAMS
X501	14'-8"	STR	
X5_	⊕	STR	
Y401	2A + 13'-0"	BENT	
Y402	2B + 13'-0"	BENT	
Y801	1'-0"	STR	
⊕ SEE PROJECT PLANS.			



PLAN VIEW

57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING TYPE B1 WITH TYPICAL ABUTMENT SHOWN
(FORWARD ABUTMENT SHOWN. REAR ABUTMENT SIMILAR, BUT OPPOSITE HAND)



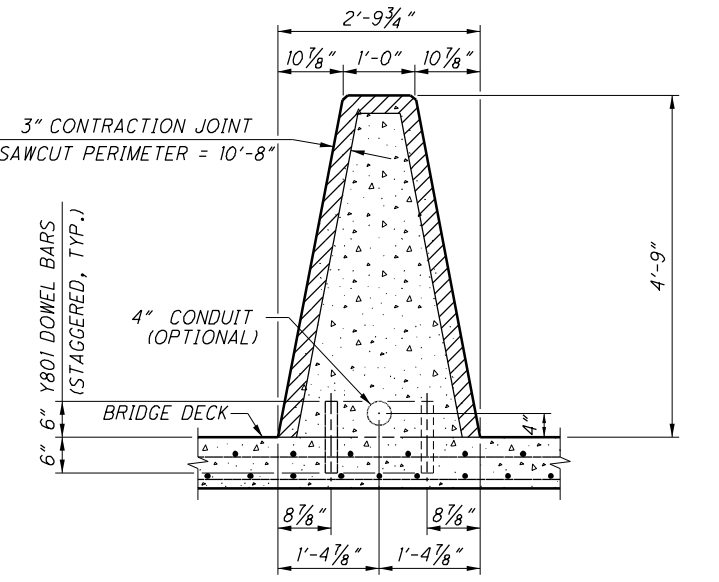
SECTION A-A

REINFORCING STEEL LIST

MARK	LENGTH	TYPE	BENDING DIAGRAMS
X501	14'-8"	STR	
X5..	⊕	STR	
Y401	2A + 13'-0"	BENT	
Y402	2B + 13'-0"	BENT	
Y801	1'-0"	STR	

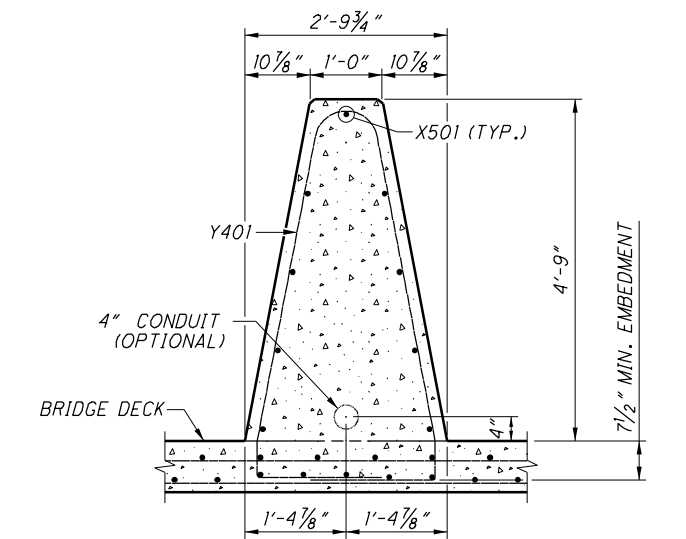
⊕ SEE PROJECT PLANS.

- NOTES:**
- FOR 57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING, PROJECT PLANS SHALL INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING WEIGHTS.
 - FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, PROJECT PLANS SHALL SHOW THE LOCATION OF CONTRACTION JOINTS, SPACED AT 20'-0" MAX.
 - CONTRACTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.
 - PLACE #8 EPOXY COATED DOWEL BARS (Y801 BARS), 12" LONG, SPACED AT 45" ± 3" MAXIMUM, AT STAGGERED LOCATIONS WITHIN THE UNREINFORCED MEDIAN BARRIER.
 - SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
 - FOR ROADWAY SINGLE SLOPE BARRIER, SEE STD. ROADWAY CONSTR. DWG. RM-4.3 THROUGH RM-4.5.
 - FOR GENERAL NOTES, SEE SHEET 5/5.



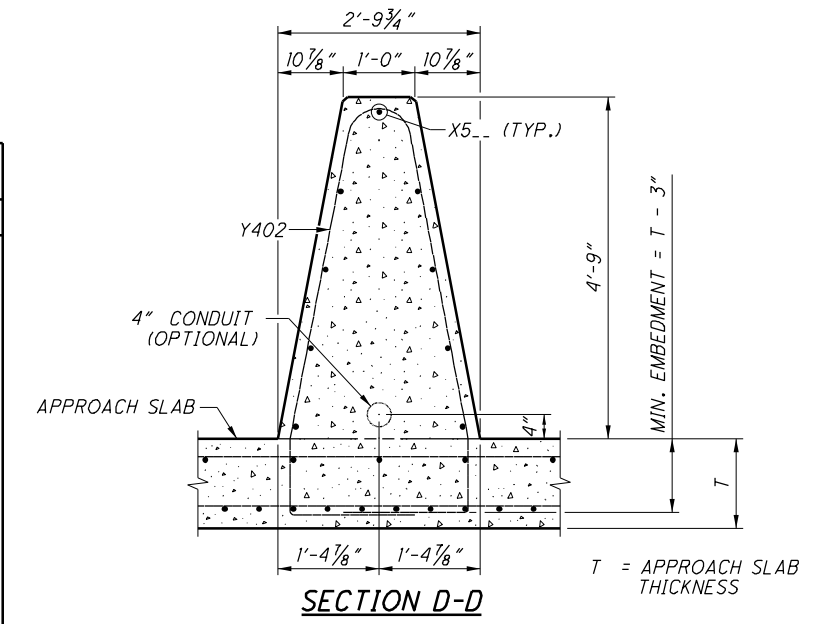
SECTION B-B (AREA = 9.05 SQ. FT.)

REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE T-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)



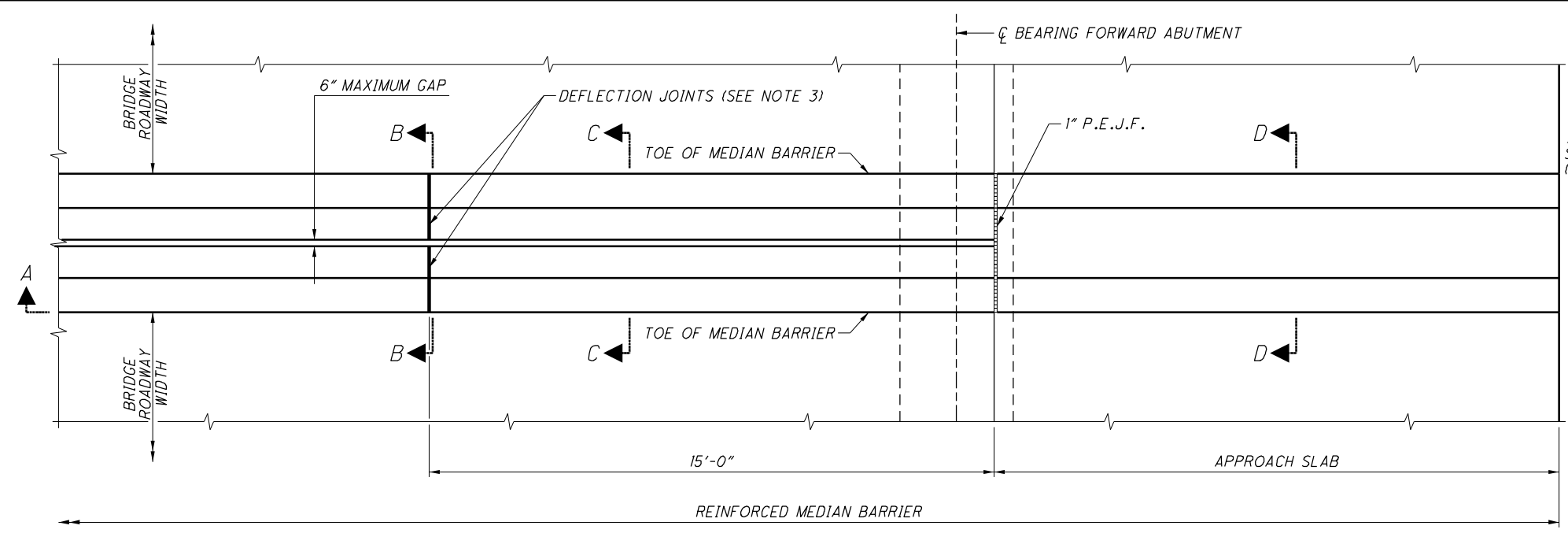
SECTION C-C

REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE T-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)



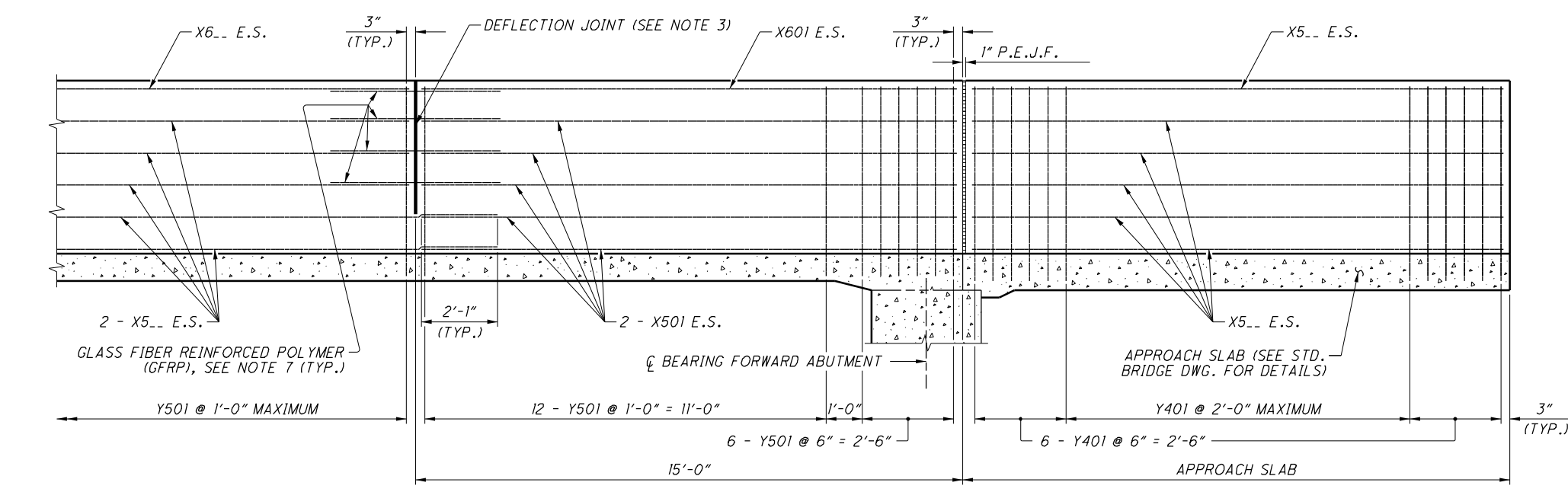
SECTION D-D

T = APPROACH SLAB THICKNESS



PLAN VIEW

57" SINGLE SLOPE BACK-TO-BACK CONCRETE MEDIAN BRIDGE RAILINGS WITH SEMI-INTEGRAL ABUTMENT SHOWN (INTEGRAL ABUTMENT AND CAPPED PILE ABUTMENT SIMILAR) (FORWARD ABUTMENT SHOWN. REAR ABUTMENT SIMILAR, BUT OPPOSITE HAND)

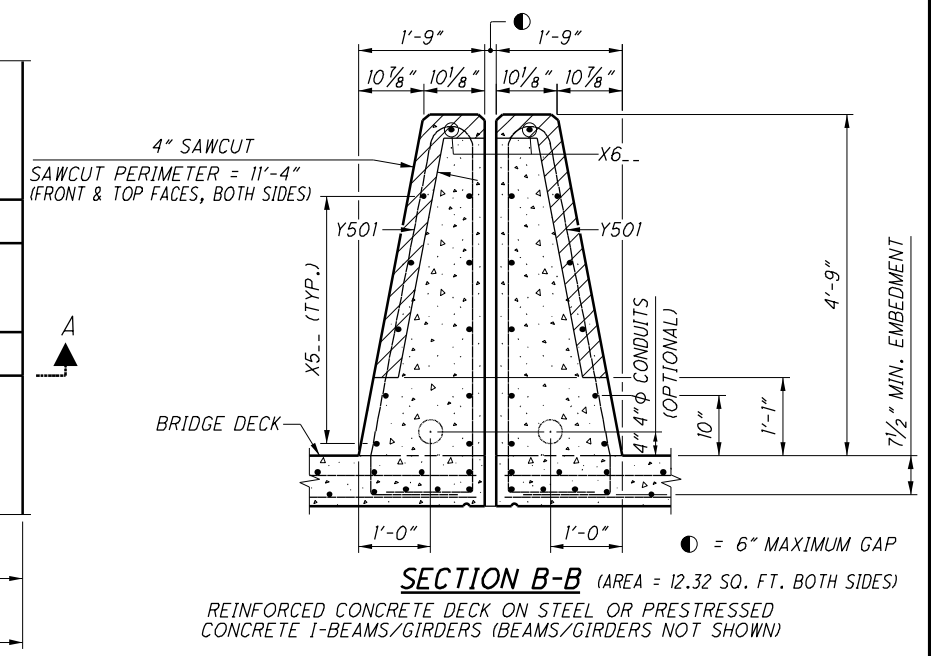


SECTION A-A

- LEGEND:**
E.S. = EACH SIDE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER

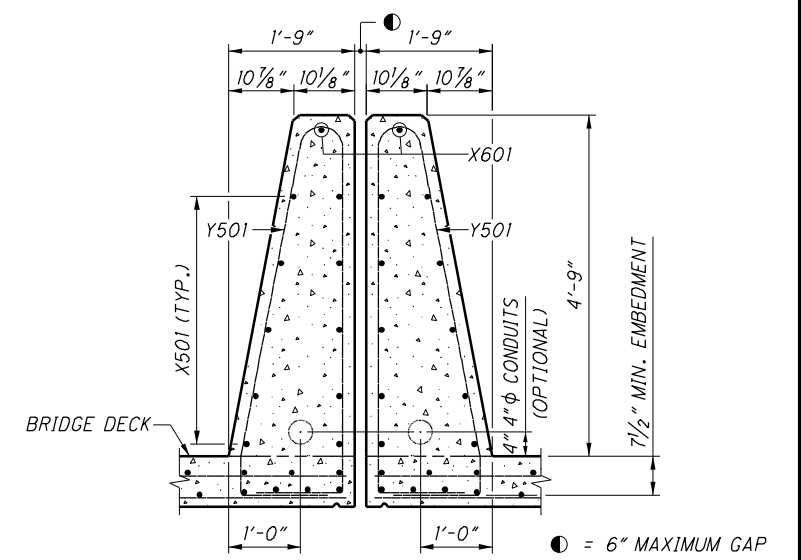
- NOTES:**
- FOR 57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING, PROJECT PLANS SHALL INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING WEIGHTS.
 - FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, PROJECT PLANS SHALL SHOW THE LOCATIONS OF DEFLECTION JOINTS.
 - DEFLECTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.
 - SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
 - FOR SINGLE SLOPE BARRIER BEYOND THE STRUCTURE (ROADWAY BARRIER), SEE STD. ROADWAY CONSTR. DWG. RM-4.3 THROUGH RM-4.5.
 - PROVIDE 3" OPEN GAP JOINT AT THE END OF APPROACH SLAB TO ACCOMMODATE THE LONGITUDINAL MOVEMENT FROM SUPERSTRUCTURE WITH SEMI-INTEGRAL OR INTEGRAL ABUTMENTS.
 - FOR DEFLECTION JOINT DETAILS AND ADDITIONAL NOTES, SEE SHEET [5/5].

REINFORCING STEEL LIST			BENDING DIAGRAMS	
MARK	LENGTH	TYPE		
X501	14'-8"	STR		
X5_	⊕	STR		
X601	14'-8"	STR		
X6_	⊕	STR		
Y401	2B + C + D + 10'-0"	BENT		
Y501	2A + 11'-9"	BENT		
			⊕ SEE PROJECT PLANS. B = APPROACH SLAB THICKNESS MINUS 3" C = 3'-2" + ● D = 1'-4" + ●	



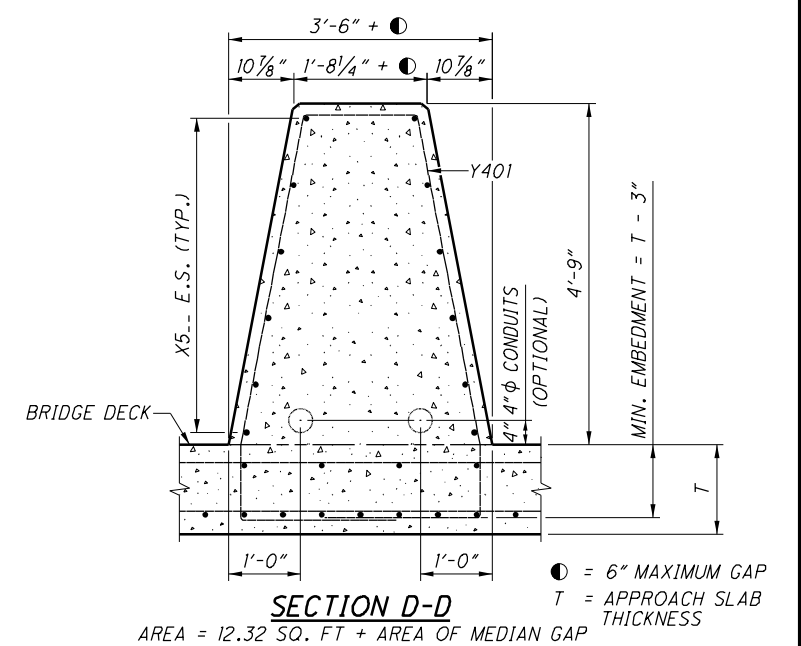
SECTION B-B (AREA = 12.32 SQ. FT. BOTH SIDES)

REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)



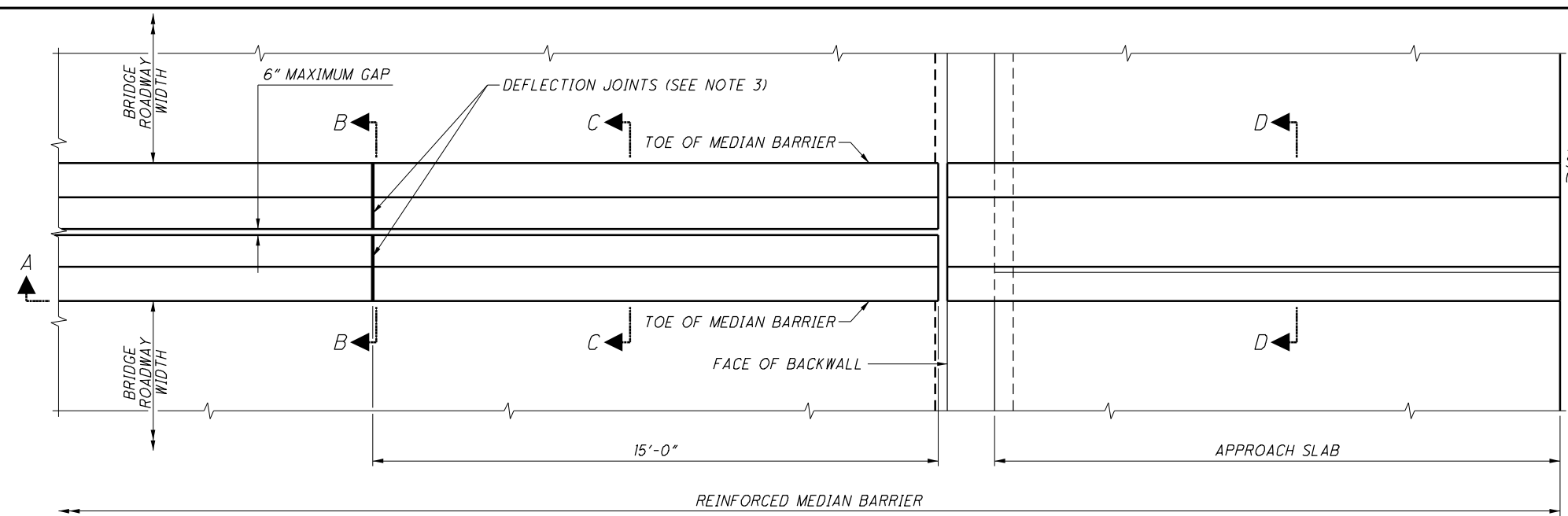
SECTION C-C

REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)

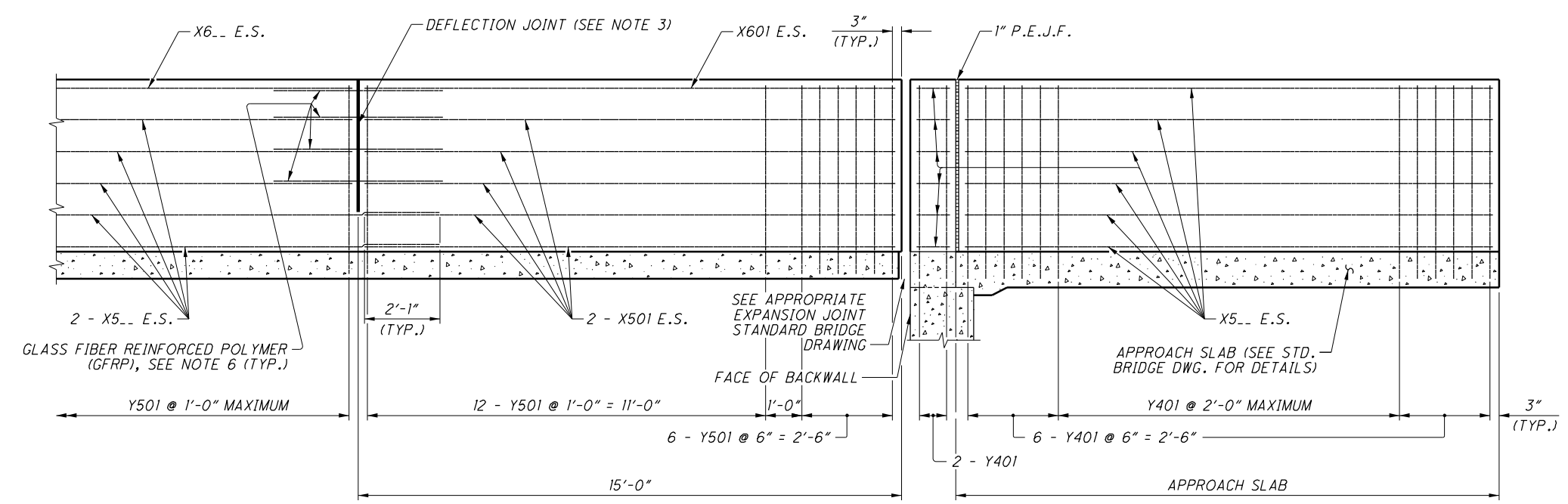


SECTION D-D

AREA = 12.32 SQ. FT. + AREA OF MEDIAN GAP



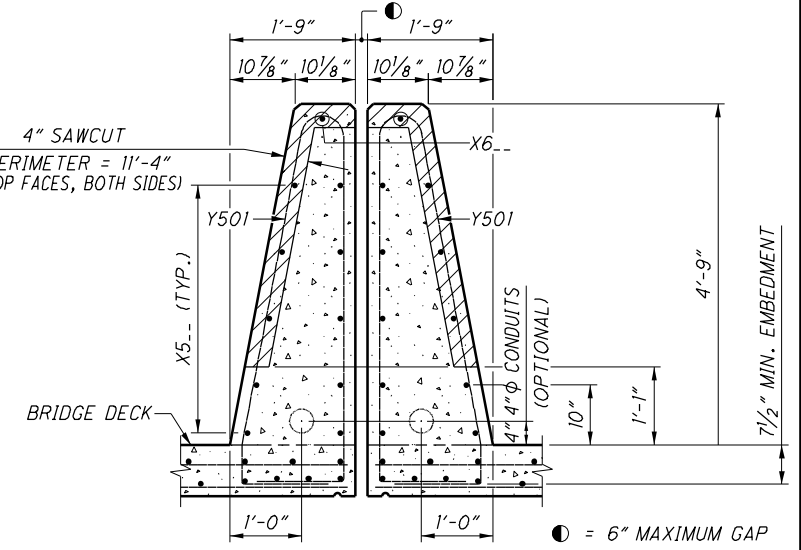
PLAN VIEW
57" SINGLE SLOPE BACK-TO-BACK CONCRETE MEDIAN BRIDGE RAILINGS WITH TYPICAL ABUTMENT SHOWN
(FORWARD ABUTMENT SHOWN. REAR ABUTMENT SIMILAR, BUT OPPOSITE HAND)



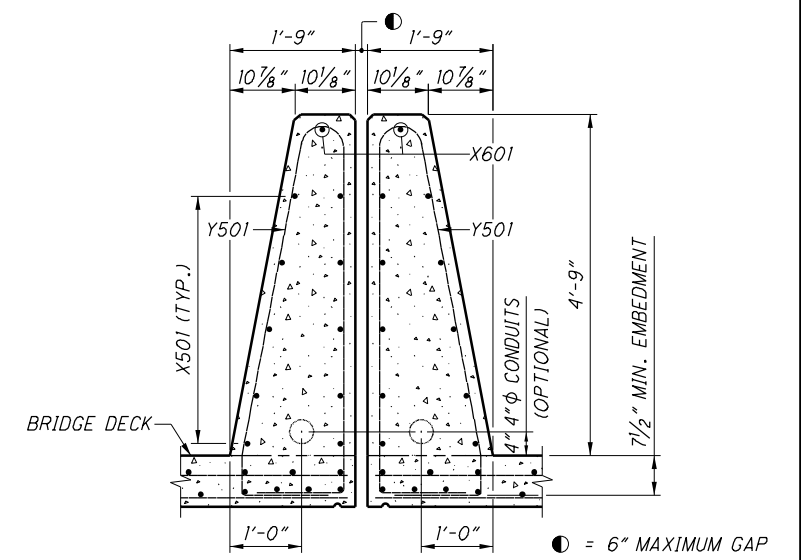
SECTION A-A

REINFORCING STEEL LIST			BENDING DIAGRAMS	
MARK	LENGTH	TYPE		
X501	14'-8"	STR		
X5...	⊕	STR		
X601	14'-8"	STR		
X6...	⊕	STR		
Y401	2B + C + D + 10'-0"	BENT	<p>B = APPROACH SLAB THICKNESS MINUS 3"</p> <p>C = 3'-2" + ⓐ</p> <p>D = 1'-4" + ⓐ</p>	
Y501	2A + 11'-9"	BENT	<p>ⓐ SEE PROJECT PLANS.</p>	

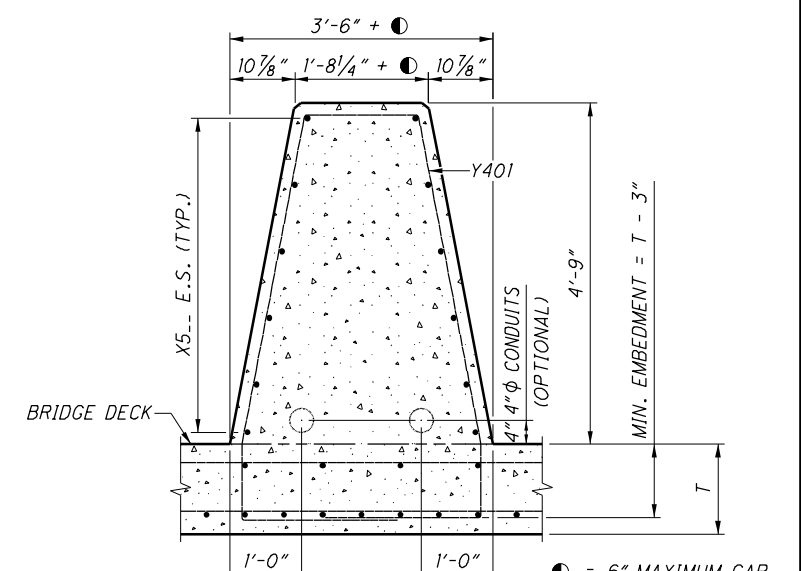
4" SAWCUT
SAWCUT PERIMETER = 11'-4"
(FRONT & TOP FACES, BOTH SIDES)



SECTION B-B (AREA = 12.32 SQ. FT. BOTH SIDES)
REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)



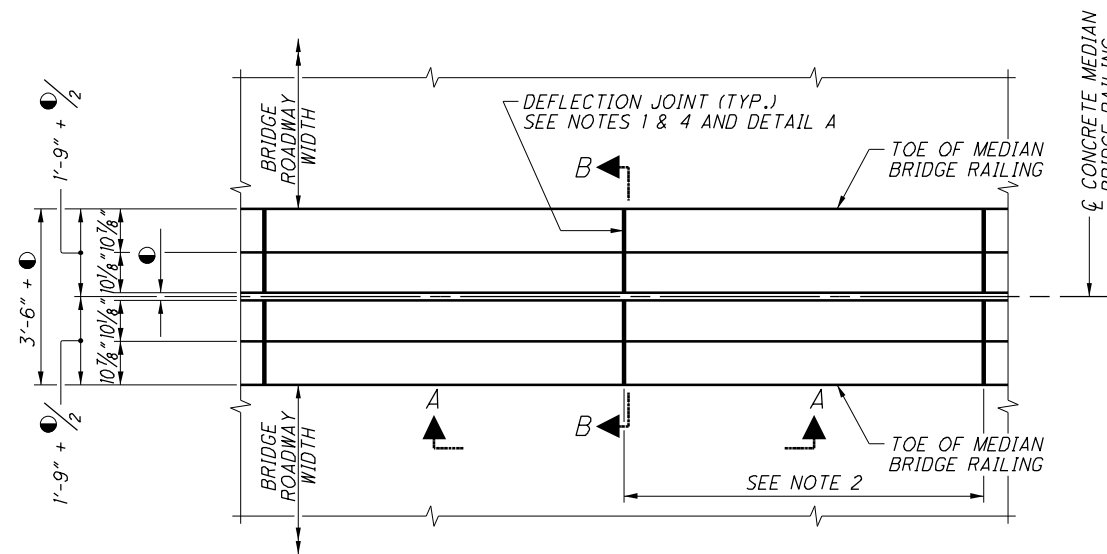
SECTION C-C
REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)



SECTION D-D
AREA = 12.32 SQ. FT. + AREA OF MEDIAN GAP
T = APPROACH SLAB THICKNESS

LEGEND:
E.S. = EACH SIDE

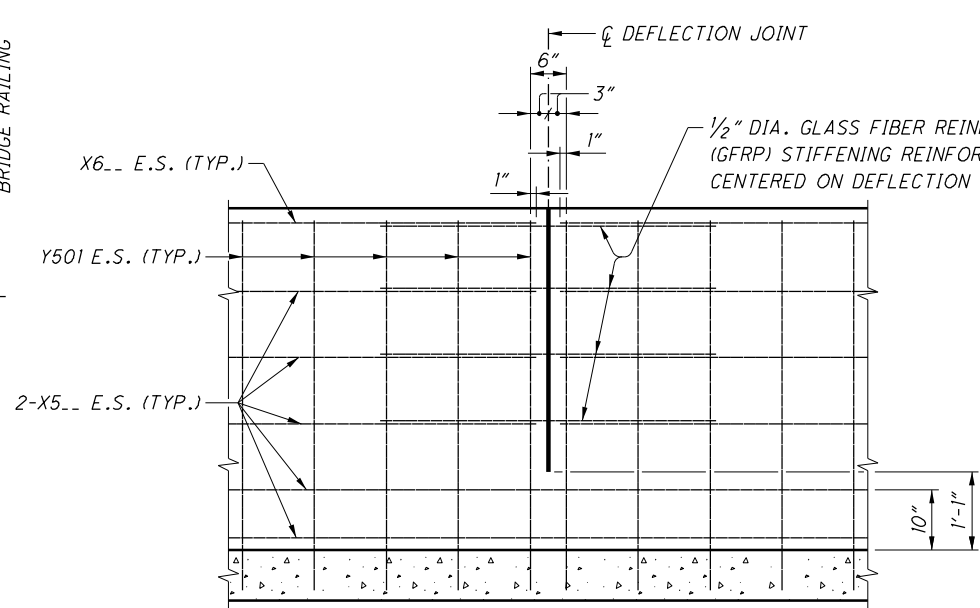
- NOTES:**
- FOR 57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING, PROJECT PLANS SHALL INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING WEIGHTS.
 - FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, PROJECT PLANS SHALL SHOW THE LOCATIONS OF DEFLECTION JOINTS.
 - DEFLECTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.
 - SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
 - FOR SINGLE SLOPE BARRIER BEYOND THE STRUCTURE (ROADWAY BARRIER), SEE STD. ROADWAY CONSTR. DWG. RM-4.3 THROUGH RM-4.5.
 - FOR DEFLECTION JOINT DETAILS AND ADDITIONAL NOTES, SEE SHEET [5/5].



○ = 6" MAXIMUM GAP

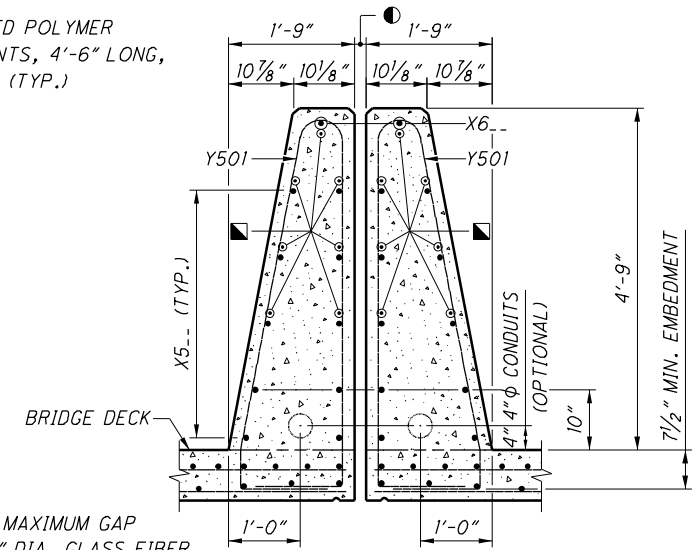
PLAN VIEW

DEFLECTION JOINT DETAIL FOR 57" SINGLE SLOPE BACK-TO-BACK CONCRETE MEDIAN BRIDGE RAILINGS (SEE SHEETS [3/5] AND [4/5])



SECTION A-A

GFRP REBAR STIFFENING DETAIL AT DEFLECTION JOINT FOR 57" SINGLE SLOPE BACK-TO-BACK CONCRETE MEDIAN BRIDGE RAILINGS (SEE NOTE 3)



SECTION B-B

REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)

○ = 6" MAXIMUM GAP
 ◼ = 1/2" DIA. GLASS FIBER REINFORCED POLYMER (GFRP) STIFFENING REINFORCEMENT

NOTES:

- FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, PROJECT PLANS SHALL SHOW THE LOCATIONS OF DEFLECTION JOINTS.
- DEFLECTION JOINT SPACING SHALL NOT EXCEED 15'-0" ON CENTERS. FOR CONTINUOUS STRUCTURES, THE DEFLECTION JOINTS WITHIN THE DEAD LOAD CONTRAFLEXURE (NEGATIVE MOMENT REGIONS OVER PIER LOCATIONS) SHALL BE SPACED NOT LESS THAN 5'-0" NOR MORE THAN 7'-6" ON CENTERS.
- PAYMENT FOR 1/2" DIA. GLASS FIBER REINFORCED POLYMER (GFRP) STIFFENING REINFORCEMENT SHALL BE INCLUDED WITH CONTRACT PRICE FOR ITEM 509 - EPOXY COATED REINFORCING STEEL.
- LIMITS OF SAWCUT IS SHOWN IN DETAIL A. THE 4" SAWCUT DEPTH SHOWN IN DETAIL A IS THE MINIMUM REQUIRED. HOWEVER, THE CONTRACTOR HAS AN OPTION TO PERFORM FULL DEPTH SAWCUT.

DESIGN CRITERIA:

57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS TYPE B1 MEET THE REQUIREMENTS OF NCHRP 350 TEST LEVEL 3 AND "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS", 2012.

57" SINGLE SLOPE BACK-TO-BACK CONCRETE MEDIAN BRIDGE RAILINGS MEET THE REQUIREMENTS OF NCHRP 350 TEST LEVEL 5 AND "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS", 2012.

DESIGN DATA:

CONCRETE - COMPRESSIVE STRENGTH = 4.5 KSI
 REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60 KSI

AREA OF 57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING IS SHOWN ON SHEETS [1/5] THROUGH [4/5].

CONTRACTION JOINTS FOR 57" SINGLE SLOPE UNREINFORCED CONCRETE MEDIAN BRIDGE RAILINGS TYPE B1 (SHEETS [1/5] AND [2/5]):

SEE STD. ROADWAY CONSTR. DWG. RM-4.3 THROUGH RM-4.5 FOR NOTES.

DEFLECTION JOINTS FOR 57" SINGLE SLOPE BACK-TO-BACK REINFORCED CONCRETE MEDIAN BRIDGE RAILINGS (SHEETS [3/5] AND [4/5]):

SAWCUT 1/4 INCH DEEP DEFLECTION JOINTS ALONG THE PERIMETER OF THE MEDIAN BRIDGE RAILING WHEN THE CONCRETE IS STILL GREEN OR AS SOON AS THE SAW CAN BE OPERATED WITHOUT DAMAGING THE CONCRETE.

AFTER THE CONCRETE CURING PERIOD SPECIFIED IN CMS 511.14 HAS BEEN REACHED, PERFORM 4" SAWCUT THROUGH THE GFRP AS SHOWN IN DETAIL A.

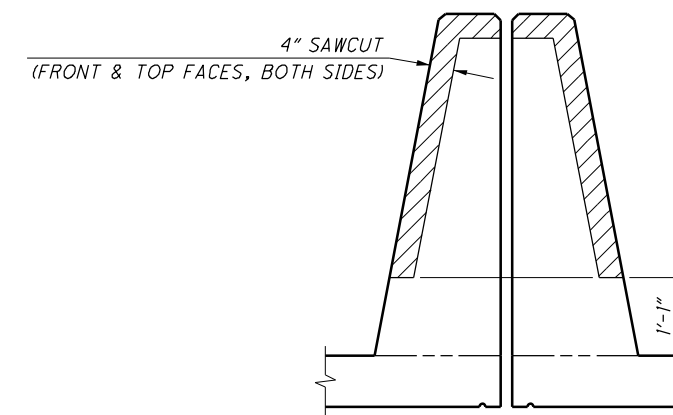
THE CONTRACTOR HAS AN OPTION TO PERFORM FULL DEPTH SAWCUT. HOWEVER, THE SAWCUT SHALL NOT BE LESS THAN 1'-1" FROM THE TOP OF THE CONCRETE DECK SLAB.

USE AN EDGE GUIDE, FENCE, OR JIG TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE MEDIAN BRIDGE RAILING. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4 INCH.

SEAL THE PERIMETER OF THE DEFLECTION JOINTS TO A MINIMUM DEPTH OF ONE INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM 1/2 INCH OF BOTH FRONT FACES OF THE MEDIAN BRIDGE RAILINGS UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

AT EACH DEFLECTION JOINT LOCATION, USE GLASS FIBER REINFORCED POLYMER (GFRP) REINFORCEMENT TO MAINTAIN THE RIGIDITY OF THE CAGE ACROSS THE PROPOSED JOINTS AT THOSE LONGITUDINAL BARS AS SHOWN IN SECTIONS A-A & B-B ABOVE. OTHER NON-FERROUS REINFORCEMENT MAY BE PROPOSED FOR USE, SUBJECT TO APPROVAL BY THE ENGINEER.

DEFLECTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.



DETAIL A

SECTION THROUGH SAWCUT
 SAWCUT PERIMETER = 11'-4" (BOTH SIDES)

MAXIMUM SPACING OF VERTICAL REINFORCING BARS:

THE MAXIMUM SPACING OF VERTICAL REINFORCING BARS FOR THE 57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING TYPE B1 SHALL BE 2'-0".

THE MAXIMUM SPACING OF VERTICAL REINFORCING BARS FOR THE 57" SINGLE SLOPE BACK-TO-BACK CONCRETE MEDIAN BRIDGE RAILING SHALL BE 1'-0".

MINIMUM EMBEDMENT OF VERTICAL REINFORCING BARS:

IF THE MINIMUM EMBEDMENT SHOWN FOR THE VERTICAL REINFORCING BARS INTO THE BRIDGE DECK IS NOT MET, THEN THE DESIGNER SHALL CALCULATE THE REQUIRED REINFORCEMENT ACCORDING TO SECTION 13 OF THE "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS.