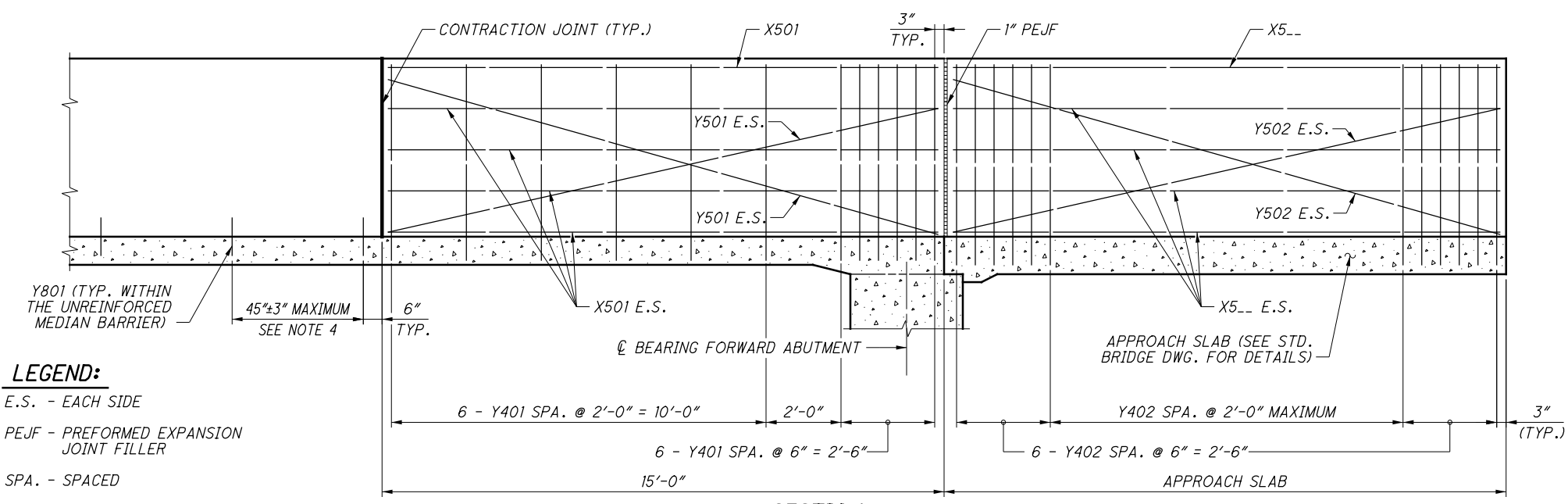


PLAN VIEW

57" SINGLE SLOPE MEDIAN BRIDGE RAILING TYPE B1 SHOWN WITH SEMI-INTEGRAL ABUTMENT, INTEGRAL ABUTMENT AND CAPPED PILE ABUTMENTS SIMILAR. FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR BUT OPPOSITE



SECTION A-A

LEGEND:

- E.S. - EACH SIDE
- PEJF - PREFORMED EXPANSION JOINT FILLER
- SPA. - SPACED

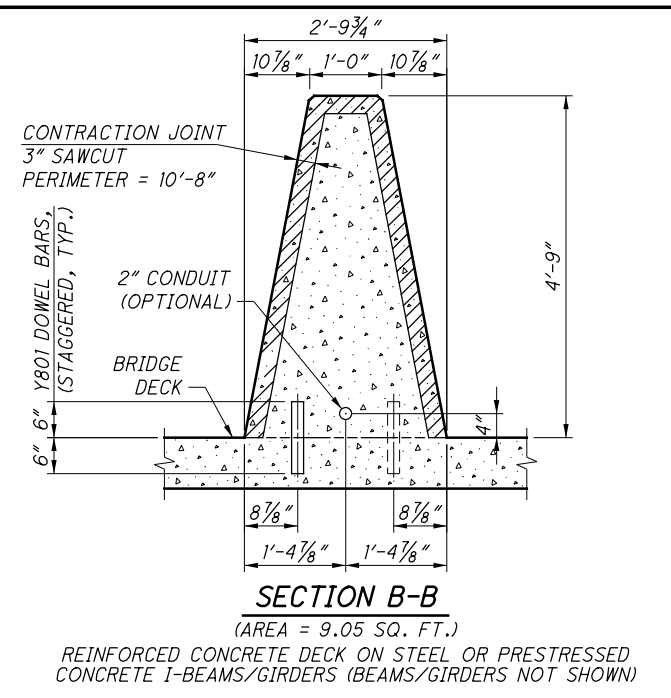
NOTES:

1. FOR 57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING, INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING QUANTITIES IN THE PROJECT PLANS.
2. FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, SHOW THE LOCATION OF CONTRACTION JOINTS, SPACED AT 20'-0" MAX IN THE PROJECT PLANS. CONTRACTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.
3. PLACE #8 EPOXY COATED DOWEL BARS (Y801 BARS), 12" LONG, SPACED AT 45" ± 3" MAXIMUM, AT STAGGERED LOCATIONS WITHIN THE UNREINFORCED MEDIAN BARRIER.
4. SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
5. FOR ROADWAY SINGLE SLOPE BARRIER, SEE STD. ROADWAY CONSTR. DWG. RM-4.3 THROUGH RM-4.5.
6. REFER TO AS-2-15 FOR APPLICABLE DETAILS FOR APPROACH SLAB JOINTS USED WITH SEMI-INTEGRAL AND INTEGRAL ABUTMENTS.
7. GLASS FIBER REINFORCED POLYMER (GFRP) MAY BE USED FOR THE HORIZONTAL BARS OR STIFFENING BARS AT NO ADDITIONAL COST TO THE DEPARTMENT.
8. FOR GENERAL NOTES, SEE SHEET 5/5.

REINFORCEMENT LIST

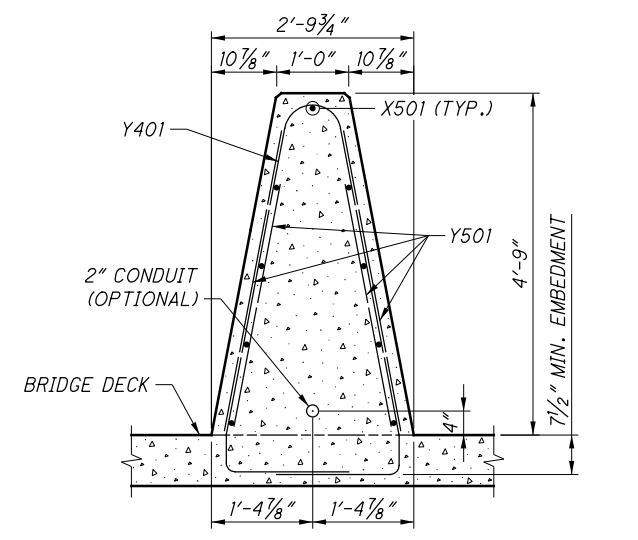
MARK	LENGTH	TYPE	MATERIAL	BENDING DIAGRAMS
X501	14'-8"	STR	STEEL	
X5...	⊕	STR	STEEL	
Y401	2A + 12'-10"	BENT	STEEL	
Y402	2B + 12'-10"	BENT	STEEL	
Y501	15'-0"	STR	STEEL	
Y502	⊕	STR	STEEL	
Y801	1'-0"	STR	STEEL	

⊕ SEE PROJECT PLANS
A = 7 1/2" MINIMUM EMBEDMENT
B = APPROACH SLAB THICKNESS MINUS 3"

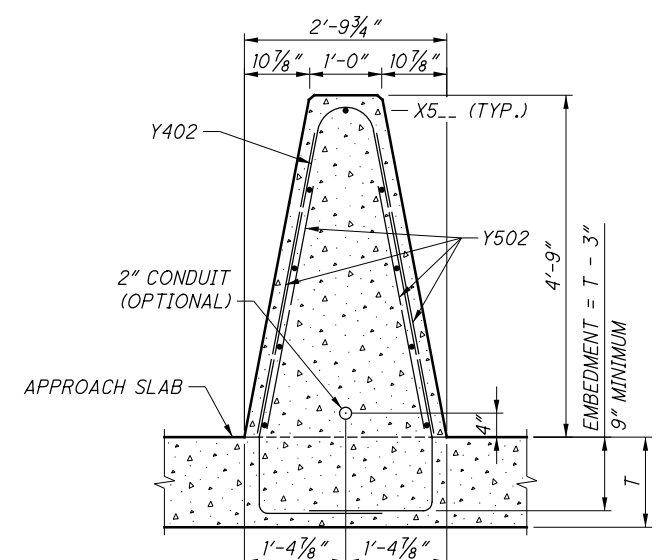


SECTION B-B

(AREA = 9.05 SQ. FT.)
REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)

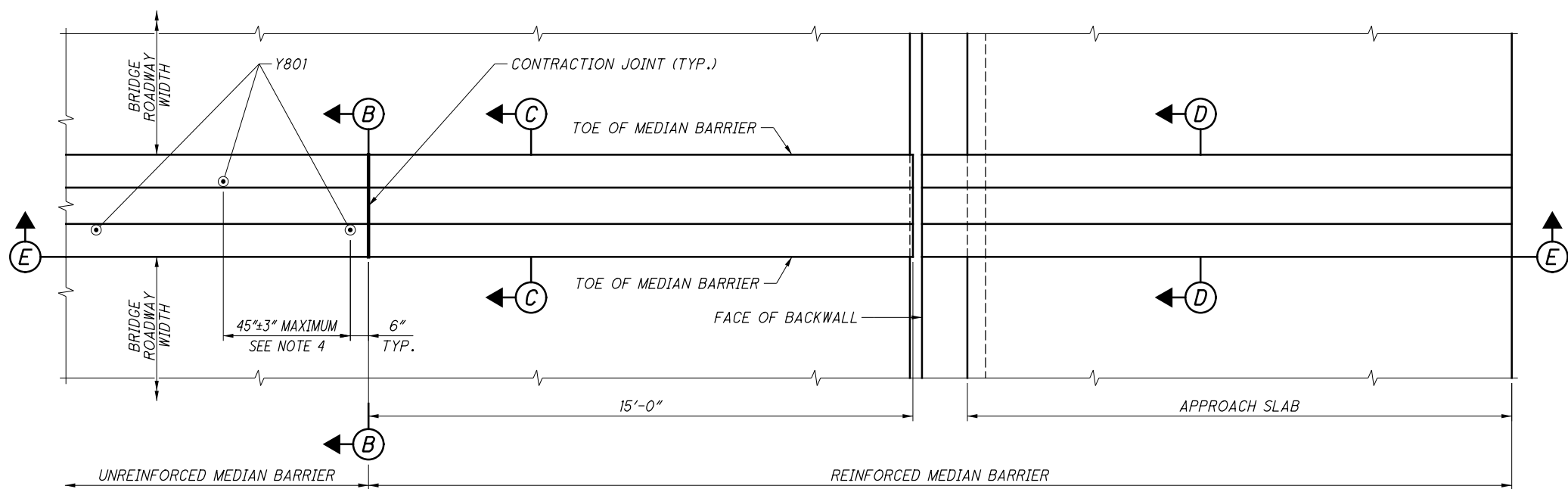


SECTION C-C



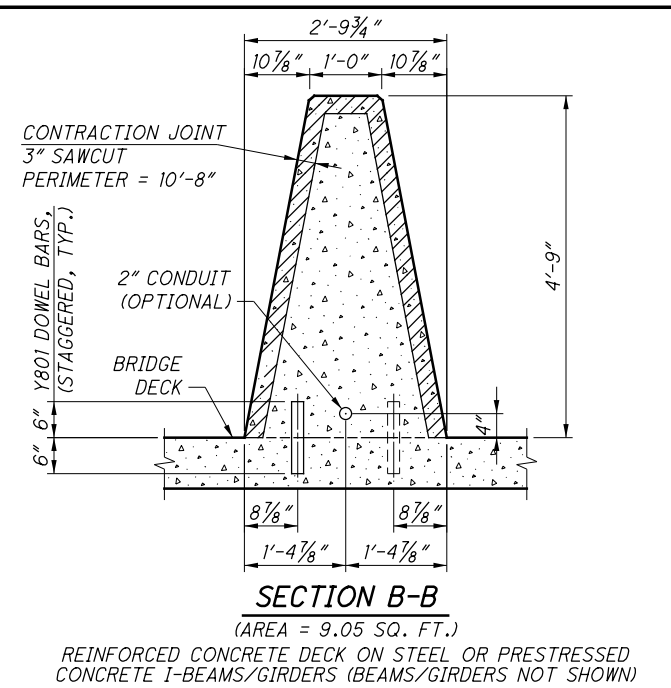
SECTION D-D

T = APPROACH SLAB THICKNESS



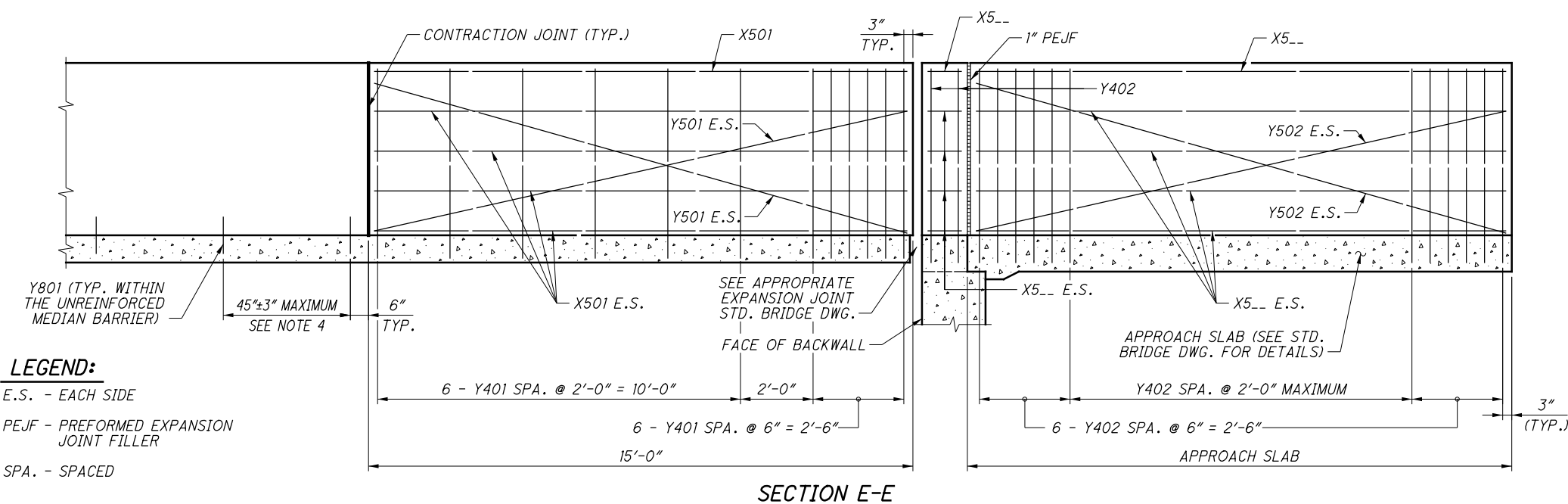
PLAN VIEW

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

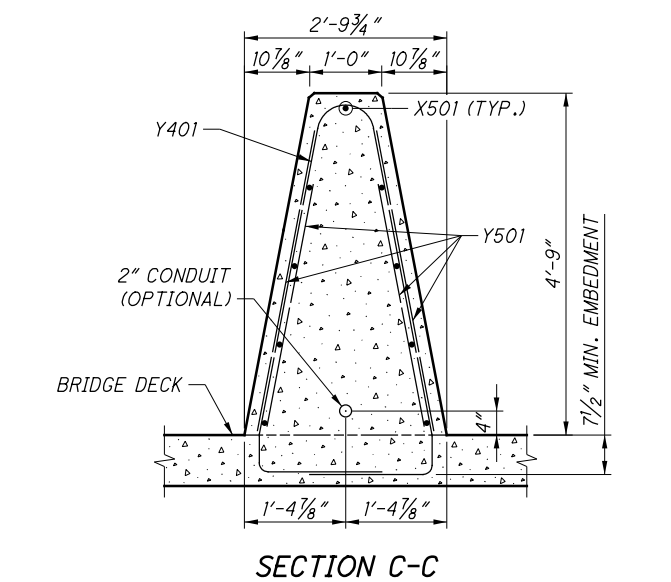


SECTION B-B

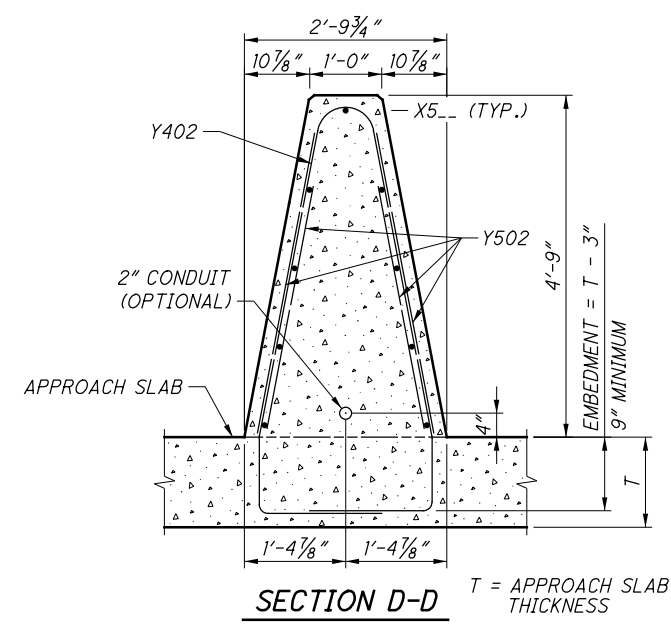
(AREA = 9.05 SQ. FT.)
REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)



SECTION E-E



SECTION C-C



SECTION D-D

LEGEND:

- E.S. - EACH SIDE
- PEJF - PREFORMED EXPANSION JOINT FILLER
- SPA. - SPACED

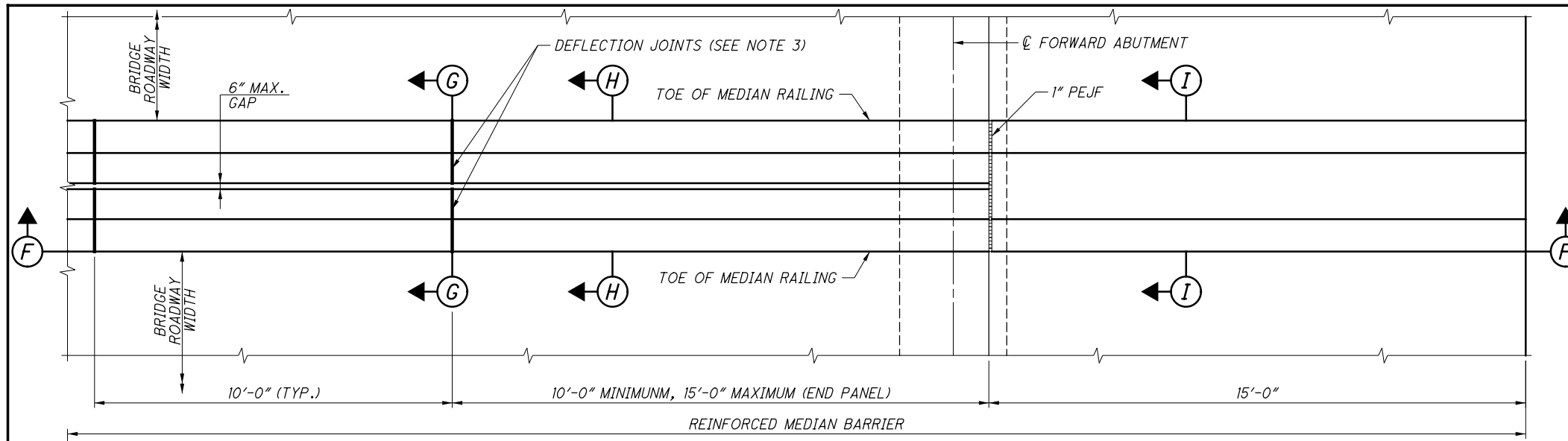
NOTES:

1. FOR 57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING, INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING QUANTITIES IN THE PROJECT PLANS.
2. FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, SHOW THE LOCATION OF CONTRACTION JOINTS, SPACED AT 20'-0" MAX IN THE PROJECT PLANS. CONTRACTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.
3. PLACE #8 EPOXY COATED DOWEL BARS (Y801 BARS), 12" LONG, SPACED AT 45" ± 3" MAXIMUM, AT STAGGERED LOCATIONS WITHIN THE UNREINFORCED MEDIAN BARRIER.
4. SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
5. FOR ROADWAY SINGLE SLOPE BARRIER, SEE STD. ROADWAY CONSTR. DWG. RM-4.3 THROUGH RM-4.5.
6. GLASS FIBER REINFORCED POLYMER (GFRP) MAY BE USED FOR THE HORIZONTAL BARS OR STIFFENING BARS AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. FOR GENERAL NOTES, SEE SHEET 5/5.

REINFORCEMENT LIST

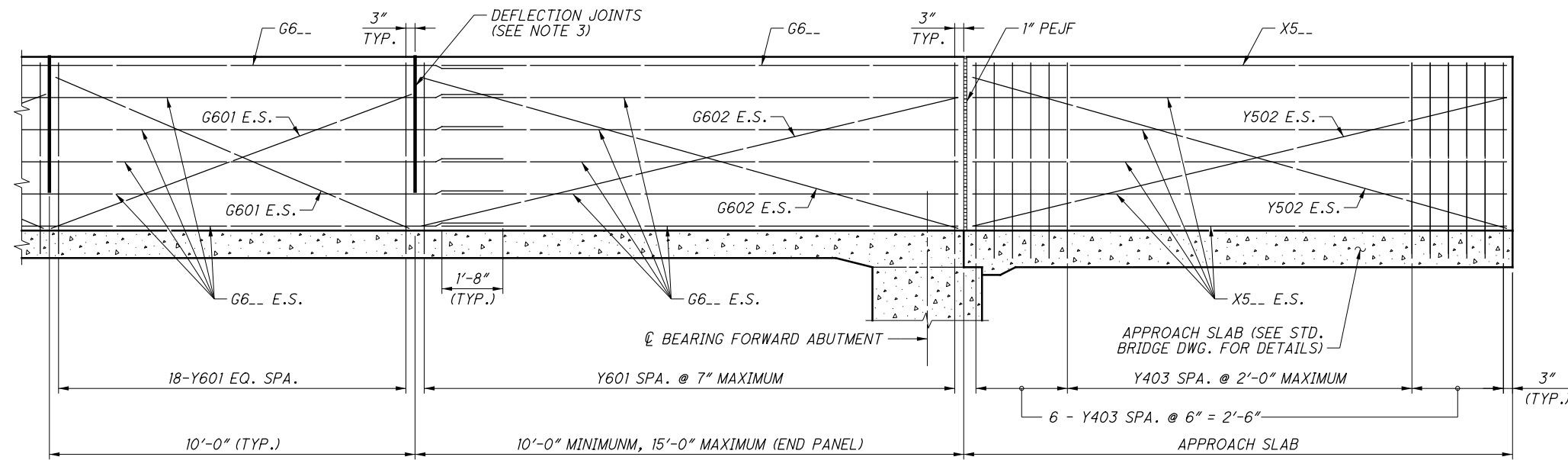
MARK	LENGTH	TYPE	MATERIAL	BENDING DIAGRAMS
X501	14'-8"	STR	STEEL	
X502	⊕	STR	STEEL	
Y401	2A + 12'-10"	BENT	STEEL	
Y402	2B + 12'-10"	BENT	STEEL	
Y501	15'-0"	STR	STEEL	
Y502	⊕	STR	STEEL	
Y801	1'-0"	STR	STEEL	

⊕ SEE PROJECT PLANS
A = 7 1/2" MINIMUM EMBEDMENT
B = APPROACH SLAB THICKNESS MINUS 3"



PLAN VIEW

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



SECTION F-F

REINFORCEMENT SHOWN IS ONLY FOR ONE SIDE OF THE BACK-TO-BACK MEDIAN BARRIERS

LEGEND:

- E.S. - EACH SIDE
- PEJF - PREFORMED EXPANSION JOINT FILLER
- SPA. - SPACED
- EQ. - EQUALLY
- MAX. - MAXIMUM

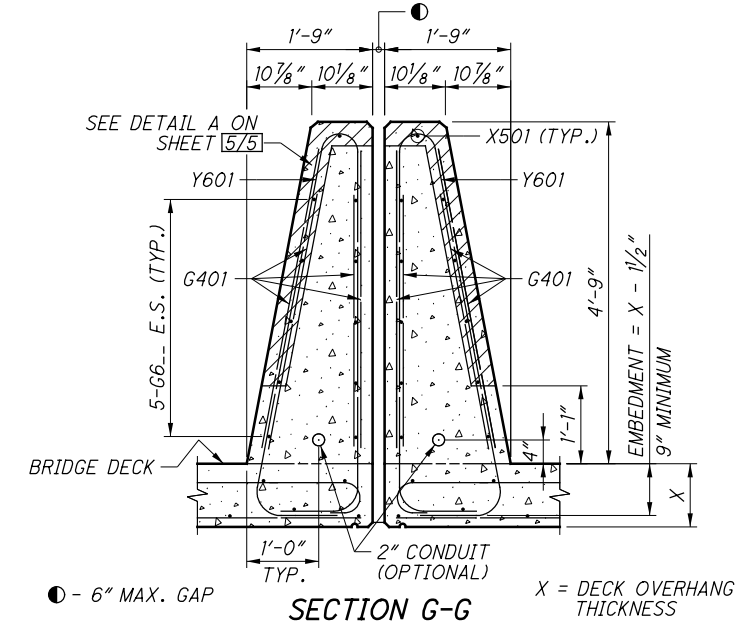
NOTES:

1. FOR 57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING, INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING QUANTITIES IN THE PROJECT PLANS.
2. FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, SHOW THE LOCATIONS OF DEFLECTION JOINTS IN THE PROJECT PLANS. DEFLECTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.
3. SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
4. FOR SINGLE SLOPE BARRIER BEYOND THE STRUCTURE (ROADWAY BARRIER), SEE STD. ROADWAY CONSTR. DWG. RM-4.3 THROUGH RM-4.5.
5. REFER TO AS-2-15 FOR APPLICABLE DETAILS FOR APPROACH SLAB JOINTS USED WITH SEMI-INTEGRAL AND INTEGRAL ABUTMENTS.
6. USE GLASS FIBER REINFORCED POLYMER (GFRP) FOR HORIZONTAL BARS (G600) AND STIFFENING BARS (G601 & G602).
7. GLASS FIBER REINFORCED POLYMER (GFRP) MAY BE USED FOR THE HORIZONTAL BARS OR STIFFENING BARS FOR THE APPROACH SLAB BARRIER AT NO ADDITIONAL COST TO THE DEPARTMENT.
8. FOR DEFLECTION JOINT DETAILS AND ADDITIONAL NOTES, SEE SHEET 5/5.

REINFORCEMENT LIST

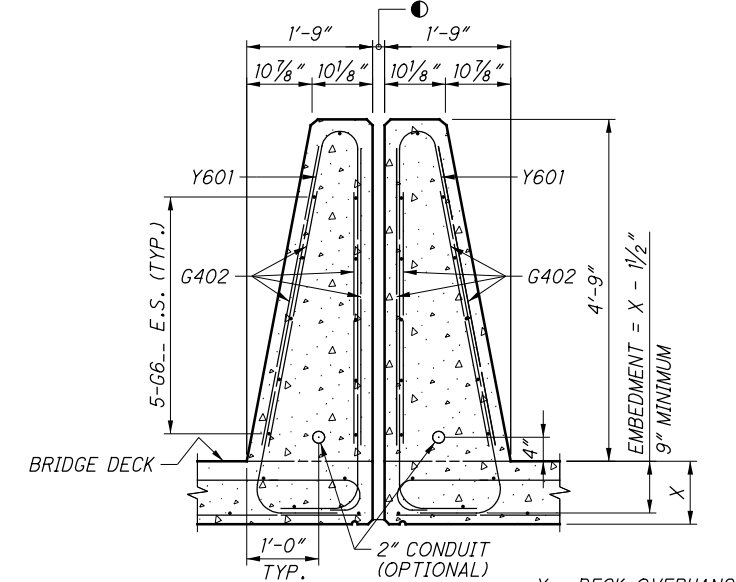
MARK	LENGTH	TYPE	MATERIAL	BENDING DIAGRAMS
X500	⊕	STR	STEEL	
Y403	2B + C + D + 9'-10"	BENT	STEEL	
Y502	⊕	STR	STEEL	
Y601	2E + 11'-6"	BENT	STEEL	
G601	10'-6"	STR	GFRP	
G602	⊕	STR	GFRP	
G600	⊕	STR	GFRP	

⊕ SEE PROJECT PLANS
 B = APPROACH SLAB THICKNESS MINUS 3"
 C = 3'-2" + ⓪ E = DECK OVERHANG THICKNESS MINUS 1 1/2"
 D = 1'-4" + ⓪

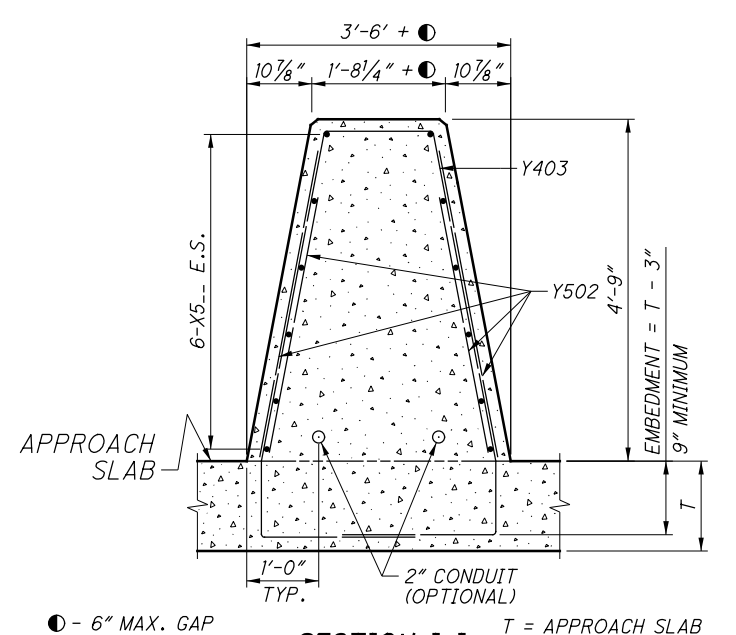


SECTION G-G

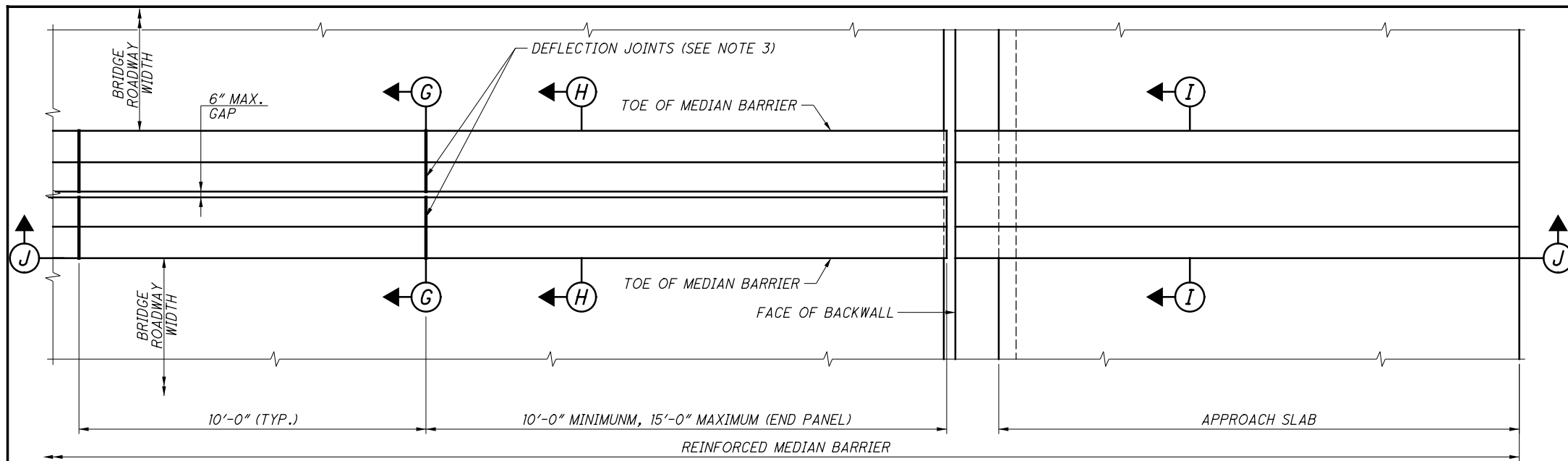
AREA = 12.32 SQ. FT. (TOTAL BOTH SIDES)
 REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)



SECTION H-H

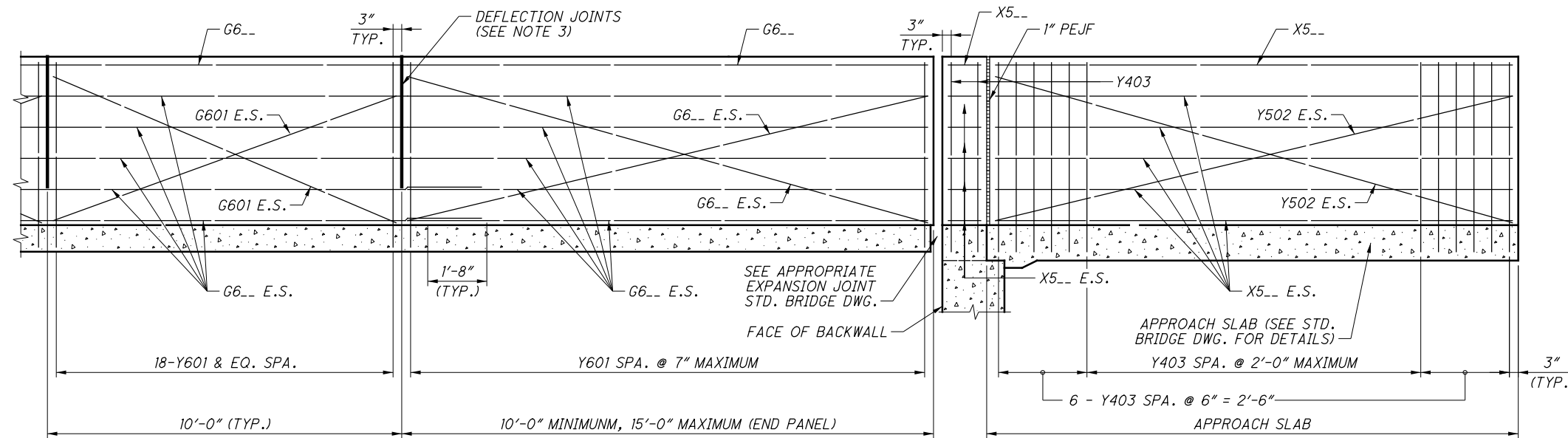


SECTION I-I



PLAN VIEW

57" SINGLE SLOPE BACK-TO BACK MEDIAN BRIDGE RAILINGS SHOWN WITH TYPICAL ABUTMENT.
FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR BUT OPPOSITE



SECTION J-J

REINFORCEMENT SHOWN IS ONLY FOR ONE SIDE OF THE BACK-TO-BACK MEDIAN BARRIERS

LEGEND:

- E.S. - EACH SIDE
- PEJF - PREFORMED EXPANSION JOINT FILLER
- SPA. - SPACED
- EQ. - EQUALLY
- MAX. - MAXIMUM

NOTES:

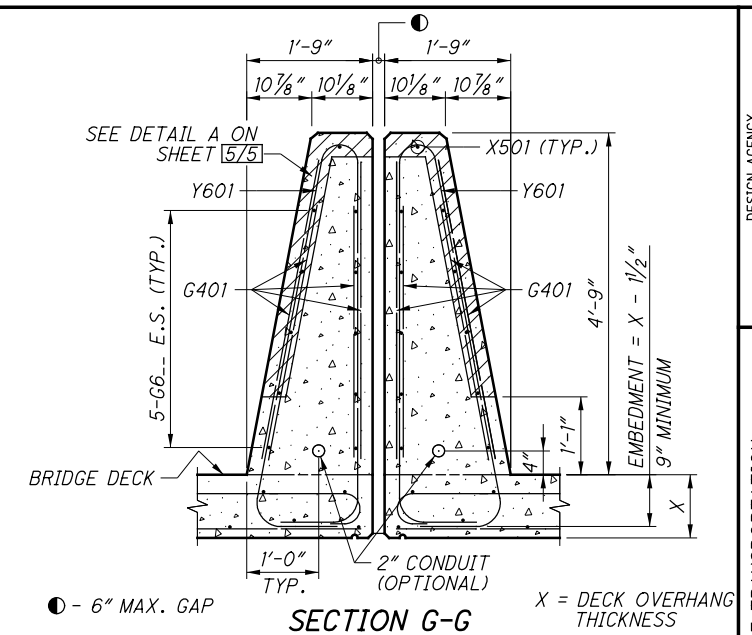
1. FOR 57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING, INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING QUANTITIES IN THE PROJECT PLANS.
2. FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, SHOW THE LOCATIONS OF DEFLECTION JOINTS IN THE PROJECT PLANS. DEFLECTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.
3. SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
4. FOR SINGLE SLOPE BARRIER BEYOND THE STRUCTURE (ROADWAY BARRIER), SEE STD. ROADWAY CONSTR. DWG. RM-4.3 THROUGH RM-4.5.
5. USE GLASS FIBER REINFORCED POLYMER (GFRP) FOR HORIZONTAL BARS (G6...) AND STIFFENING BARS (G601 & G602).
6. GLASS FIBER REINFORCED POLYMER (GFRP) MAY BE USED FOR THE HORIZONTAL BARS OR STIFFENING BARS FOR THE APPROACH SLAB BARRIER AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. FOR DEFLECTION JOINT DETAILS AND ADDITIONAL NOTES, SEE SHEET [5/5].

REINFORCEMENT LIST			
MARK	LENGTH	TYPE	MATERIAL
X5...	⊕	STR	STEEL
Y403	2B + C + D + 9'-10"	BENT	STEEL
Y502	⊕	STR	STEEL
Y601	2E + 11'-6"	BENT	STEEL
G601	10'-6"	STR	GFRP
G602	⊕	STR	GFRP
G6...	⊕	STR	GFRP

Y403

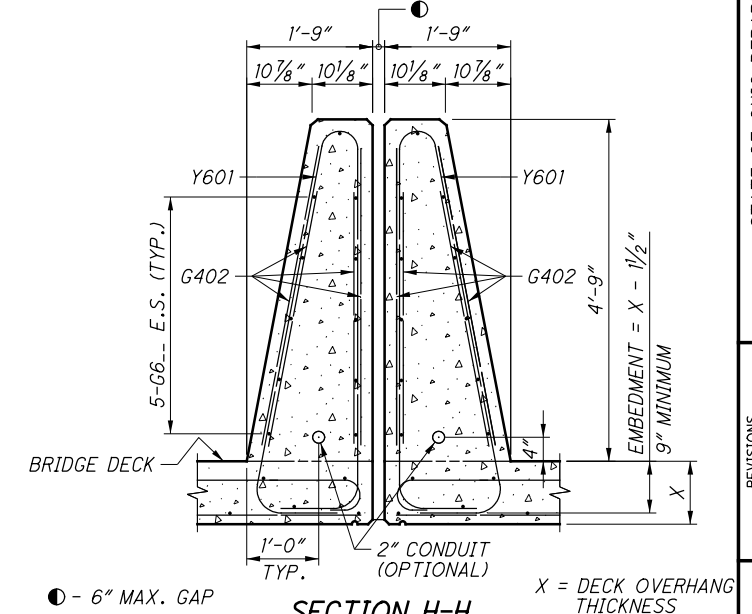
Y601

⊕ SEE PROJECT PLANS
 B = APPROACH SLAB THICKNESS MINUS 3"
 C = 3'-0" + ⓪ E = DECK OVERHANG THICKNESS MINUS 1 1/2"
 D = 1'-3" + ⓪

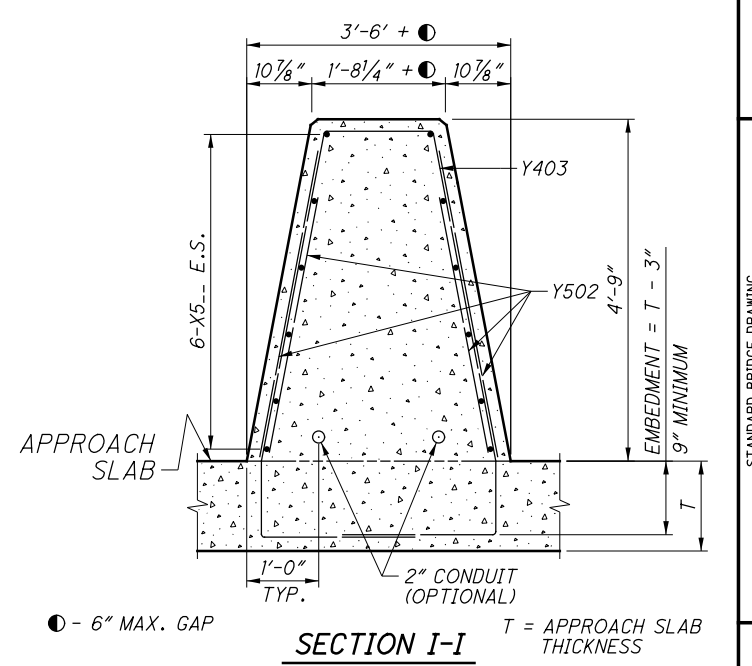


SECTION G-G

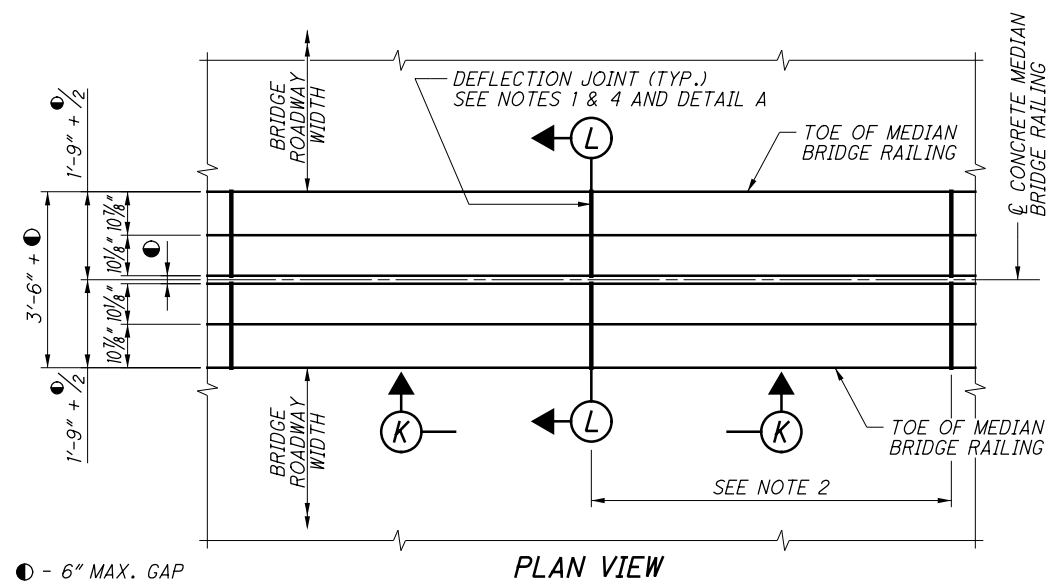
AREA = 12.32 SQ. FT. (TOTAL BOTH SIDES)
REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)



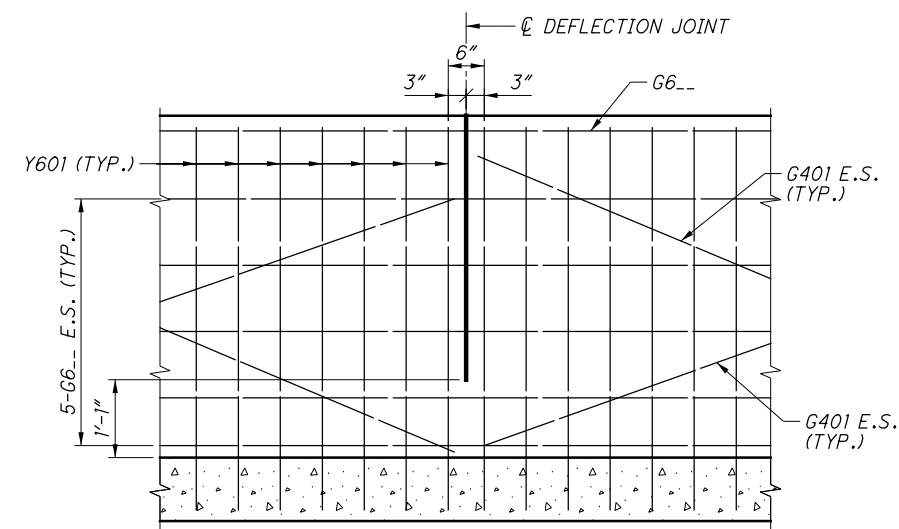
SECTION H-H



SECTION I-I

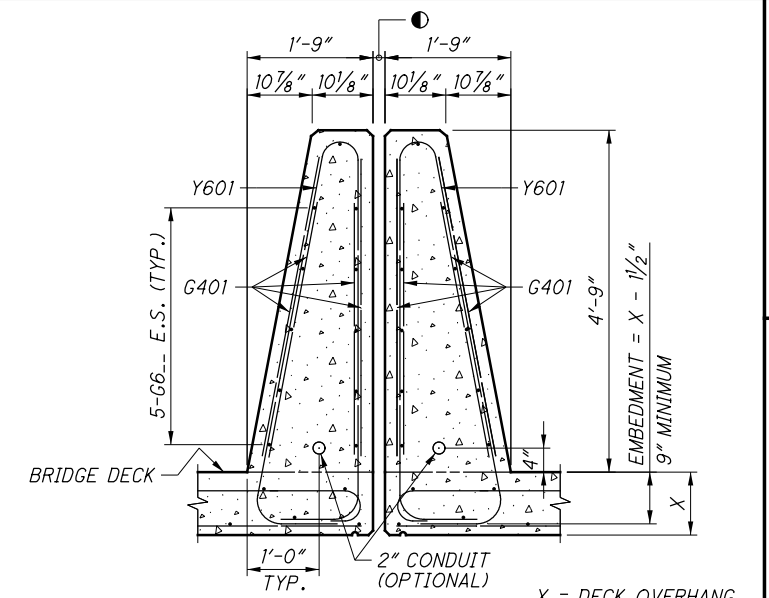


PLAN VIEW
DEFLECTION JOINT DETAIL FOR 57" SINGLE SLOPE BACK-TO-BACK CONCRETE MEDIAN BRIDGE RAILINGS (SEE SHEETS 3/5 AND 4/5)



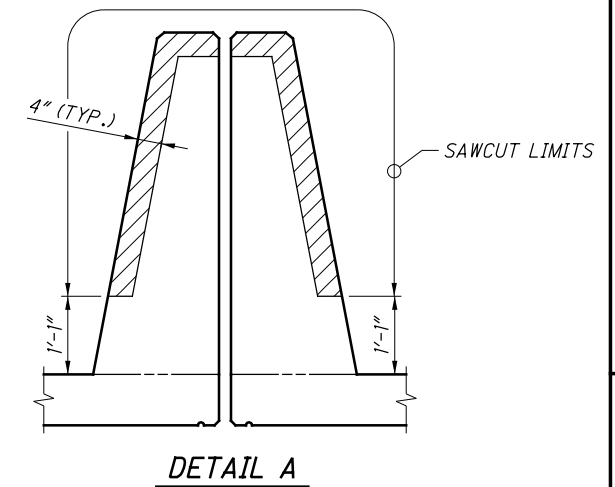
SECTION K-K

REINFORCEMENT SHOWN IS ONLY FOR ONE SIDE OF THE BACK-TO-BACK MEDIAN BARRIERS REINFORCED CONCRETE DECK ON STEEL OR PRESTRESSED CONCRETE I-BEAMS/GIRDERS (BEAMS/GIRDERS NOT SHOWN)



SECTION L-L

X = DECK OVERHANG THICKNESS



DETAIL A

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 BE 10'-0" ON CENTERS EXCEPT FOR THE FIRST AND LAST BARRIER PANEL WITHIN THE BRIDGE LIMITS. THE FIRST AND LAST PANELS SHALL BE 10'-0" MINIMUM, 15'-0" MAXIMUM.
- PAYMENT FOR GLASS FIBER REINFORCED POLYMER (GFRP) STIFFENING REINFORCEMENT SHALL BE INCLUDED WITH CONTRACT PRICE FOR ITEM 509 - NO. GFRP DEFORMED BARS.
- 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 RAILING TYPE B1 MEET THE REQUIREMENTS OF NCHRP 350 & MASH TEST LEVEL 3 AND "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION".

57" SINGLE SLOPE BACK-TO-BACK CONCRETE MEDIAN BRIDGE RAILINGS MEET THE REQUIREMENTS OF NCHRP 350 & MASH TEST LEVEL 5 AND "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION".

DESIGN DATA:

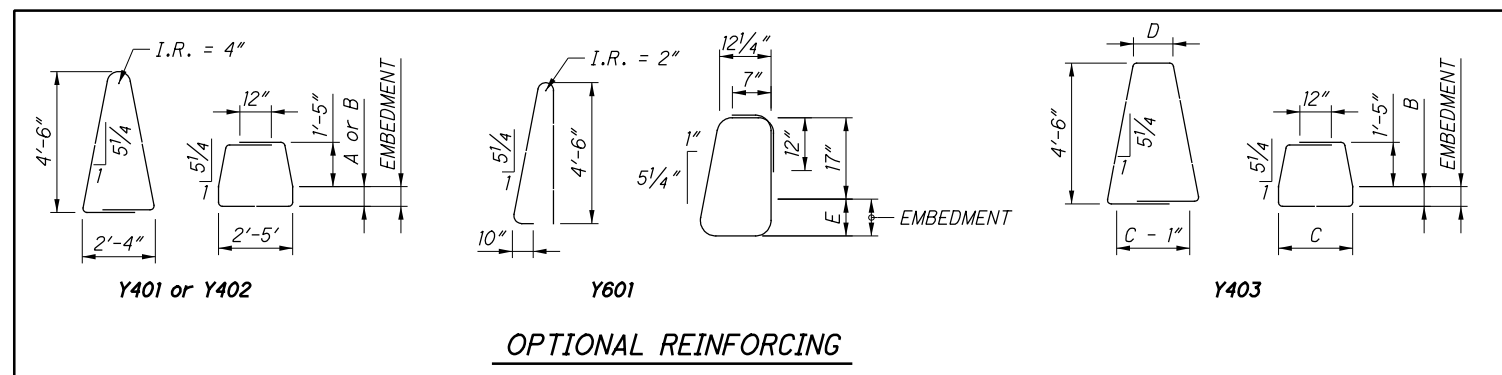
CONCRETE - COMPRESSIVE STRENGTH = 4.5 KSI
REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60 KSI
GFRP - C&MS 705.28 (MODULUS = 8700 KSI)

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

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 7".



OPTIONAL REINFORCING

MINIMUM EMBEDMENT OF VERTICAL REINFORCING BARS:

THE MINIMUM EMBEDMENT IS 9". 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".

OPTIONAL REINFORCING STEEL:

SHOW A SINGLE VERTICAL IN THE PROJECT PLANS. IN LIEU OF THE SINGLE VERTICAL BAR, THE CONTRACTOR MAY USE THE OPTIONAL VERTICAL REINFORCEMENT SHOWN ABOVE IN THE FORM OF LAPPED BARS AT THE VERTICAL BAR SPACING AND SIZE SHOWN IN THIS DRAWING.

THE DEPARTMENT WILL NOT ADJUST THE TOTAL QUANTITY OF REINFORCING STEEL TO ACCOMMODATE THIS OPTIONAL REINFORCEMENT. THE DEPARTMENT WILL CONSIDER DELAYS RESULTING FROM THIS OPTIONAL REINFORCEMENT AS NON-EXCUSABLE DELAYS.

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):

FOR SLIPFORMED CONSTRUCTION:

AS SOON AS CUTTING OPERATIONS CAN BEGIN WITHOUT DAMAGING THE CONCRETE, SAWCUT 1 1/4 INCH DEEP DEFLECTION CONTROL JOINTS ALONG THE PERIMETER OF THE MEDIAN BRIDGE RAILING.

AFTER THE CURING PERIOD AND BEFORE APPLYING LOAD TO THE MEDIAN BRIDGE RAILING, PERFORM 4 INCH SAWCUT AS SHOWN IN DETAIL A. APPLIED BRIDGE RAILING LOAD INCLUDES: CONSTRUCTION LOADS ON THE DECK (EXCLUDING PERSONNEL; HAND OPERATED EQUIPMENT AND MANUALLY POWERED VEHICLES); AND VEHICLE TRAFFIC IN THE LANE IMMEDIATELY ADJACENT TO MEDIAN BRIDGE RAILING AFTER REMOVAL OF TRAFFIC CONTROL DEVICES.

FOR CONVENTIONALLY FORMED CONSTRUCTION:

REMOVE THE FORMS BEFORE APPLYING LOAD TO THE MEDIAN BRIDGE RAILING. AS SOON AS THE FORMS ARE REMOVED, PERFORM 4-INCH SAWCUT AS SHOWN IN DETAIL A. THE 1 1/4 INCH SAWCUTS ARE NOT REQUIRED.

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.

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