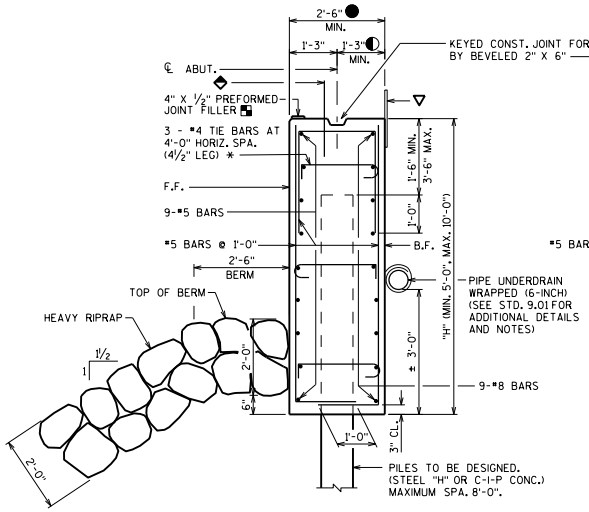
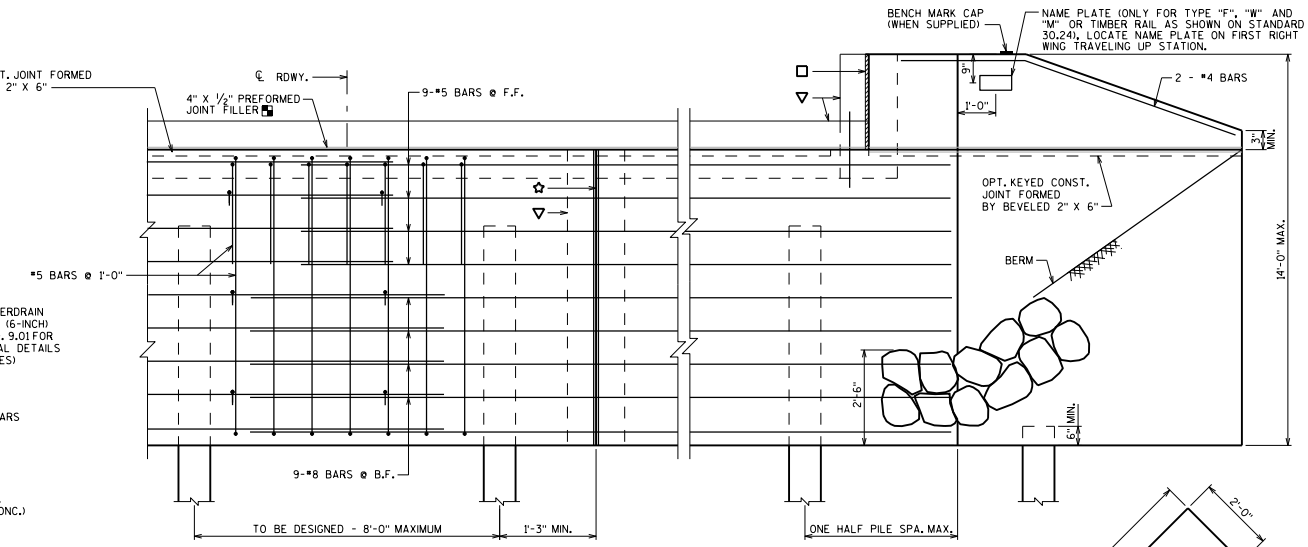
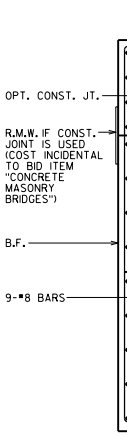


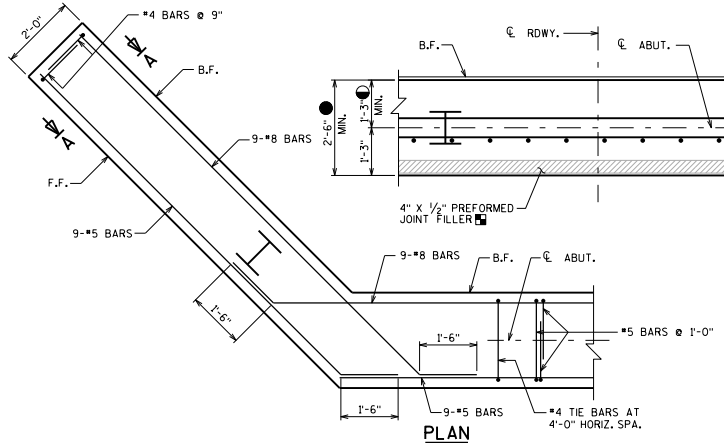
TYP. SECTION THRU ABUTMENT BODY



ELEVATION

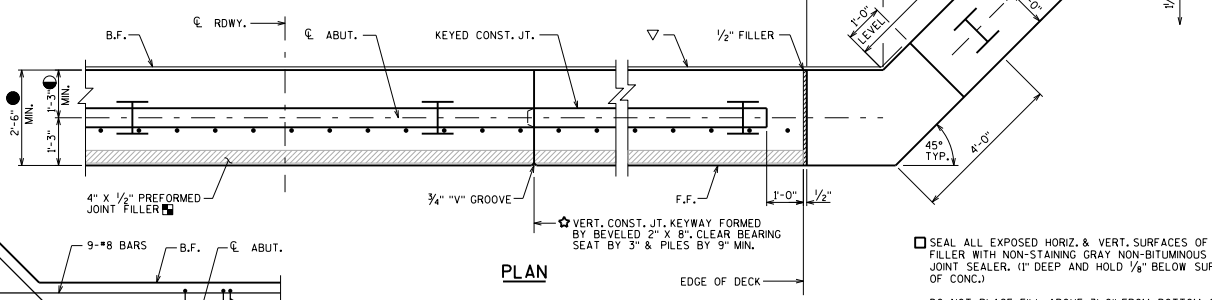


SECTION A-A



PLAN

SHOWING BAR STEEL REINFORCEMENT



PLAN

DESIGNER NOTES

FOR SLAB AND PRESTRESSED GIRDER SPANS L < 200'-0" & FOR STEEL GIRDER SPANS L < 150'-0" WHERE L = LENGTH OF CONTINUOUS SUPERSTRUCTURE BETWEEN ABUTMENTS.

WHEN GIRDERS WITH SEMIEXPANSION SEAT OR FIXED SEAT, OR SLAB SPAN WITH SEMIEXPANSION SEAT ARE USED, MAKE BEAM SEATS SIMILAR TO THAT SHOWN ON STANDARD 12.01.

WING BARS AND DOWEL BARS SHALL BE EPOXY COATED.

✩ WHEN BODY SECTION IS > ± 50'-0" LONG, PROVIDE VERT. CONST. JOINT. RUN BAR STEEL THRU JOINT. BEVEL EXPOSED EDGES ¾" AND SEAL JOINT. SEE STD. 12.09 FOR ALTERNATE CONSTRUCTION JOINT.

◐ USE 1'-3" FOR SLAB SPANS AND FOR GIRDER SPANS WITH NO PAVING NOTCH.
USE 1'-6" FOR GIRDER SPANS WITH NO PAVING NOTCH, BUT WHERE 36W", 45W", 54", 54W", 70", 72W" OR 82W" GIRDERS ARE USED, AND SKEW > 25°.
USE 1'-3" FOR SLAB SPANS WITH A PAVING NOTCH, BUT NO STRUCTURAL APPROACH SLAB.
USE 1'-11" FOR GIRDER SPANS WITH A PAVING NOTCH, BUT NO STRUCTURAL APPROACH SLAB.
USE 1'-7" FOR SLAB SPANS WITH A STRUCTURAL APPROACH SLAB. (STD. 12.10)
USE 2'-3" FOR GIRDER SPANS WITH A STRUCTURAL APPROACH SLAB. (STD. 12.10)

LAP LENGTH FOR HORIZONTAL BARS SHALL BE BASED ON A "CLASS C" TOP TENSION LAP SPLICE.

☐ SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)

DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

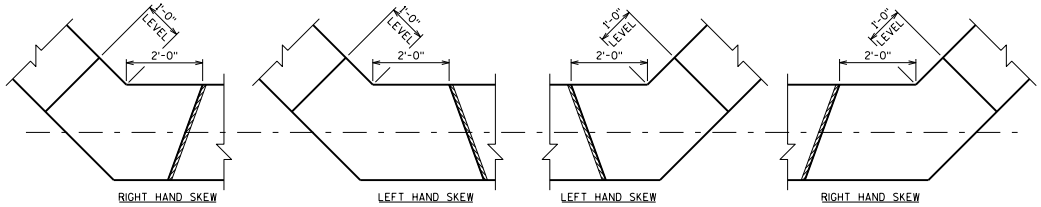
▽ 18" RUBBERIZED MEMBRANE WATERPROOFING.

● WHEN ABUTMENT WIDTH > 2'-10" FIXED POINT OF WING ROTATION SHALL BE ON F.F. OF ABUTMENT (0° SKEW ONLY).

◆ THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE. SEE STD. 12.01 & 27.05

▪ USE 3/4" THICK FILLER FOR SLAB STRUCTURES.

* ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.



WING DETAIL FOR SKEWED STRUCTURES

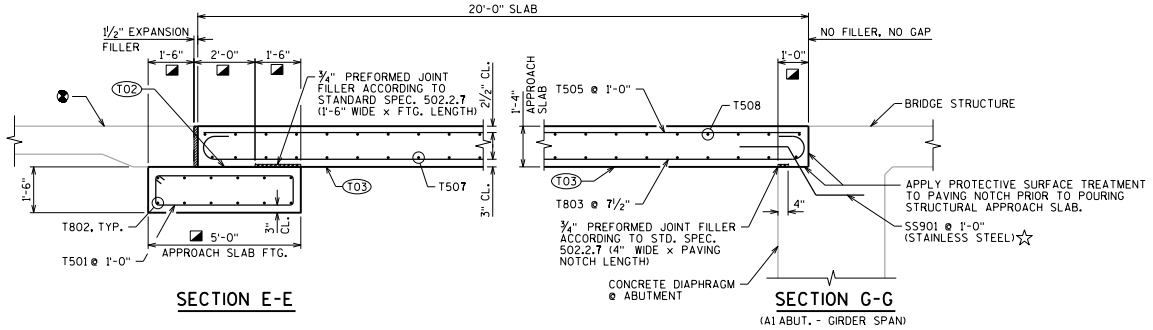
ABUTMENT A5 (INTEGRAL, PILE ENCASED ABUTMENT)

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

STANDARD 12.08



SECTION E-E

SECTION G-G

(A1 ABUT. - GIRDER SPAN)

SECTION THRU APPROACH SLAB

LEGEND

(T02) STEEL TROWEL TOP SURFACE OF FOOTING AND PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF FOOTING.

(T03) PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF SUBGRADE BENEATH SLAB.

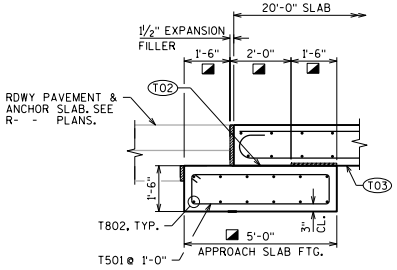
◪ MEASURED NORMAL TO ABUTMENT

FOLLOW FDM 14-10-25 REQUIREMENTS FOR ROADWAY APPROACH PAVEMENT.

✳ SECTION REPRESENTATIVE OF SIMILAR LOCATION AS SHOWN ON STANDARD 12.10 FOR DIFFERENT APPLICATION.

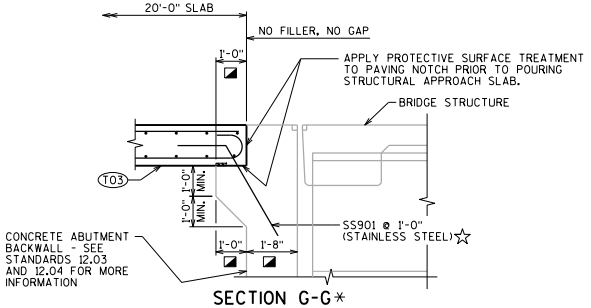
☆ THE BID ITEM FOR SS901 AND SS601 BARS SHALL BE STANDARD SPECIAL PROVISION "BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES".

▽ R501 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL AND ABUT. STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED.



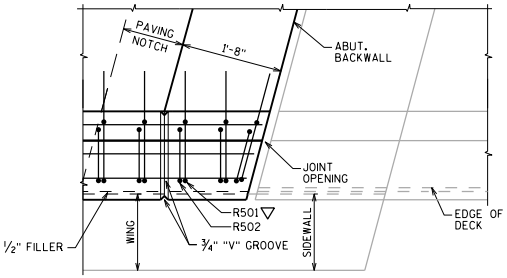
SECTION F-F

(AT MSE WINGWALLS WITH ANCHOR SLAB)



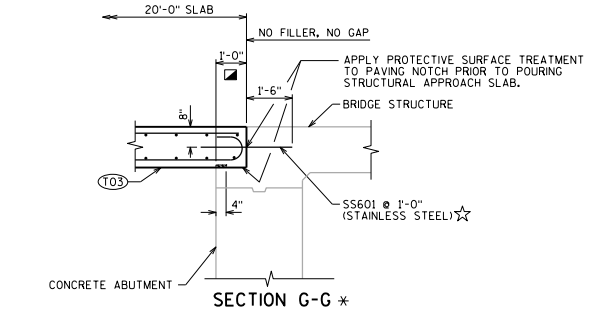
SECTION G-G ✳

(A3 ABUT.)



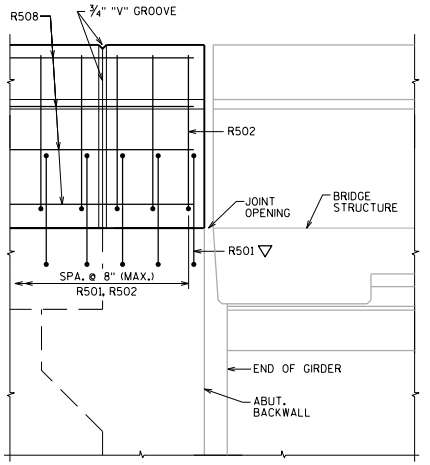
PLAN

(PARAPET ON STRUCTURAL APPROACH SLAB AT A3 ABUT.)



SECTION G-G ✳

(A1 ABUT. - SLAB SPAN)



OUTSIDE ELEVATION

(PARAPET ON STRUCTURAL APPROACH SLAB AT A3 ABUT.)
(WING NOT SHOWN FOR CLARITY)

DESIGNER NOTES

SEE CHAPTER 30 FOR PARAPETS ON STRUCTURAL APPROACH SLAB DETAILS.

SECTIONS A-A THRU G-G ARE FROM STANDARD 12.10

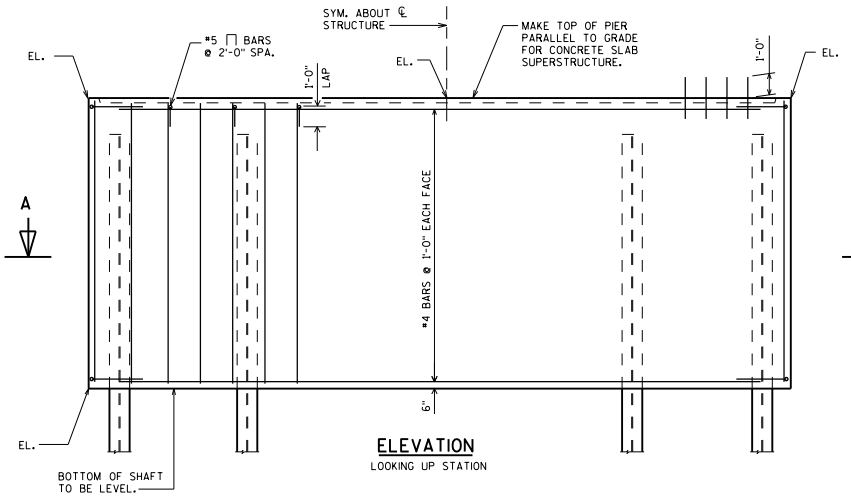
STRUCTURAL APPROACH SLAB DETAILS 2

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

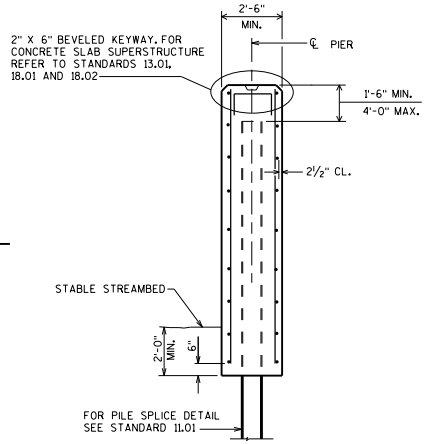
DATE: 7-19

STANDARD 12.12



ELEVATION

LOOKING UP STATION



END VIEW

NOTES

TYPE 1 PIER — AT PIER __, CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH STANDARD SPEC 502.3.5.3. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH, UNLESS APPROVED OTHERWISE.

TYPE 2 PIER — AT PIER __, COFFERDAM REQUIRED. CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH STANDARD SPEC 502.3.5.3. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH, UNLESS APPROVED OTHERWISE.

TYPE 3 PIER — AT PIER __, COFFERDAM AND COFFERDAM DEWATERING REQUIRED. COFFERDAM SHALL BE DEWATERED PRIOR TO PLACING PIER CONCRETE.

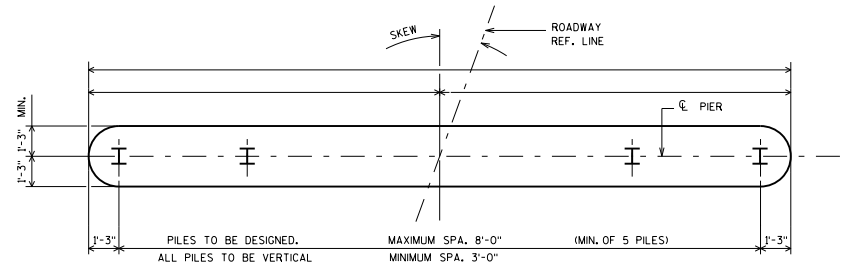
DESIGNER NOTES

SEE BRIDGE MANUAL SECTION 13.2.3 AND STANDARD 13.09 FOR GUIDANCE ON PIER TYPES, DETAILS, AND APPLICABLE BID ITEMS.

SEE BRIDGE MANUAL SECTION 13.11.5 FOR GUIDANCE ON COFFERDAMS.

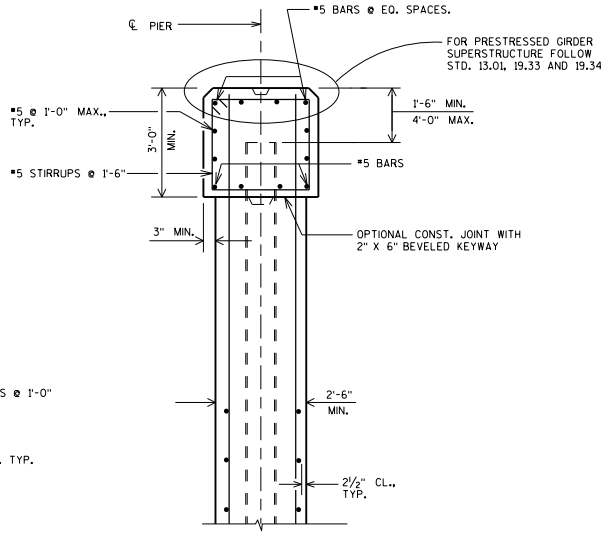
CONSTRUCTION JOINTS ARE NOT REQUIRED, REGARDLESS OF LENGTH OF PILE ENCASED PIER.

SEE STANDARD 13.01 FOR ADDITIONAL, APPLICABLE DESIGNER NOTES



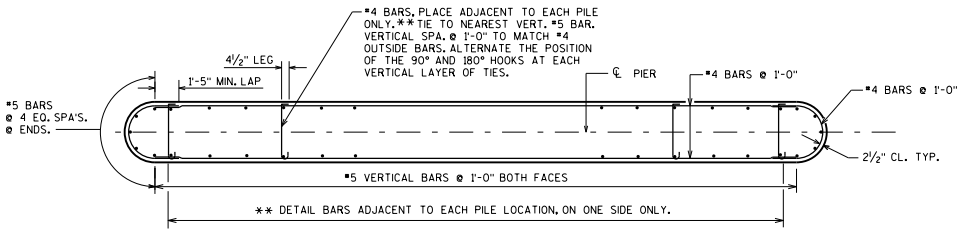
PLAN

STEEL PILING SHOWN. CAST IN PLACE CONC. PILING LAYOUT SIMILAR.



CAP TYPE DETAIL

USE WHEN ECONOMICAL FOR GIRDERS ON LARGE SKEWS



SECTION A-A

PILE ENCASED PIER

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

STANDARD 13.03

DESIGNER NOTES

PIER TYPES SHOWN ON THIS STANDARD ARE BASED ON THE OBSERVED WATER ELEVATION. OTHER FACTORS (VELOCITY, H2 ELEVATION, ETC.) SHOULD ALSO BE CONSIDERED WHEN SELECTING THE APPROPRIETE BID ITEMS AND PLAN NOTES.

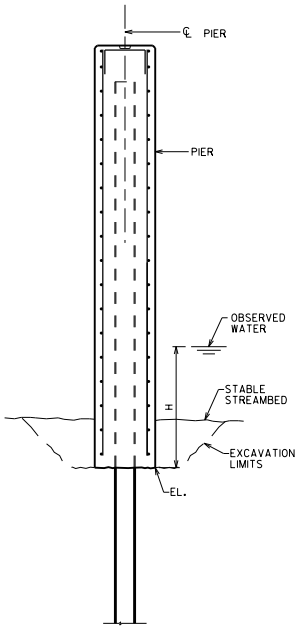
PILE ENCASED PIER TYPES:

TYPE 1 - COFFERDAM BID ITEM NOT PROVIDED. CONSIDER PROVIDING UNDERWATER INSPECTION BID ITEM.

TYPE 2 - COFFERDAM AND UNDERWATER INSPECTION BID ITEMS REQUIRED.

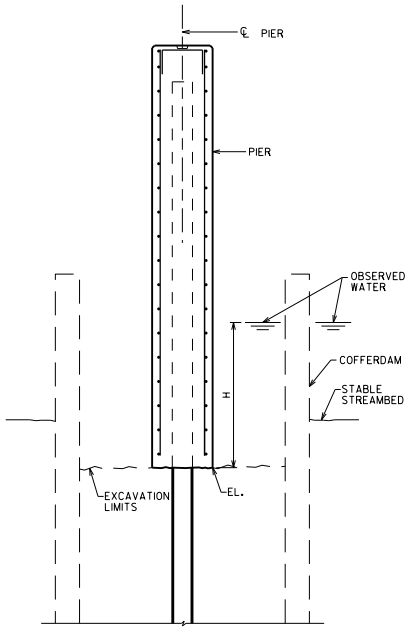
TYPE 3 - COFFERDAM AND SEAL BID ITEMS REQUIRED.

WALL PIER ALTERNATIVES:
- SOLID WALL (AS SHOWN ON THIS STANDARD)
- HAMMERHEAD (SEE STANDARD 13.02)



END VIEW

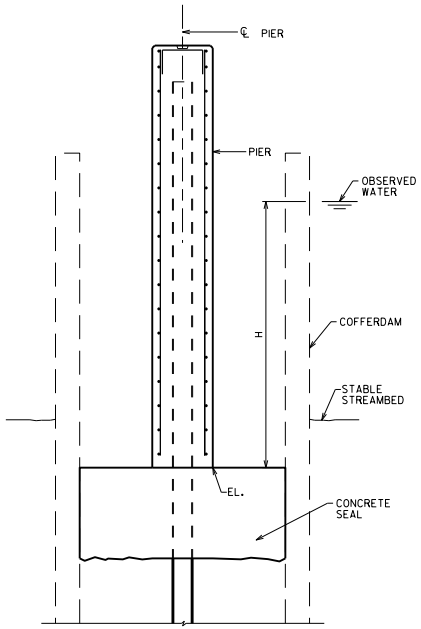
PILE ENCASED PIER - TYPE 1
(H ≤ 5.0 FEET)



END VIEW

PILE ENCASED PIER - TYPE 2
(5.0 FT < H ≤ 10.0 FT)

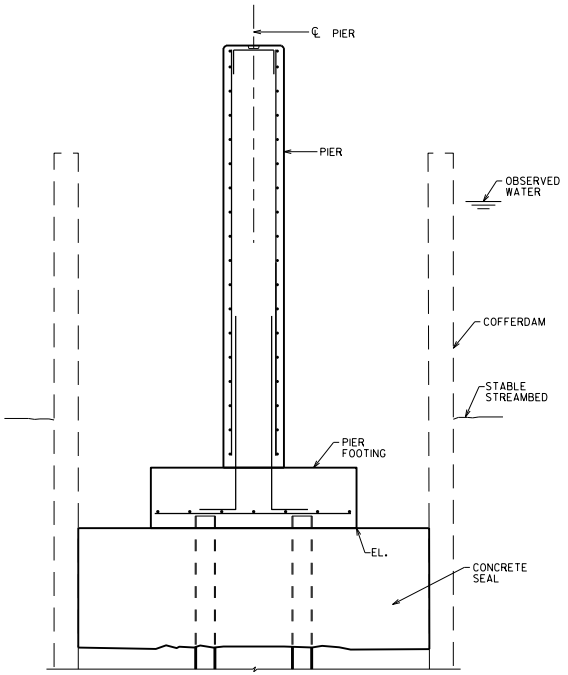
ITEM NUMBER	BID ITEM	UNIT
206.5000	COFFERDAMS (STRUCTURE)	LS
SPV.0060	UNDERWATER FOUNDATION INSPECTION (STRUCTURE)	EACH



END VIEW

PILE ENCASED PIER - TYPE 3
(H > 10.0 FT)

ITEM NUMBER	BID ITEM	UNIT
206.5000	COFFERDAMS (STRUCTURE)	LS
502.1100	CONCRETE MASONRY SEAL	CY



END VIEW

SOLID WALL PIER
(PILE ENCASED PIER ALTERNATIVE)

ITEM NUMBER	BID ITEM	UNIT
206.5000	COFFERDAMS (STRUCTURE)	LS
502.1100	CONCRETE MASONRY SEAL	CY

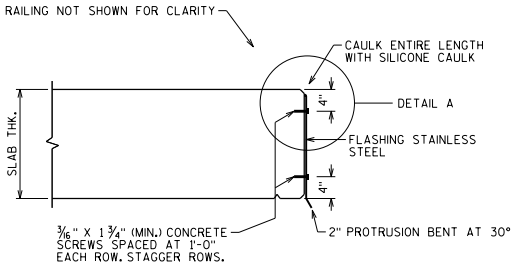
PILE ENCASED PIER (TYPES)

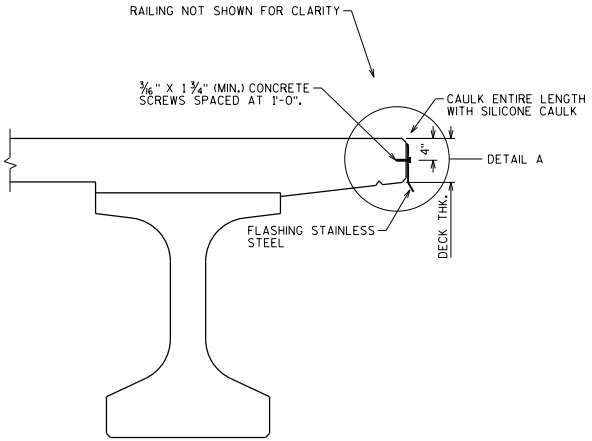
BUREAU OF STRUCTURES

APPROVED: *Bill Oliva*

DATE: 7-19

STANDARD 13.09





FLASHING DETAIL FOR NEW BRIDGES WITH OPEN RAILING

THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK, 3/16" CONCRETE SCREWS AND CLEANING THE EDGE OF THE DECK PRIOR TO ATTACHMENT OF THE FLASHING.

DESIGNER NOTES

EDGE OF DECK FLASHING IS FOR OPEN RAIL BRIDGES AND MAY BE USED FOR REHABILITATION OR NEW CONSTRUCTION. CONTACT THE REGION BRIDGE MAINTENANCE ENGINEER FOR THE DECISION ON WHETHER OR NOT TO USE THE FLASHING ON NEW BRIDGES.

DETAIL 1 OR DETAIL 2, OR A COMBINATION OF THE TWO, MAY BE USED FOR REHABILITATION.

THE DESIGN ENGINEER SHALL PROVIDE CONCRETE SURFACE REPAIR DETAILS AS NEEDED. CONCEPTUAL DETAILS ARE SHOWN ON THIS STANDARD.

NOTES

THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK AND 3/16" CONCRETE SCREWS.

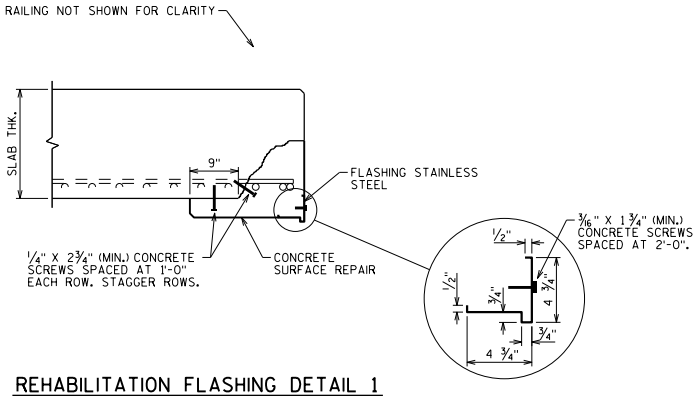
FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.

CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.

EXTEND FLASHING TO B.F. OF ABUTMENT DIAPHRAGM.

TOP OF FLASHING TO BEGIN APPROX. 1-INCH BELOW TOP OF DECK/SLAB SURFACE.

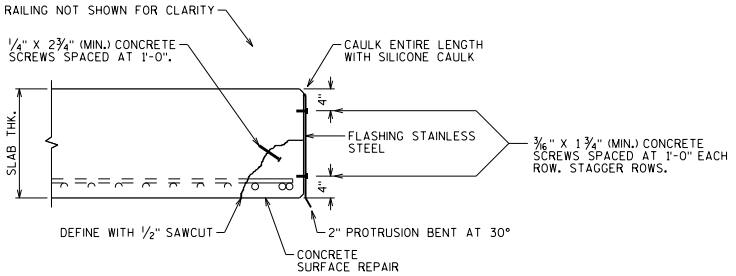
THE FLASHING IS TO BE A CONSTANT HEIGHT BASED ON THE THINNEST SLAB DEPTH OVER THE BRIDGE LENGTH.



REHABILITATION FLASHING DETAIL 1

DETAIL 1 NOT TO BE USED IF CLEARANCE IS AN ISSUE OR IF DEBRIS IS A CONCERN.

THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING AND CONCRETE SCREWS, INCLUDING THE 1/4" SCREWS USED TO SECURE THE CONCRETE SURFACE REPAIR.



REHABILITATION FLASHING DETAIL 2

THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK, 3/16" AND 1/4" CONCRETE SCREWS, AND CLEANING THE EDGE OF THE DECK PRIOR TO ATTACHMENT OF THE FLASHING.

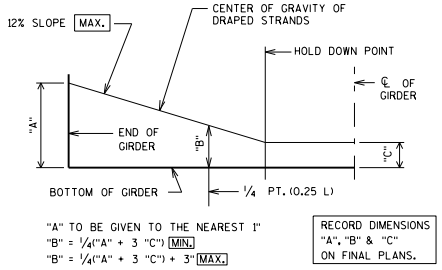
EDGE OF DECK FLASHING

BUREAU OF STRUCTURES

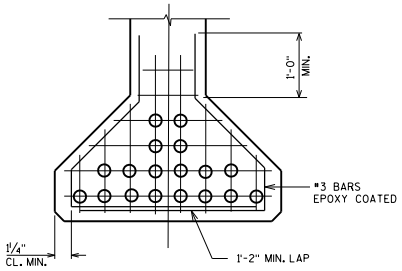
APPROVED: Bill Oliva

DATE: 7-19

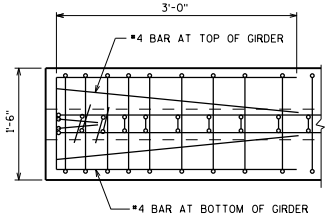
STANDARD 17.03



LOCATION OF DRAPED STRANDS



DETAIL A



PLAN VIEW

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.3 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON ACCEPTANCE OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

PRESTRESSING STRANDS SHALL BE (DIA.)-7-WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

DESIGNER NOTES

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 28-INCH".

SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI. MAXIMUM RELEASE STRENGTH IS 6800 PSI. USE ONLY 0.5" DIA. STRAND FOR THE DRAPED PATTERN. THE MAX. NUMBER OF DRAPED 0.5" DIA. STRANDS IS 8. USE 0.6" DIA. FOR THE STRAIGHT PATTERN, UNLESS ONLY 0.5" DIA. WORK FOR KEEPING STRESSES AT ACCEPTABLE LEVELS.

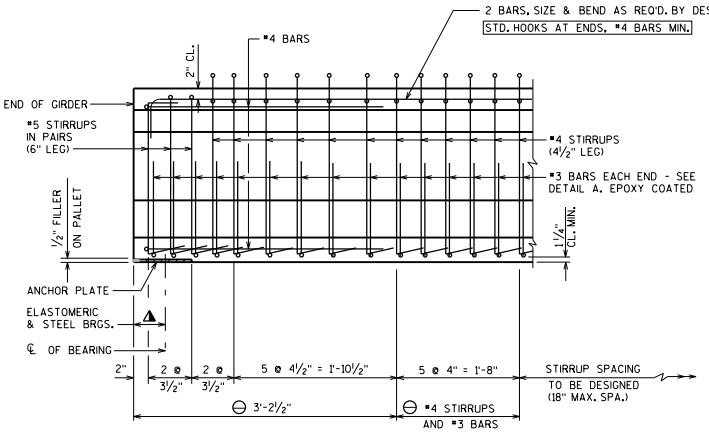
REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STANDARD STRAND PATTERNS LISTED ON STANDARD 19.02 AND THE SPAN LENGTHS SHOWN IN TABLE 19.3-1. USING DIFFERENT STRAND PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT, WHICH REQUIRES PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES.

⚠ VARIES FOR ELASTOMERIC BRGS. (STD. 27.07) AND STEEL BRGS. (STD. 27.09)

⊖ DETAIL TYPICAL AT EACH END

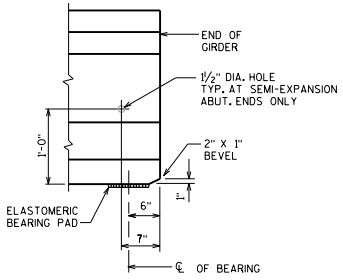
⊠ THE DESIGN ENGINEER DETERMINES THIS VALUE BASED ON 2" MIN. HAUNCH AT EDGE OF GIRDER, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL GIRDER CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.4. THIS VALUE CAN VARY AND SHOULD BE GIVEN FOR EACH 1/3 OF THE GIRDER LENGTH. PROVIDE VALUES THAT MAINTAIN 3" MIN. DECK EMBEDMENT AND 2½" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ±¾" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

PROVIDE STIRRUP SPACING THAT IS SYMMETRICAL ABOUT THE C/L OF GIRDER.

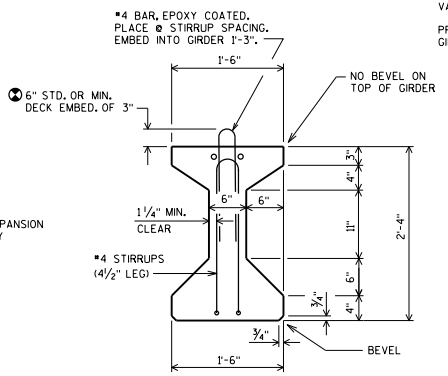


SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

SIDE VIEW OF GIRDER

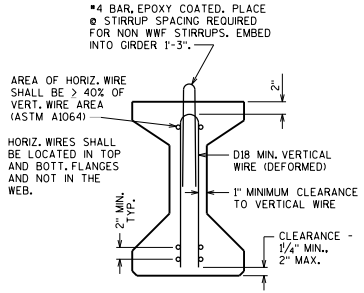


SUPPORT WITH ½" ELASTOMERIC BRG. PAD



SECTION THRU GIRDER

STRANDS NOT SHOWN



SECTION THRU GIRDER

SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS ASTM A1064 (FY = 70 KSI)

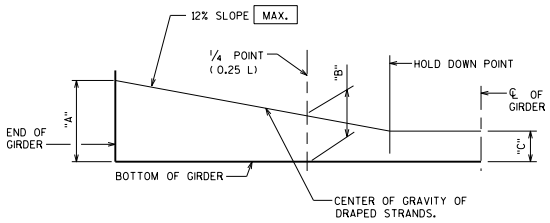
28" PRESTRESSED GIRDER DETAILS

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

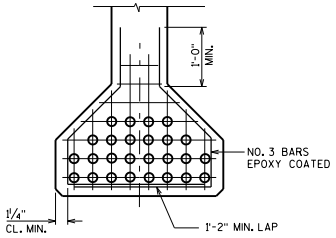
STANDARD 19.01



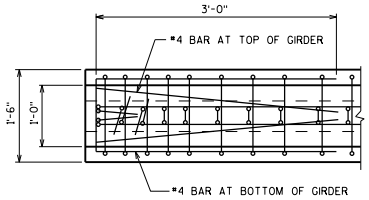
"A" TO BE GIVEN TO THE NEAREST 1"
"B" = ¼("A" + 3 "C") MIN.
"B" = ¼("A" + 3 "C") + 3" MAX.

RECORD DIMENSIONS "A", "B" & "C" ON FINAL PLANS.

LOCATION OF DRAPED STRANDS



DETAIL A



PLAN VIEW

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.3 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON ACCEPTANCE OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

PRESTRESSING STRANDS SHALL BE (DIA.)-7-WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

DESIGNER NOTES

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 36-INCH".

SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI. MAXIMUM RELEASE STRENGTH IS 6800 PSI. USE ONLY 0.5" DIA. STRAND FOR THE DRAPED PATTERN. THE MAX. NUMBER OF DRAPED 0.5" DIA. STRANDS IS 8. USE 0.6" DIA. FOR THE STRAIGHT PATTERN, UNLESS ONLY 0.5" DIA. WORK FOR KEEPING STRESSES AT ACCEPTABLE LEVELS.

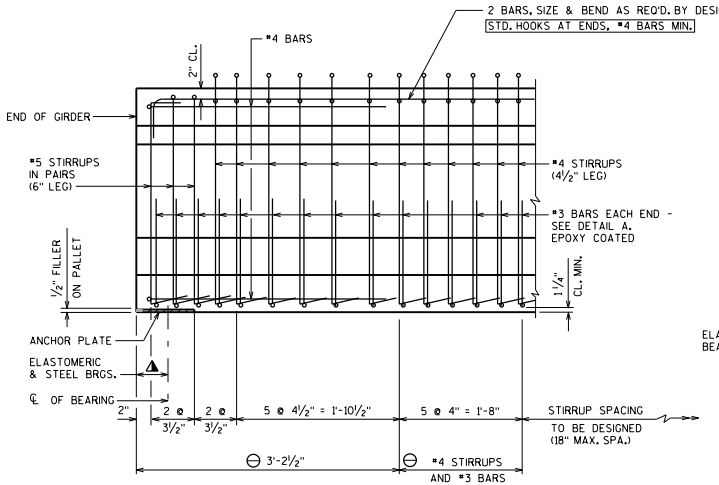
REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STANDARD STRAND PATTERNS LISTED ON STANDARD 19.04 AND THE SPAN LENGTHS SHOWN IN TABLE 19.3-1. USING DIFFERENT STRAND PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT, WHICH REQUIRES PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES.

▲ VARIES FOR ELASTOMERIC BRGS. (STD. 27.07) AND STEEL BRGS. (STD. 27.09)

⊖ DETAIL TYPICAL AT EACH END

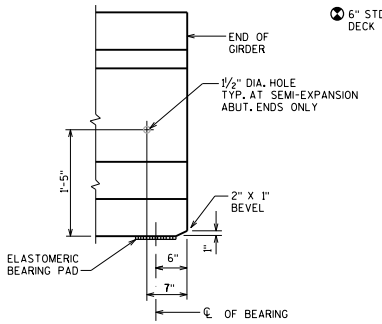
⊠ THE DESIGN ENGINEER DETERMINES THIS VALUE BASED ON 2" MIN. HAUNCH AT EDGE OF GIRDER, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL GIRDER CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.4. THIS VALUE CAN VARY AND SHOULD BE GIVEN FOR EACH 1/3 OF THE GIRDER LENGTH. PROVIDE VALUES THAT MAINTAIN 3" MIN. DECK EMBEDMENT AND 2½" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ±¾" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

PROVIDE STIRRUP SPACING THAT IS SYMMETRICAL ABOUT THE C/L OF GIRDER.

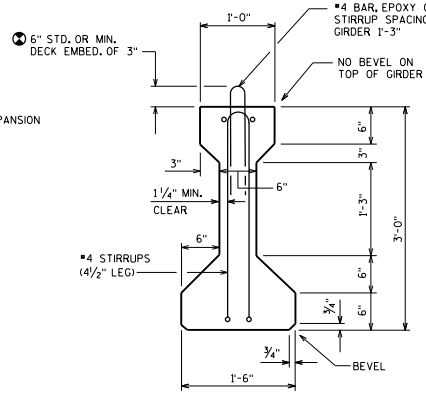


SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

SIDE VIEW OF GIRDER

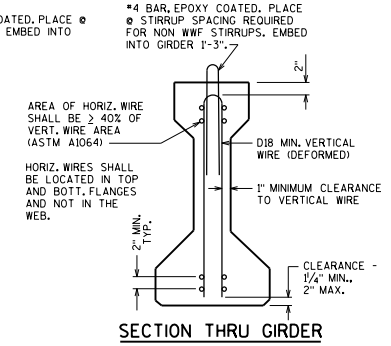


SUPPORT WITH ½" ELASTOMERIC BRG. PAD



SECTION THRU GIRDER

STRANDS NOT SHOWN



SECTION THRU GIRDER

SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS ASTM A1064 (FY = 70 KSI)

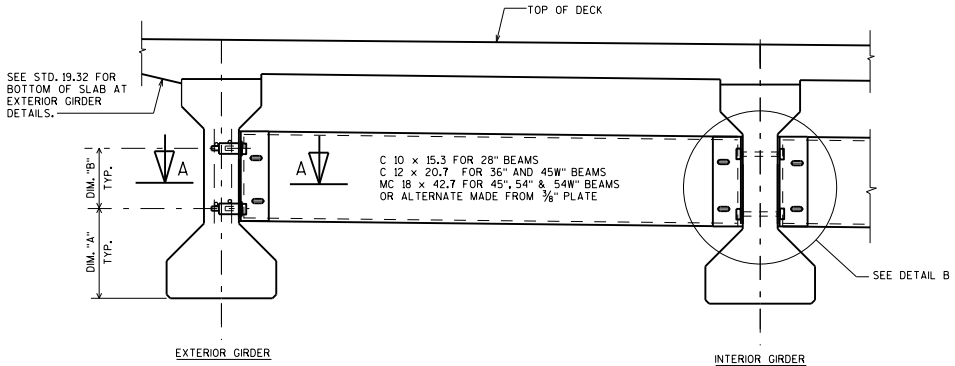
36" PRESTRESSED GIRDER DETAILS

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

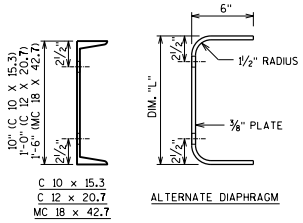
STANDARD 19.03



PART TRANSVERSE SECTION AT DIAPHRAGM

TABLE

GIRDER HEIGHT	DIM. "A"	DIM. "B"	DIM. "L"	✳ DIM. "X"
28"	1'-0⅞"	5⅞"	9½"	2¼"
36"	1'-2⅞"	9⅞"	1'-1½"	3¼"
45"	1'-5⅜"	1'-1⅞"	1'-5½"	2¼"
45W"	1'-9⅛"	8⅞"	1'-0½"	2¾"
54"	1'-7⅞"	1'-5⅞"	1'-9½"	4¼"
54W"	1'-9⅛"	1'-5⅞"	1'-9½"	4¼"



SECTION THRU DIAPHRAGM

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-_-_", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

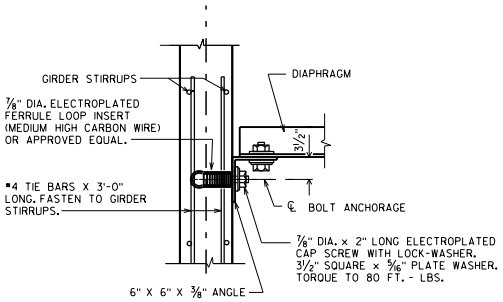
ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS ¼ TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

DESIGNER NOTES

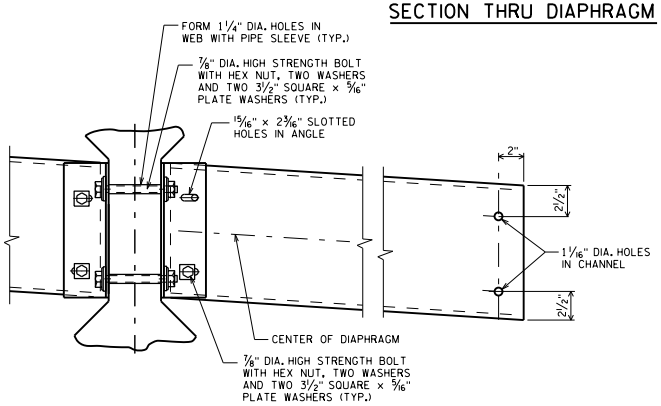
FOR SPANS EQUAL TO OR LESS THAN 80'-0", PLACE ONE DIAPHRAGM AT MID-LENGTH OF GIRDER. FOR SPANS OVER 80'-0", PLACE AT 1/3 AND 2/3 POINTS.

ON THE PLANS, SHOW LOCATION OF INSERTS/HOLES FOR DIAPHRAGM TO WEB CONNECTION, NOT ONLY FROM THE BOTTOM OF THE GIRDER (DIM "A" AND "B"), BUT ALSO FROM THE ENDS OF EACH GIRDER.



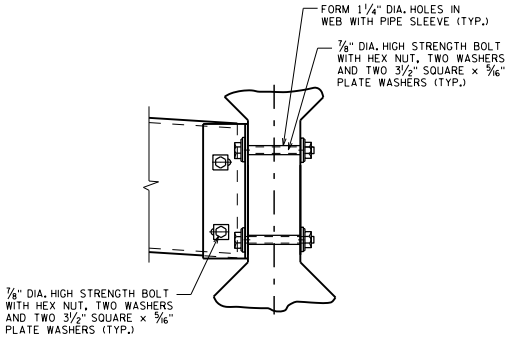
SECT. A-A

(FOR EXTERIOR ATTACHMENT)

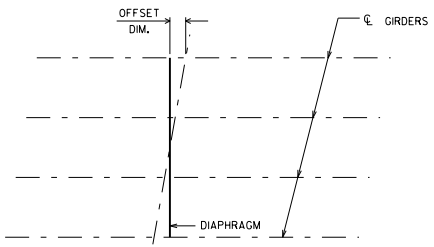


DETAIL B

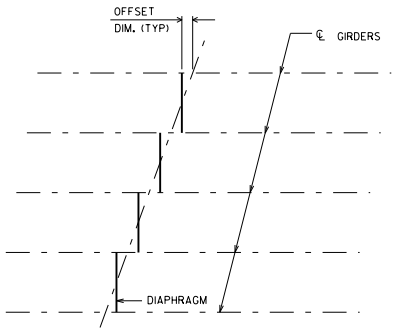
(FOR CONTINUOUS LINE OF DIAPHRAGMS)



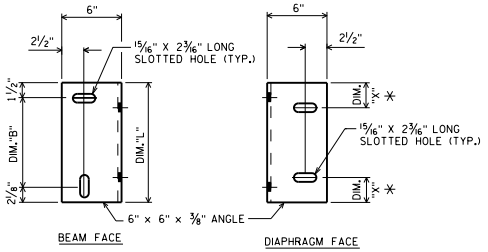
SECTION AT INTERIOR GIRDERS THRU DIAPHRAGM FOR SKEW ANGLES > 10°



PLAN FOR SKEW ANGLES ≤ 10°



PLAN FOR SKEW ANGLES > 10°



DIAPHRAGM SUPPORT

✳2½" FOR ALTERNATE PLATE DIAPHRAGM

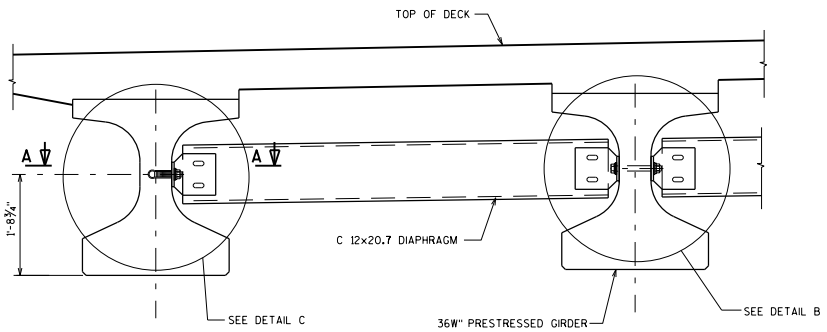
INTERM. STEEL DIAPHS. FOR 28", 36", 45", 45W" 54" & 54W" PRESTRESSED GIRDERS

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

STANDARD 19.36



PART TRANSVERSE SECTION AT DIAPHRAGM

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-_-_", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

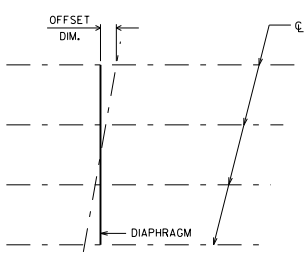
ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS ¼ TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FORASTM A325 OR ASTM A449.

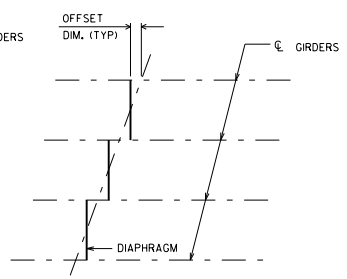
DESIGNER NOTES

FOR SPANS EQUAL TO OR LESS THAN 80'-0", PLACE ONE DIAPHRAGM AT MID-LENGTH OF GIRDER. FOR SPANS OVER 80'-0", PLACE AT 1/3 AND 2/3 POINTS.

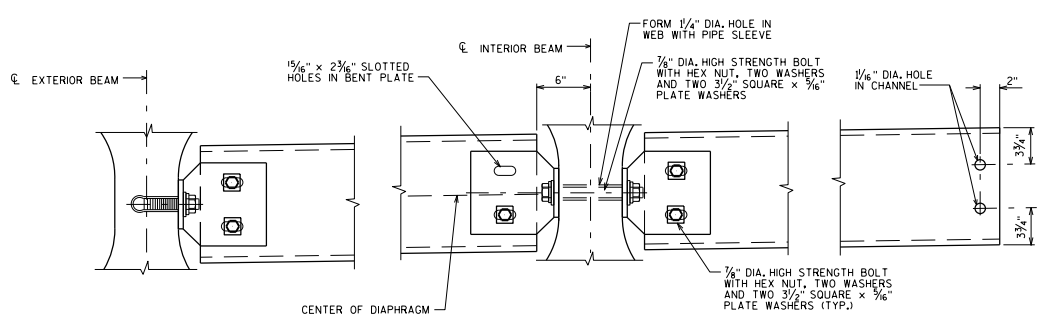
ON THE PLANS, SHOW LOCATION OF INSERTS/HOLES FOR DIAPHRAGM TO WEB CONNECTION, NOT ONLY FROM THE BOTTOM OF THE GIRDER (DIM "A" AND "B"), BUT ALSO FROM THE ENDS OF EACH GIRDER.



PLAN FOR SKEW ANGLES ≤ 10°

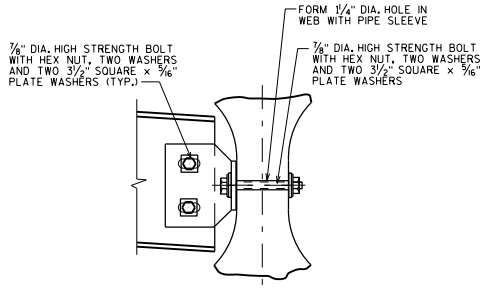


PLAN FOR SKEW ANGLES > 10°

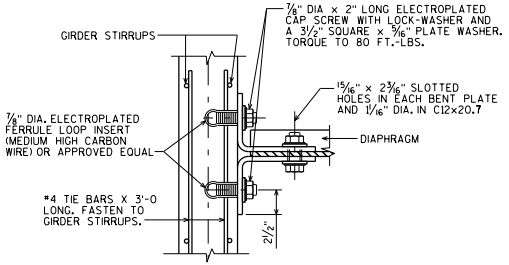


DETAIL C

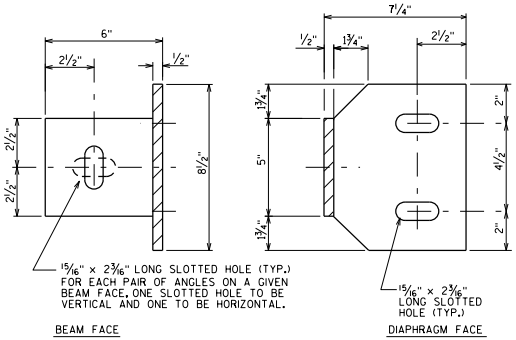
DETAIL B

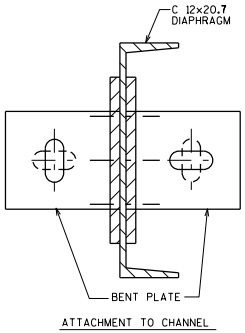


SECTION AT INTERIOR GIRDERS THRU DIAPHRAGM FOR SKEW ANGLES > 10°



SECTION A-A
(FOR EXTERIOR ATTACHMENT)





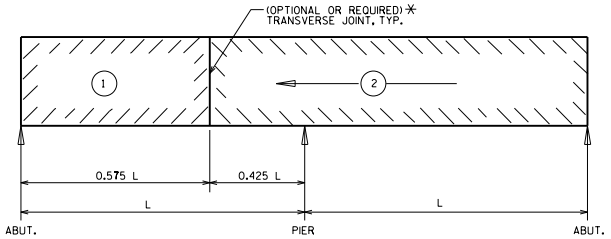
INTERM. STEEL DIAPHS. FOR 36W" PRESTRESSED GIRDERS

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

STANDARD 19.38



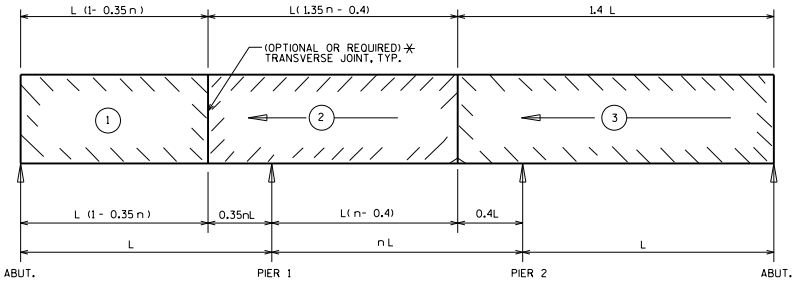
IDEAL DECK POUR SEQUENCE

(CONTINOUS STEEL GIRDER - 2 SPANS SHOWN)

S = TOTAL NUMBER OF SPANS

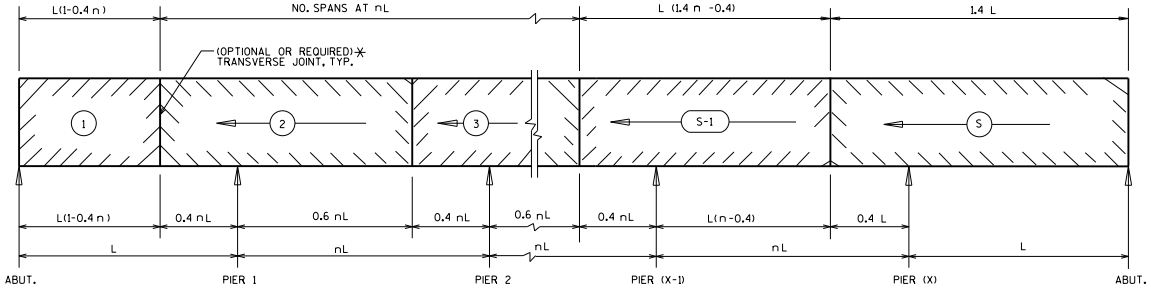
L = LENGTH OF END SPAN

$n = \frac{\text{INTERIOR SPAN}}{\text{END SPAN}}$



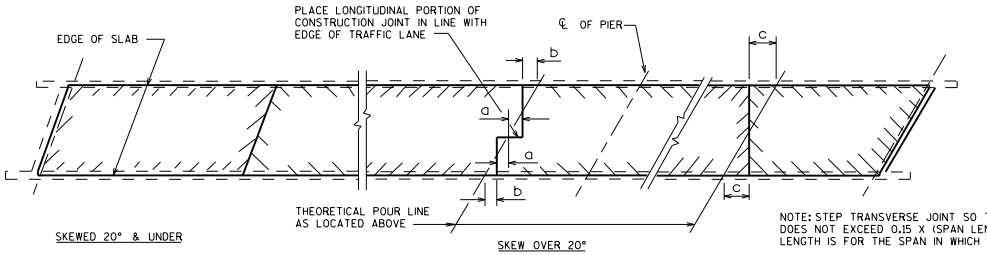
IDEAL DECK POUR SEQUENCE

(CONTINOUS STEEL GIRDER - 3 SPANS SHOWN)



IDEAL DECK POUR SEQUENCE

(CONTINOUS STEEL GIRDER - ANY NUMBER OF SPANS SHOWN)



PLAN VIEW - SHOWING PLACEMENT OF TRANSVERSE CONSTRUCTION JOINTS

NOTES

THE RATE OF PLACING CONCRETE SHALL EQUAL OR EXCEED ½ SPAN LENGTH PER HOUR BUT NEED NOT EXCEED 100 CU. YDS. PER HOUR. (REQUIRED ONLY FOR CONTINUOUS STEEL GIRDERS.)

IF OPTIONAL JOINTS ARE PROVIDED, TWO OR MORE SEQUENTIAL POURS MAY BE COMBINED AND PLACED IN ONE CONTINUOUS OPERATION. TWO OR MORE ALTERNATE DECK POURS (E.G. 1 & 3) MAY BE PLACED ON THE SAME DAY.

THE NEXT DECK POUR CAN BE MADE NO LESS THAN 72 HOURS AFTER THE PREVIOUS POUR.

THE CONTRACTOR MAY SUBMIT AN ALTERNATE POURING SEQUENCE SUBJECT TO THE APPROVAL OF THE STRUCTURES DESIGN SECTION.
(NOTE: APPLICABLE WHEN OPTIONAL TRANSVERSE CONTRUCTION JOINTS ARE SHOWN)

THE CONTRACTOR SHALL POUR THE ENTIRE DECK PER THE DECK POUR SEQUENCE IF REQUIRED TRANSVERSE CONSTRUCTION JOINTS ARE SHOWN ON THE PLANS. THE CONTRACTOR MAY SUBMIT AN ALTERNATE POURING SEQUENCE SUBJECT TO THE APPROVAL OF THE STRUCTURES DESIGN SECTION.
(NOTE: REQUIRED WHEN REQUIRED TRANSVERSE CONTRUCTION JOINTS ARE SHOWN)

DESIGNER NOTES

✳ THE DESIGNER SHALL DETERMINE IF TRANSVERSE JOINTS ARE OPTIONAL OR REQUIRED.

OPTIONAL TRANSVERSE CONSTRUCTION JOINTS SHALL BE DETAILED ON THE PLANS TO LIMIT THE VOLUME OF POUR TO < 600 CU. YDS. IN URBAN AREAS AND < 300 CU. YDS. IN OTHER AREAS. GENERALLY FOR STEEL GIRDER SUPERSTRUCTURES LOCATE THE TRANSVERSE JOINTS AT THE 0.6 POINT (CONCRETE IN 60% OF SPAN) AND FOR PRESTRESS GIRDER SUPERSTRUCTURES LOCATE JOINTS NEAR THE 0.75 POINT. (CONCRETE IN 75% OF SPAN) CONSIDER CUT-OFF POINTS OF CONTINUITY REINFORCING STEEL WHEN LOCATING JOINTS FOR PRESTRESS GIRDER SUPERSTRUCTURES. LOCATION OF JOINTS IN STEEL GIRDER SUPERSTRUCTURES MAY VARY IF DEFLECTIONS ARE INFLUENCED BY IN SPAN HINGES OR UNUSUAL SPAN LENGTH RATIOS. CHECK WITH THE STRUCTURES DEVELOPMENT SECTION FOR ADDITIONAL INFORMATION.

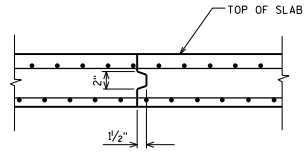
REQUIRED TRANSVERSE CONSTRUCTION JOINTS SHALL BE DETAILED ON THE PLANS ONLY WHEN REQUIRED BY DESIGN. SEQUENTAIL STAGES ARE DISCUSSED IN SECTION 24.12.2. ALL PLACEMENT REQUIREMENTS SHALL BE NOTED ON THE PLANS.

DETAIL TRANSVERSE CONSTRUCTION JOINTS 5'-0" FROM ℄ OF IN SPAN HINGES. (ONE ON EACH SIDE OF HINGE) THE CONCRETE BETWEEN THESE JOINTS SHOULD BE THE LAST POUR PLACED.

WHEN THE WIDTH OF THE DECK IS GREATER THAN 120 FEET, A LONGITUDINAL CONSTRUCTION JOINT SHALL BE DETAILED. FOR DECK WIDTHS BETWEEN 90 AND 120 FEET, AND OPTIONAL LONGITUDINAL JOINT SHALL BE DETAILED. LOCATE LONGITUDINAL CONSTRUCTION JOINT ALONG EDGE OF LANE LINE AND AT LEAST 6 INCHES FROM EDGE OF TOP FLANGE OF GIRDER.

FOR GRADES OVER 3% THE PREFERRED DIRECTION OF POUR IS UPHILL.

AN ALTERNATE POURING SEQUENCE IS TO POUR THE DL POSITIVE MOMENT AREAS AND THEN THE DL NEGATIVE MOMENT AREAS. THE SEQUENCE MAY BE STARTED ANYWHERE ON THE BRIDGE.



SECTION THRU TRANSVERSE
OR LONGITUDINAL JOINT

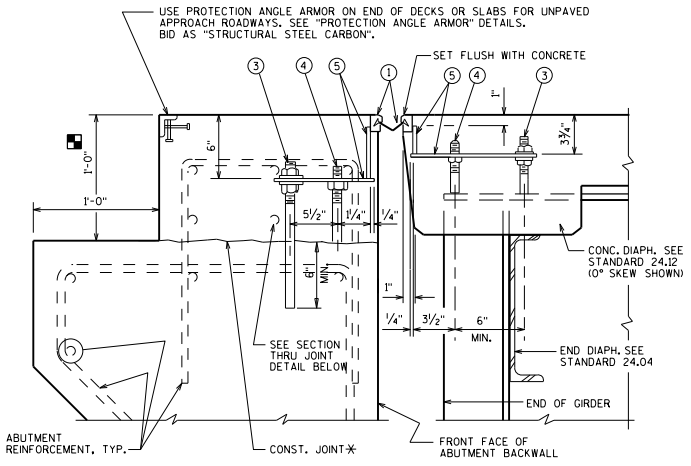
SLAB POURING SEQUENCE

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

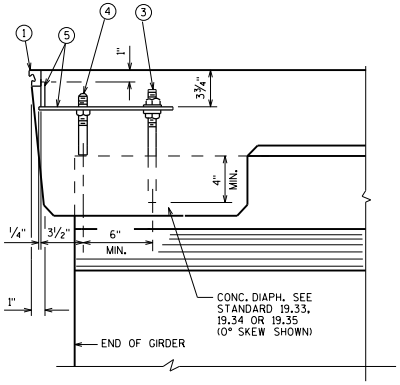
DATE: 7-19

STANDARD 24.11



TYPICAL SECTION THRU JOINT AT STEEL GIRDER

NORMAL TO ℄ SUBSTRUCTURE

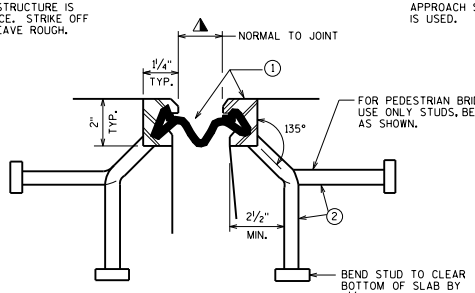


PART SECTION THRU JOINT AT PRESTRESSED GIRDERS

NORMAL TO ℄ SUBSTRUCTURE

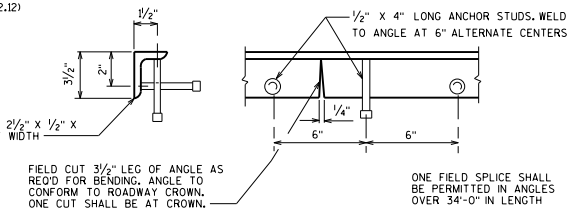
✳ POUR CONC. ABOVE THIS JOINT AFTER SUPERSTRUCTURE IS IN PLACE. STRIKE OFF AND LEAVE ROUGH.

◪ PAVING NOTCH IS 1'-0" WIDE BY 1'-4" DEEP IF STRUCTURAL APPROACH SLAB (STD. 12.12) IS USED.



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK, AND AT PARAPETS, MEDIANS AND SIDEWALKS



PROTECTION ANGLE ARMOR

SANDBLAST PROTECTION ANGLE AFTER FABRICATION PER NOTES. AFTER BLAST CLEANING, THE PROTECTION ANGLE SHALL BE HOT DIPPED GALVANIZED.

LEGEND

◭ (1) NEOPRENE STRIP SEAL (_-INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 1¾" WHEN EXPANSION LENGTH ≤ 230'-0". WHEN EXPANSION LENGTH > 230'-0", PREPARE A TEMPERATURE TABLE SHOWING JOINT OPENINGS FROM 5°F TO 85°F IN 10°F INCREMENTS. ACCOUNT FOR PRESTRESSED GIRDER SHRINKAGE DUE TO CREEP WHEN DETERMINING THIS TABLE. JOINT OPENINGS GIVEN NORMAL TO JOINT. ◨

(2) STUDS ⅝" DIA. X 6⅜" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.

(2A) ½" THICK ANCHOR PLATE WITH ⅝" DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.

(3) ¾" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. FOR PRESTRESSED GIRDERS, GROUT THREADED ROD INTO FIELD DRILLED HOLES ON ℄ OF GIRDER. FOR STEEL GIRDERS, WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE, GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.

(4) ¾" DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.

(5) FABRICATE SUPPORT FROM 3" X ½" BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.

REFER TO STANDARD 28.02 & 28.07

(6) GALVANIZED PLATE ⅜" X 10" X (2'-2" LONG FOR SKEWS TO 45° AND 3'-0" LONG FOR SKEWS > 45°) WITH HOLES FOR NO. 7, FOR SINGLE SLOPE PARAPET. FOR SLOPED FACE PARAPET, SEE STANDARD 28.07.

(7) ¾" DIA. X 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.

(8) ¾" DIA. X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.

(9) ¾" DIA. X 2¼" GALVANIZED THREADED COUPLING.

(10) SIDEWALK COVER PLATE ⅜" X (2'-0" WIDE FOR SKEWS TO 45° AND 3'-0" WIDE FOR SKEWS > 45°) X LIMITS SHOWN. BEND DOWN FACE OF SIDEWALK WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.

(11) 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

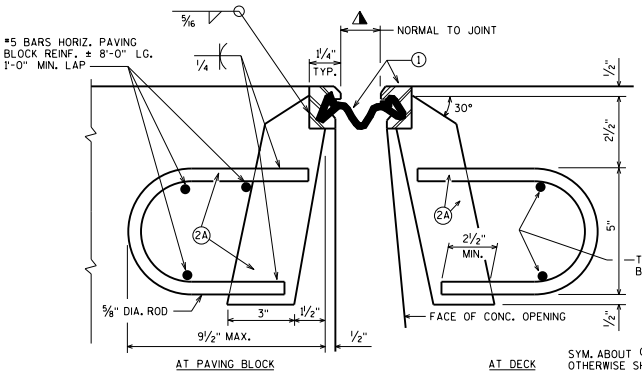
AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE B-_-_", LF.

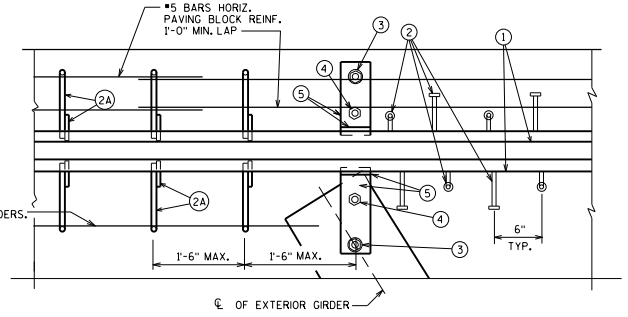


SECTION THRU JOINT

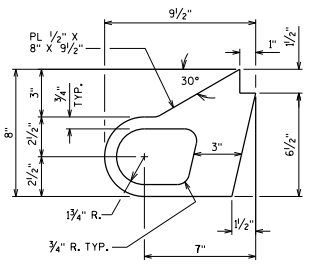
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED

◨ IF TEMPERATURE TABLE IS SHOWN, PLACE FOLLOWING NOTE ADJACENT TO TABLE: "A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT."



PART PLAN



ALTERNATE STRIP SEAL ANCHOR

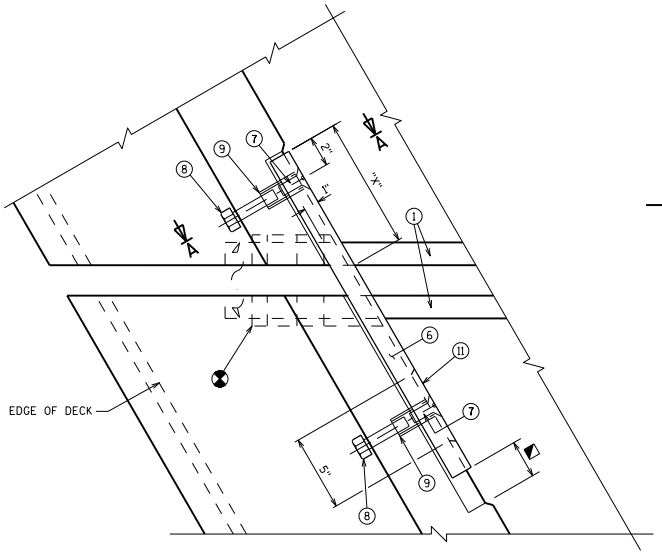
STRIP SEAL EXPANSION JOINT DETAILS

BUREAU OF STRUCTURES

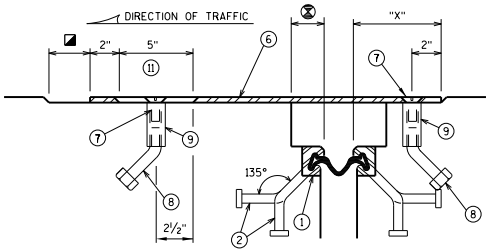
APPROVED: Bill Oliva

DATE: 7-19

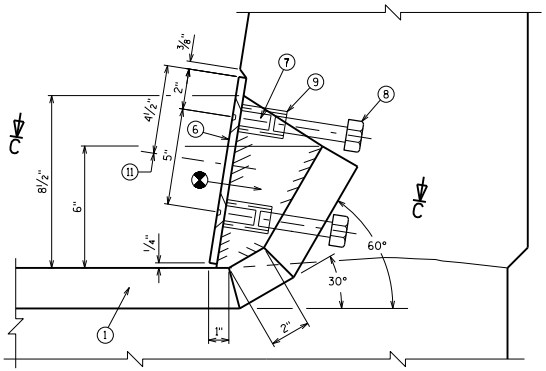
STANDARD 28.01



PLAN AT PARAPET
SINGLE SLOPE PARAPET

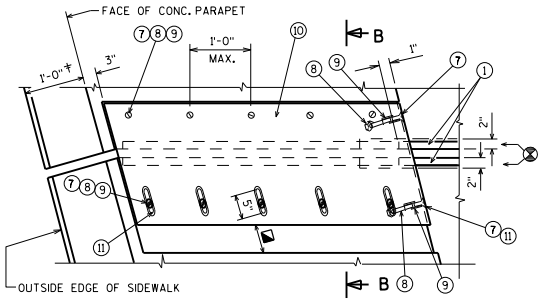


SECTION C-C



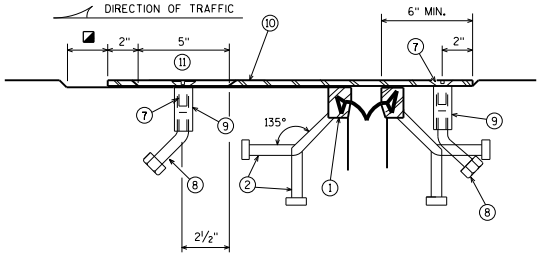
SECTION A-A
SINGLE SLOPE PARAPET

"X" - VALUES IN INCHES	USE "X" = 6½" FOR 0° SKEW												
SKEW	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°
RHF	6½	6½	6½	6½	6½	6½	6½	6½	6½	7	7	7½	8
LHF	7	7½	8	8½	9	9½	10½	11	11½	13	13½	14½	15½

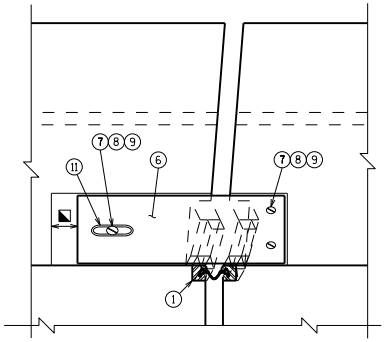


PLAN AT SIDEWALK

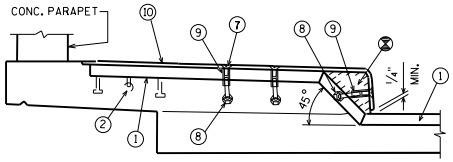
* 1'-2" WHEN "VERTICAL FACE PARAPET TYPE 'TX'IS USED



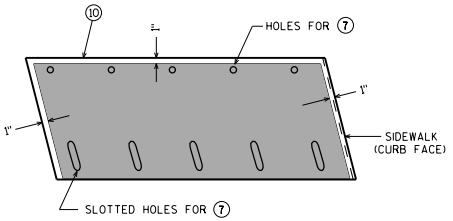
SECTION B-B



VIEW OF PARAPET PLATES FROM ROADWAY
SINGLE SLOPE PARAPET



SECTION AT SIDEWALK



PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY (NOT ON CURB FACE).

DESIGNER NOTES

FOR NEW BRIDGES, JOINT TO BE DETAILED STRAIGHT.

FOR JOINT REPLACEMENT PROJECTS, JOINT SHALL BE DETAILED TO MATCH ORIGINAL CONFIGURATION (STRAIGHT OR KINKED) IN ORDER TO REDUCE SUBSTRUCTURE MODIFICATIONS REQUIRED.

PLAN DETAILS SHALL REMOVE ENOUGH PARAPET LATERALLY, AND FULL HEIGHT, TO ENSURE DURABILITLY OF THE JOINT REPLACEMENT.

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING

◪ JOINT OPENING DIM. ALONG SKEW PLUS ½"

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

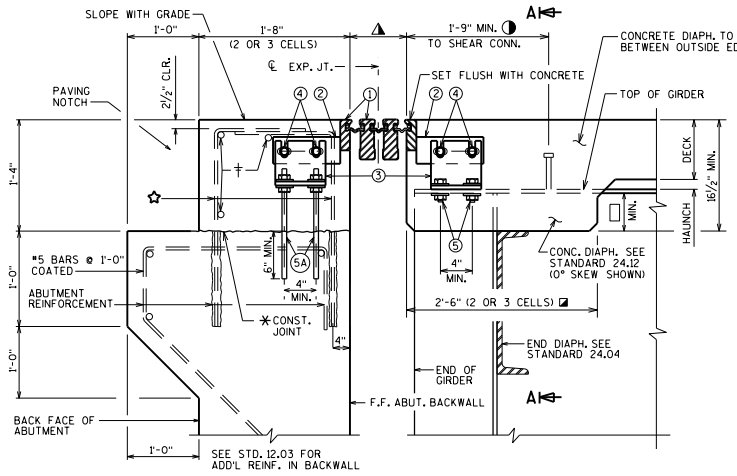
STRIP SEAL COVER PLATES SINGLE SLOPE PARA./SDWK.

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

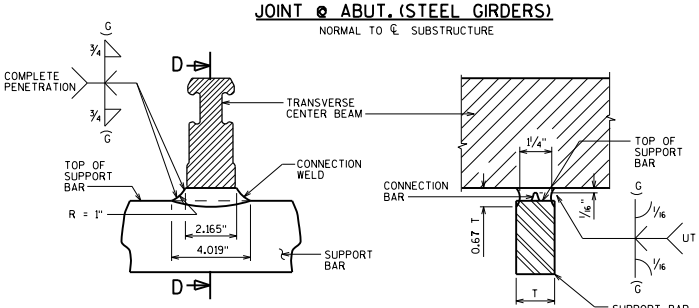
DATE: 7-19

STANDARD 28.02



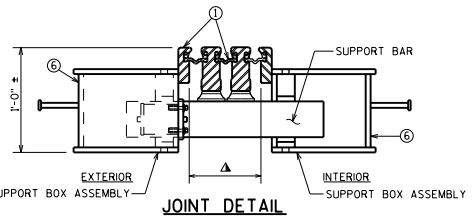
JOINT @ ABUT. (STEEL GIRDERS)

NORMAL TO ℄ SUBSTRUCTURE



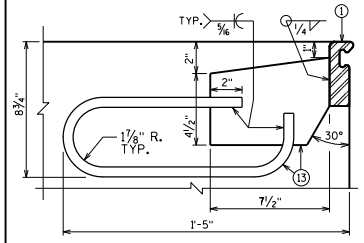
MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

SECTION D-D



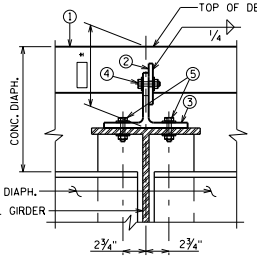
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY

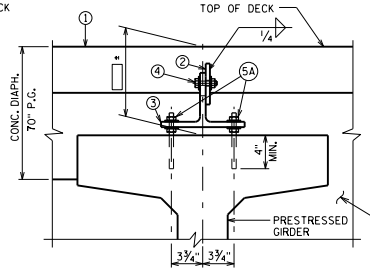


ANCHORAGE DETAIL

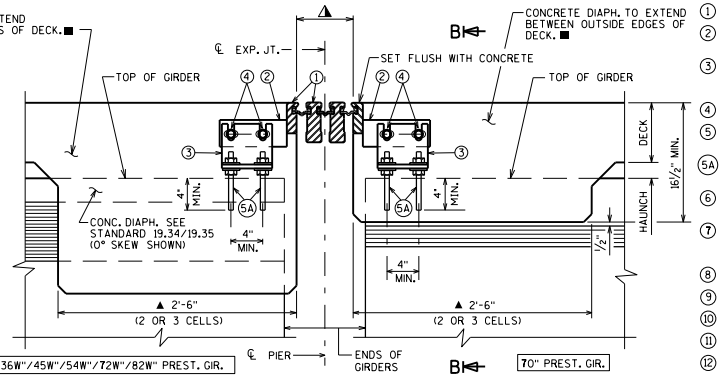
PLACE ADJACENT TO SUPPORT BOXES IN PAVING BLOCK @ ABUT. & IN DECK @ CONC. DIAPH.



SECTION A-A

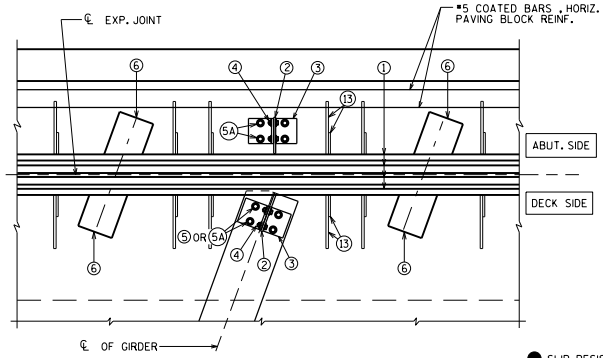


SECTION B-B



JOINT @ PIER (PRESTRESSED GIRDERS)

NORMAL TO ℄ SUBSTRUCTURE



PART PLAN

NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS.

▲ SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

LEGEND

1. MODULAR EXPANSION JOINT DEVICE, ▭ CELLS.
2. ½" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" X 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.
3. WT 6 X 29 (OR EQUIVALENT BUILT UP T-SECTION). ONE PER GIRDER. PROVIDE 2- 1" X 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.
4. ¾" DIA. HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
5. ¾" DIA. HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE. (A325 GALV.)
5A. ¾" DIA. THREADED ROD WITH 2 NUTS & WASHERS. GROUT THREADED ROD INTO FIELD DRILLED HOLES (GALV.).
6. SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM ½" PLATES.
7. ⅜" BULKHEAD PLATE. WELD TO NO. 1, NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET OR SIDEWALK, ACCOMMODATE FOR BY PROVIDING OPENING IN NO. 7.
8. INSIDE PLATE. FABRICATE FROM ⅜" PLATE.
9. OUTSIDE PLATE. FABRICATE FROM ⅝" PLATE.
10. ⅞" SQUARE BAR. WELD TO NO. 8 AS SHOWN.
11. ¾" DIA. X 4" LONG STUDS. WELD TO NO. 7, 8, & 14 AS SHOWN.
12. ¾" DIA. X 2" STAINLESS STEEL FLAT CTSK, SLOTTED HEAD CAP SCREWS W/ ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PL. SURFACE.
13. ½" PLATE WITH ⅝" DIA. LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
14. INSIDE PLATE. FABRICATE FROM ⅝" PLATE
15. ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

■ AT LOCATION WHERE EXT. GIR. IS ADJACENT TO A RAISED SIDEWALK (STD.30.07), CONC. DIAPH. DOES NOT EXTEND OUT TO EDGE OF DECK, BUT IS TERMINATED AT INSIDE FACE OF EXT. GIR.

‡ "5 COATED BARS, ± 8'-0" LONG, 1'-0" MIN. LAP. CUT IN FIELD TO CLEAR JOINT SUPPORT SYSTEM AS REQ'D.

* POUR CONC. ABOVE THIS JOINT AFTER SUPERSTRUCTURE CONC. IS IN PLACE. STRIKE OFF & LEAVE ROUGH.

◑ DIMENSION IS PARALLEL TO ℄ GIRDER.

◭ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

✿ (2) COATED L-SHAPED ADHESIVE ANCHORS ⅝-INCH. EMBED 12" IN CONCRETE. SPACE AT 1'-0". PLACE ADHESIVE ANCHORS AFTER MODULAR JOINT IS IN POSITION.

◪ TOP FLANGE WIDTH WITHIN LIMITS OF CONC. DIAPH. SHALL BE ≤ 20" FOR SKEWS ≤ 30°

▲ FOR PRESTRESSED GIRDERS, PLACE THE FOLLOWING NOTE ON PLANS: "JOINT MANUFACTURER SHALL INFORM AND PROVIDE NECESSARY DETAILS TO THE PRESTRESSED GIRDER FABRICATOR, WHEN FORM-OUT OF THE TOP FLANGE IS REQ'D. TO ALLOW PLACEMENT OF SUPPORT BOX ASSEMBLY."

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST & SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE (FOR RAISED SIDEWALK).

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED & SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP, & EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. "6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS, PARAPET PLATES, SIDEWALK PLATES, AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE MODULAR B- - ", LF.

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW PLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT., TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. ▭ IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (5°F) TO (85°F) FOR PRESTRESSED CONCRETE GIRDERS AND FROM (-5)°F) TO (+95°F) FOR STEEL GIRDERS.
4. ADJUST INITIAL JOINT OPENINGS BY A REDUCTION OF ▭ IN., WHICH ACCOUNTS FOR SHRINKAGE (CREEP) OF THE SUPERSTRUCTURE OVER TIME, TO PRODUCE FINAL JOINT OPENINGS FOR TABLE.

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

INCLUDE ITEM 4. FOR PRESTRESSED GIRDER STRUCTURES ONLY. SEE CHAPT. 28 IN BRIDGE DESIGN MANUAL FOR ADJUSTMENT FACTOR.

STANDARD COVERS:

- SKEWS ≤ 30°
- 2 OR 3 CELL MODULAR EXPANSION JOINTS
- STEEL GIRDER BRIDGES
- PRESTRESSED GIRDER BRIDGES (70", 36W", 45W", 54W", 72W" AND 82W" SECTION)

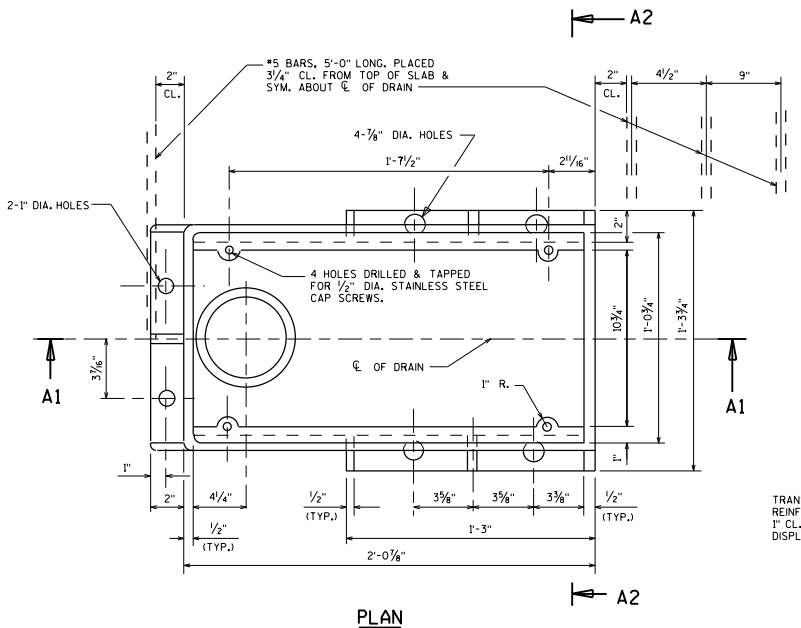
MODULAR EXPANSION JOINT DETAILS

WISCONSIN DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES

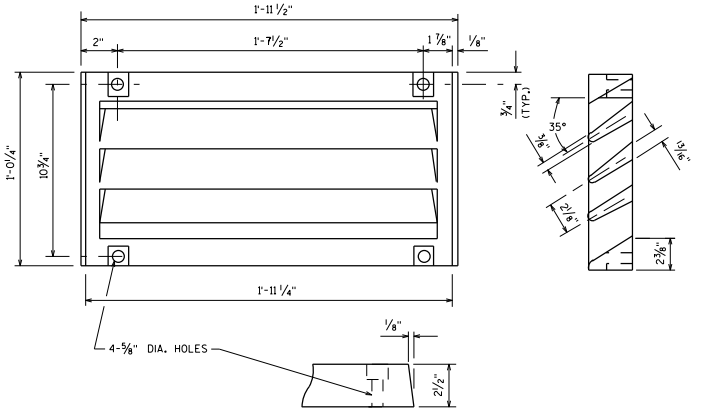
APPROVED: Bill Oliva

DATE: 7-19

STANDARD 28.03



PLAN



GRATE CASTING DETAIL

ATTACH GRATE TO FRAME FOR SHIPMENT

TRANS. AND LONGIT. SLAB BAR REINF. TO BE CUT A MAX. OF 1" CL. FROM DRAIN FRAME. DISPLACE BARS WHERE POSSIBLE.

NOTES

ALL MATERIAL FOR TYPE "GC" CASTING, EXCLUDING GRATE HOLD DOWN SCREWS, SHALL BE GRAY IRON CONFORMING TO ASTM A48, CLASS 30. (APPROXIMATE WEIGHT = 225#)

MATERIAL FOR BRACKETS SHALL CONFORM TO ASTM A36.

ALTERNATE BRACKETS ARE NOT ALLOWED.

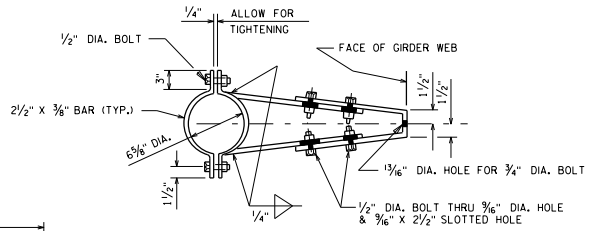
◪ FLANGED 6" DIA. DOWNSPOUTS SHALL BE REINFORCED THERMOSETTING RESIN PIPE (RTRP) OR GALVANIZED STANDARD PIPE CONFORMING TO ASTM A53.

DESIGNER NOTES

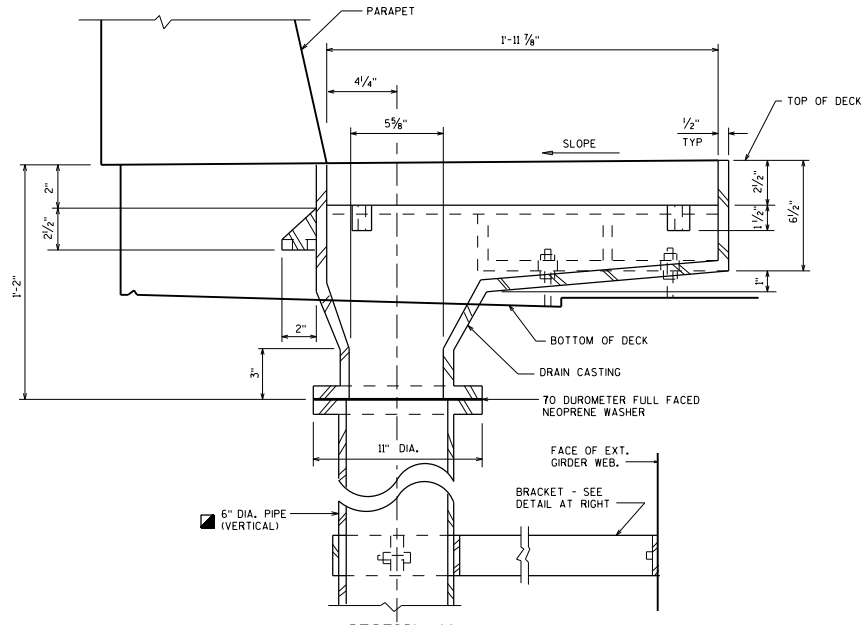
ALL MATERIAL FOR FLOOR DRAINS AS SHOWN ON THIS SHEET SHALL BE INCLUDED IN THE BID ITEM "FLOOR DRAINS TYPE GC".

ALL MATERIAL FOR DOWNSPOUTS AND BRACKETS AS SHOWN ON THIS SHEET SHALL BE INCLUDED IN THE BID ITEM "DOWNSPOUT 6-INCH".

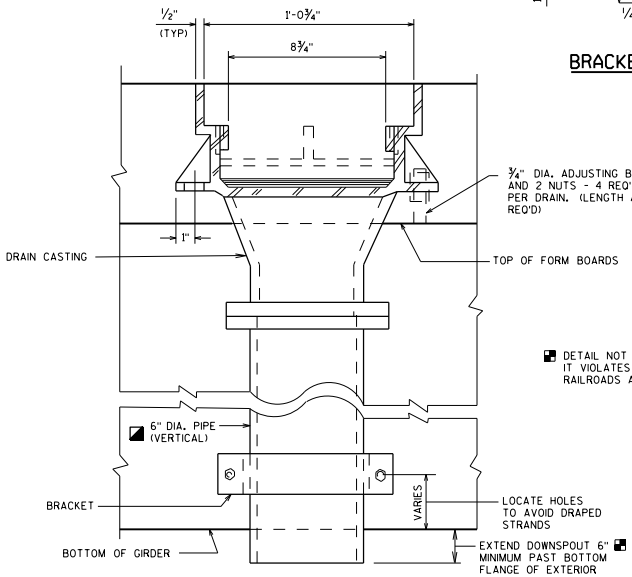
ON THE PRESTRESSED GIRDER SHEET, SHOW LOCATION OF HOLES FOR BRACKET ANCHORAGE FROM TOP/BOTTOM AND END OF GIRDER.



BRACKET DETAIL



SECTION A1



◪ DETAIL NOT TO BE USED OVER RAILROADS BECAUSE IT VIOLATES CLEARANCE REQUIREMENTS. CONTACT RAILROADS AND HARBORS SECTION FOR GUIDANCE.

SECTION A2

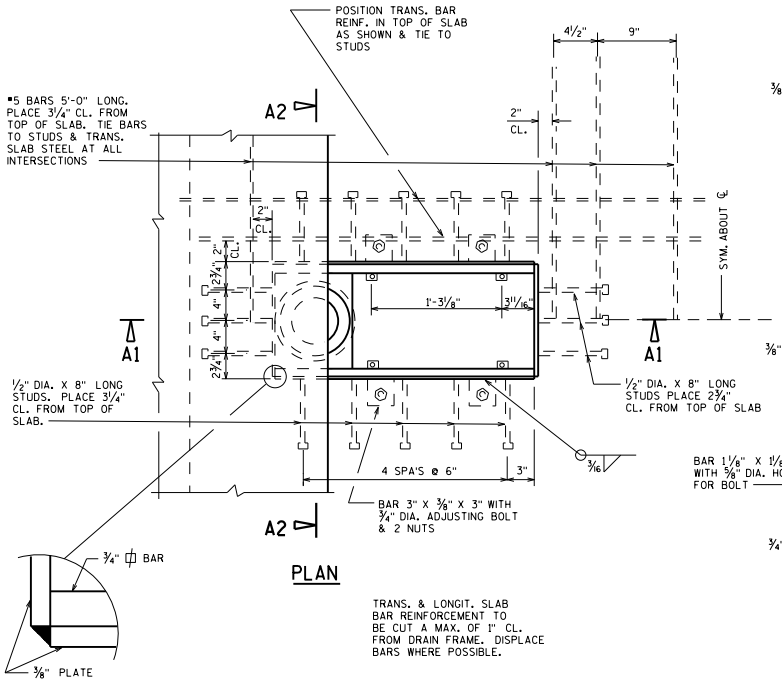
FLOOR DRAIN TYPE 'GC'

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

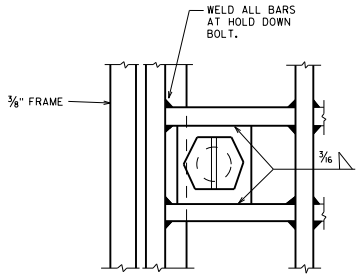
DATE: 7-19

STANDARD 29.01

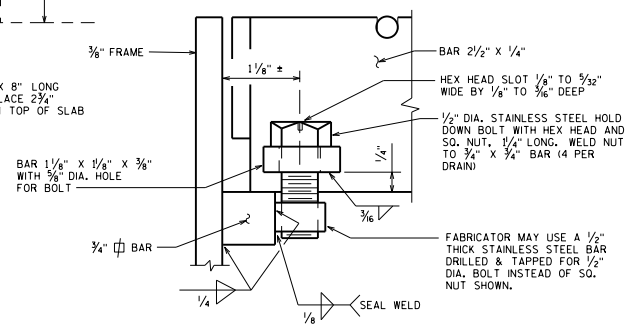


PLAN

TRANS. & LONGIT. SLAB BAR REINFORCEMENT TO BE CUT A MAX. OF 1" CL. FROM DRAIN FRAME. DISPLACE BARS WHERE POSSIBLE.



PART PLAN



SECTION AT HOLD DOWN BOLT

NOTES

ALL DRAIN MATERIAL INCLUDING GRATE, EXCLUDING PIPE & GRATE HOLD DOWN BOLTS, SHALL BE ASTM A36 STEEL.

MATERIAL FOR BRACKETS SHALL CONFORM TO ASTM A36.

ALTERNATE BRACKETS ARE NOT ALLOWED.

ALL STEEL SHALL BE GALVANIZED. WELDS SHALL BE MADE WITH LOW HYDROGEN ELECTRODES.

SEAL WELD INSIDE OF DRAIN.

PRIOR TO GALVANIZING A NO. 6 BLAST CLEANING IS REQ'D.

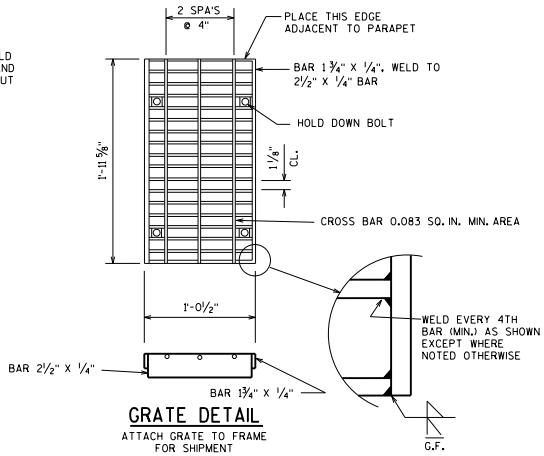
◪ FLANGED 6" DIA. DOWNSPOUTS SHALL BE REINFORCED THERMOSETTING RESIN PIPE (RTRP) OR GALVANIZED STANDARD PIPE CONFORMING TO ASTM A53.

DESIGNER NOTES

ALL MATERIAL FOR FLOOR DRAINS AS SHOWN ON THIS SHEET SHALL BE INCLUDED IN THE BID ITEM "FLOOR DRAINS TYPE H".

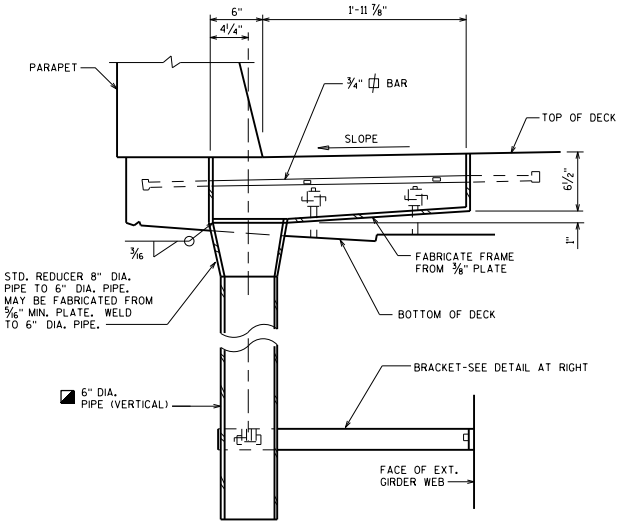
ALL MATERIAL FOR DOWNSPOUTS AND BRACKETS AS SHOWN ON THIS SHEET SHALL BE INCLUDED IN THE BID ITEM "DOWNSPOUT 6-INCH".

ON THE PRESTRESSED GIRDER SHEET, SHOW LOCATION OF HOLES FOR BRACKET ANCHORAGE FROM TOP/BOTTOM AND END OF GIRDER.

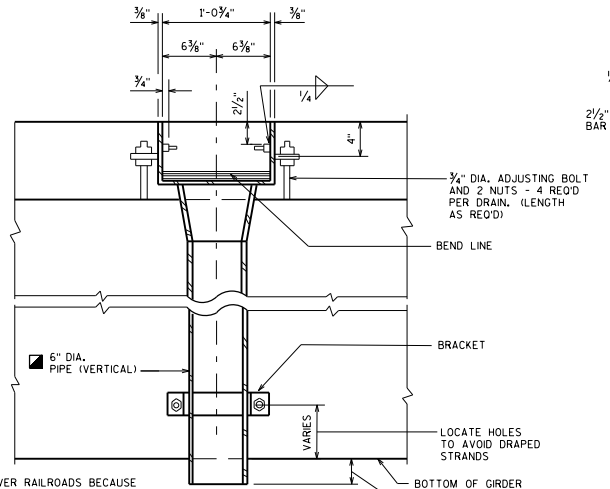


GRATE DETAIL

ATTACH GRATE TO FRAME FOR SHIPMENT

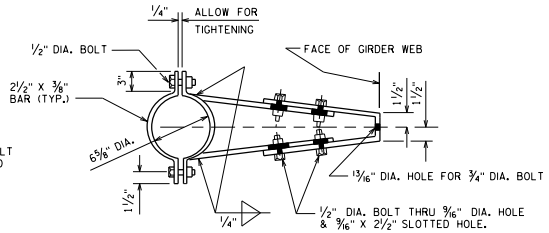


SECTION A1



◪ DETAIL NOT TO BE USED OVER RAILROADS BECAUSE IT VIOLATES CLEARANCE REQUIREMENTS. CONTACT RAILROADS AND HARBORS SECTION FOR GUIDANCE.

SECTION A2



BRACKET DETAIL

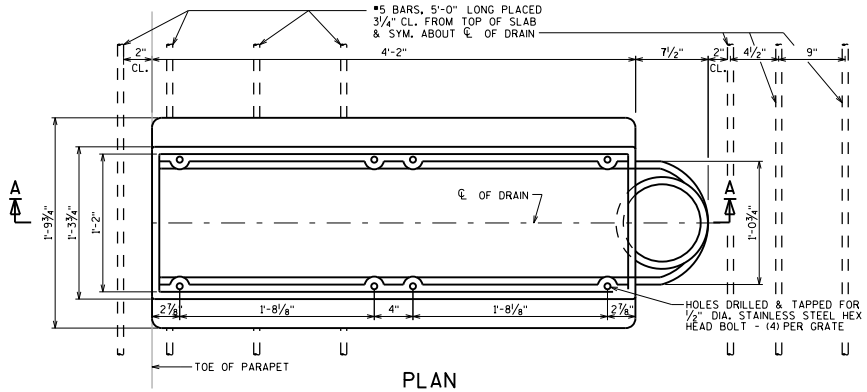
FLOOR DRAIN TYPE 'H'

BUREAU OF STRUCTURES

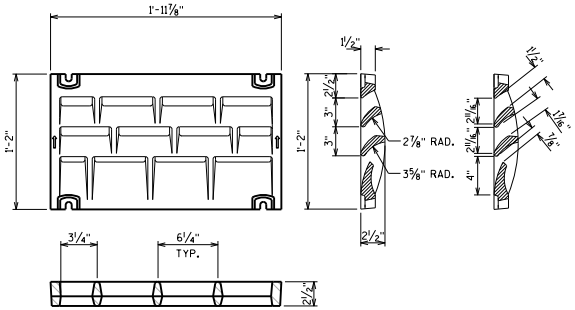
APPROVED: Bill Oliva

DATE: 7-19

STANDARD 29.02



PLAN



GRATE CASTING DETAILS

ATTACH GRATES TO FRAME FOR SHIPMENT

NOTES

ALL MATERIAL FOR TYPE "WF" CASTING AND 8" DIA. CONNECTION PIPE, EXCLUDING GRATE HOLD DOWN SCREWS, SHALL BE GRAY IRON CONFORMING TO ASTM A48, CLASS 30.

MATERIAL FOR BRACKETS SHALL CONFORM TO ASTM A36.

ALTERNATE BRACKETS ARE NOT ALLOWED.

◪ 8" DIA. DOWNSPOUTS SHALL BE REINFORCED THERMOSETTING RESIN PIPE (RTRP).

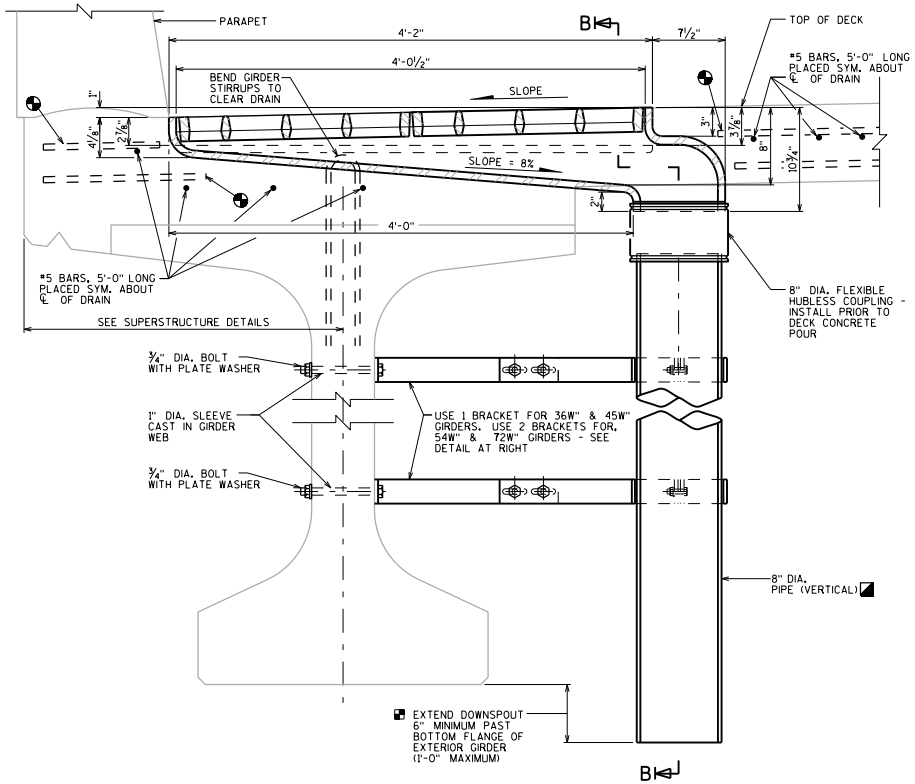
◔ TRANSVERSE & LONGITUDINAL SLAB BAR REINFORCEMENT TO BE CUT A MAXIMUM OF 1" CLEAR FROM DRAIN FRAME. DISPLACE BARS WHERE POSSIBLE.

DESIGNER NOTES

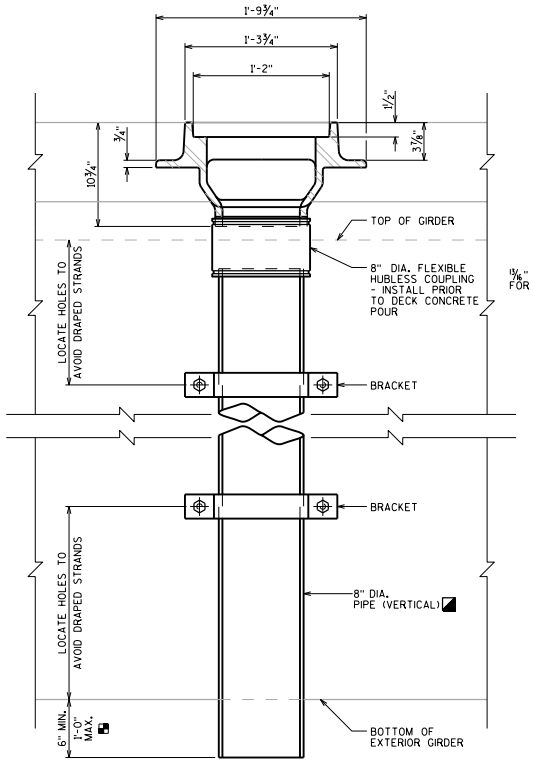
ALL MATERIAL FOR FLOOR DRAINS AS SHOWN ON THIS SHEET SHALL BE INCLUDED IN THE BID ITEM "FLOOR DRAINS TYPE WF".

ALL MATERIAL FOR DOWNSPOUTS, CONNECTORS, AND BRACKETS AS SHOWN ON THIS SHEET SHALL BE INCLUDED IN THE BID ITEM "DOWNSPOUT 8-INCH".

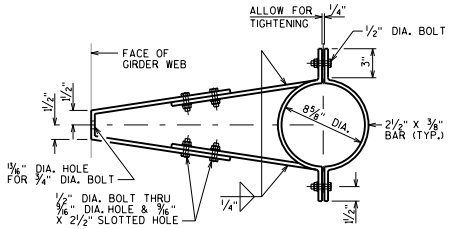
ON THE PRESTRESSED GIRDER SHEET, SHOW LOCATION OF HOLES FOR BRACKET ANCHORAGE FROM TOP/BOTTOM AND END OF GIRDER.



SECTION A-A



SECTION B-B



BRACKET DETAIL

◪ DETAIL NOT TO BE USED OVER RAILROADS BECAUSE IT VIOLATES CLEARANCE REQUIREMENTS. CONTACT RAILROADS AND HARBORS SECTION FOR GUIDANCE.

FLOOR DRAIN TYPE 'WF'

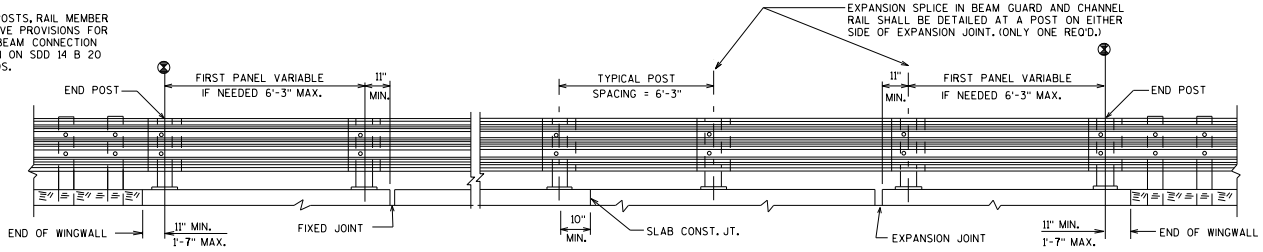
BUREAU OF STRUCTURES

APPROVED: Bill Oliva

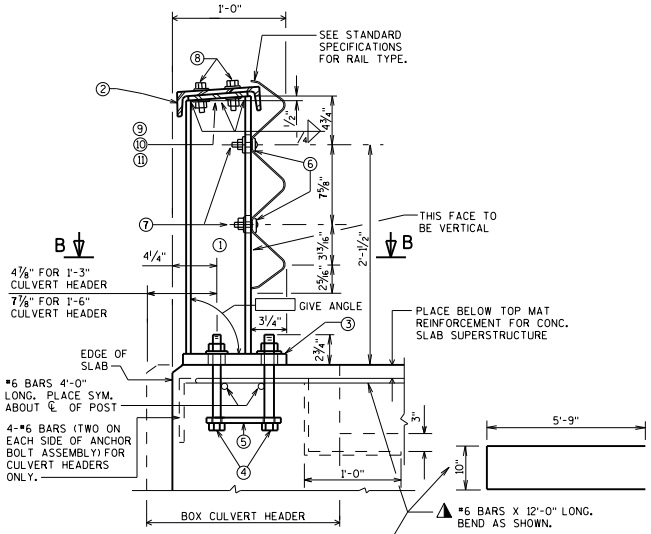
DATE: 7-19

STANDARD 29.03

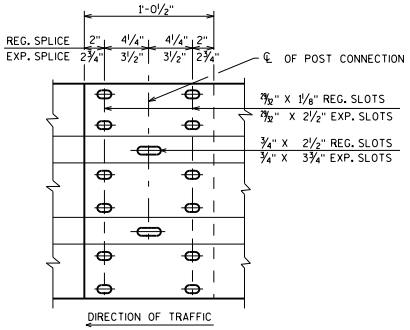
AT END POSTS, RAIL MEMBER SHALL HAVE PROVISIONS FOR A THRIE BEAM CONNECTION AS SHOWN ON SDD 14 B 20 STANDARDS.



ELEVATION OF RAILING

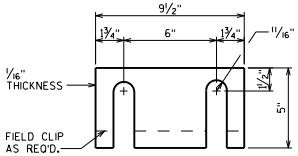


SECTION THRU RAILING



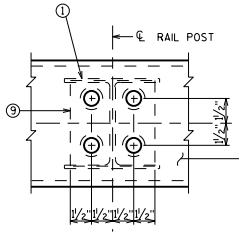
RAIL MEMBER SPLICE

⅝" DIA. BUTTON HEAD OVAL SHOULDER BOLTS WITH HEX NUTS AT ALL SLOTS.

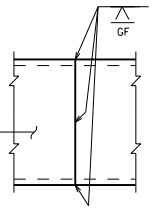


POST SHIM DETAIL

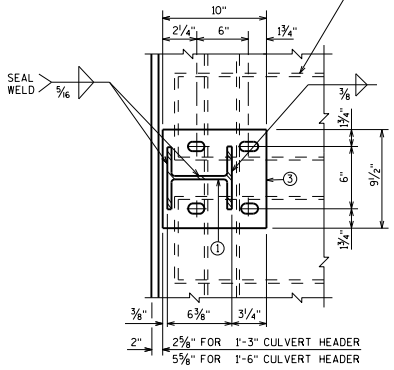
4 PER POST



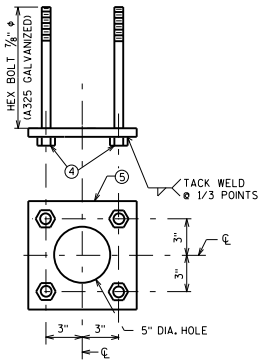
BASIC POST CONNECTION



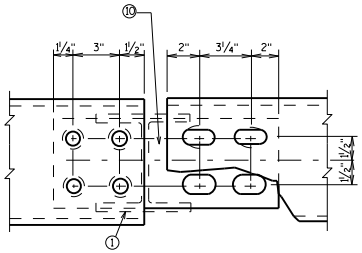
OPTIONAL SHOP SPLICE



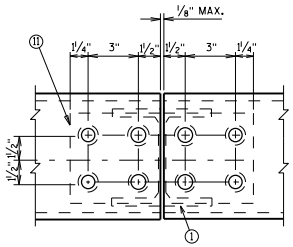
SECTION B-B



ANCHORAGE DETAIL



EXPANSION SPLICE



TYPICAL SPLICE

CHANNEL MEMBER DETAILS

SHIM PLATES 6" X 1/16" X 6" MAY BE USED BETWEEN TOP OF POST AND CHANNEL MEMBER TO ACHIEVE VERT. ALIGNMENT.

LEGEND

① W6×25 WITH 2 - ¾" × 2½" VERT. SLOTS IN FLG. (SLOT ON OTHER SIDE OF WEB IS OPTIONAL) FOR NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POSTS VERTICAL AND NORMAL TO GRADE LINE.

② C8×11.5 WITH 13/16" DIA. HOLES FOR NO. 8.

③ BASE PLATE 1" X 9½" × 10" WITH 1/16" × 1½" SLOTTED HOLES FOR ANCHOR BOLTS NO. 4. WELD TO NO. 1 AS SHOWN.

④ A325 - ⅞" HEX BOLTS (GALVANIZED) WITH A325 NUT AND WASHER. 14" LONG AT END POSTS AND AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 15". USE 8" LONG AT ALL OTHER LOCATIONS. 4 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 3. CHAMFER TOP OF BOLTS BEFORE THREADING.

⑤ ¼" × 8" × 8" FLAT BAR WITH 15/16" DIA. HOLES FOR ANCHOR BOLTS NO. 4.

⑥ 1¾" × 3" MOUNTING BOLT WASHER (GALVANIZED).

⑦ ⅝" DIA. BUTTON HEAD POST MOUNTING BOLT WITH ROUND WASHER AND NUT.

⑧ ⅝" DIA. × 2" HEX BOLTS WITH NUT AND TWO WASHERS EACH.

⑨ PLATE ½" × 5¾" × 6" AT BASIC POST CONNECTION. 1¼" DIA. HOLES IN PLATE. 13/16" DIA. HOLES IN CHANNEL.

⑩ PLATE ½" × 5¾" × 1'-2½". 1¼" DIA. HOLES IN PLATE. 13/16" DIA. HOLES IN CHANNEL. EXPANSION SLOTS ON JOINT SIDE OF POST, 1 1/16" × 2¼" IN PLATE, 13/16" X 2¼" IN CHANNEL. (AT EXPANSION SPLICE.)

⑪ PLATE ½" × 5¾" × 11½". 1¼" DIA. HOLES IN PLATE, 13/16" DIA. HOLES IN CHANNEL. (AT TYPICAL SPLICE.)

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE W" WHICH INCLUDES ALL ITEMS SHOWN.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL MATERIAL EXCEPT ANCHORAGE DETAIL NO. 5 SHALL BE GALVANIZED AFTER FABRICATION.

PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS AND CHANNELS SHALL BE GIVEN A NO. 6 COMMERCIAL BLAST CLEANING BY SSPC SPECS.

ALL MATERIAL USED IN FABRICATION SHALL BE MADE FROM MATERIALS CONFORMING TO ASTM DESIGNATION A709 GRADE 36 UNLESS NOTED OTHERWISE.

FILL BOLT SLOT OPENINGS IN POST SHIMS & PLATE NO. 3 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

SEE STANDARD SPECIFICATIONS FOR RAIL TYPE.

CHANNEL MEMBER SHALL BE ATTACHED CONTINUOUSLY TO A MINIMUM OF FOUR POSTS AND A MAXIMUM OF EIGHT (EXCEPT AT ABUTMENTS).

AT EXPANSION SLOTS IN RAIL AND CHANNEL MEMBERS, TIGHTEN BOLTS, BACK OFF ONE HALF TURN AND BURR THREADS. RAIL MEMBERS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC AND THE UPPER RAIL SHALL LAP THE LOWER RAIL.

STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.

SEE BRIDGE MANUAL 30.2 FOR ALLOWED USE.

▲ TIE TO TOP MAT OF STEEL. PUT THESE BARS IN BILL OF BARS FOR SUPERSTRUCTURE. NOT REQ'D. FOR BOX CULVERT HEADERS.

⊠ PAY LIMITS FOR TYPE "W" STEEL RAILING.

WEIGHT = 45 LB/FT

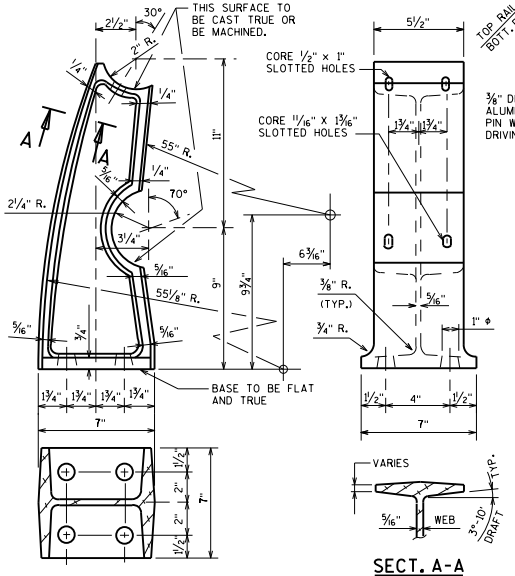
STEEL RAILING TYPE 'W'

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

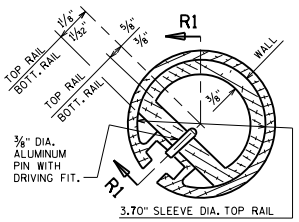
DATE: 7-19

STANDARD 30.02

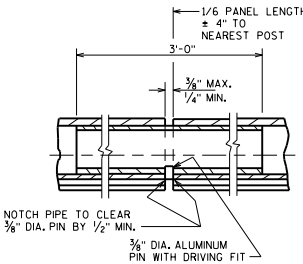


ALUMINUM POST CASTING

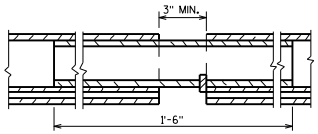
SECT. A-A



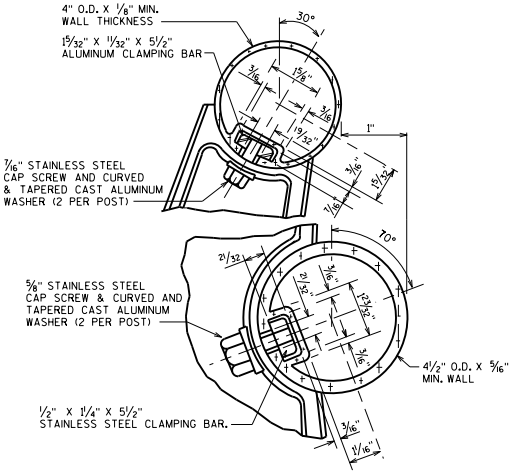
RAIL SPLICE DETAIL



SECTION R1

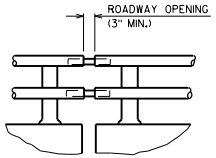


SLEEVE DETAIL AT ABUTMENT



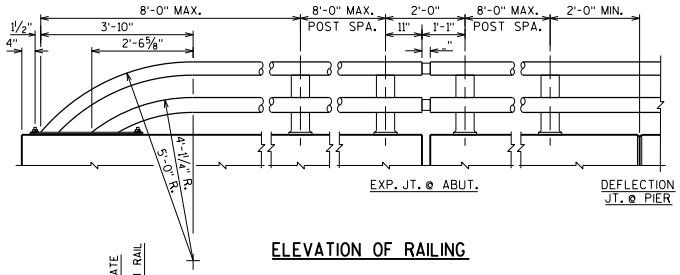
DETAIL OF ATTACHMENT TO POST

NOTES: MAX. REDUCTION IN DIAMETER OF BENT SECTION SHALL BE 3%.
WALL THICKNESS OF TUBING SHOWN ABOVE SHALL BE MIN. NOMINAL AVERAGE WALL THICKNESS.
MAX. REDUCTION IN SLOT WIDTH IN BENT TUBING SHALL BE 3/16".

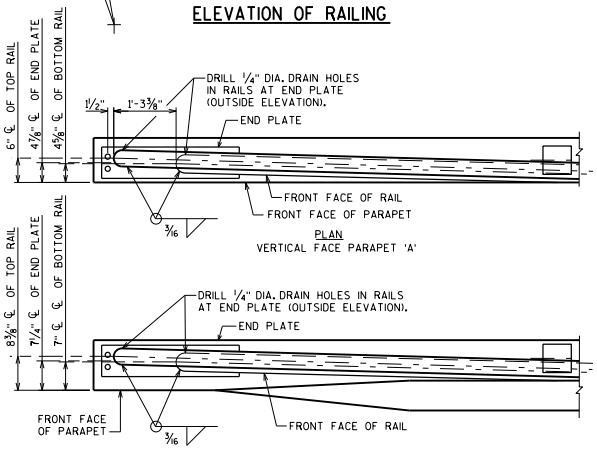


DETAIL AT RAIL OPENINGS

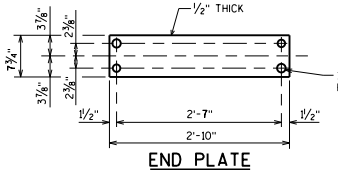
ALL SLEEVE DETAILS SAME AS "RAIL SPLICE DETAIL" UNLESS SHOWN OTHERWISE



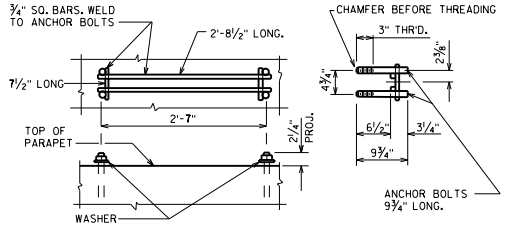
ELEVATION OF RAILING



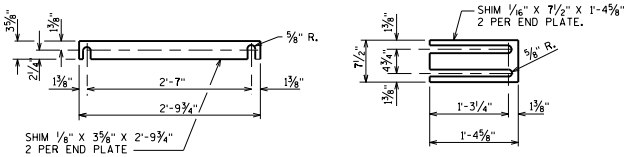
DETAIL OF RAIL BEND AT ABUTMENTS



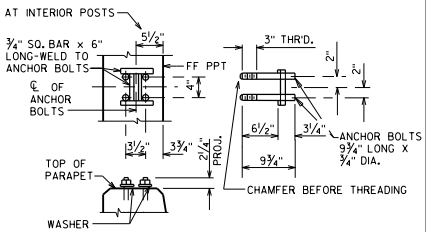
END PLATE



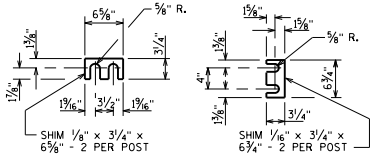
ANCHOR BOLTS AT END PLATE



END PLATE SHIM DETAILS



ANCHOR BOLTS AT POSTS



POST SHIM DETAILS

NOTES

BID ITEM SHALL BE "RAILING TUBULAR TYPE H" WHICH INCLUDES ALL ITEMS SHOWN.

SHIMS SHALL CONFORM TO SAME MATERIAL AS POSTS.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL.

RAILINGS SHALL BE FABRICATED IN 2 AND 3 PANEL LENGTHS.

RAILING POSTS SHALL BE SET NORMAL TO GRADE LINE.

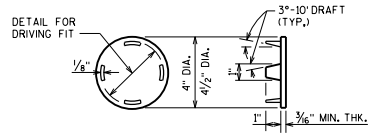
ALL POST SPACINGS ARE MEASURED HORIZONTALLY ALONG CENTERLINE OF THE POST BASE.

SHIMS SHALL BE USED UNDER POSTS AND END PLATES WHERE REQ'D. FOR ALIGNMENT.

FILL ALL EXPOSED OPENINGS BETWEEN SHIMS AND POST ANCHOR BOLT HOLES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

RAILS SHALL BE BUILT STRAIGHT AND SPRUNG INTO PLACE FOR STRUCTURES CURVED UP TO 3°. FOR STRUCTURES CURVED GREATER THAN 3°, RAILS SHALL BE CURVED TO FIT.

RAILING WEIGHT = 20 LB/FT



RAIL CLOSURE CAP DETAIL

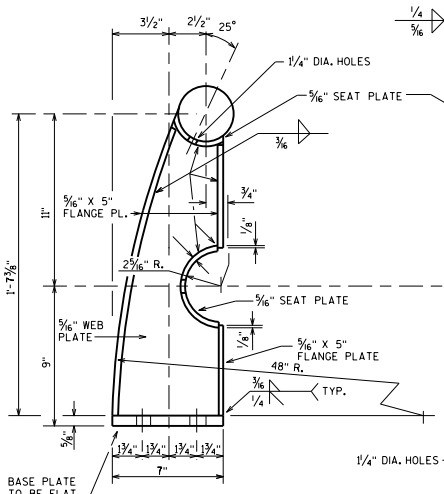
TUBULAR RAILING
TYPE 'H' (ALUM.)

BUREAU OF STRUCTURES

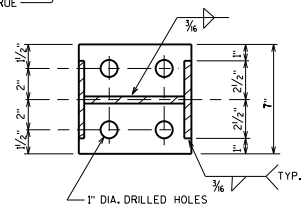
APPROVED: Bill Oliva

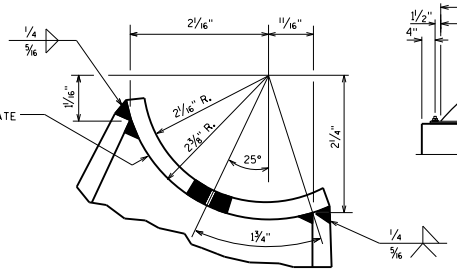
DATE: 7-19

STANDARD 30.04

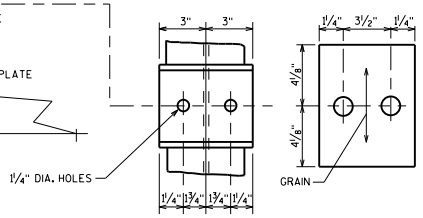


STEEL POST DETAILS

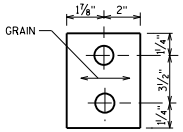




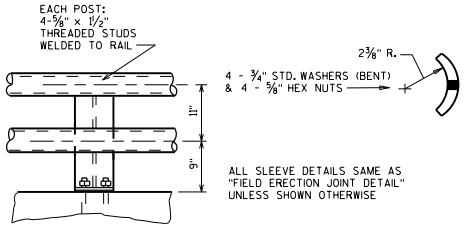
TOP RAIL SEAT PLATE



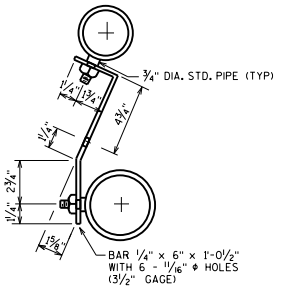
LAYOUT OF BOTTOM RAIL SEAT PL.



LAYOUT OF TOP RAIL SEAT PL.

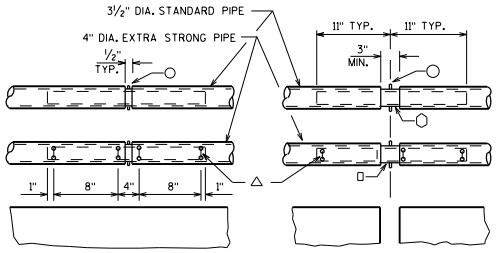


RAIL TO POST CONN.



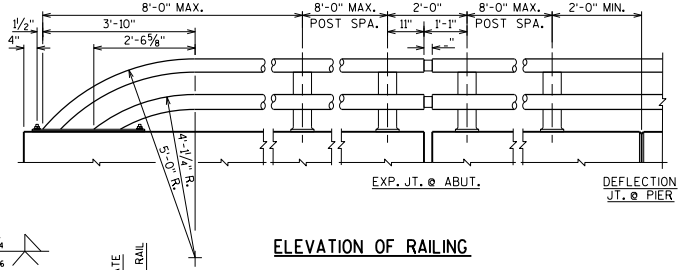
SHIPPING BAR

END SECTION ONLY

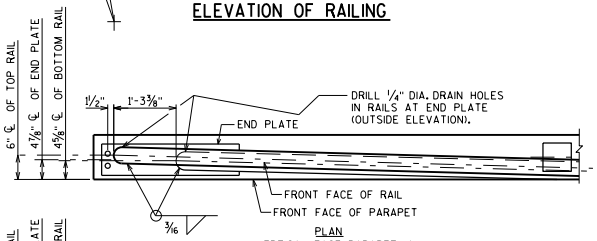


FIELD ERECTION JOINT DETAIL

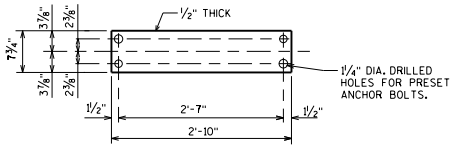
DETAIL AT RAIL OPENING



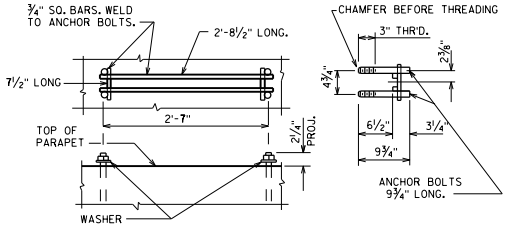
ELEVATION OF RAILING



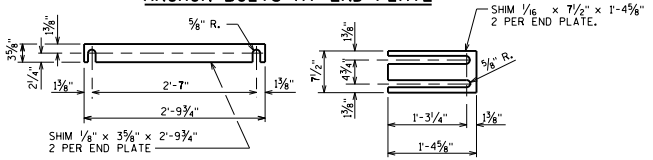
DETAIL OF RAIL BEND AT ABUTMENTS



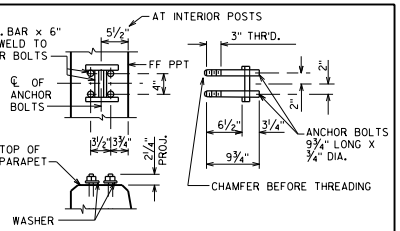
END PLATE



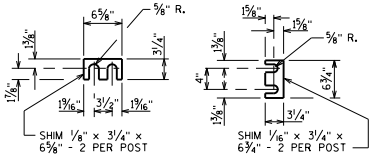
ANCHOR BOLTS AT END PLATE



END PLATE SHIM DETAILS



ANCHOR BOLTS AT POSTS



POST SHIM DETAILS

NOTES

BID ITEM SHALL BE "RAILING TUBULAR TYPE H" WHICH INCLUDES ALL ITEMS SHOWN.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE EITHER STAINLESS STEEL OR ASTM A307. IF A307 IS USED ELECTRO-GALVANIZE NUTS, WASHERS & TOP 3½" OF ANCHOR BOLTS.

CLOSURE ENDS ON STEEL RAILING SHALL BE ¼" PLATE. WELD AND GRIND SMOOTH.

RAILINGS SHALL BE FABRICATED IN 2 AND 3 PANEL LENGTHS.

RAILING POSTS SHALL BE SET NORMAL TO GRADE LINE.

ALL POST SPACINGS ARE MEASURED HORIZONTALLY ALONG CENTERLINE OF THE POST BASE.

SHIMS SHALL BE USED UNDER POSTS AND END PLATES WHERE REQ'D. FOR ALIGNMENT.

FILL ALL EXPOSED OPENINGS BETWEEN SHIMS AND POST ANCHOR BOLT HOLES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

RAILS, POSTS & SHIMS SHALL BE MADE FROM MATERIALS CONFORMING TO ASTM DESIGNATION A709, GRADE 36.

ALL MATERIALS, EXCEPT ANCHORAGES, SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.

RAILS SHALL BE BUILT STRAIGHT AND SPRUNG INTO PLACE FOR STRUCTURES CURVED UP TO 3°. FOR STRUCTURES CURVED GREATER THAN 3°, RAILS SHALL BE CURVED TO FIT.

RAILING WEIGHT = 30 LB/FT

LEGEND

- ○ ⅝" x ⅜" WELDED STUDS
- ⬡ 3" DIA. STD. PIPE x 1'-10" LONG
- □ 3" DIA. EXTRA STRONG PIPE x 1'-10" LONG
- △ ½" DIA. WELD BEADS AT 1/3 PTS. ON PIPE 11" CIRCUMF. GRIND BEADS SO THAT SLEEVE FITS FREELY IN THE I.D. OF 4" DIA. EXTRA STRONG PIPE.

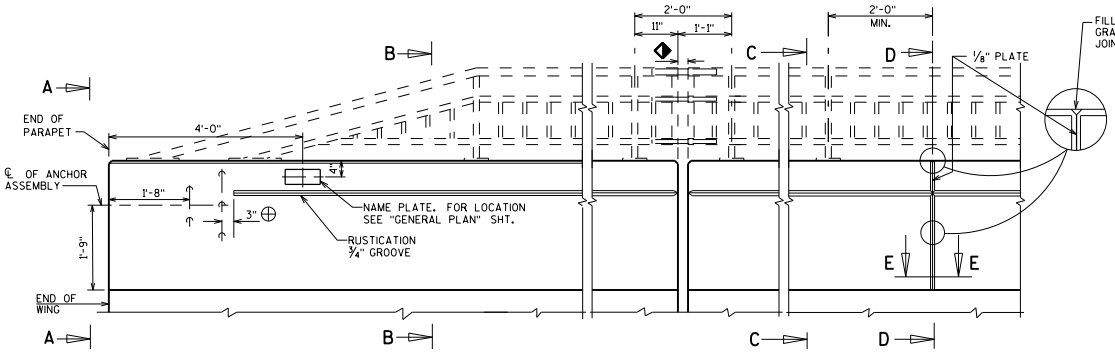
TUBULAR RAILING TYPE 'H' (STEEL)

BUREAU OF STRUCTURES

APPROVED: *Bill Oliva*

DATE: 7-19

STANDARD 30.05



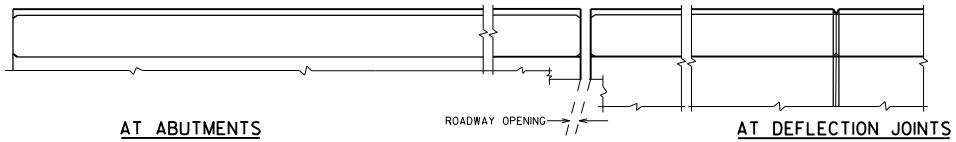
AT ABUTMENTS

AT DEFLECTION JOINTS

ELEVATION OF PARAPET

⊕ EXTEND 3/4" GROOVE TO END OF PARAPET WHEN ANCHOR ASSEMBLY IS NOT USED

◆ ROADWAY OPENING OR 2 1/2" MIN. FOR EXPANSION JOINT. USE 1/2" OPENING WITH FILLER FOR A1 ABUTMENTS

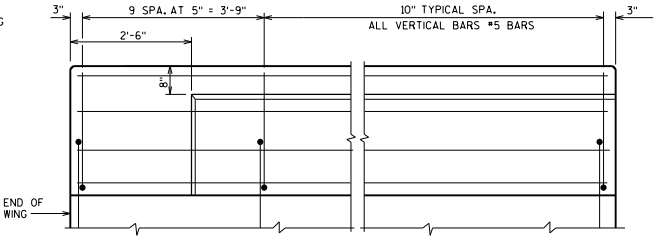


AT ABUTMENTS

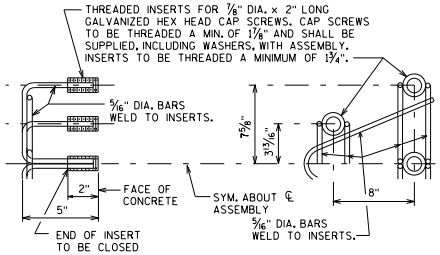
AT DEFLECTION JOINTS

PLAN OF PARAPET

(RAILING NOT SHOWN FOR CLARITY)



VIEW SHOWING OUTSIDE FACE OF PARAPET & REINF.



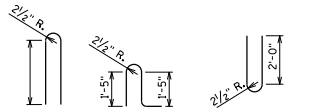
DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX. HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

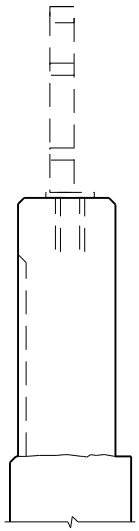
ASSEMBLY BID ITEM SHALL BE "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

BILL OF BARS

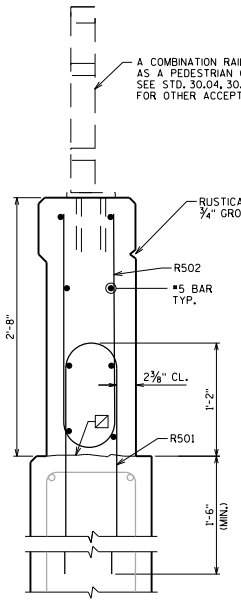
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X			X		PARAPET VERT.
R502	X		4'-9"	X		PARAPET VERT.
S501	X		4'-4"	X		PARAPET VERT.
S502	X		4'-9"	X		PARAPET VERT.



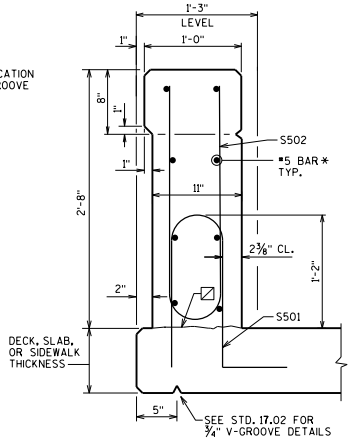
R501 S501 R502/S502



VIEW A

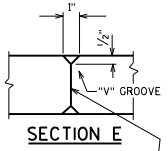


SECTION B

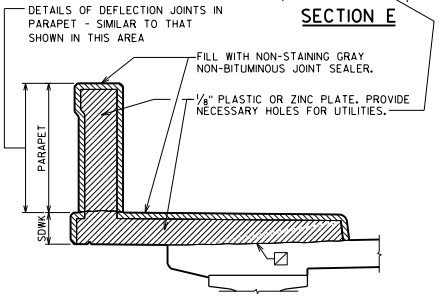


SECTION C

(PARAPET ON DECK, SLAB, OR SIDEWALK)
(RAILING NOT SHOWN FOR CLARITY)



SECTION E



SECTION D

SHOWING DEFLECTION JOINT IN PARAPET OR SIDEWALK USING THE FOLLOWING CRITERIA:

1. GIRDER STRUCTURES AND SLAB STRUCTURES WITH A SIDEWALK SHOULD HAVE A DEFLECTION JOINT IN THE SIDEWALK AND PARAPET OVER THE PIER.

IF THERE IS A LIGHT STANDARD AT THE PIER, PLACE A DEFLECTION JOINT APPROX. 4'-0" EACH SIDE OF PIER, WITH NONE DIRECTLY OVER THE PIER.

2. GIRDER STRUCTURES AND SLAB STRUCTURES WITHOUT SIDEWALKS SHOULD HAVE NO DEFLECTION JOINTS IN THE PARAPETS.

NOTE

WHEN PARAPETS ARE POURED CONTINUOUSLY FROM END TO END, THEY SHALL BE SEPARATED AT THE DEFLECTION JOINTS BY A PIECE OF 1/8" ZINC OR PLASTIC PLATE CUT AS SHOWN IN SECTION "D" BY SHADED AREA. IF CONSTRUCTION JOINTS IN PARAPETS ARE USED AT THE DEFLECTION JOINTS, ONE SIDE OF JOINT SHALL BE COATED WITH AN APPROVED LIQUID BOND BREAKER AND PLATE SEPARATORS MAY BE OMITTED.

LEGEND

☒ HORIZ. CONST. JOINT-STRIKE OFF AS SHOWN AND LEAVE ROUGH.

* OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT, LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE.

DESIGNER NOTE

A A501 BAR MAY BE USED IN LIEU OF A S501 BAR ADJACENT TO THE PAVING NOTCH ON TYPE A1 ABUTMENTS.

	PARAPET
AREA	2.50 SF
WEIGHT	375 LB/FT

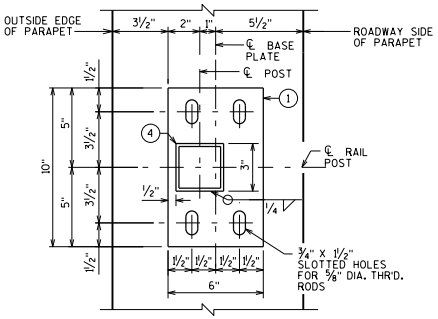
VERTICAL FACE PARAPET 'A'

BUREAU OF STRUCTURES

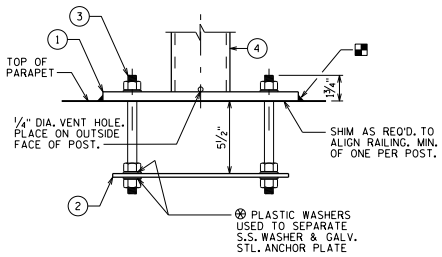
APPROVED: Bill Oliva

DATE: 7-19

STANDARD 30.07

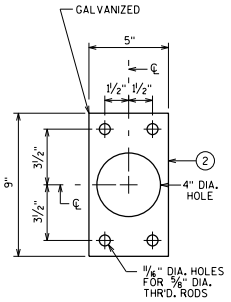


TYPICAL RAIL POST BASE PLATE

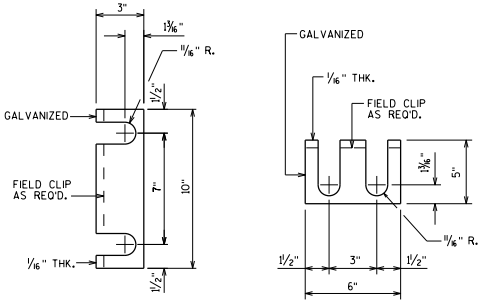


ANCHORAGE FOR RAIL POSTS

✪NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.

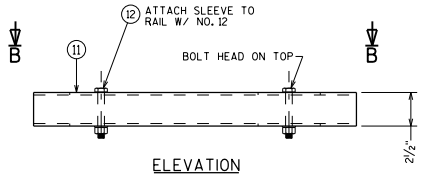


ANCHOR PLATE



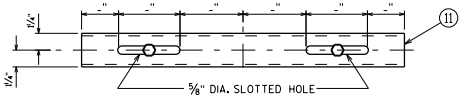
RAIL POST SHIM DETAIL

(2 SETS PER POST)



ELEVATION

(USE FOR EACH RAIL MEMBER)

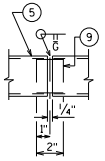


SECTION B-B

SLEEVE DETAIL

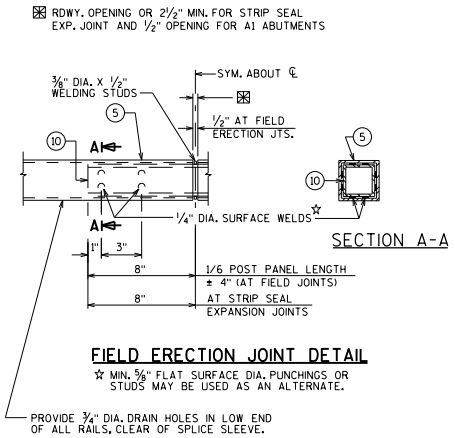
(AT MODULAR EXP. JT.)

NOTE: CONSTRUCT BOTTOM RAIL AND SLEEVE CONNECTION FIRST, THEN MIDDLE RAIL, AND THEN TOP RAIL, TO ALLOW EASE IN PLACEMENT OF BOLT NO. 12.



SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



SECTION A-A

FIELD ERECTION JOINT DETAIL

✪ MIN. ⅝" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.

LEGEND

(1) BASE PLATE ⅝" X 6" X 10" WITH ¾" X 1½" SLOTTED HOLES FOR THR'D RODS NO. 3. WELD TO NO. 4 AS SHOWN. SLOTS PARALLEL TO LONG SIDE OF PLATE.

(2) ¼" X 5" X 9" ANCHOR PLATE (GALVANIZED) WITH 11/16" DIA. HOLES FOR THR'D. RODS NO. 3.

(3) ⅝" DIA. X 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. ✪

(4) STRUCTURAL TUBING 3" X 3" X ⅜" POSTS, PLACE VERTICAL. WELD TO NO. 1, AND USE 1" DIA. HOLES (FRONT AND BACK) FOR BOLT NO. 6.

(5) STRUCTURAL TUBING 3" X 3" X 3/16" RAILS, WITH 11/16" DIA. HOLES (FRONT AND BACK) FOR BOLT NO. 6. BOLT TO NO. 4.

(6) ⅝" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3/16" X 1½" X 1½" WASHER, AND LOCK WASHER.

(9) RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. PROVIDE "SLIDING FIT".

(10) RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. (1'-4" ✪ FIELD ERECTION JTS.) (1'-4" ✪ STRIP SEAL EXP. JTS.)

(11) SLEEVE FABRICATED FROM STRUCTURAL TUBING 2½" X 2½" X 3/16" X '- " LONG. SLOTTED HOLES IN TOP AND BOTTOM.

(12) ½" DIA. STAINLESS STEEL BOLT WITH NUT AND LOCKWASHER.

✪ ALTERNATIVE ANCHORAGE: 4 EQUIVALENT STAINLESS STEEL CONCRETE ADHESIVE ANCHORS ⅝-INCH, EMBED 7" IN CONCRETE. ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE 3T", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

ENDS OF STRUCTURAL TUBING SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.

ALL PLATES, AND RECTANGULAR SLEEVES SHALL CONFORM TO ASTM A709 GRADE 36. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATE NO. 1, WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL JOINTS IN CONCRETE PARAPET ARE TO BE VERTICAL.

ALL MATERIAL (EXCEPT NO. 3 & 12) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.

VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

WHEN PAINTING REQ'D: (ADD)

PAINT OVER GALVANIZING (EXCEPT NO. 2) WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED AMS STD. COLOR NO. ☐, ☐ (FILL IN COLOR NAME).

INSIDE OF TUBES TO BE PAINTED AT ALL FIELD ERECTION AND EXPANSION JOINTS.

TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

COMBINATION RAILING TYPE '3T' DETAILS

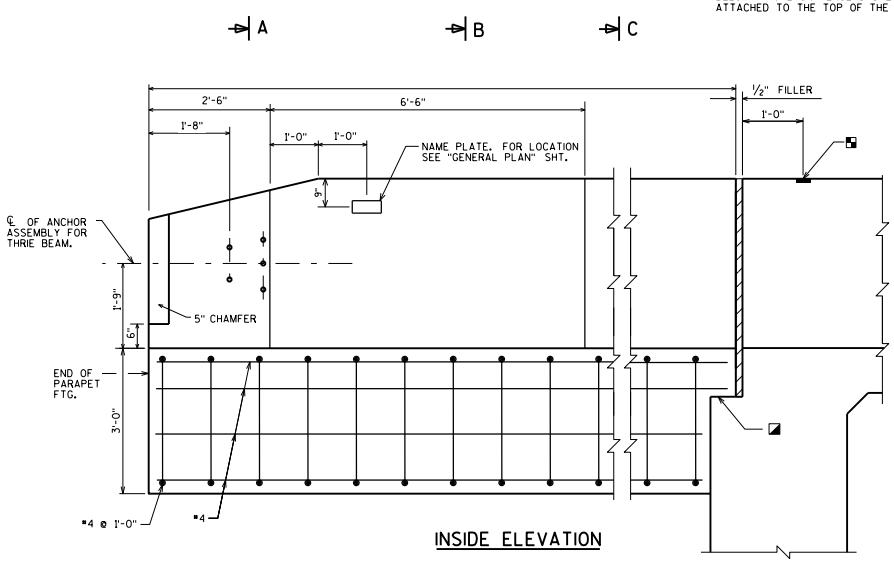
BUREAU OF STRUCTURES

APPROVED: Bill Oliva

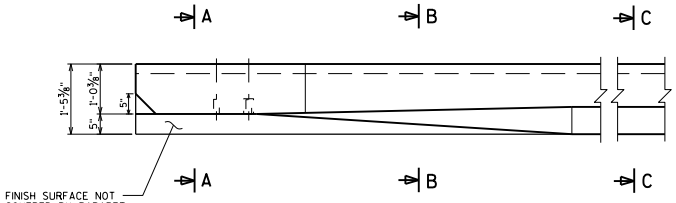
DATE: 7-19

STANDARD 30.09

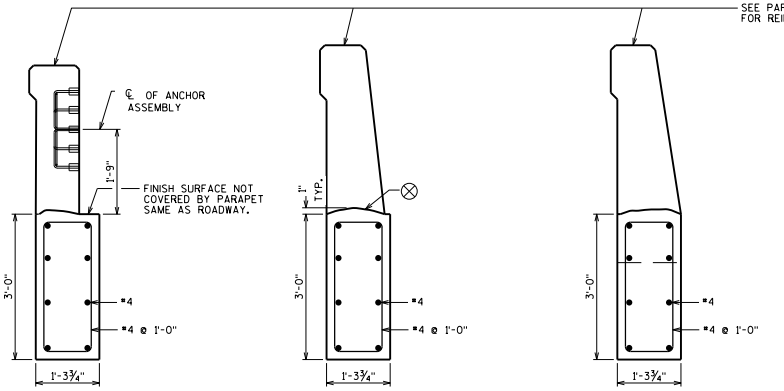
BENCHMARK (WHEN SUPPLIED). AVOID PLACING BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.



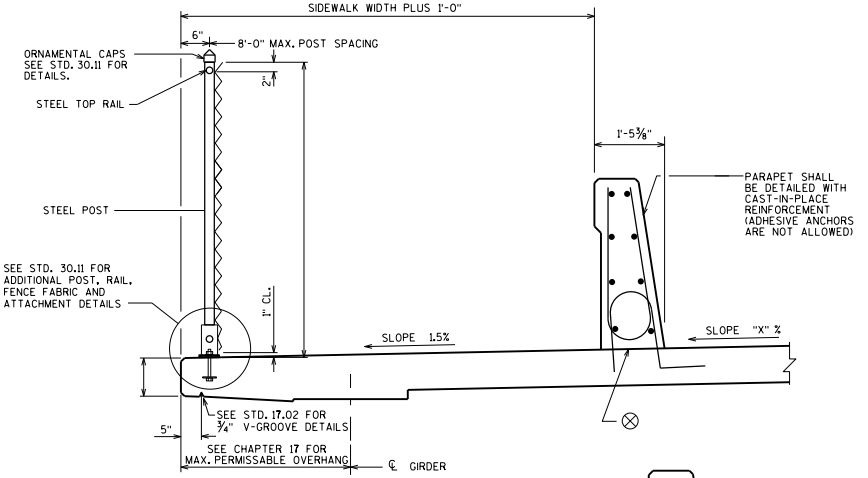
INSIDE ELEVATION



PLAN

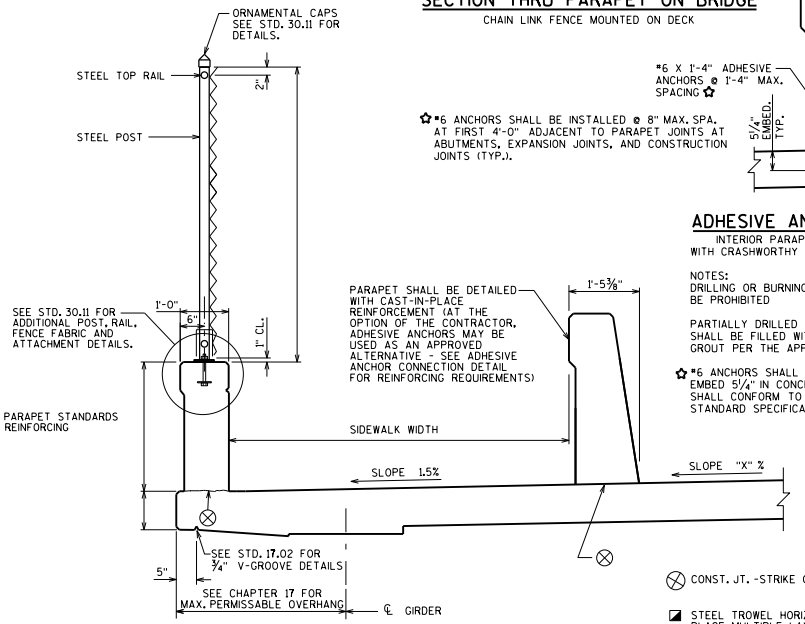


SECTION A SECTION B SECTION C



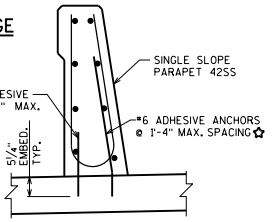
SECTION THRU PARAPET ON BRIDGE

CHAIN LINK FENCE MOUNTED ON DECK



SECTION THRU PARAPET ON BRIDGE

CHAIN LINK FENCE MOUNTED ON PARAPET



✿ #6 ANCHORS SHALL BE INSTALLED @ 8" MAX. SPA. AT FIRST 4'-0" ADJACENT TO PARAPET JOINTS AT ABUTMENTS, EXPANSION JOINTS, AND CONSTRUCTION JOINTS (TYP.).

ADHESIVE ANCHOR CONNECTION

INTERIOR PARAPET (USED IN CONJUNCTION WITH CRASHWORTHY ADJACENT EXTERIOR PARAPET)

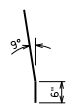
NOTES:
DRILLING OR BURNING THRU DECK REINFORCEMENT SHALL BE PROHIBITED

PARTIALLY DRILLED HOLES ABANDONED IN THE DECK SHALL BE FILLED WITH NON-SHRINK COMMERCIAL GROUT PER THE APPROVED PRODUCTS LIST

✿ #6 ANCHORS SHALL BE "ADHESIVE ANCHORS ¾-INCH". EMBED 5¼" IN CONCRETE." ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.

⊗ CONST. JT. -STRIKE OFF AS SHOWN & LEAVE ROUGH

◪ STEEL TROWEL HORIZONTAL SURFACE OF PAVING NOTCH. PLACE MULTIPLE LAYERS OF POLYETHLENE SHEETS BETWEEN PARAPET FOOTING AND HORIZONTAL SURFACE OF PAVING NOTCH. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".



#6 BAR
LENGTH = 2'-10"
(ADHESIVE ANCHOR CONNECTION)

DESIGNER NOTES

'42SS' PARAPET SHOWN IN THIS STANDARD. FOR DETAILS, INCLUDING REINFORCING, SEE STANDARD 30.32.

ALL PARAPET FOOTING BARS SHALL BE EPOXY COATED.

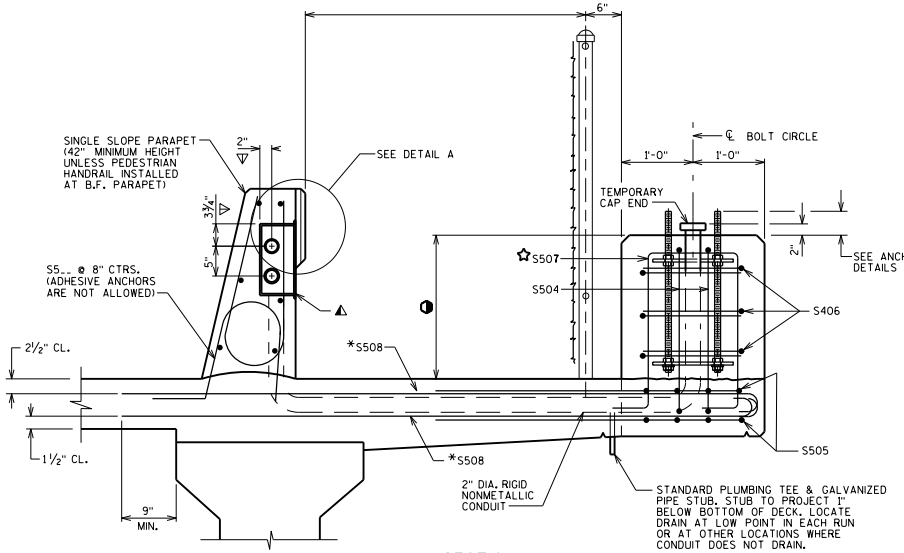
DO NOT SHOW THE ADHESIVE ANCHOR CONNECTION DETAIL ON THE PLAN. THE CONTRACTOR MAY REQUEST THIS DETAIL IF DESIRED.

PARAPET FOOTING

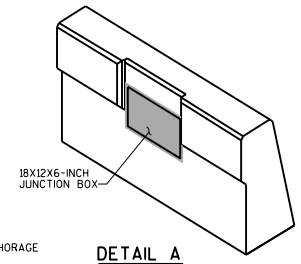
BUREAU OF STRUCTURES

APPROVED: *Bill Oliva* DATE: 7-19

STANDARD 30.10

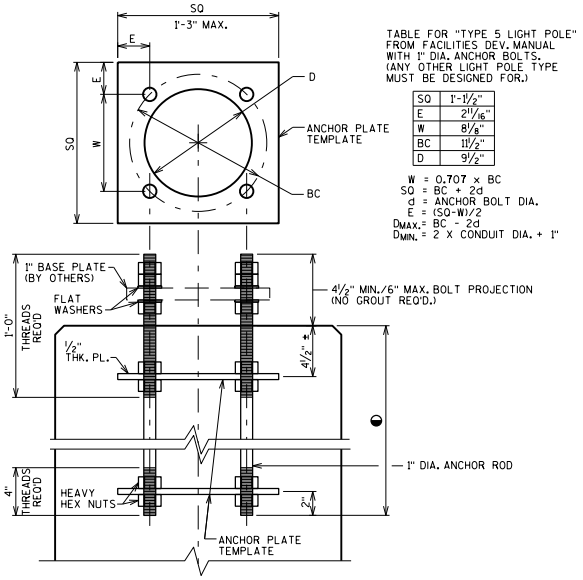


SECTION A-A



DETAIL A

SHOWING B.F. OF PARAPET WITH BLOCK OUT FOR JUNCTION BOX.

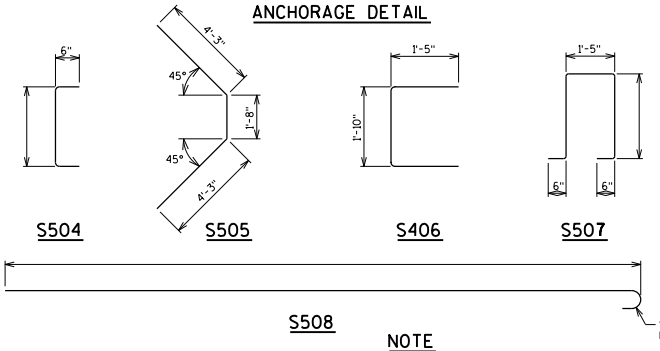


ANCHORAGE DETAIL

TABLE FOR "TYPE 5 LIGHT POLE" FROM FACILITIES DEV. MANUAL WITH 1" DIA. ANCHOR BOLTS. (ANY OTHER LIGHT POLE TYPE MUST BE DESIGNED FOR.)

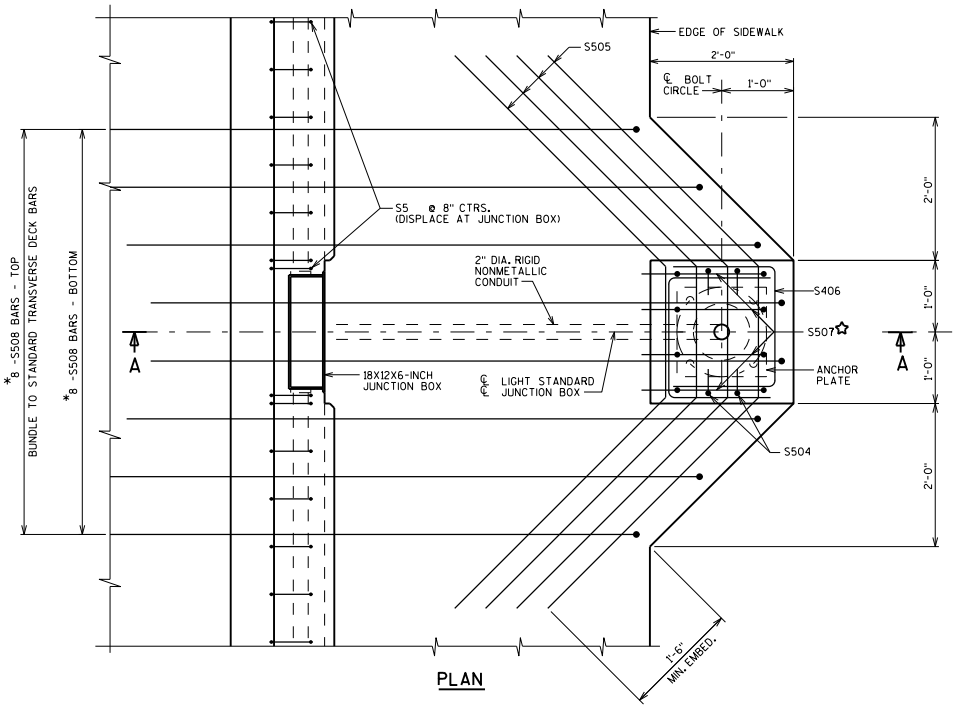
SQ	1'-1½"
E	2 11/16"
W	8⅛"
BC	11½"
D	9½"

W = 0.707 x BC
SQ = BC + 2d
d = ANCHOR BOLT DIA.
E = (SQ-W)/2
$D_{MAX.}$ = BC - 2d
$D_{MIN.}$ = 2 X CONDUIT DIA. + 1"



S504 S505 S406 S507

S508



PLAN

- STAND-ALONE PEDESTAL
  - 1" DIA. ANCHOR BOLTS = 2'-0"
  - < 1" DIA. ANCHOR BOLTS = 1'-3"
- STAND-ALONE PEDESTAL
  - 1" DIA. ANCHOR BOLTS = 1'-11"
  - < 1" DIA. ANCHOR BOLTS = 1'-2"

PARAPET BLISTER
- SEE STANDARD 30.21

▲ CUT OUT ± 1" OF GASKET AT BOTTOM OF JUNCTION BOX COVER TO ALLOW FOR DRAINAGE.

▽ LOCATION OF CONDUIT IS MEASURED FROM OUTSIDE EDGE OF JUNCTION BOX.

☆ TIE IN PLACE AFTER ANCHOR BOLT ASSEMBLY LOCATED.

* THESE BARS ARE IN ADDITION TO STANDARD TRANSVERSE BARS IN DECK.

BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
S504	X			X	LIGHT STD., VERT.
S505	X		10-2	X	LIGHT STD., HORIZ. IN DECK
S406	X		4-6	X	LIGHT STD., HORIZ.
S507	X			X	LIGHT STD., VERT.
S508	X			X	LIGHT STD., TRANSV. IN DECK

NOTE

BID ITEM SHALL BE "ANCHOR ASSEMBLIES LIGHT POLES ON STRUCTURES", EACH

DESIGNER NOTES

ANCHORAGE DETAIL FOR "TYPE 5 LIGHT POLE". ANCHORAGE FOR OTHER LIGHT POLE TYPES MUST BE DESIGNED.

SEE STD. 30.11 FOR FENCE DETAILS.

SEE STD. 30.21 FOR
- ADDITIONAL NOTES
- END OF BRIDGE DETAILS

THIS STANDARD IS NOT INTENDED TO BE USE WITH TRANSFORMER BASES.

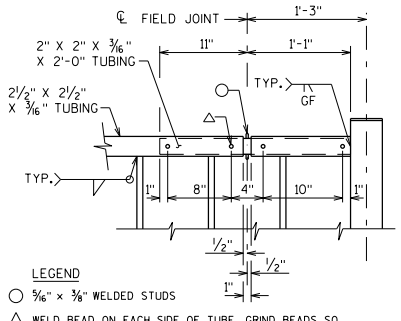
THIS STANDARD ACCOMMODATES A MAXIMUM 15" DIA. BOLT HOLE CIRCLE AND A MAXIMUM 15" X 15" SQUARE ANCHOR PLATE WITH (4) - 1" DIA. ANCHOR BOLTS. THIS STANDARD IS BASED ON A 8" MIN. DECK THICKNESS.

LIGHTING DETAIL

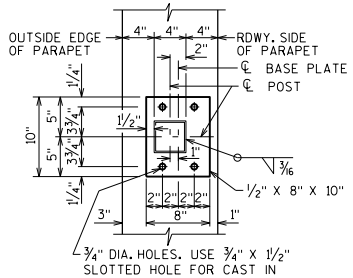
BUREAU OF STRUCTURES

APPROVED: Bill Oliva

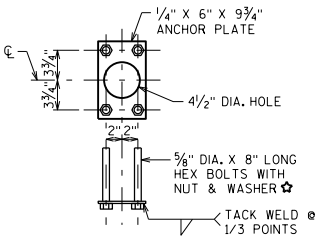
DATE: 7-19



RAILING EXPANSION JOINT DETAIL



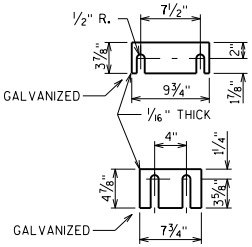
BASE PLATE



ANCHORAGE DETAIL

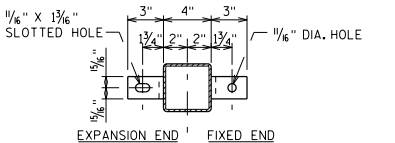
✿ ALTERNATIVE ANCHORAGE: ADHESIVE ANCHORS 5/8-INCH. EMBED 7" IN CONCRETE. ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.

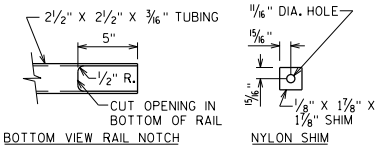
NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.



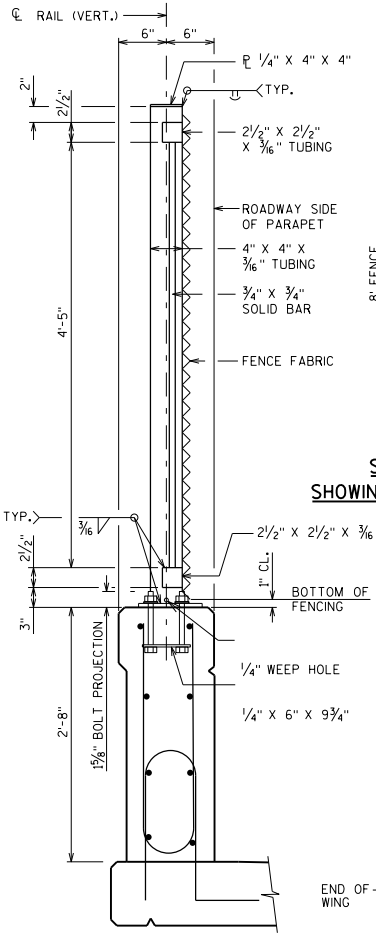
SHIM PLATE DETAILS

TWO SHIMS OF EACH SIZE REQUIRED PER POST



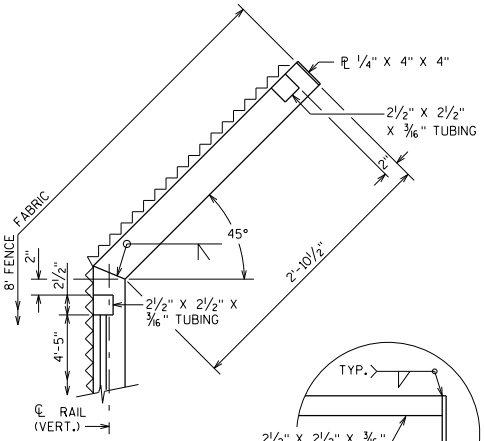


TOP RAIL CONNECTION FOR FENCE W/ BENT TOP

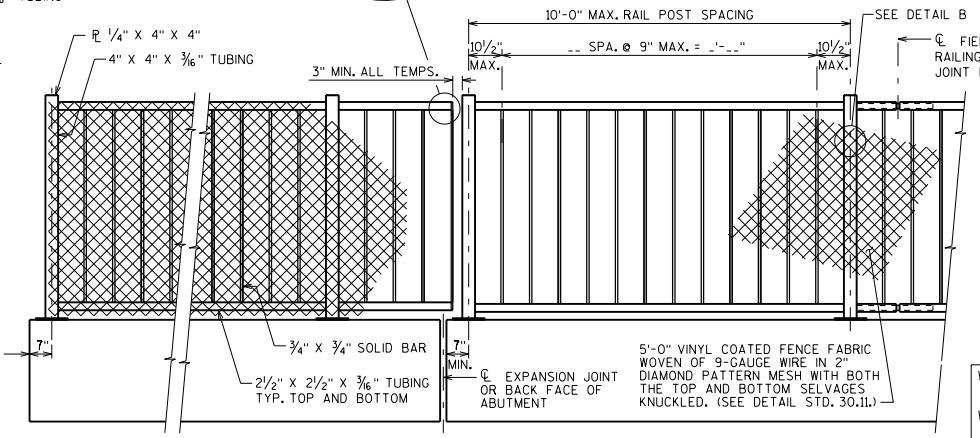


SECTION THRU RAILING

(SEE STD. 30.07 FOR PARAPET REINFORCEMENT AND DETAILS)



SECTION THRU FENCE SHOWING DETAILS FOR BENT TOP



INSIDE ELEVATION OF RAILING

WEIGHT = 35 LB/FT (W/O BENT SECTION @ TOP)
WEIGHT = 45 LB/FT (W/ BENT SECTION @ TOP)

NOTES

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B. PLATES, ANGLES, BARS AND SHIMS SHALL CONFORM TO ASTM A709, GRADE 36. FENCE FABRIC SHALL CONFORM TO ASTM F668, CLASS 2B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET POSTS NORMAL TO GRADE.

ALL POST SPACINGS ARE TAKEN HORIZONTAL ALONG CENTERLINE OF RAILING AT BASE OF POST.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

CAULK AROUND PERIMETER OF BASE PLATES AND FILL PORTION OF SLOTTED HOLES AROUND ANCHOR BOLTS WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

CUT BOTTOM OF POST TO MAKE VERTICAL IN TRANSVERSE DIRECTION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE EITHER STAINLESS STEEL OR ASTM 307. IF 307 IS USED, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED.✿

THE BID ITEM SHALL BE "RAILING TUBULAR SCREENING" WHICH SHALL INCLUDE ALL ITEMS SHOWN.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE NOT MORE THAN 3 POSTS.

VENT HOLES SHALL BE DRILLED IN MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

ALL RAILING MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED AMS STD. COLOR NO. ☐, ☐ (FILL IN COLOR NAME). FENCE FABRIC AND TIES TO BE VINYL-COATED. COLOR SHALL BE (SPECIFY: DARK GREEN, BROWN OR BLACK) IN ACCORDANCE WITH ASTM F934.

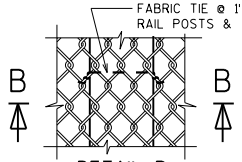
THE END OF THE FABRIC SHALL BE ATTACHED TO THE POST BY MEANS OF A TENSION BAR THREADED THROUGH THE END LOOPS OF THE FABRIC AND SECURED TO THE POST WITH CLAMPS & BOLT. THE FABRIC SHALL BE STRETCHED TO REMOVE ALL SLACK.

DESIGNER NOTES

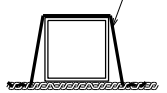
TUBULAR SCREENING MAY BE USED ON STRUCTURES WITH A 45 M.P.H. DESIGN SPEED OR LESS, OR WHEN THE SIDEWALK IS SEPARATED FROM THE ROADWAY BY A PARAPET.

THIS RAILING MAY BE MOUNTED DIRECTLY TO A BRIDGE SIDEWALK OR RETAINING WALL PROVIDED THE SIDEWALK IS SEPARATED FROM THE ROADWAY BY A TRAFFIC BARRIER. USE 6" CLEAR SPACING BETWEEN VERTICAL MEMBERS IF CHAIN LINK FENCE IS NOT USED.

FENCE HEIGHT, CURVED OR STRAIGHT, MESH SIZE, COATING AND COLOR SHOULD BE COORDINATED WITH THE REGION. SEE BRIDGE MANUAL 30.3 (8) FOR ADDITIONAL GUIDANCE.



DETAIL B



SECTION B-B

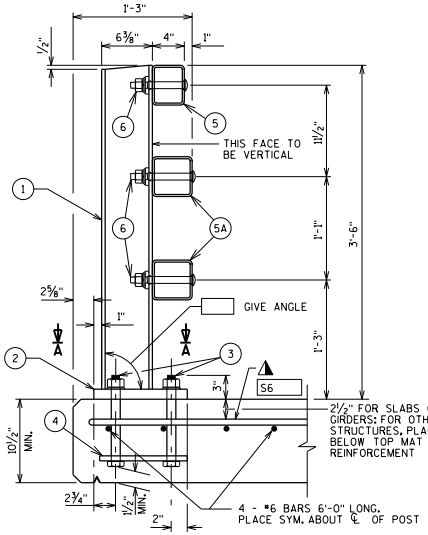
TUBULAR STEEL RAILING SCREENING

BUREAU OF STRUCTURES

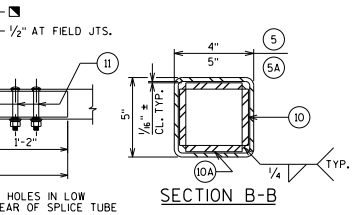
APPROVED: Bill Oliva

DATE: 7-19

STANDARD 30.15

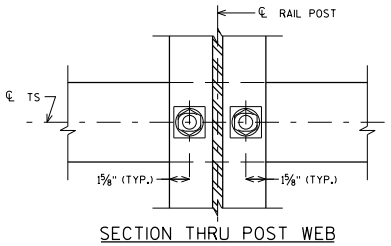


SECTION THRU RAILING ON DECK

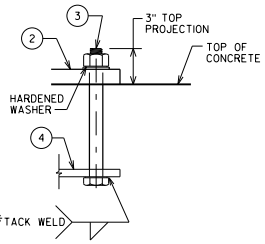


FIELD ERECTION JOINT DETAIL

SECTION B-B

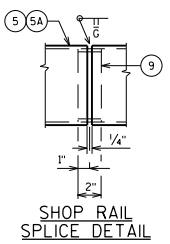


SECTION THRU POST WEB



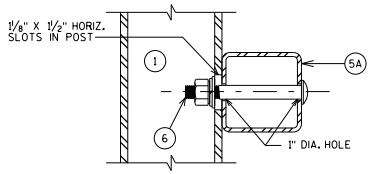
ANCHOR BOLTS

*FOR ANCHOR BOLTS IN WINGS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D. FOR CONSTRUCTIBILITY.



SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



SECTION THRU RAIL

NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS

LEGEND

(1) W6 x 25 WITH 1⅛" X 1½" HORIZONTAL SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

(2) PLATE 1'¼" x 11¾" x 1'-8" WITH 1⅜" X 1⅝" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE

(3) ASTM A449 - 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10¾" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)

(4) ⅝" X 11" X 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1⅜" DIA. HOLES FOR ANCHOR BOLTS NO. 3

(5) TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

(5A) TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

(6) ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3⁄16" X 1⅝" X 1⅝" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

(7) ½" THK. BACK-UP PLATE WITH 2 - ⅞" X 1½" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

(8) 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR ⅞" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.

(9) SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

(10) ⅜" X 3⅝" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

(10A) ⅜" X 2⅝" X 2'-4" PLATE USED IN NO. 5, ⅜" X 3⅝" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.

(11) ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 15⁄16" X 1¼" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 15⁄16" X 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.

(12) ⅞" DIA. X 1½" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

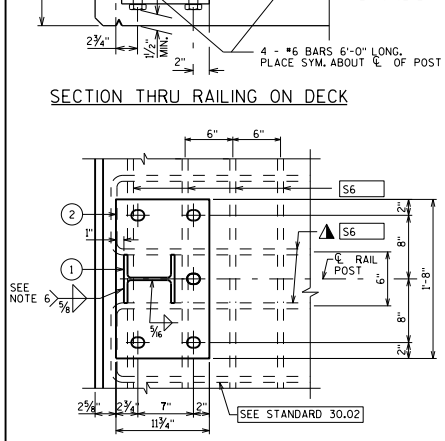
(13) ⅜" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

(14) ⅞" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).

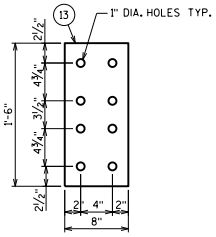
(15) 1" DIA. HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
10. WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED AMS STD. COLOR NO. ☐ , ☐ (FILL IN COLOR NAME).
11. SEE BRIDGE MANUAL 30.2 FOR ALLOWED USE.

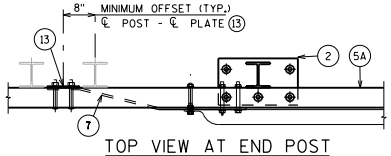


SECTION A-A



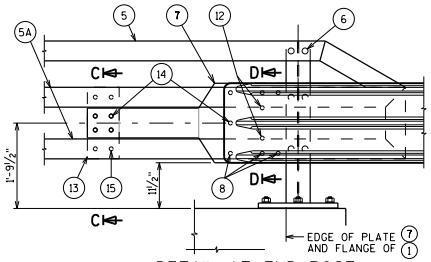
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT



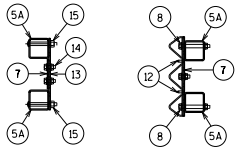
TOP VIEW AT END POST

(THRIE BEAM RAIL ATTACHMENT)



DETAIL AT END POST

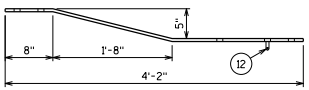
(THRIE BEAM RAIL ATTACHMENT)

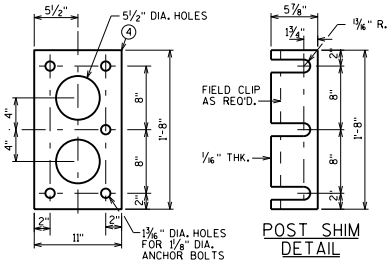


SECTION C-C SECTION D-D

▲ TIE TO TOP MAT OF STEEL.

◥ RDWY. OPENING OR 2½" MIN. FOR STRIP SEAL EXP. JOINT & ½" OPENING FOR A1 ABUTMENT.

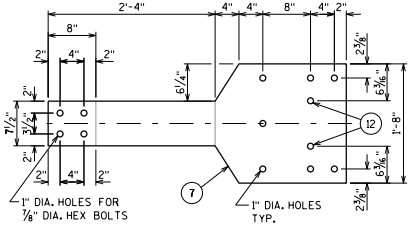




ANCHOR PLATE

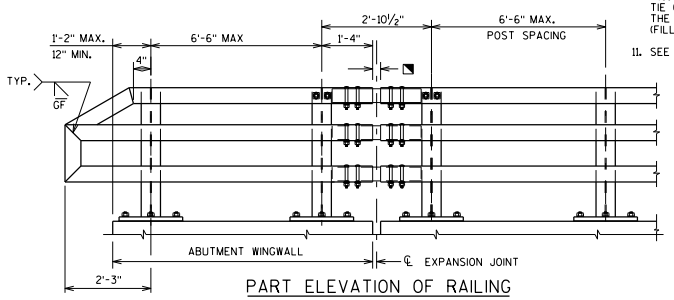
AT RAIL TO DECK CONNECTION

POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

RAILING WEIGHT = 75 LB/FT (BASED ON 6'-6" POST SPACING.)

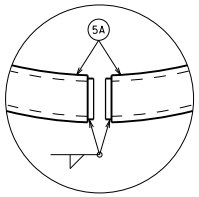
TUBULAR STEEL RAILING TYPE 'M'

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

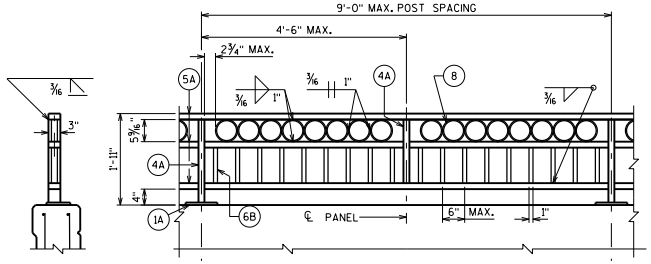
DATE: 7-19

STANDARD 30.16

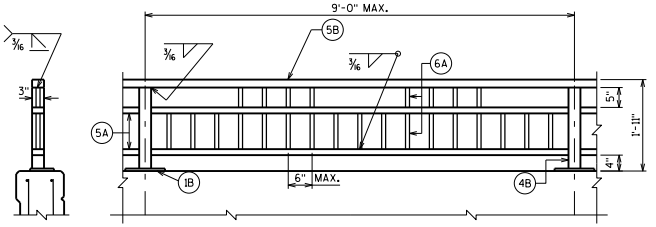


DETAIL A

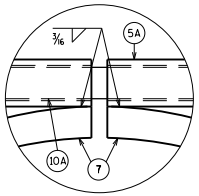
SEAL ENDS ON CURVED STRUCTURAL TUBING WITH 1/4" PLATE. WELD AND GRIND SMOOTH.



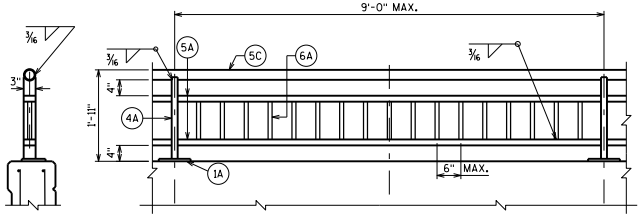
TYPE C1



TYPE C4

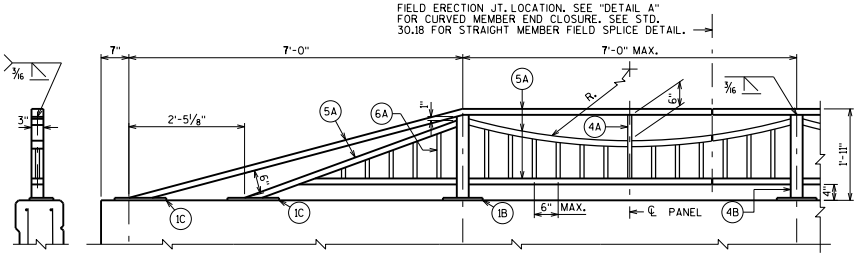


DETAIL B



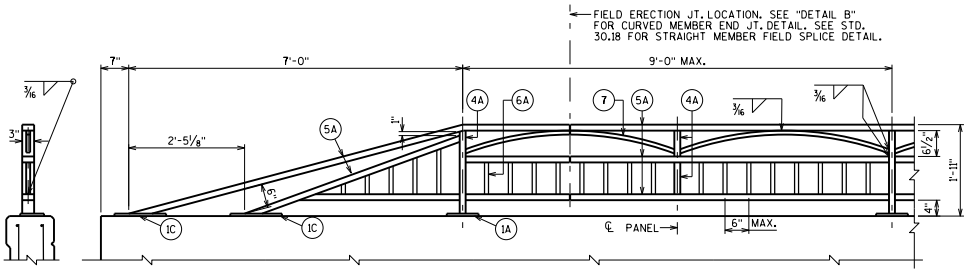
TYPE C2

FIELD ERECTION JT. LOCATION. SEE "DETAIL A" FOR CURVED MEMBER END CLOSURE. SEE STD. 30.18 FOR STRAIGHT MEMBER FIELD SPLICE DETAIL.

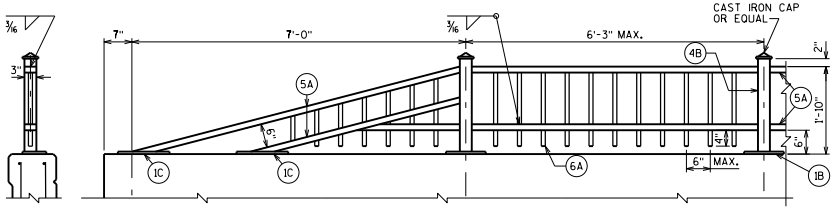


TYPE C5

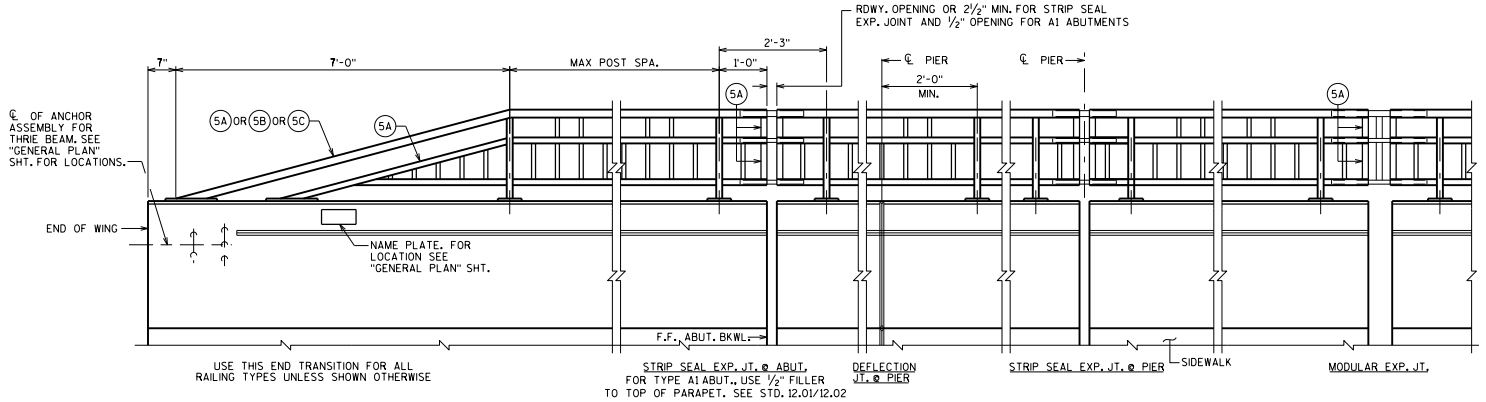
FIELD ERECTION JT. LOCATION. SEE "DETAIL B" FOR CURVED MEMBER END JT. DETAIL. SEE STD. 30.18 FOR STRAIGHT MEMBER FIELD SPLICE DETAIL.



TYPE C3



TYPE C6



INSIDE ELEVATION

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-5". MIN. JOINT SPACING OF 80'-0". DEFINE CONSTR. JT. WITH A ¾" "V"-GROOVE.

RAILING WEIGHT = 22 LB/FT

DESIGNER NOTES

COMBINATION RAILINGS TYPE C1-C6 MAY ALSO BE USED AS A PEDESTRIAN RAIL MOUNTED DIRECTLY TO A BRIDGE SIDEWALK OR RETAINING WALL BY INCREASING THE RAILING HEIGHT TO A MINIMUM OF 3'-6" AND A MAXIMUM OF 4'-6" AND USING A MINIMUM POST SIZE OF 3"X3"X3/16". WHEN USED ON A BRIDGE, A TRAFFIC BARRIER IS REQUIRED BETWEEN THE ROADWAY AND THE SIDEWALK. FOR THIS PEDESTRIAN RAILING, BID ITEM SHALL BE "RAILING STEEL PEDESTRIAN TYPE C(1-6)". THE CLEAR SPACE BETWEEN THE TOP TWO RAILS MAY BE INCREASED TO A 6" MAXIMUM EXCEPT FOR "TYPE C1" RAILING.

A MINIMUM 12'-0" WING LENGTH IS RECOMMENDED TO ACCOMODATE THE RAIL END TRANSITION AND PROVIDE A POST SPACING ON THE WING THAT WILL MAINTAIN THE RAIL AESTHETICS.

SEE STANDARD 30.18 FOR ADDITIONAL RAILING DETAILS.

SEE STANDARD 30.07 FOR:
- DEFLECTION JOINT DETAILS AND NOTES
- BEAM GUARD ANCHOR ASSEMBLY DETAILS
- PARAPET REINFORCING BAR SIZE AND SPACING

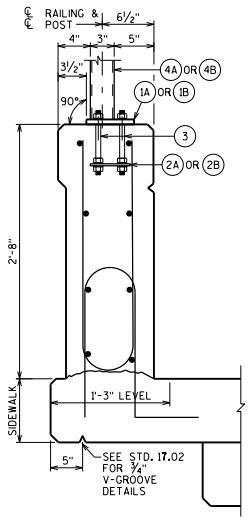
COMBINATION RAILING TYPES 'C1 - C6'

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

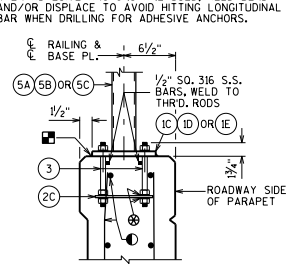
STANDARD 30.17



SECTION THRU PARAPET ON BRIDGE

✱ ADJUST LOCATIONS OF BARS TO ALLOW PLACEMENT OF ANCHOR ASSEMBLY FOR RAILING AND BEAM GUARD (WHEN REQ'D.).

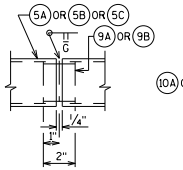
◐ WHEN ADHESIVE ANCHORS ARE USED, FIELD BEND AND/OR DISPLACE TO AVOID HITTING LONGITUDINAL BAR WHEN DRILLING FOR ADHESIVE ANCHORS.



ANCHORAGE FOR END RAIL

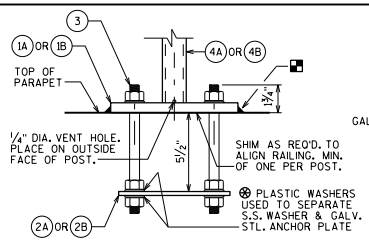
NOTE: USE 8" THR'D. ROD AT PLATE 1D WHEN ADJ. TO BEAM GUARD ANCHOR ASSEMBLY

NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.



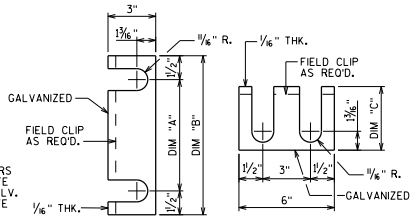
SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



ANCHORAGE FOR RAIL POSTS

NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.

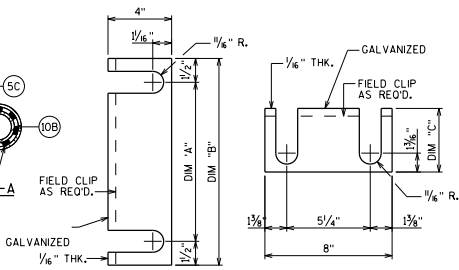


RAIL POST SHIM DETAIL

6" X 8" BASE PLATE (1A) DIM "A" = 5", DIM "B" = 8", DIM "C" = 4"
6" X 10" BASE PLATE (1B) DIM "A" = 7", DIM "B" = 10", DIM "C" = 5"
(2 SETS PER POST)

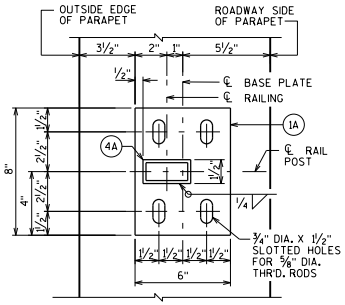
FIELD ERECTION JOINT DETAIL

☆ MIN. ⅝" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.



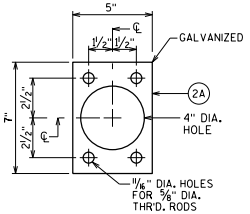
END RAIL SHIM DETAIL

8" X 1'-1" BASE PLATE (1C) DIM "A" = 10", DIM "B" = 1'-1", DIM "C" = 6½"
8" X 1'-6" BASE PLATE (1D) DIM "A" = 1'-3", DIM "B" = 1'-6", DIM "C" = 9"
8" X 1'-3" BASE PLATE (1E) DIM "A" = 1'-0", DIM "B" = 1'-3", DIM "C" = 7½"
(2 SETS PER POST)



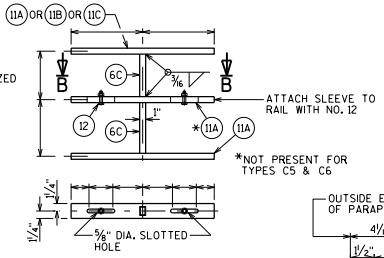
TYPICAL RAIL POST BASE PLATE

FOR 3" X 1½" X ⅜" POSTS (4A)

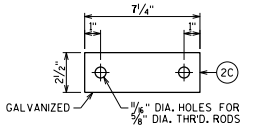


ANCHOR PLATE

FOR 3" X 1½" X ⅜" POSTS (4A)

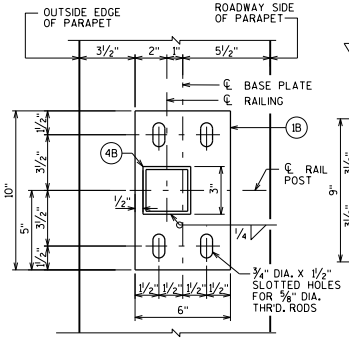


SECTION B-B
MODULAR JOINT SLEEVE DETAIL



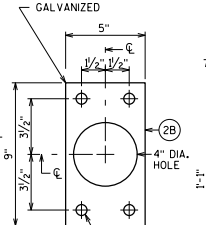
END RAIL ANCHOR PLATE

FOR END RAIL BASE PLATES (1C)(1D)(1E)
2 REQ'D. PER END RAIL BASE PLATE



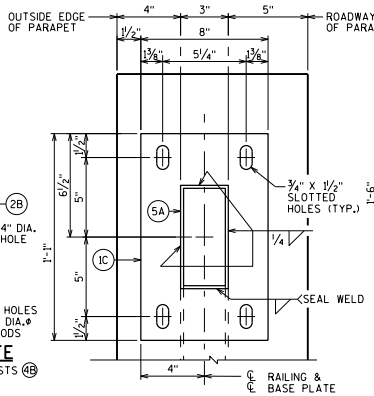
TYPICAL RAIL POST BASE PLATE

FOR 3" X 3" X ⅜" POSTS (4B)



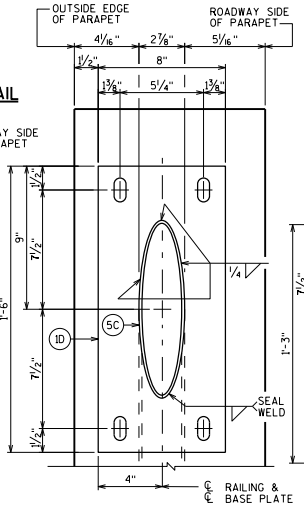
ANCHOR PLATE

FOR 3" X 3" X ⅜" POSTS (4B)



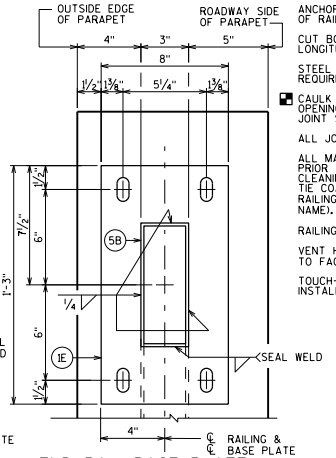
END RAIL BASE PLATE

FOR 3" X 1½" X ⅜" RAIL (5A)



END RAIL BASE PLATE

FOR 2½" DIA. STANDARD PIPE RAIL (5C)



END RAIL BASE PLATE

FOR 3" X 2" X ⅜" RAIL (5B)

LEGEND

(1A) PLATE ⅝" X 6" X 8" WITH ¾" X 1½" SLOTTED HOLES.
(1B) PLATE ⅝" X 6" X 10" WITH ¾" X 1½" SLOTTED HOLES
(1C) PLATE ⅝" X 8" X 1'-1" WITH ¾" X 1½" SLOTTED HOLES.
(1D) PLATE ⅝" X 8" X 1'-6" WITH ¾" X 1½" SLOTTED HOLES
(1E) PLATE ⅝" X 8" X 1'-3" WITH ¾" X 1½" SLOTTED HOLES
(2A) ¼" X 5" X 7" ANCHOR PLATE WITH 11/16" DIA. HOLES FOR THR'D. RODS NO. 3.
(2B) ¼" X 5" X 9" ANCHOR PLATE WITH 11/16" DIA. HOLES FOR THR'D. RODS NO. 3.
(2C) ¼" X 2½" X 7¼" ANCHOR PLATE WITH 11/16" DIA. HOLES FOR THR'D. RODS NO. 3.
(3) ⅝" DIA. X 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. ALTERNATIVE ANCHORAGE: CONCRETE ADHESIVE ANCHORS ⅝-INCH. EMBED 7" IN CONCRETE FOR RAIL POSTS. EMBED 5" IN CONCRETE FOR END RAILS. ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.
(4A) STRUCTURAL TUBING 3" X 1½" X 3/16". PLACE VERTICAL. WELD TO NO. 1 & 5.
(4B) STRUCTURAL TUBING 3" X 3" X 3/16". PLACE VERTICAL. WELD TO NO. 1 & 5.
(5A) STRUCTURAL TUBING 3" X 1½" X 3/16" RAILS. WELD TO NO. 1 & NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
(5B) STRUCTURAL TUBING 3" X 2" X 3/16" RAILS. WELD TO NO. 1 & NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
(5C) STRUCTURAL TUBING 2½" DIA. (STANDARD SIZE) (2.875" O.D.). WELD TO NO. 1 & 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
(6A) BAR 1" X 1" PICKETS. WELD TO NO. 5. (SPACE AT 6" MAX. ℄ TO ℄ SPACING). PLACE VERTICAL.
(6B) BAR 1" X 1½" PICKETS. WELD TO NO. 5. (SPACE AT 6" MAX. ℄ TO ℄ SPACING). PLACE VERTICAL.
(6C) BAR 1" X 1½" PICKETS. WELD TO NO. 11. PLACE VERTICAL.
(7) BAR 1" X 1" . BEND TO REQUIRED RADIUS. WELD TO NO. 4 & 5.
(8) STRUCTURAL TUBING 5" DIA. (STANDARD SIZE) (5.563" O.D.) 1½" LONG SLICES. WELD TO NO. 5A.
(9A) RECTANGULAR SLEEVE FABRICATED FROM ⅜" PLATES. PROVIDE "SLIDING FIT".
(9B) CIRCULAR SLEEVE FABRICATED FROM STRUCTURAL TUBING 2" DIA. (STANDARD SIZE) (2.375" O.D.)
(10A) RECTANGULAR SLEEVE FABRICATED FROM ⅜" PLATES. (1'-4" ⊗ FIELD ERECTION JTS.) (1'-4" ⊗ STRIP SEAL EXP. JTS.)
(10B) CIRCULAR SLEEVE FABRICATED FROM STRUCTURAL TUBING 2" DIA. (STANDARD SIZE) (2.375" O.D.) (1'-4" ⊗ FIELD ERECTION JTS.) (1'-4" ⊗ STRIP SEAL EXP. JTS.)
(11A) BAR 2½" X 1" X '- ".
(11B) BAR 2½" X 1½" X '- ".
(11C) STRUCTURAL TUBING 2" DIA. (STANDARD SIZE) (2.375" O.D.) X '- ".
(12) ½" DIA. STAINLESS STEEL BOLT WITH NUT AND LOCKWASHER.

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE C(1-6)", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL PLATES, BARS, AND RECTANGULAR SLEEVES SHALL CONFORM TO ASTM A709 GRADE 36. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

■ CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL JOINTS AND RECESSES IN CONCRETE PARAPET ARE TO BE VERTICAL.

ALL MATERIAL (EXCEPT NO. 3 & 12) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED AMS STD. COLOR NO. ☐, ☐ (FILL IN COLOR NAME).

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

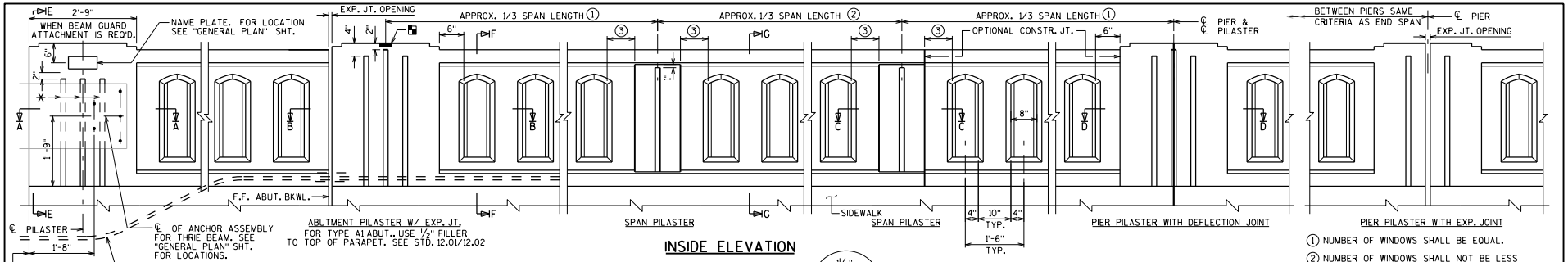
COMBINATION RAILING DETAILS

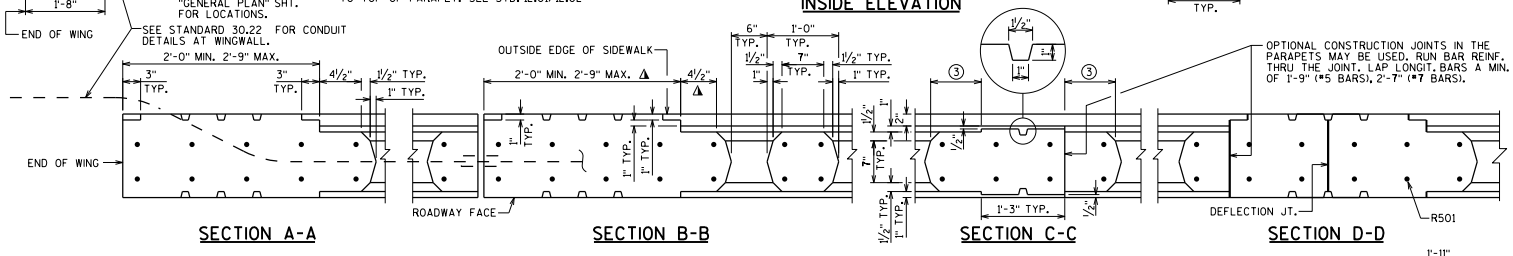
WISCONSIN DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES

APPROVED: *Bill Oliva*

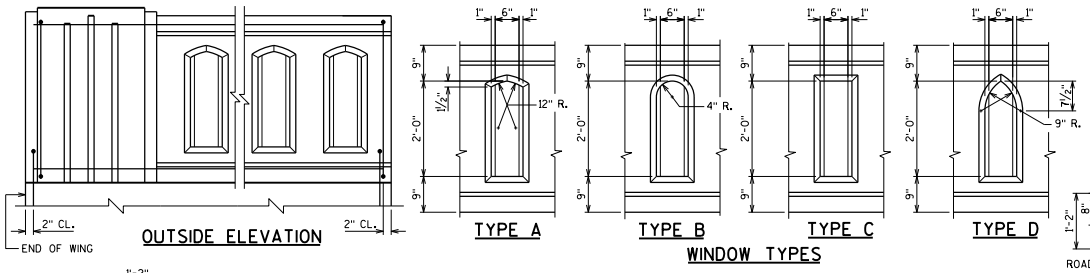
DATE: 7-19

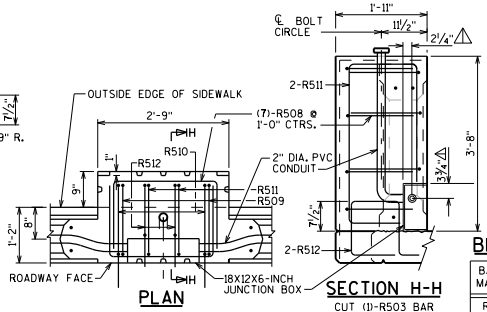
STANDARD 30.18





OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9" (#5 BARS), 2'-7" (#7 BARS).





NOTES

1. NUMBER OF WINDOWS SHALL BE EQUAL.
2. NUMBER OF WINDOWS SHALL NOT BE LESS THAN THE AMOUNT IN ①. SPAN PILASTERS MAY BE SPACED AT 1/5 POINTS IN LONG SPANS.
3. DIMENSION SHALL BE THE SAME FOR ALL POSTS ADJACENT TO SPAN PILASTERS IN A SPAN. DIMENSION MAY VARY FROM SPAN TO SPAN. MIN. = 3", MAX. = 7½"

BID ITEM SHALL BE "PARAPET CONCRETE TYPE 'TX'", WHICH SHALL INCLUDE ALL ITEMS SHOWN.

WHEN PARAPETS ARE POURED CONTINUOUSLY FROM END TO END, THEY SHALL BE SEPARATED AT THE DEFLECTION JOINTS BY A PIECE OF ⅛" ZINC OR PLASTIC PLATE CUT AS SHOWN ON STANDARD 30.07. IF CONSTRUCTION JOINTS IN PARAPETS ARE USED AT THE DEFLECTION JOINTS, ONE SIDE OF JOINT SHALL BE COATED WITH BITUMINOUS PAINT AND PLATE SEPARATORS MAY BE OMITTED.

SEE STD. 30.07 FOR
- DEFLECTION JOINT DETAILS
- ANCHOR ASSEMBLY DETAILS
- SIDEWALK REINFORCEMENT AND DETAILS

⚠ LOCATION OF CONDUIT IS MEASURED FROM OUTSIDE EDGE OF JUNCTION BOX.

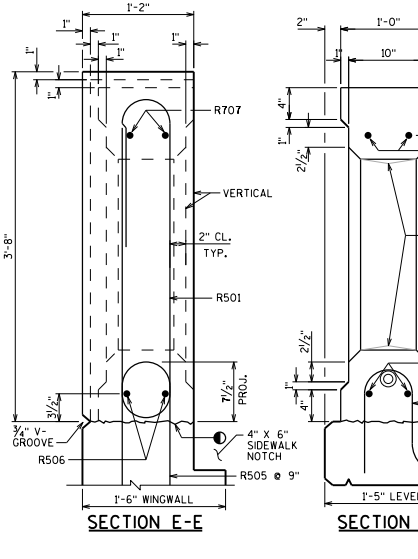
◮ VALUE APPLIES TO PIER PILASTER ALSO.

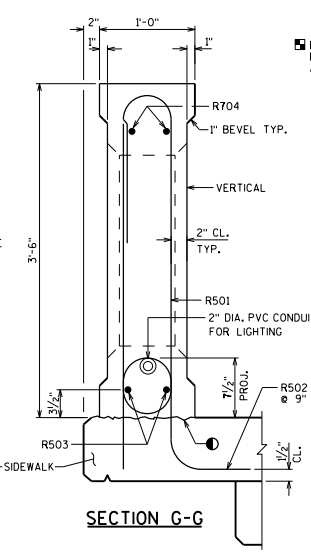
◐ CONST. JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH.

✳ WHEN BEAM GUARD ATTACHMENT IS NOT REQ'D, BUT NAME PLATE IS PRESENT, USE RUSTICATIONS AS SHOWN. (AT ENDS W/O NAME PLATE AND BEAM GUARD ATTACHMENT USE RUSTICATION DETAILS AS SHOWN FOR ABUTMENT PILASTER.

BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
R501	X		8'-6"	X	PARAPET VERT.
R502	X		3'-4"	X	PARAPET VERT.
R503	X				PARAPET HORIZ. BOT.
R704	X				PARAPET HORIZ. TOP
R505	X		4'-4"	X	PARAPET VERT. @ WINGS
R506	X				PARAPET HORIZ. BOT. @ WINGS
R707	X				PARAPET HORIZ. TOP @ WING
R508	X		4'-9"	X	PARAPET HORIZ. @ LIGHT STD.
R509	X		9'-6"	X	PARAPET VERT. @ LIGHT STD.
R510	X		4'-9"	X	PARAPET VERT. @ LIGHT STD.
R511	X		7'-7"	X	PARAPET VERT. @ LIGHT STD.
R512	X		4'-3"	X	PARAPET VERT. @ LIGHT STD.





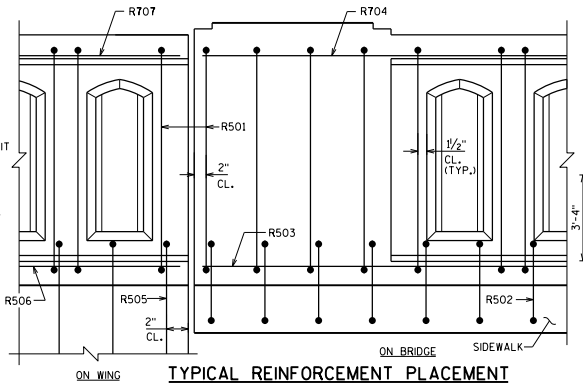
◪ BENCHMARK (WHEN SUPPLIED). AVOID PLACING BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

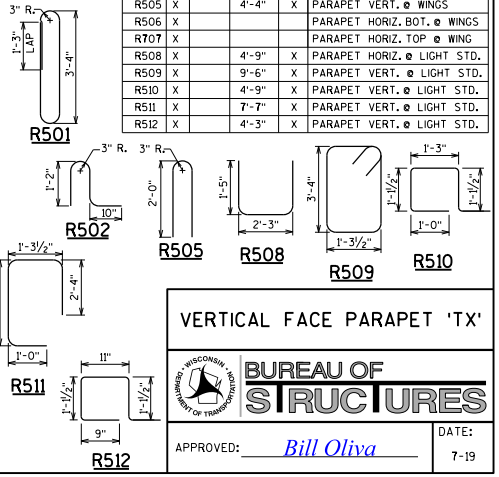
LIGHT STANDARD

SEE STANDARD 30.14 FOR ANCHORAGE DETAILS.

SEE STANDARD 30.21 AND 30.22 FOR CONDUIT DETAILS AND NOTES

WEIGHT = 350 LB/FT (EXCLUDING PILASTERS.)





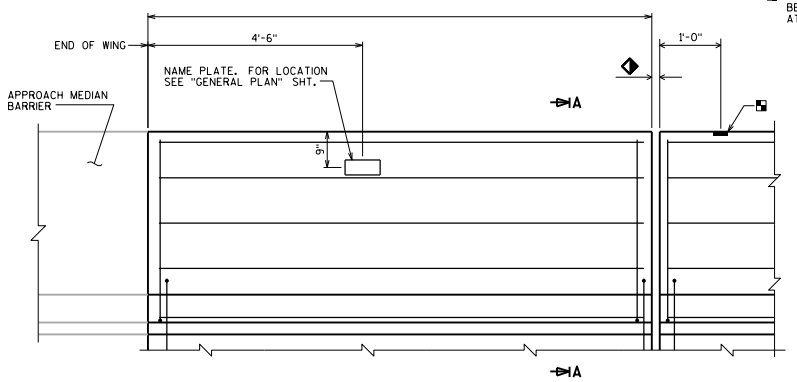
VERTICAL FACE PARAPET 'TX'

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

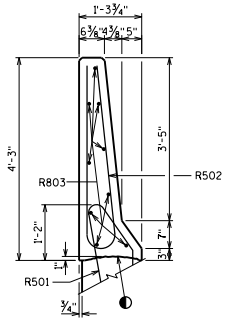
STANDARD 30.19



INSIDE ELEVATION

◆ ROADWAY OPENING OR 2½" MIN. FOR EXPANSION JOINT. USE ½" OPENING WITH FILLER FOR A1 ABUTMENTS

■ BENCHMARK (WHEN SUPPLIED). AVOID PLACING BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

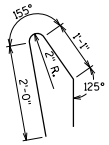


SECTION A

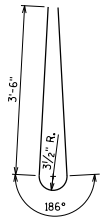
BILL OF BARS

FOR ABUTMENT PARAPETS

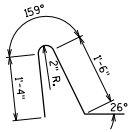
BAR MARK	COAT	ABUT.	ABUT.	LENGTH	BENT	LOCATION
R501	X			4'-6"	X	PARAPET VERT.
R502	X			7'-11"	X	PARAPET VERT.
R803	X					PARAPET HORIZ.
S5	X			4'-2"	X	PARAPET VERT.
S5	X			7'-11"	X	PARAPET VERT.
S8	X					PARAPET HORIZ.



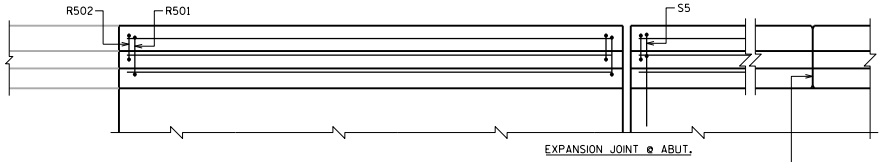
R501



R502/S5



S5



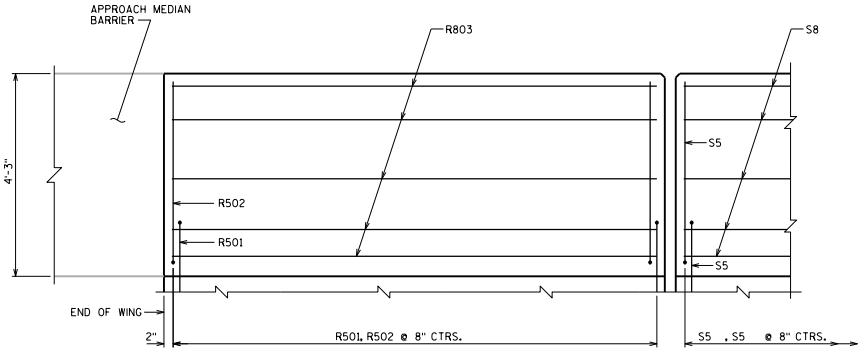
PLAN

EXPANSION JOINT @ ABUT.

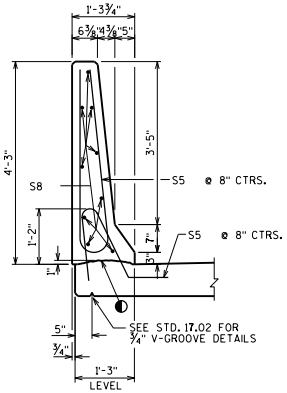
0° SKEW SHOWN. MATCH EXP. JT. OPENING.

FOR TYPE A1 ABUT., USE ½" FILLER TO TOP OF PARAPET. SEE STD. 12.01.

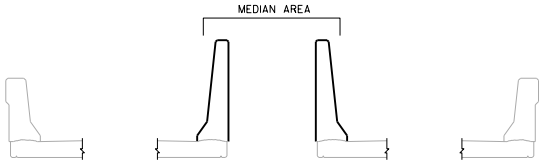
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 3'-5". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A ¾" - 'V' GROOVE.



OUTSIDE ELEVATION



SECTION THRU PARAPET ON BRIDGE



SLOPED FACE PARAPET "51F" MAY BE USED IN MEDIAN AREA OF ADJACENT STRUCTURES WHEN HIGHWAY MEDIAN APPROACH CONCRETE BARRIER IS 51" HIGH

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

A R501 BAR MAY BE USED IN LIEU OF A TYPICAL S5.. BAR ADJACENT TO THE PAVING NOTCH ON TYPE A1 ABUTMENTS.

AREA = 3.41 FT.²
WEIGHT = 512 LBS./FT.

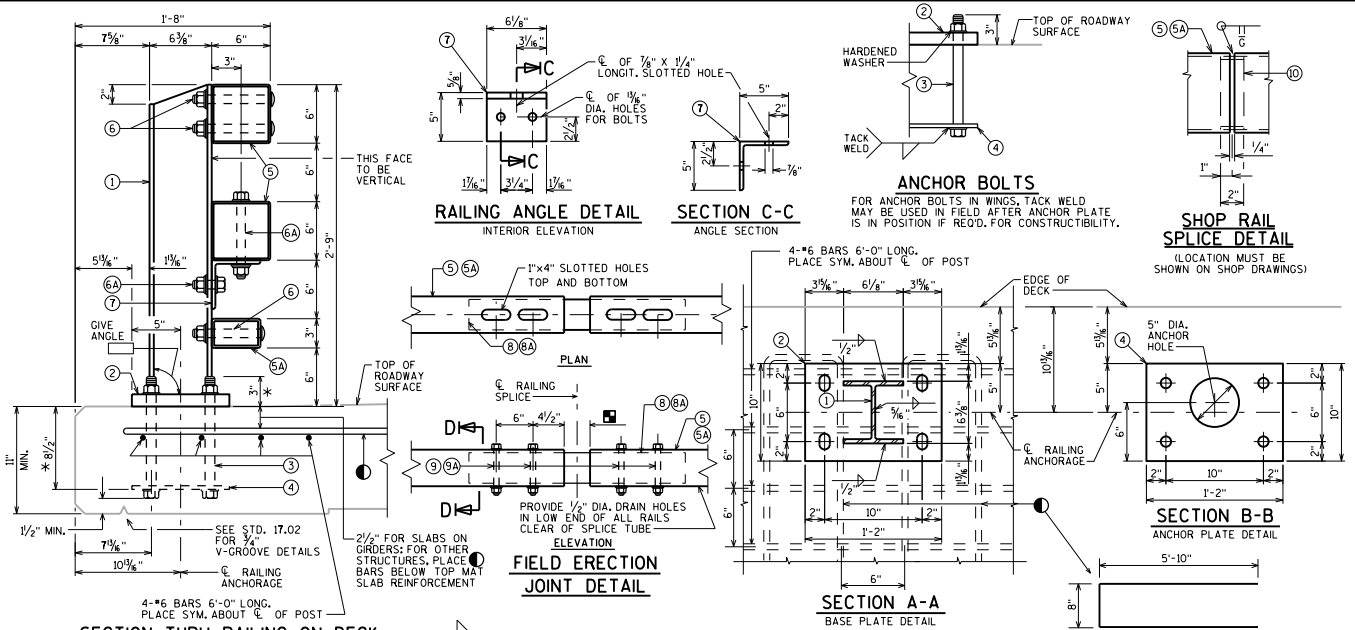
SLOPED FACE PARAPET '51F'

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

STANDARD 30.20



LEGEND

① W6 X 25 WITH 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT NO. 5. USE 1" DIA. HOLES FOR BOLT NO. 6 AT NO. 5A AND FOR BOLT NO. 6A AT NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

② PLATE 1¼" X 10" X 1'-2" WITH 1⅛" X 1⅜" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

③ ASTM A449 - 1" DIA. ANCHOR BOLTS WITH HEAVY HEX NUT AND 2" O.D. HARDENED WASHER (ALL GALVANIZED). 4 REQUIRED PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 11½" LONG BOLT FOR CONCRETE DECKS. ON CONCRETE SLAB SUPERSTRUCTURES, USE 1'-3" LONG BOLT FOR SLAB THICKNESS > 16" AND 11½" LONG FOR THICKNESS ≤ 16". USE 1'-9" LONG IN ABUTMENT WINGS. (AN EQUIVALENT THREADED ROD WITH HEAVY HEX NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQUIRED FOR CONSTRUCTABILITY.)

④ ⅜" X 10" X 1'-2" ANCHOR PLATE (GALVANIZED) WITH 1⅛" DIA. HOLES FOR ANCHOR BOLTS NO. 3.

⑤ TS 6 X 6 X ⅜" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 (FRONT & BACK) & ⅞" DIA. HOLES FOR BOLT NO. 6A (TOP & BOTTOM).

⑤A TS 5 X 3 X ¼" STRUCTURAL TUBING. USE 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.

⑥ ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, ⅜" X 1¾" X 1¾" WASHER, AND SPRING LOCK WASHER (2 REQUIRED AT RAIL TO POST LOCATIONS SHOWN).

⑥A ¾" DIA. A325 BOLT WITH HEX NUT & SPRING LOCK WASHER (1 REQUIRED AT RAIL TO ANGLE & 2 REQUIRED AT ANGLE TO POST LOCATIONS SHOWN WITH ⅜" X 1¾" X 1¾" WASHER).

⑦ L 5 X 5 X ⅝" STRUCTURAL ANGLE. ATTACH TO NO. 1 AND NO. 5 AS SHOWN.

⑧ TS 5 X 5 X ⅝" X 2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.

⑧A 4¼" X 2⅛" X 2'-4" LONG SPLICE BAR. 1 PER RAIL. USED IN NO. 5A.

⑨ ¾" DIA. A325 FULLY THREADED BOLTS, 7½" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5.

⑨A ¾" DIA. A325 FULLY THREADED BOLTS, 4½" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5A.

⑩ SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

▪ ROADWAY OPENING OR 2½" MIN. FOR STRIP SEAL EXP. JOINT & ½" OPENING FOR A1 ABUTMENT. ½" AT FIXED JOINTS. SPLICES ARE REQUIRED IN ANY RAILING SPAN BETWEEN POSTS THAT CONTAINS A SUPERSTRUCTURE EXPANSION JOINT.

▲ PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE RAILS, SPLICE TUBES AND FILL PLATES.

◐ #6 BARS X 12'-0" LONG. BEND AS SHOWN. TIE TO TOP MAT OF STEEL. (DESIGNER TO PLACE THESE BARS IN BILL OF BARS FOR SUPERSTRUCTURE.)

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE NY3", WHICH INCLUDES ALL ITEMS SHOWN.

RAILING SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS, ANGLES, SPLICE TUBES, SPLICE BARS AND STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.

WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & NO. 4) SHALL BE PAINTED OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED AMS STD. COLOR NO. [ ] , [ ] (FILL IN COLOR NAME).

RAIL POST, BASE PLATES, SPLICE BAR, ANGLES AND SPLICE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED f_y =50 KSI. ANCHOR PLATES & SHIMS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.

THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.

FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER PLATE NO. 2 WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

SEE BRIDGE MANUAL 30.2 FOR ALLOWED USE.

RAILING WEIGHT = 60 LB/LF (BASED ON 8'-0" POST SPACING)

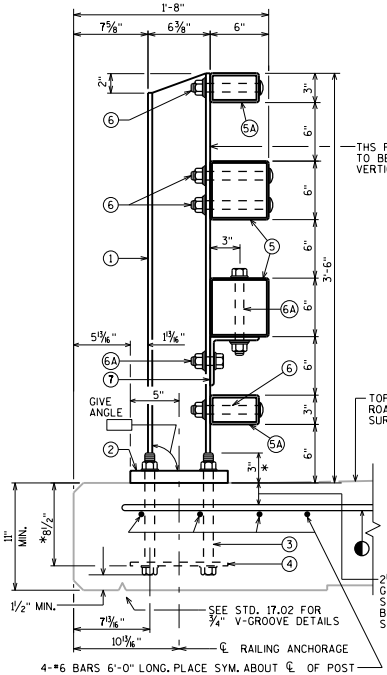
TUBULAR STEEL RAILING TYPE NY3

BUREAU OF STRUCTURES

APPROVED: *Bill Oliva*

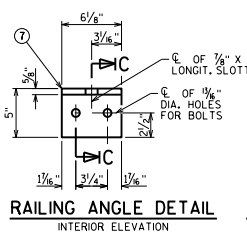
DATE: 7-19

STANDARD 30.26



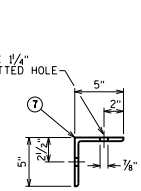
SECTION THRU RAILING ON DECK

*NORMAL TO BASE PLATE



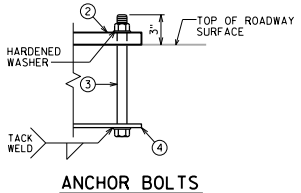
RAILING ANGLE DETAIL

INTERIOR ELEVATION



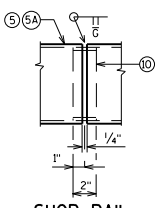
SECTION C-C

ANGLE SECTION



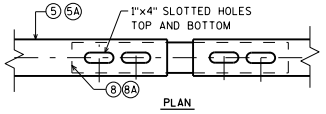
ANCHOR BOLTS

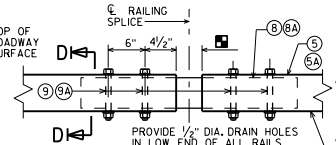
FOR ANCHOR BOLTS IN WINGS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D. FOR CONSTRUCTIBILITY.



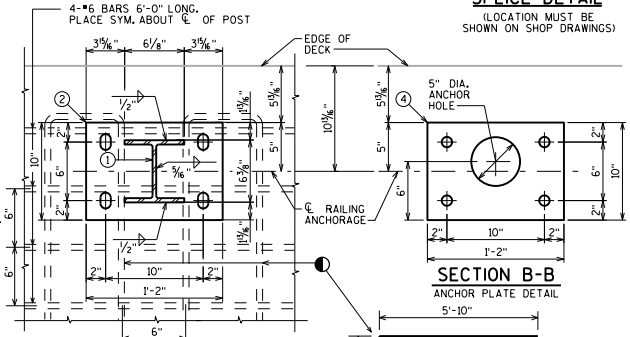
SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)





FIELD ERECTION JOINT DETAIL



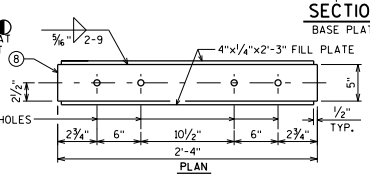
SECTION A-A

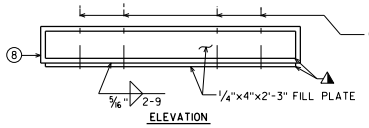
BASE PLATE DETAIL

SECTION B-B

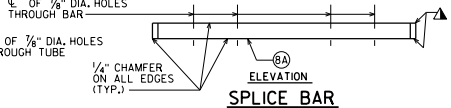
ANCHOR PLATE DETAIL

2½" FOR SLABS ON GIRDERS; FOR OTHER STRUCTURES, PLACE BARS BELOW TOP MAT SLAB REINFORCEMENT

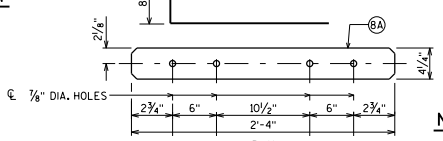


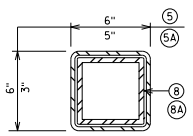


SPLICE TUBE

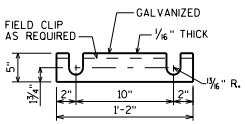


SPLICE BAR

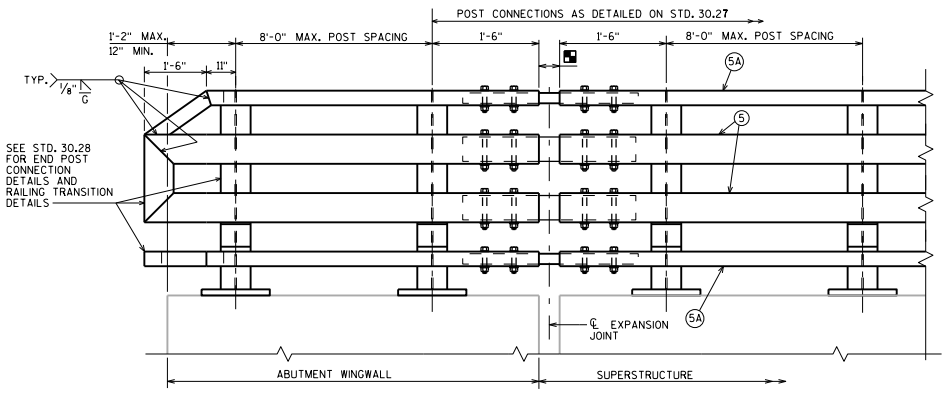




SECTION D-D

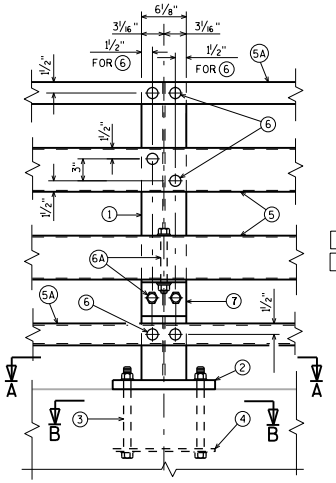


POST SHIM DETAIL



PART ELEVATION OF RAILING

INTERIOR ELEVATION



PART ELEVATION OF RAILING AT POST

INTERIOR ELEVATION

LEGEND

① W6 X 25 WITH 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT TOP TWO RAILS. USE 1" DIA. HOLES FOR BOLT NO. 6 AT BOTTOM NO. 5A & FOR BOLT NO. 6A AT NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

② PLATE 1¼" X 10" X 1'-2" WITH 1⅛" X 1⅜" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

③ ASTM A449 - 1" DIA. ANCHOR BOLTS WITH HEAVY HEX NUT AND 2" O.D. HARDENED WASHER (ALL GALVANIZED). 4 REQUIRED PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 11½" LONG BOLT FOR CONCRETE DECKS. ON CONCRETE SLAB SUPERSTRUCTURES, USE 1'-3" LONG BOLT FOR SLAB THICKNESS > 16" AND 11½" LONG FOR THICKNESS ≤ 16". USE 1'-9" LONG IN ABUTMENT WINGS. (AN EQUIVALENT THREADED ROD WITH HEAVY HEX NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQUIRED FOR CONSTRUCTABILITY.)

④ ⅜" X 10" X 1'-2" ANCHOR PLATE (GALVANIZED) WITH 1⅛" DIA. HOLES FOR ANCHOR BOLTS NO. 3.

⑤ TS 6 X 6 X ⅜" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 (FRONT & BACK) & ⅞" DIA. HOLES FOR BOLT NO. 6A (TOP & BOTTOM).

⑤A TS 5 X 3 X ¼" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 IN TOP RAIL (FRONT & BACK). USE 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.

⑥ ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3/16" X 1¾" X 1¾" WASHER, AND SPRING LOCK WASHER (2 REQUIRED AT RAIL TO POST LOCATIONS SHOWN).

⑥A ¾" DIA. A325 BOLT WITH HEX NUT AND SPRING LOCK WASHER (1 REQUIRED AT RAIL TO ANGLE AND 2 REQUIRED AT ANGLE TO POST LOCATIONS SHOWN WITH 3/16" X 1¾" X 1¾" WASHER).

⑦ L 5 X 5 X ⅝" STRUCTURAL ANGLE. ATTACH TO NO. 1 AND NO. 5 AS SHOWN.

⑧ TS 5 X 5 X ⅝" X 2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.

⑧A 4¼" X 2⅛" X 2'-4" LONG SPLICE BAR. 1 PER RAIL. USED IN NO. 5A.

⑨ ¾" DIA. A325 FULLY THREADED BOLTS, 7½" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5.

⑨A ¾" DIA. A325 FULLY THREADED BOLTS, 4½" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5A.

⑩ SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

▪ ROADWAY OPENING OR 2½" MIN. FOR STRIP SEAL EXP. JOINT & ½" OPENING FOR A1 ABUTMENT. ½" AT FIXED JOINTS. SPLICES ARE REQUIRED IN ANY RAILING SPAN BETWEEN POSTS THAT CONTAINS A SUPERSTRUCTURE EXPANSION JOINT.

⚠ PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE RAILS, SPLICE TUBES AND FILL PLATES.

◐ #6 BARS X 12'-0" LONG. BEND AS SHOWN. TIE TO TOP MAT OF STEEL. (DESIGNER TO PLACE THESE BARS IN BILL OF BARS FOR SUPERSTRUCTURE.)

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE NY4", WHICH INCLUDES ALL ITEMS SHOWN.

RAILING SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS, ANGLES, SPLICE TUBES, SPLICE BARS AND STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.

WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & NO. 4) SHALL BE PAINTED OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED AMS STD. COLOR NO. [ ] , [ ] (FILL IN COLOR NAME).

RAIL POST, BASE PLATES, SPLICE BAR, ANGLES AND SPLICE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED F_y =50 KSI. ANCHOR PLATES & SHIMS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.

THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.

FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER PLATE NO. 2 WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

SEE BRIDGE MANUAL 30.2 FOR ALLOWED USE.

RAILING WEIGHT = 75 LB/LF (BASED ON 8'-0" POST SPACING)

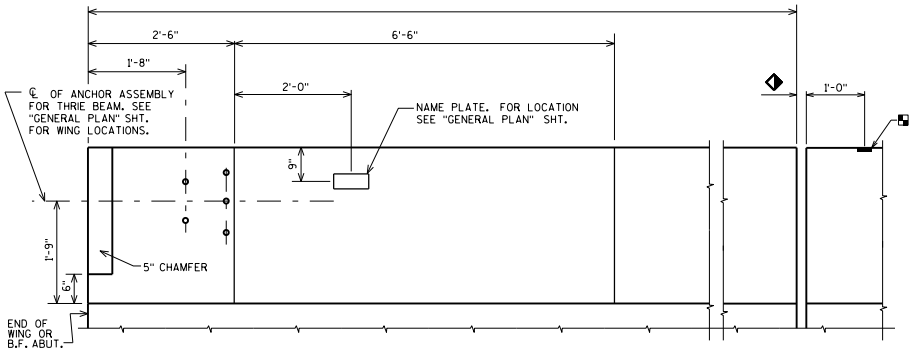
TUBULAR STEEL RAILING TYPE NY4

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

STANDARD 30.27

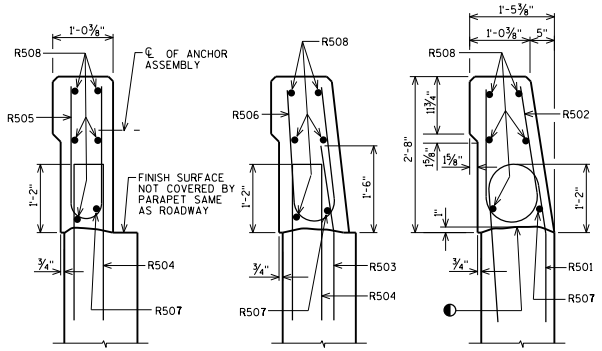


INSIDE ELEVATION

◆ ROADWAY OPENING OR 2½" MIN. FOR EXPANSION JOINT. USE ½" OPENING WITH FILLER FOR A1 ABUTMENTS

■ BENCHMARK (WHEN SUPPLIED). AVOID PLACING BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

NOTE: FOR SECTIONS A, B & C ONLY THE PARAPET TERMINATING ON A WING IS SHOWN. TERMINATION ON A DECK IS SIMILAR.

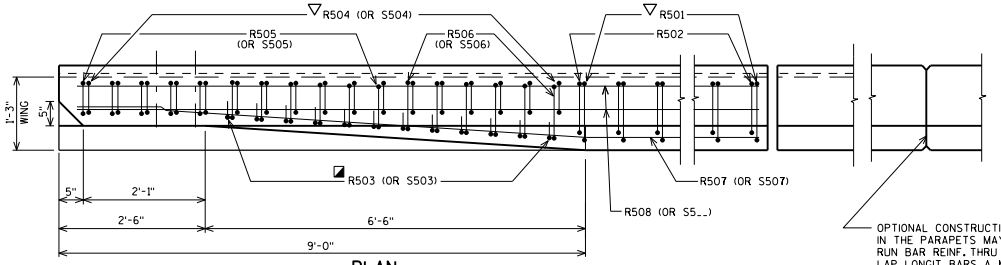


SECTION A SECTION B SECTION C

BILL OF BARS

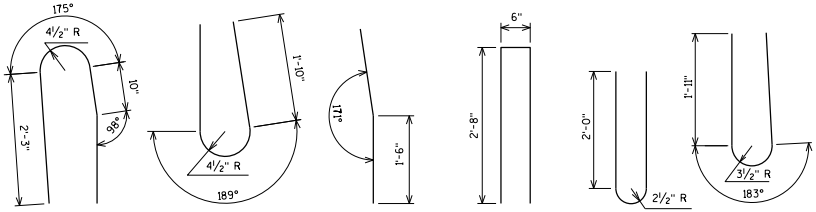
FOR ABUTMENT PARAPETS

BAR MARK	COAT	ABUT.	ABUT.	LENGTH	BENT	LOCATION
R501	X			5-10	X	PARAPET-VERT.
R502	X			5-0	X	PARAPET-VERT.
R503	X			3-0	X	PARAPET-VERT.
R504	X			5-7	X	PARAPET-VERT.
R505	X			4-9	X	PARAPET-VERT.
R506	X			4-10	X	PARAPET-VERT.
R507	X				X	PARAPET-HORIZ.
R508	X					PARAPET-HORIZ.
S501	X			4-5	X	PARAPET-VERT.
S503	X			2-9	X	PARAPET-VERT.
S504	X			4-4	X	PARAPET-VERT.

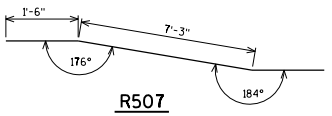


PLAN

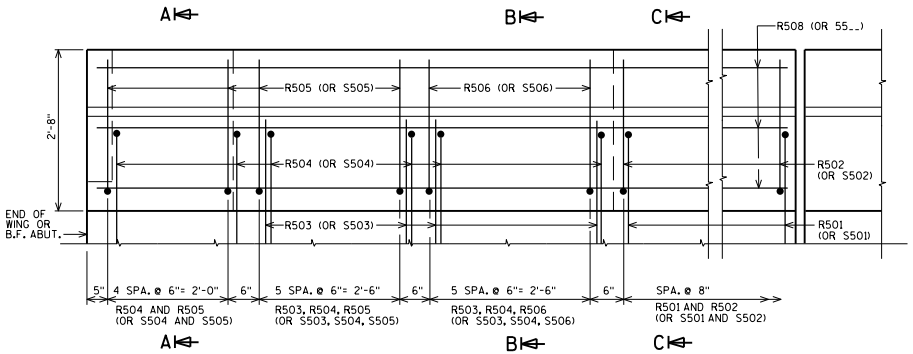
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A ¾" - 'V' GROOVE.



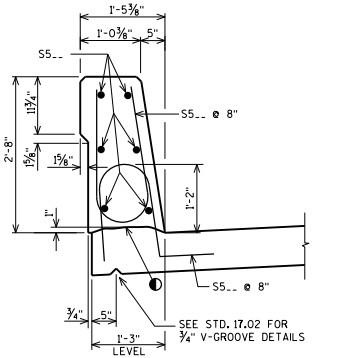
R501 R502 R503 R504 R505 R506



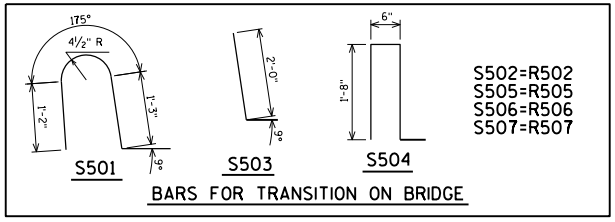
R507



OUTSIDE ELEVATION



SECTION THRU PARAPET ON BRIDGE



BARS FOR TRANSITION ON BRIDGE

AREA = 3.09 SF
WEIGHT = 464 LB/FT

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◪ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 OR S503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

DESIGNER MAY ELECT TO USE A R501 BAR IN LIEU OF A S501 BAR ADJACENT TO THE PAVING NOTCH ON TYPE A1 ABUTMENTS.

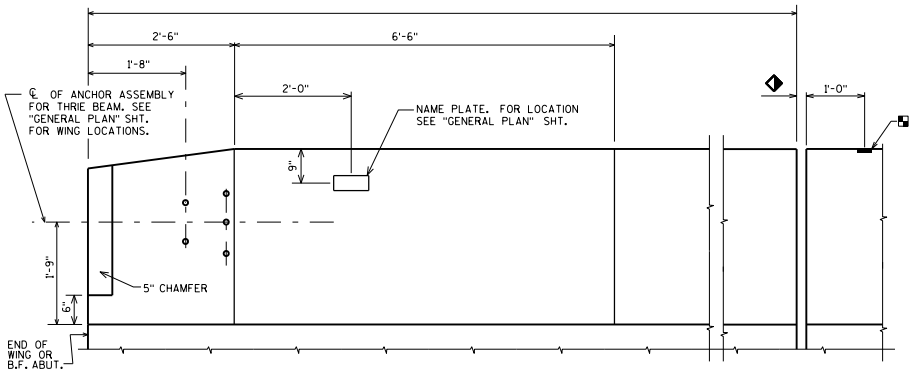
SINGLE SLOPE PARAPET 32SS

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

STANDARD 30.30

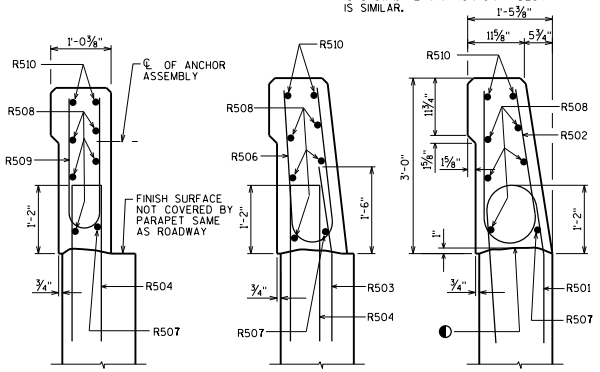


INSIDE ELEVATION

◆ ROADWAY OPENING OR 2½" MIN. FOR EXPANSION JOINT. USE ½" OPENING WITH FILLER FOR A1 ABUTMENTS

■ BENCHMARK (WHEN SUPPLIED). AVOID PLACING BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

NOTE: FOR SECTIONS A, B & C ONLY THE PARAPET TERMINATING ON A WING IS SHOWN. TERMINATION ON A DECK IS SIMILAR.

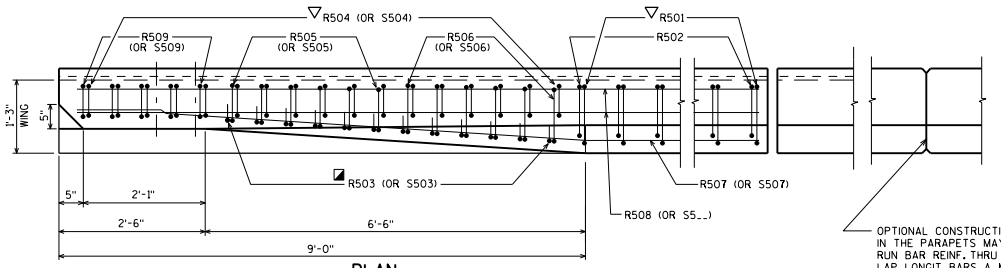


SECTION A SECTION B SECTION C

BILL OF BARS

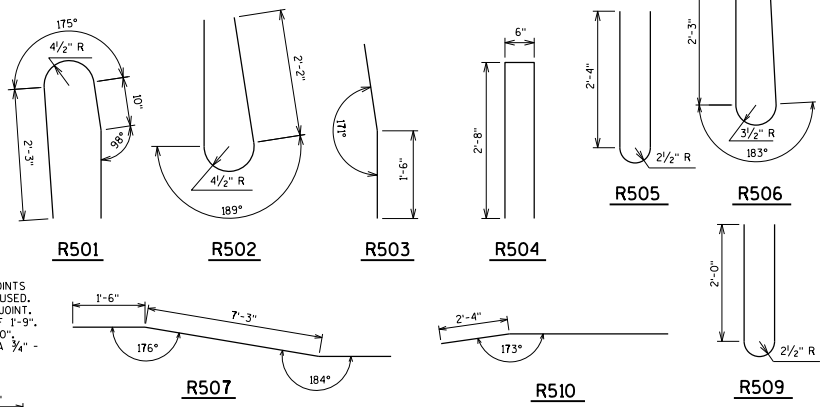
FOR ABUTMENT PARAPETS

BAR MARK	COAT	ABUT.	ABUT.	LENGTH	BENT	LOCATION
R501	X			5-10	X	PARAPET-VERT.
R502	X			5-8	X	PARAPET-VERT.
R503	X			3-0	X	PARAPET-VERT.
R504	X			5-7	X	PARAPET-VERT.
R505	X			5-5	X	PARAPET-VERT.
R506	X			5-6	X	PARAPET-VERT.
R507	X				X	PARAPET-HORIZ.
R508	X					PARAPET-HORIZ.
R509	X			4-9	X	PARAPET-VERT.
R510	X				X	PARAPET-HORIZ.
S501	X			4-5	X	PARAPET-VERT.
S503	X			2-9	X	PARAPET-VERT.
S504	X			4-4	X	PARAPET-VERT.

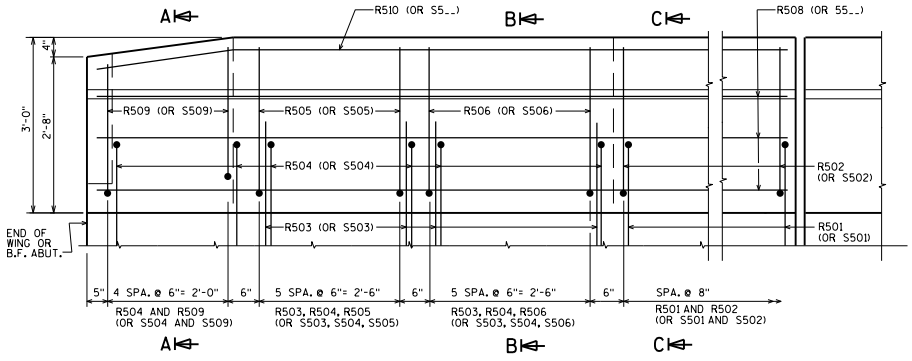


PLAN

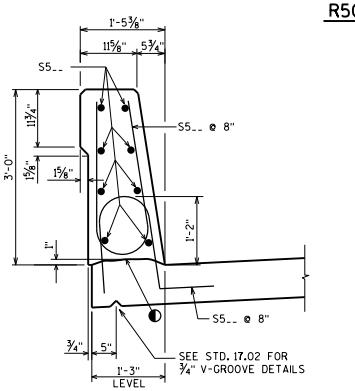
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A ¾" - 'V' GROOVE.



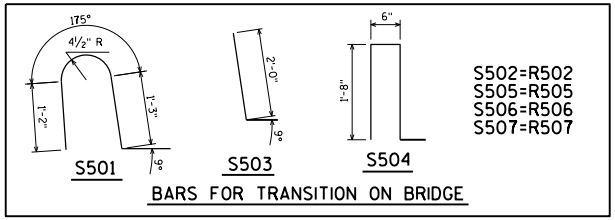
R501 R502 R503 R504 R505 R506 R507 R510 R509



OUTSIDE ELEVATION



SECTION THRU PARAPET ON BRIDGE



BARS FOR TRANSITION ON BRIDGE

AREA = 3.36 SF
WEIGHT = 504 LB/FT

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◪ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 OR S503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

DESIGNER MAY ELECT TO USE A R501 BAR IN LIEU OF A S501 BAR ADJACENT TO THE PAVING NOTCH ON TYPE A1 ABUTMENTS.

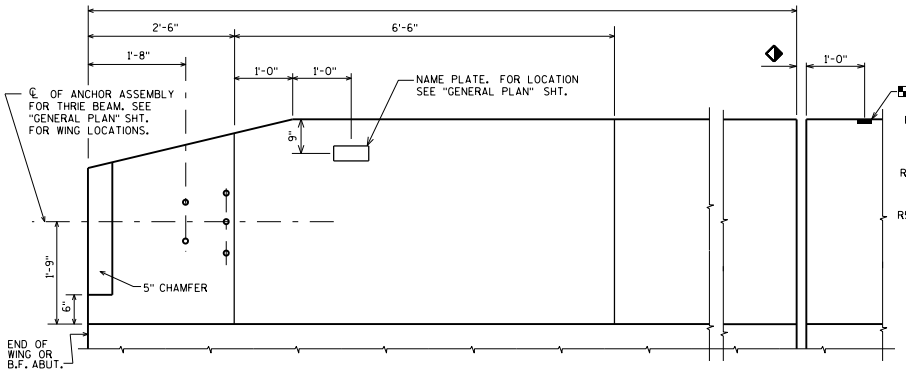
SINGLE SLOPE PARAPET 36SS

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

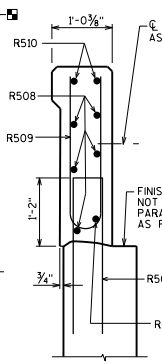
STANDARD 30.31



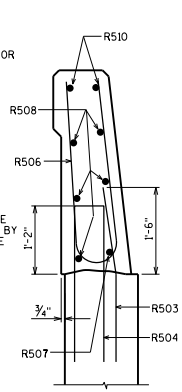
INSIDE ELEVATION

◆ ROADWAY OPENING OR 2½" MIN. FOR EXPANSION JOINT. USE ½" OPENING WITH FILLER FOR A1 ABUTMENTS

■ BENCHMARK (WHEN SUPPLIED). AVOID PLACING BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

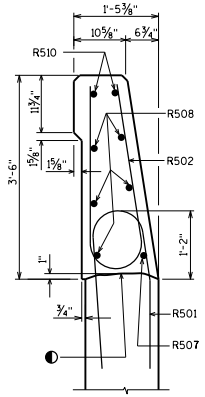


SECTION A



SECTION B

NOTE: FOR SECTIONS A, B & C ONLY THE PARAPET TERMINATING ON A WING IS SHOWN. TERMINATION ON A DECK IS SIMILAR.



SECTION C

BILL OF BARS

FOR ABUTMENT PARAPETS

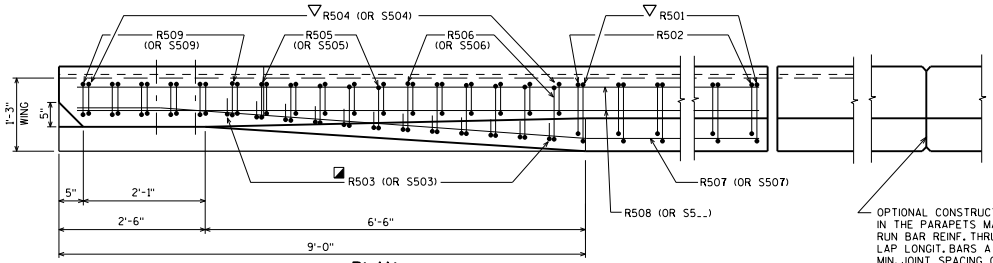
BAR MARK	COAT	ABUT.	ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X			5-10	X		PARAPET-VERT.
R502	X			6-8	X		PARAPET-VERT.
R503	X			3-0	X		PARAPET-VERT.
R504	X			5-7	X		PARAPET-VERT.
R505	X			6-5	X		PARAPET-VERT.
R506	X			6-6	X		PARAPET-VERT.
R507	X				X		PARAPET-HORIZ.
R508	X						PARAPET-HORIZ.
R509	X			5-5	X	▲	PARAPET-VERT.
R510	X				X		PARAPET-HORIZ.
S501	X			4-5	X		PARAPET-VERT.
S503	X			2-9	X		PARAPET-VERT.
S504	X			4-4	X		PARAPET-VERT.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

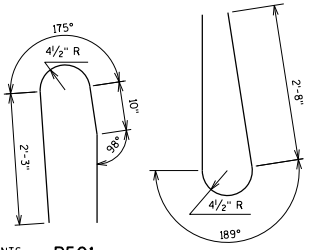
MARK	NO. REQD.	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.

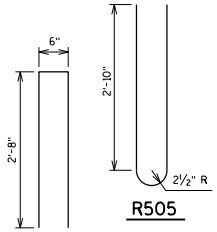


PLAN

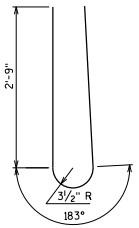
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A ¾" - 'V' GROOVE.



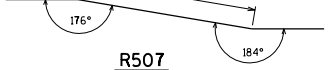
R501 R502 R503



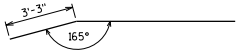
R504 R505



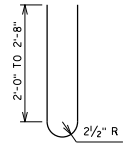
R506



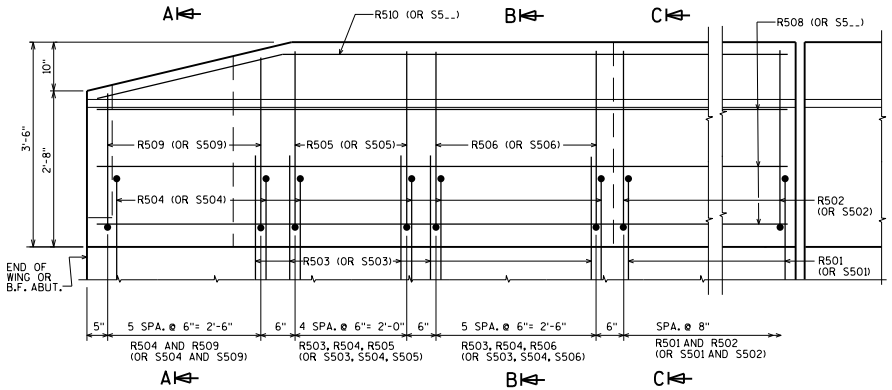
R507



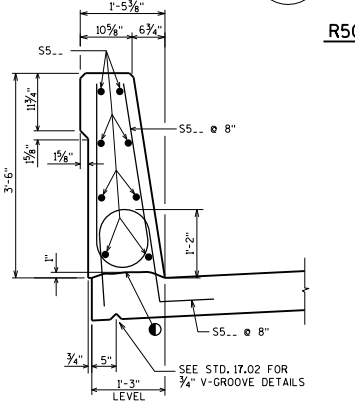
R510



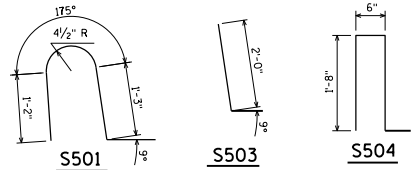
R509



OUTSIDE ELEVATION



SECTION THRU PARAPET ON BRIDGE



BARS FOR TRANSITION ON BRIDGE

AREA = 3.75 SF
WEIGHT = 563 LB/FT

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◪ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 OR S503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

DESIGNER MAY ELECT TO USE A R501 BAR IN LIEU OF A S501 BAR ADJACENT TO THE PAVING NOTCH ON TYPE A1 ABUTMENTS.

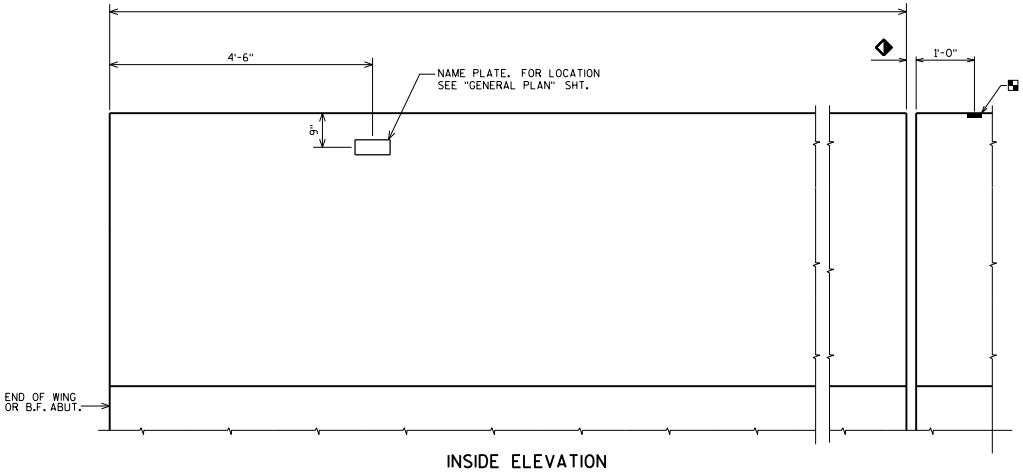
SINGLE SLOPE PARAPET 42SS

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

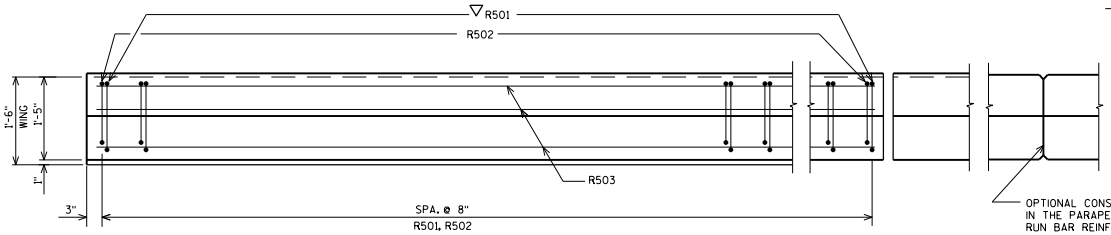
DATE: 7-19

STANDARD 30.32



INSIDE ELEVATION

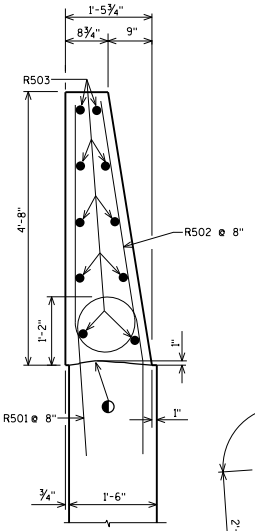
◆ ROADWAY OPENING OR 2½" MIN. FOR EXPANSION JOINT. USE ½" OPENING WITH FILLER FOR A1 ABUTMENTS



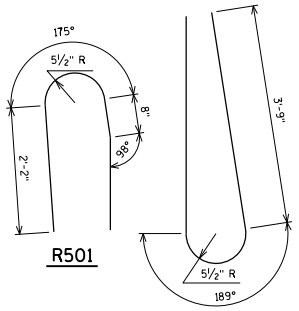
PLAN

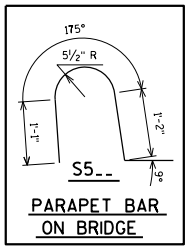
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A ¾" - 'V' GROOVE.

BENCHMARK (WHEN SUPPLIED). AVOID PLACING BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.



SECTION A





BILL OF BARS

FOR ABUTMENT PARAPETS

BAR MARK	COAT	ABUT.	ABUT.	LENGTH	BENT	LOCATION
R501	X			5-11	X	PARAPET-VERT.
R502	X			9-1	X	PARAPET-VERT.
R503	X					PARAPET HORIZ.
S5__	X			4-6	X	PARAPET-VERT.

DESIGNER NOTES

THE '56SS' PARAPET IS ONLY TO BE USED IF A 'TYPE S56' SINGLE SLOPE CONCRETE ROADWAY BARRIER ADJOINS THE END OF THE '56SS' PARAPET.

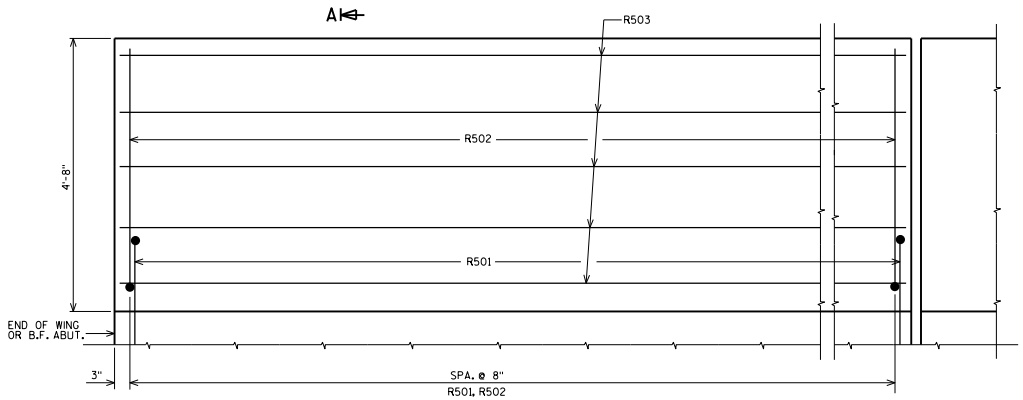
USE A 1'-6" WING WIDTH FOR WINGS PARALLEL TO THE ROADWAY.

AREA = 5.16 SF
WEIGHT = 774 LB/FT

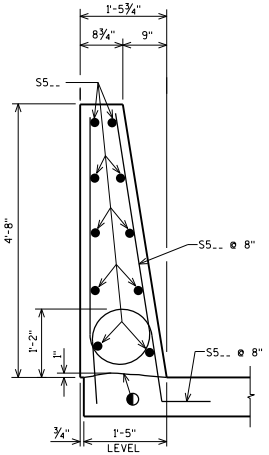
◐ CONST. JOINT - STRIKE OFF AS SHOWN.

▽ R501 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

DESIGNER MAY ELECT TO USE A R501 BAR IN LIEU OF A S5__ BAR ADJACENT TO THE PAVING NOTCH ON TYPE A1 ABUTMENTS.



OUTSIDE ELEVATION



SECTION THRU PARAPET ON BRIDGE

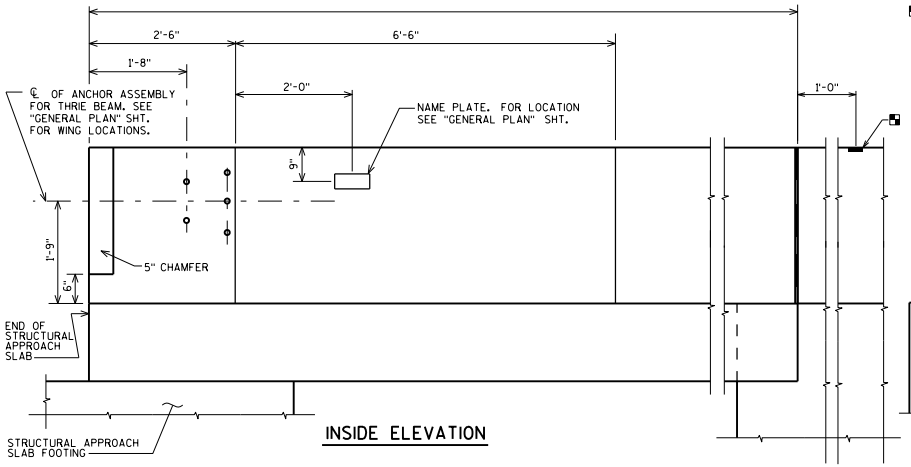
SINGLE SLOPE PARAPET 56SS

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

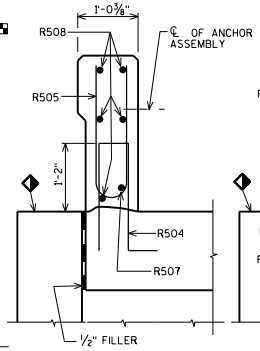
DATE: 7-19

STANDARD 30.33

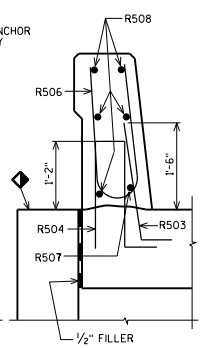


INSIDE ELEVATION

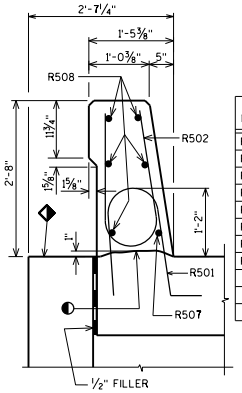
BENCHMARK (WHEN SUPPLIED). AVOID PLACING BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.



SECTION A



SECTION B

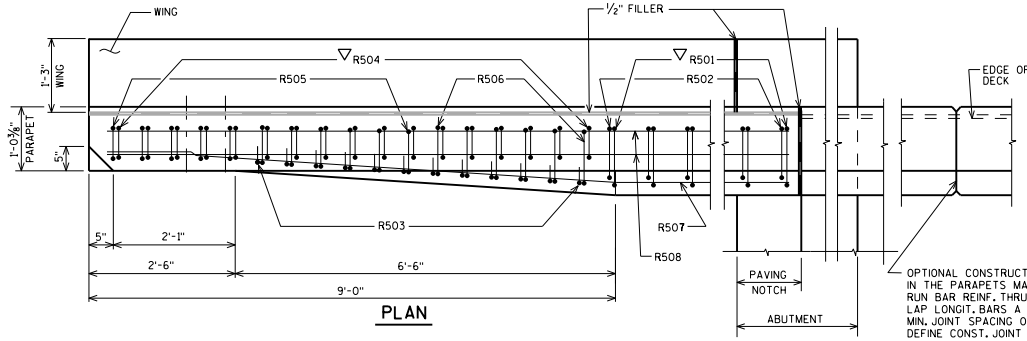


SECTION C

BILL OF BARS

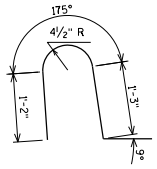
FOR STRUCTURAL APPROACH SLAB PARAPETS

BAR MARK	COAT	ABUT.	ABUT.	LENGTH	BENT	LOCATION
R501	X			4-5	X	PARAPET-VERT.
R502	X			5-0	X	PARAPET-VERT.
R503	X			2-9	X	PARAPET-VERT.
R504	X			4-4	X	PARAPET-VERT.
R505	X			4-9	X	PARAPET-VERT.
R506	X			4-10	X	PARAPET-VERT.
R507	X				X	PARAPET-HORIZ.
R508	X					PARAPET-HORIZ.

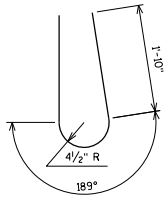


PLAN

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A ¾" - 'V' GROOVE.

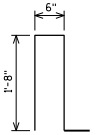


R501

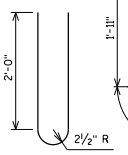


R502

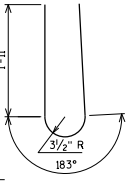
R503



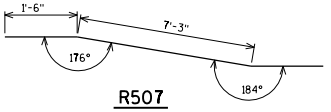
R504



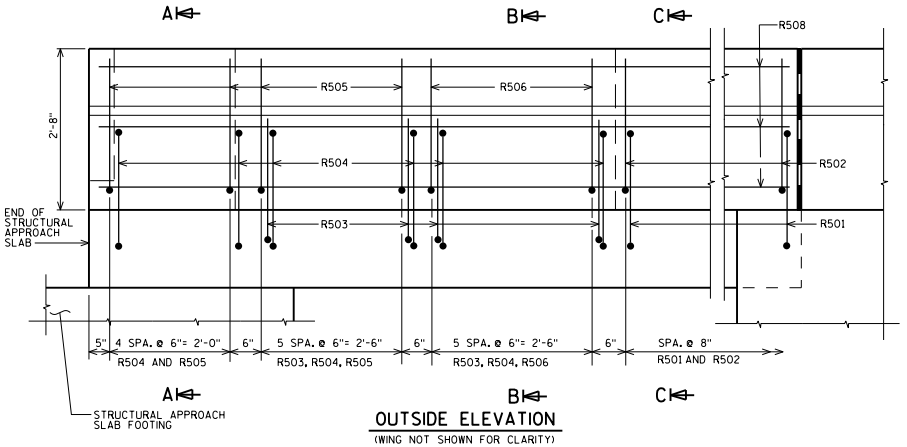
R505



R506



R507



OUTSIDE ELEVATION
(WING NOT SHOWN FOR CLARITY)

DESIGNER NOTES

SEE STRUCTURAL APPROACH SLAB STANDARDS 12.10 AND 12.11 FOR APPROACH SLAB INFORMATION.

A1 ABUT. SHOWN. SEE STANDARD 12.12 FOR A3 ABUT. DETAILS.

SEE STANDARD 30.30 FOR DETAILS OF 32SS PARAPET ON BRIDGE.

AREA = 3.09 SF
WEIGHT = 464 LB/FT

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◆ SLOPE FOR DRAINAGE

▽ R501 AND R504 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED.

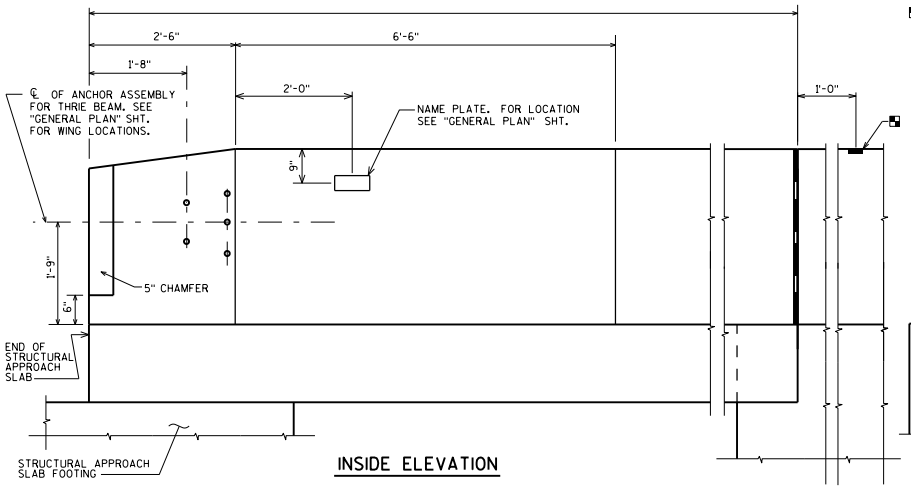
SINGLE SLOPE PARAPET 32SS WITH STRUCTURAL APPROACH SLAB

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

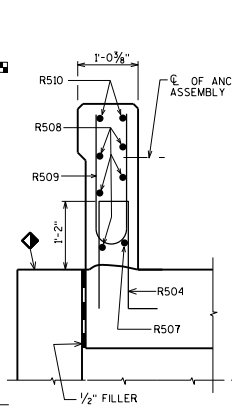
DATE: 7-19

STANDARD 30.34

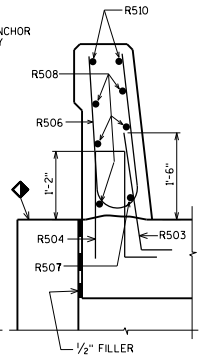


INSIDE ELEVATION

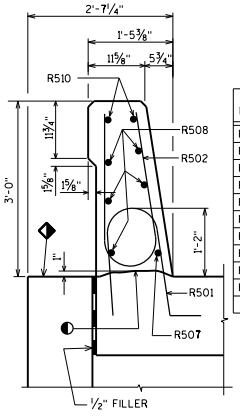
BENCHMARK (WHEN SUPPLIED). AVOID PLACING BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.



SECTION A



SECTION B

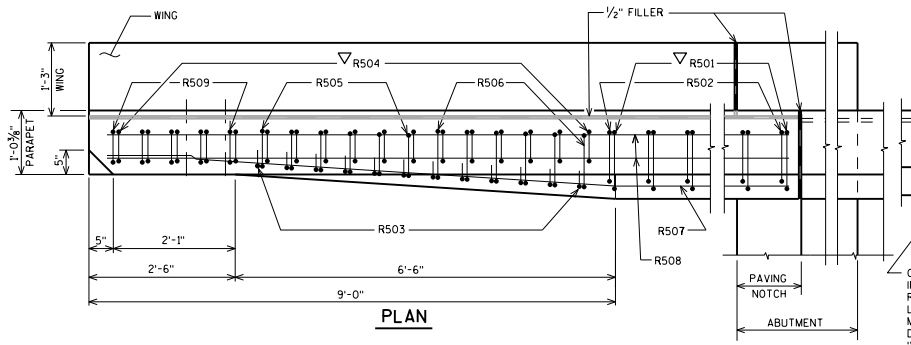


SECTION C

BILL OF BARS

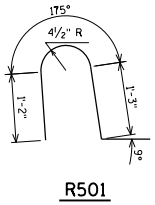
FOR STRUCTURAL APPROACH SLAB PARAPETS

BAR MARK	COAT	ABUT.	ABUT.	LENGTH	BENT	LOCATION
R501	X			4-5	X	PARAPET-VERT.
R502	X			5-8	X	PARAPET-VERT.
R503	X			2-9	X	PARAPET-VERT.
R504	X			4-4	X	PARAPET-VERT.
R505	X			5-5	X	PARAPET-VERT.
R506	X			5-6	X	PARAPET-VERT.
R507	X				X	PARAPET-HORIZ.
R508	X					PARAPET-HORIZ.
R509	X			4-9	X	PARAPET-VERT.
R510	X				X	PARAPET-HORIZ.

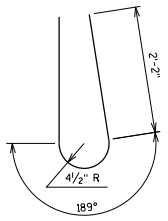


PLAN

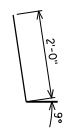
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A ¾" - 'V' GROOVE.



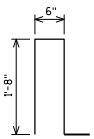
R501



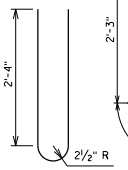
R502



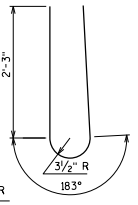
R503



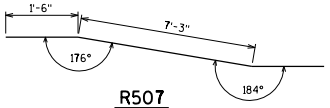
R504



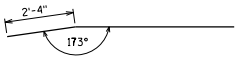
R505



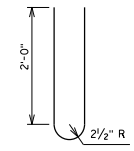
R506



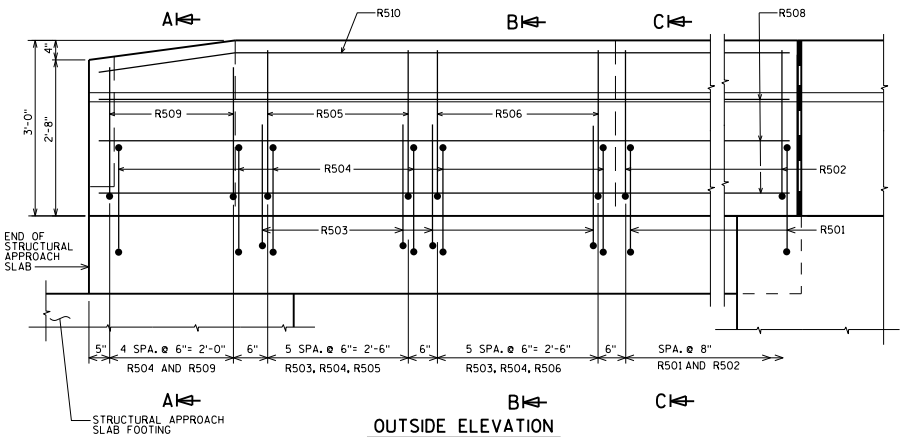
R507



R510



R509



OUTSIDE ELEVATION

(WING NOT SHOWN FOR CLARITY)

DESIGNER NOTES

SEE STRUCTURAL APPROACH SLAB STANDARDS 12.10 AND 12.11 FOR APPROACH SLAB INFORMATION.

A1 ABUT. SHOWN. SEE STANDARD 12.12 FOR A3 ABUT. DETAILS.

SEE STANDARD 30.31 FOR DETAILS OF 36SS PARAPET ON BRIDGE.

AREA = 3.36 SF
WEIGHT = 504 LB/FT

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◆ SLOPE FOR DRAINAGE

▽ R501 AND R504 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED.

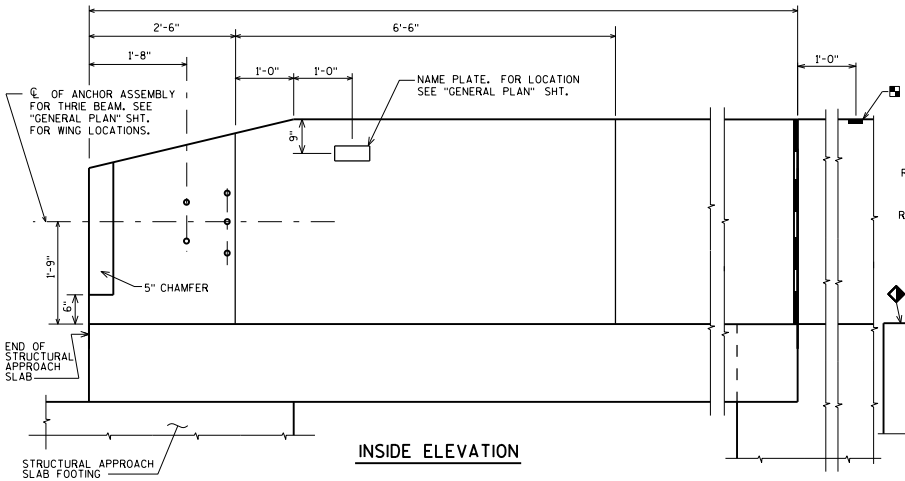
SINGLE SLOPE PARAPET 36SS WITH STRUCTURAL APPROACH SLAB

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

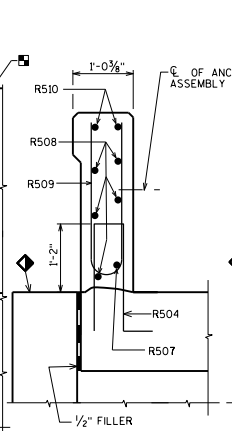
DATE: 7-19

STANDARD 30.35

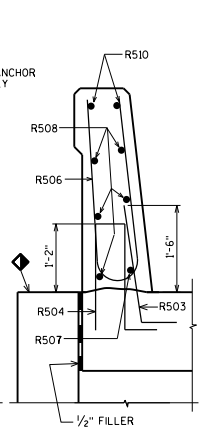


INSIDE ELEVATION

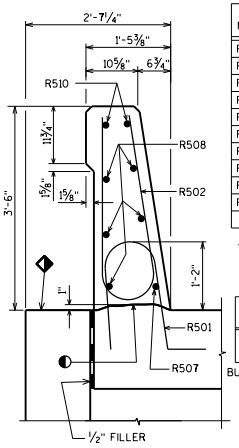
BENCHMARK (WHEN SUPPLIED). AVOID PLACING BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.



SECTION A



SECTION B



SECTION C

BILL OF BARS

FOR STRUCTURAL APPROACH SLAB PARAPETS

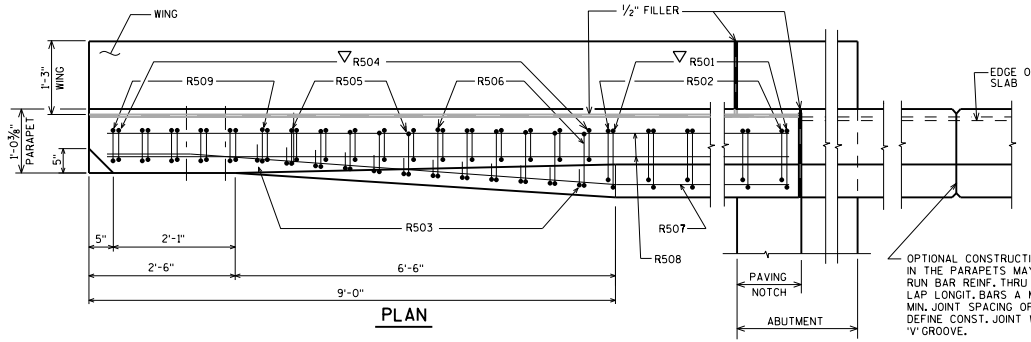
BAR MARK	COAT	ABUT.	ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X			4-5	X		PARAPET-VERT.
R502	X			6-8	X		PARAPET-VERT.
R503	X			2-9	X		PARAPET-VERT.
R504	X			4-4	X		PARAPET-VERT.
R505	X			6-5	X		PARAPET-VERT.
R506	X			6-6	X		PARAPET-VERT.
R507	X				X		PARAPET-HORIZ.
R508	X						PARAPET-HORIZ.
R509	X			5-5	X	⚠	PARAPET-VERT.
R510	X				X		PARAPET-HORIZ.

⚠ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

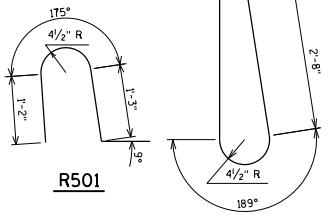
MARK	NO. REQD.	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"

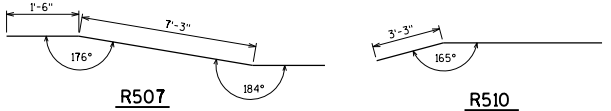
BUNDLE AND TAG EACH SERIES SEPARATELY.

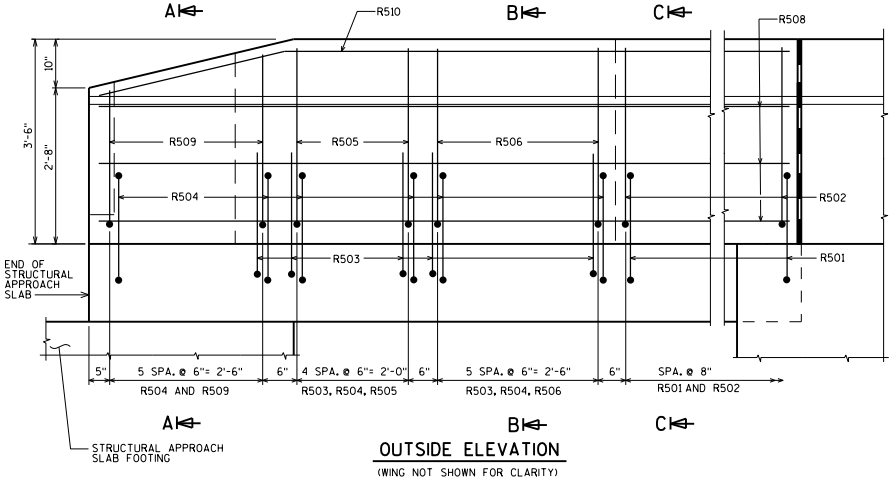


PLAN

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A ¾" - 'V' GROOVE.







OUTSIDE ELEVATION

(WING NOT SHOWN FOR CLARITY)

DESIGNER NOTES

SEE STRUCTURAL APPROACH SLAB STANDARDS 12.10 AND 12.11 FOR APPROACH SLAB INFORMATION.

A1 ABUT. SHOWN. SEE STANDARD 12.12 FOR A3 ABUT. DETAILS.

SEE STANDARD 30.32 FOR DETAILS OF 42SS PARAPET ON BRIDGE.

AREA = 3.75 SF
WEIGHT = 563 LB/FT

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◆ SLOPE FOR DRAINAGE

▽ R501 AND R504 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED.

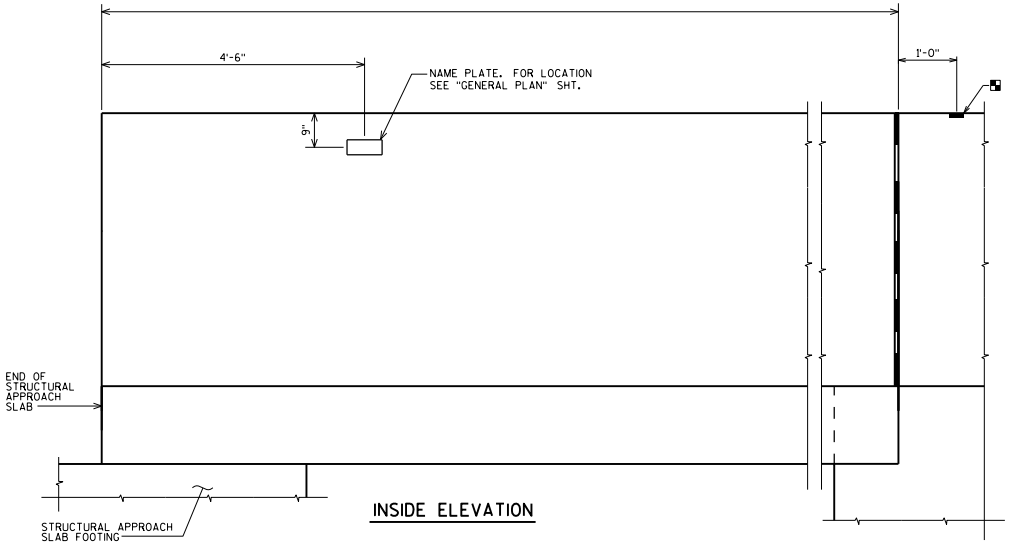
SINGLE SLOPE PARAPET 42SS WITH STRUCTURAL APPROACH SLAB

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

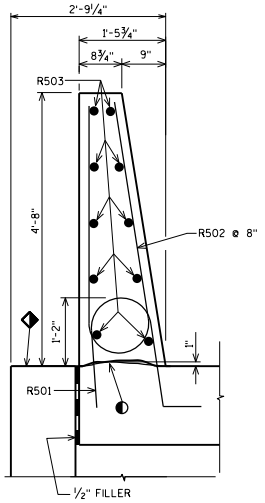
DATE: 7-19

STANDARD 30.36



INSIDE ELEVATION

BENCHMARK (WHEN SUPPLIED). AVOID PLACING BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

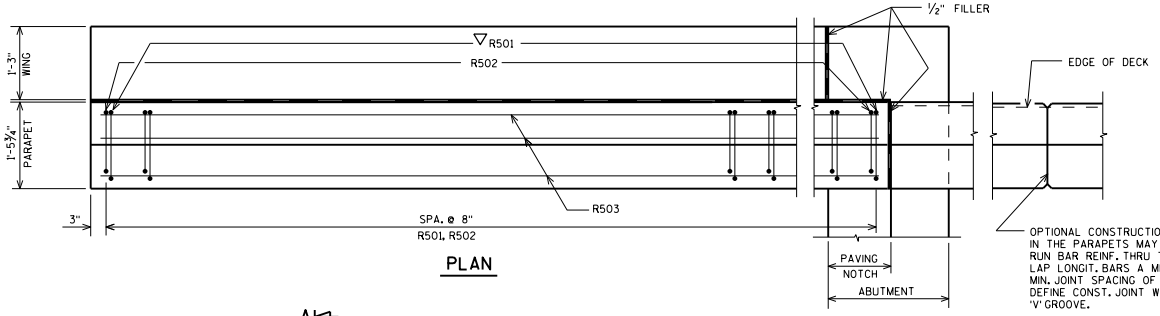


SECTION A

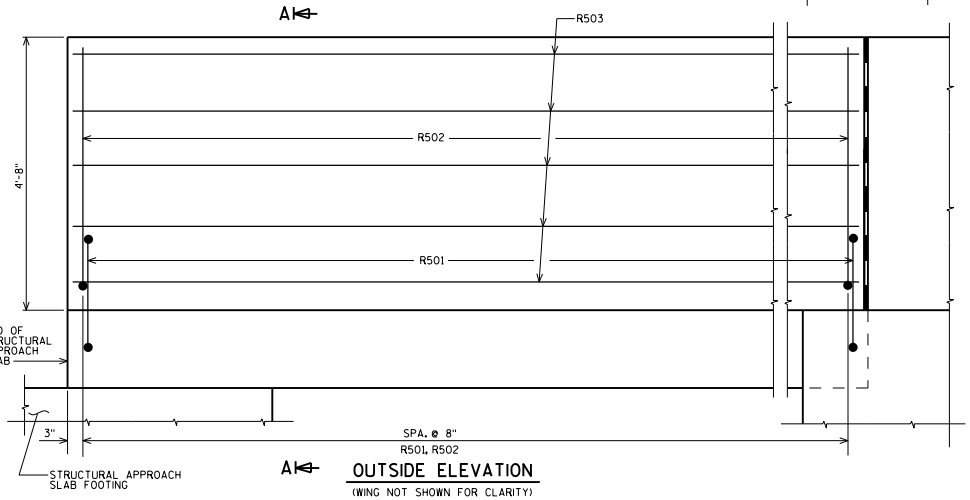
BILL OF BARS

FOR STRUCTURAL APPROACH SLAB PARAPETS

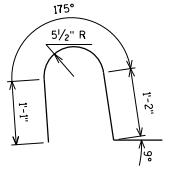
BAR MARK	COAT	ABUT.	ABUT.	LENGTH	BENT	LOCATION
R501	X			4-6	X	PARAPET-VERT.
R502	X			9-1	X	PARAPET-VERT.
R503	X					PARAPET HORIZ.



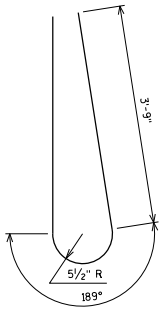
PLAN



OUTSIDE ELEVATION
(WING NOT SHOWN FOR CLARITY)



R501



R502

DESIGNER NOTES

THE '56SS' PARAPET IS ONLY TO BE USED IF A 'TYPE S56' SINGLE SLOPE CONCRETE ROADWAY BARRIER ADJOINS THE END OF THE '56SS' PARAPET.

SEE STRUCTURAL APPROACH SLAB STANDARDS 12.10 AND 12.11 FOR APPROACH SLAB INFORMATION.

A1 ABUT. SHOWN. SEE STANDARD 12.12 FOR A3 ABUT. DETAILS.

SEE STANDARD 30.33 FOR DETAILS OF 56SS PARAPET ON BRIDGE.

AREA = 5.16 SF
WEIGHT = 774 LB/FT

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

▽ R501 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED.

◆ SLOPE FOR DRAINAGE

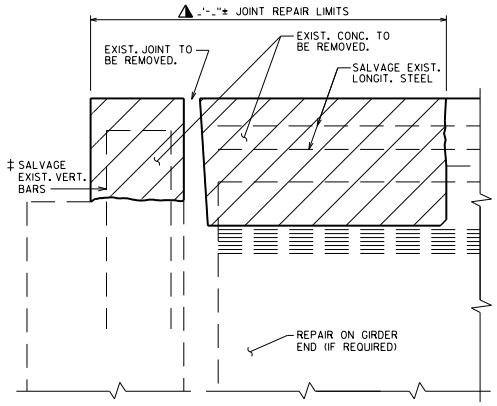
SINGLE SLOPE PARAPET 56SS WITH STRUCTURAL APPROACH SLAB

BUREAU OF STRUCTURES

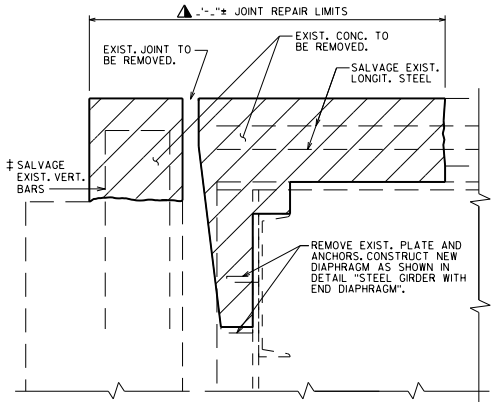
APPROVED: Bill Oliva

DATE: 7-19

STANDARD 30.37



JOINT REPAIR-REMOVAL
PRESTRESSED GIRDER



JOINT REPAIR-REMOVAL
STEEL GIRDER

LEGEND

‡ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. SALVAGE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS INDICATED BY ✩.

✩ ADHESIVE ANCHORS NO. 5 BAR. EMBED 1'-0" IN CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.

◈ OPT. CONST. JT. 1" MIN. BELOW EXIST. REINF.

△ DIMENSIONS GIVEN ARE NORMAL TO ℄ OF SUBSTRUCTURE UNIT. INCORPORATE EXISTING REINFORCEMENT.

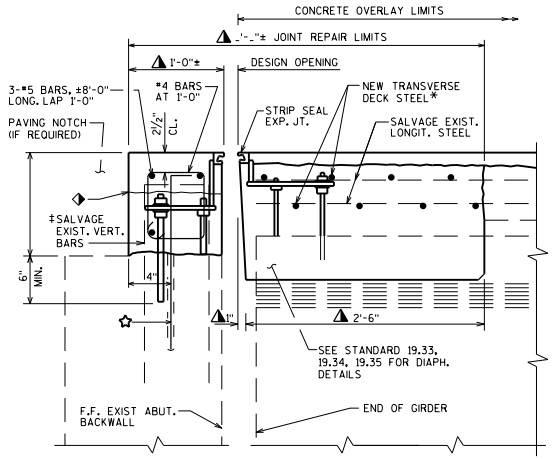
DESIGNER NOTES

SEE STANDARD 28.01 FOR SUPPORTS USED FOR STRIP SEAL STEEL EXTRUSIONS.

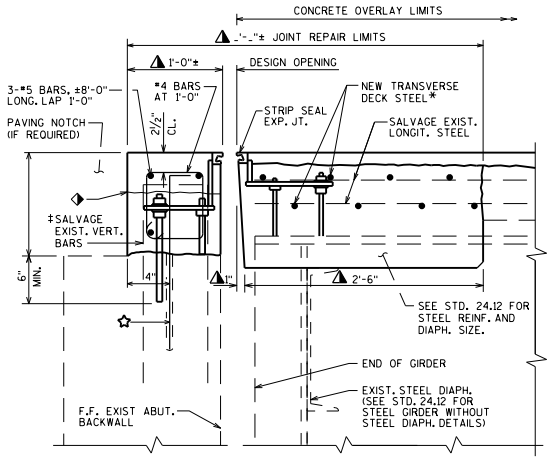
* FOR SKEWS > 20°, WHERE ORIGINAL TRANSVERSE DECK REINFORCEMENT WAS PLACED NORMAL TO THE GIRDERS, SAVE AND INCORPORATE 1'-6" MIN. OF TRANSVERSE REINFORCING BARS. NEW TRANSVERSE BARS ARE PLACED ALONG THE SKEW.

BARS IN JOINT REPAIR SHALL MATCH EXISTING REINFORCEMENT TYPE (COATED OR UNCOATED).

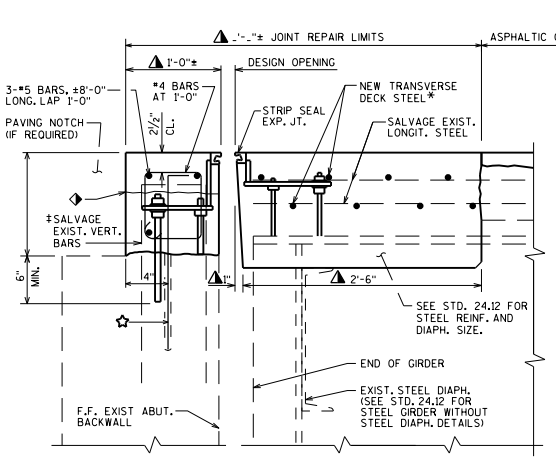
ALL REPLACEMENT PAVING BLOCK DIMENSIONS SHALL MATCH EXISTING PLAN DIMENSIONS UNLESS DESIGNER DETERMINES OTHERWISE, TYP. FOR ALL SECTIONS SHOWN ON THIS STANDARD.



SECTION THRU PROPOSED JOINT
PRESTRESSED GIRDER WITH END DIAPHRAGM
CONCRETE OVERLAY



SECTION THRU PROPOSED JOINT
STEEL GIRDER WITH END DIAPHRAGM
CONCRETE OVERLAY



SECTION THRU PROPOSED JOINT
STEEL GIRDER WITH END DIAPHRAGM
ASPHALTIC OVERLAY

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
502.3101	EXPANSION DEVICE B-_-_	LF	
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	
509.1000	JOINT REPAIR	LF	
509.2100.S	CONCRETE MASONRY DECK REPAIR	CY	
	POSSIBLE ADDITIONAL BID ITEMS		
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	

THIS IS A PARTIAL LIST OF POSSIBLE BID ITEMS. BID ITEMS MAY NEED TO BE ADDED OR REMOVED TO FIT EACH INDIVIDUAL CASE.

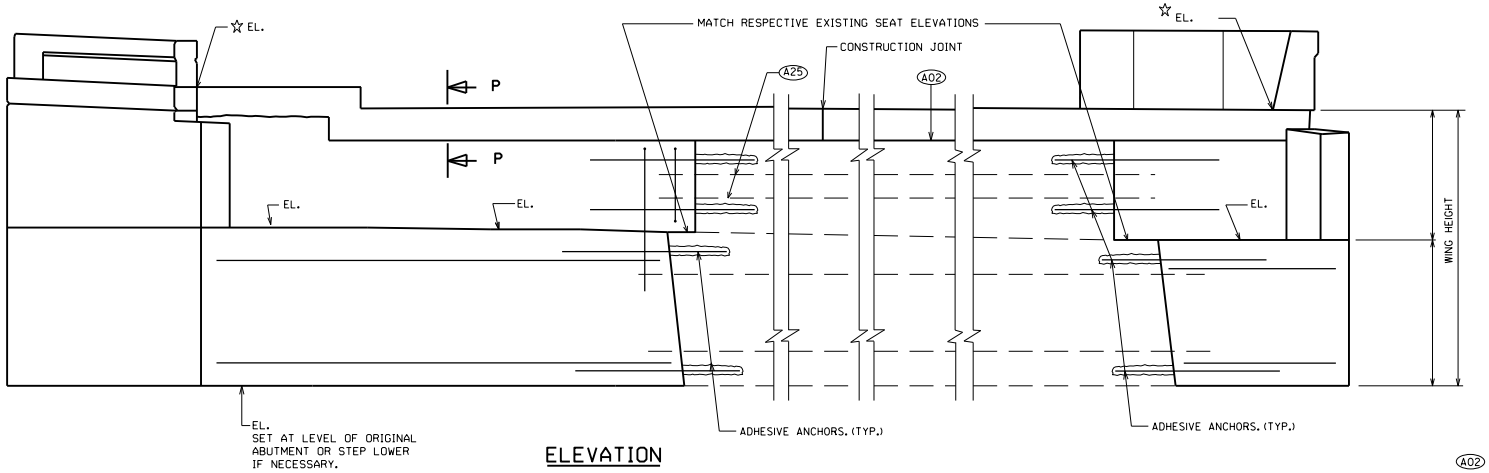
STRIP SEALS & DIAPH.
DETAILS FOR OVERLAYS

BUREAU OF STRUCTURES

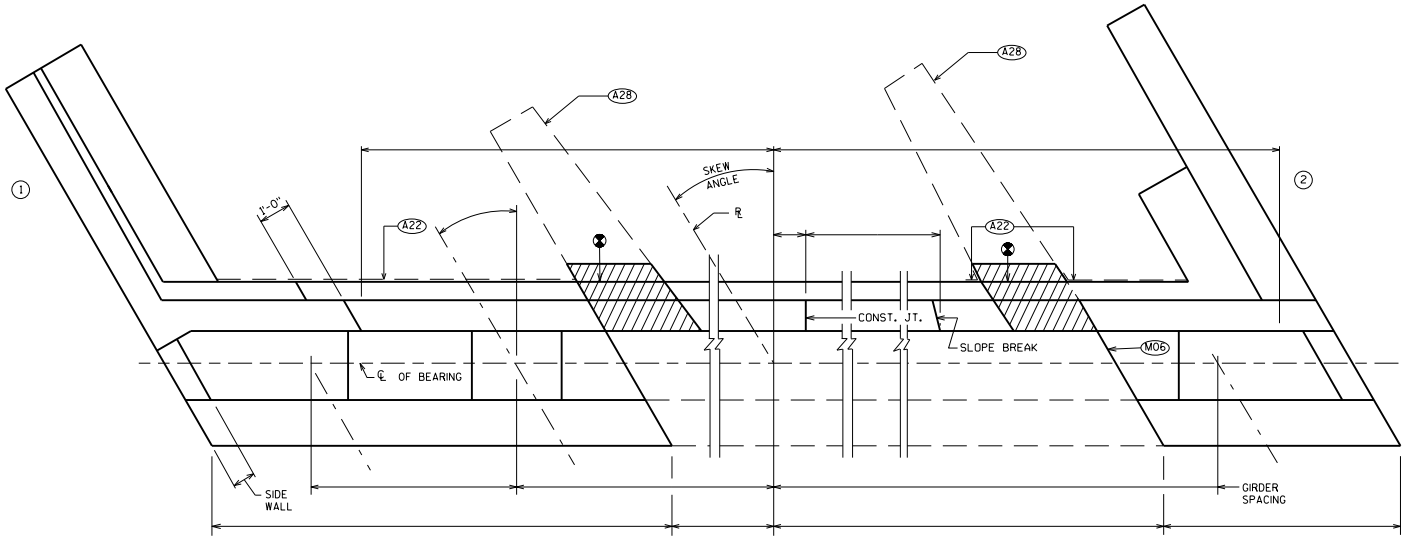
APPROVED: Bill Oliva

DATE: 7-19

STANDARD 40.04

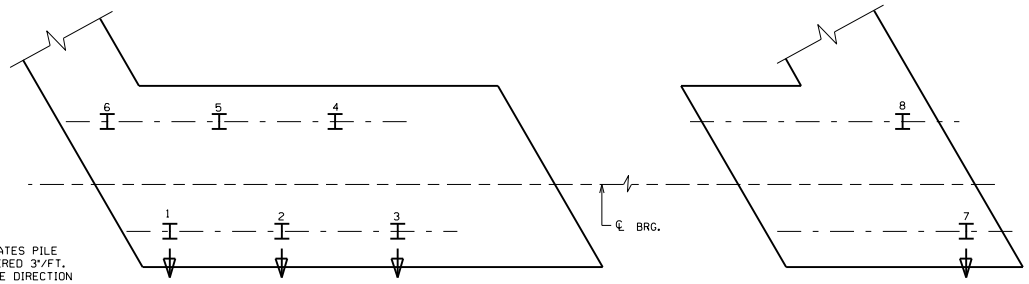


ELEVATION



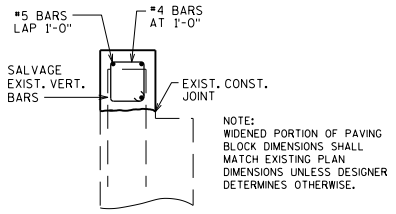
WING WITHOUT PILE

WING WITH PILE



INDICATES PILE BATTERED 3"/FT. IN THE DIRECTION SHOWN.

PILE PLAN



SECTION P-P

SEE STANDARD 40.04 FOR ADDITIONAL DETAILS

NOTES

(A02) CONSTRUCTION JOINT: POUR CONCRETE ABOVE THIS JOINT AFTER SUPERSTRUCTURE CONCRETE IS IN PLACE. STRIKE OFF AND LEAVE ROUGH.

(A22) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

(A25) SALVAGE EXIST. REINF. & EXTEND FULL LENGTH INTO NEW WORK.

(M06) ROUGHEN SURFACE OF CONCRETE 1/4" DEEP MINIMUM AT ALL AREAS WHERE NEW CONCRETE CONTACTS EXISTING CONCRETE.

(A28) EXISTING WINGS. REMOVE A MIN. OF 2'-0" BELOW FINISHED GRADE.

☆ ELEV. @ F.F. ABUT. BACKWALL AND GUTTERLINE.

REMOVE CONC. IN THIS AREA DOWN TO EXIST. BRIDGE SEAT. INCORPORATE EXIST. BAR STEEL INTO NEW WORK.

DESIGNER NOTES

SEE CHAPTER 12 FOR NEW BAR STEEL PLACEMENT, DETAILS, DIMENSIONS, & NOTES.

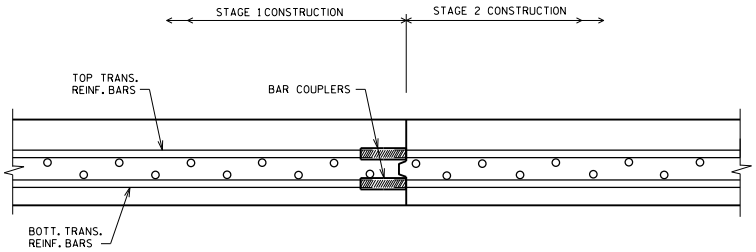
ABUTMENT WIDENING

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

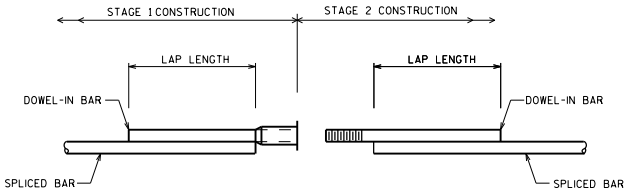
DATE: 7-19

STANDARD 40.06



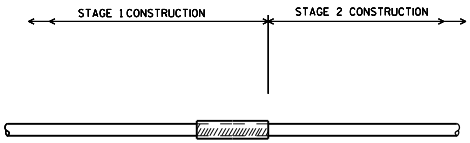
SECTION THRU DECK

ONE-PIECE THREADED COUPLER SHOWN



DOWEL BAR COUPLER

STAGE 2 DOWEL SCREWS INTO COUPLER PLACED IN STAGE 1



ONE-PIECE THREADED COUPLER

BAR COUPLER ALTERNATIVES

NOTES

FOR DOWEL BAR COUPLERS, ALL DOWEL BARS SHALL BE LAPPED AND TIED TO THE REINFORCEMENT BARS.

DESIGNER NOTES

ON THE PLANS PROVIDE LOCATION, STAGING, SIZE AND QUANTITY REQ'D. DO NOT GIVE SPECIFIC INFORMATION REGARDING THE COUPLER AS THIS IS COVERED BY THE BID ITEM "BAR COUPLERS (SIZE)".

ON THE PLANS SHOW DETAILS SIMILAR TO "SECTION THRU DECK" AND " BAR COUPLER ALTERNATIVES".

AT THE PLAN BILL OF BARS, INDICATE WHICH BARS REQUIRE BAR COUPLERS BY USE OF A SYMBOL. USING THE SAME SYMBOL, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED. BAR LENGTHS ARE COMPUTED TO THE ℄ OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURERS RECOMMENDATIONS. DOWEL BARS ARE NOT TO BE DETAILED, AS THOSE BARS ARE INCLUDED IN THE BAR COUPLER BID ITEM SHOULD THE DOWEL OPTION BE CHOSEN.

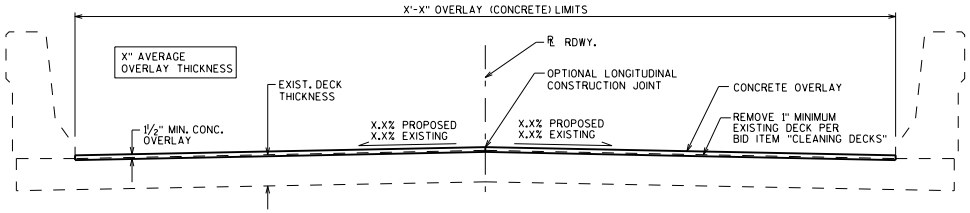
BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

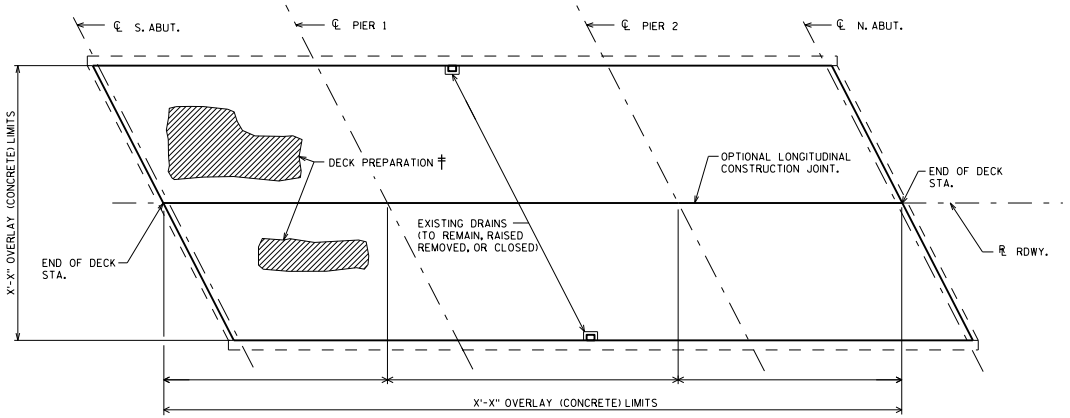
DATE: 7-19

STANDARD 40.11



CROSS SECTION THRU ROADWAY

LOOKING NORTH



PLAN

TOP OF DECK SHOWN

ǂ SURVEY TYPE:
SURVEY COMPLETED DATE: __/__/____

DESIGN DATA

LIVE LOAD:

INVENTORY RATING: HS-__
OPERATING RATING: HS-__
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) =___ KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY OVERLAY DECKS f'c = 4,000 P.S.I.

NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY.

SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS"

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".

THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS ½-INCH TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR JOINT REPAIRS AT THE ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2" (OR AS GIVEN ON THE PLANS). IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

DRAINS REMOVED OR CLOSED IS INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

DESIGNER NOTES

PLAN VIEW APPLICABLE TO ALL OVERLAY METHODS AND DECK REPAIRS WITHOUT OVERLAYS.

FOR CROSS SECTIONS NOT IN SUPERELEVATION TRANSITIONS, THE PREFERRED MINIMUM SLOPE IS 2%.

PROVIDE AN AVERAGE OVERLAY THICKNESS ON THE PLANS. THE AVERAGE OVERLAY THICKNESS IS THE THE MINIMUM OVERLAY THICKNESS PLUS ½" TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE. CHANGES IN CROSS-SLOPE INCREASE THE AVERAGE OVERLAY THICKNESS. QUANTITIES ARE BASED ON THE AVERAGE OVERLAY THICKNESS.

DO NOT PROVIDE A PROFILE GRADE LINE ON THE PLANS.

DO NOT INCLUDE BID ITEM "SAWING PAVEMENT DECK PREPARATION AREAS" FOR DECK PREPARATION.

✳ REMOVAL OF 1" OF EXISTING DECK UNDER BID ITEM "CLEANING DECKS" IS NOT INTENDED FOR PREVIOUSLY OVERLAID DECKS. EXISTING CONCRETE COVER (1" MIN.) SHALL BE MAINTAINED AND CONSIDERED WHEN DETERMINING CONCRETE REMOVALS. INCLUDE THE BID ITEM "CLEANING DECKS TO REAPPLY CONCRETE MASONRY OVERLAY" WHEN REMOVING EXISTING OVERLAY.

ǂ PROVIDE (IF AVAILABLE) DECK CONDITION ASSESSMENT SURVEY ON PLANS. INCLUDE SURVEY TYPE AND DATE COMPLETED.

JOINT REPAIR AREAS SHOULD NOT BE INCLUDED IN DECK REPAIR AREAS OR OVERLAY QUANTITES. SEE STANDARD 40.04.

INCLUDE THE BID ITEM "ADJUSTING FLOOR DRAINS" WHEN DRAINS ARE TO BE RAISED.

RESTRICTIONS ON REMOVAL ITEMS SHALL BE PLACED ON THE PLANS TO PREVENT DAMAGE TO REINFORCING STEEL.

TOTAL ESTIMATED QUANTITIES

	BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
	502.3200	PROTECTIVE SURFACE TREATMENT	SY	
	509.0301	PREPARATION DECKS TYPE 1	SY	
	509.0302	PREPARATION DECKS TYPE 2	SY	
	509.0500	CLEANING DECKS	SY	
	509.2000	FULL-DEPTH DECK REPAIR	SY	
	509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	
		POSSIBLE ADDITIONAL BID ITEMS		
	502.3210	PIGMENTED SURFACE SEALER	SY	
✳	509.0505.S	CLEANING DECKS TO REAPPLY CONCRETE MASONRY OVERLAY	SY	
✳	509.9005.S	REMOVING CONCRETE MASONRY DECK OVERLAY (STRUCTURE)	SY	
	514.0900	ADJUSTING FLOOR DRAINS	EACH	

THIS IS A PARTIAL LIST OF POSSIBLE BID ITEMS. BID ITEMS MAY NEED TO BE ADDED OR REMOVED TO FIT EACH INDIVIDUAL CASE.

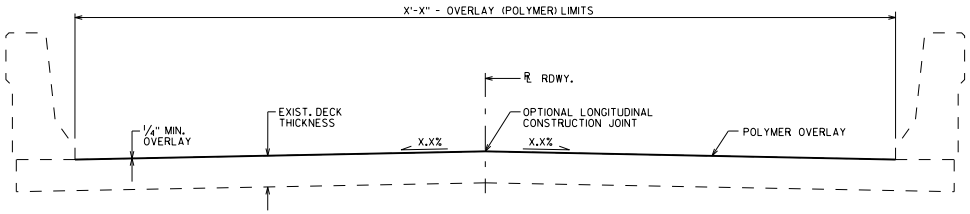
CONCRETE OVERLAY

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

STANDARD 40.31



CROSS SECTION THRU ROADWAY

LOOKING NORTH

DESIGNER NOTES

REPAIRS USING CONCRETE REQUIRE A MINIMUM CURE TIME OF 28 DAYS BEFORE PLACING OVERLAY. WHEN DEEMED ABSOLUTELY NECESSARY (BY REGION AND BOS DESIGN STAFF) "RAPID SET DECK REPAIR" MAY BE USED IN LIEU OF "CONCRETE MASONRY DECK REPAIR" TO SHORTEN TIME REQUIRED FOR PLACING OVERLAY.

DO NOT PROVIDE A PROFILE GRADE LINE ON THE PLANS.

POLYMER OVERLAYS SHALL NOT BE PLACED ON CONCRETE APPROACHES.

REHABILITATION OVERLAY

DESIGN DATA

LIVE LOAD:

INVENTORY RATING: HS-__
OPERATING RATING: HS-__
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) =___ KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY - DECK PATCHING f'c = 4,000 P.S.I.

NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

DECK SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "POLYMER OVERLAY".

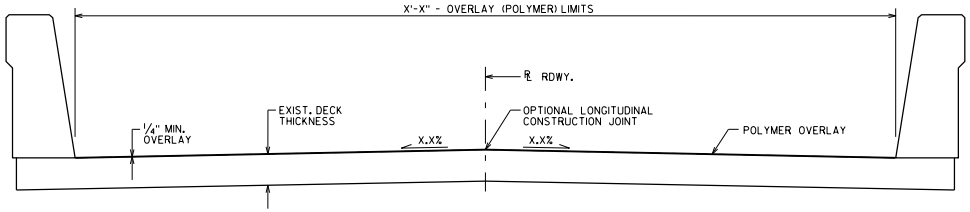
AREAS OF "PREPARATION DECKS TYPE 1" SHALL BE DEFINED BY A SAW CUT.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY DECK REPAIR".

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
509.0301	PREPARATION DECKS TYPE 1	SY	
509.0302	PREPARATION DECKS TYPE 2	SY	
509.0310.S	SAWING PAVEMENT DECK PREPARATION AREAS	LF	
509.2000	FULL-DEPTH DECK REPAIR	SY	
509.2100.S	CONCRETE MASONRY DECK REPAIR	CY	
509.5100.S	POLYMER OVERLAY	SY	
	POSSIBLE BID ITEM		
SPV.0035	RAPID SET DECK REPAIR	CY	

THIS IS A PARTIAL LIST OF POSSIBLE BID ITEMS. BID ITEMS MAY NEED TO BE ADDED OR REMOVED TO FIT EACH INDIVIDUAL CASE.



CROSS SECTION THRU ROADWAY

LOOKING NORTH

DESIGNER NOTES

PREVENTATIVE OVERLAY INTENDED FOR USE ON DECKS WITH A MINIMUM AGE OF 28 DAYS AND A MAXIMUM AGE OF 2 YEARS. AN ADDITIONAL CONTRACT MAY BE REQUIRED FOR APPLYING THE OVERLAY DUE TO SCHEDULE AND DECK AGE CONSIDERATIONS.

WHEN BID ITEM "POLYMER OVERLAY" IS USED RATING SHOULD INCLUDE THE 5 PSF OVERLAY.

POLYMER OVERLAYS SHALL NOT BE PLACED ON CONCRETE APPROACHES.

PREVENTATIVE OVERLAY

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: RF=1.__
OPERATING RATING FACTOR: RF=1.__
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) =___ KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

NOTES

DRAWINGS SHALL NOT BE SCALED.

DECK SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "POLYMER OVERLAY".

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
509.5100.S	POLYMER OVERLAY	SY	

POLYMER OVERLAY

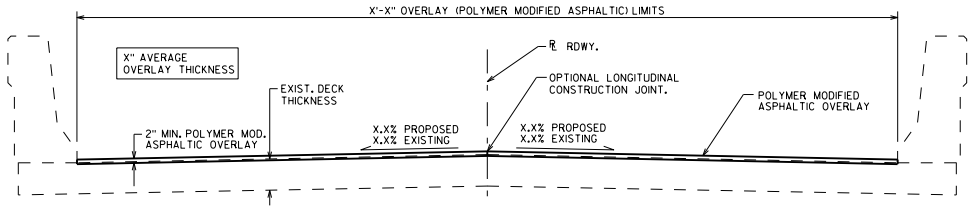
BUREAU OF STRUCTURES

APPROVED: *Bill Oliva*

DATE: 7-19

STANDARD 40.32

POLYMER MODIFIED ASPHALTIC OVERLAY



CROSS SECTION THRU ROADWAY

LOOKING NORTH

DESIGNER NOTES

CONCRETE OVERLAYS ARE THE CURRENT PREFERRED METHOD TO OVERLAY A BRIDGE.

REPAIRED AREAS REQUIRE A MINIMUM CURE TIME OF 7 DAYS BEFORE PLACING OVERLAY. ALTERNATIVES TO CONCRETE DECK PATCHES MAY BE USED TO SHORTEN TIME REQUIRED FOR PLACING OVERLAY.

PROVIDE AN AVERAGE OVERLAY THICKNESS ON THE PLANS. THIS AVERAGE OVERLAY THICKNESS VALUE IS BASED ON THE THEORETICAL AVERAGE OVERLAY THICKNESS PLUS ½" TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE. QUANTITIES ARE BASED ON THE AVERAGE OVERLAY THICKNESS.

DO NOT PROVIDE A PROFILE GRADE LINE ON THE PLANS.

OVERLAYS NOT REQUIRING SHEET MEMBRANE WATERPROOFING ARE PREFERRED.

DESIGNER TO CONTACT THE REGIONAL BRIDGE MAINTENANCE ENGINEER TO DETERMINE IF POLYMER MODIFIED ASPHALTIC MATERIAL IS AVAILABLE.

RESTRICTIONS ON REMOVAL ITEMS SHALL BE PLACED ON THE PLANS TO PREVENT DAMAGE TO REINFORCING STEEL.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
509.0301	PREPARATION DECKS TYPE 1	SY	
509.0302	PREPARATION DECKS TYPE 2	SY	
509.0310.S	SAWING PAVEMENT DECK PREPARATION AREAS	LF	
509.2000	FULL-DEPTH DECK REPAIR	SY	
509.2100.S	CONCRETE MASONRY DECK REPAIR	CY	
509.3500.S	HMA OVERLAY POLYMER-MODIFIED	TON	
	POSSIBLE ADDITIONAL BID ITEMS		
509.9005.S	REMOVING CONCRETE MASONRY DECK OVERLAY (STRUCTURE)	SY	
509.9010.S	REMOVING ASPHALTIC CONCRETE DECK OVERLAY (STRUCTURE)	SY	

THIS IS A PARTIAL LIST OF POSSIBLE BID ITEMS. BID ITEMS MAY NEED TO BE ADDED OR REMOVED TO FIT EACH INDIVIDUAL CASE.

DESIGN DATA

LIVE LOAD:

INVENTORY RATING: HS-__
OPERATING RATING: HS-__
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) =___ KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY - DECK PATCHING f'c = 4,000 P.S.I.

NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

AREAS OF "PREPARATION DECKS TYPE 1" SHALL BE DEFINED BY A SAW CUT.

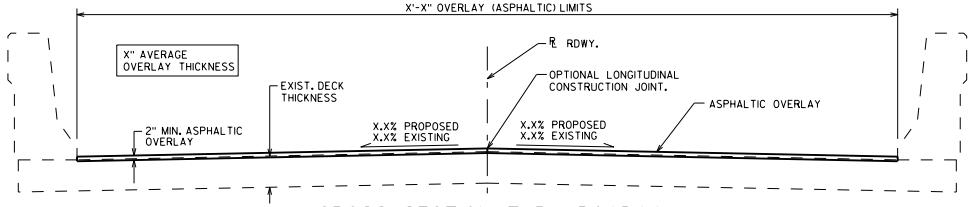
PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY DECK REPAIR".

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR JOINT REPAIR AT THE ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "HMA OVERLAY POLYMER-MODIFIED".

THE PLAN QUANTITY FOR THE BID ITEM "HMA OVERLAY POLYMER-MODIFIED" IS BASED ON THE AVERAGE OVERLAY THICKNESS.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 2" PLACED ABOVE THE DECK SURFACE. EXPECTED AVERAGE OVERLAY THICKNESS IS 2½" (OR AS GIVEN ON THE PLANS). IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

ASPHALTIC OVERLAY



CROSS SECTION THRU ROADWAY

LOOKING NORTH

DESIGNER NOTES

CONCRETE OVERLAYS ARE THE CURRENT PREFERRED METHOD TO OVERLAY A BRIDGE.

REPAIRS USING CONCRETE REQUIRE A MINIMUM CURE TIME OF 7 DAYS BEFORE PLACING OVERLAY. ALTERNATIVES TO CONCRETE DECK PATCHES MAY BE USED TO SHORTEN TIME REQUIRED FOR PLACING OVERLAY.

PROVIDE AN AVERAGE OVERLAY THICKNESS ON THE PLANS. THIS AVERAGE OVERLAY THICKNESS VALUE IS BASED ON THE THEORETICAL AVERAGE OVERLAY THICKNESS PLUS ½" TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE. QUANTITIES ARE BASED ON THE AVERAGE OVERLAY THICKNESS.

DO NOT PROVIDE A PROFILE GRADE LINE ON THE PLANS.

OVERLAYS NOT REQUIRING SHEET MEMBRANE WATERPROOFING ARE PREFERRED.

COORDINATE WITH REGION BRIDGE MAINTENANCE AND ROADWAY ENGINEERS FOR THE ASPHALTIC DESIGN AND QUANTITIES.

RESTRICTIONS ON REMOVAL ITEMS SHALL BE PLACED ON THE PLANS TO PREVENT DAMAGE TO REINFORCING STEEL.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
455.0605	TACK COAT	GAL	
460.1XXX	HMA PAVEMENT (INSERT TYPE)	TON	
509.0301	PREPARATION DECKS TYPE 1	SY	
509.0302	PREPARATION DECKS TYPE 2	SY	
509.0310.S	SAWING PAVEMENT DECK PREPARATION AREAS	LF	
509.2000	FULL-DEPTH DECK REPAIR	SY	
509.2100.S	CONCRETE MASONRY DECK REPAIR	CY	
	POSSIBLE ADDITIONAL BID ITEMS		
509.9005.S	REMOVING CONCRETE MASONRY DECK OVERLAY (STRUCTURE)	SY	
509.9010.S	REMOVING ASPHALTIC CONCRETE DECK OVERLAY (STRUCTURE)	SY	

THIS IS A PARTIAL LIST OF POSSIBLE BID ITEMS. BID ITEMS MAY NEED TO BE ADDED OR REMOVED TO FIT EACH INDIVIDUAL CASE.

DESIGN DATA

LIVE LOAD:

INVENTORY RATING: HS-__
OPERATING RATING: HS-__
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) =___ KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY - DECK PATCHING f'c = 4,000 P.S.I.

NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

AREAS OF "PREPARATION DECKS TYPE 1" SHALL BE DEFINED BY A SAW CUT.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY DECK REPAIR".

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR JOINT REPAIR AT THE ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "HMA PAVEMENT TYPE E-X".

THE PLAN QUANTITY FOR THE BID ITEM "HMA PAVEMENT TYPE E-X" IS BASED ON THE AVERAGE OVERLAY THICKNESS.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 2" PLACED ABOVE THE DECK SURFACE. EXPECTED AVERAGE OVERLAY THICKNESS IS 2½" (OR AS GIVEN ON THE PLANS). IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

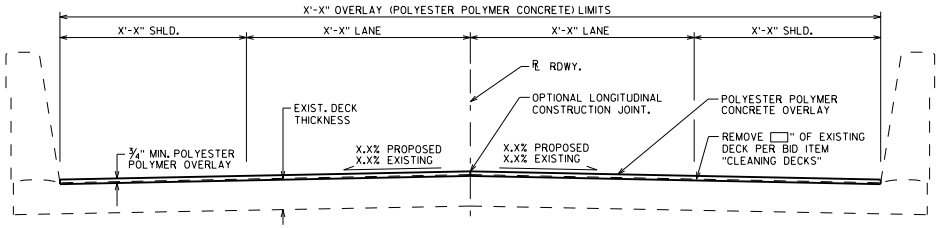
POLYMER MODIFIED ASPHALTIC AND ASPHALTIC OVERLAYS

WISCONSIN DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19

STANDARD 40.33



CROSS SECTION THRU ROADWAY

LOOKING NORTH

DESIGN DATA

LIVE LOAD:

INVENTORY RATING: HS-__
OPERATING RATING: HS-__
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) =___ KIPS

NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

☐-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".

AREAS OF "PREPARATION DECKS TYPE 1" SHALL BE DEFINED BY A SAW CUT.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "RAPID SET DECK REPAIR", POLYESTER POLYMER CONCRETE AND PORTLAND CEMENT BASED CONCRETE PATCHES MAY BE SUBSTITUTED AT NO EXTRA COST. PORTLAND CEMENT BASED CONCRETE PATCHES SHALL BE USED FOR JOINT REPAIRS AND FULL-DEPTH REPAIRS WITH A PLAN AREA LARGER THAN 4 SF, UNLESS APPROVED OTHERWISE BY THE STRUCTURES DESIGN SECTION.

DECK REPAIRS SHALL BE FILLED PRIOR TO OVERLAY PLACEMENT. DECK REPAIRS USING A PORTLAND CEMENT BASED CONCRETE REQUIRES A MINIMUM CURE TIME OF 28 DAYS PRIOR OVERLAY PLACEMENT.

SHOT BLASTING, OVERLAY PRIME COAT, AND DECK SURFACE PREPARATIONS ARE INCLUDED IN THE BID ITEM "POLYESTER POLYMER CONCRETE OVERLAY".

OVERLAY CONSTRUCTION JOINTS SHALL BE APPROVED BY THE ENGINEER. AVOID PLACING LONGITUDINAL JOINTS NEAR WHEEL PATHS. WHEN REQUIRED, PLACE LONGITUDINAL JOINTS AT LANE LINES OR IN THE MIDDLE OF THE LANE. WHEEL PATHS DURING TEMPORARY TRAFFIC STAGING NEED NOT BE CONSIDERED.

DESIGNER NOTES

USE OF PPC OVERLAYS ARE LIMITED. SEE 40.5 IN THE BRIDGE MANUAL FOR ADDITIONAL GUIDANCE.

PPC OVERLAYS ARE INTENDED TO BE PLACED ON DECKS WITH MINIMAL SURFACE DISTRESS WHERE FULL-DEPTH JOINT REPAIRS, FULL-DEPTH DECK REPAIRS, OR THE NEED TO PARTIALLY REMOVE THE ENTIRE DECK WITH BID ITEM "CLEANING DECKS" IS NOT EXPECTED OR WARRANTED.

WHEN A PROFILE TRANSITION IS REQUIRED, USE A 250:1 OR FLATTER TRANSITION TAPER. PLANS SHALL SPECIFY THE MINIMUM TRANSITION TAPER LENGTH. DECK SURFACE PREPARATIONS FOR TRANSITIONAL AREAS SHOULD BE INCIDENTAL TO THE OVERLAY BID ITEM.

WHEN PARTIAL-DEPTH REMOVAL OF THE ENTIRE EXISTING DECK IS WARRANTED, USE BID ITEM "CLEANING DECKS". PLANS SHALL SPECIFY THE REQUIRED REMOVAL DEPTH.

DO NOT PROVIDE A PROFILE GRADE LINE ON THE PLANS.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
509.0301	PREPARATION DECKS TYPE 1	SY	
509.0302	PREPARATION DECKS TYPE 2	SY	
509.0310.S	SAWING PAVEMENT DECK PREPARATION AREAS	LF	
509.2000	FULL-DEPTH DECK REPAIR	SY	
SPV.0035	RAPID SET DECK REPAIR	CY	
SPV.0180	POLYESTER POLYMER CONCRETE OVERLAY	SY	
	POSSIBLE ADDITIONAL BID ITEMS		
509.0500	CLEANING DECKS	SY	

THIS IS A PARTIAL LIST OF POSSIBLE BID ITEMS. BID ITEMS MAY NEED TO BE ADDED OR REMOVED TO FIT EACH INDIVIDUAL CASE.

POLYESTER POLYMER CONCRETE OVERLAY

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-19