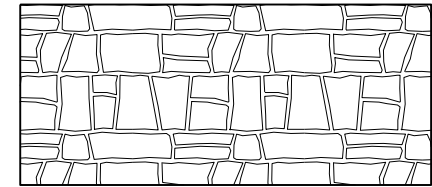
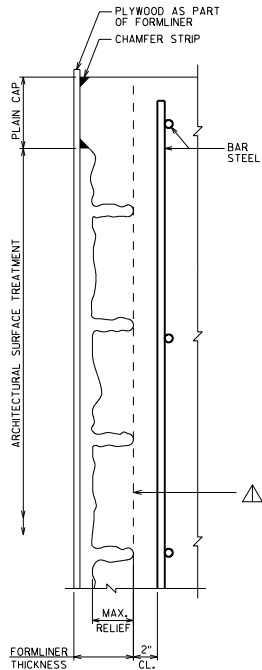


BROKEN RIB
 FORMLINER THICKNESS = $3" \pm 1/2"$
 WIDTH = $2" \pm 1/2"$
 MAX. RELIEF = $2" \pm 1/2"$

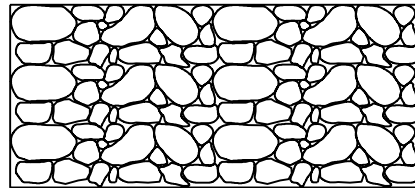


RUSTIC ASHLAR
 FORMLINER THICKNESS = $3"$
 SIZE = $8" \text{ TO } 32"$
 MAX. RELIEF = $2"$

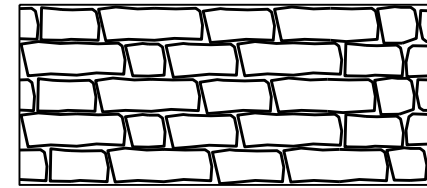


SECTION THRU FORMLINER

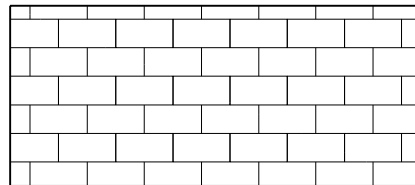
▲ STRUCTURAL CONCRETE CAN ONLY BE ASSUMED TO THIS LINE. PROVIDE ADDITIONAL STRUCTURE SIZE AS NECESSARY TO MAINTAIN MINIMUM FULL STRUCTURAL CONCRETE DIMENSIONS AS INDICATED ON THE STANDARDS.



FIELD STONE - RANDOM
 FORMLINER THICKNESS = $3 1/2"$
 SIZES BETWEEN $6"$ & $24"$
 MAX. RELIEF = $2 1/2"$



RECTANGULAR CUT STONE
 FORMLINER THICKNESS = $4"$ TO $5 1/2"$
 COURSE HEIGHT = $\pm 2"$
 MAX. RELIEF = $3"$ TO $4 1/2"$



RECTANGULAR BRICK
 FORMLINER THICKNESS = $2"$
 SIZE = VARIES
 MAX. RELIEF = $1"$

RETAINING WALL NOTES

FORMLINER COURSING ON RETAINING WALLS SHALL BE LEVEL.

ABUTMENT NOTES

FORMLINER COURSING ON ABUTMENTS AND WINGS SHALL BE LEVEL.

THE FORMLINER COURSING ON THE WINGS SHALL BE VERTICALLY ALIGNED WITH THE FORMLINER COURSING ON THE FRONT OF THE ABUTMENT.

THE FORMLINER PATTERN SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS.

WRAPAROUND/MATCH FORMLINER PATTERN AT CORNERS.

PIER NOTES

FORMLINER COURSING ON PIERS SHALL BE LEVEL.

THE FORMLINER COURSING ON ALL FACES OF EACH COLUMN SHALL BE VERTICALLY ALIGNED.

SPACE ADJACENT PORTIONS OF FORMLINER ON SLOPED FACE SO THAT COURSING IS ALIGNED VERTICALLY WITH COURSING ON VERTICAL FACE.

THE FORMLINER PATTERN SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS.

WRAPAROUND/MATCH FORMLINER PATTERN AT CORNERS.

PARAPET NOTES

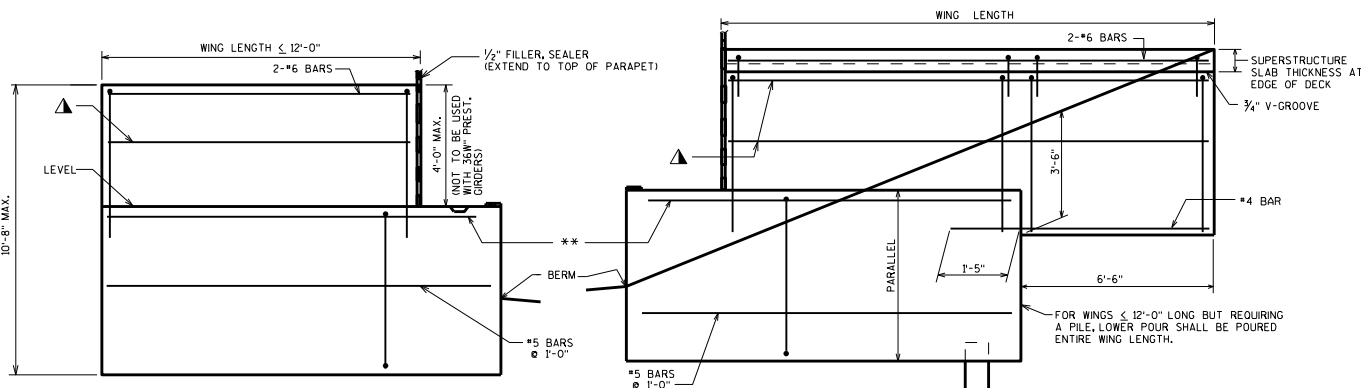
FORMLINER COURSING ON PARAPETS SHALL BE PARALLEL TO TOP OF PARAPET.

FORMLINER DETAILS

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 STRUCTURES DEVELOPMENT SECTION

APPROVED: Scot Becker

DATE:
 7-11



WING WITHOUT PILE ELEVATION
(FRONT FACE)

WING WITH PILE ELEVATION
(FRONT FACE)

FOR WINGS ≤ 12'-0" LONG BUT REQUIRING A PILE, LOWER POUR SHALL BE POURED ENTIRE WING LENGTH.

WING PILE REQUIRED IF ANY OF THESE CRITERIA ARE MET:
 • WING LENGTH > 12'-0"
 • OVERALL HEIGHT > 10'-8"
 • H_U > 4'-0" ± OR 36" PRESTRESSED GIRDER

DESIGNER NOTES

LENGTH OF A1 BARS SHALL BE ≥ TO WING LENGTH.

WING WITH PILE & WING WITHOUT PILE CAN BE USED FOR EITHER SIDEWALK OR SLOPED FACE PARAPETS. THE TYPE OF WING TO USE IS BASED ONLY ON THE WING HEIGHT AND WING LENGTH LIMITATIONS SHOWN.

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

WING BARS AND DOWEL BARS SHALL BE EPOXY COATED.

WHEN TYPE "F", "W", OR "M" RAILING IS USED, LOCATE NAME PLATE ON FIRST RIGHT WING TRAVELING UP STATION.

SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER, 1" DEEP AND HOLD 1/4" BELOW SURFACE OF CONCRETE, EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

LRFD DESIGN LOADS

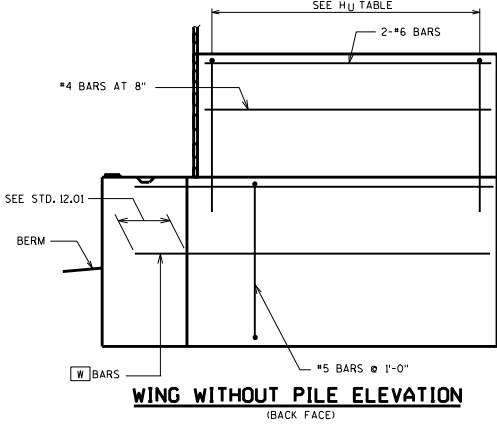
LIVE LOAD = 2'-0" SURCHARGE

LOAD FACTORS:
 γ_{DC} = 1.25
 γ_{DE} = 1.50
 γ_{DEW} = 1.35
 γ_{LS} = 1.75

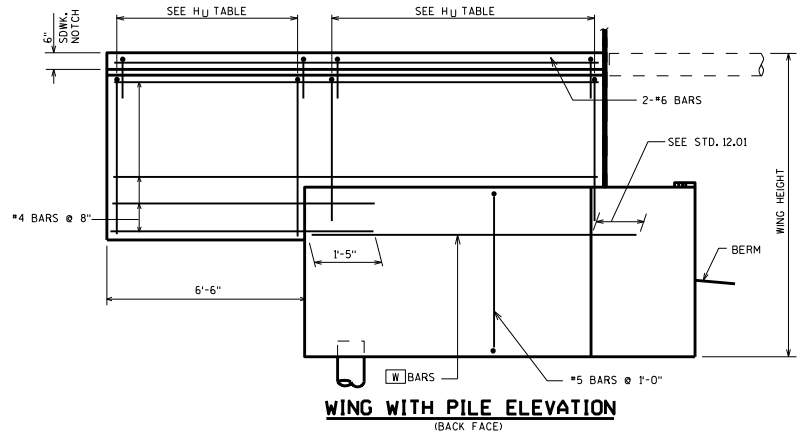
EXPOSURE CLASS 2, γ_E = 0.75
 f_y = 60,000 P.S.I.
 f'_c = 3,500 P.S.I.
 HORIZ. EARTH LOAD BASED ON: 35 P.C.F. EQUIV. FLUID UNIT WEIGHT OF SOIL

WING LENGTH	WING HEIGHT				BARS
	8'-6"	10'-0"	11'-6"	13'-0"	
10'-0"	#6-#6's	#6-#6's	5-#5's		W
10'-0"	#7-#9's	#7-#9's	6-#5's		A1
12'-0"	#6-#6's	#7-#6's	7-#5's	7-#6's	W
12'-0"	#7-#8's	#7-#8's	6-#7's	7-#7's	A1
16'-0"	7-#6's	8-#6's	7-#7's	8-#7's	W
16'-0"	5-#8's	6-#8's	7-#8's	8-#8's	A1
20'-0"	7-#7's	7-#8's	8-#8's	8-#9's	W
20'-0"	6-#9's	7-#9's	7-#10's	8-#10's	A1
24'-0"	8-#8's	9-#8's	9-#9's	9-#10's	W
24'-0"	7-#9's	8-#9's	8-#10's	9-#10's	A1

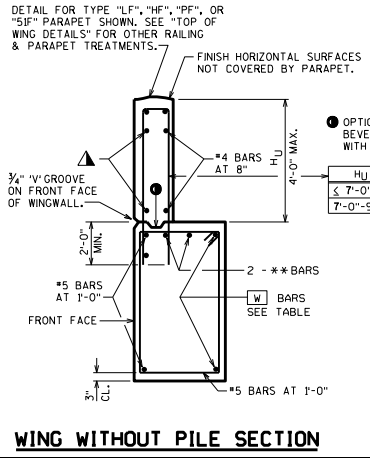
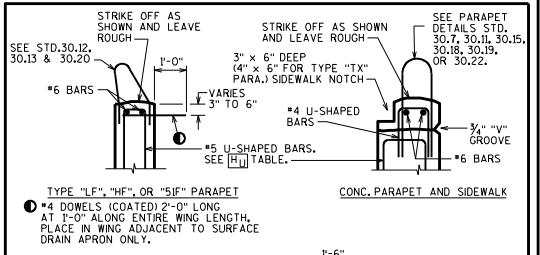
* WING WITHOUT PILE VALUES SHOWN. (FOR WING WITH PILE THAT HAS WING LENGTH IN THIS REGION, USE VALUES FOR 11'-6" WING HEIGHT.)



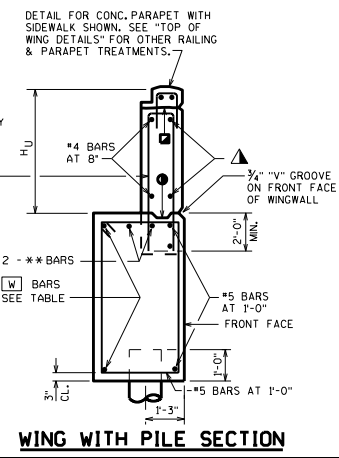
WING WITHOUT PILE ELEVATION
(BACK FACE)



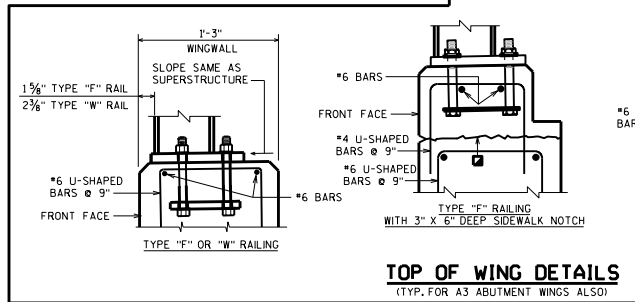
WING WITH PILE ELEVATION
(BACK FACE)



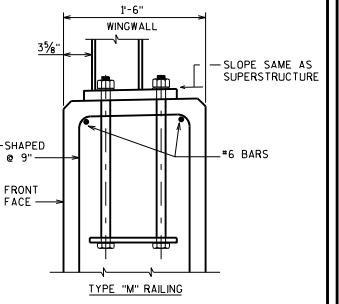
WING WITHOUT PILE SECTION



WING WITH PILE SECTION



TOP OF WING DETAILS
(TYP. FOR A3 ABUTMENT WINGS ALSO)



ABUTMENT TYPE A1

** BARS TO BE SAME SIZE AS "W" BARS.

☑ CONSTRUCTION JOINT, LEAVE ROUGH, REQUIRED FOR PRESTRESSED CONCRETE SUPERSTRUCTURES. OPTIONAL FOR OTHERS. POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE.

▲ USE #4 BARS @ 1'-6" FOR WINGWALL WIDTH = 1'-3". USE #4 BARS @ 1'-4" FOR WINGWALL WIDTH = 1'-5".

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker* DATE: 7-11

DESIGNER NOTES

THIS TYPE OF WING SHOULD BE USED WHEN POSSIBLE IN LIEU OF WINGS PARALLEL TO THE ROADWAY. DO NOT USE FOR STREAM CROSSINGS WHERE HIGH WATER MAY BE A PROBLEM.

*USE 2 1/2:1 FOR THE UNSTABLE CLAYS WHICH ARE SOMETIMES ENCOUNTERED IN NORTHWEST WISC. (SUPERIOR AREA)

① WHEN TIMBER RAILING IS USED AS PER STANDARD 30.24, AND THE SKEW IS > 0°, THIS CONSTRUCTION JOINT SHALL BE MANDATORY. THE WING CONCRETE SHALL BE PLACED ABOVE CONSTR. JT. AFTER THE TIMBER END POSTS ARE IN PLACE.

ALL WING BARS SHALL BE EPOXY COATED.

LRFD DESIGN LOADS (WINGS)

LIVE LOAD = 1'-0" SURCHARGE

LOAD FACTORS:

$\gamma_{DC} = 1.25$

$\gamma_{SW} = 1.50$

$\gamma_{L} = 1.75$

EXPOSURE CLASS 2, $\gamma_{F} = 0.75$

HORIZ. EARTH LOAD BASED ON: 35 P.C.F. EQUIV. FLUID UNIT

WEIGHT OF SOIL

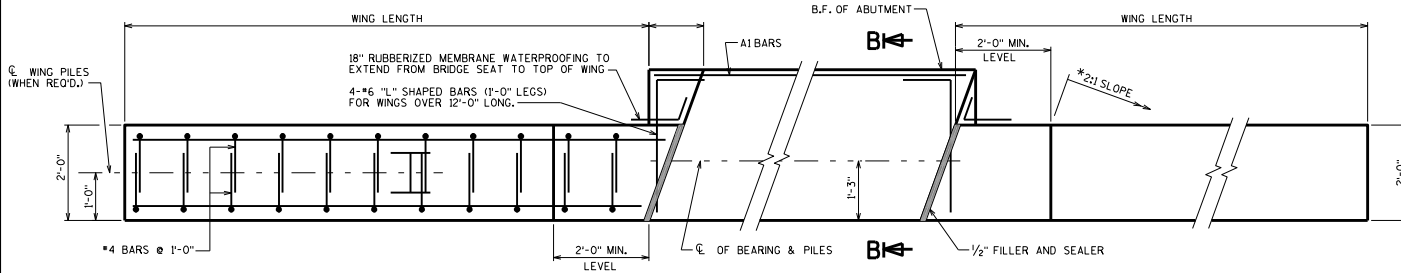
$F_y = 60,000$ P.S.I.

$F_c = 3,500$ P.S.I.

TABLE A

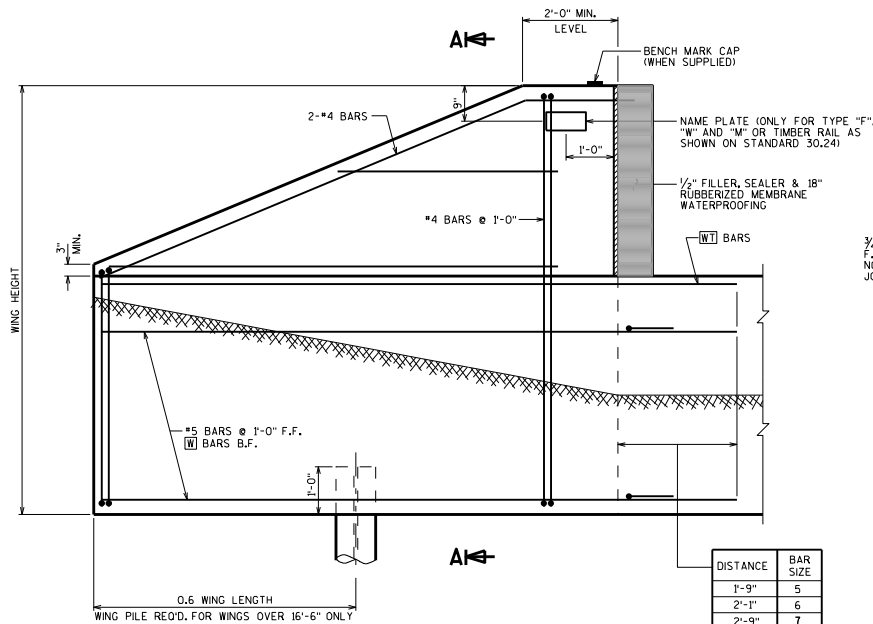
WING LENGTH	WING HEIGHT				BARS
	8'-6"	10'-0"	11'-6"	13'-0"	
5'-9"	5-#5's	5-#5's	6-#5's		W
10'-0"	2-#5's	2-#5's	2-#5's		WT
	4-#6's	4-#6's	5-#6's		A1
12'-0"		5-#6's	5-#7's	6-#7's	W
		2-#7's	2-#7's	2-#8's	WT
		5-#6's	6-#6's	6-#7's	A1
15'-0"		5-#8's	6-#8's	5-#9's	W
		2-#8's	2-#8's	2-#9's	WT
20'-0"		5-#8's	6-#8's	7-#8's	A1
			8-#8's	8-#9's	W
			2-#9's	2-#9's	WT
			7-#9's	8-#9's	A1

▲ WING PILE REQUIRED



PLAN FOR TYPE A1 ABUTMENT

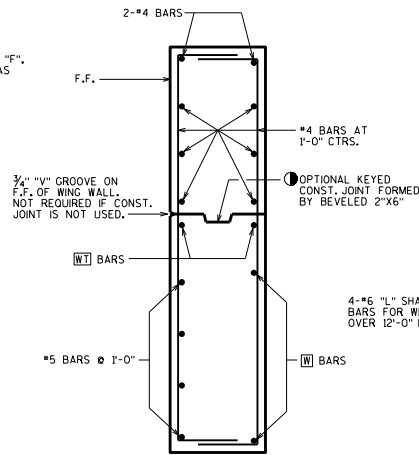
(SEE STD. 12.01 FOR ABUTMENT BODY DETAILS)



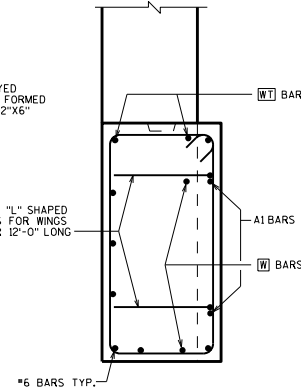
WING ELEVATION

(A1 ABUTMENT)

DISTANCE	BAR SIZE
1'-9"	5
2'-1"	6
2'-9"	7
3'-8"	8
4'-7"	9



SECTION A-A



SECTION B-B

SEE STD. 12.01 & 12.02 FOR NOTES & DETAILS

DETAILS FOR WINGS PARALLEL TO A1 ABUTMENT CENTERLINE

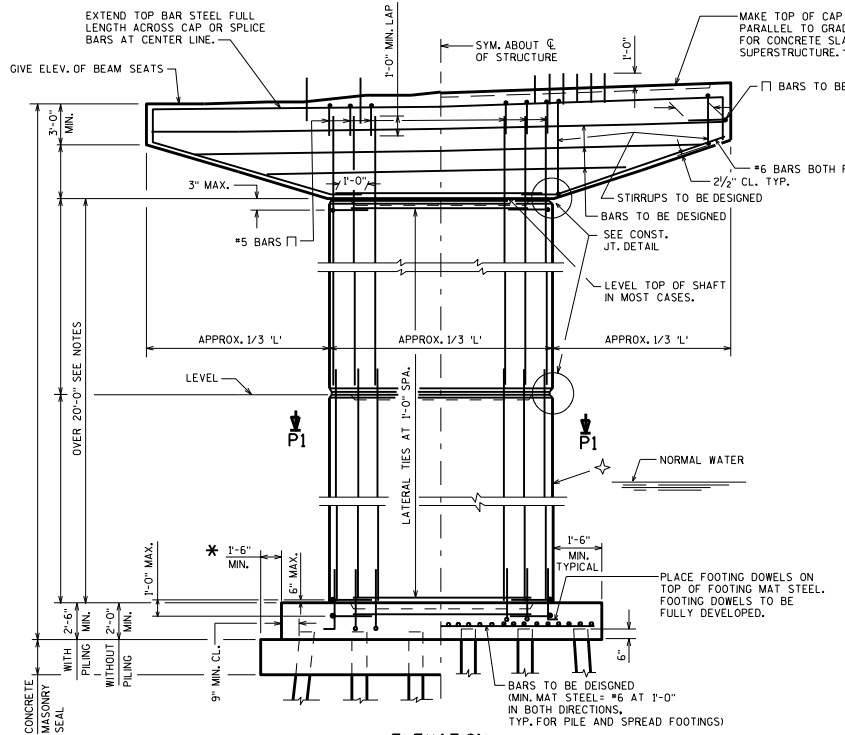
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: Scot Becker

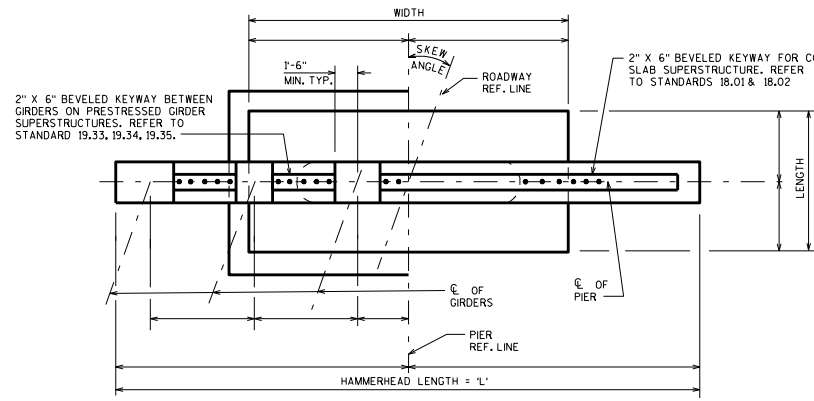
DATE:
7-11

GIRDER STRUCTURES

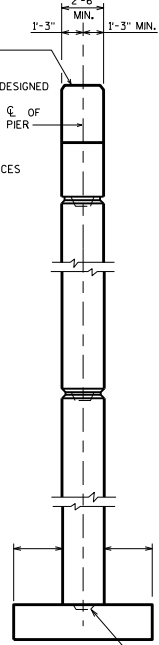
CONCRETE SLAB STRUCTURES



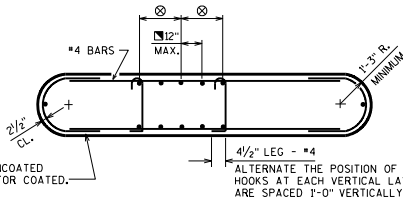
ELEVATION
LOOKING UP STATION



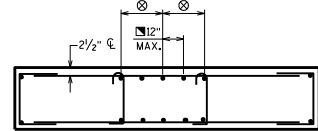
PLAN



END VIEW



SECTION P1

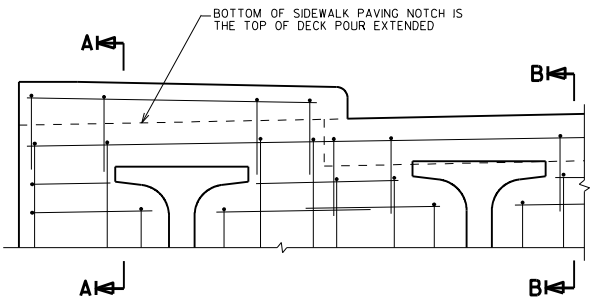


ALTERNATE SECTION P1

GENERAL NOTES

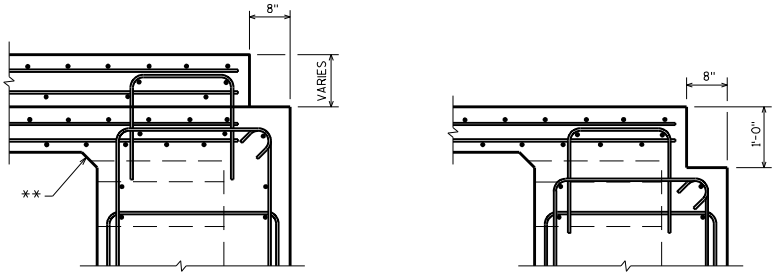
- ALL BAR SPLICES TO BE BASED ON "CLASS C" TENSION LAP SPLICE.
- OPTIONAL KEYED CONSTRUCTION JOINTS IN SHAFT SHALL BE PLACED APPROXIMATELY 2'-0" ABOVE NORMAL WATER ELEVATION. OPTIONAL KEYED CONSTRUCTION JOINT IN SHAFT SHALL BE USED IN ORDER THAT MAXIMUM HEIGHT OF POUR DOES NOT EXCEED 20 FEET. RUSTICATIONS SHOWN IN "CONST. JT. DETAIL" MAY BE OMITTED AT THE OPTION OF THE DESIGNER.
- KEYED CONSTRUCTION JOINTS SHALL BE FORMED BY BEVELED KEYWAY 4" DEEP X 1/3 THICKNESS OF SHAFT X 4'-0" LESS THAN LENGTH OF SHAFT.
- ✦ A STANDARD SHAFT TAPER OF 10% MAY BE USED AT THE OPTION OF THE DESIGNER. (LATERAL DIRECTION ONLY)
- SHAFT MAY BE TAPERED IN ONE OR TWO DIRECTIONS WHEN REQUIRED FOR STRUCTURAL REASONS.
- A NON-STANDARD SHAFT CROSS-SECTION, SHAPE, OR TAPER, NOT REQUIRED FOR STRUCTURAL REASONS, MAY BE USED ONLY WITH THE APPROVAL OF THE STRUCTURES DESIGN SECTION.
- SEE STANDARD 12.01 FOR ADDITIONAL REINFORCING STEEL IN BEARING AREA FOR BEAM SEATS OF NON-SLOPED CAPS THAT ARE 4 INCHES OR MORE ABOVE THE LOWEST BEAM SEAT.
- THIS MAXIMUM VERT. BAR SPACING APPLIES ONLY WHEN THE VERTICAL REINFORCEMENT IS 1/2 OR MORE OF THE GROSS CONCRETE AREA.
- SEE STANDARD 13.01 FOR MINIMUM OFFSETS FROM BEARINGS TO SIDES OF CAP AND TO ADJACENT BEARING SEAT STEPS.
- EPOXY COAT BAR STEEL DOWN TO TOP OF FOOTINGS IN ALL PIERS UNDER EXPANSION JOINTS AND ON ALL PIERS AT GRADE SEPARATIONS.
- * INCREASE THIS DIMENSION IF NECESSARY TO PREVENT BATTERED PILES FROM DRIVING INTO SHEET PILING. ALSO INCREASE DIMENSION TO FACILITATE OVERHEAD SHEETING CLEARANCE IF THE TOP OF PIER IS BEYOND NORMAL SEAL SIZE AND NO CONSTRUCTION JOINT IS PROVIDED IN THE SHAFT/CAP REGION (E.G. TAPERED WALL PIERS OR SHORTER HAMMERHEADS WITH RADIUS TRANSITION FROM SHAFT TO CAP).
- ⊗ MAXIMUM SPACING BETWEEN UNRESTRAINED VERTICAL BAR AND RESTRAINED (TIED ACROSS MEMBER) VERTICAL BAR IS 24 INCHES

HAMMERHEAD PIER	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: <i>Scot Becker</i>	DATE: 7-11



**PART TRANSVERSE SECTION AT ABUTMENT
TYPE A1 DIAPHRAGM WITH A RAISED SIDEWALK**

(HORIZ. BARS SHOWN ARE THE FF BARS.
DECK REINFORCEMENT NOT SHOWN FOR CLARITY.)

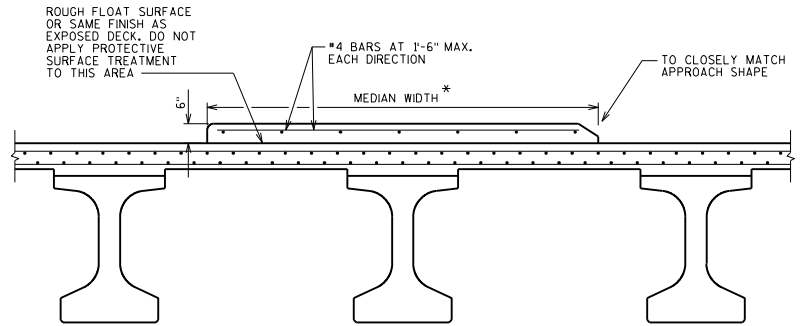


SECTION A-A

SECTION B-B

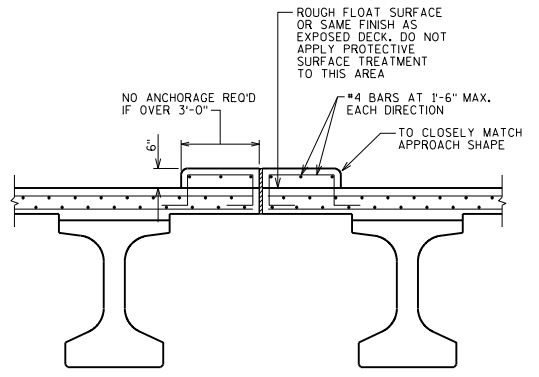
** 3" X 3" BEVEL ENDS AT EDGE OF BRIDGE DECK

- SEE STANDARDS 19.33, 19.34, 19.35 FOR REINFORCEMENT DETAILS
- DETAILS SHOWN ARE FOR GIRDER STRUCTURES. SIMILAR REINFORCEMENT FOR SLAB STRUCTURES SHALL BE USED WITH A REMINDER THAT THE TRANSVERSE AND LONGITUDINAL REINFORCEMENT LAYERS ARE REVERSED.

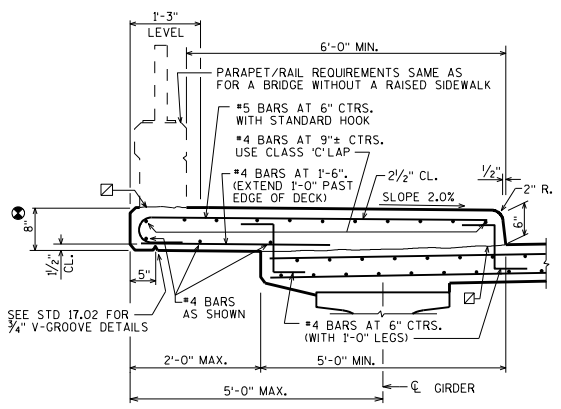


CROSS SECTION THRU UNANCHORED MEDIAN

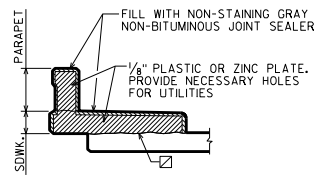
* (ANCHORAGE TO DECK NOT REQUIRED FOR WIDTHS > 3'-0")
CLEAN ALL LOOSE MATERIAL ON THE DECK AT THE MEDIAN LOCATION PRIOR TO MEDIAN PLACEMENT USING HIGH PRESSURE WATER OR AIR, ENSURING ALL FREE-STANDING WATER IS REMOVED PRIOR TO MEDIAN PLACEMENT. NEAT CEMENT IS REQUIRED AS PER 509.3.8.2 OF THE STANDARD SPECIFICATIONS UNLESS THE MEDIAN IS POURED WITHIN 45 DAYS OF COMPLETING THE DECK POUR.



CROSS SECTION THRU ANCHORED MEDIAN



SECTION THRU SIDEWALK



DEFLECTION JOINT DETAIL

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

NOTES

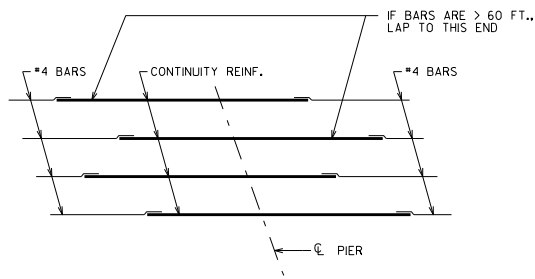
WHEN PARAPETS ARE POURED CONTINUOUSLY FROM END TO END, THEY SHALL BE SEPARATED AT THE DEFLECTION JOINTS BY A "PIECE OF 1/8" ZINC OR PLASTIC PLATE CUT AS SHOWN IN THE "DEFLECTION JOINT DETAIL". IF CONSTRUCTION JOINTS IN PARAPETS ARE USED AT THE DEFLECTION JOINTS, ONE SIDE OF JOINT SHALL BE COATED WITH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

- ☑ CONST. JOINT-STRIKE OFF AS SHOWN AND LEAVE ROUGH FOR DECK POUR, MATCH BRIDGE X-SLOPE.
- ⊙ 8" MIN. SIDEWALK THICKNESS ALSO REQ'D AT EDGE OF DECK/SLAB.

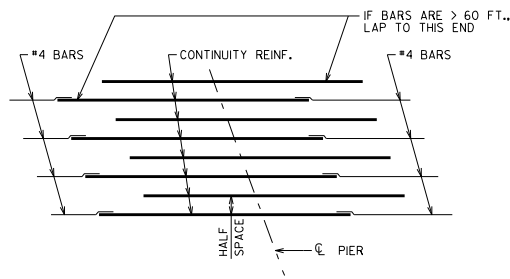
DESIGNER NOTES

FOR EXTREME SIDEWALK WIDTHS AND/OR SUPERELEVATIONS THE DECK MAY BE LEVEL BENEATH THE SIDEWALK (MAINTAIN CONSTANT DECK THICKNESS) TO REDUCE EXCESSIVE SIDEWALK THICKNESS.

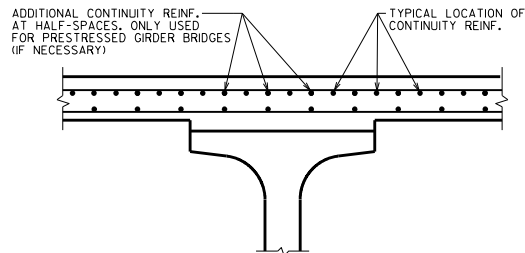
MEDIAN AND RAISED SIDEWALK DETAILS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: <i>Scot Becker</i>	DATE: 7-11



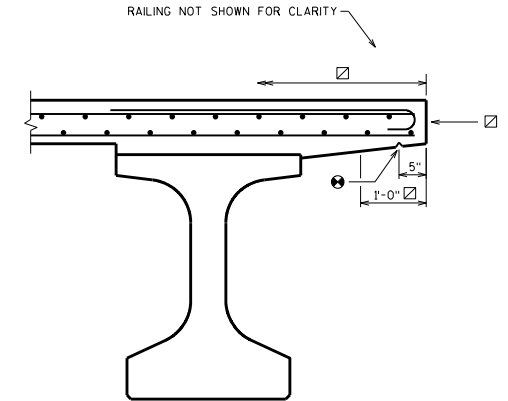
PLAN VIEW OF DECK CONTINUITY REINFORCEMENT FOR PRESTRESSED GIRDER BRIDGES
(SHOWING TYPICAL BAR SPACING FROM CHAPTER 17 TABLES)



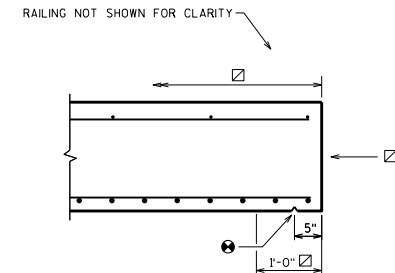
PLAN VIEW OF DECK CONTINUITY REINFORCEMENT FOR PRESTRESSED GIRDER BRIDGES SHOWING HALF-SPACES
(SHOWING TYPICAL BAR SPACING FROM CHAPTER 17 TABLES + HALF-SPACE)



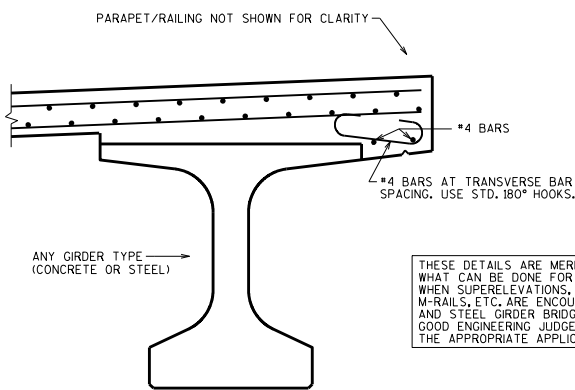
CROSS SECTION THRU DECK
(SHOWING TOP LONGIT. REINF. LOCATION RELATIVE TO BOTTOM LONGIT. REINF.)



CROSS SECTION THRU EDGE OF DECK
(SHOWING DRIP GROOVE FOR ALL PARAPET AND RAILINGS, AND PROTECTIVE SURFACE TREATMENT FOR OPEN RAILINGS)

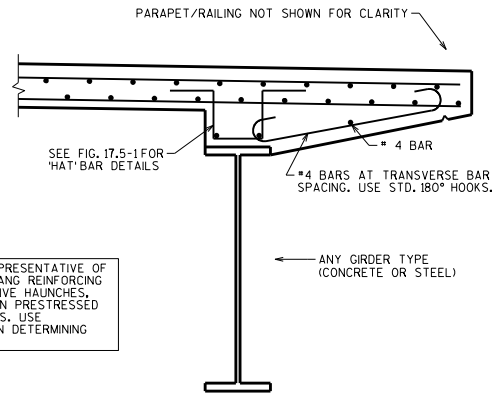


CROSS SECTION THRU EDGE OF SLAB
(SHOWING DRIP GROOVE FOR ALL PARAPET AND RAILINGS, AND PROTECTIVE SURFACE TREATMENT FOR OPEN RAILINGS)



CROSS SECTION THRU EDGE OF DECK
(SHOWING ADDITIONAL OVERHANG REINFORCEMENT)

THESE DETAILS ARE MERELY REPRESENTATIVE OF WHAT CAN BE DONE FOR OVERHANG REINFORCING WHEN SUPERELEVATIONS, EXCESSIVE HAUNCHES, M-RAILS, ETC. ARE ENCOUNTERED ON PRESTRESSED AND STEEL GIRDER BRIDGE DECKS. USE GOOD ENGINEERING JUDGEMENT IN DETERMINING THE APPROPRIATE APPLICATION.



CROSS SECTION THRU EDGE OF DECK
(SHOWING ADDITIONAL OVERHANG REINFORCEMENT)

LEGEND

- ⊗ 3/4" V-GROOVE, TERMINATE 2'-0" FROM FRONT FACE OF EXPANSION ABUTMENTS, OR FIXED ABUTMENTS ON STEEL BEARINGS.
- EXTEND V-GROOVE TO THE FILLET ADJACENT TO TYPE A1 FIXED AND SEMI-EXPANSION ABUTMENTS.
- V-GROOVES ARE REQUIRED.
- ⊗ FOR OPEN RAILINGS, COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS.

PLAN NOTES

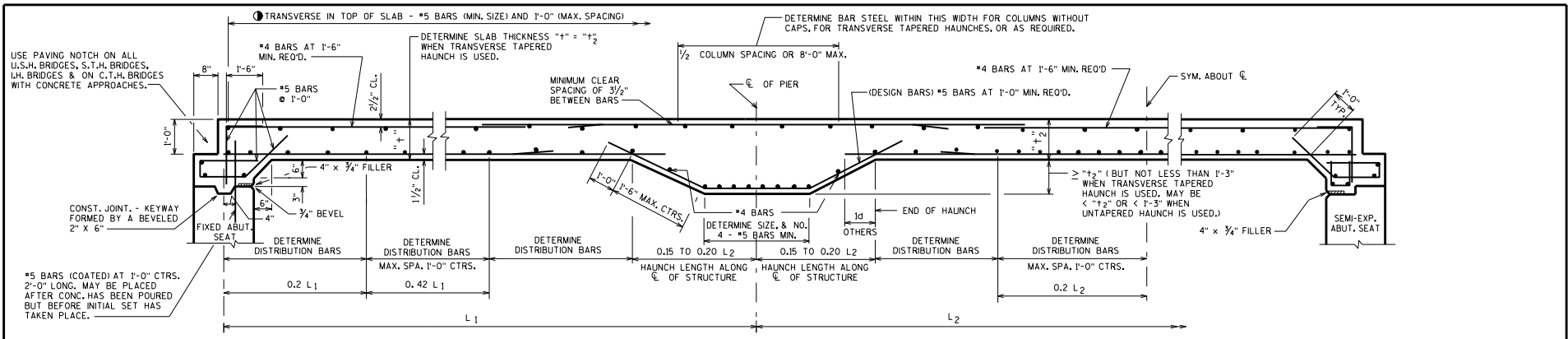
- ⊗ 3/4" V-GROOVE, TERMINATE 2'-0" FROM FRONT FACE OF ABUTMENTS.
- EXTEND V-GROOVE TO THE FILLET ADJACENT TO THE ABUTMENTS.
- V-GROOVES ARE REQUIRED.
- ⊗ COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS.

DECK AND SLAB DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: Scot Becker

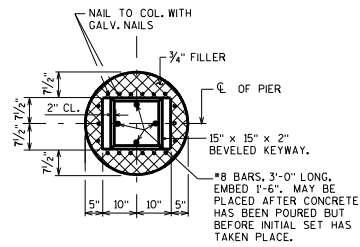
DATE:
7-11



GENERAL NOTES

- TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.
- ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).
- PARAPETS, SIDEWALKS AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED, EXCEPT FOR STAGED CONSTRUCTION.
- CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

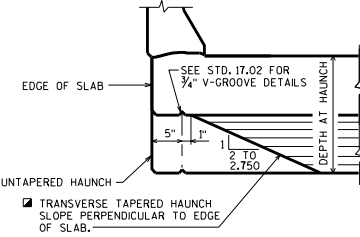
**COLUMN W/O CAP TYPE PIER
DETAIL AT TOP OF COLUMN**



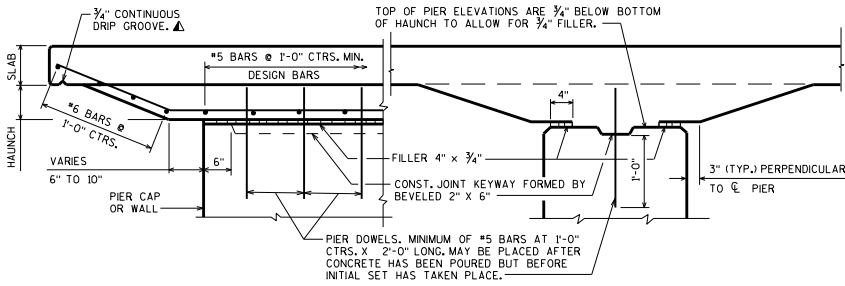
DESIGNER NOTES

- THE MAXIMUM ALLOWABLE SKEW ANGLE OF STRUCTURE SHALL BE 30°.
- ALL BAR SPLICES TO BE BASED ON "CLASS C" TENSION LAP SPLICE.
- USE OPTIONAL LONGITUDINAL JOINTS WHEN OVERALL SLAB WIDTH IS OVER 52'-0". SEE STANDARD 18.02 FOR DETAIL.
- FOR BRIDGES LOCATED IN REMOTE AREAS USE OPTIONAL TRANSVERSE JOINT WHEN POUR EXCEEDS 400 C.Y. PLACE KEYED JOINT NEAR POINT OF DEAD LOAD INFLECTION.
- ALL TRANSVERSE BAR STEEL REINFORCEMENT SHALL BE PLACED ON THE SKEW.
- FLOOR DRAINS ARE TO BE OMITTED FROM SLAB STRUCTURES WHERE POSSIBLE. IF FLOOR DRAINS ARE REQUIRED, PLACE ONLY AT THE 2/10 AND 8/10 PTS. BEND MAIN REBARS PAST DRAINS - DO NOT CUT.
- PIER CAP OR WALL TYPE PIERS SHALL BE USED ON MOST STRUCTURES. "COLUMN WITHOUT CAP" TYPE PIERS MAY BE USED WITH THE APPROVAL OF THE STRUCTURES DESIGN SECTION.
- ON THE PLANS, PROVIDE CAMBER VALUES AT THE TENTH POINTS OF ALL SPANS. ALSO PROVIDE TOP OF SLAB ELEVATIONS AT THE CENTERLINE (AND/OR CROWN) AND OUTSIDE EDGES OF SLAB AT TENTH POINTS.
- TRANSVERSE TAPERED HAUNCHES MAY BE USED TO ELIMINATE A COLUMN (PROVIDED A MINIMUM OF 3 COLUMNS ARE USED), OR FOR AESTHETICS.

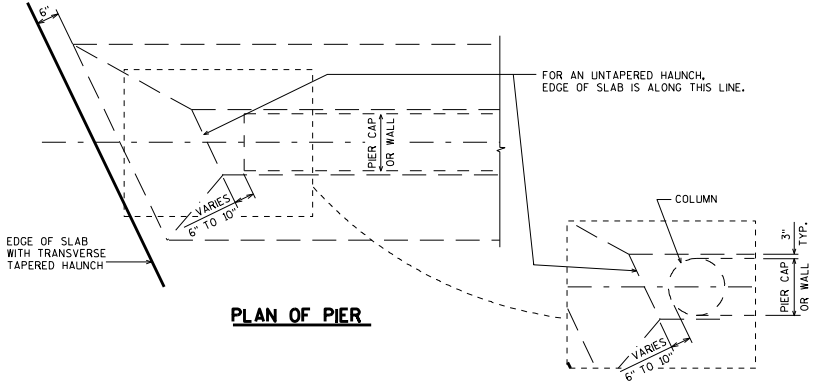
**TAPERED/UNTAPERED HAUNCH
CROSS SECTION**



**PIER CAP OR WALL TYPE PIER
SHOWING TRANSVERSE TAPERED HAUNCH**



PLAN OF PIER

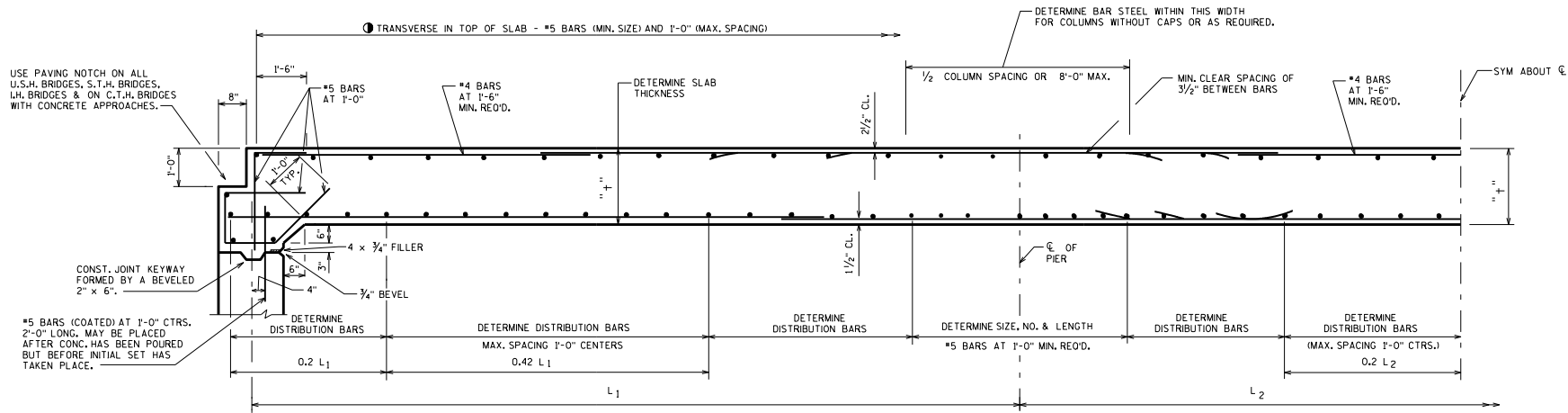


TOP TRANSVERSE REINF. FOR RAILINGS/PARAPETS		
SLOPED FACE PARAPETS LF/HF/5IF	MAIN BARS RUN FROM EDGE TO EDGE OF SLAB	SHORT BARS PLACED BETWEEN MAIN BARS AT EDGE OF SLAB
SLAB THICK. ≥ 15"	(#5 @ 1'-0")	(#5 @ 1'-0") 4'-9" LONG NO HOOK REQ'D. AT END
13" ≤ SLAB THICK. < 15"	(#5 @ 10")	(#5 @ 10") 4'-9" LONG STD. HOOK REQ'D. AT END
STEEL RAILINGS TYPE "M"/"W"	TOP TRANSVERSE REINF. SPECIFIED IN "LONGIT. SECTION" IS ADEQUATE	

CONTINUOUS HAUNCHED SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: Scot Becker DATE: 7-11



HALF LONGITUDINAL SECTION

GENERAL NOTES

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

PARAPETS, SIDEWALKS AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED, EXCEPT FOR STAGED CONSTRUCTION.

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

DESIGNER NOTES

THE MAXIMUM ALLOWABLE SKEW ANGLE OF STRUCTURE SHALL BE 30°.

ALL BAR SPLICES TO BE BASED ON "CLASS C" TENSION LAP SPLICE.

USE OPTIONAL LONGITUDINAL JOINTS WHEN OVERALL SLAB WIDTH IS OVER 52'-0".

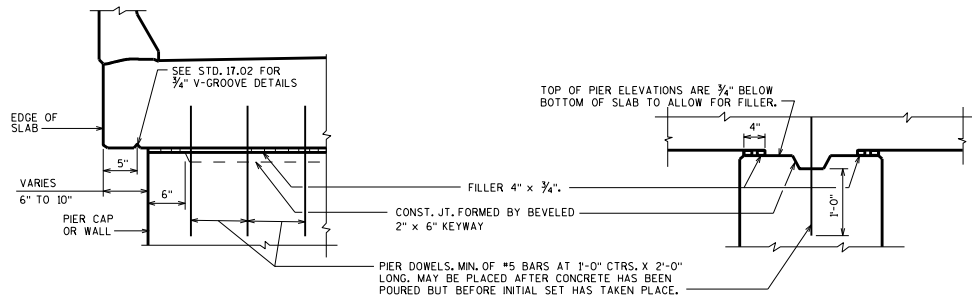
FOR BRIDGES LOCATED IN REMOTE AREAS USE OPTIONAL TRANSVERSE JOINT WHEN POUR EXCEEDS 400 C.Y. PLACE KEYED JOINT NEAR POINT OF DEAD LOAD INFLECTION.

ALL TRANSVERSE BAR STEEL REINFORCEMENT SHALL BE PLACED ON THE SKEW.

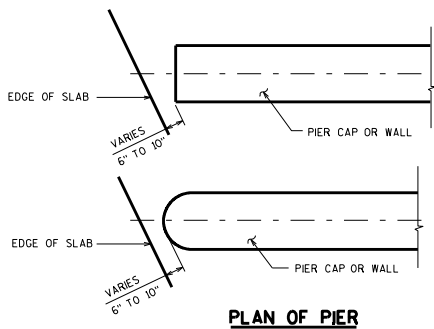
FLOOR DRAINS ARE TO BE OMITTED FROM SLAB STRUCTURES WHERE POSSIBLE. IF FLOOR DRAINS ARE REQUIRED, PLACE ONLY AT THE 2/10 AND 8/10 PTS. BEND MAIN REBARS PAST DRAINS - DO NOT CUT.

PIER CAP OR WALL TYPE PIERS SHALL BE USED ON MOST STRUCTURES. "COLUMN WITHOUT CAP" TYPE PIERS (SEE STD. 18.01) MAY BE USED WITH THE APPROVAL OF THE STRUCTURES DESIGN SECTION.

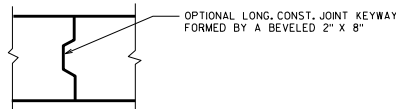
ON THE PLANS, PROVIDE CAMBER VALUES AT THE TENTH POINTS OF ALL SPANS. ALSO PROVIDE TOP OF SLAB ELEVATIONS AT THE CENTERLINE (AND/OR CROWN) AND OUTSIDE EDGES OF SLAB AT TENTH POINTS.



PIER CAP OR WALL TYPE PIER
SEE STD. 18.01 FOR COLUMN W/O CAP PIER DETAIL.



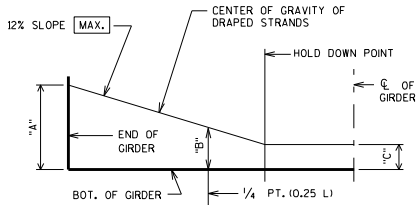
PLAN OF PIER



OPTIONAL LONGITUDINAL CONSTRUCTION JOINT

TOP TRANSVERSE REINF. FOR RAILINGS/PARAPETS		
SLOPED FACE PARAPETS LF/HF/5IF	MAIN BARS RUN FROM EDGE TO EDGE OF SLAB	SHORT BARS PLACED BETWEEN MAIN BARS AT EDGE OF SLAB
SLAB THICK. ≥ 15"	(#5 @ 1'-0")	(#5 @ 1'-0") 4'-9" LONG NO HOOK REQ'D. AT END
13" ≤ SLAB THICK. < 15"	(#5 @ 10")	(#5 @ 10") 4'-9" LONG STD. HOOK REQ'D. AT END
STEEL RAILINGS TYPE "M"/"W"	TOP TRANSVERSE REINF. SPECIFIED IN "LONGIT. SECTION" IS ADEQUATE	

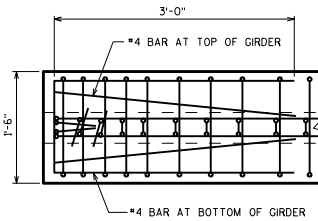
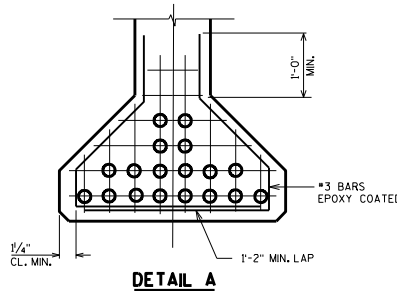
CONTINUOUS FLAT SLAB	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: <i>Scot Becker</i>	DATE: 7-11



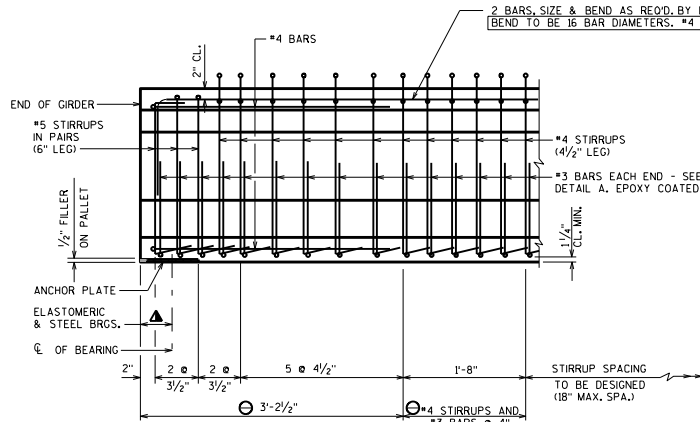
"A" TO BE GIVEN TO THE NEAREST 1"
 "B" = $\frac{1}{4}("A" + 3 "C")$ [MIN]
 "B" = $\frac{1}{4}("A" + 3 "C") + 3"$ [MAX]

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

LOCATION OF DRAPED STRANDS



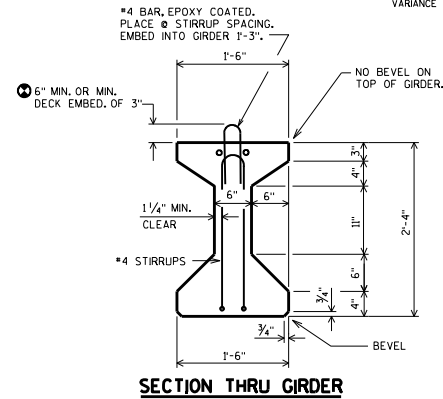
PLAN VIEW



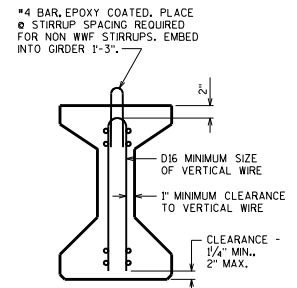
SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

SIDE VIEW OF GIRDER

SUPPORT WITH 1/2" ELASTOMERIC BRG. PAD



SECTION THRU GIRDER



SECTION THRU GIRDER
 SHOWING WELDED WIRE FABRIC (W/WF) STIRRUPS

GENERAL NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BONDING TO THE SLAB, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL BE TROWEL FINISHED.

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

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. IF THE FABRICATOR WANTS TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, THE FOLLOWING ONE OPTION IS AVAILABLE:

USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (W/WF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT CHIEF, 1608/266-5161.

DESIGNER NOTES

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE 12B-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"φ STRAND FOR THE DRAPED PATTERN. THE MAX. NUMBER OF DRAPED 0.5"φ STRANDS IS 8. USE 0.6"φ FOR THE STRAIGHT PATTERN.

REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE 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. PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES IS REQUIRED IF DESIGN OF THE END REINFORCEMENT IS REQUIRED.

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

⊙ DETAIL TYPICAL AT EACH END.

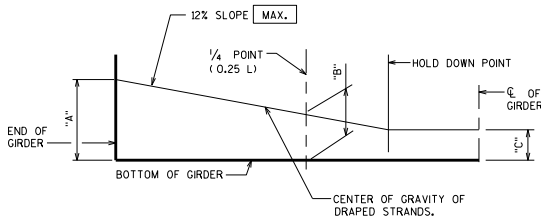
⊙ THE DESIGN ENGINEER DETERMINES THIS VALUE BASED ON 2" MIN. HAUNCH AT EDGE OF GIRDER, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL GIRDER CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.4. THIS VALUE CAN VARY AND SHOULD BE GIVEN FOR EACH 1/3 OF THE GIRDER LENGTH. PROVIDE VALUES THAT MAINTAIN 3"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

28" PRESTRESSED GIRDER DETAILS

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker*

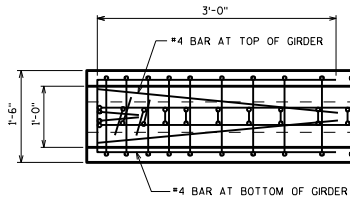
DATE:
 7-11



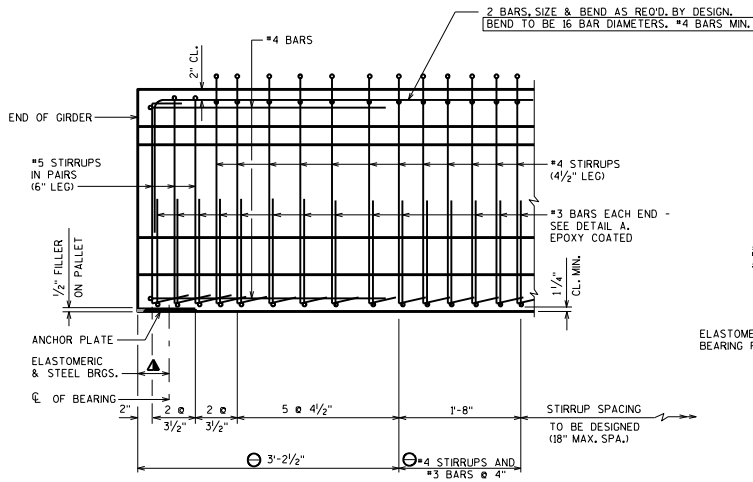
"A" TO BE GIVEN TO THE NEAREST 1"
 "B" = $1/4(A + 3 \cdot C)$ (MIN.)
 "B" = $1/4(A + 3 \cdot C) + 3$ (MAX.)

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

LOCATION OF DRAPED STRANDS

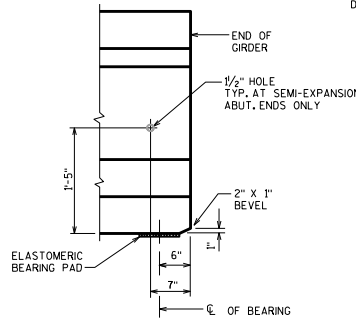


PLAN VIEW

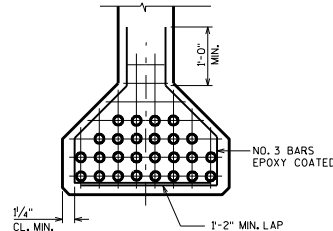


SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

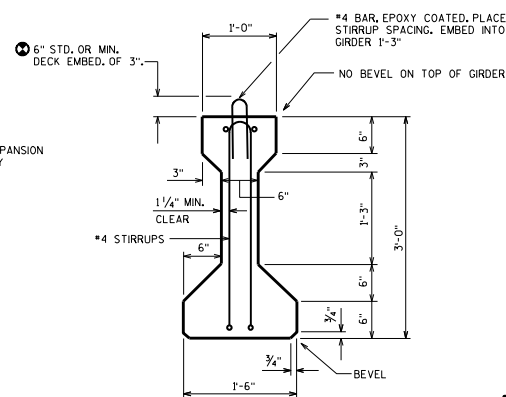
SIDE VIEW OF GIRDER



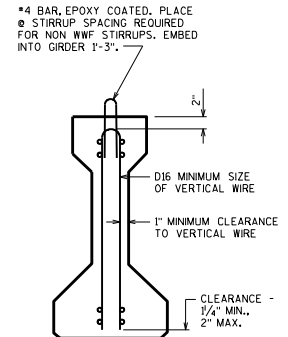
SUPPORT WITH 1/2" ELASTOMERIC BRG. PAD



DETAIL A



SECTION THRU GIRDER



SECTION THRU GIRDER

SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS

GENERAL NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BONDING TO THE SLAB, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL BE TROWEL FINISHED.

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

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. IF THE FABRICATOR WANTS TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, THE FOLLOWING ONE OPTION IS AVAILABLE:

USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT CHIEF, 1608266-5161.

DESIGNER NOTES

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE 136-INCH".

SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSL TO A MAX. OF 8,000 PSL. MAXIMUM RELEASE STRENGTH IS 6800 PSL. USE ONLY 0.5" STRAND FOR THE DRAPED PATTERN. THE MAX. NUMBER OF DRAPED 0.5" STRANDS IS 8. USE 0.6" FOR THE STRAIGHT PATTERN.

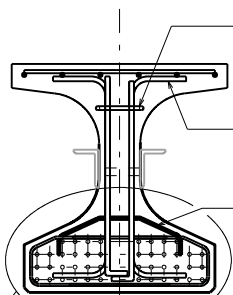
REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STRAND PATTERNS LISTED ON STANDARD 19.04 AND THE SPAN LENGTHS SHOWN IN TABLE 19.3-1. USING DIFFERENT STRAND PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT. PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES IS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

- ▲ 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 2 1/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR 3/4" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

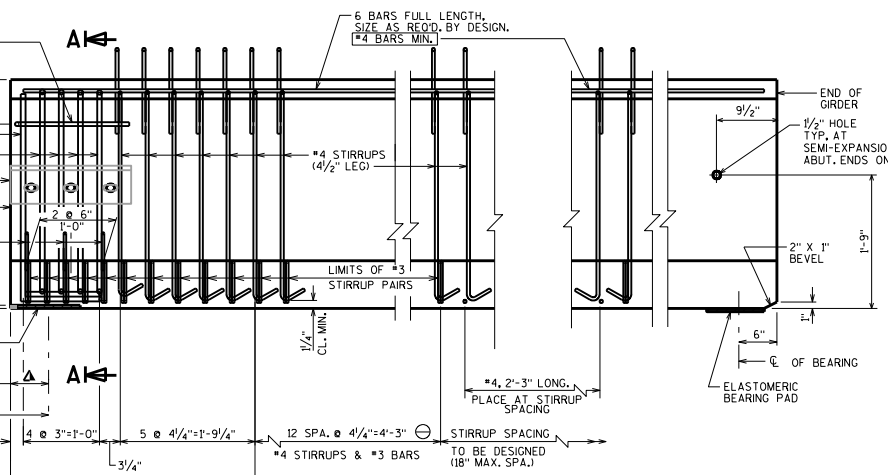
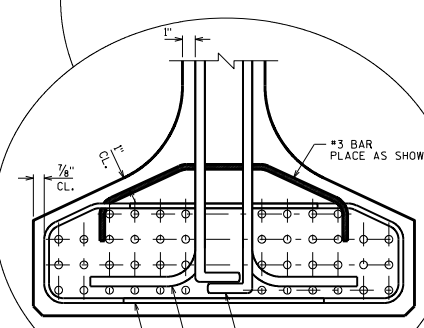
36" PRESTRESSED GIRDER DETAILS

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 STRUCTURES DEVELOPMENT SECTION

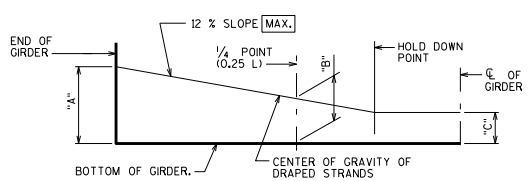
APPROVED: *Scot Becker* DATE: 7-11



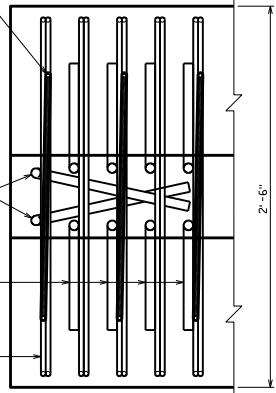
SECTION A-A



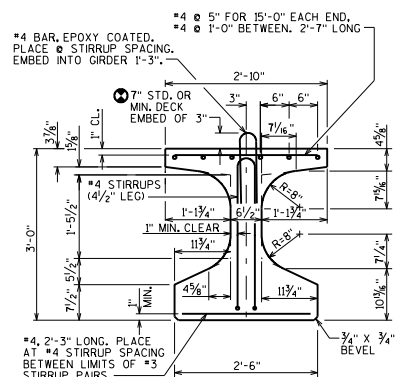
SUPPORT WITH STEEL OR ELASTOMERIC BRGS.



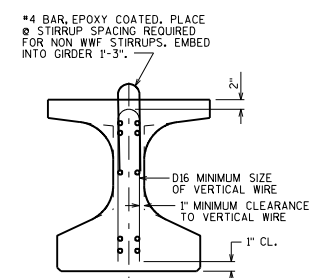
LOCATION OF DRAPED STRANDS



**DETAIL A
BOTTOM FLANGE**



**SECTION THRU GIRDER
STRANDS NOT SHOWN**



**SECTION THRU GIRDER
SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS**

GENERAL NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BONDING TO THE SLAB, EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

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. IF THE FABRICATOR WANTS TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, THE FOLLOWING ONE OPTION IS AVAILABLE:

USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT CHIEF, (1608)266-5361.

DESIGNER NOTES

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

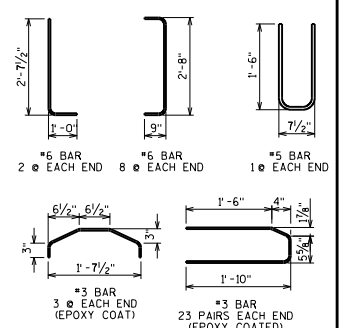
SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI. MAXIMUM RELEASE STRENGTH IS 6800 PSI. USE 0.6" STRAND FOR ALL PATTERNS. THE MAX. NUMBER OF DRAPED 0.6" STRANDS IS 8.

REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STRAND PATTERNS LISTED ON STANDARD 19.12 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. PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES IS REQUIRED IF DESIGN OF THE END REINFORCEMENT IS REQUIRED.

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

DETAIL TYPICAL AT EACH END

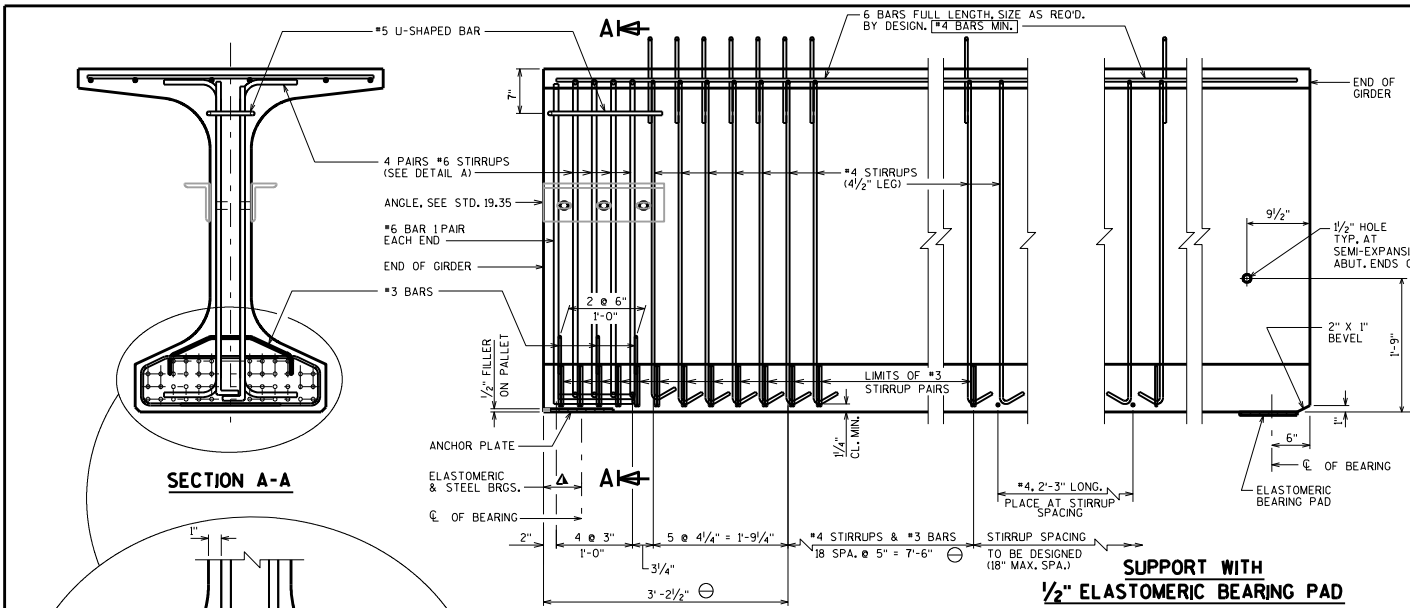
THE DESIGN ENGINEER DETERMINES THIS VALUE BASED ON 2" MIN. HAUNCH AT EDGE OF GIRDER, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL GIRDER CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.4. THIS VALUE CAN VARY AND SHOULD BE GIVEN FOR EACH 1/2" OF THE GIRDER LENGTH. PROVIDE VALUES THAT MAINTAIN 3" MIN. DECK EMBEDMENT AND 2 1/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ± 3/4" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.



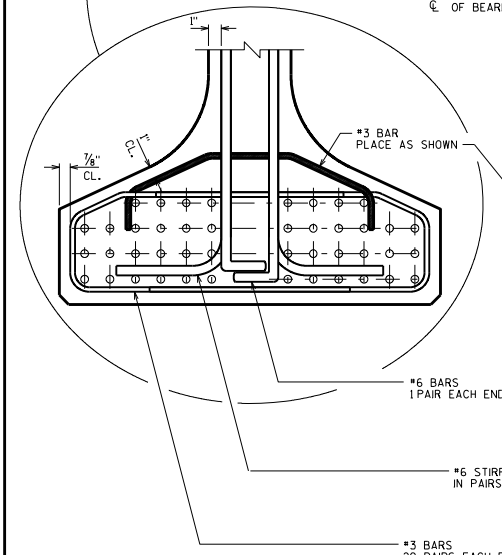
36" W PRESTRESSED GIRDER DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

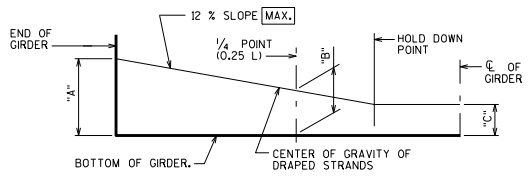
APPROVED: *Scot Becker* DATE: 7-11



SECTION A-A



SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

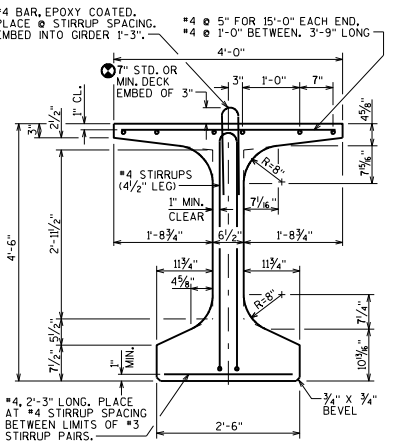


SUPPORT WITH 1/2" ELASTOMERIC BEARING PAD

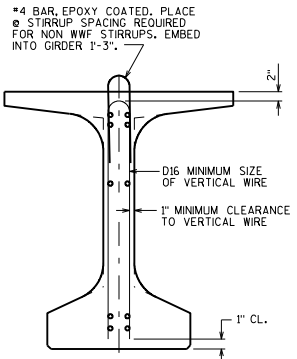
"A" TO BE GIVEN TO THE NEAREST 1"
 "B" = 1/4"A" + 3 "C" [MIN.]
 "B" = 1/4"A" + 3 "C" + 3" [MAX.]

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

LOCATION OF DRAPED STRANDS



SECTION THRU GIRDER STRANDS NOT SHOWN



SECTION THRU GIRDER SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS

GENERAL NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BONDING TO THE SLAB, EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

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. IF THE FABRICATOR WANTS TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, THE FOLLOWING ONE OPTION IS AVAILABLE:

USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT CHIEF, (608)266-5361.

DESIGNER NOTES

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 54W-INCH".

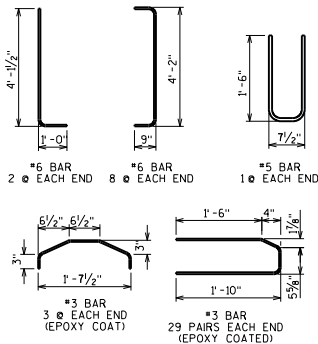
SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI. MAXIMUM RELEASE STRENGTH IS 6800 PSI. USE 0.6" STRAND FOR ALL PATTERNS. THE MAX. NUMBER OF DRAPED 0.6" STRANDS IS 8.

REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STRAND PATTERNS LISTED ON STANDARD 1916 AND THE SPAN LENGTHS SHOWN IN TABLE 19.3-2. USING DIFFERENT STRAND PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT. PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES IS REQUIRED IF DESIGN OF THE END REINFORCEMENT IS REQUIRED.

▲ 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. LAUNCH 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 2 1/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ±3/4" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

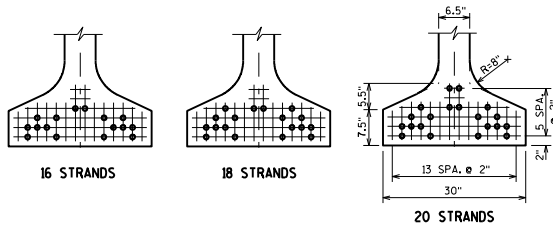


54W" PRESTRESSED GIRDER DETAILS

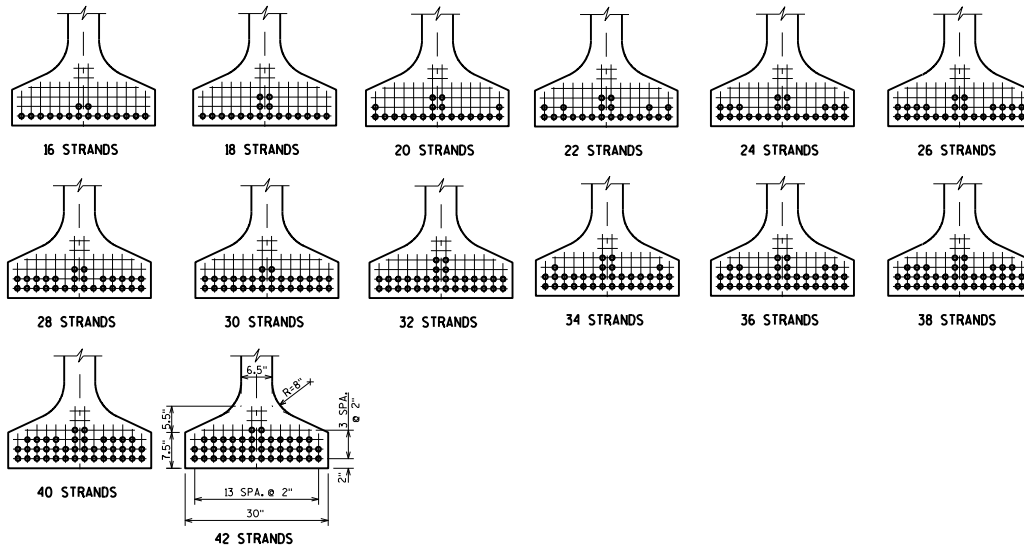
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker*

DATE: 7-11



**STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY
TO AVOID DRAPING OF 0.6"Ø STRANDS**



ARRANGEMENT AT $\frac{1}{4}$ SPAN - FOR GIRDERS WITH DRAPED 0.6"Ø STRANDS

54W GIRDER

A = 798 SQ. IN.
 $r^2 = 402.41 \text{ IN.}^2$
 $y_T = 27.70 \text{ IN.}$
 $y_B = -26.30 \text{ IN.}$
 $I = 321,049 \text{ IN.}^4$
 $S_T = 11,592 \text{ IN.}^3$
 $S_B = -12,205 \text{ IN.}^3$
 WT. = 831 #/FT.

PRE-TENSION

$f'_s = 270,000 \text{ P.S.I.}$
 $f_s = 0.75 \times 270,000 = 202,500 \text{ P.S.I.}$
 for low relaxation strands

Pi PER 0.6" Ø STRAND = $0.217 \times 202,500 = 43.94 \text{ KIPS}$

$$\frac{y_B}{r^2} = \frac{-26.30}{402.41} = -0.06536 \text{ in/in}^2$$

$$f_B (\text{init.}) = \frac{A_s f_s}{A} (1 + \frac{e_s y_B}{r^2})$$

(COMPRESSION IS POSITIVE)

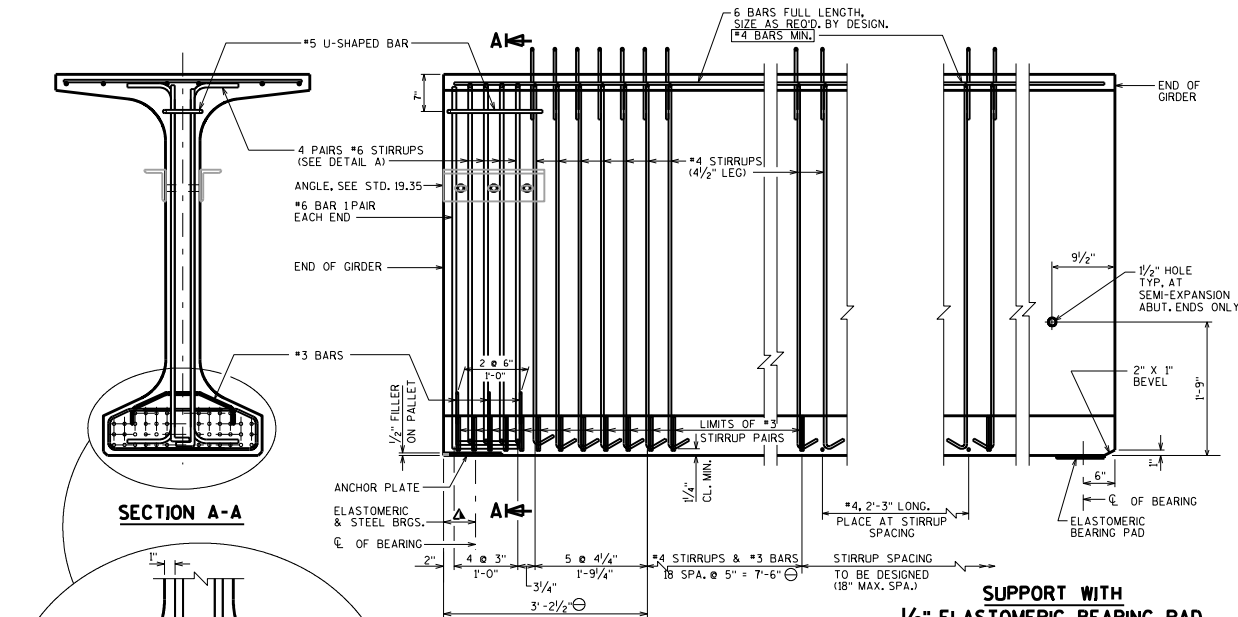
NO. STRANDS	e_s (inches)	P(init.) = $A_s f_s$ (KIPS)	f_B (init.) (K/sq.in.)
STANDARD STRAND PATTERNS FOR UNDRAPED STRANDS			
16	-21.80	703	2.136
18	-21.41	791	2.378
20	-20.70	879	2.592
STANDARD STRAND PATTERNS FOR DRAPED STRANDS			
16	-24.05	703	2.266
18	-23.63	791	2.522
20	-23.50	879	2.793
22	-23.39	967	3.065
24	-23.30	1055	3.336
26	-23.22	1143	3.607
28	-23.16	1230	3.875
30	-23.10	1318	4.146
32	-22.80	1406	4.387
34	-22.65	1494	4.643
36	-22.52	1582	4.901
38	-22.41	1670	5.159
40	-22.30	1758	5.413
42	-22.20	1846	5.670

**54W PRESTRESSED GIRDER
DESIGN DATA**

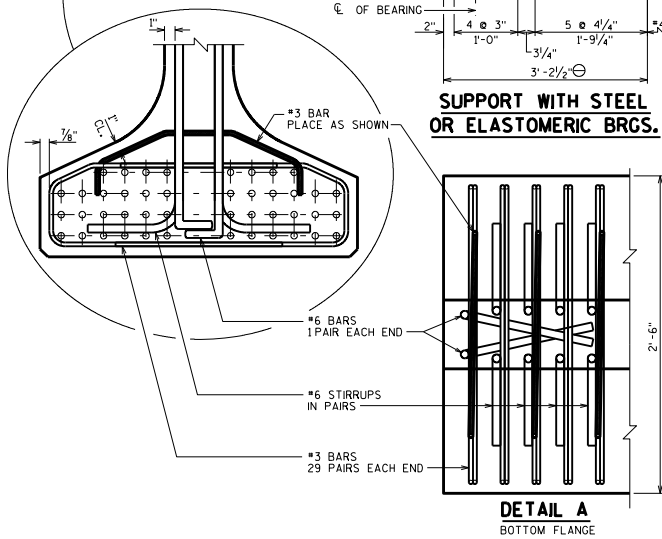
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 STRUCTURES DEVELOPMENT SECTION

APPROVED: Scot Becker

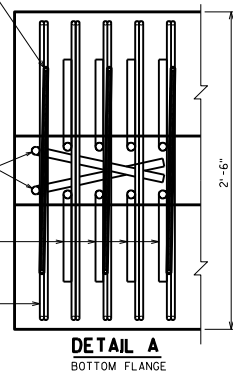
DATE:
7-11



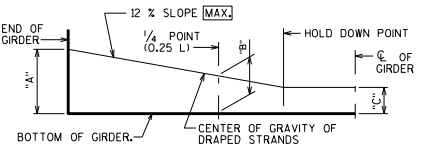
SECTION A-A



SUPPORT WITH STEEL OR ELASTOMERIC BRGS.



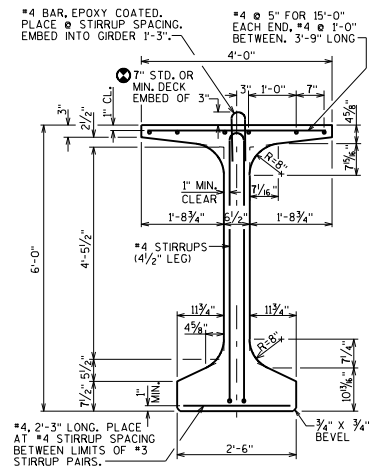
DETAIL A
BOTTOM FLANGE



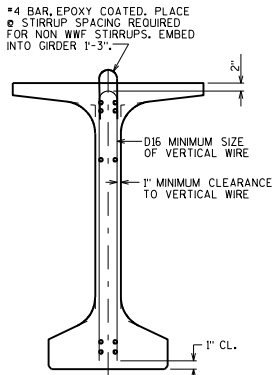
"A" TO BE GIVEN TO THE NEAREST 1"
 "B" = 1/4("A" + 3 "C") [MIN.]
 "B" = 1/4("A" + 3 "C") + 3" [MAX.]

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

LOCATION OF DRAPED STRANDS



SECTION THRU GIRDER
STRANDS NOT SHOWN



SECTION THRU GIRDER
SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS

GENERAL NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BONDING TO THE SLAB, EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

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-255 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. IF THE FABRICATOR WANTS TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, THE FOLLOWING ONE OPTION IS AVAILABLE:

USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT CHIEF, (608)266-5161.

THIS NOTE APPLIES TO LONG SPANS AS DEFINED IN THE NOTES FOR THE 72W" GIRDER, TABLE 19.3-2 OF THE BRIDGE MANUAL: FOR STORAGE, HANDLING, AND TRANSPORTING, THIS GIRDER IS REINFORCED TO ALLOW A MAXIMUM OVERHANG FROM THE LIFTING LOCATION OR POINT OF SUPPORT OF UP TO 1/10 THE GIRDER LENGTH. THE CONTRACTOR IS RESPONSIBLE FOR LATERAL STABILITY OF THE GIRDER UNTIL THE DECK IS CURED.

DESIGNER NOTES

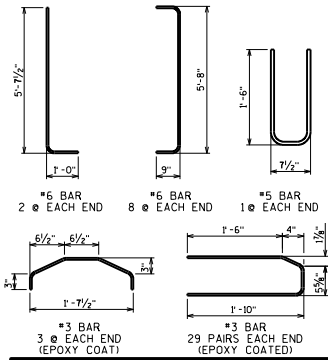
BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 72W-INCH".

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 0.6" STRAND FOR ALL PATTERNS. THE MAX. NUMBER OF DRAPED 0.6" STRANDS IS 8.

REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STRAND PATTERNS LISTED IN STANDARD 19.3B AND THE SPAN LENGTHS SHOWN IN TABLE 19.3-2. USING DIFFERENT STRAND PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT. PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES IS REQUIRED IF DESIGN OF THE END REINFORCEMENT IS REQUIRED.

▲ 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 2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ± 1/4" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

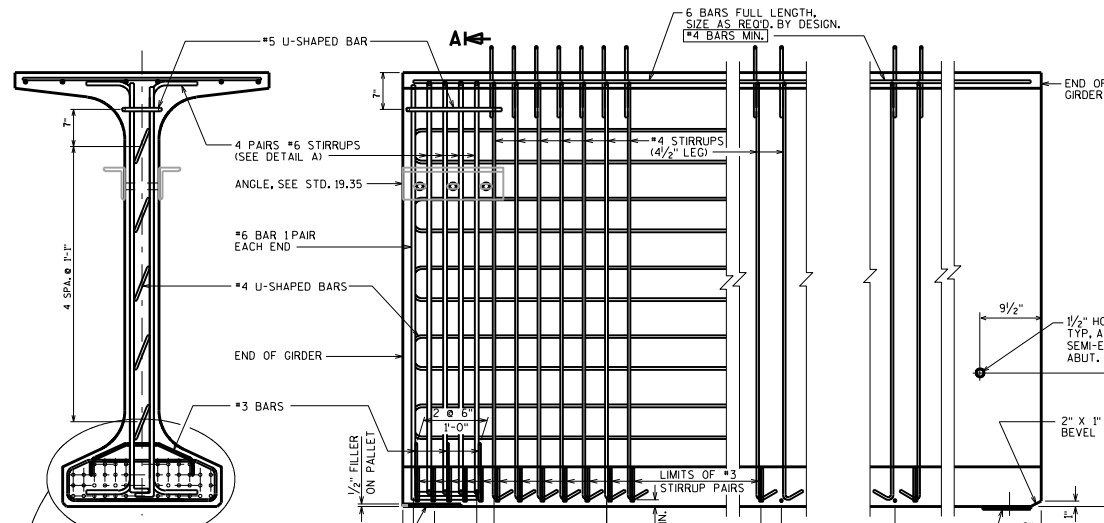


72W" PRESTRESSED GIRDER DETAILS

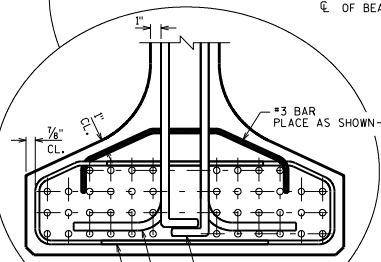
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker*

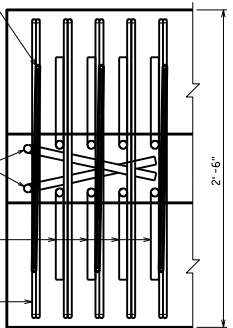
DATE: 7-11



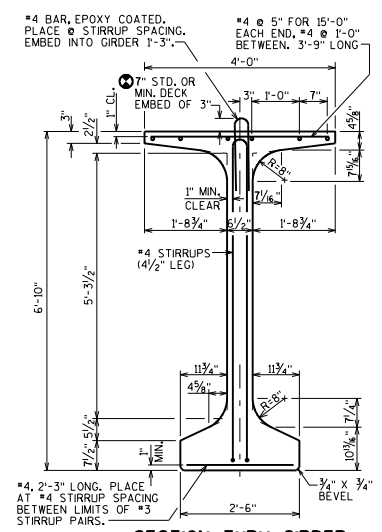
SECTION A-A



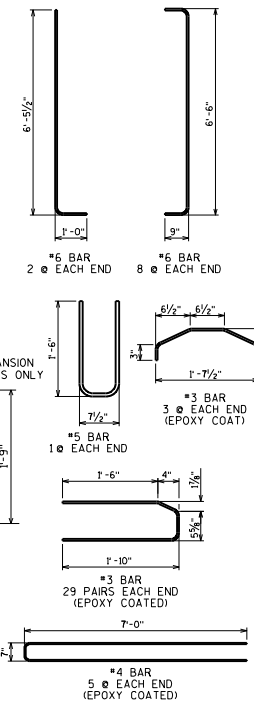
SUPPORT WITH STEEL OR ELASTOMERIC BRGS.



DETAIL A
BOTTOM FLANGE



SECTION THRU GIRDER
STRANDS NOT SHOWN



GENERAL NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BONDING TO THE SLAB, EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

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. IF THE FABRICATOR WANTS TO BUILD A BAR SET CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, THE FOLLOWING ONE OPTION IS AVAILABLE:

USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT CHIEF, (608)266-5161.

THIS NOTE APPLIES TO LONG SPANS AS DEFINED IN THE NOTES FOR THE 82W" GIRDER, TABLE 19.3-2 OF THE BRIDGE MANUAL; FOR STORAGE, HANDLING, AND TRANSPORTING, THIS GIRDER IS REINFORCED TO ALLOW A MAXIMUM OVERHANG FROM THE LIFTING LOCATION OR POINT OF SUPPORT OF UP TO 1/10 THE GIRDER LENGTH. THE CONTRACTOR IS RESPONSIBLE FOR LATERAL STABILITY OF THE GIRDER UNTIL THE DECK IS CURED.

DESIGNER NOTES

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 82W-INCH".

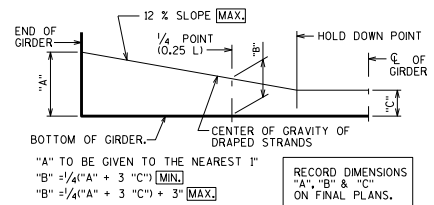
SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI. MAXIMUM RELEASE STRENGTH IS 6800 PSI. USE 0.6" STRAND FOR ALL PATTERNS. THE MAX. NUMBER OF DRAPED 0.6" STRANDS IS 8.

REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STRAND PATTERNS LISTED ON STANDARD 19.20 AND THE SPAN LENGTHS SHOWN IN TABLE 19.3-2. USING DIFFERENT STRAND PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT. PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES IS REQUIRED IF DESIGN OF THE END REINFORCEMENT IS REQUIRED.

▲ 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, 4% 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 2 1/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ±3% VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.



LOCATION OF DRAPED STRANDS

THERE IS CURRENTLY A MORATORIUM ON THE USE OF 82W" PRESTRESSED GIRDERS.

82W" PRESTRESSED GIRDER DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker*

DATE:
7-11

DESIGNER NOTES

- 1 PRESENT PRACTICE IS TO USE A MINIMUM "HAUNCH HEIGHT" (AT EDGE OF GIRDER FLANGE) OF 2" FOR DESIGN CALCULATIONS.

THE MINIMUM HAUNCH (AT EDGE OF GIRDER FLANGE) ALLOWED IN CONSTRUCTION IS 1 1/2".

USE THE CALCULATED THEORETICAL AVERAGE "HAUNCH HEIGHT" AT CENTERLINE OF FLANGE FOR COMPUTING THE HAUNCH CONCRETE QUANTITY.

USE TOP OF DECK ELEVATIONS AND CALCULATED "HAUNCH HEIGHT" AT CENTERLINE OF GIRDER FOR COMPUTING BEAM SEAT ELEVATIONS AT SUBSTRUCTURES.

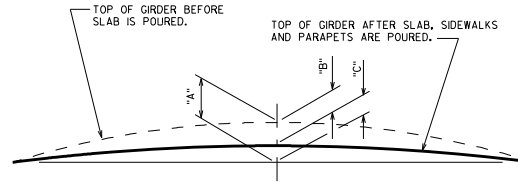
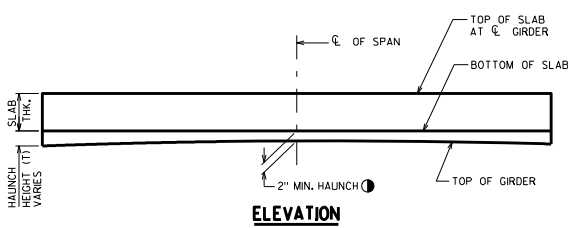
"INTERMEDIATE CONCRETE DIAPHRAGMS" SHALL BE USED ONLY WHEN THE USE OF STEEL DIAPHRAGMS IS NOT FEASIBLE BECAUSE OF UTILITIES OR FOR OTHER SPECIAL SITUATIONS. ONLY ONE TYPE OF INTERMEDIATE DIAPHRAGM SHALL BE SHOWN ON THE PLANS. THE USE OF BOTH INTERMEDIATE CONCRETE & STEEL DIAPHRAGMS ON THE SAME BRIDGE IS NOT ALLOWED.

FOR SKEWS $\leq 10^\circ$, PLACE INTERMEDIATE DIAPHRAGMS IN A STRAIGHT LINE. REFER TO STANDARD 19.36. PROVIDE OFFSET FOR SKEWS $> 10^\circ$.

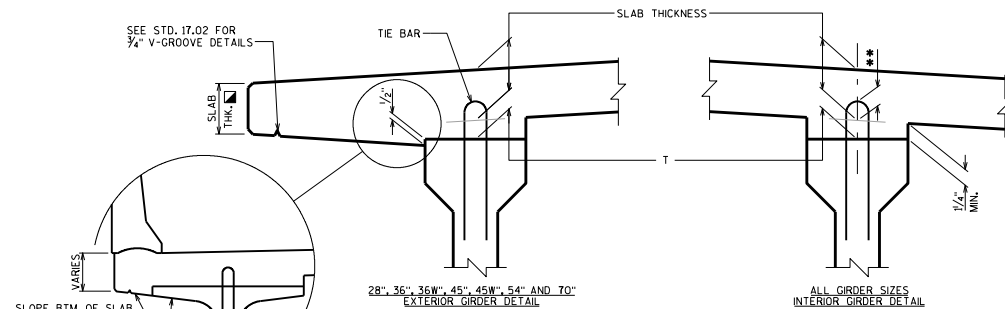
PIER PILASTERS ARE TYPICALLY NOT USED, BUT MAY BE USED AS PART OF THE BRIDGE AESTHETIC PACKAGE ON 28", 36", 45", 54" AND 70" PRESTRESSED GIRDERS. PILASTERS ARE NOT USED ON 36W", 45W", 54W", 72W" OR 82W".

- 2 WHEN THE TYPE "M" RAILING IS USED WITH THE 28", 36", 36W", 45", 45W", 54" AND 70", THE THICKNESS AT THE EDGE OF DECK IS 10 1/2".

DIAPHRAGM SPACING: FOR SPANS $\leq 80'-0"$ PLACE ONE DIAPHRAGM AT MID-LENGTH OF GIRDER, FOR SPANS OVER 80'-0" PLACE AT 1/3 AND 2/3 POINTS.



- * "A" = PRESTRESS CAMBER
- * "B" = DEAD LOAD DEFLECTION * ROUND OFF TO NEAREST 1/8"
- * "C" = RESIDUAL CAMBER

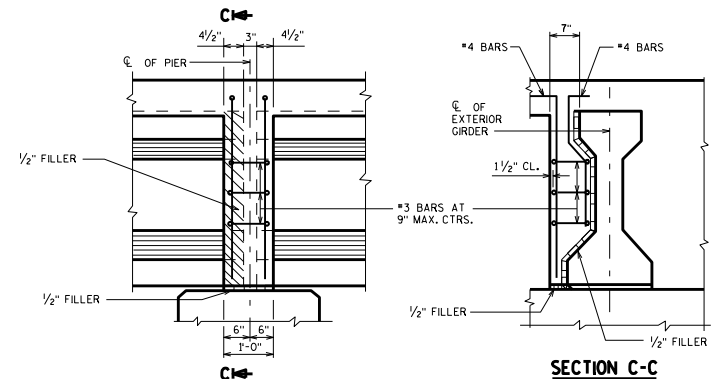


IF 1/2" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD, NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR, ** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

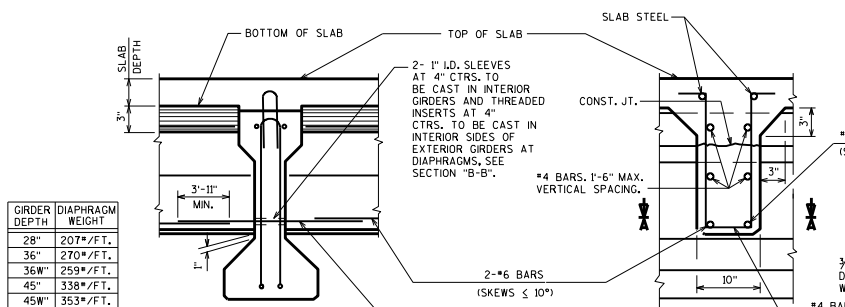
TO DETERMINE 'T', ELEV. OF TOP OF GIR., AT \odot OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN, THEN FOLLOW THIS PROCESS:

- = TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- = SLAB THICKNESS
- = HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF _____ WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



PILASTER DETAIL AT PIERS

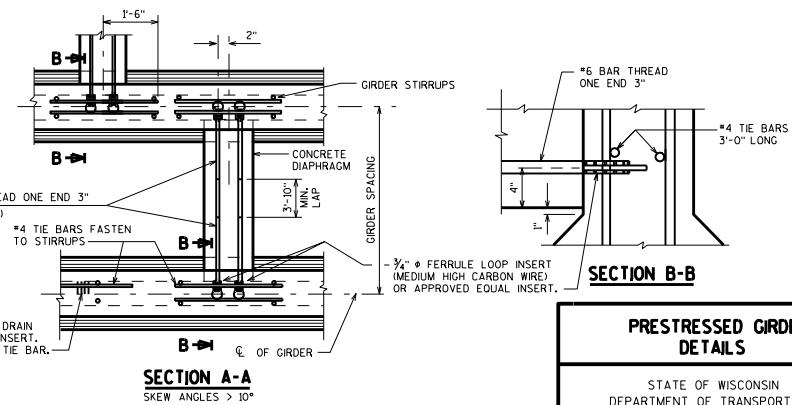


GIRDER DEPTH	DIAPHRAGM WEIGHT
28"	207#/FT.
36"	270#/FT.
36W"	259#/FT.
45"	338#/FT.
45W"	353#/FT.
54"	405#/FT.
54W"	446#/FT.
70"	634#/FT.
72W"	634#/FT.
82W"	738#/FT.

ELEVATION OF DIAPHRAGM

INTERMEDIATE CONCRETE DIAPHRAGM DETAILS

SECTION THRU DIAPHRAGM

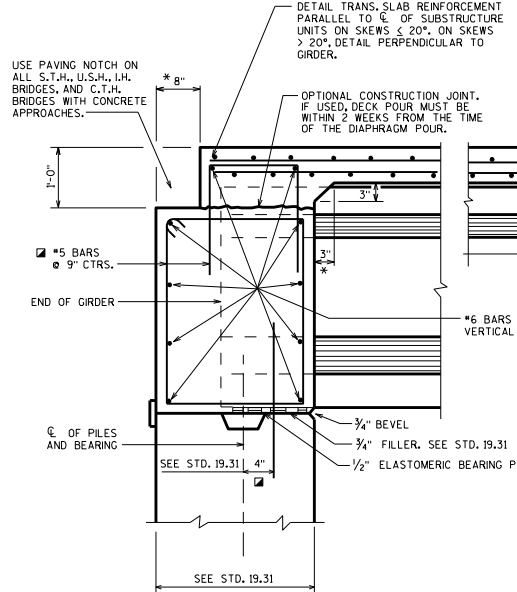


PRESTRESSED GIRDER DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

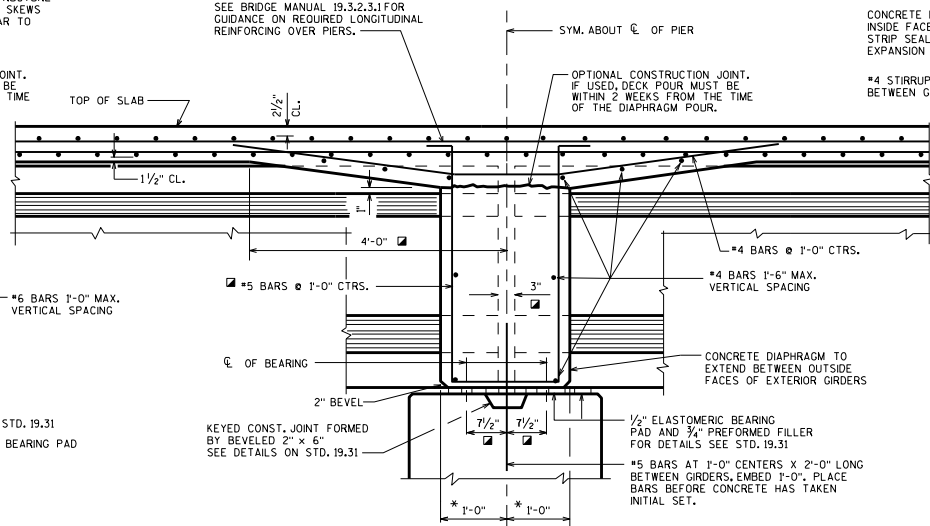
APPROVED: *Scot Becker*

DATE:
7-11



**FIXED END
FOR SKEWED AND SQUARE STRUCTURES**

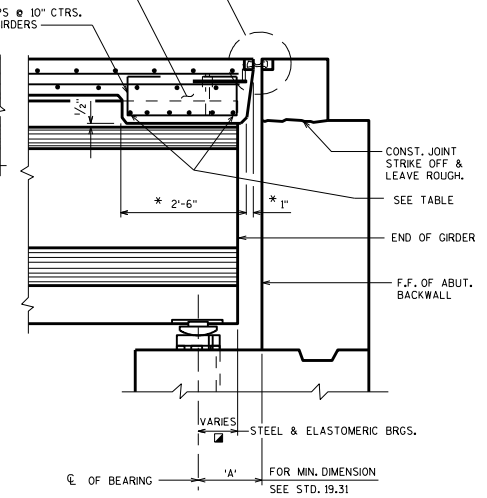
SEE BRIDGE MANUAL 19.3.2.3.1 FOR GUIDANCE ON REQUIRED LONGITUDINAL REINFORCING OVER PIERS.



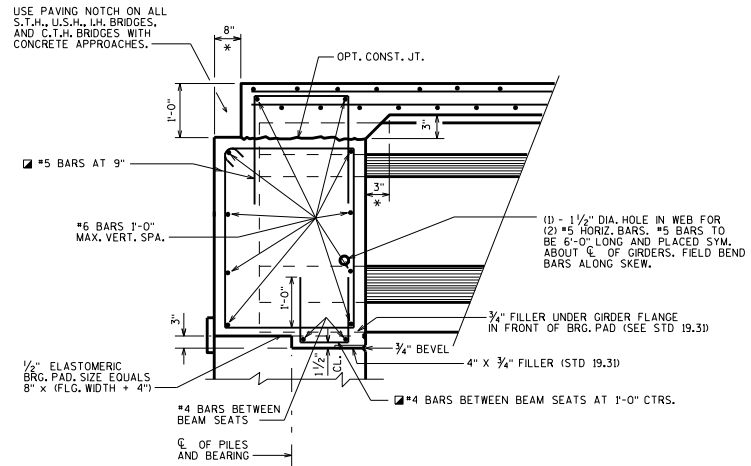
DIAPHRAGM AT 1/2" ELASTOMERIC BEARING

SEE STD. 28.01 FOR STRIP SEAL EXPANSION JOINT DEVICE. SEE STD. 28.03 FOR MODULAR JOINT EXPANSION JOINT DEVICE AND ABUTMENT BACKWALL DETAILS.

CONCRETE DIAPHRAGM TO EXTEND BETWEEN INSIDE FACES OF EXTERIOR GIRDERS FOR STRIP SEALS. SEE STD. 28.03 FOR MODULAR EXPANSION JOINTS.



EXPANSION END



**PRESTRESSED GIRDER WITH
SEMI-EXPANSION SEAT**

EXPANSION END DIAPHRAGM STEEL

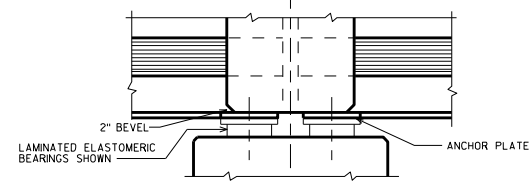
DIAPHRAGM LENGTH (ALONG SKEW) BETWEEN GIRDERS (CL. TO CL. OF GRDS.)	NO. OF BARS & BAR SIZE	NO. OF BARS & BAR SIZE
< 8'-4"	6 - #6	6 - #6
> 8'-4" < 11'-4"	6 - #8	6 - #7
> 11'-4" < 14'-9"	6 - #8	6 - #8

NOTES

LAP LENGTHS FOR ALL BARS SHALL BE BASED ON A "CLASS C" TENSION LAP SPLICE, EXCEPT HORIZONTAL DIAPHRAGM BARS, IF SPLICED, CAN UTILIZE A "CLASS A" TENSION LAP SPLICE.

LEGEND

- ✓ THESE DIMENSIONS PARALLEL TO GIRDER
- * DIMENSION IS TAKEN NORMAL TO CL. SUBSTRUCTURE UNITS.



**DIAPHRAGM AT STEEL OR ELASTOMERIC BEARINGS
SECTION THRU DIAPHRAGM AT PIER**

FOR STEEL BEARINGS, FORM DIAPHRAGM APPROXIMATELY 1/2" ABOVE BEARING KEEPER BARS

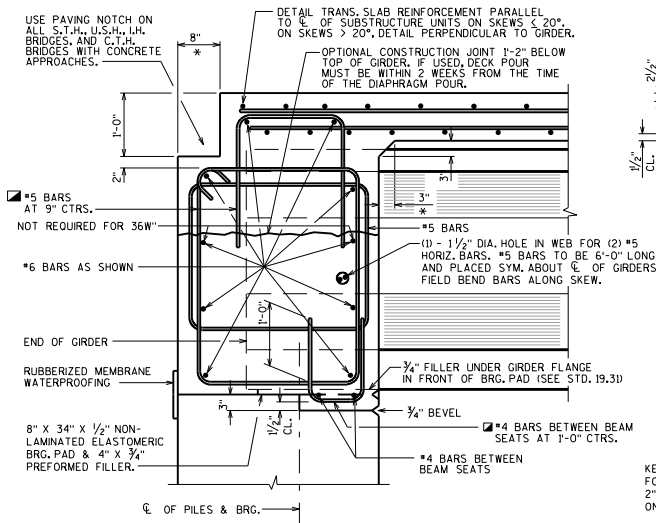
SEE STANDARD 19.34 FOR 36W" & 45W" PRESTRESSED GIRDERS SLAB AND SUPERSTRUCTURE DETAILS

SEE STANDARD 19.35 FOR 54W", 72W" & 82W" PRESTRESSED GIRDERS SLAB & SUPERSTRUCTURE DETAILS.

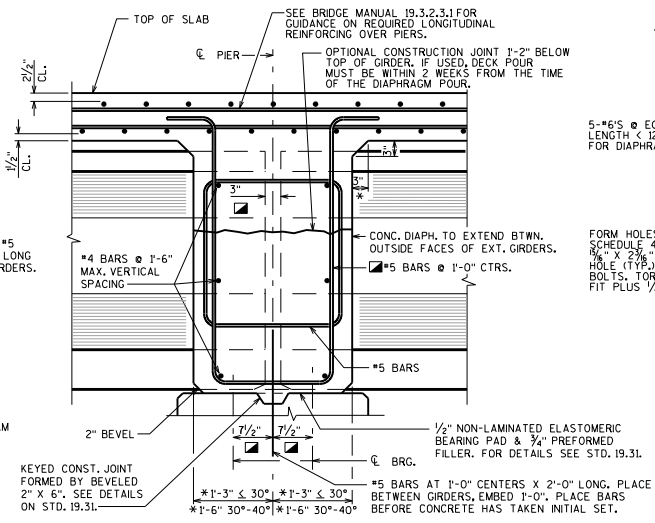
**28" & 36" PRESTRESSED GIRDERS
SLAB & SUPERSTRUCTURE DETAILS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

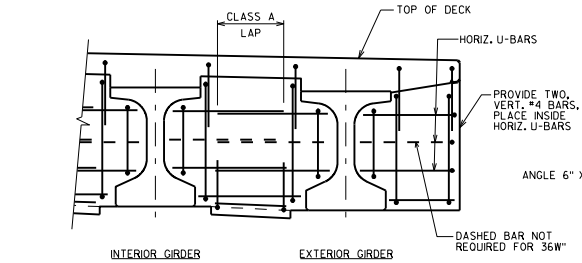
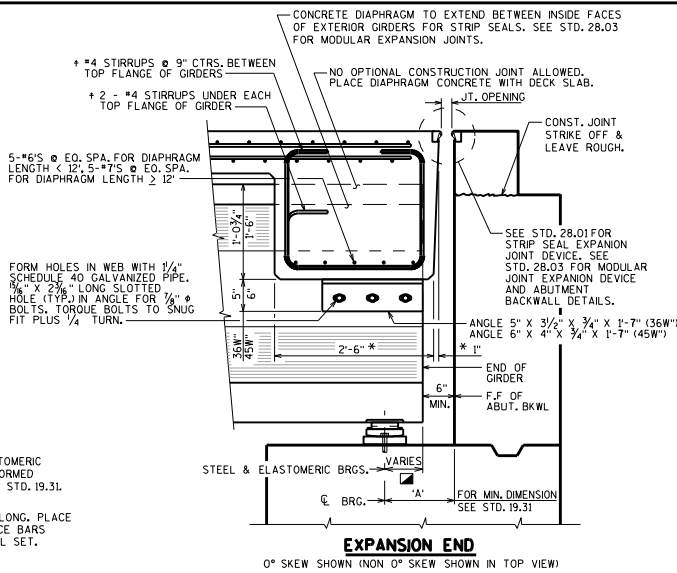
APPROVED: *Scot Becker* DATE: 7-11



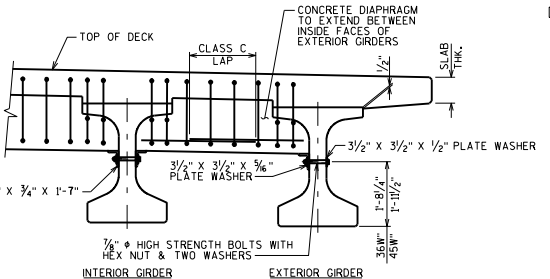
PRESTRESSED GIRDER WITH SEMI-EXPANSION SEAT



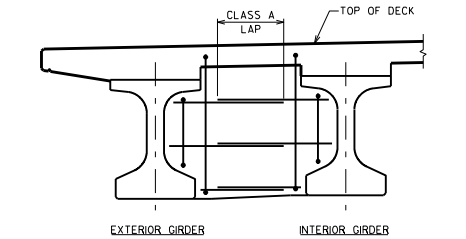
DIAPHRAGM AT 1/2" ELASTOMERIC BEARING



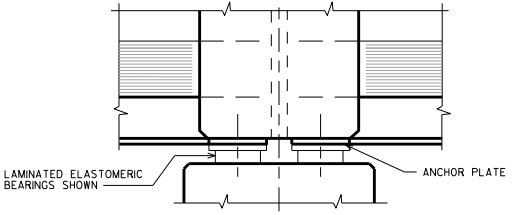
PART TRANSVERSE SECTION AT DIAPHRAGM SEMI-EXPANSION END



PART TRANSVERSE SECTION AT DIAPHRAGM EXPANSION END



PART TRANSVERSE SECTION AT DIAPHRAGM PIER

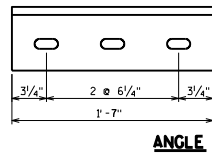


DIAPHRAGM AT STEEL OR ELASTOMERIC BEARINGS SECTION THRU DIAPHRAGM AT PIER

FOR STEEL BEARINGS, FORM DIAPHRAGM APPROXIMATELY 1/2" ABOVE BEARING KEEPER BARS

LEGEND

- * DIMENSION IS TAKEN NORMAL TO ϵ SUBSTRUCTURE UNITS.
- ☑ DIMENSION IS TAKEN PARALLEL TO ϵ GIRDER.
- + SPACING PERPENDICULAR TO ϵ GIRDERS



NOTES

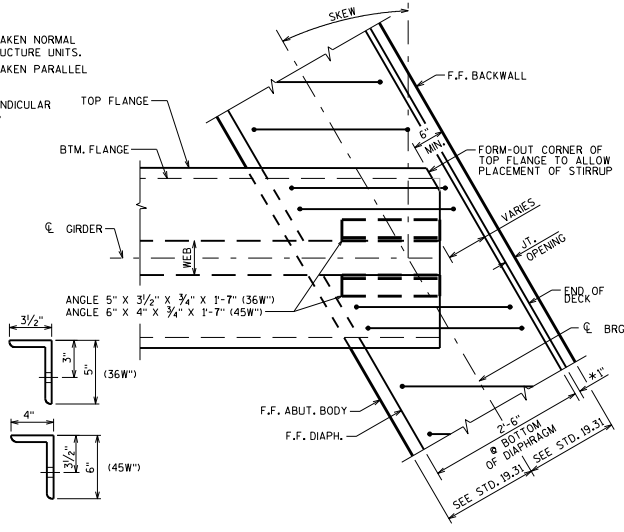
DIAPHRAGM SUPPORT ANGLES SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

ALL SUPPORT ANGLES SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A193 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563. LUBRICANT AND TEST FOR COATED NUTS.

LAP LENGTHS FOR DIAPHRAGM REINFORCEMENT SHALL BE BASED ON A CLASS "C" TENSION LAP SPLICE, UNLESS OTHERWISE NOTED.

ALL DIAPHRAGM SUPPORT HARDWARE SHALL BE INCIDENTAL TO "CONCRETE MASONRY BRIDGES".

☑ THESE DIMENSIONS PARALLEL TO GIRDER



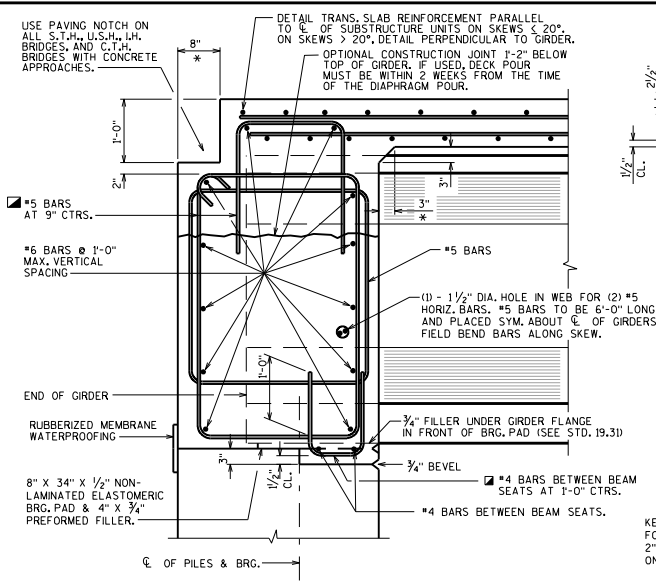
TOP VIEW OF DIAPHRAGM (EXPANSION END)

PRESTRESSED 36W" & 45W" GIRDER SLAB & SUPERSTRUCTURE DETAILS

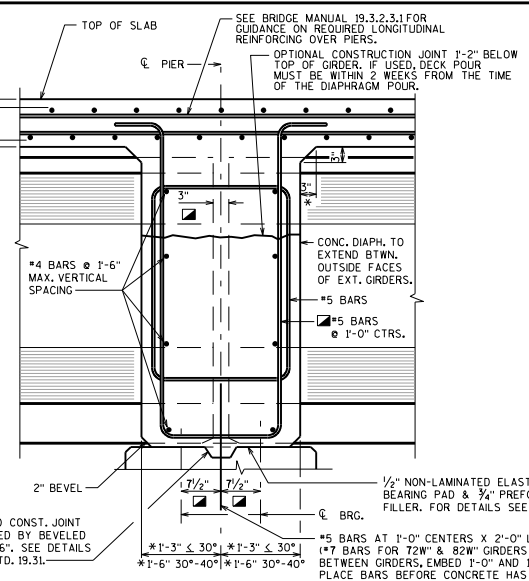
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker*

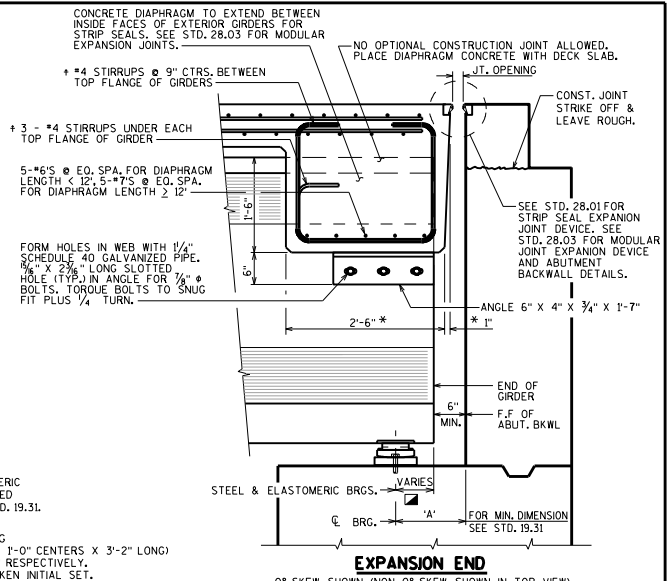
DATE: 7-11



PRESTRESSED GIRDER WITH SEMI-EXPANSION SEAT

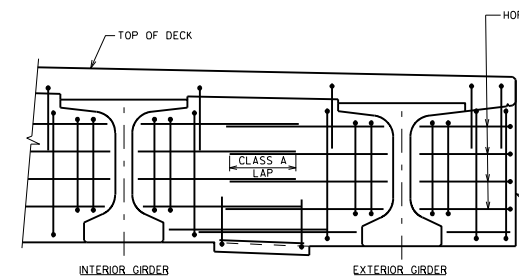


DIAPHRAGM AT 1/2" ELASTOMERIC BEARING

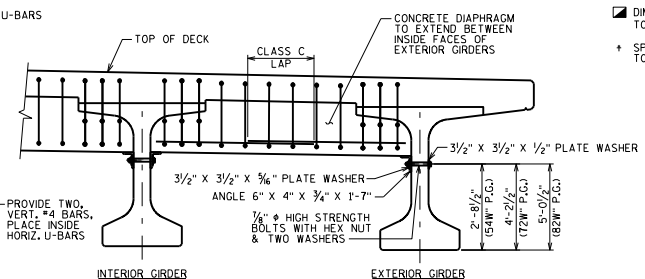


LEGEND

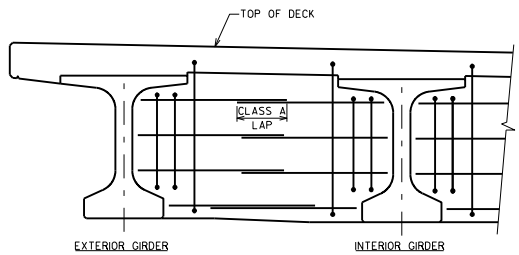
- * DIMENSION IS TAKEN NORMAL TO ϵ SUBSTRUCTURE UNITS.
- ☑ DIMENSION IS TAKEN PARALLEL TO ϵ GIRDER.
- + SPACING PERPENDICULAR TO ϵ GIRDERS



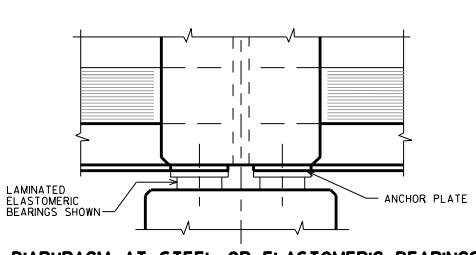
PART TRANSVERSE SECTION AT DIAPHRAGM SEMI-EXPANSION END



PART TRANSVERSE SECTION AT DIAPHRAGM EXPANSION END

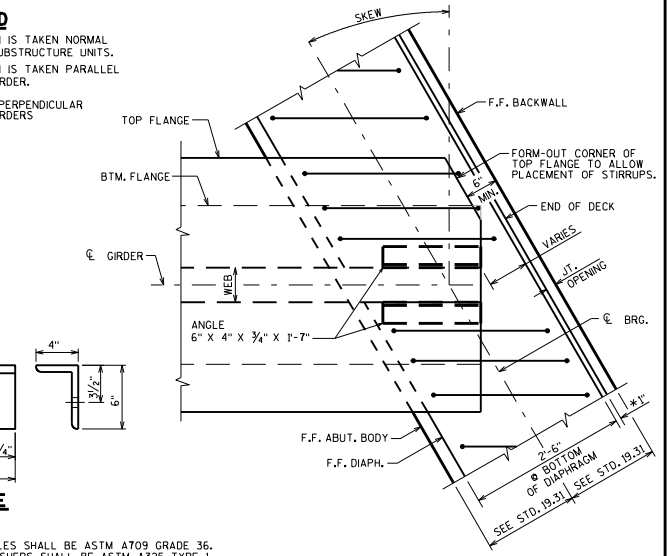


PART TRANSVERSE SECTION AT DIAPHRAGM PIER



DIAPHRAGM AT STEEL OR ELASTOMERIC BEARINGS SECTION THRU DIAPHRAGM AT PIER

FOR STEEL BEARINGS, FORM DIAPHRAGM APPROXIMATELY 1/2" ABOVE BEARING KEEPER BARS



TOP VIEW OF DIAPHRAGM (EXPANSION END)

NOTES

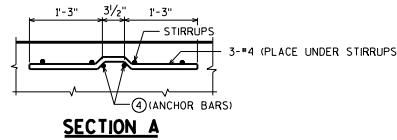
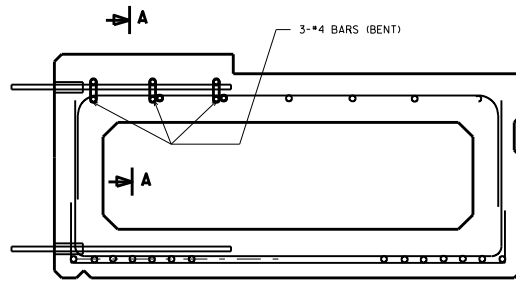
- DIAPHRAGM SUPPORT ANGLES SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE L.
- ALL SUPPORT ANGLES SHALL BE HOT-DIPPED GALVANIZED.
- ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563. LUBRICANT AND TEST FOR COATED NUTS.
- LAP LENGTHS FOR DIAPHRAGM REINFORCEMENT SHALL BE BASED ON A CLASS "C" TENSION LAP SPLICE, UNLESS OTHERWISE NOTED.
- ALL DIAPHRAGM SUPPORT HARDWARE SHALL BE INCIDENTAL TO "CONCRETE MASONRY BRIDGES".

☑ THESE DIMENSIONS PARALLEL TO GIRDER

PRESTRESSED 54W", 72W" & 82W" GIRDER SLAB & SUPERSTRUCTURE DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker* DATE: 7-11



SECTION THRU EXTERIOR GIRDER

LEGEND

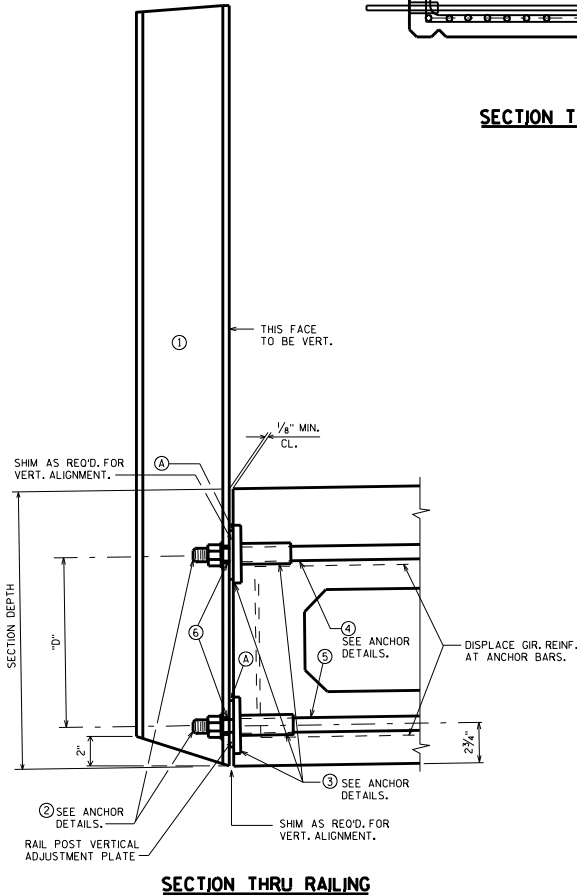
- ① W6 x 25, SEE STD. 30.1 OR 30.2 FOR RAILING ATTACHMENT. PLACE POSTS NORMAL TO GRADE LINE. PLACE POSTS VERTICAL.
 - ② 1" DIA. STUD WITH NUT & WASHER, FOUR REQ'D. PER POST, A325.*
 - ③ THREADED BAR COUPLER FOR 1" # 4 STUD. ACCEPTABLE PRODUCTS ARE WILLIAMS REBAR FLANGE COUPLERS BY WILLIAMS FORM ENGINEERING CORP. OR DOWEL BAR REPLACEMENTS BY DAYTON SUPERIOR, FOUR REQ'D. PER POST. EXPOSED OPTIONAL FLANGE TO BE GALVANIZED.*
 - ④ ANCHOR BAR 1" DIA. THREADED REINFORCEMENT BAR BENT AS SHOWN IN ANCHOR DETAILS, GRADE 60, TWO REQ'D. PER POST. (TOP)**
 - ⑤ ANCHOR BAR, 1" DIA. THREADED REINFORCEMENT BAR (STRAIGHT), GRADE 60, TWO REQ'D. PER POST. (BOTTOM)**
 - ⑥ 1 1/4" x 1 3/4" SLOTTED HOLES IN POST FOR STUD NO. 2. LONG DIMENSION OF SLOTTED HOLE TO BE VERTICAL.
- *SHALL BE MECHANICALLY GALVANIZED OR ELECTRO-PLATED.
**NOT GALVANIZED OR ELECTRO-PLATED.

GENERAL NOTES

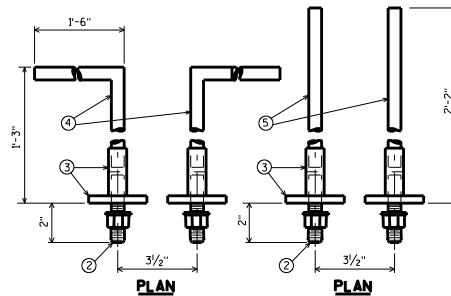
FILL BOLT SLOT OPENINGS IN POST SHIMS AND POSTS WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
STEEL POST SHIMS MAY BE USED AT POSTS WHERE REQ'D. FOR ALIGNMENT.

THE RAILING ATTACHMENT SHOWN ON THIS STANDARD IS NOT ALLOWED FOR THE TYPE M RAILING. THE PRESTRESSED BOX SECTIONS SHOULD NOT BE MODIFIED TO FACILITATE USE OF THE TYPE M RAILING.

SECTION DEPTH	"D"
12"	7"
17"	12"
21"	16"
27"	22"
33"	28"
42"	37"

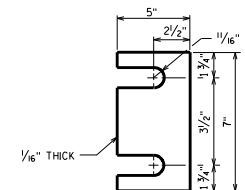


SECTION THRU RAILING

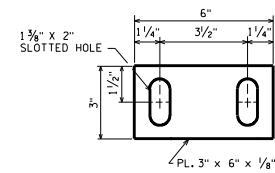


ANCHOR DETAILS

ANCHORS MAY BE FABRICATED IN A CAGE IF OPTED BY THE MFG'R.



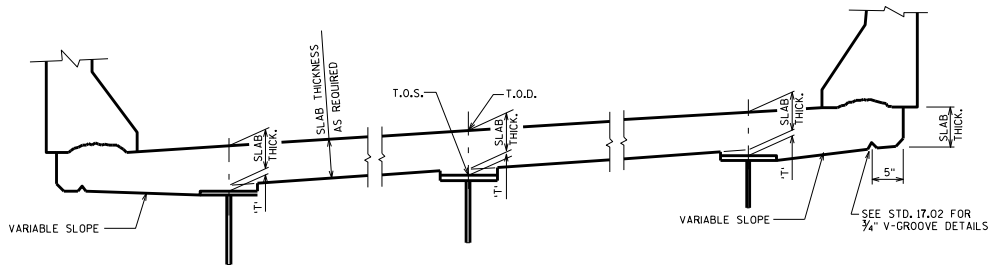
POST SHIM DETAIL
(4 PER POST)



RAIL POST VERTICAL ADJUSTMENT PLATE
(1 PER POST)

Ⓐ SEAL TOP & VERT. EDGES OF SHIMS, VERT. ADJUSTMENT PLATES, AND POST TO GIRDER CONTACT AREAS WITH NON-STAINING GRAY BITUMINOUS JOINT SEALER.

PRESTRESSED SLAB AND BOX GIRDER RAILING POST ATTACHMENT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: <i>Scot Becker</i>	DATE: 7-11



SECTION THRU SLAB

DESIGNER NOTES

HAUNCH HEIGHTS WILL NORMALLY BE MADE 2" AT EDGE OF GIRDER, AT ABUTMENTS, HINGES, AND FIELD SPLICES.

HAUNCH DEPTH VARIATIONS NEED NOT BE SHOWN ON THE PLANS.

IF HAUNCH VARIATIONS EXCEED 3/4", THE GIRDER SHALL BE CAMBERED TO REDUCE THE VARIATIONS IN HAUNCH THICKNESS.

NOTES

'T' = HAUNCH HEIGHT AT CENTERLINE OF GIRDER.

TO DETERMINE 'T': AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED, ELEVATIONS OF THE TOP FLANGES SHALL BE TAKEN AT CENTERLINE OF BEARINGS AND AT O.I. POINTS.

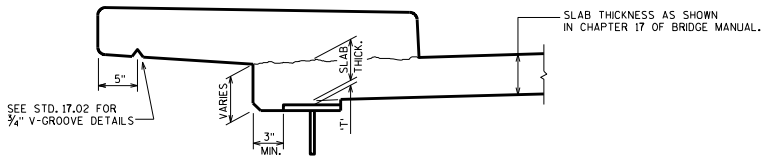
TOP OF DECK ELEVATION AT FINAL GRADE

- TOP OF STEEL ELEVATION AFTER STEEL ERECTION

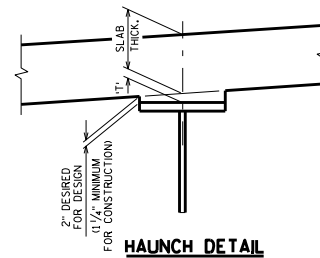
+ CONC. ONLY DEFLECTION; DOWNWARD DEFLECTION IS ADDED, UPWARD DEFLECTION IS SUBTRACTED

- SLAB THICKNESS

= 'T' VALUE FOR SETTING HAUNCH



TREATMENT OF EXTERIOR GIRDER AT SIDEWALK OVERHANG

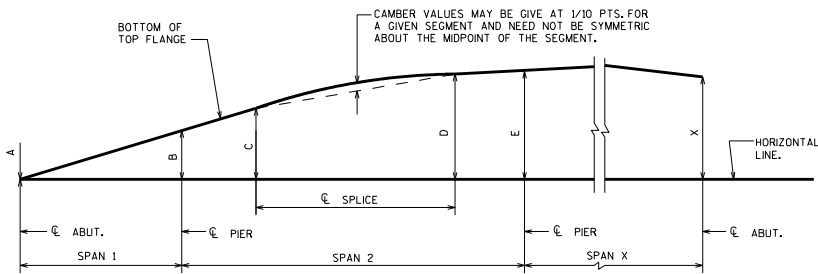


HAUNCH DETAIL

ELEVATIONS AT TOP OF DECK (T.O.D.) & TOP OF STEEL (T.O.S.)

		W. ABUT.	O.I. SPAN	O.2 SPAN	O.3 SPAN	℄ PIER	℄ SPLICE		℄ ABUT.
GIRDER 1	T.O.D.	861.17	861.13	861.08	861.04	860.99			860.69
	T.O.S.	860.48				860.35	860.35		860.00
GIRDER 2	T.O.D.	860.62	860.58	860.53	860.49	860.45			860.16
	T.O.S.	859.93				859.80	859.80		859.59
GIRDER X	T.O.D.								
	T.O.S.								

THESE ELEVATIONS ARE TO TOP OF STEEL (SPICE AND COVER PLATE THICKNESS, IF APPLICABLE, ARE ACCOUNTED FOR) AND THEY ARE FOR THE MATERIAL AS ERECTED, THE ELEVATION OF THE TOP STEEL AT THE FIELD SPLICE POINTS SHALL BE CHECKED, AND CORRECTED, IF POSSIBLE, AFTER ERECTION AND BEFORE PERMANENTLY BOLTING THE DIAPHRAGMS IN PLACE.



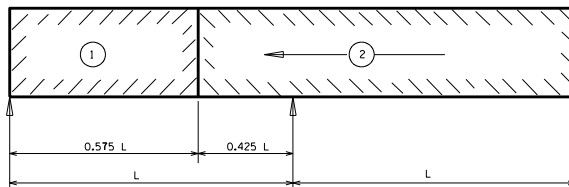
BLOCKING DIAGRAM

BLOCKING & SLAB HAUNCH DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: Scot Becker

DATE:
7-11



STEEL GIRDER IDEAL POURS - 2 SPANS

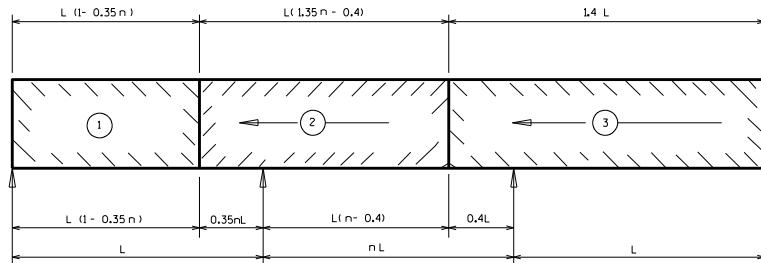
② — INDICATES POUR NUMBER AND DIRECTION OF POUR

S = TOTAL NUMBER OF SPANS

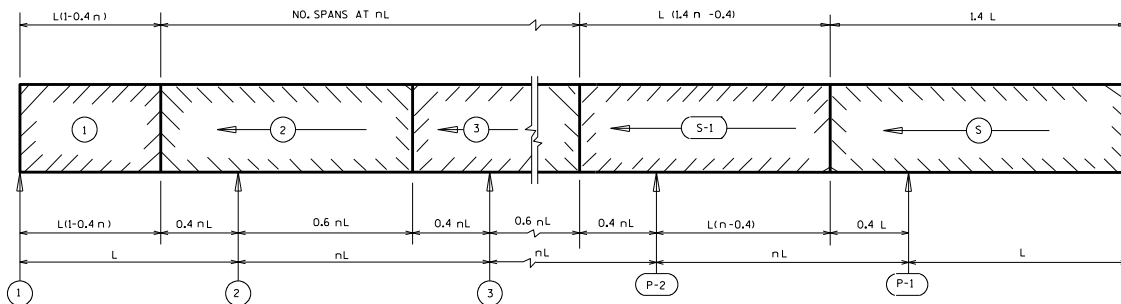
P = TOTAL NUMBER OF SUPPORTS.

L = LENGTH OF END SPAN.

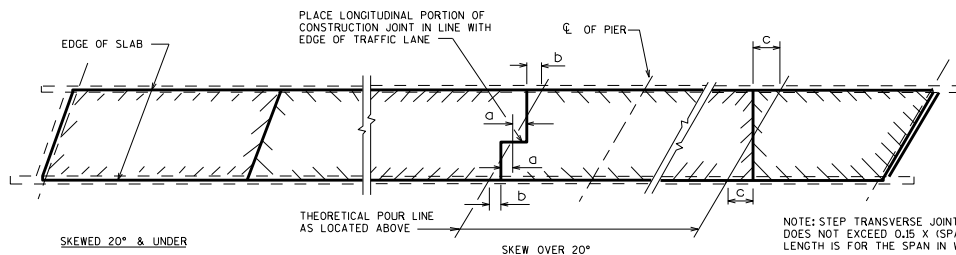
$$n = \frac{\text{INTERIOR SPAN}}{\text{END SPAN}}$$



STEEL GIRDER IDEAL POURS - 3 SPANS



STEEL GIRDER IDEAL POURS - ANY NUMBER OF SPANS



SKEWED 20° & UNDER

SKEW OVER 20°

NOTE: STEP TRANSVERSE JOINT SO THAT "a", "b" OR "c" DOES NOT EXCEED 0.15 X (SPAN LENGTH), WHERE SPAN LENGTH IS FOR THE SPAN IN WHICH THE JOINT IS PLACED

PLAN VIEW - SHOWING PLACEMENT OF TRANSVERSE CONSTRUCTION JOINTS

NOTES ON PLANS

THE RATE OF PLACING CONCRETE SHALL EQUAL OR EXCEED 1/2 SPAN LENGTH PER HOUR BUT NEED NOT EXCEED 100 CU. YDS. PER HOUR. (REQUIRED ONLY FOR CONTINUOUS STEEL GIRDERS.)

TWO OR MORE ALTERNATE POURS MAY BE PLACED ON THE SAME DAY. (REQUIRED ONLY WHEN A POURING SEQUENCE IS SHOWN ON PLANS.)

THE CONTRACTOR MAY SUBMIT AN ALTERNATE POURING SEQUENCE SUBJECT TO THE APPROVAL OF THE STRUCTURES DESIGN SECTION. THE CONTRACTOR MAY SUBMIT A POURING SEQUENCE FOR APPROVAL TO THE STRUCTURES DESIGN SECTION IF ONE IS NOT SHOWN ON THE PLANS.

DESIGN NOTES

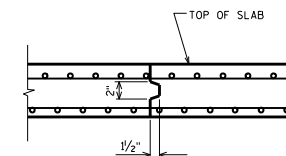
OPTIONAL TRANSVERSE CONSTRUCTION JOINTS SHALL BE DETAILED ON PLANS TO LIMIT THE VOLUME OF POUR TO < 600 CU. YDS. IN URBAN AREAS AND < 300 CU. YDS. IN OTHER AREAS. GENERALLY FOR STEEL GIRDER SUPERSTRUCTURES LOCATE THE TRANSVERSE JOINTS AT THE 0.6 POINT (CONCRETE IN 60% OF SPAN) AND FOR PRESTRESS GIRDER 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.

DETAIL TRANSVERSE CONSTRUCTION JOINTS 5'-0" FROM CL 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 SLAB IS GREATER THAN 90 FEET, A LONGITUDINAL CONSTRUCTION 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.

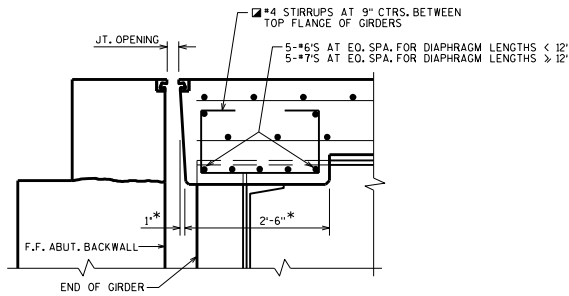
FOR GRADES OVER 3% THE PREFERRED DIRECTION OF POUR IS UPHILL.

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.

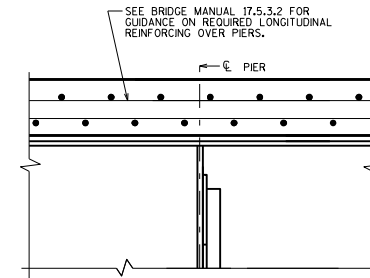


SECTION THRU TRANSVERSE OR LONGITUDINAL JOINT

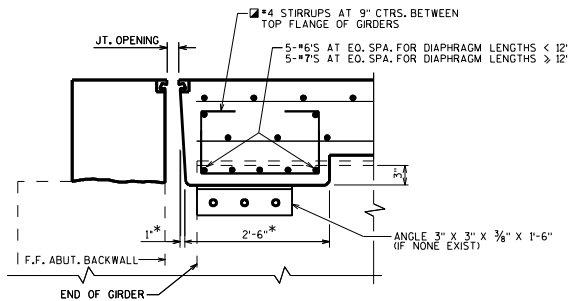
SLAB POURING SEQUENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: <u>Scot Becker</u>	DATE: 7-11



SECTION THRU EXPANSION END

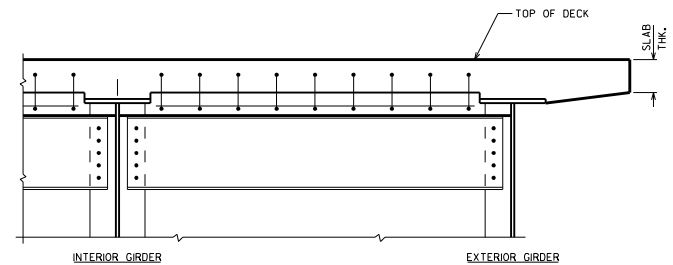


SECTION AT PIER



**SECTION THRU EXPANSION END OF NEW DECK
SHOWING EXISTING STEEL GIRDER
WITHOUT EXISTING STEEL DIAPHRAGM**

(SEE STD. 40.04 FOR ADDITIONAL DETAILS)



**PART TRANSVERSE SECTION AT DIAPHRAGM
EXPANSION END**

NOTES

FOR REHABILITATION PROJECTS:
DIAPHRAGM SUPPORT ANGLES SHALL BE ASTM A709 GRADE 36.
ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

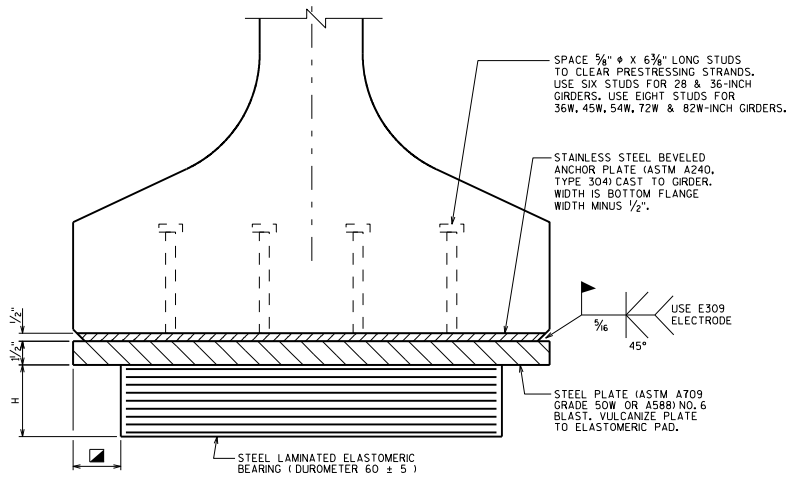
ALL SUPPORT ANGLES SHALL BE HOT-DIPPED GALVANIZED.
ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED
IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL
BE TAPPED OVERSIZED IN ACCORDANCE WITH THE REQUIREMENTS OF
ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY
REQUIREMENT S1 OF ASTM A563, LUBRICANT AND TEST FOR COATED NUTS.

ALL DIAPHRAGM SUPPORT HARDWARE SHALL BE INCIDENTAL TO
"CONCRETE MASONRY BRIDGES".

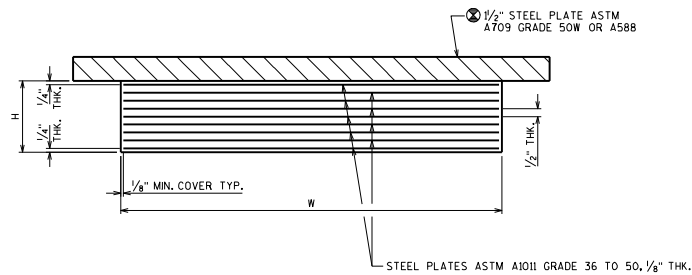
LEGEND

- ☐ DIMENSION IS TAKEN PARALLEL TO CL GIRDER
- * DIMENSION IS TAKEN NORMAL TO CL ABUTMENT

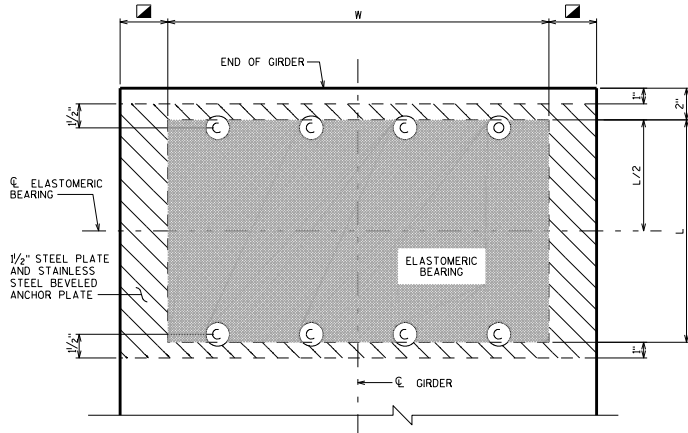
STEEL GIRDER SLAB & SUPERSTRUCTURE DETAILS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: <i>Scot Becker</i>	DATE: 7-11



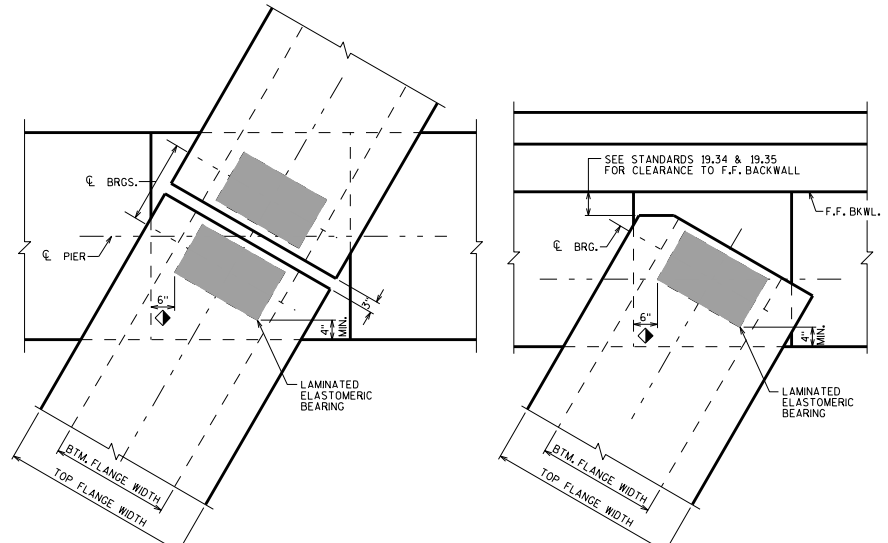
END VIEW



SECTION THRU ELASTOMERIC BEARING



PLAN VIEW



AT SKEWED PIER

AT SKEWED ABUTMENTS

DETAIL SHOWN IS FOR A CONTINUOUS DECK AT AN EXPANSION PIER. IF PIER CAP WIDTH BECOMES EXCESSIVE, CONSIDER USING STEEL BEARINGS.

CLEARANCE DIAGRAM

EXPANSION BEARINGS FOR PRESTRESSED CONCRETE GIRDERS

Δ H (INCHES)	EXP. LENGTH (FEET)	TOTAL BEARING HEIGHT H (INCHES)	TOTAL ELASTOMER THICKNESS (INCHES)	LONGITUDINAL LENGTH OF BEARING L (MIN.) (INCHES)	NO. OF PLATES REQ'D.
1"	130	2 1/2"	2"	8"	4
1 1/4"	165	3 3/8"	2 1/2"	10"	5
1 1/2"	195	3 3/4"	3"	1'-0"	6
1 3/4"	230	4 3/8"	3 1/2"	1'-2"	7
2"	260	5"	4"	1'-3"	8
2 1/4"	295	5 5/8"	4 1/2"	1'-5"	9

THE VALUES IN THIS TABLE ARE FOR PRELIMINARY DESIGN PURPOSES.

NOTES

ALL MATERIAL USED FOR BEARINGS SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING PADS, ELASTOMERIC LAMINATED", EACH.

ON BEARING REPLACEMENTS, COMPRESSION LOAD AND ADHESION TESTS WILL BE WAIVED WHERE BEARINGS ARE DETAILED TO MEET HEIGHT REQUIREMENTS.

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT ROLLED 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.

SEE CHAPTER 40 STANDARDS FOR USE OF ELASTOMERIC BEARINGS ON NEW AND REHABILITATED STEEL GIRDER BRIDGES.

★ THE "EXPANSION LENGTH" IN THE TABLE WAS CALCULATED BASED ON THE TOTAL ELASTOMER THICKNESS IN COLUMN (4). IT IS FOUND BY APPLYING LRFD (44.7.6.3.4) USING A TEMPERATURE RANGE OF 55° F, A COEFFICIENT OF THERMAL EXPANSION OF 0.00006 FT./FT./°F, AND A CREEP/SHRINKAGE COEFFICIENT OF 0.0003 FT/FT. THE DESIGNER IS TO SELECT PRELIMINARY BEARING DATA FROM THE TABLE BASED ON "EXPANSION LENGTH" AND THEN COMPLETE THE DESIGN BY SATISFYING ALL CRITERIA IN LRFD SPECIFICATION - SECTION 14. (SEE SECTION 27.4 IN "BRIDGE MANUAL" FOR DESIGN EXAMPLE.)

▲ L (MIN.) IS BASED ON STABILITY REQUIREMENTS (LRFD 14.7.6.3.6).

△ = TOTAL HORIZONTAL MOVEMENT OF SUPERSTRUCTURE MEASURED FROM STATE AT WHICH BEARING IS UNDEFORMED.

⊗ CHECK 27.2.1 ELASTOMERIC BEARINGS IN THE BRIDGE MANUAL FOR REQUIREMENTS TO SEE IF THIS PLATE SHOULD BE TAPERED.

▣ 3" FOR 36", 45W", 54W", 72W" & 82W" 1" FOR 28" & 36"

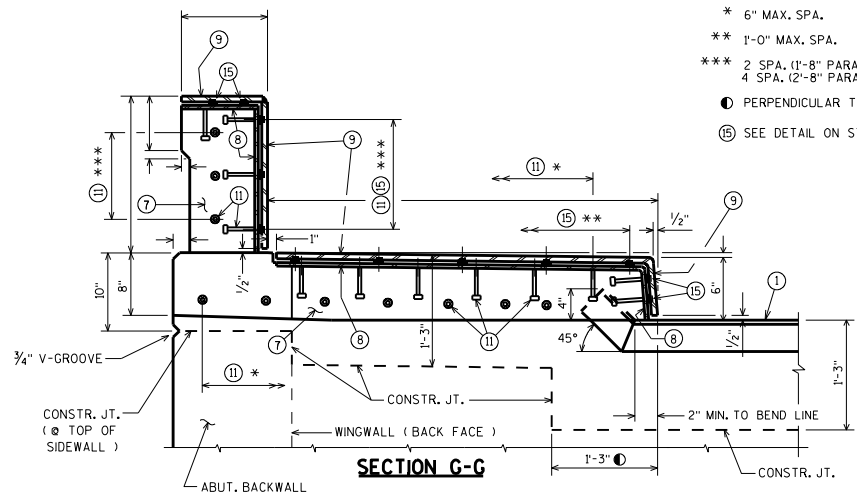
◆ MIN. DISTANCE FROM EDGE OF PIER/ABUT. STEP TO LAMINATED ELASTOMERIC BEARING

ELASTOMERIC BEARINGS FOR PRESTRESSED CONCRETE GIRDERS

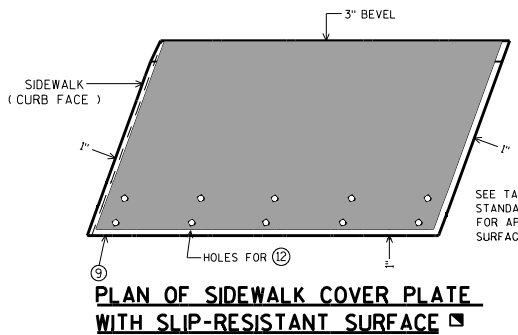
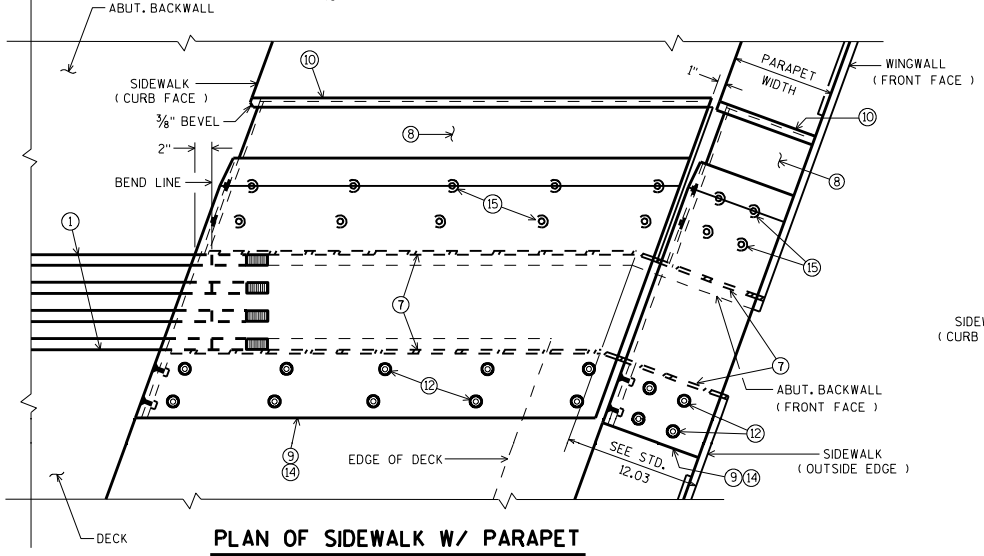
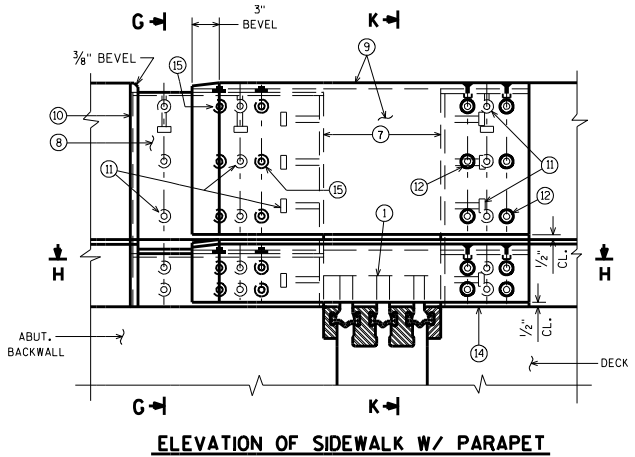
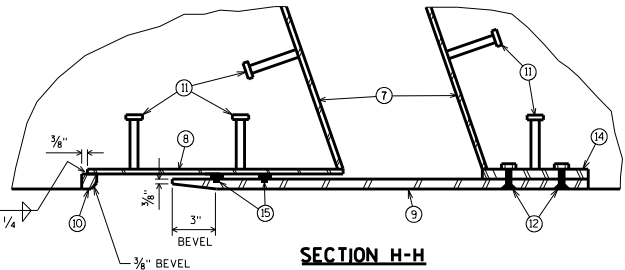
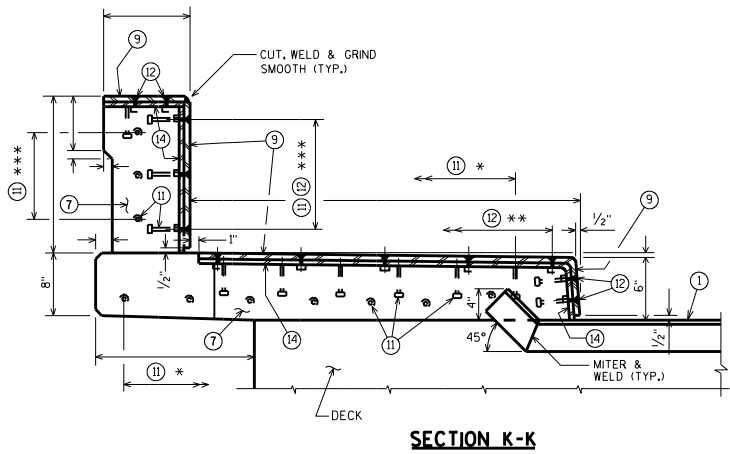
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker*

DATE:
7-11



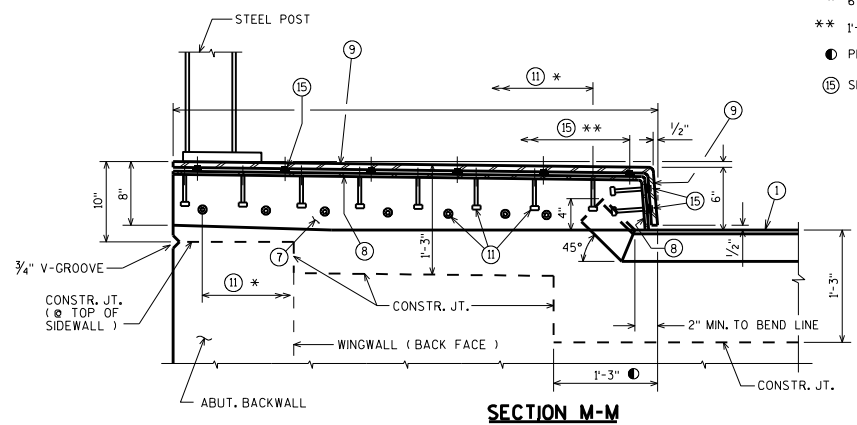
- * 6" MAX. SPA.
- ** 1'-0" MAX. SPA.
- *** 2 SPA. (1'-8" PARA. HEIGHT)
4 SPA. (2'-8" PARA. HEIGHT)
- PERPENDICULAR TO FACE OF CURB
- Ⓟ SEE DETAIL ON STANDARD 28.05



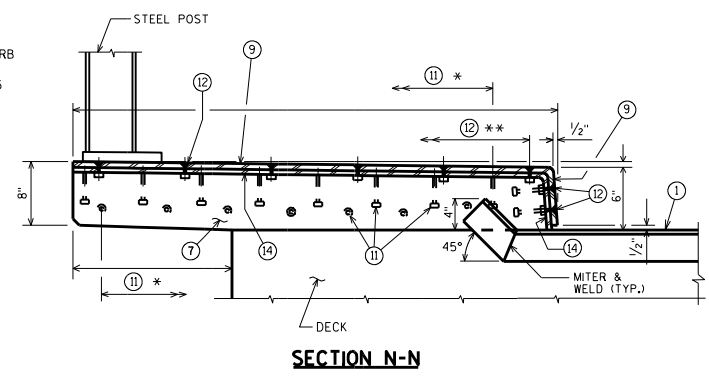
☑ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY (NOT ON CURB FACE). GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.

COVER PLATES FOR SIDEWALK W/ CONC. PARA.	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: <i>Scot Becker</i>	DATE: 7-11

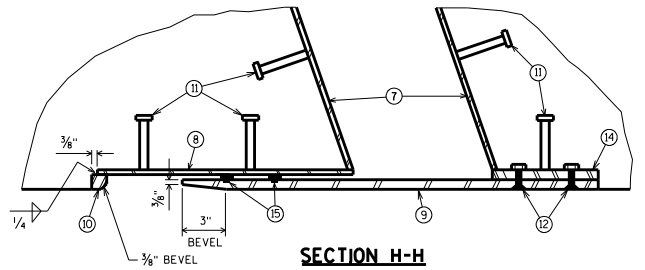
- * 6" MAX. SPA.
- ** 1'-0" MAX. SPA.
- ① PERPENDICULAR TO FACE OF CURB
- ⑮ SEE DETAIL ON STANDARD 28.05



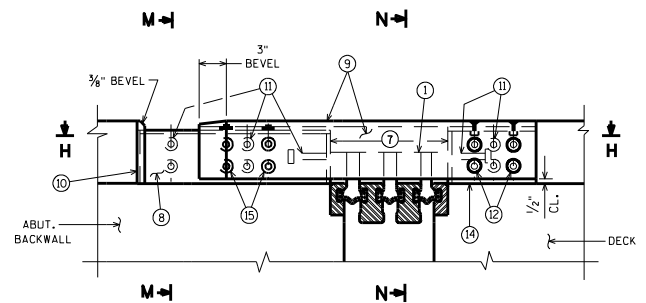
SECTION M-M



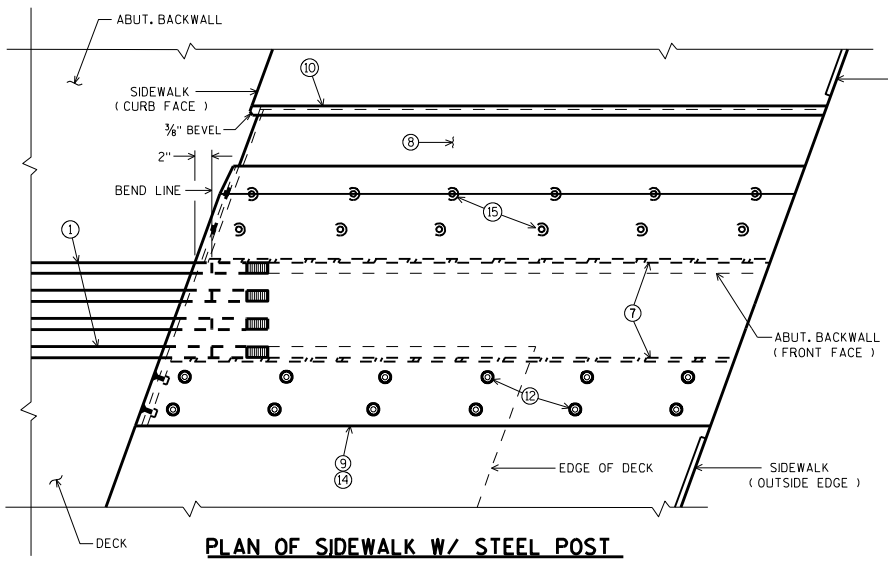
SECTION N-N



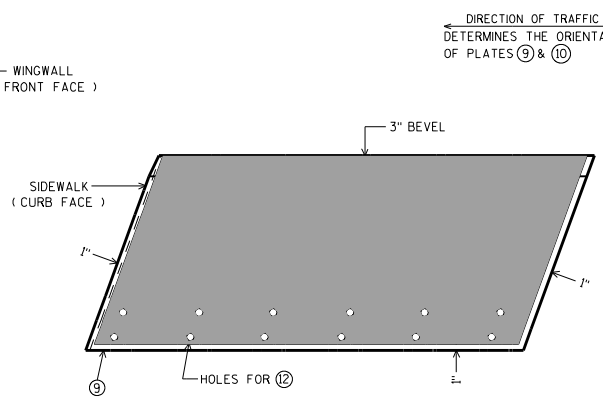
SECTION H-H



ELEVATION OF SIDEWALK W/ STEEL POST



PLAN OF SIDEWALK W/ STEEL POST



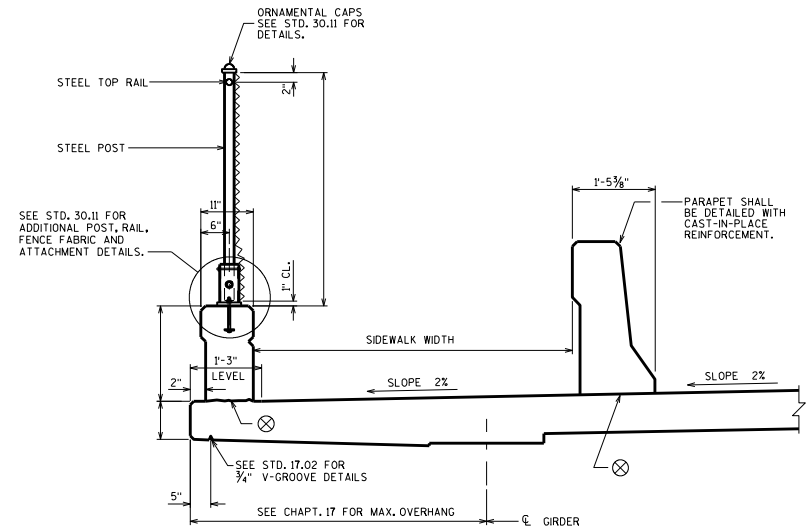
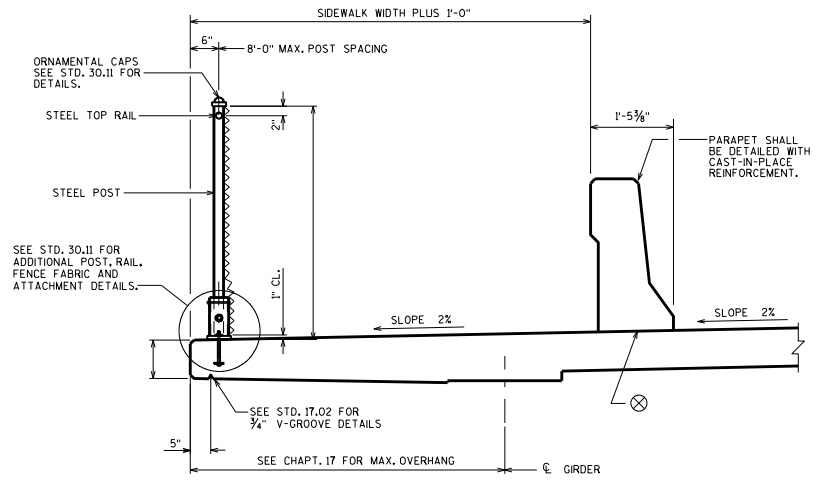
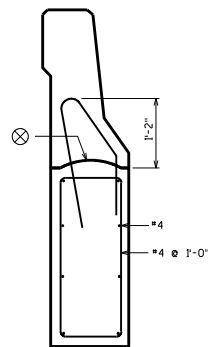
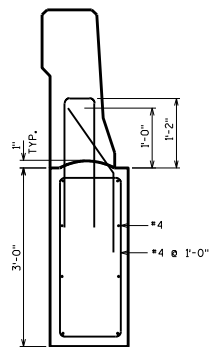
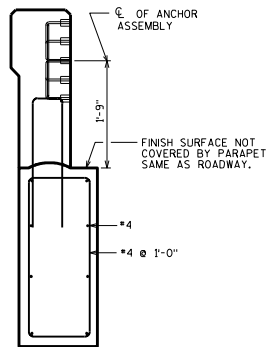
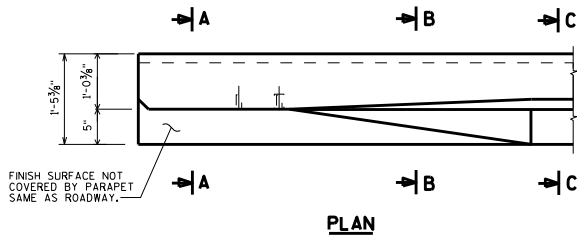
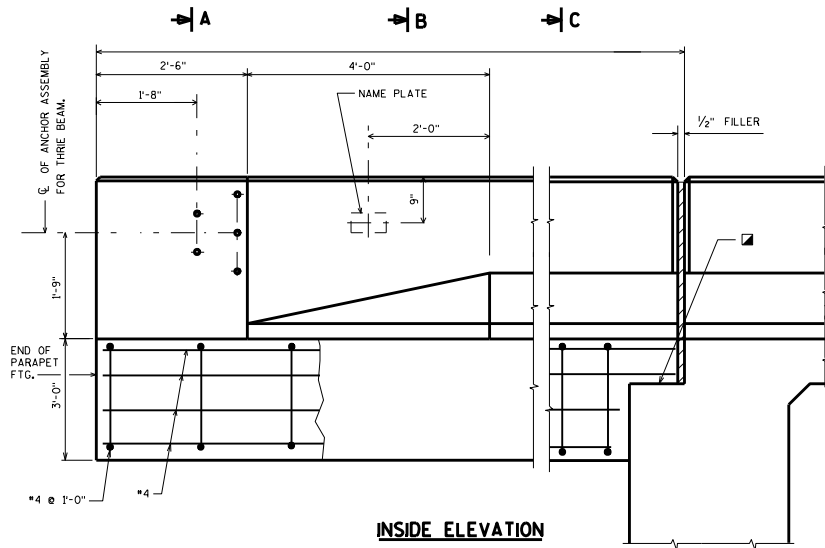
PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

DIRECTION OF TRAFFIC DETERMINES THE ORIENTATION OF PLATES 9 & 10

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY (NOT ON CURB FACE). GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.

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

COVER PLATES FOR SIDEWALK W/ STEEL RAIL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: <i>Scot Becker</i>	DATE: 7-11



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

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

DESIGNER NOTES

FOR PARAPET 'LF' DETAILS & REINFORCING DETAILS SEE SLOPED FACE PARAPET 'LF'. (STANDARD 30.12)

ALL PARAPET FOOTING BARS SHALL BE EPOXY COATED.

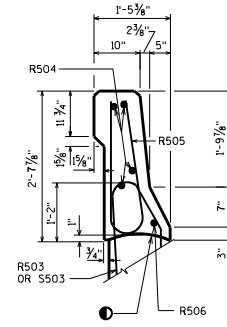
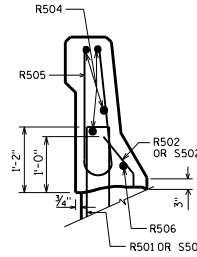
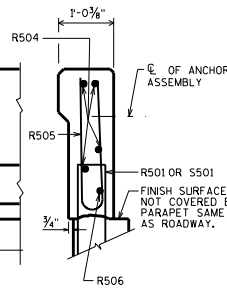
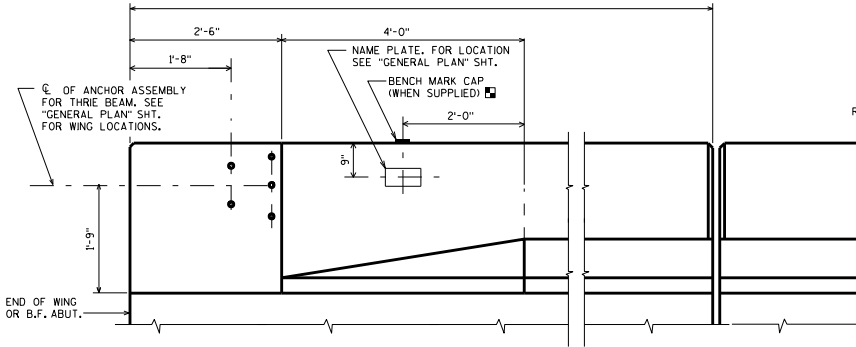
PARAPET FOOTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker*

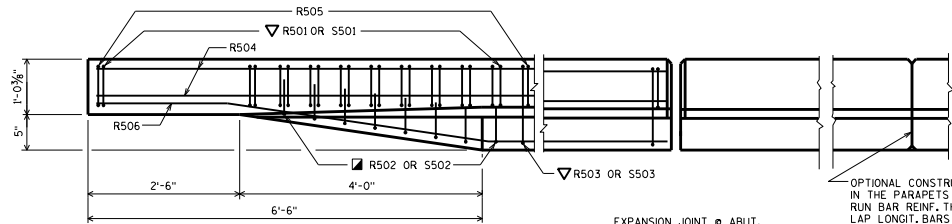
DATE:
7-11

AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.



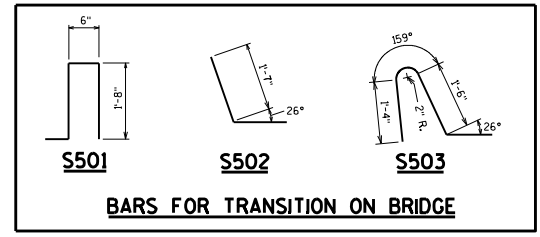
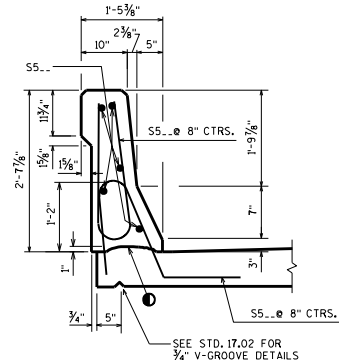
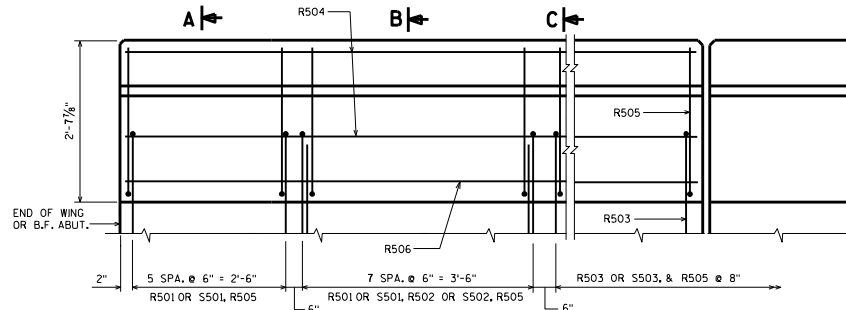
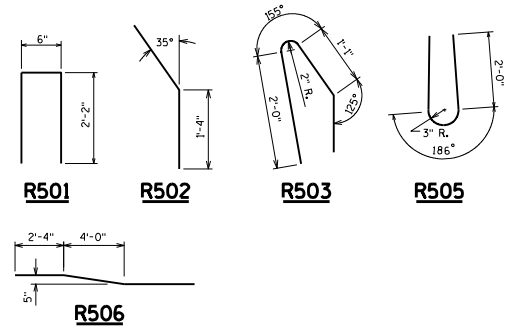
BILL OF BARS
FOR ABUTMENT PARAPETS

BAR MARK	CONC.	ABUT.	ABUT.	LENGTH	BENT	LOCATION
R501	X			4'-7"	X	PARAPET VERT.
R502	X			2'-4"	X	PARAPET VERT.
R503	X			4'-7"	X	PARAPET VERT.
R504	X					PARAPET HORIZ.
R505	X			4'-10"	X	PARAPET VERT.
R506	X				X	PARAPET HORIZ.
S501	X			4'-5"	X	PARAPET VERT.
S502	X			2'-4"	X	PARAPET VERT.
S503	X			4'-2"	X	PARAPET VERT.



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.

EXPANSION JOINT @ ABUT.
0° SKEW SHOWN. MATCH EXP. JT. OPENING.
FOR TYPE A1 ABUT., USE 1/2" FILLER TO TOP OF PARAPET. SEE STD. 12.01.



AREA = 2.58 SF
WEIGHT = 387 LB/FT

CONST. JOINT - STRIKE OFF AS SHOWN.

R502 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R502 OR S502 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

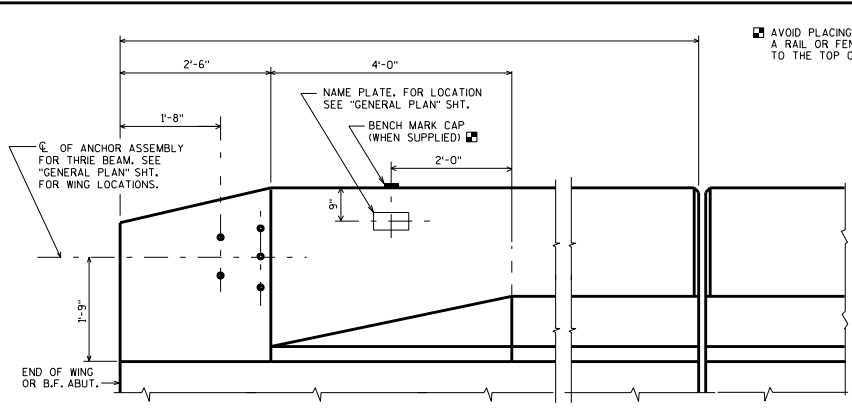
R501 AND R503 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

A R503 BAR MAY BE USED IN LIEU OF A S503 BAR ADJACENT TO THE PAVING NOTCH ON TYPE A1 ABUTMENTS.

SLOPED FACE PARAPET 'LF'

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

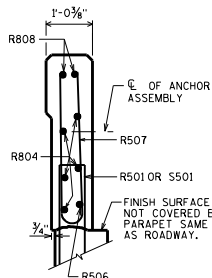
APPROVED: *Scot Becker* DATE: 7-11



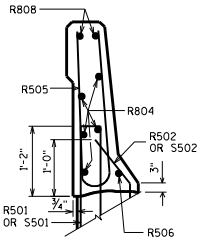
INSIDE ELEVATION

AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

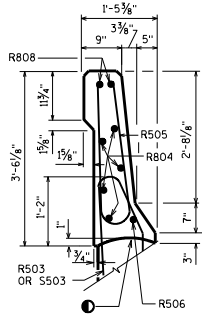
LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.



SECTION A



SECTION B



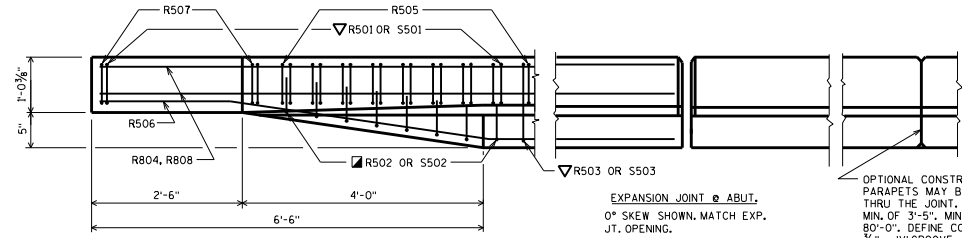
SECTION C

BILL OF BARS FOR ABUTMENT PARAPETS

BAR MARK	CONC.	ABUT.	ABUT.	LENGTH	BAR SERIES	LOCATION
R501	X			4'-7"	X	PARAPET VERT.
R502	X			2'-4"	X	PARAPET VERT.
R503	X			4'-7"	X	PARAPET VERT.
R804	X					PARAPET HORIZ.
R505	X			6'-6"	X	PARAPET VERT.
R506	X				X	PARAPET HORIZ.
R507	X			5'-8"	X	PARAPET VERT.
R808	X				X	PARAPET HORIZ.
S501	X			4'-5"	X	PARAPET VERT.
S502	X			2'-4"	X	PARAPET VERT.
S503	X			4'-7"	X	PARAPET VERT.

BAR SERIES TABLE

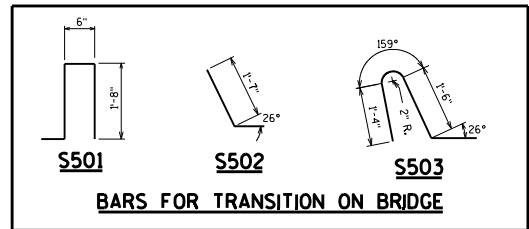
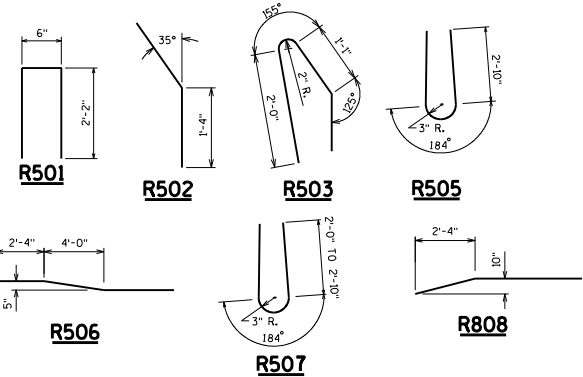
MARK	NO. REOD.	LENGTH
R507	4 SERIES OF 6	4'-10" TO 6'-6"



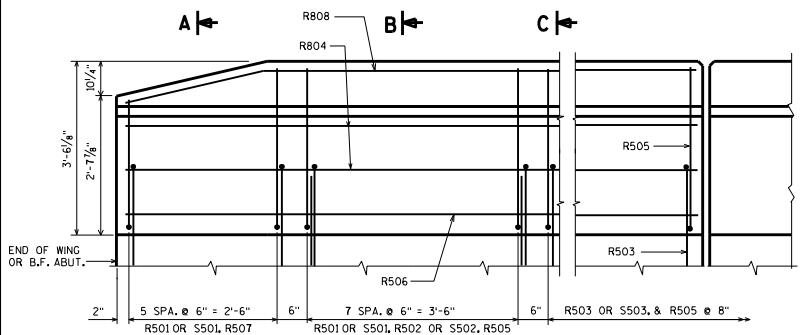
PLAN

EXPANSION JOINT @ ABUT. 0° SKEW SHOWN, MATCH EXP. JT. OPENING. FOR TYPE A1 ABUT., USE 1/2" FILLER TO TOP OF PARAPET. SEE STD. 12.01.

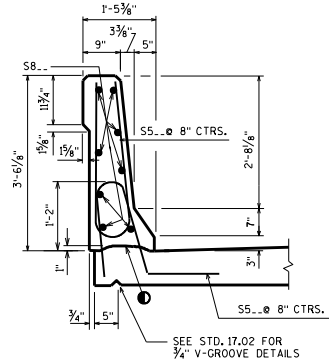
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED, RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 3'-5". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" V-GROOVE.



BARS FOR TRANSITION ON BRIDGE



OUTSIDE ELEVATION



SECTION THRU PARAPET ON BRIDGE

AREA = 3.16 SF
WEIGHT = 474 LB/FT

CONST. JOINT - STRIKE OFF AS SHOWN.

R502 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R502 OR S502 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

R501 AND R503 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

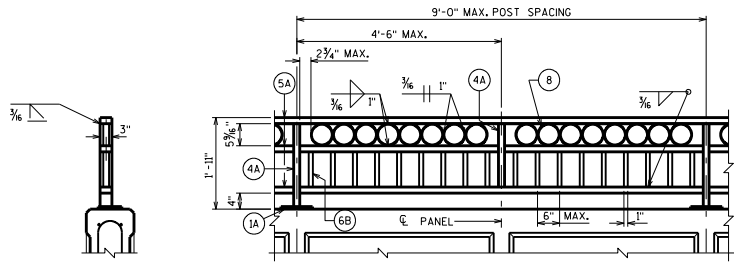
A R503 BAR MAY BE USED IN LIEU OF A S503 BAR ADJACENT TO THE PAVING NOTCH ON TYPE A1 ABUTMENTS.

SLOPED FACE PARAPET 'HF'

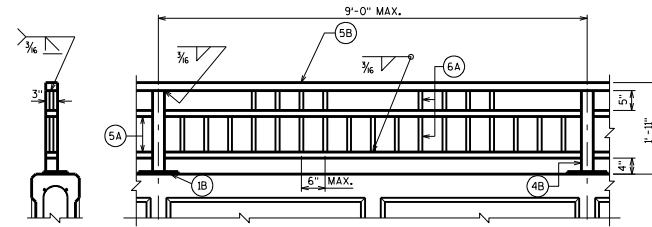
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker*

DATE: 7-11

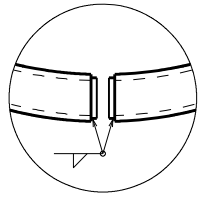


TYPE C1



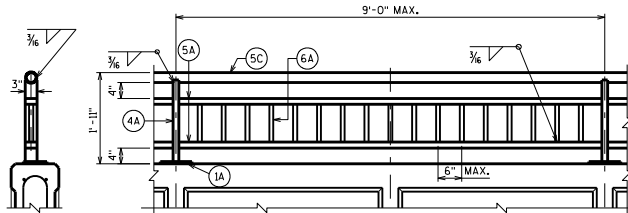
TYPE C4

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

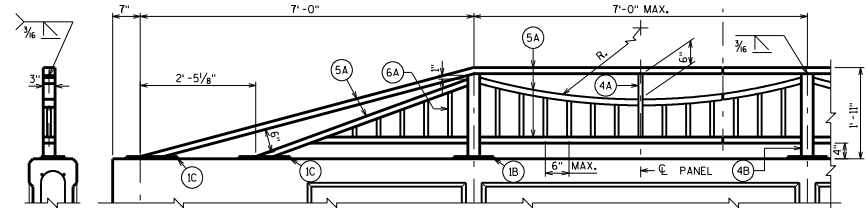


DETAIL A

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

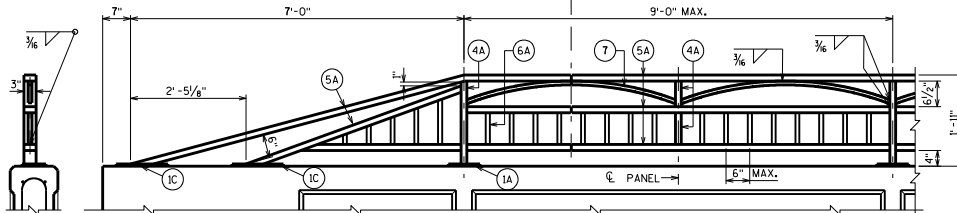


TYPE C2

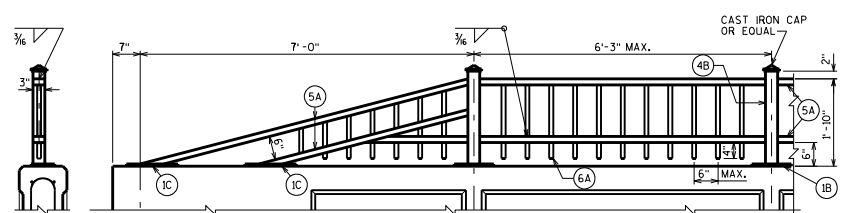


TYPE C5

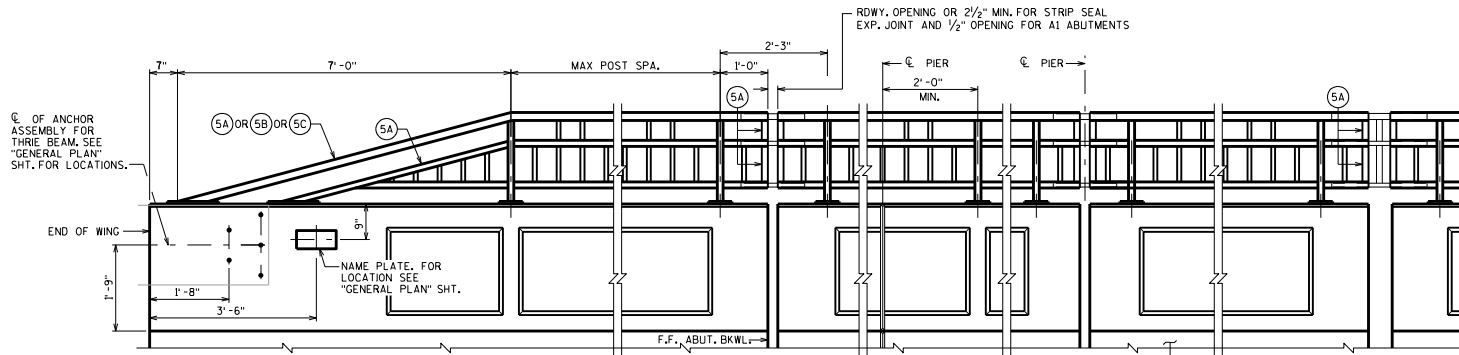
FIELD ERECTION JT. LOCATION, SEE "DETAIL A"
FOR CURVED MEMBER END JT. DETAIL, SEE STD.
30.18 FOR STRAIGHT MEMBER FIELD SPLICE DETAIL.



TYPE C3



TYPE C6



USE THIS END TRANSITION FOR ALL
RAILING TYPES UNLESS SHOWN OTHERWISE

STRIP SEAL EXP. JT. @ ABUT.
FOR TYPE A1 ABUT., USE 1/2" FILLER
TO TOP OF PARAPET. SEE STD. 12.01/12.02

DEFLECTION
JT. @ PIER

STRIP SEAL EXP. JT. @ PIER SIDEWALK

MODULAR EXP. JT.

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 3/4" V-GROOVE.

RAILING WEIGHT = 22 LB/FT

DESIGNER NOTES

COMBINATION RAILINGS 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"x3/8". WHEN USED ON A BRIDGE
A TRAFFIC BARRIER IS REQUIRED BETWEEN THE
ROADWAY AND THE SIDEWALK. THE CLEAR SPACE
BETWEEN THE TOP TWO RAILS MAY BE INCREASED TO
8" MAXIMUM EXCEPT FOR "TYPE C1" RAILING.

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

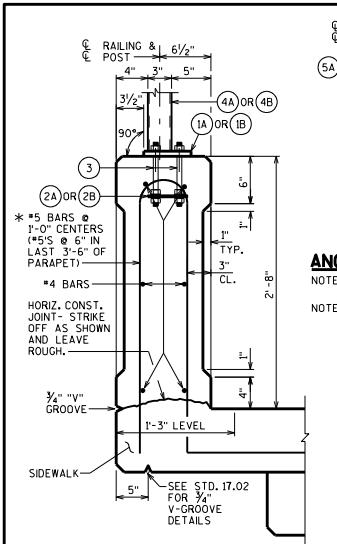
SEE STANDARD 30.18 FOR ADD'L RAILING DETAILS.

- SEE STANDARD 30.07 FOR:
- DEFLECTION JOINT DETAILS AND NOTES
- BEAM GUARD ANCHOR ASSEMBLY DETAILS
- SIDEWALK REINFORCEMENT AND DETAILS

**COMBINATION RAILING
TYPES "C1 - C6"**

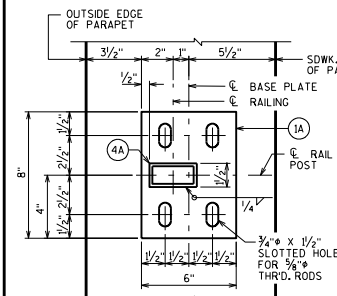
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker* DATE: 7-11

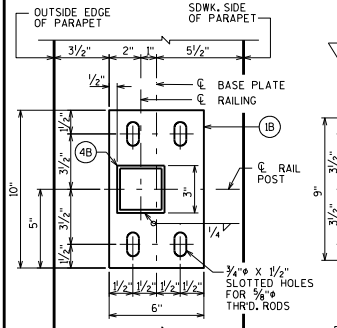


SECTION THRU PARAPET ON BRIDGE

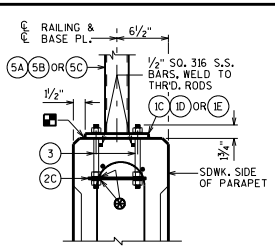
* ADJUST LOCATIONS OF BARS TO ALLOW PLACEMENT OF ANCHOR ASSEMBLY FOR RAILING AND BEAM GUARD (WHEN RECD.).



TYPICAL RAIL POST BASE PLATE
FOR 3" x 1/2" x 3/8" POSTS (2A)



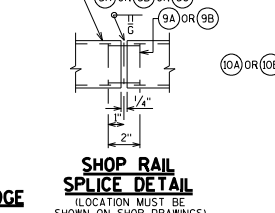
TYPICAL RAIL POST BASE PLATE
FOR 3" x 3" x 3/8" POSTS (4B)



ANCHORAGE FOR END RAIL

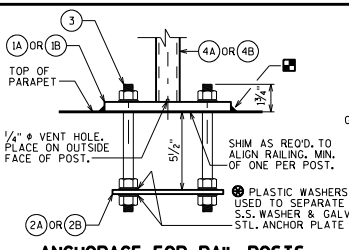
NOTE: USE 8" THRD. ROD AT PLATE ID WHEN ADJ. TO BEAM GUARD ANCHOR ASSEMBLY

NOTE: ANCHOR PLATES NOT RECD. WHEN TYPE "S" ANCHORS ARE USED.



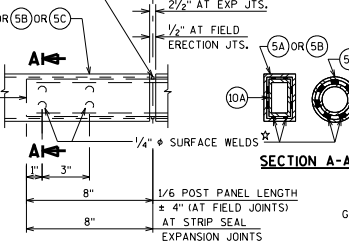
SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



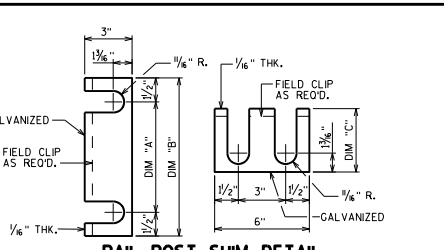
ANCHORAGE FOR RAIL POSTS

NOTE: ANCHOR PLATE NOT REQUIRED WHEN TYPE "S" ANCHORS ARE USED.



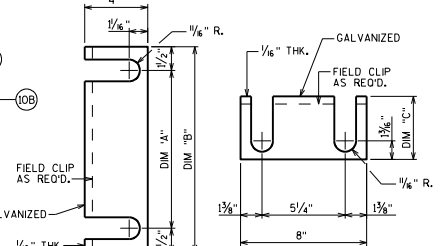
FIELD ERECTION JOINT DETAIL

* MIN. 3/8" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.



RAIL POST SHIM DETAIL

6" x 8" BASE PLATE (10) DIM "A" = 5", DIM "B" = 8", DIM "C" = 4"
6" x 10" BASE PLATE (11) DIM "A" = 7", DIM "B" = 10", DIM "C" = 5"
(2 SETS PER POST)



END RAIL SHIM DETAIL

8" x 1"-1" BASE PLATE (12) DIM "A" = 10", DIM "B" = 1"-1", DIM "C" = 6 1/2"
8" x 1"-6" BASE PLATE (13) DIM "A" = 1'-3", DIM "B" = 1'-6", DIM "C" = 9"
8" x 1'-3" BASE PLATE (14) DIM "A" = 1'-0", DIM "B" = 1'-3", DIM "C" = 7 1/2"
(2 SETS PER POST)

LEGEND

- (1A) PLATE 3/4" x 6" x 8" WITH 3/4" x 1/2" SLOTTED HOLES.
- (1B) PLATE 3/8" x 6" x 10" WITH 3/4" x 1/2" SLOTTED HOLES
- (1C) PLATE 5/8" x 8" x 1'-1" WITH 3/4" x 1/2" SLOTTED HOLES.
- (1D) PLATE 5/8" x 8" x 1'-6" WITH 3/4" x 1/2" SLOTTED HOLES
- (1E) PLATE 5/8" x 8" x 1'-3" WITH 3/4" x 1/2" SLOTTED HOLES
- (2A) 1/4" x 5" x 7" ANCHOR PLATE WITH 1/8" HOLES FOR THRD. RODS NO. 3.
- (2B) 1/4" x 5" x 9" ANCHOR PLATE WITH 1/8" HOLES FOR THRD. RODS NO. 3.
- (2C) 1/4" x 2 1/2" x 7 1/4" ANCHOR PLATE WITH 1/8" HOLES FOR THRD. RODS NO. 3.
- (3) 3/8" DIA. x 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. (ALTERNATE RAIL POST ANCHORAGE = 4 EQUAL, STAINLESS STEEL CONCRETE MASONRY ANCHORS, TYPE S (EPOXY), 3/8" DIA. MINIMUM PULLOUT CAPACITY OF 13 KIPS. EMBED A MIN. OF 7" FOR RAIL POSTS AND 5" FOR END RAILS.)
- (4A) STRUCTURAL TUBING 3" x 1 1/2" x 3/8". PLACE VERTICAL. WELD TO NO. 1 & 5.
- (4B) STRUCTURAL TUBING 3" x 3" x 3/8". PLACE VERTICAL. WELD TO NO. 1 & 5.
- (4C) STRUCTURAL TUBING 3" x 1 1/2" x 3/8" 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 3/8" RAILS. WELD TO NO. 1 & NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
- (6) 2 1/2" DIA. STANDARD PIPE RAIL (2.875" O.D.). WELD TO NO. 1 & NO. 4. INSIDE OF PIPE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
- (7A) BAR 1" x 1" PICKETS, WELD TO NO. 5. (SPACE AT 6" MAX. TO TO SPACING). PLACE VERTICAL.
- (7B) BAR 1" x 1 1/2" PICKETS, WELD TO NO. 5. (SPACE AT 6" MAX. TO TO SPACING). PLACE VERTICAL.
- (7C) BAR 1" x 1 1/2" PICKETS, WELD TO NO. 11. PLACE VERTICAL.
- (7) BAR 1" x 1". BEND TO REQUIRED RADIUS. WELD TO NO. 4 & 5.
- (8) 5" SCH. 40 PIPE (5.315" O.D.) 1/2" LONG SLICES. WELD TO NO. 5A.
- (9A) RECTANGULAR SLEEVE FABRICATED FROM 3/4" PLATES. PROVIDE "SLIDING FIT".
- (9B) CIRCULAR SLEEVE FABRICATED FROM 2" DIA. STANDARD PIPE.
- (10A) RECTANGULAR SLEEVE FABRICATED FROM 3/4" PLATES. (1'-4" DIA. FIELD ERECTION JTS.) (1'-4" DIA. STRIP SEAL EXP. JTS.)
- (10B) CIRCULAR SLEEVE FABRICATED FROM 2" DIA. STANDARD PIPE. (1'-4" DIA. FIELD ERECTION JTS.) (1'-4" DIA. STRIP SEAL EXP. JTS.)
- (11A) BAR 2 1/2" x 1" x " ".
- (11B) BAR 2 1/2" x 1 1/2" x " ".
- (11C) 2" DIA. STANDARD PIPE x " ".
- (12) 1/2" DIA. STAINLESS STEEL BOLT WITH NUT AND LOCKWASHER.

RAILING NOTES

1. BID ITEM SHALL BE "RAILING STEEL TYPE (C1-6) B-...", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

2. 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.

3. NO. 1, 2, 6, 7, 8, 9, 10 AND 11 SHALL CONFORM TO ASTM A709 GRADE 36. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B (NO. 4 & NO. 5).

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

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

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

7. 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.

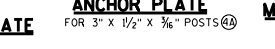
8. ALL JOINTS AND RECESSES IN CONCRETE PARAPET ARE TO BE VERTICAL.

9. 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 SPECIFICATIONS, PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE "BRIDGE SPECIAL PROVISIONS". THE RAILING SHALL BE PAINTED FEDERAL COLOR NO. 1.

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

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

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



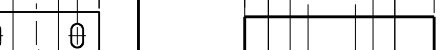
ANCHOR PLATE
FOR 3" x 1 1/2" x 3/8" POSTS (4A)



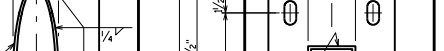
MODULAR JOINT SLEEVE DETAIL



END RAIL BASE PLATE
FOR 3" x 1 1/2" x 3/8" RAIL (2)

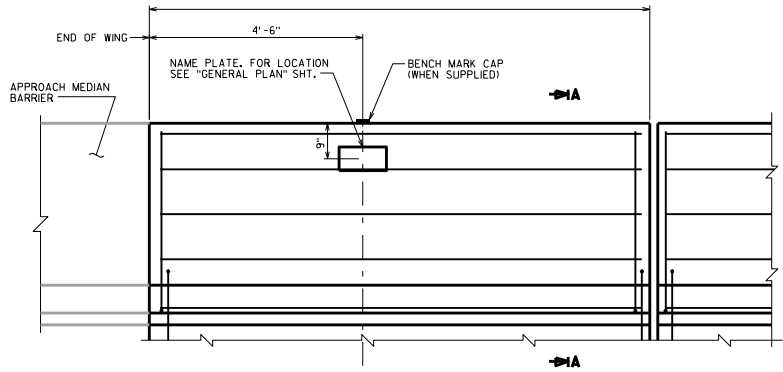


END RAIL BASE PLATE
FOR 2 1/2" DIA. STANDARD PIPE RAIL (6)

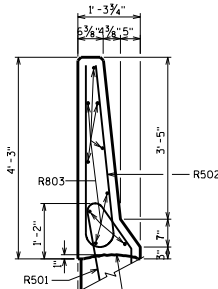


END RAIL BASE PLATE
FOR 3" x 2" x 3/8" RAIL (5)

COMBINATION RAILING DETAILS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: <i>Scot Becker</i>	DATE: 7-11



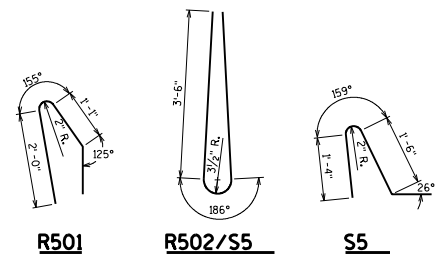
INSIDE ELEVATION



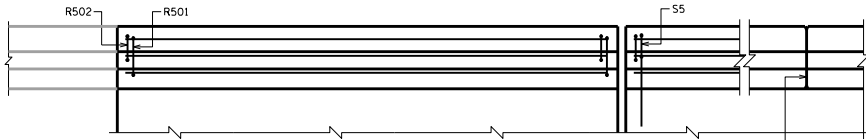
SECTION A

BILL OF BARS FOR ABUTMENT PARAPETS

BAR MARK	CO. #	ABUT.	ABUT.	LENGTH	BAR #	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.

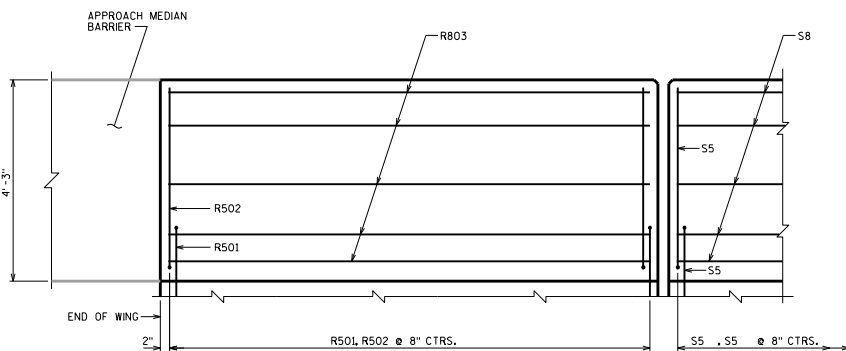


R501 **R502/S5** **S5**

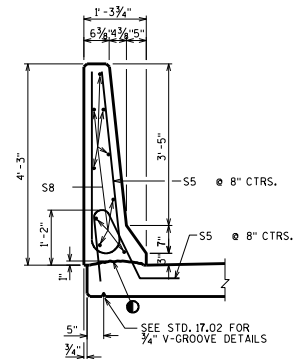


PLAN

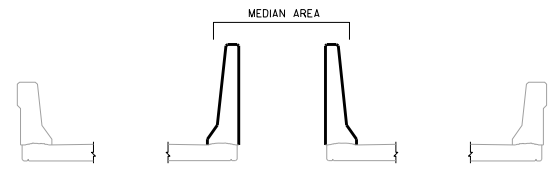
EXPANSION JOINT @ ABUT.
 0° SKEW SHOWN MATCH EXP. JT. OPENING.
 FOR TYPE A1 ABUT., USE 1/2" FILLER TO TOP OF PARAPET. SEE STD. 12.01.
 OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT; LAP LONGIT. BARS A MIN. OF 3'-5". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 1" GROOVE.



OUTSIDE ELEVATION



SECTION THRU PARAPET ON BRIDGE



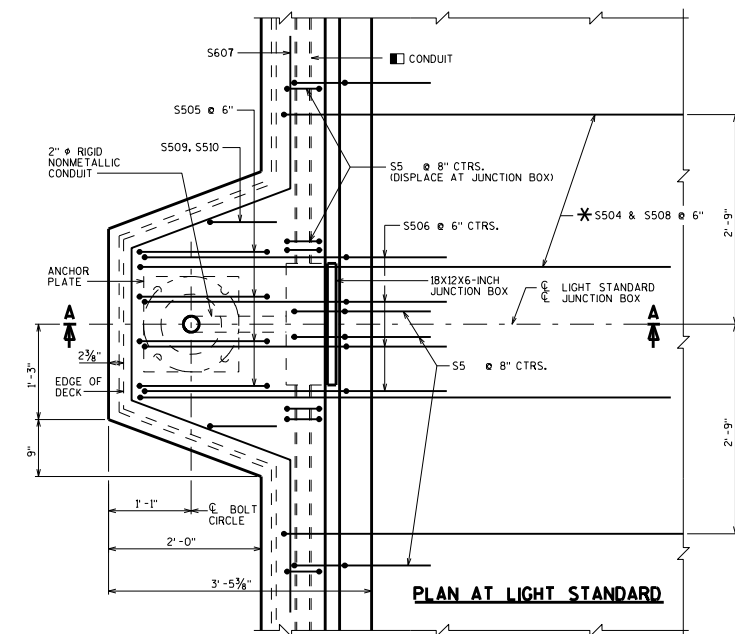
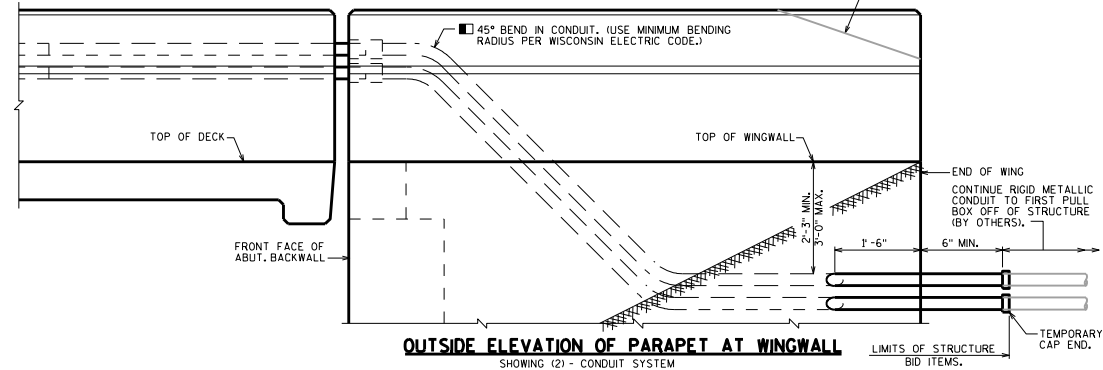
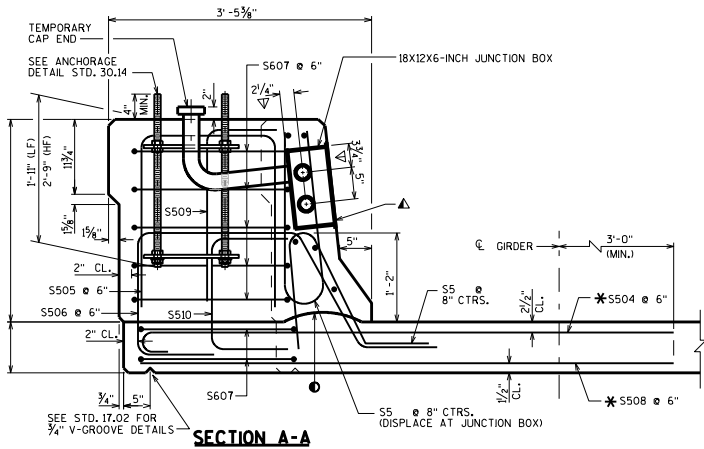
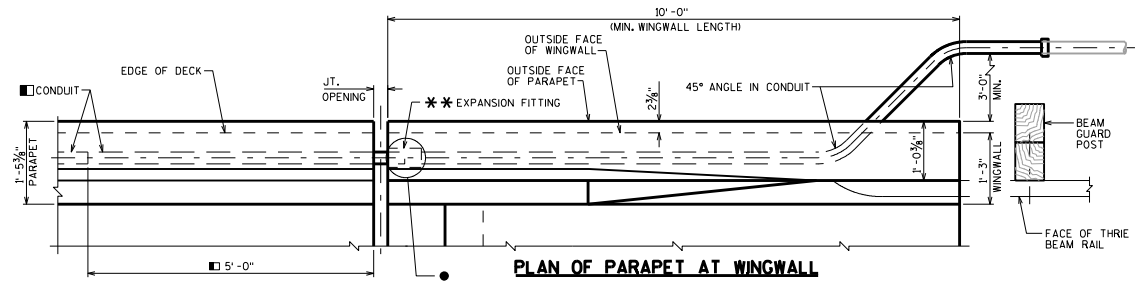
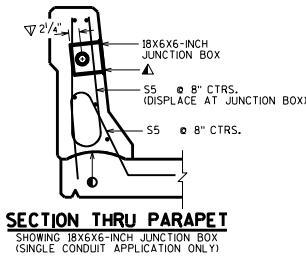
SLOPED FACE PARAPET "51F" MAY BE USED IN MEDIAN AREA OF ADJACENT STRUCTURES WHEN HIGHWAY MEDIAN APPROACH CONCRETE BARRIER IS 5' HIGH

- 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"

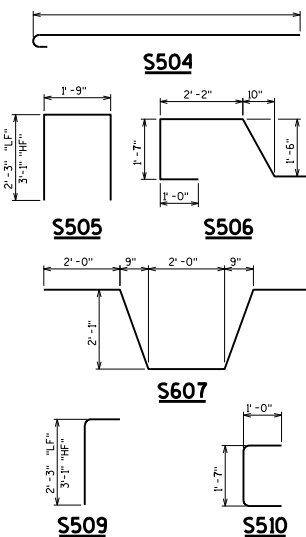
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker* DATE: 7-11



● POSITION MOVABLE END OF CONDUIT INSIDE EXPANSION FITTING, SUCH THAT IT WILL HAVE THE SAME ALLOWANCE FOR MOVEMENT (EXPANSION/CONTRACTION) AS THE EXPANSION DEVICE SET IN PLACE IN THE DECK BELOW IT. TAKE CARE TO INSTALL EXPANSION FITTING AND CONDUIT EXACTLY PARALLEL TO BRIDGE MOVEMENT.

- CONSTR. JT. STRIKE OFF AS SHOWN
- USE 2" RIGID NONMETALLIC CONDUIT EXCEPT AT EXPANSION FITTING. AT EXPANSION FITTING USE RIGID METALLIC CONDUIT 5'-0" INTO PARAPET ON DECK SIDE AND THRU PARAPET AND WINGWALL TO A MINIMUM OF 6" BEYOND END OF WINGWALL (FOR GROUNDING PURPOSES.)
- ▲ CUT OUT ± 1" OF GASKET AT BOTTOM OF JUNCTION BOX COVER TO ALLOW FOR DRAINAGE.
- * THESE BARS ARE IN ADDITION TO STANDARD TRANSVERSE BARS IN DECK. FOR CONC. SLAB STRUCTURES, REPLACE S504 & S508 BARS W/ S504 BARS @ 6" SPA. (W/O HOOK @ ENDS, 5'-6" LONG.)
- ▽ LOCATION OF CONDUIT IS MEASURED FROM OUTSIDE EDGE OF JUNCTION BOX.



NOTES

- BID ITEMS SHALL BE:
 - "JUNCTION BOXES 18X12X6-INCH", EACH.
 - "JUNCTION BOXES 18X6X6-INCH", EACH.
 - "CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH"
 - "CONDUIT RIGID METALLIC 2-INCH"
 - "ANCHOR ASSEMBLIES LIGHT POLES"
- EXPANSION FITTINGS, ANGLES AND ADAPTER FITTINGS TO BE INCIDENTAL TO "CONDUIT RIGID METALLIC 2-INCH".
- WHEN CONNECTING NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS U.L. LISTED FOR ELECTRICAL USE SHALL BE USED.
- APPROVED MANUFACTURERS - JUNCTION BOXES: SEE APPROVED MATERIAL LIST.
- APPROVED MANUFACTURER OR EQUIVALENT - EXPANSION FITTING (SPECIFY SIZE ON PLANS):
 - 0-Z/GEDNEY TYPE AX-200 AND BONDING JUMPER (4" TOTAL CONDUIT MOVEMENT).
 - 0-Z/GEDNEY TYPE AX-8-200 AND BONDING JUMPER (8" TOTAL CONDUIT MOVEMENT).
 - 0-Z/GEDNEY TYPE EX-200 WITH PBS-200-12S AND BONDING JUMPER (10" TOTAL CONDUIT MOVEMENT).
- THIS STANDARD ACCOMMODATES A MAXIMUM 15" BOLT HOLE CIRCLE AND A MAXIMUM 15" X 15" SQUARE ANCHOR PLATE WITH (4) - 1" ANCHOR BOLTS. THIS STANDARD IS BASED ON A 8" MIN. DECK THICKNESS AND A MAXIMUM OVERHANG OF 3'-7" FROM G. GIRDER TO EDGE OF DECK.

JUNCTION BOX REQUIREMENTS

- PLACE A 18" X 12" X 6" JUNCTION BOX AT EACH LIGHT STANDARD (CENTERED ON LIGHT G.).
- USE A JUNCTION BOX TO KEEP A CONTINUOUS RUN OF CONDUIT (PULL LENGTH) TO A MAXIMUM OF 190 FT. CONTACT THE BUREAU OF HIGHWAY OPERATIONS, ELECTRICAL SECTION WHEN PULL LENGTH IS > 190 BUT < 200'.

CONDUIT REQUIREMENTS

- USE (1) - 2" CONDUIT TO PROVIDE ELECTRICAL SERVICE TO LIGHTS MOUNTED ON TOP OF THE PARAPET.
- USE (2) - 2" CONDUITS IF AN ADDITIONAL ELECTRICAL SERVICE IS REQUIRED.
- USE A 18" X 6" X 6" JUNCTION BOX WHEN (1) - 2" CONDUIT IS PRESENT.
- USE A 18" X 12" X 6" JUNCTION BOX WHEN (2) - 2" CONDUITS ARE PRESENT.

**** EXPANSION FITTING REQUIREMENTS**

- USE AN APPROVED EXPANSION FITTING AT EACH SEMI-EXPANSION OR EXPANSION JOINT.
- RUN CONDUIT STRAIGHT THROUGH (WITHOUT A FITTING) AT EACH FIXED JOINT.

BILL OF BARS

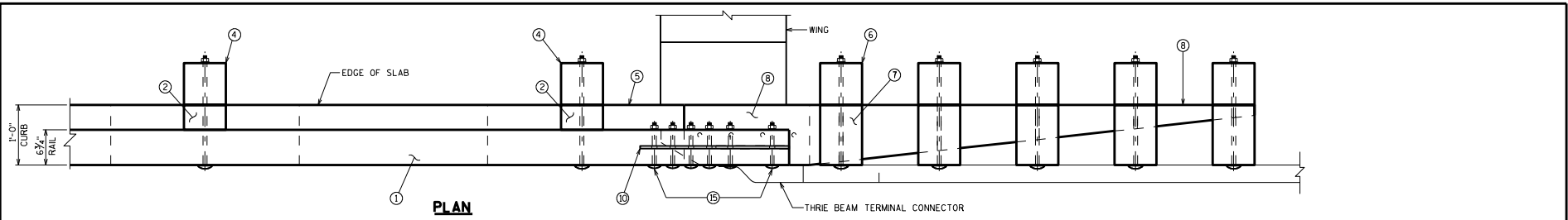
BAR MARK	CO. OF	NO. REOD.	LENGTH LF	LENGTH HF	BENT	LOCATION
S504	X				X	DECK TRANSV. @ LIGHT STD.
S505	X	6-0	7-8		X	PARAPET VERT. @ LIGHT STD.
S506	X	7-0	7-0		X	PARAPET VERT. @ LIGHT STD.
S607	X	10-0	10-0		X	PARAPET HORIZ. @ LIGHT STD.
S508	X					DECK TRANSV. @ LIGHT STD.
S509	X	3-2	4-0		X	PARAPET VERT. @ LIGHT STD.
S510	X	3-5	3-5		X	PARAPET VERT. @ LIGHT STD.

LIGHT STD., JUNCTION BOX, & EXP. FITTING FOR "LF"/"HF" PARA.

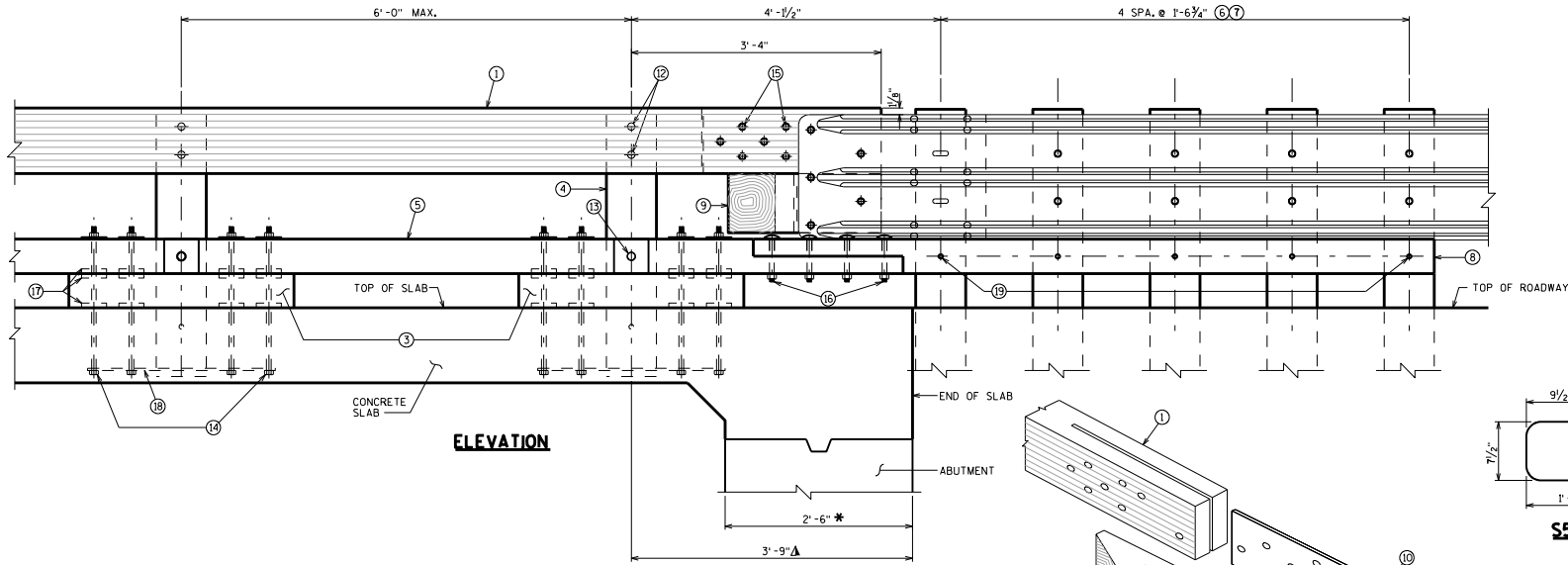
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker*

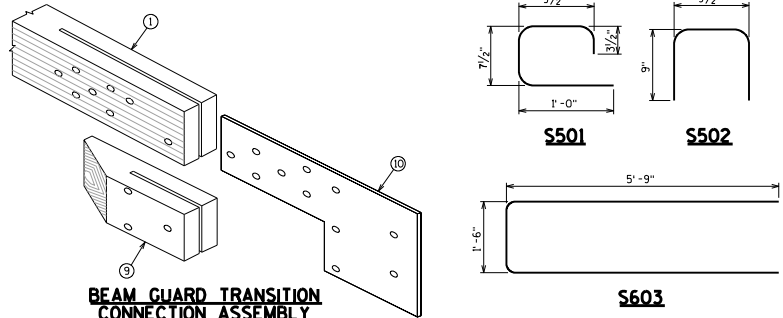
DATE: 7-11



PLAN

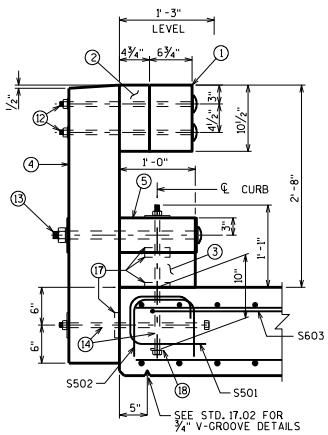


ELEVATION

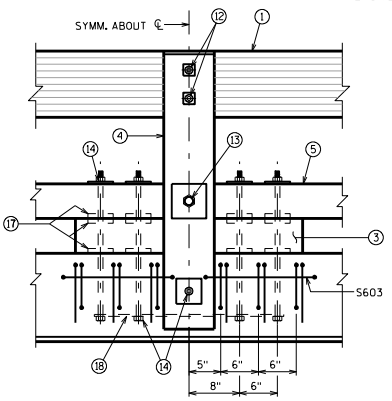


BEAM GUARD TRANSITION CONNECTION ASSEMBLY

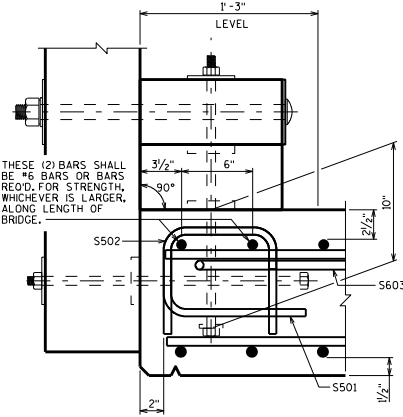
* DIMENSION IS TAKEN NORMAL TO ϕ SUBSTRUCTURE.
 Δ DIMENSION IS TAKEN ALONG EDGE OF SLAB.



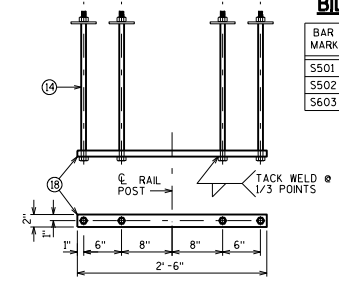
SECTION THRU RAIL
 ALSO SEE "EDGE OF SLAB DETAILS"



BACK ELEVATION



EDGE OF SLAB DETAILS



ANCHORAGE DETAIL

BILL OF BARS NOTE: THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	QTY	NO. REQ'D.	LENGTH	REMARKS	LOCATION
S501	X		2-4	X	RAIL POST VERTICAL
S502	X		2-1	X	RAIL POST VERTICAL
S603	X		12-9	X	RAIL POST HORIZONTAL

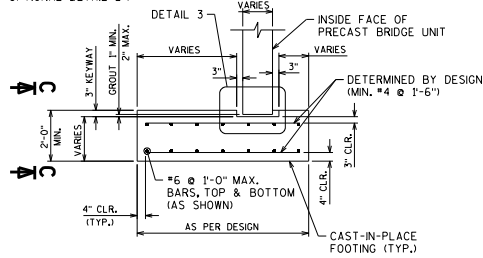
SEE STANDARD 30.25 FOR RAILING DETAILS

TIMBER RAILING ATTACHED TO CONCRETE SLAB

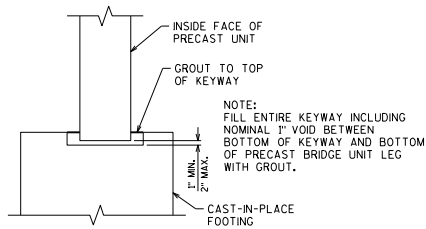
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker* DATE: 7-11

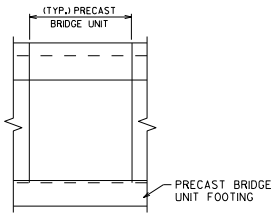
SPREAD FOOTING SHOWN, OTHER FOUNDATION TYPES POSSIBLE. (FOR PEDESTAL WALL, PILE AND BASE SLAB FOUNDATIONS, "SEE OPTIONAL DETAIL 2")



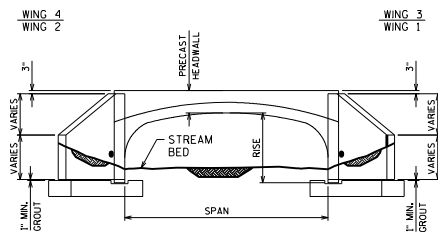
DETAIL 2



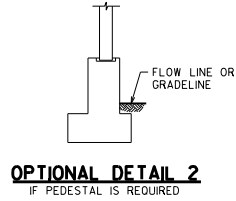
DETAIL 3



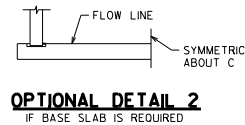
SECTION C



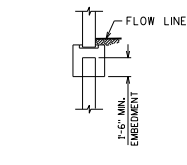
TYPICAL END ELEVATION



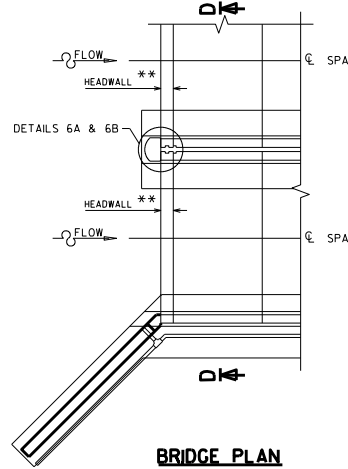
OPTIONAL DETAIL 2
IF PEDESTAL IS REQUIRED



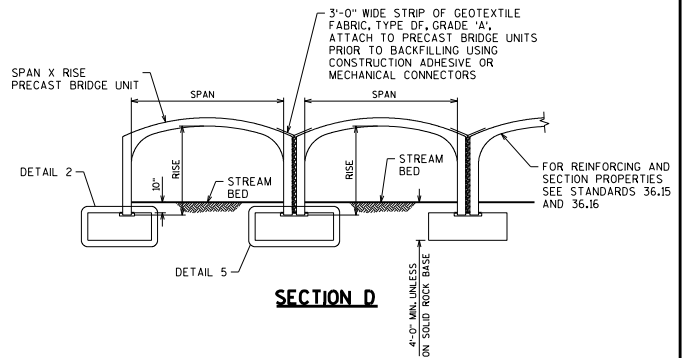
OPTIONAL DETAIL 2
IF BASE SLAB IS REQUIRED



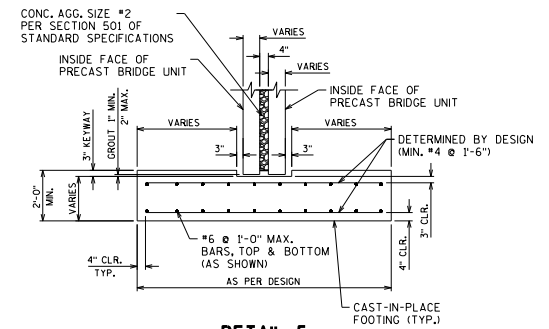
OPTIONAL DETAIL 2
IF PILES ARE REQUIRED



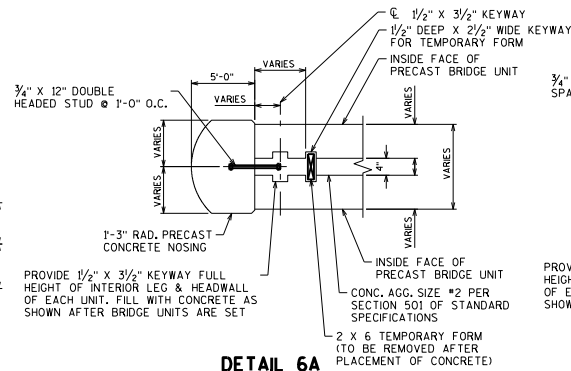
BRIDGE PLAN



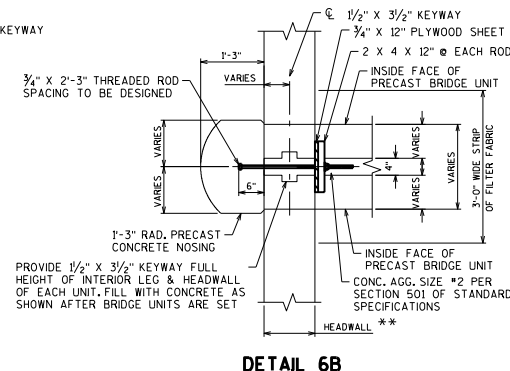
SECTION D



DETAIL 5



DETAIL 6A



DETAIL 6B

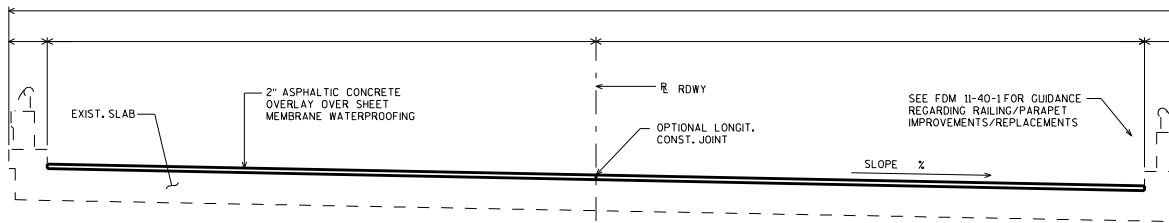
NOTES:
**SEE STANDARDS 36.13 AND 36.14 FOR HEADWALL DETAILS AND FEASIBILITY GUIDELINES

PRECAST THREE-SIDED BOX CULVERT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: Scot Becker

DATE:
7-11



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

UNDER THE BID ITEM "MASONRY ANCHORS TYPE S .-.INCH", ANCHORED REINFORCING STEEL SHALL BE PAID FOR SEPARATELY AS PROVIDED IN SECTION 805 OF THE STANDARD SPECIFICATIONS FOR BAR STEEL REINFORCEMENT.

DESIGN DATA

LIVE LOAD: _____

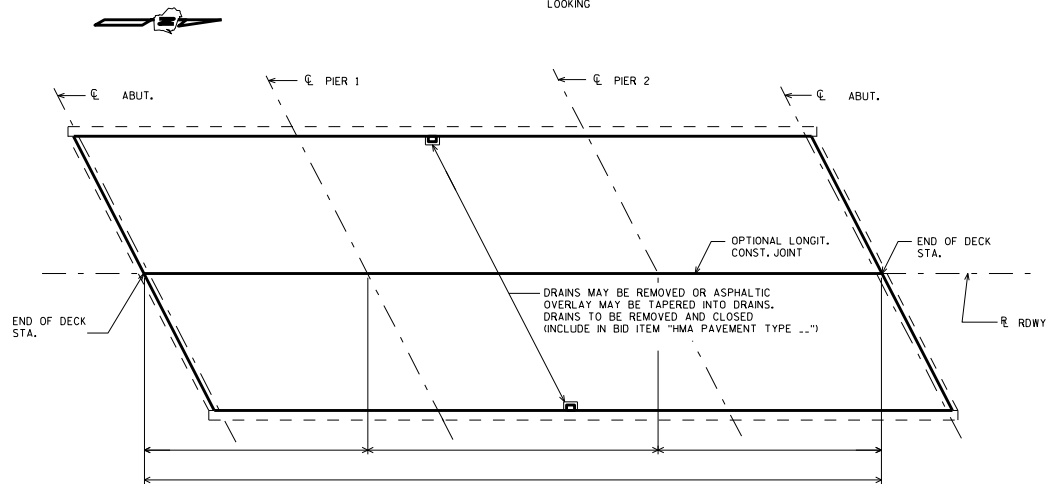
INVENTORY RATING: HS-
OPERATIONAL RATING: HS-
MAXIMUM STANDARD PERMIT VEHICLE LOAD = ... Kips

ULTIMATE DESIGN STRESSES: _____

CONCRETE MASONRY SUPERSTRUCTURE $f'_c = 4,000$ P.S.I.

CROSS SECT. THRU RDWY.

LOOKING



PLAN

NOTE:

PROFILE GRADE LINE SHALL BE DETERMINED BASED ON AN OVERLAY THICKNESS OF 2" PLACED ABOVE THE DECK SURFACE. IF EXPECTED OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION. TOP OF EXISTING DECK ELEVATIONS SHALL BE DETERMINED FROM A FIELD SURVEY AT LOCATIONS DEEMED NECESSARY FOR ESTABLISHING OVERLAY THICKNESS FOR ACCURATE RATINGS AND POINT OF MINIMUM THICKNESS.

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

ANY EXCAVATION REQ'D. TO COMPLETE THE OVERLAY OR THE PAVING BLOCK AT ABUTS. IS INCIDENTAL TO THE BID ITEM, "HMA PAVEMENT TYPE .-.".

TOTAL ESTIMATED QUANTITIES

BID ITEMS	UNIT	TOTAL
HMA PAVEMENT TYPE .-. .-	TON	
ASPHALTIC MATERIAL .-. .-	TON	
SHEET MEMBRANE WATERPROOFING	SY	
PREPARATION DECKS TYPE 1	SY	
PREPARATION DECKS TYPE 2	SY	
POSSIBLE ADDITIONAL BID ITEMS		
FULL-DEPTH DECK REPAIR	SY	
CURB REPAIR	LF	
JOINT REPAIR	SY	
CURB RESURFACING	LF	
RUPTURED VOID REPAIR	SY	
CRACK SEALING EPOXY	LF	
SAWING PAVEMENT DECK PREPARATION AREAS	LF	
EXPANSION DEVICE B-.-.	LS	
MASONRY ANCHORS TYPE L NO. . BARS	EACH	
MASONRY ANCHORS TYPE S .-.INCH	EACH	
BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	
ADJUSTING FLOOR DRAINS	EACH	
DECK GRINDING	SY	
CONCRETE MASONRY DECK PATCHING	CY	
REMOVING CONCRETE OVERLAY	SY	

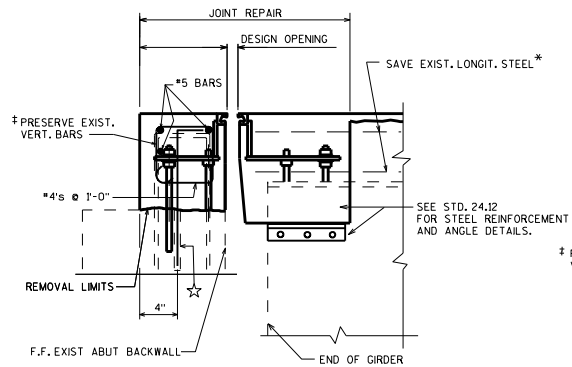
NOTE:
CONCRETE OVERLAYS ARE THE CURRENT PREFERRED METHOD TO OVERLAY A BRIDGE.

ASPHALTIC OVERLAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: Scot Becker

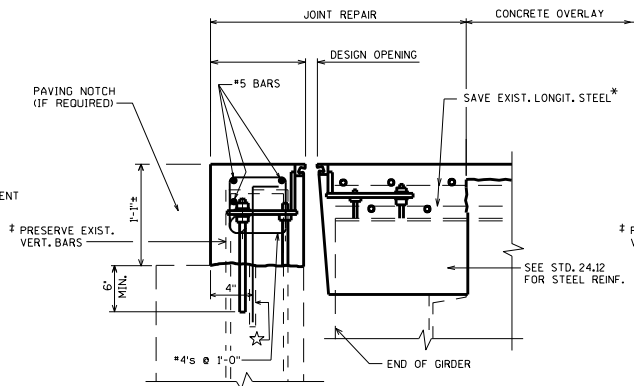
DATE:
7-11



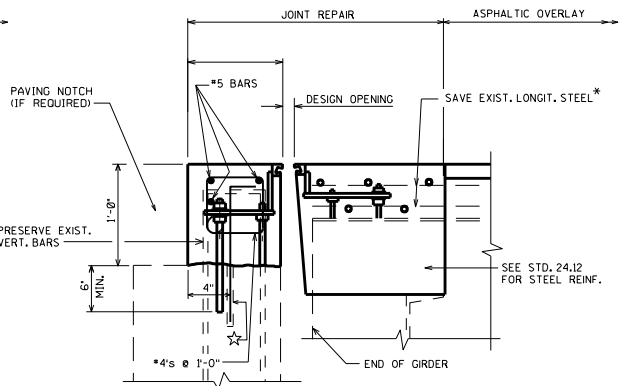
**SECTION THRU JOINT
STEEL GIRDER WITHOUT END DIAPHRAGM**

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

☆ MASONRY ANCHORS TYPE L NO. 5 BARS HAVING A MINIMUM PULLOUT CAPACITY OF 19 KIPS, EMBED 1'-3" INTO EXISTING CONCRETE. EPOXY ANCHORED. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.



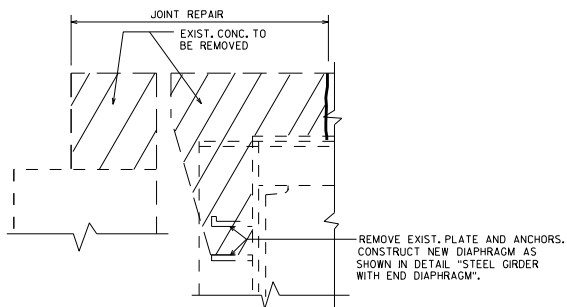
**SECTION THRU PROPOSED JOINT
STEEL GIRDER WITH END DIAPHRAGM
CONCRETE OVERLAY**



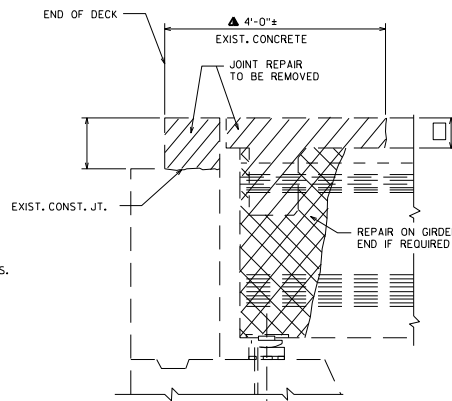
**SECTION THRU PROPOSED JOINT
STEEL GIRDER WITH END DIAPHRAGM
ASPHALTIC OVERLAY**

TOTAL ESTIMATED QUANTITIES

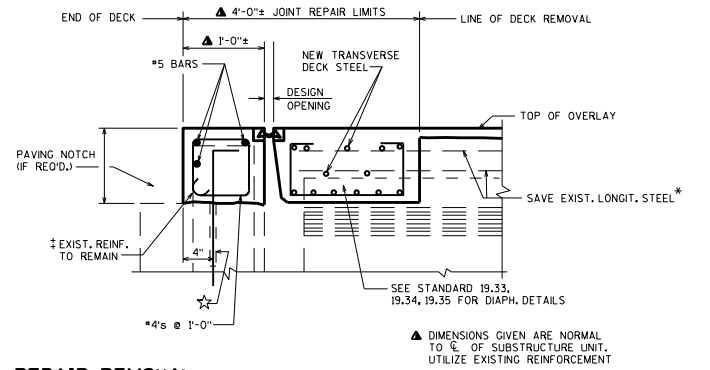
BID ITEMS	UNIT
JOINT REPAIR	SY
EXPANSION DEVICE B-1-	1LS
BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB



**JOINT REPAIR-REMOVAL
STEEL GIRDER**



**JOINT REPAIR-REMOVAL
SECTION THRU JOINT-PRESTRESSED GIRDER**



▲ DIMENSIONS GIVEN ARE NORMAL TO C. OF SUBSTRUCTURE UNIT. UTILIZE EXISTING REINFORCEMENT

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

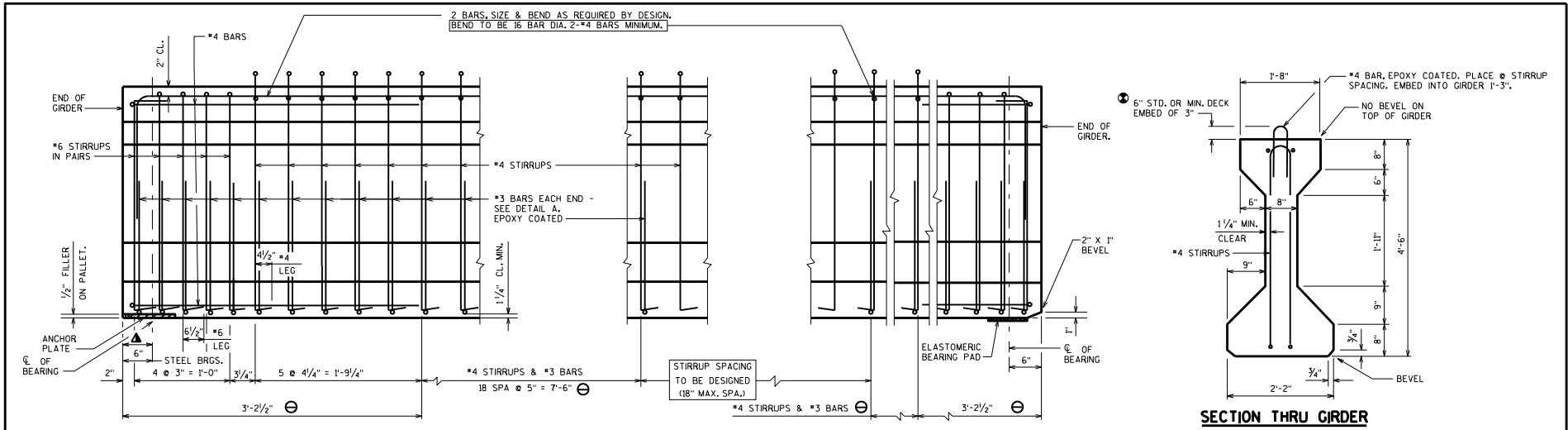
*FOR SKEWS > 20°, WHERE ORIGINAL TRANSVERSE DECK REINFORCEMENT WAS PLACED NORMAL TO THE GIRDERS, SAVE AND INCORPORATE 1'-6" MIN. OF TRANSVERSE REINFORCING BARS.

**STRIP SEALS & DIAPH.
DETAILS FOR OVERLAYS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: *Scot Becker*

DATE:
7-11

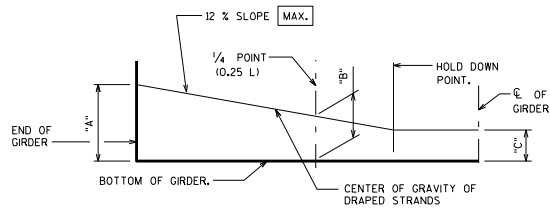


SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

SIDE VIEW OF GIRDER

SUPPORT WITH 1/2" ELASTOMERIC BRG. PAD

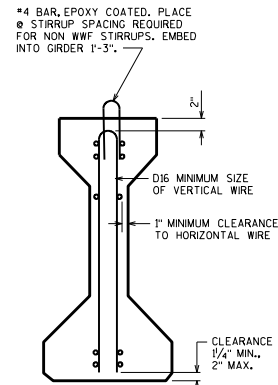
SECTION THRU GIRDER



"A" TO BE GIVEN TO THE NEAREST 1"
 "B" = $\frac{1}{4}(A + 3 \cdot C)$ [MIN.]
 "B" = $\frac{1}{4}(A + 3 \cdot C) + 3$ [MAX.]

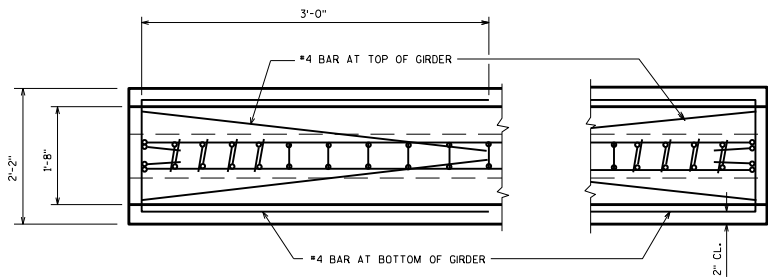
RECORD DIMENSIONS "A", "B" & "C" ON FINAL PLANS.

LOCATION OF DRAPED STRANDS

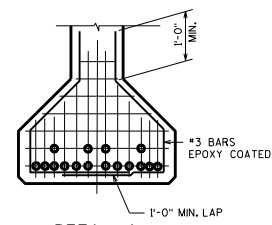


SECTION THRU GIRDER

SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS



TOP VIEW OF GIRDER



DETAIL A

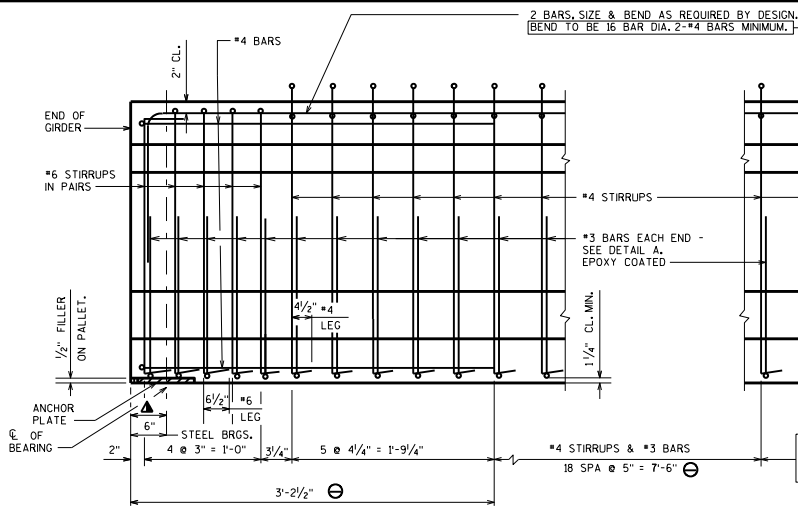
DESIGNER NOTES

- BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE 154-INCH.
- THE MAX. NUMBER OF DRAPED 0.5" STRANDS IS 12 AND FOR 0.6" STRANDS THE MAX. IS 10.
- SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI.
- REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STRAND PATTERNS LISTED ON STANDARD 40.14 AND THE SPAN LENGTHS SHOWN IN TABLE 40.7-1, USING DIFFERENT STRAND PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT. PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES IS REQUIRED IF DESIGN OF THE END REINFORCEMENT IS REQUIRED.
- ⊖ DETAILS TYPICAL AT EACH END.
- ▲ VARIES FOR ELASTOMERIC BRGS. SEE STD. 27.07
- ⦿ THE DESIGN ENGINEER DETERMINES THIS VALUE BASED ON 2" MIN. HAUNCH AT EDGE F 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 2 1/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ± 3/4" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

GENERAL NOTES

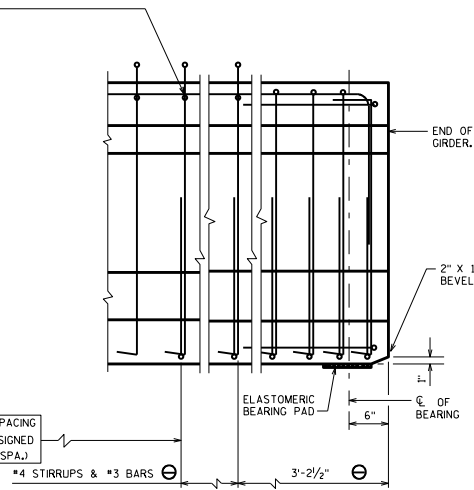
- TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BONDING TO THE SLAB, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL BE TROWEL FINISHED.
- DO NOT APPLY CONCRETE SEALER TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.
- THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.
- STRANDS SHALL BE FLUSH WITH END OF GIRDER FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE. ENDS OF STRANDS SHALL BE PAINTED 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 M, 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. IF THE FABRICATOR WANTS TO USE A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, THE FOLLOWING ONE OPTION IS AVAILABLE:
- USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.
- AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT CHIEF, (608)266-5161. WELDED WIRE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF ASTM A497.

54" PRETENSIONED GIRDER DETAILS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: <i>Scot Becker</i>	DATE: 7-11

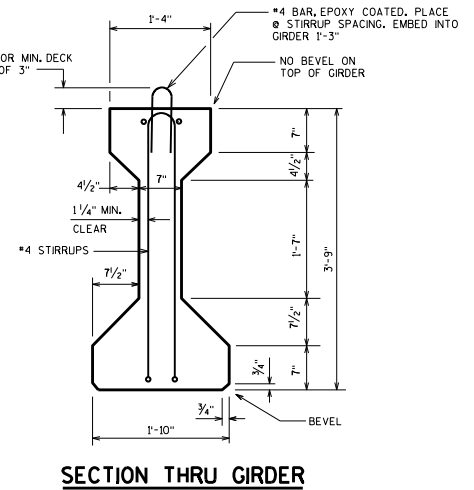


SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

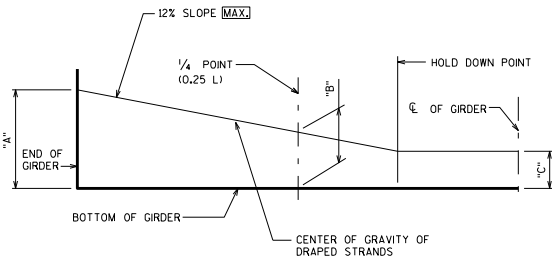
SIDE VIEW OF GIRDER



SUPPORT WITH 1/2" ELASTOMERIC BRG. PAD



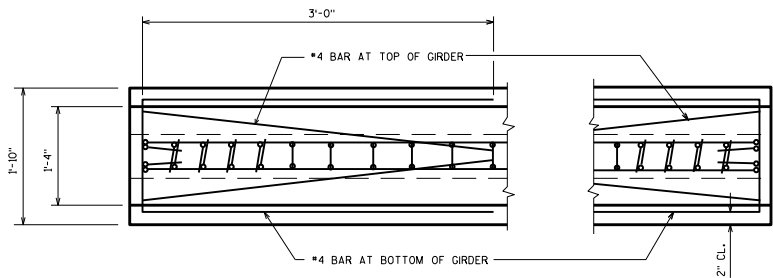
SECTION THRU GIRDER



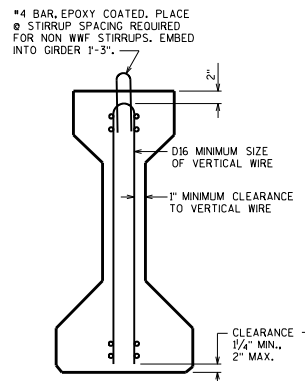
"A" TO BE GIVEN TO THE NEAREST 1"
 "B" = 1/4("A" + 3 "C") [MIN.]
 "B" = 1/4("A" + 3 "C") + 3" [MAX.]

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

LOCATION OF DRAPED STRANDS

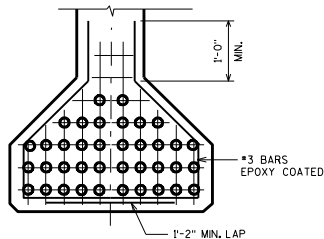


TOP VIEW OF GIRDER



SECTION THRU GIRDER

SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS



DETAIL A

DESIGNER NOTES

- BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE 145-INCH.
- THE MAX. NUMBER OF DRAPED 0.5" STRANDS IS 10 AND FOR 0.6" STRANDS THE MAX. IS 8.
- SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI.
- REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STRAND PATTERNS LISTED ON STANDARD 40.18 AND THE SPAN LENGTHS SHOWN IN TABLE 40.7-1. USING DIFFERENT STRAND PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT. PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES IS REQUIRED IF DESIGN OF THE END REINFORCEMENT IS REQUIRED.

⊖ DETAILS TYPICAL AT EACH END.

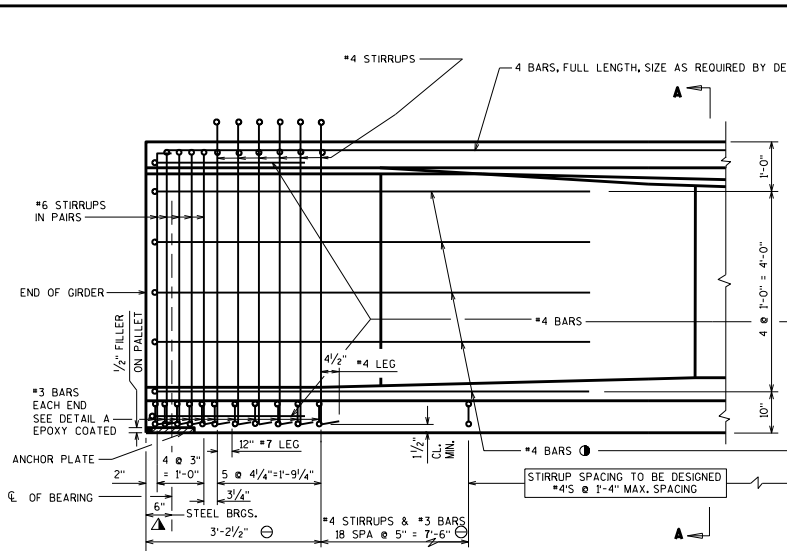
⚠ VARIES FOR ELASTOMERIC BRGS. SEE STD. 27.07

⦿ THE DESIGN ENGINEER DETERMINES THIS VALUE BASED ON 2" MIN. HAUNCH AT EDGE F 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 2/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ±3/4" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

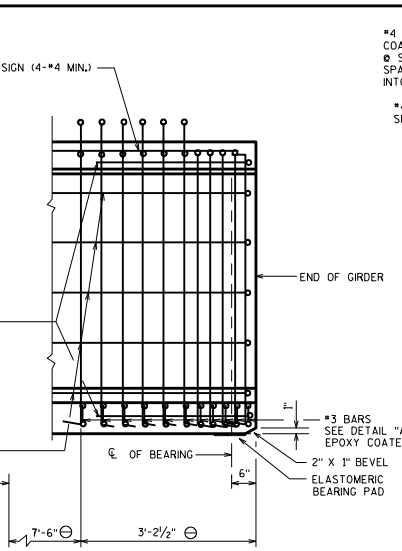
GENERAL NOTES

- TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BONDING TO THE SLAB, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL BE TROWEL FINISHED.
- DO NOT APPLY CONCRETE SEALER TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.
- THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.
- STRANDS SHALL BE FLUSH WITH END OF GIRDER FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE.
- 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 M, 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. IF THE FABRICATOR WANTS TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, THE FOLLOWING ONE OPTION IS AVAILABLE:
 USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.
- AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT CHIEF. (6081266-5161. WELDED WIRE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF ASTM A497.

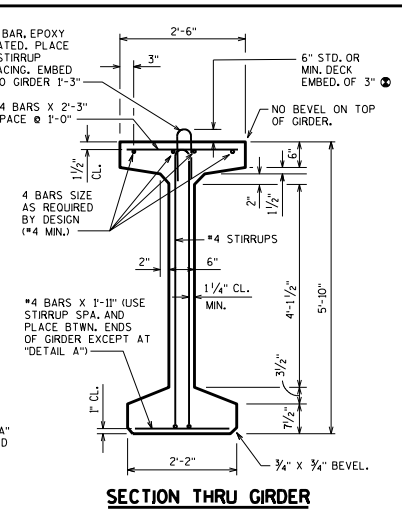
45" PRESTRESSED GIRDER DETAILS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: <i>Scot Becker</i>	DATE: 7-11



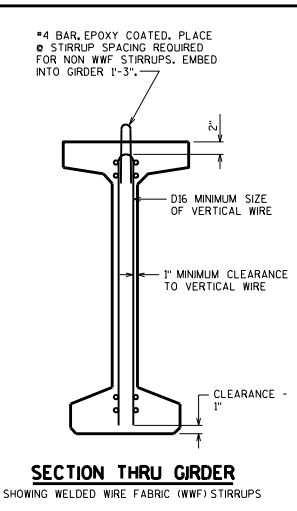
SUPPORT WITH STEEL OR ELASTOMERIC BRGS.



SUPPORT WITH 1/2" ELASTOMERIC BEARING PAD

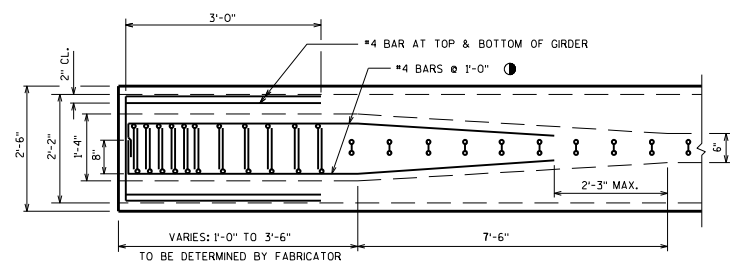


SECTION THRU GIRDER

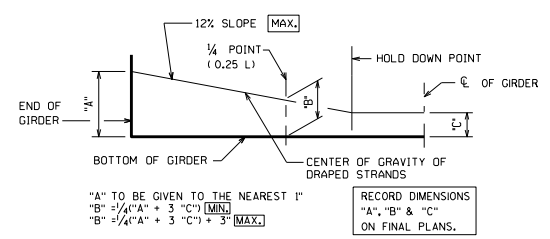


SECTION THRU GIRDER

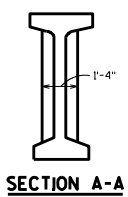
SIDE VIEW OF GIRDER



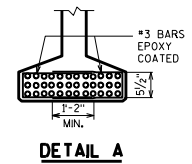
TOP VIEW OF GIRDER



LOCATION OF DRAPED STRANDS



SECTION A-A



DETAIL A

DESIGNER NOTES

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE 170-INCH. THE MAX. NUMBER OF DRAPED 0.6" STRANDS IS 8. SHOW ONLY ONE STRAND SIZE ON THE PLANS.

GIRDER LENGTHS IN EXCESS OF 140 FEET MAY BE CONTROLLED BY TRANSPORTATION LIMITATIONS AND REQUIRE APPROVAL BY THE PRESTRESS GIRDER MANUFACTURERS AND CONCURRENCE BY THE STRUCTURES DEVELOPMENT CHIEF (608) 266-5161.

SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI. USE 0.5" OR 0.6" STRAND FOR ALL PATTERNS. USE ONLY ONE STRAND SIZE IN EACH PATTERN.

REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STRAND PATTERNS LISTED ON STANDARD 40.20 AND THE SPAN LENGTHS SHOWN IN TABLE 40.7-1. USING DIFFERENT STRAND PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT. PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES IS REQUIRED IF DESIGN OF THE END REINFORCEMENT IS REQUIRED.

⊖ DETAIL TYPICAL AT EACH END

▲ VARIES FOR ELASTOMERIC BRGS. SEE STD. 27.07.

● INCREASE THE SIZE OF THESE BARS IF REQUIRED BY AASHTO LRFD 5.8.3.5

⊕ THE DESIGN ENGINEER DETERMINES THIS VALUE BASED ON 2" MIN. LAUNCH AT EDGE OF GIRDER, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL 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 2 1/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR 4% VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

GENERAL NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BONDING TO THE SLAB, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL BE TROWEL FINISHED.

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

STRANDS SHALL BE FLUSH WITH END OF GIRDER FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE. ENDS OF STRANDS SHALL BE PAINTED 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 M, 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.

LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, THE FOLLOWING OPTION IS AVAILABLE:

USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT CHIEF (608) 266-5161.

WELDED WIRE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF ASTM A497.

IF THE CONTRACTOR USES THE BOTTOM FLANGE TO SUPPORT CONSTRUCTION FORMS, THE CONTRACTOR SHALL SUBMIT FALSEWORK PLANS FOR APPROVAL BY THE STRUCTURES DESIGN SECTION.

70" PRESTRESSED GIRDER DETAILS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DEVELOPMENT SECTION	
APPROVED: <i>Scot Becker</i>	DATE: 7-11