

DESIGNER NOTES

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

WING BARS AND DOWEL BARS SHALL BE EPOXY COATED.

PILING SPACING IN ABUTMENT BODY SHALL BE 8'-0" MAX. FOR ALL TYPES OF PILING. THE MAX. PILE SPACING FROM THE END OF THE ABUT. BODY TO THE FIRST PILE SHALL BE THE MINIMUM OF ONE-HALF PILE SPACE OR 2'-6".

TOTAL LENGTH OF [A] BARS SHALL BE ≥ TO WING LENGTH.

CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 STANDARD SPECIFICATIONS.

THE SEMI-EXPANSION SEAT SHALL BE USED WHEN REQUIRED AS STATED IN CHAPTER 12, FIGURE 12.7-1 OF THE BRIDGE MANUAL OR WHENEVER A WING PILE IS REQUIRED.

THE FIXED SEAT CANNOT BE USED WHEN A WING PILE IS REQUIRED (SEE STD. 12.02 FOR CRITERIA).

WHEN THE BOTTOM OF GIRDER SLOPES MORE THAN 1%, SLOPE THE BEAM SEAT BASED ON ADDING THESE TWO VALUES:

- LONGITUDINAL GRADE OF GIRDER (PERCENT)
- CAMBER EFFECT = $4RC/L \times 100$ (PERCENT), WHERE:
RC = RESIDUAL CAMBER (INCHES)
L = GIRDER LENGTH (INCHES)

(SEE STANDARD 13.01 FOR SLOPED SEAT DETAILS)

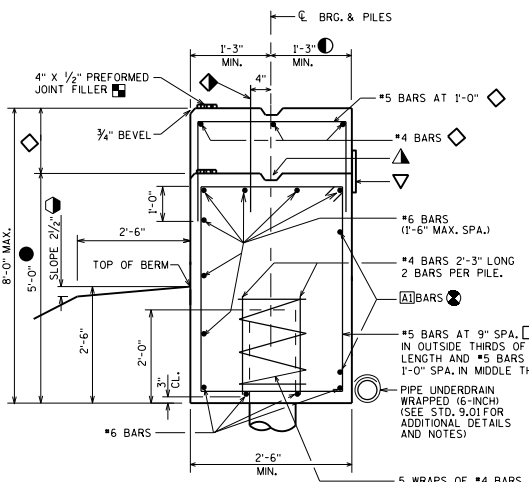
ABUTMENT DETAILED WITHOUT STRUCTURAL APPROACH SLAB, SEE STD. 12.10 THRU 12.13 FOR STRUCTURAL APPROACH DETAILS.

USE THIS SHEET FOR BEAM SEAT DETAILS (WITH OR WITHOUT A STRUCTURAL APPROACH SLAB).

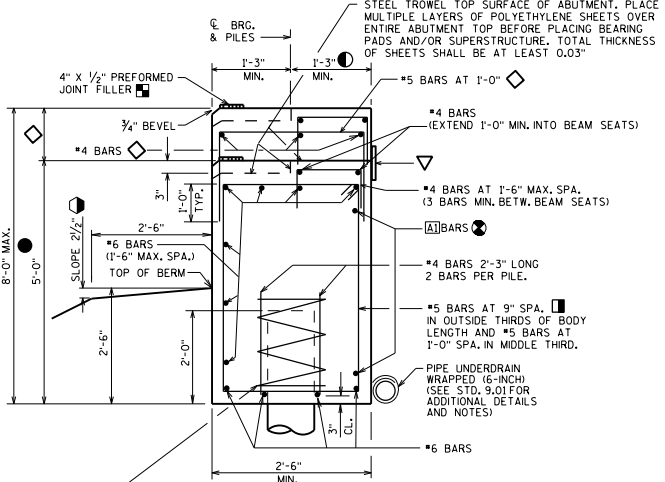
USE 3/4" THICK FILLER FOR SLAB STRUCTURES.

LEGEND

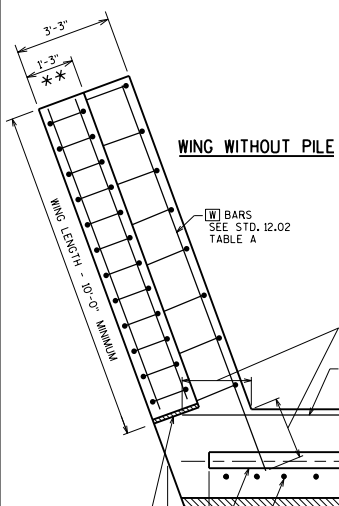
- ◆ #5 BARS (COATED) AT 1'-0" (2'-0" LONG). THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- ◇ WHEN THIS DIMENSION > 4" THIS ADDITIONAL REINFORCEMENT SHALL BE ADDED. MAX. SPA. OF HORIZ. #4 BARS = 1'-0".
- USE 1'-3" FOR SLAB SPANS AND FOR GIRDER SPANS WITH NO PAVING NOTCH. USE 1'-6" FOR GIRDER SPANS WITH NO PAVING NOTCH, BUT WHERE 36W, 45W, 54W, 54W, 70", 72W OR 82W" GIRDERS ARE USED, AND SKEW > 25". USE 1'-3" FOR SLAB SPANS WITH A PAVING NOTCH, BUT NO STRUCTURAL APPROACH SLAB. USE 1'-11" FOR GIRDER SPANS WITH A PAVING NOTCH, BUT NO STRUCTURAL APPROACH SLAB. USE 1'-7" FOR SLAB SPANS WITH A STRUCTURAL APPROACH SLAB. (STD. 12.10) USE 2'-3" FOR GIRDER SPANS WITH A STRUCTURAL APPROACH SLAB. (STD. 12.10)
- DIMENSION IS FROM BOTTOM OF ABUTMENT TO LOW BEAM SEAT OR LOW SIDE OF SLAB TYPE SUPERSTRUCTURE.
- ▽ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- ▲ KEYED CONST. JOINT FORMED BY BEVELED 2" x 6".
- * * * WINGWALL WIDTH SHALL BE 1'-6" WHEN TYPE "M" RAILING, VERTICAL FACE PARAPET "TX", OR SINGLE SLOPE PARAPET "5655" IS USED. "5655" SHOULD NOT BE USED ON A SIDEWALK. WINGWALL WIDTH SHALL BE 1'-4" WHEN PARAPET "A" ON A RAISED SIDEWALK IS USED. WINGWALL WIDTH SHALL BE 1'-9" WHEN TYPE "NY3" OR "NY4" RAILING IS USED. (USE 2'-0" WIDTH WHEN "NY4" IS USED ON A SIDEWALK).
- USE #5 BARS AT 6" SPA. IN OUTSIDE THIRDS OF BODY LENGTH WHEN THE WING LENGTH > 20'-0" AND WING HEIGHT > 10'-0".
- ☆ WHEN BODY SECTION IS > 50'-0" LONG PROVIDE VERTICAL CONSTRUCTION JOINT. RUN BAR STEEL THRU JOINT AND SEAL JOINT WITH 18" RUBBERIZED MEMBRANE WATERPROOFING. SEE STD. 12.09 FOR ALTERNATE CONSTRUCTION JOINT.
- SHOW ALL BARS FOR CLARITY.
- NO SLOPE FOR HEAVY RIPRAP. SEE STANDARD 12.08 FOR DETAILS.



TYPE A1 WITH FIXED SEAT



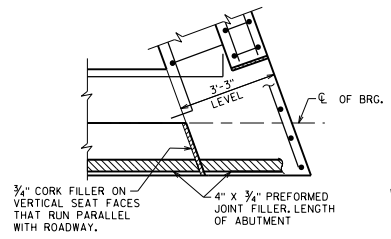
TYPE A1 WITH SEMI-EXPANSION SEAT



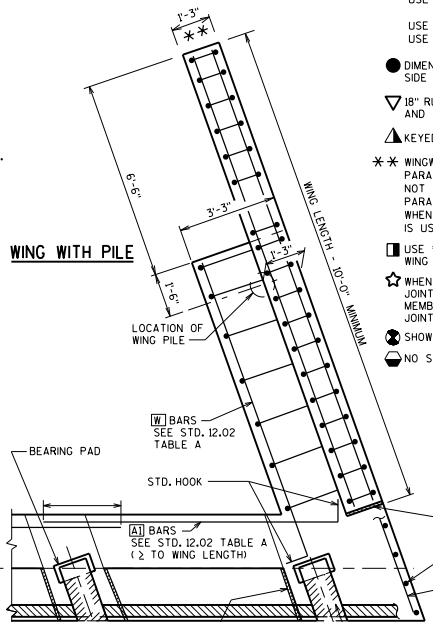
WING WITHOUT PILE

BAR SIZE	DISTANCE*
#5	1'-9"
#6	2'-1"
#7	2'-9"
#8	3'-8"
#9	4'-7"
#10	5'-10"

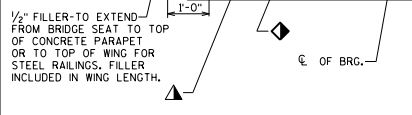
* OR EQUIVALENT STD. HOOK USE STRAIGHT BARS WHEN POSSIBLE



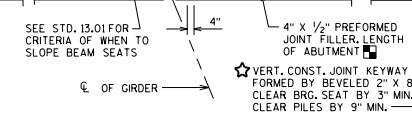
SLAB SPAN WITH SEMI-EXPANSION SEAT



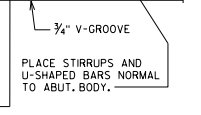
WING WITH PILE



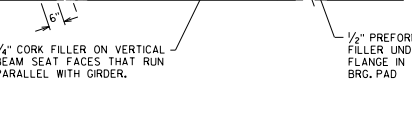
SLAB SPAN WITH FIXED SEAT



GIRDER SPAN WITH FIXED SEAT



SLAB SPAN WITH SEMI-EXPANSION SEAT

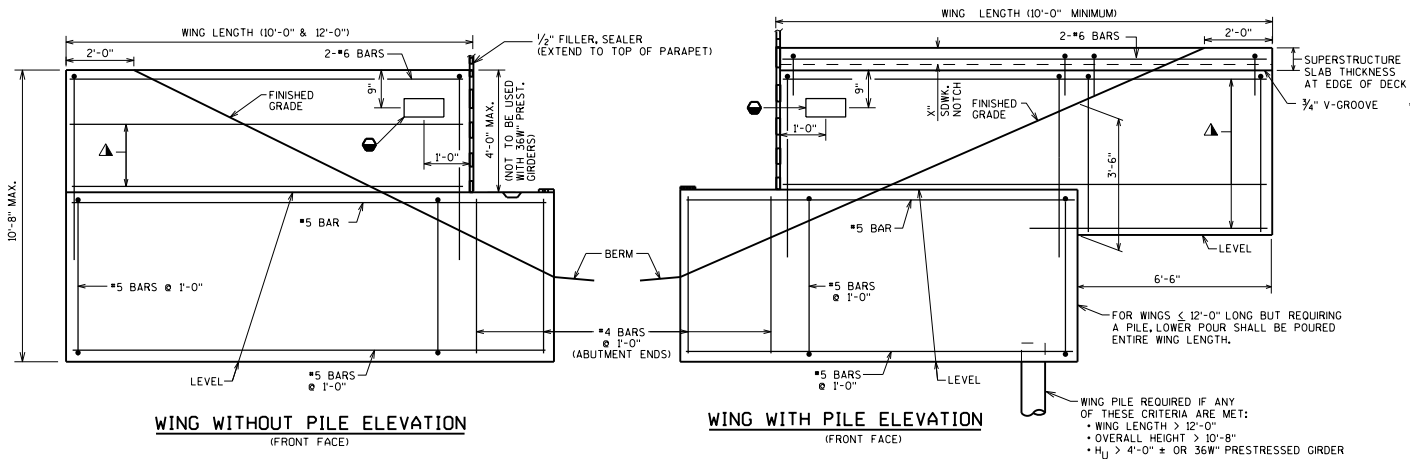


GIRDER SPAN WITH SEMI-EXPANSION SEAT

ABUTMENT TYPE A1 (INTEGRAL ABUTMENT)



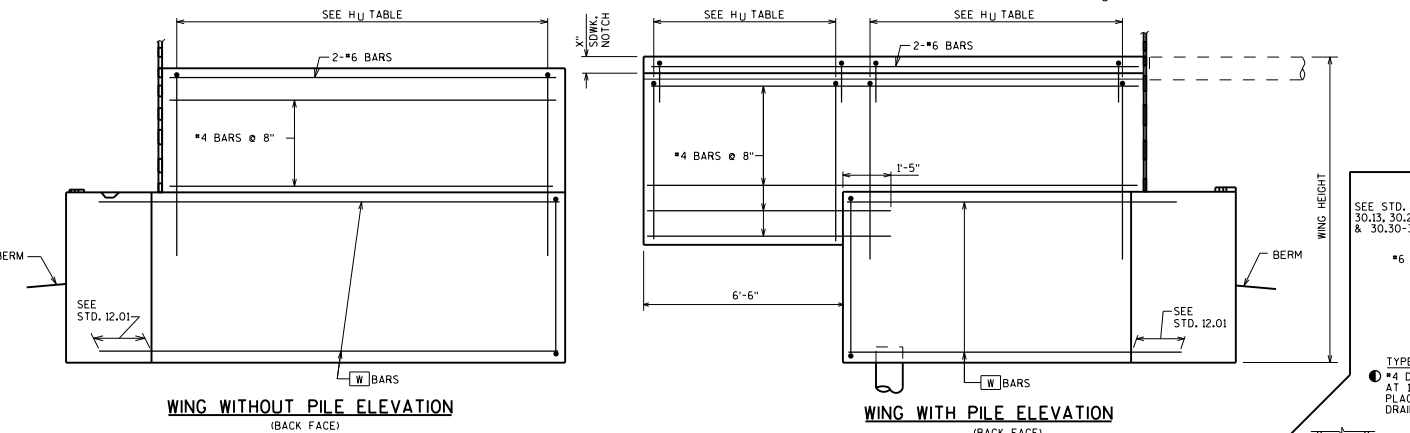
APPROVED: *Laura Shadewald* DATE: 7-23



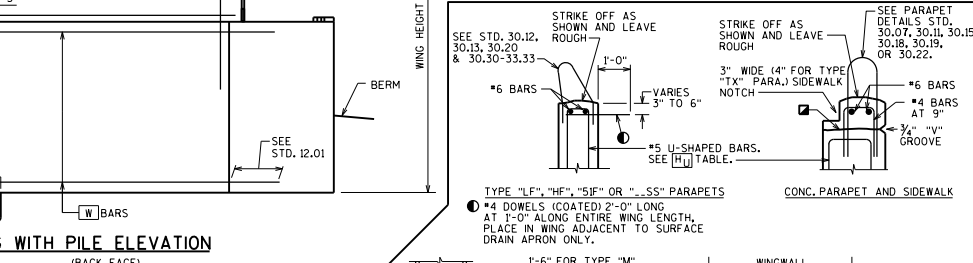
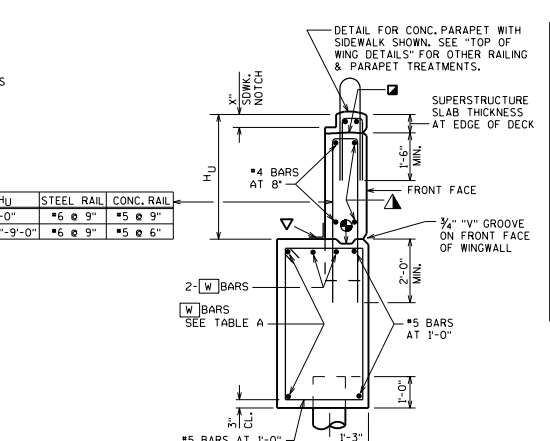
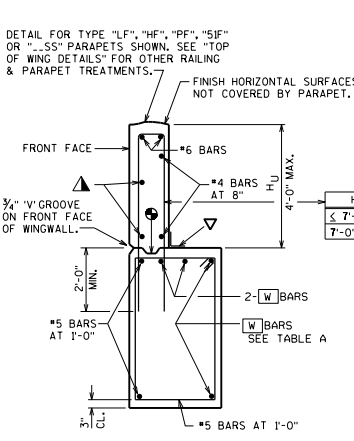
DESIGNER NOTES
 SEE STD. 12.01 FOR ADDITIONAL DESIGNER NOTES.
 WING WITH PILE & WING WITHOUT PILE CAN BE USED FOR EITHER SIDEWALK OR SLOPED FACE PARAPETS. THE TYPE OF WING TO USE IS BASED ONLY ON THE WING HEIGHT AND WING LENGTH LIMITATIONS SHOWN.
 NAME PLATE (ONLY FOR TYPE "F", "W" AND "M" OR TIMBER RAIL AS SHOWN ON STANDARD 30.24), 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 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
LRFD DESIGN LOADS
 LIVE LOAD = 2'-0" SURCHARGE
 LOAD FACTORS:
 $\gamma_{DC} = 1.25$
 $\gamma_{DEH} = 1.50$
 $\gamma_{DEV} = 1.35$
 $\gamma_{LS} = 1.75$
 EXPOSURE CLASS 2, $\gamma_E = 0.75$
 $f'_c = 60,000$ P.S.I.
 $f'_s = 35,000$ P.S.I.
 HORIZ. EARTH LOAD BASED ON:
 35 P.C.F. EQUIV. FLUID UNIT
 WEIGHT OF SOIL

TABLE A

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

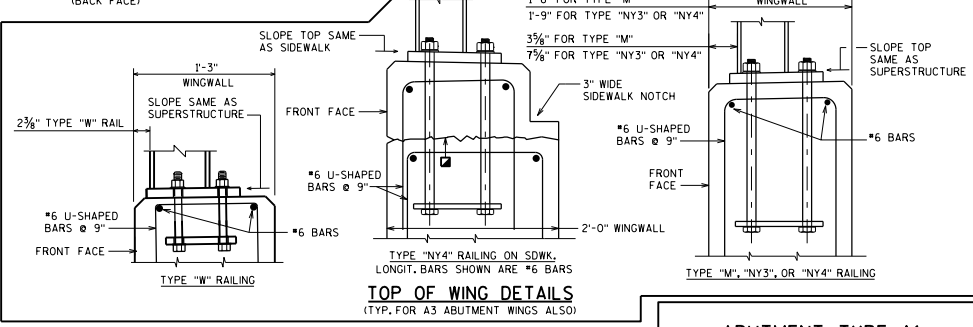


* WING WITHOUT PILE VALUES SHOWN. USE 10'-0" WING HEIGHT VALUES FOR WING HEIGHTS UP TO 10'-8". (FOR WING WITH PILE THAT HAS WING LENGTH IN THIS REGION, USE VALUES FOR 11'-6" WING HEIGHT)



WING WITHOUT PILE SECTION

WING WITH PILE SECTION



CONSTRUCTION JOINT, LEAVE ROUGH. REQUIRED FOR PRESTRESSED CONCRETE SUPERSTRUCTURES. OPTIONAL FOR OTHERS. POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE. IF JOINT IS USED, UTILIZE RUBBERIZED MEMBRANE WATERPROOFING (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES").

USE #4 BARS @ 1'-0".

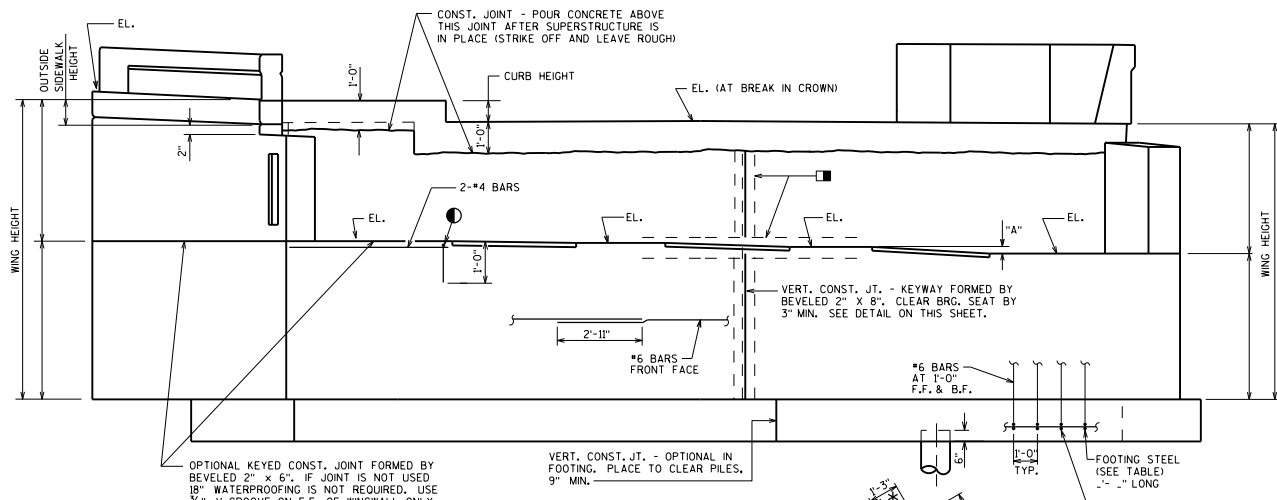
OPTIONAL CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.

ABUTMENT TYPE A1

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald*

DATE: 7-23



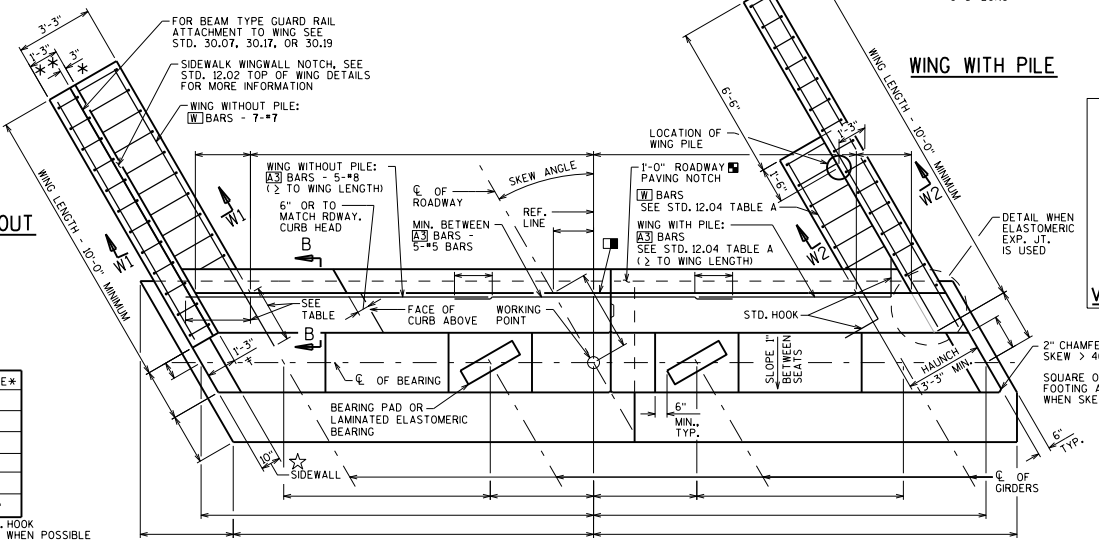
FRONT ELEVATION

DESIGNER NOTES

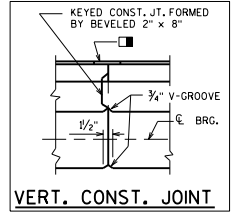
- LAP LENGTHS FOR HORIZONTAL BARS SHALL BE BASED ON A "CLASS C" TOP TENSION LAP SPLICE.
- BARS IN WINGS, ABUTMENT BACKWALL, AND PAVING BLOCK SHALL BE EPOXY COATED.
- PILING SPACING IN ABUTMENT FOOTING SHALL BE 8'-0" MAXIMUM.
- PILE REACTION EQUATIONS ARE FOR PRELIMINARY PILE LAYOUT PURPOSES ONLY.
- TOTAL LENGTH OF #3 BARS SHALL BE ≥ TO WING LENGTH.
- WHEN BODY SECTION IS MORE THAN 50'-0" LONG, PROVIDE VERTICAL CONSTRUCTION JOINT. RUN BAR STEEL THRU JOINT, SEAL JOINT WITH 18" RUBBERIZED MEMBRANE WATERPROOFING. SEE STD. 12.09 FOR ALTERNATE CONSTRUCTION JOINT.
- IN "FRONT ELEVATION" VIEW, GIVE ELEVATION OF ALL BEARING AREAS AND ELEVATION AT BOTTOM OF PARAPETS AT EACH END OF WINGS. ALL ELEVATIONS ARE TAKEN AT FRONT FACE OF BACKWALL.
- PARAPET NOT SHOWN IN PLAN VIEW FOR CLARITY.
- ABUTMENT DETAILED WITHOUT STRUCTURAL APPROACH SLAB. SEE STD. 12.10 THRU 12.13 FOR STRUCTURAL APPROACH DETAILS.
- SEE STANDARDS 12.01 AND 13.01 FOR SLOPED BEAM SEAT CRITERIA AND DETAILS.

LEGEND

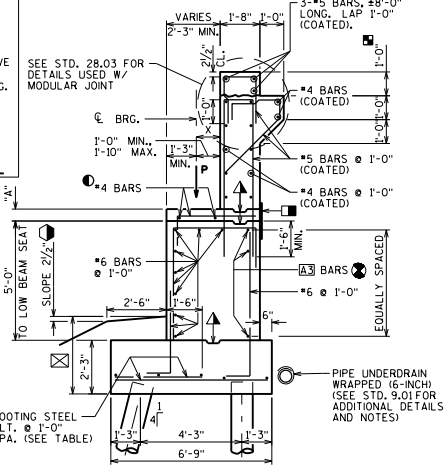
- ▣ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. AND VERT. JOINTS ON BACKFACE ABOVE FOOTING.
- ▲ KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" x 6".
- #4 AT 9" BEAM SEAT. SPACE AT 1'-0" BETWEEN SEATS. THIS STEEL IS REQUIRED ONLY IF DIMENSION "A" EXCEEDS 4".
- † 1'-5" WHEN VERTICAL FACE PARAPET TYPE "TX" IS USED.
- * 4" WHEN VERTICAL FACE PARAPET TYPE "TX" IS USED.
- * * WINGWALL WIDTH SHALL BE 1'-6" WHEN TYPE "M" RAILING, VERTICAL FACE PARAPET "TX", OR SINGLE SLOPE PARAPET "SSS" IS USED. "SSS" SHOULD NOT BE USED ON A SIDEWALK. WINGWALL WIDTH SHALL BE 1'-4" WHEN PARAPET "A" ON A RAISED SIDEWALK IS USED. WINGWALL WIDTH SHALL BE 1'-9" WHEN TYPE "NY3" OR "NY4" RAILING IS USED. (USE 2'-0" WIDTH WHEN NY4 IS USED ON A SIDEWALK)
- ☒ 3'-3" (SLOPE PAVING), 4'-6" (HEAVY RIPRAP)
- PAVING NOTCH IS 1'-0" WIDE BY 1'-4" DEEP IF STRUCTURAL APPROACH SLAB (STD. 12.10) IS USED. SHOW NO. 9 STAINLESS STEEL BAR (STD. 12.12) FOR STRUCTURAL APPROACH SLAB ON THE ABUTMENT SHEET.
- ☆ SIDEWALL IS 1'-3" WIDE IF STRUCTURAL APPROACH SLAB (STD. 12.10) IS USED.
- ⊙ SHOW ALL BARS FOR CLARITY.
- ⊖ NO SLOPE FOR HEAVY RIPRAP. SEE STANDARD 12.08 FOR DETAILS.



PLAN



VERT. CONST. JOINT



SECTION THRU BODY

ALL FOOTING BARS NOT IDENTIFIED ARE #5 BARS

TABLE

BAR SIZE	DISTANCE*
#5	1'-5"
#6	1'-9"
#7	2'-3"
#8	3'-0"
#9	3'-9"
#10	4'-10"

* OR EQUIVALENT STD. HOOK USE STRAIGHT BARS WHEN POSSIBLE

PILE REACTIONS PER FOOT IN KIPS

FRONT ROW = $P [(0.22 + X/4.25)] + [(1 + 2.25)^3/310] + 4.6$
BACK ROW = $P [(0.78 - X/4.25)] - [(1 + 2.25)^3/705] + 16.8$

NOTES:
 h = WING HEIGHT (FT.)
 $P = \frac{1}{2} DC (FD_c)^2 \delta D_w (FD_w)^2 \delta (LL) (k/FT.)$
 FRONT ROW PILE DESIGN IS BASED ON AN EQUIVALENT FLUID UNIT WEIGHT OF SOIL OF 40 P.C.F. WITH $\delta_{EH} = 1.50$, AND SUPERSTRUCTURE REACTIONS "PP". BACK ROW PILE DESIGN IS BASED ON AN EQUIVALENT FLUID UNIT WEIGHT OF SOIL OF 40 P.C.F. WITH $\delta_{EH} \text{ MIN.} = 0.90$, AND "PP".
 PILES MUST ALSO BE DESIGNED TO ACCOUNT FOR LATERAL LOADS

P k/FT.	FOOTING STEEL SIZE
20	#6
40	#7
62	#8
75	#9

ABUTMENT TYPE A3



APPROVED: Laura Shadewald DATE: 7-23

DESIGNER NOTES

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

PILE ENCASED PIER TYPES:

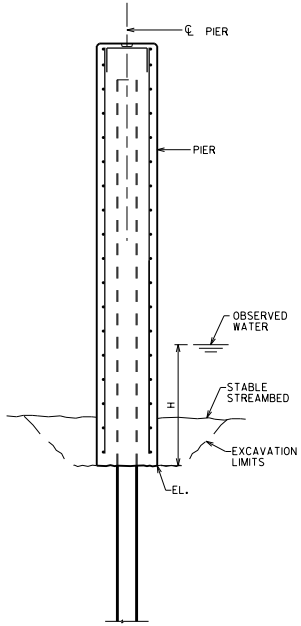
TYPE 1 - COFFERDAM BID ITEM NOT PROVIDED. CONSIDER PROVIDING UNDERWATER INSPECTION BID ITEM.

TYPE 2 - COFFERDAM AND UNDERWATER INSPECTION BID ITEMS REQUIRED.

TYPE 3 - COFFERDAM AND SEAL BID ITEMS REQUIRED.

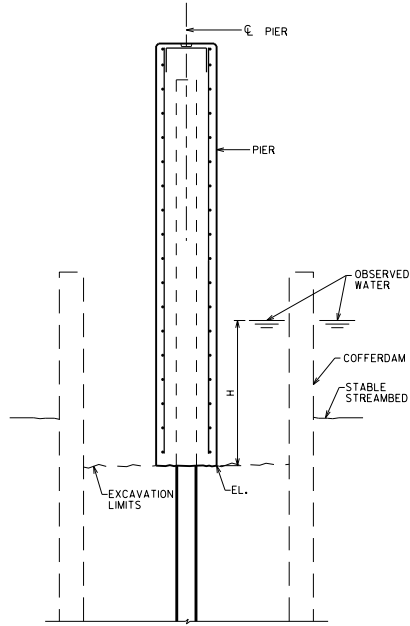
WALL PIER ALTERNATIVES:

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



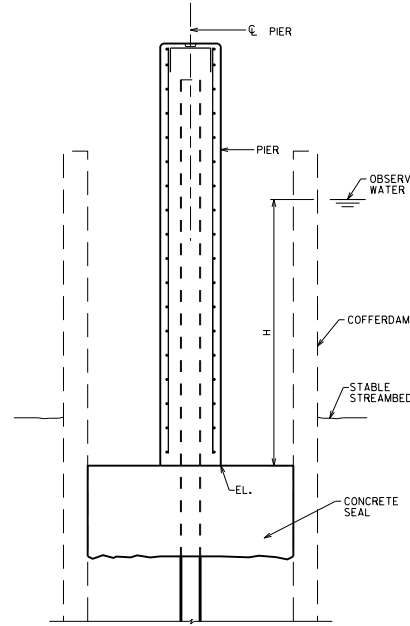
END VIEW
PILE ENCASED PIER - TYPE 1
(H ≤ 5.0 FEET)

ITEM NUMBER	BID ITEM	UNIT
206.5001	COFFERDAMS (STRUCTURE)	EACH
502.9000.S	UNDERWATER SUBSTRUCTURE INSPECTION (STRUCTURE)	EACH



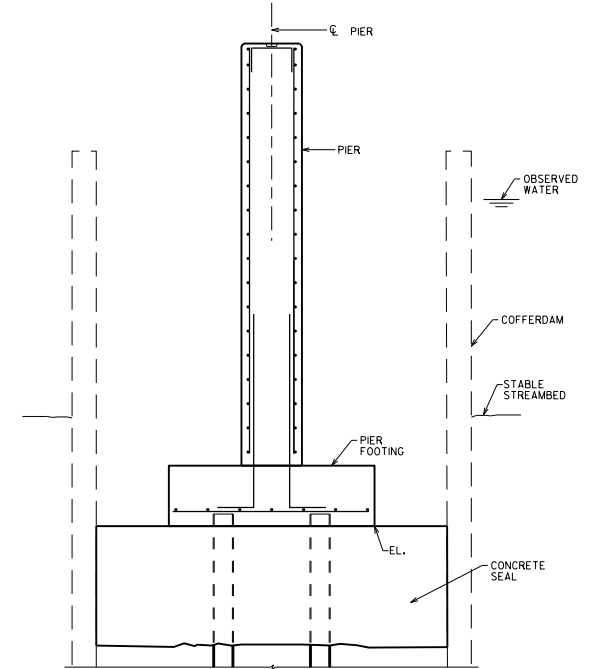
END VIEW
PILE ENCASED PIER - TYPE 2
(5.0 FT < H ≤ 10.0 FT)

ITEM NUMBER	BID ITEM	UNIT
206.5001	COFFERDAMS (STRUCTURE)	EACH
502.1100	CONCRETE MASONRY SEAL	CY



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

ITEM NUMBER	BID ITEM	UNIT
206.5001	COFFERDAMS (STRUCTURE)	EACH
502.1100	CONCRETE MASONRY SEAL	CY

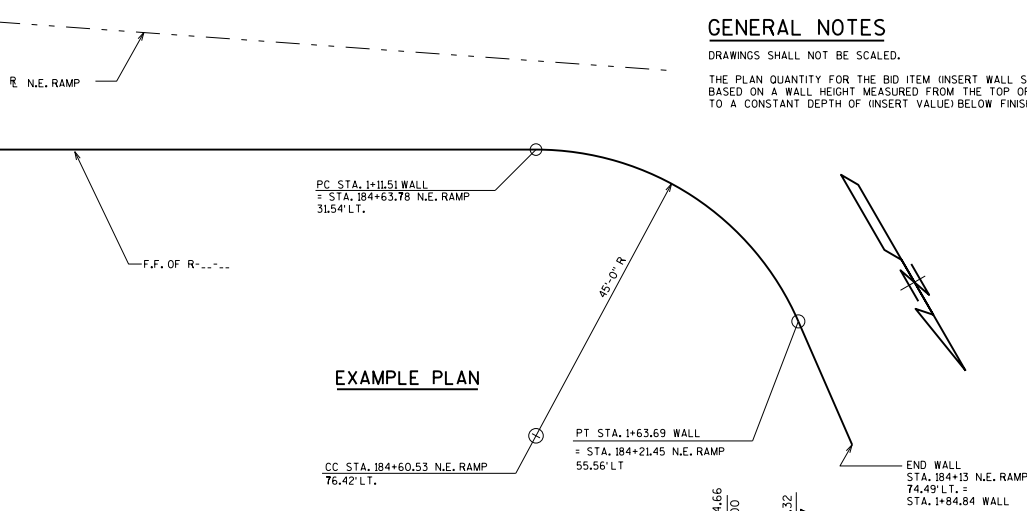


END VIEW
SOLID WALL PIER
(PILE ENCASED PIER ALTERNATIVE)

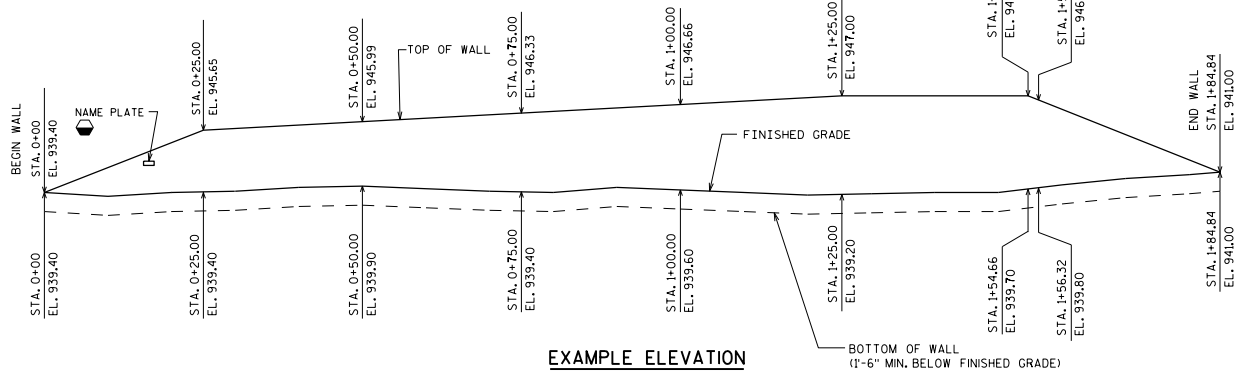
PILE ENCASED PIER (TYPES)



APPROVED: *Laura Shadewald* DATE: 7-23



EXAMPLE PLAN



EXAMPLE ELEVATION
(LOOKING @ F.F. OF WALL)

GEOMETRY TABLE

WALL STATION	ROADWAY STATION	OFFSET TO F.F. WALL	TOP OF WALL ELEV.	FINISHED GRADE ELEV.

SOIL PARAMETERS

STRATUM LOCATIONS & SOIL DESCRIPTIONS	TOTAL UNIT WEIGHT (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PCF)
GRANULAR BACKFILL (REINFORCING ZONE OR BACKFILL)			
(INSERT SOIL TYPE) RETAINED SOIL *			
(INSERT SOIL TYPE) FILL			
EL..... - EL.....			
(INSERT SOIL TYPE)			
EL..... - EL.....			
(INSERT SOIL TYPE)			
EL..... - EL.....			

* DESIGN WALL FOR THESE VALUES

WALL EXTERNAL & OVERALL STABILITY EVALUATION

DIMENSIONS	EVALUATED LOCATIONS
WALL HEIGHT (FEET)	
EXPOSED WALL HEIGHT (FEET)	
MINIMUM LENGTH OF REINFORCEMENT (FEET) <input checked="" type="checkbox"/>	
WALL STATION	
BORING USED	
CAPACITY TO DEMAND RATIO (CDR)	
SLIDING (CDR>1.0)	
ECCENTRICITY (CDR>1.0)	
OVERALL STABILITY (CDR>1.0) ☆	
BEARING RESISTANCE (CDR>1.0)	
FACTORED BEARING RESISTANCE (PSF)	

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
 THE PLAN QUANTITY FOR THE BID ITEM (INSERT WALL SYSTEM) IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF WALL TO A CONSTANT DEPTH OF (INSERT VALUE) BELOW FINISHED GRADE.

DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "INSERT WALL SYSTEM OR SYSTEMS".

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

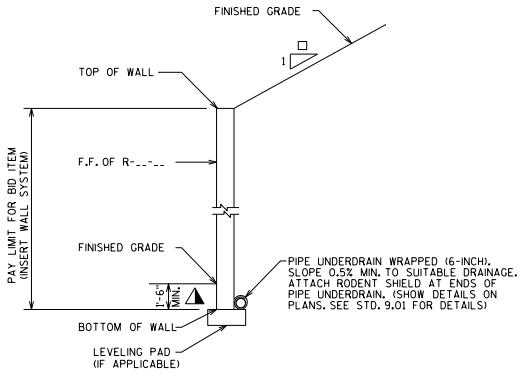
DESIGN FOR RETAINING WALL TO PROVIDE FOR FINISHED GRADE SLOPED BEHIND WALL AS SHOWN.

DESIGN RETAINING WALL FOR A LIVE LOAD SURCHARGE OF (INSERT VALUE).

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

DESIGNER NOTES

- THE LENGTHS PROVIDED IN THE TABLE ARE THE MINIMUM REQUIRED REINFORCEMENT LENGTHS BASED UPON THE MINIMUM DESCRIBED IN THE WALL SYSTEM SPECIAL PROVISIONS OR EXTERNAL AND OVERALL STABILITY AT THE DESIGNATED LOCATIONS. THESE DESIGNATED LOCATIONS REPRESENT TYPICAL AND CRITICAL WALL LOCATIONS, BUT SHALL NOT BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR DESIGN LENGTHS SHALL MEET OR EXCEED THE MINIMUM VALUES REPRESENTED IN THE TABLE AT THESE DESIGNATED LOCATIONS.
- ☆ THE LENGTHS PROVIDED IN THE TABLE ARE THE MINIMUM REQUIRED REINFORCEMENT LENGTHS BASED ON OVERALL STABILITY PERFORMED BY THE WALL DESIGNER. COMPOUND STABILITY IS THE CONTRACTORS RESPONSIBILITY.
- ▲ MINIMUM EMBEDMENT BASED ON SITE SPECIFIC PARAMETERS (1'-6" MINIMUM FOR ALL WALLS ON LEVEL GROUND). FIELD EMBEDMENTS BELOW MINIMUM EMBEDMENT SHALL NOT BE INCLUDED IN THE PAY LIMITS.
- ⊗ STRATUM LOCATIONS & SOIL DESCRIPTIONS AT EACH BORING LOCATION.
- NOMINAL MSE PANEL DIMENSIONS ARE 5-FOOT HIGH AND 5-10 FOOT WIDE; THE WALL DESIGNER SHALL PROVIDE DETAILS BASED ON NOMINAL PANEL DIMENSIONS AND CONFIGURATION. DETAILS SHALL BE ABLE TO ACCOMMODATE VARIOUS PANEL DIMENSIONS. THE CONTRACTOR AND WALL SUPPLIER SHALL COORDINATE DETAILS BASED ON THE ACTUAL PANEL DIMENSIONS.
- LOCATE NAME PLATE ON THE FRONT FACE OF WALL APPROXIMATELY 3' TO 6' HIGH. CENTER NAME PLATE BETWEEN CAST-IN-PLACE CONCRETE COPING JOINTS, CENTERED ON A NON-CAP BLOCK, OR AS DIRECTED BY THE FIELD ENGINEER.



TYP. CROSS SECT. OF RETAINING WALL

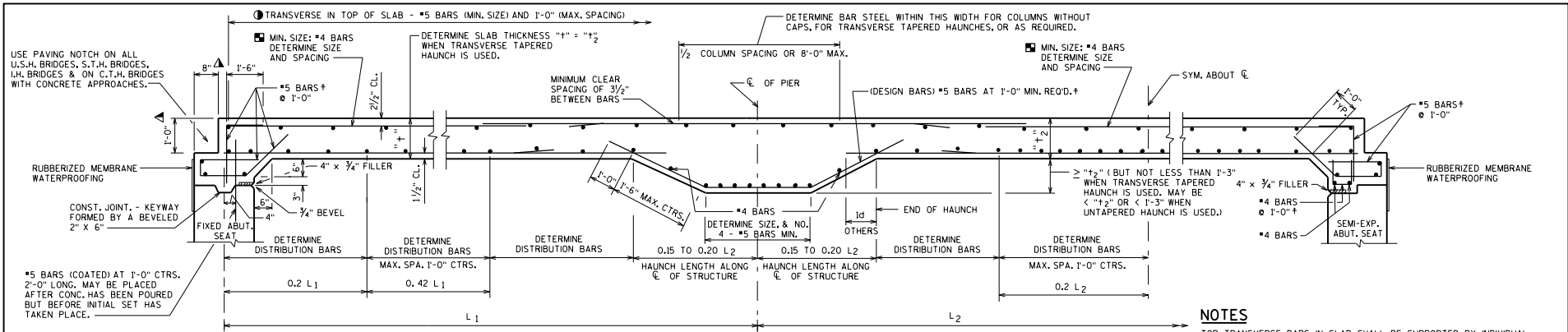
LIST OF DRAWINGS

1. (INSERT WALL SYSTEM)
2. SUBSURFACE EXPLORATION

LRFD PROPRIETARY RETAINING WALLS (GENERAL PLAN)



APPROVED: *Laura Shadewald* DATE: 7-23



LONGITUDINAL SECTION

‡ BARS PLACED PARALLEL TO \bar{C} SPACING PERPENDICULAR TO \bar{C} .

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. (FOR NON-STAGED CONSTRUCTION)

SLAB-SUPPORTING FALSEWORK SHALL REMAIN IN-PLACE UNTIL ALL STAGES OF THE SUPERSTRUCTURE HAS CURED, FOR DEFLECTION CONTROL BETWEEN STAGES, DO NOT RELEASE ANY FALSEWORK UNTIL PARAPETS, SIDEWALKS, AND MEDIANS HAVE CURED. (FOR STAGED CONSTRUCTION)

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

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE \bar{C} OF ABUTMENTS, THE \bar{C} OF PIERS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR \bar{R} . RECORD ELEVATIONS ON AS BUILT PLANS. SEE STD. 18.03

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 KEYS 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.

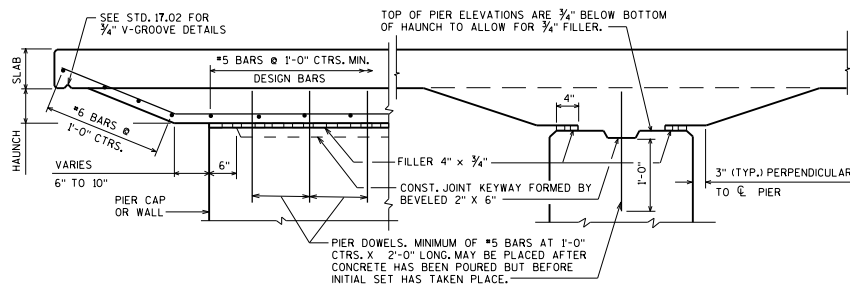
PIER CAP OR WALL TYPE PIERS SHALL BE USED ON MOST STRUCTURES. "COLUMN WITHOUT CAP" TYPE PIERS MAY BE USED WITH THE APPROVAL OF THE STRUCTURES DESIGN SECTION.

ON THE PLANS, PROVIDE CAMBER VALUES AT THE TENTH POINTS OF ALL SPANS. ALSO PROVIDE TOP OF SLAB ELEVATIONS AT THE REFERENCE LINE (OR CROWN) AND OUTSIDE EDGES OF SLAB AT TENTH POINTS. SEE STD. 18.03

TRANSVERSE TAPERED HAUNCHES MAY BE USED TO ELIMINATE A COLUMN (PROVIDED A MINIMUM OF 3 COLUMNS ARE USED, OR FOR AESTHETICS)

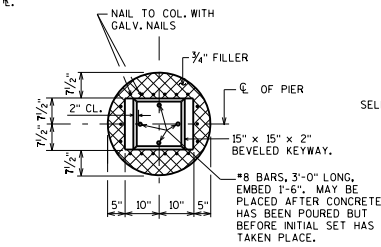
PAVING NOTCH IS 1'-0" WIDE BY 1'-4" DEEP IF STRUCTURAL APPROACH SLAB (STD. 12.10) IS USED.

REINFORCEMENT IN SLAB MUST MEET TEMPERATURE AND SHRINKAGE REQUIREMENTS.

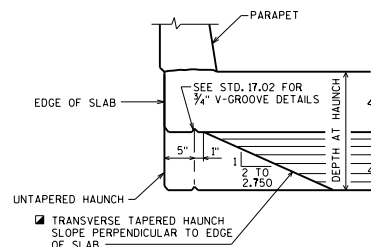


PIER CAP OR WALL TYPE PIER

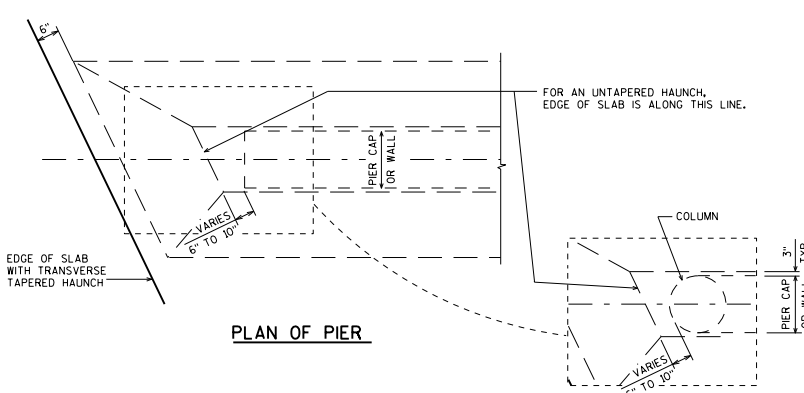
SHOWING TRANSVERSE TAPERED HAUNCH



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



**TAPERED/UNTAPERED HAUNCH
CROSS SECTION**



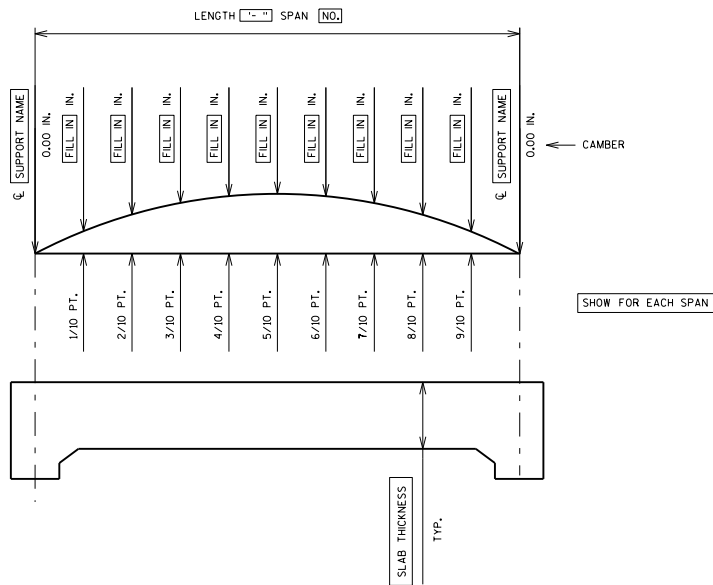
PLAN OF PIER

TOP TRANSVERSE REINF. FOR RAILINGS/PARAPETS		
SINGLE SLOPE OR SLOPED FACE PARAPETS	MAIN BARS RUN FROM EDGE TO EDGE OF SLAB	SHORT BARS PLACED BETWEEN MAIN BARS AT EDGE OF SLAB
SLAB THICK. $\geq 15"$	(#5 @ 1'-0")	(#5 @ 1'-0") 5'-0" LONG NO HOOK REQ'D. AT END
13" \leq SLAB THICK. $< 15"$	(#5 @ 10')	(#5 @ 10') 5'-0" LONG STD. HOOK REQ'D. AT END
STEEL RAILINGS TYPE "NY"/"M"/"W"	TOP TRANSVERSE REINF. SPECIFIED IN "LONGIT. SECTION" IS ADEQUATE	

CONTINUOUS HAUNCHED SLAB

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald* DATE: 7-23



CAMBER AND SLAB THICKNESS DIAGRAM

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTION.

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

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

SELECT ONE

SLAB-SUPPORTING FALSEWORK SHALL REMAIN IN-PLACE UNTIL ALL STAGES OF THE SUPERSTRUCTURE HAS CURED, FOR DEFLECTION CONTROL BETWEEN STAGES. DO NOT RELEASE ANY FALSEWORK UNTIL PARAPETS, SIDEWALKS, AND MEDIANS HAVE CURED. (FOR STAGED CONSTRUCTION)

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE FOLLOW THIS PROCEDURE:

- TOP OF SLAB ELEVATION AT FINAL GRADE
 - MINUS..... SLAB THICKNESS
 - PLUS..... CAMBER
 - PLUS..... FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
- EQUALS = TOP OF SLAB FALSEWORK ELEVATION

SURVEY TOP OF SLAB ELEVATIONS

SHOW FOR EACH SPAN

	€ BRG. SUPPORT NAME	5/10 PT.	€ BRG. SUPPORT NAME
[FILL IN] GUTTER			
[SELECT] CROWN AND/OR R			
[FILL IN] GUTTER			
[FILL IN] EDGE OF SLAB ☆			

(FOR SIDEWALK OR OPEN RAILING APPLICATIONS)

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE € OF ABUTMENTS, THE € OF PIERS AND AT 5/10 PTS. TO VERIFY CAMBER, TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR R. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

NOTES

FILL IN THE TABLE OF "SURVEY TOP OF SLAB ELEVATIONS" FOR EACH SPAN ON AS BUILT PLANS.

☆ EDGE OF SLAB ELEVATION IS THE TOP OUTER EDGE OF THE SLAB BENEATH SIDEWALK. (FOR SIDEWALK OR OPEN RAILING APPLICATIONS)

DESIGNER NOTES

PROVIDE A "CAMBER AND SLAB THICKNESS DIAGRAM" AND TABLE OF "TOP OF SLAB ELEVATIONS" FOR EACH SPAN ON CONTRACT PLANS.

INCLUDE THE "SURVEY TOP OF SLAB ELEVATIONS" TABLE ON THE CONTRACT PLANS SO THAT IT MAY BE FILLED IN DURING CONSTRUCTION. TO VERIFY CAMBER, SURVEY LOCATIONS SHALL CORRESPOND WITH THE TABLE OF "TOP OF SLAB ELEVATIONS".

FOR BRIDGES WITH R LINE NOT ON THE CROWN, PROVIDE ELEVATIONS AT BOTH LOCATIONS.

TOP OF SLAB ELEVATIONS

SHOW FOR EACH SPAN

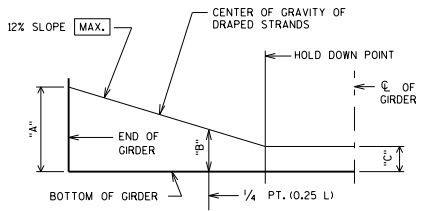
	€ BRG. SUPPORT NAME	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	€ BRG. SUPPORT NAME
[FILL IN] GUTTER											
[SELECT] CROWN AND/OR R											
[FILL IN] GUTTER											

[FILL IN] EDGE OF SLAB ☆ (FOR SIDEWALK OR OPEN RAILING APPLICATIONS)

CONCRETE SLAB DETAILS



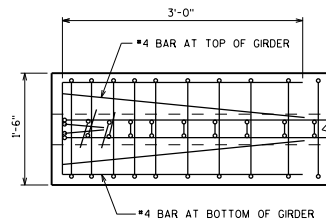
APPROVED: *Laura Shadewald* DATE: 7-23



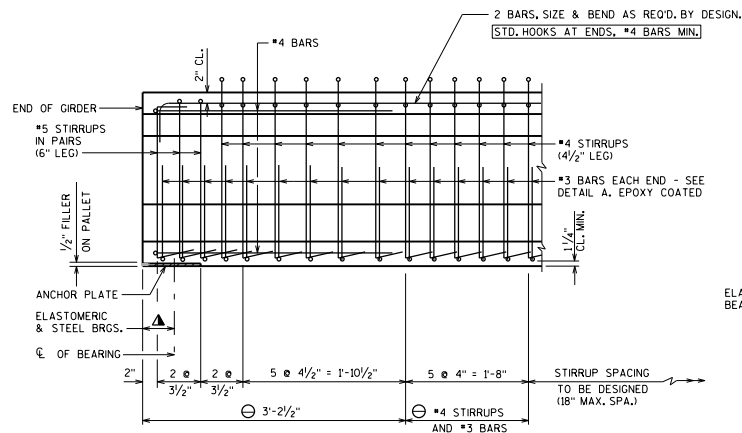
"A" TO BE GIVEN TO THE NEAREST 1"
 "B" = $\frac{1}{4}("A" + 3 "C")$ [MIN.]
 "B" = $\frac{1}{4}("A" + 3 "C") + 3$ [MAX.]

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

LOCATION OF DRAPED STRANDS

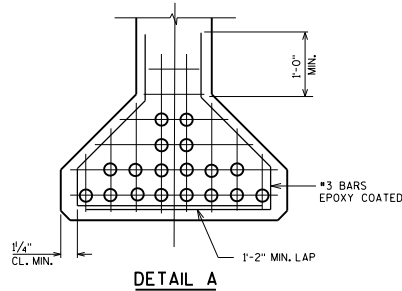


PLAN VIEW



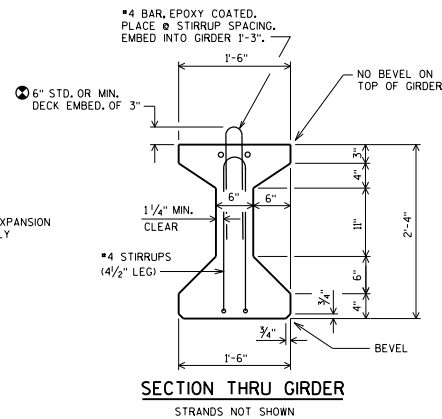
SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

SIDE VIEW OF GIRDER



DETAIL A

SUPPORT WITH 1/2" ELASTOMERIC BRG. PAD



SECTION THRU GIRDER

SECTION THRU GIRDER

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

NOTES

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

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-295 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

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

PRESTRESSING STRANDS SHALL BE (1) DIA. 1-7 WIRE LOW-RILAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

DESIGNER NOTES

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

SPECIFY CONCRETE STRENGTH AS REQUIRED BY DESIGN FROM A MINIMUM OF 6,000 PSI TO A MAX. OF 8,000 PSI. MAXIMUM RELEASE STRENGTH IS 6000 PSI. USE ONLY 0.5" DIA. STRAND FOR THE DRAPED PATTERN. THE MAX. NUMBER OF DRAPED 0.5" DIA. STRANDS IS 8. USE 0.6" DIA. FOR THE STRAIGHT PATTERN, UNLESS ONLY 0.5" DIA. WORK FOR KEEPING STRESSES AT ACCEPTABLE LEVELS.

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

SHOW ONLY ONE STRAND SIZE ON THE PLANS.

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

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.

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

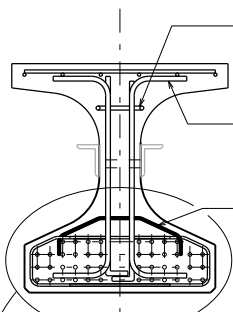
#4 BAR, EPOXY COATED. PLACE STIRRUP SPACING REQUIRED FOR NON WWF STIRRUPS. EMBED INTO GIRDER 1'-3".

AREA OF HORIZ. WIRE SHALL BE > 40% OF VERT. WIRE AREA (ASTM A1064)
 HORIZ. WIRES SHALL BE LOCATED IN TOP AND BOTT. FLANGES AND NOT IN THE WEB.
 2" MIN. TYP.
 1" MINIMUM CLEARANCE TO VERTICAL WIRE
 D18 MIN. VERTICAL WIRE (DEFORMED)
 CLEARANCE - 1/4" MIN., 2" MAX.

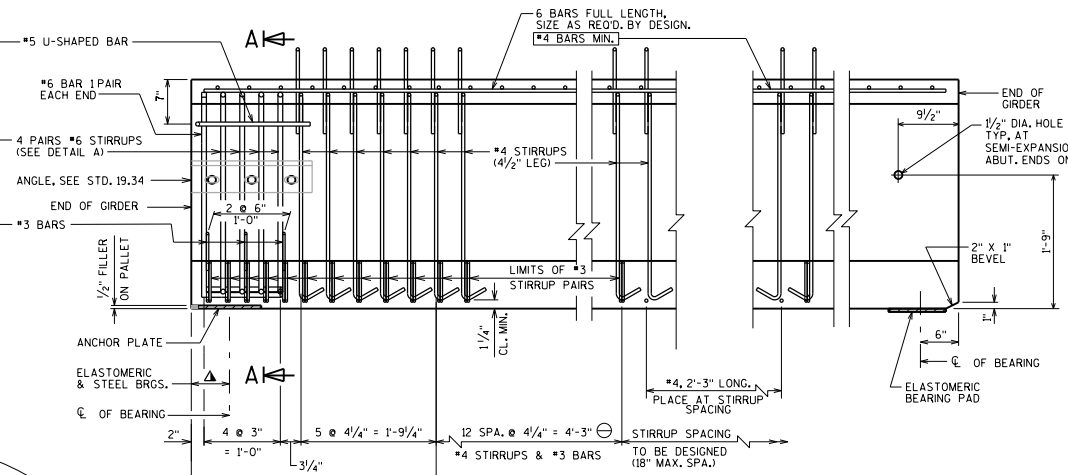
28" PRESTRESSED GIRDER DETAILS



APPROVED: Laura Shadewald DATE: 7-23

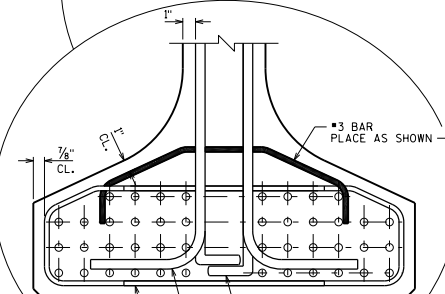


SECTION A-A

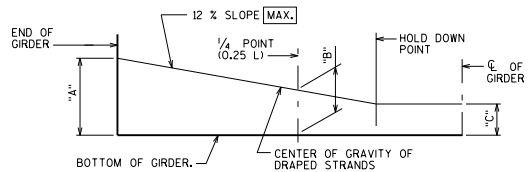
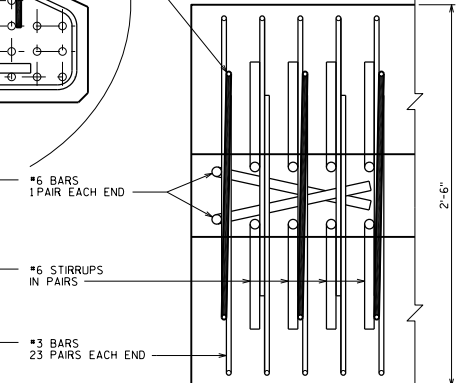


SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

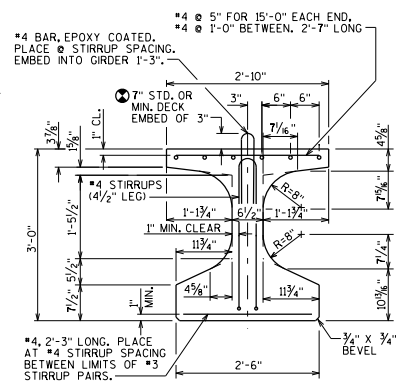
SUPPORT WITH 1/2\"/>



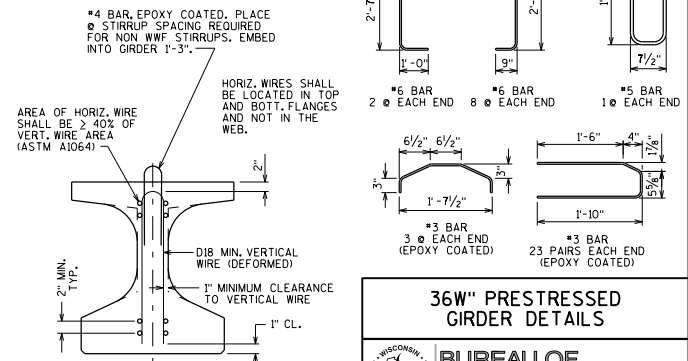
DETAIL A
BOTTOM FLANGE



LOCATION OF DRAPED STRANDS



SECTION THRU GIRDER
STRANDS NOT SHOWN



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

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY. 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 OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

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

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

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

PRESTRESSING STRANDS SHALL BE 0.6" DIA.-7-WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

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

REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STANDARD 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, WHICH REQUIRES PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES.

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

⊙ DETAIL TYPICAL AT EACH END

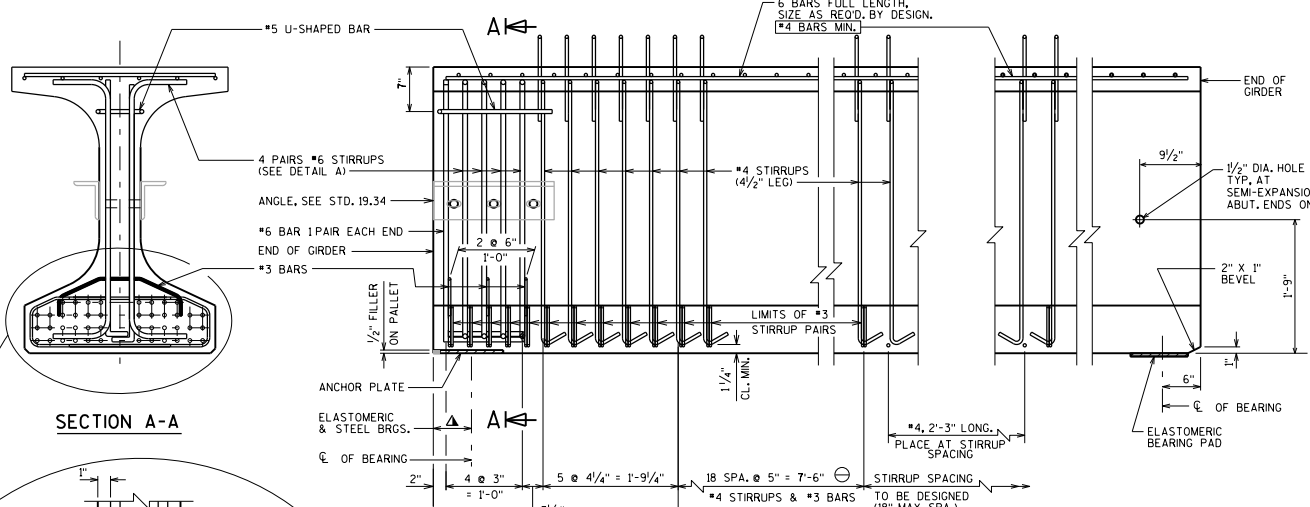
● THE DESIGN ENGINEER DETERMINES THIS VALUE BASED ON 2" MIN. HAUNCH AT EDGE OF GIRDER, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL GIRDER CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.4. THIS VALUE CAN VARY AND SHOULD BE GIVEN FOR EACH 1/3 OF THE GIRDER LENGTH. PROVIDE VALUES THAT MAINTAIN 3"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

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

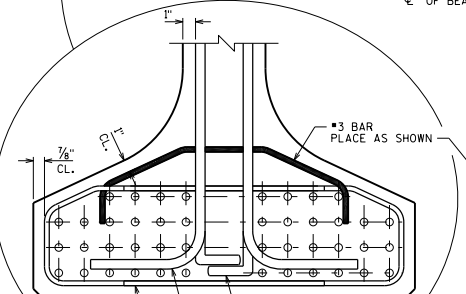
36W" PRESTRESSED GIRDER DETAILS

BUREAU OF STRUCTURES

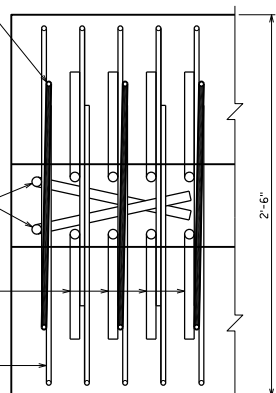
APPROVED: Laura Shadewald DATE: 7-23



SECTION A-A



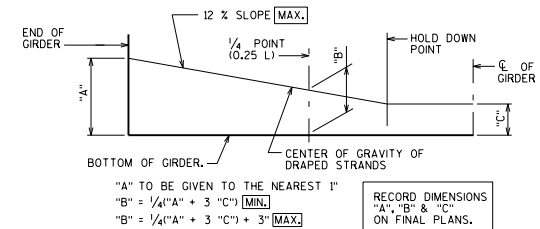
SUPPORT WITH STEEL OR ELASTOMERIC BRGS.



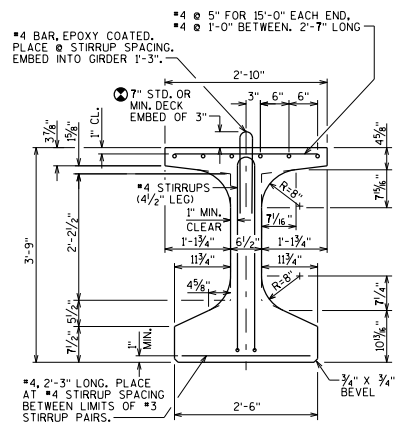
DETAIL A
BOTTOM FLANGE



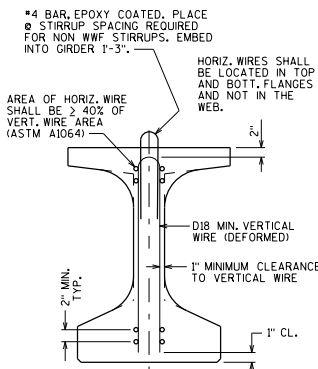
SUPPORT WITH 1/2" ELASTOMERIC BEARING PAD



LOCATION OF DRAPED STRANDS



SECTION THRU GIRDER
STRANDS NOT SHOWN



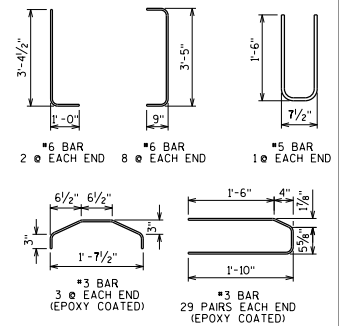
SECTION THRU GIRDER
SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS
ASTM A1064 (FY = 70 KSI)

NOTES

- TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY. 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 OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.
- THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.
- STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE II, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.
- ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.
- SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.
- AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DESIGN SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.
- PRESTRESSING STRANDS SHALL BE 0.6" DIA.-7-WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

DESIGNER NOTES

- BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 45W-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" DIA. STRAND FOR ALL PATTERNS. THE MAX. NUMBER OF DRAPED 0.6" DIA. STRANDS IS 8.
- REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STANDARD STRAND PATTERNS LISTED ON STANDARD 19.14 AND THE SPAN LENGTHS SHOWN IN TABLE 19.3-1. USING DIFFERENT STRAND PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT, WHICH REQUIRES PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES.
- VARIES FOR ELASTOMERIC BRGS. (STD. 27.07) AND STEEL BRGS. (STD. 27.09)
- DETAIL TYPICAL AT EACH END
- THE DESIGN ENGINEER DETERMINES THIS VALUE BASED ON 2" MIN. HAUNCH AT EDGE OF GIRDER, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL GIRDER CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.4. THIS VALUE CAN VARY AND SHOULD BE GIVEN FOR EACH 1/3 OF THE GIRDER LENGTH. PROVIDE VALUES THAT MAINTAIN 3" MIN. DECK EMBEDMENT AND 2 1/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.
- PROVIDE STIRRUP SPACING THAT IS SYMMETRICAL ABOUT THE C/L OF GIRDER.



45W" PRESTRESSED GIRDER DETAILS

BUREAU OF STRUCTURES

APPROVED: Laura Shadewald DATE: 7-23

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY. EXCEPT THE OUTSIDE 15" OF GIRDER WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 15" OF THE TOP FLANGE. DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

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

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN. SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

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

PRESTRESSING STRANDS SHALL BE 0.6" DIA. -7 WIRE LOW-RRELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

DESIGNER NOTES

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE 1 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" DIA. STRAND FOR ALL PATTERNS. THE MAX. NUMBER OF DRAPED 0.6" DIA. STRANDS IS 8.

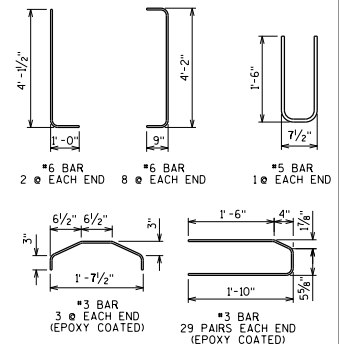
REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STANDARD STRAND PATTERNS LISTED ON STANDARD 19.16 AND THE SPAN LENGTHS SHOWN IN TABLE 19.3-1. USING DIFFERENT STRAND PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT, WHICH REQUIRES PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES.

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

○ DETAIL TYPICAL AT EACH END

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

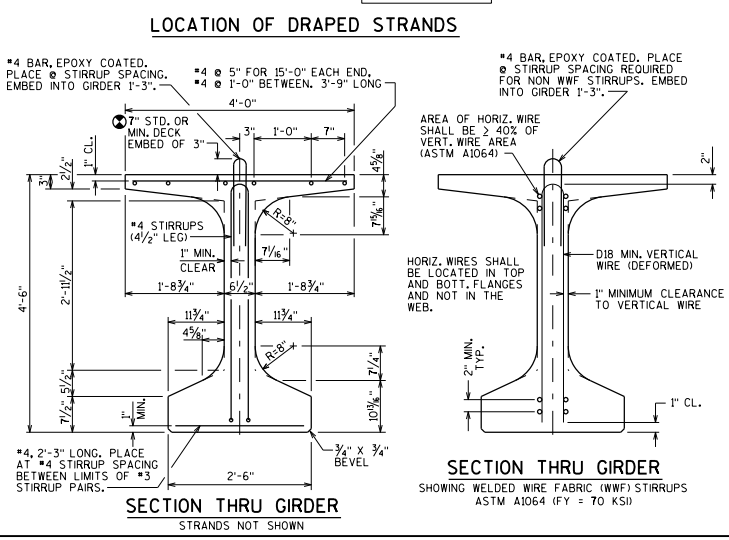
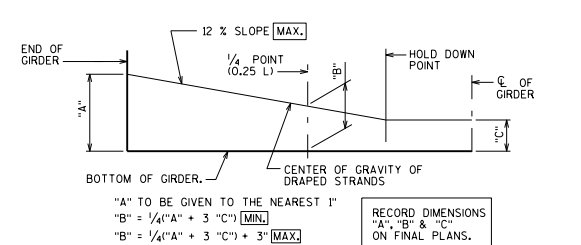
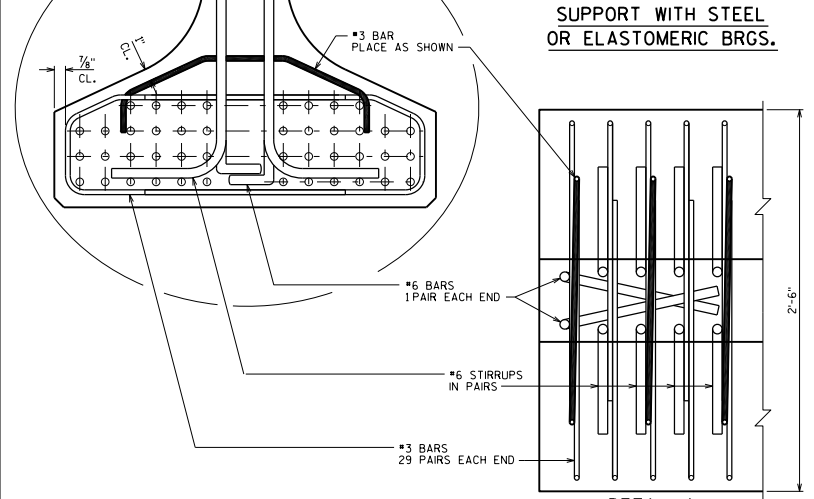
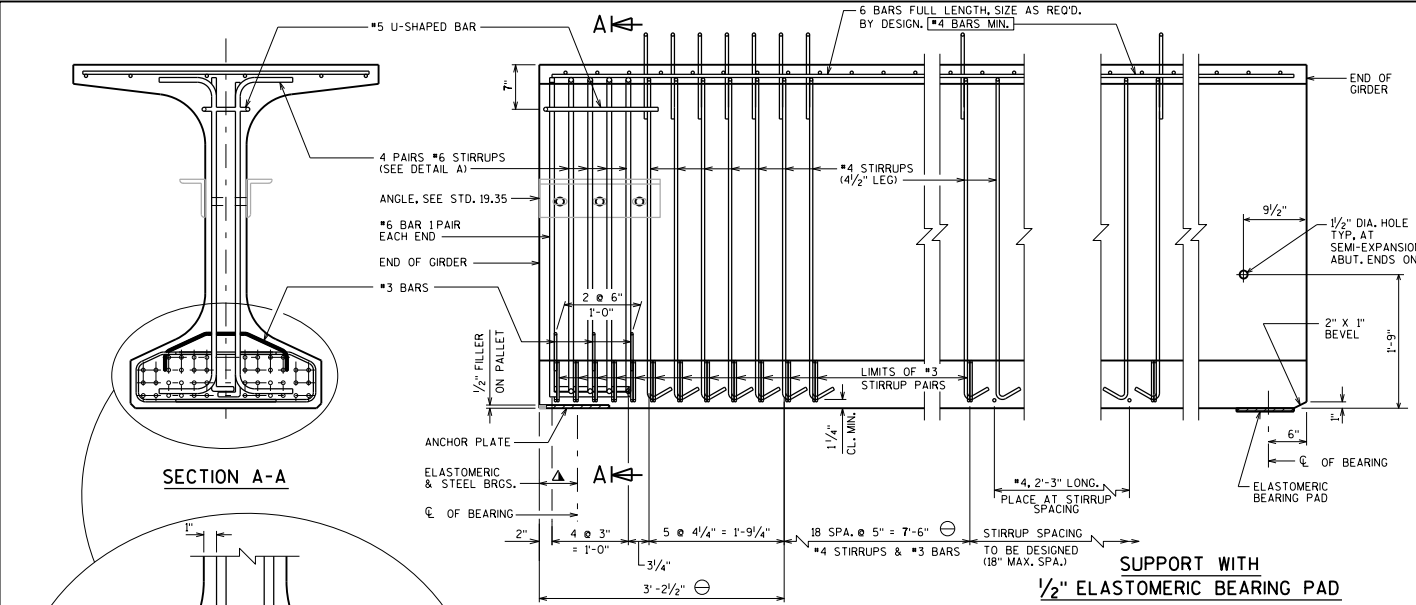
PROVIDE STIRRUP SPACING THAT IS SYMMETRICAL ABOUT THE C/L OF GIRDER.

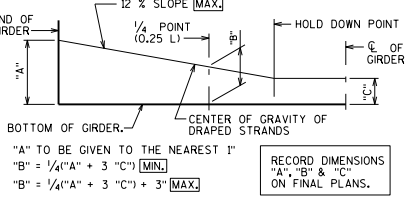
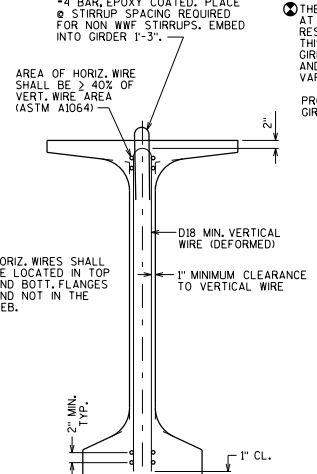
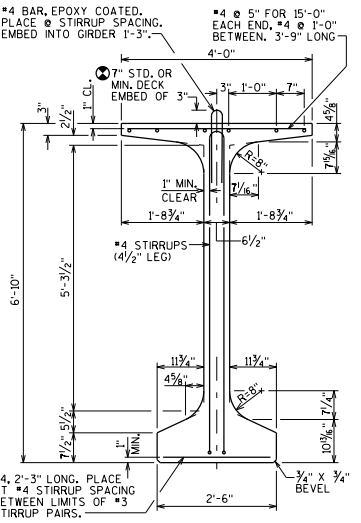
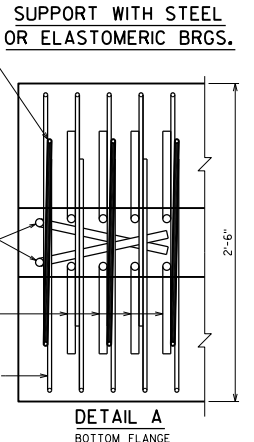
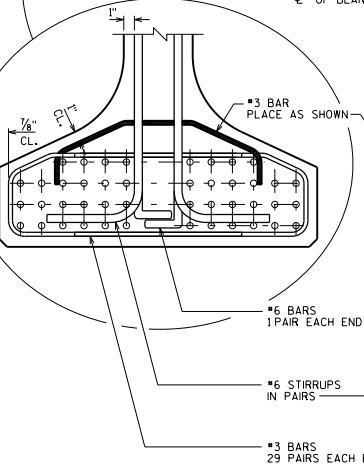
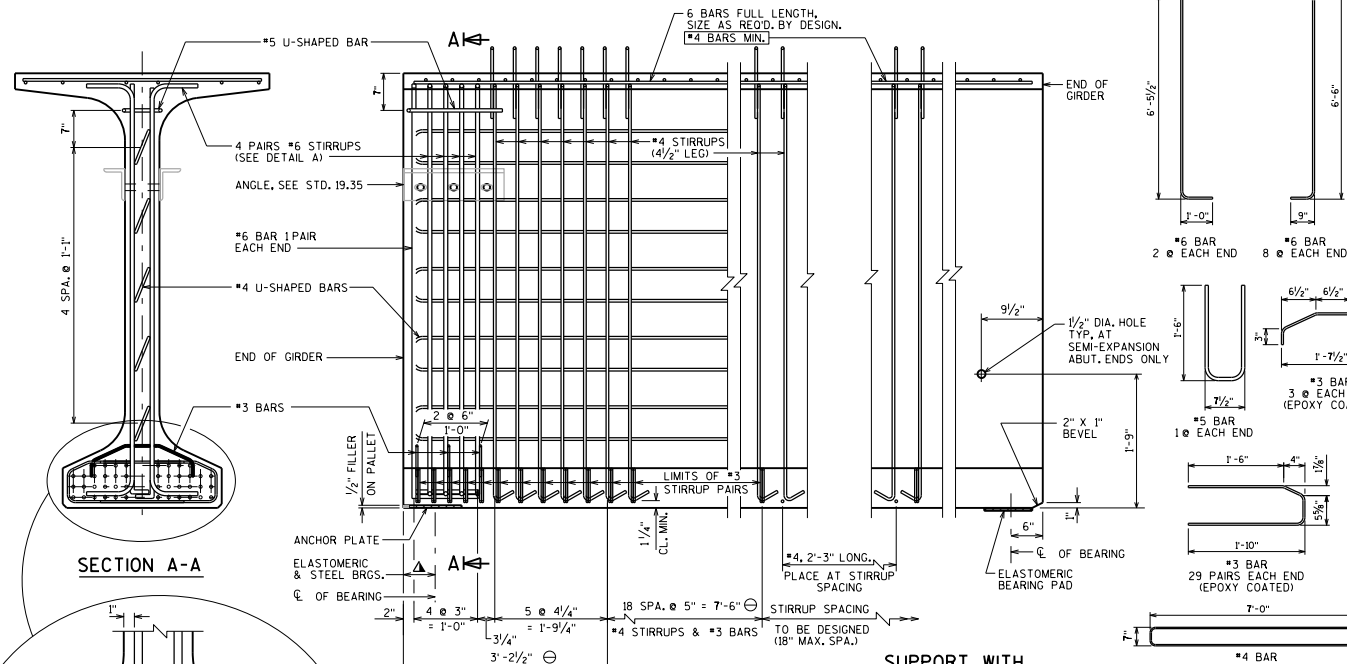


54W" PRESTRESSED GIRDER DETAILS

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald* DATE: 7-23





NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 15" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 15" OF THE TOP FLANGE.

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

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

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-FINISHED SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-BONDING EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

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

PRESTRESSING STRANDS SHALL BE 0.6" DIA.-7-WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

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 UP TO 1/10 THE GIRDER LENGTH. THE CONTRACTOR IS RESPONSIBLE FOR LATERAL STABILITY OF THE GIRDER UNTIL THE DECK IS CURED. IF NOTE DOESN'T APPLY, REFERENCE SECT. 503.3.4 OF STD. SPEC. FOR GUIDANCE

DESIGNER NOTES

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE 1 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" DIA. STRAND FOR ALL PATTERNS. THE MAX. NUMBER OF DRAPED 0.6" DIA. STRANDS IS 8.

REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STANDARD STANDARD 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, WHICH REQUIRES PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES.

- ▲ VARIES FOR ELASTOMERIC BRGS. (STD. 27.07) AND STEEL BRGS (STD. 27.09)
- ⊖ DETAIL TYPICAL AT EACH END
- ⊙ THE DESIGN ENGINEER DETERMINES THIS VALUE BASED ON 2" MIN. HAUNCH AT EDGE OF GIRDER, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL GIRDER CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.4. THIS VALUE CAN VARY AND SHOULD BE GIVEN FOR EACH 1/3 OF THE GIRDER LENGTH. PROVIDE VALUES THAT MAINTAIN 3" MIN. DECK EMBEDMENT AND 2 1/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ± 1/4" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

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

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

82W" PRESTRESSED GIRDER DETAILS

BUREAU OF STRUCTURES

WISCONSIN DEPARTMENT OF TRANSPORTATION

DATE: APPROVED: *Laura Shadewald* 7-23

LENGTH OF PLATE "C"	TOTAL LOAD KIPS	PLATE C			PLATE D			HEIGHT FEET
		X	Y	Z	X	Y	Z	
10"	215	5"	2 3/8"	10"	8"	1 3/4"	1'-7"	0.354
12"	260	5"	2 3/8"	1'-0"	9"	1 3/4"	1'-9"	0.354
14"	280	5"	2 3/8"	1'-0"	10"	2 3/8"	1'-9"	0.406
	280	5"	1 3/4"	1'-2"	9"	1 3/4"	1'-11"	0.318
	335	5"	2 3/8"	1'-2"	11"	2 3/8"	1'-11"	0.406
	385	5"	2 3/8"	1'-2"	1'-1"	2 7/8"	1'-11"	0.448
16"	410	5"	2 3/8"	1'-2"	1'-3"	2 7/8"	2'-0"	0.448
	275	5"	1 3/4"	1'-4"	8"	1 3/4"	2'-1"	0.318
	330	5"	1 3/4"	1'-4"	10"	2 3/8"	2'-1"	0.370
	390	5"	2 3/8"	1'-4"	1'-0"	2 3/8"	2'-1"	0.406
18"	465	5"	2 3/8"	1'-4"	1'-2"	2 7/8"	2'-2"	0.448
	490	5"	2 3/8"	1'-4"	1'-4"	3 3/8"	2'-2"	0.490
	325	5"	1 3/4"	1'-6"	9"	1 3/4"	2'-3"	0.318
	390	5"	1 3/4"	1'-6"	11"	2 3/8"	2'-3"	0.370
20"	465	5"	2 3/8"	1'-6"	1'-1"	2 7/8"	2'-4"	0.448
	495	5"	2 3/8"	1'-6"	1'-2"	2 7/8"	2'-4"	0.448
	560	5"	2 3/8"	1'-6"	1'-4"	3 3/8"	2'-4"	0.490
	350	5"	1 3/4"	1'-8"	9"	1 3/4"	2'-5"	0.318
	380	5"	1 3/4"	1'-8"	10"	2 3/8"	2'-5"	0.370
	460	5"	2 3/8"	1'-8"	1'-0"	2 3/8"	2'-6"	0.406
	530	5"	2 3/8"	1'-8"	1'-2"	2 7/8"	2'-6"	0.448
	600	5"	2 3/8"	1'-8"	1'-4"	3 3/8"	2'-6"	0.490
22"	640	5"	2 3/8"	1'-8"	1'-6"	3 3/8"	2'-6"	0.531
	405	5"	1 3/4"	1'-10"	10"	2 3/8"	2'-7"	0.370
	490	5"	1 3/4"	1'-10"	1'-0"	2 3/8"	2'-8"	0.370
	565	5"	2 3/8"	1'-10"	1'-2"	2 7/8"	2'-8"	0.448
	635	5"	2 3/8"	1'-10"	1'-4"	3 3/8"	2'-8"	0.490
705	5"	2 3/8"	1'-10"	1'-6"	3 7/8"	2'-8"	0.531	
720	5"	2 3/8"	1'-10"	1'-8"	3 3/8"	2'-8"	0.531	

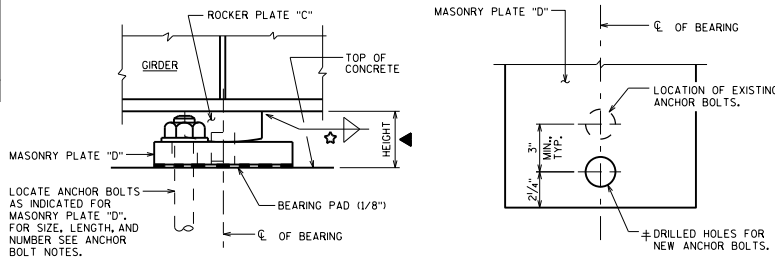
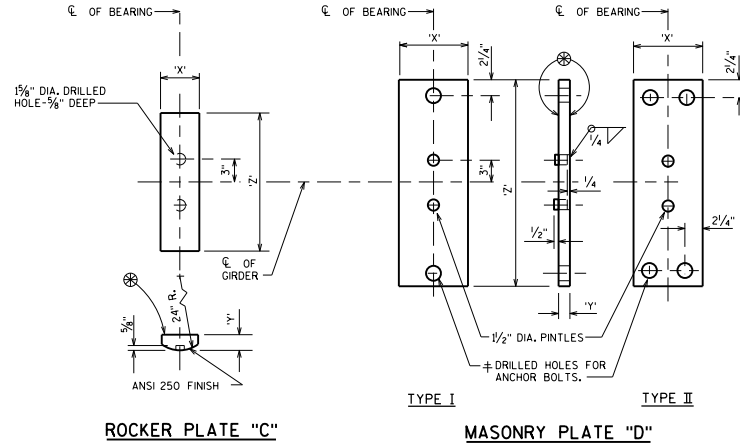
ANCHOR BOLT NOTES

FOR SPAN LENGTHS UP TO 100'-0":
USE A TYPE I MASONRY PLATE "D" WITH
(2) - 1/4" DIA. x 1'-5" LONG ANCHOR BOLTS.

FOR SPAN LENGTHS FROM 100'-0" UP TO 150'-0":
USE A TYPE I MASONRY PLATE "D" WITH
(2) - 1/2" DIA. x 1'-10" LONG ANCHOR BOLTS.

FOR SPAN LENGTHS GREATER THAN 150'-0":
USE A TYPE II MASONRY PLATE "D" WITH
(4) - 1/2" DIA. x 1'-10" LONG ANCHOR BOLTS.

CHECK THAT ANCHOR BOLTS PROVIDE ADEQUATE HORIZONTAL CAPACITY.

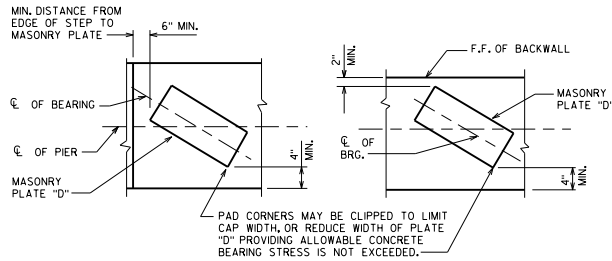


FIXED BEARING ASSEMBLY

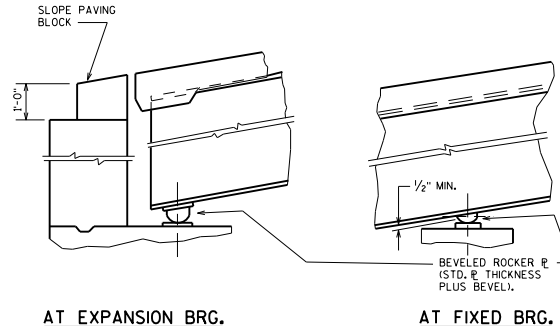
(SEE "DESIGNER NOTES" FOR BEARING REPLACEMENTS)

MASONRY PLATE "D"

BEARING REPLACEMENTS



AT SKEWED PIER **AT SKEWED ABUTMENTS**
CLEARANCE DIAGRAM



AT EXPANSION BRG. **AT FIXED BRG.**
BEVELED ROCKERS WITH GRADES GREATER THAN 3%

BEARING NOTES

ALL BEARINGS ARE SYMMETRICAL ABOUT C.E. OF GIRDER AND C.E. OF BEARING.
IN LIEU OF USING SHIM PLATES, FABRICATOR MAY INCREASE THICKNESS OF MASONRY PLATE "D" BY THE SHIM PLATE THICKNESS.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + 2/4", ABOVE TOP OF CONCRETE.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, BUT EXCLUDING PINTLES, ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.

STEEL PINTLES SHALL CONFORM TO ASTM A449 OR ASTM A572 GRADE 50.

ALL MATERIAL IN TYPE "A" BEARINGS, INCLUDING SHIM PLATES AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES FIXED B-...". EACH.

CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.

PROVIDE 1/8" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM F1554 GRADE 55, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

ROCKER PLATE "C" SHALL BE SHOP PAINTED WITH A WELDABLE PRIMER.

MASONRY PLATE "D" SHALL BE GALVANIZED.

PLACE SHIM PLATES BETWEEN BEARING PAD AND MASONRY PLATE "D". PLATES SHALL HAVE "X" AND "Z" DIMENSIONS THAT MATCH MASONRY PLATE "D".

⊕ DRILLED HOLES FOR ANCHOR BOLTS IN MASONRY PLATE "D" SHALL HAVE A DIAMETER 3/8" LARGER THAN ANCHOR BOLT.

⊗ FINISH THESE SURFACES TO ANS1250 IF "Y" DIMENSION IS GREATER THAN 2".

DESIGNER NOTES

HEIGHT OF BEARINGS GIVEN IN TABLE INCLUDES 1/8" BEARING PAD.

DETAIL SHIM PLATES AS DESCRIBED IN NOTES ON STANDARD 24.02.

REFER TO THE DETAILS BELOW FOR THE USE OF BEVELED ROCKER PLATE "C" ON GRADES GREATER THAN 3% AND ALSO CLEARANCE REQUIREMENTS.

☆ FOR WELD SIZE, REFER TO STANDARD 24.02

▲ ADJUST HEIGHT IF BEVELED ROCKER PLATE "C" IS USED.

FOR BEARING REPLACEMENTS, DESIGNER SHALL UTILIZE A WIDER BEARING THAN THE EXISTING GIRDER BOTTOM FLANGE WIDTH TO ALLOW FOR FIELD WELDING OF THE EDGE OF THE BOTTOM FLANGE TO THE TOP OF PLATE "C". SEE STANDARD 40.08 FOR DETAILS.

CALCULATE THE REACTION AT THE BEARINGS DUE TO "TOTAL LOADS". USE THE AASHTO LRFD SERVICE I LOAD COMBINATION. CONSIDER ONLY DEAD LOAD (DC + DW) AND HL-93 LIVE LOADS (LL), INCLUDING A 33% DYNAMIC LOAD ALLOWANCE (IM).

THE VALUES IN THE TABLES ARE THE BEARING CAPACITIES FOR "TOTAL LOAD" (DC + DW + (LL + IM)).

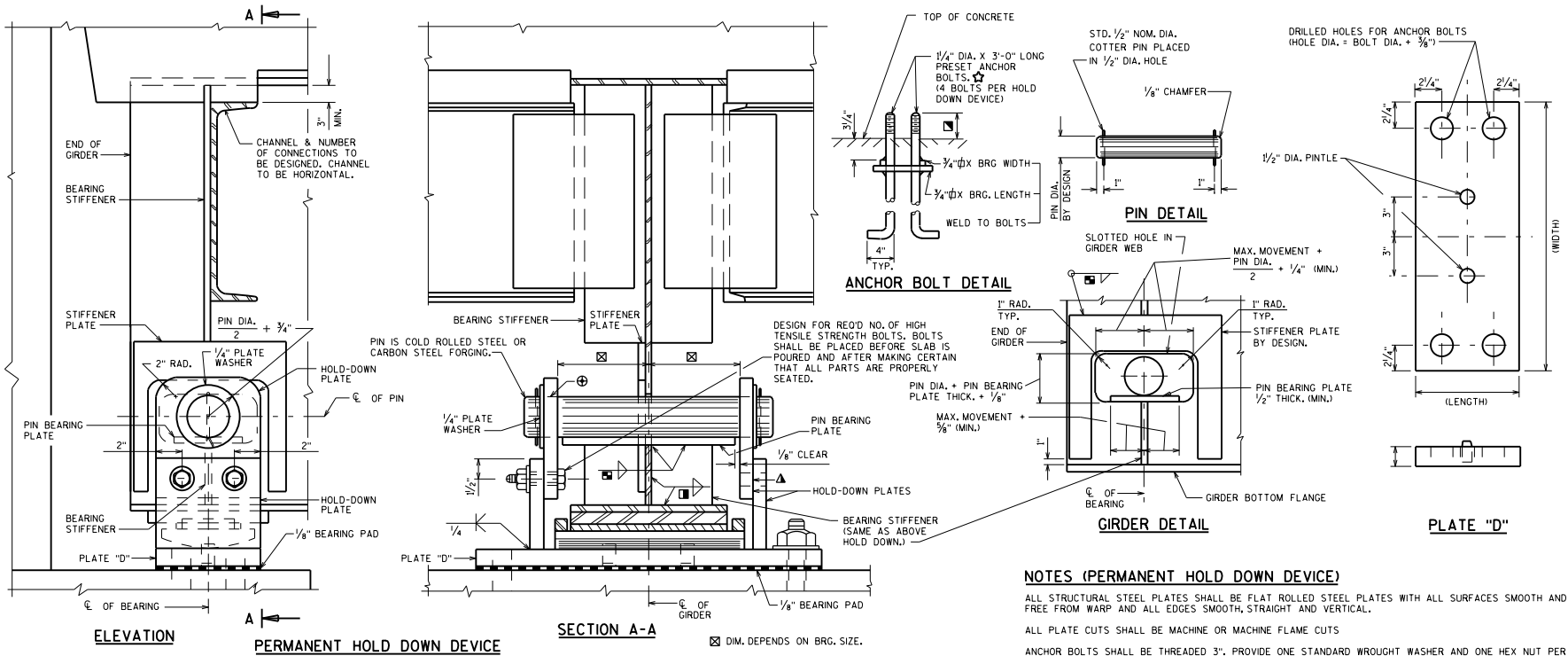
SELECT A BEARING THAT HAS A CAPACITY GREATER THAN OR EQUAL TO THE CALCULATED REACTION FOR "TOTAL LOADS".

FIXED BEARING DETAILS
TYPE 'A' - STEEL GIRDERS

WISCONSIN DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald* DATE: 7-23

STANDARD 27.02



ELEVATION

PERMANENT HOLD DOWN DEVICE

SECTION A-A

⊗ DIM. DEPENDS ON BRG. SIZE.

WHEN REQUIRED, HOLD DOWN DEVICES SHALL BE PLACED SYMMETRICALLY ABOUT LONGITUDINAL CL OF FRAMING PLAN. MAXIMUM SPACING OF HOLD DOWNS SHALL BE AT ALTERNATE GIRDERS. HOLD DOWN DEVICE TO BE DESIGNED FOR MINIMUM UPLIFT CAPACITY OF 20 KIPS.

NOTES (PERMANENT HOLD DOWN DEVICE)

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT ROLLED STEEL PLATES 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

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. CHAMFER TOP OF ANCHOR BOLTS PRIOR TO THREADING.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

THE MATERIAL FOR THE HOLD-DOWN PLATES SHALL CONFORM TO ASTM A709 GRADE 50W.

ALL MATERIAL WELDED TO THE GIRDERS, WHICH INCLUDES BEARING STIFFENERS, STIFFENER PLATE, AND PIN BEARING PLATE, SHALL MATCH THE STEEL REQUIREMENTS OF THE WEB AT THAT LOCATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM F1554 GRADE 55 OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ALL MATERIAL IN HOLD DOWN DEVICES, WHICH INCLUDES HOLD-DOWN PLATES, HIGH TENSILE STRENGTH BOLTS, PINS AND ANCHOR BOLTS, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-".

ALL MATERIAL WELDED TO THE GIRDERS, WHICH INCLUDES BEARING STIFFENERS, STIFFENER PLATE, AND PIN BEARING PLATE, SHALL BE INCLUDED IN THE BID ITEM USED FOR THE STEEL GIRDER QUANTITIES.

★ FOR REPLACEMENT BEARINGS, ANCHOR BOLTS SHALL BE 1/2" DIAMETER X 3'-0" LONG AND FULLY THREADED ADHESIVE ANCHORS. ANCHOR BOLTS SHALL BE PAID FOR AS "ADHESIVE ANCHORS 1 1/2-INCH", EMBED IN CONCRETE AS DETAILED.

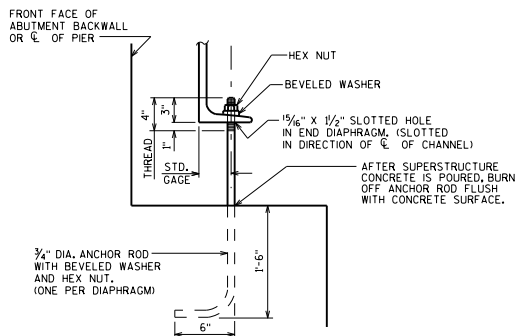
▲ SHOP DRILL HOLES IN HOLD-DOWN PLATE ATTACHED TO PLATE "D". FIELD DRILL HOLES IN UPPER HOLD-DOWN PLATE AFTER ALIGNING IN THE FIELD.

■ SEE STANDARD 24.02 FOR TABLE OF FILLET WELD SIZES.

▣ SEE STANDARD 24.02 FOR WELD DETAILS SHOWING BEARING STIFFENER CONNECTION TO WEB AND FLANGE.

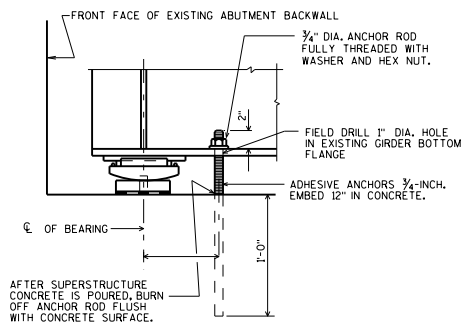
◆ PROJECT ANCHOR BOLTS, PLATE "D" THICKNESS + 2/4", ABOVE TOP OF CONCRETE.

⊕ HOLES FOR PIN IN HOLD-DOWN PLATES AND PLATE WASHERS SHALL BE AS STATED IN STANDARD SPECIFICATION 506.3.17.



ELEVATION - NEW CONSTRUCTION

TEMPORARY HOLD DOWN DEVICES SHALL BE PLACED AT THAT END OF ALL CONTINUOUS STEEL GIRDER UNITS WHERE THE SLAB POUR TERMINATES, EXCEPT WHERE PERMANENT HOLD DOWN DEVICES ARE PLACED AT THIS LOCATION. LOCATE 1'-6" (NORMAL) OFF CL OF GIRDER. TO BE PAID FOR AS "STRUCTURAL CARBON STEEL".



ELEVATION - DECK REPLACEMENT

PLACE ONE ANCHOR ROD PER GIRDER AT ABUTMENT WHERE SLAB POUR TERMINATES. LOCATE 4" (NORMAL) OFF CL OF GIRDER. ANCHOR ROD, NUT, WASHER, AND DRILLED HOLE IN GIRDER FLANGE SHALL BE PAID FOR AS "ADHESIVE ANCHORS 3/4"-INCH".

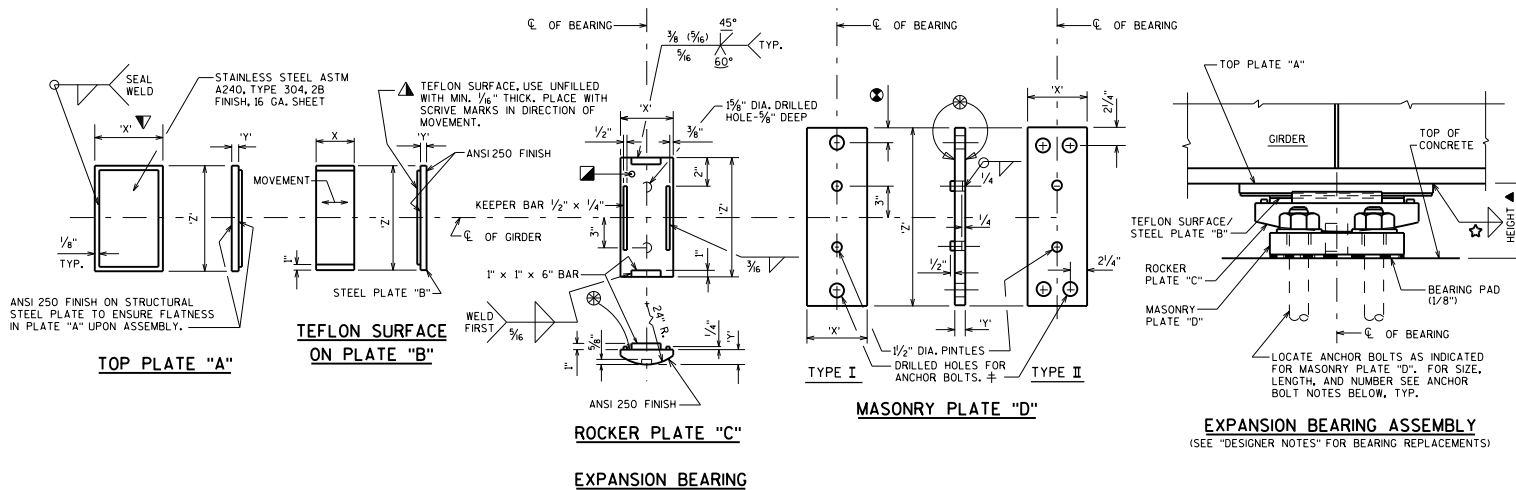
TEMPORARY HOLD DOWN DEVICE

HOLD DOWN DEVICES



APPROVED: *Laura Shadewald*

DATE:
7-23



BEARING NOTES

- ALL BEARINGS ARE SYMMETRICAL ABOUT \bar{C} OF GIRDER AND \bar{C} OF BEARING.
- FINISH THESE SURFACES TO ANSI 250 IF 'Y' DIMENSION IS GREATER THAN 2".
- ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.
- ROCKER PLATE "C" AND MASONRY PLATE "D" SHALL BE GALVANIZED, TOP PLATE "A" AND STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A"; DO NOT PAINT STAINLESS STEEL OR TEFLON SURFACES.
- ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, BUT EXCLUDING STAINLESS STEEL SHEET, TEFLON SURFACE, PINTLES, ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.
- IN LIEU OF USING SHIM PLATES, FABRICATOR MAY INCREASE THICKNESS OF TOP PLATE "A" OR MASONRY PLATE "D" BY THE SHIM PLATE THICKNESS.
- DIMENSION IS 2" WHEN 1/4" DIA. ANCHOR BOLTS ARE USED AND 2 1/4" WHEN 1/2" DIA. ANCHOR BOLTS ARE USED.
- ALL MATERIAL IN TYPE "A-T" BEARINGS, INCLUDING SHIM PLATES AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B--", EACH.
- CHAMFER ANCHOR BOLTS PRIOR TO THREADING.
- ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.
- ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.
- ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.
- PROVIDE 1/4" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.
- ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + 2/4", ABOVE TOP OF CONCRETE.
- CHAMFER TOP OF PINTLES 1/4". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.
- STEEL PINTLES SHALL CONFORM TO ASTM A449 OR ASTM A572 GRADE 50.
- ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM F1554 GRADE 55, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.
- PLACE SHIM PLATES BETWEEN BEARING PAD AND MASONRY PLATE "D". PLATES SHALL HAVE 'X' AND 'Z' DIMENSIONS THAT MATCH MASONRY PLATE "D".
- PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.
- BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING THE REQUIREMENTS FOUND IN THE STANDARD SPECIFICATION.
- DRILLED HOLES FOR ANCHOR BOLTS IN MASONRY PLATE "D" SHALL HAVE A DIAMETER 3/8" LARGER THAN ANCHOR BOLT.
- AT INSTALLATION, ENSURE STAINLESS STEEL SLIDING FACE OF THE UPPER ELEMENT AND THE TEFLON SLIDING FACE OF THE LOWER ELEMENT HAVE THE SURFACE FINISH SPECIFIED AND ARE CLEAN AND FREE OF ALL DUST, MOISTURE, OR ANY OTHER FOREIGN MATTER.

EXPANSION BEARING ASSEMBLY
(SEE "DESIGNER NOTES" FOR BEARING REPLACEMENTS)

DESIGNER NOTES

- HEIGHT OF BEARINGS GIVEN IN TABLES INCLUDES 1/8" BEARING PAD, 16 GAGE STAINLESS STEEL SHEET AND 1/16" TEFLON SURFACE.
- DETAIL SHIM PLATES AS DESCRIBED IN NOTES ON STANDARD 24.02.
- SEE STANDARD 27.02 FOR THE USE OF BEVELED ROCKER PLATE "C" ON GRADES GREATER THAN 3% AND ALSO CLEARANCE REQUIREMENTS.
- AT ABUTMENTS, WHEN THE 'X' DIMENSION OF PLATE "A" EXCEEDS 11", INCREASE STANDARD DISTANCE FROM \bar{C} OF BEARING TO END OF GIRDER.
- FOR WELD SIZE, REFER TO STANDARD 24.02.
- ADJUST HEIGHT IF BEVELED ROCKER PLATE "C" IS USED.
- FOR BEARING REPLACEMENTS, DESIGNER SHALL UTILIZE A WIDER BEARING THAN THE EXISTING GIRDER BOTTOM FLANGE WIDTH TO ALLOW FOR FIELD WELDING OF THE EDGE OF THE BOTTOM FLANGE TO THE TOP OF PLATE "A". SEE STANDARD 40.08 FOR DETAILS.
- FOR BEARING REPLACEMENTS, SEE STD. 27.02 FOR MINIMUM ANCHOR BOLT CLEARANCE INFORMATION.
- DIMENSION 'X' SHOWN FOR TOP PLATE 'A' IS A MINIMUM. PROVIDE ADEQUATE LENGTH TO ENSURE PLATE 'B' IS ALWAYS COVERED FOR ALL EXPECTED MOVEMENTS. SEE STD. 27.10 FOR ADDITIONAL GUIDANCE.

CALCULATE THE REACTIONS AT THE BEARINGS DUE TO "TOTAL LOADS" AND ALSO "DEAD LOADS" ONLY. USE THE ASHTO LRFD SERVICE I LOAD COMBINATION. CONSIDER ONLY DEAD LOAD (DC + DW) AND HL-93 LIVE LOADS (LL), INCLUDING A 33% DYNAMIC LOAD ALLOWANCE (IM).

THE VALUES IN THE TABLES ARE THE BEARING CAPACITIES FOR "TOTAL LOAD" (DC + DW + (LL + IM)). TAKE 60% OF THE VALUES IN THE TABLES TO DETERMINE THE BEARING CAPACITIES FOR "DEAD LOAD" ONLY (DC + DW).

SELECT A BEARING THAT HAS A "TOTAL LOAD" CAPACITY GREATER THAN OR EQUAL TO THE CALCULATED "TOTAL LOAD" REACTION AND ALSO A "DEAD LOAD" CAPACITY GREATER THAN OR EQUAL TO THE CALCULATED "DEAD LOAD" REACTION.

ANCHOR BOLT NOTES

- FOR SPAN LENGTHS UP TO 100'-0": USE A TYPE I MASONRY PLATE "D" WITH (2) - 1/4" DIA. X 1'-5" LONG ANCHOR BOLTS.
- FOR SPAN LENGTHS FROM 100'-0" UP TO 150'-0": USE A TYPE I MASONRY PLATE "D" WITH (2) - 1/2" DIA. X 1'-10" LONG ANCHOR BOLTS.
- FOR SPAN LENGTHS GREATER THAN 150'-0": USE A TYPE II MASONRY PLATE "D" WITH (4) - 1/2" DIA. X 1'-10" LONG ANCHOR BOLTS.
- CHECK THAT ANCHOR BOLTS PROVIDE ADEQUATE HORIZONTAL CAPACITY.

10" BEARING

TOTAL LOAD (KIPS)	PLATE A			PLATE B			PLATE C			PLATE D			HEIGHT FEET
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	
100	9"	5/8"	10"	5"	1/2"	10"	7"	1 1/8"	1'-0 1/4"	8"	1/2"	1'-8"	0.360
180	1'-1"	5/8"	10"	9"	1/2"	10"	11"	2 3/8"	1'-0 1/4"	8"	1/2"	1'-8"	0.438
260	1'-5"	5/8"	10"	1'-1"	1/2"	10"	1'-3"	3 7/8"	1'-0 1/4"	11"	2"	1'-8"	0.604

12" BEARING

TOTAL LOAD (KIPS)	PLATE A			PLATE B			PLATE C			PLATE D			HEIGHT FEET
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	
125	9"	5/8"	1'-0"	5"	1/2"	1'-0"	7"	1 1/8"	1'-2 1/4"	8"	1/2"	1'-10"	0.360
175	11"	5/8"	1'-0"	7"	1/2"	1'-0"	9"	1 1/8"	1'-2 1/4"	8"	1/2"	1'-10"	0.401
275	1'-3"	5/8"	1'-0"	11"	1/2"	1'-0"	1'-1"	2 7/8"	1'-2 1/4"	11"	2"	1'-10"	0.521

14" BEARING

TOTAL LOAD (KIPS)	PLATE A			PLATE B			PLATE C			PLATE D			HEIGHT FEET
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	
210	11"	5/8"	1'-2"	7"	1/2"	1'-2"	9"	1 1/8"	1'-4 1/4"	8"	1/2"	2'-0"	0.401
375	1'-5"	5/8"	1'-2"	1'-1"	1/2"	1'-2"	1'-3"	3 3/8"	1'-4 1/4"	1'-2"	2 1/8"	2'-0"	0.677
500	1'-9"	5/8"	1'-2"	1'-5"	1/2"	1'-2"	1'-7"	4 7/8"	1'-4 1/4"	1'-5"	3 3/8"	2'-1"	0.802

16" BEARING

TOTAL LOAD (KIPS)	PLATE A			PLATE B			PLATE C			PLATE D			HEIGHT FEET
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	
245	11"	5/8"	1'-4"	7"	1/2"	1'-4"	9"	1 1/8"	1'-6 1/4"	8"	1/2"	2'-2"	0.401
370	1'-3"	5/8"	1'-4"	11"	1/2"	1'-4"	1'-1"	2 7/8"	1'-6 1/4"	1'-0"	2 3/8"	2'-3"	0.552
525	1'-7"	5/8"	1'-4"	1'-3"	1/2"	1'-4"	1'-5"	3 7/8"	1'-6 1/4"	1'-4"	3 3/8"	2'-3"	0.719
575	1'-9"	5/8"	1'-4"	1'-5"	1/2"	1'-4"	1'-7"	4 7/8"	1'-6 1/4"	1'-6"	3 3/8"	2'-3"	0.844


18" BEARING

TOTAL LOAD (KIPS)	PLATE A			PLATE B			PLATE C			PLATE D			HEIGHT FEET
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	
280	11"	5/8"	1'-6"	7"	1/2"	1'-6"	9"	1 1/8"	1'-8 1/4"	9"	2"	2'-4"	0.443
360	1'-1"	5/8"	1'-6"	9"	1/2"	1'-6"	11"	2 3/8"	1'-8 1/4"	11"	2"	2'-4"	0.479
600	1'-7"	5/8"	1'-6"	1'-3"	1/2"	1'-6"	1'-5"	3 3/8"	1'-8 1/4"	1'-5"	3 3/8"	2'-5"	0.719
650	1'-11"	5/8"	1'-6"	1'-7"	1/2"	1'-6"	1'-9"	4 7/8"	1'-8 1/4"	1'-10"	3 3/8"	2'-5"	0.844

20" BEARING

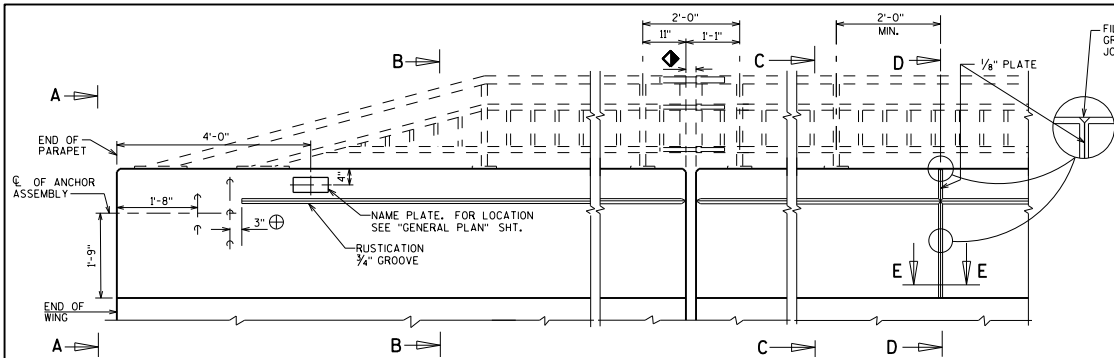
TOTAL LOAD (KIPS)	PLATE A			PLATE B			PLATE C			PLATE D			HEIGHT FEET
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	
225	9"	5/8"	1'-8"	5"	1/2"	1'-8"	7"	1 1/8"	1'-10 1/4"	8"	1/2"	2'-6"	0.360
315	11"	5/8"	1'-8"	7"	1/2"	1'-8"	9"	1 1/8"	1'-10 1/4"	9"	2"	2'-6"	0.443
495	1'-3"	5/8"	1'-8"	11"	1/2"	1'-8"	1'-1"	2 7/8"	1'-10 1/4"	1'-1"	2 7/8"	2'-7"	0.594
675	1'-7"	5/8"	1'-8"	1'-3"	1/2"	1'-8"	1'-5"	3 3/8"	1'-10 1/4"	1'-6"	3 3/8"	2'-7"	0.760
705	1'-11"	5/8"	1'-8"	1'-7"	1/2"	1'-8"	1'-9"	4 7/8"	1'-10 1/4"	1'-11"	3 3/8"	2'-7"	0.844

STAINLESS STEEL - TFE EXPANSION BEARING DETAILS TYPE 'A-T'



BUREAU OF STRUCTURES

DATE:
APPROVED: Laura Shadewald 7-23



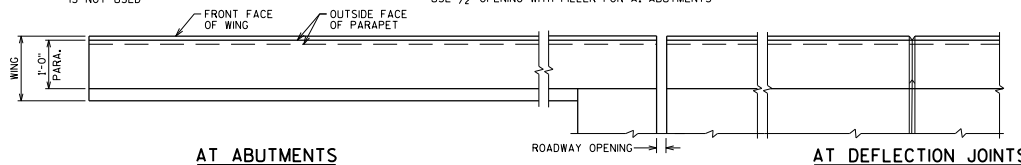
AT ABUTMENTS

ELEVATION OF PARAPET

AT DEFLECTION JOINTS

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

⊕ ROADWAY OPENING OR 2/4" MIN. FOR EXPANSION JOINT. USE 1/2" OPENING WITH FILLER FOR AT ABUTMENTS.



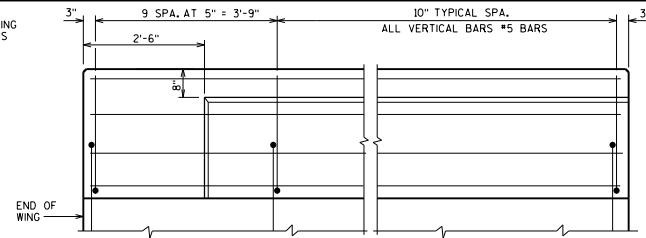
AT ABUTMENTS

AT DEFLECTION JOINTS

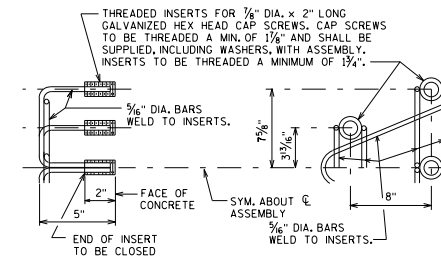
PLAN OF PARAPET

(RAILING NOT SHOWN FOR CLARITY)

FILL WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.



VIEW SHOWING OUTSIDE FACE OF PARAPET & REINF.



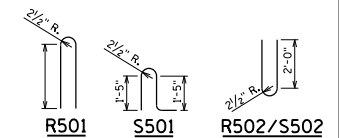
DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX. HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH ASTM F2329.

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

BILL OF BARS

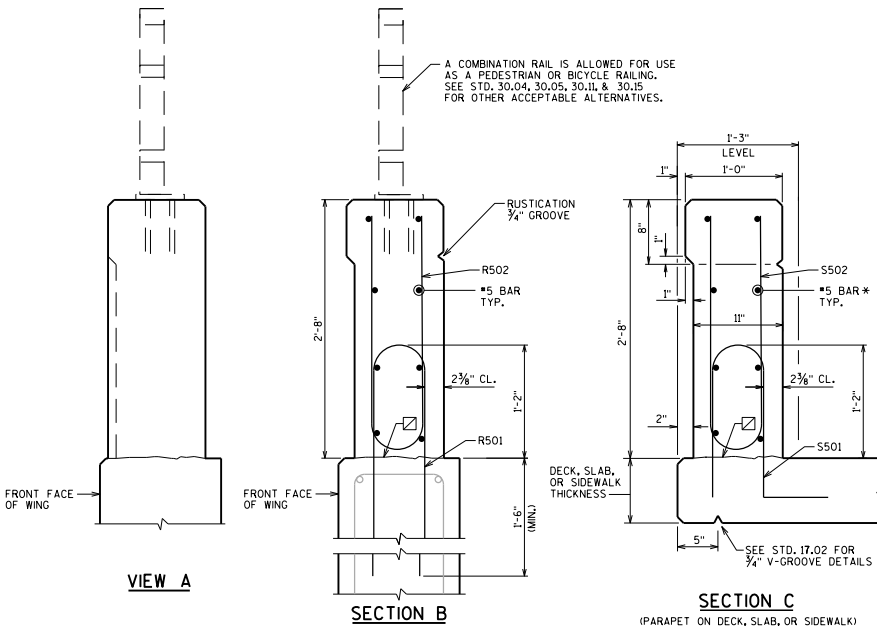
BAR MARK	CON.	NO. REOD.	LENGTH	REV.	BAR SERIES	LOCATION
R501	X			X		PARAPET VERT.
R502	X		4'-9"	X		PARAPET VERT.
S501	X		4'-4"	X		PARAPET VERT.
S502	X		4'-9"	X		PARAPET VERT.



R501

S501

R502/S502



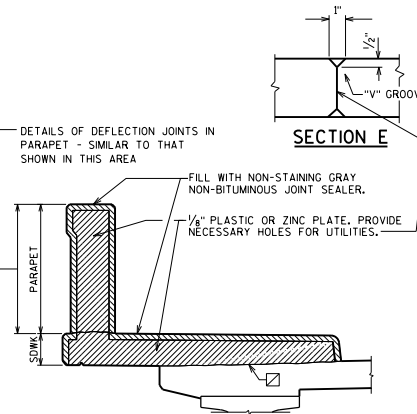
VIEW A

SECTION B

SECTION C

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

A COMBINATION RAIL IS ALLOWED FOR USE AS A PEDESTRIAN OR BICYCLE RAILING. SEE STD. 30.04, 30.05, 30.11 & 30.15 FOR OTHER ACCEPTABLE ALTERNATIVES.



SECTION E

SECTION D

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

- ORDER STRUCTURES AND SLAB STRUCTURES WITH A SIDEWALK SHOULD HAVE A DEFLECTION JOINT IN THE SIDEWALK AND PARAPET OVER THE PIER.
- IF THERE IS A LIGHT STANDARD AT THE PIER, PLACE A DEFLECTION JOINT APPROX. 4'-0" EACH SIDE OF PIER, WITH NONE DIRECTLY OVER THE PIER.
- ORDER STRUCTURES AND SLAB STRUCTURES WITHOUT SIDEWALKS SHOULD HAVE NO DEFLECTION JOINTS IN THE PARAPETS.

NOTE

WHEN PARAPETS ARE POURED CONTINUOUSLY FROM END TO END, THEY SHALL BE SEPARATED AT THE DEFLECTION JOINTS BY A PIECE OF 1/4" ZINC OR PLASTIC PLATE CUT AS SHOWN IN SECTION 'D' BY SHADED AREA. IF CONSTRUCTION JOINTS IN PARAPETS ARE USED AT THE DEFLECTION JOINTS, ONE SIDE OF JOINT SHALL BE COATED WITH AN APPROVED LIQUID BOND BREAKER AND PLATE SEPARATORS MAY BE OMITTED.

LEGEND

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

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

DESIGNER NOTE

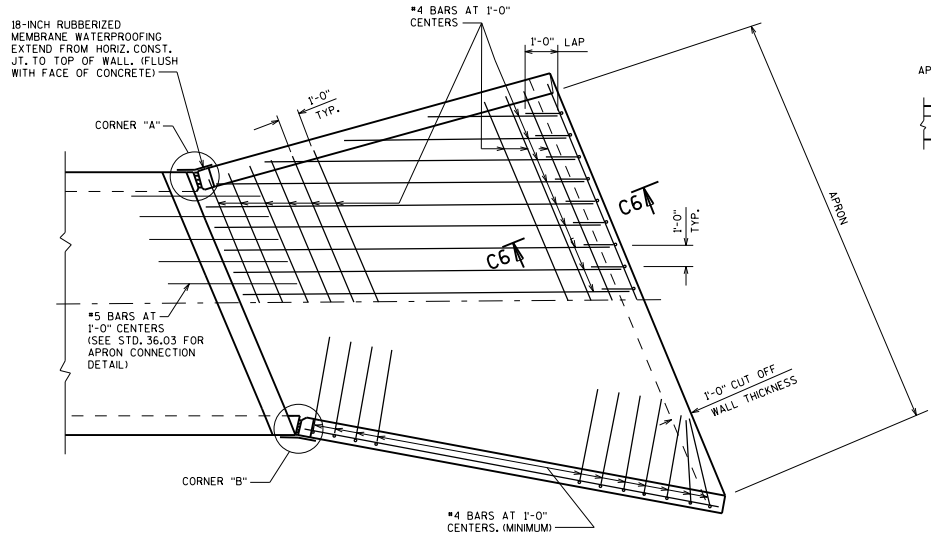
A A501 BAR MAY BE USED IN LIEU OF A S501 BAR ADJACENT TO THE PAVING NOTCH ON TYPE A1 ABUTMENTS.

AREA	PARAPET
2.50 SF	
375 LB/FT	

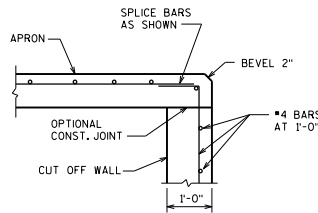
VERTICAL FACE PARAPET 'A'



APPROVED: *Laura Shadewald* DATE: 7-23



APRON DETAIL



SECTION C6

"H" (FT.)	"L" (FT.)
≤ 5'-0"	3'-8"
> 5'-0" - 7'-0"	5'-2"
> 7'-0" - 8'-0"	6'-1"
> 8'-0" - 9'-0"	6'-9"
> 9'-0" - 10'-0"	7'-4"
> 10'-0" - 11'-0"	7'-8"
> 11'-0" - 12'-0"	8'-0"
> 12'-0" - 13'-0"	8'-4"
> 13'-0" - 14'-0"	8'-6"

"H" IS MAX. WING WALL HEIGHT

THE AREA OF REINFORCING STEEL NOT IDENTIFIED IN SECTIONS SHALL CONFORM TO THE FOLLOWING TEMPERATURE AND SHRINKAGE REQUIREMENTS:

THICKNESS	T&S REINF.
≤ 12"	#4 @ 18"
> 12" - 18"	#4 @ 12"

NOTES

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
 THE CONCRETE IN THE CUT OFF WALL MAY BE PLACED UNDERWATER IF THE EXCAVATION CANNOT BE DEWATERED.
 THE "ALTERNATE CUT OFF WALL" DETAIL SHOWN ON THIS SHEET MAY BE USED IN LIEU OF THE CAST-IN-PLACE CONCRETE CUT OFF WALLS, PAYMENT SHALL BE BASED ON CONCRETE CUT OFF WALLS.
 LOCATE NAME PLATE ON NEAREST RIGHT WING TRAVELING UP STATION, FACE NAME PLATE UP STATION.

DESIGNER NOTES

IF PRECAST ELEMENTS ARE ALLOWED, INCLUDE THE FOLLOWING NOTE ON THE LAYOUT SHEET:
 THE CONTRACTOR MAY FURNISH (INCLUDE ALLOWABLE PRECAST ELEMENTS) IN LIEU OF THE CAST-IN-PLACE BOX CULVERT WITH THE ACCEPTANCE OF THE SHOP DRAWINGS BY THE STRUCTURES MAINTENANCE SECTION. THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO PRECAST DETAILS IN CHAPTER 36 STANDARDS OF THE CURRENT WISCONSIN DOT BRIDGE MANUAL. PAYMENT FOR THE PRECAST CULVERT SHALL BE BASED ON THE QUANTITIES AND PRICES BID FOR THE ITEMS LISTED IN THE "TOTAL ESTIMATED QUANTITIES".

ALLOWABLE PRECAST ELEMENTS INCLUDE: BOX CULVERT BARREL SECTIONS, WINGWALLS, HEADERS, AND CUTOFF WALLS. APRON FLOORS SHALL BE CAST-IN-PLACE, UNLESS DESIGNED OTHERWISE. THE DESIGNER SHALL DETERMINE IF PRECAST ELEMENTS ARE ALLOWED ON A PROJECT-BY-PROJECT BASIS. PRECAST ONLY DESIGNS REQUIRE PRIOR APPROVAL BY THE BUREAU OF STRUCTURES. WHEN PRECAST ELEMENTS HAVE BEEN DETERMINED TO BE PROHIBITED, ELEMENTS SHALL BE NOTED ACCORDINGLY ON THE PLANS (E.G. "A PRECAST WINGWALL ALTERNATIVE IS NOT ALLOWED").

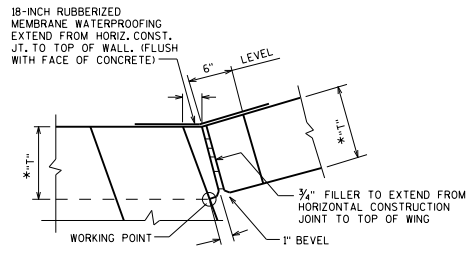
PROVIDE CAST-IN-PLACE DETAILS ONLY, UNLESS SPECIAL PRECAST DETAILS ARE REQUIRED OR WHEN A PRECAST ONLY DESIGN IS PROVIDED.
 PRECAST ONLY DESIGNS REQUIRE PRIOR APPROVAL BY THE BUREAU OF STRUCTURES. SEE BRIDGE MANUAL SECTIONS 36.11.4 AND 36.12 FOR ADDITIONAL INFORMATION. IF USED, PROVIDE PRECAST DETAILS FOLLOWING STANDARDS 36.05 AND 36.06 WITH THE FOLLOWING SPECIFICATIONS:
 PRECAST CONCRETE WINGWALLS (STRUCTURE) (504.1000.5)
 PRECAST CONCRETE BOX CULVERT, (SPAN SIZE) FT X (RISE SIZE) FT (504.2000.5)

ALL BAR STEEL FOR CAST-IN-PLACE CONCRETE BOX CULVERTS SHALL BE UNCOATED, EXCEPT WHEN THERE IS NO FILL OVER THE CULVERT. EPOXY COATED BARS SHALL BE USED FOR THE TOP AND BOTTOM BARS IN THE TOP SLAB.

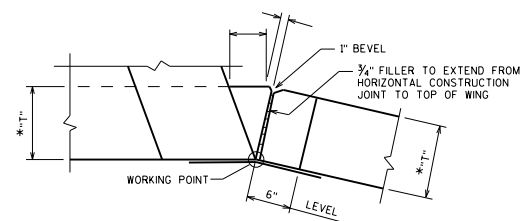
BAR STEEL FOR CAST-IN-PLACE CONCRETE APRONS SHALL BE UNCOATED AND BAR STEEL FOR WINGWALL DOWELS AND ALL WINGWALL BARS SHALL BE EPOXY COATED.

FOR "B" DESIGNATED CONCRETE BOX CULVERTS HAVING THEIR TOP SURFACE AT GRADE, HAND HELD FINISHING MACHINES MAY BE USED. NOTE THIS ON PLANS WHEN APPLICABLE.

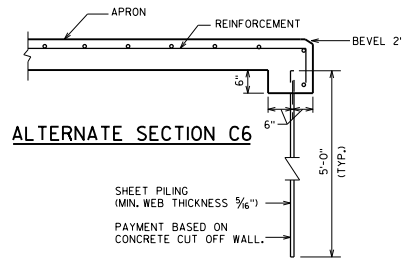
SEE STANDARDS 9.01 AND 36.01 FOR ADDITIONAL NOTES.
 SEE STANDARDS 36.05 AND 36.06 FOR PRECAST BOX CULVERT DETAILS.



CORNER "A"



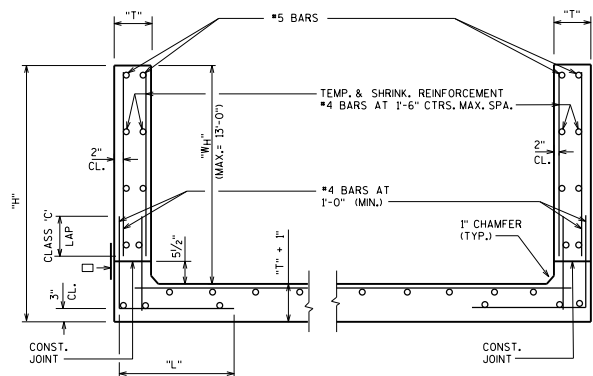
CORNER "B"



ALTERNATE SECTION C6

ALTERNATE CUT OFF WALL

SHEET PILING (MIN. WEB THICKNESS 3/16")
 PAYMENT BASED ON CONCRETE CUT OFF WALL.



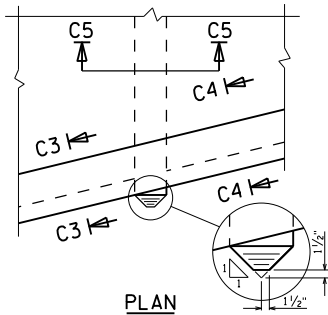
SECTION THRU WINGWALLS

□ 18" MIN. WIDTH RUBBERIZED MEMBRANE WATERPROOFING ALONG HORIZ. CONSTR. JT. IN WING.

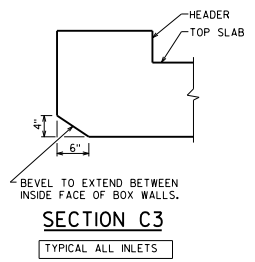
BOX CULVERT APRON DETAILS



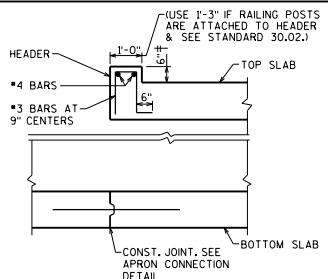
APPROVED: *Laura Shadewald* DATE: 7-23



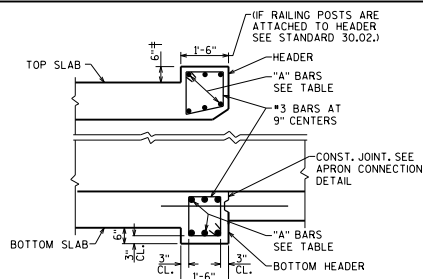
PLAN



SECTION C3
TYPICAL ALL INLETS



SECTION C2
(OUTLET HEADERS SHOWN FOR SKEW OF 20° AND UNDER)



SECTION C2
(INLET HEADERS SHOWN FOR SKEW OVER 20°)

* HEADER LENGTH	"A" BARS
TO 11'-0"	6 - #7
OVER 11'-0" - 14'-0"	6 - #8
OVER 14'-0" - 17'-0"	6 - #9
OVER 17'-0" - 20'-0"	6 - #10

* HEADER LENGTH EQUALS THE DISTANCE BETWEEN $\frac{1}{2}$ OF WALLS IN ONE CELL MEASURED ALONG THE SKEW.

DESIGNER NOTES

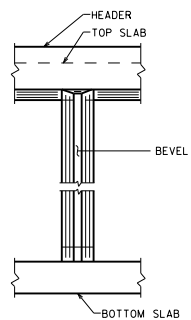
SEE BRIDGE MANUAL SECTION 36.2 FOR ADDITIONAL REQUIREMENTS FOR PEDESTRIAN UNDERPASSES AND CATTLE PASSES.

2 DETAIL NOT ALLOWED WHEN HAUNCHES ARE REQ'D OR FOR PEDESTRIAN UNDERPASSES. OMIT 1" CHAMFER IF ALTERNATIVE CONSTRUCTION JOINT IS USED.

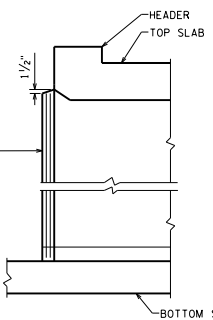
◆ + = 1'-0" MIN. FOR PEDESTRIAN UNDERPASSES AND SLABS WITH DEPTH OF FILLS < 2'-0"
+ = 6/2" MIN. OTHERWISE

★ TOP BARS FOR TOP SLAB:
- FOR + < 10" WITH DEPTH OF FILLS > 2'-0": BARS NOT REQUIRED
- FOR + > 10": #4 AT 1'-6" MAX. EACH DIRECTION
- FOR PEDESTRIAN UNDERPASSES: #4 AT 1'-6" MAX. EACH DIRECTION
- FOR SLABS WITH DEPTH OF FILLS < 2'-0": #4 AT 1'-0" MAX. EACH DIRECTION. USE CLASS 'C' LAPS

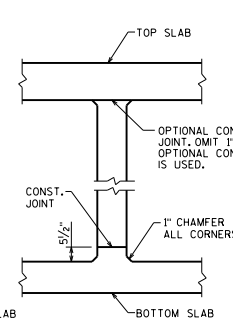
▲ FOR PEDESTRIAN UNDERPASSES, PROVIDE A CONTINUOUS SHEET MEMBRANE FOR THE ENTIRE LENGTH OF THE CULVERT IN LIEU OF 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING STRIPS OVER THE JOINTS. CONTACT THE BUREAU OF STRUCTURES FOR THE MOST CURRENT SHEET MEMBRANE SPECIAL PROVISION. INCLUDE THE FOLLOWING NOTE:
SHEET MEMBRANE WATERPROOFING REQUIRED ON THE WALLS AND ACROSS TOP SLAB FOR ENTIRE CULVERT LENGTH, EXTEND 6" MIN. BELOW THE TOP OF BOTTOM SLAB.



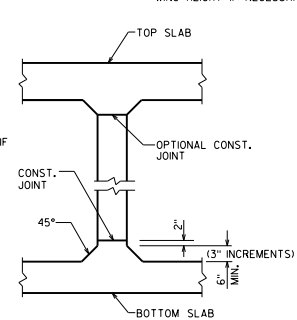
ELEVATION



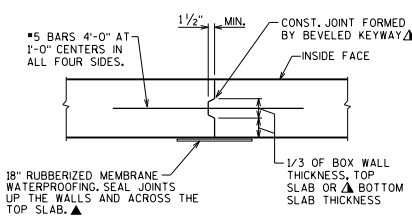
SECTION C4



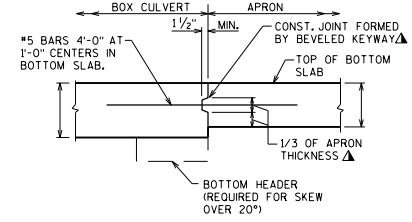
SECTION C5



HAUNCH DETAIL
(PROVIDE HAUNCH DETAIL ONLY WHEN REQUIRED AS PER DESIGN)



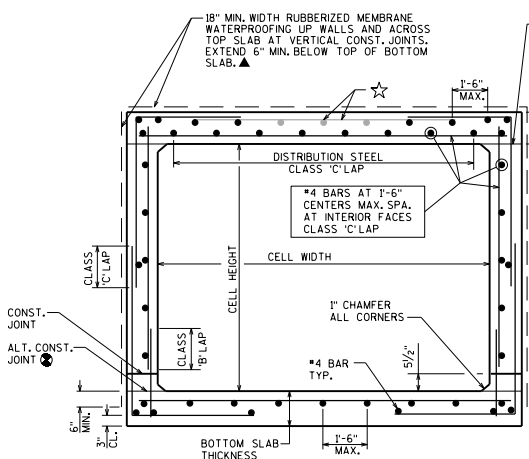
VERTICAL CONSTRUCTION JOINT



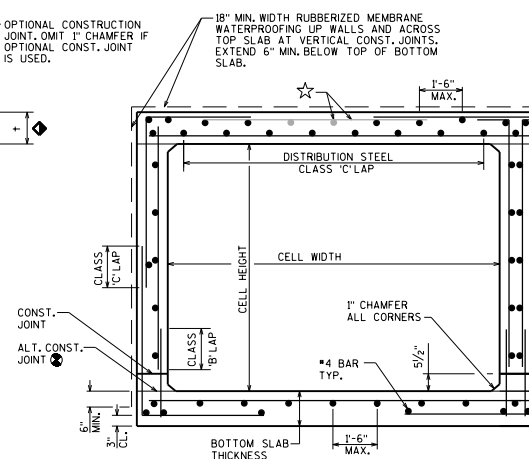
APRON CONNECTION DETAIL

INLET NOSE CENTER WALL DETAILS

TYPICAL ALL INLETS



SECTION THRU BOX
SINGLE CELL BOX



SECTION THRU BOX
TWIN CELL BOX

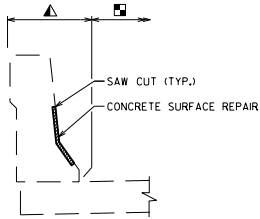
▲ IN LIEU OF CONSTRUCTION JOINTS IN THE BOTTOM SLAB, THE CONTRACTOR MAY USE 2" DEEP SAW CUTS WITHIN 12 HOURS AFTER POURING. #5 BARS 4'-0" AT 1'-0" CENTERS REQUIRED.

OPTIONAL CONSTRUCTION JOINT. OMIT 1" CHAMFER IF OPTIONAL CONST. JOINT IS USED.

BOX CULVERT DETAILS



APPROVED: *Laura Shadewald* DATE: 7-23



- ▲ "PIGMENTED SURFACE SEALER RESEAL" LIMITS
- "PROTECTIVE SURFACE TREATMENT RESEAL" LIMITS

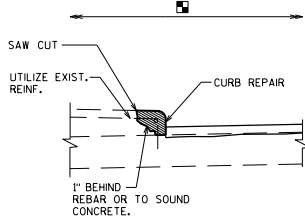
PARAPET REPAIR DETAIL

502.3215	PROTECTIVE SURFACE TREATMENT RESEAL	SY
502.3205	PIGMENTED SURFACE SEALER RESEAL	SY
509.1500	CONCRETE SURFACE REPAIR	SF

NOTES

PROTECTIVE SURFACE TREATMENT RESEAL SHALL BE APPLIED TO THE (INSERT LOCATIONS). SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "PROTECTIVE SURFACE TREATMENT RESEAL"

PIGMENTED SURFACE SEALER RESEAL SHALL BE APPLIED TO THE (INSERT LOCATIONS). SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "PIGMENTED SURFACE SEALER RESEAL"



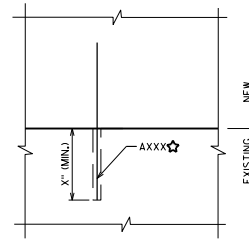
CURB REPAIR DETAIL

502.3215	PROTECTIVE SURFACE TREATMENT RESEAL	SY
509.1200	CURB REPAIR	LF

DESIGNER NOTES

DETAILS MAY BE SHOWN ON PLANS IF NECESSARY FOR CLARITY. INCLUDE APPLICABLE CONCRETE MASONRY BID ITEM TO FILL REPAIRS. REFER TO STANDARD 17.02 FOR TYPICAL SEALING LOCATIONS.

THE "RESEAL" QUANTITY SHOULD INCLUDE THE REPAIRED CONCRETE SURFACES. FOR EXAMPLE, "PIGMENTED SURFACE SEALER RESEAL" SHOULD BE APPLIED TO THE EXISTING AND REPAIRED PARAPET SURFACES, AS SHOWN.



NOTE

ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS. (PROVIDE NOTE WHEN THE ADHESIVE ANCHOR BID ITEM IS NOT USED, BUT ARE ALLOWED AS AN ALTERNATIVE ANCHORAGE)

☆ (CHOOSE ONE OF THE FOLLOWING AND PLACE ON PLAN)

ADHESIVE ANCHORS X/X-INCH. EMBED X" IN CONCRETE.

ADHESIVE ANCHORS NO. X BAR. EMBED X" IN CONCRETE.

ADHESIVE ANCHORS X/X-INCH. EMBED X" IN CONCRETE. ANCHORS SHALL BE APPROVED FOR USE IN CRACKED CONCRETE.

ADHESIVE ANCHORS NO. X BAR. EMBED X" IN CONCRETE. ANCHORS SHALL BE APPROVED FOR USE IN CRACKED CONCRETE.

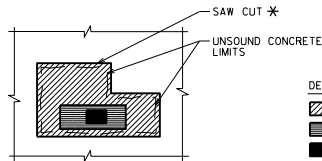
ANCHOR DETAIL (EXAMPLE)

502.41..	ADHESIVE ANCHORS	..-INCH	EACH
502.42..	ADHESIVE ANCHORS	NO. .BAR	EACH
505.0605	BAR STEEL REINFORCEMENT HS	COATED STRUCTURES	LB

DESIGNER NOTES

THE DESIGN ENGINEER SHALL PROVIDE ANCHOR DETAILS AS NEEDED. PLANS SHALL INCLUDE ANCHOR "NOTES" WHEN ADHESIVE ANCHORS ARE USED.

ANCHOR DETAIL EXAMPLE APPLICABLE FOR ADHESIVE ANCHORS LOCATED IN UNCRACKED CONCRETE. SEE CHAPTER 40.16 FOR ADDITIONAL GUIDANCE.

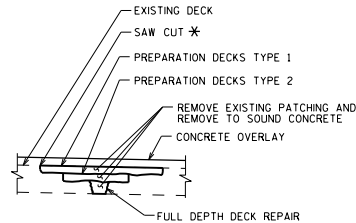


DECK REPAIR DETAIL - PLAN

FOR DESIGNER INFORMATION ONLY (DO NOT PLACE ON PLANS)

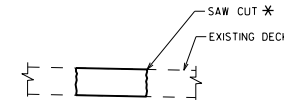
509.0301	PREPARATION DECKS TYPE 1	SY
509.0302	PREPARATION DECKS TYPE 2	SY
*509.0310.S	SAWING PAVEMENT DECK PREPARATION AREAS	LF
509.2000	FULL-DEPTH DECK REPAIR	SY
▲509.2500	CONCRETE MASONRY OVERLAY DECKS	CY

- DECK REPAIR LEGEND:**
- ▨ PREPARATION DECKS TYPE 1
 - ▩ PREPARATION DECKS TYPE 2
 - FULL-DEPTH DECK



DECK REPAIR DETAIL - SECTION

FOR DESIGNER INFORMATION ONLY (DO NOT PLACE ON PLANS)



FULL-DEPTH DECK REPAIR DETAIL

FOR DESIGNER INFORMATION ONLY (DO NOT PLACE ON PLANS)

*509.0310.S	SAWING PAVEMENT DECK PREPARATION AREAS	LF
509.2000	FULL-DEPTH DECK REPAIR	SY
▲509.2500	CONCRETE MASONRY OVERLAY DECKS	CY

DESIGNER NOTES

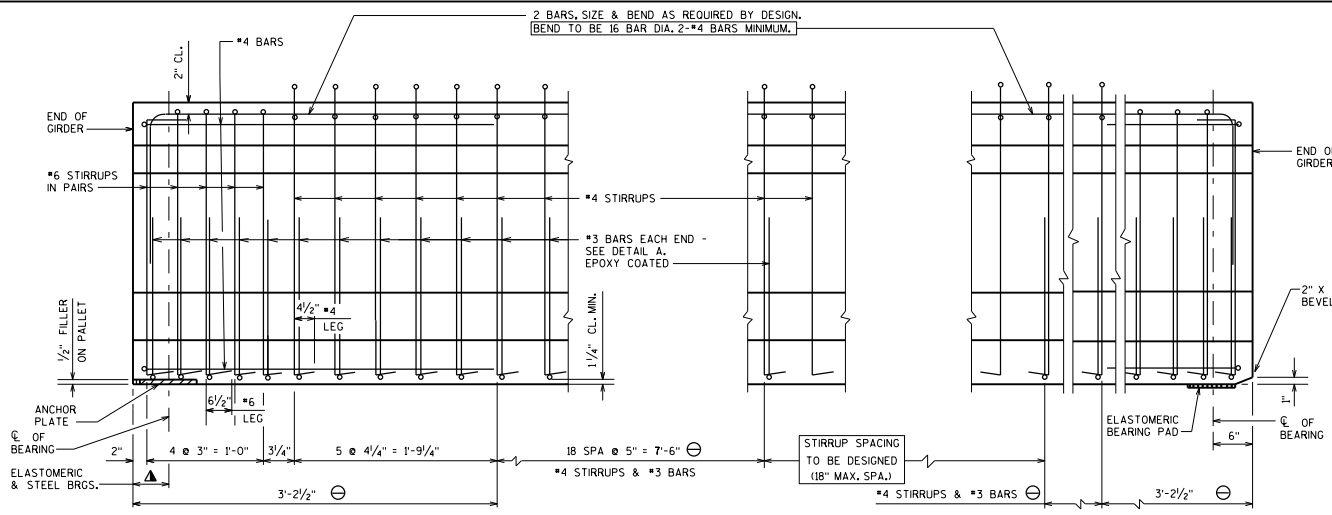
DETAILS APPLICABLE TO ALL OVERLAY METHODS AND DECK REPAIRS WITHOUT OVERLAYS.

* "SAWING PAVEMENT DECK PREPARATION AREAS" NOT REQUIRED FOR CONCRETE OVERLAYS.

▲ USE "CONCRETE MASONRY DECK REPAIR" (509.2100.S) FOR DECK REPAIRS UNDER POLYMER, ASPHALTIC, OR POLYMER MOD. ASPHALTIC OVERLAYS. USE "CONCRETE MASONRY DECK REPAIR" FOR DECK REPAIRS WITHOUT OVERLAYS.

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

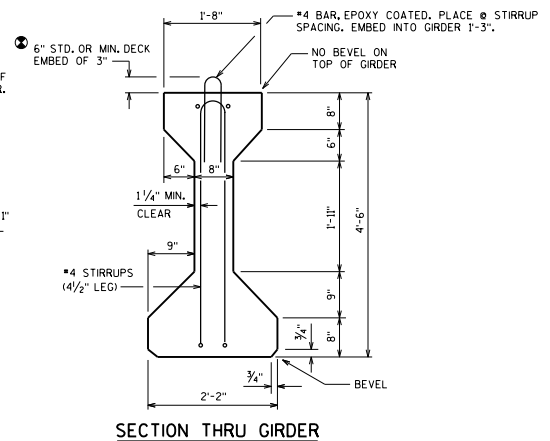
CONCRETE REPAIR DETAILS	
	BUREAU OF STRUCTURES
APPROVED: <i>Laura Shadewald</i>	DATE: 7-23



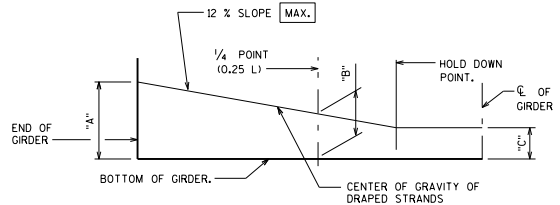
SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

SIDE VIEW OF GIRDER

SUPPORT WITH 1/2" ELASTOMERIC BRG. PAD



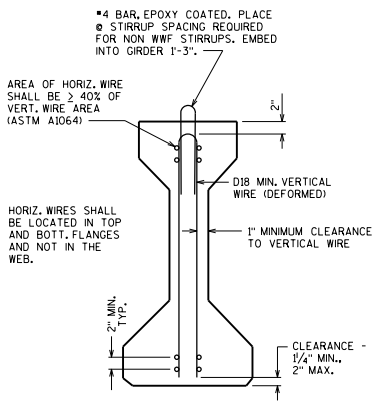
SECTION THRU GIRDER
STRANDS NOT SHOWN



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

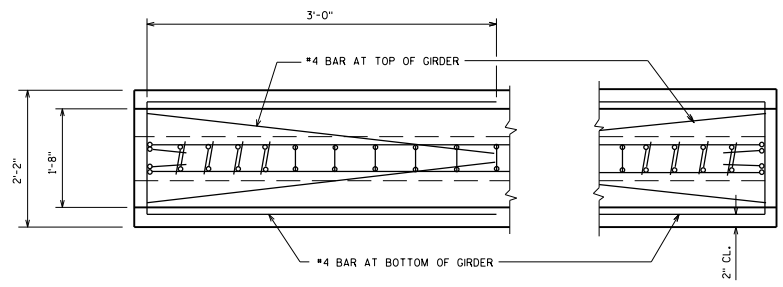
DESIGNER NOTES

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 54-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 0.5" DIA. OR 0.6" DIA. STRANDS FOR ALL PATTERNS AS REQUIRED. THE MAX. NUMBER OF DRAPED 0.5" DIA. STRANDS IS 12 AND THE MAX. NUMBER FOR 0.6" DIA. STRANDS IS 10.
 REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STANDARD 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, WHICH REQUIRES PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES.

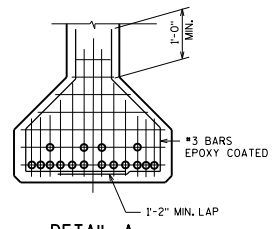
- ▲ VARIES FOR ELASTOMERIC BRGS. (STD. 27.07) AND STEEL BRGS. (STD. 27.09)
- ⊙ DETAIL TYPICAL AT EACH END
- ⊛ THE DESIGN ENGINEER DETERMINES THIS VALUE BASED ON 2" MIN. HAUNCH AT EDGE OF GIRDER, X-SLOPE, PROFILE GRADE LINE AND CALCULATED RESIDUAL GIRDER CAMBER, INCLUDING THE CAMBER MULTIPLIER OF 1.4. THIS VALUE CAN VARY AND SHOULD BE GIVEN FOR EACH 1/3 OF THE GIRDER LENGTH. PROVIDE VALUES THAT MAINTAIN 3" MIN. DECK EMBEDMENT AND 2 1/2" CLEAR FROM TOP OF DECK WHILE ACCOUNTING FOR ±3/4" VARIANCE IN ACTUAL CAMBER VERSUS THE CALCULATED RESIDUAL CAMBER.

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.
 DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.
 THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.
 STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.
 ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.
 SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.
 AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DESIGN SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.
 PRESTRESSING STRANDS SHALL BE (DIA.)-7-WIRE LOW RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

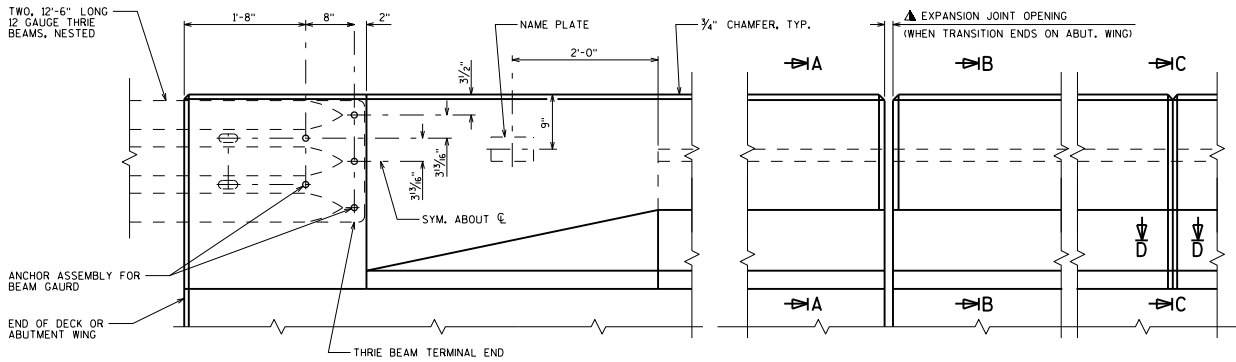


PLAN VIEW

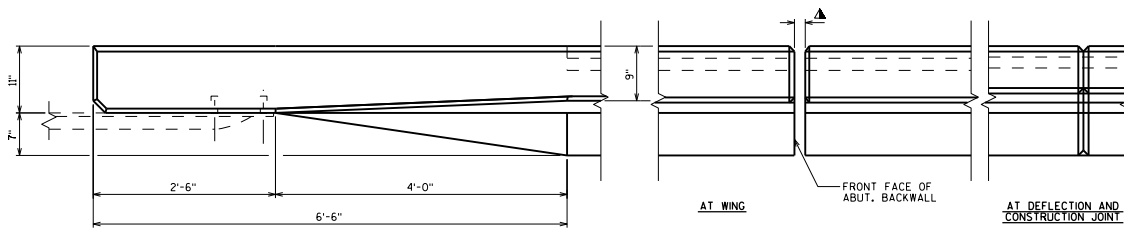


DETAIL A

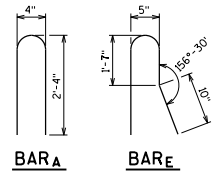
54" PRESTRESSED GIRDER DETAILS	
	BUREAU OF STRUCTURES
APPROVED: <i>Laura Shadewald</i>	DATE: 7-23



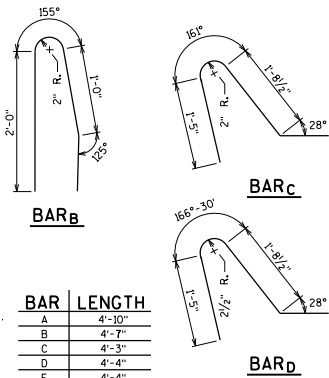
ELEVATION OF PARAPET



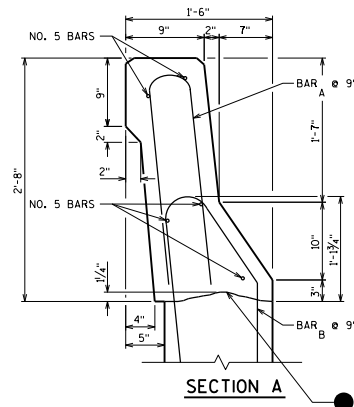
PART PLAN ON PARAPET



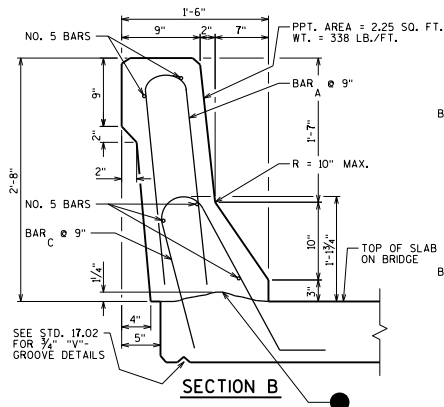
BAR A BAR E



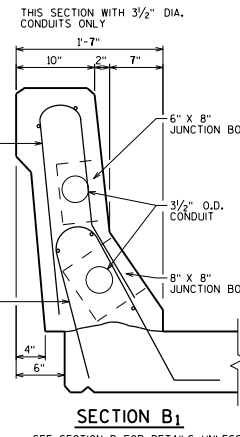
BAR	LENGTH
A	4'-10"
B	4'-7"
C	4'-3"
D	4'-4"
E	4'-4"



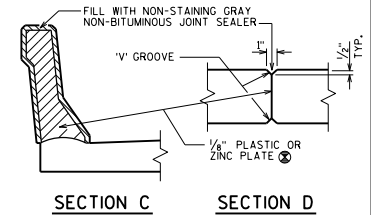
SECTION A



SECTION B



SECTION B1



SECTION C

SECTION D

NOTES

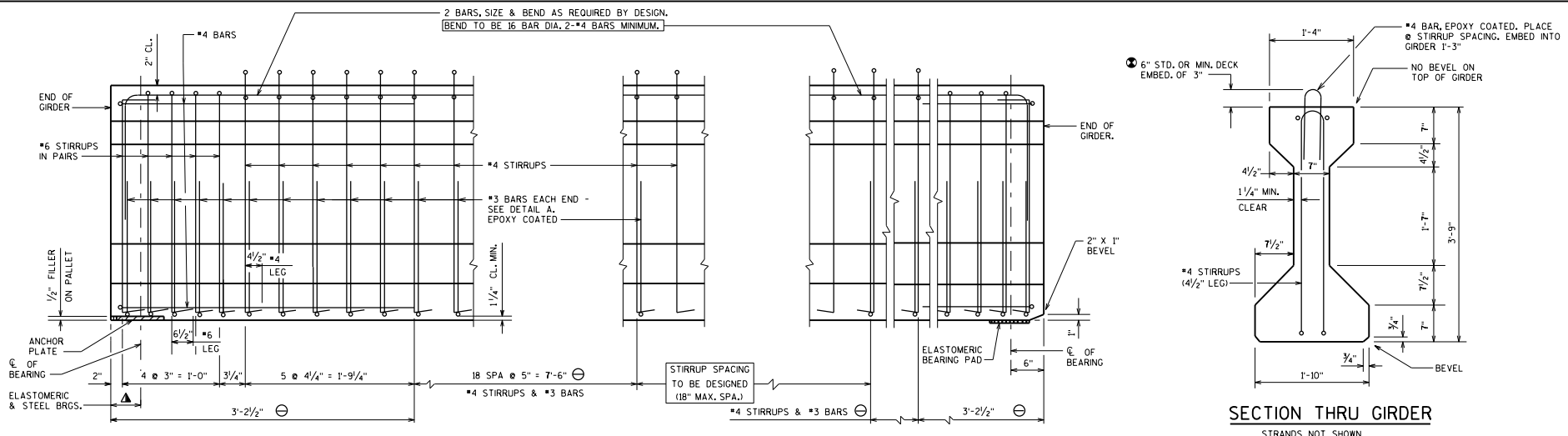
- ALL SLOPED FACE PARAPET "B" REINFORCEMENT ARE NO. 4 BARS UNLESS OTHERWISE SHOWN.
- PLATE REQUIRED WHEN DEFLECTION JOINTS ARE REQUIRED. IF CONSTRUCTION JOINTS IN PARAPETS ARE USED, PLATE SEPARATORS SHALL BE OMITTED. DEFLECTION JOINTS ARE REQUIRED ON SLAB SPAN STRUCTURES ONLY.
- OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINFORCEMENT THRU THE JOINT. LAP LONGT. BARS A MIN. OF 2'-11". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 1" 'V' GROOVE.
- CONST. JOINT - STRIKE OFF AS SHOWN & FINISH WITH A WOODEN TROWEL.

PARAPET	
AREA	2.25 SF
WEIGHT	338 LB/FT

SLOPED FACE PARAPET 'B'

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald* DATE: 7-23



SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

SUPPORT WITH 1/2" ELASTOMERIC BRG. PAD

SIDE VIEW OF GIRDER

DESIGNER NOTES

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 45-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 0.5" OR 0.6" DIA. STRANDS FOR THE DRAPED PATTERN AS REQUIRED. THE MAX. NUMBER OF DRAPED 0.5" DIA. STRANDS IS 10 AND THE MAX. NUMBER FOR 0.6" DIA. STRANDS IS 8. FOR THE STRAIGHT PATTERN USE ONLY 0.6" DIA. STRANDS.

REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STANDARD 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, WHICH REQUIRES PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES.

- ▲ VARIES FOR ELASTOMERIC BRGS. (STD. 27.07) AND STEEL BRGS. (STD. 27.09)
- ⊖ DETAIL TYPICAL AT EACH END

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

NOTES

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

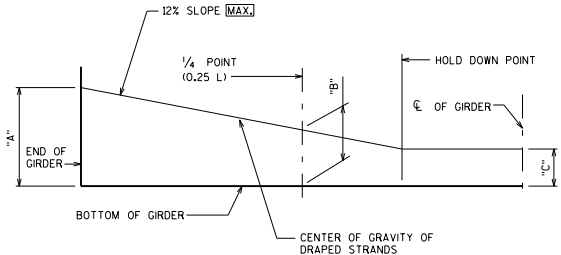
DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING. THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

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

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN. SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

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

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



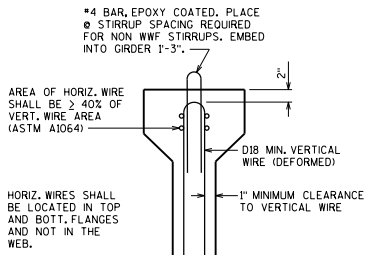
"A" TO BE GIVEN TO THE NEAREST 1"

"B" = 1/4("A" + 3 "C") (MIN)

"B" = 1/4("A" + 3 "C") + 3" (MAX)

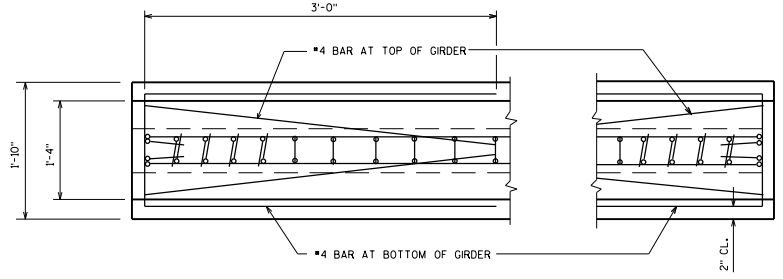
RECORD DIMENSIONS "A", "B" & "C" ON FINAL PLANS.

LOCATION OF DRAPED STRANDS

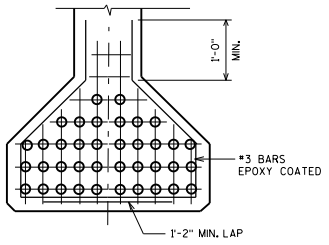


SECTION THRU GIRDER

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

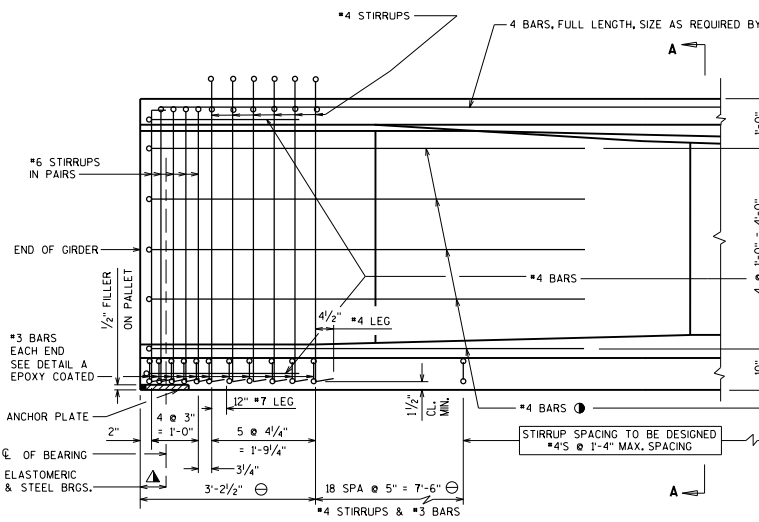


PLAN VIEW



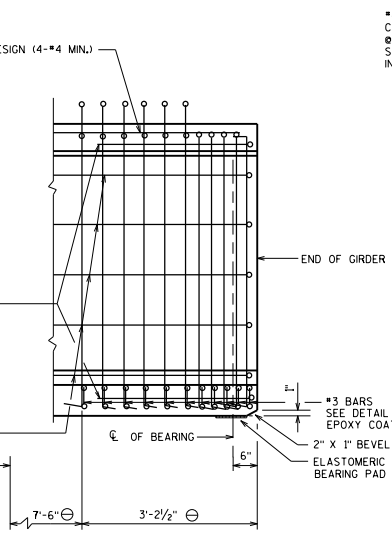
DETAIL A

45" PRESTRESSED GIRDER DETAILS	
	BUREAU OF STRUCTURES
APPROVED: <i>Laura Shadewald</i>	DATE: 7-23

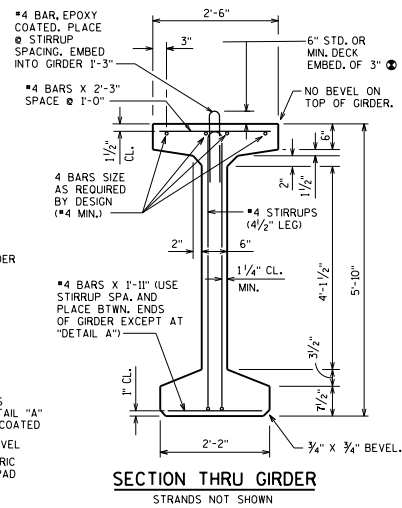


SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

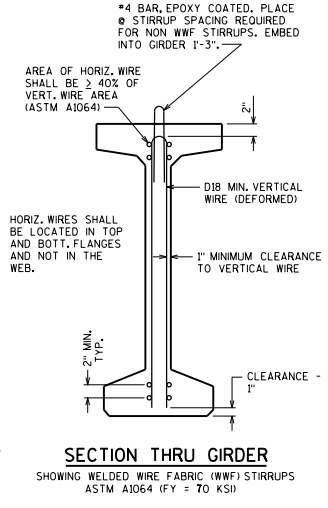
SIDE VIEW OF GIRDER



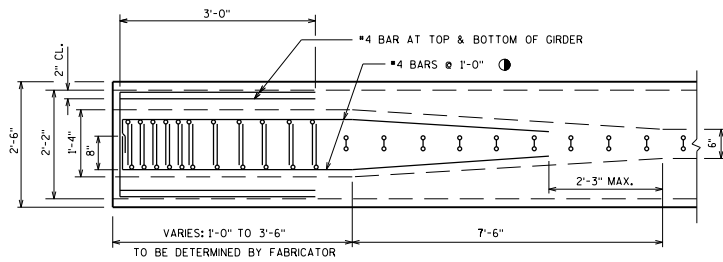
SUPPORT WITH 1/2" ELASTOMERIC BEARING PAD



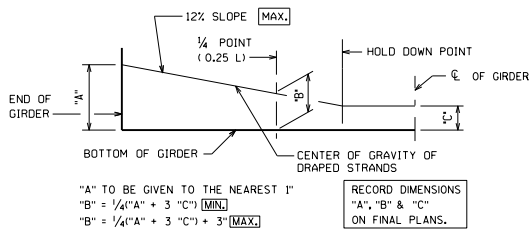
SECTION THRU GIRDER



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



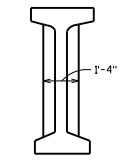
PLAN VIEW



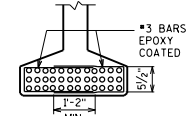
"A" TO BE GIVEN TO THE NEAREST 1"
 "B" = 1/4("A" + 3 "C") [MIN.]
 "B" = 1/4("A" + 3 "C") + 3" [MAX.]

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

LOCATION OF DRAPED STRANDS



SECTION A-A



DETAIL A

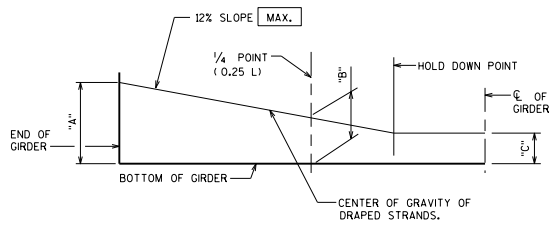
DESIGNER NOTES

- BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 70-INCH. 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 SECTION.
- 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 0.5" OR 0.6" DIA. STRANDS FOR ALL PATTERNS AS REQUIRED. USE ONLY ONE STRAND SIZE IN EACH PATTERN. THE MAX. NUMBER OF DRAPED 0.6" DIA. STRANDS IS 8.
- REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STANDARD 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, WHICH REQUIRES PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES.
- ▲ VARIES FOR ELASTOMERIC BRGS. (STD. 27.07) AND STEEL BRGS. (STD. 27.09)
- ⊖ DETAIL TYPICAL AT EACH END
- 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. 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.

NOTES

- TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.
- DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.
- THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.
- STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.
- ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.
- SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.
- AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DESIGN SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.
- PRESTRESSING STRANDS SHALL BE (DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

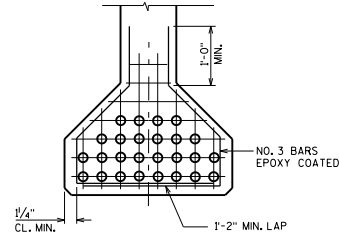
70" PRESTRESSED GIRDER DETAILS	
	BUREAU OF STRUCTURES
APPROVED: <i>Laura Shadewald</i>	DATE: 7-23



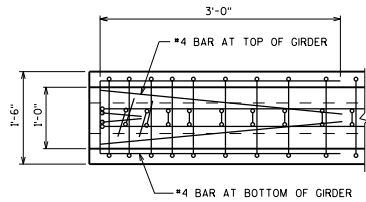
"A" TO BE GIVEN TO THE NEAREST 1"
 "B" = $1/4"A" + 3"C"$ (MIN.)
 "B" = $1/4"A" + 3"C" + 3"$ (MAX.)

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

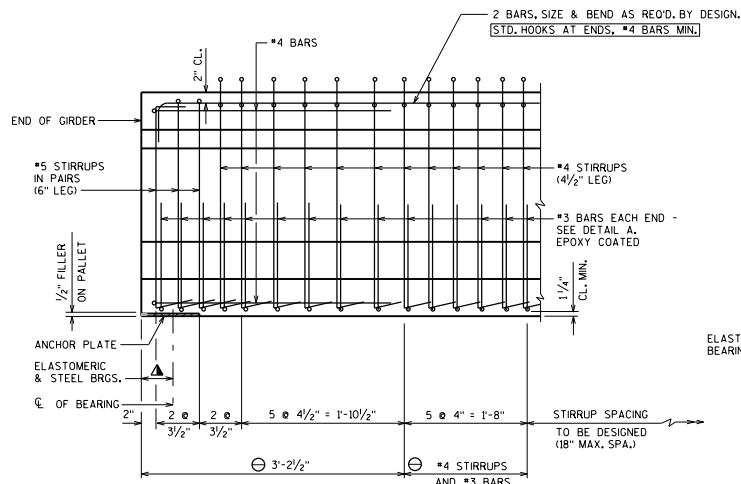
LOCATION OF DRAPED STRANDS



DETAIL A

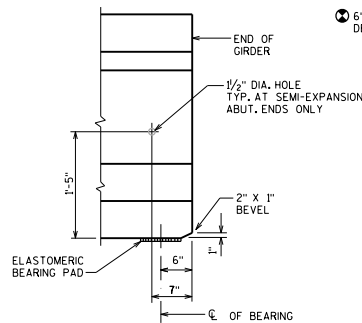


PLAN VIEW

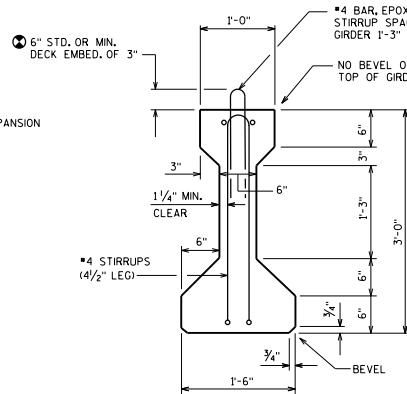


SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

SIDE VIEW OF GIRDER

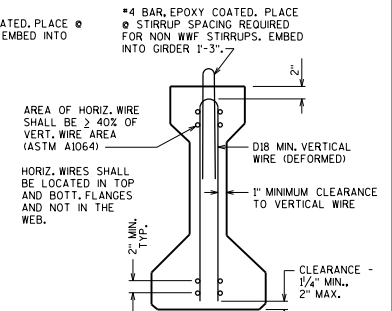


SUPPORT WITH 1/2" ELASTOMERIC BRG. PAD



SECTION THRU GIRDER

STRANDS NOT SHOWN



SECTION THRU GIRDER
 SHOWING WELDED WIRE FABRIC (W/WF) STIRRUPS
 ASTM A1064 (FY = 70 KSI)

NOTES

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

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

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

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

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN. SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIVALENT OF WELDED WIRE FABRIC (W/WF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURE'S DESIGN SECTION. IF USED, W/WF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WSDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

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

DESIGNER NOTES

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

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

REINFORCEMENT IN STANDARD END SECTION OF THE GIRDER IS BASED ON THE STANDARD STRAND PATTERNS LISTED ON STANDARD 40.43 AND THE SPAN LENGTHS SHOWN IN TABLE 19.3-1. USING DIFFERENT STRAND PATTERNS OR LONGER SPANS WILL REQUIRE A COMPLETE DESIGN OF THIS REINFORCEMENT, WHICH REQUIRES PRIOR APPROVAL FROM THE BUREAU OF STRUCTURES.

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

○ DETAIL TYPICAL AT EACH END

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

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

36" PRESTRESSED GIRDER DETAILS



APPROVED: Laura Shadewald DATE: 7-23