

DESIGN DATA

LIVE LOAD:

DESIGN RATING; HS-25
 INVENTORY RATING; HS-30
 OPERATIONAL RATING; HS-66
 MAXIMUM STANDARD PERMIT VEHICLE LOAD = 250 KIPS.
 STRUCTURE IS DESIGNED FOR A FUTURE WEARING
 SURFACE OF 20 POUNDS PER SQUARE FOOT.

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY SLAB — $f'_c = 4,000$ P.S.I. ALL OTHER — $f'_c = 3,500$ P.S.I.
 BAR STEEL REINFORCEMENT, GRADE 60 — $f_y = 60,000$ P.S.I.
 45" PRESTRESSED GIRDERS, CONCRETE MASONRY — $f'_c = 8,000$ P.S.I.
 STRANDS — 0.6" ϕ WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING
 DRIVEN TO A MINIMUM BEARING VALUE OF 55 TONS PER PILE.
 ESTIMATED 40'-0" LONG.

HYDRAULIC DATA

100 YEAR FREQUENCY

$Q_{100} = 3000$ C.F.S.
 VEL. = 4.0 F.P.S.
 HW. = EL. 757.8'
 WATERWAY AREA = 754 SQ. FT.
 DRAINAGE AREA = 26.8 SQ. MI.
 ROAD OVERTOPPING = NA
 SCOUR CRITICAL CODE = 8

2 YEAR FREQUENCY

$Q_2 = 760$ C.F.S.
 HW.₂ = EL. 752.8'

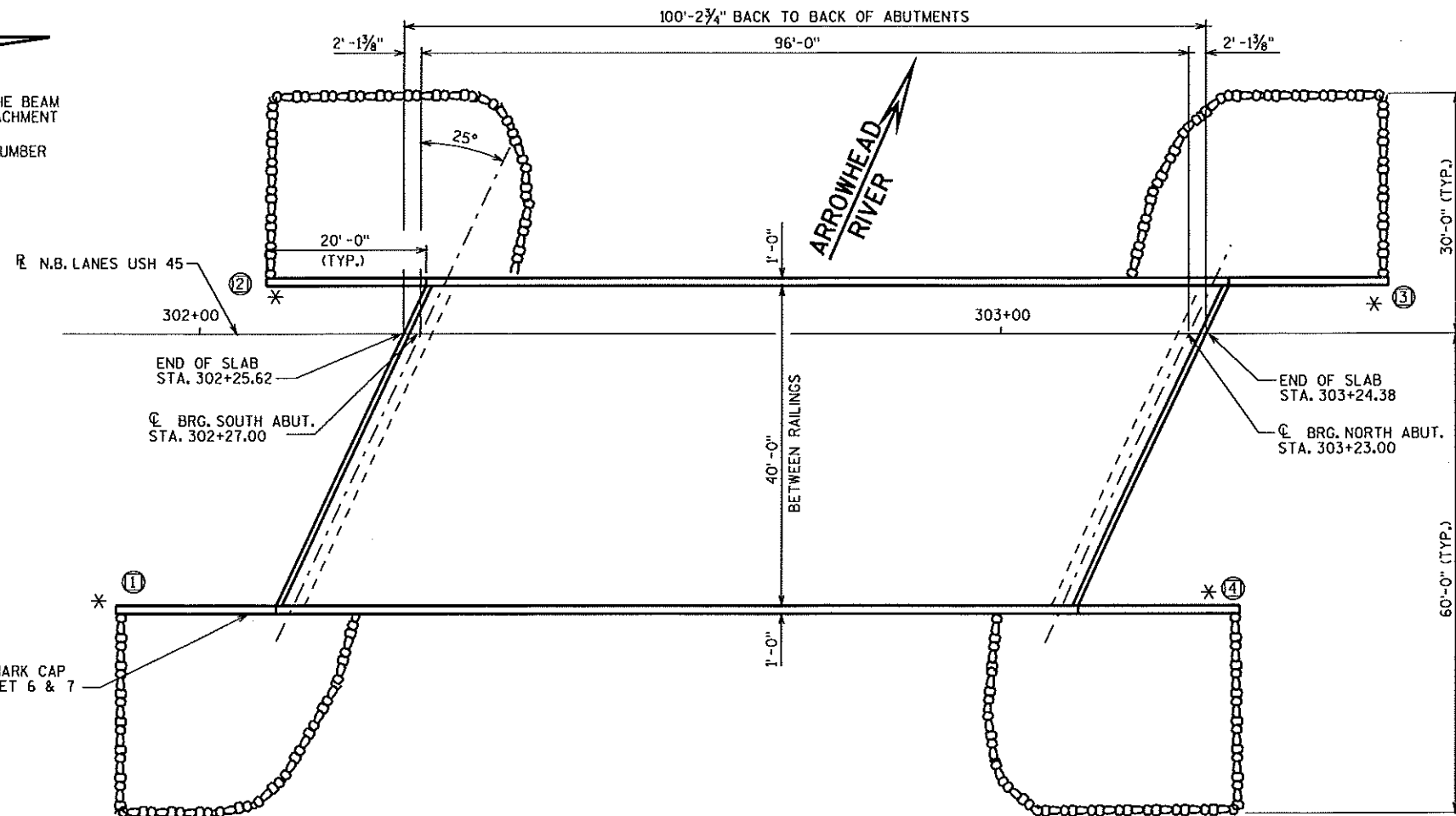
TRAFFIC VOLUME

USH 45

A.D.T. = 16,300 (2026)
 R.D.S. = 70 M.P.H.

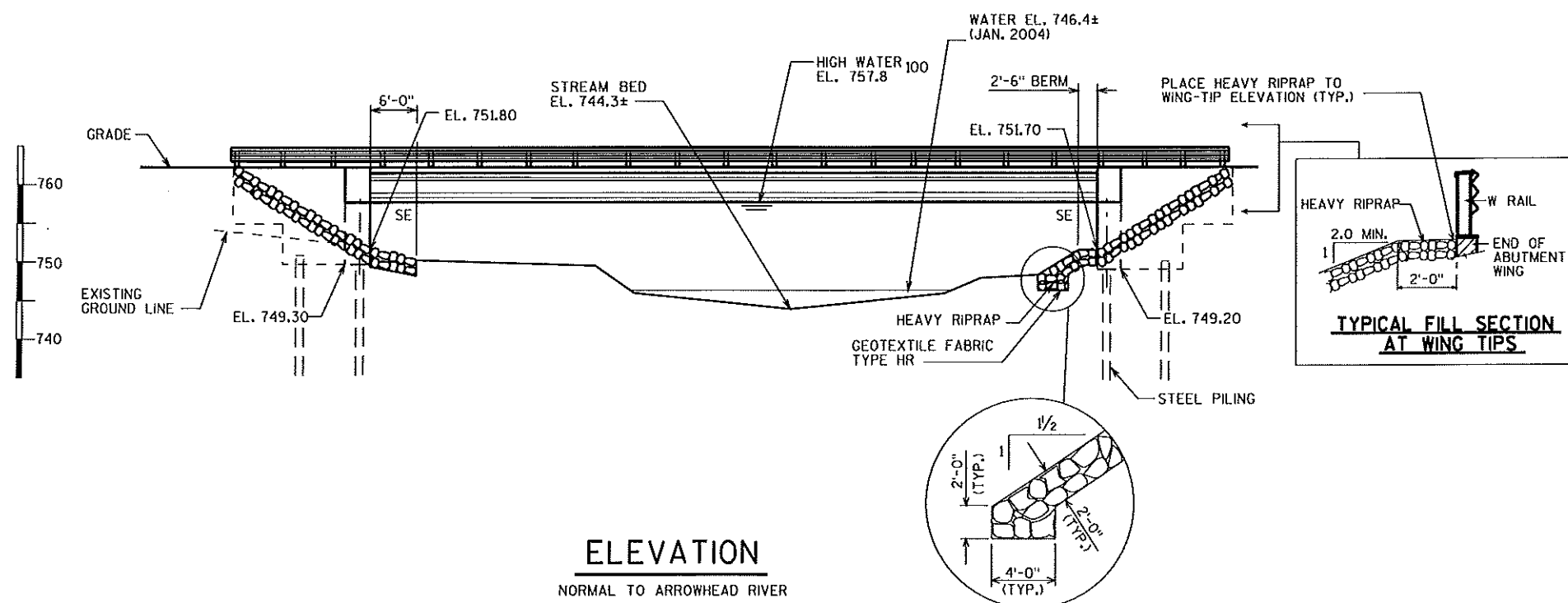
PLAN

SINGLE SPAN - 45" PRESTRESSED GIRDER



ELEVATION

NORMAL TO ARROWHEAD RIVER



LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. NORTH ABUTMENT
5. NORTH ABUTMENT DETAILS
6. SOUTH ABUTMENT
7. SOUTH ABUTMENT DETAILS
8. SUPERSTRUCTURE
9. SUPERSTRUCTURE DETAILS
10. 45" PRESTRESSED GIRDER DETAILS
11. STEEL DIAPHRAGM
12. STEEL RAILING TYPE "W"

BRIDGE OFFICE CONTACT = DAVID R. GENSON (608) 266-8491

NO.	DATE	REVISION	BY
Plans Prepared By WISDOT BUREAU OF STRUCTURES APPROVED <i>William C. Duhon</i> SDR 5-29-07 CHIEF STRUCTURAL DESIGN ENGINEER DATE			
STRUCTURE B-70-244			
N.B. USH 45 OVER ARROWHEAD RIVER			
COUNTY	WINNEBAGO	TOWN/CITY/VILLAGE	WINCHESTER
DESIGN SPEC.	AASHTO STD. SPEC. 2003	LOAD	HS-25
DESIGNED BY	ALR	DRAWN BY	ALR
CKD.	DRG	CKD.	DRG
GENERAL PLAN			SHEET 1 OF 12
			205



BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	NORTH ABUT.	TOTALS
EXCAVATION FOR STRUCTURES BRIDGES B-70-244	LS	—	—	—	1
BACKFILL STRUCTURE	CY	—	260	260	520
CONCRETE MASONRY BRIDGES	CY	156	81	81	318
PROTECTIVE SURFACE TREATMENT	SY	520	—	—	520
PRESTRESSED GIRDER TYPE I 45-INCH	LF	776	—	—	776
BAR STEEL REINFORCEMENT HS BRIDGES	LB	—	4430	4430	8860
BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	22600	2100	2100	26800
BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	16	—	—	16
STEEL DIAPHRAGMS B-70-244	EACH	21	—	—	21
PILING STEEL DELIVERED AND DRIVEN HP 10-INCH X 42 LB	LF	—	480	480	960
RUBBERIZED MEMBRANE WATERPROOFING	SY	—	14	14	28
RIPRAP HEAVY	CY	—	170	200	370
PIPE UNDERDRAIN 6-INCH	LF	—	65	65	130
PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	—	20	20	40
RAILING STEEL TYPE W B-70-244	LS	—	—	—	1
GEOTEXTILE FABRIC TYPE DF (SCHEDULE A)	SY	—	55	55	110
GEOTEXTILE FABRIC TYPE HR	SY	—	280	320	600
NON-BID ITEMS					
FILLER	SIZE	—	—	—	—

-TK-590-1 MS
Sierra Corporation
Clear Coat

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

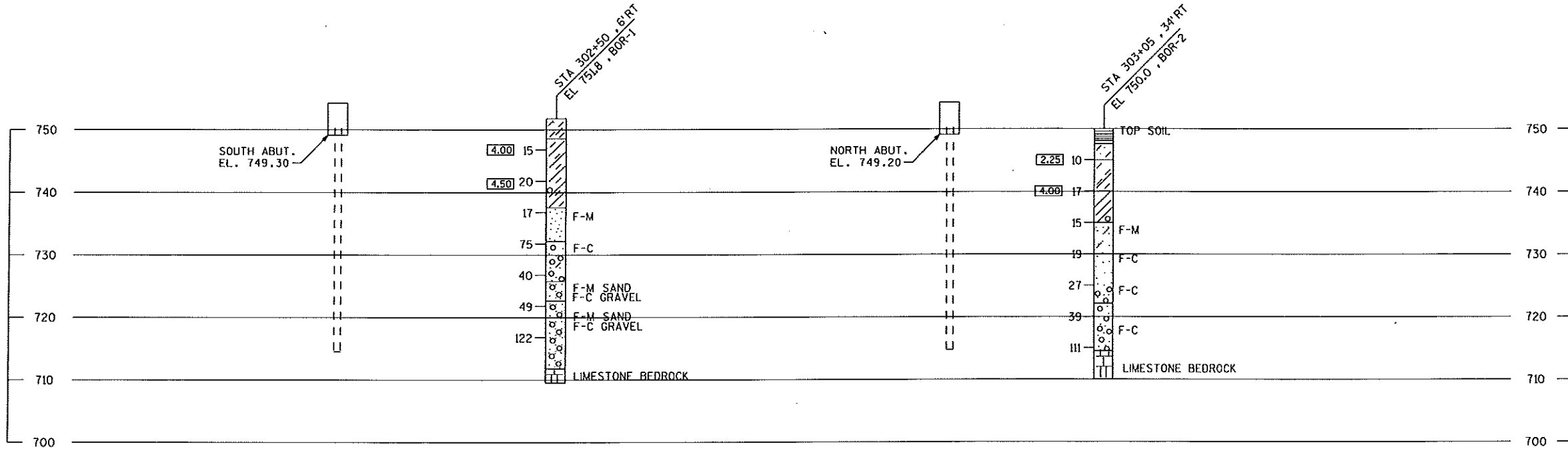
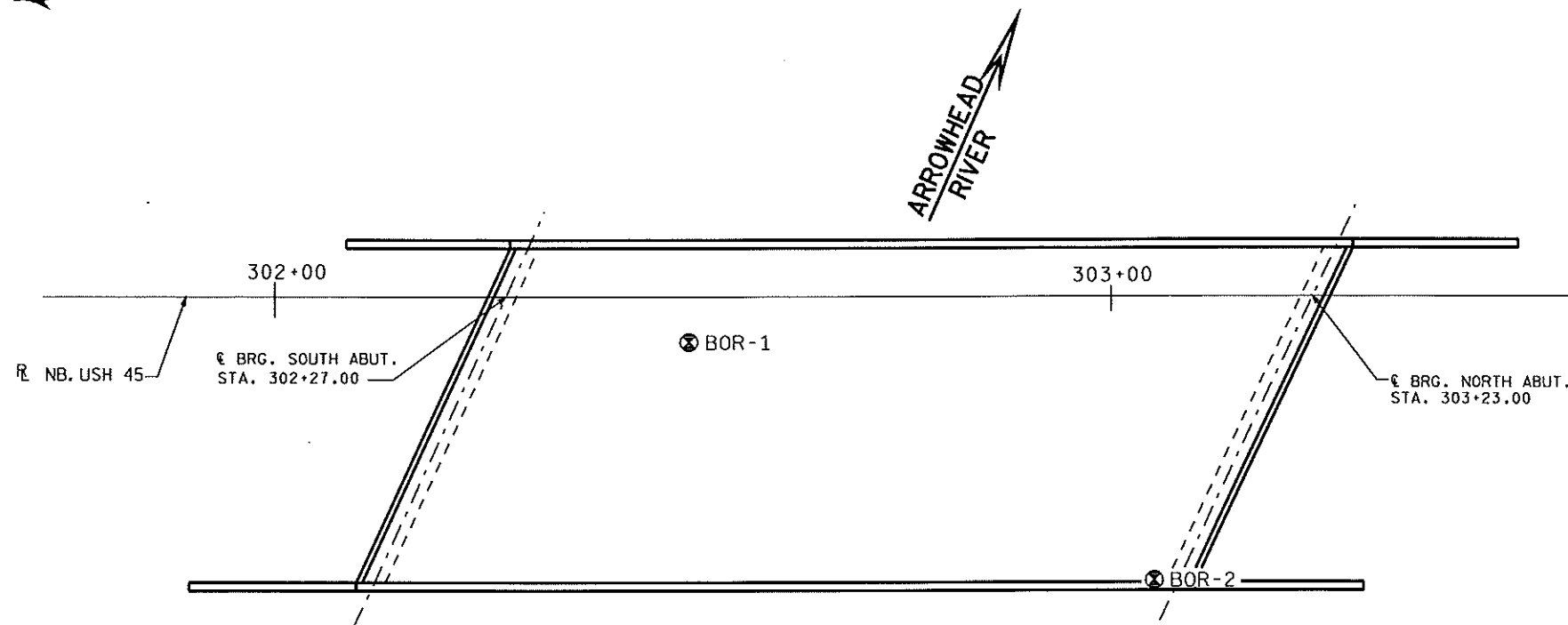
THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

THE GRADATION OF THE STRUCTURE BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 209.2.2 OF THE STANDARD SPECIFICATIONS FOR GRADE 1 MATERIAL.

CONCRETE FOR ABUTMENT AND PIER DIAPHRAGMS SHALL BE PLACED WITH THE DECK CONCRETE. NO OPTIONAL CONST. JOINT WILL BE PERMITTED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-244			
DRAWN BY		ALR	PLANS CK'D. DR
CROSS SECTION & QUANTITIES		SHEET 2 206	

USH 45 OVER ARROWHEAD CREEK
OSHKOSH- WINCHESTER , WINNEBAGO



STATE PROJECT NUMBER

6200-11-71

ABBREVIATIONS

F— FINE M— MEDIUM C— COARSE
WS— WEATHERED SO— SOUND

MATERIAL SYMBOLS

TOPSOIL SILT SANDSTONE
SAND PEAT LIMESTONE
GRAVEL CLAY IGNEOUS ROCK

LEGEND OF PROBING

PROBING NO.
STA.
ELEVATION
95/6=95 BLOWS FOR 6" PENETRATION
PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

LEGEND OF BORING

ELEV. BORING NO.
STA.
UNCONFINED STRENGTH 7.7
BLOWS PER FT. USING 140# WT. FALLING 30"
WASH SAMPLE
SHELBY TUBE — S.T.
GROUND WATER ELEVATION
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION
SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO
LIMESTONE

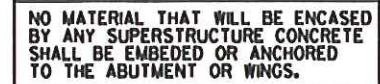
UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

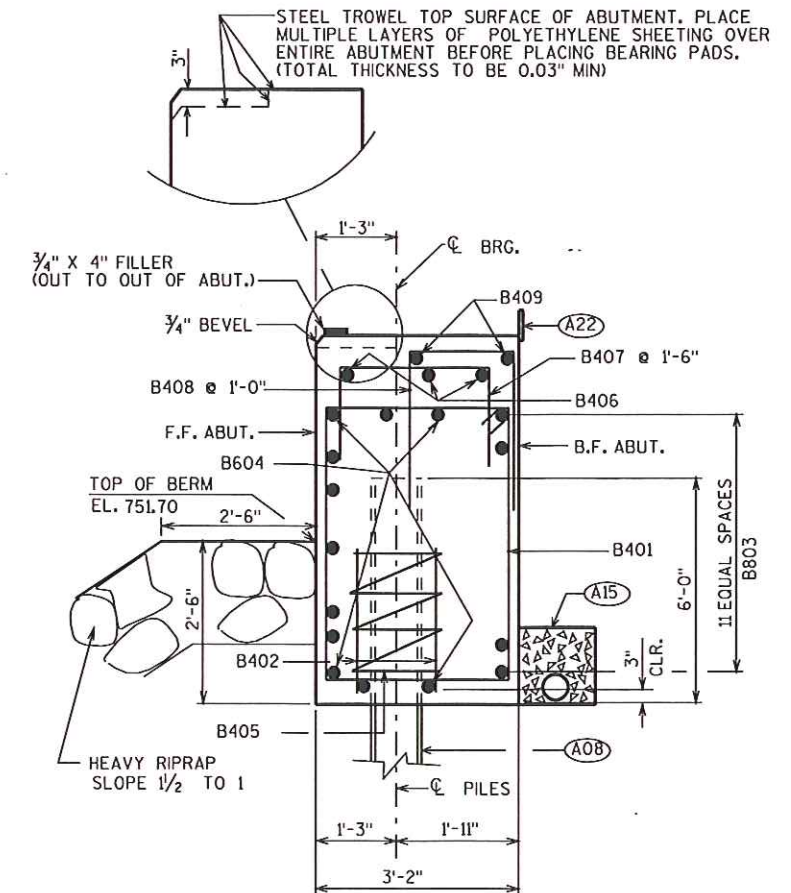
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-244			
DRAWN BY ALR		PLANS CKD. DRG	
SUBSURFACE EXPLORATION		SHEET 3	
		207	

SCALE = 1

ELEVATION LOOKING NORTH

PILE #	LENGTH
1	43.2'
2	42.8'
3	41.1'
4	42.3'
5	41.8'
6	41.6'
7	41.7'
8	36.5'
9	38.2'
10	37.2'
11	31.9'
12	31.5'

PLAN

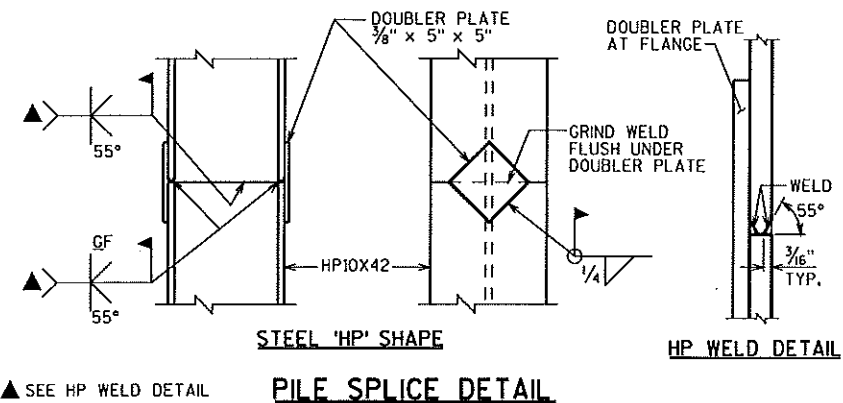
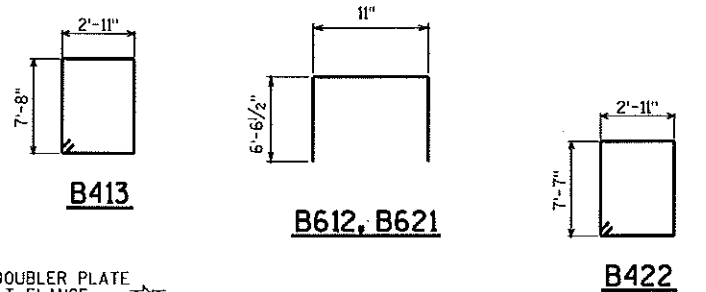
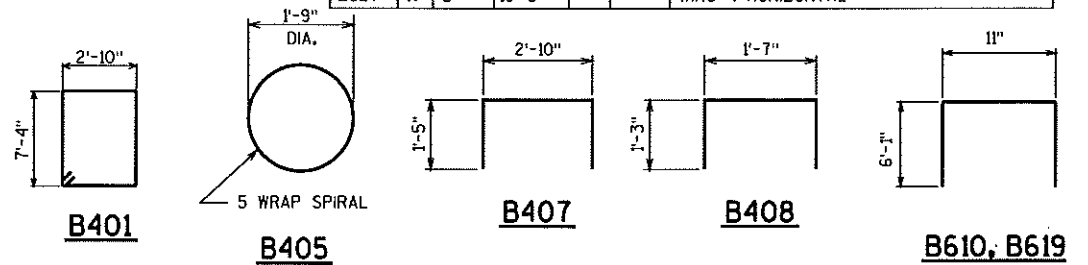
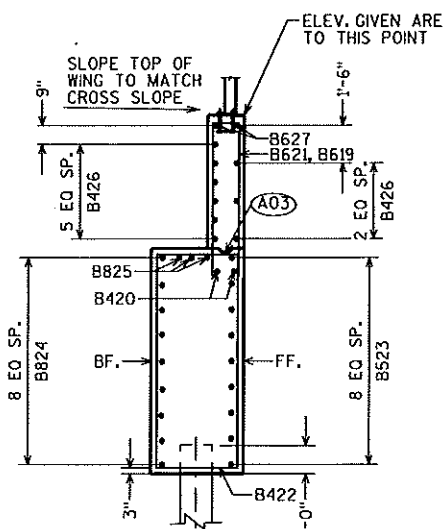
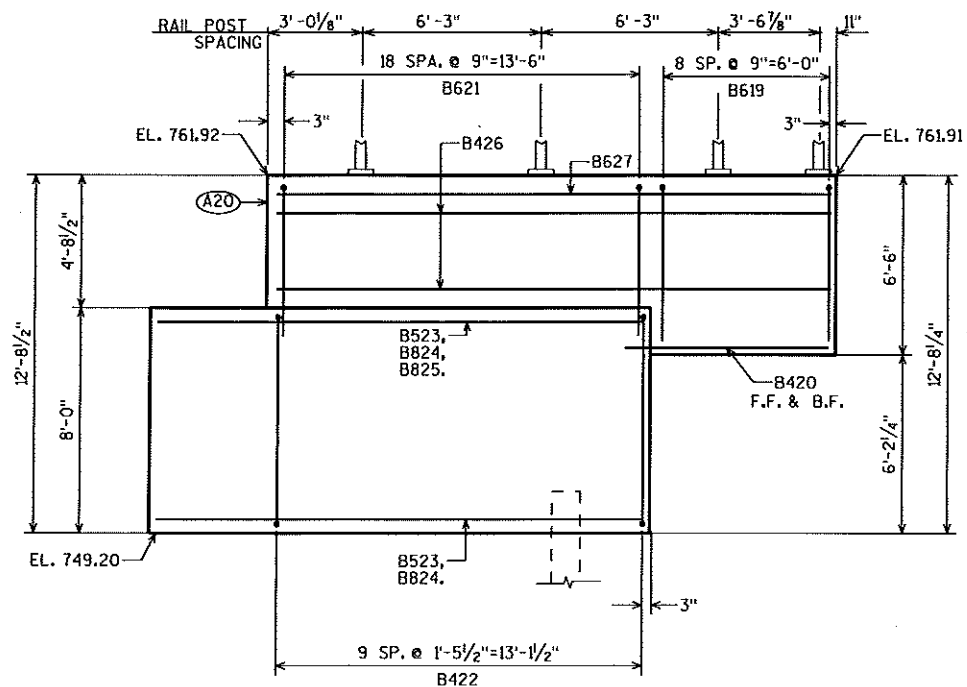
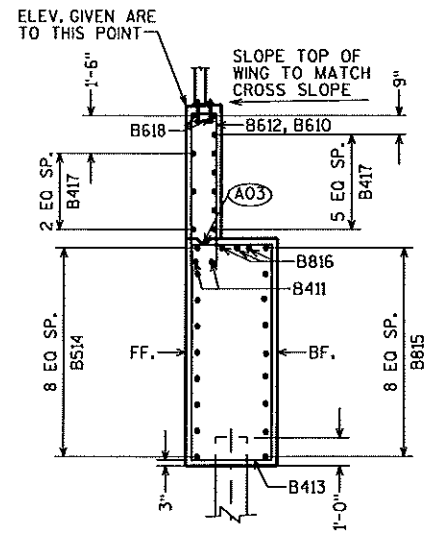
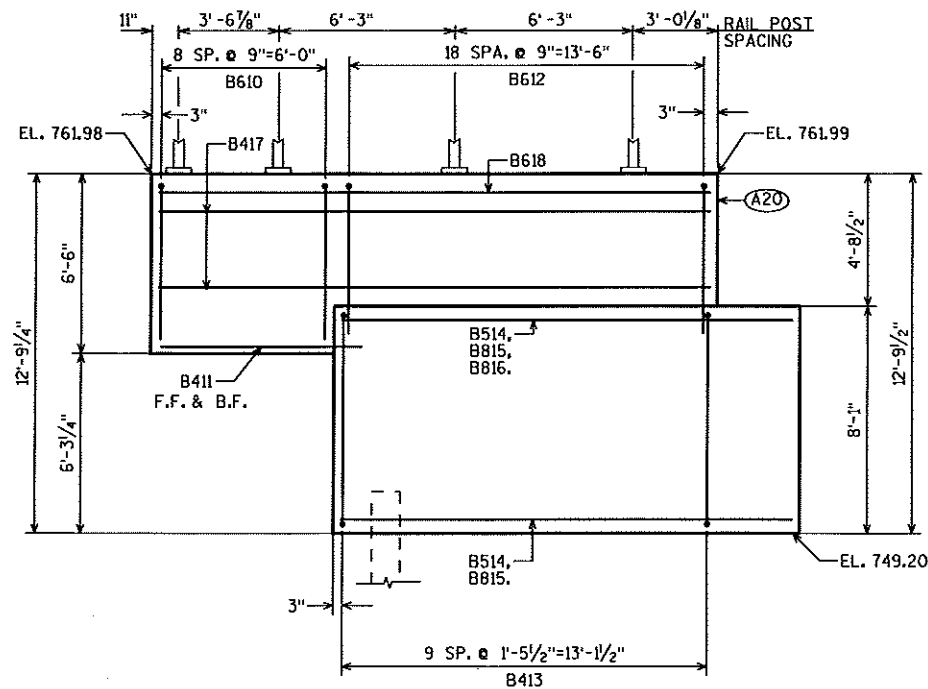


SECTION THRU BODY

- (A08) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 40'-0" LONG & DRIVEN TO A MIN. BRG. VALUE OF 55 TONS PER PILE.
- (A15) PIPE UNDERDRAINS, 6 INCH. SLOPE 0.5% MIN. TO DRAIN. ENCLOSED IN 1'-6" X 1'-6" AREA OF SIZE 1 COARSE AGGREGATE (INCLUDED IN UNDERDRAIN BID ITEM) WRAPPED IN GEOTEXTILE FABRIC, TYPE DF (SCHEDULE A), WITH 1'-6" OVERLAP.
- (A16) PIPE UNDERDRAIN, 6 INCH, UNPERFORATED. TO SUITABLE DRAINAGE.
- (A20) 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. 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.
- (A21) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.
- (A22) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

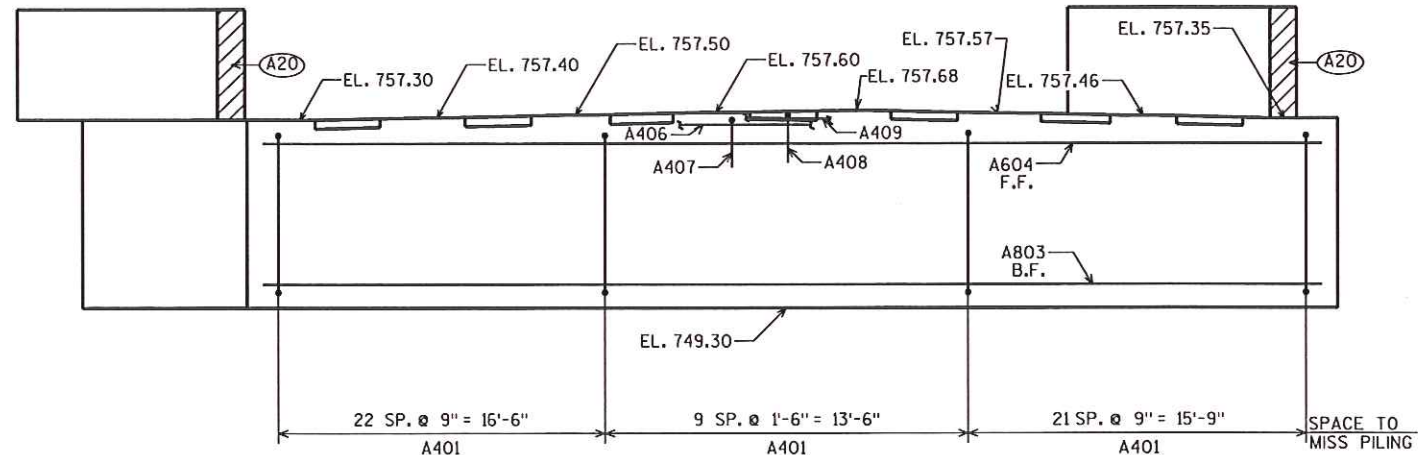
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-244			
DRAWN BY		ALR	PLANS CK'D. DRG
NORTH ABUTMENT		SHEET 4	
		208	

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B401		53	20'-10"	X		BODY-STIRRUPS
B402		20	2'-3"			PILES- 2 PER PILE
B803		12	46'-0"			BODY-HORIZONTAL-B.F.
B604		11	46'-0"			BODY-HORIZONTAL-F.F.
B405		10	28'-0"	X		PILES-1 PER PILE
B406		3	15'-0"			BODY-HORZ. OVER GIRS. 3-5
B407		10	5'-6"	X		BODY-TOP OVER GIRS. 3-5
B408		21	4'-0"	X		BODY-BETWEEN BEAM SEATS
B409		14	5'-0"			BODY-BETWEEN BEAM SEATS
B610	X	9	12'-9"	X		WING 3-VERTICAL
B411	X	2	7'-8"			WING 3-HORIZONTAL
B612	X	19	13'-8"	X		WING 3-VERTICAL
B413	X	10	21'-8"	X		WING 3-STIRRUP
B514	X	9	16'-1"			WING 3-HORIZONTAL-F.F.
B815		9	17'-6"			WING 3-HORIZONTAL-B.F.
B816		3	16'-10"			WING 3-HORIZONTAL
B417	X	9	19'-8"			WING 3-HORIZONTAL
B618	X	2	19'-8"			WING 3-HORIZONTAL
B619	X	9	12'-9"	X		WING 3-VERTICAL
B420	X	2	7'-8"			WING 4-HORIZONTAL
B621	X	19	13'-8"	X		WING 4-VERTICAL
B422	X	10	21'-6"	X		WING 4-STIRRUP
B523	X	9	17'-2"			WING 4-HORIZONTAL-F.F.
B824		9	15'-10"			WING 4-HORIZONTAL-B.F.
B825		3	16'-6"			WING 4-HORIZONTAL
B426	X	9	19'-8"			WING 4-HORIZONTAL
B627	X	2	19'-8"			WING 4-HORIZONTAL

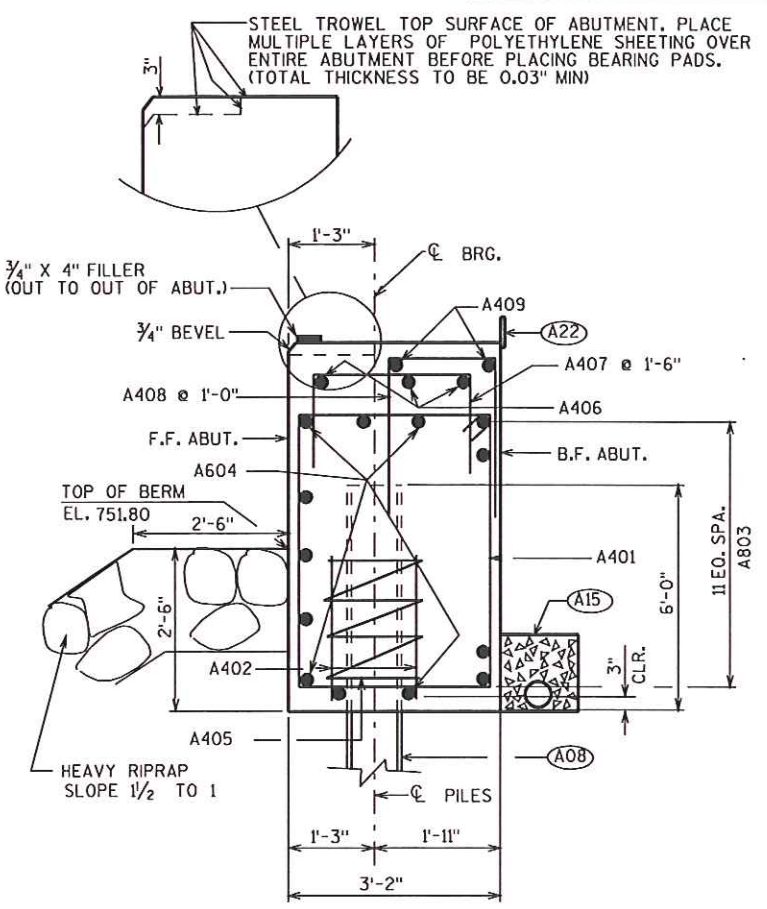


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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION					
STRUCTURE B-70-244					
		DRAWN BY	ALR	PLANS CK'D.	DRG
NORTH ABUTMENT DETAILS				SHEET 5	
				209	

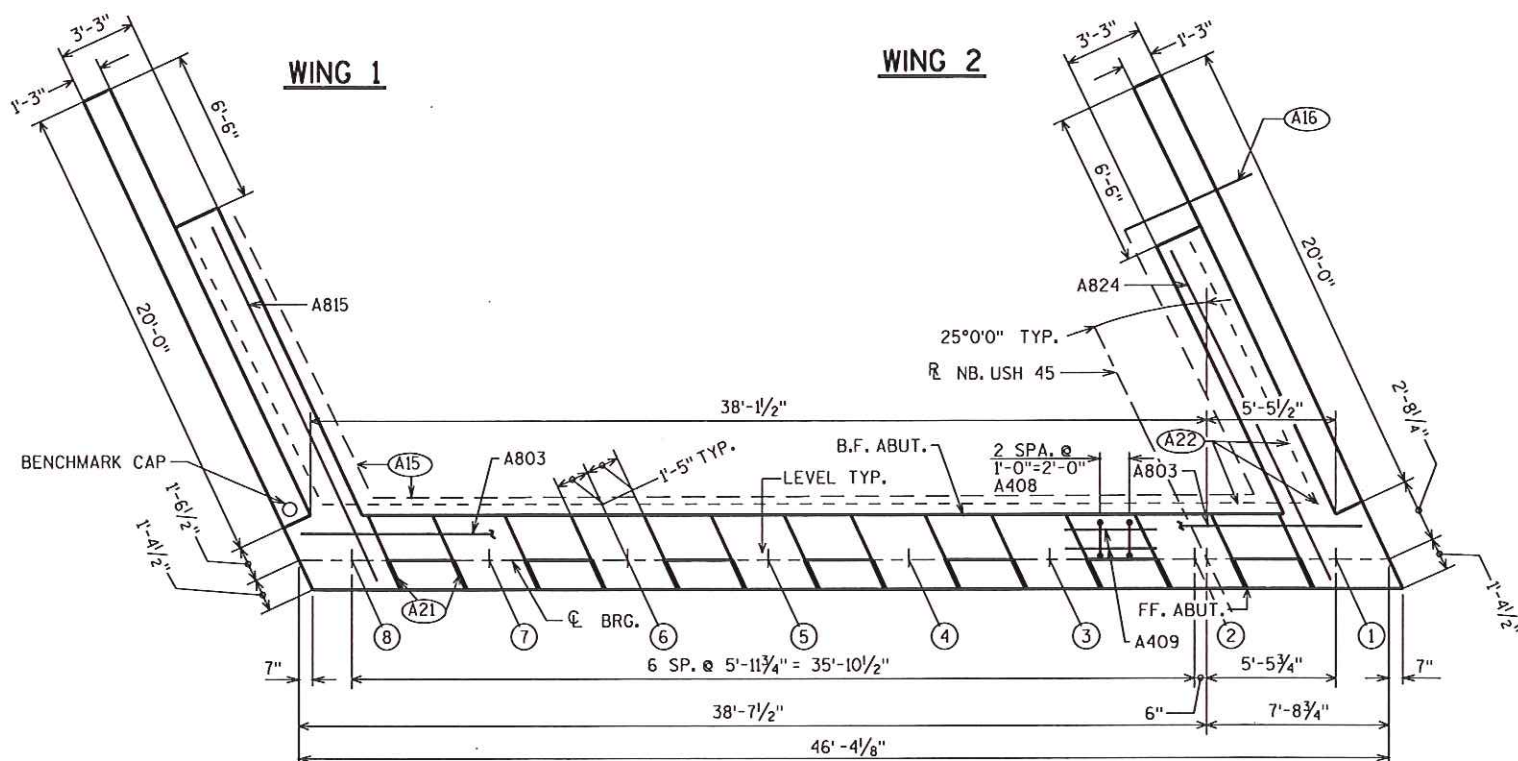
NO MATERIAL THAT WILL BE ENCASED BY ANY SUPERSTRUCTURE CONCRETE SHALL BE EMBEDDED OR ANCHORED TO THE ABUTMENT OR WINGS.



ELEVATION LOOKING SOUTH



SECTION THRU BODY

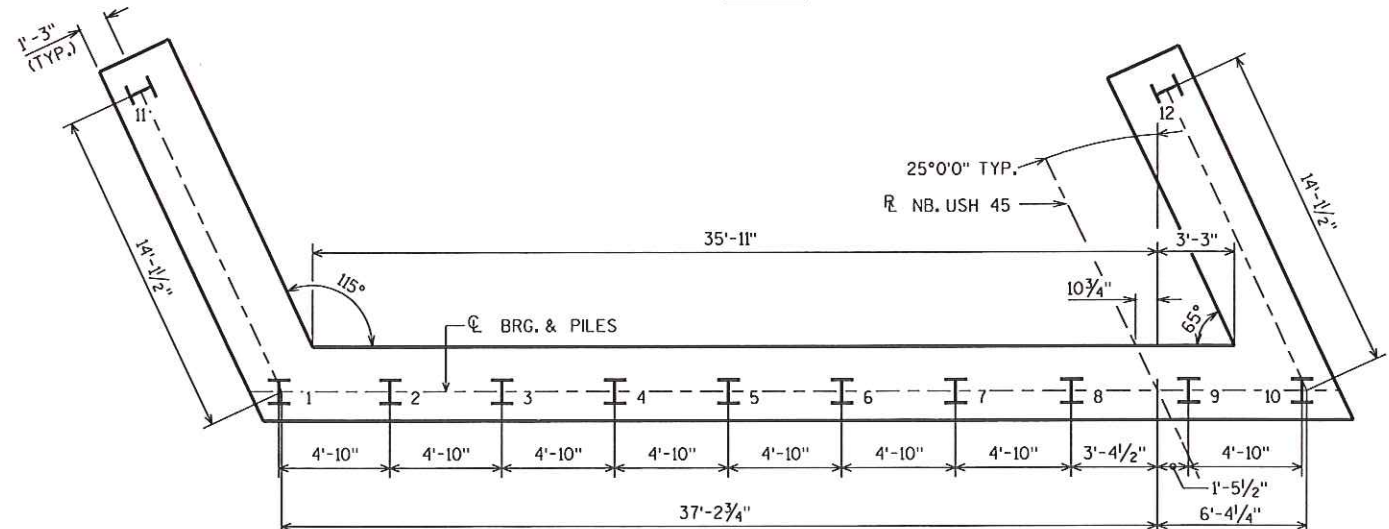


PLAN

DRIVEN LENGTHS:

PILE #	LENGTH
1.....	46'-7"
2.....	38'-0"
3.....	37'-9"
4.....	41'-4"
5.....	39'-5"
6.....	37'-10"
7.....	37'-11"
8.....	42'-1"
9.....	39'-3"
10.....	39'-2"
11.....	32'-8"
12.....	37'-3"

- (A08) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 40'-0" LONG & DRIVEN TO A MIN. BRG. VALUE OF 55 TONS PER PILE.
- (A15) PIPE UNDERDRAINS, 6 INCH. SLOPE 0.5% MIN. TO DRAIN, ENCLOSED IN 1'-6" X 1'-6" AREA OF SIZE 1 COARSE AGGREGATE (INCLUDED IN UNDERDRAIN BID ITEM) WRAPPED IN GEOTEXTILE FABRIC, TYPE DF (SCHEDULE A), WITH 1'-6" OVERLAP.
- (A16) PIPE UNDERDRAIN, 6 INCH, UNPERFORATED. TO SUITABLE DRAINAGE.
- (A20) 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. 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.
- (A21) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.
- (A22) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

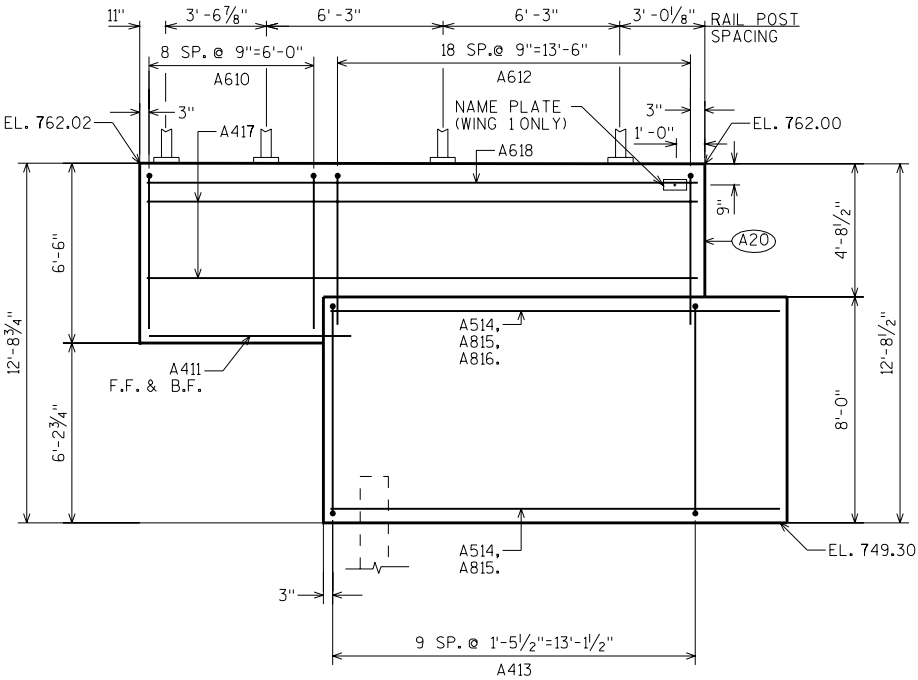


PILE PLAN

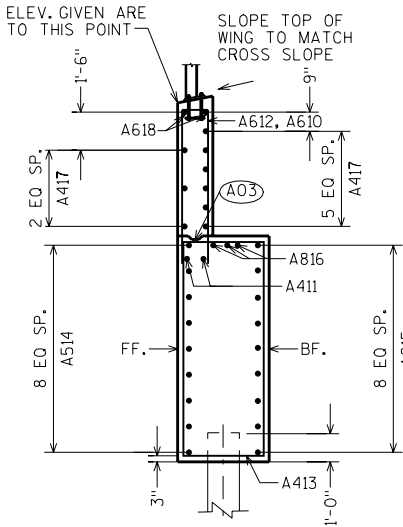
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-244			
DRAWN BY		ALR	PLANS CK'D. DRG
SOUTH ABUTMENT		SHEET 6	
		210	

BILL OF BARS

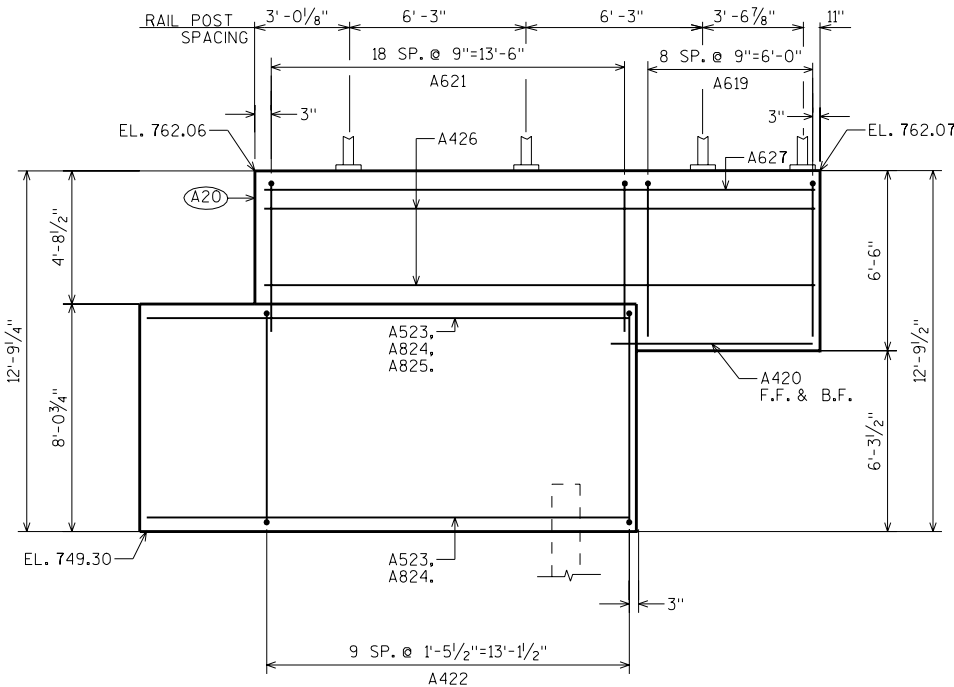
BAR MARK	COAT	NO. REQ'D.	LENGTH	BEND	BAR SERIES	LOCATION
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A408		21	4'-0"	X		BODY-BETWEEN BEAM SEATS
A409		14	5'-0"			BODY-BETWEEN BEAM SEATS
A610	X	9	12'-9"	X		WING 1-VERTICAL
A411	X	2	7'-8"			WING 1-HORIZONTAL
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A413	X	10	21'-6"	X		WING 1-STIRRUP
A514	X	9	16'-1"			WING 1-HORIZONTAL-F.F.
A815		9	17'-6"			WING 1-HORIZONTAL-B.F.
A816		3	16'-10"			WING 1-HORIZONTAL
A417	X	9	19'-8"			WING 1-HORIZONTAL
A618	X	2	19'-8"			WING 1-HORIZONTAL
A619	X	9	12'-9"	X		WING 2-VERTICAL
A420	X	2	7'-8"			WING 2-HORIZONTAL
A621	X	19	13'-8"	X		WING 2-VERTICAL
A422	X	10	21'-8"	X		WING 2-STIRRUP
A523	X	9	17'-2"			WING 2-HORIZONTAL-F.F.
A824		9	15'-10"			WING 2-HORIZONTAL-B.F.
A825		3	16'-6"			WING 2-HORIZONTAL
A426	X	9	19'-8"			WING 2-HORIZONTAL
A627	X	2	19'-8"			WING 2-HORIZONTAL



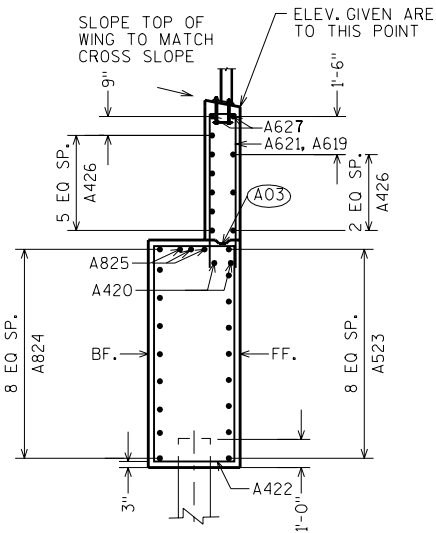
WING 1 ELEVATION



WING 1 SECTION

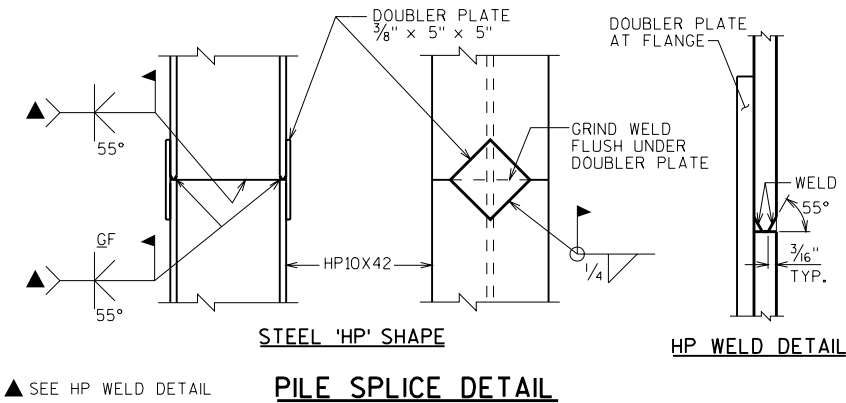
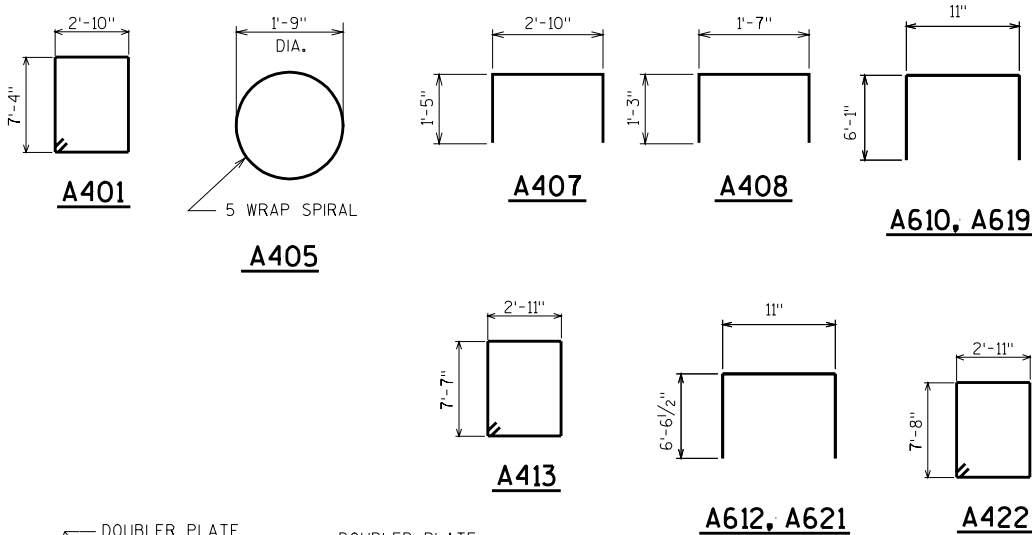


WING 2 ELEVATION

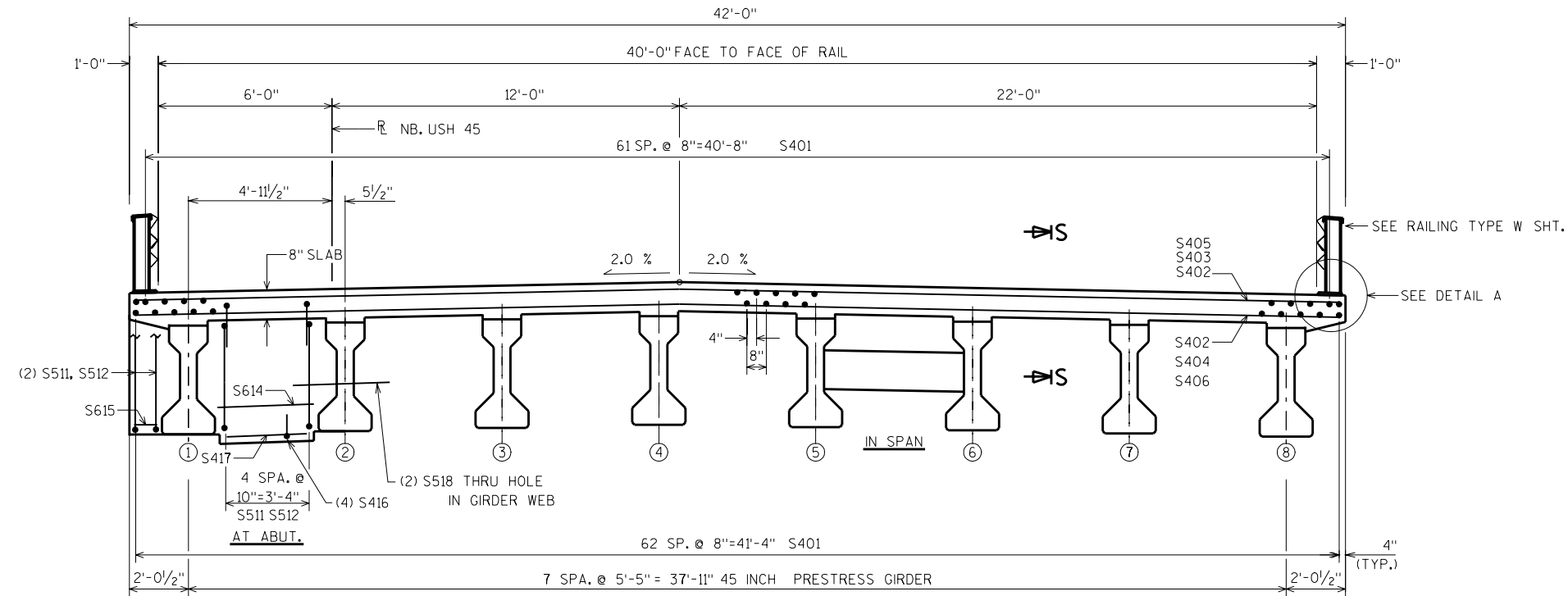


WING 2 SECTION

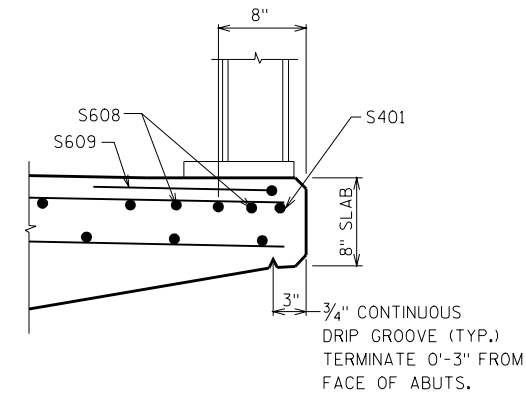
- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" R.M.W. @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- (A20) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.



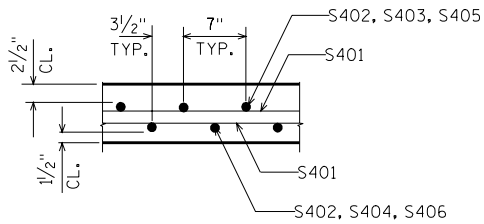
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-244			
DRAWN BY ALR		PLANS CK'D. DRG	
SOUTH ABUTMENT DETAILS		SHEET 7	



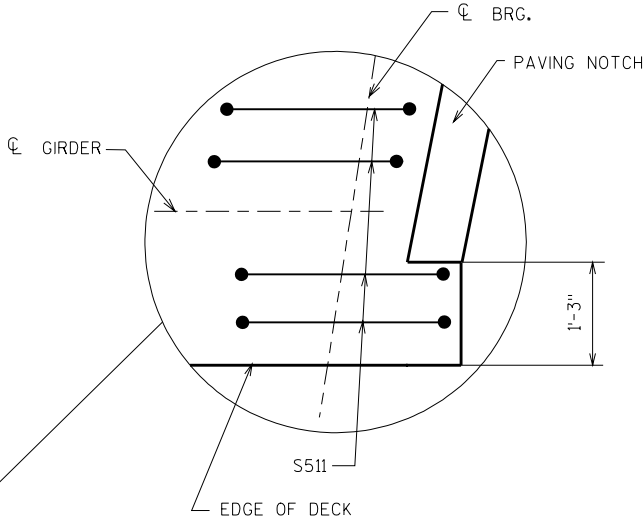
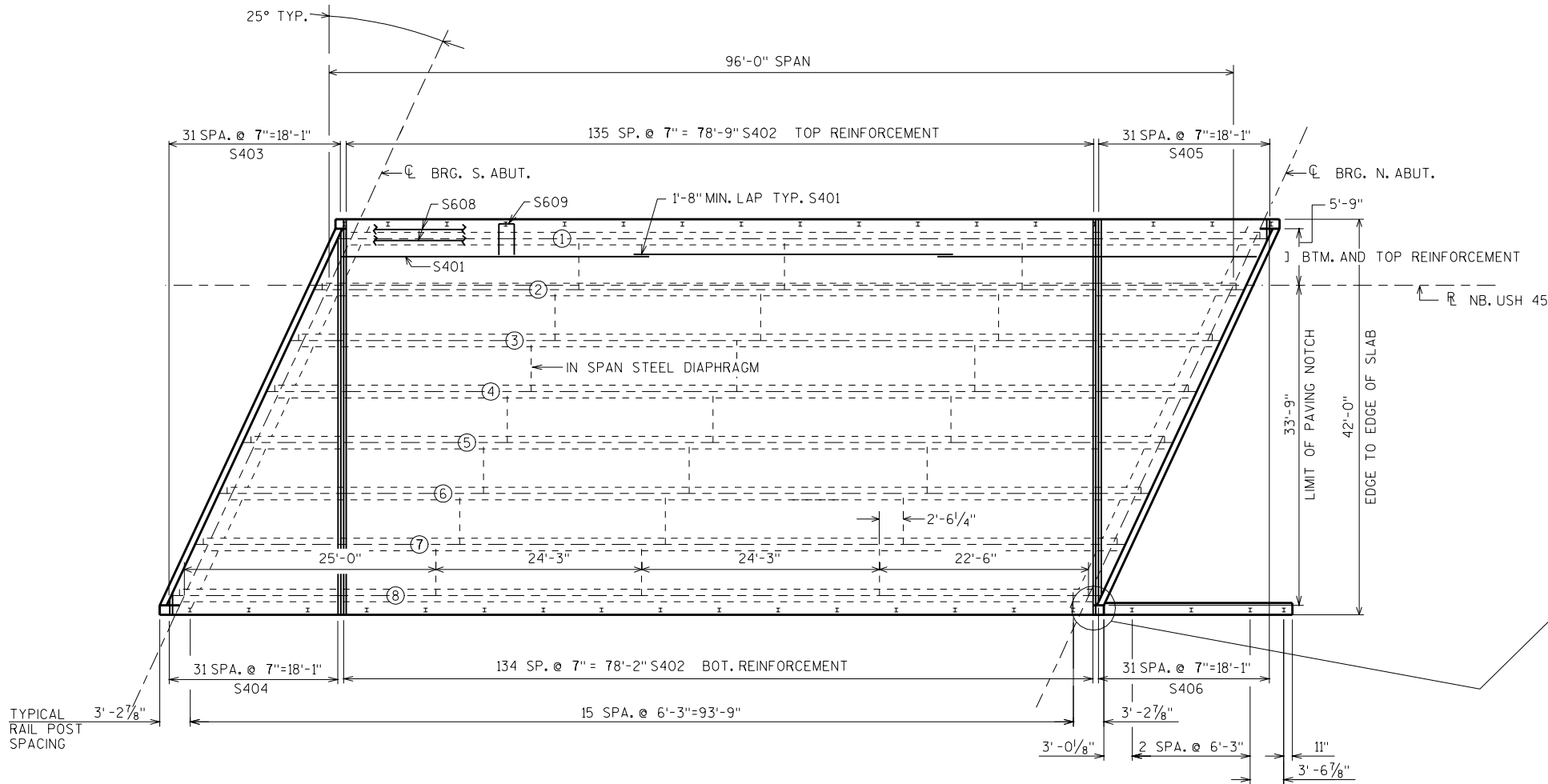
CROSS SECTION THRU ROADWAY
(LOOKING NORTH)



DETAIL A



SECTION S-S

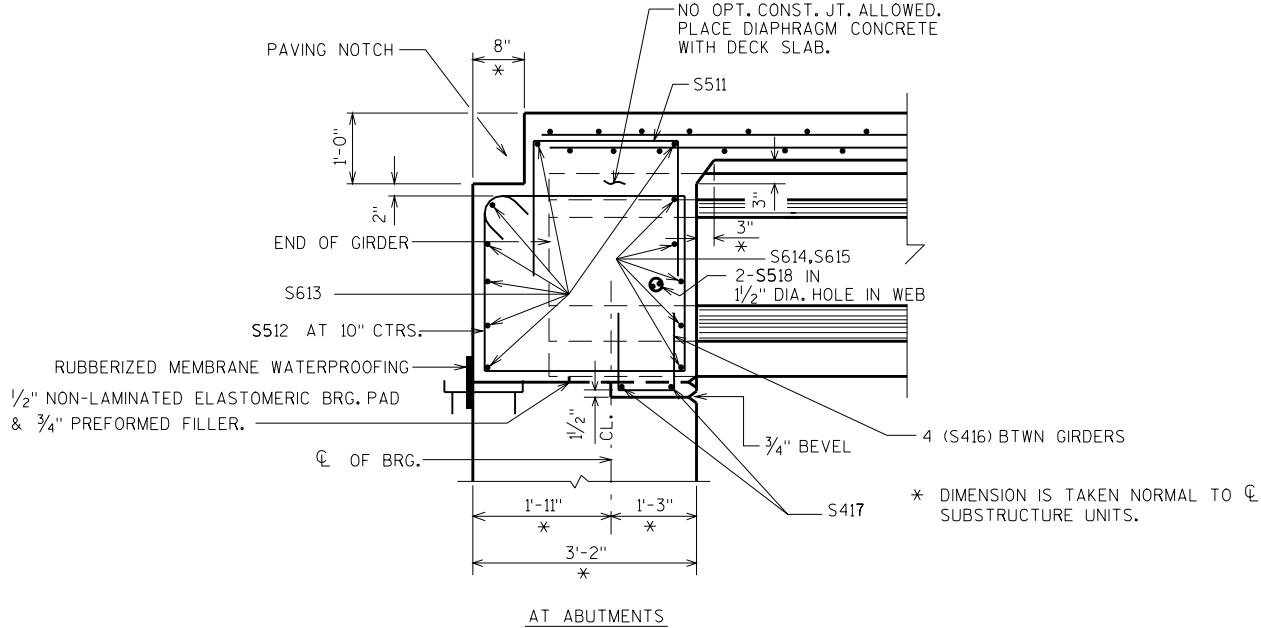


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STRUCTURE B-70-244			
DRAWN BY ALR		PLANS CK'D. DRG	
SUPERSTRUCTURE		SHEET 8	

BILL OF BARS

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

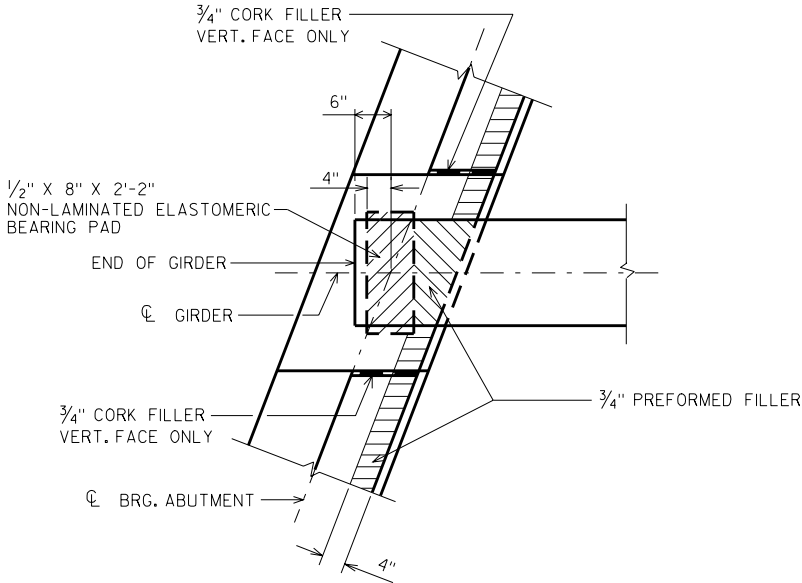
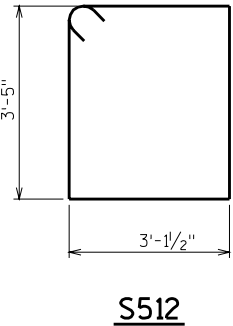
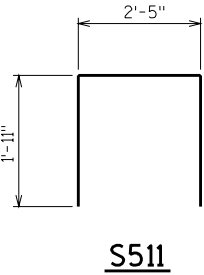
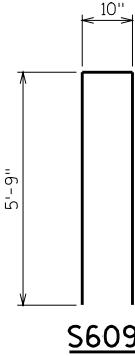
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	381	34'-0"			LONGITUDINAL TOP & BOTTOM
S402	X	271	41'-8"			TRANSVERSE
S403	X	32	21'-2"	▲		TRANSVERSE
S404	X	32	21'-7"	▲		TRANSVERSE
S405	X	32	21'-2"	▲		TRANSVERSE
S406	X	32	21'-7"	▲		TRANSVERSE
S608	X	12	35'-0"			W RAIL LONG. @ EDGE OF SLAB
S609	X	32	12'-0"	X		W RAIL-ONE PER POST
S511	X	78	6'-0"	X		ABUT. DIAPHRAGM
S512	X	78	13'-9"	X		ABUT. DIAPHRAGM
S613	X	28	24'-6"			ABUT. DIAPHRAGM
S614	X	70	3'-6"			ABUT. DIAPHRAGM
S615	X	20	1'-0"			ABUT. DIAPHRAGM
S416	X	56	3'-4"	X		ABUT. DIAPHRAGM
S417	X	28	2'-6"			ABUT. DIAPHRAGM
S518	X	32	5'-0"	X		ABUT. DIAPHRAGM



PART LONGIT. SECTION

TOP OF DECK ELEVATIONS

	S. ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	N. ABUT.
GIR. 1	762.10	762.09	762.08	762.07	762.06	762.06	762.05	762.04	762.04	762.03	762.03
GIR. 2	762.21	762.20	762.19	762.18	762.18	762.17	762.16	762.15	762.15	762.14	762.14
GIR. 3	762.32	762.31	762.30	762.29	762.29	762.28	762.27	762.26	762.26	762.25	762.25
GIR. 4	762.43	762.42	762.41	762.40	762.40	762.39	762.38	762.37	762.37	762.36	762.36
GIR. 5	762.35	762.34	762.33	762.33	762.32	762.31	762.30	762.30	762.29	762.28	762.28
GIR. 6	762.25	762.24	762.23	762.22	762.21	762.20	762.20	762.19	762.18	762.18	762.17
GIR. 7	762.14	762.13	762.12	762.11	762.11	762.10	762.09	762.08	762.08	762.07	762.07
GIR. 8	762.03	762.02	762.02	762.01	762.00	761.99	761.98	761.98	761.97	761.96	761.96

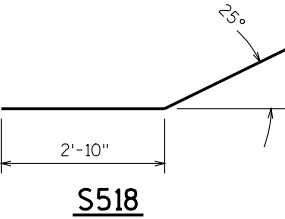
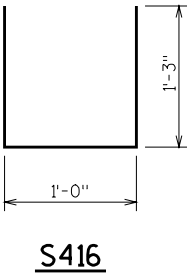


BEARING PAD DETAIL

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY

MARK	NO. REQD.	LENGTH
S403	1 SERIES OF 32	1'-9" TO 40'-6"
S404	1 SERIES OF 32	2'-3" TO 41'-0"
S405	1 SERIES OF 32	1'-9" TO 40'-6"
S406	1 SERIES OF 32	2'-3" TO 41'-0"



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-244			
DRAWN BY		ALR	PLANS CK'D. DRG
SUPERSTRUCTURE DETAILS		SHEET	9

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

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

PRESTRESSING STRANDS SHALL BE 0.6"φ - 7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 psi AND SHALL BE FLUSH WITH THE ENDS OF THE GIRDER.

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE
"STEEL DIAPHRAGM" SHEET.

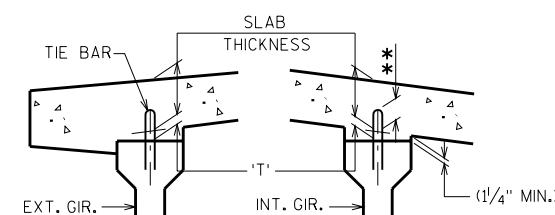
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT. IF THE FABRICATOR WANTS TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, 2 OPTIONS ARE AVAILABLE:

1. USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.
2. USE ASTM A615, GRADE 40 REINFORCEMENT AND A MODIFIED STIRRUP SPACING SUBMITTED TO AND APPROVED BY THE STRUCTURES DEVELOPMENT SECTION.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF)
MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT
SHOWN, UPON APPROVAL OF THE STRUCTURES
DEVELOPMENT SECTION

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



IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR.

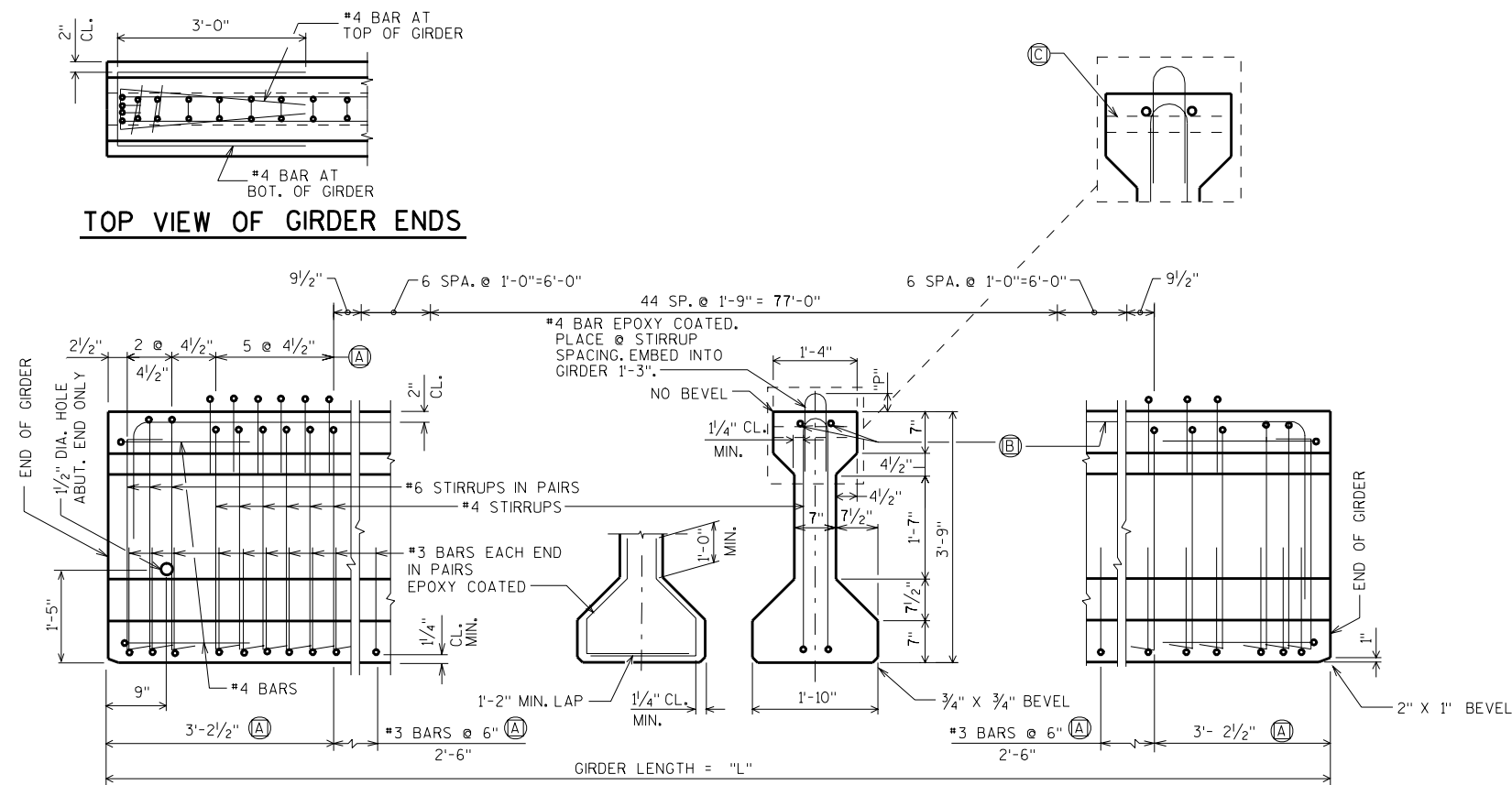
** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

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

TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
+ DEAD LOAD DEFLECTION
- SLAB THICKNESS

= HAUNCH HEIGHT 'T'

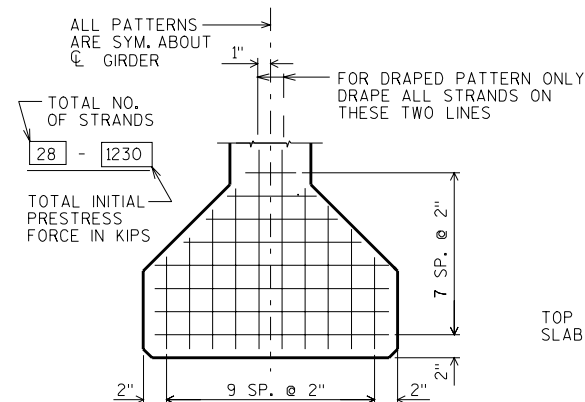
NOTE: AN AVERAGE HAUNCH ('T') OF 3" WAS USED IN THE QUANTITY
"CONCRETE MASONRY BRIDGES".



(A) DETAIL TYP. AT EACH END

(B) 2-BARS BEND DOWN 16 BAR DIA. AT ENDS
(SPAN 1) 2 #5, 2'-5" MIN. LAP

(C) 1 1/2" DIA. VENT HOLE AT APPROX.
1/3 POINTS OF GIR. LENGTH TYP. ALL GIRDERS.
PLACE APPROX. 3" DOWN FROM
TOP OF GIRDERS. SPACE TO MISS REINF.



CENTER OF GRAVITY OF DRAPED STRANDS

SYM. ABOUT MIDSPAN OF GIRDER

HOLD DOWN POINT

END OF GIRDER

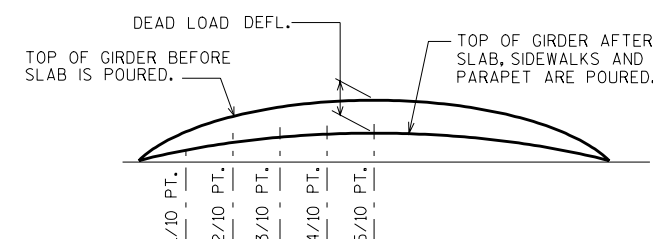
BOT. OF GIRDER

$\frac{1}{4}$ PT. (0.25 L)

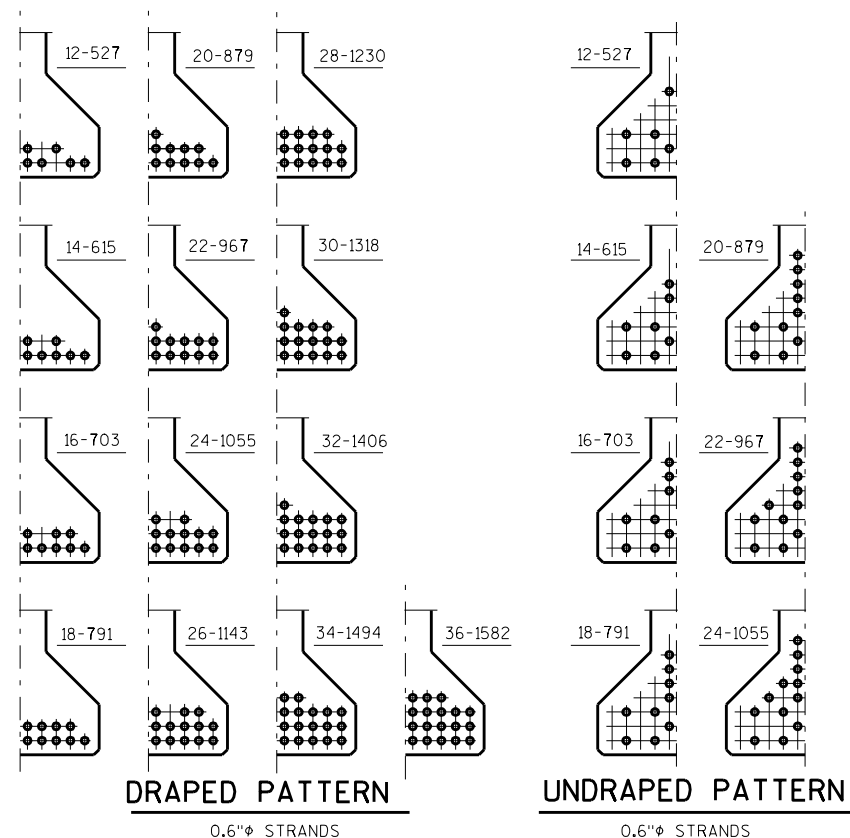
"A"

"B"

DRAPED STRAND PROFILE



DEAD LOAD DEFLECTION DIAGRAM



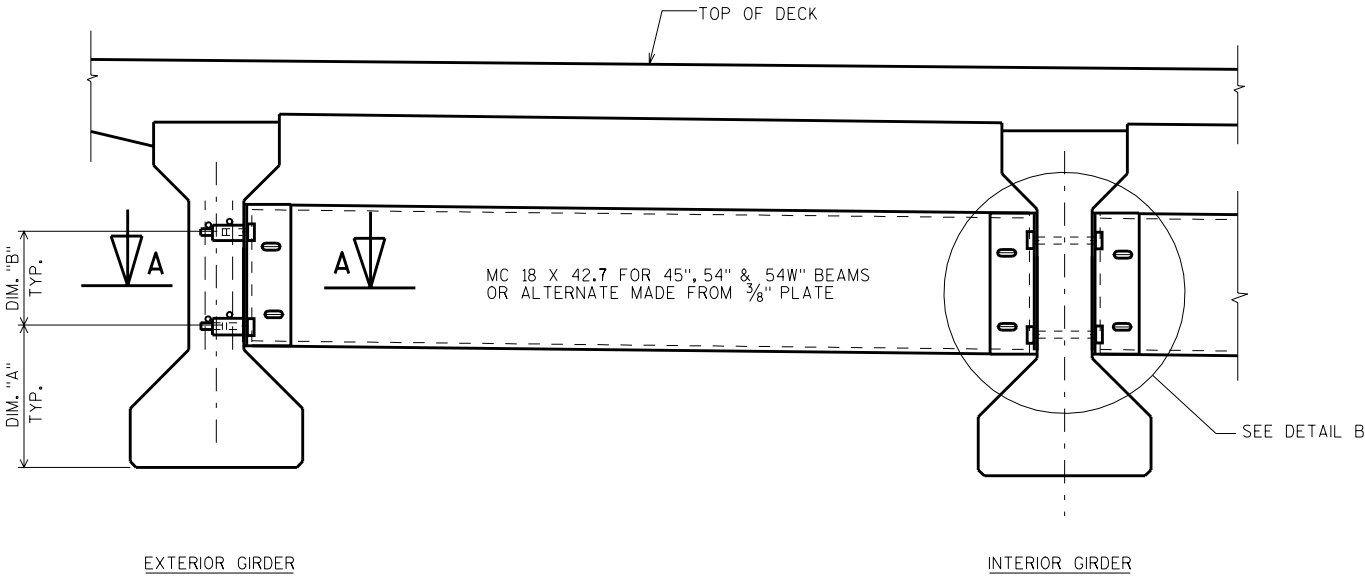
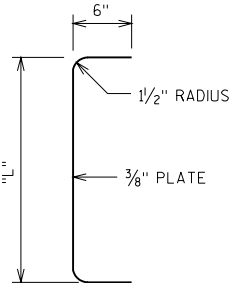
* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

[illegible]

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-244			
DRAWN BY		ALR	PLANS CK'D. DRG
45" PRESTRESS GIRDER DETAILS		SHEET 10	

TABLE

GIRDER HEIGHT	DIM. "A"	DIM. "B"	DIM. "L"	* DIM. "X"
45"	1'-5 3/8"	1'-1 7/8"	1'-5 1/2"	2 1/4"



NOTES

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

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

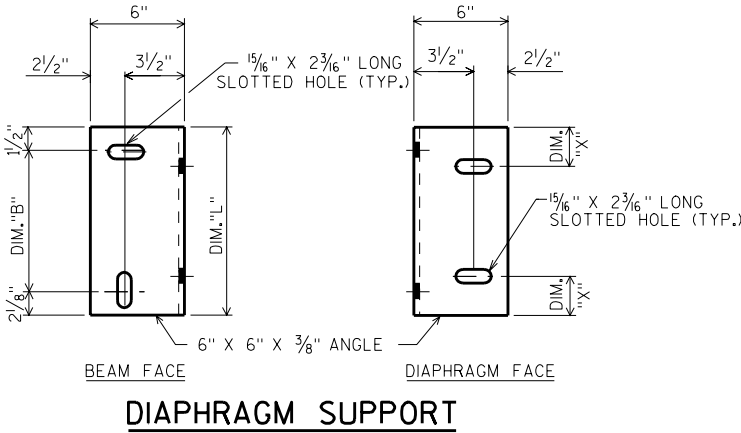
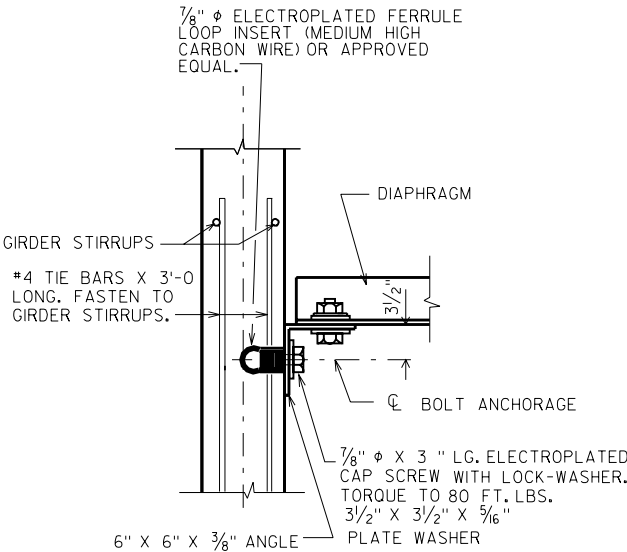
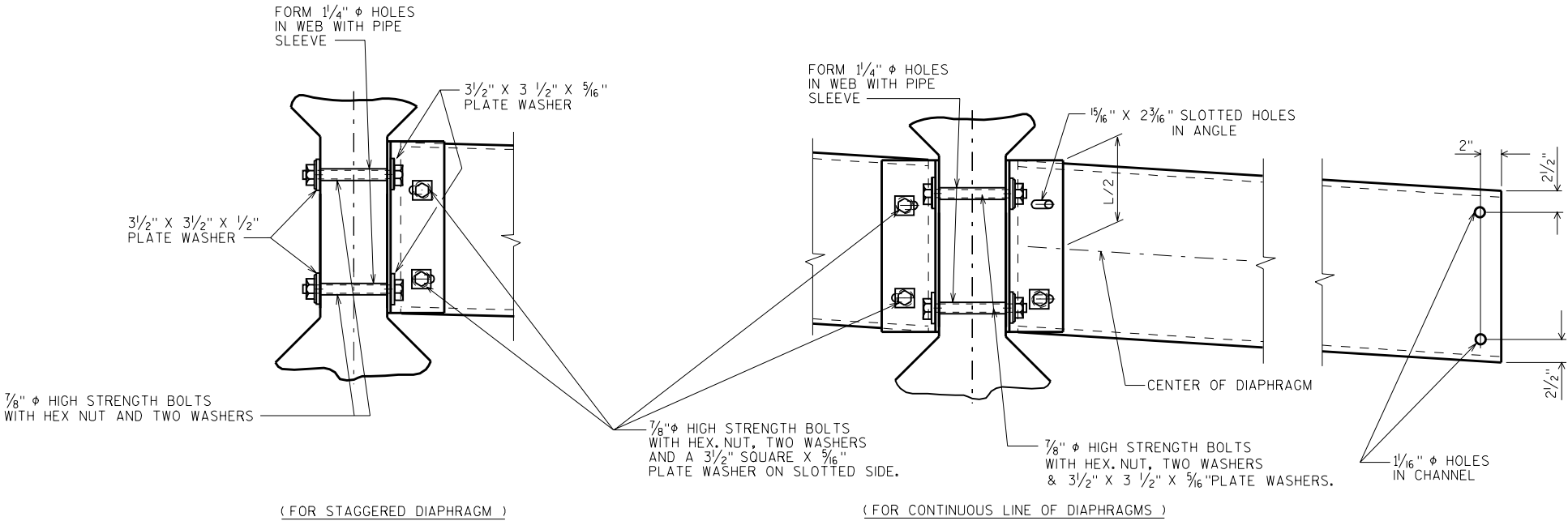
ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

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

SECTION THRU ALTERNATE DIAPHRAGM

*DIM "X" = 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM

PART TRANSVERSE SECTION AT DIAPHRAGM



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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-244			
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STEEL DIAPHRAGM		SHEET 11	

LEGEND

- ① W6X25 WITH 2 - 3/4" X 2 1/2" VERTICAL SLOTS ON ONE SIDE OF POST FOR BOLT NO.7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF RDWY. PLACE POSTS VERTICAL AND NORMAL TO GRADE LINE.
- ② C8 X 11.5, WITH 13/16" DIA. HOLES, ATTACH TO NO. 4 WITH BOLTS NO.8. ATTACH CONTINUOUSLY TO A MIN. OF FOUR POSTS AND A MAX. OF EIGHT POSTS (EXCEPT AT ABUTMENTS).
- ③ BASE PLATE 1'X9 1/2"X0'-10",WITH 1/16"X1 1/2" SLOTTED HOLES FOR ANCHOR BOLTS NO. 9. WELD TO NO.1 AS SHOWN.
- ④ PLATE 1/2" X 5 3/4" X 0'-6", WITH 1/4" DIA. HOLE FOR BOLTS NO.8. WELD TO NO.1 AS SHOWN.
- ⑤ CORRUGATED SHEET BEAM, CONFORMING TO A.A.S.H.T.O. DESIGNATION M 180-CLASS A, TYPE 2. 'THRIE 'GUARD RAIL OR EQUAL MAY BE USED IN LIEU OF THE DOUBLE UNIT PLATE BEAM SHOWN. ATTACH TO NO.1 WITH BOLTS NO.7.
- ⑥ 1 3/4" X 3" MOUNTING BOLT WASHER. EIGHT GAGE GALVANIZED,
- ⑦ 5/8" DIA. BUTTON HEAD RAIL MOUNTING BOLT WITH ROUND WASHER AND NUT. 2 PER POST REQ'D.
- ⑧ 5/8" DIA. X 2" LG. HEX. BOLTS WITH NUT AND TWO WASHERS EACH. 4 REQ'D. PER POST CONNECTION, 8 REQ'D. PER SPLICE.
- ⑨ A325 - 7/8" HEX BOLTS (GALVANIZED) WITH A325 NUT AND WASHER. 14" LONG AT END POSTS,USE 8" LONG AT ALL OTHER LOCATIONS. 4 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO.3. CHAMFER TOP OF BOLTS BEFORE THREADING.
- ⑩ 1/4"X8"X8" FLAT BAR, WITH 15/16" DIA. HOLES FOR ANCHOR BOLTS NO. 9.
- ⑪ PLATE, 1/2" X 5 3/4" X 0'-11 1/2" WITH 1/4" DIA. HOLES FOR BOLTS NO.8. WELD THE SAME AS NO.4.
- ⑫ PLATE, 1/2" X 5 3/4" X 1'-2 1/2" WITH 1/4" DIA. HOLES IN PLATE. 13/16" DIA. HOLES IN CHANNEL, EXPANSION SLOTS ON JOINT SIDE OF POST, 1 1/16" X 2 1/4" IN PLATE, 13/16" X 2 1/4" IN CHANNEL (AT EXPANSION SPLICE).

GENERAL NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE W B-70-244" WHICH SHALL INCLUDE ALL ITEMS BETWEEN LONGIT. LIMITS OF NO.5 SHOWN IN ELEVATION. PAY LIMITS SHALL BE FROM C/L TO C/L OF END POSTS.

POST BASE PLATES,NO.3, SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH,STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

ALL MATERIAL, EXCEPT ANCHORAGE DETAIL (NO. 9 & 10) SHALL BE GALVANIZED AFTER FABRICATION.

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

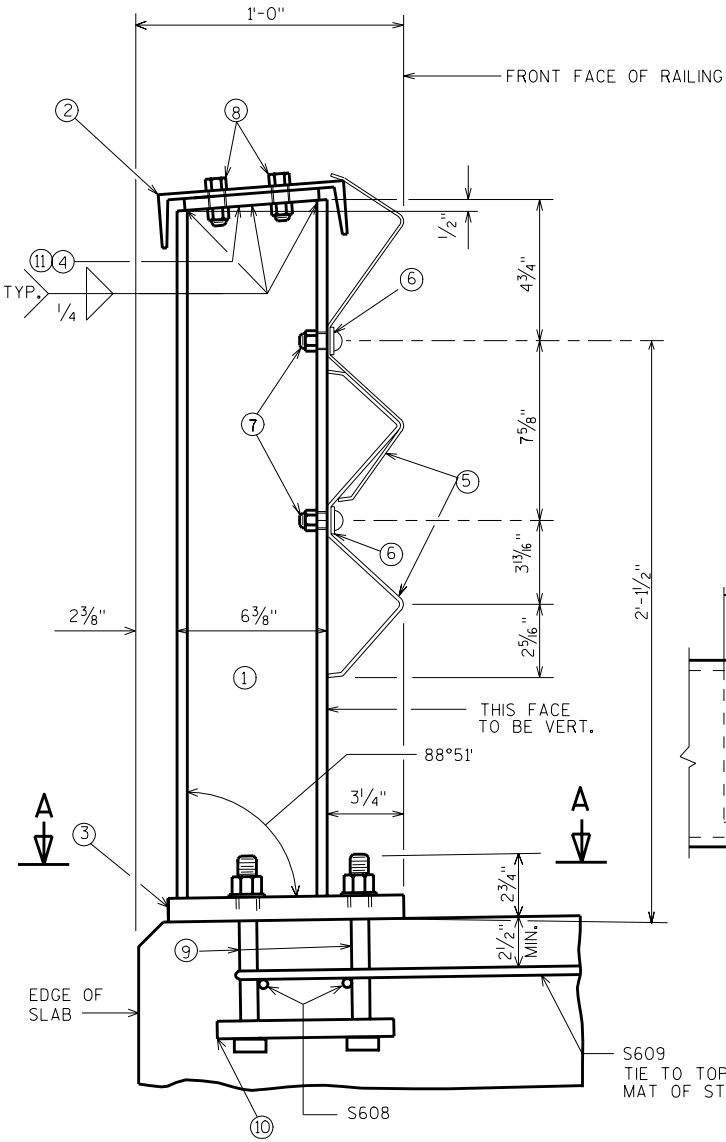
ALL MATERIALS USED IN FABRICATION SHALL BE MADE FROM MATERIALS CONFORMING TO A.S.T.M. DESIGNATION A709 GRADE 36 UNLESS NOTED OTHERWISE.

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

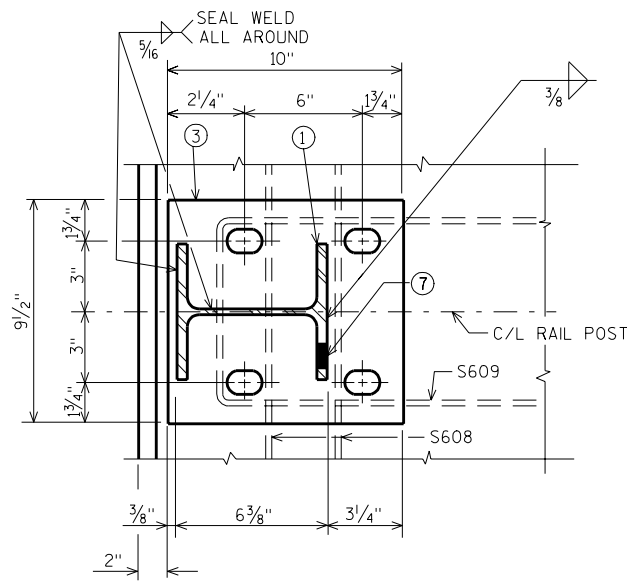
STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQUIRED FOR ALIGNMENT.

PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & CHANNELS SHALL BE GIVEN A NO.6 COMMERCIAL BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.

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

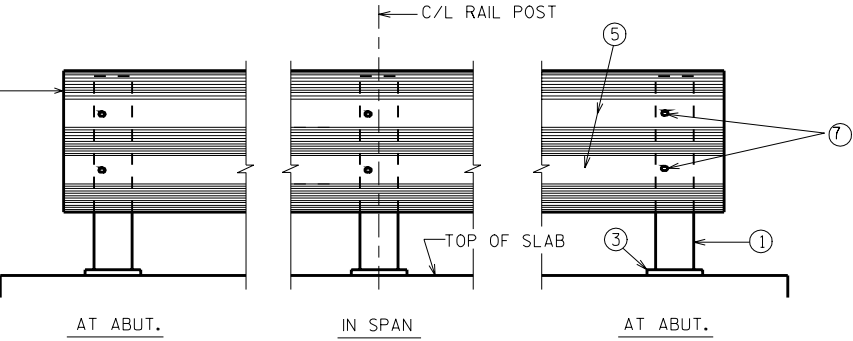


SECTION THRU RAILING

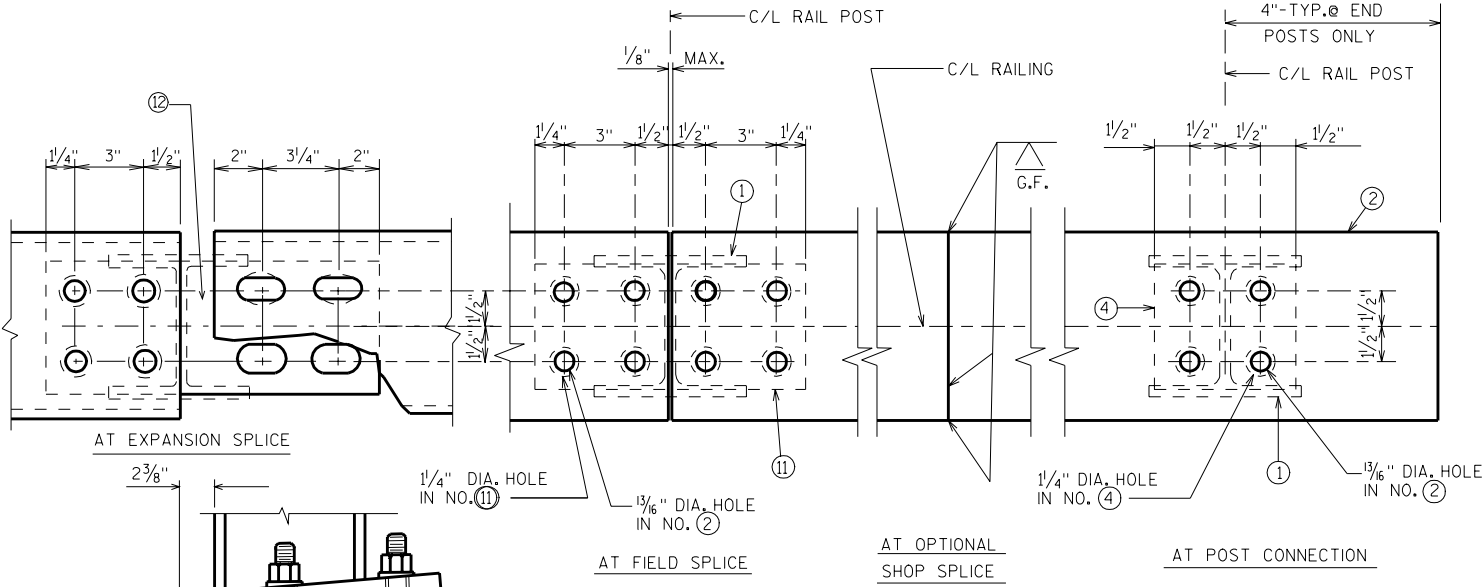


SECTION A

AT END POSTS, RAIL MEMBER SHALL HAVE PROVISIONS FOR A SPLICE TO A THRIE BEAM RAIL.

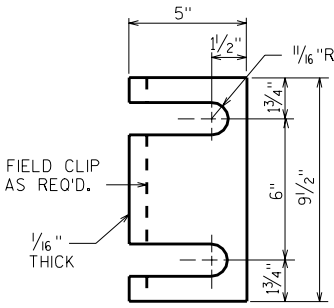


ELEVATION

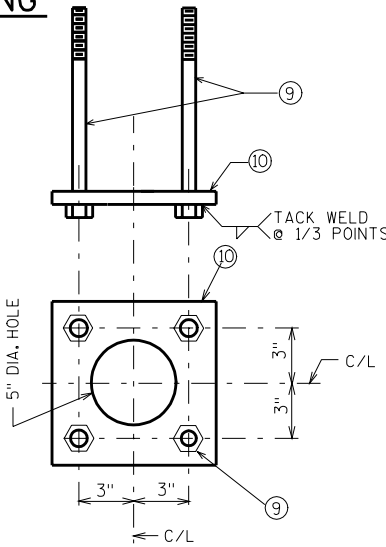


CHANNEL MEMBER DETAILS

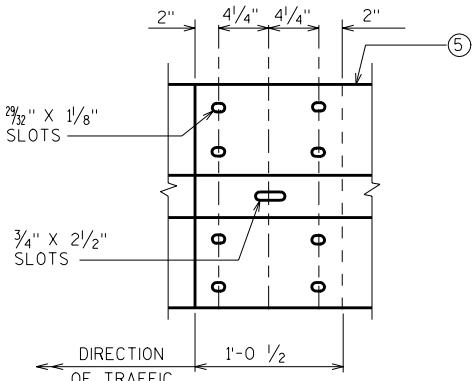
SECTION AT TOP OF WING



POST SHIM DETAIL
(4 PER POST)



ANCHORAGE DETAIL



RAIL MEMBER SPLICE

5/8" DIA. BUTTON HEAD OVAL SHOULDER BOLTS WITH HEX. NUTS AT ALL SLOTS.

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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-70-244			
DRAWN BY		ALR	PLANS CK'D. DRG
STEEL RAILING TYPE "W"		SHEET 12	