GRE

MAY 11

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details (Includes Erosion Control Plans)
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
~~Section No.~~	~~4~~	~~Right of Way Plat~~
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 480

PROJECT ID: 6200-15-71

WITH: N/A

COUNTY: WINNEBAGO

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

OSHKOSH - USH 10
CTH G - CTH II
USH 45
WINNEBAGO COUNTY

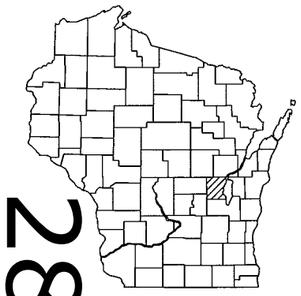
STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6200-15-71	WISC 2011333	1

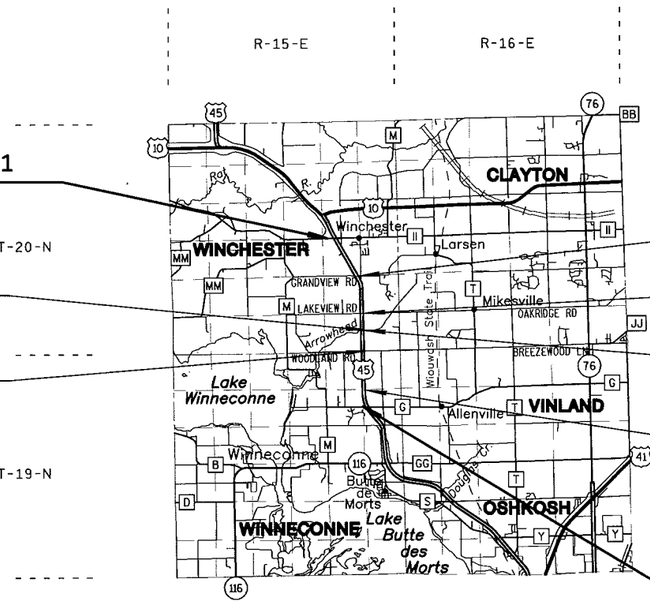
STATE PROJECT NUMBER
6200-15-71

AS-BUILT PLAN

SUPERVISOR: Rebecca Rooyakkers
PROJECT LEADER: William Bertrand
CONTRACTOR: Hoffman Construction Company
WORK COMPLETED:

Subcontractor's List
Al W Paschke Construction Co
Big Horn Trucking, LLC
Century Fence Company
Fencing Plus, Inc
Interstate Sawing Co, Inc
Kunkel Engineering Group
Lunda Construction Company
Mega Rentals, Inc
Michels Corporation
Northeast Asphalt, Inc
Proscapes Landscaping, LLC
Sommers Construction Co, Inc
Warning Lites of Appleton, Inc





END PROJECT 6200-15-71
STA 454'WFR'+70.69

STRUCTURE B-70-307
STA 302'WFR'+76.00

STRUCTURE B-70-309

STRUCTURE B-70-311

STRUCTURE B-70-310

STRUCTURE B-70-308

EQUATION
STA 270'WFR'+96.41 BK=
STA 270'WFR'+53.35 AH

BEGIN PROJECT 6200-15-71
STA 194'WFR'+51.12
Y = 515615.3054
X = 759945.7645

LAYOUT
SCALE 0 2 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), WINNEBAGO COUNTY, HORIZONTAL DATUM NAD 83 (2007).

ALL DISTANCES ARE GROUND. ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD 88 (2007).

ORIGINAL PLANS PREPARED BY

GREMMER & ASSOCIATES, INC.
CONSULTING ENGINEERS
Stevens Point • Fond du Lac
93 South Pioneer Road, Suite 300 • Fond du Lac, WI 54935
(920) 924-5720 • fax (920) 924-5725

WISCONSIN
JEFFREY A. CHVOSTA
E-39047
JACKSON, WI
PROFESSIONAL ENGINEER

1-20-2011
(Date)
JEFFREY A. CHVOSTA, PE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WDOT NORTHEAST REGION
Designer	GREMMER & ASSOCIATES, INC.
Project Manager	W R BERTRAND
Regional Examiner	
Regional Supervisor	R ROOYAKKERS
C.O. Examiner	Carl Wbuganowski

APPROVED FOR THE DEPARTMENT
DATE: 1-20-11 William R. Bertrand
(Signature)

E

DESIGN DESIGNATION

A.A.D.T.	2008	=	N/A
A.A.D.T.	2028	=	<100
D.H.V.		=	N/A
D.D.		=	N/A
T.		=	N/A
DESIGN SPEED		=	60 MPH

CONVENTIONAL SYMBOLS

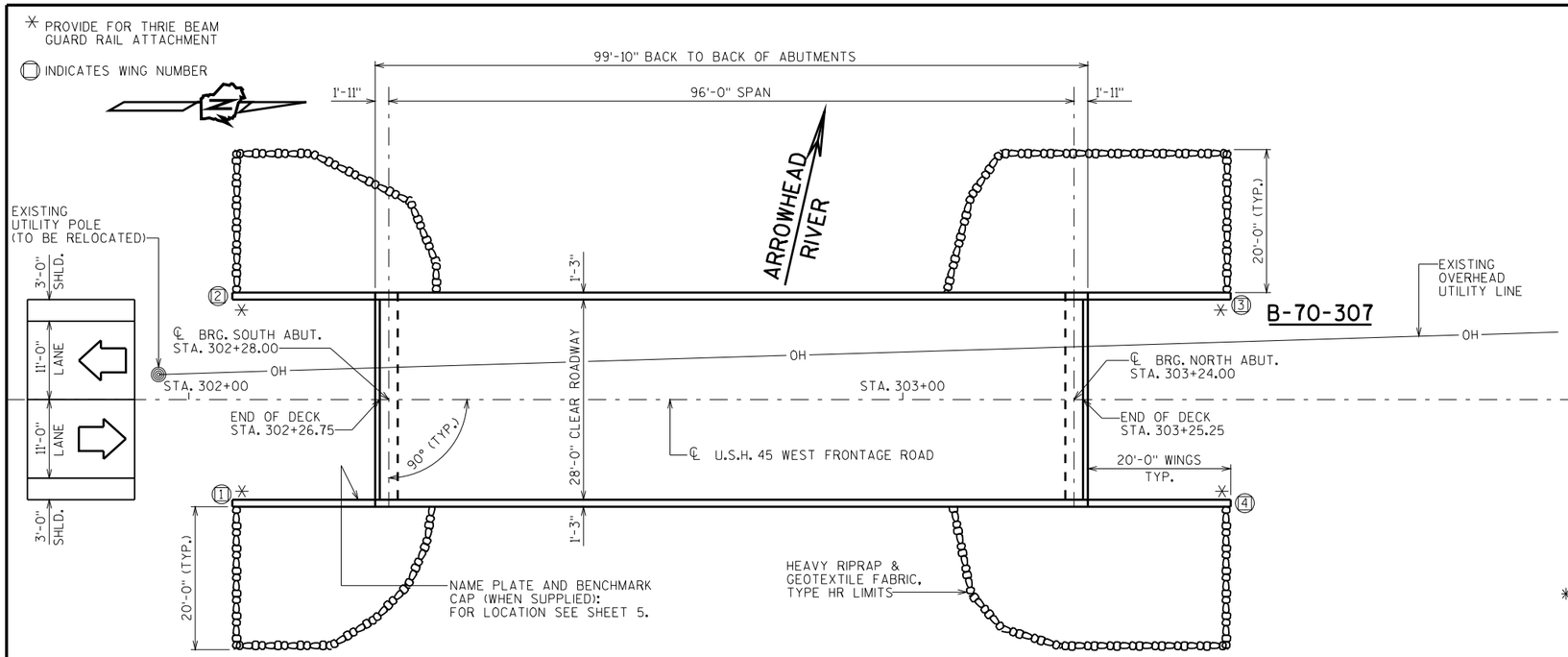
PLAN
- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- DITCH LINE
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE
- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES
- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

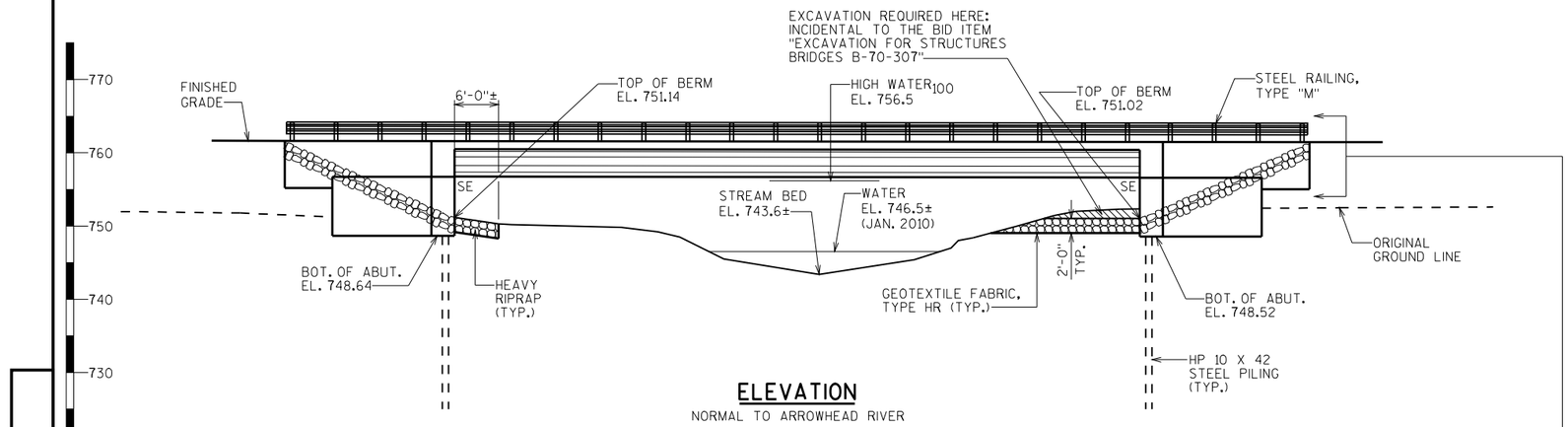
STATE PROJECT NUMBER

6200-15-71



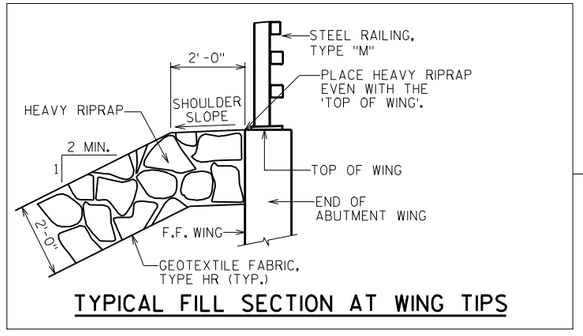
PLAN

SINGLE SPAN - 45W" PRESTRESSED GIRDERS



ELEVATION

NORMAL TO ARROWHEAD RIVER



TYPICAL FILL SECTION AT WING TIPS

DESIGN DATA

LIVE LOAD:

DESIGN LOADING; HL-93
INVENTORY RATING FACTOR: RF=1.15
OPERATING RATING FACTOR: RF=1.49
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 240 (KIPS)

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

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY DECK — f'c = 4,000 P.S.I. ALL OTHER — f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT, GRADE 60 — fy = 60,000 P.S.I.

45W" PRESTRESSED GIRDERS, CONCRETE MASONRY — f'c = 8,000 P.S.I.
STRANDS- 0.6" DIA. 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 REQUIRED DRIVING RESISTANCE OF 160 TONS **PER PILE
AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
ESTIMATED 35' LONG AT SOUTH ABUTMENT.
ESTIMATED 35' LONG AT NORTH ABUTMENT.

** THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA

100 YEAR FREQUENCY

Q_{100} = 3000 C.F.S.
VEL. = 4.0 F.P.S.
HW. = EL. 756.5
WATERWAY AREA = 757 SQ. FT.
DRAINAGE AREA = 26.8 SQ. MI.
SCOUR CRITICAL CODE = 8
ROAD OVERTOPPING FREQUENCY = NA

2 YEAR FREQUENCY

Q_2 = 760 C.F.S.
$HW._2$ = EL. 752.5

TRAFFIC VOLUME

U.S.H. 45 WEST FRONTAGE ROAD

A.D.T. = 100 (2026)
R.D.S. = 60 M.P.H.

LIST OF DRAWINGS

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

STRUCTURES DESIGN CONTACTS:
BRANDAN BURGER (608) 267-4019
KENT BAHLER (608) 266-8490

NO.	DATE	REVISION	BY

Plans Prepared By **WISDOT**
BUREAU OF STRUCTURES

APPROVED William C. Dreher KAR 02/21/11
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-70-307

U.S.H. 45 WEST FRONTAGE ROAD OVER ARROWHEAD RIVER

COUNTY	TOWN
WINNEBAGO	WINCHESTER

DESIGN SPEC. AASHTO LRFD DESIGN SPEC. 4th EDITION — LOAD HL-93

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
BLB	LLS	ADS	WWR

GENERAL PLAN

SHEET 1 OF 13

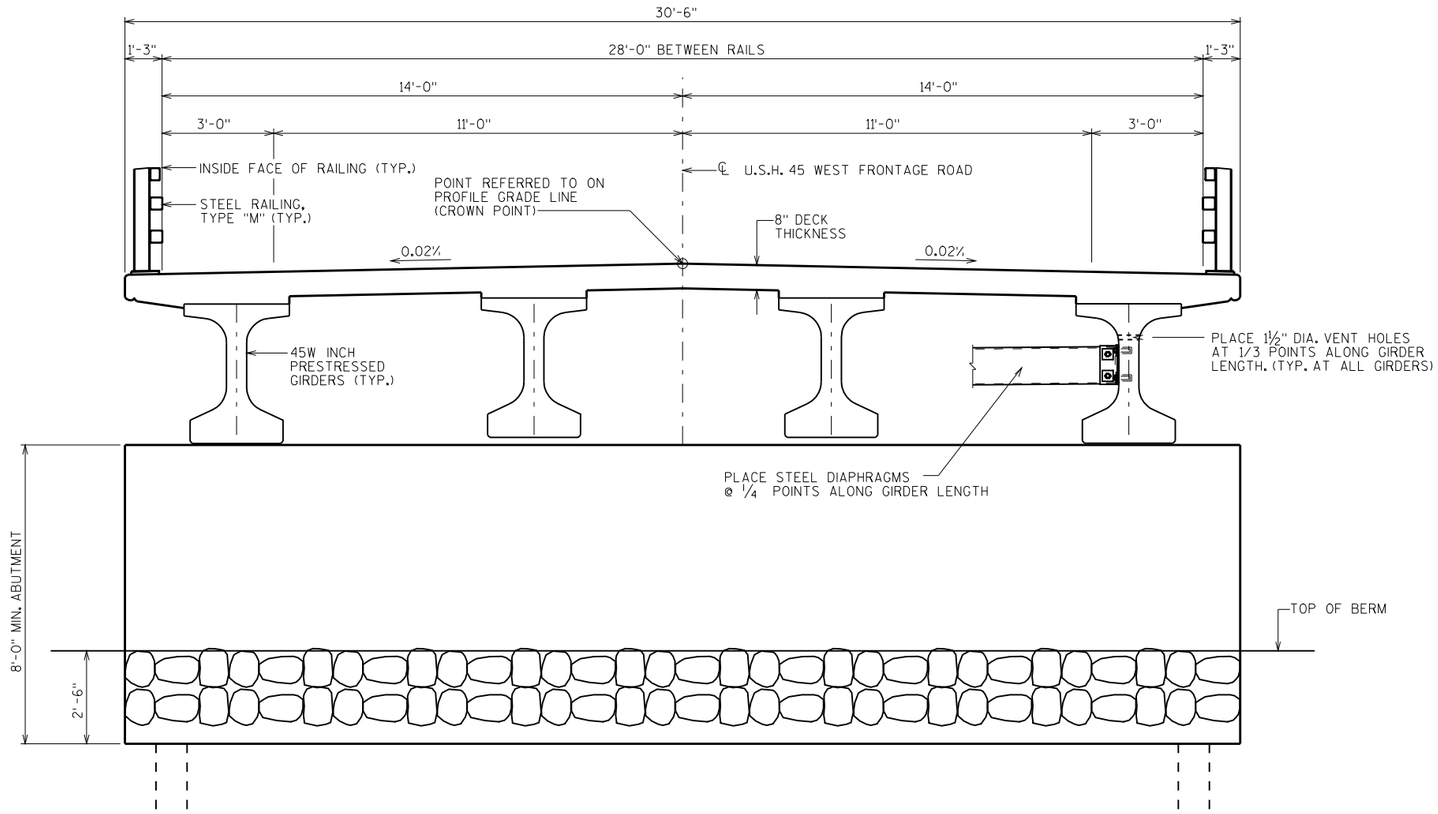
202

I.D. 6200-15-00

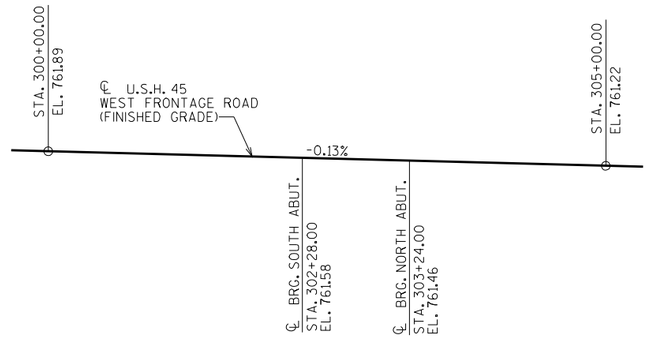
DATE: SEPT. 2010

SCALE = 10

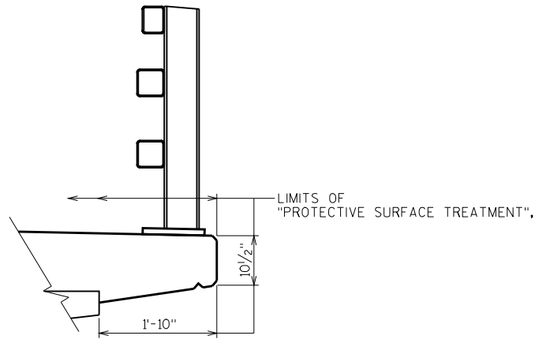
STATE PROJECT NUMBER
6200-15-71



CROSS SECTION THRU ROADWAY LOOKING NORTH



PROFILE GRADE LINE FOR U.S.H. 45 WEST FRONTAGE ROAD



EDGE OF DECK DETAIL

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	NORTH ABUT.	TOTALS
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-70-307	LS	———	———	———	1
210.0100	BACKFILL STRUCTURE	CY	———	190	190	380
502.0100	CONCRETE MASONRY BRIDGES	CY	113	67	67	247
502.3200	PROTECTIVE SURFACE TREATMENT	SY	393	13	13	419
503.0146	PRESTRESSED GIRDER TYPE I 45W-INCH	LF	388	———	———	388
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	———	2,650	2,650	5,300
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	20,600	3,690	3,690	27,980
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	———	4	4	8
506.4000	STEEL DIAPHRAGMS B-70-307	EACH	9	———	———	9
513.4060	RAILING TUBULAR TYPE M B-70-307	LS	———	———	———	1
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	———	11	11	22
550.1100.S	PILING STEEL HP 10-INCH X 42 LB	LF	———	315	315	630
606.0300	RIPRAP HEAVY	CY	———	95	165	260
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	———	75	75	150
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	———	170	290	460
	NON-BID ITEMS					
	FILLER	SIZE	———	———	———	½" & ¾"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

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.

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

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

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

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE TOP OF DECK SURFACE, THE OUTSIDE EDGES OF DECK, BOTTOM OF DECK AND TOP HORIZONTAL & VERTICAL SURFACES OF ALL FOUR ABUT. WINGS. SEE DETAIL FOR LIMITS.

AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC TYPE 'HR' TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-307

DRAWN BY ADS | PLANS CK'D. WWR

CROSS SECTION & QUANTITIES

SHEET 2

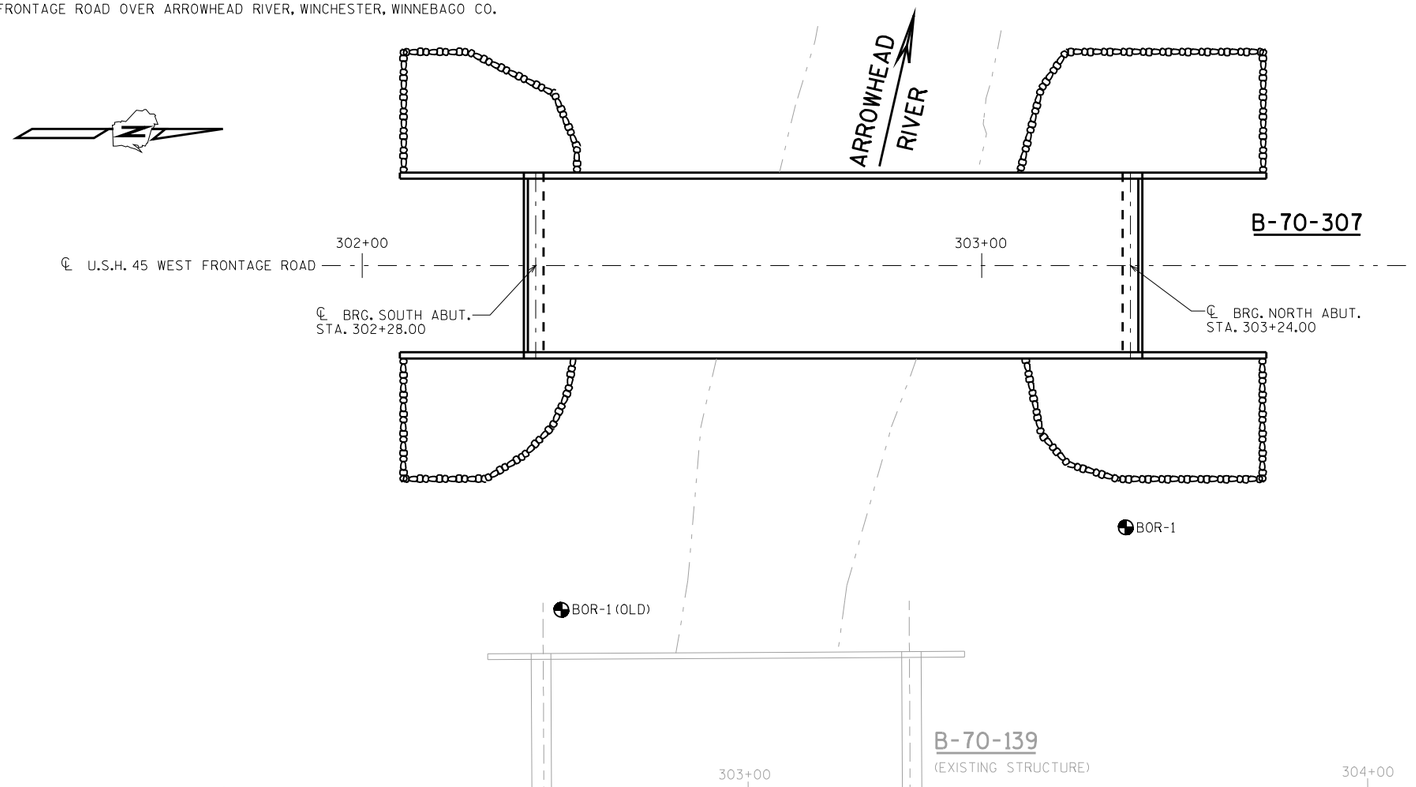
203

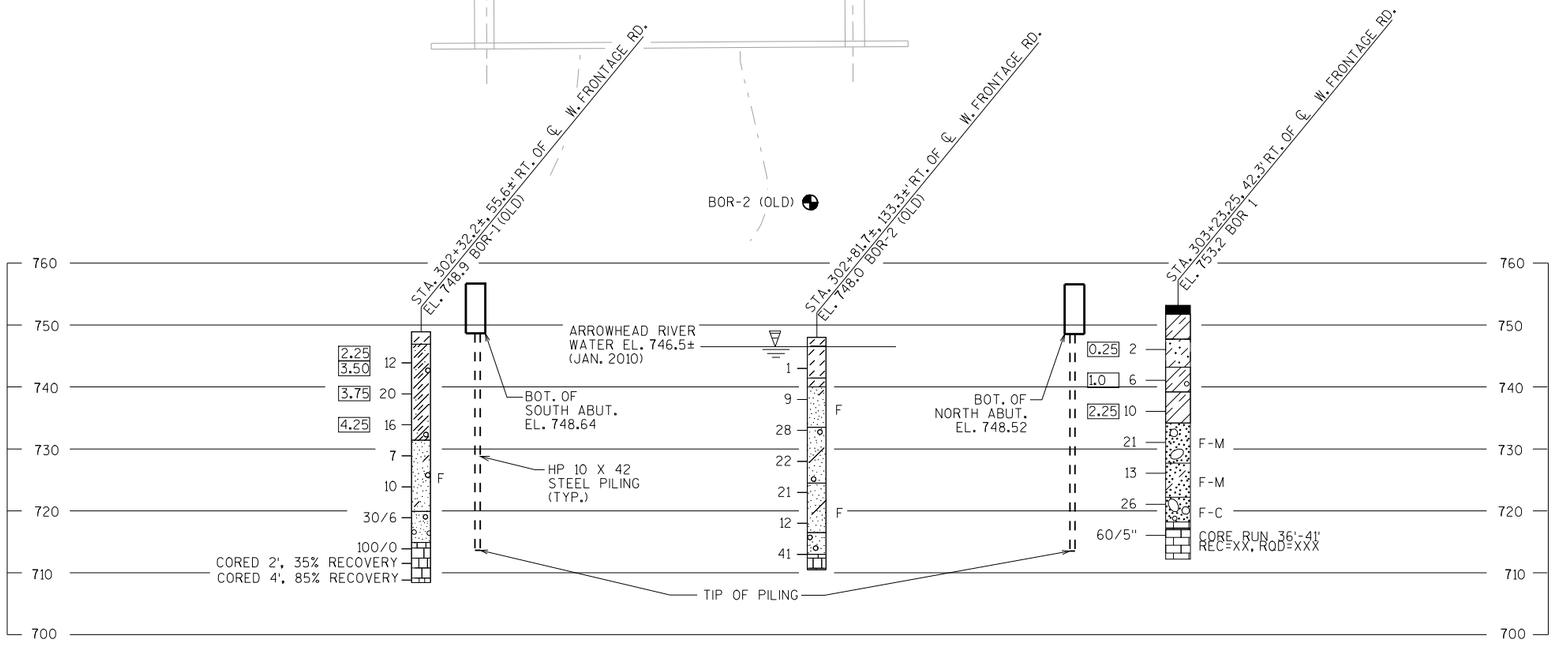
8

8

SCALE = 2

USH 45 WEST FRONTAGE ROAD OVER ARROWHEAD RIVER, WINCHESTER, WINNEBAGO CO.





STATE PROJECT NUMBER

6200-15-71

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
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

95/6=95 BLOWS FOR 6" PENETRATION
PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.

LEGEND OF BORING

BORING NO.
ELEV.
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-70-307

DRAWN BY ADS | PLANS CK'D. WWR

SUBSURFACE EXPLORATION

SHEET 3
204

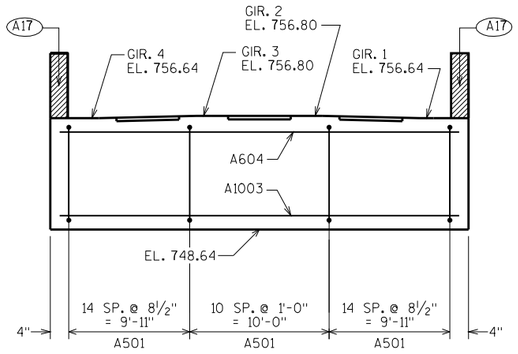
SCALE =

8

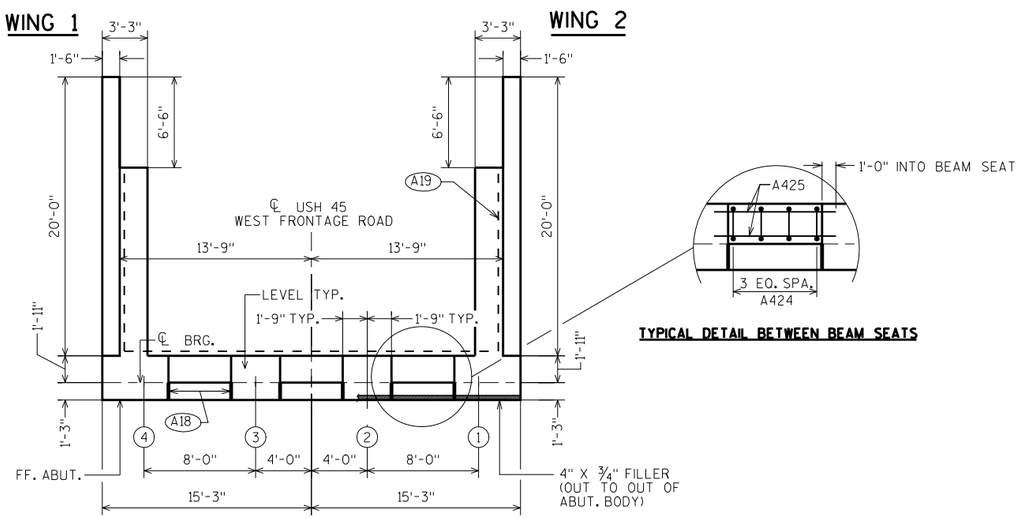
8

STATE PROJECT NUMBER

6200-15-71

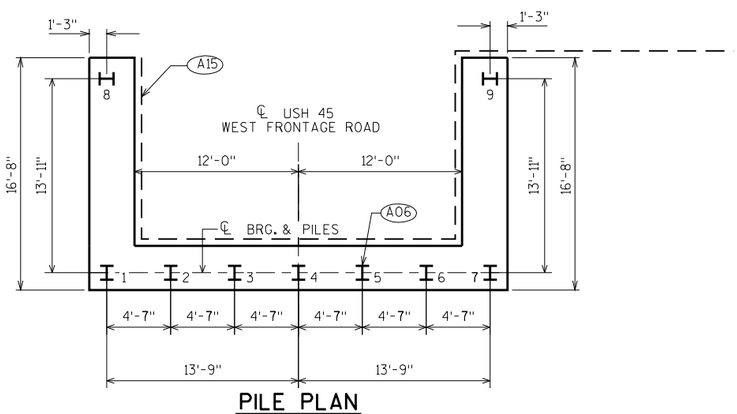


ELEVATION LOOKING SOUTH



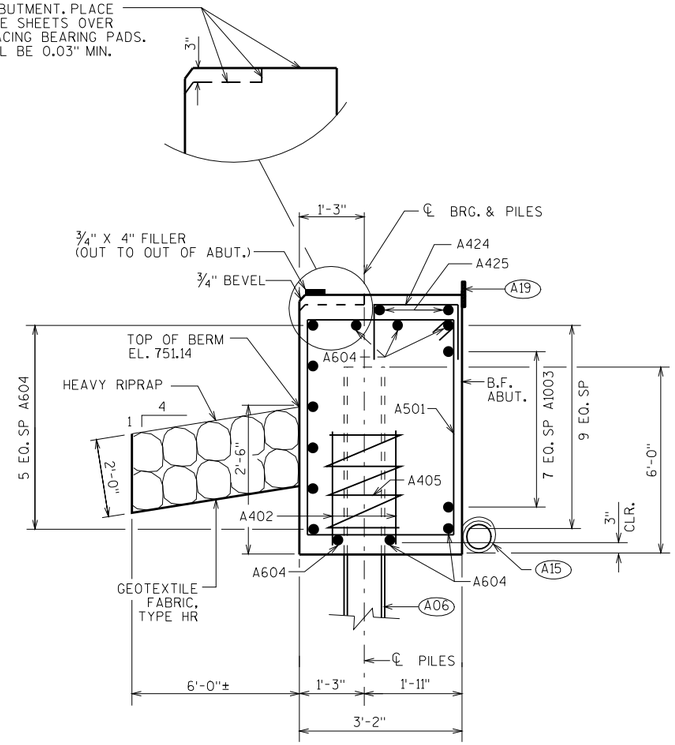
PLAN

TYPICAL DETAIL BETWEEN BEAM SEATS

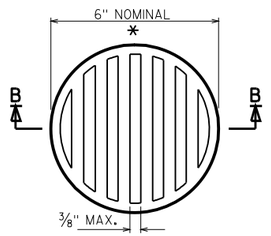


PILE PLAN

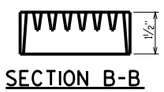
STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS. TOTAL THICKNESS OF SHEETS SHALL BE 0.03" MIN.



SECTION THRU BODY



RODENT SCREEN DETAIL



SECTION B-B

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SCREEN, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SCREEN SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SCREEN TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SCREEN SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH SHEET METAL SCREWS.

(A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 35' LONG WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.

(A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SCREEN REQUIRED.

(A17) 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.

(A18) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

(A19) 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-70-307

DRAWN BY ADS | PLANS CK'D. WWR

SOUTH ABUTMENT

SHEET 4

205

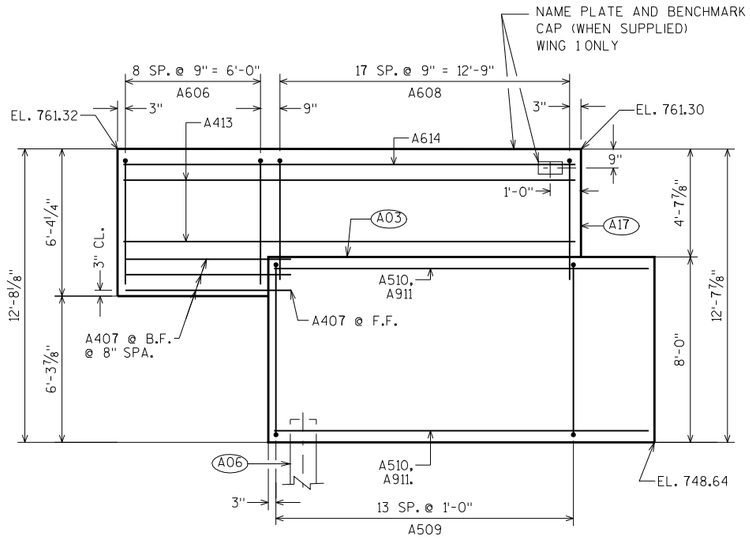
SCALE =

8

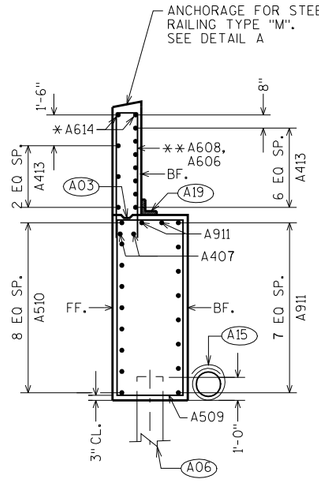
8

STATE PROJECT NUMBER

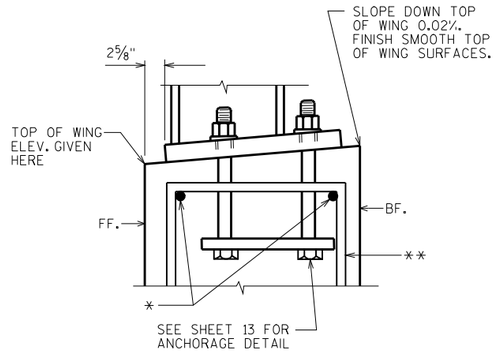
6200-15-71



WING 1 ELEVATION



WING 1 SECTION



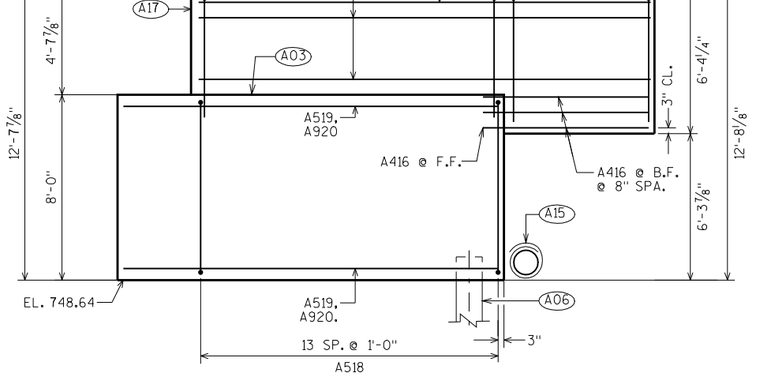
SECTION AT TOP OF WING

DETAIL A

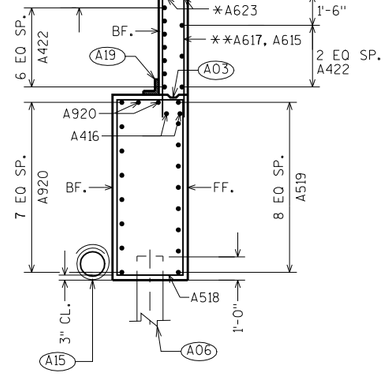
BILL OF BARS

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

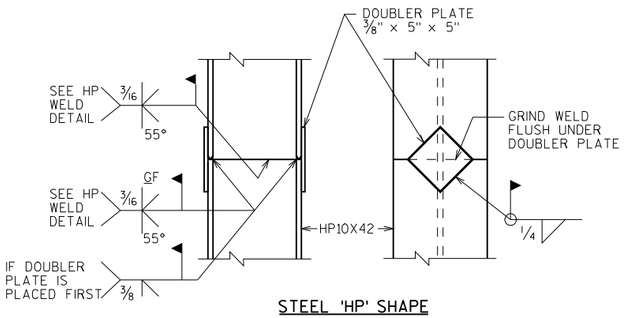
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501		39	21'-0"	X		BODY-STIRRUPS-VERT.
A402		14	2'-3"			BODY-2 PER PILE-VERT.
A1003		8	30'-2"			BODY-HORIZONTAL-B.F.
A604		12	30'-2"			BODY-HORIZONTAL
A405		7	28'-0"	X		BODY-SPIRAL-1 PER PILE-VERT.
A606	X	9	12'-8"	X		WING 1-VERTICAL-TOP
A407	X	4	7'-9"			WING 1-HORIZONTAL-F.F. & B.F.
A608	X	18	13'-10"	X		WING 1-VERTICAL-TOP
A509	X	14	21'-8"	X		WING 1-STIRRUP-BOT.-VERT.
A510	X	9	16'-4"			WING 1-HORIZONTAL-BOT.-F.F.
A911	X	10	18'-2"	X		WING 1-HORIZONTAL-BOT.-B.F.
A912		---	---			NOT USED
A413	X	10	19'-8"			WING 1-HORIZONTAL-F.F. & B.F.
A614	X	2	19'-8"			WING 1-HORIZONTAL-TOP-F.F. & B.F.
A615	X	9	12'-8"	X		WING 2-VERTICAL-TOP
A416	X	4	7'-9"			WING 2-HORIZONTAL-F.F. & B.F.
A617	X	18	13'-10"	X		WING 2-VERTICAL-TOP
A518	X	14	21'-8"	X		WING 2-STIRRUP-BOT.-VERT.
A519	X	9	16'-4"			WING 2-HORIZONTAL-BOT.-F.F.
A920	X	10	18'-2"	X		WING 2-HORIZONTAL-BOT.-B.F.
A921		---	---			NOT USED
A422	X	10	19'-8"			WING 2-HORIZONTAL-F.F. & B.F.
A623	X	2	19'-8"			WING 2-HORIZONTAL-TOP-F.F. & B.F.
A424		12	4'-1"	X		BODY-BETWEEN BEAM SEATS-TOP-VERT.
A425		6	6'-6"			BODY-HORIZ.-BTWN. BEAM SEATS-TOP



WING 2 ELEVATION



WING 2 SECTION



STEEL 'HP' SHAPE

HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

PILE DETAILS

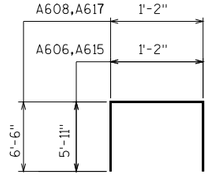
(A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 × 6. (18" R.M.W. @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).

(A06) SUPPORT ABUTMENT ON HP 10 × 42 STEEL PILING, ESTIMATED 35' LONG WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.

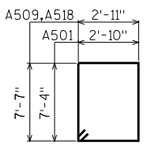
(A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SCREEN REQUIRED.

(A17) 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.

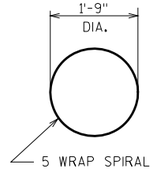
(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.



A608, A617, A606, A615



A501, A509, A518



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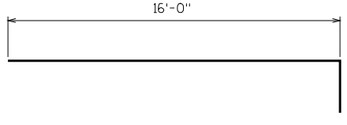
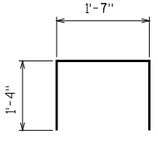


A911, A920



A424

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-307

DRAWN BY ADS | PLANS CK'D. WWR

SOUTH ABUTMENT DETAILS

SHEET 5

206

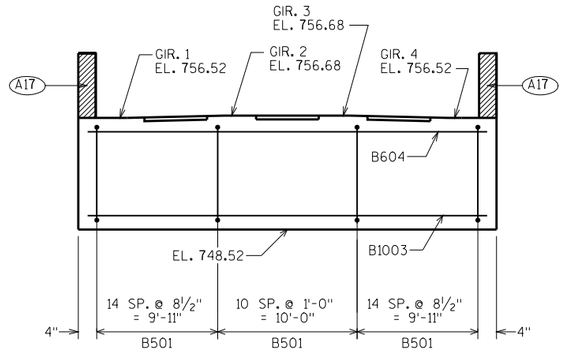
SCALE =

8

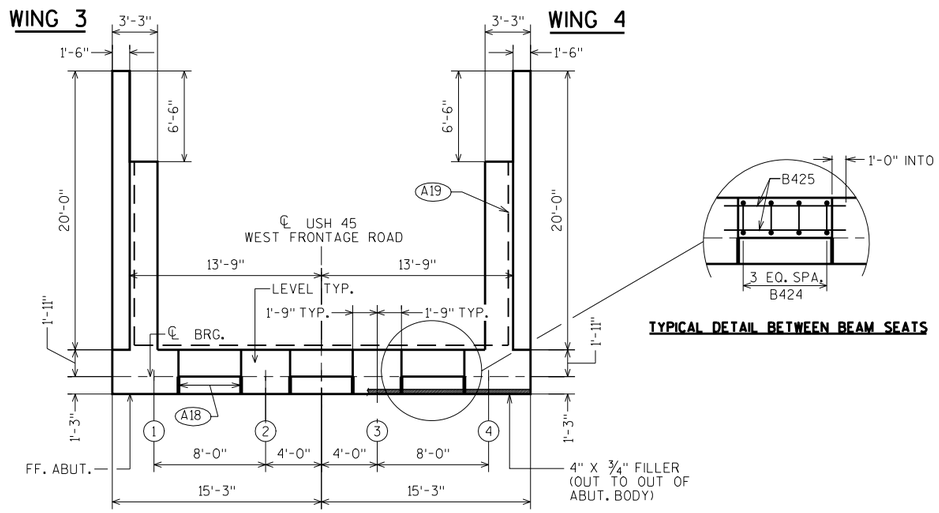
8

STATE PROJECT NUMBER

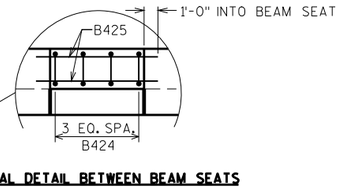
6200-15-71



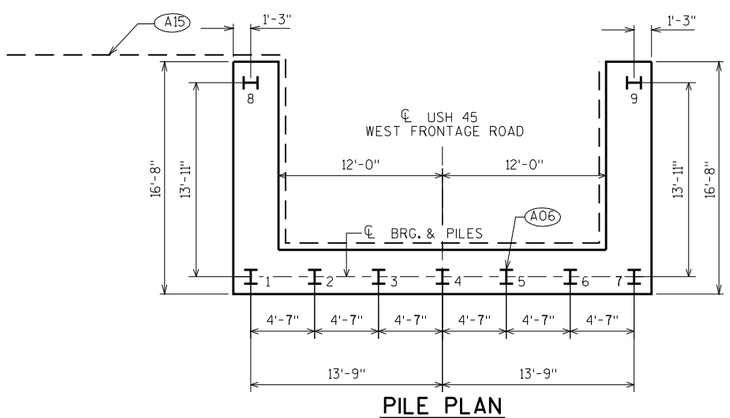
ELEVATION LOOKING NORTH



PLAN

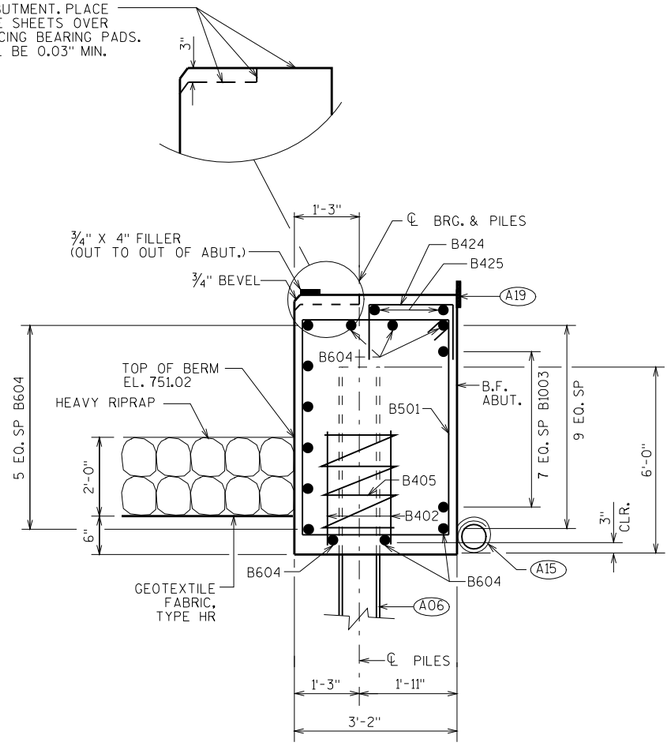


TYPICAL DETAIL BETWEEN BEAM SEATS

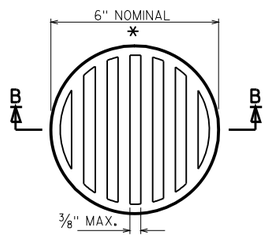


PILE PLAN

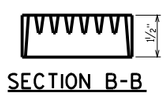
STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS. TOTAL THICKNESS OF SHEETS SHALL BE 0.03" MIN.



SECTION THRU BODY



RODENT SCREEN DETAIL



SECTION B-B

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SCREEN, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SCREEN SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SCREEN TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SCREEN SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH SHEET METAL SCREWS.

(A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 35' LONG WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.

(A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SCREEN REQUIRED.

(A17) 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.

(A18) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

(A19) 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-70-307

DRAWN BY ADS | PLANS CK'D. WWR

NORTH ABUTMENT

SHEET 6

207

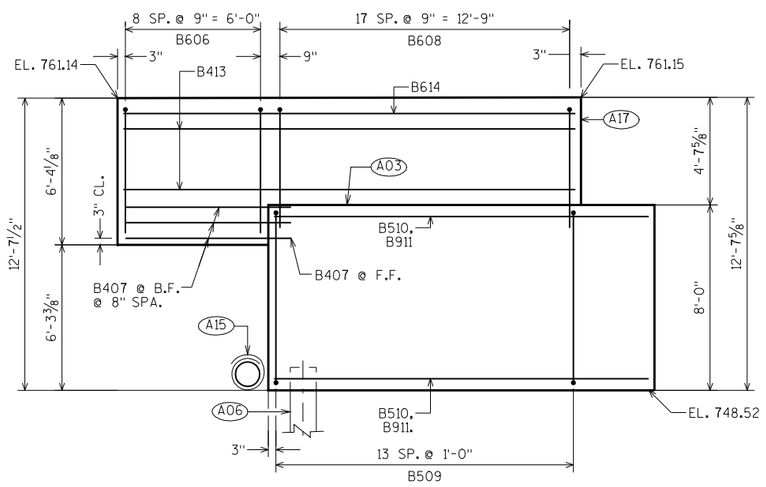
SCALE =

8

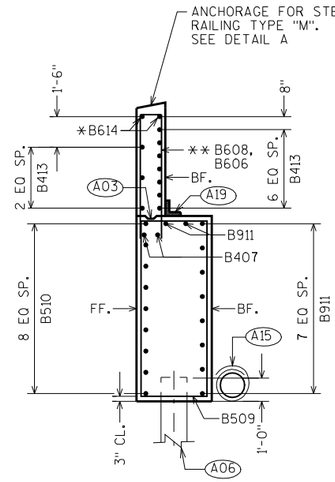
8

STATE PROJECT NUMBER

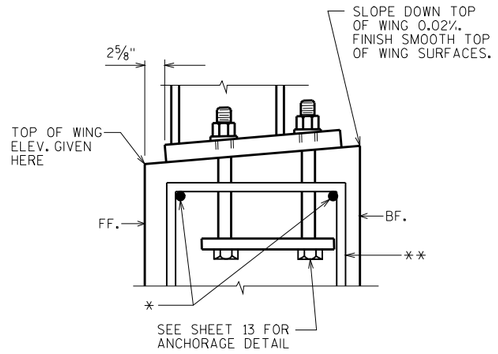
6200-15-71



WING 3 ELEVATION



WING 3 SECTION



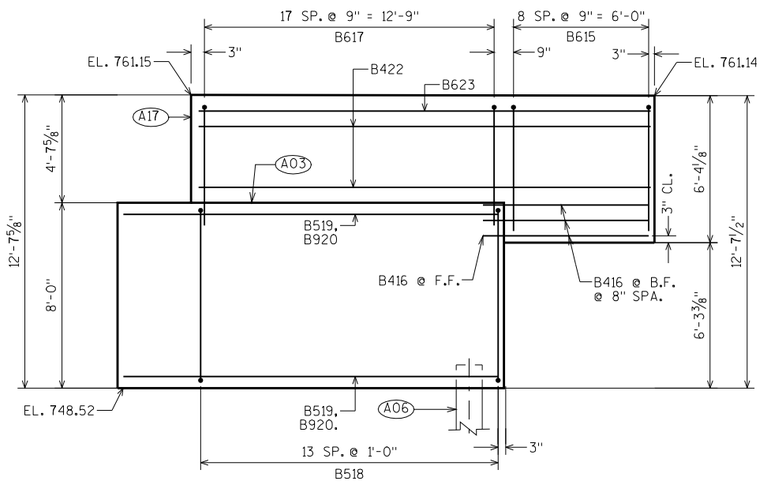
SECTION AT TOP OF WING

DETAIL A

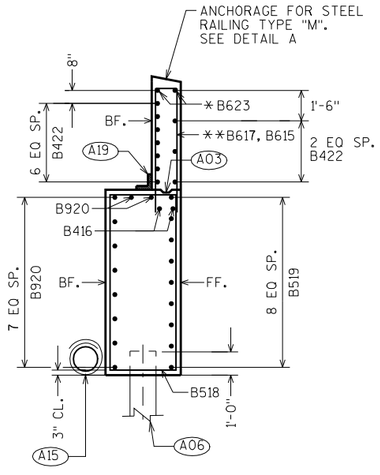
BILL OF BARS

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

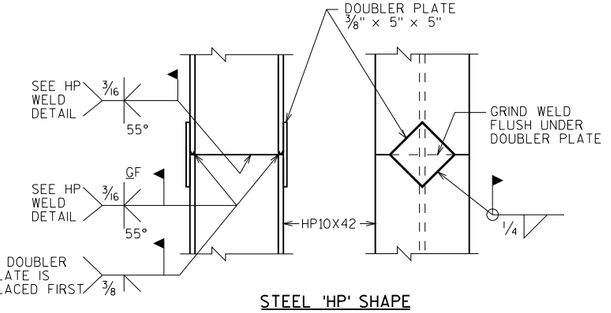
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501		39	21'-0"	X		BODY-STIRRUPS-VERT.
B402		14	2'-3"			BODY-2 PER PILE-VERT.
B1003		8	30'-2"			BODY-HORIZONTAL-B.F.
B604		12	30'-2"			BODY-HORIZONTAL
B405		7	28'-0"	X		BODY-SPIRAL-1 PER PILE-VERT.
B606	X	9	12'-8"	X		WING 3-VERTICAL-TOP
B407	X	4	7'-9"			WING 3-HORIZONTAL-F.F. & B.F.
B608	X	18	13'-9"	X		WING 3-VERTICAL-TOP
B509	X	14	21'-8"	X		WING 3-STIRRUP-BOT.-VERT.
B510	X	9	16'-4"			WING 3-HORIZONTAL-BOT.-F.F.
B911	X	10	18'-2"	X		WING 3-HORIZONTAL-BOT.-B.F.
B912		---	---			NOT USED
B413	X	10	19'-8"			WING 3-HORIZONTAL-F.F. & B.F.
B614	X	2	19'-8"			WING 3-HORIZONTAL-TOP-F.F. & B.F.
B615	X	9	12'-8"	X		WING 4-VERTICAL-TOP
B416	X	4	7'-9"			WING 4-HORIZONTAL-F.F. & B.F.
B617	X	18	13'-9"	X		WING 4-VERTICAL-TOP
B518	X	14	21'-8"	X		WING 4-STIRRUP-BOT.-VERT.
B519	X	9	16'-4"			WING 4-HORIZONTAL-BOT.-F.F.
B920	X	10	18'-2"	X		WING 4-HORIZONTAL-BOT.-B.F.
B921		---	---			NOT USED
B422	X	10	19'-8"			WING 4-HORIZONTAL-F.F. & B.F.
B623	X	2	19'-8"			WING 4-HORIZONTAL-TOP-F.F. & B.F.
B424		12	4'-1"	X		BODY-BETWEEN BEAM SEATS-TOP-VERT.
B425		6	6'-6"			BODY-HORIZ.-BTWN. BEAM SEATS-TOP



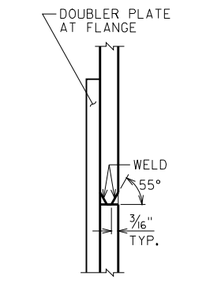
WING 4 ELEVATION



WING 4 SECTION



STEEL 'HP' SHAPE



HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

PILE DETAILS

(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).

(A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 35' LONG WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.

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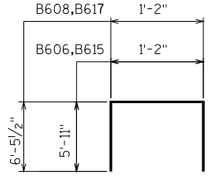
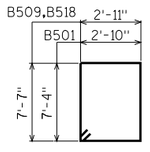
(A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

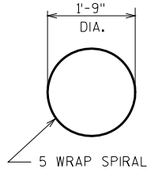
(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.



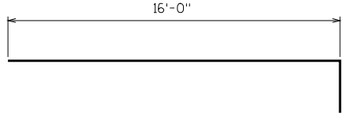
B608, B617, B606, B615



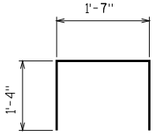
B501, B509, B518



B405



B911, B920



B424

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-307

DRAWN BY ADS | PLANS CK'D. WWR

NORTH ABUTMENT DETAILS

SHEET 7

208

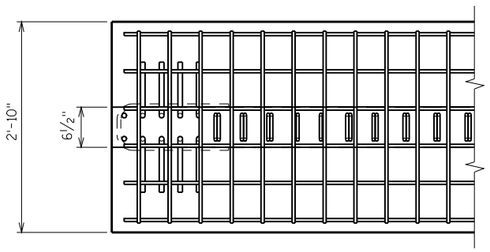
8

8

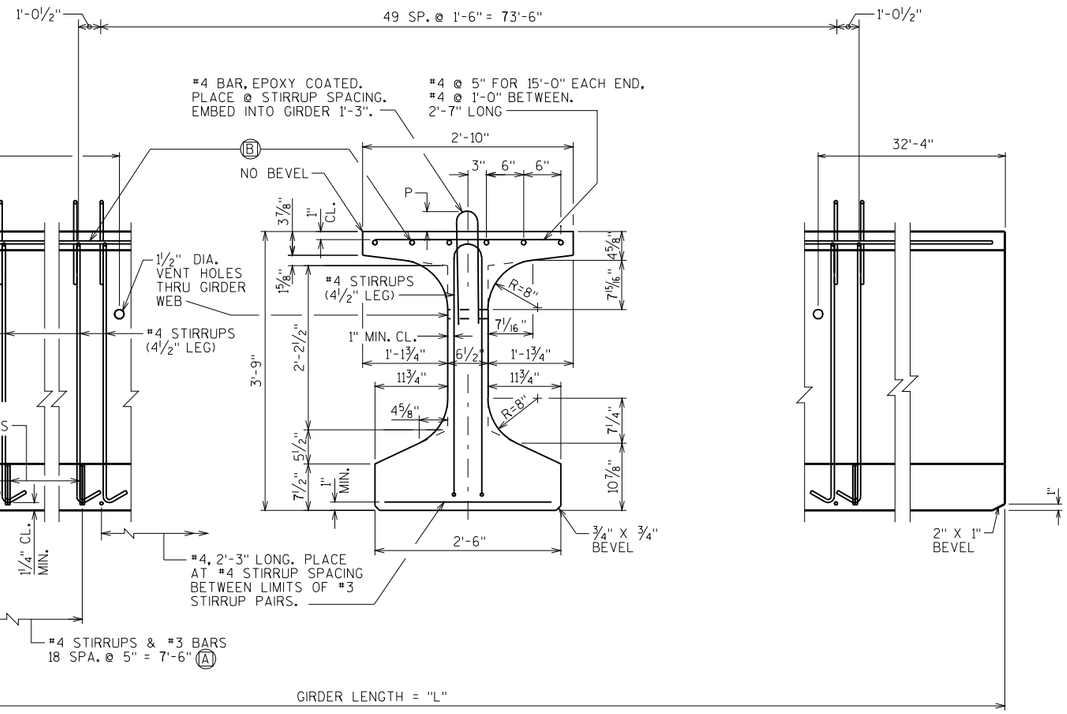
SCALE =

STATE PROJECT NUMBER

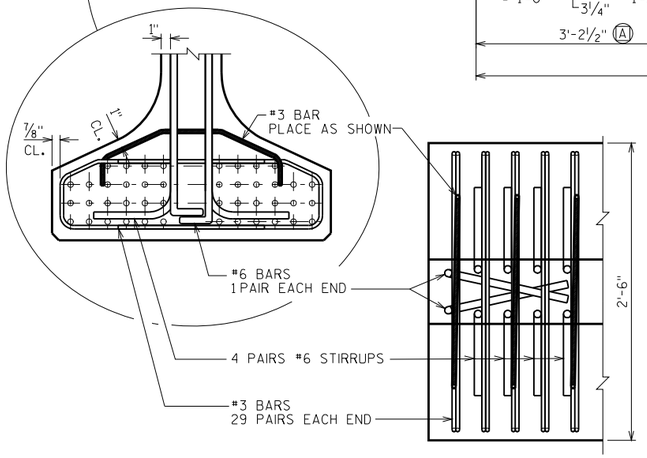
6200-15-71



TOP FLANGE



SECTION A-A



BOTTOM FLANGE

SIDE VIEW & TYP. SECTION IN SPAN

Ⓐ DETAIL TYP. AT EACH END

Ⓑ 6 #4 BARS, FULL LENGTH, MIN. LAP = 1'-11"

GIRDER NOTES

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

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

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

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

STRANDS SHALL BE FLUSH WITH THE END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, ENDS 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, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO APPLICATION OF THE SEALER.

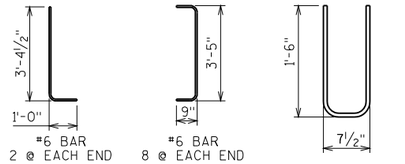
FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET 10.

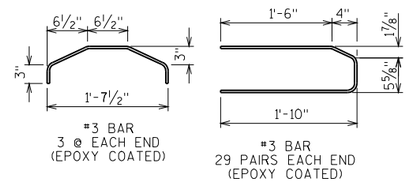
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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, 1 OPTION IS AVAILABLE:

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

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





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

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.) 1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CONC. STRGTH. f'c (p.s.i.)	"P" IST 1/3 OF GIRDER	"P" MID 1/3 OF GIRDER	"P" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (P.S.I.)	(IN.) "A"	"B" MIN.	"B" MAX.	"C"	UNDRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (P.S.I.)
1	ALL	97.0	0.5	0.9	1.3	1.5	1.6	1.5	1.3	0.9	0.5	8000	7"	7"	7"	0.60	30	6400	41.0	13.25	16.25	4.0	0	0

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-307

DRAWN BY ADS | PLANS CK'D. WWR

45W" PRESTRESSED GIRDER DETAILS 1

SHEET 8

209

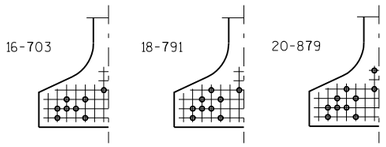
SCALE =

8

8

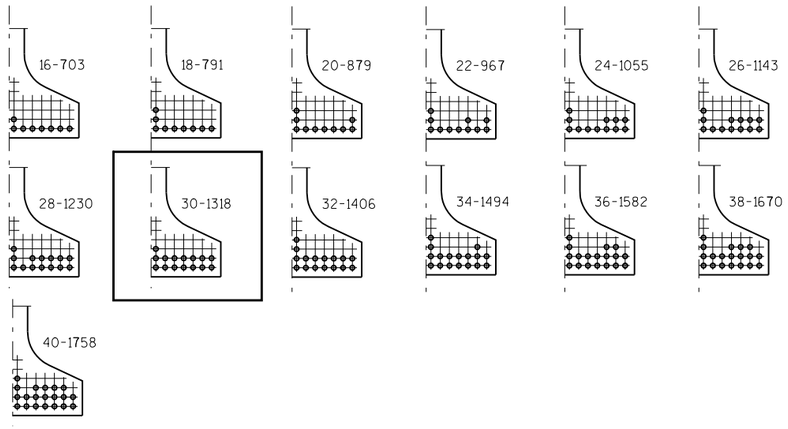
STATE PROJECT NUMBER

6200-15-71



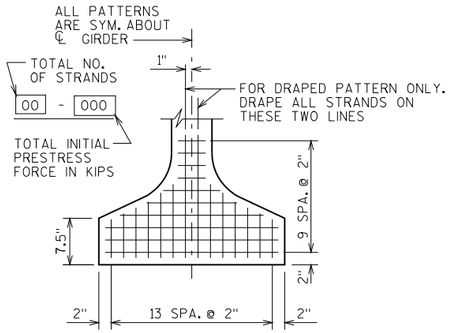
STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF STRANDS

0.6"ϕ STRANDS

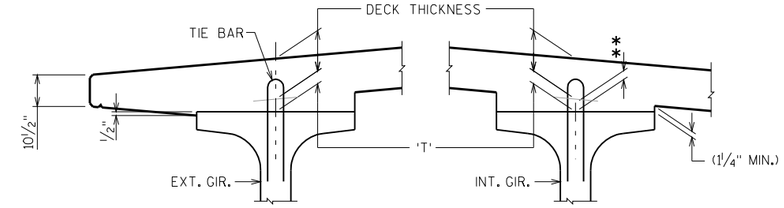


ARRANGEMENT AT ℄ SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6"ϕ STRANDS



TYP. STRAND PATTERN



DECK HAUNCH DETAIL

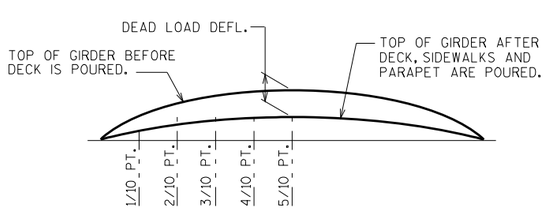
IF 1¼" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN ½" OR,

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

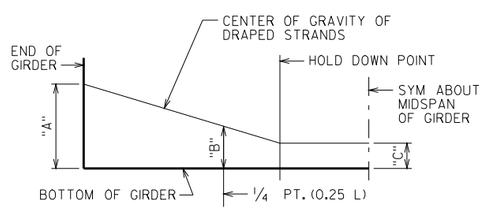
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT ℄ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

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

NOTE: AN AVERAGE HAUNCH ('T') OF 2¾" WAS USED FOR COMPUTING THE SUPERSTRUCTURE QUANTITY "CONCRETE MASONRY BRIDGES".



DEAD LOAD DEFLECTION DIAGRAM



DRAPED STRAND PROFILE

THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN

SPAN	CAMBER (IN.)
1	2.17

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'. USE ACTUAL GIRDER SHOTS.
THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

8

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-307

DRAWN BY ADS | PLANS CK'D. WWR

45W" PRESTRESSED GIRDER DETAILS 2

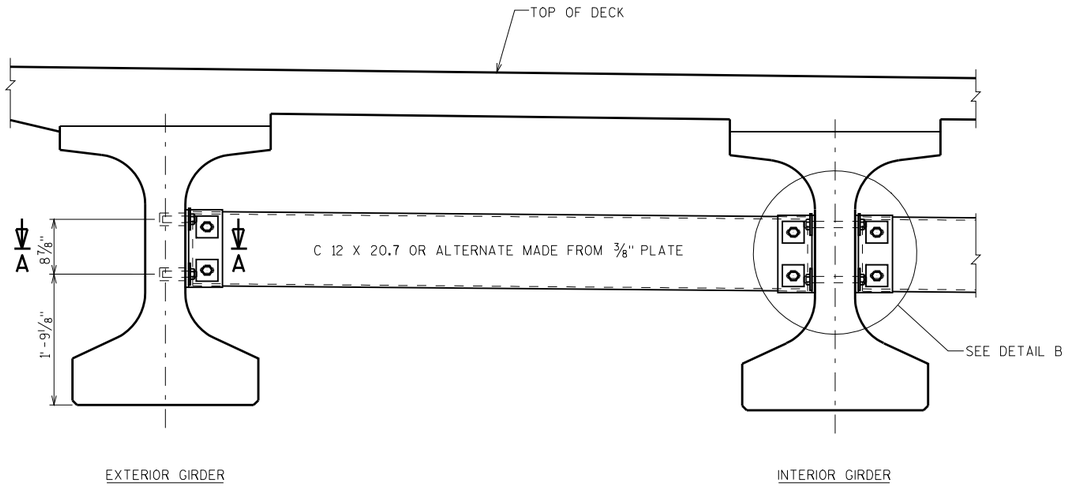
SHEET 9

210

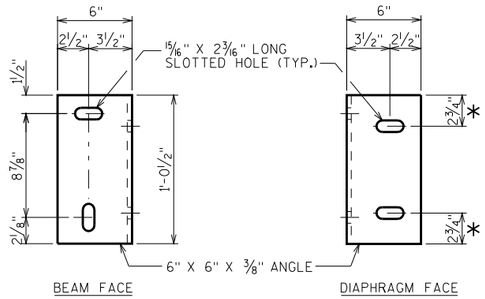
SCALE =

STATE PROJECT NUMBER

6200-15-71

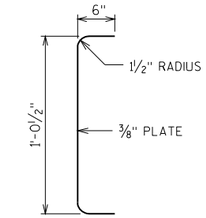


PART TRANSVERSE SECTION AT DIAPHRAGM

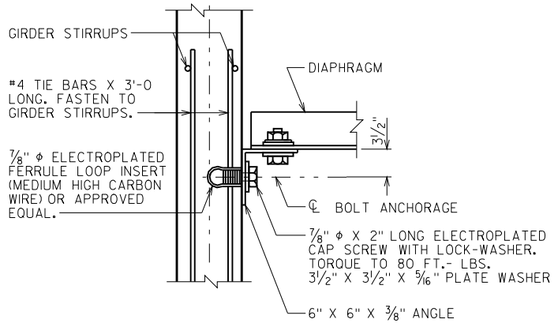


DIAPHRAGM SUPPORT

* 2½" FOR ALTERNATE PLATE DIAPHRAGM

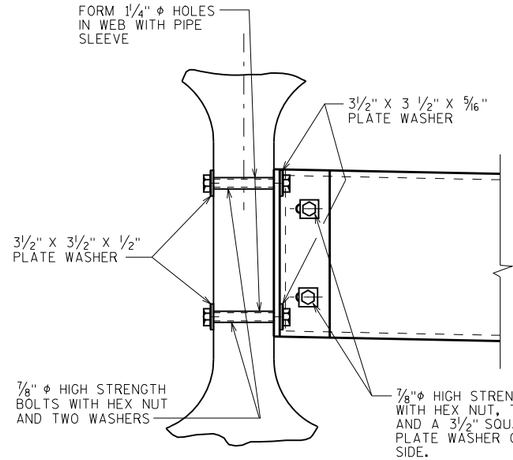


SECTION THRU ALTERNATE DIAPHRAGM

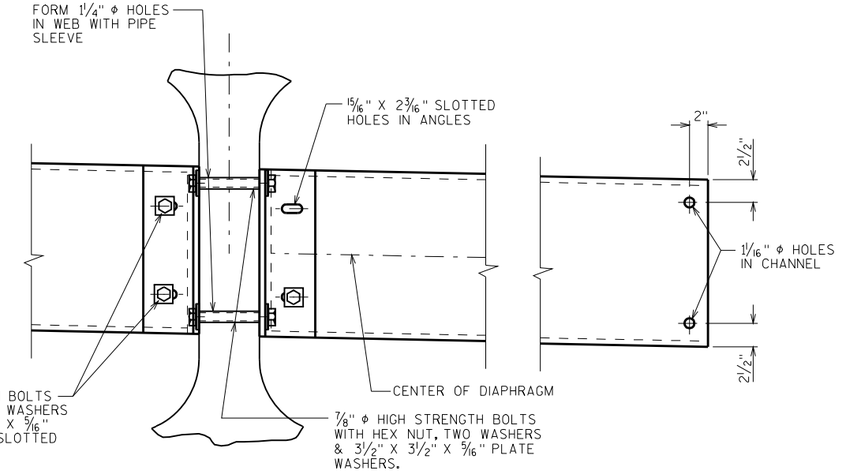


SECTION A-A

(FOR EXTERIOR ATTACHMENT)



(FOR STAGGERED DIAPHRAGM)



(FOR CONTINUOUS LINE OF DIAPHRAGMS)

DETAIL B

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-70-307", 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 OVERSIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563, LUBRICANT AND TEST FOR COATED NUTS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-307

DRAWN BY ADS | PLANS CK'D. WWR

STEEL DIAPHRAGM

SHEET 10

211

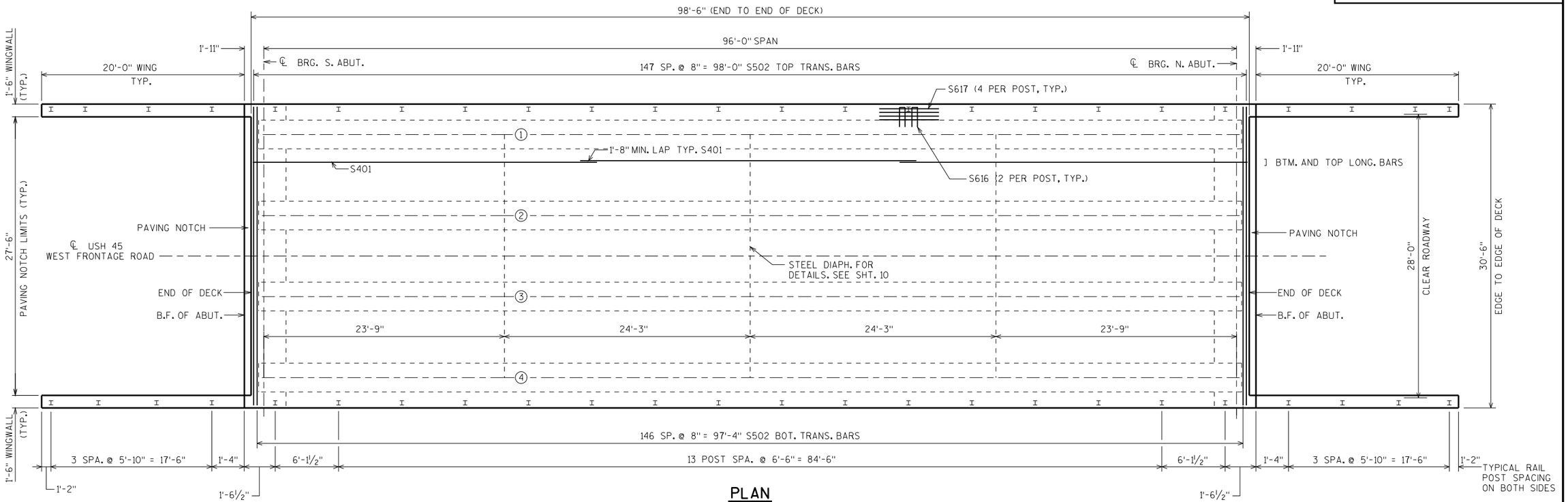
8

8

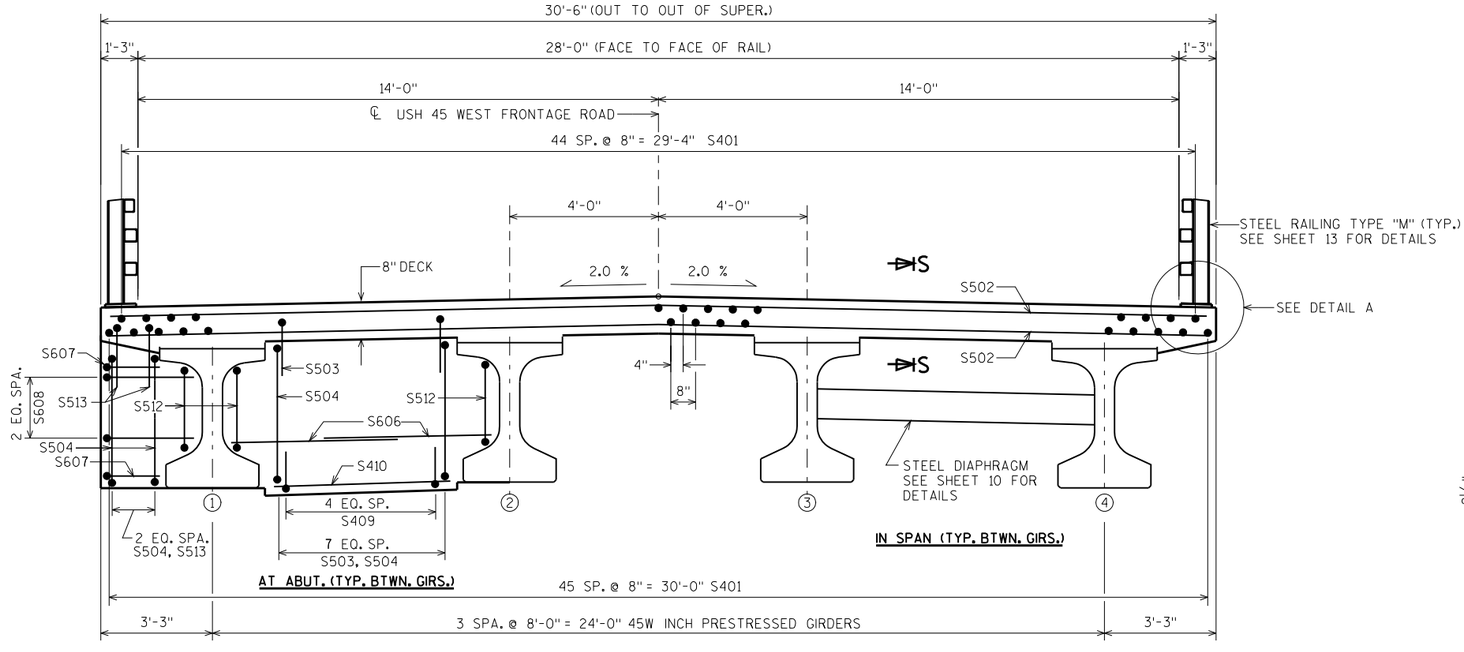
SCALE =

STATE PROJECT NUMBER

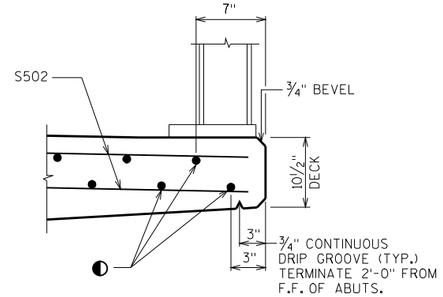
6200-15-71



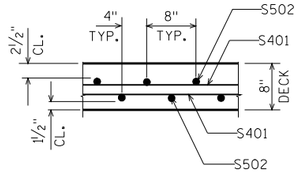
PLAN



CROSS SECTION THRU ROADWAY
(LOOKING NORTH)



DETAIL A



SECTION S-S

◐ S401 BARS AT 'EDGE OF DECK' UNDER RAILING AND OUTSIDE OF PAVING NOTCH TO EXTEND TO 2" CLEAR OF B.F. ABUT.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-307

DRAWN BY ADS | PLANS CK'D. WWR

SUPERSTRUCTURE | SHEET 11 | 212

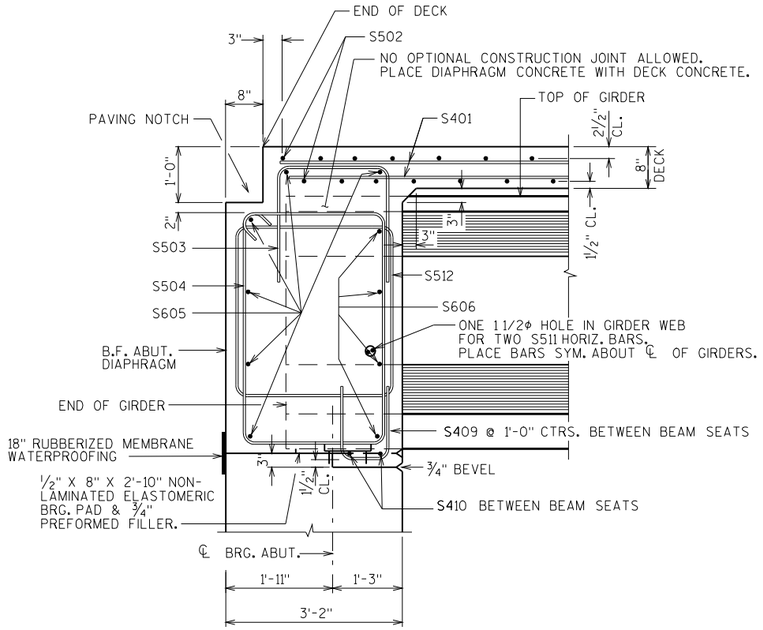
8

8

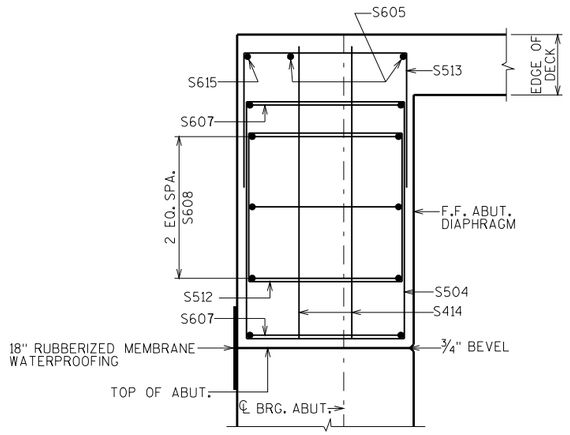
SCALE =

STATE PROJECT NUMBER

6200-15-71



CROSS SECTION THRU ABUTMENT DIAPHRAGM BTWN. EXT. GIRDERS

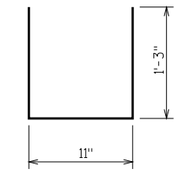


CROSS SECTION THRU ABUTMENT DIAPHRAGM AT EXTERIOR CORNERS

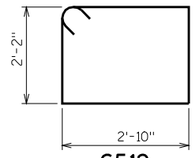
BILL OF BARS

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

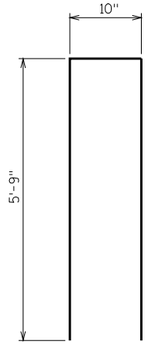
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	273	34'-4"			DECK-LONGITUDINAL TOP & BOTTOM
S502	X	295	30'-2"			DECK-TRANSVERSE TOP AND BOTTOM
S503	X	48	6'-9"	X		ABUT. DIAPHRAGM
S504	X	60	13'-2"	X		ABUT. DIAPHRAGM
S605	X	12	30'-2"			ABUT. DIAPHRAGM
S606	X	48	4'-7"			ABUT. DIAPHRAGM
S607	X	8	5'-9"	X		ABUT. DIAPHRAGM
S608	X	12	7'-7"	X		ABUT. DIAPHRAGM
S409	X	30	3'-3"	X		ABUT. DIAPHRAGM
S410	X	12	4'-2"			ABUT. DIAPHRAGM
S511	X	16	6'-0"			ABUT. DIAPHRAGM
S512	X	16	10'-8"	X		ABUT. DIAPHRAGM
S513	X	12	7'-5"	X		ABUT. DIAPHRAGM
S414	X	8	4'-3"			ABUT. DIAPHRAGM
S615	X	4	1'-2"			ABUT. DIAPHRAGM
S616	X	68	12'-0"	X		DECK-UNDER RAIL POSTS
S617	X	136	6'-0"			DECK-UNDER RAIL POSTS



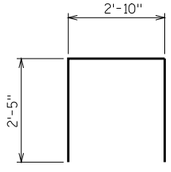
S409



S512



S616



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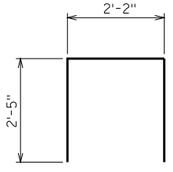
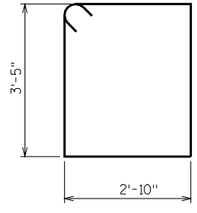
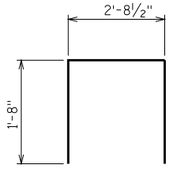


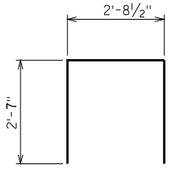
S503



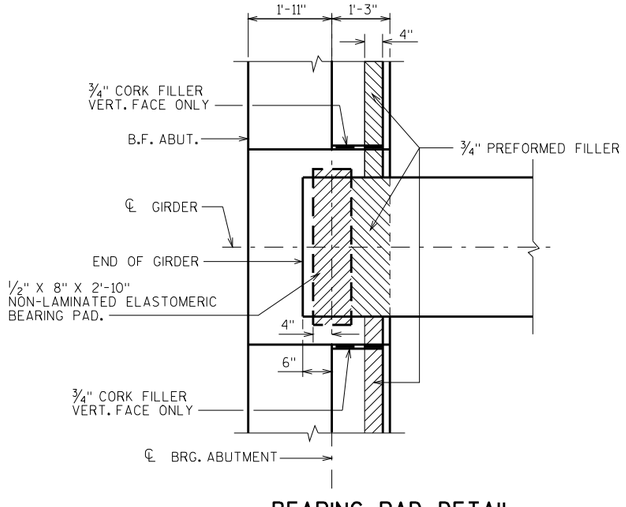
S504



S607



S608



BEARING PAD DETAIL

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.
LEFT EOD	761.29	761.28	761.27	761.26	761.24	761.23	761.22	761.21	761.19	761.18	761.17
GIR. 1	761.35	761.34	761.33	761.32	761.30	761.29	761.28	761.27	761.25	761.24	761.23
GIR. 2	761.51	761.50	761.49	761.48	761.46	761.45	761.44	761.43	761.41	761.40	761.39
GIR. 3	761.51	761.50	761.49	761.48	761.46	761.45	761.44	761.43	761.41	761.40	761.39
GIR. 4	761.35	761.34	761.33	761.32	761.30	761.29	761.28	761.27	761.25	761.24	761.23
RT. EOD	761.29	761.28	761.27	761.26	761.24	761.23	761.22	761.21	761.19	761.18	761.17

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STRUCTURES DESIGN SECTION

STRUCTURE B-70-307

DRAWN BY ADS | PLANS CK'D. WWR

SUPERSTRUCTURE DETAILS

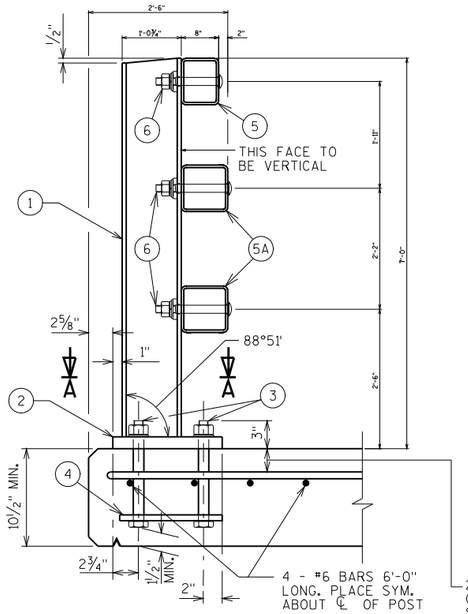
SHEET 12

213

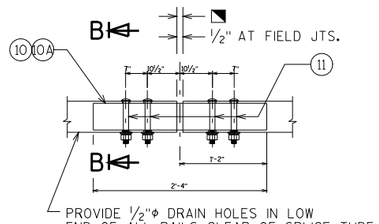
SCALE =

8

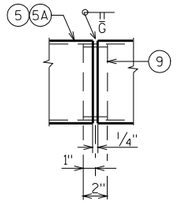
8



SECTION THRU RAILING ON DECK

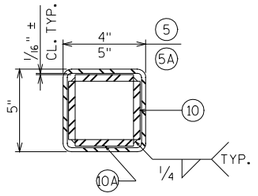


FIELD ERECTION JOINT DETAIL

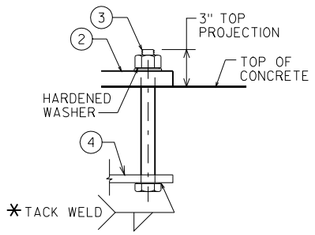


SHOP RAIL SPLICE DETAIL

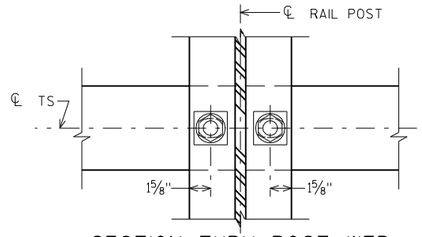
LOCATION MUST BE SHOWN ON SHOP DRAWINGS



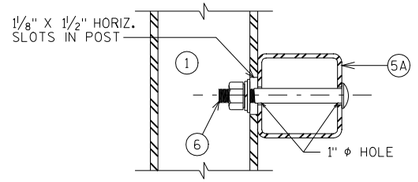
SECTION B-B



ANCHOR BOLTS



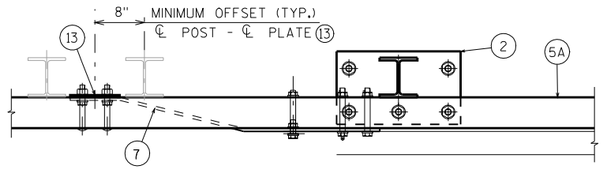
SECTION THRU POST WEB



SECTION THRU RAIL

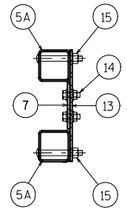
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS

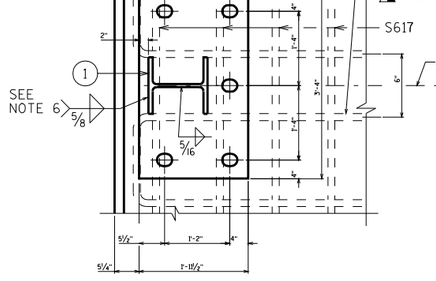


TOP VIEW AT END POST

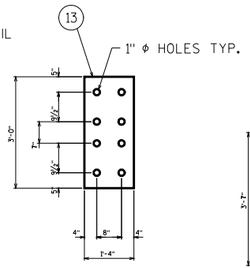
THRIE BEAM RAIL ATTACHMENT



SECTION C-C

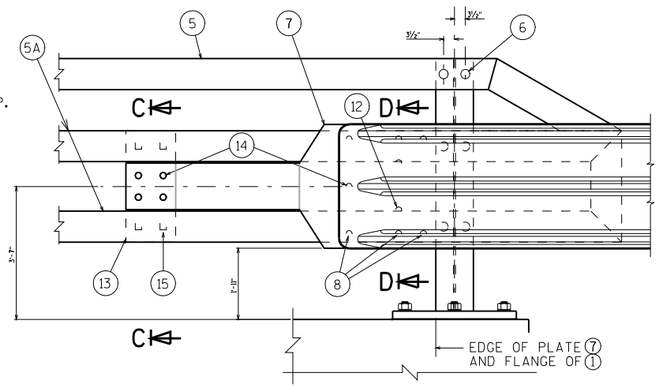


SECTION A-A



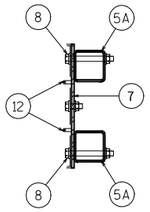
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT

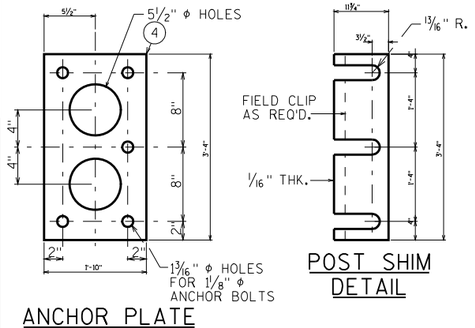


DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT



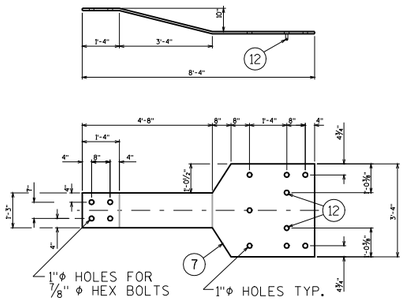
SECTION D-D



ANCHOR PLATE

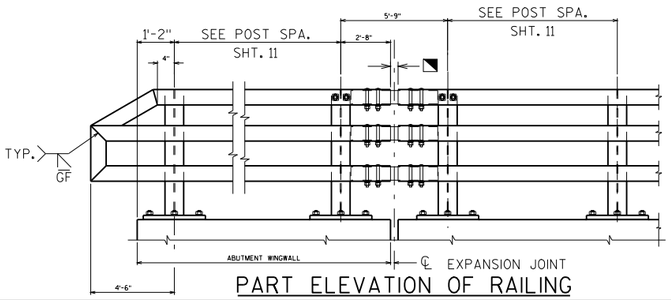
AT RAIL TO DECK CONNECTION

POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

LEGEND

1. W6 x 25 WITH 1⅛" X 1½" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
2. PLATE 1¼" × 11¾" × 1'-8" WITH 1⁵⁄₁₆" X 1⅝" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
3. ASTM A449 - 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10¾" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)
4. ⅝" × 11" × 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1³⁄₁₆" DIA. HOLES FOR ANCHOR BOLTS NO. 3
5. TS 5 × 4 × 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
5A. TS 5 × 5 × 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
6. ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, ³⁄₁₆" X 1⅝" X 1⅝" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
7. ½" THK. BACK-UP PLATE WITH 2 - ⅞" X 1½" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
8. 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR ⅞" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
9. SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".
10. ⅜" X 3⅝" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
10A. ⅜" X 2⅝" X 2'-4" PLATE USED IN NO. 5, ⅜" X 3⅝" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
11. ⅞" ϕ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE ⁵⁄₁₆" X 1¼" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND ⁵⁄₁₆" X 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
12. ⅞" DIA. X 1½" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
13. ¾" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
14. ⅞" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
15. 1" ϕ HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-70-307" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
10. WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
12. PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.

△ TIE TO TOP MAT OF STEEL.

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

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

STATE PROJECT NUMBER

6200-15-71

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-307

DRAWN BY	PLANS CK'D.
ADS	WWR

TUBULAR STEEL RAILING TYPE M

SHEET 13

214

SCALE =

GRE

MAY 11

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details (Includes Erosion Control Plans)
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
~~Section No.~~	~~4~~	~~Right of Way Plat~~
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 480

PROJECT ID: 6200-15-71

WITH: N/A

COUNTY: WINNEBAGO

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

OSHKOSH - USH 10
CTH G - CTH II
USH 45
WINNEBAGO COUNTY

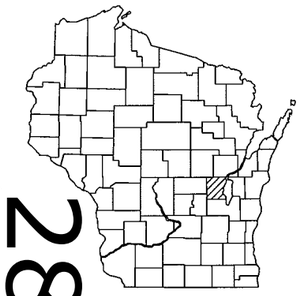
STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6200-15-71	WISC 2011333	1

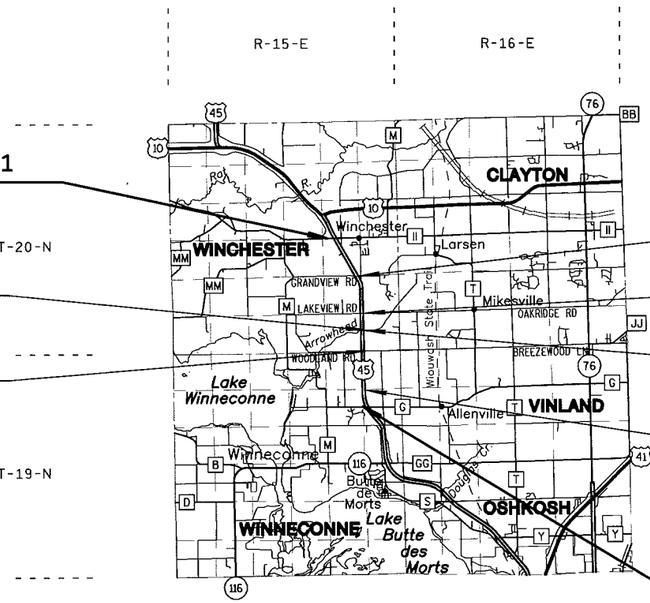
STATE PROJECT NUMBER
6200-15-71

AS-BUILT PLAN

SUPERVISOR: Rebecca Rooyakkers
PROJECT LEADER: William Bertrand
CONTRACTOR: Hoffman Construction Company
WORK COMPLETED:

Subcontractor's List
Al W Paschke Construction Co
Big Horn Trucking, LLC
Century Fence Company
Fencing Plus, Inc
Interstate Sawing Co, Inc
Kunkel Engineering Group
Lunda Construction Company
Mega Rentals, Inc
Michels Corporation
Northeast Asphalt, Inc
Proscapes Landscaping, LLC
Sommers Construction Co, Inc
Warning Lites of Appleton, Inc





END PROJECT 6200-15-71
STA 454'WFR'+70.69

STRUCTURE B-70-307
STA 302'WFR'+76.00

STRUCTURE B-70-309

STRUCTURE B-70-311

STRUCTURE B-70-310

STRUCTURE B-70-308

EQUATION
STA 270'WFR'+96.41 BK=
STA 270'WFR'+53.35 AH

BEGIN PROJECT 6200-15-71
STA 194'WFR'+51.12
Y = 515615.3054
X = 759945.7645

LAYOUT
SCALE 0 2 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), WINNEBAGO COUNTY, HORIZONTAL DATUM NAD 83 (2007).

ALL DISTANCES ARE GROUND. ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD 88 (2007).

ORIGINAL PLANS PREPARED BY

GREMMER & ASSOCIATES, INC.
CONSULTING ENGINEERS
Stevens Point • Fond du Lac
93 South Pioneer Road, Suite 300 • Fond du Lac, WI 54935
(920) 924-5720 • fax (920) 924-5725

WISCONSIN
JEFFREY A. CHVOSTA
E-39047
JACKSON, WI
PROFESSIONAL ENGINEER

1-20-2011
(Date)
JEFFREY A. CHVOSTA, PE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WDOT NORTHEAST REGION
Designer	GREMMER & ASSOCIATES, INC.
Project Manager	W R BERTRAND
Regional Examiner	
Regional Supervisor	R ROOYAKKERS
C.O. Examiner	Carl Wbuganowski

APPROVED FOR THE DEPARTMENT
DATE: 1-20-11 William R. Bertrand
(Signature)

E

DESIGN DESIGNATION

A.A.D.T.	2008	=	N/A
A.A.D.T.	2028	=	<100
D.H.V.		=	N/A
D.D.		=	N/A
T.		=	N/A
DESIGN SPEED		=	60 MPH

CONVENTIONAL SYMBOLS

PLAN
- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- DITCH LINE
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE
- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

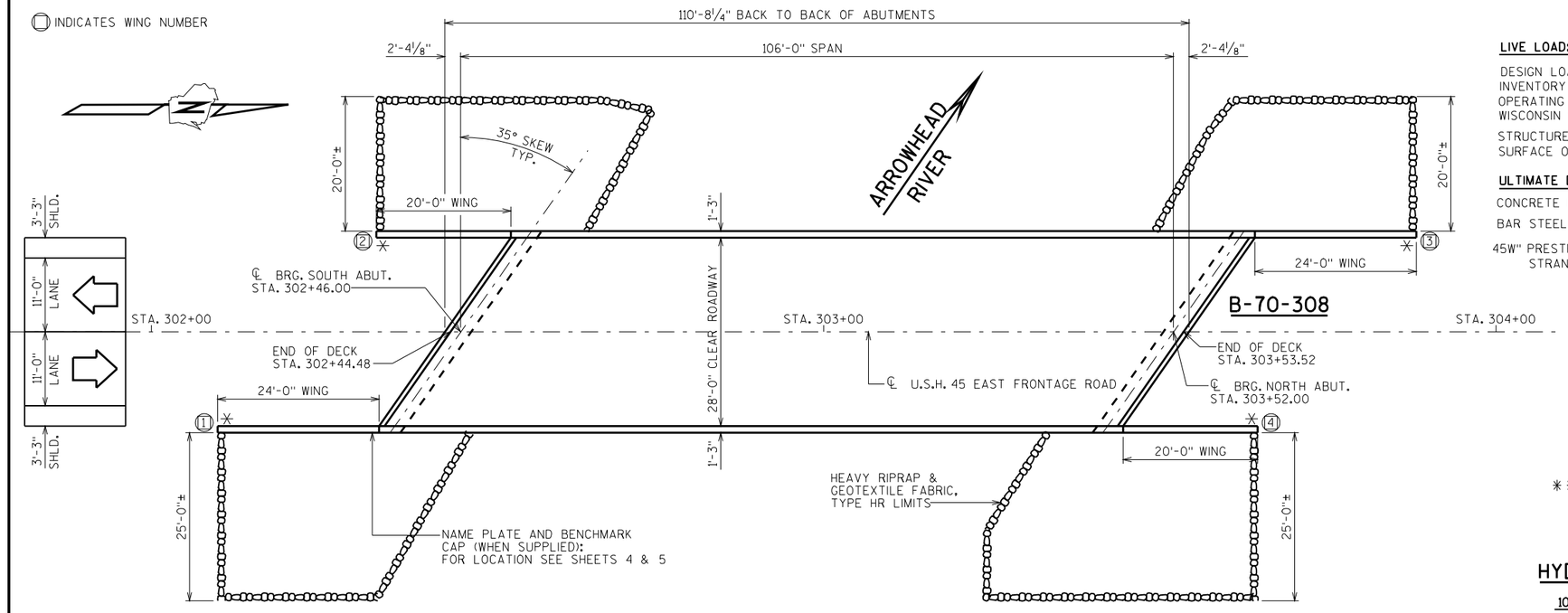
UTILITIES
- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

STATE PROJECT NUMBER

6200-15-71

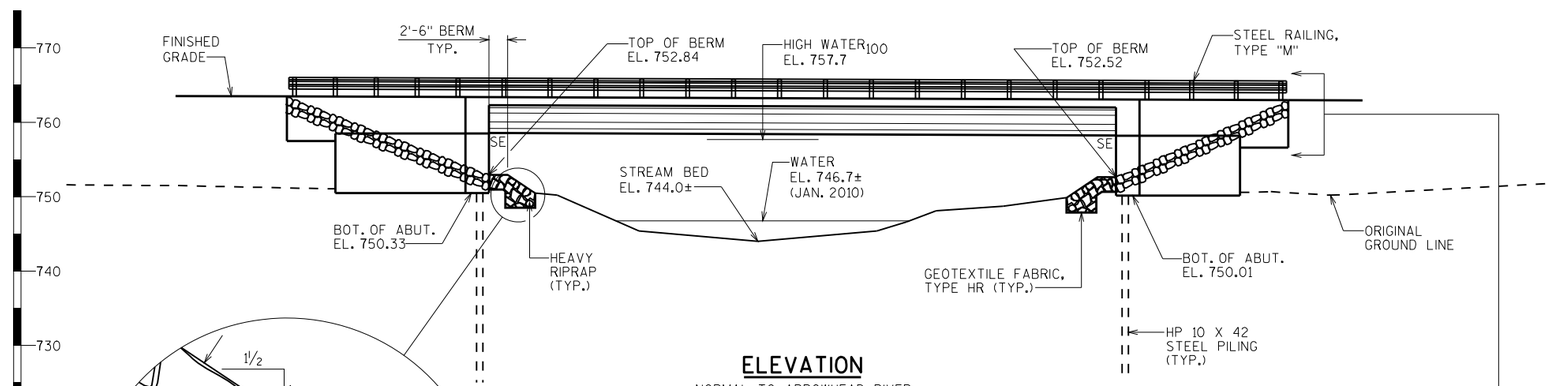
PROVIDE FOR THRIE BEAM GUARD RAIL ATTACHMENT

INDICATES WING NUMBER



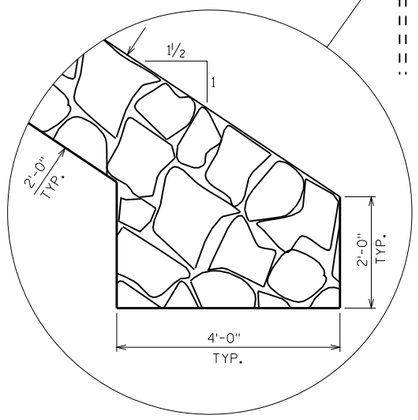
PLAN

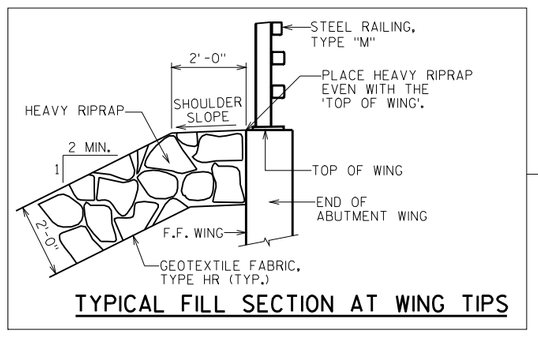
SINGLE SPAN - 45W" PRESTRESSED GIRDERS



ELEVATION

NORMAL TO ARROWHEAD RIVER





TYPICAL FILL SECTION AT WING TIPS

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: RF= 1.093
OPERATING RATING FACTOR: RF= 1.416
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 250 (KIPS)

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

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY DECK — f'c = 4,000 P.S.I. ALL OTHER — f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT, GRADE 60 — fy = 60,000 P.S.I.

45W" PRESTRESSED GIRDERS, CONCRETE MASONRY — f'c = 8,000 P.S.I.
STRANDS- 0.6" DIA. 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 REQUIRED DRIVING RESISTANCE OF 160 TONS **PER PILE
AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
ESTIMATED 35'-0" LONG AT SOUTH ABUTMENT.
ESTIMATED 35'-0" LONG AT NORTH ABUTMENT.

** THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA

100 YEAR FREQUENCY

Q_{100} = 3000 C.F.S.
VEL. = 3.9 F.P.S.
HW. = EL. 757.7
WATERWAY AREA = 769 SQ. FT.
DRAINAGE AREA = 26.8 SQ. MI.
SCOUR CRITICAL CODE = 8
ROAD OVERTOPPING FREQUENCY = NA

2 YEAR FREQUENCY

Q_2 = 760 C.F.S.
$HW._2$ = EL. 752.7

TRAFFIC VOLUME

U.S.H. 45 EAST FRONTAGE ROAD

A.D.T. = 100 (2026)
R.D.S. = 60 M.P.H.

LIST OF DRAWINGS

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

STRUCTURES DESIGN CONTACTS:
DANIEL BREUNIG (608) 266-0214
KENT BAHLER (608) 266-8094

NO.	DATE	REVISION	BY

Plans Prepared By WISDOT
BUREAU OF STRUCTURES

APPROVED William C. Dreher KAR 02/21/11
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-70-308

U.S.H. 45 EAST FRONTAGE ROAD OVER ARROWHEAD RIVER

COUNTY	TOWN
WINNEBAGO	WINCHESTER

DESIGN SPEC. AASHTO LRFD DESIGN SPEC. 4th EDITION — LOAD HL-93

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
DVB	SDR	DVB	WWR

GENERAL PLAN

SHEET 1 OF 13

215

I.D. 6200-15-00A

DATE: APRIL 2010

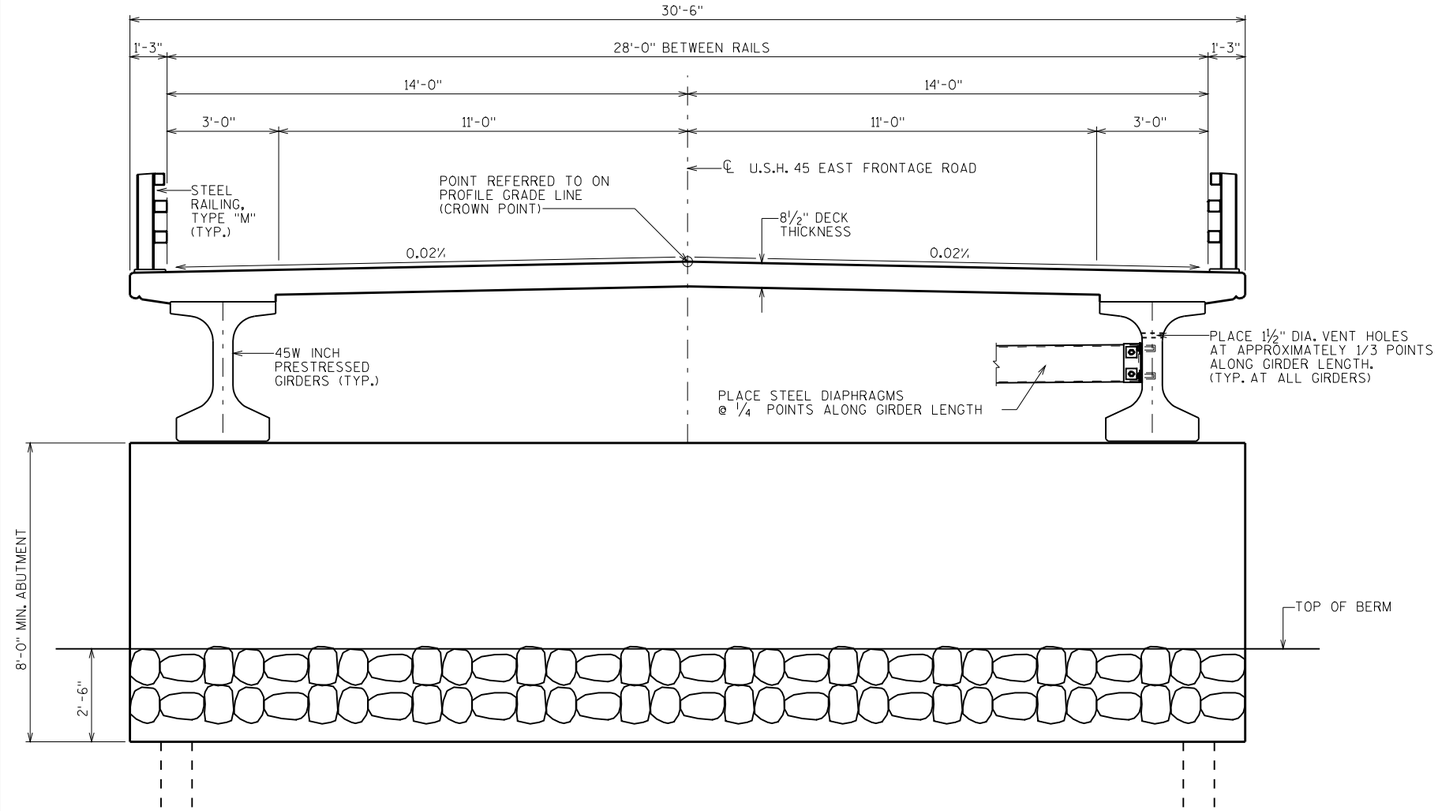
SCALE = 10

8

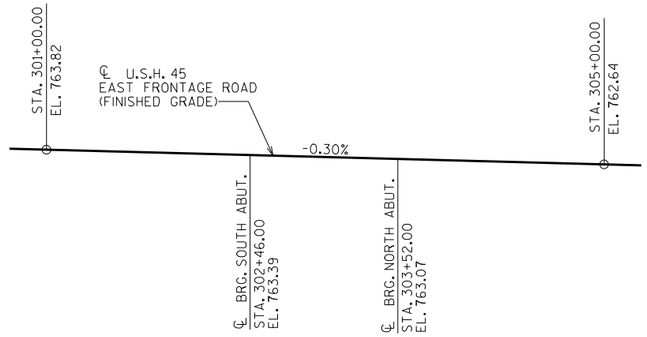
8

STATE PROJECT NUMBER

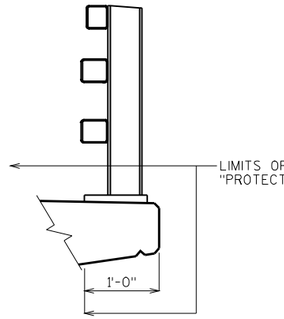
6200-15-71



CROSS SECTION THRU ROADWAY LOOKING NORTH



PROFILE GRADE LINE FOR U.S.H. 45 EAST FRONTAGE ROAD



EDGE OF DECK DETAIL

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	NORTH ABUT.	TOTALS
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-70-308	LS	———	———	———	1
210.0100	BACKFILL STRUCTURE	CY	———	236	236	472
502.0100	CONCRETE MASONRY BRIDGES	CY	134	78	78	290
502.3200	PROTECTIVE SURFACE TREATMENT	SY	415	———	———	415
503.0146	PRESTRESSED GIRDER TYPE I 45W-INCH	LF	428	———	———	428
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	———	4065	4065	8130
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	21,230	4415	4415	30,060
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	———	4	4	8
506.4000	STEEL DIAPHRAGMS B-70-308	EACH	9	———	———	9
513.4060	RAILING TUBULAR TYPE M B-70-308	LS	———	———	———	1
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	———	13	13	26
550.1100.S	PILING STEEL HP 10-INCH X 42 LB	LF	———	350	350	700
606.0300	RIPRAP HEAVY	CY	———	165	160	325
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	———	80	80	160
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	———	330	315	645
	NON-BID ITEMS					
	FILLER	SIZE	———	———	———	½" & ¾"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

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.

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

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

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

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE TOP OF WINGS, ENTIRE TOP OF DECK SURFACE, THE OUTSIDE EDGE OF DECK AND BOTTOM OF DECK. SEE DETAIL FOR LIMITS.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC TYPE 'HR' TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-308

DRAWN BY DVB | PLANS CK'D. WWR

CROSS SECTION & QUANTITIES

SHEET 2

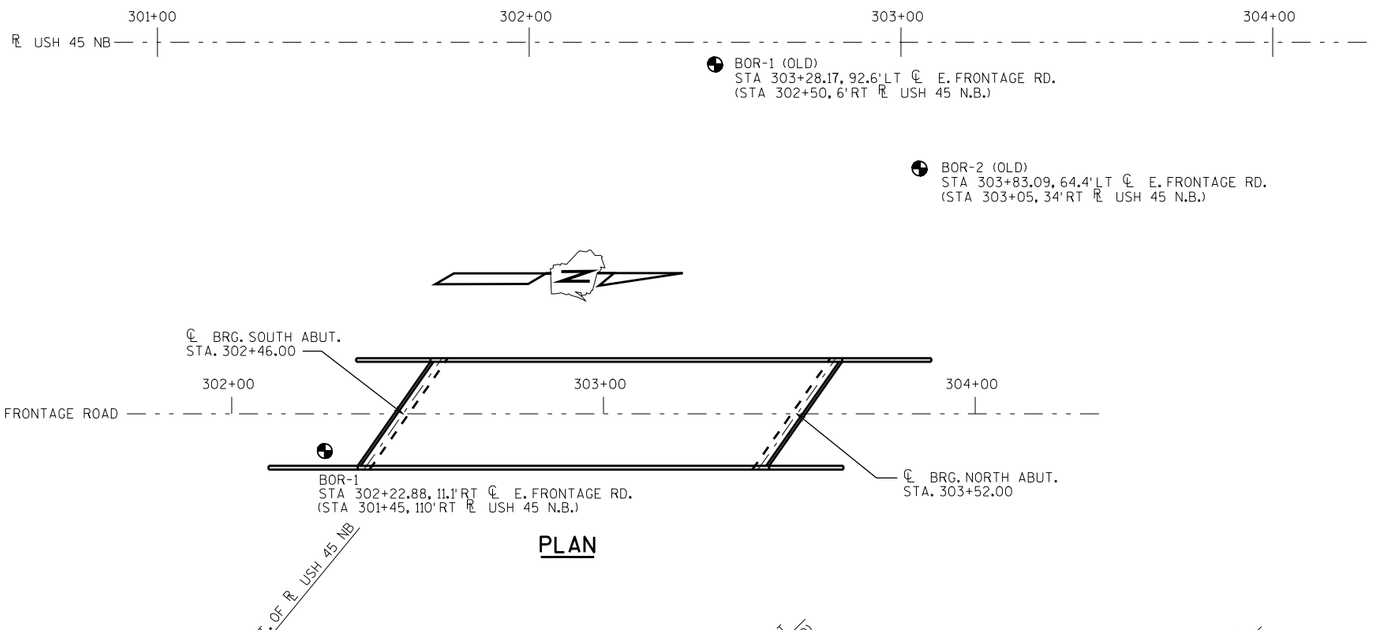
216

SCALE = 2

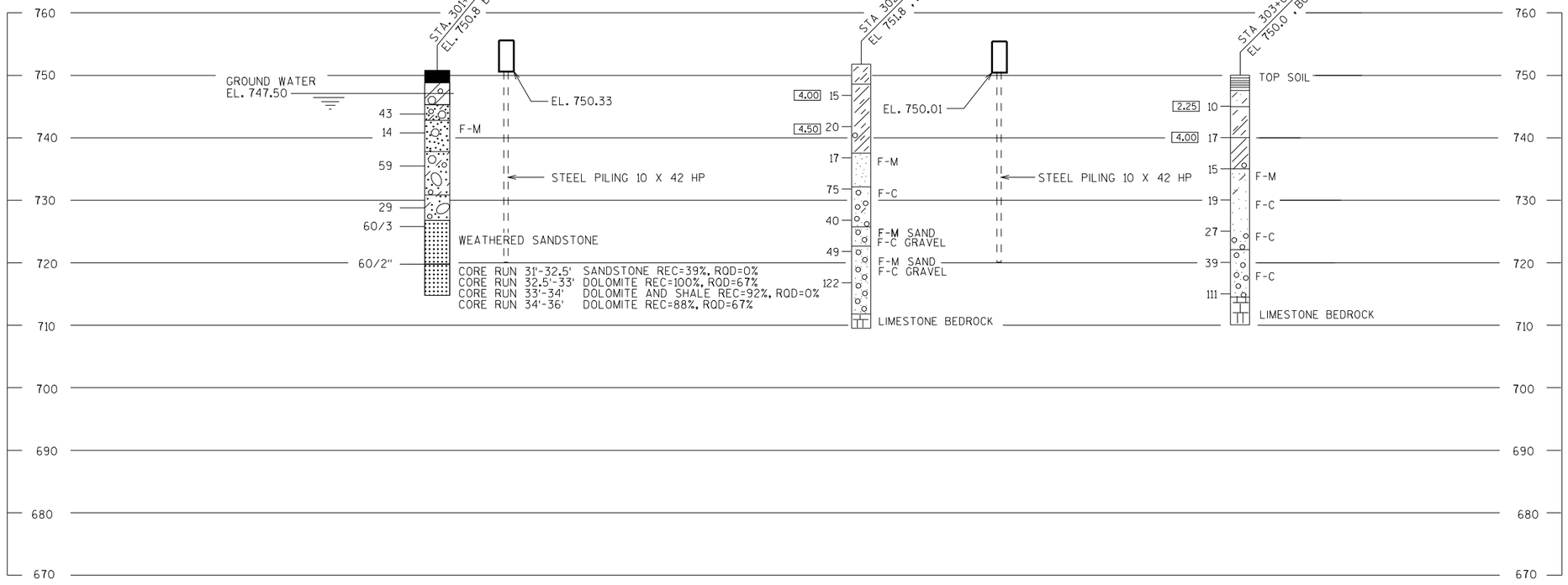
8

8

U.S.H. 45 EAST FRONTAGE ROAD
OVER ARROWHEAD RIVER



PLAN



STATE PROJECT NUMBER

6200-15-71

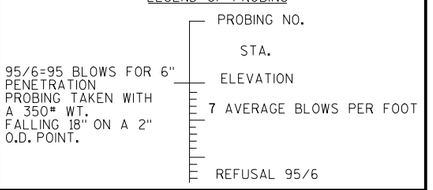
ABBREVIATIONS

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

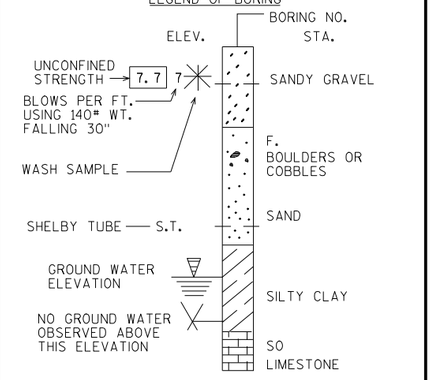
MATERIAL SYMBOLS

TOPSOIL, SILT, SANDSTONE
SAND, PEAT, LIMESTONE
GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING



LEGEND OF BORING



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-70-308

DRAWN BY WWR PLANS CK'D. WWR

SUBSURFACE EXPLORATION

SHEET 3
217

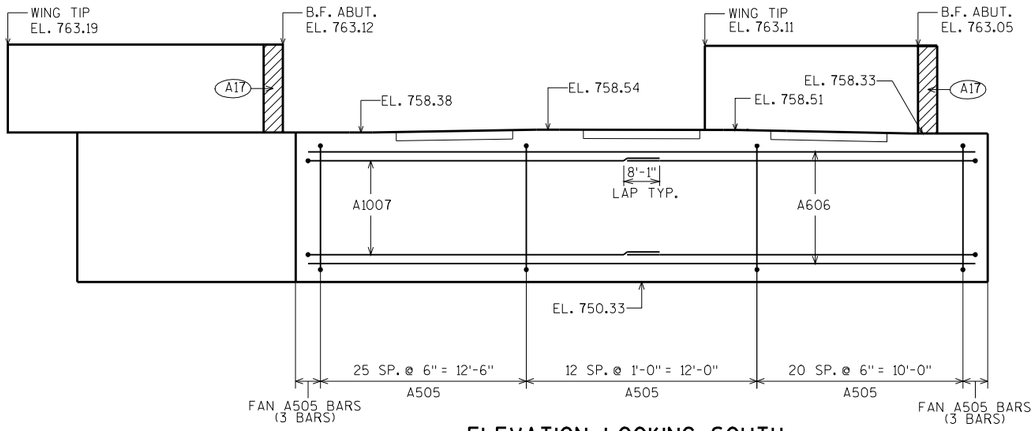
SCALE =

8

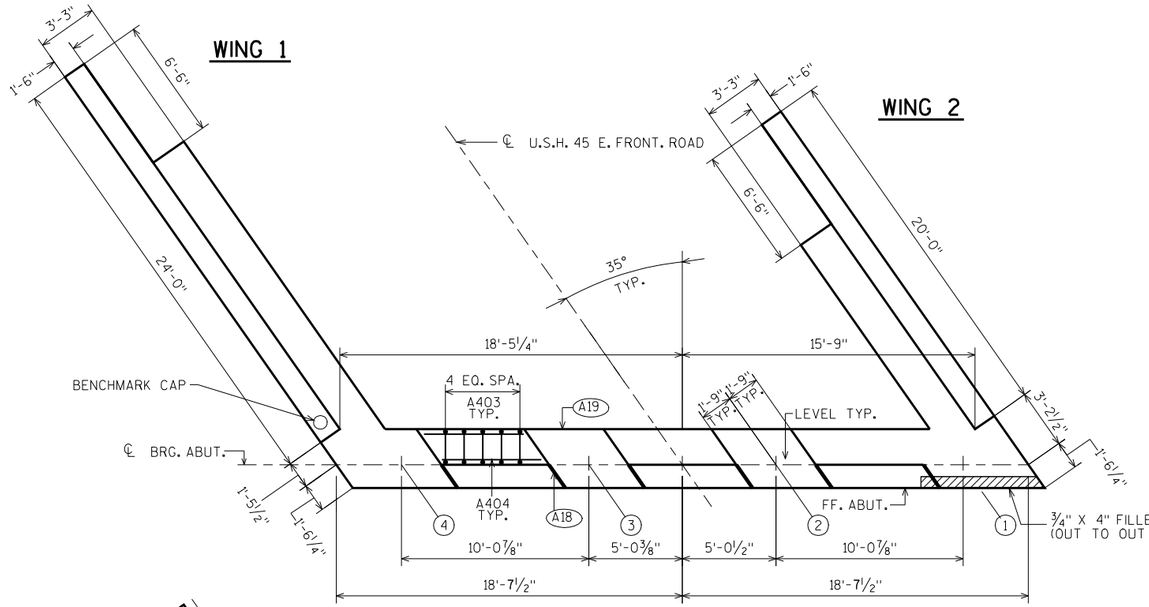
8

STATE PROJECT NUMBER

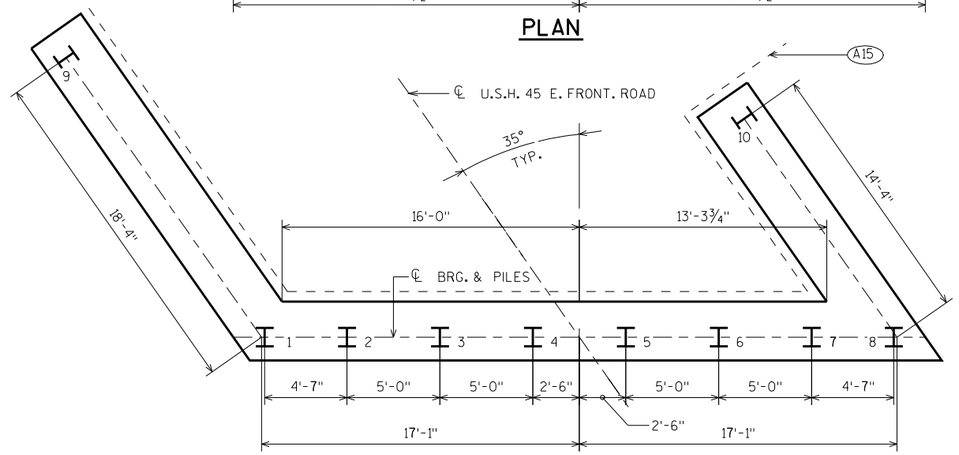
6200-15-71



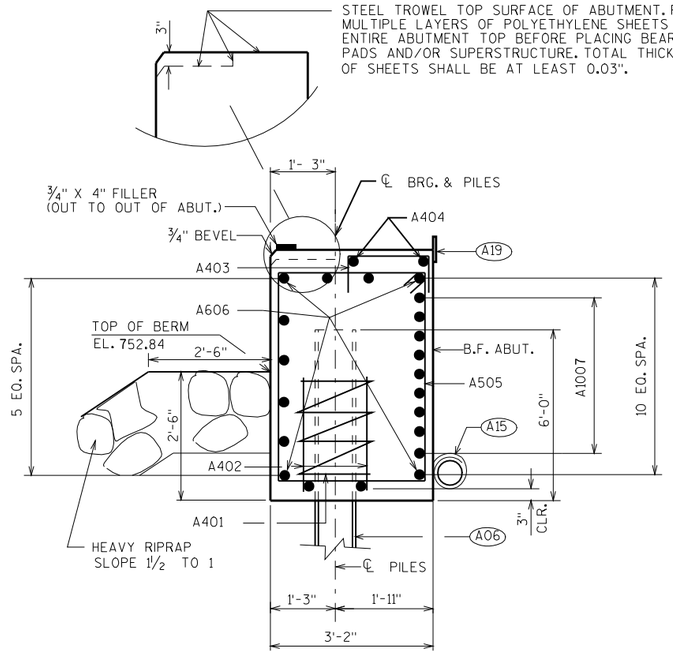
ELEVATION LOOKING SOUTH



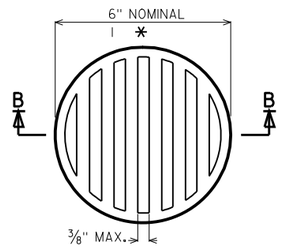
PLAN



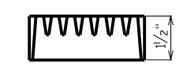
PILE PLAN



SECTION THRU BODY



RODENT SCREEN DETAIL



SECTION B-B

(A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 35'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.

(A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SCREEN REQUIRED.

(A17) 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.

(A18) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SCREEN, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SCREEN SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SCREEN TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SCREEN SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH SHEET METAL SCREWS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-308

DRAWN BY DVB | PLANS CK'D. WWR

SOUTH ABUTMENT | SHEET 4 | 218

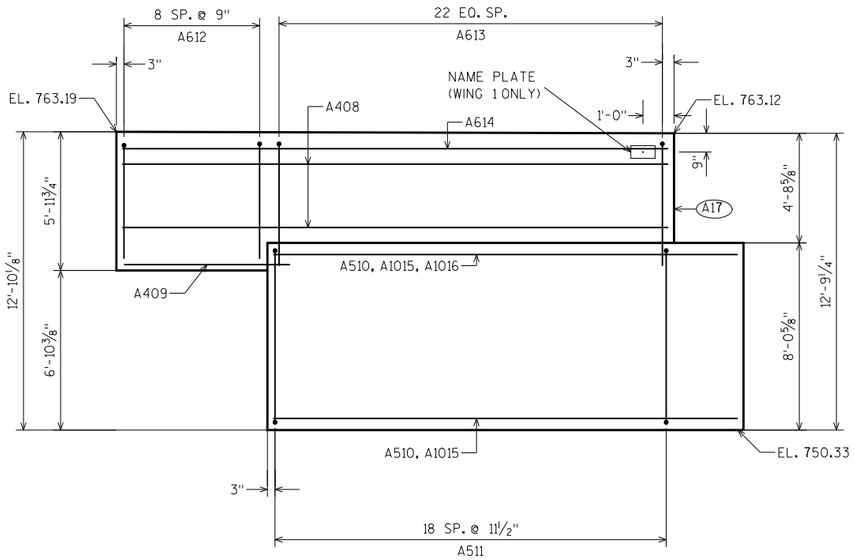
SCALE =

8

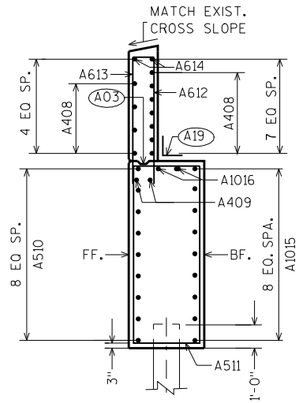
8

STATE PROJECT NUMBER

6200-15-71



WING 1 ELEVATION



WING 1 SECTION

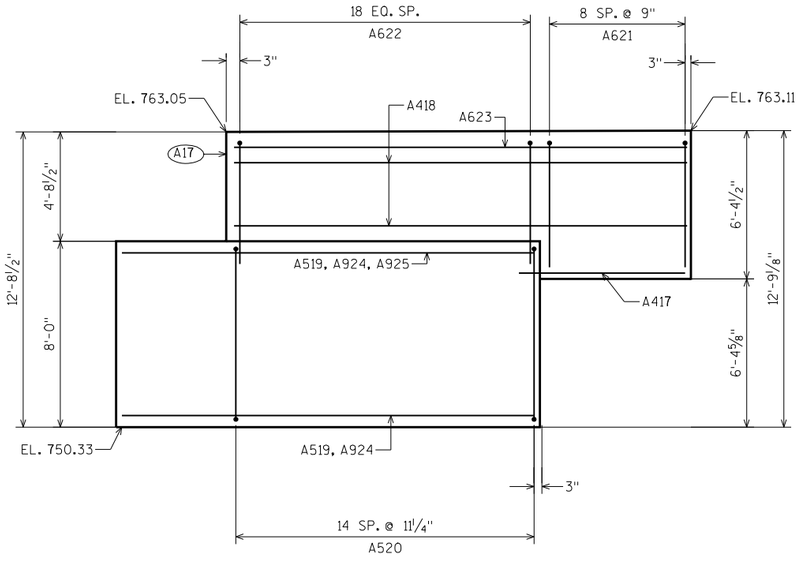
(A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" R.M.W. @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).

(A17) 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.

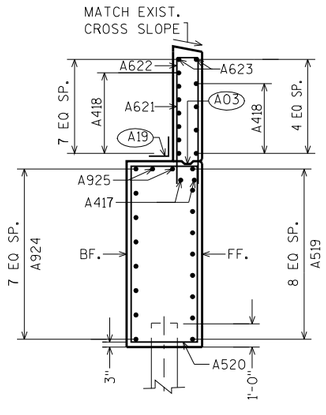
(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

BILL OF BARS

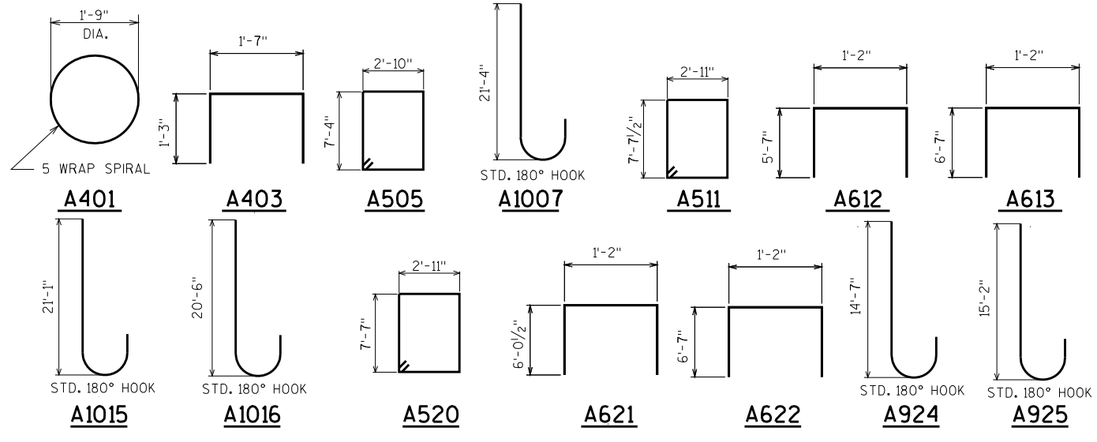
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A401		8	28'-0"	X		PILES-1 PER PILE
A402		16	2'-3"			PILES-2 PER PILE
A403		15	3'-11"	X		BODY-VERT. BTWN. BEAM SEATS
A404		6	5'-5"			BODY-HORIZ. BTWN. BEAM SEATS
A505		64	21'-0"	X		BODY-STIRRUPS
A606		12	36'-11"			BODY-HORIZONTAL
A1007		18	22'-9"	X		BODY-HORIZONTAL
A408	X	11	23'-8"			WING 1-HORIZONTAL
A409	X	2	7'-9"			WING 1-HORIZONTAL
A510	X	9	20'-1"			WING 1-HORIZONTAL
A511	X	19	21'-9"	X		WING 1-STIRRUP
A612	X	9	12'-1"	X		WING 1-VERTICAL
A613	X	23	14'-0"	X		WING 1-VERTICAL
A614	X	2	23'-8"			WING 1-HORIZONTAL
A1015	X	9	22'-5"	X		WING 1-HORIZONTAL
A1016	X	2	21'-11"	X		WING 1-HORIZONTAL
A417	X	2	7'-9"			WING 2-HORIZONTAL
A418	X	11	19'-8"			WING 2-HORIZONTAL
A519	X	9	17'-10"			WING 2-HORIZONTAL
A520	X	15	21'-8"	X		WING 2-STIRRUP
A621	X	9	13'-0"	X		WING 2-VERTICAL
A622	X	19	14'-0"	X		WING 2-VERTICAL
A623	X	2	19'-8"			WING 2-HORIZONTAL
A924	X	8	15'-10"	X		WING 2-HORIZONTAL
A925	X	2	16'-5"	X		WING 2-HORIZONTAL

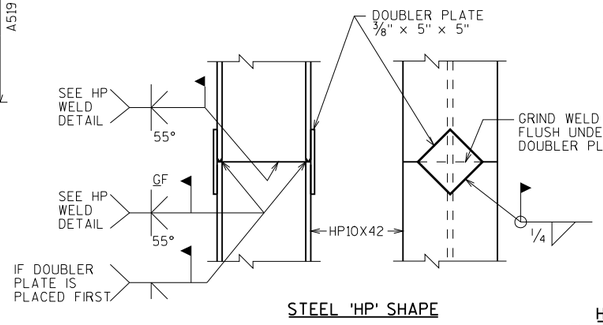


WING 2 ELEVATION



WING 2 SECTION





STEEL 'HP' SHAPE

HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

PILE DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-308

DRAWN BY DVB | PLANS CK'D. WWR

SOUTH ABUTMENT DETAILS

SHEET 5

219

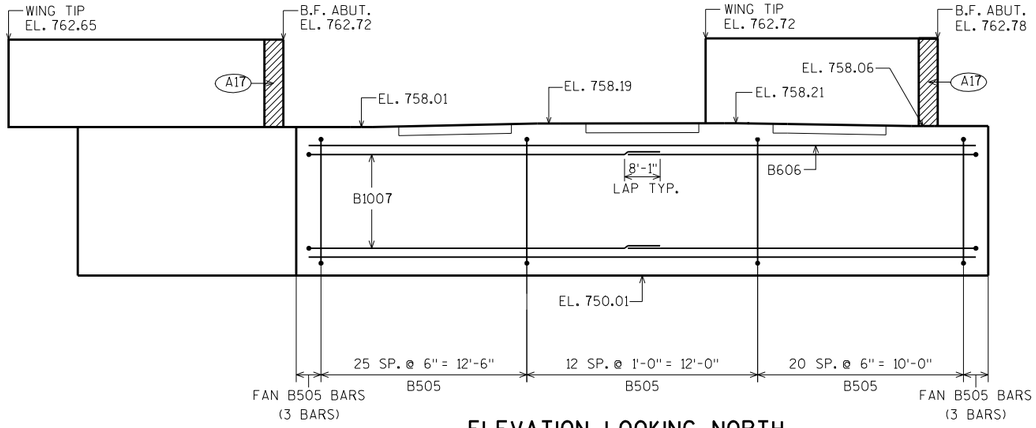
SCALE =

8

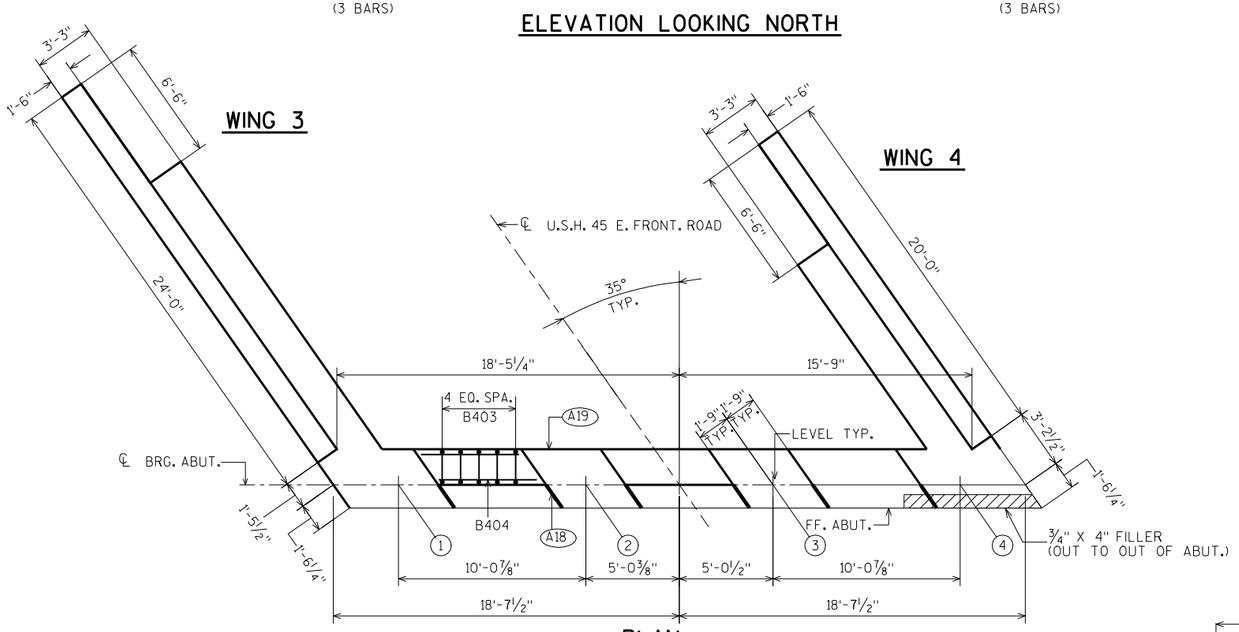
8

STATE PROJECT NUMBER

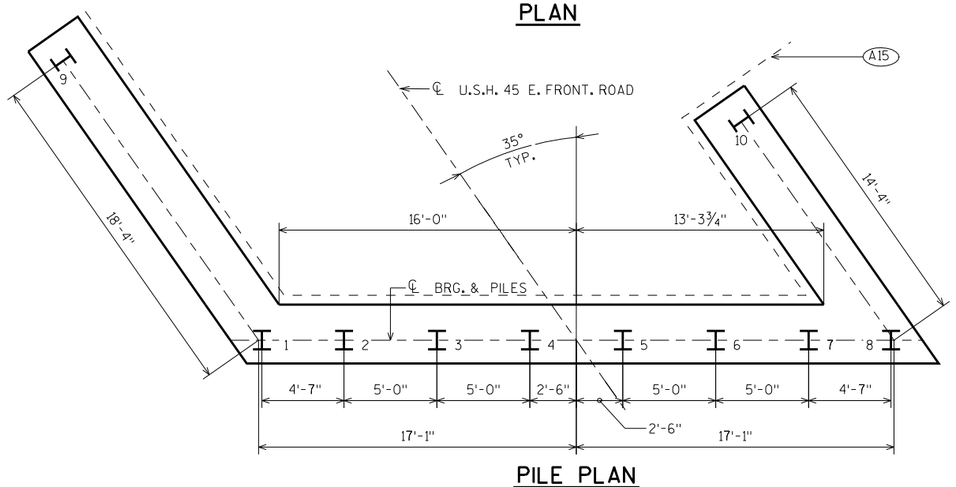
6200-15-71



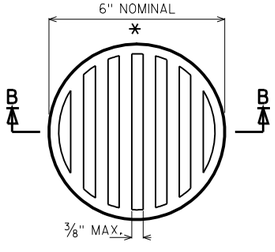
ELEVATION LOOKING NORTH



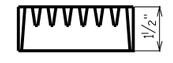
PLAN



PILE PLAN



RODENT SCREEN DETAIL



SECTION B-B

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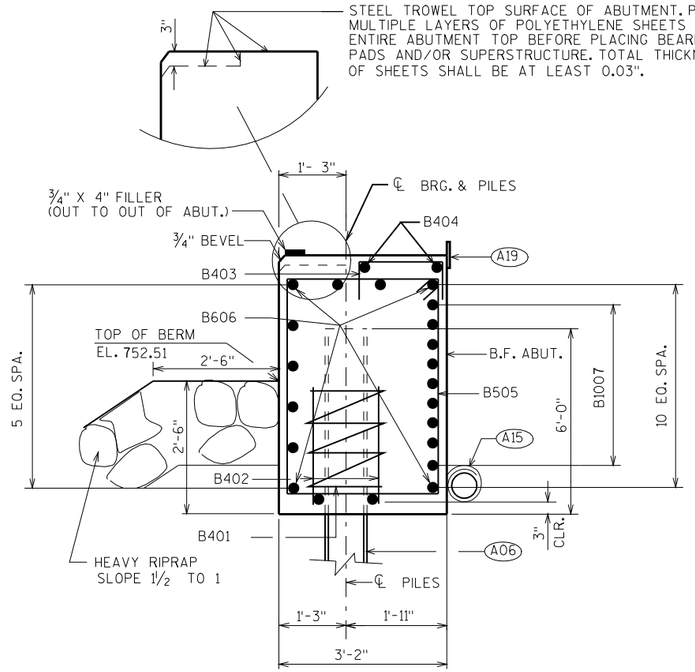

SECTION THRU BODY

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-308

DRAWN BY DVB | PLANS CK'D. WWR

NORTH ABUTMENT

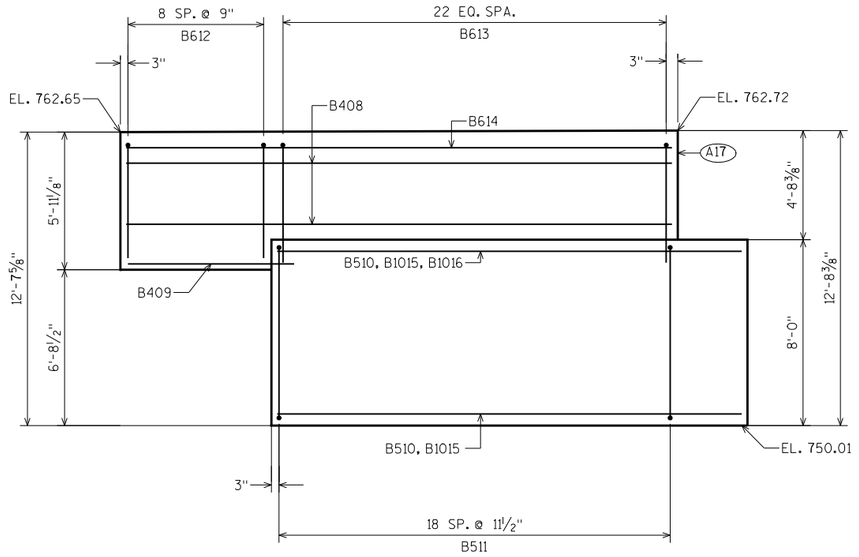
SHEET 6

220

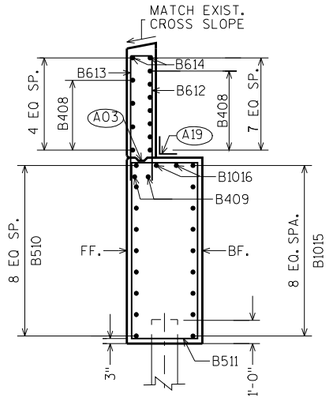
SCALE =

STATE PROJECT NUMBER

6200-15-71



WING 3 ELEVATION



WING 3 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).

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BILL OF BARS

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B401		8	28'-0"	X		PILES-1 PER PILE
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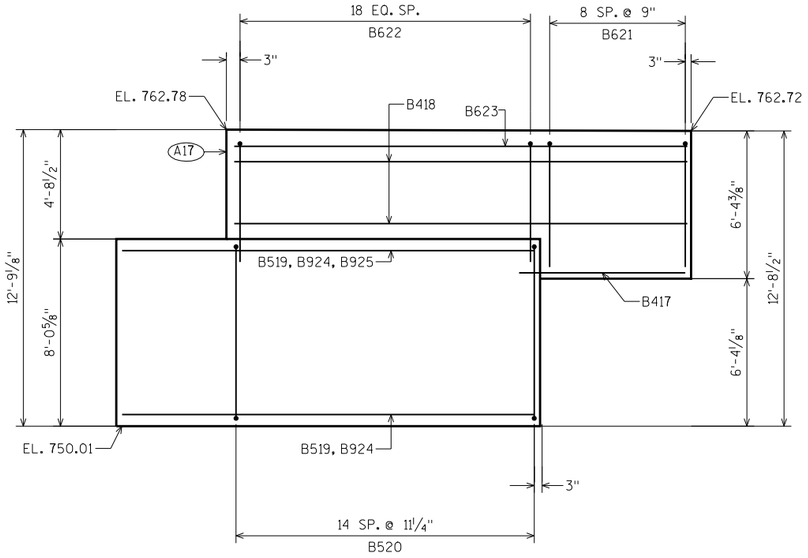
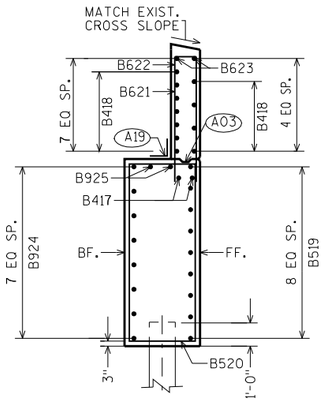
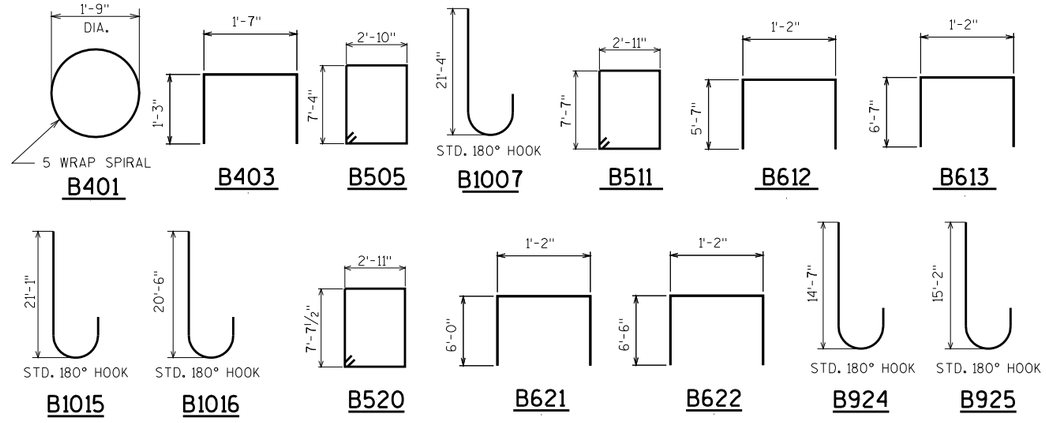
B404		6	5'-5"			BODY-HORIZ. BTWN. BEAM SEATS
B505		64	21'-0"	X		BODY-STIRRUPS
B606		12	36'-11"			BODY-HORIZONTAL
B1007		18	22'-9"	X		BODY-HORIZONTAL
B408	X	11	23'-8"			WING 3-HORIZONTAL
B409	X	2	7'-9"			WING 3-HORIZONTAL
B510	X	9	20'-1"			WING 3-HORIZONTAL
B511	X	19	21'-8"	X		WING 3-STIRRUP
B612	X	9	12'-1"	X		WING 3-VERTICAL
B613	X	23	14'-0"	X		WING 3-VERTICAL
B614	X	2	23'-8"			WING 3-HORIZONTAL
B1015	X	9	22'-6"	X		WING 3-HORIZONTAL
B1016	X	2	21'-11"	X		WING 3-HORIZONTAL
B417	X	2	7'-9"			WING 4-HORIZONTAL
B418	X	11	19'-8"			WING 4-HORIZONTAL
B519	X	9	17'-10"			WING 4-HORIZONTAL
B520	X	15	21'-9"	X		WING 4-STIRRUP
B621	X	9	12'-10"	X		WING 4-VERTICAL
B622	X	19	13'-10"	X		WING 4-VERTICAL
B623	X	2	19'-8"			WING 4-HORIZONTAL
B924	X	8	15'-10"	X		WING 4-HORIZONTAL
B925	X	2	16'-5"	X		WING 4-HORIZONTAL

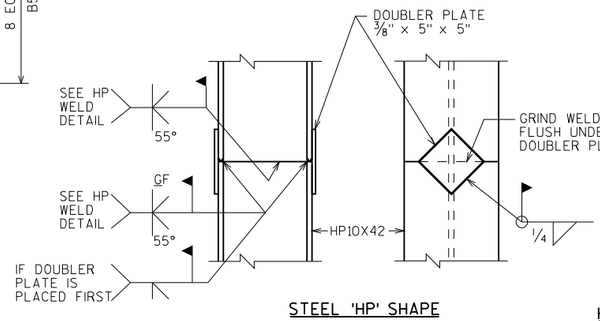


WING 4 ELEVATION

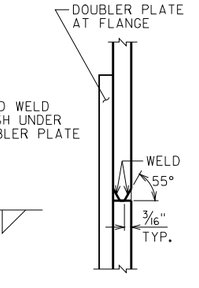


WING 4 SECTION





STEEL 'HP' SHAPE



HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

PILE DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-308

DRAWN BY DVB | PLANS CK'D. WWR

NORTH ABUTMENT DETAILS

SHEET 7

221

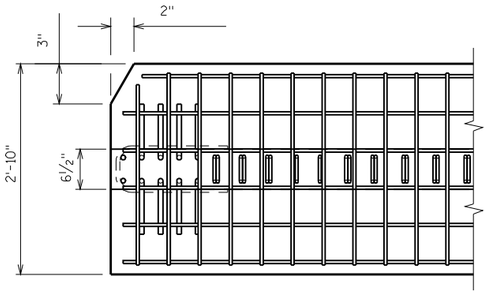
8

8

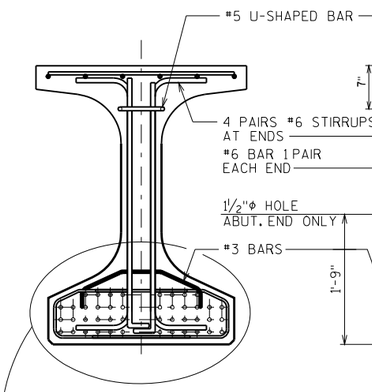
SCALE =

STATE PROJECT NUMBER

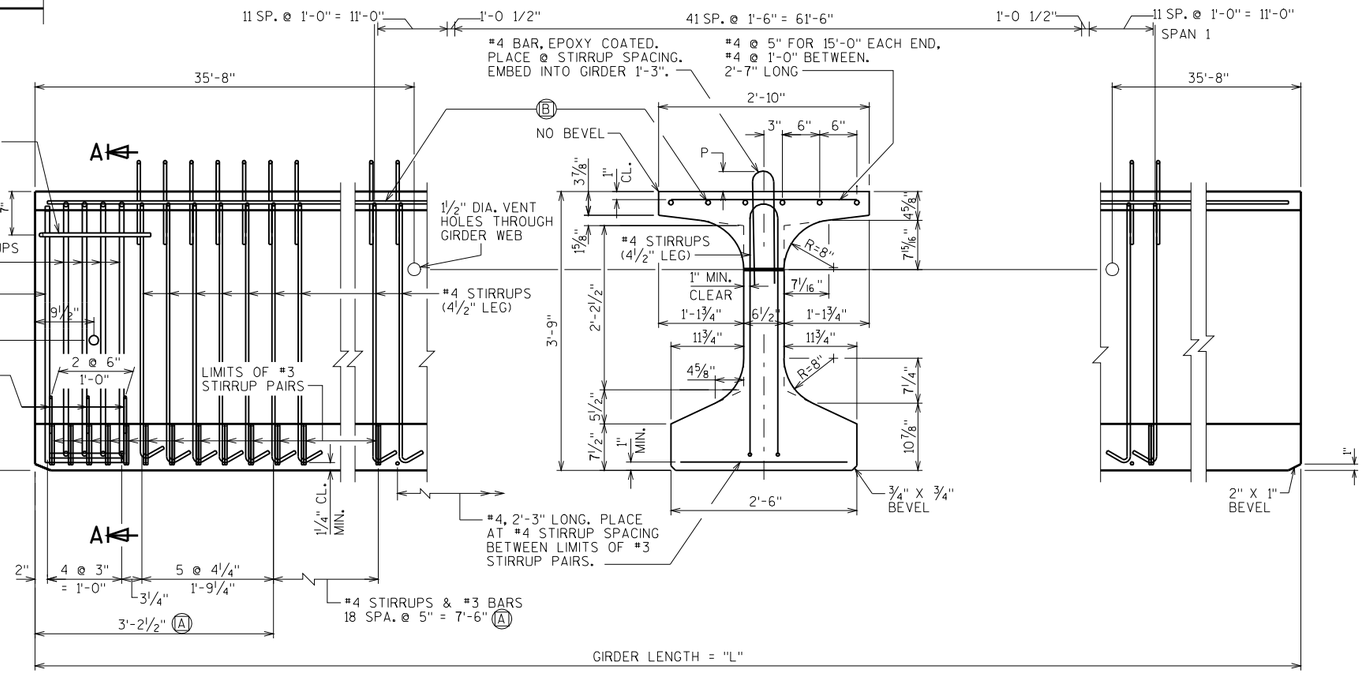
6200-15-71



TOP FLANGE



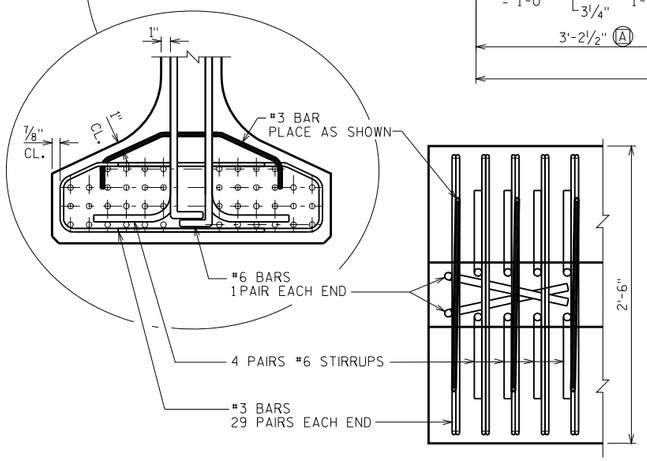
SECTION A-A



SIDE VIEW & TYP. SECTION IN SPAN

Ⓐ DETAIL TYP. AT EACH END

Ⓑ 6 #4 BARS, FULL LENGTH, MIN. LAP = 1'-11"



BOTTOM FLANGE

GIRDER NOTES

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

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

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

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

STRANDS SHALL BE FLUSH WITH THE END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, ENDS 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, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO APPLICATION OF THE SEALER.

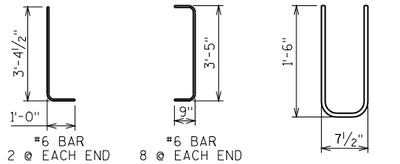
FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.

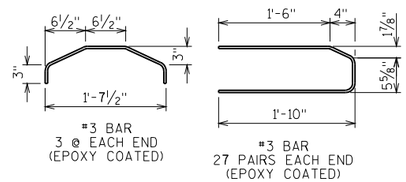
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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, 1 OPTION IS AVAILABLE:

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

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





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

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f'c (p.s.i.)	"P" IST ⅓ OF GIRDER	"P" MID ⅓ OF GIRDER	"P" END ⅓ OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN						UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10						TOTAL NO. OF STRANDS	f'ci (P.S.I.)	(IN.) "A"	"B" MIN.	"B" MAX.	"C"	TOTAL NO. OF STRANDS	f'ci (P.S.I.)
1	1-4	107.00	0.8	1.5	2.0	2.4	2.5	2.4	2.0	1.5	0.8	8000	7"	7"	7"	0.60	40	6788	40.0	13.8	16.8	5.0	0	0

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-308

DRAWN BY DVB | PLANS CK'D. WWR

45W" PRESTRESSED GIRDER DETAILS

SHEET 8

222

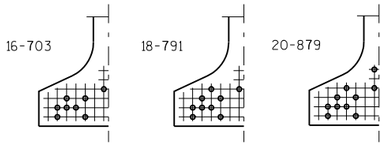
SCALE =

8

8

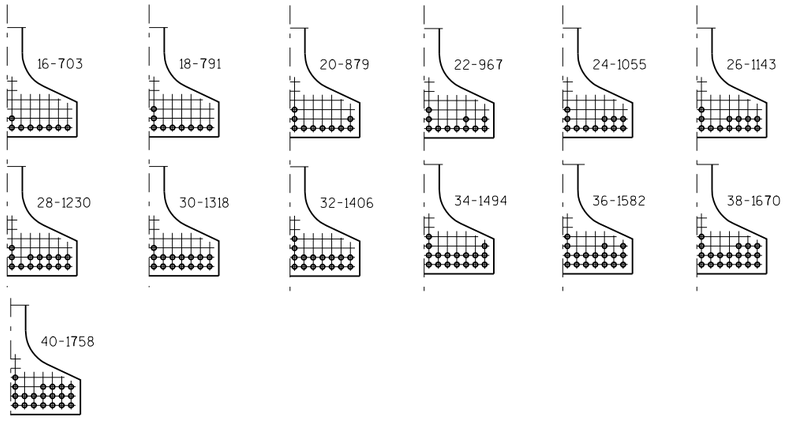
STATE PROJECT NUMBER

6200-15-71



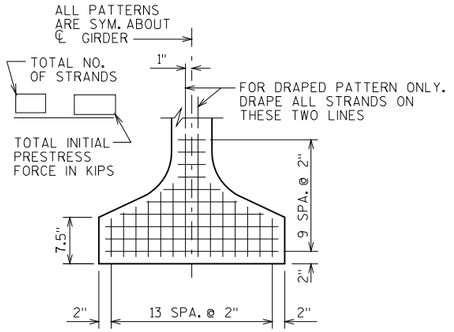
STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF STRANDS

0.6"ϕ STRANDS

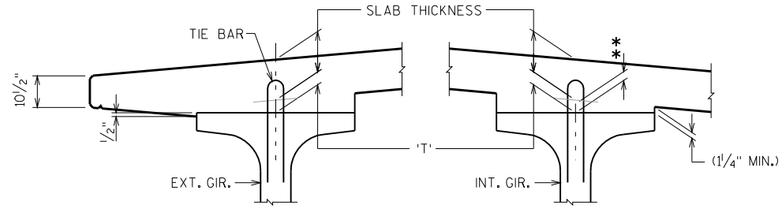


ARRANGEMENT AT ℄ SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6"ϕ STRANDS



TYP. STRAND PATTERN



SLAB HAUNCH DETAIL

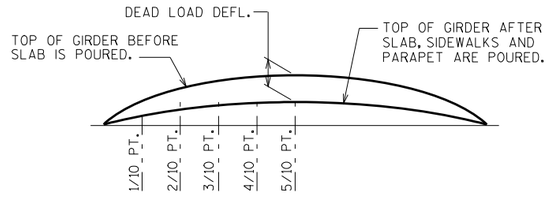
IF 1¼" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN ½" OR,

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

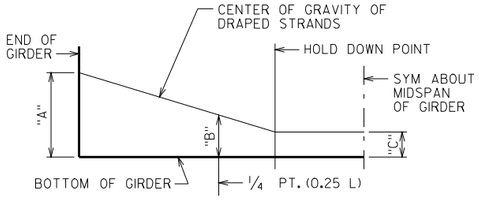
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT ℄ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

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 2⅞" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DEAD LOAD DEFLECTION DIAGRAM



DRAPED STRAND PROFILE

THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN

SPAN	CAMBER (IN.)
1	3.37

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS.
THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

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STATE OF WISCONSIN
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STRUCTURES DESIGN SECTION

STRUCTURE B-70-308

DRAWN BY DVB | PLANS CK'D. WWR

45W" PRESTRESSED GIRDER DETAILS

SHEET 9

223

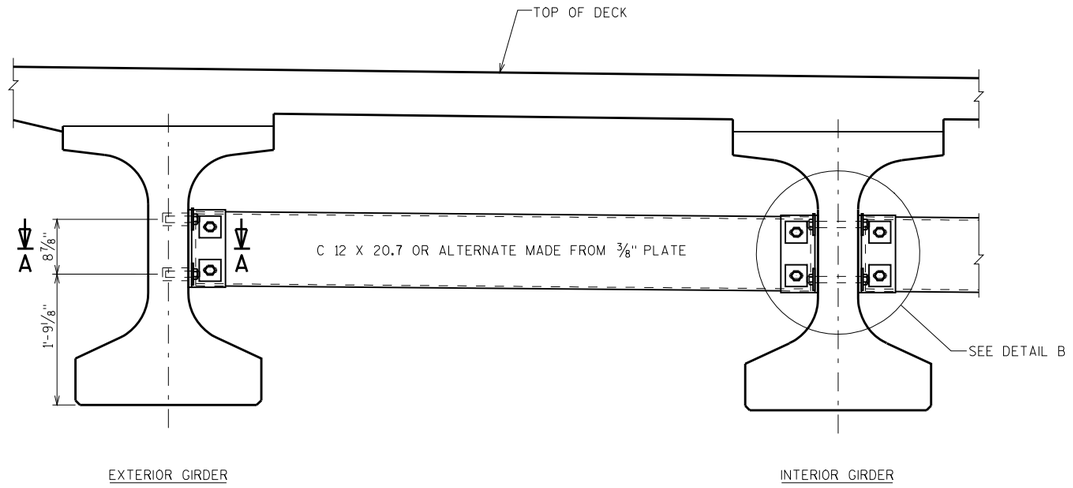
SCALE =

8

8

STATE PROJECT NUMBER

6200-15-71



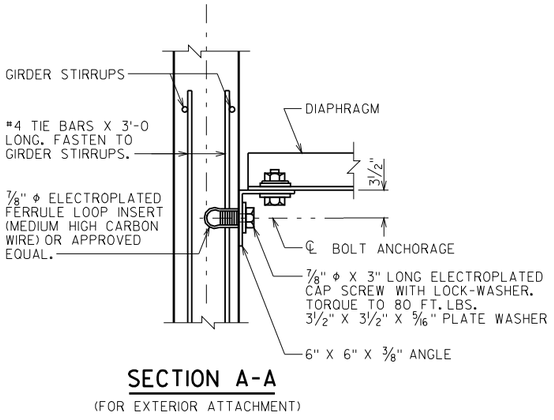
PART TRANSVERSE SECTION AT DIAPHRAGM

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-70-308", EACH.

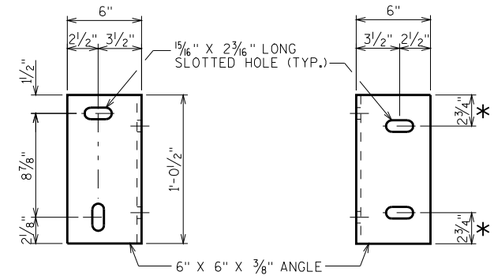
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT. ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

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.



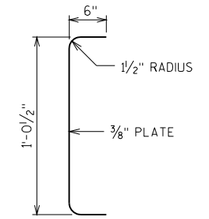
SECTION A-A

(FOR EXTERIOR ATTACHMENT)

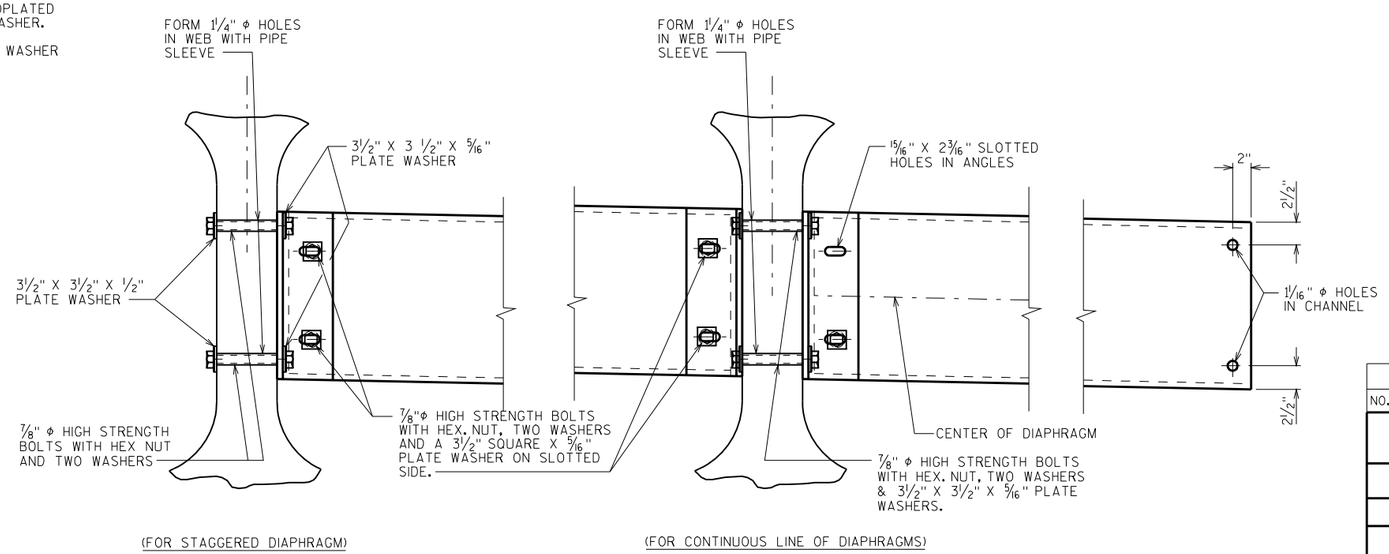


DIAPHRAGM SUPPORT

* 2½" FOR ALTERNATE PLATE DIAPHRAGM



SECTION THRU ALTERNATE DIAPHRAGM



(FOR STAGGERED DIAPHRAGM)

(FOR CONTINUOUS LINE OF DIAPHRAGMS)

DETAIL B

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-308

DRAWN BY DVB | PLANS CK'D. WWR

STEEL DIAPHRAGM

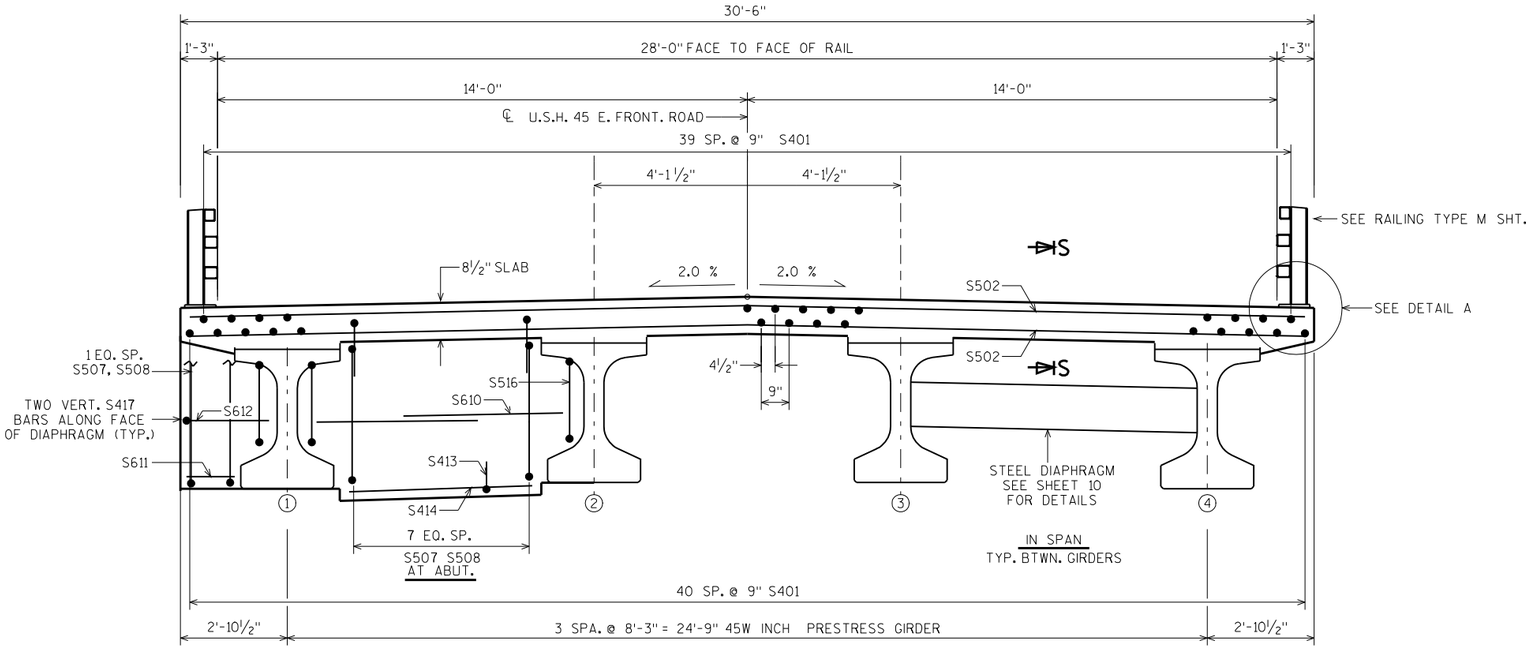
SHEET 10

224

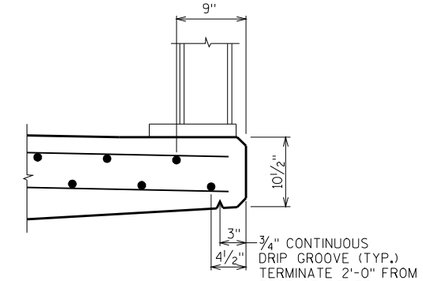
SCALE =

SCALE = 8.000000 /IN

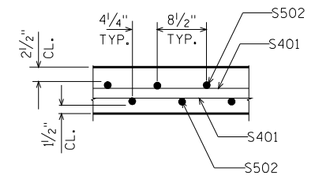
STATE PROJECT NUMBER
6200-15-71



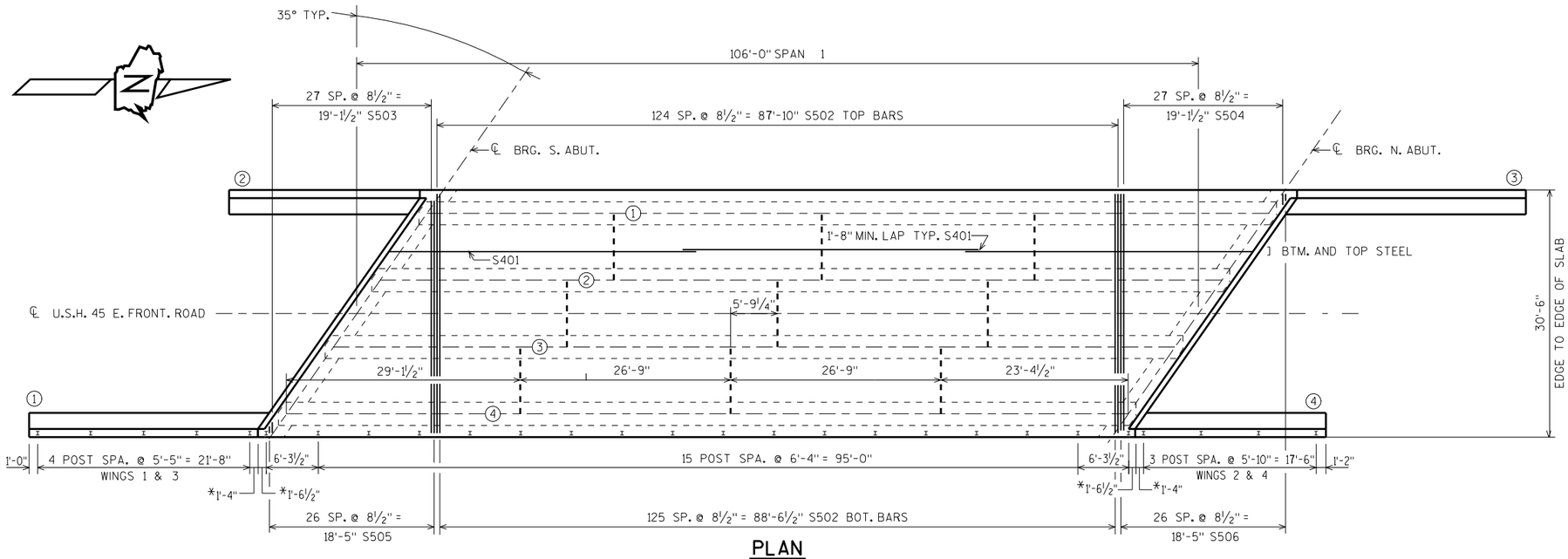
CROSS SECTION THRU ROADWAY
(LOOKING NORTH)



DETAIL A



SECTION S-S



PLAN

* MEASUREMENT TAKEN FROM EDGE OF SLAB & END OF WING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
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STRUCTURES DESIGN SECTION

STRUCTURE B-70-308

DRAWN BY DVB | PLANS CK'D. WWR

SUPERSTRUCTURE

SHEET 11

225

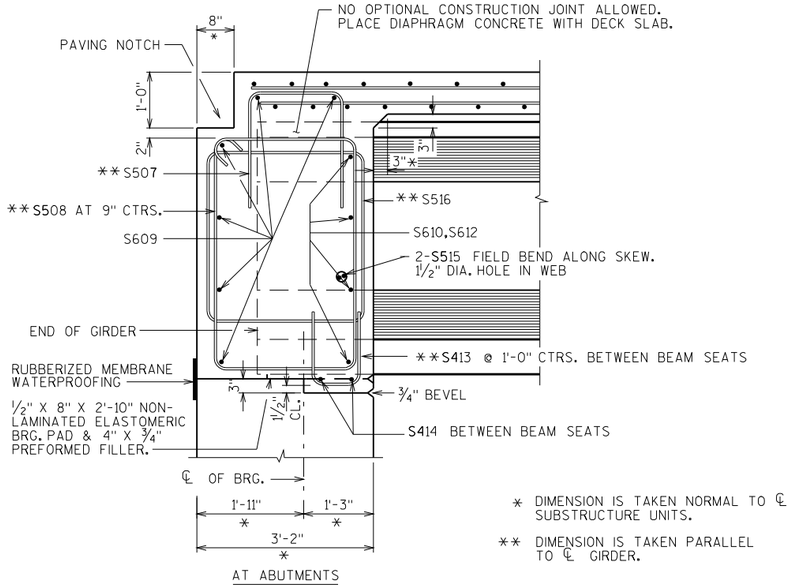
8

8

SCALE =

STATE PROJECT NUMBER

6200-15-71



* DIMENSION IS TAKEN NORMAL TO ℄ SUBSTRUCTURE UNITS.

** DIMENSION IS TAKEN PARALLEL TO ℄ GIRDER.

PART LONGIT. SECTION

BAR SERIES TABLE

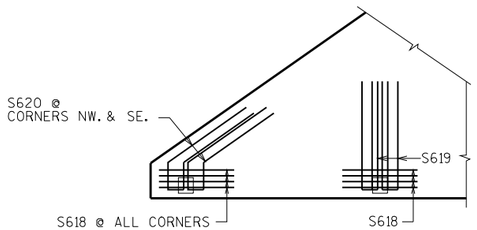
BUNDLE AND TAG EACH SERIES SEPARATELY

MARK	NO. REQD.	LENGTH
S503	1 SERIES OF 28	1'-8" TO 29'-0"
S504	1 SERIES OF 28	1'-6" TO 28'-10"
S505	1 SERIES OF 27	2'-2" TO 28'-6"
S506	1 SERIES OF 27	2'-1" TO 28'-4"

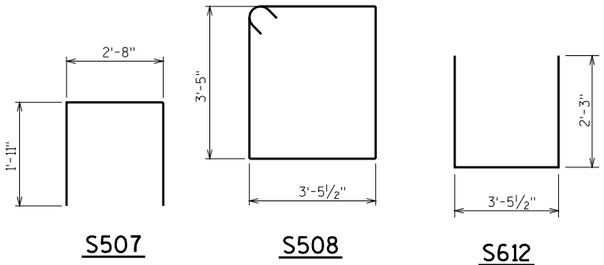
BILL OF BARS

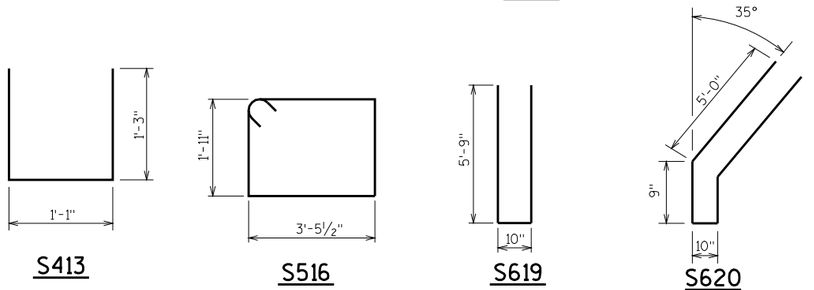
▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

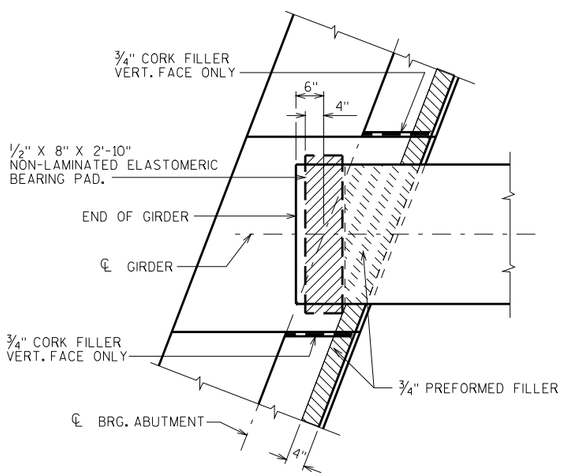
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	243	37'-8"			LONGITUDINAL TOP & BOTTOM
S502	X	251	30'-2"			TRANSVERSE TOP AND BOTTOM
S503	X	28	15'-4"		▲	TRANSVERSE TOP CUT LEFT
S504	X	28	15'-2"		▲	TRANSVERSE TOP CUT RIGHT
S505	X	27	15'-4"		▲	TRANSVERSE BOT CUT LEFT
S506	X	27	15'-3"		▲	TRANSVERSE BOT CUT RIGHT
S507	X	56	6'-3"	X		ABUT. DIAPHRAGM
S508	X	56	14'-5"	X		ABUT. DIAPHRAGM
S609	X	12	36'-11"			ABUT. DIAPHRAGM
S610	X	48	5'-7"			ABUT. DIAPHRAGM
S611	X	4	1'-7"			ABUT. DIAPHRAGM-AT ENDS
S612	X	12	7'-8"	X		ABUT. DIAPHRAGM
S413	X	42	3'-5"	X		ABUT. DIAPHRAGM
S414	X	12	5'-5"			ABUT. DIAPHRAGM
S515	X	16	6'-0"			ABUT. DIAPHRAGM
S516	X	16	11'-5"	X		ABUT. DIAPHRAGM
S417	X	8	3'-5"			ABUT. DIAPHRAGM-AT ENDS
S618	X	144	6'-0"			SLAB-RAIL POST-HORIZONTAL
S619	X	68	12'-0"	X		SLAB-RAIL POST-HORIZONTAL
S620	X	4	12'-0"	X		SLAB-RAIL POST-HORIZONTAL



SHOWING POST ANCHORAGE REINF.







BEARING PAD DETAIL

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.
EOD	763.04	763.01	762.98	762.95	762.92	762.89	762.85	762.82	762.79	762.76	762.73
GIR. 1	763.11	763.08	763.04	763.01	762.98	762.95	762.92	762.89	762.85	762.82	762.79
GIR. 2	763.29	763.26	763.23	763.20	763.16	763.13	763.10	763.07	763.04	763.00	762.97
GIR. 3	763.31	763.28	763.24	763.21	763.18	763.15	763.12	763.09	763.05	763.02	762.99
GIR. 4	763.16	763.13	763.10	763.07	763.03	763.00	762.97	762.94	762.91	762.87	762.84
EOD	763.11	763.08	763.05	763.01	762.98	762.95	762.92	762.89	762.85	762.82	762.79

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-308

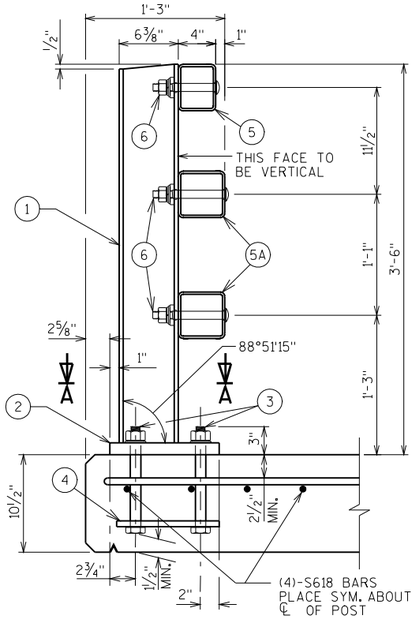
DRAWN BY DVB | PLANS CK'D. WWR

SUPERSTRUCTURE DETAILS

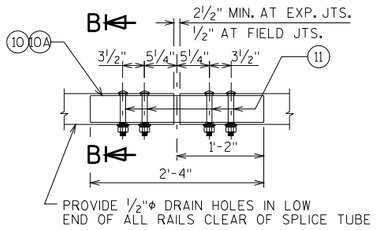
SHEET 12

226

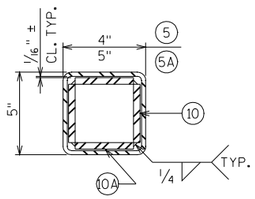
SCALE =



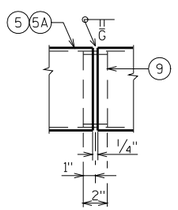
SECTION THRU RAILING ON DECK



FIELD ERECTION JOINT DETAIL

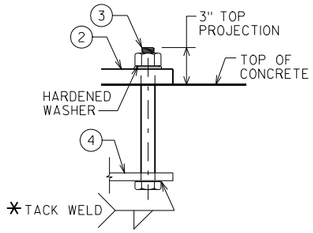


SECTION B-B

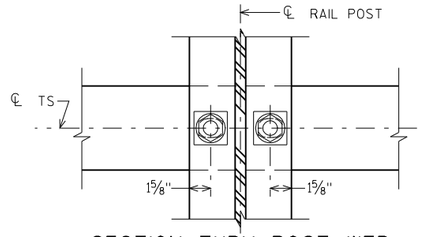


SHOP RAIL SPLICE DETAIL

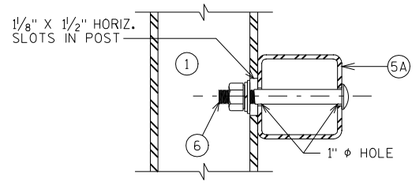
LOCATION MUST BE SHOWN ON SHOP DRAWINGS



ANCHOR BOLTS



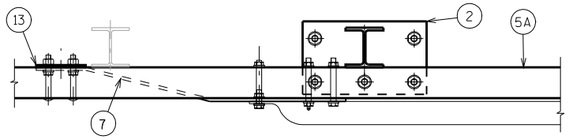
SECTION THRU POST WEB



SECTION THRU RAIL

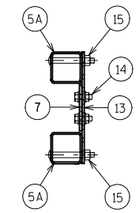
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS

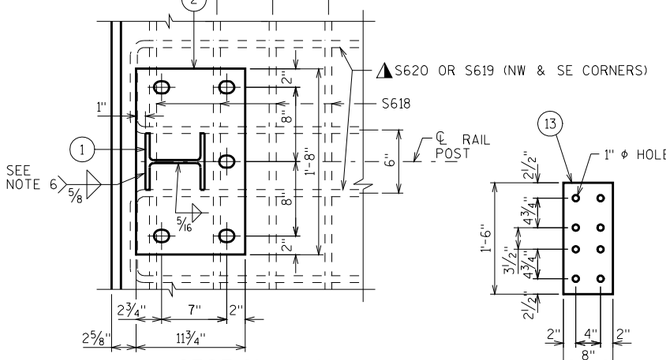


TOP VIEW AT END POST

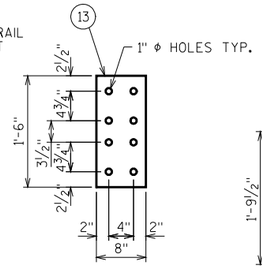
THRIE BEAM RAIL ATTACHMENT



SECTION C-C

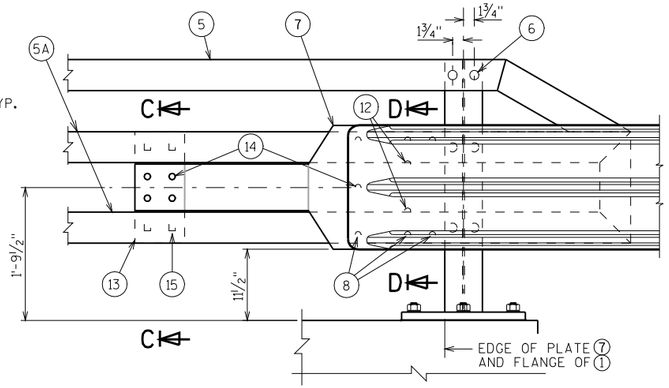


SECTION A-A



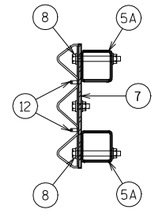
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT

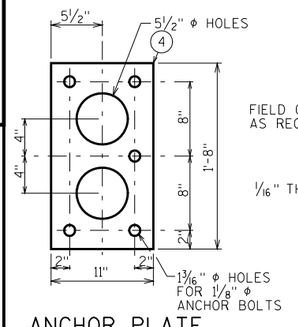


DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT

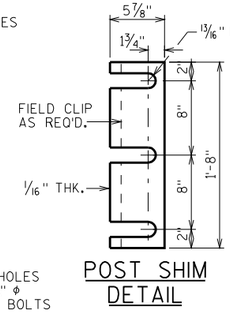


SECTION D-D

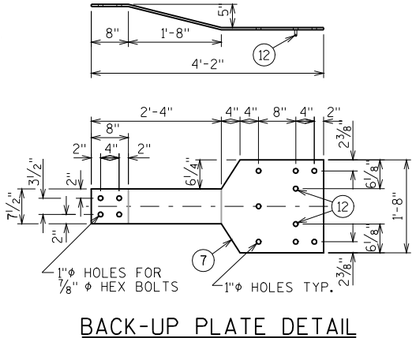


ANCHOR PLATE

AT RAIL TO DECK CONNECTION

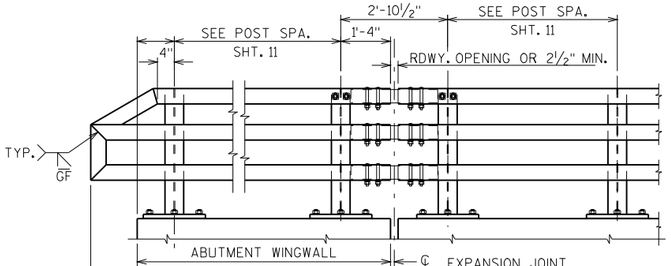


POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

LEGEND

① W6 x 25 WITH 1 1/8" X 1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

② PLATE 1 1/4" × 11 3/4" × 1'-8" WITH 1 5/16" X 1 5/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

③ ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)

④ 5/8" × 11" × 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3

⑤ TS 5 × 4 × 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

⑤A TS 5 × 5 × 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

⑥ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1 5/8" X 1 5/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

⑦ 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" X 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

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

⑨ SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".

⑩ 3/8" X 3 5/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

⑩A 3/8" X 2 5/8" X 2'-4" PLATE USED IN NO. 5, 3/8" X 3 5/8" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.

⑪ 7/8" ϕ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 15/16" X 1 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 15/16" X 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.

⑫ 7/8" DIA. X 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

⑬ 3/8" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.

⑭ 7/8" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).

⑮ 1" ϕ HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-70-308" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
10. WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
12. PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.

▲ TIE TO TOP MAT OF STEEL.

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

STATE PROJECT NUMBER

6200-15-71

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-70-308

DRAWN BY DVB | PLANS CK'D. WWR

TUBULAR STEEL RAILING TYPE M

SHEET 13

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SCALE =