GRE

FEBRUARY 2019

PROJECT ID: 4204-07-71

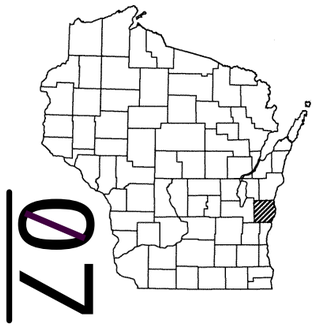
WITH: N/A

COUNTY: SHEBOYGAN

ORDER OF SHEETS

TOTAL SHEETS = 70

NO CHANGE



DESIGN DESIGNATION

A.A.D.T.	(2019)	= 1000
A.A.D.T.	(2039)	= 1300
D.H.V.	(2039)	= 111
D.D.		= 60/40
T.		= 3.8%
DESIGN SPEED		= 25 MPH
ESALS		= 110,000

Subcontractor List
Arbor Green
Crowley Construction
Hard Rock Sawing
Moore Surveying
Northeast Asphalt
Vinton Construction
Warning Lites of Appleton

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)
- 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 OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4204-07-71	WISC 2019121	1

T PLYMOUTH, WOODLAND RD

MULLET RIVER BRIDGE

STRUCTURE

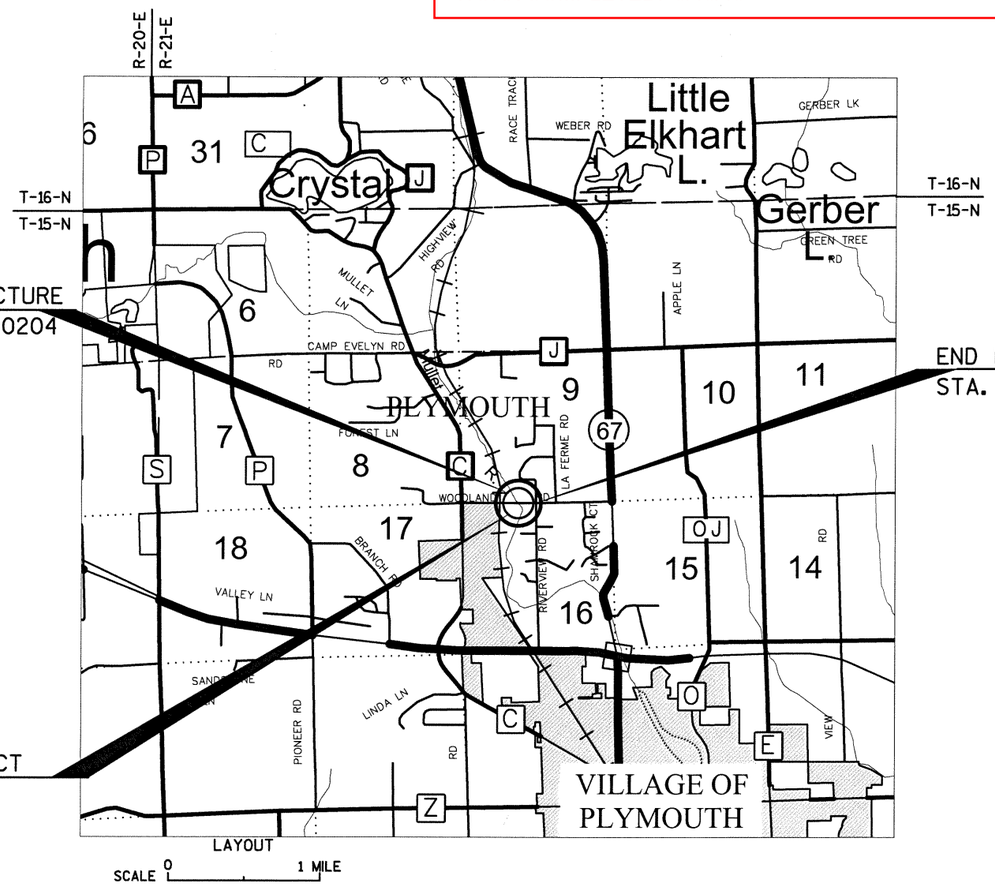
LOC STR

SHEBOYGAN COUNTY

STATE PROJECT NUMBER
4204-07-71

AS-BUILT PLAN

SUPERVISOR: Dan Segerstrom
PROJECT MANAGER: Paul Zoellner
PROJECT LEADER: Cody Schulting
CONTRACTOR: Phiefer Brothers
WORK STARTED: 7/19/19
WORK COMPLETED: 9/13/19



TOTAL NET LENGTH OF CENTERLINE = 0.065 MI.

"Coordinates on this plan are referenced to the Wisconsin County Coordinate System (WCCS), Sheboygan County."

"Elevations shown on the plan are referenced to the North American Vertical Datum of 1988 (NAVD 88)."

ACCEPTED FOR COUNTY of SHEBOYGAN

9/17/2018 (Date) (Transportation Director)

ORIGINAL PLANS PREPARED BY

JEWELL associates engineers, inc.
Engineers - Architects - Surveyors

WISCONSIN ELLERY A. SCHAFFER E-41742-6 SPRING GREEN, WI PROFESSIONAL ENGINEER

9/12/18 (Date) (Signature)

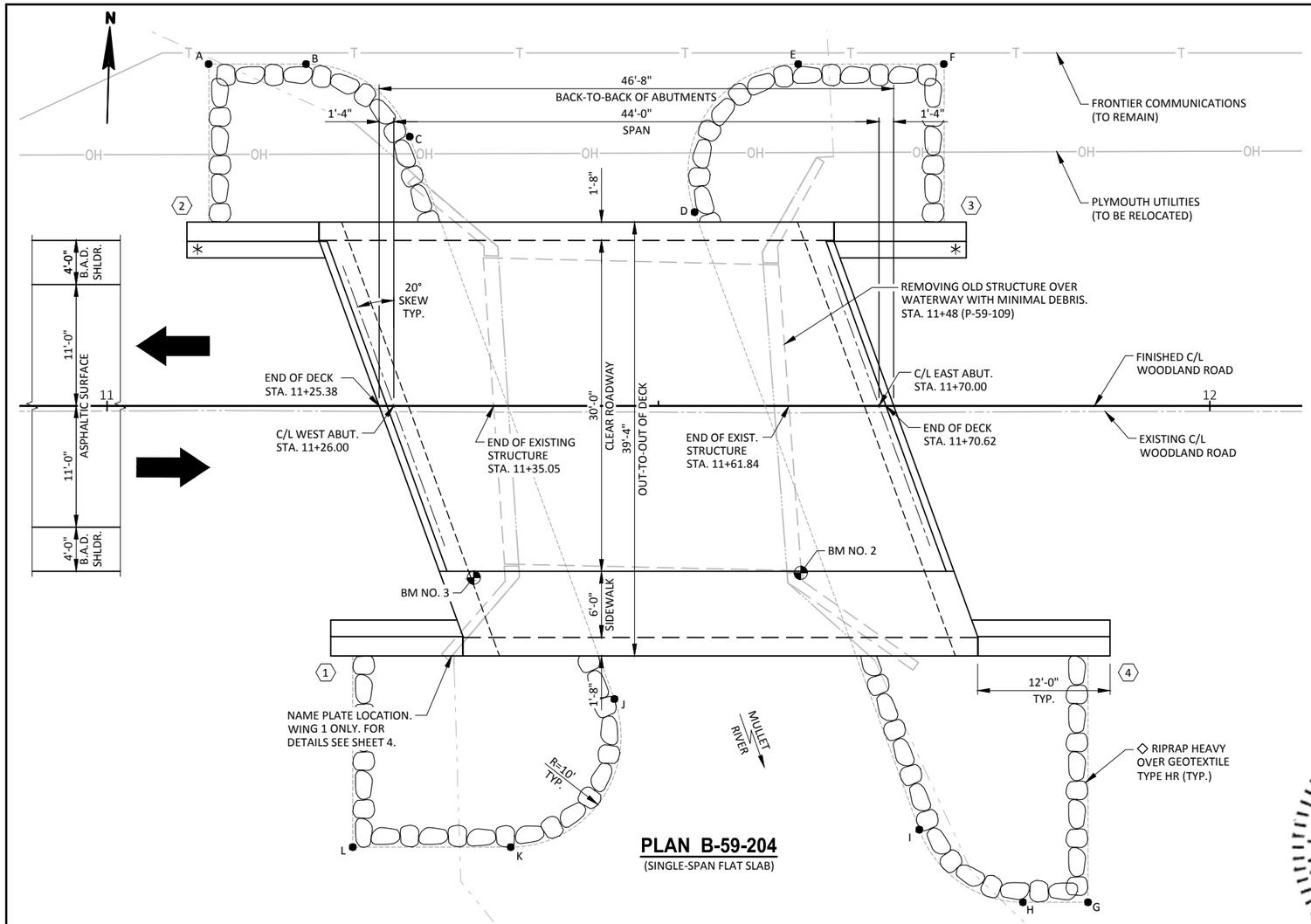
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor: JEWELL ASSOCIATES ENGINEERS, INC.
Designer: JEWELL ASSOCIATES ENGINEERS, INC.
Management Consultant: JT ENGINEERING INC.

APPROVED FOR THE DEPARTMENT
DATE: 9/20/18
MANAGEMENT CONSULTANT SIGNATURE

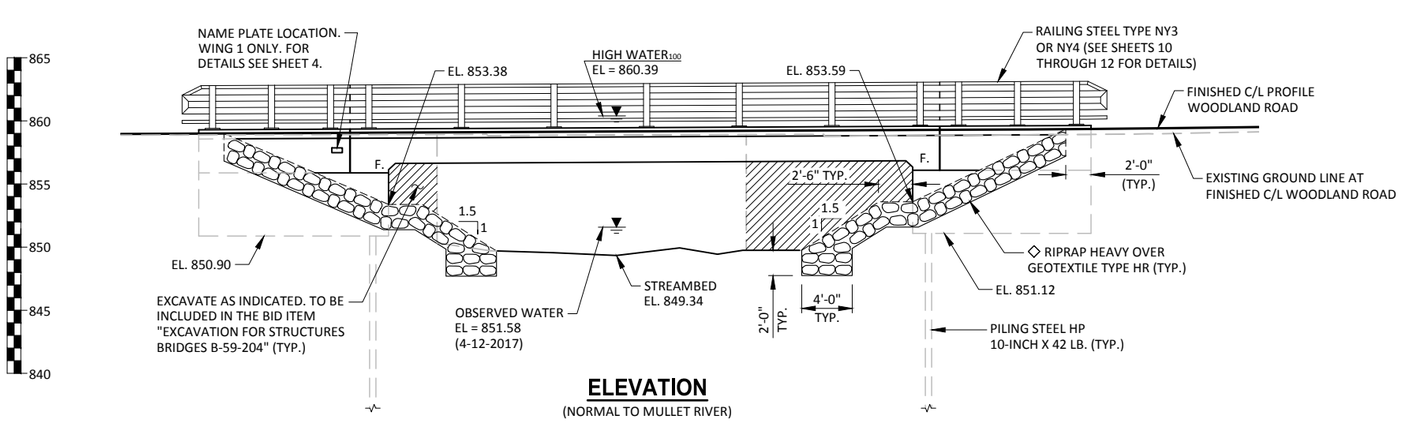
E



PLAN B-59-204
(SINGLE-SPAN FLAT SLAB)

RIPRAP HEAVY LAYOUT

POINT	STATION	OFFSET
A	11+09	31' LT.
B	11+18	31' LT.
C	11+27	24' LT.
D	11+53	18' LT.
E	11+63	31' LT.
F	11+76	31' LT.
G	11+89	45' RT.
H	11+83	45' RT.
I	11+74	38' RT.
J	11+46	27' RT.
K	11+37	40' RT.
L	11+22	40' RT.



ELEVATION
(NORMAL TO MULLET RIVER)

STATE PROJECT NUMBER
4204-07-71

DESIGN DATA

LIVE LOAD:

DESIGN LOADING — HL-93
INVENTORY RATING FACTOR — RF=1.15
OPERATING RATING FACTOR — RF=1.48
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) — 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 P.S.F.

MATERIAL PROPERTIES:

CONCRETE MASONRY, SUPERSTRUCTURE — f'c = 4,000 P.S.I.
ALL OTHER — f'c = 3,500 P.S.I.
HIGH-STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 — fy = 60,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 145 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATE 35 FT PILE LENGTHS AT BOTH ABUTMENTS.

**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.

TRAFFIC DATA

A.D.T. (2019) — 1000
A.D.T. (2039) — 1300
DESIGN SPEED — 25 M.P.H.

HYDRAULIC DATA

100 YEAR FREQUENCY
DRAINAGE AREA — 51.4 SQ. MI.
Q_{100} TOTAL — 3,050 C.F.S.
THROUGH STRUCTURE — 2,512 C.F.S.
OVERTOPPING ROADWAY — 538 C.F.S.
VELOCITY - THROUGH STRUCTURE — 11.0 F.P.S.
WATERWAY AREA - THROUGH STRUCTURE — 228 SQ. FT.
HIGH WATER$_{100}$ ELEVATION — 860.39
SCOUR CRITICAL CODE — 5

DESIGN ROADWAY OVERFLOW
ROADWAY OVERTOPPING FREQUENCY — 20 YRS.
Q_{20} — 1,970 C.F.S
HIGH WATER$_{20}$ ELEVATION — 858.88

EROSION CONTROL
Q_2 — 700 C.F.S.
HIGH WATER$_2$ ELEVATION — 855.03
VELOCITY$_2$ — 8.47 F.P.S.

LEGEND

⬡ INDICATES WING NUMBER
✳ THRIE BEAM RAIL ATTACHMENT
◇ VOIDS IN THE RIPRAP HEAVY SHALL BE FILLED WITH 6-INCH STONE.

WISCONSIN
PATRICK T. BOLAND E-36303 SPRING GREEN WIS.
PROFESSIONAL ENGINEER
9-19-18

LIST OF DRAWINGS

DESIGN CONSULTANT
PATRICK BOLAND, PE
(608) 588-7484

BRIDGE OFFICE CONTACT
WILLIAM DREHER, PE
(608) 266-8489

NO.	DATE	REVISION	BY

JEWELL associates engineers, inc.
Engineers - Architects - Surveyors
SUNRISE DRIVE
SPRING GREEN WI
PHONE
FA 22

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR — 09/19/18
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-59-204

WOODLAND ROAD OVER MULLET RIVER

COUNTY	TOWN/~~CITY/VILLAGE~~
SHEBOYGAN	PLYMOUTH

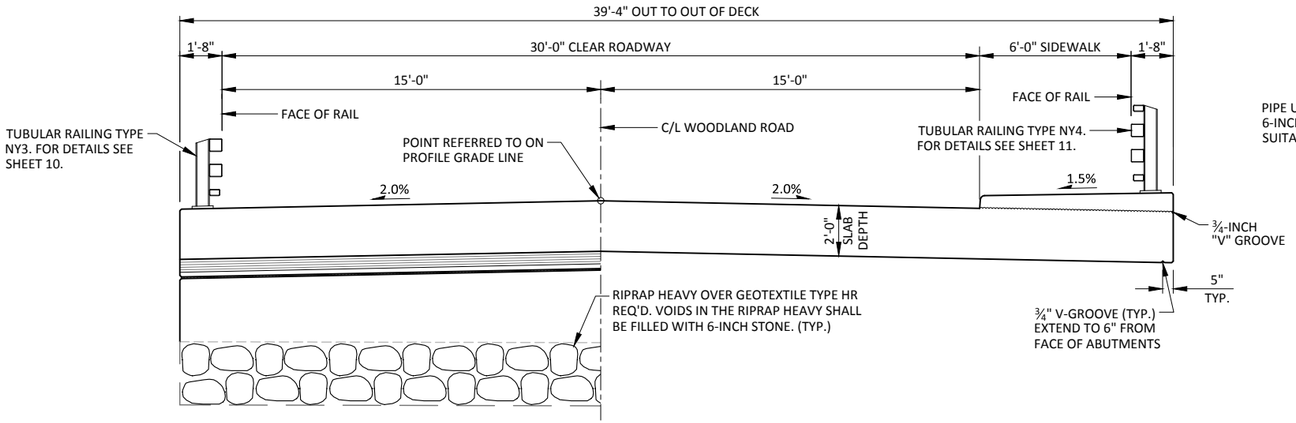
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JZ	PTB	JZ	PTB

GENERAL PLAN

SHEET 1 OF 12
50

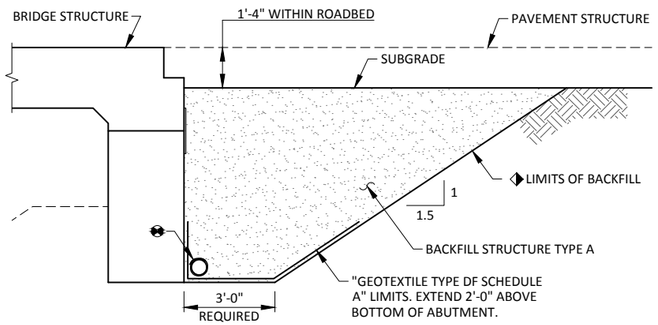
STATE PROJECT NUMBER
4204-07-71



AT ABUTMENT **IN SPAN**

PROPOSED CROSS-SECTION THROUGH ROADWAY

LOOKING EAST

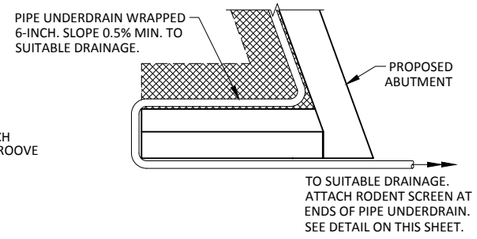


BACKFILL STRUCTURE DETAIL

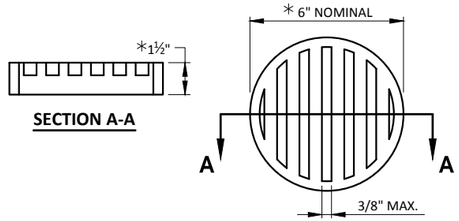
ABUTMENT BODY SHOWN - WINGWALLS SIMILAR
(TYPICAL AT BOTH ABUTMENTS)

◆ BACKFILL STRUCTURE TYPE A PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-59-204". LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

◆ PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPED 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON THIS SHEET. RODENT SCREEN TO BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH."



PIPE UNDERDRAIN DETAIL



RODENT SCREEN

NOTES:

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

ORIENT SCREEN 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 ENDS OF THE PIPE UNDERDRAIN. THE SCREEN SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD 88).

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK OR THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

JOINT FILLER SHALL CONFORM TO A.A.S.H.T.O. DESIGNATION MI53, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M213.

THE SLOPE OF FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH GEOTEXTILE TYPE HR AND RIPRAP HEAVY TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS, OR AS DIRECTED BY THE ENGINEER IN THE FIELD. VOIDS IN THE RIPRAP HEAVY SHALL BE FILLED WITH 6-INCH STONE.

AT THE BACK FACE OF ABUTMENTS, ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A. SEE THIS SHEET FOR DETAIL.

ANY EXCAVATION BELOW THE ABUTMENT AND ASSOCIATED ABUTMENT BEDDING MATERIALS REQUIRE THE APPROVAL OF THE ENGINEER IN THE FIELD.

APPLY PROTECTIVE SURFACE TREATMENT TO THE TOP OF THE DECK, THE FACE OF THE SIDEWALK CURB, THE TOP OF THE SIDEWALK, THE SIDES OF THE DECK AND SIDEWALK, AND TO THE EXTERIOR 12" OF THE UNDERSIDE OF THE DECK (CONCRETE MATERIAL ONLY).

ALL STATIONS AND ELEVATIONS SHOWN ARE IN FEET.

THE EXISTING STRUCTURE (P-59-109) IS A SINGLE-SPAN REINFORCED CONCRETE FLAT SLAB STRUCTURE SUPPORTED ON REINFORCED CONCRETE ABUTMENTS. THE STRUCTURE HAS A 23.9' CLEAR ROADWAY WIDTH AND IS 27.2' LONG AND SHALL BE REMOVED.

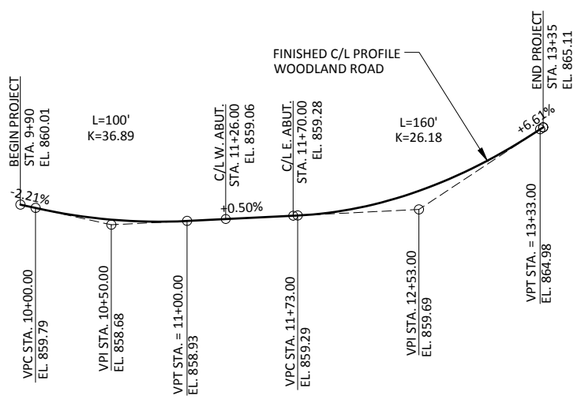
THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-59-204" SHALL BE THE EXISTING GROUNDLINE.

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATIVE METHOD IS APPROVED BY THE ENGINEER IN THE FIELD.

BASED ON SUBSURFACE EXPLORATION, AT THE WEST ABUTMENT, IT IS LIKELY THAT DEBRIS CONSISTING OF POSSIBLE COBBLES, BOULDERS, OR WOOD DEBRIS WILL BE ENCOUNTERED IN THE OLD ROADBED FILL AT AN ELEVATION APPROXIMATELY EQUAL TO THE BOTTOM OF THE PROPOSED ABUTMENT. TO REDUCE THE PROBABILITY OF PILE DAMAGE, ANY DEBRIS ENCOUNTERED SHALL BE REMOVED UNDER THE BID ITEM "EXCAVATION FOR STRUCTURES". ANY BACKFILL REQUIRED TO RESTORE THE EXCAVATION UP TO THE BOTTOM OF ABUTMENT ELEVATION SHALL BE PAID FOR UNDER THE BID ITEM "BACKFILL STRUCTURE TYPE A" AND SHALL CONSIST OF BACKFILL STRUCTURE TYPE A OR AN APPROVED EQUAL AS APPROVED BY THE ENGINEER IN THE FIELD.

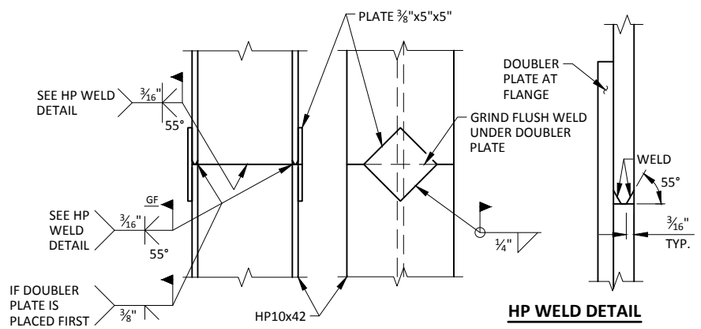
TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	UNIT	W. ABUT.	SUPER.	E. ABUT.	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 11+48	LS	--	--	--	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-59-204	LS	--	--	--	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	175	--	170	345
502.0100	CONCRETE MASONRY BRIDGES	CY	40	149	40	229
502.3200	PROTECTIVE SURFACE TREATMENT	SY	--	240	--	240
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,380	--	2,370	4,750
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,860	26,390	1,810	30,060
513.7083	RAILING STEEL TYPE NY3 B-59-204	LF	--	73	--	73
513.7084	RAILING STEEL TYPE NY4 B-59-204	LF	--	73	--	73
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	8	--	8	16
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	210	--	210	420
606.0300	RIPRAP HEAVY	CY	115	--	120	235
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	105	--	105	210
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	60	--	60	120
645.0120	GEOTEXTILE TYPE HR	SY	165	--	170	335
	NON-BID ITEMS					
	FILLER	SIZE	--	--	--	½"
	NAME PLATE					



PROFILE GRADE LINE

WOODLAND ROAD



HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

PILE SPLICE DETAIL

STEEL "HP" PILE MATERIAL SHALL BE ASTM A 572 GRADE 50.

NO.	DATE	REVISION	BY

STRUCTURE B-59-204

DRAWN BY JZ | PLANS CK'D. PTB

CROSS SECTION AND QUANTITIES

SHEET 2 OF 12

FILE NAME : S:\PROJECTS\W11567 WOODLAND RD, SHEBOYGAN COUNTY\STRUCTURE\CAD FILES\FINALS\02 CROSS SECTION AND QUANTITIES.DWG PLOT DATE : 9/17/2018 11:55:25 AM PLOT BY : BOLAND, PATRICK PLOT SCALE : 1" = 1' LAYOUT : LAYOUT1

STATE PROJECT NUMBER

□2□□□□□1

SOIL BORINGS

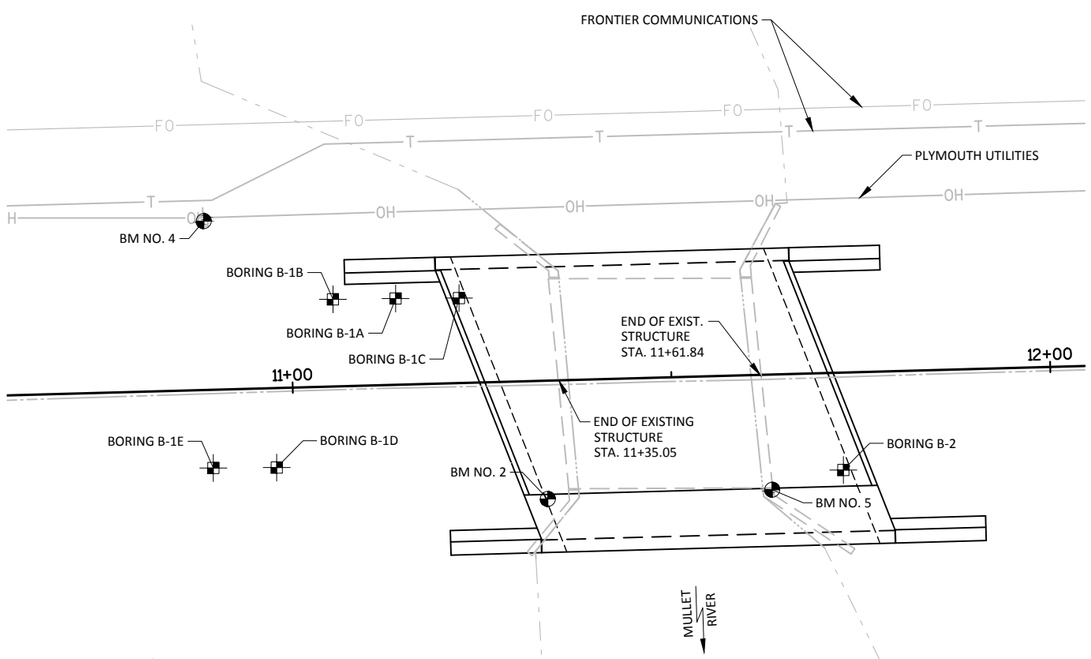
BORING NUMBER	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	07/12/17	185,933.90	144,752.60
2	07/13/17	185,934.17	144,669.44

BORINGS & REPORT COMPLETED BY: PSI
1125 W. TUCKAWAY LANE, SUITE B
MENASHA, WI 54952

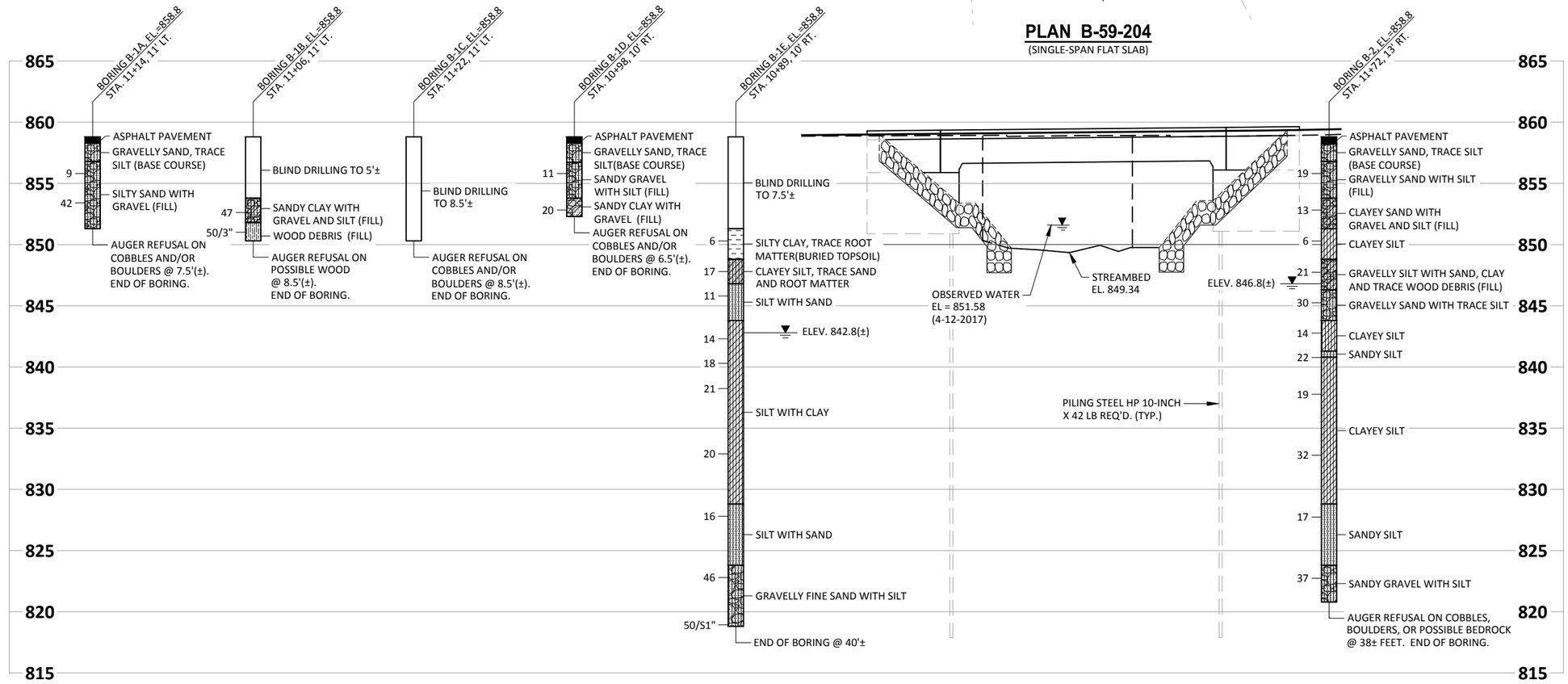
ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATE 35 FT PILE LENGTHS AT BOTH ABUTMENTS.

BASED ON SUBSURFACE EXPLORATION, AT THE WEST ABUTMENT, IT IS LIKELY THAT DEBRIS CONSISTING OF POSSIBLE COBBLES, BOULDERS, OR WOOD DEBRIS WILL BE ENCOUNTERED IN THE OLD ROADBED FILL AT AN ELEVATION APPROXIMATELY EQUAL TO THE BOTTOM OF THE PROPOSED ABUTMENT. TO REDUCE THE PROBABILITY OF PILE DAMAGE, ANY DEBRIS ENCOUNTERED SHALL BE REMOVED UNDER THE BID ITEM "EXCAVATION FOR STRUCTURES". ANY BACKFILL REQUIRED TO RESTORE THE EXCAVATION UP TO THE BOTTOM OF ABUTMENT ELEVATION SHALL BE PAID FOR UNDER THE BID ITEM "BACKFILL STRUCTURE TYPE A" AND SHALL CONSIST OF BACKFILL STRUCTURE TYPE A OR AN APPROVED EQUAL AS APPROVED BY THE ENGINEER IN THE FIELD.

N



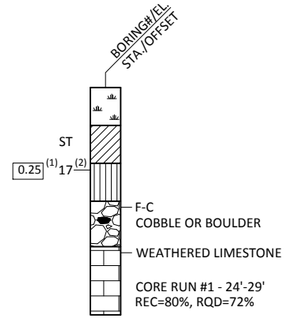
PLAN B-59-204
(SINGLE-SPAN FLAT SLAB)



MATERIAL SYMBOLS

Asphalt · Topsoil · Peat
Concrete · Fill · Gravel
Sand · Clay · Silt
Boulders or Cobbles · Limestone · Bedrock (unknown)
Shale · Sandstone · Igneous/ meta

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE SPECIFIED, THE SPT 'N' VALUE IS BASED ON AASHTO T-206 STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATIONS

AT TIME OF DRILLING
END OF DRILLING
AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COURSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-204

DRAWN BY TS | PLANS CK'D. PTB

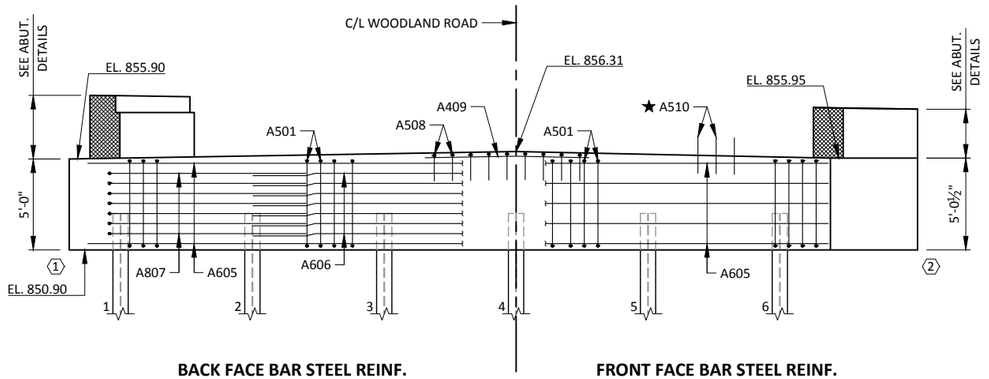
SUBSURFACE EXPLORATION

SHEET 3 OF 12

52

STATE PROJECT NUMBER

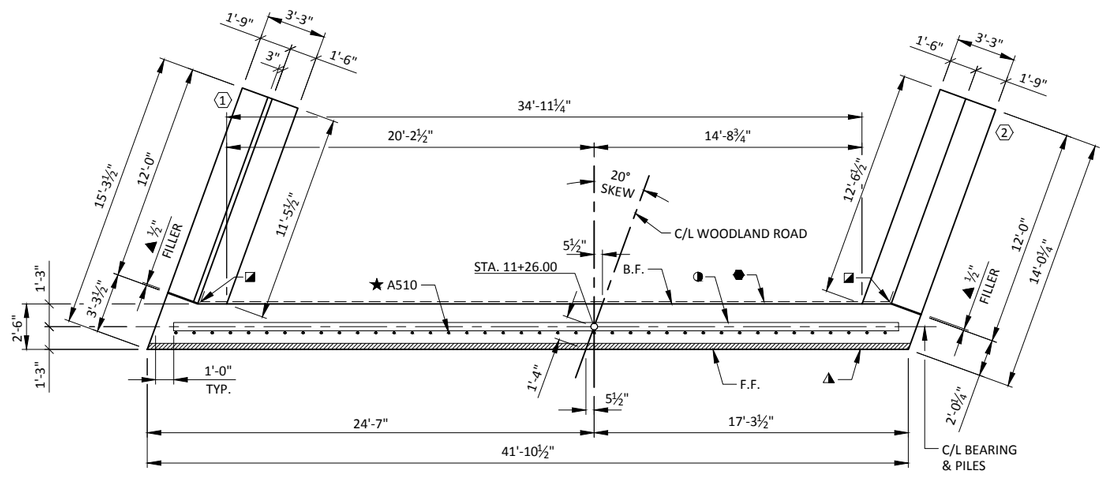
4204-07-71



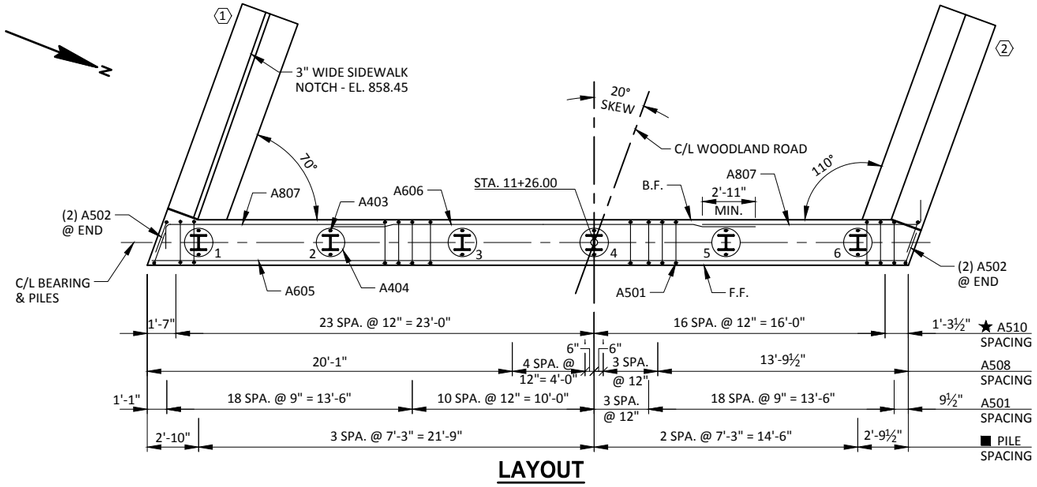
BACK FACE BAR STEEL REINF. **FRONT FACE BAR STEEL REINF.**

ELEVATION

(WEST ABUTMENT LOOKING WEST)



PLAN



LAYOUT

NOTES

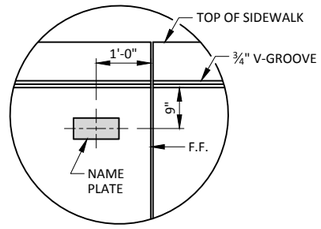
SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE SHEET 5 FOR BILL OF BARS.

SEAT ELEVATIONS SHOWN IN THE ELEVATION VIEW ARE TAKEN AT THE C/L OF BEARING (NEGLECTING THE KEYED CONSTRUCTION JOINT).

SPACE REINFORCEMENT TO MISS PILING

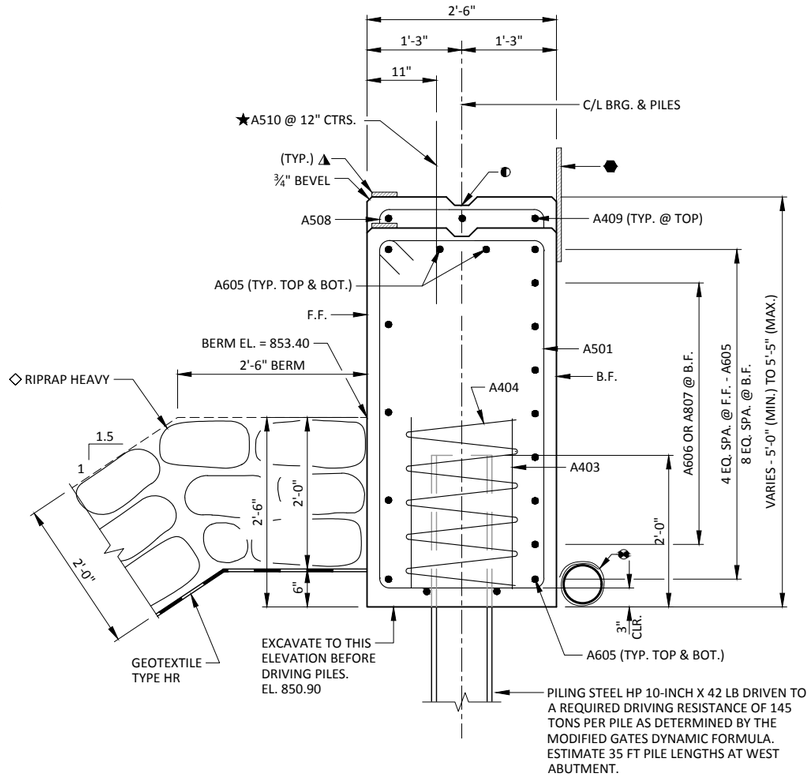
F.F. - FRONT FACE

B.F. - BACK FACE



NAME PLATE DETAIL

WING 1 ONLY



TYPICAL SECTION THROUGH ABUTMENT BODY

LEGEND

- ◑ KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6.
- ◪ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING EXTEND FROM 9" BELOW BRIDGE SEAT TO 1" BELOW TOP OF WINGS.
- ⬣ 18" RUBBERIZED MEMBRANE WATERPROOFING. (HORIZONTAL)
- ▲ ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINUOS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE)
- ◭ ½" x 4" PREFORMED FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF SLAB.
- ★ A510 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE IT HAS TAKEN ITS INITIAL SET. EMBED BAR 1'-0".
- ■ PILE SPACING MEASURED AT BASE OF ABUTMENT BODY.
- ◓ PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPED 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 2. RODENT SCREEN TO BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH."
- ◇ VOIDS IN THE RIPRAP HEAVY SHALL BE FILLED WITH 6-INCH STONE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-204

DRAWN BY JZ | PLANS CK'D. PTB

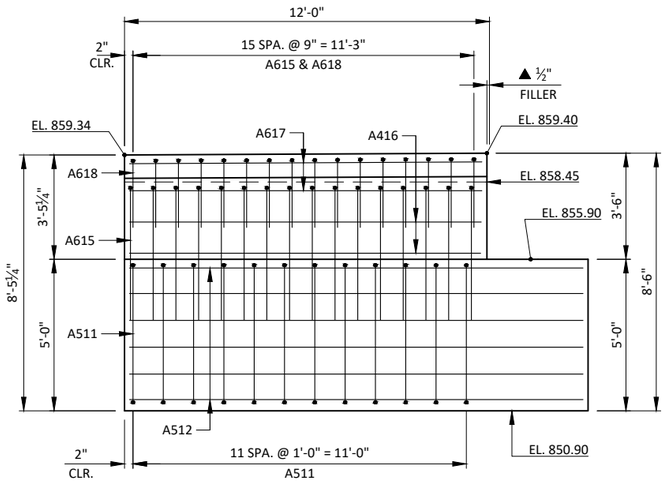
WEST ABUTMENT

SHEET 4 OF 12

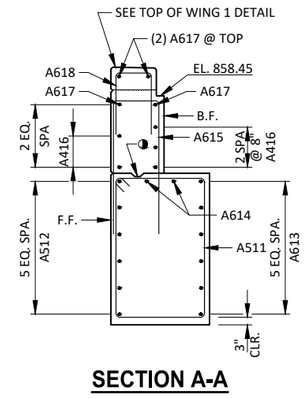
53

8

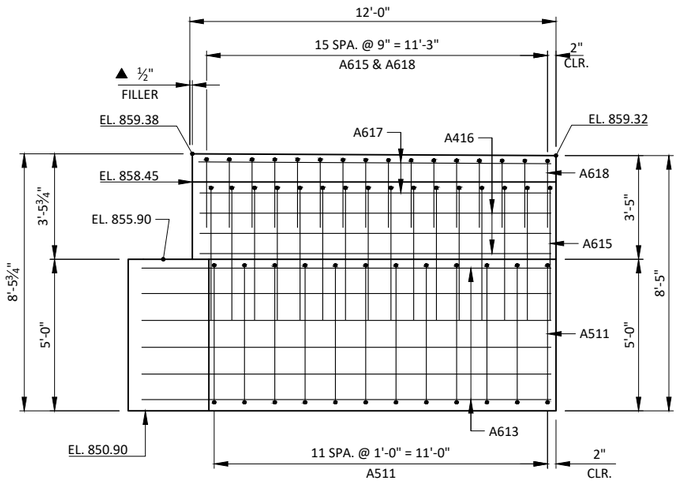
8



F.F. ELEVATION - WING 1



SECTION A-A



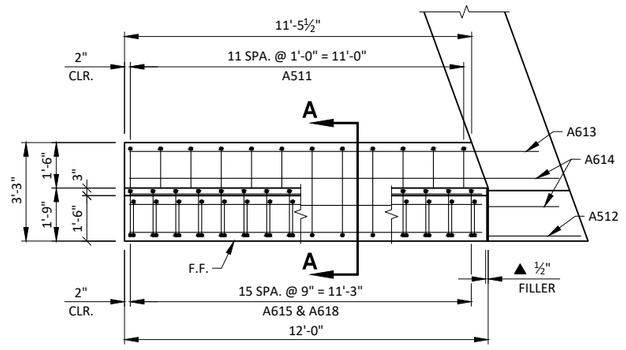
B.F. ELEVATION - WING 1

LEGEND

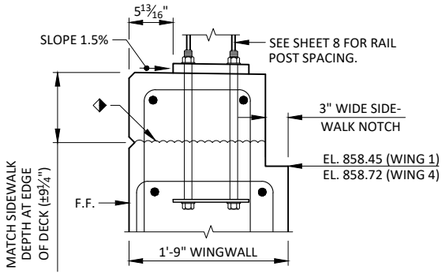
◐ OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6. ¾-INCH "V" GROOVE AT FRONT FACE OF WING WALL AND HORIZONTAL 18" RUBBERIZED MEMBRANE WATERPROOFING AT BACK FACE IF CONSTRUCTION JOINT IS USED. COST IS INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY BRIDGES".

▲ ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINUOS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE)

◈ OPTIONAL CONSTRUCTION JOINT, LEAVE ROUGH. POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE. ¾-INCH "V" GROOVE AT FRONT FACE IF CONSTRUCTION JOINT IS USED.

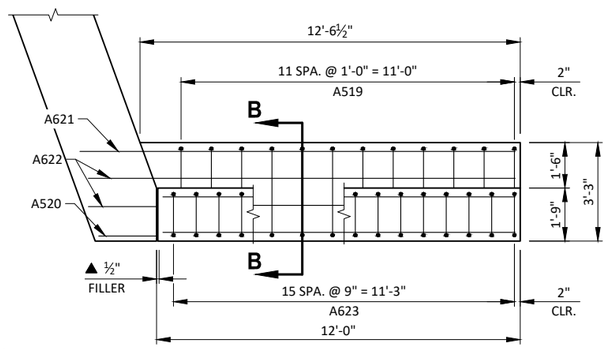


PLAN VIEW - WING 1

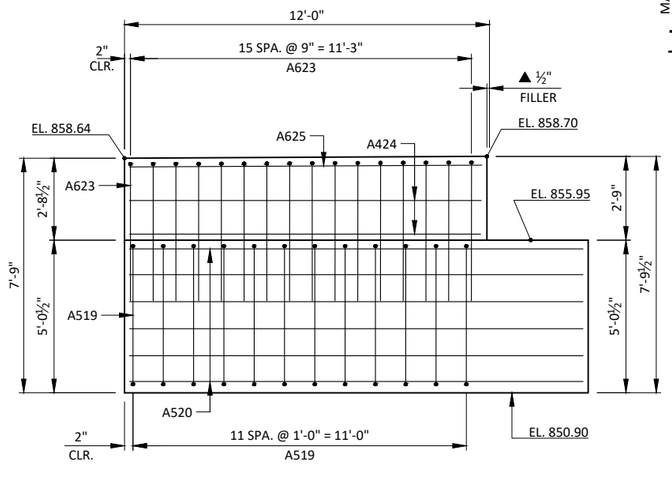


TOP OF WING DETAIL (AT SIDEWALK)

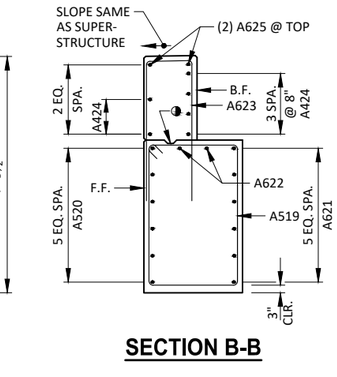
WING 1 SHOWN, WING 4 SIMILAR (SEE SHEET 7)



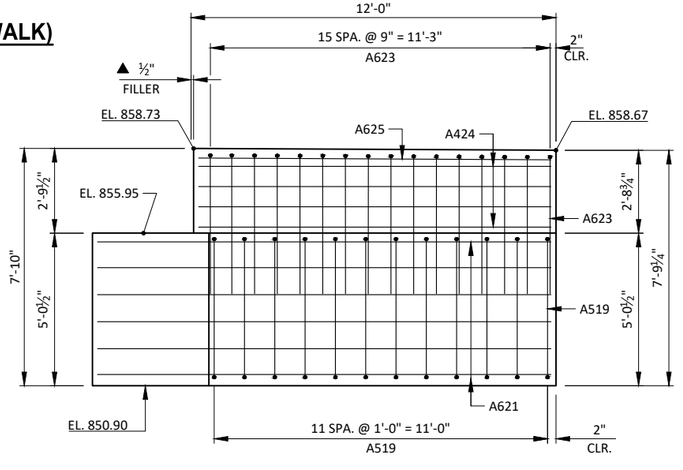
PLAN VIEW - WING 2



F.F. ELEVATION - WING 2



SECTION B-B



B.F. ELEVATION - WING 2

NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE THIS SHEET FOR BILL OF BARS.

SPACE REINFORCEMENT TO MISS PILING

F.F. - FRONT FACE

B.F. - BACK FACE

STATE PROJECT NUMBER

4204-07-71

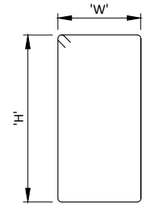
BILL OF BARS
WEST ABUTMENT

1,860 LB (COATED)
2,380 LB (UNCOATED)

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	LOCATION
A501	50	14-0	X		BODY -VERT. - STIRRUP
A502	4	7-10	X		BODY - VERT. - STIRRUP AT ENDS
A403	12	2-3			BODY - VERT. - 2 PER PILE
A404	6	28-0	X		BODY - SPIRAL - 1 PER PILE
A605	11	41-6			BODY - HORIZ. - F.F. & TOP
A606	7	23-4			BODY - HORIZ. - B.F.
A807	14	13-2	X		BODY - HORIZ. - B.F.
A508	9	4-11	X		BODY - VERT. - TOP
A409	3	9-0			BODY - HORIZ. - TOP
A510	40	2-0		X	BODY - VERT. - DOWELS
A511	12	15-6	X	X	WING 1 - VERT. - STIRRUP
A512	6	14-10		X	WING 1- HORIZ. - F.F.
A613	6	13-6		X	WING 1 - HORIZ. - B.F.
A614	2	14-2		X	WING 1 - HORIZ. - TOP
A615	16	10-1	X	X	WING 1 - VERT. - TOP
A416	5	11-7		X	WING 1 - HORIZ. - F.F. & B.F.
A617	4	11-7		X	WING 1 - HORIZ. - TOP
A618	16	5-6	X	X	WING 1 - VERT. - SIDEWALK NOTCH
A519	12	15-6	X	X	WING 2 - VERT. - STIRRUP
A520	6	13-8		X	WING 2 - HORIZ. - F.F.
A621	6	14-5		X	WING 2 - HORIZ. - B.F.
A622	2	14-1		X	WING 2 - HORIZ. - TOP
A623	16	10-5	X	X	WING 2 - VERT. - TOP
A424	6	11-7		X	WING 2 - HORIZ. - F.F. & B.F.
A625	2	11-7		X	WING 2 - HORIZ. - TOP

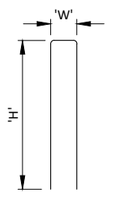
NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



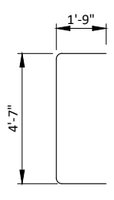
A501, A511, A519

BAR MARK	'W'	'H'
A501	2-2	4-7
A511	2-11	4-7
A519	2-11	4-7

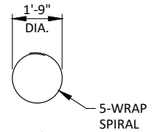


A508, A615, A618, A623

BAR MARK	'W'	'H'
A508	2-2	1-5
A615	1-5	4-7
A618	1-3	2-0
A623	1-5	4-6



A502



A404

A807

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-204

DRAWN BY JZ | PLANS CK'D. PTB

WEST ABUTMENT DETAILS

SHEET 5 OF 12

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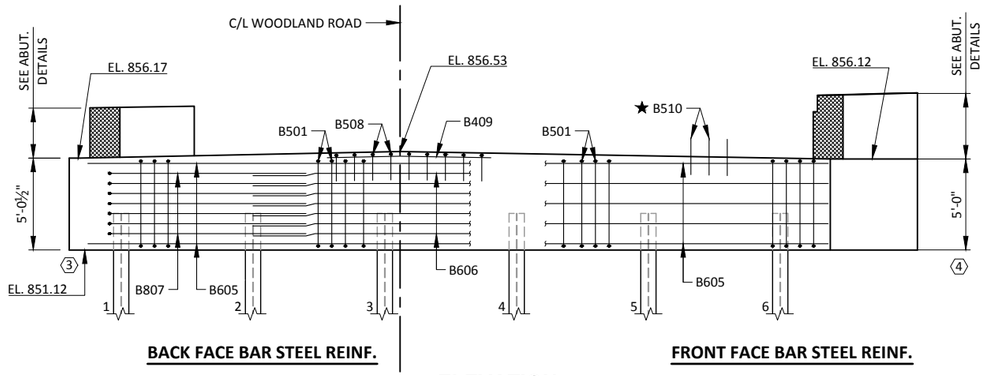
8

8

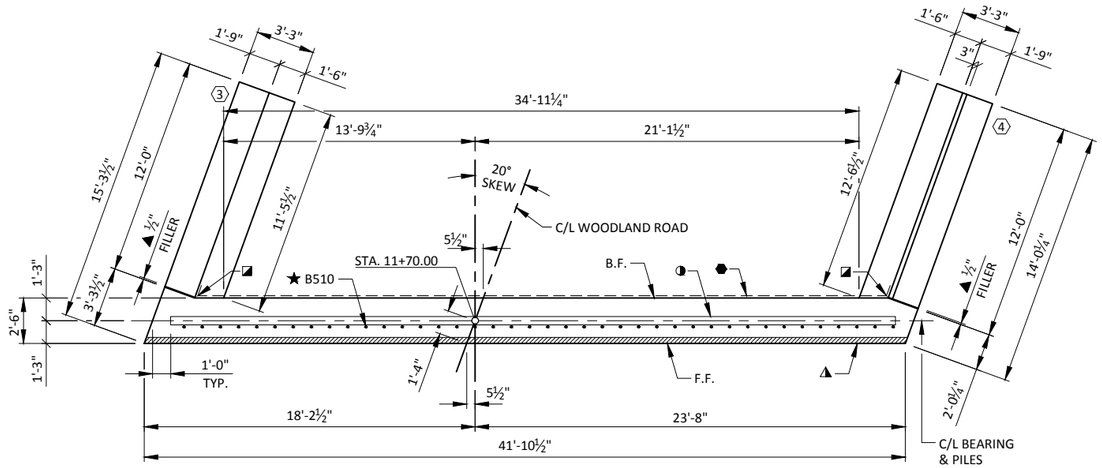
STATE PROJECT NUMBER

4204-07-71

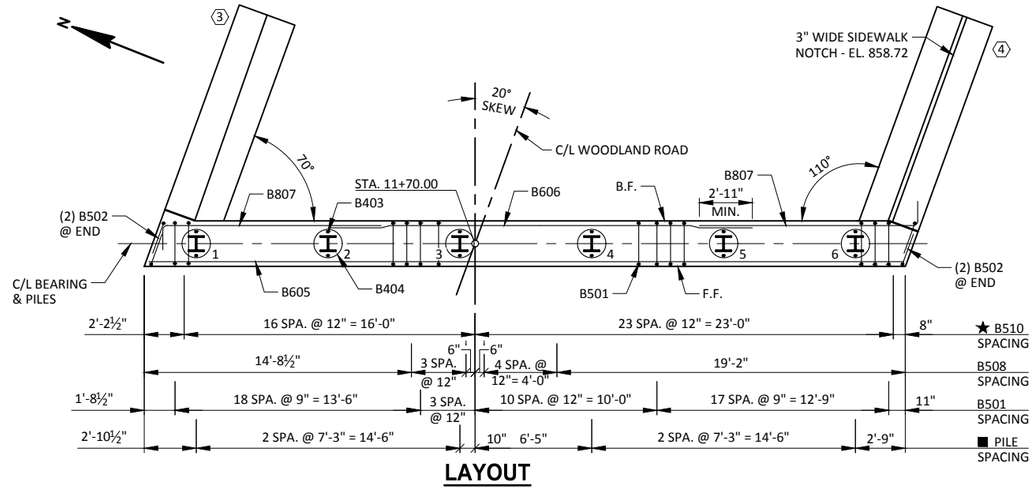


ELEVATION

(EAST ABUTMENT LOOKING EAST)



PLAN



LAYOUT

NOTES

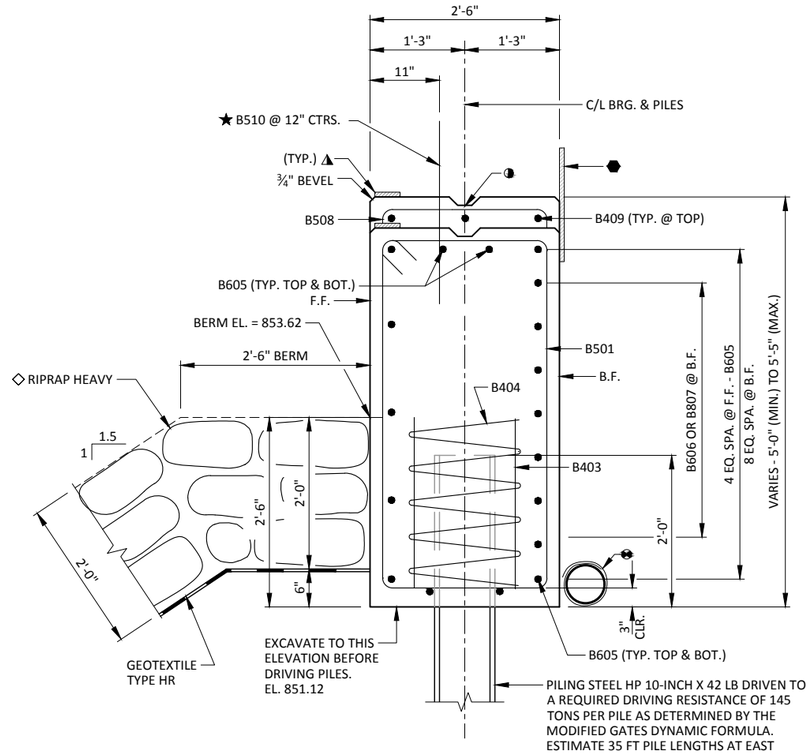
SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE SHEET 7 FOR BILL OF BARS.

SEAT ELEVATIONS SHOWN IN THE ELEVATION VIEW ARE TAKEN AT THE C/L OF BEARING (NEGLECTING THE KEYED CONSTRUCTION JOINT).

SPACE REINFORCEMENT TO MISS PILING

F.F. - FRONT FACE

B.F. - BACK FACE



TYPICAL SECTION THROUGH ABUTMENT BODY

LEGEND

- ◑ KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6.
- ◪ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING EXTEND FROM 9" BELOW BRIDGE SEAT TO 1" BELOW TOP OF WINGS.
- ⬣ 18" RUBBERIZED MEMBRANE WATERPROOFING. (HORIZONTAL)
- ▲ ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINUOS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE)
- ◭ ½" x 4" PREFORMED FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF SLAB.
- ★ B510 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE IT HAS TAKEN ITS INITIAL SET. EMBED BAR 1'-0".
- ■ PILE SPACING MEASURED AT BASE OF ABUTMENT BODY.
- ◓ PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPED 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 2. RODENT SCREEN TO BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH."
- ◇ VOIDS IN THE RIPRAP HEAVY SHALL BE FILLED WITH 6-INCH STONE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-204

DRAWN BY JZ | PLANS CK'D. PTB

EAST ABUTMENT

SHEET 6 OF 12

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8

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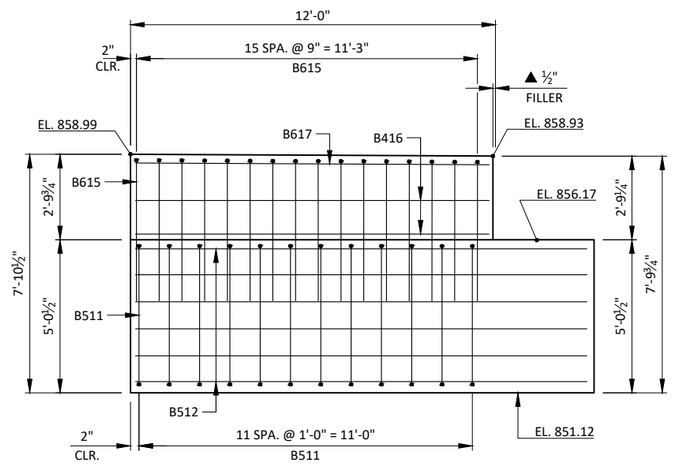
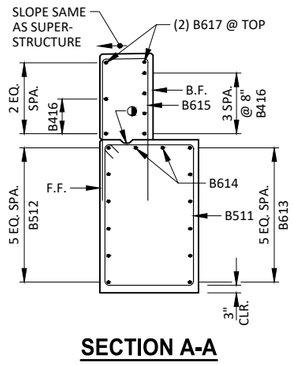
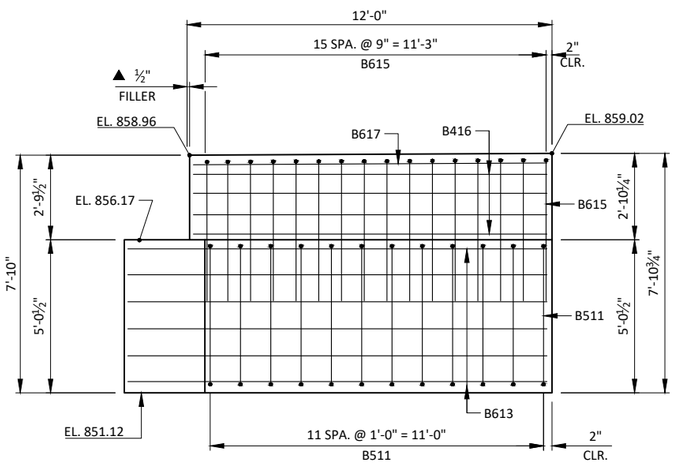


F.F. ELEVATION - WING 3



SECTION A-A



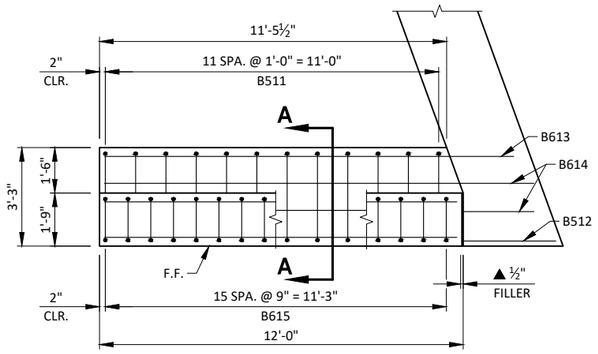
B.F. ELEVATION - WING 3

LEGEND

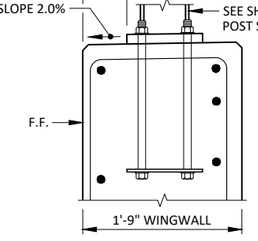
◐ OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6. ¾-INCH "V" GROOVE AT FRONT FACE OF WING WALL AND HORIZONTAL 18" RUBBERIZED MEMBRANE WATERPROOFING AT BACK FACE IF CONSTRUCTION JOINT IS USED. COST IS INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY BRIDGES".

▲ ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINUOS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE)

◆ OPTIONAL CONSTRUCTION JOINT, LEAVE ROUGH. POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE. ¾-INCH "V" GROOVE AT FRONT FACE IF CONSTRUCTION JOINT IS USED.

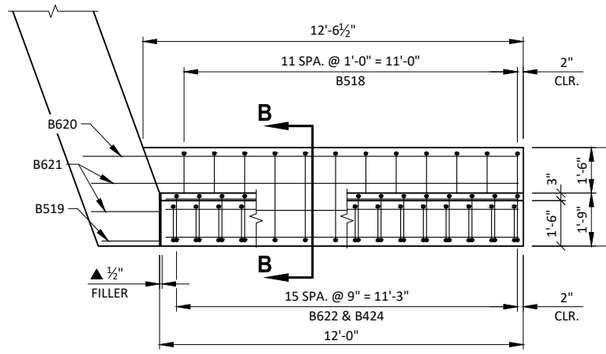


PLAN VIEW - WING 3

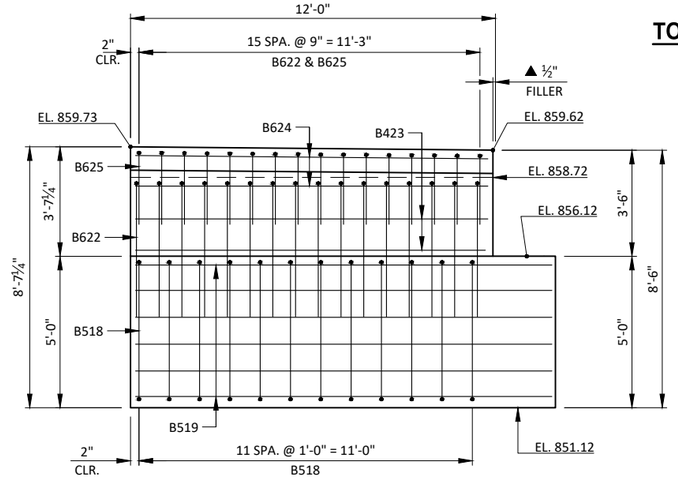


TOP OF WING DETAIL (W/O SIDEWALK)

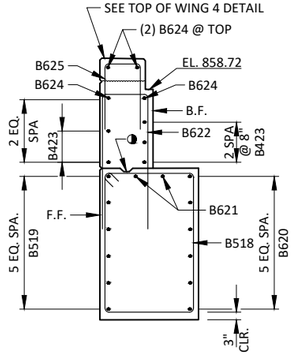
WING 3 SHOWN, WING 2 SIMILAR (SEE SHEET 5)



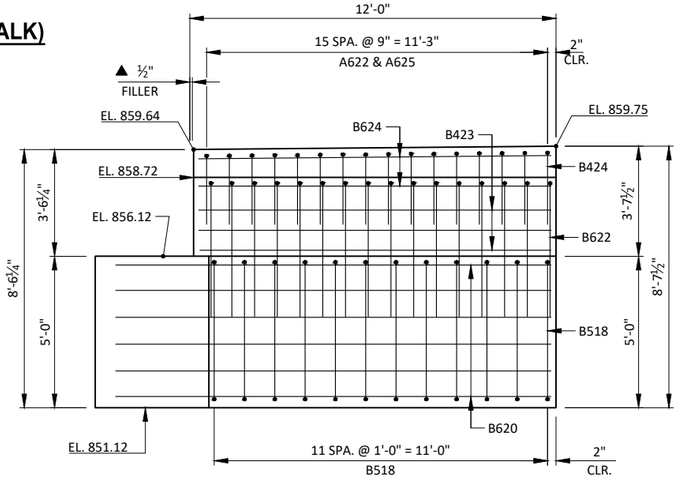
PLAN VIEW - WING 4



F.F. ELEVATION - WING 4



SECTION B-B



B.F. ELEVATION - WING 4

NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE THIS SHEET FOR BILL OF BARS.

SPACE REINFORCEMENT TO MISS PILING

F.F. - FRONT FACE

B.F. - BACK FACE

STATE PROJECT NUMBER

4204-07-71

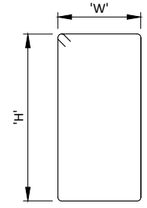
BILL OF BARS
EAST ABUTMENT

1,810 LB (COATED)
2,370 LB (UNCOATED)

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	LOCATION
B501	49	14-0	X		BODY -VERT. - STIRRUP
B502	4	7-10	X		BODY - VERT. - STIRRUP AT ENDS
B403	12	2-3			BODY - VERT. - 2 PER PILE
B404	6	28-0	X		BODY - SPIRAL - 1 PER PILE
B605	11	41-6			BODY - HORIZ. - F.F. & TOP
B606	7	23-4			BODY - HORIZ. - B.F.
B807	14	13-2	X		BODY - HORIZ. - B.F.
B508	9	4-11	X		BODY - VERT. - TOP
B409	3	9-0			BODY - HORIZ. - TOP
B510	40	2-0		X	BODY - VERT. - DOWELS
B511	12	15-6	X	X	WING 3 - VERT. - STIRRUP
B512	6	14-10		X	WING 3- HORIZ. - F.F.
B613	6	13-6		X	WING 3 - HORIZ. - B.F.
B614	2	14-2		X	WING 3 - HORIZ. - TOP
B615	16	10-5	X	X	WING 3 - VERT. - TOP
B416	6	11-7		X	WING 3 - HORIZ. - F.F. & B.F.
B617	2	11-7		X	WING 3 - HORIZ. - TOP
B518	12	15-6	X	X	WING 4 - VERT. - STIRRUP
B519	6	13-8		X	WING 4 - HORIZ. - F.F.
B620	6	14-5		X	WING 4 - HORIZ. - B.F.
B621	2	14-1		X	WING 4 - HORIZ. - TOP
B622	16	10-1	X	X	WING 4 - VERT. - TOP
B423	5	11-7		X	WING 4 - HORIZ. - F.F. & B.F.
B624	4	11-7		X	WING 4 - HORIZ. - TOP
B625	16	5-10	X	X	WING 4 - VERT. - SIDEWALK NOTCH

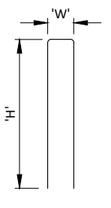
NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



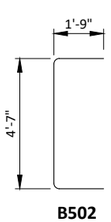
B501, B511, B518

BAR MARK	'W'	'H'
B501	2-2	4-7
B511	2-11	4-7
B518	2-11	4-7

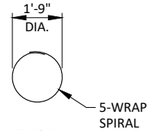


B508, B615, B622, B625

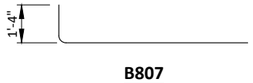
BAR MARK	'W'	'H'
B508	2-2	1-6
B615	1-5	4-8
B622	1-5	4-6
B625	1-2	2-6



B502



B404



B807

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-204

DRAWN BY JZ | PLANS CK'D. PTB

EAST ABUTMENT DETAILS

SHEET 7 OF 12

56

8

8

STATE PROJECT NUMBER
4204-07-71

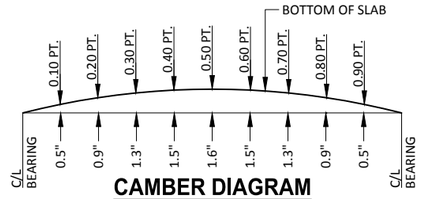
SURVEY TOP OF DECK ELEVATIONS

	W. ABUT.	0.50 PT.	E. ABUT.
NORTH EDGE OF DECK			
CENTER LINE			
SOUTH EDGE OF DECK			

PRIOR TO RELEASING SLAB FASLEWORK, TAKE TOP OF DECK ELEVATIONS AT THE C/L OF THE ABUTMENTS AND AT 0.50 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG THE EDGE OF DECK AND CENTER LINE. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

TOP OF DECK ELEVATIONS

	C/L W. ABUT.	0.10 PNT.	0.20 PNT.	0.30 PNT.	0.40 PNT.	0.50 PNT.	0.60 PNT.	0.70 PNT.	0.80 PNT.	0.90 PNT.	C/L E. ABUT.
N. EDGE	858.70	858.72	858.74	858.77	858.79	858.81	858.83	858.85	858.88	858.90	858.92
C/L	859.06	859.08	859.10	859.13	859.15	859.17	859.19	859.21	859.23	859.26	859.28
FACE CURB	858.79	858.81	858.83	858.85	858.87	858.90	858.92	858.94	858.96	858.98	859.00
S. EDGE	858.65	858.67	858.69	858.72	858.74	858.76	858.78	858.80	858.83	858.84	858.87

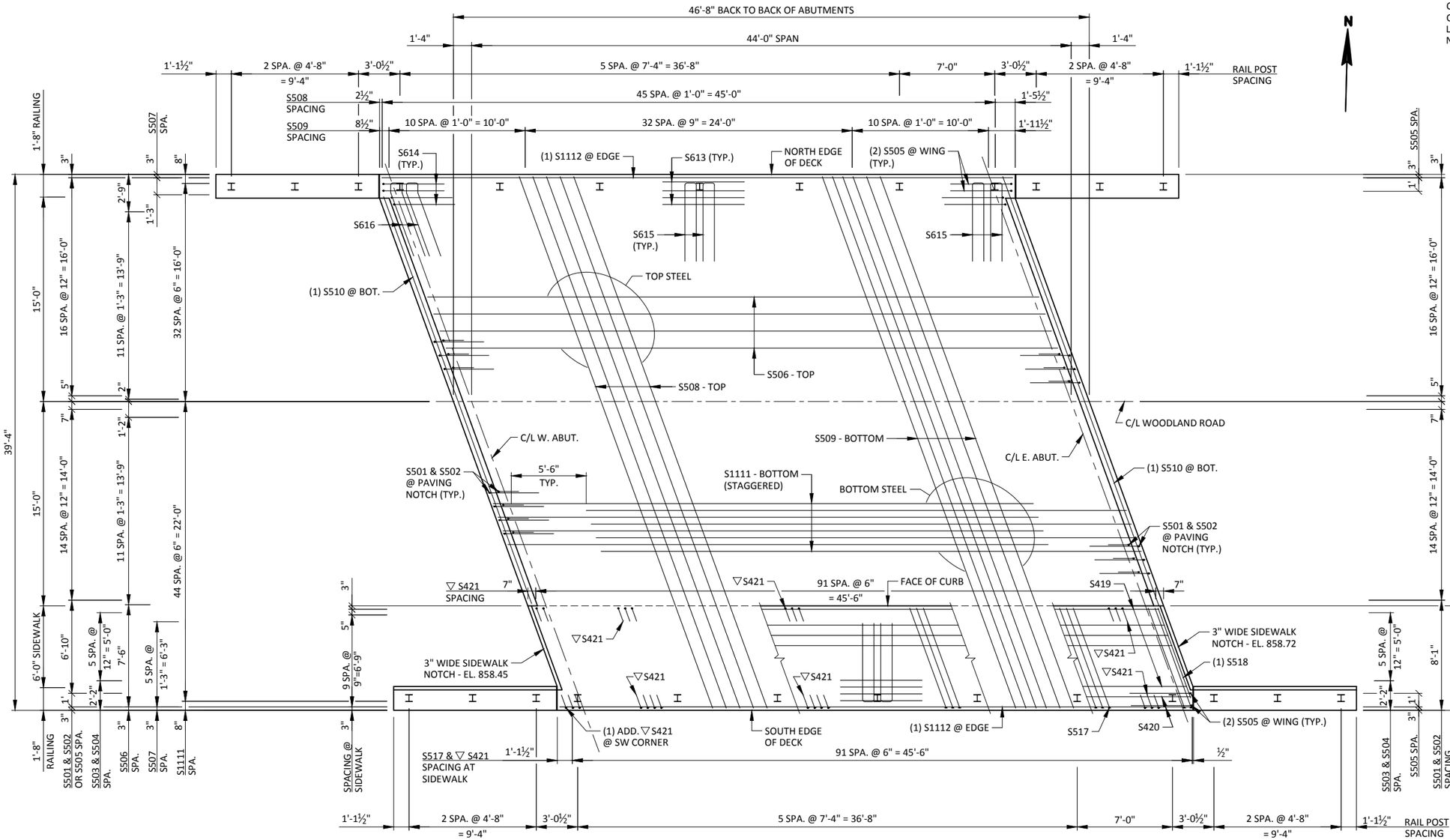


CAMBER DIAGRAM

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTIONS. CAMBER SPAN AS SHOWN TO PROVIDE FOR THEORETICAL DEAD LOAD DEFLECTION AND FUTURE PLASTIC FLOW. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB OR CENTER LINE FOLLOW THIS PROCEDURE:

TOP OF DECK ELEVATION AT FINAL GRADE
-SLAB THICKNESS
+CAMBER
+FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (COMPUTED BY CONTRACTOR)
=TOP OF SLAB FALSEWORK ELEVATION.



PLAN

N

LEGEND

▽ S421 SIDEWALK BARS TO BE TIED TO DECK STEEL BEFORE DECK IS POURED. SEE THIS SHEET FOR BAR LAYOUT.

NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE SHEET 9 FOR BILL OF BARS.

SEE SUPERSTRUCTURE DETAIL SHEET (SHEET 9 OF 12) FOR BAR SPACINGS NOT SHOWN ON THIS SHEET.

SUPPORT ALTERNATE TOP TRANSVERSE BARS IN SLAB BY INDIVIDUAL BAR CHAIRS AT APPROX. 3'-0" CENTERS. SUPPORT BOTTOM LONGITUDINAL BARS BY CONTINUOUS BAR CHAIRS AT APPROX. 4'-0" CENTERS.

PLACE TRANSVERSE BARS PARALLEL TO THE CENTERLINE OF SUBSTRUCTURE UNITS.

THE SLAB THICKNESS DIMENSION IS MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-204

DRAWN BY	JZ	PLANS CK'D.	PTB

SUPERSTRUCTURE

SHEET 8 OF 12

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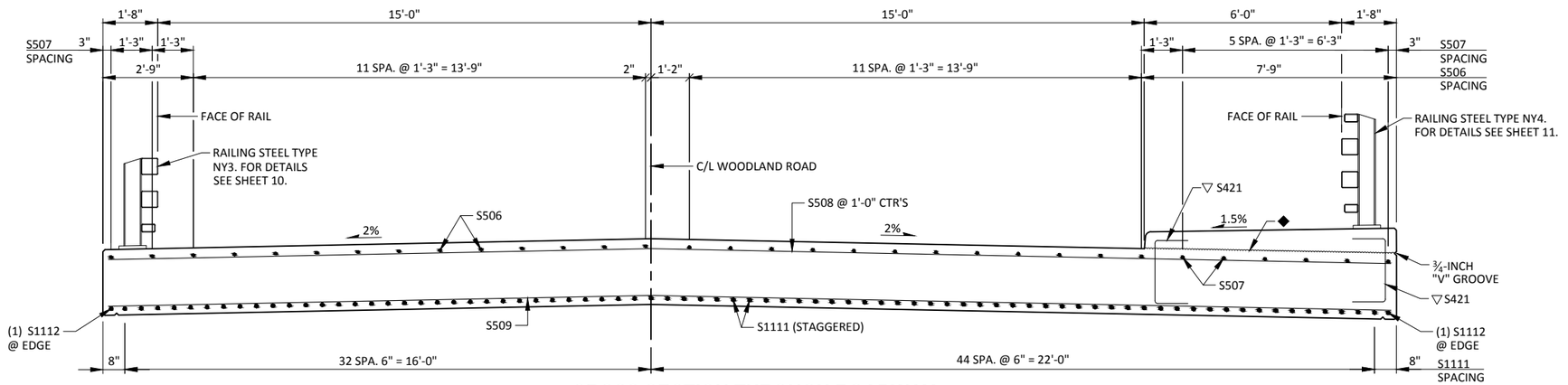
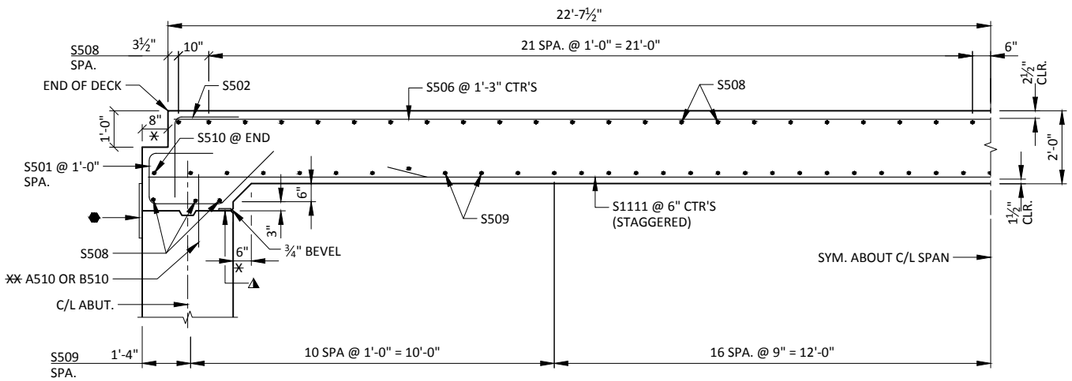
STATE PROJECT NUMBER
4204-07-71

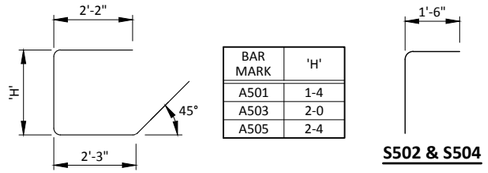


CROSS SECTION THROUGH ROADWAY

LOOKING EAST



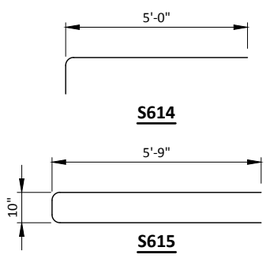
PARTIAL LONGITUDINAL SECTION THROUGH ROADWAY

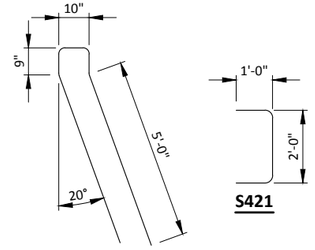


BAR MARK	'H'
A501	1-4
A503	2-0
A505	2-4

S501, S503 & S505

S502 & S504





BILL OF BARS SUPERSTRUCTURE

26,390 LB (COATED)

BAR MARK	NO. REQ'D.	LENGTH	BENT	COAT	LOCATION
S501	60	7-7	X	X	END OF DECK @ PAVING NOTCH
S502	60	3-8	X	X	END OF DECK @ PAVING NOTCH
S503	12	8-3	X	X	END OF DECK @ SIDEWALK NOTCH
S504	12	3-8	X	X	END OF DECK @ SIDEWALK NOTCH
S505	8	8-7	X	X	END OF DECK @ WINGWALLS
S506	24	44-10		X	SLAB - TOP - LONG.
S507	8	45-9		X	SLAB - TOP - LONG. @ SW NOTCH & N. EDGE
S508	52	41-6		X	SLAB - TOP - TRANS.
S509	53	41-6		X	SLAB - BOTTOM - TRANS.
S510	2	40-3		X	SLAB - BOTTOM - TRANS @ ENDS
S1111	77	39-8		X	SLAB - BOTTOM - LONG. (STAGGERED)
S1112	2	46-3		X	SLAB - BOTTOM - LONG. @ EDGES
S613	48	6-0		X	RAIL POSTS - INT. & CORNERS @ S. EDGE
S614	8	6-0	X	X	RAIL POSTS - CORNERS @ NORTH EDGE
S615	24	12-0	X	X	RAIL POSTS
S616	4	12-0	X	X	RAIL POSTS - CORNERS
S517	92	8-2	X	X	SIDEWALK - TOP - TRANS.
S518	1	7-0		X	SIDEWALK - TOP - TRANS. @ EAST END
S419	9	45-9		X	SIDEWALK - LONG.
S420	2	46-3		X	SIDEWALK - LONG. @ OUTSIDE
S421	185	3-10	X	X	SIDEWALK - STIRRUPS

NOTES: THE FIRST DIGIT OF A THREE DIGIT BAR MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

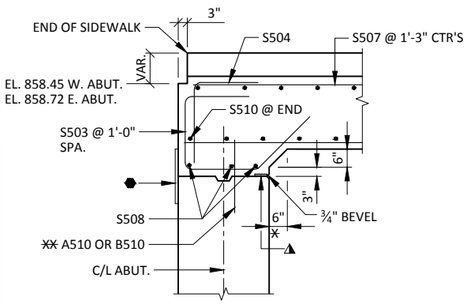
NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE THIS SHEET FOR BILL OF BARS.

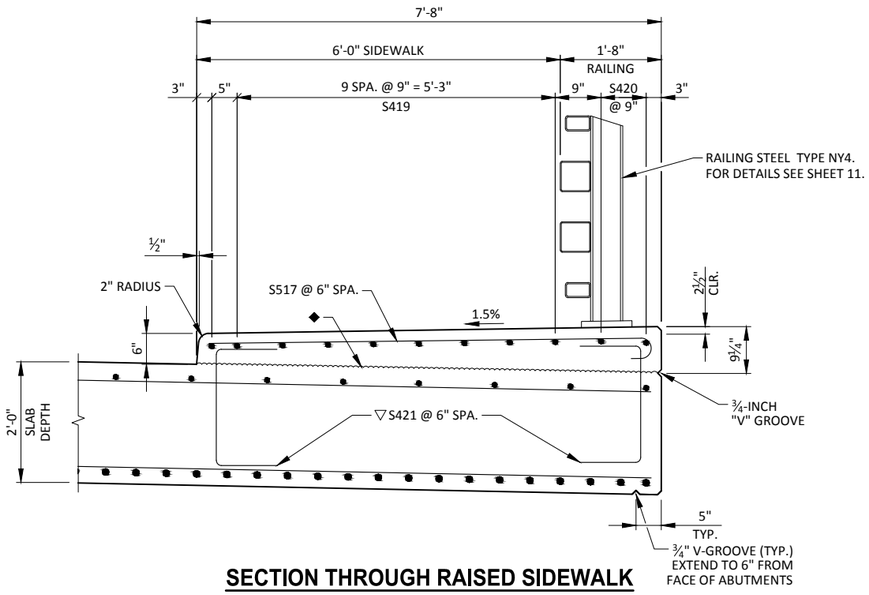
SUPPORT ALTERNATE TOP TRANSVERSE BARS IN SLAB BY INDIVIDUAL BAR CHAIRS AT APPROX. 3'-0" CENTERS. SUPPORT BOTTOM LONGITUDINAL BARS BY CONTINUOUS BAR CHAIRS AT APPROX. 4'-0" CENTERS.

PLACE TRANSVERSE BARS PARALLEL TO THE CENTERLINE OF SUBSTRUCTURE UNITS.

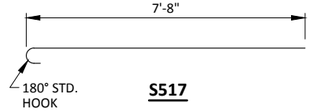
THE SLAB THICKNESS DIMENSION IS MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

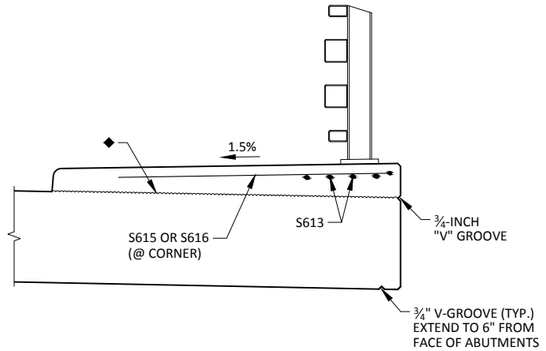


PARTIAL LONGITUDINAL SECTION AT SIDEWALK NOTCH



SECTION THROUGH RAISED SIDEWALK





SECTION THROUGH RAILING ON SIDEWALK

LEGEND

- ⬢ 18" RUBBERIZED MEMBRANE WATERPROOFING. (HORIZONTAL)
- ◮ ½" x 4" PREFORMED FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF SLAB.
- ◆ CONSTRUCTION JOINT - STRIKE OFF AND LEAVE ROUGH. FINISH ALL AREAS THAT WILL NOT BE COVERED WITH SIDEWALK OR PARAPET AT COMPLETION. FOR SLAB PLACEMENT, MATCH BRIDGE CROSS SLOPE.
- ▽ S421 SIDEWALK BARS TO BE TIED TO DECK STEEL BEFORE DECK IS POURED. SEE SHEET 8 OF 12 FOR BAR LAYOUT.
- ∗ DIMENSION IS NORMAL TO THE C/L OF SUBSTRUCTURE UNITS.
- ∗∗ SEE SHEETS 4 OR 6 FOR PLACEMENT OF A510 OR B510 BARS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-204

DRAWN BY JZ | PLANS CK'D. PTB

SUPERSTRUCTURE DETAILS

SHEET 9 OF 12

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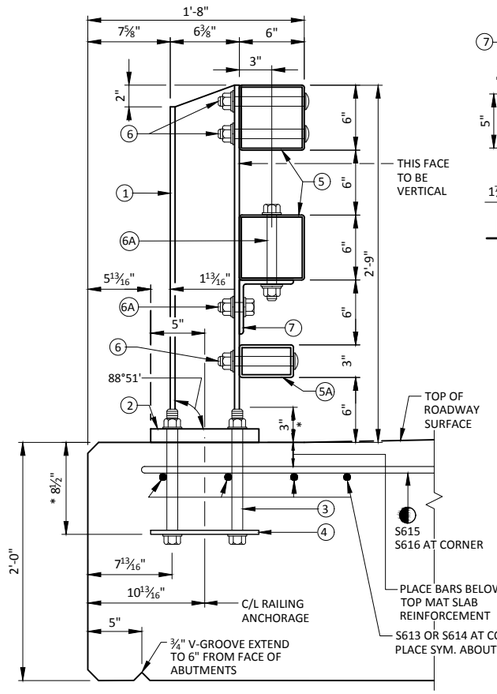
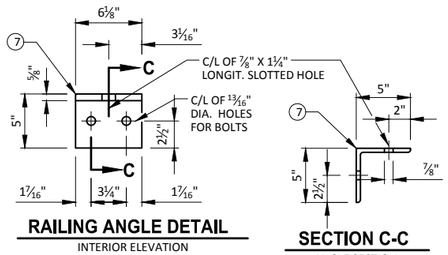
STATE PROJECT NUMBER

4204-07-71



SECTION THRU RAILING ON DECK

* NORMAL TO BASE PLATE

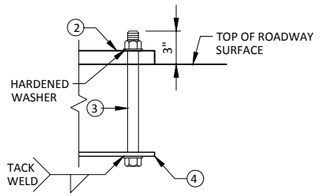


RAILING ANGLE DETAIL

INTERIOR ELEVATION

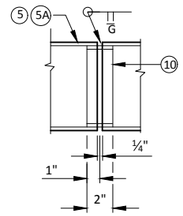
SECTION C-C

ANGLE SECTION



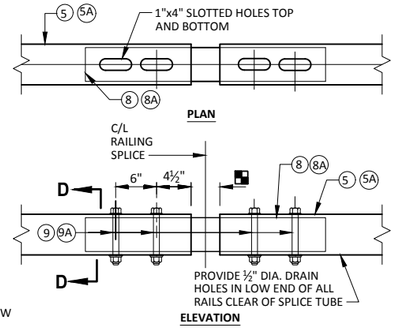
ANCHOR BOLTS

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

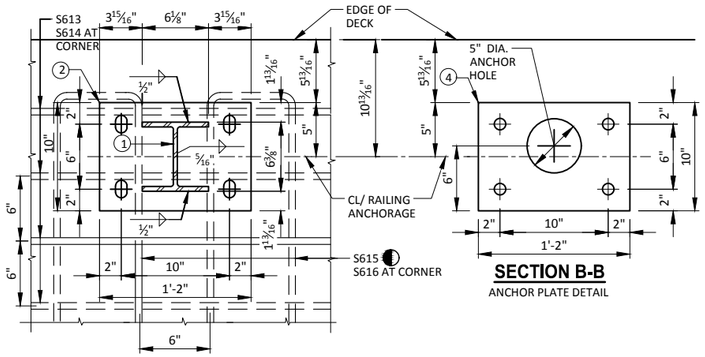


SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



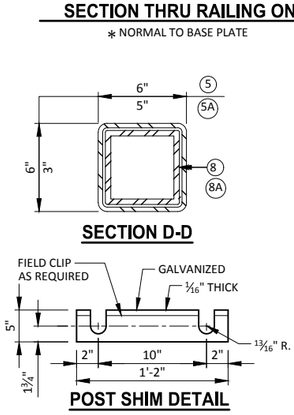
FIELD ERECTION JOINT DETAIL



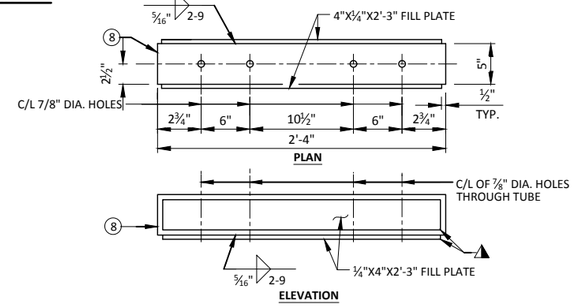
SECTION A-A

SECTION B-B

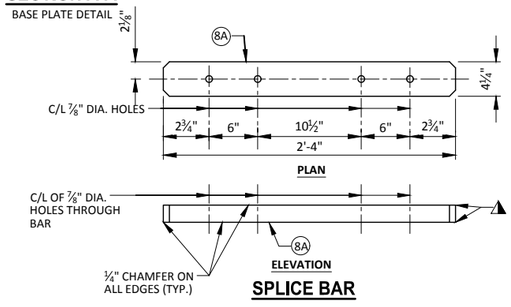
ANCHOR PLATE DETAIL



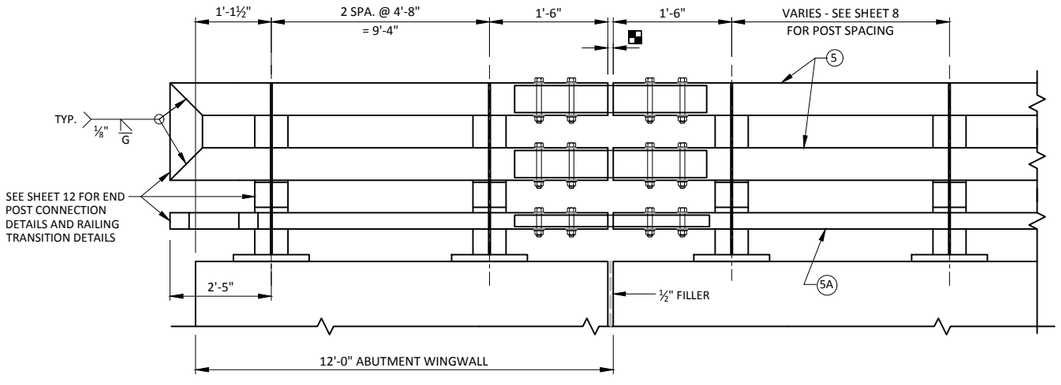
POST SHIM DETAIL



SPLICE TUBE

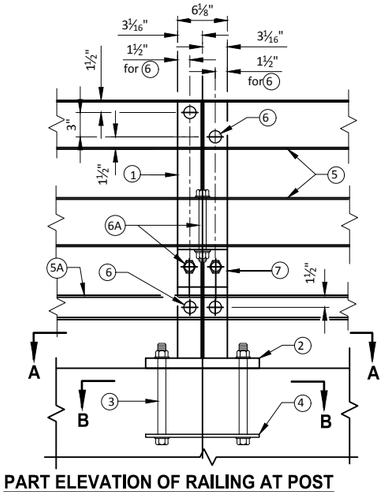


SPLICE BAR



PART ELEVATION OF RAILING

INTERIOR ELEVATION



PART ELEVATION OF RAILING AT POST

INTERIOR ELEVATION

LEGEND

(1) W6 X 25 1⅛" X 1¾" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT NO. 5. USE 1" DIA. HOLES FOR BOLT NO. 6 AT NO. 5A AND FOR BOLT NO. 6A AT NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

(2) PLATE 1¼" X 10" X 1'-2" WITH 1¼" X 1⅞" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

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

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

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

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

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

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

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

(8) TS 5 X 5 X 5⁄16" X 2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.

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

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

(9A) ¾" DIA. A325 FULLY THREADED BOLTS, 41/2" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE) USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5A.

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

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

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

S615 OR S616 BARS. TIE TO TOP MAT OF STEEL.

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE NY3 B-59-204", WHICH INCLUDES ALL ITEMS SHOWN.

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

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

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

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

THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.

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

STEEL SHIMS SHALL BE PROVIDED & USED UNDER PLATE NO. 2 WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED. WORK THIS SHEET WITH "END POST DETAILS RAILING STEEL TYPE NY3" SHEET.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-204

DRAWN BY JZ | PLANS CK'D. PTB

RAILING STEEL TYPE NY3

SHEET 10 OF 12

59

STATE PROJECT NUMBER

4204-07-71

LEGEND

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

(2) PLATE 1¼" X 10" X 1'-2" WITH 1⅛" X 1 7/16" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

(3) ASTM A449 - 1" DIA. ANCHOR BOLTS WITH HEAVY HEX NUT AND 2" O.D. HARDENED WASHER (ALL GALVANIZED). 4 REQUIRED PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-5½" LONG BOLT FOR SIDEWALK. USE 1'-9" LONG IN ABUTMENT WINGS. (AN EQUIVALENT THREADED ROD WITH HEAVY HEX NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQUIRED FOR CONSTRUCTABILITY.)

(4) ⅜" X 10" X 1'-2" ANCHOR PLATE (GALVANIZED) WITH 1 7/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3.

(5) TS 6 X 6 X 5/16" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 (FRONT & BACK) & ⅞" DIA. HOLES FOR BOLT NO. 6A (TOP & BOTTOM).

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

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

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

(7) L 5 X 5 X 5/16" STRUCTURAL ANGLE. ATTACH TO NO. 1 AND NO. 5 AS SHOWN.

(8) TS 5 X 5 X 5/16" X 2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.

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

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

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

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

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

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

S615 OR S616 BARS. TIE TO TOP MAT OF STEEL.

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE NY4 B-59-204", WHICH INCLUDES ALL ITEMS SHOWN.

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

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

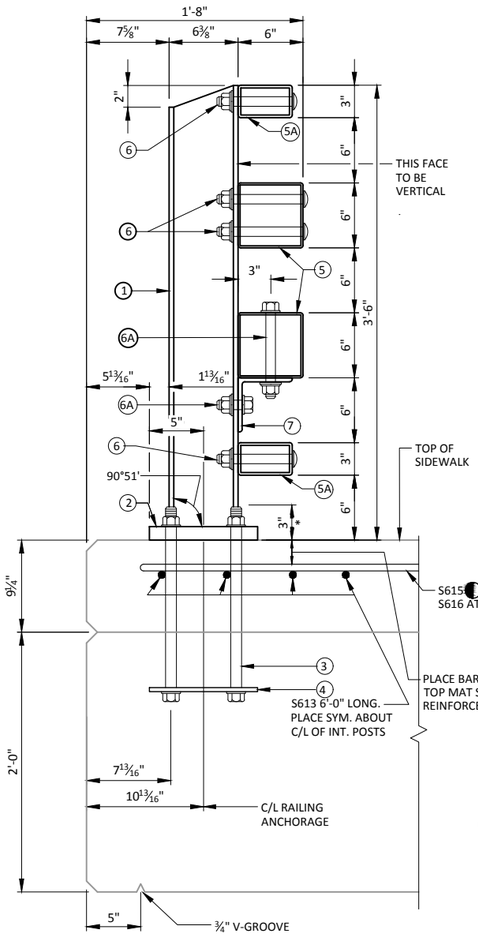
ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS, ANGLES, SPLICE TUBES, SPLICE BARS AND STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.

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

THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.

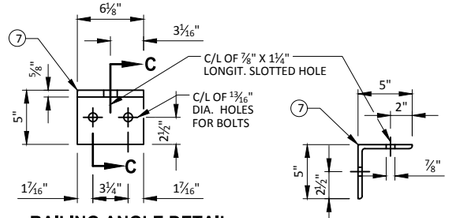
FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

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



SECTION THRU RAILING ON SIDEWALK

∗NORMAL TO BASE PLATE

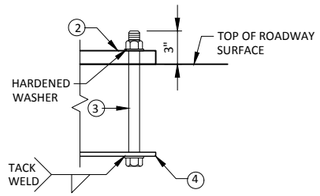


RAILING ANGLE DETAIL

INTERIOR ELEVATION

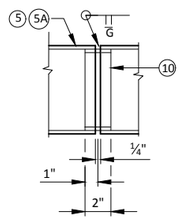
SECTION C-C

ANGLE SECTION



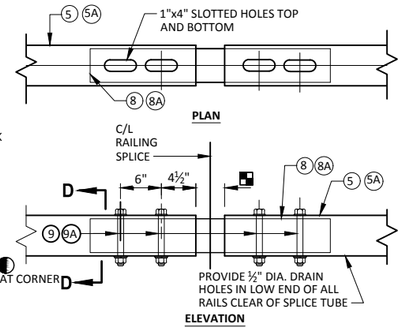
ANCHOR BOLTS

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

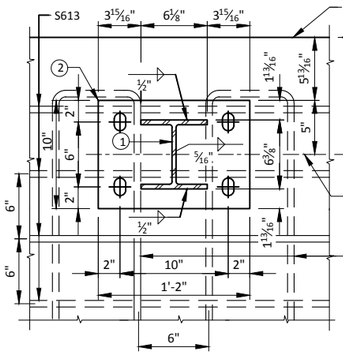


SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)

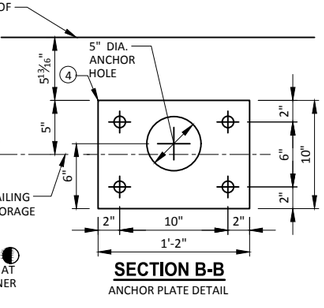


FIELD ERECTION JOINT DETAIL



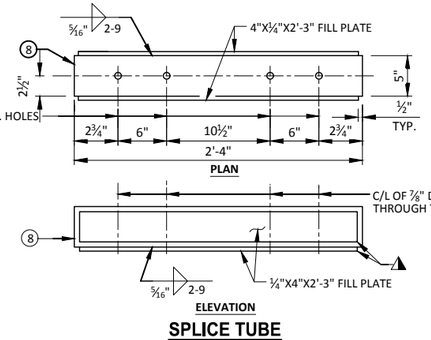
SECTION A-A

BASE PLATE DETAIL

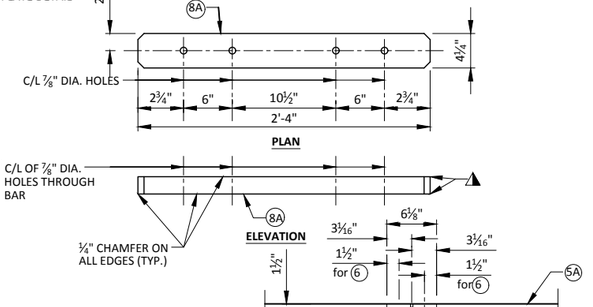


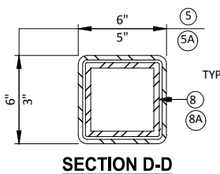
SECTION B-B

ANCHOR PLATE DETAIL

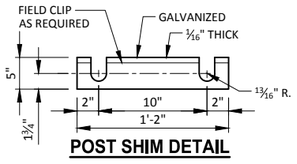


SPLICE TUBE

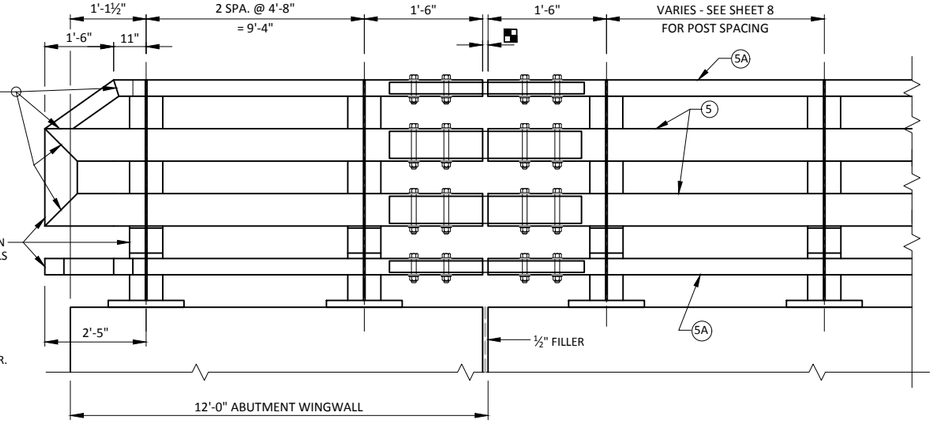




SECTION D-D

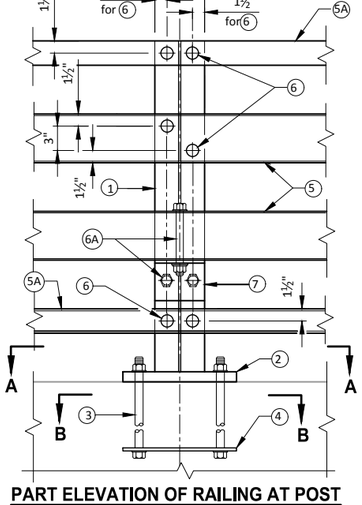


POST SHIM DETAIL



PART ELEVATION OF RAILING

INTERIOR ELEVATION



PART ELEVATION OF RAILING AT POST

INTERIOR ELEVATION

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-204

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RAILING STEEL TYPE NY4

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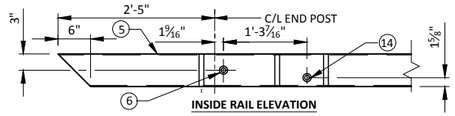
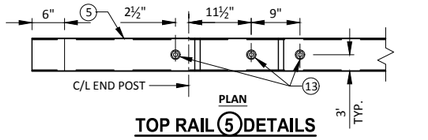
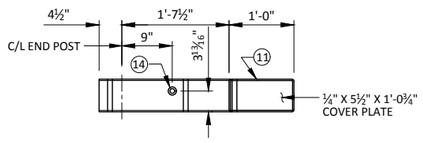
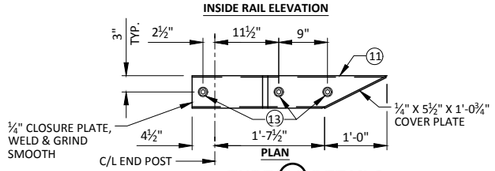


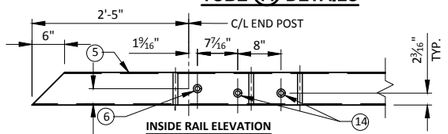


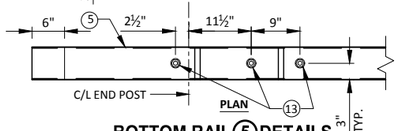
TOP RAIL (5) DETAILS



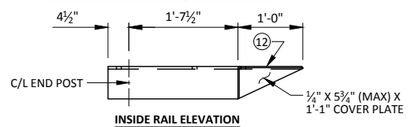


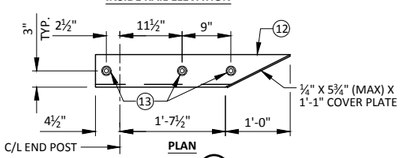
TUBE (11) DETAILS



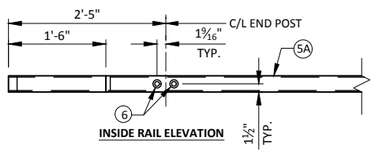


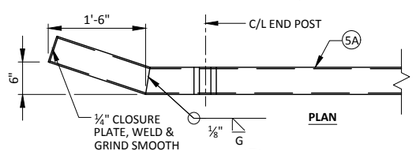
BOTTOM RAIL (5) DETAILS



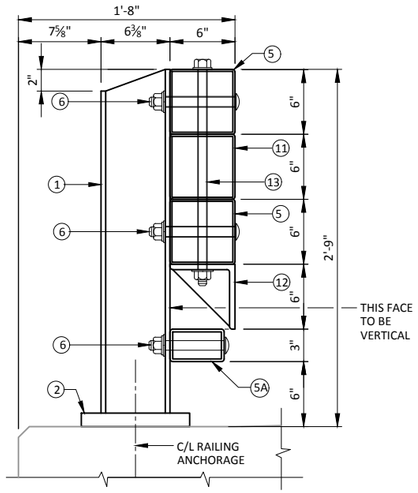


ANGLE (12) DETAILS

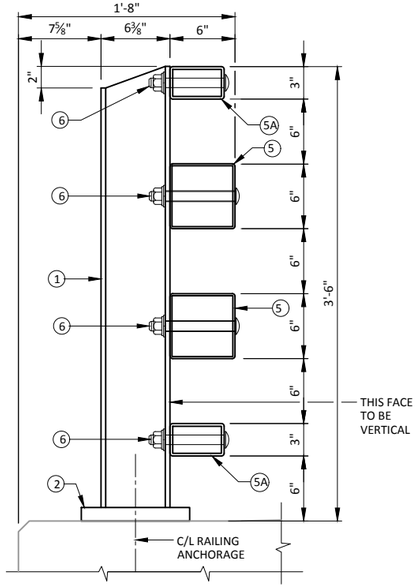




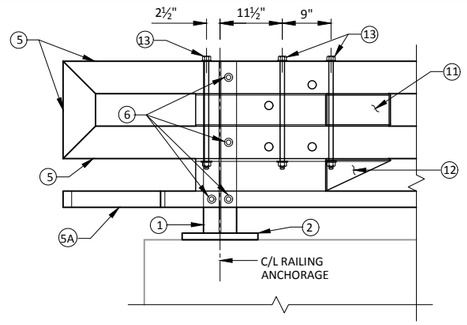
BOTTOM RAIL (5A) DETAILS



SECTION THRU NY3 RAILING END POST

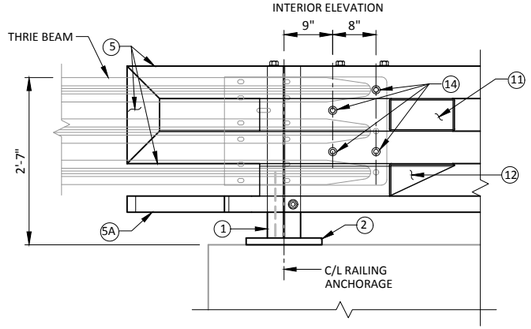


SECTION THRU NY4 RAILING END POST



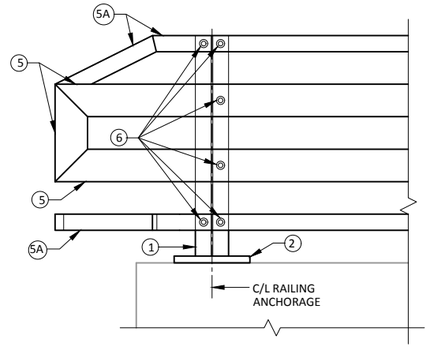
ELEVATION DETAIL AT NY3 END POST

INTERIOR ELEVATION



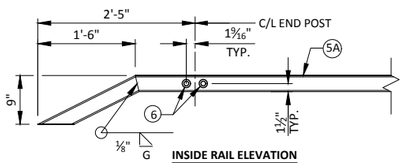
ELEVATION OF DETAIL AT NY3 END POST

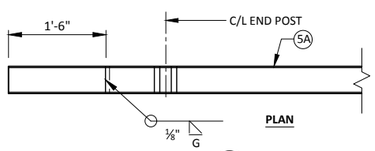
THRIE BEAM RAIL ATTACHMENT



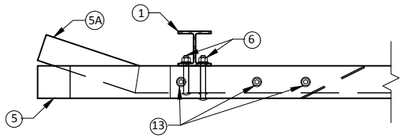
ELEVATION OF DETAIL AT NY4 END POST

INTERIOR ELEVATION

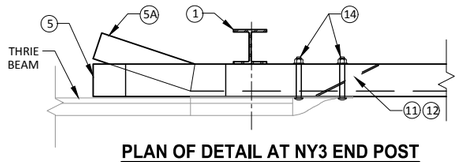




TOP RAIL (5A) DETAILS



PLAN OF DETAIL AT NY3 END POST



PLAN OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT

LEGEND

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

(2) PLATE 1¼" X 10" X 1'-2". SEE SHEET "TUBULAR STEEL RAILING NY3" OR "TUBULAR STEEL RAILING NY4" FOR MORE INFORMATION.

(5) TS 6 X 6 X ¾" STRUCTURAL TUBING. USE ⅞" DIA. HOLES IN TOP AND BOTTOM OF RAILS FOR BOLT NO. 13 AS SHOWN IN PLAN DETAILS. USE 1" DIA. HOLES IN FRONT AND BACK OF RAILS FOR BOLTS NO. 6 & NO. 14 AS SHOWN IN ELEVATION DETAILS.

(5A) TS 5 X 3 X ¼" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 IN TOP RAIL FOR NY4 (FRONT & BACK). USE 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.

(6) ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, ⅜" X 1¾" X 1¾" WASHER, AND SPRING LOCK WASHER (1 REQUIRED AT RAIL NO. 5 TO POST NO. 1 CONNECTION LOCATIONS SHOWN. 2 REQUIRED AT RAIL NO. 5A TO POST NO. 1 CONNECTION LOCATIONS SHOWN).

(11) TS 6 X 6 X ¾" STRUCTURAL TUBING. USE 1" DIA. HOLES IN FRONT AND BACK FOR BOLT NO. 14 & ⅞" DIA. HOLES IN TOP & BOTTOM FOR BOLT NO. 13.

(12) L 6 X 6 X ½" STRUCTURAL ANGLE. USE ⅞" DIA. HOLES IN TOP FLANGE FOR BOLT NO. 13.

(13) ¾" DIA. A325 FULLY THREADED BOLTS, 2 WASHERS AND A HEAVY HEX NUT, ON EACH BOLT. NUT TO BE FINGER TIGHT. 3 BOLTS AT EACH END POST.

(14) ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT AND ¾" X 2" X 2" WASHER FOR CONNECTION OF THRIE BEAM (4 REQUIRED)

NOTES

STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF F ASTM A500 GRADE B OR C WITH A CERTIFIED =50 KSI. STRUCTURAL ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. WORK THIS SHEET WITH "TUBULAR STEEL RAILING TYPE NY3" OR "TUBULAR STEEL RAILING TYPE NY4" SHEET.

STATE PROJECT NUMBER

4204-07-71

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-204

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END POST DETAILS RAILING STEEL TYPE NY3 & NY4

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