NEL MAY 2013

PROJECT ID: 4311-08-71
WITH: N/A

33

COUNTY: MANITOWOC

ORDER OF SHEETS

TOTAL SHEETS = 36

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT

T KOSSUTH, SHOTO ROAD
BRANCH OF WEST TWIN RIVER
LOC STR
MANITOWOC COUNTY

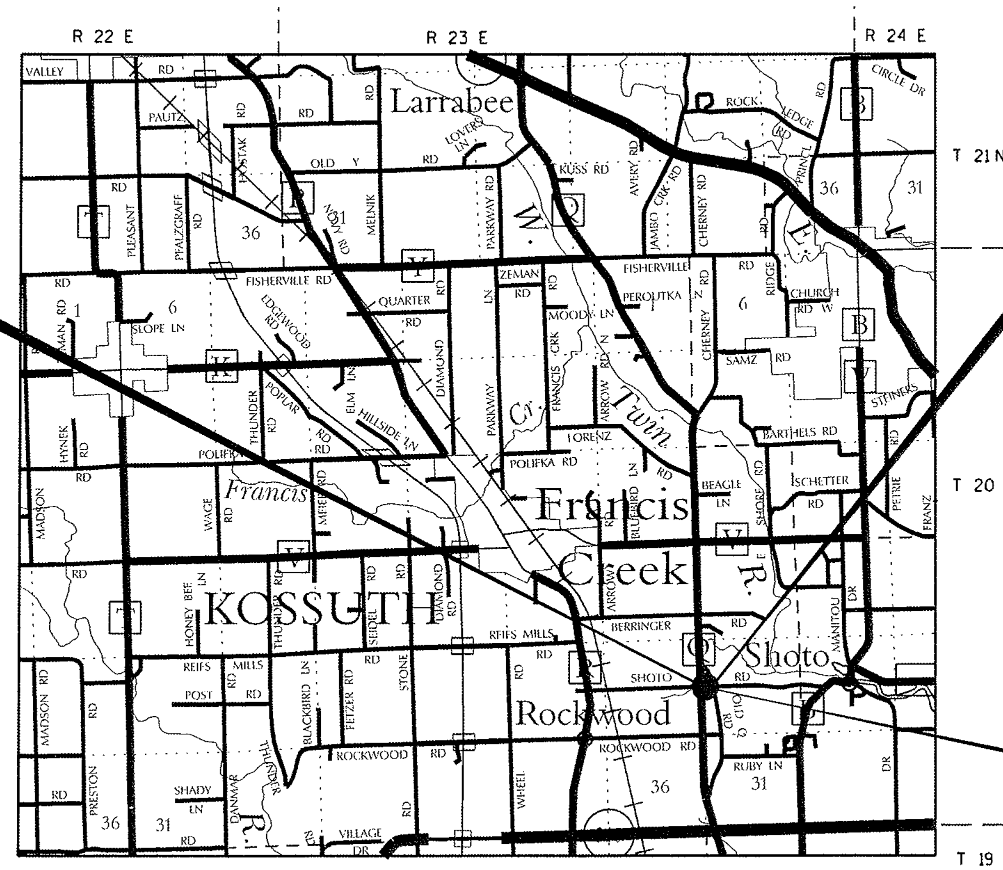
STATE PROJECT NUMBER
4311-08-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4311-08-71	—	—

PROJECT LOCATION

N

BEGIN PROJECT
STA. 8+50.00
Y 331269.248
X 227725.489



END PROJECT
STA. 11+00.00

STRUCTURE B-36-0317

LAYOUT
SCALE 0 1 MI.

DESIGN DESIGNATION

A.A.D.T. (2013)	=	150
A.A.D.T. (2033)	=	230
D.H.V. (2033)	=	28
D.D.	=	50/50
T.	=	3.5%
DESIGN SPEED	=	45 MPH
ESALS	=	7300

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

TOTAL NET LENGTH OF CENTERLINE = 0.047 MI. RURAL

"Coordinates on this plan are referenced to the Manitowoc County Coordinate System Manitowc Zone NAD 83 (1991)"

APPROVED FOR TOWN OF KOSSUTH

1-11-13 [signature]
DATE TOWN CHAIRMAN

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES

WISCONSIN PHILLIP J. VERVILLE III E-36336 GREEN BAY, WI PROFESSIONAL ENGINEER

DATE: 1/9/13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AYRES ASSOCIATES
Designer	AYRES ASSOCIATES
Management Consultant	SEH
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: 1/25/13 [signature] (Management Consultant Signature)

E

GENERAL NOTES

THE LOCATION OF EXISTING AND PROPOSED UTILITY FACILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

FILL EXPANSION FACTOR IS 30%.

CONSTRUCT 4-INCH HMA PAVEMENT WITH A 1 ¾" UPPER LAYER AND A 2 ¼" LOWER LAYER.

INLET AND DISCHARGE ELEVATIONS SHOWN ON THE PLAN SHEETS ARE APPROXIMATE AND WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

PROPERTY LINES AS SHOWN ARE APPROXIMATE.

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

BEARING SHOWN ON THIS PLAN ARE TRUE BEARINGS TO THE NEAREST SECOND.

ALL TIES ON THIS PLAN ARE HORIZONTAL UNLESS DESCRIBED OTHERWISE.

THE EXACT LOCATION AND WIDTH OF DRIVEWAYS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ENTRANCES ARE TO BE REPLACED IN KIND.

THE EXACT LOCATION AND LENGTHS OF CULVERT PIPES WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

PRIOR TO ORDERING DRAINAGE PIPES. THE CONTRACTOR WILL VERIFY RELATED DRAINAGE INFORMATION IN THE PLAN WITH THE ENGINEER IN THE FIELD.

PLACE EROSION CONTROL MEASURES AS SHOWN ON THE EROSION CONTROL PLAN. THE EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED SUBGRADE SHOULDER POINTS ARE TO BE FERTILIZED, SEEDED, MULCHED OR EROSION MAT AS DIRECTED BY THE ENGINEER.

ELEVATIONS SHOWN ON THE ROADWAY CROSS SECTIONS ARE SUBGRADE ELEVATIONS AT THE CENTERLINE OF THE ROADWAY.

WISDOT WILL FURNISH A BENCHMARK MONUMENT TO BE SET BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER IN THE FIELD

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIP-TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPE-TURF			.25 .32			.27 .34			.28 .36			.30 .38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 0.6 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.6 ACRES
SOIL GROUP B

STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC	PC	POINT OF CURVATURE
AC	ASPHALT CEMENT	PI	POINT OF INTERSECTION
AGG	AGGREGATE	PE	PRIVATE ENTRANCE
ASPH	ASPHALT	R	RADIUS
BM	BENCH MARK	REM	REMOVE
C/L	CENTERLINE	R/L OR RL	REFERENCE LINE
CONC	CONCRETE	RCCP	REINFORCED CONCRETE CULVERT PIPE
CMP	CORRUGATED METAL PIPE	RCPSS	REINFORCED CONCRETE PIPE STORM SEWER
D	DEGREE OF CURVE	R.O.	RUNOUT
DHV	DESIGN HOUR VOLUME	R/W	RIGHT-OF-WAY
ESALS	EQUIVALENT SINGLE AXIS LOADS	STA	STATION
EXIST	EXISTING	SE	SUPER ELEVATION
FE	FIELD ENTRANCE	SS	STORM SEWER
HYD	HYDRANT	T	TANGENT
IP	IRON PIPE OR PIN	TEL	TELEPHONE
L	LENGTH OF CURVE	TLE	TEMPORARY LIMITED EASEMENT
LC	LONG CHORD OF CURVE	T	TRUCKS
MH	MANHOLE	UNCL	UNCLASSIFIED EXCAVATION
NC	NORMAL CROWN	VC	VERTICAL CURVE
PT	POINT OF TANGENCY	W	WELL

UTILITIES

** **WISCONSIN PUBLIC SERVICE CORPORATION**
700 NORTH ADAMS STREET
PO BOX 19001
GREEN BAY, WISCONSIN 54307
ATTENTION: LORI BUTRY
E-MAIL: LABUTRY@INTEGRYSGROUP.COM
TELEPHONE 920-433-1703

** **AT&T WISCONSIN**
205 S. JEFFERSON STREET
GREEN BAY, WISCONSIN 54301
ATTENTION: MR. KARI J. JENSEN
E-MAIL: KJ2897@ATT.COM
TELEPHONE 920-433-4112
CELL 920-246-0082

** **CHARTER COMMUNICATIONS**
3315 LINCOLN AVE.
TWO RIVERS, WISCONSIN 54241
ATTENTION: MR. NICK FRASE
E-MAIL: NICK.FRASE@CHARTERCOM.COM
TELEPHONE 920-793-2216 EXT. 30
CELL 920-263-0100
FAX 920-793-3342

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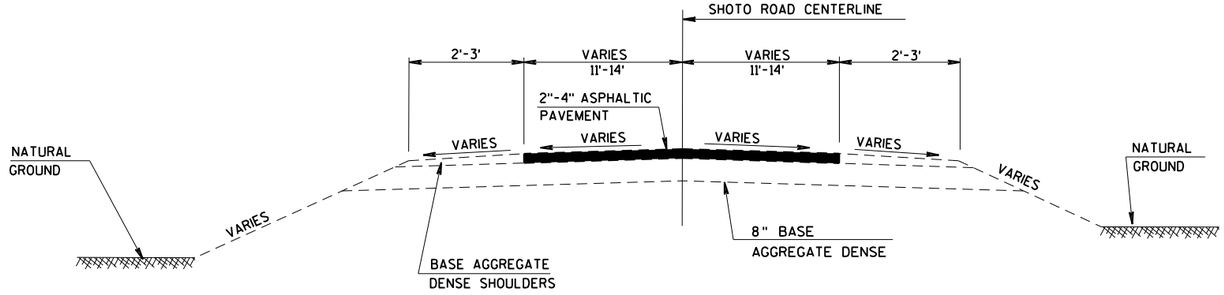
or Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

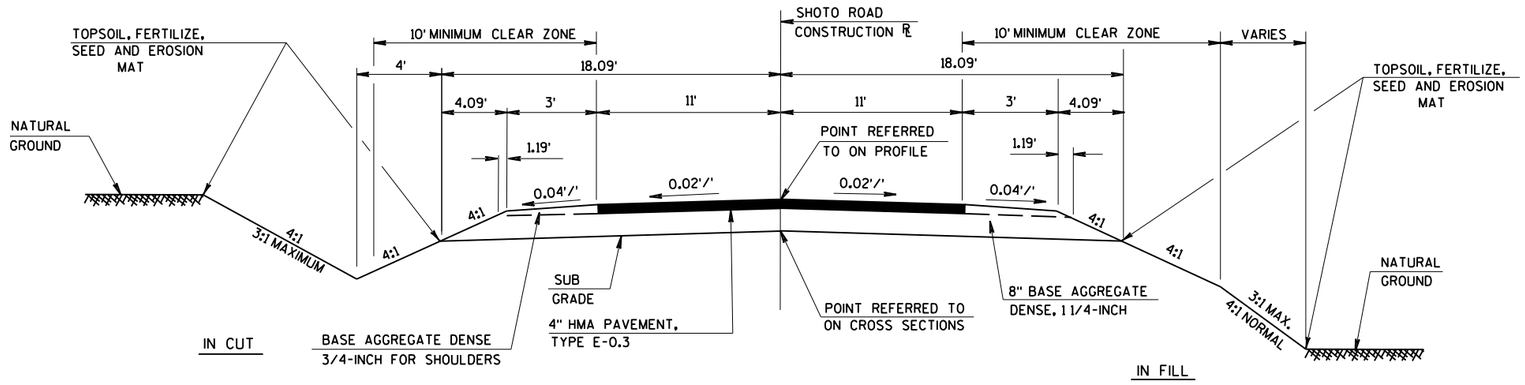
DNR LIAISON

DEPARTMENT OF NATURAL RESOURCES TELEPHONE 1-920-662-5472
P.O. BOX 10448
GREEN BAY, WISCONSIN 54307
ATTENTION: MR. MATT SCHAEVE
E-MAIL: MATTHEW.SCAEVE@WISCONSIN.GOV



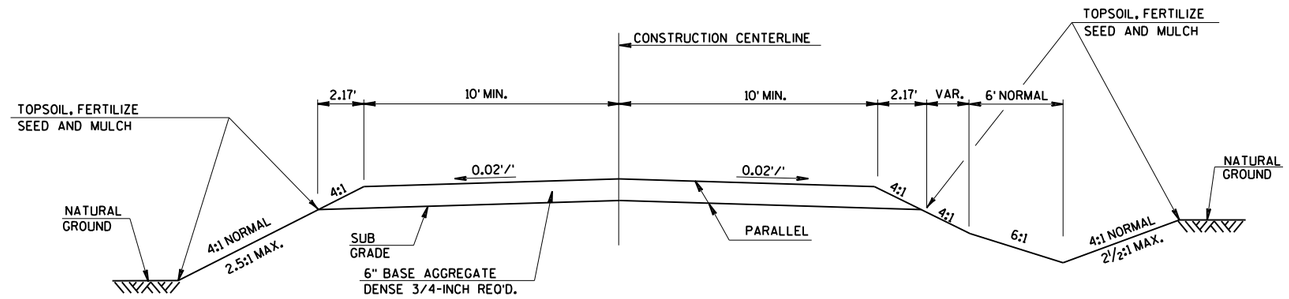
TYPICAL EXISTING SECTION FOR SHOTO ROAD

STA. 8+50.00 TO STA. 11+00.00



TYPICAL FINISHED SECTION FOR SHOTO ROAD

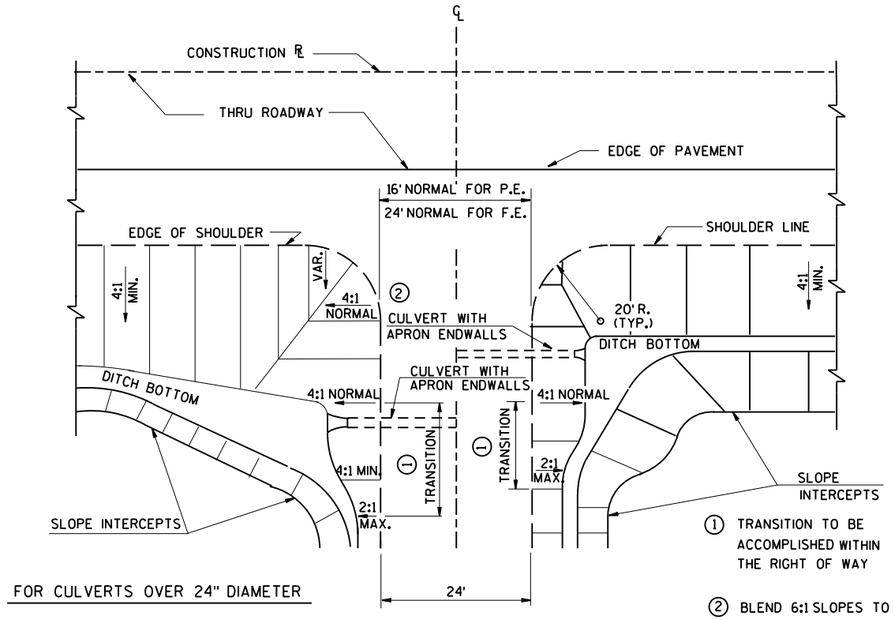
STA. 8+50.00 TO STA. 11+00.00



TYPICAL CROSS SECTION FOR BASE AGGREGATE DENSE PRIVATE ENTRANCES AND FIELD ENTRANCES

(REPLACE IN KIND)

PROJECT NO: 4311-08-71	HWY: SHOTO ROAD	COUNTY: MANITOWOC	TYPICAL SECTIONS	SHEET 3	E



① TRANSITION TO BE ACCOMPLISHED WITHIN THE RIGHT OF WAY

② BLEND 6:1 SLOPES TO MATCH APRON ENDWALLS

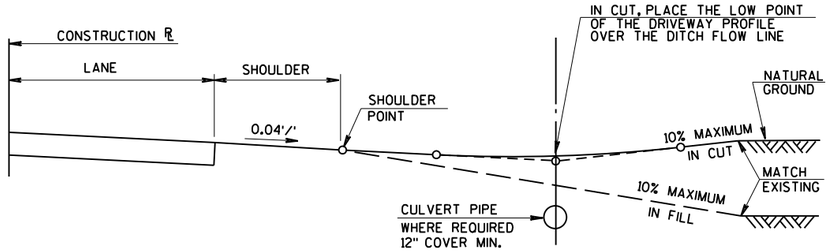
FOR CULVERTS OVER 24" DIAMETER

PLAN VIEW

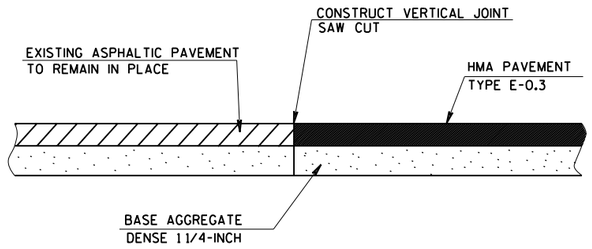
FOR CULVERTS 24" DIAMETER OR LESS

PRIVATE ENTRANCE GRADING DETAIL

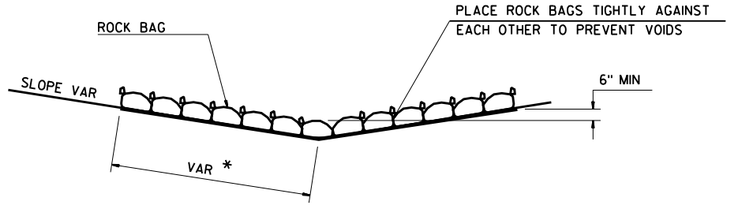
STA. 9+00.00 LEFT



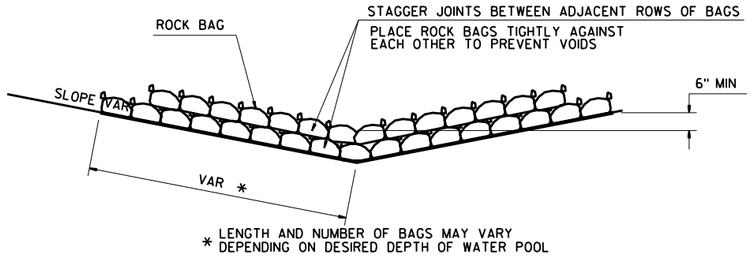
TYPICAL DRIVEWAY PROFILES



SAW CUT DETAIL



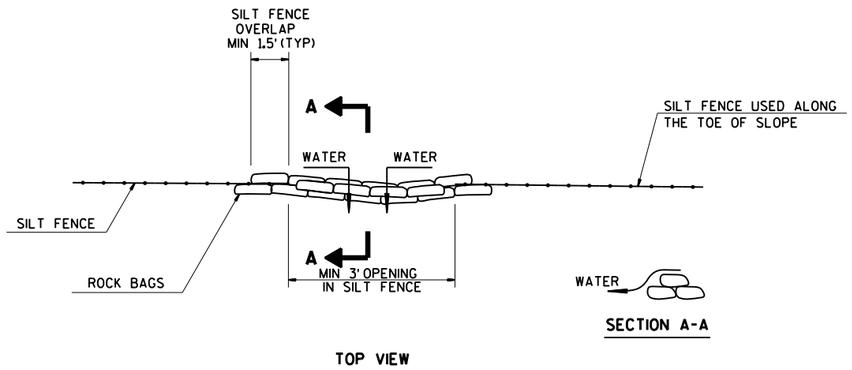
SIDE VIEW (SINGLE LAYER)



SIDE VIEW (MULTIPLE LAYER)

ROCK BAGS DITCH CHECK

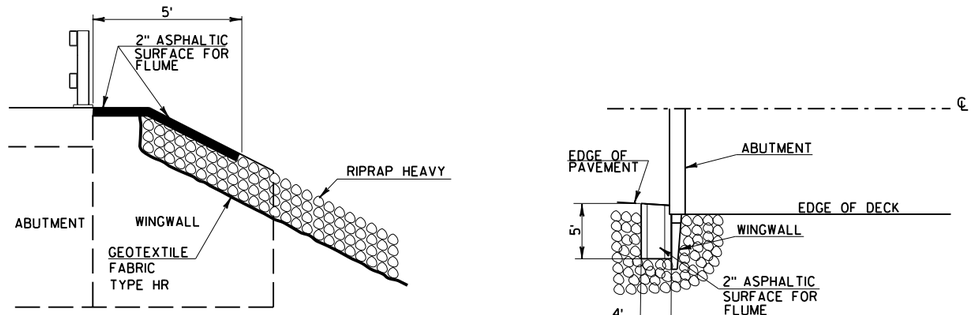
PAID AS ROCK BAGS
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)



TOP VIEW

ROCK BAGS USED FOR SILT FENCE RELIEF DETAIL

PAID AS ROCK BAGS
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)



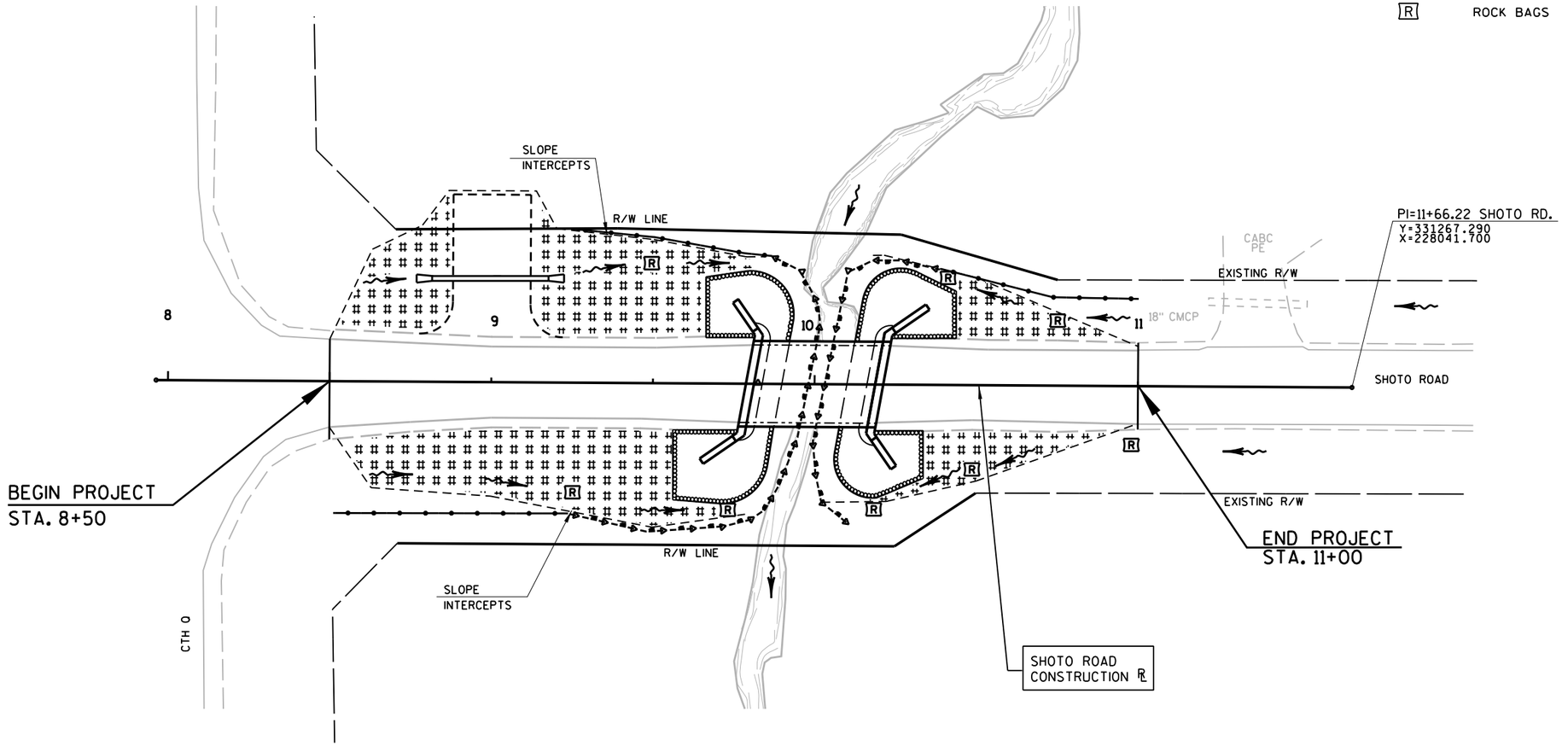
DETAIL FOR ASPHALTIC FLUME AT STRUCTURE

2

N

LEGEND

- EROSION MAT CLASS I, TYPE B
- SILT FENCE
- SLOPE INTERCEPT
- TURBIDITY BARRIER
- SURFACE WATER FLOW
- R ROCK BAGS



PROJECT NO: 4311-08-71	HWY: SHOTO ROAD	COUNTY: MANITOWOC	EROSION CONTROL PLAN	SHEET 6	E

DATE 08MAR13 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	4311-08-71 QUANTITY
0010	201.0105	CLEARING	STA	3.000	3.000
0020	201.0205	GRUBBING	STA	3.000	3.000
0030	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	1.000	1.000
0040	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 01. STATION 10+00	LS	1.000	1.000
0050	205.0100	EXCAVATION COMMON	CY	205.000	205.000
0060	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-36-317	LS	1.000	1.000
0070	208.0100	BORROW	CY	762.000	762.000
0080	210.0100	BACKFILL STRUCTURE	CY	550.000	550.000
0090	213.0100	FINISHING ROADWAY (PROJECT) 01. 4311-08-71	EACH	1.000	1.000
0100	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	60.000	60.000
0110	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	380.000	380.000
0120	455.0105	ASPHALTIC MATERIAL PG58-28	TON	6.700	6.700
0130	455.0605	TACK COAT	GAL	13.200	13.200
0140	460.1100	HMA PAVEMENT TYPE E-0.3	TON	120.000	120.000
0150	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	77.000	77.000
0160	465.0315	ASPHALTIC FLUMES	SY	12.000	12.000
0170	502.0100	CONCRETE MASONRY BRIDGES	CY	199.000	199.000
0180	502.3200	PROTECTIVE SURFACE TREATMENT	SY	160.000	160.000
0190	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	4,860.000	4,860.000
0200	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	17,120.000	17,120.000
0210	513.4050	RAILING TUBULAR TYPE F (STRUCTURE) 01. B-36-317	LS	1.000	1.000
0220	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	20.000	20.000
0230	521.0118	CULVERT PIPE CORRUGATED STEEL 18-INCH	LF	38.000	38.000
0240	521.1018	APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH	EACH	2.000	2.000
0250	550.0500	PILE POINTS	EACH	20.000	20.000
0260	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	900.000	900.000
0270	606.0300	RIPRAP HEAVY	CY	220.000	220.000
0280	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	195.000	195.000
0290	614.0920	SALVAGED RAIL	LF	54.000	54.000
0300	619.1000	MOBILIZATION	EACH	1.000	1.000
0310	624.0100	WATER	MGAL	3.000	3.000
0320	625.0100	TOPSOIL	SY	740.000	740.000
0330	628.1504	SILT FENCE	LF	270.000	270.000
0340	628.1520	SILT FENCE MAINTENANCE	LF	540.000	540.000
0350	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	5.000	5.000
0360	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	3.000	3.000
0370	628.2004	EROSION MAT CLASS I TYPE B	SY	850.000	850.000
0380	628.6005	TURBIDITY BARRIERS	SY	190.000	190.000
0390	628.7570	ROCK BAGS	EACH	140.000	140.000
0400	629.0210	FERTILIZER TYPE B	CWT	1.000	1.000
0410	630.0120	SEEDING MIXTURE NO. 20	LB	20.000	20.000
0420	630.0200	SEEDING TEMPORARY	LB	20.000	20.000
0430	634.0612	POSTS WOOD 4X6-INCH X 12-FT	EACH	4.000	4.000
0440	637.0202	SIGNS REFLECTIVE TYPE II	SF	12.000	12.000
0450	638.2102	MOVING SIGNS TYPE II	EACH	1.000	1.000
0460	638.2602	REMOVING SIGNS TYPE II	EACH	10.000	10.000
0470	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	10.000	10.000
0480	638.4000	MOVING SMALL SIGN SUPPORTS	EACH	1.000	1.000

3

DATE 08MAR13 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	4311-08-71 QUANTITY
0490	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0500	643.0100	TRAFFIC CONTROL (PROJECT) 01. 4311-08-71	EACH	1.000	1.000
0510	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	444.000	444.000
0520	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	592.000	592.000
0530	643.0900	TRAFFIC CONTROL SIGNS	DAY	111.000	111.000
0540	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	425.000	425.000
0550	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	208.000	208.000
0560	650.5000	CONSTRUCTION STAKING BASE	LF	208.000	208.000
0570	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-36-317	LS	1.000	1.000
0580	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 4311-08-71	LS	1.000	1.000
0590	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	208.000	208.000
0600	690.0150	SAWING ASPHALT	LF	50.000	50.000
0610	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	1,194.000	1,194.000

3

3

CLEARING AND GRUBBING

STATION	TO	STATION	LOCATION	201.0105 CLEARING STATION	201.0205 GRUBBING STATION
8+00	-	11+00	SHOTO ROAD	3	3
TOTALS				3	3

REMOVING SMALL PIPE CULVERTS

STATION	LOCATION	203.0100 EACH	DESCRIPTION
8+60	SHOTO ROAD, LT	1	18", CMP
	TOTAL	1	

BASE AGGREGATE DENSE AND WATER

STATION	TO	STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON	624.0100 WATER MGAL
8+50	-	9+78.73	SHOTO ROAD	10	235	2
10+21.27	-	11+00	SHOTO ROAD	6	145	1
	8+60		P.E., LT	44	-	-
TOTALS				60	380	3

EARTHWORK SUMMARY

Division	From/To Station	Location	Common Excavation (item #205.0100) Cut	Salvaged/Unusable Pavement Material (4)	Available Material (5)	Unexpanded Fill	Expanded Fill (13) Factor 1.30	Mass Ordinate +/- (14)	Borrow (item #208.0100)	Comment:
1	8+50 - 11+00	SHOTO ROAD	205	39	166	714	928	-762	762	
Division 1 Total			205	39	166	714	928	-762	762	

4) Unusable Pavement Material = Existing Asphaltic Pavement
5) Available Material = Cut - Unusable Pavement Material
13) Expanded Fill. Factor = 1.3 Expanded Fill = Unexpanded Fill * Fill Factor
14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

HMA PAVEMENT

STATION	TO	STATION	LOCATION	455.0105 ASPHALTIC MATERIAL PG58-28 (5.5%) TON	455.0605 TACK COAT GAL	460.1100 HMA PAVEMENT TYPE E-0.3 TON
8+50	-	9+78.73	SHOTO ROAD	4.2	8.3	75
10+21.27	-	11+00	SHOTO ROAD	2.5	4.9	45
TOTALS				6.7	13.2	120

CULVERT PIPES AND ENDWALLS

STATION	LOCATION	521.0118 CULVERT PIPE CORRUGATED STEEL 18-INCH LF	521.1018 APRON ENDWALLS CULVERT PIPE STEEL 18-INCH EACH	THICKNESS STEEL INCH
9+00	SHOTO ROAD, LT	38	2	0.64
TOTALS		38	2	

SILT FENCE

STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 MAINTENANCE LF
8+50	-	9+25	SHOTO ROAD, RT	75	150
9+15	-	9+85	SHOTO ROAD, LT	70	140
10+30	-	11+15	SHOTO ROAD, LT	85	170
UNDISTRIBUTED				40	80
TOTALS				270	540

EROSION MAT CLASS I TYPE B

STATION	TO	STATION	LOCATION	628.2004 SY
8+50	-	9+78.73	SHOTO ROAD, LT & RT	590
10+21.27	-	11+00	SHOTO ROAD, LT & RT	150
UNDISTRIBUTED				110
TOTAL				850

TOPSOIL, MULCHING, FERTILIZER AND SEED

STATION	TO	STATION	LOCATION	625.0100 TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB
8+50	-	9+78.73	SHOTO ROAD	590	0.5	16	16
10+21.27	-	11+00	SHOTO ROAD	150	0.5	4	4
TOTALS				740	1.0	20	20

SALVAGED RAIL

STATION	LOCATION	614.0920 LF
8+58	SHOTO ROAD	28
10+50	SHOTO ROAD	26
TOTAL		54

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

3

TURBIDITY BARRIERS

STATION	LOCATION	628.6005 SY
WEST ABUTMENT	SHOTO ROAD	110
EAST ABUTMENT	SHOTO ROAD	80
TOTAL		190

SIGNS REFLECTIVE TYPE II AND WOOD POSTS

STATION	LOCATION	634.0612 WOOD POSTS 4"x6"x12' EACH	637.0202 SIGNS W5-52L S.F.	637.0202 SIGNS W5-52R S.F.
NW QUADRANT	SHOTO ROAD	1	-	3
SW QUADRANT	SHOTO ROAD	1	3	-
NE QUADRANT	SHOTO ROAD	1	3	-
SE QUADRANT	SHOTO ROAD	1	-	3
TOTALS		4	12	

ROCK BAGS

STATION	LOCATION	628.7570 EACH
9+25	SHOTO ROAD, RT	15
9+50	SHOTO ROAD, LT	15
9+70	SHOTO ROAD, RT	15
10+15	SHOTO ROAD, RT	15
10+40	SHOTO ROAD, LT	15
10+50	SHOTO ROAD, RT	15
10+75	SHOTO ROAD, LT	15
11+00	SHOTO ROAD, RT	15
UNDISTRIBUTED		20
TOTAL		140

ASPHALTIC FLUMES

STATION	LOCATION	465.0315 SF
9+75	SHOTO ROAD, RT	3
9+80	SHOTO ROAD, LT	3
10+20	SHOTO ROAD, RT	3
10+25	SHOTO ROAD, LT	3
TOTAL		12

3

REMOVING SIGNS AND SUPPORTS

STATION	LOCATION	638.2602 REMOVING SIGNS TYPE II EA	638.2102 MOVING SIGNS TYPE II EA	638.3000 REMOVING SMALL SIGN SUPPORTS EA	638.4000 MOVING SMALL SIGN SUPPORTS EA	REMARKS
8+58	SHOTO ROAD	3	-	3	-	END OF ROADWAY SIGNING
9+75	SHOTO ROAD, RT	1	-	1	-	
9+75	SHOTO ROAD, LT	1	-	1	-	
10+25	SHOTO ROAD, RT	1	-	1	-	
10+25	SHOTO ROAD, LT	1	-	1	-	
10+50	SHOTO ROAD	3	-	3	-	END OF ROADWAY SIGNING
10+75	SHOTO ROAD, RT	-	1	-	1	SEE NOTE
TOTALS		10	1	10	1	

NOTE:
MOVE DURING GRADING OPERATIONS AND REPLACE IN SAME LOCATION AFTER COMPLETION OF EARTHWORK.

CONSTRUCTION STAKING

STATION	TO	STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6500 STRUCTURE LAYOUT LS	650.9910 SUPPLEMENTAL CONTROL LS	650.9920 SLOPE STAKES LF	GROUP CODE
8+50	-	9+78.73	SHOTO ROAD	129	129	-	1	129	0010
10+21.27	-	11+00	SHOTO ROAD	79	79	-	-	79	0010
SUBTOTALS				208	208	0	1	208	0010
10+00			SHOTO ROAD	-	-	1	-	-	0020
SUBTOTALS				0	0	1	0	0	0020
TOTALS				208	208	1	1	208	

TRAFFIC CONTROL SUMMARY

LOCATION	APPROXIMATE SERVICE DAYS	643.0420 BARRICADES TYPE III NO. IN SERVICE	643.0420 BARRICADES TYPE III DAYS	643.0705 WARNING LIGHTS TYPE A NO. IN SERVICE	643.0705 WARNING LIGHTS TYPE A DAYS	643.0900 SIGNS NO. IN SERVICE	643.0900 SIGNS DAYS	
SHOTO ROAD / CTH Q	37	5	185	6	222	1	37	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL B & D
STA 11+15	37	5	185	6	222	1	37	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL B & D
SHOTO ROAD / OLD HWY Q	37	2	74	4	148	1	37	BRIDGE OUT STAGGER - SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL B
TOTALS			444		592		111	

SAWING ASPHALT

STATION	LOCATION	690.0150 LF
8+50	SHOTO ROAD	27
11+00	SHOTO ROAD	23
TOTAL		50

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

CONVENTIONAL ABBREVIATIONS

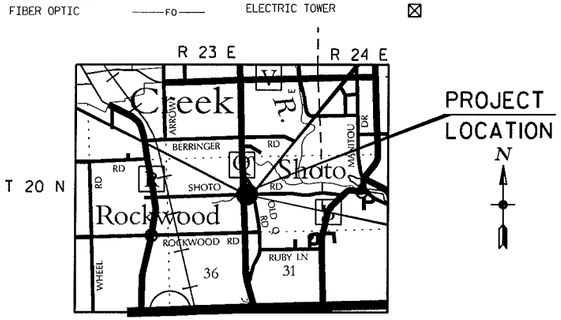
ACCESS POINT/ DRIVEWAY CONNECTION	AP	REFERENCE LINE	R/L
ACCESS RIGHTS	AR	RELEASE OF RIGHTS	ROR
ACRES	AC.	REMAINING	REM.
AND OTHERS	ET.AL.	RIGHT-OF-WAY	R/W
CENTERLINE	C/L	SECTION	SEC.
CERTIFIED SURVEY MAP	CSM	STATION	STA.
CORNER	COR.	TEMPORARY LIMITED EASEMENT	TLE
DOCUMENT	DOC.	VOLUME	V.
EASEMENT	EASE.	**CURVE DATA**	
HIGHWAY EASEMENT	H.E.	LONG CHORD	LCH
LAND CONTRACT	LC	LONG CHORD BEARING	LCB
MONUMENT	MON.	RADIUS	R
PAGE	P.	DEGREE OF CURVE	D
PERMANENT LIMITED EASEMENT	PLE	CENTRAL ANGLE OR DELTA	DELTA
PROPERTY LINE	PL	LENGTH OF CURVE	L
RECORDED AS	(100')	TANGENT	TAN

CONVENTIONAL SYMBOLS

- FOUND IRON PIPE/PIN — LIP (1" UNLESS NOTED)
- R/W MONUMENT — ● =(SET)
- R/W STANDARD — ▲ =(SET)
- SIGN — SIGN
- SECTION CORNER MONUMENT
- SECTION CORNER SYMBOL
- FEE (HATCH VARIES)
- TEMPORARY LIMITED EASEMENT
- PERMANENT LIMITED EASEMENT
- R/W BOUNDARY POINT — RWB20
- PARCEL NUMBER — 102
- UTILITY PARCEL NUMBER — 92
- SIGN NUMBER (OFF PREMISE) — 21
- BUILDING
- PROPOSED R/W LINE
- EXISTING H.E. LINE
- PROPERTY LINE
- LOT & TIE LINES
- SLOPE INTERCEPTS
- CORPORATE LIMITS
- NO ACCESS (BY PREVIOUS ACQUISITION/CONTROL)
- NO ACCESS (BY ACQUISITION)
- NO ACCESS (BY STATUTORY AUTHORITY)
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- EXISTING CENTERLINE
- PROPOSED REFERENCE LINE
- PARALLEL OFFSET

CONVENTIONAL UTILITY SYMBOLS

WATER	W	SANITARY SEWER	SAN
GAS	G	STORM SEWER	SS
TELEPHONE	T		NON COMPENSABLE / COMPENSABLE
OVERHEAD TRANSMISSION LINES	OH	POWER POLE	
ELECTRIC	E	TELEPHONE POLE	
CABLE TELEVISION	TV	TELEPHONE PEDESTAL	
FIBER OPTIC	FO	ELECTRIC TOWER	



VICINITY MAP

0 1 2 MILES

TOTAL NET LENGTH OF RELOCATION ORDER=0.039 MILES

NOTES

COORDINATES AND BEARINGS ON THIS PLAT ARE ORIENTED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, MANITOWOC COUNTY ZONE, NAD 83 (2007) ADJUSTMENT. THE COORDINATES SHOWN ARE GRID COORDINATES AND ARE TO BE USED AS GRID OR GROUND VALUES ON THIS PLAT.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 (1"x24" IRON PIPE WEIGHING 1.13 LBS./LN.FT.) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT. -RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER SURVEYS OF PUBLIC RECORD.

EXISTING RIGHT-OF-WAY FOR SHOTO ROAD WAS DETERMINED FROM V. 286 DEEDS, P. 237, AS DOC. NO. 354303, V. 286 DEEDS, P.226., AS DOC. NO. 354291, V. 335 DEEDS, P. 19, AS DOC. NO. 407575 AND CERTIFIED SURVEY MAPS RECORDED IN V. 22 CERTIFIED SURVEY MAPS, P. 131, AS DOC. NO. 918356 AND V. 20 OF CERTIFIED SURVEY MAPS, P. 343, AS DOC. NO. 883751.

N

SCALE, FEET

0 50 100

SCHEDULE OF LANDS AND INTERESTS REQUIRED

PARCEL NO.	OWNERSHIP	INTEREST REQUIRED	R/W (SQUARE FEET) NEW	R/W (SQUARE FEET) EXISTING	R/W (SQUARE FEET) TOTAL	TLE (SQ. FT.) TOTAL
1	ROGER J. LODEL	FEE AND TLE	998	1161	2159	1372
2	JASON L. AND KELLEA M. EWEN	FEE	1838	4513	6351	----
3	ROGER AND MARIE HURDA	FEE	2415	4830	7245	----
4						

OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE COUNTY.

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
4311-08-00		
FEDERAL PROJECT NUMBER	4.1	1

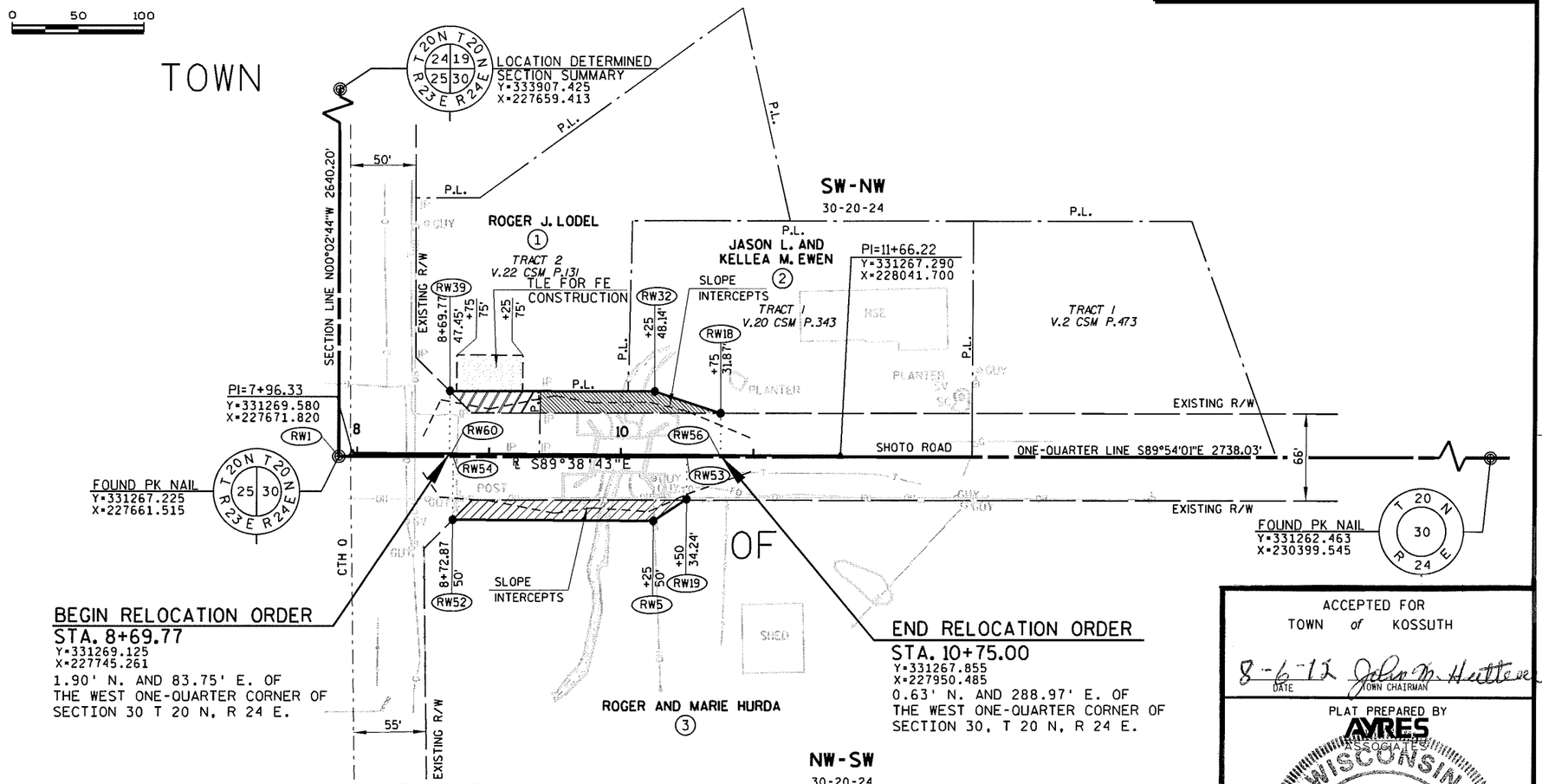
PLAT OF RIGHT-OF-WAY REQUIRED FOR

SHOTO ROAD

BRANCH OF WEST TWIN RIVER

SHOTO ROAD — MANITOWOC COUNTY

CONSTRUCTION PROJECT NUMBER



PARCEL 1 AND 2

COURSE	BEARING	DISTANCE	PT NO	Y	X
RW1-RW60	S89°54'01"E	83.73'	RW1	331267.225	227661.515
RW60-RW56	S89°54'01"E	205.23'	RW60	331267.079	227745.248
RW56-RW18	N00°21'17"E	33.00'	RW56	331266.722	227950.478
RW18-RW32	N71°37'13"W	52.58'	RW18	331299.722	227950.682
RW32-RW39	N89°54'01"W	155.23'	RW32	331316.301	227900.784
RW39-RW60	S00°21'17"W	49.49'	RW39	331316.571	227745.555

PARCEL 3

COURSE	BEARING	DISTANCE	PT NO	Y	X
RW1-RW54	S89°54'01"E	86.83'	RW1	331267.225	227661.515
RW54-RW53	S89°54'01"E	177.14'	RW54	331267.074	227748.341
RW53-RW19	S00°21'17"W	33.00'	RW53	331266.766	227925.477
RW19-RW5	S58°08'02"W	29.55'	RW19	331233.766	227925.273
RW5-RW52	N89°38'43"W	152.13'	RW5	331218.165	227900.176
RW52-RW54	N00°21'17"E	47.97'	RW52	331219.107	227748.044

KOSSUTH

ACCEPTED FOR
TOWN of KOSSUTH

8-6-12 John M. Heitteer
DATE TOWN CHAIRMAN

PLAT PREPARED BY
AYRES ASSOCIATES

WISCONSIN
JACOB S. JENSEN
S-2961
SURING, WI
LAND SURVEYOR

8-2-12
JACOB S. JENSEN, R.L.S. S-2961 DATE

REVISION DATE
10-16-2012

E

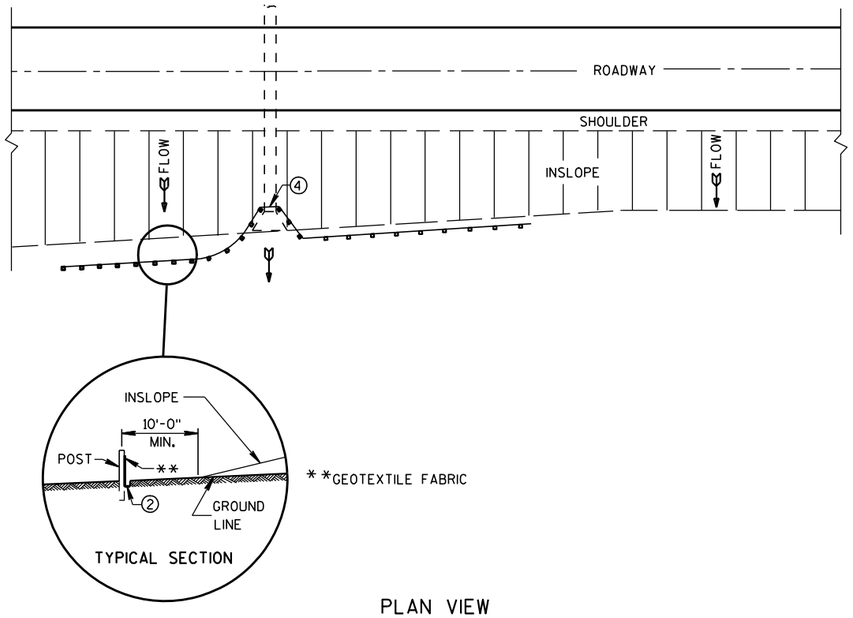
BENCH MARKS ⊕			
NO.	STA.	DESCRIPTION	ELEV.
1	8+43	RR SPK IN PP#2024 30L36-69' RT.	632.84
2	9+87	CHIS. BOX SW COR. BRIDGE DECK-10.3' RT.	634.30
3	12+65	RR SPK IN PP#2024 30L3-31' RT.	641.52

PROJECT NO: 4311-08-71	HWY: SHOTO RD	COUNTY: MANITOWOC	PLAN AND PROFILE	SHEET 12	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 35

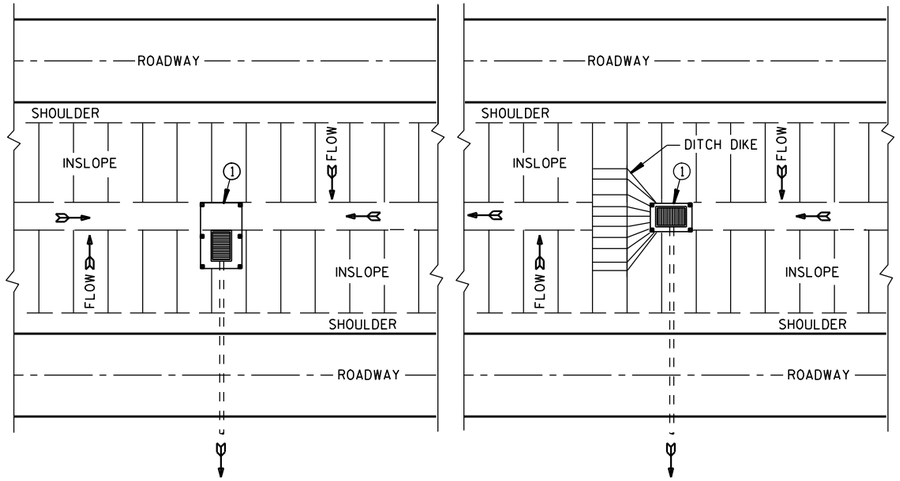
Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
15C02-04A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-04B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-05	SIGNING & MARKING FOR TWO LANE BRIDGES



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



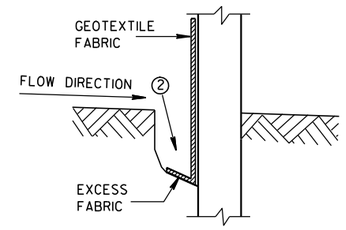
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

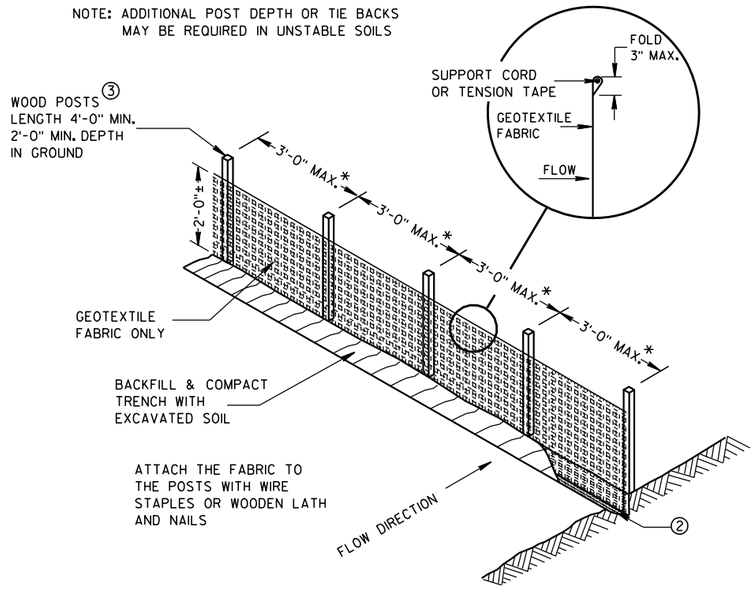
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

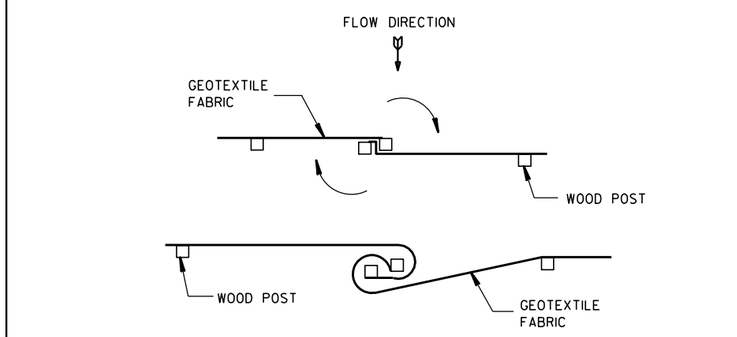
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



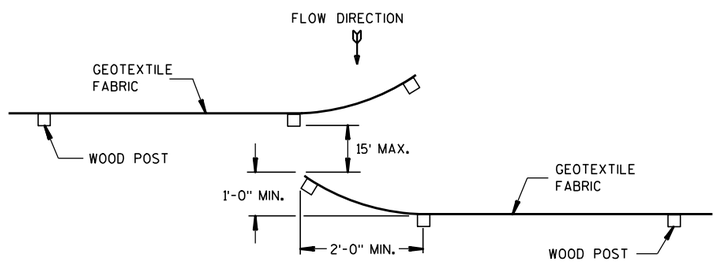
TRENCH DETAIL



SILT FENCE

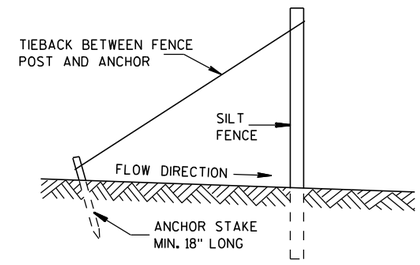


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

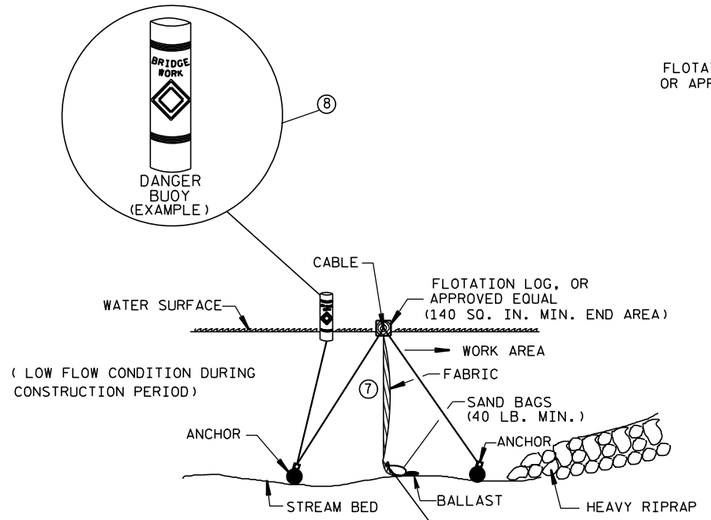
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

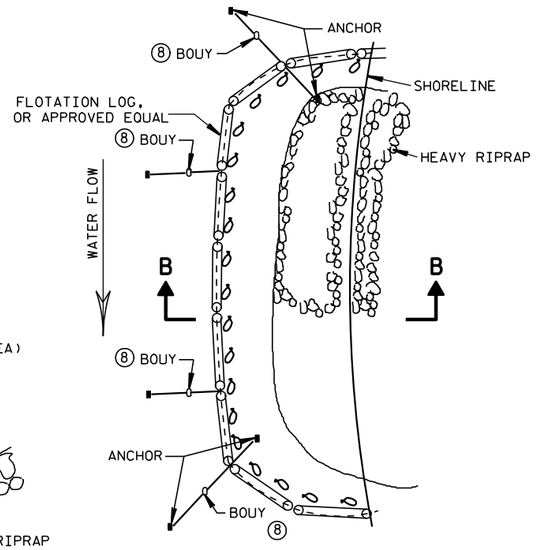
S.D.D. 8 E 9-6

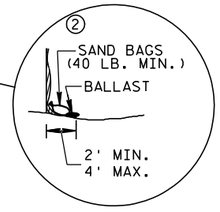
6

S.D.D. 8 E 9-6

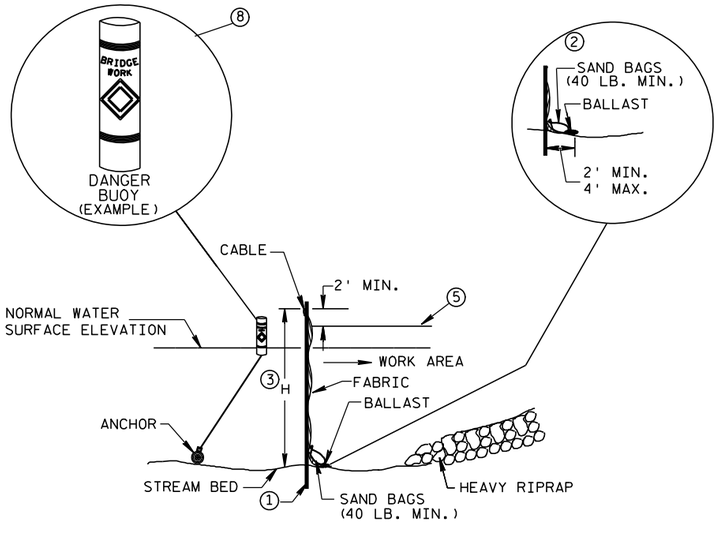


SECTION B-B

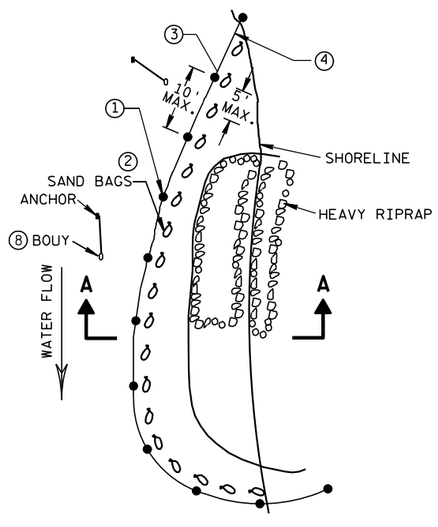




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.

② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.

③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.

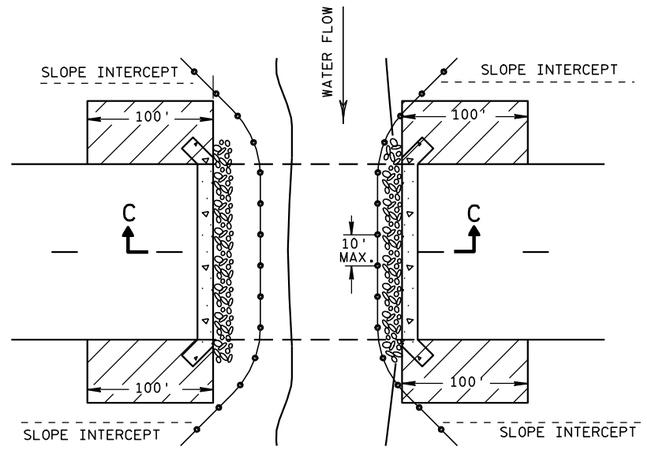
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

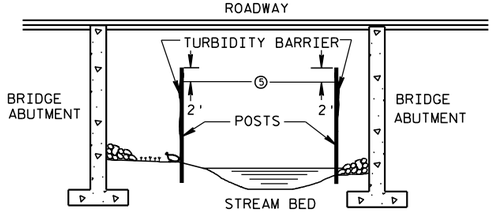
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.

⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
6/04/02 DATE	/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

6

S.D.D. 8 E 11-2

METAL APRON ENDWALLS

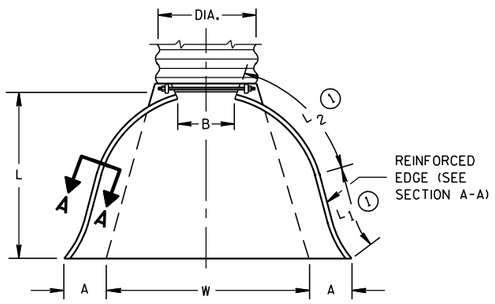
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

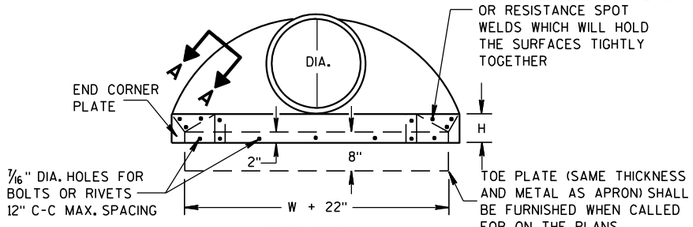
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	72 1/8	24	2	3 to 1
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 1/2	27	65	* 33 1/4 - ** 35	* 98 1/4 - ** 100	90	5 1/2	2 2/5 to 1
60	6	* 30 - ** 35	60	39	99	96	5	2 to 1
66	6 1/2	* 24 - ** 30	* 72 - ** 78	* 21 - ** 27	99	102	5 1/2	2 to 1
72	7	* 24 - ** 36	78	21	99	108	6	2 to 1
78	7 1/2	* 24 - ** 36	78	21	99	114	6 1/2	2 to 1
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1

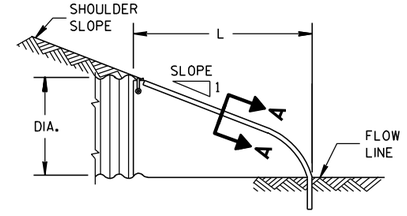
*MINIMUM
**MAXIMUM



PLAN VIEW

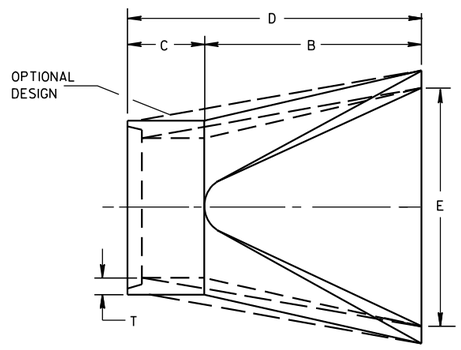


END VIEW

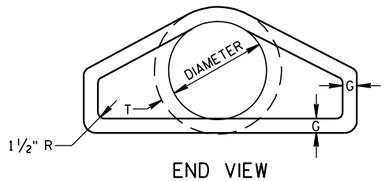


SIDE ELEVATION

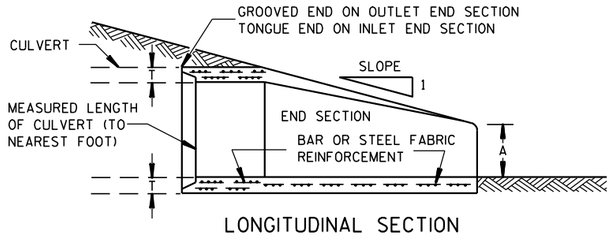
METAL ENDWALLS



PLAN

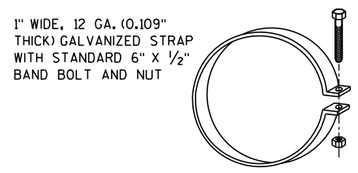


END VIEW



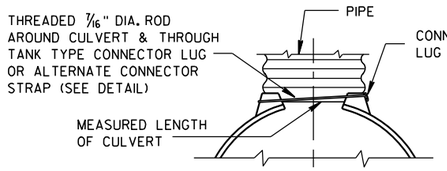
LONGITUDINAL SECTION

CONCRETE ENDWALLS

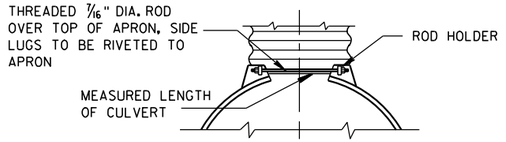


ALTERNATE FOR TYPE 1 CONNECTION

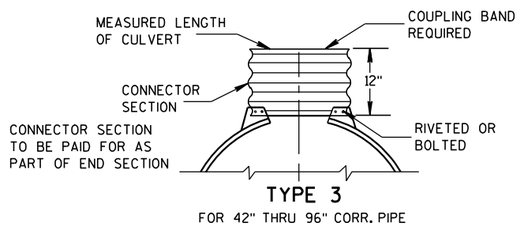
END SECTION CONNECTOR STRAP



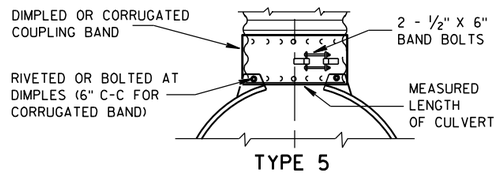
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

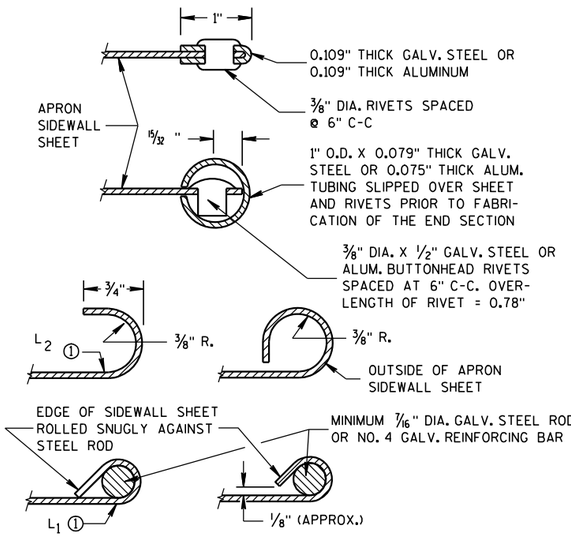
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

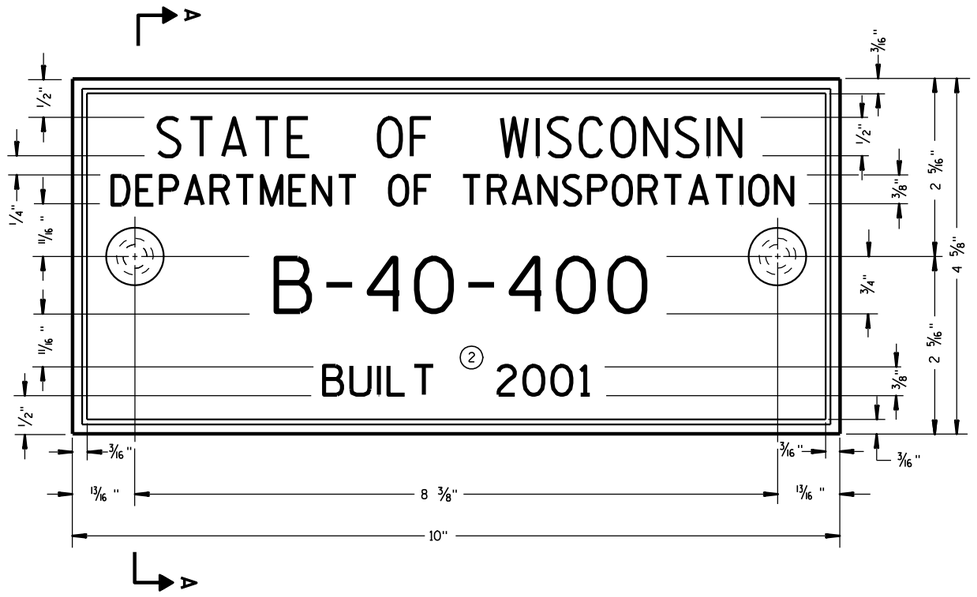
APPROVED
11/30/94 DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 F 1-11

6

S.D.D. 8 F 1-11



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

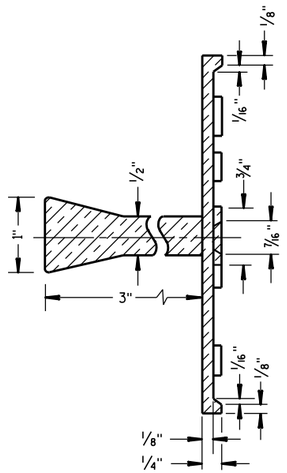
GENERAL NOTES

NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

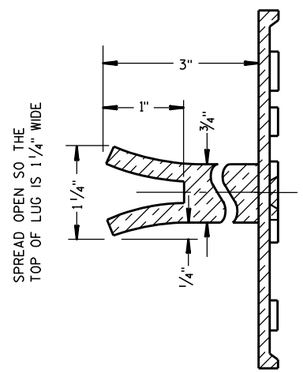
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

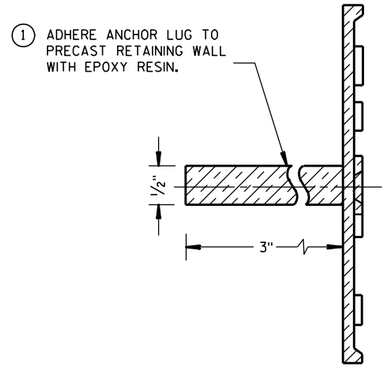
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOPMENT ENGINEER

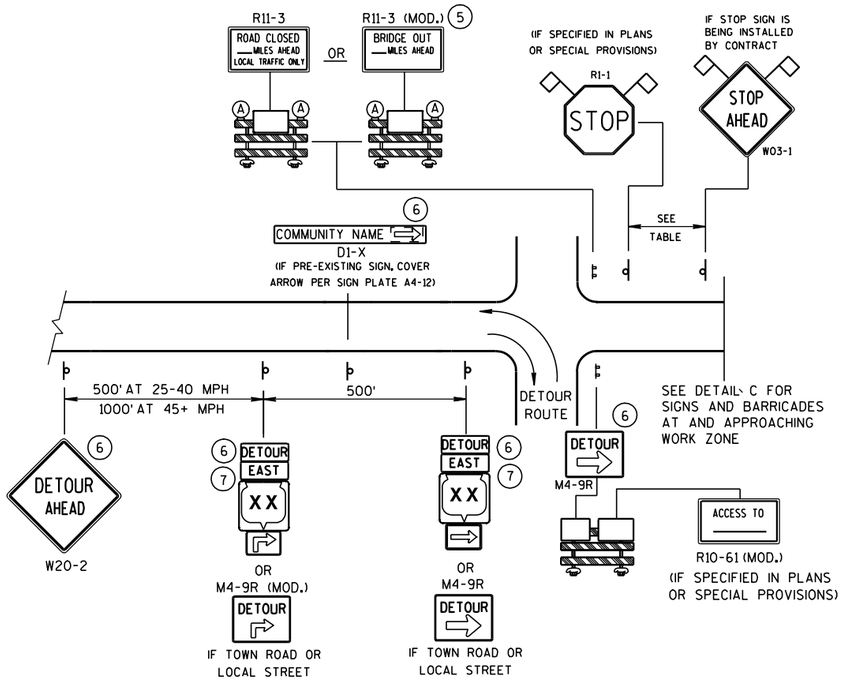
FHWA

6

S.D.D. 12 A 3-10

6

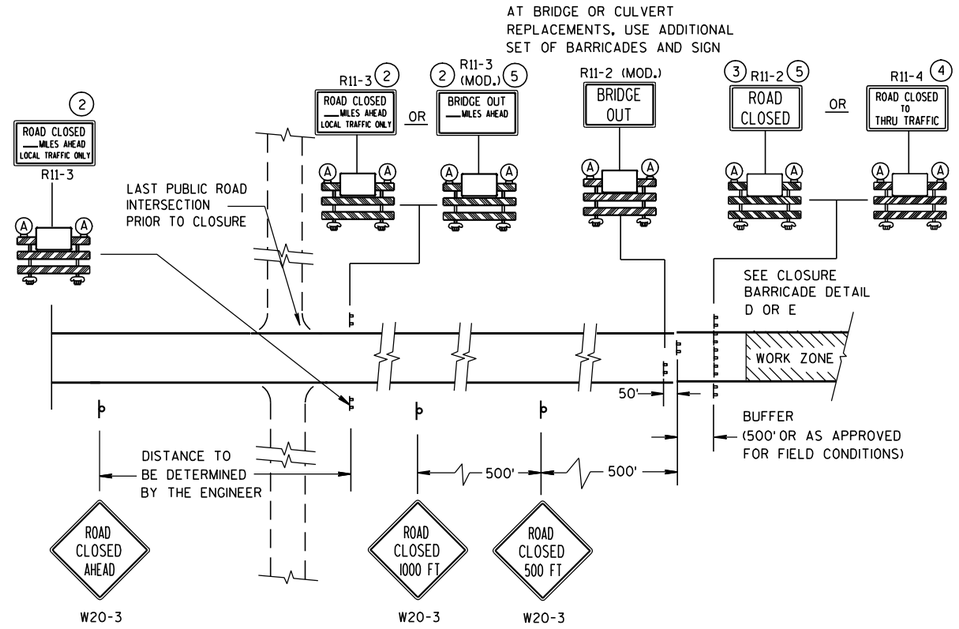
S.D.D. 12 A 3-10



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

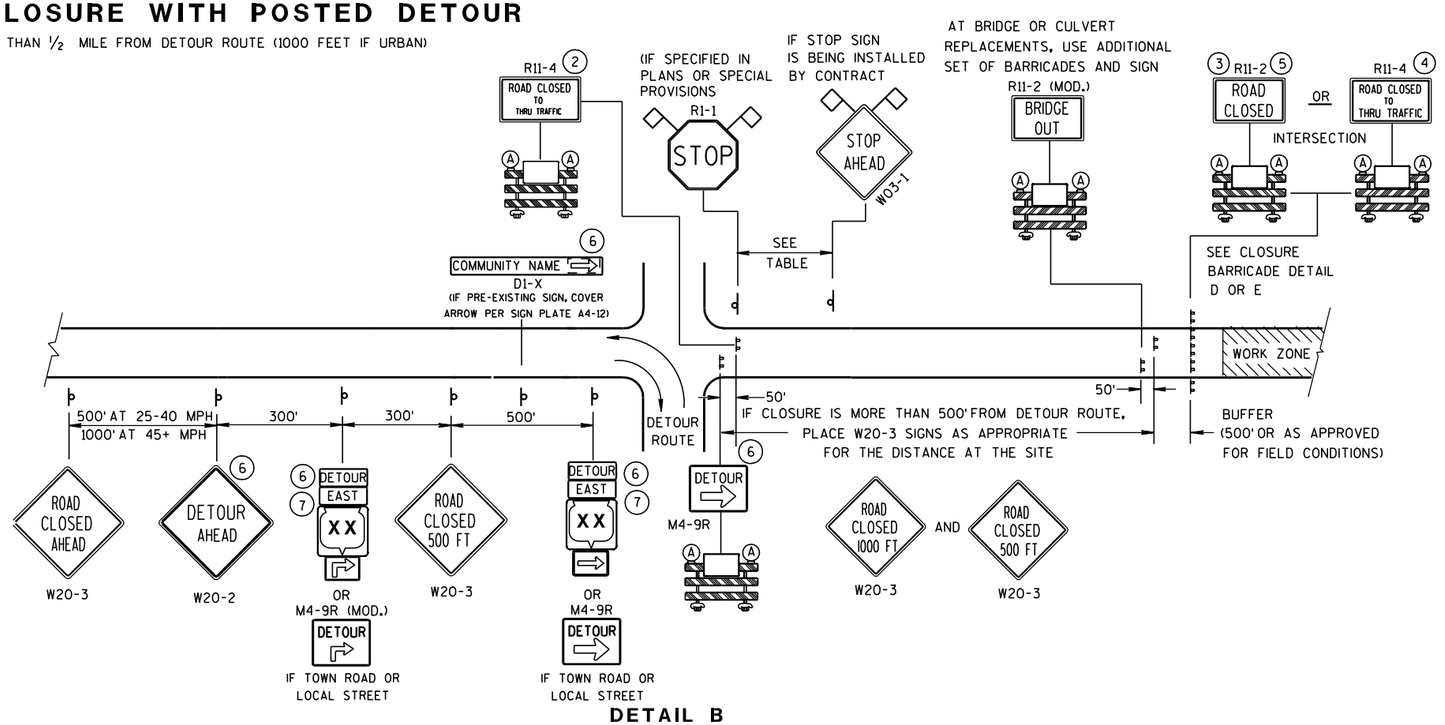


DETAIL C

MAINLINE CLOSURE, NO POSTED DETOUR

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

SEE SDD 15C2-4b
FOR GENERAL NOTES
AND FOOTNOTES (1) THROUGH (7)



DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

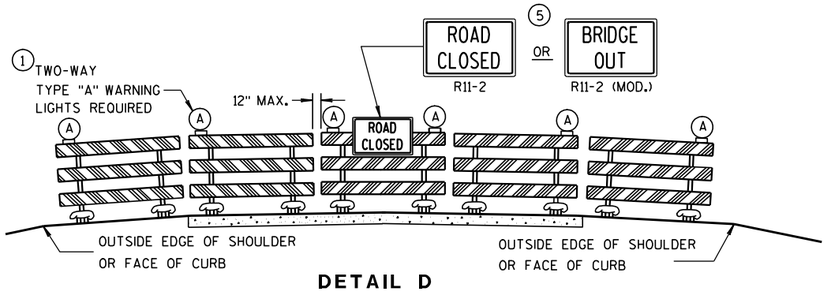
- POST MOUNTED SIGN
- TYPE III BARRICADES
- (A) TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- WORK ZONE
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1; M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

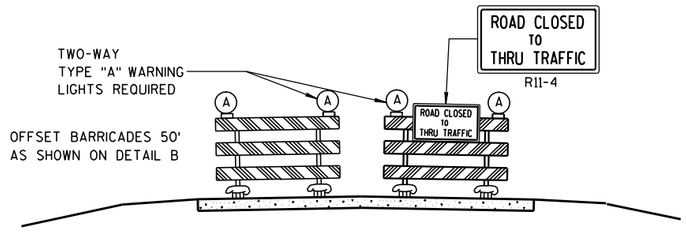
S.D.D. 15 C 2-4a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-4a FOR LEGEND

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

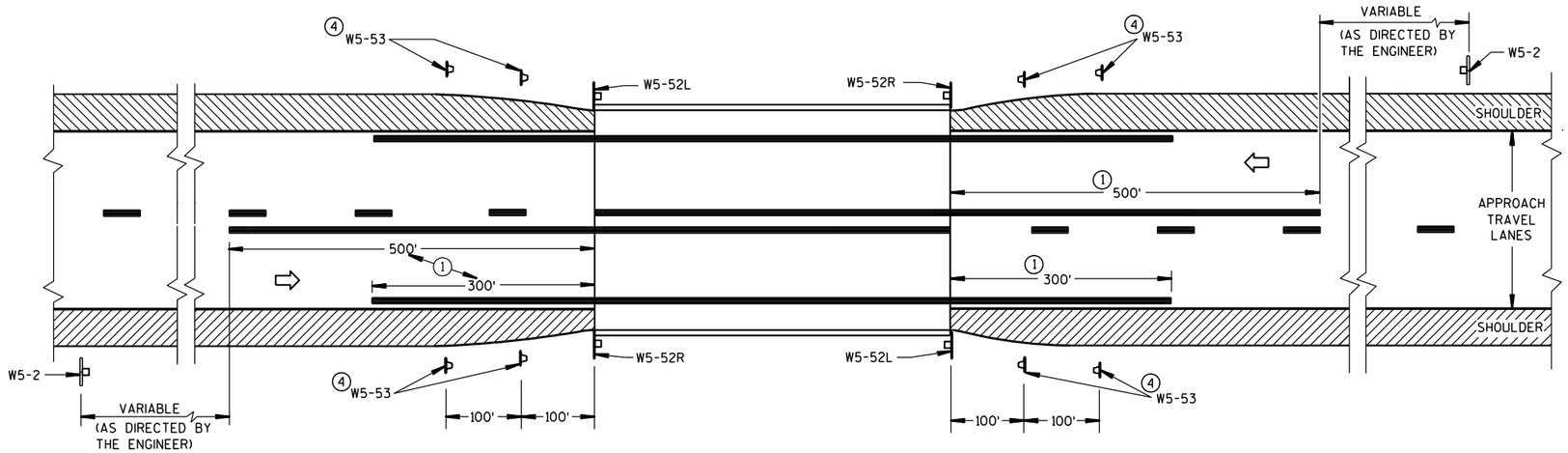
9/16/03
DATE

/S/ Thomas N. N[illegible]
CHIEF SIGNS AND MARKINGS ENGINEER

FHWA

6

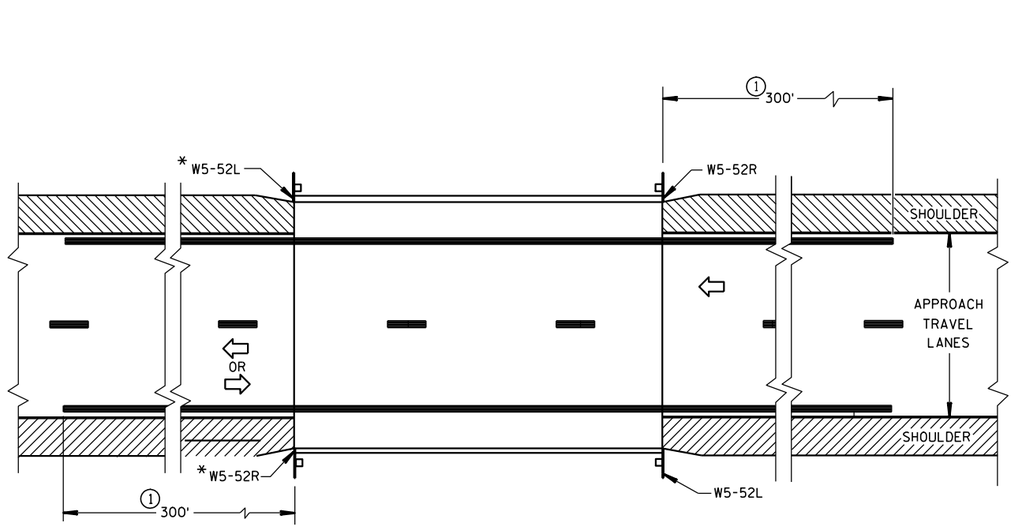
S.D.D. 15 C 2-4b



SITUATION 1

WARRANTING CRITERION:

BRIDGE WIDTH IS AT LEAST 18 FEET BUT LESS THAN 24 FEET

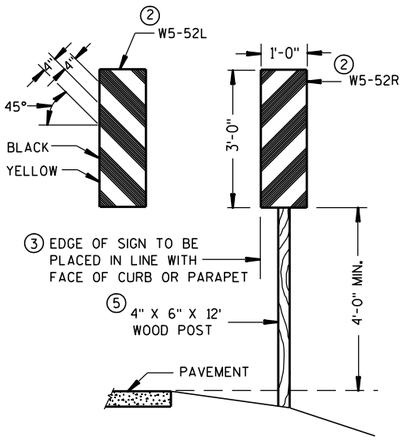


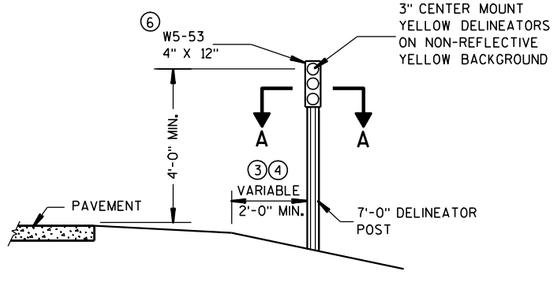
*OMIT ON ONE-WAY TRAVELLED WAYS

SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.





OBJECT MARKER PLACEMENT

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.

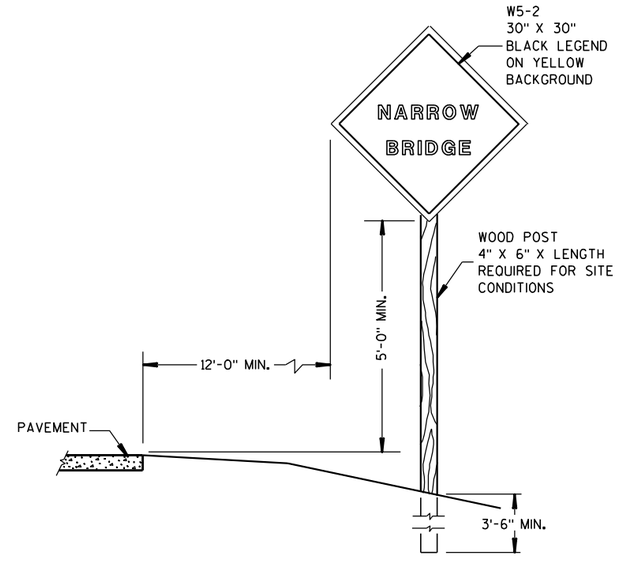
② FACE OF OBJECT MARKERS W5-52R AND W5-52L SHALL BE COVERED WITH TYPE H REFLECTIVE SHEETING.

③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.

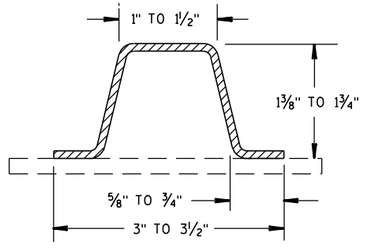
④ OBJECT MARKERS (W5-53) SHALL BE LOCATED ALONG A LINE FLARED AWAY FROM THE BRIDGE CORNER TO DELINEATE THE NARROWING OF THE SHOULDER OR BERM.

⑤ A 12 FOOT DELINEATOR POST MAY BE USED INSTEAD OF A WOOD POST.

⑥ NON-BID ITEM. INCIDENTAL TO OTHER ITEMS.



SIGN PLACEMENT



SECTION A-A

(MINIMUM WEIGHT 1.9 LBS. PER FT. AFTER GALVANIZING)

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/5/06 — DATE

/S/ Thomas N. [illegible] — STATE TRAFFIC ENGINEER

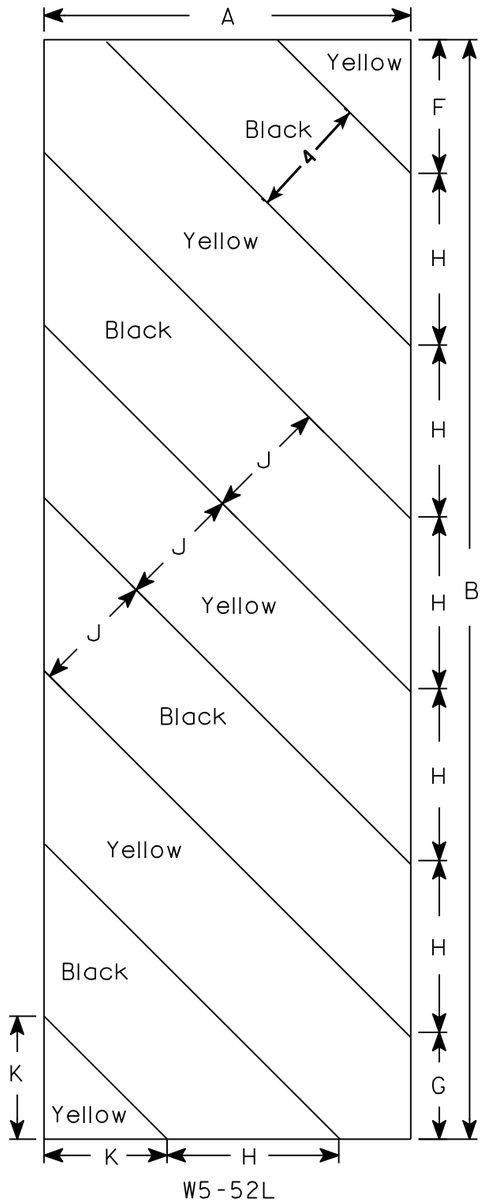
FHWA

6

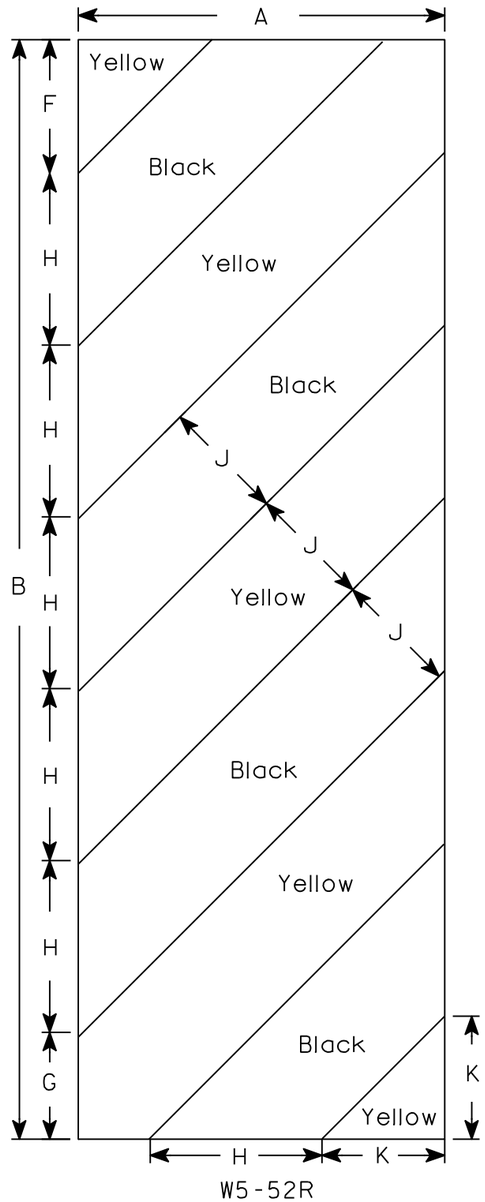
S.D.D. 15 C 6-5

6

S.D.D. 15 C 6-5



W5-52L



W5-52R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Alternate colors of stripes as shown.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN

W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

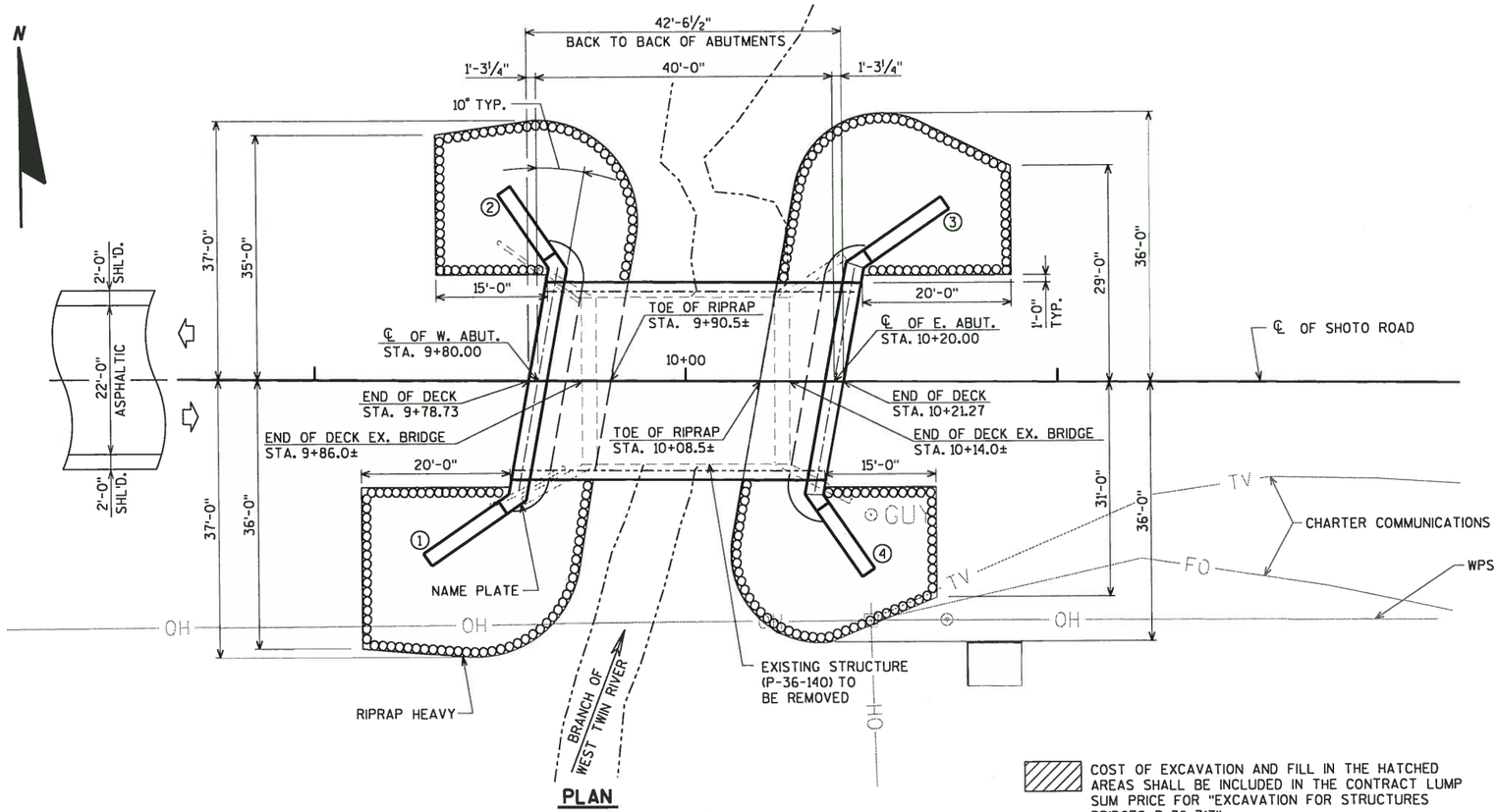
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 21	E

STATE PROJECT NUMBER

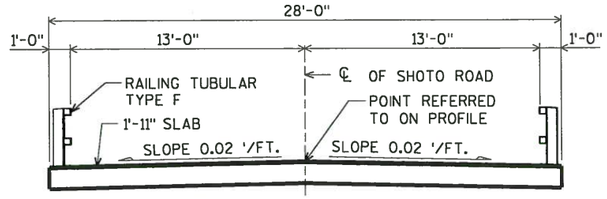
4311-08-71



PLAN

SINGLE SPAN CONCRETE FLAT SLAB

COST OF EXCAVATION AND FILL IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES P-36-317".



CROSS SECTION THRU ROADWAY

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.20
OPERATING RATING FACTOR: 1.56
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

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

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY — SLAB — f'_c = 4,000 p.s.i.
CONCRETE MASONRY — ALL OTHER — f'_c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) — f_y = 60,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FLOOD
DRAINAGE AREA = 4.9 sq. mi.
WATERWAY AREA = 124 sq. ft.
V = 5.8 f.p.s.
Q_{100} = 720 c.f.s.
HIGH WATER$_{100}$ EL. 626.8
HIGH WATER$_2$ EL. 623.6
SCOUR CRITICAL CODE = 8
NAVD 88 DATUM

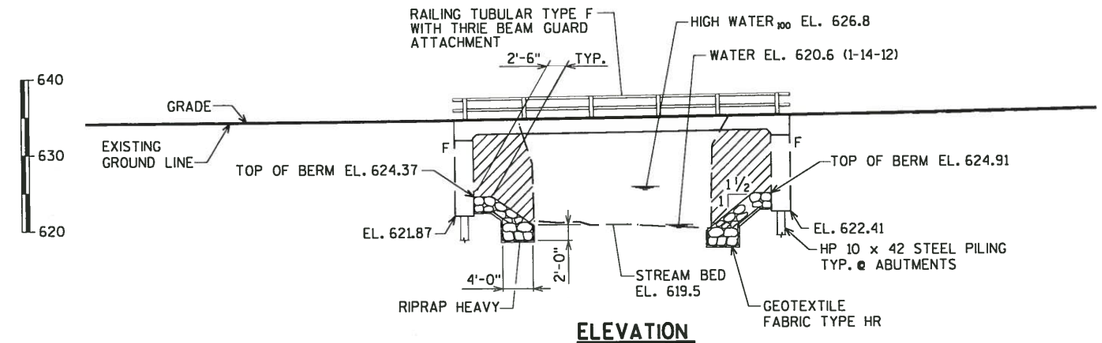
FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) WITH A REQUIRED DRIVING RESISTANCE OF 80 TONS ‡PER PILE. ESTIMATED LENGTH 45'-0".

‡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.

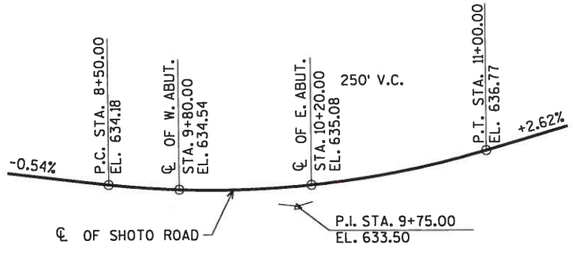
TRAFFIC DATA:

A.D.T. = 150 (2013)
A.D.T. = 230 (2033)
R.D.S. = 45 M.P.H.



ELEVATION

(NORMAL TO ℄ OF RIVER)



PROFILE GRADE LINE

SHOTO ROAD

BENCHMARK:
CHISELED BOX SW CORNER BRIDGE DECK
STA. 9+87, 10.0', RT.
EL. 634.30

LIST OF DRAWINGS

WISCONSIN
CHRISTOPHER B. McMAHON
E-29454
EAU CLAIRE WI
PROFESSIONAL ENGINEER
10/31/12

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489

CONSULTANT CONTACT:
CHRIS MCMAHON
(715)-834-3161

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 02/11/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-36-317

SHOTO ROAD OVER BRANCH OF WEST TWIN RIVER

COUNTY	TOWN/~~CITY/VILLAGE~~
MANITOWOC	KOSSUTH

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPEC.

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
KAZ	KLW	KAZ	CBM

GENERAL PLAN

SHEET 1 OF 11

22

8

8

DATE:
DATE:
DATE:

CHECKED BY:
BACK CHECKED BY:
CORRECTED BY:

I.D.

DATE:

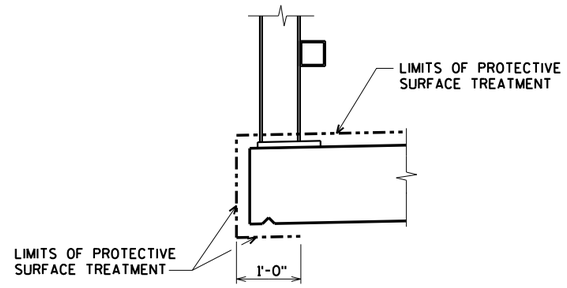
$PRFNAME$
U:±41-0632.00 - Manitowoc Co. Shoto Road±BRIDGE±410632gp.dgn

10/31/2012

PENTABLE:BReau_shd_util.tbl

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTAL	CATEGORY 0020	CATEGORY 0030
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 10+00	LS	-----	-----	-----	1	1	-----
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-36-317	LS	-----	-----	-----	1	1	-----
210.0100	BACKFILL STRUCTURE	CY	275	275	-----	550	520	30
502.0100	CONCRETE MASONRY BRIDGES	CY	55	55	89	199	189	10
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	160	160	150	10
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	2,430	2,430	-----	4,860	4,540	320
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	2,070	2,070	12,980	17,120	16,340	780
513.4050	RAILING TUBULAR TYPE F B-36-317	LS	-----	-----	-----	1	1	-----
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	-----	20	20	-----
550.0500	PILE POINTS	EACH	10	10	-----	20	20	-----
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	450	450	-----	900	900	-----
606.0300	RIPRAP HEAVY	CY	110	110	-----	220	220	-----
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	95	100	-----	195	191	4
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	210	215	-----	425	425	-----
	NON-BID ITEMS							
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"		



PROTECTIVE SURFACE TREATMENT DETAIL

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.

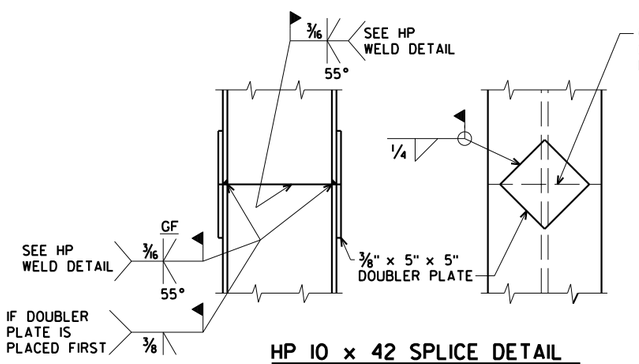
SLAB FALSEWORK SHALL BE SUPPORTED ON PILES UNLESS OTHERWISE APPROVED BY THE ENGINEER.

THE EXISTING GROUND LINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.

THE EXISTING STRUCTURE, P-36-140, TO BE REMOVED, IS A SINGLE SPAN CONCRETE FLAT SLAB BRIDGE, 28.0 FT. LONG WITH A 21.8 FT. CLEAR ROADWAY WIDTH.

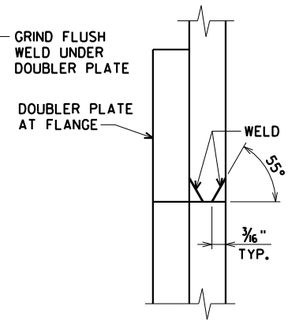
AT BACKFACE OF ABUTMENTS ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.

PROTECTING SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.



HP 10 x 42 SPLICE DETAIL

GRINDING MAY BE USED IN LIEU OF BACKGOUGING



HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-36-317

DRAWN BY KAZ | PLANS CK'D. KLW

QUANTITIES AND NOTES

SHEET 2 OF 11
23

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
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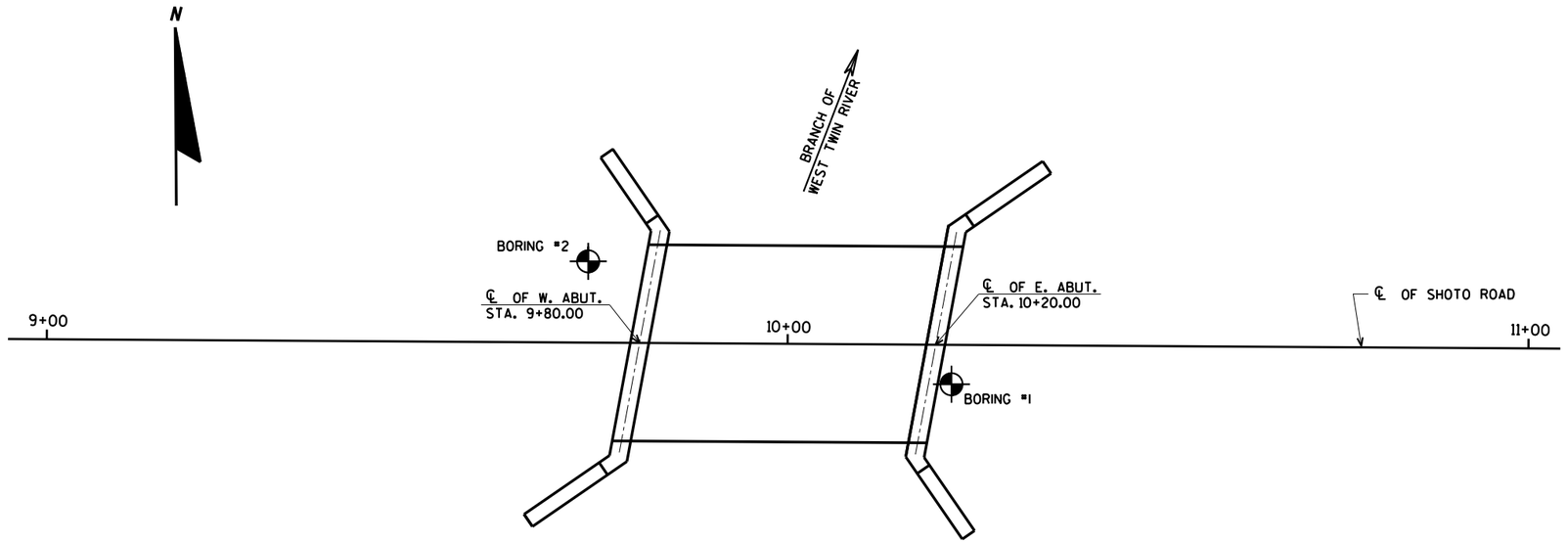
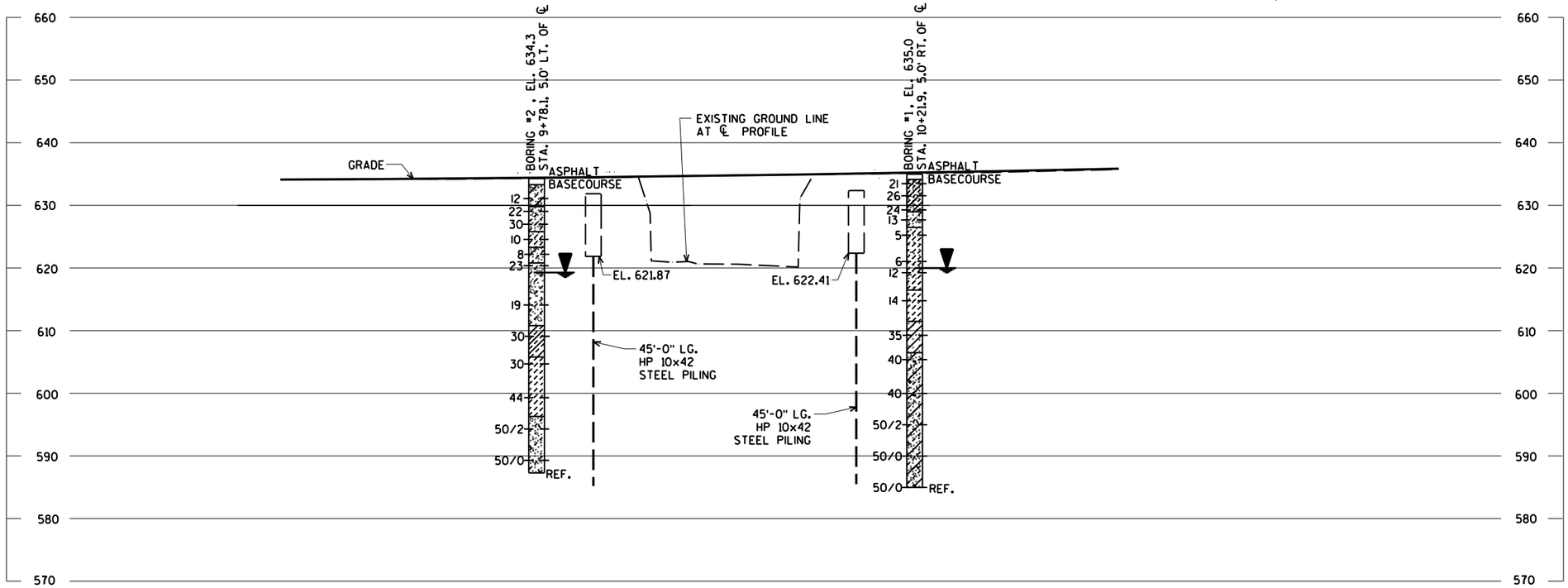


BORINGS TAKEN BY:
GEOTECHNICAL DRILLING CONTRACTORS, LLC
WAUSAU, WI
APRIL 16, 2012

GEOTECHNICAL REPORT BY:
RIVER VALLEY TESTING CORP.
NEENAH, WI
MAY 7, 2012



STATE PROJECT NUMBER

4311-08-71

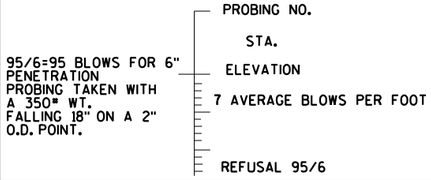
ABBREVIATIONS

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

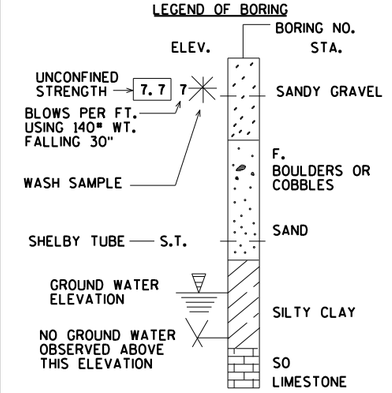
MATERIAL SYMBOLS

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-36-317

DRAWN BY KAZ | PLANS CK'D. KLW

SUBSURFACE EXPLORATION

SHEET 3 OF 11
24

8

8

$PRFNAME$
U:±41-0632.00 - Manitowoc Co. Shoto Road±BRIDGE±410632SL.dgn

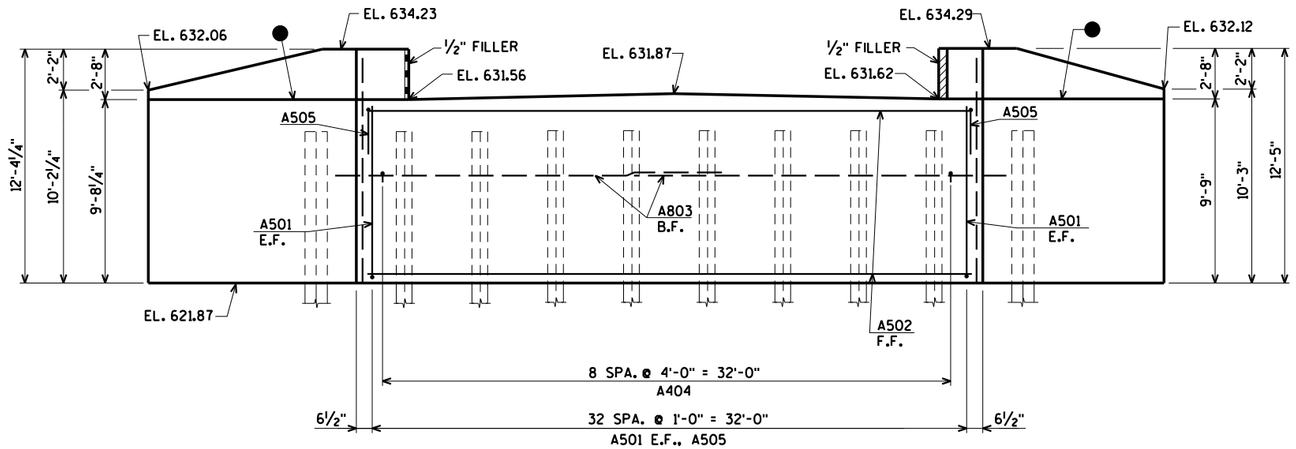
10/31/2012

PENTABLE:BReau_shd_util.tbl

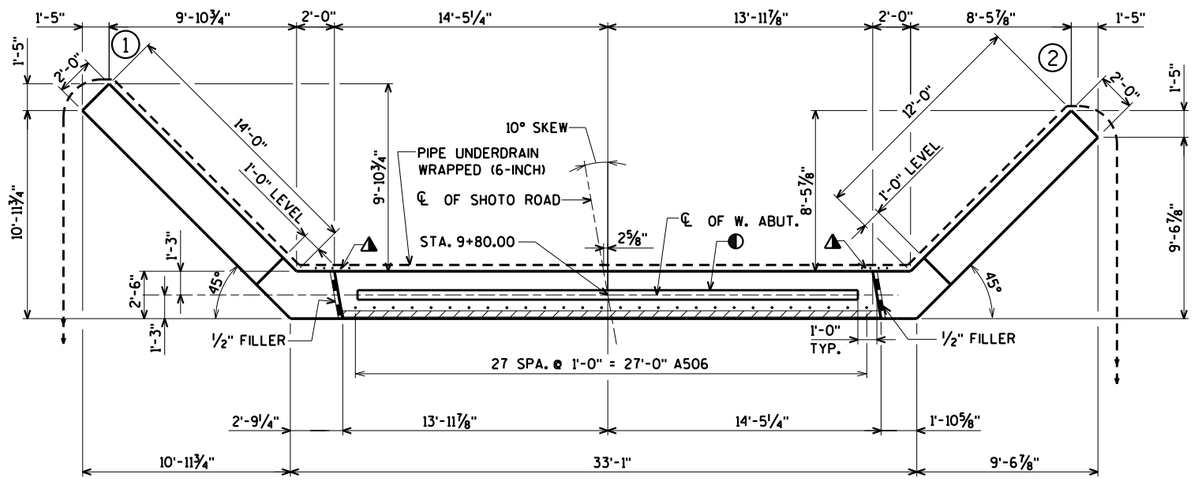
NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE.)

STATE PROJECT NUMBER

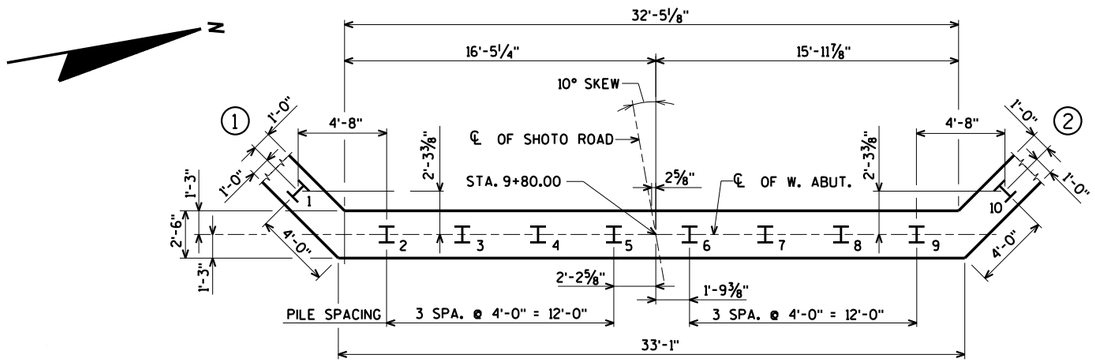
4311-08-71



ELEVATION
(LOOKING WEST)

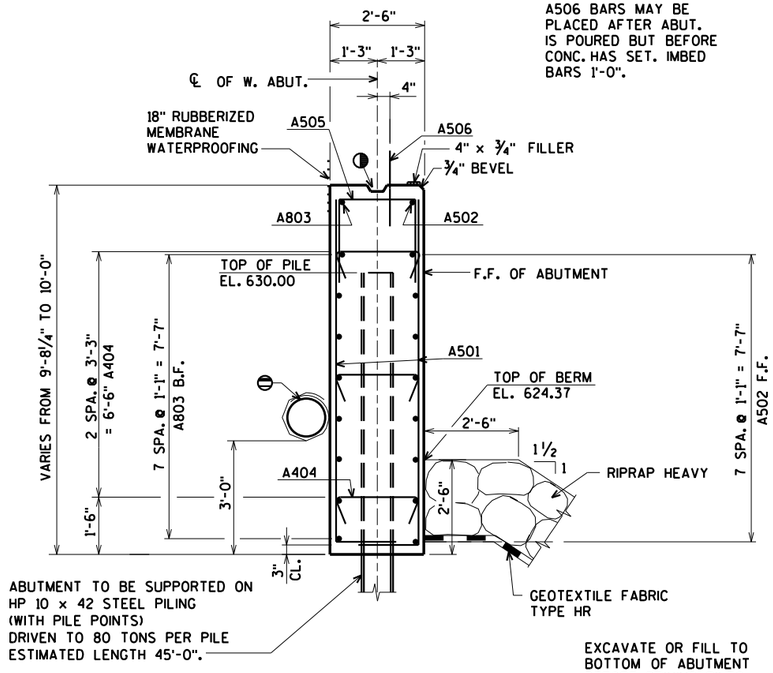


PLAN



PILE LAYOUT

A506 BARS MAY BE PLACED AFTER ABUT. IS POURED BUT BEFORE CONC. HAS SET. IMBED BARS 1'-0".



TYPICAL SECTION THRU BODY

NOTE: DO NOT PLACE FILL ABOVE THREE FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

⊖ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH". FOR RODENT SCREEN DETAIL SEE SHEET 8.

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

◑ KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

⚠ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE.
F.F. DENOTES FRONT FACE.
E.F. DENOTES EACH FACE.

WORK THIS SHEET WITH SHEETS 5 & 8.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-36-317

DRAWN BY KAZ | PLANS CK'D. KLW

WEST ABUTMENT

SHEET 4 OF 11
25

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

8

8

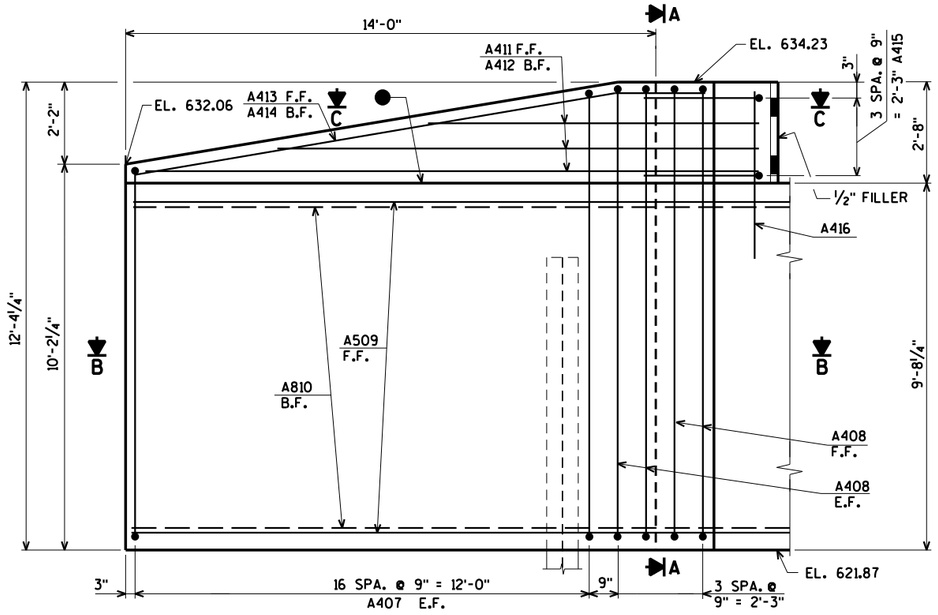
$PRFNAME$
U:\41-0632.00 - Manitowoc Co. Shoto Road\BRIDGE\410632_Wabut.dgn

10/31/2012

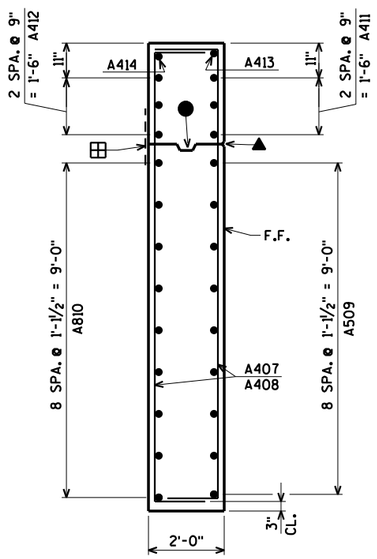
PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER

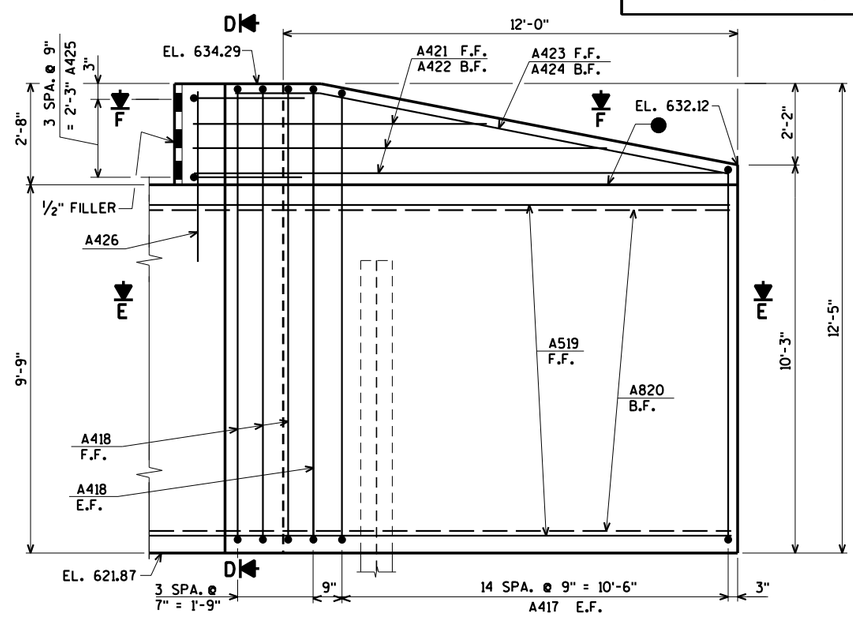
4311-08-71



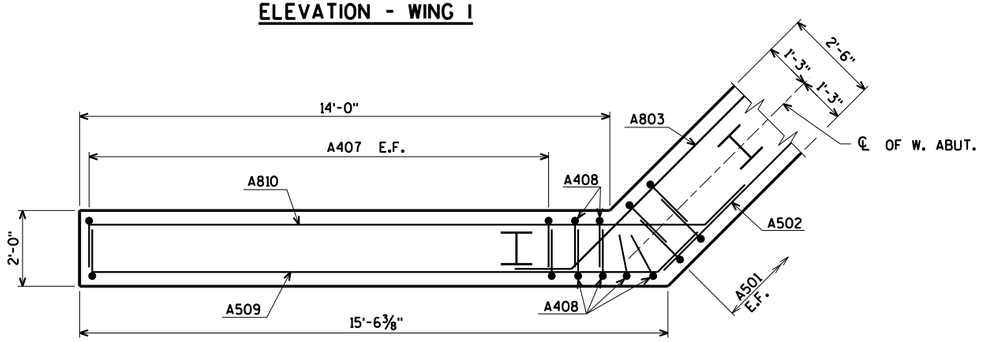
ELEVATION - WING 1



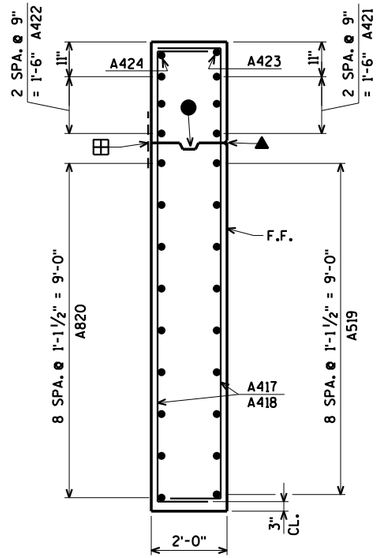
SECTION A



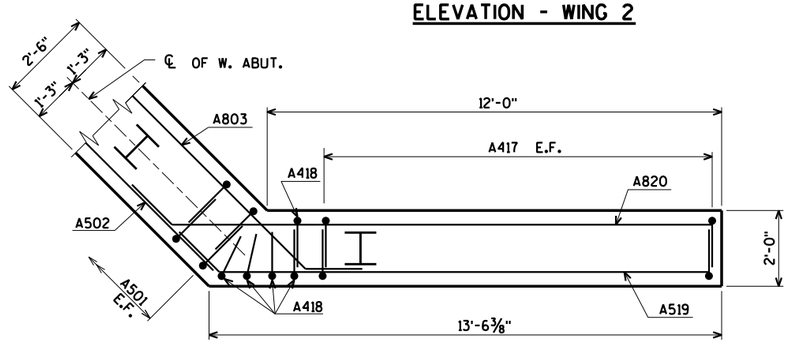
ELEVATION - WING 2



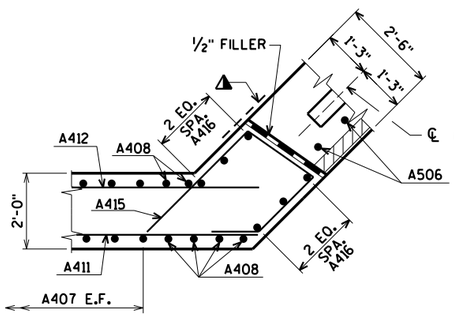
SECTION B



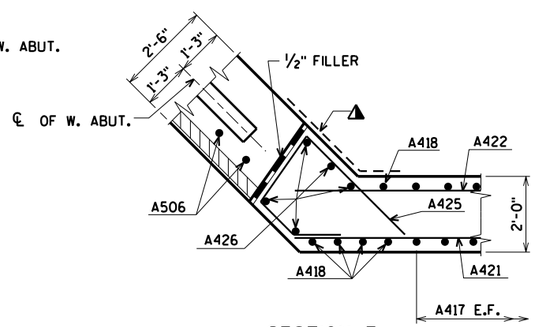
SECTION D



SECTION E



SECTION C



SECTION F

▲ ¾" 'V' GROOVE ON F.F. OF WING WALL - NOT REQUIRED IF CONST. JT. IS NOT USED.

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

⚠ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

B.F. DENOTES BACK FACE.
F.F. DENOTES FRONT FACE.
E.F. DENOTES EACH FACE.

WORK THIS SHEET WITH SHEETS 4 & 8.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-36-317

DRAWN BY KAZ | PLANS CK'D. KLW

WEST ABUTMENT WING DETAILS

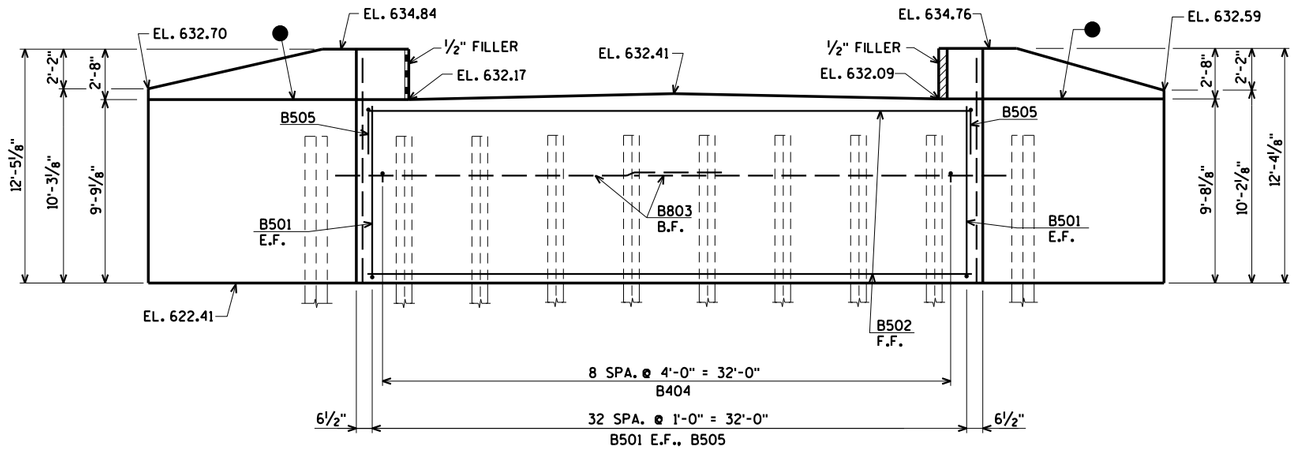
SHEET 5 OF 11
26

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

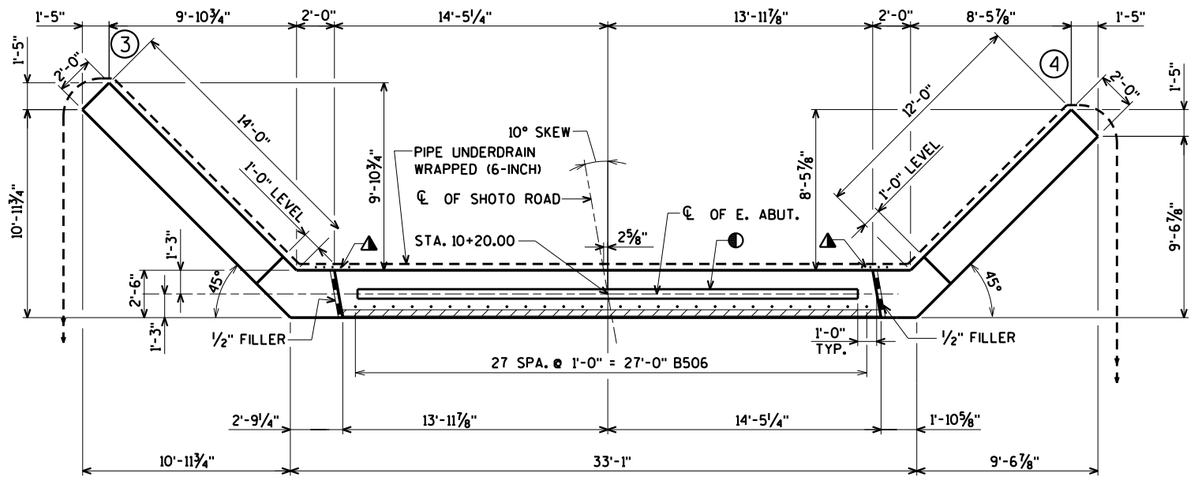
NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE.)

STATE PROJECT NUMBER

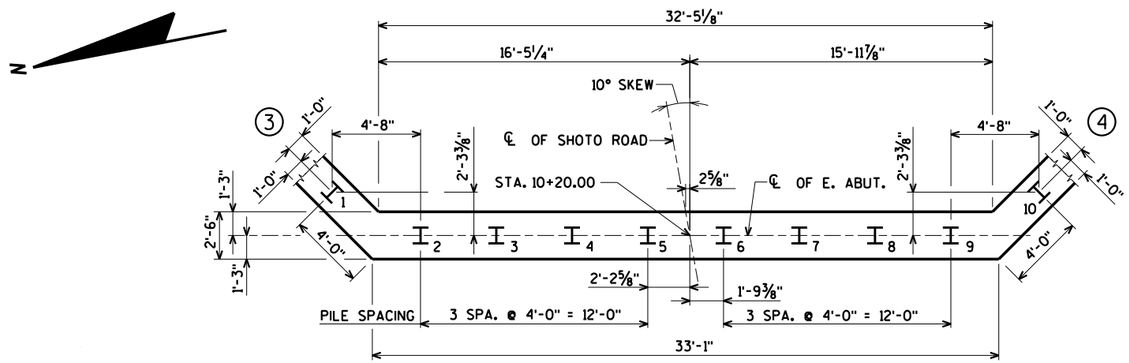
4311-08-71



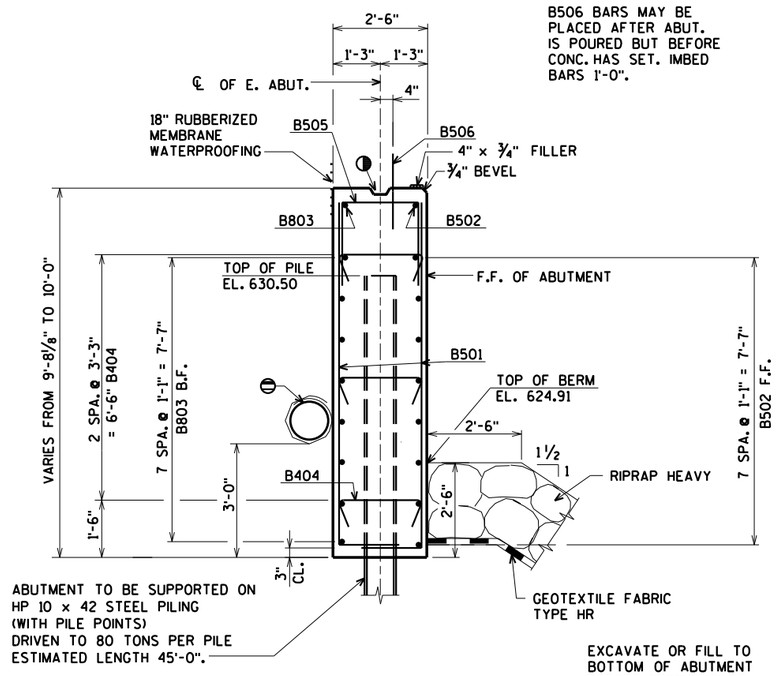
ELEVATION
(LOOKING EAST)



PLAN



PILE LAYOUT



TYPICAL SECTION THRU BODY

NOTE: DO NOT PLACE FILL ABOVE THREE FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

⊖ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH". FOR RODENT SCREEN DETAIL SEE SHEET 8.

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

◑ KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE.
F.F. DENOTES FRONT FACE.
E.F. DENOTES EACH FACE.

WORK THIS SHEET WITH SHEETS 7 & 8.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-36-317

DRAWN BY KAZ | PLANS CK'D. KLW

EAST ABUTMENT

SHEET 6 OF 11
27

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3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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8

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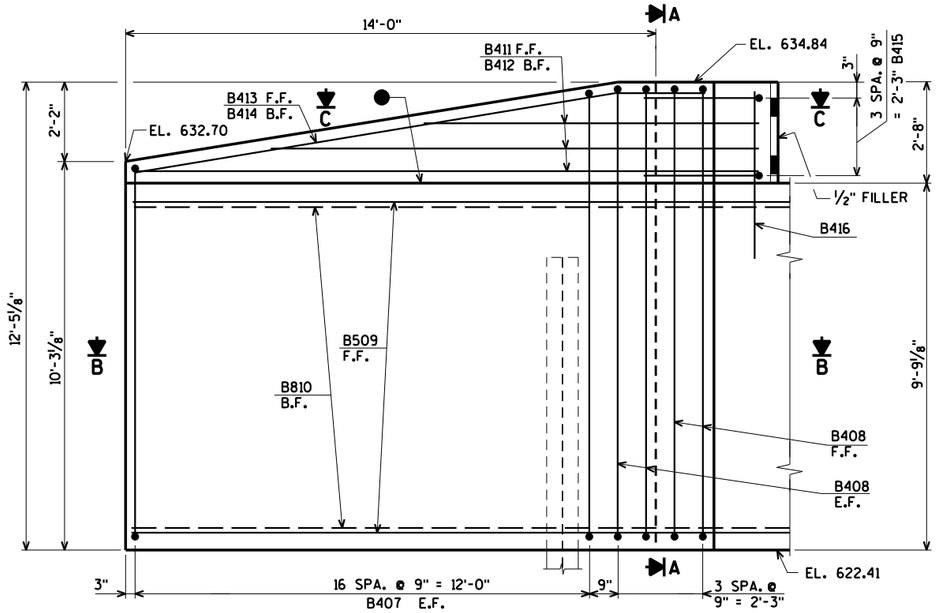
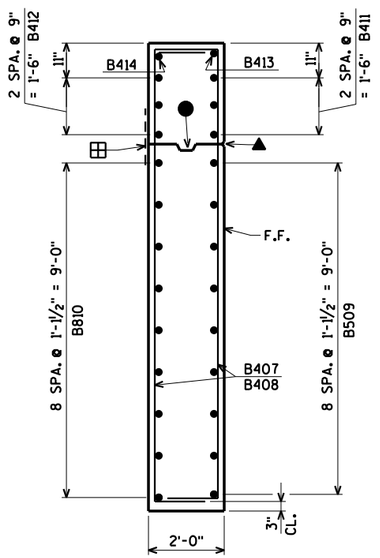
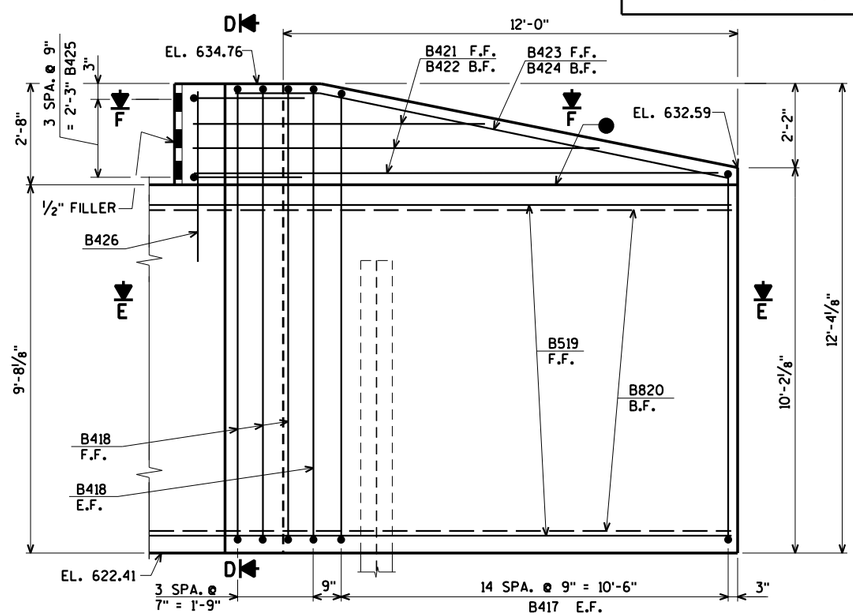


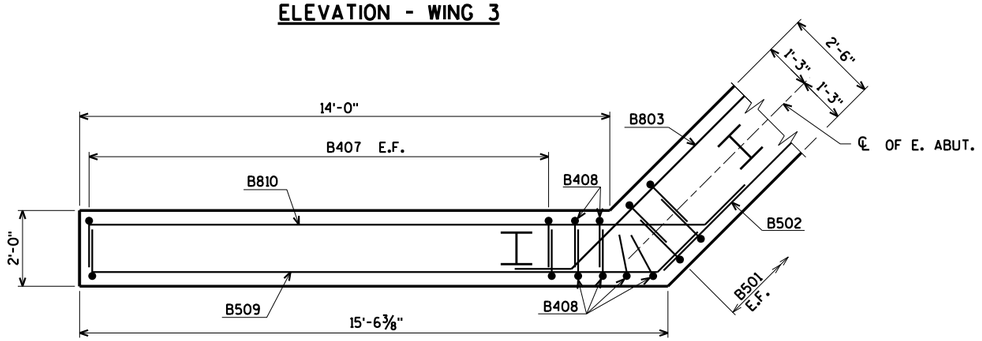
ELEVATION - WING 3



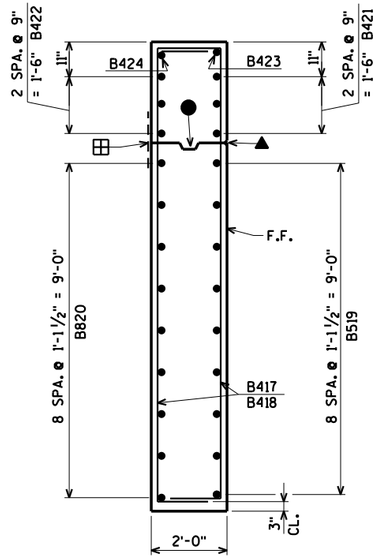
SECTION A



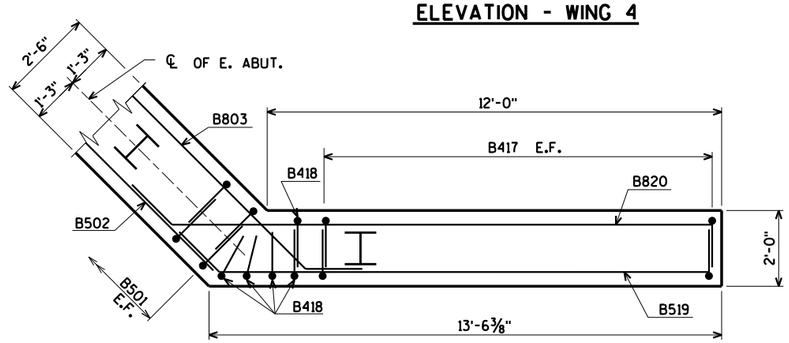
ELEVATION - WING 4



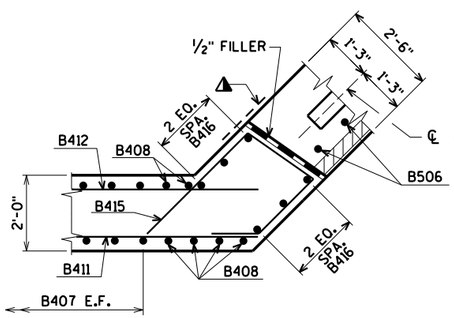
SECTION B



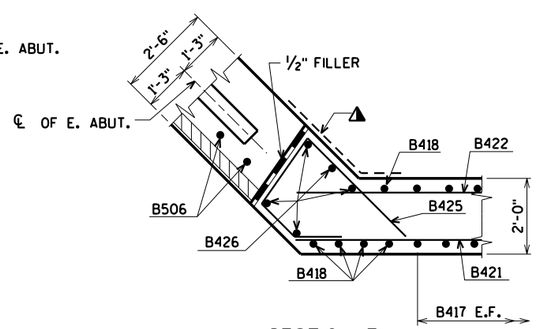
SECTION D



SECTION E



SECTION C



SECTION F

▲ ¾" 'V' GROOVE ON F.F. OF WING WALL - NOT REQUIRED IF CONST. JT. IS NOT USED.

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

⚠ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

B.F. DENOTES BACK FACE.
F.F. DENOTES FRONT FACE.
E.F. DENOTES EACH FACE.

WORK THIS SHEET WITH SHEETS 6 & 8.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-36-317

DRAWN BY KAZ | PLANS CK'D. KLW

EAST ABUTMENT WING DETAILS

SHEET 7 OF 11
28

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE PROJECT NUMBER

4311-08-71

BILL OF BARS - WEST ABUTMENT

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	2.430" UNCOATED 2.070" COATED LOCATION
A501		66	10-6	X			BODY VERT. E.F.
A502		9	32-10				BODY HORIZ. F.F.
A803		18	22-7	X			BODY HORIZ. B.F.
A404		27	2-9	X			BODY TIES
A505		33	7-9	X			BODY VERT. TOP
A506	X	28	2-0				BODY DOWELS
A407	X	34	13-3	X		⊗	WING 1 VERT. E.F.
A408	X	6	14-5	X			WING 1 VERT. E.F.
A509	X	9	16-9	X			WING 1 HORIZ. F.F.
A810	X	9	18-3	X			WING 1 HORIZ. B.F.
A411	X	3	10-8			⊗	WING 1 HORIZ. F.F.
A412	X	3	10-8				WING 1 HORIZ. B.F.
A413	X	1	15-6	X			WING 1 DIAG. F.F.
A414	X	1	15-6	X		⊗	WING 1 DIAG. B.F.
A415	X	4	9-8	X			WING 1 HORIZ.
A416	X	6	3-9				WING 1 VERT.
A417	X	30	13-4	X		⊗	WING 2 VERT. E.F.
A418	X	5	14-6	X			WING 2 VERT. E.F.
A519	X	9	15-10	X			WING 2 HORIZ. F.F.
A820	X	9	16-3	X			WING 2 HORIZ. B.F.
A421	X	3	9-3			⊗	WING 2 HORIZ. F.F.
A422	X	3	9-3			⊗	WING 2 HORIZ. B.F.
A423	X	1	13-6	X			WING 2 DIAG. F.F.
A424	X	1	13-6	X			WING 2 DIAG. B.F.
A425	X	4	8-9	X			WING 2 HORIZ.
A426	X	5	3-9				WING 2 VERT.

BENDING DIMENSIONS ARE OUT TO OUT 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.

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.

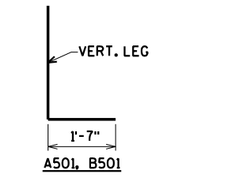
BILL OF BARS - EAST ABUTMENT

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	2.430" UNCOATED 2.070" COATED LOCATION
B501		66	10-6	X			BODY VERT. E.F.
B502		9	32-10				BODY HORIZ. F.F.
B803		18	22-7	X			BODY HORIZ. B.F.
B404		27	2-9	X			BODY TIES
B505		33	7-9	X			BODY VERT. TOP
B506	X	28	2-0				BODY DOWELS
B407	X	34	13-4	X		⊗	WING 3 VERT. E.F.
B408	X	6	14-6	X			WING 3 VERT. E.F.
B509	X	9	16-9	X			WING 3 HORIZ. F.F.
B810	X	9	18-3	X			WING 3 HORIZ. B.F.
B411	X	3	10-8			⊗	WING 3 HORIZ. F.F.
B412	X	3	10-8			⊗	WING 3 HORIZ. B.F.
B413	X	1	15-6	X			WING 3 DIAG. F.F.
B414	X	1	15-6	X			WING 3 DIAG. B.F.
B415	X	4	9-8	X			WING 3 HORIZ.
B416	X	6	3-9				WING 3 VERT.
B417	X	30	13-3	X		⊗	WING 4 VERT. E.F.
B418	X	5	14-5	X			WING 4 VERT. E.F.
B519	X	9	15-10	X			WING 4 HORIZ. F.F.
B820	X	9	16-3	X			WING 4 HORIZ. B.F.
B421	X	3	9-3			⊗	WING 4 HORIZ. F.F.
B422	X	3	9-3			⊗	WING 4 HORIZ. B.F.
B423	X	1	13-6	X			WING 4 DIAG. F.F.
B424	X	1	13-6	X			WING 4 DIAG. B.F.
B425	X	4	8-9	X			WING 4 HORIZ.
B426	X	5	3-9				WING 4 VERT.

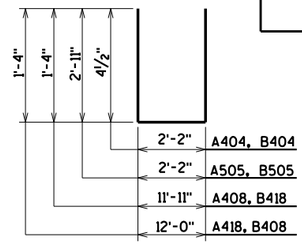
BAR SERIES TABLE

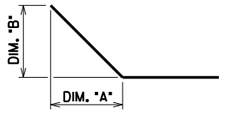
BAR MARK	NO REQ'D.	LENGTH
A407	2 SERIES OF 17	12'-3" TO 14'-3"
A411	1 SERIES OF 3	6'-0" TO 15'-4"
A412	1 SERIES OF 3	6'-0" TO 15'-4"
A417	2 SERIES OF 15	12'-4" TO 14'-4"
A421	1 SERIES OF 3	5'-3" TO 13'-3"
A422	1 SERIES OF 3	5'-3" TO 13'-3"
B407	2 SERIES OF 17	12'-4" TO 14'-4"
B411	1 SERIES OF 3	6'-0" TO 15'-4"
B412	1 SERIES OF 3	6'-0" TO 15'-4"
B417	2 SERIES OF 15	12'-3" TO 14'-3"
B421	1 SERIES OF 3	5'-3" TO 13'-3"
B422	1 SERIES OF 3	5'-3" TO 13'-3"

BUNDLE AND TAG EACH SERIES SEPARATELY.

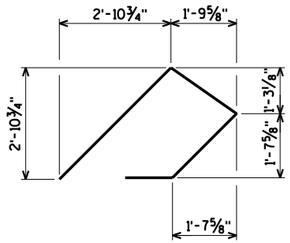


A501, B501

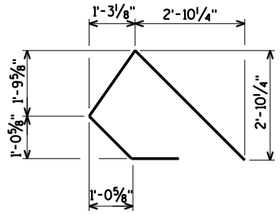




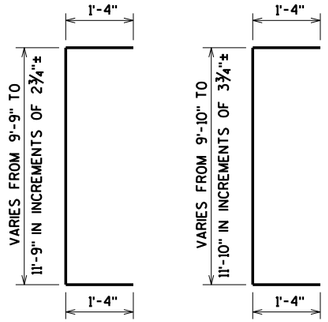
BAR NO.	DIM. "A"	DIM. "B"
A803	1'-0¾"	1'-0¾"
A509	1'-0¾"	1'-0¾"
A810	1'-0¾"	1'-0¾"
A413	12'-7"	2'-1"
A414	12'-7"	2'-1"
A519	1'-0¾"	1'-0¾"
A820	1'-0¾"	1'-0¾"
A423	10'-10"	2'-1"
A424	10'-10"	2'-1"
B803	1'-0¾"	1'-0¾"
B509	1'-0¾"	1'-0¾"
B810	1'-0¾"	1'-0¾"
B413	12'-7"	2'-1"
B414	12'-7"	2'-1"
B519	1'-0¾"	1'-0¾"
B820	1'-0¾"	1'-0¾"
B423	10'-10"	2'-1"
B424	10'-10"	2'-1"



A415, B415

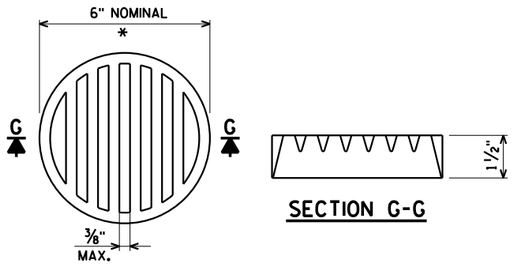


A425, B425



A407 / B417

A417 / B407



SECTION G-G

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

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

THE RODENT SHIELD SHALL BE 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 SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH SHEET METAL SCREWS.

RODENT SHIELD DETAIL

WORK THIS SHEET WITH SHEETS 4 THRU 7.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-36-317

DRAWN BY KAZ | PLANS CK'D. KLW

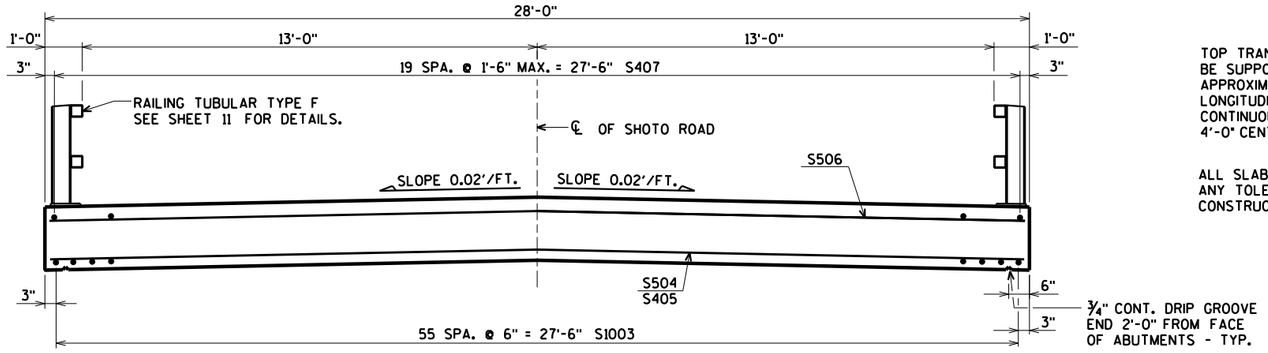
ABUTMENT DETAILS AND BILL OF BARS

SHEET 8 OF 11
29

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

8

8



CROSS SECTION THRU ROADWAY

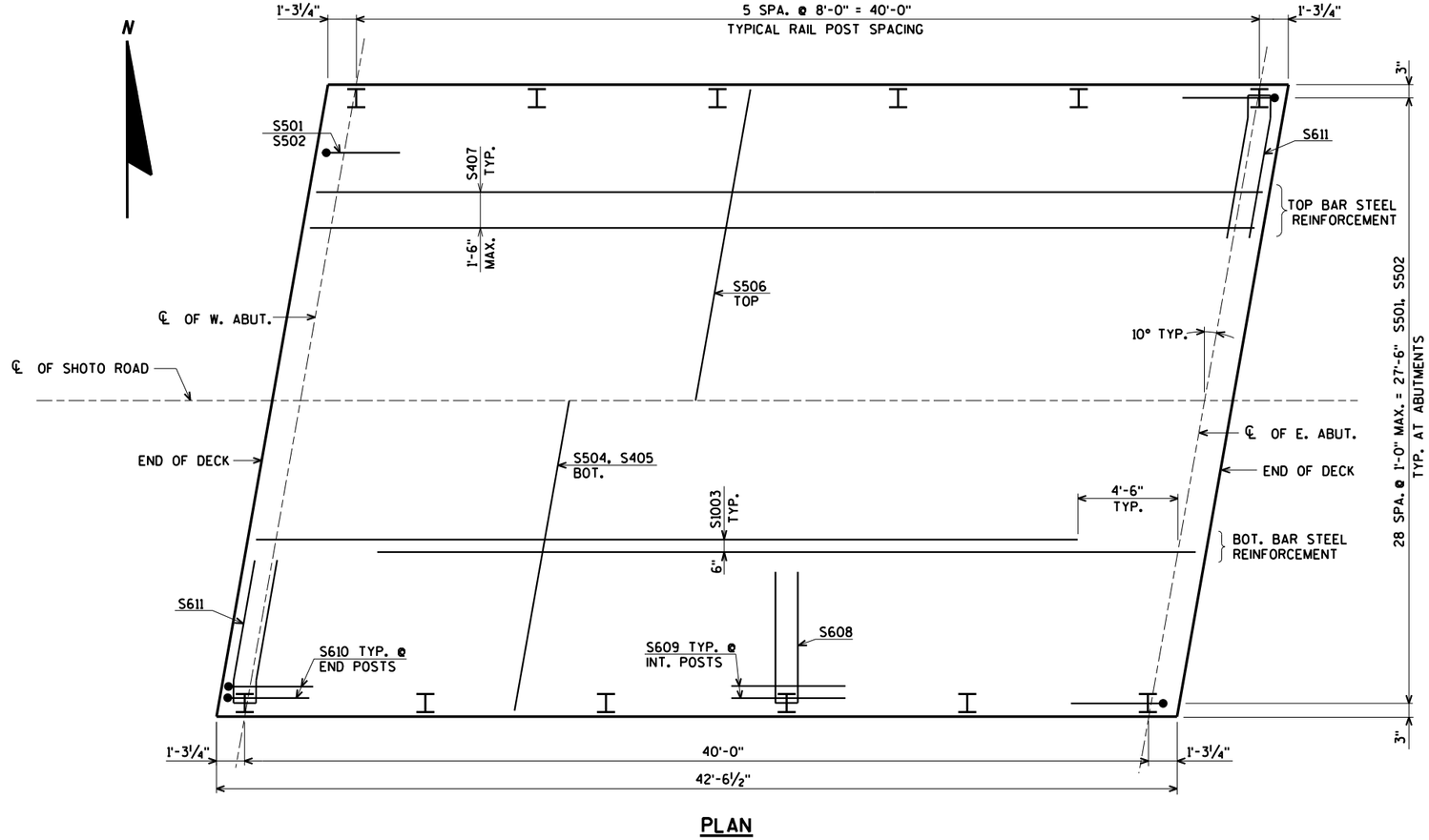
TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

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

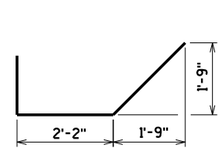
BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	12,980# COATED LOCATION
S501	X	58	5-10	X		SLAB @ ABUT.
S502	X	58	3-7	X		SLAB @ ABUT.
S1003	X	56	36-7			SLAB LONG. BOT.
S504	X	33	28-0			SLAB TRANS. BOT.
S405	X	24	28-0			SLAB TRANS. BOT.
S506	X	43	28-0			SLAB TRANS. TOP
S407	X	20	42-2			SLAB LONG. TOP
S608	X	10	12-0	X		SLAB @ RAIL POSTS
S609	X	16	4-0			SLAB @ INT. RAIL POSTS
S610	X	8	4-0	X		SLAB @ END RAIL POSTS
S611	X	2	12-0	X		SLAB @ END RAIL POSTS

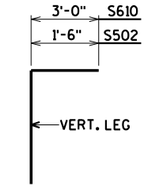
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

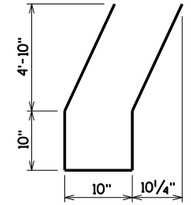


PLAN

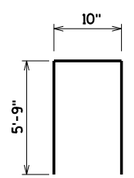


S501





S611



S608

WORK THIS SHEET WITH SHEET 10.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

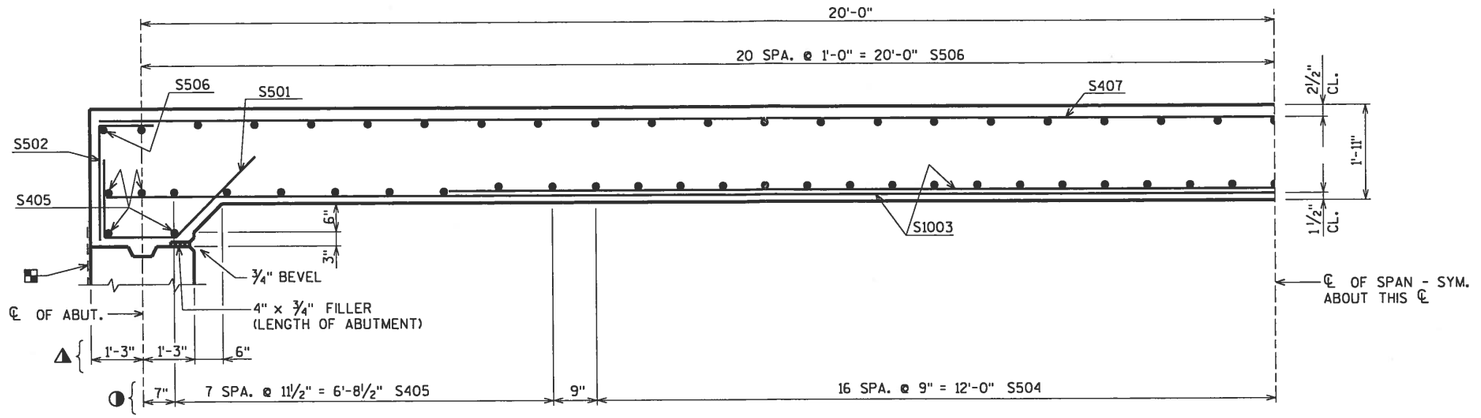
STRUCTURE B-36-317

DRAWN BY KAZ | PLANS CK'D. KLW

SUPERSTRUCTURE

SHEET 9 OF 11
30

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

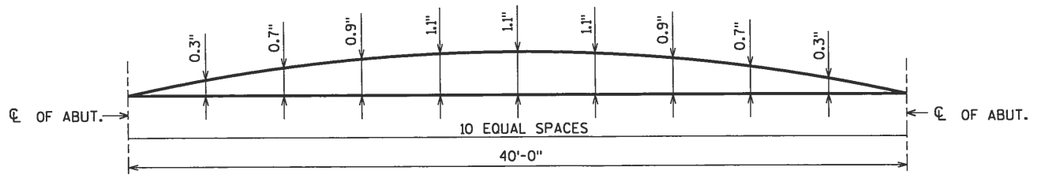


PART LONGITUDINAL SECTION

■ 18" RUBBERIZED MEMBRANE WATERPROOFING

▲ DIMENSIONS MEASURED NORMAL TO ℄ OF SUBSTRUCTURE.

◑ DIMENSIONS MEASURED ALONG SHOTO ROAD.



CAMBER DIAGRAM

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEADLOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE ℄ OF ABUTMENTS, AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR ℄.

TOP OF DECK ELEVATIONS

	℄ OF BRG. W. ABUT.	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT	0.6 PT	0.7 PT	0.8 PT	0.9 PT	℄ OF BRG. E. ABUT.
N. SLAB EDGE	634.29	634.33	634.38	634.43	634.49	634.54	634.60	634.65	634.71	634.78	634.84
℄ OF STRUCTURE	634.54	634.59	634.63	634.68	634.73	634.79	634.84	634.90	634.96	635.02	635.08
S. SLAB EDGE	634.23	634.28	634.32	634.37	634.42	634.47	634.53	634.58	634.64	634.70	634.76

ELEVATIONS SHOWN ARE FINISHED DECK AND DO NOT INCLUDE ALLOWANCES OF DEAD LOAD DEFLECTION AND FUTURE CREEP.

WORK THIS SHEET WITH SHEET 9.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-36-317

DRAWN BY KAZ | PLANS CK'D. KLW

SUPERSTRUCTURE DETAILS

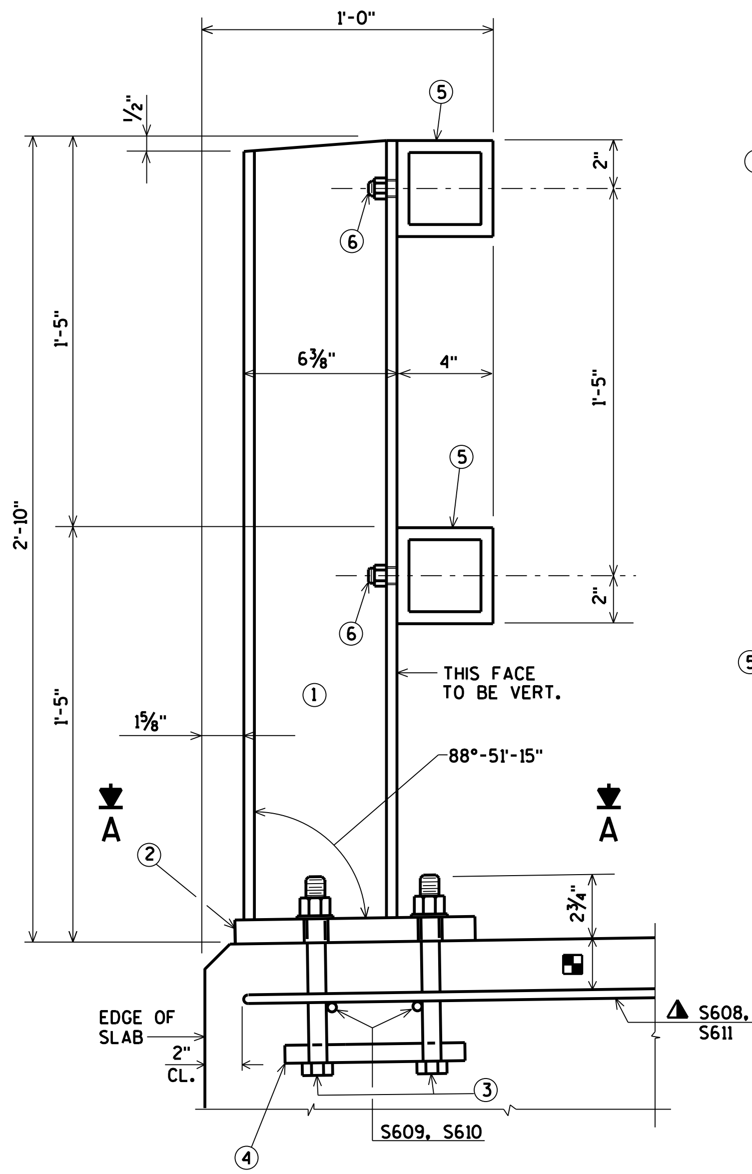
SHEET 10 OF 11

31

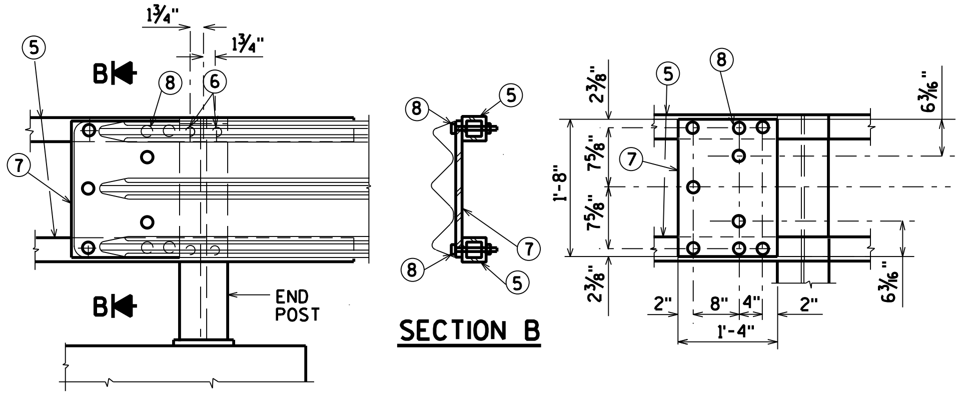
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE PROJECT NUMBER

4311-08-71



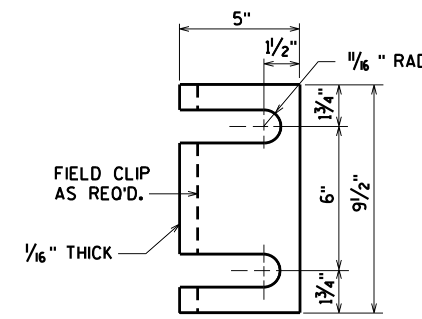
SECTION THRU RAILING



SECTION B

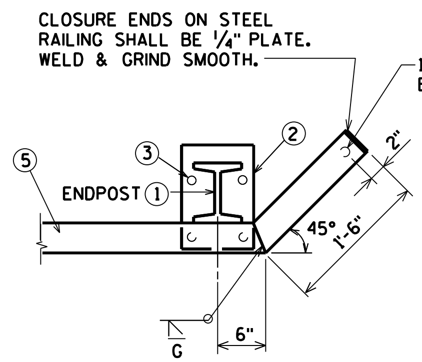
DETAIL AT END POST

(THRIE BEAM RAIL ATTACHMENT)

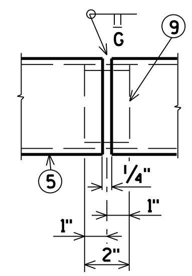


POST SHIM DETAIL

(4 PER POST)

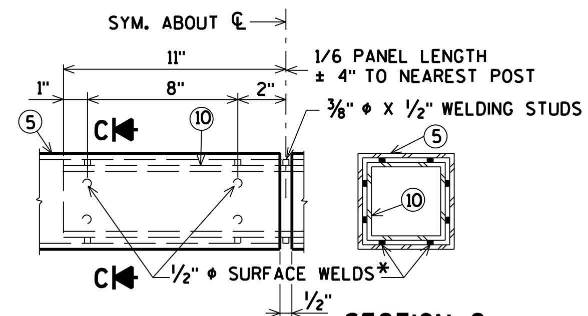


DETAIL FOR END POSTS



SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)

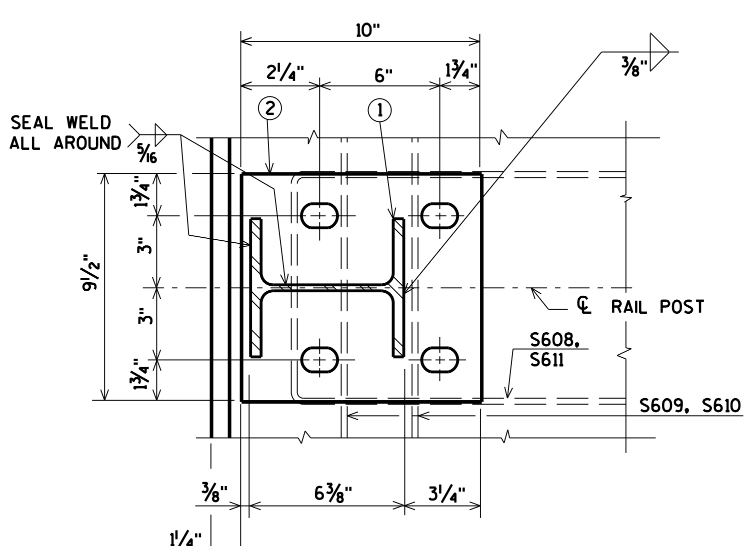


FIELD ERECTION JOINT DETAIL

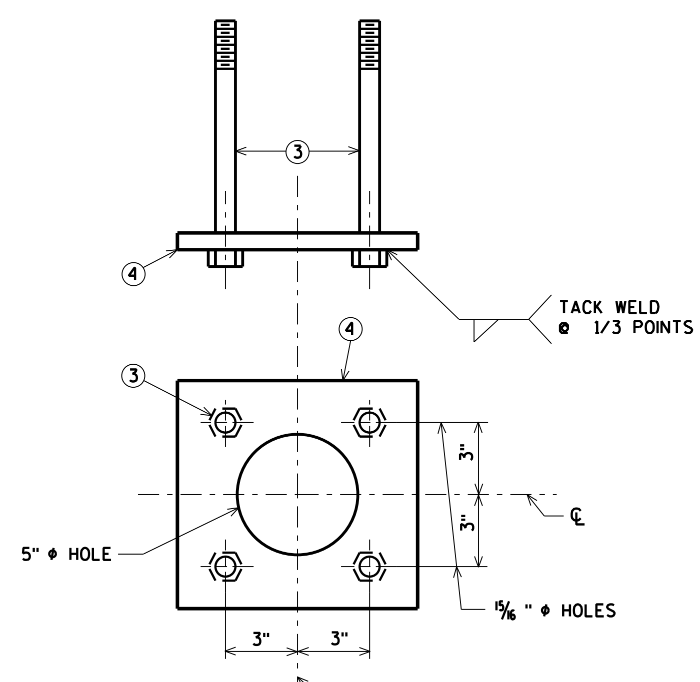
SECTION C

*MIN. 5/8" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.

■ PLACE BELOW TOP MAT SLAB REINFORCEMENT.



SECTION A



ANCHORAGE DETAIL

LEGEND

(1) W6 x 25 WITH 1 1/4" ϕ HOLES ON EACH SIDE OF POST FOR STUD NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

(2) PLATE 1" x 9 1/2" x 10", WITH 1 1/16" x 1 1/2" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.

(3) A325 - 7/8" ϕ HEX BOLTS (GALVANIZED) WITH A325 NUT AND WASHER. 14" LONG AT END POSTS AND AT POSTS ON CONCRETE SLAB SUPER-STRUCTURES WHERE THE SLAB THICKNESS IS > 15". ~~USE 8" LONG AT ALL OTHER LOCATIONS.~~ 4 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING.

(4) 1/4" x 8" x 8" FLAT BAR, WITH 15/16 " ϕ HOLES FOR ANCHOR BOLTS NO. 3.

(5) TS 4 x 4 x 0.25 STRUCTURAL TUBING, CONFORMING TO A.S.T.M. DESIGNATION A501 OR A500 GRADE B. ATTACH TO NO. 1 WITH 2 STUDS NO. 6.

(6) 5/8" ϕ x 1 1/2" LONG SHOP WELDED STUDS WITH HEX NUT AND 2" WASHERS. (TWO REQ'D. AT EACH RAIL TO POST LOCATION).

(7) PLATE 3/8" x 1'-4" x 1'-8". BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5.

(8) 1" ϕ HOLES IN PLATE NO. 7 AND TUBES NO. 5 FOR 7/8" ϕ A325 BOLTS WITH HEX NUTS AND WASHERS.

(9) SQUARE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT" WITH A MINIMUM OUT TO OUT DIMENSION OF 3 11/32 ".

(10) TS 3 x 3 x 0.25 x 1'-10" LONG. PROVIDE 1/2" ϕ SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF NO. 5. PROVIDE 3/8" ϕ x 1/2" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.

GENERAL NOTES

BID ITEM SHALL BE "RAILING TUBULAR TYPE F B-36-317", WHICH INCLUDES ALL ITEMS SHOWN.

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

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 EXCEPT ANCHORAGE DETAIL (NO. 4) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS AND STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.

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

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

STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.

▲ TIE TO BOTTOM OF TOP MAT OF STEEL.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-36-317

DRAWN BY KAZ | PLANS CK'D. KLW

PLANS PREPARED BY AYRES ASSOCIATES
Engineers/Architects Scientists/Surveyors
3433 Oakwood Hills Parkway
Eau Claire, WI 54701

RAILING TUBULAR TYPE F

SHEET 11 OF 11

EARTHWORK - SHOTO ROAD

STATION	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
	Cut	Salvaged / Unusable Pavement Material	Fill	Cut Note 1	Salvaged / Unusable Pavement Material Note 2	Fill Note 3	Cut 1.00 Note 1	Expanded Fill 1.30	Note 8
8+50.00	27.4	3.7	0.0						
9+00.00	30.1	3.7	99.0	53	7	183	53	238	-189
9+50.00	33.5	3.7	109.5	59	7	193	112	489	-388
9+78.73	18.9	3.7	219.1	28	4	175	140	716	-591
10+21.27	20.8	7.3	200.5						
10+50.00	21.7	7.3	38.6	23	8	127	23	165	-742
11+00.00	23.8	7.3	0.0	42	14	36	65	212	-760
				205	39	714			

Notes:	
1 - Cut	Cut includes Unusable Pavement Material
2 - Unusable Pavement Material	This does not show up in cross sections
3 - Fill	Does not include Unusable Pavement Material Volume
8 - Mass Ordinate	Cut - (Fill * Fill Factor) - Unusable Pavement Materal

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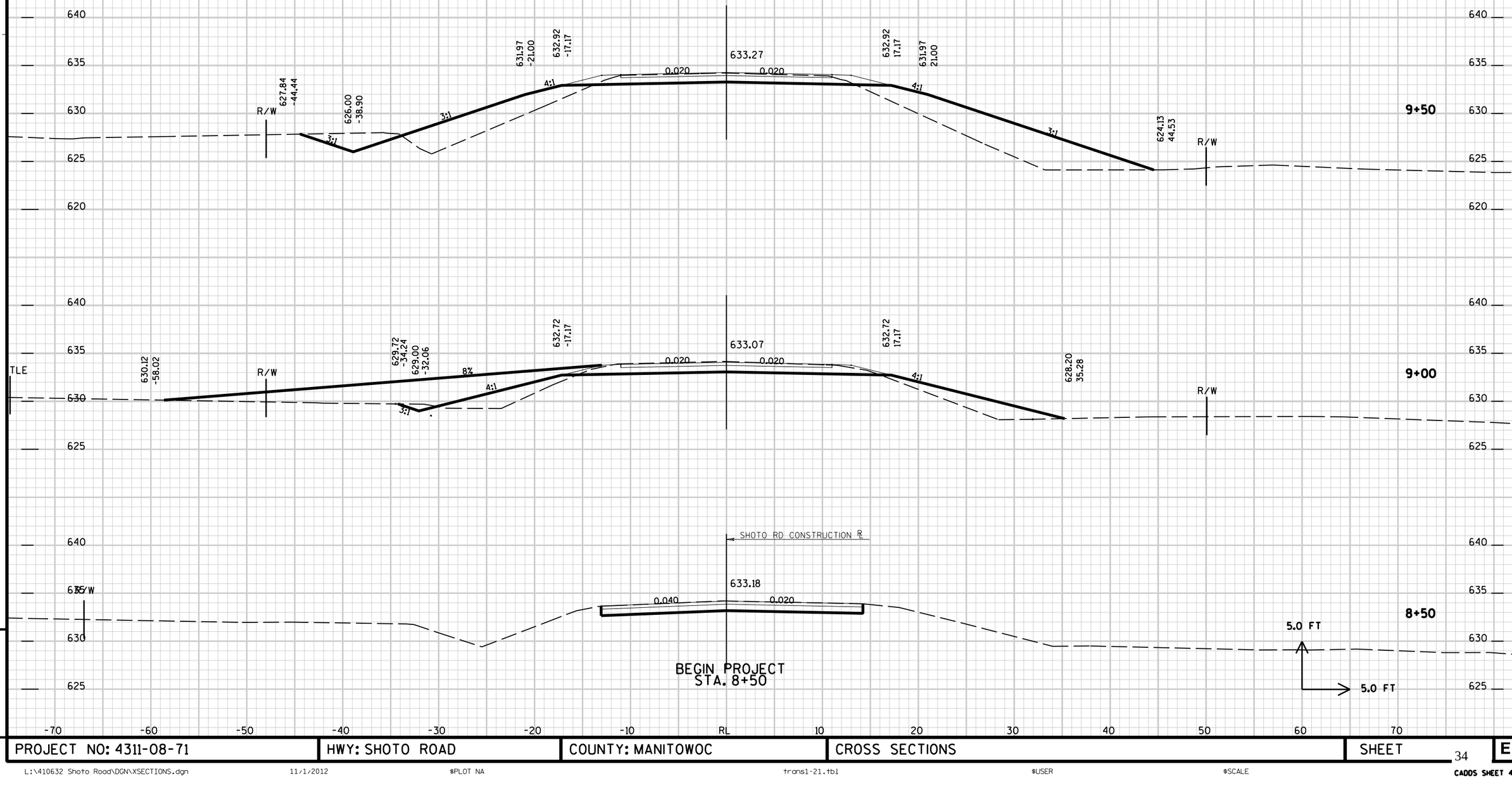
STRUCTURE B-36-0317 REO'D.



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PROJECT NO: 4311-08-71	HWY: SHOTO ROAD	COUNTY: MANITOWOC	CROSS SECTIONS	SHEET	E

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CADDS SHEET 42

END PROJECT
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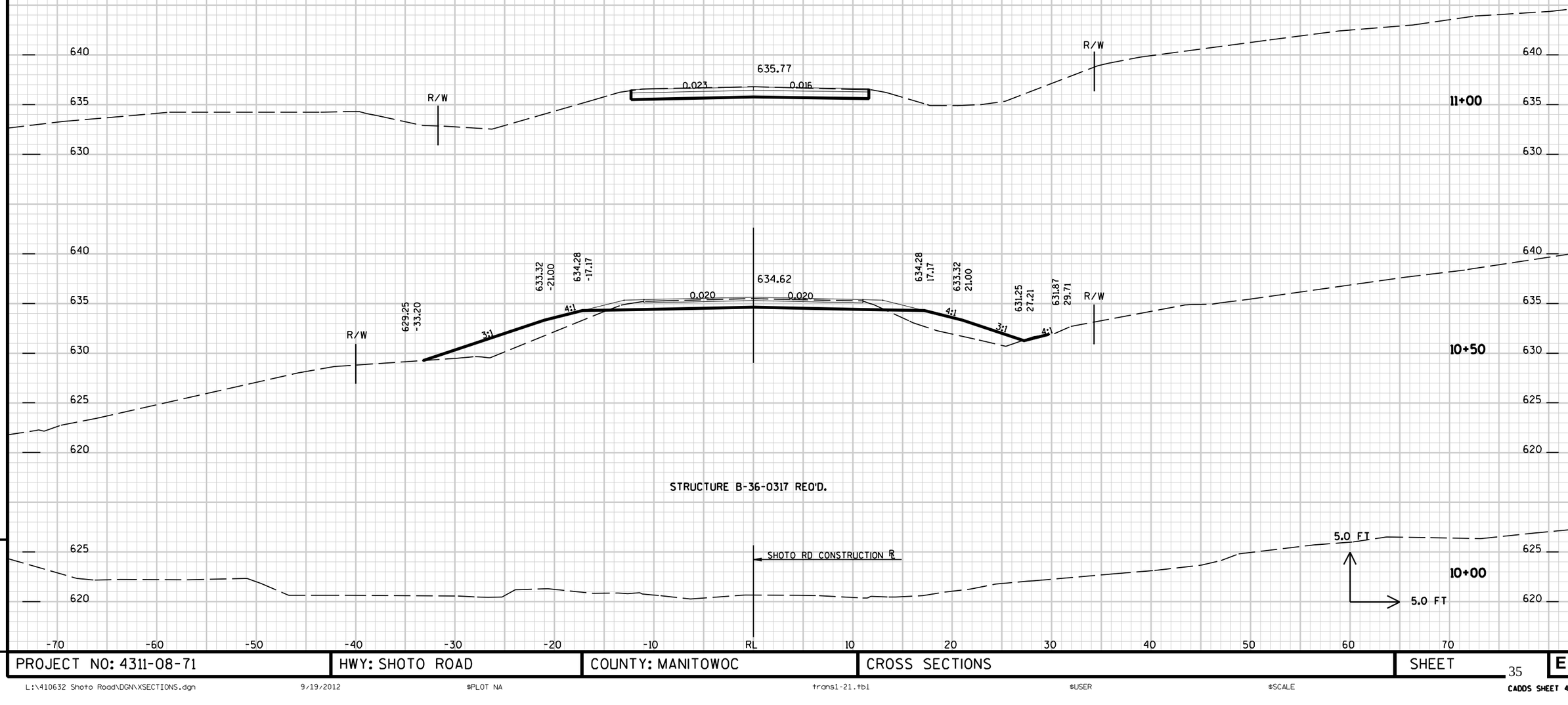

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PROJECT NO: 4311-08-71	HWY: SHOTO ROAD	COUNTY: MANITOWOC	CROSS SECTIONS	SHEET	E

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CADDS SHEET 42

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