NEL

JUL 2016

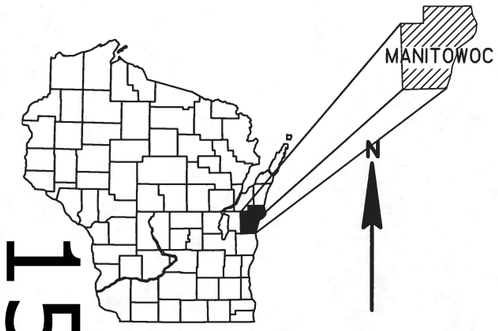
PROJECT ID: 4309-04-71

WITH: N/A

COUNTY: MANITOWOC

ORDER OF SHEETS

TOTAL SHEETS = 42



15

DESIGN DESIGNATION

A.A.D.T.	2016	=	260
A.A.D.T.	2036	=	290
D.H.V.		=	4.0
D.D.		=	60/40
T.		=	4.8%
DESIGN SPEED		=	60 MPH
ESALS		=	36,500

CONVENTIONAL SYMBOLS

PLAN		PROFILE	
CORPORATE LIMITS		GRADE LINE	
PROPERTY LINE		ORIGINAL GROUND	
LOT LINE		MARSH OR ROCK PROFILE (To be noted as such)	ROCK
LIMITED HIGHWAY EASEMENT		SPECIAL DITCH	LABEL
EXISTING RIGHT OF WAY		GRADE ELEVATION	95.36
PROPOSED OR NEW R/W LINE		CULVERT (Profile View)	
SLOPE INTERCEPT		UTILITIES	
REFERENCE LINE		ELECTRIC	E
EXISTING CULVERT		FIBER OPTIC	FO
PROPOSED CULVERT (Box or Pipe)		GAS	G
COMBUSTIBLE FLUIDS	CAUTION	SANITARY SEWER	SAN
		STORM SEWER	SS
		TELEPHONE	T
MARSH AREA		WATER	W
		UTILITY PEDESTAL	
		POWER POLE	
WOODED OR SHRUB AREA		TELEPHONE POLE	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T NEWTON, SOUTH UNION RD

POINT CREEK BRIDGE B-36-0229

LOC STR
MANITOWOC COUNTY

STATE PROJECT NUMBER
4309-04-71

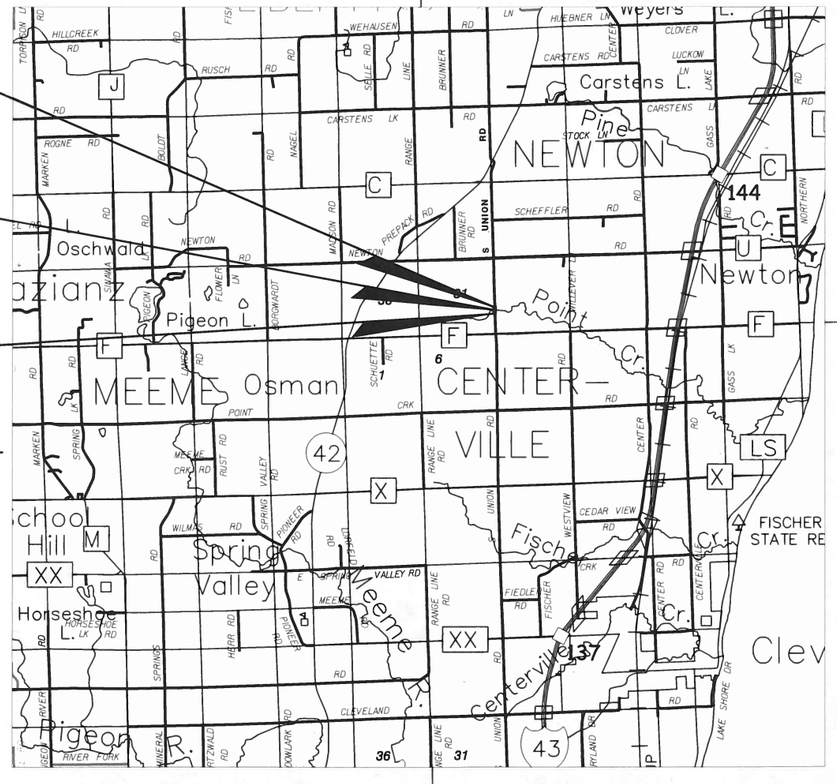
END CONSTRUCTION 4309-04-71
STA 15+21

END PROJECT 4309-04-71
STA 13+75
Y=261546.68
X=201061.51

STRUCTURE B-36-0229

BEGIN PROJECT 4309-04-71
STA 10+25
Y=261196.68
X=201060.78

BEGIN CONSTRUCTION 4309-04-71
STA 8+79



LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.066 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MANITOWOC COUNTY. NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4309-04-71	WISC 2016254	1

ACCEPTED FOR

COUNTY of MANITOWOC

2/9/16 (Date) (SIGNATURE COMMISSIONER)

ORIGINAL PLANS PREPARED BY

Mead & Hunt

Mead & Hunt, Inc.
1345B North Road
Green Bay, WI 54313
920.496.0500
fax: 920.496.0576
www.meadhunt.com

WISCONSIN
ANGELA B. KERRIGAN
NO. 39383-006
De Pere, WI
PROFESSIONAL ENGINEER

2/5/16

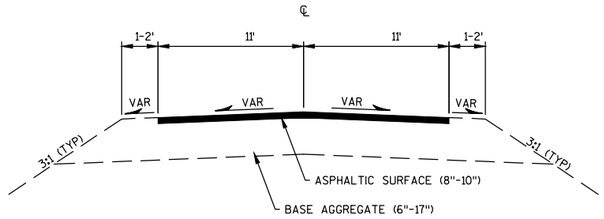
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor MEAD & HUNT
Designer MEAD & HUNT

Managment Consultant JT ENGINEERING, INC.

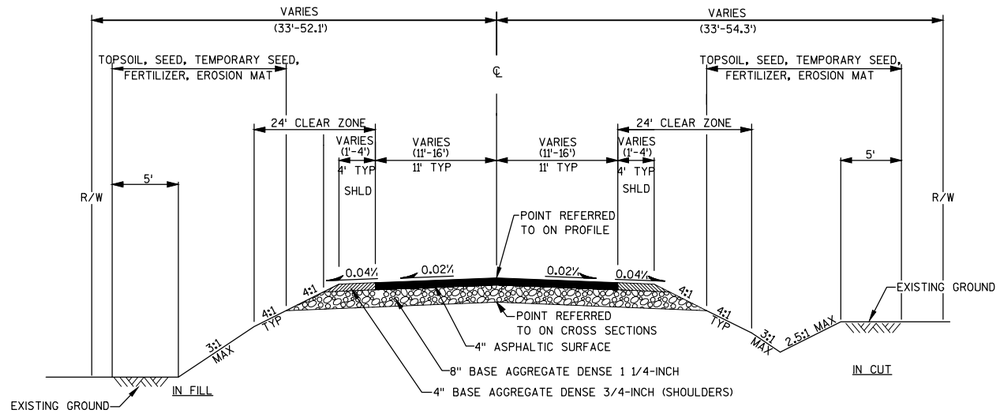
APPROVED FOR THE DEPARTMENT
DATE: 2/12/16
Management Consultant Signature

E



EXISTING TYPICAL SECTION

STA 10+25 TO STA 11+64
STA 12+33 TO STA 13+75



TYPICAL FINISHED SECTION

STA 10+25 TO STA 11+64
STA 12+33 TO STA 13+75

GENERAL NOTES

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

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

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE TOPSOIL, FERTILIZE, SEED, TEMPORARY SEED, AND EROSION MAT.

4-INCH ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH AN 1 3/4-INCH UPPER LAYER AND A 2 1/4-INCH LOWER LAYER.

THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

KEEP ALL EQUIPMENT AND MATERIALS OUT OF ADJACENT WETLANDS. DO NOT PLACE FERTILIZER WITHIN THE WETLAND OR WATERWAY.

STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC
ASPH	ASPHALTIC
BM	BENCH MARK
℄	CENTERLINE
CWT	HUNDREDWEIGHT
CY	CUBIC YARD
DHV	DESIGN HOURLY VOLUME
DWY	DRIVEWAY
EL	ELEVATION
EXC	EXCAVATION
FT	FOOT
FTG	FOOTING
LB	POUND
LF	LINEAR FOOT
LHF	LEFT-HAND FORWARD
LS	LUMP SUM
LT	LEFT
NO	NUMBER
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
RHF	RIGHT-HAND FORWARD
RT	RIGHT
R/W	RIGHT-OF-WAY
SF	SQUARE FOOT
SHLDR	SHOULDER
STA	STATION
SY	SQUARE YARD
T	TRUCKS (PERCENT OF)
TLE	TEMPORARY LIMITED EASEMENT
TYP	TYPICAL
VAR	VARIABLE
VC	VERTICAL CURVE
VPC	VERTICAL POINT OF CURVE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY

UTILITIES

CHARTER COMMUNICATIONS
3315 LINCOLN AVENUE
TWO RIVERS, WI 54241
CONTACT: NICK FRASE
TEL: (920) 304-6797
EMAIL: nick.frase@charter.com

NSIGHT TELSERVICES
7520 ENGLISH LAKE ROAD
MANITOWOC, WI 54220
CONTACT: DOUG STAHL
TEL: (920) 323-4200
EMAIL: doug.stahl@nsight.com

WISCONSIN PUBLIC SERVICE CORPORATION
800 COLUMBUS STREET
PO BOX 236
TWO RIVERS, WI 54241
CONTACT: JEFF PELISCHEK
TEL: (920) 657-1816 (OFFICE)
(920) 323-4836 (MOBILE)
EMAIL:
jspelischek@wisconsinpublicservice.com

ANR PIPELINE COMPANY
W3925 PIPELINE LN
ENDEN, WI 53019
CONTACT: LAWRENCE HUBER
TEL: (920) 477-2235 (OFFICE)
EMAIL: lawrence.huber@transcanada.com

WDNR

MATTHEW SCHAEVE
WISCONSIN DEPT NATURAL RESOURCES
2984 SHAWANO AVENUE
GREEN BAY, WI 54313
TEL: (920) 662-5472
EMAIL: matthew.shaeve@wisconsin.gov

DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

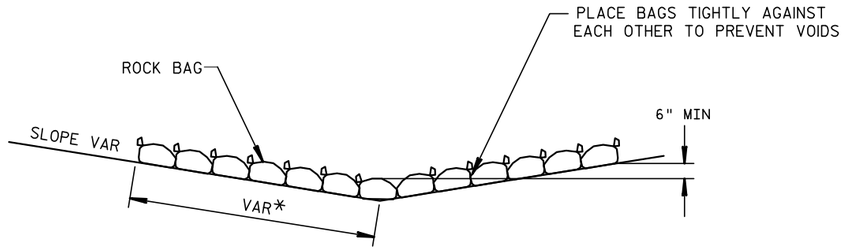
RUNOFF COEFFICIENT TABLE

	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											

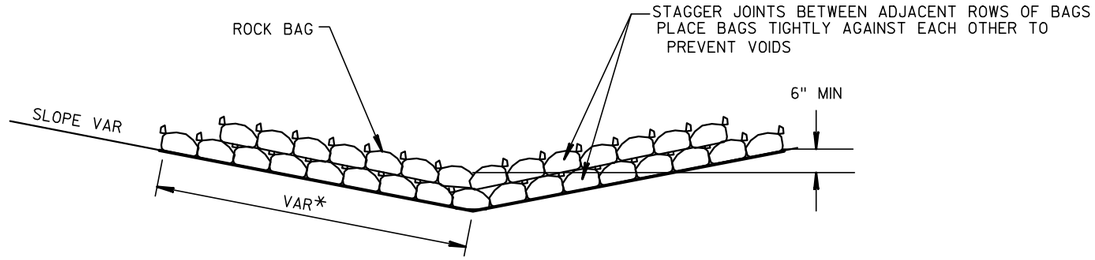
TOTAL PROJECT AREA = 0.78 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.63 ACRES

PROJECT NO: 4309-04-71	HWY: SOUTH UNION ROAD	COUNTY: MANITOWOC	TYPICAL SECTIONS	SHEET 2	E

2

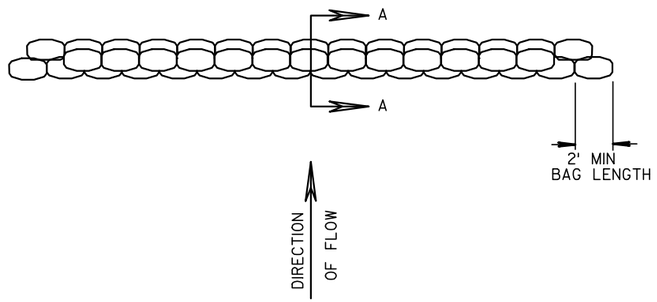


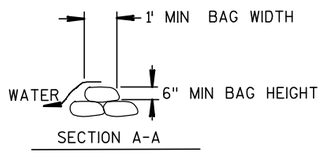
SIDE VIEW (SINGLE LAYER)



* LENGTH AND NUMBER OF BAGS MAY VARY
DEPENDING ON DESIRED DEPTH OF WATER POOL

SIDE VIEW (MULTIPLE LAYER)





SECTION A-A

TOP VIEW (MULTIPLE LAYER)

ROCK BAGS USED FOR DITCH CHECKS DETAIL

PROJECT NO: 4309-04-71	HWY: SOUTH UNION ROAD	COUNTY: MANITOWOC	CONSTRUCTION DETAIL	SHEET 3	E

2

N

BEGIN PROJECT
STA 10+25

EXISTING R/W

WETLAND BOUNDARY

SLOPE INTERCEPT (TYP)

TERBIDITY BARRIER (TYP)

POINT CREEK

ROCK BAGS (TYP)

R/W

WETLAND BOUNDARY

OH

FLOW ARROWS (TYP)

10+00 11+00 12+00 13+00 14+00

S. UNION ROAD

EXISTING R/W

WETLAND BOUNDARY

R/W

EROSION MAT URBAN CLASS I, TYPE B (TYP)

GEOTEXTILE FABRIC TYPE 'HR' UNDER HEAVY RIPRAP (SEE STRUCTURE PLANS)

SLOPE INTERCEPT (TYP)

SILT FENCE (TYP)

END PROJECT
STA 13+75

WETLAND BOUNDARY

PROJECT NO: 4309-04-71	HWY: SOUTH UNION ROAD	COUNTY: MANITOWOC	EROSION CONTROL PLAN	SHEET 4	E

FILE NAME : X:\13246-00\141685.01\TECH\CAD\43090400_C3D2014\SHEETSPLAN\022001_EC.DWG PLOT DATE : 1/14/2016 10:10 AM PLOT BY : ANGIE KERRIGAN PLOT NAME : PLOT SCALE : 1 IN:40 FT

2

N

W5-52L
12"X36"

REMOVE

REMOVE

WEIGHT LIMIT 10 TONS

REMOVE

W5-52R
12"X36"

POINT CREEK

BEGIN PROJECT
STA 10+25

R/W

300'

300'

10+00

11+00

12+00

13+00

14+00

S. UNION ROAD

BEGIN CONSTRUCTION
STA 8+79

R/W

W5-52R
12"X36"

WEIGHT LIMIT 10 TONS

REMOVE

REMOVE

REMOVE

W5-52L
12"X36"

PAVEMENT MARKING EPOXY
4-INCH (WHITE)

PAVEMENT MARKING EPOXY
4-INCH (YELLOW)

END PROJECT
STA 13+75

END CONSTRUCTION
STA 15+21

PROJECT NO: 4309-04-71	HWY: SOUTH UNION ROAD	COUNTY: MANITOWOC	PAVEMENT MARKING & SIGNING PLAN	SHEET 5	E

FILE NAME : X:\13246-00\141685.01\TECH\CAD\43090400_C3D2014\SHEETSPLAN\023001_PM.DWG PLOT DATE : 1/12/2016 3:50 PM PLOT BY : DOUGLAS HOBYAN PLOT NAME : PLOT SCALE : 1 IN:40 FT

DATE 13MAY16 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	4309-04-71 QUANTITY
0010	201.0205	Grubbing	STA	7.000	7.000
0020	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. STA 12+00	LS	1.000	1.000
0030	205.0100	Excavation Common **P**	CY	486.000	486.000
0040	206.1000	Excavation for Structures Bridges (structure) 01. B-36-229	LS	1.000	1.000
0050	208.0100	Borrow **P**	CY	229.000	229.000
0060	210.0100	Backfill Structure	CY	150.000	150.000
0070	213.0100	Finishing Roadway (project) 01. 4309-04-71	EACH	1.000	1.000
0080	305.0110	Base Aggregate Dense 3/4-Inch	TON	40.000	40.000
0090	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	665.000	665.000
0100	312.0115	Select Crushed Material	CY	64.000	64.000
0110	415.0410	Concrete Pavement Approach Slab	SY	100.000	100.000
0120	455.0605	Tack Coat	GAL	20.000	20.000
0130	465.0105	Asphaltic Surface	TON	184.000	184.000
0140	502.0100	Concrete Masonry Bridges **P**	CY	160.000	160.000
0150	502.3200	Protective Surface Treatment	SY	188.000	188.000
0160	505.0400	Bar Steel Reinforcement HS Structures **P**	LB	3,660.000	3,660.000
0170	505.0600	Bar Steel Reinforcement HS Coated Structures **P**	LB	21,330.000	21,330.000
0180	513.4061	Railing Tubular Type M (structure) 01. B-36-229	LF	125.000	125.000
0190	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0200	550.0500	Pile Points	EACH	10.000	10.000
0210	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	600.000	600.000
0220	606.0300	Riprap Heavy	CY	300.000	300.000
0230	612.0206	Pipe Underdrain Unperforated 6-Inch	LF	40.000	40.000
0240	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	100.000	100.000
0250	619.1000	Mobilization	EACH	1.000	1.000
0260	624.0100	Water	MGAL	10.000	10.000
0270	625.0100	Topsoil **P**	SY	1,739.000	1,739.000
0280	628.1504	Silt Fence	LF	170.000	170.000
0290	628.1520	Silt Fence Maintenance	LF	60.000	60.000
0300	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0310	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0320	628.2008	Erosion Mat Urban Class I Type B **P**	SY	1,739.000	1,739.000
0330	628.6005	Turbidity Barriers	SY	160.000	160.000
0340	628.7570	Rock Bags	EACH	60.000	60.000
0350	629.0210	Fertilizer Type B **P**	CWT	1.100	1.100
0360	630.0120	Seeding Mixture No. 20 **P**	LB	50.000	50.000
0370	630.0200	Seeding Temporary **P**	LB	50.000	50.000
0380	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	6.000	6.000
0390	637.2210	Signs Type II Reflective H	SF	6.000	6.000
0400	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0410	638.2602	Removing Signs Type II	EACH	6.000	6.000
0420	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0430	642.5001	Field Office Type B	EACH	1.000	1.000
0440	643.0100	Traffic Control (project) 01. 4309-04-71	EACH	1.000	1.000
0450	643.0420	Traffic Control Barricades Type III	DAY	748.000	748.000
0460	643.0705	Traffic Control Warning Lights Type A	DAY	1,495.000	1,495.000
0470	643.0900	Traffic Control Signs	DAY	150.000	150.000
0480	645.0120	Geotextile Type HR	SY	555.000	555.000

3

DATE 13MAY16 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	4309-04-71 QUANTITY
0490	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,434.000	1,434.000
0500	650.4500	Construction Staking Subgrade	LF	308.000	308.000
0510	650.5000	Construction Staking Base	LF	308.000	308.000
0520	650.6500	Construction Staking Structure Layout (structure) 01. B-36-229	LS	1.000	1.000
0530	650.9910	Construction Staking Supplemental Control (project) 01. 4309-04-71	LS	1.000	1.000
0540	650.9920	Construction Staking Slope Stakes	LF	308.000	308.000
0550	690.0150	Sawing Asphalt	LF	44.000	44.000
0560	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0570	715.0502	Incentive Strength Concrete Structures	DOL	920.000	920.000
0580	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	150.000	150.000
0590	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	300.000	300.000

3

GRUBBING SUMMARY

STATION - STATION			OFFSET	201.0205 GRUBBING STA
10+25	-	12+50	LT	3
10+25	-	13+75	RT	4
TOTAL				**7**

FINISHING ROADWAY (4309-04-71)

STATION - STATION	213.0100 FINISHING ROADWAY EACH
4309-04-71	1
TOTAL	**1**

BASE AGGREGATE DENSE FOR ROADWAY

STATION - STATION			LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL
10+25	-	11+79	S. UNION RD.	20	335	5
12+21	-	13+75	S. UNION RD.	20	330	5
TOTAL				**40**	**665**	**10**

CONCRETE PAVEMENT APPROACH SLAB

STATION - STATION			415.0410 CONCRETE PAVMENT APPROACH SLAB SY
11+64	-	11+79	50
12+21	-	12+36	50
TOTAL			**100**

3

EARTHWORK SUMMARY

Division	From/To Station	Location	Common Excavation (1) **P** (Item # 205.0100) Cut	Common Excavation (1) **P** (Item # 205.0100) EBS Excavation (2)	Available Material (3)	Unexpanded Fill	Expanded Fill (4) Factor 1.25	Mass Ordinate +/- (5)	Waste	Borrow **P** (Item # 208.0100)	Comment:
1	10+25 to 11+75	S. Union Road South of Bridge	221	0	221	395	493	-272		272	
2	12+25 to 13+75	S. Union Road North of Bridge	265	0	265	177	221	43	43		
Grand Total			486	0	486	572	715	-229	43	272	
		Total Common Exc =	**486**						**Total Borrow =**	**229**	See Note 6

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) EBS Excavation to be backfilled with Borrow or Cut.
3) Available Material = Cut - Salvaged/Unusuable Pavement Material
4) Expanded Fill Factor = 1.25
5) 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.
6) Use 43 CY of Waste material for Division 1. Borrow Excavation from Division 2, item number 208.0100. (Total Borrow = 272 CY - 43 CY = 229 CY)

ASPHALT PAVEMENT SUMMARY

STATION - STATION			455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
10+25	-	11+64	10	92
12+36	-	13+75	10	92
TOTAL			**20**	**184**

MOBILIZATION

STATION - STATION	619.1000 MOBILIZATION EACH
PROJECT	1
TOTAL	**1**

EROSION CONTROL MOBILIZATION

STATION - STATION	628.1905 EROSION CONTROL MOBILIZATION EA	628.1910 EMERGENCY EROSION CONTROL MOBILIZATION EA
PROJECT	5	2
TOTAL	**5**	**2**

SILT FENCE

STATION - STATION	OFFSET	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF
12+15 - 13+75	RT	170	60
TOTAL		**170**	**60**

TURBIDITY BARRIER

STATION	LOCATION	628.6005 TURBIDITY BARRIER SY
11+90	S. UNION RD.	80
12+10	S. UNION RD.	80
TOTAL		**160**

ROCK BAGS

STATION	OFFSET	628.7570 ROCK BAGS EACH
11+50	RT	15
11+50	LT	15
12+50	RT	15
12+50	LT	15
TOTAL		**60**

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE SPECIFIED

FINISHING ITEMS

STATION - STATION		OFFSET	625.0100 TOPSOIL **P** SY	628.2008 EROSION MAT URBAN CLASS I TYPE B **P** SY	629.0210 FERTILIZER TYPE B **P** CWT	630.0120 SEEDING MIXTURE NO. 20 **P** LB	630.0200 SEEDING TEMPORARY **P** LB
10+25	11+64	RT	437	437	0.3	11.8	11.8
10+25	11+64	LT	352	352	0.2	10.0	10.0
12+33	13+75	RT	272	272	0.2	7.3	7.3
12+33	13+75	LT	330	330	0.2	9.0	9.0
UNDISTRIBUTED		--	348	348	0.2	9.5	9.5
TOTAL			**1,739**	**1,739**	**1.1**	**50**	**50**

SIGNING SUMMARY

STATION	OFFSET	638.2602 REMOVING SIGNS TYPE II EA	638.3000 REMOVING SMALL SIGN SUPPORTS EA	634.0616 POSTS WOOD 4X6-INCH X 16-FT EA	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	COMMENT
11+80	LT	1	1	--	--	--	
11+80	RT	2	1	1	3.00	--	I3 24"X18"
12+20	LT	2	1	1	3.00	--	I3 24"X18"
12+20	RT	1	1		--	--	
11+70	RT	--	--	1	--	3.00	W5-52L 12"X36"
11+70	LT	--	--	1	--	3.00	W5-52R 12"X36"
12+30	LT	--	--	1	--	3.00	W5-52L 12"X36"
12+30	RT	--	--	1	--	3.00	W5-52R 12"X36"
TOTAL		**6**	**4**	**6**	**6.00**	**12.00**	

FIELD OFFICE TYPE B

STATION - STATION	642.5001 FIELD OFFICE TYPE B EACH
PROJECT	1
TOTAL	**1**

TRAFFIC CONTROL (PROJECT)

STATION - STATION	643.0100 TRAFFIC CONTROL 4309-04-71 EACH
PROJECT	1
TOTAL	**1**

TRAFFIC CONTROL ITEMS

LOCATION	SERVICE DAYS DAYS	BARRICADES EACH	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAYS	LIGHTS EACH	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAYS	SIGNS EACH	643.0900 TRAFFIC CONTROL SIGNS DAYS
NORTH OF BRIDGE	65	5	325	10	650	1	65
SOUTH OF BRIDGE	65	5	325	10	650	1	65
UNDISTRIBUTED			98		195		20
TOTAL			**748**		**1,495**		**150**

PAVEMENT MARKING SUMMARY

STATION - STATION		OFFSET	646.0106 PAVEMENT MARKING EPOXY 4-INCH YELLOW LF	PAVEMENT MARKING EPOXY 4-INCH WHITE LF
10+25	13+75	CL	150	--
8+79	15+21	LT	--	642
8+79	15+21	RT	--	642
TOTAL			**150**	**1,284**

CONSTRUCTION STAKING SUMMARY

STATION - STATION	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.6500 CONSTRUCTION STAKING STRUCTURE LAYOUT B-36-0229 LS	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL .01 4309-04-71 LS	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
PROJECT	--	--	1	1	--
10+25 - STRUCTURE	154	154	--	--	154
STRUCTURE - 13+75	154	154	--	--	154
TOTAL	**308**	**308**	**1**	**1**	**308**

SAWCUTTING SUMMARY

STATION - STATION	690.0150 SAWING ASPHALT LF
10+25	22
13+75	22
TOTAL	**44**

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE SPECIFIED

PROJECT ID: 4309-04-71

WITH: PROJECTID2

COUNTY: MANITOWOC

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
4309-04-71		
FEDERAL PROJECT NUMBER	4.01	2

PLAT OF RIGHT-OF-WAY REQUIRED FOR

CTH F - NEWTON ROAD

(POINT CREEK BRIDGE B-36-172)

SOUTH UNION ROAD — MANITOWOC COUNTY

CONSTRUCTION PROJECT NUMBER
4309-04-71

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 — IP
R/W MONUMENT — (SET)
R/W POINT NOT MONUMENTED
R/W STANDARD — (SET)
SIGN — SIGN
SECTION CORNER MONUMENT
SECTION CORNER SYMBOL
FEE (HATCH VARIES)
TEMPORARY LIMITED EASEMENT
PERMANENT LIMITED EASEMENT
R/W POINT
PARCEL NUMBER — 43 / 102
UTILITY PARCEL NUMBER — 92
SIGN NUMBER (OFF PREMISE) — 21-1
BUILDING

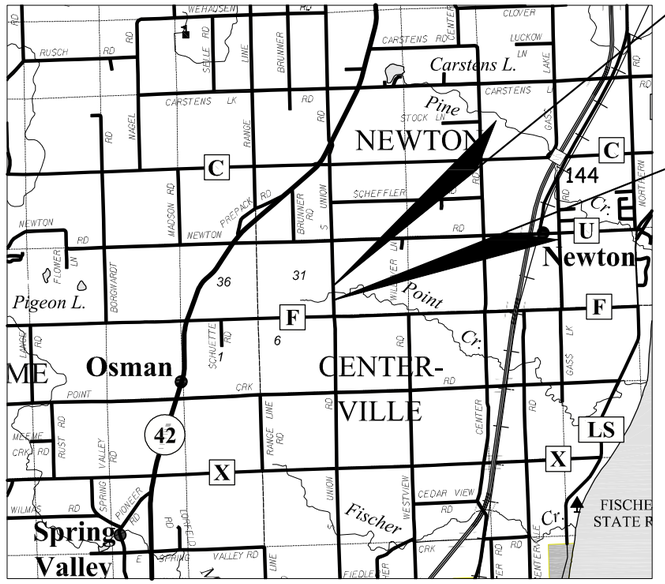
PROPOSED R/W LINE
EXISTING H.E. LINE
PROPERTY LINE
LOT & TIE LINES
SLOPE INTERCEPTS
CORPORATE LIMITS
NO ACCESS (BY PREVIOUS ACQUISITION/CONTROL)
NO ACCESS (BY ACQUISITION)
NO ACCESS (BY STATUTORY AUTHORITY)
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
EXISTING CENTERLINE
PROPOSED REFERENCE LINE
PARALLEL OFFSET

CONVENTIONAL UTILITY SYMBOLS

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

T-17-N

T-16-N



R-22-E R-23-E

GN

END RELOCATION ORDER

PROJECT 4309-04-71
STA 14+00.00
1780.22' N AND 1.07' W FROM
SW COR SEC 32, T-18-N, R-23-E
Y = 261,571.676
X = 201,061.551

BEGIN RELOCATION ORDER

PROJECT 4309-04-71
STA 10+00.00
1380.22' N AND 1.75' W FROM
SW COR SEC 32, T-18-N, R-23-E
Y = 261,171.675
X = 201,060.876

NOTES

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, MANITOWOC COUNTY, NAD83 (2011) IN U.S. SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

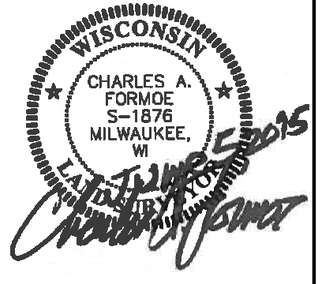
RIGHT-OF-WAY MONUMENTS ARE 3/4" X 24" REBAR AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

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.

LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.076 MI

Mead & Hunt



CHARLES A. FORMOE
S-1876

REVISION DATE
JULY 27, 2015
JAN. 12, 2016

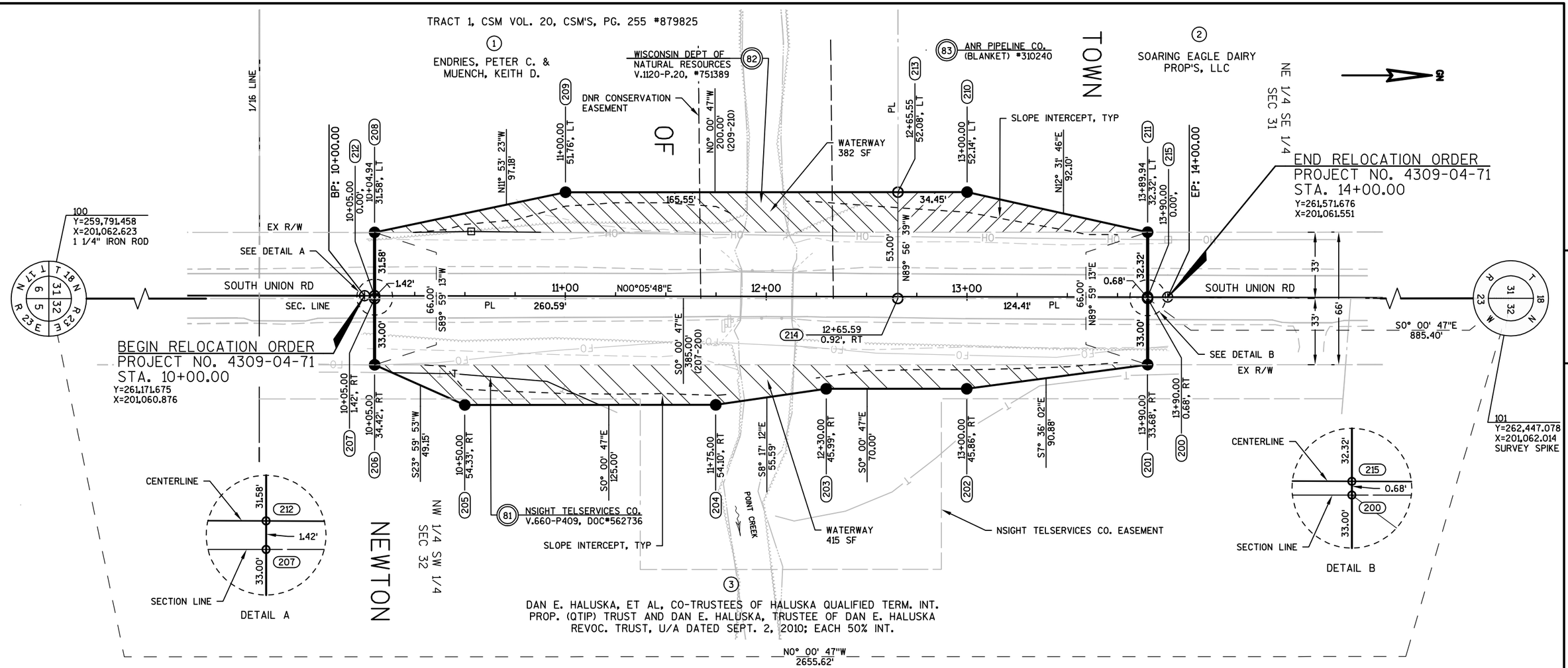
STATE OF WISCONSIN
MANITOWOC COUNTY

APPROVED FOR MANITOWOC COUNTY

DATE:_____ _____
(Signature)

X:\13246-00\141685.01\TECH\CAD\43090400_C3D2014\SHEETSPLAN\040101_TI.DWG PLOT DATE : 1/12/2016 11:40 AM PLOT BY : RUTH STEENO PLOT NAME :

WISDOT/CADDS SHEET 15



Point Number	Y	X
200	261,561.678	201,062.217
201	261,561.686	201,095.217
202	261,471.602	201,107.238
203	261,401.602	201,107.254
204	261,346.589	201,115.266
205	261,221.588	201,115.295
206	261,176.687	201,095.305
207	261,176.680	201,062.305
208	261,176.672	201,029.305
209	261,271.767	201,009.284
210	261,471.768	201,009.238
211	261,561.671	201,029.217
212	261,176.679	201,060.884
213	261,437.320	201,009.246
214	261,437.268	201,062.246
215	261,561.678	201,061.534

SCHEDULE OF LANDS AND INTERESTS REQUIRED					
PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W NEW SF	R/W EXISTING SF	R/W TOTAL SF
1	PETER C. ENDRIES & KEITH D. MUENCH	FEE	4261	8598	12859
2	SOARING EAGLE DAIRY PROPERTIES, LLC	FEE	1589	4107	5696
3	DAN E. HALUSKA, ET AL, CO-TRUSTEES OF HALUSKA QUALIFIED TERM. INT. PROP.(QTIP) TRUST AND DAN E. HALUSKA, TRUSTEE OF DAN E. HALUSKA REVOC.TRUST, U/A DATED SEPT. 2, 2010; EACH 50% INT.	FEE	5210	12705	17915

UTILITY SCHEDULE OF INTERESTS REQUIRED		
UTILITY NUMBER	OWNER(S)	INTEREST REQUIRED
81	NSIGHT TELSERVICES CO.	RELEASE OF RIGHTS
82	WIS.DEP'T OF NAT. RESOURCES	RELEASE OF RIGHTS
83	ANR PIPE LINE CO.	RELEASE OF RIGHTS

NOTES:

EXISTING HIGHWAY RIGHT-OF-WAY SHOWN HEREIN IS BASED ON THE FOLLOWING POINTS OF REFERENCE: TOWN OF NEWTON HIGHWAY PROJECT (1954) DOCUMENTS: VOL.271-Deeds-PG.161, Doc.337901 & VOL.271-Deeds-PG.154, Doc.337894

REVISION DATE
JULY 27, 2015
JAN. 12, 2016

DATE JUNE 5, 2015
GRID FACTOR N/A

SCALE, FEET
0 25 50

HWY: SOUTH UNION RD.
COUNTY: MANITOWOC

STATE R/W PROJECT NUMBER 4309-04-71
CONSTRUCTION PROJECT NUMBER 4309-04-71

PLAT SHEET 4.02
PS&E SHEET --11

E

FILE NAME : 040102_RP.DWG
LAYOUT NAME - ****

PLOT DATE : 1/12/2016 11:47 AM PLOT BY : CHUCK FORMOE PLOT NAME : PLOT SCALE : **********

WISDOT/CADDS SHEET 75

JEFFERY & JUDITH CHECK
PARCEL *01403101600102

PETER C. ENDRIES & KEITH D. MUENCH

SOARING EAGLE DAIRY PROP LLC

BENCH MARKS				
NO.	STATION	OFFSET	DESCRIPTION	ELEV.
10	10+54.29	31.7' LT	POWER POLE	695.73'
11	13+90.40	29.4' RT	S. UNION TWIN 18" ASH	695.69'

1/16 LINE

PL

N

SLOPE INTERCEPT (TYP)

RIPARIAN FORESTED WETLAND 0.056 AC

CONCRETE PAVEMENT APPROACH SLAB

RIPARIAN FORESTED WETLAND 0.064 AC

WISCONSIN PUBLIC SERVICE CORP.

WETLAND BOUNDARY

R/W

EX R/W

BM*10

30' (TYP)

10+00 | N0° 05' 48"E | 11+00 | 12+00 | SOUTH UNION ROAD | 13+00 | 14+00

15' (TYP)

4' 11' 11' 4'

66.00'

BEGIN TAPER STA 10+85

BEGIN TAPER STA 13+17

BM*11

EX R/W

WETLAND BOUNDARY

BEGIN PROJECT 4309-04-71
STA 10+25.00
N= 261196.68
E= 201060.78
MATCH EXISTING
SAWCUT REQD

5

WETLAND BOUNDARY

R/W

STRUCTURE B-36-0229
STA 12+00.00

RIPARIAN FORESTED WETLAND 0.080 AC

POINT CREEK

CHARTER COMMUNICATIONS

RIPARIAN FORESTED WETLAND 0.048 AC

DAN E. HALUSKA REVOC TRUST

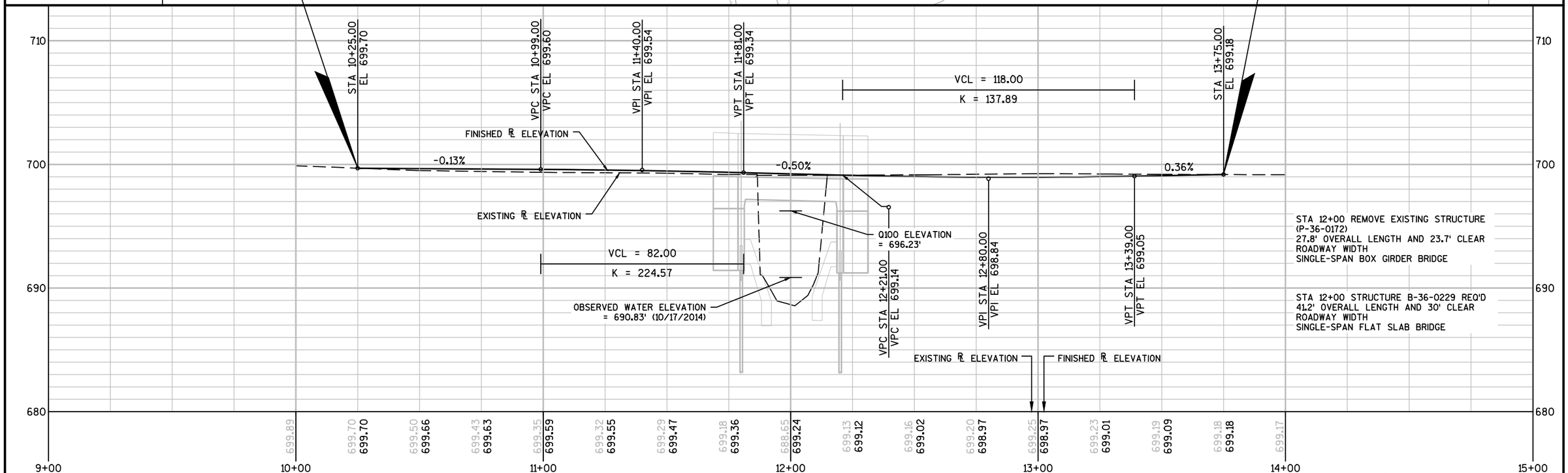
SLOPE INTERCEPT (TYP)

DAN E. HALUSKA REVOC TRUST

NSIGHT TELSERVICES (TYP)

END PROJECT 4309-04-71
STA 13+75.00
N= 261546.68
E= 201061.51
MATCH EXISTING
SAWCUT REQD

5



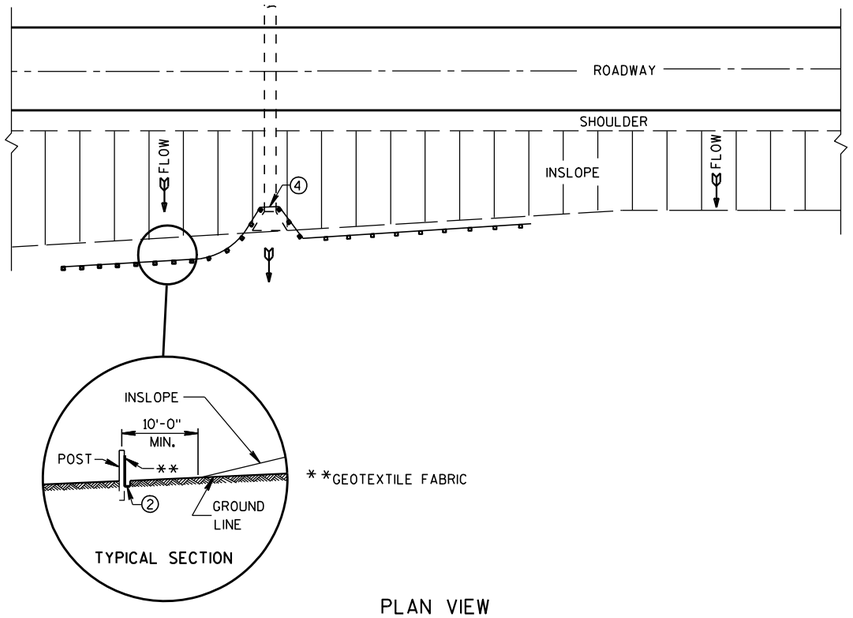
STA 12+00 REMOVE EXISTING STRUCTURE (P-36-0172)
27.8' OVERALL LENGTH AND 23.7' CLEAR ROADWAY WIDTH
SINGLE-SPAN BOX GIRDER BRIDGE

STA 12+00 STRUCTURE B-36-0229 REQ'D
41.2' OVERALL LENGTH AND 30' CLEAR ROADWAY WIDTH
SINGLE-SPAN FLAT SLAB BRIDGE

PROJECT NO: 4309-04-71	HWY: SOUTH UNION RD	COUNTY: MANITOWOC	PLAN AND PROFILE	SHEET 12	E

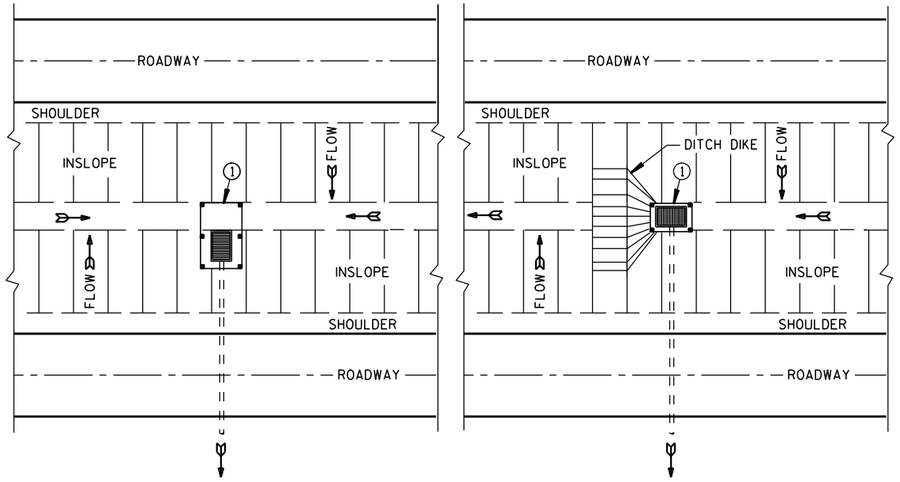
Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)



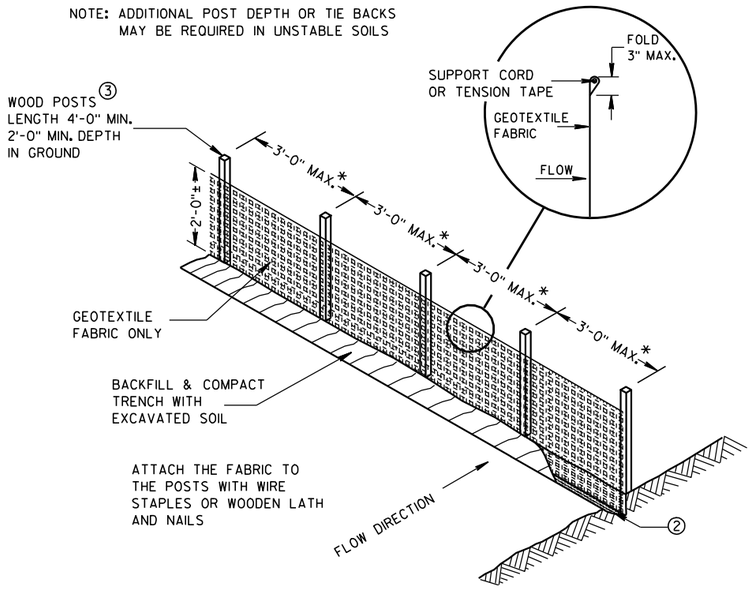
PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



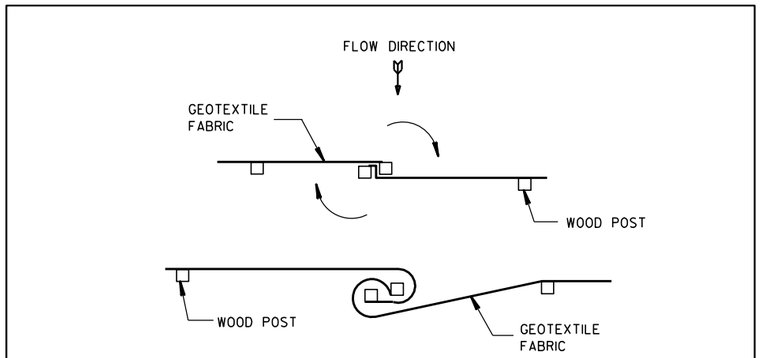
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS



*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

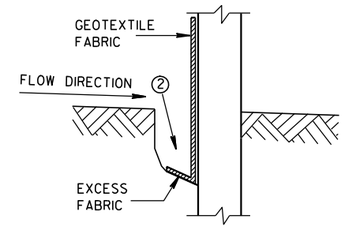


JOINING TWO LENGTHS OF SILT FENCE 5

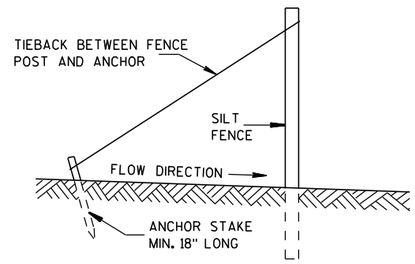
GENERAL NOTES

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 TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

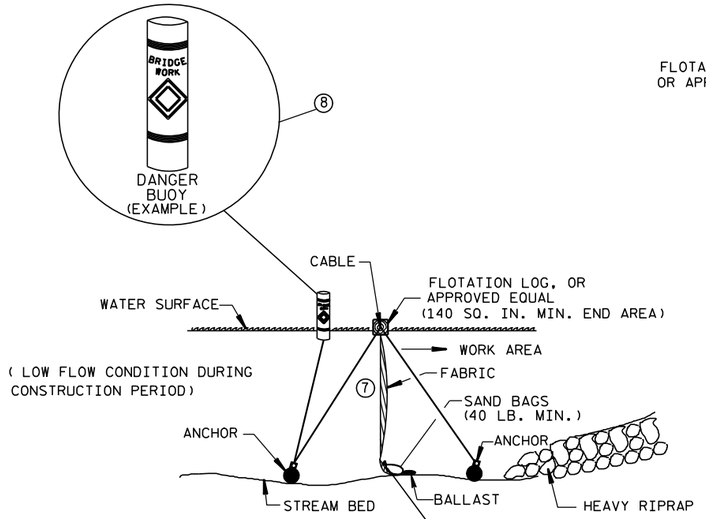
SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

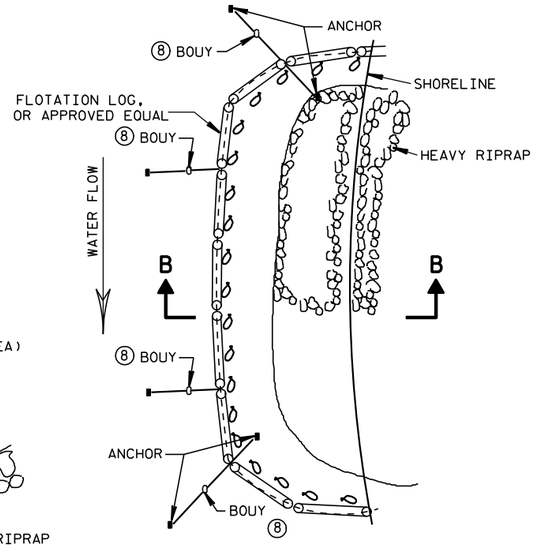
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

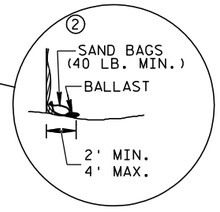
S.D.D. 8 E 9-6

S.D.D. 8 E 9-6

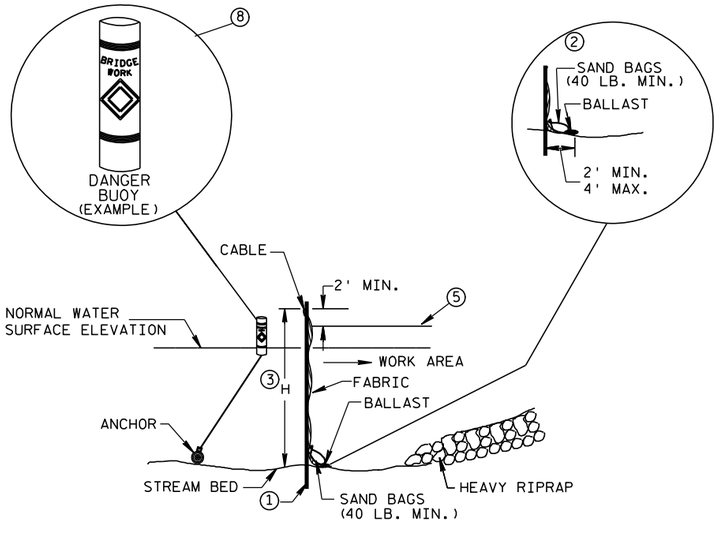


SECTION B-B

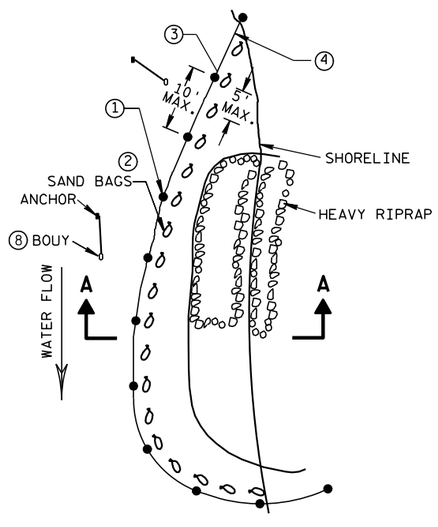




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



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.

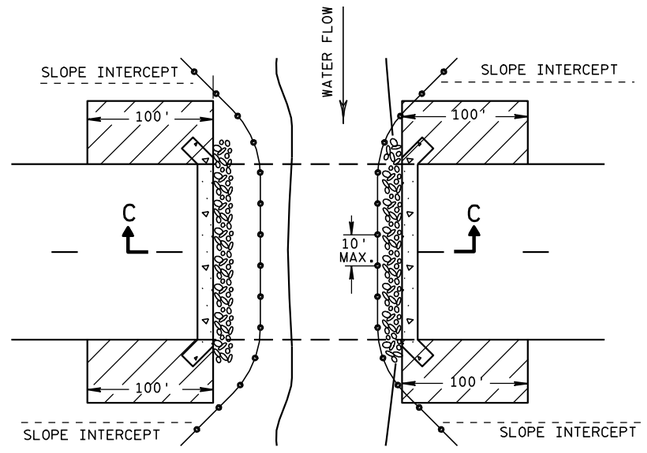
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

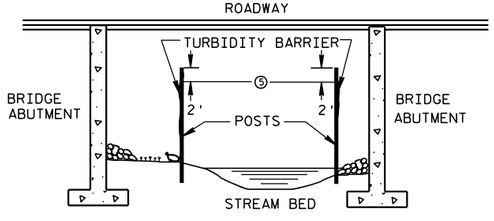
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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



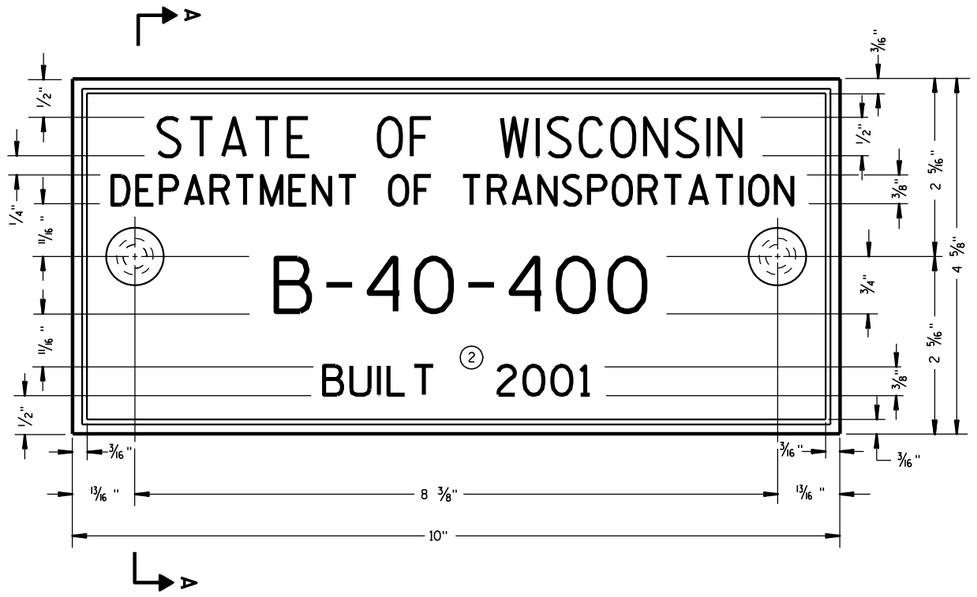
SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

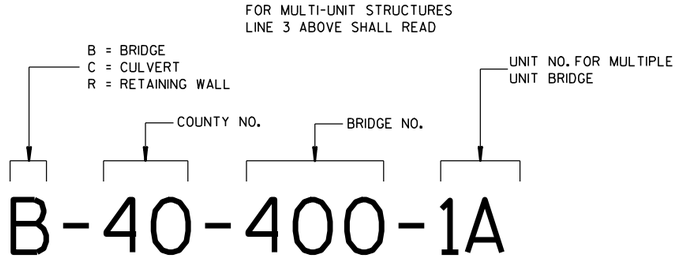
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/04/02 DATE
/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



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



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

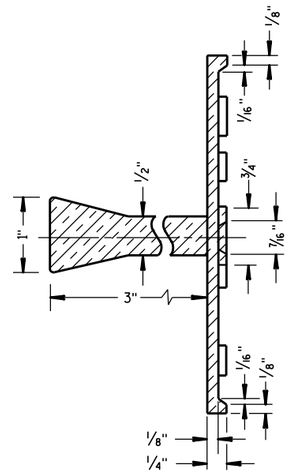
GENERAL NOTES

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.

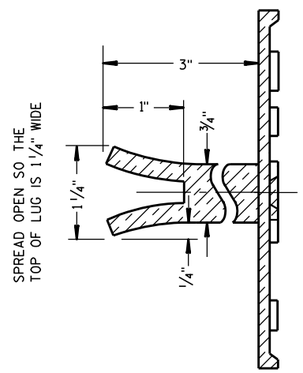
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

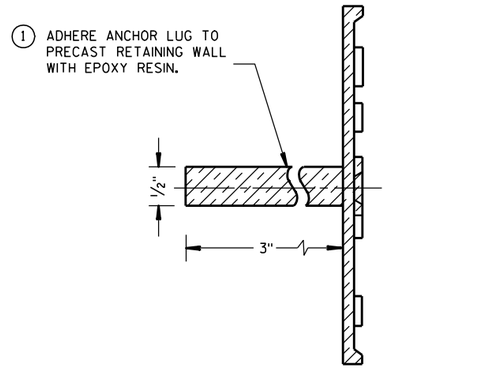
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



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 DEVELOP ENGINEER

FHWA

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S.D.D. 12 A 3-10

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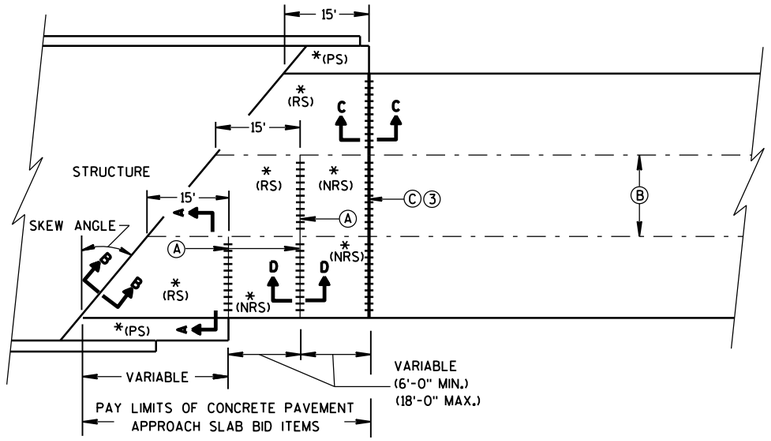
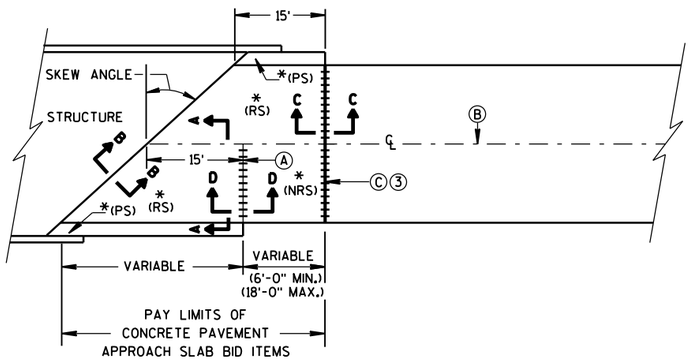
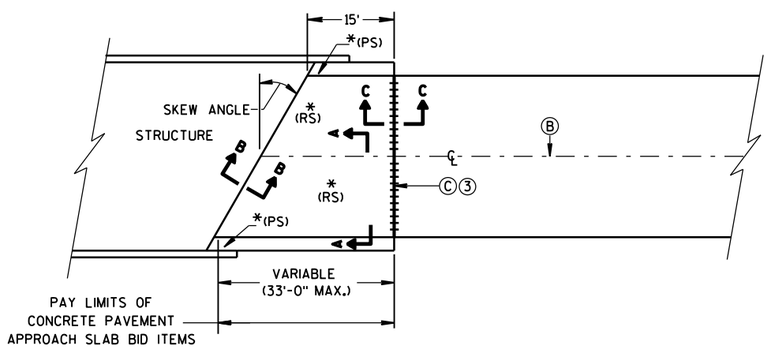
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >20°
(PAVEMENT WIDTH ≤30')



SKEWS ≤20°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

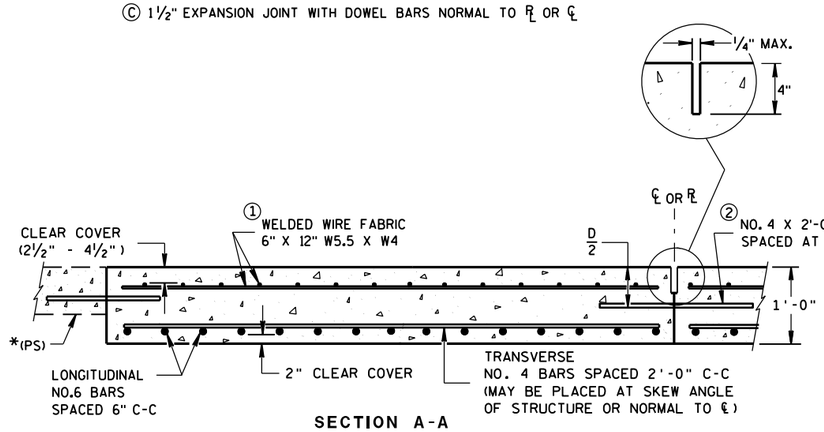
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

***STANDARD DOWEL BAR DIAMETER
(SEE SDD 13C11, & SDD 13C13)

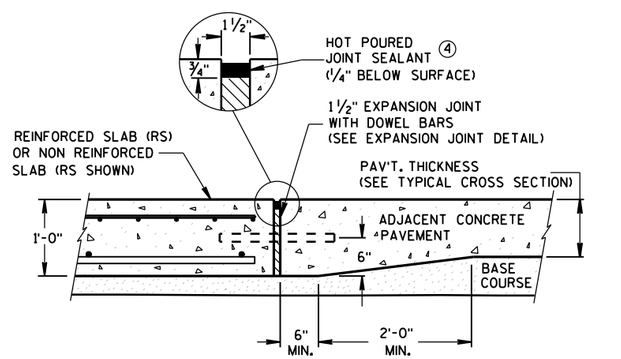
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄

Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.

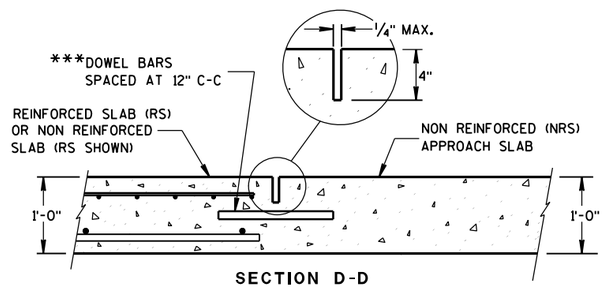
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

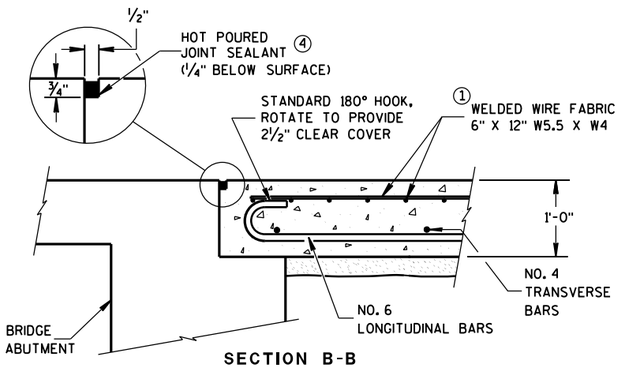
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

② THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.

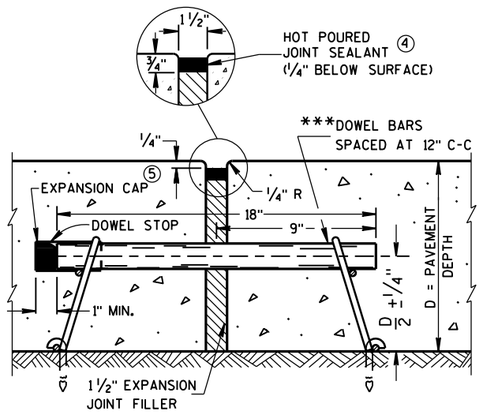
③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

④ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.

⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
/S/ Peter Kemp, P.E.
PAVEMENT SUPE
FHWA

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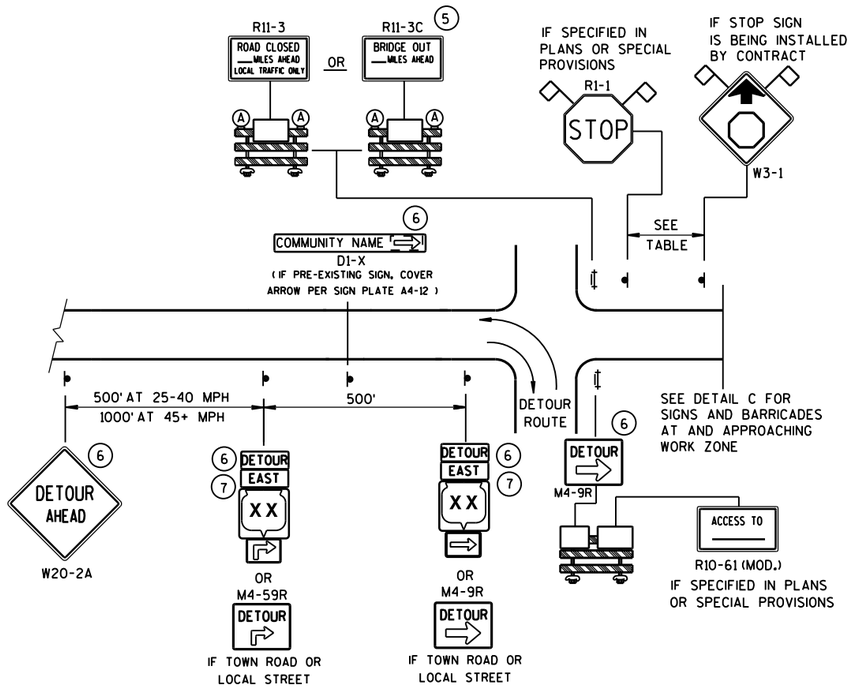
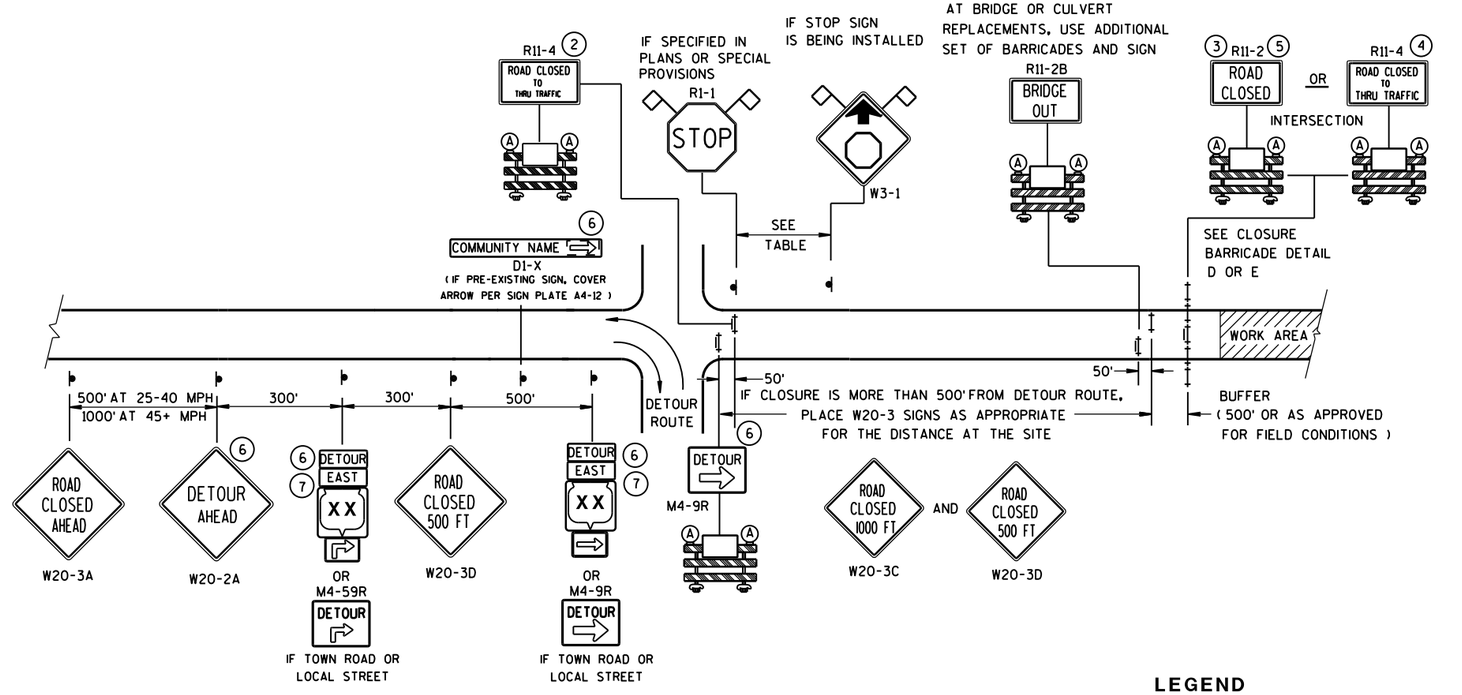
S.D.D. 13 B 2-8a



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

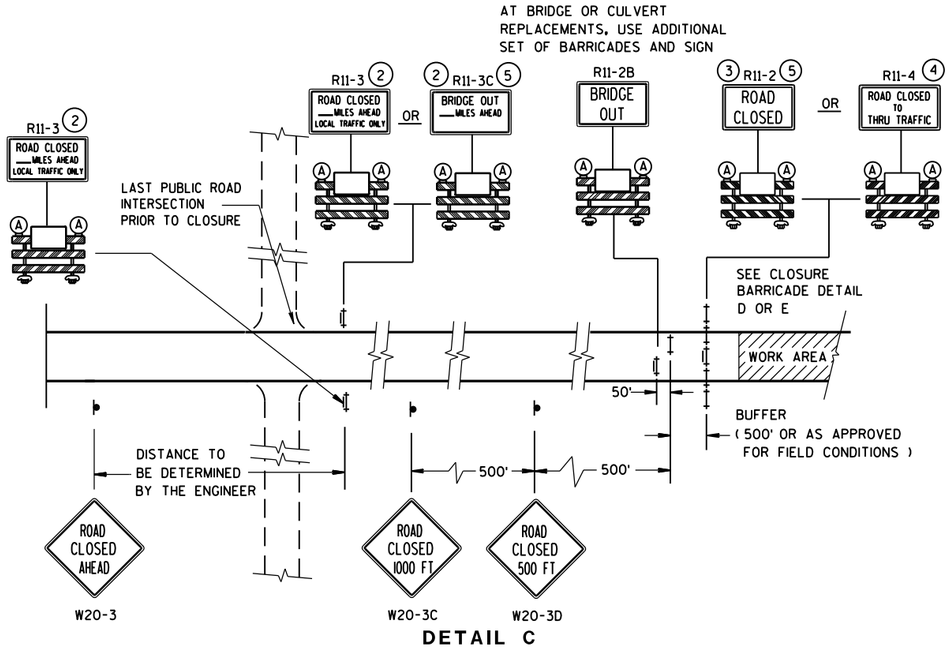
WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS 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-SHEET "**b**" FOR GENERAL NOTES AND FOOTNOTES ① THROUGH ⑦

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

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S.D.D. 15 C 2-6a

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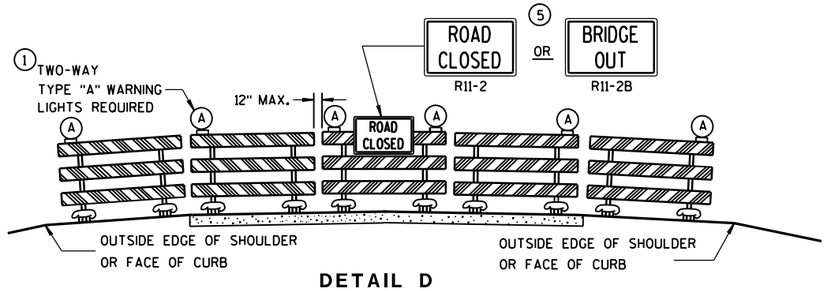
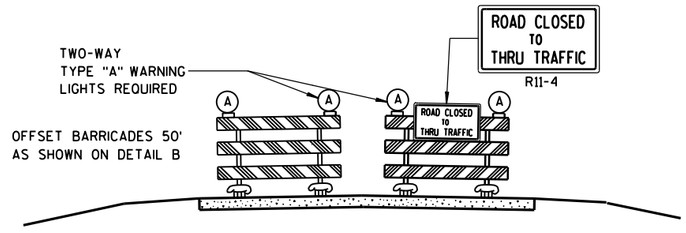
S.D.D. 15 C 2-6a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-SHEET "**a**" 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.

"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 SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- 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

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO SAFETY ENGI FIC

FHWA

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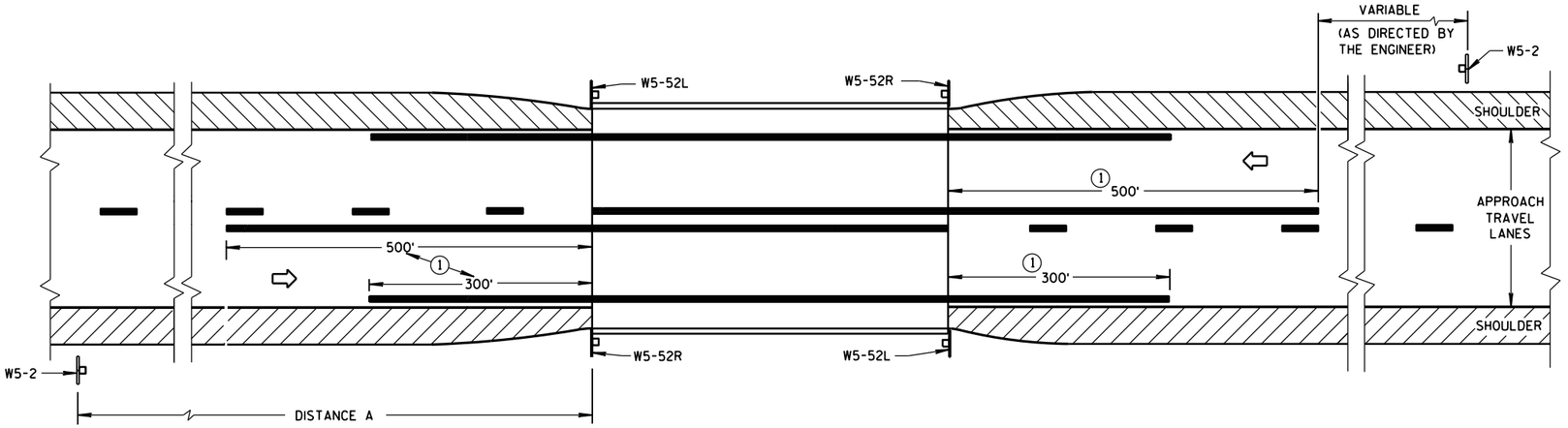
S.D.D. 15 C 2-6b



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 F REFLECTIVE SHEETING.

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

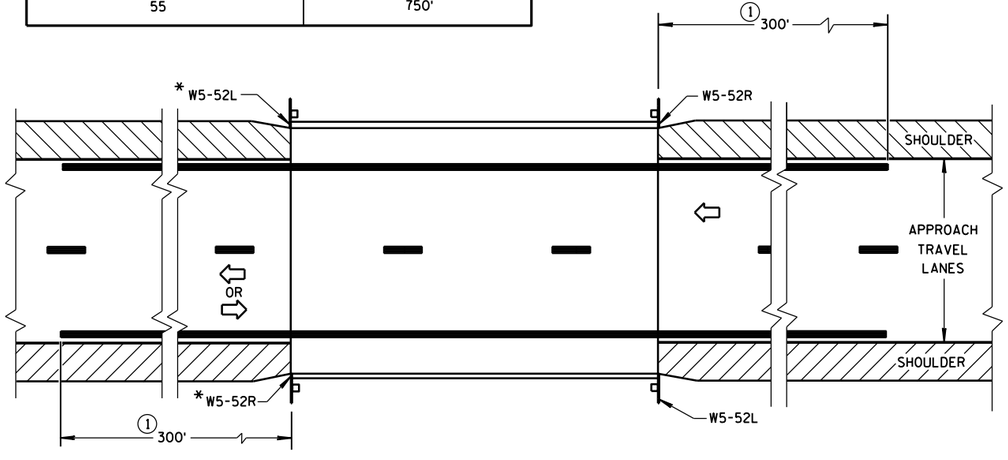
DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET

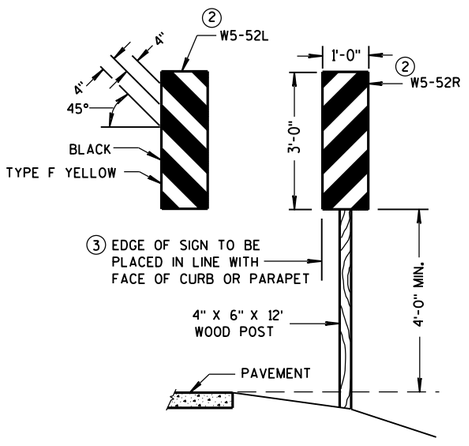


*OMIT ON ONE-WAY TRAVELLED WAYS

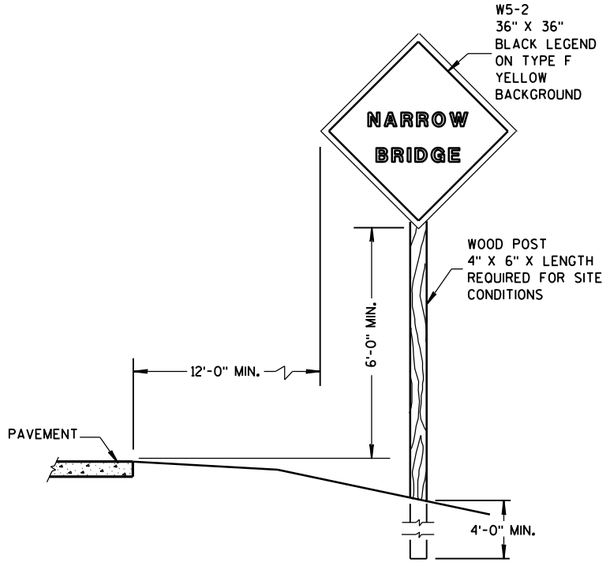
SITUATION 2

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



SIGN PLACEMENT

SIGNING & MARKING
FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3-2014 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

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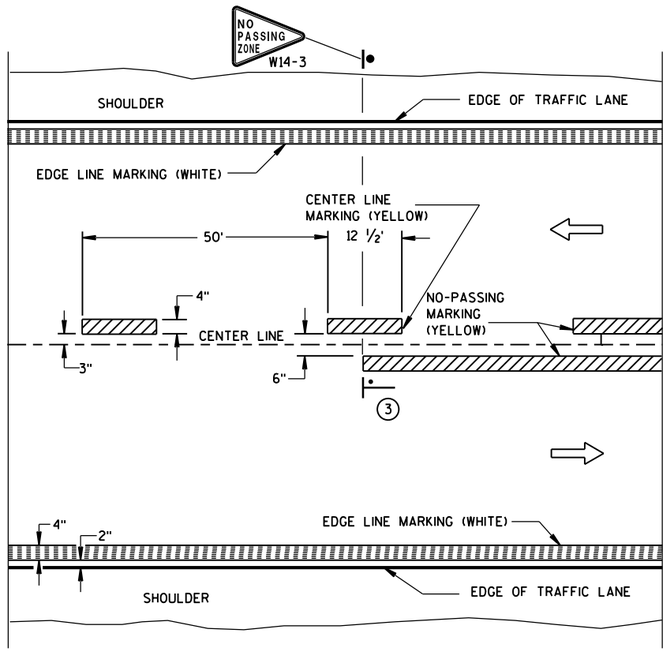
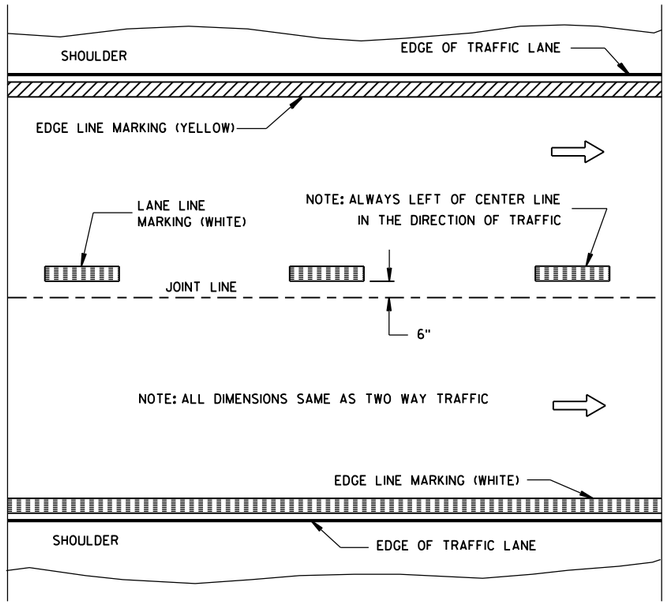
S.D.D. 15 C 6-7

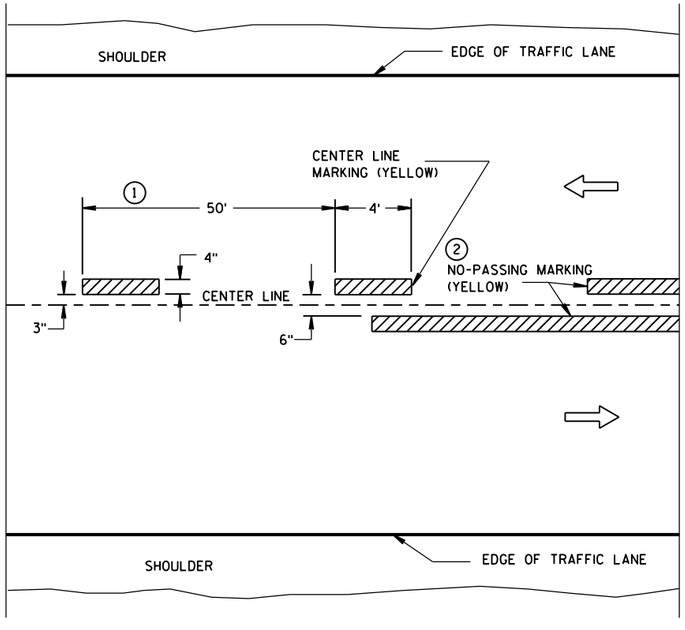


TWO WAY TRAFFIC

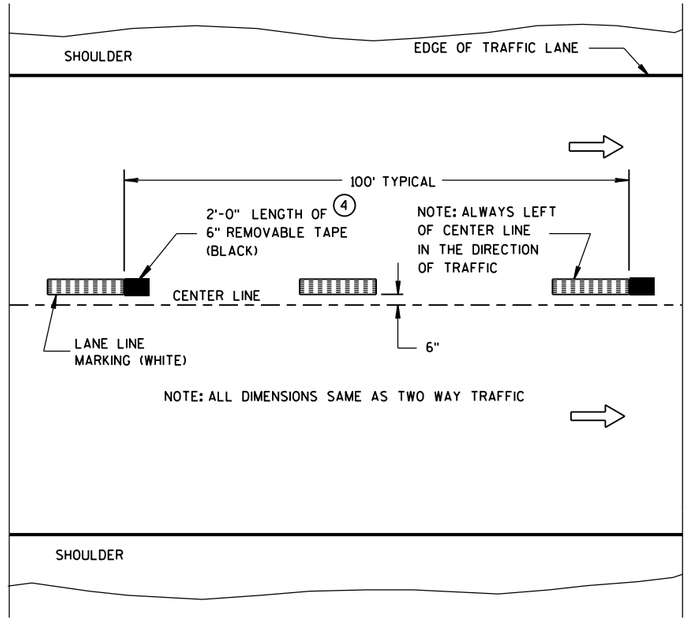


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

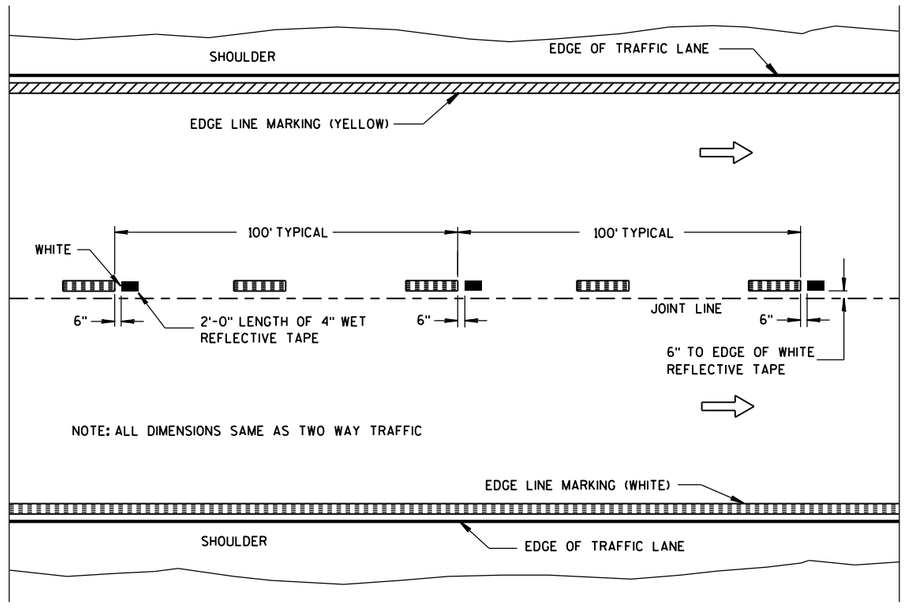
GENERAL NOTES

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

1. HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
2. NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
3. NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
4. CONCRETE ONLY.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-13-2013 DATE
/S/ Travis Feltes STATE TRAFFIC E
FHWA

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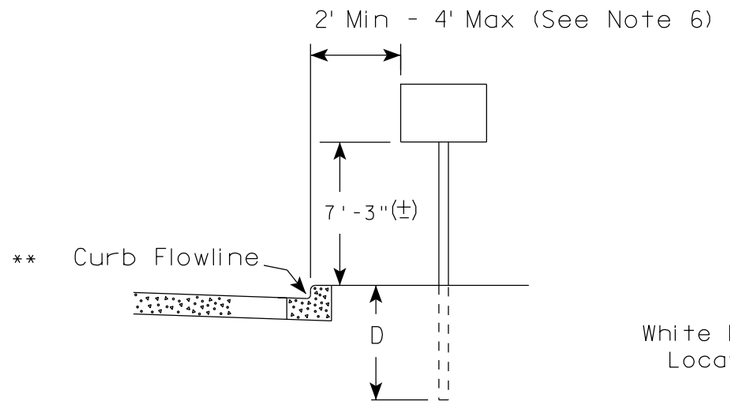
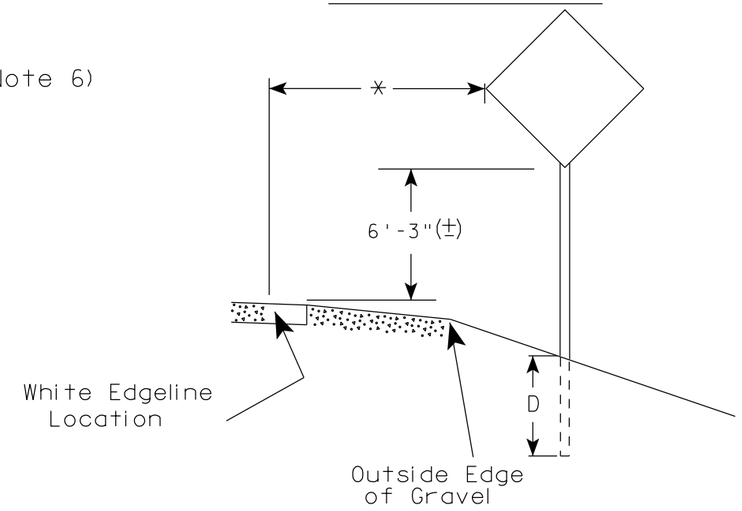
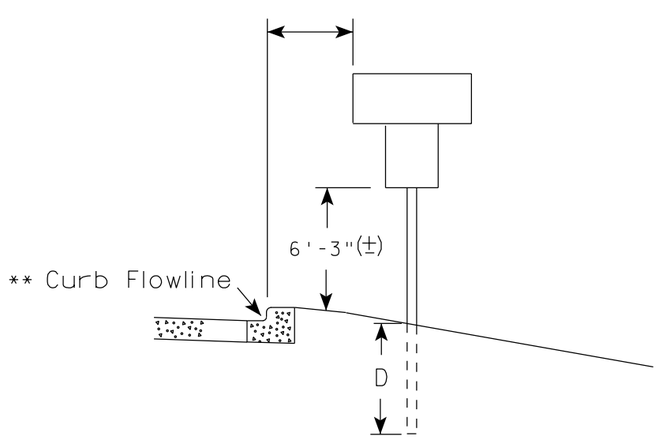
S.D.D. 15 C 8-16a

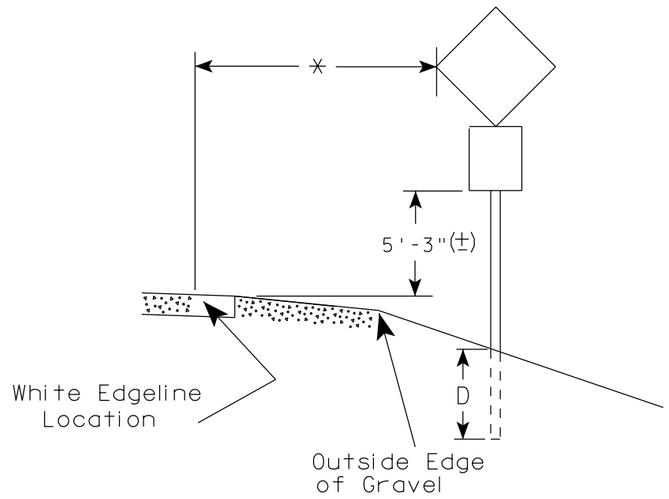
URBAN AREA



RURAL AREA (See Note 2)







** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

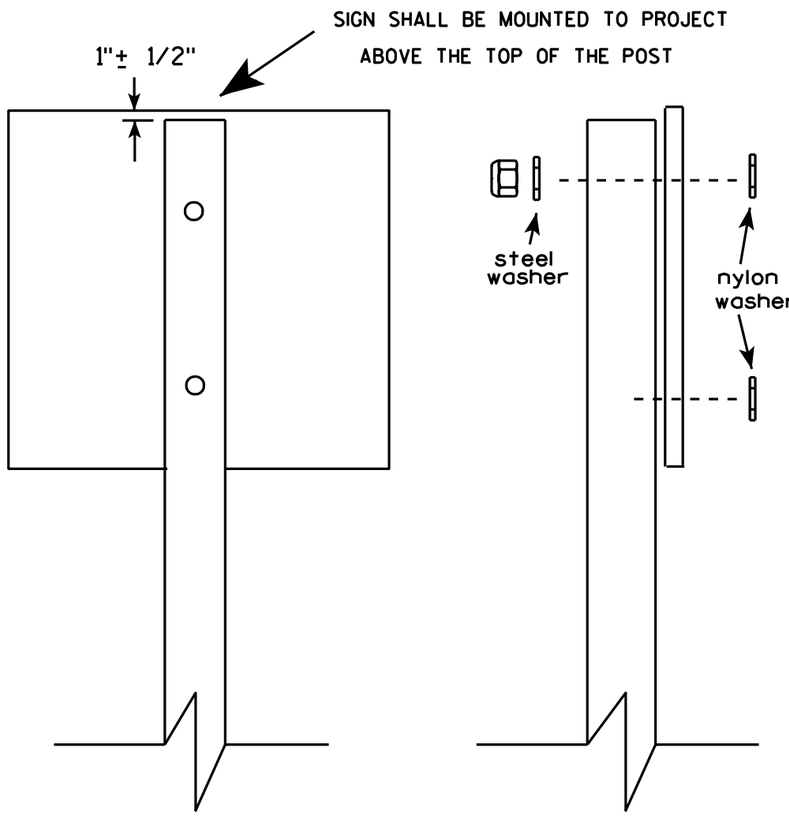
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

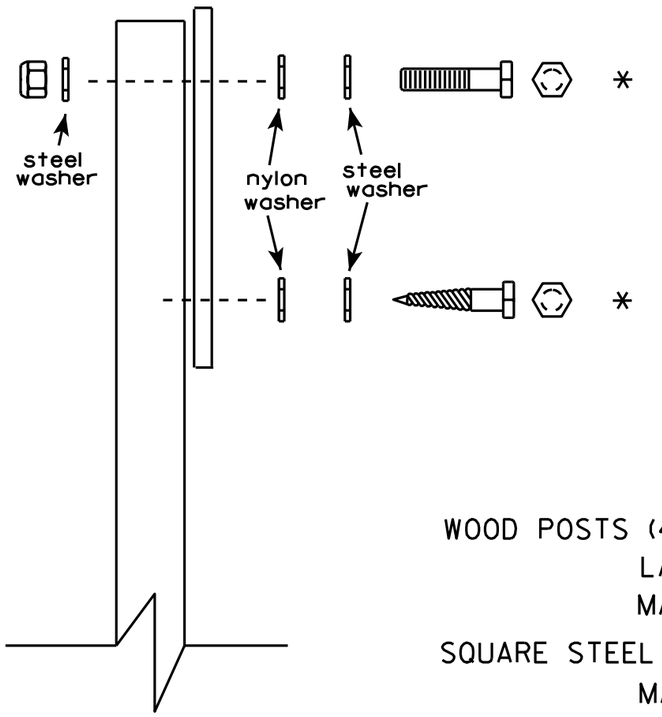
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-3.20

PROJECT NO: 4309-04-71	HWY: SOUTH UNION ROAD	COUNTY: MANITOWOC	SIGN PLATES	SHEET NO:	E





Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

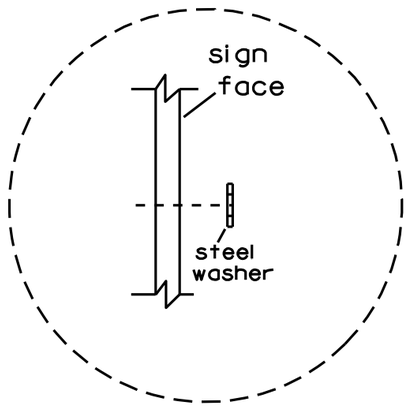
a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32 " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



Washer Placement when Sign Has Other Than Type H or Type F Face

* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

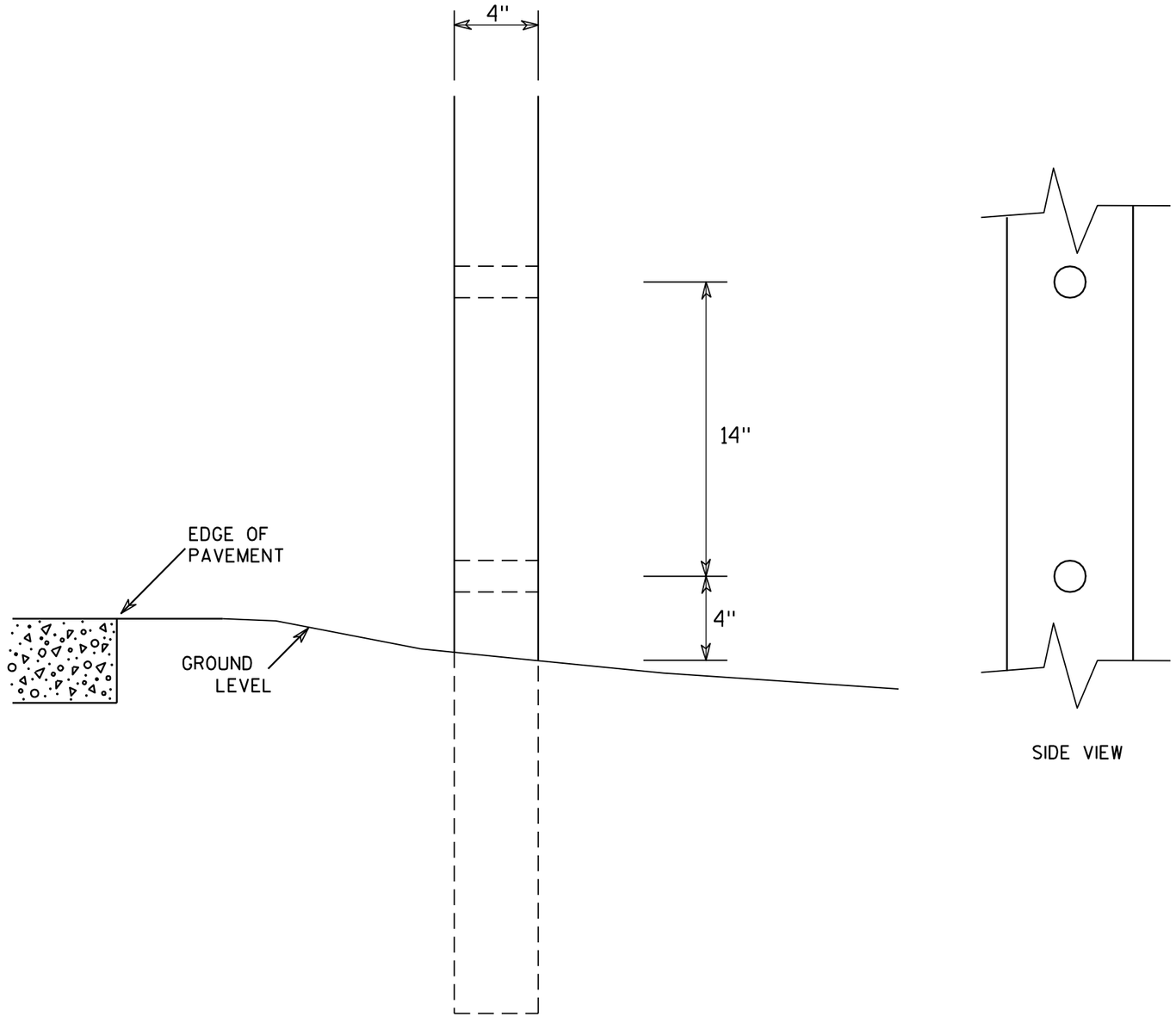
ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/23/10 PLATE NO. A4-8.7

PROJECT NO: 4309-04-71	HWY: SOUTH UNION ROAD	COUNTY: MANITOWOC	SIGN PLATES	SHEET NO: 23	E



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

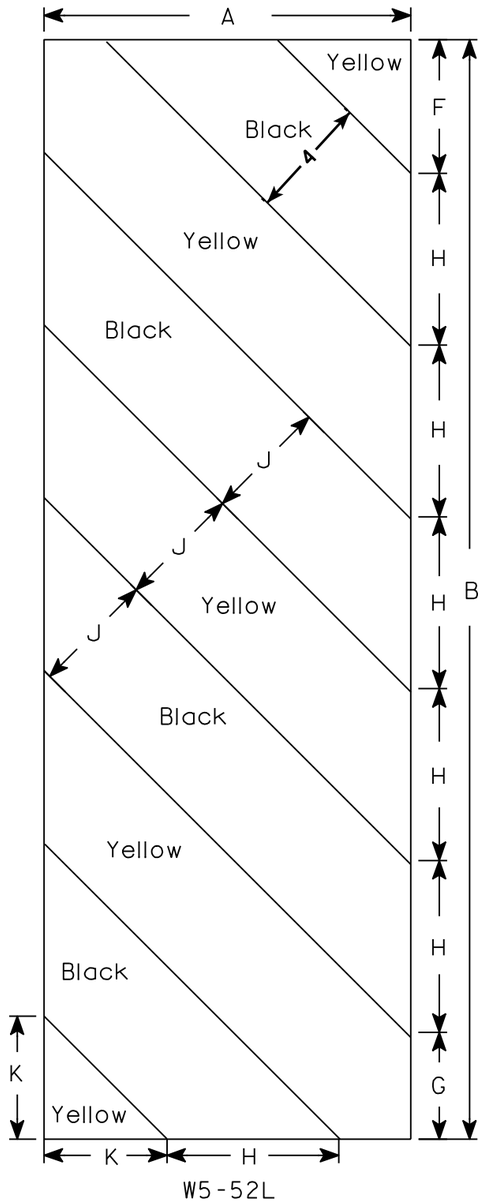
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

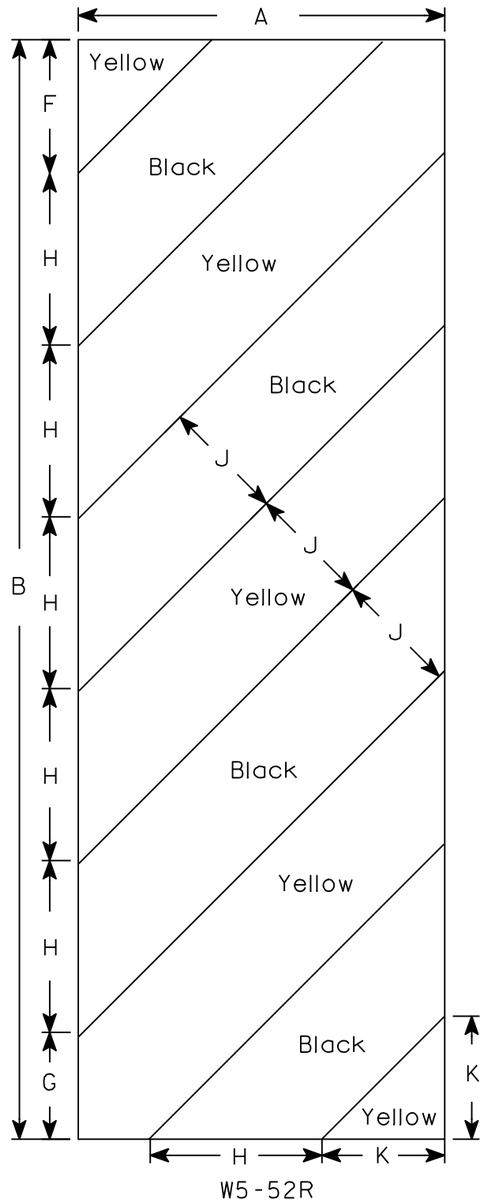
APPROVED Chester J Spang for State Traffic Engineer

DATE 3/27/97 PLATE NO. A4-11.2

PROJECT NO: 4309-04-71	HWY: SOUTH UNION ROAD	COUNTY: MANITOWOC	SIGN PLATES	SHEET NO: 24	E



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

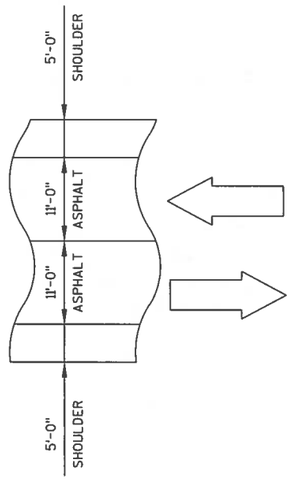
PROJECT NO: 4309-04-71	HWY: SOUTH UNION ROAD	COUNTY: MANITOWOC	SIGN PLATES	SHEET NO: 25	E

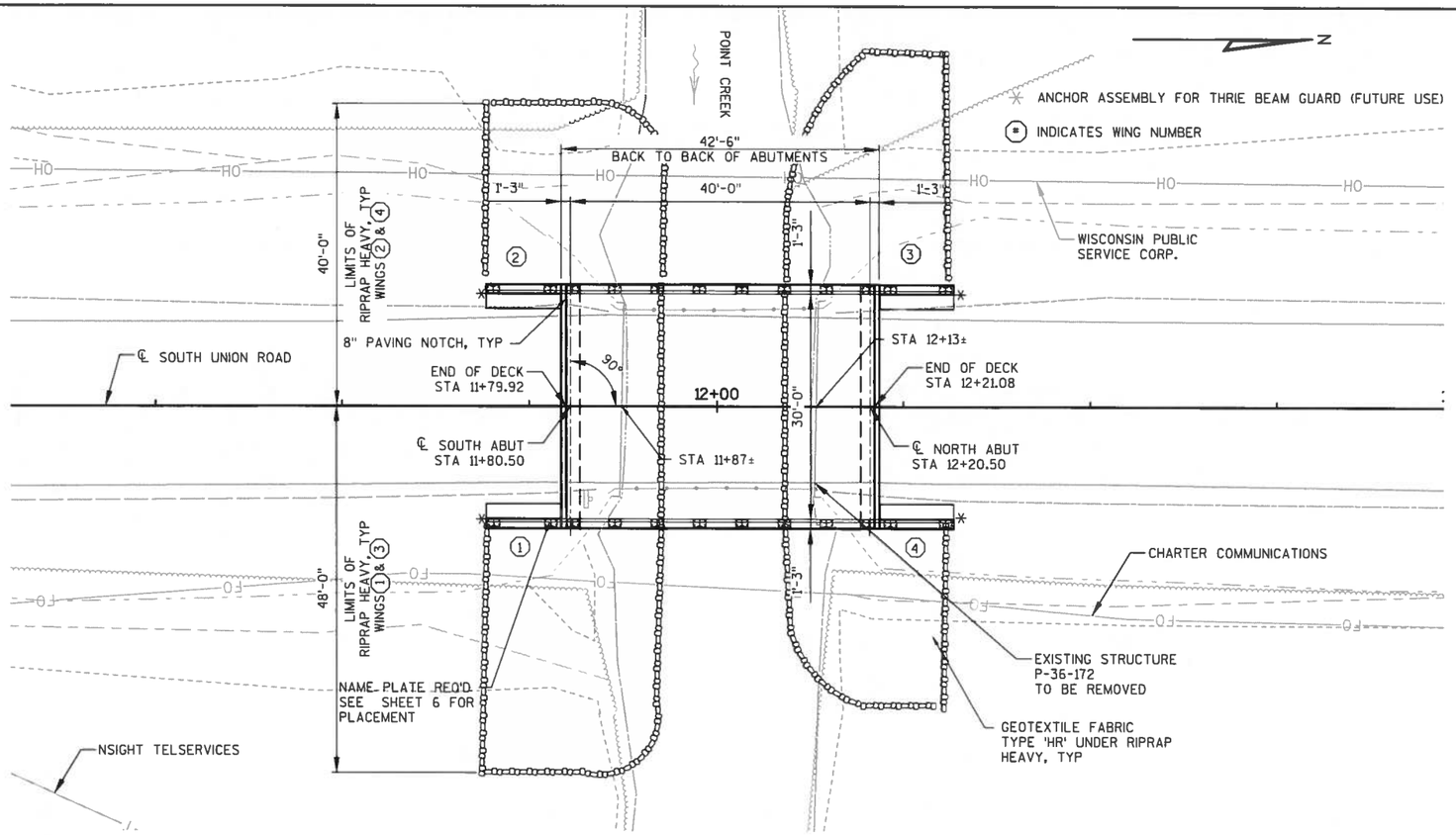
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\W552.DGN PLOT DATE : 29-MAY-2012 13:03 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 4.961899:1.000000

7

STATE PROJECT NUMBER

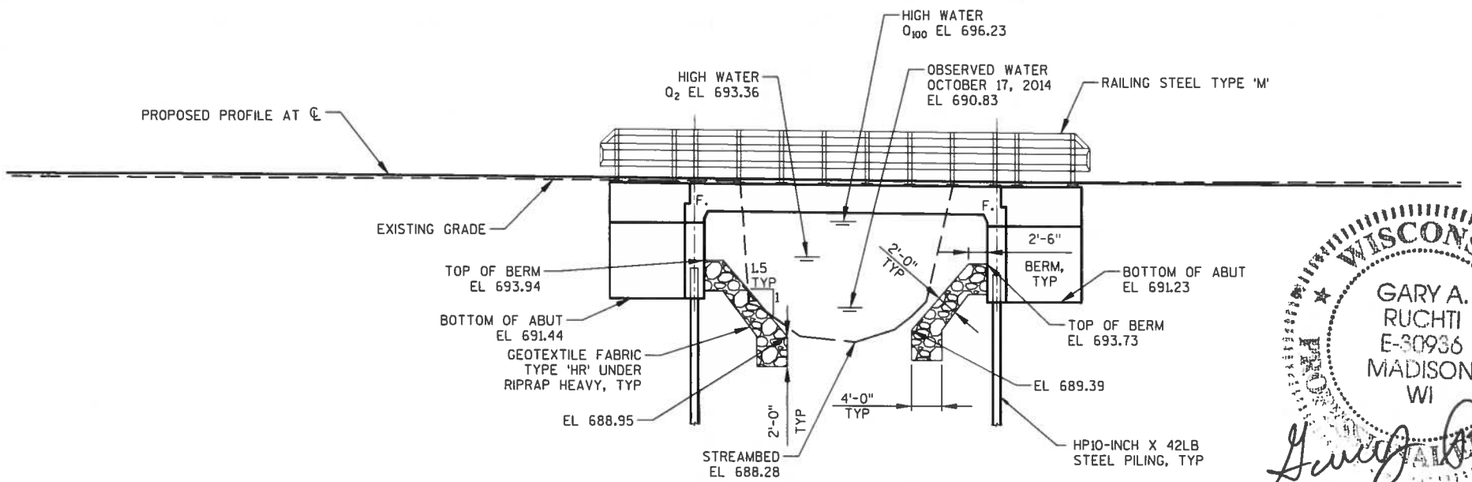
4309-04-71





PLAN

(SINGLE SPAN REINFORCED CONCRETE FLAT SLAB BRIDGE)



ELEVATION

(NORMAL TO ℄ OF STREAM)

DESIGN DATA:

DESIGN LOADING — HL-93
INVENTORY RATING FACTOR — 1.17
OPERATING RATING FACTOR — 1.52
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) — 250 KIPS
STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

CONCRETE MASONRY, SUPERSTRUCTURE — f'c = 4000 psi
ALL OTHER — f'c = 3500 psi
HIGH STRENGTH BAR STEEL REINFORCEMENT — fy = 60,000 psi

TRAFFIC DATA:

ADT (2016) = 260
ADT (2036) = 290
DESIGN SPEED = 60 MPH

FOUNDATION DATA:

ABUTMENTS SUPPORTED ON HP 10-INCH X 42 LB STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 140* TONS PER PILE AS REQUIRED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 70' LONG AT THE SOUTH ABUTMENT AND 50' LONG AT THE NORTH ABUTMENT. PILE POINTS REQUIRED.

* 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 DYNAMIC EQUATION TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA:

100 YEAR FREQUENCY
Q_{100} — 950 cfs
STREAM VELOCITY — 5.3 fps
HIGH WATER — EL. 696.23
WATERWAY AREA — 180 ft²
DRAINAGE AREA — 12.3 mi²
SCOUR CRITICAL CODE — 8
OVERTOPPING FREQUENCY — N/A

2 YEAR FREQUENCY
Q_2 — 255 cfs
HIGH WATER — EL. 693.36

LIST OF DRAWINGS:

WISCONSIN
GARY A. RUCHTI
E-30936
MADISON
WI
PROFESSIONAL ENGINEER
4-8-16

BRIDGE OFFICE CONTACT
WILLIAM DREHER, P.E.
TELEPHONE: (608) 266-8489
CONSULTANT CONTACT
GARY RUCHTI, P.E.
TELEPHONE: (608) 273-6380

NO	DATE	REVISION	BY

Mead & Hunt, Inc.
2440 Deming Way
Middleton, WI 53562
608.273.6380
www.meadhunt.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 04/11/16
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-36-229

SOUTH UNION ROAD OVER POINT CREEK

COUNTY	TOWN ~~/CITY/VILLAGE~~
MANITOWOC	NEWTON

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D	DRAWN BY	PLANS CK'D
RCP	JAK	JAK	RCP

GENERAL PLAN

SHEET 26 11

8

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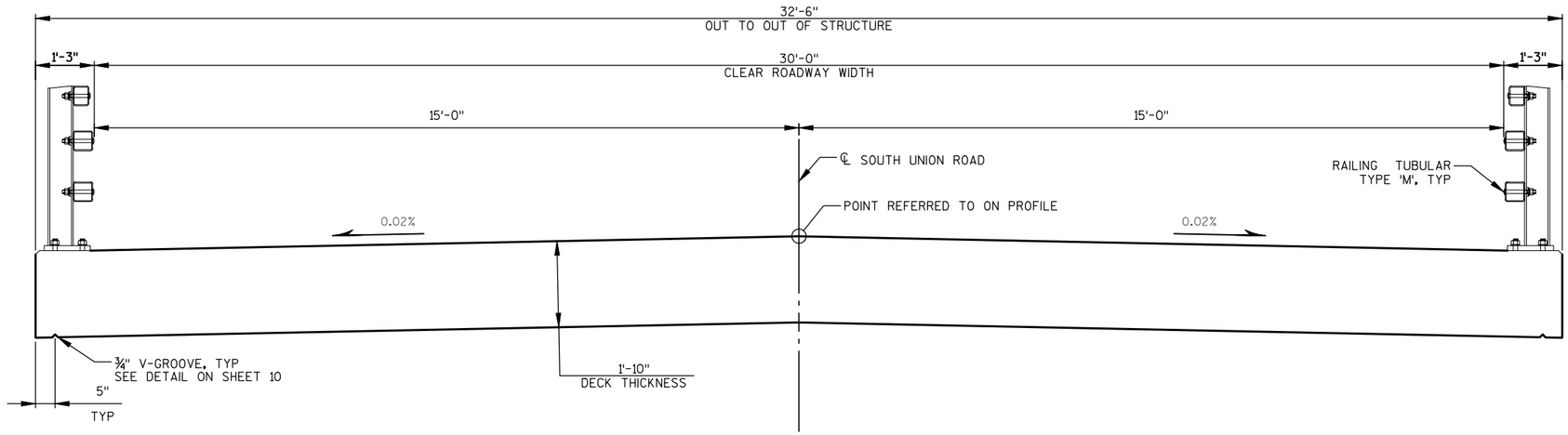
STATE PROJECT NUMBER

4309-04-71



CROSS SECTION THRU ROADWAY

(LOOKING NORTH)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED. BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

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

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

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

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

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

PROTECTIVE SURFACE TREATMENT TO BE PLACED FULL WIDTH ON TOP SURFACE, SIDES AND OUTSIDE 1'-0" ON BOTTOM OF CONCRETE SLAB DECK. SEE DETAILS ON SHEET 10.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE TOP AND EXTERIOR EXPOSED FACE OF WINGS, AND THE END 1'-0" OF THE FRONT FACE OF ABUTMENT.

ALL STATIONS AND ELEVATIONS ARE IN FEET.

THE EXISTING STRUCTURE, TO BE REMOVED, IS A 27-FOOT SINGLE-SPAN PRESTRESSED CONCRETE BOX GIRDER BRIDGE, WITH A 23.7-FOOT CLEAR BRIDGE WIDTH (P-36-172).

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT FOR "EXCAVATION OF STRUCTURES, BRIDGES (B-36-0229).

① FILL TOP SURFACE OF RIPRAP HEAVY VOIDS FROM TOP OF BERM TO TOE WITH SELECT CRUSHED MATERIAL. VOIDS TO BE FILLED SHALL BE LIMITED TO RIPRAP LIMITS DIRECTLY UNDER THE BRIDGE.

BENCH MARKS ★

NO.	STATION	OFFSET	DESCRIPTION	ELEV.
10	10+54.29	31.5' LT	POWER POLE	695.73'
11	13+90.40	29.4' RT	S. UNION TWIN 18 ASH	695.69'

TOTAL ESTIMATED QUANTITIES

	BID ITEM NO.	BID ITEMS	UNIT	N ABUT	S ABUT	SUPER	TOTALS
	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS, STA 12+00	LS	---	---	---	1
	206.1000	EXCAVATION FOR STRUCTURES, BRIDGES (B-36-229)	LS	---	---	---	1
	210.0100	BACKFILL STRUCTURE	CY	75	75	---	150
①	312.0115	SELECT CRUSHED MATERIAL	CY	31	33	---	64
	502.0100	CONCRETE MASONRY BRIDGES	CY	31	31	98	160
	502.3200	PROTECTIVE SURFACE TREATMENT	SY	7	7	174	188
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1830	1830	---	3660
	505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1410	1410	18510	21330
	513.4061	RAILING TUBULAR TYPE M (B-36-229)	LF	---	---	125	125
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	---	20
	550.0500	PILE POINTS	EACH	5	5	---	10
	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	250	350	---	600
①	606.0300	RIPRAP HEAVY	CY	145	155	---	300
	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	20	20	---	40
	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	50	50	---	100
	645.0120	GEOTEXTILE FABRIC TYPE 'HR'	SY	270	285	---	555
		NON BID ITEMS					
		FILLER	SIZE				1/2" & 3/4"

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-229

DRAWN BY JAK | PLANS CK'D. RCP

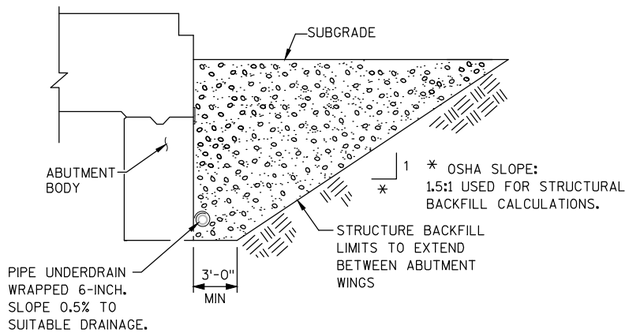
CROSS SECTION, GENERAL NOTES AND QUANTITIES

SHEET 2 OF 11

27

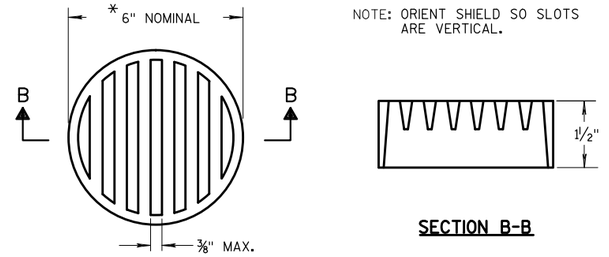
FILE NAME : X:±13246-00±141685.01±TECH±CAD±43090400_C3D2014±DESIGN±STRUCTURE±080102_TS.DWG PLOT DATE : 4/7/2016 PLOT BY : JASON KLEIST PLOT SCALE : 1" = 1'

STATE PROJECT NUMBER
4309-04-71



STRUCTURE BACKFILL & PIPE UNDERDRAIN DETAIL

(TYPICAL AT BOTH ABUTMENTS)

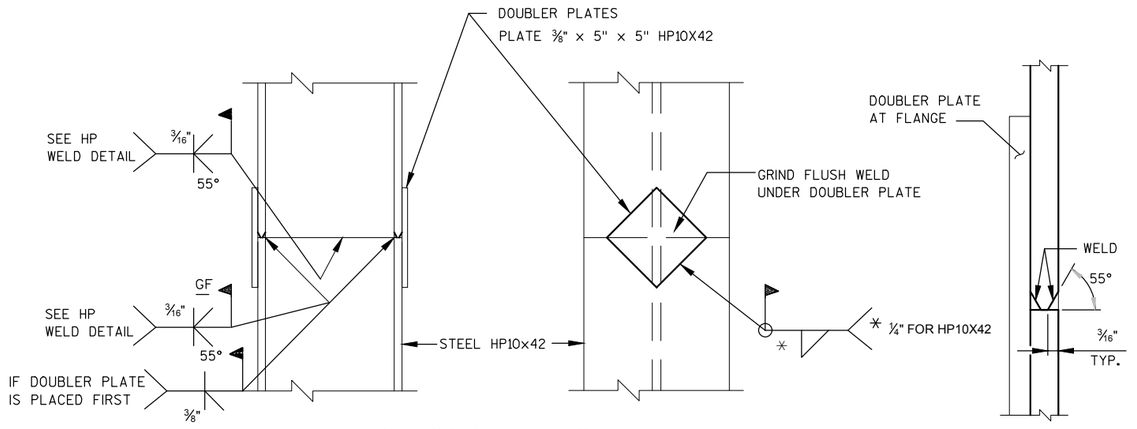


SECTION B-B

② RODENT SHIELD

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

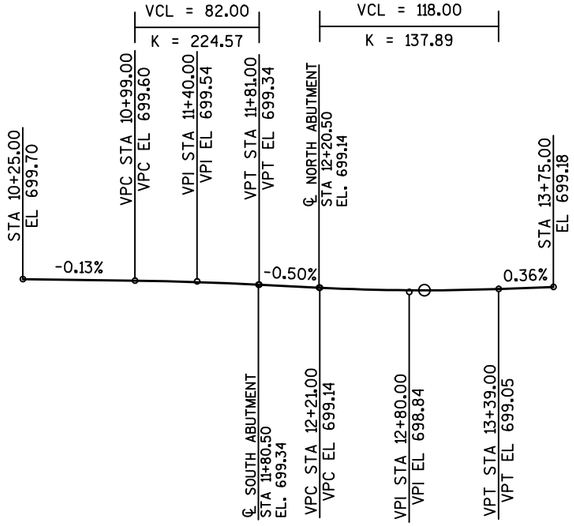
② THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS. THE RODENT SHIELD SHALL BE INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".



PILE SPLICE DETAILS

HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR



PROFILE GRADE LINE, ℄ SOUTH UNION ROAD

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-229

DRAWN BY	JAK	PLANS CK'D.	RCP

GENERAL DETAILS

SHEET 3 OF 11
28

8

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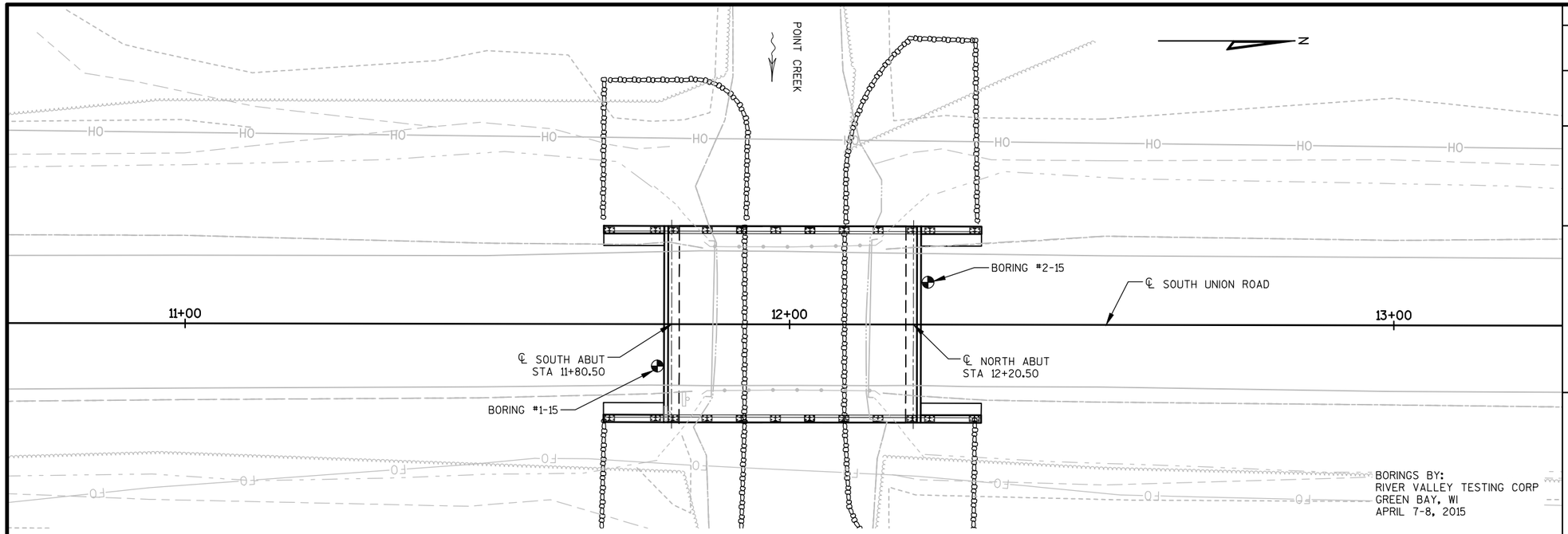
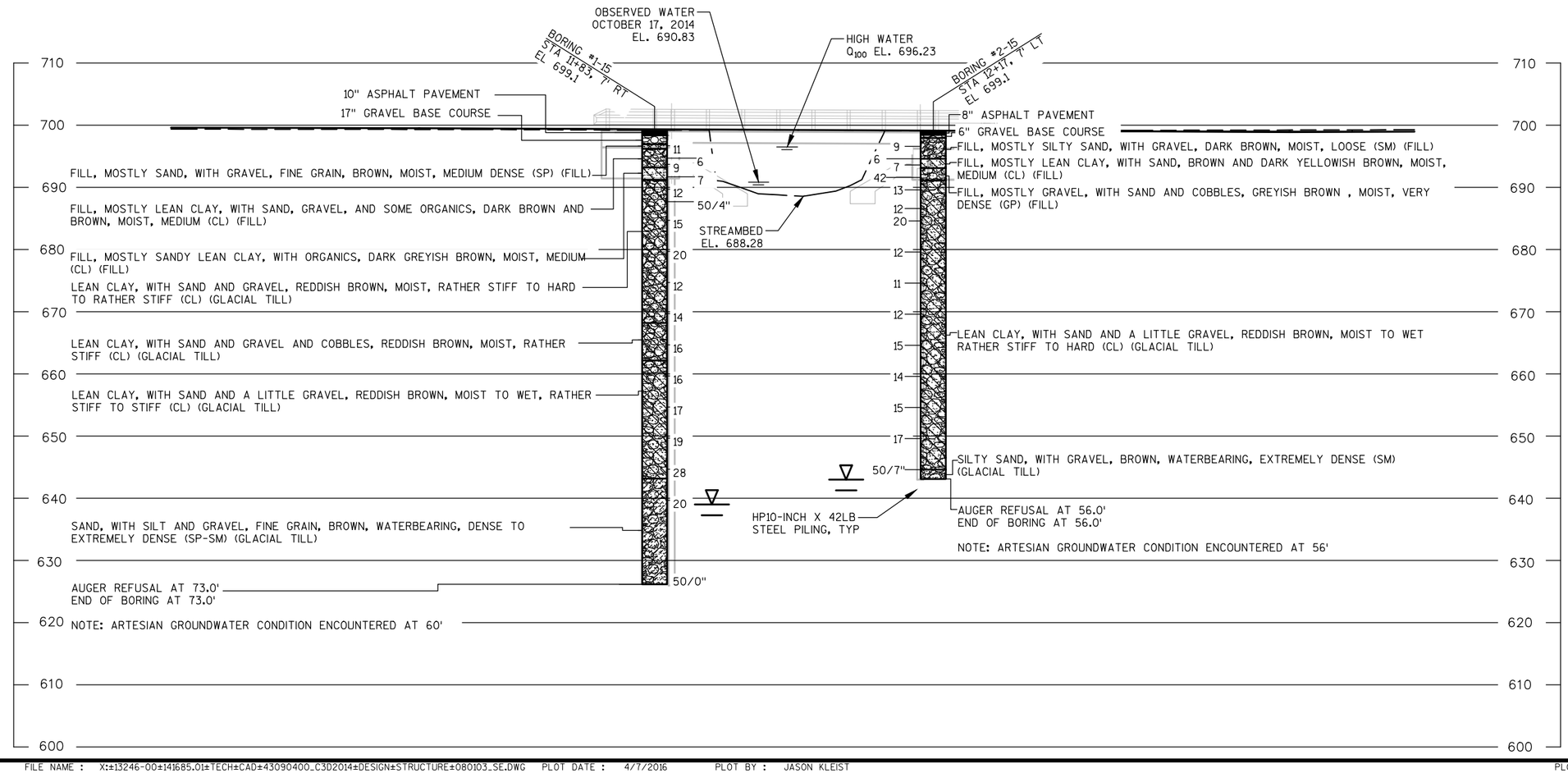




STATE PROJECT NUMBER

4309-04-71

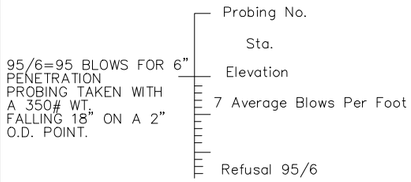
ABBREVIATIONS

F— Fine M—Medium C— Coarse
Ws— Weathered So —Sound

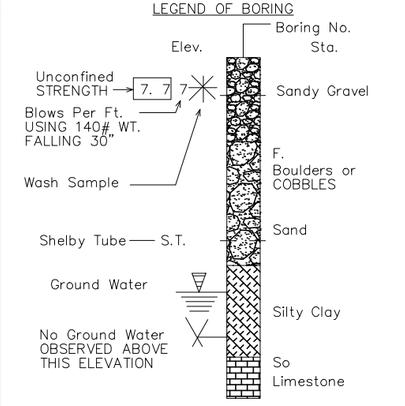
MATERIAL SYMBOLS

Asphalt, Silt, Sand, Concrete, Organic Soil, Air, Gravel, Clay, Water

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

STRUCTURE B-36-229

DRAWN BY JAK | PLANS CK'D. RCP

SUBSURFACE EXPLORATION

SHEET 4 OF 11
29

8

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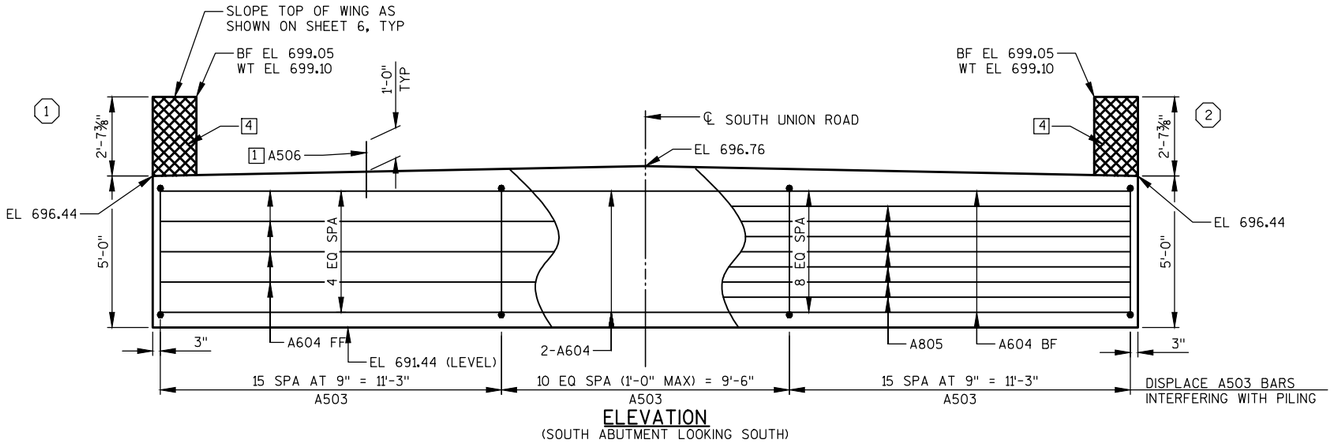
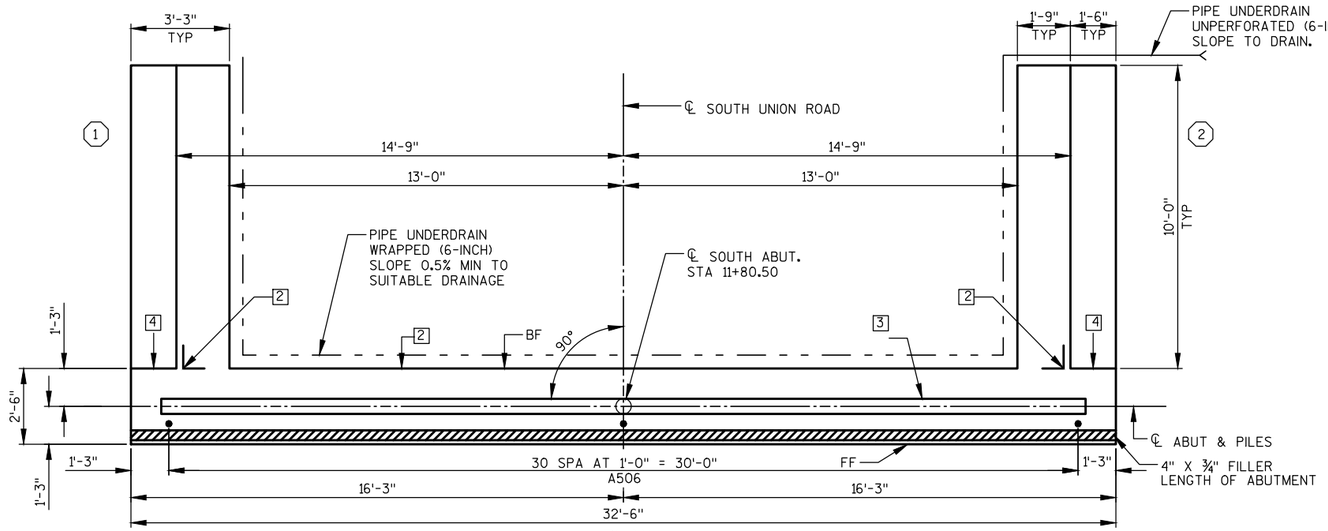
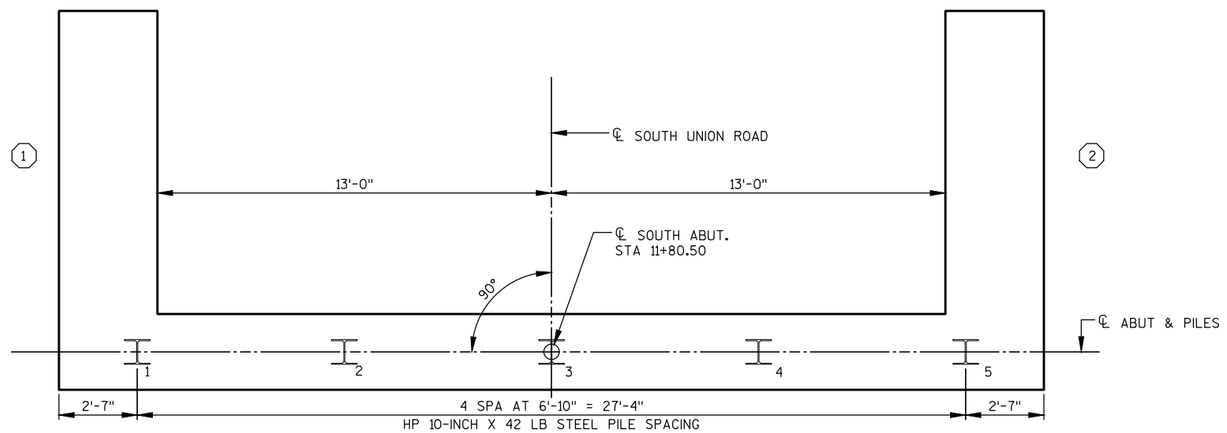


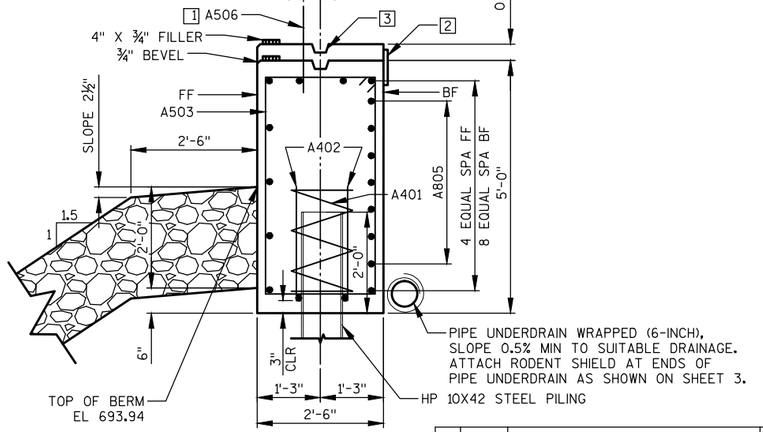
ELEVATION
(SOUTH ABUTMENT LOOKING SOUTH)



PLAN



PILE PLAN



SECTION THRU ABUTMENT BODY

ALL HORIZONTAL BARS NOT LABELED ARE A604 BARS.

NOTES

FOR PILE SPLICE SEE SHEET 3

FILL/EXCAVATE TO BOTTOM OF ABUTMENT EL 691.44 BEFORE DRIVING PILING.

SEE SHEET 3 FOR STRUCTURE BACKFILL AND PIPE UNDERDRAIN DETAIL.

ABUTMENT SUPPORTED ON HP 10-INCH X 42 LB STEEL PILING WITH REQUIRED DRIVING RESISTANCE OF 140 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 70' LONG. PILE POINTS REQUIRED

1. A506 BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SETTING HAS TAKEN PLACE.
2. 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE. EXTEND FROM BRIDGE SEAT TO TOP OF WING.
3. KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY. TERMINATE 1'-0" FROM ABUTMENT ENDS.
4. ½" FILLER - TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. FILLER INCLUDED IN WING LENGTH. 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). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

FF - FRONT FACE
BF - BACK FACE
WT - WING TIP

(#) INDICATES WING NUMBER

STATE PROJECT NUMBER
4309-04-71

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-229

DRAWN BY JAK | PLANS CK'D. RCP

SOUTH ABUTMENT

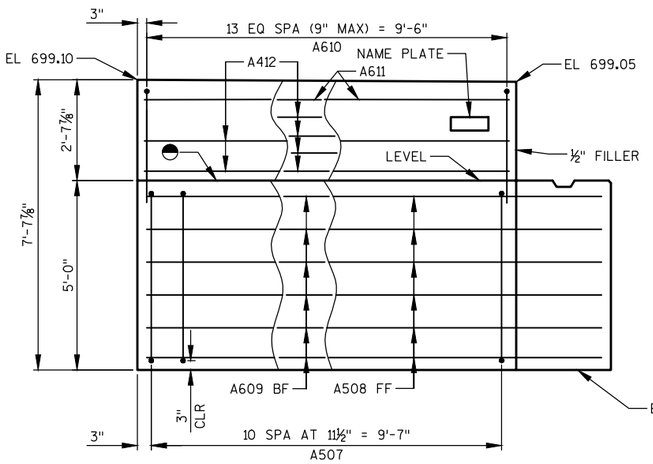
SHEET 5 OF 11
30

8

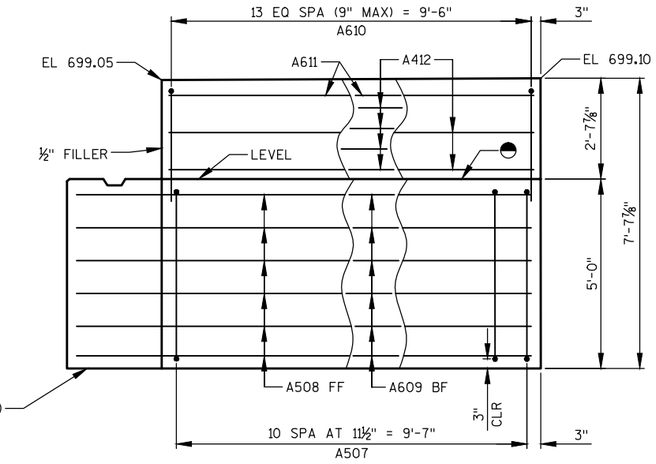
8

STATE PROJECT NUMBER

4309-04-71



WING 1 ELEVATION



WING 2 ELEVATION

BILL OF BARS
SOUTH ABUTMENT

COATED= 1410 LBS.
UNCOATED= 1830 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
A401		5	28 - 0	X		ABUTMENT BODY - 1 PER PILE	SPIRAL
A402		10	2 - 3			ABUTMENT BODY - 2 PER PILE	VERT
A503		41	13 - 7	X		ABUTMENT BODY - STIRRUPS	VERT
A604		11	32 - 2			ABUTMENT BODY - FF, TOP, BTM	HORIZ
A805		7	32 - 2			ABUTMENT BODY - BF	HORIZ
A506	31		2 - 0			ABUTMENT BODY - DOWELS	VERT
A507	22		15 - 3	X		WING WALL - BODY	VERT
A508	12		12 - 2			WING WALL - FF OF BODY	HORIZ
A609	16		11 - 11			WING WALL - BODY	HORIZ
A610	28		9 - 10	X		WING WALL - TOP	VERT
A611	4		9 - 7			WING WALL - TOP	HORIZ
A412	12		9 - 7			WING WALL - TOP	HORIZ
			-				

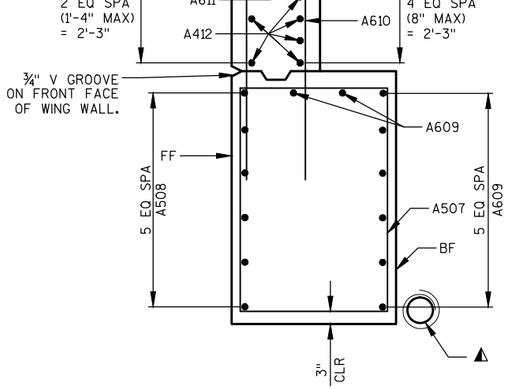
FF - FRONT FACE
BF - BACK FACE

BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

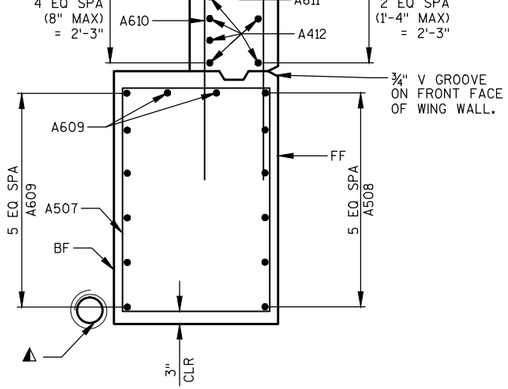
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

◓ OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY, WITH MEMBRANE ON BACK FACE.

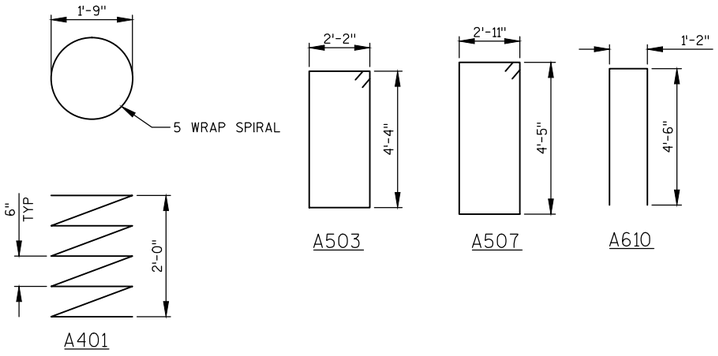
◭ PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN TO SUITABLE DRAINAGE.



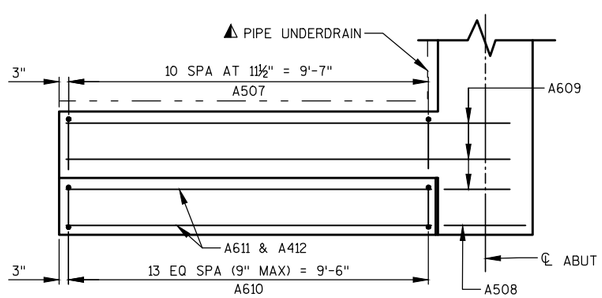
WING 1 SECTION
SEE SHEET 11 FOR RAIL POST ANCHORS



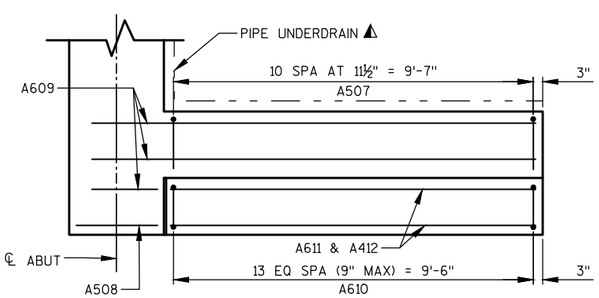
WING 2 SECTION
SEE SHEET 11 FOR RAIL POST ANCHORS



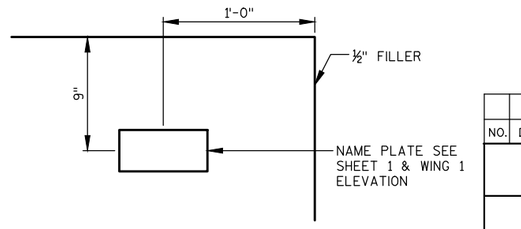
A401 A503 A507 A610



WING 1 PLAN
SPACE A610 TO MISS ANCHORS FOR RAIL POSTS.



WING 2 PLAN
SPACE A610 TO MISS ANCHORS FOR RAIL POSTS.



NAME PLATE LOCATION
ON WING 1

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-229

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SOUTH ABUTMENT DETAILS

SHEET 6 OF 11
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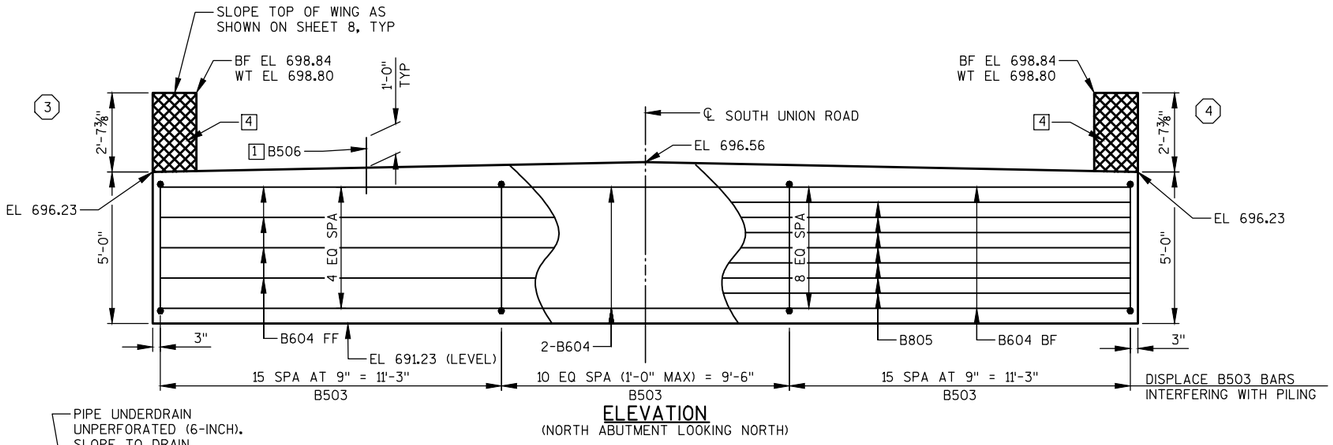
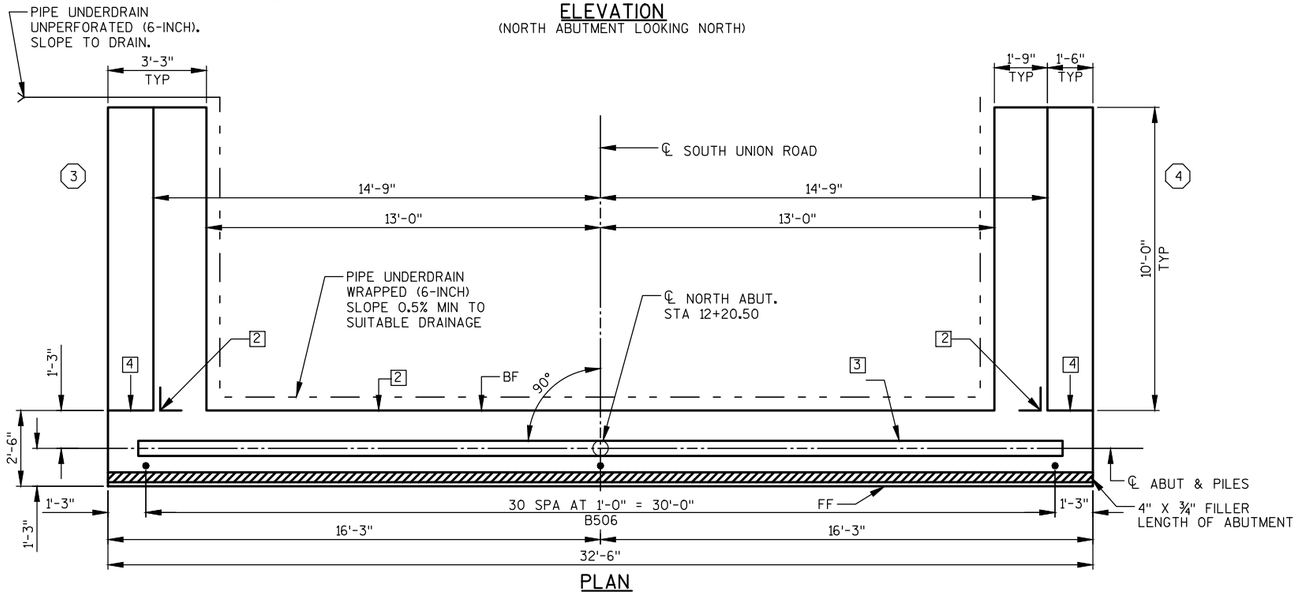
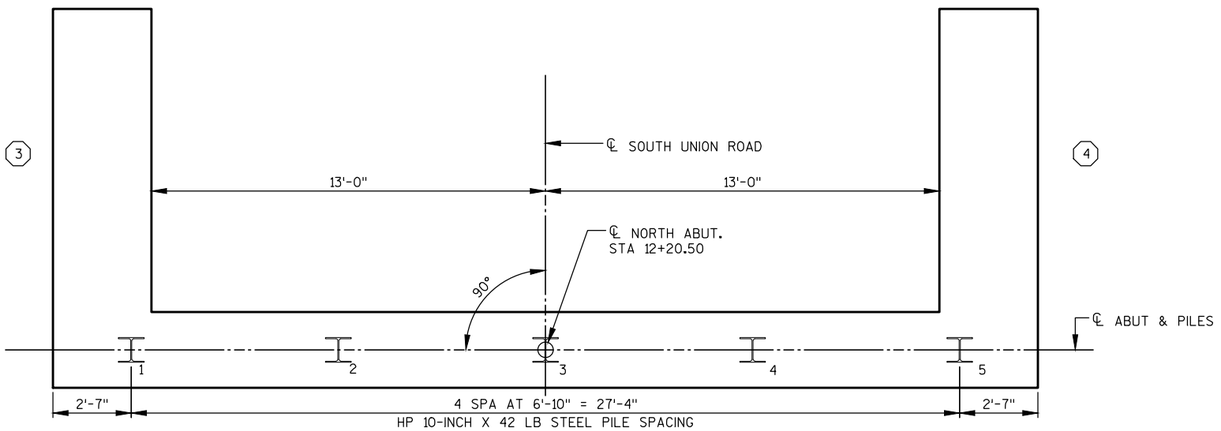


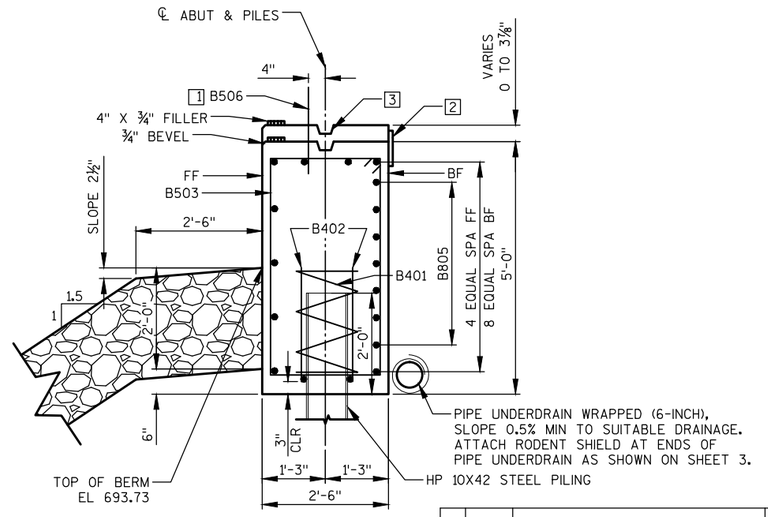
ELEVATION
(NORTH ABUTMENT LOOKING NORTH)



PLAN



PILE PLAN



SECTION THRU ABUTMENT BODY
ALL HORIZONTAL BARS NOT LABELED ARE B604 BARS

NOTES

FOR PILE SPLICE SEE SHEET 3

FILL/EXCAVATE TO BOTTOM OF ABUTMENT EL 691.23 BEFORE DRIVING PILING.

SEE SHEET 3 FOR STRUCTURE BACKFILL AND PIPE UNDERDRAIN DETAIL.

ABUTMENT SUPPORTED ON HP 10-INCH X 42 LB STEEL PILING WITH REQUIRED DRIVING RESISTANCE OF 140 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 50' LONG. PILE POINTS REQUIRED.

1 B506 BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SETTING HAS TAKEN PLACE.

2 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE. EXTEND FROM BRIDGE SEAT TO TOP OF WING.

3 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY. TERMINATE 1'-0" FROM ABUTMENT ENDS.

4 ½" FILLER - TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. FILLER INCLUDED IN WING LENGTH. 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). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

FF - FRONT FACE
BF - BACK FACE
WT - WING TIP

(#) INDICATES WING NUMBER

STATE PROJECT NUMBER
4309-04-71

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-229

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NORTH ABUTMENT

SHEET 7 OF 11
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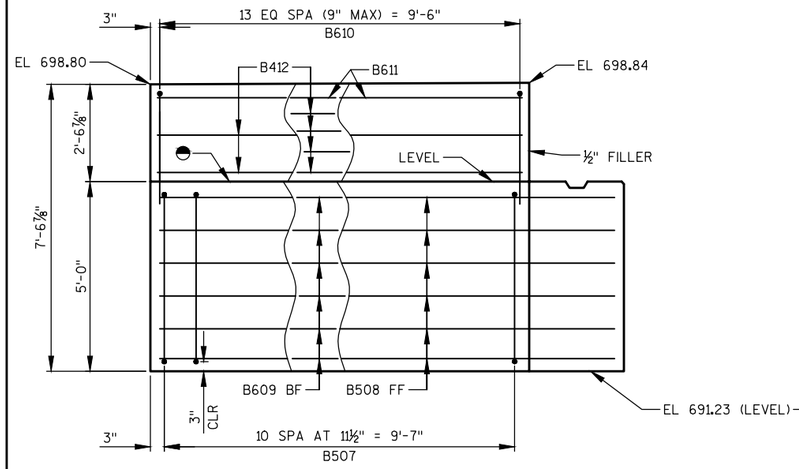
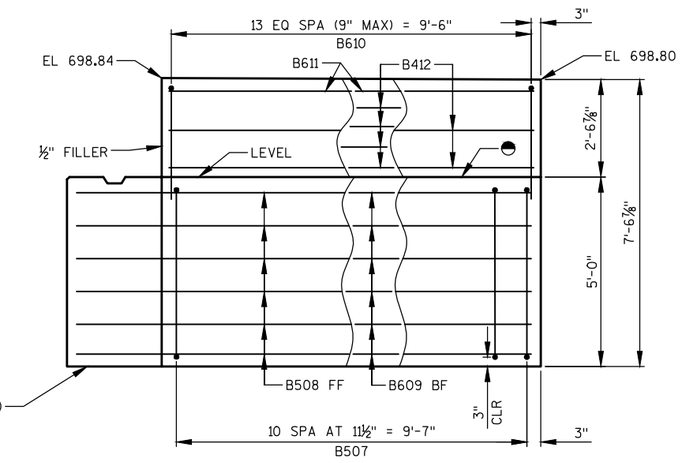


WING 3 ELEVATION



WING 4 ELEVATION

STATE PROJECT NUMBER

4309-04-71

BILL OF BARS
NORTH ABUTMENT

COATED= 1410 LBS.
UNCOATED= 1830 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
B401		5	28 - 0	X		ABUTMENT BODY - 1 PER PILE	SPIRAL
B402		10	2 - 3			ABUTMENT BODY - 2 PER PILE	VERT
B503		41	13 - 7	X		ABUTMENT BODY - STIRRUPS	VERT
B604		11	32 - 2			ABUTMENT BODY - FF, TOP, BTM	HORIZ
B805		7	32 2			ABUTMENT BODY - BF	HORIZ
B506	31		2 - 0			ABUTMENT BODY - DOWELS	VERT
B507	22		15 - 3	X		WING WALL - BODY	VERT
B508	12		12 - 2			WING WALL - FF OF BODY	HORIZ
B609	16		11 - 11			WING WALL - BODY	HORIZ
B610	28		9 - 10	X		WING WALL - TOP	VERT
B611	4		9 - 7			WING WALL - TOP	HORIZ
B412	12		9 - 7			WING WALL - TOP	HORIZ
			-				

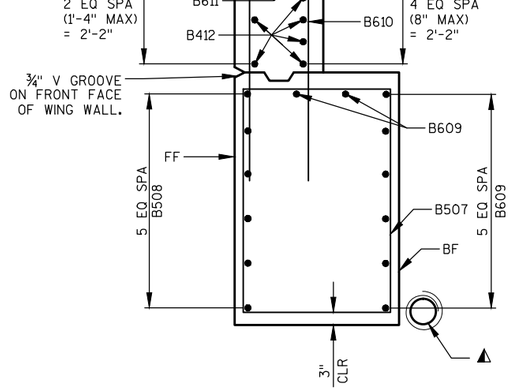
FF - FRONT FACE
BF - BACK FACE

BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

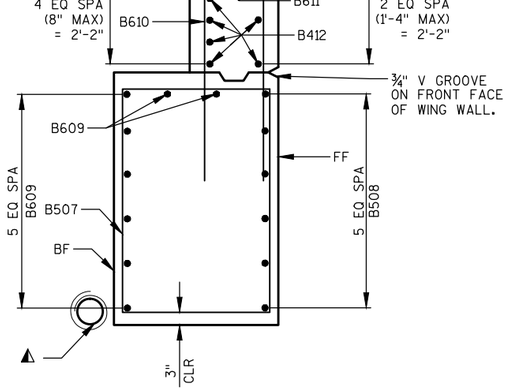
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

◓ OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY, WITH MEMBRANE ON BACK FACE.

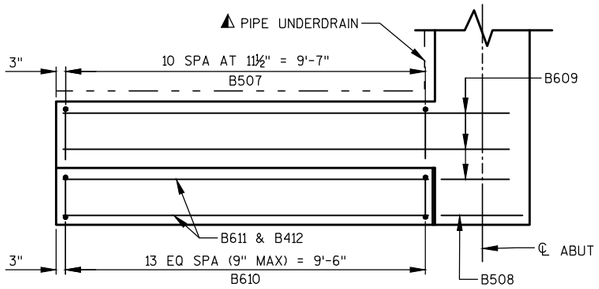
⚠ PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN TO SUITABLE DRAINAGE.



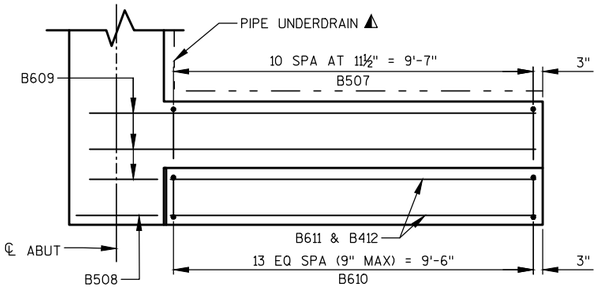
WING 3 SECTION
SEE SHEET 11 FOR RAIL POST ANCHORS



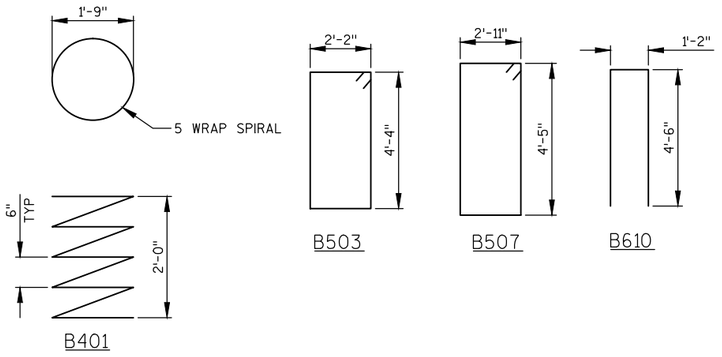
WING 4 SECTION
SEE SHEET 11 FOR RAIL POST ANCHORS



WING 3 PLAN
SPACE B610 TO MISS ANCHORS FOR RAIL POSTS.



WING 4 PLAN
SPACE B610 TO MISS ANCHORS FOR RAIL POSTS.



NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-229

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NORTH ABUTMENT DETAILS

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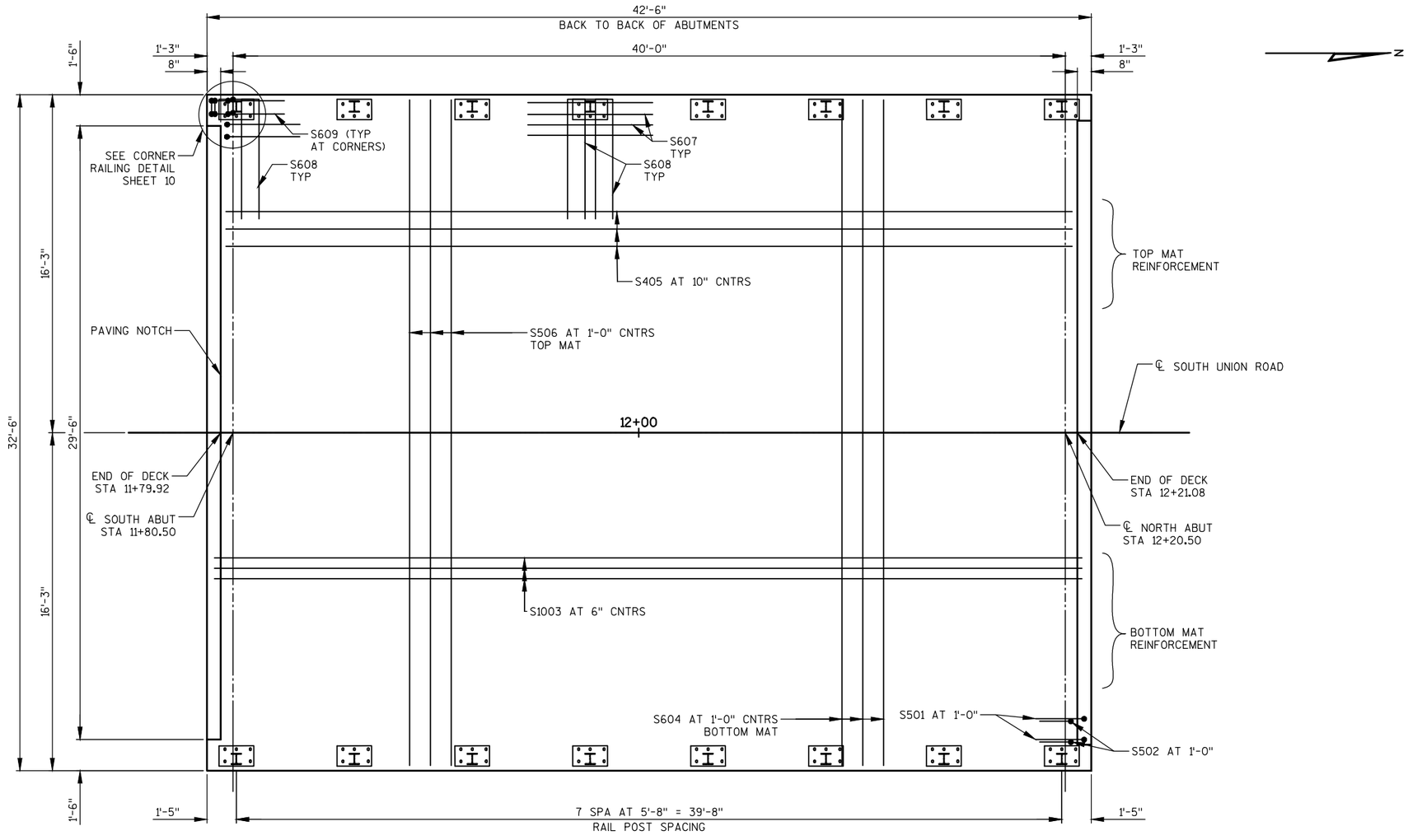
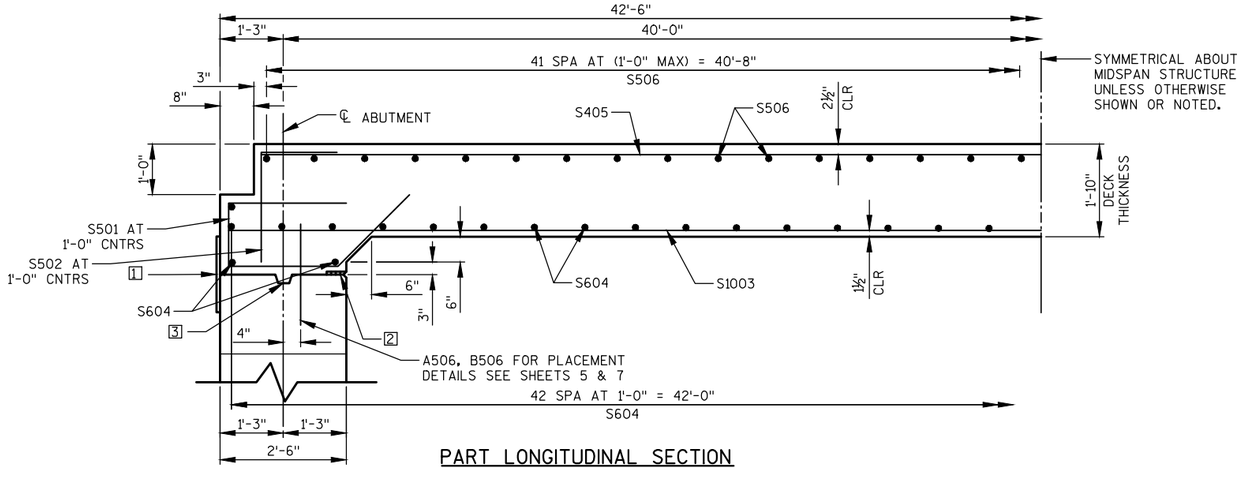


REINFORCEMENT PLAN



PART LONGITUDINAL SECTION

NOTES

1. 18" RUBBERIZED MEMBRANE WATERPROOFING (RMW) TO EXTEND FROM BRIDGE SEAT TO TOP OF WING AND BETWEEN INSIDE FACES OF WINGS. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
2. 4" X ¾" FILLER LENGTH OF ABUTMENT.
3. KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-229

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SUPERSTRUCTURE

SHEET 9 OF 11
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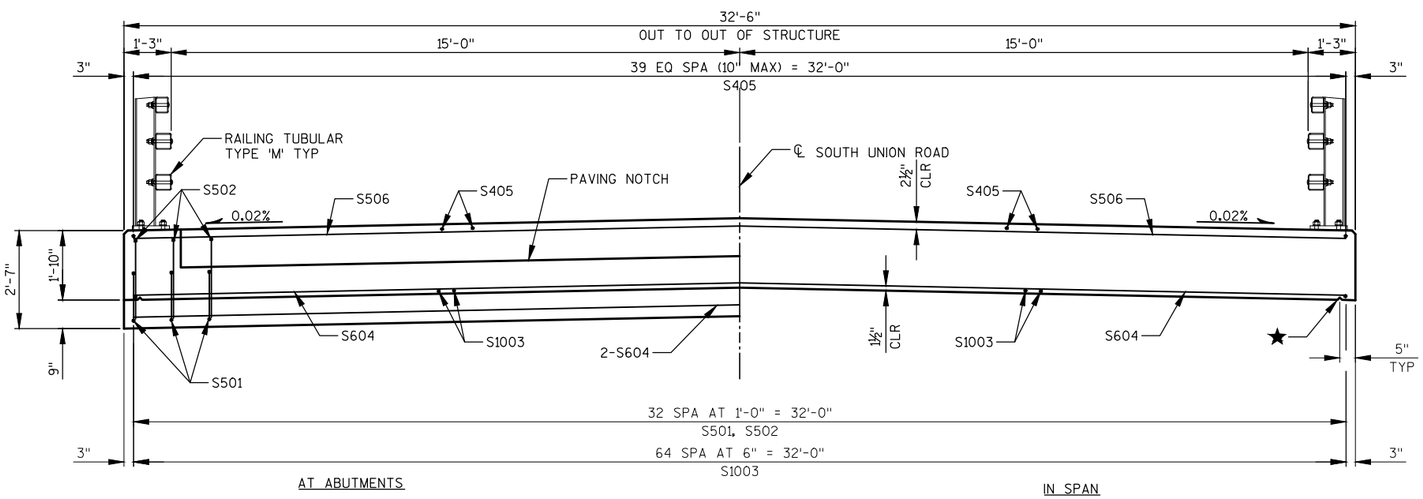
FILE NAME : X:±13246-00±141685.01±TECH±CAD±43090400_C3D2014±DESIGN±STRUCTURE±080109_SS.DWG PLOT DATE : 4/8/2016 PLOT BY : JASON KLEIST PLOT SCALE : 1" = 1'

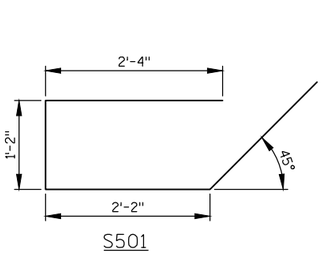
STATE PROJECT NUMBER

4309-04-71

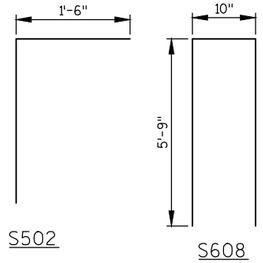


CROSS SECTION THRU ROADWAY

(LOOKING NORTH)



S501



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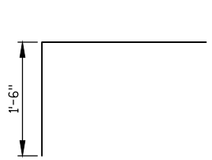
S608



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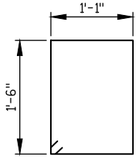

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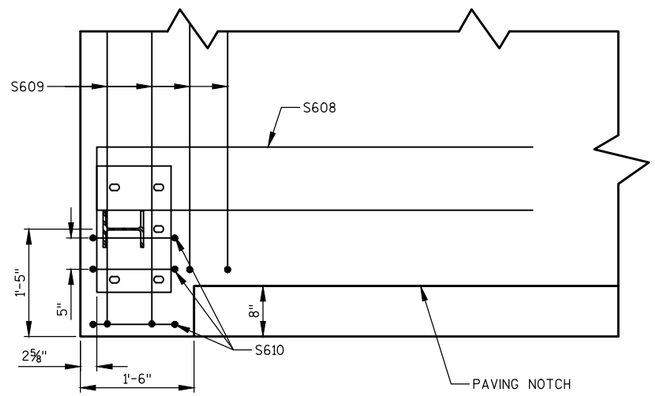
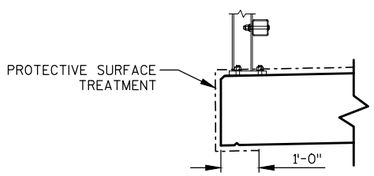


CORNER RAILING DETAIL



PROTECTIVE SURFACE TREATMENT DETAIL

BILL OF BARS
SUPERSTRUCTURE

COATED= 18510 LBS.
UNCOATED= 0 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
S501	66		7 - 5	X		SLAB - ABUTMENT TIES	LONGIT
S502	66		3 - 6	X		SLAB - ABUTMENT TIES	LONGIT
S1003	65		42 - 2			SLAB - BOTTOM	LONGIT
S604	47		32 - 2			SLAB - BOTTOM	TRANS
S405	40		40 - 10			SLAB - TOP	LONGIT
S506	42		32 - 2			SLAB - TOP	TRANS
S607	48		6 - 0			RAILING ANCHORS	LONGIT
S608	28		12 - 0	X		RAILING ANCHORS	TRANS
S609	16		6 - 0	X		RAILING ANCHORS AT CORNERS	LONGIT
S610	12		6 - 0	X		RAILING ANCHORS AT CORNERS	LONGIT

BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

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

TOP OF DECK ELEVATIONS

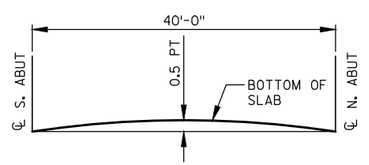
SPAN PT.	WEST EDGE STATION	WEST EDGE ELEVATION	CENTERLINE/CROWN STATION	CENTERLINE/CROWN ELEVATION	EAST EDGE STATION	EAST EDGE ELEVATION
S. ABUT.	11 + 80.50	699.02	11 + 80.50	699.34	11 + 80.50	699.02
0.1	11 + 84.50	699.00	11 + 84.50	699.32	11 + 84.50	699.00
0.2	11 + 88.50	698.98	11 + 88.50	699.30	11 + 88.50	698.98
0.3	11 + 92.50	698.96	11 + 92.50	699.28	11 + 92.50	698.96
0.4	11 + 96.50	698.94	11 + 96.50	699.26	11 + 96.50	698.94
0.5	12 + 00.50	698.92	12 + 00.50	699.24	12 + 00.50	698.92
0.6	12 + 04.50	698.90	12 + 04.50	699.22	12 + 04.50	698.90
0.7	12 + 08.50	698.88	12 + 08.50	699.20	12 + 08.50	698.88
0.8	12 + 12.50	698.86	12 + 12.50	699.18	12 + 12.50	698.86
0.9	12 + 16.50	698.84	12 + 16.50	699.16	12 + 16.50	698.84
N. ABUT.	12 + 20.50	698.82	12 + 20.50	699.14	12 + 20.50	698.82

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

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.

★ ¾" V-GROOVE. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGM.

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 EDGE OF DECK AND AT ℄.



CAMBER DIAGRAM

SPAN (PT)	CAMBER (IN)
℄ S ABUT	0
0.1	⅜
0.2	¾
0.3	1⅛
0.4	1⅜
0.5	1⅜
0.6	1⅜
0.7	1⅛
0.8	¾
0.9	⅜
℄ N ABUT	0

CAMBER SPAN AS SHOWN (USING VALUES IN TABLE) TO PROVIDE FOR DEADLOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-229

DRAWN BY JAK | PLANS CK'D. RCP

SUPERSTRUCTURE DETAILS

SHEET 10 OF 11
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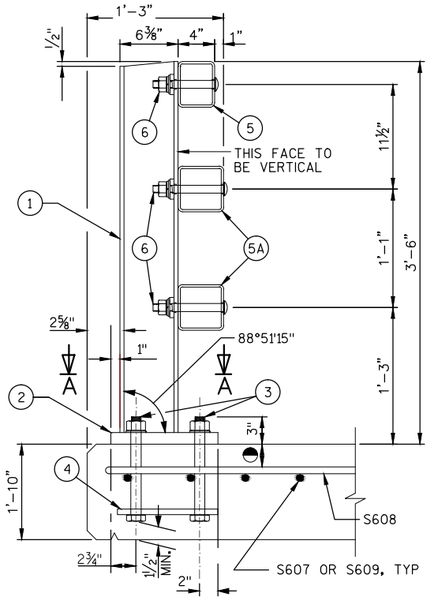
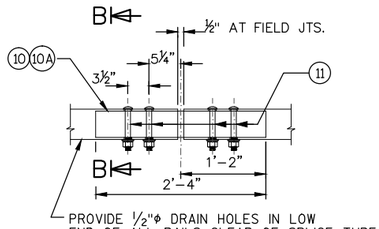
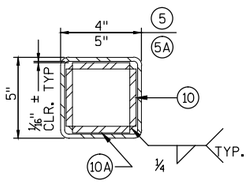


SECTION THRU RAILING ON DECK

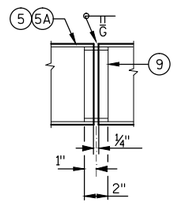
◓ PLACE BELOW TOP MAT OF SLAB REINF.



FIELD ERECTION JOINT DETAIL

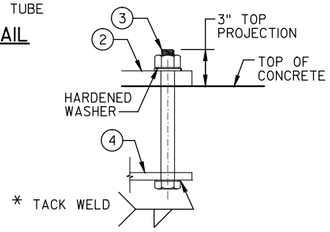


SECTION B-B



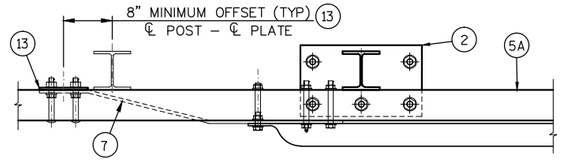
SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



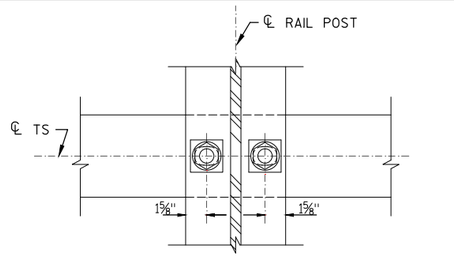
ANCHOR BOLTS

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

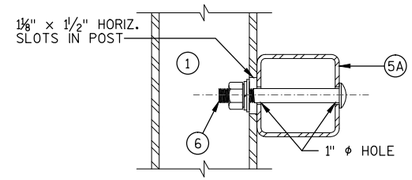


TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT



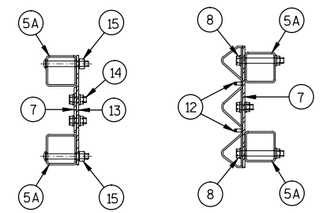
SECTION THRU POST WEB



SECTION THRU RAIL

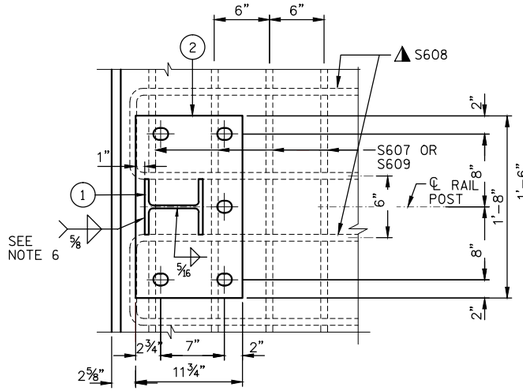
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



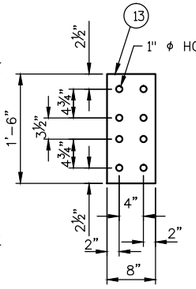
SECTION C-C

SECTION D-D



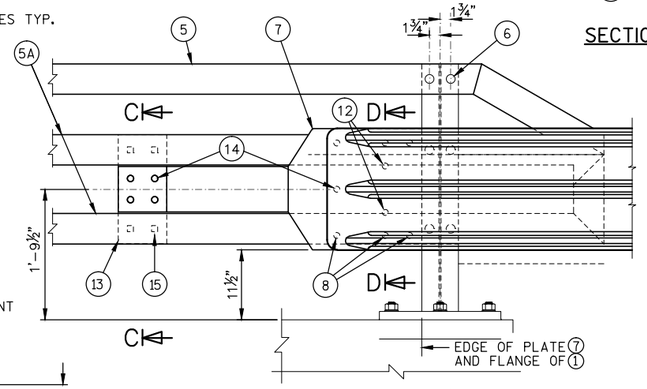
SECTION A-A

⚠ TIE TO TOP MAT OF STEEL.



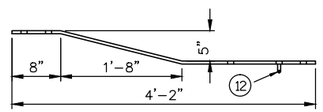
ANCHOR PLATE

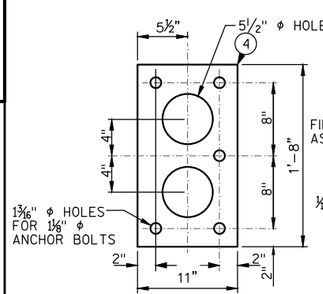
AT BEAM GUARD ATTACHMENT



DETAIL AT END POST

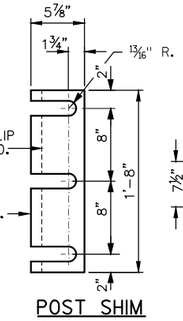
THRIE BEAM RAIL ATTACHMENT



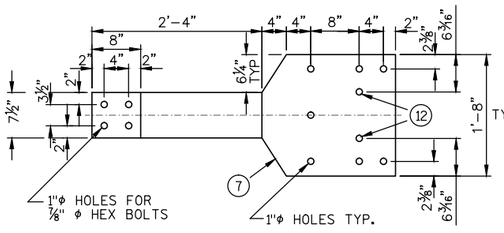


ANCHOR PLATE

AT RAIL TO DECK CONNECTION

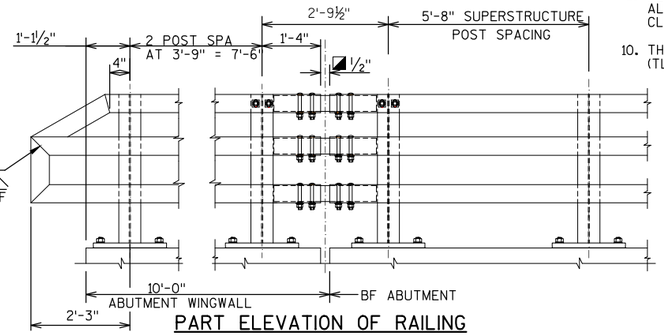


POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

◪ ½" JOINT FILLER

LEGEND

① W6 x 25 WITH 1⅛" X 1½" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

② PLATE 1¼" x 11¾" x 1'-8" WITH 15⁄16" X 1⅝" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

③ ASTM A449 - 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN WINGS AND 1'-3" LONG IN SLAB. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)

④ ⅝" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1³⁄₁₆" DIA. HOLES FOR ANCHOR BOLTS NO. 3

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

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

⑥ ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3⁄16" X 1⅝" X 1⅝" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

⑦ ½" THK. BACK-UP PLATE WITH 2 -⅞" X 1½" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR ⅞" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.

⑨ SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

⑩ ⅜" X 3⅝"X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

⑩A ⅜" X 2⅝" X 2'-4" PLATE USED IN NO. 5, ⅜" X 3⅝" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.

⑪ ⅞" ϕ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 15⁄16 " X 1¼" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 15⁄16 " X 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.

⑫ ⅞" DIA. X 1½" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

⑬ ⅜" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.

⑭ ⅞" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).

⑮ 1" ϕ HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M (B-36-229)" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 ksi. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
10. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

STATE PROJECT NUMBER

4309-04-71

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-229

DRAWN BY JAK | PLANS CK'D. RCP

TUBULAR STEEL RAILING TYPE 'M'

SHEET 11 OF 11
36

8

8

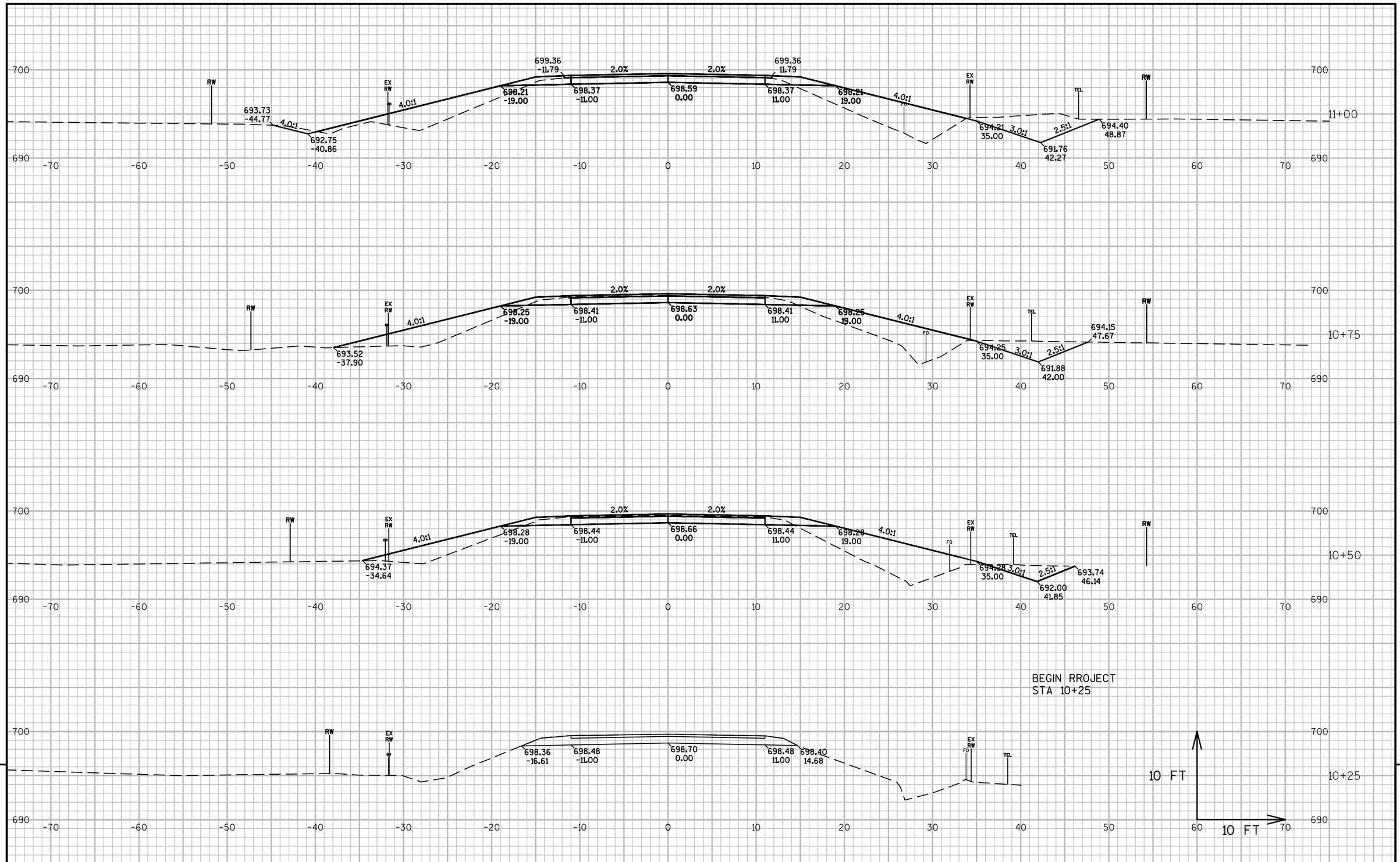
DIVISION 1: SOUTH UNION ROAD, SOUTH OF BRIDGE

STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut	Fill	Cut	Expanded Fill	
							1.00	1.25	
					Note 1	Note 3	Note 1		Note 8
10+25.00	1025	0	29	0	0	0	0	0	0
10+50.00	1050	25	34	73	29	34	29	42	-13
10+75.00	1075	25	38	70	33	66	62	125	-63
11+00.00	1100	25	46	77	39	68	101	211	-110
11+25.00	1125	25	43	91	41	78	142	308	-166
11+50.00	1150	25	40	97	38	87	181	417	-237
11+75.00	1175	25	48	35	41	61	221	493	-272
					221	395			

DIVISION 2: SOUTH UNION ROAD, NORTH OF BRIDGE

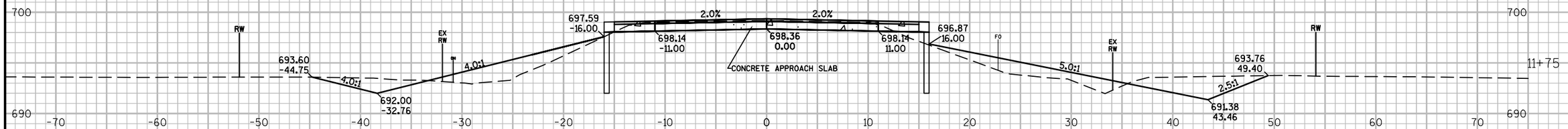
STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut	Fill	Cut	Expanded Fill	
							1.00	1.25	
						Note 1			Note 2
12+25.00	1225		59.2	34.4	0	0	0	0	0
12+50.00	1250	25	53.3	46.5	52	37	52	47	5
12+75.00	1275	25	55.6	37.6	50	39	102	96	7
13+00.00	1300	25	56.3	25.1	52	29	154	132	22
13+25.00	1325	25	42.8	33.7	46	27	200	166	34
13+50.00	1350	25	33.7	30.9	35	30	236	203	32
13+75.00	1375	25	29.0	0.0	29	14	265	221	43
					265	177			

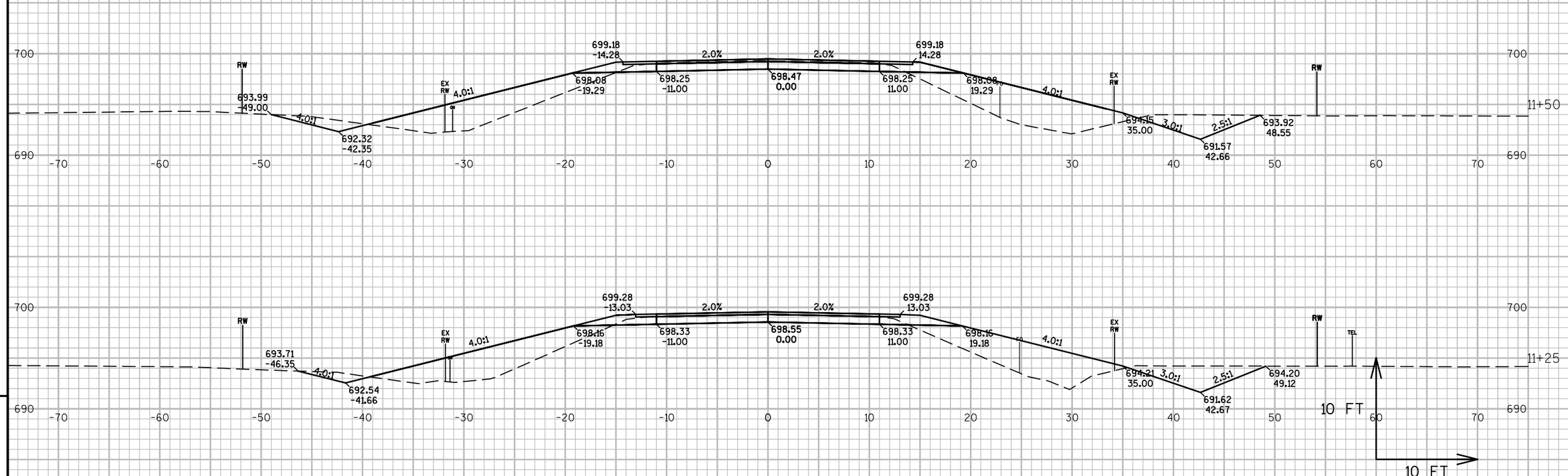
Notes:
1 - Fill: Expanded Fill Factor = 1.25
2 - Mass Ordinate: + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.



PROJECT NO: 4309-04-71	HWY: SOUTH UNION ROAD	COUNTY: MANITOWOC	CROSS SECTIONS: MAINLINE	SHEET 38	E

CONSTRUCT STRUCTURE
B-36-0229 STA 12+00





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PROJECT NO: 4309-04-71	HWY: SOUTH UNION ROAD	COUNTY: MANITOWOC	CROSS SECTIONS: MAINLINE	SHEET 39	E

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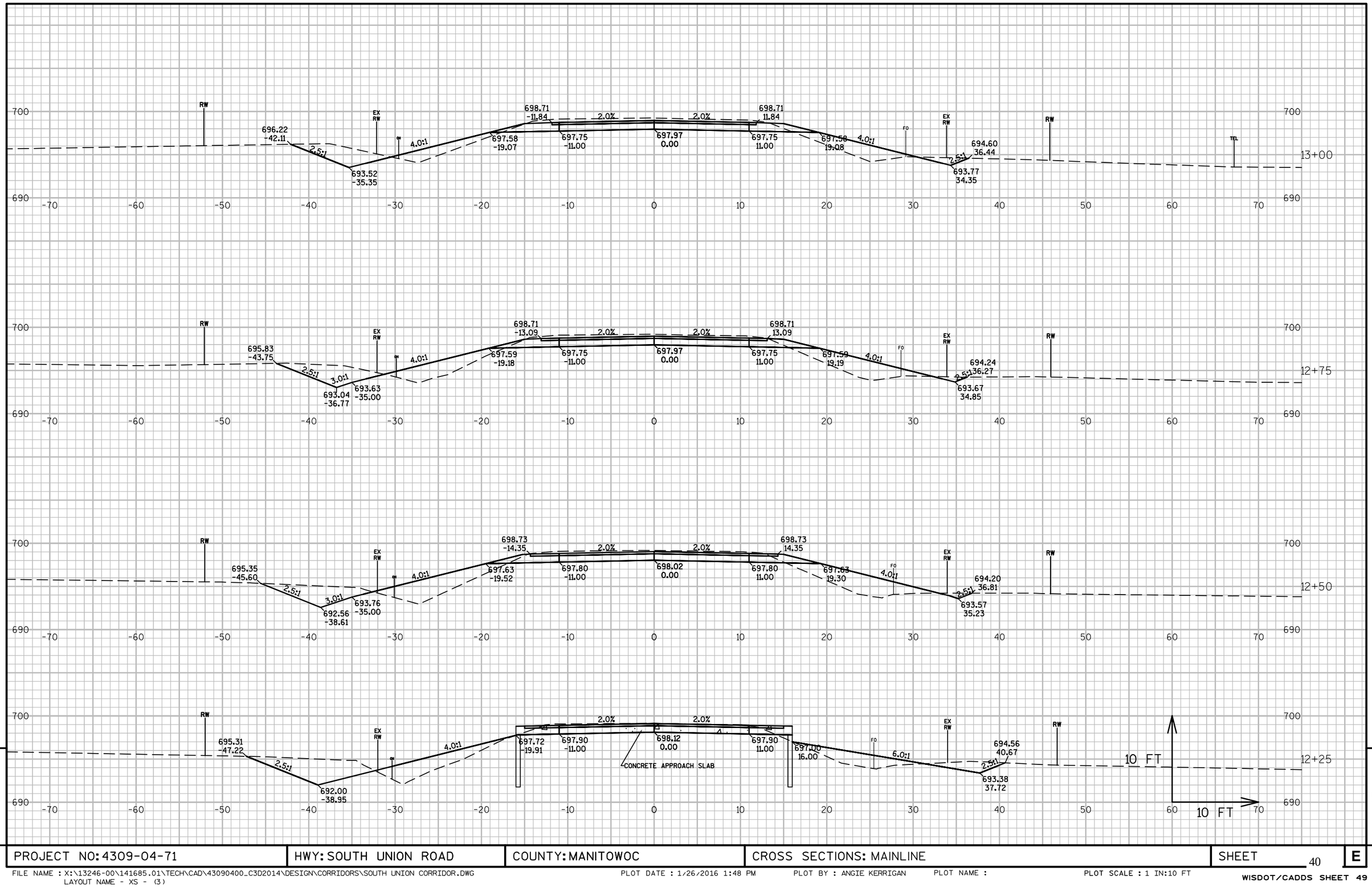
PLOT DATE : 1/26/2016 1:47 PM PLOT BY : ANGIE KERRIGAN PLOT NAME : PLOT SCALE : 1 IN:10 FT



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PROJECT NO: 4309-04-71	HWY: SOUTH UNION ROAD	COUNTY: MANITOWOC	CROSS SECTIONS: MAINLINE	SHEET 40	E

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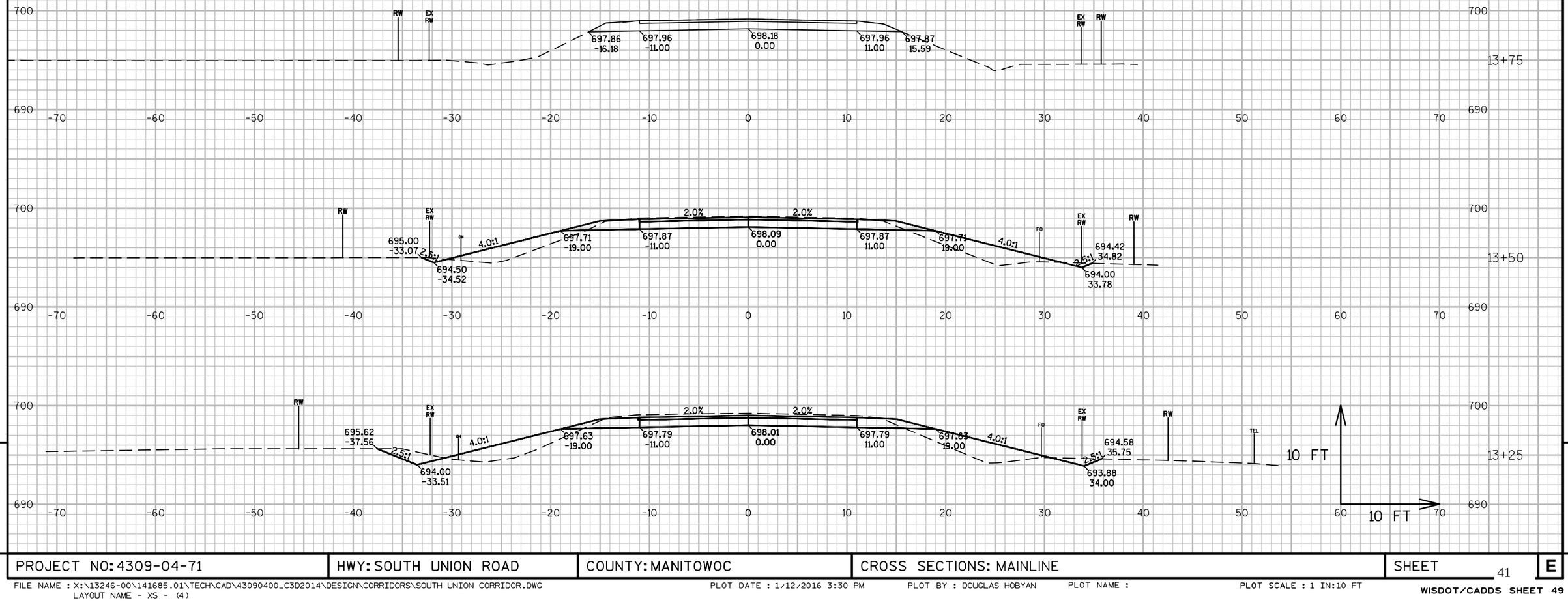
LAYOUT NAME - XS - (3)

PLOT DATE : 1/26/2016 1:48 PM PLOT BY : ANGIE KERRIGAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

END PROJECT
STA 13+75



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PROJECT NO: 4309-04-71	HWY: SOUTH UNION ROAD	COUNTY: MANITOWOC	CROSS SECTIONS: MAINLINE	SHEET 41	E

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LAYOUT NAME - XS - (4)

PLOT DATE : 1/12/2016 3:30 PM PLOT BY : DOUGLAS HOBYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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