SUP JANUARY 2014

PROJECT ID: 8680-00-70
WITH: 8680-04-71, 8680-04-74

COUNTY: DOUGLAS

14

ORDER OF SHEETS

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

TOTAL SHEETS = 502

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CITY OF SUPERIOR

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8680-00-70	WISC 2014006	1
8680-04-71	WISC 2014007	1
8680-04-74	WISC 2014008	1

Minnesota Federal Project Number - NHPP 0002(328)

BELKNAP STREET
GARFIELD AVENUE INTERSECTION
USH 2
DOUGLAS COUNTY

STATE PROJECT NUMBER
8680-00-70

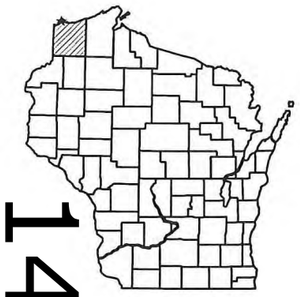
BONG BRIDGE
ST LOUIS RIVER BRIDGE B-16-038/69100
USH 2
DOUGLAS COUNTY

WI STATE PROJECT NUMBER
8680-04-71

MN STATE PROJECT NUMBER
6937-69100D

BONG BRIDGE APPROACHES
ST LOUIS RIVER - BELKNAP STREET
USH 2
DOUGLAS COUNTY

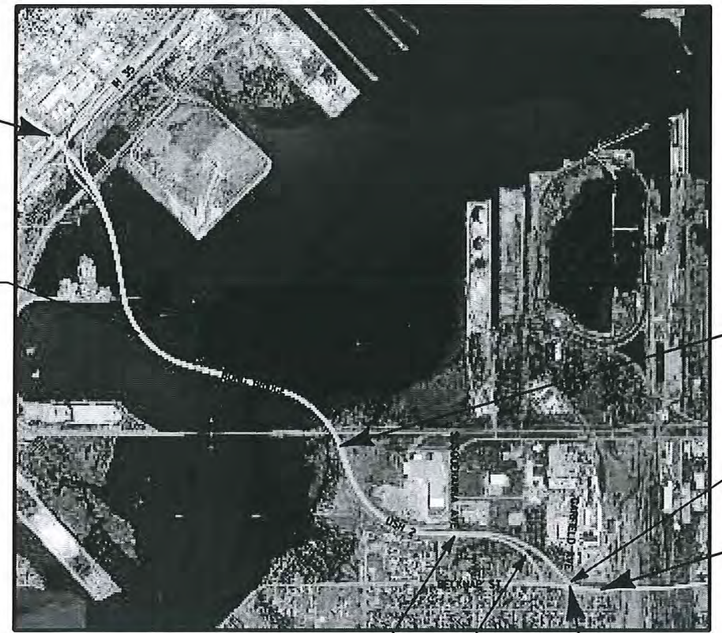
STATE PROJECT NUMBER
8680-04-74



N

BEGIN PROJECT 8680-04-71
STA 18+11.27
Y = 313770.02
X = 134284.19

WI STRUCTURE B-16-0038
MN STRUCTURE 69100



END PROJECT 8680-04-71
BEGIN PROJECT 8680-04-74
STA 101+89.00
Y = 308056.01
X = 139478.61

S-16-03

END PROJECT 8680-04-74
STA 162+78.75

STRUCTURE B-16-0049

S-16-13

PROJECT 8680-00-70
BEGIN STA 3+50.00 G
Y = 305305.21
X = 143601.44
END STA 4+76.00 G

LAYOUT
SCALE 0 1/4 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.024 MI. (8680-00-70)
TOTAL NET LENGTH OF CENTERLINE = 1.587 MI. (8680-04-71)
TOTAL NET LENGTH OF CENTERLINE = 1.153 MI. (8680-04-74)

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), DOUGLAS COUNTY.

AS-BUILT PLAN

SUPERVISOR: David Ostrowski
PROJECT MANAGER: Matthew Dickenson
PROJECT LEADER: Brian Mattson
CONTRACTOR: Lunda Construction Company
WORK STARTED 4/7/2014
WORK COMPLETED 12/16/2016
FINAL CONTRACT COST: $19,112,262.78
CONTRACT MOD #S: 1-31
$794,519.82
CONTRACT ID: 20140114014

ACCEPTED FOR
CITY OF SUPERIOR

7/31/2013 (Date)

(Signature & Title of Official)

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
WISCONSIN
JEFFREY A. ABRAMSON
32337
Eau Claire
WI
PROFESSIONAL ENGINEER

DATE: 7-25-13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WISDOT / AYRES ASSOCIATES
Designer	AYRES ASSOCIATES INC
Project Manager	MATT DICKENSON
Regional Examiner	DANIEL OJIBWAY
Regional Supervisor	DAVE OSTROWSKI
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: 7/31/13 (Signature)

E

DESIGN DESIGNATION

A.A.D.T. (2014)	=	18,100
A.A.D.T. (2034)	=	21,300
D.H.V.	=	N/A
D.D.	=	58/42
T.	=	12.1%
DESIGN SPEED	=	55 MPH/30 MPH
ESALS	=	15,549,000

CONVENTIONAL SYMBOLS

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

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

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

UTILITIES

	UTILITY OR MUNICIPALITY	ADDRESS	CONTACT	UTILITY TYPE
*	CENTURYLINK	20 S WILSON AVENUE RICE LAKE, WI 54868	MONTY PARKER (715) 234-5528 monty.parker@centurylink.com	COMMUNICATION LINE
*	WESTERN LAKE SUPERIOR SANITARY DISTRICT	2622 COURTLAND STREET DULUTH, MN 55806	CAROLINE CLEMENT (218) 529-8059	SANITARY SEWER
	CITY OF SUPERIOR PUBLIC WORKS	1316 N 14TH STREET SUPERIOR, WI 54880	JEFF GEOTZMAN (715) 395-7334	STORM SEWER/SANITARY SEWER/WATER
*	MINNESOTA POWER	30 WEST SUPERIOR STREET DULUTH, MN 55802	JOE PETERSON (WI) (651) 633-1519 AARON NELSON (MN)	ELECTRIC
*	CALUMET SUPERIOR	2407 STINSON AVENUE P.O. BOX 2066 SUPERIOR, WI 54880	SAMUEL TALARICO (715) 398-8264	GAS/PETROLEUM
*	SUPERIOR WATER LIGHT AND POWER COMPANY	2915 HILL AVENUE SUPERIOR, WI 54880	AARON ANDERSON (715) 394-2300	TRANSMISSION/ELECTRIC/GAS
	WISDOT TRAFFIC SIGNALS/ NORTHWEST REGION	1701 N 4TH STREET SUPERIOR, WI 54880	MORRIS LUKE (715) 392-7886 morris.luke@dot.wi.gov	TRAFFIC SIGNALS/LIGHTING
	WISDOT LIGHTING/ NORTHWEST REGION	1701 N 4TH STREET SUPERIOR, WI 54880	EUGENE BLOMFELT (715) 392-7952 blomfelt.eugene@dot.wi.gov	LIGHTING
	BNSF RAILROAD	80 44TH AVENUE NE MINNEAPOLIS, MN 55421	DAVID JOHNSON (763) 782-3495 david.johnson7@bnsf.com	RAILROAD

* MEMBER OF DIGGERS HOTLINE

DIGGERS HOTLINE

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

WISDOT RR COORDINATOR

WISDOT RAILROAD COORDINATOR
1701 NORTH 4TH STREET
SUPERIOR, WI 54880
ATTN: ANNA DAVEY
(715)392-7960
Anna.Davey@dot.wi.gov

DNR CONTACT

WISCONSIN DEPARTMENT OF NATURAL RESOURCES,
NORTHWEST REGION
810 WEST MAPLE STREET
SPOONER, WI 54801
ATTN: AMY CRONK
(715) 635-4229
amy.cronk@dot.wi.gov

DESIGN CONTACT

AYRES ASSOCIATES
3433 OAKWOOD HILLS PARKWAY
EAU CLAIRE, WI 54701
ATTN: DAVE PANTZLAFF, PE
(715) 834-3161
pantzlaffd@ayresassociates.com

REGION CONTACT

WISCONSIN DEPARTMENT OF TRANSPORTATION,
NORTHWEST REGION - SUPERIOR OFFICE
1701 N 4TH STREET
SUPERIOR, WI 54880
ATTN: MATT DICKENSON
(715) 395-3022
matthew.dickenson@dot.wi.gov

MINNESOTA CONTACT

MINNESOTA DEPARTMENT OF TRANSPORTATION
1123 MESABA AVENUE
DULUTH, MN 55811
ATTN: PERRY C. COLLINS, PE
MNDOT DI BRIDGE ENGINEER
(218) 725-2827
perry.collins@state.mn.us

GENERAL NOTES

REMOVALS

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS INDICATED FOR REMOVAL BY THE ENGINEER.

GRADING/EROSION CONTROL

FILL QUANTITIES HAVE BEEN EXPANDED BY A FACTOR OF 1.25 ON COMPUTER YARDAGE SHEETS.

EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE AND IS NOT SHOWN ON THE CROSS SECTIONS BUT IS MEASURED AND PAID FOR AS COMMON EXCAVATION. THE LOCATION FOR EBS WILL BE DETERMINED BY THE ENGINEER.

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

PAVING

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT IS TO MEET AN EXISTING PAVED SURFACE.

MISCELLANEOUS

DETAILS OF CONSTRUCTION NOT SHOWN SHALL BE IN ACCORDANCE WITH THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

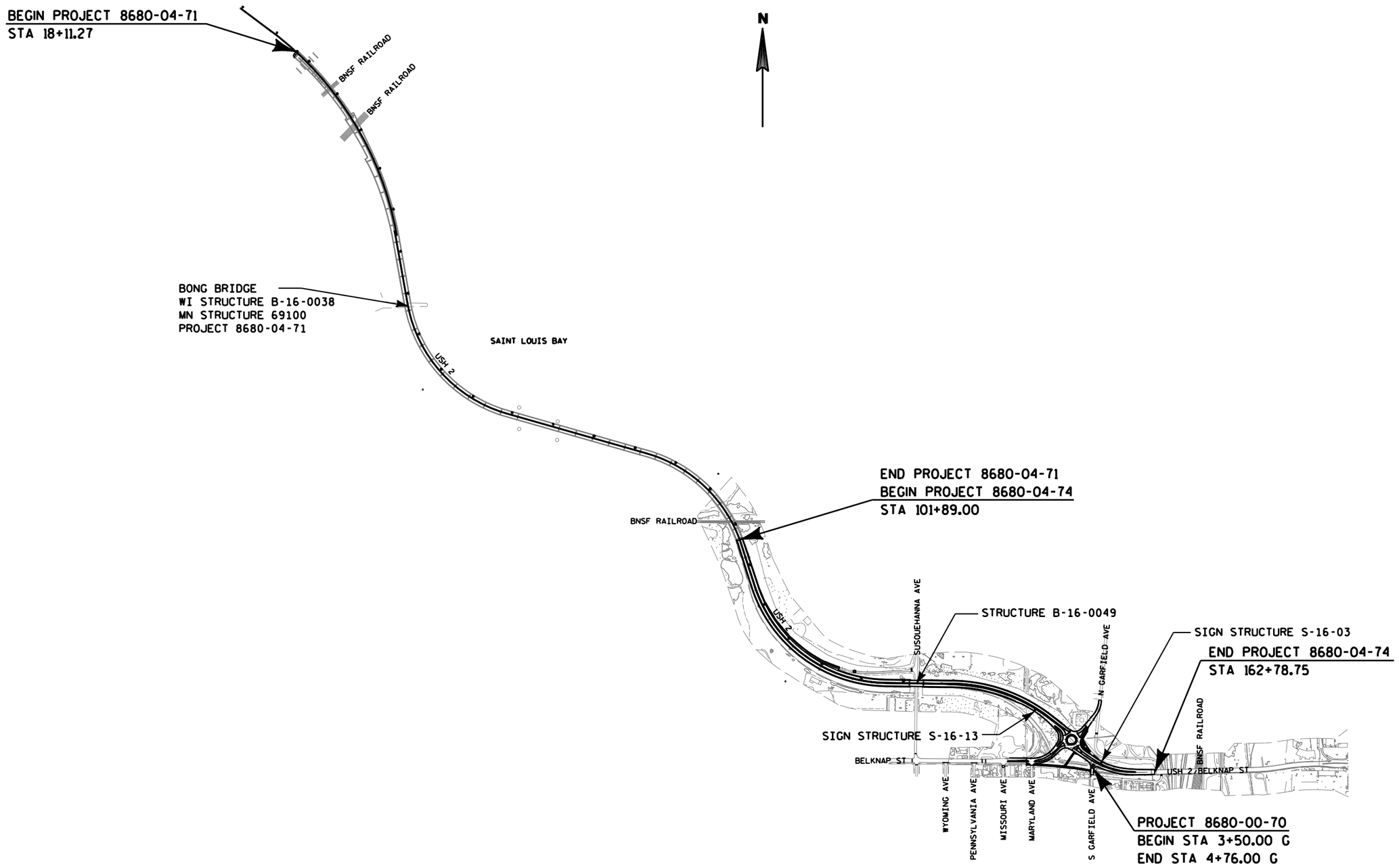
THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.

VERTICAL DATUM ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NGVD29.

ABBREVIATIONS

AC	ACRE	MH	MANHOLE
AH	AHEAD	M/L	MATCH LINE
ASPH	ASPHALTIC	MATL	MATERIAL
BK	BACK	NC	NORMAL CROWN
B/L	BASE LINE	PAVT	PAVEMENT
BM	BENCH MARK	PLE	PERMANENT LIMITED EASEMENT
CB	CATCH BASIN	PP	POWER POLE
C/L	CENTERLINE	PE	PRIVATE ENTRANCE
CE	COMMERCIAL ENTRANCE	PB*	PULL BOX
CONC	CONCRETE	R	RADIUS
CB*	CONTROL BASE	RR	RAILROAD
CP	CULVERT PIPE	R/L	REFERENCE LINE
CPRC	CULVERT PIPE REINFORCED CONCRETE	REINF	REINFORCED
C & G	CURB AND GUTTER	REQD	REQUIRED
D	DEGREE OF CURVE	RHF	RIGHT-HAND FORWARD
DIA	DIAMETER	R/W	RIGHT-OF-WAY
DISCH	DISCHARGE	SALV	SALVAGED
EL	ELEVATION	SHLDR	SHOULDER
EBS	EXCAVATION BELOW SUBGRADE	SPECS	SPECIFICATIONS
EX.EC	EXISTING EDGE OF CONCRETE	SDD	STANDARD DETAIL DRAWINGS
FE	FIELD ENTRANCE	STA	STATION
HES	HIGH EARLY STRENGTH	SS	STORM SEWER
HYD	HYDRANT	SE	SUPERELEVATION
INL	INLET	T	TANGENT
INV	INVERT	TI	TEMPORARY INTEREST
LHF	LEFT-HAND FORWARD	TLE	TEMPORARY LIMITED EASEMENT
L	LENGTH OF CURVE	TYP	TYPICAL

2



PROJECT NO: 8680-00-70/8680-04-71/74	HWY: USH 2	COUNTY: DOUGLAS	PROJECT OVERVIEW	SHEET 3	E

2

144WB

146WB

USH 2 WB

USH 2 EB

148WB

150WB

SIGN STRUCTURE S-16-13
PROJECT ID 8680-04-74
CATEGORY 0040

END CONSTRUCTION
PROJECT ID 8680-04-74
CATEGORY 0070
STA 44+20.00 BE

42BW

N GARFIELD AVE

N

PROJECT ID 8680-04-74
CATEGORY 0070

40BW

PROJECT ID 8680-04-74
CATEGORY 0010

36BW

154WB

30BW

32BW

BELKNAP ST WB

34BW

BELKNAP ST EB

END PROJECT 8680-00-70
STA 4+76.00 G

PROJECT ID 8680-04-74
PROJECT ID 8680-00-70

SIGN STRUCTURE S-16-03
PROJECT ID 8680-04-74
CATEGORY 0050

156WB

32P

34P

36P

48S

38P

158WB

USH 2 WB

160WB

USH 2 EB

40P

PROJECT ID 8680-04-74
CATEGORY 0060

PROJECT ID 8680-04-74
CATEGORY 0010

PROJECT ID 8680-04-74
CATEGORY 0010

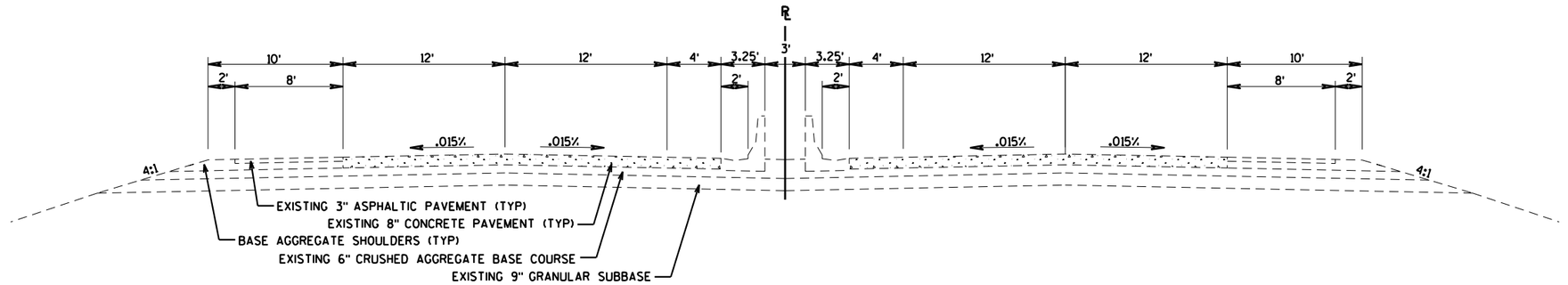
MISSOURI AVE

MARYLAND AVE

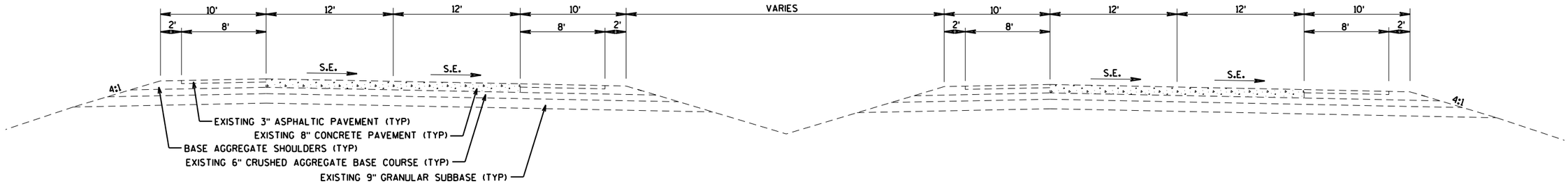
S GARFIELD AVE

BEGIN PROJECT 8680-00-70
STA 3+50.00 G

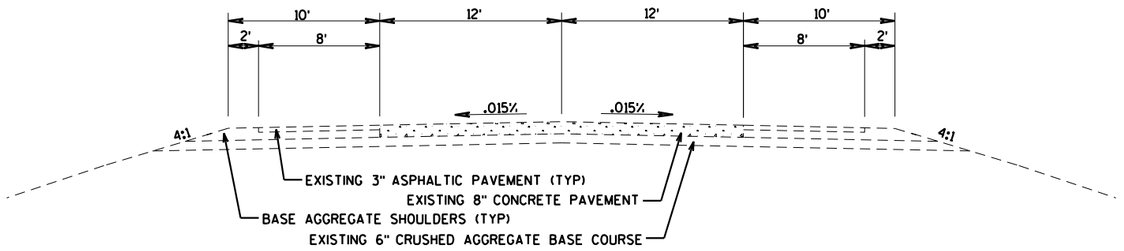
PROJECT NO: 8680-00-70/8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PROJECT BREAKOUT OVERVIEW	SHEET 4	E



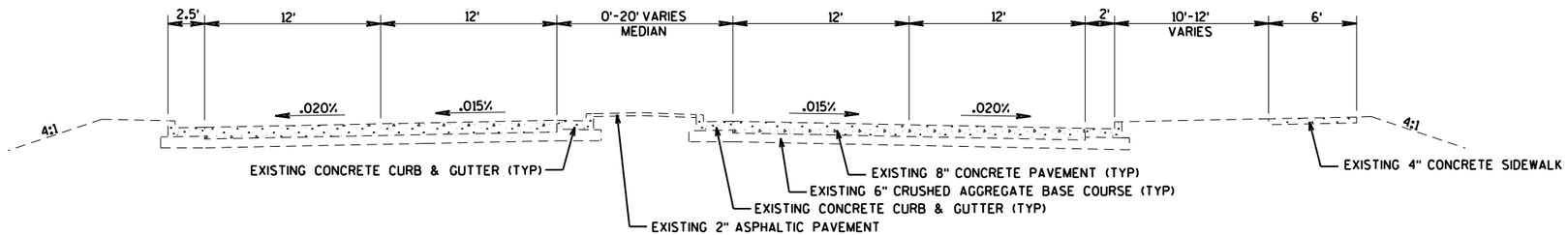
EXISTING TYPICAL SECTION - USH 2



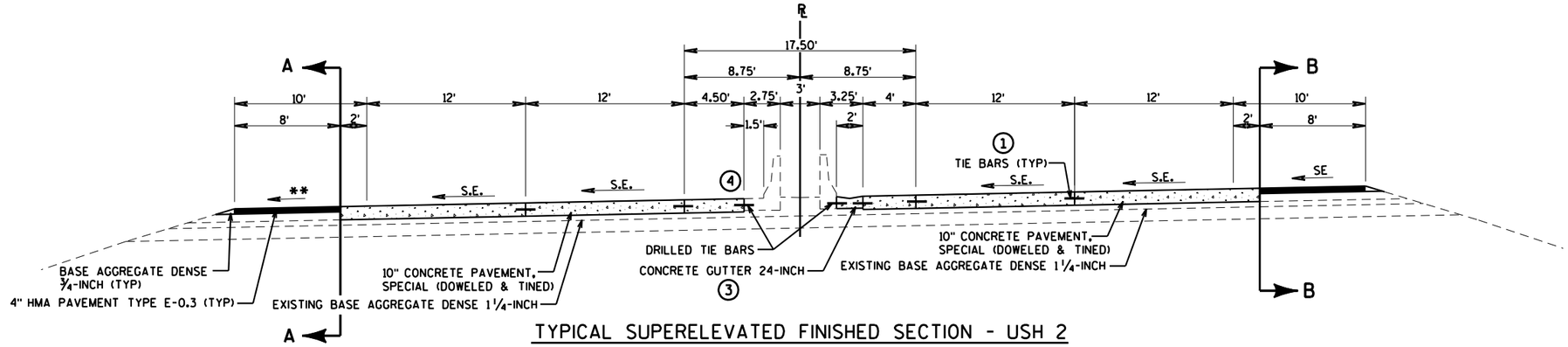
EXISTING TYPICAL SECTION - USH 2



EXISTING TYPICAL SECTION - USH 2 RAMPS

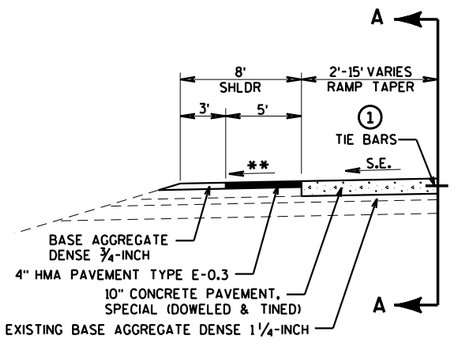


EXISTING TYPICAL SECTION - BELKNAP ST/USH 2



TYPICAL SUPERELEVATED FINISHED SECTION - USH 2

STA 101+72.00 - STA 104+00.00
STA 106+00.00 - STA 134+55.00



SECTION A-A - RAMP

STA 107+76.00 - STA 122+13.00

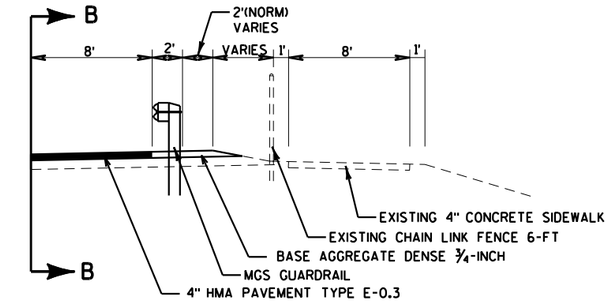
① TIE BARS ARE INCIDENTAL TO CONCRETE PAVEMENT. (UNLESS DRILLED INTO EXISTING PAVEMENT)

③ STA 101+72 - STA 132+20 (EB LANES) CONCRETE BARRIER TO REMAIN. REPLACE THE CONCRETE GUTTER 24-INCH. SAWCUT REQUIRED ALONG BASE OF BARRIER. TIE NEW CONCRETE GUTTER TO EXISTING BARRIER USING DRILLED TIE BARS (#4 REBAR, 1'O.C.).

④ STA 101+72 - STA 134+55 (WB LANES) & STA 132+20 - STA 134+55 (EB LANES) SAWCUT 1.5' FROM EXISTING CONCRETE BARRIER. TIE NEW CONCRETE TO REMAINING CONCRETE GUTTER USING DRILLED TIE BARS (SEE S.D.D.)

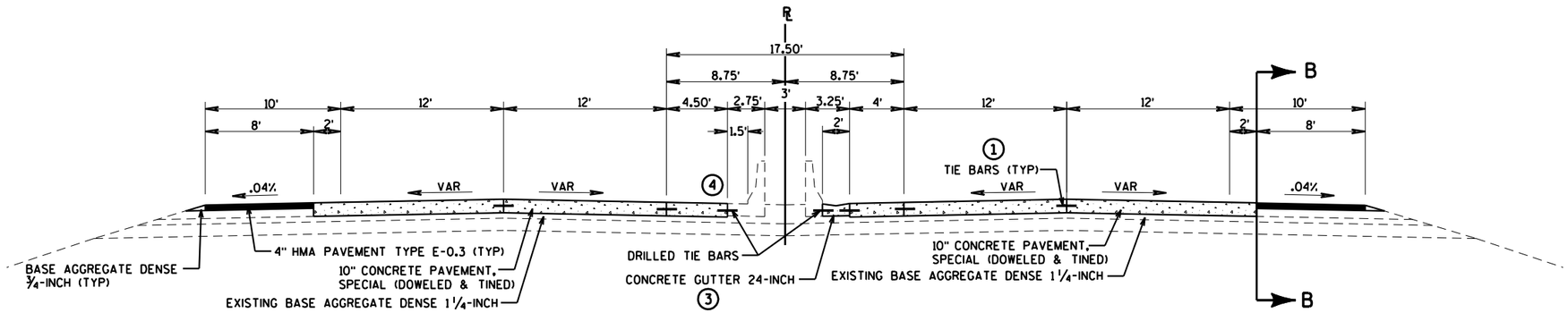
⑥ SEE PIPE UNDERDRAIN LAYOUT SHEET FOR LIMITS.

** THE LOW SIDE SHOULDER SLOPE ON SUPERELEVATED SECTION EQUALS THE SUPERELEVATION RATE WHEN THE SUPERELEVATION RATE IS GREATER THAN 4%. IF THE SUPERELEVATION RATE IS LESS THAN OR EQUAL TO 4%. THE LOW SIDE SHOULDER SLOPE IS 4%. HIGH SIDE SHOULDER SLOPE ON SUPERELEVATED SECTIONS EQUALS THE SUPERELEVATION RATE. SEE SUPERELEVATION TABLES FOR SE



SECTION B-B

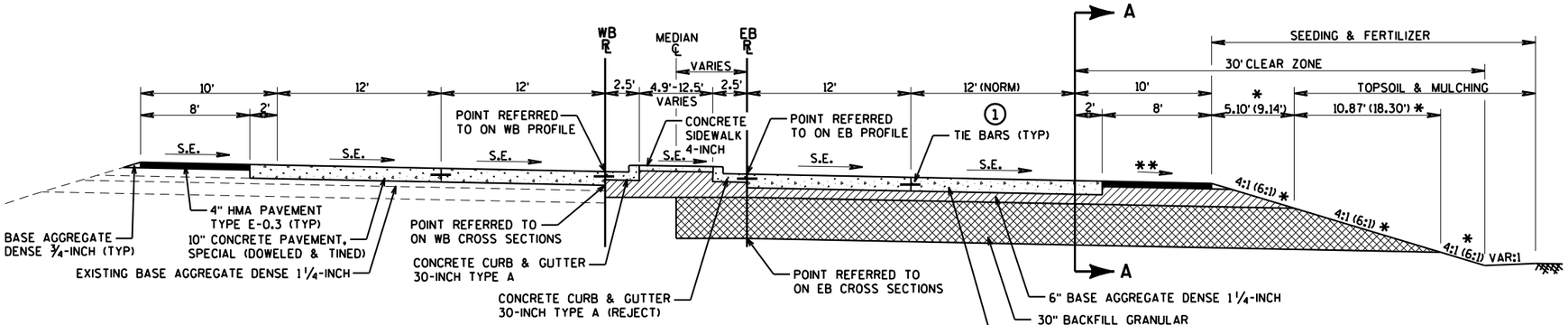
STA 102+10.00 - STA 107+65.00



TYPICAL FINISHED SECTION - USH 2

STA 104+00.00 - STA 106+00.00

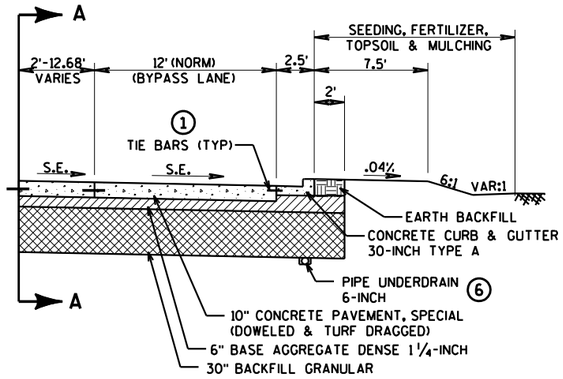
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TYPICAL SECTIONS	SHEET 6	E



TYPICAL SUPERELEVATED FINISHED SECTION - USH 2

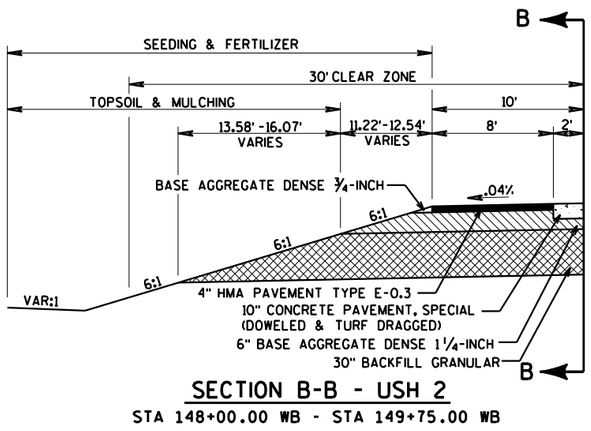
STA 134+55.00 EB - STA 149+00.00 EB
STA 134+55.00 WB - STA 148+00.00 WB

* STA 134+55.00 EB - STA 137+00.00 EB (4:1)
STA 137+00.00 EB - STA 149+00.00 EB (6:1)



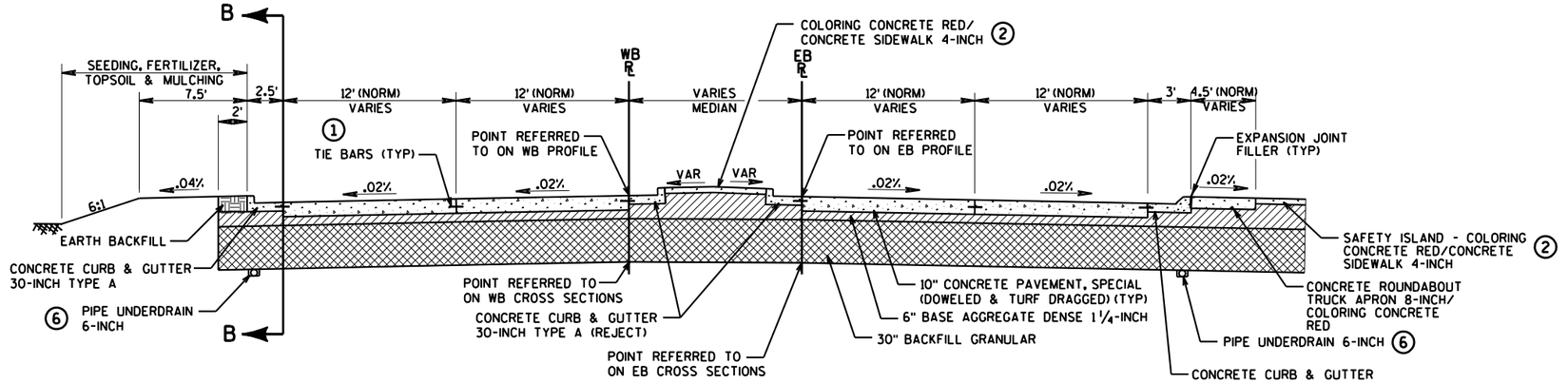
SECTION A-A - USH 2

STA 143+50.00 EB - STA 149+00.00 EB



SECTION B-B - USH 2

STA 148+00.00 WB - STA 149+75.00 WB



TYPICAL FINISHED SECTION - USH 2

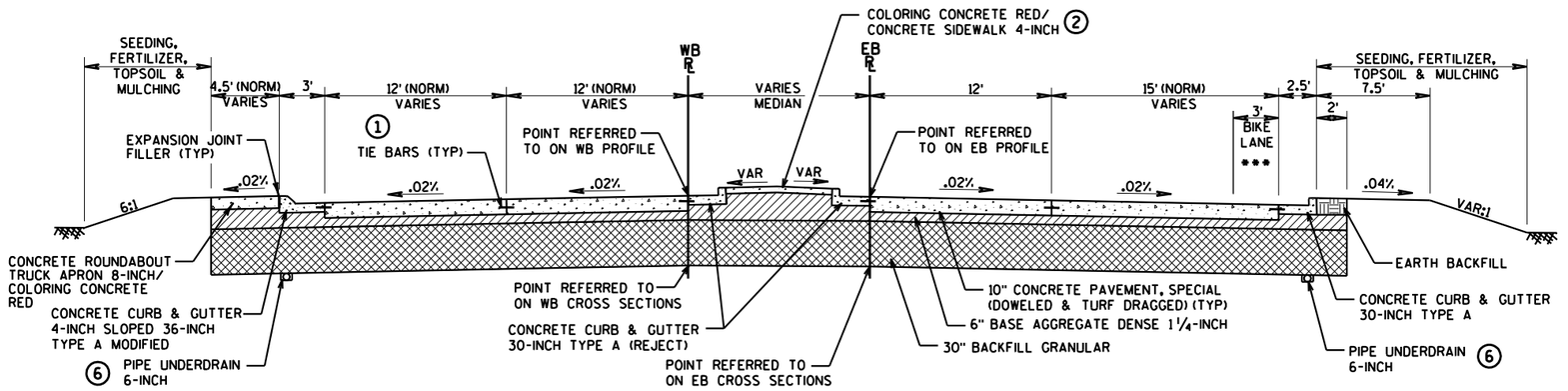
STA 149+00.00 EB - STA 150+75.94 EB
STA 148+00.00 WB - STA 150+96.03 WB

1 TIE BARS ARE INCIDENTAL TO CONCRETE PAVEMENT. (UNLESS DRILLED INTO EXISTING PAVEMENT)

2 SEE INTERSECTION DETAILS FOR LIMITS OF CONCRETE SIDEWALK 4-INCH, COLORING CONCRETE RED/CONCRETE SIDEWALK 4-INCH, AND COLORING CONCRETE RED/ CONCRETE ROUNDABOUT TRUCK APRON 8-INCH.

6 SEE PIPE UNDERDRAIN LAYOUT SHEET FOR LIMITS.

** THE LOW SIDE SHOULDER SLOPE ON SUPERELEVATED SECTION EQUALS THE SUPERELEVATION RATE WHEN THE SUPERELEVATION RATE IS GREATER THAN 4%. IF THE SUPERELEVATION RATE IS LESS THAN OR EQUAL TO 4%. THE LOW SIDE SHOULDER SLOPE IS 4%. HIGH SIDE SHOULDER SLOPE ON SUPERELEVATED SECTIONS EQUALS THE SUPERELEVATION RATE. SEE SUPERELEVATION TABLES FOR SE

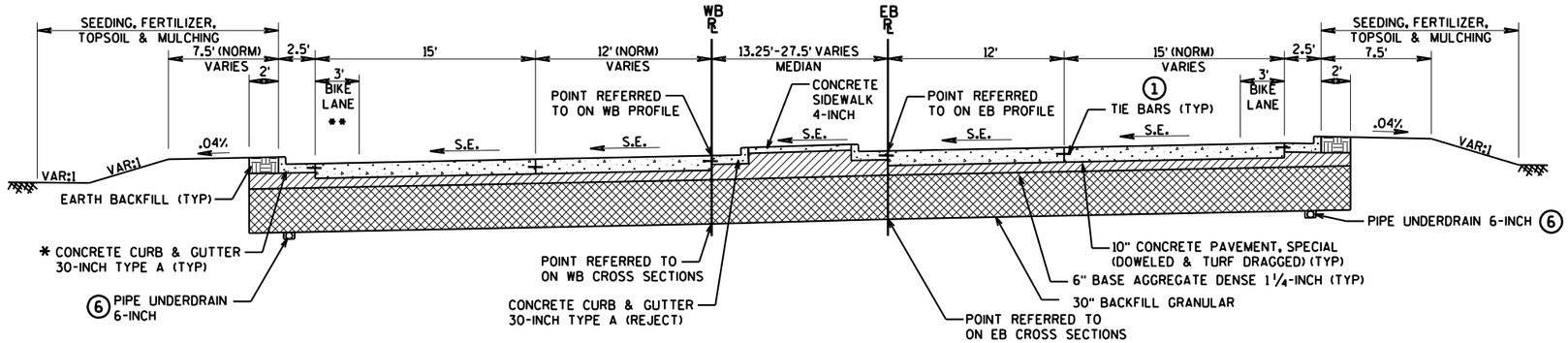


TYPICAL FINISHED SECTION - USH 2

STA 152+55.76 EB - STA 154+00.00 EB
STA 152+78.81 WB - STA 154+00.00 WB

*** STA 153+06.56 EB, RT
BEGIN 3' BIKE LANE

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TYPICAL SECTIONS	SHEET 7	E

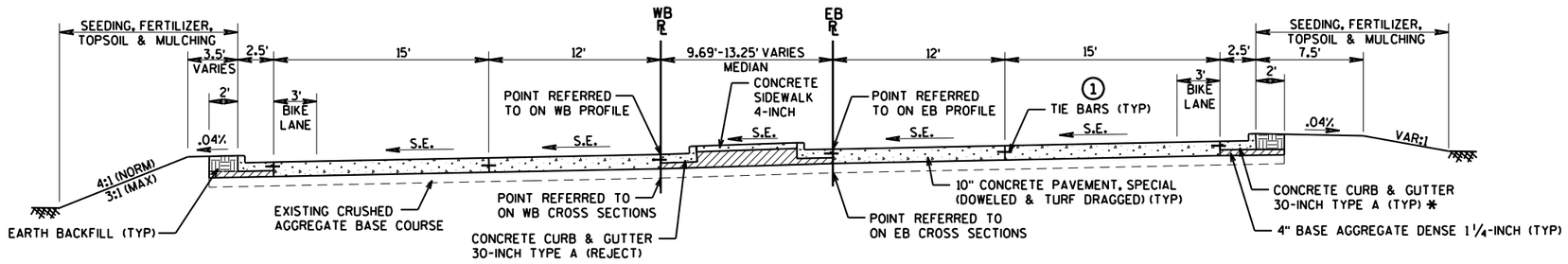


** STA 154+39.00 WB, LT
BEGIN 3' BIKE LANE

* STA 154+00.00 - STA 154+39.00, LT
CONCRETE CURB & GUTTER 4-INCH
SLOPED 36-INCH TYPE R

TYPICAL FINISHED SECTION - USH 2

STA 154+00.00 EB - STA 157+50.00 EB
STA 154+00.00 WB - STA 157+50.00 WB



TYPICAL FINISHED SECTION - USH 2

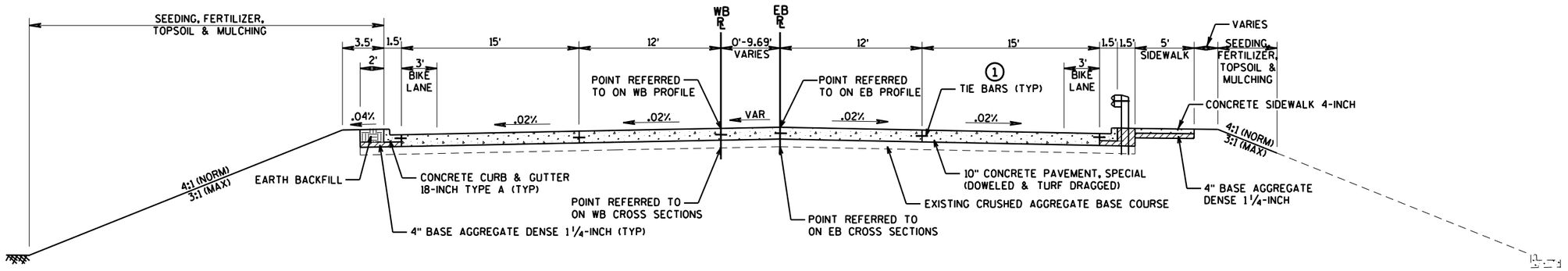
STA 157+50.00 EB - STA 160+58.80 EB
STA 157+50.00 WB - STA 160+52.55 WB

* STA 159+50.00 EB, RT
STA 159+50.00 WB, LT
BEGIN CONCRETE CURB & GUTTER 18-INCH TYPE A
BEGIN CONCRETE SIDEWALK 4-INCH

① TIE BARS ARE INCIDENTAL TO CONCRETE PAVEMENT. (UNLESS DRILLED INTO EXISTING PAVEMENT)

⑥ SEE PIPE UNDERDRAIN LAYOUT SHEET FOR LIMITS.

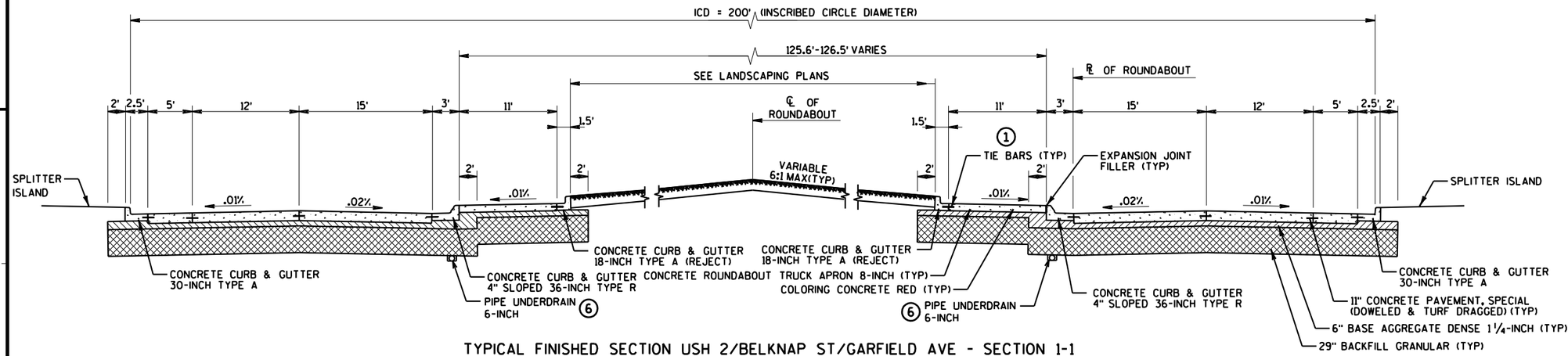
⑦ SHAPING BEHIND THE CURB IS INCIDENTAL TO PLACEMENT OF THE CURB.



TYPICAL FINISHED SECTION - USH 2

STA 160+58.80 EB - STA 162+78.75 EB
STA 160+52.55 WB - STA 162+00.00 WB

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TYPICAL SECTIONS	SHEET 8	E

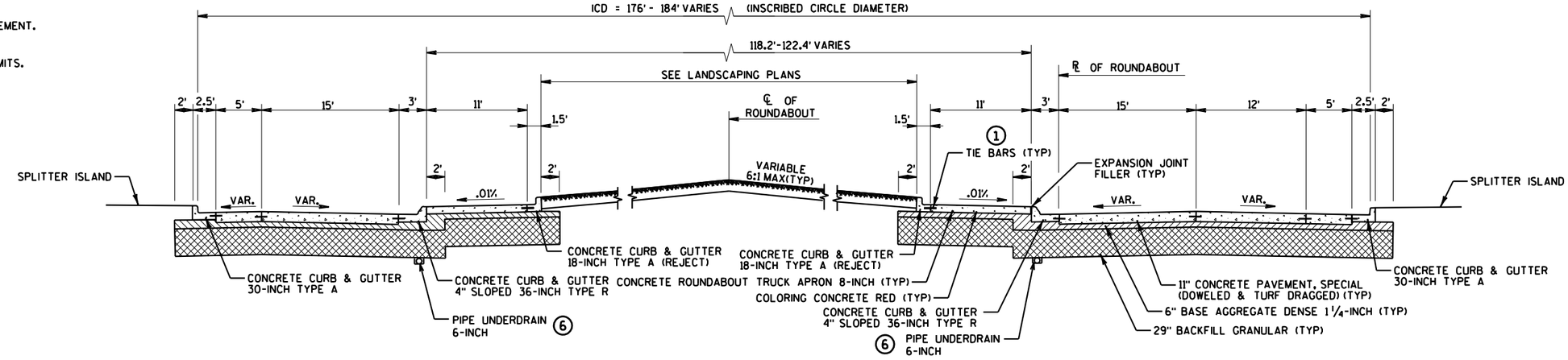


TYPICAL FINISHED SECTION USH 2/BELKNAP ST/GARFIELD AVE - SECTION 1-1

ROUNDABOUT DETAIL

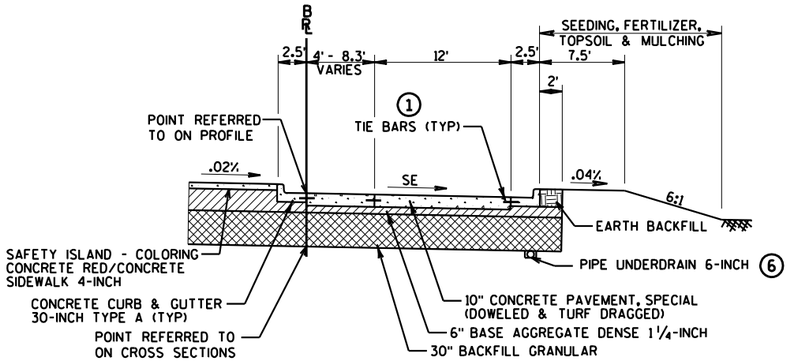
(1) TIE BARS ARE INCIDENTAL TO CONCRETE PAVEMENT. (UNLESS DRILLED INTO EXISTING PAVEMENT)

(6) SEE PIPE UNDERDRAIN LAYOUT SHEET FOR LIMITS.



TYPICAL FINISHED SECTION USH 2/BELKNAP ST/GARFIELD AVE - SECTION 2-2

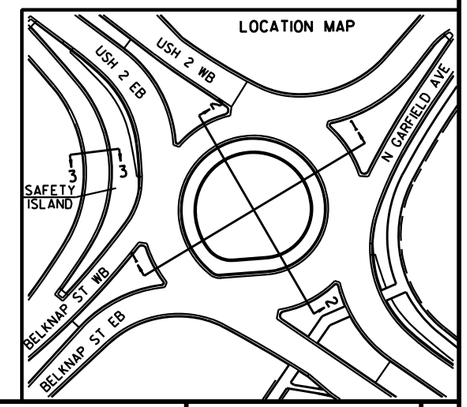
ROUNDABOUT DETAIL



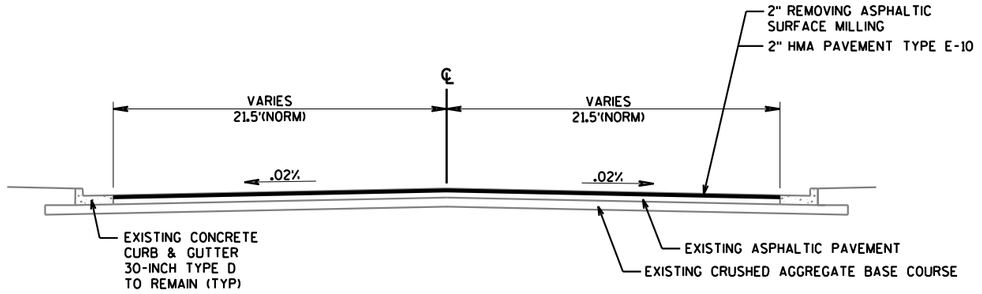
TYPICAL FINISHED SECTION USH 2 RAMPS - SECTION 3-3

PARTIAL BYPASS LANE

STA 149+00.00 B - STA 151+61.71 B

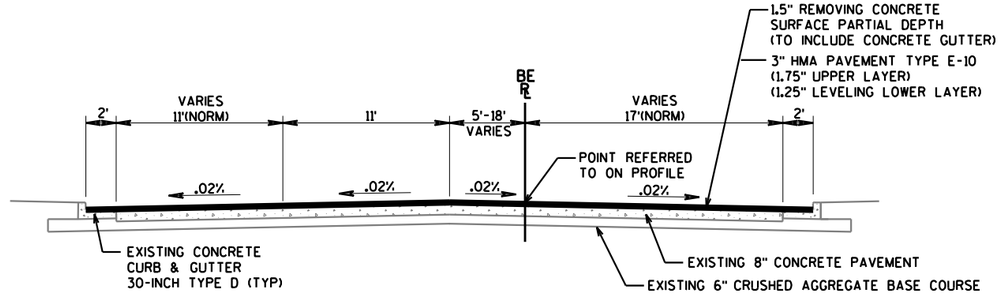


PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TYPICAL SECTIONS	SHEET 9	E



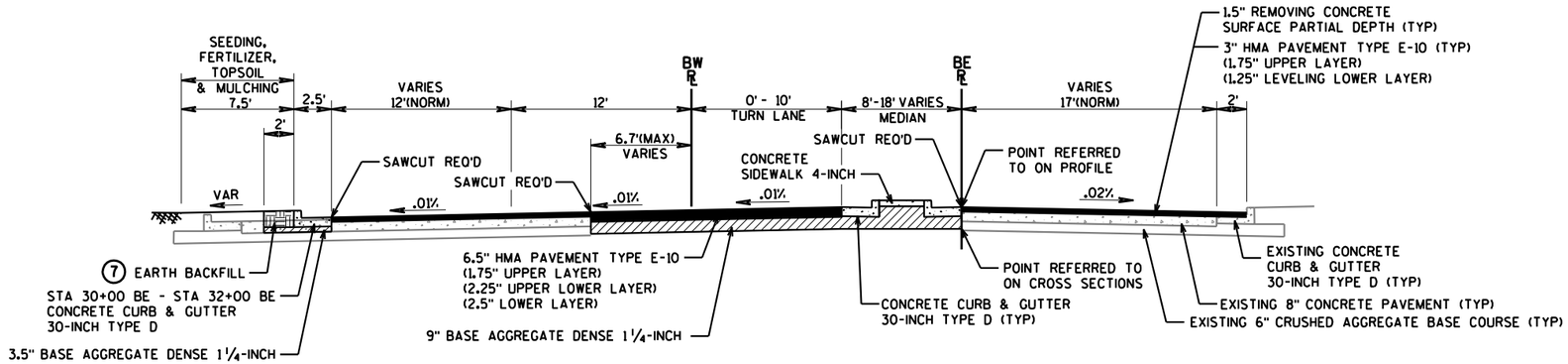
TYPICAL FINISHED SECTION - BELKNAP ST

SUSQUEHANNA AVE - STA 26+82.00 BE
(INCLUDE THE SUSQUEHANNA INTERSECTION)



TYPICAL FINISHED SECTION - BELKNAP ST

STA 26+82.00 BE - STA 29+75.00 BE

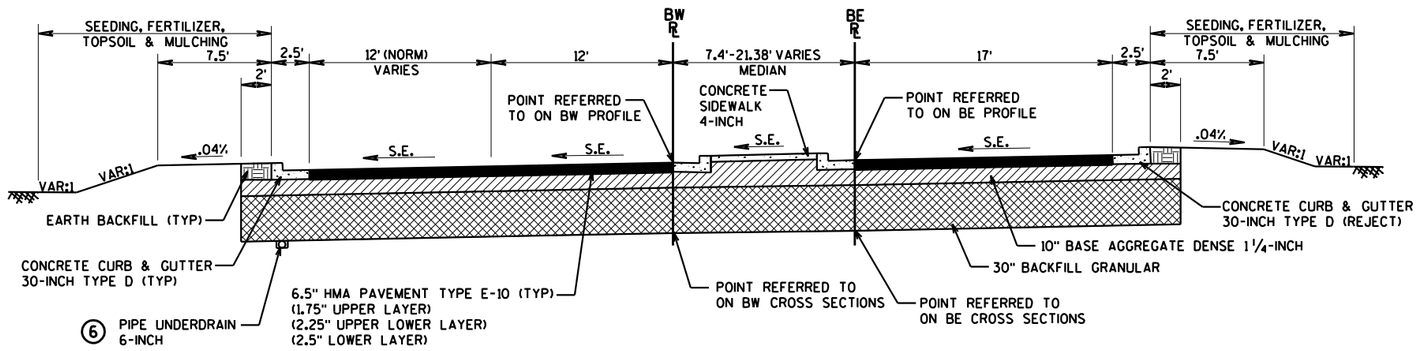


TYPICAL FINISHED SECTION - BELKNAP ST

STA 29+75.00 BE - STA 32+00.00 BE

⑥ SEE PIPE UNDERDRAIN LAYOUT SHEET FOR LIMITS.

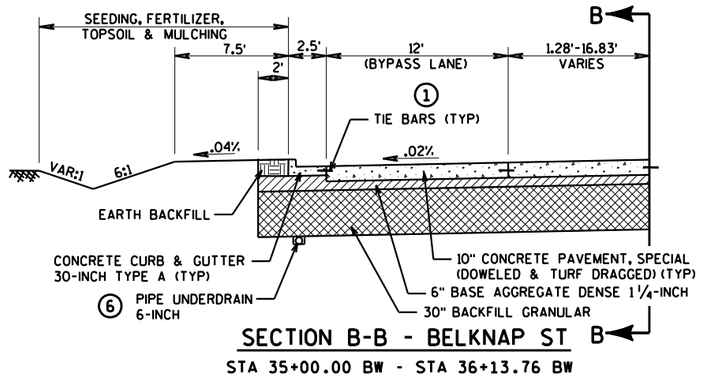
⑦ SHAPING BEHIND THE CURB IS INCIDENTAL TO PLACEMENT OF THE CURB.



TYPICAL SUPERELEVATED FINISHED SECTION - BELKNAP ST

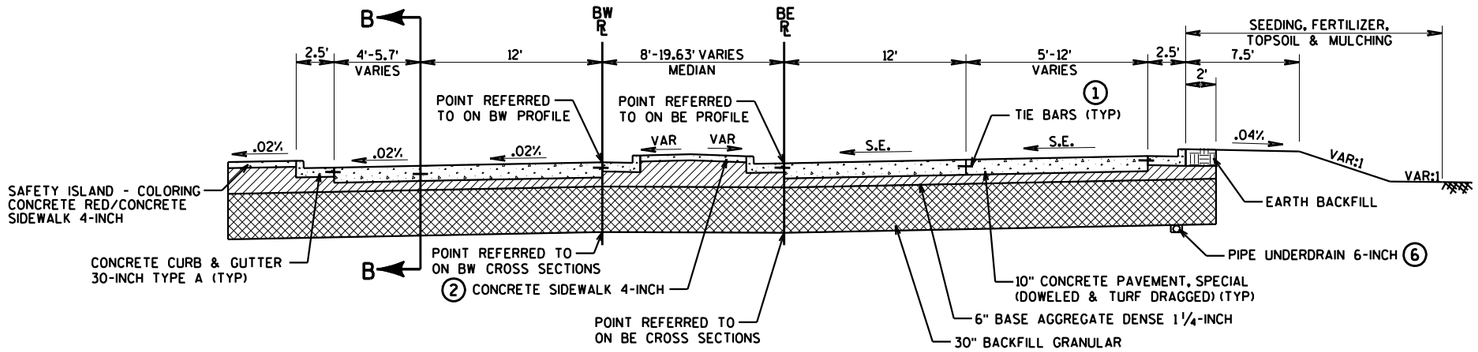
STA 32+00.00 BE - STA 35+00.00 BE

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TYPICAL SECTIONS	SHEET 10	E



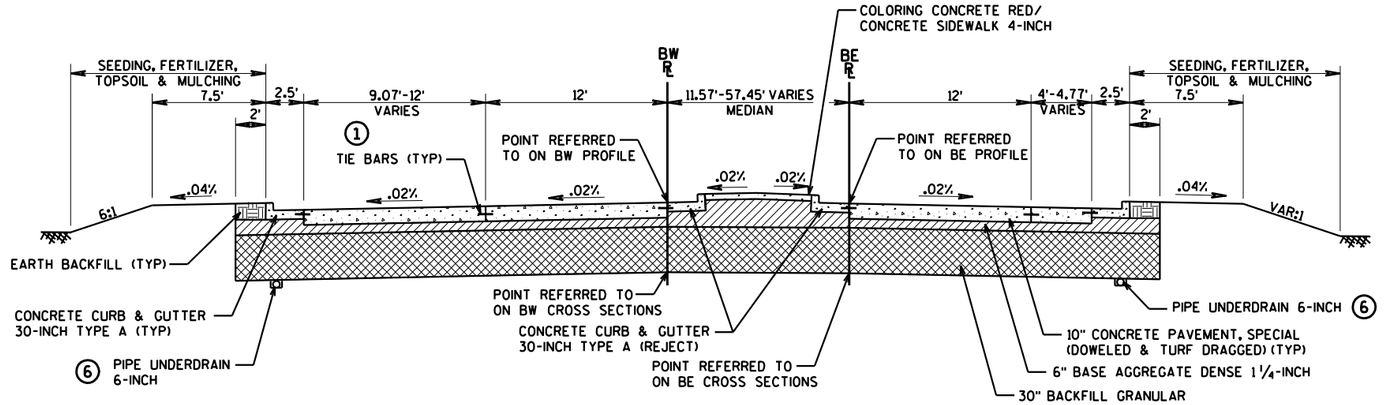
SECTION B-B - BELKNAP ST

STA 35+00.00 BW - STA 36+13.76 BW



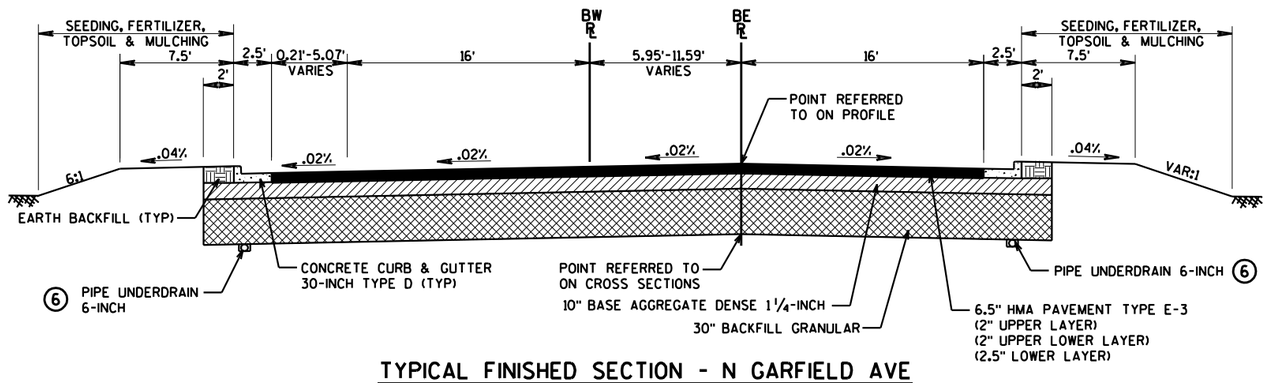
TYPICAL FINISHED SECTION - BELKNAP ST

STA 35+00.00 BE - STA 37+10.69 BE
STA 35+00.00 BW - STA 36+98.11 BW



TYPICAL FINISHED SECTION - N GARFIELD AVE

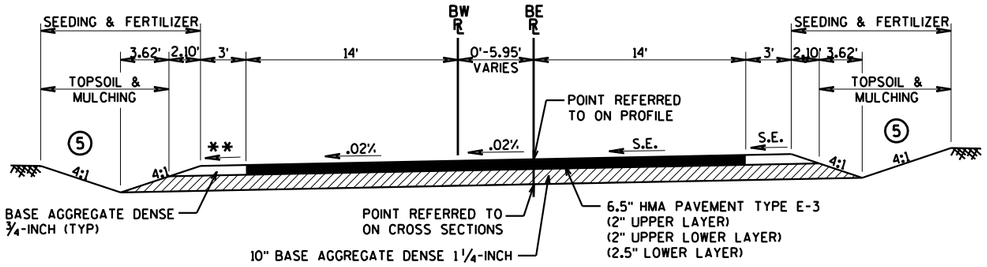
STA 39+21.00 BE - STA 40+64.50 BE
STA 38+99.00 BW - STA 40+33.80 BW



TYPICAL FINISHED SECTION - N GARFIELD AVE

STA 40+64.50 BE - STA 41+50.00 BE

1. TIE BARS ARE INCIDENTAL TO CONCRETE PAVEMENT. (UNLESS DRILLED INTO EXISTING PAVEMENT)
2. SEE INTERSECTION DETAILS FOR LIMITS OF CONCRETE SIDEWALK 4-INCH, COLORING CONCRETE RED/CONCRETE SIDEWALK 4-INCH, AND COLORING CONCRETE RED/ CONCRETE ROUNDABOUT TRUCK APRON 8-INCH.
6. SEE PIPE UNDERDRAIN LAYOUT SHEET FOR LIMITS.

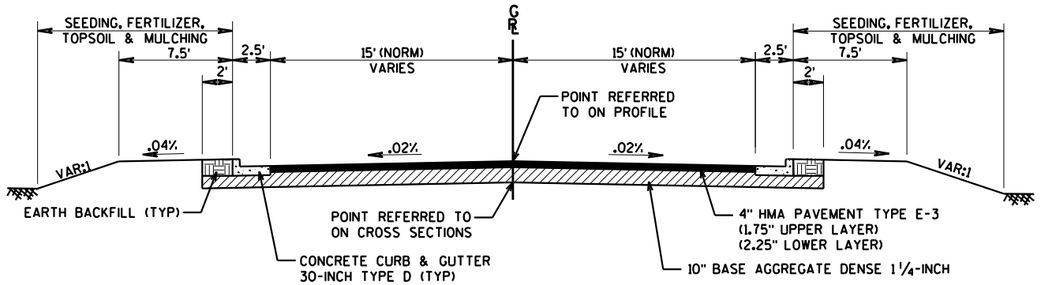


TYPICAL FINISHED SECTION - N GARFIELD AVE

STA 41+50.00 BE - STA 44+20.00 BE

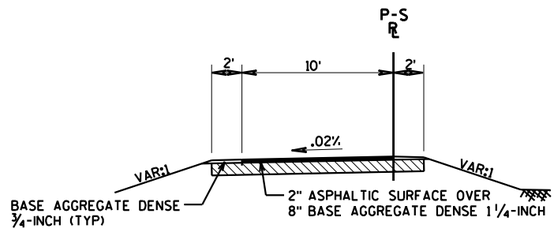
(5) SEE CROSS SECTIONS FOR SPECIAL DITCH LOCATIONS.

** THE LOW SIDE SHOULDER SLOPE ON SUPERELEVATED SECTION EQUALS THE SUPERELEVATION RATE WHEN THE SUPERELEVATION RATE IS GREATER THAN 4%. IF THE SUPERELEVATION RATE IS LESS THAN OR EQUAL TO 4%. THE LOW SIDE SHOULDER SLOPE IS 4%. HIGH SIDE SHOULDER SLOPE ON SUPERELEVATED SECTIONS EQUALS THE SUPERELEVATION RATE. SEE SUPERELEVATION TABLES FOR SE



TYPICAL FINISHED SECTION - S GARFIELD AVE

STA 3+50.00 G - STA 4+25.00 G



TYPICAL FINISHED SECTION - MULTI-USE PATH

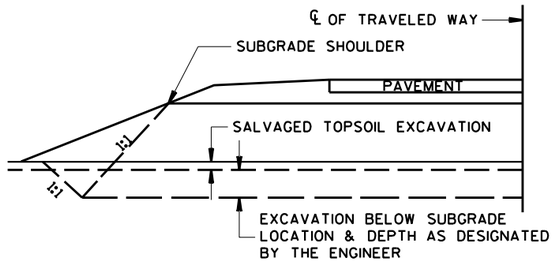
STA 32+86.00 P - STA 39+54.00 P
STA 47+68.84 S - STA 49+75.37 S

PROJECT NO: 8680-00-70/8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TYPICAL SECTIONS	SHEET 12	E

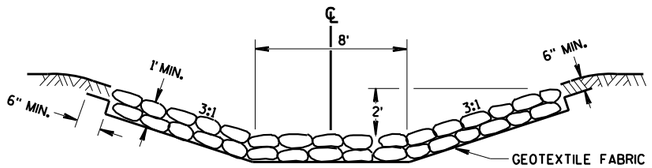
RUNOFF COEFFICIENT TABLE

	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											

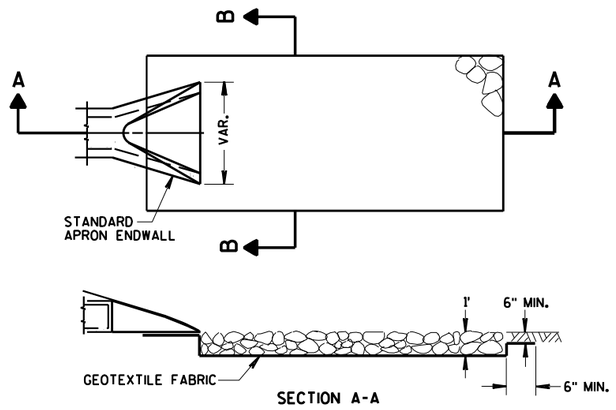
TOTAL PROJECT AREA = 61.1 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 14.2 ACRES



DETAIL FOR EXCAVATION BELOW SUBGRADE



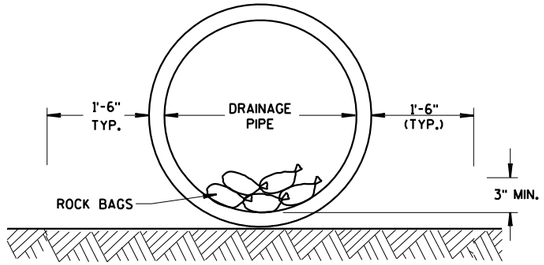
SECTION B-B



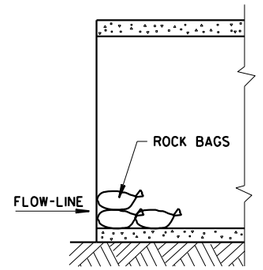
SECTION A-A

RIPRAP AND GEOTEXTILE FABRIC DETAIL

NOTE: SEE MISCELLANEOUS QUANTITIES FOR TYPE OF RIPRAP AND GEOTEXTILE FABRIC TO BE USED.



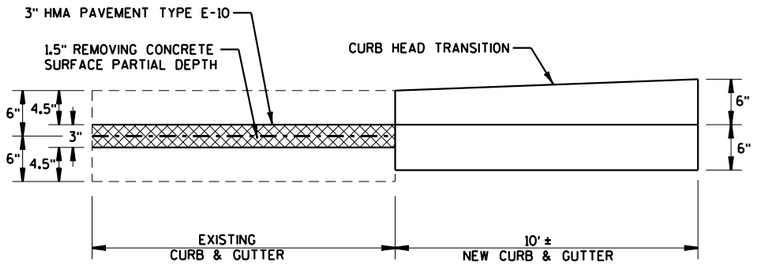
FRONT VIEW



SECTION VIEW

CULVERT PIPE CHECKS

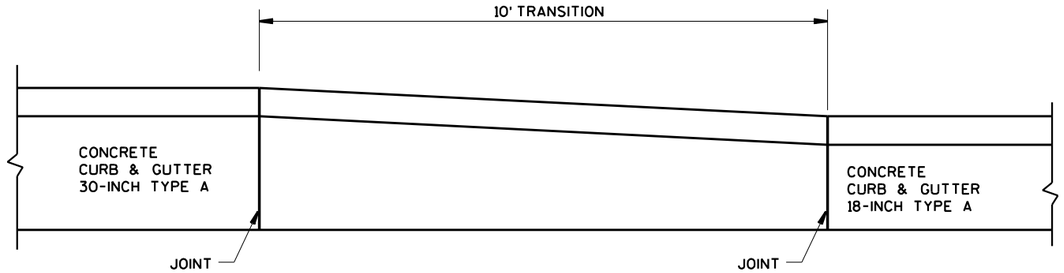
(PLACE AT ALL INLET ENDS OF ALL PIPES)



FRONT VIEW

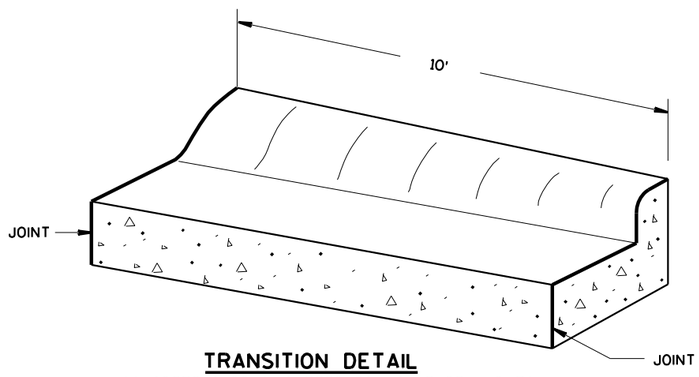
CURB HEAD TRANSITION DETAIL

STA 31+90 BE - STA 32+00 BE, RT
STA 29+97 BW - STA 30+07 BW, LT



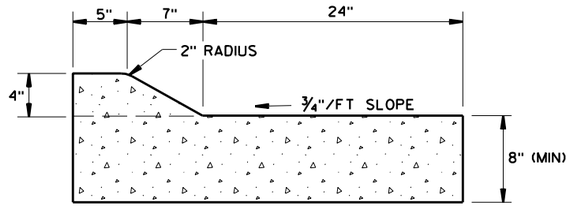
30-INCH TO 18-INCH TRANSITION DETAIL

CONCRETE CURB & GUTTER 30-INCH TYPE A TO
CONCRETE CURB & GUTTER 18-INCH TYPE A
(TO BE MEASURED & PAID FOR AS CONCRETE
CURB & GUTTER 30-INCH TYPE A)

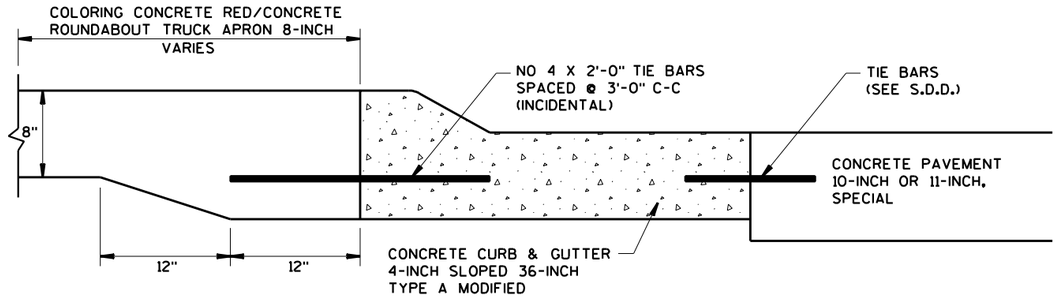


TRANSITION DETAIL

CONCRETE CURB & GUTTER 36-INCH TYPE A/D TO
CONCRETE CURB & GUTTER 30-INCH TYPE A/D
(TO BE MEASURED & PAID FOR AS CONCRETE
CURB & GUTTER 36-INCH TYPE A/D)

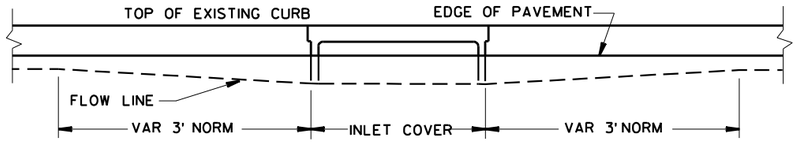


DETAIL FOR CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE A MODIFIED

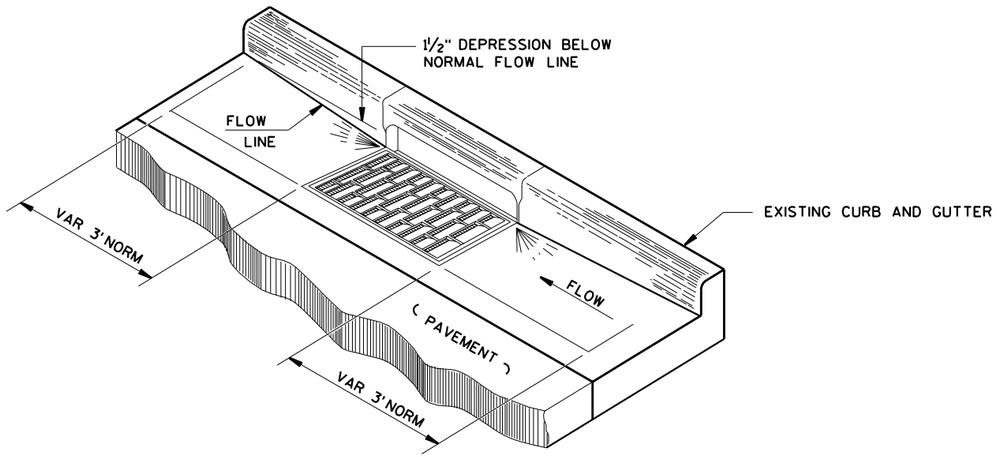


TRUCK OVERTRACKING PAD DETAIL

PROJECT NO: 8680-00-70/8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CONSTRUCTION DETAILS	SHEET 14	E

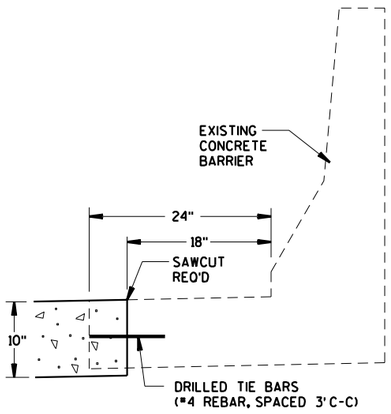


ELEVATION

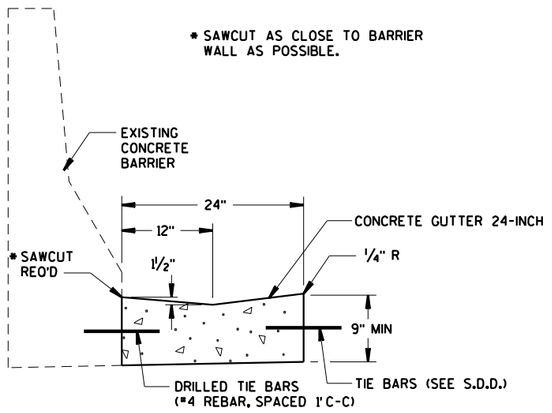


INLET DEPRESSION DETAIL

(BELKNAP CONCRETE MILL & OVERLAY)

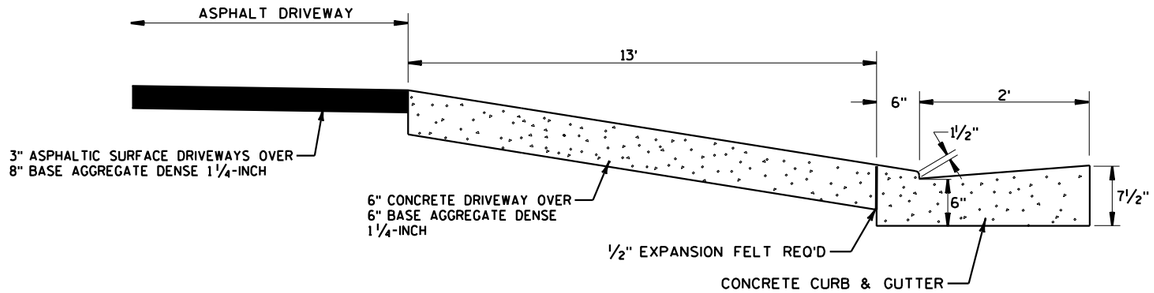


STA 101+72 - STA 130+86 (WB LANES, RT)
STA 132+21 - STA 134+56
(EB LANES, LT & WB LANES, RT)

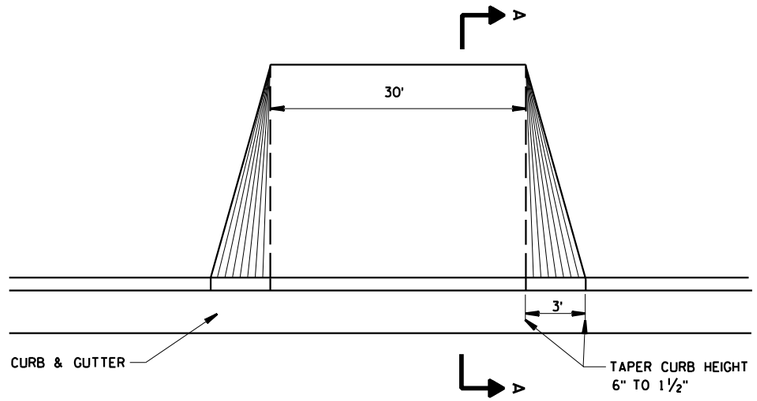


STA 101+72 - STA 130+86 (EB LANES, LT)

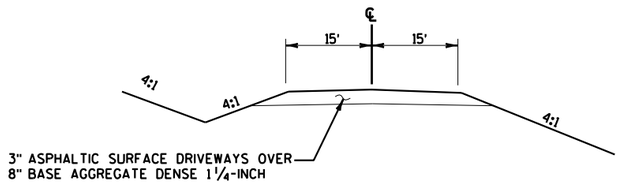
MEDIAN BARRIER DETAIL



SECTION A-A



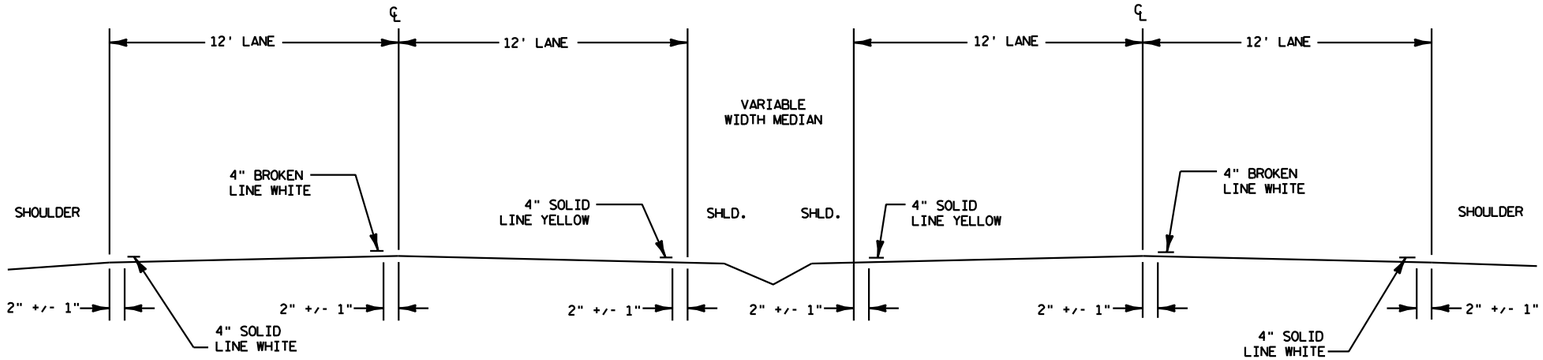
PLAN VIEW



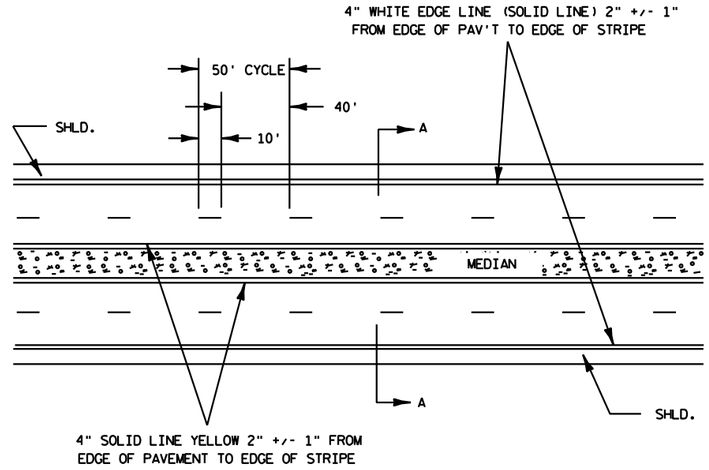
CROSS SECTION

COMMERCIAL ENTRANCE

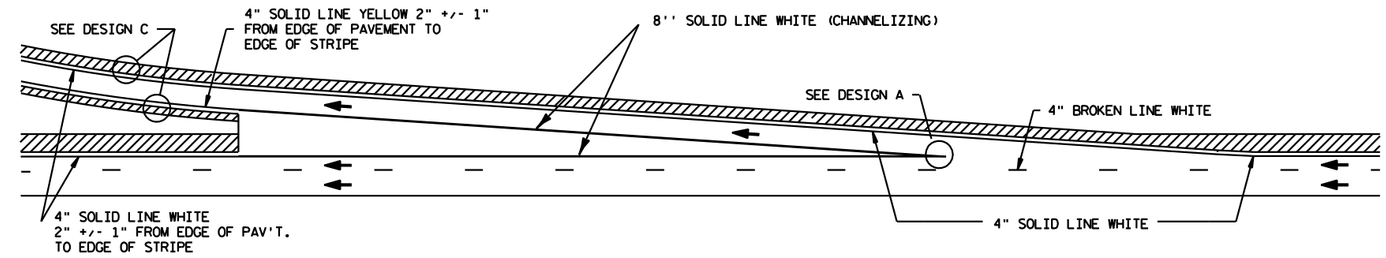
STA 41+00 BE, RT



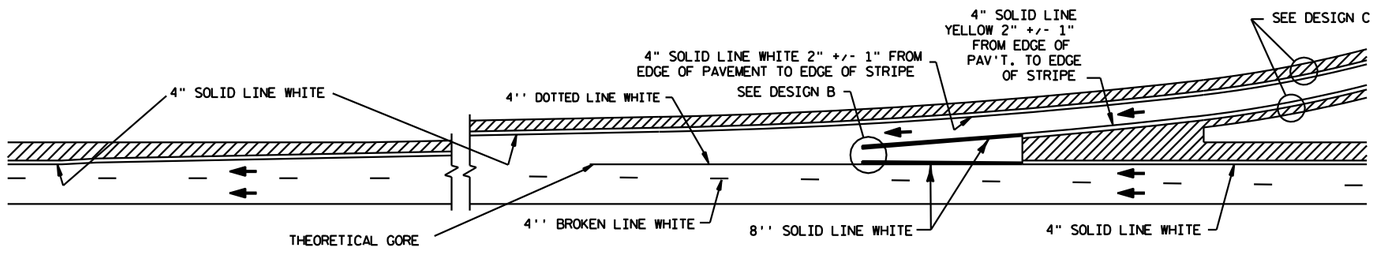
SECTION A-A
FOUR LANES



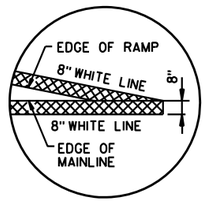
TYPICAL 4-LANE DIVIDED LANE MARKINGS



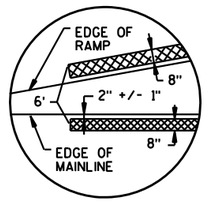
TAPERED EXIT RAMP MARKINGS



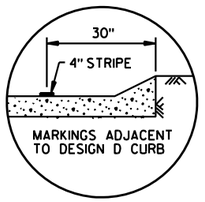
TAPERED ACCELERATION LANE



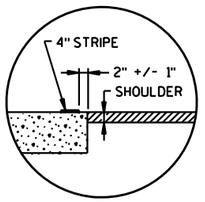
DESIGN A



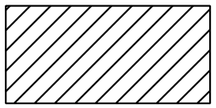
DESIGN B



DESIGN C
URBAN



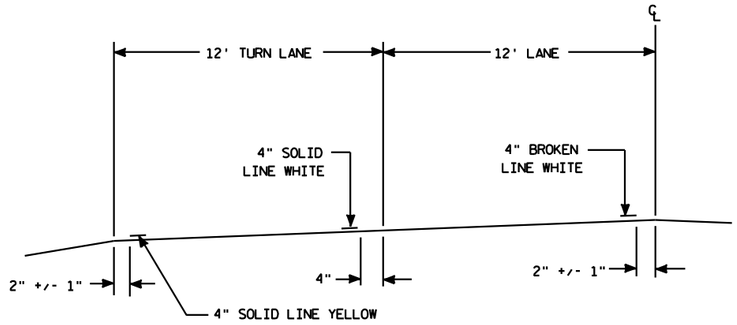
DESIGN C
RURAL



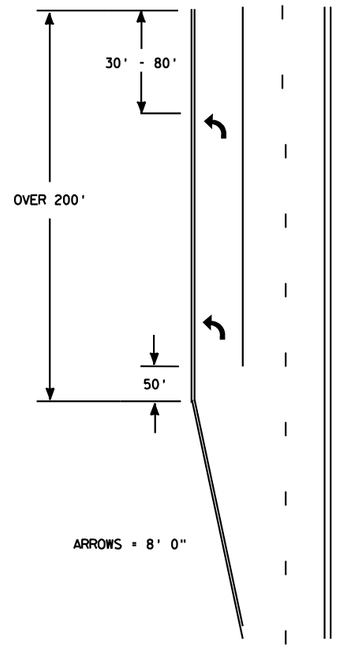
SHOULDER AREA

PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	TYPICAL MINNESOTA PAVEMENT MARKING DETAILS	SHEET 16	E

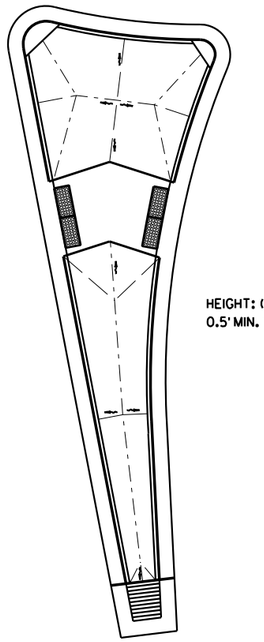
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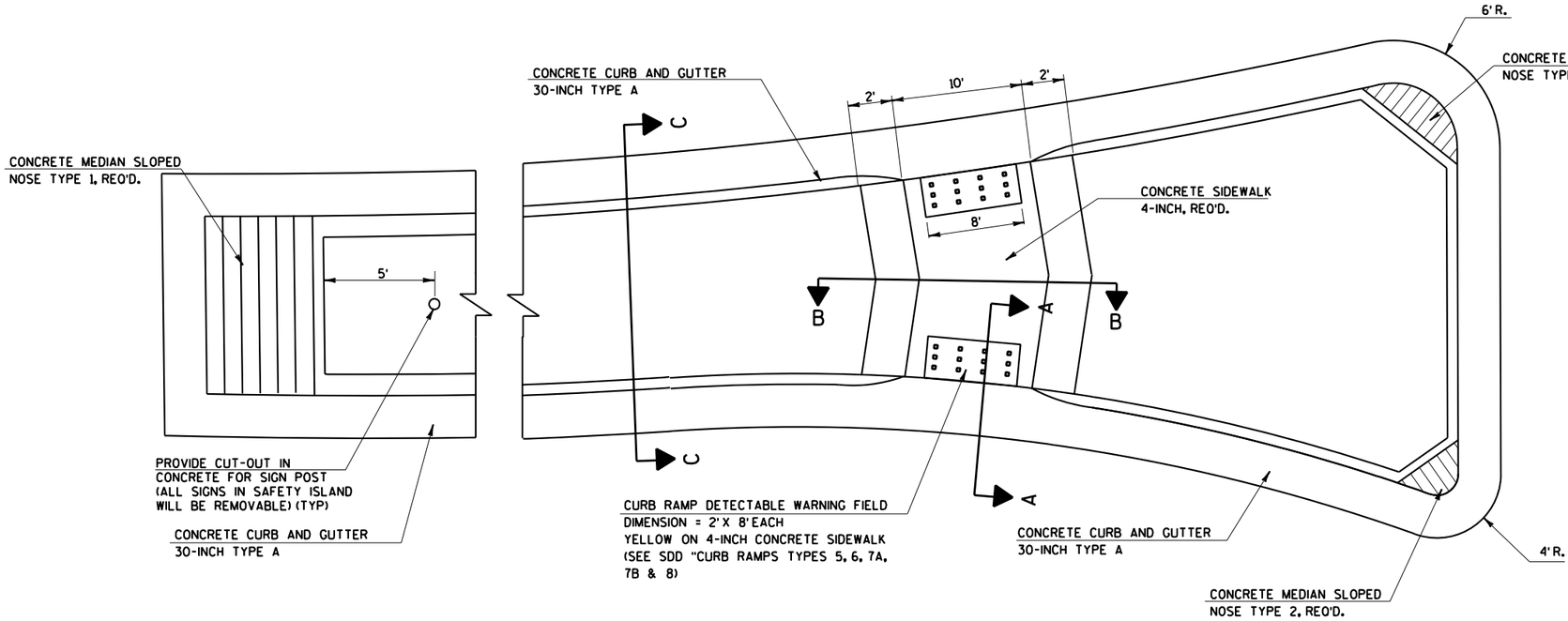
TYPICAL LEFT TURN LANE



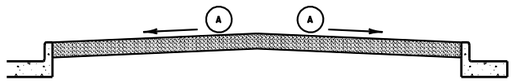
TYPICAL MESSAGE PLACEMENT FOR TURN LANES



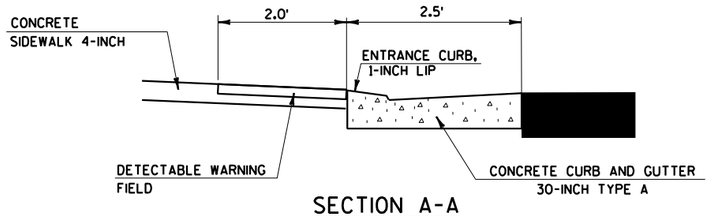
HEIGHT: (ABOVE TOP OF CURB)
0.5' MIN. TO 1.5' MAX.



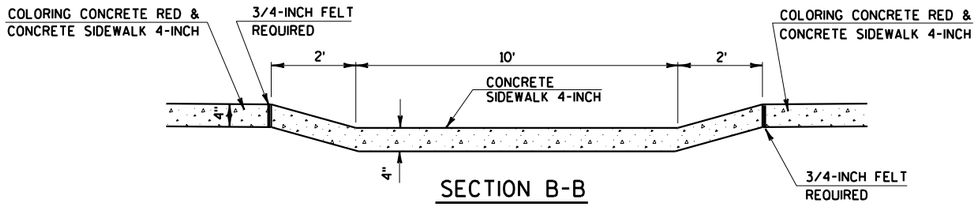
SPLITTER ISLAND DETAIL



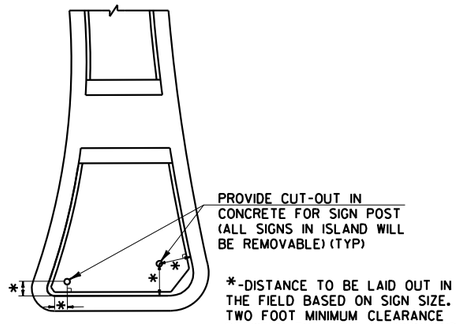
SECTION C-C



SECTION A-A

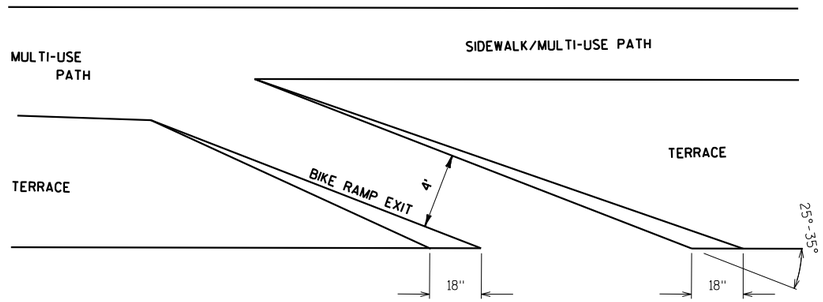


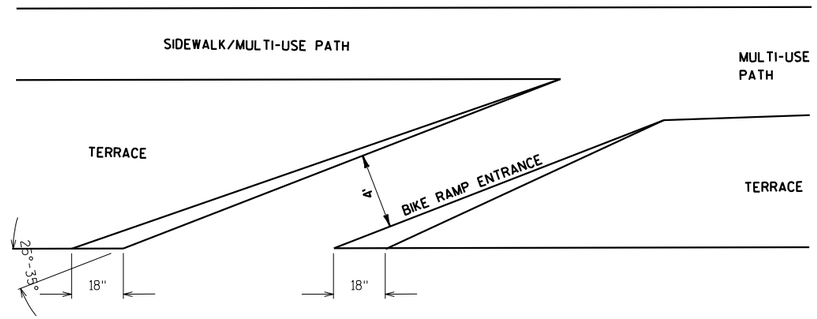
SECTION B-B



ISLAND SIGN LOCATION DETAIL (TYP)

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CONSTRUCTION DETAILS	SHEET 18	E

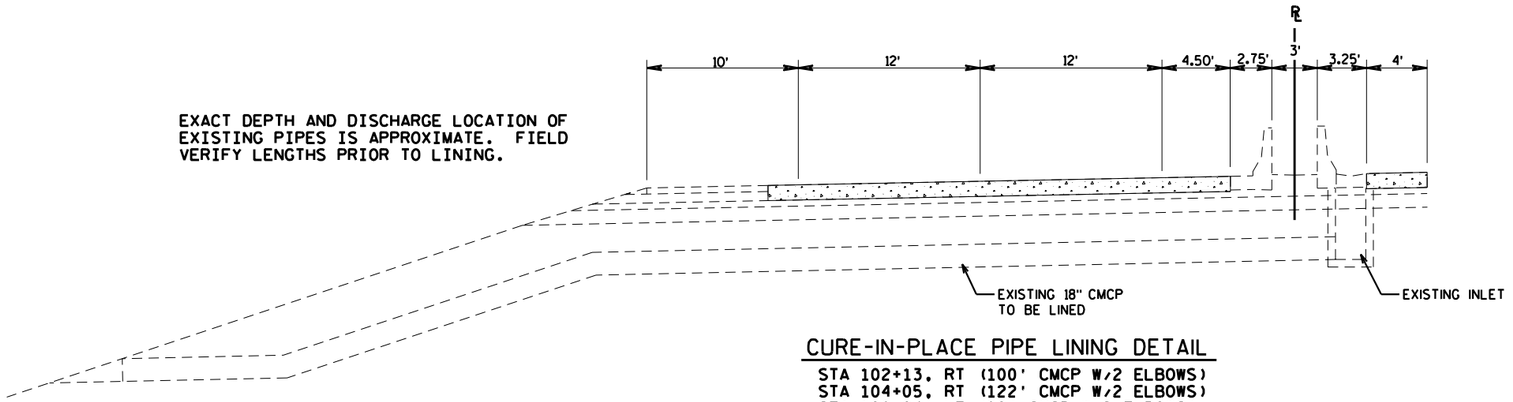




BIKE RAMP ENTRANCE AND EXIT

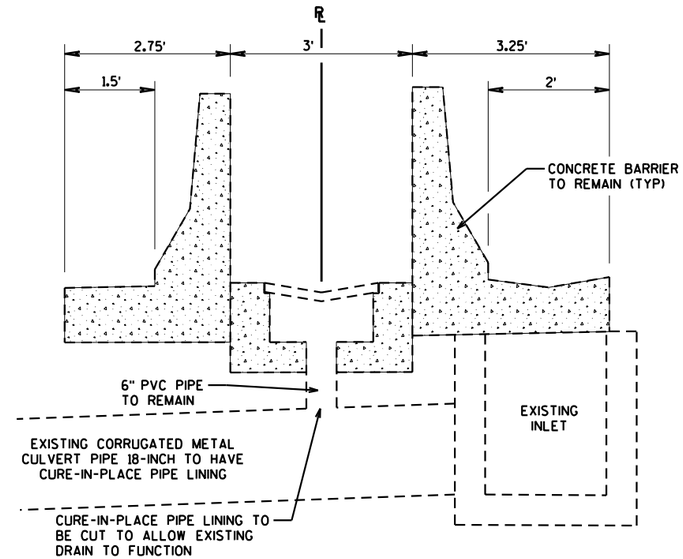
EB, WB & BE ALIGNMENTS
PAID FOR AS CONCRETE SIDEWALK 4-INCH

EXACT DEPTH AND DISCHARGE LOCATION OF EXISTING PIPES IS APPROXIMATE. FIELD VERIFY LENGTHS PRIOR TO LINING.



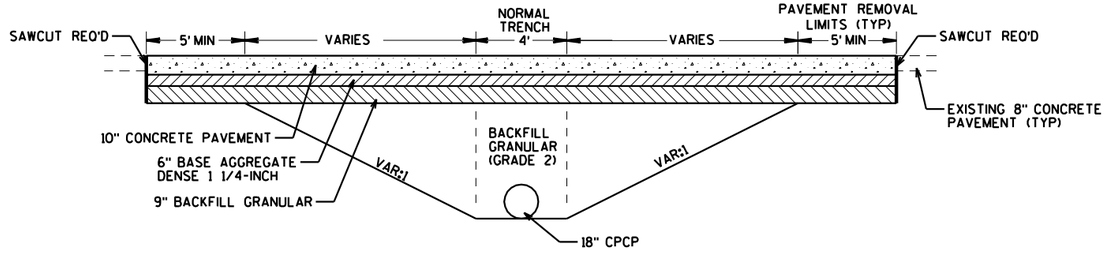
CURE-IN-PLACE PIPE LINING DETAIL

STA 102+13, RT (100' CMCP W/2 ELBOWS)
STA 104+05, RT (122' CMCP W/2 ELBOWS)
STA 108+04, LT (80' CMCP W/2 ELBOWS)
STA 111+83, LT (86' CMCP W/2 ELBOWS)
STA 116+03, LT (11' CMCP)
STA 120+04, LT (11' CMCP)
STA 124+04, LT (11' CMCP)
STA 132+33, LT (46' CMCP W/2 ELBOWS)
STA 134+43, LT (86' CMCP W/2 ELBOWS)



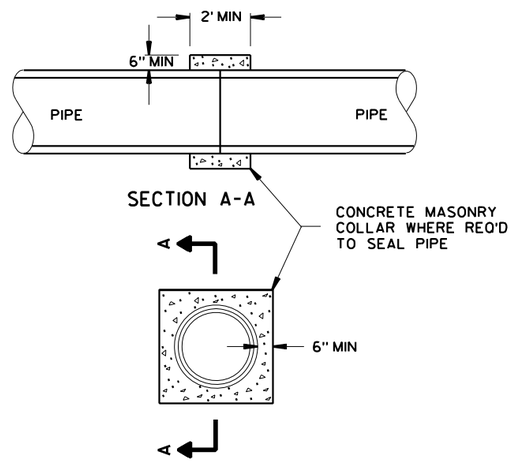
BARRIER INLET DETAIL

STA 111+83
STA 120+04



PIPE TRENCH DETAIL

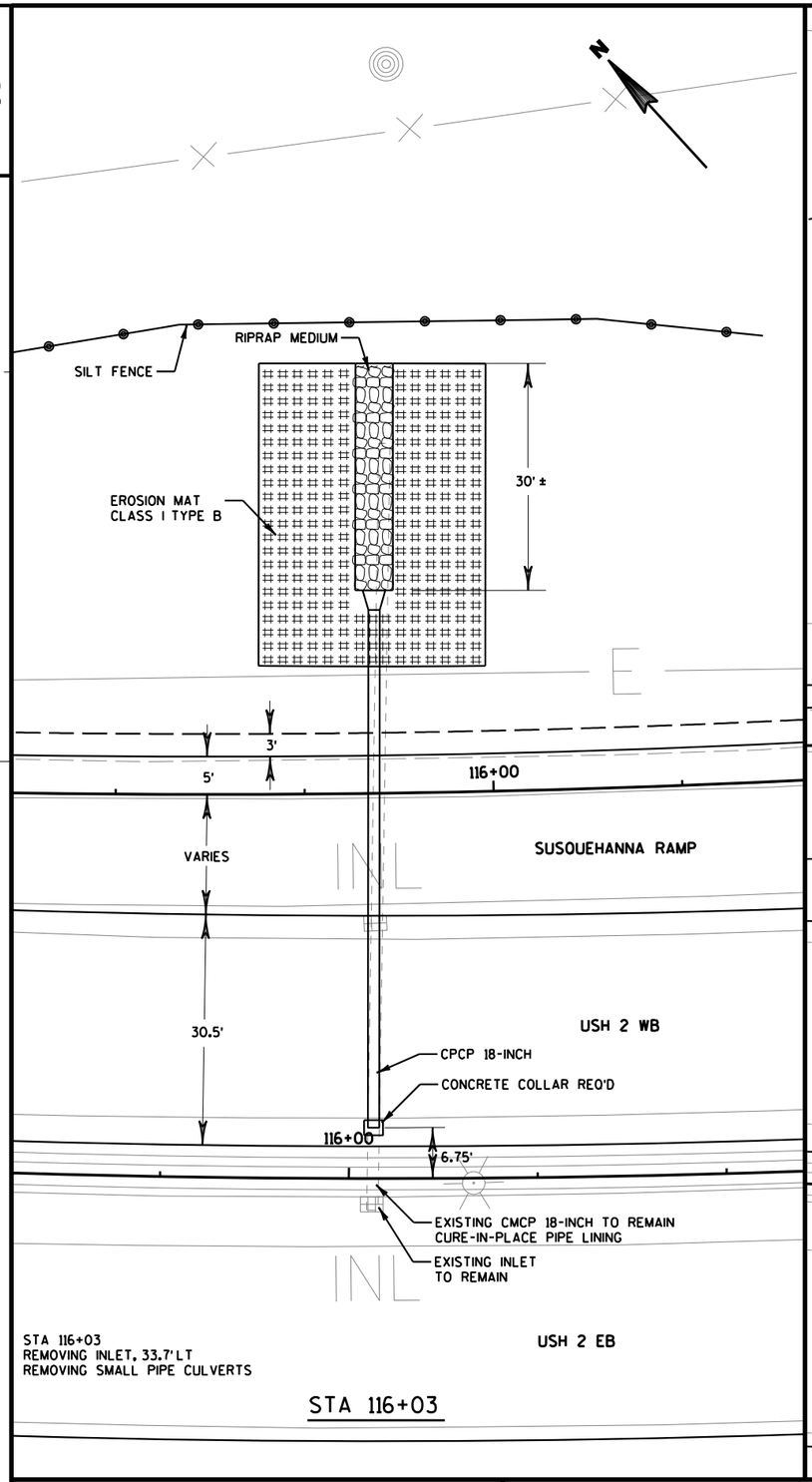
SUSQUEHANNA RAMP
STA 116+03
STA 120+04
STA 124+04



CONCRETE COLLAR DETAIL

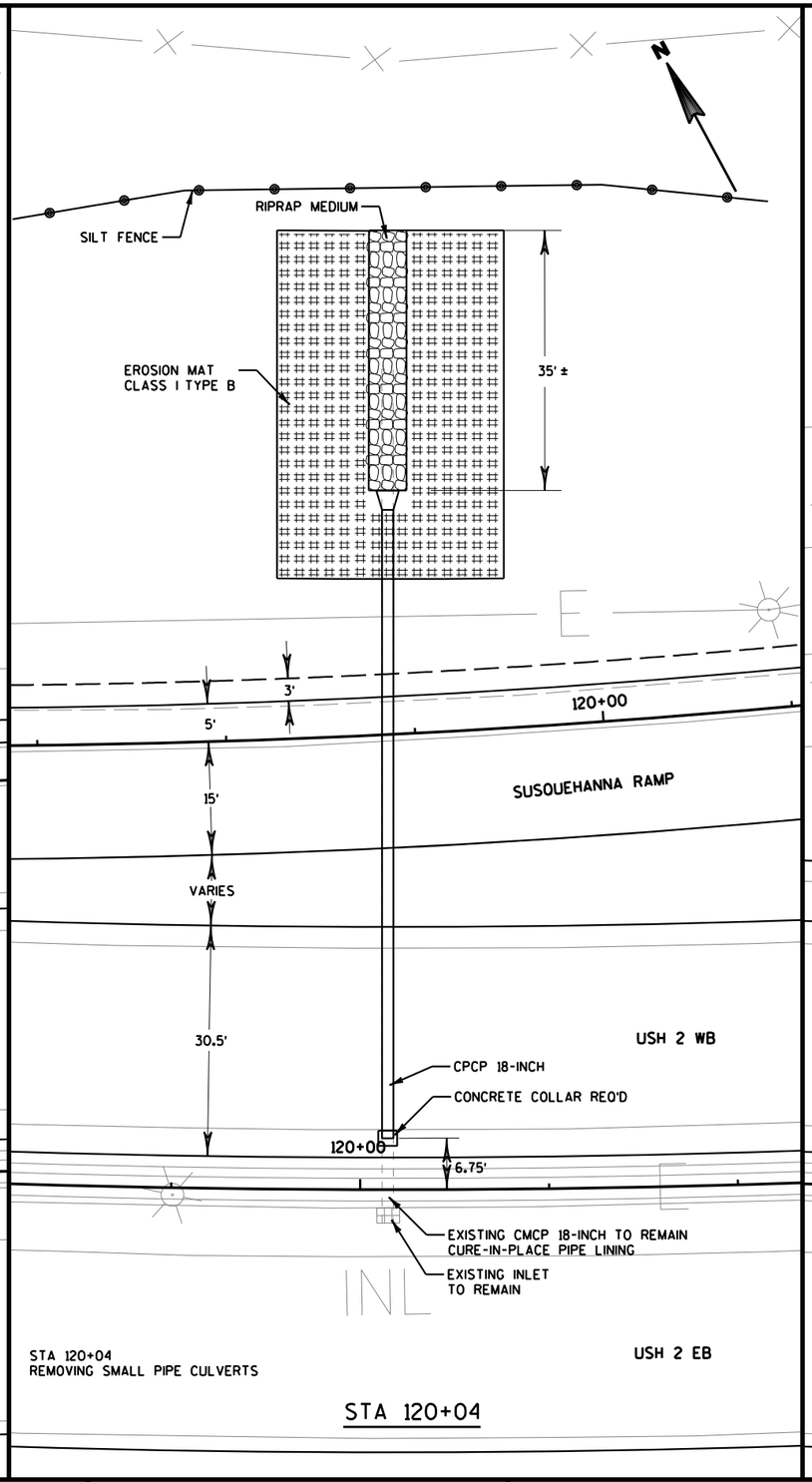
STA 116+03
STA 120+04
STA 124+04

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CONSTRUCTION DETAILS	SHEET 20	E



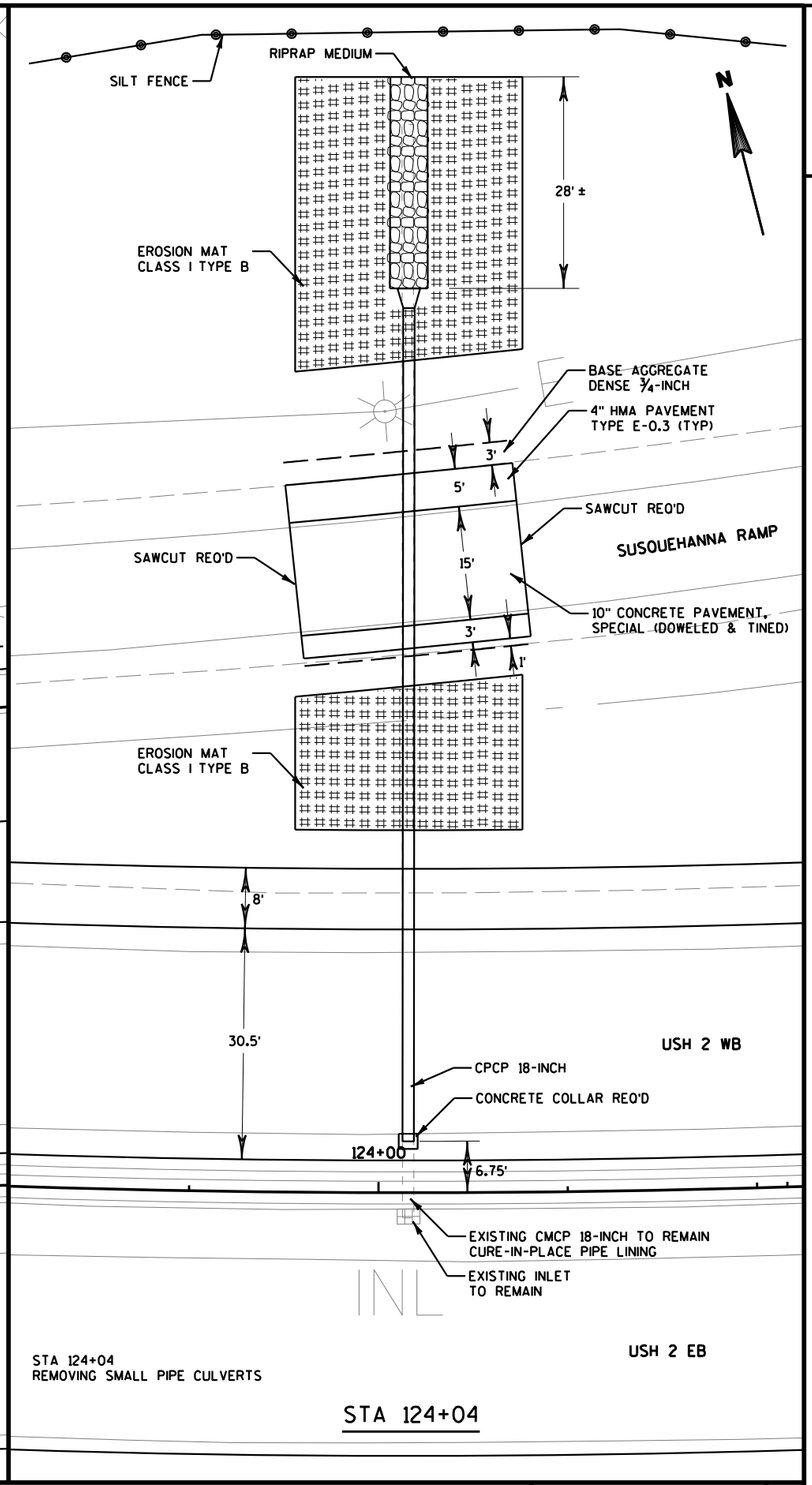
STA 116+03
REMOVING INLET, 33.7'LT
REMOVING SMALL PIPE CULVERTS

STA 116+03



STA 120+04
REMOVING SMALL PIPE CULVERTS

STA 120+04

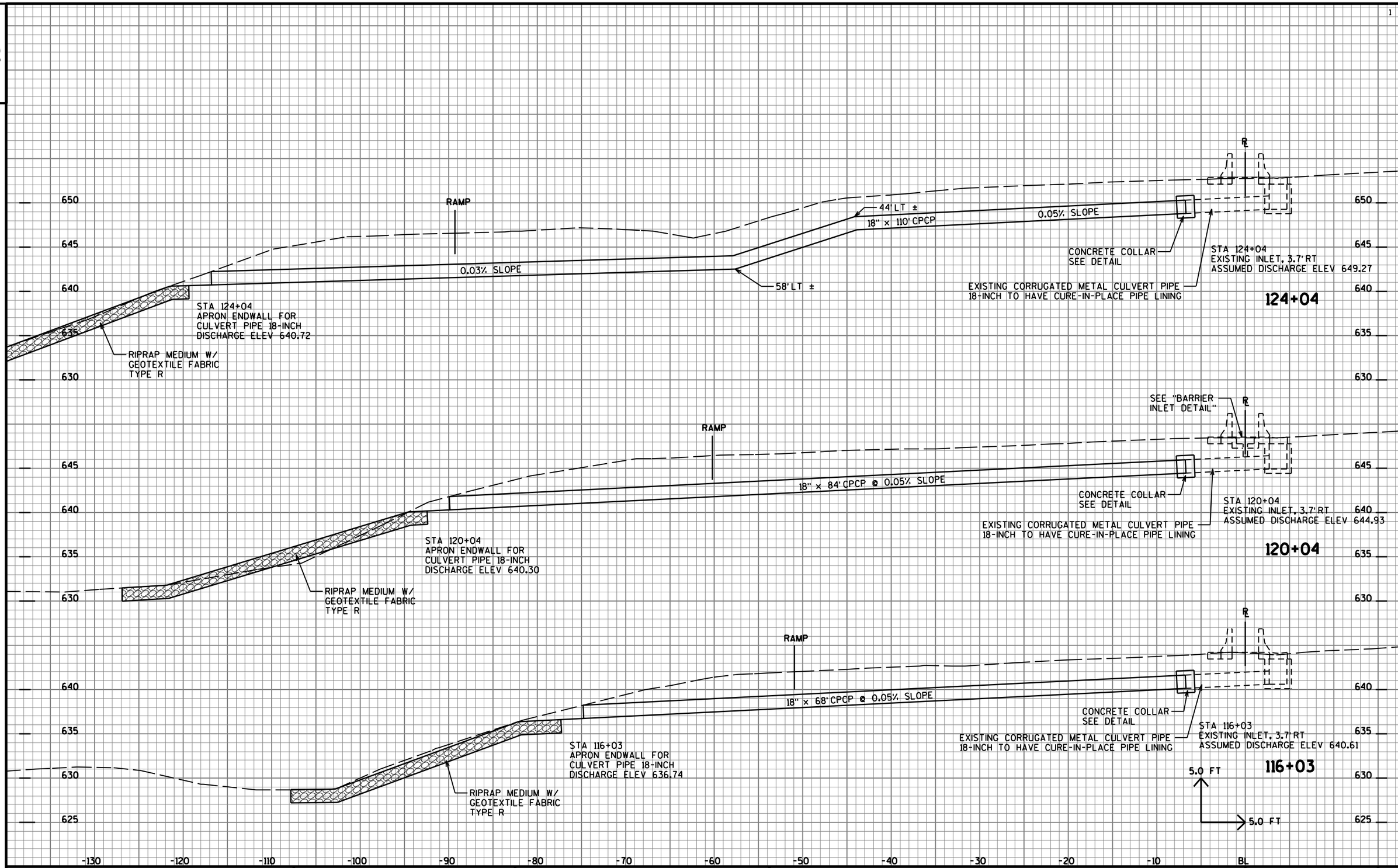


STA 124+04
REMOVING SMALL PIPE CULVERTS

STA 124+04

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PIPE REPLACEMENT DETAIL	SHEET	E

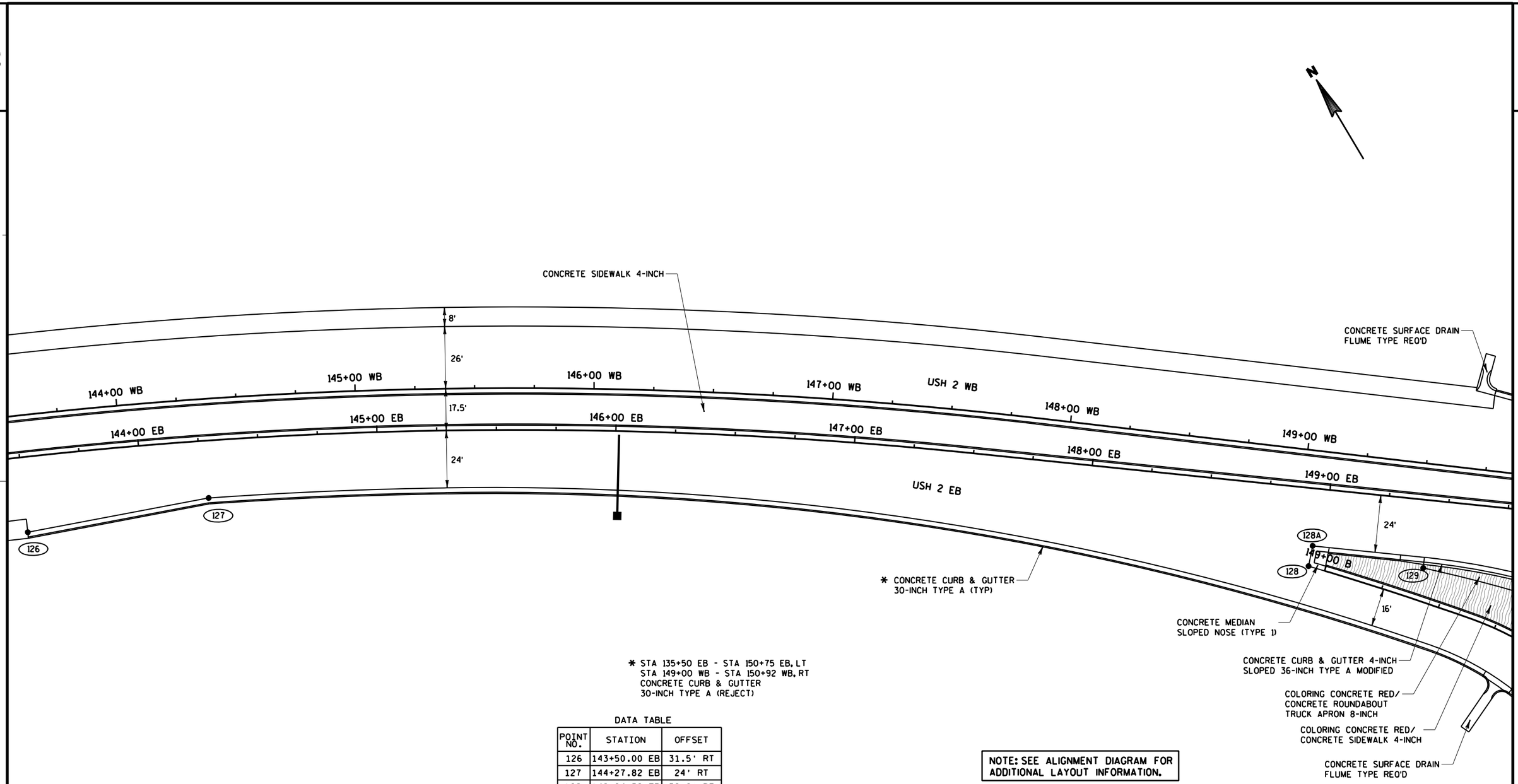
FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021002_cd.dgn
PLOT DATE : 11/20/2013
PLOT BY : AYRES-EC
PLOT NAME :
PLOT SCALE : 1:20
WISDOT/CADDS SHEET 42



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PIPE REPLACEMENT DETAIL (USH 2 WB)	SHEET NO: 22	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021003_cd.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC eau_shd_utilFILL.tbl PLOT SCALE : 1:2

2



* STA 135+50 EB - STA 150+75 EB, LT
STA 149+00 WB - STA 150+92 WB, RT
CONCRETE CURB & GUTTER
30-INCH TYPE A (REJECT)

DATA TABLE

POINT NO.	STATION	OFFSET
126	143+50.00 EB	31.5' RT
127	144+27.82 EB	24' RT
128	148+94.32 EB	32.6' RT
128A	148+95.13 EB	24' RT
129	149+38.75 B	13.6' LT

NOTE: SEE ALIGNMENT DIAGRAM FOR ADDITIONAL LAYOUT INFORMATION.

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	INTERSECTION DETAIL - USH 2	SHEET 23	E

2

DATA TABLE

POINT NO.	STATION	OFFSET	NORTHING	EASTING	RADIUS
130	36+20.81 BW	21' LT	305639.60	143194.46	5'
131	37+08.42 BE	4' LT	305647.12	143280.45	4'
132	36+94.55 BW	6' RT	305676.45	143262.91	6'
133	150+51.82 B	24.3' LT			
134	150+74.46 EB	4' LT	305771.36	143294.55	4'
135	156+14.69 EB	6' RT	305799.13	143335.34	6'
136	38+99.00 BW	4' RT	305786.12	143430.06	4'
137	40+64.52 BE	0'			
137A	40+64.99 BE	7.1' LT			
138	40+38.71 BE	46.8' RT	305818.33	143564.07	60'
139	39+20.99 BE	6' LT	305746.93	143458.67	6'
140	101+06.00 R	49.2' RT			
141	152+81.10 WB	4' RT	305644.44	143433.94	4'
142	152+59.61 EB	6' LT	305618.36	143388.32	6'
143	40+11.10 BW	0'			
500	150+51.82 B	21.4' LT			
501	150+51.82 B	17.8' LT			
502	152+92.35 WB	37.4' LT			
503	153+61.72 WB	33.9' LT			
504	8+47.68 D	72' LT	305790.71	143580.36	60'

CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE A MODIFIED
CONCRETE SURFACE DRAIN FLUME TYPE REO'D
COLORING CONCRETE RED/ CONCRETE ROUNDABOUT TRUCK APRON 8-INCH
LIMITS OF 11" CONCRETE PAVEMENT STA 150+75.94 EB STA 36+98.11 BW
CONCRETE CURB & GUTTER 30-INCH TYPE A (TYP)
COLORING CONCRETE RED/ CONCRETE SIDEWALK 4-INCH
CONCRETE SIDEWALK 4-INCH
COLORING CONCRETE RED/ CONCRETE SIDEWALK 4-INCH
CONCRETE CURB & GUTTER * 30-INCH TYPE A (TYP)
LIMITS OF 11" CONCRETE PAVEMENT STA 150+96.03 WB STA 38+96.58 BW
CONCRETE CURB & GUTTER * 30-INCH TYPE A (TYP)
CONCRETE CURB & GUTTER 30-INCH TYPE D (TYP)
ASPHALTIC FLUME REO'D
CONCRETE PAVEMENT (SEE TYPICALS)
HMA PAVEMENT (SEE TYPICALS)
CONCRETE MEDIAN SLOPED NOSE (TYPE 1)
GARFIELD AVE
CONCRETE SIDEWALK 4-INCH
* CONCRETE CURB & GUTTER 30-INCH TYPE A (TYP)
LIMITS OF 11" CONCRETE PAVEMENT STA 37+10.69 BE STA 152+55.76 EB
* STA 135+50 EB - STA 150+75 EB, LT
STA 152+55 EB - STA 154+25 EB, LT
STA 149+00 WB - STA 150+92 WB, RT
STA 152+80 WB - STA 160+46 WB, RT
STA 35+00 BW - STA 36+98 BW, RT
STA 36+00 BE - STA 37+11 BE, LT
STA 38+99 BW - STA 40+27 BW, RT
STA 39+21 BE - STA 40+57 BE, LT
CONCRETE CURB & GUTTER 30-INCH TYPE A (REJECT)
* CONCRETE CURB & GUTTER 30-INCH TYPE A (TYP)
CURB RAMP (TYPE 7B)/ CONCRETE SIDEWALK 4-INCH
10' MULTI-USE PATH (ASPHALTIC SURFACE)
STA 152+97.43 EB
BICYCLE RAMP (SEE DETAIL)
COLORING CONCRETE RED/ CONCRETE SIDEWALK 4-INCH
CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE R
CONCRETE CURB & GUTTER 18-INCH TYPE A (REJECT)
COLORING CONCRETE RED/ CONCRETE ROUNDABOUT TRUCK APRON 8-INCH
152+87.43 EB, 24.27 LT
CURB RAMP TYPE 5
LIMITS OF 11" CONCRETE PAVEMENT STA 39+17.06 BE STA 152+78.81 WB
CURB RAMP (TYPE 7B)/ CONCRETE SIDEWALK 4-INCH
CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE A MODIFIED
COLORING CONCRETE RED/ CONCRETE ROUNDABOUT TRUCK APRON 8-INCH
CONCRETE SIDEWALK 4-INCH
CONCRETE MEDIAN SLOPED NOSE (TYPE 2) (TYP)
COLORING CONCRETE RED/ CONCRETE SIDEWALK 4-INCH
BICYCLE RAMP (SEE DETAIL)
STA 40+32.55 BE
CONCRETE CURB & GUTTER * 30-INCH TYPE A (TYP)
CONCRETE SIDEWALK 4-INCH
CONCRETE DRIVEWAY 6-INCH SEE DETAIL
ASPHALTIC SURFACE DRIVEWAY SEE DETAIL.
SAWCUT REO'D
ASPHALTIC FLUME REO'D
NOTE: SEE ALIGNMENT DIAGRAM FOR ADDITIONAL LAYOUT INFORMATION.

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	INTERSECTION DETAIL - USH 2/BELKNAP ST	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021103_id.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

DATA TABLE

POINT NO.	STATION	OFFSET	NORTHING	EASTING	RADIUS	STATION	OFFSET
170	154+29.02 WB	28.5' LT					
171	154+09.94 EB	24' RT					
172	154+84.51 EB	105' RT	305399.06	143513.31	75'/91'	4+25.89 G	93.9' LT
173	155+44.77 EB	34' RT	305425.90	143605.48	5'	4+66.74 G	14.5' LT
174	155+70.35 EB	34' RT	305413.13	143628.69	5'	4+65.31 G	11.9' RT
175	156+14.69 EB	65' RT	305364.47	143656.41	35'/51'	4+16.78 G	53' RT
176	156+72.85 EB	24' RT					
177	157+19.34 EB	53' RT	305333.51	143763.92	147'	3+81.58 G	161.9' RT
181	3+67.53 G	15.7' RT					
182	3+67.53 G	15' LT					
182A	3+22.30 G	15' LT					
183	4+22.28 G	18.2' RT					
183A	156+10.42 EB	30.3' RT					
184	4+37.39 G	20.6' LT					
184A	154+91.15 EB	30.3' RT					
185	4+40.29 G	0.3' RT	305394.60	143609.21	5'		

NOTE: SEE ALIGNMENT DIAGRAM FOR ADDITIONAL LAYOUT INFORMATION.

N

CONCRETE CURB & GUTTER 18-INCH TYPE A

COLORING CONCRETE RED/ CONCRETE SIDEWALK 4-INCH

COLORING CONCRETE RED/ CONCRETE ROUNDABOUT TRUCK APRON 8-INCH

CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE A MODIFIED

STA 154+32.00

CONCRETE SIDEWALK 4-INCH

BICYCLE RAMP (SEE DETAIL)

5'

170

24'

* CONCRETE CURB & GUTTER 30-INCH TYPE A (TYP)

STA 155+58.59 EB =
STA 5+00.00 G
N 305448.73
E 143634.34

CONCRETE SIDEWALK 4-INCH

27'

154+00 WB

155+00 WB

156+00 WB

USH 2 WB

157+00 WB

158+00 WB

159+00 WB

159+00 EB

158+00 EB

157+00 EB

156+00 EB

155+00 EB

154+00 EB

+59

27'

USH 2 EB

27'

MATCH EXISTING SAWCUT REQ'D

CONCRETE SIDEWALK 4-INCH

CONCRETE CURB & GUTTER * 30-INCH TYPE A (TYP)

CONCRETE SIDEWALK 4-INCH

CONCRETE CURB & GUTTER * 30-INCH TYPE A (TYP)

171

184A

173

174

176

183A

177

16'

16'

R 51'

R 35'

R 147'

175

* CONCRETE CURB & GUTTER 30-INCH TYPE A (TYP)

CONCRETE SURFACE DRAIN FLUME TYPE REQ'D

R 75'

R 91'

184

185

183

GARFELD AVE

40+00 P

SAWCUT REQ'D

CURB RAMP (TYPE 2)/ CONCRETE SIDEWALK 4-INCH

4+00 G

CONCRETE CURB & GUTTER 30-INCH TYPE D (TYP)

172

181

15'

10' MULTI-USE PATH (ASPHALTIC SURFACE)

39+00 P

182

XX

XXXXX

SAWCUT REQ'D

CURB RAMP (TYPE 2)/ CONCRETE SIDEWALK 4-INCH

SAWCUT REQ'D

38+00 P

182A

BEGIN PROJECT 8680-00-70
STA 3+50.00 G
MATCH EXISTING
SAWCUTS REQ'D
N 305305.21
E 143601.44

* STA 152+55 EB - STA 154+25 EB, LT
STA 154+25 EB - STA 158+75 EB, RT
STA 159+00 EB - STA 160+52 EB, LT
STA 152+80 WB - STA 160+46 WB, RT
STA 155+45 EB - STA 155+70 EB, RT
STA 4+39 G - STA 4+64, LT
CONCRETE CURB & GUTTER
30-INCH TYPE A (REJECT)

PROJECT NO: 8680-00-70/8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	INTERSECTION DETAIL - USH 2	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021104_id.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40
WISDOT/CADDS SHEET 42

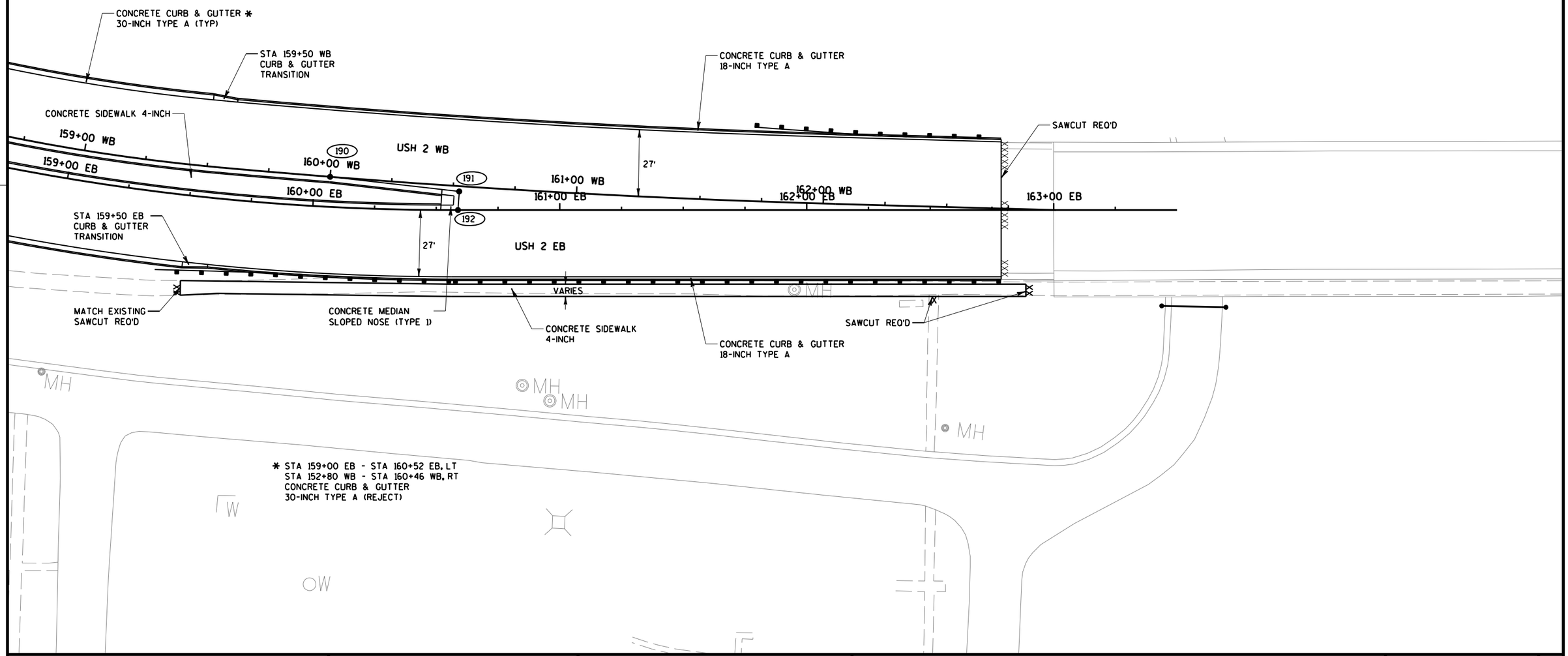
2

DATA TABLE

POINT NO.	STATION	OFFSET
190	160+00.00 WB	0'
191	160+59.29 EB	7.5' LT
192	160+58.79 EB	0'

NOTE: SEE ALIGNMENT DIAGRAM FOR ADDITIONAL LAYOUT INFORMATION.

N

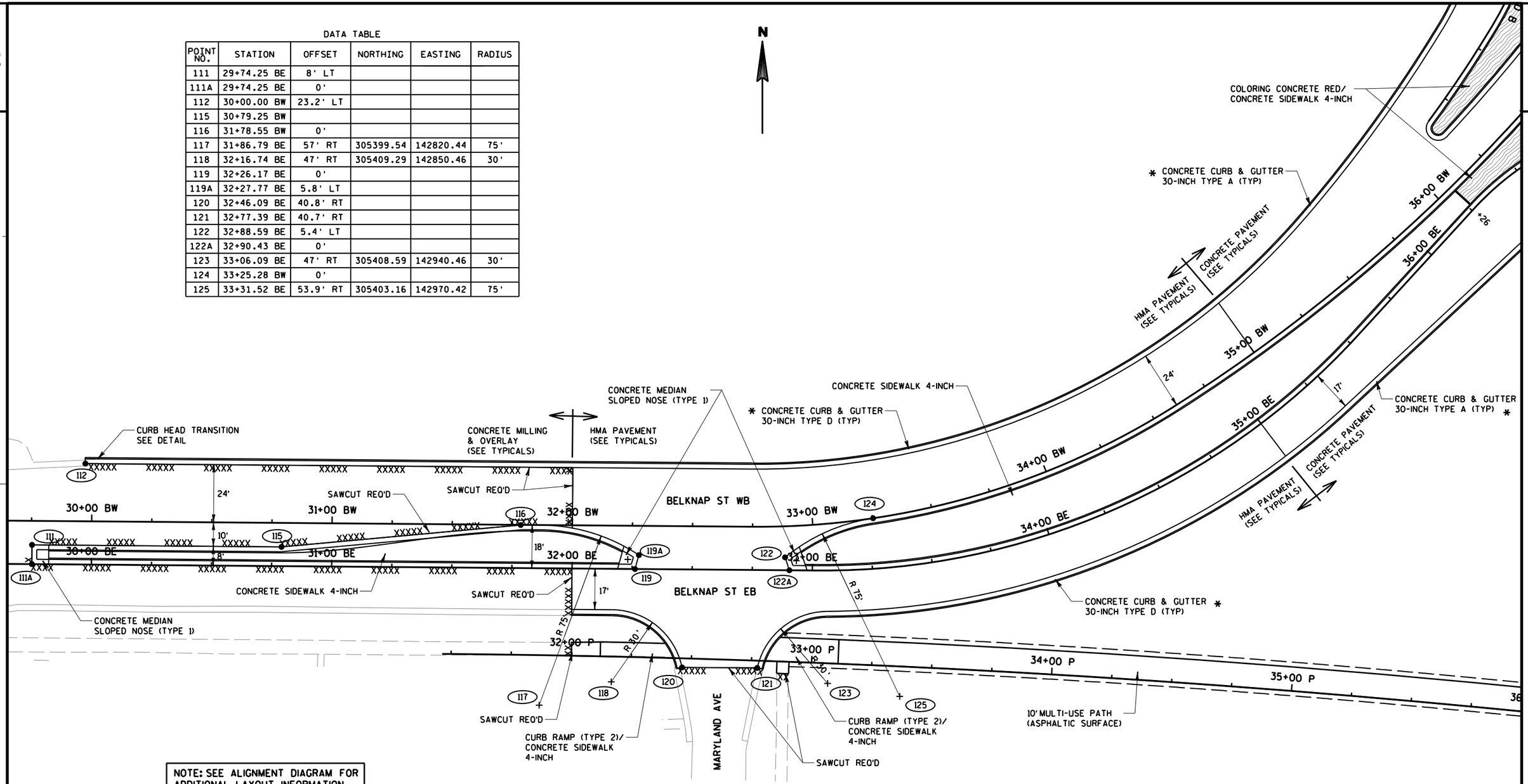


PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	INTERSECTION DETAIL - USH 2	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021105_id.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40
WISDOT/CADDS SHEET 42

DATA TABLE

POINT NO.	STATION	OFFSET	NORTHING	EASTING	RADIUS
111	29+74.25 BE	8' LT			
111A	29+74.25 BE	0'			
112	30+00.00 BW	23.2' LT			
115	30+79.25 BW				
116	31+78.55 BW	0'			
117	31+86.79 BE	57' RT	305399.54	142820.44	75'
118	32+16.74 BE	47' RT	305409.29	142850.46	30'
119	32+26.17 BE	0'			
119A	32+27.77 BE	5.8' LT			
120	32+46.09 BE	40.8' RT			
121	32+77.39 BE	40.7' RT			
122	32+88.59 BE	5.4' LT			
122A	32+90.43 BE	0'			
123	33+06.09 BE	47' RT	305408.59	142940.46	30'
124	33+25.28 BW	0'			
125	33+31.52 BE	53.9' RT	305403.16	142970.42	75'

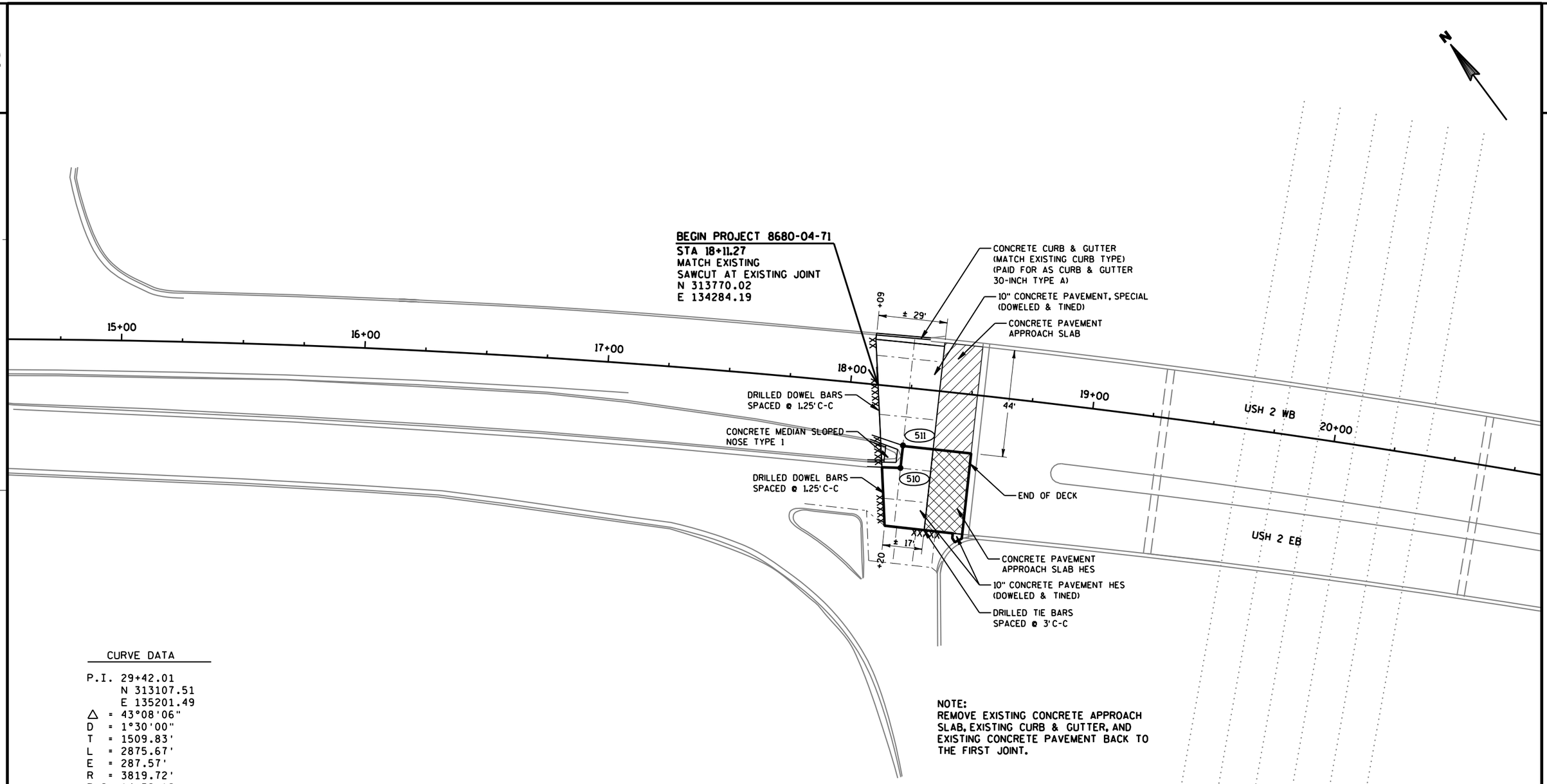


NOTE: SEE ALIGNMENT DIAGRAM FOR ADDITIONAL LAYOUT INFORMATION.

* STA 32+95 BW - STA 35+00 BW, RT
STA 33+00 BE - STA 35+00 BE, RT
CONCRETE CURB & GUTTER
30-INCH TYPE D (REJECT)
STA 35+00 BW - STA 36+98 BW, RT
STA 35+00 BE - STA 35+75 BE, RT
STA 36+00 BE - STA 37+11 BE, LT
CONCRETE CURB & GUTTER
30-INCH TYPE A (REJECT)

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	INTERSECTION DETAIL - BELKNAP ST	SHEET 27	E

2



CURVE DATA

P.I. 29+42.01
N 313107.51
E 135201.49
△ = 43°08'06"
D = 1°30'00"
T = 1509.83'
L = 2875.67'
E = 287.57'
R = 3819.72'
P.C. 14+32.18
N 314011.71
E 133992.36
P.T. 43+07.85
N 311620.96
E 135465.63
S.E. 0.036%
L.R. 175'

DATA TABLE

POINT NO.	STATION	OFFSET
510	18+23.90	33.1' RT
511	18+23.98	23.8' RT

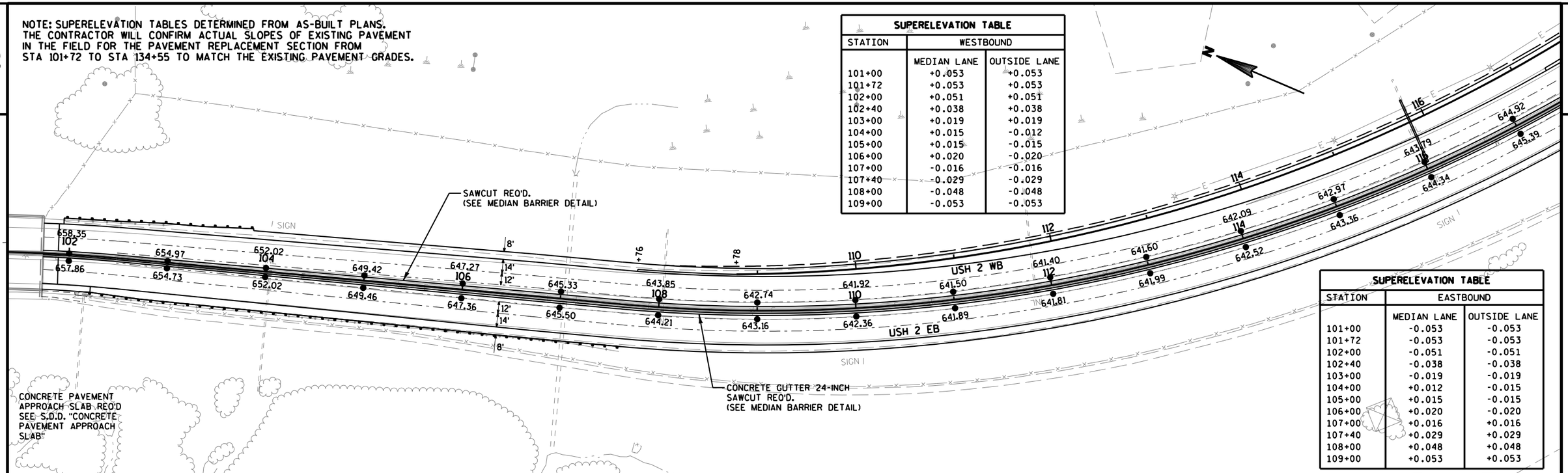
NOTE:
REMOVE EXISTING CONCRETE APPROACH SLAB, EXISTING CURB & GUTTER, AND EXISTING CONCRETE PAVEMENT BACK TO THE FIRST JOINT.

PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	PLAN DETAIL - USH 2 (WEST APPROACH)	SHEET 28	E

NOTE: SUPERELEVATION TABLES DETERMINED FROM AS-BUILT PLANS. THE CONTRACTOR WILL CONFIRM ACTUAL SLOPES OF EXISTING PAVEMENT IN THE FIELD FOR THE PAVEMENT REPLACEMENT SECTION FROM STA 101+72 TO STA 134+55 TO MATCH THE EXISTING PAVEMENT GRADES.

SUPERELEVATION TABLE

STATION	WESTBOUND	
	MEDIAN LANE	OUTSIDE LANE
101+00	+0.053	+0.053
101+72	+0.053	+0.053
102+00	+0.051	+0.051
102+40	+0.038	+0.038
103+00	+0.019	+0.019
104+00	+0.015	-0.012
105+00	+0.015	-0.015
106+00	+0.020	-0.020
107+00	-0.016	-0.016
107+40	-0.029	-0.029
108+00	-0.048	-0.048
109+00	-0.053	-0.053

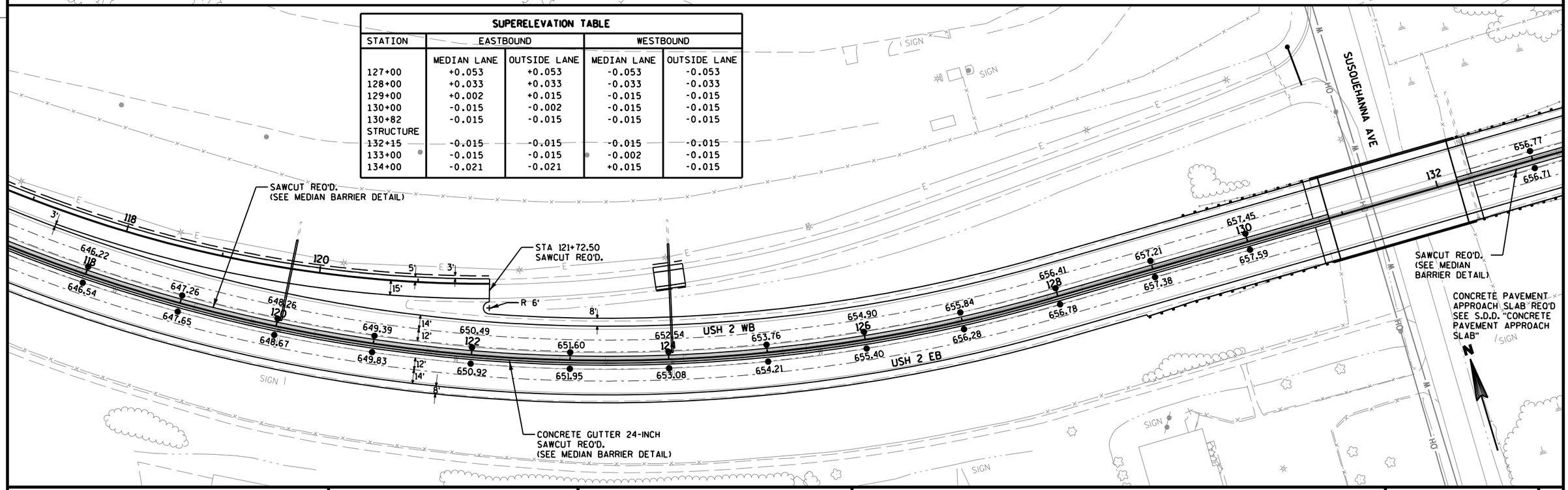


SUPERELEVATION TABLE

STATION	EASTBOUND	
	MEDIAN LANE	OUTSIDE LANE
101+00	-0.053	-0.053
101+72	-0.053	-0.053
102+00	-0.051	-0.051
102+40	-0.038	-0.038
103+00	-0.019	-0.019
104+00	+0.012	-0.015
105+00	+0.015	-0.015
106+00	+0.020	-0.020
107+00	+0.016	+0.016
107+40	+0.029	+0.029
108+00	+0.048	+0.048
109+00	+0.053	+0.053

SUPERELEVATION TABLE

STATION	EASTBOUND		WESTBOUND	
	MEDIAN LANE	OUTSIDE LANE	MEDIAN LANE	OUTSIDE LANE
127+00	+0.053	+0.053	-0.053	-0.053
128+00	+0.033	+0.033	-0.033	-0.033
129+00	+0.002	+0.015	-0.015	-0.015
130+00	-0.015	-0.002	-0.015	-0.015
130+82	-0.015	-0.015	-0.015	-0.015
STRUCTURE				
132+15	-0.015	-0.015	-0.015	-0.015
133+00	-0.015	-0.015	-0.002	-0.015
134+00	-0.021	-0.021	+0.015	-0.015

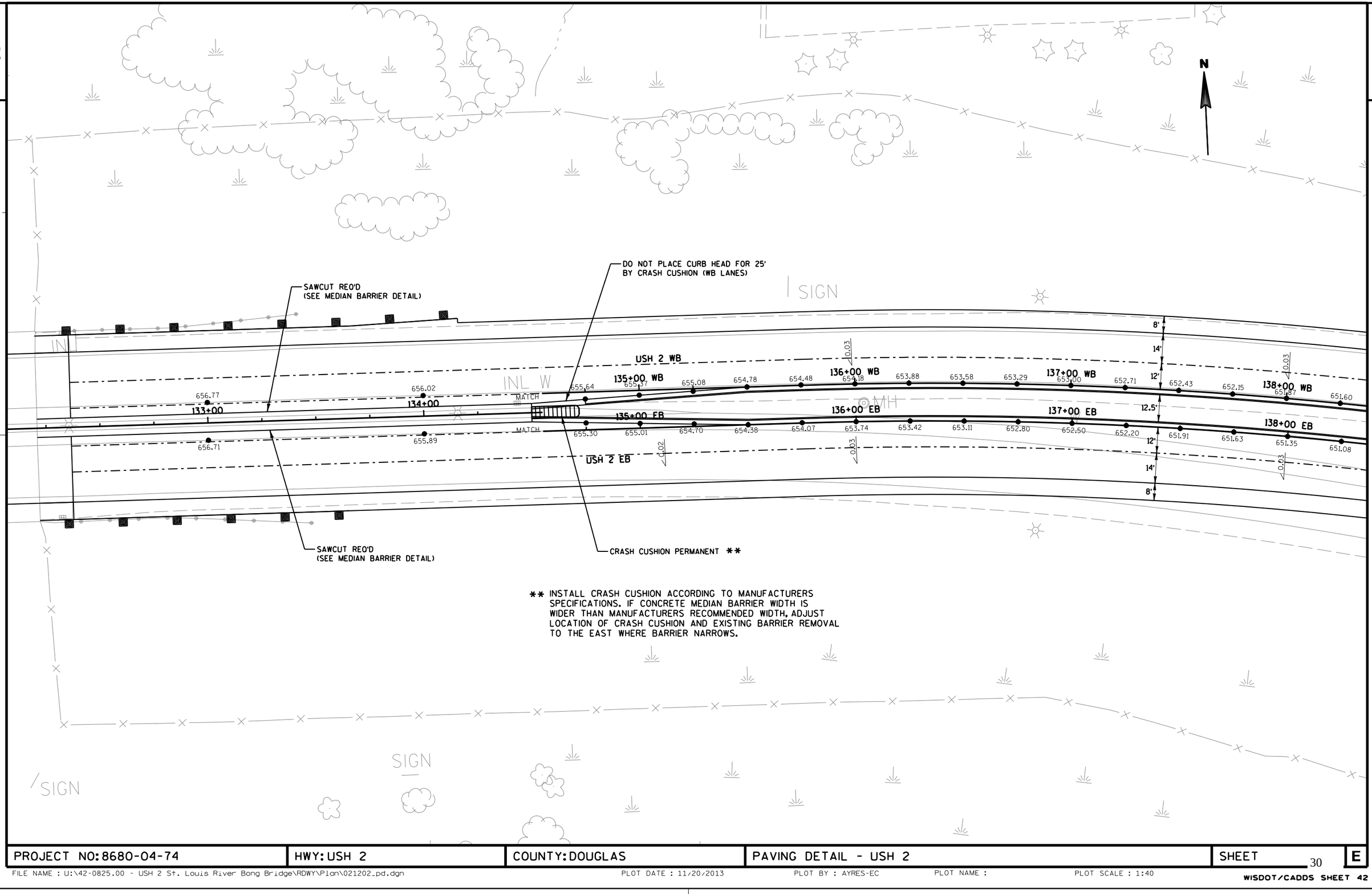


PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVING DETAIL	SHEET 29	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021201_pd.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 42

2



** INSTALL CRASH CUSHION ACCORDING TO MANUFACTURERS SPECIFICATIONS. IF CONCRETE MEDIAN BARRIER WIDTH IS WIDER THAN MANUFACTURERS RECOMMENDED WIDTH, ADJUST LOCATION OF CRASH CUSHION AND EXISTING BARRIER REMOVAL TO THE EAST WHERE BARRIER NARROWS.

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVING DETAIL - USH 2	SHEET 30	E

2

2

N

USH 2 WB

USH 2 EB

8'
14'
12'
12.5'
12'
14'
8'

0.03

138+00 WB 651.87 651.60 651.32 651.05 650.77

139+00 WB 650.50 650.22 649.95 649.67

140+00 WB 649.40 649.12 648.85 648.57

141+00 WB 648.30 648.05 647.82

142+00 WB 647.60 647.39 647.20 647.03

143+00 WB 646.87 646.72 646.57 646.42

144+00 WB 646.27

138+00 EB 651.35 651.08 650.80 650.53 650.25

139+00 EB 649.98 649.70 649.43 649.15

140+00 EB 648.88 648.60 648.33 648.05 647.78

141+00 EB 647.53 647.30

142+00 EB 647.08 646.87 646.68 646.51

143+00 EB 646.35 646.20 646.05 645.90

144+00 EB 645.75

645.33 645.18 645.03

645.10 645.01 644.94

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVING DETAIL - USH 2	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021203_pd.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42

2

2

N

8'
14'
12'
12.5'
12'
12'

USH 2 WB
USH 2 EB

+00 WB 646.27 646.12 645.97 645.82 145+00 WB 645.67 645.52 645.37 645.22 146+00 WB 645.07 644.92 644.77 644.62 147+00 WB 644.47 644.32 644.17 644.02 148+00 WB 643.87 643.72 643.57 643.42 149+00 WB 643.27 643.16 643.12 643.16 150+00 WB 643.27

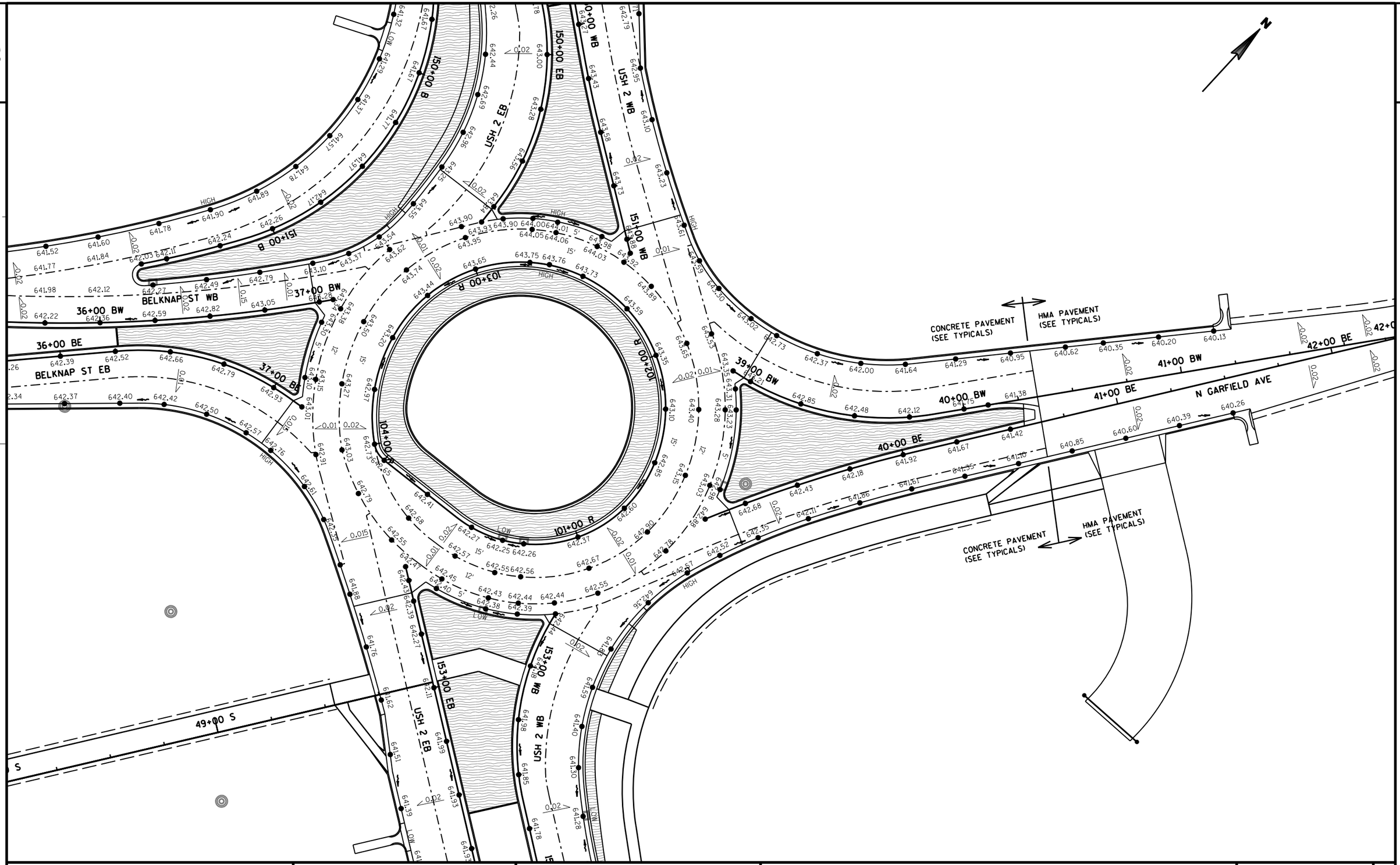
144+00 EB 645.75 645.60 645.45 645.30 645.15 645.00 145+00 EB 644.85 644.70 644.55 644.40 644.25 644.10 146+00 EB 643.95 643.80 643.65 643.50 643.35 643.20 643.05 147+00 EB 642.90 642.75 642.65 642.66 642.78 643.00 148+00 EB 642.42 642.27 642.17 642.18 642.26 642.44 642.69 149+00 EB 642.07 641.92 641.77 641.67 641.67 641.77 641.87 150+00 EB 642.53 642.70 642.71 642.79 643 150+00 B 641.32 LOW 641.29 641.37 641.57

0.03 0.03 0.018 0.008 0.001 0.011 0.02 0.02 0.03 0.03 0.023 0.02 0.02 0.02 0.02 0.02 0.02 0.02

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVING DETAIL - USH 2	SHEET 32	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021204_pd.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVING DETAIL - USH 2/BELKNAP ST	SHEET 33	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021205_pd.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42

2

2

N

USH 2 WB

USH 2 EB

154+00 WB

155+00 WB

156+00 WB

157+00 WB

158+00 WB

159+00 WB

154+00 EB

155+00 EB

156+00 EB

157+00 EB

158+00 EB

159+00 EB

40+00 P

4+00 C

39+00 P

GARFIELD AVE

PROJECT NO: 8680-00-70/8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVING DETAIL - USH 2/BELKNAP ST	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021206_pd.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42

2

2

N

654.99 656.30 657.39 658.41 659.43 660.45 661.47 662.49 663.51 664.53 665.55 666.57 667.30 668.34 669.38

0.033 0.025 0.02

15'

12'

160+00 WB

USH 2 WB

655.88 656.91 657.93 658.95 659.97 660.99 662.01 663.03 664.05 665.07 666.09 666.87 667.89 668.90 669.92

160+00 EB

161+00 WB

161+00 EB

162+00 WB

162+00 EB

0.02

MATCH

163+00 EB

655.75 656.76 657.76 658.78 659.79 660.80 661.81 662.83 663.84 664.85 665.87

12'

15'

USH 2 EB

656.22 657.22 658.24 659.25 660.26 661.27 662.29 663.30 664.31 665.33 666.34 667.35 668.37 669.38

0.02

MATCH

W

OW

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVING DETAIL - USH 2/BELKNAP ST	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021207_pd.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42

2

N

NOTES:

IN ASPHALT MILLING & OVERLAY AREAS, MILL STRAIGHT THROUGH PENNSYLVANIA AVE & WYOMING AVE INTERSECTIONS.

CENTERLINE IS NOT SURVEYED AND ASSUMED TO BE CENTERED BETWEEN THE CURBS. MATCH EXISTING CROSS SLOPES.

FIELD VERIFY EXISTING CROSS SLOPES AND CENTERLINE. ADJUST MANHOLE COVERS AS DIRECTED BY THE ENGINEER.

SUSQUEHANNA AVE

SAWCUT REO'D.

BEGIN CONSTRUCTION
STA 18+63.00 BE
MATCH EXISTING
SAWCUT REO'D.

CONCRETE CURB & GUTTER
TO REMAIN

18+00 BE

19+00 BE

20+00 BE

21+00 BE

22+00 BE

23+00 BE

24+00 BE

BELKNAP ST

VARIES

VARIES

INL

SSS

INL

CONCRETE CURB & GUTTER
TO REMAIN

SAWCUT REO'D.

SUSQUEHANNA AVE

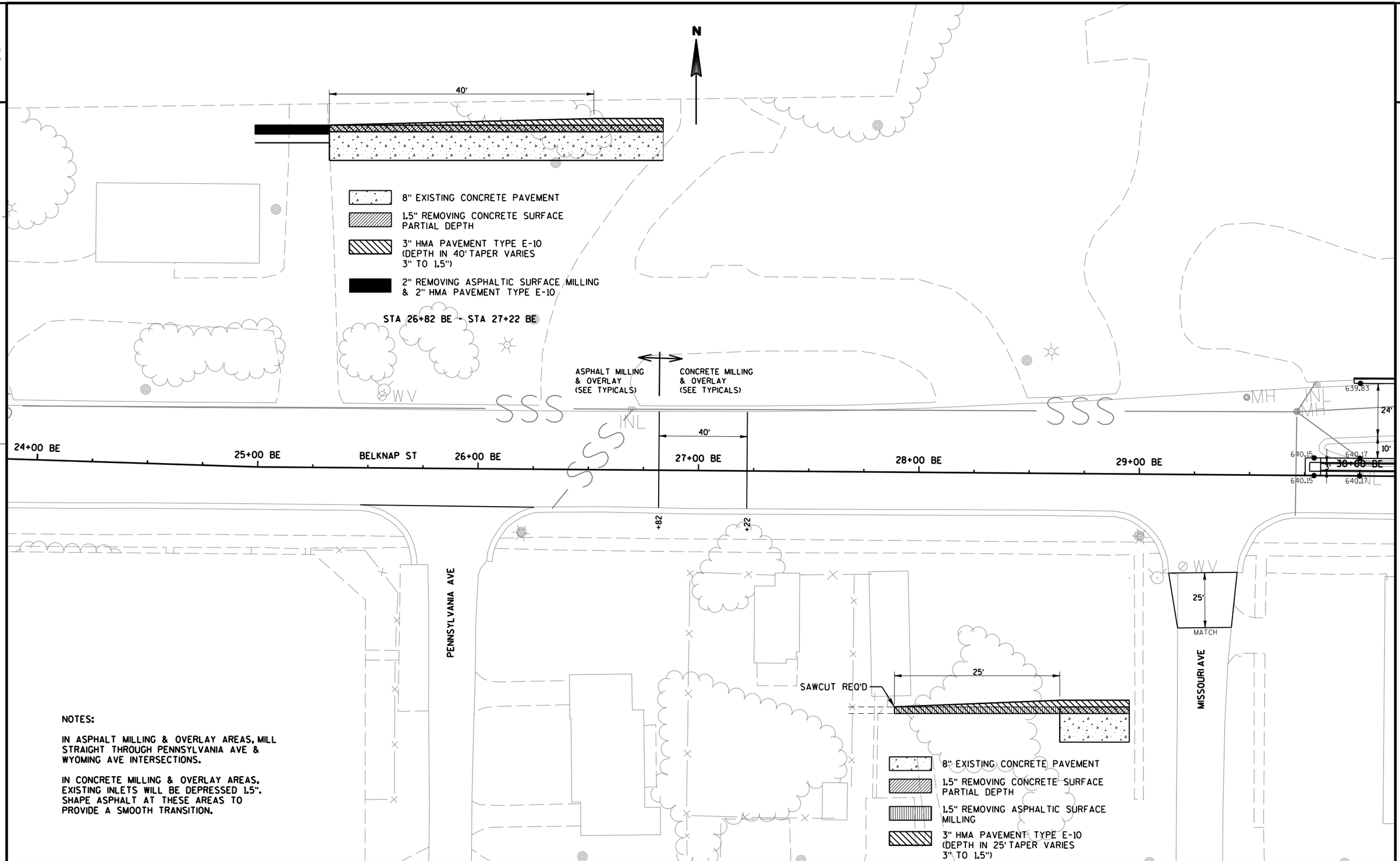
WYOMING AVE

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVING DETAIL - BELKNAP ST	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021208_pd.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42

2



NOTES:

IN ASPHALT MILLING & OVERLAY AREAS, MILL STRAIGHT THROUGH PENNSYLVANIA AVE & WYOMING AVE INTERSECTIONS.

IN CONCRETE MILLING & OVERLAY AREAS, EXISTING INLETS WILL BE DEPRESSED 1.5". SHAPE ASPHALT AT THESE AREAS TO PROVIDE A SMOOTH TRANSITION.

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVING DETAIL - BELKNAP ST	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021209_pd.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

2

N

CONCRETE MILLING & OVERLAY (SEE TYPICALS)

HMA PAVEMENT (SEE TYPICALS)

HMA PAVEMENT (SEE TYPICALS)

CONCRETE PAVEMENT (SEE TYPICALS)

CONCRETE PAVEMENT (SEE TYPICALS)

HMA PAVEMENT (SEE TYPICALS)

HIGH

LOW

639.83 639.86 639.90 639.97 640.07 640.15 640.24 640.35 640.29 640.10 639.96 640.02 640.23 640.37 640.51 640.65 640.78 640.92 641.06 641.19 641.40 641.54 641.67 641.80 641.90 642.04 642.24 642.31 642.49 642.71 642.86

0.01 0.01 0.015 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02

24' 24' 17'

30+00 BW 31+00 BW 32+00 BW 33+00 BW 34+00 BW 35+00 BW 36+00 BW

30+00 BE 31+00 BE 32+00 BE 33+00 BE 34+00 BE 35+00 BE 36+00 BE

10' 18'

640.15 640.17 640.20 640.24 640.31 640.39 640.45 640.51 640.59 640.65 640.67 640.66 640.46 640.45 640.50 640.71 640.82 640.78 640.85 640.99 641.13 641.26 641.40 641.47 641.52 641.64 641.71 641.77 641.84 641.98 642.12 642.22 642.09 641.95 641.85 641.72 641.60 642.27 642.59 642.52 642.39 642.26 642.12 641.99 642.23 642.30 642.34 642.37 642.40

640.15 640.17 640.20 640.24 640.31 640.39 640.45 640.51 640.59 640.67 640.73 640.80 640.86 640.90 640.92 641.00 641.09 641.19 641.32 641.45 641.59 641.72 641.79 641.93 642.06

640.33 640.37 640.50 640.63 MATCH 640.65 640.96 641.27 641.34 641.43 641.53 641.66

BELKNAP ST WB

BELKNAP ST EB

MARYLAND AVE

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVING DETAIL - BELKNAP ST	SHEET 38	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\021210_pd.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

2

2

N

TYPE B

136WB

136EB

138WB

138EB

140WB

140EB

142WB

142EB

144WB

144EB

SLOPE INTERCEPT

USH 2 WB

146WB

146EB

USH 2 EB

EXISTING USH 2 EB

SLOPE INTERCEPT

MATCH LINE STA 148+00 WB

SIGN

OH

PIPL

W

E

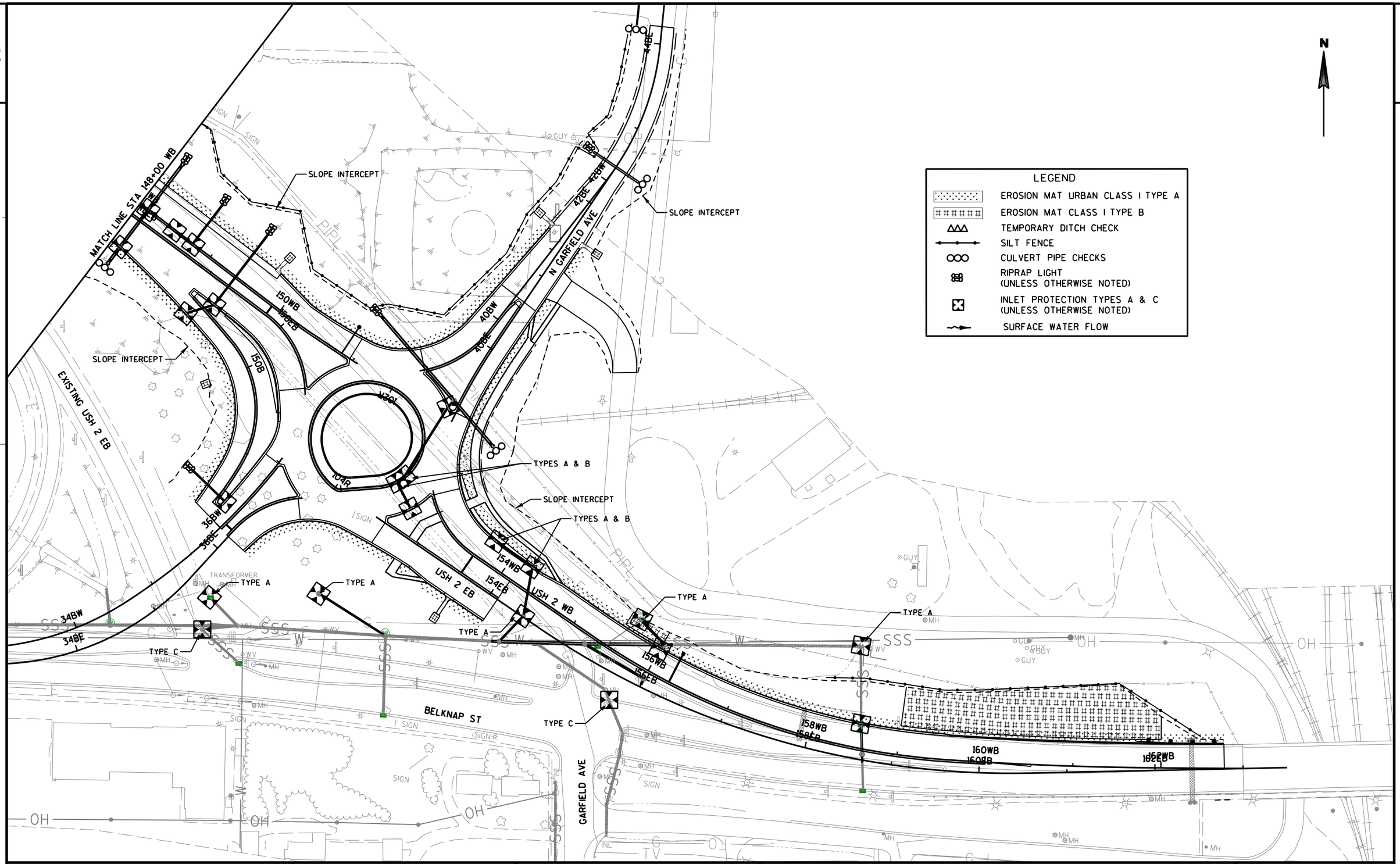
SIGNS

LEGEND

- EROSION MAT URBAN CLASS I TYPE A
- EROSION MAT CLASS I TYPE B
- TEMPORARY DITCH CHECK
- SILT FENCE
- CULVERT PIPE CHECKS
- RIPRAP LIGHT (UNLESS OTHERWISE NOTED)
- INLET PROTECTION TYPES A & C (UNLESS OTHERWISE NOTED)
- SURFACE WATER FLOW

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	EROSION CONTROL - STAGE 1	SHEET 39	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\022001_ec.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100



PROJECT NO: 8680-00-70/04-74	HWY: USH 2	COUNTY: DOUGLAS	EROSION CONTROL - STAGE 1	SHEET 40	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\022002_ec.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 42

2

2

N

136WB
136EB
138WB
138EB
140WB
140EB
142WB
142EB
144WB
144EB
USH 2 WB
146WB
146EB
USH 2 EB
14+00
MATCH LINE STA 148+00 WB

SLOPE INTERCEPT

SIGN
INL W
CB
W
E
OH
PIPL
SIGNS
T SIGN

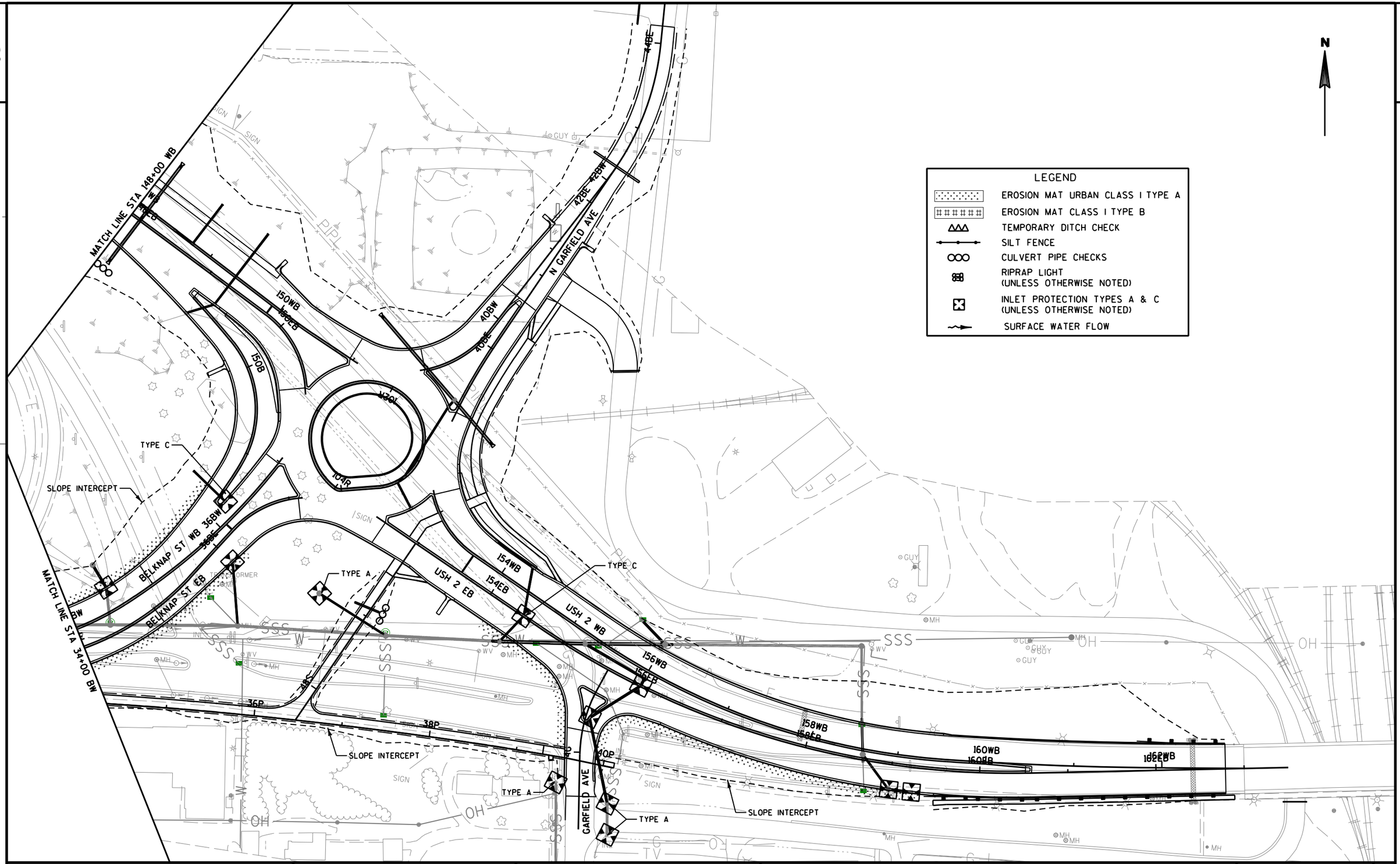
LEGEND

- EROSION MAT URBAN CLASS I TYPE A
- EROSION MAT CLASS I TYPE B
- TEMPORARY DITCH CHECK
- SILT FENCE
- CULVERT PIPE CHECKS
- RIPRAP LIGHT (UNLESS OTHERWISE NOTED)
- INLET PROTECTION TYPES A & C (UNLESS OTHERWISE NOTED)
- SURFACE WATER FLOW

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	EROSION CONTROL - STAGE 3	SHEET 41	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\022004_ec.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 42



PROJECT NO: 8680-00-70/04-74	HWY: USH 2	COUNTY: DOUGLAS	EROSION CONTROL - STAGE 3	SHEET 42	E

2

LEGEND

- EROSION MAT URBAN CLASS I TYPE A
- EROSION MAT CLASS I TYPE B
- TEMPORARY DITCH CHECK
- SILT FENCE
- CULVERT PIPE CHECKS
- RIPRAP LIGHT (UNLESS OTHERWISE NOTED)
- INLET PROTECTION TYPES A & C (UNLESS OTHERWISE NOTED)
- SURFACE WATER FLOW

N

SLOPE INTERCEPT

TYPE C

30BW

BELKNAP ST WB

30BE

BELKNAP ST EB

32BW

32BE

32P

34B

34P

MATCH LINE STA 34+00 BW

SLOPE INTERCEPT

TYPE C

26BE

28BE

PENNSYLVANIA AVE

MISSOURI AVE

MARYLAND AVE

SIGNS

SIGN

OH

SSS

W

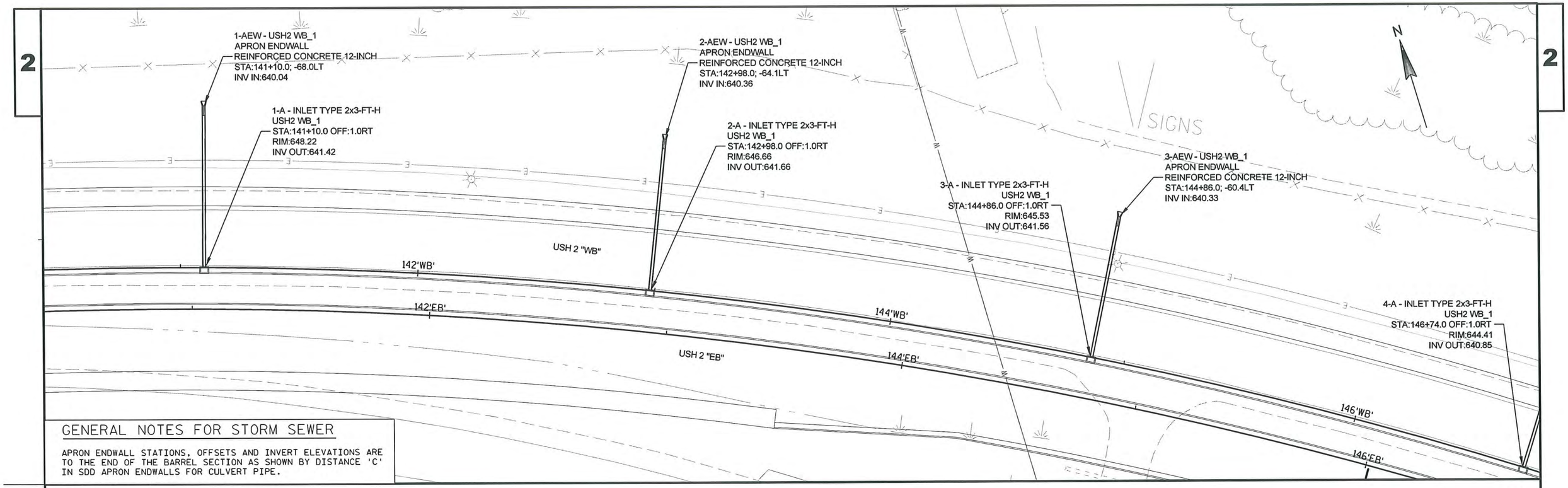
INL

MH

WV

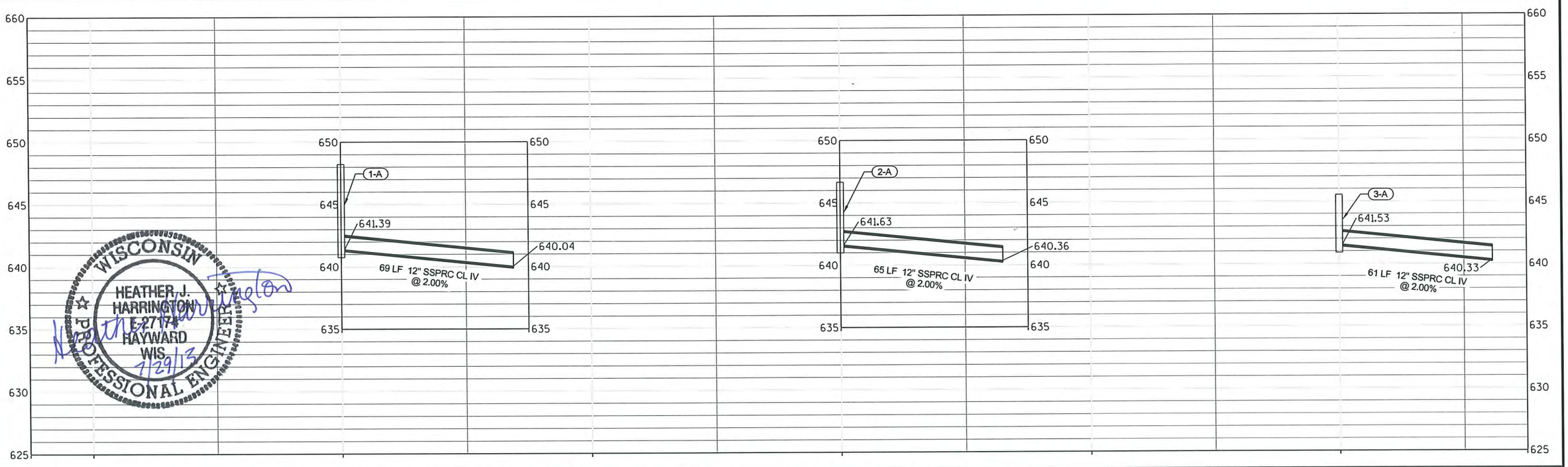
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	EROSION CONTROL - STAGE 3	SHEET 43	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\022006_ec.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100



GENERAL NOTES FOR STORM SEWER

APRON ENDWALL STATIONS, OFFSETS AND INVERT ELEVATIONS ARE TO THE END OF THE BARREL SECTION AS SHOWN BY DISTANCE 'C' IN SDD APRON ENDWALLS FOR CULVERT PIPE.



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	STORM SEWER	SHEET 44 E

4-A - INLET TYPE 2x3-FT-H
USH2 WB_1
STA:146+74.0 OFF:1.0RT
RIM:644.41
INV OUT:640.85

4-AEW - USH2 WB_1
APRON ENDWALL
REINFORCED CONCRETE 12-INCH
STA:146+74.0; -59.4LT
INV IN:640.24

3-B - INLET 3 FT DIA-H
USH2 WB_1
STA:147+75.0 OFF:1.0RT
RIM:643.81
INV IN:639.04
INV OUT:639.04

PT: 147+87.37'WB'

5-AEW - USH2 WB_1
APRON ENDWALL
REINFORCED CONCRETE 24-INCH
STA:148+11.2; -61.4LT

4-B - INLET 4 FT DIA-H
USH2 WB_1
STA:148+11.4 OFF:1.0RT
RIM:643.58
INV IN:638.93
INV IN:638.47
INV OUT:638.47

6-AEW - USH2 WB_1
APRON ENDWALL
REINFORCED CONCRETE 12-INCH
STA:148+75.0; -53.1LT

2-C - INLET TYPE 2x3-FT-H
USH2 WB_1
STA:148+75.0 OFF:1.0RT
RIM:643.21
INV IN:640.32
INV OUT:640.17

7-AEW - USH2 WB_1
APRON ENDWALL
REINFORCED CONCRETE 12-INCH
STA:149+36.5; -58.0LT

PC: 150+12.85'WB'
PT: 150+47.21'WB'
EP: 151+06.54'WB'

146'WB'
146'EB'
148'WB'
148'EB'
150'WB'
150'EB'
151'WB'

USH 2 "WB"
USH 2 "EB"

1-C - INLET TYPE 2x3-FT-H
USH2 WB_1
STA:148+50.0 OFF:1.0RT
RIM:643.36
INV OUT:640.40

1-B - INLET TYPE 2x3-FT-H
USH2 EB-1
STA:147+00.0 OFF:29.4RT
RIM:642.92
INV OUT:639.30

2-B - INLET 3 FT DIA-H
USH2 WB_1
STA:147+50.0 OFF:1.0RT
RIM:643.96
INV IN:639.12
INV OUT:639.12

PT: 147+51.47'EB'

SIGN

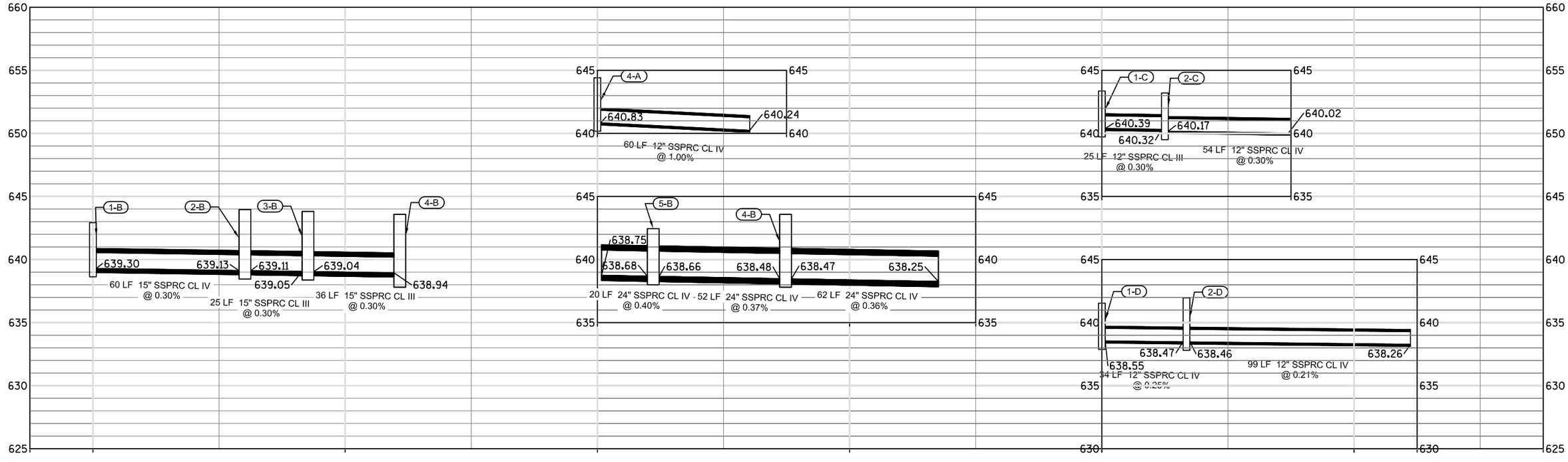
5-B - INLET 4 FT DIA-H
USH2 EB-1
STA:148+00.0 OFF:36.4RT
RIM:642.44
INV IN:638.67
INV OUT:638.67

8-AEW - USH2 EB-1
APRON ENDWALL
REINFORCED CONCRETE 24-INCH
STA:148+00.0; 56.9RT

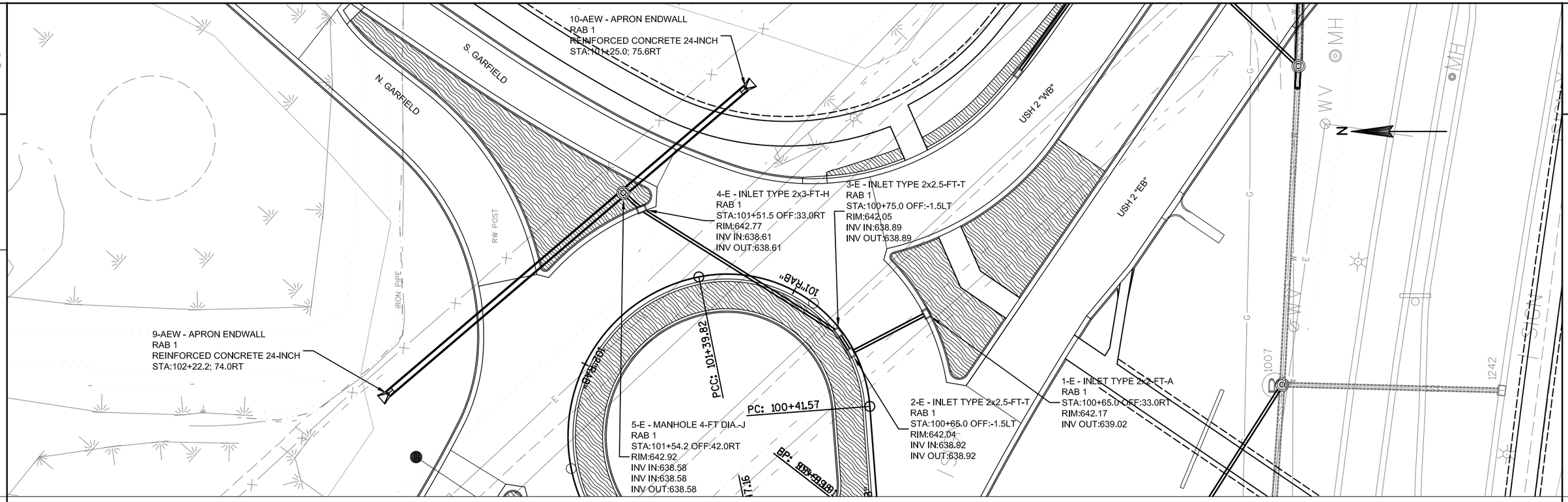
1-D - INLET TYPE 2x3-FT-H
USH2 EB-1
STA:149+05.0 OFF:52.2RT
RIM:641.54
INV OUT:638.55

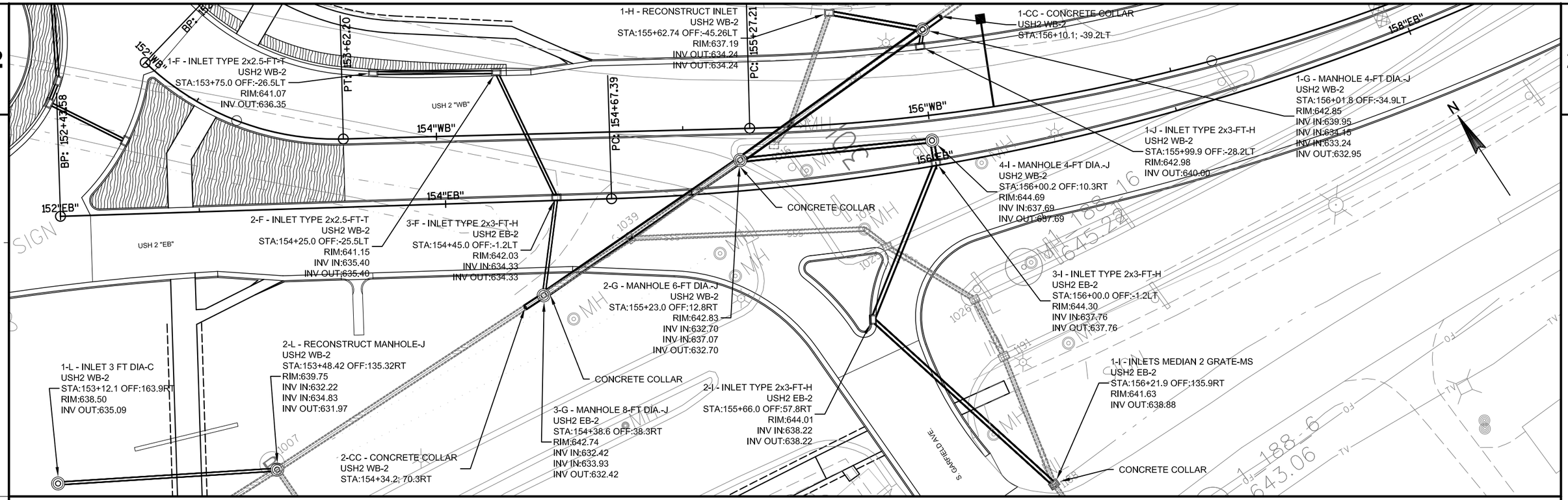
2-D - INLET TYPE 2x3-FT-H
USH2 EB-1
STA:149+25.0 OFF:25.3RT
RIM:641.96
INV IN:638.47
INV OUT:638.47

PC: 149+38.39'EB'
PT: 150+74.46'EB'
EP: 150+83.39'EB'

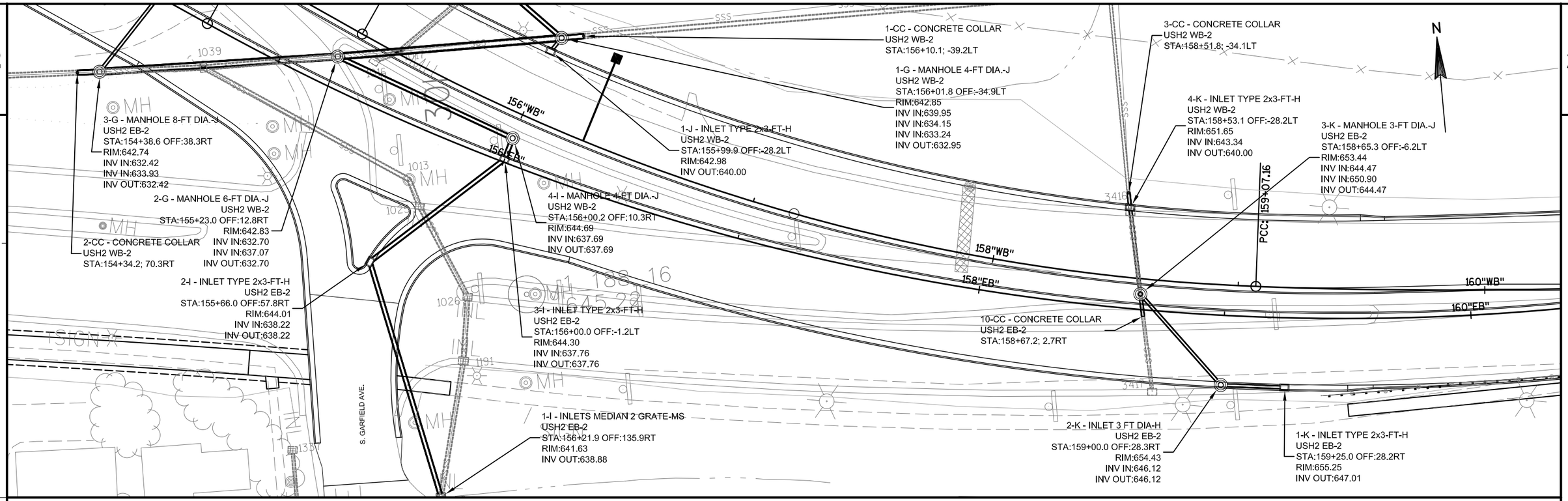


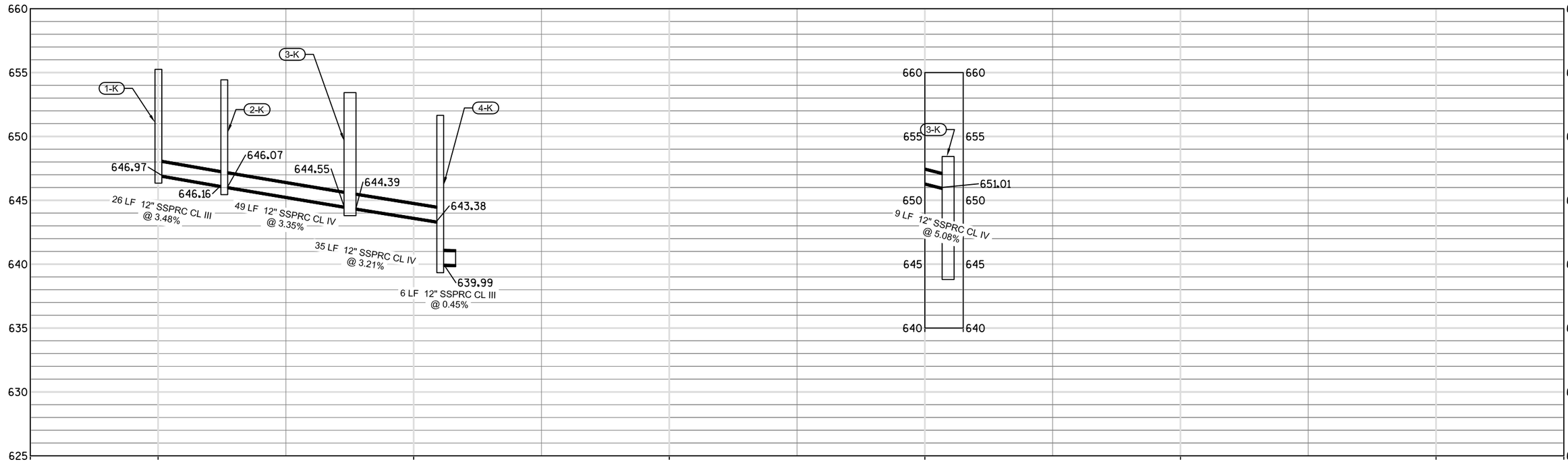
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	STORM SEWER	SHEET 45	E


10-AEW - APRON ENDWALL
RAB 1
REINFORCED CONCRETE 24-INCH
STA:101+25.0; 75.6RT
S. GARFIELD
N. GARFIELD
USH 2 "WB"
USH 2 "EB"
4-E - INLET TYPE 2x3-FT-H
RAB 1
STA:101+51.5 OFF:33.0RT
RIM:642.77
INV IN:638.61
INV OUT:638.61
3-E - INLET TYPE 2x2.5-FT-T
RAB 1
STA:100+75.0 OFF:-1.5LT
RIM:642.05
INV IN:638.89
INV OUT:638.89
9-AEW - APRON ENDWALL
RAB 1
REINFORCED CONCRETE 24-INCH
STA:102+22.2; 74.0RT
IRON PIPE
RW POST
101'RAB"
PCC: 101+39.82
PC: 100+41.57
5-E - MANHOLE 4-FT DIA.-J
RAB 1
STA:101+54.2 OFF:42.0RT
RIM:642.92
INV IN:638.58
INV IN:638.58
INV OUT:638.58
2-E - INLET TYPE 2x2.5-FT-T
RAB 1
STA:100+65.0 OFF:-1.5LT
RIM:642.04
INV IN:638.92
INV OUT:638.92
1-E - INLET TYPE 2x2-FT-A
RAB 1
STA:100+65.0 OFF:33.0RT
RIM:642.17
INV OUT:639.02
WV
MH
1007
1242
N
1-E
2-E
3-E
4-E
5-E
639.02
638.92
638.92
638.89
638.90
638.61
638.61
638.59
35 LF 12" SSPRC CL IV @ 0.30%
10 LF 12" SSPRC CL IV @ 0.30%
94 LF 12" SSPRC CL IV @ 0.30%
10 LF 12" SSPRC CL III @ 0.30%
638.25
638.57
638.59
638.75
125 LF 24" SSPRC CL IV @ 0.26%
65 LF 24" SSPRC CL IV @ 0.26%
660
655
650
645
640
635
630
625

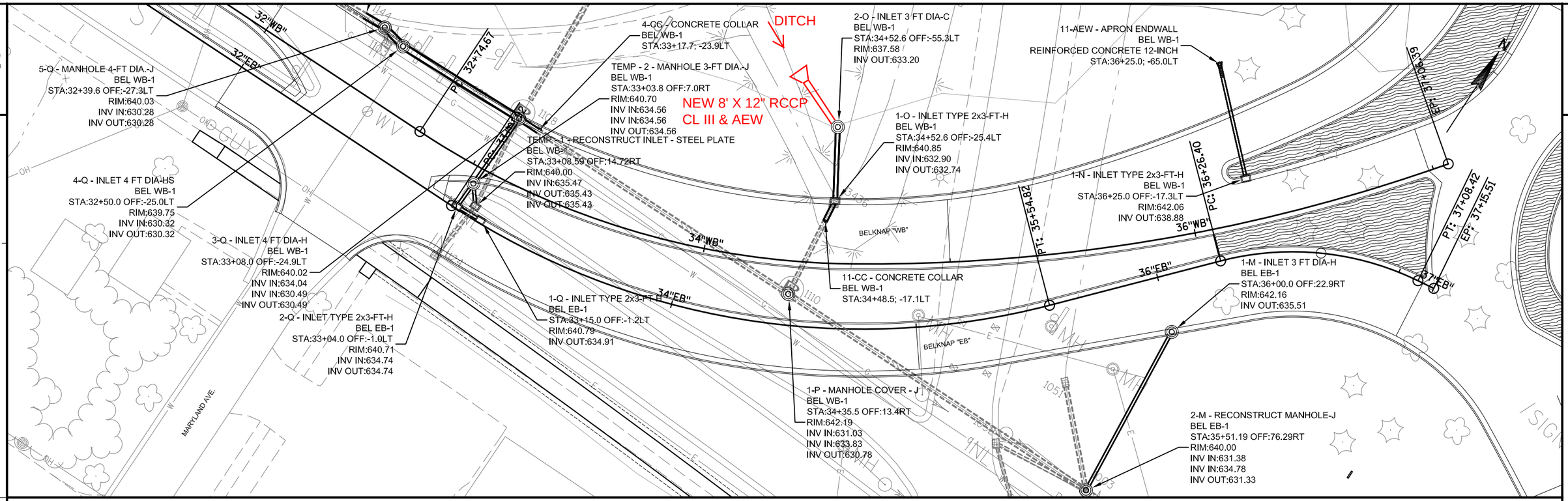


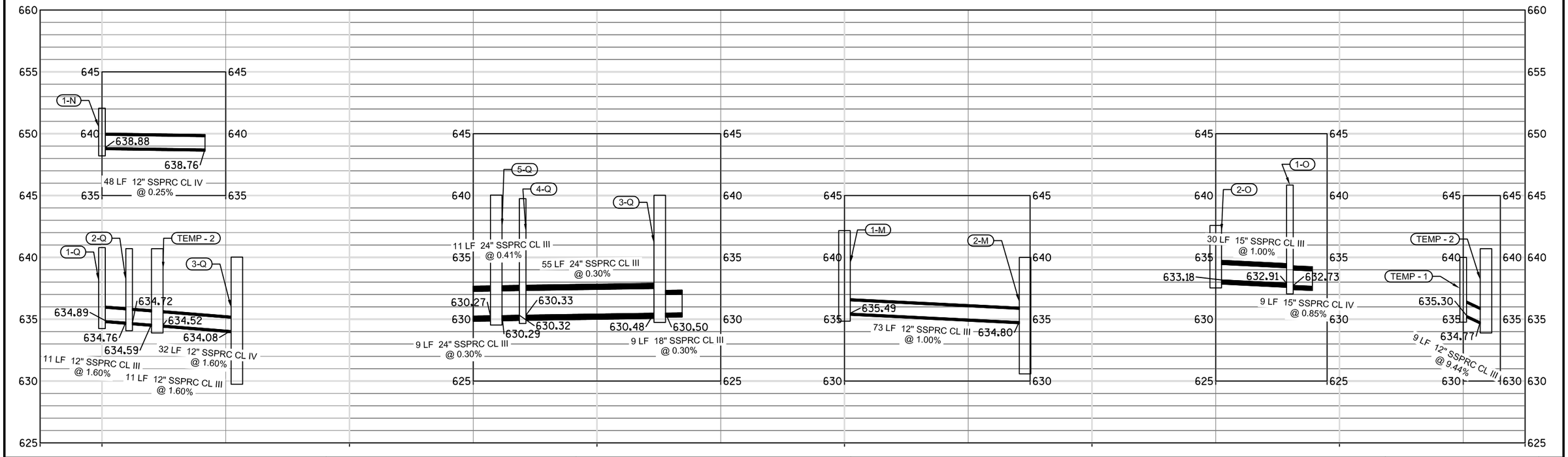
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	STORM SEWER	SHEET 47	E



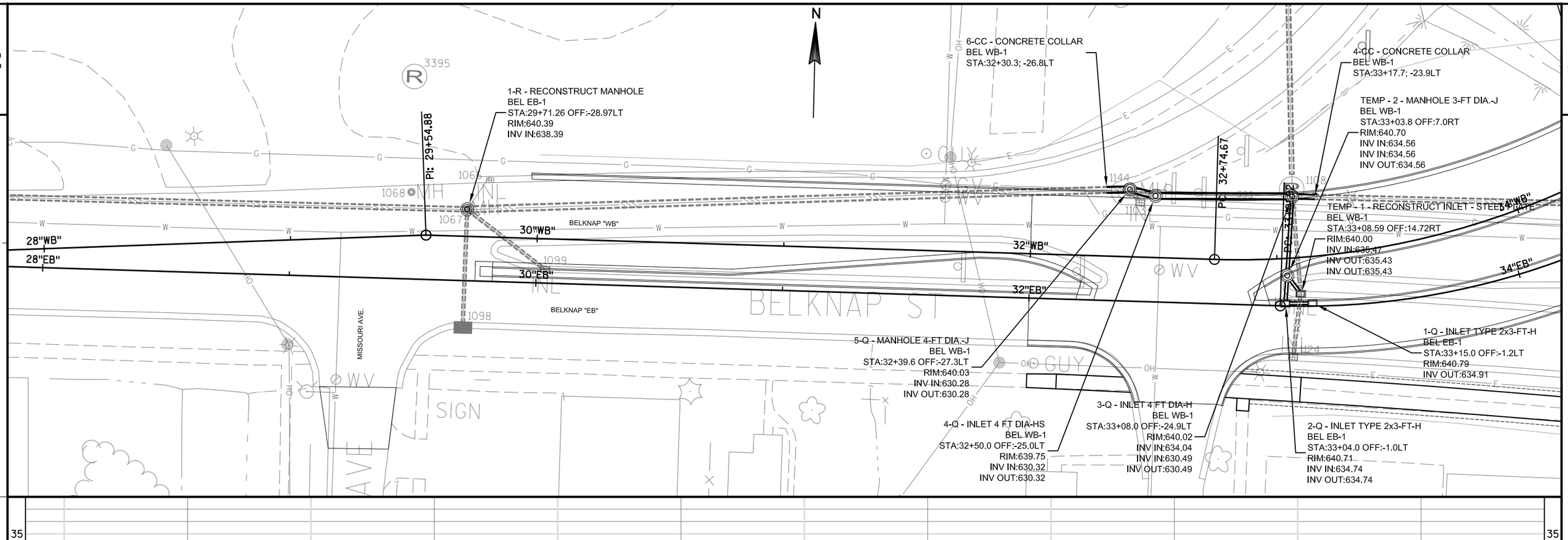


PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	STORM SEWER	SHEET 48	E





PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	STORM SEWER	SHEET 49	E



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	STORM SEWER	SHEET	E

2

EP: 151+61.71

PC: 36+26.40

REMOVE INLET

PT: 35+54.82

REMOVE STORM SEWER (15")

REMOVE INLET

REMOVE STORM SEWER (15")

REMOVE INLET

PCC: 34+61.08

REMOVE INLET

ABANDON CULVERT PIPE

REMOVE STORM SEWER (15")

REMOVE STORM SEWER (12")

REMOVE MANHOLE

REMOVE STORM SEWER (18")

REMOVE STORM SEWER (12")

REMOVE TEMP. MANHOLE

REMOVE STORM SEWER (12")

PC: 32+74.67

PC: 33+38.98

REMOVE TEMP. INLET

REMOVE STORM SEWER (15")

REMOVE MANHOLE

REMOVE STORM SEWER (24")

REMOVE INLET

REMOVE INLET

ABANDON CULVERT PIPE

REMOVE STORM SEWER (12")

9+54.88

REMOVE INLET

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	STORM SEWER REMOVALS	SHEET 51	E

2

N

REMOVE INLET

PCC: 159+07.16

158+00.00

REMOVE STORM SEWER (15")

REMOVE STORM SEWER (18")

REMOVE STORM SEWER (12")

REMOVE MANHOLE

REMOVE STORM SEWER (12")

REMOVE INLET

BP: 152+78.71

PT: 153+62.20

PC: 154+67.39

PC: 155+27.21

USH 2 "WB"

BP: 152+43.58

EP: 5+00.00

REMOVE MANHOLE

PT: 4+84.18

USH 2 "EB"

REMOVE STORM SEWER (18")

REMOVE STORM SEWER (15")

REMOVE INLET

REMOVE STORM SEWER (15")

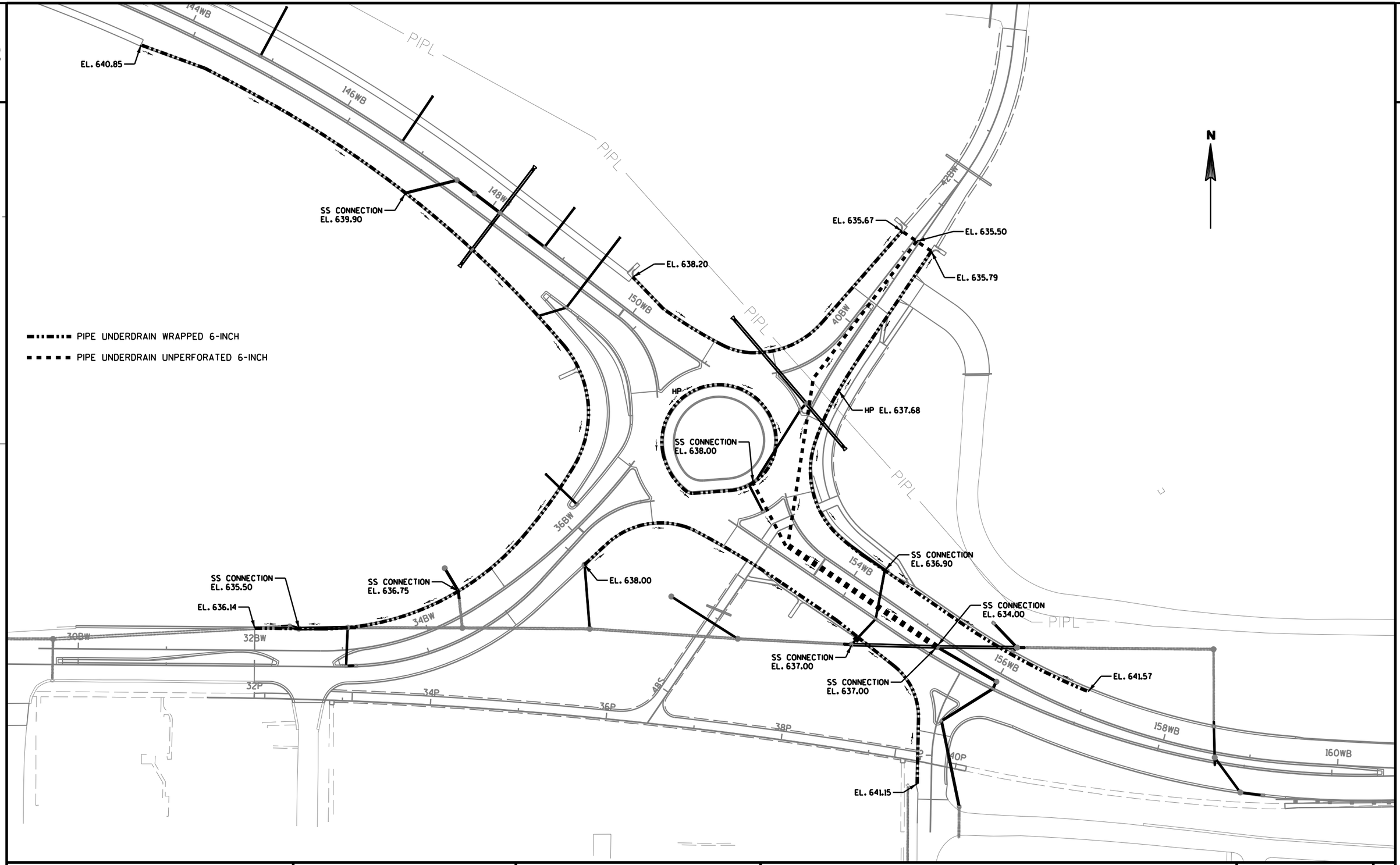
PC: 4+00.67

S GARFIELD AVE

REMOVE INLET

BP: 3+15.67

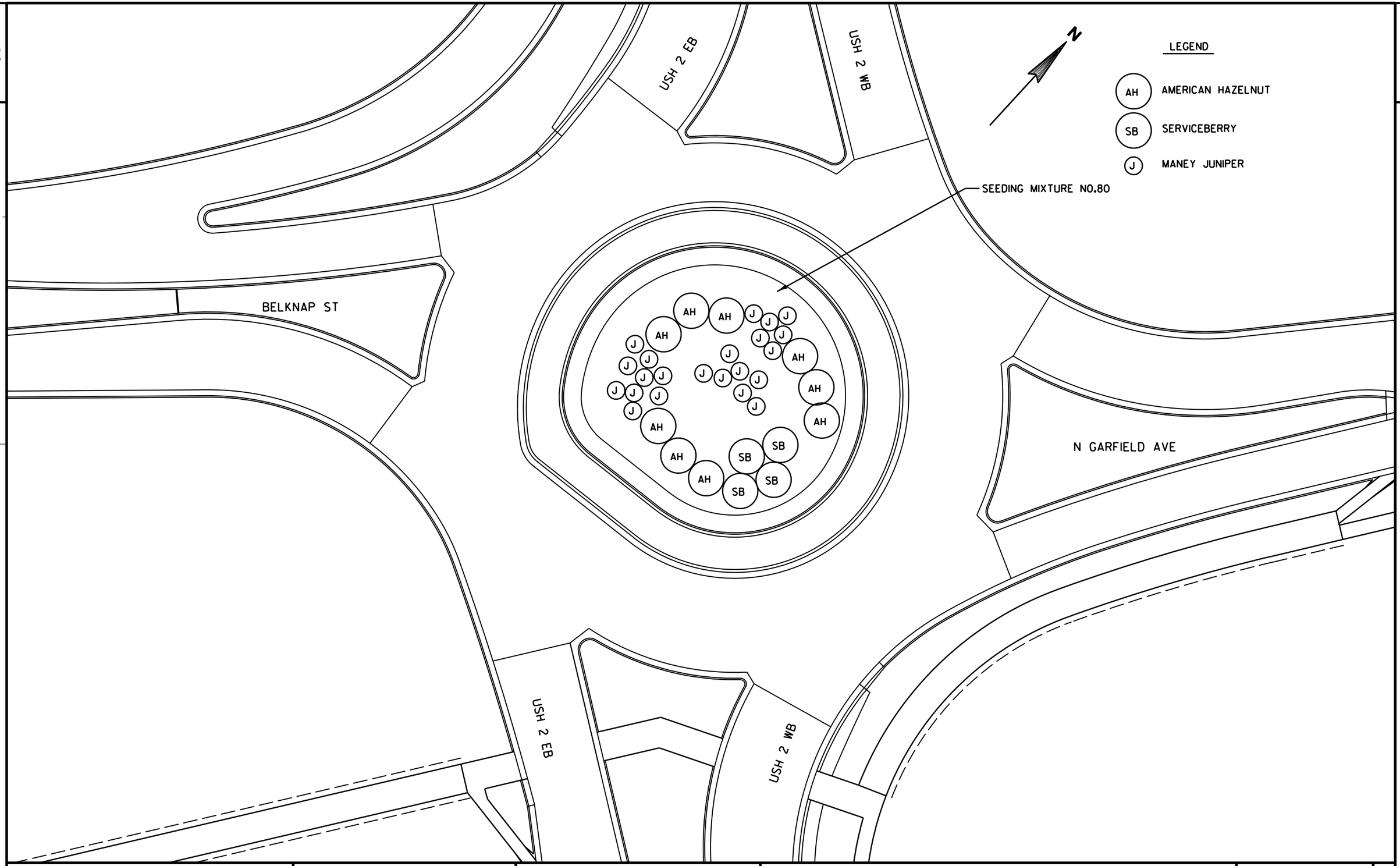
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	STORM SEWER REMOVALS	SHEET 52	E



PROJECT NO: 8680-00-70/8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PIPE UNDERDRAIN LAYOUT	SHEET 53	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\022601_pu.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 42



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PLANTING DETAIL	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\023101_p1.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:30
WISDOT/CADDS SHEET 42

2

SIGN LEGEND

- EXISTING SIGN ON WOOD/STEEL POST(S)
- EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- PROPOSED SIGN ON WOOD POST(S)
- PROPOSED SIGN ON TUBULAR STEEL POST(S)
- PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- SIGN NO. - REMOVE AND REPLACE
- SIGN NO. - REMOVE EXISTING
- SIGN NO. - INSTALL NEW
- SIGN NO. - MOVE SIGN ONLY

N

5 — SPEED LIMIT 55 — R2-1, 36" X 48"

7 — LAKE SUPERIOR ROUTE — M1-91, 24" X 24"

8 — St Louis Bay — I3-1, 96" X 21"

MATCHLINE STA 109+80

USH 2 WB

USH 2 EB

6 — EAST 2 — M3-2, 36" X 18"; M1-4, 36" X 36"; J4-1, 36" X 54"

9 — SPEED LIMIT 55 — R2-1, 36" X 48"

10 — LAKE SUPERIOR ROUTE — M1-91, 24" X 24"

WISCONSIN PROFESSIONAL ENGINEER
HEATHER J. HARRINGTON
E-27174
HAYWARD
WIS.
7/25/13

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET	E

FILE NAME : W:\NWBE_PROJECTS\DESIGN\1028_AYRES_BONG_BR\CADD\Perm Signing\86800000_ps1.dgn PLOT DATE : 7/25/2013 PLOT BY : NWBE-gtc PLOT NAME : PLOT SCALE : N/A

2

SIGN LEGEND

- EXISTING SIGN ON WOOD/STEEL POST(S)
- EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- PROPOSED SIGN ON WOOD POST(S)
- PROPOSED SIGN ON TUBULAR STEEL POST(S)
- PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- SIGN NO. - REMOVE AND REPLACE
- SIGN NO. - REMOVE EXISTING
- SIGN NO. - INSTALL NEW
- SIGN NO. - MOVE SIGN ONLY

N

MATCHLINE STA 109+80

MATCHLINE STA 117+45

USH 2 WB

USH 2 EB

11

Douglas Co

12-2
84" X 21"

12

BUCKLE UP
IT'S THE LAW

R5-53A
42" X 54"

13

GIVE YOURSELF A HUG BUCKLE UP
It's Our Law

14

Superior
POPULATION 27,244

12-3
66" X 24"

15

LOGO
TREE CITY USA
Arbor Day Foundation

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET	E

FILE NAME : W:\NWBE_PROJECTS\DESIGN\1028_AYRES_BONG_BR\CADD\Perm Signing\86800000_ps2.dgn PLOT DATE : 7/25/2013 PLOT BY : NWBE-gtc PLOT NAME : PLOT SCALE : N/A

2

SIGN LEGEND

- EXISTING SIGN ON WOOD/STEEL POST(S)
- EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- PROPOSED SIGN ON WOOD POST(S)
- PROPOSED SIGN ON TUBULAR STEEL POST(S)
- PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- SIGN NO. - REMOVE AND REPLACE
- SIGN NO. - REMOVE EXISTING
- SIGN NO. - INSTALL NEW
- SIGN NO. - MOVE SIGN ONLY

N

18

W4-1
36" X 36"

ENTRANCE RAMP FROM SUSQUEHANNA AVE

MATCHLINE STA 117+45

MATCHLINE STA 125+15

USH 2 WB

USH 2 EB

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET 57	E

2

RAMP CLOSED
~~USE~~
ALT ROUTE

R11-54F
48" X 30"

20

N

ENTRANCE RAMP TO USH 2 WB

SUSQUEHANNA AVE.

MATCHLINE STA 125+15

USH 2 WB

USH 2 EB

MATCHLINE STA 132+75

125+00 126+00 127+00 128+00 129+00 130+00 131+00 132+00

19

2 X

SPEED LIMIT 30

40 MPH

W3-5
36" X 36"

22

SPEED LIMIT 35

SIGN LEGEND

- EXISTING SIGN ON WOOD/STEEL POST(S)
- EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- PROPOSED SIGN ON WOOD POST(S)
- PROPOSED SIGN ON TUBULAR STEEL POST(S)
- PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- SIGN NO. - REMOVE AND REPLACE
- SIGN NO. - REMOVE EXISTING
- SIGN NO. - INSTALL NEW
- SIGN NO. - MOVE SIGN ONLY

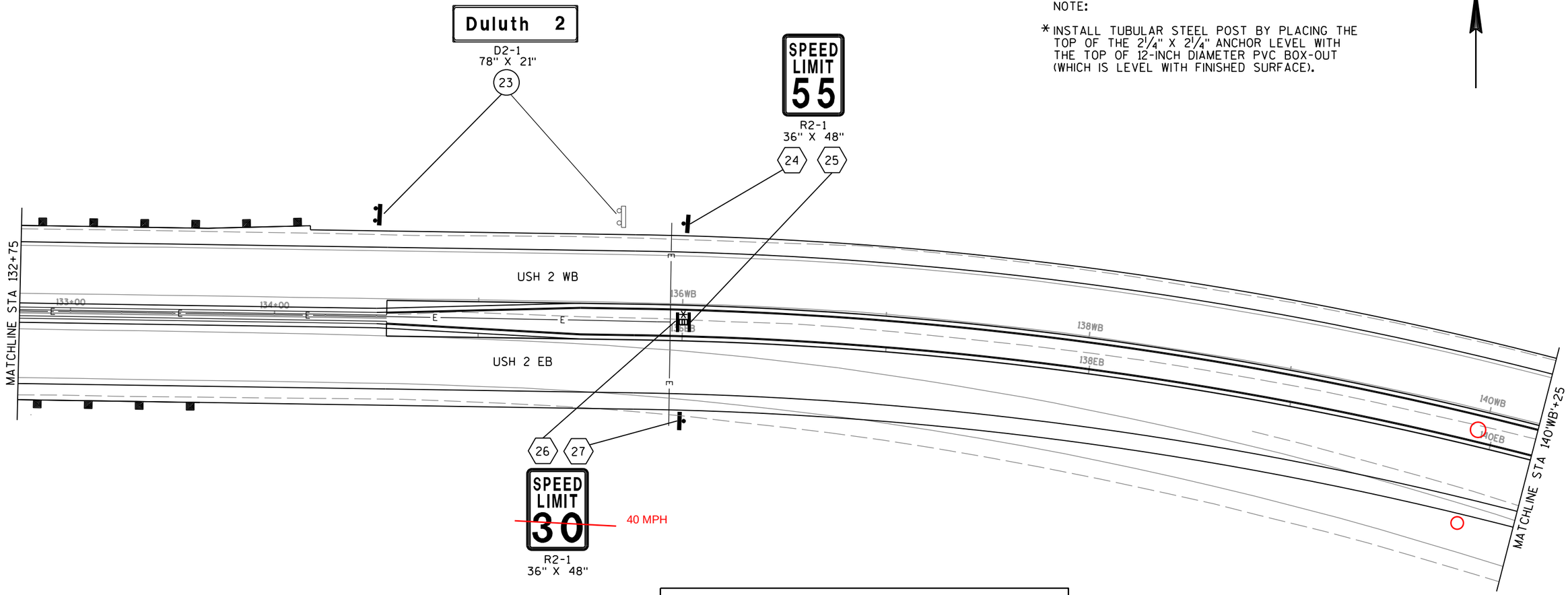
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET 58	E

2

NOTE:

* INSTALL TUBULAR STEEL POST BY PLACING THE TOP OF THE 2¼" X 2¼" ANCHOR LEVEL WITH THE TOP OF 12-INCH DIAMETER PVC BOX-OUT (WHICH IS LEVEL WITH FINISHED SURFACE).

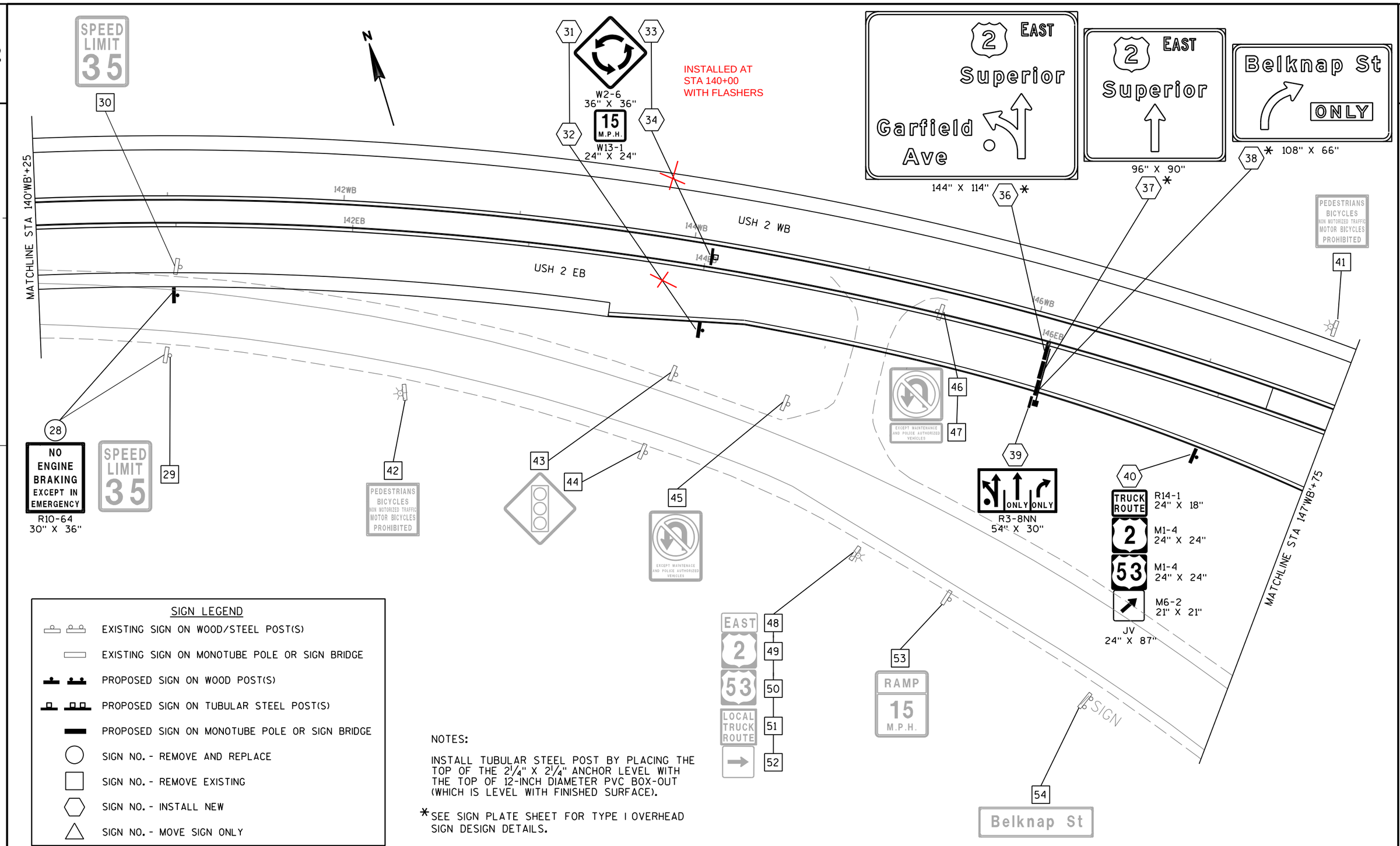
N



SIGN LEGEND

- EXISTING SIGN ON WOOD/STEEL POST(S)
- EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- PROPOSED SIGN ON WOOD POST(S)
- PROPOSED SIGN ON TUBULAR STEEL POST(S)
- PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- SIGN NO. - REMOVE AND REPLACE
- SIGN NO. - REMOVE EXISTING
- SIGN NO. - INSTALL NEW
- SIGN NO. - MOVE SIGN ONLY

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET 59	E



SIGN LEGEND

- EXISTING SIGN ON WOOD/STEEL POST(S)
- EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- PROPOSED SIGN ON WOOD POST(S)
- PROPOSED SIGN ON TUBULAR STEEL POST(S)
- PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- SIGN NO. - REMOVE AND REPLACE
- SIGN NO. - REMOVE EXISTING
- SIGN NO. - INSTALL NEW
- SIGN NO. - MOVE SIGN ONLY

NOTES:

INSTALL TUBULAR STEEL POST BY PLACING THE TOP OF THE 2¼" X 2¼" ANCHOR LEVEL WITH THE TOP OF 12-INCH DIAMETER PVC BOX-OUT (WHICH IS LEVEL WITH FINISHED SURFACE).

* SEE SIGN PLATE SHEET FOR TYPE I OVERHEAD SIGN DESIGN DETAILS.

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET 60 E

NOTES:

INSTALL TUBULAR STEEL POST BY PLACING THE TOP OF THE 2 1/4" X 2 1/4" ANCHOR LEVEL WITH THE TOP OF 12-INCH DIAMETER PVC BOX-OUT (WHICH IS LEVEL WITH FINISHED SURFACE).

*TEMPORARY 18" X 18" ORANGE FLAGS ARE INCIDENTAL TO THE INSTALLATION OF YIELD SIGNS.

SEE NEXT SHEET FOR CONTINUATION OF ROUNDABOUT AND SHARED-USE PATH PERMANENT SIGNING.

SIGN LEGEND

- EXISTING SIGN ON WOOD/STEEL POST(S)
- EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- PROPOSED SIGN ON WOOD POST(S)
- PROPOSED SIGN ON TUBULAR STEEL POST(S)
- PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- SIGN NO. - REMOVE AND REPLACE
- SIGN NO. - REMOVE EXISTING
- SIGN NO. - INSTALL NEW
- SIGN NO. - MOVE SIGN ONLY

N

MATCHLINE STA 147+75

148WB

148EB

USH 2 EB

USH 2 WB

150WB

150EB

67 WEST 2 M3-2 36" X 18" M1-4 36" X 36" J4-1 36" X 54"

69 PEDESTRIANS BICYCLES NON MOTORIZED TRAFFIC MOTOR BICYCLES PROHIBITED R5-57 36" X 36"

66 W3-2 36" X 36"

68 W12-1D 24" X 24"

75 WEST 2 D1-1 42" X 30"

76 RAMP CLOSED ~~USE~~ ALT ROUTE R11-54F 48" X 30"

90 91 YIELD R1-2 36" X 31" TO TRAFFIC FROM LEFT R1-54 24" X 15"

59 60 61 EAST 2

70 YIELD R1-2 36" X 31"

71 ONE WAY R6-2R 24" X 30"

55 56 57 58 TRUCK ROUTE 2 53

62

63 WRONG WAY

72 YIELD R1-2 36" X 31"

73 TO TRAFFIC FROM LEFT R1-54 24" X 15"

64 65 15 M.P.H.

74 W4-3R 36" X 36"

BELKNAP ST. WB

BELKNAP ST. EB

37+00 BW

37+00 BE

36+00 BW

39+00 BW

40+00 BW

40+00 BE

41+00 BW

41+00 BE

42+00 BW

42+00 BE

77 78 79 80 R6-1R 54" X 18" ONE WAY R6-4B 60" X 24" 86 87 88 89

81 EAST 2 D1-1 42" X 30"

98 Belknap St EAST 2 WEST 2 D1-62 108" X 60"

97 ONLY R3-8DD 36" X 30"

94 R4-7 24" X 30"

95 SPEED LIMIT 25 R2-1 24" X 30"

96 STOP R1-1 30" X 30"

99 W2-6 30" X 30" 15 M.P.H. W13-1 18" X 18"

100

94.5 STOP R1-1 24" X 24"

92 82 YIELD R1-2 36" X 31"

93 83 ONE WAY R6-2R 24" X 30"

84 85 YIELD R1-2 36" X 31" TO TRAFFIC FROM LEFT R1-54 24" X 15"

N. GARFIELD AVE.

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET E

FILE NAME : W:\NWBE_PROJECTS\DESIGN\1028_AYRES_BONG_BR\CADD\Perm Signing\86800000_ps7a.dgn PLOT DATE : 11/18/2013 PLOT BY : NWBE PLOT NAME : PLOT SCALE : N/A

WISDOT/CADDS SHEET 42

SIGN LEGEND

- EXISTING SIGN ON WOOD/STEEL POST(S)
- EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- PROPOSED SIGN ON WOOD POST(S)
- PROPOSED SIGN ON TUBULAR STEEL POST(S)
- PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- SIGN NO. - REMOVE AND REPLACE
- SIGN NO. - REMOVE EXISTING
- SIGN NO. - INSTALL NEW
- SIGN NO. - MOVE SIGN WITH SUPPORT(S)

NOTES:

INSTALL TUBULAR STEEL POST BY PLACING THE TOP OF THE 2¼" X 2¼" ANCHOR LEVEL WITH THE TOP OF 12-INCH DIAMETER PVC BOX-OUT (WHICH IS LEVEL WITH FINISHED SURFACE).

*TEMPORARY 18" X 18" ORANGE FLAGS ARE INCIDENTAL TO THE INSTALLATION OF YIELD SIGNS.

SEE PRECEDING SHEET FOR CONTINUATION OF ROUNDABOUT PERMANENT SIGNING.

101 DO NOT ENTER

102 Garfield Ave WEST 2 EAST 2 — D1-62 108" X 60"

103 SPEED LIMIT 30 — R2-1 24" X 30"

104 ONLY — R3-8EE 36" X 30"

105 ONLY — R3-8EE 36" X 30"

106 YIELD — R1-2 36" X 31"

107 ONE WAY — R6-2R 24" X 30"

108 YIELD — R1-2 36" X 31"

109 TO TRAFFIC FROM LEFT — R1-54 24" X 15"

110

111 STOP

112

113

114 DO NOT ENTER

115

116

117

118 EAST 2

119

120

121 EAST LAKE SUPERIOR SHORE DRIVE

122

123

124 STOP

125 WRONG WAY

126 ← West Duluth

127 WRONG WAY

128 LEFT TURN LANE

130 WEST 2 EAST 2 BIKE ROUTE

131

132 TRUCK ROUTE WEST 2

133 DO NOT ENTER

134

135 WEST 2

136

137 STOP — R1-1 24" X 24"

138

139 W16-7L 24" X 12"

140

141

142

143 W11-2 30" X 30" — W16-7R 24" X 12"

144

145 W16-7L 24" X 12"

146

147 STOP — R1-1 24" X 24"

148 W3-2 36" X 36"

150

151 WEST 2

152

153

154

BELKNAP ST. WB

BELKNAP ST. EB

MATCHLINE STA 33'BE'+00

OBLITERATED BELKNAP ST.

154WB

154EB

USH 2 WB

USH 2 EB

S. GARFIELD AVE.

MATCHLINE STA 156'WB'+00

N

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET 62 E

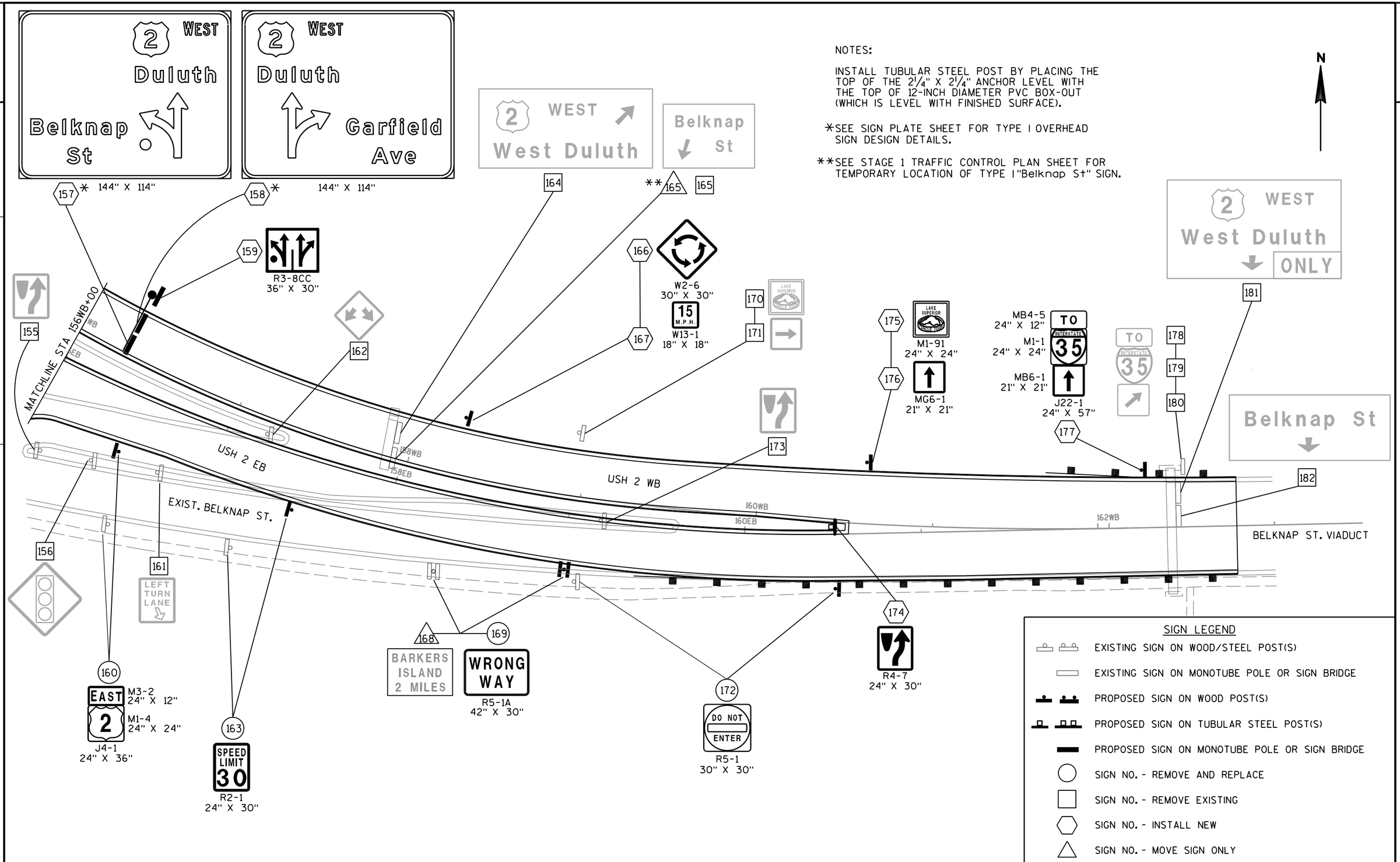
NOTES:

INSTALL TUBULAR STEEL POST BY PLACING THE TOP OF THE 2¼" X 2¼" ANCHOR LEVEL WITH THE TOP OF 12-INCH DIAMETER PVC BOX-OUT (WHICH IS LEVEL WITH FINISHED SURFACE).

*SEE SIGN PLATE SHEET FOR TYPE I OVERHEAD SIGN DESIGN DETAILS.

**SEE STAGE 1 TRAFFIC CONTROL PLAN SHEET FOR TEMPORARY LOCATION OF TYPE I "Belknap St" SIGN.

N



SIGN LEGEND

- EXISTING SIGN ON WOOD/STEEL POST(S)
- EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- PROPOSED SIGN ON WOOD POST(S)
- PROPOSED SIGN ON TUBULAR STEEL POST(S)
- PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- SIGN NO. - REMOVE AND REPLACE
- SIGN NO. - REMOVE EXISTING
- SIGN NO. - INSTALL NEW
- SIGN NO. - MOVE SIGN ONLY

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET 63 E

NOTE:

INSTALL TUBULAR STEEL POST BY PLACING THE TOP OF THE 2¼" X 2¼" ANCHOR LEVEL WITH THE TOP OF 12-INCH DIAMETER PVC BOX-OUT (WHICH IS LEVEL WITH FINISHED SURFACE).

SIGN LEGEND

- EXISTING SIGN ON WOOD/STEEL POST(S)
- EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- PROPOSED SIGN ON WOOD POST(S)
- PROPOSED SIGN ON TUBULAR STEEL POST(S)
- PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- SIGN NO. - REMOVE AND REPLACE
- SIGN NO. - REMOVE EXISTING
- SIGN NO. - INSTALL NEW
- SIGN NO. - MOVE SIGN ONLY

N

26+00 BE BELKNAP ST. 27+00 BE 28+00 BE 29+00 BE

30+00 BW 31+00 BW 32+00 BW 33+00 BW

30+00 BE 31+00 BE 32+00 BE

MATCHLINE STA 33BE+00

PENNSYLVANIA AVE.

MISSOURI AVE.

MARYLAND AVE.

R4-7 24" X 30" — 187

KEEP RIGHT — 188

TRUCK ROUTE EAST 2 SOUTH 53 — 200 201 202 203 204 205

NO TURNS — 210

ONE WAY — 211

DO NOT ENTER — 212

WRONG WAY — 213

207 R4-7 24" X 30"

209 R4-7 24" X 30"

208 STOP R1-1 30" X 30"

206 DO NOT ENTER R5-1 30" X 30"

189 190 191 JCT 2

186 M2-1 21" X 15" M1-4 24" X 24" JCT 2 J1-1 24" X 39"

193 WRONG WAY R5-1A 42" X 30"

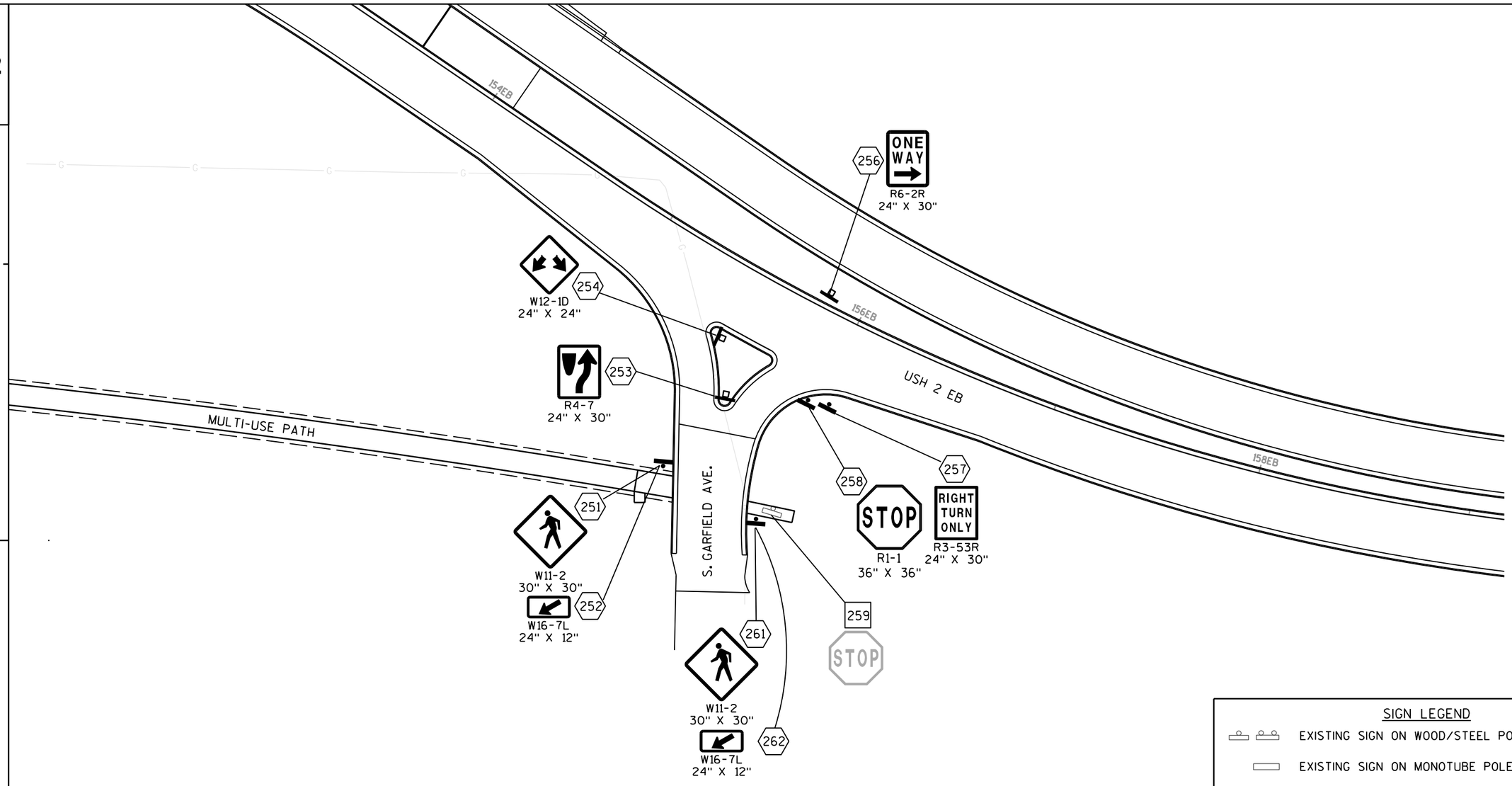
194 198

195 W2-6 30" X 30" 15 M.P.H. W13-1 18" X 18" — 196

185 STOP R1-1 30" X 30"

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET 64	E

FILE NAME : W:\NWBE_PROJECTS\DESIGN\1028_AYRES_BONG_BR\CADD\Perm Signing\86800000_ps10.dgn PLOT DATE : 7/25/2013 PLOT BY : NWBE-gtc PLOT NAME : PLOT SCALE : N/A



NOTES:

INSTALL TUBULAR STEEL POST BY PLACING THE TOP OF THE $2\frac{1}{4}$" X $2\frac{1}{4}$" ANCHOR LEVEL WITH THE TOP OF 12-INCH DIAMETER PVC BOX-OUT (WHICH IS LEVEL WITH FINISHED SURFACE).

SEE SIGN QUANTITY ITEMS FOR I.D. 8680-00-70.

SIGN LEGEND

- EXISTING SIGN ON WOOD/STEEL POST(S)
- EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- PROPOSED SIGN ON WOOD POST(S)
- PROPOSED SIGN ON TUBULAR STEEL POST(S)
- PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
- SIGN NO. - REMOVE AND REPLACE
- SIGN NO. - REMOVE EXISTING
- SIGN NO. - INSTALL NEW
- SIGN NO. - MOVE SIGN WITH SUPPORT(S)

PROJECT NO: 8680-00-70	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET 65	E

2

GENERAL PROJECT INTENT NOTES (LP 1–4) FOR MN WORK

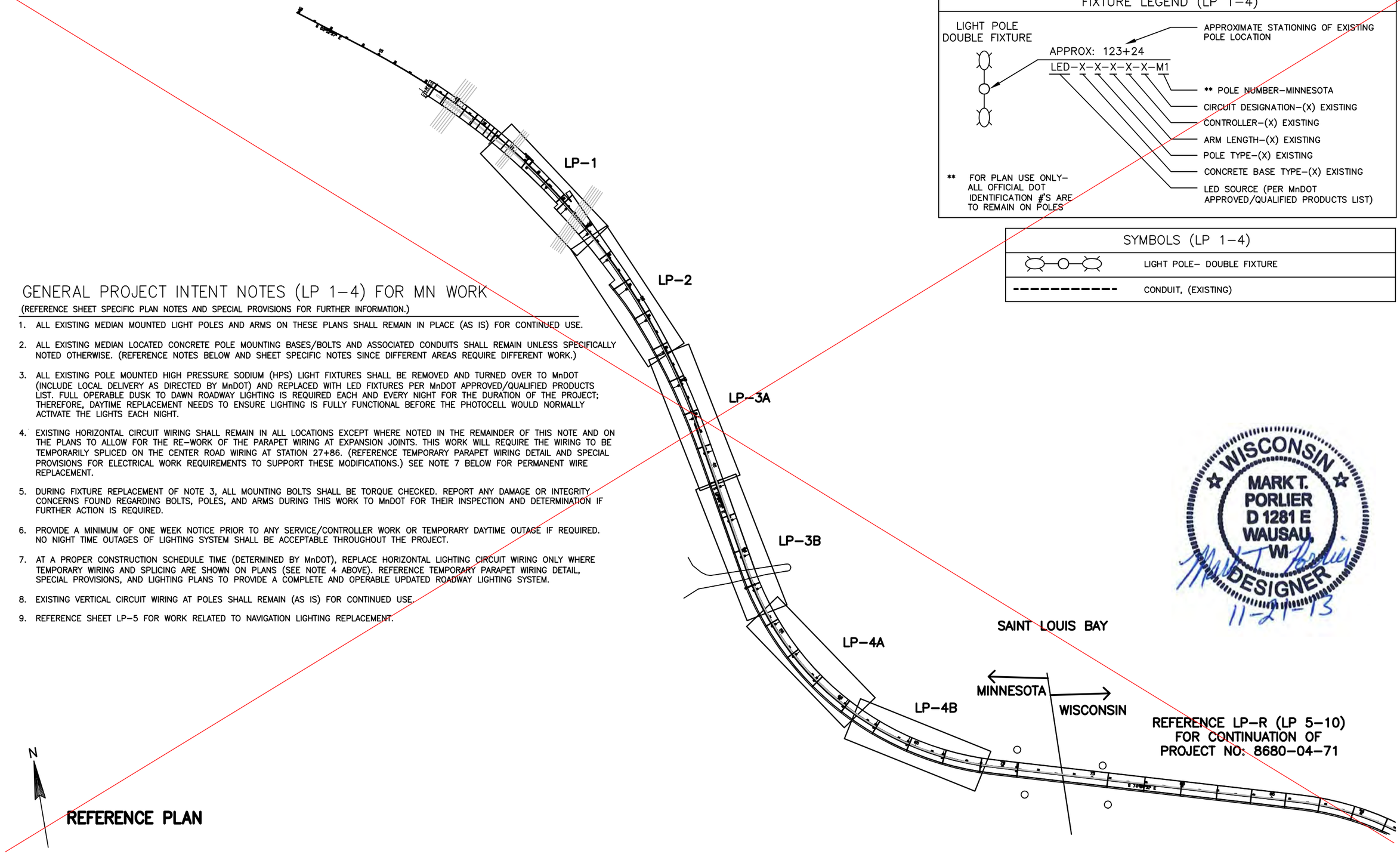
(REFERENCE SHEET SPECIFIC PLAN NOTES AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.)

1. ALL EXISTING MEDIAN MOUNTED LIGHT POLES AND ARMS ON THESE PLANS SHALL REMAIN IN PLACE (AS IS) FOR CONTINUED USE.
2. ALL EXISTING MEDIAN LOCATED CONCRETE POLE MOUNTING BASES/BOLTS AND ASSOCIATED CONDUITS SHALL REMAIN UNLESS SPECIFICALLY NOTED OTHERWISE. (REFERENCE NOTES BELOW AND SHEET SPECIFIC NOTES SINCE DIFFERENT AREAS REQUIRE DIFFERENT WORK.)
3. ALL EXISTING POLE MOUNTED HIGH PRESSURE SODIUM (HPS) LIGHT FIXTURES SHALL BE REMOVED AND TURNED OVER TO MnDOT (INCLUDE LOCAL DELIVERY AS DIRECTED BY MnDOT) AND REPLACED WITH LED FIXTURES PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST. FULL OPERABLE DUSK TO DAWN ROADWAY LIGHTING IS REQUIRED EACH AND EVERY NIGHT FOR THE DURATION OF THE PROJECT; THEREFORE, DAYTIME REPLACEMENT NEEDS TO ENSURE LIGHTING IS FULLY FUNCTIONAL BEFORE THE PHOTOCELL WOULD NORMALLY ACTIVATE THE LIGHTS EACH NIGHT.
4. EXISTING HORIZONTAL CIRCUIT WIRING SHALL REMAIN IN ALL LOCATIONS EXCEPT WHERE NOTED IN THE REMAINDER OF THIS NOTE AND ON THE PLANS TO ALLOW FOR THE RE–WORK OF THE PARAPET WIRING AT EXPANSION JOINTS. THIS WORK WILL REQUIRE THE WIRING TO BE TEMPORARILY SPLICED ON THE CENTER ROAD WIRING AT STATION 27+86. (REFERENCE TEMPORARY PARAPET WIRING DETAIL AND SPECIAL PROVISIONS FOR ELECTRICAL WORK REQUIREMENTS TO SUPPORT THESE MODIFICATIONS.) SEE NOTE 7 BELOW FOR PERMANENT WIRE REPLACEMENT.
5. DURING FIXTURE REPLACEMENT OF NOTE 3, ALL MOUNTING BOLTS SHALL BE TORQUE CHECKED. REPORT ANY DAMAGE OR INTEGRITY CONCERNS FOUND REGARDING BOLTS, POLES, AND ARMS DURING THIS WORK TO MnDOT FOR THEIR INSPECTION AND DETERMINATION IF FURTHER ACTION IS REQUIRED.
6. PROVIDE A MINIMUM OF ONE WEEK NOTICE PRIOR TO ANY SERVICE/CONTROLLER WORK OR TEMPORARY DAYTIME OUTAGE IF REQUIRED. NO NIGHT TIME OUTAGES OF LIGHTING SYSTEM SHALL BE ACCEPTABLE THROUGHOUT THE PROJECT.
7. AT A PROPER CONSTRUCTION SCHEDULE TIME (DETERMINED BY MnDOT), REPLACE HORIZONTAL LIGHTING CIRCUIT WIRING ONLY WHERE TEMPORARY WIRING AND SPLICING ARE SHOWN ON PLANS (SEE NOTE 4 ABOVE). REFERENCE TEMPORARY PARAPET WIRING DETAIL, SPECIAL PROVISIONS, AND LIGHTING PLANS TO PROVIDE A COMPLETE AND OPERABLE UPDATED ROADWAY LIGHTING SYSTEM.
8. EXISTING VERTICAL CIRCUIT WIRING AT POLES SHALL REMAIN (AS IS) FOR CONTINUED USE.
9. REFERENCE SHEET LP–5 FOR WORK RELATED TO NAVIGATION LIGHTING REPLACEMENT.

FIXTURE LEGEND (LP 1–4)

SYMBOLS (LP 1–4)

	LIGHT POLE– DOUBLE FIXTURE
----------	CONDUIT, (EXISTING)

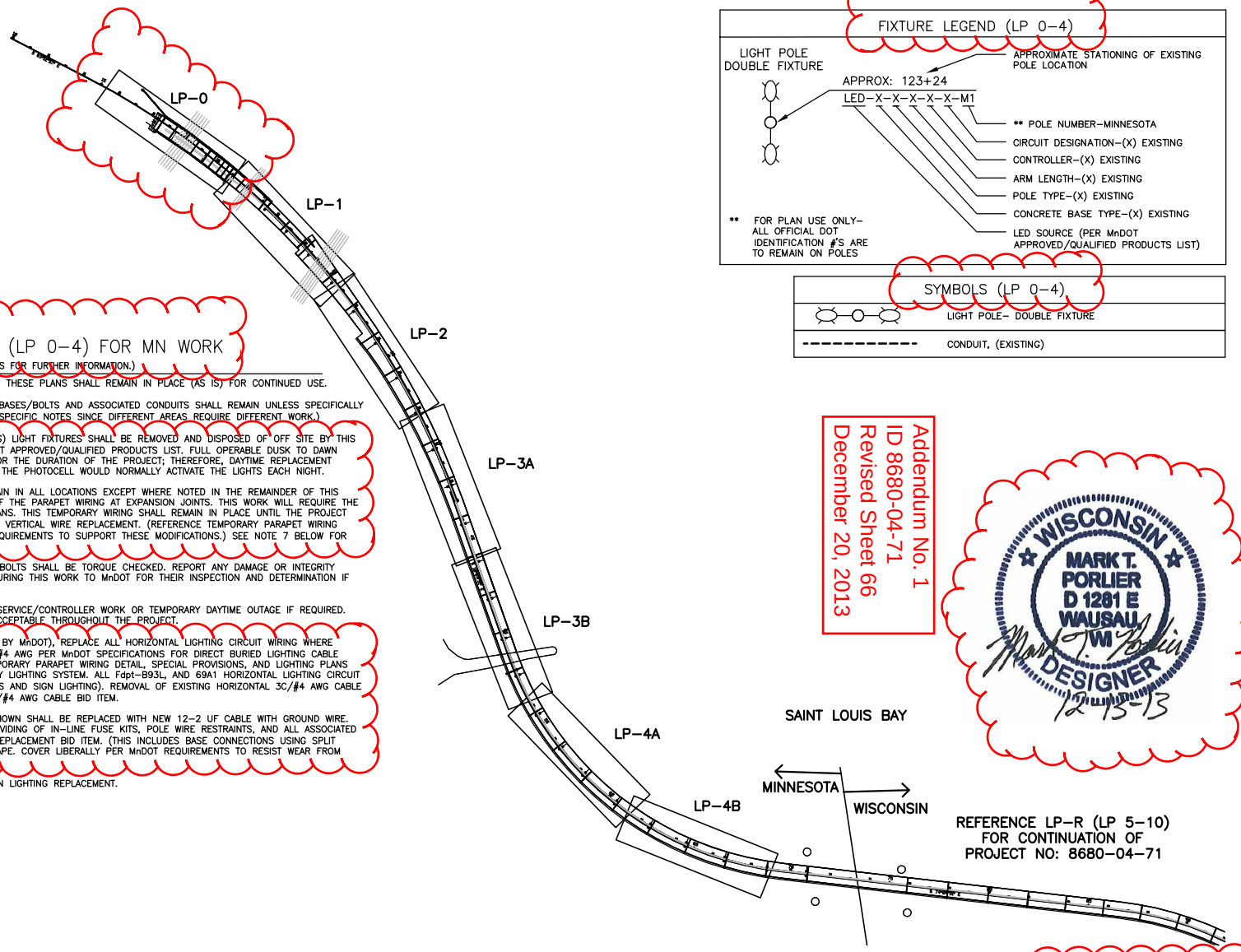


WISCONSIN
MARK T. PORLIER
D 1281 E
WAUSAU, WI
DESIGNER
11-21-13

PROJECT NO: 8680–04–71	HWY: USH–2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING REFERENCE PLAN	SHEET LP–R (L…	E

FILE NAME : P:\A0430120_AYRES – BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LP–R (LP 1–4).DWG PLOT DATE : 11/21/2013 9:42 AM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 500'

WISDOT/CADDS SHEET 42



FIXTURE LEGEND (LP 0-4)

LIGHT POLE
DOUBLE FIXTURE

APPROX: 123+24 — APPROXIMATE STATIONING OF EXISTING POLE LOCATION

LED-X-X-X-X-X-M1

- ** POLE NUMBER-MINNESOTA
- CIRCUIT DESIGNATION-(X) EXISTING
- CONTROLLER-(X) EXISTING
- ARM LENGTH-(X) EXISTING
- POLE TYPE-(X) EXISTING
- CONCRETE BASE TYPE-(X) EXISTING
- LED SOURCE (PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST)

** FOR PLAN USE ONLY- ALL OFFICIAL DOT IDENTIFICATION #'S ARE TO REMAIN ON POLES

SYMBOLS (LP 0-4)

LIGHT POLE- DOUBLE FIXTURE

CONDUIT, (EXISTING)

GENERAL PROJECT INTENT NOTES (LP 0-4) FOR MN WORK

(REFERENCE SHEET SPECIFIC PLAN NOTES AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.)

1. ALL EXISTING MEDIAN MOUNTED LIGHT POLES AND ARMS ON THESE PLANS SHALL REMAIN IN PLACE (AS IS) FOR CONTINUED USE.
2. ALL EXISTING MEDIAN LOCATED CONCRETE POLE MOUNTING BASES/BOLTS AND ASSOCIATED CONDUITS SHALL REMAIN UNLESS SPECIFICALLY NOTED OTHERWISE. (REFERENCE NOTES BELOW AND SHEET SPECIFIC NOTES SINCE DIFFERENT AREAS REQUIRE DIFFERENT WORK.)
3. ALL EXISTING POLE MOUNTED HIGH PRESSURE SODIUM (HPS) LIGHT FIXTURES SHALL BE REMOVED AND DISPOSED OF OFF SITE BY THIS CONTRACTOR AND REPLACED WITH LED FIXTURES PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST. FULL OPERABLE DUSK TO DAWN ROADWAY LIGHTING IS REQUIRED EACH AND EVERY NIGHT FOR THE DURATION OF THE PROJECT; THEREFORE, DAYTIME REPLACEMENT NEEDS TO ENSURE LIGHTING IS FULLY FUNCTIONAL BEFORE THE PHOTOCELL WOULD NORMALLY ACTIVATE THE LIGHTS EACH NIGHT.
4. INITIALLY, EXISTING HORIZONTAL CIRCUIT WIRING SHALL REMAIN IN ALL LOCATIONS EXCEPT WHERE NOTED IN THE REMAINDER OF THIS NOTE AND ON THE PLANS TO ALLOW FOR THE RE-WORK OF THE PARAPET WIRING AT EXPANSION JOINTS. THIS WORK WILL REQUIRE THE WIRING TO BE TEMPORARILY SPLICED WHERE NOTED ON PLANS. THIS TEMPORARY WIRING SHALL REMAIN IN PLACE UNTIL THE PROJECT SCHEDULE IS READY FOR THE PERMANENT HORIZONTAL AND VERTICAL WIRE REPLACEMENT. (REFERENCE TEMPORARY PARAPET WIRING DETAIL AND SPECIAL PROVISIONS FOR ELECTRICAL WORK REQUIREMENTS TO SUPPORT THESE MODIFICATIONS.) SEE NOTE 7 BELOW FOR PERMANENT HORIZONTAL WIRE REPLACEMENT.
5. DURING FIXTURE REPLACEMENT OF NOTE 3, ALL MOUNTING BOLTS SHALL BE TORQUE CHECKED. REPORT ANY DAMAGE OR INTEGRITY CONCERNS FOUND REGARDING BOLTS, POLES, AND ARMS DURING THIS WORK TO MnDOT FOR THEIR INSPECTION AND DETERMINATION IF FURTHER ACTION IS REQUIRED.
6. PROVIDE A MINIMUM OF ONE WEEK NOTICE PRIOR TO ANY SERVICE/CONTROLLER WORK OR TEMPORARY DAYTIME OUTAGE IF REQUIRED. NO NIGHT TIME OUTAGES OF LIGHTING SYSTEM SHALL BE ACCEPTABLE THROUGHOUT THE PROJECT.
7. AT A PROPER CONSTRUCTION SCHEDULE TIME (DETERMINED BY MnDOT), REPLACE ALL HORIZONTAL LIGHTING CIRCUIT WIRING WHERE SHOWN ON PLANS WITH A NEW CABLE CONSISTING OF 4C/#4 AWG PER MnDOT SPECIFICATIONS FOR DIRECT BURIED LIGHTING CABLE TYPE TO BE USED IN EXISTING CONDUITS. REFERENCE TEMPORARY PARAPET WIRING DETAIL, SPECIAL PROVISIONS, AND LIGHTING PLANS TO PROVIDE A COMPLETE AND OPERABLE UPDATED ROADWAY LIGHTING SYSTEM. ALL Fdpt-B93L, AND 69A1 HORIZONTAL LIGHTING CIRCUIT CABLES SHALL BE REPLACED (INCLUDING RUNS TO CABINETS AND SIGN LIGHTING). REMOVAL OF EXISTING HORIZONTAL 3C/#4 AWG CABLE AND DISPOSAL OFF SITE SHALL BE INCIDENTAL TO NEW 4C/#4 AWG CABLE BID ITEM.
8. EXISTING VERTICAL CIRCUIT WIRING AT ALL MnDOT POLES SHOWN SHALL BE REPLACED WITH NEW 12-2 UF CABLE WITH GROUND WIRE. REMOVAL AND DISPOSAL OF EXISTING VERTICAL WIRING, PROVIDING OF IN-LINE FUSE KITS, POLE WIRE RESTRAINTS, AND ALL ASSOCIATED CONNECTIONS SHALL ALL BE INCIDENTAL TO THE FIXTURE REPLACEMENT BID ITEM. (THIS INCLUDES BASE CONNECTIONS USING SPLIT BOLTS TAPED WITH RUBBER TAPE FIRST AND THEN VINYL TAPE. COVER LIBERALLY PER MnDOT REQUIREMENTS TO RESIST WEAR FROM VIBRATION ABRASION).
9. REFERENCE SHEET LP-5 FOR WORK RELATED TO NAVIGATION LIGHTING REPLACEMENT.

Addendum No. 1
ID 8680-04-71
Revised Sheet 66
December 20, 2013

WISCONSIN
MARK T. PORLIER
D 1281 E
WAUSAU
WI
DESIGNER
12-13-13

N

REFERENCE PLAN

PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING REFERENCE PLAN	SHEET LP-R (LP 0-4) E

FILE NAME : P:\A0430120_AYRES - BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LP-R (LP 0-4).DWG PLOT DATE : 12/13/2013 2:18 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 500'

WISDOT/CADDS SHEET 42

REFERENCE LP–R (LP 1–4)
FOR CONTINUATION OF
PROJECT NO: 8680–04–71

US–2

LP–5

LP–6A

LP–6B

LP–7A

LP–7B

DOLPHIN (TYP.)

MINNESOTA

WISCONSIN

SAINT LOUIS BAY

WISCONSIN ABUTMENT

103+25

PROJECT NO: 8680–04–71
(LP–5 THROUGH LP–7A)

PROJECT NO: 8680–04–74
(LP–7B THROUGH LP–10)

LP–8A

LP–8B

LP–9

LP–10

SUSQUEHANNA

REFERENCE LP–R (LP 11–15)
FOR CONTINUATION OF
PROJECT NO: 8680–04–74

N

REFERENCE PLAN

WISCONSIN
MARK T.
PORLIER
D 1281 E
WAUSAU,
WI
DESIGNER
11-21-13

GENERAL PROJECT INTENT NOTES (LP 5–10) FOR WI WORK

(REFERENCE SHEET SPECIFIC PLAN NOTES AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.)

1. ALL EXISTING MEDIAN MOUNTED LIGHT POLES AND ARMS ON THESE PLANS SHALL BE RE–USED. (REFERENCE NOTES BELOW AND SHEET SPECIFIC NOTES SINCE DIFFERENT AREAS REQUIRE DIFFERENT WORK.)

2. ALL EXISTING MEDIAN LOCATED CONCRETE POLE MOUNTING BASES/BOLTS AND ASSOCIATED CONDUITS SHALL REMAIN (UNLESS SPECIFICALLY NOTED OTHERWISE).

3. ALL EXISTING POLE MOUNTED HIGH PRESSURE SODIUM (HPS) LIGHT FIXTURES SHALL BE REMOVED AND TURNED OVER TO WISDOT (INCLUDE LOCAL DELIVERY AS DIRECTED BY WISDOT) AND REPLACED WITH WISDOT "LED–B" TYPE FIXTURES PER LATEST REVISED WISDOT QUALIFIED ELECTRICAL PRODUCTS LIST. FULLY OPERABLE DUSK TO DAWN ROADWAY LIGHTING IS REQUIRED EACH AND EVERY NIGHT FOR THE DURATION OF THE PROJECT; THEREFORE, DAYTIME REPLACEMENT NEEDS TO ENSURE LIGHTING IS FULLY FUNCTIONAL BEFORE THE PHOTOCELL WOULD NORMALLY ACTIVATE THE LIGHTS EACH NIGHT. (IMPORTANT: REFERENCE INTENT NOTES AND SPECIFIC PLAN NOTES RELATED TO EXISTING LIGHT POLE REMOVAL AND RE–INSTALLATION ASSOCIATED WITH POLES LOCATED FROM THE WISCONSIN STATE LINE BRIDGE SPAN TO THE WISCONSIN ABUTMENT AS THIS WORK SHALL BE PERFORMED IN TANDEM WITH FIXTURE REPLACEMENT.)

4. EXISTING LIGHT POLES LOCATED FROM THE WISCONSIN STATE LINE BRIDGE SPAN TO THE WISCONSIN ABUTMENT SHALL BE UNBOLTED FROM THEIR CONCRETE PARAPET BASE AND TEMPORARILY LIFTED TO ACCOMMODATE THE FOLLOWING RE–WORK:
   a. DISCONNECT VERTICAL WIRING FROM HORIZONTAL WIRING (LEAVING HORIZONTAL WIRING AND SPLICES INTACT).
   b. REMOVE TRANSFORMER BREAKAWAY BASES AND TURN OVER TO WISDOT.
   c. PROVIDE NEW STANDARD WISDOT TRANSFORMER BREAKAWAY BASES AND RE–SET POLE ON ITS EXISTING PARAPET FOUNDATION AND RE–TORQUE AS REQUIRED.
   d. REPLACE VERTICAL WIRING IN EXISTING POLE WITH NEW #12 XLPE FROM HORIZONTAL WIRING TO NEW FIXTURE. PROVIDE NEW TANDEM FUSE HOLDERS AND FUSES PER DETAIL.
   e. THIS WORK SHALL BE PERFORMED IN TANDEM WITH INTENT NOTE #3 WORK.
   f. HORIZONTAL WIRING SHALL BE REPLACED AT A LATER TIME OF CONSTRUCTION AND COORDINATED WITH OVERALL WISDOT CONSTRUCTION SCHEDULE AFTER THE TEMPORARY PARAPET WIRING IS DETERMINED TO BE NO LONGER USED.

5. EXISTING HORIZONTAL CIRCUIT WIRING SHALL REMAIN DURING THE FIXTURE REPLACEMENT AND REMAIN UP TO APPROXIMATELY ONE YEAR TO ALLOW FOR OTHERS TO RE–WORK CONCRETE PARAPET AT EXPANSION JOINTS. (REFERENCE TEMPORARY PARAPET WIRING DETAIL AND SPECIAL PROVISIONS FOR ELECTRICAL WORK REQUIREMENTS TO SUPPORT THESE MODIFICATIONS. REFERENCE CIVIL PLANS FOR QUANTITY AND LOCATIONS.)

6. EXISTING LIGHT POLES LOCATED FROM THE WISCONSIN ABUTMENT EAST TO THE LAST MEDIAN MOUNTED TWIN HEAD POLE MOUNTED EAST OF THE SUSQUEHANNA AVE. OVERPASS (INCLUDING POLES ON THE WESTBOUND RAMP FROM SUSQUEHANNA TO ITS WEAVE ONTO USH–2) SHALL REMAIN BOLTED IN PLACE. NO TRANSFORMER BASE REPLACEMENTS ARE SCHEDULED FOR THESE POLES. DURING FIXTURE AND VERTICAL WIRE REPLACEMENT OF NOTES 3 AND 4, ALL MOUNTING BOLTS SHALL BE TORQUE CHECKED. REPORT ANY DAMAGE OR INTEGRITY CONCERNS FOUND REGARDING BOLTS, TRANSFORMER BASES, POLES, AND ARMS DURING THIS WORK TO WISDOT FOR THEIR INSPECTION AND DETERMINATION IF FURTHER ACTION IS REQUIRED.

7. PROVIDE 2 NEW LIGHTING CONTROLLERS AND 2 NEW ELECTRICAL SERVICE DROPS PER PLANS AND SPECIAL PROVISIONS. REMOVE 2 EXISTING CONTROLLERS OFF OF THEIR WOODEN POLE MOUNTS IN THEIR ENTIRETY AND DISPOSE OF OFF SITE. COORDINATE WORK AND OUTAGES WITH LOCAL UTILITY AND WISDOT. PROVIDE A MINIMUM OF ONE WEEK NOTICE PRIOR TO ANY SERVICE/CONTROLLER WORK OR TEMPORARY DAYTIME OUTAGE. NO NIGHT TIME OUTAGES OF LIGHTING SYSTEMS SHALL BE ACCEPTABLE THROUGHOUT THE PROJECT.

8. AT A PROPER CONSTRUCTION SCHEDULE TIME DETERMINED BY WISDOT, REPLACE ALL HORIZONTAL LIGHTING CIRCUIT WIRING FROM THE NEW CONTROLLERS TO THE END OF THEIR CIRCUITS AS SHOWN. PROVIDE NEW CONDUIT, PULL BOXES, AND WIRING WHERE SHOWN OR NOTED ON PLANS TO PROVIDE A COMPLETE AND OPERABLE UPDATED ROADWAY LIGHTING SYSTEM.

FIXTURE LEGEND (LP 5–10)

LIGHT POLE
SINGLE FIXTURE

APPROX: 123+24 ← APPROXIMATE STATIONING OF EXISTING POLE LOCATION

LED–X–X–X–1–A–1

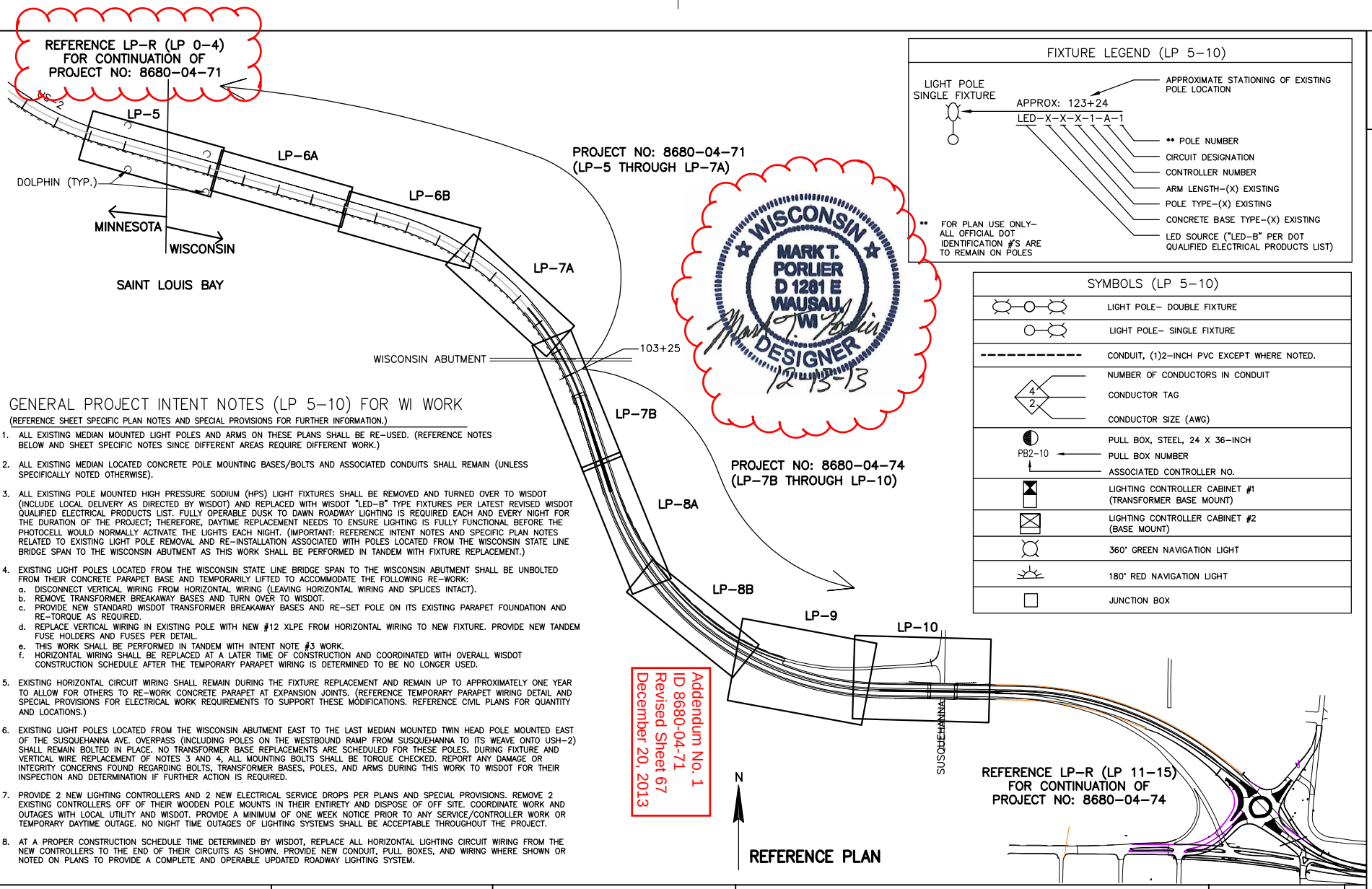
- ** POLE NUMBER
- CIRCUIT DESIGNATION
- CONTROLLER NUMBER
- ARM LENGTH–(X) EXISTING
- POLE TYPE–(X) EXISTING
- CONCRETE BASE TYPE–(X) EXISTING
- LED SOURCE ("LED–B" PER DOT QUALIFIED ELECTRICAL PRODUCTS LIST)

** FOR PLAN USE ONLY– ALL OFFICIAL DOT IDENTIFICATION #'S ARE TO REMAIN ON POLES

SYMBOLS (LP 5–10)

	LIGHT POLE– DOUBLE FIXTURE
	LIGHT POLE– SINGLE FIXTURE
	CONDUIT, (1)2–INCH PVC EXCEPT WHERE NOTED.
4 / 2	NUMBER OF CONDUCTORS IN CONDUIT CONDUCTOR TAG CONDUCTOR SIZE (AWG)
PB2–10	PULL BOX, STEEL, 24 X 36–INCH PULL BOX NUMBER ASSOCIATED CONTROLLER NO.
	LIGHTING CONTROLLER CABINET #1 (TRANSFORMER BASE MOUNT)
	LIGHTING CONTROLLER CABINET #2 (BASE MOUNT)
	360° GREEN NAVIGATION LIGHT
	180° RED NAVIGATION LIGHT
	JUNCTION BOX

PROJECT NO: 8680–04–71, 74	HWY: USH–2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING REFERENCE PLAN	SHEET LP–R (LP 67 LE



FIXTURE LEGEND (LP 5-10)

LIGHT POLE
SINGLE FIXTURE

APPROX: 123+24
LED-X-X-X-1-A-1

- APPROXIMATE STATIONING OF EXISTING POLE LOCATION
- ** POLE NUMBER
- CIRCUIT DESIGNATION
- CONTROLLER NUMBER
- ARM LENGTH-(X) EXISTING
- POLE TYPE-(X) EXISTING
- CONCRETE BASE TYPE-(X) EXISTING
- LED SOURCE ("LED-B" PER DOT QUALIFIED ELECTRICAL PRODUCTS LIST)

** FOR PLAN USE ONLY- ALL OFFICIAL DOT IDENTIFICATION #'S ARE TO REMAIN ON POLES

SYMBOLS (LP 5-10)

	LIGHT POLE- DOUBLE FIXTURE
	LIGHT POLE- SINGLE FIXTURE
	CONDUIT, (1)2-INCH PVC EXCEPT WHERE NOTED.
4 / 2	NUMBER OF CONDUCTORS IN CONDUIT; CONDUCTOR TAG; CONDUCTOR SIZE (AWG)
PB2-10	PULL BOX, STEEL, 24 X 36-INCH; PULL BOX NUMBER; ASSOCIATED CONTROLLER NO.
	LIGHTING CONTROLLER CABINET #1 (TRANSFORMER BASE MOUNT)
	LIGHTING CONTROLLER CABINET #2 (BASE MOUNT)
	360° GREEN NAVIGATION LIGHT
	180° RED NAVIGATION LIGHT
	JUNCTION BOX

GENERAL PROJECT INTENT NOTES (LP 5-10) FOR WI WORK

(REFERENCE SHEET SPECIFIC PLAN NOTES AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.)

1. ALL EXISTING MEDIAN MOUNTED LIGHT POLES AND ARMS ON THESE PLANS SHALL BE RE-USED. (REFERENCE NOTES BELOW AND SHEET SPECIFIC NOTES SINCE DIFFERENT AREAS REQUIRE DIFFERENT WORK.)

2. ALL EXISTING MEDIAN LOCATED CONCRETE POLE MOUNTING BASES/BOLTS AND ASSOCIATED CONDUITS SHALL REMAIN (UNLESS SPECIFICALLY NOTED OTHERWISE).

3. ALL EXISTING POLE MOUNTED HIGH PRESSURE SODIUM (HPS) LIGHT FIXTURES SHALL BE REMOVED AND TURNED OVER TO WISDOT (INCLUDE LOCAL DELIVERY AS DIRECTED BY WISDOT) AND REPLACED WITH WISDOT "LED-B" TYPE FIXTURES PER LATEST REVISED WISDOT QUALIFIED ELECTRICAL PRODUCTS LIST. FULLY OPERABLE DUSK TO DAWN ROADWAY LIGHTING IS REQUIRED EACH AND EVERY NIGHT FOR THE DURATION OF THE PROJECT; THEREFORE, DAYTIME REPLACEMENT NEEDS TO ENSURE LIGHTING IS FULLY FUNCTIONAL BEFORE THE PHOTOCELL WOULD NORMALLY ACTIVATE THE LIGHTS EACH NIGHT. (IMPORTANT: REFERENCE INTENT NOTES AND SPECIFIC PLAN NOTES RELATED TO EXISTING LIGHT POLE REMOVAL AND RE-INSTALLATION ASSOCIATED WITH POLES LOCATED FROM THE WISCONSIN STATE LINE BRIDGE SPAN TO THE WISCONSIN ABUTMENT AS THIS WORK SHALL BE PERFORMED IN TANDEM WITH FIXTURE REPLACEMENT.)

4. EXISTING LIGHT POLES LOCATED FROM THE WISCONSIN STATE LINE BRIDGE SPAN TO THE WISCONSIN ABUTMENT SHALL BE UNBOLTED FROM THEIR CONCRETE PARAPET BASE AND TEMPORARILY LIFTED TO ACCOMMODATE THE FOLLOWING RE-WORK:
   a. DISCONNECT VERTICAL WIRING FROM HORIZONTAL WIRING (LEAVING HORIZONTAL WIRING AND SPLICES INTACT).
   b. REMOVE TRANSFORMER BREAKAWAY BASES AND TURN OVER TO WISDOT.
   c. PROVIDE NEW STANDARD WISDOT TRANSFORMER BREAKAWAY BASES AND RE-SET POLE ON ITS EXISTING PARAPET FOUNDATION AND RE-TORQUE AS REQUIRED.
   d. REPLACE VERTICAL WIRING IN EXISTING POLE WITH NEW #12 XLPE FROM HORIZONTAL WIRING TO NEW FIXTURE. PROVIDE NEW TANDEM FUSE HOLDERS AND FUSES PER DETAIL.
   e. THIS WORK SHALL BE PERFORMED IN TANDEM WITH INTENT NOTE #3 WORK.
   f. HORIZONTAL WIRING SHALL BE REPLACED AT A LATER TIME OF CONSTRUCTION AND COORDINATED WITH OVERALL WISDOT CONSTRUCTION SCHEDULE AFTER THE TEMPORARY PARAPET WIRING IS DETERMINED TO BE NO LONGER USED.

5. EXISTING HORIZONTAL CIRCUIT WIRING SHALL REMAIN DURING THE FIXTURE REPLACEMENT AND REMAIN UP TO APPROXIMATELY ONE YEAR TO ALLOW FOR OTHERS TO RE-WORK CONCRETE PARAPET AT EXPANSION JOINTS. (REFERENCE TEMPORARY PARAPET WIRING DETAIL AND SPECIAL PROVISIONS FOR ELECTRICAL WORK REQUIREMENTS TO SUPPORT THESE MODIFICATIONS. REFERENCE CIVIL PLANS FOR QUANTITY AND LOCATIONS.)

6. EXISTING LIGHT POLES LOCATED FROM THE WISCONSIN ABUTMENT EAST TO THE LAST MEDIAN MOUNTED TWIN HEAD POLE MOUNTED EAST OF THE SUSQUEHANNA AVE. OVERPASS (INCLUDING POLES ON THE WESTBOUND RAMP FROM SUSQUEHANNA TO ITS WEAVE ONTO USH-2) SHALL REMAIN BOLTED IN PLACE. NO TRANSFORMER BASE REPLACEMENTS ARE SCHEDULED FOR THESE POLES. DURING FIXTURE AND VERTICAL WIRE REPLACEMENT OF NOTES 3 AND 4, ALL MOUNTING BOLTS SHALL BE TORQUE CHECKED. REPORT ANY DAMAGE OR INTEGRITY CONCERNS FOUND REGARDING BOLTS, TRANSFORMER BASES, POLES, AND ARMS DURING THIS WORK TO WISDOT FOR THEIR INSPECTION AND DETERMINATION IF FURTHER ACTION IS REQUIRED.

7. PROVIDE 2 NEW LIGHTING CONTROLLERS AND 2 NEW ELECTRICAL SERVICE DROPS PER PLANS AND SPECIAL PROVISIONS. REMOVE 2 EXISTING CONTROLLERS OFF OF THEIR WOODEN POLE MOUNTS IN THEIR ENTIRETY AND DISPOSE OF OFF SITE. COORDINATE WORK AND OUTAGES WITH LOCAL UTILITY AND WISDOT. PROVIDE A MINIMUM OF ONE WEEK NOTICE PRIOR TO ANY SERVICE/CONTROLLER WORK OR TEMPORARY DAYTIME OUTAGE. NO NIGHT TIME OUTAGES OF LIGHTING SYSTEMS SHALL BE ACCEPTABLE THROUGHOUT THE PROJECT.

8. AT A PROPER CONSTRUCTION SCHEDULE TIME DETERMINED BY WISDOT, REPLACE ALL HORIZONTAL LIGHTING CIRCUIT WIRING FROM THE NEW CONTROLLERS TO THE END OF THEIR CIRCUITS AS SHOWN. PROVIDE NEW CONDUIT, PULL BOXES, AND WIRING WHERE SHOWN OR NOTED ON PLANS TO PROVIDE A COMPLETE AND OPERABLE UPDATED ROADWAY LIGHTING SYSTEM.

Addendum No. 1
ID 8680-04-71
Revised Sheet 67
December 20, 2013

PROJECT NO: 8680-04-71, 74	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING REFERENCE PLAN	SHEET LP-R (LP 5-10) E

FILE NAME : P:\A0430120_AYRES - BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LP-R (LP 5-10).DWG PLOT DATE : 12/13/2013 2:02 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 500'

WISDOT/CADDS SHEET 42

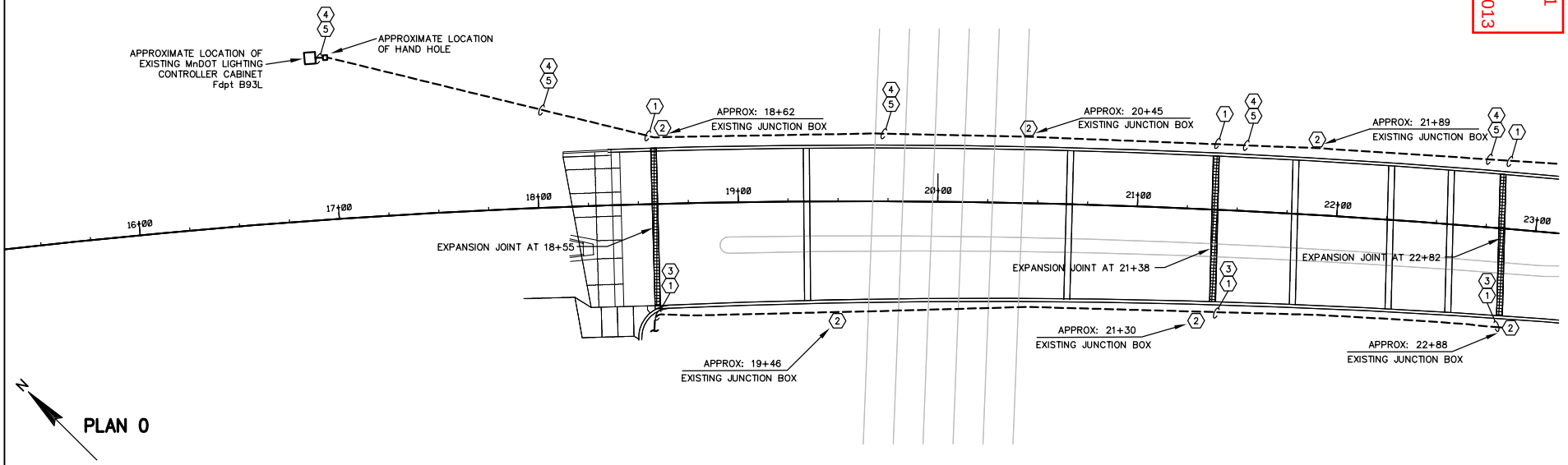
GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 0-4) FOR UPGRADE WORK REQUIRED ON THE MEDIAN AND ROADSIDE MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

(#) KEYNOTES

1. APPROXIMATE LOCATION OF WORK REQUIRED WHICH IS RELATED TO EXPANSION JOINT WORK REFERENCED ON STRUCTURE PLANS. REFERENCE LIGHTING DETAILS SHEET LD-4 (TEMPORARY PARAPET WIRING) FOR FURTHER INFORMATION REGARDING REQUIRED ELECTRICAL WORK FOR THE MN PORTION OF THIS PROJECT. (10 MEDIAN JOINT ELECTRICAL LOCATIONS AND 6 JOINTS REQUIRING 12 OUTSIDE OF ROADWAY PARAPET ELECTRICAL LOCATIONS FOR A TOTAL OF 22 SEPARATE ELECTRICAL LOCATIONS).
2. APPROXIMATE LOCATION OF EXISTING PULL BOX TO REMAIN. THIS PULL BOX IS NOT PART OF THIS PROJECT BUT IS SHOWN FOR REFERENCE TO ASSIST IN THE SPLICING OF THE NEW REPLACEMENT WIRING BETWEEN EXISTING PULL BOXES DUE TO EXPANSION JOINT WORK.
3. THIS PARAPET JOINT REPAIR IS CONDUIT RELATED ONLY (THERE IS NO WIRE IN THIS EMPTY CONDUIT SYSTEM ON THE SOUTH SIDE PARAPET OF THIS PLAN SHEET).
4. REMOVE EXISTING 3C/#4 AWG ARMORED CABLE FROM EXISTING CONDUIT AND DISPOSE OF CONDUCTORS OFF SITE. THIS WORK SHALL BE INCIDENTAL TO THE STANDARD SPECIFICATION BID ITEM OF NOTE #5 ON THIS SHEET (NEW CABLE INSTALLATION).
5. PROVIDE NEW CABLE CONSISTING OF 4C/#4 AWG CONDUCTORS PER MnDOT STANDARD SPECIFICATION AS SHOWN IN THE SCHEDULES AND RE-CAP OF QUANTITIES.

Addendum No. 1
ID 8680-04-71
New Sheet 67B
December 20, 2013



PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 0	SHEET LP-0	E

FILE NAME : P:\A0430120_AYRES - BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LP-0.DWG PLOT DATE : 12/13/2013 3:24 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 50'

GENERAL PROJECT INTENT NOTES (LP 11–15) FOR WI WORK

(REFERENCE SHEET SPECIFIC PLAN NOTES AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.)

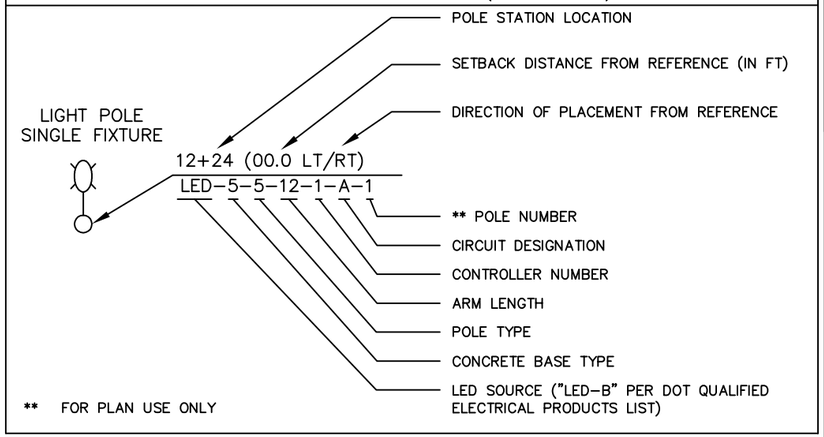
1. LIGHTING DEMOLITION RELATED TO THIS PLAN:
   a. REMOVE ALL EXISTING 17 LIGHT POLE ASSEMBLIES FED FROM THE EXISTING SUSQUEHANNA LIGHTING CONTROLLER (FOLLOWING ALONG USH–2 FROM STATION 135+00 TO USH–2'S RAMP INTERSECTIONS WITH BELKNAP) INCLUDING FIXTURES, ARMS, POLES, AND TRANSFORMER BASES, AND TURN OVER TO WISDOT. (INCLUDE LOCAL DELIVERY AS DIRECTED BY WISDOT.)
   b. REMOVE ALL EXISTING 9 LIGHT POLE ASSEMBLIES ALONG EXISTING BELKNAP BETWEEN STATIONING 32+00 AND APPROXIMATE STATIONING 158+00 ON BELKNAP. THIS INCLUDES 5 ASSEMBLIES ON THE WB SIDE OF ROAD AND 4 ASSEMBLIES ON THE EB SIDE OF ROAD. THESE ASSEMBLIES SHALL INCLUDE FIXTURES, ARMS, POLES, AND TRANSFORMER BASES. TURN ALL OVER TO WISDOT (AND INCLUDE DELIVERY AS DIRECTED BY WISDOT). CAP EXISTING LIGHTING CIRCUITS AT THEIR LAST REMAINING POLE LOCATION TO THE EAST SO THAT THE EXISTING LIGHTING CIRCUIT SYSTEM (TO THE EAST OF THE ROUNDABOUT) CAN BE RE–ENERGIZED. REFERENCE SHEET LP–14 FOR FURTHER INFORMATION ON THE RELOCATION OF 5 EXISTING LIGHT POLE ASSEMBLIES LOCATED EAST OF STATIONING 158+00 THAT ARE UNRELATED TO THE ABOVE MENTIONED.

2. FOR ALL LIGHTING LISTED ABOVE THAT IS BEING REMOVED:
   a. REMOVE ALL ASSOCIATED CIRCUIT WIRING AND DISPOSE OF OFF SITE. (THIS INCLUDES DISCONNECTION OF ILLUMINATED SIGN BRIDGE WIRING LOCATED AT THE END OF THE CIRCUIT ON THE WESTBOUND RAMP ENTRANCE TO USH–2. PROVIDE REMOVAL OF SIGN LIGHTING AND WIRING INCLUDING REMOVAL OF VERTICAL POLE, ARM, AND FIXTURE AND TURN OVER TO WISDOT. NOTE: WHEN THE SIGN BRIDGE IS RELOCATED BY OTHERS, IT WILL NO LONGER REQUIRE ILLUMINATION.)
   b. REMOVE ALL ASSOCIATED CONCRETE LIGHT POLE BASES AND DISPOSE OF OFF SITE.
   c. EXISTING UNDERGROUND CONDUIT SHALL BE ABANDONED IN PLACE UNLESS SPECIFICALLY NOTED OTHERWISE.
   d. PROVIDE NEW CONCRETE POLE BASES, TRANSFORMER BASES, POLES, ARMS, AND LED–B LIGHT FIXTURES PER THE PLANS AND SPECIAL PROVISIONS.
   e. PROVIDE NEW CONDUITS, PULL BOXES, AND WIRING AS SHOWN ON THESE PLANS AND ADJACENT PROJECT PLANS TO THE WEST (EXCEPT WHERE SPECIFICALLY NOTED TO RE–USE SHORT RACEWAY SECTIONS) TO PROVIDE A COMPLETE AND OPERABLE ROADWAY LIGHTING SYSTEM FED FROM NEW LIGHTING CONTROLLER #2 LOCATED ON ADJACENT PROJECT TO THE WEST. THIS WORK SHALL ALSO INCLUDE THE INTERCEPTION AND RE–CONNECTION FEED TO THE "WELCOME TO WISCONSIN" SIGN AS NOTED ON THE PLANS.
   f. COORDINATE WORK WITH ROADWAY CONSTRUCTION CONTRACTOR AND THEIR TRAFFIC CONTROL LANE SHIFTING SCHEDULING.

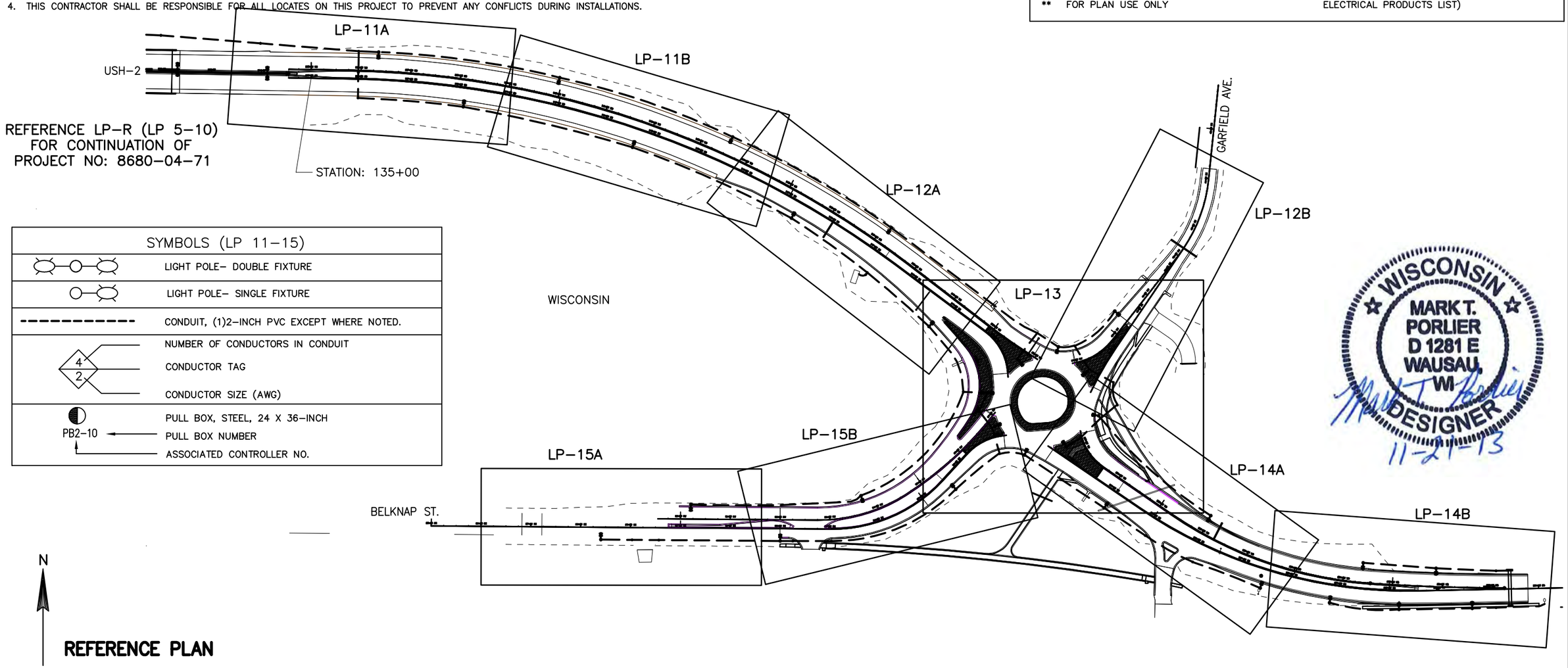
3. ALL CONDUIT INSTALLED BENEATH ROADWAYS SHALL BE 2" RIGID NONMETALLIC SCHEDULE 80.

4. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LOCATES ON THIS PROJECT TO PREVENT ANY CONFLICTS DURING INSTALLATIONS.

FIXTURE LEGEND (LP 11+15)



** FOR PLAN USE ONLY



SYMBOLS (LP 11–15)

	LIGHT POLE– DOUBLE FIXTURE
	LIGHT POLE– SINGLE FIXTURE
	CONDUIT, (1)2–INCH PVC EXCEPT WHERE NOTED.
4 / 2	NUMBER OF CONDUCTORS IN CONDUIT CONDUCTOR TAG CONDUCTOR SIZE (AWG)
PB2–10	PULL BOX, STEEL, 24 X 36–INCH PULL BOX NUMBER ASSOCIATED CONTROLLER NO.

WISCONSIN
MARK T.
PORLIER
D 1281 E
WAUSAU,
WI
DESIGNER
11-21-13

REFERENCE PLAN

PROJECT NO: 8680–04–74	HWY: USH–2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING REFERENCE PLAN	SHEET LP–R (LP ... 15)	E

FILE NAME : P:\A0430121_AYRES – BONG MEMORIAL BRIDGE APPROACHES\CAD_DRAWINGS\LP–R (LP 11–15).DWG PLOT DATE : 11/21/2013 9:40 AM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 200'

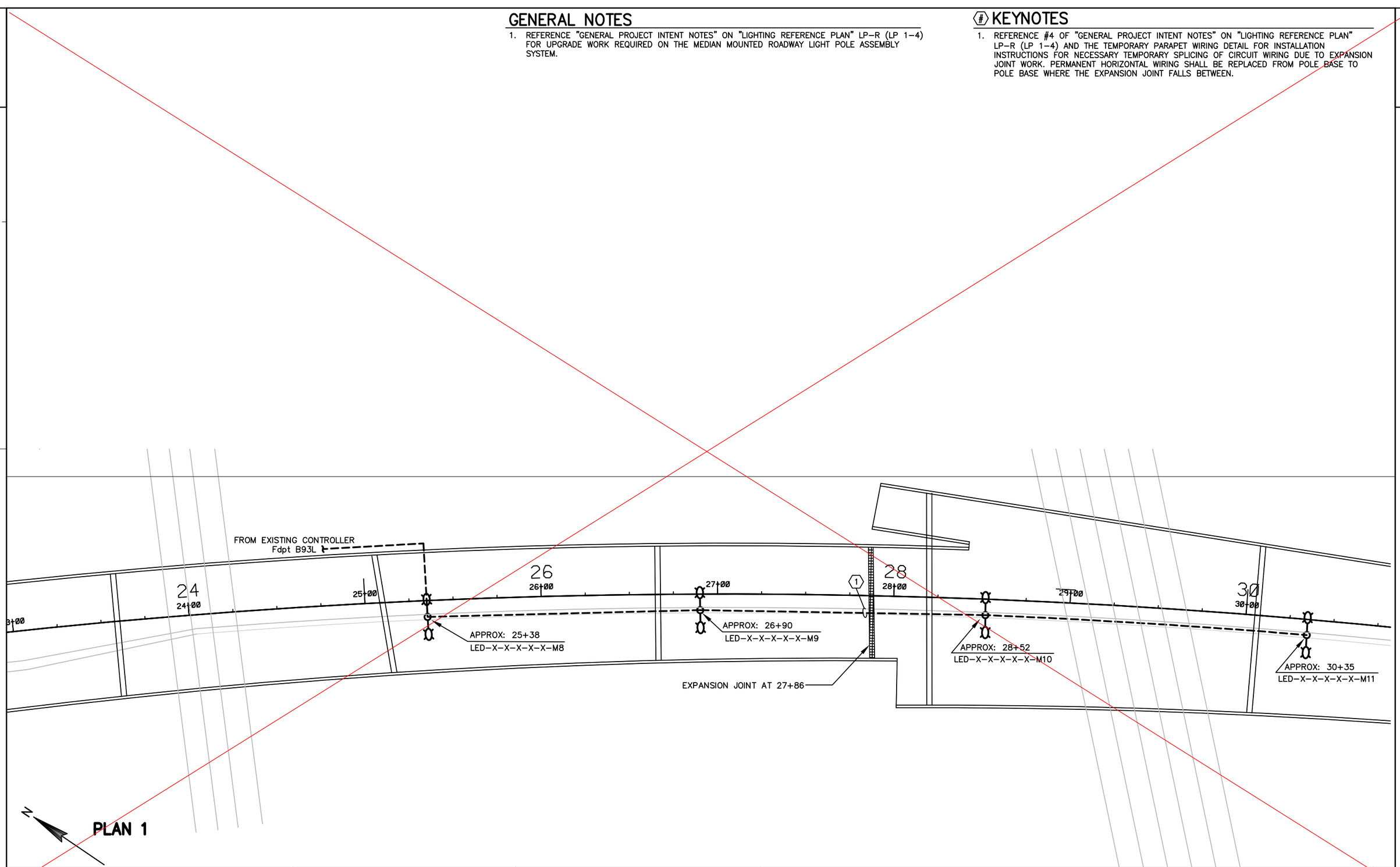
WISDOT/CADDS SHEET 42

GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 1-4) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

⟨#⟩ KEYNOTES

1. REFERENCE #4 OF "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 1-4) AND THE TEMPORARY PARAPET WIRING DETAIL FOR INSTALLATION INSTRUCTIONS FOR NECESSARY TEMPORARY SPLICING OF CIRCUIT WIRING DUE TO EXPANSION JOINT WORK. PERMANENT HORIZONTAL WIRING SHALL BE REPLACED FROM POLE BASE TO POLE BASE WHERE THE EXPANSION JOINT FALLS BETWEEN.



PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 1	SHEET LP-1 69	E

FILE NAME : P:\A0430120_AYRES - BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LP-1.DWG PLOT DATE : 11/20/2013 3:02 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 50'

WISDOT/CADDS SHEET 42

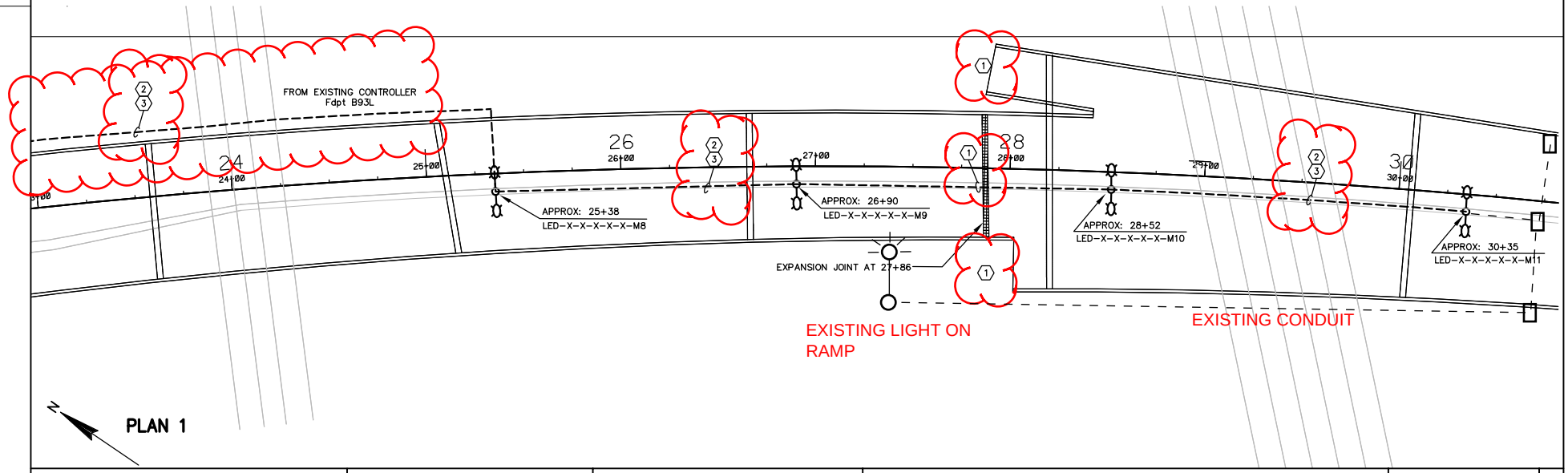
GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 0-4) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

(#) KEYNOTES

1. APPROXIMATE LOCATION OF WORK REQUIRED WHICH IS RELATED TO EXPANSION JOINT WORK REFERENCED ON STRUCTURE PLANS. REFERENCE LIGHTING DETAILS SHEET LD-4 (TEMPORARY PARAPET WIRING) FOR FURTHER INFORMATION REGARDING REQUIRED ELECTRICAL WORK FOR THE MN PORTION OF THIS PROJECT. (10 MEDIAN JOINT ELECTRICAL LOCATIONS AND 6 JOINTS REQUIRING 12 OUTSIDE OF ROADWAY PARAPET ELECTRICAL LOCATIONS FOR A TOTAL OF 22 SEPARATE ELECTRICAL LOCATIONS).
2. REMOVE EXISTING 3C/#4 AWG ARMORED CABLE FROM EXISTING CONDUIT AND DISPOSE OF CONDUCTORS OFF SITE. THIS WORK SHALL BE INCIDENTAL TO THE STANDARD SPECIFICATION BID ITEM OF NOTE #3 ON THIS SHEET (NEW CABLE INSTALLATION).
3. PROVIDE NEW CABLE CONSISTING OF 4C/#4 AWG CONDUCTORS PER MnDOT STANDARD SPECIFICATION AS SHOWN IN THE SCHEDULES AND RE-CAP OF QUANTITIES.

Addendum No. 1
ID 8680-04-71
Revised Sheet 69
December 20, 2013



N

PLAN 1

PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 1	SHEET LP-1	E

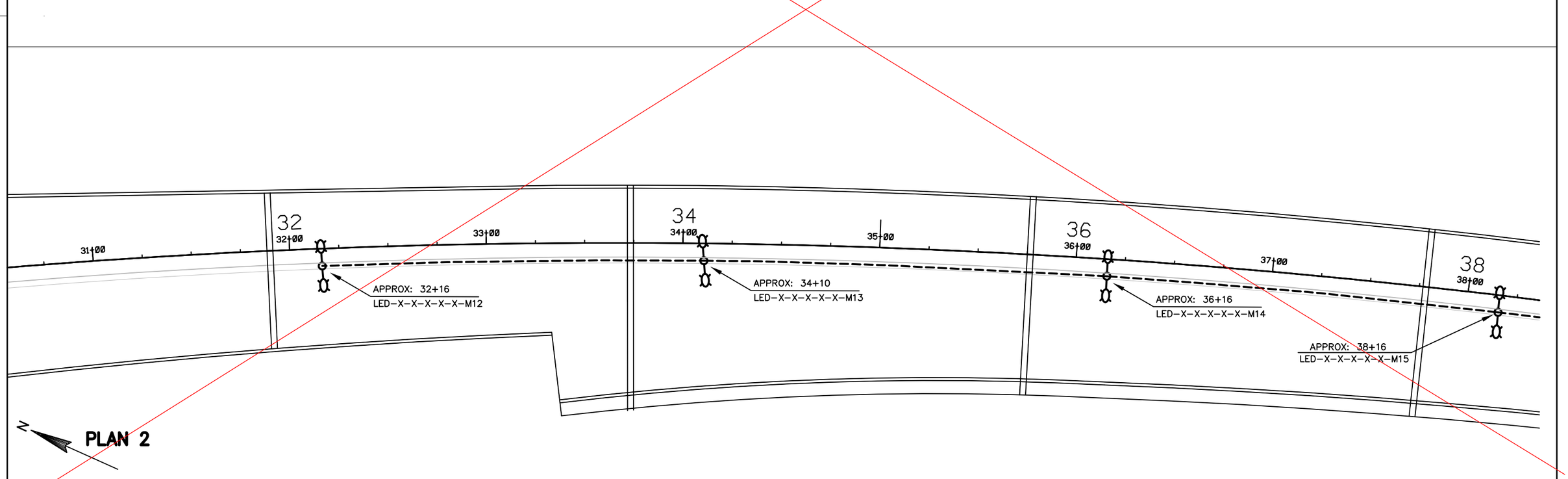
FILE NAME : P:\A0430120_AYRES - BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LP-1.DWG PLOT DATE : 12/13/2013 1:41 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 50'

GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 1-4) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

⟨#⟩ KEYNOTES

1. REFERENCE #4 OF "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 1-4) AND THE TEMPORARY PARAPET WIRING DETAIL FOR INSTALLATION INSTRUCTIONS FOR NECESSARY TEMPORARY SPLICING OF CIRCUIT WIRING DUE TO EXPANSION JOINT WORK. PERMANENT HORIZONTAL WIRING SHALL BE REPLACED FROM POLE BASE TO POLE BASE WHERE THE EXPANSION JOINT FALLS BETWEEN.



PLAN 2

PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 2	SHEET LP-2 70	E

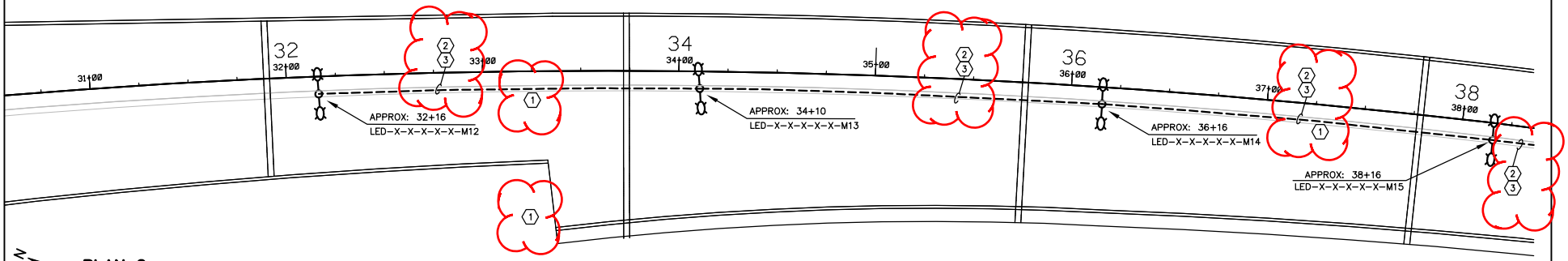
GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 0-4) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

(#) KEYNOTES

1. APPROXIMATE LOCATION OF WORK REQUIRED WHICH IS RELATED TO EXPANSION JOINT WORK REFERENCED ON STRUCTURE PLANS. REFERENCE LIGHTING DETAILS SHEET LD-4 (TEMPORARY PARAPET WIRING) FOR FURTHER INFORMATION REGARDING REQUIRED ELECTRICAL WORK FOR THE MN PORTION OF THIS PROJECT. (10 MEDIAN JOINT ELECTRICAL LOCATIONS AND 6 JOINTS REQUIRING 12 OUTSIDE OF ROADWAY PARAPET ELECTRICAL LOCATIONS FOR A TOTAL OF 22 SEPARATE ELECTRICAL LOCATIONS).
2. REMOVE EXISTING 3C/#4 AWG ARMORED CABLE FROM EXISTING CONDUIT AND DISPOSE OF CONDUCTORS OFF SITE. THIS WORK SHALL BE INCIDENTAL TO THE STANDARD SPECIFICATION BID ITEM OF NOTE #3 ON THIS SHEET (NEW CABLE INSTALLATION).
3. PROVIDE NEW CABLE CONSISTING OF 4C/#4 AWG CONDUCTORS PER MnDOT STANDARD SPECIFICATION AS SHOWN IN THE SCHEDULES AND RE-RECAP OF QUANTITIES.

Addendum No. 1
ID 8680-04-71
Revised Sheet 70
December 20, 2013



PLAN 2

PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 2	SHEET LP-2	E

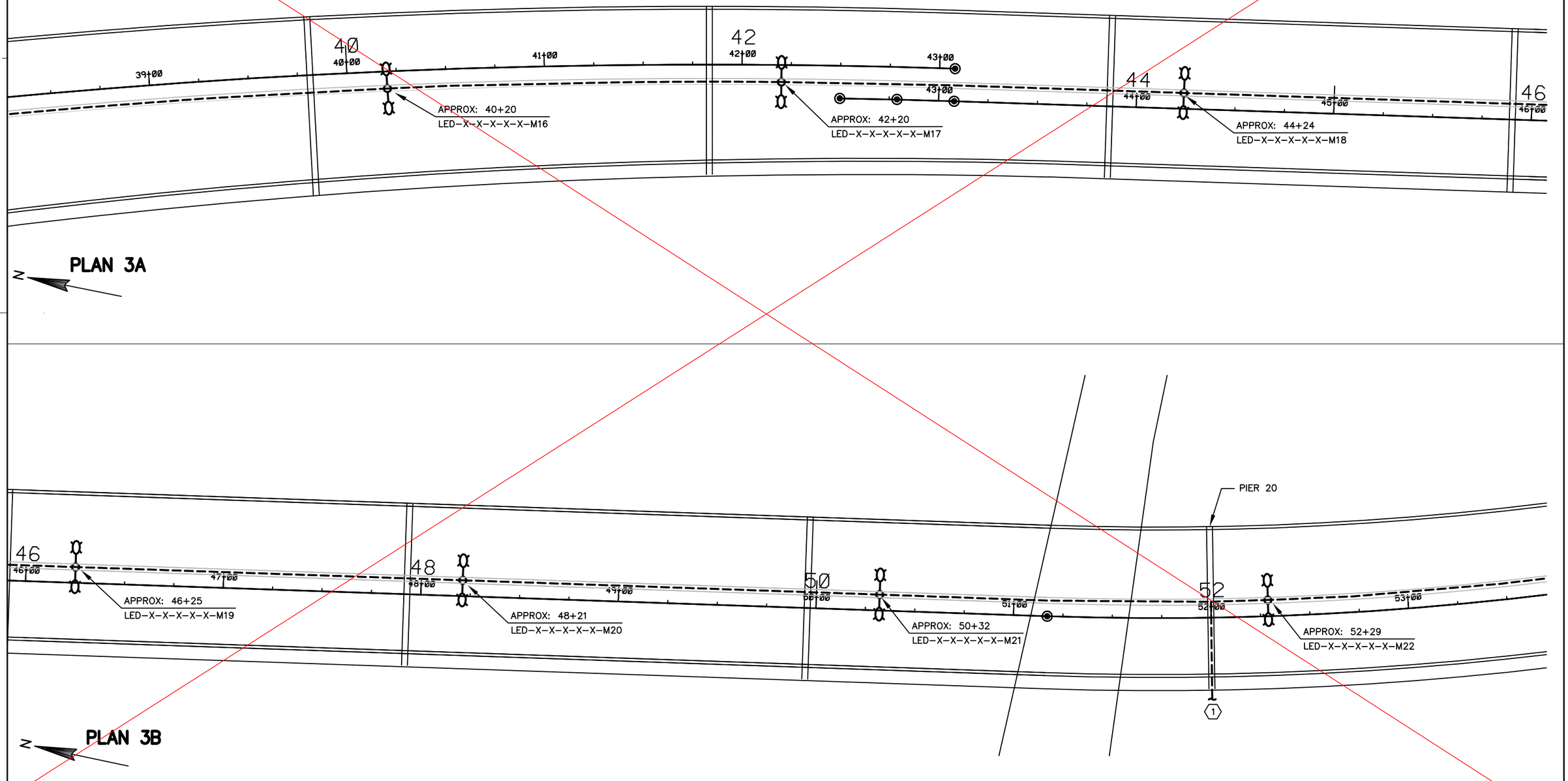
FILE NAME : P:\A0430120_AYRES - BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LP-2.DWG PLOT DATE : 12/13/2013 1:43 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 50'

GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 1-4) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

⟨#⟩ KEYNOTES

1. APPROXIMATE LOCATION OF EXISTING LIGHTING CONTROLLER TO REMAIN FOR CONTINUED USE. THIS CONTROLLER CONTROLS LIGHTING FROM STATION 32+16 TO 70+80.



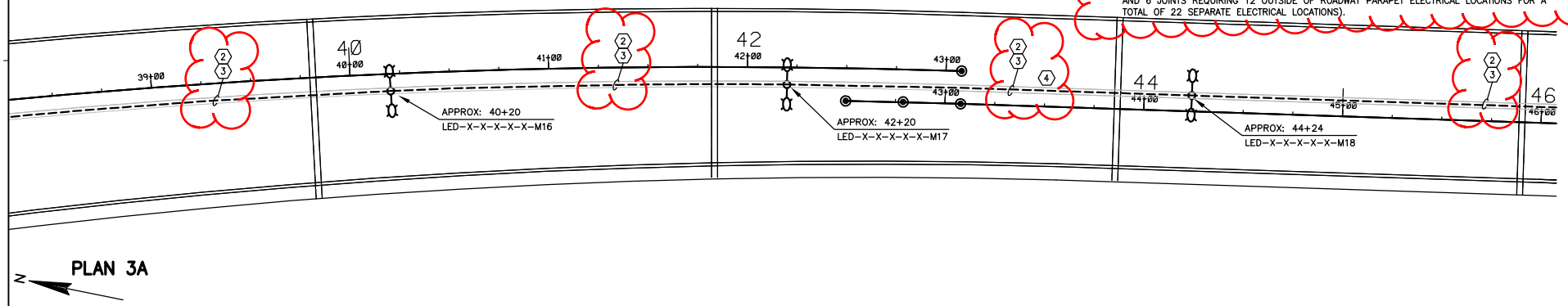
PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 3A & 3B	SHEET LP-3 71	E

GENERAL NOTES

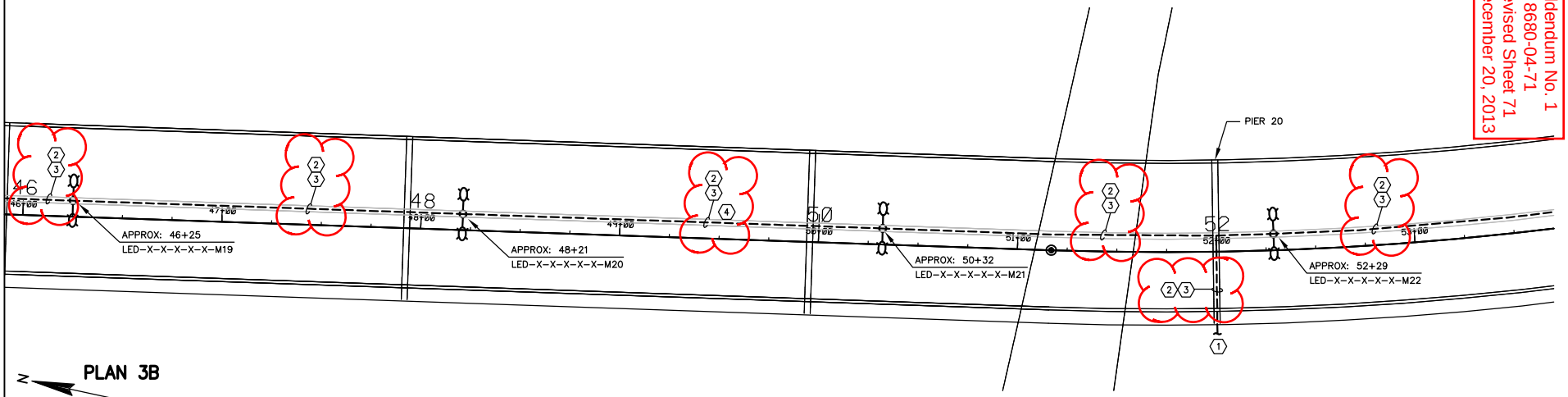
1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 0-4) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

(#) KEYNOTES

1. APPROXIMATE LOCATION OF EXISTING LIGHTING CONTROLLER TO REMAIN FOR CONTINUED USE. THIS CONTROLLER CONTROLS LIGHTING FROM STATION 32+16 TO 70+80.
2. REMOVE EXISTING 3C/#4 AWG ARMORED CABLE FROM EXISTING CONDUIT AND DISPOSE OF CONDUCTORS OFF SITE. THIS WORK SHALL BE INCIDENTAL TO THE STANDARD SPECIFICATION BID ITEM OF NOTE #3 ON THIS SHEET (NEW CABLE INSTALLATION).
3. PROVIDE NEW CABLE CONSISTING OF 4C/#4 AWG CONDUCTORS PER MnDOT STANDARD SPECIFICATION AS SHOWN IN THE SCHEDULES AND RE-CAP OF QUANTITIES.
4. APPROXIMATE LOCATION OF WORK REQUIRED WHICH IS RELATED TO EXPANSION JOINT WORK REFERENCED ON STRUCTURE PLANS. REFERENCE LIGHTING DETAILS SHEET LD-4 (TEMPORARY PARAPET WIRING) FOR FURTHER INFORMATION REGARDING REQUIRED ELECTRICAL WORK FOR THE MN PORTION OF THIS PROJECT. (10 MEDIAN JOINT ELECTRICAL LOCATIONS AND 6 JOINTS REQUIRING 12 OUTSIDE OF ROADWAY PARAPET ELECTRICAL LOCATIONS FOR A TOTAL OF 22 SEPARATE ELECTRICAL LOCATIONS).



PLAN 3A



PLAN 3B

Addendum No. 1
ID 8680-04-71
Revised Sheet 71
December 20, 2013

PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 3A & 3B	SHEET LP-3	E

FILE NAME : P:\A0430120_AYRES - BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LP-3.DWG PLOT DATE : 12/13/2013 1:44 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 50'

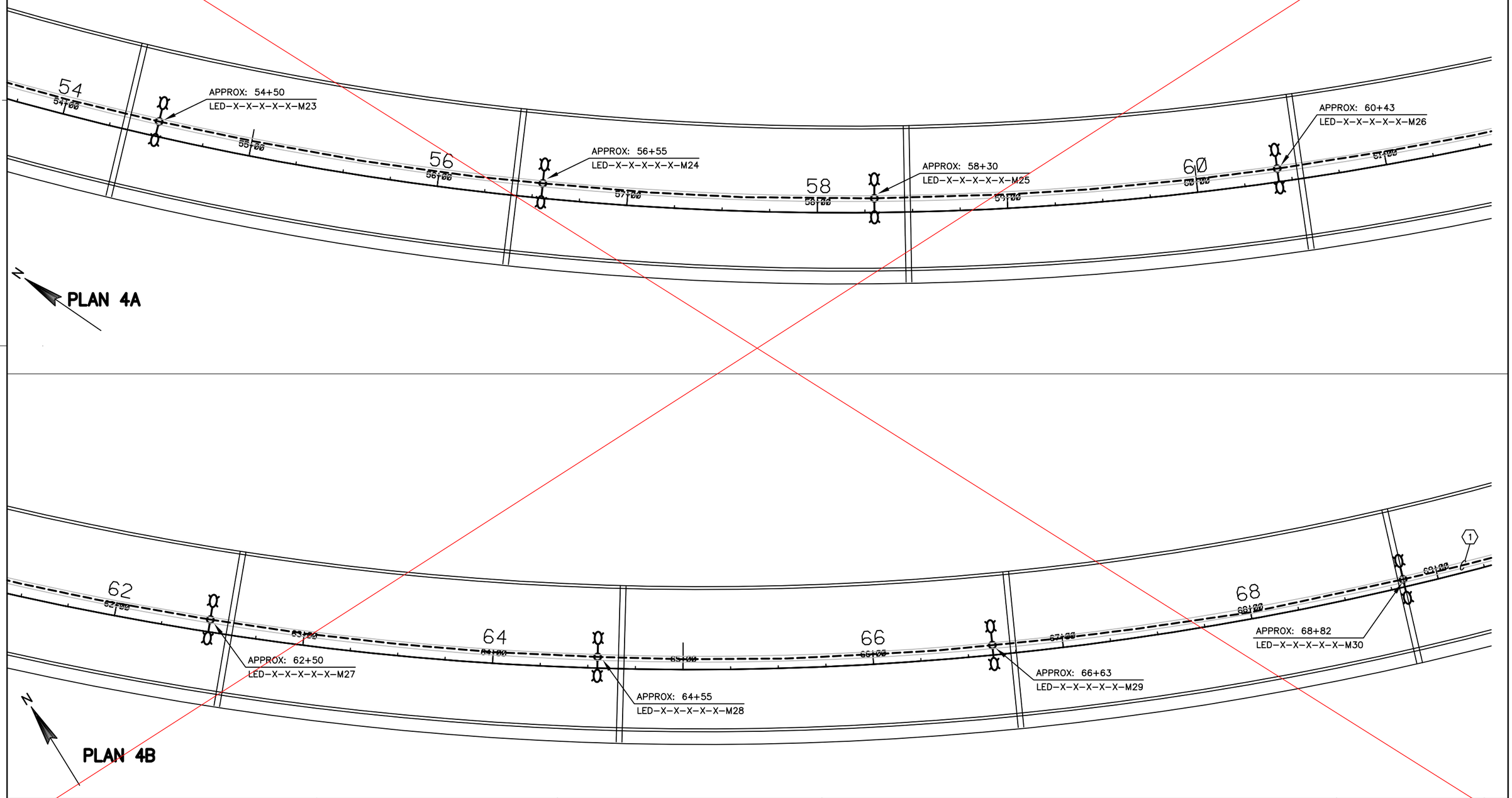
WISDOT/CADDS SHEET 42

GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 1-4) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

⟨#⟩ KEYNOTES

1. REFERENCE SHEET LP-5 FOR FIXTURE M31 THAT IS STATIONED AT 70+80. FIXTURE M31 IS THE LAST FIXTURE ON THIS MINNESOTA CIRCUIT AND WILL BE INCLUDED IN THIS MINNESOTA WORK.



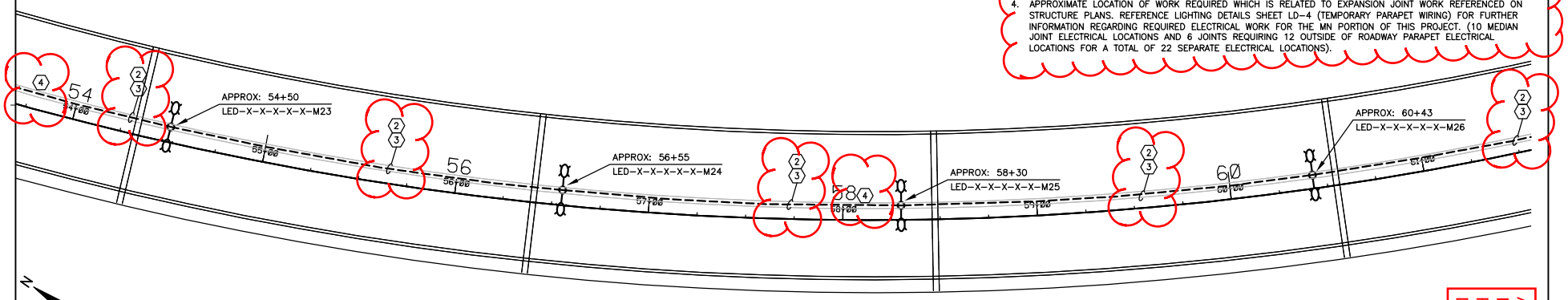
PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 4	SHEET LP-4 72	E

GENERAL NOTES

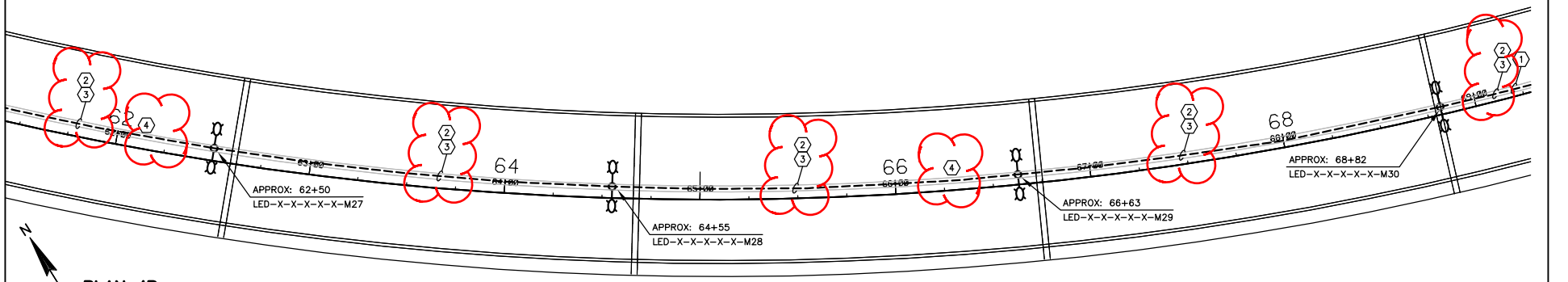
1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 0-4) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

KEYNOTES

1. REFERENCE SHEET LP-5 FOR FIXTURE M31 THAT IS STATIONED AT 70+80. FIXTURE M31 IS THE LAST FIXTURE ON THIS MINNESOTA CIRCUIT AND WILL BE INCLUDED IN THIS MINNESOTA WORK.
2. REMOVE EXISTING 3C/#4 AWG ARMORED CABLE FROM EXISTING CONDUIT AND DISPOSE OF CONDUCTORS OFF SITE. THIS WORK SHALL BE INCIDENTAL TO THE STANDARD SPECIFICATION BID ITEM OF NOTE #3 ON THIS SHEET (NEW CABLE INSTALLATION).
3. PROVIDE NEW CABLE CONSISTING OF 4C/#4 AWG CONDUCTORS PER MnDOT STANDARD SPECIFICATION AS SHOWN IN THE SCHEDULES AND RE-CAP OF QUANTITIES.
4. APPROXIMATE LOCATION OF WORK REQUIRED WHICH IS RELATED TO EXPANSION JOINT WORK REFERENCED ON STRUCTURE PLANS. REFERENCE LIGHTING DETAILS SHEET LD-4 (TEMPORARY PARAPET WIRING) FOR FURTHER INFORMATION REGARDING REQUIRED ELECTRICAL WORK FOR THE MN PORTION OF THIS PROJECT. (10 MEDIAN JOINT ELECTRICAL LOCATIONS AND 6 JOINTS REQUIRING 12 OUTSIDE OF ROADWAY PARAPET ELECTRICAL LOCATIONS FOR A TOTAL OF 22 SEPARATE ELECTRICAL LOCATIONS).



PLAN 4A



PLAN 4B

Addendum No. 1
ID 8680-04-71
Revised Sheet 72
December 20, 2013

PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 4	SHEET LP-4	E

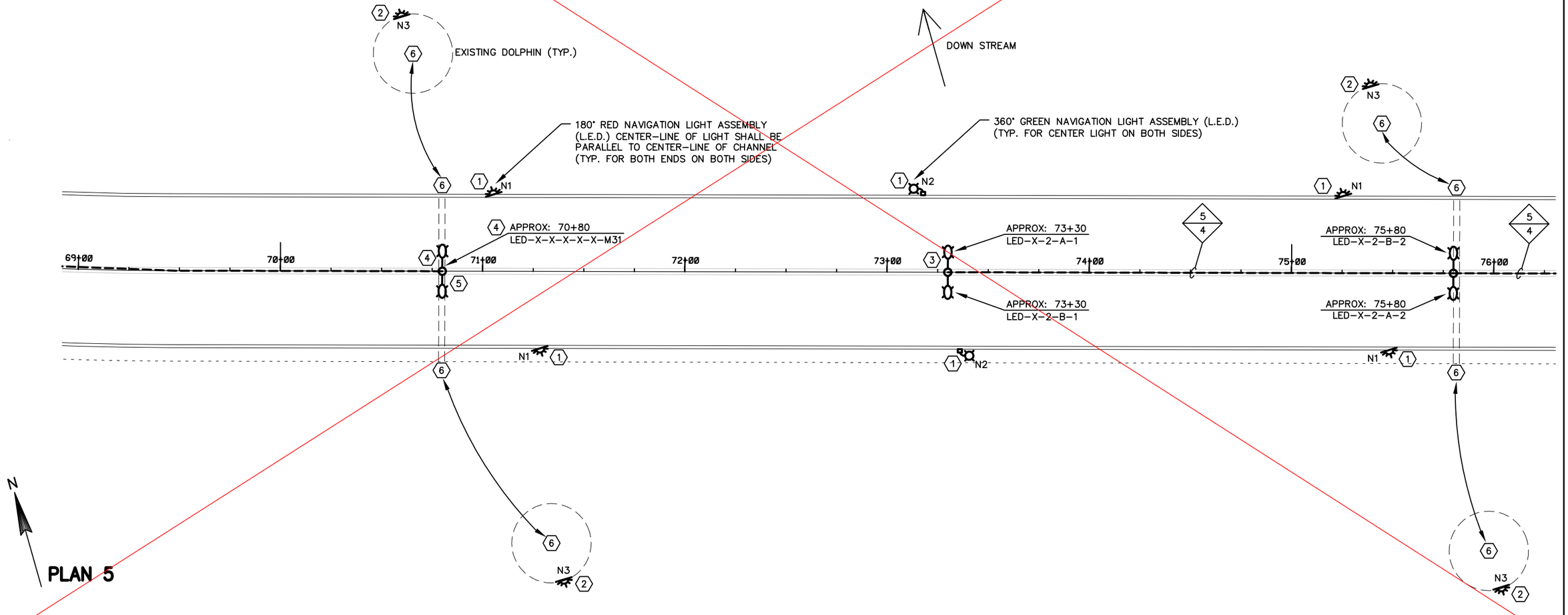
FILE NAME : P:\A0430120_AYRES - BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LP-4.DWG PLOT DATE : 12/13/2013 2:40 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 50'

GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP–R (LP 5–10) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

(#) KEYNOTES

1. DISCONNECT EXISTING NAVIGATION LIGHT. REMOVE FIXTURE IN ITS ENTIRETY AND TURN OVER TO WISDOT. REMOVE ALL BRANCH CIRCUIT WIRING BETWEEN NAVIGATION LIGHT AND TRANSFORMER LOCATED IN THE BREAKAWAY TRANSFORMER BASE OF THE EXISTING MEDIAN MOUNTED PARAPET LIGHT POLE ASSEMBLY (ONE AT 70+80 AND THE OTHER AT 73+30). DISCONNECT AND REMOVE ASSOCIATED NAVIGATION LIGHT TRANSFORMERS AND DISPOSE OF OFF SITE. PROVIDE NEW LED NAVIGATION LIGHT FIXTURE ASSEMBLY AS SHOWN AND PER SPECIAL PROVISIONS. PROVIDE STAINLESS STEEL MOUNTING HARDWARE. PROVIDE NEW #10 XLPE RATED U.S.E. BRANCH CIRCUIT WIRING FROM ROADWAY LIGHTING CIRCUITS IN PARAPET POLE TO NEW LED NAVIGATION LIGHT SHOWN ON PLANS. PROVIDE FLEXIBLE CONNECTION TO MOVABLE FIXTURE PER MANUFACTURER'S RECOMMENDATIONS.
2. DISCONNECT EXISTING NAVIGATION OBSTRUCTION LIGHT ON DOLPHIN IN ITS ENTIRETY AND TURN OVER TO WISDOT. PROVIDE NEW LED OBSTRUCTION NAVIGATION LIGHT FIXTURE PER SPECIAL PROVISIONS. ORIENT CENTERLINE OF LIGHT PARALLEL TO CENTERLINE OF CHANNEL. PROVIDE STAINLESS STEEL MOUNTING HARDWARE.
3. N2 AND N3 FIXTURES ARE SERVED FROM THIS POLE BASE LIGHTING CIRCUIT. PROVIDE ALL NEW HORIZONTAL #10 XLPE WIRING TO JUNCTION BOX SPLICE POINTS ON TOP OF PIERS FOR MESSENGER CABLES FEEDING N3 DOLPHIN FIXTURES.
4. THIS LIGHT POLE ASSEMBLY IS THE JURISDICTION OF MnDOT. SEE FIXTURE LEGEND (LP 1–4) AND REFERENCE "GENERAL PROJECT INTENT NOTES" ON SHEET LP–R (LP 1–4) FOR THIS FIXTURE DEFINITION AND UPGRADE WORK REQUIRED FOR THIS LIGHT ASSEMBLY. THIS WILL BE INCLUDED IN THE MINNESOTA PORTION OF THIS PROJECT.
5. N1 FIXTURES ARE SERVED FROM THIS POLE BASE LIGHTING CIRCUIT. PROVIDE ALL NEW HORIZONTAL #10 XLPE WIRING TO ALL (4) N1 FIXTURES FROM THIS POLE BASE LIGHTING CIRCUIT USING EXISTING CONDUIT SYSTEM. COORDINATE WITH PROJECT CONTRACTOR AND MnDOT.
6. REPLACE THE FOLLOWING WITH IN KIND MATERIALS FOR ALL N3 FIXTURES: CONDUIT, BOXES, CONDULETS, WIRING IN CONDUIT, MESSENGER CABLE AND ASSOCIATED CIRCUIT WIRING FROM WHERE CONDUIT AND CIRCUITS EXIT BRIDGE DECK OUT TO DOLPHIN NAVIGATION LIGHT. REPLACE ALL MECHANICAL SUPPORT BRACKETS FOR MESSENGER CABLE ON PIER/BRIDGE STRUCTURE AND DOLPHINS. THESE BRACKETS SHALL BE REPLACED IN KIND WITH NEW STAINLESS STEEL BOLTS, LOCK WASHERS AND ANCHORS.



PROJECT NO: 8680–04–71	HWY: USH–2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 5	SHEET LP–5	E

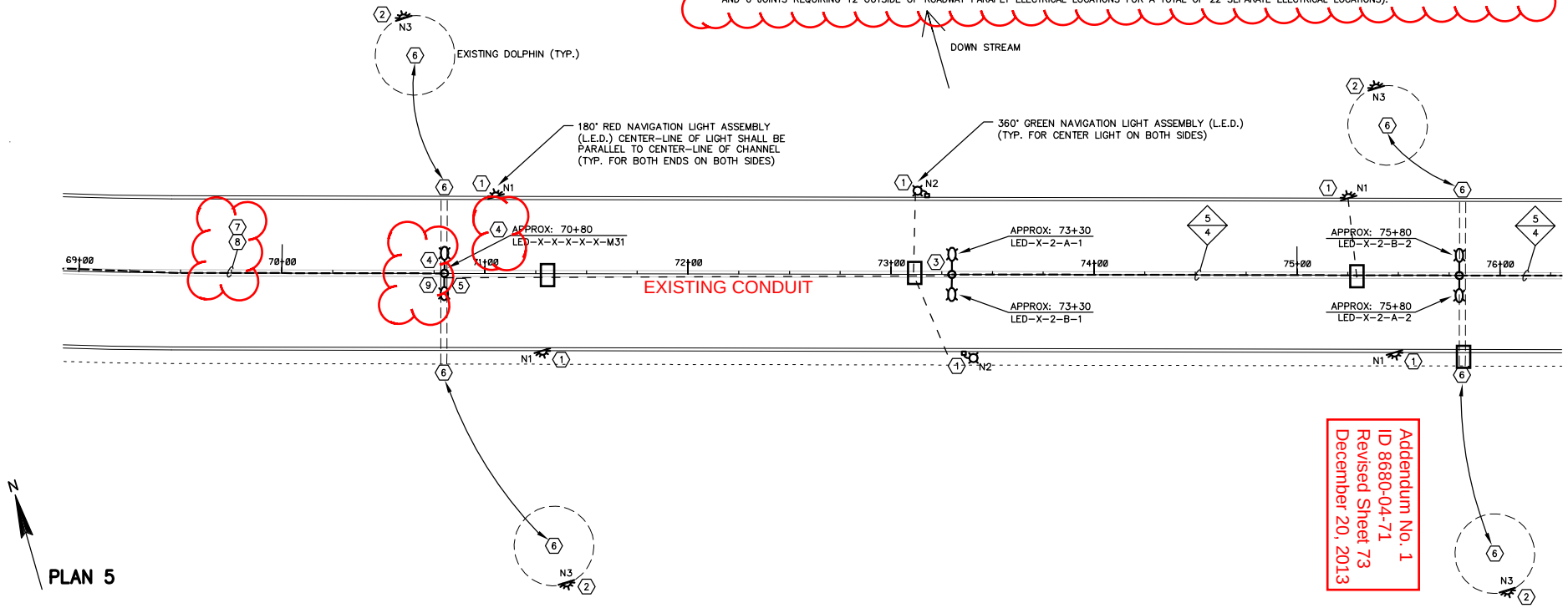
FILE NAME : P:\A0430120_AYRES – BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LP–5.DWG PLOT DATE : 11/20/2013 3:09 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 50'
WISDOT/CADDS SHEET 42

GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 5-10) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

(#) KEYNOTES

1. DISCONNECT EXISTING NAVIGATION LIGHT. REMOVE FIXTURE IN ITS ENTIRETY AND TURN OVER TO WISDOT. REMOVE ALL BRANCH CIRCUIT WIRING BETWEEN NAVIGATION LIGHT AND TRANSFORMER LOCATED IN THE BREAKAWAY TRANSFORMER BASE OF THE EXISTING MEDIAN MOUNTED PARAPET LIGHT POLE ASSEMBLY (ONE AT 70+80 AND THE OTHER AT 73+30). DISCONNECT AND REMOVE ASSOCIATED NAVIGATION LIGHT TRANSFORMERS AND DISPOSE OF OFF SITE. PROVIDE NEW LED NAVIGATION LIGHT FIXTURE ASSEMBLY AS SHOWN AND PER SPECIAL PROVISIONS. PROVIDE STAINLESS STEEL MOUNTING HARDWARE. PROVIDE NEW #10 XLPE RATED U.S.E. BRANCH CIRCUIT WIRING FROM ROADWAY LIGHTING CIRCUITS IN PARAPET POLE TO NEW LED NAVIGATION LIGHT SHOWN ON PLANS. PROVIDE FLEXIBLE CONNECTION TO MOVABLE FIXTURE PER MANUFACTURER'S RECOMMENDATIONS.
2. DISCONNECT EXISTING NAVIGATION OBSTRUCTION LIGHT ON DOLPHIN IN ITS ENTIRETY AND TURN OVER TO WISDOT. PROVIDE NEW LED OBSTRUCTION NAVIGATION LIGHT FIXTURE PER SPECIAL PROVISIONS. ORIENT CENTERLINE OF LIGHT PARALLEL TO CENTERLINE OF CHANNEL. PROVIDE STAINLESS STEEL MOUNTING HARDWARE.
3. N2 AND N3 FIXTURES ARE SERVED FROM THIS POLE BASE LIGHTING CIRCUIT. PROVIDE ALL NEW HORIZONTAL #10 XLPE WIRING TO JUNCTION BOX SPLICE POINTS ON TOP OF PIERS FOR MESSENGER CABLES FEEDING N3 DOLPHIN FIXTURES.
4. THIS LIGHT POLE ASSEMBLY IS THE JURISDICTION OF MnDOT. SEE FIXTURE LEGEND (LP 0-4) AND REFERENCE "GENERAL PROJECT INTENT NOTES" ON SHEET LP-R (LP 0-4) FOR THIS FIXTURE DEFINITION AND UPGRADE WORK REQUIRED FOR THIS LIGHT ASSEMBLY. THIS WILL BE INCLUDED IN THE MINNESOTA PORTION OF THIS PROJECT.
5. N1 FIXTURES ARE SERVED FROM THIS POLE BASE LIGHTING CIRCUIT. PROVIDE ALL NEW HORIZONTAL #10 XLPE WIRING TO ALL (4) N1 FIXTURES FROM THIS POLE BASE LIGHTING CIRCUIT USING EXISTING CONDUIT SYSTEM. COORDINATE WITH PROJECT CONTRACTOR AND MnDOT.
6. REPLACE THE FOLLOWING WITH IN KIND MATERIALS FOR ALL N3 FIXTURES: CONDUIT, BOXES, CONDULETS, WIRING IN CONDUIT, MESSENGER CABLE AND ASSOCIATED CIRCUIT WIRING FROM WHERE CONDUIT AND CIRCUITS EXIT BRIDGE DECK OUT TO DOLPHIN NAVIGATION LIGHT. REPLACE ALL MECHANICAL SUPPORT BRACKETS FOR MESSENGER CABLE ON PIER/BRIDGE STRUCTURE AND DOLPHINS. THESE BRACKETS SHALL BE REPLACED IN KIND WITH NEW STAINLESS STEEL BOLTS, LOCK WASHERS AND ANCHORS.
7. REMOVE EXISTING 3C/#4 AWG ARMORED CABLE FROM EXISTING CONDUIT AND DISPOSE OF CONDUCTORS OFF SITE. THIS WORK SHALL BE INCIDENTAL TO THE STANDARD SPECIFICATION BID ITEM OF NOTE #8 ON THIS SHEET (NEW CABLE INSTALLATION).
8. PROVIDE NEW CABLE CONSISTING OF 4C/#4 AWG CONDUCTORS PER MnDOT STANDARD SPECIFICATION AS SHOWN IN THE SCHEDULES AND RE-CAP OF QUANTITIES.
9. LOCATION OF WORK REQUIRED WHICH IS RELATED TO EXPANSION JOINT WORK REFERENCED ON STRUCTURE PLANS. REFERENCE LIGHTING DETAILS SHEET LD-4 (TEMPORARY PARAPET WIRING) FOR FURTHER INFORMATION REGARDING REQUIRED ELECTRICAL WORK FOR THE MN PORTION OF THIS PROJECT. (10 MEDIAN JOINT ELECTRICAL LOCATIONS AND 6 JOINTS REQUIRING 12 OUTSIDE OF ROADWAY PARAPET ELECTRICAL LOCATIONS FOR A TOTAL OF 22 SEPARATE ELECTRICAL LOCATIONS).



Addendum No. 1
ID 8680-04-71
Revised Sheet 73
December 20, 2013

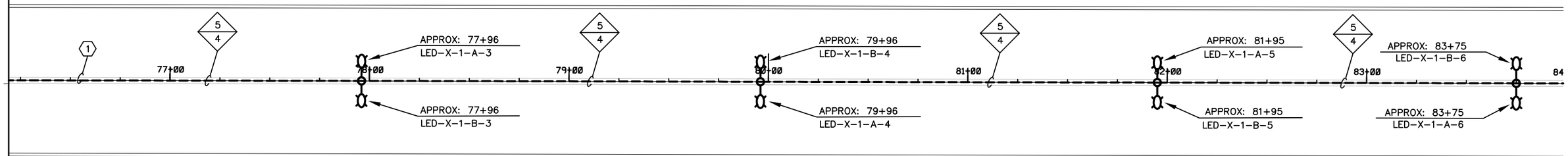
PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 5	SHEET LP-5	E

GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 5-10) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

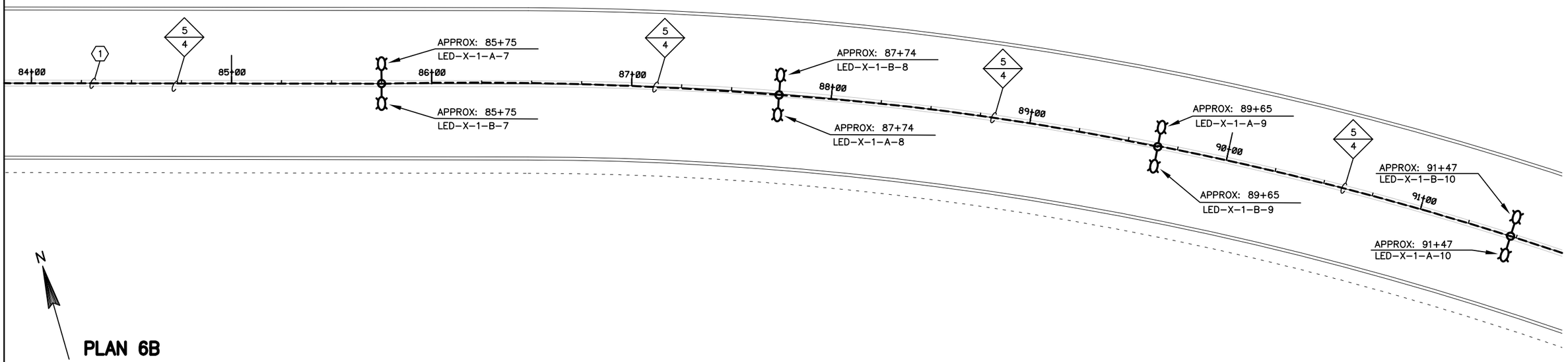
⟨#⟩ KEYNOTES

1. USE EXISTING CONDUIT SYSTEM IN MEDIAN/PARAPET. (TYP.)



N

PLAN 6A



N

PLAN 6B

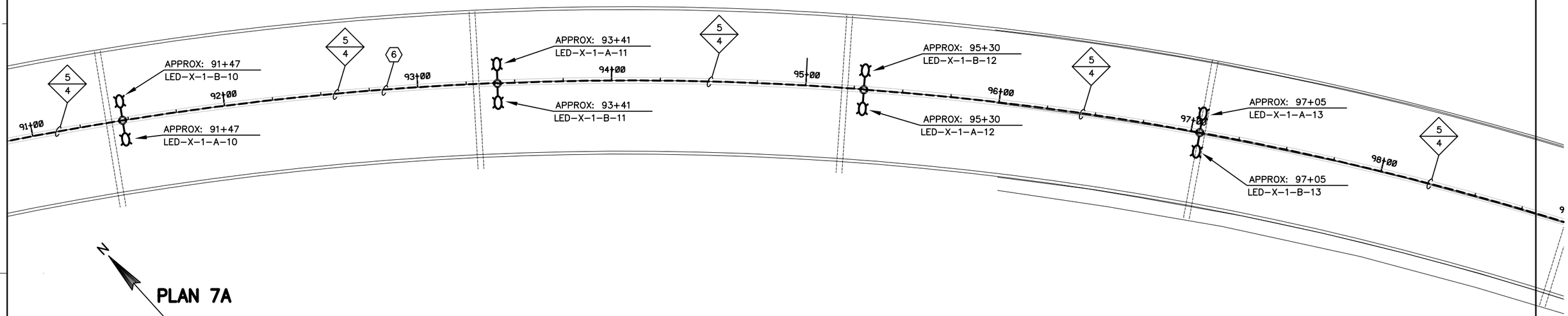
PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 6A & 6B	SHEET LP-6 74	E

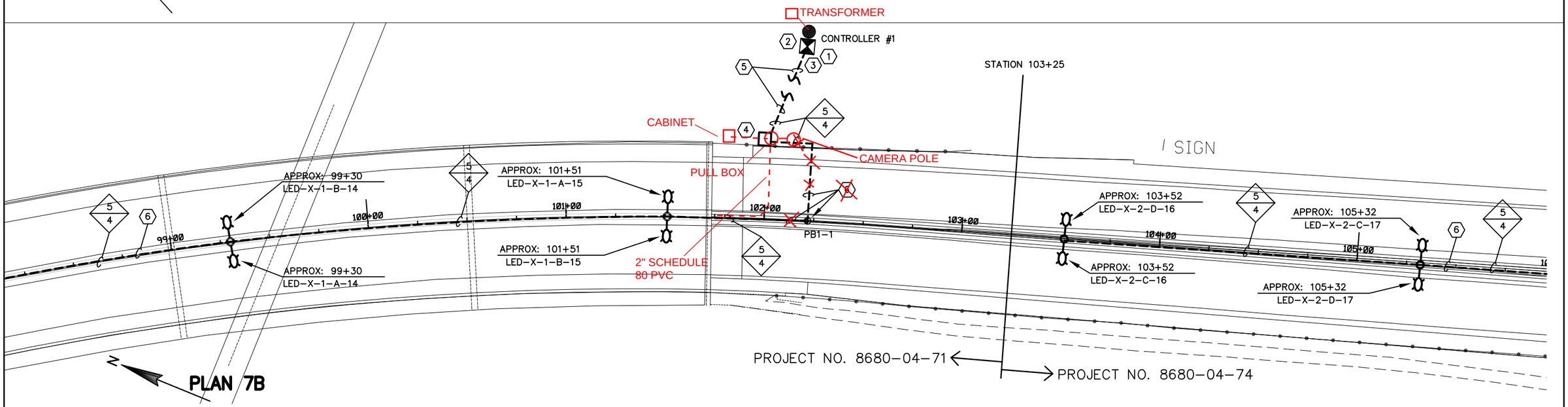
GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 5-10) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

(#) KEYNOTES

1. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH LOCAL UTILITY COMPANY AND ARRANGE FOR THEM TO REMOVE EXISTING SERVICE FEEDING EXISTING LIGHTING CONTROLLER. THIS CONTRACTOR SHALL REMOVE ALL EXISTING ELECTRICAL ASSOCIATED WITH EXISTING LIGHTING CONTROLLER AND DISPOSE OF OFF SITE.
2. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH LOCAL UTILITY COMPANY AND ARRANGE FOR A 120/240V, 100A, 1ϕ SERVICE DROP TO NEW LIGHTING CONTROLLER #1. REFERENCE DETAILS.
3. PROVIDE NEW LIGHTING CONTROLLER #1 PER DETAILS AND SPECIAL PROVISIONS. (LOCATION IS APPROXIMATELY 160 FEET DOWN THE SLOPE AT THE LAST UTILITY COMPANY POLE.) REFERENCE CONTROLLER DETAIL AND NOTE THAT THE TYPE 10 BASE SHALL BE MODIFIED TO EXTEND 30" ABOVE GRADE AND 6' BELOW GRADE.
4. DISCONNECT ALL CIRCUITS. REMOVE EXISTING JUNCTION BOX AND DISPOSE OF OFF SITE. PROVIDE A HINGED AND GASKETED NEMA 4X, STAINLESS STEEL, 18"x12"x8" J-BOX, WITH A SCREW COVER. MODIFY/EXTEND EXISTING RGS CONDUIT AS REQUIRED. RECONNECT ALL CIRCUITS.
5. EXISTING HDPE SHALL REMAIN FOR RE-USE.
6. EXISTING UNDER ROADWAY CONDUIT, EXISTING PB1-1 AND CENTER LINE/PARAPET CONDUIT (TYP.) SHALL REMAIN FOR RE-USE.





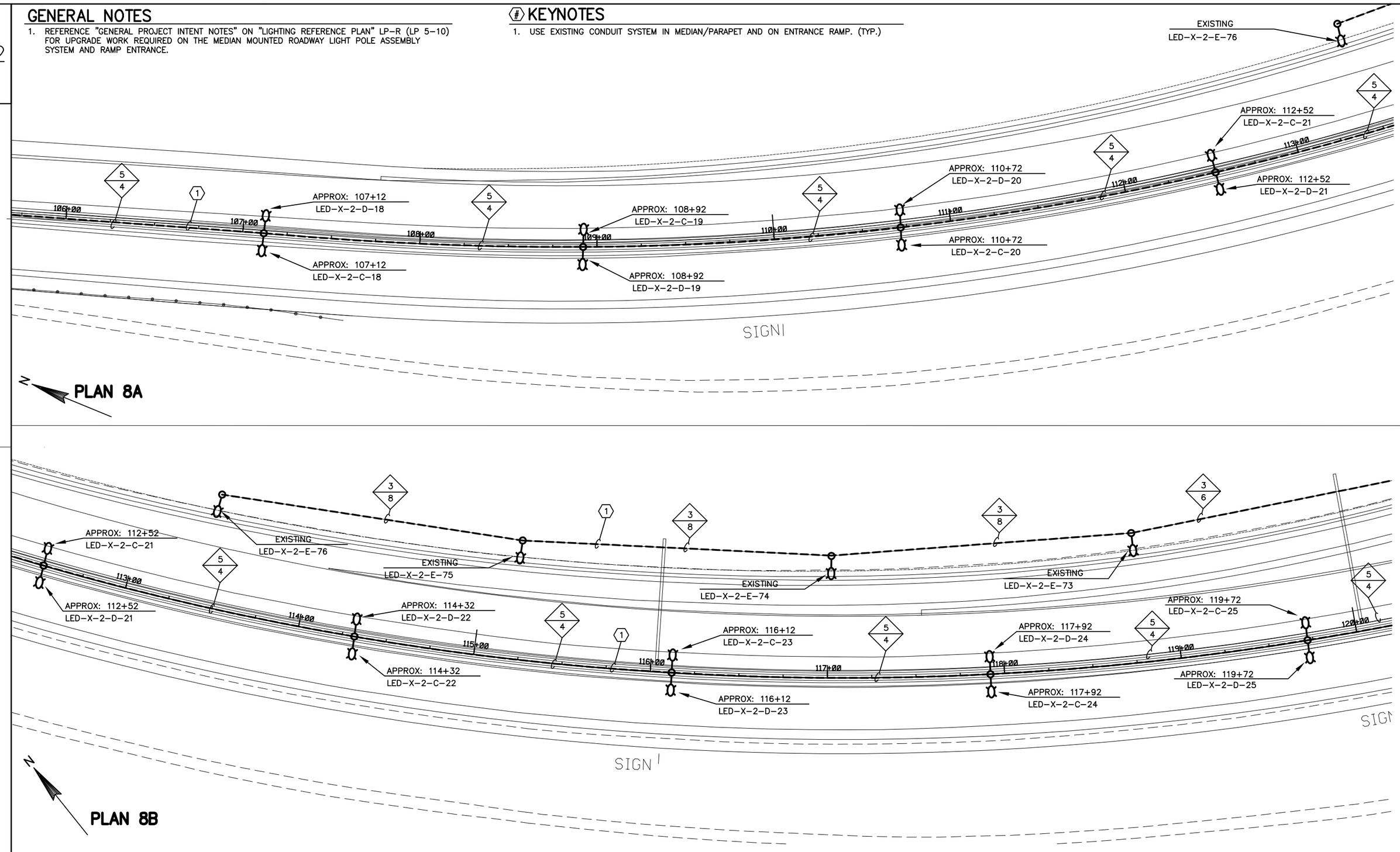
PROJECT NO: 8680-04-71, 74	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 7A & 7B	SHEET LP-7 75	E

GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 5-10) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM AND RAMP ENTRANCE.

(#) KEYNOTES

1. USE EXISTING CONDUIT SYSTEM IN MEDIAN/PARAPET AND ON ENTRANCE RAMP. (TYP.)



PROJECT NO: 8680-04-74	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 8A & 8B	SHEET LP-8

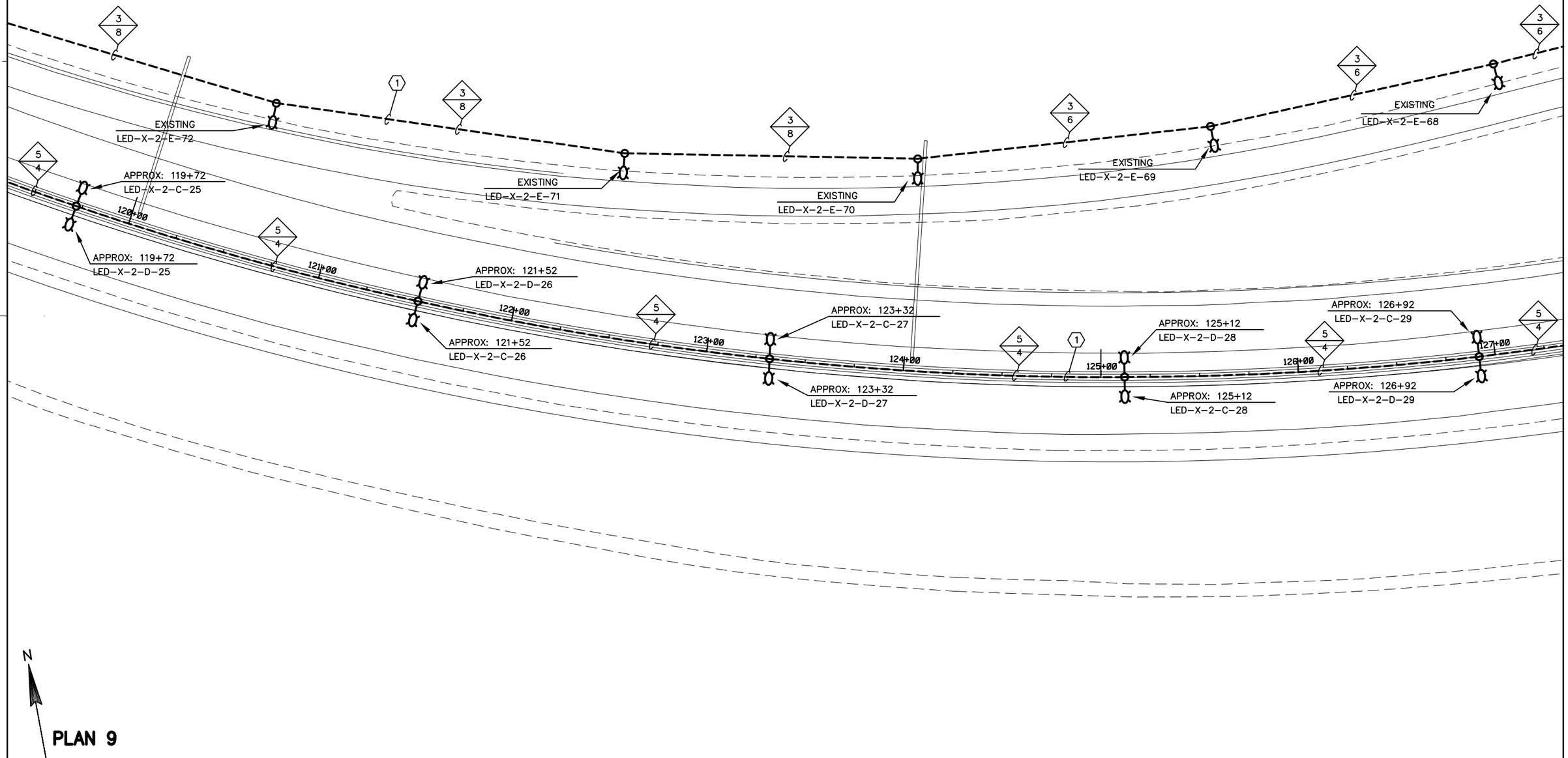
FILE NAME : P:\A0430120_AYRES - BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LP-8.DWG PLOT DATE : 11/20/2013 3:23 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 50'

GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 5-10) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM AND RAMP ENTRANCE.

(#) KEYNOTES

1. USE EXISTING CONDUIT SYSTEM IN MEDIAN/PARAPET AND ON ENTRANCE RAMP. (TYP.)



PROJECT NO: 8680-04-74	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 9	SHEET LP-9 77	E

GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 5-10) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM AND RAMP ENTRANCE.

KEYNOTES

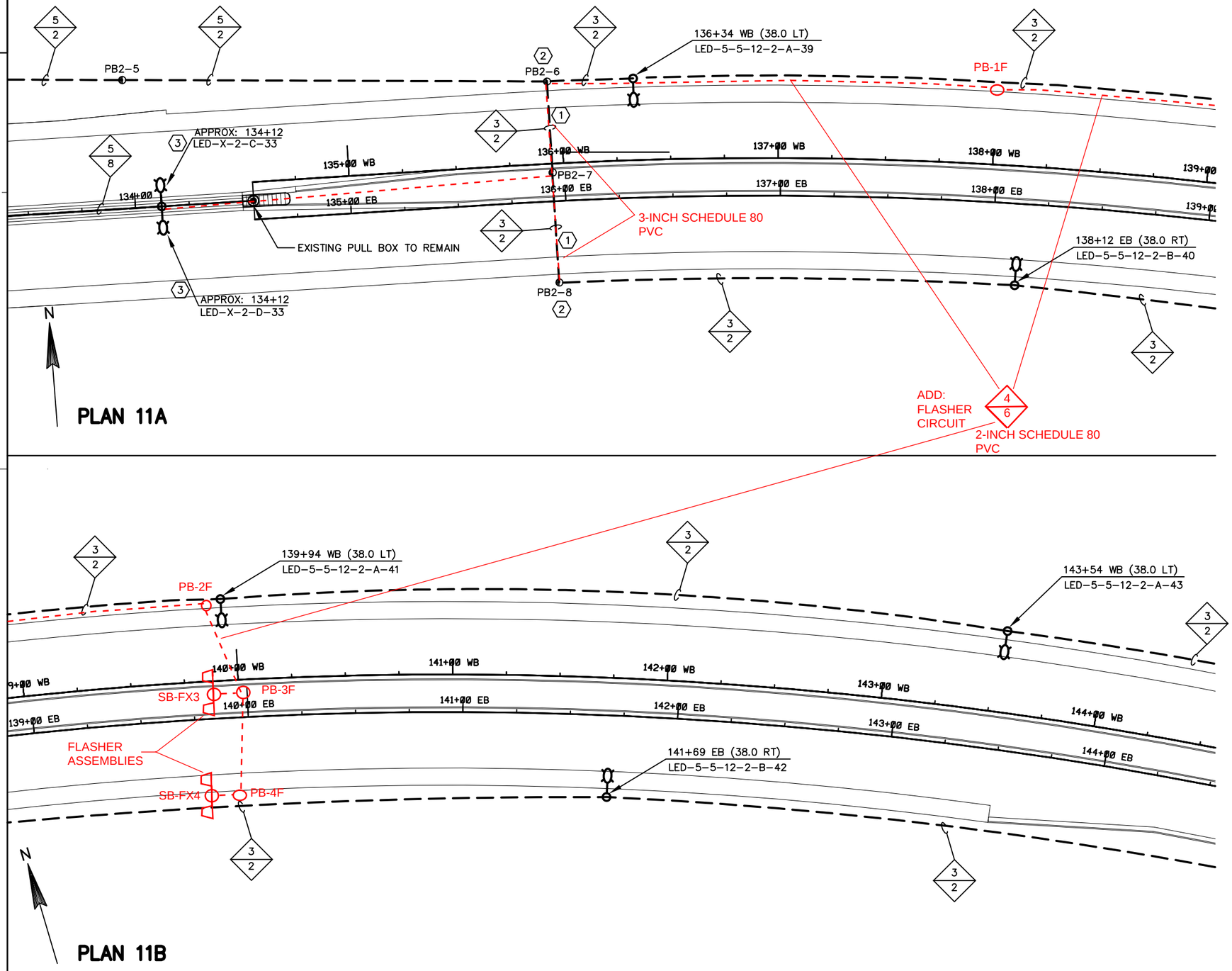
1. INTERCEPT EXISTING UNDERGROUND RACEWAY AND EXTEND INTO NEW PULL BOX.
2. INTERCEPT EXISTING RAMP AND HIGHWAY LIGHTING CIRCUIT RACEWAYS AND EXTEND INTO NEW PB2-1. PROVIDE NEW WIRING SHOWN.
3. LOCATION OF SOLAR POWERED RAMP CLOSURE GATE.
4. PROVIDE NEW TYPE 7 BASE MOUNT LIGHTING CONTROLLER #2 PER DETAILS AND SPECIAL PROVISIONS. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH LOCAL UTILITY COMPANY AND ARRANGE FOR A 120/240V, 100A, 1ϕ SERVICE DROP TO NEW LIGHTING CONTROLLER #2. REFERENCE DETAILS.
5. USE EXISTING CONDUIT SYSTEM IN MEDIAN/PARAPET AND ON ENTRANCE RAMP. (TYP.)
6. PROVIDE NEW 2" PVC SCH 40 NON-METALLIC CONDUIT BETWEEN PULL BOXES.
7. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH LOCAL UTILITY COMPANY AND ARRANGE FOR THEM TO REMOVE EXISTING SERVICE FEEDING EXISTING LIGHTING CONTROLLER. THIS CONTRACTOR SHALL REMOVE ALL EXISTING ELECTRICAL ASSOCIATED WITH EXISTING LIGHTING CONTROLLER AND DISPOSE OF OFF SITE. ANY LIGHTING CIRCUIT SERVING SUSQUEHANNA FROM THIS OLD CONTROLLER SHALL BE RE-ROUTED AND EXTENDED THROUGH PB2-1 AND BE RE-FED FROM NEW CONTROLLER #2.
8. PROVIDE NEW PULL BOXES PB2-1, 3, 4, AND 5 PER PLANS.
9. BORE BENEATH ROADWAY FOR INSTALLATION OF NEW 2" SCH 80 PVC CONDUIT BETWEEN PULL BOXES.

EXISTING LED-X-2-E-65
1-INCH SCHEDULE 40 PVC
N 306553.70
E 141488.7
PB2-3
SUSQUEHANNA AVE
2-INCH SCHEDULE 80 PVC
CABINET POWER SUPPLY FROM EXISTING POLE 2-INCH SCH 40 PVC
1-INCH SCHEDULE 40 PVC
EXISTING LED-X-2-E-66
EXISTING LED-X-2-E-67
EXISTING LED-X-2-E-68
CONTROLLER #2
PB2-1
PB2-4
PB2-5
EXISTING LED-X-2-E-64
3 INCH SCHEDULE 80 PVC
PB2-2 (EXISTING)
ADD: 4 6
PB2-4
ADD: FLASHER CIRCUIT
APPROX: 126+92 LED-X-2-C-29
APPROX: 126+92 LED-X-2-D-29
APPROX: 128+73 LED-X-2-D-30
APPROX: 128+73 LED-X-2-C-30
APPROX: 130+54 LED-X-2-C-31
APPROX: 130+54 LED-X-2-D-31
APPROX: 132+32 LED-X-2-D-32
APPROX: 132+32 LED-X-2-C-32
APPROX: 134+12 LED-X-2-C-33
APPROX: 134+12 LED-X-2-D-33
127+00
128+00
129+00
130+00
131+00
132+00
133+00
134+00
N

PLAN 10

PROJECT NO: 8680-04-74	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 10	SHEET LP-10	E

FILE NAME : P:\A0430120_AYRES - BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LP-10.DWG PLOT DATE : 11/20/2013 3:44 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 50'



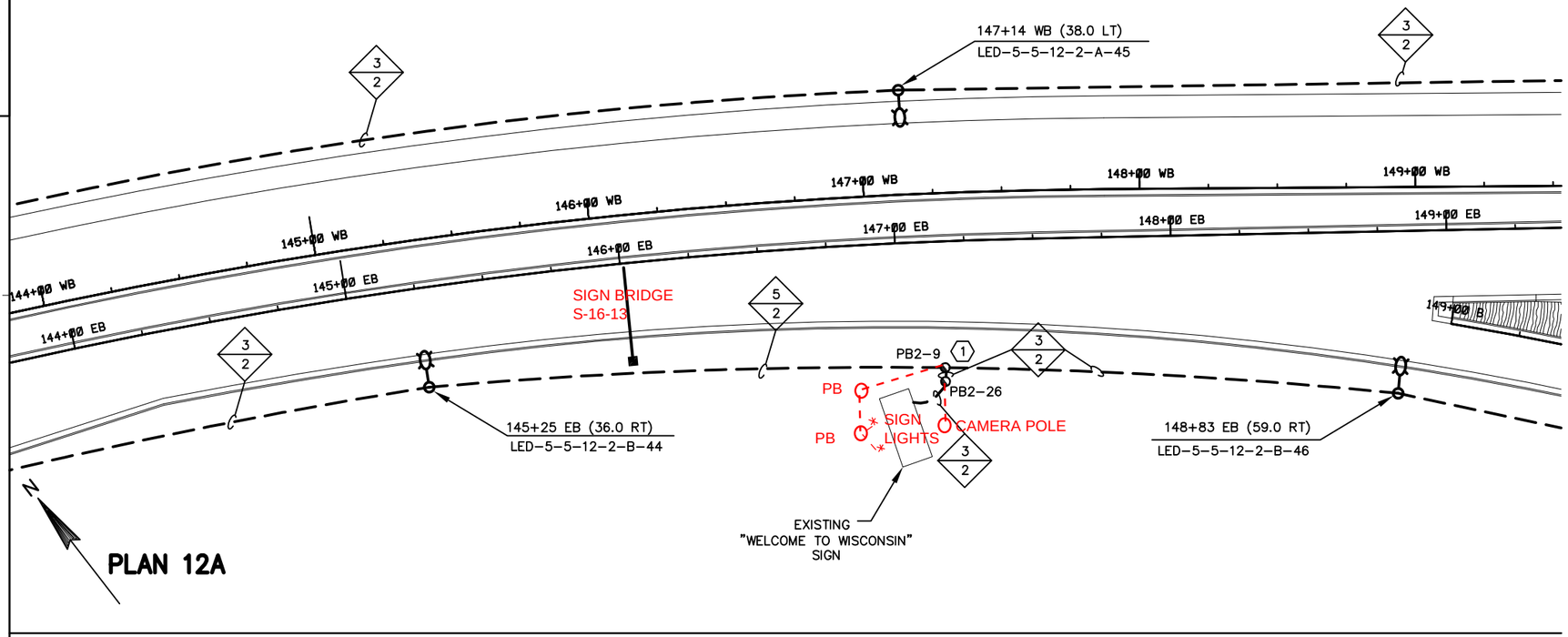
GENERAL NOTES

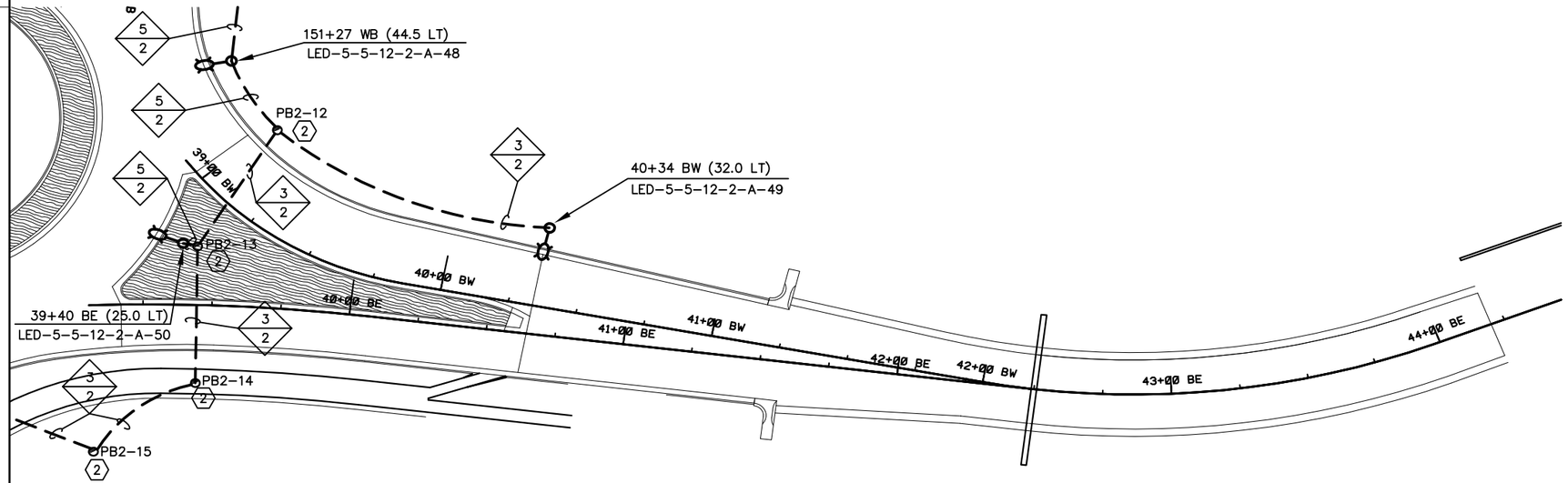
1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 11-15) FOR FURTHER INFORMATION REGARDING WORK REQUIRED ON THIS PROJECT.
2. ALL WORK ON THESE PLANS SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
3. ALL CABLE SPLICING SHALL TAKE PLACE ABOVE GROUND INSIDE LIGHT POLES PER THE DETAILS. NO UNDERGROUND WIRE SPLICING SHALL BE ALLOWED.

(#) KEYNOTES

1. USE EXISTING CONDUIT UNDER ROADWAY FOR NEW LIGHTING CABLES THROUGH EXISTING PB2-7.
2. PROVIDE NEW PULL BOX PER DETAILS. INTERCEPT EXISTING CONDUIT RUN BENEATH ROADWAY. EXTEND AS REQUIRED INTO NEW PULL BOX.
3. SEE FIXTURE LEGEND (LP 5-10) AND GENERAL PROJECT INTENT NOTES (LP 5-10) ON SHEET LP-R (LP 5-10) FOR THIS LIGHT FIXTURE DEFINITION AND PROJECT INSTALLATION INSTRUCTIONS.

PROJECT NO: 8680-04-74	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 11A & 11B	SHEET LP-79	E





GENERAL NOTES

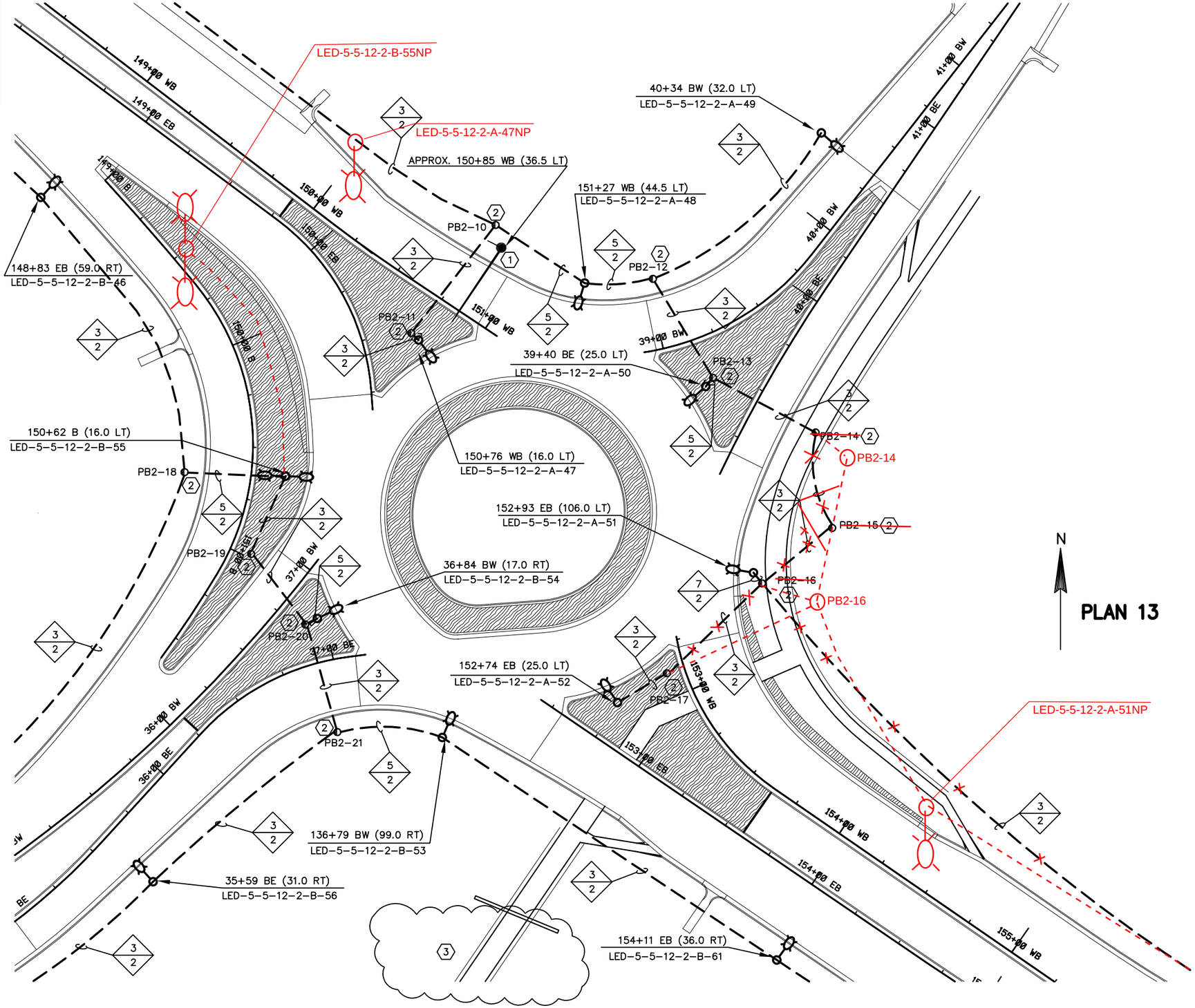
1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 11-15) FOR FURTHER INFORMATION REGARDING WORK REQUIRED ON THIS PROJECT.
2. ALL WORK ON THESE PLANS SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
3. ALL CABLE SPLICING SHALL TAKE PLACE ABOVE GROUND INSIDE LIGHT POLES PER THE DETAILS. NO UNDERGROUND WIRE SPLICING SHALL BE ALLOWED.

(#) KEYNOTES

1. ADD PULL BOX PB2-9 PER DETAILS TO INTERCEPT LIGHTING CIRCUIT RACEWAY SERVICING EXISTING WELCOME TO WISCONSIN SIGN. PROVIDE NEW BRANCH CIRCUIT WIRE FROM FIXTURE 44 TO EXISTING SIGN FIXTURE ROUTED THROUGH EXISTING PB2-26 WITHOUT SPLICING. PROVIDE WISDOT APPROVED SPLICES AT THE FIXTURE(S). THIS WORK IS COVERED UNDER SPECIAL PROVISION "WISCONSIN SIGN CIRCUIT MODIFICATION" AND IS A LUMP SUM BID ITEM.
2. PROVIDE PULL BOX PER PLANS AND DETAIL.

PROJECT NO: 8680-04-74	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 12A & 12B	SHEET LP-12	E

FILE NAME : P:\A0430121_AYRES - BONG MEMORIAL BRIDGE APPROACHES\CAD_DRAWINGS\LP-12.DWG PLOT DATE : 11/21/2013 11:28 AM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1' = 50'
WISDOT/CADDS SHEET 42



GENERAL NOTES

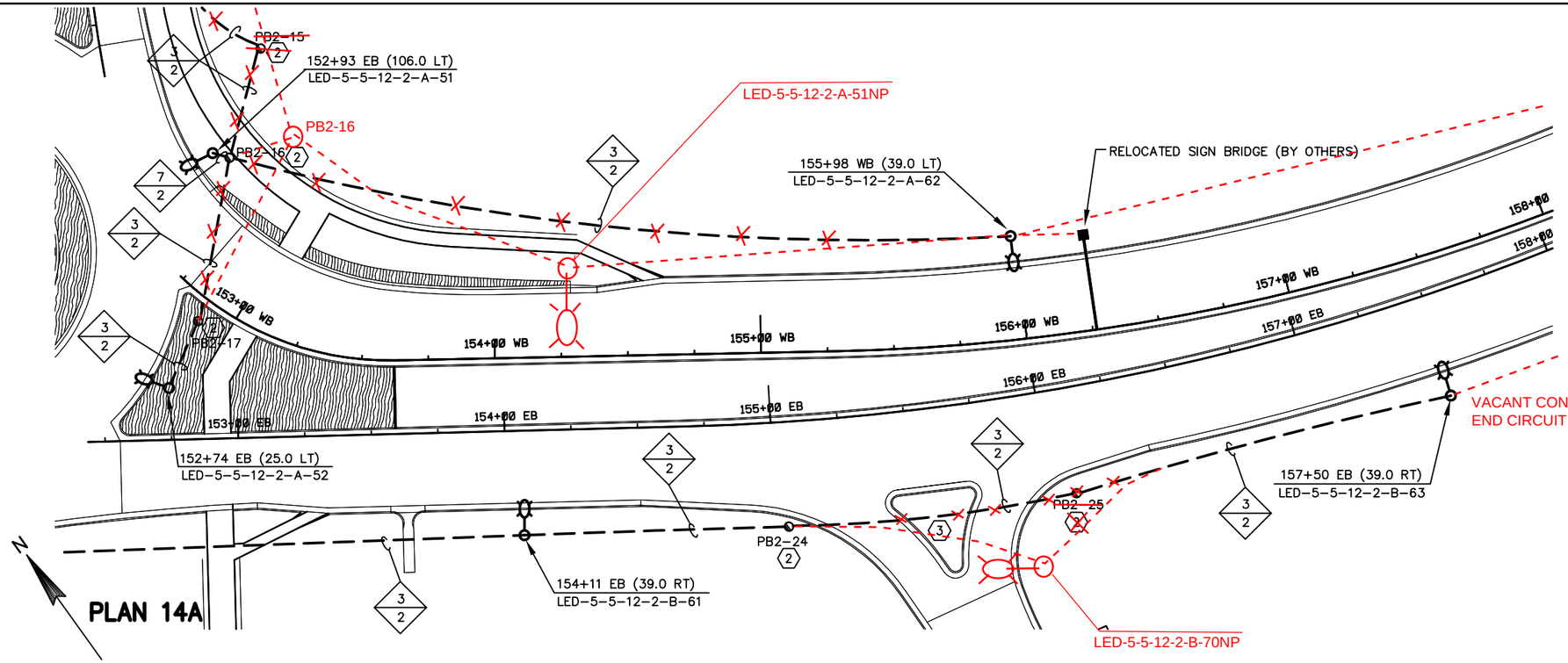
1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 11-15) FOR FURTHER INFORMATION REGARDING WORK REQUIRED ON THIS PROJECT.
2. ALL WORK ON THESE PLANS SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
3. ALL CABLE SPLICING SHALL TAKE PLACE ABOVE GROUND INSIDE LIGHT POLES PER THE DETAILS. NO UNDERGROUND WIRE SPLICING SHALL BE ALLOWED.

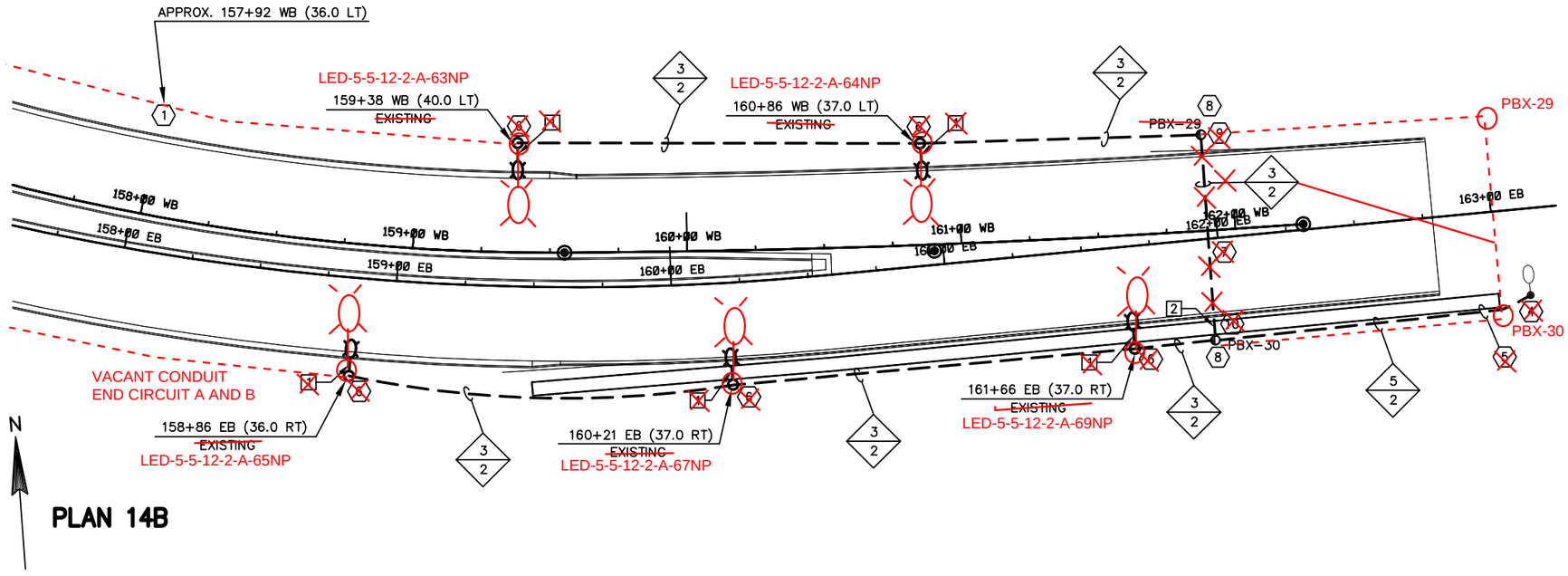
(#) KEYNOTES

1. LOCATION OF SOLAR POWERED ROAD CLOSURE GATE.
2. PROVIDE PULL BOX PER PLANS AND DETAILS.
3. REFERENCE "GENERAL PROJECT INTENT NOTES (LP 11-15) FOR WI WORK" ON SHEET LP-R (LP 11-15) FOR REMOVAL OF EXISTING LIGHT FIXTURES ALONG BELKNAP.

PROJECT NO: 8680-04-74	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLAN 13	SHEET LP-[illegible]	E

FILE NAME : P:\A0430121_AYRES - BONG MEMORIAL BRIDGE APPROACHES\CAD_DRAWINGS\LP-13.DWG PLOT DATE : 11/21/2013 9:50 AM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 50'
WISDOT/CADDS SHEET 42





GENERAL NOTES

1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 11-15) FOR FURTHER INFORMATION REGARDING WORK REQUIRED ON THIS PROJECT.
2. ALL WORK ON THESE PLANS SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
3. ALL CABLE SPLICING SHALL TAKE PLACE ABOVE GROUND INSIDE LIGHT POLES PER THE DETAILS. NO UNDERGROUND WIRE SPLICING SHALL BE ALLOWED.

DEMOLITION KEYNOTES

1. DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE AND POLE. PLACE FIXTURE AND POLE IN SECURED STORAGE UNTIL REINSTALLED. DEMO CONCRETE POLE BASES AND DISPOSE OF OFFSITE. CUT AND REMOVE EXISTING ELECTRICAL CONDUCTORS FROM THE EASTERN POLE AND DISPOSE OF OFFSITE. ABANDON UNDERGROUND CONDUIT IN PLACE. CONTRACTOR SHALL BE RESPONSIBLE FOR FULL REPLACEMENT OF ANY DAMAGED OR STOLEN LIGHT POLE ASSEMBLIES.
2. REMOVE EXISTING PULL BOX AND DISPOSE OF OFFSITE. ABANDON EAST/WEST LIGHTING CONDUIT IN PLACE. REFERENCE KEYNOTE 10 REGARDING RE-USE OF CONDUIT TRAVELING NORTH UNDER THE ROAD.

KEYNOTES

1. REFERENCE SHEET LP-R (LP 11-15) "GENERAL PROJECT INTENT NOTES" 2.a. REGARDING ELECTRICAL DEMOLITION AND SALVAGE WORK REQUIRED RELATED TO EXISTING ILLUMINATED SIGN BRIDGE (SCHEDULED FOR RELOCATION BY OTHERS).
2. PROVIDE PULL BOX PER PLANS AND DETAILS.
3. BORE BENEATH ROADWAY FOR INSTALLATION OF NEW SCH 80 2" PVC CONDUIT BETWEEN PB2-24 AND PB2-25.
4. EXISTING LIGHT FIXTURE TO REMAIN UNDISTURBED. NEW CONDUCTORS SHALL BE SPLICED TO THE EXISTING LIGHTING CIRCUIT AT THIS LOCATION.
5. INTERCEPT EXISTING CONDUIT FROM UNDISTURBED EXISTING LIGHT FIXTURE TO THE EAST. EXTEND EXISTING LIGHTING CIRCUIT TO RELOCATED POLE ASSEMBLIES TO THE WEST WITH NEW CONDUCTORS AS SHOWN ON PLANS. PROVIDE NEW 2" PVC CONDUIT AND CONDUCTORS AS SHOWN ON PLANS AND SCHEDULES.
6. PROVIDE NEW CONCRETE BASES PER DETAILS AND REINSTALL STORED POLE ASSEMBLIES AT NEW LOCATION SHOWN ON PLANS AND RECONNECT.
7. EXISTING UNDERGROUND CONDUIT SHALL REMAIN. REMOVE ROAD CROSSING CONDUCTORS AND DISPOSE OF OFFSITE.
8. PROVIDE PULL BOX PER PLANS AND DETAILS. REMOVE CONDUCTORS BACK TO THE NEXT LIGHTING CIRCUIT TO THE EAST. (REFERENCE NOTES 4 AND 8)
9. EXTEND EXISTING 2" CONDUIT (COMING NORTH FROM UNDER THE ROAD) INTO PBX-29.
10. EXTEND EXISTING 2" CONDUIT FROM REMOVED PULL BOX INTO NEW PBX-30. PROVIDE NEW CONDUCTORS SHOWN UNDER ROAD IN EXISTING CONDUIT. CONDUCTORS SHALL HAVE NO SPLICES BETWEEN LIGHT OF NOTE 4 AND LIGHT AT STATIONING 160+86 WB.

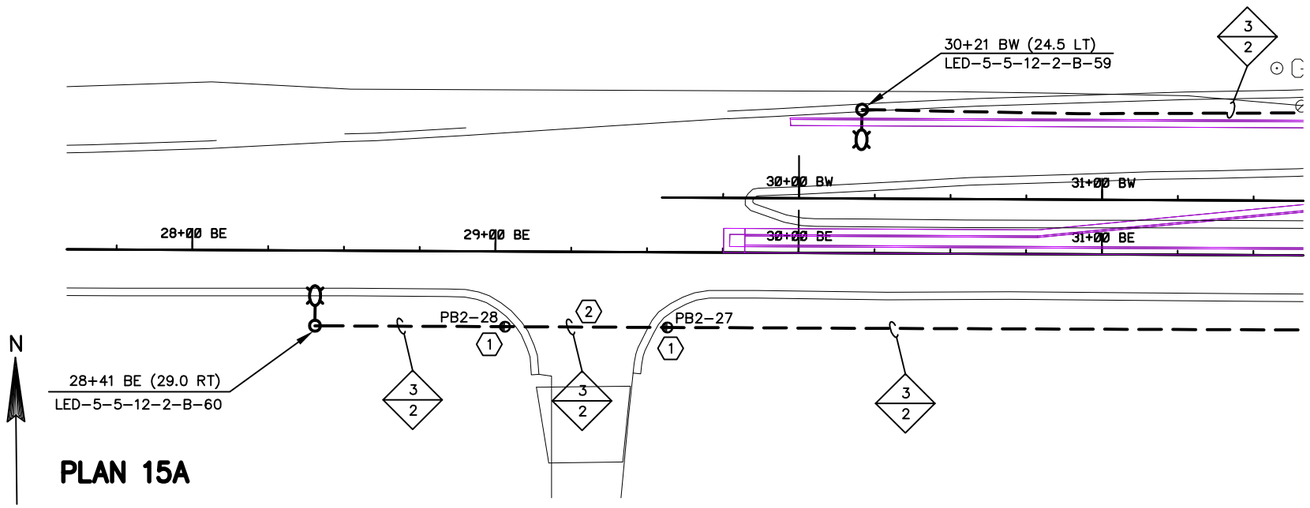
2

GENERAL NOTES

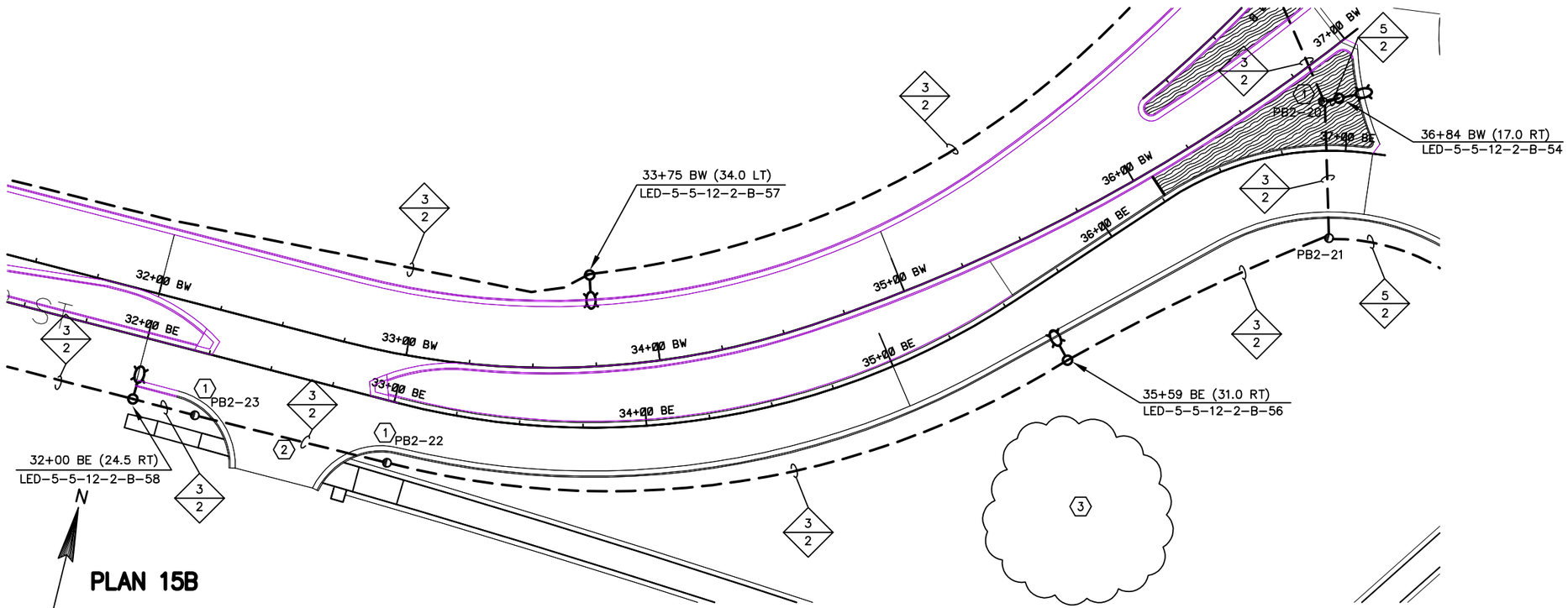
1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 11-15) FOR FURTHER INFORMATION REGARDING WORK REQUIRED ON THIS PROJECT.
2. ALL WORK ON THESE PLANS SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
3. ALL CABLE SPLICING SHALL TAKE PLACE ABOVE GROUND INSIDE LIGHT POLES PER THE DETAILS. NO UNDERGROUND WIRE SPLICING SHALL BE ALLOWED.

(#) KEYNOTES

1. PROVIDE PULL BOX PER PLANS AND DETAILS.
2. BORE UNDER EXISTING ROADWAY FOR NEW 2" SCH 80 PVC CONDUIT INSTALLATION.
3. APPROXIMATE LOCATION OF TRAFFIC SIGNAL LIGHTS FOR BELKNAP AND EASTBOUND USH-2. THE REMOVAL OF ALL TRAFFIC SIGNAL LIGHTS, ANY ASSOCIATED LIGHTING MOUNTED ON SIGNAL POLES, AND CONDUIT AND CONDUCTORS SHALL BE THE RESPONSIBILITY OF OTHERS AND IS NOT PART OF THIS PROJECT.



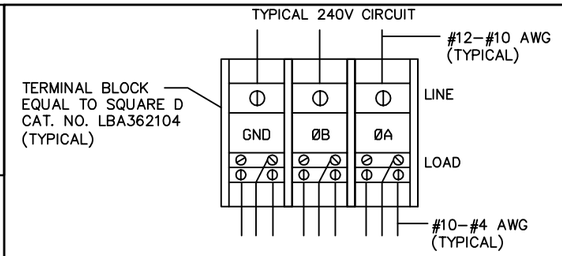
PLAN 15A

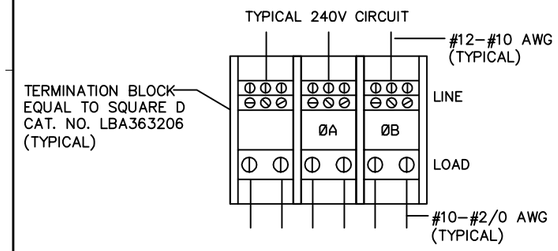


PLAN 15B

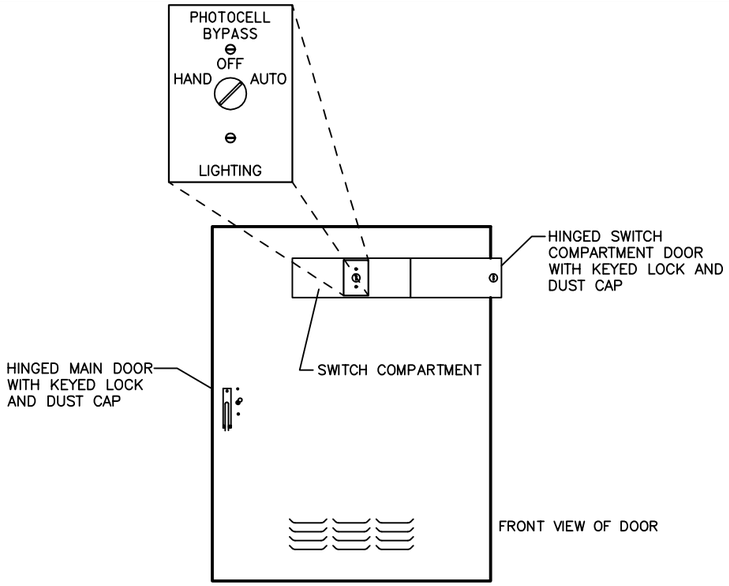
PROJECT NO: 8680-04-74	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING PLANS 15A & 15B	SHEET LP-15	E

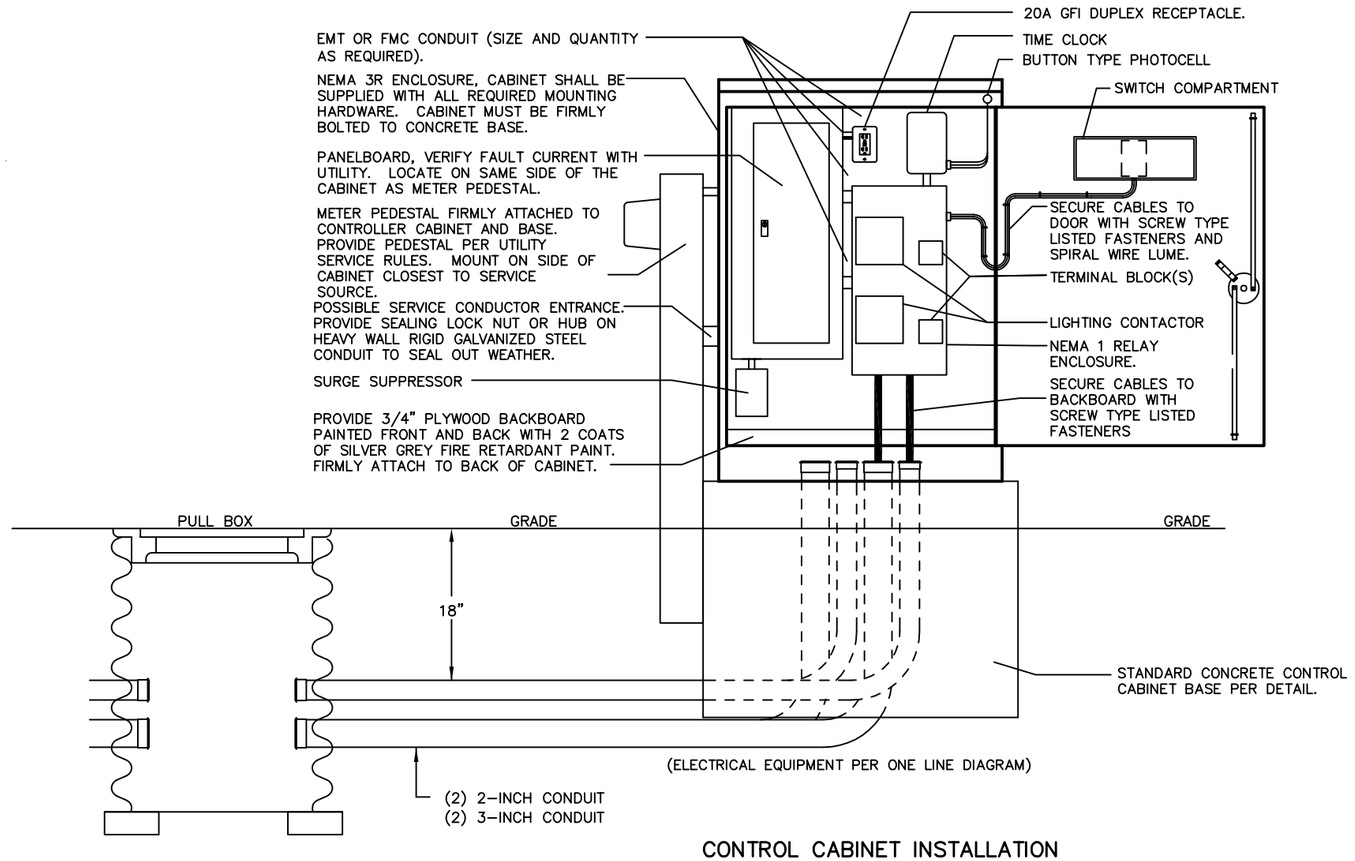
FILE NAME : P:\A0430121_AYRES - BONG MEMORIAL BRIDGE APPROACHES\CAD_DRAWINGS\LP-15.DWG PLOT DATE : 11/20/2013 2:24 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE : 1" = 50' WISDOT/CADDS SHEET 42





TERMINAL BLOCKS





CONTROL CABINET INSTALLATION

GENERAL NOTES

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

PROVIDE A CABINET AS MANUFACTURED BY SIEMENS, ECONOLITE, OR EQUAL WITH SWITCH COMPARTMENT AND AIR FILTER SLOTS IN THE DOOR.

CABINET SHALL BE PRIMED WITH IRON PHOSPHATE TREATMENT AND PRIMER.

EXTERIOR SURFACES SHALL BE FACTORY FINISHED SILVER GRAY.

INTERIOR SHALL BE FACTORY FINISHED WITH HIGH GLOSS WHITE ENAMEL.

ALL SHEET METAL PARTS SHALL BE .125 INCH THICK ALUMINUM.

ALL SEAMS SHALL BE CONTINUOUSLY SEALED.

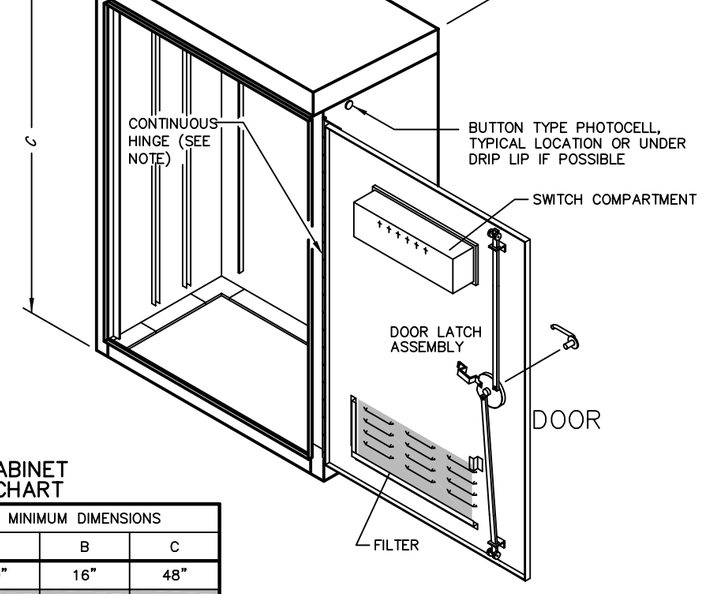
ALUMINUM SHALL BE TYPE 5052–H32.

DOOR LATCH ASSEMBLY TO BE PROVIDED WITH THREE–POINT LOCKING MECHANISM.

DOOR SHALL BE SEALED WITH CLOSED–CELL NEOPRENE GASKET.

CONTINUOUS HINGE SHALL BE HEAVY GAUGE ALUMINUM WITH 1/4" DIAMETER STAINLESS STEEL HINGE PIN. HINGE IS SECURED WITH 1/4" X 20 TPI STAINLESS STEEL CARRIAGE BOLTS AND STAINLESS STEEL NYLOCK NUTS.

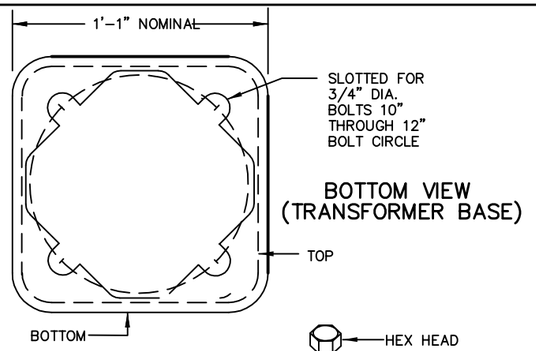
A SINGLE PHOTOCELL SHALL BE LOCATED ON THE NORTH–NORTHEAST SIDE OF THE CABINET UNLESS OTHERWISE CALLED FOR IN THE SPECIFICATIONS. THE PHOTOCELL SHALL BE PLACED AS SHOWN AND SHALL BE AN APPROVED TYPE AS NOTED ON ONE–LINE DIAGRAM.



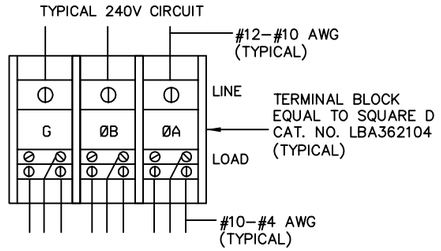
CONTROL CABINET DIMENSION CHART

CABINET TYPE	MINIMUM DIMENSIONS		
	A	B	C
6	30"	16"	48"
7	38"	18"	51"
8	38"	24"	54"
9	VARIABLE	24"	72"

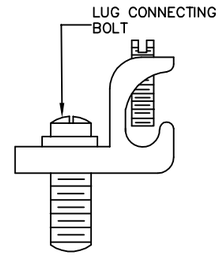
CONTROL CABINET



BOTTOM VIEW
(TRANSFORMER BASE)



TERMINATION BLOCKS



TYPICAL MECHANICAL CONNECTOR LUG
TO BE FURNISHED WITH EACH BASE

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

FOUR (4) GRADE 5 BOLTS SHALL BE FURNISHED WITH TRANSFORMER BASE. BOLTS SHALL BE 3/4" DIAMETER, 2" IN LENGTH, WITH WASHERS, LOCK WASHERS, AND NUTS. BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED.

LEVELING SHIMS, IF NEEDED, SHALL BE DESIGNED FOR THE PURPOSE AND USED UNDER CABINET WHEN PLUMBING CABINET DURING INSTALLATION. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE.

DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

A NEMA APPROVED AND U.L. LISTED MECHANICAL CONNECTOR (LUG) AL/CU RATED AND SIZED TO ACCEPT #10 AWG STRANDED WIRE, SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" – 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

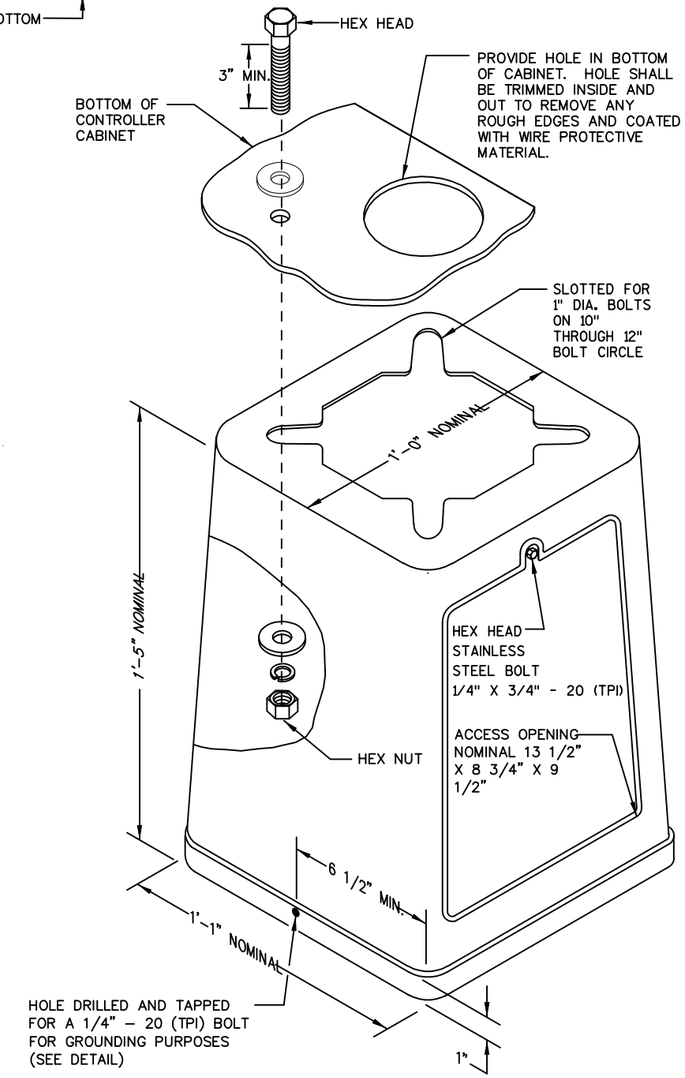
SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER – THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

THE ACCESS DOOR SHALL BE OF THE SAME MATERIAL AS THE BASE.

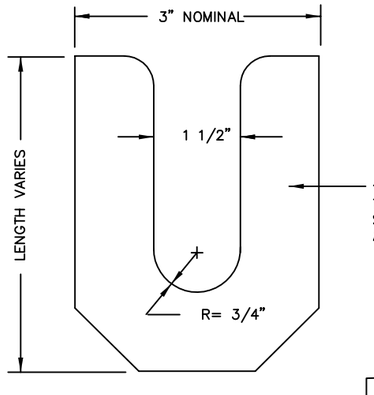
SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID STEEL OR SCHEDULE 80 PVC ELECTRICAL CONDUIT. NIPPLES AND/OR CONDULETS, WITH LOCK NUTS AND GROUNDING BUSHINGS AS REQUIRED BY THE N.E.C. OR THE LOCAL UTILITY.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AS REQUIRED AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED ELECTRICAL CODE.

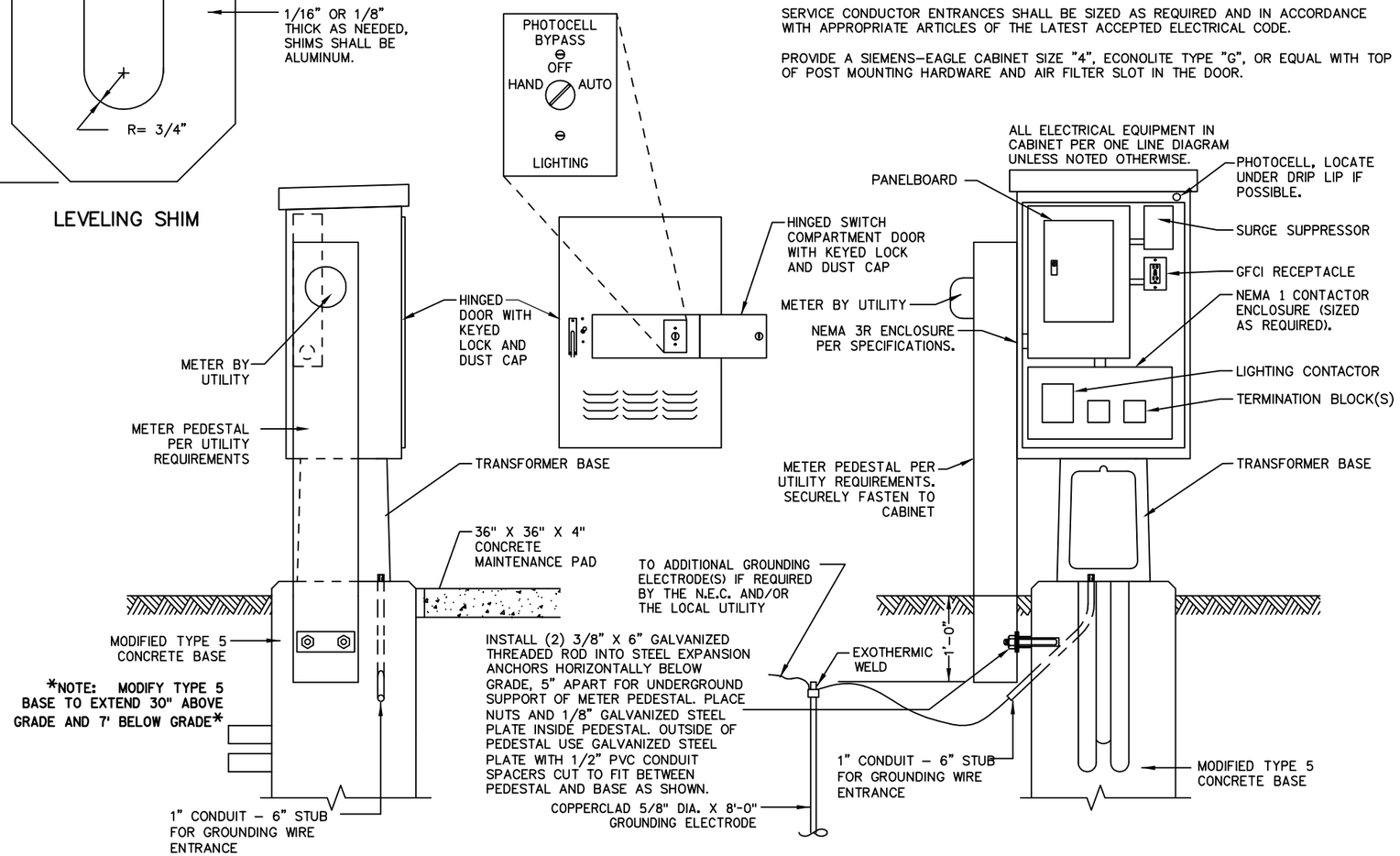
PROVIDE A SIEMENS–EAGLE CABINET SIZE "4", ECONOLITE TYPE "G", OR EQUAL WITH TOP OF POST MOUNTING HARDWARE AND AIR FILTER SLOT IN THE DOOR.



ISOMETRIC VIEW
TRANSFORMER BASE
FOR USE WITH CONTROLLER PEDESTAL

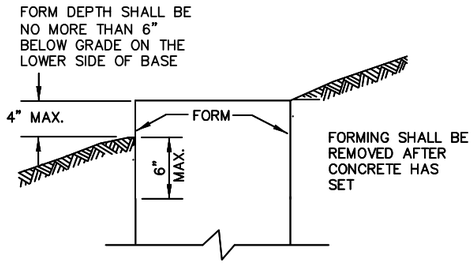


LEVELING SHIM



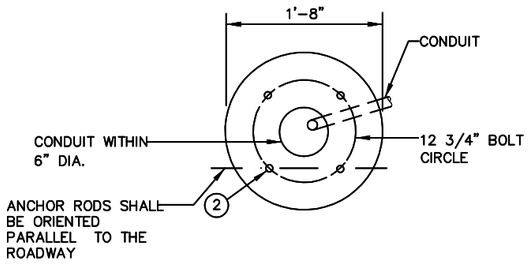
TRANSFORMER BASE MOUNTED SERVICE AND CONTROLLER CABINET DETAIL

PROJECT NO: 8680–04–71	HWY: USH–2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING DETAILS–TRANSFORMER BASE MOUNTED INSTALLATION	SHEET LD–2 85	E

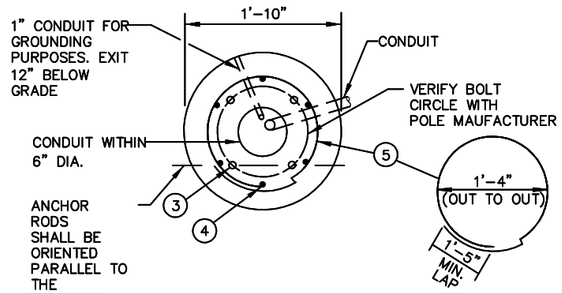


FORMING DETAIL

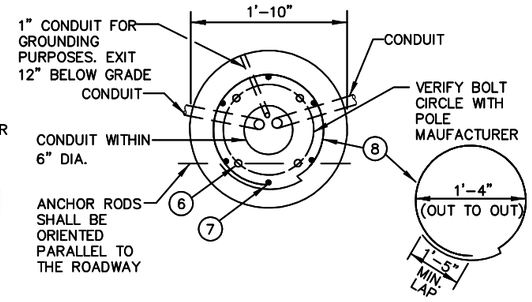
QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5
APPROX. CUBIC YARDS OF CONCRETE	0.40	0.68	0.49
LBS. OF HOOP BAR STEEL	NONE	40	20
LBS. OF VERTICAL BAR STEEL	NONE	103	22

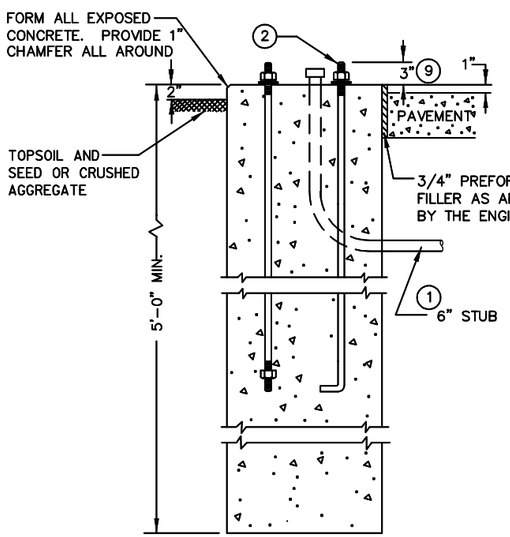


HALF SECTION IN UNPAVED AREA
(TYPICAL FOR TYPES 1, 2 & 5)

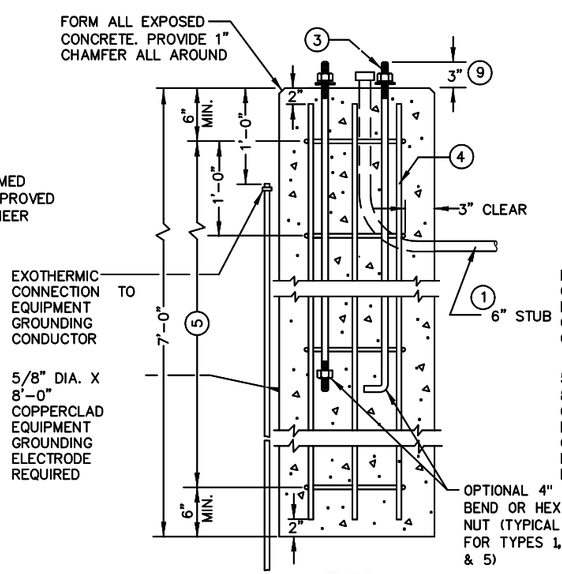


HALF SECTION IN PAVEMENT
(TYPICAL FOR TYPES 1, 2 & 5)

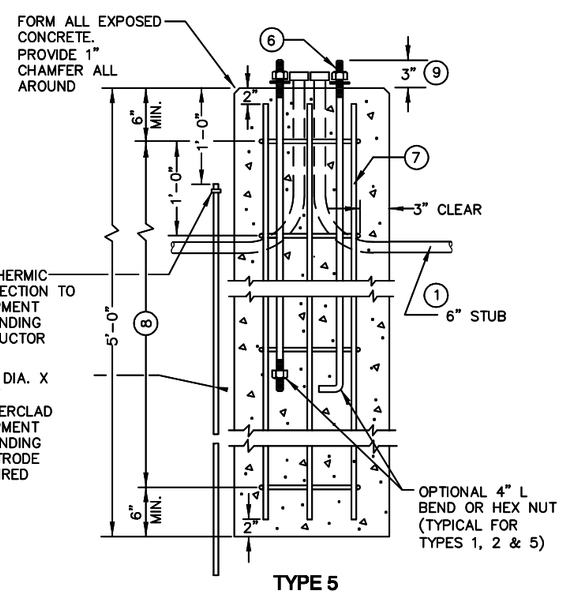




TYPE 1



TYPE 2



TYPE 5

CONCRETE BASES

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

TOP SURFACES OF CONCRETE BASES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 1 INCH. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE DIRT OR FILL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

A NO. 4 AWG STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD) FOR TYPE 2 AND TYPE 5 BASES.

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE OF THE TYPE 2 AND TYPE 5 BASES THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD, ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM A-449, OR ASTM A-687 (GRADE 105).

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4" "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND END SHALL NOT BE THREADED.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL PER SECTION 5.17.6.3, AASHTO 2001 4TH EDITION STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

WELDING OF THE ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TIE WIRES SHALL BE USED.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN.

(1) THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN APPROVAL BY THE ENGINEER.

(2) (4) 1" DIA. X 3'-6" ANCHOR RODS.

(3) (4) 1" DIA. X 5'-0" ANCHOR RODS.

(4) (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.

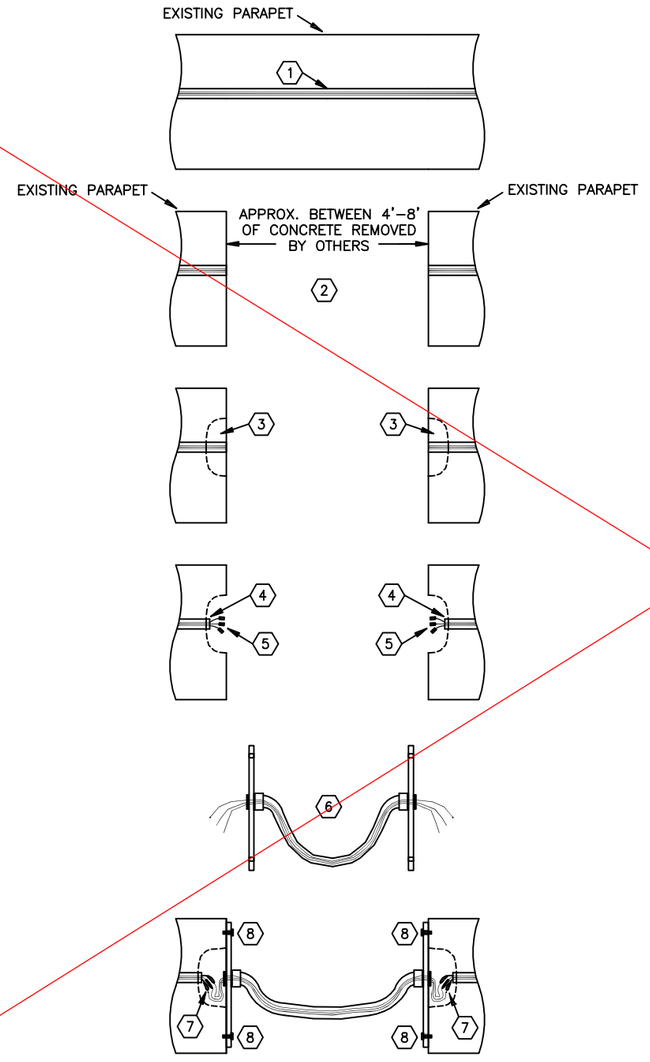
(5) (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

(6) (4) 1" DIA. X 3'-6" ANCHOR RODS.

(7) (6) NO. 4 X 4'-8" BAR STEEL REINFORCEMENT

(8) (5) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

(9) ANY ANCHOR ROD PROJECTION SHORTER THAN 2-3/4" OR LONGER THAN 3-1/4" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.



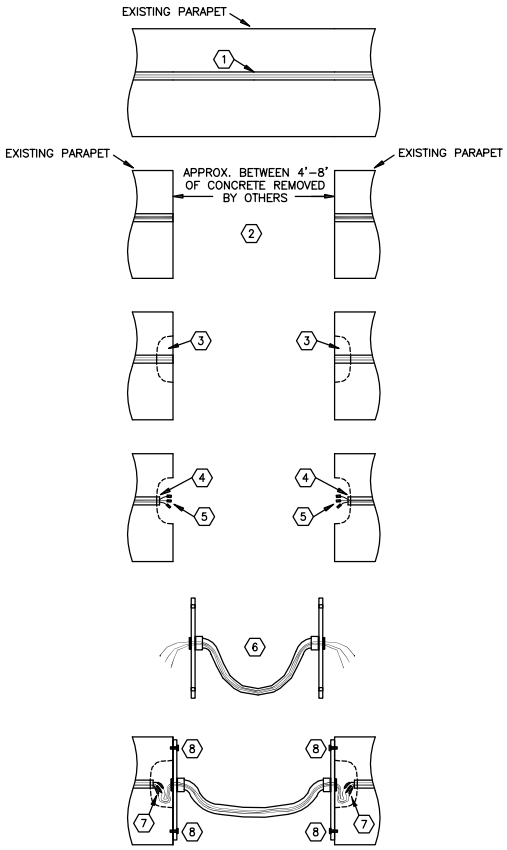
1 TEMPORARY PARAPET WIRING
NTS

GENERAL NOTES

1. REFERENCE CIVIL DRAWINGS FOR DEMOLITION OF APPROXIMATELY 4' OF CONCRETE PARAPET BY OTHERS AT SEVERAL LOCATIONS. USE THESE DRAWINGS TO GET A QUANTITY COUNT FOR USE IN THE ELECTRICAL BID.
2. TEMPORARY ELECTRICAL WORK IS REQUIRED TO ALLOW THE PROJECT TO BE PHASED AND WILL LIKELY STAY IN PLACE FOR A YEAR LONG CONSTRUCTION SEASON TO ALLOW OTHERS TO COMPLETE WORK ON THE EXPANSION JOINTS.
3. EXISTING WIRING SHALL REMAIN DURING THIS PHASE AND ALL LIGHTING SHALL BE CONNECTED AND CIRCUITS ACTIVATED AT THE END OF EACH WORKING DAY SO THAT ROADWAY LIGHTING IS AVAILABLE EVERY NIGHT.
4. WHEN THE CONSTRUCTION SCHEDULE PERMITS THE FOLLOWING YEAR, ALL LIGHTING CIRCUIT WIRING SHALL BE REPLACED PER THE PLANS. TEMPORARY CONDUCTOR SPLICING SYSTEMS AND CONDUITS SHALL BE REMOVED, AND ALL CONDUITS SHALL BE RE–CONNECTED WITH NEW EXPANSION FITTINGS AS APPROVED BY WISDOT AND MnDOT FOR THEIR RESPECTIVE JURISDICTION LOCATIONS. ALL TEMPORARY WORK SHALL BE INCLUDED IN THE SPECIAL PROVISION BID ITEM FOR "TEMPORARY PARAPET WIRING". ALL PERMANENT HORIZONTAL WIRING IS A STANDARD BID ITEM.
   a. WISCONSIN: REFERENCE PLANS FOR COMPLETE NEW WIRE REPLACEMENT USING U.S.E RATED TYPE XLPE INSULATED CONDUCTORS. (SIZES: PER PLANS)
   b. MINNESOTA: PROVIDE NEW U.S.E. RATED TYPE XLPE INSULATED CONDUCTORS. PERMANENT NEW WIRE SHALL BE INSTALLED FROM POLE BASE TO POLE BASE WHERE EXPANSION JOINTS FALL BETWEEN AND TEMPORARY SPLICES WERE MADE. (SIZES: REPLACE WITH SAME #4 AWG SIZE AS SHOWN ON EXISTING RECORD DRAWINGS)
5. ALL FINAL WIRE SPLICES SHALL BE MADE IN POLE BASES ONLY.
6. ALTERNATE METHODS OF CONSTRUCTION MAY BE TAKEN INTO CONSIDERATION. IF THIS CONTRACTOR DETERMINES A MORE EFFICIENT AND EFFECTIVE METHOD MAY BE ADVANTAGEOUS TO COMPLETE THIS WORK (IN REPLACEMENT TO THE METHOD THAT WAS DEFINED HEREIN AND BID), THE METHOD MAY BE SUBMITTED TO THE ENGINEER FOR CONSIDERATION OF APPROVAL PRIOR TO CONSTRUCTION.

(X) KEYNOTES

1. EXISTING 2" PVC CONDUIT WITH (3) #2 AWG COPPER CONDUCTORS.
2. LOCK–OUT EXISTING LIGHTING CIRCUITS IN THE OFF POSITION UNTIL SAW CUTTING (BY OTHERS) AND ELECTRICAL WORK IS COMPLETED AT EACH LOCATION. ALL WORK MUST BE COMPLETED AND SECURED PRIOR TO RE–ENERGIZING.
3. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR CHISELING AWAY A PORTION OF THE CONCRETE TO EXPOSE EXISTING CONDUIT.
4. CAREFULLY CUT CONDUIT BACK TO EXPOSE CONDUCTORS FOR SPLICING. USE CAUTION TO PREVENT ACCIDENTAL DAMAGE TO CONDUCTORS.
5. PROVIDE INSULATED BUTT SPLICES TO ALLOW FOR TEMPORARY SPLICING OF CONDUCTORS WITH APPROVED COMPRESSION CONNECTORS. STAGGER SPLICES AS CONDUIT ALLOWS.
6. PROVIDE A 3/16" ALUMINUM PLATE AT EACH SPLICE LOCATION. THE PLATE SHALL BE SIZED TO COVER CHISELED OPENING TO SECURE TEMPORARY WIRING TO PARAPET. PROVIDE 2" FLEXIBLE NON–METALLIC CONDUIT AND (3) #2 AWG COPPER CONDUCTORS TO BRIDGE BETWEEN THE TWO SPLICE POINTS. FASTEN THE 2" PVC CONDUIT TO THE ALUMINUM PLATE USING MANUFACTURER RECOMMENDED CONNECTORS ALLOWING EXTRA CONDUCTOR LENGTH ON BOTH END FOR SPLICING.
7. SPLICE NEW LENGTH OF CONDUCTORS TO BUTT SPLICES TO FORM TEMPORARY LIGHTING CIRCUIT. INSTALL HOT OR COLD SHRINK OVER EACH TERMINATION.
8. MOUNT ALUMINUM PLATE USING (4) 1/4" SS BOLTS AND CONCRETE ANCHORS TO CONCRETE PARAPET TO SUPPORT THE TEMPORARY WIRING ON EACH SIDE OF EXPANSION JOINT LOCATION. PROVIDE ANTI–SEIZE COMPOUND TO THREADS TO ENSURE BOLTS CAN BE LOOSENED AND REMOVED WHEN PERMANENT RE–WORK IS REQUIRED.



1 TEMPORARY PARAPET WIRING
NTS

GENERAL NOTES

1. REFERENCE CIVIL DRAWINGS FOR DEMOLITION OF APPROXIMATELY 4' OF CONCRETE PARAPET BY OTHERS AT SEVERAL LOCATIONS. USE THESE DRAWINGS TO GET A QUANTITY COUNT FOR USE IN THE ELECTRICAL BID.
2. TEMPORARY ELECTRICAL WORK IS REQUIRED TO ALLOW THE PROJECT TO BE PHASED AND WILL LIKELY STAY IN PLACE FOR A YEAR LONG CONSTRUCTION SEASON TO ALLOW OTHERS TO COMPLETE WORK ON THE EXPANSION JOINTS.
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   a. WISCONSIN: PROVIDE NEW U.S.E. RATED TYPE XLPE INSULATED CONDUCTORS FOR TEMPORARY WIRING RE-CONNECTION. REFERENCE PLANS FOR COMPLETE NEW WIRE REPLACEMENT USING U.S.E RATED TYPE XLPE INSULATED CONDUCTORS. (SIZES: PER PLANS)
   b. MINNESOTA: PROVIDE NEW U.S.E. RATED TYPE XLPE INSULATED CONDUCTORS FOR TEMPORARY WIRING RE-CONNECTION. PERMANENT NEW WIRE SHALL BE INSTALLED FROM POLE BASE TO POLE BASE WHERE EXPANSION JOINTS FALL BETWEEN AND TEMPORARY SPLICES WERE MADE. (SIZES: REPLACE WITH NEW MULTI-CONDUCTOR CABLE SIZED AS SHOWN ON PLANS AS A SEPARATE MnDOT STANDARD SPECIFICATION BID ITEM).
5. ALL FINAL WIRE SPLICES SHALL BE MADE IN POLE BASES ONLY.
6. ALTERNATE METHODS OF CONSTRUCTION MAY BE TAKEN INTO CONSIDERATION. IF THIS CONTRACTOR DETERMINES A MORE EFFICIENT AND EFFECTIVE METHOD MAY BE ADVANTAGEOUS TO COMPLETE THIS WORK (IN REPLACEMENT TO THE METHOD THAT WAS DEFINED HEREIN AND BID), THE METHOD MAY BE SUBMITTED TO THE ENGINEER FOR CONSIDERATION OF APPROVAL PRIOR TO CONSTRUCTION.

ⓧ KEYNOTES

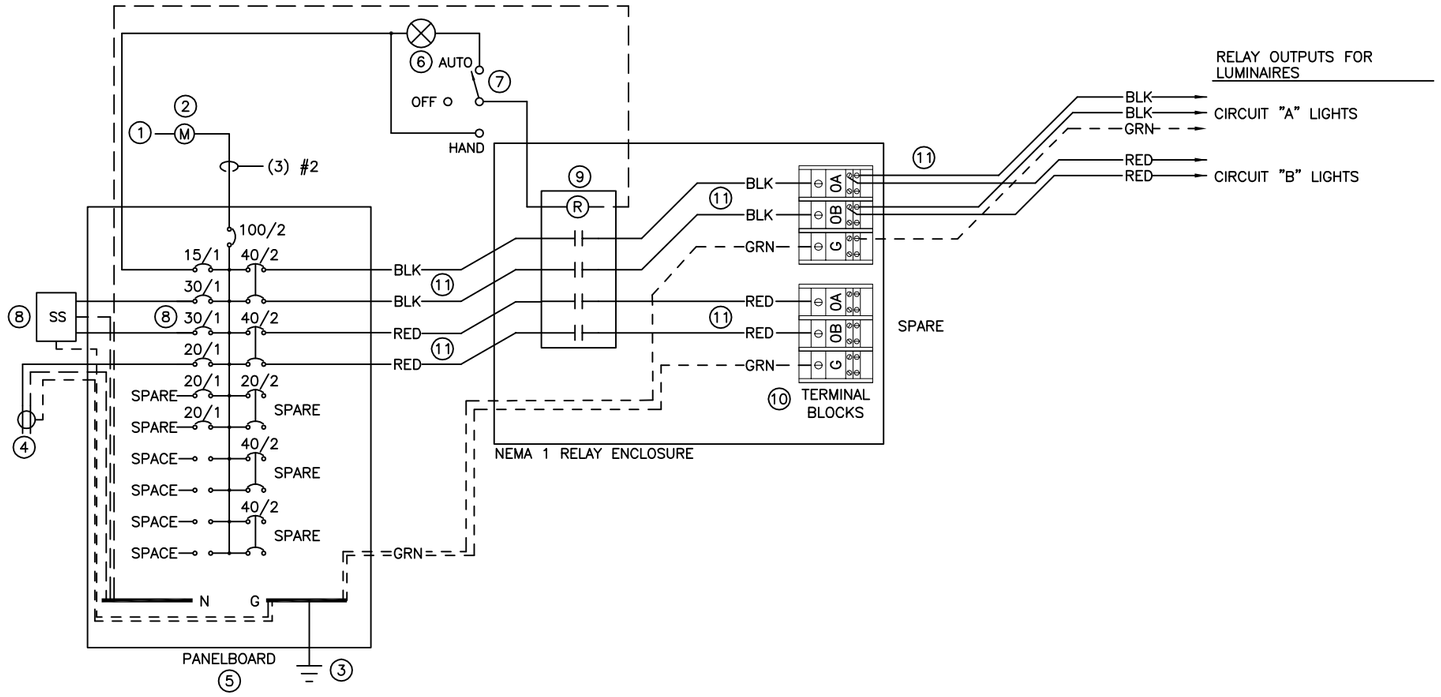
1. EXISTING 2" PVC CONDUIT WITH (3) #2 AWG COPPER CONDUCTORS.
2. LOCK-OUT EXISTING LIGHTING CIRCUITS IN THE OFF POSITION UNTIL SAW CUTTING (BY OTHERS) AND ELECTRICAL WORK IS COMPLETED AT EACH LOCATION. ALL WORK MUST BE COMPLETED AND SECURED PRIOR TO RE-ENERGIZING BY THE END OF EACH WORKING DAY OR AS DIRECTED BY THE ENGINEER.
3. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR CHISELING AWAY A PORTION OF THE CONCRETE TO EXPOSE EXISTING PVC CONDUIT.
4. CAREFULLY CUT PVC CONDUIT BACK TO EXPOSE CONDUCTORS FOR SPLICING. USE CAUTION TO PREVENT ACCIDENTAL DAMAGE TO CONDUCTORS.
5. PROVIDE INSULATED BUTT SPLICES TO ALLOW FOR TEMPORARY SPLICING OF CONDUCTORS WITH APPROVED COMPRESSION CONNECTORS. STAGGER SPLICES AS CONDUIT ALLOWS.
6. PROVIDE A 3/16" ALUMINUM PLATE AT EACH SPLICE LOCATION. THE PLATE SHALL BE SIZED TO COVER CHISELED OPENING TO SECURE TEMPORARY WIRING TO PARAPET. PROVIDE 2" FLEXIBLE NON-METALLIC CONDUIT AND (3) #2 AWG COPPER CONDUCTORS TO BRIDGE BETWEEN THE TWO SPLICE POINTS. FASTEN THE 2" PVC CONDUIT TO THE ALUMINUM PLATE USING MANUFACTURER RECOMMENDED CONNECTORS ALLOWING EXTRA CONDUCTOR LENGTH ON BOTH END FOR SPLICING.
7. SPLICE NEW LENGTH OF CONDUCTORS TO BUTT SPLICES TO FORM TEMPORARY LIGHTING CIRCUIT. INSTALL HOT OR COLD SHRINK OVER EACH TERMINATION.
8. MOUNT ALUMINUM PLATE USING (4) 1/4" SS BOLTS AND CONCRETE ANCHORS TO CONCRETE PARAPET TO SUPPORT THE TEMPORARY WIRING ON EACH SIDE OF EXPANSION JOINT LOCATION. PROVIDE ANTI-SEIZE COMPOUND TO THREADS TO ENSURE BOLTS CAN BE LOOSENED AND REMOVED WHEN PERMANENT RE-WORK IS REQUIRED.

Addendum No. 1
ID 8680-04-71
Revised Sheet 87
December 20, 2013

PROJECT NO: 8680-04-71	HWY: USH-2	COUNTY: DOUGLAS COUNTY, WI	PLAN: LIGHTING DETAILS-TEMPORARY PARAPET WIRING	SHEET LD-4	E

GENERAL NOTES

1. ELECTRICAL CONTRACTOR SHALL ARRANGE FOR A 100A, 1 PHASE, 120/240V, UNDERGROUND SERVICE FROM THE UTILITY. ANY UTILITY COSTS ASSOCIATED WITH THE UNDERGROUND SERVICE SHALL BE BORNE BY THE OWNER.
2. PROVIDE A METERING PEDESTAL PER UTILITY REQUIREMENTS. SEE SERVICE AND LIGHTING CONTROL CABINET DETAIL.
3. GROUND SERVICE PER CODE AND UTILITY SERVICE RULES TO MINIMUM TWO DRIVEN GROUND RODS. SEE SERVICE AND LIGHTING CONTROL CABINET DETAIL.
4. PROVIDE A 20A GFCI RECEPTACLE IN A NEMA 1 ENCLOSURE IN THE CONTROL CABINET.
5. PROVIDE A 100A, 1 PHASE, 120/240V, 3 WIRE PANELBOARD EQUAL TO SQUARE D TYPE NQOD, WITH A MINIMUM OF 20 CIRCUIT POSITIONS IN A 14–INCH WIDE NEMA–1 ENCLOSURE. THE PANELBOARD SHALL HAVE A COPPER BUS, A 2–POLE/100A MAIN BREAKER, AND BOLT–IN BRANCH BREAKERS. THE PANELBOARD SHALL INCLUDE A COPPER GROUND AND A NEUTRAL TERMINAL STRIP AND BE U.L. SERVICE ENTRANCE RATED. PROVIDE TYPED INDEX.
6. PROVIDE A PHOTOCELL IN THE CONTROLLER CABINET. THE PHOTOCELL SHALL BE RATED 120V, 1500 WATTS MINIMUM, AND SHALL BE THE THERMAL TYPE WITH TIME DELAY. THE PHOTOCELL SHALL TURN THE LIGHTS ON BETWEEN 1 TO 5 FOOT CANDLES OF DAYLIGHT AND TURN THEM OFF AT APPROXIMATELY 15 FOOT CANDLES OF DAYLIGHT. PROVIDE BUTTON TYPE PHOTOCELL EQUAL TO INTERMATIC #K4021C.
7. PROVIDE 3 POSITION SWITCH MARKED "HAND, OFF, AUTO" TO BYPASS THE PHOTOCELL AS SHOWN. LABEL SWITCH "PHOTO CONTROL BYPASS" PER DIAGRAM. MOUNT SWITCH IN THE SECONDARY DOOR COMPARTMENT PER CONTROL CABINET DETAILS.
8. PROVIDE SURGE SUPPRESSOR RATED FOR LINE–TO–LINE, LINE–TO–NEUTRAL, AND NEUTRAL–TO–GROUND SUPPRESSION MODES AND WITH A MANUFACTURER'S RATED WITHSTAND CAPABILITY OF 60K AMPS OR GREATER. SURGE SUPPRESSOR SHALL BE EQUAL TO A LEVITON MODEL 32120–001. VERIFY BREAKER REQUIREMENTS WITH SELECTED MANUFACTURER'S INSTALLATION INSTRUCTIONS.
9. PROVIDE (2) 4–POLE LIGHTING CONTACTORS EQUAL TO SQUARE D 8903SPO SERIES FOR CONTROL OF THE LIGHTING. MOUNT CONTACTORS IN A NEMA 1 ENCLOSURE SIZED AS REQUIRED. THE RELAY CONTACTS SHALL BE HEAVY DUTY TYPE RATED MINIMUM 60A AND 600 VOLTS FOR BALLAST TYPE LOADS. THE RELAYS SHALL BE ELECTRICALLY OPERATED. THE RELAY COIL SHALL BE OPERATED BY 120 VOLTS.
10. PROVIDE POWER TERMINAL BLOCKS FOR CIRCUIT DISTRIBUTION AS INDICATED, EQUAL TO SQUARE D, CAT. NO. LBA362104. FIRMLY MOUNT TERMINAL BLOCKS INSIDE RELAY ENCLOSURE. PROVIDE PLASTIC COVERS OVER TERMINAL BLOCKS.
11. THE MINIMUM SIZE OF THE CONDUCTORS FROM THE CIRCUIT BREAKER TO THE TERMINAL BLOCK SHALL BE DETERMINED BY THE AMPERAGE RATING OF THE CIRCUIT BREAKER. THE SIZE OF THE CONDUCTORS FROM THE TERMINAL BLOCK TO THE LIGHT POLE IS PER PLAN.



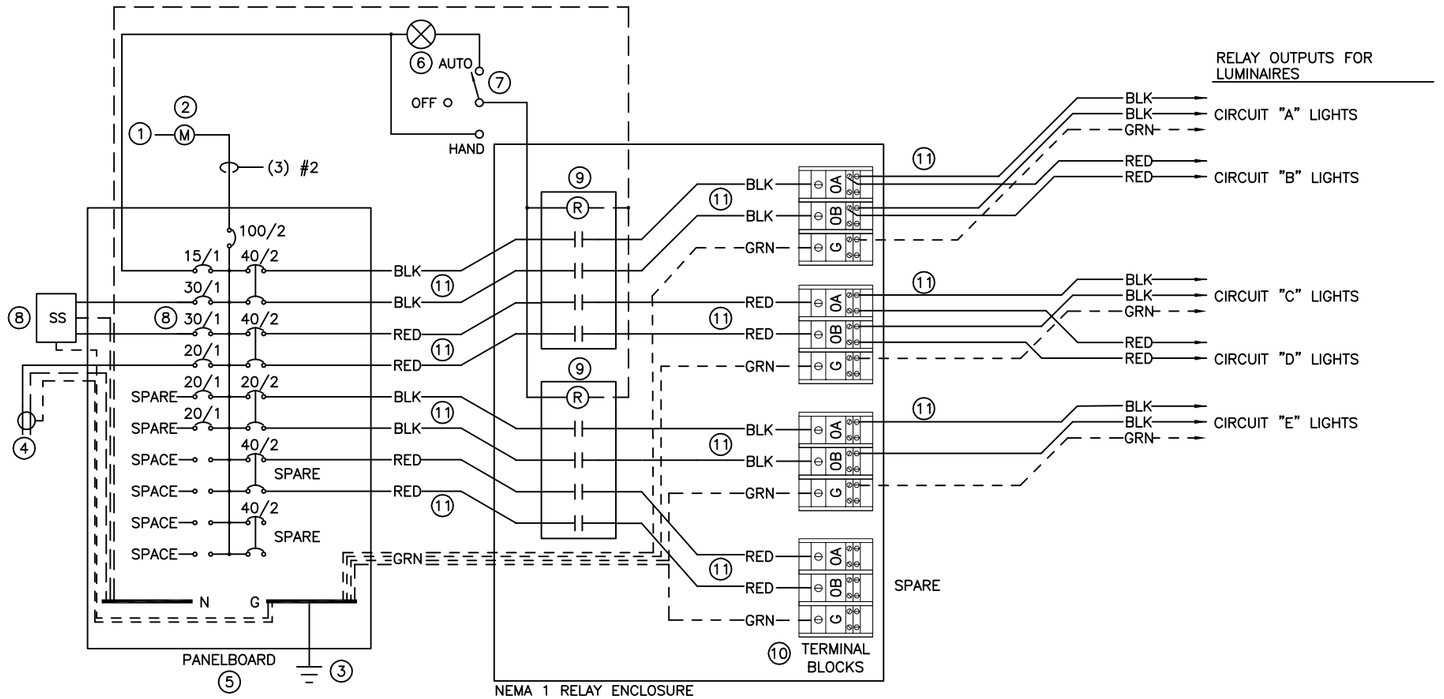
LIGHTING CONTROLLER #1 ONE–LINE ELECTRICAL DIAGRAM

NTS

PROJECT NO: 8680–04–71	HWY: USH–2	COUNTY: DOUGLAS COUNTY, WI	PLAN: ELECTRICAL DETAILS–CONTROLLER #1 ONE–LINE DIAGRAM	SHEET LD–5 88	E

GENERAL NOTES

1. ELECTRICAL CONTRACTOR SHALL ARRANGE FOR A 100A, 1 PHASE, 120/240V, UNDERGROUND SERVICE FROM THE UTILITY. ANY UTILITY COSTS ASSOCIATED WITH THE UNDERGROUND SERVICE SHALL BE BORNE BY THE OWNER.
2. PROVIDE A METERING PEDESTAL PER UTILITY REQUIREMENTS. SEE SERVICE AND LIGHTING CONTROL CABINET DETAIL.
3. GROUND SERVICE PER CODE AND UTILITY SERVICE RULES TO MINIMUM TWO DRIVEN GROUND RODS. SEE SERVICE AND LIGHTING CONTROL CABINET DETAIL.
4. PROVIDE A 20A GFCI RECEPTACLE IN A NEMA 1 ENCLOSURE IN THE CONTROL CABINET.
5. PROVIDE A 100A, 1 PHASE, 120/240V, 3 WIRE PANELBOARD EQUAL TO SQUARE D TYPE NQOD, WITH A MINIMUM OF 20 CIRCUIT POSITIONS IN A 14–INCH WIDE NEMA–1 ENCLOSURE. THE PANELBOARD SHALL HAVE A COPPER BUS, A 2–POLE/100A MAIN BREAKER, AND BOLT–IN BRANCH BREAKERS. THE PANELBOARD SHALL INCLUDE A COPPER GROUND AND A NEUTRAL TERMINAL STRIP AND BE U.L. SERVICE ENTRANCE RATED. PROVIDE TYPED INDEX.
6. PROVIDE A PHOTOCELL IN THE CONTROLLER CABINET. THE PHOTOCELL SHALL BE RATED 120V, 1500 WATTS MINIMUM, AND SHALL BE THE THERMAL TYPE WITH TIME DELAY. THE PHOTOCELL SHALL TURN THE LIGHTS ON BETWEEN 1 TO 5 FOOT CANDLES OF DAYLIGHT AND TURN THEM OFF AT APPROXIMATELY 15 FOOT CANDLES OF DAYLIGHT. PROVIDE BUTTON TYPE PHOTOCELL EQUAL TO INTERMATIC #K4021C.
7. PROVIDE 3 POSITION SWITCH MARKED "HAND, OFF, AUTO" TO BYPASS THE PHOTOCELL AS SHOWN. LABEL SWITCH "PHOTO CONTROL BYPASS" PER DIAGRAM. MOUNT SWITCH IN THE SECONDARY DOOR COMPARTMENT PER CONTROL CABINET DETAILS.
8. PROVIDE SURGE SUPPRESSOR RATED FOR LINE–TO–LINE, LINE–TO–NEUTRAL, AND NEUTRAL–TO–GROUND SUPPRESSION MODES AND WITH A MANUFACTURER'S RATED WITHSTAND CAPABILITY OF 60K AMPS OR GREATER. SURGE SUPPRESSOR SHALL BE EQUAL TO A LEVITON MODEL 32120–001. VERIFY BREAKER REQUIREMENTS WITH SELECTED MANUFACTURER'S INSTALLATION INSTRUCTIONS.
9. PROVIDE (2) 4–POLE LIGHTING CONTACTORS EQUAL TO SQUARE D 8903SPO SERIES FOR CONTROL OF THE LIGHTING. MOUNT CONTACTORS IN A NEMA 1 ENCLOSURE SIZED AS REQUIRED. THE RELAY CONTACTS SHALL BE HEAVY DUTY TYPE RATED MINIMUM 60A AND 600 VOLTS FOR BALLAST TYPE LOADS. THE RELAYS SHALL BE ELECTRICALLY OPERATED. THE RELAY COIL SHALL BE OPERATED BY 120 VOLTS.
10. PROVIDE POWER TERMINAL BLOCKS FOR CIRCUIT DISTRIBUTION AS INDICATED, EQUAL TO SQUARE D, CAT. NO. LBA362104. FIRMLY MOUNT TERMINAL BLOCKS INSIDE RELAY ENCLOSURE. PROVIDE PLASTIC COVERS OVER TERMINAL BLOCKS.
11. THE MINIMUM SIZE OF THE CONDUCTORS FROM THE CIRCUIT BREAKER TO THE TERMINAL BLOCK SHALL BE DETERMINED BY THE AMPERAGE RATING OF THE CIRCUIT BREAKER. THE SIZE OF THE CONDUCTORS FROM THE TERMINAL BLOCK TO THE LIGHT POLE IS PER PLAN.



LIGHTING CONTROLLER #2 ONE–LINE ELECTRICAL DIAGRAM

NTS

PROJECT NO: 8680–04–74	HWY: USH–2	COUNTY: DOUGLAS COUNTY, WI	PLAN: ELECTRICAL DETAILS–CONTROLLER #2 ONE–LINE DIAGRAM	SHEET LD–6

FILE NAME : P:\A0430120_AYRES – BONG MEMORIAL BRIDGE REHAB\CAD_DRAWINGS\LD–6.DWG PLOT DATE : 11/20/2013 3:33 PM PLOT BY : CHRISTEL A. SIMONIS PLOT SCALE NONE

MINNESOTA LUMINAIRES

POLE NO.	LOCATION OF EXISTING ROAD	APPROX STATION	POLES–EXISTING 35–FOOT	LUMINAIRE ARMS–EXISTING 6–FOOT	LUMINAIRES UTILITY MnDOT SPV.0060.09	NOTES
M8	USH–2	25+38	EXISTING	EXISTING	2	1
M9	USH–2	26+90	EXISTING	EXISTING	2	1
M10	USH–2	28+52	EXISTING	EXISTING	2	1
M11	USH–2	30+35	EXISTING	EXISTING	2	1
M12	USH–2	32+16	EXISTING	EXISTING	2	1
M13	USH–2	34+10	EXISTING	EXISTING	2	1
M14	USH–2	36+16	EXISTING	EXISTING	2	1
M15	USH–2	38+16	EXISTING	EXISTING	2	1
M16	USH–2	40+20	EXISTING	EXISTING	2	1
M17	USH–2	45+20	EXISTING	EXISTING	2	1
M18	USH–2	44+24	EXISTING	EXISTING	2	1
M19	USH–2	46+25	EXISTING	EXISTING	2	1
M20	USH–2	48+21	EXISTING	EXISTING	2	1
M21	USH–2	50+32	EXISTING	EXISTING	2	1
M22	USH–2	52+29	EXISTING	EXISTING	2	1
M23	USH–2	54+50	EXISTING	EXISTING	2	1
M24	USH–2	56+55	EXISTING	EXISTING	2	1
M25	USH–2	58+30	EXISTING	EXISTING	2	1
M26	USH–2	60+43	EXISTING	EXISTING	2	1
M27	USH–2	62+50	EXISTING	EXISTING	2	1
M28	USH–2	64+55	EXISTING	EXISTING	2	1
M29	USH–2	66+63	EXISTING	EXISTING	2	1
M30	USH–2	68+82	EXISTING	EXISTING	2	1
M31	USH–2	70+80	EXISTING	EXISTING	2	1
TOTALS			0	0	48	

NOTES

1. REFERENCE MnDOT SPECIFICATIONS AND APPROVED/QUALIFIED PRODUCTS LIST FOR LED FIXURE. EACH SEPARATE BID ITEM SHALL INCLUDE DISCONNECTION OF EXISITNG HPS FIXTURE, TURNING OVER THAT FIXTURE TO MnDOT, AND PROVIDING THE NEW LED FIXTURE IN ITS PLACE ALONG WITH RE–CONNECTION TO PROVIDE A COMPLETE AND OPERABLE SYSTEM. TRAFFIC CONTROL RELATED TO THIS WORK SHALL BE INCIDENTAL TO THIS BID ITEM.

CONDUIT AND ELECTRICAL WIRE SCHEDULE (EXISTING CIRCUITING TO BE REPLACED)

ROUTE FROM	TO	HORIZONTAL LENGTH (LF)	ELECTRICAL WIRE LIGHTING WIRE LENGTH TOTAL LENGTH (LF)	4 AWG 655.0630 NO.	4 AWG 655.0630 TOTAL (LF)	NOTES
26+90	28+52	162	172	5	860	1
TOTALS			172		860	

NOTES

1. THIS HORIZONTAL CIRCUIT WIRING WILL BE PERMANENTLY REPLACED AFTER THE TEMPORARY WIRING IS NO LONGER NEEDED AS DETERMINED BY MnDOT. THESE QUANTITIES AND THIS ASSOCIATED WORK SHALL BE A STANDARD BID ITEM AS SHOWN ON RECAP OF QUANTITIES.

MISC. SPECIAL PROVISION ITEMS

ITEMS	APPROXIMATE LOCATION OF EXISTING STATION	OFFSET	SPV #	NOTES
LUMINAIRES UTILITY LED MnDOT			SPV.0060.09	3
TEMPORARY PARAPET WIRING (MINNESOTA)			SPV.0105.12	1,2

NOTES

1. THIS IS A LUMP SUM BID ITEM. (NOTE: THIS SPECIAL PROVISION FOR THE WISCONSIN AND MINNESOTA PORTIONS OF THE PROJECT WILL BE COMBINED IN THE RECAP OF QUANTITIES TO FORM ONE LUMP SUM BID ITEM. THIS SPECIAL PROVISION DOES NOT INCLUDE THE PERMANENT HORIZONTAL WIRING WHICH IS A STANDARD BID ITEM.
2. REFERENCE TEMPORARY WIRING DETAIL AND CIVIL PLANS FOR FURTHER INFORMATION.
3. REFERENCE MINNESOTA SPECIAL PROVISIONS FOR FURTHER INFORMATION ON THIS LIGHT FIXTURE.

ALL ITEMS ON THIS SHEET ARE CATEGORY 0020 UNLESS OTHERWISE NOTED.

MINNESOTA LUMINAIRES

POLE NO.	LOCATION OF EXISTING ROAD	LOCATION OF EXISTING APPROX STATION	POLES–EXISTING 35–FOOT	LUMINAIRE ARMS–EXISTING 6–FOOT	LUMINAIRES UTILITY MnDOT SPV.0060.09	NOTES
M8	USH–2	25+38	EXISTING	EXISTING	2	1
M9	USH–2	26+90	EXISTING	EXISTING	2	1
M10	USH–2	28+52	EXISTING	EXISTING	2	1
M11	USH–2	30+35	EXISTING	EXISTING	2	1
M12	USH–2	32+16	EXISTING	EXISTING	2	1
M13	USH–2	34+10	EXISTING	EXISTING	2	1
M14	USH–2	36+16	EXISTING	EXISTING	2	1
M15	USH–2	38+16	EXISTING	EXISTING	2	1
M16	USH–2	40+20	EXISTING	EXISTING	2	1
M17	USH–2	45+20	EXISTING	EXISTING	2	1
M18	USH–2	44+24	EXISTING	EXISTING	2	1
M19	USH–2	46+25	EXISTING	EXISTING	2	1
M20	USH–2	48+21	EXISTING	EXISTING	2	1
M21	USH–2	50+32	EXISTING	EXISTING	2	1
M22	USH–2	52+29	EXISTING	EXISTING	2	1
M23	USH–2	54+50	EXISTING	EXISTING	2	1
M24	USH–2	56+55	EXISTING	EXISTING	2	1
M25	USH–2	58+30	EXISTING	EXISTING	2	1
M26	USH–2	60+43	EXISTING	EXISTING	2	1
M27	USH–2	62+50	EXISTING	EXISTING	2	1
M28	USH–2	64+55	EXISTING	EXISTING	2	1
M29	USH–2	66+63	EXISTING	EXISTING	2	1
M30	USH–2	68+82	EXISTING	EXISTING	2	1
M31	USH–2	70+80	EXISTING	EXISTING	2	1
TOTALS			0	0	48	

NOTES
1. REFERENCE MnDOT SPECIFICATIONS AND APPROVED/QUALIFIED PRODUCTS LIST FOR LED FIXURE. EACH SEPARATE BID ITEM SHALL INCLUDE DISCONNECTION OF EXISTING HPS FIXTURE, DISPOSAL OF THAT FIXTURE OFF SITE, AND PROVIDING THE NEW LED FIXTURE IN ITS PLACE ALONG WITH RE–CONNECTION TO PROVIDE A COMPLETE AND OPERABLE SYSTEM. TRAFFIC CONTROL RELATED TO THIS WORK SHALL BE INCIDENTAL TO THIS BID ITEM. REFERENCE GENERAL PROJECT INTENT NOTE #8 OF SHEET LP–R (LP 0–4) FOR ADDITIONAL INCIDENTAL ITEMS RELATED TO THIS BID ITEM.

CONDUIT AND ELECTRICAL CABLE SCHEDULE (EXISTING CIRCUITING TO BE REPLACED)

ROUTE FROM	ROUTE TO	HORIZONTAL LENGTH (LF)	ELECTRICAL CABLE LIGHTING CABLE LENGTH TOTAL LENGTH (LF)	4 CONDUCTOR 4 AWG CABLE SPV.0090.11 NO.	TOTAL (LF)	NOTES
16+80	70+80		6,360	1	6,360	1
TOTALS			6,360		6,360	

NOTES
1. THIS HORIZONTAL CIRCUIT WIRING WILL BE PERMANENTLY INSTALLED AFTER THE TEMPORARY WIRING IS NO LONGER NEEDED AS DETERMINED BY MnDOT. THESE QUANTITIES AND THIS ASSOCIATED WORK SHALL BE A STANDARD BID ITEM AS SHOWN ON RECAP OF QUANTITIES. TOTAL LENGTH INCLUDES RISERS TO EACH POLE BASES AS WELL AS LENGTHS TO BOTH MnDOT LIGHTING CONTROL CABINETS.

MISC. SPECIAL PROVISION ITEMS

ITEMS	APPROXIMATE LOCATION OF EXISTING STATION	OFFSET	SPV #	NOTES
LUMINAIRES UTILITY LED MnDOT			SPV.0060.09	3
ELECTRICAL CABLE LIGHTING–MnDOT (4C/#4 AWG) (MINNESOTA)			SPV.0090.11	4
TEMPORARY PARAPET WIRING (MINNESOTA)			SPV.0105.12	1,2

NOTES
1. THIS IS A LUMP SUM BID ITEM. (NOTE: THIS SPECIAL PROVISION FOR THE WISCONSIN AND MINNESOTA PORTIONS OF THE PROJECT WILL BE COMBINED IN THE RECAP OF QUANTITIES TO FORM ONE LUMP SUM BID ITEM. THIS SPECIAL PROVISION DOES NOT INCLUDE THE PERMANENT HORIZONTAL WIRING WHICH IS A STANDARD BID ITEM FOR WISDOT WORK AND A WISDOT SPECIAL PROVISION SPV.0090.11 WHICH COVERS PERMANENT HORIZONTAL WIRE REPLACEMENT ON THE MINNESOTA SIDE.
2. REFERENCE TEMPORARY WIRING DETAIL AND CIVIL PLANS FOR FURTHER INFORMATION.
3. REFERENCE MINNESOTA SPECIAL PROVISIONS FOR FURTHER INFORMATION ON THIS LIGHT FIXTURE. FIXTURES SHALL BE LISTED ON THE MnDOT LIGHTING APPROVED/QUALIFIED PRODUCTS LIST.
4. REFERENCE MINNESOTA SPECIAL PROVISION.

Addendum No. 1
ID 8680-04-71
Revised Sheet 90
December 20, 2013

ALL ITEMS ON THIS SHEET ARE CATEGORY 0020 UNLESS OTHERWISE NOTED.

CONTROLLERS

LIGHTING CONTROLLERS		LOCATION			CONCRETE CONTROL CABINET BASES		LIGHTING CONTROLLER ELECTRICAL SERVICE				
CONTROLLER NO.	BID ITEM NO.	ROAD	STATION	OFFSET	TYPE	BID ITEM NO.	TYPE	BID ITEM NO.	SERVICE SIZE	SERVES	NOTES
CONTROLLER #1	SPV.0105.08				MODIFIED TYPE 5		MLO PEDESTAL	656.0400	100A, 120/240 VOLTS	ROADWAY/NAV. LIGHTING	1,2,3

NOTES
1. CONTRACTOR SHALL OBTAIN 100 AMP, 1 PHASE, 120/240 VOLT UNDERGROUND SERVICE TO THE CONTROLLER FROM THE UTILITY.
2. REFERENCE PLANS FOR LOCATION. REFERENCE DETAILS AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.
3. CONCRETE CONTROL CABINET BASE IS INCLUDED IN INCIDENTAL FOR CONTROLLER SPECIAL PROVISION.

MISC. SPECIAL PROVISION ITEMS

ITEMS	APPROXIMATE LOCATION OF EXISTING STATION	OFFSET	SPV #	NOTES
LUMINAIRES UTILITY LED-B			SPV.0060.08	
LIGHTING CONTROLLER #1			SPV.0105.08	1
NAVIGATION LIGHTING REPLACEMENT			SPV.0105.10	1
POLE CIRCUITING MODIFICATIONS (STATION 73+00 TO 102+00)			SPV.0105.11	1,2
TEMPORARY PARAPET WIRING (WISCONSIN)			SPV.0105.12	3,4

NOTES
1. THIS IS A LUMP SUM BID ITEM.
2. THE LIMITS COVERED BY THIS SPECIAL PROVISION ARE FROM STATION 73+00 TO STATION 102+00.
3. REFERENCE TEMPORARY WIRING DETAIL AND CIVIL PLANS FOR FURTHER INFORMATION.
4. THIS IS A LUMP SUM BID. (NOTE: THIS SPECIAL PROVISION FOR THE WISCONSIN AND MINNESOTA PORTIONS OF THE PROJECT WILL BE COMBINED IN THE RECAP OF QUANTITIES TO FORM ONE LUMP SUM BID ITEM.)

CONDUIT AND ELECTRICAL WIRE SCHEDULE (CONTROLLER #1 – CIRCUITS A & B)

ROUTE FROM	TO	HORIZONTAL LENGTH (LF)	ELECTRICAL WIRE LIGHTING WIRE LENGTH TOTAL LENGTH (LF)	10 AWG 655.0615 NO.	10 AWG 655.0615 TOTAL (LF)	4 AWG 655.0630 NO.	4 AWG 655.0630 TOTAL (LF)	NOTES
CIRCUIT 1A								
CONTROLLER #1	JB							1
JB	PB1-1							1
PB1-1	15							1
15	14							1
14	13							1
13	12							1
12	11							1
11	10							1
10	9							1
9	8							1
8	7							1
7	6							1
6	5							1
5	4							1
4	3							1
3	2							1
2	1							1
1	N2/N3'S							1
1	MnDOT							1
MnDOT	N1'S							1
CIRCUIT 1B								
CONTROLLER #1	JB	170	170		0	5	850	
JB	PB1-1	50	50		0	5	250	
PB1-1	15	35	35		0	5	175	
15	14	231	231		0	5	1,155	
14	13	235	235		0	5	1,175	
13	12	185	185		0	5	925	
12	11	185	185		0	5	925	
11	10	199	199		0	5	995	
10	9	204	204		0	5	1,020	
9	8	192	192		0	5	960	
8	7	201	201		0	5	1,005	
7	6	209	209		0	5	1,045	
6	5	190	190		0	5	950	
5	4	209	209		0	5	1,045	
4	3	210	210		0	5	1,050	
3	2	226	226		0	5	1,130	
2	1	260	260		0	5	1,300	
1	N2/N3'S	VARIES	VARIES					2
1	MnDOT	260	260					2
MnDOT	N1'S		VARIES					2
			0					
TOTALS					SEE NOTE 2		15,955	

NOTES
1. ALL CIRCUIT WIRING FOR 1A IS SHOWN UNDER CIRCUIT 1B.
2. ALL WIRING SHALL BE SCALED FROM THE DRAWINGS AND INCLUDED AS PART OF THE LUMP SUM SPECIAL PROVISION "NAVIGATION LIGHTING REPLACEMENT" BID ITEM.

PULL BOXES STEEL (CONTROLLER #1)

NO.	LOCATION ROAD	STATION	OFFSET	SIZE 24X36-INCH 653.0135	NOTES
PB1-1				0	1
TOTALS				0	

NOTES
1. REUSE EXISTING PULL BOX IN PLACE.

LIGHTING POLES, BASES, ARMS & LUMINAIRES (CONTROLLER #1)

POLE NO.	LOCATION OF EXISTING ROAD	APPROX STATION	CONCRETE BASES-EXISTING TYPE 5 654.0105	TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE 657.0255	POLES-EXISTING 30-FOOT	LUMINAIRE ARMS-EXISTING SINGLE MEMBER 4 1/2-INCH CLAMP 6-FOOT 657.0610	LUMINAIRES UTILITY LED-B SPV.0060.08	ELECTRICAL WIRE LIGHTING 12 AWG 655.0610	NOTES
1	USH-2	73+30	EXISTING	1	EXISTING	EXISTING	2	252	
2	USH-2	75+80	EXISTING	1	EXISTING	EXISTING	2	252	
3	USH-2	77+96	EXISTING	1	EXISTING	EXISTING	2	252	
4	USH-2	79+96	EXISTING	1	EXISTING	EXISTING	2	252	
5	USH-2	81+95	EXISTING	1	EXISTING	EXISTING	2	252	
6	USH-2	83+75	EXISTING	1	EXISTING	EXISTING	2	252	
7	USH-2	85+75	EXISTING	1	EXISTING	EXISTING	2	252	
8	USH-2	87+74	EXISTING	1	EXISTING	EXISTING	2	252	
9	USH-2	89+65	EXISTING	1	EXISTING	EXISTING	2	252	
10	USH-2	91+47	EXISTING	1	EXISTING	EXISTING	2	252	
11	USH-2	93+41	EXISTING	1	EXISTING	EXISTING	2	252	
12	USH-2	95+30	EXISTING	1	EXISTING	EXISTING	2	252	
13	USH-2	97+05	EXISTING	1	EXISTING	EXISTING	2	252	
14	USH-2	99+30	EXISTING	1	EXISTING	EXISTING	2	252	
15	USH-2	101+51	EXISTING	1	EXISTING	EXISTING	2	252	
TOTALS			0	15	0	0	30	3,780	

NOTES

ALL ITEMS ON THIS SHEET ARE CATEGORY 0020 UNLESS OTHERWISE NOTED.

CONDUIT AND ELECTRICAL WIRE SCHEDULE (CONTROLLER #2–CIRCUITS A & B)

ROUTE FROM	TO	CONDUIT HORIZONTAL LENGTH (LF)	RIGID NONMETALLIC SCHEDULE 40 2–INCH 652.0225 NO.	TOTAL (LF)	RIGID NONMETALLIC SCHEDULE 80 2–INCH 652.0325 NO.	TOTAL (LF)	ELECTRICAL WIRE LIGHTING WIRE LENGTH SLACK & RISER ALLOWANCE	TOTAL LENGTH (LF)	2 AWG 655.0635 NO.	TOTAL (LF)	NOTES
CONTROLLER #2 CIRCUIT 2A											
CONTROLLER #2	PB2–1	5	1	5		0	15	20	5	100	
PB2–1	PB2–4	124		0	1	124	10	134	5	670	
PB2–4	PB2–5	200	1	200		0	10	210	5	1,050	
PB2–5	PB2–6	196	1	196		0	10	206	5	XR	
PB2–6	39	41	1	41		0	10	51	3	153	
39	41	360	1	360		0	10	370	3	1,110	
41	43	360	1	360		0	10	370	3	1,110	
43	45	360	1	360		0	10	370	3	1,110	
45	PB2–10	372	1	372		0	10	382	3	1,146	
PB2–10	48	49		0	1	49	10	59	5	295	
PB2–10	PB2–11	62	1	66			10	72	3	216	
PB2–11	47	5	1	5		0	10	15	3	45	
48	PB2–12	31	1	31		0	10	41	5	205	
PB2–12	49	108	1	108		0	10	118	3	354	
PB2–12	PB2–13	55		0	1	55	10	65	3	195	
PB2–13	50	5	1	5		0	10	15	5	75	
PB2–13	PB2–14	56		0	1	56	10	66	3	198	
PB2–14	PB2–15	47	1	47		0	10	57	3	171	
PB2–15	PB2–16	43		0	1	43	10	53	3	159	
PB2–16	51	5	1	5		0	10	15	7	105	
PB2–16	PB2–17	62		0	1	62	10	72	3	216	
PB2–17	52	27	1	27		0	10	37	3	111	
PB2–16	62	305		0	1	305	10	315	3	945	
CONTROLLER #2 CIRCUIT 2B											
PB2–5	PB2–6	196		0		0				0	
PB2–6	PB2–7	42		0		0	10	52	3	156	
PB2–7	PB2–8	51		0		0	10	61	3	183	
PB2–8	40	211	1	211		0	10	221	3	663	
40	42	349	1	349		0	10	359	3	1,077	
42	44	350	1	350		0	10	360	3	1,080	
44	PB2–9	186	1	186		0	10	196	5	980	
PB2–9	PB2–26	2	1	2		0	10	12	3	36	
PB2–26	WI SIGN	14	1	14		0	15	29	3	87	
PB2–9	46	163	1	163		0	10	173	3	519	
46	PB2–18	151	1	151		0	10	161	3	483	
PB2–18	55	47		0	1	47	10	57	5	285	
PB2–18	57	302	1	302		0	10	312	3	936	
57	59	345	1	345		0	10	355	3	1,065	
55	PB2–19	39	1	39		0	10	49	3	147	
PB2–19	PB2–20	41		0	1	41	10	51	3	153	
PB2–20	54	5	1	5		0	10	15	5	75	
PB2–20	PB2–21	51		0	1	51	10	61	3	183	
PB2–21	53	49	1	49		0	10	59	5	295	
PB2–21	56	112	1	112		0	10	122	3	366	
56	PB2–22	276	1	276		0	10	286	3	858	
PB2–22	PB2–23	75		0	1	75	10	85	3	255	1
PB2–23	58	24	1	24		0	10	34	3	102	
58	PB2–27	244	1	244		0	10	254	3	762	
PB2–27	PB2–28	54			1	54	10	64	3	192	1
PB2–28	60/END	63	1	63		0	10	73	3	219	
53	61	192	1	192		0	10	202	3	606	
61	PB2–24	98	1	98		0	10	108	3	324	
PB2–24	PB2–25	106		0	1	106	10	116	3	348	1
PB2–25	63	144	1	144		0	10	154	3	462	
				0		0		0		0	
TOTALS				5,867		1,068				23,746	

NOTES
1. THIS SECTION IS BORED UNDER EXISTING ROAD.

CONTROLLERS

LIGHTING CONTROLLERS CONTROLLER NO.	BID ITEM NO.	LOCATION ROAD	STATION	OFFSET	CONCRETE CONTROL CABINET BASES TYPE	BID ITEM NO.	LIGHTING CONTROLLER ELECTRICAL SERVICE TYPE	BID ITEM NO.	SERVICE SIZE	SERVES	NOTES
CONTROLLER #2	SPV.0105.09				TYPE 7		MLO PEDESTAL	656.0400	100A, 120/240 VOLTS	USH–2 & BELKNAP ROUNDABOUT	1,2,3

NOTES
1. CONTRACTOR SHALL OBTAIN 100 AMP, 1 PHASE, 120/240 VOLT UNDERGROUND SERVICE TO THE CONTROLLER FROM THE UTILITY.
2. REFERENCE PLANS FOR LOCATION. REFERENCE DETAILS AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.
3. CONCRETE CONTROL CABINET BASE IS INCLUDED IN INCIDENTAL FOR CONTROLLER SPECIAL PROVISION.

CONDUIT AND ELECTRICAL WIRE SCHEDULE (CONTROLLER #2–CIRCUITS C & D)

ROUTE FROM	TO	CONDUIT HORIZONTAL LENGTH (LF)	ELECTRICAL WIRE LIGHTING WIRE LENGTH TOTAL LENGTH (LF)	8 AWG 655.0620 NO.	TOTAL (LF)	4 AWG 655.0630 NO.	TOTAL (LF)	NOTES
CIRCUIT 2C & D								
CONTROLLER #2	PB2–1	20	20		0	5	100	
PB2–1	PB2–2	100	100		0	5	500	
PB2–2	31	45	45		0	5	225	
31	32	190	190	5	950		0	
32	33/END	190	190	5	950		0	
31	30	191	191		0	5	955	
30	29	191	191		0	5	955	
29	28	190	190		0	5	950	
28	27	190	190		0	5	950	
27	26	190	190		0	5	950	
26	25	190	190		0	5	950	
25	24	190	190		0	5	950	
24	23	190	190		0	5	950	
23	22	190	190		0	5	950	
22	21	190	190		0	5	950	
21	20	190	190		0	5	950	
20	19	190	190		0	5	950	
19	18	190	190		0	5	950	
18	17	190	190		0	5	950	
17	16	190	190		0	5	950	
			0		0		0	
TOTALS					1,900		15,085	
NOTES								

CONDUIT AND ELECTRICAL WIRE SCHEDULE (CONTROLLER #2–CIRCUIT E)

ROUTE FROM	TO	CONDUIT HORIZONTAL LENGTH (LF)	ELECTRICAL WIRE LIGHTING WIRE LENGTH TOTAL LENGTH (LF)	8 AWG 655.0620 NO.	TOTAL (LF)	6 AWG 655.0625 NO.	TOTAL (LF)	NOTES
CIRCUIT 2E								
CONTROLLER #2	PB2–1	19	19		0	3	57	
PB2–1	PB2–3	102	102		0	3	306	
PB2–3	66	45	45		0	3	135	
66	67	161	161		0	3	483	
67	68	161	161		0	3	483	
68	69	157	157		0	3	471	
69	70	159	159		0	3	477	
70	71	158	158	3	474		0	
71	72	188	188	3	564		0	
72	73	178	178	3	534		0	
73	74	180	180	3	540		0	
74	75	185	185	3	555		0	
75	76	182	182	3	546		0	
			0		0		0	
TOTALS					3,213		2,412	
NOTES								

ALL ITEMS ON THIS SHEET ARE CATEGORY 0020 UNLESS OTHERWISE NOTED.

LIGHTING POLES, BASES, ARMS & LUMINAIRES (CONTROLLER #2)

POLE NO.	LOCATION ROAD	APPROX STATION	OFFSET	CONCRETE BASES– TYPE 5 654.0105	TRANSFORMER BASES BREAKAWAY 11 1/2–INCH BOLT CIRCLE 657.0255	POLES– TYPE 5 30–FOOT ALUMINUM 657.0322	LUMINAIRE ARMS– SINGLE MEMBER 4 1/2–INCH CLAMP 6–FOOT 657.0610	LUMINAIRE ARMS– TRUSS TYPE 4 1/2–INCH CLAMP 12–FOOT 657.0710	LUMINAIRES UTILITY LED–B SPV.0060.08	ELECTRICAL WIRE LIGHTING 12 AWG 655.0610	NOTES
16	USH–2	103+52		EXISTING	1	EXISTING	EXISTING		2	252	
17	USH–2	105+32		EXISTING	1	EXISTING	EXISTING		2	252	
18	USH–2	107+12		EXISTING	1	EXISTING	EXISTING		2	252	
19	USH–2	108+92		EXISTING	1	EXISTING	EXISTING		2	252	
20	USH–2	110+72		EXISTING	1	EXISTING	EXISTING		2	252	
21	USH–2	112+52		EXISTING	1	EXISTING	EXISTING		2	252	
22	USH–2	114+32		EXISTING	1	EXISTING	EXISTING		2	252	
23	USH–2	116+12		EXISTING	1	EXISTING	EXISTING		2	252	
24	USH–2	117+92		EXISTING	1	EXISTING	EXISTING		2	252	
25	USH–2	119+72		EXISTING	1	EXISTING	EXISTING		2	252	
26	USH–2	121+52		EXISTING	1	EXISTING	EXISTING		2	252	
27	USH–2	123+32		EXISTING	1	EXISTING	EXISTING		2	252	
28	USH–2	125+12		EXISTING	1	EXISTING	EXISTING		2	252	
29	USH–2	126+92		EXISTING	1	EXISTING	EXISTING		2	252	
30	USH–2	128+73		EXISTING	1	EXISTING	EXISTING		2	252	
31	USH–2	130+54		EXISTING	1	EXISTING	EXISTING		2	252	
32	USH–2	132+32		EXISTING	1	EXISTING	EXISTING		2	252	
33	USH–2	134+12		EXISTING	1	EXISTING	EXISTING		2	252	
39	USH–2	136+34 WB	38.0 LT	1	1	1		1	1	144	
40	USH–2	138+12 EB	38.0 RT	1	1	1		1	1	144	
41	USH–2	139+94 WB	38.0 LT	1	1	1		1	1	144	
42	USH–2	141+69 EB	38.0 RT	1	1	1		1	1	144	
43	USH–2	143+54 WB	38.0 LT	1	1	1		1	1	144	
44	USH–2	145+25 EB	36.0 RT	1	1	1		1	1	144	
45	USH–2	147+14 WB	38.0 LT	1	1	1		1	1	144	
46	USH–2	148+83 EB	59.0 RT	1	1	1		1	1	144	
47	USH–2	150+76 WB	16.0 LT	1	1	1		1	1	144	
48	USH–2	151+27 WB	44.5 LT	1	1	1		1	1	144	
49	USH–2	40+34 BW	32.0 LT	1	1	1		1	1	144	
50	USH–2	39+40 BE	25.0 LT	1	1	1		1	1	144	
51	USH–2	152+93 EB	106.0 LT	1	1	1		1	1	144	
52	USH–2	152+79 EB	27.0 LT	1	1	1		1	1	144	
53	USH–2	136+79 BW	99.0 RT	1	1	1		1	1	144	
54	USH–2	36+84 BW	17.0 RT	1	1	1		1	1	144	
55	USH–2	150+62 B	16.0 LT	1	1	1		2	2	288	
56	USH–2	35+59 BE	31.0 RT	1	1	1		1	1	144	
57	USH–2	33+75 BW	34.0 LT	1	1	1		1	1	144	
58	USH–2	32+00 BE	24.5 RT	1	1	1		1	1	144	
59	USH–2	30+21 BW	24.5 LT	1	1	1		1	1	144	
60	USH–2	28+41 BE	29.0 RT	1	1	1		1	1	144	
61	USH–2	154+11 EB	39.0 RT	1	1	1		1	1	144	
62	USH–2	155+98 WB	39.0 LT	1	1	1		1	1	144	
63	USH–2	157+50 EB	39.0 RT	1	1	1		1	1	144	
66	USH–2–ON RAMP	EXISTING		EXISTING	1	EXISTING	EXISTING		1	126	
67	USH–2–ON RAMP	EXISTING		EXISTING	1	EXISTING	EXISTING		1	126	
68	USH–2–ON RAMP	EXISTING		EXISTING	1	EXISTING	EXISTING		1	126	
69	USH–2–ON RAMP	EXISTING		EXISTING	1	EXISTING	EXISTING		1	126	
70	USH–2–ON RAMP	EXISTING		EXISTING	1	EXISTING	EXISTING		1	126	
71	USH–2–ON RAMP	EXISTING		EXISTING	1	EXISTING	EXISTING		1	126	
72	USH–2–ON RAMP	EXISTING		EXISTING	1	EXISTING	EXISTING		1	126	
73	USH–2–ON RAMP	EXISTING		EXISTING	1	EXISTING	EXISTING		1	126	
74	USH–2–ON RAMP	EXISTING		EXISTING	1	EXISTING	EXISTING		1	126	
75	USH–2–ON RAMP	EXISTING		EXISTING	1	EXISTING	EXISTING		1	126	
76	USH–2–ON RAMP	EXISTING		EXISTING	1	EXISTING	EXISTING		1	126	
TOTALS				25	54	25	0	26	73	9,666	
NOTES											

PULL BOXES STEEL (CONTROLLER #2)

NO.	LOCATION (REFERENCE NOTES) ROAD	STATION	OFFSET	SIZE 24X36–INCH 653.0135	NOTES
PB2–1				1	1
PB2–2				0	2
PB2–3				1	1
PB2–4				1	1
PB2–5				1	1
PB2–6				1	1
PB2–7				0	2
PB2–8				1	1
PB2–9				1	1
PB2–10				1	1
PB2–11				1	1
PB2–12				1	1
PB2–13				1	1
PB2–14				1	1
PB2–15				1	1
PB2–16				1	1
PB2–17				1	1
PB2–18				1	1
PB2–19				1	1
PB2–20				1	1
PB2–21				1	1
PB2–22				1	1
PB2–23				1	1
PB2–24				1	1
PB2–25				1	1
PB2–26				0	2
PB2–27				1	1
PB2–28				1	1
TOTALS				25	

NOTES
1. REFERENCE PLAN SHEETS FOR LOCATION PROXIMITY. REASONABLE FIELD JUDGMENT SHALL BE EXERCISED WHEN DETERMINING EXACT LOCATIONS REQUIRED.
2. EXISTING PULL BOX. RE–USE IN PLACE.

MISC. SPECIAL PROVISION ITEMS

ITEMS	APPROX. LOCATION STATION	OFFSET	SPV #	NOTES
LUMINAIRES UTILITY LED–B			SPV.0060.08	
LIGHTING CONTROLLER #2			SPV.0105.09	1
SIGN BRIDGE LIGHTING DEMOLITION	157+92 WB	36.0 LT	SPV.0105.13	
EXISTING ROADWAY LIGHTING DEMOLITION	N/A	N/A	SPV.0105.14	
WISCONSIN SIGN CIRCUIT MODIFICATION			SPV.0105.17	

NOTES
1. THIS IS A LUMP SUM BID ITEM.

ALL ITEMS ON THIS SHEET ARE CATEGORY 0020 UNLESS OTHERWISE NOTED.

LIGHTING POLES, BASES, ARMS & LUMINAIRES (EXISTING CIRCUIT)

POLE NO.	LOCATION ROAD	APPROX STATION	OFFSET	CONCRETE BASES–TYPE 5 654.0105	TRANSFORMER BASES BREAKAWAY 11 1/2–INCH BOLT CIRCLE 657.0255	POLES–TYPE 5 30–FOOT ALUMINUM	LUMINAIRE ARMS–SINGLE MEMBER	LUMINAIRES UTILITY	ELECTRICAL WIRE LIGHTING 12 AWG 655.0610	NOTES
	USH–2	158+86 EB	36.0 RT	1	1	EXISTING	EXISTING	EXISTING	144	
	USH–2	160+21 EB	37.0 RT	1	1	EXISTING	EXISTING	EXISTING	144	
	USH–2	161.66 EB	37.0 RT	1	1	EXISTING	EXISTING	EXISTING	144	
	USH–2	159+38 WB	40.0 LT	1	1	EXISTING	EXISTING	EXISTING	144	
	USH–2	160+86 WB	37.0 LT	1	1	EXISTING	EXISTING	EXISTING	144	
TOTALS				5	5	0	0	0	720	

NOTES

PULL BOXES STEEL (EXISTING CIRCUIT)

NO.	LOCATION (REFERENCE NOTES) ROAD	STATION	OFFSET	SIZE 24X36–INCH 653.0135	NOTES
PB2–29				1	1
PB2–30				1	1
TOTALS				2	

NOTES
1. REFERENCE PLAN SHEETS FOR LOCATION PROXIMITY. REASONABLE FIELD JUDGMENT SHALL BE EXERCISED WHEN DETERMINING EXACT LOCATIONS REQUIRED.

CONDUIT AND ELECTRICAL WIRE SCHEDULE (EXISTING CIRCUIT)

ROUTE STATIONING FROM	TO	CONDUIT HORIZONTAL LENGTH (LF)	RIGID NONMETALLIC SCHEDULE 40 2–INCH 652.0225 NO.	TOTAL (LF)	ELECTRICAL WIRE LIGHTING WIRE LENGTH TOTAL LENGTH (LF)	2 AWG 655.0635 NO.	TOTAL (LF)	NOTES
UNDISTURBED LT	PBX–30	115	1	115	125	5	625	
PBX–30	161+66 EB (37.0 RT)	28	1	28	38	3	114	
161+66 EB (37.0 RT)	160+21 EB (37.0 RT)	145	1	145	155	3	465	
160+21 EB (37.0 RT)	158+86 EB (36.0 RT)	141	1	141	151	3	453	
PBX–30	PBX–29	10	1	10	82	3	246	1
PBX–29	160+86 WB (37.0 LT)	101	1	101	111	3	333	
160+86 WB (37.0 LT)	159+38 WB (40.0 LT)	148	1	148	158	3	474	
							0	
TOTALS				688			2,710	

NOTES
1. THIS CONDUIT TOTAL LENGTH IS ONLY USED TO EXTEND FROM THE EXISTING CONDUIT THAT IS BEING REUSED UNDER THE ROADWAY TO THE NEW PULL BOXES. NEW CONDUCTORS SHALL BE INSTALLED THE FULL LENGTH.

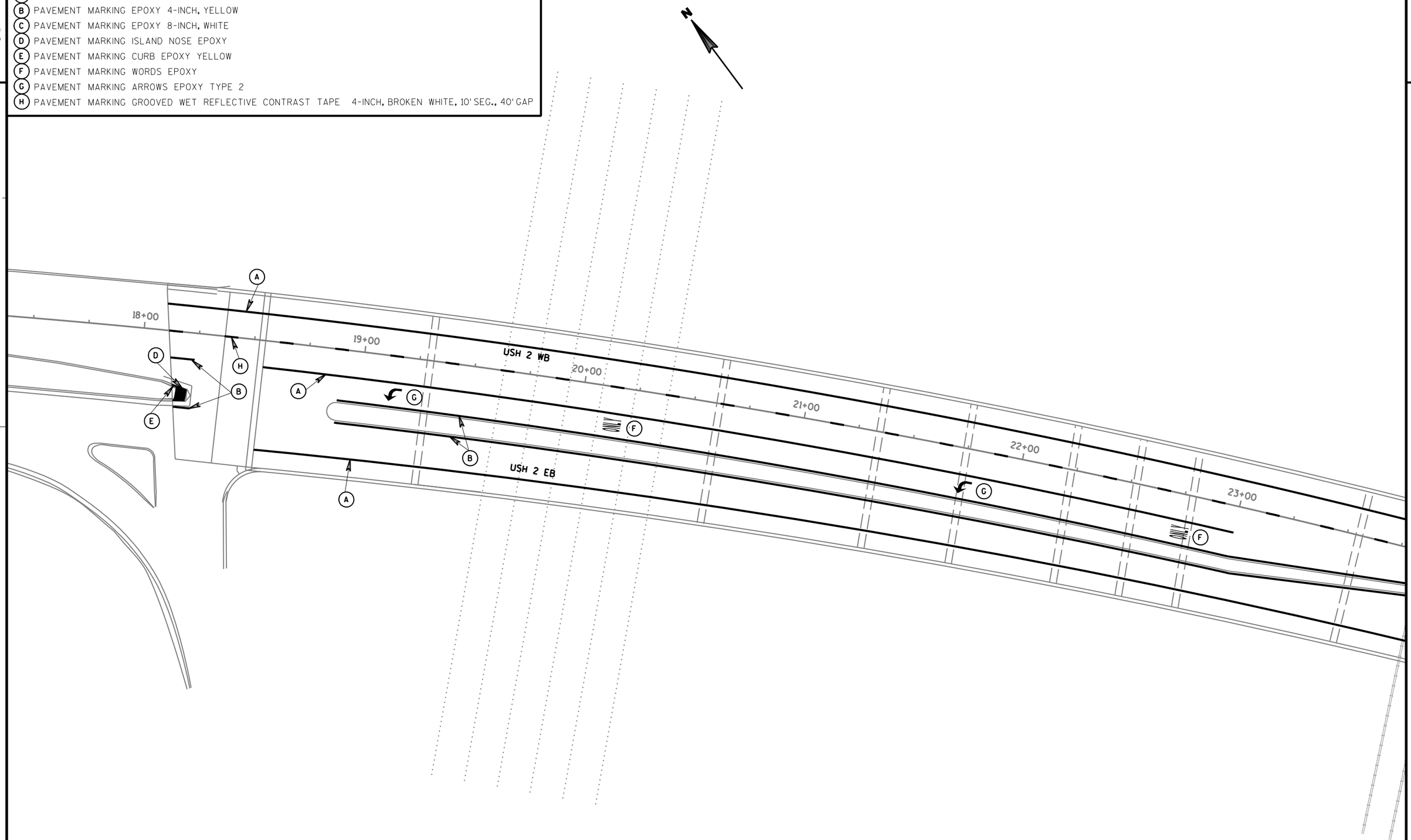
MISC. SPECIAL PROVISION ITEMS

ITEMS	APPROX. LOCATION STATION	OFFSET	SPV #	NOTES
EXISTING ROADWAY LIGHTING REMOVAL AND RELOCATION	N/A	N/A	SPV.0060.21	

NOTES

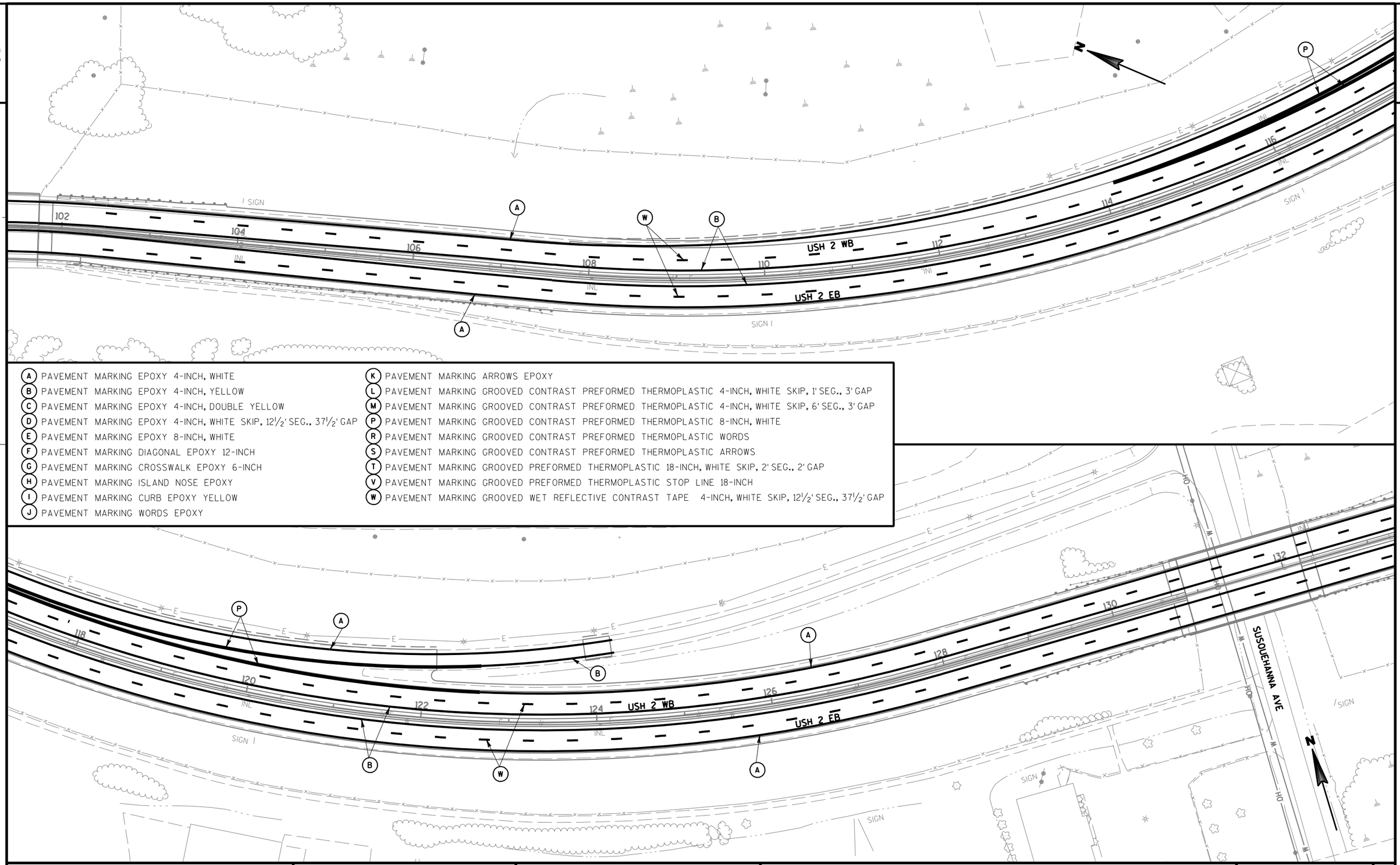
ALL ITEMS ON THIS SHEET ARE CATEGORY 0020 UNLESS OTHERWISE NOTED.

- (A) PAVEMENT MARKING EPOXY 4-INCH, WHITE
- (B) PAVEMENT MARKING EPOXY 4-INCH, YELLOW
- (C) PAVEMENT MARKING EPOXY 8-INCH, WHITE
- (D) PAVEMENT MARKING ISLAND NOSE EPOXY
- (E) PAVEMENT MARKING CURB EPOXY YELLOW
- (F) PAVEMENT MARKING WORDS EPOXY
- (G) PAVEMENT MARKING ARROWS EPOXY TYPE 2
- (H) PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH, BROKEN WHITE, 10' SEG., 40' GAP



2

PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	PAVEMENT MARKING - USH 2 (WEST APPROACH)	SHEET 95	E

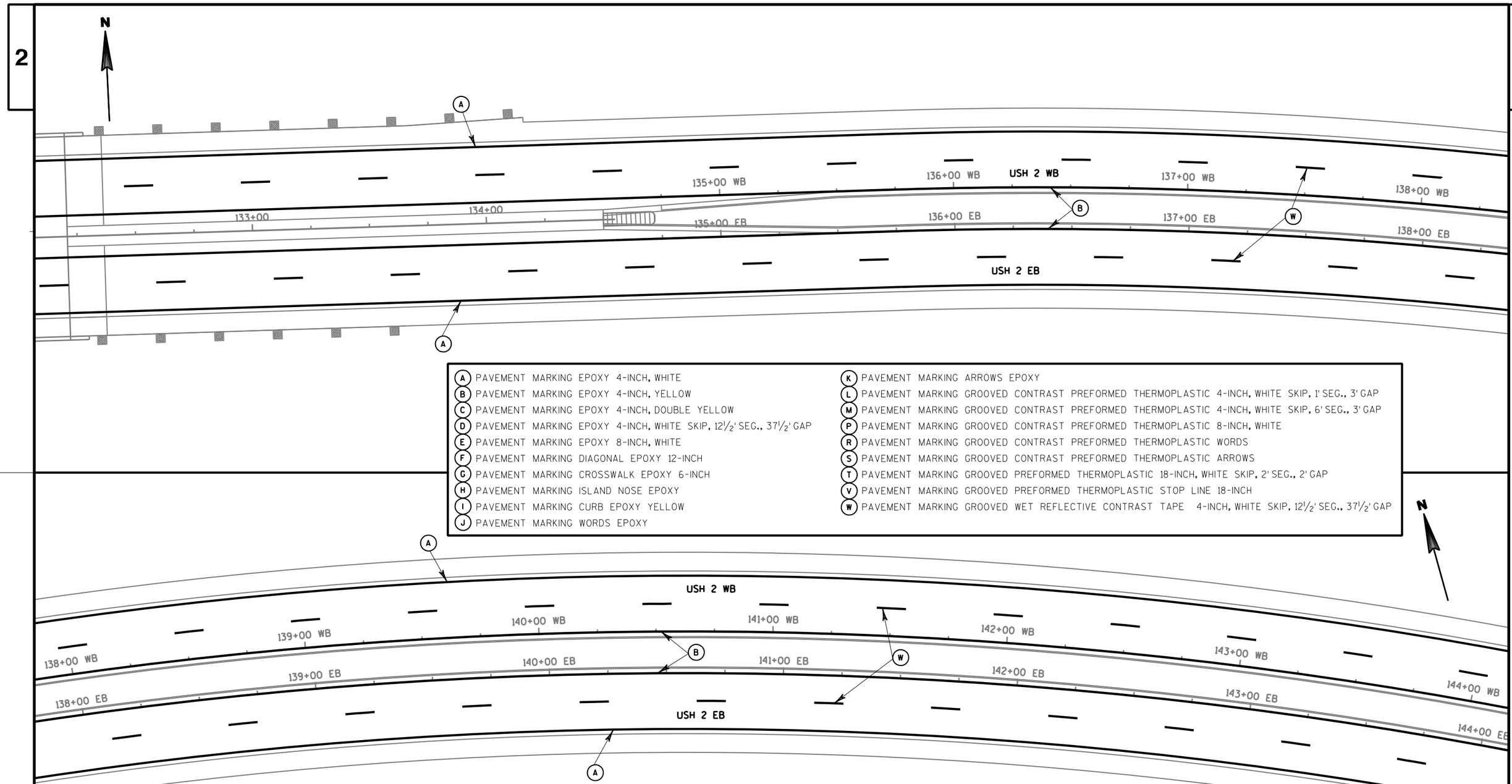


(A) PAVEMENT MARKING EPOXY 4-INCH, WHITE
(B) PAVEMENT MARKING EPOXY 4-INCH, YELLOW
(C) PAVEMENT MARKING EPOXY 4-INCH, DOUBLE YELLOW
(D) PAVEMENT MARKING EPOXY 4-INCH, WHITE SKIP, 12½' SEG., 37½' GAP
(E) PAVEMENT MARKING EPOXY 8-INCH, WHITE
(F) PAVEMENT MARKING DIAGONAL EPOXY 12-INCH
(G) PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
(H) PAVEMENT MARKING ISLAND NOSE EPOXY
(I) PAVEMENT MARKING CURB EPOXY YELLOW
(J) PAVEMENT MARKING WORDS EPOXY
(K) PAVEMENT MARKING ARROWS EPOXY
(L) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 1' SEG., 3' GAP
(M) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 6' SEG., 3' GAP
(P) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 8-INCH, WHITE
(R) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC WORDS
(S) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS
(T) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC 18-INCH, WHITE SKIP, 2' SEG., 2' GAP
(V) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC STOP LINE 18-INCH
(W) PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH, WHITE SKIP, 12½' SEG., 37½' GAP

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVEMENT MARKING	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\024511_pm.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

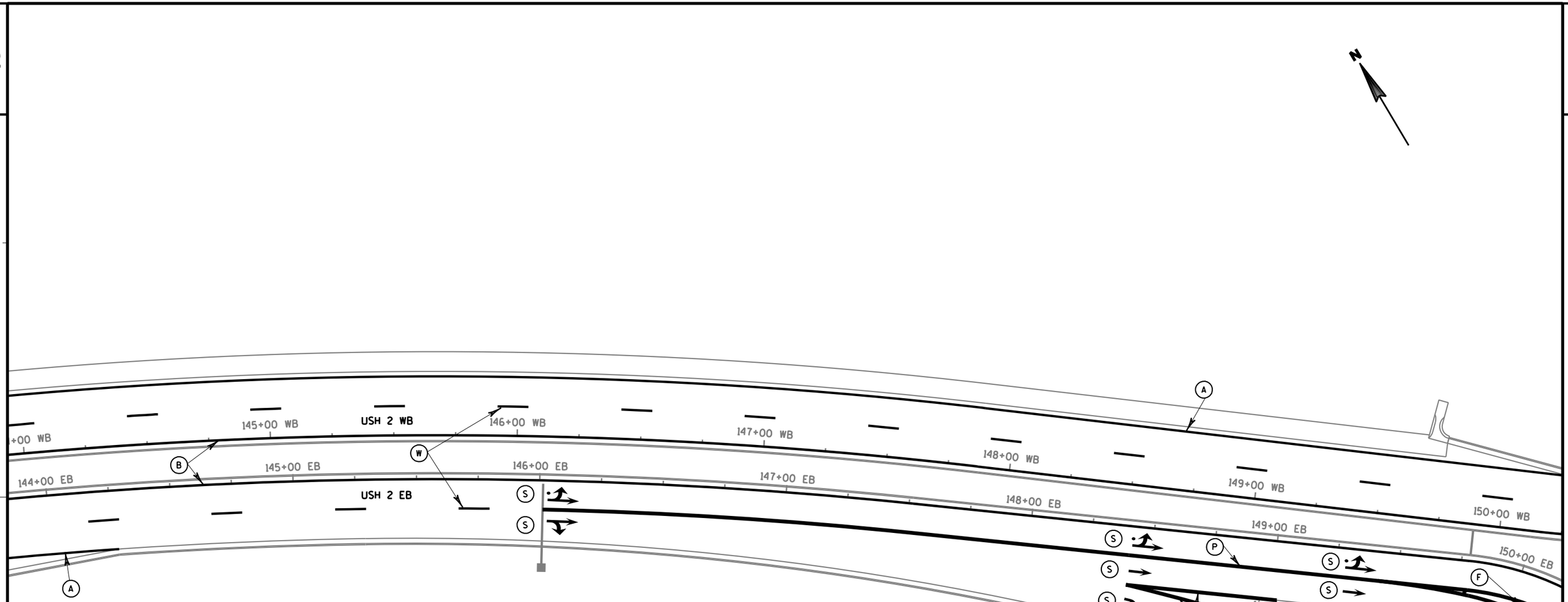
WISDOT/CADDS SHEET 42



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVEMENT MARKING	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\024512_pm.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

2

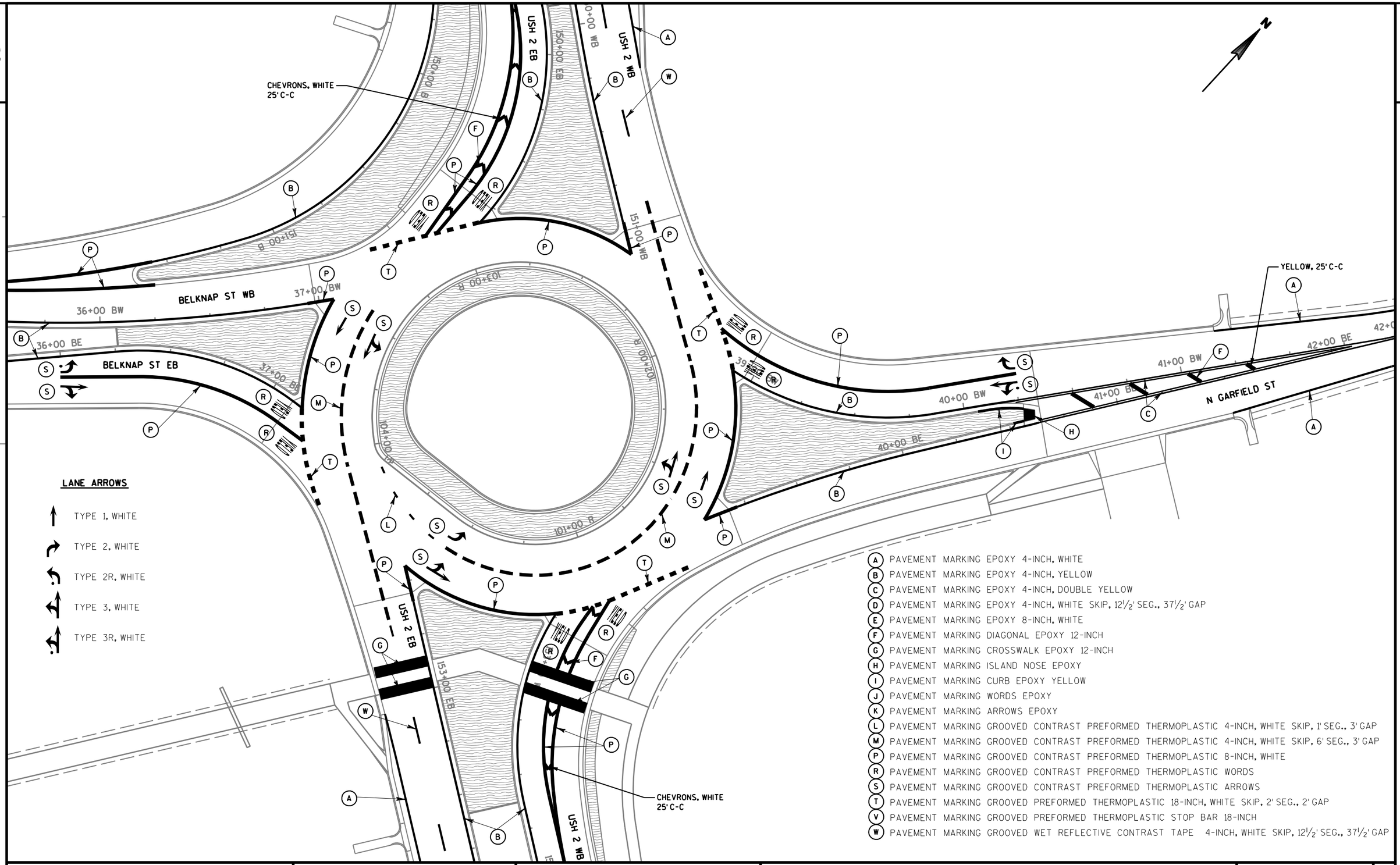


(A) PAVEMENT MARKING EPOXY 4-INCH, WHITE
(B) PAVEMENT MARKING EPOXY 4-INCH, YELLOW
(C) PAVEMENT MARKING EPOXY 4-INCH, DOUBLE YELLOW
(D) PAVEMENT MARKING EPOXY 4-INCH, WHITE SKIP, 12½' SEG., 37½' GAP
(E) PAVEMENT MARKING EPOXY 8-INCH, WHITE
(F) PAVEMENT MARKING DIAGONAL EPOXY 12-INCH
(G) PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
(H) PAVEMENT MARKING ISLAND NOSE EPOXY
(I) PAVEMENT MARKING CURB EPOXY YELLOW
(J) PAVEMENT MARKING WORDS EPOXY
(K) PAVEMENT MARKING ARROWS EPOXY
(L) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 1' SEG., 3' GAP
(M) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 6' SEG., 3' GAP
(P) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 8-INCH, WHITE
(R) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC WORDS
(S) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS
(T) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC 18-INCH, WHITE SKIP, 2' SEG., 2' GAP
(V) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC STOP BAR 18-INCH
(W) PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH, WHITE SKIP, 12½' SEG., 37½' GAP

LANE ARROWS

TYPE 1, WHITE
TYPE 2, WHITE
TYPE 2R, WHITE
TYPE 3, WHITE
TYPE 3R, WHITE

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVEMENT MARKING	SHEET 98	E



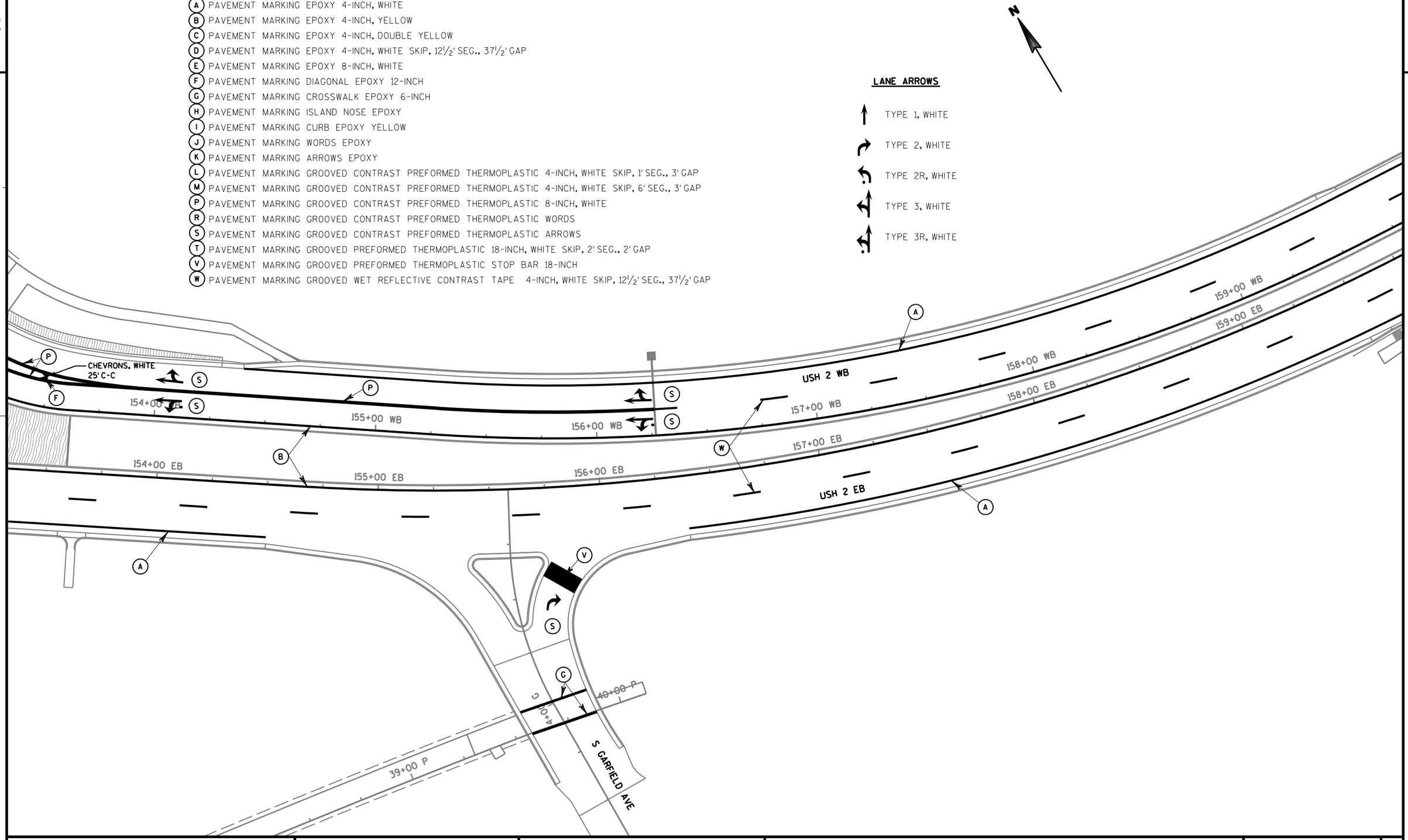
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVEMENT MARKING	SHEET 99	E

2

(A) PAVEMENT MARKING EPOXY 4-INCH, WHITE
(B) PAVEMENT MARKING EPOXY 4-INCH, YELLOW
(C) PAVEMENT MARKING EPOXY 4-INCH, DOUBLE YELLOW
(D) PAVEMENT MARKING EPOXY 4-INCH, WHITE SKIP, 12½' SEG., 37½' GAP
(E) PAVEMENT MARKING EPOXY 8-INCH, WHITE
(F) PAVEMENT MARKING DIAGONAL EPOXY 12-INCH
(G) PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
(H) PAVEMENT MARKING ISLAND NOSE EPOXY
(I) PAVEMENT MARKING CURB EPOXY YELLOW
(J) PAVEMENT MARKING WORDS EPOXY
(K) PAVEMENT MARKING ARROWS EPOXY
(L) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 1' SEG., 3' GAP
(M) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 6' SEG., 3' GAP
(P) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 8-INCH, WHITE
(R) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC WORDS
(S) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS
(T) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC 18-INCH, WHITE SKIP, 2' SEG., 2' GAP
(V) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC STOP BAR 18-INCH
(W) PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH, WHITE SKIP, 12½' SEG., 37½' GAP

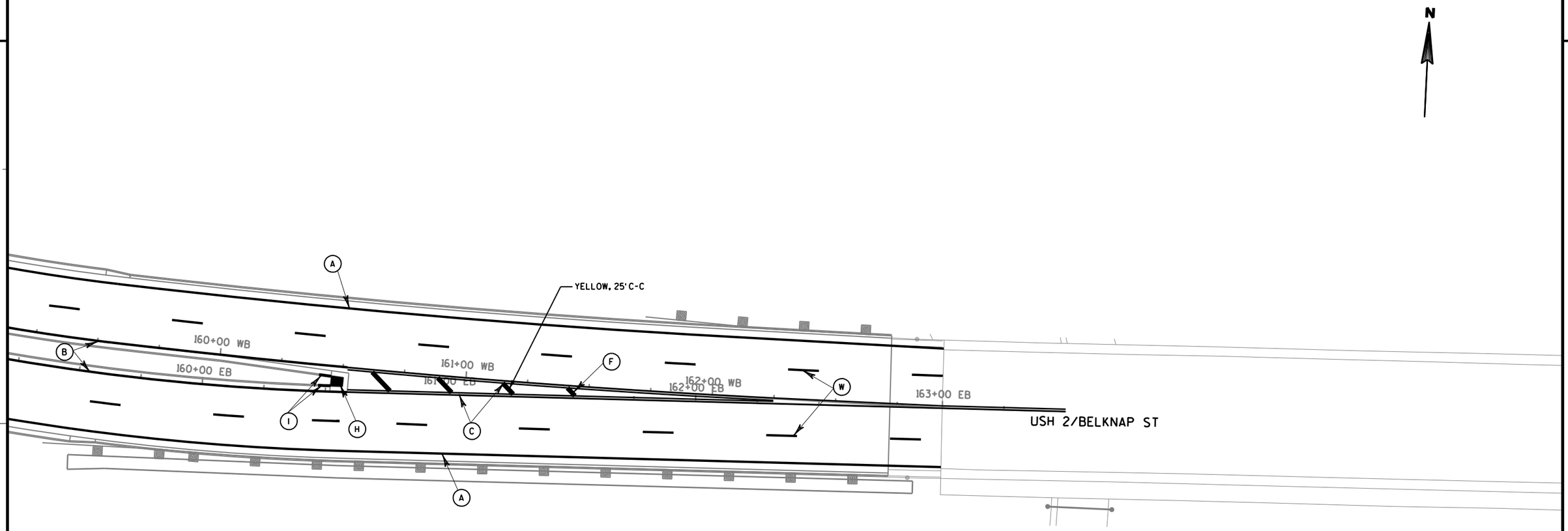
LANE ARROWS

TYPE 1, WHITE
TYPE 2, WHITE
TYPE 2R, WHITE
TYPE 3, WHITE
TYPE 3R, WHITE



PROJECT NO: 8680-00-70/8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVEMENT MARKING	SHEET 100	E

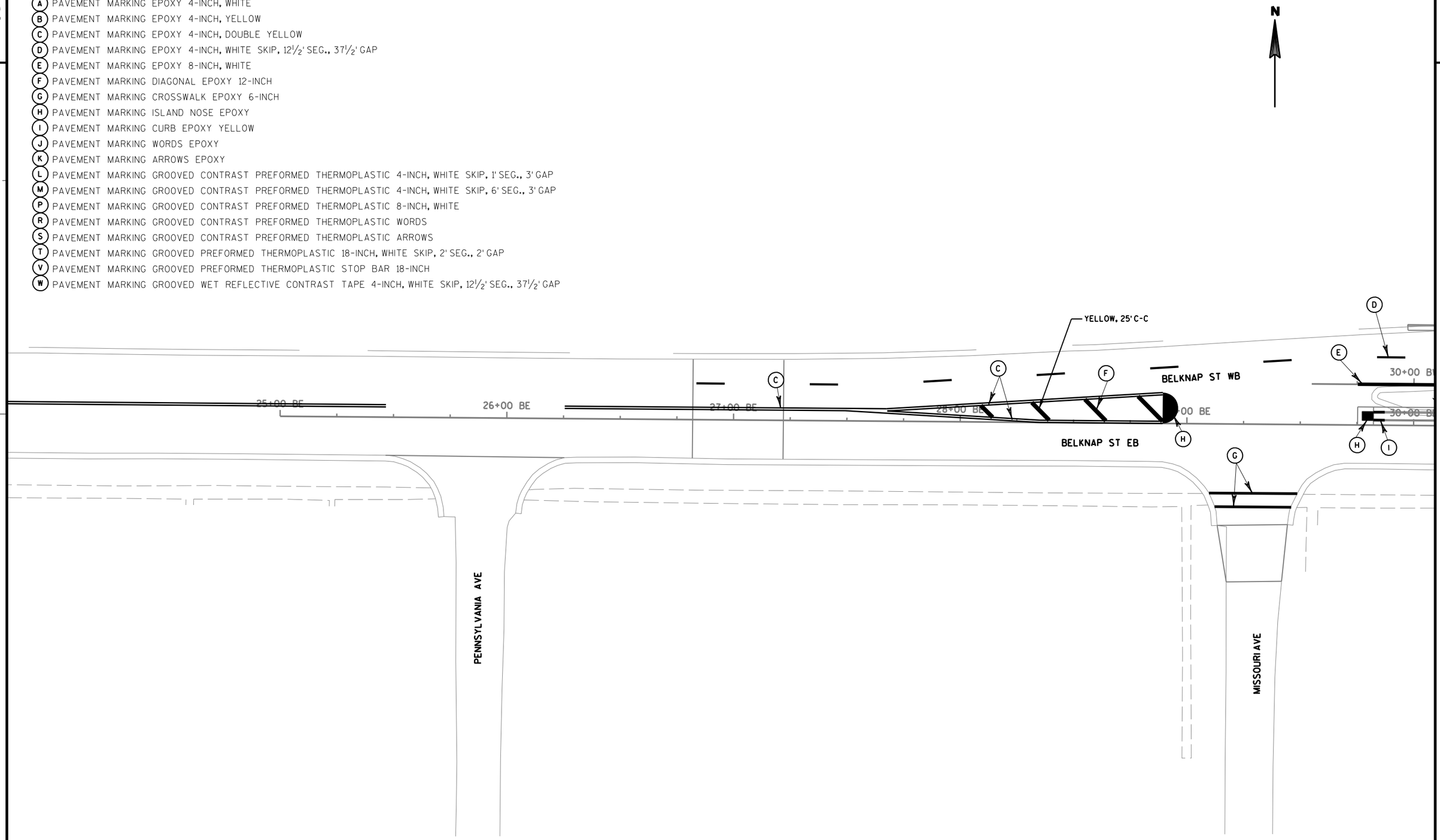
2



(A) PAVEMENT MARKING EPOXY 4-INCH, WHITE
(B) PAVEMENT MARKING EPOXY 4-INCH, YELLOW
(C) PAVEMENT MARKING EPOXY 4-INCH, DOUBLE YELLOW
(D) PAVEMENT MARKING EPOXY 4-INCH, WHITE SKIP, 12½' SEG., 37½' GAP
(E) PAVEMENT MARKING EPOXY 8-INCH, WHITE
(F) PAVEMENT MARKING DIAGONAL EPOXY 12-INCH
(G) PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
(H) PAVEMENT MARKING ISLAND NOSE EPOXY
(I) PAVEMENT MARKING CURB EPOXY YELLOW
(J) PAVEMENT MARKING WORDS EPOXY
(K) PAVEMENT MARKING ARROWS EPOXY
(L) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 1' SEG., 3' GAP
(M) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 6' SEG., 3' GAP
(P) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 8-INCH, WHITE
(R) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC WORDS
(S) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS
(T) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC 18-INCH, WHITE SKIP, 2' SEG., 2' GAP
(V) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC STOP BAR 18-INCH
(W) PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH, WHITE SKIP, 12½' SEG., 37½' GAP

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVEMENT MARKING	SHEET 101	E

(A) PAVEMENT MARKING EPOXY 4-INCH, WHITE
(B) PAVEMENT MARKING EPOXY 4-INCH, YELLOW
(C) PAVEMENT MARKING EPOXY 4-INCH, DOUBLE YELLOW
(D) PAVEMENT MARKING EPOXY 4-INCH, WHITE SKIP, 12½' SEG., 37½' GAP
(E) PAVEMENT MARKING EPOXY 8-INCH, WHITE
(F) PAVEMENT MARKING DIAGONAL EPOXY 12-INCH
(G) PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
(H) PAVEMENT MARKING ISLAND NOSE EPOXY
(I) PAVEMENT MARKING CURB EPOXY YELLOW
(J) PAVEMENT MARKING WORDS EPOXY
(K) PAVEMENT MARKING ARROWS EPOXY
(L) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 1' SEG., 3' GAP
(M) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 6' SEG., 3' GAP
(P) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 8-INCH, WHITE
(R) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC WORDS
(S) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS
(T) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC 18-INCH, WHITE SKIP, 2' SEG., 2' GAP
(V) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC STOP BAR 18-INCH
(W) PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH, WHITE SKIP, 12½' SEG., 37½' GAP



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVEMENT MARKING	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\024517_pm.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

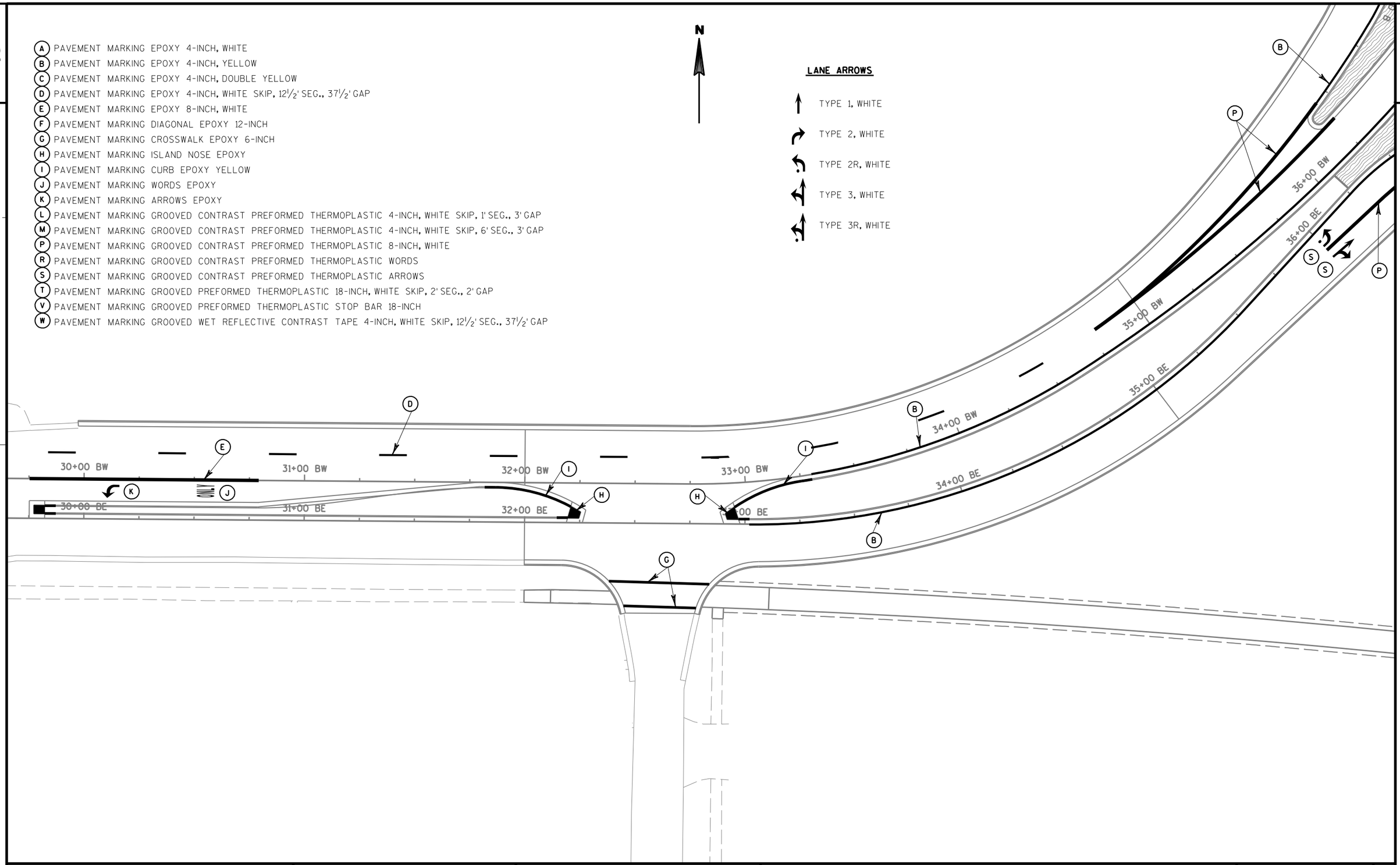
WISDOT/CADDS SHEET 42

(A) PAVEMENT MARKING EPOXY 4-INCH, WHITE
(B) PAVEMENT MARKING EPOXY 4-INCH, YELLOW
(C) PAVEMENT MARKING EPOXY 4-INCH, DOUBLE YELLOW
(D) PAVEMENT MARKING EPOXY 4-INCH, WHITE SKIP, 12½' SEG., 37½' GAP
(E) PAVEMENT MARKING EPOXY 8-INCH, WHITE
(F) PAVEMENT MARKING DIAGONAL EPOXY 12-INCH
(G) PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
(H) PAVEMENT MARKING ISLAND NOSE EPOXY
(I) PAVEMENT MARKING CURB EPOXY YELLOW
(J) PAVEMENT MARKING WORDS EPOXY
(K) PAVEMENT MARKING ARROWS EPOXY
(L) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 1' SEG., 3' GAP
(M) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 6' SEG., 3' GAP
(P) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 8-INCH, WHITE
(R) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC WORDS
(S) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS
(T) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC 18-INCH, WHITE SKIP, 2' SEG., 2' GAP
(V) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC STOP BAR 18-INCH
(W) PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH, WHITE SKIP, 12½' SEG., 37½' GAP

N

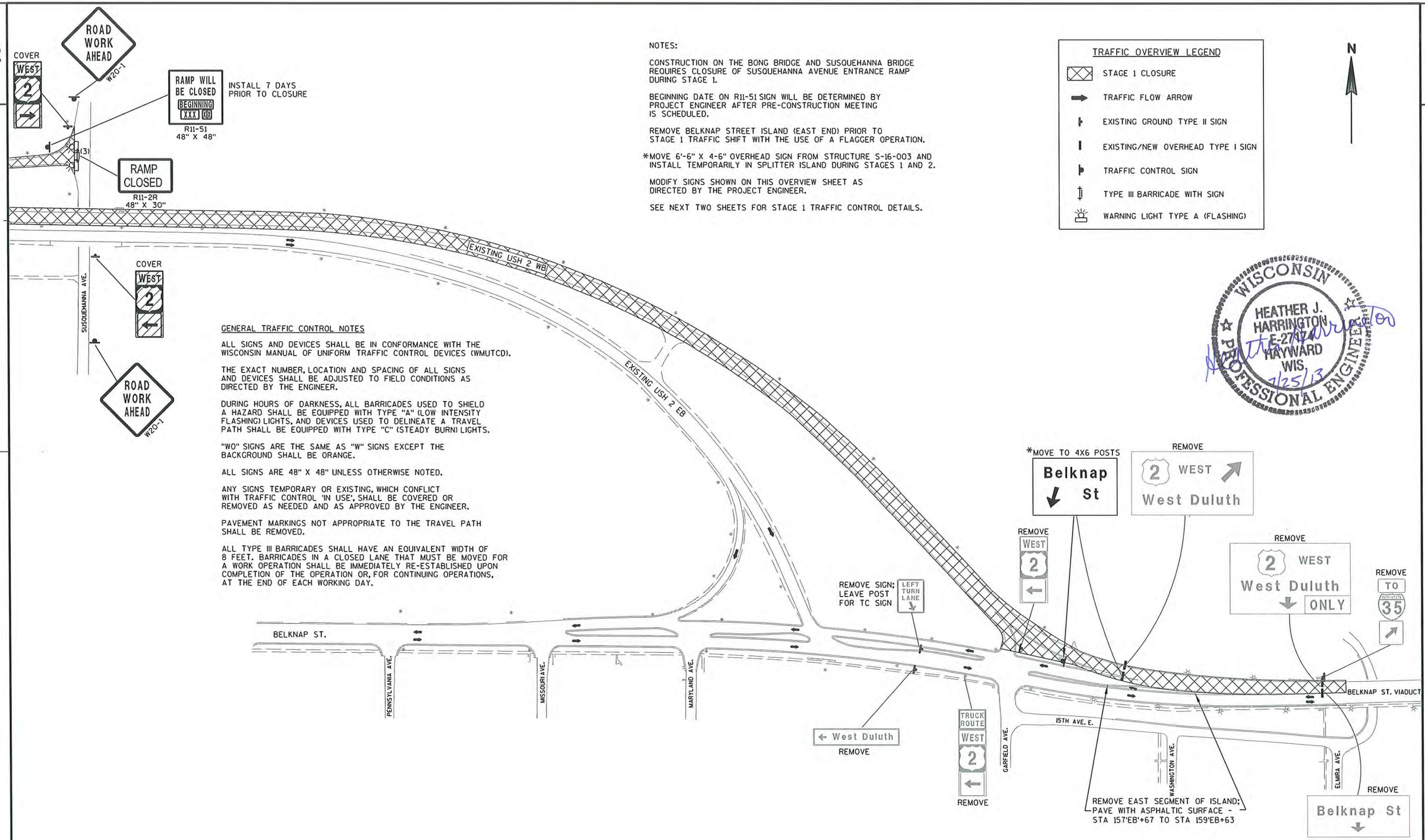
LANE ARROWS

TYPE 1, WHITE
TYPE 2, WHITE
TYPE 2R, WHITE
TYPE 3, WHITE
TYPE 3R, WHITE



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVEMANT MARKING	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\024518_pm.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40



GENERAL TRAFFIC CONTROL NOTES

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD).

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

DURING HOURS OF DARKNESS, ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH TYPE "A" (LOW INTENSITY FLASHING) LIGHTS, AND DEVICES USED TO DELINEATE A TRAVEL PATH SHALL BE EQUIPPED WITH TYPE "C" (STEADY BURN) LIGHTS.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND SHALL BE ORANGE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

PAVEMENT MARKINGS NOT APPROPRIATE TO THE TRAVEL PATH SHALL BE REMOVED.

ALL TYPE III BARRICADES SHALL HAVE AN EQUIVALENT WIDTH OF 8 FEET. BARRICADES IN A CLOSED LANE 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.

NOTES:

CONSTRUCTION ON THE BONG BRIDGE AND SUSQUEHANNA BRIDGE REQUIRES CLOSURE OF SUSQUEHANNA AVENUE ENTRANCE RAMP DURING STAGE 1.

BEGINNING DATE ON R11-51 SIGN WILL BE DETERMINED BY PROJECT ENGINEER AFTER PRE-CONSTRUCTION MEETING IS SCHEDULED.

REMOVE BELKNAP STREET ISLAND (EAST END) PRIOR TO STAGE 1 TRAFFIC SHIFT WITH THE USE OF A FLAGGER OPERATION.

*MOVE 6'-6" X 4-6" OVERHEAD SIGN FROM STRUCTURE S-16-003 AND INSTALL TEMPORARILY IN SPLITTER ISLAND DURING STAGES 1 AND 2.

MODIFY SIGNS SHOWN ON THIS OVERVIEW SHEET AS DIRECTED BY THE PROJECT ENGINEER.

SEE NEXT TWO SHEETS FOR STAGE 1 TRAFFIC CONTROL DETAILS.

TRAFFIC OVERVIEW LEGEND

- STAGE 1 CLOSURE
- TRAFFIC FLOW ARROW
- EXISTING GROUND TYPE II SIGN
- EXISTING/NEW OVERHEAD TYPE I SIGN
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE WITH SIGN
- WARNING LIGHT TYPE A (FLASHING)

N

WISCONSIN PROFESSIONAL ENGINEER
HEATHER J. HARRINGTON
E-27174
HAYWARD
WIS.
7/25/13

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 1 OVERVIEW	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

2

TEMPORARY PM LEGEND

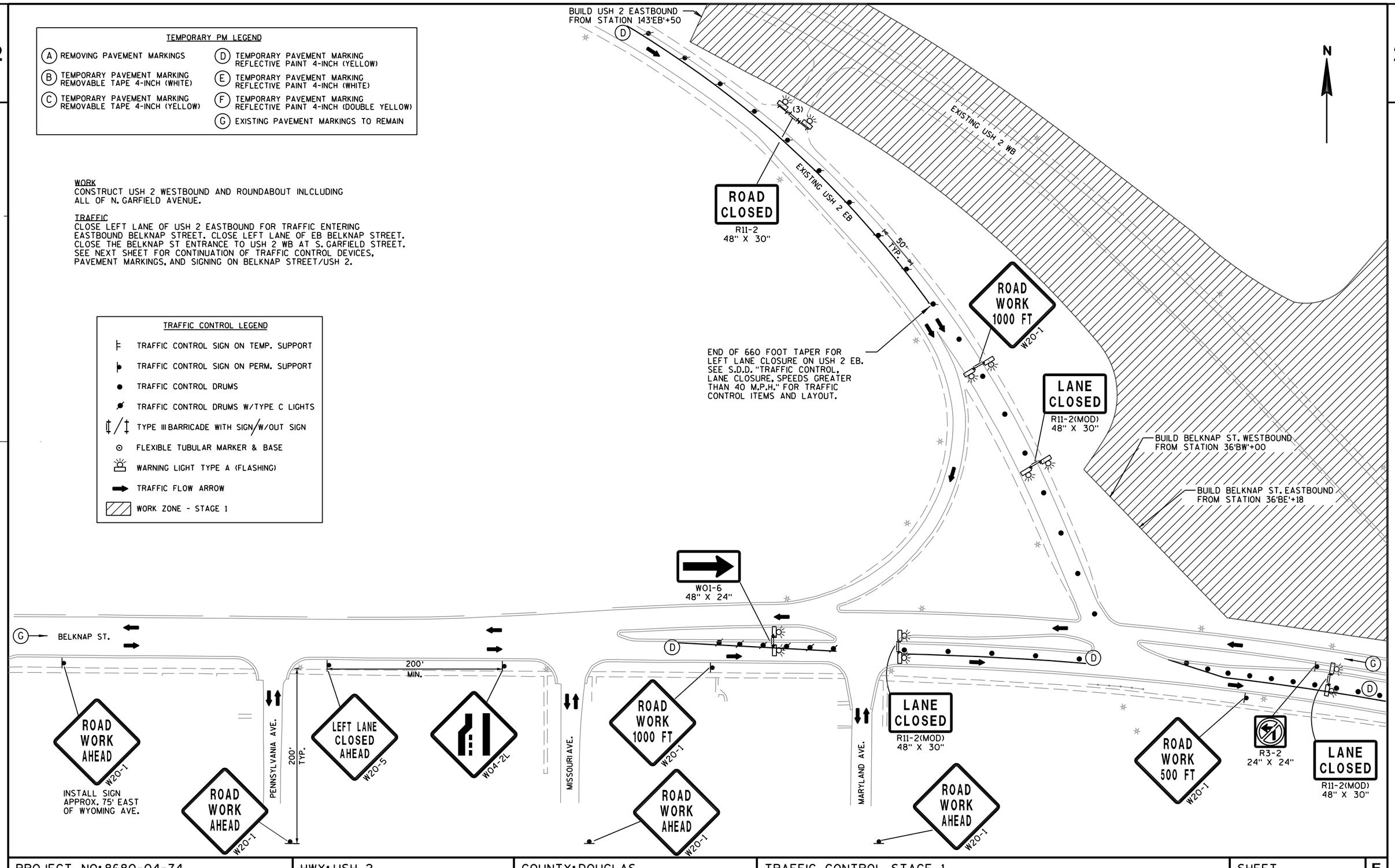
- (A) REMOVING PAVEMENT MARKINGS
- (B) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)
- (C) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (D) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (YELLOW)
- (E) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (WHITE)
- (F) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (DOUBLE YELLOW)
- (G) EXISTING PAVEMENT MARKINGS TO REMAIN

WORK
CONSTRUCT USH 2 WESTBOUND AND ROUNDABOUT INLCLUDING ALL OF N. GARFIELD AVENUE.

TRAFFIC
CLOSE LEFT LANE OF USH 2 EASTBOUND FOR TRAFFIC ENTERING EASTBOUND BELKNAP STREET. CLOSE LEFT LANE OF EB BELKNAP STREET. CLOSE THE BELKNAP ST ENTRANCE TO USH 2 WB AT S. GARFIELD STREET. SEE NEXT SHEET FOR CONTINUATION OF TRAFFIC CONTROL DEVICES, PAVEMENT MARKINGS, AND SIGNING ON BELKNAP STREET/USH 2.

TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL SIGN ON TEMP. SUPPORT
- TRAFFIC CONTROL SIGN ON PERM. SUPPORT
- TRAFFIC CONTROL DRUMS
- TRAFFIC CONTROL DRUMS W/TYPE C LIGHTS
- TYPE III BARRICADE WITH SIGN/W/OUT SIGN
- FLEXIBLE TUBULAR MARKER & BASE
- WARNING LIGHT TYPE A (FLASHING)
- TRAFFIC FLOW ARROW
- WORK ZONE - STAGE 1



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 1	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$

2

BUILD USH 2 EASTBOUND
TO STATION 154'EB'+40

ROAD CLOSED
R11-2
48" X 30"

W01-7
48" X 24"

R3-1
24" X 24"

MOVED FROM EXISTING
STRUCTURE S-16-003

Belknap St

BELKNAP ST.

LANE CLOSED
R11-2(MOD)
48" X 30"

S. GARFIELD AVE.

STA 159+21

BUILD TO END
OF PROJECT

ROAD CLOSED
R11-2
48" X 30"

W06-3

W01-6
48" X 24"

200'

250'

50'
TYP.

BELKNAP ST./ USH 2

MATCH LINE A

25'
TYP.

125'

W24-1L

ROAD WORK
500 FT
W20-1

20
M.P.H.
W013-1
24" X 24"

END
ROAD WORK
G20-2A
48" X 24"

W06-3

WORK
CONTINUE WORK ON USH 2 WESTBOUND AND ROUNDABOUT INCLUDING LEGS TO BELKNAP STREET AND USH 2 EASTBOUND. UPON COMPLETION OF USH 2 WB PAVEMENT, FILL GAPS ALONG CONCRETE WITH TEMPORARY ASPHALTIC SURFACE IN GORE AREA EAST OF S. GARFIELD AVENUE.

TRAFFIC
USE FLAGGER OPERATION FOR WORK AT BELKNAP STREET ISLAND.
REMOVE CONFLICTING DOUBLE YELLOW OR WHITE PAVEMENT MARKINGS PRIOR TO APPLYING TEMPORARY PAVEMENT MARKINGS.
SEE PRECEDING SHEET FOR CONTINUATION OF TRAFFIC CONTROL DEVICES, PAVEMENT MARKINGS, AND SIGNING ON BELKNAP STREET.

ROAD WORK AHEAD
W20-1

W04-2R

RIGHT LANE CLOSED AHEAD
W20-5

ROAD WORK AHEAD
W20-1

EXISTING PERMANENT MESSAGE BOARD TO BE USED AS DIRECTED BY THE ENGINEER

VMS

BELKNAP ST./ USH 2

180'

200'

400'

400'

25'
TYP.

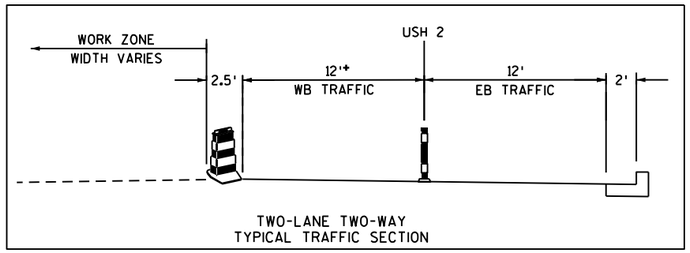
MATCH LINE A

W01-6
48" X 24"

N

TEMPORARY PM LEGEND

- (A) REMOVING PAVEMENT MARKINGS
- (B) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)
- (C) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (D) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (YELLOW)
- (E) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (WHITE)
- (F) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (DOUBLE YELLOW)
- (G) EXISTING PAVEMENT MARKINGS TO REMAIN



TWO-LANE TWO-WAY
TYPICAL TRAFFIC SECTION

TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL SIGN ON TEMP. SUPPORT
- TRAFFIC CONTROL SIGN ON PERM. SUPPORT
- TRAFFIC CONTROL DRUMS
- TRAFFIC CONTROL DRUMS W/TYPE C LIGHTS
- TYPE III BARRICADE WITH SIGN/W/OUT SIGN
- FLEXIBLE TUBULAR MARKER & BASE
- WARNING LIGHT TYPE A (FLASHING)
- TRAFFIC FLOW ARROW
- WORK ZONE - STAGE 1

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 1	SHEET E

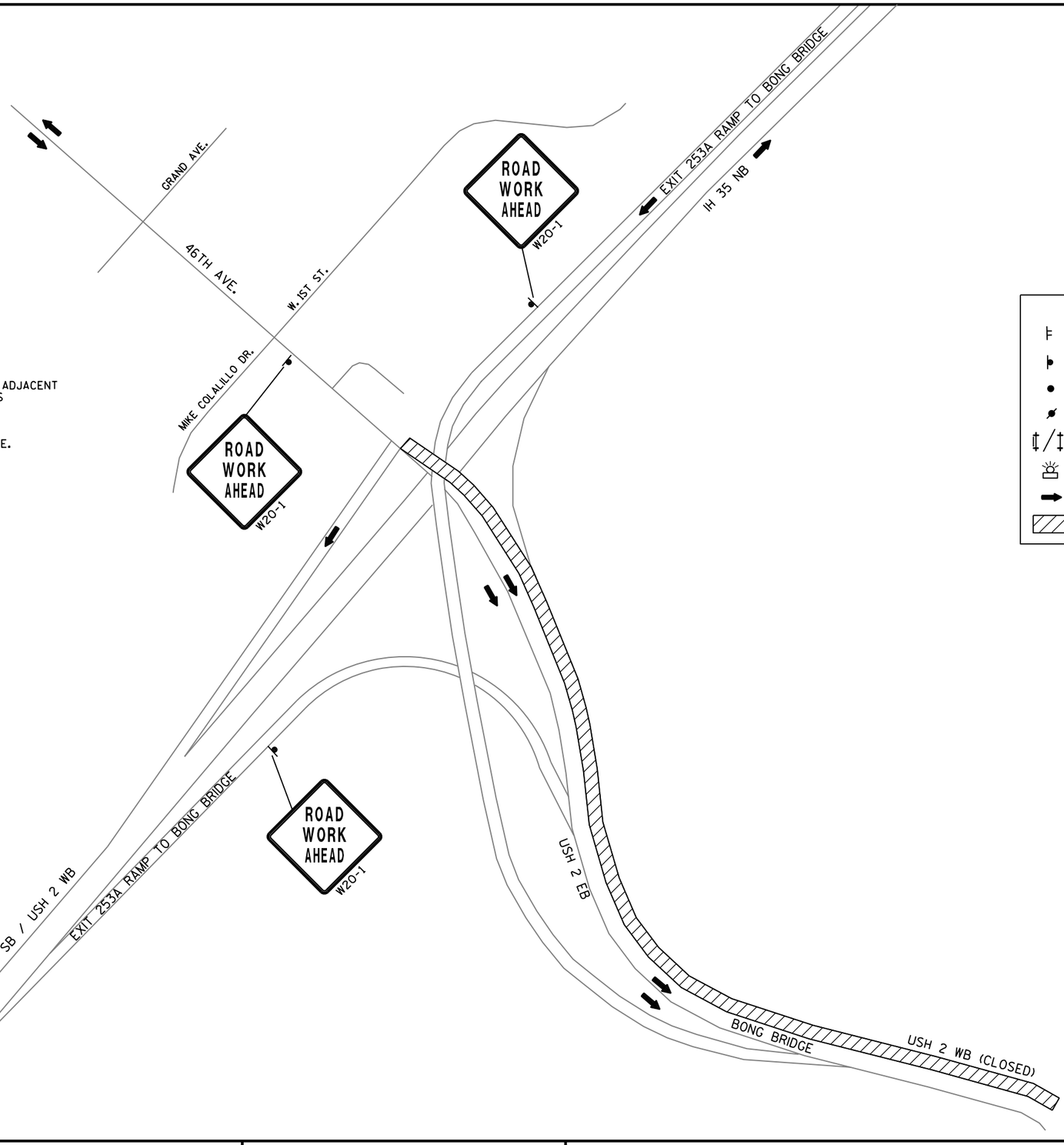
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2

N

WORK
REPLACE WESTBOUND BONG BRIDGE APPROACH SLAB AND ADJACENT CONCRETE PAVEMENT. OVERLAY USH 2 WESTBOUND LANES INCLUDING BONG BRIDGE AND SUSQUEHANNA BRIDGE.

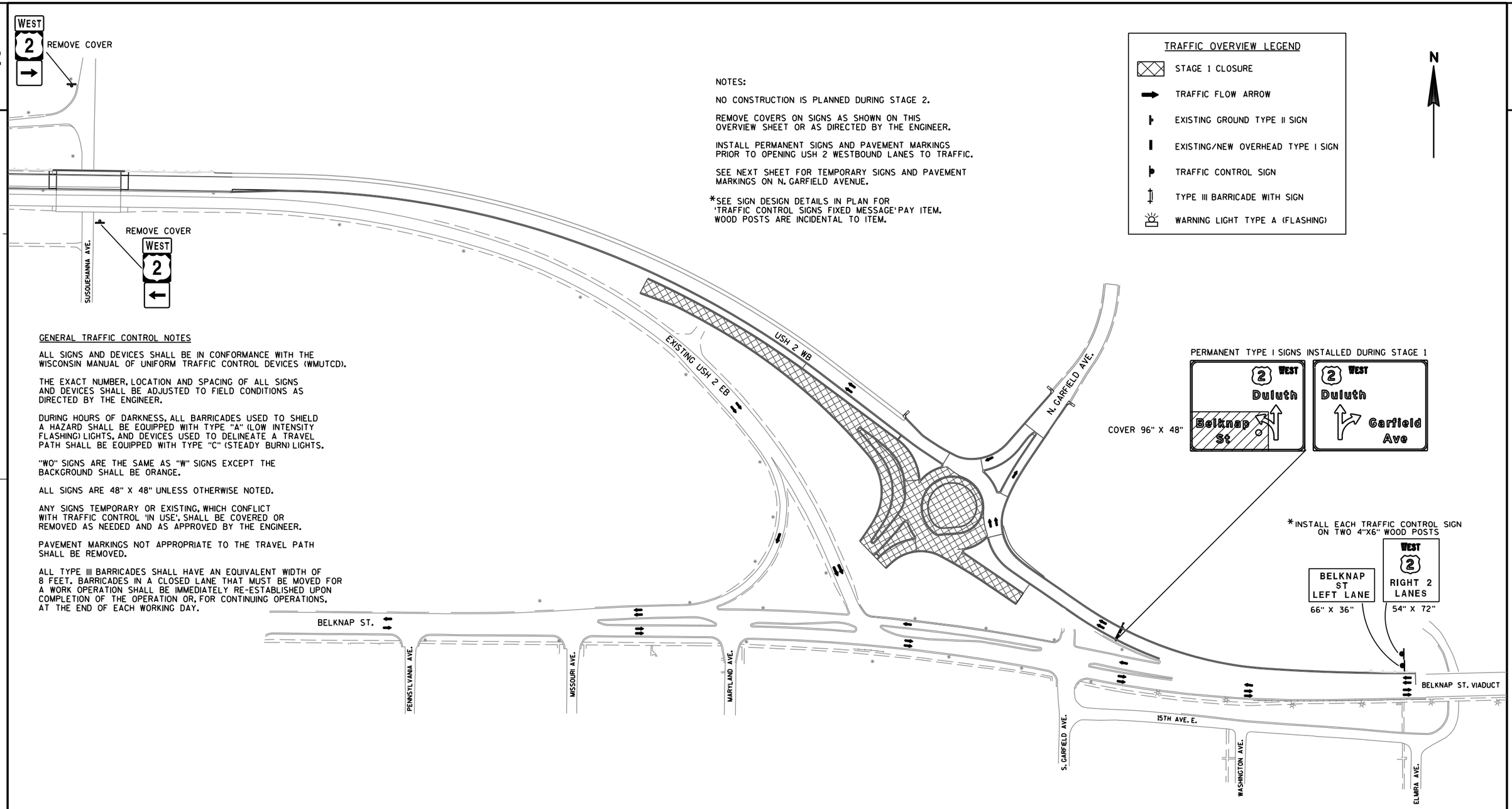
TRAFFIC
SEE DETOUR PLAN FOR IH 35 SOUTHBOUND DETOUR ROUTE.



TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL SIGN ON TEMP. SUPPORT
- TRAFFIC CONTROL SIGN ON PERM. SUPPORT
- TRAFFIC CONTROL DRUMS
- TRAFFIC CONTROL DRUMS W/TYPE C LIGHTS
- TYPE III BARRICADE WITH SIGN/W/OUT SIGN
- WARNING LIGHT TYPE A (FLASHING)
- TRAFFIC FLOW ARROW
- WORK ZONE - STAGE 1

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 1 - BONG BRIDGE- MN APPROACH	SHEET 107	E



NOTES:

NO CONSTRUCTION IS PLANNED DURING STAGE 2.

REMOVE COVERS ON SIGNS AS SHOWN ON THIS OVERVIEW SHEET OR AS DIRECTED BY THE ENGINEER.

INSTALL PERMANENT SIGNS AND PAVEMENT MARKINGS PRIOR TO OPENING USH 2 WESTBOUND LANES TO TRAFFIC.

SEE NEXT SHEET FOR TEMPORARY SIGNS AND PAVEMENT MARKINGS ON N. GARFIELD AVENUE.

*SEE SIGN DESIGN DETAILS IN PLAN FOR 'TRAFFIC CONTROL SIGNS FIXED MESSAGE' PAY ITEM. WOOD POSTS ARE INCIDENTAL TO ITEM.

TRAFFIC OVERVIEW LEGEND

- STAGE 1 CLOSURE
- TRAFFIC FLOW ARROW
- EXISTING GROUND TYPE II SIGN
- EXISTING/NEW OVERHEAD TYPE I SIGN
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE WITH SIGN
- WARNING LIGHT TYPE A (FLASHING)

N

PERMANENT TYPE I SIGNS INSTALLED DURING STAGE 1

COVER 96" X 48"

*INSTALL EACH TRAFFIC CONTROL SIGN ON TWO 4"X6" WOOD POSTS

GENERAL TRAFFIC CONTROL NOTES

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD).

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

DURING HOURS OF DARKNESS, ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH TYPE "A" (LOW INTENSITY FLASHING) LIGHTS, AND DEVICES USED TO DELINEATE A TRAVEL PATH SHALL BE EQUIPPED WITH TYPE "C" (STEADY BURN) LIGHTS.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND SHALL BE ORANGE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

PAVEMENT MARKINGS NOT APPROPRIATE TO THE TRAVEL PATH SHALL BE REMOVED.

ALL TYPE III BARRICADES SHALL HAVE AN EQUIVALENT WIDTH OF 8 FEET. BARRICADES IN A CLOSED LANE 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.

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 2 OVERVIEW - WINTER SHUTDOWN	SHEET 108	E

2

N

NOTES:

R1-1 AND W3-1 SIGNS ON NORTH GARFIELD AVENUE REMAIN UNTIL ALL LEGS OF ROUNDABOUT ARE OPEN.

CURB & GUTTER ALONG USH 2 WB MEDIAN FROM STA 157+25 TO END OF SLOPED NOSE MUST BE INSTALLED IN A LATER STAGE TO ACCOMMODATE WB BELKNAP ST TRAFFIC IN STAGES 2 & 3A.

TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL SIGN ON TEMP. SUPPORT
- TRAFFIC CONTROL SIGN ON PERM. SUPPORT
- TRAFFIC CONTROL DRUMS
- TRAFFIC CONTROL DRUMS W/TYPE C LIGHTS
- TYPE III BARRICADE WITH SIGN/W/OUT SIGN
- FLEXIBLE TUBULAR MARKER & BASE
- WARNING LIGHT TYPE A (FLASHING)
- TRAFFIC FLOW ARROW

TEMPORARY PM LEGEND

- (A) REMOVING PAVEMENT MARKINGS
- (B) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)
- (C) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (D) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (YELLOW)
- (E) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (WHITE)
- (F) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (DOUBLE YELLOW)
- (G) EXISTING PAVEMENT MARKINGS TO REMAIN

ROAD CLOSED
R11-2
48" X 30"

EXISTING USH 2 EB

USH 2 WB

W3-1
36" X 36"

N. GARFIELD AVE.

PLACE 16" x 16" ORANGE FLAGS

STOP
R1-1
30" X 30"

W01-6
48" X 24"

14'

TEMPORARY PAVEMENT MARKING DIAGONAL
12-INCH (YELLOW 25'C-C TYP.)

(3)

(4)

ROAD CLOSED
R11-2
48" X 30"

W01-7
48" X 24"

R3-1
24" X 24"

Belknap St

PAVEMENT MARKING EPOXY
4-INCH (YELLOW)

USH 2 WB

STA 157'WB'+25

PAVEMENT MARKING EPOXY
8-INCH (WHITE GORE LINES)

BELKNAP ST.

160'

R3-2
24" X 24"

LANE CLOSED
R11-2(MOD)
48" X 30"

PAVEMENT MARKING EPOXY
4-INCH (YELLOW)

EXTEND DOUBLE YELLOW EPOXY 4-INCH TO MEET EXISTING CENTERLINE PAVEMENT MARKINGS

MISSOURI AVE.

MARYLAND AVE.

S. GARFIELD AVE.

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 2 - WINTER SHUTDOWN	SHEET 109	E

NOTES:

REMOVE BELKNAP ST ISLANDS WEST OF SIGNALS WITH THE USE OF A FLAGGER OPERATION. REMOVE OR COVER SIGNAL FACES AT BELKNAP ST AND EXISTING USH 2 EB. ALL OF THE ABOVE WORK MUST BE COMPLETE PRIOR TO STAGE 3A TRAFFIC SWITCH.

MILL AND OVERLAY WB BELKNAP ST BETWEEN SUSQUEHANNA AVE AND PENNSYLVANIA AVE WITH USE OF A FLAGGER OPERATION.

CLOSE SIDEWALKS AS SHOWN USING TYPE III BARRICADES AND R9-9 SIGNS. SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, SIDEWALK CLOSURE"

TRAFFIC OVERVIEW LEGEND

- STAGE 3A CLOSURE
- TRAFFIC FLOW ARROW
- EXISTING GROUND TYPE II SIGN
- EXISTING/NEW OVERHEAD TYPE I SIGN
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE WITH SIGN
- WARNING LIGHT TYPE A (FLASHING)

N

GENERAL TRAFFIC CONTROL NOTES

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD).

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

DURING HOURS OF DARKNESS, ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH TYPE "A" (LOW INTENSITY FLASHING) LIGHTS, AND DEVICES USED TO DELINEATE A TRAVEL PATH SHALL BE EQUIPPED WITH TYPE "C" (STEADY BURN) LIGHTS.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND SHALL BE ORANGE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

PAVEMENT MARKINGS NOT APPROPRIATE TO THE TRAVEL PATH SHALL BE REMOVED.

ALL TYPE III BARRICADES SHALL HAVE AN EQUIVALENT WIDTH OF 8 FEET. BARRICADES IN A CLOSED LANE 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.

ROAD WORK AHEAD W20-1 — SUSQUEHANNA AVE.

SIDEWALK CLOSED R9-9 30" X 18" — SUSQUEHANNA AVE.

ROAD WORK AHEAD W20-1

PROPOSED USH 2 EB

USH 2 WB

EXISTING USH 2 EB

N. GARFIELD AVE.

PERMANENT TYPE I SIGNS INSTALLED DURING STAGE 1

SIGN COVER FROM STAGE 2

2 WEST Duluth Belknap St

2 WEST Duluth Garfield Ave

INSTALL SIGN APPROX. 300' WEST OF SUSQUEHANNA AVE.

ROAD WORK AHEAD W20-1

INPLACE TC SIGNS FROM STAGE 2

BELKNAP ST LEFT LANE

WEST 2 RIGHT 2 LANES

BELKNAP ST.

SUSQUEHANNA AVE.

ROAD WORK 500 FT W20-1

WYOMING AVE.

PENNSYLVANIA AVE.

MISSOURI AVE.

MARYLAND AVE.

BELKNAP ST.

USH 2 WB

BELKNAP ST. VIADUCT

15TH AVE. E.

S. GARFIELD AVE.

WASHINGTON AVE.

ELMIRA AVE.

ROAD WORK AHEAD W20-1

ROAD WORK AHEAD W20-1

ROAD WORK AHEAD W20-1

SIDEWALK CLOSED R9-9 30" X 18"

SIDEWALK CLOSED R9-9 30" X 18"

REMOVE ISLAND AND PAVE WITH ASPHALTIC SURFACE. SEE STORM SEWER PLAN FOR INLET TREATMENT.

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 3A OVERVIEW	SHEET	E

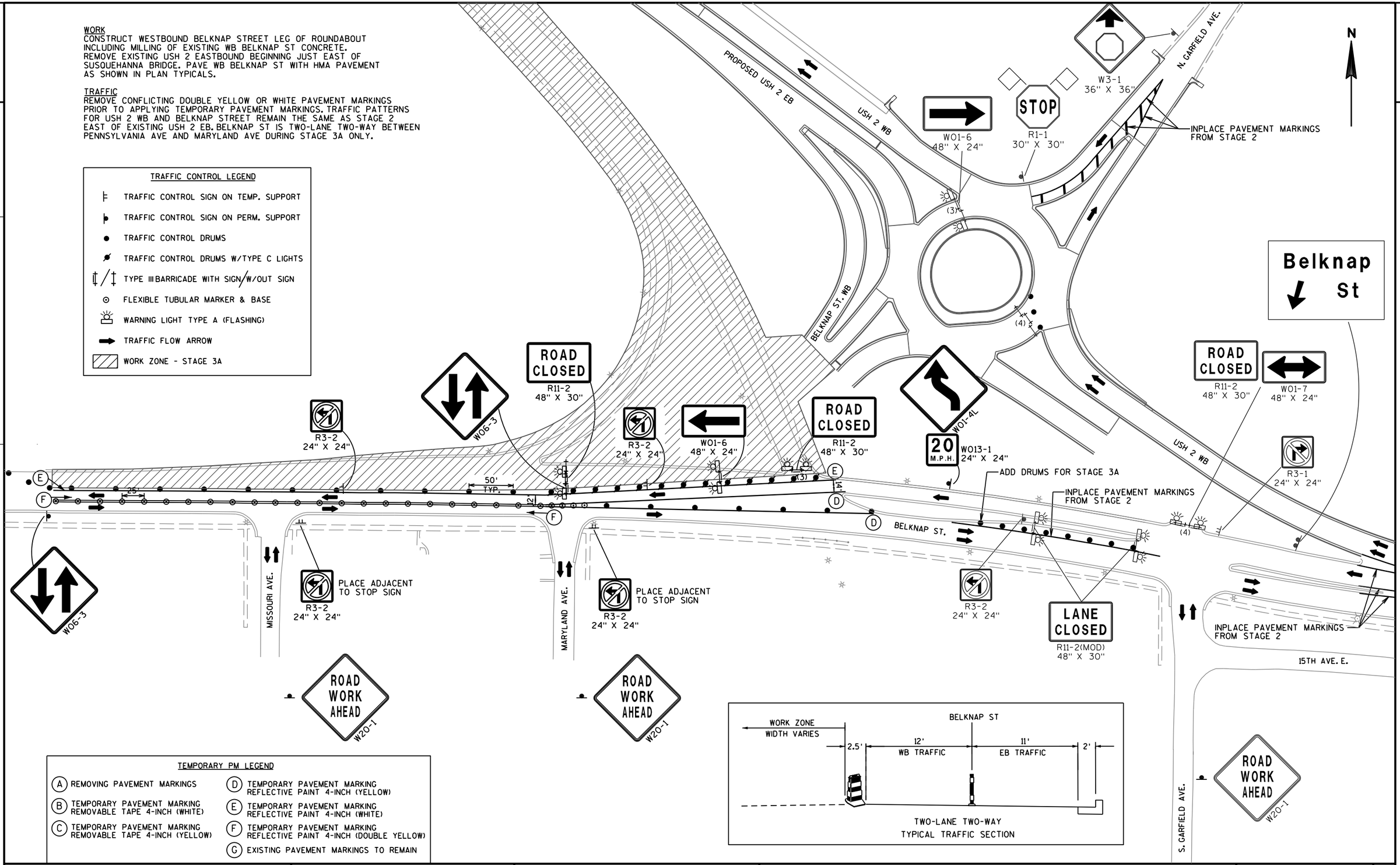
FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$

WORK
CONSTRUCT WESTBOUND BELKNAP STREET LEG OF ROUNDABOUT INCLUDING MILLING OF EXISTING WB BELKNAP ST CONCRETE. REMOVE EXISTING USH 2 EASTBOUND BEGINNING JUST EAST OF SUSQUEHANNA BRIDGE. PAVE WB BELKNAP ST WITH HMA PAVEMENT AS SHOWN IN PLAN TYPICALS.

TRAFFIC
REMOVE CONFLICTING DOUBLE YELLOW OR WHITE PAVEMENT MARKINGS PRIOR TO APPLYING TEMPORARY PAVEMENT MARKINGS. TRAFFIC PATTERNS FOR USH 2 WB AND BELKNAP STREET REMAIN THE SAME AS STAGE 2 EAST OF EXISTING USH 2 EB. BELKNAP ST IS TWO-LANE TWO-WAY BETWEEN PENNSYLVANIA AVE AND MARYLAND AVE DURING STAGE 3A ONLY.

TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL SIGN ON TEMP. SUPPORT
- TRAFFIC CONTROL SIGN ON PERM. SUPPORT
- TRAFFIC CONTROL DRUMS
- TRAFFIC CONTROL DRUMS W/TYPE C LIGHTS
- TYPE III BARRICADE WITH SIGN/W/OUT SIGN
- FLEXIBLE TUBULAR MARKER & BASE
- WARNING LIGHT TYPE A (FLASHING)
- TRAFFIC FLOW ARROW
- WORK ZONE - STAGE 3A



TEMPORARY PM LEGEND

- (A) REMOVING PAVEMENT MARKINGS
- (B) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)
- (C) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (D) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (YELLOW)
- (E) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (WHITE)
- (F) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (DOUBLE YELLOW)
- (G) EXISTING PAVEMENT MARKINGS TO REMAIN

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 3A	SHEET 111	E

NOTES:

KEEP USH 2 EASTBOUND CLOSED FROM WEST END OF BONG BRIDGE TO BELKNAP STREET AT ROUNDABOUT.

ADVANCE SIGNING ON BELKNAP ST AND SIDE ROADS REMAINS THE SAME AS STAGE 3A SIGNING.

SIDEWALKS REMAIN CLOSED AS SHOWN USING TYPE III BARRICADES AND R9-9 SIGNS.

MILL AND OVERLAY EB BELKNAP ST BETWEEN SUSQUEHANNA AVE AND PENNSYLVANIA AVE WITH THE USE OF A FLAGGER OPERATION.

COMPLETE WORK ON EB BELKNAP ST, WEST OF AND INCLUDING MARYLAND AVE INTERSECTION, EARLY IN STAGE 3B. THIS WILL PROVIDE A DIRECT ACCESS TO BUSINESS ON MARYLAND AVENUE.

PERMANENT SIGNS AND FINAL PAVEMENT MARKINGS SHALL BE INSTALLED PRIOR TO OPENING USH 2 EASTBOUND AND SIDE ROADS TO TRAFFIC.

TRAFFIC OVERVIEW LEGEND

- STAGE 3B CLOSURE
- TRAFFIC FLOW ARROW
- EXISTING GROUND TYPE II SIGN
- EXISTING/NEW OVERHEAD TYPE I SIGN
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE WITH SIGN
- WARNING LIGHT TYPE A (FLASHING)

N

GENERAL TRAFFIC CONTROL NOTES

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD).

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

DURING HOURS OF DARKNESS, ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH TYPE "A" (LOW INTENSITY FLASHING) LIGHTS, AND DEVICES USED TO DELINEATE A TRAVEL PATH SHALL BE EQUIPPED WITH TYPE "C" (STEADY BURN) LIGHTS.

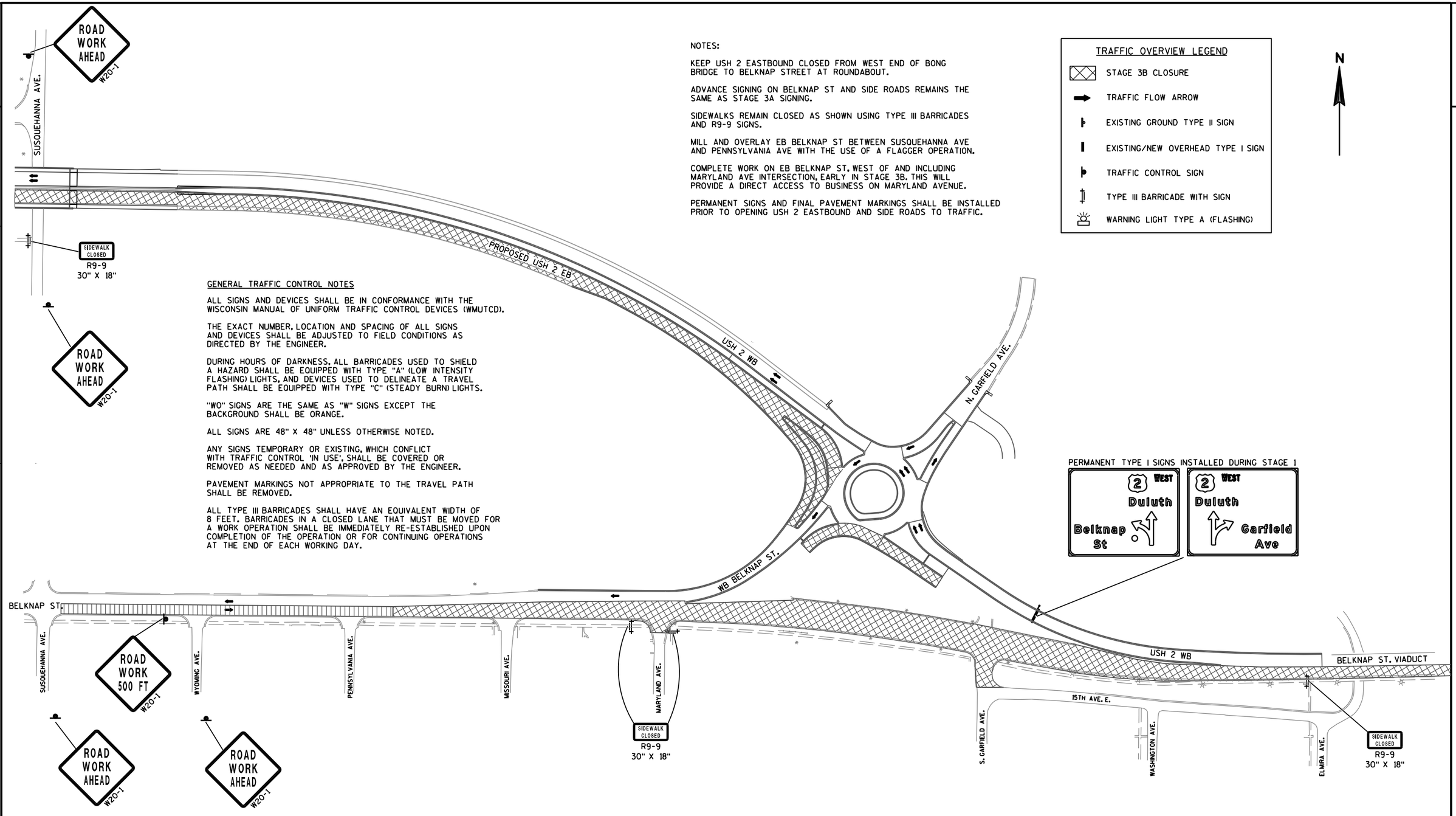
"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND SHALL BE ORANGE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

PAVEMENT MARKINGS NOT APPROPRIATE TO THE TRAVEL PATH SHALL BE REMOVED.

ALL TYPE III BARRICADES SHALL HAVE AN EQUIVALENT WIDTH OF 8 FEET. BARRICADES IN A CLOSED LANE 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.



PERMANENT TYPE I SIGNS INSTALLED DURING STAGE 1

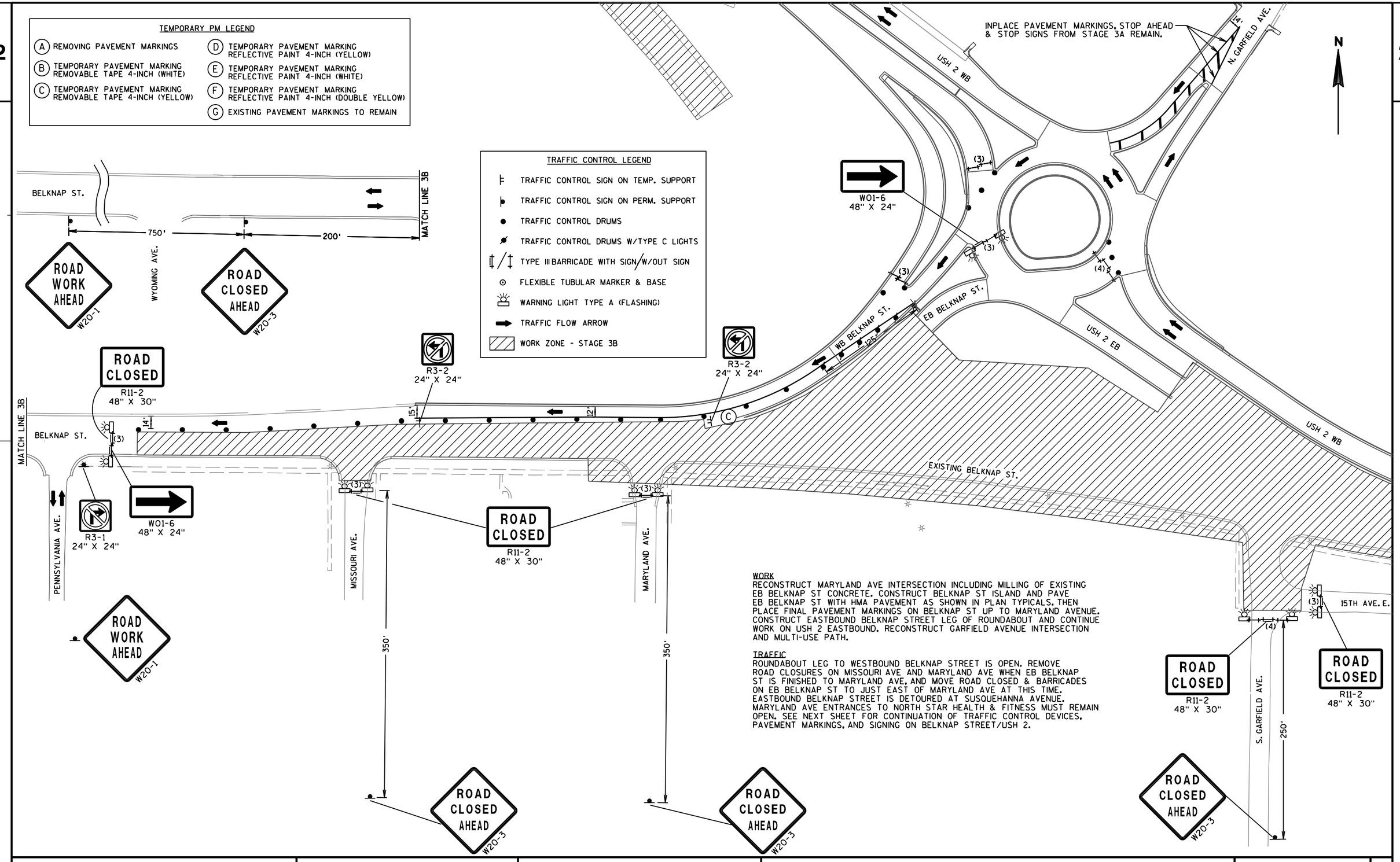
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 3B OVERVIEW	SHEET 112	E

TEMPORARY PM LEGEND

- (A) REMOVING PAVEMENT MARKINGS
- (B) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)
- (C) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (D) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (YELLOW)
- (E) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (WHITE)
- (F) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (DOUBLE YELLOW)
- (G) EXISTING PAVEMENT MARKINGS TO REMAIN

TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL SIGN ON TEMP. SUPPORT
- TRAFFIC CONTROL SIGN ON PERM. SUPPORT
- TRAFFIC CONTROL DRUMS
- TRAFFIC CONTROL DRUMS W/TYPE C LIGHTS
- TYPE III BARRICADE WITH SIGN/W/OUT SIGN
- FLEXIBLE TUBULAR MARKER & BASE
- WARNING LIGHT TYPE A (FLASHING)
- TRAFFIC FLOW ARROW
- WORK ZONE - STAGE 3B



WORK

RECONSTRUCT MARYLAND AVE INTERSECTION INCLUDING MILLING OF EXISTING EB BELKNAP ST CONCRETE. CONSTRUCT BELKNAP ST ISLAND AND PAVE EB BELKNAP ST WITH HMA PAVEMENT AS SHOWN IN PLAN TYPICALS. THEN PLACE FINAL PAVEMENT MARKINGS ON BELKNAP ST UP TO MARYLAND AVENUE. CONSTRUCT EASTBOUND BELKNAP STREET LEG OF ROUNDABOUT AND CONTINUE WORK ON USH 2 EASTBOUND. RECONSTRUCT GARFIELD AVENUE INTERSECTION AND MULTI-USE PATH.

TRAFFIC

ROUNDABOUT LEG TO WESTBOUND BELKNAP STREET IS OPEN. REMOVE ROAD CLOSURES ON MISSOURI AVE AND MARYLAND AVE WHEN EB BELKNAP ST IS FINISHED TO MARYLAND AVE, AND MOVE ROAD CLOSED & BARRICADES ON EB BELKNAP ST TO JUST EAST OF MARYLAND AVE AT THIS TIME. EASTBOUND BELKNAP STREET IS DETOURED AT SUSQUEHANNA AVENUE. MARYLAND AVE ENTRANCES TO NORTH STAR HEALTH & FITNESS MUST REMAIN OPEN. SEE NEXT SHEET FOR CONTINUATION OF TRAFFIC CONTROL DEVICES, PAVEMENT MARKINGS, AND SIGNING ON BELKNAP STREET/USH 2.

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 3B	SHEET E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$
WISDOT/CADDS SHEET 42

2

TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL SIGN ON TEMP. SUPPORT
- TRAFFIC CONTROL SIGN ON PERM. SUPPORT
- TRAFFIC CONTROL DRUMS
- TRAFFIC CONTROL DRUMS W/TYPE C LIGHTS
- TYPE III BARRICADE WITH SIGN/W/OUT SIGN
- FLEXIBLE TUBULAR MARKER & BASE
- WARNING LIGHT TYPE A (FLASHING)
- TRAFFIC FLOW ARROW
- WORK ZONE - STAGE 3B

WORK
CONTINUE WORK ON USH 2 EASTBOUND TO BELKNAP STREET VIADUCT APPROACH.

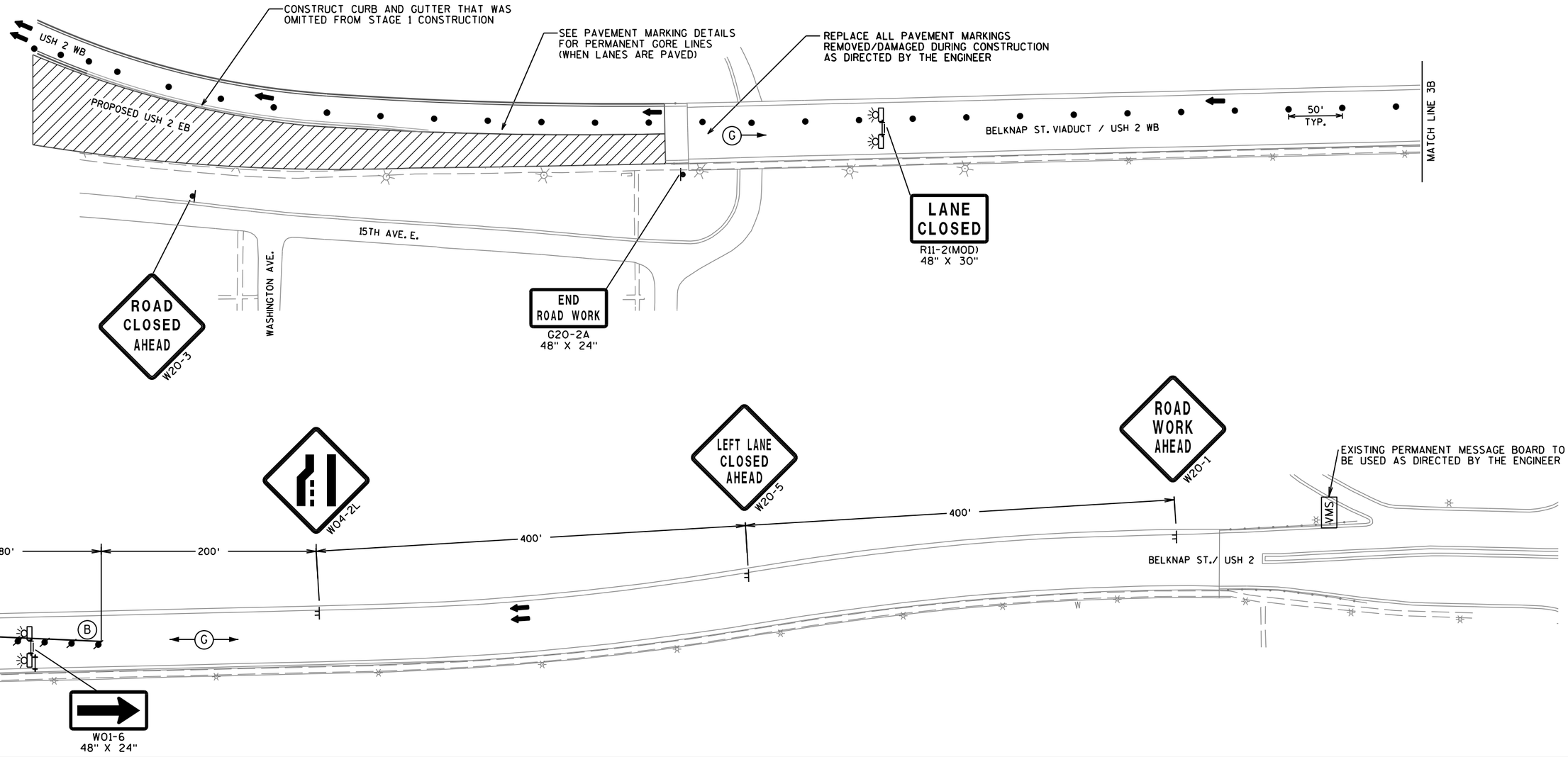
TRAFFIC
OPEN USH 2 WB LEFT LANE WHEN USH 2 EB LANES ARE FINISHED AND MARKED.
SEE PRECEDING SHEET FOR CONTINUATION OF TRAFFIC CONTROL DEVICES, PAVEMENT MARKINGS, AND SIGNING ON BELKNAP STREET AND SIDE ROADS.

TEMPORARY PM LEGEND

- (A) REMOVING PAVEMENT MARKINGS
- (B) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)
- (C) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (D) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (YELLOW)
- (E) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (WHITE)
- (F) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (DOUBLE YELLOW)
- (G) EXISTING PAVEMENT MARKINGS TO REMAIN

N

2



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 3B	SHEET 114	E

NOTES:

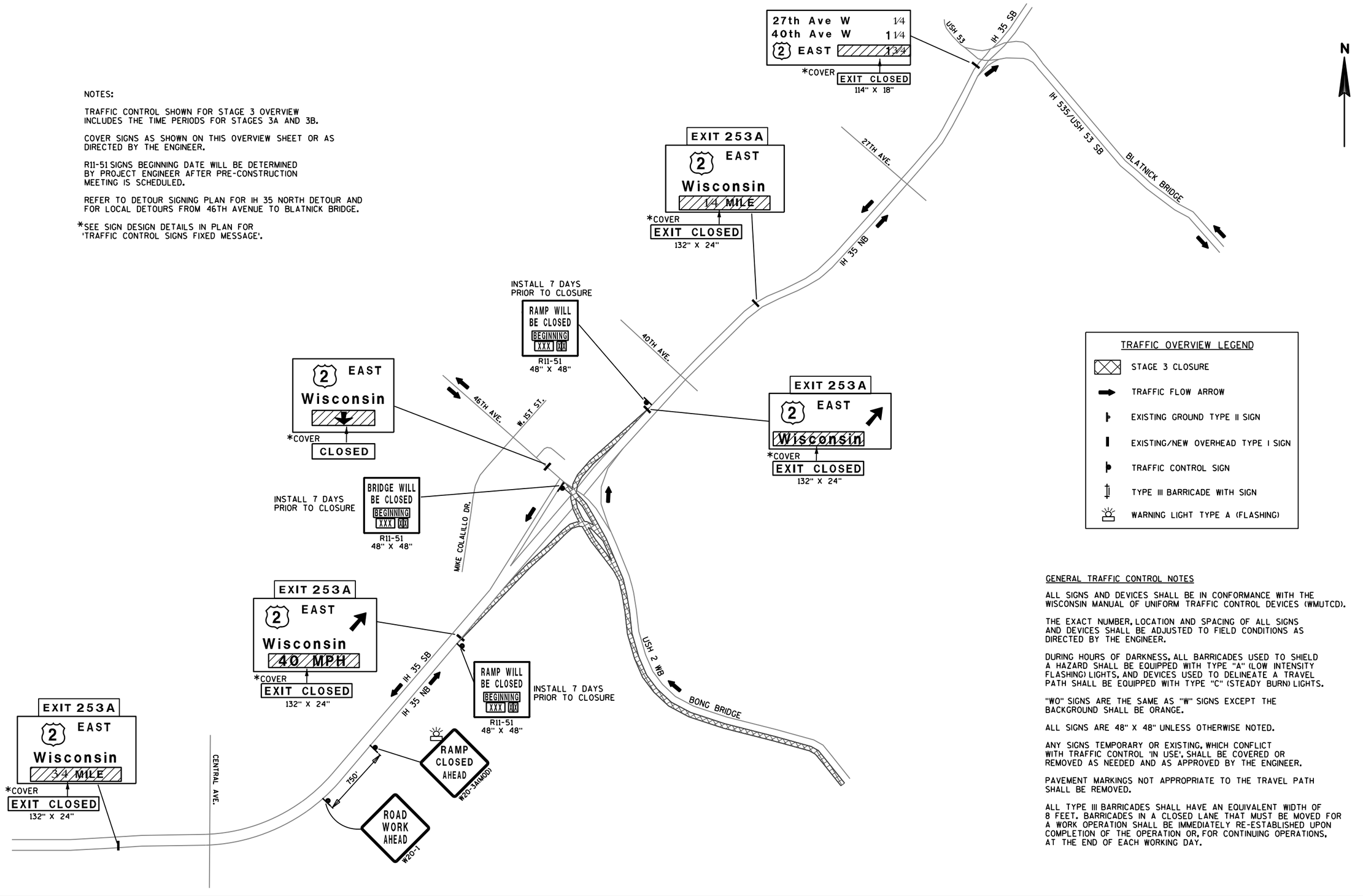
TRAFFIC CONTROL SHOWN FOR STAGE 3 OVERVIEW INCLUDES THE TIME PERIODS FOR STAGES 3A AND 3B.

COVER SIGNS AS SHOWN ON THIS OVERVIEW SHEET OR AS DIRECTED BY THE ENGINEER.

R11-51 SIGNS BEGINNING DATE WILL BE DETERMINED BY PROJECT ENGINEER AFTER PRE-CONSTRUCTION MEETING IS SCHEDULED.

REFER TO DETOUR SIGNING PLAN FOR IH 35 NORTH DETOUR AND FOR LOCAL DETOURS FROM 46TH AVENUE TO BLATNICK BRIDGE.

*SEE SIGN DESIGN DETAILS IN PLAN FOR 'TRAFFIC CONTROL SIGNS FIXED MESSAGE'.



TRAFFIC OVERVIEW LEGEND

- STAGE 3 CLOSURE
- TRAFFIC FLOW ARROW
- EXISTING GROUND TYPE II SIGN
- EXISTING/NEW OVERHEAD TYPE I SIGN
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE WITH SIGN
- WARNING LIGHT TYPE A (FLASHING)

GENERAL TRAFFIC CONTROL NOTES

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD).

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

DURING HOURS OF DARKNESS, ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH TYPE "A" (LOW INTENSITY FLASHING) LIGHTS, AND DEVICES USED TO DELINEATE A TRAVEL PATH SHALL BE EQUIPPED WITH TYPE "C" (STEADY BURN) LIGHTS.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND SHALL BE ORANGE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

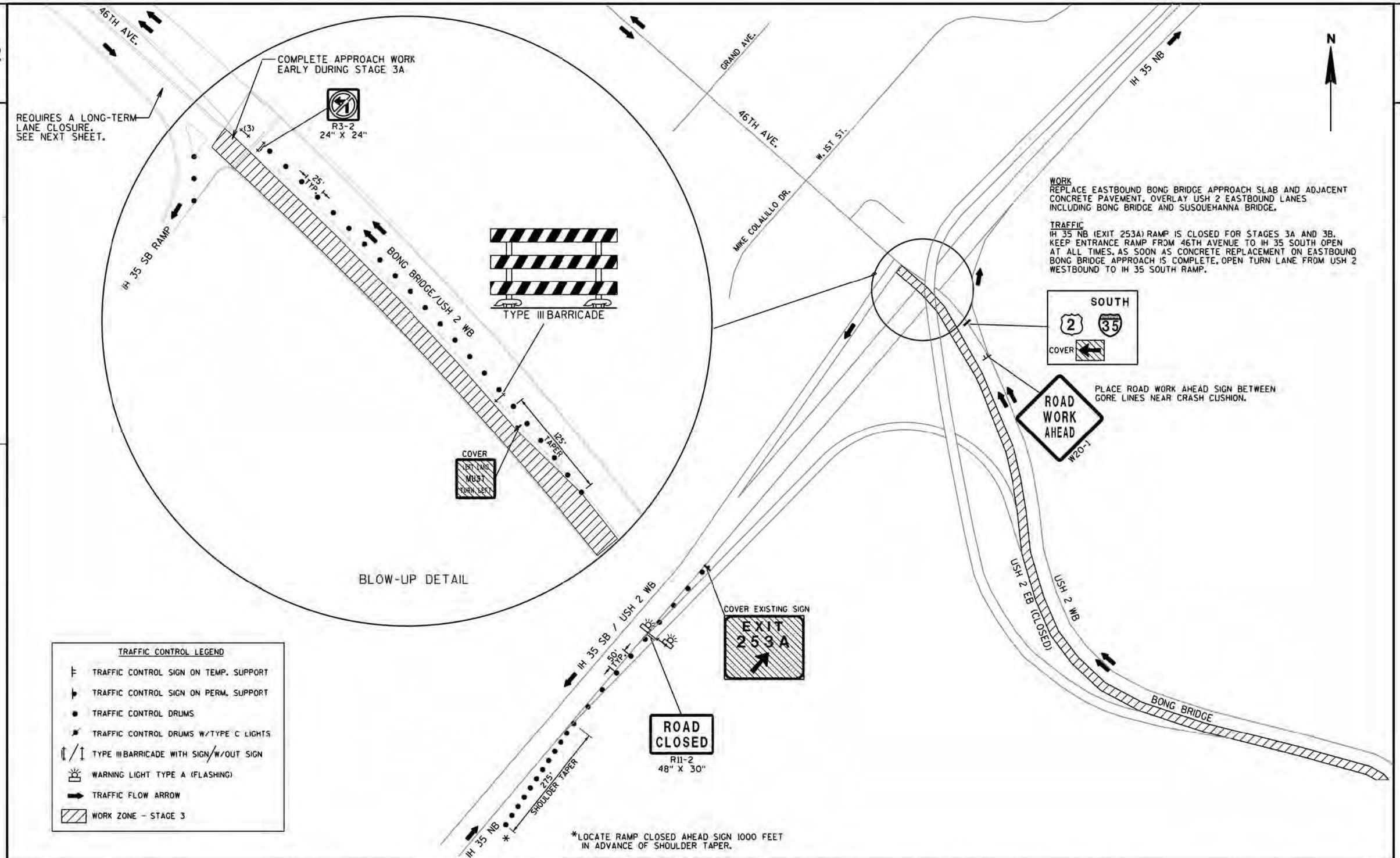
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PAVEMENT MARKINGS NOT APPROPRIATE TO THE TRAVEL PATH SHALL BE REMOVED.

ALL TYPE III BARRICADES SHALL HAVE AN EQUIVALENT WIDTH OF 8 FEET. BARRICADES IN A CLOSED LANE 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.

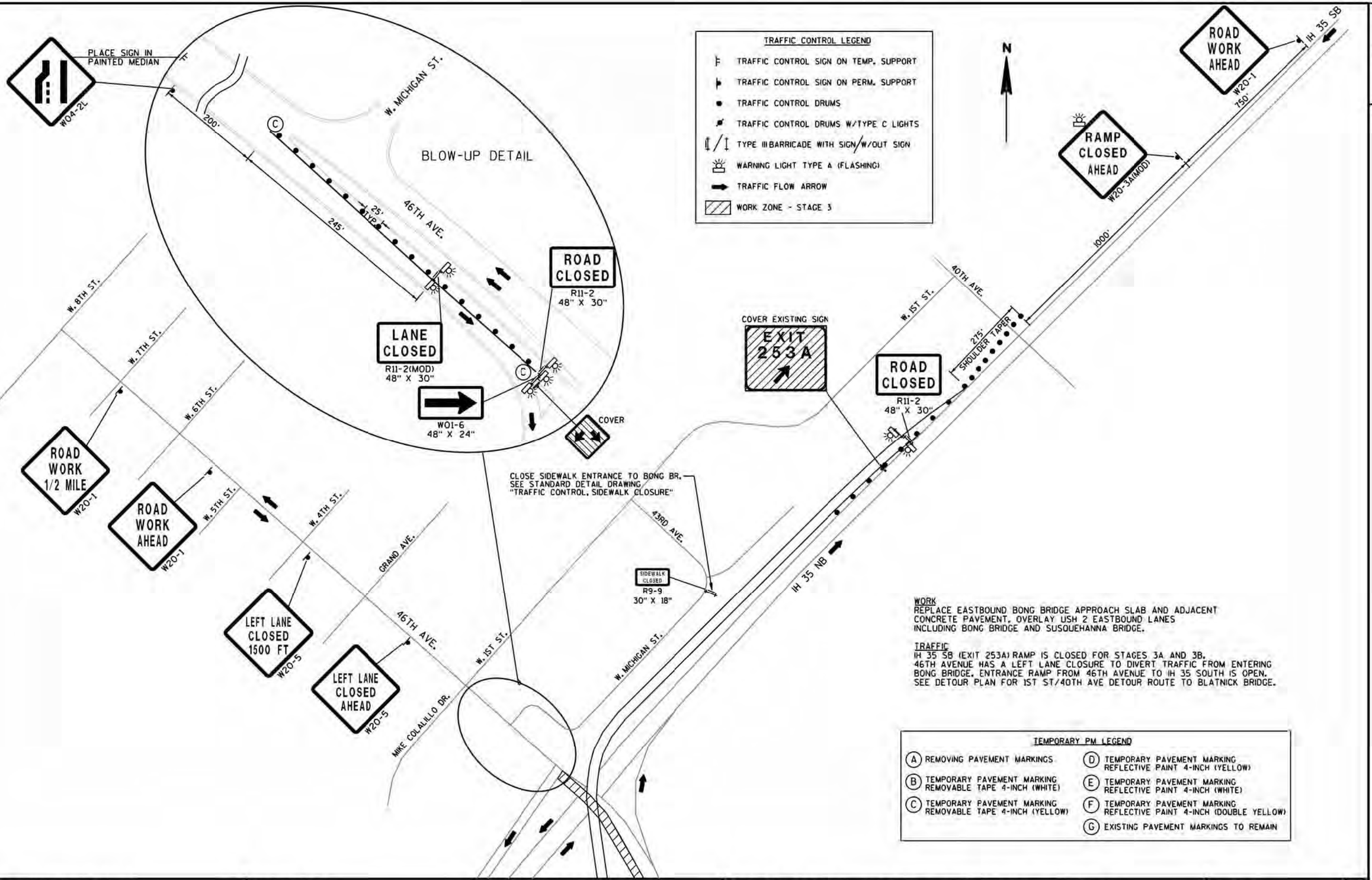
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 3 OVERVIEW-BONG BRIDGE-MN APPROACH	SHEET	E

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PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 3 - BONG BRIDGE - IH 35 NB	SHEET E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42



WORK
REPLACE EASTBOUND BONG BRIDGE APPROACH SLAB AND ADJACENT CONCRETE PAVEMENT, OVERLAY USH 2 EASTBOUND LANES INCLUDING BONG BRIDGE AND SUSQUEHANNA BRIDGE.

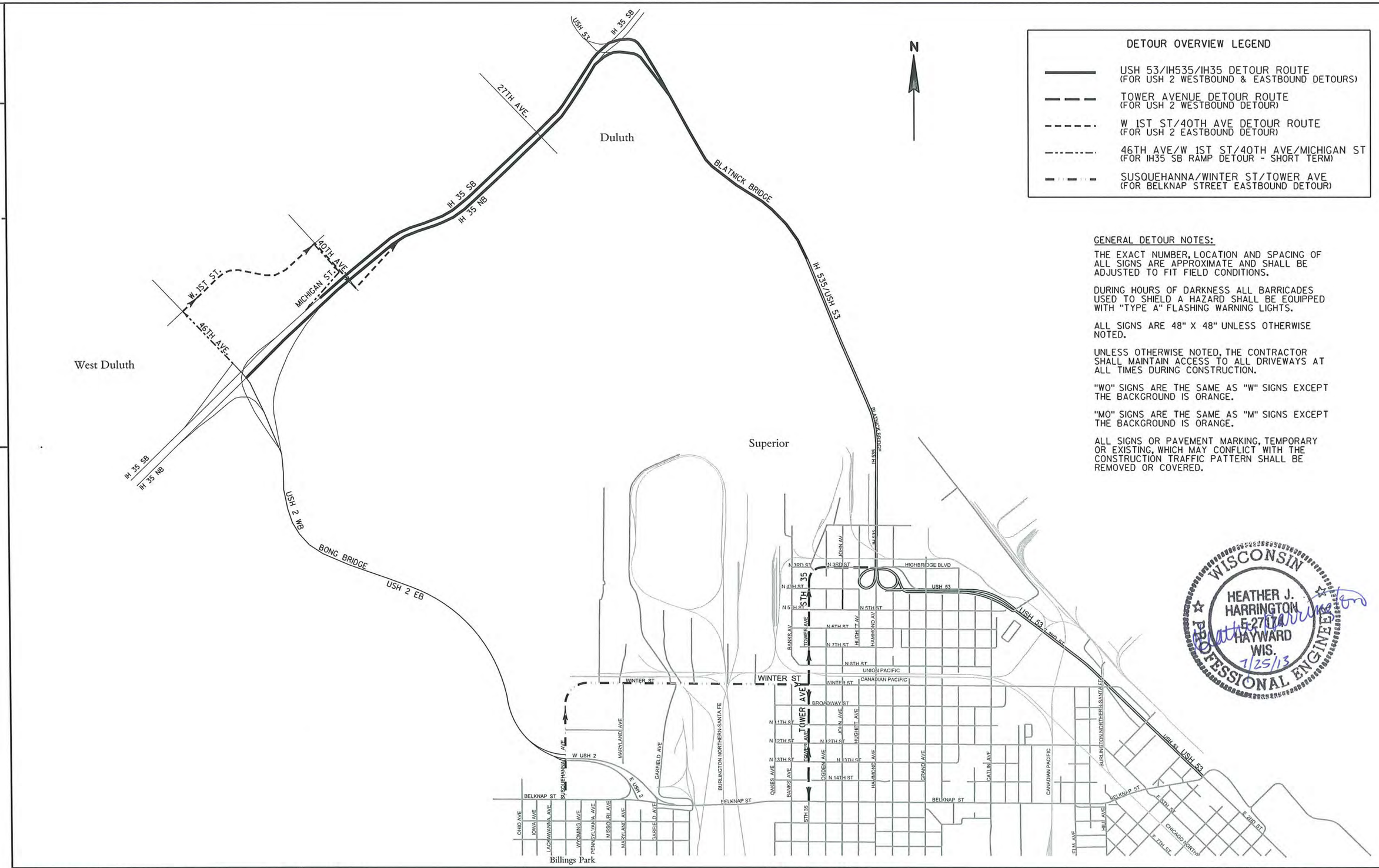
TRAFFIC
IH 35 SB (EXIT 253A) RAMP IS CLOSED FOR STAGES 3A AND 3B.
46TH AVENUE HAS A LEFT LANE CLOSURE TO DIVERT TRAFFIC FROM ENTERING BONG BRIDGE. ENTRANCE RAMP FROM 46TH AVENUE TO IH 35 SOUTH IS OPEN.
SEE DETOUR PLAN FOR 1ST ST/40TH AVE DETOUR ROUTE TO BLATNICK BRIDGE.

TEMPORARY PM LEGEND

(A) REMOVING PAVEMENT MARKINGS	(D) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (YELLOW)
(B) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)	(E) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (WHITE)
(C) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)	(F) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (DOUBLE YELLOW)
	(G) EXISTING PAVEMENT MARKINGS TO REMAIN

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	TRAFFIC CONTROL STAGE 3 - 46TH AVENUE - IH 35 SB	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42



DETOUR OVERVIEW LEGEND

- USH 53/IH535/IH35 DETOUR ROUTE (FOR USH 2 WESTBOUND & EASTBOUND DETOURS)
- TOWER AVENUE DETOUR ROUTE (FOR USH 2 WESTBOUND DETOUR)
- W 1ST ST/40TH AVE DETOUR ROUTE (FOR USH 2 EASTBOUND DETOUR)
- 46TH AVE/W 1ST ST/40TH AVE/MICHIGAN ST (FOR IH35 SB RAMP DETOUR - SHORT TERM)
- SUSQUEHANNA/WINTER ST/TOWER AVE (FOR BELKNAP STREET EASTBOUND DETOUR)

GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION.

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

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

ALL SIGNS OR PAVEMENT MARKING, TEMPORARY OR EXISTING, WHICH MAY CONFLICT WITH THE CONSTRUCTION TRAFFIC PATTERN SHALL BE REMOVED OR COVERED.

WISCONSIN
HEATHER J. HARRINGTON
E-27074
HAYWARD
WIS.
7/25/13
PROFESSIONAL ENGINEER

PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR OVERVIEW	SHEET	E

FILE NAME : ss....designfile....ss PLOT DATE : ss...plottingdate...ss PLOT BY : ss...plotuser...ss PLOT NAME : PLOT SCALE : ss.....plotscale.....ss WISDOT/CADDS SHEET 42

GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION.

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

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

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NOTES:

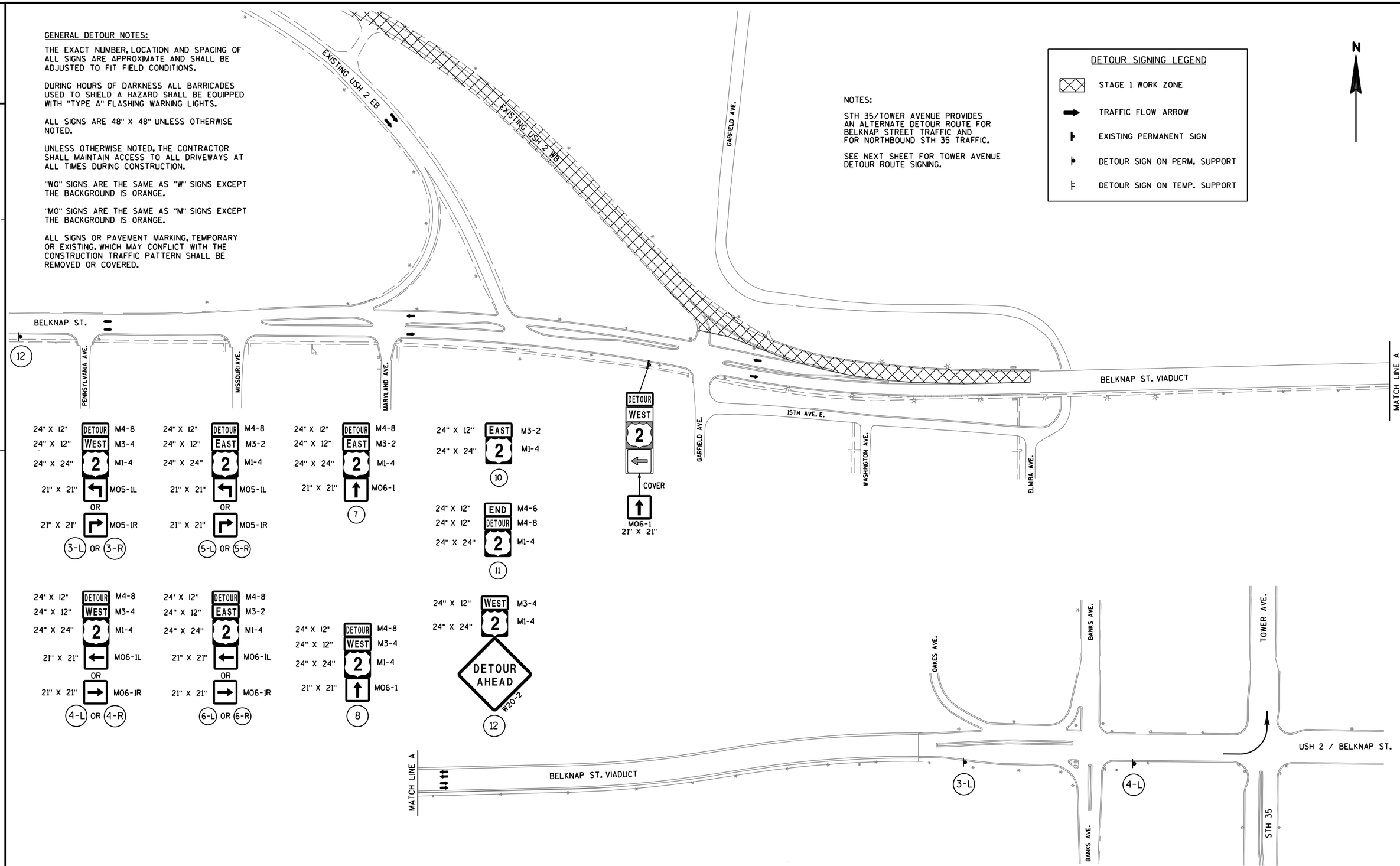
STH 35/TOWER AVENUE PROVIDES AN ALTERNATE DETOUR ROUTE FOR BELKNAP STREET TRAFFIC AND FOR NORTHBOUND STH 35 TRAFFIC.

SEE NEXT SHEET FOR TOWER AVENUE DETOUR ROUTE SIGNING.

DETOUR SIGNING LEGEND

- STAGE 1 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

N



PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 1 - BELKNAP STREET	SHEET 119	E

NOTES:

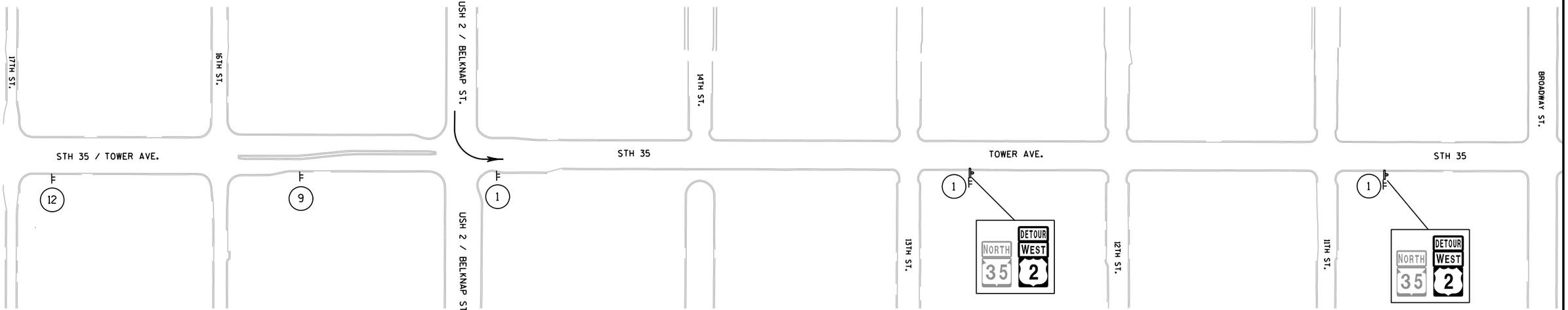
STH 35/TOWER AVENUE PROVIDES AN ALTERNATE DETOUR ROUTE FOR NORTHBOUND STH 35 TRAFFIC AND FOR BELKNAP STREET TRAFFIC.

SEE NEXT SHEET FOR CONTINUATION OF TOWER AVE./3RD ST. DETOUR SIGNING.

DETOUR SIGNING LEGEND

- STAGE 1 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

N



1: 24" X 12" DETOUR M4-8; 24" X 12" WEST M3-4; 24" X 24" 2 M1-4

2: 24" X 12" DETOUR M4-8; 24" X 12" EAST M3-2; 24" X 24" 2 M1-4

5-L OR 5-R: 24" X 12" DETOUR M4-8; 24" X 12" EAST M3-2; 24" X 24" 2 M1-4; 21" X 21" M05-1L OR 21" X 21" M05-1R

6-L OR 6-R: 24" X 12" DETOUR M4-8; 24" X 12" EAST M3-2; 24" X 24" 2 M1-4; 21" X 21" M06-1L OR 21" X 21" M06-1R

9: 24" X 12" DETOUR M4-8; 24" X 12" WEST M3-4; 24" X 24" 2 M1-4; 21" X 21" M06-1

11: 24" X 12" END M04-6; 24" X 12" DETOUR M4-8; 24" X 24" 2 M1-4

3-L OR 3-R: 24" X 12" DETOUR M4-8; 24" X 12" WEST M3-4; 24" X 24" 2 M1-4; 21" X 21" M05-1L OR 21" X 21" M05-1R

4-L OR 4-R: 24" X 12" DETOUR M4-8; 24" X 12" WEST M3-4; 24" X 24" 2 M1-4; 21" X 21" M06-1L OR 21" X 21" M06-1R

10: 24" X 12" DETOUR M4-8; 24" X 12" EAST M3-2; 24" X 24" 2 M1-4; 21" X 21" M06-1

12: 24" X 12" WEST M3-4; 24" X 24" 2 M1-4; DETOUR AHEAD W20-2

GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION.

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

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

ALL SIGNS OR PAVEMENT MARKING, TEMPORARY OR EXISTING, WHICH MAY CONFLICT WITH THE CONSTRUCTION TRAFFIC PATTERN SHALL BE REMOVED OR COVERED.

PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 1 - TOWER AVENUE	SHEET 120	E

NOTES:

STH 35/TOWER AVENUE PROVIDES AN ALTERNATE DETOUR ROUTE FOR NORTHBOUND STH 35 TRAFFIC AND FOR BELKNAP STREET TRAFFIC.

SEE PRECEDING SHEET FOR ADDITIONAL TOWER AVENUE DETOUR SIGNING.

DETOUR SIGNING LEGEND

- STAGE 1 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

N



24" X 12" DETOUR M4-8
24" X 12" WEST M3-4
24" X 24" 2 M1-4
1

24" X 12" DETOUR M4-8
24" X 12" EAST M3-2
24" X 24" 2 M1-4
2

24" X 12" DETOUR M4-8
24" X 12" EAST M3-2
24" X 24" 2 M1-4
21" X 21" M05-1L
OR
21" X 21" M05-1R
5-L OR 5-R

24" X 12" DETOUR M4-8
24" X 12" EAST M3-2
24" X 24" 2 M1-4
21" X 21" M06-1L
OR
21" X 21" M06-1R
6-L OR 6-R

24" X 12" DETOUR M4-8
24" X 12" WEST M3-4
24" X 24" 2 M1-4
21" X 21" M06-1
9

24" X 12" END M04-6
24" X 12" DETOUR M4-8
24" X 24" 2 M1-4
11

24" X 12" DETOUR M4-8
24" X 12" WEST M3-4
24" X 24" 2 M1-4
21" X 21" M05-1L
OR
21" X 21" M05-1R
3-L OR 3-R

24" X 12" DETOUR M4-8
24" X 12" WEST M3-4
24" X 24" 2 M1-4
21" X 21" M06-1L
OR
21" X 21" M06-1R
4-L OR 4-R

24" X 12" DETOUR M4-8
24" X 12" EAST M3-2
24" X 24" 2 M1-4
21" X 21" M06-1
10

24" X 12" WEST M3-4
24" X 24" 2 M1-4
DETOUR AHEAD W20-2
12

GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

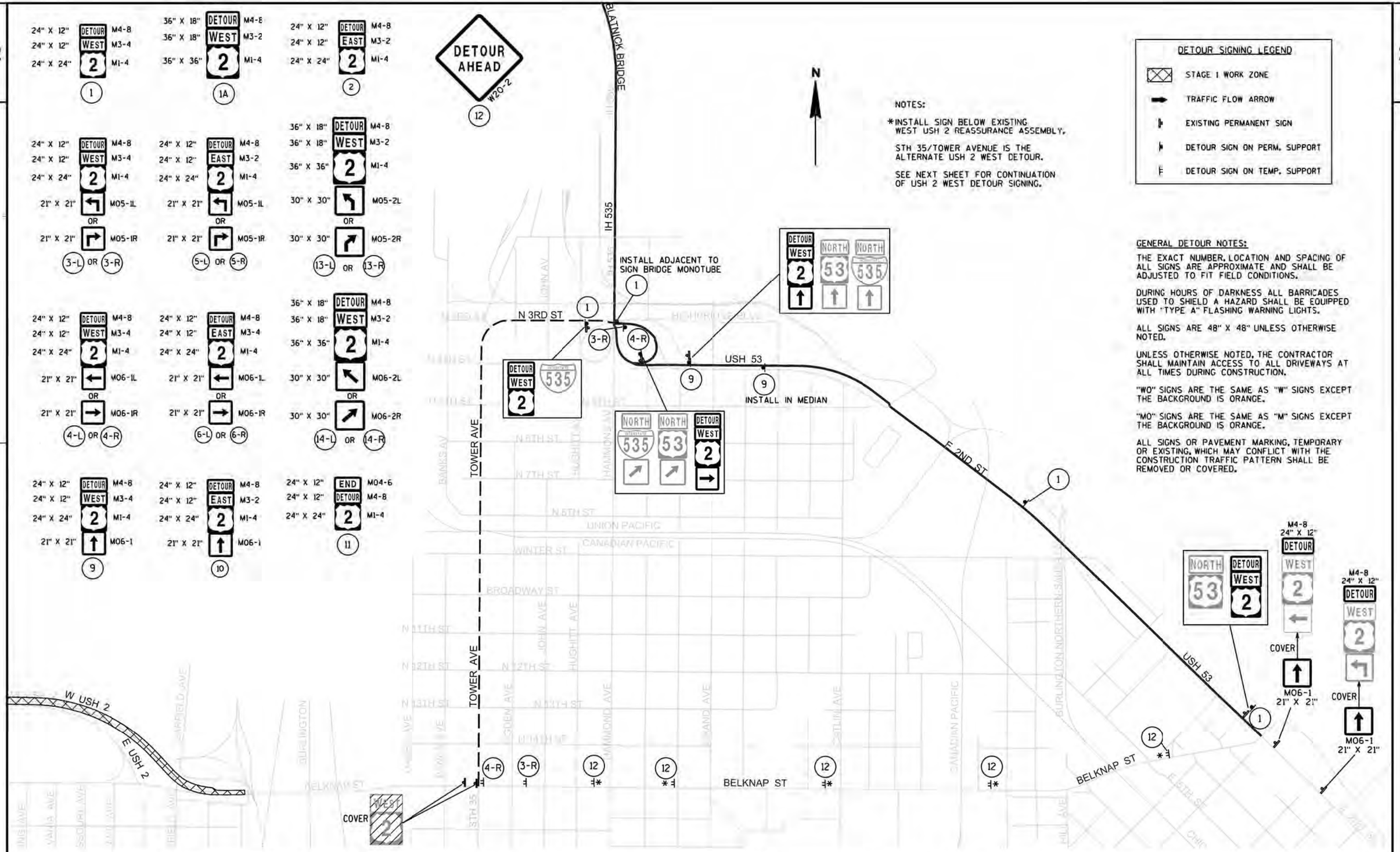
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"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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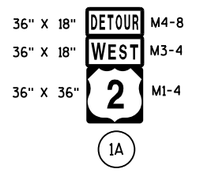
PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 1 - TOWER AVENUE	SHEET 121	E

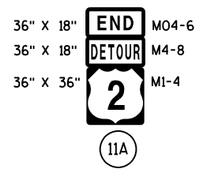


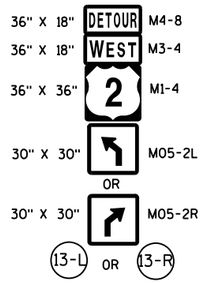
PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 1 - USH 2 WEST	SHEET E

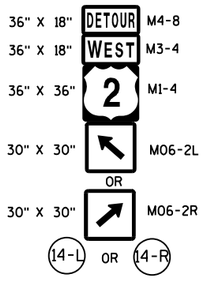
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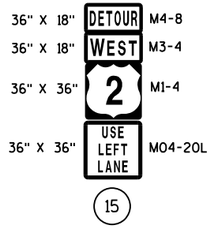
WISDOT/CADDS SHEET 42











GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION.

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

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

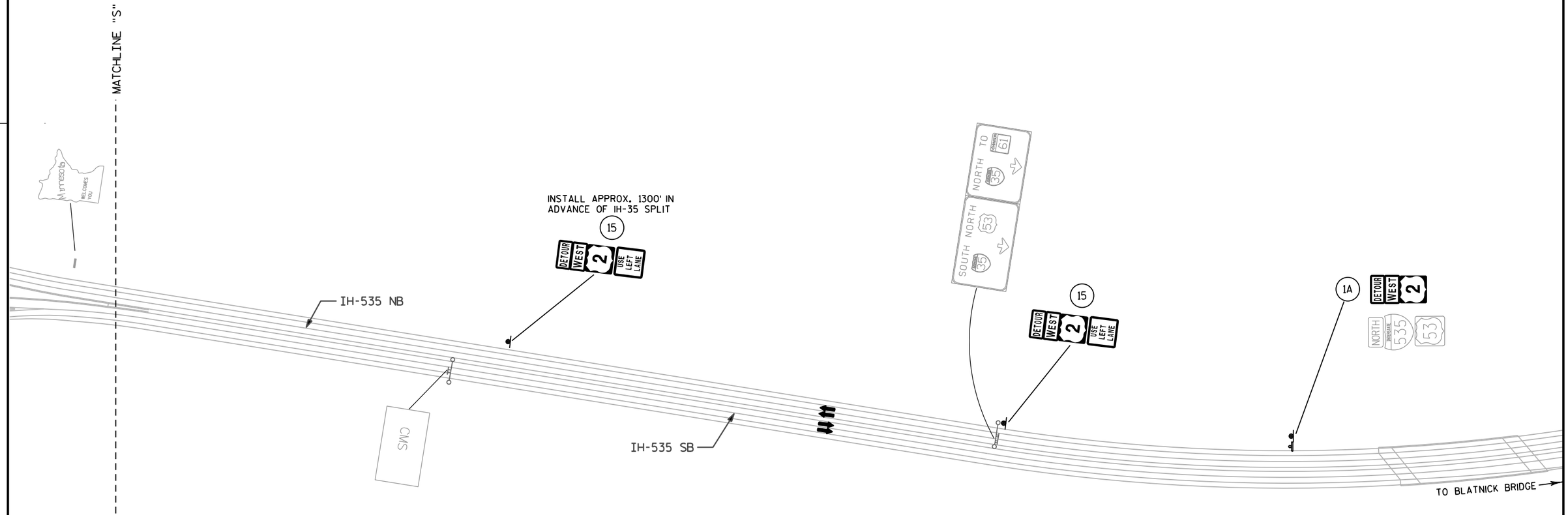
ALL SIGNS OR PAVEMENT MARKING, TEMPORARY OR EXISTING, WHICH MAY CONFLICT WITH THE CONSTRUCTION TRAFFIC PATTERN SHALL BE REMOVED OR COVERED.

DETOUR SIGNING LEGEND

- STAGE 1 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

NOTE:

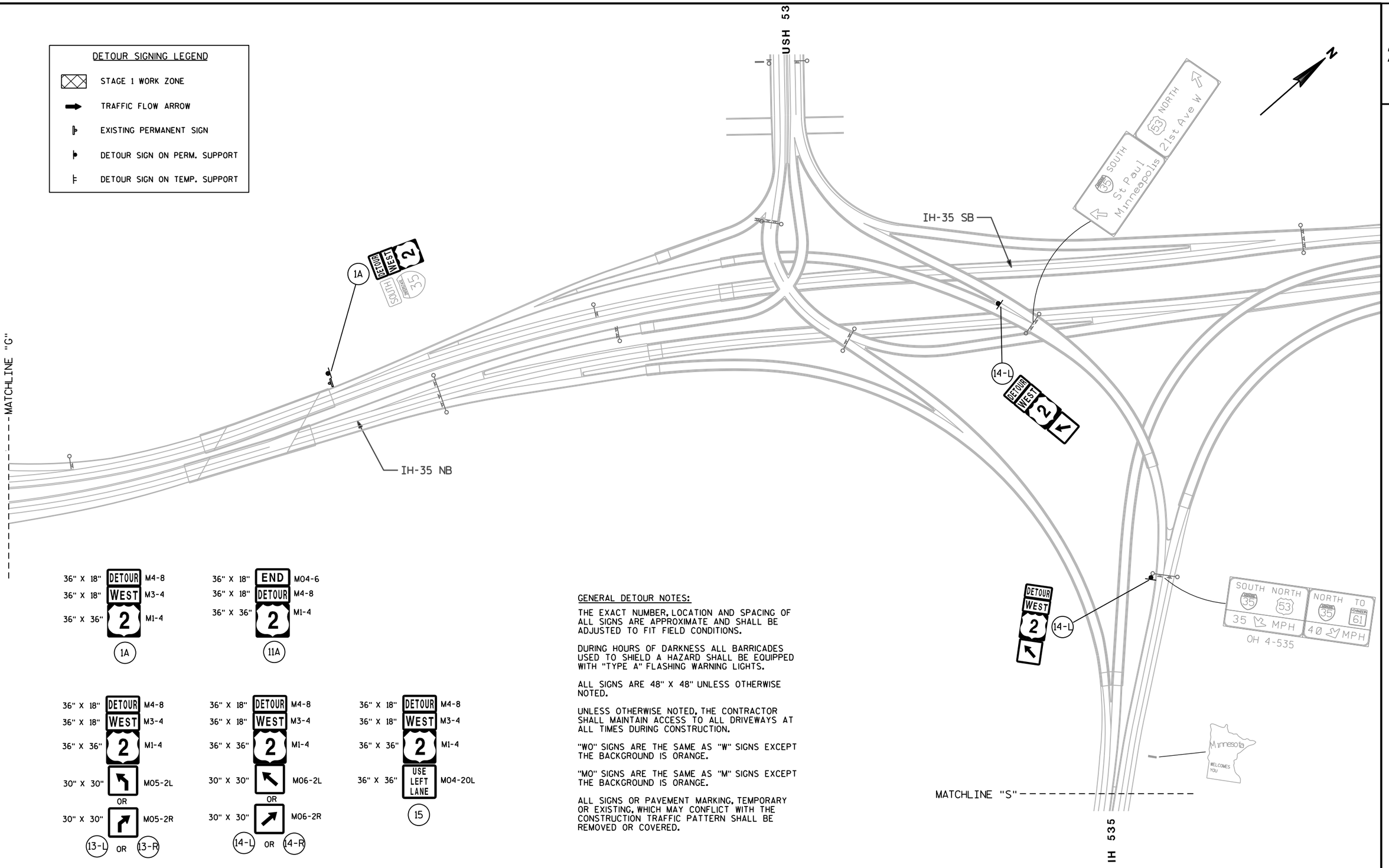
SEE PRECEDING SHEET FOR USH 2 WEST DETOUR SIGNING IN WISCONSIN.



PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 1 - USH 2 WEST-MN	SHEET 123	E

DETOUR SIGNING LEGEND

- STAGE 1 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT



36" X 18" DETOUR M4-8
36" X 18" WEST M3-4
36" X 36" 2 M1-4
1A

36" X 18" END M04-6
36" X 18" DETOUR M4-8
36" X 36" 2 M1-4
11A

36" X 18" DETOUR M4-8
36" X 18" WEST M3-4
36" X 36" 2 M1-4
30" X 30" M05-2L
OR
30" X 30" M05-2R
13-L OR 13-R

36" X 18" DETOUR M4-8
36" X 18" WEST M3-4
36" X 36" 2 M1-4
30" X 30" M06-2L
OR
30" X 30" M06-2R
14-L OR 14-R

36" X 18" DETOUR M4-8
36" X 18" WEST M3-4
36" X 36" 2 M1-4
36" X 36" USE LEFT LANE M04-20L
15

GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION.

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

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

ALL SIGNS OR PAVEMENT MARKING, TEMPORARY OR EXISTING, WHICH MAY CONFLICT WITH THE CONSTRUCTION TRAFFIC PATTERN SHALL BE REMOVED OR COVERED.

GENERAL DETOUR NOTES:

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36" X 18" DETOUR M4-8
36" X 18" WEST M3-4
36" X 36" 2 M1-4
1A

36" X 18" END M04-6
36" X 18" DETOUR M4-8
36" X 36" 2 M1-4
11A

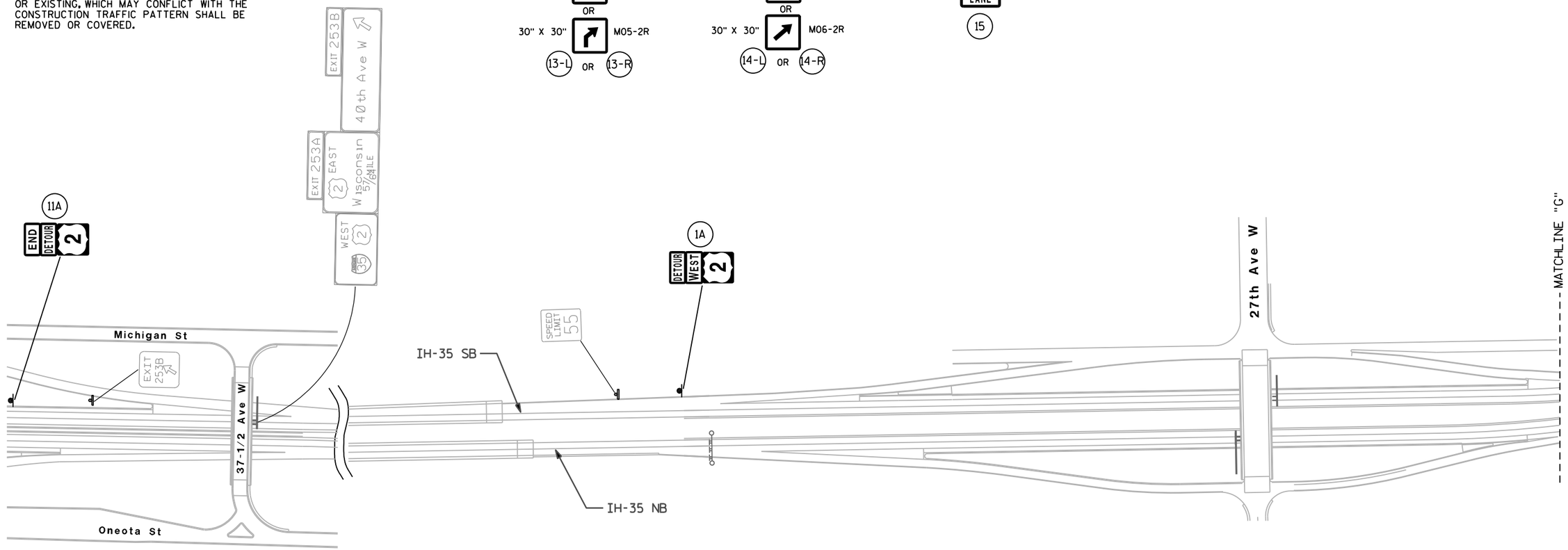
36" X 18" DETOUR M4-8
36" X 18" WEST M3-4
36" X 36" 2 M1-4
30" X 30" M05-2L
OR
30" X 30" M05-2R
13-L OR 13-R

36" X 18" DETOUR M4-8
36" X 18" WEST M3-4
36" X 36" 2 M1-4
30" X 30" M06-2L
OR
30" X 30" M06-2R
14-L OR 14-R

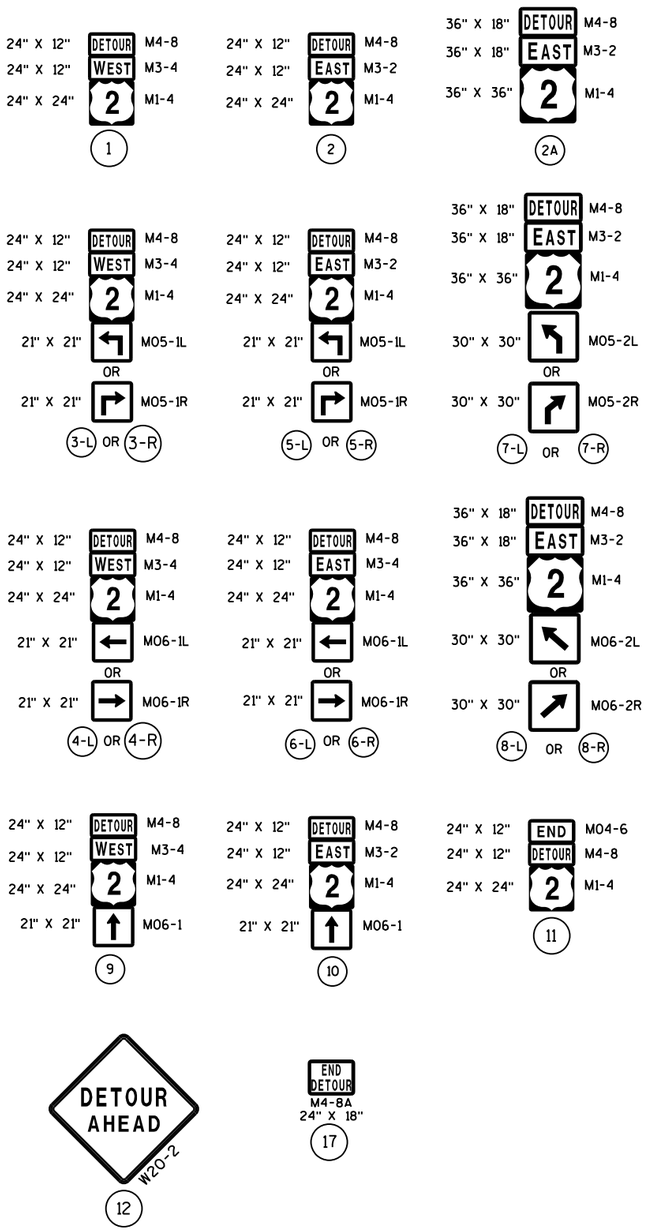
36" X 18" DETOUR M4-8
36" X 18" WEST M3-4
36" X 36" 2 M1-4
36" X 36" USE LEFT LANE M04-20L
15

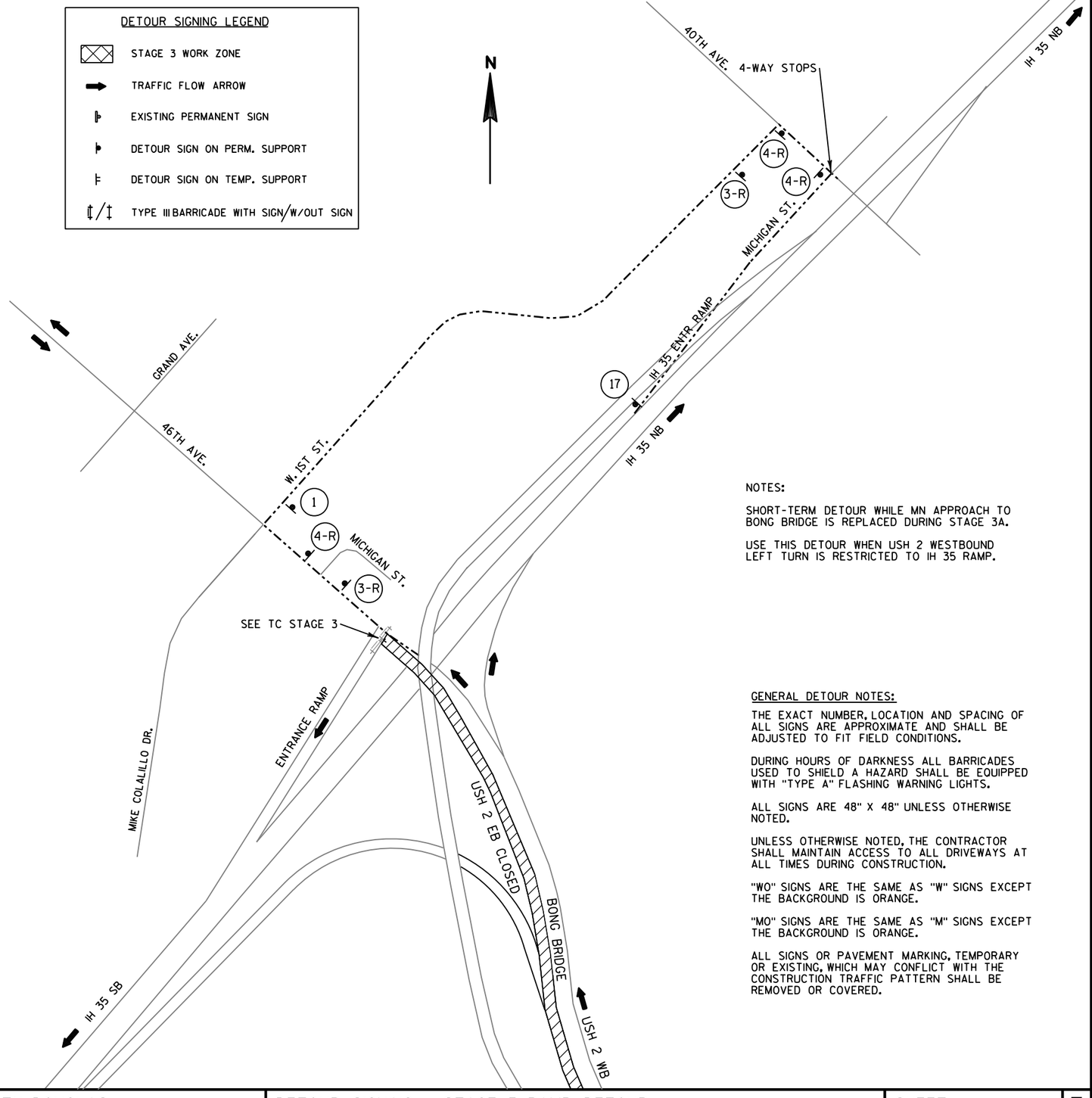
DETOUR SIGNING LEGEND

- STAGE 1 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT



PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 1 - USH 2 WEST-MN	SHEET 125	E





NOTES:

SHORT-TERM DETOUR WHILE MN APPROACH TO BONG BRIDGE IS REPLACED DURING STAGE 3A.

USE THIS DETOUR WHEN USH 2 WESTBOUND LEFT TURN IS RESTRICTED TO IH 35 RAMP.

GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

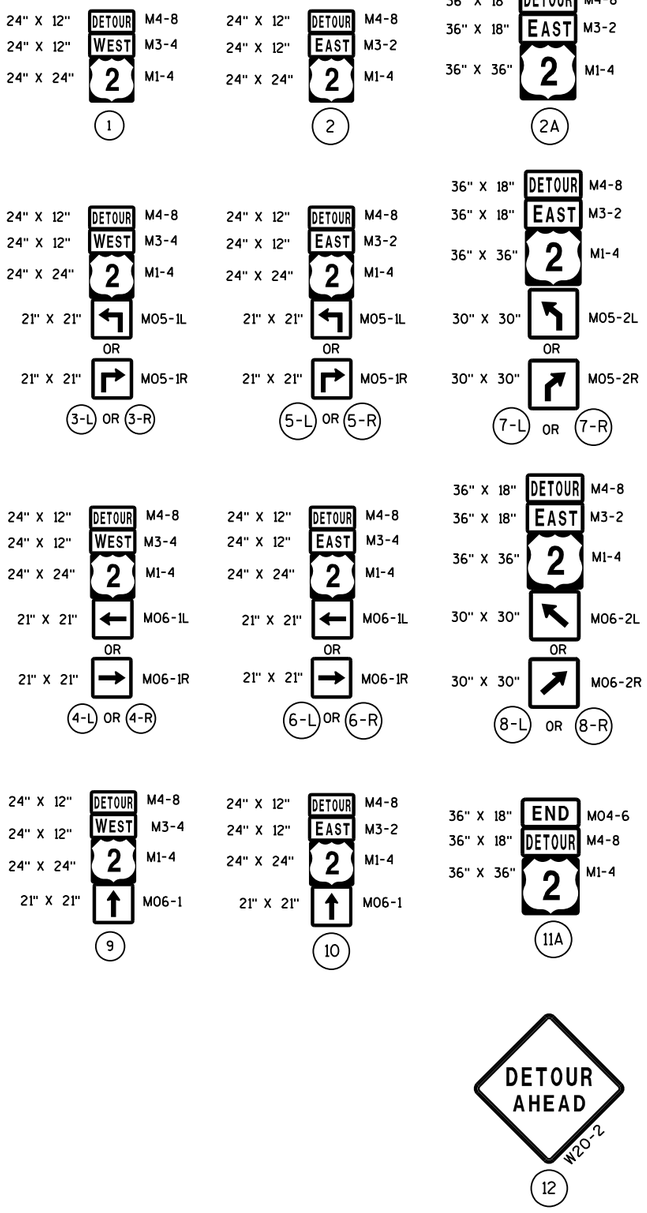
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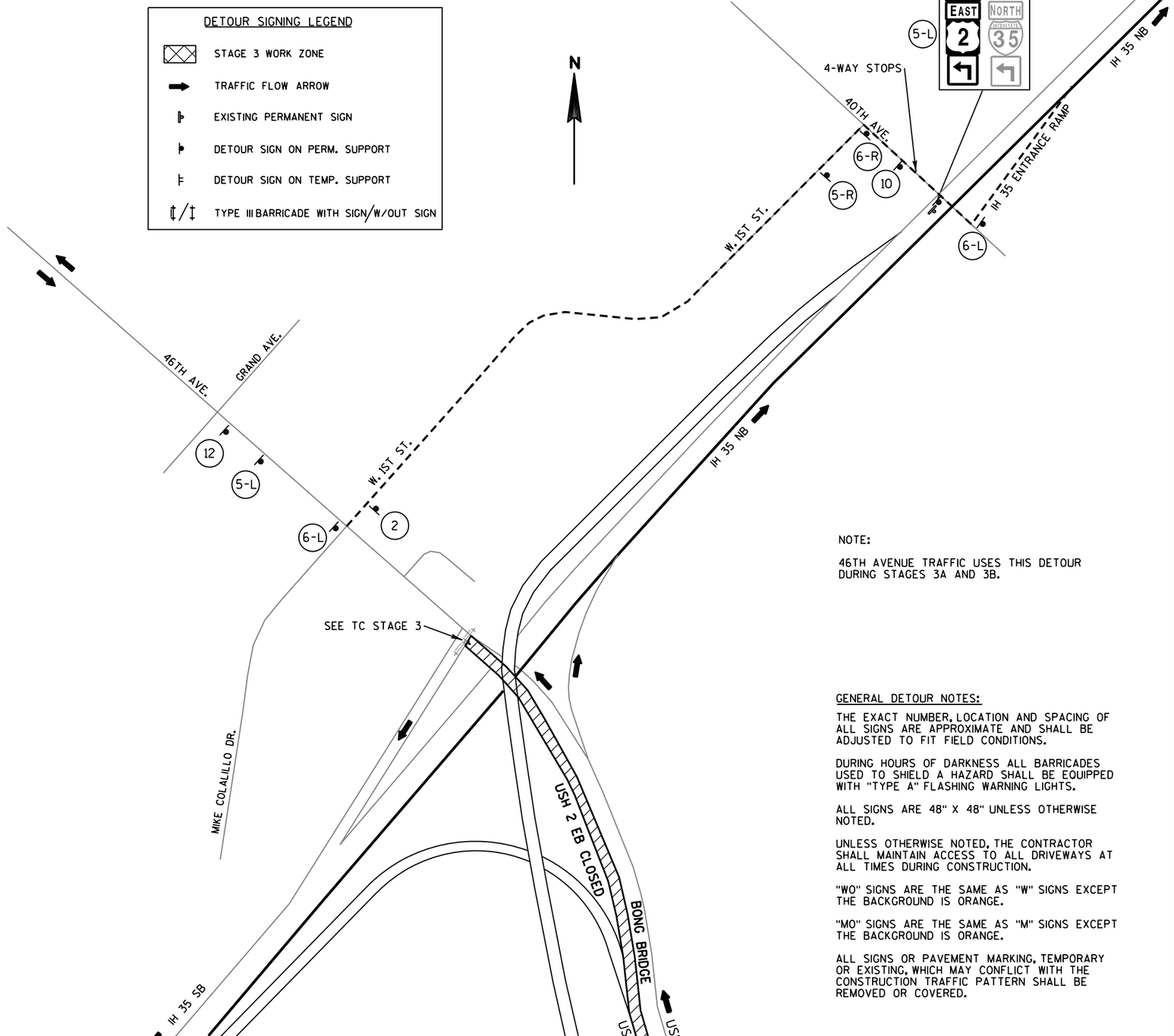
"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

ALL SIGNS OR PAVEMENT MARKING, TEMPORARY OR EXISTING, WHICH MAY CONFLICT WITH THE CONSTRUCTION TRAFFIC PATTERN SHALL BE REMOVED OR COVERED.

PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 3-RAMP DETOUR	SHEET 126	E





NOTE:

46TH AVENUE TRAFFIC USES THIS DETOUR DURING STAGES 3A AND 3B.

GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

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PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 3-BONG BRIDGE	SHEET 127	E

GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

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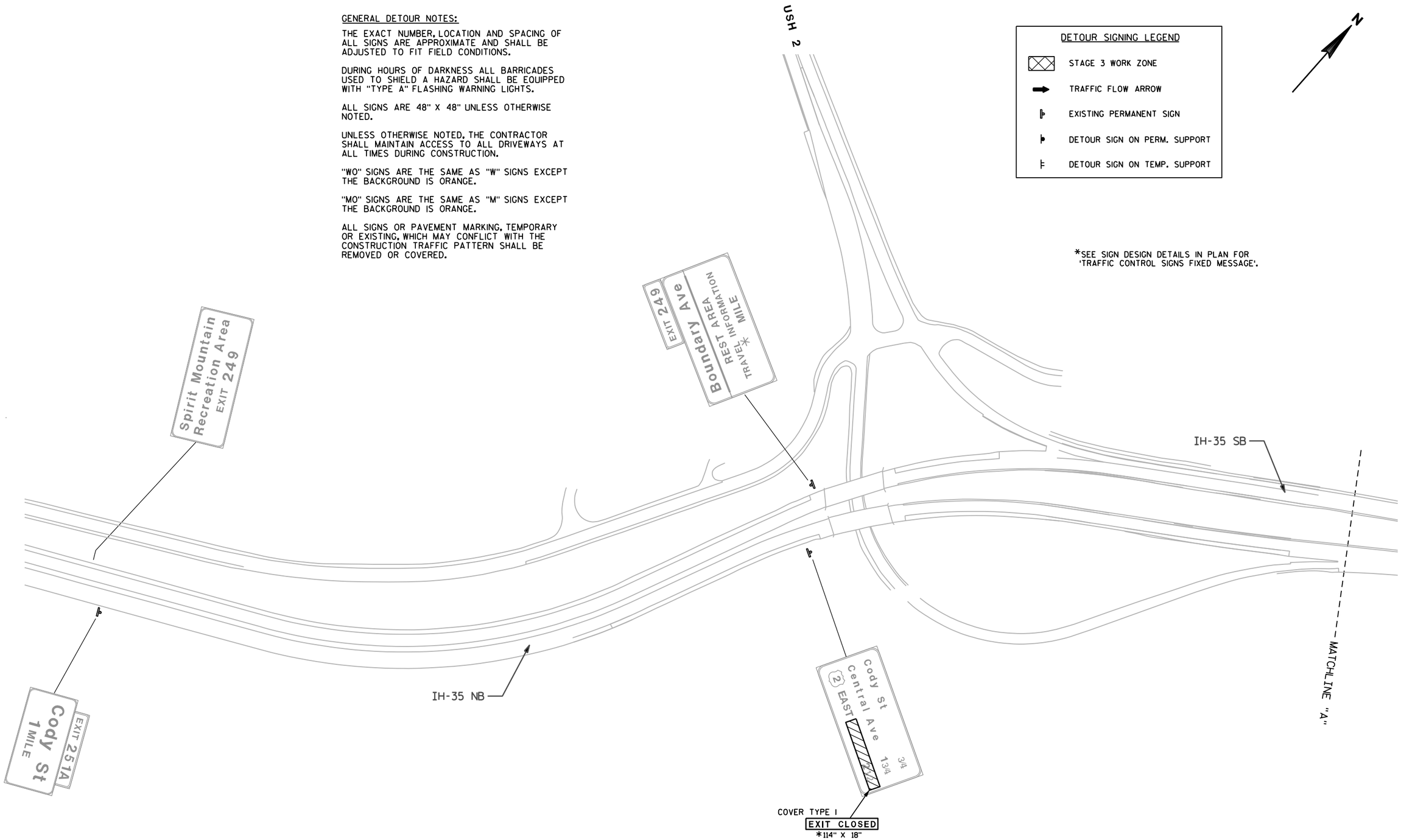
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ALL SIGNS OR PAVEMENT MARKING, TEMPORARY OR EXISTING, WHICH MAY CONFLICT WITH THE CONSTRUCTION TRAFFIC PATTERN SHALL BE REMOVED OR COVERED.

DETOUR SIGNING LEGEND

- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

*SEE SIGN DESIGN DETAILS IN PLAN FOR 'TRAFFIC CONTROL SIGNS FIXED MESSAGE'.



PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 3 - USH 2 EAST-MN	SHEET 128	E

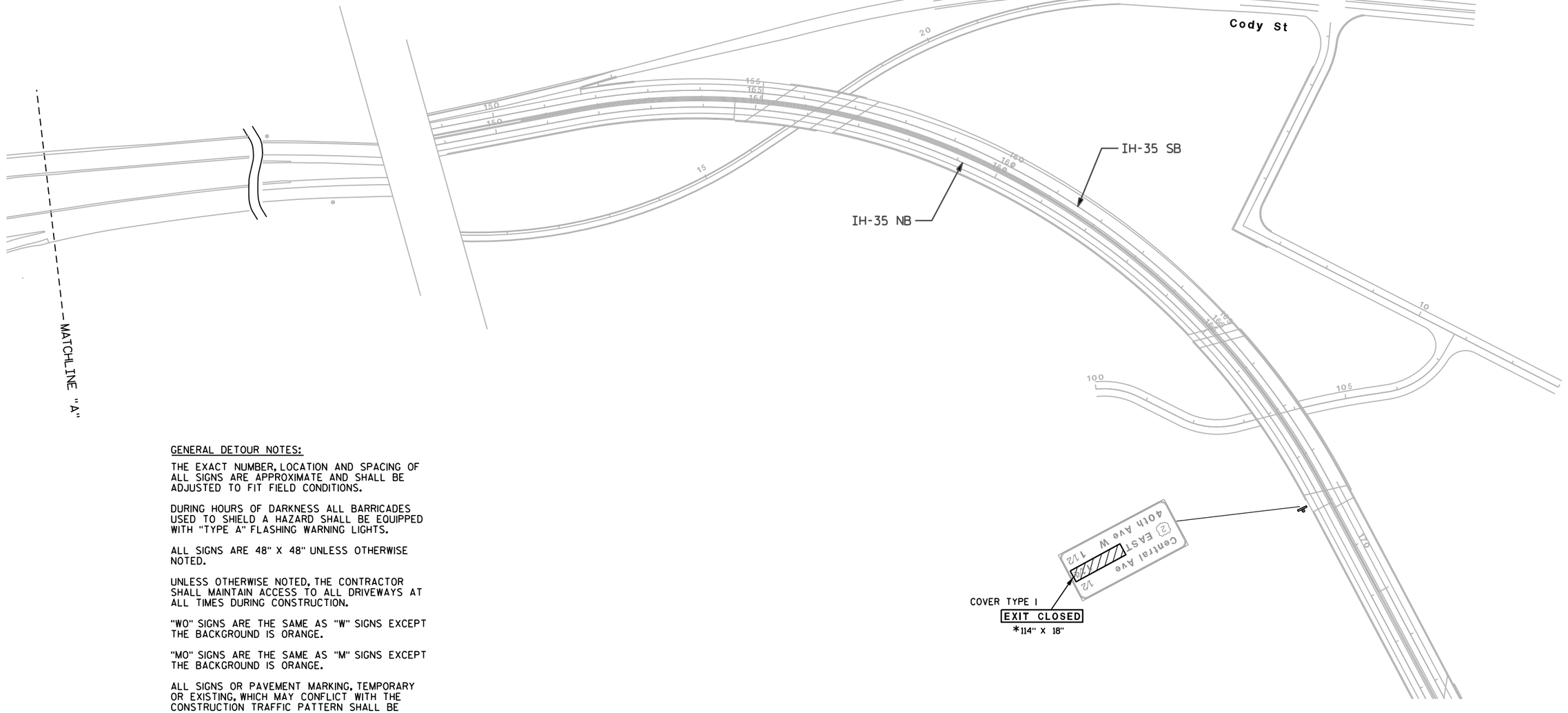
2

DETOUR SIGNING LEGEND

- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

*SEE SIGN DESIGN DETAILS IN PLAN FOR 'TRAFFIC CONTROL SIGNS FIXED MESSAGE'.

N



GENERAL DETOUR NOTES:

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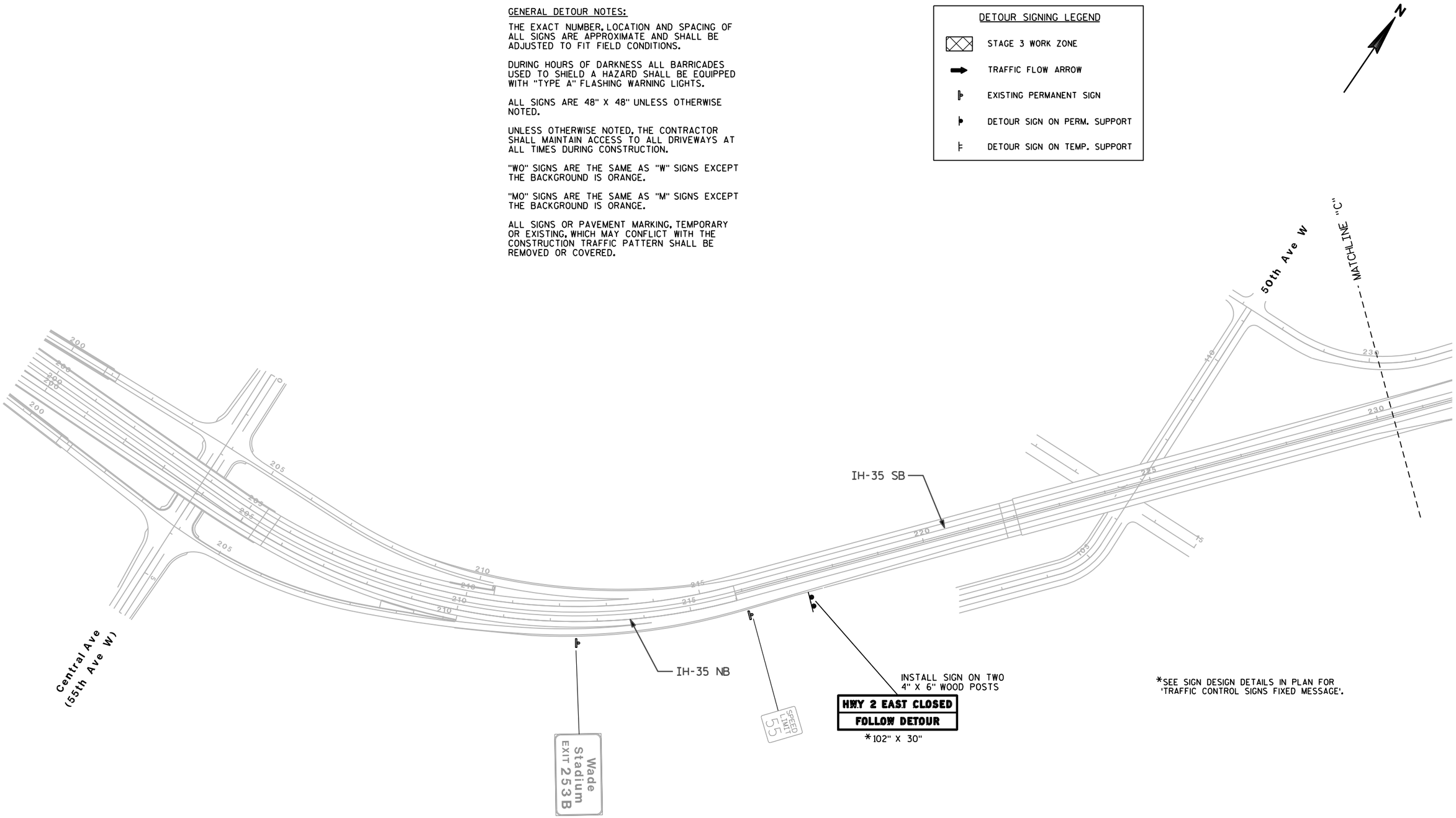
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DETOUR SIGNING LEGEND

- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT



*SEE SIGN DESIGN DETAILS IN PLAN FOR 'TRAFFIC CONTROL SIGNS FIXED MESSAGE'.

GENERAL DETOUR NOTES:

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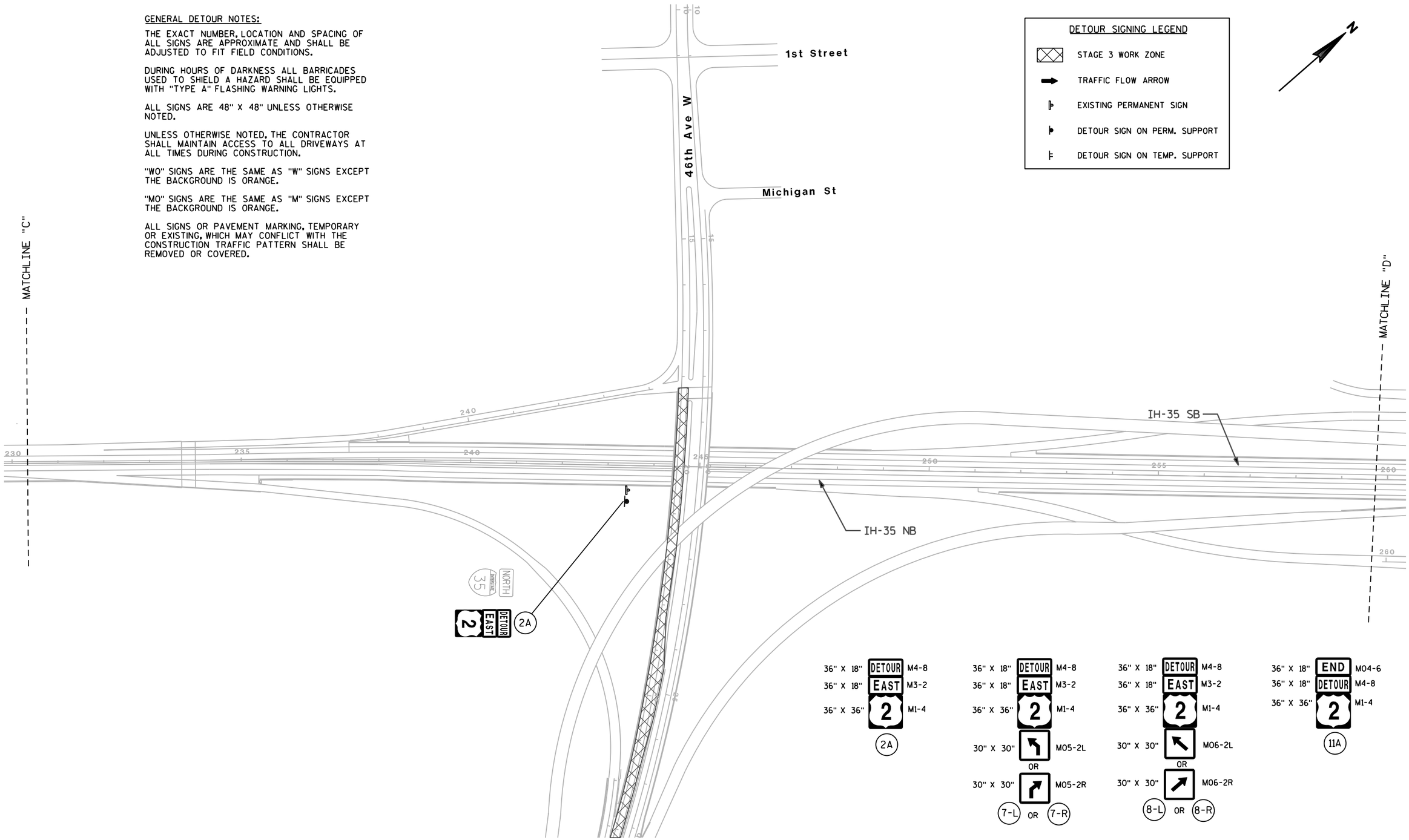
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DETOUR SIGNING LEGEND

- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT



36" X 18" DETOUR M4-8
36" X 18" EAST M3-2
36" X 36" 2 M1-4
2A

36" X 18" DETOUR M4-8
36" X 18" EAST M3-2
36" X 36" 2 M1-4
30" X 30" M05-2L
OR
30" X 30" M05-2R
7-L OR 7-R

36" X 18" DETOUR M4-8
36" X 18" EAST M3-2
36" X 36" 2 M1-4
30" X 30" M06-2L
OR
30" X 30" M06-2R
8-L OR 8-R

36" X 18" END M04-6
36" X 18" DETOUR M4-8
36" X 36" 2 M1-4
11A

PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 3 - USH 2 EAST-MN	SHEET 131	E

2

GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

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

ALL SIGNS OR PAVEMENT MARKING, TEMPORARY OR EXISTING, WHICH MAY CONFLICT WITH THE CONSTRUCTION TRAFFIC PATTERN SHALL BE REMOVED OR COVERED.

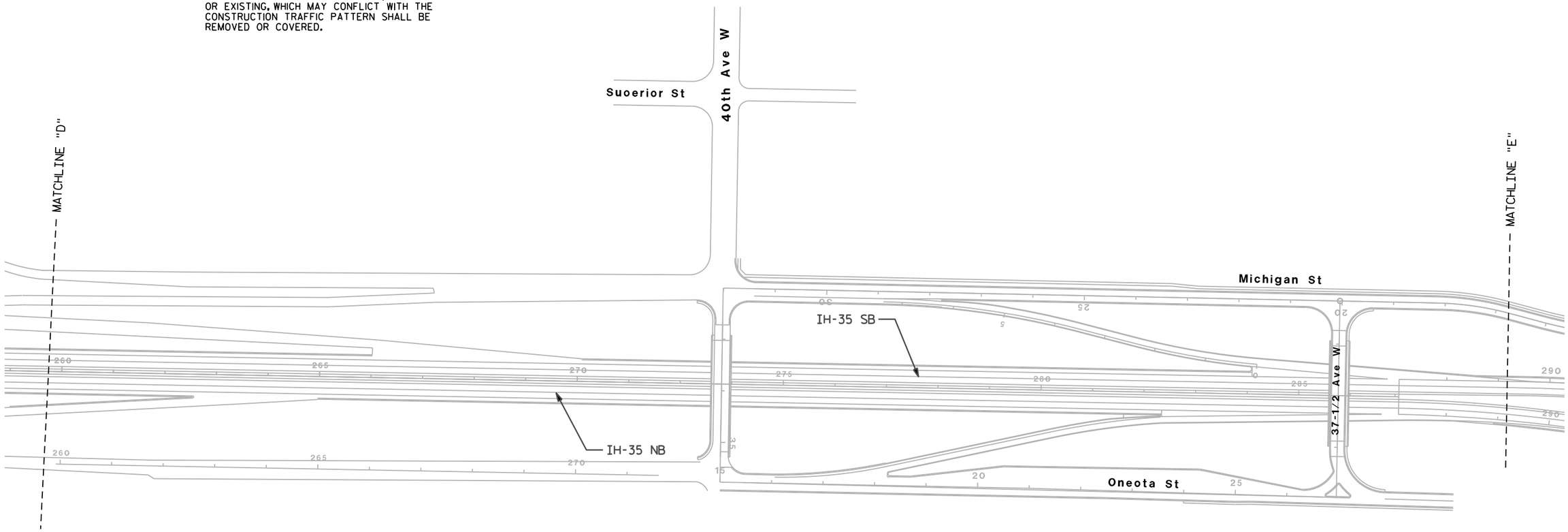
NOTE:

THIS SHEET IS FOR REFERENCE ONLY.
THERE ARE NO DETOUR SIGNS SHOWN.

DETOUR SIGNING LEGEND

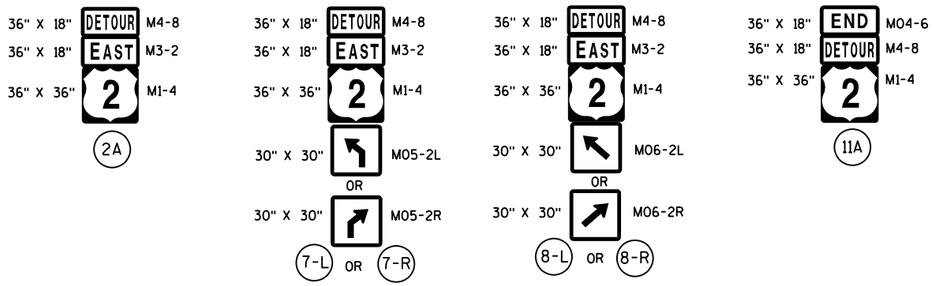
- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

N



PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 3 - USH 2 EAST-MN	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$



DETOUR SIGNING LEGEND

- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

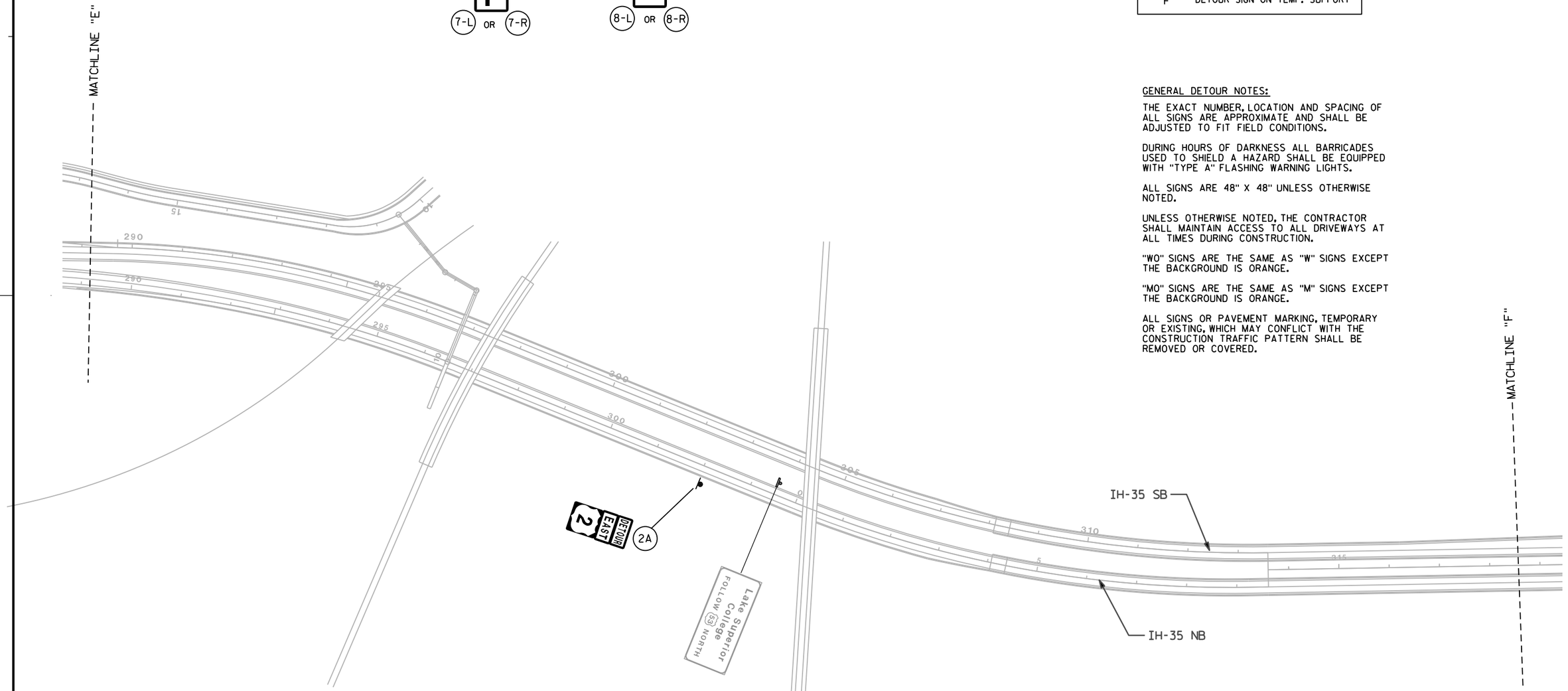
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION.

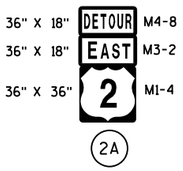
"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

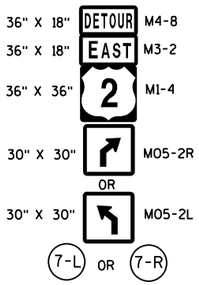
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

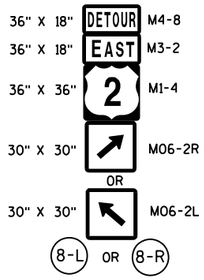
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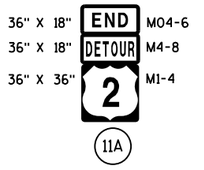


PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 3 - USH 2 EAST-MN	SHEET 133	E









DETOUR SIGNING LEGEND

- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

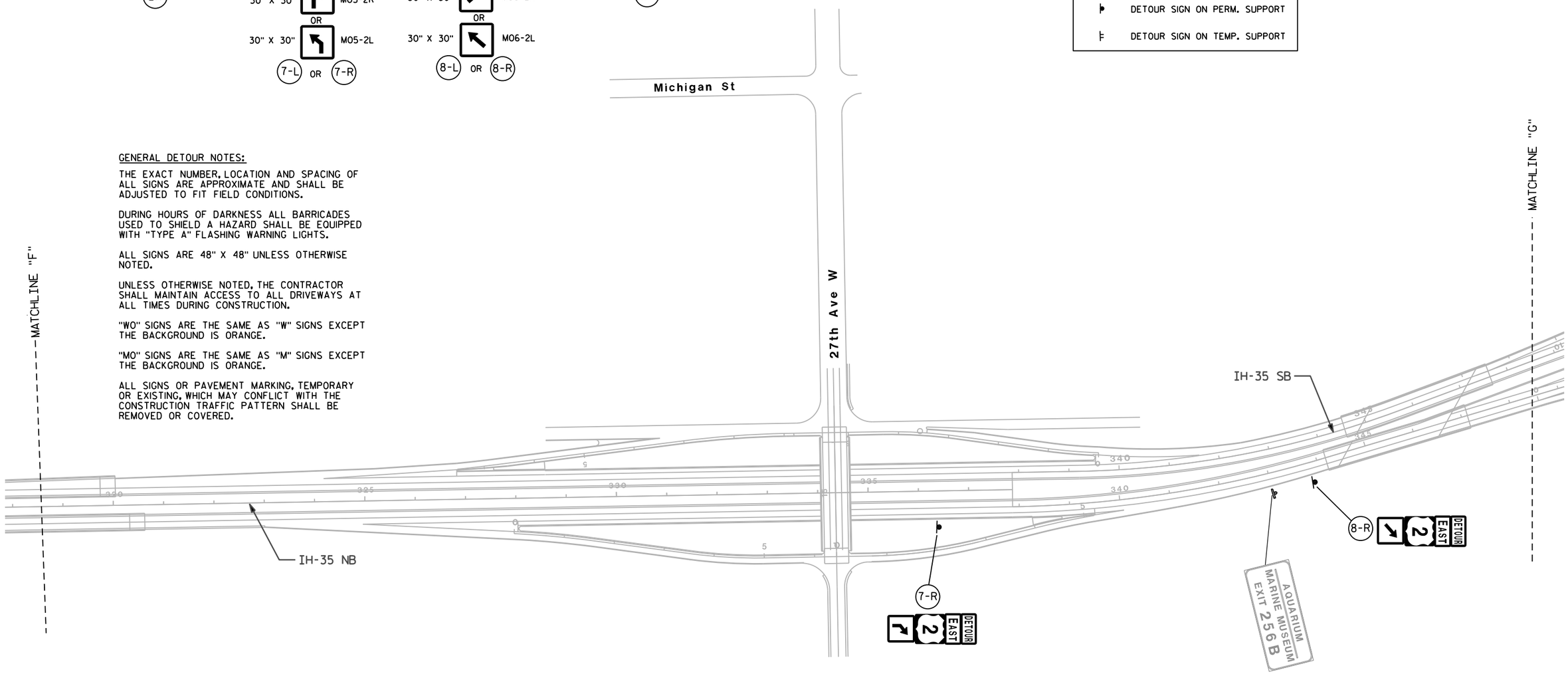
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

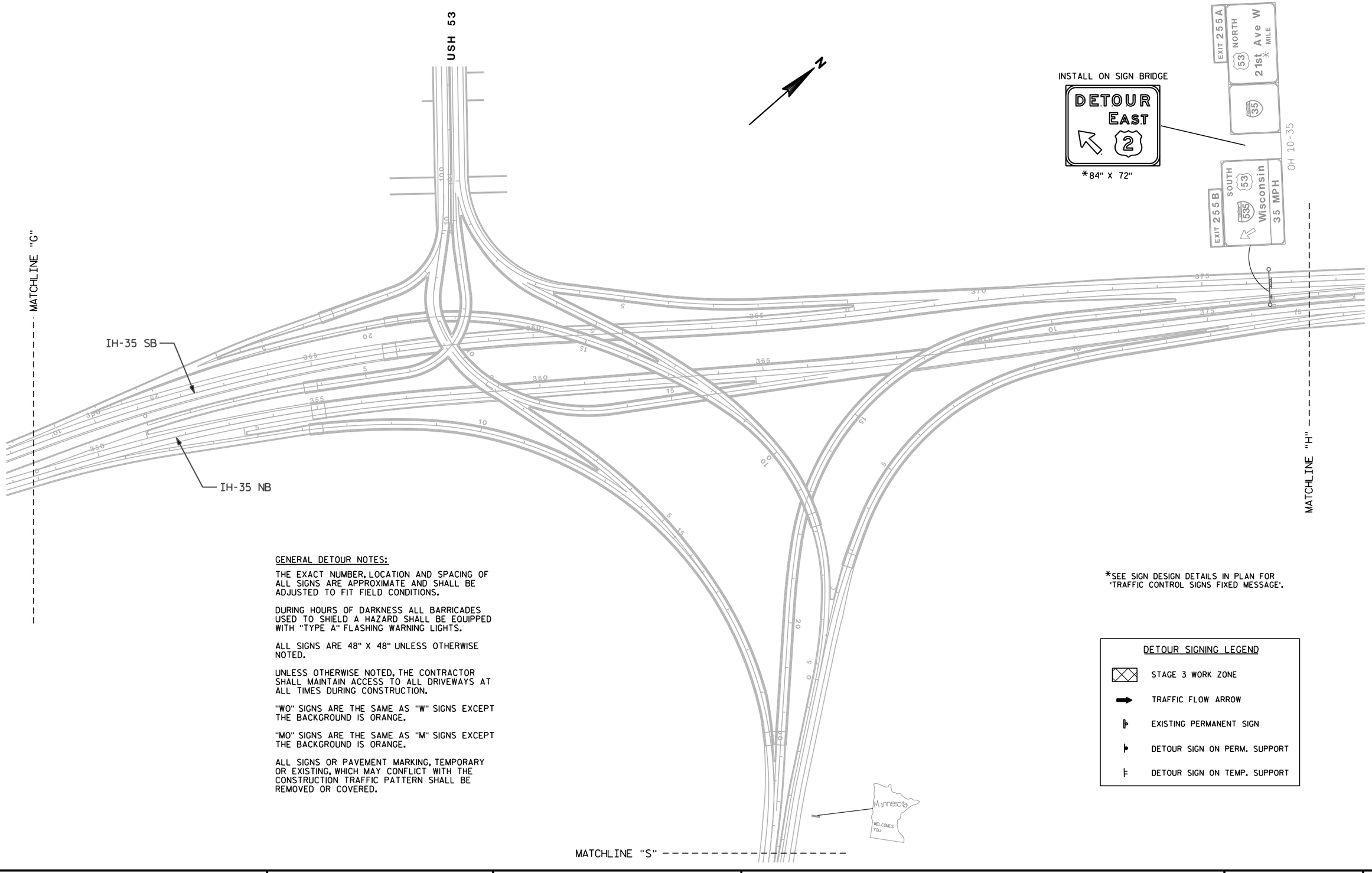
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"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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GENERAL DETOUR NOTES:

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*SEE SIGN DESIGN DETAILS IN PLAN FOR 'TRAFFIC CONTROL SIGNS FIXED MESSAGE'.

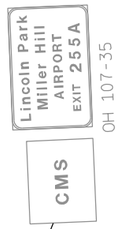
DETOUR SIGNING LEGEND

- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 3 - USH 2 EAST-MN	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$

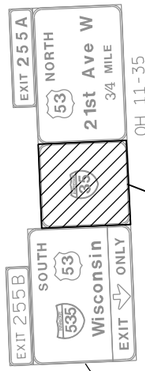
*SEE SIGN DESIGN DETAILS IN PLAN FOR 'TRAFFIC CONTROL SIGNS FIXED MESSAGE'.



INSTALL ON SIGN BRIDGE



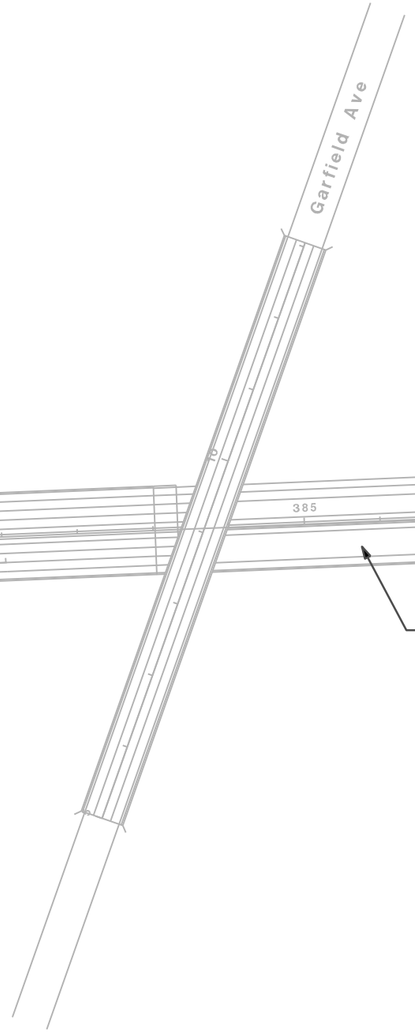
* 84" X 90"



COVER TYPE I ON SIGN BRIDGE



*108" X 108"



GENERAL DETOUR NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

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DETOUR SIGNING LEGEND

- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

2

DETOUR SIGNING LEGEND

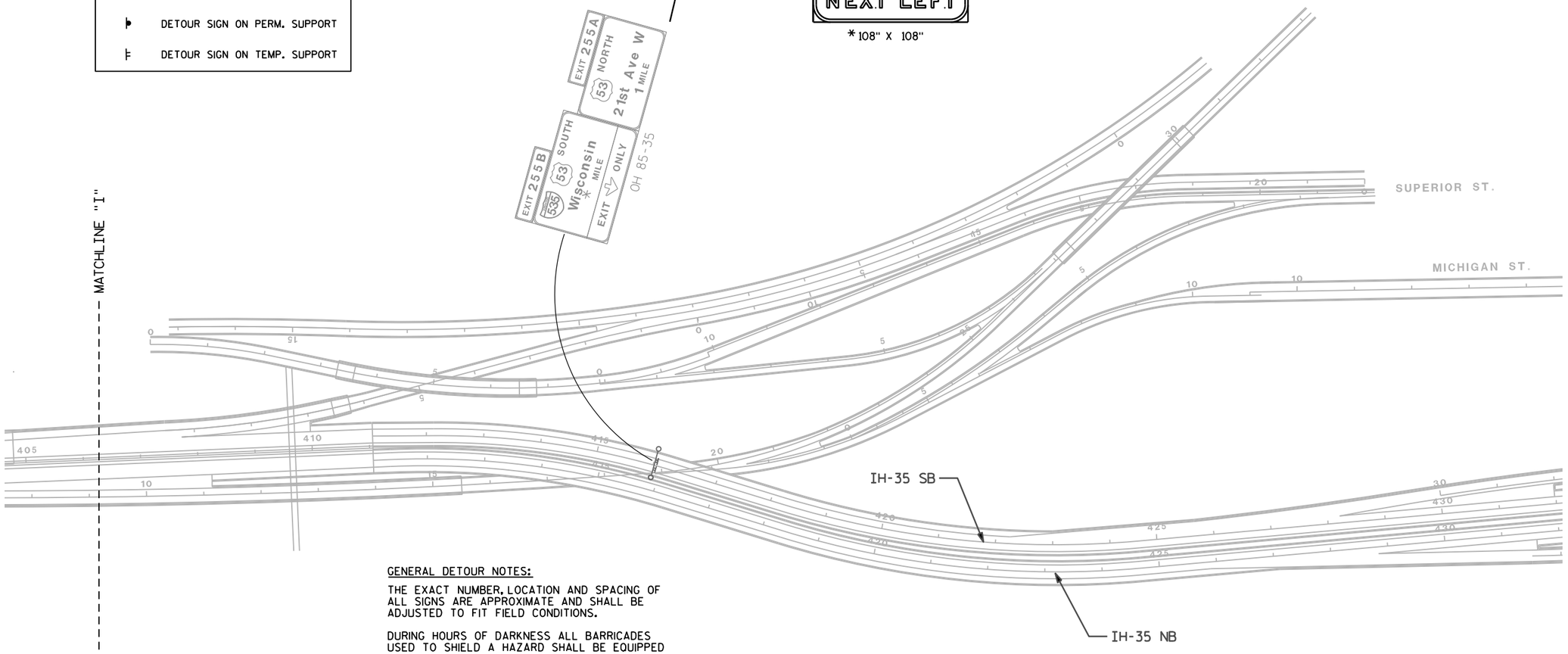
- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

INSTALL ON SIGN BRIDGE



*108" X 108"

*SEE SIGN DESIGN DETAILS IN PLAN FOR 'TRAFFIC CONTROL SIGNS FIXED MESSAGE'.



GENERAL DETOUR NOTES:

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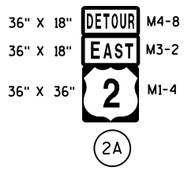
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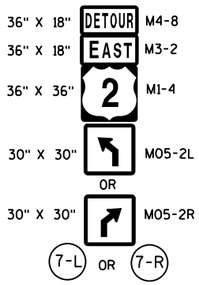
"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

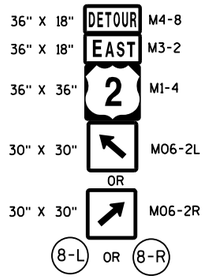
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

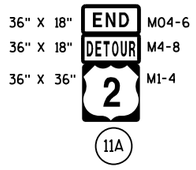
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2









GENERAL DETOUR NOTES:

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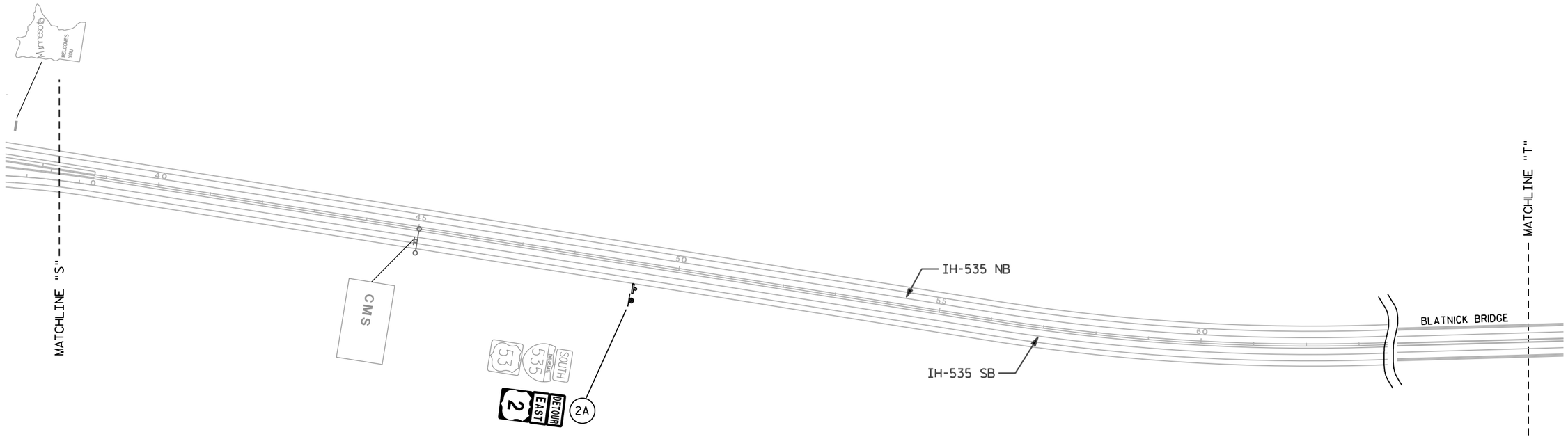
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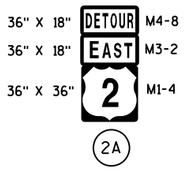
DETOUR SIGNING LEGEND

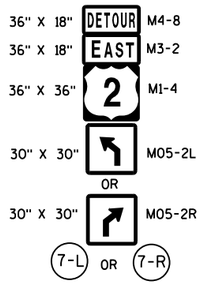
- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

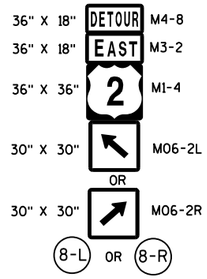


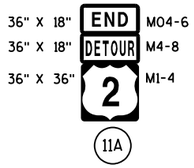
PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 3 - USH 2 EAST-MN	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42









GENERAL DETOUR NOTES:

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DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH "TYPE A" FLASHING WARNING LIGHTS.

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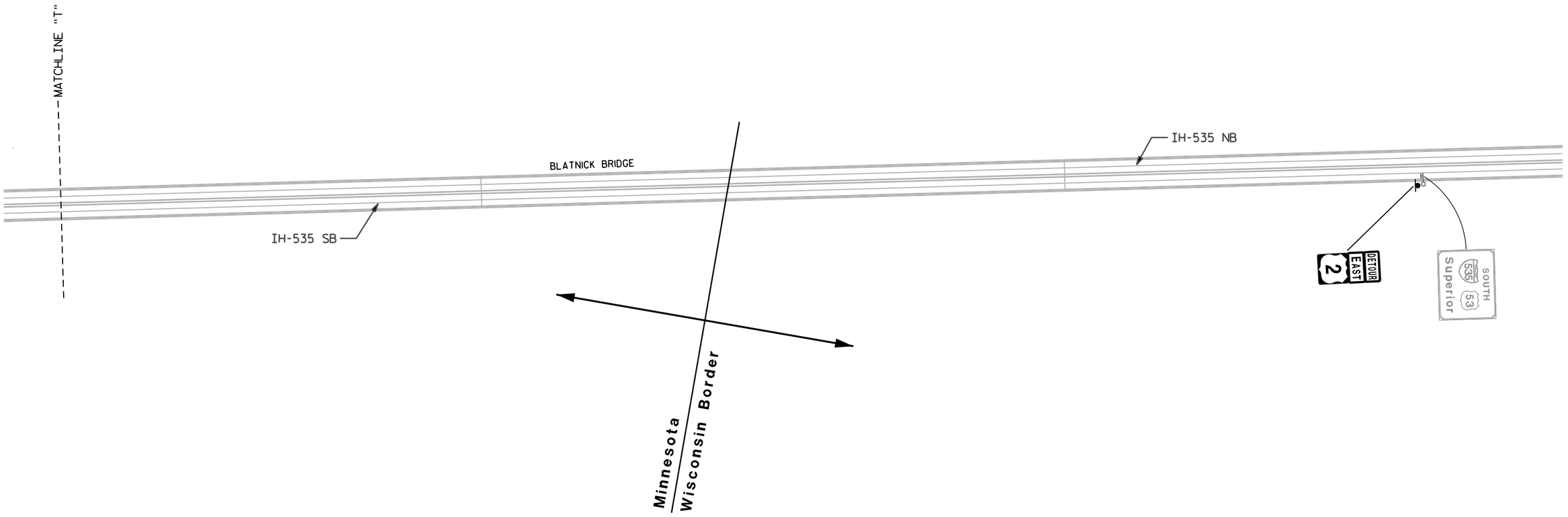
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DETOUR SIGNING LEGEND

- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

NOTE:

SEE NEXT SHEET FOR USH 2 EAST DETOUR SIGNING IN WISCONSIN.



PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 3 - USH 2 EAST-MN	SHEET 139	E

24" X 12" DETOUR M4-8
24" X 12" WEST M3-4
24" X 24" 2 M1-4
(1)

24" X 12" DETOUR M4-8
24" X 12" EAST M3-2
24" X 24" 2 M1-4
(2)

36" X 18" DETOUR M4-8
36" X 18" EAST M3-2
36" X 36" 2 M1-4
(2A)

24" X 12" DETOUR M4-8
24" X 12" WEST M3-4
24" X 24" 2 M1-4
21" X 21" M05-1L
OR
21" X 21" M05-1R
(3-L) OR (3-R)

24" X 12" DETOUR M4-8
24" X 12" EAST M3-2
24" X 24" 2 M1-4
21" X 21" M05-1L
OR
21" X 21" M05-1R
(5-L) OR (5-R)

36" X 18" DETOUR M4-8
36" X 18" EAST M3-2
36" X 36" 2 M1-4
30" X 30" M05-2L
OR
30" X 30" M05-2R
(7-L) OR (7-R)

24" X 12" DETOUR M4-8
24" X 12" WEST M3-4
24" X 24" 2 M1-4
21" X 21" M06-1L
OR
21" X 21" M06-1R
(4-L) OR (4-R)

24" X 12" DETOUR M4-8
24" X 12" EAST M3-4
24" X 24" 2 M1-4
21" X 21" M06-1L
OR
21" X 21" M06-1R
(6-L) OR (6-R)

36" X 18" DETOUR M4-8
36" X 18" EAST M3-2
36" X 36" 2 M1-4
30" X 30" M06-2L
OR
30" X 30" M06-2R
(8-L) OR (8-R)

24" X 12" DETOUR M4-8
24" X 12" WEST M3-4
24" X 24" 2 M1-4
21" X 21" M06-1
(9)

24" X 12" DETOUR M4-8
24" X 12" EAST M3-2
24" X 24" 2 M1-4
21" X 21" M06-1
(10)

24" X 12" END M04-6
24" X 12" DETOUR M4-8
24" X 24" 2 M1-4
(11)

DETOUR AHEAD W20-2
(12)

DETOUR M4-9R 30" X 24"
(13)

DETOUR M4-9R(MOD.) 30" X 24"
(14)

DETOUR M4-9L 30" X 24"
(15)

DETOUR M4-9L(MOD.) 30" X 24"
(16)

END DETOUR M4-8A 24" X 18"
(17)

TC SIGN FIXED MESSAGE
← Belknap St
(18) D1-1 66" X 15"

TC SIGN FIXED MESSAGE
Belknap St
(19) SP-1 54" X 15"

*TC SIGN FIXED MESSAGE
ACCESS TO MARYLAND AVE
54" X 18"
(15)

NOTES:

SEE PRECEDING SHEET FOR ADDITIONAL USH 2 EAST DETOUR SIGNING IN MINNESOTA.

PLACE 'DETOUR AHEAD' SIGN ON BELKNAP ST AT 100 FEET WEST OF OHIO AVE DURING STAGE 3B. THIS SIGN ALONG WITH SIGNS SHOWN ON BELKNAP ST, SUSQUEHANNA AVE, WINTER ST, AND TOWER AVE ARE TO BE PLACED DURING STAGE 3B ONLY.

*USE "ACCESS TO MARYLAND AVE" FIXED MESSAGE SIGN DURING STAGE 3B WHEN WORK ON EB BELKNAP STREET IS COMPLETED TO THE MARYLAND AVENUE INTERSECTION.

DETOUR SIGNING LEGEND

- STAGE 3 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT
- TYPE III BARRICADE WITH SIGN/W/OUT SIGN

N

DETOUR EAST 2 TO 2 ON SAME BOARD AS 'SOUTH 35' AND 'SOUTH 53'

DETOUR EAST 2 TO EAST 2 SOUTH 53

DETOUR EAST 2 SOUTH 53

GENERAL DETOUR NOTES:

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"MC" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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BLATNICK BRIDGE
IH 535
USH 53
E 2ND ST
WINTER ST
W USH 2
E USH 2
BELKNAP ST
TOWER AVE
SUSQUEHANNA AVE
OHIO AVE
IOWA
MARYLAND
N 3RD ST
N 5TH ST
N 6TH ST
N 7TH ST
N 8TH ST
N 11TH ST
N 12TH ST
N 13TH ST
BROADWAY ST
UNION PACIFIC
CANADIAN PACIFIC
BURLINGTON NORTHERN-SANTA FE

PROJECT NO: 8680-04-71	HWY: USH 2	COUNTY: DOUGLAS	DETOUR SIGNING - STAGE 3 - USH 2 EAST & BELKNAP ST EAST	SHEET E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

P.I. DATA

P.I. 134+55.00 EB
N 306360.99
E 141847.92

CURVE DATA

P.I. 141+83.86 EB
N 306349.88
E 142576.69
△ = 35°48'08"
D = 3°02'49"
T = 607.39'
L = 1175.00'
E = 95.66'
R = 1880.40'
P.C. 135+76.47 EB
P.T. 147+51.47 EB

CURVE DATA

P.I. 150+29.60 EB
N 305820.98
E 143286.92
△ = 49°08'46"
D = 51°09'25"
T = 51.21'
L = 96.07'
E = 11.15'
R = 112.00'
P.C. 149+78.39 EB
P.T. 150+74.46 EB

P.I. DATA

P.I. 150+83.38 EB
N 305761.00
E 143291.30

P.I. DATA

P.I. 152+43.58 EB
N 305622.44
E 143371.69

CURVE DATA

P.I. 157+71.51 EB
N 305325.12
E 143807.95
△ = 35°30'13"
D = 6°01'52"
T = 304.13'
L = 588.67'
E = 47.49'
R = 950.00'
P.C. 154+67.38 EB
P.T. 160+56.06 EB

P.I. DATA

P.I. 163+49.97 EB
N 305331.64
E 144112.01

P.I. DATA

P.I. 134+55.00 WB
N 306378.48
E 141848.18

CURVE DATA

P.I. 142+03.33 WB
N 306367.09
E 142596.42
△ = 36°33'21"
D = 3°01'08"
T = 626.86'
L = 1210.90'
E = 100.84'
R = 1897.90
P.C. 135+76.47 WB
P.T. 147+87+37 WB

CURVE DATA

P.I. 150+30.04 WB
N 305838.61
E 143286.93
△ = 3°44'34"
D = 10°53'39"
T = 17.18'
L = 34.36'
E = 0.28'
R = 525.93'
P.C. 150+12.85 WB
P.T. 150+47.21 WB

P.I. DATA

P.I. 151+06.54 WB
N 305796.17
E 143350.59

CURVE DATA

P.I. 153+20.40 WB
N 305606.66
E 143444.50
△ = 45°16'00"
D = 51°09'25"
T = 46.70'
L = 88.49'
E = 9.35'
R = 112.00'
P.C. 152+73.71 WB
P.T. 153+62.19 WB

CURVE DATA

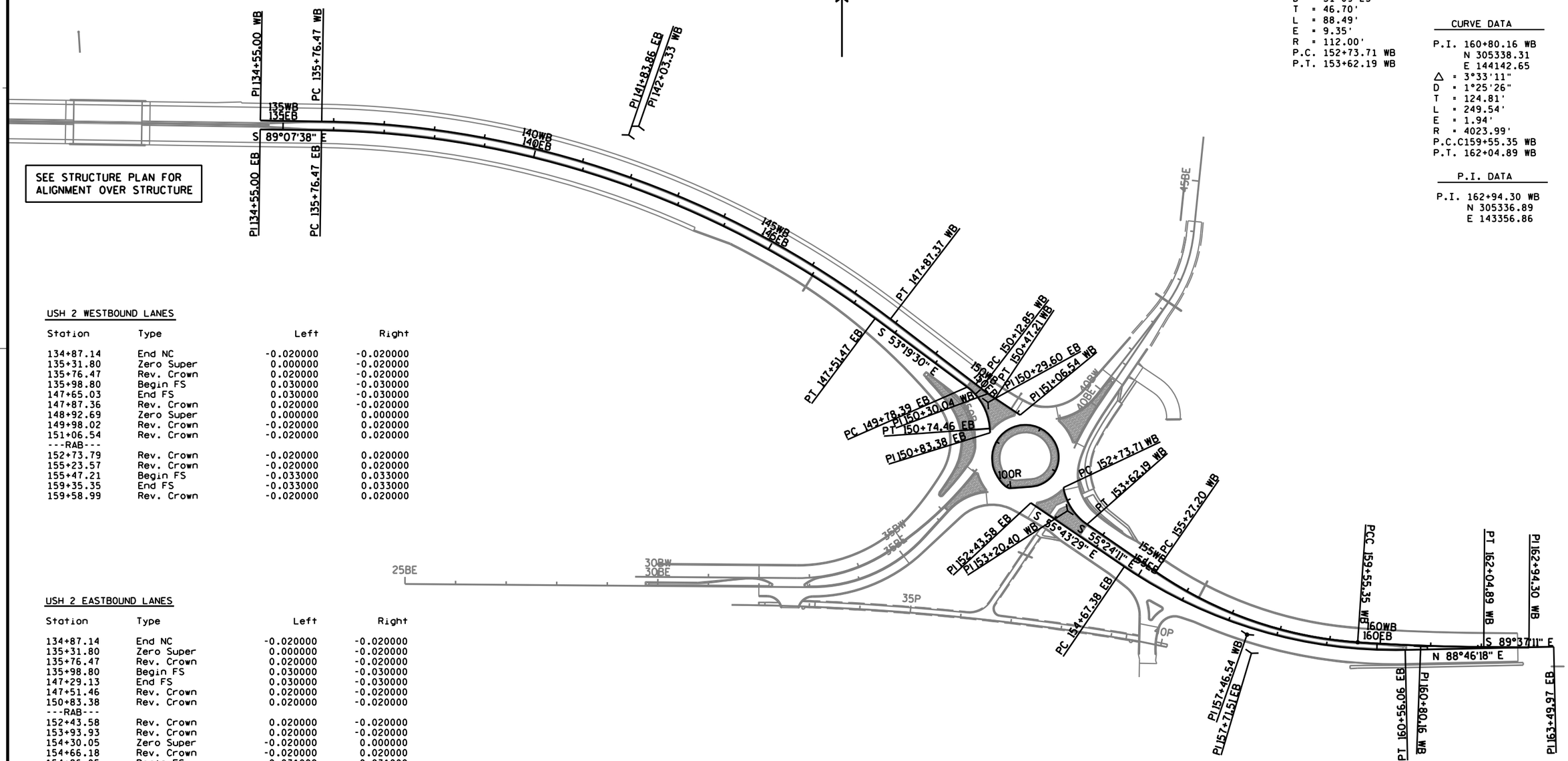
P.I. 157+46.54 WB
N 305361.92
E 143799.32
△ = 30°39'49"
D = 7°09'43"
T = 219.33'
L = 428.15'
E = 29.52'
R = 800.00'
P.C. 155+27.20 WB
P.C.C159+55.35 WB

CURVE DATA

P.I. 160+80.16 WB
N 305338.31
E 144142.65
△ = 3°33'11"
D = 1°25'26"
T = 124.81'
L = 249.54'
E = 1.94'
R = 4023.99'
P.C.C159+55.35 WB
P.T. 162+04.89 WB

P.I. DATA

P.I. 162+94.30 WB
N 305336.89
E 143356.86



USH 2 WESTBOUND LANES

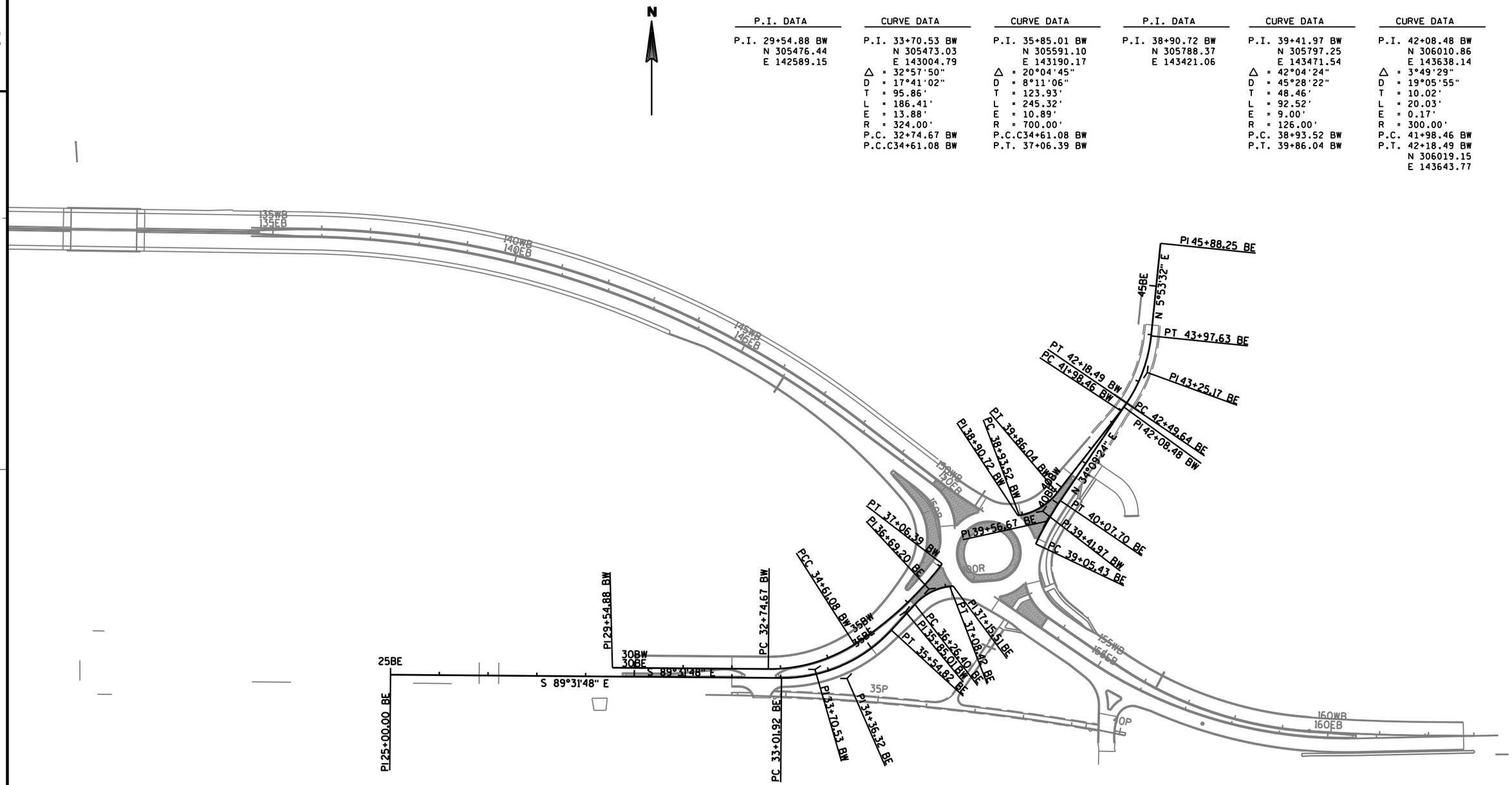
Station	Type	Left	Right
134+87.14	End NC	-0.020000	-0.020000
135+31.80	Zero Super	0.000000	-0.020000
135+76.47	Rev. Crown	0.020000	-0.020000
135+98.80	Begin FS	0.030000	-0.030000
147+65.03	End FS	0.030000	-0.030000
147+87.36	Rev. Crown	0.020000	-0.020000
148+92.69	Zero Super	0.000000	0.000000
149+98.02	Rev. Crown	-0.020000	0.020000
151+06.54	Rev. Crown	-0.020000	0.020000
---RAB---			
152+73.79	Rev. Crown	-0.020000	0.020000
155+23.57	Rev. Crown	-0.020000	0.020000
155+47.21	Begin FS	-0.033000	0.033000
159+35.35	End FS	-0.033000	0.033000
159+58.99	Rev. Crown	-0.020000	0.020000

USH 2 EASTBOUND LANES

Station	Type	Left	Right
134+87.14	End NC	-0.020000	-0.020000
135+31.80	Zero Super	0.000000	-0.020000
135+76.47	Rev. Crown	0.020000	-0.020000
135+98.80	Begin FS	0.030000	-0.030000
147+29.13	End FS	0.030000	-0.030000
147+51.46	Rev. Crown	0.020000	-0.020000
150+83.38	Rev. Crown	0.020000	-0.020000
---RAB---			
152+43.58	Rev. Crown	0.020000	-0.020000
153+93.93	Rev. Crown	0.020000	-0.020000
154+30.05	Zero Super	-0.020000	0.000000
154+66.18	Rev. Crown	-0.020000	0.020000
154+86.05	Begin FS	-0.031000	0.031000
158+37.39	End FS	-0.031000	0.031000
158+57.26	Rev. Crown	-0.020000	0.020000
158+93.39	Zero Super	-0.020000	0.000000
159+29.52	Rev. Crown	0.020000	-0.020000

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	ALIGNMENT DIAGRAM	SHEET 141	E

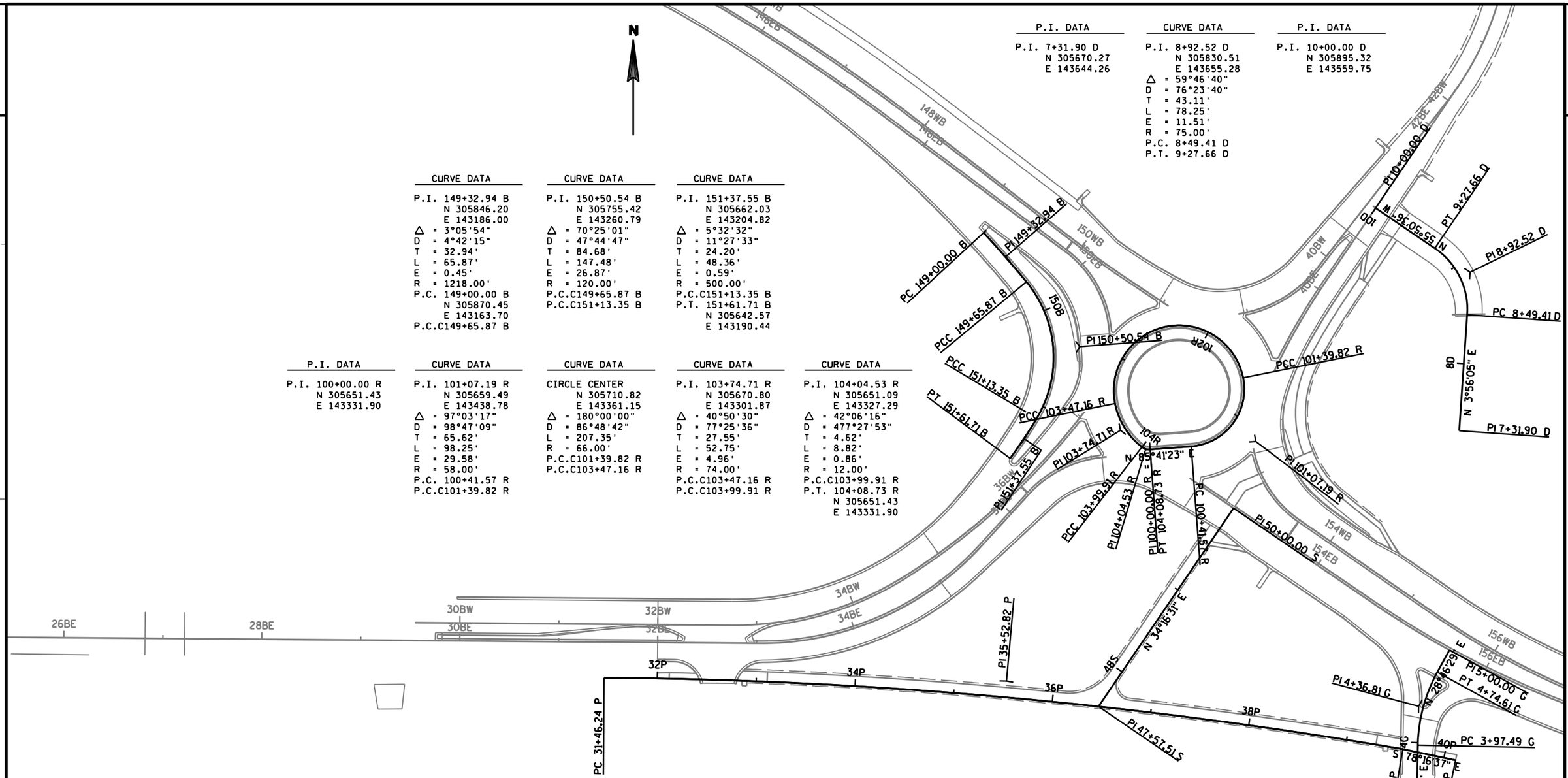
2



P.I. DATA	CURVE DATA	CURVE DATA	P.I. DATA	CURVE DATA	CURVE DATA
P.I. 29+54.88 BW N 305476.44 E 142589.15	P.I. 33+70.53 BW N 305473.03 E 143004.79 △ = 32°57'50" D = 17°41'02" T = 95.86' L = 186.41' E = 13.88' R = 324.00' P.C. 32+74.67 BW P.C.C34+61.08 BW	P.I. 35+85.01 BW N 305591.10 E 143190.17 △ = 20°04'45" D = 8°11'06" T = 123.93' L = 245.32' E = 10.89' R = 700.00' P.C.C34+61.08 BW P.T. 37+06.39 BW	P.I. 38+90.72 BW N 305788.37 E 143421.06	P.I. 39+41.97 BW N 305797.25 E 143471.54 △ = 42°04'24" D = 45°28'22" T = 48.46' L = 92.52' E = 9.00' R = 126.00' P.C. 38+93.52 BW P.T. 39+86.04 BW	P.I. 42+08.48 BW N 306010.86 E 143638.14 △ = 3°49'29" D = 19°05'55" T = 10.02' L = 20.03' E = 0.17' R = 300.00' P.C. 41+98.46 BW P.T. 42+18.49 BW N 306019.15 E 143643.77

P.I. DATA	CURVE DATA	CURVE DATA	P.I. DATA	CURVE DATA	CURVE DATA	P.I. DATA
P.I. 25+00.00 BE N 305462.17 E 142134.13	P.I. 34+36.32 BE N 305454.49 E 143070.42 △ = 47°58'48" D = 18°58'20" T = 134.40' L = 252.90' E = 28.55' R = 302.00' P.C. 33+01.92 BE P.T. 35+54.82 BE	P.I. 36+69.20 BE N 305637.94 E 143238.46 △ = 40°30'44" D = 49°23'34" T = 42.81' L = 82.02' E = 7.65' R = 116.00' P.C. 36+26.40 BE P.T. 37+08.42 BE	P.I. 37+15.51 BE N 305644.02 E 143287.99	P.I. 39+56.67 BE N 305776.55 E 143479.16 △ = 8°46'19" D = 8°34'37" T = 51.24' L = 102.27' E = 1.96' R = 668.02' P.C. 39+05.43 BE P.T. 40+07.70 BE	P.I. 43+25.17 BE N 306081.65 E 143686.18 △ = 28°15'52" D = 19°05'55" T = 75.53' L = 147.99' E = 9.36' R = 300.00' P.C. 42+49.64 BE P.T. 43+97.63 BE	P.I. 45+88.25 BE N 306346.41 E 143713.50

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	ALIGNMENT DIAGRAM	SHEET 142	E



P.I. DATA

P.I. 7+31.90 D
N 305670.27
E 143644.26

CURVE DATA

P.I. 8+92.52 D
N 305830.51
E 143655.28
△ = 59°46'40"
D = 76°23'40"
T = 43.11'
L = 78.25'
E = 11.51'
R = 75.00'
P.C. 8+49.41 D
P.T. 9+27.66 D

P.I. DATA

P.I. 10+00.00 D
N 305895.32
E 143559.75

CURVE DATA

P.I. 149+32.94 B
N 305846.20
E 143186.00
△ = 3°05'54"
D = 4°42'15"
T = 32.94'
L = 65.87'
E = 0.45'
R = 1218.00'
P.C. 149+00.00 B
N 305870.45
E 143163.70
P.C.C149+65.87 B

CURVE DATA

P.I. 150+50.54 B
N 305755.42
E 143260.79
△ = 70°25'01"
D = 47°44'47"
T = 84.68'
L = 147.48'
E = 26.87'
R = 120.00'
P.C.C149+65.87 B
P.C.C151+13.35 B

CURVE DATA

P.I. 151+37.55 B
N 305662.03
E 143204.82
△ = 5°32'32"
D = 11°27'33"
T = 24.20'
L = 48.36'
E = 0.59'
R = 500.00'
P.C.C151+13.35 B
P.T. 151+61.71 B
N 305642.57
E 143190.44

P.I. DATA

P.I. 100+00.00 R
N 305651.43
E 143331.90

CURVE DATA

P.I. 101+07.19 R
N 305659.49
E 143438.78
△ = 97°03'17"
D = 98°47'09"
T = 65.62'
L = 98.25'
E = 29.58'
R = 58.00'
P.C. 100+41.57 R
P.C.C101+39.82 R

CURVE DATA

CIRCLE CENTER
N 305710.82
E 143361.15
△ = 180°00'00"
D = 86°48'42"
L = 207.35'
R = 66.00'
P.C.C101+39.82 R
P.C.C103+47.16 R

CURVE DATA

P.I. 103+74.71 R
N 305670.80
E 143301.87
△ = 40°50'30"
D = 77°25'36"
T = 27.55'
L = 52.75'
E = 4.96'
R = 74.00'
P.C.C103+47.16 R
P.C.C103+99.91 R

CURVE DATA

P.I. 104+04.53 R
N 305651.09
E 143327.29
△ = 42°06'16"
D = 477°27'53"
T = 4.62'
L = 8.82'
E = 0.86'
R = 12.00'
P.C.C103+99.91 R
P.T. 104+08.73 R
N 305651.43
E 143331.90

CURVE DATA

P.I. 35+52.82 P
N 305417.53
E 143186.62
△ = 9°17'52"
D = 1°08'45"
T = 406.58'
L = 811.37'
E = 16.50'
R = 5000.00'
P.C. 31+46.24 P
N 305420.87
E 142780.06
P.T. 39+57.61 P

P.I. DATA

P.I. 40+12.07 P
N 305337.49
E 143640.63

P.I. DATA

P.I. 47+57.51 S
N 305391.73
E 143279.63

P.I. DATA

P.I. 50+00.00 S
N 305592.11
E 143416.19

P.I. DATA

P.I. 3+12.48 G
N 305267.70
E 143600.68

CURVE DATA

P.I. 4+36.81 G
N 305392.00
E 143603.19
△ = 27°37'06"
D = 35°48'36"
T = 39.33'
L = 77.12'
E = 4.76'
R = 160.00'
P.C. 3+97.49 G
P.T. 4+74.61 G

P.I. DATA

P.I. 5+00.00 G
N 305448.73
E 143634.34

PROJECT NO: 8680-00-70/8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	ALIGNMENT DIAGRAM	SHEET 143	E

P.I. DATA - EP1

P.I. 149+00.00
N 305877.85
E 143170.37

CURVE DATA - EP1

P.I. 149+57.88
N 305843.28
E 143216.80
△ = 6°47'16"
D = 18°58'20"
T = 17.91'
L = 35.78'
E = 0.53'
R = 302.00'
P.C. 149+39.97
P.C.C149+75.75

CURVE DATA - EP1

P.I. 150+12.10
N 305805.95
E 143256.18
△ = 39°14'03"
D = 56°10'20"
T = 36.35'
L = 69.85'
E = 6.29'
R = 102.00'
P.C.C149+75.75
P.C.C150+45.60

CURVE DATA - EP1

P.I. 150+60.30
N 305755.31
E 143262.67
△ = 5°34'25"
D = 18°58'20"
T = 14.70'
L = 29.38'
E = 0.36'
R = 302.00'
P.C.C150+45.60
P.C.C150+74.97

CURVE DATA - EP1

P.I. 150+98.08
N 305717.51
E 143263.81
△ = 38°03'47"
D = 85°30'58"
T = 23.11'
L = 44.51'
E = 3.87'
R = 67.00'
P.C.C150+74.97
P.C.C151+19.48

CURVE DATA - EP1

P.I. 151+60.29
N 305666.02
E 143225.94
△ = 6°40'19"
D = 8°11'06"
T = 40.80'
L = 81.51'
E = 1.19'
R = 700.00'
P.C.C151+19.48
P.T. 152+01.00
N 305636.19
E 143198.11

P.I. DATA - EP2

P.I. 35+30.82
N 305524.12
E 143155.89

CURVE DATA - EP2

P.I. 36+87.81
N 305631.10
E 143270.78
△ = 59°23'18"
D = 62°16'41"
T = 52.46'
L = 95.36'
E = 13.91'
R = 92.00'
P.C. 36+35.35
P.C.C37+30.71

CURVE DATA - EP2

P.I. 37+38.38
N 305614.09
E 143328.46
△ = 11°22'38"
D = 74°24'36"
T = 7.67'
L = 15.29'
E = 0.38'
R = 77.00'
P.C.C37+30.71
P.C.C37+46.00

CURVE DATA - EP2

P.I. 38+02.61
N 305584.10
E 143385.32
△ = 6°28'02"
D = 5°43'05"
T = 56.61'
L = 113.10'
E = 1.60'
R = 1002.00'
P.C.C37+46.00
P.T. 38+59.10
N 305552.22
E 143432.10

CURVE DATA - EP3

P.I. 37+57.30
N 305589.44
E 143511.73
△ = 7°01'56"
D = 18°58'20"
T = 18.56'
L = 37.07'
E = 0.57'
R = 302.00'
P.C. 37+38.74
N 305578.91
E 143527.01
P.C.C37+75.81

CURVE DATA - EP3

P.I. 38+42.89
N 305646.33
E 143447.72
△ = 66°39'52"
D = 56°10'20"
T = 67.08'
L = 118.68'
E = 20.08'
R = 102.00'
P.C.C37+75.81
P.C.C38+94.48

CURVE DATA - EP3

P.I. 39+23.61
N 305737.68
E 143477.92
△ = 11°01'01"
D = 18°58'20"
T = 29.12'
L = 58.07'
E = 1.40'
R = 302.00'
P.C.C38+94.48
P.C.C39+52.55

CURVE DATA - EP3

P.I. 39+80.14
N 305787.13
E 143505.68
△ = 4°50'45"
D = 8°47'16"
T = 27.59'
L = 55.14'
E = 0.58'
R = 652.00'
P.C.C39+52.55
P.T. 40+07.70

P.I. DATA - EP3

P.I. 41+50.00
N 305927.72
E 143601.07

P.I. DATA - EP4

P.I. 37+57.54
N 305897.07
E 143262.37

CURVE DATA - EP4

P.I. 38+47.58
N 305837.57
E 143329.51
△ = 9°07'20"
D = 11°24'49"
T = 40.05'
L = 79.92'
E = 1.59'
R = 502.00'
P.C. 38+07.53
P.C.C38+87.46

CURVE DATA - EP4

P.I. 39+02.94
N 305812.38
E 143378.99
△ = 22°44'01"
D = 74°24'36"
T = 15.48'
L = 30.55'
E = 1.54'
R = 77.00'
P.C.C38+87.46
P.C.C39+18.01

CURVE DATA - EP4

P.I. 39+68.85
N 305807.46
E 143445.13
△ = 52°59'04"
D = 56°10'20"
T = 50.84'
L = 94.32'
E = 11.97'
R = 102.00'
P.C.C39+18.01
P.T. 40+12.33

P.I. DATA - EP4

P.I. 41+50.00
N 305949.16
E 143569.46

CURVE DATA - EP5

P.I. 147+41.26
N 305982.86
E 143049.44
△ = 19°57'48"
D = 4°46'00"
T = 211.55'
L = 418.81'
E = 18.47'
R = 1202.00'
P.C. 145+29.71
N 306088.31
E 142866.04
P.C.C149+48.52

CURVE DATA - EP5

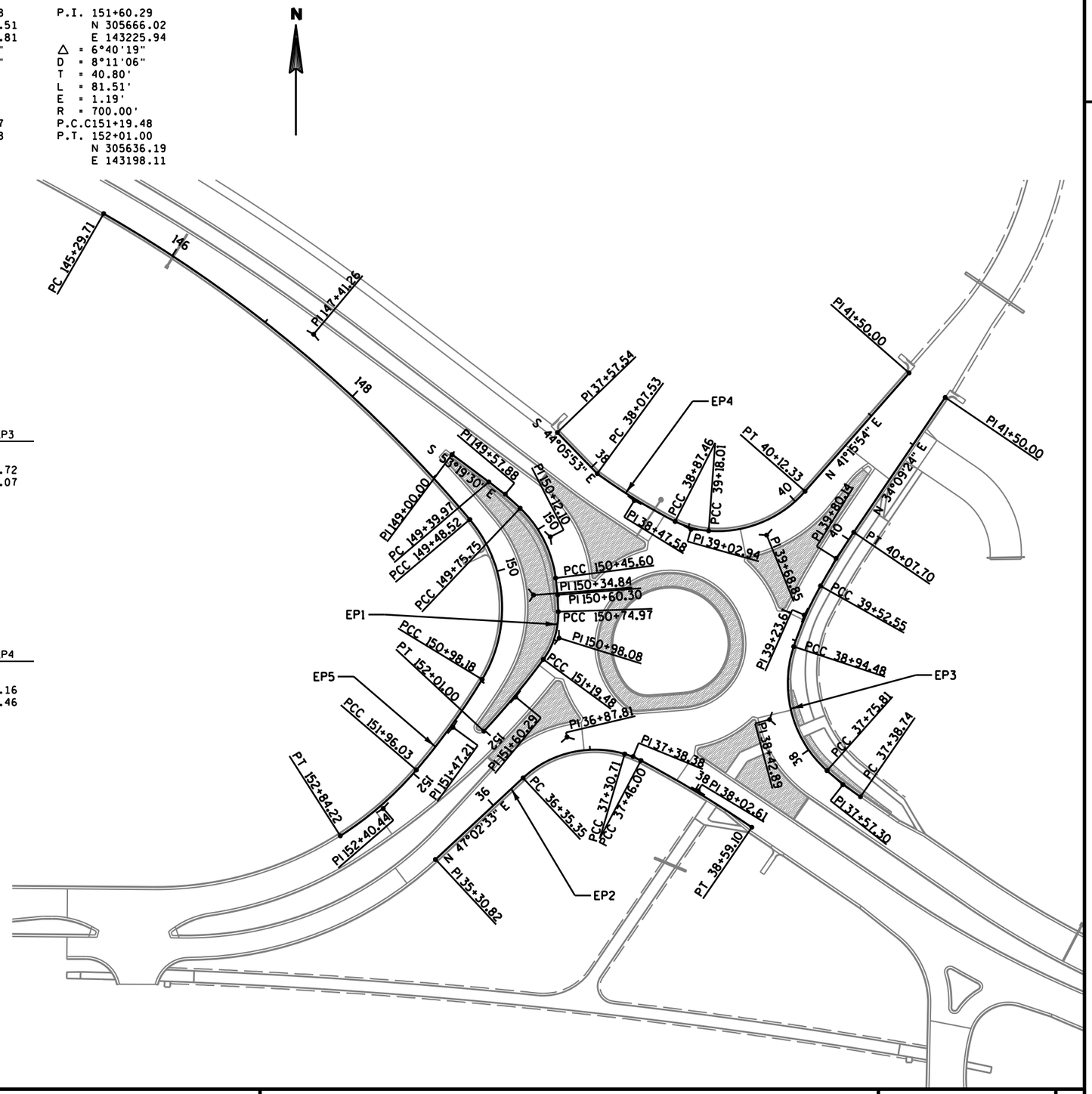
P.I. 150+34.84
N 305755.14
E 143241.46
△ = 71°27'32"
D = 47°44'47"
T = 86.32'
L = 149.66'
E = 27.82'
R = 120.00'
P.C.C149+48.52
P.C.C150+98.18

CURVE DATA - EP5

P.I. 151+47.21
N 305639.51
E 143171.10
△ = 9°20'38"
D = 9°32'57"
T = 49.03'
L = 97.85'
E = 2.00'
R = 600.00'
P.C.C150+98.18
P.C.C151+96.03

CURVE DATA - EP5

P.I. 152+40.44
N 305568.63
E 143110.21
△ = 16°50'33"
D = 19°05'55"
T = 44.41'
L = 88.19'
E = 3.27'
R = 300.00'
P.C.C151+96.03
P.T. 152+84.22
N 305544.77
E 143072.75



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	ALIGNMENT DIAGRAM	SHEET 144	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\027204_ad.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 42

2

N

NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
300	305491.90	143189.80	641.72	NAIL @ NE QUAD OF EB US2 & BELKNAP, 9.2' N AND 14.1' E OF CURB FLOWLINE
301	305438.90	143645.30	643.96	NAIL IN ISLAND @ WB US2 & BELKNAP, 26.3' N AND 28' E OF CURB FLAGLINE
302	306058.80	142835.40	642.49	CAPPED ¾" REBAR @ SE QUAD OF EB US2 & GRAVEL TURN-AROUND, 30' E OF EB US2
303	306364.40	142023.80	653.52	CAPPED ¾" REBAR IN MEDIAN 2.6' N OF N FACE OF BARRIER,
304	306424.30	141344.30	656.65	CAPPED ¾" REBAR 13.7' N OF WB US2
305	306523.30	140659.90	648.92	CAPPED ¾" REBAR @ END OF GORE AREA OF WB US2 & SUSQUEHANA RAMP, 12.6' N OF WB US2
306	307101.00	139921.70	639.57	CAPPED ¾" REBAR 9.4' N OF WB US2
307	307714.90	139634.70	648.19	CAPPED ¾" REBAR 12.3' E OF WB US2
308	307960.80	139565.20	652.29	WISDOT REBAR NEAR WITNESS POST, 24.7' E OF WB US2
309	307283.90	139696.80	644.06	NAIL @ PC OF EB US2, 13.7' W OF EB US2 AND 14' SE OF TELEPHONE PED
310	306518.40	140444.60	651.12	CAPPED ¾" REBAR 13.7' S OF EB US2
311	306331.40	141189.60	657.11	CAPPED ¾" REBAR 16.8' S OF EB US2
330	305946.90	143629.50	639.59	NAIL 27.6' W OF GARFIELD W EOB AND 49' E OF OLD CONCRETE FOUNDATION
331	305523.60	143690.90	641.46	NAIL 6' SW OF GARFIELD S EOB AND 7' NE OF FENCE LINE

BM=110
BM=308
BM=307
BM=309
BM=306
BM=305
BM=310
USH 2
BM=304
BM=303
BM=311
SUSQUEHANNA AVE
BM=302
BM=330
GARFIELD AVE
BM=331
BM=300
BM=301
BELKNAP ST
USH 2/BELKNAP ST
PENNSYLVANIA AVE
MISSOURI AVE
MARYLAND AVE
GARFIELD AVE

PROJECT NO: 8680-00-70/8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CONTROL POINTS & BENCH MARKS	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\027205_ad.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:400

DATE 22NOV13 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	8680-00-70 QUANTITY	8680-04-71 QUANTITY	8680-04-74 QUANTITY
0010	201.0105	CLEARING	STA	5.000			5.000
0020	201.0205	GRUBBING	STA	5.000			5.000
0030	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	8.000			8.000
0040	203.0225.S	DEBRIS CONTAINMENT (STRUCTURE) 01. B-16-38	LS	1.000		1.000	
0050	203.0225.S	DEBRIS CONTAINMENT (STRUCTURE) 02. B-16-49	LS	1.000			1.000
0060	203.0700.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM (STATION) 01. STATION 60+12	LS	1.000		1.000	
0070	204.0100	REMOVING PAVEMENT	SY	44,602.000	166.000	320.000	44,116.000
0080	204.0109.S	REMOVING CONCRETE SURFACE PARTIAL DEPTH	SF	27,835.000			27,835.000
0090	204.0110	REMOVING ASPHALTIC SURFACE	SY	5,964.000	115.000		5,849.000
0100	204.0120	REMOVING ASPHALTIC SURFACE MILLING	SY	4,550.000			4,550.000
0110	204.0150	REMOVING CURB & GUTTER	LF	2,345.000			2,345.000
0120	204.0155	REMOVING CONCRETE SIDEWALK	SY	380.000	14.000		366.000
0130	204.0157	REMOVING CONCRETE BARRIER	LF	433.000			433.000
0140	204.0165	REMOVING GUARDRAIL	LF	1,227.000			1,227.000
0150	204.0170	REMOVING FENCE	LF	240.000			240.000
0160	204.0180	REMOVING DELINEATORS AND MARKERS	EACH	60.000			60.000
0170	204.0195	REMOVING CONCRETE BASES	EACH	10.000			10.000
0180	204.0210	REMOVING MANHOLES	EACH	5.000			5.000
0190	204.0220	REMOVING INLETS	EACH	19.000			19.000
0200	204.0240	SITE CLEARANCE (PARCEL) 01. PARCEL 1	LS	1.000			1.000
0210	204.0245	REMOVING STORM SEWER (SIZE) 01. 12-INCH	LF	175.000			175.000
0220	204.0245	REMOVING STORM SEWER (SIZE) 02. 15-INCH	LF	600.000			600.000
0230	204.0245	REMOVING STORM SEWER (SIZE) 03. 18-INCH	LF	275.000			275.000
0240	204.0245	REMOVING STORM SEWER (SIZE) 04. 24-INCH	LF	9.000			9.000
0250	204.0270	ABANDONING CULVERT PIPES	EACH	2.000			2.000
0260	204.9060.S	REMOVING (ITEM DESCRIPTION) 01. CRASH CUSHIONS	EACH	2.000		2.000	
0270	205.0100	EXCAVATION COMMON	CY	31,366.000	142.000		31,224.000
0280	205.0400	EXCAVATION MARSH	CY	1,810.000			1,810.000
0290	205.0501.S	EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	TON	1,620.000			1,620.000
0300	208.1100	SELECT BORROW	CY	512.000	12.000		500.000
0310	209.0100	BACKFILL GRANULAR	CY	25,283.000	471.000		24,812.000
0320	211.0100	PREPARE FOUNDATION FOR ASPHALTIC PAVING (PROJECT) 01. 8680-04-74	LS	1.000			1.000
0330	211.0200	PREPARE FOUNDATION FOR CONCRETE PAVEMENT (PROJECT) 01. 8680-04-71	LS	1.000		1.000	
0340	211.0200	PREPARE FOUNDATION FOR CONCRETE PAVEMENT (PROJECT) 02. 8680-04-74	LS	1.000			1.000
0350	211.0400	PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS	STA	83.000			83.000
0360	213.0100	FINISHING ROADWAY (PROJECT) 01. 8680-00-70	EACH	1.000	1.000		
0370	213.0100	FINISHING ROADWAY (PROJECT) 02. 8680-04-74	EACH	1.000			1.000
0380	214.0100	OBLITERATING OLD ROAD	STA	13.000			13.000
0390	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	510.000	1.000		509.000
0400	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	15,752.000	425.000		15,327.000
0410	405.0100	COLORING CONCRETE RED	CY	286.000			286.000
0420	415.0410	CONCRETE PAVEMENT APPROACH SLAB	SY	382.000		172.000	210.000
0430	415.1100	CONCRETE PAVEMENT HES 10-INCH	SY	62.000		62.000	
0440	415.1410	CONCRETE PAVEMENT APPROACH SLAB HES	SY	58.000		58.000	

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LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	8680-00-70 QUANTITY	8680-04-71 QUANTITY	8680-04-74 QUANTITY
0450	416.0160	CONCRETE DRIVEWAY 6-INCH	SY	52.000			52.000
0460	416.0508	CONCRETE ROUNDABOUT TRUCK APRON 8-INCH	SY	550.000			550.000
0470	416.0610	DRILLED TIE BARS	EACH	4,056.000		35.000	4,021.000
0480	416.0620	DRILLED DOWEL BARS	EACH	128.000		56.000	72.000
0490	416.1010	CONCRETE SURFACE DRAINS	CY	4.000			4.000
0500	440.4410.S	INCENTIVE IRI RIDE	DOL	9,224.000			9,224.000
0510	455.0110	ASPHALTIC MATERIAL PG58-34	TON	128.000	3.000		125.000
0520	455.0145	ASPHALTIC MATERIAL PG64-34P	TON	96.000			96.000
0530	455.0605	TACK COAT	GAL	617.000	7.000		610.000
0540	460.1100	HMA PAVEMENT TYPE E-0.3	TON	1,774.000			1,774.000
0550	460.1103	HMA PAVEMENT TYPE E-3	TON	543.000	61.000		482.000
0560	460.1110	HMA PAVEMENT TYPE E-10	TON	1,743.000			1,743.000
0570	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	2,610.000	40.000		2,570.000
0580	465.0105	ASPHALTIC SURFACE	TON	141.000			141.000
0590	465.0110	ASPHALTIC SURFACE PATCHING	TON	30.000			30.000
0600	465.0120	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES	TON	80.000			80.000
0610	465.0125	ASPHALTIC SURFACE TEMPORARY	TON	227.000			227.000
0620	465.0315	ASPHALTIC FLUMES	SY	18.000			18.000
0630	502.0100	CONCRETE MASONRY BRIDGES	CY	160.000		160.000	
0640	502.3100	EXPANSION DEVICE (STRUCTURE) 01. B-16-38	LS	1.000		1.000	
0650	502.3110.S	EXPANSION DEVICE MODULAR (STRUCTURE) 01. B-16-38	LS	1.000		1.000	
0660	502.3200	PROTECTIVE SURFACE TREATMENT	SY	68,405.000		67,190.000	1,215.000
0670	502.5005	MASONRY ANCHORS TYPE L NO. 5 BARS	EACH	459.000		459.000	
0680	502.5010	MASONRY ANCHORS TYPE L NO. 6 BARS	EACH	2,565.000		2,565.000	
0690	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	91,630.000		91,630.000	
0700	505.0904	BAR COUPLERS NO. 4	EACH	34.000		34.000	
0710	505.0906	BAR COUPLERS NO. 6	EACH	285.000		285.000	
0720	509.0301	PREPARATION DECKS TYPE 1	SY	6,985.000		6,680.000	305.000
0730	509.0302	PREPARATION DECKS TYPE 2	SY	745.000		670.000	75.000
0740	509.0500	CLEANING DECKS	SY	67,985.000		66,770.000	1,215.000
0750	509.1000	JOINT REPAIR	SY	1,417.000		1,417.000	
0760	509.1500	CONCRETE SURFACE REPAIR	SF	1,010.000		1,000.000	10.000
0770	509.2000	FULL-DEPTH DECK REPAIR	SY	90.000		70.000	20.000
0780	509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	3,845.000		3,750.000	95.000
0790	509.5100.S	POLYMER OVERLAY	SY	4,650.000		4,650.000	
0800	513.2050.S	RAILING PIPE	LF	110.000		110.000	
0810	514.0900	ADJUSTING FLOOR DRAINS	EACH	26.000		26.000	
0820	517.0900.S	PREPARATION AND COATING OF TOP FLANGES (STRUCTURE) 01. B-16-38	LS	1.000		1.000	
0830	517.1800.S	STRUCTURE REPAINTING RECYCLED ABRASIVE (STRUCTURE) 01. B-16-38	LS	1.000		1.000	
0840	517.4000.S	CONTAINMENT AND COLLECTION OF WASTE MATERIALS (STRUCTURE) 01. B-16-38	LS	1.000		1.000	
0850	517.4500.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS (STRUCTURE) 01. B-16-38	LS	1.000		1.000	
0860	517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1.000		1.000	
0870	520.1018	APRON ENDWALLS FOR CULVERT PIPE 18-INCH	EACH	3.000			3.000
0880	520.8000	CONCRETE COLLARS FOR PIPE	EACH	13.000			13.000
0890	521.0112	CULVERT PIPE CORRUGATED STEEL 12-INCH	LF	81.000			81.000
0900	521.0118	CULVERT PIPE CORRUGATED STEEL 18-INCH	LF	43.000			43.000

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LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	8680-00-70 QUANTITY	8680-04-71 QUANTITY	8680-04-74 QUANTITY
0910	521.1012	APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH	EACH	2.000			2.000
0920	521.1018	APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH	EACH	1.000			1.000
0930	522.0324	CULVERT PIPE REINFORCED CONCRETE CLASS IV 24-INCH	LF	45.000			45.000
0940	522.1012	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 12-INCH	EACH	7.000			7.000
0950	522.1024	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH	EACH	6.000			6.000
0960	530.0118	CULVERT PIPE CORRUGATED POLYETHYLENE 18-INCH	LF	262.000			262.000
0970	601.0205	CONCRETE GUTTER 24-INCH	LF	2,900.000			2,900.000
0980	601.0405	CONCRETE CURB & GUTTER 18-INCH TYPE A	LF	944.000			944.000
0990	601.0409	CONCRETE CURB & GUTTER 30-INCH TYPE A	LF	9,206.000	373.000	37.000	8,796.000
1000	601.0411	CONCRETE CURB & GUTTER 30-INCH TYPE D	LF	1,960.000	115.000		1,845.000
1010	601.0580	CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE R	LF	396.000			396.000
1020	602.0405	CONCRETE SIDEWALK 4-INCH	SF	52,827.000	901.000		51,926.000
1030	602.0505	CURB RAMP DETECTABLE WARNING FIELD YELLOW	SF	134.000	26.000		108.000
1040	604.9010.S	SLOPE PAVING REPAIR CRUSHED AGGREGRATE	CY	13.000			13.000
1050	604.9015.S	RESEAL CRUSHED AGGREGATE SLOPE PAVING	SY	2,010.000		1,300.000	710.000
1060	606.0100	RIPRAP LIGHT	CY	13.000			13.000
1070	606.0200	RIPRAP MEDIUM	CY	16.000			16.000
1080	608.0312	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH	LF	267.000			267.000
1090	608.0315	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 15-INCH	LF	216.000			216.000
1100	608.0318	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 18-INCH	LF	27.000			27.000
1110	608.0324	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 24-INCH	LF	75.000			75.000
1120	608.0412	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 12-INCH	LF	900.000			900.000
1130	608.0415	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 15-INCH	LF	237.000			237.000
1140	608.0424	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 24-INCH	LF	514.000			514.000
1150	611.0420	RECONSTRUCTING MANHOLES	EACH	5.000			5.000
1160	611.0430	RECONSTRUCTING INLETS	EACH	2.000			2.000
1170	611.0530	MANHOLE COVERS TYPE J	EACH	11.000			11.000
1180	611.0600	INLET COVERS TYPE A	EACH	1.000			1.000
1190	611.0612	INLET COVERS TYPE C	EACH	2.000			2.000
1200	611.0624	INLET COVERS TYPE H	EACH	27.000			27.000
1210	611.0639	INLET COVERS TYPE H-S	EACH	1.000			1.000
1220	611.0642	INLET COVERS TYPE MS	EACH	2.000			2.000
1230	611.0652	INLET COVERS TYPE T	EACH	4.000			4.000
1240	611.2003	MANHOLES 3-FT DIAMETER	EACH	2.000			2.000
1250	611.2004	MANHOLES 4-FT DIAMETER	EACH	4.000			4.000
1260	611.2006	MANHOLES 6-FT DIAMETER	EACH	1.000			1.000
1270	611.2008	MANHOLES 8-FT DIAMETER	EACH	1.000			1.000
1280	611.3003	INLETS 3-FT DIAMETER	EACH	6.000			6.000
1290	611.3004	INLETS 4-FT DIAMETER	EACH	4.000			4.000
1300	611.3220	INLETS 2X2-FT	EACH	1.000			1.000
1310	611.3225	INLETS 2X2.5-FT	EACH	4.000			4.000

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LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	8680-00-70 QUANTITY	8680-04-71 QUANTITY	8680-04-74 QUANTITY
1320	611.3230	INLETS 2X3-FT	EACH	20.000			20.000
1330	611.3902	INLETS MEDIAN 2 GRATE	EACH	1.000			1.000
1340	611.8115	ADJUSTING INLET COVERS	EACH	4.000			4.000
1350	611.8120.S	COVER PLATES TEMPORARY	EACH	6.000			6.000
1360	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	929.000			929.000
1370	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	3,147.000	107.000		3,040.000
1380	614.0800	CRASH CUSHIONS PERMANENT	EACH	3.000		2.000	1.000
1390	614.2300	MGS GUARDRAIL 3	LF	1,123.000			1,123.000
1400	614.2500	MGS THRIE BEAM TRANSITION	LF	117.000			117.000
1410	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	3.000			3.000
1420	614.2620	MGS GUARDRAIL TERMINAL TYPE 2	EACH	3.000			3.000
1430	616.0360.S	GATES PIPE SINGLE LEAF (LENGTH) 01. 13-FEET	EACH	2.000			2.000
1440	616.0360.S	GATES PIPE SINGLE LEAF (LENGTH) 02. 16-FEET	EACH	2.000			2.000
1450	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 01. 8680-00-70	EACH	1.000	1.000		
1460	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 02. 8680-04-74	EACH	1.000			1.000
1470	619.1000	MOBILIZATION	EACH	1.000	0.005	0.900	0.095
1480	620.0300	CONCRETE MEDIAN SLOPED NOSE	SF	634.000		68.000	566.000
1490	624.0100	WATER	MGAL	470.000	40.000		430.000
1500	625.0100	TOPSOIL	SY	10,400.000			10,400.000
1510	625.0500	SALVAGED TOPSOIL	SY	31,152.000	252.000		30,900.000
1520	627.0200	MULCHING	SY	30,550.000			30,550.000
1530	628.1504	SILT FENCE	LF	5,440.000			5,440.000
1540	628.1520	SILT FENCE MAINTENANCE	LF	10,880.000			10,880.000
1550	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	10.000			10.000
1560	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	5.000			5.000
1570	628.2004	EROSION MAT CLASS I TYPE B	SY	2,650.000			2,650.000
1580	628.2006	EROSION MAT URBAN CLASS I TYPE A	SY	6,376.000	280.000		6,096.000
1590	628.7005	INLET PROTECTION TYPE A	EACH	45.000	2.000		43.000
1600	628.7010	INLET PROTECTION TYPE B	EACH	5.000			5.000
1610	628.7015	INLET PROTECTION TYPE C	EACH	35.000			35.000
1620	628.7504	TEMPORARY DITCH CHECKS	LF	100.000			100.000
1630	628.7555	CULVERT PIPE CHECKS	EACH	17.000			17.000
1640	629.0210	FERTILIZER TYPE B	CWT	33.000	1.000		32.000
1650	630.0110	SEEDING MIXTURE NO. 10	LB	565.000	5.000		560.000
1660	630.0200	SEEDING TEMPORARY	LB	1,127.000	7.000		1,120.000
1670	632.0101	TREES (SPECIES, ROOT, SIZE) 01. SERVICEBERRY "AUTUMN BRILLANCE" - CLUMP B&B 1 1/2-INCH	EACH	4.000			4.000
1680	632.0201	SHRUBS (SPECIES, ROOT, SIZE) 01. JUNIPER, BLUE PFITZER CG #7	EACH	22.000			22.000
1690	632.0201	SHRUBS (SPECIES, ROOT, SIZE) 02. AMERICAN HAZELNUT CG #10	EACH	9.000			9.000
1700	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	24.000	5.000		19.000
1710	634.0616	POSTS WOOD 4X6-INCH X 16-FT	EACH	34.000			34.000
1720	634.0805	POSTS TUBULAR STEEL 2X2-INCH X 5-FT	EACH	3.000	1.000		2.000
1730	634.0809	POSTS TUBULAR STEEL 2X2-INCH X 9.5-FT	EACH	14.000	1.000		13.000
1740	634.0811	POSTS TUBULAR STEEL 2X2-INCH X 11-FT	EACH	15.000			15.000
1750	636.0100	SIGN SUPPORTS CONCRETE MASONRY	CY	20.000			20.000
1760	636.1000	SIGN SUPPORTS STEEL REINFORCEMENT HS	LB	2,960.000			2,960.000
1770	637.1220	SIGNS TYPE I REFLECTIVE SH	SF	451.500			451.500
1780	637.2210	SIGNS TYPE II REFLECTIVE H	SF	629.470	22.460		607.010

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LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	8680-00-70 QUANTITY	8680-04-71 QUANTITY	8680-04-74 QUANTITY
1790	637.2215	SIGNS TYPE II REFLECTIVE H FOLDING	SF	20.000			20.000
1800	637.2230	SIGNS TYPE II REFLECTIVE F	SF	154.000	20.500		133.500
1810	638.2101	MOVING SIGNS TYPE I	EACH	1.000			1.000
1820	638.2102	MOVING SIGNS TYPE II	EACH	2.000			2.000
1830	638.2601	REMOVING SIGNS TYPE I	EACH	4.000			4.000
1840	638.2602	REMOVING SIGNS TYPE II	EACH	110.000	1.000		109.000
1850	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	69.000	1.000		68.000
1860	638.3100	REMOVING STRUCTURAL STEEL SIGN SUPPORTS	EACH	3.000			3.000
1870	641.1200	SIGN BRIDGE CANTILEVERED (STRUCTURE) 01. S-16-13	LS	1.000			1.000
1880	642.5201	FIELD OFFICE TYPE C	EACH	1.000			1.000
1890	643.0200	TRAFFIC CONTROL SURVEILLANCE AND MAINTENANCE (PROJECT) 01. 8680-04-74	DAY	579.000			579.000
1900	643.0300	TRAFFIC CONTROL DRUMS	DAY	50,554.000			50,554.000
1910	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	17,499.000			17,499.000
1920	643.0500	TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER POSTS	EACH	74.000			74.000
1930	643.0600	TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER BASES	EACH	69.000			69.000
1940	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	13,696.000			13,696.000
1950	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	13,432.000			13,432.000
1960	643.0800	TRAFFIC CONTROL ARROW BOARDS	DAY	214.000			214.000
1970	643.0900	TRAFFIC CONTROL SIGNS	DAY	22,182.000			22,182.000
1980	643.0910	TRAFFIC CONTROL COVERING SIGNS TYPE I	EACH	2.000			2.000
1990	643.0920	TRAFFIC CONTROL COVERING SIGNS TYPE II	EACH	18.000			18.000
2000	643.1000	TRAFFIC CONTROL SIGNS FIXED MESSAGE	SF	491.890		491.890	
2010	643.2000	TRAFFIC CONTROL DETOUR (PROJECT) 01. 8680-04-71	EACH	1.000		1.000	
2020	643.3000	TRAFFIC CONTROL DETOUR SIGNS	DAY	41,216.000		41,216.000	
2030	645.0130	GEOTEXTILE FABRIC TYPE R	SY	141.000			141.000
2040	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	64,345.000		33,885.000	30,460.000
2050	646.0126	PAVEMENT MARKING EPOXY 8-INCH	LF	2,613.000		2,189.000	424.000
2060	646.0600	REMOVING PAVEMENT MARKINGS	LF	6,770.000			6,770.000
2070	646.0841.S	PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH	LF	5,815.000		3,061.000	2,754.000
2080	647.0166	PAVEMENT MARKING ARROWS EPOXY TYPE 2	EACH	3.000		2.000	1.000
2090	647.0168	PAVEMENT MARKING ARROWS PREFORMED THERMOPLASTIC TYPE 2	EACH	1.000	1.000		
2100	647.0356	PAVEMENT MARKING WORDS EPOXY	EACH	3.000		2.000	1.000
2110	647.0456	PAVEMENT MARKING CURB EPOXY	LF	138.000		3.000	135.000
2120	647.0606	PAVEMENT MARKING ISLAND NOSE EPOXY	EACH	7.000		1.000	6.000
2130	647.0726	PAVEMENT MARKING DIAGONAL EPOXY 12-INCH	LF	179.000			179.000
2140	647.0766	PAVEMENT MARKING CROSSWALK EPOXY 6-INCH	LF	223.000	63.000		160.000
2150	647.0776	PAVEMENT MARKING CROSSWALK EPOXY 12-INCH	LF	110.000			110.000
2160	647.0955	REMOVING PAVEMENT MARKINGS ARROWS	EACH	1.000			1.000
2170	647.0965	REMOVING PAVEMENT MARKINGS WORDS	EACH	1.000			1.000
2180	649.0200	TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH	LF	7,545.000			7,545.000
2190	649.0400	TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH	LF	1,330.000			1,330.000
2200	649.1500	TEMPORARY PAVEMENT MARKING DIAGONAL 12-INCH	LF	102.000			102.000
2210	650.4000	CONSTRUCTION STAKING STORM SEWER	EACH	56.000			56.000
2220	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	6,447.000	126.000		6,321.000
2230	650.5000	CONSTRUCTION STAKING BASE	LF	2,159.000	126.000		2,033.000

3

DATE 22NOV13 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	8680-00-70 QUANTITY	8680-04-71 QUANTITY	8680-04-74 QUANTITY
2240	650.5500	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	LF	1,973.000	114.000	14.000	1,845.000
2250	650.6000	CONSTRUCTION STAKING PIPE CULVERTS	EACH	2.000			2.000
2260	650.7000	CONSTRUCTION STAKING CONCRETE PAVEMENT	LF	14,365.000	51.000	43.000	14,271.000
2270	650.8000	CONSTRUCTION STAKING RESURFACING REFERENCE	LF	1,000.000			1,000.000
2280	650.8500	CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (PROJECT) 01. 8680-04-71	LS	1.000		1.000	
2290	650.8500	CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (PROJECT) 02. 8680-04-74	LS	1.000			1.000
2300	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 8680-00-70	LS	1.000	1.000		
2310	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 02. 8680-04-74	LS	1.000			1.000
2320	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	5,594.000	126.000		5,468.000
2330	652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	LF	6,547.000		60.000	6,487.000
2340	652.0325	CONDUIT RIGID NONMETALLIC SCHEDULE 80 2-INCH	LF	1,068.000			1,068.000
2350	653.0135	PULL BOXES STEEL 24X36-INCH	EACH	29.000		2.000	27.000
2360	653.0905	REMOVING PULL BOXES	EACH	6.000			6.000
2370	654.0105	CONCRETE BASES TYPE 5	EACH	32.000		2.000	30.000
2380	654.0220	CONCRETE CONTROL CABINET BASES TYPE 10	EACH	2.000		2.000	
2390	655.0610	ELECTRICAL WIRE LIGHTING 12 AWG	LF	14,166.000		3,780.000	10,386.000
2400	655.0620	ELECTRICAL WIRE LIGHTING 8 AWG	LF	5,113.000			5,113.000
2410	655.0625	ELECTRICAL WIRE LIGHTING 6 AWG	LF	2,412.000			2,412.000
2420	655.0630	ELECTRICAL WIRE LIGHTING 4 AWG	LF	31,900.000		16,815.000	15,085.000
2430	655.0635	ELECTRICAL WIRE LIGHTING 2 AWG	LF	26,456.000			26,456.000
2440	656.0400	ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (LOCATION) 01. STATION 102+20	LS	1.000		1.000	
2450	656.0400	ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (LOCATION) 02. STA 130+70	LS	1.000			1.000
2460	657.0100	PEDESTAL BASES	EACH	2.000		2.000	
2470	657.0255	TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE	EACH	74.000		15.000	59.000
2480	657.0321	POLES TYPE 5-STEEL	EACH	2.000		2.000	
2490	657.0322	POLES TYPE 5-ALUMINUM	EACH	25.000			25.000
2500	657.0425	TRAFFIC SIGNAL STANDARDS ALUMINUM 15-FT	EACH	2.000		2.000	
2510	657.0710	LUMINAIRE ARMS TRUSS TYPE 4 1/2-INCH CLAMP 12-FT	EACH	26.000			26.000
2520	662.2037.S	RAMP CLOSURE GATES SOLAR 37-FT	EACH	1.000		1.000	
2530	662.2040.S	RAMP CLOSURE GATES SOLAR 40-FT	EACH	1.000		1.000	
2540	676.0300	SIGNAL ASSEMBLY ADVANCE FLASHER TYPE 1	EACH	2.000		2.000	
2550	690.0150	SAWING ASPHALT	LF	468.000	80.000		388.000
2560	690.0250	SAWING CONCRETE	LF	8,203.000	11.000	169.000	8,023.000
2570	715.0415	INCENTIVE STRENGTH CONCRETE PAVEMENT	DOL	4,975.000	500.000	500.000	3,975.000
2580	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	24,150.000		23,460.000	690.000
2590	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5. 00/HR	HRS	4,100.000		2,100.000	2,000.000
2600	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	3,030.000		2,400.000	630.000
2610	SPV.0060	SPECIAL 01. CABLE SHIM REPLACEMENT	EACH	44.000		44.000	
2620	SPV.0060	SPECIAL 02. TEMPORARY MEDIAN GUARDRAIL	EACH	18.000		18.000	
2630	SPV.0060	SPECIAL 03. FIBERGLASS DOWNSPOUTS	EACH	49.000		49.000	
2640	SPV.0060	SPECIAL 04. DRAIN GRATE CASTINGS	EACH	54.000		54.000	
2650	SPV.0060	SPECIAL 05. TIE GIRDER DOOR REPLACEMENT	EACH	4.000		4.000	

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DATE 22NOV13 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	8680-00-70 QUANTITY	8680-04-71 QUANTITY	8680-04-74 QUANTITY
2660	SPV.0060	SPECIAL 06. STRUCTURE SIDEWALK MANHOLE	EACH	3.000		3.000	
2670	SPV.0060	SPECIAL 07. CLEANING AND PAINTING CABLE COLLARS	EACH	44.000		44.000	
2680	SPV.0060	SPECIAL 08. LUMINAIRES UTILITY LED-B	EACH	103.000		30.000	73.000
2690	SPV.0060	SPECIAL 09. LUMINAIRES UTILITY LED (MNDOT)	EACH	48.000		48.000	
2700	SPV.0060	SPECIAL 10. REMOVING SIGNS, HISTORICAL MARKER	EACH	2.000			2.000
2710	SPV.0060	SPECIAL 12. PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS TYPE 1	EACH	4.000			4.000
2720	SPV.0060	SPECIAL 13. PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS TYPE 2	EACH	3.000			3.000
2730	SPV.0060	SPECIAL 14. PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS TYPE 3R	EACH	6.000			6.000
2740	SPV.0060	SPECIAL 15. PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC WORDS	EACH	8.000			8.000
2750	SPV.0060	SPECIAL 16. REMOVING OVERHEAD SIGN STRUCTURE S-16-002	EACH	1.000			1.000
2760	SPV.0060	SPECIAL 17. REMOVE AND REPLACE STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL	EACH	2.000			2.000
2770	SPV.0060	SPECIAL 18. LANDSCAPE PLANTING SURVEILLANCE AND CARE CYCLE SPECIAL	EACH	15.000			15.000
2780	SPV.0060	SPECIAL 19. PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS TYPE 2R	EACH	1.000			1.000
2790	SPV.0060	SPECIAL 20. PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS TYPE 3	EACH	7.000			7.000
2800	SPV.0060	SPECIAL 21. EXISTING ROADWAY LIGHTING REMOVAL AND RELOCATION	EACH	5.000			5.000
2810	SPV.0090	SPECIAL 01. SUSPENDER CABLE COATING	LF	2,210.000		2,210.000	
2820	SPV.0090	SPECIAL 02. DEBRIS REMOVAL PARAPETS	LF	3,261.000			3,261.000
2830	SPV.0090	SPECIAL 03. REMOVE AND REPLACE STEEL PLATE BEAM GUARD CLASS A	LF	366.000			366.000
2840	SPV.0090	SPECIAL 04. PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 18-INCH	LF	107.000			107.000
2850	SPV.0090	SPECIAL 05. PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH	LF	292.000			292.000
2860	SPV.0090	SPECIAL 06. PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 8-INCH	LF	3,788.000			3,788.000
2870	SPV.0090	SPECIAL 07. CONCRETE CURB AND GUTTER CURE AND SEAL TREATMENT	LF	15,705.000	488.000	37.000	15,180.000
2880	SPV.0090	SPECIAL 08. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC STOP LINE 18-INCH	LF	16.000	16.000		
2890	SPV.0090	SPECIAL 09. CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE A MODIFIED	LF	278.000			278.000
2900	SPV.0090	SPECIAL 10. CURE-IN-PLACE PIPE LINING	LF	553.000			553.000
2910	SPV.0105	SPECIAL 01. STRUCTURE REPAINTING INSIDE TIED ARCH RECYCLED ABRASIVE STRUCTURE B-16-38	LS	1.000		1.000	
2920	SPV.0105	SPECIAL 02. REPAIR TRAFFIC RAILING	LS	1.000		1.000	
2930	SPV.0105	SPECIAL 03. REMOVE AND RELOCATE EXISTING SIGN BRIDGE CANTILEVERED S-16-3	LS	1.000			1.000

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DATE 22NOV13 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	8680-00-70 QUANTITY	8680-04-71 QUANTITY	8680-04-74 QUANTITY
2940	SPV.0105	SPECIAL 04. PROJECT CONCRETE CRACK MITIGATION AND REPAIR SPECIAL	LS	1.000			1.000
2950	SPV.0105	SPECIAL 05. CONSTRUCTION STAKING CONCRETE PAVEMENT JOINT LAYOUT 8680-00-70	LS	1.000	1.000		
2960	SPV.0105	SPECIAL 06. REMOVE LOOP DETECTOR WIRE AND LEAD- IN CABLE USH 2 (EB) AND BELKNAP STREET	LS	1.000			1.000
2970	SPV.0105	SPECIAL 07. REMOVE TRAFFIC SIGNALS USH 2 (EB) AND BELKNAP STREET	LS	1.000			1.000
2980	SPV.0105	SPECIAL 08. LIGHTING CONTROLLER #1	LS	1.000		1.000	
2990	SPV.0105	SPECIAL 09. LIGHTING CONTROLLER #2	LS	1.000			1.000
3000	SPV.0105	SPECIAL 10. NAVIGATION LIGHTING REPLACEMENT	LS	1.000		1.000	
3010	SPV.0105	SPECIAL 11. POLE/CIRCUITING MODIFICATIONS (STATION 73+00 TO 102+00)	LS	1.000		1.000	
3020	SPV.0105	SPECIAL 12. TEMPORARY PARAPET WIRING	LS	1.000		1.000	
3030	SPV.0105	SPECIAL 13. SIGN BRIDGE LIGHTING DEMOLITION	LS	1.000			1.000
3040	SPV.0105	SPECIAL 14. EXISTING ROADWAY LIGHTING DEMOLITION	LS	1.000			1.000
3050	SPV.0105	SPECIAL 15. RE-CAULK RAILING BASE PLATES	LS	1.000		1.000	
3060	SPV.0105	SPECIAL 16. CONSTRUCTION STAKING CONCRETE ROUNDABOUT USH 2 AND BELKNAP STREET	LS	1.000			1.000
3070	SPV.0105	SPECIAL 17. WISCONSIN SIGN CIRCUIT MODIFICATION	LS	1.000			1.000
3080	SPV.0105	SPECIAL 18. CONSTRUCTION STAKING CONCRETE PAVEMENT JOINT LAYOUT 8680-04-74	LS	1.000			1.000
3090	SPV.0105	SPECIAL 19. CONSTRUCTION STAKING CONCRETE JOINT LAYOUT 8680-04-71	LS	1.000		1.000	
3100	SPV.0165	SPECIAL 01. OVERHEAD CONCRETE SURFACE REPAIR	SF	5,300.000		5,300.000	
3110	SPV.0165	SPECIAL 02. CURE AND SEAL TREATMENT, CONCRETE SIDEWALK	SF	52,827.000	901.000		51,926.000
3120	SPV.0165	SPECIAL 03. CURE AND SEAL TREATMENT CONCRETE CURB MEDIAN SLOPED NOSE	SF	634.000		68.000	566.000
3130	SPV.0165	SPECIAL 04. WEED BARRIER	SF	5,800.000			5,800.000
3140	SPV.0180	SPECIAL 01. EPOXY SEALER	SY	3,450.000		3,450.000	
3150	SPV.0180	SPECIAL 02. RESEAL PARAPETS	SY	15,235.000		15,000.000	235.000
3160	SPV.0180	SPECIAL 03. CONCRETE PAVEMENT 10-INCH SPECIAL	SY	40,887.000	333.000	117.000	40,437.000
3170	SPV.0180	SPECIAL 04. CONCRETE PAVEMENT 11-INCH SPECIAL	SY	2,206.000			2,206.000
3180	SPV.0180	SPECIAL 05. TOPSOIL SPECIAL	SY	645.000			645.000
3190	SPV.0180	SPECIAL 06. CURE AND SEAL TREATMENT, CONCRETE ROUNDABOUT TRUCK APRON	SY	550.000			550.000

3

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REMOVING PAVEMENT

STATION TO STATION	LOCATION	204.0100 SY
3+78 G - 4+06 G	GARFIELD	166
PROJECT ID TOTAL		**166**

REMOVING ASPHALTIC SURFACE

STATION TO STATION	LOCATION	204.0110 SY
3+50 G - 3+78 G	GARFIELD	115
PROJECT ID TOTAL		**115**

REMOVING CONCRETE SIDEWALK

STATION TO STATION	LOCATION	204.0155 SY
3+78 G	RT	9
3+91 G - 4+00 G	LT	5
PROJECT ID TOTAL		**14**

BACKFILL GRANULAR

STATION TO STATION	LOCATION	209.0100 CY
4+25 G - 4+76 G	LT/RT	471
PROJECT ID TOTAL		**471**

EARTHWORK SUMMARY

DIVISION	STATION TO STATION	LOCATION	CUT CY	205.0100 EXCAVATION COMMON CY	SALVAGED/ UNUSABLE PAVEMENT MATERIAL CY	(8) AVAILABLE MATERIAL CY	(7) EBS CY	FILL CY	(6) UNEXPANDED FILL CY	(2) (4) EXPANDED FILL CY	(5) MASS ORDINATE +/- CY	(1) WASTE CY	(3) 208.1100 SELECT BORROW CY	COMMENTS
	3+50 G - 4+50 G	LT/RT	127	127	---	127	---	22	22	28	100			
	39+50 P -40+00 P	LT/RT	5	5	---	5	---	1	1	1	4			
	UNDISTRIBUTED (9)		---	---	---	---	10	---	5	6	---		12	
DIVISION 1 SUBTOTAL				132	---	132	10	23	28	34	103	103	12	
PROJECT ID TOTALS				**142**									**12**	

(1) WASTE = EXPANDED FILL - EXCAVATION COMMON (FOR INFORMATION ONLY - NOT A BID ITEM)
(2) EXPANSION FACTOR = 1.25
(3) BORROW = EXPANDED FILL - AVAILABLE MATERIAL
(4) EXPANDED FILL = UNEXPANDED FILL * EXPANSION FACTOR
(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
(6) UNEXPANDED FILL = FILL + (MARSH EXCAVATION * 1.5) - (MARSH EXCAVTION * 0.6) + (EBS * 1.25) - (EBS * 0.8) - ASSUMES THAT ALL MARSH AND EBS CAN BE USED IN FILL AREAS
(7) EBS PAID FOR AS EXCAVATION COMMON.
(8) AVAILABLE MATERIAL = COMMON EXCAVATION - SALVAGED/UNUSABLE MATERIAL.
(9) UNDISTRUBTED SELECT BORROW IS USED TO ACCOUNT FOR EBS

FINISHING ROADWAY

LOCATION	213.0100 EACH
01. 8680-00-70	1
PROJECT ID TOTAL	**1**

BASE AGGREGATE DENSE

STATION TO STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON
3+22 G - 4+25 G	GARFIELD	1	180
4+25 G - 4+76 G	GARFIELD	---	245
PROJECT ID TOTALS		**1**	**425**

HMA PAVEMENT ITEMS

STATION TO STATION	LOCATION	460.1103 TYPE E-3 TON	455.0110 ASPHALTIC MATERIAL PG58-34 TON	455.0605 TACK COAT GAL
3+50 G - 4+25 G	GARFIELD	61	3	7
PROJECT ID TOTALS		**61**	**3**	**7**

CONCRETE CURB AND GUTTER 30-INCH

STATION TO STATION	LOCATION	601.0409 TYPE A LF	601.0411 TYPE D LF
154+10 EB - 4+25 G	RT	158	---
4+25 G - 156+73 EB	RT	111	---
4+35 G - 4+71 G	ISLAND	104	---
3+68 G - 4+25 G	LT	---	61
3+68 G - 4+25 G	RT	---	54
PROJECT ID TOTALS		**373**	**115**

CONCRETE SIDEWALK 4-INCH

STATION TO STATION	LOCATION	602.0405 SF
39+30 P - 39+55 P	PATH CURB RAMP, LT	244
39+90 P - 40+12 P	SIDEWALK, RT	119
3+91 G - 3+95 G	SIDEWALK, LT	24
4+38 G - 4+69 G	ISLAND	514
PROJECT ID TOTAL		**901**

CURB RAMP DETECTABLE WARNING FIELD YELLOW

STATION	602.0505 SF
39+55 P	18
39+90 P	8
PROJECT ID TOTAL	**26**

PIPE UNDERDRAIN WRAPPED 6-INCH

STATION TO STATION	LOCATION	612.0406 LF
3+68 G - 4+75 G	LT	107
PROJECT ID TOTAL		**107**

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

MAINTENANCE AND REPAIR OF HAUL ROAD

LOCATION	618.0100 EACH
01. 8680-00-70	1
PROJECT ID TOTAL	**1**

MOBILIZATION

PROJECT	619.1000 EACH
8680-00-70	0.005
PROJECT ID TOTAL	**0.005**

WATER

LOCATION	624.0100 MGAL
DUST CONTROL	40
PROJECT ID TOTAL	**40**

EROSION MAT URBAN CLASS I TYPE A

STATION TO STATION	LOCATION	628.2006 SY
4+00 G - 4+86 G	LT/RT	280
PROJECT ID TOTAL		**280**

INLET PROTECTION TYPE A

STATION	STRUCTURE NUMBER	STAGE	628.7005 EACH
3+42 G	1-I	3	1
3+66 G	EXISTING	3	1
PROJECT ID TOTAL			**2**

SALVAGED TOPSOIL, FERTILIZER, & SEEDING

STATION TO STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0110 SEEDING MIXTURE NO. 10 LB	630.0200 SEEDING TEMPORARY LB
3+50 G - 4+50 G	LT/RT	252	1	5	7
PROJECT ID TOTALS		**252**	**1**	**5**	**7**

REMOVING SIGNS TYPE II & SMALL SIGN SUPPORTS

SIGN NO.	STATION	LOCATION	SIGN CODE	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH
259	---	S. Garfield Ave.	R1-1	1	1
PROJECT ID TOTALS				**1**	**1**

CONSTRUCTION STAKING

STATION TO STATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.7000 CONCRETE PAVEMENT LF	650.9920 SLOPE STAKES LF
3+50 G - 4+76 G	126	126	---	126
4+25 G - 4+76 G	---	---	51	---
PROJECT ID TOTALS	**126**	**126**	**51**	**126**

CONCRETE PAVEMENT 10-INCH SPECIAL

STATION TO STATION	LOCATION	SPV.0180.03 SY
4+25 G - 4+76 G	GARFIELD	333
PROJECT ID TOTAL		**333**

SIGNS TYPE II ITEMS

SIGN NO.	STATION	LOCATION	SIGN CODE	SIGN SIZE W X H (INCHES)	637.2210 SIGNS TYPE II REFLECTVE H SF	637.2230 SIGNS TYPE II REFLECTVE F SF	634.0614 POSTS WOOD 4X6-INCH 14-FT EACH	634.0805 POSTS TUBULAR 2X2-INCH 5-FT EACH	634.0809 POSTS TUBULAR 2X2-INCH 9.5-FT EACH	REMARKS
251		S. Garfield St.	W11-2	30 X 30	---	6.25	1	---	---	Sign for S. Garfield Avenue traffic facing north
252		S. Garfield St.	W16-7L	24 X 12	---	2.00	---	---	---	Mount sign below Sign No. 251
253	155'EB'+65	S. Garfield St. Island	R4-7	24 X 30	5.00	---	---	---	1	Mount bottom of Keep Right sign 5 feet above island
254	155'EB'+50	S. Garfield St. Island	W12-1D	24 X 24	---	4.00	---	1	---	Mount bottom of double arrow sign 2 feet above island
256	155'EB'+85	S. Garfield St.	R6-2R	24 X 30	5.00	---	1	---	---	Sign for S. Garfield Avenue traffic
257	156'EB'+02	S. Garfield St.	R3-53R	24 X 30	5.00	---	1	---	---	Sign for S. Garfield Avenue traffic
258	155'EB'+97	S. Garfield St.	R1-1	36 X 36	7.46	---	1	---	---	Sign for S. Garfield Avenue traffic
261		S. Garfield St.	W11-2	30 X 30	---	6.25	1	---	---	Sign for S. Garfield Avenue traffic facing south
262		S. Garfield St.	W16-7L	24 X 12	---	2.00	---	---	---	Mount sign below Sign No. 261
PROJECT ID TOTALS					**22.46**	**20.50**	**5**	**1**	**1**	

PAVEMENT MARKING CROSSWALK EPOXY 6-INCH

STATION	647.0766 LF
39+73 P	63
PROJECT ID TOTAL	**63**

PAVEMENT MARKING PREFORMED THERMOPLASTIC

STATION	647.0168 ARROWS TYPE 2 EACH	SPV.0090.08 GROOVED STOP LINE 18-INCH LF
4+41 G	1	---
4+57 G	---	16
PROJECT ID TOTALS	**1**	**16**

CURE AND SEAL TREATMENT, CONCRETE SIDEWALK

STATION TO STATION	LOCATION	SPV.0165.02 SF
39+30 P - 39+55 P	PATH CURB RAMP, LT	244
39+90 P - 40+12 P	SIDEWALK, RT	119
3+91 G - 3+95 G	SIDEWALK, LT	24
4+38 G - 4+69 G	ISLAND	514
PROJECT ID TOTAL		**901**

SAWING

STATION TO STATION	LOCATION	690.0150 ASPHALT LF	690.0250 CONCRETE LF
3+86 G	SIDEWALK, RT	---	6
3+91 G	SIDEWALK, LT	---	5
3+50 G		35	---
3+22 G - 3+68 G	LT	45	---
PROJECT ID TOTALS		**80**	**11**

CONCRETE CURB AND GUTTER CURE AND SEAL TREATMENT

STATION TO STATION	LOCATION	SPV.0090.07 LF
154+10 EB - 4+25 G	RT	158
4+25 G - 156+73 EB	RT	111
4+35 G - 4+71 G	ISLAND	104
3+68 G - 4+25 G	LT	61
3+68 G - 4+25 G	RT	54
PROJECT ID TOTAL		**488**

CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER

STATION TO STATION	LOCATION	650.5500 LF
3+68 G - 4+25 G	LT	57
3+68 G - 4+25 G	RT	57
PROJECT ID TOTAL		**114**

CONSTRUCTION STAKING CONCRETE PAVEMENT JOINT LAYOUT 8680-00-70

PROJECT	SPV.0105.05 LS
8680-00-70	1

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL

PROJECT	650.9910 LS
.01 8680-00-70	1

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

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REMOVING PAVEMENT

STATION TO STATION	LOCATION	204.0100 SY
18+09 - 18+52	LT/RT	320
PROJECT ID TOTAL		**320**

PREPARE FOUNDATION FOR CONCRETE PAVEMENT

PROJECT	211.0200 LS
01. 8680-04-71	1

CONCRETE PAVEMENT APPROACH SLAB

STATION TO STATION	LOCATION	415.0410 SY
18+36 - 18+52	LT/RT	77
101+73 - 101+89	RT, EB LANES	47
101+73 - 101+89	LT, WB LANES	48
PROJECT ID TOTAL		**172**

CONCRETE PAVEMENT HES 10-INCH

LOCATION	415.1100 SY
USH 2 EB LANES	62
PROJECT ID TOTAL	**62**

CONCRETE PAVEMENT APPROACH SLAB HES

LOCATION	415.1410 SY
USH 2 EB LANES	58
PROJECT ID TOTAL	**58**

DRILLED TIE BARS

STATION TO STATION	LOCATION	416.0610 EACH
18+20 - 18+52	RT	10
101+73 - 101+89	LT	5
101+73 - 101+89	RT	15
101+73 - 101+89	RT	5
PROJECT ID TOTAL		**35**

DRILLED DOWEL BARS

STATION TO STATION	LOCATION	416.0620 EACH
18+09 - 18+20	LT/RT	56
PROJECT ID TOTAL		**56**

CONCRETE CURB & GUTTER 30-INCH TYPE A

STATION TO STATION	LOCATION	601.0409 LF
18+09 - 18+32	LT	23
18+11 - 18+17	RT	14
PROJECT ID TOTAL		**37**

MOBILIZATION

LOCATION	619.1000 EACH
8680-04-71	0.9
PROJECT ID TOTAL	**0.9**

CONCRETE MEDIAN SLOPED NOSE

STATION	LOCATION	620.0300 SF
18+24	RT	68
PROJECT ID TOTAL		**68**

TRAFFIC CONTROL DETOUR

PROJECT	643.2000 EACH
8680-04-71	1
PROJECT ID TOTAL	**1**

TRAFFIC CONTROL FIXED MESSAGE SIGNS

LOCATION / DESCRIPTION	STAGE	643.1000 SF	FIXED MESSAGE
USH 2 WB / WEST END VIADUCT	2 & 3A	16.50	BELKNAP ST LEFT LANE
USH 2 WB / WEST END VIADUCT	2 & 3A	27.00	WEST "2" RIGHT 2 LANES
46TH AVE SB / WEST OF BONG BR	3	15.00	CLOSED
IH 35 NB / WEST OF CODY ST	3	14.25	EXIT CLOSED
IH 35 NB / SOUTH OF CODY ST	3	14.25	EXIT CLOSED
IH 35 NB / WEST OF CENTRAL AVE	3	22.00	EXIT CLOSED
IH 35 NB / WEST OF 50TH AVE	3	21.25	HWY 2 EAST CLOSED FOLLOW DETOUR
IH 35 NB / USH 2 EAST EXIT RAMP	3	22.00	EXIT CLOSED
IH 35 SB / RT SIDE OH 85-35	3	81.00	"2" EAST CLOSED DETOUR NEXT LEFT
IH 35 SB / CENTER COVER OH 11-35	3	81.00	"2" EAST CLOSED DETOUR NEXT LEFT
IH 35 SB / LEFT SIDE OH 107-35	3	52.50	DETOUR EAST "2" (Down Arrow)
IH 35 SB / LEFT SIDE OH 107-35	3	42.00	DETOUR EAST "2" (Left Diagonal Arr)
IH 35 SB / SOUTH OF USH 53/IH535	3	14.25	EXIT CLOSED
IH 35 SB / NORTH OF 4OTH AVE	3	22.00	EXIT CLOSED
IH 35 SB / USH 2 EAST EXIT RAMP	3	22.00	EXIT CLOSED
BELKNAP STREET EB	3B	6.88	Belknap St [Left Arrow]
BELKNAP STREET EB	3B	6.75	ACCESS TO MARYLAND AVE
WINTER STREET	3B	5.63	Belknap St
WINTER STREET	3B	5.63	Belknap St
PROJECT ID TOTAL		**491.89**	

TRAFFIC CONTROL DETOUR SIGNS

LOCATION	STAGE	DAYS (NUMBER)	SIGNS (COUNT)	643.3000 SIGNS DAY
USH 2 EB	1	214	12	2568
BELKNAP STREET EB	1	214	13	2782
TOWER AVENUE	1	214	22	4708
N. 3RD STREET	1	214	7	1498
EXIT LOOP TO IH 535	1	214	10	2140
USH 53 NB	1	214	18	3852
BELKNAP STREET WB	1	214	13	2782
IH 535 / USH 53 NB	1	214	14	2996
IH 35 SB	1	214	10	2140
BELKNAP ST/USH 2 WB	2/3A	---	---	---
46TH AVENUE	3	214	9	1926
W. 1ST STREET	3	214	11	2354
40TH AVENUE	3	214	8	1712
IH 35 NB	3	214	14	2996
IH 535 / USH 53 SB	3	214	14	2996
USH 53 SB	3	214	13	2782
IH 35 SB	3	214	---	---
BELKNAP STREET EB	3B	164	2	328
WINTER STREET	3B	164	3	492
TOWER AVENUE	3B	164	1	164
PROJECT ID TOTAL				**41216**

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0030 UNLESS OTHERWISE NOTED

PAVEMENT MARKING EPOXY

STATION TO STATION	DESCRIPTION	646.0106 4-INCH WHITE LF	646.0106 4-INCH YELLOW LF	646.0126 8-INCH WHITE LF
18+09 - 28+39 (WB LANES)	EDGELINE	1030	---	---
27+86 - 101+89 (WB LANES)	EDGELINE	7403	---	---
18+13 - 18+24 (WB LANES)	EDGELINE	---	11	---
18+90 - 101+89 (WB LANES)	EDGELINE	---	8299	---
27+84 - 28+39 (A RAMP)	EDGELINE	---	56	---
18+55 - 28+00 (EB LANES)	EDGELINE	945	---	---
28+00 - 33+31 (EB LANES)	EDGELINE	531	---	---
33+31 - 101+89 (EB LANES)	EDGELINE	6858	---	---
18+16 - 18+24 (EB LANES)	EDGELINE	---	8	---
18+90 - 101+89 (EB LANES)	EDGELINE	---	8299	---
18+55 - 23+00	LT TURN LANE	445	---	---
28+39 - 29+98 (A RAMP)	GORE	---	---	320
33+31 - 38+10 (B RAMP)	GORE	---	---	947
28+00 - 32+65 (C RAMP)	GORE	---	---	922
PROJECT ID SUBTOTALS		17212	16673	2189
PROJECT ID TOTALS		**33885**		**2189**

PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH

STATION TO STATION	DESCRIPTION	646.0841.S LF	REMARKS
18+11 - 101+89 (WB LANES)	BROKEN LINE	1676	50' CYCLE (10' LINE, 40' GAP)
32+65 - 101+89 (EB LANES)	BROKEN LINE	1385	50' CYCLE (10' LINE, 40' GAP)
PROJECT ID TOTAL		**3061**	

CONSTRUCTION STAKING CONCRETE PAVEMENT JOINT LAYOUT 8680-04-71

PROJECT	SPV.0105.19 LS
8680-04-71	1

PAVEMENT MARKING CURB EPOXY

STATION	LOCATION	647.0456 LF
18+24	RT	3
PROJECT ID TOTAL		**3**

CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER

STATION TO STATION	LOCATION	650.5500 LF
18+11 - 18+17	RT	14
PROJECT ID TOTAL		**14**

PAVEMENT MARKING ARROWS/WORDS EPOXY

STATION	647.0166 ARROWS TYPE 2 EACH	647.0356 WORDS EACH	COMMENT
19+15 (LT TURN LANE)	1	---	
20+15 (LT TURN LANE)	---	1	"ONLY"
21+75 (LT TURN LANE)	1	---	
22+75 (LT TURN LANE)	---	1	"ONLY"
PROJECT ID TOTALS	**2**	**2**	

CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS

CATEGORY	PROJECT	650.8500 LS
0020	01. 8680-04-71	1

RAMP CLOSURE GATE

CATEGORY	STATION	LOCATION	OFFSET	662.2037.S SOLAR 37-FT EACH	662.2040.S SOLAR 40-FT EACH	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	653.0135 PULL BOXES STEEL 24x36-INCH EACH	654.0105 CONCRETE BASES TYPE 5 EACH	654.0220 CONCRETE CONTROL CABINET BASE TYPE 10 EACH	657.0100 PEDESTAL BASES EACH	657.0255* TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE EACH	657.0321 POLES TYPE 5-STEEL EACH	657.0425 TRAFFIC SIGNAL STANDARDS ALUMINUM 15-FT EACH	676.0300 SIGNAL ASSEMBLY ADVANCE FLASHER TYPE 1 EACH
0020	130+94	USH 2 WB ENT RAMP	178.5' LT	---	1	30	1	1	1	1	1	1	1	1
	150+85 WB	USH 2 WB	36' LT	1	---	30	1	1	1	1	1	1	1	1
SUBTOTALS				1	1	60	2	2	2	2	2	2	2	2
PROJECT ID TOTAL				**1**	**1**	**60**	**2**	**2**	**2**	**2**	**17**	**2**	**2**	**2**

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

PAVEMENT MARKING ISLAND NOSE EPOXY

STATION	LOCATION	647.0606 EACH
18+24	RT	1
PROJECT ID TOTAL		**1**

CONSTRUCTION STAKING CONCRETE PAVEMENT

STATION TO STATION	650.7000 LF
18+09 - 18+52	43
PROJECT ID TOTAL	**43**

CONCRETE CURB AND GUTTER CURE AND SEAL TREATMENT

STATION TO STATION	LOCATION	SPV.0090.07 LF
18+09 - 18+32	LT	23
18+11 - 18+17	RT	14
PROJECT ID TOTAL		**37**

CURE AND SEAL TREATMENT CONCRETE CURB MEDIAN SLOPED NOSE

STATION	LOCATION	SPV.0165.03 SF
18+24	RT	68
PROJECT ID TOTAL		**68**

CONCRETE PAVEMENT 10-INCH SPECIAL

STATION TO STATION	LOCATION	SPV.0180.03 SY
18+16 - 18+37	LT/RT	117
PROJECT ID TOTAL		**117**

SAWING CONCRETE

STATION TO STATION	LOCATION	690.0250 LF
18+09 - 18+52	LT/RT	135
101+72 - 101+89	LT	17
101+72 - 101+89	RT	17
PROJECT ID TOTAL		**169**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0030 UNLESS OTHERWISE NOTED

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CLEARING AND GRUBBING

STATION TO STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
147+00 EB - 148+00 EB	RT	1	1
149+00 EB - 153+00 EB	RT	4	4
PROJECT ID TOTALS		**5**	**5**

REMOVING CONCRETE SURFACE PARTIAL DEPTH

CATEGORY	STATION TO STATION	LOCATION	204.0109.S SF
0060	26+82 BE - 32+00 BE	BELKNAP	27835
PROJECT ID TOTAL			**27835**

REMOVING CURB & GUTTER

STATION TO STATION	LOCATION	204.0150 LF
29+85 BW - 32+00 BW	MEDIAN ISLAND	435
33+60 BE - 35+50 BE	MEDIAN ISLAND	460
152+00 EB - 154+96 EB	MEDIAN ISLAND	700
156+00 EB - 159+63 EB	MEDIAN ISLAND	750
PROJECT ID TOTAL		**2345**

REMOVING FENCE

CATEGORY	STATION TO STATION	LOCATION	204.0170 LF
0070	151+00 WB - 153+00 WB	LT	240
PROJECT ID TOTAL			**240**

REMOVING DELINEATORS AND MARKERS

LOCATION	204.0180 EACH
EB LANES - USH 2	30
WB LANES - USH 2	30
PROJECT ID TOTAL	**60**

REMOVING SMALL PIPE CULVERTS

CATEGORY	STATION	LOCATION	203.0100 EACH
0010	116+03	LT	1
	120+04	LT	1
	124+04	LT	1
	145+00 EB	RT	1
	154+48 EB	RT	1
	33+70 BW	LT	1
CATEGORY 0010 TOTAL			**6**
0070	42+70 BE		2
CATEGORY 0070 TOTAL			**2**
PROJECT ID TOTAL			**8**

REMOVING ASPHALTIC SURFACE

STATION TO STATION	LOCATION	204.0110 SY
SUSQUEHANNA RAMP		27
101+72 - 122+12	WB USH 2/RAMP	1297
101+72 - 130+85	EB USH 2	2668
114+13 - 130+85	RAMP GORE/WB USH 2	1459
132+21 - 134+55	WB USH 2	194
132+21 - 134+55	EB USH 2	204
PROJECT ID TOTAL		**5849**

REMOVING CONCRETE SIDEWALK

STATION TO STATION	LOCATION	204.0155 SY
32+30 P - 32+41 P	BELKNAP	7
32+80 P - 39+37 P	BELKNAP	359
PROJECT ID TOTAL		**366**

REMOVING CONCRETE BASES

LOCATION	204.0195 EACH
162+42 EB (SIGN STRUCTURE)	2
USH 2 & BELKNAP ST INTERSECTION	8
PROJECT ID TOTAL	**10**

REMOVING PAVEMENT

STATION TO STATION	LOCATION	204.0100 SY
SUSQUEHANNA RAMP		50
101+72 - 130+86	LT	10822
101+72 - 130+86	RT	9192
132+21 - 134+55	LT	739
132+21 - 134+55	RT	740
134+55 WB - 157+25 WB		6940
134+55 EB - BELKNAP ST		5851
32+00 BE - 162+55 EB		9832
PROJECT ID TOTAL		**44166**

REMOVING ASPHALTIC SURFACE MILLING

CATEGORY	LOCATION	204.0120 SY
0060	SUSQUEHANNA AVE - PENNSYLVANIA AVE	4550
PROJECT ID TOTAL		**4550**

REMOVING CONCRETE BARRIER

STATION TO STATION	LOCATION	204.0157 LF
134+50 - 134+55		5
134+55 EB - 138+83 EB	LT/RT	428
PROJECT ID TOTAL		**433**

REMOVING GUARDRAIL

STATION TO STATION	LOCATION	204.0165 LF
101+92 - 103+07	LT	120
102+10 - 107+64	RT	557
129+62 - 130+79	LT	122
129+66 - 130+78	RT	117
132+28 - 133+44	LT	121
132+28 - 133+48	RT	125
35+19 P - 35+84 P	LT	65
PROJECT ID TOTAL		**1227**

REMOVING INLETS

STATION	LOCATION	204.0220* EACH
116+03	LT	1
SUBTOTAL		**1**
PROJECT ID TOTAL		**19**

SITE CLEARANCE

CATEGORY	LOCATION	204.0240 LS
0070	01. PARCEL 1	1

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

3

REMOVING AND ABANDONING STORM SEWER ITEMS

STATION	LOCATION	OFFSET		STRUCTURE NUMBER	STAGE	204.0220* REMOVING INLETS EACH	204.0210 REMOVING MANHOLES EACH	204.0245 REMOVING STORM SEWER (12-INCH) LF	204.0245 REMOVING STORM SEWER (15-INCH) LF	204.0245 REMOVING STORM SEWER (18-INCH) LF	204.0245 REMOVING STORM SEWER (24-INCH) LF	204.0270 ABANDONING CULVERT PIPES EACH	COMMENTS
30+03.6	BEL EB	5.5	RT	1099	3B	1	-	-	-	-	-	1	REMOVE INLET AND ABANDON PIPE - 3B
32+44.0	BEL WB	22.1	LT	1103	3A	1	-	-	7	-	-	-	REMOVE INLET AND STORM SEWER - 3A
32+39.6	BEL WB	27.3	LT	1144	3A	-	1	-	-	-	9	-	REMOVE MANHOLE AND STORM SEWER - 3A
33+08.0	BEL WB	24.9	LT	1108	3A	-	1	-	-	69	-	1	REMOVE MANHOLE/STORM SEWER, ABANDON CULVERT - 3A
33+10.2	BEL EB	4.7	LT	1125	3A	1	-	-	40	-	-	-	REMOVE INLET AND STORM SEWER - 3A
33+08.6	BEL WB	14.7	RT	TEMP-1/TEMP-2	3B	1	1	9	-	-	-	-	REMOVE INLET, MANHOLE AND STORM SEWER - 3B
33+07.4	BEL EB	20.5	RT	1124	3B	1	-	26	-	-	-	-	REMOVE INLET AND STORM SEWER - 3B
34+52.2	BEL WB	23.9	LT	3436	3A	1	-	-	9	-	-	-	REMOVE INLET AND STORM SEWER - 3A
35+24.8	BEL EB	50.5	RT	1052	3B	1	-	-	41	-	-	-	REMOVE INLET AND STORM SEWER - 3B
35+29.3	BEL EB	107.1	RT	1238	3B	1	-	57	-	-	-	-	REMOVE INLET AND STORM SEWER - 3B
35+53.3	BEL EB	31.8	RT	1051	3B	1	-	-	44	-	-	-	REMOVE INLET AND STORM SEWER - 3B
153+76.9	USH2 EB	181.2	RT	1242	3B	1	-	-	89	-	-	-	REMOVE INLET AND STORM SEWER - 3B
154+74.4	USH2 EB	16.5	RT	1039	3B	1	-	-	95	130	-	-	REMOVE INLET AND STORM SEWER - 3B
155+36.8	USH2 WB	7.3	RT	1016	3B	1	-	10	-	-	-	-	REMOVE INLET AND STORM SEWER - 1
155+43.8	USH2 WB	1	LT	1017	1	-	1	-	47	68	-	-	REMOVE MANHOLE AND STORM SEWER - 1
155+67.6	USH2 EB	20.9	RT	1013	3B	-	1	-	95	-	-	-	REMOVE MANHOLE AND STORM SEWER - 3B
155+75.5	USH2 EB	29.4	RT	1025	3B	1	-	-	11	-	-	-	REMOVE INLET AND STORM SEWER - 3B
156+05.7	USH2 EB	56.1	RT	1026	3B	1	-	-	41	-	-	-	REMOVE INLET AND STORM SEWER - 3B
156+12.7	USH2 EB	81.3	RT	1191	3B	1	-	-	26	-	-	-	REMOVE INLET AND STORM SEWER - 3B
156+21.9	USH2 EB	135.9	RT	1188	3B	1	-	-	55	-	-	-	REMOVE INLET AND STORM SEWER - 3B
158+73.3	USH2 EB	32.8	RT	3417	3B	1	-	31	-	-	-	-	REMOVE INLET AND STORM SEWER - 3B
158+53.4	USH2 WB	26.5	LT	3416	1	1	-	45	-	8	-	-	REMOVE INLET AND STORM SEWER - 1
SUBTOTALS						**18**	**5**	**178**	**600**	**275**	**9**	**2**	
PROJECT ID TOTALS						**19**	**5**	**175**	**600**	**275**	**9**	**2**	

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET
ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

3

EARTHWORK SUMMARY

DIVISION	STATION TO STATION	LOCATION	CUT CY	205.0100 EXCAVATION COMMON CY	SALVAGED/ UNUSABLE PAVEMENT MATERIAL CY	(8) AVAILABLE MATERIAL CY	(7) EBS CY	205.0400 EXCAVATION MARSH CY	FILL CY	(6) UNEXPANDED FILL CY	(2) (4) EXPANDED FILL CY	(5) MASS ORDINATE +/- CY	(1) WASTE CY	(3) 208.1100 SELECT BORROW CY	COMMENTS
	134+55 WB - 151+00 WB	LT	5133	5133	1085	4048	---	---	331	331	414	3634			
	153+00 WB - 162+00 WB	LT	3221	3221	800	2421	---	---	1226	1226	1533	889			
	143+50 EB - 150+50 EB	RT	1455	1455	---	1455	---	1577	1565	2984	3730	-2275			
	152+50 EB - 154+00 EB	RT	723	723	---	723	---	109	273	371	464	259			
	36+00 BW - 37+00 BW	LT	472	472	---	472	---	---	132	132	165	307			
	39+00 BW - 40+50 BW	LT	469	469	---	469	---	---	176	176	220	249			CATEGORY 0070
	36+00 BE - 37+00 BE	RT	615	615	---	615	---	---	279	279	349	266			
	39+05 BE - 41+50 BE	RT	1140	1140	---	1140	---	---	111	111	139	1001			CATEGORY 0070
	41+50 BE - 44+20 BE	RT	1588	1588	---	1588	---	---	61	61	76	1512			CATEGORY 0070
	149+00 B - 151+50 B	RT	493	493	---	493	---	13	212	224	280	213			
	100+00 R - 104+00 R	LT/RT	1369	1369	---	1369	---	---	2526	2526	3158	-1789			
	UNDISTRIBUTED (9)		---	---	---	---	400	---	---	180	225	---		500	
DIVISION 1 SUBTOTAL				16678	1885	14793	400	1699	6892	8601	10751	4267	4267	500	
	32+50 BW - 36+00 BW	LT	1661	1661	150	1511	---	92	270	353	441	1070			
	30+00 BE - 36+00 BE	RT	1599	1599	425	1174	---	---	197	197	246	928			
	134+55 EB - 143+50 EB	RT	7568	7568	500	7068	---	---	675	675	844	6224			
	154+00 EB - 162+50 EB	RT	2175	2175	783	1392	---	19	529	546	683	709			
	33+00 P - 39+50 P	LT/RT	1040	1040	---	1040	---	---	225	225	281	759			
	47+75 S - 49+50 S	LT/RT	103	103	---	103	---	---	---	---	---	103			
DIVISION 3 SUBTOTAL				14146	1858	12288	---	111	1896	1996	2495	9793	9793	---	
CATEGORY 0010 TOTALS				**28027**				**1810**						**500**	
CATEGORY 0070 TOTALS				**3197**				**0**						**0**	
PROJECT ID TOTALS				**31224**				**1810**						**500**	

(1) WASTE = EXPANDED FILL - EXCAVATION COMMON (FOR INFORMATION ONLY - NOT A BID ITEM)
(2) EXPANSION FACTOR = 1.25
(3) BORROW = EXPANDED FILL - AVAILABLE MATERIAL
(4) EXPANDED FILL = UNEXPANDED FILL * EXPANSION FACTOR
(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
(6) UNEXPANDED FILL = FILL + (MARSH EXCAVATION * 1.5) - (MARSH EXCAVTION * 0.6) + (EBS * 1.25) - (EBS * 0.8) - ASSUMES THAT ALL MARSH AND EBS CAN BE USED IN FILL AREAS
(7) EBS PAID FOR AS EXCAVATION COMMON.
(8) AVAILABLE MATERIAL = COMMON EXCAVATION - SALVAGED/UNUSABLE MATERIAL.
(9) UNDISTRUBTED SELECT BORROW IS USED TO ACCOUNT FOR EBS

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET
ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

BACKFILL GRANULAR

CATEGORY	STATION TO STATION	LOCATION	209.0100 CY
0010	115+88 - 116+18		8
	119+89 - 120+19		8
	123+89 - 124+19		6
	SUSQUEHANNA RAMP		5
	134+55 EB - 150+76 EB		5790
	134+55 EB - 150+76 EB	MEDIAN	1579
	144+00 EB - 154+00 EB	EBS AREA	2896
	152+56 EB - 157+50 EB		1396
	152+56 EB - 157+50 EB	MEDIAN	1504
	148+00 WB - 150+96 WB		1055
	152+79 WB - 157+50 WB		1303
	32+00 BE - 37+11 BE		1233
	32+00 BE - 32+26 BE	MEDIAN	263
	32+90 BE - 37+11 BE	MEDIAN	854
	32+00 BW - 36+98 BW		1154
	34+00 BW - 35+00 BW	EBS AREA	184
	100+00 R - 104+09 R		2521
	149+00 B - 151+62 B		1106
	150+50 B - 151+00 B	EBS AREA	26
	32+30 P - 40+12 P		644
CATEGORY 0010 TOTAL			**23535**
0070	39+17 BE - 41+50 BE		619
	39+17 BE - 40+65 BE	MEDIAN	327
	38+95 BW - 41+18 BW		331
CATEGORY 0070 TOTAL			**1277**
PROJECT ID TOTAL			**24812**

FINISHING ROADWAY

LOCATION	213.0100 EACH
02. 8680-04-74	1
PROJECT ID TOTAL	**1**

OBLITERATING OLD ROAD

CATEGORY	LOCATION	214.0100 STA
0010	EB USH 2	7
	EB USH 2 TO WB BELKNAP	4
CATEGORY 0010 TOTAL		**11**
0070	N GARFIELD AVE	2
CATEGORY 0070 TOTAL		**2**
PROJECT ID TOTAL		**13**

EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL

CATEGORY	STATION TO STATION	LOCATION	205.0501.S TON
0070	155+00 EB - 157+00 EB	LT/RT	595
	39+75 BE - 43+00 BE	LT/RT	1025
PROJECT ID TOTAL			**1620**

PREPARE FOUNDATION FOR ASPHALTIC PAVING

CATEGORY	PROJECT	211.0100 LS
0060	01. 8680-04-74	1

BASE AGGREGATE DENSE

CATEGORY	STATION TO STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON
0010	115+88 - 116+18		---	15
	119+89 - 120+19		---	17
	123+89 - 124+19		---	12
	SUSQUEHANNA RAMP		3	10
	101+72 - 134+55	SHOULDERS	199	---
	134+55 EB - 150+76 EB		15	2518
	134+55 EB - 150+76 EB	MEDIAN	---	2862
	152+56 EB - 160+59 EB		---	626
	152+56 EB - 160+59 EB	MEDIAN	---	999
	134+55 WB - 150+96 WB		25	464
	152+79 WB - 157+50 WB		---	668
	29+75 BE - 32+26 BE	MEDIAN	---	260
	32+00 BE - 37+11 BE		---	774
	32+90 BE - 37+11 BE	MEDIAN	---	931
	38+36 BE - 40+33 BE		5	172
	29+97 BW - 36+14 BW		---	171
	32+00 BW - 36+98 BW		---	618
	100+00 R - 104+09 R		---	1129
	149+00 B - 151+62 B		---	241
	149+00 B - 151+62 B	MEDIAN	---	595
	32+30 P - 40+12 P		31	477
	47+69 S - 49+54		10	147
CATEGORY 0010 TOTALS			**288**	**13706**
0070	39+17 BE - 41+50 BE		---	375
	39+17 BE - 40+65 BE	MEDIAN	---	348
	41+50 BE - 44+20 BE		75	728
	41+00 BE	DRIVEWAY	146	---
	38+95 BW - 41+18 BW		---	170
CATEGORY 0070 TOTALS			**221**	**1621**
PROJECT ID TOTALS			**509**	**15327**

PREPARE FOUNDATION FOR CONCRETE PAVEMENT

LOCATION	211.0200 LS
02. 8680-04-74	1

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

STATION TO STATION	LOCATION	211.0400 STA
102+24 - 130+70	RT, EB LANES	29
101+93 - 122+13	LT, WB LANES	21
117+54 - 130+70	LT, WB LANES	14
132+37 - 134+55	RT, EB LANES	3
132+37 - 148+00	LT, WB LANES	16
PROJECT ID TOTAL		**83**

COLORING CONCRETE RED

CATEGORY	STATION TO STATION	LOCATION	405.0100 CY
0010	100+00 R - 104+08.73 R	LT, TRUCK APRON	97
	149+38 B - 150+52 B	RT, TRUCK APRON	12
	152+60 WB - 154+29 WB	LT, TRUCK APRON	13
	149+78 EB - 150+76 EB	LT	29
	152+56 EB - 153+59 EB	LT	33
	149+00 B - 151+62 B	LT	50
	36+26 BE - 37+10 BE	LT	19
CATEGORY 0010 TOTAL			**253**
0070	39+18 BE - 40+58 BE	LT	33
CATEGORY 0070 TOTAL			**33**
PROJECT ID TOTAL			**286**

CONCRETE PAVEMENT APPROACH SLAB

STATION TO STATION	LOCATION	415.0410 SY
130+70 - 130+86	RT, EB LANES	52
130+70 - 130+86	LT, WB LANES	52
132+21 - 132+37	RT, EB LANES	53
132+21 - 132+37	LT, WB LANES	53
PROJECT ID TOTAL		**210**

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

3

CONCRETE DRIVEWAY 6-INCH

CATEGORY	STATION	LOCATION	416.0160 SY
0070	41+00 BE	RT	52
PROJECT ID TOTAL			**52**

CONCRETE ROUNDABOUT TRUCK APRON 8-INCH

STATION TO STATION	LOCATION	416.0508 SY
100+00 R - 104+09 R	LT	437
149+38 B - 150+52 B	LT	55
152+60 WB - 154+29 WB	LT	58
PROJECT ID TOTAL		**550**

DRILLED TIE BARS

STATION - STATION	LOCATION	416.0610 EACH
101+89 - 130+86	LT	965
132+21 - 134+55	LT	76
101+89 - 102+12	RT	7
101+89 - 130+86	RT	2897
132+21 - 134+55	RT	76
PROJECT ID TOTAL		**4021**

DRILLED DOWEL BARS

STATION	LOCATION	416.0620 EACH
SUSQUEHANNA RAMP		22
122+14	LT	11
162+79 EB	LT/RT	39
PROJECT ID TOTAL		**72**

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CONCRETE SURFACE DRAINS

STATION	TYPE	LOCATION	416.1010 CY
149+71 WB	FLUME	LT	1.2
149+84 B	FLUME	RT	1.4
153+63 EB	FLUME	RT	1.3
PROJECT ID TOTAL			**4**

ASPHALTIC SURFACE

STATION TO STATION	LOCATION	465.0105 TON
38+36 BE - 40+33 BE	RT	26
32+93 P - 39+37 P	LT	86
47+69 S - 49+54 S	LT	29
PROJECT ID TOTAL		**141**

ASPHALTIC SURFACE TEMPORARY

STATION TO STATION	LOCATION	465.0125 TON
33+60 BE - 35+50 BE	LT/RT	169
157+67 EB - 159+63 EB	LT/RT	58
PROJECT ID TOTAL		**227**

HMA PAVEMENT ITEMS

CATEGORY	STATION TO STATION	LOCATION	460.1100 HMA PAVEMENT TYPE E-0.3 TON	460.1103 HMA PAVEMENT TYPE E-3 TON	460.1110 HMA PAVEMENT TYPE E-10 TON	455.0110 ASPHALTIC MATERIAL PG58-34 TON	455.0145 ASPHALTIC MATERIAL PG64-34P TON	455.0605 TACK COAT GAL
0010	102+24 - 130+70	RT, EB LANES	592	---	---	33	---	64
	101+93 - 122+13	LT, WB LANES	297	---	---	16	---	32
	117+54 - 130+70	LT, WB LANES	294	---	---	16	---	32
	SUSQUEHANNA RAMP		6	---	---	1	---	---
	132+37 - 134+55	RT, EB LANES	45	---	---	2	---	5
	132+37 - 134+55	LT, WB LANES	46	---	---	3	---	5
	134+55 EB - 143+50 EB	RT	180	---	---	10	---	20
	134+55 WB - 149+75 WB	LT	314	---	---	17	---	34
	32+00 BE - 35+00 BE	RT	---	---	257	---	14	35
	32+00 BW - 35+00 BW	LT/RT	---	---	345	---	19	47
CATEGORY 0010 TOTALS			**1774**	**0**	**602**	**98**	**33**	**274**
0060	18+63 BE - 26+82 BE	LT/RT	---	---	546	---	30	114
	26+82 BE - 29+75 BE	LT/RT	---	---	327	---	18	93
	29+75 BE - 32+00 BE	RT	---	---	85	---	5	24
	29+75 BW - 32+00 BW	LT/RT	---	---	183	---	10	39
CATEGORY 0060 TOTALS			**0**	**0**	**1141**	**0**	**63**	**270**
0070	40+65 BE - 44+20 BE	LT/RT	---	482	---	27	---	66
CATEGORY 0070 TOTALS			**0**	**482**	**0**	**27**	**0**	**66**
PROJECT ID TOTALS			**1774**	**482**	**1743**	**125**	**96**	**610**

ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES

CATEGORY	STATION	LOCATION	465.0120 TON
0070	41+00 BE	RT	68
	44+59 BE	LT	12
PROJECT ID TOTAL			**80**

ASPHALTIC FLUME

CATEGORY	STATION	LOCATION	465.0315 SY
0070	41+50 BE	RT	9
	41+50 BE	LT	9
PROJECT ID TOTAL			**18**

ASPHALTIC SURFACE PATCHING

CATEGORY	STATION TO STATION	LOCATION	465.0110 TON
0060	18+63 BE - 32+00 BE	LT/RT	30
PROJECT ID TOTAL			**30**

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

CULVERT PIPE CORRUGATED STEEL ITEMS

CATEGORY	STATION TO STATION	LOCATION	521.0112 CULVERT PIPE 12-INCH LF	521.0118 CULVERT PIPE 18-INCH LF	521.1012 APRON ENDWALLS 12-INCH EACH	521.1018 APRON ENDWALLS 18-INCH EACH	THICKNESS IN
0010	49+10 S	LT/RT	---	43	---	2	0.064
CATEGORY 0010 TOTALS			**---**	**43**	**---**	**2**	
0070	44+19 BE - 45+00 BE	LT	81	---	2	---	0.064
CATEGORY 0070 TOTALS			**81**	**---**	**2**	**---**	
PROJECT ID TOTALS			**81**	**43**	**2**	**2**	

CONCRETE SIDEWALK 4-INCH

CATEGORY	STATION TO STATION	LOCATION	602.0405 SF	COMMENTS
0010	134+55 EB - 149+78 EB	LT	18323	
	149+78 EB - 150+76 EB	LT	2381	COLORED
	152+56 EB - 153+59 EB	LT	3110	COLORED
	153+00 WB - 154+64 WB	LT	842	
	153+59 EB - 160+52 EB	LT	9007	
	159+50 EB - 163+00 EB	RT	1769	
	149+00 B - 151+62 B	LT	4082	COLORED
	29+82 BE - 32+21 BE	LT	1535	
	32+95 BE - 36+26 BE	LT	5440	
	36+26 BE - 37+10 BE	LT	1565	COLORED
	40+33 BE - 40+85 BE	RT	359	
	32+00 P - 32+42 P	LT	243	
	32+81 P - 33+11 P	LT & RT	303	
	49+54 S - 49+73 S	LT	331	
CATEGORY 0010 TOTAL			**49290**	
0070	39+18 BE - 40+58 BE	LT	2636	COLORED
CATEGORY 0070 TOTAL			**2636**	
PROJECT ID TOTAL			**51926**	

CURB RAMP DETECTABLE WARNING FIELD YELLOW

STATION	LOCATION	602.0505 SF
152+92 EB	LT	18
153+05 EB	RT	18
153+05 EB	LT	18
40+85 BE	RT	8
32+40 P	LT	10
32+85 P	LT	18
49+73 S	LT	18
PROJECT ID TOTAL		**108**

CULVERT PIPE ITEMS

STATION	LOCATION	520.1018 APRON ENDWALLS FOR CULVERT PIPE 18-INCH EACH	520.8000* CONCRETE COLLARS FOR PIPE EACH	530.0118 CULVERT PIPE CORRUGATED POLYETHYLENE 18-INCH LF	COMMENTS
116+03	LT	1	1	68	
120+04	LT	1	1	84	
124+04	LT	1	1	110	(2) ELBOWS
SUBTOTALS		3	3	262	
CATEGORY TOTALS		**3**	**13**	**262**	
PROJECT ID TOTALS		**3**	**13**	**262**	

CONCRETE CURB AND GUTTER

CATEGORY	STATION TO STATION	LOCATION	601.0405 18-INCH TYPE A LF	601.0409 30-INCH TYPE A LF	601.0411 30-INCH TYPE D LF	601.0580 4-INCH TYPE R LF	SPV.0090.09 SLOPED 36-INCH TYPE A MODIFIED LF
0010	29+82 BE - 32+19 BE	LT, MEDIAN	---	---	237	---	---
	29+82 BW - 32+21 BW	RT, MEDIAN	---	---	240	---	---
	29+97 BW - 35+00 BW	LT	---	---	487	---	---
	32+00 BE - 32+44 BE	RT	---	---	55	---	---
	32+79 BE - 35+00 BE	RT	---	---	245	---	---
	32+95 BW - 35+00 BW	RT, MEDIAN	---	---	209	---	---
	32+97 BE - 35+00 BE	LT, MEDIAN	---	---	202	---	---
	35+00 BW - 36+17 BW	LT	---	112	---	---	---
	35+00 BW - 36+98 BW	RT, MEDIAN	---	204	---	---	---
	35+00 BE - 37+11 BE	LT, MEDIAN	---	250	---	---	---
	35+00 BE - 154+10 EB	RT	---	435	---	---	---
	36+15 BW - 103+15 R	LT, ISLAND	---	134	---	---	---
	149+00 B - 151+62 B	RT	---	234	---	---	---
	149+02 B - 151+62 B	ISLAND	---	262	---	---	---
	100+00 R - 104+08 R	LT	---	---	---	396	---
	100+00 R - 104+08 R	LT	313	---	---	---	---
	134+50 EB - 150+75 EB	LT, MEDIAN	---	1679	---	---	---
	134+50 WB - 150+92 WB	RT, MEDIAN	---	1650	---	---	---
	143+50 EB - 148+98 EB	RT	---	544	---	---	---
	149+04 EB - 149+42 EB	RT, ISLAND	---	38	---	---	---
	149+42 EB - 103+15 R	RT, ISLAND	---	---	---	---	133
	149+75 WB - 38+95 BW	LT	---	185	---	---	---
	101+10 R - 39+17 BE	RT	---	53	---	---	---
	101+10 R - 154+39 WB	LT	---	---	---	---	167
	152+55 EB - 160+52 EB	LT, MEDIAN	---	852	---	---	---
	152+80 WB - 160+46 WB	RT, MEDIAN	---	771	---	---	---
	154+29 WB - 159+60 WB	LT	---	506	---	---	---
	156+73 EB - 159+60 EB	RT	---	295	---	---	---
	159+60 WB - 162+79 EB	LT	310	---	---	---	---
	156+73 EB - 162+79 EB	RT	321	---	---	---	---
CATEGORY 0010 TOTALS			**944**	**8204**	**1675**	**396**	**300**
0070	38+95 BW - 40+34 BW	LT	---	120	---	---	---
	38+99 BW - 40+27 BW	RT, MEDIAN	---	134	---	---	---
	39+21 BE - 40+57 BE	LT, MEDIAN	---	193	---	---	---
	39+17 BE - 40+65 BE	RT	---	145	---	---	---
	40+34 BW - 41+18 BW	LT	---	---	84	---	---
	40+65 BE - 41+50 BE	RT	---	---	86	---	---
CATEGORY 0070 TOTALS			**0**	**592**	**170**	**0**	**0**
PROJECT ID TOTALS			**944**	**8796**	**1845**	**396**	**300**

CULVERT PIPE REINFORCED CONCRETE 24-INCH

CATEGORY	STATION	522.0324 CLASS IV LF	522.1024* APRON ENDWALLS EACH
0070	42+50 BE	45	2
CATEGORY TOTALS		**45**	**2**
PROJECT ID TOTALS		**45**	**6**

CONCRETE GUTTER 24-INCH

STATION TO STATION	LOCATION	601.0205 LF
101+89 - 130+86	USH 2 (EB LANES)	2900
PROJECT ID TOTAL		**2900**

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

STORM SEWER ITEMS

STATION	LOCATION	OFFSET		STRUCT. NUMBER	INVERT INLET ELEV FT	INVERT DISCH. ELEV FT	TO STRUCT.	SLOPE %	STAGE	608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH LF	608.0315 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 15-INCH LF	608.0318 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 18-INCH LF	608.0324 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 24-INCH LF	608.0412 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 12-INCH LF	608.0415 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 15-INCH LF	608.0424 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 24-INCH LF	522.1012 APRON ENDWALLS FOR CULVERT PIPE REINFORCED 12-INCH EACH	522.1024* APRON ENDWALLS FOR CULVERT PIPE CONCRETE 24-INCH EACH	520.8000* CONCRETE COLLAR EACH
141+10	USH2 WB	1.0	RT	1-A	641.42	640.04	1-AEW	-2.00	1	-	-	-	-	69	-	-	1	-	-
142+98	USH2 WB	1.0	RT	2-A	641.66	640.36	2-AEW	-2.00	1	-	-	-	-	65	-	-	1	-	-
144+86	USH2 WB	1.0	RT	3-A	641.56	640.33	3-AEW	-2.00	1	-	-	-	-	61	-	-	1	-	-
146+74	USH2 WB	1.0	RT	4-A	640.85	640.24	4-AEW	-1.00	1	-	-	-	-	60	-	-	1	-	-
147+00	USH2 EB	29.4	RT	1-B	639.30	639.12	2-B	-0.30	1	-	-	-	-	-	60	-	-	-	-
147+50	USH2 WB	1.0	RT	2-B	639.12	639.04	3-B	-0.30	1	-	25	-	-	-	-	-	-	-	-
147+75	USH2 WB	1.0	RT	3-B	639.04	638.93	4-B	-0.30	1	-	36	-	-	-	-	-	-	-	-
148+00	USH2 EB	36.4	RT	5-B	638.67	638.75	8-AEW	0.37	1	-	-	-	-	-	-	22	-	1	-
148+00	USH2 EB	36.4	RT	5-B	638.67	638.47	4-B	-0.37	1	-	-	-	-	-	-	52	-	-	-
148+11	USH2 WB	1.0	RT	4-B	638.47	638.25	5-AEW	-0.36	1	-	-	-	-	-	-	62	-	1	-
148+50	USH2 WB	1.0	RT	1-C	640.40	640.32	2-C	-0.30	1	25	-	-	-	-	-	-	-	-	-
148+75	USH2 WB	1.0	RT	2-C	640.17	640.02	6-AEW	-0.30	1	-	-	-	-	54	-	-	1	-	-
149+05	USH2 EB	52.2	RT	1-D	638.55	638.47	2-D	-0.25	1	-	-	-	-	34	-	-	-	-	-
149+25	USH2 EB	25.3	RT	2-D	638.47	638.26	7-AEW	-0.21	1	-	-	-	-	99	-	-	1	-	-
100+65	RAB	33.0	RT	1-E	639.02	638.92	2-E	-0.30	1	-	-	-	-	35	-	-	-	-	-
100+65	RAB	1.5	LT	2-E	638.92	638.89	3-E	-0.30	1	-	-	-	-	10	-	-	-	-	-
100+75	RAB	1.5	LT	3-E	638.89	638.61	4-E	-0.30	1	-	-	-	-	94	-	-	-	-	-
101+52	RAB	33.0	RT	4-E	638.61	638.58	5-E	-0.30	1	10	-	-	-	-	-	-	-	-	-
101+54	RAB	42.0	RT	5-E	638.58	638.75	10-AEW	0.26	1	-	-	-	-	-	-	65	-	1	-
101+54	RAB	42.0	RT	5-E	638.58	638.25	9-AEW	-0.26	1	-	-	-	-	-	-	125	-	1	-
153+75	USH2 WB	26.5	LT	1-F	636.35	635.40	2-F	-1.90	1	-	-	-	-	50	-	-	-	-	-
154+25	USH2 WB	25.5	LT	2-F	635.40	634.33	3-F	-1.90	1	-	-	-	-	56	-	-	-	-	-
154+45	USH2 EB	1.2	LT	3-F	634.33	633.93	3-G	-1.00	1	-	-	-	-	40	-	-	-	-	-
155+63	USH2 WB	45.3	LT	1-H	634.24	634.15	1-G	-0.24	1	-	38	-	-	-	-	-	-	-	-
156+00	USH2 WB	28.2	LT	1-J	640.00	639.95	1-G	-0.70	1	7	-	-	-	-	-	-	-	-	-
156+02	USH2 WB	34.9	LT	1-G	632.95	-	1-CC	-	1	-	-	9	-	-	-	-	-	-	1
156+02	USH2 WB	34.9	LT	1-G	632.95	632.70	2-G	-0.27	1	-	-	-	-	-	-	91	-	-	-
155+23	USH2 WB	12.8	RT	2-G	632.70	632.42	3-G	-0.30	1	-	-	-	-	-	-	97	-	-	2
154+39	USH2 WB	38.3	RT	3-G	632.42	-	2-CC	-	1	-	-	9	-	-	-	-	-	-	1
156+22	USH2 EB	135.9	RT	1-I	638.88	638.22	2-I	-0.66	3B	-	-	-	-	-	99	-	-	-	1
155+66	USH2 EB	57.8	RT	2-I	638.22	63776.00	3-I	-0.67	3B	-	-	-	-	-	69	-	-	-	-
156+00	USH2 EB	1.2	LT	3-I	637.76	637.69	4-I	-0.80	3B	-	9	-	-	-	-	-	-	-	-
156+00	USH2 WB	10.3	RT	4-I	637.69	632.70	2-G	-0.80	1	-	78	-	-	-	-	-	-	-	-
153+12	USH2 WB	163.9	RT	1-L	635.09	634.83	2-L	-0.30	3B	89	-	-	-	-	-	-	-	-	-
159+25	USH2 EB	28.2	RT	1-K	647.01	646.12	2-K	-3.48	3B	26	-	-	-	-	-	-	-	-	-
159+00	USH2 EB	28.3	RT	2-K	646.12	644.47	3-K	-3.35	3B	-	-	-	-	49	-	-	-	-	-
158+65	USH2 EB	6.2	LT	3-K	644.47	643.34	4-K	-3.50	1	-	-	-	-	35	-	-	-	-	-
158+65	USH2 EB	6.2	LT	3-K	650.90	-	10-CC	-	1	-	-	-	-	9	-	-	-	-	1
158+54	USH2 WB	25.3	LT	4-K	640.00	-	3-CC	-	1	6	-	-	-	-	-	-	-	-	1
36+00	BEL WB	22.9	RT	1-M	635.51	634.78	2-M	-1.00	3B	73	-	-	-	-	-	-	-	-	-
36+25	BEL WB	17.3	LT	1-N	638.88	638.76	11-AEW	-0.25	1	-	-	-	-	48	-	-	1	-	-
34+53	BEL WB	25.4	LT	1-O	632.90	633.20	2-O	1.00	3A	-	30	-	-	-	-	-	-	-	-
34+53	BEL WB	25.4	LT	1-O	632.74	-	11-CC	-	3A	-	-	-	-	-	9	-	-	-	1
33+15	BEL EB	1.2	LT	1-Q	634.91	634.74	2-Q	-1.60	3B	11	-	-	-	-	-	-	-	-	-
33+04	BEL EB	1.0	LT	2-Q	634.74	634.56	TEMP-2	-1.60	3B	11	-	-	-	-	-	-	-	-	-
33+04	BEL WB	7.0	RT	TEMP-2	634.56	634.04	3-Q	-1.60	1	-	-	-	-	32	-	-	-	-	-
33+09	BEL WB	14.7	RT	TEMP-1	635.43	634.56	TEMP-2	-9.44	3B	9	-	-	-	-	-	-	-	-	-
33+08	BEL WB	24.9	LT	3-Q	630.49	-	4-CC	-	1	-	-	9	-	-	-	-	-	-	1
33+08	BEL WB	24.9	LT	3-Q	630.49	630.32	4-Q	-0.30	1	-	-	-	55	-	-	-	-	-	-
32+50	BEL WB	25.0	LT	4-Q	630.32	630.28	5-Q	-0.41	1	-	-	-	11	-	-	-	-	-	-
32+40	BEL WB	27.3	LT	5-Q	630.28	-	6-CC	-	1	-	-	-	9	-	-	-	-	-	1
CATEGORY TOTALS										267	216	27	75	900	237	514	7	4	10
CATEGORY TOTALS										**267**	**216**	**27**	**75**	**900**	**237**	**514**	**7**	**4**	**13**
PROJECT ID TOTALS										**267**	**216**	**27**	**75**	**900**	**237**	**514**	**7**	**6**	**13**

•OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

MANHOLES AND INLETS ITEMS

STATION	LOCATION	OFFSET	STRUCT. NUMBER	GRATE/ RIM ELEV. FT	INVERT INLET ELEV. FT	INVERT DISCH. ELEV. FT	STRUCT. HEIGHT FT	STAGE	611.2003 MANHOLES, 3-FT EACH	611.2004 MANHOLES, 4-FT EACH	611.2006 MANHOLES, DIAMETER 6-FT EACH	611.2008 MANHOLES, DIAMETER 8-FT EACH	611.3220 INLETS 2x2FT EACH	611.3225 INLETS 2x2.5FT EACH	611.3230 INLETS 2x3FT EACH	611.3003 INLETS, DIAMETER 3-FT EACH	611.3004 INLETS, DIAMETER 4-FT EACH
141+10.0	USH2 WB	1.0 RT	1-A	648.22	-	641.42	6.26	1	-	-	-	-	-	-	1	-	-
142+98.0	USH2 WB	1.0 RT	2-A	646.66	-	641.66	4.46	1	-	-	-	-	-	-	1	-	-
144+86.0	USH2 WB	1.0 RT	3-A	645.53	-	641.56	3.43	1	-	-	-	-	-	-	1	-	-
146+74.0	USH2 WB	1.0 RT	4-A	644.41	-	640.85	3.02	1	-	-	-	-	-	-	1	-	-
147+00.0	USH2 EB	29.4 RT	1-B	642.92	0.00	639.30	3.10	1	-	-	-	-	-	-	1	-	-
147+50.0	USH2 WB	1.0 RT	2-B	643.96	639.12	639.12	4.32	1	-	-	-	-	-	-	-	1	-
147+75.0	USH2 WB	1.0 RT	3-B	643.81	639.04	639.04	4.25	1	-	-	-	-	-	-	-	1	-
148+11.4	USH2 WB	1.0 RT	4-B	643.58	638.93	638.47	4.65	1	-	-	-	-	-	-	-	-	1
148+00.0	USH2 EB	36.4 RT	5-B	642.44	638.67	638.67	3.31	1	-	-	-	-	-	-	-	-	1
148+50.0	USH2 WB	1.0 RT	1-C	643.36	-	640.40	2.42	1	-	-	-	-	-	-	1	-	-
148+75.0	USH2 WB	1.0 RT	2-C	643.21	640.32	640.17	2.50	1	-	-	-	-	-	-	1	-	-
149+05.0	USH2 EB	52.2 RT	1-D	641.54	0.00	638.55	2.45	1	-	-	-	-	-	-	1	-	-
149+25.0	USH2 EB	25.3 RT	2-D	641.96	638.47	638.47	2.95	1	-	-	-	-	-	-	1	-	-
100+65.0	RAB	33.0 RT	1-E	642.17	-	639.02	2.57	1	-	-	-	-	1	-	-	-	-
100+65.0	RAB	1.5 LT	2-E	642.04	638.92	638.92	2.46	1	-	-	-	-	-	1	-	-	-
100+75.0	RAB	1.5 LT	3-E	642.05	638.89	638.89	2.50	1	-	-	-	-	-	1	-	-	-
101+51.5	RAB	33.0 RT	4-E	642.77	638.61	638.61	3.62	1	-	-	-	-	-	-	1	-	-
101+54.2	RAB	42.0 RT	5-E	642.92	638.58	638.58	3.43	1	-	1	-	-	-	-	-	-	-
153+75.0	USH2 WB	26.5 LT	1-F	641.07	-	636.35	4.06	1	-	-	-	-	-	1	-	-	-
154+25.0	USH2 WB	25.5 LT	2-F	641.15	635.40	635.40	5.09	1	-	-	-	-	-	1	-	-	-
154+45.0	USH2 EB	1.2 LT	3-F	642.03	634.33	634.33	7.16	1	-	-	-	-	-	-	1	-	-
156+01.8	USH2 WB	34.9 LT	1-G	642.85	639.95	632.95	9.07	1	-	1	-	-	-	-	-	-	-
155+23.0	USH2 WB	12.8 RT	2-G	642.83	637.07	632.70	9.30	1	-	-	1	-	-	-	-	-	-
154+38.6	USH2 EB	38.3 RT	3-G	642.74	633.93	632.42	9.49	1	-	-	-	1	-	-	-	-	-
155+62.7	USH2 WB	45.3 LT	1-H	637.19	-	634.24	-	1	-	-	-	-	-	-	-	-	-
156+21.9	USH2 EB	135.9 RT	1-I	641.63	639.38	638.88	2.46	1	-	-	-	-	-	-	-	-	-
155+66.0	USH2 EB	57.8 RT	2-I	644.01	638.22	638.22	5.27	3B	-	-	-	-	-	-	1	-	-
156+00.0	USH2 EB	1.2 LT	3-I	644.30	637.76	637.76	6.02	3B	-	-	-	-	-	-	1	-	-
156+00.2	USH2 WB	10.3 RT	4-I	644.69	637.69	637.69	6.10	1	-	1	-	-	-	-		-	-
155+99.9	USH2 WB	28.2 LT	1-J	642.98	-	640.00	2.44	1	-	-	-	-	-	-	1	-	-
159+25.0	USH2 EB	28.2 RT	1-K	655.25	-	647.01	7.70	3B	-	-	-	-	-	-	1	-	-
159+00.0	USH2 EB	28.2 RT	2-K	654.43	646.12	646.12	7.77	3B	-	-	-	-	-	-	-	1	-
158+65.3	USH2 WB	6.2 LT	3-K	653.44	644.47	644.47	8.07	1	1	-	-	-	-	-	-	-	-
158+53.1	USH2 WB	28.2 LT	4-K	651.65	643.34	640.00	10.99	1	-	-	-	-	-	-	1	-	-
153+12.1	USH2 WB	163.9 RT	1-L	638.50	-	635.09	2.50	3B	-	-	-	-	-	-	-	1	-
153+48.4	USH2 WB	135.3 RT	2-L	639.75	634.83	631.97	6.91	3B	-	-	-	-	-	-	-	-	-
36+00.0	BEL EB	22.9 RT	1-M	642.16	-	635.51	6.11	3B	-	-	-	-	-	-	-	1	-
35+51.2	BEL EB	76.3 RT	2-M	640.00	634.78	631.33	7.80	3B	-	-	-	-	-	-	-	-	-
36+25.0	BEL WB	17.3 LT	1-N	642.06	-	638.88	2.64	1	-	-	-	-	-	-	1	-	-
34+52.6	BEL WB	25.4 LT	1-O	640.85	632.90	632.74	7.57	3A	-	-	-	-	-	-	1	-	-
34+52.6	BEL WB	55.3 LT	2-O	637.58	-	633.2	3.47	3A	-	-	-	-	-	-	-	1	-
34+35.5	BEL EB	17.6 RT	1-P	642.19	633.83	630.78	10.54	3A	-	-	-	-	-	-	-	-	-
33+15.0	BEL EB	1.2 LT	1-Q	640.79	-	634.91	5.34	3B	-	-	-	-	-	-	1	-	-
33+04.0	BEL EB	1.0 LT	2-Q	640.71	634.74	634.74	5.43	3B	-	-	-	-	-	-	1	-	-
33+08.0	BEL WB	24.9 LT	3-Q	640.02	636.73	630.49	9.07	1	-	-	-	-	-	-	-	-	1
32+50.0	BEL WB	25.0 LT	4-Q	639.75	630.32	630.32	8.97	1	-	-	-	-	-	-	-	-	1
32+39.6	BEL WB	27.3 LT	5-Q	640.03	630.28	630.28	8.92	1	-	1	-	-	-	-	-	-	-
29+71.3	BEL WB	29.0 LT	1-R	640.39	-	-	-	1	-	-	-	-	-	-	-	-	-
33+08.6	BEL WB	14.7 RT	TEMP-1	640	635.47	635.43	4.74	1	-	-	-	-	-	-	-	-	-
33+03.8	BEL WB	7.0 RT	TEMP-2	640.7	634.56	634.56	5.23	1	1	-	-	-	-	-	-	-	-
PROJECT ID TOTALS									**2**	**4**	**1**	**1**	**1**	**4**	**20**	**6**	**4**

•OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

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MANHOLES AND INLETS ITEMS

STATION	LOCATION	OFFSET	STRUCT. NUMBER	GRATE/ RIM ELEV. FT	INVERT INLET ELEV. FT	INVERT DISCH. ELEV. FT	STRUCT. HEIGHT FT	STAGE	611.3902 INLETS MEDIAN 2 GRATE EACH	611.0612 TYPE C EACH	611.0624 TYPE H EACH	611.0639 INLET COVERS TYPE H-S EACH	611.0642 INLET COVERS TYPE MS EACH	611.0600 TYPE A EACH	611.0652 TYPE T EACH	611.0530 MANHOLE COVERS TYPE J EACH	611.0420 RECONSTRUCTING MANHOLES EACH	611.0430 RECONSTRUCTING INLETS EACH
141+10.0	USH2 WB	1.0 RT	1-A	648.22	-	641.42	6.26	1	-	-	1	-	-	-	-	-	-	-
142+98.0	USH2 WB	1.0 RT	2-A	646.66	-	641.66	4.46	1	-	-	1	-	-	-	-	-	-	-
144+86.0	USH2 WB	1.0 RT	3-A	645.53	-	641.56	3.43	1	-	-	1	-	-	-	-	-	-	-
146+74.0	USH2 WB	1.0 RT	4-A	644.41	-	640.85	3.02	1	-	-	1	-	-	-	-	-	-	-
147+00.0	USH2 EB	29.4 RT	1-B	642.92	0.00	639.30	3.10	1	-	-	1	-	-	-	-	-	-	-
147+50.0	USH2 WB	1.0 RT	2-B	643.96	639.12	639.12	4.32	1	-	-	1	-	-	-	-	-	-	-
147+75.0	USH2 WB	1.0 RT	3-B	643.81	639.04	639.04	4.25	1	-	-	1	-	-	-	-	-	-	-
148+11.4	USH2 WB	1.0 RT	4-B	643.58	638.93	638.47	4.65	1	-	-	1	-	-	-	-	-	-	-
148+00.0	USH2 EB	36.4 RT	5-B	642.44	638.67	638.67	3.31	1	-	-	1	-	-	-	-	-	-	-
148+50.0	USH2 WB	1.0 RT	1-C	643.36	-	640.40	2.42	1	-	-	1	-	-	-	-	-	-	-
148+75.0	USH2 WB	1.0 RT	2-C	643.21	640.32	640.17	2.50	1	-	-	1	-	-	-	-	-	-	-
149+05.0	USH2 EB	52.2 RT	1-D	641.54	0.00	638.55	2.45	1	-	-	1	-	-	-	-	-	-	-
149+25.0	USH2 EB	25.3 RT	2-D	641.96	638.47	638.47	2.95	1	-	-	1	-	-	-	-	-	-	-
100+65.0	RAB	33.0 RT	1-E	642.17	-	639.02	2.57	1	-	-	-	-	-	1	-	-	-	-
100+65.0	RAB	1.5 LT	2-E	642.04	638.92	638.92	2.46	1	-	-	-	-	-	-	1	-	-	-
100+75.0	RAB	1.5 LT	3-E	642.05	638.89	638.89	2.50	1	-	-	-	-	-	-	1	-	-	-
101+51.5	RAB	33.0 RT	4-E	642.77	638.61	638.61	3.62	1	-	-	1	-	-	-	-	-	-	-
101+54.2	RAB	42.0 RT	5-E	642.92	638.58	638.58	3.43	1	-	-	-	-	-	-	-	1	-	-
153+75.0	USH2 WB	26.5 LT	1-F	641.07	-	636.35	4.06	1	-	-	-	-	-	-	1	-	-	-
154+25.0	USH2 WB	25.5 LT	2-F	641.15	635.40	635.40	5.09	1	-	-	-	-	-	-	1	-	-	-
154+45.0	USH2 EB	1.2 LT	3-F	642.03	634.33	634.33	7.16	1	-	-	1	-	-	-	-	-	-	-
156+01.8	USH2 WB	34.9 LT	1-G	642.85	639.95	632.95	9.07	1	-	-	-	-	-	-	-	1	-	-
155+23.0	USH2 WB	12.8 RT	2-G	642.83	637.07	632.70	9.30	1	-	-	-	-	-	-	-	1	-	-
154+38.6	USH2 EB	38.3 RT	3-G	642.74	633.93	632.42	9.49	1	-	-	-	-	-	-	-	1	-	-
155+62.7	USH2 WB	45.3 LT	1-H	637.19	-	634.24	-	1	-	-	-	-	-	-	-	-	-	1
156+21.9	USH2 EB	135.9 RT	1-I	641.63	639.38	638.88	2.46	1	1	-	-	-	2	-	-	-	-	-
155+66.0	USH2 EB	57.8 RT	2-I	644.01	638.22	638.22	5.27	3B	-	-	1	-	-	-	-	-	-	-
156+00.0	USH2 EB	1.2 LT	3-I	644.30	637.76	637.76	6.02	3B	-	-	1	-	-	-	-	-	-	-
156+00.2	USH2 WB	10.3 RT	4-I	644.69	637.69	637.69	6.10	1	-	-	-	-	-	-	-	1	-	-
155+99.9	USH2 WB	28.2 LT	1-J	642.98	-	640.00	2.44	1	-	-	1	-	-	-	-	-	-	-
159+25.0	USH2 EB	28.2 RT	1-K	655.25	-	647.01	7.70	3B	-	-	1	-	-	-	-	-	-	-
159+00.0	USH2 EB	28.2 RT	2-K	654.43	646.12	646.12	7.77	3B	-	-	1	-	-	-	-	-	-	-
158+65.3	USH2 WB	6.2 LT	3-K	653.44	644.47	644.47	8.07	1	-	-	-	-	-	-	-	1	1	-
158+53.1	USH2 WB	28.2 LT	4-K	651.65	643.34	640.00	10.99	1	-	-	1	-	-	-	-	-	-	-
153+12.1	USH2 WB	163.9 RT	1-L	638.50	-	635.09	2.50	3B	-	1	-	-	-	-	-	-	-	-
153+48.4	USH2 WB	135.3 RT	2-L	639.75	634.83	631.97	6.91	3B	-	-	-	-	-	-	-	1	1	-
36+00.0	BEL EB	22.9 RT	1-M	642.16	-	635.51	6.11	3B	-	-	1	-	-	-	-	-	-	-
35+51.2	BEL EB	76.3 RT	2-M	640.00	634.78	631.33	7.80	3B	-	-	-	-	-	-	-	1	1	-
36+25.0	BEL WB	17.3 LT	1-N	642.06	-	638.88	2.64	1	-	-	1	-	-	-	-	-	-	-
34+52.6	BEL WB	25.4 LT	1-O	640.85	632.90	632.74	7.57	3A	-	-	1	-	-	-	-	-	-	-
34+52.6	BEL WB	55.3 LT	2-O	637.58	-	633.2	3.47	3A	-	1	-	-	-	-	-	-	-	-
34+35.5	BEL EB	17.6 RT	1-P	642.19	633.83	630.78	10.54	3A	-	-	-	-	-	-	-	1	1	-
33+15.0	BEL EB	1.2 LT	1-Q	640.79	-	634.91	5.34	3B	-	-	1	-	-	-	-	-	-	-
33+04.0	BEL EB	1.0 LT	2-Q	640.71	634.74	634.74	5.43	3B	-	-	1	-	-	-	-	-	-	-
33+08.0	BEL WB	24.9 LT	3-Q	640.02	636.73	630.49	9.07	1	-	-	1	-	-	-	-	-	-	-
32+50.0	BEL WB	25.0 LT	4-Q	639.75	630.32	630.32	8.97	1	-	-	-	1	-	-	-	-	-	-
32+39.6	BEL WB	27.3 LT	5-Q	640.03	630.28	630.28	8.92	1	-	-	-	-	-	-	-	1	-	-
29+71.3	BEL WB	29.0 LT	1-R	640.39	-	-	-	1	-	-	-	-	-	-	-	-	1	-
33+08.6	BEL WB	14.7 RT	TEMP-1	640	635.47	635.43	4.74	1	-	-	-	-	-	-	-	-	-	1
33+03.8	BEL WB	7.0 RT	TEMP-2	640.7	634.56	634.56	5.23	1	-	-	-	-	-	-	-	1	-	-
PROJECT ID TOTALS									**1**	**2**	**27**	**1**	**2**	**1**	**4**	**11**	**5**	**2**

•OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

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MGS GUARDRAIL ITEMS

STATION TO STATION	LOCATION	614.2500 MGS THRIE BEAM TRANSITION LF	614.2300 MGS GUARDRAIL 3 LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	614.2620 MGS GUARDRAIL TERMINAL TYPE 2 EACH
101+93 - 103+84	LT	39	100	1	---
102+12 - 107+65	RT	---	552	---	1
129+42 - 130+78	LT	---	136	---	1
128+82 - 130+78	RT	39	104	1	---
132+29 - 134+17	LT	39	96	1	---
132+29 - 133+64	RT	---	135	---	1
PROJECT ID TOTALS		**117**	**1123**	**3**	**3**

GATES PIPE SINGLE LEAF

CATEGORY	STATION	LOCATION	616.0360.S.01 13-FEET EACH	616.0360.S.02 16-FEET EACH
0070	163+50 EB	RT	2	---
	9+43 D	LT/RT	---	2
PROJECT ID TOTAL			**2**	**2**

CONCRETE MEDIAN SLOPED NOSE

CATEGORY	STATION	LOCATION	TYPE	620.0300 SF
0010	149+00 B	LT	1	68
	160+55 EB	LT	1	56
	29+75 BE	LT	1	56
	32+23 BE	LT	1	56
	32+93 BE	LT	1	57
	37+10 BE	LT	2	26
	36+98 BW	RT	2	26
	150+75 EB	LT	2	26
	150+96 WB	RT	2	26
	152+80 EB	RT	2	26
	152+55 EB	LT	2	26
CATEGORY 0010 TOTAL				**449**
0070	38+97 BW	RT	2	26
	39+17 BE	LT	2	26
	40+60 BE	LT	1	65
CATEGORY 0070 TOTAL				**117**
PROJECT ID TOTAL				**566**

RIPRAP & GEOTEXTILE FABRIC

CATEGORY	STATION	LOCATION	STAGE	606.0100 RIPRAP LIGHT CY	606.0200 RIPRAP MEDIUM CY	645.0130 FABRIC TYPE R SY
0010	116+03	LT	1A/1B	---	5	20
	120+04	LT	1A/1B	---	6	24
	124+04	LT	1A/1B	---	5	19
	141+10 WB	LT	1A/1B	1	---	6
	142+98 WB	LT	1A/1B	1	---	6
	144+86 WB	LT	1A/1B	1	---	6
	146+74 WB	LT	1A/1B	1	---	6
	148+11 WB	LT	1A/1B	1	---	6
	148+75 WB	LT	1A/1B	1	---	6
	149+36 WB	LT	1A/1B	1	---	6
	151+00 WB	LT	1A/1B	1	---	6
	34+53 BW	LT	1A/1B	1	---	6
	36+25 BW	LT	1A/1B	1	---	6
	UNDISTRIBUTED			2	---	12
CATEGORY 0010 TOTALS				**12**	**16**	**135**
0070	42+50 BW	LT	1A/1B	1	---	6
CATEGORY 0070 TOTALS				**1**	**0**	**6**
PROJECT ID TOTALS				**13**	**16**	**141**

TOPSOIL, SALVAGED TOPSOIL, MULCHING, FERTILIZER, & SEEDING

CATEGORY	STATION TO STATION	LOCATION	625.0100 TOPSOIL SY	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0110 SEEDING MIXTURE NO. 10 LB	630.0200 SEEDING TEMPORARY LB
0010	115+88 - 116+18	LT	---	124	---	1	2	3
	119+89 - 120+19	LT	---	145	---	1	2	4
	123+89 - 124+19	LT	---	220	---	1	3	6
	134+55 EB - 163+00 EB	RT	5096	7924	11382	8	176	352
	134+55 WB - 162+00 WB	LT	---	4991	---	3	67	135
	30+00 BE - 37+00 BE	LT/RT	1629	2255	3527	2	52	105
	32+50 BW - 37+00 BW	LT	1082	1514	1997	2	35	70
	149+00 B - 151+50 B	RT	---	703	489	1	9	19
	33+00 P - 40+00 P	LT/RT	---	4653	4653	3	63	126
	47+75 S - 49+50 S	LT	---	209	209	1	3	6
	UNDISTRIBUTED		1893	5662	5543	6	103	204
CATEGORY 0010 TOTALS			**9700**	**28400**	**27800**	**29**	**515**	**1030**
0070	39+00 BE - 44+20 BE	LT/RT	561	1739	2128	1	31	62
	39+00 BW - 40+50 BW	LT	---	334	156	1	5	9
	UNDISTRIBUTED		139	527	466	1	9	19
CATEGORY 0070 TOTALS			**700**	**2600**	**2750**	**3**	**45**	**90**
PROJECT ID TOTALS			**10400**	**31000**	**30550**	**32**	**560**	**1120**

ADJUSTING INLET COVERS

STATION	LOCATION	611.8115 EACH
102+17	RT	1
102+20	RT	1
132+34	LT&RT	2
PROJECT ID TOTAL		**4**

COVER PLATES TEMPORARY

LOCATION	611.8120.S EACH
EXISTING BELKNAP STREET	4
UNDISTRIBUTED	2
PROJECT ID TOTAL	**6**

CRASH CUSHIONS PERMANENT

STATION	614.0800 EACH
134+50	1
PROJECT ID TOTAL	**1**

MAINTENANCE AND REPAIR OF HAUL ROADS

LOCATION	618.0100 EACH
02. 8680-04-74	1
PROJECT ID TOTAL	**1**

MOBILIZATION

PROJECT	619.1000 EACH
8680-04-74	0.095
PROJECT ID TOTAL	**0.095**

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

3

INLET PROTECTION

STATION	STRUCTURE NUMBER	STAGE	628.7005 TYPE A EACH	628.7010 TYPE B EACH	628.7015 TYPE C EACH
141+10 WB	1-A	1A/1B	1	---	1
142+98 WB	2-A	1A/1B	1	---	1
144+86 WB	3-A	1A/1B	1	---	1
146+74 WB	4-A	1A/1B	1	---	1
147+00 EB	1-B	1A/1B	1	---	1
147+50 WB	2-B	1A/1B	1	---	1
147+75 WB	3-B	1A/1B	1	---	1
148+00 EB	5-B	1A/1B	1	---	1
148+11.4 WB	4-B	1A/1B	1	---	1
148+50 WB	1-C	1A/1B	1	---	1
148+75 WB	2-C	1A/1B	1	---	1
149+05 EB	1-D	1A/1B	1	---	1
149+25 EB	2-D	1A/1B	1	---	1
100+65 R	1-E	1A/1B	1	---	1
100+65 R	2-E	1A/1B	1	1	---
100+75 R	3-E	1A/1B	1	1	---
101+51.5 R	4-E	1A/1B	1	---	1
152+12.1 EB	1-L	1A/1B & 3	2	---	---
153+75 WB	1-F	1A/1B	1	1	---
154+25 WB	2-F	1A/1B	1	1	---
154+45 EB	3-F	1A/1B	1	---	1
155+62.74 WB	1-H	1A/1B	1	---	---
156+00 WB	1-J	1A/1B	1	---	1
156+00 EB	2-I		1	---	1
158+53.7 WB	4-K		1	---	1
159+00 EB	2-K		1	---	1
159+25 EB	1-K		1	---	1
32+50 BW	4-Q		1	---	1
33+04 BE	2-Q		1	---	1
33+08 BW	3-Q		1	---	1
33+15 BE	1-Q		1	---	1
34+75 BW	1-O		1	---	1
36+00 BE	1-M		1	---	1
36+25 BW	1-N		1	---	1
UNDISTRIBUTED			8	1	7
PROJECT ID TOTALS			**43**	**5**	**35**

WATER

CATEGORY	LOCATION	624.0100 MGAL
0010	DUST CONTROL	280
	EXCAVATION	100
CATEGORY 0010 TOTAL		**380**
0070	DUST CONTROL	40
	EXCAVATION	10
CATEGORY 0070 TOTAL		**50**
PROJECT ID TOTAL		**430**

SILT FENCE

CATEGORY	STATION TO STATION	LOCATION	STAGE	628.1504 LF	628.1520 MAINTENANCE LF
0010	115+53 - 116+53	LT	1A/1B	100	200
	119+54 - 120+54	LT	1A/1B	100	200
	123+54 - 124+54	LT	1A/1B	100	200
	134+55 WB - 151+00 WB	LT	1A/1B	1645	3290
	158+00 WB - 162+50 WB	LT	1A/1B	450	900
	160+50 EB - 163+00 EB	LT	1A/1B	250	500
	134+55 EB - 147+50 EB	RT	3	1295	2590
	UNDISTRIBUTED			910	1820
CATEGORY 0010 TOTALS				**4850**	**9700**
0070	39+00 BE - 41+50 BE	LT	1A/1B	250	500
	41+50 BE - 44+20 BE	LT	1A/1B	270	540
	UNDISTRIBUTED			70	140
CATEGORY 0070 TOTALS				**590**	**1180**
PROJECT ID TOTALS				**5440**	**10880**

EROSION MAT

CATEGORY	STATION TO STATION	LOCATION	STAGE	628.2004 CLASS I TYPE B SY	628.2006 URBAN CLASS I TYPE A SY
0010	115+88 - 116+18	LT	1A/1B	124	---
	119+89 - 120+19	LT	1A/1B	145	---
	123+89 - 124+19	LT	1A/1B	220	---
	134+55 WB - 151+07 WB	LT	1A/1B	---	1468
	152+74 WB - 162+79 WB	LT	1A/1B	---	893
	155+50 WB - 156+00 WB	LT	1A/1B	83	---
	159+00 WB - 162+00 WB	LT	1A/1B	1628	---
	135+75 EB - 137+16 EB	RT	1A/1B	---	192
	152+44 EB - 154+50 EB	RT	1A/1B	---	183
	143+50 EB - 148+95 EB	RT	1A/1B	---	484
	149+00 B - 151+62 B	RT	1A/1B	---	244
	32+00 BW - 34+80 BW	LT	1A/1B	---	249
	134+55 EB - 145+30 EB	RT	3	---	956
	156+73 EB - 159+55 EB	RT	3	---	251
	34+50 BW - 36+50 BW	LT	3	---	178
	32+00 BE - 32+25 BE	RT	3	---	22
	33+00 BE - 36+25 BE	RT	3	---	289
	UNDISTRIBUTED			450	1082
CATEGORY 0010 TOTALS				**2650**	**6491**
0060	30+00 BW - 32+00 BW	LT	1A/1B	---	179
CATEGORY 0060 TOTALS				**0**	**179**
0070	38+91 BW - 41+18 BW	LT	1A/1B	---	246
	39+05 BE - 41+50 BE	RT	1A/1B	---	262
CATEGORY 0070 TOTALS				**0**	**508**
PROJECT ID TOTALS				**2650**	**7178**

CULVERT PIPE CHECKS

CATEGORY	STATION	LOCATION	STAGE	628.7555 EACH
0010	147+99 EB	RT	1A/1B	3
	49+10 S	RT	3	3
	UNDISTRIBUTED			3
CATEGORY 0010 TOTAL				**9**
0070	39+05 BE	RT	1A/1B	3
	42+50 BE	RT	1A/1B	3
	44+14 BE	LT	1A/1B	2
CATEGORY 0070 TOTAL				**8**
PROJECT ID TOTAL				**17**

TEMPORARY DITCH CHECKS

STATION	LOCATION	628.7504 LF
UNDISTRIBUTED	PROJECT	100
PROJECT ID TOTAL		**100**

MOBILIZATIONS EROSION CONTROL

LOCATION	628.1905 EACH
8680-04-74	10
PROJECT ID TOTAL	**10**

MOBILIZATIONS EMERGENCY EROSION CONTROL

LOCATION	628.1910 EACH
8680-04-74	5
PROJECT ID TOTAL	**5**

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

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PIPE UNDERDRAIN 6-INCH

CATEGORY	STATION TO STATION	LOCATION	612.0406 WRAPPED LF	612.0206 UNPERFORATED LF
0010	143+50 EB - 149+00 EB	RT	550	---
	149+00 B - 151+50 B	RT	250	---
	32+00 BW - 36+32 BW	LT	432	---
	36+00 BE - 37+15 BE	RT	115	---
	151+80 EB - 154+10 EB	RT	230	---
	152+75 WB - 157+00 WB	LT	425	---
	152+74 WB - 155+23 WB	RT	---	262
	100+86 R - 101+46 R	RT	---	91
	152+43 EB - 155+21 EB	LT	---	278
	100+00 R - 104+09 R	LT/RT	409	---
	154+39 EB	RT	---	20
	149+75 WB - 151+50 WB	LT	175	---
	152+35 EB - 155+35 EB	LT	---	---
CATEGORY 0010 TOTALS			**2586**	**651**
0070	39+17 BE - 41+50 BE	RT	233	278
	38+97 BW - 41+18 BW	LT	221	---
CATEGORY 0070 TOTALS			**454**	**278**
PROJECT ID TOTALS			**3040**	**929**

3

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET
ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

SIGNS TYPE II ITEMS

CATEGORY	SIGN NO.	STATION	LOCATION	SIGN CODE	SIGN SIZE W X H (INCHES)	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2215 SIGNS TYPE II REFLECTIVE H FOLDING SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	634.0614 POSTS WOOD 4X6-INCH 14-FT EACH	634.0616 POSTS WOOD 4X6-INCH 16-FT EACH	634.0805 POSTS TUBULAR STEEL 2X2-INCH 5-FT EACH	634.0809 POSTS TUBULAR STEEL 2X2-INCH 9.5-FT EACH	634.0811 POSTS TUBULAR STEEL 2X2-INCH 11-FT EACH	REMARKS
0010	5	103+40	USH 2 WB LT	R2-1	36 X 48	12.00	---	---	---	1	---	---	---	"55"
	6	103+50	USH 2 EB RT	J4-1	36 X 54	13.50	---	---	---	1	---	---	---	"EAST"
							---	---	---		---	---	---	"2"
	7	104+00	USH 2 WB LT	M1-91	24 X 24	4.00	---	---	---	2	---	---	---	Mount above sign No. 8 on inside post
	8	104+00	USH 2 WB LT	I3-1	96 X 21	14.00	---	---	---		---	---	---	"St Louis Bay"
	9	105+50	USH 2 EB RT	R2-1	36 X 48	12.00	---	---	---	1	---	---	---	"55"
	10	108+15	USH 2 EB RT	M1-91	24 X 24	4.00	---	---	1		---	---	---	---
	11	110+10	USH 2 EB RT	I2-2	84 X 21	12.25	---	---	---	2	---	---	---	"Douglas Co"
	12	113+00	USH 2 EB RT	R5-53A	42 X 54	15.75	---	---	---	1	---	---	---	---
	14	116+10	USH 2 EB RT	I2-3	66 X 24	11.00	---	---	---	2	---	---	---	---
	18	125+00	USH 2 WB LT	W4-1	36 X 36	---	---	9.00	---	1	---	---	---	---
	19	126+00	USH 2 EB RT	W3-5	36 X 36	---	---	9.00	---	1	---	---	---	"30"
	20	---	Susquehanna Ave. Ramp	R11-54F	48 X 30	---	10.00	---	---	---	---	---	---	Band sign to gate post
	23	134'WB'+50	USH 2 WB LT	D2-1	78 X 21	11.38	---	---	---	2	---	---	---	"Duluth 2"
	24	136'WB'+00	USH 2 WB LT	R2-1	36 X 48	12.00	---	---	---	1	---	---	---	"55"
	25	136'WB'+00	USH 2 WB Median	R2-1	36 X 48	12.00	---	---	---	---	---	---	---	"55" (Facing WB traffic)
	26	136'EB'+00	USH 2 EB Median	R2-1	36 X 48	12.00	---	---	---	---	---	---	1	"30" (Facing EB traffic on same post as Sign No. 25)
	27	136'EB'+00	USH 2 EB RT	R2-1	36 X 48	12.00	---	---	---	1	---	---	---	"30"
	28	141'EB'+00	USH 2 EB RT	R10-64	30 X 36	7.50	---	---	1	---	---	---	---	"NO ENGINE BRAKING EXCEPT IN EMERGENCY"
	31	144'EB'+05	USH 2 EB RT	W2-6	36 X 36	---	---	9.00	---	1	---	---	---	---
	32			W13-1	24 X 24	---	---	4.00	---		---	---	---	"15"
	33	144'EB'+05	USH 2 EB Median	W2-6	36 X 36	---	---	9.00	---	---	---	---	1	---
	34			W13-1	24 X 24	---	---	4.00	---	---	---	---		"15"
	39	146'EB'+00	USH 2 EB RT	R3-8NN	54 X 30	11.25	---	---	---	---	---	---	---	Band sign to Structure S-16-13 monotube
							---	---	---		---	---	---	"TRUCK ROUTE" (R14-1)
	40	147'EB'+00	USH 2 EB RT	JV	24 X 87	14.50	---	---	---	1	---	---	---	"2"
							---	---	---		---	---	---	"53"
							---	---	---		---	---	---	Diagonal arrow right (M6-2)
	66	147'EB'+70	USH 2 EB RT	W3-2	36 X 36	---	---	9.00	---	1	---	---	---	---
	67	147'WB'+84	USH 2 WB LT	J4-1	36 X 54	13.50	---	---	---	1	---	---	---	"WEST"
							---	---	---		---	---	---	"2"
	68	149'EB'+08	USH 2 EB RT Island	W12-1D	24 X 24	---	---	4.00	---	---	1	---	---	Mount bottom of double arrow sign 2 feet above island
	69	149'WB'+60	USH 2 WB LT	R5-57	36 X 36	9.00	---	---	---	1	---	---	---	
	70	150'EB'+70	USH 2 NW Splitter Island	R1-2	36 X 31	3.88	---	---	---	---	---	---	1	Mount bottom of YIELD sign 7 feet above island
	71			R6-2R	24 X 30	5.00	---	---	---	---	---	---		---
	72	150'EB'+80	USH 2 EB RT Island	R1-2	36 X 31	3.88	---	---	---	---	---	---	1	Mount bottom of YIELD sign 7 feet above island
	73			R1-54	24 X 15	2.50	---	---	---	---	---	---		---
	74	36'BW'+05	Belknap St. WB LT	W4-3R	36 X 36	---	---	9.00	---	1	---	---	---	---
	75	150'WB'+85	USH 2 NW Splitter Island	D1-1	42 X 30	8.75	---	---	---	---	---	1	---	Mount bottom of exit guide sign 5 feet above island
	76	150'WB'+85	USH 2 WB LT	R11-54F	48 X 30	---	10.00	---	---	---	---	---	---	Band sign to gate post
	77	151'WB'+20	Roundabout Central Island	R6-1R	54 X 18	6.75	---	---	---	---	---	---	---	Mount bottom of chevron sign 4 feet above the truck
	78			R6-4B	60 X 24	10.00	---	---	---	---	---	2	---	apron. Signs face USH 2 eastbound traffic
	79	37'BE'+65	Roundabout Central Island	R6-1R	54 X 18	6.75	---	---	---	---	---	---	---	Mount bottom of chevron sign 4 feet above the truck
	80			R6-4B	60 X 24	10.00	---	---	---	---	---	2	---	apron. Signs face Belknap Street eastbound traffic
	81	152'EB'+65	USH 2 SE Splitter Island	D1-1	42 X 30	8.75	---	---	---	---	---	1	---	Mount bottom of exit guide sign 5 feet above island
	82	152'WB'+85	USH 2 SE Splitter Island	R1-2	36 X 31	3.88	---	---	---	---	---	---	1	Mount bottom of YIELD sign 7 feet above island
	83			R6-2R	24 X 30	5.00	---	---	---	---	---	---		---
	84	152'WB'+75	USH 2 WB LT	R1-2	36 X 31	3.88	---	---	---	---	---	---	1	Mount bottom of YIELD sign 7 feet above curb
	85			R1-54	24 X 15	2.50	---	---	---	---	---	---		---

- CONTINUED -

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

SIGNS TYPE II ITEMS

CATEGORY	SIGN NO.	STATION	LOCATION	SIGN CODE	SIGN SIZE W X H (INCHES)	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2215 H FOLDING SF	637.2230 F SF	634.0614 POSTS WOOD 4X6-INCH 14-FT EACH	634.0616 16-FT EACH	634.0805 POSTS TUBULAR STEEL 2X2-INCH 5-FT EACH	634.0809 9.5-FT EACH	634.0811 11-FT EACH	REMARKS
	86	152'WB'+30	Roundabout Central Island	R6-1R	54 X 18	6.75	---	---	---	---	---	2	---	Mount bottom of chevron sign 4 feet above the truck
	87			R6-4B	60 X 24	10.00	---	---	---	---	---		---	apron. Signs face USH 2 westbound traffic
	88	38'BW'+40	Roundabout Central Island	R6-1R	54 X 18	6.75	---	---	---	---	---	2	---	Mount bottom of chevron sign 4 feet above the truck
	89			R6-4B	60 X 24	10.00	---	---	---	---	---		---	apron. Signs face North Garfield Avenue
	102	33'BE'+55	Belknap Street EB RT	D1-62	108 X 60	45.00	---	---	---	2	---	---	---	---
	103	33'BW'+60	Belknap St. WB LT	R2-1	24 X 30	5.00	---	---	1	---	---	---	---	"30"
	104	35'BE'+10	Belknap SW Splitter Island	R3-8EE	36 X 30	7.50	---	---	1	---	---	---	---	---
	105	35'BE'+10	Belknap Street EB RT	R3-8EE	36 X 30	7.50	---	---	1	---	---	---	---	---
	106	37'BE'+05	Belknap SW Splitter Island	R1-2	36 X 31	3.88	---	---	---	---	---	---	1	Mount bottom of YIELD sign 7 feet above island
	107			R6-2R	24 X 30	5.00	---	---	---	---	---	---		---
	108	37'BE'+15	Belknap Street EB RT	R1-2	36 X 31	3.88	---	---	---	---	---	---	1	Mount bottom of YIELD sign 7 feet above curb
	109			R1-54	24 X 15	2.50	---	---	---	---	---	---		---
	137	152'WB'+97	USH 2 WB LT	R1-1	24 X 24	3.31	---	---	---	---	1	---	---	Shared-use path sign
	138	153'WB'+12	USH 2 WB LT	W11-2	30 X 30	---	---	6.25	---	---	---	---	1	---
	139			W16-7L	24 X 12	---	---	2.00	---	---	---	---		---
	140	153'WB'+13	USH 2 WB RT	W11-2	30 X 30	---	---	6.25	---	---	---	---	1	---
	141			W16-7R	24 X 12	---	---	2.00	---	---	---	---		---
	142	152'EB'+85	USH 2 EB LT	W11-2	30 X 30	---	---	6.25	---	---	---	---	1	---
	143			W16-7R	24 X 12	---	---	2.00	---	---	---	---		---
	144	152'EB'+85	USH 2 EB RT	W11-2	30 X 30	---	---	6.25	---	1	---	---	---	---
	145			W16-7L	24 X 12	---	---	2.00	---		---	---	---	---
	146	153'EB'+00	USH 2 EB RT	R1-1	24 X 24	3.31	---	---	1	---	---	---	---	Shared-use path sign
	147	153'EB'+35	USH 2 EB RT	R1-1	24 X 24	3.31	---	---	1	---	---	---	---	Shared-use path sign
	148	154'WB'+70	USH 2 WB LT	W3-2	36 X 36	---	---	9.00	---	1	---	---	---	---
	159	154'WB'+70	USH 2 WB LT	R3-8CC	36 X 30	7.50	---	---	---	---	---	---	---	Band sign to Structure S-16-03 monotube
	160	156'EB'+50	USH 2 EB RT	J4-1	24 X 36	6.00	---	---	---	1	---	---	---	---
							---	---	---		---	---	---	---
	163	155'EB'+50	USH 2 EB RT	R2-1	24 X 30	5.00	---	---	1	---	---	---	---	"30"
	166	158'WB'+25	USH 2 WB LT	W2-6	30 X 30	---	---	6.25	---	1	---	---	---	---
	167			W13-1	18 X 18	---	---	2.25	---		---	---	---	"15"
	169	159'EB'+00	USH 2 EB RT	R5-1A	42 X 30	8.75	---	---	1	---	---	---	---	Mount sign facing WB traffic
	172	160'EB'+50	USH 2 EB RT	R5-1	30 X 30	6.25	---	---	1	---	---	---	---	Mount sign facing WB traffic
	174	160'WB'+44	USH 2 WB RT	R4-7	24 X 30	5.00	---	---	---	---	---	1	---	Mount bottom of Keep Right sign 5 feet above island
	175	160'WB'+60	USH 2 WB LT	M1-91	24 X 24	4.00	---	---	---	1	---	---	---	---
	176			MG6-1	21 X 21	3.06	---	---	---		---	---	---	---
	177	162'WB'+20	USH 2 WB LT	J23-1	24 X 57	9.50	---	---	---	1	---	---	---	All signs in this assembly have a blue background
							---	---	---		---	---	---	
	209	33'BE'+04	Belknap SW Splitter Island	R4-7	24 X 30	5.00	---	---	---	---	---	1	---	Mount bottom of Keep Right sign 5 feet above island
CATEGORY 0010 TOTALS						**478.90**	**20.00**	**116.50**	**10**	**30**	**2**	**12**	**11**	

- CONTINUED -

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

SIGNS TYPE II ITEMS

CATEGORY	SIGN NO.	STATION	LOCATION	SIGN CODE	SIGN SIZE W X H (INCHES)	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2215 SIGNS TYPE II REFLECTIVE H FOLDING SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	634.0614 POSTS WOOD 4X6-INCH 14-FT EACH	634.0616 POSTS WOOD 4X6-INCH 16-FT EACH	634.0805 POSTS TUBULAR STEEL 2X2-INCH 5-FT EACH	634.0809 POSTS TUBULAR STEEL 2X2-INCH 9.5-FT EACH	634.0811 POSTS TUBULAR STEEL 2X2-INCH 11-FT EACH	REMARKS
0060	90	38'BW'+90	North Garfield Ave. LT	R1-2	36 X 31	3.88	---	---	---	---	---	---	1	Mount bottom of YIELD sign 7 feet above curb
	91			R1-54	24 X 15	2.50	---	---	---	---	---	---		---
	92	39'BW'+02	Garfield NE Splitter Island	R1-2	36 X 31	3.88	---	---	---	---	---	---	1	Mount bottom of YIELD sign 7 feet above island
	93			R6-2R	24 X 30	5.00	---	---	---	---	---	---		---
	94	40'BW'+24	Garfield NE Splitter Island	R4-7	24 X 30	5.00	---	---	---	---	---	1	---	Mount bottom of Keep Right sign 5 feet above island
	94.5	40'BE'+62	North Garfield Ave. RT	R1-1	24 X 24	3.31	---	---	1	---	---	---	---	Shared-use path sign
	95	40'BE'+30	North Garfield Ave. RT	R2-1	24 X 30	5.00	---	---	1	---	---	---	---	"25"
	96	41'BE'+22	North Garfield Ave. RT	R1-1	30 X 30	5.18	---	---	1	---	---	---	---	---
	97	40'BW'+90	North Garfield Ave. LT	R3-8DD	36 X 30	7.50	---	---	1	---	---	---	---	---
	98	42'BW'+40	North Garfield Ave. LT	D1-62	108 X 60	45.00	---	---	---	2	---	---	---	---
	99	44'BW'+40	North Garfield Ave. LT	W2-6	30 X 30	---	---	6.25	---	1	---	---	---	---
	100			W13-1	18 X 18	---	---	2.25	---		---	---	---	"15"
	185	29'BE'+51	Missouri Ave.	R1-1	30 X 30	5.18	---	---	1	---	---	---	---	---
	186	29'BE'+75	Belknap St. EB RT	J1-1	24 X 39	6.50	---	---	1	---	---	---	---	---
							---	---		---	---	---	---	---
	187	29'BE'+85	Belknap Street EB Island	R4-7	24 X 30	5.00	---	---	---	---	---	---	1	---
	193	30'BE'+86	Belknap Street EB RT	R5-1A	42 X 30	8.75	---	---	1	---	---	---	---	---
	195	31'BE'+55	Belknap St. EB RT	W2-6	30 X 30	---	---	6.25	---	1	---	---	---	---
	196			W13-1	18 X 18	---	---	2.25	---		---	---	---	"15"
	206	32'BE'+15	Belknap Street EB RT	R5-1	30 X 30	6.25	---	---	1	---	---	---	---	---
	207	32'BW'+17	Belknap St. Median Island	R4-7	24 X 30	5.00	---	---	---	---	---	---	1	---
	208	32'BE'+82	Maryland Ave.	R1-1	30 X 30	5.18	---	---	1	---	---	---	---	---
CATEGORY 0060 TOTALS						**128.11**	**0**	**17.00**	**9**	**4**	**0**	**1**	**4**	
PROJECT ID TOTALS						**607.01**	**20.00**	**133.50**	**19**	**34**	**2**	**13**	**15**	

SIGNING TYPE I ITEMS

SIGN NO.	STATION	LOCATION	SIGN CODE	SIGN SIZE W X H (INCHES)	637.1220 SIGNS TYPE I REFLECTIVE SH SF	638.2101 MOVING SIGNS TYPE I EACH	638.2601 REMOVING SIGNS TYPE I EACH	638.3100 REMOVING STRUCTURAL STEEL SIGN SUPPORTS EACH	REMARKS
36	146'EB'+01.40	Sign Structure S-16-13	N/A	144" X 114"	114.00	---	---	---	SEE SIGN PLATE DETAIL
37	146'EB'+01.40	Sign Structure S-16-13	N/A	96" X 90"	60.00	---	---	---	SEE SIGN PLATE DETAIL
38	146'EB'+01.40	Sign Structure S-16-13	N/A	108" X 66"	49.50	---	---	---	SEE SIGN PLATE DETAIL
157	156'WB'+26.70	Sign Structure S-16-03	N/A	144" X 114"	114.00	---	---	---	SEE SIGN PLATE DETAIL
158	156'WB'+26.70	Sign Structure S-16-03	N/A	144" X 114"	114.00	---	---	---	SEE SIGN PLATE DETAIL
164	157'WB'+90	Old USH 2 WB overhead	N/A	---	---	---	1	1	Remove sign from overhead cantilever during Stage 1
165	157'WB'+90	Old USH 2 WB overhead	N/A	---	---	1	1		*
181	162'WB'+38	Old USH 2 WB overhead	N/A	---	---	---	1	2	Remove sign from overhead sign bridge during Stage 1
182	162'WB'+38	Old USH 2 WB overhead	N/A	---	---	---	1		Remove sign from overhead sign bridge during Stage 1
PROJECT ID TOTALS					**451.50**	**1**	**4**	**3**	

*Move sign from overhead cantilever during Stage 1 to temporary ground-mount location (see traffic control plan); then remove sign during Stage 3B.

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

REMOVING SIGNS TYPE II & SMALL SIGN SUPPORTS

CATEGORY	SIGN NO.	STATION	LOCATION	SIGN CODE	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	REMARKS
0010	5	103+40	USH 2 WB LT	R2-1	1	1	"55"
	6	103+50	USH 2 EB RT	J4-1	1 1	---	Inplace "EAST" sign on light pole Inplace "2" route marker on light pole
	7	104+00	USH 2 WB LT	M1-91	1	2	---
	8	104+00	USH 2 WB LT	I3-1	1		"St Louis Bay"
	10	108+15	USH 2 EB RT	M1-91	1	1	---
	11	110+10	USH 2 EB RT	I2-2	1	2	---
	13	113+20	USH 2 EB RT	---	1	1	Remove old type seat belt law sign
	14	116+10	USH 2 EB RT	I2-3	1	2	---
	18	125+00	USH 2 WB LT	W4-1	1	1	---
	22	132+45	USH 2 EB RT	W3-5	1	1	"35"
	23	135'WB'+70	USH 2 WB LT	D2-1	1	2	"West Duluth 2"
	28	141'EB'+00	USH 2 EB RT	R10-64	1	1	"NO ENGINE BRAKING EXCEPT IN EMERGENCY"
	29	141'EB'+00	USH 2 EB RT	R2-1	1	---	"35" on same post as sign No. 28
	30	141'EB'+00	USH 2 EB Median	R2-1	1	1	"35"
	41	147'WB'+40	USH 2 WB LT	R5-57	1	---	Inplace sign attached to light pole
	42	---	Old USH 2 EB RT	R5-57	1	---	Inplace sign attached to light pole
	43	---	Old USH 2 EB Median	W3-3	1	1	---
	44	---	Old USH 2 EB RT	W3-3	1	1	---
	45	---	Old USH 2 EB Median	R3-4B	1	1	---
	46	---	Old USH 2 WB Median	R3-4	1	1	---
	47	---	Old USH 2 WB Median	R3-4A	1	---	---
	48	---	Old USH 2 EB RT	M3-2	1	---	Inplace sign attached to light pole
	49	---	Old USH 2 EB RT	M1-4	1	---	Inplace sign attached to light pole
	50	---	Old USH 2 EB RT	M1-4	1	---	Inplace sign attached to light pole
	51	---	Old USH 2 EB RT	R14-52	1	---	Inplace sign attached to light pole
	52	---	Old USH 2 EB RT	M6-1	1	---	Inplace sign attached to light pole
	53	---	Old USH 2 EB RT	W13-3	1	1	---
	54	---	Old USH 2 EB RT	M1-94	1	2	---
	55	---		R14-1	1	---	Inplace sign attached to light pole
	56	---		M1-4	1	---	Inplace sign attached to light pole
	57	---	Old USH 2 EB RT	M1-4	1	---	Inplace sign attached to light pole
	58	---		M6-2	1	---	Inplace sign attached to light pole
	59	---	Old USH 2 EB Median	M3-2	1	1	---
	60	---	Old USH 2 EB Median	M1-4	1	---	---
	61	---	Old USH 2 EB Median	M5-1L	1	---	---
	62	---	Old USH 2 EB Gore	W12-1D	1	1	---
	63	---	Old USH 2 EB Median	R5-1A	1	1	---
	64	---	Old USH 2 EB RT	W1-1L	1	1	---
	65	---	Old USH 2 EB RT	W13-1	1	---	---
	101	---	Old Belknap St. WB	R5-1	1	---	Inplace sign attached to light pole
	110	---	Old Belknap St. EB Island	R3-2	1	---	Inplace sign attached to signal pole
	111	---	Old Belknap St. EB	R1-1F	1	---	Inplace sign attached to signal pole
	112	---	Old Belknap St. WB Island	R4-7	1	1	---
	113	---	Old USH 2 EB RT	R3-1	1	---	Inplace sign attached to signal pole
	114	---	Old USH 2 EB LT	R5-1	1	1	---
	115	---	Old Belknap St. EB	R5-1	1	1	---
	116	---	Old Belknap St. EB	M3-2	1		
	117	---	Old Belknap St. EB	M1-4	1	2	Facing USH 2 EB traffic
	118	---	Old Belknap St. EB	W1-6	1		
	119	---	Old Belknap St. EB	MG3-2	1		
	120	---	Old Belknap St. EB	M1-91	1	1	Facing USH 2 EB traffic
	121	---	Old Belknap St. EB	MG6-1L	1		

- CONTINUED -

•OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

3

REMOVING SIGNS TYPE II & SMALL SIGN SUPPORTS

CATEGORY	SIGN NO.	STATION	LOCATION	SIGN CODE	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	REMARKS
	122	---	Old Belknap St. EB Island	R4-7	1	1	---
	123	---	Old Belknap St. WB	R3-1	1	1	---
	124	---	Old Belknap St. WB	R1-1F	1	---	Inplace sign attached to signal pole
	125	---	Old Belknap St. EB	R5-1A	1	1	---
	126	---	Old Belknap St. EB	D1-1	1	2	---
	127	---	Old Belknap St. WB	R5-1A	1	---	Inplace sign attached to post of Sign No. 126
	128	---	Old Belknap St. EB Island	R3-55L	1	1	---
	130	---	Old Belknap St. EB	J2-2	1	2	Six signs on one J-assembly board
	131	---	Old Belknap St. EB	D11-1	1	---	Inplace sign attached to Sign No. 130 post facing WB traffic
	132	--- --- --- ---	Old Belknap St. EB	R14-1 M3-4 M1-4 M6-1L	1	--- --- --- ---	4 signs on one J-type board attached to light pole
	133	---	Old Belknap St. EB	R5-1	1	---	Inplace sign attached to light pole facing WB
	134	---	Old Belknap St. WB Island	R4-7	1	1	---
	135	---	Old USH 2 WB	M3-4	1	---	Inplace sign attached to light pole
	136	---	Old USH 2 WB	M1-4	1	---	Inplace sign attached to light pole
	150	---	Old Belknap St. Island	W4-1	1	1	---
	151	---		M3-4	1		---
	152	---	Old Belknap St. Island	M1-4	1	1	---
	153	---		M6-1L	1		---
	154	---	Old USH 2 WB Island	W4-1	1	1	---
	155	---	Old Belknap St. EB Island	R4-7	1	1	---
	156	---	Old Belknap St. WB Island	W3-3	1	1	---
	160	---	USH 2 EB RT	M3-2 M1-4	1 1	1	--- ---
	161	---	Old Belknap St. WB Island	R3-55L	1	1	---
	162	---	Old USH 2 WB Island	W12-1D	1	1	---
	163	---	USH 2 EB RT	R2-1	1	1	---
	169	---	USH 2 EB RT	R5-1A	1	1	---
	170	---	Old USH 2 WB	M1-91	1	1	---
	171	---		MG6-1	1		---
	172	---	---	R5-1	1	1	---
	173	---	Old USH 2 WB Island	R4-7	1	1	---
	178	162'WB'+41		M4-5	1	---	---
	179	162'WB'+41	USH 2 WB LT	M1-1	1	---	Inplace signs attached to overhead sign support
	180	162'WB'+41		M6-2	1	---	
	209	---	Old USH 2 EB Median	R4-7	1	1	---
	210	---	Old USH 2 WB Slip Ramp	---	1	1	Inplace sign is "NO TURNS"
	211	---	Belknap Street WB	R6-2L	1	1	Inplace sign faces Maryland Ave.
	212	---	Old USH 2 WB Slip Ramp	R5-1	1	1	---
	213	---	Old USH 2 WB Slip Ramp	R5-1A	1	1	---
CATEGORY 0010 TOTALS					**92**	**59**	

- CONTINUED -

•OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

3

REMOVING SIGNS TYPE II & SMALL SIGN SUPPORTS

CATEGORY	SIGN NO.	STATION	LOCATION	SIGN CODE	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	REMARKS
0060	185	---	Missouri Ave.	R1-1	1	1	---
	188	---	Old Belknap St. EB Island	---	1	1	Inplace sign is 'KEEP RIGHT'
	189			M2-1	1		---
	190	30'BE'+19	Belknap St. EB RT	M1-4	1	1	---
	191			M6-1	1		---
	193	---	Belknap Street EB RT	R5-1A	1	1	---
	194	---	Old Belknap St. EB Island	W3-3	1	1	---
	198	---	Belknap St. EB	W3-3	1	1	---
	200	---		R14-1	1	---	
	201	---		M3-2	1	---	
	202	---	Old USH 2 WB Slip Ramp	M1-4	1	---	Inplace signs attached to light pole
	203	---		M3-3	1	---	
	204	---		M1-4	1	---	
	205	---		M6-1	1	---	
	206	---	Belknap Street EB RT	R5-1	1	1	---
	207	---	Old Belknap St. WB Island	R4-7	1	1	---
	208	---	Maryland Ave.	R1-1	1	1	---
CATEGORY 0060 TOTALS					**17**	**9**	
PROJECT ID TOTALS					**109**	**68**	

MOVING SIGNS TYPE II

SIGN NO.	STATION	LOCATION	638.2102 EACH	REMARKS
15	116+10	USH 2 EB RT	1	Move Arbor Day Foundation sign below sign No. 14
168	159'EB'+00	USH 2 EB RT	1	Move "BARKERS ISLAND 2 MILES" to back of sign No. 169
PROJECT ID TOTAL			**2**	

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

3

FIELD OFFICE TYPE C

LOCATION	642.5201 EACH
8680-04-74	1
PROJECT ID TOTAL	**1**

TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER

LOCATION	STAGE	643.0500 POSTS EACH	643.0600 BASE EACH
BELKNAP ST CENTERLINE	1	36	36
BELKNAP ST CENTERLINE	3A	28	28
REPLACEMENT POSTS	1/3A	10	---
REPLACEMENT BASES	1/3A	---	5
PROJECT ID TOTALS		**74**	**69**

TRAFFIC CONTROL SURVEILLANCE AND MAINTENANCE

PROJECT	643.0200 DAY
8680-04-74	579
PROJECT ID TOTAL	**579**

TRAFFIC CONTROL ARROW BOARDS

LOCATION	643.0800 DAY
8680-04-74	214
PROJECT ID TOTAL	**214**

TRAFFIC CONTROL ITEMS

LOCATION	STAGE	DAYS (NUMBER)	(COUNT)	643.0300 DRUMS DAY	(COUNT)	643.0420 BARRICADES TYPE III DAY	(COUNT)	643.0705 WARNING LIGHTS TYPE A DAY	(COUNT)	643.0715 TYPE C DAY	(COUNT)	643.0900 SIGNS DAY
ENTRANCE RAMP @ SUSQUEHANNA AVE	Pre-1	7	---	---	---	---	---	---	---	---	1	7
ENTRANCE RAMP @ SUSQUEHANNA AVE	1	214	---	---	3	642	2	428	---	---	3	642
MN APPROACH RAMPS/46TH AVE	1	214	---	---	---	---	---	---	---	---	3	642
USH 2 EB	1	214	38	8132	5	1070	6	1284	26	5564	11	2354
BELKNAP STREET & SIDE ROADS	1	214	72	15408	14	2996	18	3852	23	4922	28	5992
USH 2 EB	2	151	---	---	6	906	2	302	---	---	1	151
BELKNAP STREET	2	151	---	---	6	906	8	1208	---	---	6	906
N. GARFIELD AVE	2	151	---	---	---	---	---	---	---	---	2	302
ROUNDABOUT @ USH 2 WB	2	151	---	---	7	1057	2	302	---	---	1	151
EXIT 253A RAMPS & 46TH AVE APPROACH	Pre-3A	7	---	---	---	---	---	---	---	---	3	21
EXIT 253A RAMPS W/ADVANCE WARNING	3A	50	41	2050	6	300	6	300	---	---	6	300
46TH AVENUE	3A	50	19	950	4	200	6	300	---	---	9	450
USH 2 WB / BONG BRIDGE	3A	50	22	1100	5	250	---	---	---	---	2	100
SUSQUEHANNA AVE	3A	50	---	---	---	---	---	---	---	---	2	100
SIDEWALKS	3A	50	---	---	6	300	---	---	---	---	5	250
BELKNAP STREET & SIDE ROADS	3A	50	42	2100	13	650	14	700	13	650	26	1300
N. GARFIELD AVE	3A	50	---	---	---	---	---	---	---	---	2	100
ROUNDABOUT @ USH 2 WB	3A	50	3	150	7	350	2	100	---	---	1	50
EXIT 253A RAMPS W/ADVANCE WARNING	3B	164	41	6724	6	984	6	984	---	---	6	984
46TH AVENUE	3B	164	19	3116	4	656	6	984	---	---	9	1476
USH 2 WB / BONG BRIDGE	3B	164	---	---	---	---	---	---	---	---	1	164
SUSQUEHANNA AVE	3B	164	---	---	---	---	---	---	---	---	2	328
SIDEWALKS	3B	164	---	---	6	984	---	---	---	---	5	820
BELKNAP STREET & SIDE ROADS	3B	164	60	9840	22	3608	16	2624	14	2296	25	4100
N. GARFIELD AVE	3B	164	---	---	---	---	---	---	---	---	2	328
ROUNDABOUT @ USH 2 WB & BELKNAP ST	3B	164	6	984	10	1640	2	328	---	---	1	164
PROJECT ID TOTALS				**50554**		**17499**		**13696**		**13432**		**22182**

TRAFFIC CONTROL COVERING SIGNS

LOCATION	STAGE	643.0910 TYPE I EACH	643.0920 TYPE II EACH	REMARKS
BELKNAP STREET WB	1	---	4	See detour signing plan
WINTER ST @ TOWER AVE	1	---	4	See detour signing plan
SUSQUEHANNA AVE	1	---	6	See traffic control plan
USH 2 WB	2 & 3A	1	---	See traffic control plan
IH 35 NB	3	---	1	See traffic control plan
IH 35 SB	3	---	1	See traffic control plan
46TH AVENUE	3	---	1	See traffic control plan
USH 2 WB/BONG BRIDGE	3A	1	1	See traffic control plan
PROJECT ID TOTALS		**2**	**18**	

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET
ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

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REMOVING PAVEMENT MARKINGS ITEMS

LOCATION	STAGE	646.0600 LF	647.0955 ARROWS EACH	647.0965 WORDS EACH	TYPE
BELKNAP ST CENTERLINE	1	1380	---	---	4" DOUBLE YELLOW
BELKNAP ST MEDIAN EB	1	230	---	---	4" YELLOW
BELKNAP ST TURN LANE WB	1	40	---	---	8" CHANNELIZING
BELKNAP ST LANE LINE WB	1	75	---	---	4" WHITE SKIPS
BELKNAP ST CENTERLINE (TEMP)	2	1420	---	---	4" DOUBLE YELLOW
BELKNAP ST EDGELINE WB (TEMP)	2	1130	---	---	4" YELLOW
BELKNAP ST EDGELINE WB (TEMP)	2	555	---	---	4" WHITE
BELKNAP ST @ USH 2 EB	3A	36	---	---	12" STOP LINE
BELKNAP ST TURN LANE WB	3A	100	1	1	8" CHANNELIZING
N. GARFIELD AVE (TEMP)	3B	675	---	---	YELLOW LANE DELINEATION
UNDISTRIBUTED	ANY	1129	---	---	VARIES
PROJECT ID TOTALS		**6770**	**1**	**1**	

PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH

STATION TO STATION	DESCRIPTION	646.0841.S LF
101+89 - 134+55, LT	SKIPS	817
101+89 - 134+55, RT	SKIPS	817
134+55 EB - 146+01 EB	SKIPS	287
134+55 WB - 150+82 WB	SKIPS	407
156+27 WB - 163+00 EB	SKIPS	168
152+68 EB - 163+00 EB	SKIPS	258
PROJECT ID TOTAL		**2754**

PAVEMENT MARKING CURB EPOXY

CATEGORY	STATION	LOCATION	647.0456 LF
0010	160+55 EB	LT	10
	32+23.13 BE	LT	46
	32+93.29 BE	LT	43
CATEGORY 0010 TOTAL			**99**
0060	29+75.25 BE	LT	10
CATEGORY 0060 TOTAL			**10**
0070	40+59.88 BE	LT	26
CATEGORY 0070 TOTAL			**26**
PROJECT ID TOTAL			**135**

PAVEMENT MARKING ARROWS/WORDS EPOXY

CATEGORY	STATION	647.0166 ARROWS TYPE 2 EACH	647.0356 WORDS EACH	COMMENT
0060	30+16 BE	1	---	
	30+60 BE	---	1	"ONLY"
PROJECT ID TOTALS		**1**	**1**	

PAVEMENT MARKING EPOXY

CATEGORY	STATION TO STATION	DESCRIPTION	646.0106 4-INCH WHITE LF	646.0106 4-INCH YELLOW LF	646.0126 8-INCH WHITE LF	647.0726 DIAGONAL 12-INCH LF	647.0766 CROSSWALK 6-INCH WHITE LF	647.0776 CROSSWALK 12-INCH WHITE LF
0010	101+89 - 134+55, LT	EDGELINE	3416	3416	---	---	---	---
	101+89 - 134+55, RT	EDGELINE	3266	3266	---	---	---	---
	134+55 EB - 144+25 EB	EDGELINE	970	---	---	---	---	---
	134+55 EB - 150+94 EB	EDGELINE	---	1639	---	---	---	---
	134+55 WB - 150+25 WB	EDGELINE	1570	---	---	---	---	---
	134+55 WB - 151+92 WB	EDGELINE	---	1737	---	---	---	---
	149+50 EB - 151+00 EB	WHITE CHEVRONS	---	---	---	37	---	---
	152+60 EB - 160+59 EB	EDGELINE	144	800	---	---	---	---
	152+60 EB - 153+75 EB	WHITE CHEVRONS	---	---	---	31	---	---
	152+74 WB - 160+52 WB	EDGELINE	---	778	---	---	---	---
	152+92 EB	CROSSWALK	---	---	---	---	---	50
	153+05 EB	CROSSWALK	---	---	---	---	---	60
	154+39 WB - 162+93 WB	EDGELINE	840	---	---	---	---	---
	156+38 EB - 163+00 EB	EDGELINE	673	---	---	---	---	---
	160+59 EB - 163+50 EB	DOUBLE	---	924	---	---	---	---
	160+60 EB - 162+00 EB	YELLOW DIAGONALS	---	---	---	30	---	---
	149+00 B - 151+62 B	EDGELINE	---	262	---	---	---	---
	32+60 BE, RT	CROSSWALK	---	---	---	---	78	---
	33+02 BE - 37+16 BE	EDGELINE	---	414	---	---	---	---
	33+30 BW - 36+95 BW	EDGELINE	---	365	---	---	---	---
	32+00 BW - 34+78 BW, LT	SKIPS	68	---	---	---	---	---
	STAGE 2 TRAFFIC CONTROL	PROJECT WIDE	---	2015	320	---	---	---
CATEGORY 0010 SUBTOTALS			10947	15616	320	98	78	110
CATEGORY 0010 TOTALS			**26563**		**320**	**98**	**78**	**110**
0060	29+75 BW - 30+79 BW	CHANNELIZING	---	---	104	---	---	---
	29+30 BE, RT	CROSSWALK	---	---	---	---	82	---
	SUSQEHANNA - 28+89 BE	DOUBLE	---	1927	---	---	---	---
	26+82 BE - 32+00 BW	SKIPS	130	---	---	---	---	---
	27+68 BE - 28+89 BE	YELLOW DIAGONALS	---	---	---	47	---	---
CATEGORY 0060 SUBTOTALS			130	1927	104	47	82	0
CATEGORY 0060 TOTALS			**2057**		**104**	**47**	**82**	**0**
0070	41+50 BE - 44+20 BE	EDGELINES	540	---	---	---	---	---
	40+55 BE - 44+20 BE	DOUBLE	---	1025	---	---	---	---
	39+21 BE - 40+63 BE	EDGELINE	---	142	---	---	---	---
	38+91 BW - 40+24 BW	EDGELINE	---	133	---	---	---	---
	40+55 BE - 42+00 BE	YELLOW DIAGONALS	---	---	---	34	---	---
CATEGORY 0070 SUBTOTALS			540	1300	0	34	0	0
CATEGORY 0070 TOTALS			**1840**		**0**	**34**	**0**	**0**
PROJECT ID TOTALS			**30460**		**424**	**179**	**160**	**110**

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

3

PAVEMENT MARKING ISLAND NOSE EPOXY

CATEGORY	STATION	LOCATION	647.0606 EACH
0010	160+55 EB	LT	1
	32+23.13 BE	LT	1
	32+93.29 BE	LT	1
CATEGORY 0010 TOTAL			**3**
0060	**28+92 BE**	**LT**	**1**
	29+75.25 BE	LT	1
CATEGORY 0060 TOTAL			**2**
0070	40+59.88 BE	LT	1
CATEGORY 0070 TOTAL			**1**
PROJECT ID TOTAL			**6**

TEMPORARY PAVEMENT MARKING ITEMS

LOCATION	STAGE	649.0200 TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH LF	649.0400 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH LF	649.1500 TEMPORARY PAVEMENT MARKING DIAGONAL 12-INCH LF	DESCRIPTION
USH 2 EB TAPER	1	660	---	---	YELLOW
BELKNAP ST CENTERLINE	1	1420	---	---	DOUBLE YELLOW
BELKNAP ST EDGELINE EB	1	1130	---	---	YELLOW EDGE
BELKNAP ST EDGELINE WB	1	555	120	---	WHITE EDGE
BELKNAP ST/USH 2 TAPERS WB	1	---	305	---	WHITE
N. GARFIELD AVE @ USH 2 WB	2	370	---	102	YELLOW LANE DELINEATION
BELKNAP ST CENTERLINE	3A	1210	---	---	DOUBLE YELLOW
BELKNAP ST EDGELINE WB	3A	885	---	---	WHITE EDGE
BELKNAP ST EDGELINE WB	3A	290	---	---	YELLOW EDGE
BELKNAP ST EDGELINE EB	3A	325	---	---	YELLOW EDGE
BELKNAP ST/USH 2 TAPERS WB	3B	---	305	---	YELLOW
BELKNAP ST EDGELINE WB	3B	---	480	---	YELLOW EDGE
UNDISTRIBUTED	ANY	700	120	---	VARIES
PROJECT ID TOTALS		**7545**	**1330**	**102**	

3

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET
ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

3

CONSTRUCTION STAKING PIPE CULVERTS

CATEGORY	STATION TO STATION	LOCATION	650.6000 EACH
0070	42+50 BE		1
	44+19 BE - 45+00 BE	LT	1
PROJECT ID TOTAL			**2**

CONSTRUCTION STAKING RESURFACING REFERENCE

CATEGORY	STATION TO STATION	650.8000 LF
0060	SUSQUEHANNA AVE - 32+00 BE	1000
PROJECT ID TOTAL		**1000**

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL

PROJECT	650.9910 LS
.02 8680-04-74	1

REMOVING PULL BOXES

LOCATION	653.0905 EACH
USH 2 & BELKNAP ST INTERSECTION	6
PROJECT ID TOTAL	**6**

CONSTRUCTION STAKING

CATEGORY	STATION TO STATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.7000 CONCRETE PAVEMENT LF	650.9920 SLOPE STAKES LF
0010	101+72 - 134+55 (EB LANES)	---	---	3117	---
	101+72 - 134+55 (WB LANES)	---	---	3117	---
	107+76 - 122+14 (WB ENT RAMP)	---	---	1438	---
	134+55 EB - 150+76 EB	1621	---	1621	1621
	152+56 EB - 162+79 EB	803	---	1023	803
	134+55 WB - 150+96 WB	---	---	1641	---
	148+00 WB - 150+96 WB	296	---	296	296
	152+79 WB - 157+50 WB	471	---	471	471
	157+50 WB - 162+00 WB	---	---	450	---
	100+00 R - 104+09 R	409	---	409	409
	32+00 BE - 37+11 BE	511	300	211	511
	32+00 BW - 36+98 BW	498	300	198	498
	32+86 P - 39+54 P	668	668	---	---
	47+69 S - 49+75 S	185	185	---	---
CATEGORY 0010 TOTALS		**5462**	**1453**	**13992**	**4609**
0060	29+75 BE - 32+00 BE	225	225	---	225
CATEGORY 0060 TOTALS		**225**	**225**	**0**	**225**
0070	39+21 BE - 44+20 BE	499	---	---	499
	39+21 BE - 40+65 BE	---	---	144	---
	38+99 BW - 40+34 BW	135	---	135	135
	40+65 BE - 44+20 BE	---	355	---	---
CATEGORY 0070 TOTALS		**634**	**355**	**279**	**634**
PROJECT ID TOTALS		**6321**	**2033**	**14271**	**5468**

CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER

CATEGORY	STATION TO STATION	LOCATION	650.5500 LF
0010	29+82 BE - 32+19 BE	LT, MEDIAN	237
	29+82 BW - 32+21 BW	RT, MEDIAN	240
	29+97 BW - 35+00 BW	LT	487
	32+00 BE - 32+44 BE	RT	55
	32+79 BE - 35+00 BE	RT	245
	32+95 BW - 35+00 BW	RT, MEDIAN	209
	32+97 BE - 35+00 BE	LT, MEDIAN	202
CATEGORY 0010 TOTAL			**1675**
0070	40+34 BW - 41+18 BW	LT	84
	40+65 BE - 41+50 BE	RT	86
CATEGORY 0070 TOTAL			**170**
PROJECT ID TOTAL			**1845**

CONSTRUCTION STAKING STORM SEWER

STATION TO STATION	LOCATION	650.6000 EACH
141+10 WB - 158+65 WB	LT&RT	25
147+00 EB - 159+25 EB	LT&RT	13
100+65 R - 101+54 R	LT&RT	7
32+40 BW - 36+25 BW	LT&RT	8
33+04 BE - 36+00 BE	LT	3
PROJECT ID TOTAL		**56**

CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS

CATEGORY	PROJECT	650.8500 LS
0020	.02 8680-04-74	1

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

REMOVE TRAFFIC SIGNALS USH 2 (EB) AND BELKNAP ST

LOCATION	SPV.0105.07 LS
USH 2 & BELKNAP ST INTERSECTION	1

REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE USH 2 (EB) AND BELKNAP ST

LOCATION	SPV.0105.06 LS
USH 2 & BELKNAP ST INTERSECTION	1

CONSTRUCTION STAKING CONCRETE PAVEMENT JOINT LAYOUT 8680-04-74

PROJECT	SPV.0105.18 LS
8680-04-74	1

REMOVING SIGNS, HISTORICAL MARKER

STATION	LOCATION	SPV.0060.10 EACH
39+08 BE	RT	1
152+22 EB	RT	1
PROJECT ID TOTAL		**2**

REMOVING OVERHEAD SIGN STRUCTURE S-16-002

CATEGORY	STATION	LOCATION	SPV.0060.16 EACH
0040	162+42 EB	EB	1

CURE-IN-PLACE PIPE LINING

STATION	LOCATION	SPV.0090.10 LF
102+17	RT	100
104+05	RT	122
108+04	LT	80
111+83	LT	86
116+03	LT	11
120+04	LT	11
124+04	LT	11
132+33	LT	46
134+43	LT	86
PROJECT ID TOTAL		**553**

REMOVE AND REPLACE STEEL PLATE BEAM GUARD

STATION TO STATION	LOCATION	SPV.0090.03 CLASS A LF	SPV.0060.17 EAT EACH
159+39 EB - 162+90 EB	RT	302	1
161+63 WB - 162+90 EB	LT	64	1
PROJECT ID TOTALS		**366**	**2**

DEBRIS REMOVAL PARAPETS

STATION TO STATION	LOCATION	SPV.0090.02 LF
101+89 - 134+50	LT	3261
PROJECT ID TOTAL		**3261**

SAWING

CATEGORY	STATION TO STATION	LOCATION	690.0150 ASPHALT LF	690.0250 CONCRETE LF
0010	101+72 - 130+86	LT	---	2897
	132+21 - 134+55	LT	---	234
	101+72 - 130+86	RT	---	2897
	132+21 - 134+55	RT	---	234
	122+14	LT	8	15
	SUSQUEHANNA RAMP		16	30
	159+50 EB	RT	---	5
	162+51 EB	RT	---	4
	162+79 EB	LT/RT	---	50
	29+75 BE - 32+32 BE	LT	---	550
	30+14 BW - 32+00 BW	LT	---	186
	32+00 BW	LT	---	20
	32+00 BE	RT	---	20
	32+30 BE	RT	---	6
	32+62 BE (MARYLAND AVE)	RT	30	---
	32+88 BE	RT	---	5
	33+60 BE - 35+50 BE	LT/RT	---	460
	157+67 EB - 159+63 EB	LT/RT	---	410
CATEGORY 0010 TOTALS			**54**	**8023**
0060	SUSQUEHANNA AVE	LT/RT	100	---
	25+90 BE (PENNSYLVANIA AVE)	RT	30	---
	29+30 BE (MISSOURI AVE)	RT	30	---
CATEGORY 0060 TOTALS			**160**	**---**
0070	41+00 BE	RT	27	---
	44+19 BE - 45+00 BE	LT	120	---
	44+20 BE		27	---
CATEGORY 0070 TOTALS			**174**	**---**

PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC WORDS/ARROWS

CATEGORY	STATION	SPV.0060.12 TYPE 1 EACH	SPV.0060.19 TYPE 2R EACH	SPV.0060.13 ARROWS TYPE 2 EACH	SPV.0060.14 TYPE 3R EACH	SPV.0060.20 TYPE 3 EACH	SPV.0060.15 WORDS EACH	COMMENT
0010	36+00 BE	---	1	---	---	1	---	
	37+04 BE	---	---	---	---	---	1	"YIELD"
	37+15 BE	---	---	---	---	---	1	"YIELD"
	103+52 R	1	---	---	---	1	---	
	100+44 R	---	---	1	---	1	---	
	101+47 R	1	---	---	---	1	---	
	146+01 EB	---	---	---	1	1	---	
	148+42 EB	1	---	1	1	---	---	
	149+28 EB	1	---	---	1	---	---	
	150+72 EB	---	---	---	---	---	1	"YIELD"
	150+98 EB	---	---	---	---	---	1	"YIELD"
	152+61 WB	---	---	---	---	---	1	"YIELD"
	152+85 WB	---	---	---	---	---	1	"YIELD"
	154+12 WB	---	---	---	1	1	---	
	156+26 WB	---	---	---	1	1	---	
CATEGORY 0010 TOTALS		**4**	**1**	**2**	**5**	**7**	**6**	
0070	38+85 BW	---	---	---	---	---	1	"YIELD"
	39+03 BW	---	---	---	---	---	1	"YIELD"
	40+26 BW	---	---	1	1	---	---	
CATEGORY 0070 TOTALS		**0**	**0**	**1**	**1**	**0**	**2**	
PROJECT ID TOTALS		**4**	**1**	**3**	**6**	**7**	**8**	

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

3

PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC

CATEGORY	STATION TO STATION	DESCRIPTION	SPV.0090.05 4-INCH WHITE LF	SPV.0090.06 8-INCH WHITE LF	SPV.0090.04 18-INCH WHITE LF
0010	34+78 BW - 36+25 BW, LT	CHANNELIZING	---	290	---
	36+00 BE - 37+23 BE, RT	CHANNELIZING	---	117	---
	114+05 - 122+27, LT	CHANNELIZING	---	1666	---
	148+41 EB - 149+02 EB, RT	CHANNELIZING	---	123	---
	146+01 EB - 151+00 EB, RT	CHANNELIZING	---	635	---
	152+84 WB - 156+26 WB, LT	CHANNELIZING	---	485	---
	100+00 R - 100+43 R, RT	DOTTED	13	---	---
	100+43 R - 150+82 WB, RT	DASHED	177	---	---
	100+37 R - 100+86 R, RT	CHANNELIZING	---	90	---
	100+86 R - 101+26 R, RT	DOTTED DASHED	---	---	24
	101+40 R - 101+87 R, RT	CHANNELIZING	---	87	---
	101+87 R - 102+19 R, RT	DOTTED DASHED	---	---	32
	102+38 R - 102+94 R, RT	CHANNELIZING	---	88	---
	102+94 R - 103+31 R, RT	DOTTED DASHED	---	---	24
	103+42 R - 152+68 EB, RT	DASHED	102	---	---
	103+48 R - 103+85 R, RT	CHANNELIZING	---	65	---
	103+85 R - 104+06 R, RT	DOTTED DASHED	---	---	27
CATEGORY 0010 TOTALS			**292**	**3646**	**107**
0070	38+75 BW - 40+26 BW, LT	CHANNELIZING	---	142	---
CATEGORY 0070 TOTALS			**0**	**142**	**0**
PROJECT ID TOTALS			**292**	**3788**	**107**

PROJECT CONCRETE CRACK MITIGATION AND REPAIR SPECIAL

PROJECT	SPV.0105.04 LS
8680-04-74	1

CONSTRUCTION STAKING CONCRETE ROUNDABOUT USH 2 AND BELKNAP STREET

LOCATION	SPV.0105.16 LS
USH 2 & BELKNAP ST INTERSECTION	1

CONCRETE CURB AND GUTTER CURE AND SEAL TREATMENT

CATEGORY	STATION TO STATION	LOCATION	SPV.0090.07 LF
0010	29+82 BE - 32+19 BE	LT, MEDIAN	237
	29+82 BW - 32+21 BW	RT, MEDIAN	240
	29+97 BW - 35+00 BW	LT	487
	32+00 BE - 32+44 BE	RT	55
	32+79 BE - 35+00 BE	RT	245
	32+95 BW - 35+00 BW	RT, MEDIAN	209
	32+97 BE - 35+00 BE	LT, MEDIAN	202
	35+00 BW - 36+17 BW	LT	112
	35+00 BW - 36+98 BW	RT, MEDIAN	204
	35+00 BE - 37+11 BE	LT, MEDIAN	250
	35+00 BE - 154+10 EB	RT	435
	36+15 BW - 103+15 R	LT, ISLAND	134
	101+89 - 130+86	RT	2900
	149+00 B - 151+62 B	RT	234
	149+02 B - 151+62 B	ISLAND	262
	100+00 R - 104+08 R	LT	396
	100+00 R - 104+08 R	LT	313
	135+50 EB - 150+75 EB	LT, MEDIAN	1679
	135+50 WB - 150+92 WB	RT, MEDIAN	1650
	143+50 EB - 148+98 EB	RT	544
	149+04 EB - 149+42 EB	RT, ISLAND	38
	149+42 EB - 103+15 R	RT, ISLAND	133
	149+75 WB - 38+95 BW	LT	185
	101+05 R - 39+17 BE	RT	63
	101+05 R - 154+29 WB	LT	145
	152+55 EB - 160+52 EB	LT, MEDIAN	852
	152+80 WB - 160+46 WB	RT, MEDIAN	771
	154+29 WB - 162+78.75 EB	LT	827
	156+73 EB - 162+78.75 EB	RT	616
CATEGORY 0010 TOTAL			**14418**
0070	38+95 BW - 40+34 BW	LT	120
	38+99 BW - 40+27 BW	RT, MEDIAN	134
	39+21 BE - 40+57 BE	LT, MEDIAN	193
	39+17 BE - 40+65 BE	RT	145
	40+34 BW - 41+18 BW	LT	84
	40+65 BE - 41+50 BE	RT	86
CATEGORY 0070 TOTAL			**762**
PROJECT ID TOTAL			**15180**

CURE AND SEAL TREATMENT, CONCRETE CURB MEDIAN SLOPED NOSE

CATEGORY	STATION	LOCATION	TYPE	SPV.0165.03 SF
0010	149+00 B	LT	1	68
	160+55 EB	LT	1	56
	29+75 BE	LT	1	56
	32+23 BE	LT	1	56
	32+93 BE	LT	1	57
	37+10 BE	LT	2	26
	36+98 BW	RT	2	26
	150+75 EB	LT	2	26
	150+96 WB	RT	2	26
	152+80 EB	RT	2	26
	152+55 EB	LT	2	26
CATEGORY 0010 TOTAL				**449**
0070	38+97 BW	RT	2	26
	39+17 BE	LT	2	26
	40+60 BE	LT	1	65
CATEGORY 0070 TOTAL				**117**
PROJECT ID TOTAL				**566**

CURE AND SEAL TREATMENT, CONCRETE SIDEWALK

CATEGORY	STATION TO STATION	LOCATION	SPV.0165.02 SF
0010	134+55 EB - 149+78 EB	LT	18323
	149+78 EB - 150+76 EB	LT	2381
	152+56 EB - 153+59 EB	LT	3110
	153+00 WB - 154+64 WB	LT	842
	153+59 EB - 160+52 EB	LT	9007
	159+50 EB - 163+00 EB	RT	1769
	149+00 B - 151+62 B	LT	4082
	29+82 BE - 32+21 BE	LT	1535
	32+95 BE - 36+26 BE	LT	5440
	36+26 BE - 37+10 BE	LT	1565
	40+33 BE - 40+85 BE	RT	359
	32+00 P - 32+42 P	LT	243
	32+81 P - 33+11 P	LT & RT	303
	49+54 S - 49+73 S	LT	331
CATEGORY 0010 TOTAL			**49290**
0070	39+18 BE - 40+58 BE	LT	2636
CATEGORY 0070 TOTAL			**2636**
PROJECT ID TOTAL			**51926**

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

PLANT DATA SUMMARY

LOCATION	SYMBOL	COMMON NAME	SCIENTIFIC NAME	AVERAGE MATURE HEIGHT	SIZE WHEN PLANTED	ROOT ZONE MODE	MINIMUM CONTAINER SIZE DAIM.	MINIMUM CONTAINER SIZE DEPTH	MINIMUM HOLE SIZE DIAM.	MINIMUM HOLE SIZE DEPTH	FRET. UNITS REQ'D	RODENT PROTECTION REQ'D	MULCH RING DIAMETER	BRACE OR GUY	632.0101 TREES EACH	632.0201 SHRUBS EACH	SPV.0060.18 LANDSCAPE PLANTING SURVEILLANCE AND CARE CYCLE SPECIAL EACH
CENTRAL ISLAND	SB	SERVICEBERRY 'AUTUMN BRILLANCE" - CLUMP	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	15 FT	1.5-INCH	B&B	20-NCH	12-INCH	44-INCH	12-INCH	3	YES	30-INCH	NO	4	-	-
CENTRAL ISLAND	J	JUNIPER,BLUE PFITZER	JUNIPERUS X MEDIA "PFITZERIANA GLAUCA"	6 FT	#7	CG	14-INCH	12-INCH	24-INCH	121-INCH	3	NO	24-INCH	NO	-	22	-
CENTRAL ISLAND	AH	AMERICAN HAZELNUT	CORYLUS AMERICANA	12 FT	#10	CG	12-INCH	8-INCH	36-INCH	8-INCH	3	NO	24-INCH	NO	-	9	-
CENTRAL ISLAND															-	-	15
PROJECT ID TOTALS															**4**	**31**	**15**

**DIAMETER OF THE PLANING HOLE SHALL BE 24-INCHES GREATER THAN THE DIAMETER OF THE CONTAINER. PLANTING HOLE DEPTH SHALL BE THE SAME AS THE DEPTH OF THE CONTAINER.

WEED BARRIER

LOCATION	SPV.0165.04 SF
CENTRAL ISLAND	5800
PROJECT ID TOTAL	**5800**

TOPSOIL SPECIAL

LOCATION	SPV.0180.05 SY
CENTRAL ISLAND	645
PROJECT ID TOTAL	**645**

CONCRETE PAVEMENT SPECIAL

CATEGORY	STATION TO STATION	LOCATION	SPV.0180.03 10-INCH SY	SPV.0180.04 11-INCH SY
0010	101+89 - 130+70	WB USH 2	9608	---
	101+89 - 130+70	EB USH 2	9606	---
	108+75 - 122+12	WB USH 2	1814	---
	SUSQUEHANNA RAMP		50	---
	132+36 - 150+96 WB	WB USH 2	5522	---
	132+36 - 150+76 EB	EB USH 2	5654	---
	149+00 B - 151+62 B	RT	494	---
	152+56 EB - 162+79 EB	RT	3125	---
	152+79 WB - 160+53 WB	LT	2924	---
	35+00 BE - 37+11 BE	RT	475	---
	35+00 BW - 36+98 BW	LT	566	---
	100+00 R - 104+09 R	RT	---	2206
CATEGORY 0010 TOTALS			**39838**	**2206**
0070	38+97 BW - 40+34 BW	LT	339	---
	39+17 BE - 40+65 BE	RT	260	---
CATEGORY 0070 TOTALS			**599**	**---**
PROJECT ID TOTALS			**40437**	**2206**

CURE AND SEAL TREATMENT CONCRETE ROUNDABOUT TRUCK APRON

STATION TO STATION	LOCATION	SPV.0180.06 SY
100+00 R - 104+09 R	LT	437
149+38 B - 150+52 B	RT	55
152+60 WB - 154+29 WB	LT	58
PROJECT ID TOTAL		**550**

*** OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

RECAP OF QUANTITIES–PROJECT #8680–04–71

ITEM NUMBER	DESCRIPTION	CATEGORY QUANTITY	UNIT
	STANDARD ITEMS		
655.0610	ELECTRICAL WIRE LIGHTING 12 AWG	3,780	LF
655.0630	ELECTRICAL WIRE LIGHTING 4 AWG	16,815	LF
656.0400	ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (102+20)	1	LS
657.0255	TRANSFORMER BASES BREAKAWAY 11 1/2–INCH BOLT CIRCLE	15	EACH
	SPECIAL ITEMS		
SPV.0060.08	LUMINAIRES UTILITY LED–B (WISCONSIN)	30	EACH
SPV.0060.09	LUMINAIRES UTILITY LED MnDOT (MINNESOTA)	48	EACH
SPV.0105.08	LIGHTING CONTROLLER #1	1	LS
SPV.0105.10	NAVIGATION LIGHTING REPLACEMENT	1	LS
SPV.0105.11	POLE/CIRCUITING MODIFICATIONS (STATION 73+00 TO 102+00)	1	LS
SPV.0105.12	TEMPORARY PARAPET WIRING (WI & MN COMBINED)	1	LS

DETAILED QUANTITY BREAKDOWN SHOWN ELSEWHERE.

RECAP OF QUANTITIES–PROJECT #8680–04–74

ITEM NUMBER	DESCRIPTION	CATEGORY QUANTITY	UNIT
	STANDARD ITEMS		
652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2–INCH	6,487	LF
652.0325	CONDUIT RIGID NONMETALLIC SCHEDULE 80 2–INCH	1,068	LF
653.0135	PULL BOXES STEEL 24X36–INCH	27	EACH
654.0105	CONCRETE BASES TYPE 5	30	EACH
655.0610	ELECTRICAL WIRE LIGHTING 12 AWG	10,386	LF
655.0620	ELECTRICAL WIRE LIGHTING 8 AWG	5,113	LF
655.0625	ELECTRICAL WIRE LIGHTING 6 AWG	2,412	LF
655.0630	ELECTRICAL WIRE LIGHTING 4 AWG	15,085	LF
655.0635	ELECTRICAL WIRE LIGHTING 2 AWG	26,456	LF
656.0400	ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (130+66)	1	LS
657.0255	TRANSFORMER BASES BREAKAWAY 11 1/2–INCH BOLT CIRCLE	59	EACH
657.0322	POLES TYPE 5–ALUMINUM	25	EACH
657.0710	LUMINAIRE ARMS TRUSS TYPE 4 1/2–INCH CLAMP 12–FT	26	EACH
	SPECIAL ITEMS		
SPV.0060.08	LUMINAIRES UTILITY LED–B	73	EACH
SPV.0060.21	EXISTING ROADWAY LIGHTING REMOVAL AND RELOCATION	5	EACH
SPV.0105.09	LIGHTING CONTROLLER #2	1	LS
SPV.0105.13	SIGN BRIDGE LIGHTING DEMOLITION	1	LS
SPV.0105.14	EXISTING ROADWAY LIGHTING DEMOLITION	1	LS
SPV.0105.17	WISCONSIN SIGN CIRCUIT MODIFICATION	1	LS

DETAILED QUANTITY BREAKDOWN SHOWN ELSEWHERE.

ALL ITEMS ON THIS SHEET ARE CATEGORY 0020 UNLESS OTHERWISE NOTED.

RECAP OF QUANTITIES–PROJECT #8680–04–71

ITEM NUMBER	DESCRIPTION	CATEGORY QUANTITY	UNIT
	STANDARD ITEMS		
655.0610	ELECTRICAL WIRE LIGHTING 12 AWG	3,780	LF
655.0630	ELECTRICAL WIRE LIGHTING 4 AWG	15,955	LF
656.0400	ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (102+20)	1	LS
657.0255	TRANSFORMER BASES BREAKAWAY 11 1/2–INCH BOLT CIRCLE	15	EACH
	SPECIAL ITEMS		
SPV.0060.08	LUMINAIRES UTILITY LED–B (WISCONSIN)	30	EACH
SPV.0060.09	LUMINAIRES UTILITY LED MnDOT (MINNESOTA)	48	EACH
SPV.0090.11	ELECTRICAL CABLE LIGHTING–MnDOT (4C/#4 AWG) (MINNESOTA)	6,360	LF
SPV.0105.08	LIGHTING CONTROLLER #1	1	LS
SPV.0105.10	NAVIGATION LIGHTING REPLACEMENT	1	LS
SPV.0105.11	POLE/CIRCUITING MODIFICATIONS (STATION 73+00 TO 102+00)	1	LS
SPV.0105.12	TEMPORARY PARAPET WIRING (WI & MN COMBINED)	1	LS

DETAILED QUANTITY BREAKDOWN SHOWN ELSEWHERE.

RECAP OF QUANTITIES–PROJECT #8680–04–74

ITEM NUMBER	DESCRIPTION	CATEGORY QUANTITY	UNIT
	STANDARD ITEMS		
652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2–INCH	6,487	LF
652.0325	CONDUIT RIGID NONMETALLIC SCHEDULE 80 2–INCH	1,068	LF
653.0135	PULL BOXES STEEL 24X36–INCH	27	EACH
654.0105	CONCRETE BASES TYPE 5	30	EACH
655.0610	ELECTRICAL WIRE LIGHTING 12 AWG	10,386	LF
655.0620	ELECTRICAL WIRE LIGHTING 8 AWG	5,113	LF
655.0625	ELECTRICAL WIRE LIGHTING 6 AWG	2,412	LF
655.0630	ELECTRICAL WIRE LIGHTING 4 AWG	15,085	LF
655.0635	ELECTRICAL WIRE LIGHTING 2 AWG	26,456	LF
656.0400	ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (130+66)	1	LS
657.0255	TRANSFORMER BASES BREAKAWAY 11 1/2–INCH BOLT CIRCLE	59	EACH
657.0322	POLES TYPE 5–ALUMINUM	25	EACH
657.0710	LUMINAIRE ARMS TRUSS TYPE 4 1/2–INCH CLAMP 12–FT	26	EACH
	SPECIAL ITEMS		
SPV.0060.08	LUMINAIRES UTILITY LED–B	73	EACH
SPV.0060.21	EXISTING ROADWAY LIGHTING REMOVAL AND RELOCATION	5	EACH
SPV.0105.09	LIGHTING CONTROLLER #2	1	LS
SPV.0105.13	SIGN BRIDGE LIGHTING DEMOLITION	1	LS
SPV.0105.14	EXISTING ROADWAY LIGHTING DEMOLITION	1	LS
SPV.0105.17	WISCONSIN SIGN CIRCUIT MODIFICATION	1	LS

DETAILED QUANTITY BREAKDOWN SHOWN ELSEWHERE.

Addendum No. 1
ID 8680-04-71
Revised Sheet 183
December 20, 2013

ALL ITEMS ON THIS SHEET ARE CATEGORY 0020 UNLESS OTHERWISE NOTED.

NOTE: SUPERELEVATION TABLES DETERMINED FROM AS-BUILT PLANS. THE CONTRACTOR WILL CONFIRM ACTUAL SLOPES OF EXISTING PAVEMENT IN THE FIELD FOR THE PAVEMENT REPLACEMENT SECTION FROM STA 101+72 TO STA 134+55 TO MATCH THE EXISTING PAVEMENT GRADES.

CURVE DATA	
P.I.	95+18.72
	N 308827.56
	E 139227.92
△	= 56°00'00"
D	= 3°30'00"
T	= 870.42'
L	= 1600.00'
E	= 217.02'
R	= 1637.02'
P.C.	86+48.30
	N 309066.38
	E 138390.91
P.T.	102+48.30
S.E.	5.3%

CURVE DATA	
P.I.	119+32.06
	N 306397.66
	E 140014.95
△	= 71°14'48"
D	= 3°30'00"
T	= 1173.00'
L	= 2035.62'
E	= 376.87'
R	= 1637.02
P.C.	107+59.06
P.T.	127+94.68
S.E.	5.3%

P.I. DATA	
P.I.	134+55.00
	N 306369.73
	E 141848.06

STA 101+72 - STA 130+86
(WB LANES, RT) SAWCUT REQ'D.
(SEE MEDIAN BARRIER DETAILS FOR ADDITIONAL INFORMATION.)

SUPERELEVATION TABLE

STATION	WESTBOUND	
	MEDIAN LANE	OUTSIDE LANE
101+00	+0.053	+0.053
101+72	+0.053	+0.053
102+00	+0.051	+0.051
102+40	+0.038	+0.038
103+00	+0.019	+0.019
104+00	+0.015	-0.012
105+00	+0.015	-0.015
106+00	+0.020	-0.020
107+00	-0.016	-0.016
107+40	-0.029	-0.029
108+00	-0.048	-0.048
109+00	-0.053	-0.053

RAMP CURVE DATA	
P.I.	113+09.84
	N 307020.53
	E 139901.64
△	= 29°30'43"
D	= 3°30'00"
T	= 431.17'
L	= 843.20'
E	= 55.83'
R	= 1637.02'
P.C.	108+78.67
	N 307415.86
	E 139729.53
P.C.C	117+21.87

END PROJECT 8680-04-71
BEGIN PROJECT 8680-04-74
STA 101+89.00
N 308056.01
E 139478.61

STA 101+93 - STA 103+84, LT
MGS GUARDRAIL REQ'D

STA 101+92 - STA 103+07, LT
REMOVING GUARDRAIL

STA 108+04, LT
STA 111+83, LT
CURE-IN-PLACE PIPE LINING
SEE DETAIL

STA 116+03
PIPE REPLACEMENT &
CURE-IN-PLACE PIPE LINING
SEE DETAILS

WISDOT LIGHTING

PT 102+48.30

STA 102+17 (EB LANES, RT)
STA 102+20 (EB LANES, RT)
ADJUSTING INLET COVER

CONCRETE PAVEMENT APPROACH SLAB REQ'D (SEE S.D.D. "CONCRETE PAVEMENT APPROACH SLAB")

STA 102+17, RT
STA 104+05, RT
CURE-IN-PLACE PIPE LINING
SEE DETAIL

STA 102+10 - STA 107+64, RT
REMOVING GUARDRAIL

STA 102+12 - STA 107+65, RT
MGS GUARDRAIL REQ'D

STA 101+72 - STA 130+86
(EB LANES, LT) SAWCUT REQ'D.
(SEE MEDIAN BARRIER DETAILS FOR ADDITIONAL INFORMATION.)

PC 107+59.06

PC 108+78.67

PI 113+09.84

S 17°52'50" E

USH 2 WB

USH 2 EB

SUPERELEVATION TABLE

STATION	EASTBOUND	
	MEDIAN LANE	OUTSIDE LANE
101+00	-0.053	-0.053
101+72	-0.053	-0.053
102+00	-0.051	-0.051
102+40	-0.038	-0.038
103+00	-0.019	-0.019
104+00	+0.012	-0.015
105+00	+0.015	-0.015
106+00	+0.020	-0.020
107+00	+0.016	+0.016
107+40	+0.029	+0.029
108+00	+0.048	+0.048
109+00	+0.053	+0.053

RAMP CURVE DATA	
P.I.	119+49.57
	N 306624.35
	E 140428.10
△	= 20°16'43"
D	= 4°30'00"
T	= 227.70'
L	= 450.64'
E	= 20.20'
R	= 1273.24'
P.C.C	117+21.87
P.T.	121+72.50
	N 306558.98
	E 140646.22

SUPERELEVATION TABLE

STATION	EASTBOUND		WESTBOUND	
	MEDIAN LANE	OUTSIDE LANE	MEDIAN LANE	OUTSIDE LANE
127+00	+0.053	+0.053	-0.053	-0.053
128+00	+0.033	+0.033	-0.033	-0.033
129+00	+0.002	+0.015	-0.015	-0.015
130+00	-0.015	-0.002	-0.015	-0.015
130+82	-0.015	-0.015	-0.015	-0.015
STRUCTURE				
132+15	-0.015	-0.015	-0.015	-0.015
133+00	-0.015	-0.015	-0.002	-0.015
134+00	-0.021	-0.021	+0.015	-0.015

RAMP CLOSURE GATE
SOLAR 40-FT
N 306553.70
E 141488.70

OSOW INTERSECTION MODIFICATION:
12" CABC, 6" ASPH
6' PIPE EXTENSION REQ'D

STA 132+34
(WB LANES, LT & EB LANES, RT)
ADJUSTING INLET COVER

STA 132+34, LT
CURE-IN-PLACE PIPE LINING
SEE DETAIL

SUSQUEHANNA AVE

STA 129+62 - STA 130+79, LT
STA 132+28 - STA 133+44, LT
REMOVING GUARDRAIL

STA 129+42 - STA 130+78, LT
STA 132+29 - STA 134+17, LT
MGS GUARDRAIL REQ'D

PC 117+21.87

PT 121+72.50

PT 127+94.68

PI 119+49.57

STA 120+04
PIPE REPLACEMENT &
CURE-IN-PLACE PIPE LINING
SEE DETAILS

STA 124+04
PIPE REPLACEMENT &
CURE-IN-PLACE PIPE LINING
SEE DETAILS

WISDOT LIGHTING

3 EXISTING DEEP PIPES WERE SLURRY FILLED AND ABANDONED IN PLACE

STA 132+21 - STA 134+56
(EB LANES, LT & WB LANES, RT)
SAWCUT REQ'D.
(SEE MEDIAN BARRIER DETAILS FOR ADDITIONAL INFORMATION.)

S 89°07'38" E

CENTURYLINK

CONCRETE PAVEMENT APPROACH SLAB REQ'D (SEE S.D.D. "CONCRETE PAVEMENT APPROACH SLAB")

SUPERIOR WATER LIGHT AND POWER COMPANY

CITY OF SUPERIOR - WATER

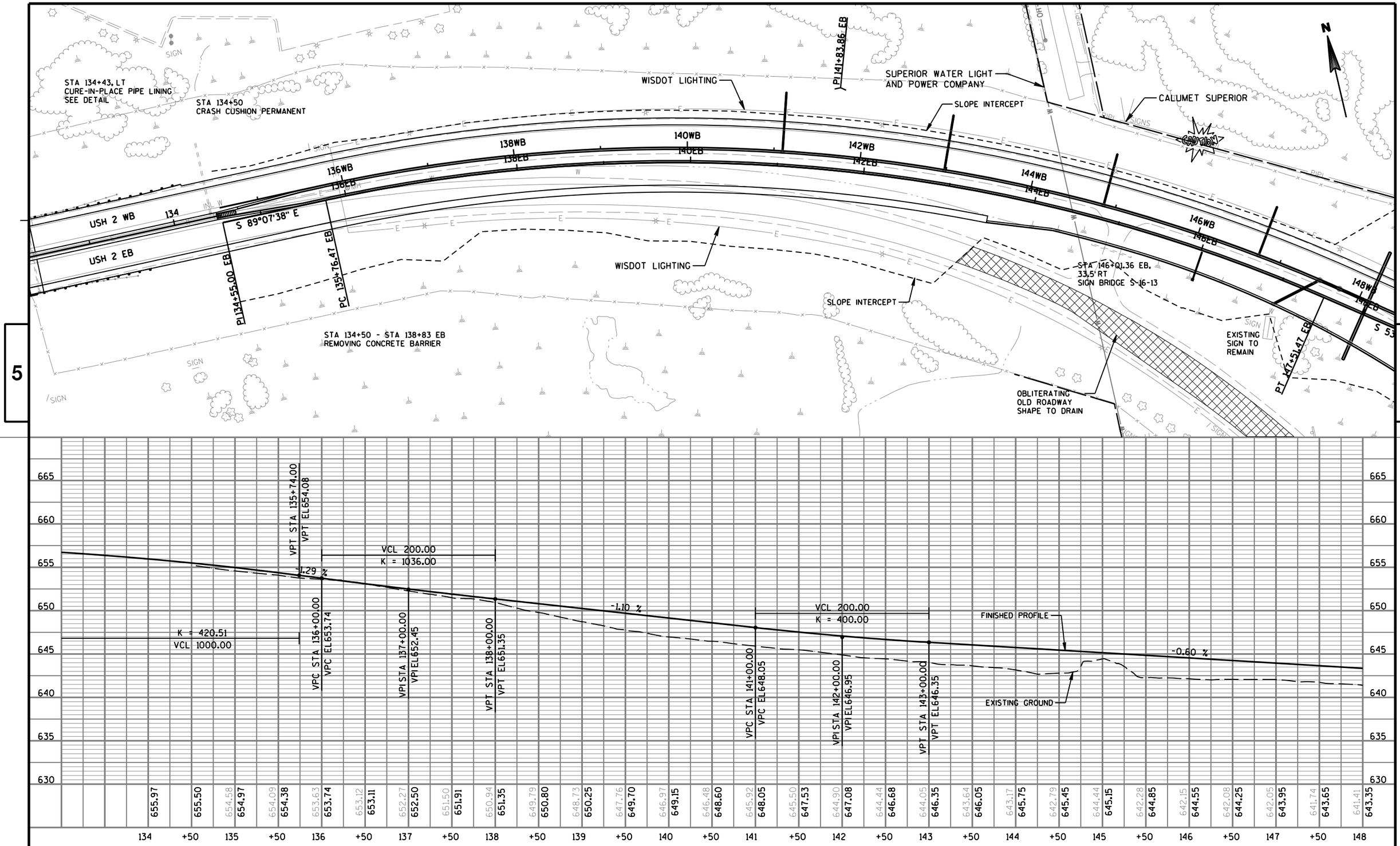
MINNESOTA POWER

CITY OF SUPERIOR - SANITARY

STA 129+66 - STA 130+78, RT
STA 132+28 - STA 133+48, RT
REMOVING GUARDRAIL

STA 128+82 - STA 130+78, RT
STA 132+29 - STA 133+64, RT
MGS GUARDRAIL REQ'D

PROJECT NO: 8680-04-71/74	HWY: USH 2	COUNTY: DOUGLAS	PLAN	SHEET 184	E



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PLAN & PROFILE - USH 2 EB	SHEET E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\050102_pp.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 40

SLOPE INTERCEPT
CALUMET SUPERIOR
N GARFIELD AVE
CITY OF SUPERIOR
WISDOT LIGHTING
SLOPE INTERCEPT
PIPE GATE 26-FT
PI 153+49.97 EB
148WB
148EB
USH 2 WB
150WB
150EB
S 53°19'30" E
USH 2 EB
PI 150+29.60 EB
PC 149+78.39 EB
PT 150+14.46 EB
PI 150+83.38 EB
150B
120'
104R
SLOPE INTERCEPT
OBLITERATING
OLD ROADWAY
SHAPE TO DRAIN
154WB
154EB
156WB
156EB
S 55°43'29" E
158WB
158EB
160WB
160EB
USH 2 WB
USH 2 EB
N 88°46'18" E
186WB
186EB
PI 160+55.06 EB
END PROJECT 8680-04-74
STA 162+78.75 EB
MATCH EXISTING
SAWCUT REO'D.
STA 162+45 EB
REMOVE OVERHEAD SIGN
STRUCTURE S-16-002
STA 159+91 EB - STA 162+79 EB, RT
REMOVE AND REPLACE STEEL PLATE
BEAM GUARD CLASS A
STA 159+41 EB - STA 159+91 EB, RT
REMOVE AND REPLACE STEEL PLATE
BEAMGUARD ENERGY ABSORBING TERMINAL
SLOPE INTERCEPT
PI 151+71.51 EB
36BW
36BE
BELKNAP ST
PI 152+43.58 EB
PC 154+67.38 EB
SUPERIOR WATER LIGHT
AND POWER COMPANY
40P
S GARFIELD AVE
5
5

VCL 100.00
K = 58.49
VCL 500.00
K = 107.83
VCL 100.00
K = 1938.21
+1.11 %
-0.64
+4.00 %
+4.05 %
VPC STA 149+00.00
VPC EL642.75
149+35.10
642.64
VPI STA 149+50.00
VPI EL642.45
VPT STA 150+00.00
VPT EL643.00
VPI STA 150+83.38
VPI EL643.93
VPI STA 152+43.58
VPI EL642.47
VPC STA 152+95.00
VPC EL642.14
153+63.69
641.92
VPI STA 155+45.00
VPI EL640.55
VPT STA 157+95.00
VPT EL650.55
VPC STA 159+00.00
VPC EL654.75
VPI STA 159+50.00
VPI EL656.75
VPT STA 160+00.00
VPT EL658.78
VPOT STA 162+79.50
VPOT EL670.10
FINISHED PROFILE
EXISTING GROUND

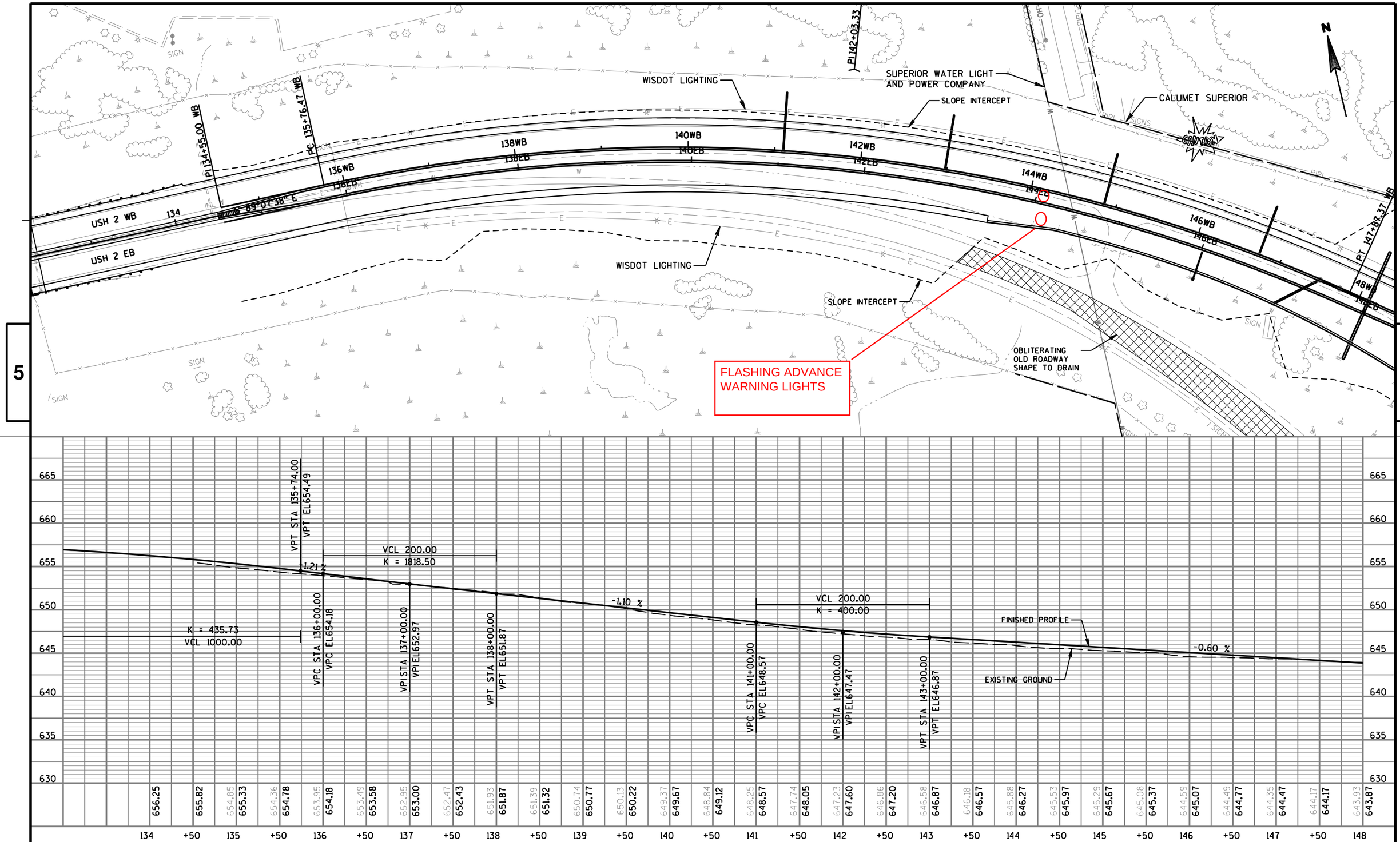
665	660	655	650	645	640	635	630

641.41	642.00	642.65	642.92	642.90	642.04	641.45	640.51	638.42	637.62	641.64	642.36	643.45	644.51	645.72	646.80	648.65	650.69	652.67	655.17	656.62	658.71	660.87	662.75	664.83	666.87	668.91	668.46
643.35	643.05	642.75	642.66	643.00	643.56	642.43	642.11	641.93	641.98	642.27	642.79	643.53	644.51	645.72	647.17	648.84	650.75	652.75	654.75	656.76	658.78	660.80	662.83	664.85	666.88	668.90	

148	+50	149	+50	150	+50	151	+50	152	+50	153	+50	154	+50	155	+50	156	+50	157	+50	158	+50	159	+50	160	+50	161	+50	162	+50	163

PROJECT NO: 8680-00-70/04-74	HWY: USH 2	COUNTY: DOUGLAS	PLAN & PROFILE - USH 2 EB	SHEET E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\050103_pp.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PLAN & PROFILE - USH 2 WB	SHEET 187 E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\050104_pp.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 40

STA 150+85 WB, 36.33' LT
RAMP CLOSURE GATE
SOLAR 37-FT

SLOPE INTERCEPT

CALUMET SUPERIOR

N GARFIELD AVE

STA 39+08 BE, RT & STA 152+22 EB RT
REMOVE HISTORICAL MARKER SIGNS

STA 157+92 WB
SALVAGE CANTILEVERED SIGN TRUSS
NEW BASE REQ'D

STA 161+63 WB - STA 162+13 EB, LT
REMOVE AND REPLACE STEEL PLATE
BEAM GUARD CLASS A

STA 162+13 WB - STA 162+66 WB, LT
REMOVE AND REPLACE STEEL PLATE
BEAMGUARD ENERGY ABSORBING TERMINAL

CITY OF SUPERIOR

WISDOT LIGHTING

STA 156+26.7 WB, 36'LT
RELOCATED SIGN BRIDGE
S-16-03

USH 2 WB

USH 2 EB

S 52°34'17" E

S 56°18'49" E

S 55°22'11" E

S 89°37'11" E

SLOPE INTERCEPT

OBLITERATING
OLD ROADWAY
SHAPE TO DRAIN

BELKNAP ST

SUPERIOR WATER LIGHT
AND POWER COMPANY

S GARFIELD AVE

RUINS

SLOPE INTERCEPT

SLOPE INTERCEPT

PT 147+87.37 WB

PC 150+12.85 WB

PT 150+47.21 WB

PI 151+06.54 WB

PC 152+73.71 WB

PT 153+62.19 WB

PC 155+27.20 WB

PI 153+20.40

PI 157+46.54 WB

PCC 159+35.35 WB

PI 160+80.16 WB

PT 162+04.89 WB

+94.30 WB

148WB

148EB

150WB

150EB

150+30.04 WB

154WB

154EB

156WB

156EB

158WB

158EB

160WB

160EB

162EB

104R

120'

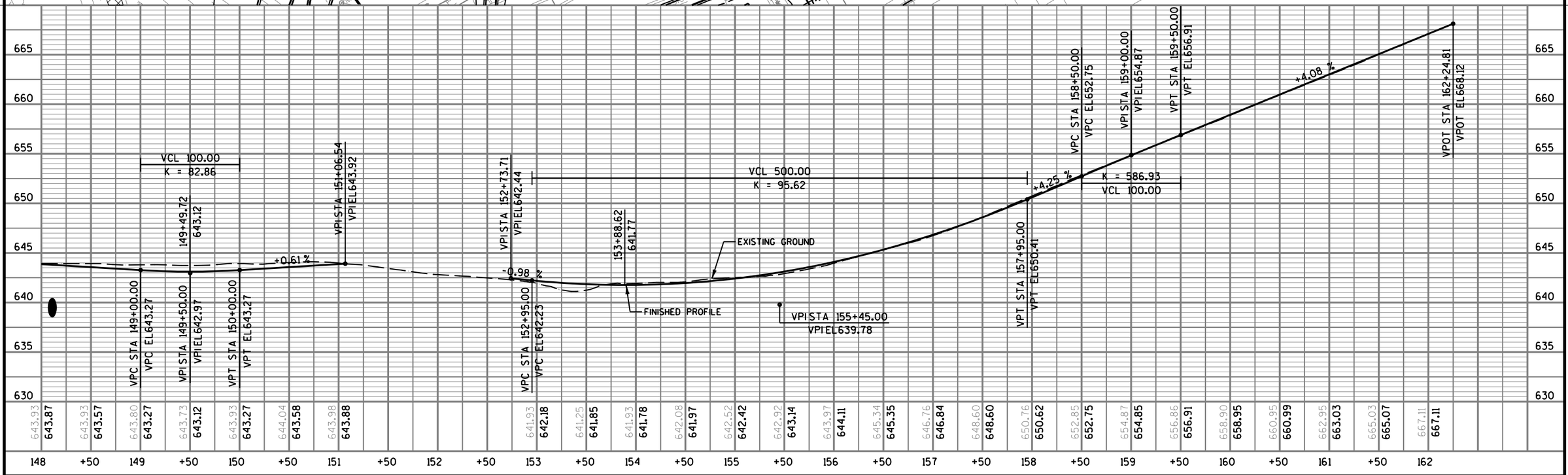
36BW

36BE

40BW

40BE

40P



PROJECT NO: 8680-00-70/04-74	HWY: USH 2	COUNTY: DOUGLAS	PLAN & PROFILE - USH 2 WB	SHEET LAS E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\050105_pp.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 40

CALUMET SUPERIOR

CITY OF SUPERIOR

WISDOT LIGHTING

USH 2 WB

USH 2 EB

N GARFIELD AVE

BELKNAP ST WB

BELKNAP ST EB

S GARFIELD AVE

SLOPE INTERCEPT

OBLITERATING OLD ROADWAY SHAPE TO DRAIN

SUPERIOR WATER LIGHT AND POWER COMPANY

CAUTION

BEGIN PROJECT 8680-00-70
STA 3+50.00 G
MATCH EXISTING
SAWCUT REQ'D.
N 305305.21
E 143601.44

BYPASS LANE

VCL 100.00
K = 62.50

FINISHED PROFILE

-0.60 %

-0.71 %

VPOT STA 149+00.00 VPOT EL642.07 — 642.07
VPC STA 149+50.00 VPC EL641.77 — 641.77
VPI STA 150+00.00 VPI EL641.47 — 641.67
149+87.50 641.66
VPRC STA 150+50.00 VPRC EL641.97 — 641.97
151+08.38 642.26 — 642.26
VPI STA 151+00.00 VPI EL642.47
VPT STA 151+50.00 VPT EL642.11
VPOT STA 151+61.71 VPOT EL642.03 — 642.03

K = 58.38
VCL 100.00

EXISTING GROUND

639.13 639.30 639.55 639.84 639.86 640.45

149 +50 150 +50 151 +50

ROUNDABOUT CIRCLE

VCL 100.00
K = 50.00

-1.00 %

+1.00 %

-0.94 %

VPOT STA 100+00.00 VPOT EL642.65 — 642.65
VPC STA 100+15.00 VPC EL642.50 — 642.50
VPI STA 100+65.00 VPI EL642.00
100+65.00 642.25
VPT STA 101+15.00 VPT EL642.50 — 642.50
VPC STA 102+15.00 VPC EL643.50 — 643.50
VPI STA 102+65.00 VPI EL644.00
102+66.57 643.76
VPT STA 103+15.00 VPT EL643.53 — 643.53
VPOT STA 104+08.73 VPOT EL642.65 — 642.65

FINISHED PROFILE

K = 51.57
VCL 100.00

EXISTING GROUND

641.02 638.12 642.61 641.58 641.71 643.24 638.31 640.48 640.88

642.65 642.27 642.37 642.85 643.35 643.73 643.65 643.20 642.73

100 +50 101 +50 102 +50 103 +50 104 +50

S GARFIELD AVE

VCL 100.00
K = 38.38

FINISHED PROFILE

-0.35 %

+2.26 %

+3.10 %

VPOT STA 3+25.00 VPOT EL643.25 VPC STA 3+50.00 VPC EL643.16 — 643.16
3+63.43 643.14
VPI STA 4+00.00 VPI EL642.99 — 643.31
VPT STA 4+50.00 VPT EL644.12 — 644.12
VPI STA 4+71.00 VPI EL644.59
VPOT STA 5+00.00 VPOT EL643.69 — 643.69

EXISTING GROUND

643.15 642.98 643.28 643.62

643.16 643.31 644.12 643.69

+50 4 +50 5

PROJECT NO: 8680-00-70/04-74	HWY: USH 2	COUNTY: DOUGLAS	PLAN & PROFILE - BYPASS LANE/RAB CIRCLE/GARFIELD AVE	SHEET E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\050106_pp.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 40

BEGIN CONSTRUCTION
STA 18+63.00 BE
(SEE PAVING DETAIL)

END ASPHALT MILL & OVERLAY
BEGIN CONCRETE MILL & OVERLAY
STA 26+82.00 BE
SAWCUT REQ'D

CENTURYLINK

CITY OF SUPERIOR

SLOPE INTERCEPT

SUPERIOR WATER LIGHT AND POWER COMPANY

OBLITERATING OLD ROADWAY SHAPE TO DRAIN

WISDOT LIGHTING

N

26BE

28BE

30BW

30BE

32BW

32BE

34BW

34BE

S 89°31'48" E

BELKNAP ST WB

BELKNAP ST EB

PI 25+00.00 BE

PENNSYLVANIA AVE

MISSOURI AVE

MARYLAND AVE

32P

34P

36P

38P

PC 33+01.92 BE

PI 34+76.52 BE

WISDOT TRAFFIC SIGNALS

PI 35+59.90 BE

PC 36+26.40 BE

PT 35+64.82 BE

PI 37+08.42 BE

PT 37+15.51 BE

Δ 42°29'24" Rt

USH 2

130L

104R

TRANSFORMER

SIGN

5

5

VPOT STA 30+00.00
VPOT EL640.17

VPI STA 30+50.00
VPI EL640.24

VPI STA 31+00.00
VPI EL640.39

VPI STA 31+50.00
VPI EL640.51

VPI STA 32+00.00
VPI EL640.67

VPC STA 33+00.00
VPC EL640.92

VPI STA 33+50.00
VPI EL641.05

VPT STA 34+00.00
VPT EL641.32

VPI STA 37+15.51
VPI EL643.01

VCL 100.00
K = 353.48

+0.14 %
+0.30 %
+0.24 %
+0.33 %
+0.25 %
+0.54 %

FINISHED PROFILE

EXISTING GROUND

655 650 645 640 635 630 625 620

639.70 639.85 639.89 639.78 639.79 639.83 639.91 640.06 640.07 640.10 640.04 640.17 640.11 640.24 640.26 640.39 640.38 640.51 640.54 640.67 640.72 640.80 640.78 640.92 640.84 641.09 641.10 641.32 640.96 641.59 641.43 641.85 640.86 642.12 641.05 642.39 640.75 642.66 640.93 642.93 640.78 638.13

25 +50 26 +50 27 +50 28 +50 29 +50 30 +50 31 +50 32 +50 33 +50 34 +50 35 +50 36 +50 37 +50 38

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PLAN & PROFILE - BELKNAP ST (BE)	SHEET E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\050107_pp.dgn PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 40

DITCH TO DRAIN

STA 44+60 BE
1-12" CP REQ'D
PIPE ELEV. IN 637.99
PIPE ELEV. OUT 637.50
SAWCUTS REQ'D

PI 45+88.25 BE

N GARFIELD AVE
N 5°53'32" E

STA 42+71 BE
REMOVE 18" CP

CALUMET SUPERIOR

SLOPE INTERCEPT

SUPERIOR WATER LIGHT AND POWER COMPANY (2" PASTIC GAS LINE)

CENTURYLINK UNDER MINNESOTA POWER

END CONSTRUCTION
STA 44+20.00 BE
SAWCUT REQ'D
MATCH EXISTING

PI 43+97.63 BE

PI 43+25.17 BE

PC 42+49.64 BE

SLOPE INTERCEPT

OBLITERATING OLD ROADWAY SHAPE TO DRAIN

STA 41+00 BE
CONSTRUCT C.E.

STA 8+50 D
PIPE GATE 32-FT

PI 39+05.43 BE

PI 40+07.70 BE

PI 37+08.42 BE

PI 37+54.18 BE

REMOVING FENCE

WISDOT LIGHTING

USH 2 EB
USH 2 WB
USH 2 EB
USH 2 WB

150EB
150WB
154EB
154WB

42BE 42BW
40BW
40BE
44BE
8D
104R
120L

CAUTION

P.I.

N

VPI STA 39+05.43
VPI EL642.88

VCL 100.00
K = 75.07

41+75.81
640.53

-1.01 %

+0.32 %

FINISHED PROFILE

EXISTING GROUND

VPC STA 41+00.00
VPC EL640.91

VPI STA 41+50.00
VPI EL640.41

VPT STA 42+00.00
VPT EL640.57

VPOT STA 44+20.00
VPOT EL641.28

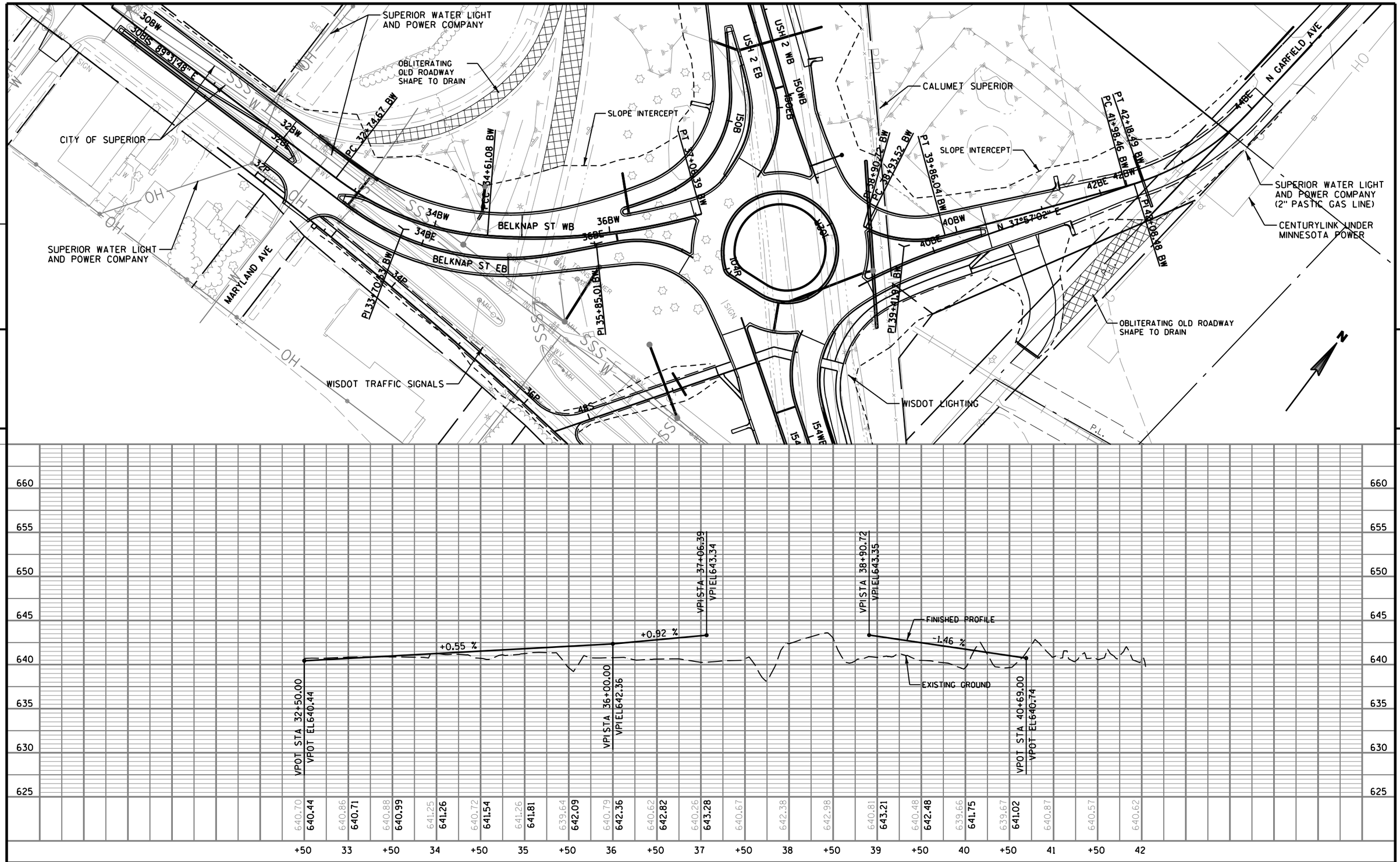
STA 42+50 BE
1-24" CPRC, CL.IV

	38	+50	39	+50	40	+50	41	+50	42	+50	43	+50	44	+50	45
	638.13	642.75	642.06	642.02	640.64	641.55	641.97	641.16	640.93	638.13	641.01	641.36	641.31	641.28	641.46
	642.43			641.92	641.42		640.91	640.58	640.57	640.73	640.89	641.05	641.22		

655 650 645 640 635 630 625 620

PROJECT NO: 8680-00-70/04-74	HWY: USH 2	COUNTY: DOUGLAS	PLAN & PROFILE - N GARFIELD AVE (BE)	SHEET E

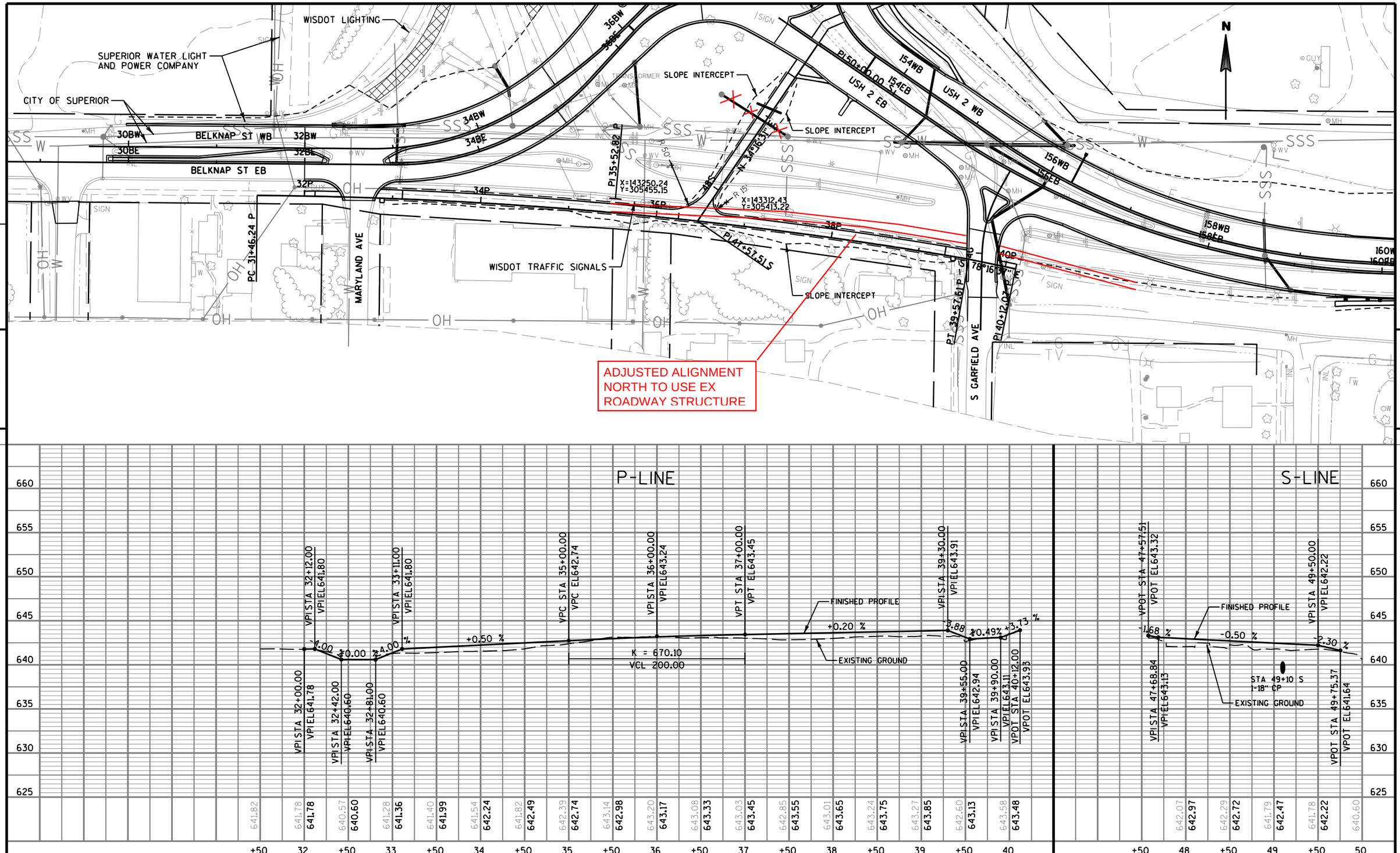
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WISDOT/CADDS SHEET 40



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PLAN & PROFILE - BELKNAP ST WB/N GARFIELD AVE	SHEET	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\050109_pp.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 40



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PLAN & PROFILE - MILTI-USE PATH	SHEET 193 E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\050110_pp.dgn PLOT DATE : 11/21/2013 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 40

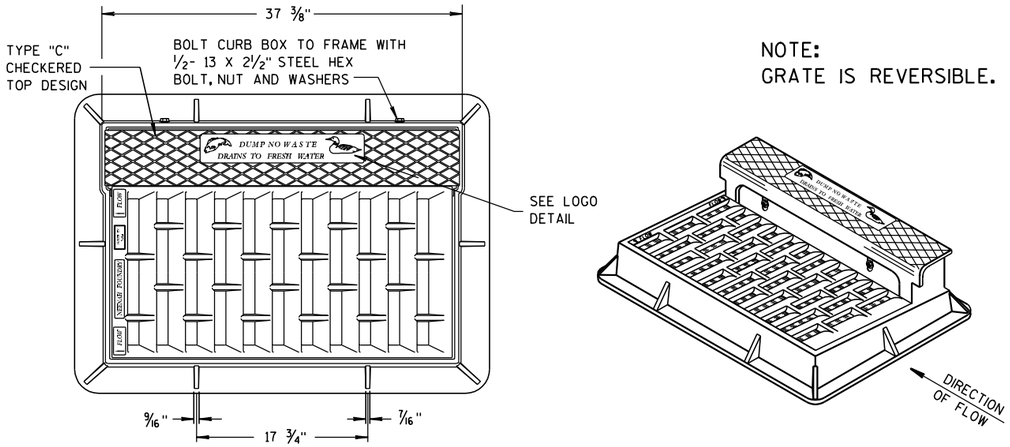
Standard Detail Drawing List

08A05-18A	INLET COVERS TYPE A, H, A-S, & H-S
08A05-18B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-18C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08A05-18D	INLET COVER, TYPE BW, Z MANHOLE COVERS, TYPE K, J, J-S, L & M
08A08-01	CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER
08A09-01	CATCH BASINS 2X3-FT AND 2.5X3-FT
08B09-01	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08C06-01	INLETS 3-FT AND 4-FT DIAMETER
08C07-01	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08C08-01	INLETS MEDIAN 1 AND 2 GRATE
08D01-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D02-06	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D03-06	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D05-15A	CURB RAMPS TYPES 1 AND 1-A
08D05-15B	CURB RAMPS TYPES 2 AND 3
08D05-15C	CURB RAMPS TYPES 4A AND 4A1
08D05-15D	CURB RAMPS TYPE 4B AND 4B1
08D05-15E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09B02-07	CONDUIT
09B04-10	PULL BOX
09C02-06	CONCRETE BASES, TYPES 1, 2 & 5
09C03-03	TRANSFORMER/PEDESTAL BASES
09C05-07	CONCRETE CONTROL CABINET BASES
09D01-04	CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)
09D02-02	SIGNAL OR LIGHTING CONTROL CABINET
09E01-12D	POLE MOUNTINGS FOR LIGHTING UNITS, TYPE 5 (30 FEET)
09E01-12G	HARDWARE DETAILS FOR POLE MOUNTINGS
09E03-04	NON-FREEWAY LIGHTING UNIT POLE WIRING
09E06-05	TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.
11B02-02	CONCRETE MEDIAN NOSE
12A03-10	NAME PLATE (STRUCTURES)
12A04-03	STRUCTURE IDENTIFICATION PLAQUES, RAMP GATES, SIGN BRIDGES & OVERHEAD SIGN SUPPORTS & TRAFFIC SIGNALS
13A03-05	CONCRETE PAVEMENT SHOULDERS
13B02-06	CONCRETE PAVEMENT APPROACH SLAB
13C01-16	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C08-02	CONCRETE PAVEMENT PARTIAL DEPTH REPAIR
13C11-11A	RURAL DOWELED CONCRETE PAVEMENT
13C11-11B	RURAL DOWELED CONCRETE PAVEMENT
13C13-08	URBAN DOWELED CONCRETE PAVEMENT
13C17-01A	CONCRETE JOINT DETAIL FOR EXIT RAMP TERMINI
13C17-01B	CONCRETE JOINT DETAIL FOR ENTRANCE RAMP TERMINI
13C18-02A	CONCRETE PAVEMENT JOINTING
13C18-02B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-02C	CONCRETE PAVEMENT JOINT TIES
13C18-02D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
13C18-02E	CONCRETE PAVEMENT JOINTING AND STEEL REINFORCEMENT IN ROUNDABOUTS
14A02-01	TREE PLANTING DETAIL
14B08-01A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B42-02A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-01A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-03A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)

6

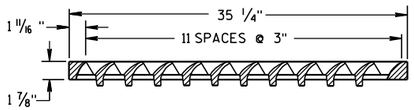
Standard Detail Drawing List

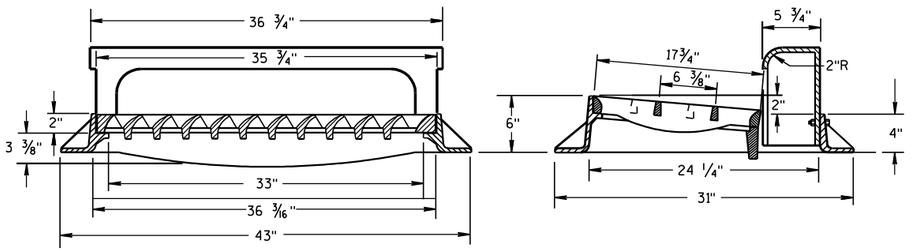
14B45-03F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B47-01A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-01B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-01C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15B12-01A	PIPE GATE DETAILS
15B12-01B	PIPE GATE DETAILS
15C02-04A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-04B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-04C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-01	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C07-12B	PAVEMENT MARKING WORDS
15C07-12C	PAVEMENT MARKING ARROWS
15C07-12D	ROUNDABOUT ARROWS
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16B	PAVEMENT MARKING (INTERSECTIONS)
15C08-16F	PAVEMENT MARKING (ISLANDS)
15C12-03	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15C18-03	MEDIAN ISLAND MARKING
15C27-01	DOUBLE ARROW WARNING SIGN PLACEMENT
15C31-01A	PAVEMENT MARKING (RAMPS AND GORES)
15D12-02	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H.
15D20-01	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D27-01	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D30-01	TRAFFIC CONTROL, SIDEWALK CLOSURE
15D34-01A	RAMP GATE SOLAR POWER
15D34-01B	RAMP GATE SOLAR POWER
15D34-01C	RAMP GATE SOLAR POWER
15D34-01D	RAMP GATE SOLAR POWER



NOTE:
GRATE IS REVERSIBLE.

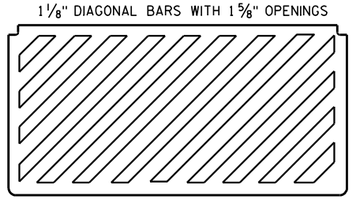
NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"





TYPE "H"

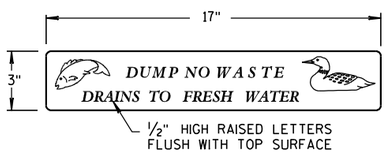
(APPROXIMATE WEIGHT 441 LBS.)
FRAME..... 181 LBS.
GRATE..... 146 LBS.
CURB BOX..... 114 LBS.



SPECIAL GRATE FOR TYPE "H" COVER

(MEASURES 35 1/4" X 17 3/4" X 2")
(APPROXIMATE WEIGHT 159 LBS.)
GRATE..... 159 LBS.

(NOTED AS TYPE H-S ON DRAINAGE TABLE)



LOGO DETAIL

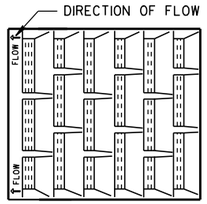
GENERAL NOTES

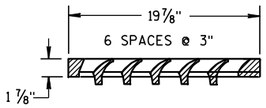
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

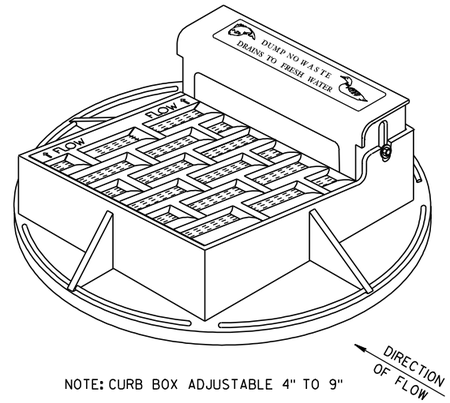
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

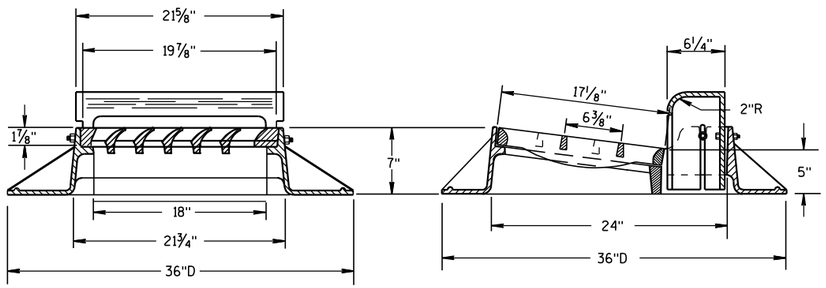
THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.





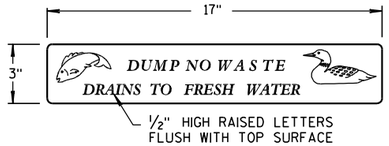


NOTE: CURB BOX ADJUSTABLE 4" TO 9"



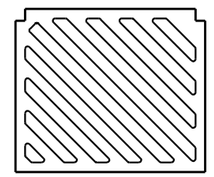
TYPE "A"

(APPROXIMATE WEIGHT 340 LBS.)
FRAME..... 185 LBS.
GRATE..... 71 LBS.
CURB BOX..... 84 LBS.



LOGO DETAIL

NOTE:
GRATE IS REVERSIBLE.



SPECIAL GRATE FOR TYPE "A" COVER

(MEASURES 19 3/4" X 17" X 1 7/8"
GRATE..... 84 LBS.

(NOTED AS TYPE A-S ON DRAINAGE TABLE)

INLET COVERS
TYPE A, H, A-S, & H-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

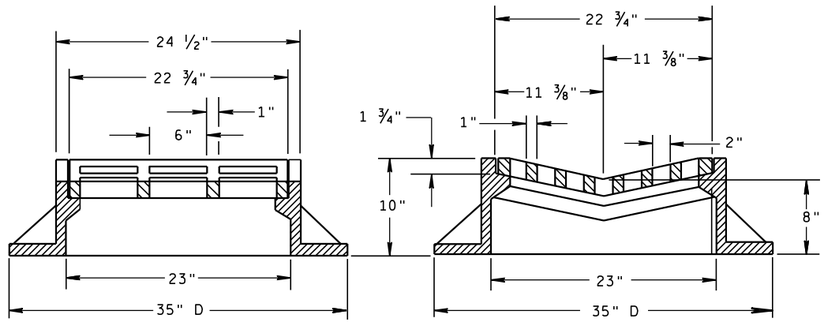
APPROVED
6/5/2012 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
196
FHWA

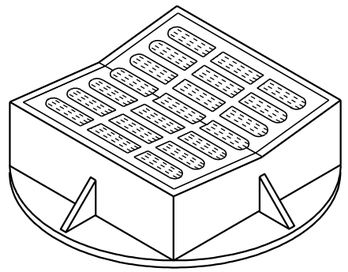
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S.D.D. 8 A 5-18a

6

S.D.D. 8 A 5-18a

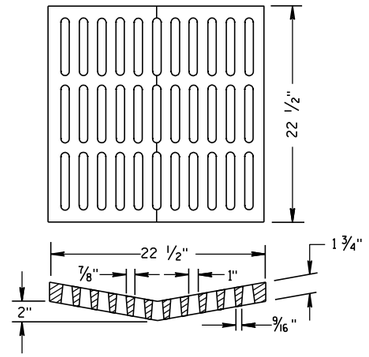




TYPE "B"

(APPROXIMATE WEIGHT 405 LBS.)

FRAME..... 294 LBS.
GRATE..... 111 LBS.

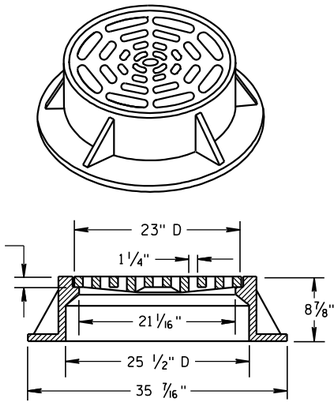


ALTERNATIVE GRATE FOR TYPE "B" COVER

(APPROXIMATE GRATE WEIGHT 134 LBS.)

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.

NOTED AS TYPE B-A ON THE DRAINAGE TABLE



TYPE "C"

(APPROXIMATE WEIGHT 259 LBS.)

FRAME..... 152 LBS.
GRATE..... 107 LBS.

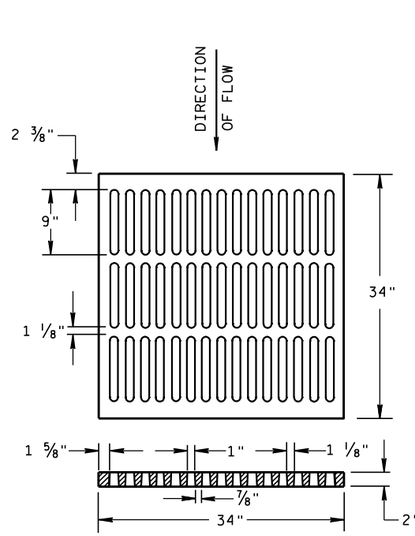
GENERAL NOTES

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.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.

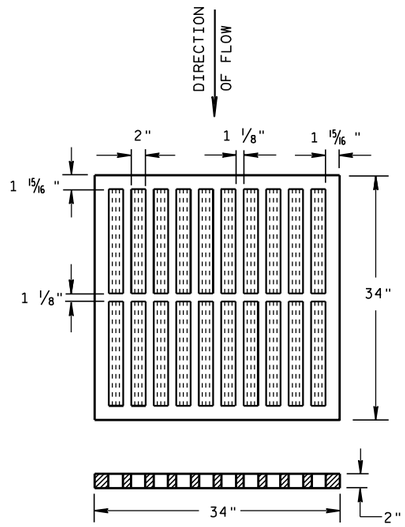


ALTERNATIVE TYPE "MS"

(APPROXIMATE GRATE WEIGHT 329 LBS.)

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED

NOTED AS TYPE MS-A ON THE DRAINAGE TABLE

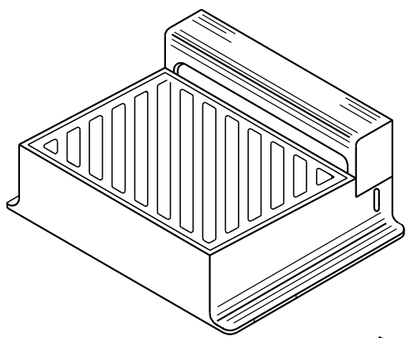


TYPE "MS"

(APPROXIMATE GRATE WEIGHT 268 LBS.)

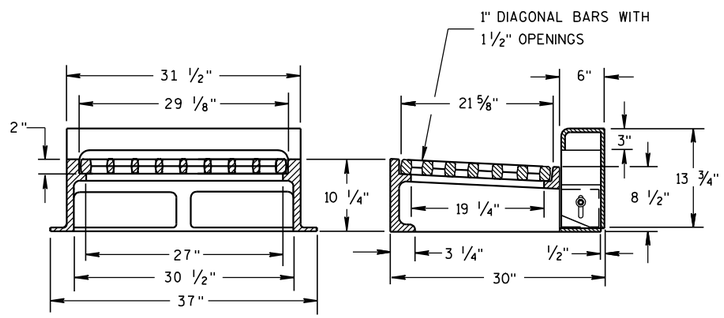
USE ON FREEWAYS AND EXPRESSWAYS

NOTED AS TYPE MS ON DRAINAGE TABLE



DIRECTION OF FLOW

DIAGONAL SLOTS, SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED. GRATES ARE MANUFACTURED TO BE REVERSIBLE.



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

(APPROXIMATE WEIGHT 648 LBS.)

FRAME..... 355 LBS.
GRATE..... 156 LBS.
CURB BOX..... 137 LBS.

INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/5/2012 DATE

/S/ Jerry H. Zaas
ROADWAY STANDARDS ENGINEER

197

ENT

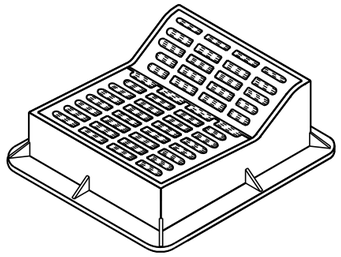
FHWA

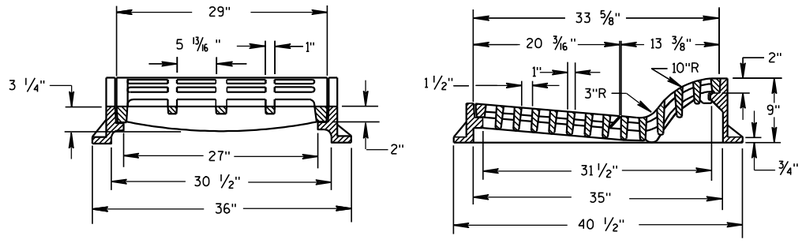
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S.D.D. 8 A 5-18b

6

S.D.D. 8 A 5-18b



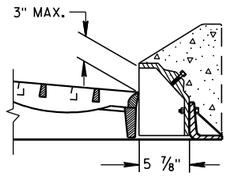


TYPE "F"

(APPROXIMATE WEIGHT 644 LBS.)

FRAME.....302 LBS.
GRATE.....160 LBS.
GRATE.....182 LBS.

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

(APPROXIMATE WEIGHT CURB BOX 68 LBS.)

USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

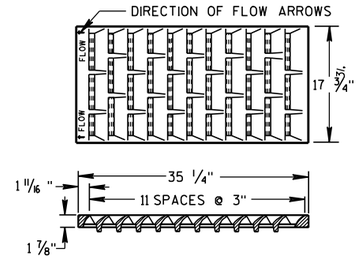
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

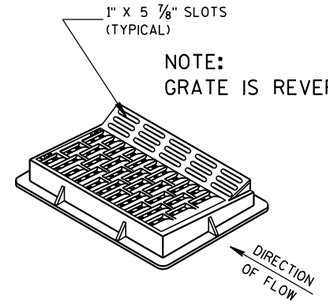
GENERAL NOTES

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.

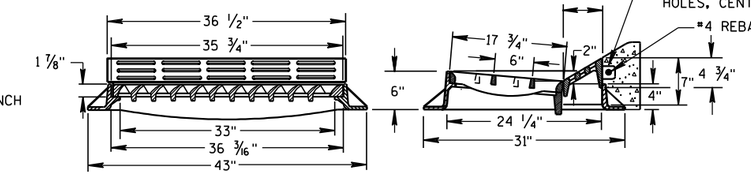
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.





NOTE:
GRATE IS REVERSIBLE.

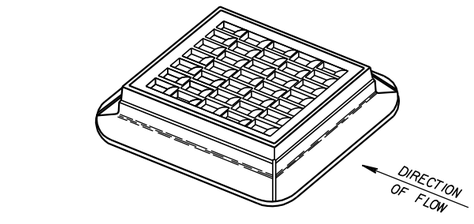


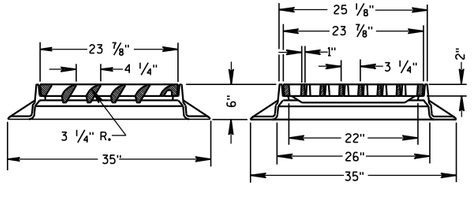
TYPE "HM"

(APPROXIMATE WEIGHT 414 LBS.)
FRAME..... 181 LBS.
GRATE..... 159 LBS.
CURB BOX..... 74 LBS.

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE

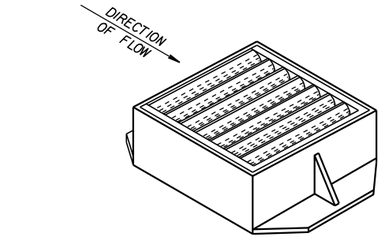


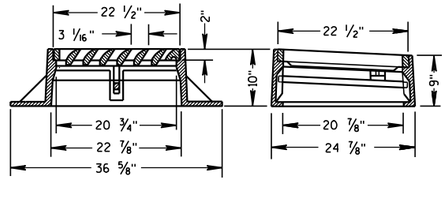


TYPE "S"

(APPROXIMATE WEIGHT 333 LBS.)

FRAME.....164 LBS.
GRATE..... 169 LBS.

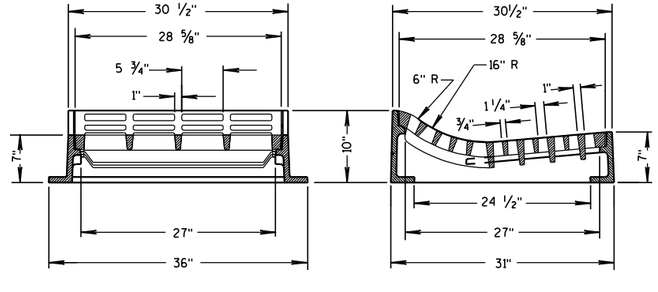




TYPE "V"

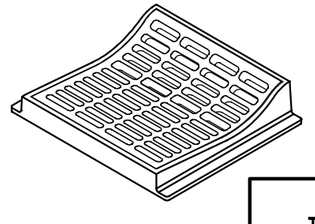
(APPROXIMATE WEIGHT 410 LBS.)

FRAME..... 269 LBS.
GRATE..... 136 LBS.
SAFETY BAR..... 5 LBS.



TYPE "T"

(APPROXIMATE WEIGHT 530 LBS.)
FRAME.....270 LBS.
GRATE.....260 LBS.
USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S

STATE OF WISCONSIN
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6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

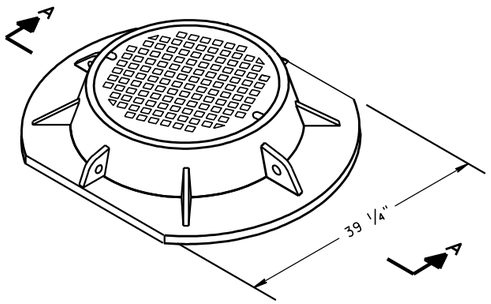
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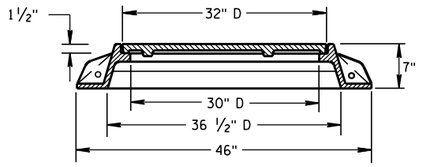
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S.D.D. 8 A 5-18c

6

S.D.D. 8 A 5-18c



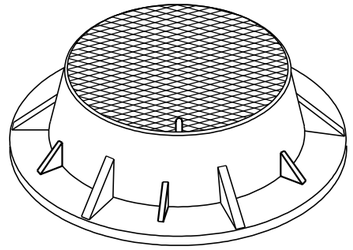


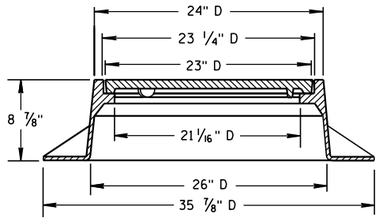
SECTION A-A

TYPE "K"

(APPROXIMATE WEIGHT 439 LBS.)

FRAME.....216 LBS.
LID.....223 LBS.

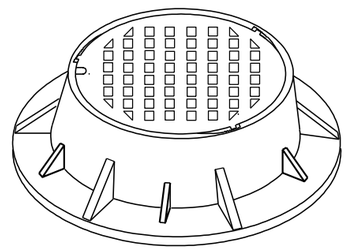


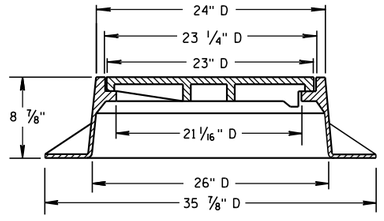


TYPE "J"

(APPROXIMATE WEIGHT 267 LBS.)

FRAME.....152 LBS.
LID.....115 LBS.





TYPE "J" SPECIAL

TYPE "B" NON-ROCKING SELF-SEAL LID

(APPROXIMATE WEIGHT 267 LBS.)

FRAME.....158 LBS.
LID.....109 LBS.

(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

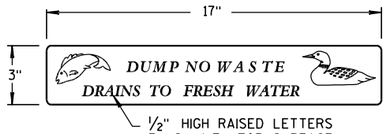
GENERAL NOTES

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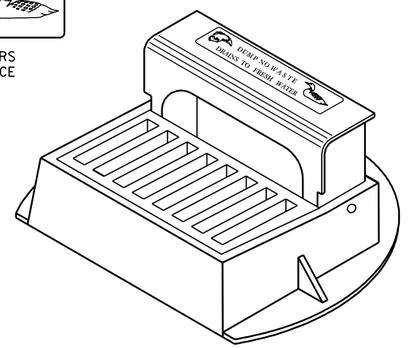
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

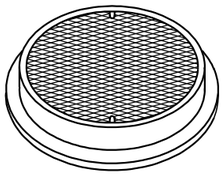
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

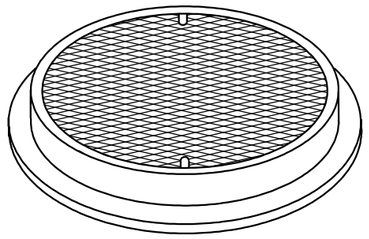
THE ACTUAL WEIGHT OF COVERS MAY VARY WITH 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.

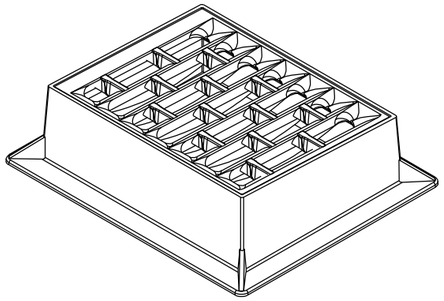


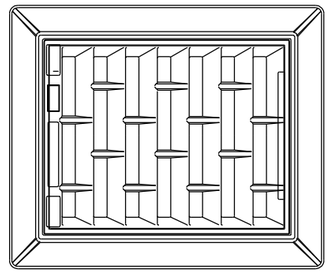
LOGO DETAIL

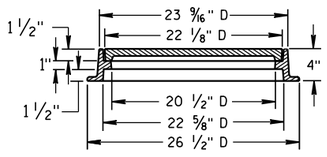








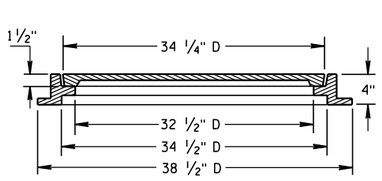




TYPE "L"

(APPROXIMATE WEIGHT 158 LBS.)

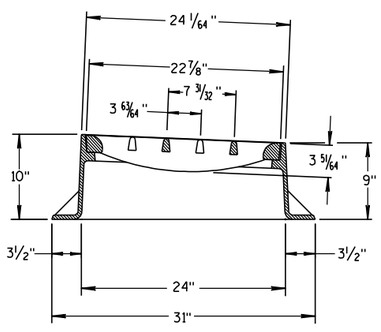
FRAME.....81 LBS.
LID.....77 LBS.

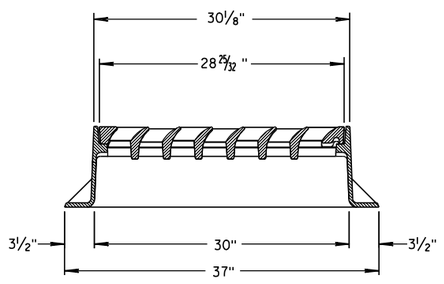


TYPE "M"

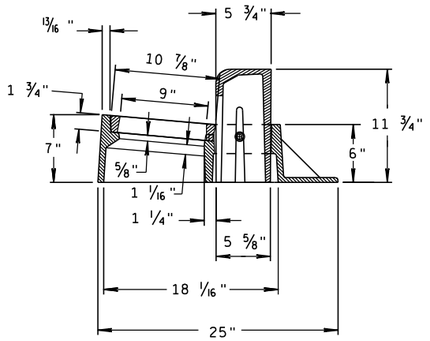
(APPROXIMATE WEIGHT 377 LBS.)

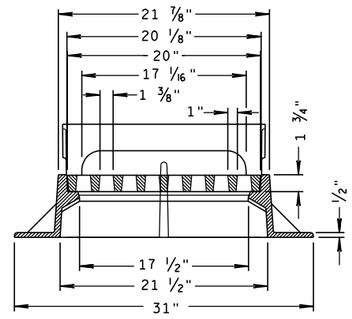
FRAME..... 125 LBS.
LID..... 252 LBS.





INLET COVER TYPE "BW"





INLET COVER TYPE "Z"

(APPROXIMATE WEIGHT 344 LBS.)

FRAME.....206 LBS.
GRATE..... 46 LBS.
CURB BOX..... 92 LBS.

INLET COVERS, TYPE BW, Z MANHOLE COVERS, TYPE K, J, J-S, L & M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/5/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

FHWA

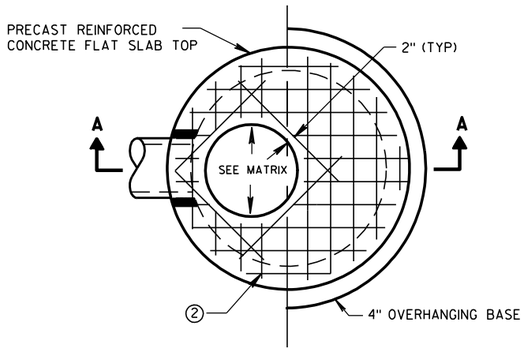
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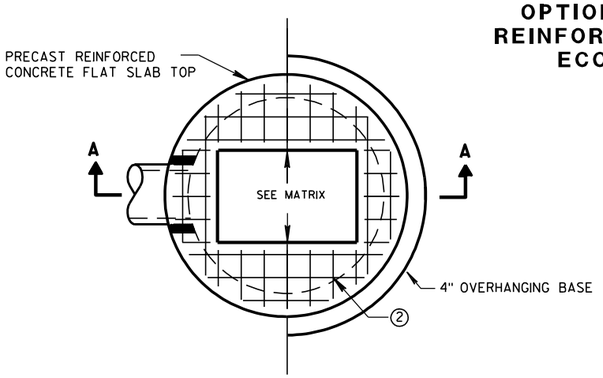
S.D.D. 8 A 5-18d

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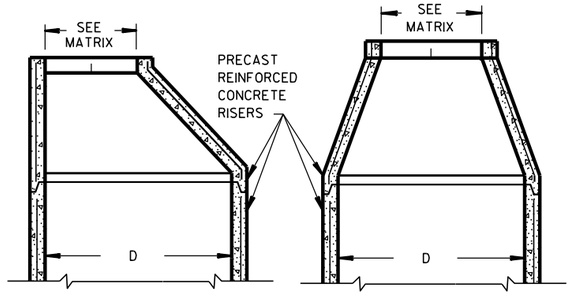
S.D.D. 8 A 5-18d



PLAN VIEW CIRCULAR OPENING

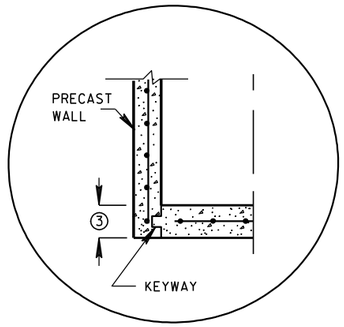


PLAN VIEW RECTANGULAR OPENING



OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

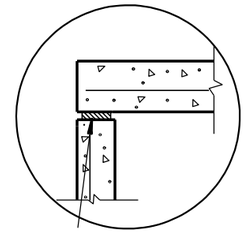
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

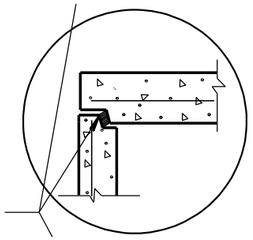
SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"

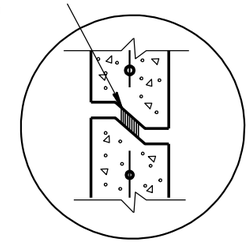


TOP WITH PLAIN END JOINT

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)

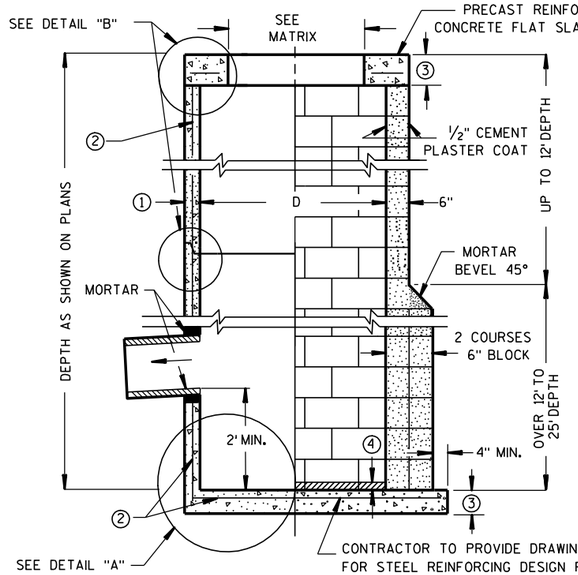


TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

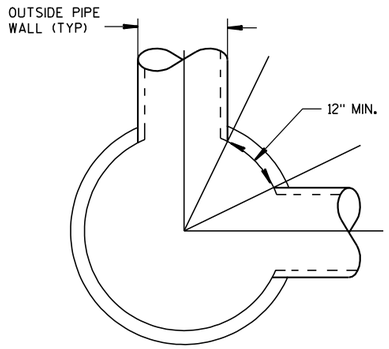


CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES

SECTION A-A

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②



DETAIL "C"

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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST CATCH BASIN UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF ½ INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

CONCRETE BLOCK WILL NOT BE PERMITED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPERATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT AND 7 INCHES FOR 6-FT DIAMETER PRECAST CATCH BASINS.

② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

④ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2' SUMP MEASURED FROM TOP OF KEY.

CATCH BASIN COVER OPENING MATRIX

CATCH BASIN SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
	OPENING SIZE (FT)											
3-FT	2X2	X	X					X		X		
	2 DIA.				X							X
4-FT-6-FT	2X2	X	X					X		X		
	2X2.5			X				X	X	X	X	
	2 DIA.				X							X
	2X3						X					
	2.5X3					X						

PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	30

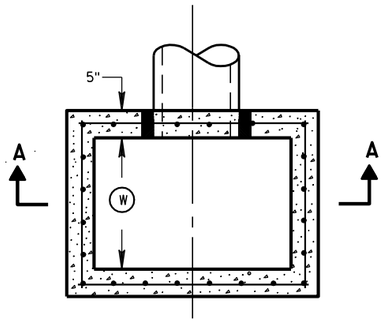
CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER

CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER

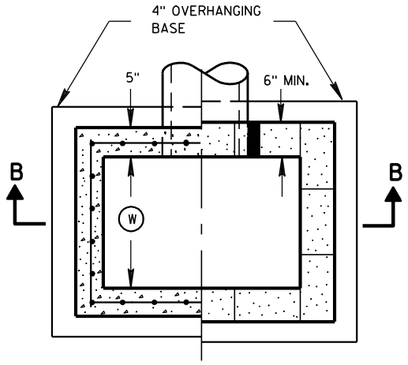
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

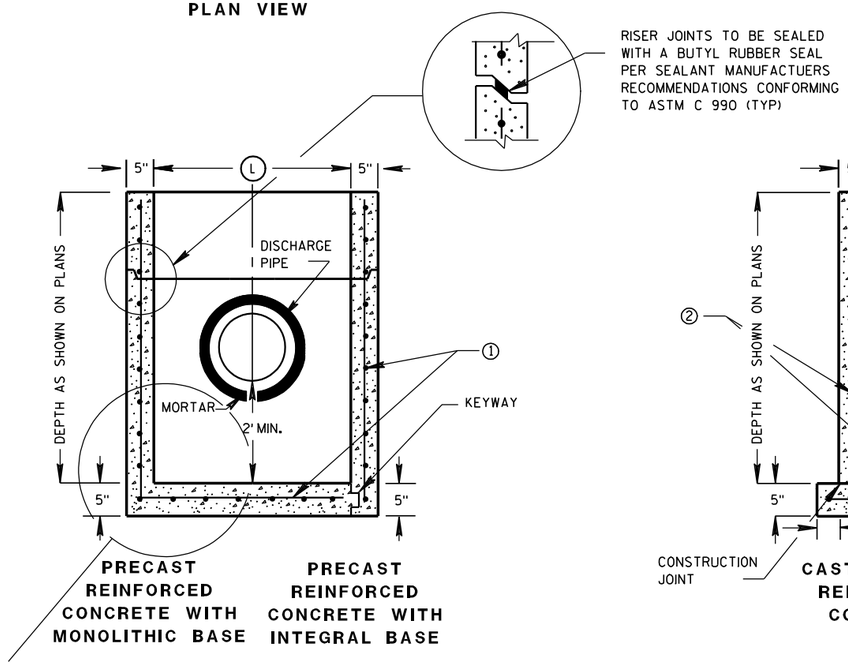
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S.D.D. 8 A 8-1



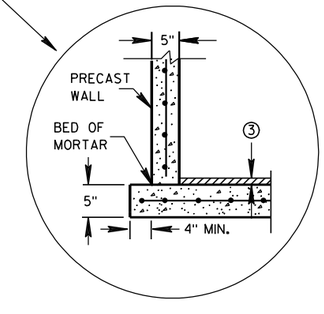
PLAN VIEW



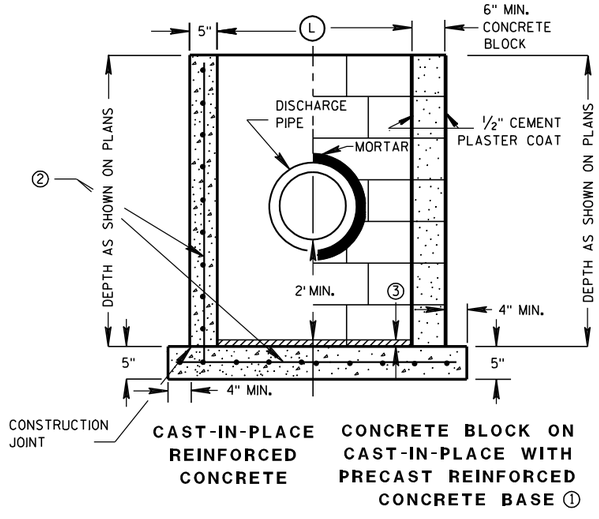
PLAN VIEW



SECTION A-A



SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION



SECTION B-B

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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST CATCH BASIN UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST CATCH BASIN UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS.
4" OVERHANG IS REQUIRED WHEN SEPERATE PRECAST BASE IS PROVIDED.
OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

① FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

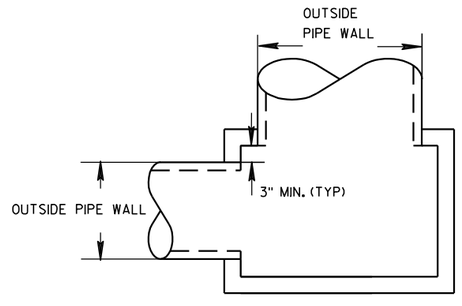
③ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2' SUMP MEASURED FROM TOP OF KEY.

CATCH BASIN COVER MATRIX

CATCH BASIN SIZE		INLET COVER TYPE	F	ALL H'S
	WIDTH (W) (FT)	LENGTH (L) (FT)		
2X3-FT	2	3		X
2.5X3-FT	2.5	3	X	

PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	WIDTH (IN)	LENGTH (IN)
2X3-FT	12	24
2.5X3-FT	18	24



DETAIL "A"

CATCH BASINS 2X3-FT AND 2.5X3-FT

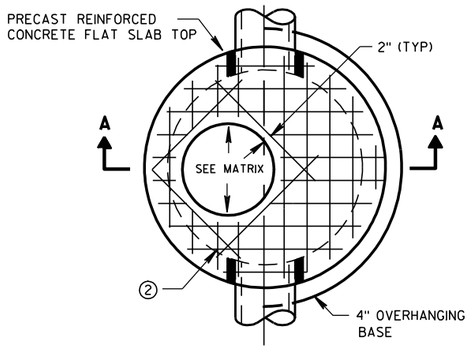
CATCH BASINS 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

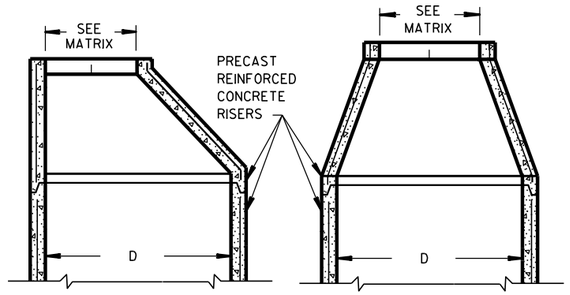
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FHWA

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S.D.D. 8 A 9-1

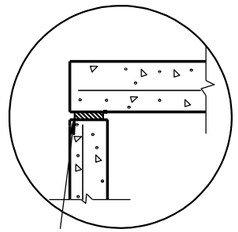


PLAN VIEW CIRCULAR OPENING



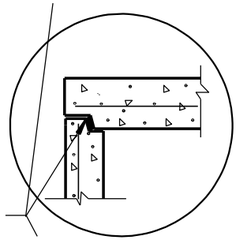
OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

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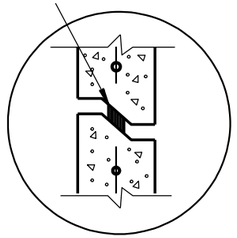


TOP WITH PLAIN END JOINT

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

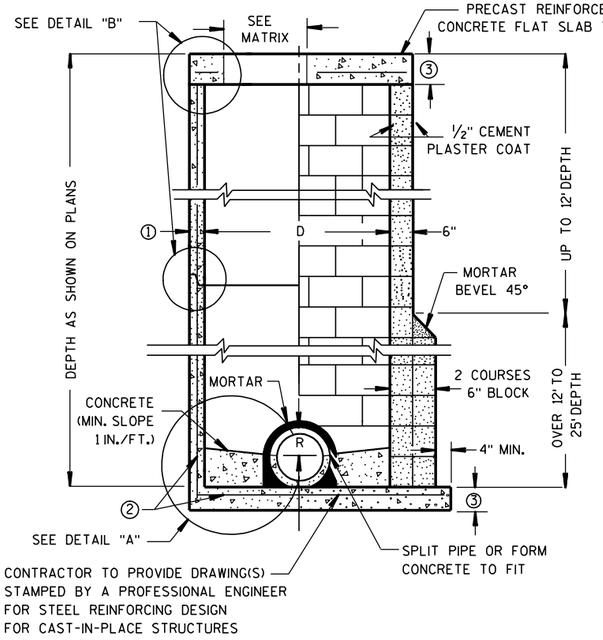


TOP WITH TONGUE AND GROOVE JOINT



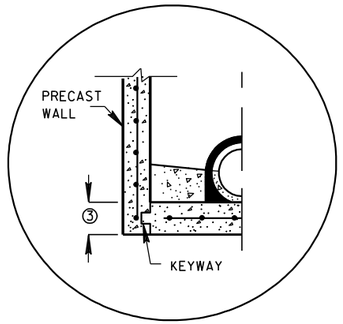
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

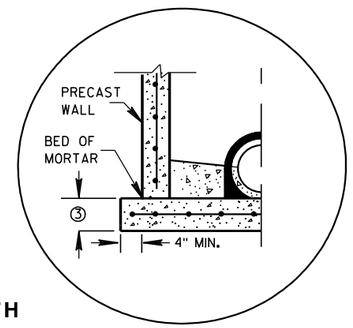


PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

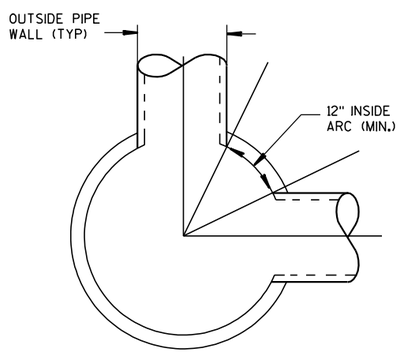


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

GENERAL NOTES

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BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE CONE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF ½" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

CONCRETE BLOCK WILL NOT BE PERMITED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPERATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.

② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
OPENING SIZE (FT)					
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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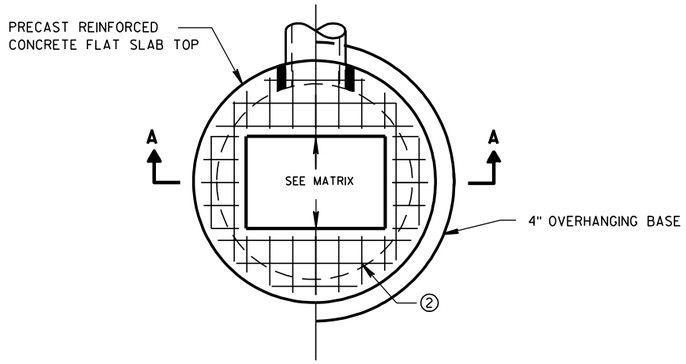
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ROADWAY STANDARDS DEVELOPMENT ENGINEER

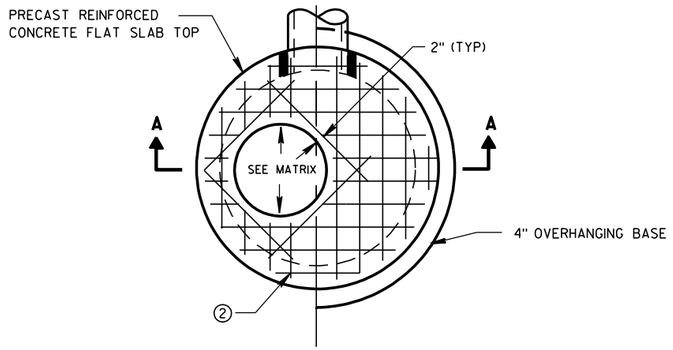
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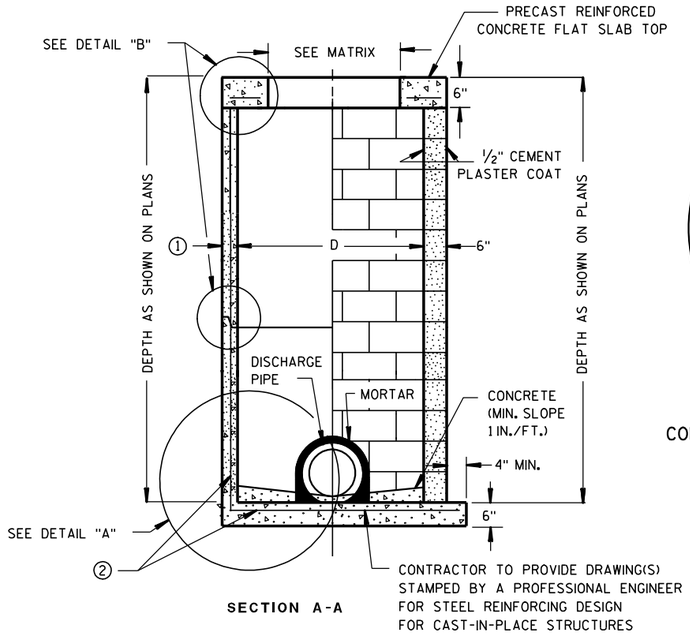
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PLAN VIEW RECTANGULAR OPENING



PLAN VIEW CIRCULAR OPENING

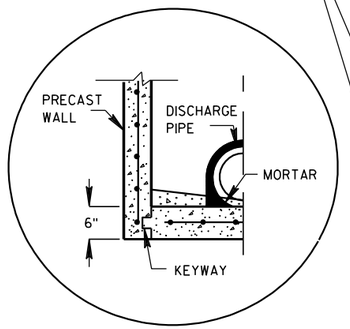


SECTION A-A

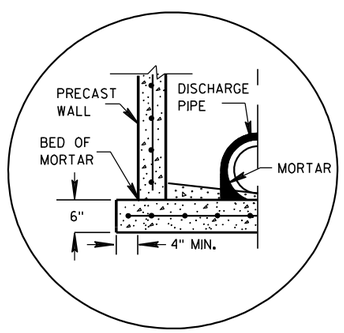
PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

CIRCULAR INLETS W/ FLAT TOP

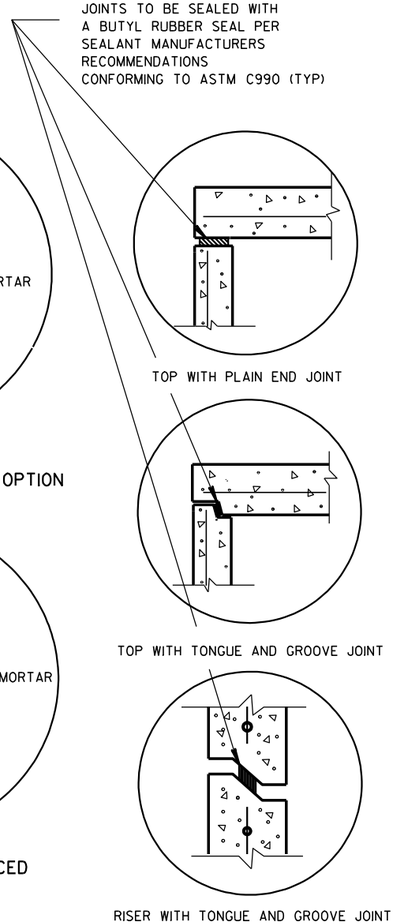


PRECAST REINFORCED
CONCRETE WITH INTEGRAL BASE OPTION



SEPERATE PRECAST REINFORCED
CONCRETE BASE OPTION

DETAIL "A"



DETAIL "B"

GENERAL NOTES

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PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

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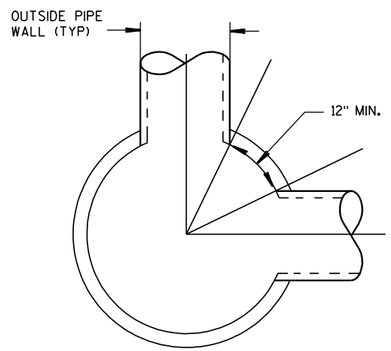
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① MINIMUM WALL THICKNESS SHALL BE 4-IN FOR 3-FT DIAMETER AND 5-IN FOR 4-FT DIAMETER PRECAST INLETS.

② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

INLET COVER OPENING MATRIX

	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
INLET SIZE	OPENING SIZE (FT)											
3-FT	2 DIA.				X							X
	2X2	X	X					X		X		
4-FT	2 DIA.				X							X
	2X2	X	X					X		X		
	2X2.5			X				X	X	X	X	
	2X3						X					
	2.5X3					X						



DETAIL "C"

PIPE MATRIX

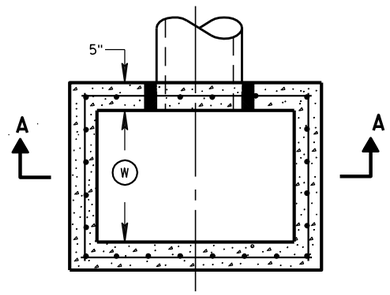
INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

INLETS 3-FT AND 4-FT DIAMETER

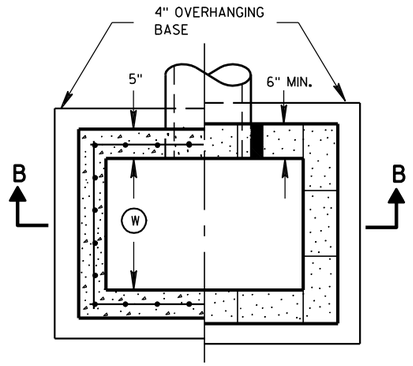
STATE OF WISCONSIN
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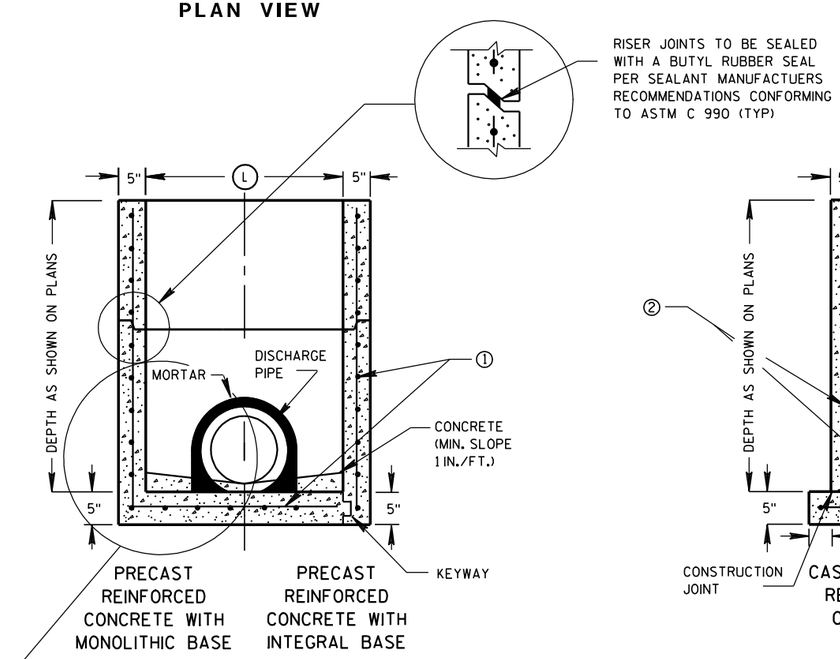
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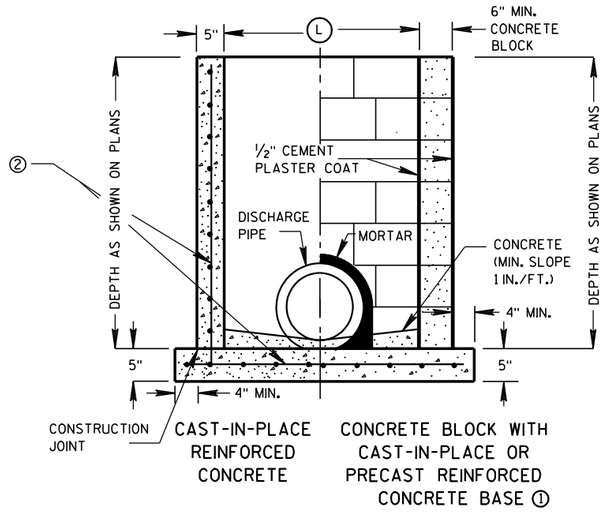
PLAN VIEW



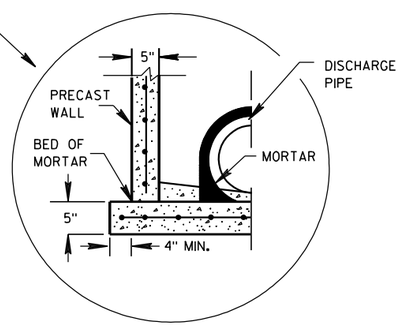
PLAN VIEW



SECTION A-A



SECTION B-B



SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

GENERAL NOTES

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PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPERATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

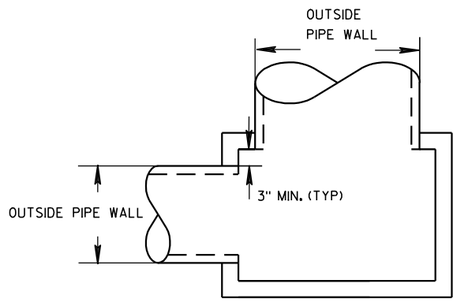
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE		INLET COVER TYPE	ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH (W) (FT)	LENGTH (L) (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24



DETAIL "A"

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

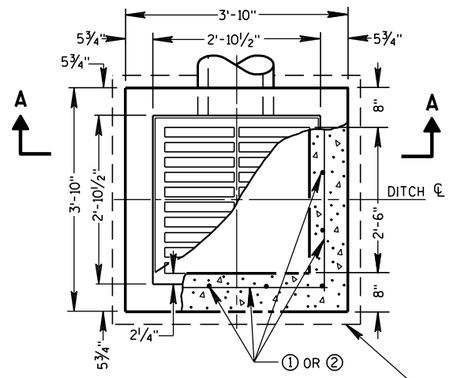
APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zoda — ROADWAY STANDARDS D 204 — ENGINEER
IT
FHWA

6

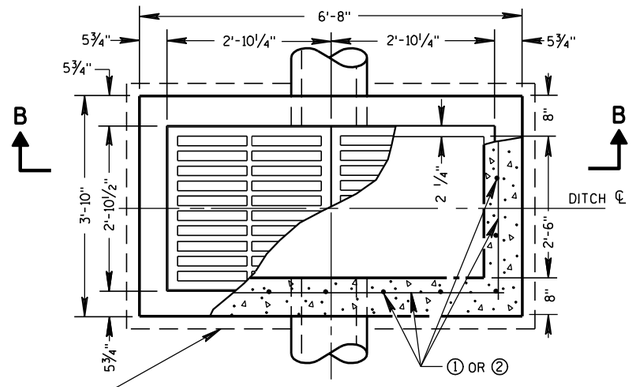
S.D.D. 8 C 7-1

6

S.D.D. 8 C 7-1

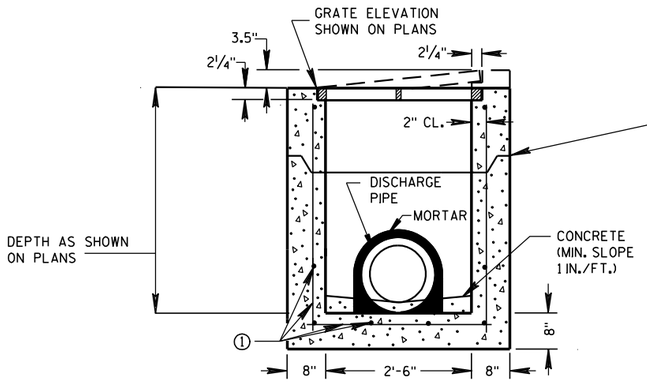


PLAN VIEW

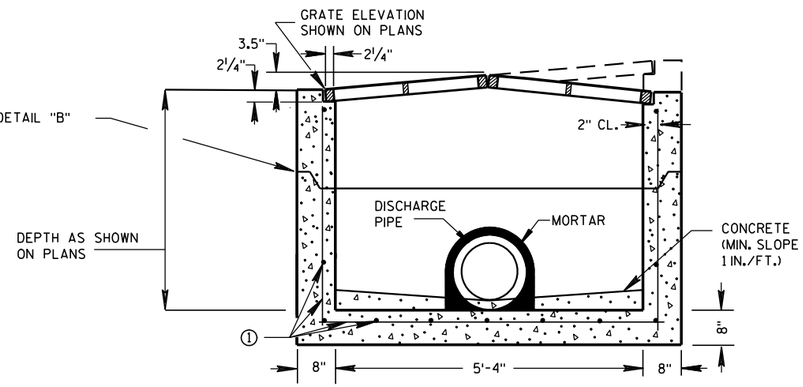


PLAN VIEW

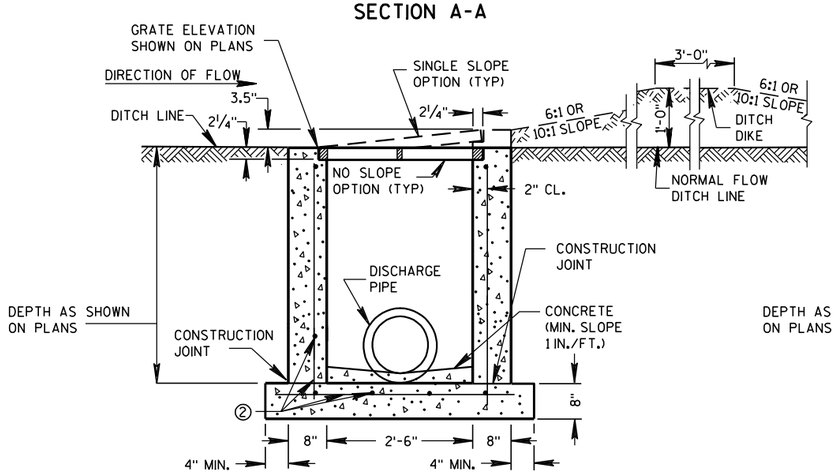
4" OVERHANGING BASE ON REINFORCED CAST-IN-PLACE CONCRETE INLETS



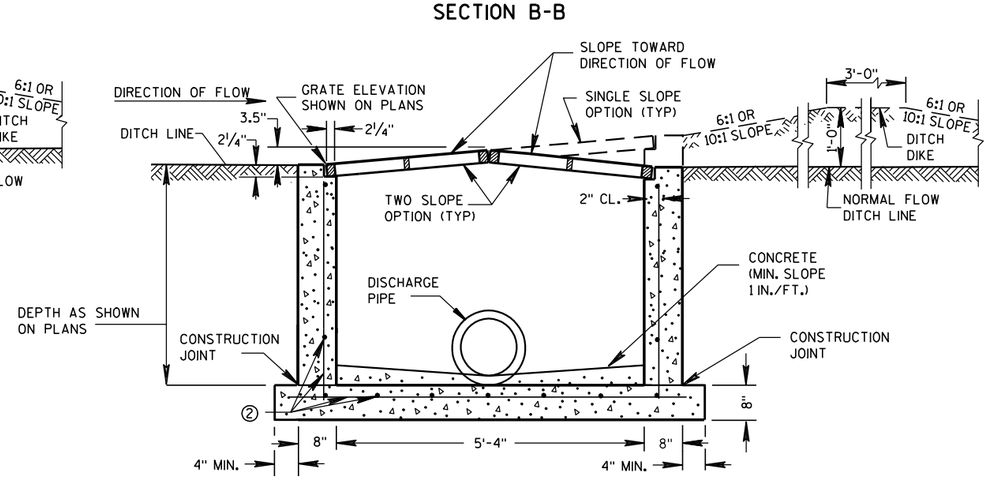
PRECAST REINFORCED CONCRETE SECTION A-A



PRECAST REINFORCED CONCRETE SECTION B-B



REINFORCED CAST-IN-PLACE CONCRETE SECTION A-A



REINFORCED CAST-IN-PLACE CONCRETE SECTION B-B

INLETS MEDIAN 1 GRATE

INLETS MEDIAN 2 GRATE

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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLETS WHICH MAY INCLUDE PRECAST REINFORCED CONCRETE INLETS, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL MEDIAN INLETS ARE DESIGNATED ON THE PLANS AS "INLETS, 1G-MS", ETC. THE FIRST NUMBER AND LETTER DESIGNATE THE TYPE OF STRUCTURE, AND THE FOLLOWING LETTERS DESIGNATE THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

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

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

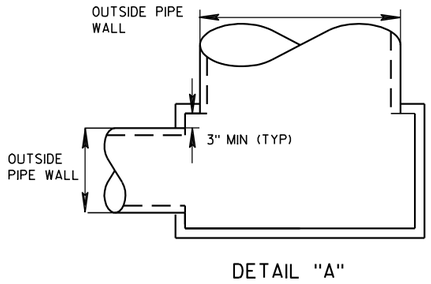
MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

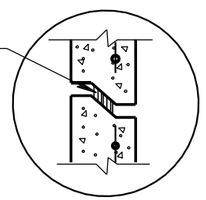
PIPE MATRIX

	MAXIMUM INSIDE PIPE DIAMETER	
INLET SIZE	WIDTH (IN)	LENGTH (IN)
1 GRATE	18	18
2 GRATE	18	42



DETAIL "A"

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



DETAIL "B"

INLETS MEDIAN 1 AND 2 GRATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/5/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

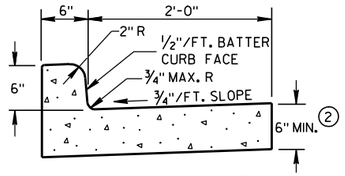
FHWA

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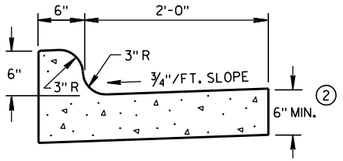
S.D.D. 8 C 8-1

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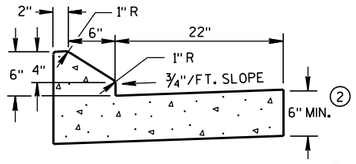
S.D.D. 8 C 8-1



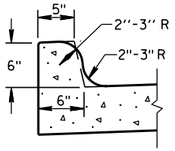
TYPES A & D (1)



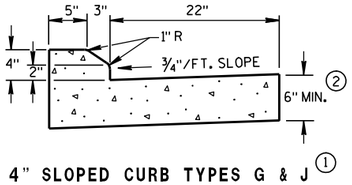
TYPES K & L (1)



6" SLOPED CURB TYPES G & J (1)

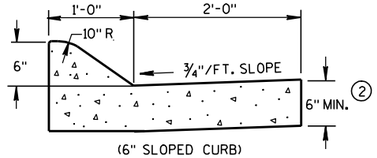


OPTIONAL CURB SHAPE FOR TYPES K & L (1)

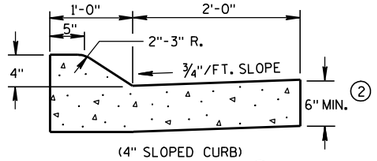


4" SLOPED CURB TYPES G & J (1)

CONCRETE CURB & GUTTER 30"

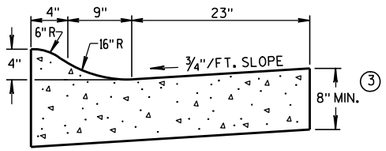


(6" SLOPED CURB)



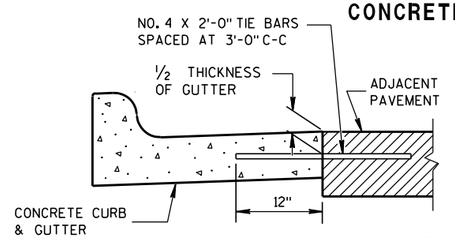
(4" SLOPED CURB)

TYPES A & D (1)

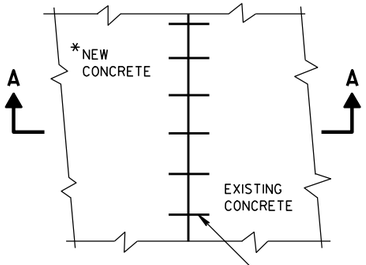


4" SLOPED CURB TYPES R & T (1) (4)

CONCRETE CURB & GUTTER 36"

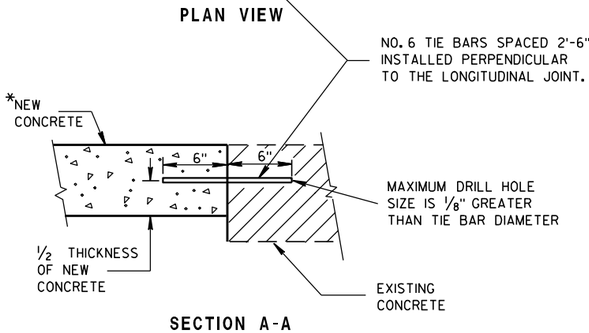


TYPICAL TIE BAR LOCATION (1)



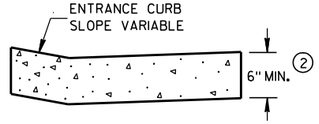
*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

PLAN VIEW

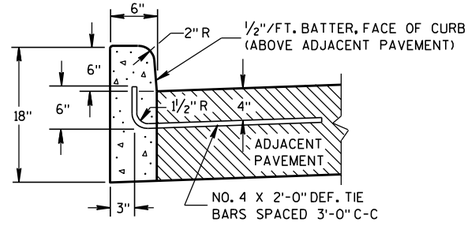


SECTION A-A

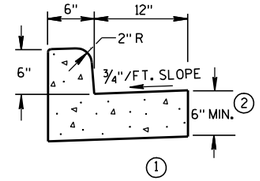
TIE BARS DRILLED INTO EXISTING PAVEMENT



DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

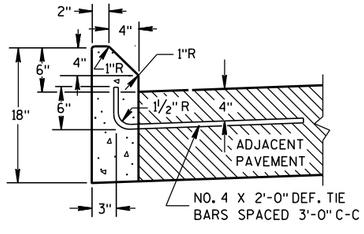


(1)
TYPES A & D



(1)
TYPES A & D

CONCRETE CURB & GUTTER 18"



(1)
TYPES G & J

CONCRETE CURB

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

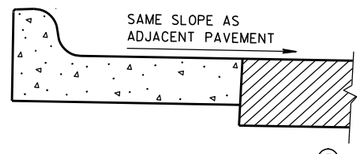
(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.

(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

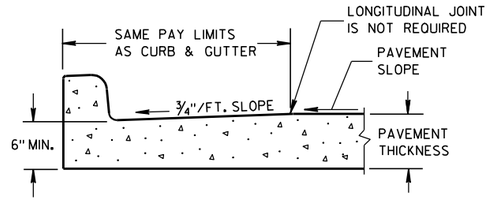
(3) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(4) THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

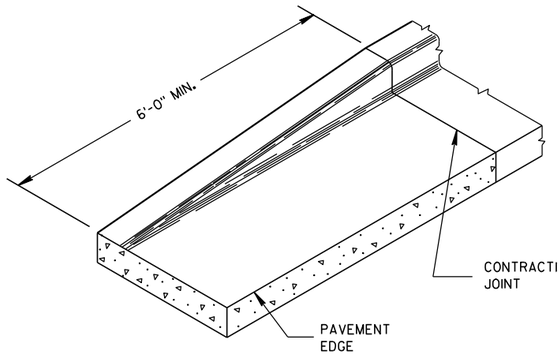
(5) WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



REVERSE SLOPE GUTTER (5)
(TYPICAL FOR ALL CURB & GUTTER TYPES)



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/4/08 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

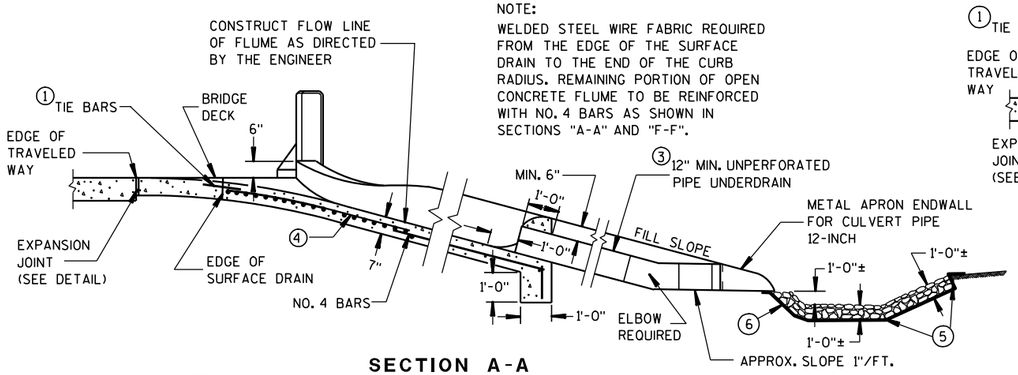
FHWA

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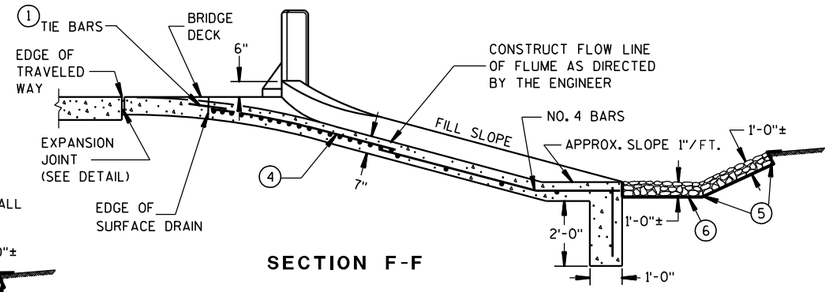
S.D.D. 8 D 1-17

6

S.D.D. 8 D 1-17



SECTION A-A



SECTION F-F

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.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

(1) NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.

(2) NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.

(3) PIPE UNDERDRAIN MAY BE ANY OF THE MATERIALS LISTED IN SECTION 612.2 OF THE STANDARD SPECIFICATIONS EXCEPT DRAIN TILE.

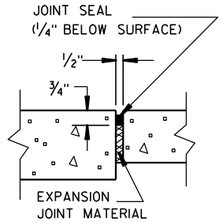
(4) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

(5) LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.

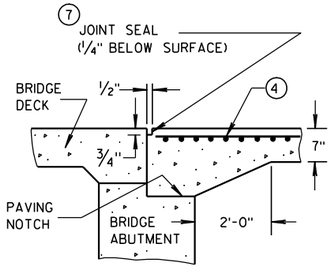
(6) GEOTEXTILE FABRIC, TYPE 'R"

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

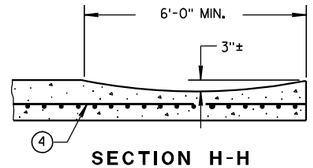
(8) THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".



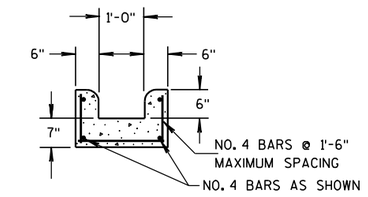
EXPANSION JOINT DETAIL



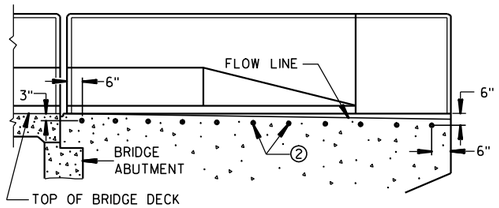
SECTION D-D



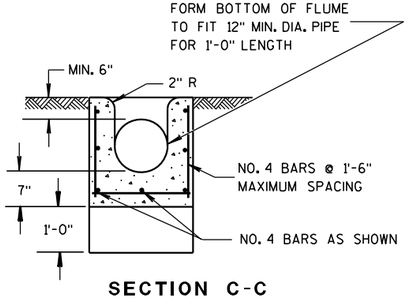
SECTION H-H



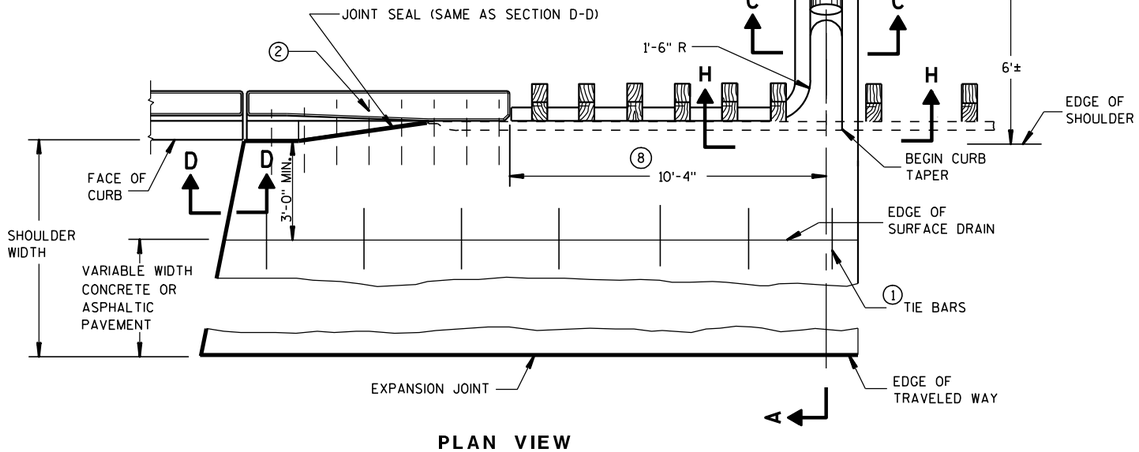
SECTION E-E



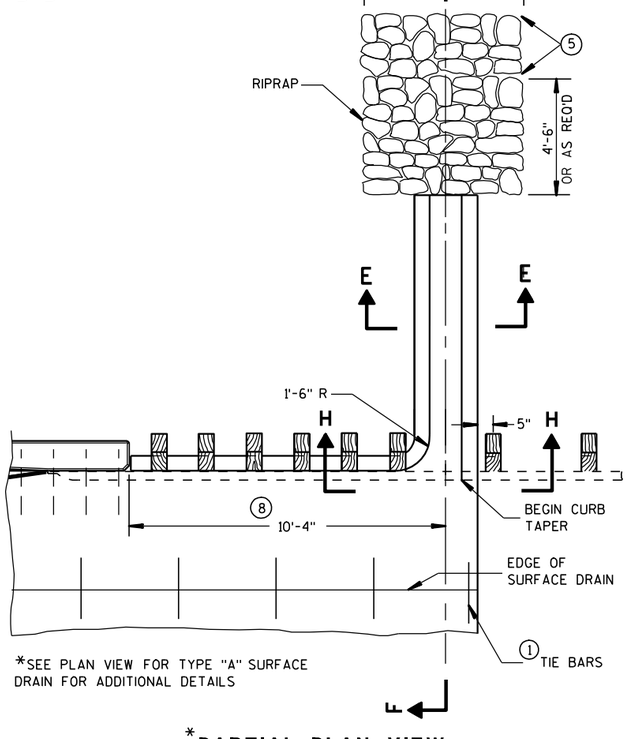
LOCATION OF TIE BARS IN WINGWALL



SECTION C-C



PLAN VIEW
SURFACE DRAIN WITH PIPE
TYPE "A"



*SEE PLAN VIEW FOR TYPE "A" SURFACE DRAIN FOR ADDITIONAL DETAILS

*PARTIAL PLAN VIEW
SURFACE DRAIN WITHOUT PIPE
TYPE "B"

CONCRETE SURFACE DRAINS
FLUME TYPE
AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

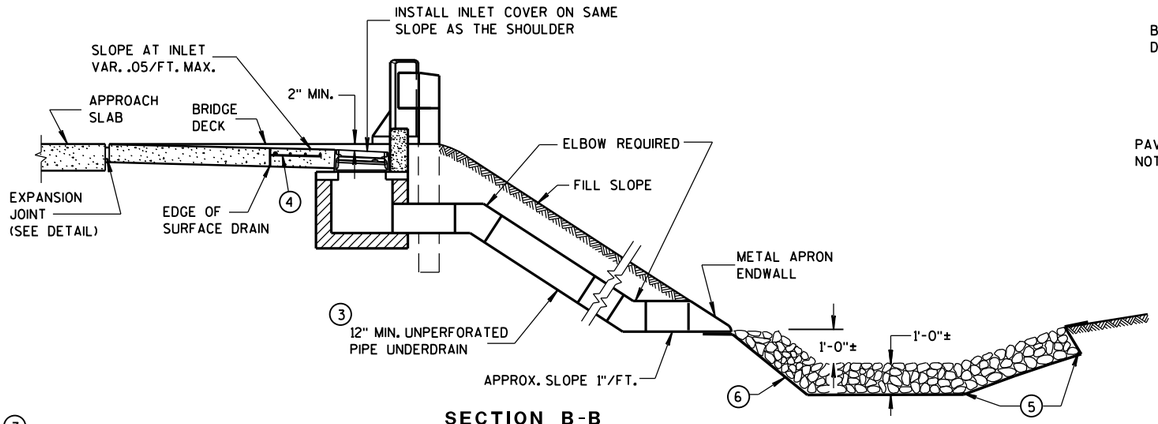
APPROVED
9/4/08
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
207
FHWA

6

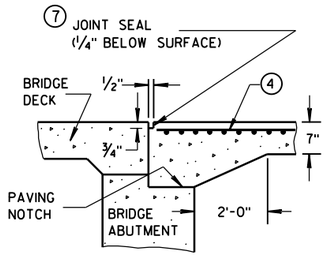
S.D.D. 8 D 2-6

6

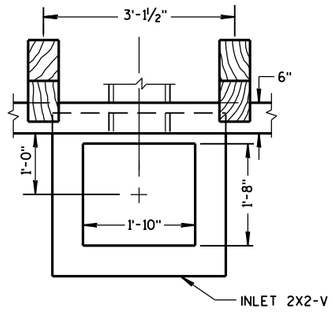
S.D.D. 8 D 2-6



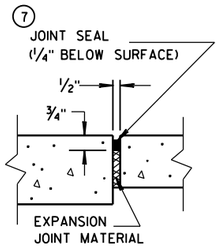
SECTION B-B



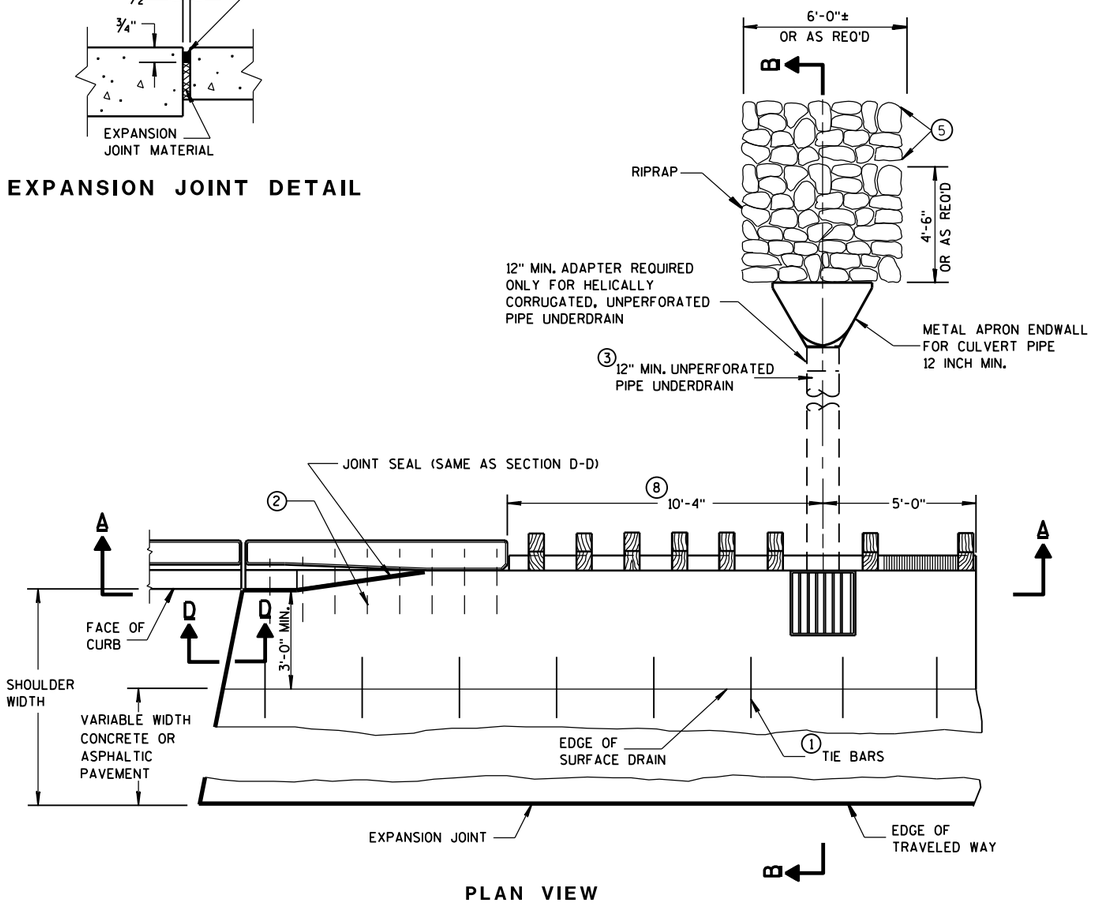
SECTION D-D



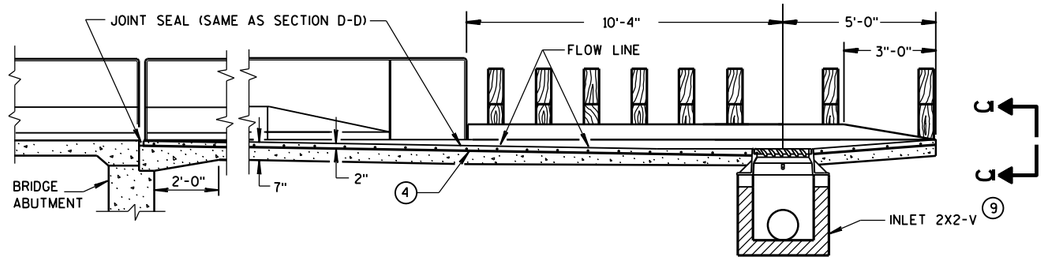
PLAN VIEW



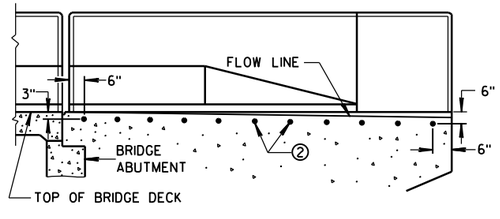
EXPANSION JOINT DETAIL



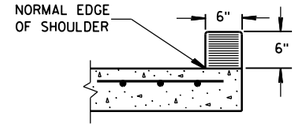
PLAN VIEW



SECTION A-A



LOCATION OF TIE BARS IN WINGWALL



SECTION C-C

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.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

(1) NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.

(2) NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.

(3) THE PIPE UNDERDRAIN MAY BE ANY ONE OF THE SIX MATERIALS LISTED IN THE STANDARD SPECIFICATIONS SECTION 612.2 EXCEPT DRAIN TILE.

(4) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

(5) LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.

(6) GEOTEXTILE FABRIC, TYPE 'R'

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

(8) THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".

(9) SEE CURRENT STANDARD DETAIL DRAWINGS 8A5 AND 8C7 FOR DETAILS.

CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES

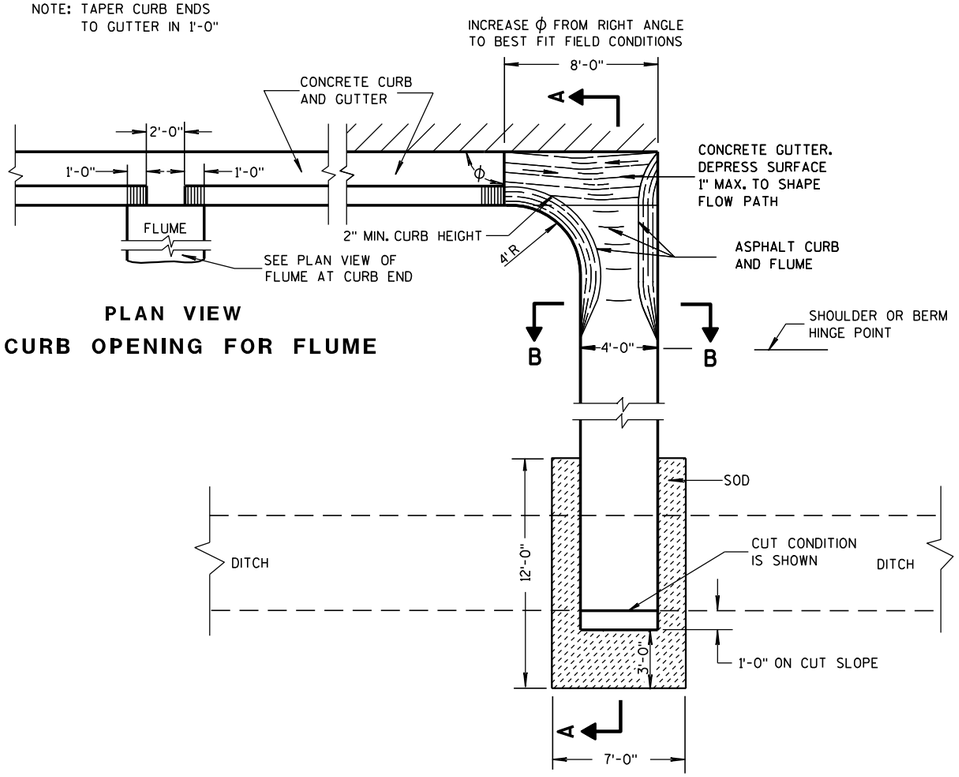
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/4/08 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA

6

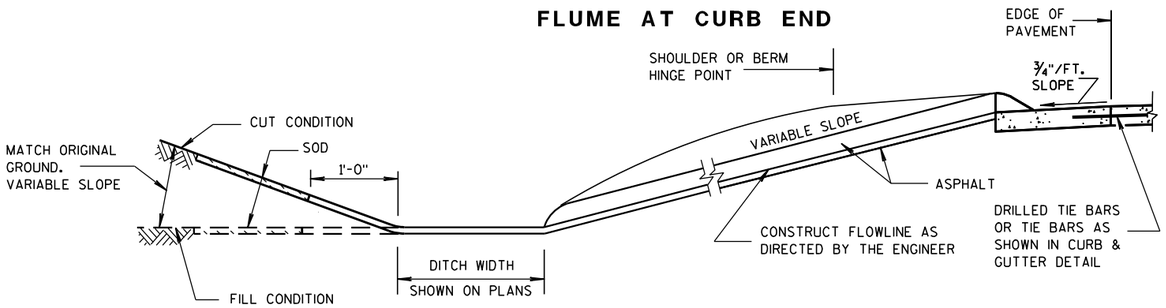
S.D.D. 8 D 3-6

ASPHALTIC FLUME

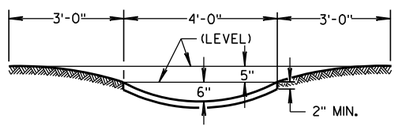


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

GENERAL NOTES

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

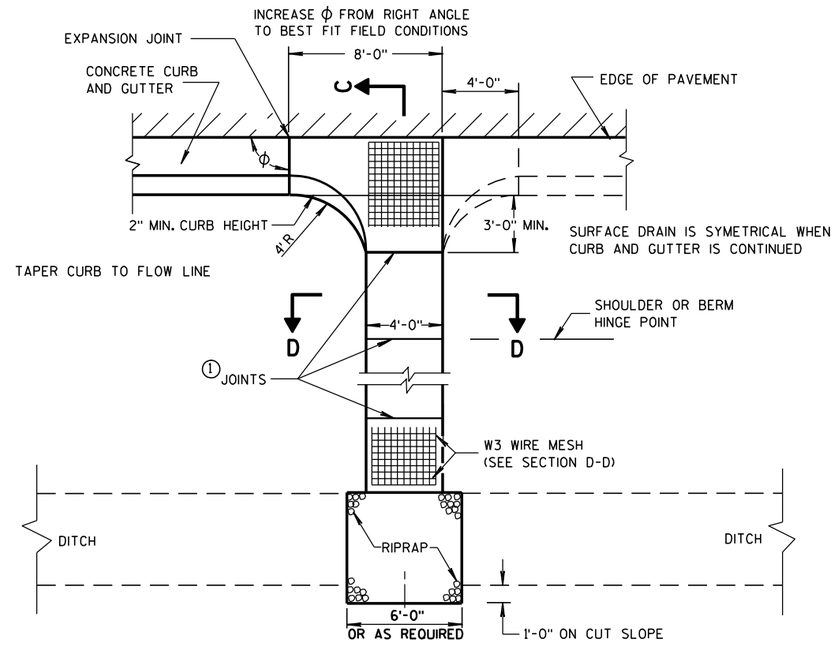
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.

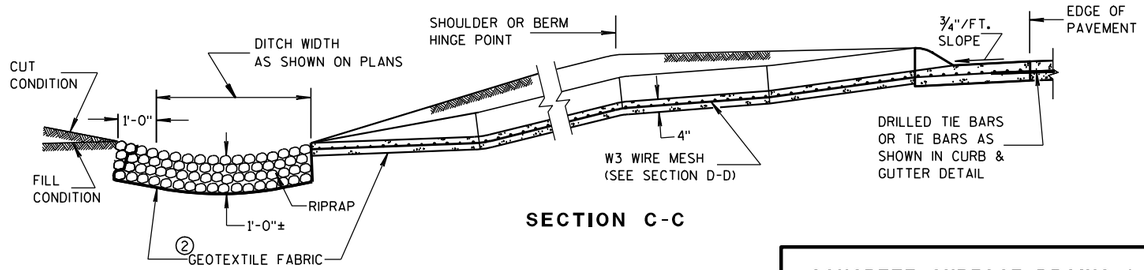
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

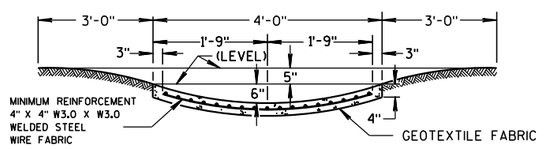
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

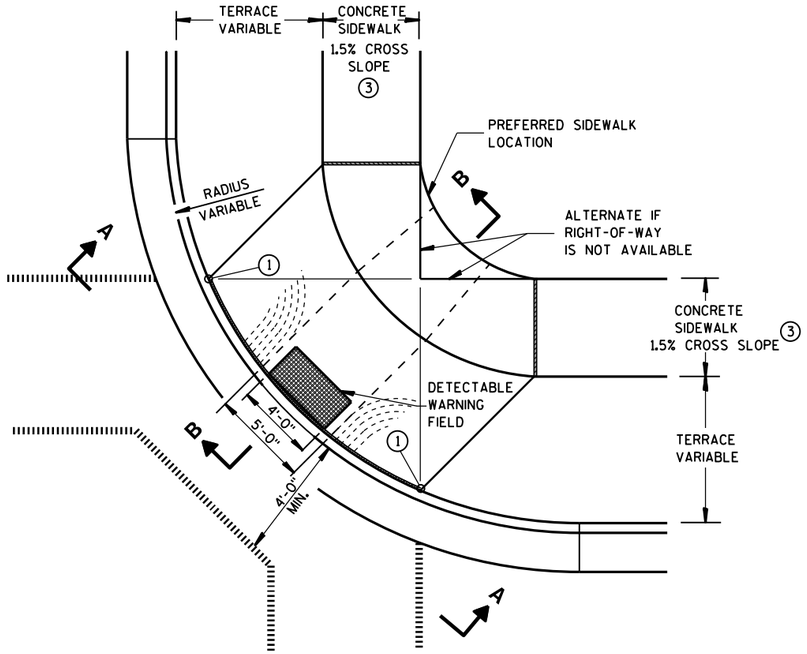
APPROVED
9-4-08 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
MENT
FHWA

6

S.D.D. 8 D 4-5

6

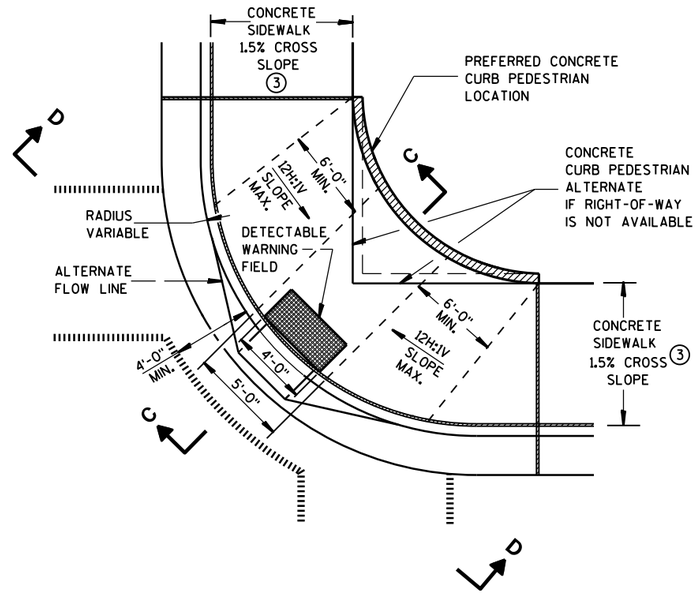
S.D.D. 8 D 4-5



PLAN VIEW

TYPE 1 RAMP

(CENTER OF CORNER RADIUS)



PLAN VIEW

TYPE 1-A RAMP

(NO TERRACE)

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.

RAMPS SHALL BE BUILT AT 12H:1V OR FLATTER. WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

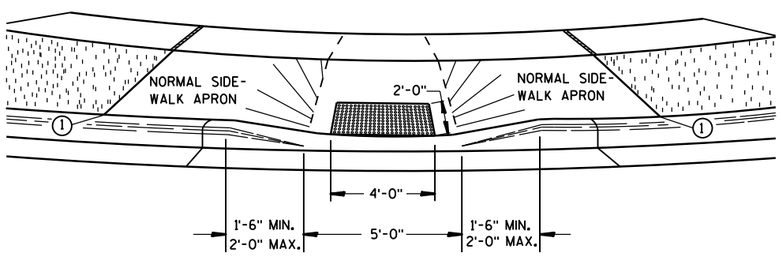
① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.

② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

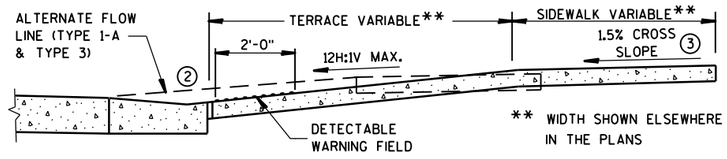
③ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

LEGEND

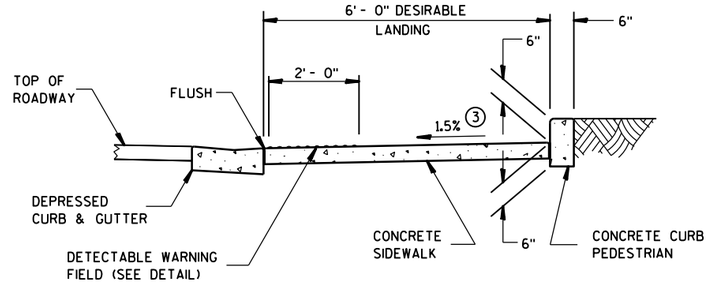
- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



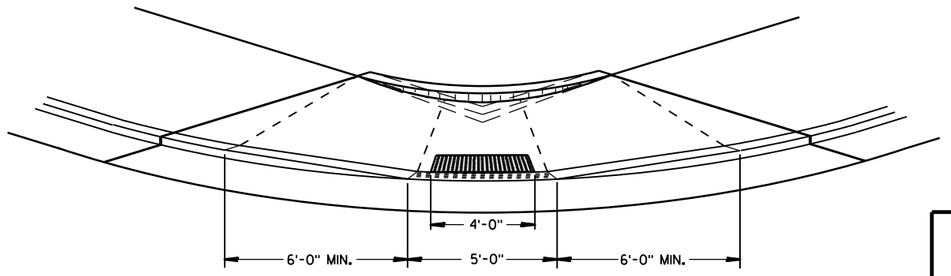
VIEW A-A



SECTION B-B



SECTION C-C



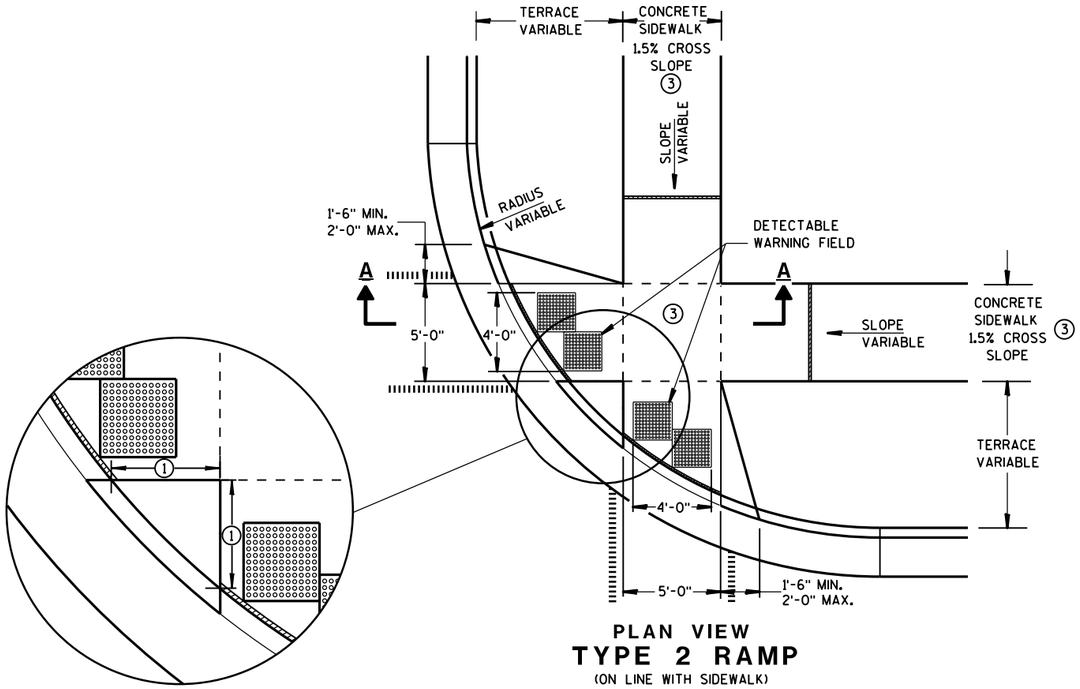
VIEW D-D

CURB RAMPS TYPES 1 AND 1-A

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

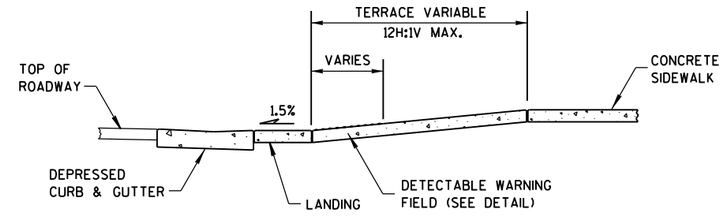
S.D.D. 8 D 5-15a



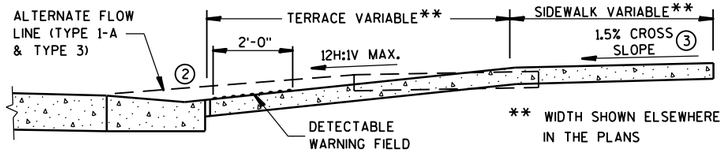
PLAN VIEW

TYPE 2 RAMP

(ON LINE WITH SIDEWALK)



SECTION A-A



SECTION B-B

GENERAL NOTES

USE THE TYPE 3 RAMP ONLY WHEN A TYPE 1 OR TYPE 2 CANNOT BE ACHIEVED BECAUSE OF FIELD CONDITIONS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

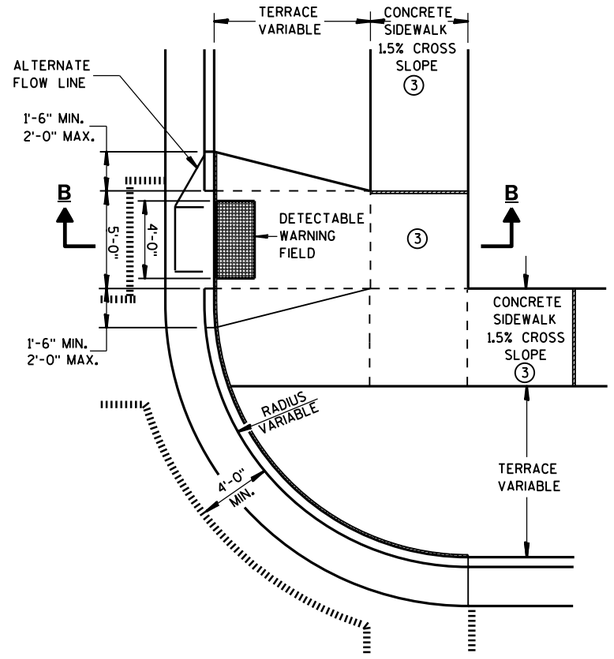
① WHEN THIS DISTANCE IS LESS THAN 6'-0" IT MAY BE DIFFICULT TO ACHIEVE A 12H:1V SLOPE, OR FLATTER, ON THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 12H:1V SLOPE, OR FLATTER, ON RAMP. 2" MINIMUM CURB HEIGHT.

② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

③ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

LEGEND

- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



PLAN VIEW

TYPE 3 RAMP

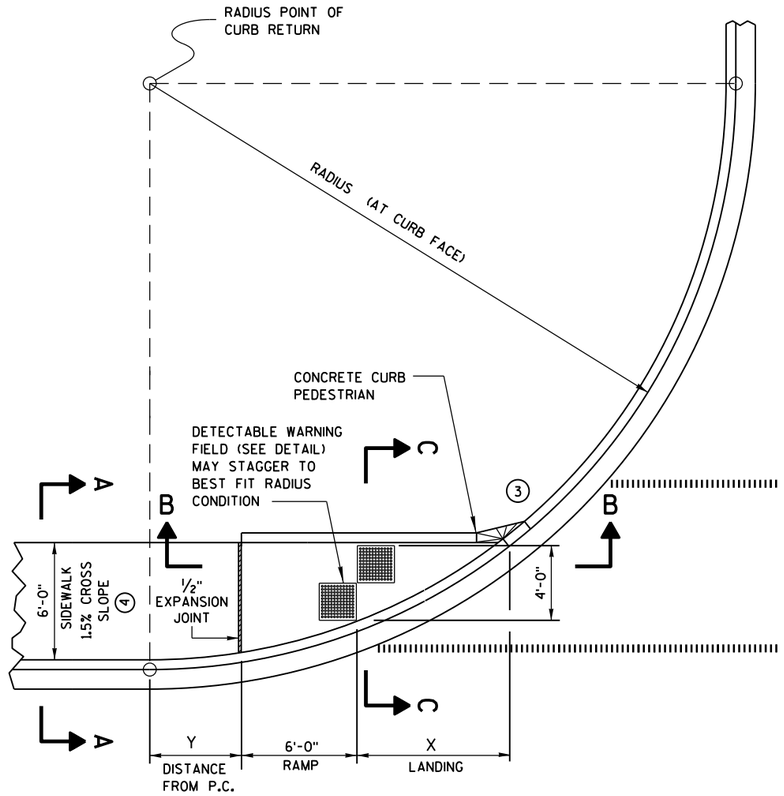
(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS
TYPES 2 AND 3

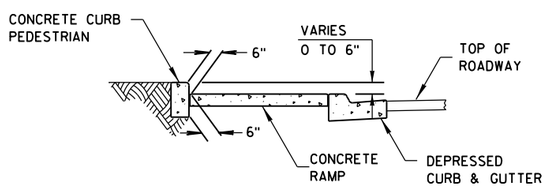
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

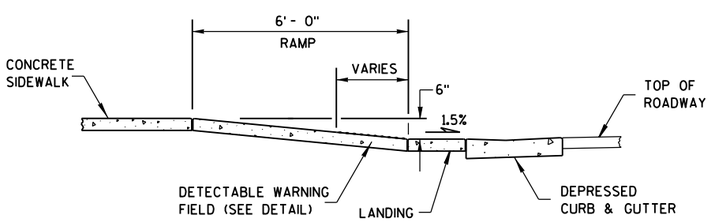
S.D.D. 8 D 5-15b



CURB RAMP TYPE 4A
PLAN VIEW



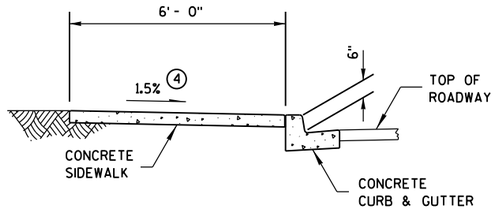
SECTION C-C FOR TYPE 4A



SECTION B-B FOR TYPE 4A

RADIUS (AT CURB FACE)	X	Y
20 FEET	6'-1¾"	2'-7¼"
30 FEET	7'-11¾"	4'-8¼"
40 FEET	9'-5¼"	6'-5"
50 FEET	10'-8¾"	7'-11¼"
60 FEET	11'-10¼"	9'-3½"

INTERMEDIATE RADII CAN BE INTERPOLATED



SECTION A-A FOR TYPE 4A

GENERAL NOTES

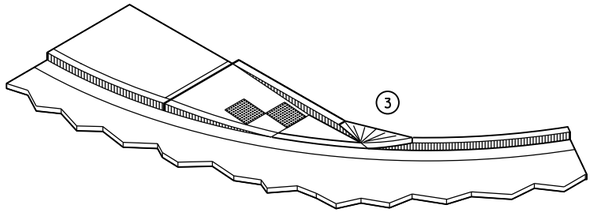
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

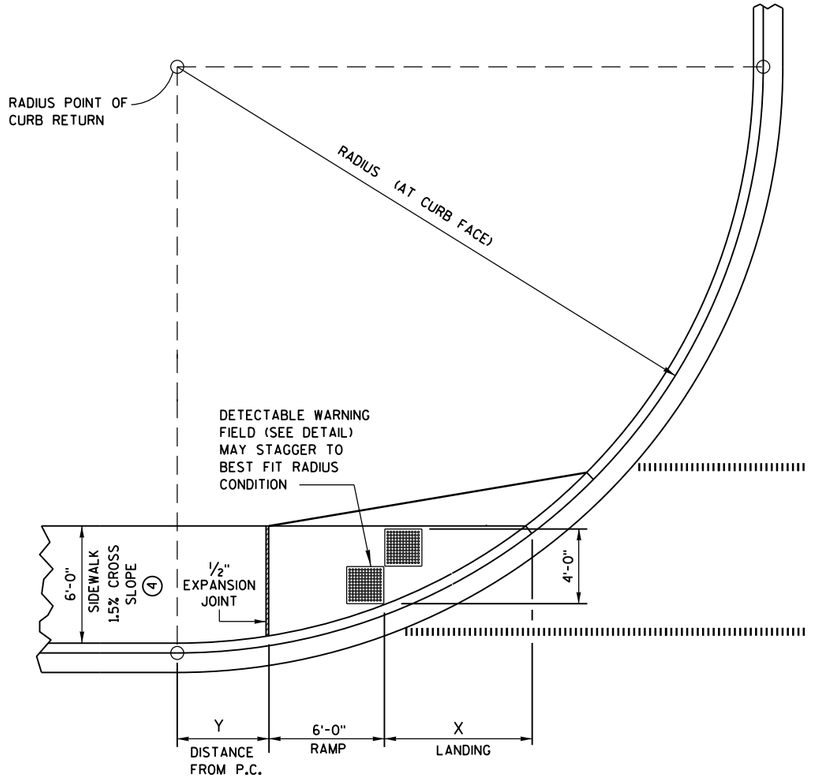
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

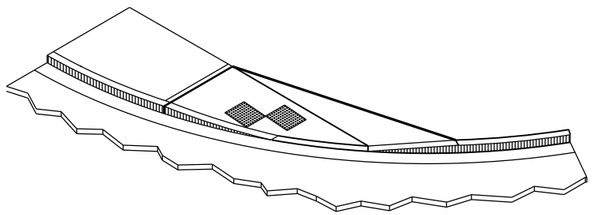
(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



ISOMETRIC VIEW FOR TYPE 4A



CURB RAMP TYPE 4A1
PLAN VIEW



ISOMETRIC VIEW FOR TYPE 4A1

LEGEND

½" EXPANSION JOINT-SIDEWALK

CONTRACTION JOINT FIELD LOCATED

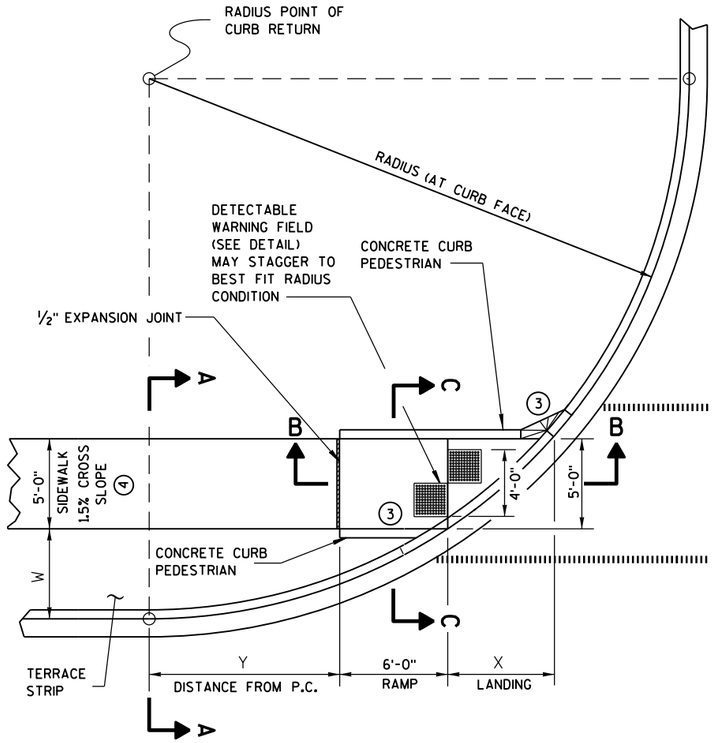
PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS TYPES 4A AND 4A1

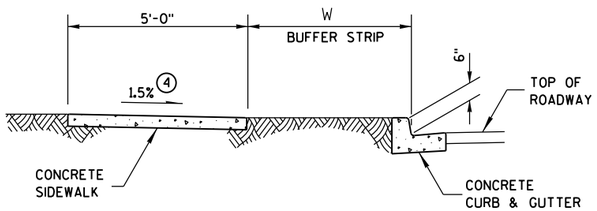
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

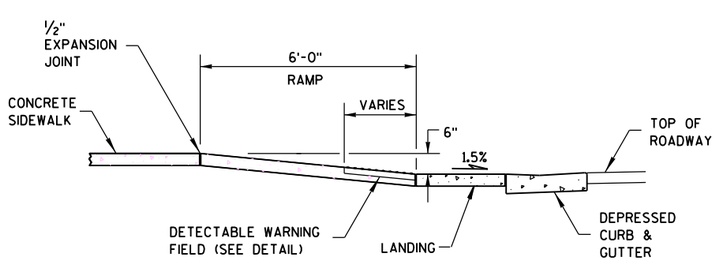
S.D.D. 8 D 5-15c



CURB RAMP TYPE 4B
PLAN VIEW



SECTION A-A FOR TYPE 4B



SECTION B-B FOR TYPE 4B

LEGEND

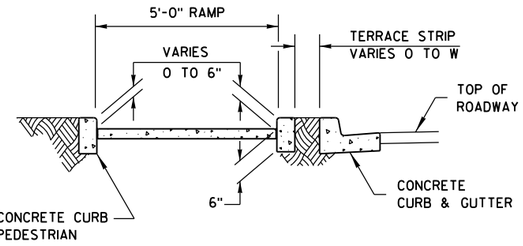
½" EXPANSION JOINT-SIDEWALK

CONTRACTION JOINT FIELD LOCATED

PAVEMENT MARKING CROSSWALK (WHITE)

RADIUS (AT CURB FACE)	W = 3'-0"		W = 4'-0"		W = 5'-0"		W = 6'-0"		W = 7'-0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-5½"	4'-6½"	4'-8½"	6'-0"	4'-1"	7'-2¾"	3'-7"	8'-3½"	3'-1½"	9'-2½"
30 FEET	7'-3¾"	7'-1"	6'-5½"	8'-11½"	5'-9¼"	10'-7"	5'-2½"	12'-0"	4'-8¾"	13'-3¼"
40 FEET	8'-9½"	9'-2½"	7'-10"	11'-5¼"	7'-1"	13'-4½"	6'-5¾"	15'-¾"	5'-11½"	16'-7¼"
50 FEET	10'-¾"	11'-¾"	9'-¼"	13'-7¼"	8'-2½"	15'-9½"	7'-6½"	17'-9"	6'-11¾"	19'-6¼"
60 FEET	11'-2½"	12'-8¾"	10'-¾"	15'-6½"	9'-2¼"	17'-11¾"	8'-5¾"	20'-1¾"	7'-10½"	22'-1½"

INTERMEDIATE RADII CAN BE INTERPOLATED



SECTION C-C FOR TYPE 4B

GENERAL NOTES

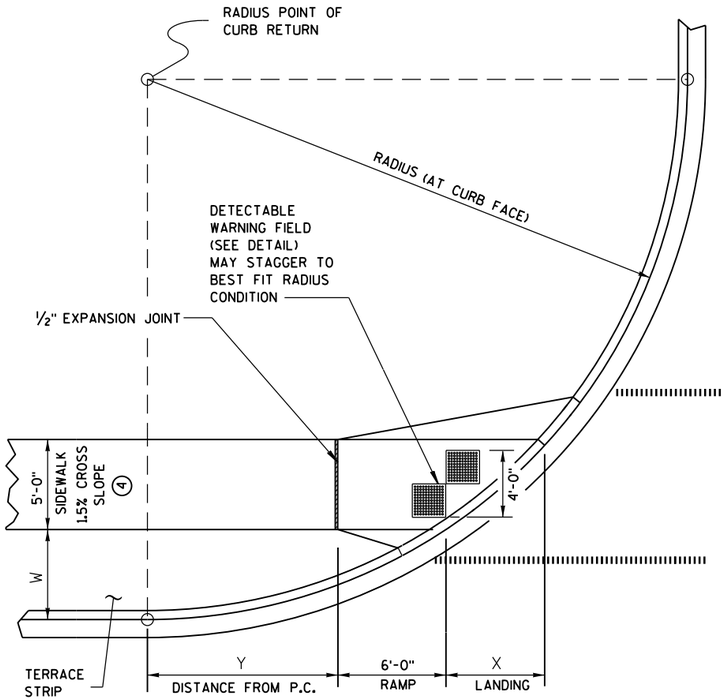
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

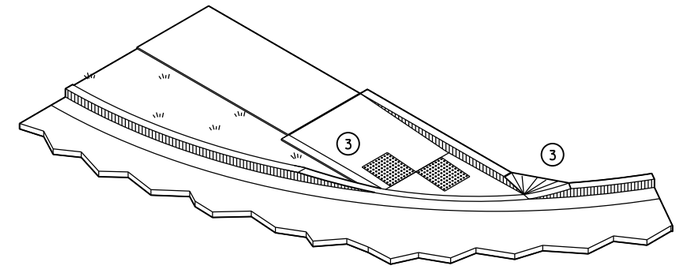
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

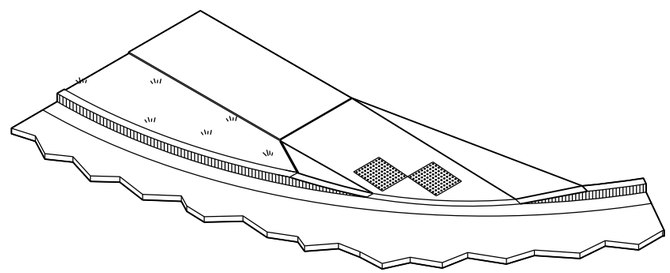
(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



CURB RAMP TYPE 4B1
PLAN VIEW



ISOMETRIC VIEW FOR TYPE 4B



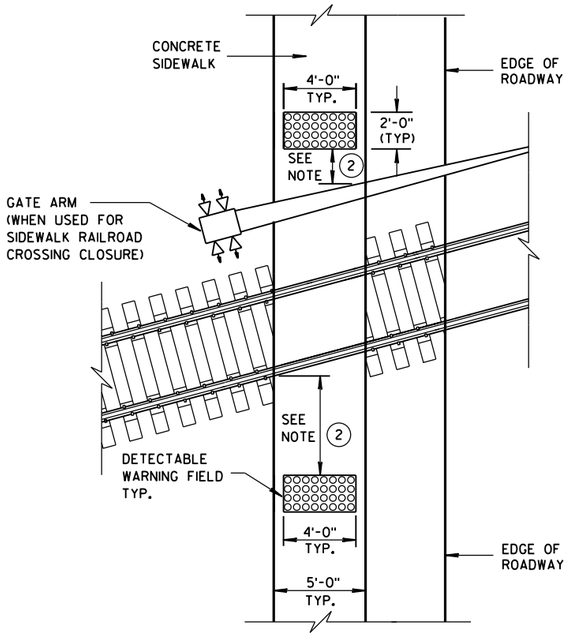
ISOMETRIC VIEW FOR TYPE 4B1

CURB RAMPS
TYPE 4B AND 4B1

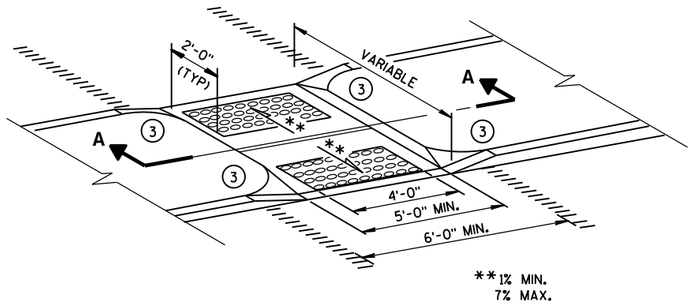
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 8 D 5-15d



TYPE 8
DETECTABLE WARNINGS AT RAILROAD CROSSING



MEDIAN ISLAND
NON-ELEVATED CROSSING
TYPE 5

GENERAL NOTES

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

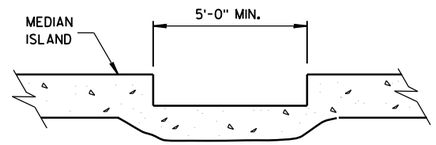
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(1) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.

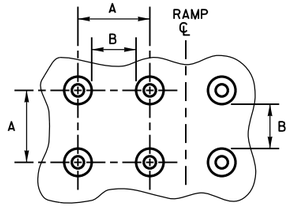
(2) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ± 0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.

(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



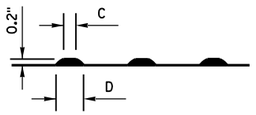
SECTION A-A



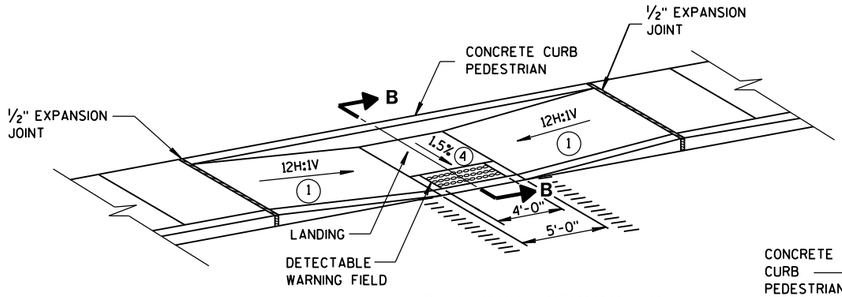
PLAN VIEW

	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

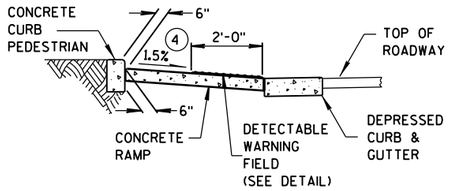
* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.



ELEVATION VIEW

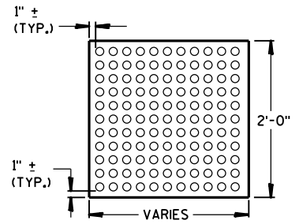


MID-BLOCK CROSSING
TYPE 7A



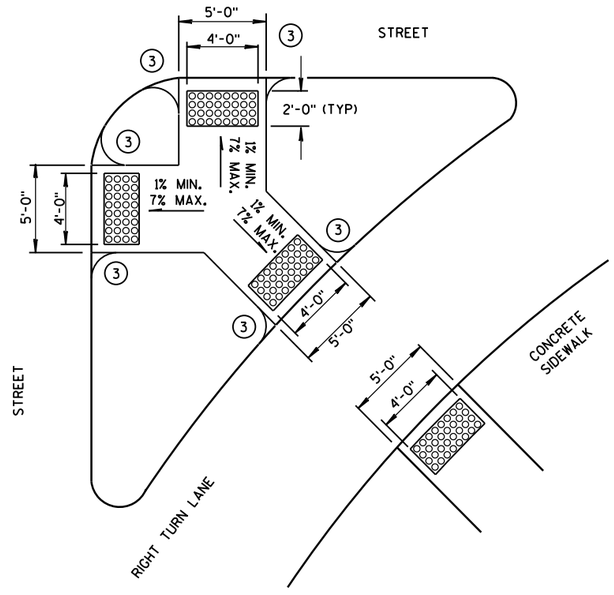
SECTION B-B

TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL

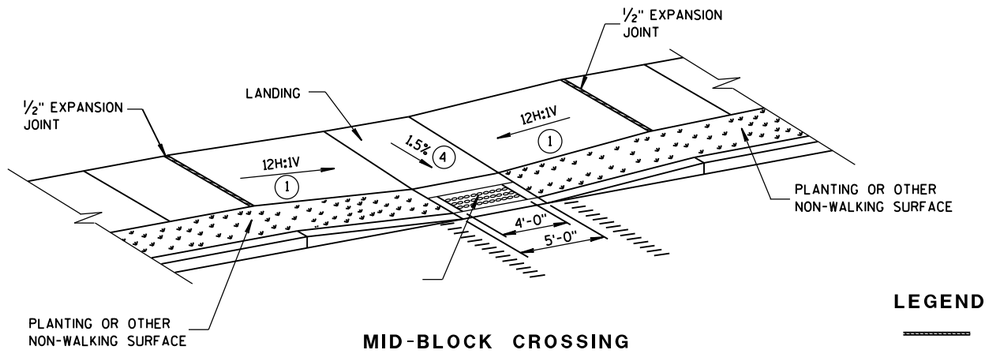


PLAN VIEW

DETECTABLE WARNING FIELD (TYPICAL)



TYPE 6
DETECTABLE WARNING AT ISLANDS



MID-BLOCK CROSSING
TYPE 7B

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

LEGEND

- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPES 5, 6, 7A, 7B & 8

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

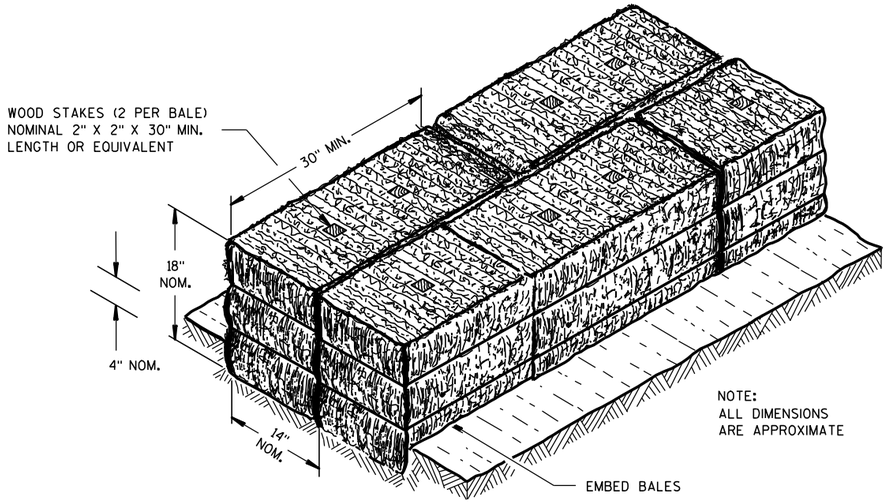
APPROVED
2-6-2013 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

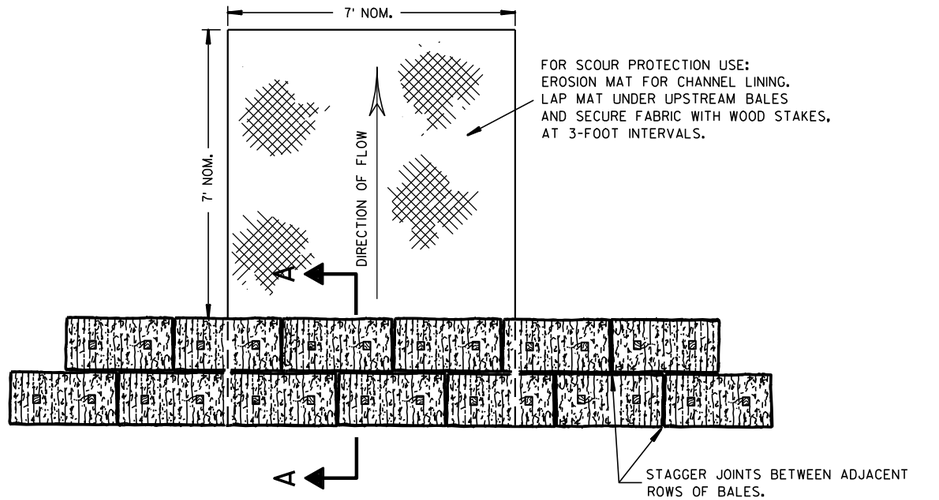
S.D.D. 8 D 5-15e

6

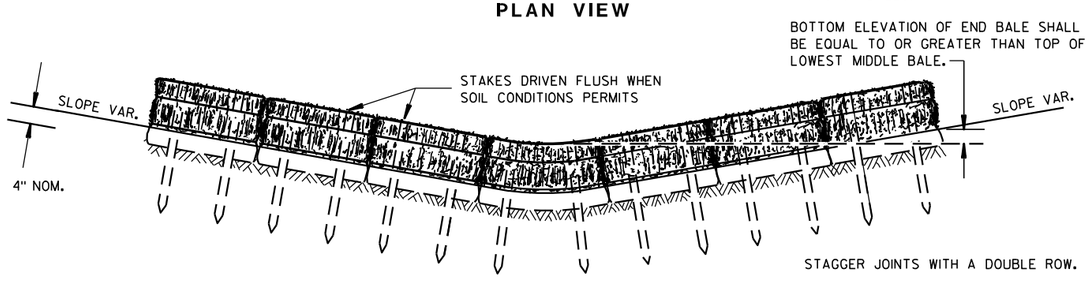
S.D.D. 8 D 5-15e



SECTION A-A



PLAN VIEW



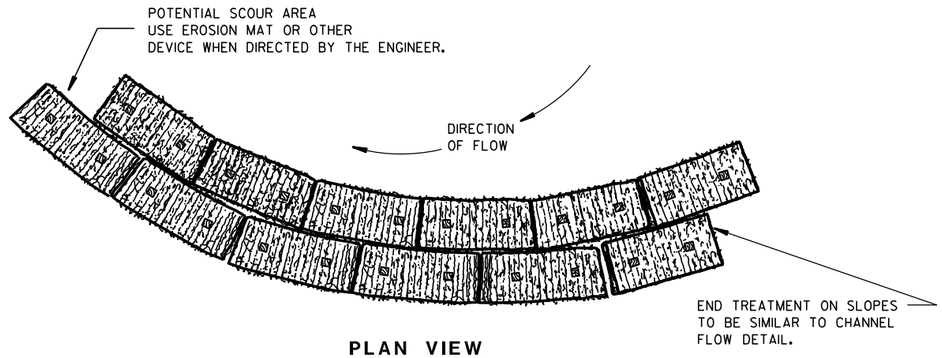
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

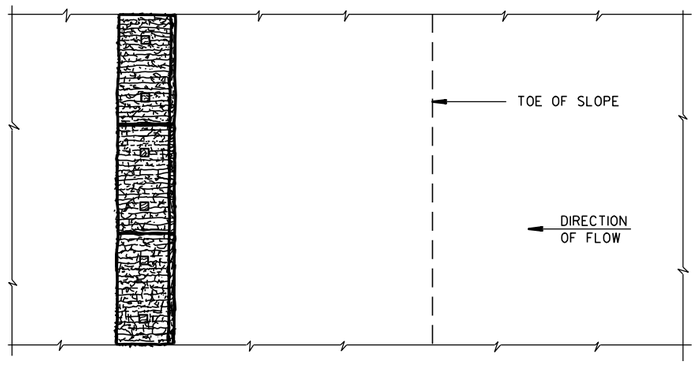
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

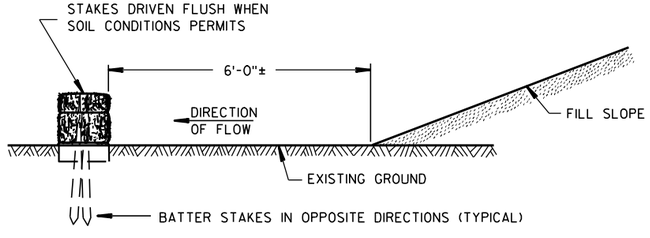


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

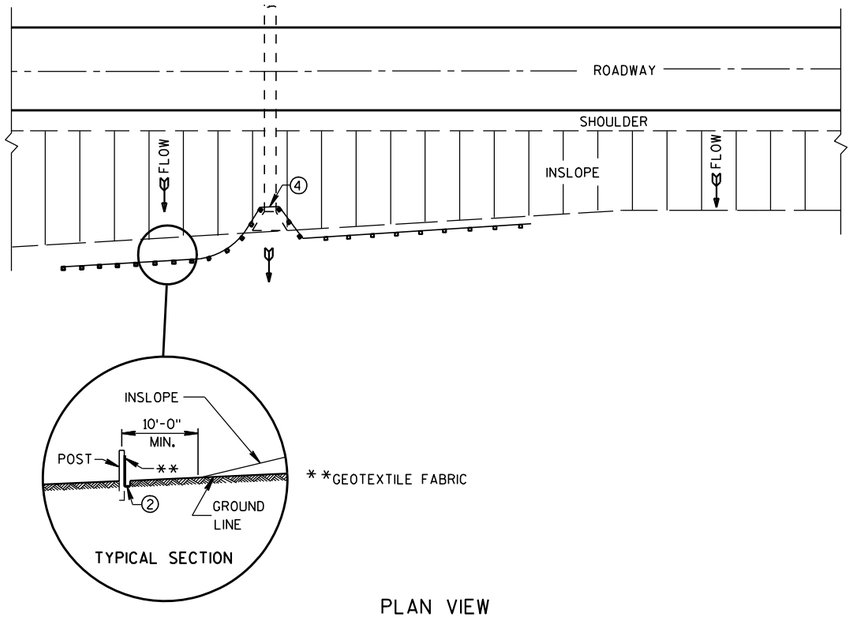
APPROVED
6/04/02 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 8-3

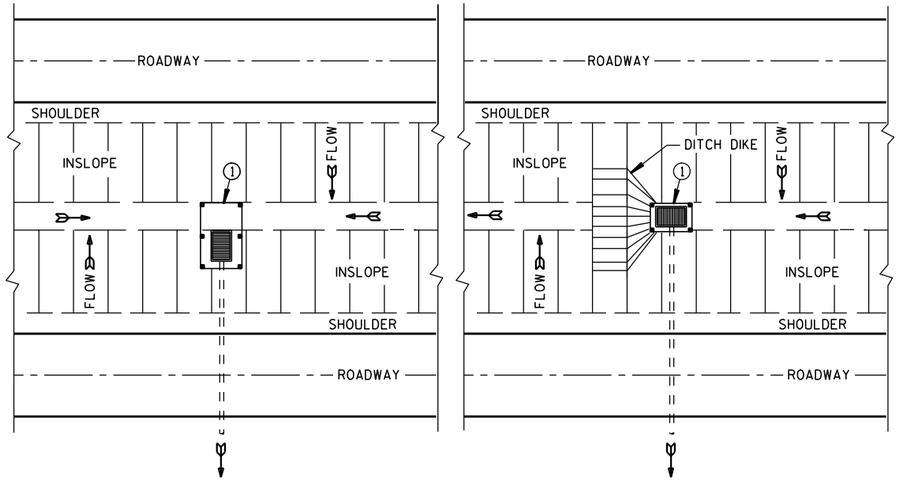
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

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

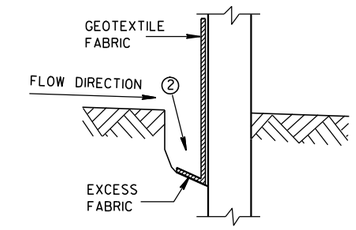
① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.

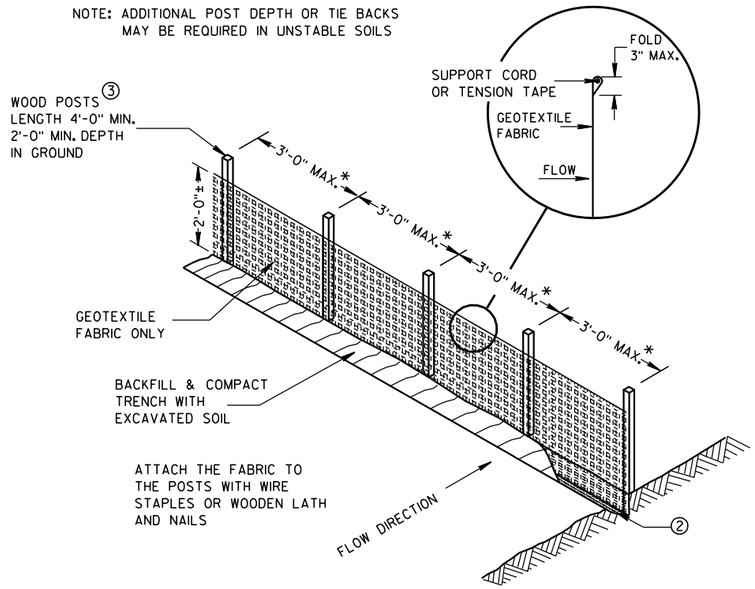
③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.

④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.

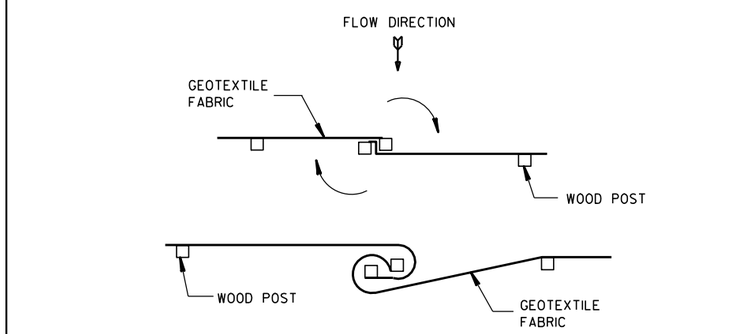
⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



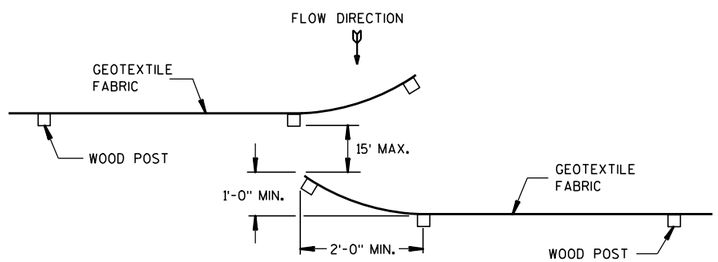
TRENCH DETAIL



SILT FENCE

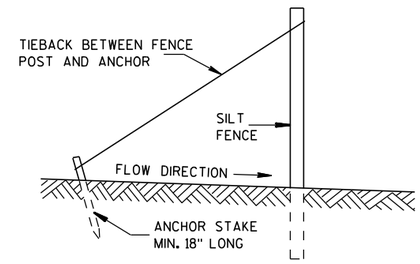


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

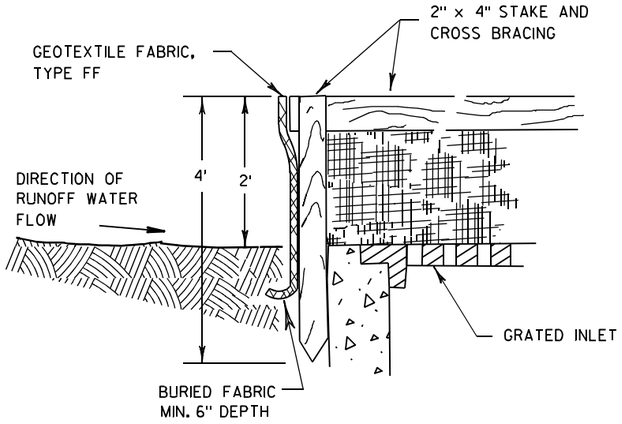
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

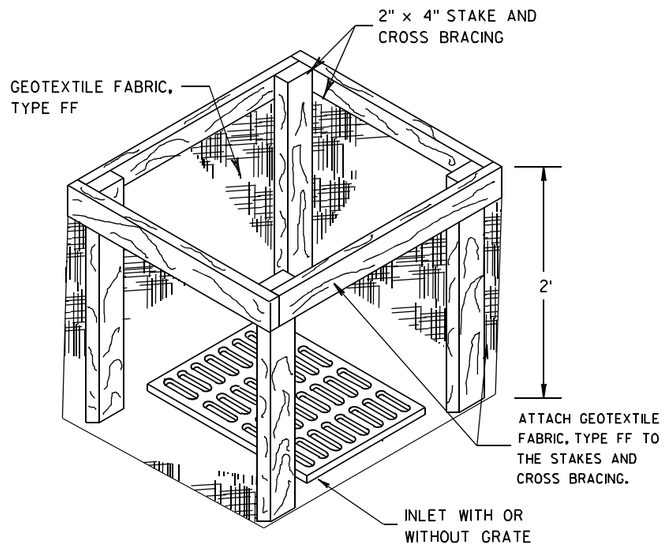
6

S.D.D. 8 E 9-6

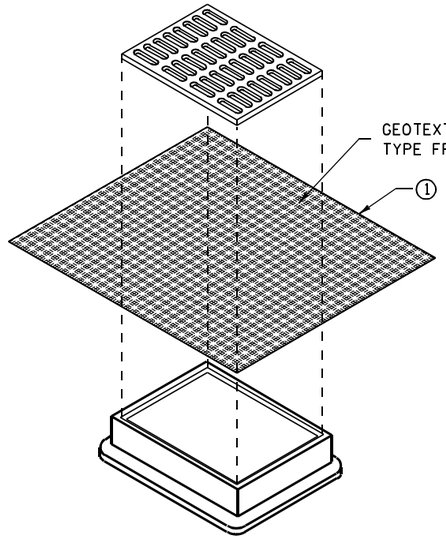
6

S.D.D. 8 E 9-6



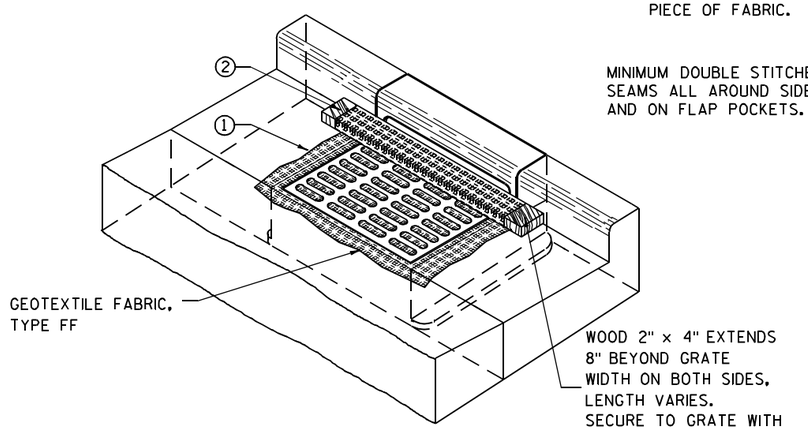


INLET PROTECTION, TYPE A

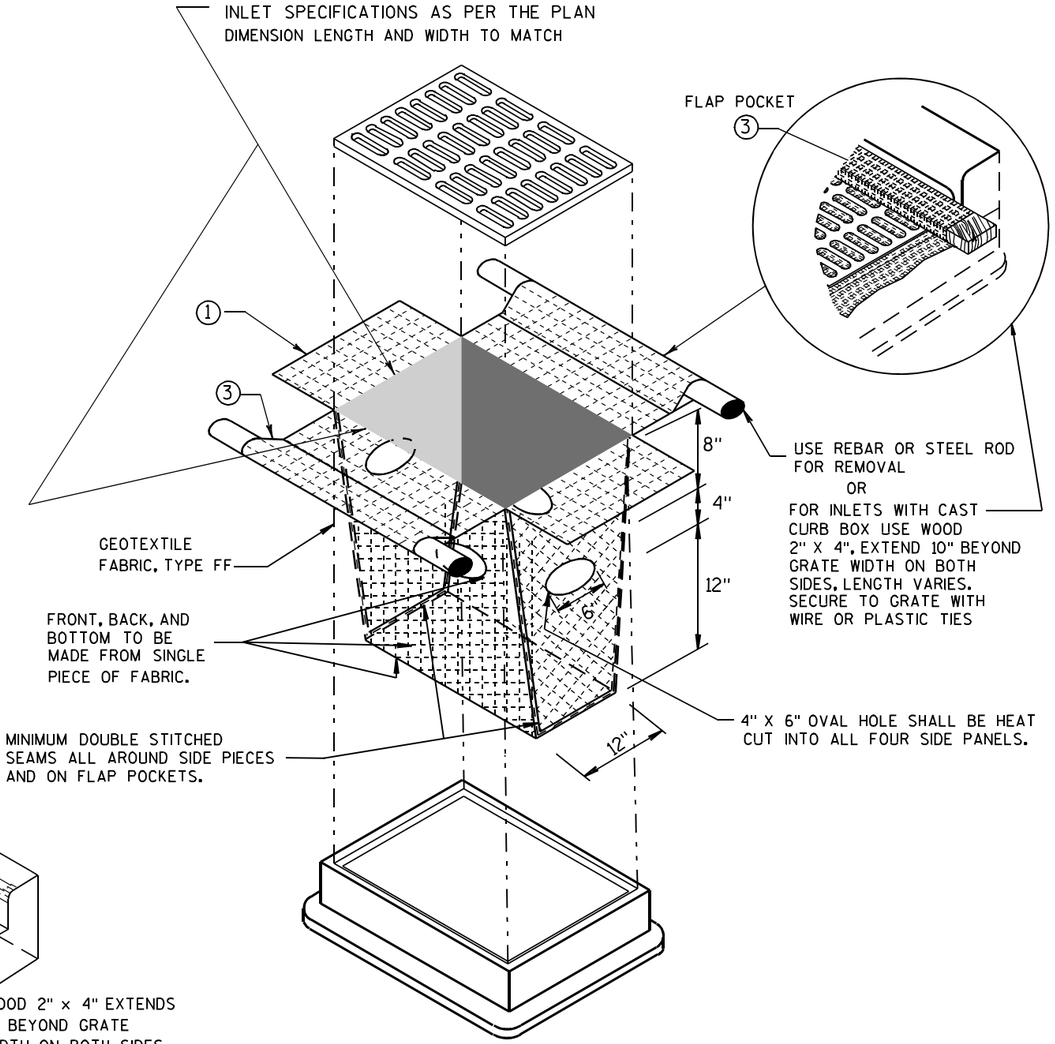


INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH
OR WITHOUT A CURB BOX AS PER NOTE ②)

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/16/02
DATE

/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

6

S.D.D. 8 E 10-2

6

S.D.D. 8 E 10-2

METAL APRON ENDWALLS

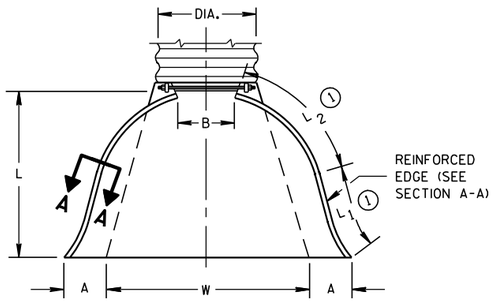
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

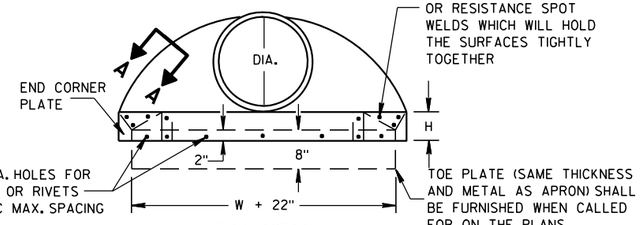
REINFORCED CONCRETE APRON ENDWALLS

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

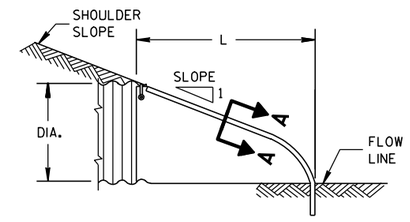
*MINIMUM
**MAXIMUM



PLAN VIEW

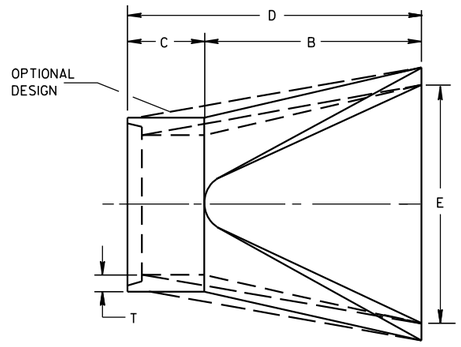


END VIEW

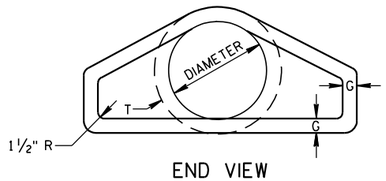


SIDE ELEVATION

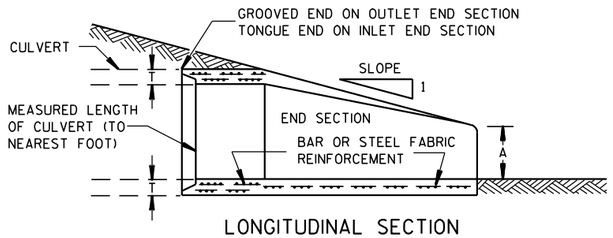
METAL ENDWALLS



PLAN

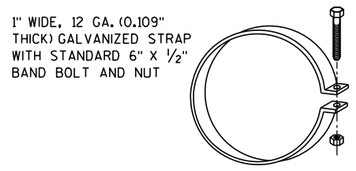


END VIEW



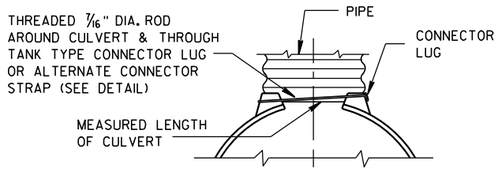
LONGITUDINAL SECTION

CONCRETE ENDWALLS

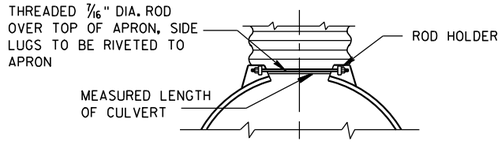


ALTERNATE FOR TYPE 1 CONNECTION

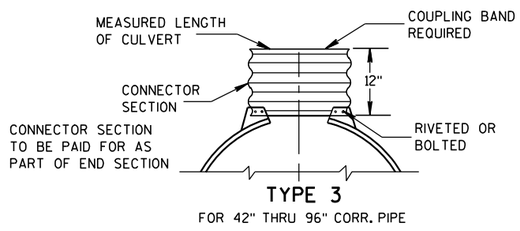
END SECTION CONNECTOR STRAP



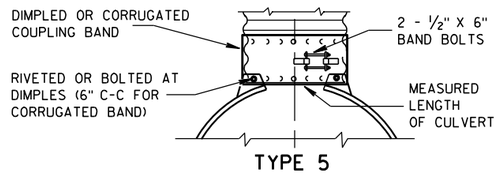
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

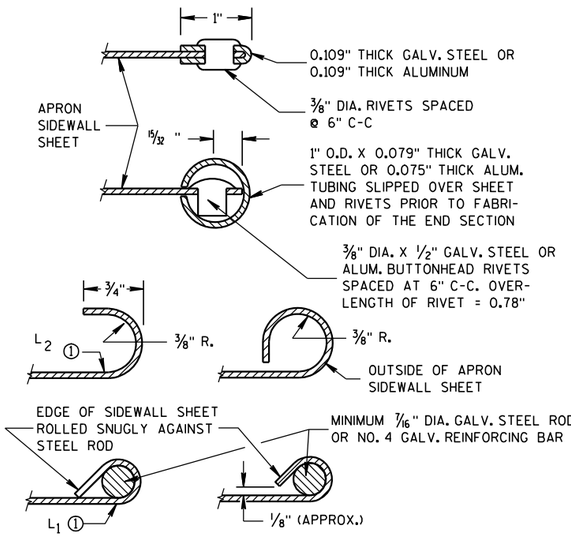
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

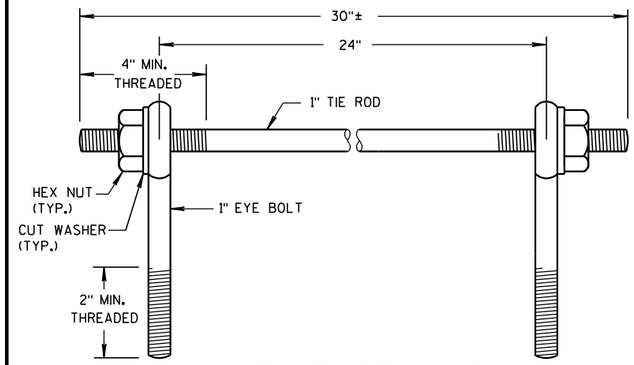
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

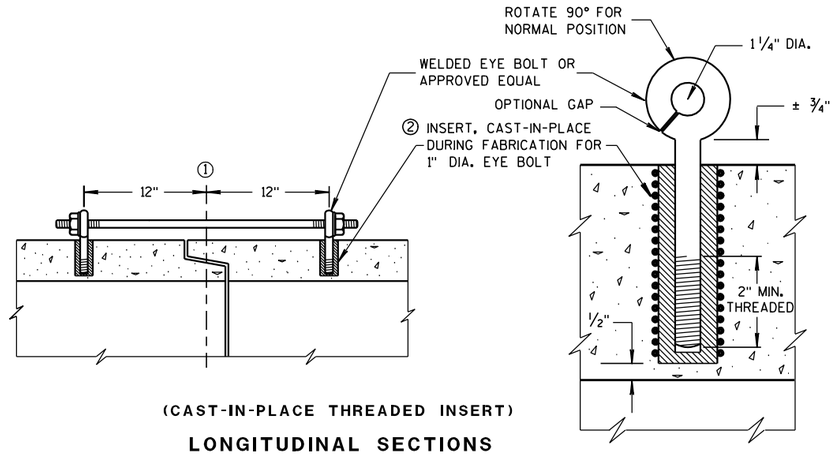
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 8 F 1-11



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)

GENERAL NOTES

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

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

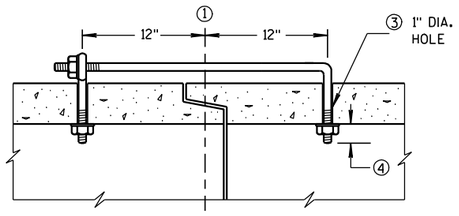
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

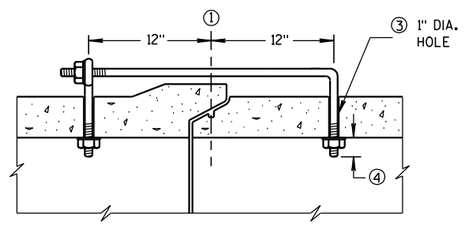
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

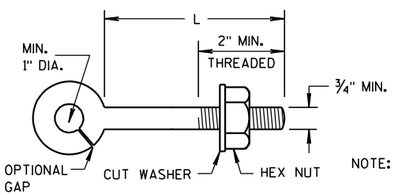


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

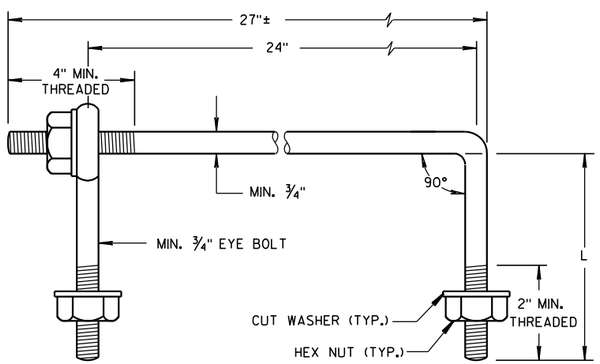
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

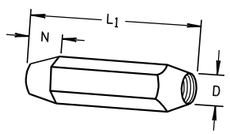
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

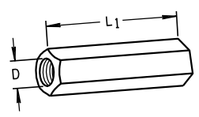
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES



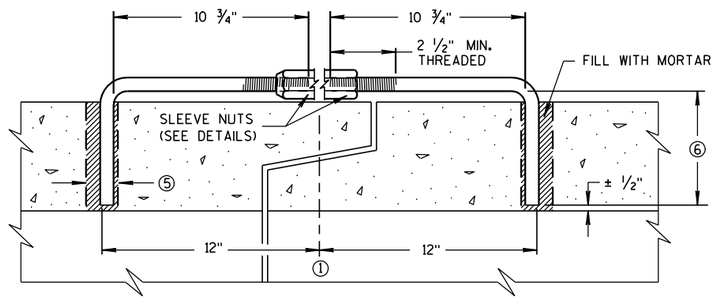
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PLAIN

RIGHT AND LEFT THREADS

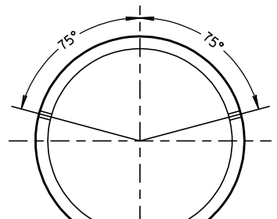
SLEEVE NUTS



LONGITUDINAL SECTION

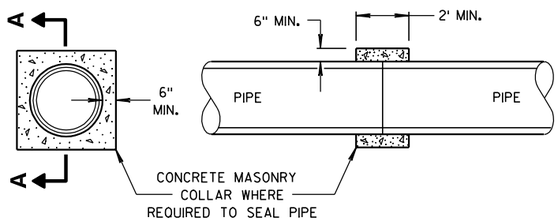
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

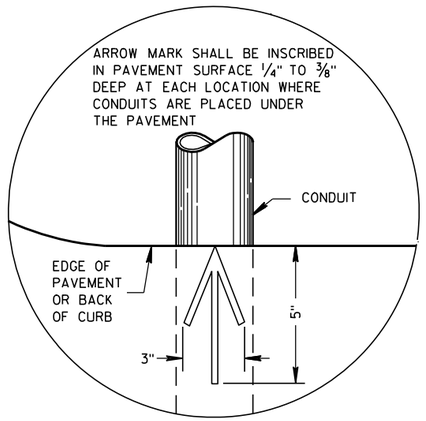
APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 8 F 4-7

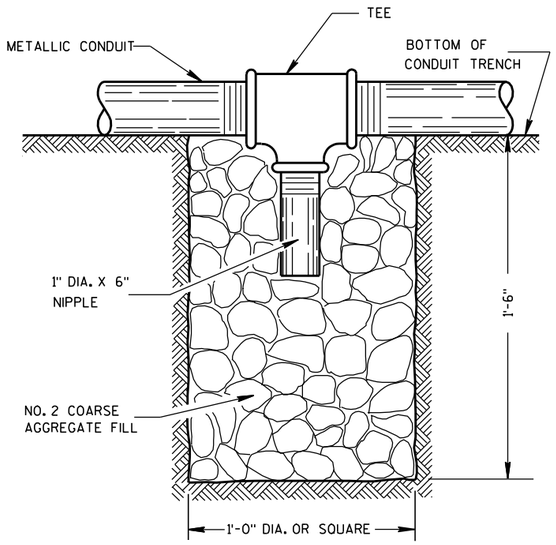
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S.D.D. 8 F 4-7



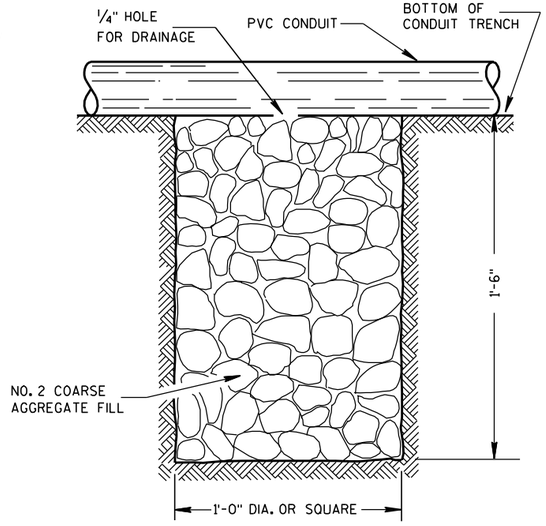
PLAN VIEW

ARROW MARK



NOTE: INSTALL AT LOCATIONS WHERE METALLIC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR METALLIC CONDUIT



NOTE: INSTALL AT LOCATIONS WHERE PVC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR PVC CONDUIT

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

METALLIC (STANDARD SPECIFICATION 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

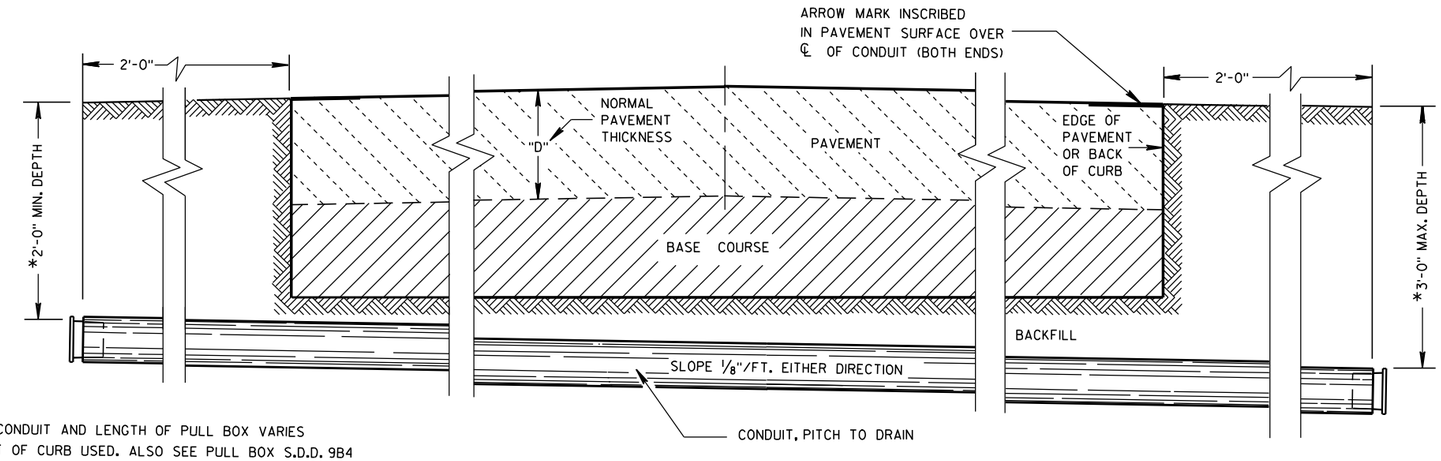
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE OF CONDUIT FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX-OR-BASE TO BASE, ETC.).

POLY ROPE OR A PULL WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.



*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

SIDE ELEVATION

DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/23/03 — DATE

/S/ Balu Ananthanarayanan — STATE ELECTRICAL ENGI

220 HWYS

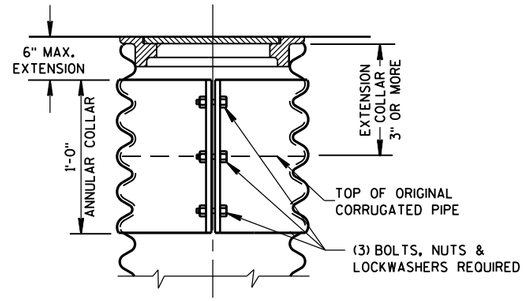
FHWA

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

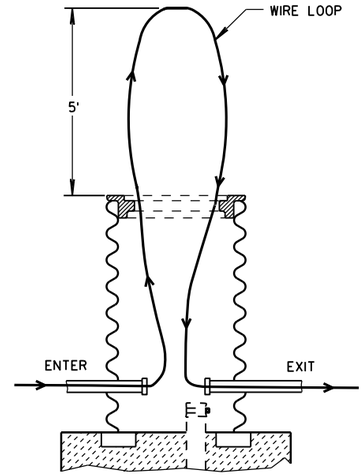
DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2	26 1/2	26 1/2	26 1/2
FRAME	F	8 1/2	8 1/2	8 1/2	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2
FRAME	G	11 1/2	11 1/2	11 1/2	17 1/2	17 1/2	17 1/2	23 1/2	23 1/2	23 1/2
WEIGHT IN POUNDS *										
FRAME AND COVER		60	60	60	110	110	110	155	155	155

* THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

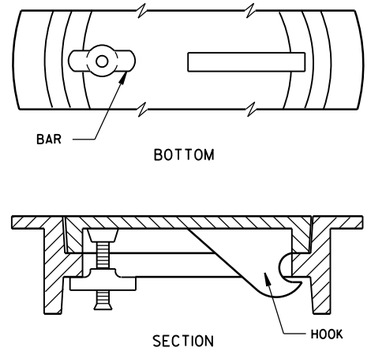
** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.



CORRUGATED PIPE EXTENDER

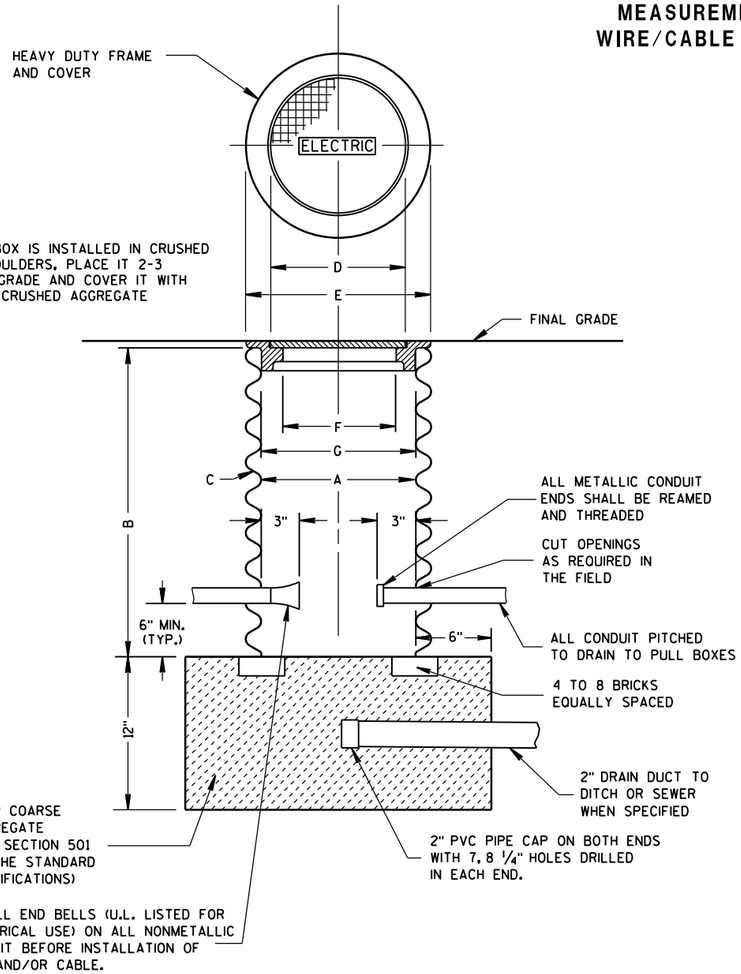


MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX



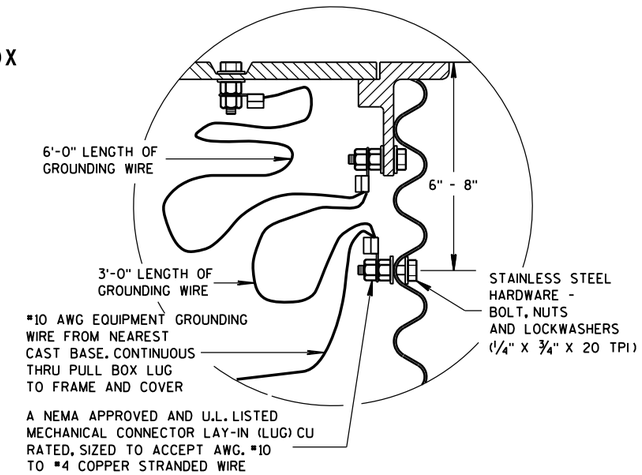
ALTERNATE COVER (LOCKING)

TIGHTENING BAR TYPE

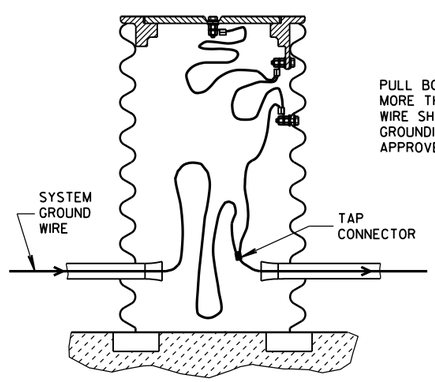


WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE

PULL BOX



EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES



PULL BOX TO NEAREST BASE DISTANCE MORE THAN 20 FEET. PULL BOX GROUND WIRE SHALL CONNECT AT SYSTEM GROUNDING WIRE. USE DEPARTMENT APPROVED TAP CONNECTOR.

EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY TYPE, SUITABLE FOR VEHICULAR TRAFFIC LOADS.

PULL BOXES LOCATED IN THE ROADWAYS SHALL HAVE LOCKING COVERS.

ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE.

GROUNDING LUGS ARE NOT REQUIRED IN PULL BOXES WHEN VOLTAGES OF LESS THAN 50 VOLTS AC ARE THE ONLY VOLTAGES ENCOUNTERED IN THE BOXES.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

S.D.D. 9B2, "CONDUIT", APPLIES TO THIS DRAWING.

WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG. THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.

PULL BOX

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

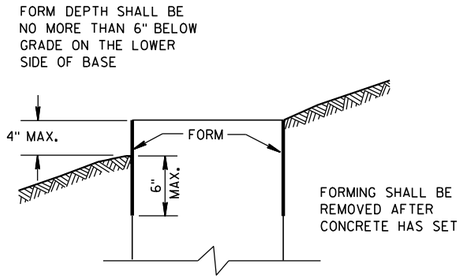
2-7-2013
DATE

/S/ Ahmet Demirbilek
STATE ELECTRICAL

FHWA

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S.D.D. 9 B 4-10



FORMING DETAIL

QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5
APPROX. CUBIC YARDS OF CONCRETE	0.40	0.57	0.40
LBS. OF HOOP BAR STEEL	NONE	23	16
LBS. OF VERTICAL BAR STEEL	NONE	60	18

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

TOP SURFACES OF CONCRETE BASES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 1 INCH. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

GENERAL NOTES (CONTINUED)

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE DIRT OR FILL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD) FOR TYPE 2 AND TYPE 5 BASES.

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE OF THE TYPE 2 AND TYPE 5 BASES THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD. ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 AND 641.2.2 OF THE STANDARD SPECIFICATIONS, ASTM A-449, OR ASTM A-687 (GRADE 105).

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4" "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND END SHALL NOT BE THREADED.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

WELDING OF THE ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TIE WIRES SHALL BE USED.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

(1) THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN APPROVAL BY THE ENGINEER.

(2) (4) 1" DIA. X 3'-6" ANCHOR RODS.

(3) (4) 1" DIA. X 5'-0" ANCHOR RODS.

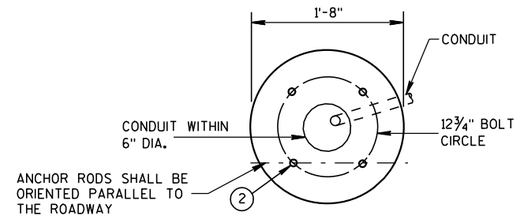
(4) (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.

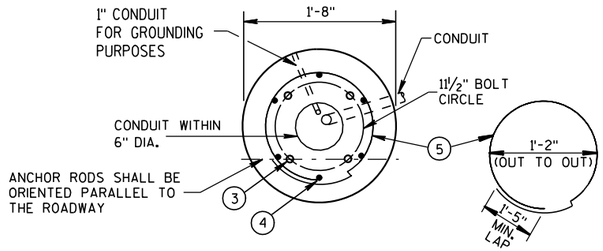
(5) (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

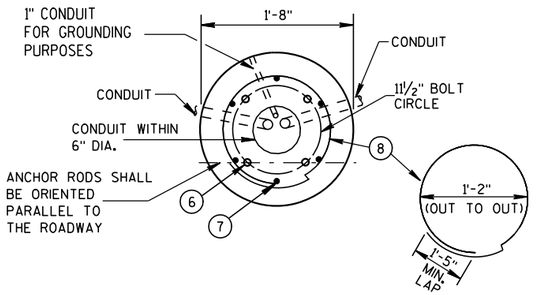
(6) (4) 1" DIA. X 3'-6" ANCHOR RODS.

(7) (6) NO.4 X 4'-8" BAR STEEL REINFORCEMENT.

(8) (5) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.



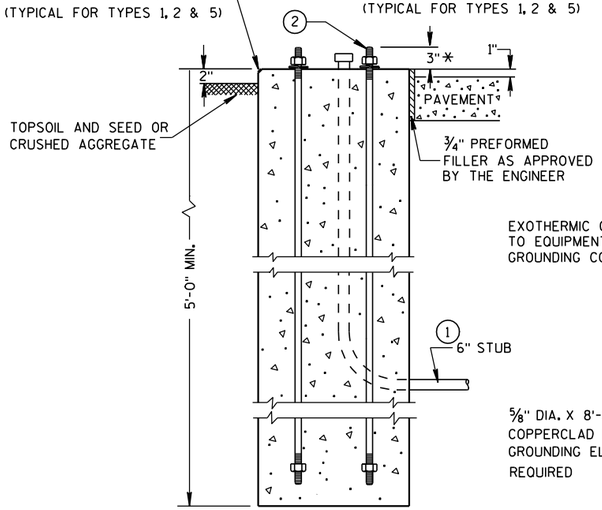




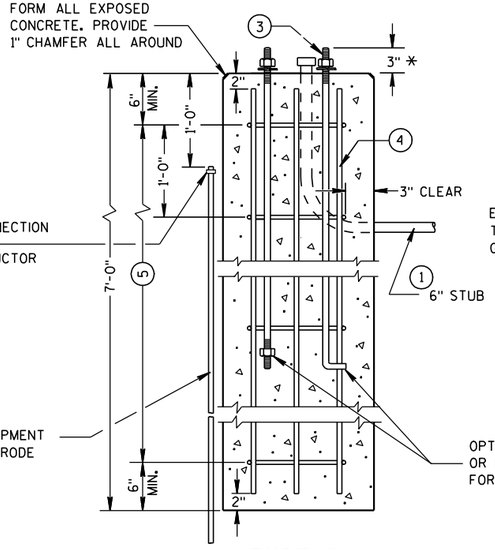
FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND

HALF SECTION IN UNPAVED AREA
(TYPICAL FOR TYPES 1, 2 & 5)

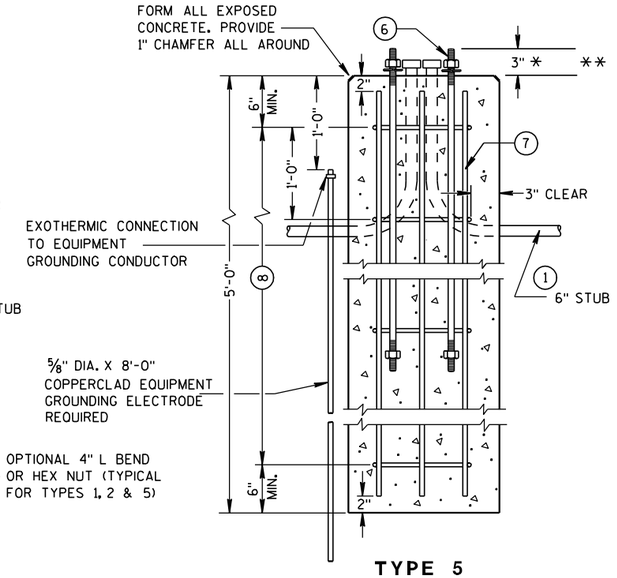
HALF SECTION IN PAVEMENT
(TYPICAL FOR TYPES 1, 2 & 5)



TYPE 1



TYPE 2



TYPE 5

CONCRETE BASES

* ANY ANCHOR ROD PROJECTION SHORTER THAN 2¾" OR LONGER THAN 3¼" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.

** FOR NONBREAKAWAY INSTALLATIONS, 4½" ± ANCHOR ROD PROJECTION WITH THE USE OF LEVELING NUTS. RODENT SCREEN REQUIRED.

CONCRETE BASES, TYPES 1, 2 & 5

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/3/10 — DATE
/S/ Joanna L. Rush — STATE ELECTRICAL ENGI
222 — HWYS
FHWA

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S.D.D. 9 C 2-6

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S.D.D. 9 C 2-6

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

FOUR (4) BOLTS SHALL BE FURNISHED WITH EACH TRANSFORMER BASE. BOLTS SHALL BE 1" DIAMETER, 4" IN LENGTH, WITH WASHERS, LOCK WASHERS AND NUTS. BOLTS, NUTS AND WASHERS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 641.2.2 OF THE STANDARD SPECIFICATIONS, ASTM A-325, (92,000 YIELD) HEAVY HEX NUT AND BE GALVANIZED IN ACCORDANCE WITH ASTM A-153, CLASS C.

LEVELING SHIMS, IF NEEDED, SHALL BE DESIGNED FOR THE PURPOSE AND USED UNDER CAST BASES WHEN PLUMBING POLES OR STANDARDS DURING INSTALLATION. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE.

SHIM LENGTH SHALL BE LONG ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.

DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

A NEMA APPROVED AND U.L. LISTED MECHANICAL CONNECTOR (LUG) AL/CU RATED AND SIZED TO ACCEPT #10 AWG STRANDED WIRE, SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

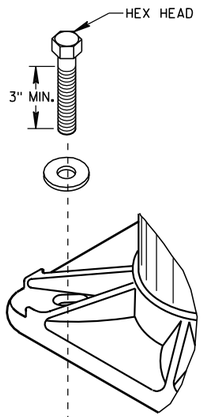
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

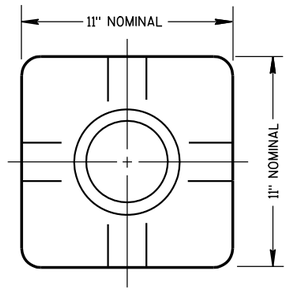
SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

PEDESTAL BASE COLLAR THREADING SHALL BE TAPERED AND IN ACCORDANCE WITH NATIONAL PIPE THREADING DIMENSIONS.

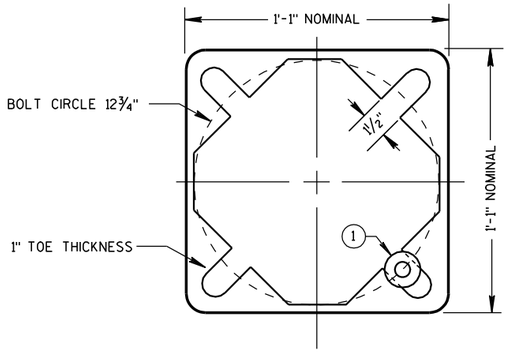
BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1½", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

THE ACCESS DOOR SHALL BE OF THE SAME MATERIAL AS THE BASE.

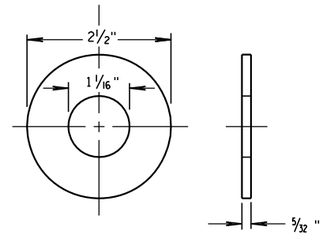




TOP VIEW
(PEDESTAL BASE)

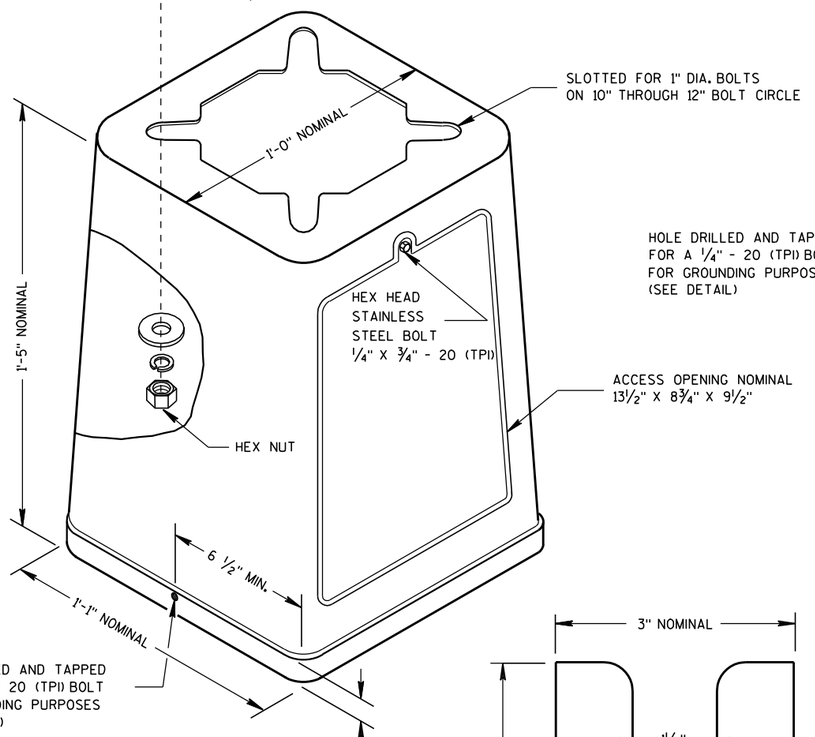


BOTTOM VIEW
(PEDESTAL BASE)

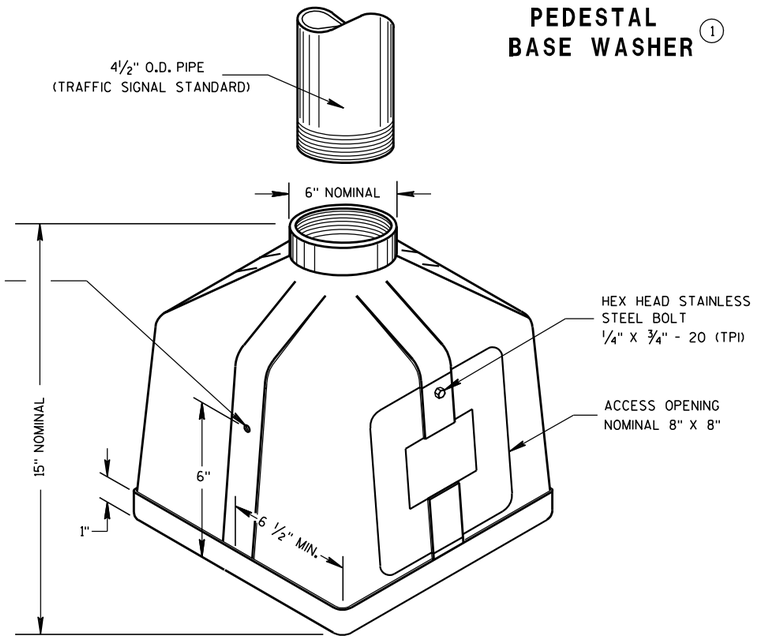


ZINC COATED STEEL WASHER
TO BE PROVIDED BY THE CONTRACTOR

PEDESTAL BASE WASHER (1)

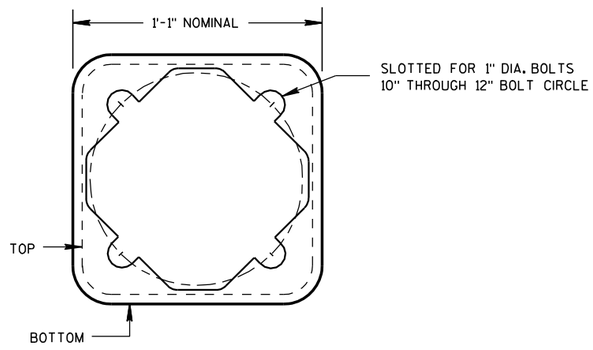


ISOMETRIC VIEW

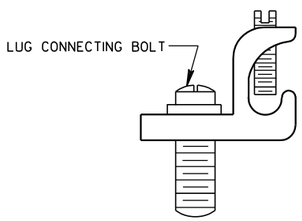


ISOMETRIC VIEW

PEDESTAL BASE



BOTTOM VIEW
(TRANSFORMER BASE)

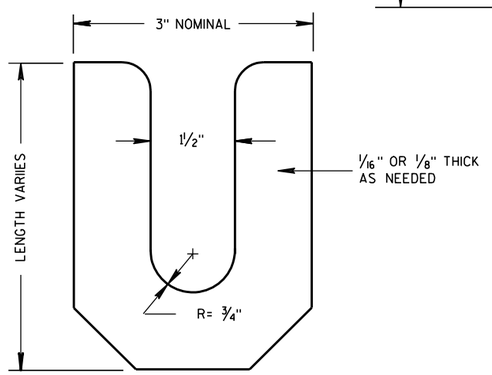


TYPICAL MECHANICAL CONNECTOR LUG

TO BE FURNISHED WITH EACH BASE

TRANSFORMER BASE

INTENDED FOR USE WITH TYPE 2, 3, 4, 5 & 6 POLES



LEVELING SHIM

TRANSFORMER/PEDESTAL BASES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/27/09
DATE

/S/ Joanna L. Rich
STATE ELECTRICAL ENGI

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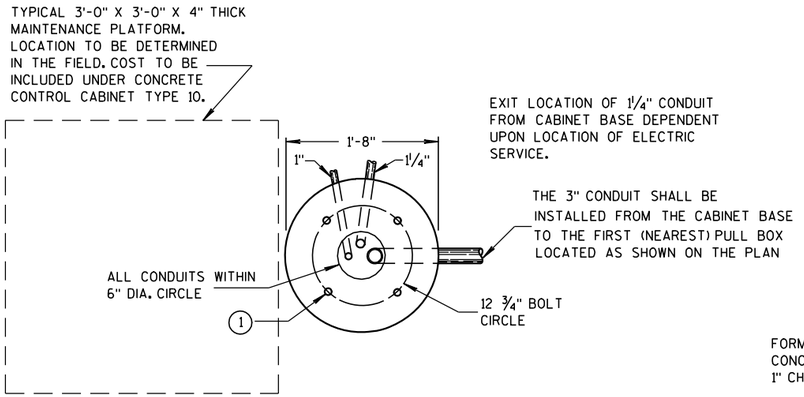
S.D.D. 9 C 3-3

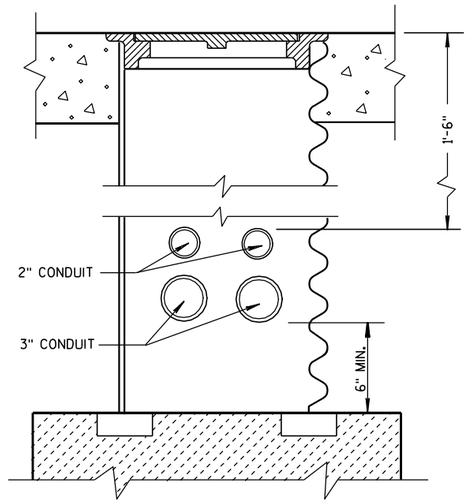
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S.D.D. 9 C 3-3

CONTROL CABINET BASE TYPE	DIMENSIONS				C.Y. CONCRETE (APPROX.)
	H	I	J	K	
TYPE 6 - 30" CABINET	34"	60"	10"	17"	.64
TYPE 7 - 38" CABINET	42"	60"	10"	21"	.93
TYPE 8 - 38" CABINET	42"	72"	12"	21"	1.29
TYPE 9 - VARIABLE	54"	72"	14"	27"	1.56
TYPE 10 - POST MOUNT	AS SHOWN				.65 *

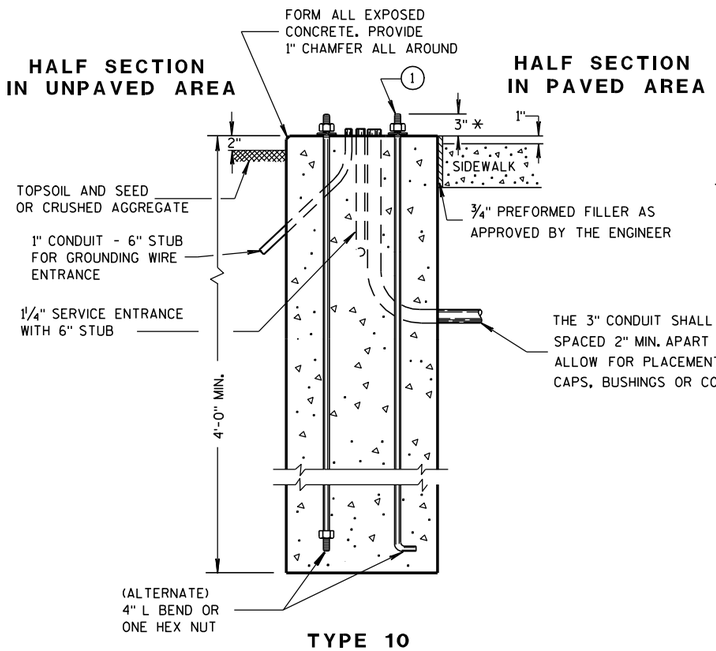
* INCLUDES MAINTENANCE PLATFORM.



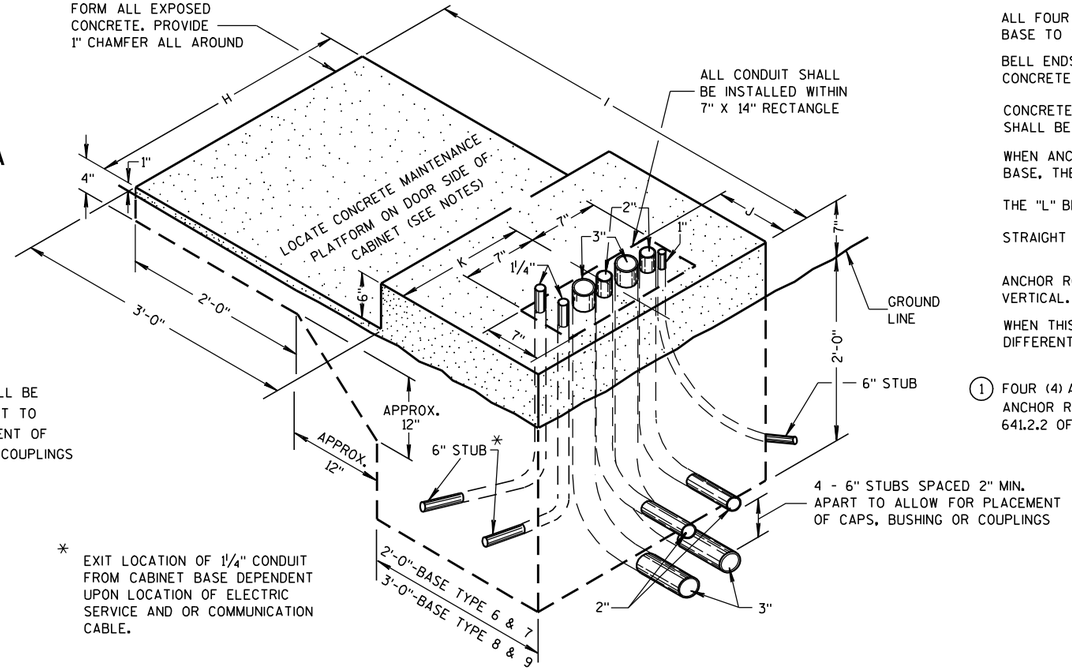


CONDUIT LOCATIONS IN 24" X 36" PULL BOX

(LEADING TO CONTROLLER CABINET BASE TYPE 6, 7, 8 AND 9)



TYPE 10



TYPE 6,7,8 AND 9 (ISOMETRIC VIEW)

* EXIT LOCATION OF 1¼" CONDUIT FROM CABINET BASE DEPENDENT UPON LOCATION OF ELECTRIC SERVICE AND OR COMMUNICATION CABLE.

* ANY ANCHOR ROD PROJECTION SHORTER THAN 2¾" OR LONGER THAN 3¼" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

INSTALL FOUR ½ INCH MINIMUM DIAMETER X 4 INCH MINIMUM LENGTH APPROVED CONCRETE MASONRY ANCHORS TO ANCHOR THE CABINET TO TYPE 6, 7, 8, AND 9 BASES. THE ANCHOR STUDS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

CONTROL CABINET BASE TOP SURFACES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

WHEN A TYPE 10 CONTROL CABINET BASE IS USED TO POST MOUNT A CONTROL CABINET, A 36" SQUARE 4" THICK CONCRETE MAINTENANCE PLATFORM SHALL BE REQUIRED ON THE DOOR SIDE OF THE CABINET. THE TOP 1 INCH SHALL BE ABOVE FINISHED GRADE AND BE BROOM FINISHED AND LEVEL.

MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.

MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.

ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

ALL FOUR (TWO INCH AND THREE INCH) CONDUIT SHALL BE INSTALLED FROM THE CABINET BASE TO THE FIRST (NEAREST PULL BOX LOCATED AS SHOWN ON THE PLANS.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6" MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

WHEN ANCHOR RODS USING THE ALTERNATE L BEND ARE FURNISHED FOR THE TYPE 10 BASE, THE 4" L BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH.

THE "L" BEND SHALL NOT BE THREADED.

STRAIGHT ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

WHEN THIS DRAWING IS USED FOR STREET LIGHTING CABINET BASES, CONDUIT MAY BE DIFFERENT AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

(1) FOUR (4) ANCHOR RODS, 1" DIA. X 3'-6"
ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 AND 641.2.2 OF THE STANDARD SPECIFICATIONS.

CONCRETE CONTROL CABINET BASES

CONCRETE CONTROL CABINET BASES

STATE OF WISCONSIN
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3/3/10
DATE

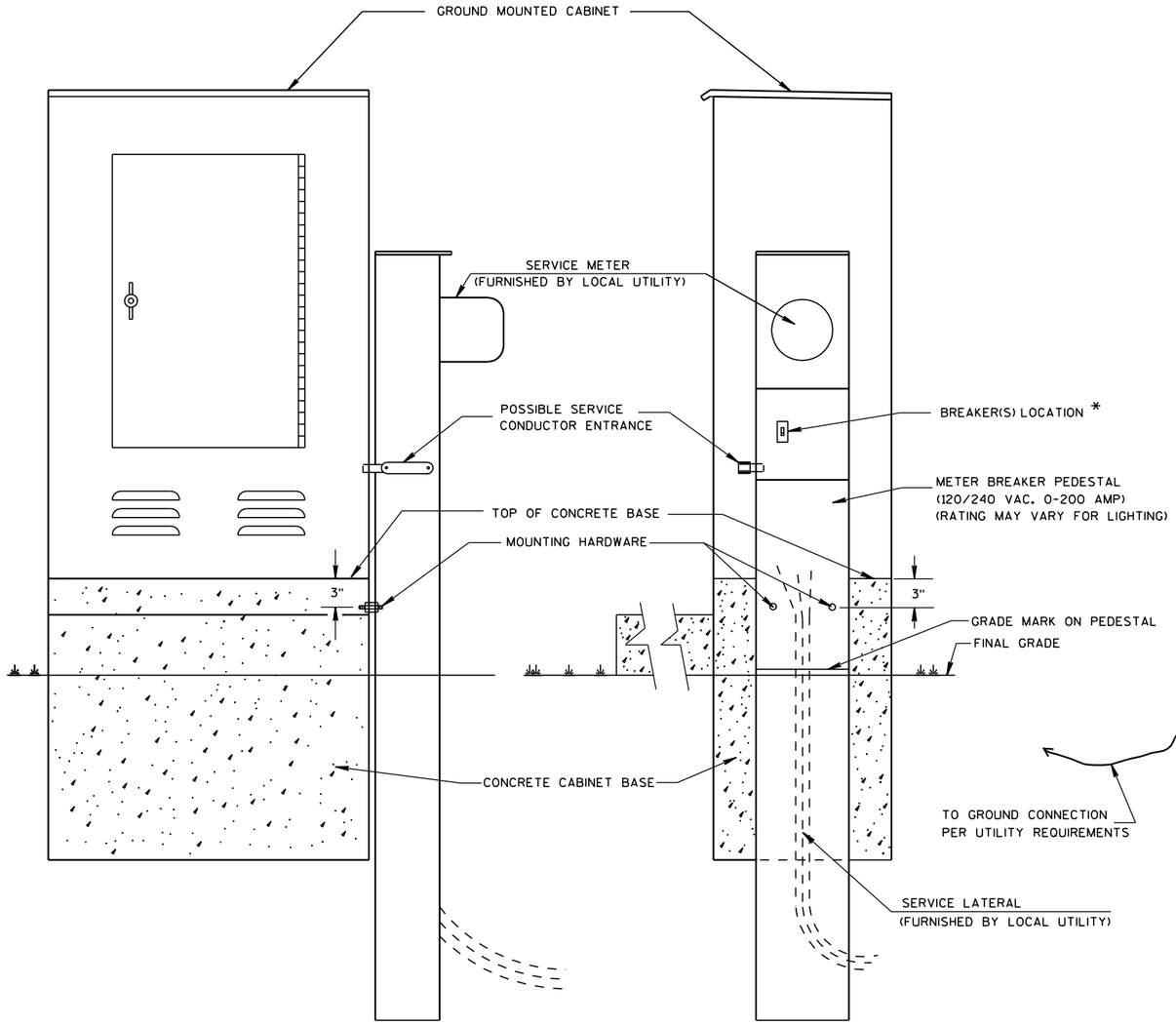
/S/ Joanna L. [illegible]
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TYPICAL CABINET SERVICE INSTALLATION

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

THE EXACT LOCATION OF THE METER BREAKER PEDESTAL SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE TYPE OF CONCRETE CABINET BASE TO BE INSTALLED SHALL BE AS CALLED FOR IN THE PLANS.

TO FACILITATE FLUSH MOUNTING OF THE METER BREAKER PEDESTAL AGAINST THE SIDE OF THE CABINET BASE (IF FLUSH MOUNTING POSSIBLE. CONFER WITH THE LOCAL UTILITY TO DETERMINE WHICH SIDE OF THE CONCRETE BASE THE ELECTRICAL SERVICE LATERAL WILL APPROACH. THEN FORM THAT INDICATED SIDE FOR FULL SIDE DEPTH.

WHILE FLUSH MOUNTING IS THE MOST DESIRABLE MOUNTING CONFIGURATION UTILITY REQUIREMENTS MAY PRECLUDE THIS OPTION. CONTRACTOR MUST PROVIDE UTILITY APPROVED PEDESTAL AND INSTALL PER UTILITY AND MANUFACTURERS REQUIREMENTS.

SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID METALLIC CONDUIT, NIPPLES AND/OR CONDULETS AS REQUIRED.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AND LOCATED AS REQUIRED BY THE LOCAL UTILITY AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

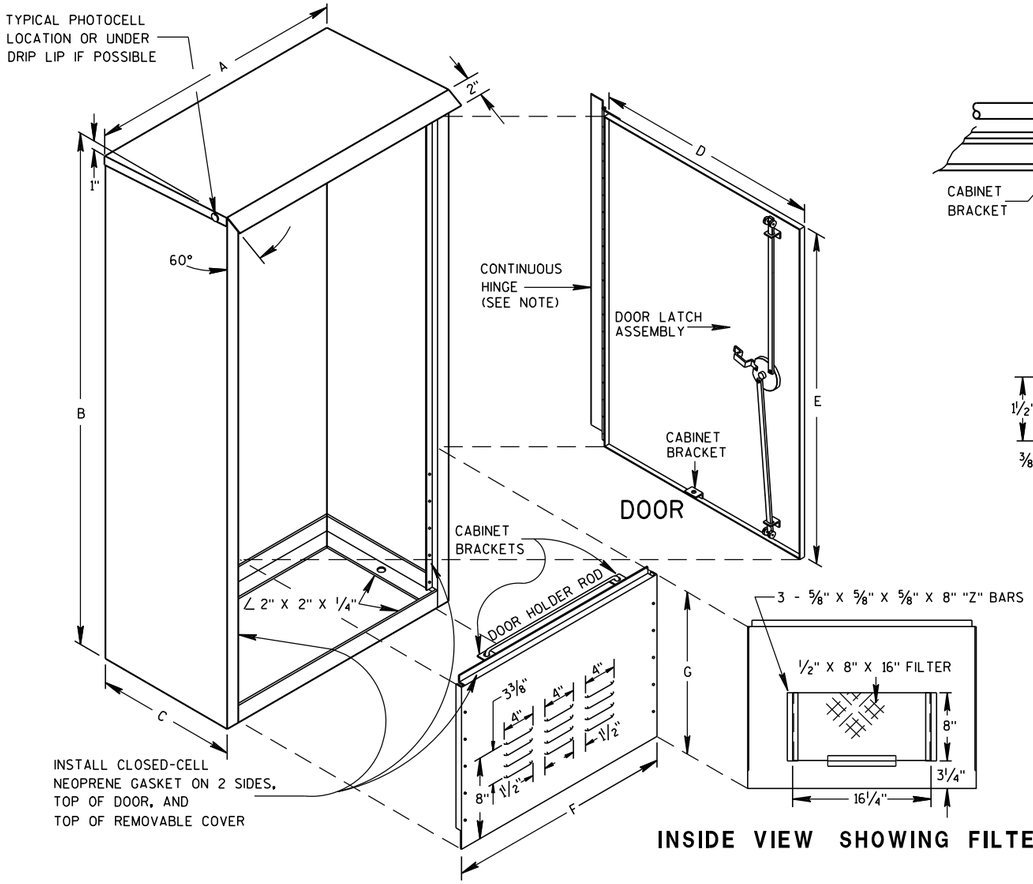
IF MORE THAN ONE GROUNDING ELECTRODE IS REQUIRED, THE DISTANCE APART SHALL BE 6 FEET OR PER LOCAL UTILITY REGULATIONS.

* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)

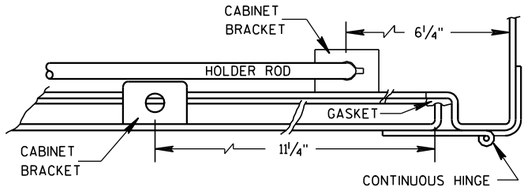
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/27/09 DATE
/S/ Joanna L. Bush STATE ELECTRICAL ENGI
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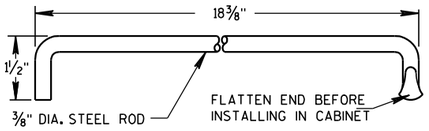


REMOVABLE COVER

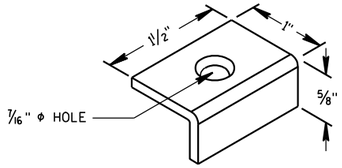
INSIDE VIEW SHOWING FILTER



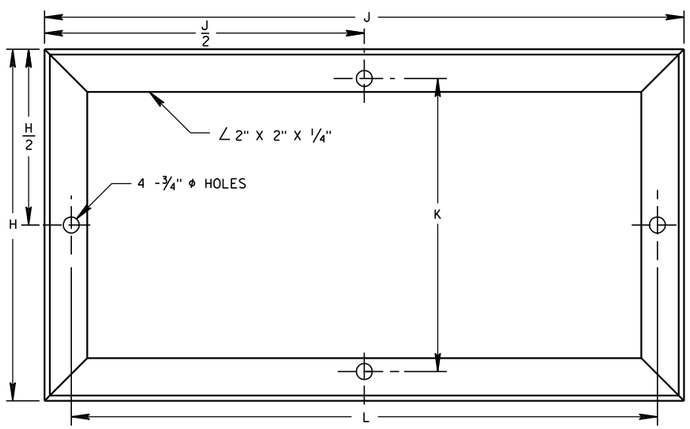
HINGE & DOOR HOLDER



HOLDER ROD



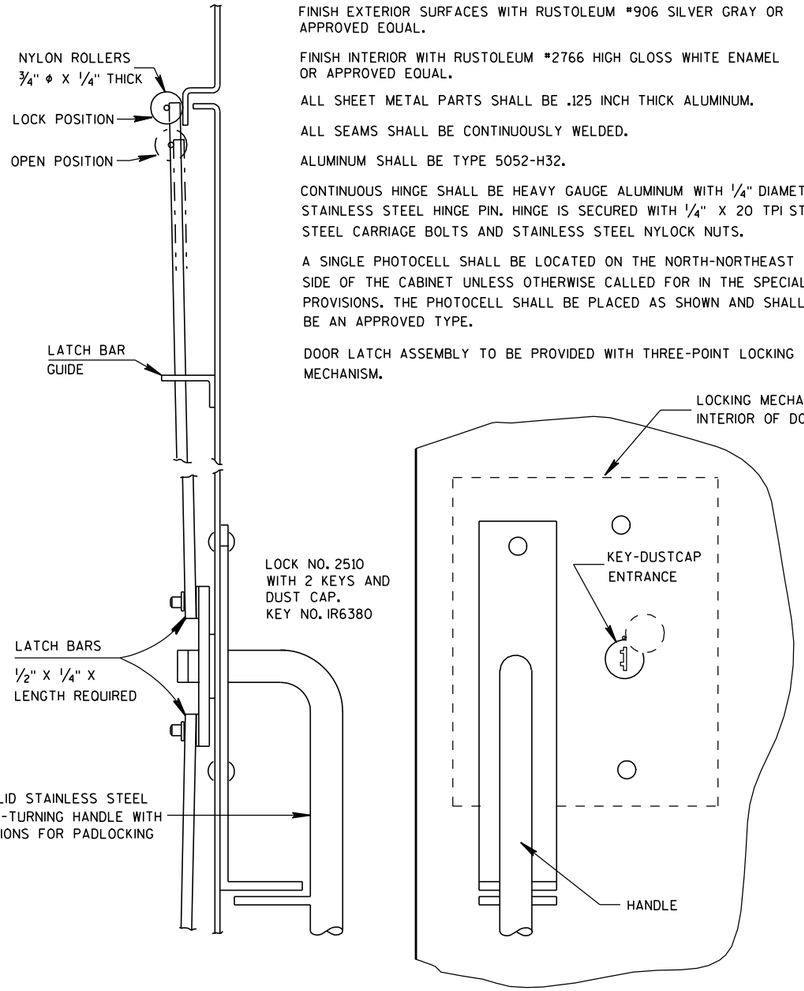
CABINET BRACKET



MOUNTING BASE

TABLE OF DIMENSIONS (INCHES)

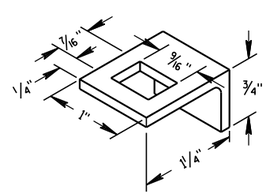
MARK	CABINET TYPE		
	3060	3860	3866
A	30	38	38
B	60	60	66
C	16 1/2	16 1/2	24
D	26 1/2	34 3/4	33 3/4
E	38 3/4	38 3/4	38 3/4
F	26 1/2	34 3/4	33 3/4
G	19	19	25
H	16 1/2	16 1/2	24
H/2	8 1/4	8 1/4	12
J	30	38	38
J/2	15	19	19
K	13 3/4	13 3/4	21 1/4
L	27 1/2	35 1/2	35 1/2



SIDE VIEW

FRONT VIEW

LATCH ASSEMBLY



LATCH BAR GUIDE

GENERAL NOTES

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

PRIME WITH PHOSPHATE TREATMENT AND PRIMER.

FINISH EXTERIOR SURFACES WITH RUSTOLEUM #906 SILVER GRAY OR APPROVED EQUAL.

FINISH INTERIOR WITH RUSTOLEUM #2766 HIGH GLOSS WHITE ENAMEL OR APPROVED EQUAL.

ALL SHEET METAL PARTS SHALL BE .125 INCH THICK ALUMINUM.

ALL SEAMS SHALL BE CONTINUOUSLY WELDED.

ALUMINUM SHALL BE TYPE 5052-H32.

CONTINUOUS HINGE SHALL BE HEAVY GAUGE ALUMINUM WITH 1/4" DIAMETER STAINLESS STEEL HINGE PIN. HINGE IS SECURED WITH 1/4" X 20 TPI STAINLESS STEEL CARRIAGE BOLTS AND STAINLESS STEEL NYLOCK NUTS.

A SINGLE PHOTOCELL SHALL BE LOCATED ON THE NORTH-NORTHEAST SIDE OF THE CABINET UNLESS OTHERWISE CALLED FOR IN THE SPECIAL PROVISIONS. THE PHOTOCELL SHALL BE PLACED AS SHOWN AND SHALL BE AN APPROVED TYPE.

DOOR LATCH ASSEMBLY TO BE PROVIDED WITH THREE-POINT LOCKING MECHANISM.

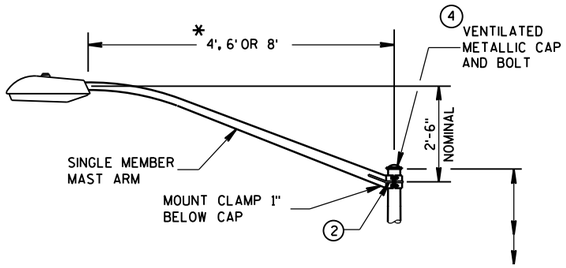
SIGNAL OR LIGHTING CONTROL CABINET

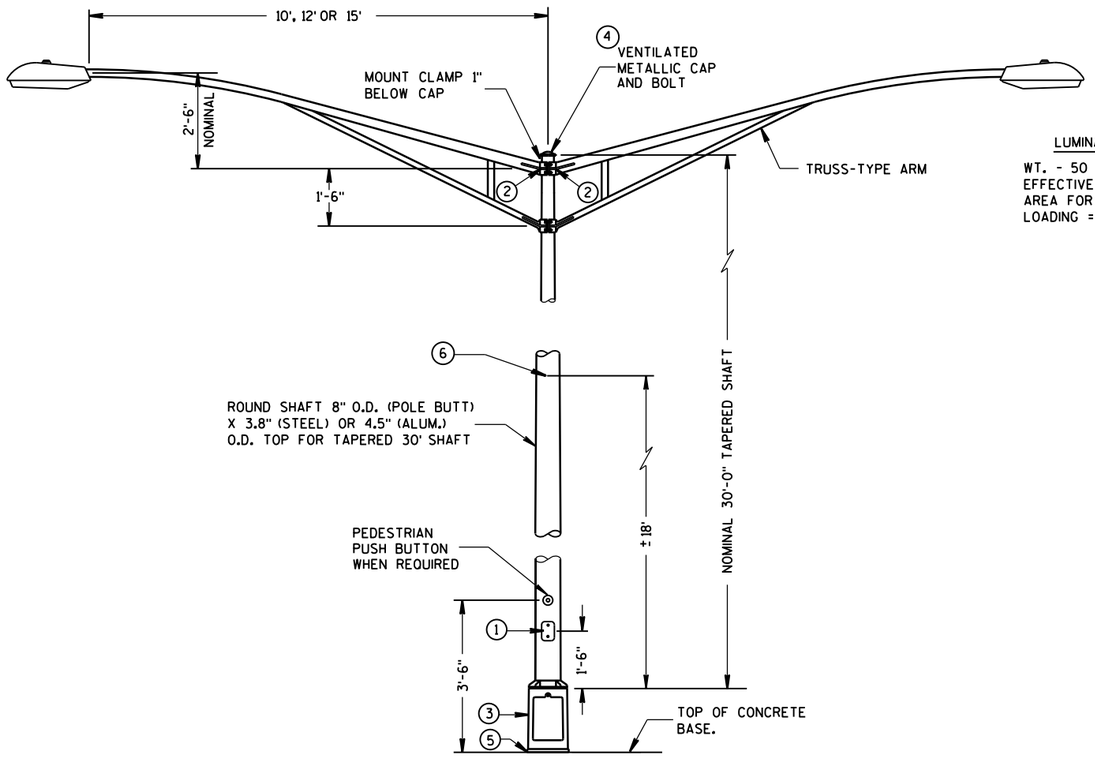
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DEPARTMENT OF TRANSPORTATION

APPROVED
10/21/96 — DATE
/S/ Balu Ananthanarayanan — STATE ELECTRICAL ENGI — HWYS
FHWA

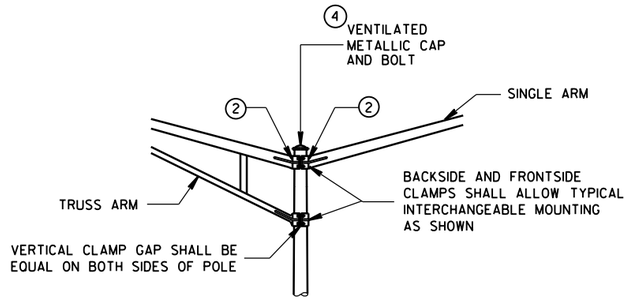
6
S.D.D. 9 D 2-2

*RISE FOR 4' ARM SHALL BE 2'-0".





TYPE 5 POLE MOUNTING CONFIGURATION
(MAXIMUM LOAD)
LIGHTING ONLY



INTERCHANGEABLE MOUNTING DETAIL

LUMINAIRE

WT. - 50 LBS.
EFFECTIVE PROJECTED
AREA FOR WIND
LOADING = 1.5 SQ. FT.

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

ALL TYPE 5 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

POLES SHALL BE GALVANIZED STEEL OR ALUMINUM, AS CALLED FOR IN THE CONTRACT.

TYPE 5 ALUMINUM POLES SHALL BE CONSTRUCTED OF 6063-T6 ALUMINUM ALLOY. SLEEVING INSIDE THE POLE IS NOT ACCEPTABLE.

THE TYPE 5 ALUMINUM POLES SHALL HAVE A MINIMUM WALL THICKNESS OF 0.188".

TYPE 5 STEEL POLES SHALL HAVE A MINIMUM WALL THICKNESS OF U.S. STANDARD 11 GAGE (.1196").

THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 2⅜ INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

WHEN TRANSFORMER BASES ARE USED, WIRE CONEECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

(1) 4" x 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) ¼" X ¾" - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.

(2) GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1⅜" HOLE IN POLE SHAFT FOR WIRING.

(3) CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.

(4) FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.

(5) SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND THE TRANSFORMER BASE.

(6) INTERNAL DUMBBELL-TYPE VIBRATION DAMPER.

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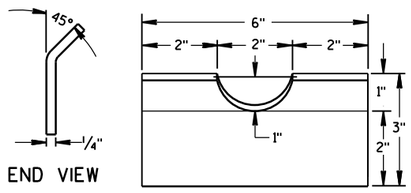
S.D.D. 9 E 1-12d

POLE MONTINGS FOR
LIGHTING UNITS, TYPE 5
(30 FEET)

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DEPARTMENT OF TRANSPOI

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S.D.D. 9 E 1-12d

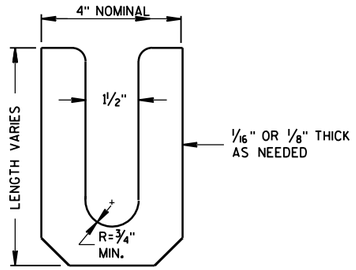


END VIEW

FRONT VIEW

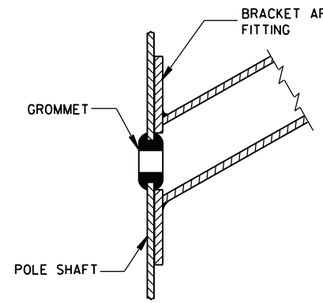
RECTANGULAR CLAMP SHIM

(4 TO A SET)

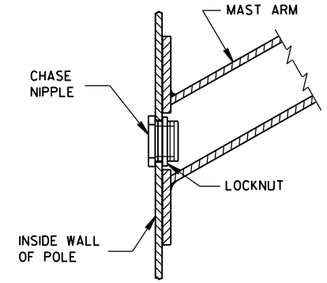


LEVELING SHIM (15)

SHALL BE ALUMINUM



TYPICAL APPLICATION OF GROMMET IN POLE SHAFT



TYPICAL APPLICATION OF CHASE NIPPLE IN POLE SHAFT

GENERAL NOTES

CLAMP BOLT-NUT TIGHTENING TORQUE SHALL BE INDICATED BY INDENT STAMPING (1/2 INCH NUMERALS AND LETTERS) OR WEATHERPROOF PRINTING ON THE INSIDE OF THE CLAMP THAT IS WELDED TO THE ARM MEMBER.

(10) 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP.
6.625" I.D. FOR TROMBONE MAST ARM CLAMP.

(11) INDIVIDUAL BASE PLATE ANCHOR ROD COVERS. (4 REQUIRED)

(12) BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR RODS.

(13) OUTSIDE SHIM DIAMETER - (4.5" O.D. FOR LUMINAIRE MAST ARM)
(6.625" O.D. FOR TROMBONE MAST ARM)

(14) VARIABLE SHIM THICKNESS - (0.10", 0.25", 0.35", 0.53" OR 0.70")

SHIM THICKNESS FOR TROMBONE MAST ARMS MAY BE TYPICALLY 0.25", 0.35", 0.53" OR 0.70".

SHIM THICKNESS FOR LUMINAIRE MAST ARMS MAY BE TYPICALLY 0.10", 0.25" OR 0.35".

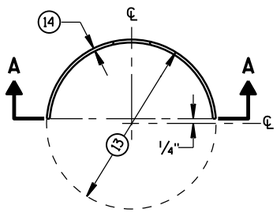
SHIM MATERIAL SHALL BE ALUMINUM ALLOY.

SHIM THICKNESS SHALL BE IMPRESSED INTO EACH SHIM. NUMERALS SHALL BE 1/4" HIGH AND LEGIBLE.

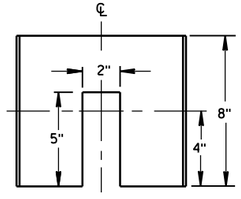
THE CONTRACTOR SHALL SUBMIT TWO COPIES OF ALL SHIM SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.

(15) LEVELING SHIMS, DESIGNED FOR THE PURPOSE, SHALL BE USED WHEN PLUMBING POLES. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE. LEVELING SHIMS SHALL BE USED ONLY BETWEEN THE TOP OF THE CONCRETE BASE AND A METALLIC BASE PLATE.

SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



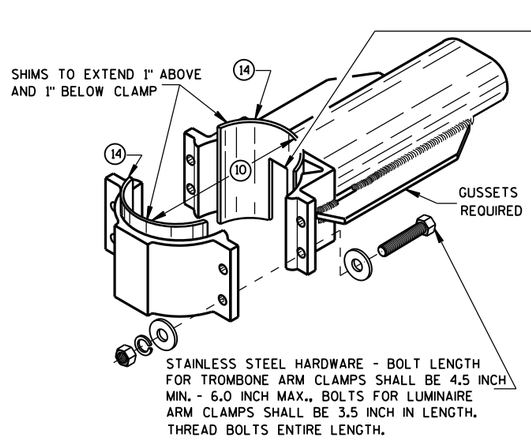
PLAN VIEW



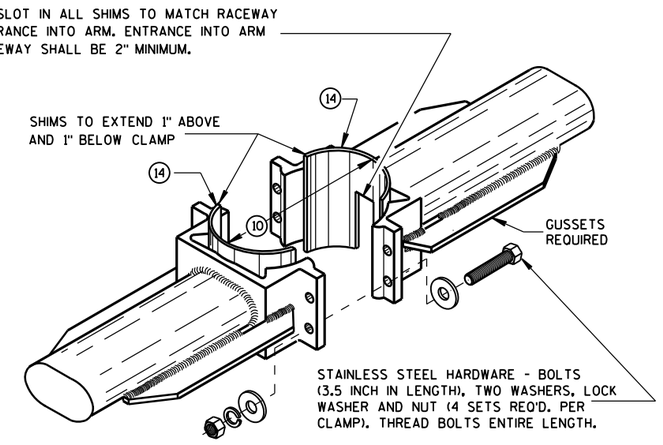
SECTION A-A

CIRCULAR CLAMP SHIM

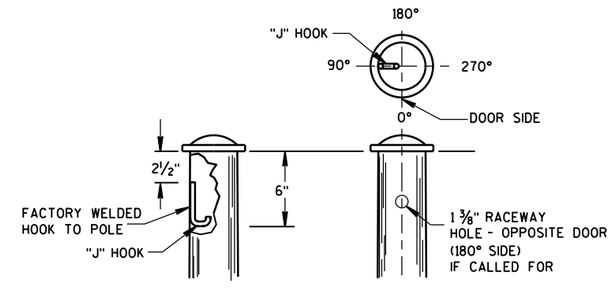
(2 TO A SET)



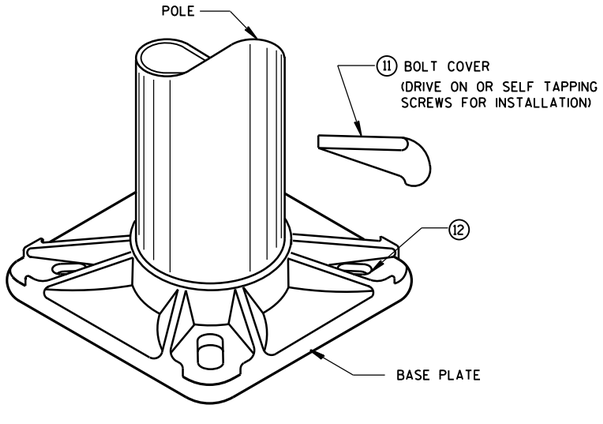
TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP



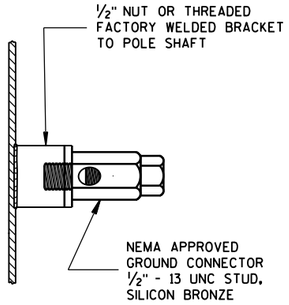
TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS

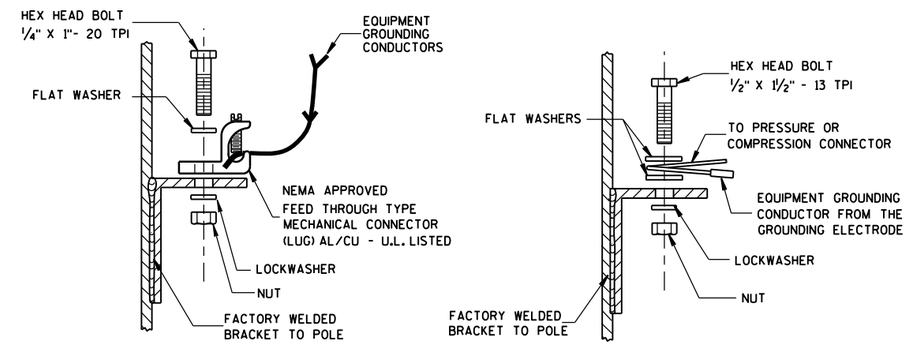


TYPICAL "J" HOOK LOCATION



BASE PLATE





TYPICAL GROUNDING CONNECTIONS

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

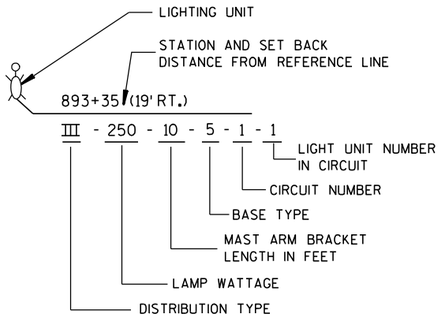
HARDWARE DETAILS FOR POLE MOUNTINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

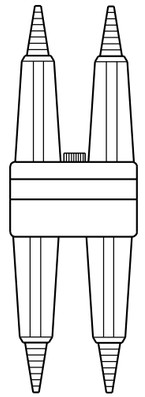
APPROVED
2/7/2013 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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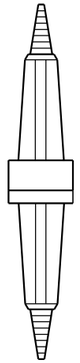
S.D.D. 9 E 1-12g



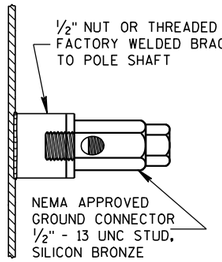
LIGHTING UNIT CODE
(TYPICAL)

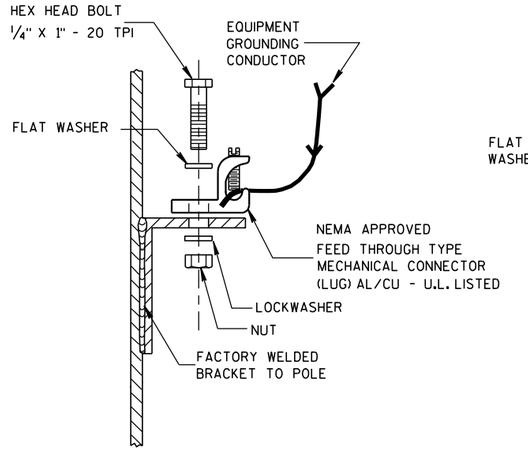


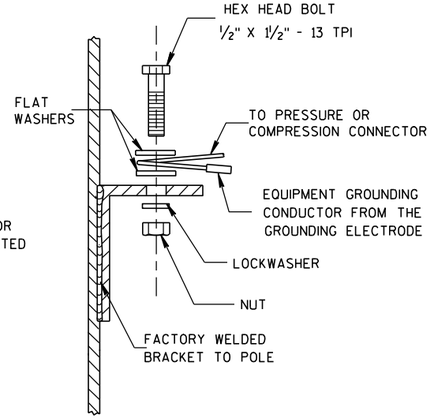
DETAIL "A"
BREAKAWY
DOUBLE POLE WITH
WATERPROOF
INSULATING BOOT



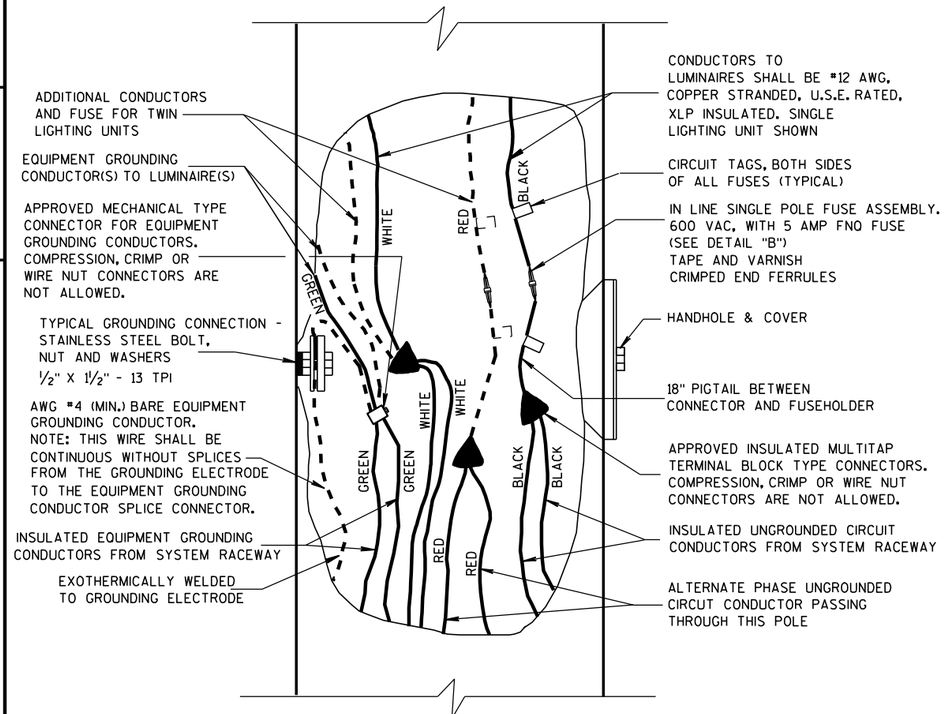
DETAIL "B"
BREAKAWY
SINGLE POLE WITH
WATERPROOF
INSULATING BOOT



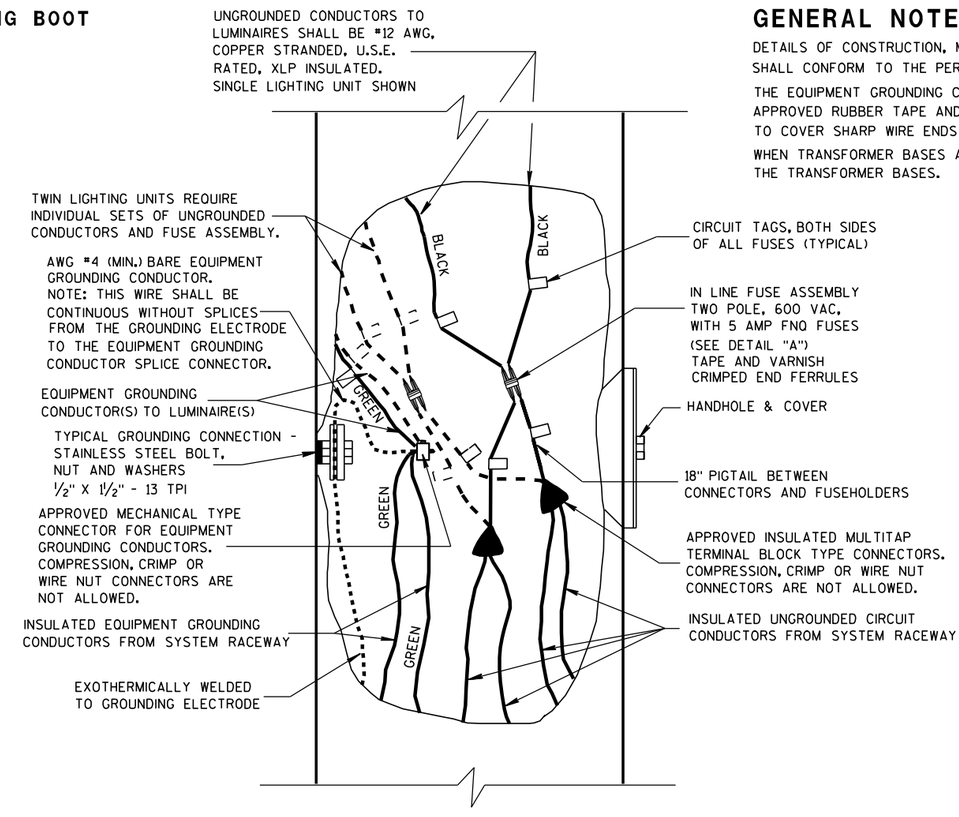




TYPICAL GROUNDING CONNECTIONS
NUT, BOLT, WASHERS AND LOCKWASHERS SHALL BE STAINLESS STEEL



3 WIRE - 120, 240 OR 480 VAC (UNGROUNDED CONDUCTOR) WITH GROUNDED CONDUCTOR AND WITH EQUIPMENT GROUNDING CONDUCTOR



2 WIRE - 240 OR 480 VAC (UNGROUNDED CONDUCTORS) WITH EQUIPMENT GROUNDING CONDUCTOR

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

THE EQUIPMENT GROUNDING CONNECTOR SHALL BE TAPED WITH 3 WRAPS (MINIMUM) OF APPROVED RUBBER TAPE AND THEN 3 WRAPS (MINIMUM) OF APPROVED VINYL TAPE TO COVER SHARP WIRE ENDS AFTER THE CONNECTION IS COMPLETED.

WHEN TRANSFORMER BASES ARE USED, ALL WIRING CONNECTIONS SHALL OCCUR WITHIN THE TRANSFORMER BASES.

NON-FREEWAY LIGHTING UNIT POLE WIRING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

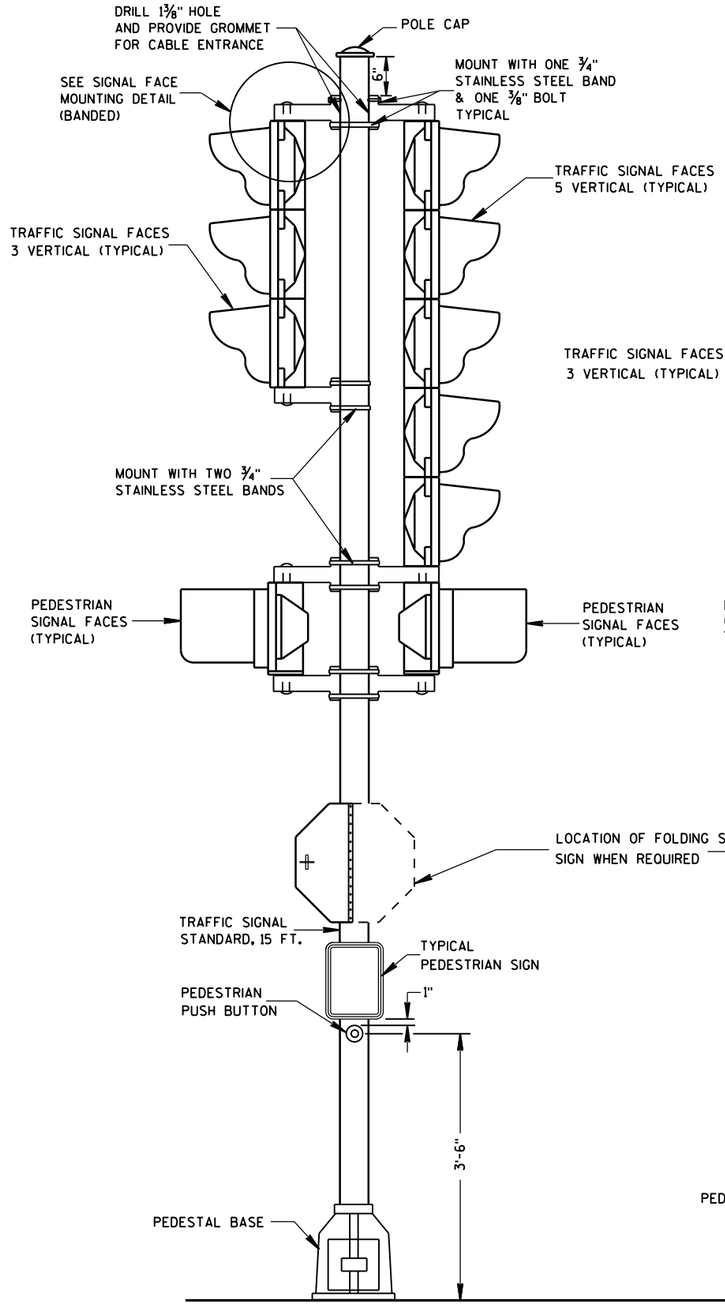
3/2/2011 — DATE

/S/ Thomas J. Gosnine — STATE ELECTRICAL ENGI

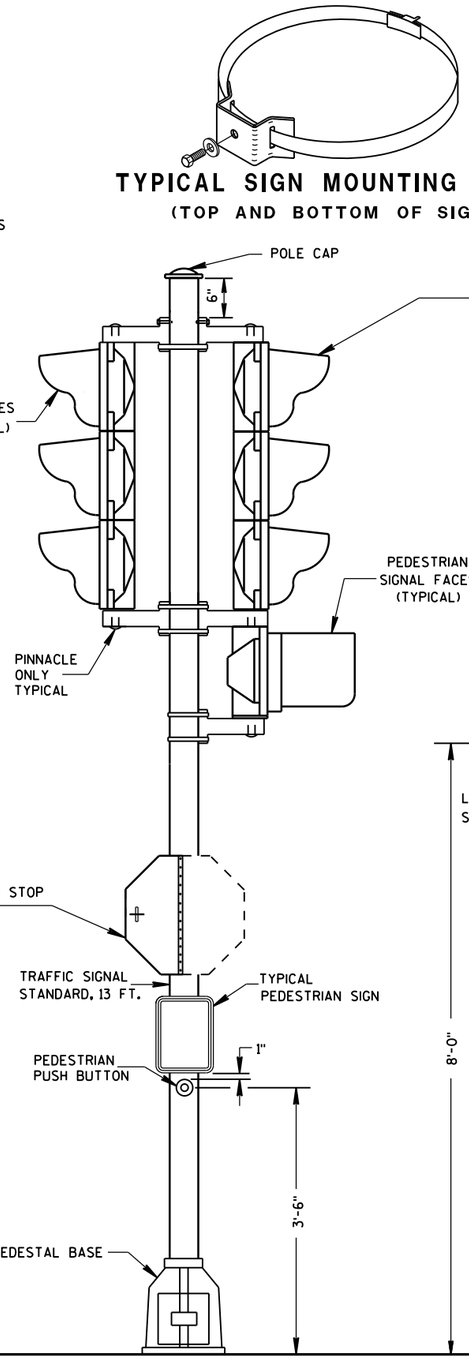
HWYS

FHWA

6
S.D.D. 9 E 3-4

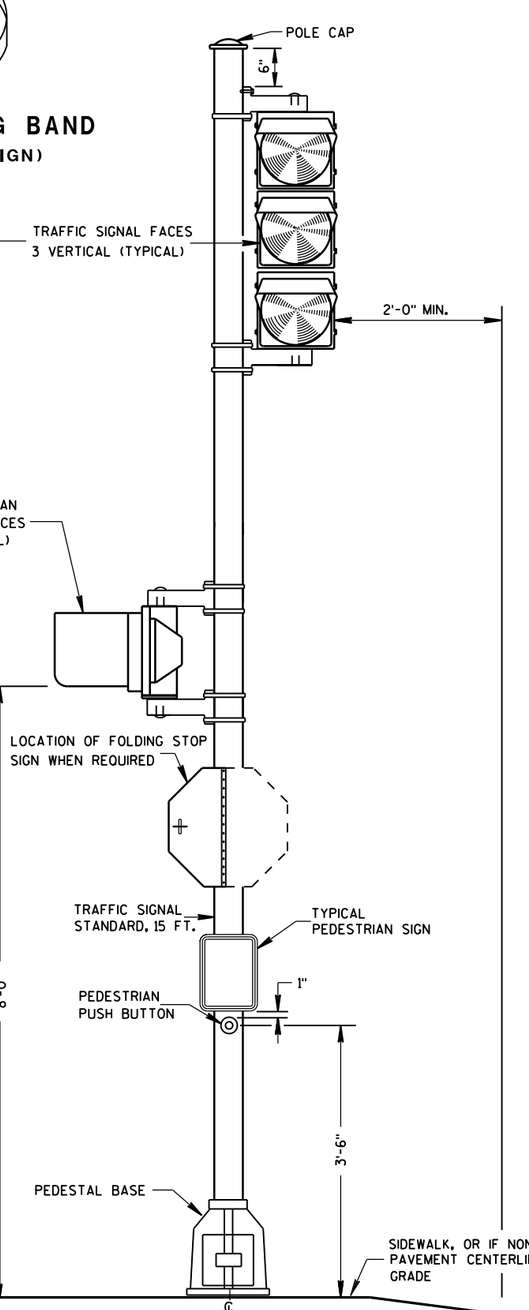


TRAFFIC SIGNAL STANDARD-15 FT.



TRAFFIC SIGNAL STANDARD-13 FT.

TYPICAL SIGN MOUNTING BAND
(TOP AND BOTTOM OF SIGN)



TRAFFIC SIGNAL STANDARD-15 FT.
3M MOUNTING (TYPICAL)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

SEE THE SIGNAL PLAN FOR REQUIRED SIGNAL FACE SIZES.

ALL PEDESTAL BASES SHALL BE MOUNTED ON CONCRETE BASE - TYPE 1.

FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIAL PROVISIONS.

POLYCARBONATE MOUNTING BRACKETS SHALL BE USED.

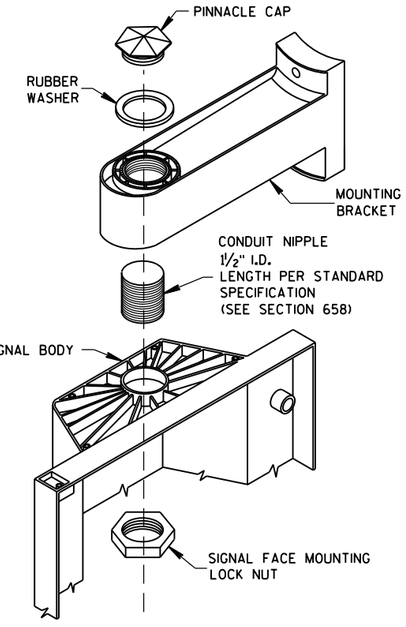
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

OPTICALLY PROGRAMMED SIGNAL FACES SHALL BE MASKED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, AND UNDER THE DIRECTIONS OF THE REGION TRAFFIC ENGINEER.

FOLDING STOP SIGNS SHALL BE IN ACCORDANCE WITH THE MUTCD AND/OR THE LATEST WISCONSIN SUPPLEMENT. THE SIGNS SHALL BE SIZED AND LOCATED AS CALLED FOR IN IN THE PLANS.

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.

FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.



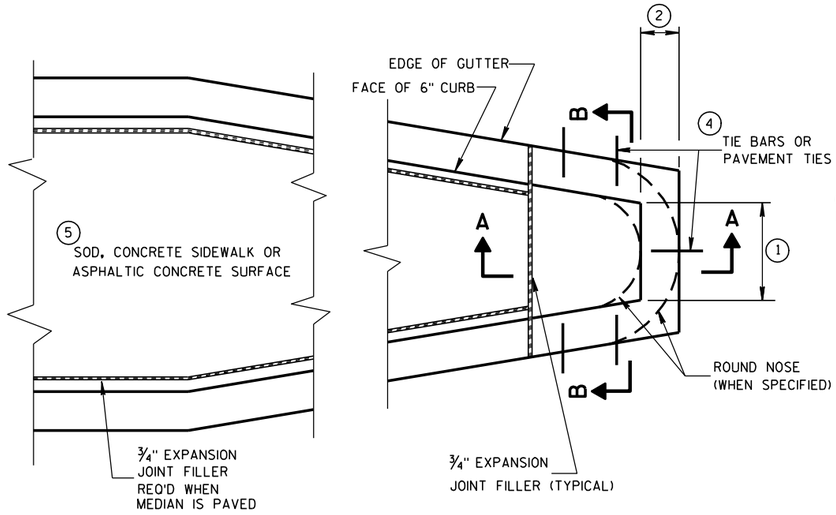
SIGNAL FACE MOUNTING DETAIL
(BANDED)

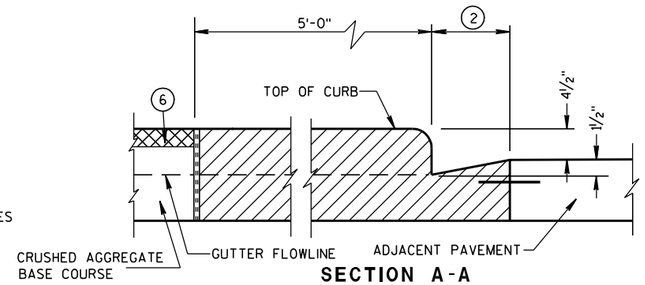
TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

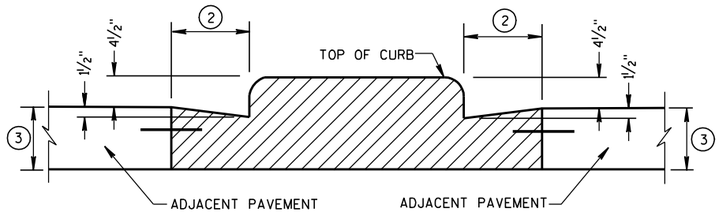
APPROVED
2/28/2013 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL 230
FHWA

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S.D.D. 9 E 6-5





SECTION A-A



SECTION B-B

CONCRETE MEDIAN BLUNT NOSE DETAIL

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.

(1) SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).

(2) WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.

(3) DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:

(1) NEW OR EXISTING CONCRETE PAVEMENT.

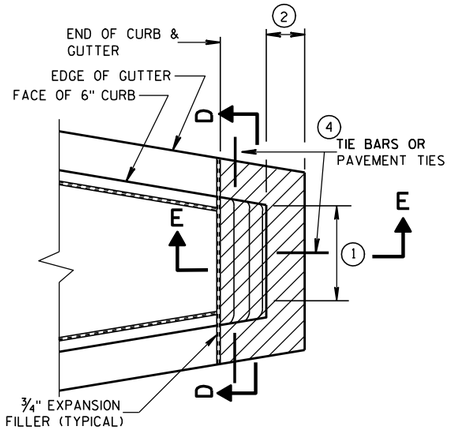
(2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.

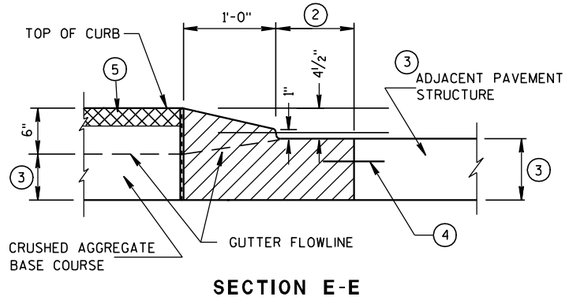
(3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

(4) TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.

PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

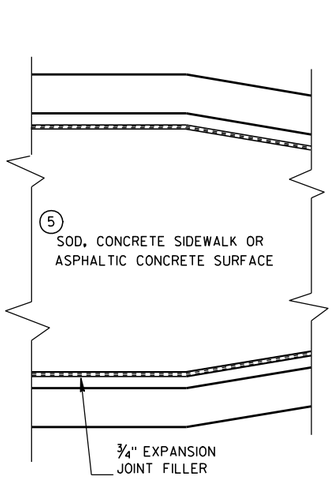
(5) SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

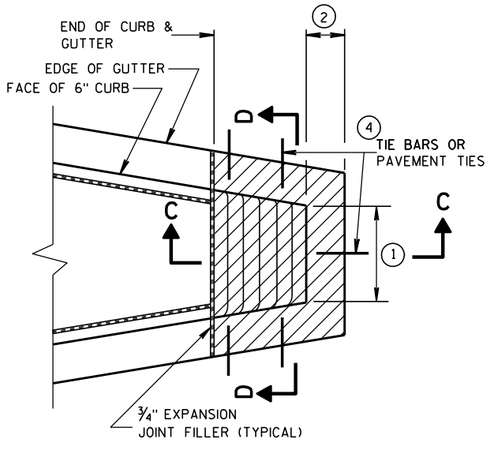




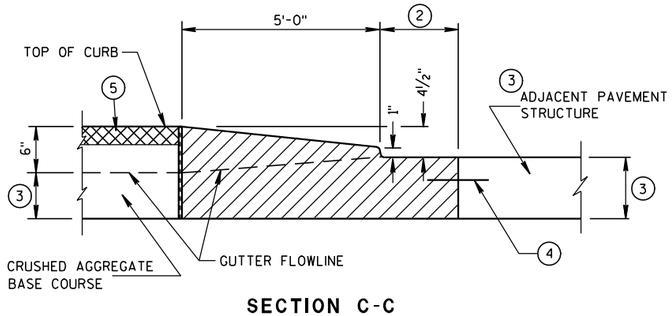
SECTION E-E

CONCRETE MEDIAN SLOPED NOSE TYPE 2

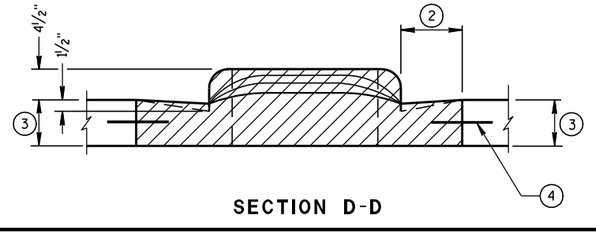




CONCRETE MEDIAN SLOPED NOSE TYPE 1



SECTION C-C



SECTION D-D

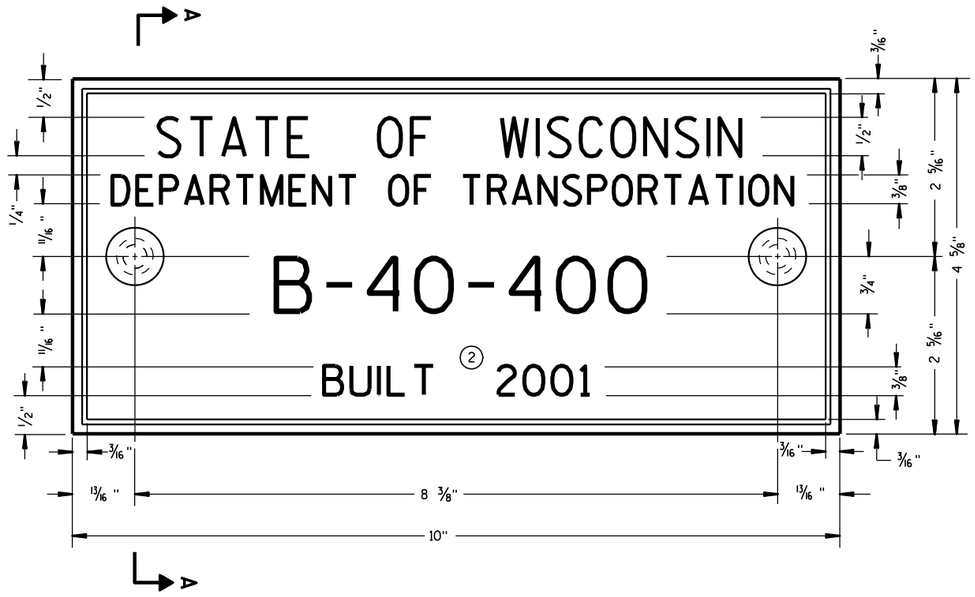
CONCRETE MEDIAN NOSE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 6/8/2006 DATE	/S/ Jerry H. [illegible] ROADWAY STANDARDS ENGINEER 231 NT
FHWA	

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S.D.D. 11 B 2-2

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S.D.D. 11 B 2-2



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

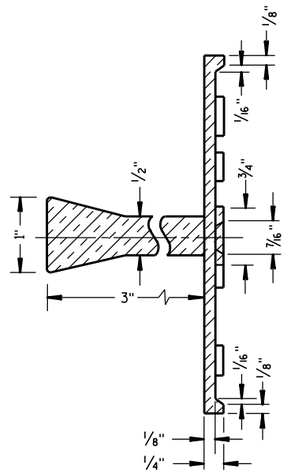
GENERAL NOTES

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.

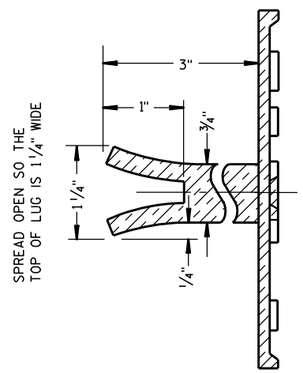
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(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

FOR MULTI-UNIT STRUCTURES LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

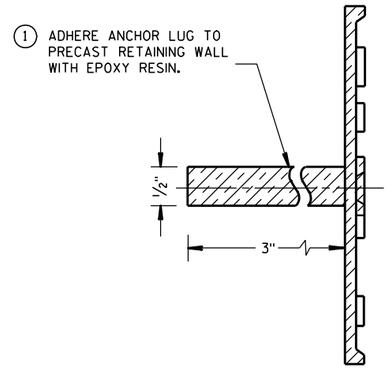
COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES



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 232 ENGINEER

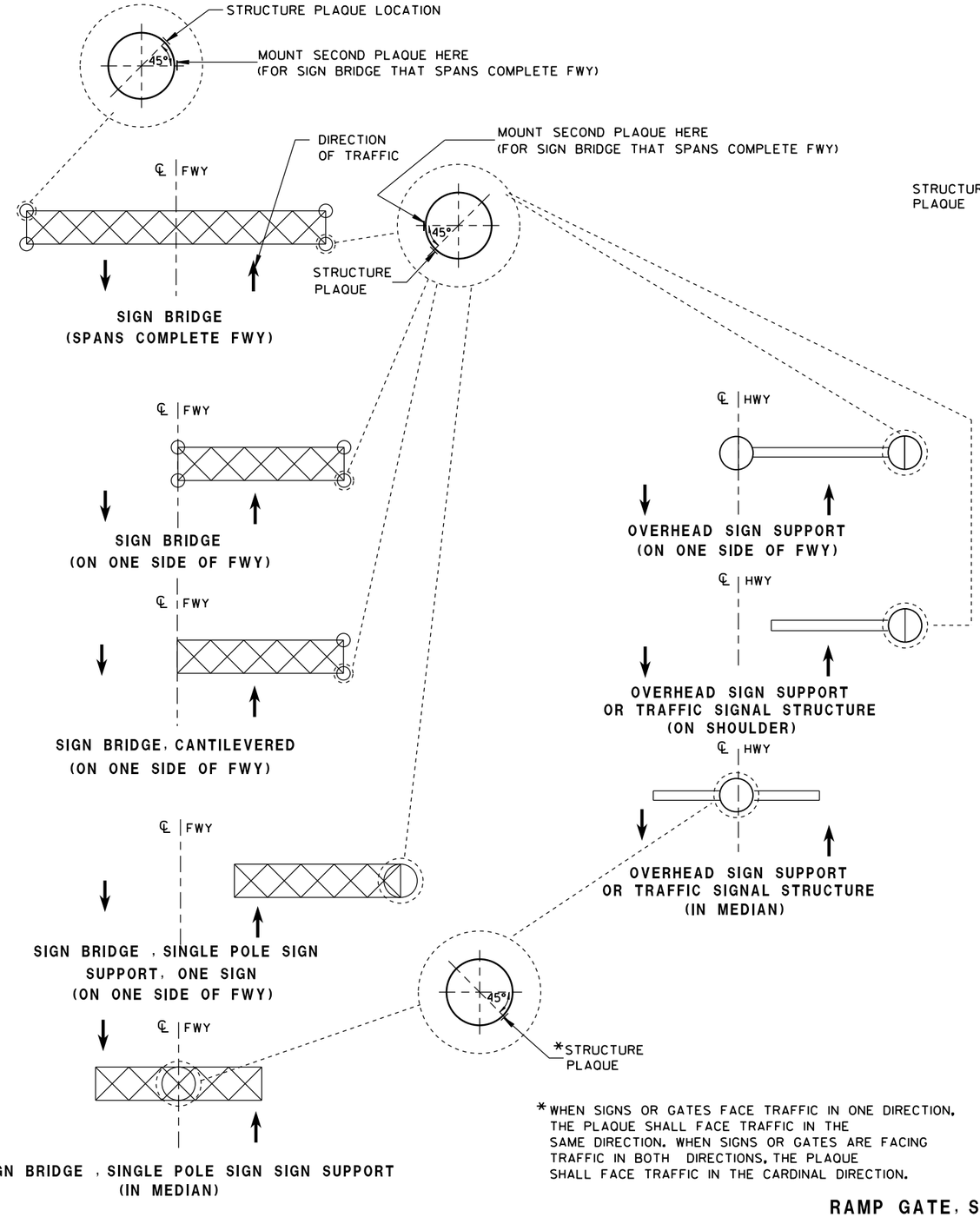
FHWA

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S.D.D. 12 A 3-10

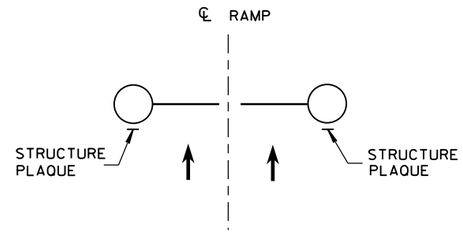
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S.D.D. 12 A 3-10

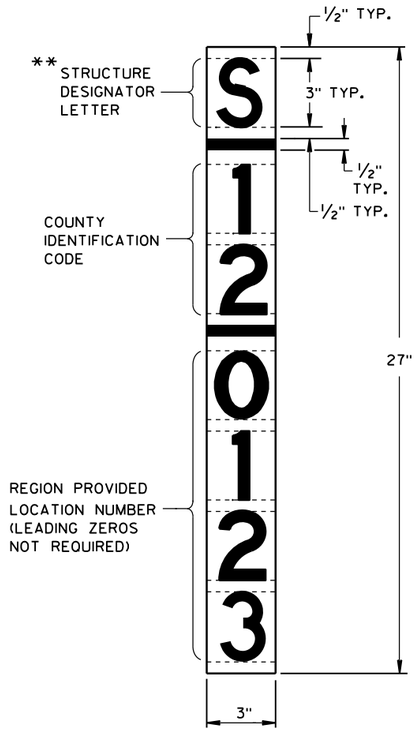


* WHEN SIGNS OR GATES FACE TRAFFIC IN ONE DIRECTION, THE PLAQUE SHALL FACE TRAFFIC IN THE SAME DIRECTION. WHEN SIGNS OR GATES ARE FACING TRAFFIC IN BOTH DIRECTIONS, THE PLAQUE SHALL FACE TRAFFIC IN THE CARDINAL DIRECTION.

LOCATION OF RAMP GATE, SIGN BRIDGE, OVERHEAD SIGN SUPPORT & TRAFFIC SIGNAL STRUCTURE PLAQUES



**RAMP GATE
(ACROSS FWY ON-RAMP)**



** LETTER "G" UTILIZED FOR RAMP GATES. LETTER "S" UTILIZED FOR SIGN BRIDGES, OVERHEAD SIGN SUPPORTS, AND TRAFFIC SIGNALS.

RAMP GATE, SIGN BRIDGE, OVERHEAD SIGN SUPPORT AND TRAFFIC SIGNAL STRUCTURE PLAQUE FOR SIGN BRIDGES AND OVERHEAD SIGN SUPPORT WHICH ARE NOT STRUCTURE MOUNTED

GENERAL NOTES

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PLAQUES SHALL BE INCIDENTAL TO ALL NEW INSTALLATIONS.

IF THE PROPOSED SIGN BRIDGE OR OVERHEAD SIGN SUPPORT IS REPLACING AN EXISTING SIGN BRIDGE OR OVERHEAD SIGN SUPPORT, A NEW IDENTIFICATION PLAQUE WILL BE REQUIRED.

FASTEN TOP, CENTER AND BOTTOM OF PLAQUE TO POLE OR OTHER LOCATION AS FOLLOWS:

GALVANIZED STEEL SHAFT - 3 STAINLESS STEEL POP RIVETS

A588 STEEL SHAFT - SHIM FOR DRAINAGE WITH STAINLESS WASHERS; FASTEN WITH STAINLESS SELF-TAPPING SCREWS

ALUMINUM SHAFTS - 3 ALUMINUM POP RIVETS

MOUNTING HEIGHT SHALL BE APPROXIMATELY 5.0' ABOVE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL OBSTRUCT.

PLAQUE MATERIALS:

BASE - SHEET ALUMINUM, 0.060" THICK.

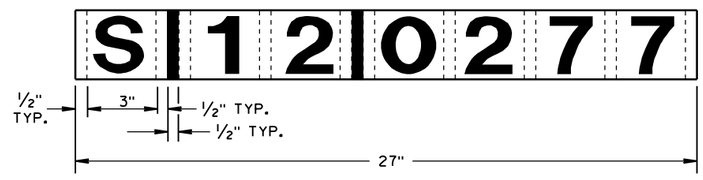
FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETROREFLECTIVE

LINES - BLACK, ½" WIDE, SELF-ADHESIVE

CHARACTERS:- BLACK, SELF ADHESIVE, SERIES "D", SIZE AS SHOWN.

FOR SIGN BRIDGES, STRUCTURE MOUNTED, THE STRUCTURE PLAQUE SHALL BE MOUNTED HORIZONTALLY AS SHOWN ON THE DRAWING. THE STRUCTURE PLAQUE SHALL BE MOUNTED HORIZONTALLY TO THE BACK OF THE SIGN, BETWEEN THE ALUMINUM EXTRUSIONS, NEAR THE TOP LEFT HAND CORNER OF THE SIGN. THE BASE MATERIAL SHALL BE OMITTED AND THE FACE ADHERED DIRECTLY TO THE ALUMINUM SURFACE. PRIOR TO ADHERING THE MATERIAL, THE ALUMINUM SURFACE SHALL BE SMOOTH, CLEAN AND DRY.

WHERE SIGN BRIDGE ILLUMINATION IS PROVIDED, THE STRUCTURE MUST ALSO HAVE A SIGN BRIDGE CIRCUIT PLAQUE AS SHOWN IN THE ELECTRICAL DETAILS.



IDENTIFICATION PLAQUE FOR SIGN BRIDGE, STRUCTURE MOUNTED

STRUCTURE IDENTIFICATION PLAQUES, RAMP GATES, SIGN BRIDGES, OVERHEAD SIGN SUPPORTS, & TRAFFIC SIGNALS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

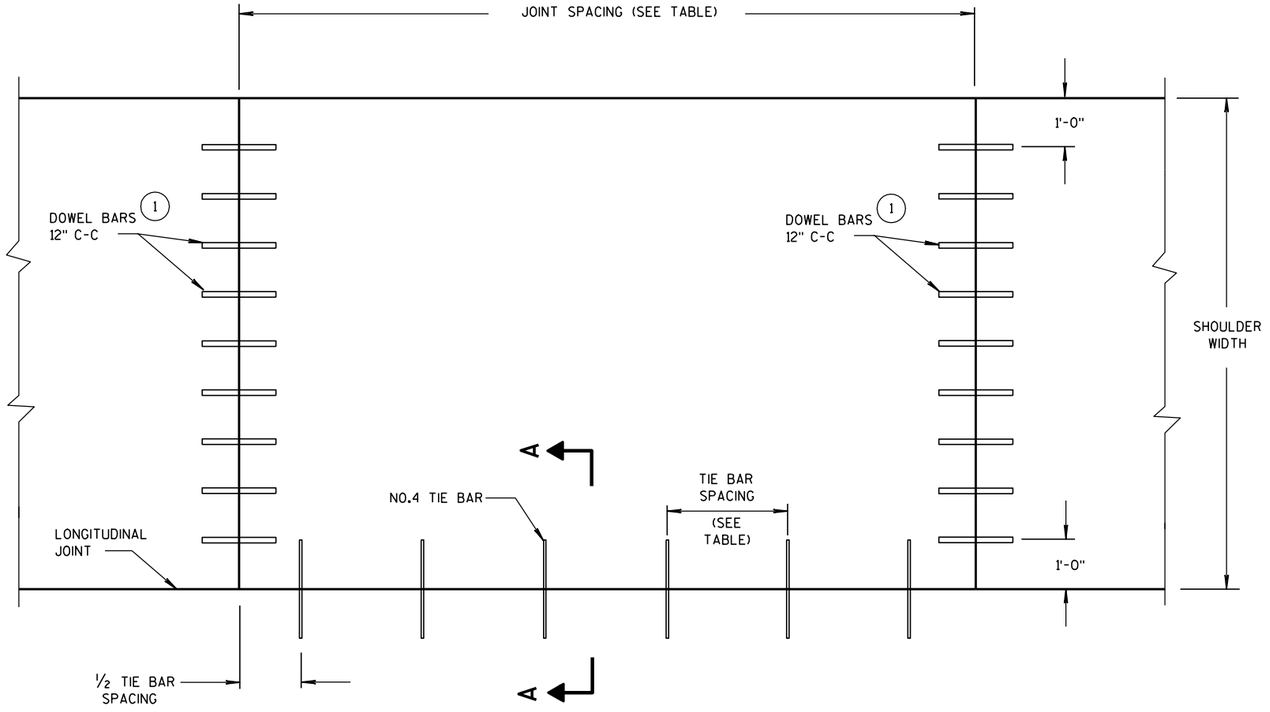
APPROVED
12/4/2012 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

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S.D.D. 12 A 4-3

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S.D.D. 12 A 4-3



PLAN VIEW

CONCRETE PAVEMENT SHOULDER

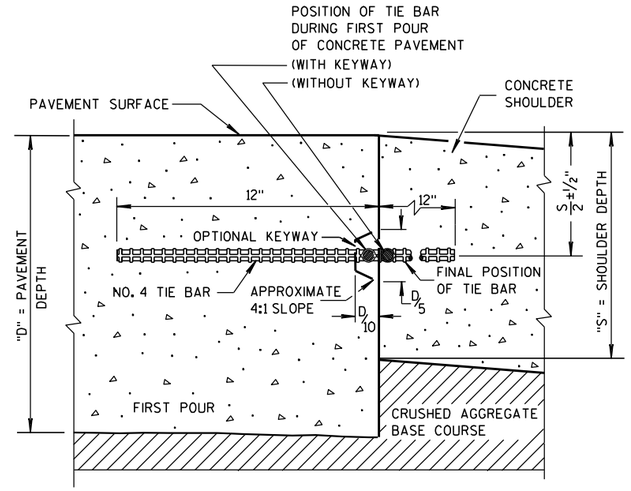
GENERAL NOTES

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.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.



SECTION A-A

LONGITUDINAL CONSTRUCTION JOINT

PAVEMENT TYPE OF TRAFFIC LANES	TIE BAR SPACING	SHOULDER JOINT SPACING
NON-REINFORCED	30"	MATCH JOINT SPACING OF ADJACENT TRAFFIC LANE
CONTINUOUSLY REINFORCED	30"	15' FOR 6' TO 10' WIDE SHOULDERS
CONTINUOUSLY REINFORCED	36"	12' FOR 3' WIDE SHOULDERS

(1) **PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'

FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FOR THE AVERAGE THICKNESS OF THE CROSS SECTION.

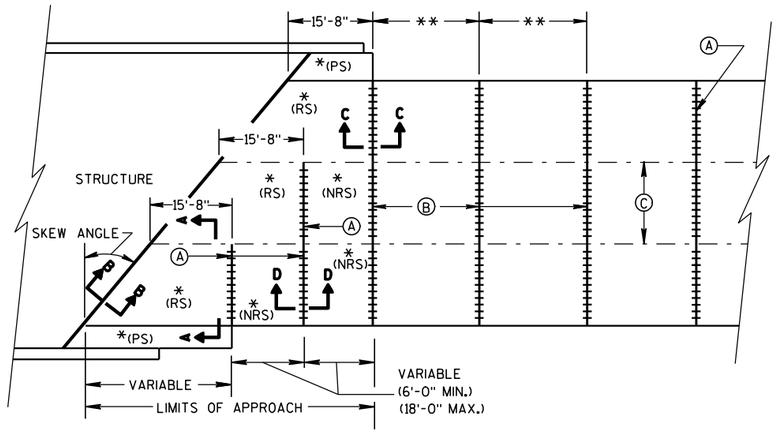
CONCRETE PAVEMENT SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

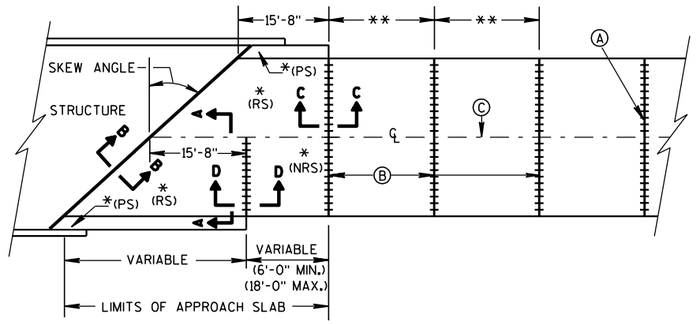
APPROVED
8/15/2011 — DATE
/S/ Deb Bischoff — PAVEMENT POLICY & D — INEER
FHWA

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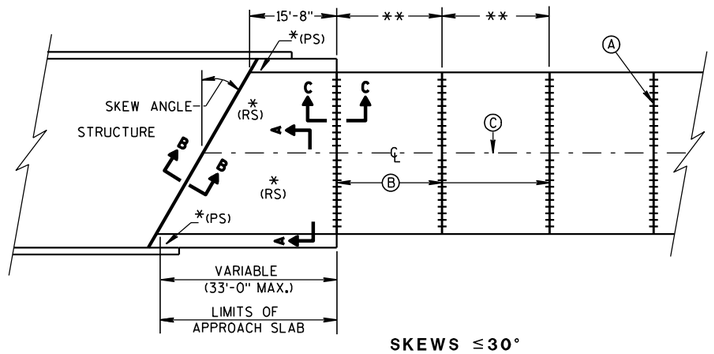
S.D.D. 13 A 3-5



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >30°
(PAVEMENT WIDTH ≤30')



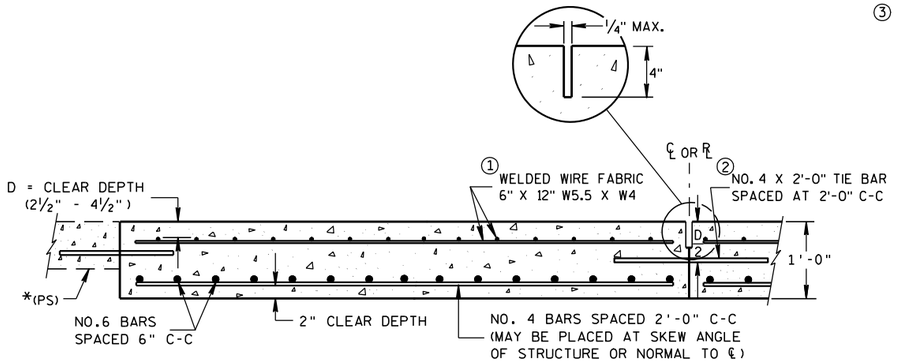
SKEWS ≤30°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

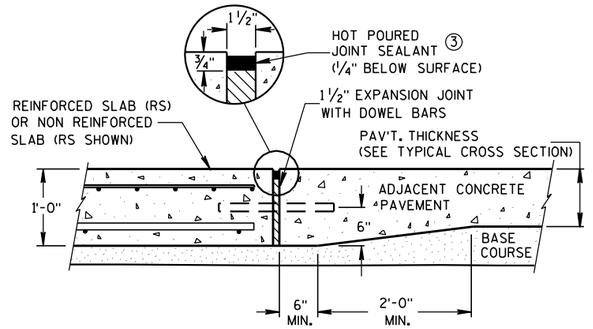
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

**STANDARD TRANSVERSE JOINT SPACING
(SEE SDD 13C4, SDD 13C11, & SDD 13C13)

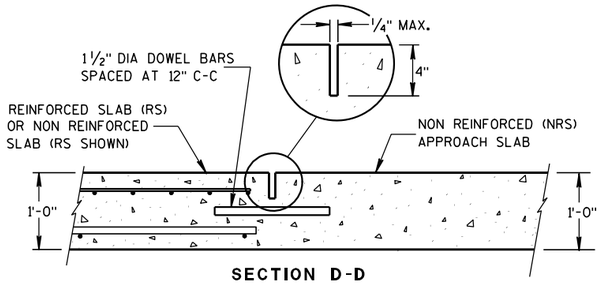
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄
Ⓑ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄
Ⓒ STANDARD LONGITUDINAL JOINT AND TIE BARS.



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

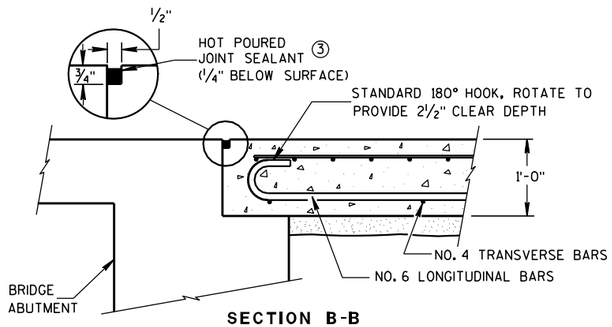
APPROACH SLABS ABUTTING AN HMA PAVEMENT OVER BASE COURSE DO NOT NEED TO BE DOWELED.

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.

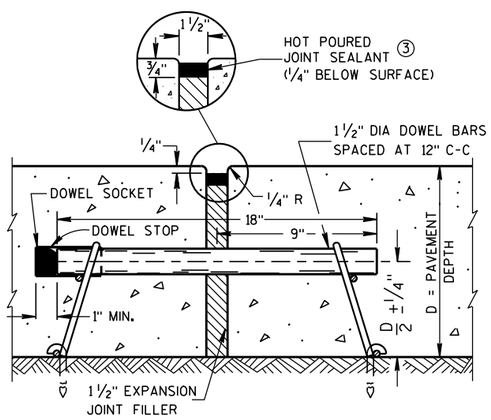
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

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

③ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT

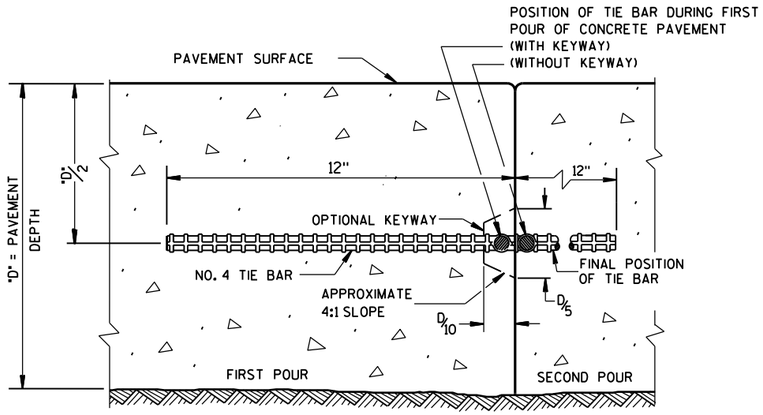


EXPANSION JOINT

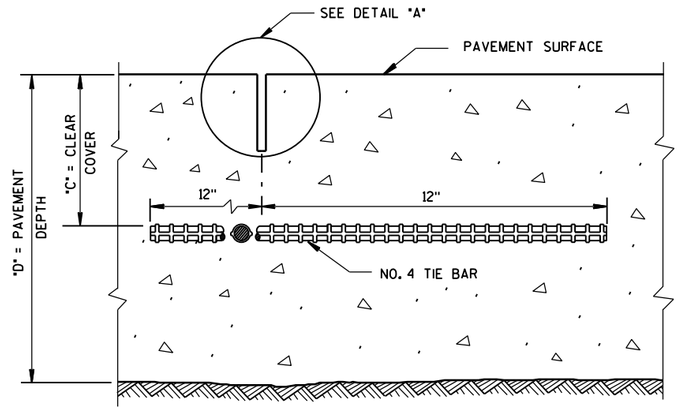
CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/11/2009 — DATE
/S/ Deb Bischoff — PAVEMENT POLICY & DESIGN ENGINEER
FHWA



CONSTRUCTION JOINT



SAWED JOINT

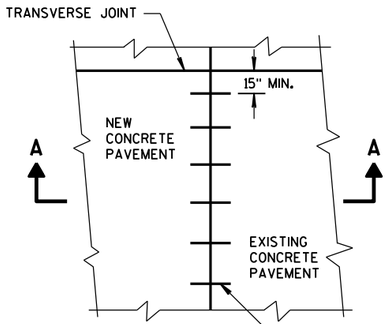
GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

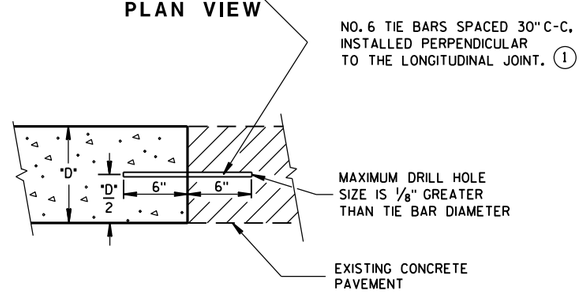
CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

(1) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

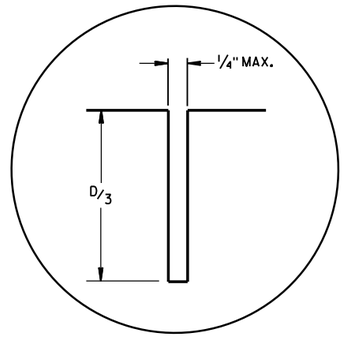


PLAN VIEW



SECTION A-A

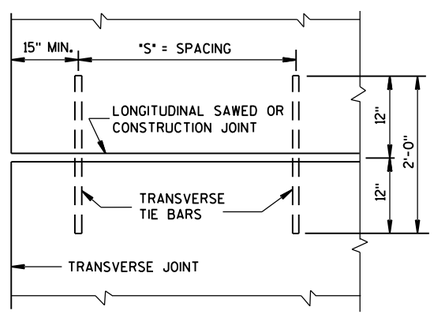
LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT



DETAIL "A"

TIE BAR TABLE

PAVEMENT DEPTH "D"	CLEAR COVER "C"	MAXIMUM TIE BAR SPACING "S"	
		PAVEMENT WIDTH	
		24' OR 26'	≥ 30'
6, 6 1/2"	3"±1/2"	48"	42"
7, 7 1/2"	3 1/4"±1"	45"	36"
8, 8 1/2"	3 3/4"±1"	39"	30"
9, 9 1/2"	4 1/4"±1"	33"	27"
10, 10 1/2"	4 3/4"±1"	30"	24"
11, 11 1/2"	5 1/4"±1"	27"	21"
12"	5 3/4"±1"	24"	21"



PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

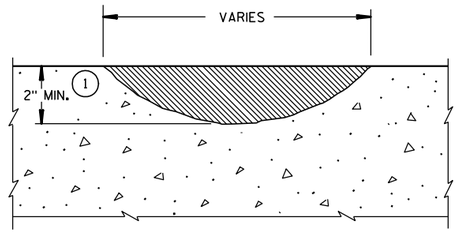
5-3-2013
DATE

/S/ Deb Bischoff
PAVEMENT POLICY & DE ENGINEER

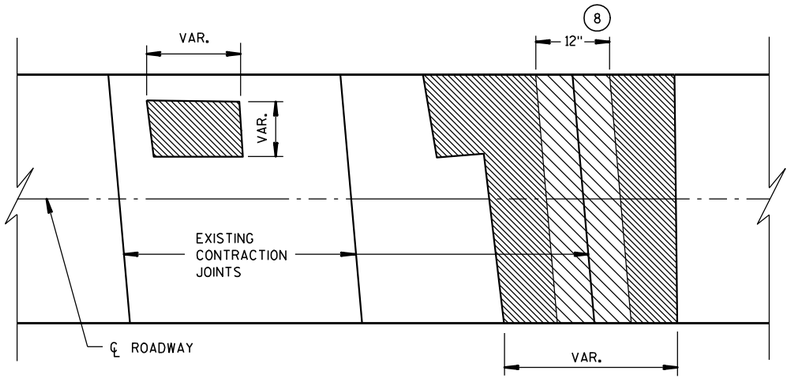
FHWA

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S.D.D. 13 C 1-16

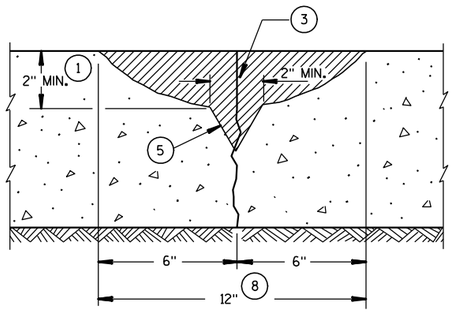


PROFILE VIEW

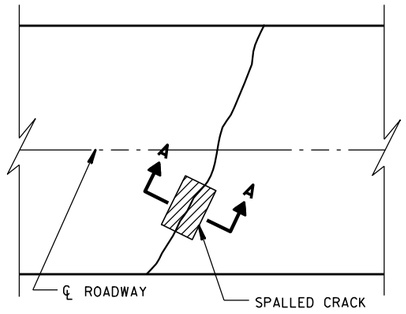


PLAN VIEW

SURFACE REPAIR



SECTION A-A

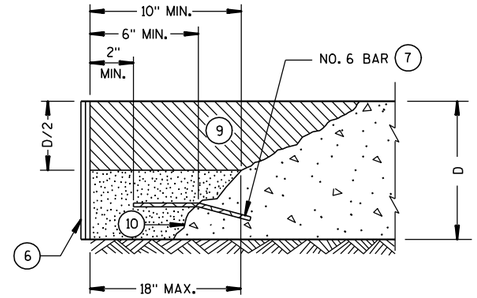


PLAN VIEW

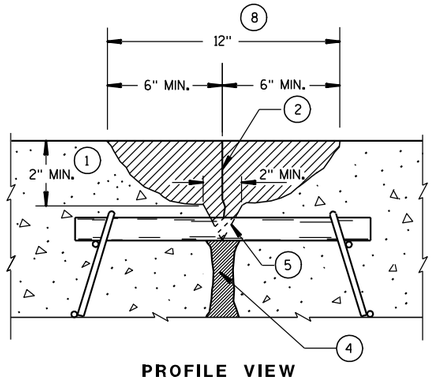
CRACK REPAIR

GENERAL NOTES

1. REMOVE ALL CONCRETE, TO LIMITS SHOWN, TO A MAXIMUM OF ½ THE PAVEMENT DEPTH OR TOP OF DOWELS.
2. IF REPAIR IS DEEPER THAN ANTICIPATED SAWCUT, COMPRESSION RELIEF MATERIAL MUST BE USED. THE THICKNESS OF COMPRESSION RELIEF MATERIAL MUST BE EQUAL TO OR GREATER THAN THE WIDTH OF THE JOINT OR CRACK (1/4"). THIS MATERIAL SHOULD EXTEND FULL DEPTH OF THE REPAIR.
3. COMPRESSION RELIEF MATERIAL MUST BE USED. THE THICKNESS OF COMPRESSION RELIEF MATERIAL MUST BE EQUAL TO OR GREATER THAN THE WIDTH OF THE JOINT OR CRACK (1/4"). THIS MATERIAL SHOULD EXTEND FULL DEPTH OF THE REPAIR.
4. CLEAN, DRY SAND WHEN NECESSARY.
5. REMOVE UNSOUND MATERIAL BY CHIPPING AT 1:1 SLOPE.
6. ¼" MINIMUM PREFORMED JOINT FILLER IF ADJACENT TO CONCRETE. EDGING REQUIRED. FULLY FORMED EDGE IF ADJACENT TO SHOULDER.
7. PAVEMENT TIES AS SHOWN. ALL EMBEDMENTS 6" MINIMUM AND INSTALLED WITH GROUT.
8. OVER 12" (NOMINAL WIDTH) WILL BE PAID AS SURFACE REPAIR.
9. PAID AS JOINT OR CRACK REPAIR.
10. FULL-DEPTH ADJUSTMENT SHALL BE CHIPPED TO BOTTOM OF PCC PAVEMENT AT 1:1 SLOPE.
11. BEYOND 18" WILL BE PAID AS SURFACE REPAIR.

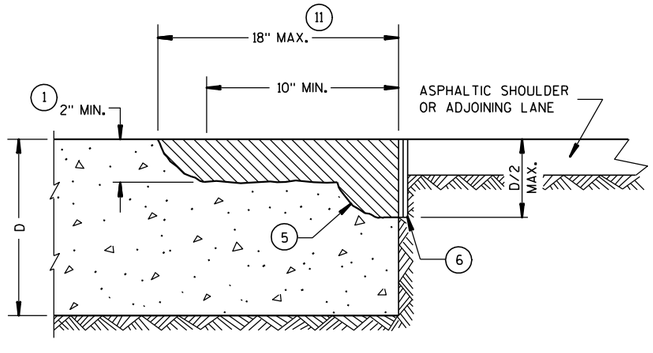


PROFILE VIEW

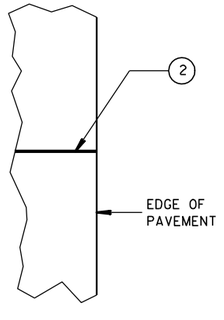


PROFILE VIEW

JOINT REPAIR

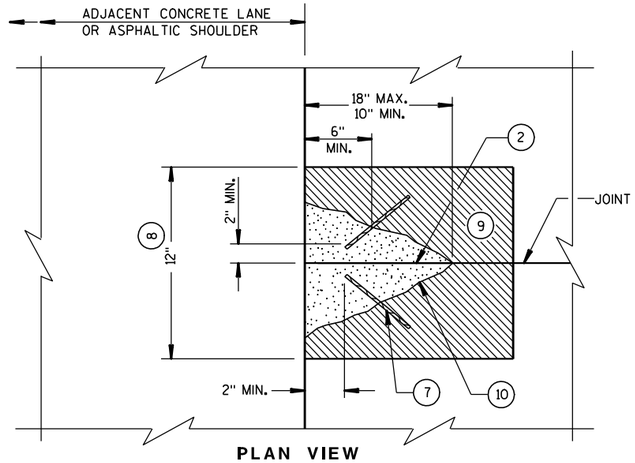


PROFILE VIEW



PLAN VIEW

EDGE REPAIR



PLAN VIEW

FULL DEPTH REPAIR ADJUSTMENT

CONCRETE PAVEMENT PARTIAL DEPTH REPAIR

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

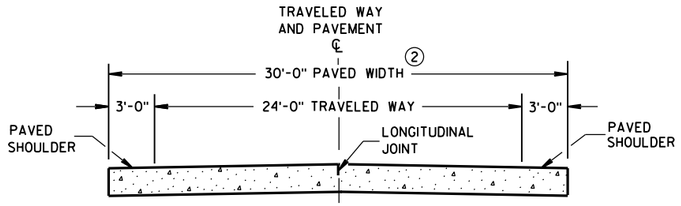
APPROVED
3/21/03 DATE
/S/ Bill Duckett PAVEMENT ENGR 237
FHWA

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S.D.D. 13 C 8-2

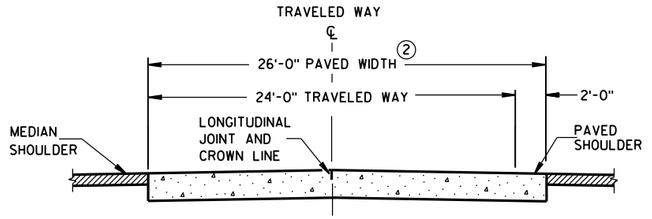
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S.D.D. 13 C 8-2

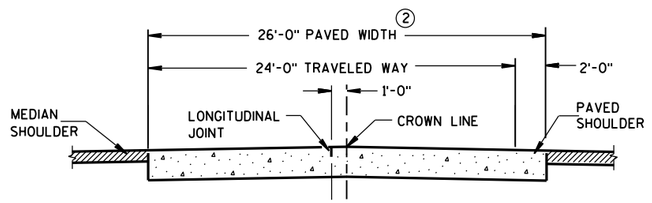


SECTION A-A ①

TWO-LANE TWO-WAY HIGHWAY



SECTION B-B



ALTERNATIVE SECTION B-B ①

DIVIDED HIGHWAY

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

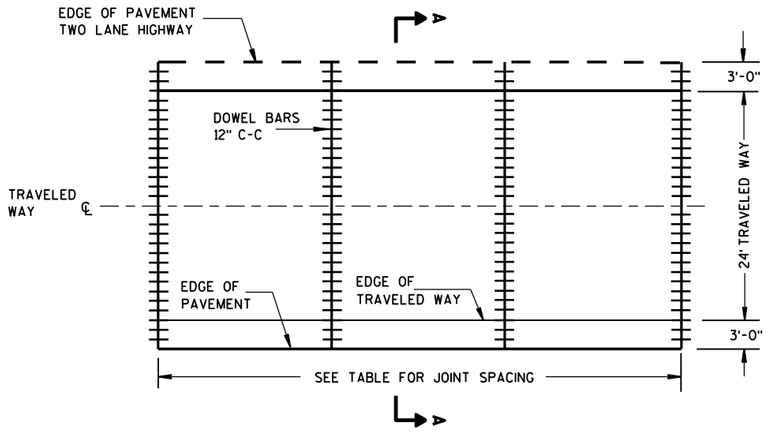
LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.

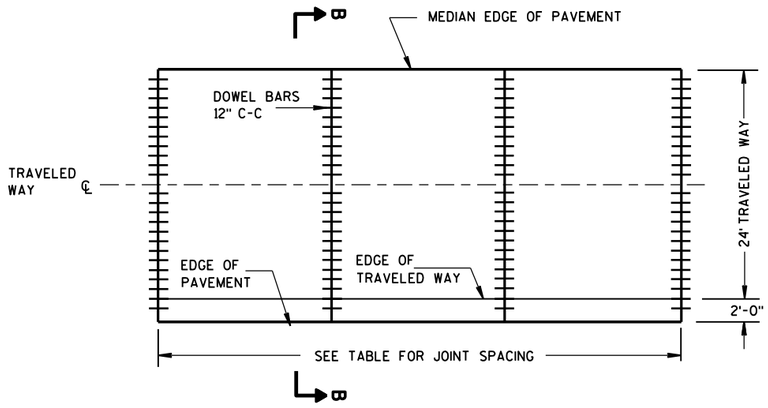
② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED PAVED SHOULDER AS CONCRETE PAVEMENT.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'



CONTRACTION JOINT LAYOUT
FOR TWO-LANE TWO-WAY HIGHWAY



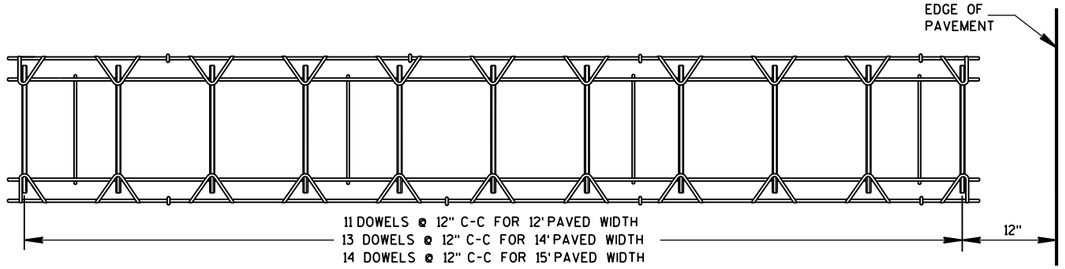
CONTRACTION JOINT LAYOUT
FOR DIVIDED HIGHWAY

RURAL DOWELED
CONCRETE PAVEMENT

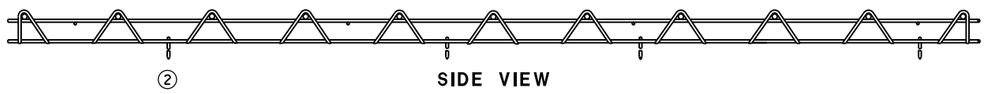
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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S.D.D. 13 C 11-11a



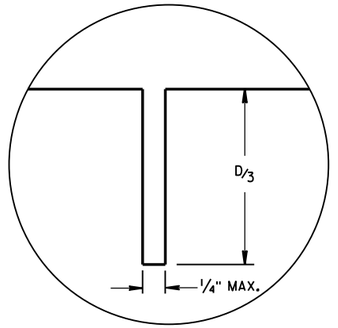
PLAN VIEW



SIDE VIEW

(NORMAL TO CENTERLINE)

CONTRACTION JOINT DOWEL ASSEMBLY ①



JOINT DETAIL

GENERAL NOTES

① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.

② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.

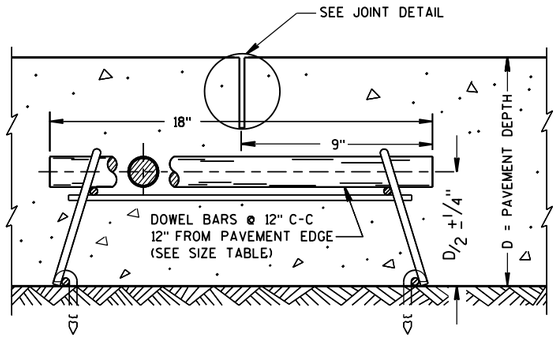
③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.

④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.

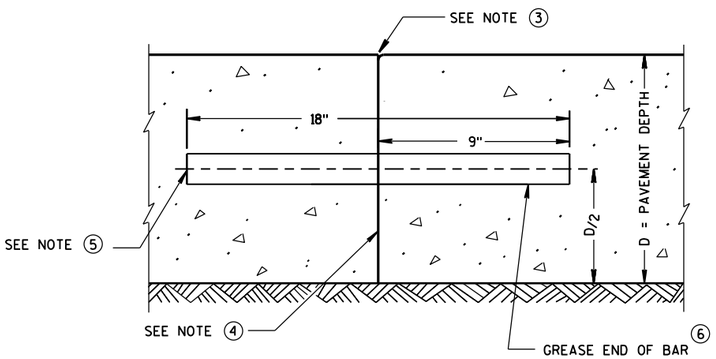
⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.

⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

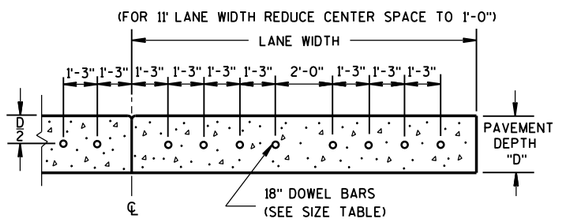
⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



DOWELED CONTRACTION JOINT



TRANSVERSE CONSTRUCTION JOINT



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦

RURAL DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/3/2013 DATE

/S/ Deb Bischoff
PAVEMENT POLICY & DE ENGINEER

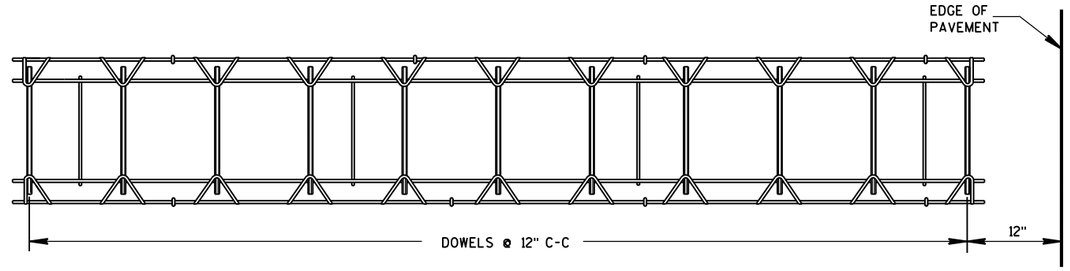
FHWA

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S.D.D. 13 C 11-11b

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S.D.D. 13 C 11-11b

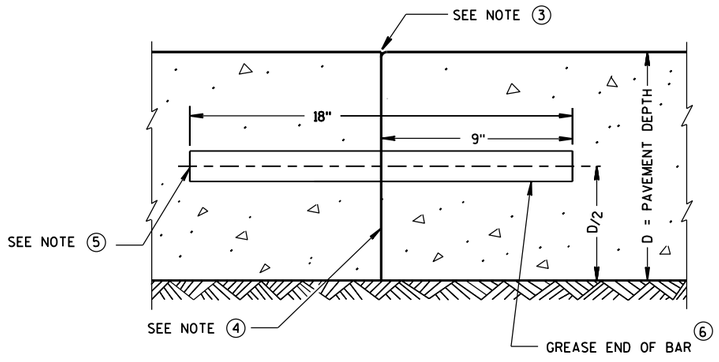


PLAN VIEW

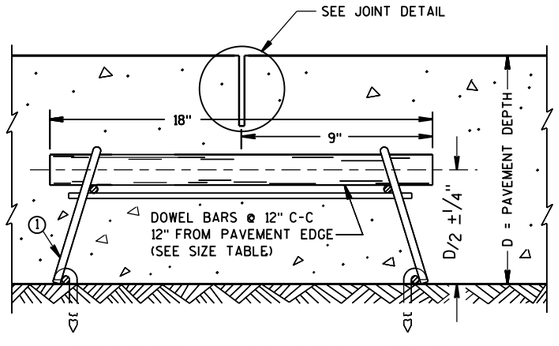


SIDE VIEW

CONTRACTION JOINT DOWEL ASSEMBLY ①



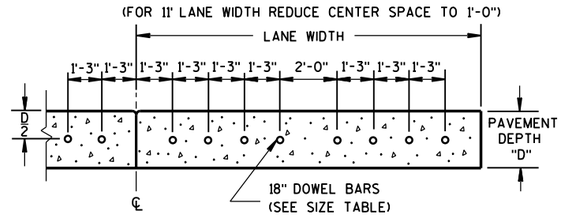
TRANSVERSE CONSTRUCTION JOINT



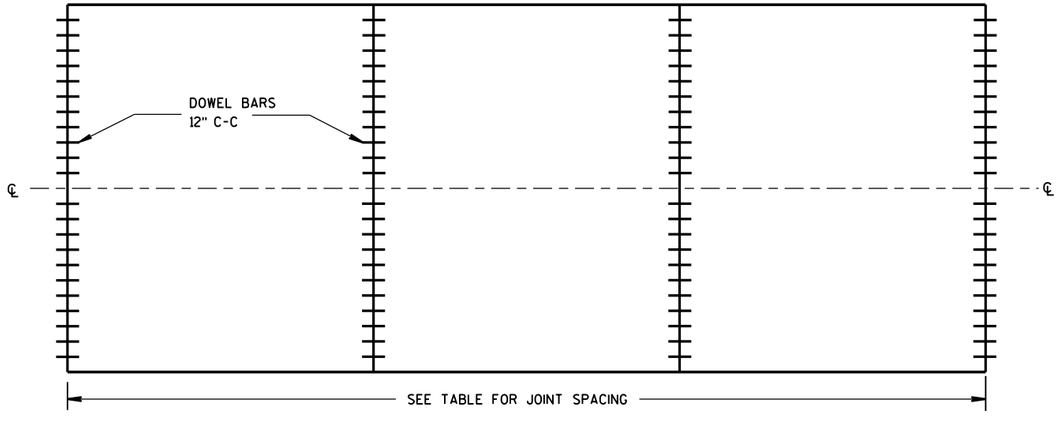
DOWELED CONTRACTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



CONTRACTION JOINT LOCATIONS

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE LONGITUDINAL JOINT AND THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

① **OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.**

② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.

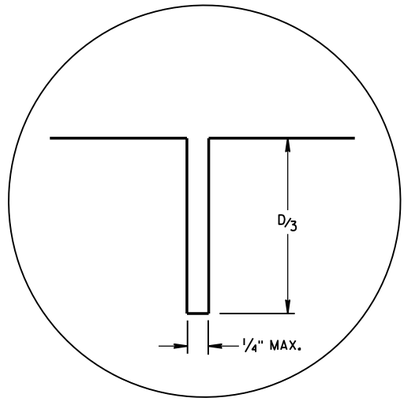
③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A ¼-INCH RADIUS AT FORMED JOINTS.

④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.

⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.

⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS ⅛-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



JOINT DETAIL

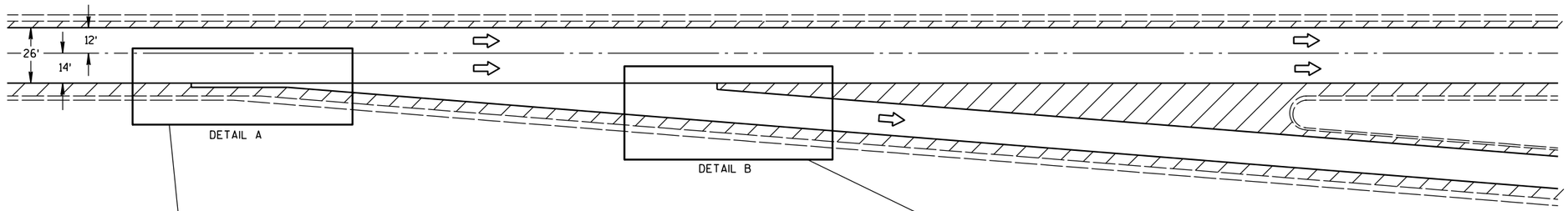
URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

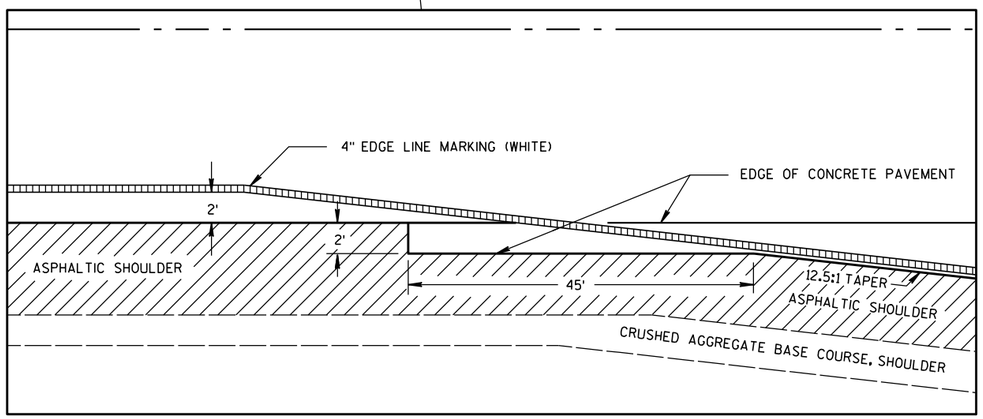
APPROVED
5/3/2013 DATE
/S/ Deb Bischoff
PAVEMENT POLICY & DE ENGINEER
FHWA

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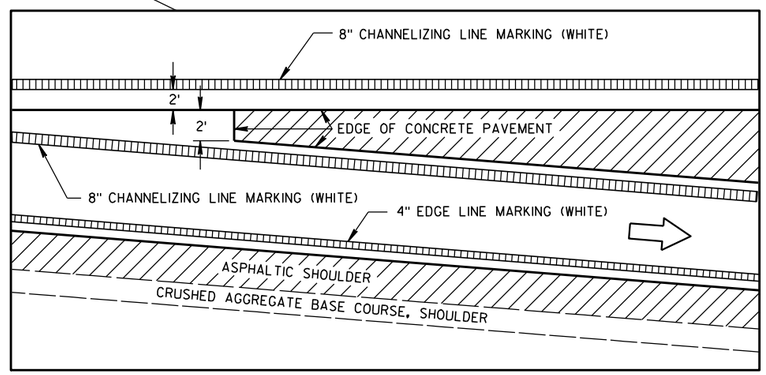
S.D.D. 13 C 13-8



EXIT RAMP DETAIL



DETAIL A



DETAIL B

CONCRETE JOINT PAVING DETAILS

GENERAL NOTES

PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

SEE SDD 13 A 4-4c OR SDD 13 A 5-1b FOR RAMP AND GORE RUMBLE STRIP LOCATION.

CONCRETE JOINT DETAIL FOR EXIT RAMP TERMINI

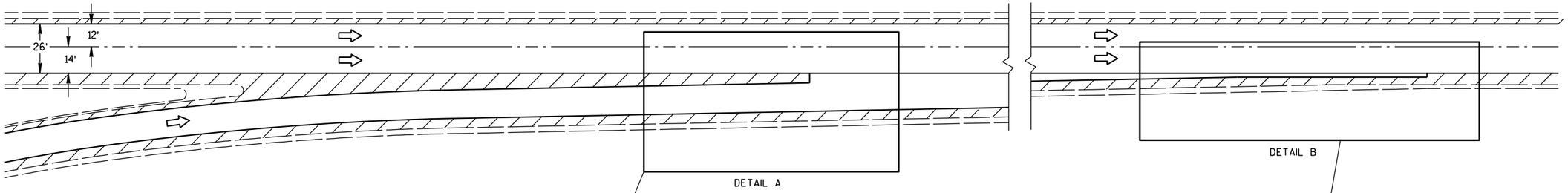
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

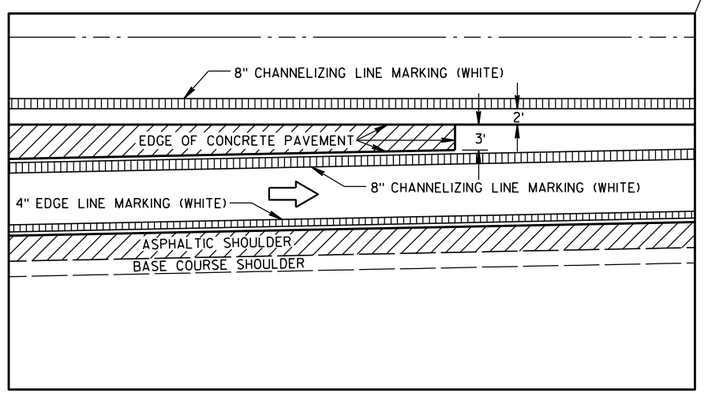
S.D.D. 13 C 17-1a

6

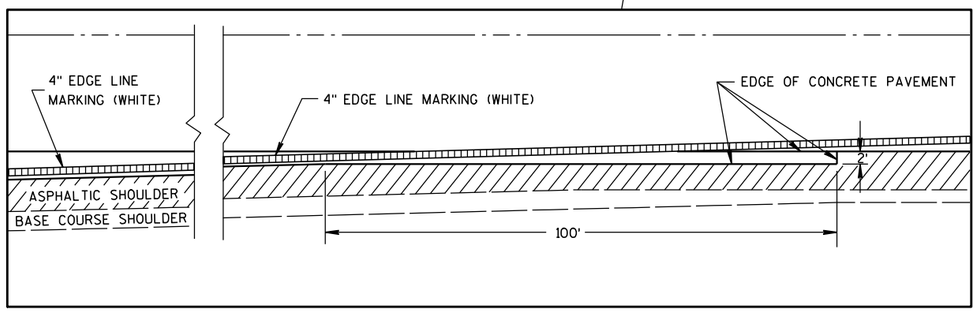
S.D.D. 13 C 17-1a



ENTRANCE RAMP DETAIL



DETAIL A



DETAIL B

CONCRETE JOINT PAVING DETAILS

GENERAL NOTES

PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

SEE SDD 13 A 4-4c OR SDD 13 A 5-1b FOR RAMP AND GORE RUMBLE STRIP LOCATION.

CONCRETE JOINT DETAIL FOR ENTRANCE RAMP TERMINI

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

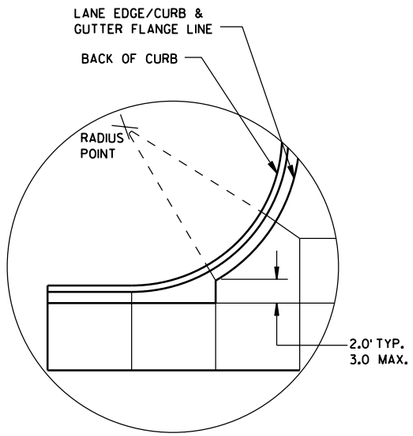
5/27/98
DATE

/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER

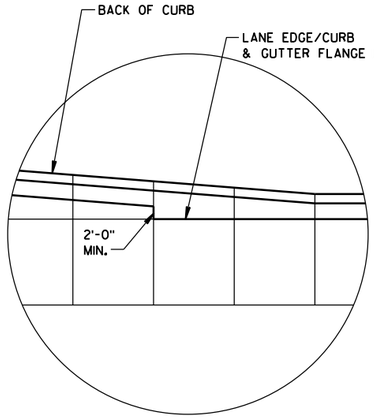
FHWA

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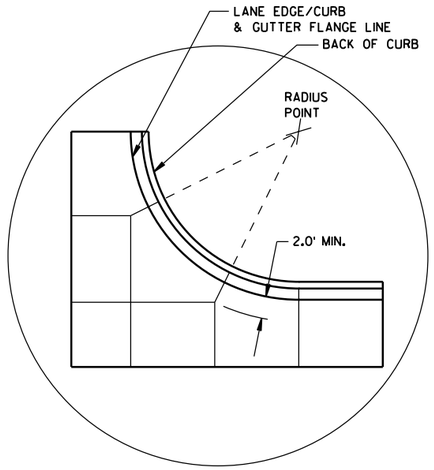
S.D.D. 13 C 17-1b



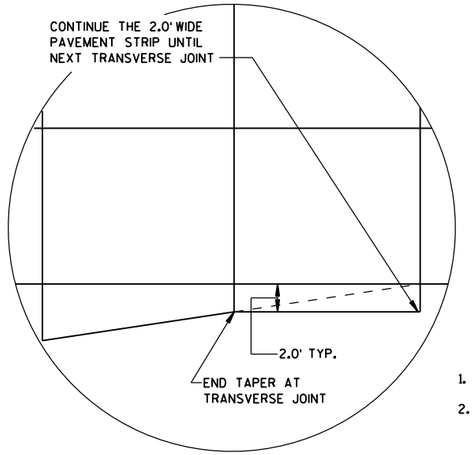
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G. MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.

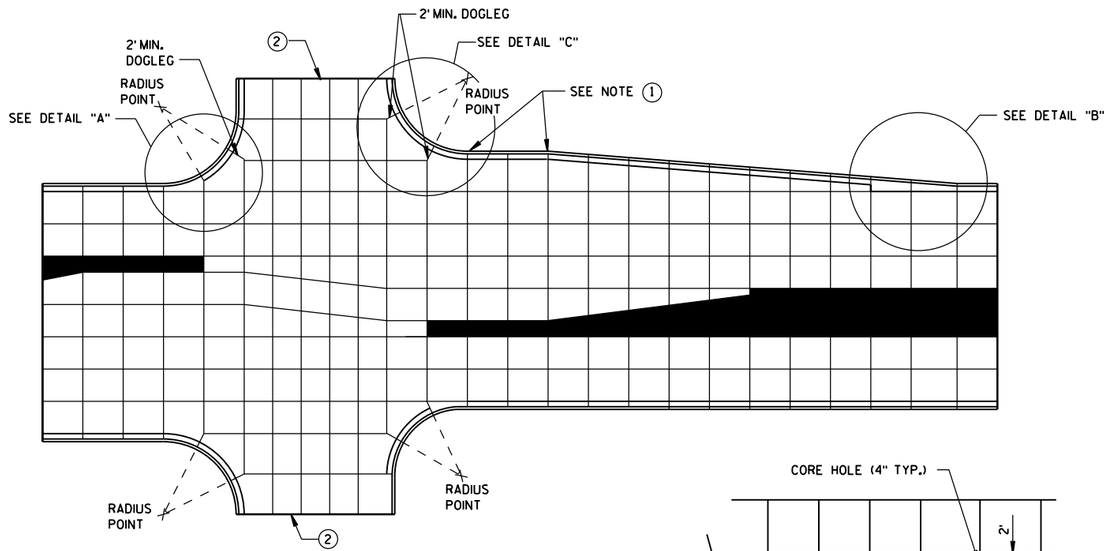
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.

AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.

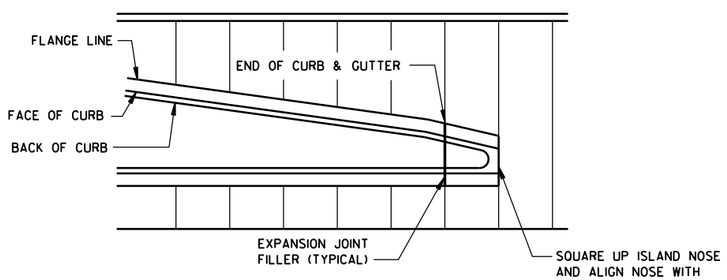


STANDARD INTERSECTION

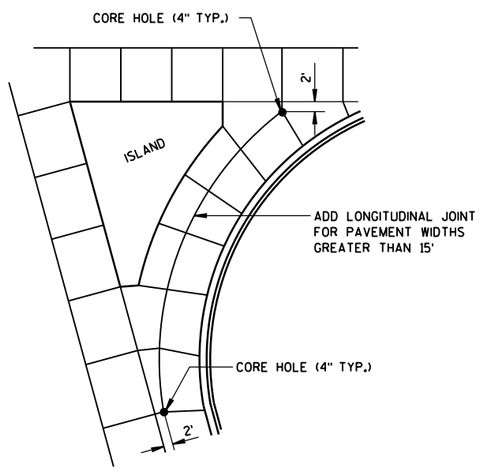
PAVEMENT DEPTH AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6½"	12'
7", 7½"	14'
8" & ABOVE	15'

SKEWED INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

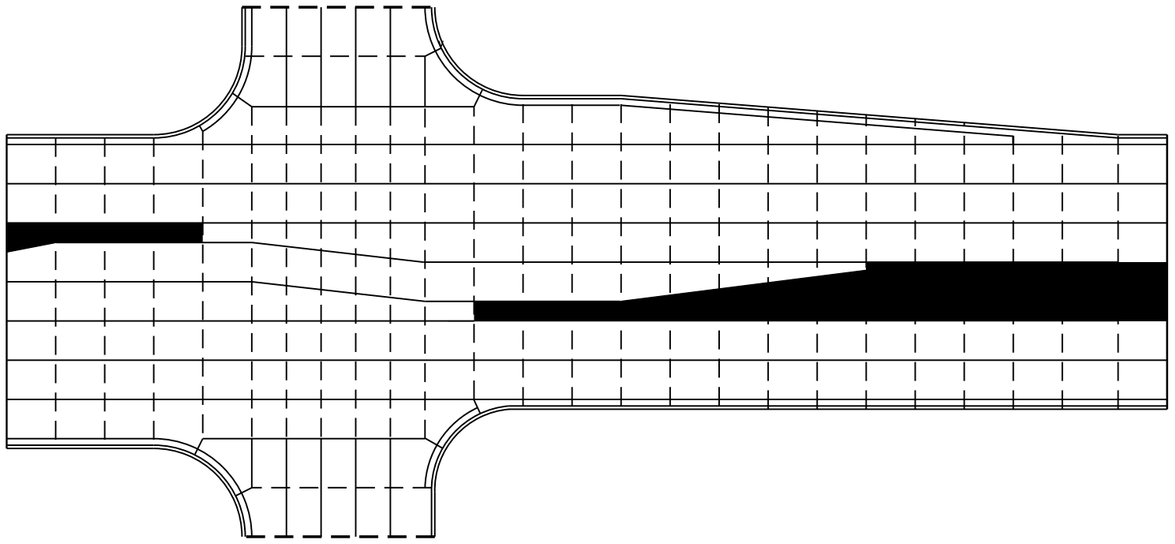
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S.D.D. 13 C 18-2a

LEGEND

POTENTIAL DOWELED EXPANSION JOINT

DOWELED JOINT

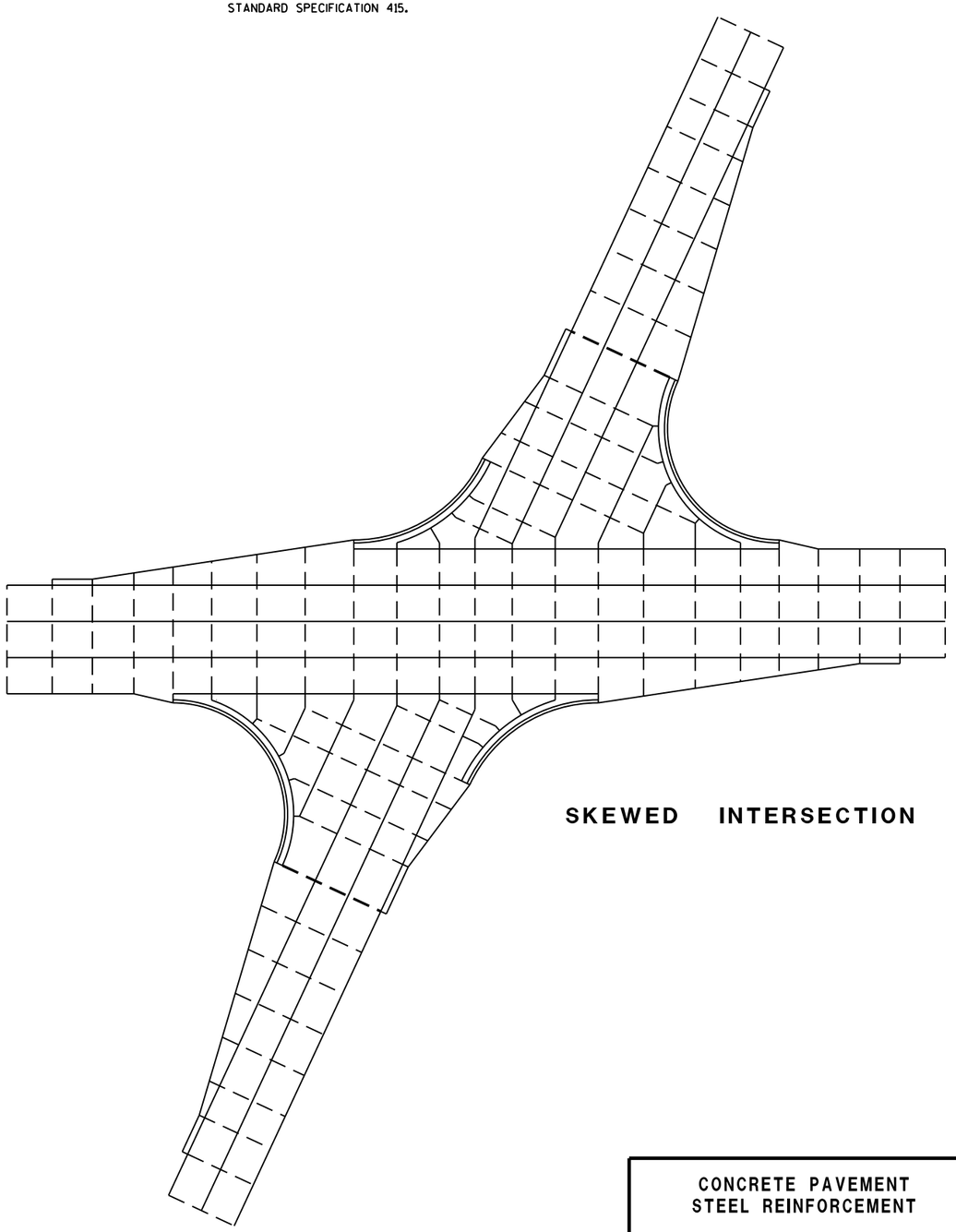
TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



SKEWED INTERSECTION

CONCRETE PAVEMENT
STEEL REINFORCEMENT

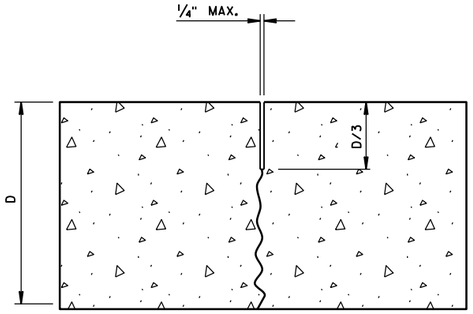
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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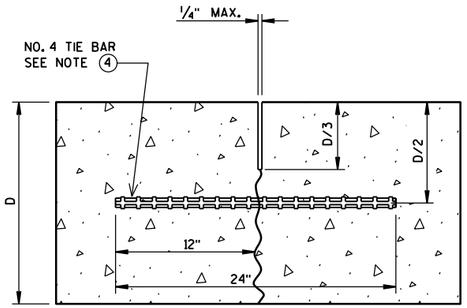
S.D.D. 13 C 18-2b

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S.D.D. 13 C 18-2b



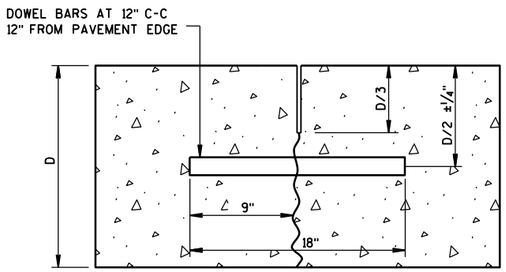
UNDOWELED-TRANSVERSE



TIED LONGITUDINAL

GENERAL NOTES

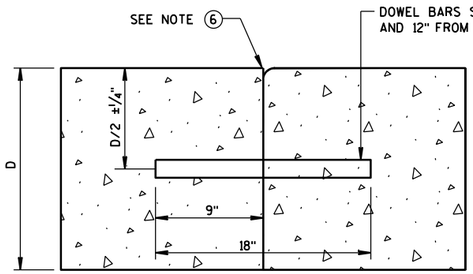
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
4. SPACE TIE BARS AT LONGITUDINAL CONSTRUCTION OR CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C1.
5. CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
6. IF JOINT IS FORMED, PROVIDE A 1/4-INCH RADIUS.



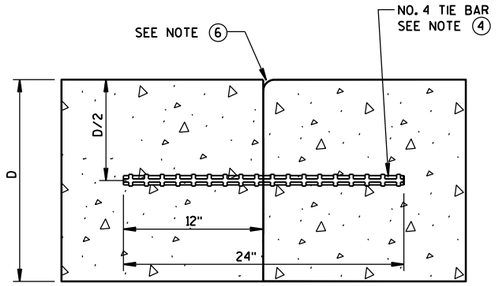
DOWELED-TRANSVERSE

CONTRACTION JOINTS

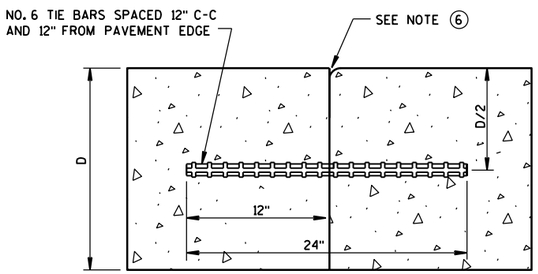
SEE NOTE (2)



DOWELED TRANSVERSE

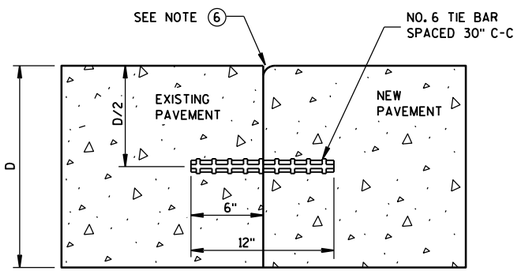


TIED LONGITUDINAL



TIED TRANSVERSE

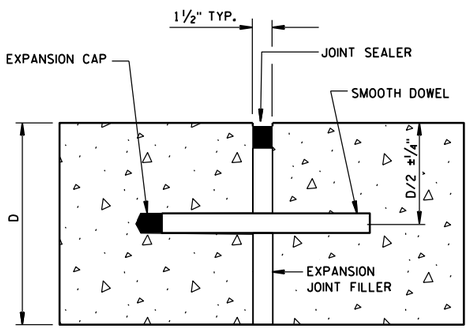
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



TIED LONGITUDINAL TO EXISTING

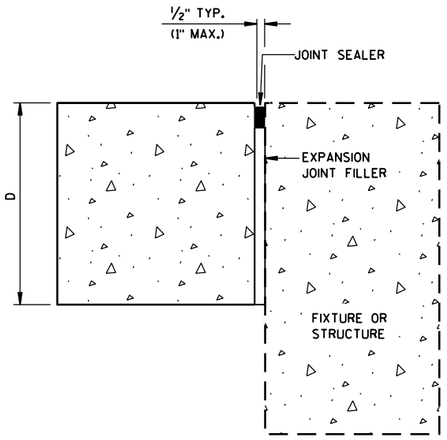
CONSTRUCTION JOINTS

SEE NOTE (5)



DOWELED-TRANSVERSE

SEE NOTE (1)



UNTIED-LONGITUDINAL

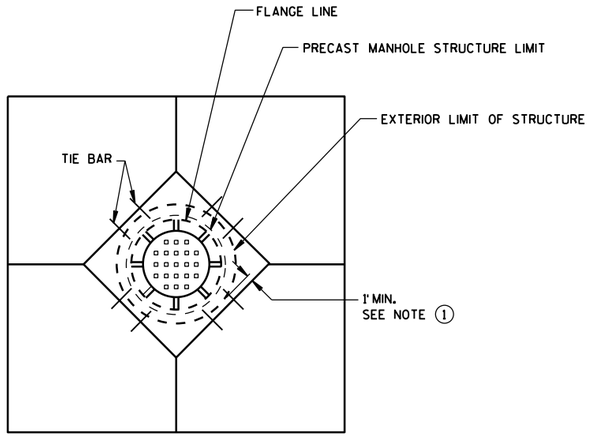
EXPANSION JOINTS

CONCRETE PAVEMENT
JOINT TYPES

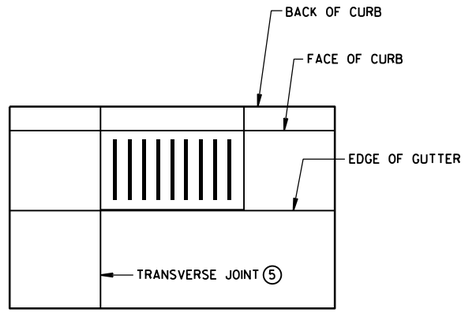
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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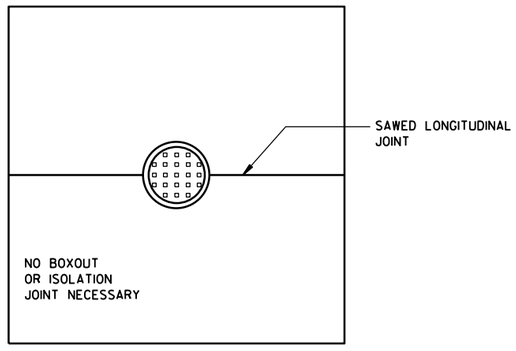
S.D.D. 13 C 18-2c



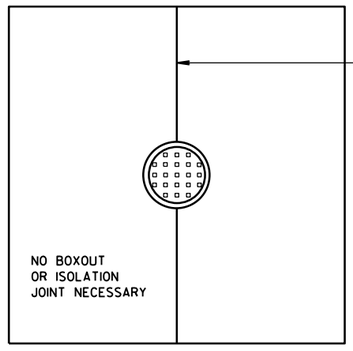
DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS



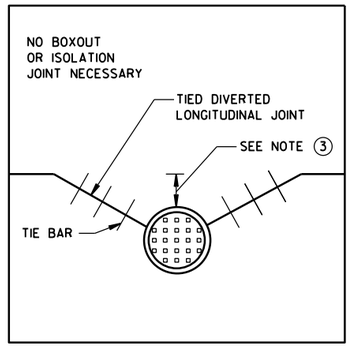
INLET WITH TRANSVERSE JOINT



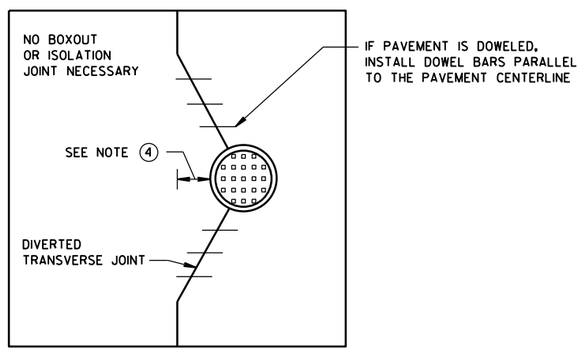
MANHOLE WITH LONGITUDINAL JOINT



MANHOLE WITH TRANSVERSE JOINT



MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT

GENERAL NOTES

(1) USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1-FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.

(2) ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.

(3) IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDIAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REBAR REINFORCEMENT AROUND THE MANHOLE.

(4) IF DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REBAR REINFORCEMENT AROUND THE MANHOLE.

(5) ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.

CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-3-2013
DATE

/S/ Deb Bischoff
PAVEMENT POLICY & DE

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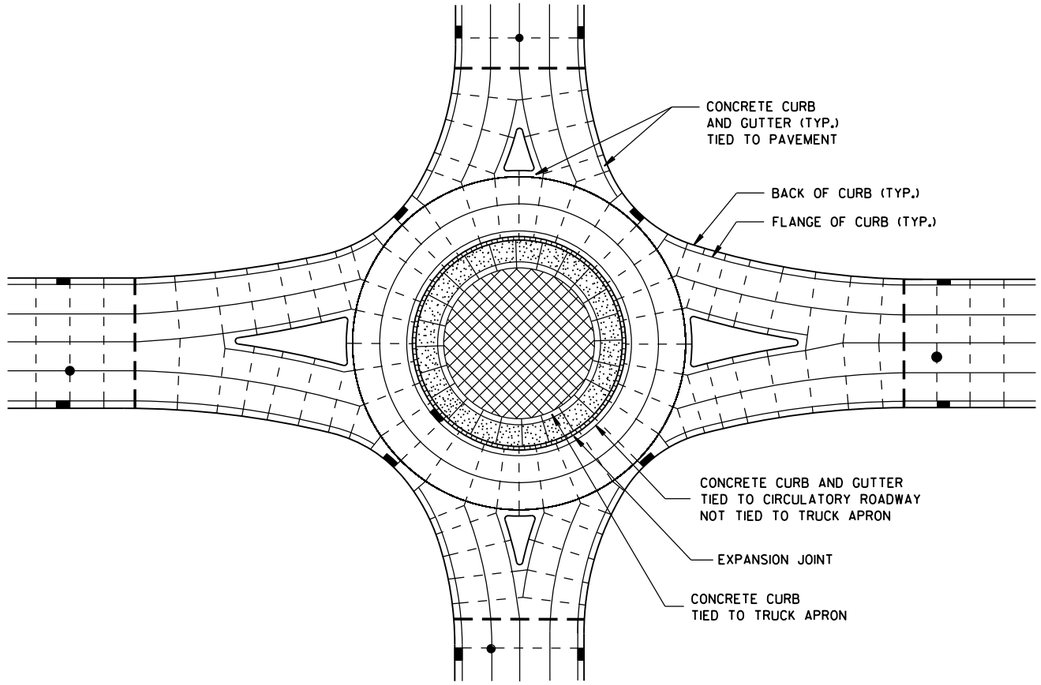
FHWA

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S.D.D. 13 C 18-2d

LEGEND

- DOWELED JOINT
- TIED JOINT
- EXPANSION JOINT
- POTENTIAL DOWELED EXPANSION JOINT
- TRUCK APRON
- CENTRAL ISLAND
- UTILITY STRUCTURES



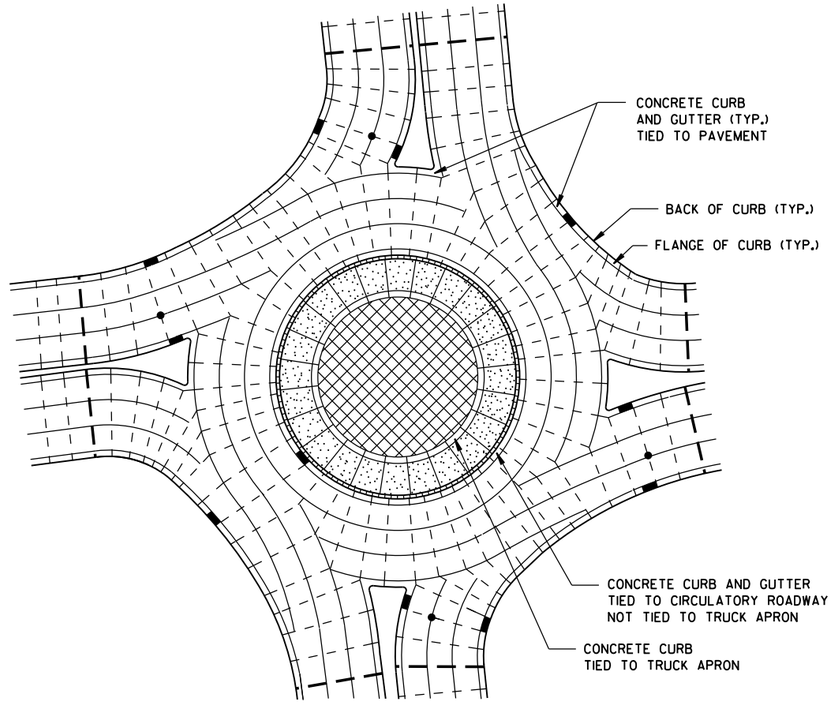
ISOLATED CIRCLE JOINT LAYOUT FOR ROUNDABOUTS

GENERAL NOTES

MAXIMUM JOINT SPACING IS IN ACCORDANCE WITH THE TABLE SHOWN ON SDD 13C18 SHEET "a".

USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.

DO NOT DOWEL OR TIE THE TRUCK APRON TRANSVERSE JOINTS.



PINWHEEL JOINT LAYOUT FOR ROUNDABOUTS

6

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S.D.D. 13 C 18-2e

S.D.D. 13 C 18-2e

CONCRETE PAVEMENT JOINTING AND STEEL REINFORCEMENT IN ROUNDABOUTS

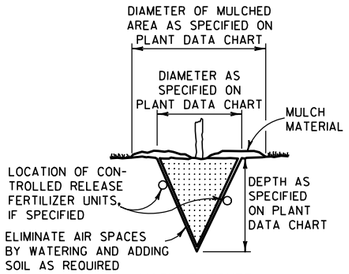
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

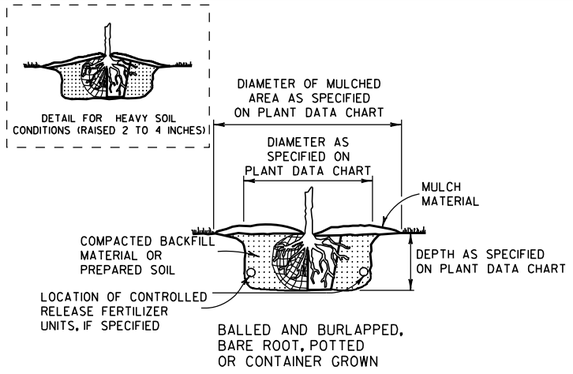
5-3-2013
DATE

/S/ Deb Bischoff
PAVEMENT POLICY & DE ENGINEER

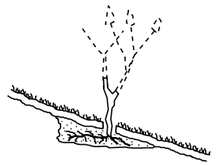
FHWA



MACHINE MOVED

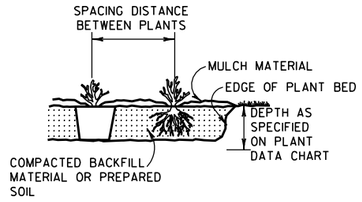


BALLED AND BURLAPPED, BARE ROOT, POTTED OR CONTAINER GROWN



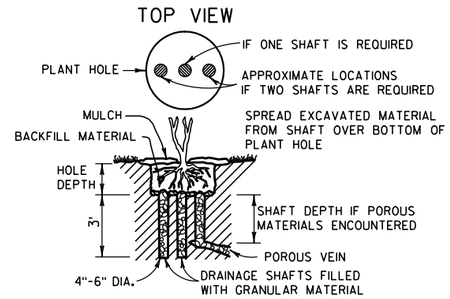
ACCOMMODATE ROOTS (SMOOTH AND STAGHORN SUMAC)

NOTE:
1) ENGINEER SHALL REQUIRE 3 SLITS IN POT TO SPEED DETERIORATION
2) METAL, PLASTIC OR OTHER NONDEGRADABLE POTS SHALL BE REMOVED PRIOR TO PLANTING



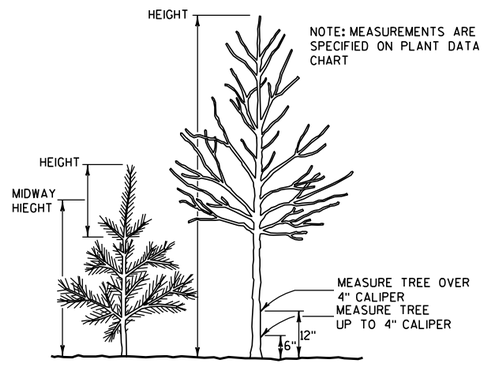
PREPARED BED (BARE ROOT AND POTTED)

PLANTING

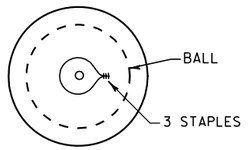


NOTE:
DRAINAGE SHAFT AS SPECIFIED ON PLANT DATA CHART

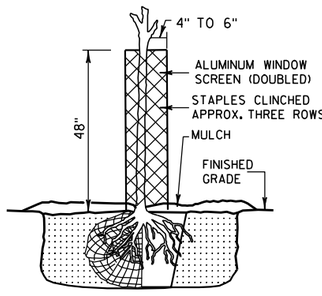
DRAINING



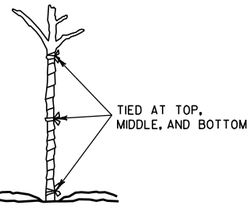
MEASURING



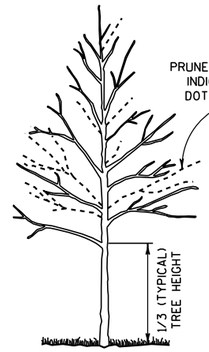
TOP VIEW



RODENT PROTECTION



WRAPPING



TALL DECIDUOUS TREES (ASH, MAPLE, LINDEN, OAK)

SINGLE STEMMED LOW DECIDUOUS TREES (CRABS AND OTHER SINGLE STEM TYPE)

MULTI-STEMMED LOW DECIDUOUS TREES OR LARGE SHRUBS (HAWTHORN, SERVICEBERRY)

NOTE: WHEN PRUNING, PRESERVE CHARACTER AND SHAPE OF TREE. AVOID LEAVING STUBS - REMOVE BRANCH OR TWIG BACK TO THE NEAREST CROTCH
1) PRUNE TO REMOVE DEAD AND BROKEN BRANCHES
2) PRUNE TO REMOVE BRANCHES THAT TOUCH OR ARE TOO CLOSE TO OTHER BRANCHES

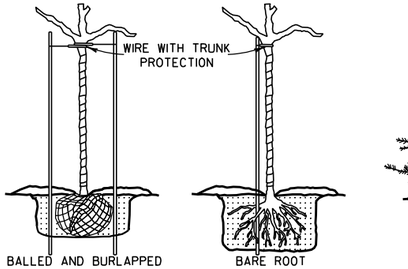


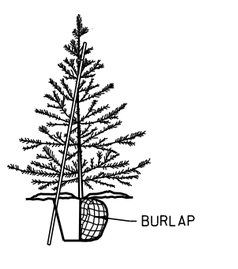
SHRUBS (GRAY DOGWOOD ARROWWOOD VIBURNUM)

SUMAC

TREE TYPE EVERGREENS (PINE, SPRUCE, FIR) EVERGREENS USUALLY ARE NOT PRUNED

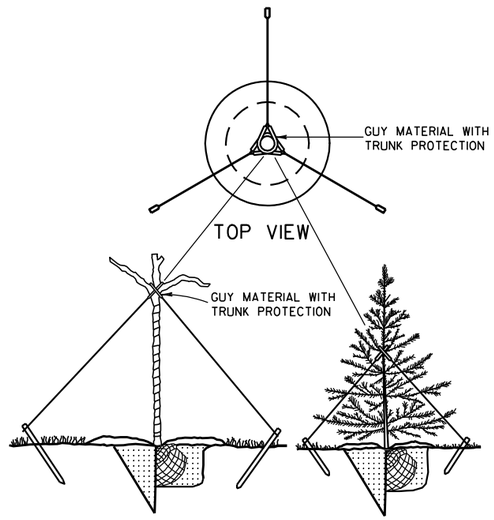
PRUNING





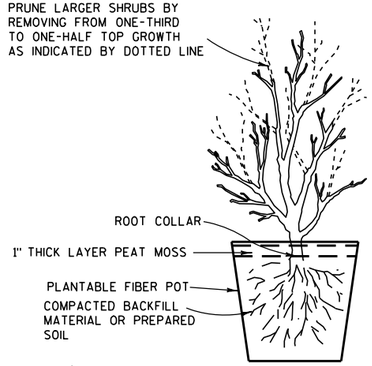
NOTE: BRACING STAKE
1) SHALL BE DRIVEN INTO THE GROUND AS CLOSE TO THE TREE AS POSSIBLE WITHOUT DAMAGING THE BRANCHES.
2) MAY BE DRIVEN AT SUCH AN ANGLE THAT IT DOES NOT PENETRATE THE BALL OR POT.
3) SHALL NOT PROTRUDE ABOVE THE TOP OF THE TREE; AND
4) SHALL HAVE A HOLE NEAR THE TOP TO HOLD THE WIRE IN PLACE.

BRACING



GUYING

PRUNE LARGER SHRUBS BY REMOVING FROM ONE-THIRD TO ONE-HALF TOP GROWTH AS INDICATED BY DOTTED LINE



POTTING

NOTES

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

BRACING, WRAPPING, GUYING, RODENT PROTECTION, FERTILIZER AND MULCH SHALL BE USED ONLY WHEN SPECIFIED ON THE PLANT DATA CHART (PART OF PLAN) OR SPECIAL PROVISIONS.

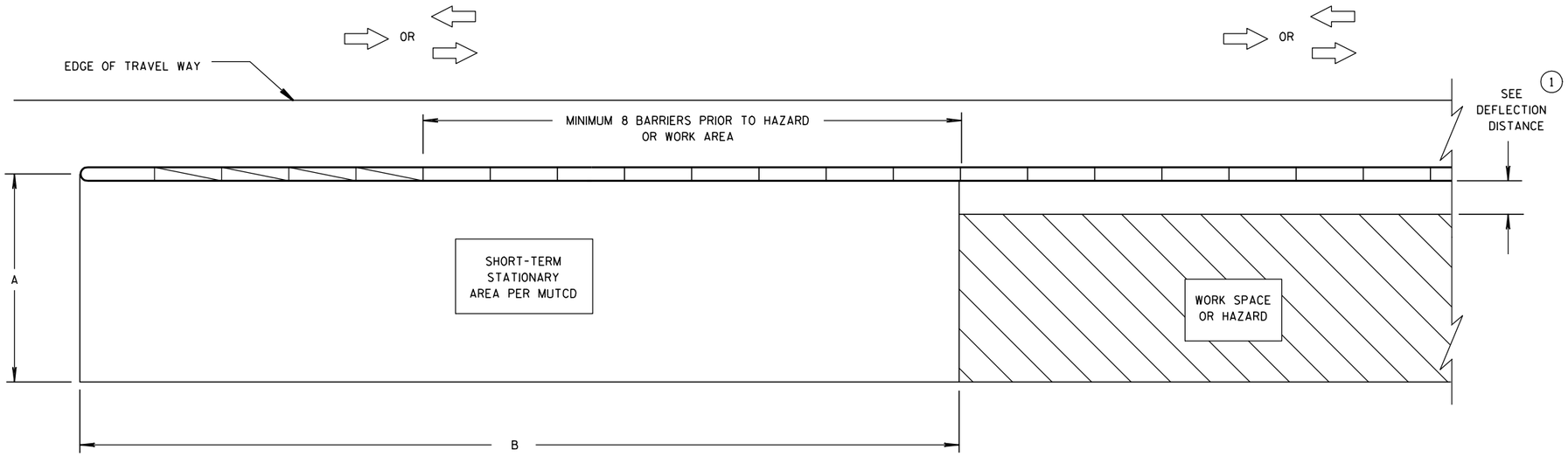
TREE PLANTING DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

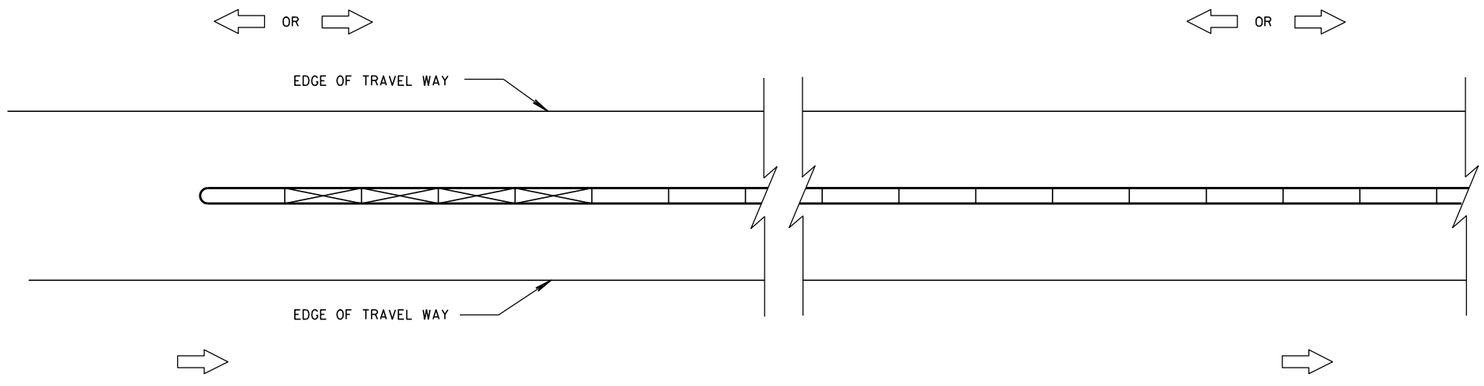
APPROVED
4/11/94
DATE
/S/ Rory L. Rhinesmith
CHIEF METHODS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 14 A 2-1



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER

DIMENSION A TABLE (2)

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

DIMENSION B TABLE (2)

POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

LEGEND

DIRECTION OF TRAVEL

CRASH CUSHION OR SAND BARREL ARRAY

SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS

3 PINS PLACED ON TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET

FREE STANDING TEMPORARY BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

(1) FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.

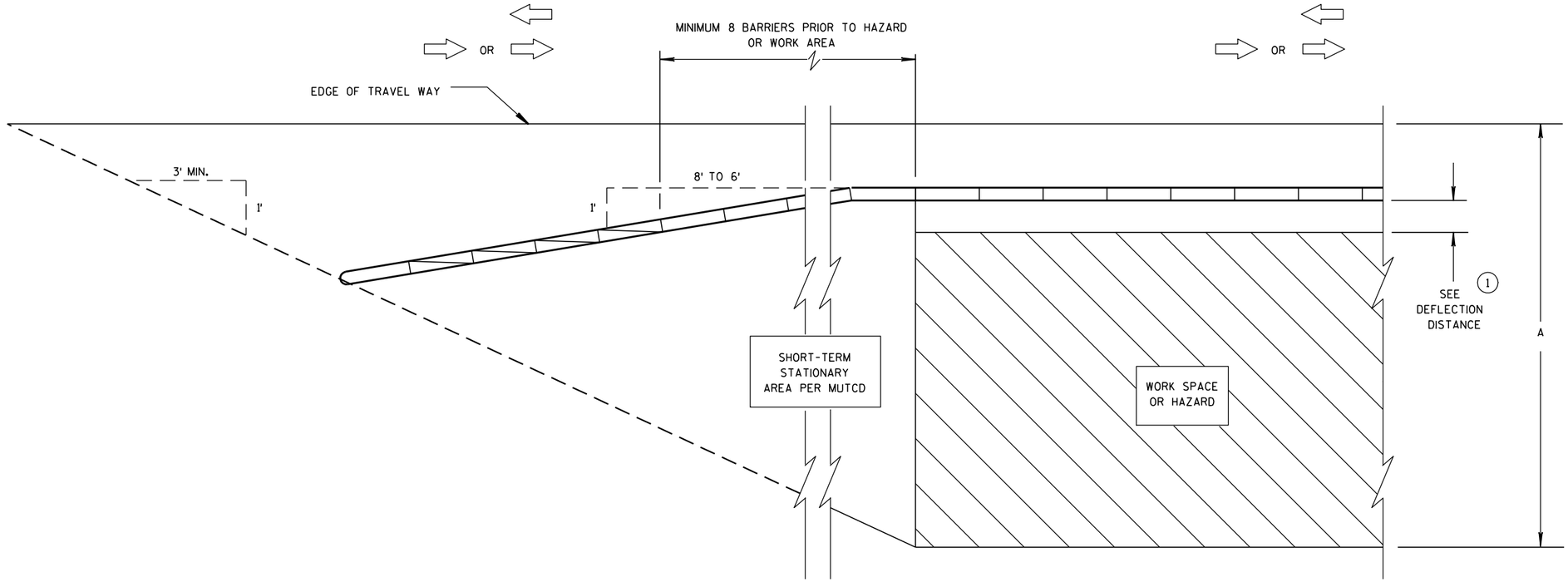
(2) VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

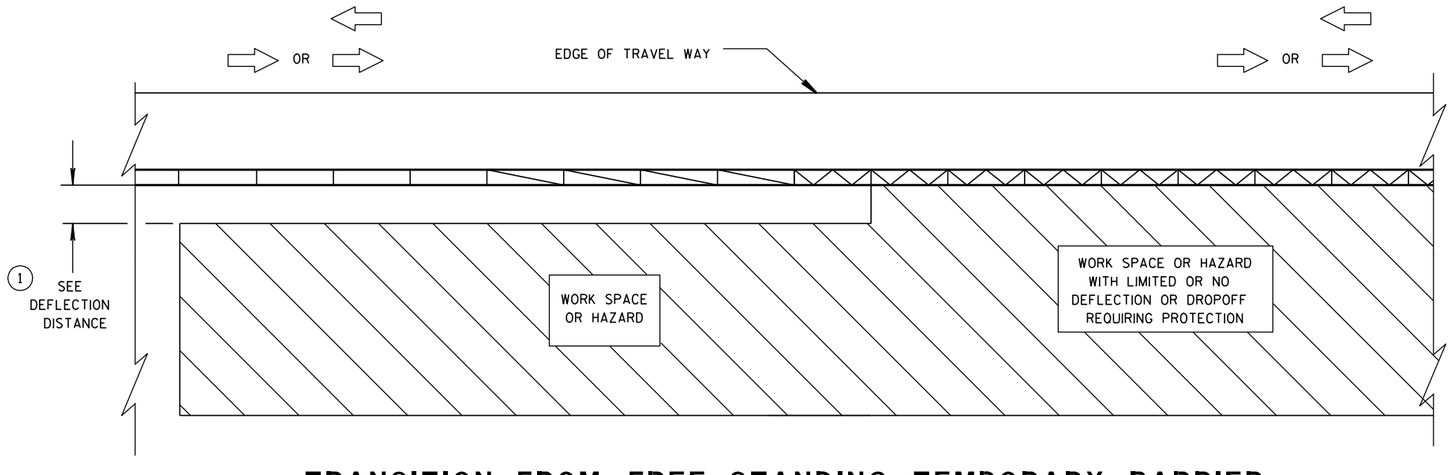
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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S.D.D. 14 B 8-1a



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION



TRANSITION FROM FREE STANDING TEMPORARY BARRIER TO ANCHORED BARRIER

LEGEND

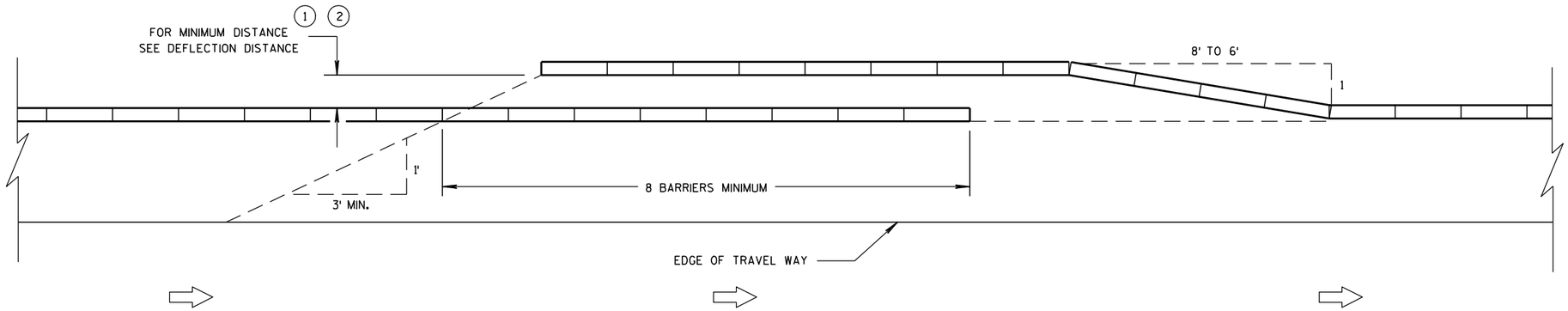
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

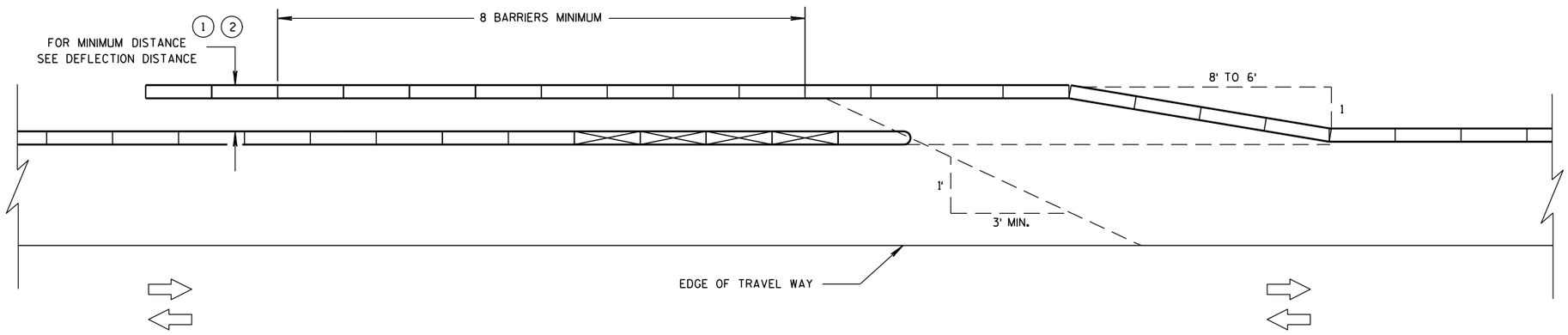
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

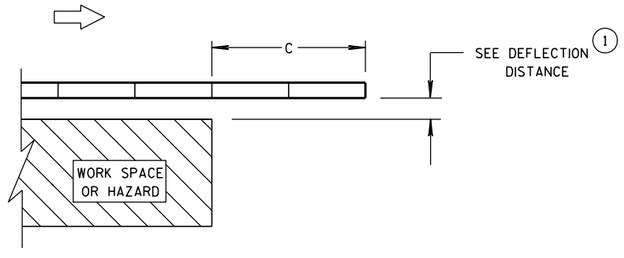
S.D.D. 14 B 8-1b



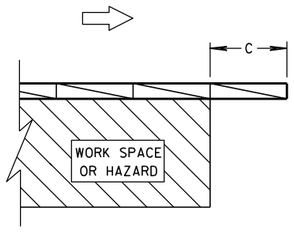
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



ENDING TEMPORARY BARRIER DOWNSTREAM - UNANCHORED



ENDING TEMPORARY BARRIER DOWNSTREAM - ANCHORED

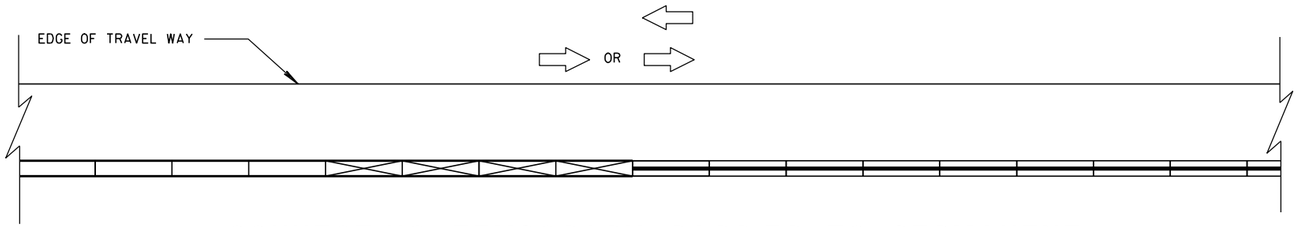
LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

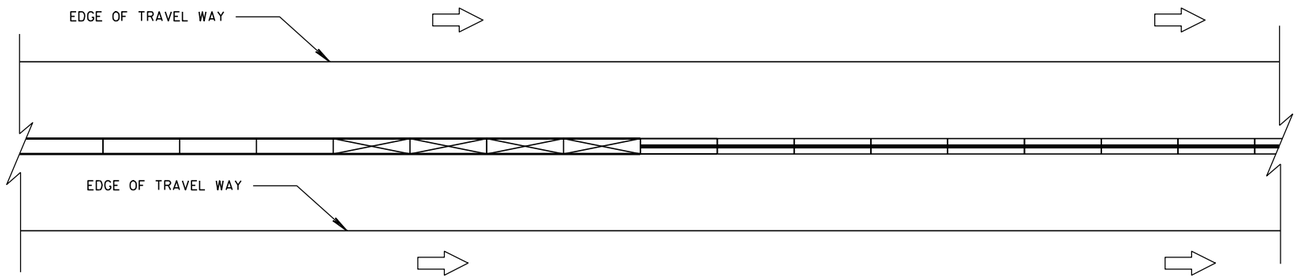
CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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S.D.D. 14 B 8-1c



CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON ONE SIDE



CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

LEGEND

DIRECTION OF TRAVEL

CRASH CUSHION OR
SAND BARREL ARRAY

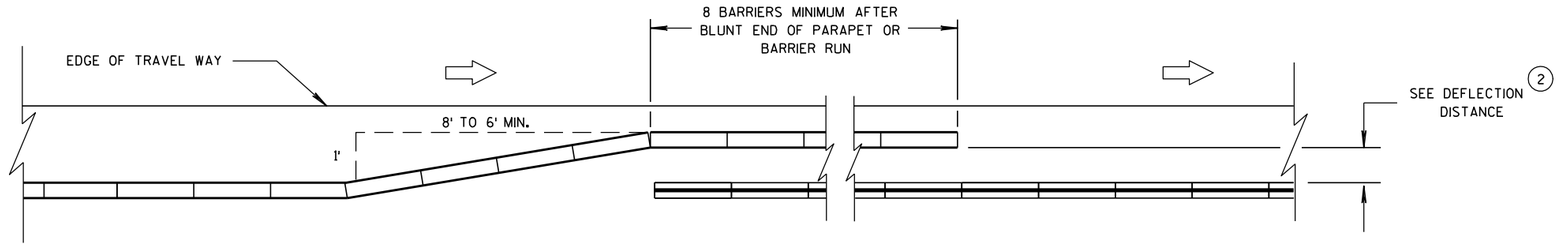
SEE FREE STANDING TRANSITION
TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION
TO TIED-DOWN SYSTEM DETAILS

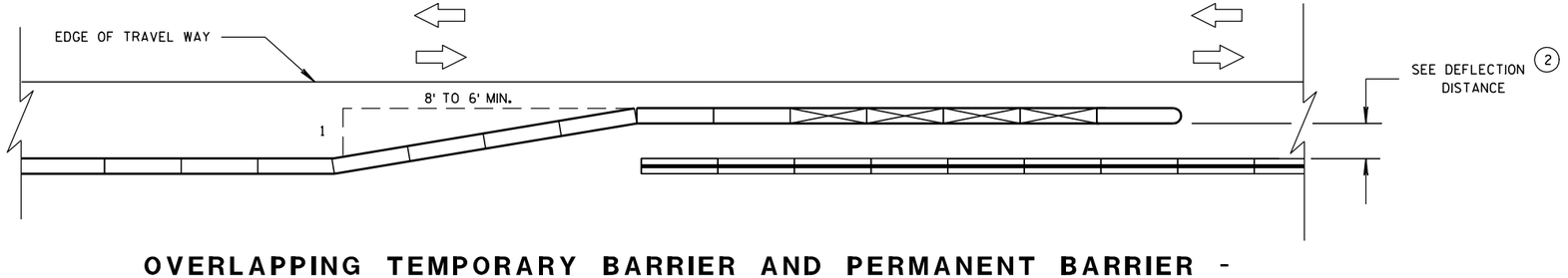
3 PINS PLACED ON
TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER
OR CONCRETE PARAPET

FREE STANDING TEMPORARY
BARRIER



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
TWO WAY TRAFFIC

CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO...

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S.D.D. 14 B 8-1d

GENERAL NOTES

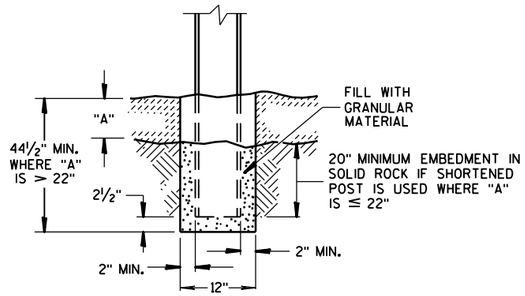
1. WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

2. USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

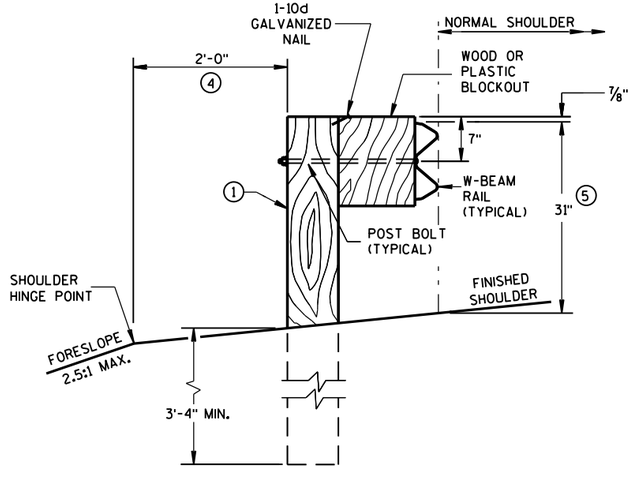
3. IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

4. WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

5. FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

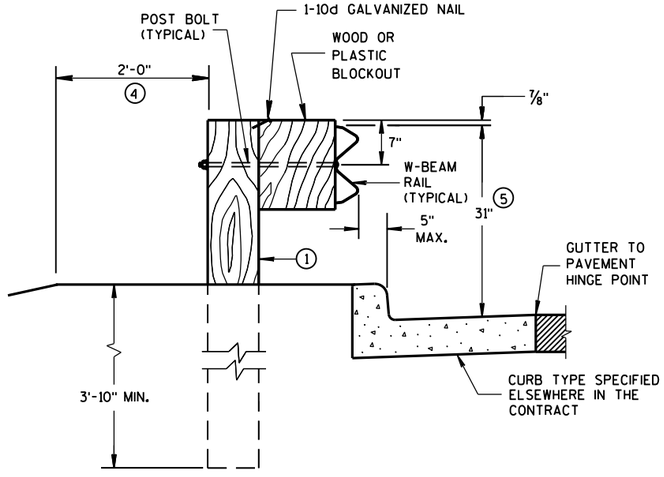


END VIEW
SETTING STEEL OR WOOD POST IN ROCK ③



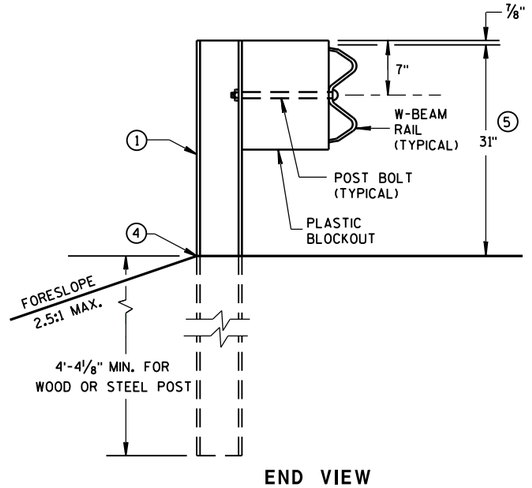
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



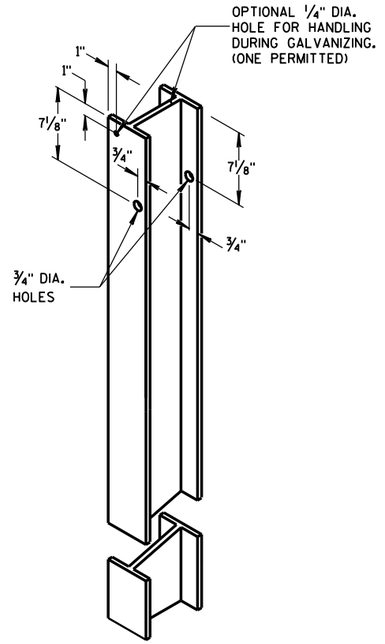
END VIEW

LOCATED ALONG A CURBED ROADWAY

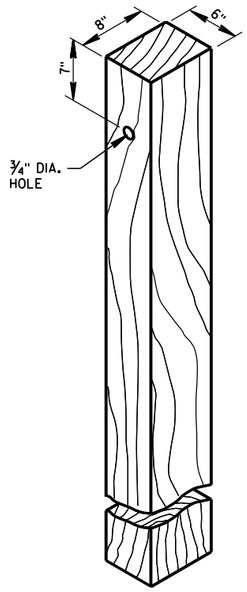


END VIEW

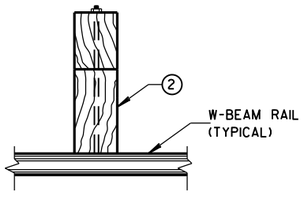
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



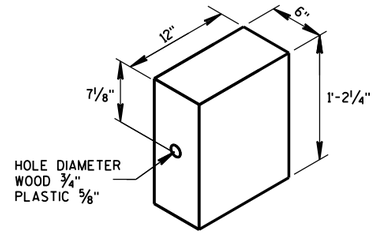
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



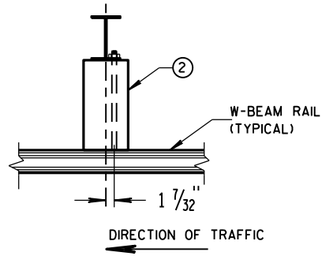
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②

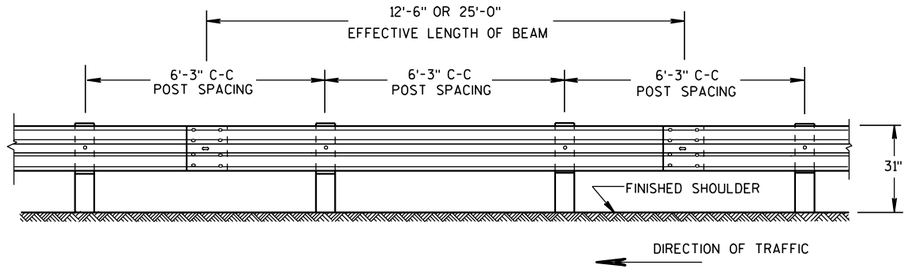


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

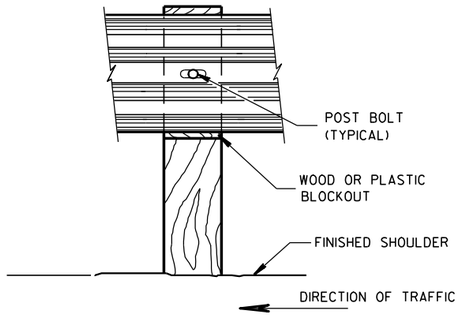
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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S.D.D. 14 B 42-2a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



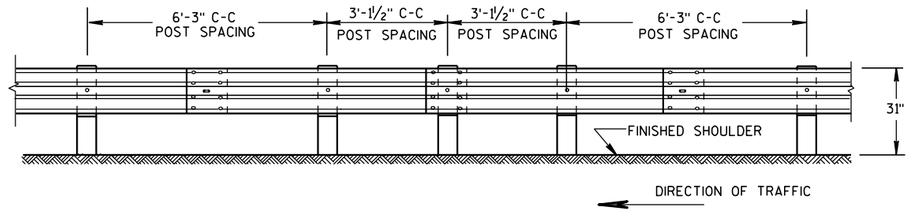
FRONT VIEW AT WOOD POST

GENERAL NOTES

1. PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
2. DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
3. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
4. PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
5. 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

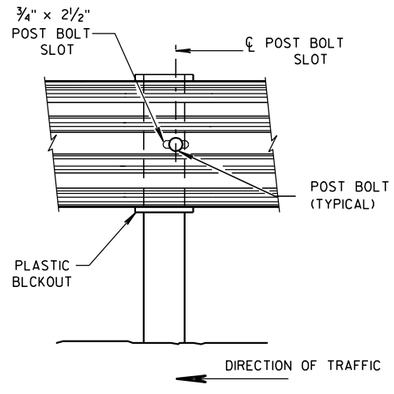
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

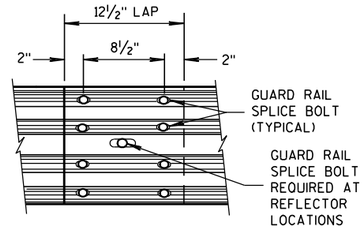


FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

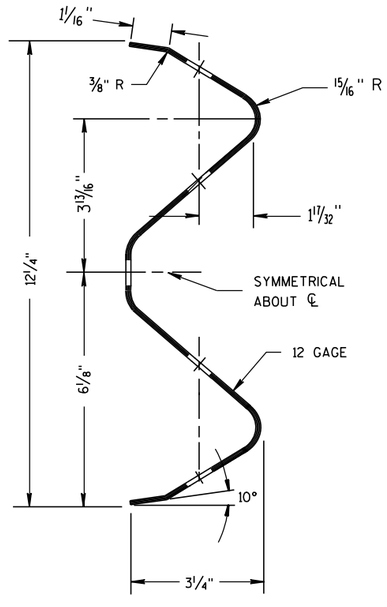


FRONT VIEW AT STEEL POST

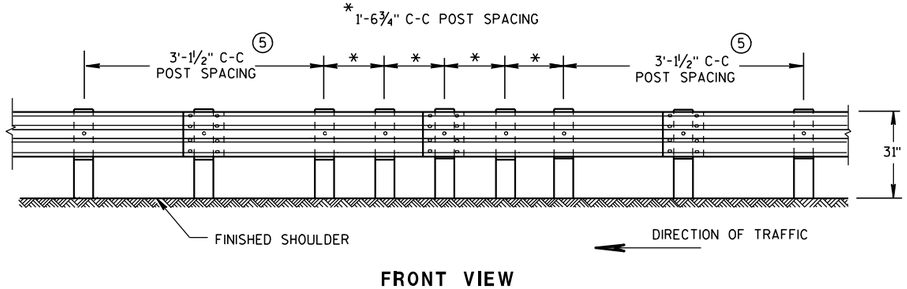


FRONT VIEW

MID-SPAN BEAM SPLICE

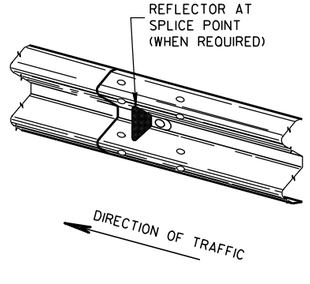


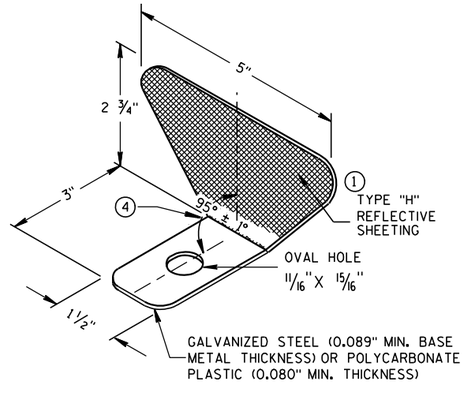
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ①

REFLECTOR SPACING ②

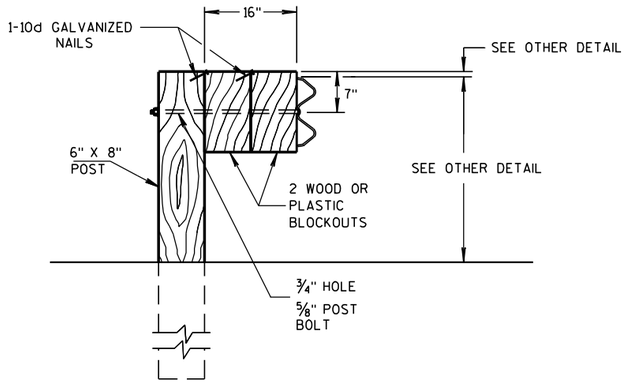
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 1 ③	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 ④	3

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

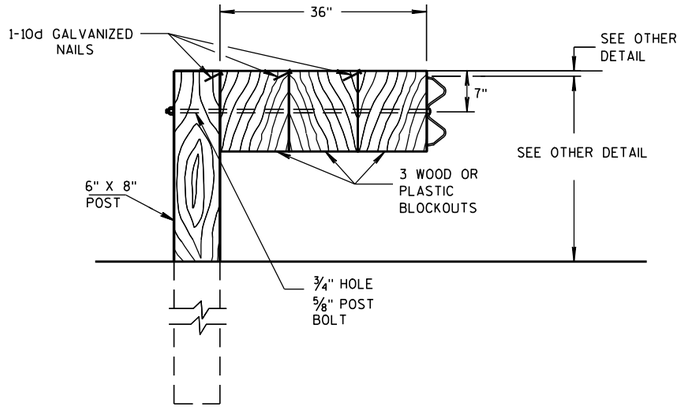
S.D.D. 14 B 42-2b

6



DETAIL FOR 16" BLOCKOUT DEPTH

IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

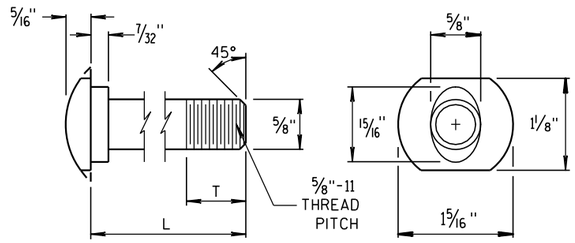


DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

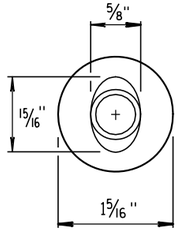
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

NOTE: 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 1/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

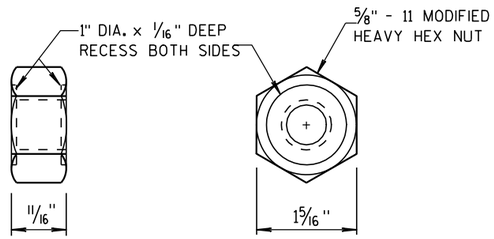


POST BOLT TABLE

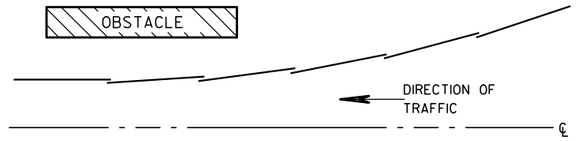
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

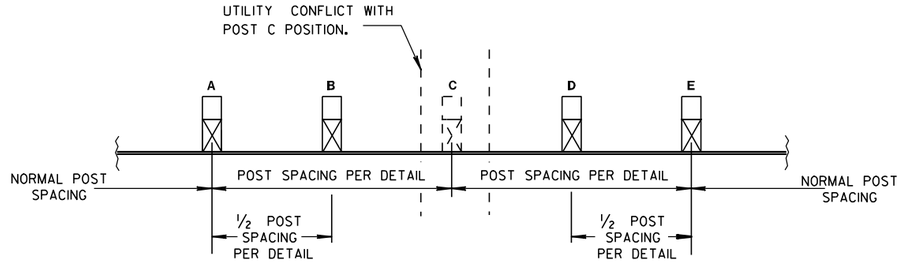


POST BOLT AND RECESS NUT

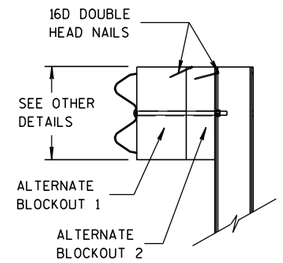


PLAN VIEW

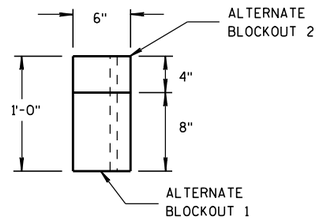
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/15/2011
DATE

/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

255

FHWA

ENT

6

S.D.D. 14 B 42-2c

6

S.D.D. 14 B 42-2c

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), THE HINGE POINT LINE (HPL),AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

(D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(F) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER OF E.A.T.

(G) ½" DIAMETER X 3" LONG LAG BOLT AND WASHER.

(H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

(I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.

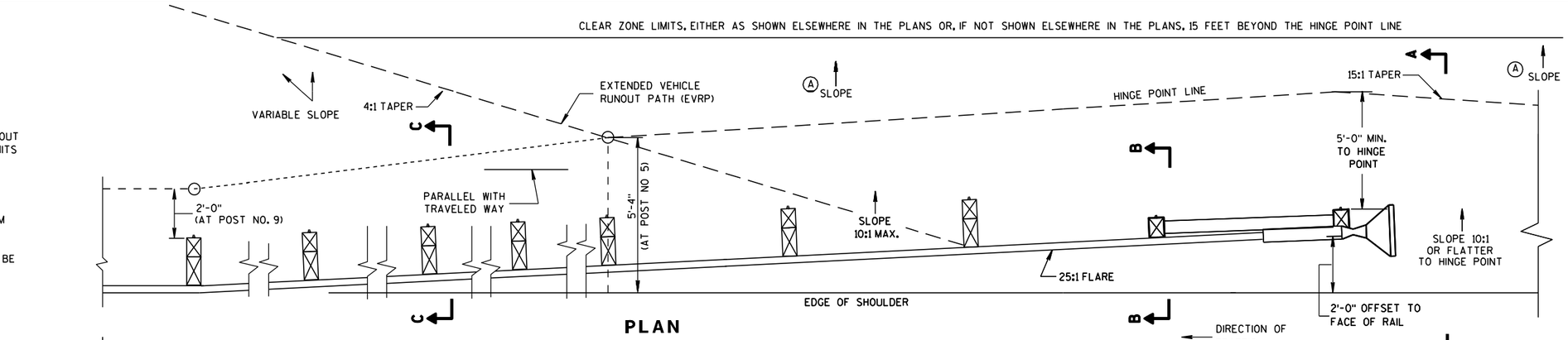
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

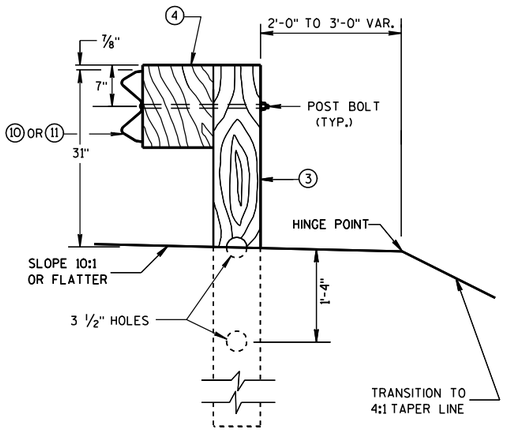
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

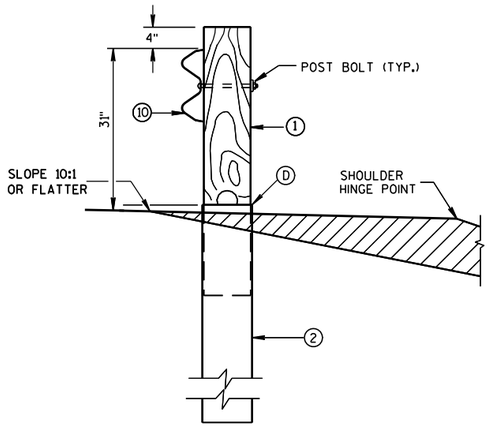
PATTERN AND COLORS ON REFLECTIVE SHEETING TYPE H ARE TO CONFORM TO OM3-L OR OM3-R OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE (± ¾")

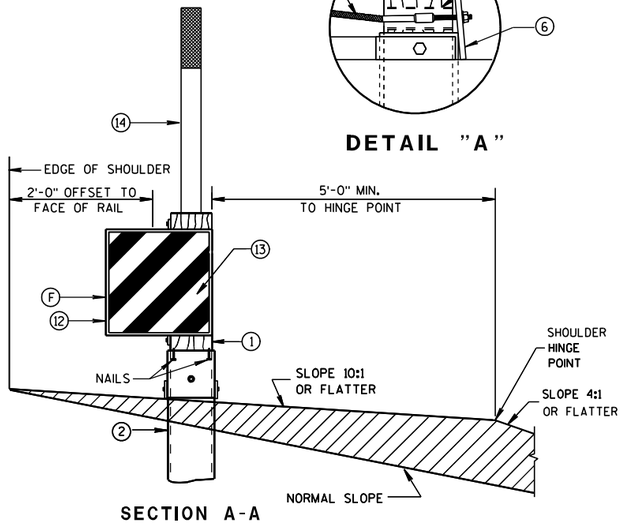




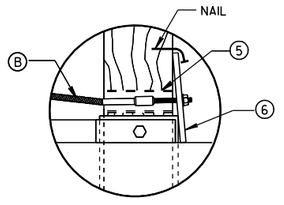
SECTION C-C
TYPICAL AT POST NOS. 3-9



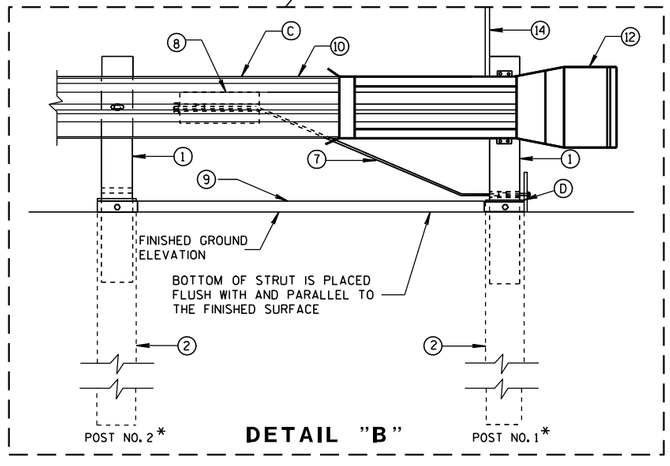
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"

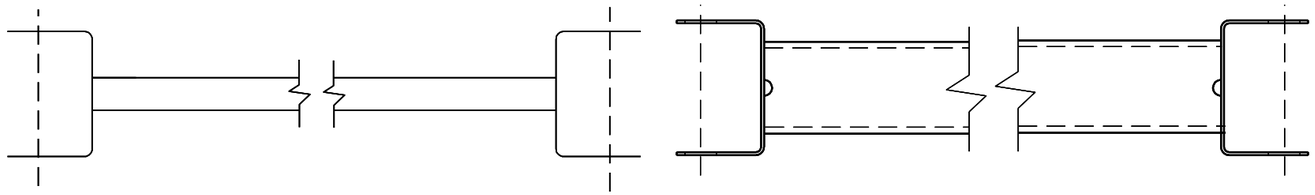


DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

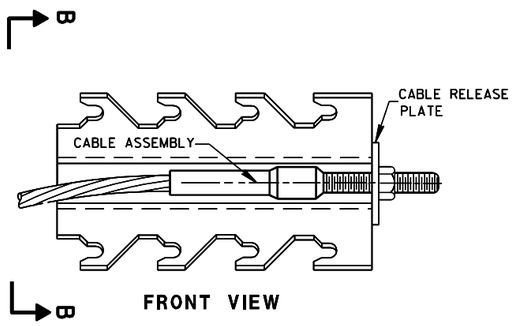
6
S.D.D. 14 B 44-1a



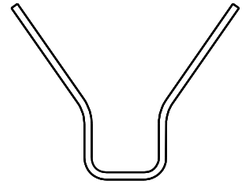
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

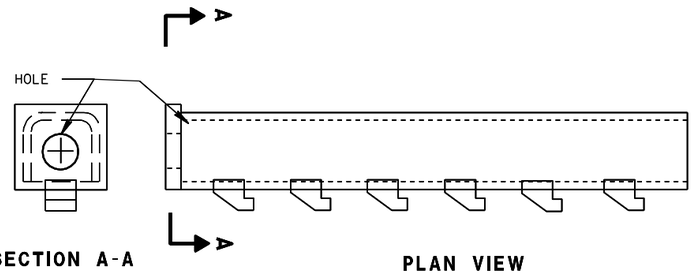
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	END SECTION EAT
(13)	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE H (ONLY THE SHEETING IS SUPPLIED BY THE MANUFACTURER)
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



FRONT VIEW



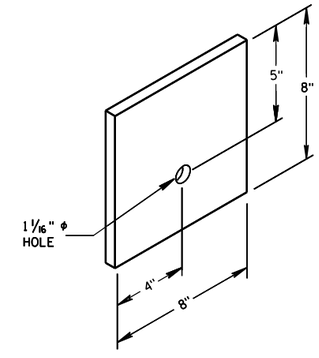
SECTION B-B



SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX (8) (H)



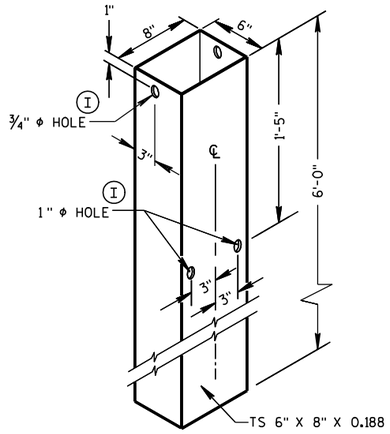
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

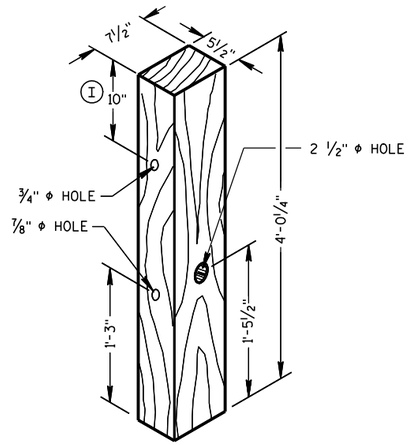
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 44-1b

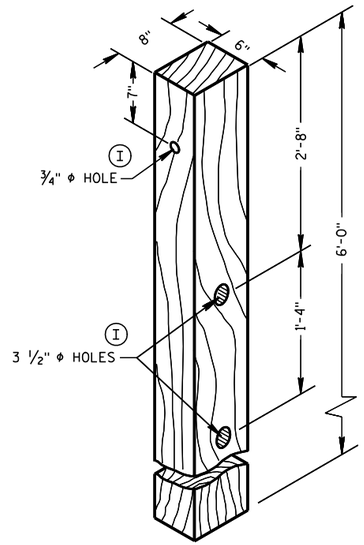


FOUNDATION TUBE (2)



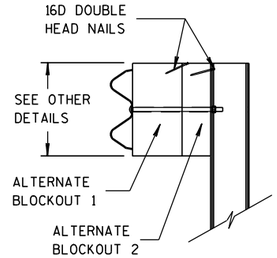
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

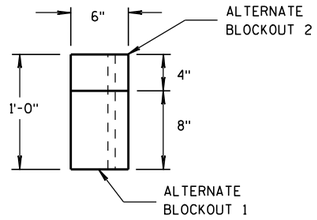


POSTS NUMBER 3-9

WOOD CRT POST (3)

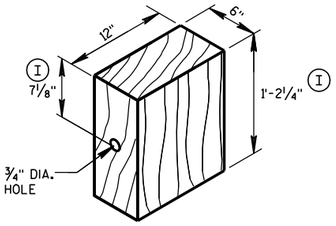


SIDE VIEW



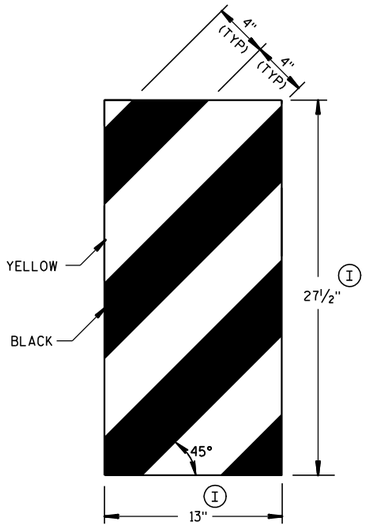
TOP VIEW

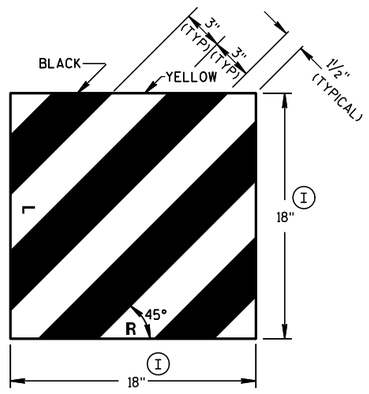
ALTERNATE WOOD BLOCKOUT DETAIL



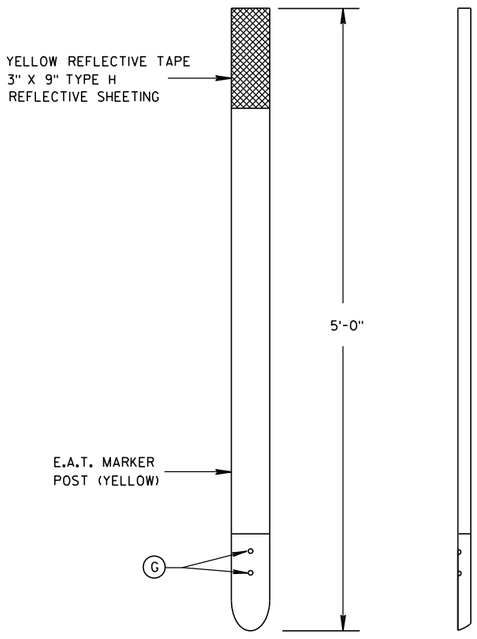
WOOD BLOCKOUT (4)

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2





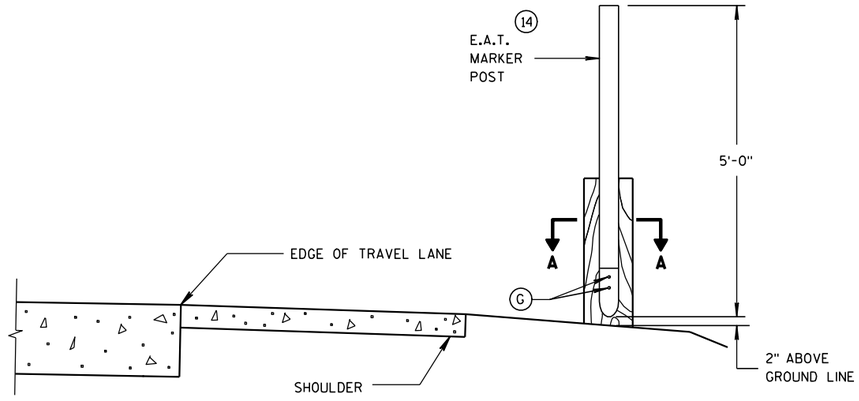
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

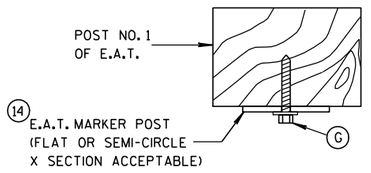
SIDE VIEW

E.A.T. MARKER POST (14)



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1

(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

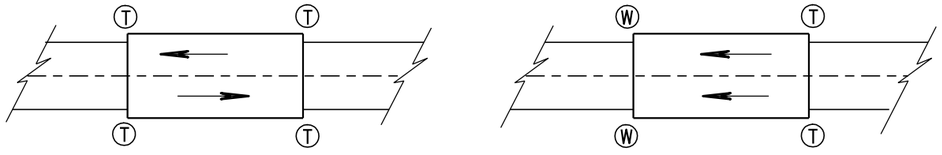
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/2011
DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 44-1c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

GENERAL NOTES

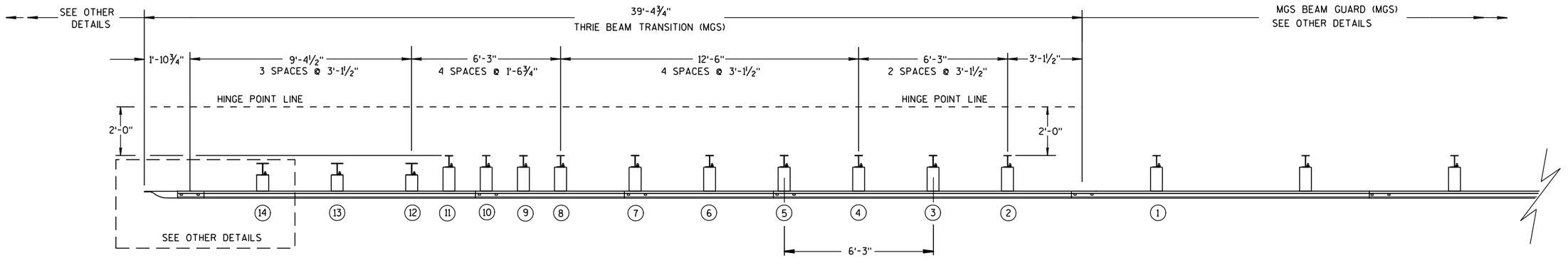
BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

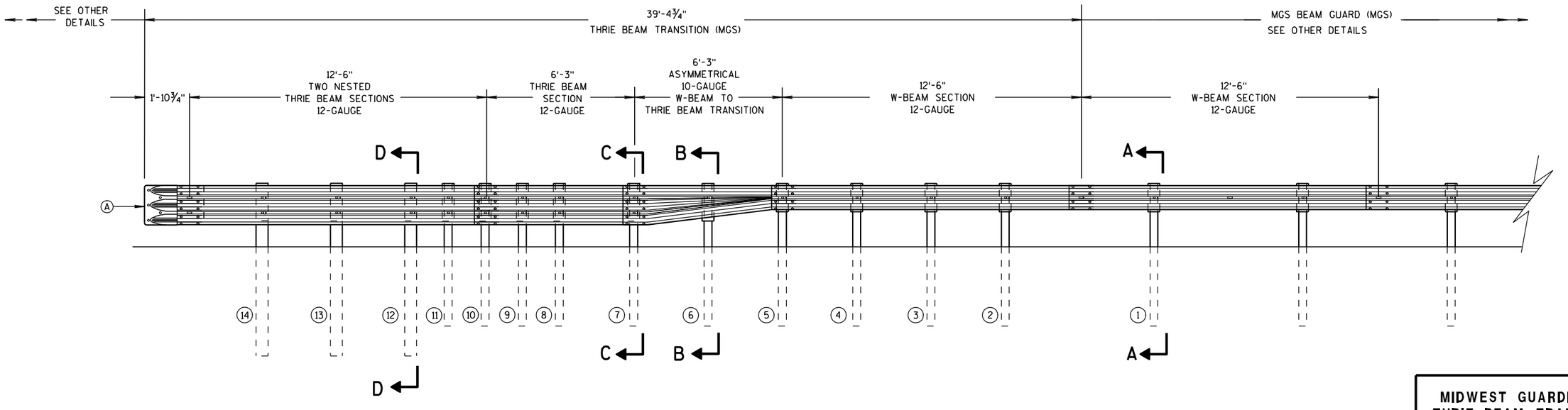
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

(A) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

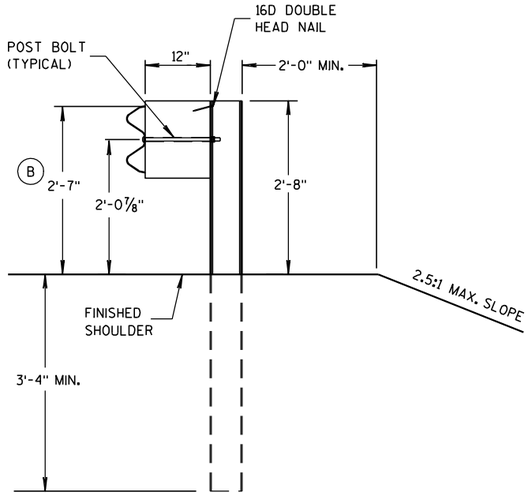
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 45-3a

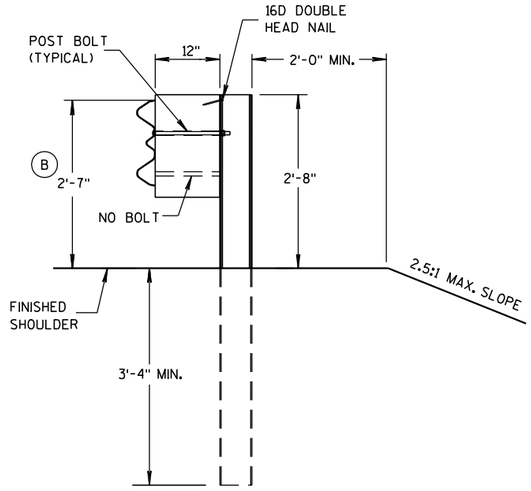
GENERAL NOTES

(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



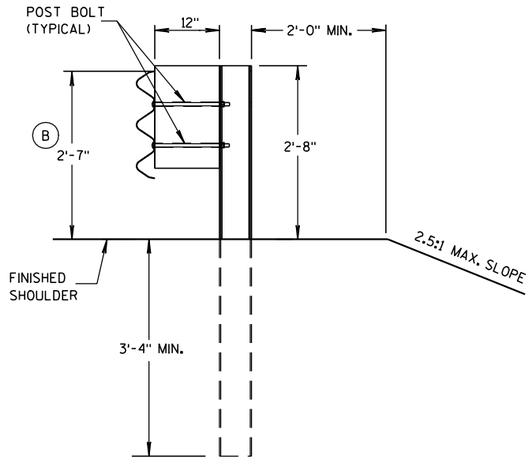
SECTION A-A

POSTS 1-5



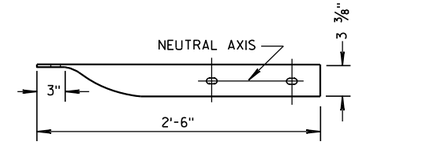
SECTION B-B

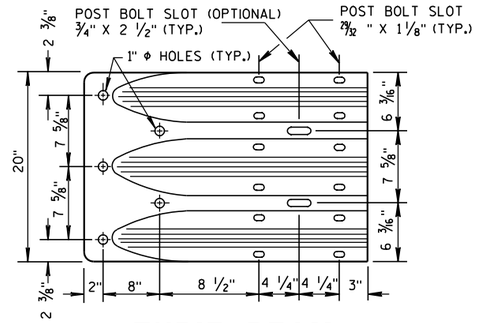
POST 6



SECTION C-C

POSTS 7-11





THRIE BEAM TERMINAL CONNECTOR

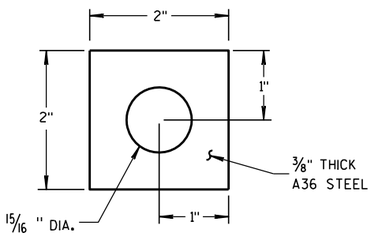
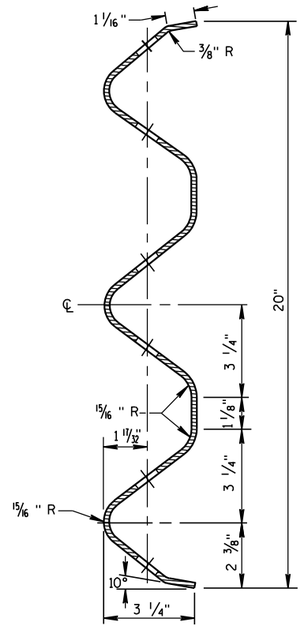
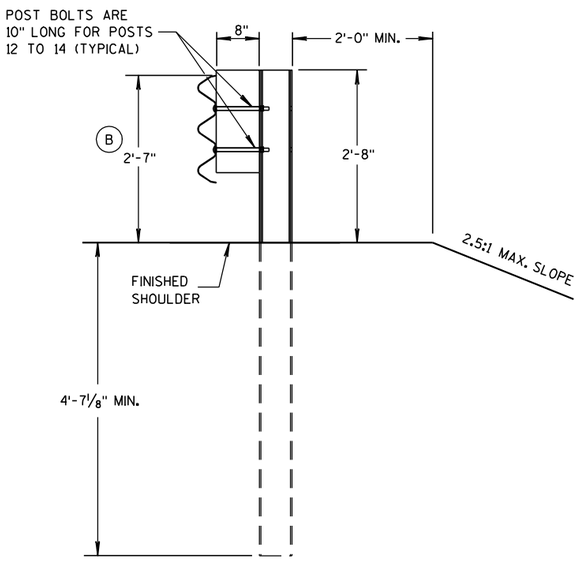


PLATE WASHER DETAIL

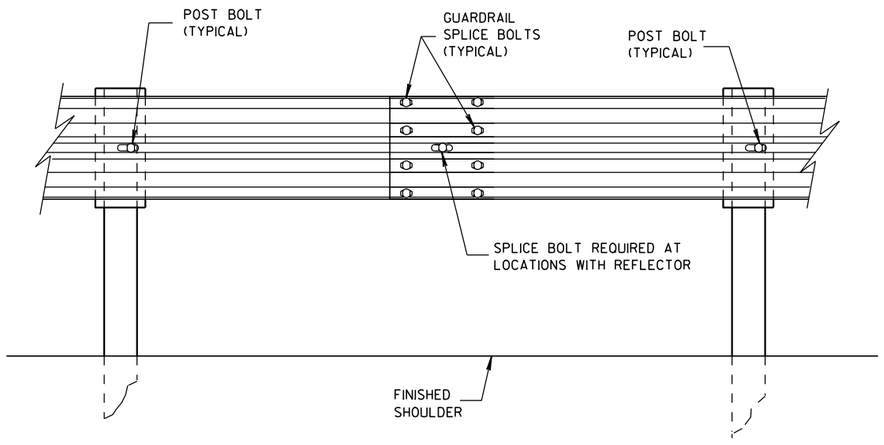


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-14



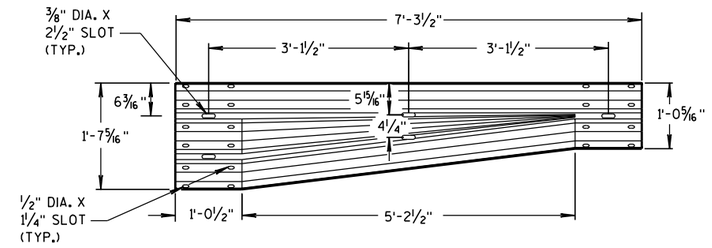
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

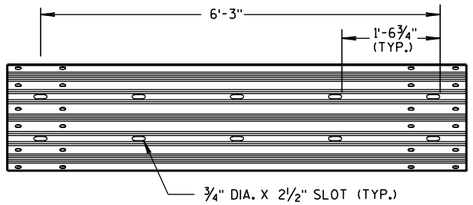
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

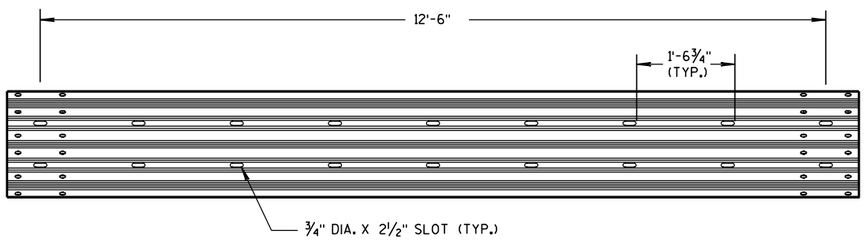
S.D.D. 14 B 45-3b



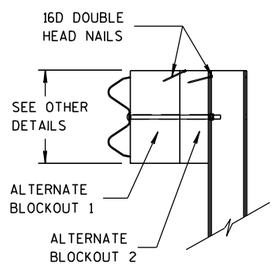
W-BEAM TO THRIE BEAM TRANSITION SECTION



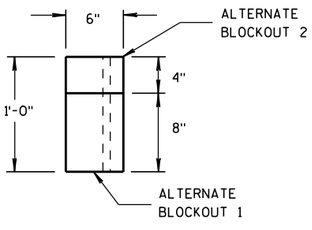
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

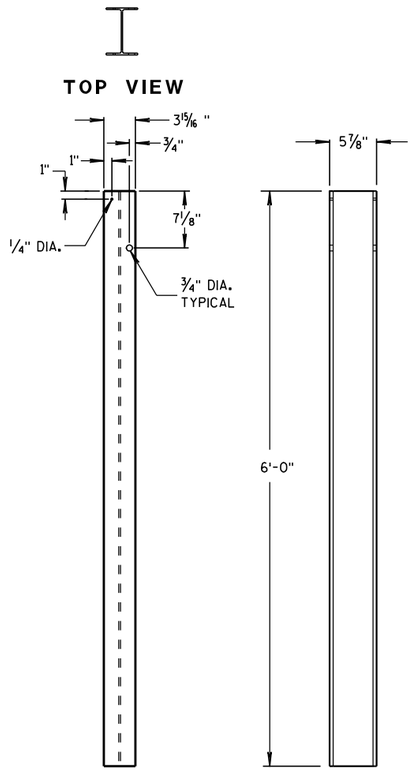


SIDE VIEW

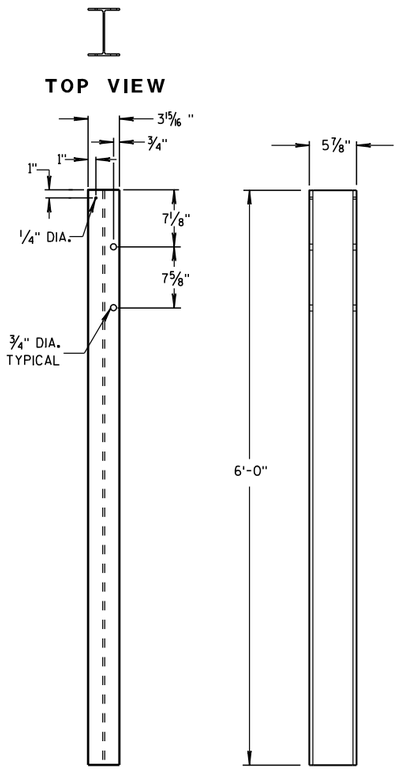


TOP VIEW

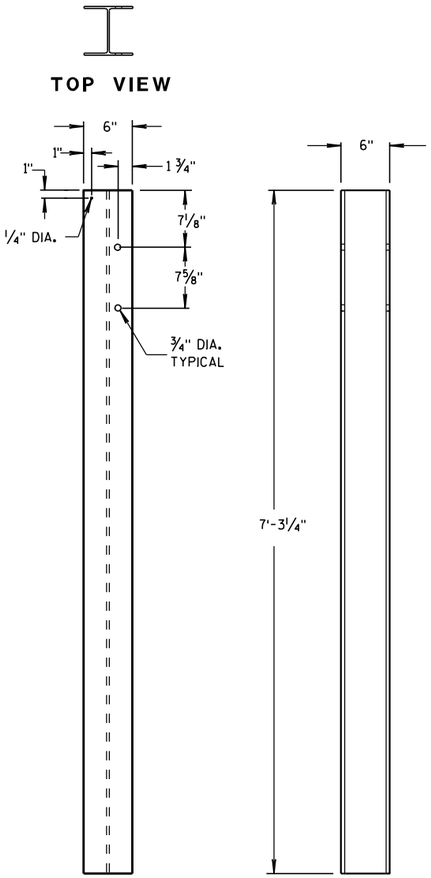
ALTERNATE WOOD BLOCKOUT DETAIL



STEEL POSTS 1-5

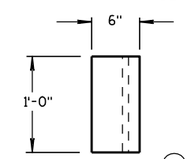


STEEL POSTS 6-11

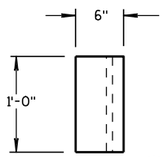


STEEL POSTS 12-14

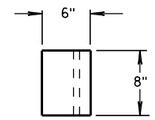
1 WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.



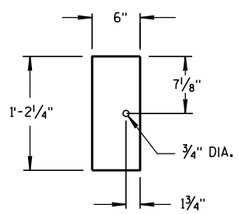
TOP VIEW (1)



TOP VIEW (1)

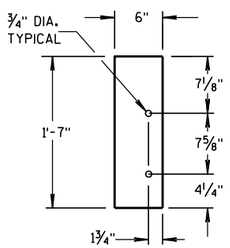


TOP VIEW



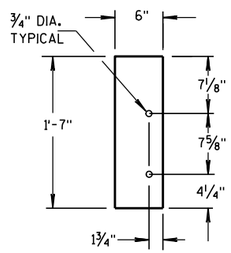
FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-11



FRONT VIEW

BLOCKOUT POSTS 12-14

STEEL POST SIZES

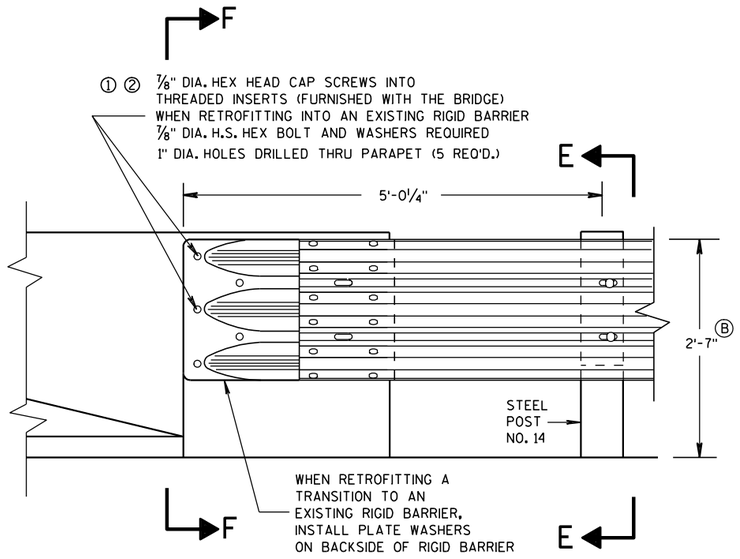
POST NUMBER	SECTION TYPE	LENGTH
1	W6x9	72"
2	W6x9	72"
3	W6x9	72"
4	W6x9	72"
5	W6x9	72"
6	W6x9	72"
7	W6x9	72"
8	W6x9	72"
9	W6x9	72"
10	W6x9	72"
11	W6x9	72"
12	W6x15	87 1/8"
13	W6x15	87 1/8"
14	W6x15	87 1/8"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

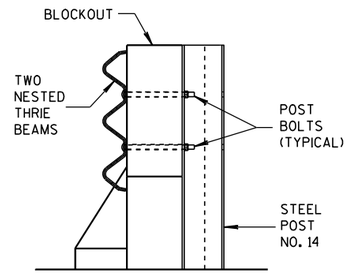
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 45-3c



FRONT VIEW



SECTION E-E

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

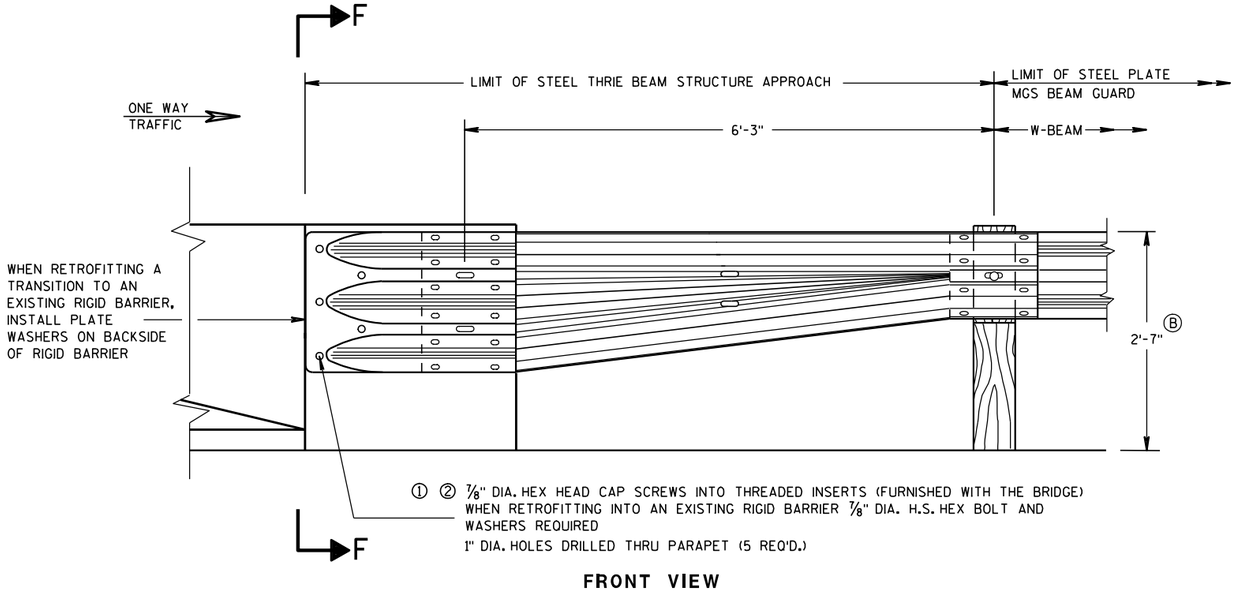
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

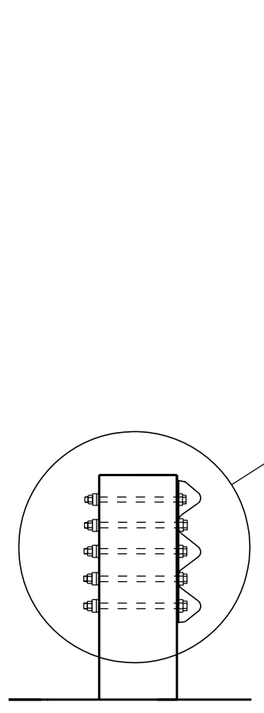
③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".

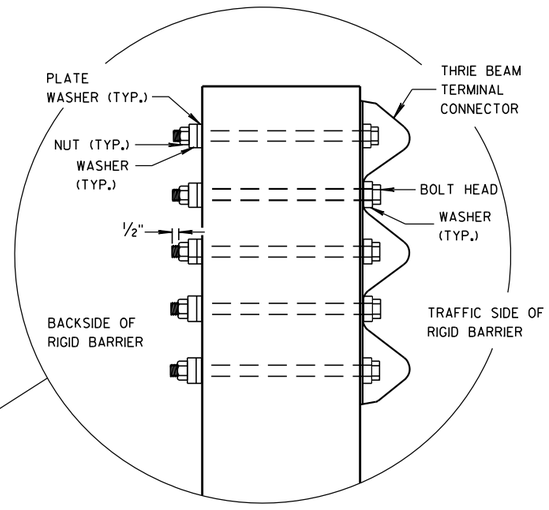
THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



FRONT VIEW



SECTION F-F



W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 — DATE

/S/ Jerry H. [illegible] — ROADWAY STANDARDS [illegible] ENGINEER

FHWA

6

S.D.D. 14 B 45-3d

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

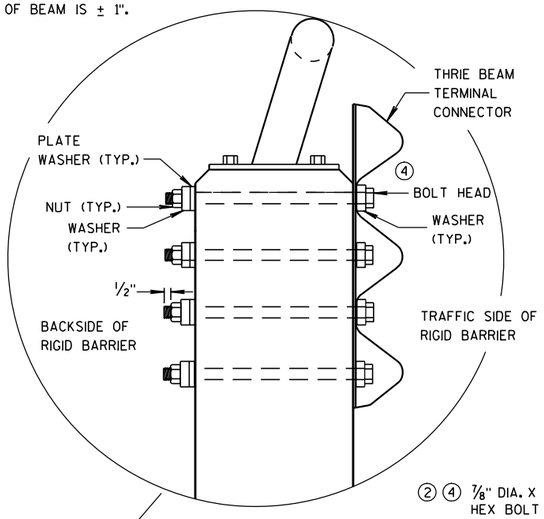
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

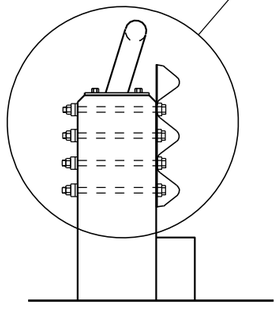
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2". BLOCK IS INCIDENTAL TO THE CONTRACT.

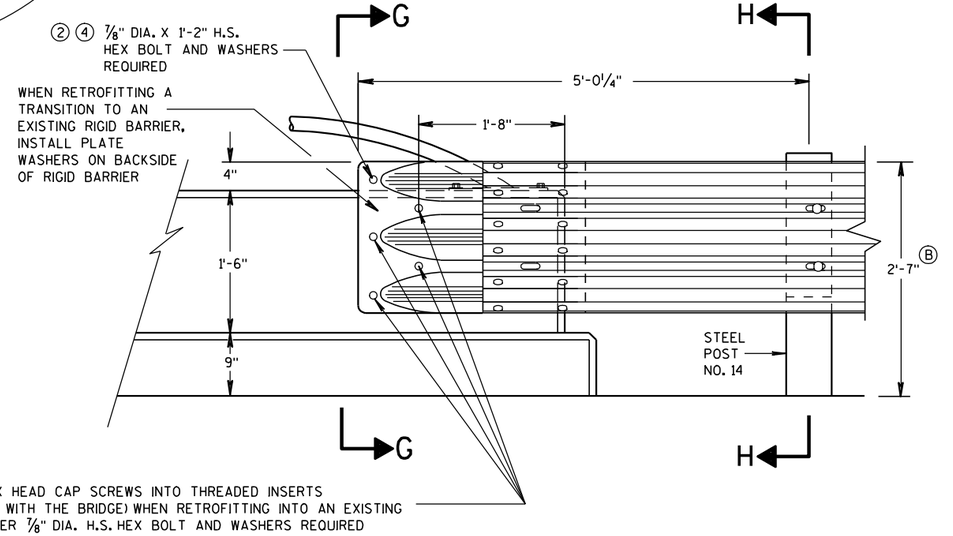
④ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".

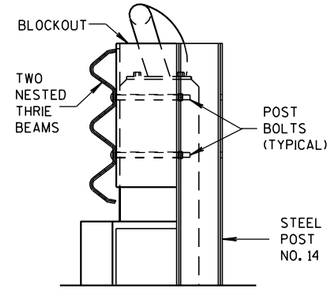




SECTION G-G

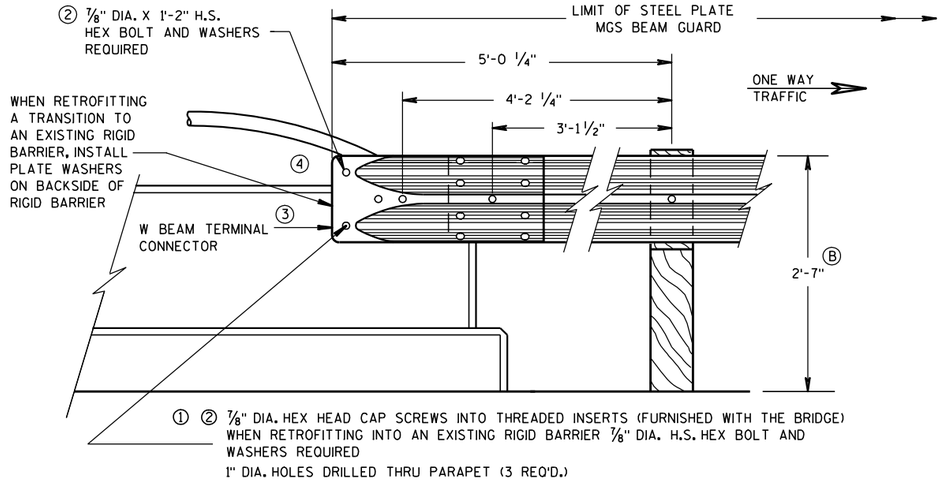


FRONT VIEW



SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-31-2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

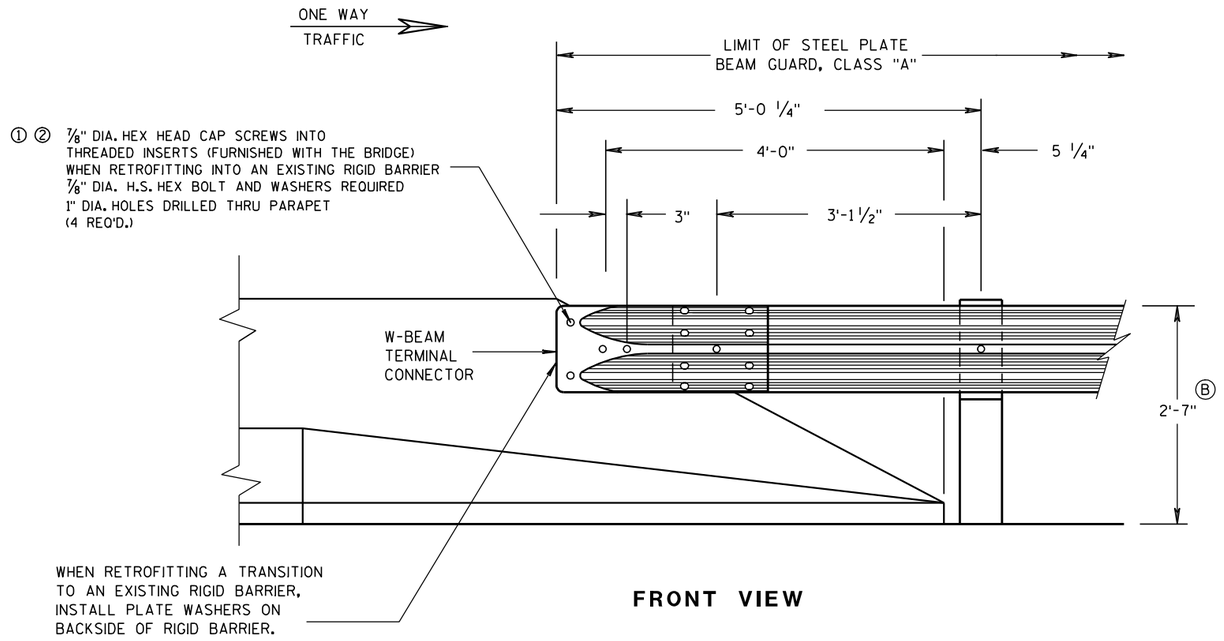
FHWA

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S.D.D. 14 B 45-3e

6

S.D.D. 14 B 45-3e



FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

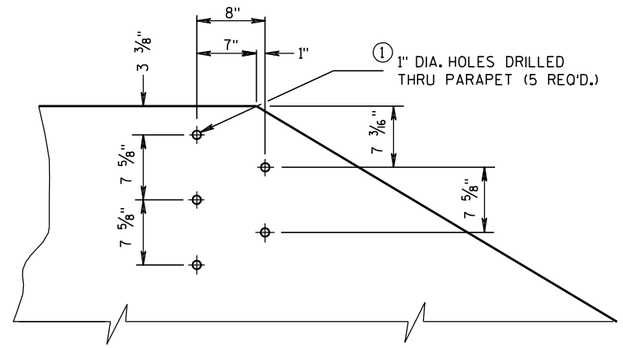
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

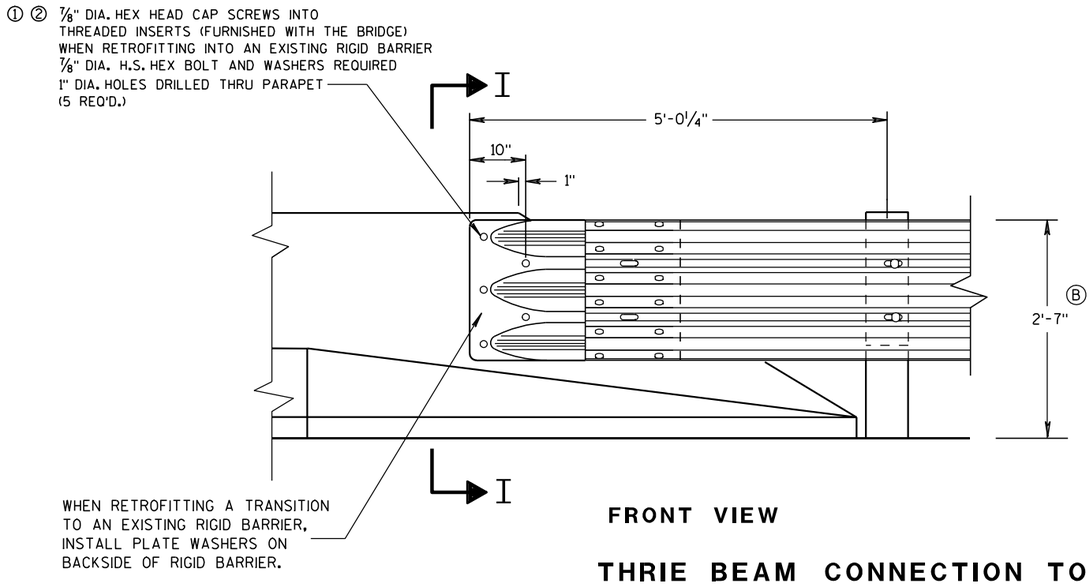
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

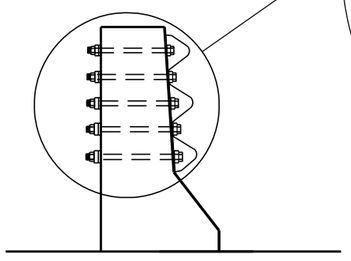
Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".



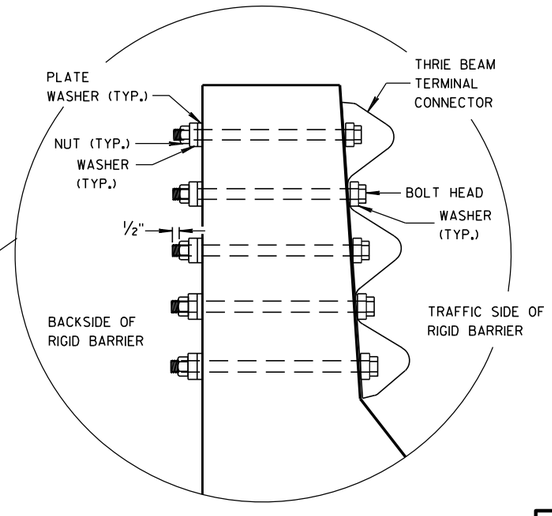
DRILL HOLE LOCATION AND PATTERN FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 — DATE

/S/ Jerry H. [illegible] — ROADWAY STANDARDS ENGINEER

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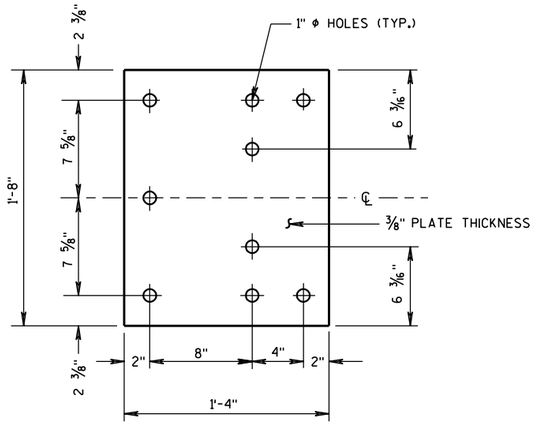
FHWA

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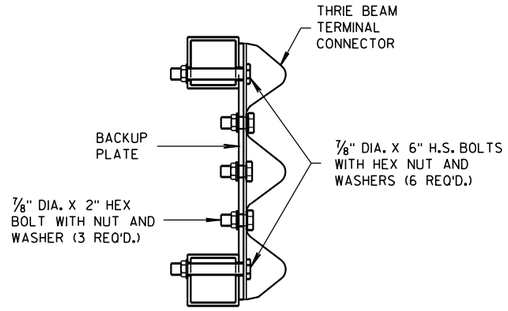
S.D.D. 14 B 45-3f

6

S.D.D. 14 B 45-3f



BACK-UP PLATE DETAIL

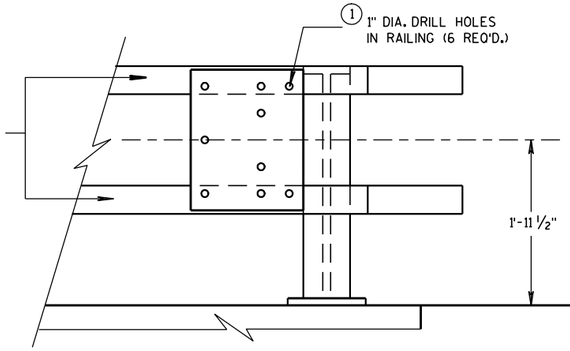


SECTION J-J

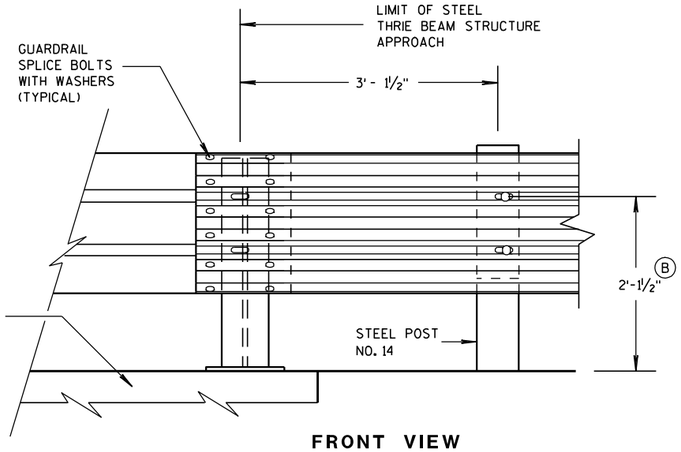
GENERAL NOTES

(1) DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(B) TOLERANCE FOR TOP OF BEAM IS ± 1".

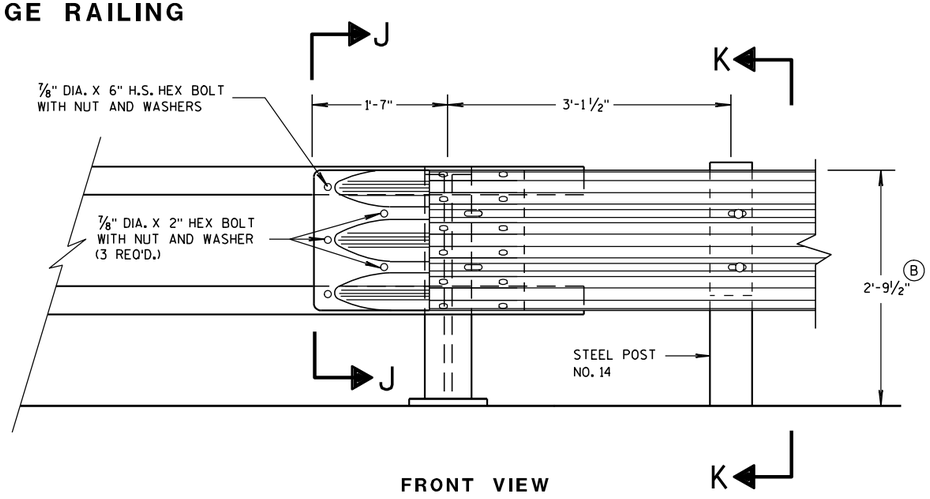


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

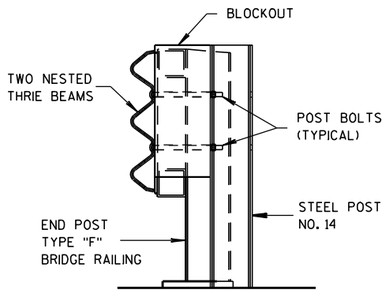


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED 8/31/2012 DATE /S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER FHWA

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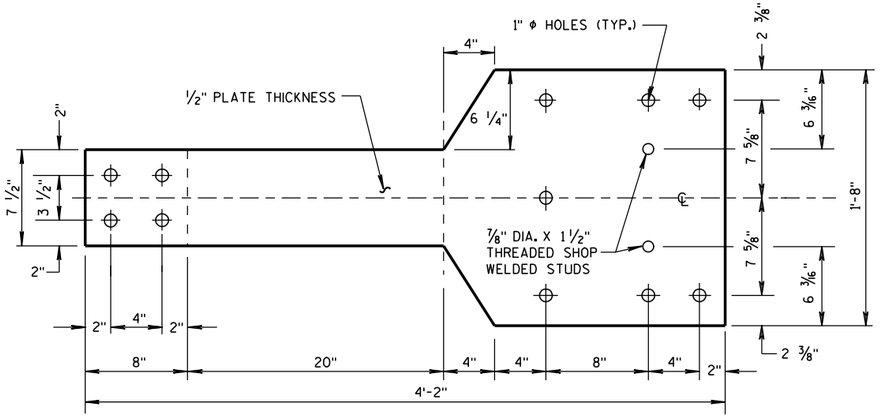
S.D.D. 14 B 45-3g

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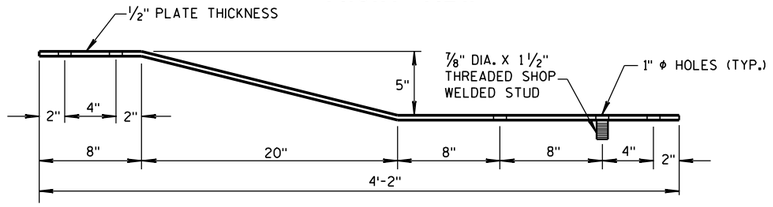
S.D.D. 14 B 45-3g

GENERAL NOTES

(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

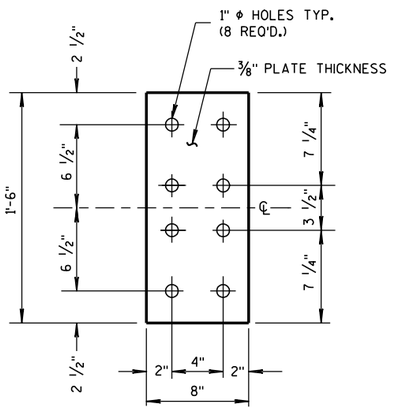


FRONT VIEW



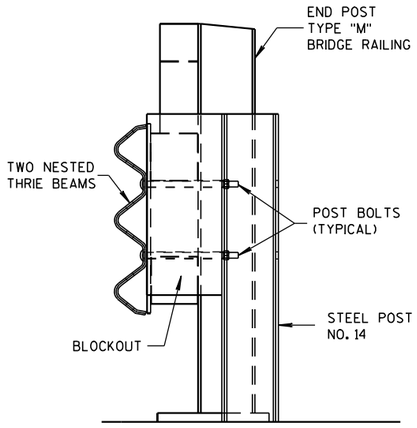
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

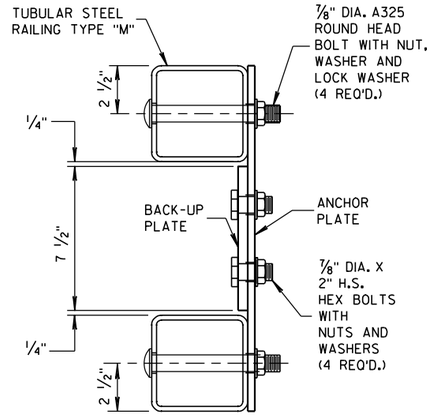


FRONT VIEW

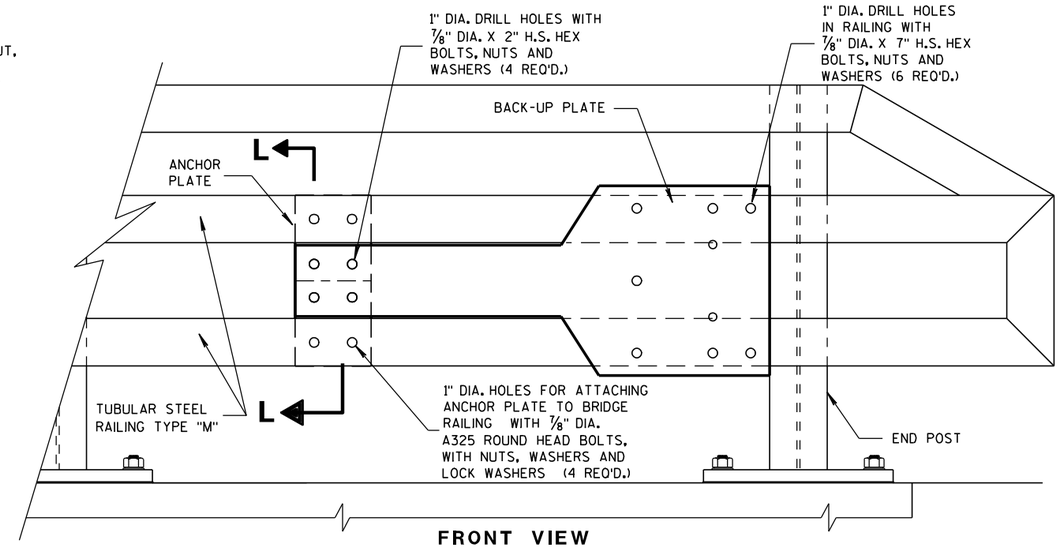
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

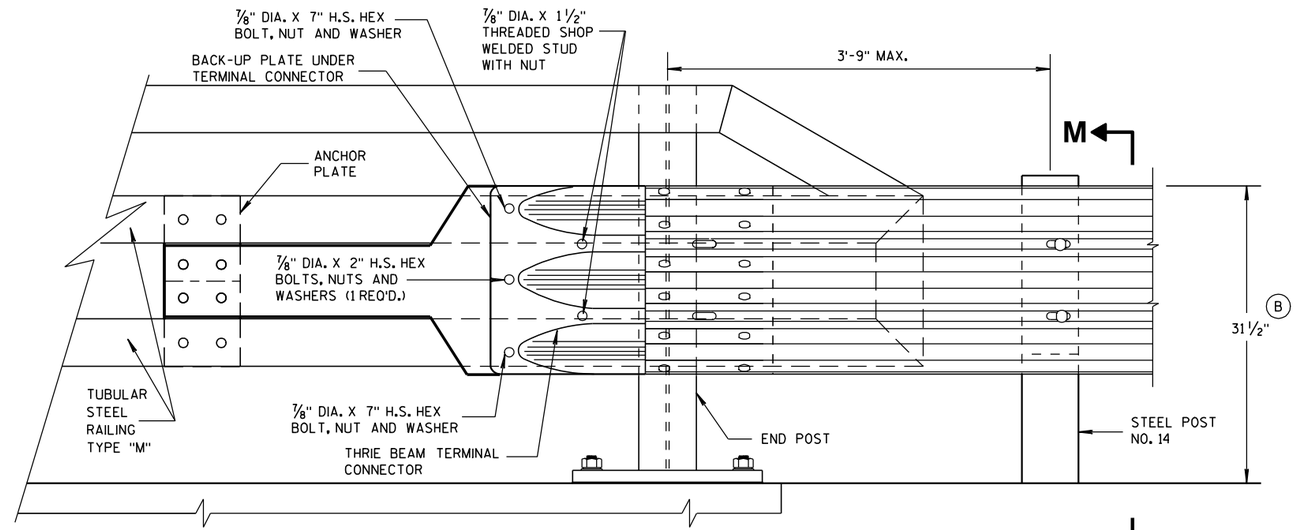


SECTION L-L

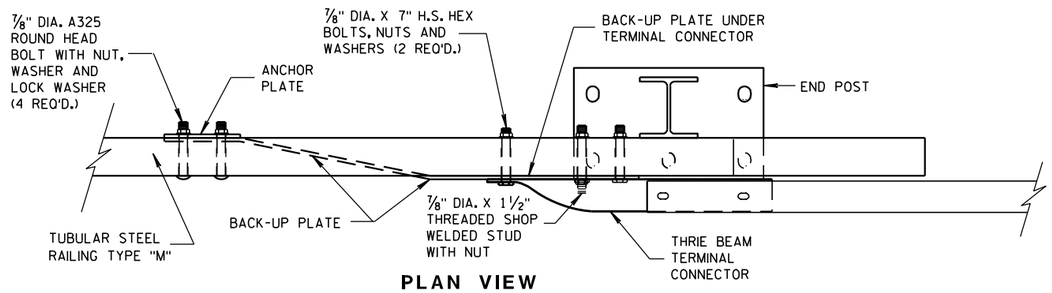


FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-31-2012 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

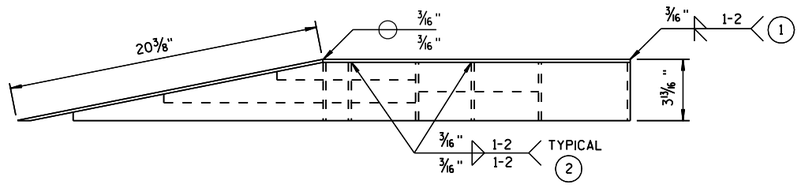
FHWA ENT

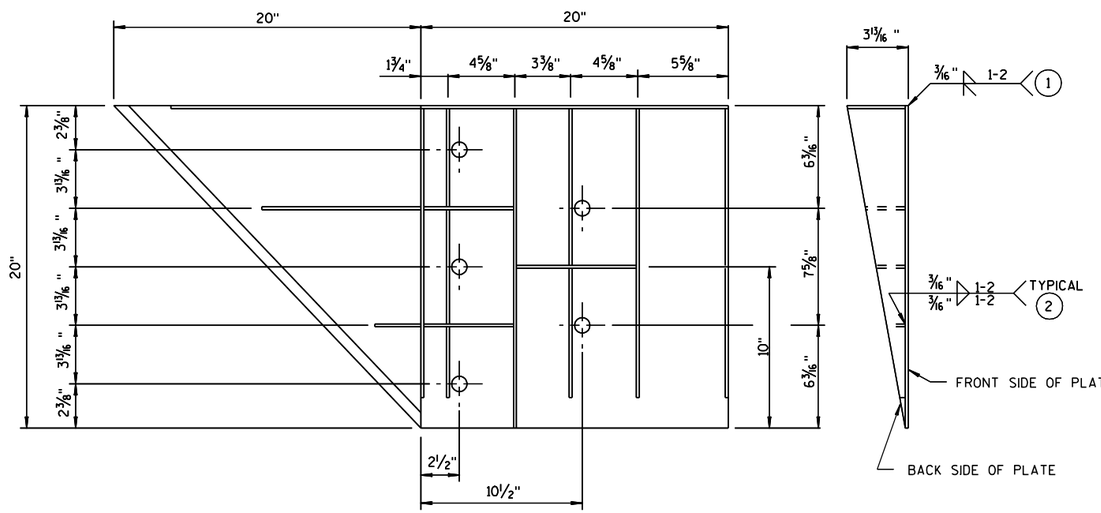
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S.D. 14 B 45-3h

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S.D. 14 B 45-3h





WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

(1) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

(2) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

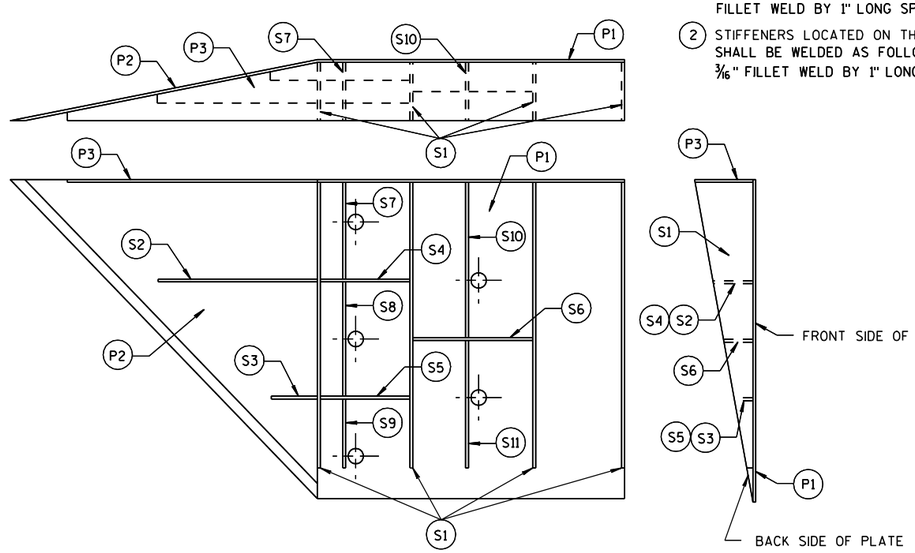


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

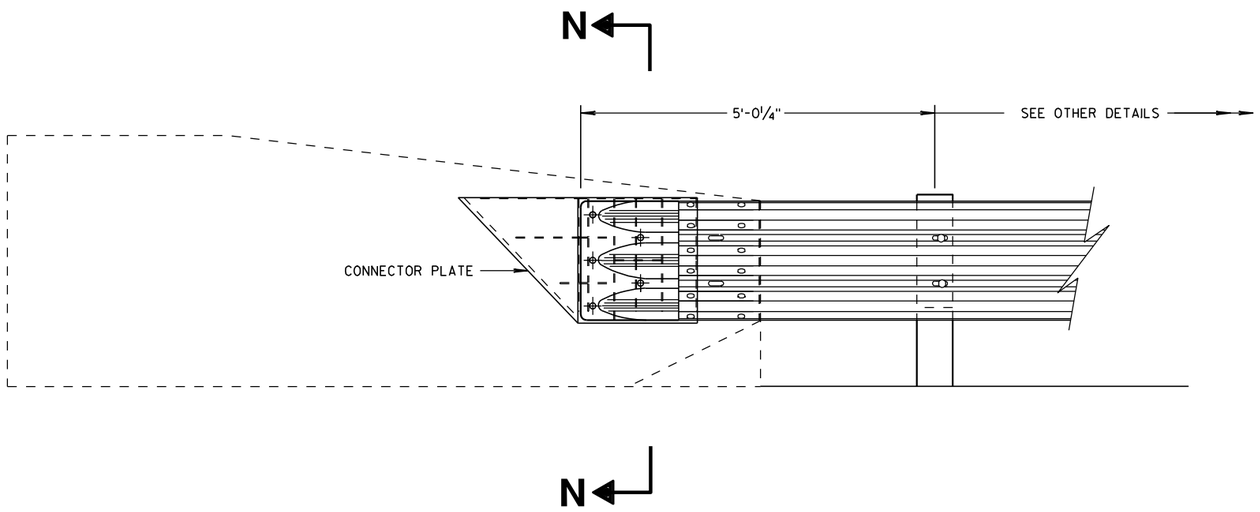
APPROVED
8/31/2012
DATE
/S/ Jerry H ---
ROADWAY STANDARDS ENGINEER
267
FHWA

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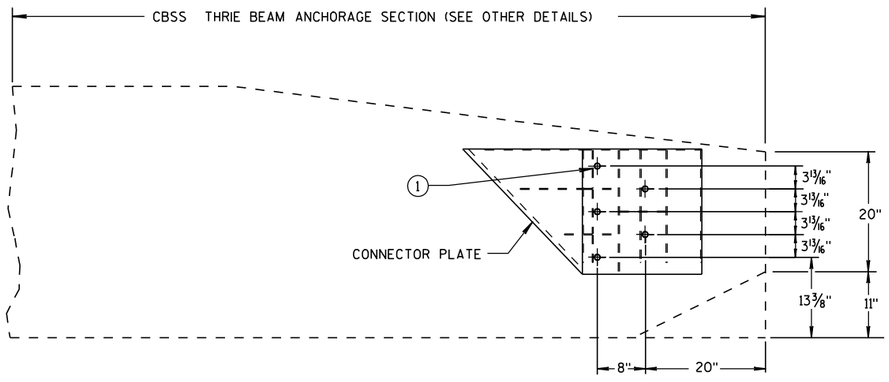
S.D.D. 14 B 45-3i

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S.D.D. 14 B 45-3i



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER

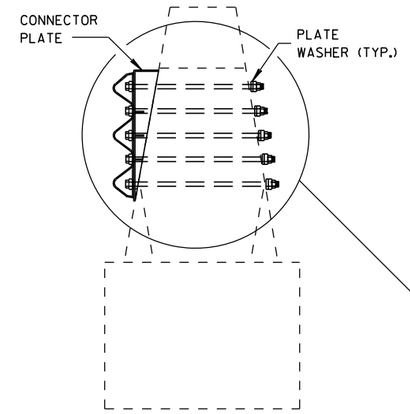


SINGLE SLOPE CONNECTION PLATE PLACEMENT

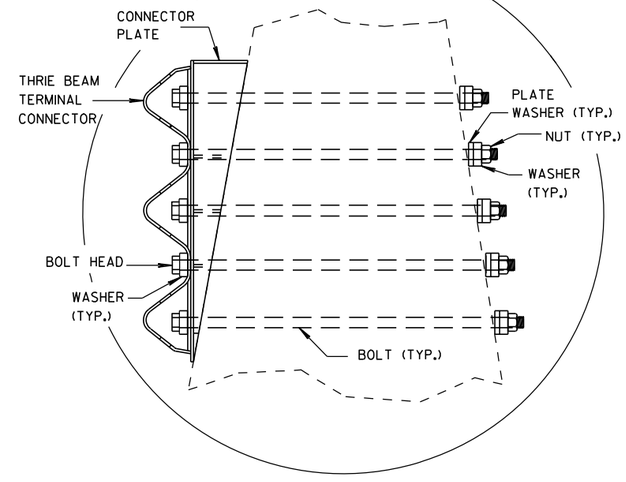
GENERAL NOTES

CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(1) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012
DATE

/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

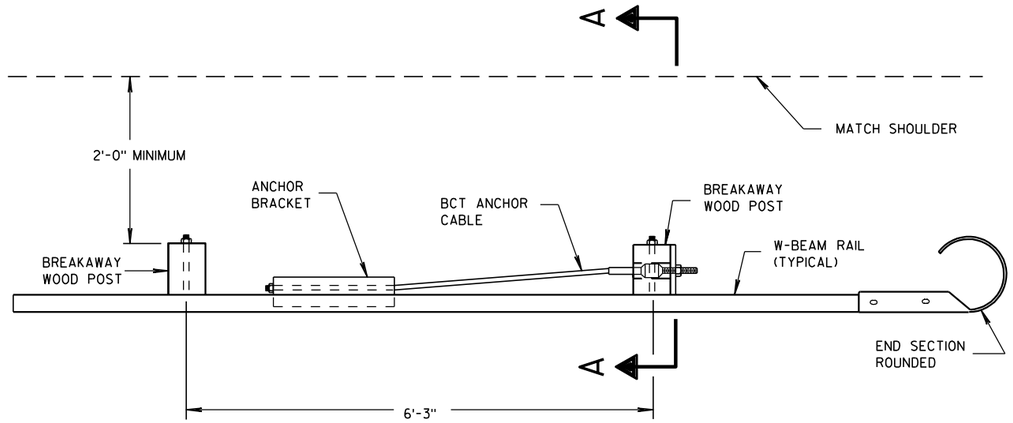
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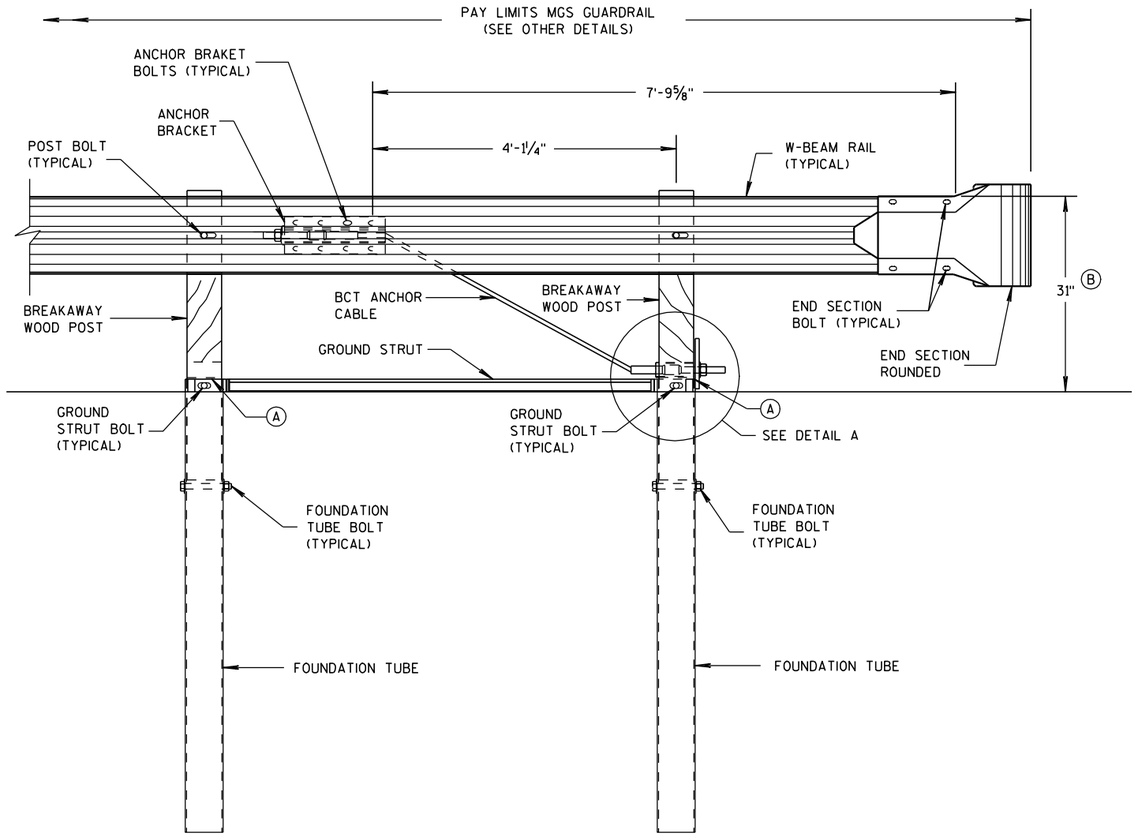
S.D.D. 14 B 45-3j

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S.D.D. 14 B 45-3j

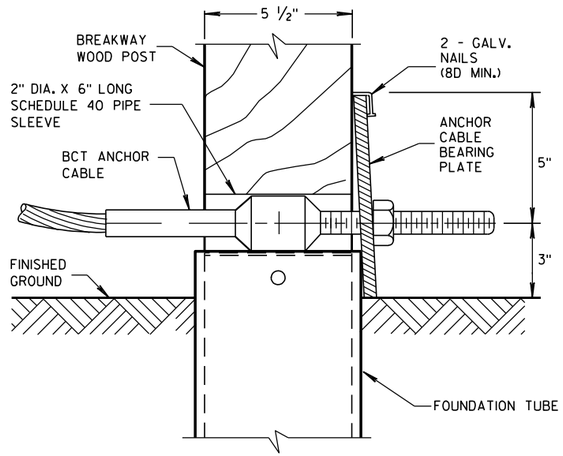


PLAN VIEW



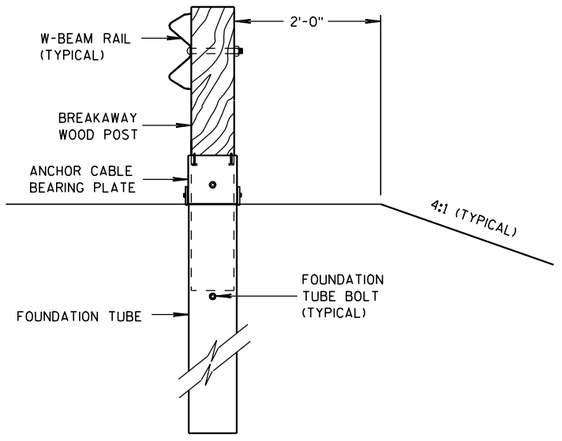
FRONT VIEW

END RAIL DETAIL



DETAIL A

POST NO. 1
GROUNG STRUT NOT SHOWN FOR CLARITY.



SECTION A-A

GENERAL NOTES

SEE SDD 14 B 42 FOR MORE INFORMATION.

POST BOLTS ARE A ⅝" DIAMETER X 10" LONG GUARDRAIL BOLT. A POST BOLT REQUIRES A ⅝" DIAMETER DH MODIFIED (RECESSED) HEAVY HEX NUT AND ⅝" DIAMETER FLAT WASHER.

FOUNDATION TUBE BOLTS ARE A ⅞" DIAMETER X 7½" LONG HEAVY HEX HEAD BOLT. A FOUNDATION TUBE BOLT REQUIRES A ⅞" DIAMETER DH HEAVY HEX NUT AND A ⅝" DIAMETER FLAT WASHER.

GROUND STRUT BOLTS ARE A ⅝" DIAMETER X 10" LONG HEAVY HEX HEAD BOLT. A GROUND STRUT BOLT REQUIRES A ⅝" DIAMETER DH HEAVY HEX NUT AND A ⅝" DIAMETER FLAT WASHER.

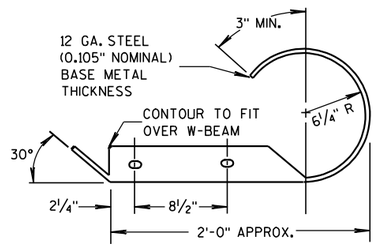
ANCHOR BRAKET BOLTS ARE A ⅝" DIAMETER X 1½" LONG HEAVY HEX HEAD BOLT. AN ANCHOR BRAKET BOLT REQUIRES A ⅝" DIAMETER DH HEAVY HEX NUT AND A FLAT WASHER.

END SECTION BOLTS ARE A ⅝" DIAMETER X 1½" HEAVY HEX HEAD BOLT. AN END SECTION BOLT REQUIRES ⅝" DIAMETER DH HEAVY HEX NUT AND A ⅝" DIAMETER FLAT WASHER.

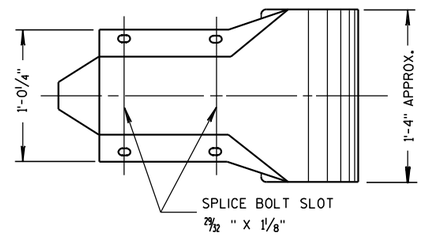
W-BEAM END SECTION ROUNDED HAS THE SAME MATERIAL PROPERTIES AS STANDARD STEEL RAIL.

(A) TOP OF FOUNDATION TUBE SHALL BE NO MORE THAN 3" ABOVE FINISHED GROUND.

(B) FOR NEW CONSTRUCTION TOP OF RAIL IS 31" ± 1".
FOR EXISTING INSTALLATIONS TOP OF RAIL IS BETWEEN 27¾" TO 32" ± 1".



PLAN VIEW



FRONT VIEW

W BEAM END SECTION ROUNDED

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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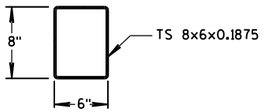
S.D.D. 14 B 47-1a

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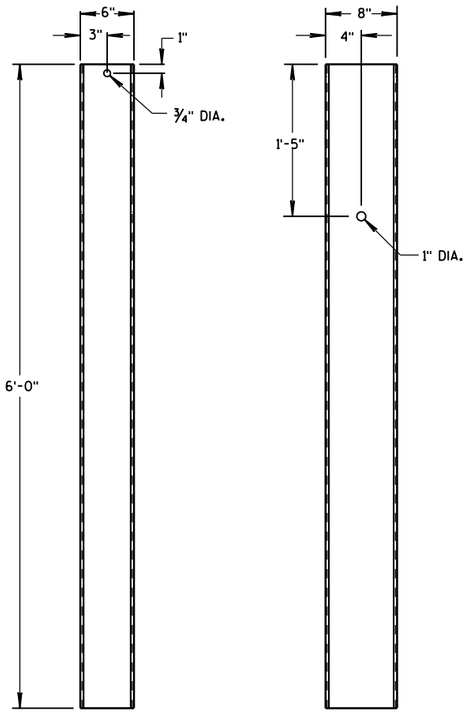
S.D.D. 14 B 47-1a

GENERAL NOTES

BCT ANCHOR CABLE IS A ⅜" DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED. THE END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123. THE TREADED STUD SHOULD CONFORM TO ASTM A325 OR SAE GRADE 5. MINIMUM BREAKING STRENGTH OF WIRE ROPE IS 43,000 LB. WIRE ROPE IS TO BE TAUT.

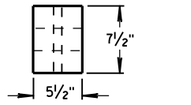


PLAN VIEW

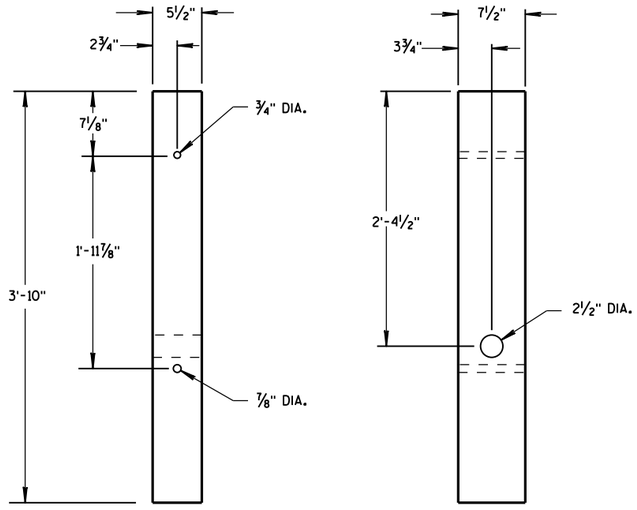


FRONT VIEW SIDE VIEW

FOUNDATION TUBE

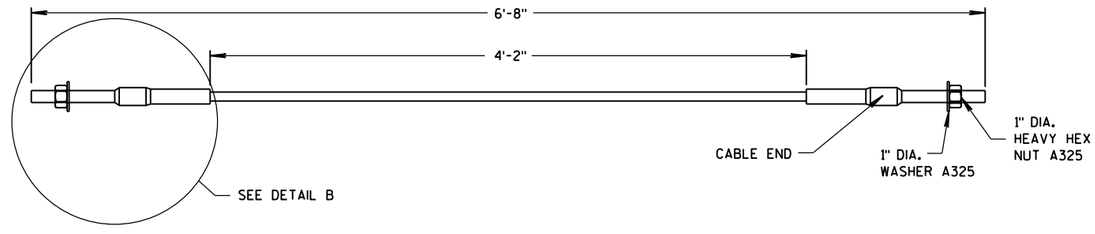


PLAN VIEW

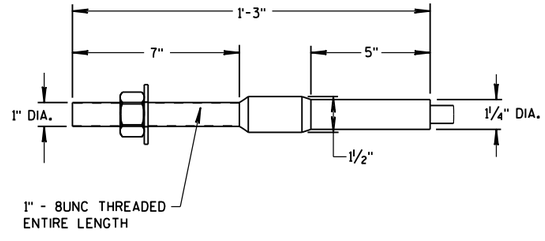


FRONT VIEW SIDE VIEW

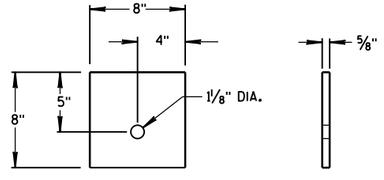
BREAKAWAY WOOD POST



BCT ANCHOR CABLE



DETAIL B



SIDE VIEW FRONT VIEW

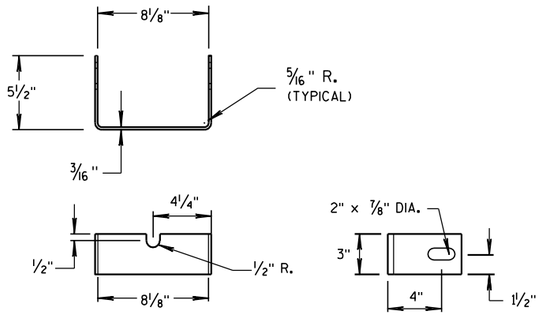
ANCHOR CABLE
BEARING PLATE

MIDWEST GUARDRAIL
SYSTEM (MGS) TYPE 2 TERMINAL

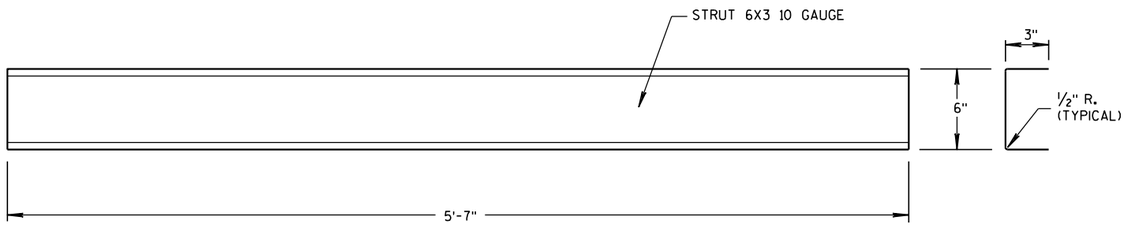
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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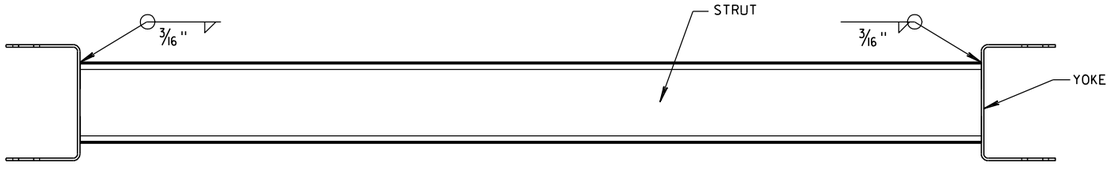
S.D.D. 14 B 47-1b



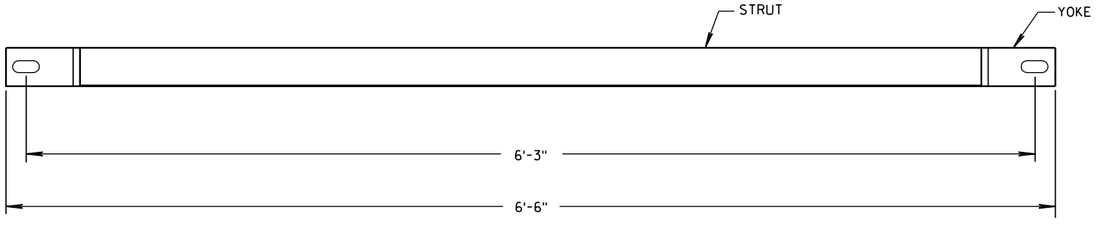
YOKE DETAIL



STRUT DETAIL

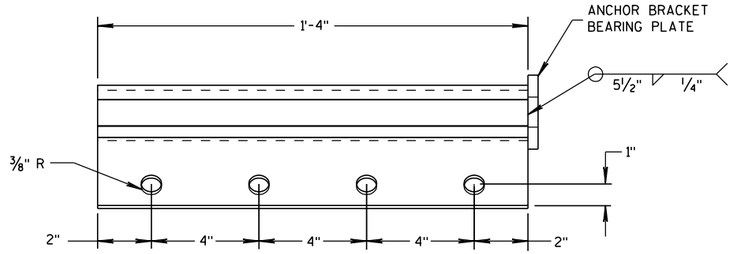


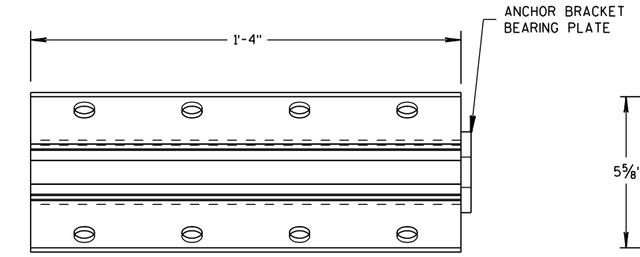
PLAN VIEW

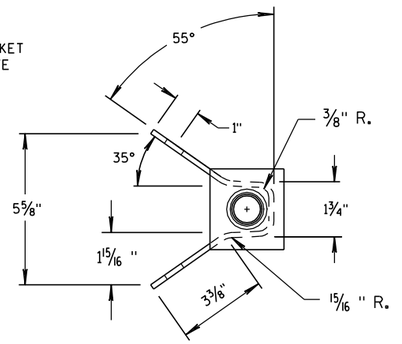


FRONT VIEW

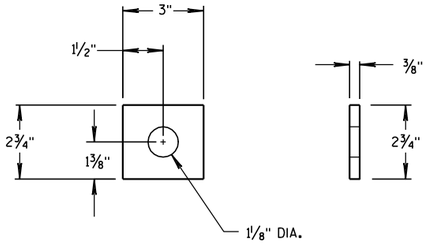
GROUND STRUT DETAIL







ANCHOR BRACKET



ANCHOR BRACKET BEARING PLATE

6

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S.D.D. 14 B 47-1c

S.D.D. 14 B 47-1c

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

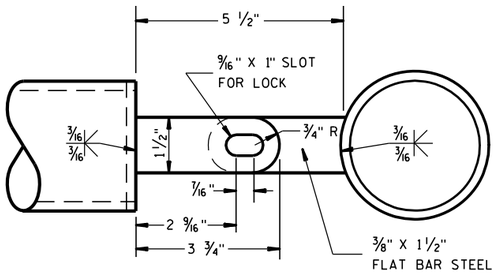
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

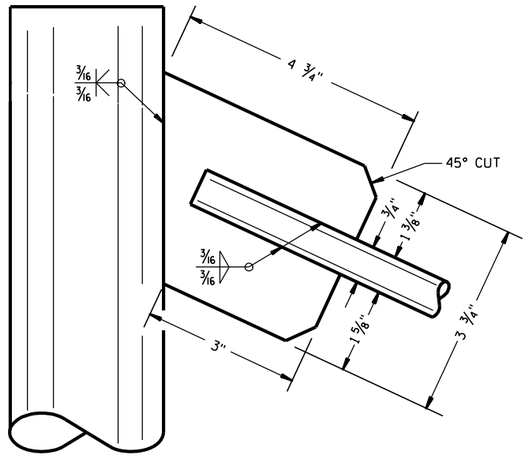
5/23/2011
DATE

/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

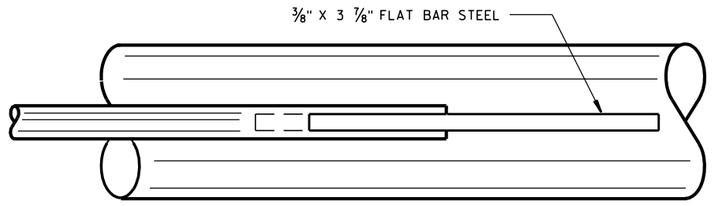
FHWA



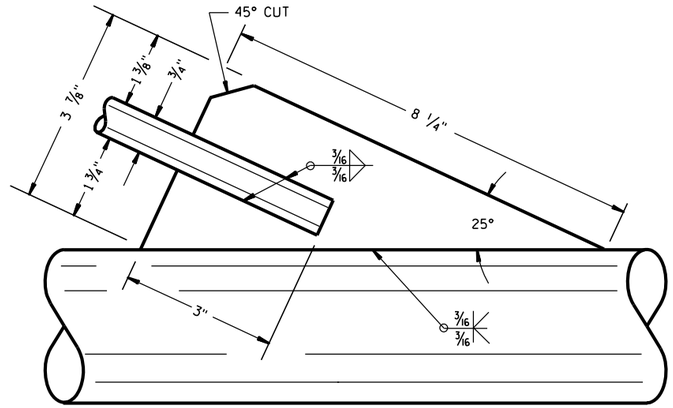
PLAN VIEW
DETAIL A



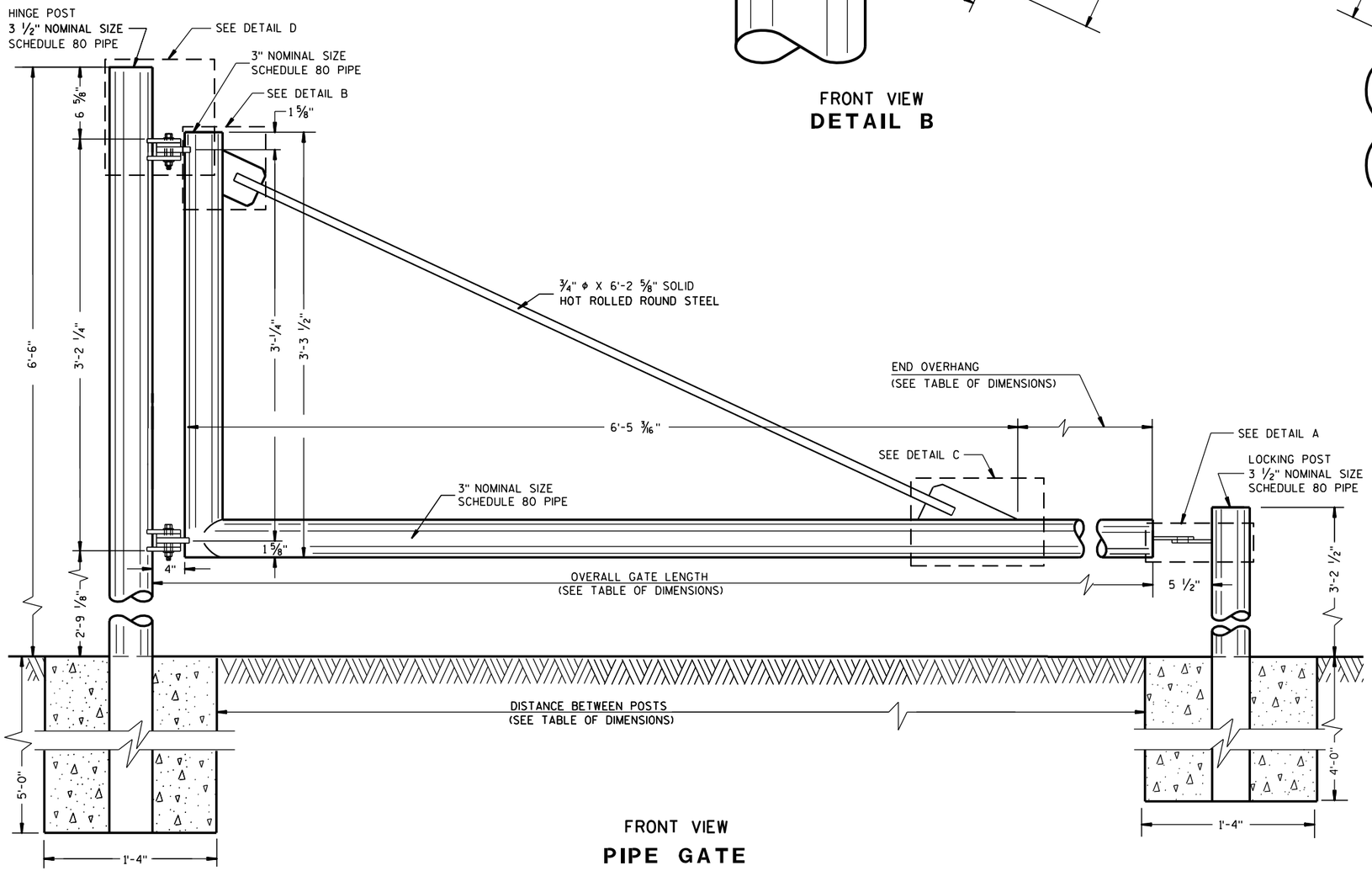
FRONT VIEW
DETAIL B



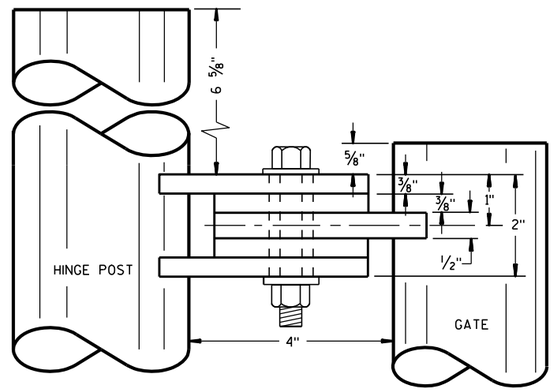
PLAN VIEW



FRONT VIEW
DETAIL C



FRONT VIEW
PIPE GATE



FRONT VIEW
DETAIL D

PIPE GATE DETAILS

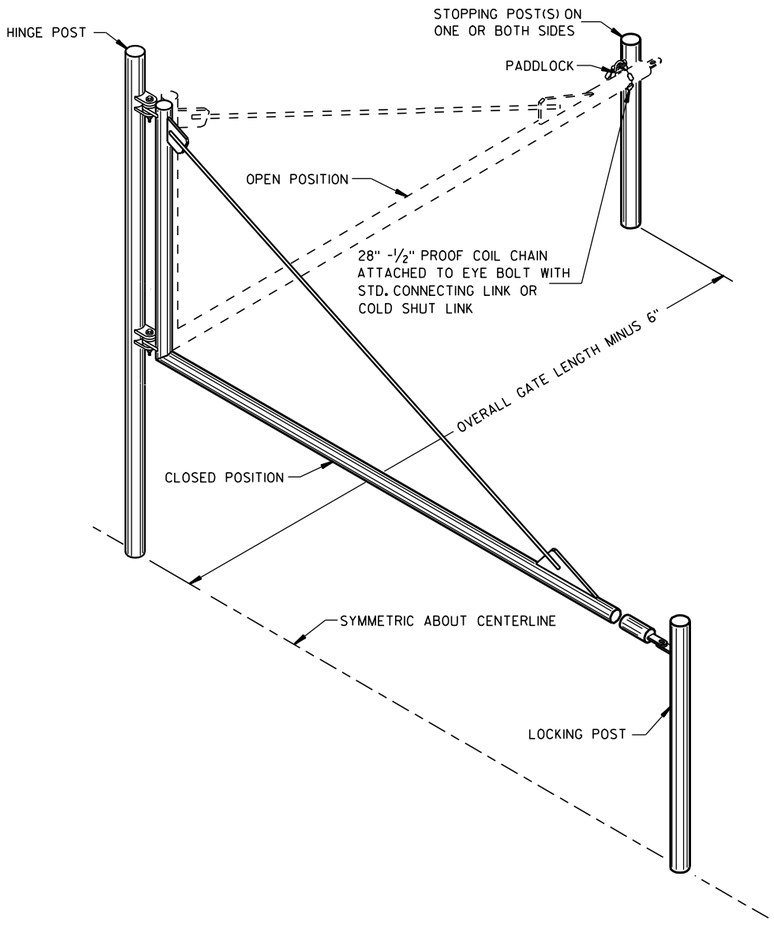
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 15 B 12-1a

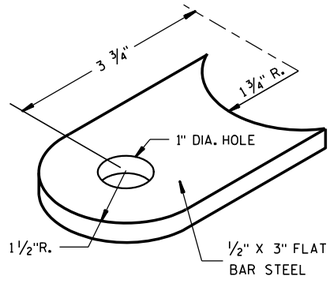
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S.D.D. 15 B 12-1a



ISOMETRIC VIEW

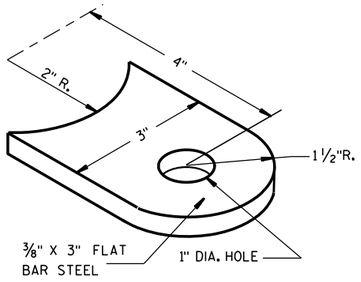
PIPE GATE PARTIAL LAYOUT (ONE SIDE ONLY)



ISOMETRIC VIEW

SWING ARM BRACKET

2 REQUIRED



ISOMETRIC VIEW

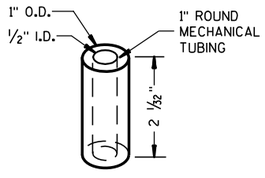
POST BRACKET

4 REQUIRED

ISOMETRIC VIEW

SPACING RING

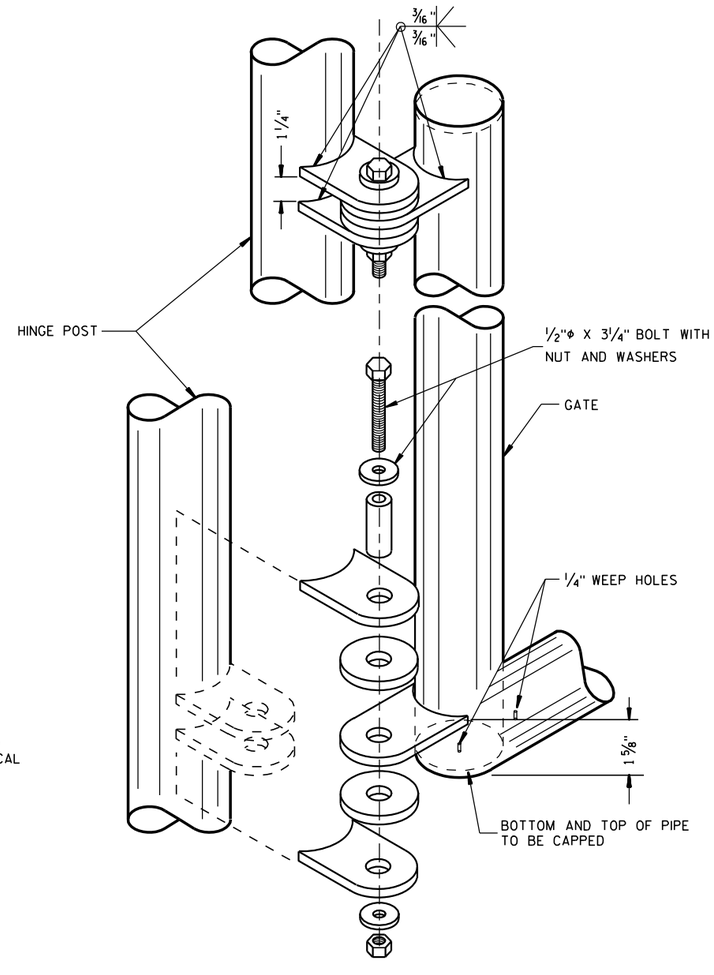
4 REQUIRED



ISOMETRIC VIEW

SLEEVE

2 REQUIRED



ISOMETRIC VIEW

HINGE ASSEMBLY

GENERAL NOTES

ALL PIPE POSTS SHALL HAVE OPEN BOTTOMS.

ALL OTHER EXPOSED ENDS SHALL BE CAPPED AND SEALED TO PREVENT WATER FROM ENTERING.

ALL STEEL BRACKETS SHALL BE ASTM A36.

ALL UNITS SHALL BE SHOP FABRICATED.

BOTH POSTS SHALL BE PLACED IN CONCRETE IN ACCORDANCE WITH THE DETAILED PLANS.

ALL METAL SHALL BE CLEANED BY SANDBLASTING TO A SSPC-10, COMMERCIAL BLAST FINISH.

ALL METAL SHALL BE PAINTED WITH A ZINC RICH PRIMER AND ONE COAT OF EPOXY FINISH PAINT. A SECOND FINISH COAT SHALL BE FIELD APPLIED AFTER INSTALLATION.

GATE LOCK CAN BE MASTER KEYED AND SHALL HAVE THE FOLLOWING MINIMUM DIMENSIONS: SHACKLE DIA. OF ⅜", VERTICAL CLEARANCE OF 1½", HORIZONTAL CLEARANCE OF 1 1/32".

HINGE BOLT THREADS SHALL BE PEINED OR SPOT WELDED IN PLACE TO PREVENT REMOVAL.

HOLE IN HINGE BRACKETS SHALL BE LARGE ENOUGH SO THAT 1" OD PIPE COLLAR JUST SLIDES THROUGH OPENING.

ALL BOLTS, WASHERS AND NUTS SHALL BE UNL ASTM A325.

(TABLE OF DIMENSIONS)

SINGLE GATE

CLEAR WIDTH	END OVERHANG	DISTANCE BETWEEN POSTS	OVERALL GATE LENGTH
10'-0"	3'-5 ¼"	10'-7 ¼"	9'-9 ¾"
12'-0"	5'-5 ¼"	12'-7 ¼"	11'-9 ¾"

IF CLEAR WIDTH GREATER THAN 12'-0" THAN USE DUAL OPENING GATES.

DUAL OPENING GATES

CLEAR WIDTH	END OVERHANG	DISTANCE BETWEEN POSTS	OVERALL GATE LENGTH
14'-0"	3 ¼"	14'-7"	7'-¾"
16'-0"	1'- 3 ¼"	16'-7"	8'-¾"
18'-0"	2'- 3 ¼"	18'-7"	9'-¾"

DESIGN NOTE:

GATE SIZE SHALL BE SPECIFIED AS THE CLEAR WIDTH OF OPENING.

PIPE GATE DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

1/5/94 — DATE

/S/ Rory L. Rhi[illegible] — CHIEF METHODS DEVELOPMENT ENGINEER

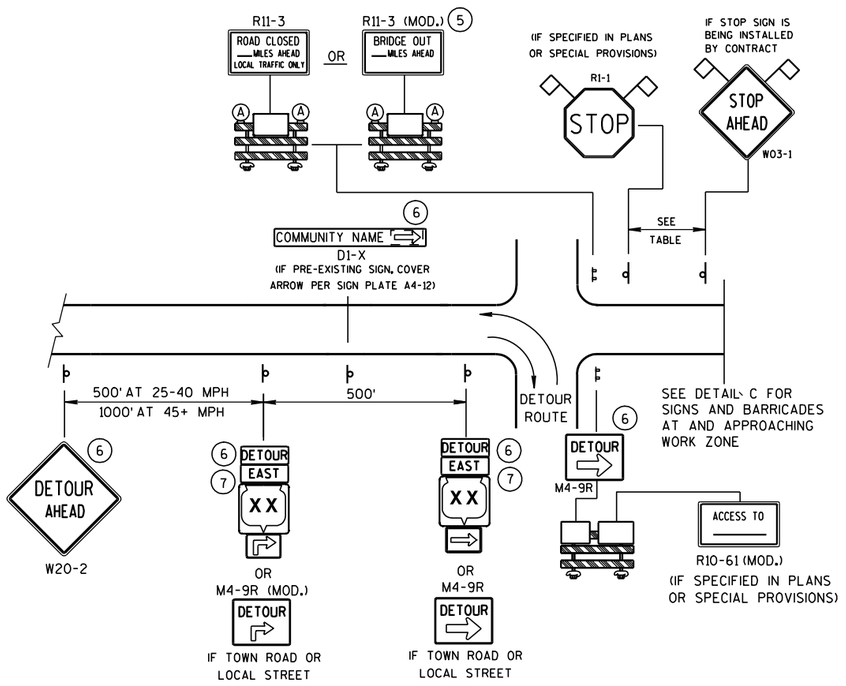
FHWA

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S.D.D. 15 B 12-1b

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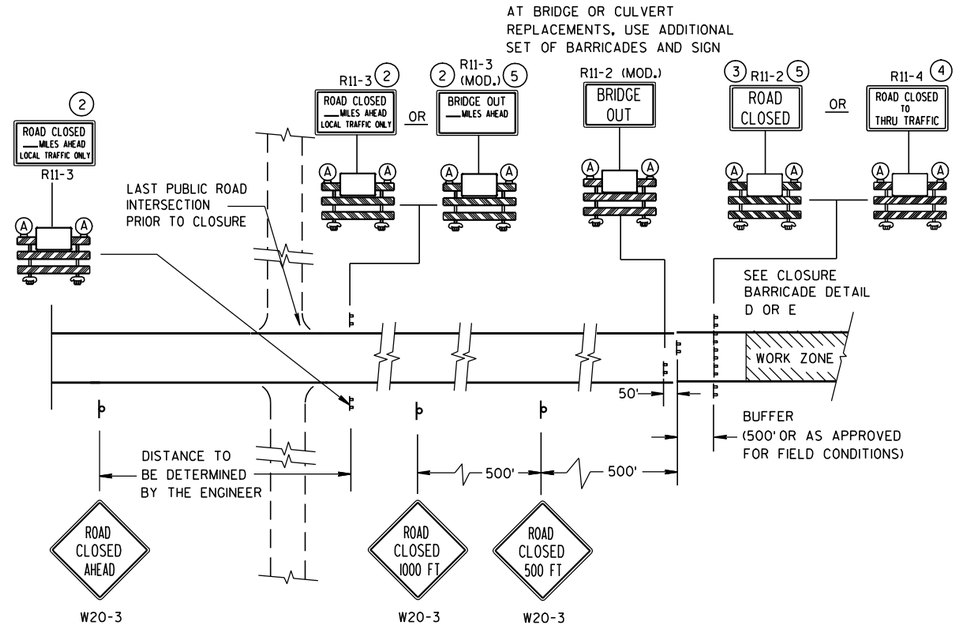
S.D.D. 15 B 12-1b



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

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

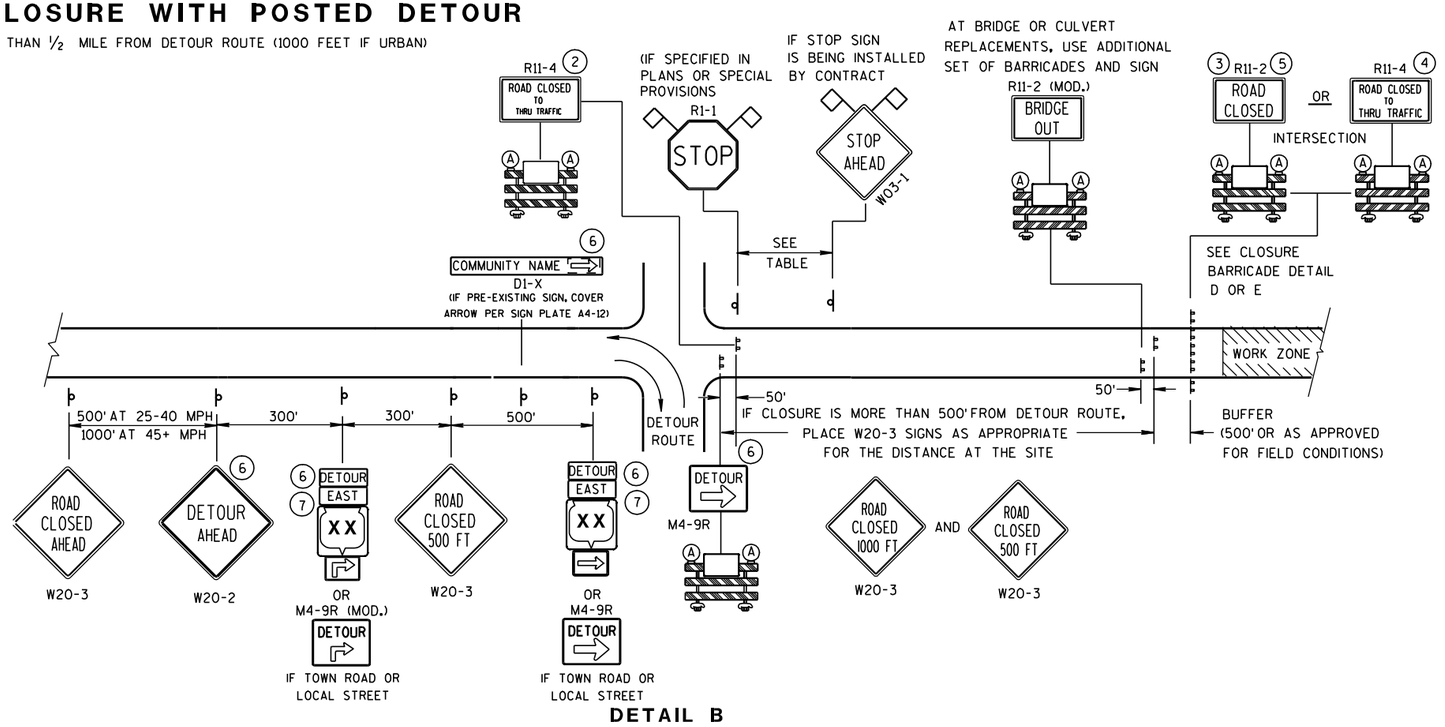


DETAIL C

MAINLINE CLOSURE, NO POSTED DETOUR

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

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



DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

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

LEGEND

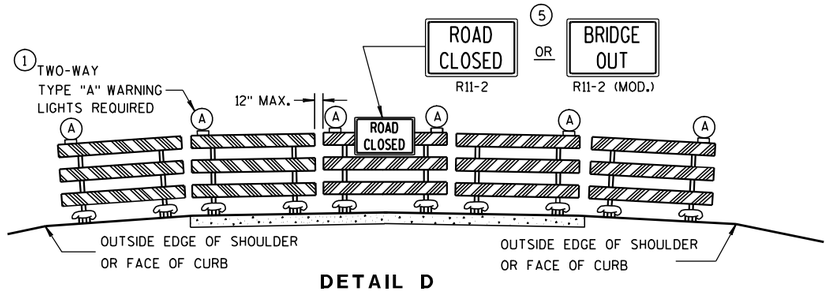
- POST MOUNTED SIGN
- TYPE III BARRICADES
- (A) TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- WORK ZONE
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

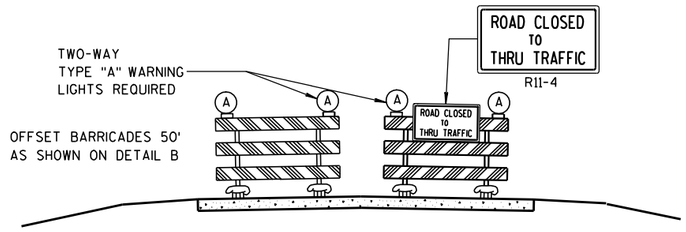
S.D.D. 15 C 2-4a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-4a FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/16/03
DATE

/S/ Thomas N. N[illegible]
CHIEF SIGNS AND MAR[illegible]INEER

FHWA

6

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

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

GENERAL NOTES

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

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. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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.

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

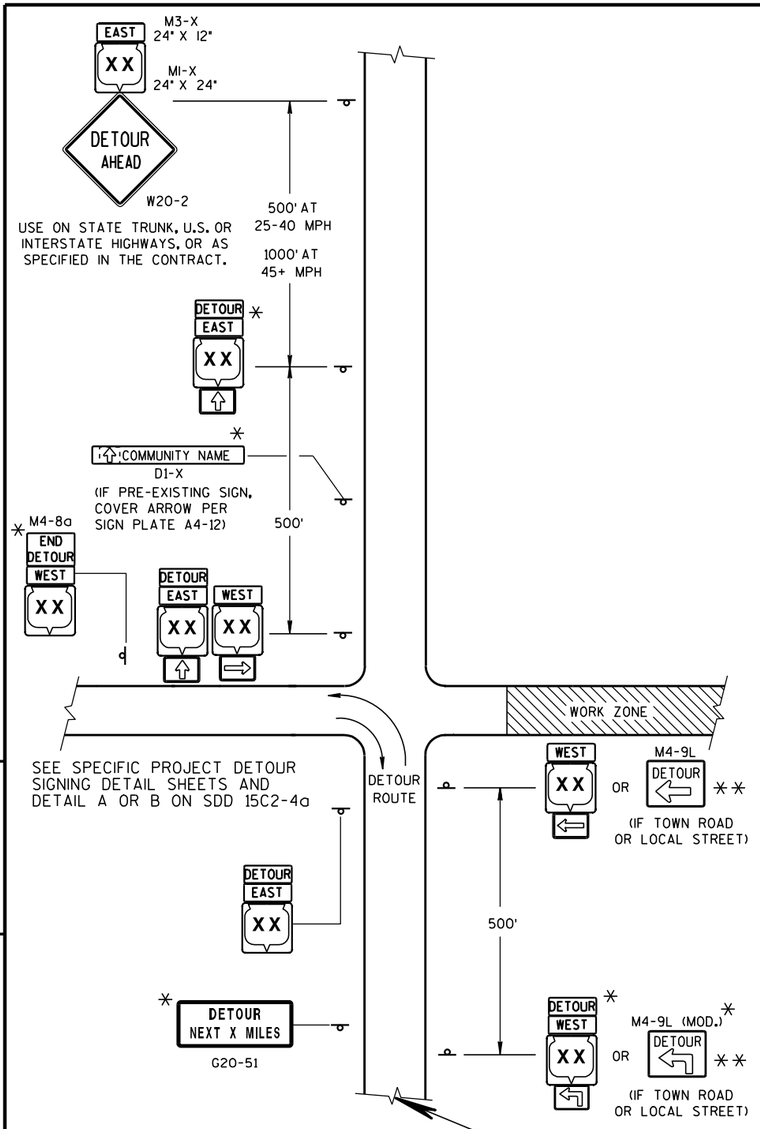
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

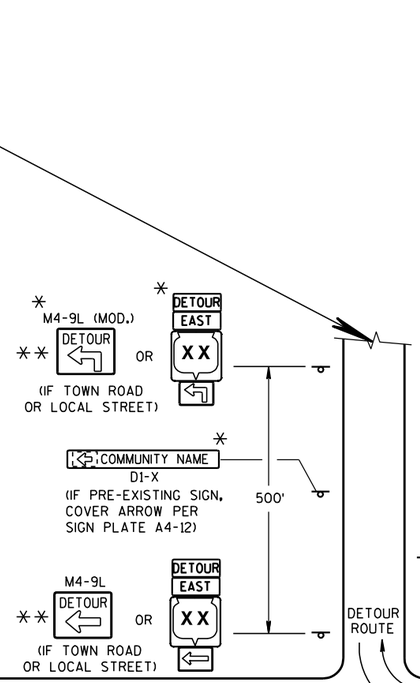
SIGN SIZES SHALL BE AS FOLLOWS:

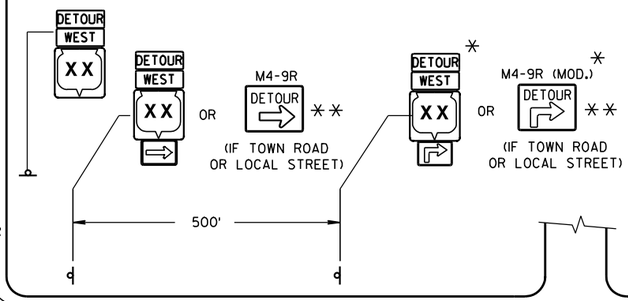
M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
M4-9 SHALL BE 30" X 24".
M4-8a SHALL BE 24" X 18".
G20-51 SHALL BE 60" X 24".
W20-2 SHALL BE 48" X 48".
D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

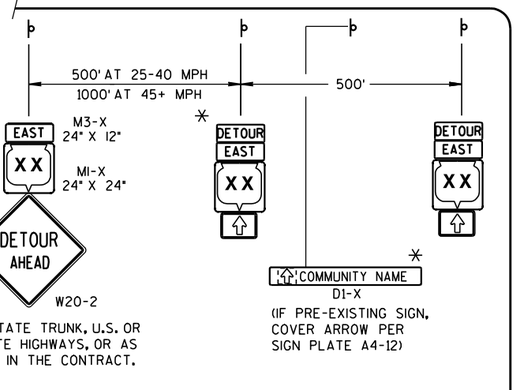
* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

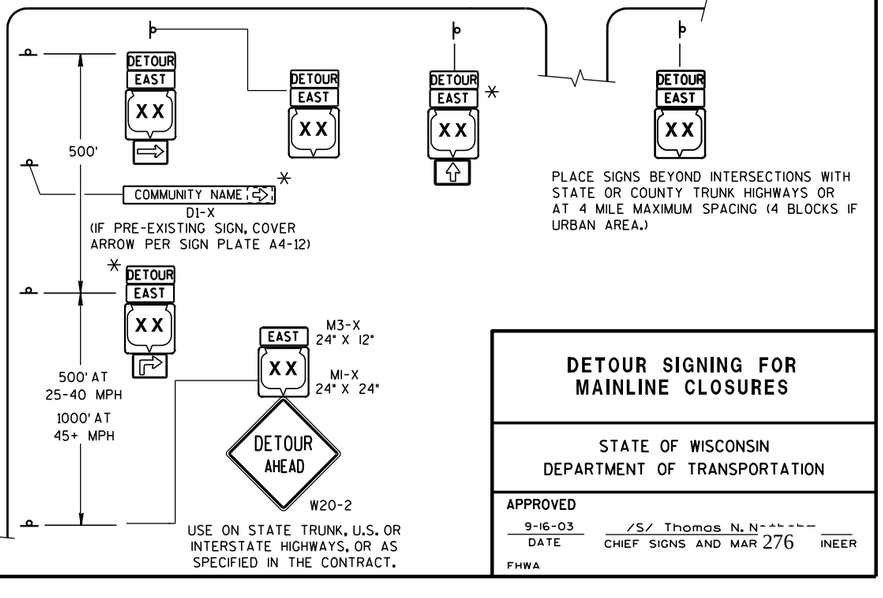
** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.











MATCH POINT

DETOUR ROUTE

LEGEND

- POST MOUNTED SIGN
- WORK ZONE
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4
- COUNTY XX — M1-5A
- XX — M1-6
- M05-1
- M06-1
- M06-1

DETAIL F
DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

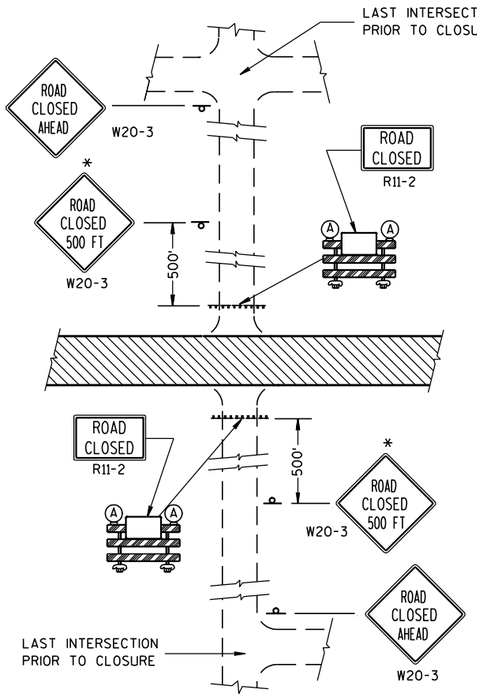
APPROVED
9-16-03 DATE
/S/ Thomas N. [illegible] CHIEF SIGNS AND MAR 276 INEER
FHWA

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

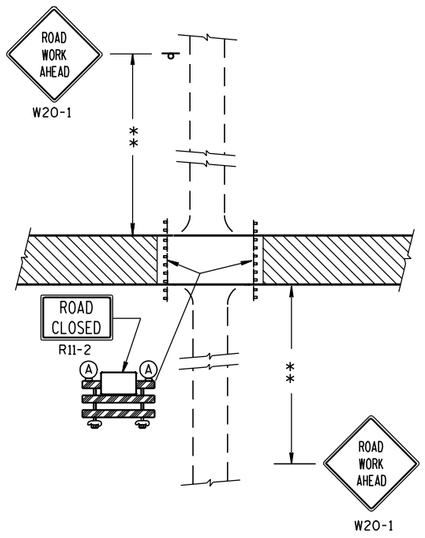
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S.D.D. 15 C 2-4c



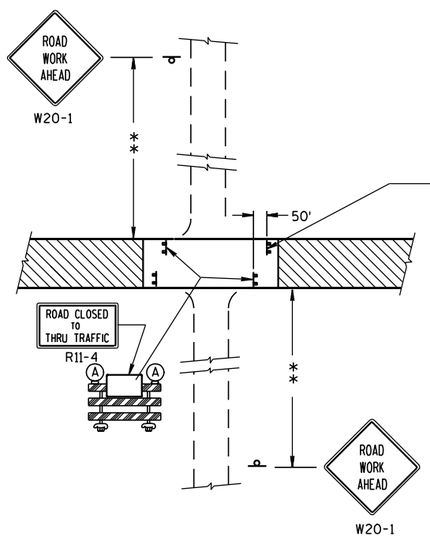
DETAIL 1

(NO ACCESS TO PROJECT)



DETAIL 2

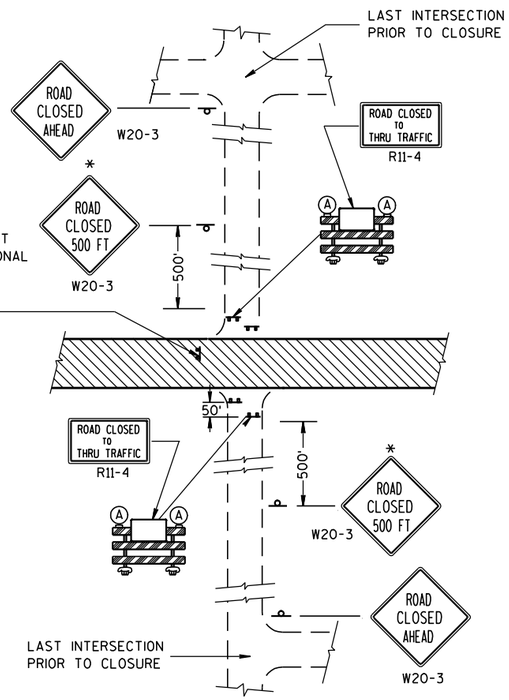
(PUBLIC CROSS-TRAFFIC MAINTAINED. NO ACCESS TO PROJECT).





DETAIL 3

(PUBLIC CROSS-TRAFFIC MAINTAINED. CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS).



DETAIL 4

(CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS TO PROJECT)

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.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

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 AND R11-4 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

**500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

LEGEND

- POST MOUNTED WARNING SIGN
- TYPE III BARRICADES
- (A) TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9-16-03 DATE

/S/ Thomas N. N[illegible] CHIEF SIGNS AND MAR[illegible] 277 INEER

FHWA

6

S.D.D. 15 C 3-1

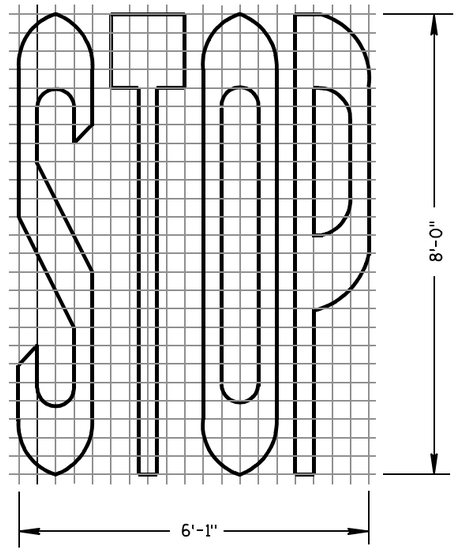
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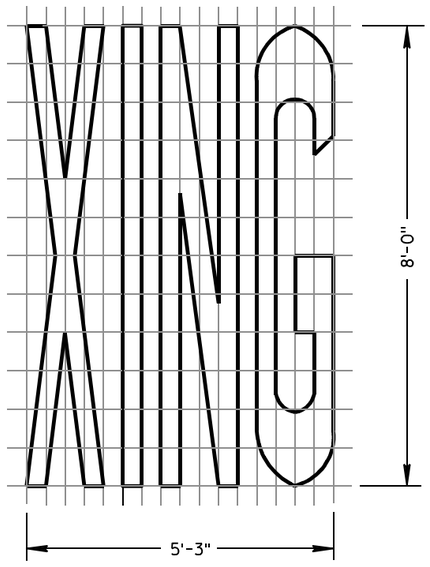
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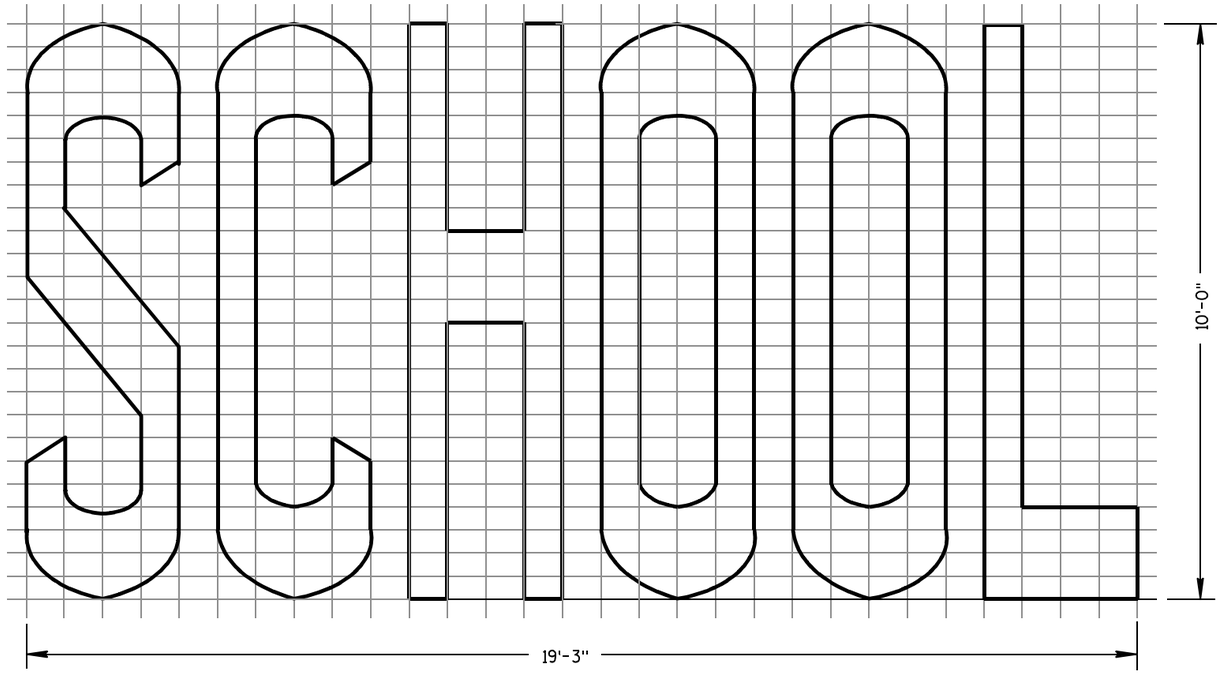
GENERAL NOTES

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

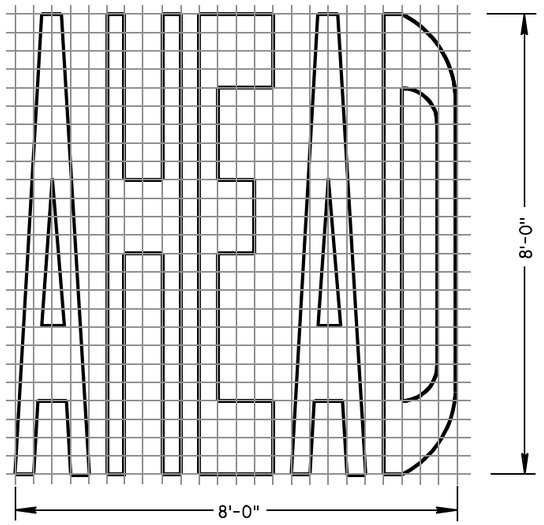
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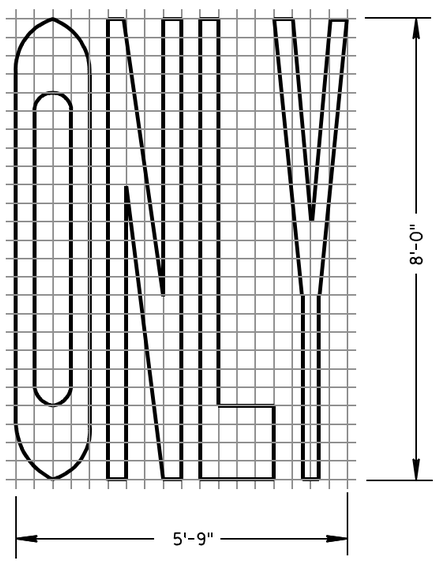


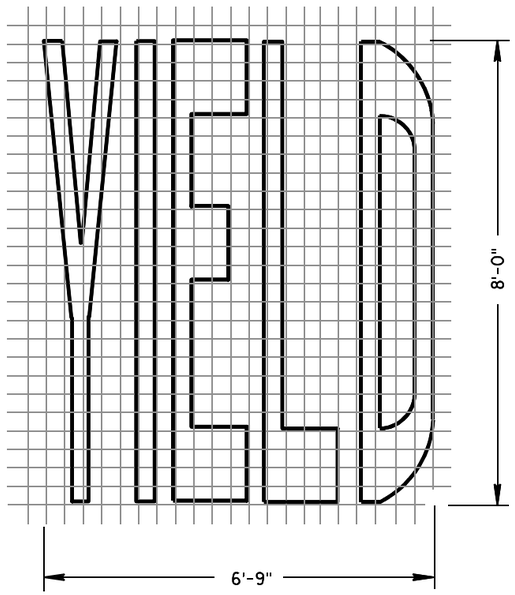


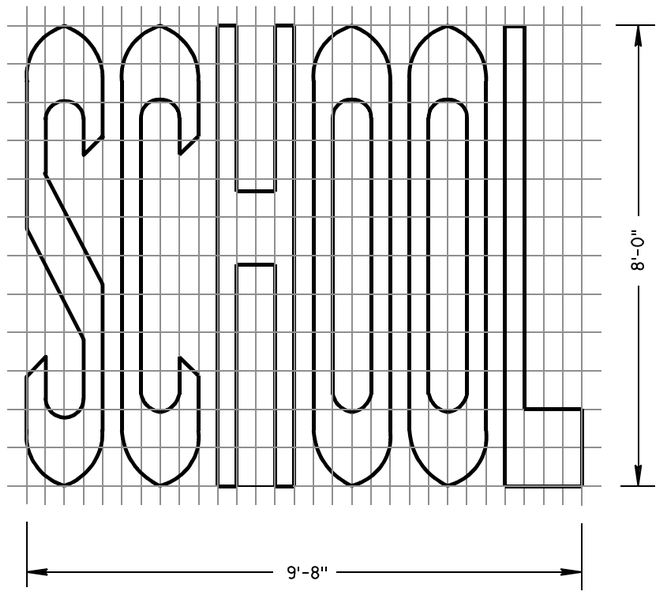


TWO-LANE









SINGLE-LANE

PAVEMENT MARKING WORDS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7-1-11 DATE

/S/ Thomas N. Nothohm
STATE TRAFFIC ENGINEER

278

IGN

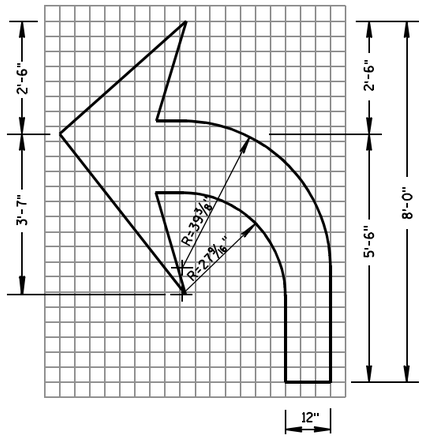
FHWA

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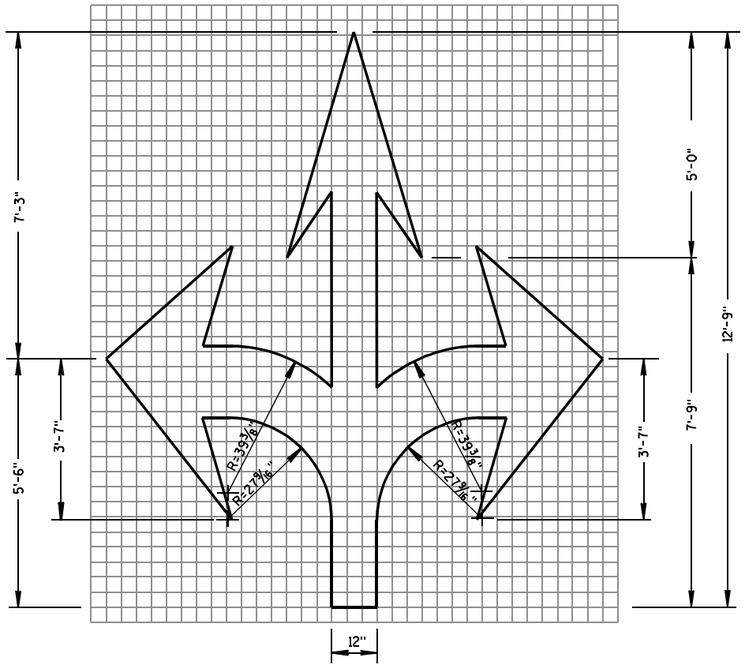
S.D.D. 15 C 7-12b

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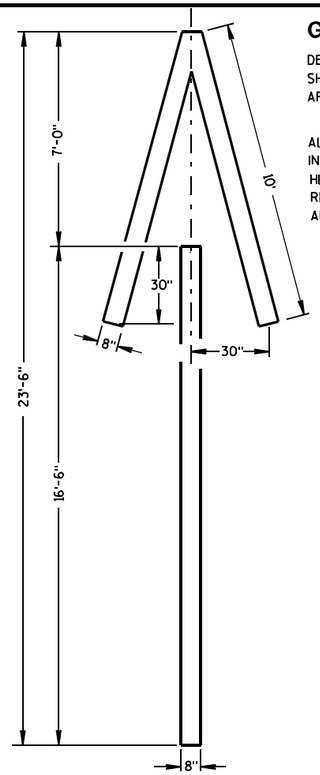
S.D.D. 15 C 7-12b



TYPE 2



TYPE 6

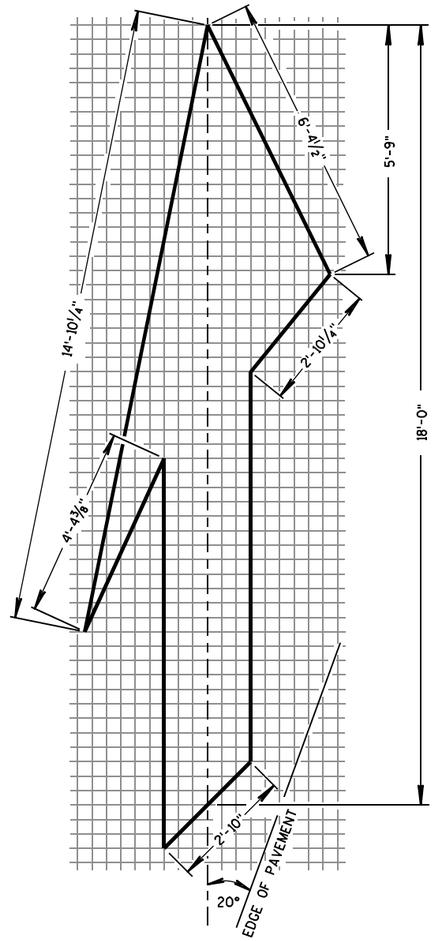


TYPE 4

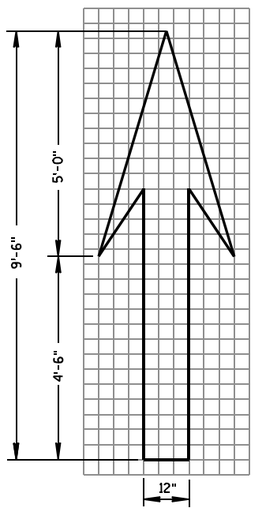
GENERAL NOTES

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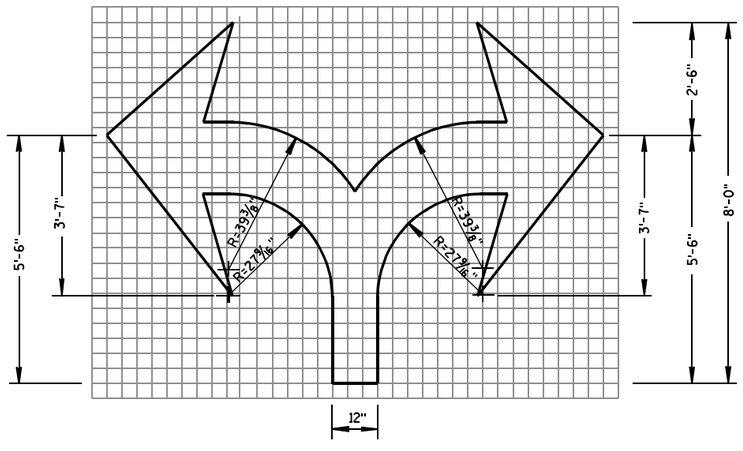
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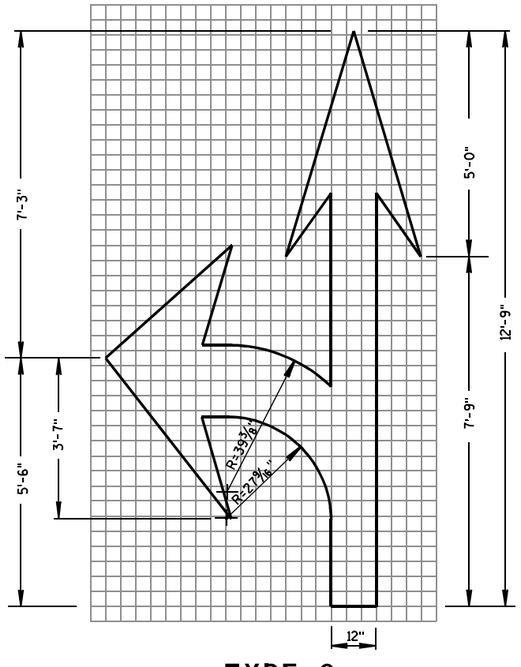
TYPE 5 LANE DROP ARROW



TYPE 1



TYPE 7



TYPE 3

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/1/11 — DATE

/S/ Thomas N. Nathaam — STATE TRAFFIC ENGINEER

FHWA

279

6

S.D.D. 15 C 7-12c

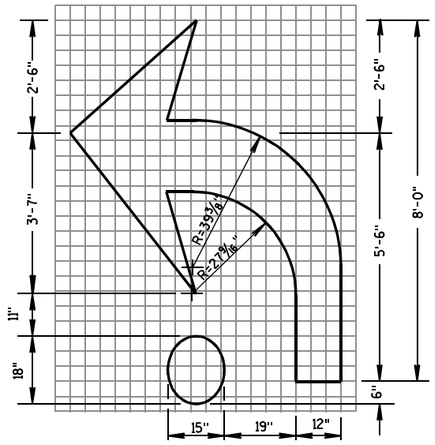
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S.D.D. 15 C 7-12c

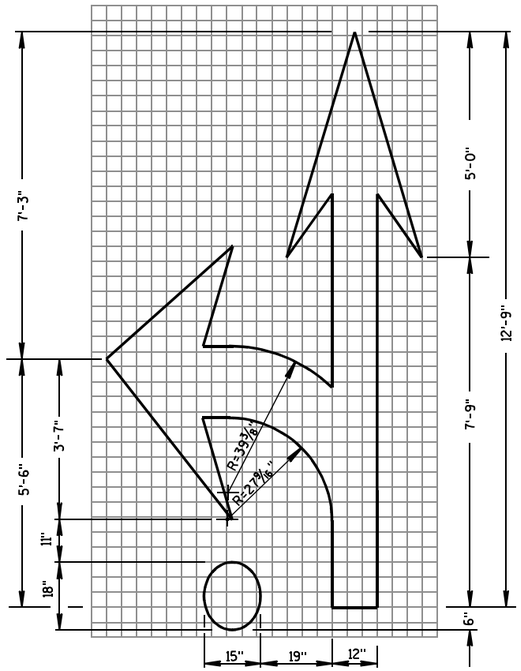
GENERAL NOTES

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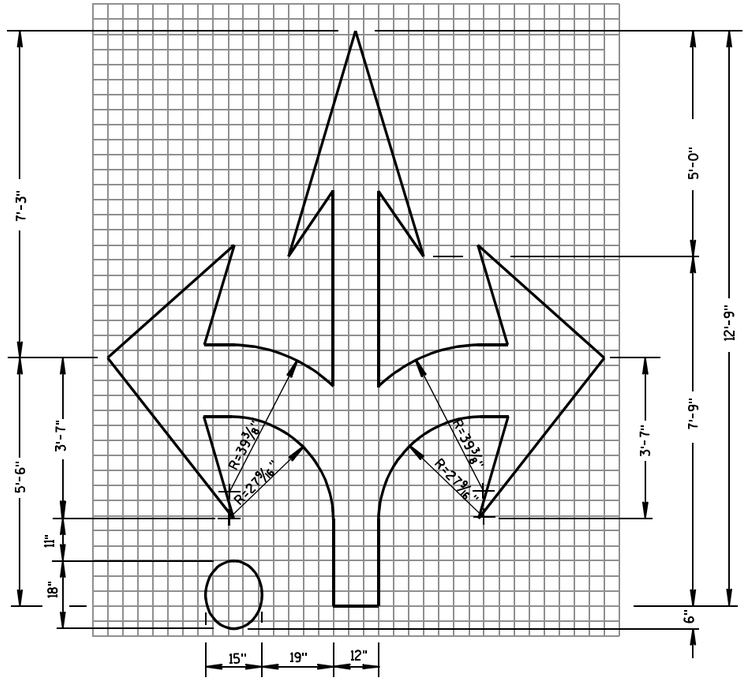
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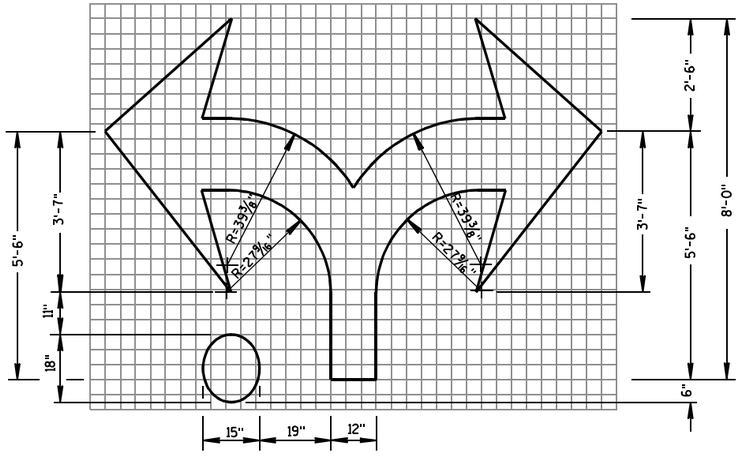
TYPE 2R



TYPE 3R



TYPE 6R



TYPE 7R

ROUNDABOUT ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/1/11 — DATE

/S/ Thomas N. Nothdurm — STATE TRAFFIC ENGINEER

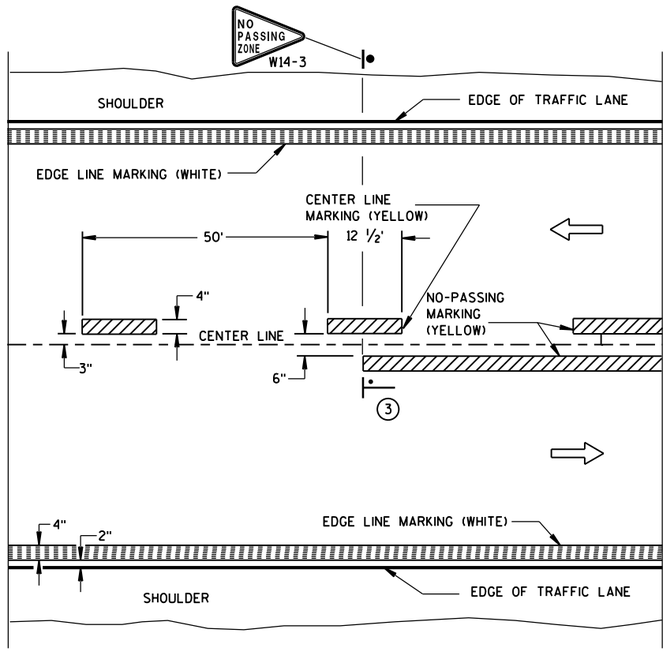
FHWA

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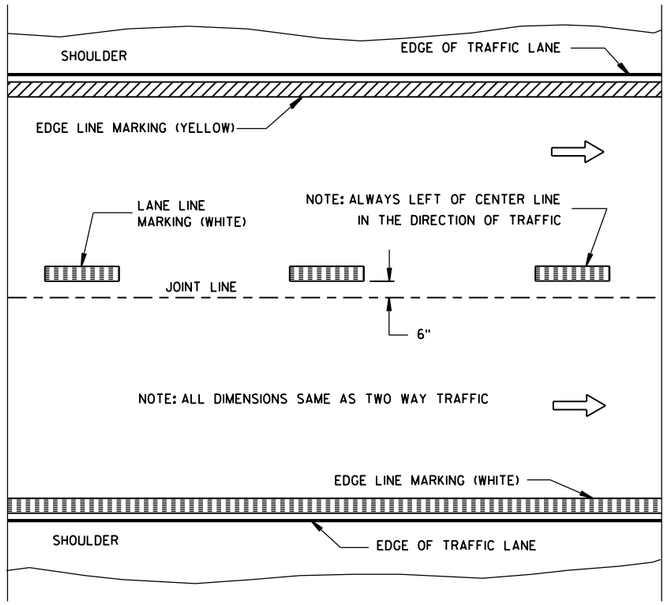
S.D.D. 15 C 7-12d

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S.D.D. 15 C 7-12d

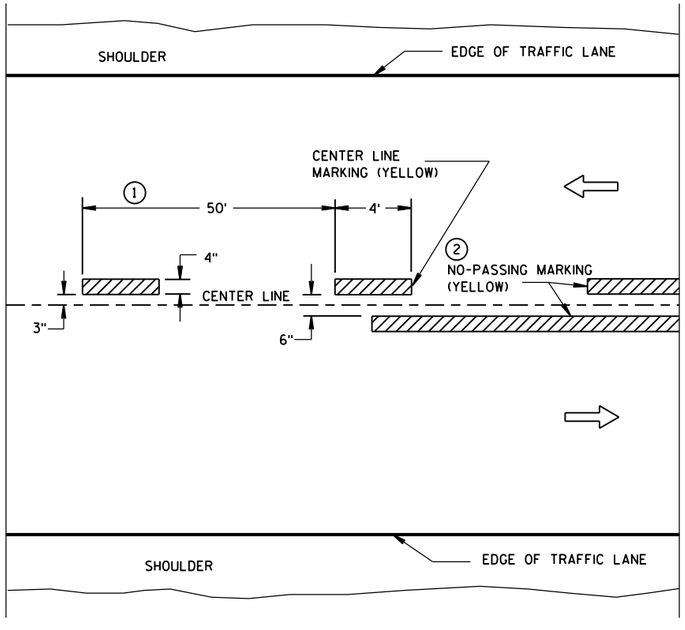


TWO WAY TRAFFIC

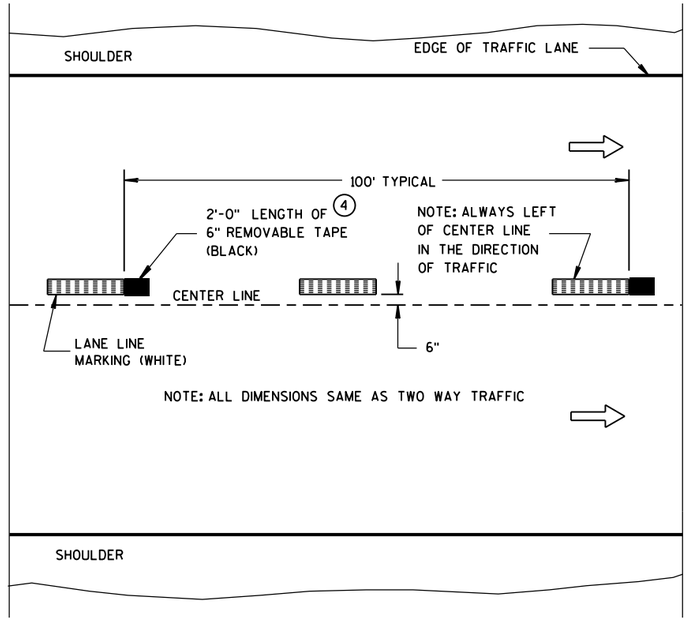


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

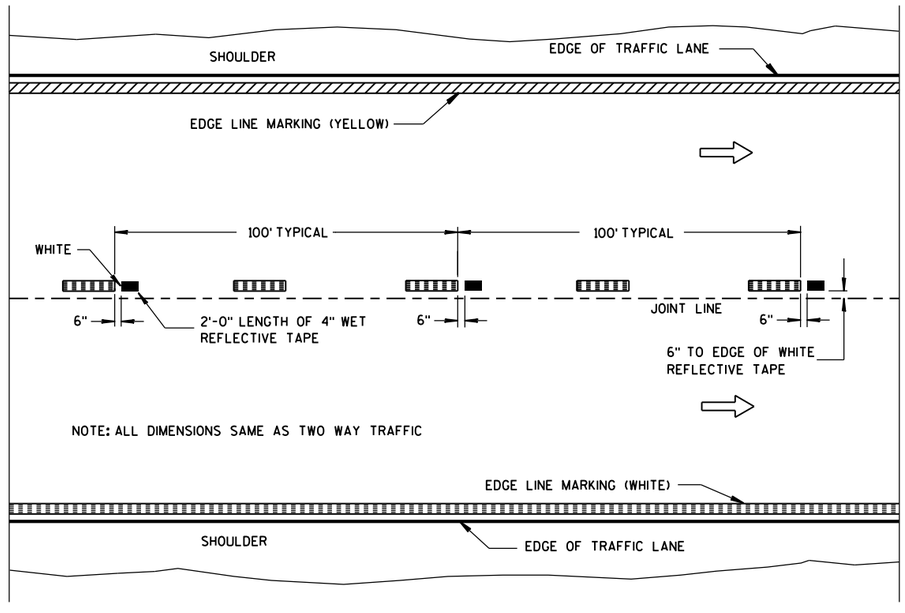
GENERAL NOTES

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

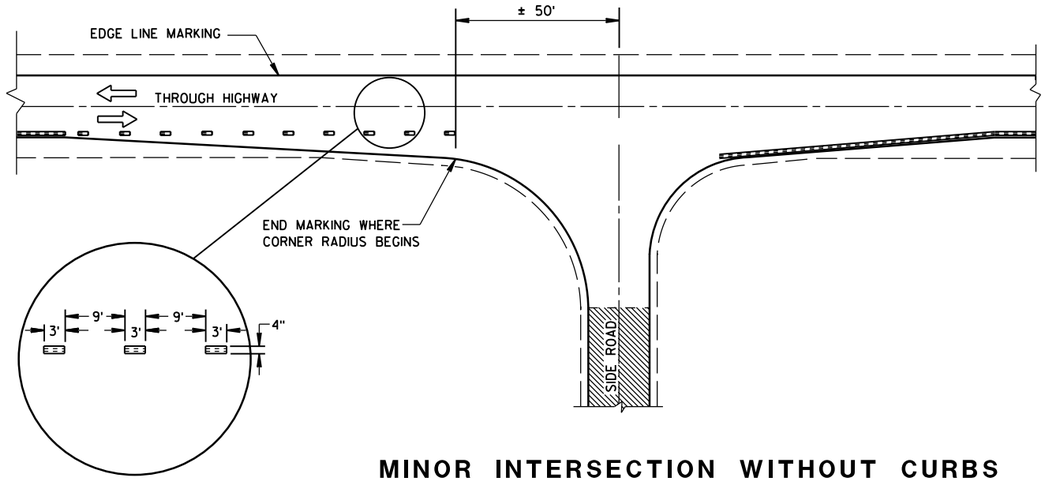
PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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



MINOR INTERSECTION WITHOUT CURBS

GENERAL NOTES

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

(1) WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.

(2) WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.

(3) ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.

(4) THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.

(5) BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.

(6) BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

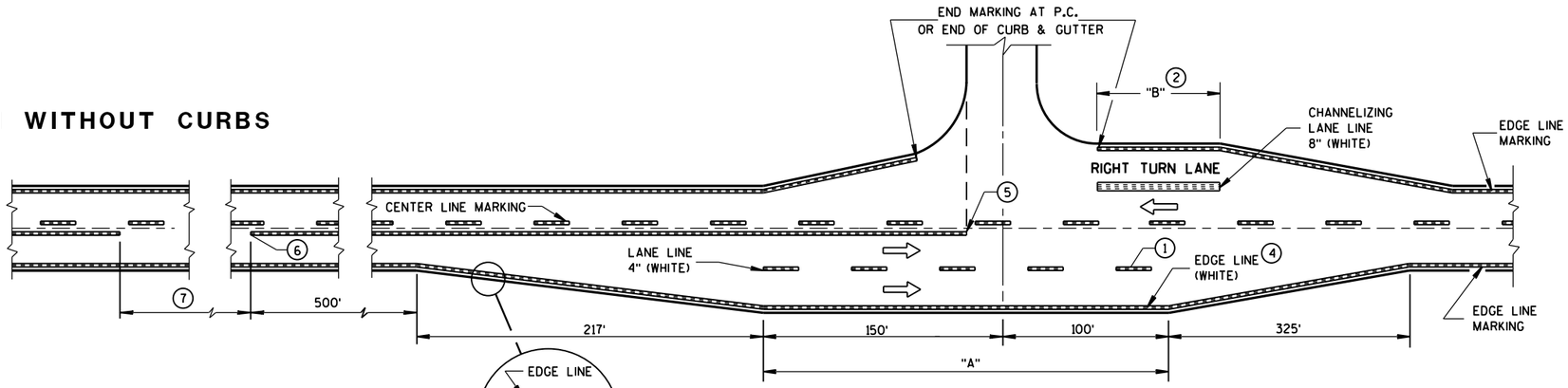
(7) IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.

(8) 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

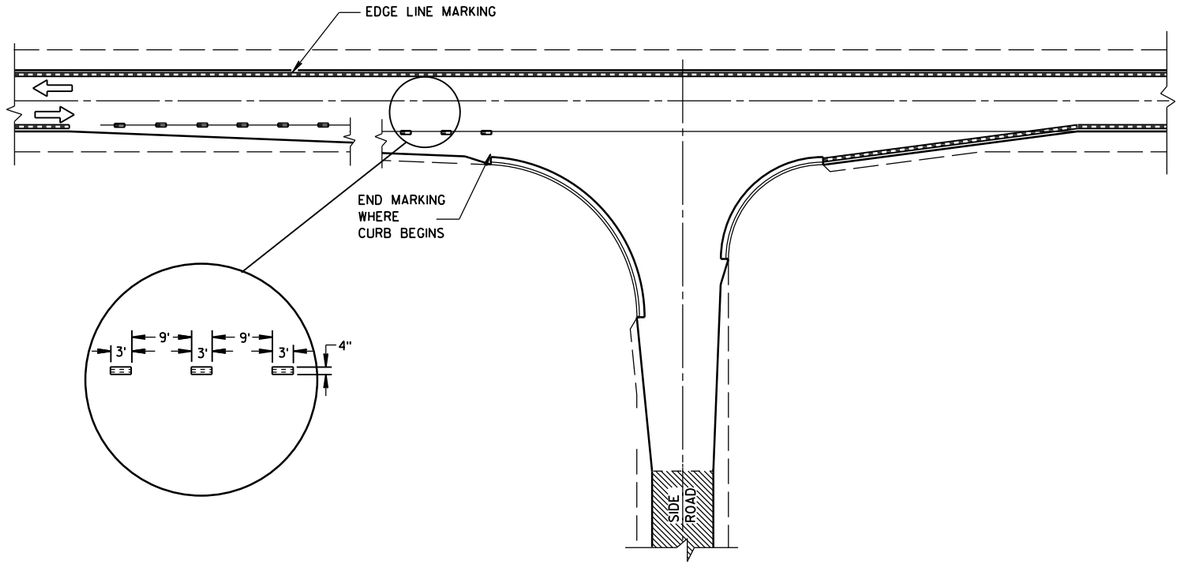
(7)

POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



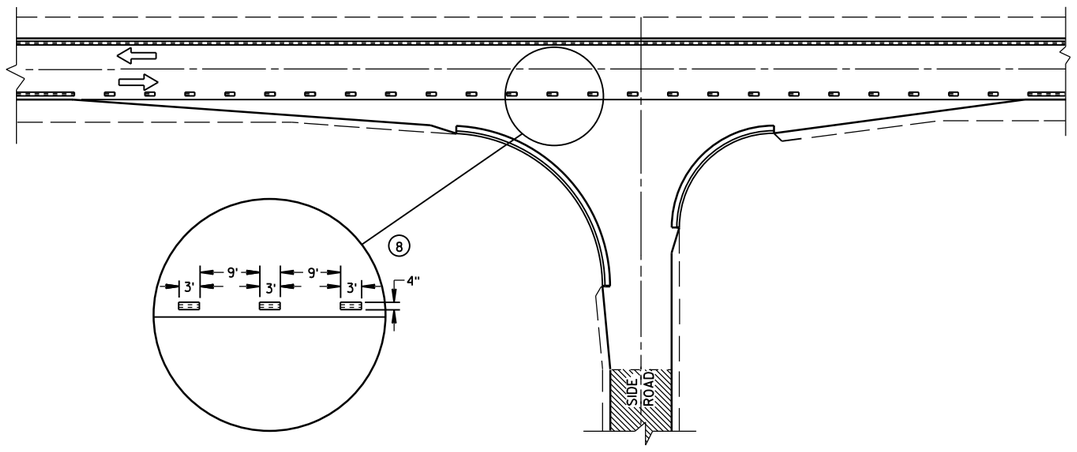
MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



MINOR INTERSECTION WITH CURBS

(TYPICAL MARKING)



MINOR INTERSECTION WITH CURBS

(3) (FOR SPECIAL CONDITIONS AS SPECIFIED)

PAVEMENT MARKING
(INTERSECTIONS)

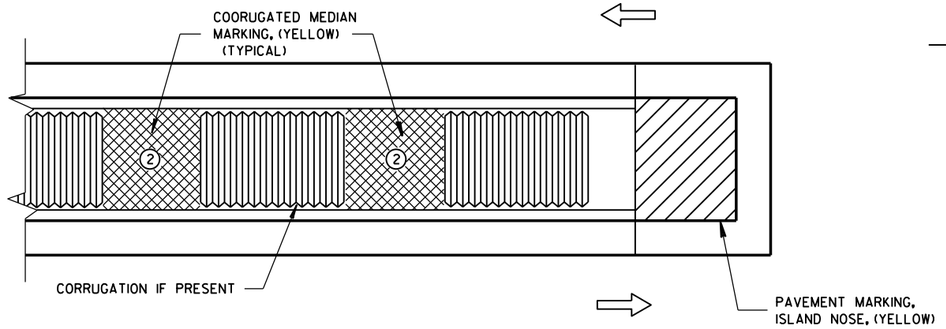
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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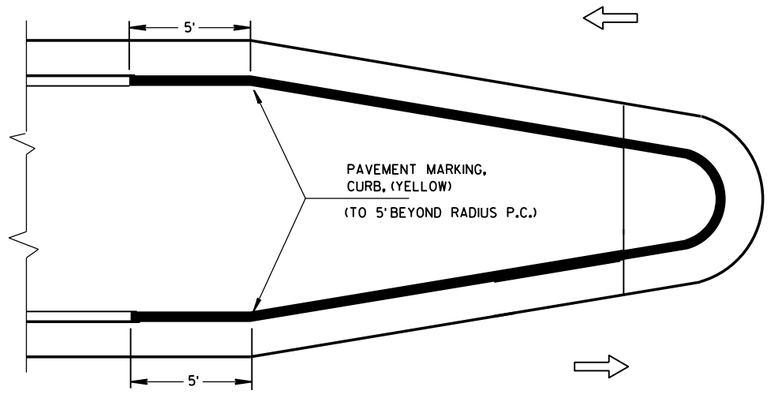
S.D.D. 15 C 8-16b

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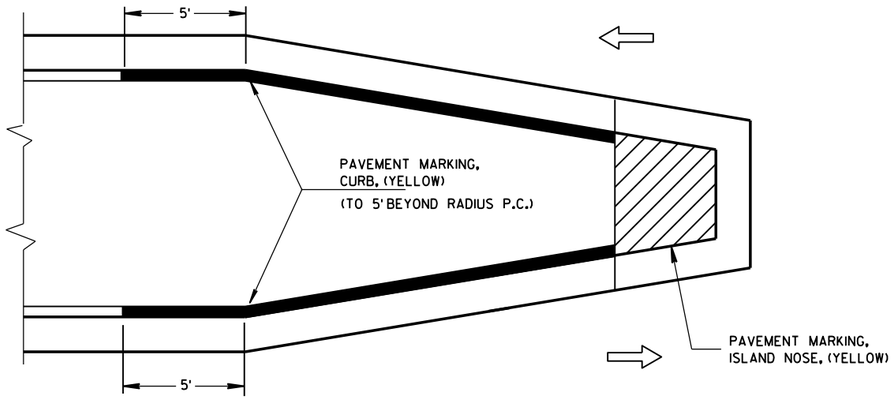
S.D.D. 15 C 8-16b



MEDIAN ISLAND WITH SQUARE BLUNT NOSE

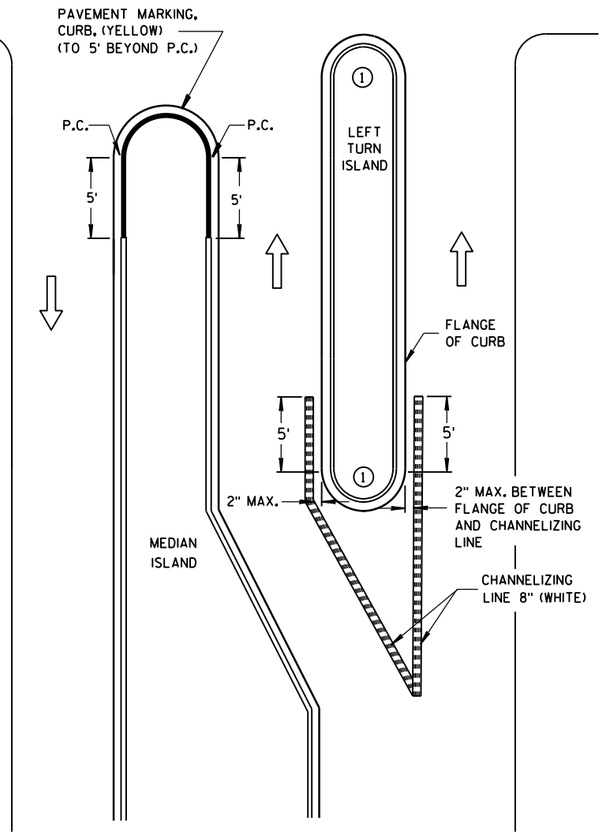


MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS

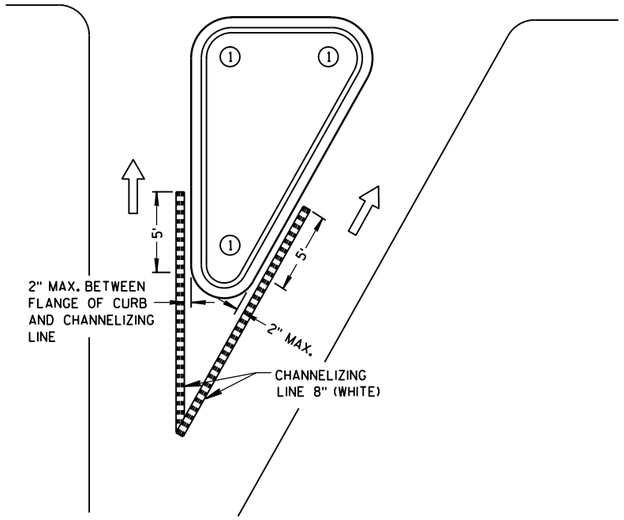


LEFT TURN & MEDIAN ISLAND

GENERAL NOTES

1. DO NOT MARK CURB NOSES THAT SEPARATE LANES OF TRAFFIC TRAVELING IN THE SAME DIRECTION.

2. WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



RIGHT TURN ISLAND

LEGEND

- ISLAND NOSE MARKING
- CURB MARKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL

PAVEMENT MARKING
(ISLANDS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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

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

TWO-LANE ROADWAY

SYMBOLS

WORK AREA

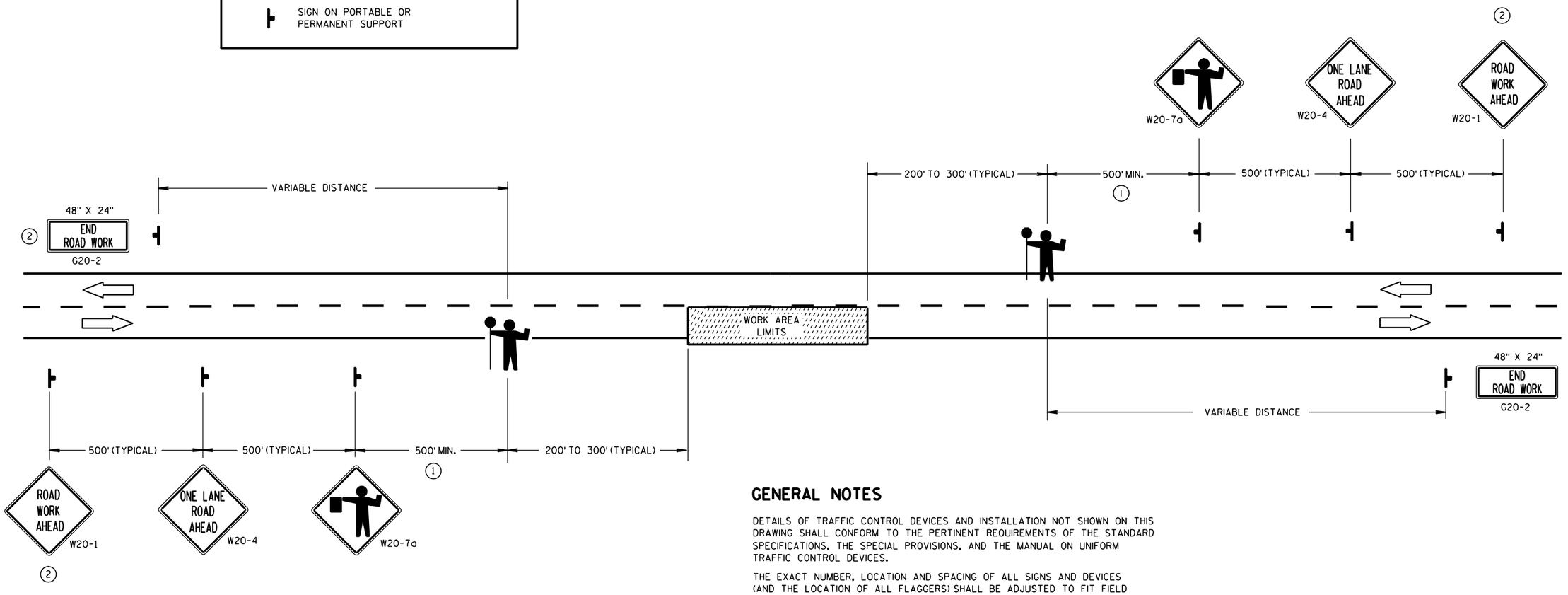
FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN ON PORTABLE OR PERMANENT SUPPORT



W3-4

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



(1) FOR A MOVING WORK OPERATION,
SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

(2) SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

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.

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, THE "FLAGGER AHEAD", THE "ROAD WORK AHEAD" AND THE ONE LANE ROAD AHEAD" SIGNS SHALL BE COVERED OR REMOVED AND THE HIGHWAY RESTORED TO NORMAL OPERATION.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

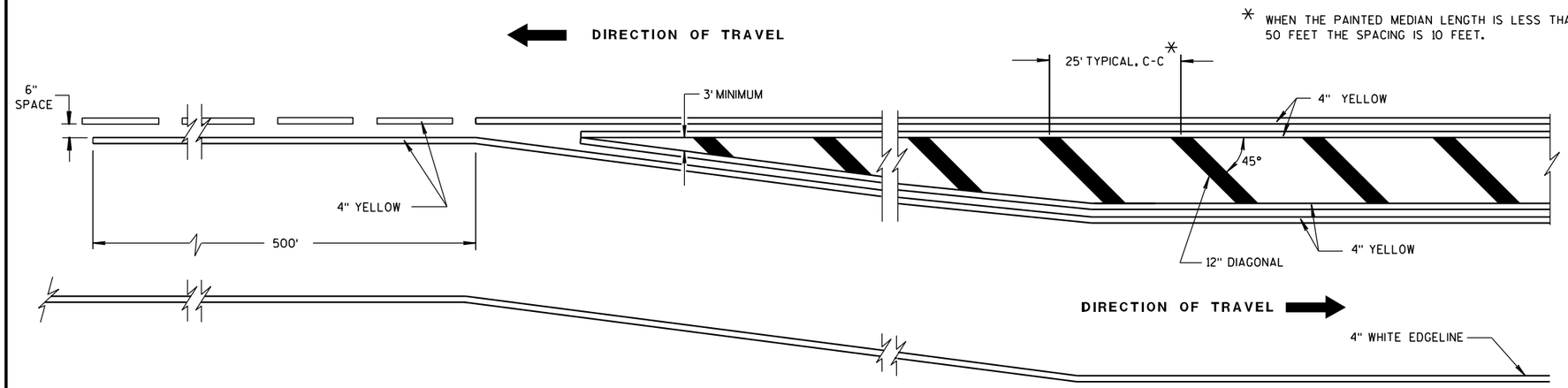
9/5/06 — DATE

/S/ Thomas N. Nathaam — STATE TRAFFIC ENGINEER

FHWA

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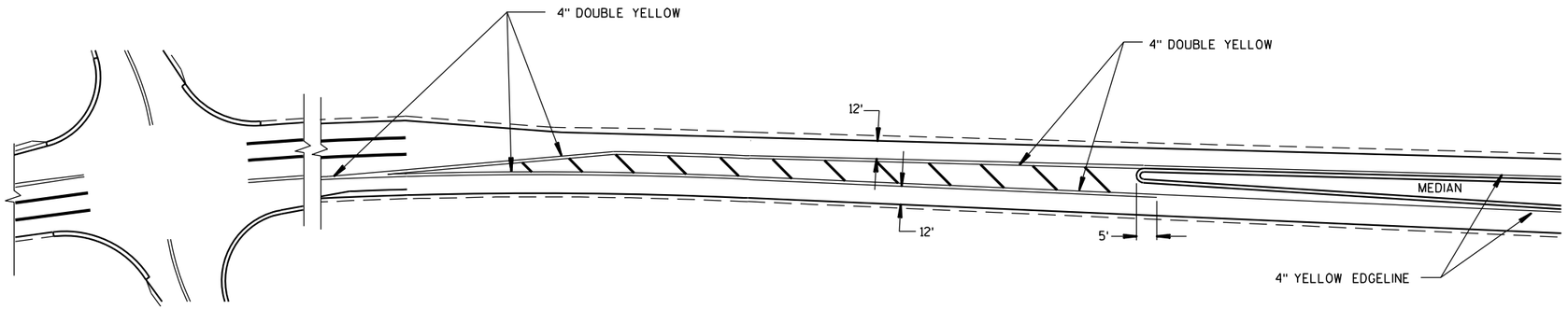
S.D.D. 15 C 12-3



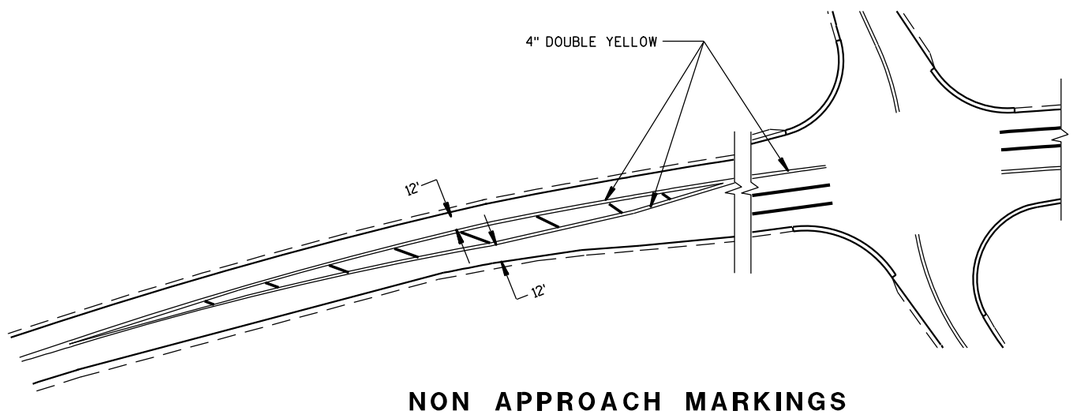
MEDIAN ISLAND DETAIL

GENERAL NOTE

DIAGONALS ARE OPTIONAL WHEN PAINTED ISLAND IS LESS THAN 6 FEET AT WIDEST POINT.



APPROACH MARKINGS FOR OTHER MEDIAN TYPES



NON APPROACH MARKINGS

MEDIAN ISLAND MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 2-5-09 DATE	/S/ Thomas N. Nothohm STATE TRAFFIC ENGINEER 285 IGN
FHWA	

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S.D.D. 15 C 18-3

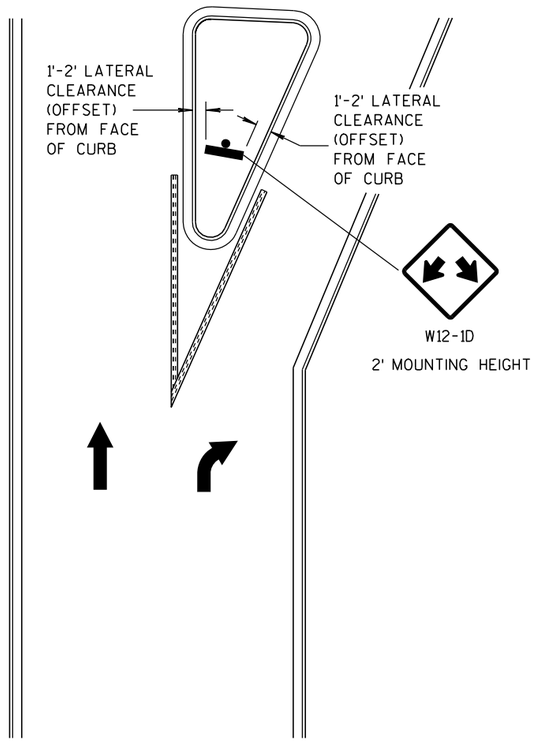
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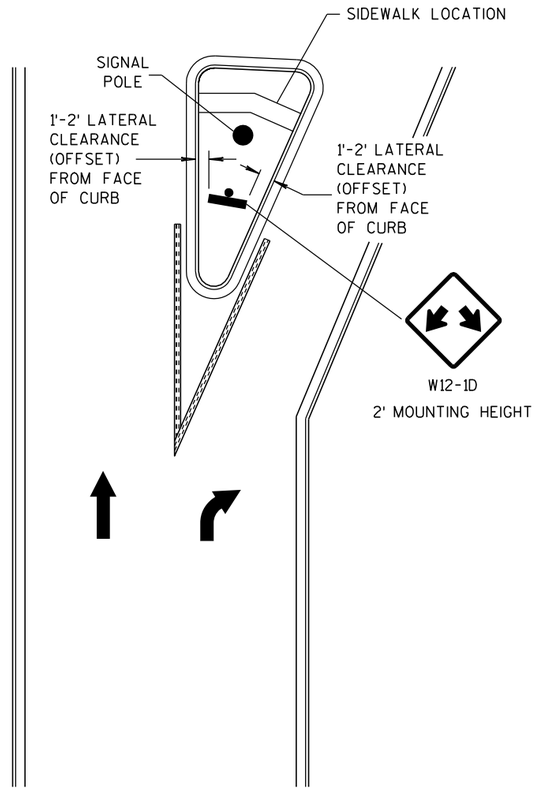
GENERAL NOTE

APPLIES TO ISLANDS AT LEFT TURNS AT ONE WAY ROADWAYS AS WELL.

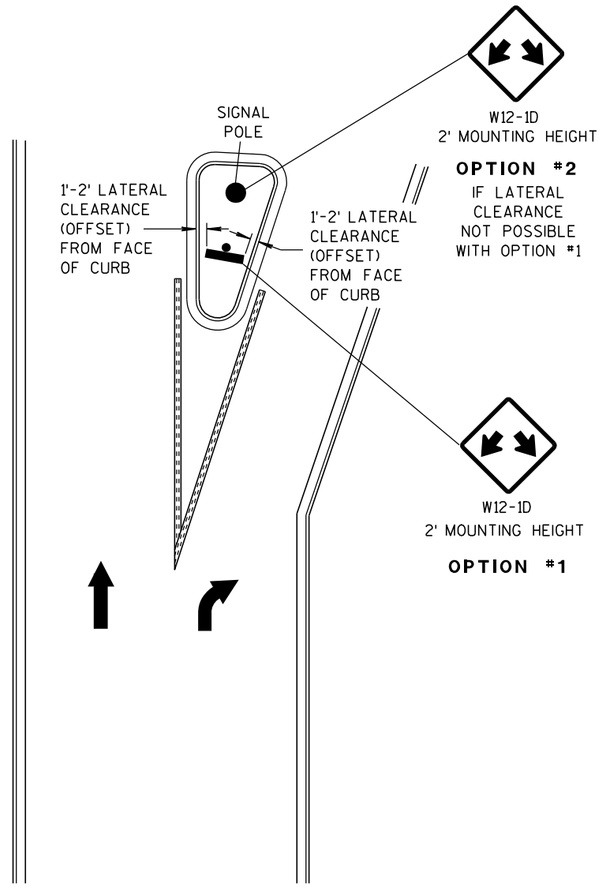
SEE MISCELLANEOUS QUANTITIES FOR SIGN SIZE.



LARGE RIGHT TURN ISLAND



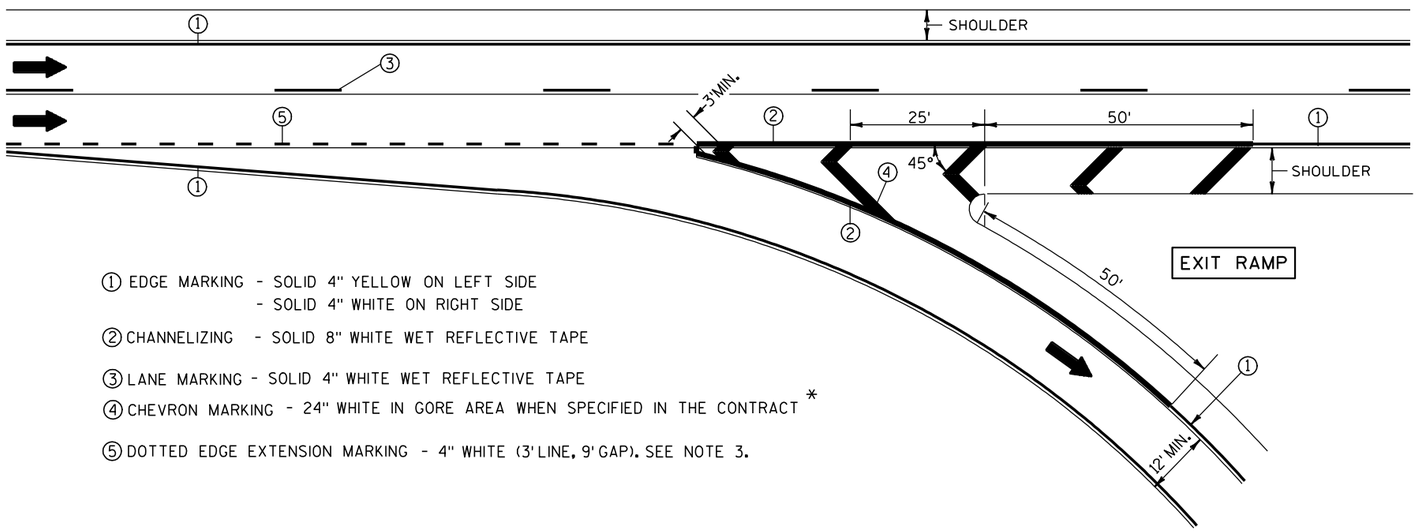
LARGE RIGHT TURN ISLAND
WITH SIGNAL POLE



SMALL RIGHT TURN ISLAND

DOUBLE ARROW WARNING SIGN PLACEMENT

DOUBLE ARROW WARNING SIGN PLACEMENT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
10-22-08 DATE	/S/ Thomas N. Nothem STATE TRAFFIC ENGINEER
FHWA	286 IGN



① EDGE MARKING - SOLID 4" YELLOW ON LEFT SIDE
- SOLID 4" WHITE ON RIGHT SIDE

② CHANNELIZING - SOLID 8" WHITE WET REFLECTIVE TAPE

③ LANE MARKING - SOLID 4" WHITE WET REFLECTIVE TAPE

④ CHEVRON MARKING - 24" WHITE IN GORE AREA WHEN SPECIFIED IN THE CONTRACT *

⑤ DOTTED EDGE EXTENSION MARKING - 4" WHITE (3' LINE, 9' GAP). SEE NOTE 3.

NOTES:

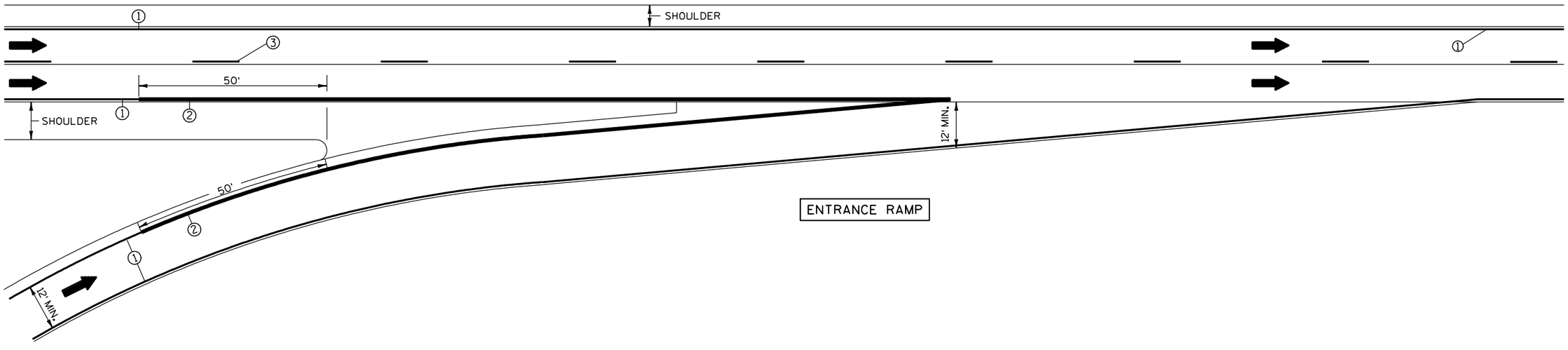
1. ARROWS SHOWN ON THIS MARKING PLAN DESIGNATE TRAFFIC FLOW, AND SHALL NOT BE TAKEN AS PROPOSED PAVEMENT MARKINGS.

2. PLACE WHITE EDGE OF TAPE 6" LEFT FROM JOINT.

3. 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE-GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.

4. RETRACE EXISTING DIAGONAL MARKINGS.

* REFER TO DESIGN NOTES.



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S.D.D. 15 C 31-1a

S.D.D. 15 C 31-1a

PAVEMENT MARKING
(RAMPS AND GORES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

- POST WITH ATTACHED SIGN
- POST WITH ATTACHED SIGN IN DRUM
- DRUM WITH WARNING LIGHT (TYPE C)
- DRUM
- ARROW BOARD
- 8' TYPE III BARRICADE
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC

GENERAL NOTES :

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

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. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

(1) CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

GENERAL NOTES CONTINUED:

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 7 CONTINUOUS DAYS AND NIGHTS.

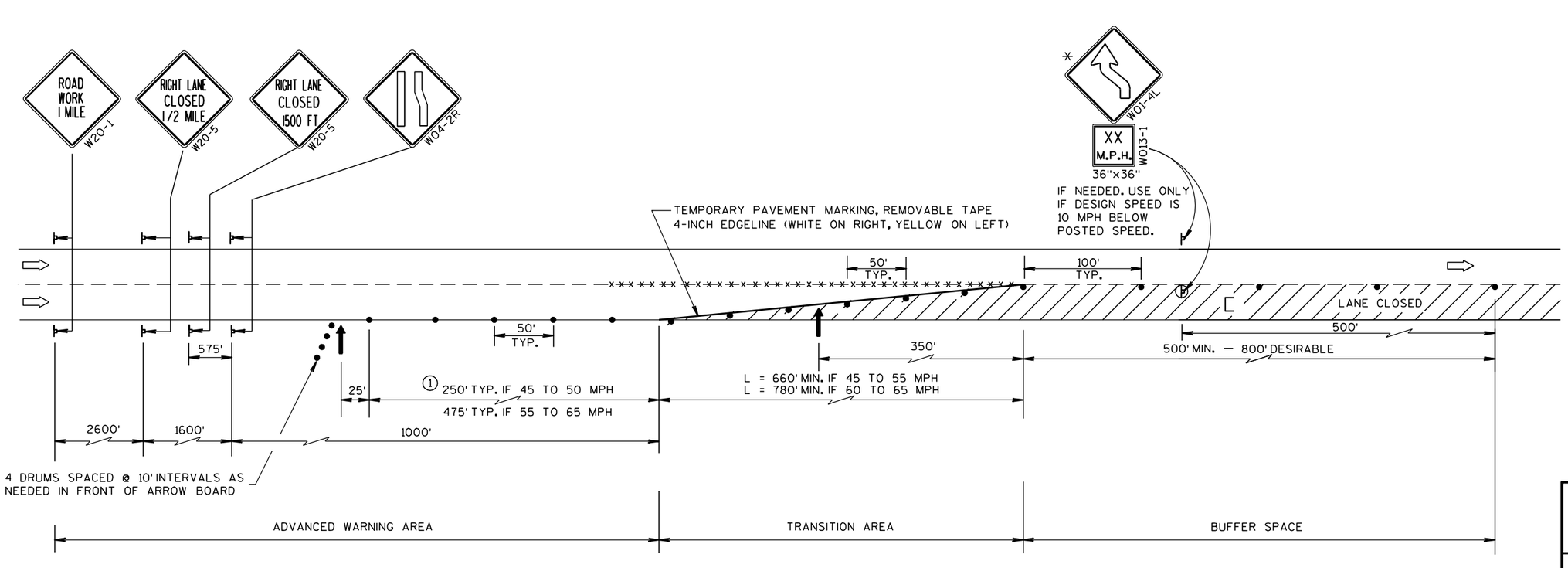
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

IF LANE CLOSURE IS MORE THAN 1 MILE, PLACE A TYPE III BARRICADE APPROXIMATELY EVERY 1/4 MILE ACROSS THE CLOSED LANE TO HELP ENFORCE THE DRUM LINE.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* THE LEFT REVERSE CURVE SIGN (WO1-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

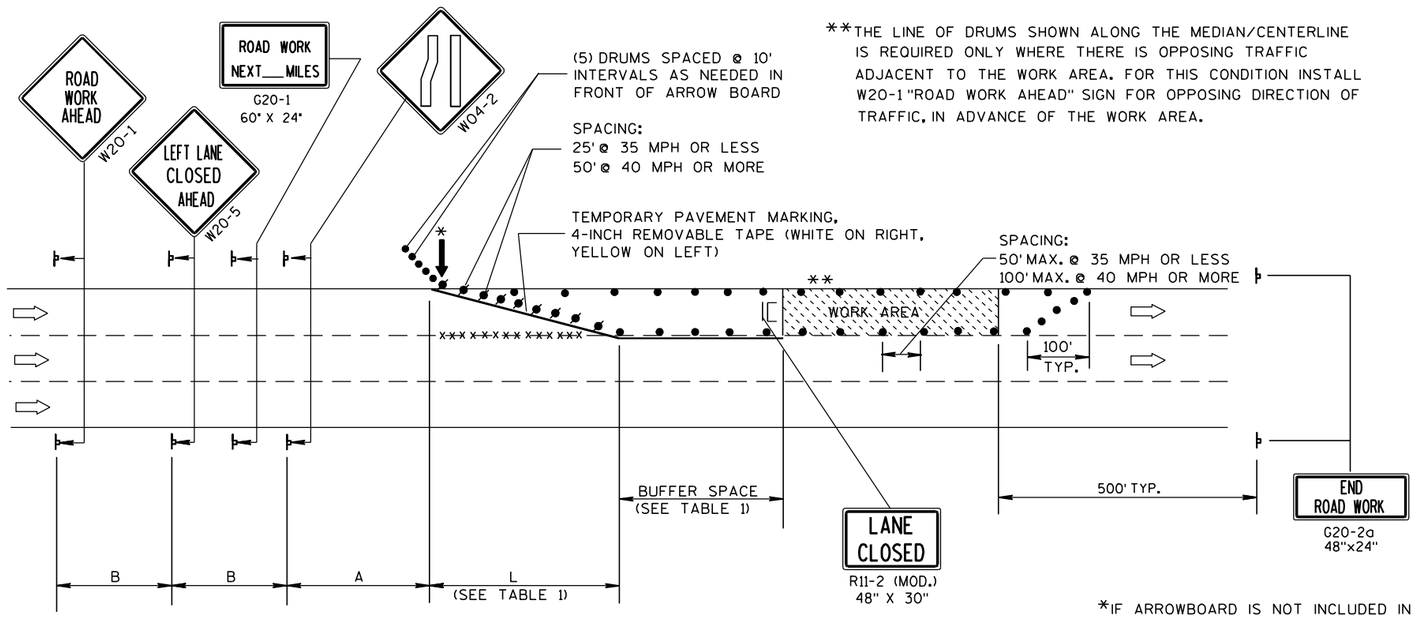
APPROVED
8-7-95 DATE
/S/ Chester J. [illegible]
DIRECTOR, OFFICE O 288 C
FHWA

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S.D.D. 15 D 12-2

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S.D.D. 15 D 12-2



**THE LINE OF DRUMS SHOWN ALONG THE MEDIAN/CENTERLINE IS REQUIRED ONLY WHERE THERE IS OPPOSING TRAFFIC ADJACENT TO THE WORK AREA. FOR THIS CONDITION INSTALL W20-1 "ROAD WORK AHEAD" SIGN FOR OPPOSING DIRECTION OF TRAFFIC, IN ADVANCE OF THE WORK AREA.

B=400' AT 25-30 MPH
700' AT 35-40 MPH
1000' AT 45-55 MPH

A=200' AT 25-30 MPH
350' AT 35-40 MPH
500' AT 45-55 MPH

(PLACE BARRICADE AND SIGN APPROX. EVERY 1000' ACROSS THE CLOSED LANE)

*IF ARROWBOARD IS NOT INCLUDED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE A TYPE III BARRICADE WITH W01-6 SIGN IN THE LANE CLOSURE TAPER.

W01-6
48"x24"

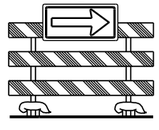


TABLE 1
TAPER AND BUFFER SPACE FOR 12' LANE WIDTH

S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$ AT 40 MPH OR LESS

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

- DRUM WITH/WITHOUT WARNING LIGHT, TYPE C (STEADY-BURN)
- POST MOUNTED SIGN
- ARROW BOARD
- TYPE III BARRICADE (8' EQUIVALENT) AND WARNING LIGHTS, TYPE A (FLASHING) WITH/WITHOUT SIGN
- DIRECTION OF TRAFFIC FLOW
- xxxx REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)

GENERAL NOTES

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS 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.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 7 OR MORE CONTINUOUS DAYS AND NIGHTS.

ON UNDIVIDED ROADWAYS, OMIT THE SIGNS SHOWN ON LEFT SIDE OF ROAD.

W20-1, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

PLACE THE ARROWBOARD AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE LANE CLOSURE TAPER, PREFERABLY ON THE SHOULDER OR TERRACE.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

BARRICADES IN A CLOSED LANE 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.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/00 DATE
/S/ Chester J. [illegible]
CHIEF SIGNS AND MARKINGS ENGINEER
FHWA

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S.D.D. 15 D 20-1

SYMBOLS

- TRAFFIC CONTROL DRUM
- POST MOUNTED SIGN
- DIRECTION OF TRAFFIC FLOW
- ARROW BOARD IN CAUTION MODE

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

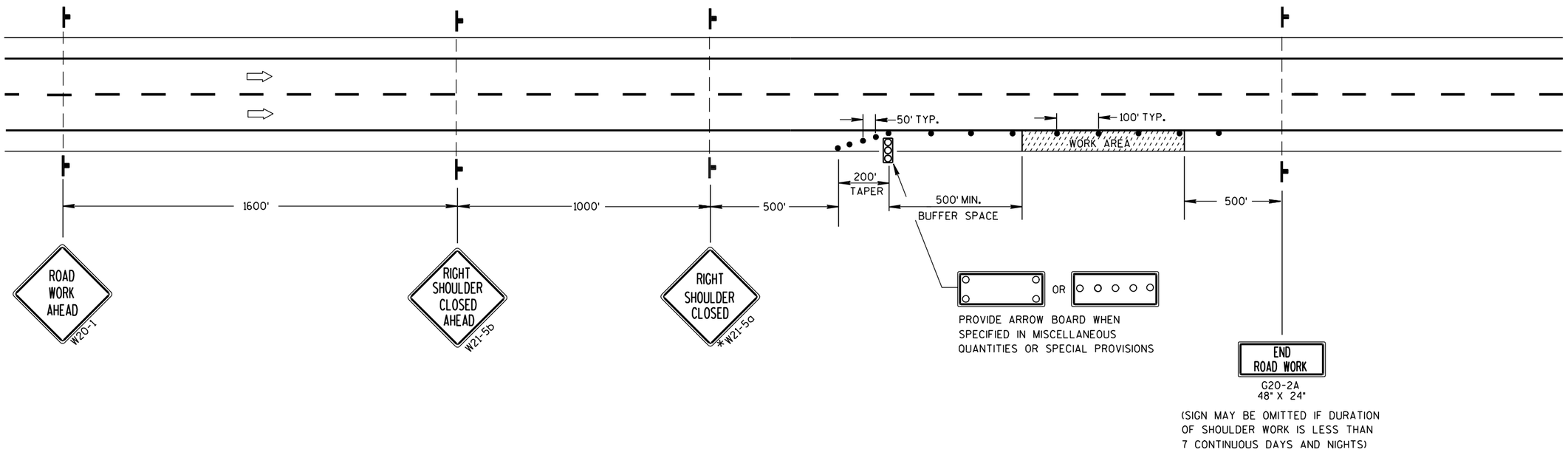
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/23/00
DATE

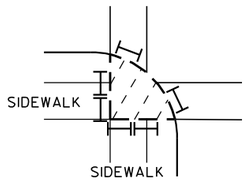
/S/ Chester J Spong
CHIEF SIGNS AND MARKING ENGINEER

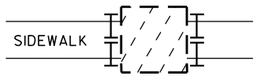
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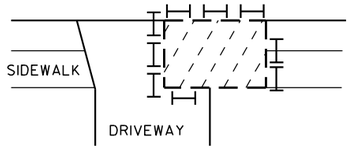
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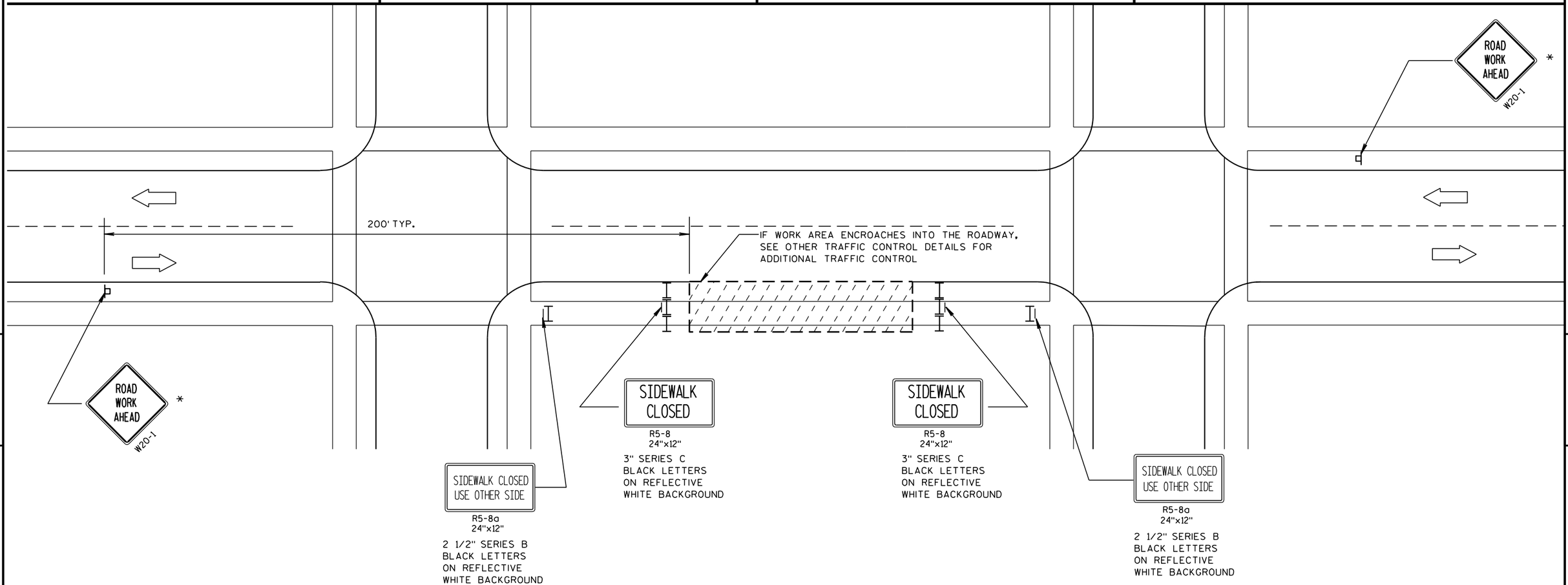
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WARNING OF LOCALIZED SIDEWALK WORK AREAS









LEGEND

- POST MOUNTED SIGN
- TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)
- WORK AREA
- DIRECTION OF TRAFFIC FLOW

GENERAL NOTES :

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS, IF APPROVED BY DISTRICT TRAFFIC UNIT.

THE EXACT LOCATION AND PLACEMENT OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

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

* "ROAD WORK AHEAD" SIGNS ARE NOT REQUIRED IF THE SIDEWALK CLOSURE OCCURS WITHIN A LARGER WORK ZONE WHERE ADVANCE WARNING SIGNS ARE ALREADY PRESENT, OR IF THE WORK AREA AND EQUIPMENT ARE MORE THAN 2 FEET BEHIND THE CURB.

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

TRAFFIC CONTROL, SIDEWALK CLOSURE

TRAFFIC CONTROL, SIDEWALK CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

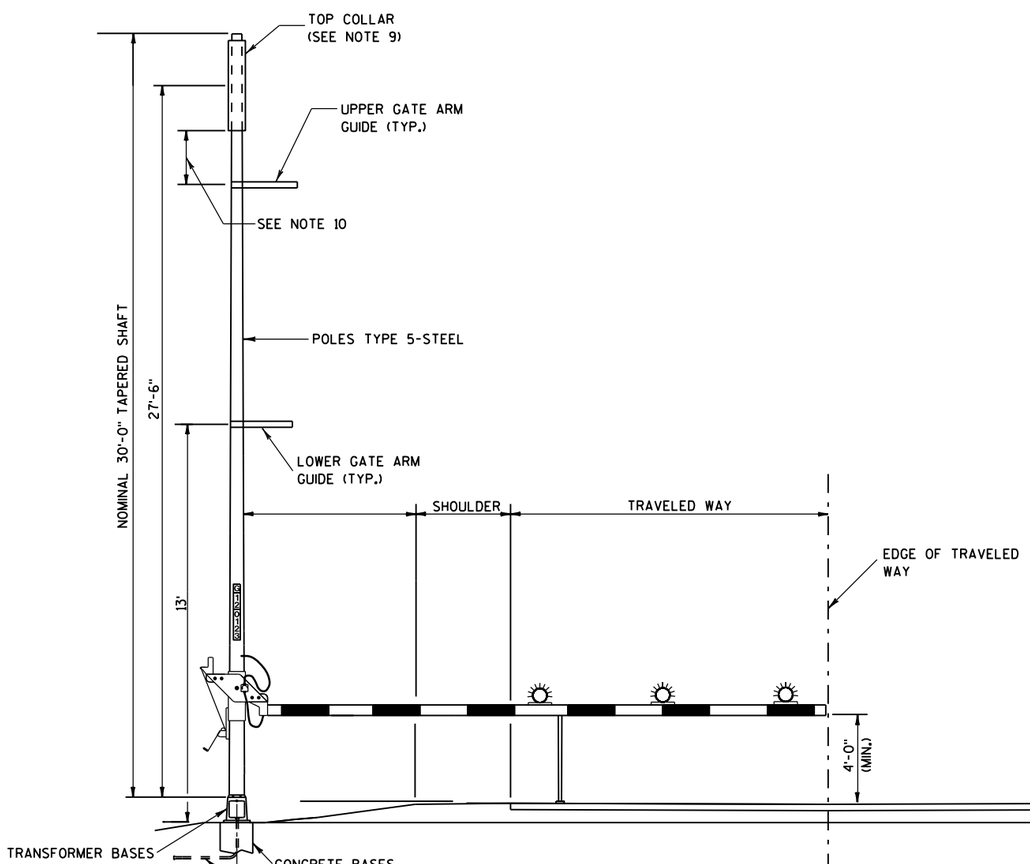
5/23/2000 DATE

/S/ Chester J. [illegible]
CHIEF SIGNS AND MARK[illegible] ENGINEER

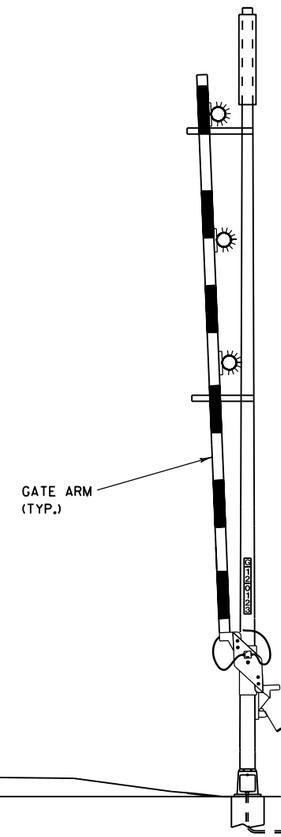
FHWA

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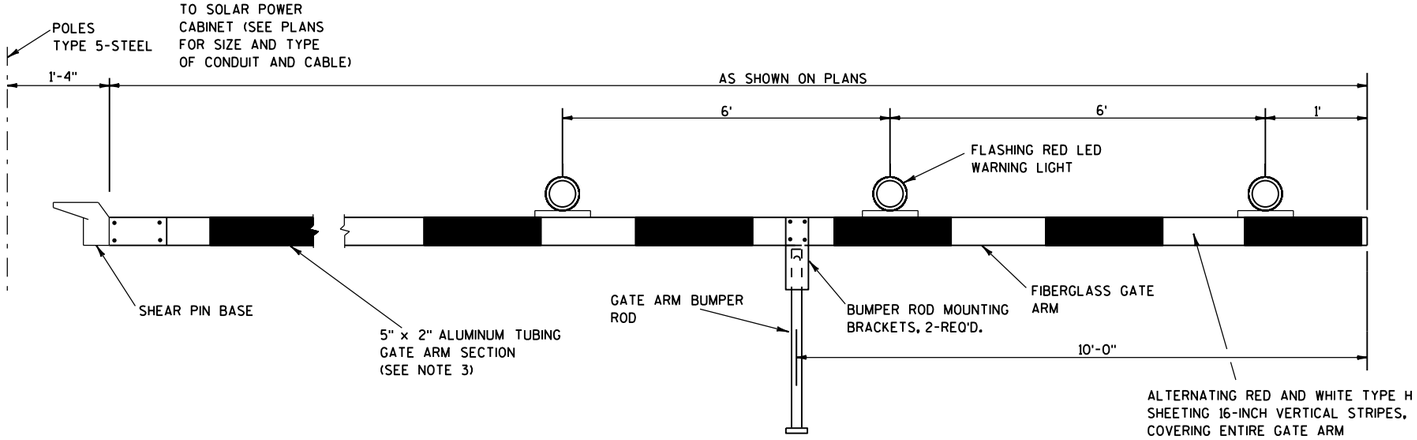
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TYPICAL LOWERED POSITION

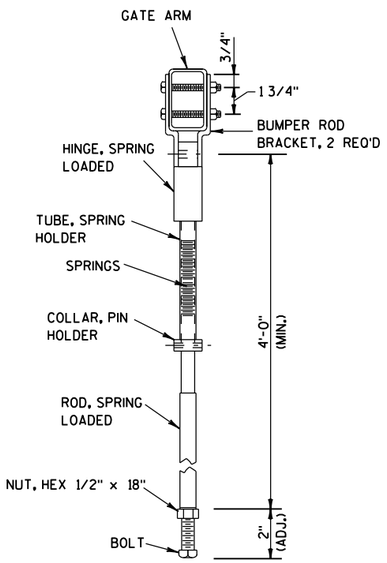


TYPICAL RAISED POSITION

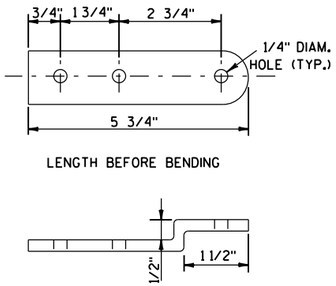


GATE DETAIL

(SOLAR POWER OPTION)



GATE ARM BUMPER ROD DETAIL



BUMPER ROD MOUNTING
BRACKET DETAIL

GENERAL NOTES

1. THE LOCATION OF RAMP CLOSURE GATES AND MOUNTING HEIGHT OF GATE ARM PIVOT SHALL BE VERIFIED BY THE ENGINEER.
2. HEIGHT OF GATE ARM GUIDES MAY BE VARIED AS REQUIRED FOR WARNING LIGHT CLEARANCE.
3. FIBERGLASS/ALUMINUM GATE ARM AND SHEAR PIN BASE SHALL BE SUPPLIED BY THE SAME VENDOR.
4. GATE ARM TO BE MOUNTED ON PROPOSED POLE AS INDICATED ON THE PLANS. PROPOSED POLE SHALL BE TYPE 5 POLE.
5. LOCATION OF THE CONCRETE BASE AND LENGTH OF THE GATE ARM WILL BE VERIFIED BY THE ENGINEER TO ENSURE ADEQUATE COVERAGE OF THE TRAVELED LANE.
6. GATE PIVOTS, SUPPORTS AND GUIDES, AND ALL ASSOCIATED HARDWARE SHALL BE GALVANIZED. ALL ROUGH EDGES AND BURRS SHALL BE GROUND SMOOTH PRIOR TO GALVANIZING.
7. ALL EXPOSED BOLT THREADS SHALL BE PAINTED WITH TWO COATS OF ZINC RICH PAINT CONFORMING WITH THE REQUIREMENTS OF ASTM A 780.
8. ANY FIELD DAMAGE TO THE GALVANIZING SHALL BE REPAIRED WITH TWO COATS OF ZINC RICH PAINT CONFORMING WITH THE REQUIREMENTS OF ASTM A 780.
9. A STANDARD LIGHTING LUMINAIRE ARM MAY BE MOUNTED TO THE TYPE 5 POLE IN LIEU OF THE TOP COLLAR.
10. UPPER GATE ARM GUIDE IS TO BE INSTALLED 6 TO 12-INCHES BELOW THE BOTTOM OF THE TOP COLLAR.

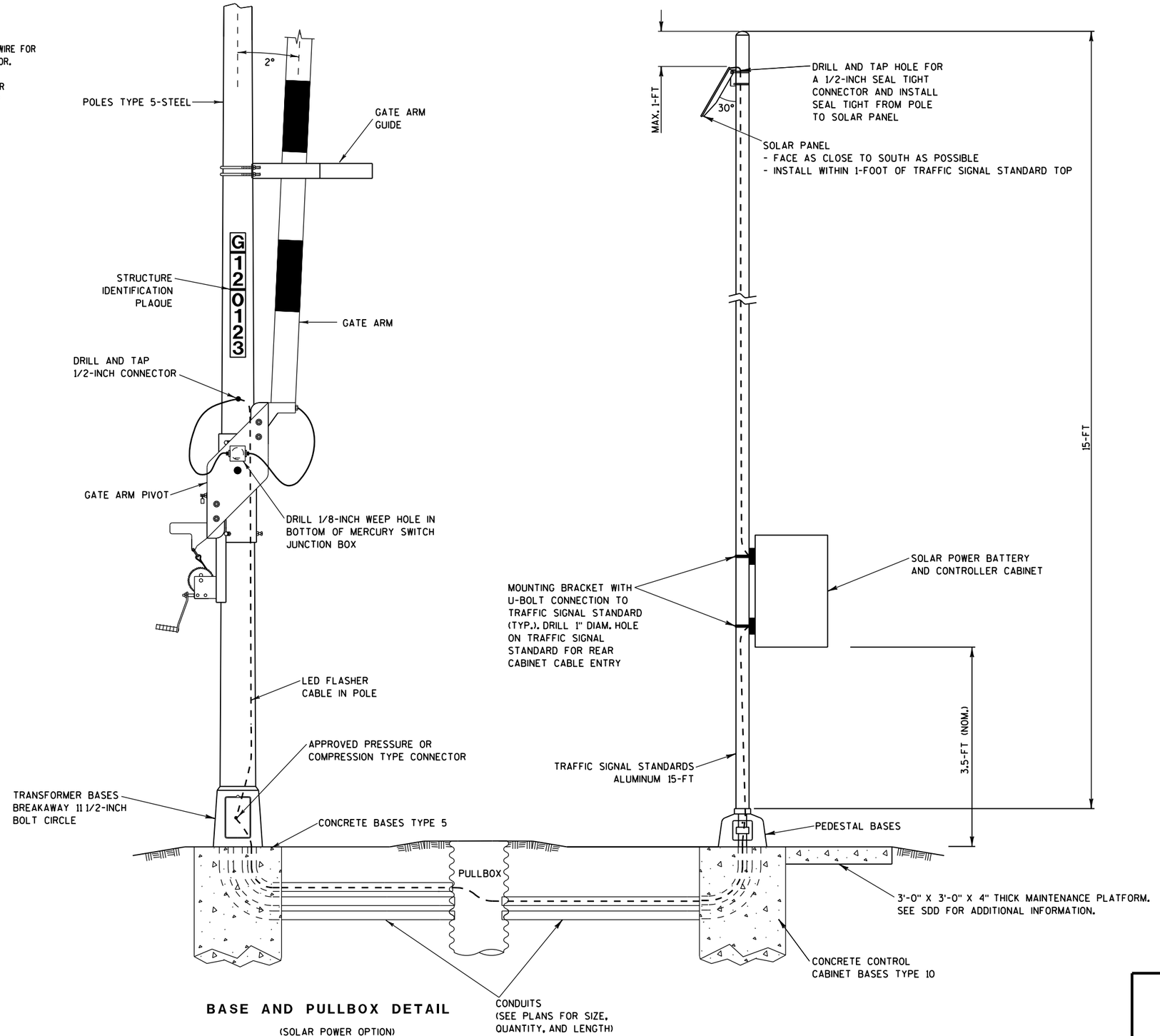
RAMP GATE
SOLAR POWER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

WIRING NOTES

1. WIRING FROM SOLAR PANEL TO CABINET SHALL BE BLUE #10 XLP WIRE FOR POSITIVE CONDUCTOR AND WHITE #10 XLP FOR NEGATIVE CONDUCTOR.

2. WIRING FROM CABINET TO GATE ARM SHALL BE WHITE #10 XLP FOR COMMON, RED #10 XLP FOR FLASHER CIRCUIT 1, AND BLUE #10 XLP FOR FLASHER CIRCUIT 2.



BASE AND PULLBOX DETAIL

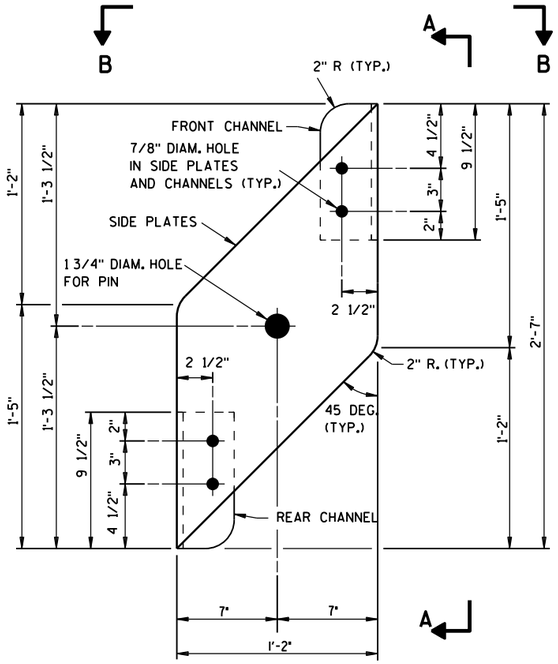
(SOLAR POWER OPTION)

RAMP GATE
SOLAR POWER

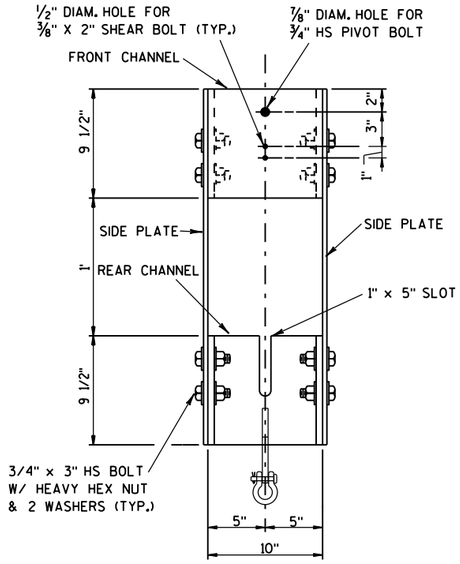
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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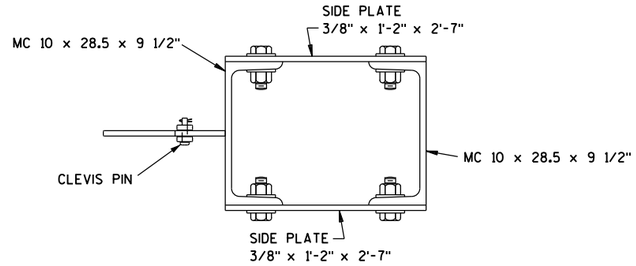
S.D.D. 15 D 34-1b



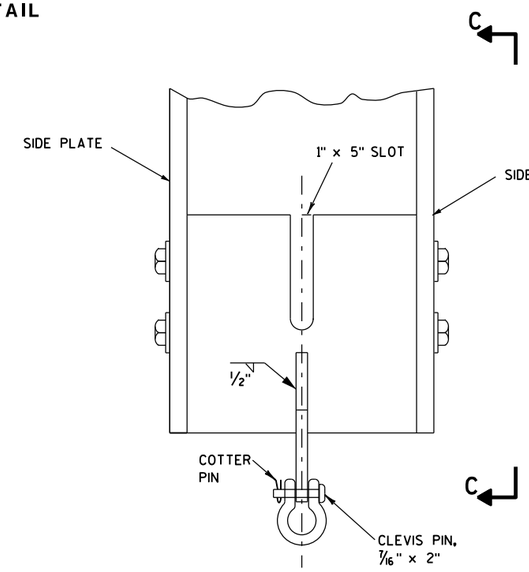
SIDE PLATE DETAIL



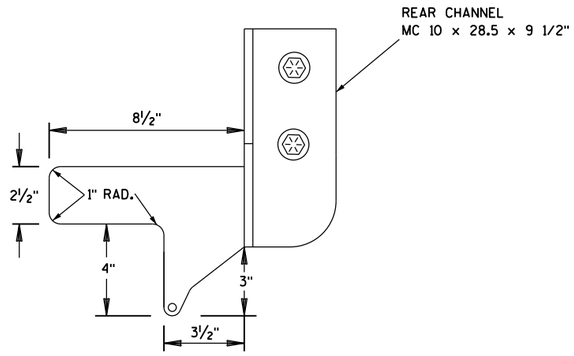
SECTION A-A



SECTION B-B



YOKE ASSEMBLY DETAIL



SECTION C-C

RAMP GATE
SOLAR POWER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 15 D 34-1c

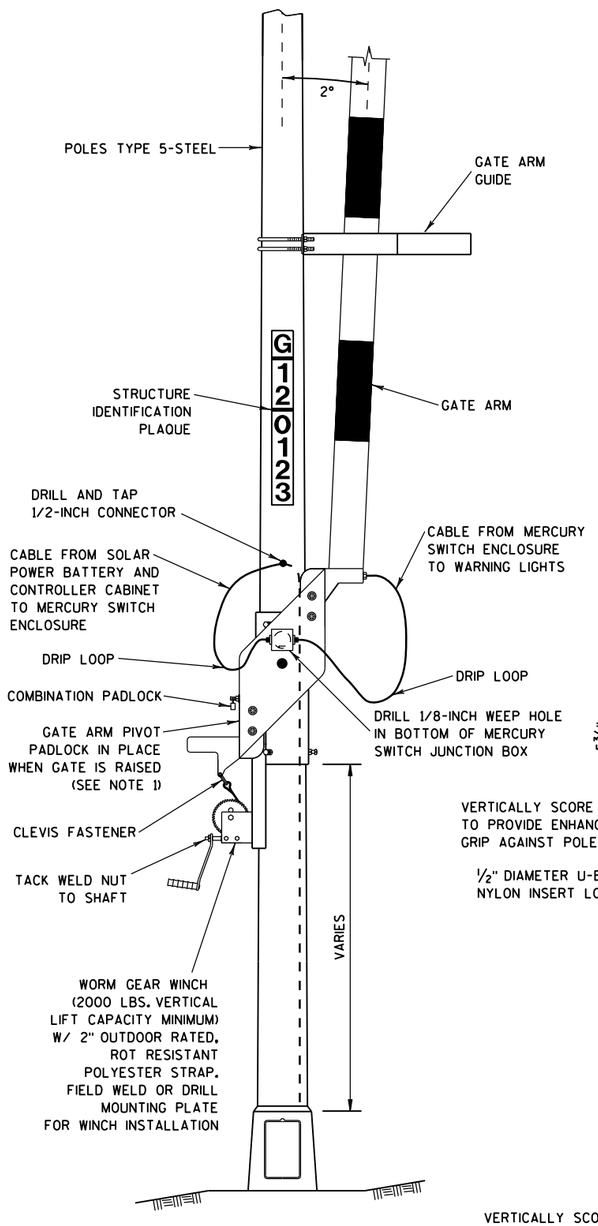
GENERAL NOTES

1. WHEN THE GATE IS FULLY RAISED, THE NUT AND WASHER SHALL BE PLACED SNUGLY AGAINST THE OUTSIDE OF THE REAR CHANNEL AND PADLOCKED IN PLACE.

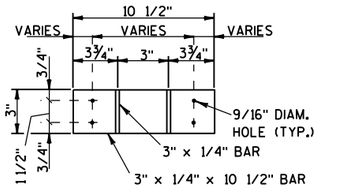
2. WHEN THE GATE IS FULLY LOWERED, THE NUT AND WASHER SHALL BE PLACED SNUGLY AGAINST THE INSIDE OF THE REAR CHANNEL AND PADLOCKED INTO PLACE.

3. ANTI-SEIZE LUBRICATING MATERIAL SHALL BE USED ON ALL BOLT THREADS BEFORE INSTALLATION.

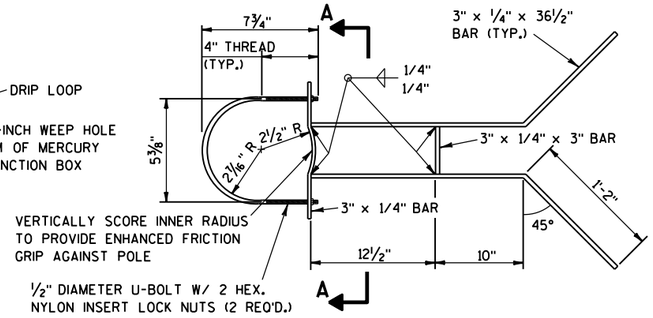
4. ALL BOLTS SHALL BE GALVANIZED AND CONFORM TO ASTM A307, GRADE A, UNLESS DESIGNATED AS HS (HIGH STRENGTH), WHICH SHALL CONFORM TO ASTM A325. BOLTS OF 1/2" NOMINAL DIAMTER OR LESS MAY BE STAINLESS STEEL.



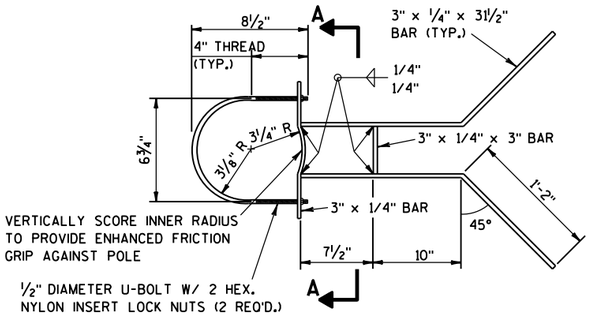
GATE PIVOT ASSEMBLY



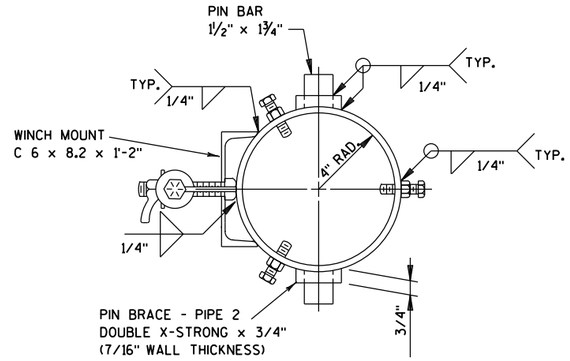
SECTION A-A
U-BOLTS NOT SHOWN



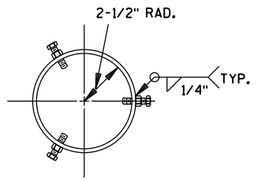
UPPER GATE ARM GUIDE DETAIL



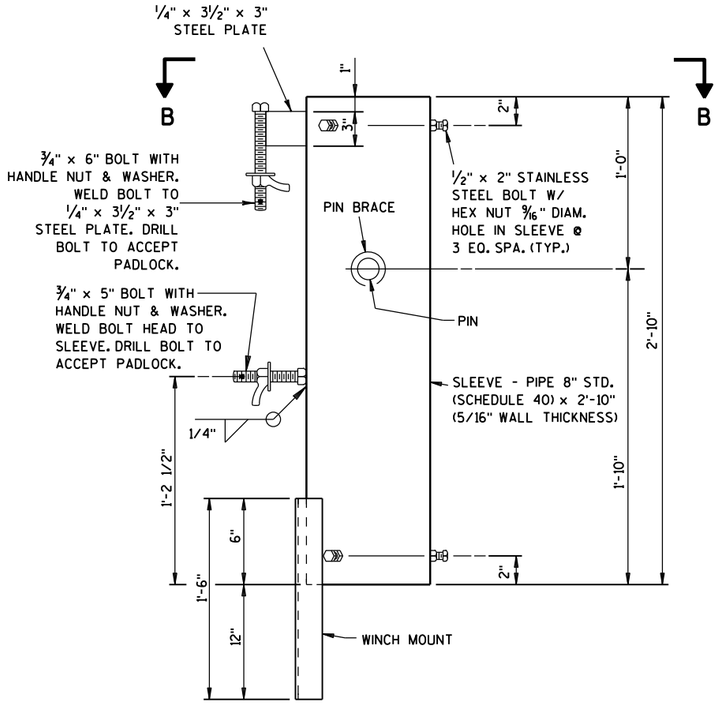
LOWER GATE ARM GUIDE DETAIL



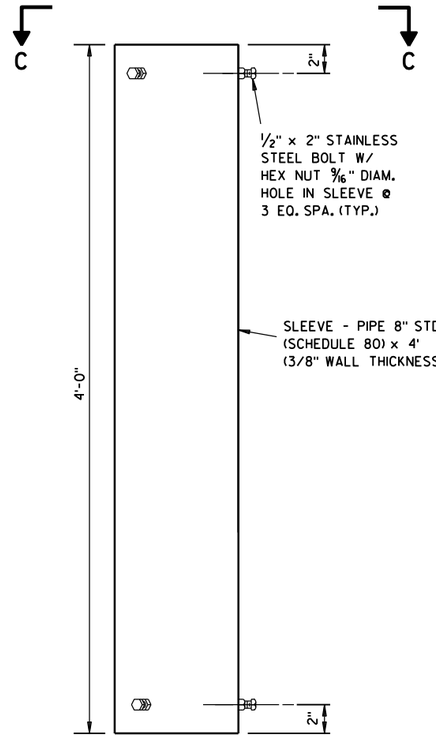
SECTION B-B



SECTION C-C



PIVOT SLEEVE DETAIL



TOP COLLAR

RAMP GATE
SOLAR POWER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

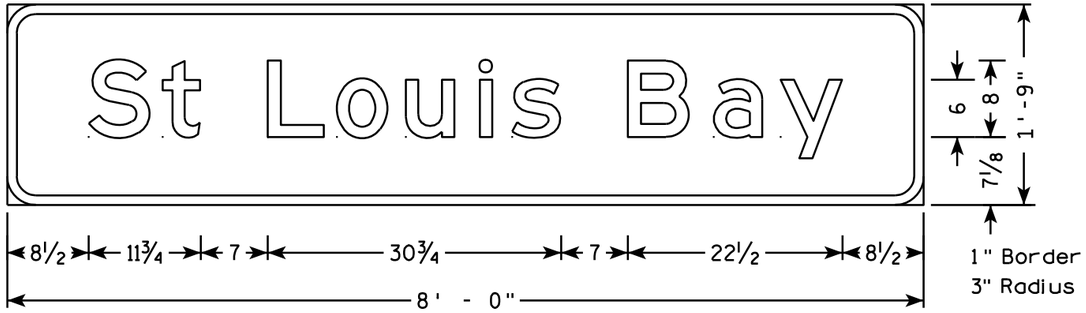
APPROVED
4-30-2013
DATE
/S/ Bill Wondrachek
STATE TRAFFIC ENGINEERING AND MANAGEMENT
FHWA

6

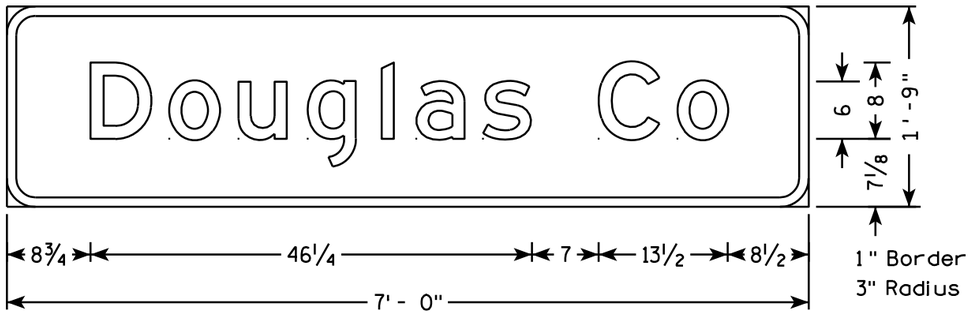
S.D.D. 15 D 34-1d

6

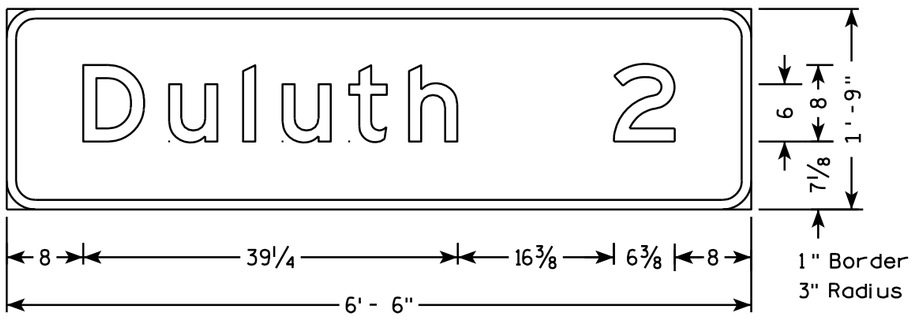
S.D.D. 15 D 34-1d



I3-1



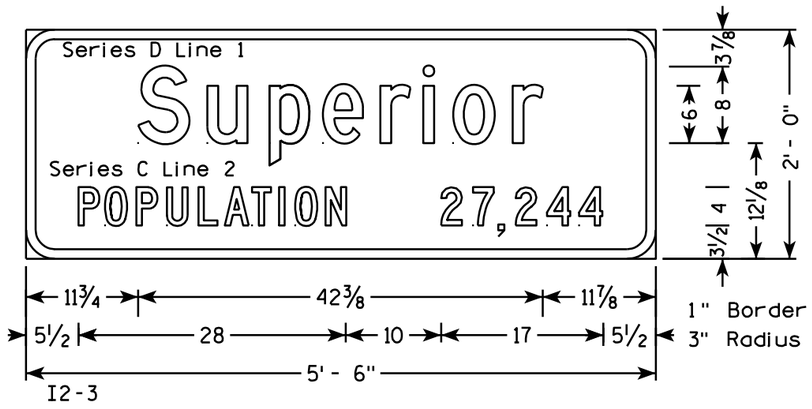
I2-2



D2-1

NOTES

1. All Signs Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - GREEN
   Message - WHITE
3. Message Series - E except as Shown

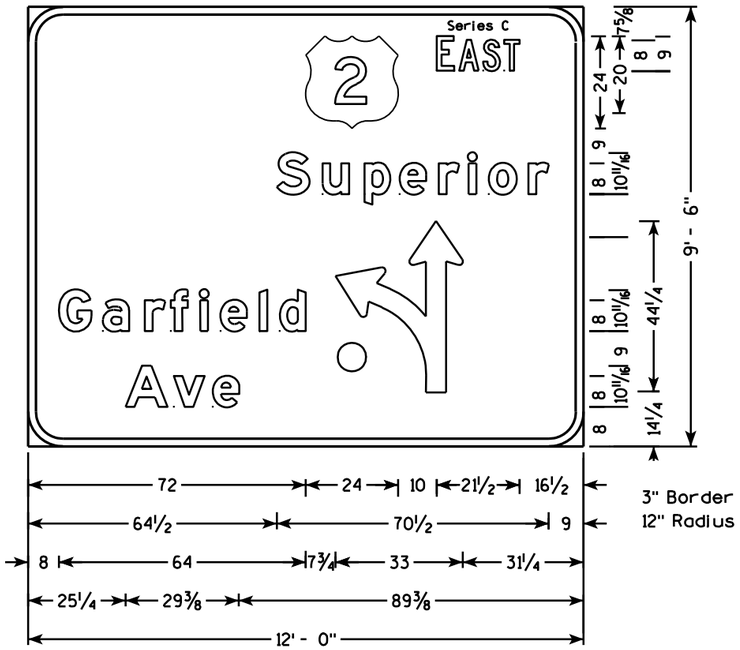


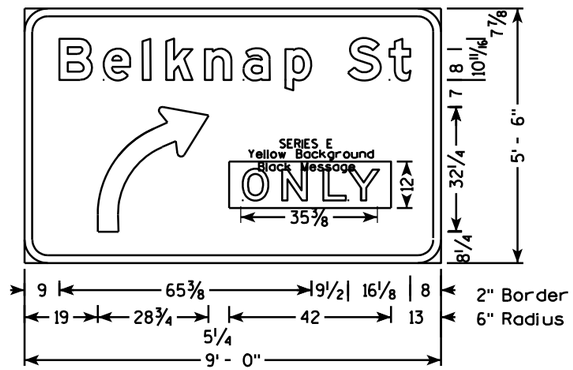
I2-3

7

7

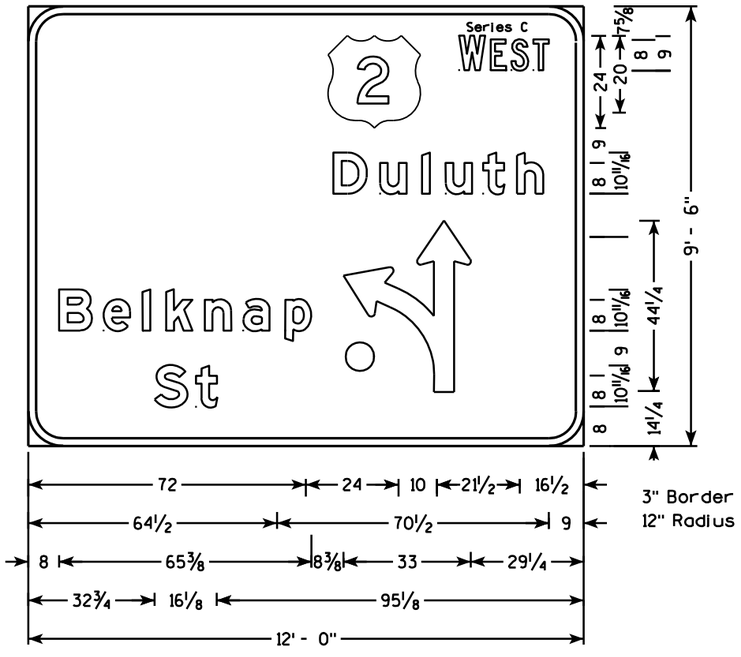
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET NO: 296	E

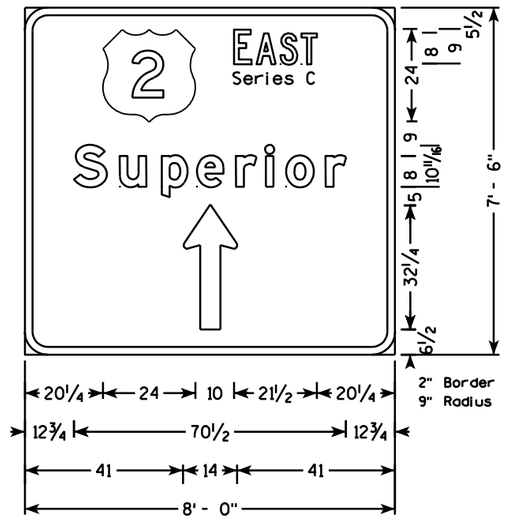


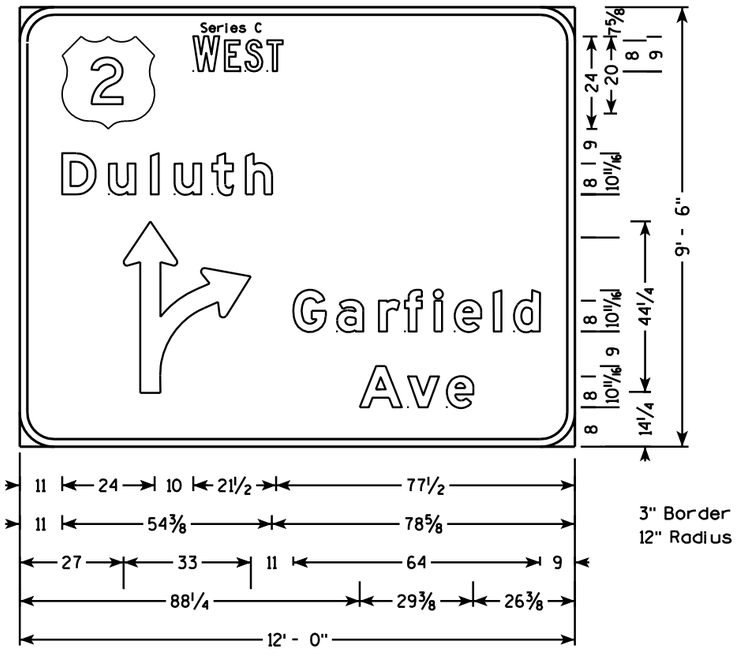


NOTES

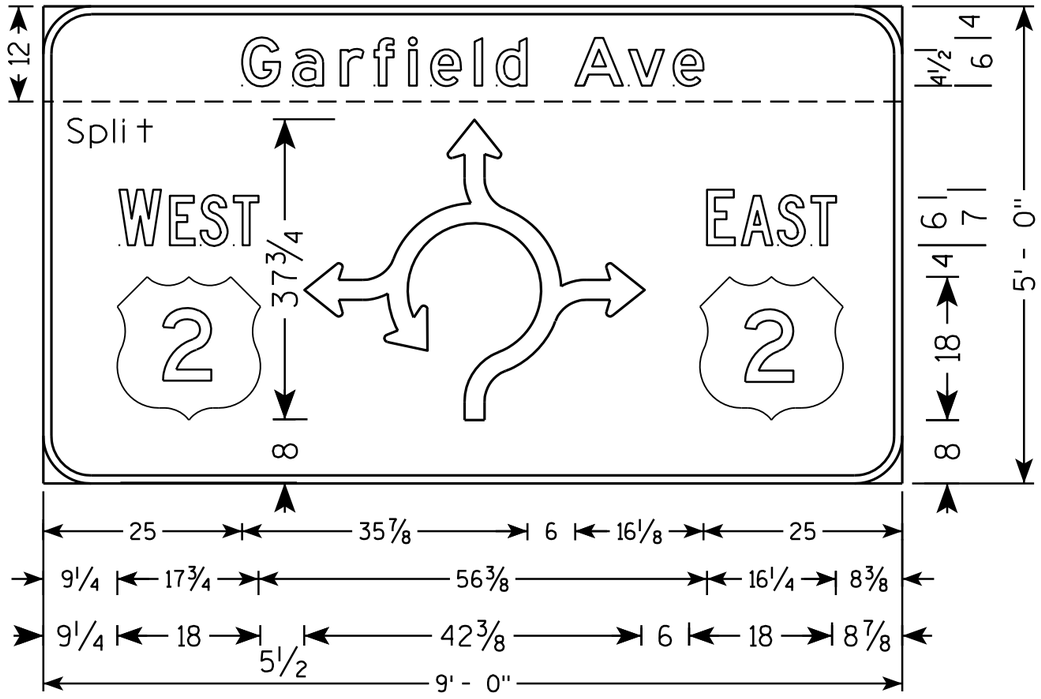
1. All Signs are Type I - Type SH Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Green
   Message - White
3. Message Series - E Modified except as Shown







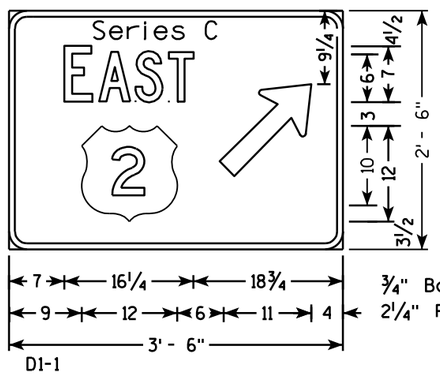
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PERMANENT SIGNING	SHEET NO: 297	E



D1-62

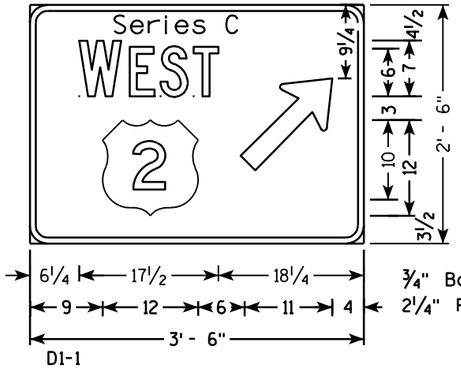
NOTES

1. All Signs Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - GREEN
   Message - WHITE
3. Message Series - E except as Shown



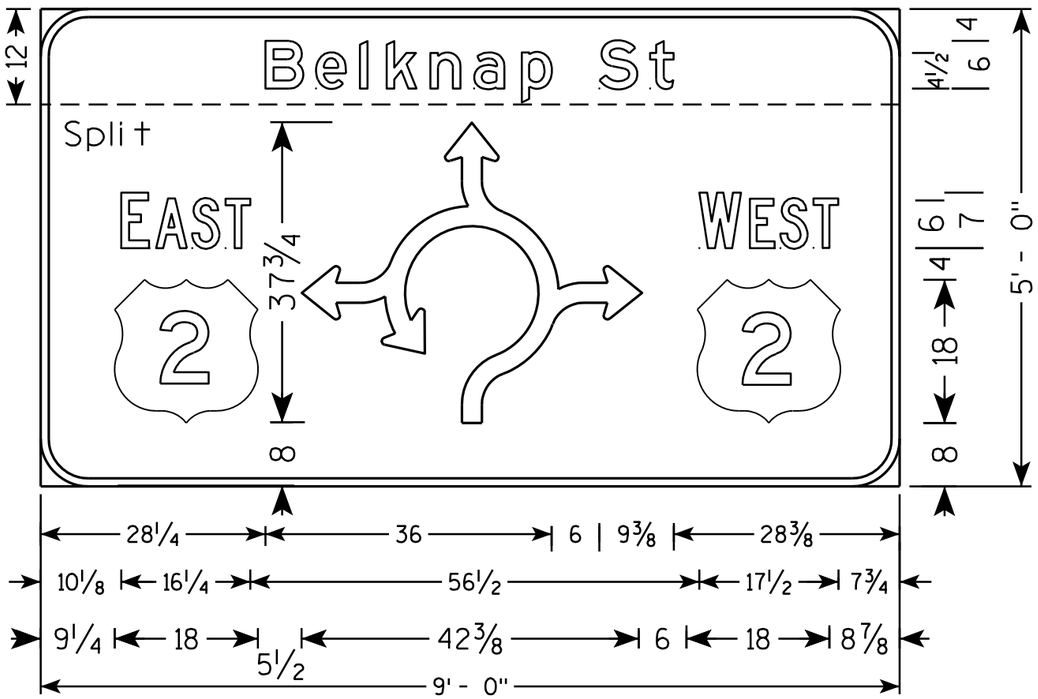
¾" Border
2¼" Radius

D1-1

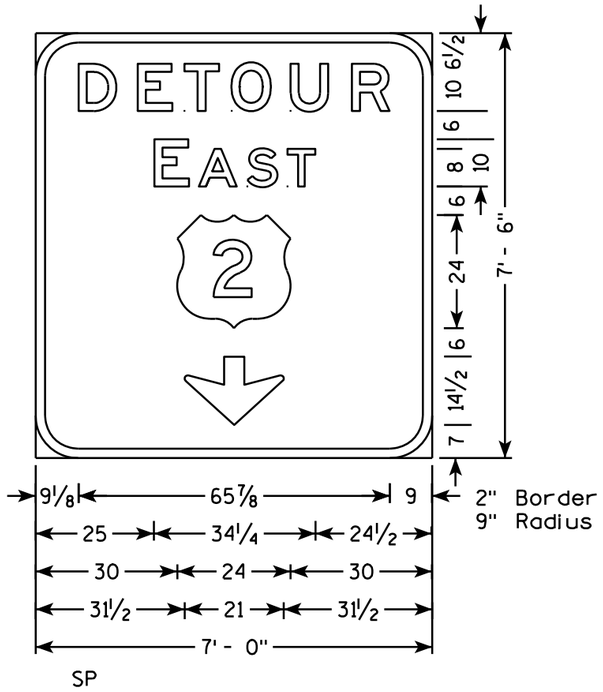


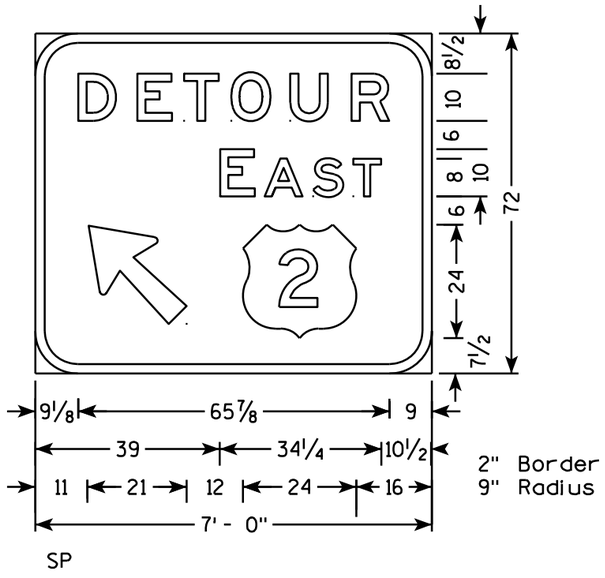
¾" Border
2¼" Radius

D1-1



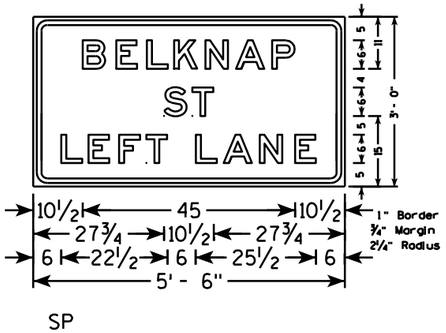
D1-62

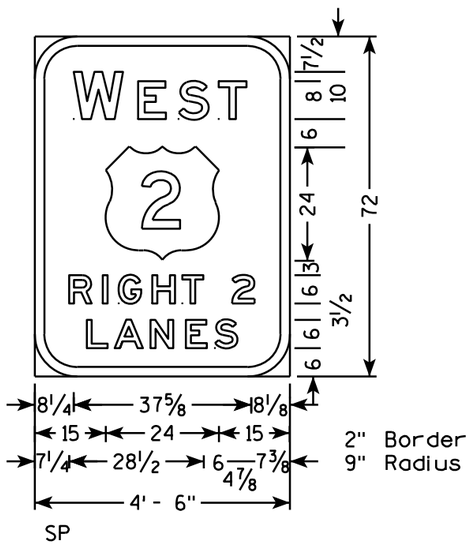


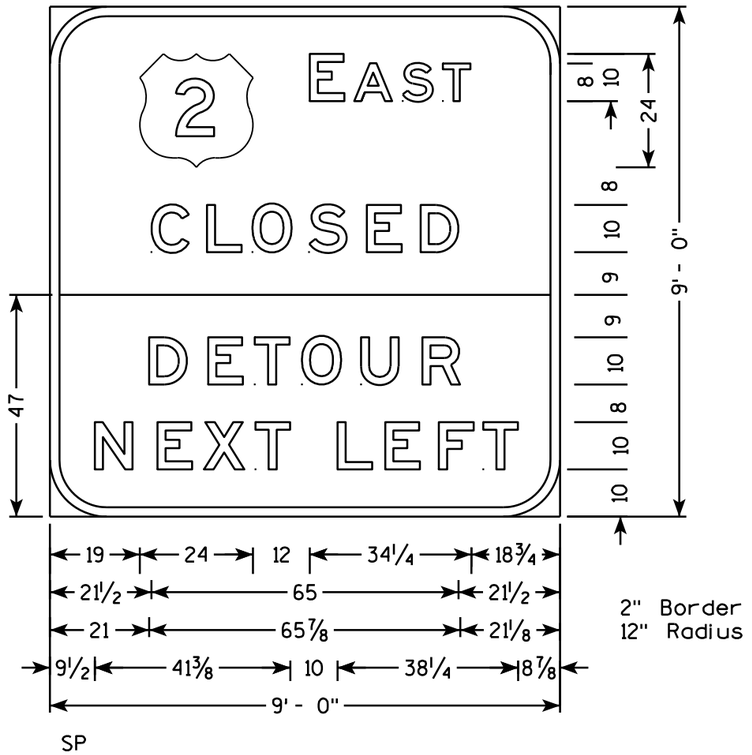


NOTES

1. All Signs are Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - ORANGE
   Message - BLACK
3. Message Series - E







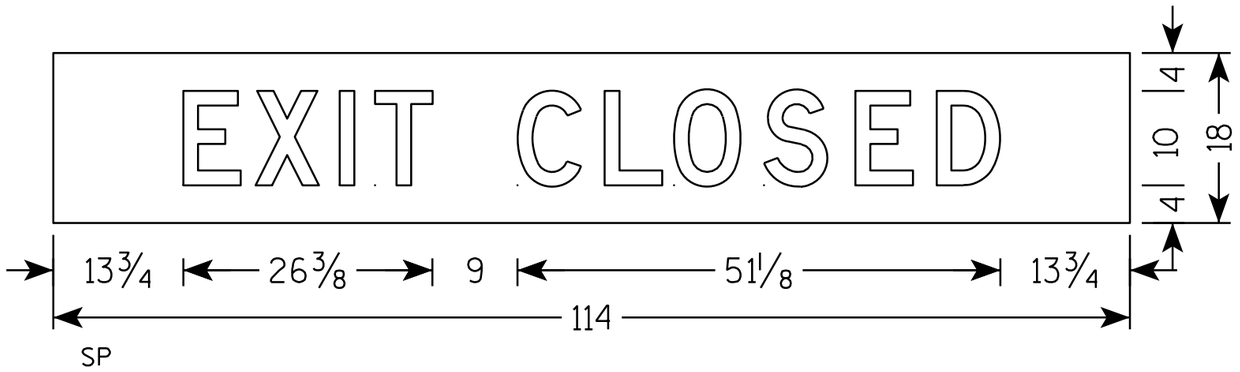
7

7

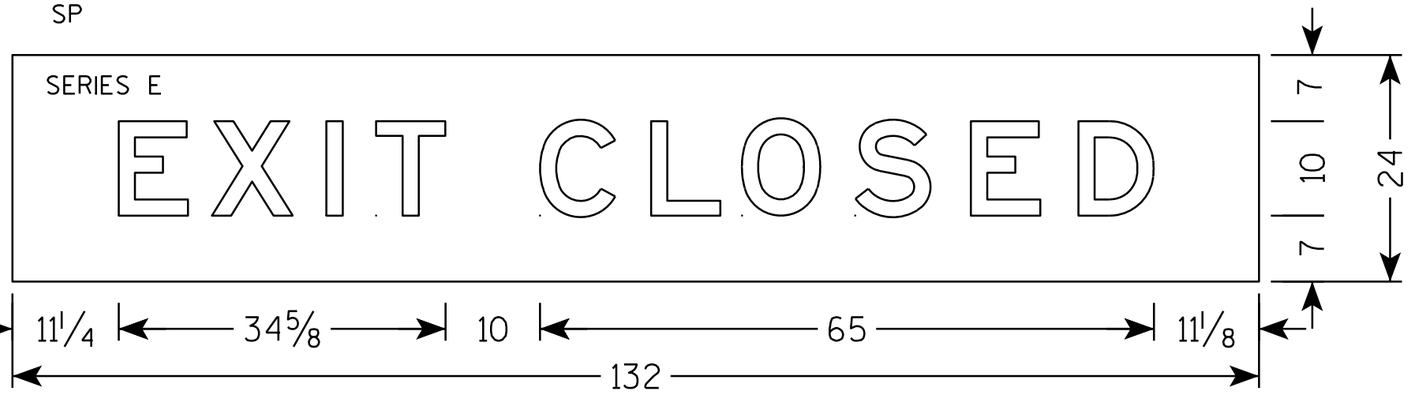
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	FIXED MESSAGE	SHEET NO: 299	E

NOTES

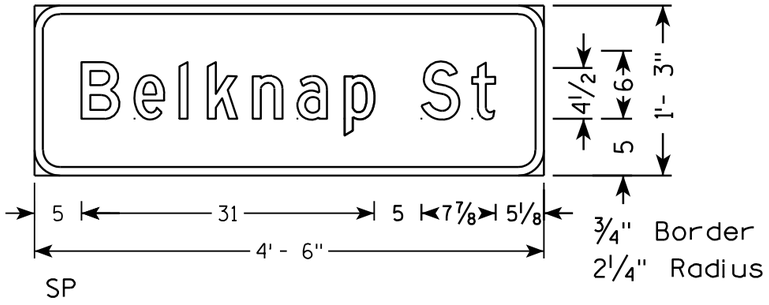
1. All Signs are Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - ORANGE except as Shown
   Message - BLACK
3. Message Series - D except as Shown



SP

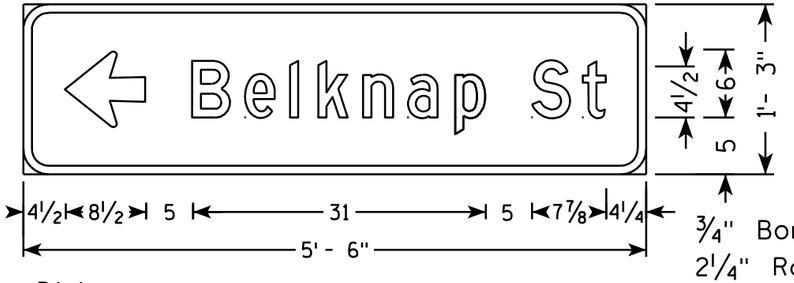


SP



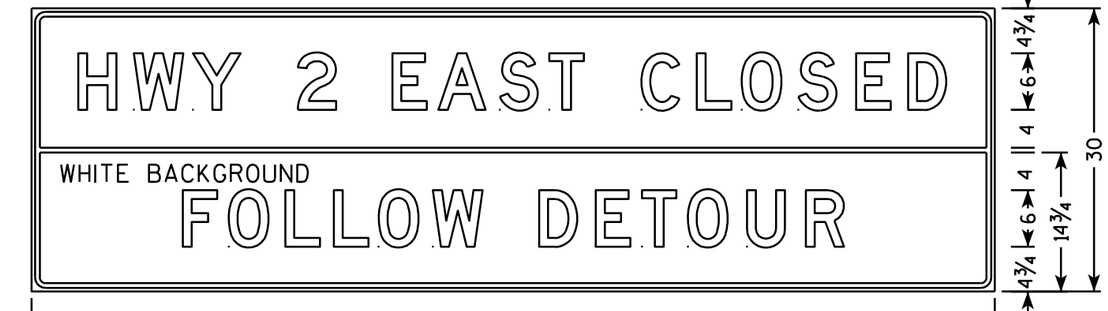
SP

¾" Border
2¼" Radius



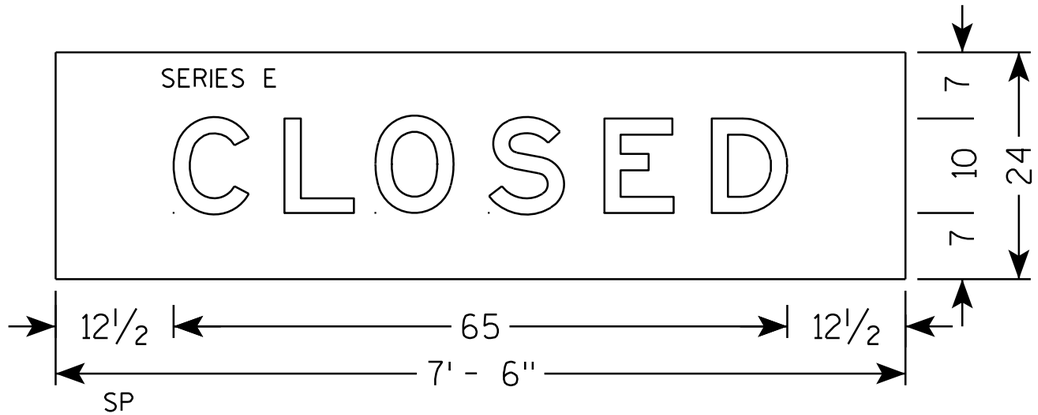
D1-1

¾" Border
2¼" Radius



SP

½" Border
⅜" Margin
1⅛" Radius



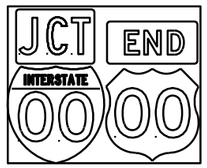
SP

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	FIXED MESSAGE	SHEET NO: 300	E

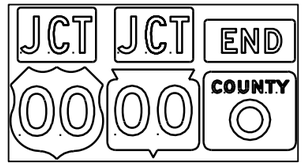
TYPICAL ASSEMBLIES



J1-1



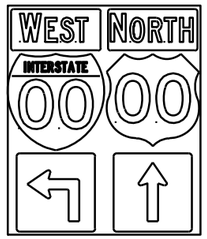
J1-2



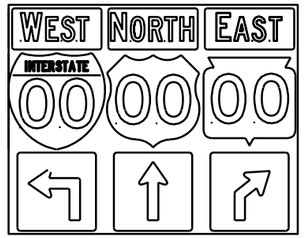
J1-3



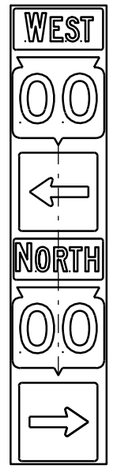
J2-1



J2-2

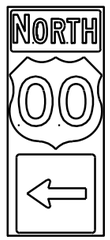


J2-3

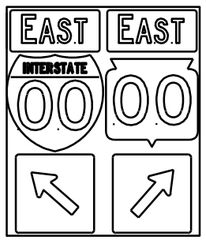


JV

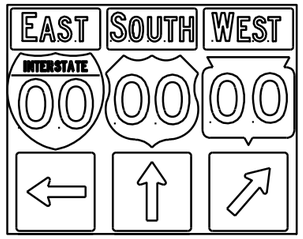
(Typical Vertical J-Assembly
See Note 10 and 11)



J3-1



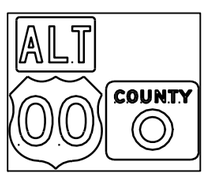
J3-2



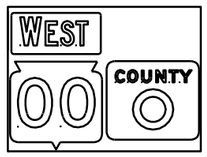
J3-3



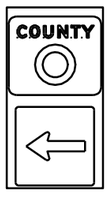
J4-1



J4-2



J4-2



J13-1



J12-1



J32-1



J33-1

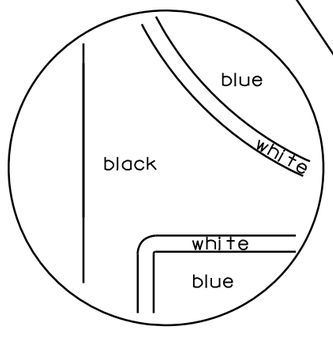


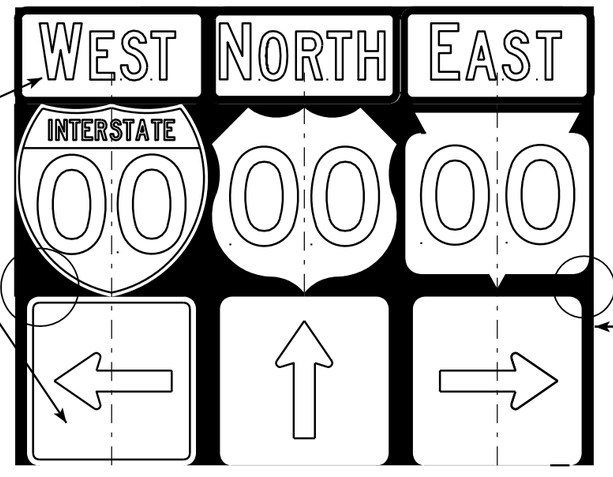
J23-1

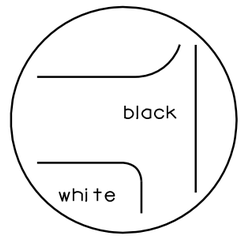


J22-1

blue background
with interstate







black background

NOTES

1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Black Non-reflective
   Message - see Note 5
3. Message Series - See Note 5
4. Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
5. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
6. Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 interstate marker shall be blue.
7. Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
8. Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
9. Route assemblies that have 36 inch shields and have dimensions greater than 48 inchs (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
10. All Vertical J Assemblies are given a Sign Code of JV
11. For JV Assemblies that have a mixture of interstate and non interstate shields, arrows and cardinals shall be white on blue.

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/25/13 PLATE NO. A2-1S.7

7

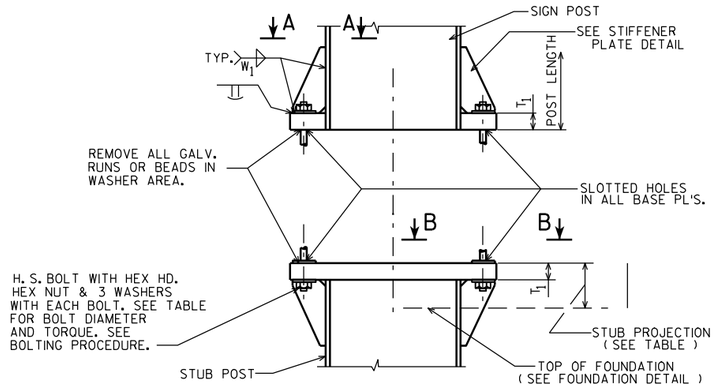
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PROJECT NO:

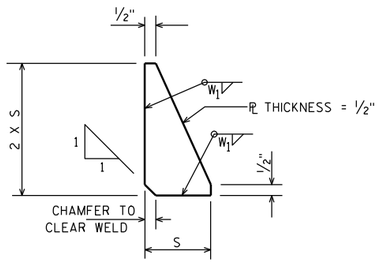
SHEET NO: 301 E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A21S.DGN PLOT DATE : 25-MAR-2013 11:33 PLOT BY : mscsja PLOT NAME :

WISDOT/CADDS SHEET 42

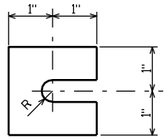


SIGN POST AND STUB POST ELEVATION



STIFFENER PLATE DETAIL

(SEE TABLE FOR DIMENSIONS)

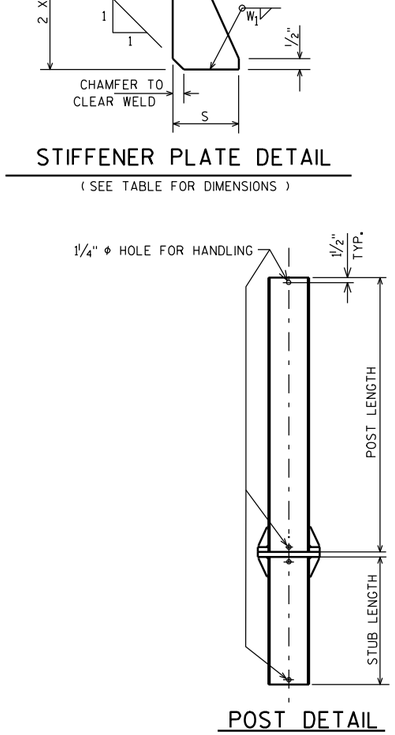


FURNISH 2 @ .012" ± THICK AND 2 @ .032" ± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M.- B36.

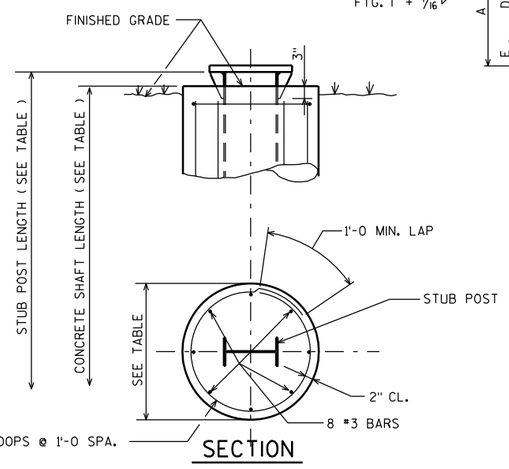
SHIM DETAIL

	QUANTITIES FOR 1 FOOTING	
	CONC. MASONRY C.Y.	REINF. STEEL LBS.
A	0.6	34
B	0.8	49
C	0.9	50
D	0.9	56
⑦ E	1.0	62

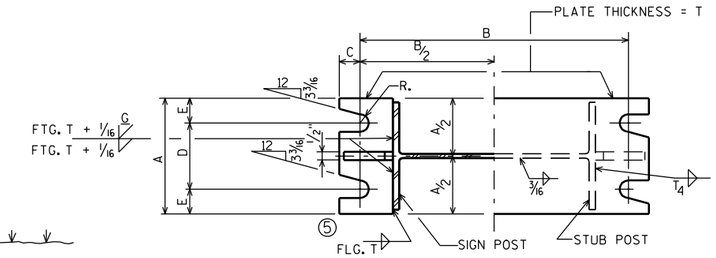
	TYPE	#3	#4
⑦ REINF.	A	8 @ 4'-5	5 @ 6'-3
	B	8 @ 6'-5	7 @ 6'-3
	C	8 @ 6'-11	7 @ 6'-3
	D	8 @ 7'-5	8 @ 6'-3
	E	8 @ 7'-11	9 @ 6'-3



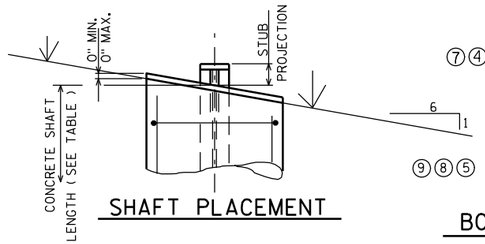
POST DETAIL



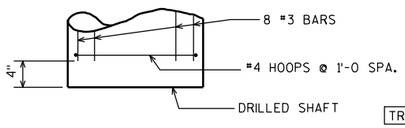
SECTION



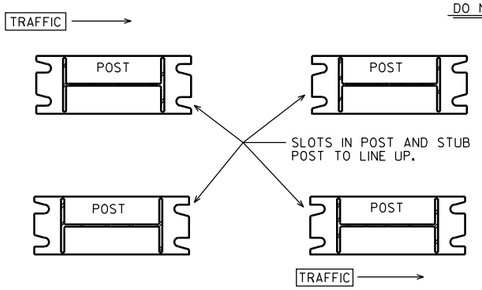
SECTION A-A SECTION B-B



SHAFT PLACEMENT



FOUNDATION DETAIL



POST SLOT ORIENTATION ⑦

DESIGN DATA

WIND PRESSURE = 75 M.P.H.
WIND COMPONENTS - NORMAL = 1.0 TRANSVERSE = 0.0
ICE LOAD = 3 P.S.F.

GROUP LOADS	PERCENT OF ALLOWABLE STRESS
1. DEAD	100
2. DEAD & WIND	140
3. DEAD, ICE & 1/2 WIND Δ	140 Δ25 P.S.F. MIN.

ALLOWABLE SOIL PRESSURE = 1½T / SQ. FT.
WIND LOAD WAS APPLIED TO THE AREA OF THE SIGN AND TO THE SUPPORTING MEMBERS.
ICE LOAD WAS APPLIED TO ONE FACE OF THE SIGN AND AROUND THE SURFACE OF THE SUPPORTING MEMBERS.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
DESIGN CONFORMS WITH A.A.S.H.T.O. SPECIFICATIONS 1985.
ALL POSTS, POST STUBS & ATTACHMENTS SHALL BE A.S.T.M. A709 GRADE 50.
⑨ THE POST, BASE PLATES, UPPER SIX INCHES OF STUB POST FLANGE SPLICE PLATE AND FUSE PLATE SHALL BE GALVANIZED AFTER FABRICATION.
H.S. BOLTS, WASHERS & NUTS SHALL BE A325 GALVANIZED WHEN POSTS, POST STUBS AND ATTACHMENTS ARE A709 GRADE 50 AND GALVANIZED.

BOLTING PROCEDURE - BASE CONNECTION

1. ASSEMBLE SIGN POST TO STUB POST WITH BOLTS AND ONE OF THE FLAT WASHERS ON EACH BOLT BETW. PLATES.
2. SHIM AS REQ'D. TO PLUMB POST.
3. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH 12" OR 15" WRENCH TO BED WASHERS & SHIMS AND TO CLEAN BOLT THREADS, THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE. (SEE TABLE)
4. BURR THREADS AT JUNCTION WITH NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.

NOTE:
TIGHTEN THE HIGH STRENGTH BOLTS TO THE TORQUE SHOWN. DO NOT OVERTIGHTEN.

	TYPE	DIMENSION / POST SIZE	BASE CONNECTION DATA TABLE: BOLT SIZE & TORQUE	A	B	C	D	E	T_1	T_4	W_1	R	S	FOUNDATION DATA: STUB LENGTH	STUB PROJECTION	SHAFT DIAMETER	SHAFT LENGTH	② K
④	A	W10"X12.0 #/FT.	3/4" Φ @ 75#-FT.	5 1/4"	1'-0 3/8	7/8"	3 1/2"	7/8"	1"	3/16"	5/16"	13/32 "	2 1/8"	3'-6	3"	2'-0 Φ	5'-0	76.0# ④
④	B	W12"X16.0 #/FT.	7/8" Φ @ 85#-FT.	5 1/2"	1'-4 1/4	1"	3 1/2"	1"	1 1/4"	1/4"	5/16"	15/32 "	3"	5'-6	3"	2'-0 Φ	7'-0	146.5# ④
	C	W12"X19.0 #/FT.	7/8" Φ @ 85#-FT.	5 1/2"	1'-4 1/4	1"	3 1/2"	1"	1 1/2"	5/16"	5/16"	15/32 "	3"	6'-0	3"	2'-0 Φ	7'-6	182.1#
	D	W12"X22.0 #/FT.	7/8" Φ @ 85#-FT.	5 1/2"	1'-4 1/4	1"	3 1/2"	1"	1 1/2"	3/8"	5/16"	15/32 "	3"	6'-6	3"	2'-0 Φ	8'-0	210.5#
③	E	W12"X26.0 #/FT.	1" Φ @ 90#-FT.	7"	1'-4 1/4	1 1/4"	4"	1 1/2"	1 1/2"	3/8"	5/16"	17/32 "	3"	7'-0	3"	2'-0 Φ	8'-6	293.0# ③

① ⑥ ①

STRUCTURAL CARBON STEEL PAY WTS. (1 POST) = K+ (POST LENGTH X POST WT.)
" K " INCLUDES STUB, BASE PLATES, STIFFS., BOLTS, AND WASHERS.

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer
DATE 4/26/11 PLATE NO. A3-1.13

NO.	DATE	REVISION
⑨	4-26-11	REMOVE NON-GALVANIZED
⑧	10-30-96	NOT GALVANIZED/GALVANIZED
⑦	10-30-92	QUANT., A588 EXCEPT., ADD SLOT VIEW
⑥	8-24-87	BASE CONN. WELD
⑤	10-13-81	BASE CONN. WELD & FUSE PL WASHERS
④	10-19-79	POST A & B, A572 GR. 50, & K
②	11-28-78	"K" ③ 4-23-79 TYPE "E"
①	5-4-78	T_1 , T_2 & W_1

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

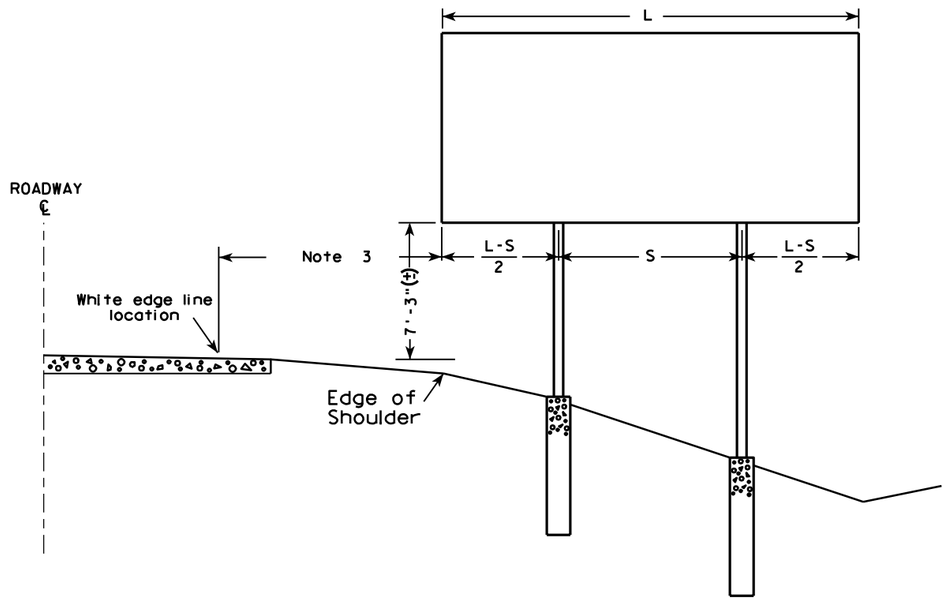
TYPE A, B, C, D, & E

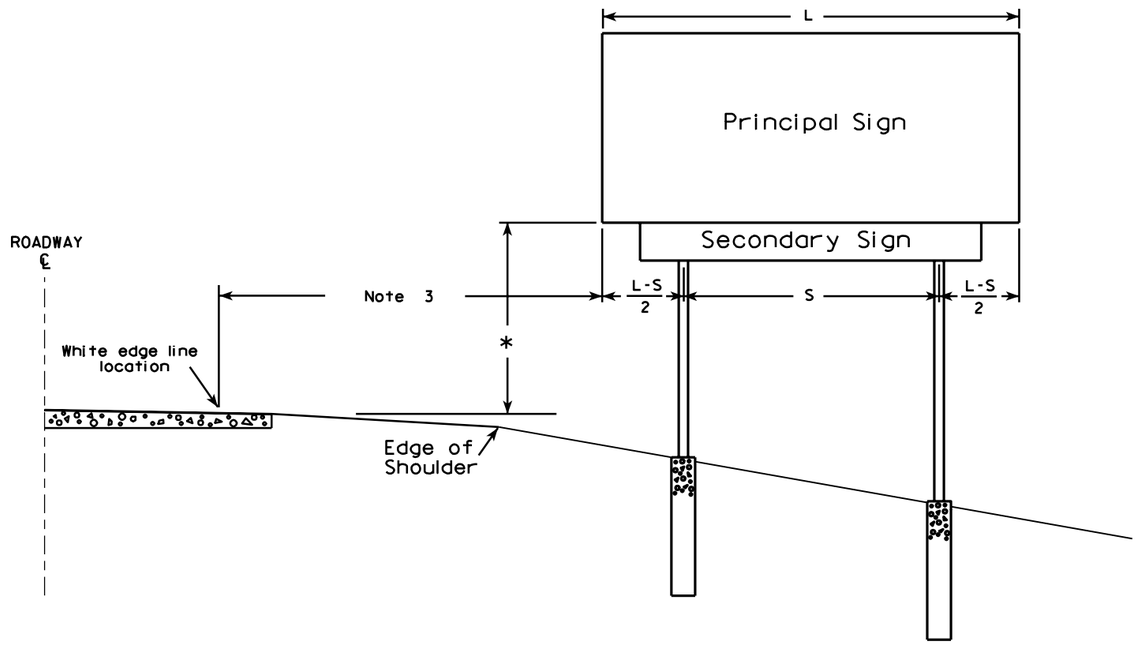
CONST. SPEC. 2011 | DRAWN BY JPH | PLANS CK'D.

FTG. & SIGN SUPPORT DETAILS GROUND MOUNT BREAK-AWAY SIGNS

SHEET

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 302 | E





GENERAL NOTES

1. For a 2 post installation, S equals 3L/5, but shall not be less than 9 ft.
2. For a 3 post installation, S equals 5L/7, but shall not be less than 18 ft., and the space between any two posts shall not be less than 9 ft.
3. Unless noted in the plan, the sign offset distance shall be a minimum of 17'-6", desirable 30'-0".
4. The (±) tolerance shown on this sheet is 3 in.
5. The vertical sign height clearance detailed is measured from the bottom of the sign to the near edge of pavement.
6. Post lengths shown in the miscellaneous quantities are estimated lengths. The contractor shall verify post lengths at the time of final grading.
7. Refer to the Traffic Guidelines Manual for further guidance on minimum vertical clearance requirements.

* Clearance is 8'-3"(±) when the secondary sign is 3 ft. or less in height. For secondary signs larger than 3 ft., the clearance to the bottom of the secondary sign shall be 5'-3"(±).

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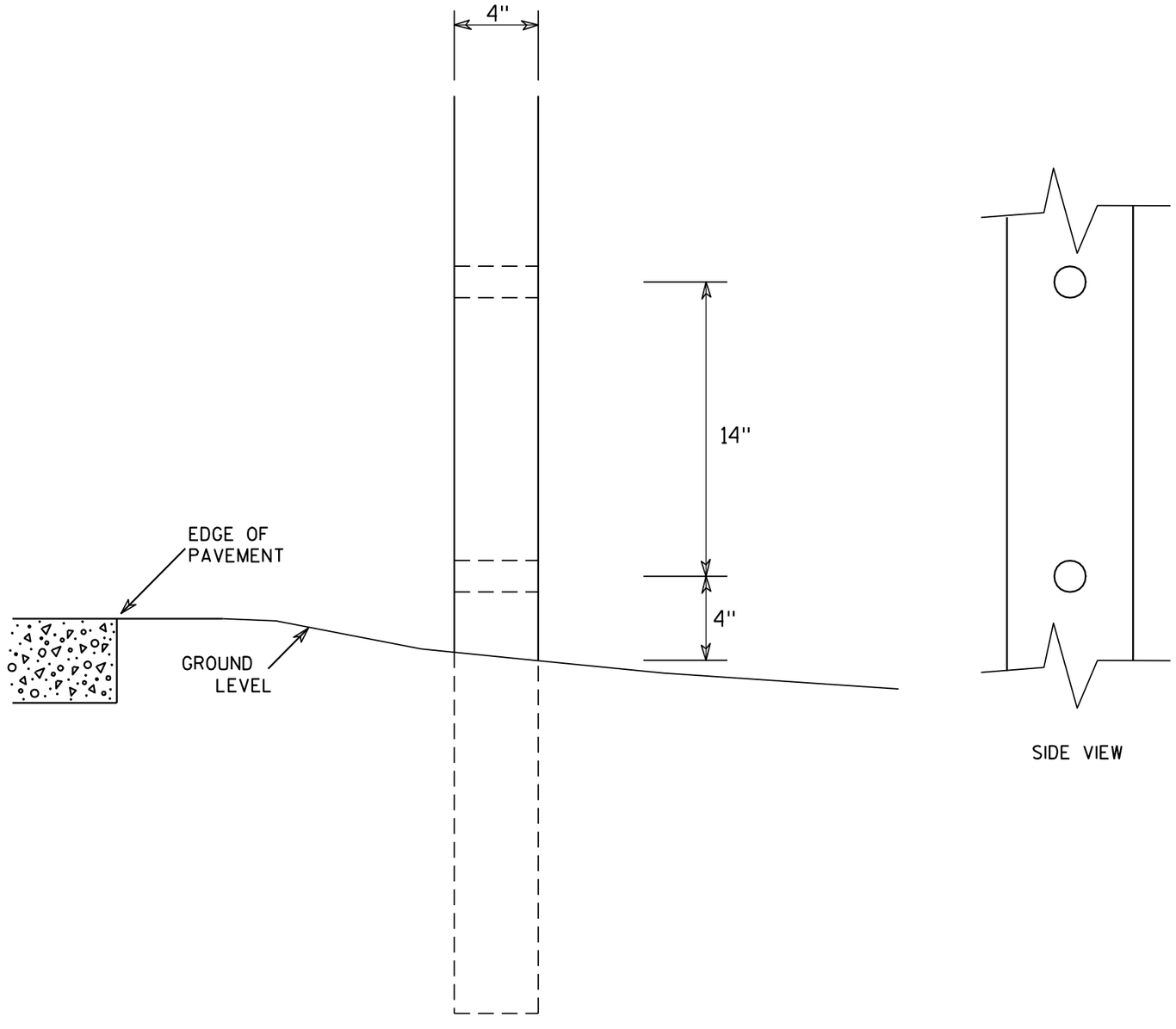
TYPICAL INSTALLATION
OF TYPE I SIGNS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/02/08 PLATE NO. A4-1.9

PROJECT NO:				SHEET NO: 303	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

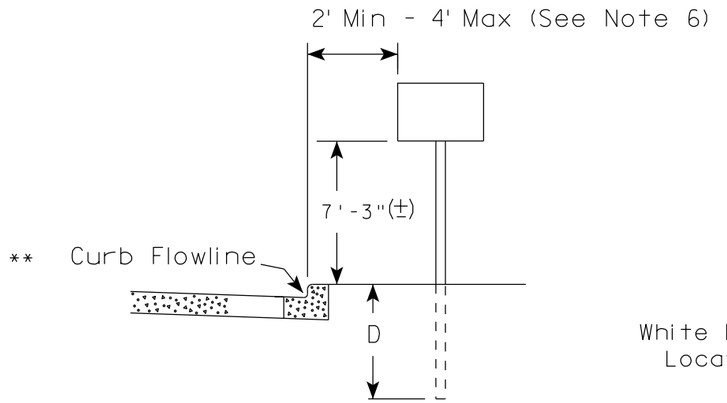
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

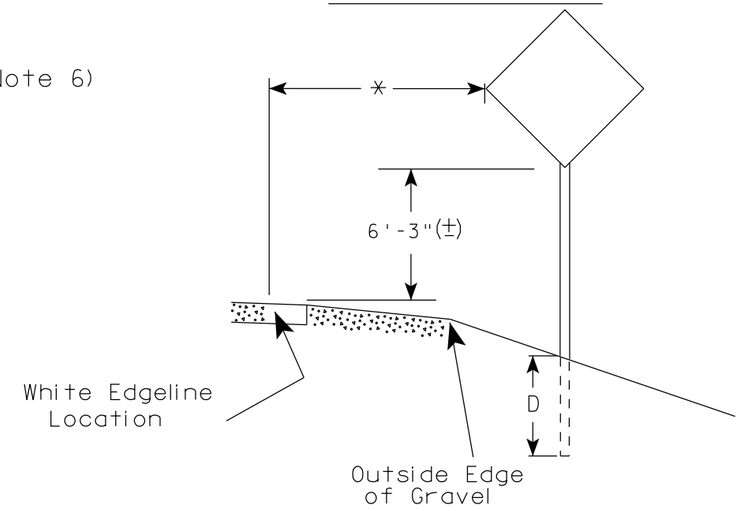
DATE 3/27/97 PLATE NO. A4-11.2

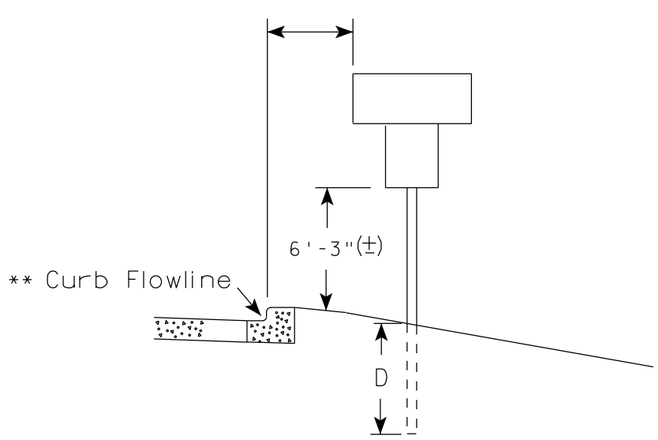
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 304	E

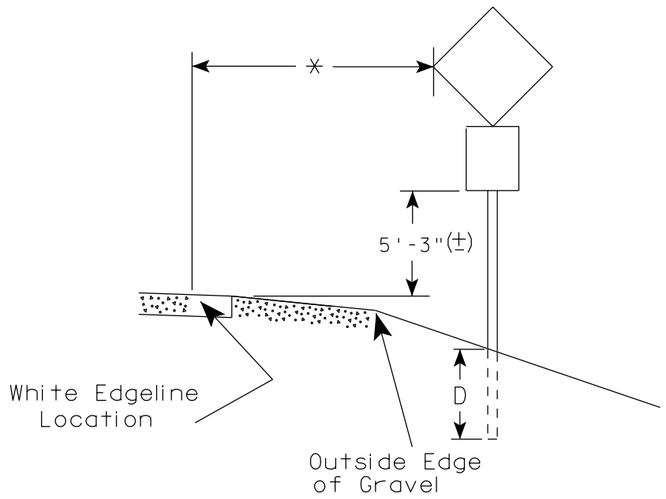
URBAN AREA



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.

GENERAL NOTES

1. Signs wider than 4 feet, 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 (A4-5) 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 stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed 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) & End of Rod Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (+).

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

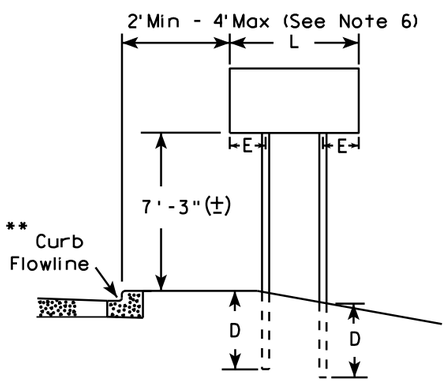
APPROVED Matthew R Rauch for State Traffic Engineer

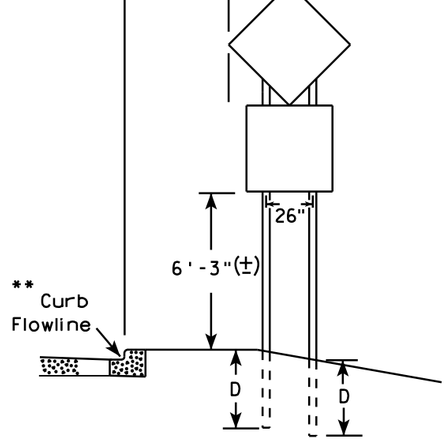
DATE 9/30/13 PLATE NO. A4-3.18

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

7

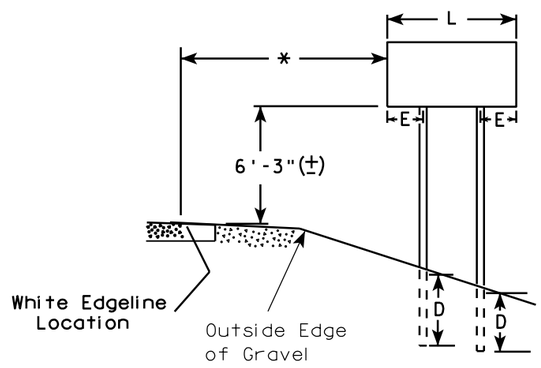
URBAN AREA

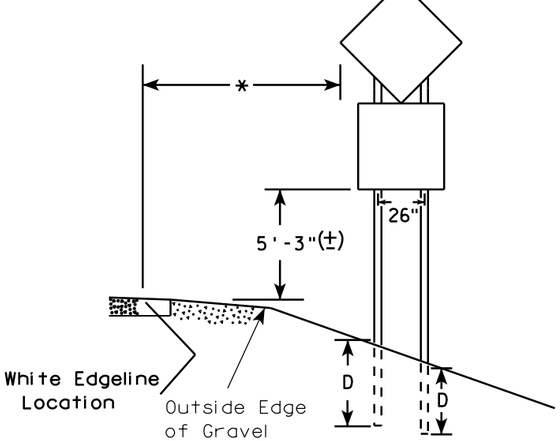




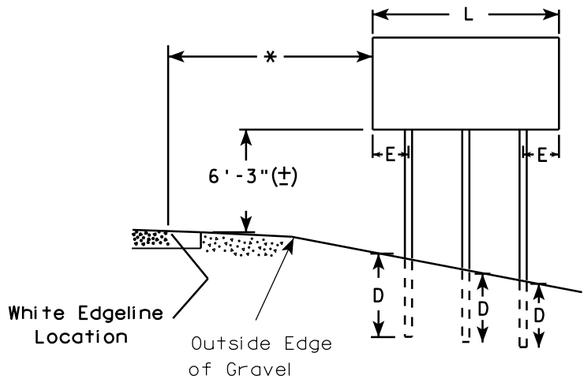
48" DIAMOND WARNING SIGN

RURAL AREA (See Note 3)





48" DIAMOND WARNING SIGN



GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. 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), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4"-3" (±).

* 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.

** 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.

*** See A4-3 sign plate for signs 4' or less in width or 20 S.F. or less in area.

***

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

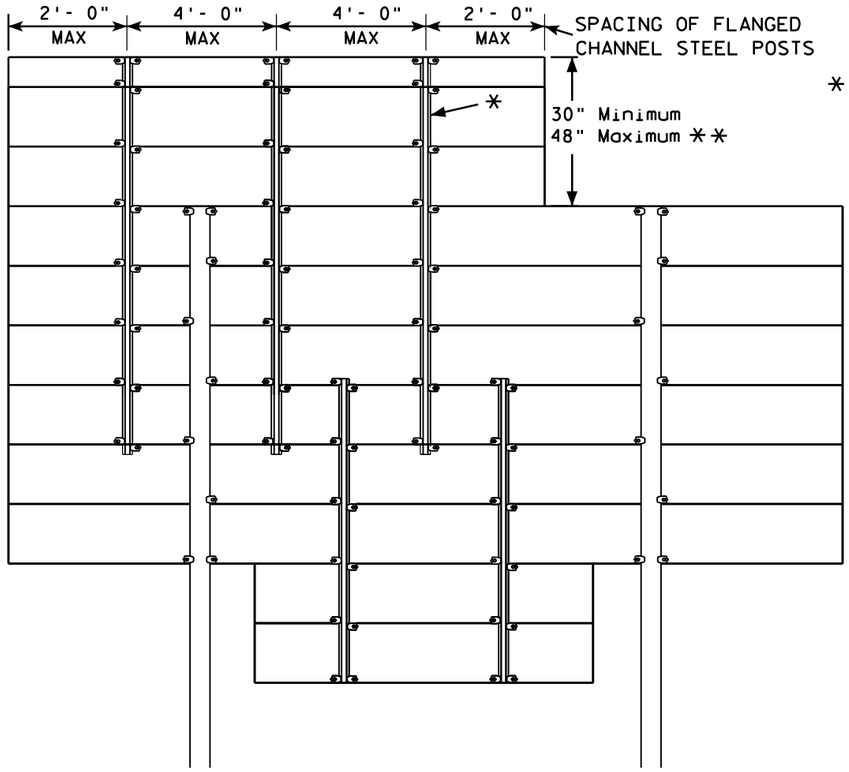
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/30/13 PLATE NO. A4-4 12

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

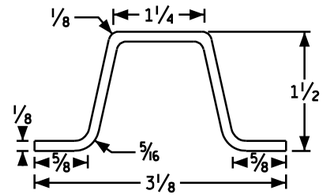
GROUND MOUNTED SIGN



*=2.00 lb/ft FLANGED CHANNEL, MIN. YIELD STRENGTH = 60,000 PSI (GRADE 60) GALVANIZED

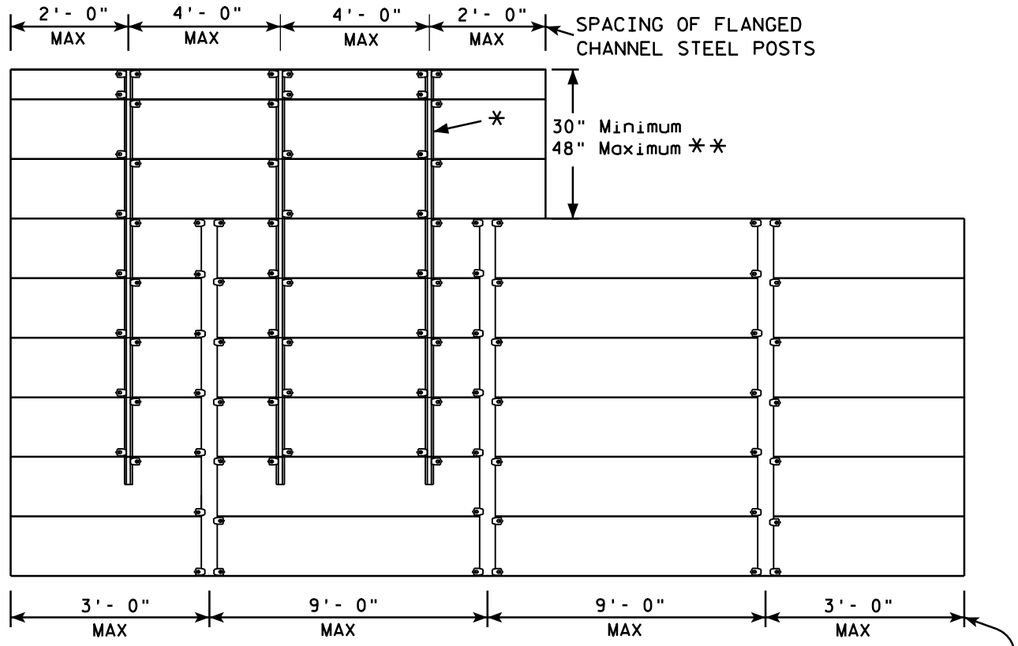
**=FOR 48" HEIGHT PANELS ON OVERHEAD STRUCTURES, ENTIRE SIGN SHALL BE CENTERED VERTICALLY ABOUT THE DEPTH OF THE TRUSS.

FLANGE CHANNEL DETAIL



NOT TO SCALE

SIGN BRIDGE MOUNTED SIGN



GENERAL NOTES

1. Flanged channel steel posts shall conform to size and material above, and shall be considered as incidental to other items in the contract.

2. Number of Flanged channel steel supports varies with length of panel and shall be spaced as shown:

   PANEL LENGTH 8'-0" OR LESS = 2 CHANNELS
   PANEL LENGTH 9'- 0" - 12'- 0" = 3 CHANNELS
   PANEL LENGTH 13'- 0" OR MORE = 4 CHANNELS

   If the flanged channel steel posts can not be horizontally spaced as shown, they can be moved so as to securely hold the sign.

3. The EXIT NUMBER PANEL shall normally be positioned above the guide sign aligned with the right edge of the guide sign. If the guide sign indicates a left exit, the EXIT NUMBER PANEL shall be aligned with the left edge of the guide sign.

4. If the bolt holes in the top panel (EXIT NUMBER), or sub panel (NEXT EXIT) line up with holes in main sign panel, stitch bolts shall be used in addition to the channels.

5. Provide post clips for each sign as shown. (Please note the differences between a ground mounted versus Sign bridge mounted sign as far as number of clips required on the main supports or beams)

ATTACHMENT OF GUIDE SIGNS TO SUPPORTS

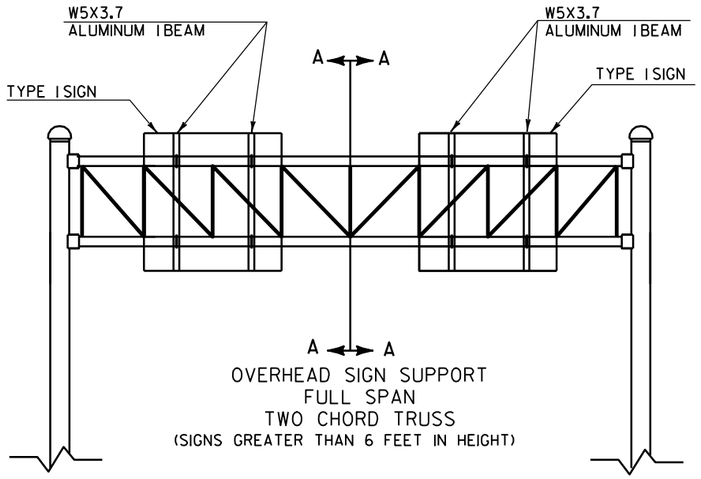
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

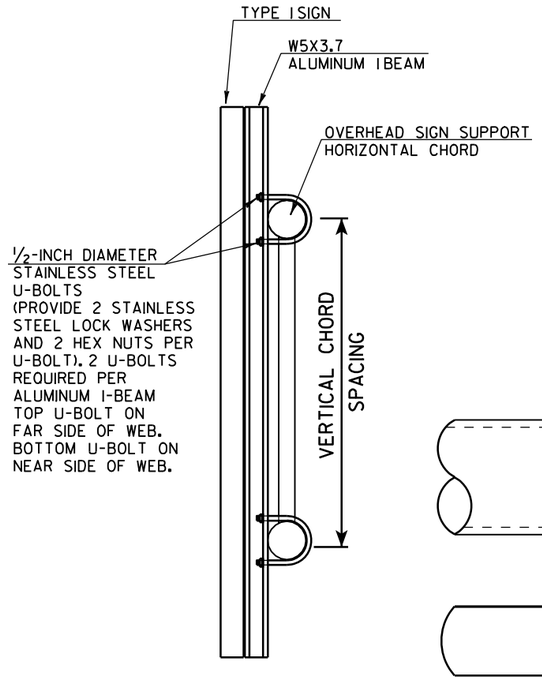
DATE 6/7/10 PLATE NO. A4-6.11

7

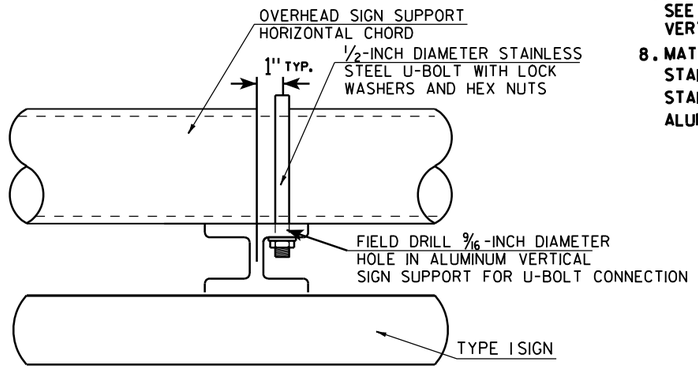
7



OVERHEAD SIGN SUPPORT
FULL SPAN
TWO CHORD TRUSS
(SIGNS GREATER THAN 6 FEET IN HEIGHT)



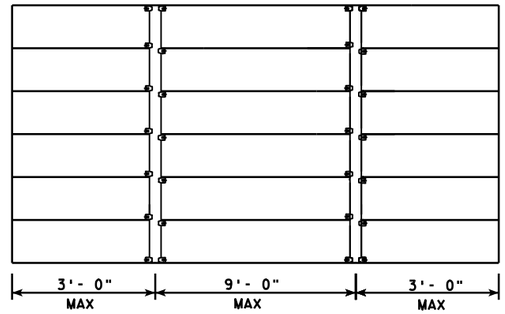
CUT SECTION A-A



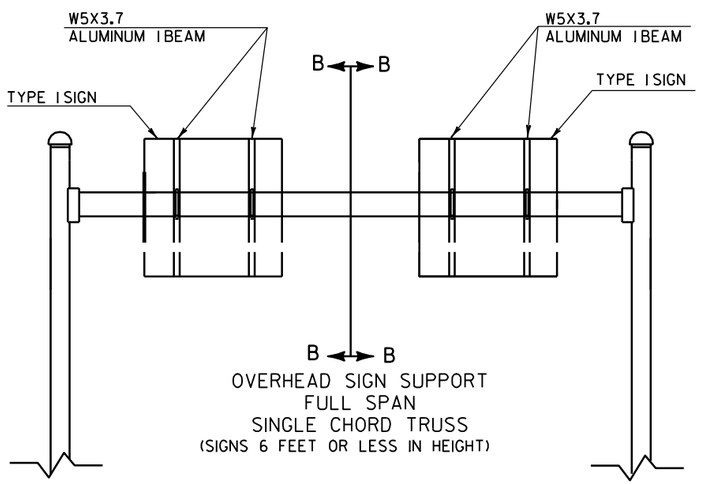
TYPICAL SIGN CONNECTION FOR
TWO CHORD TRUSS
PLAN VIEW

GENERAL NOTES

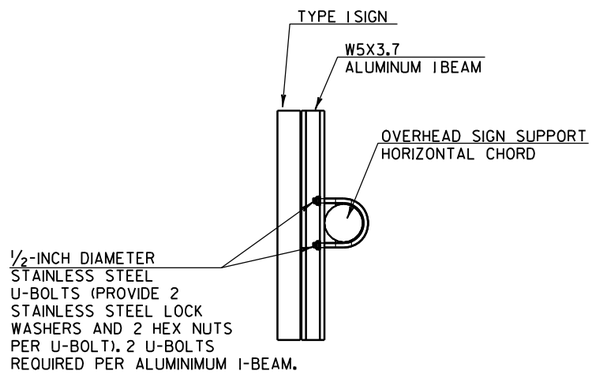
1. USE STAINLESS STEEL U-BOLTS, WASHERS, AND NUTS.
2. USE CLIPS ON EVERY EXTRUDED PANEL JOINT PER SIGN PLATE A4-6.
3. USE ALUMINUM VERTICAL SIGN SUPPORT BEAMS HAVING A 5 INCH BEAM DEPTH AND WEIGHT OF 3.7 LBS PER FOOT.
4. U-BOLTS SHALL BE STAINLESS STEEL AND MANUFACTURED TO THE PROPER SIZE TO FIT THE CHORDS OF THE OVERHEAD SIGN STRUCTURE.
5. DIAMETER OF U-BOLTS SHALL BE AS SHOWN.
6. THE LENGTH OF THE ALUMINUM VERTICAL SIGN SUPPORT BEAMS SHALL BE THE SAME AS THE HEIGHT OF THE SIGN THEY ARE SUPPORTING. BEAM LENGTHS MAY BE LONGER FOR PROPER ATTACHMENT TO CHORDS.
7. MINIMUM NUMBER OF BRACKETS PER SIGN IS TWO. SEE DETAIL BELOW FOR SPACING OF ALUMINUM VERTICAL SIGN SUPPORTS
8. MATERIAL NOTES:
   STAINLESS STEEL U-BOLTS AND LOCKWASHERS ASTM 304.
   STAINLESS STEEL HEX NUTS ASTM A276.
   ALUMINUM I-BEAMS ARE 6061-T6.



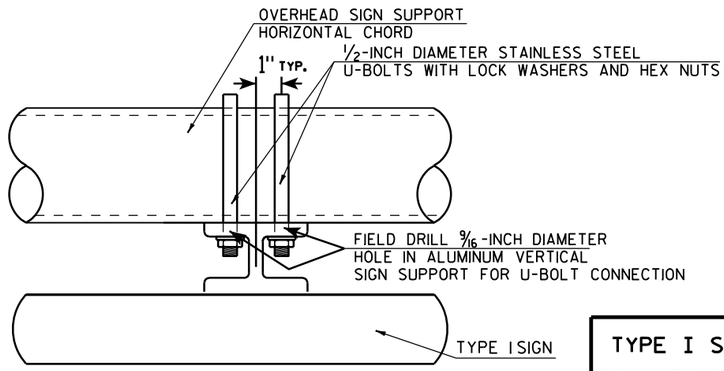
SPACING OF W5X3.7 ALUMINUM
VERTICAL SIGN SUPPORT



OVERHEAD SIGN SUPPORT
FULL SPAN
SINGLE CHORD TRUSS
(SIGNS 6 FEET OR LESS IN HEIGHT)



CUT SECTION B-B



TYPICAL SIGN CONNECTION FOR
SINGLE CHORD TRUSS
PLAN VIEW

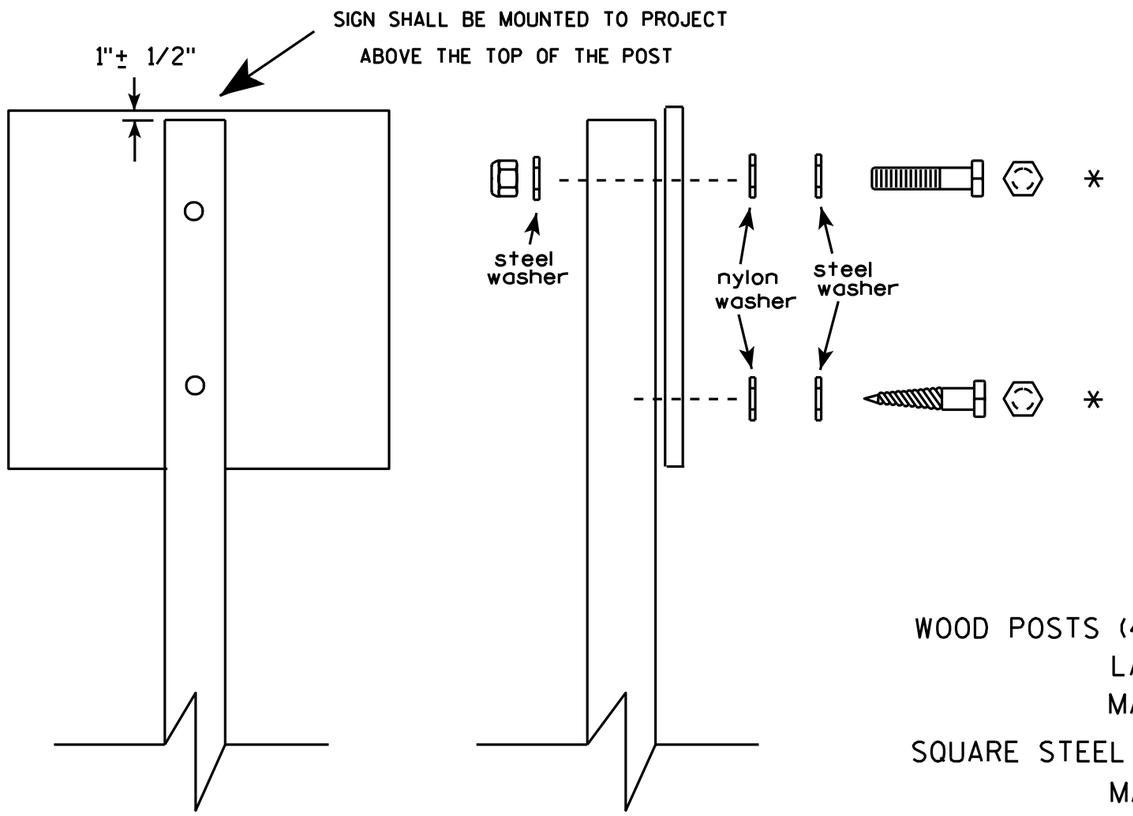
TYPE I SIGN CONNECTION TO OVERHEAD SIGN SUPPORT

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 11/12/12 PLATE NO. A4-7.3

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 308	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

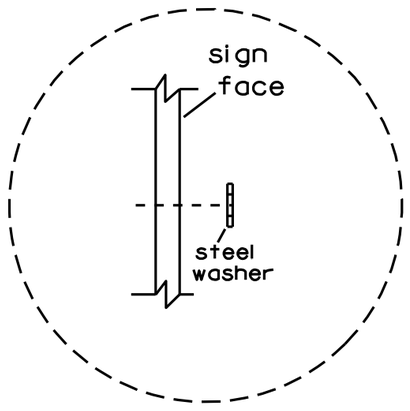
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

7

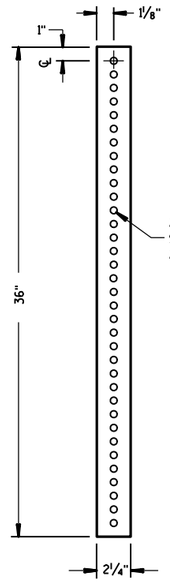
7

PROJECT NO:

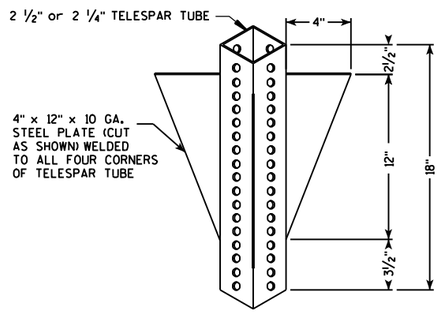
SHEET NO: 309 E

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

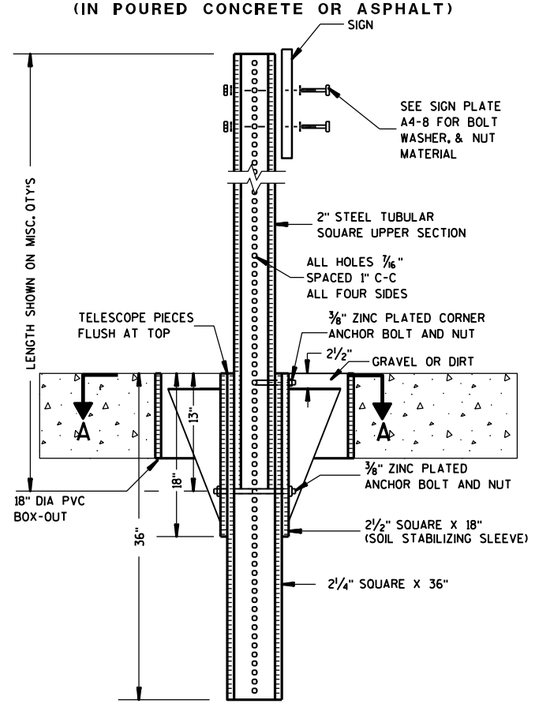
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



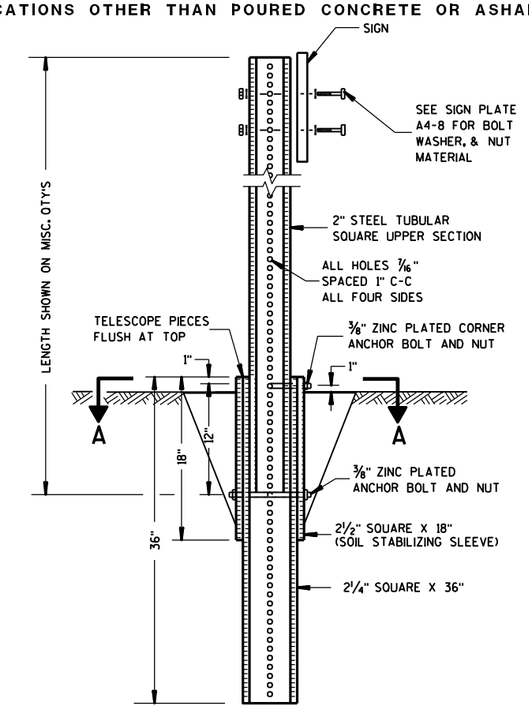
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

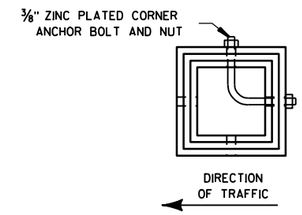


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASHALT)





SECTION A-A

Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

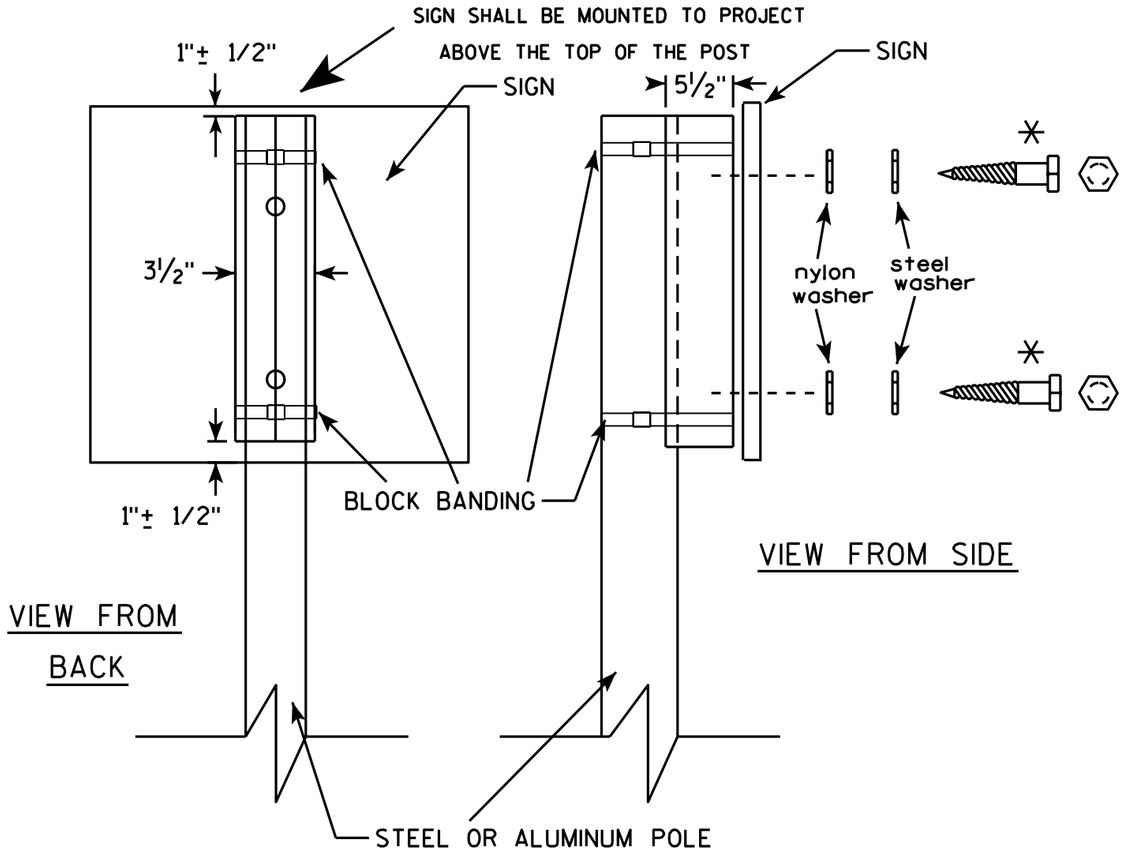
TUBULAR STEEL SIGN POST A4-9

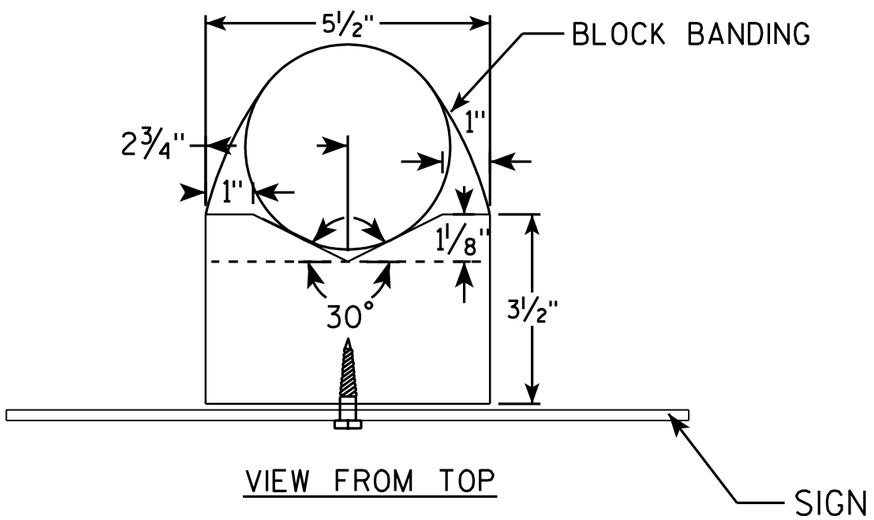
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/30/12 PLATE NO. A4-9.7

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 310	E





GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, ¾" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORNALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D, or
   b. Cadmium plated in accordance with ASTM Designation : B 766 TYPE 3, Class 12, or
   c. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✳ LAG BOLTS SHALL BE ⅜" X 2½"

BLOCK BANDING DETAIL (V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

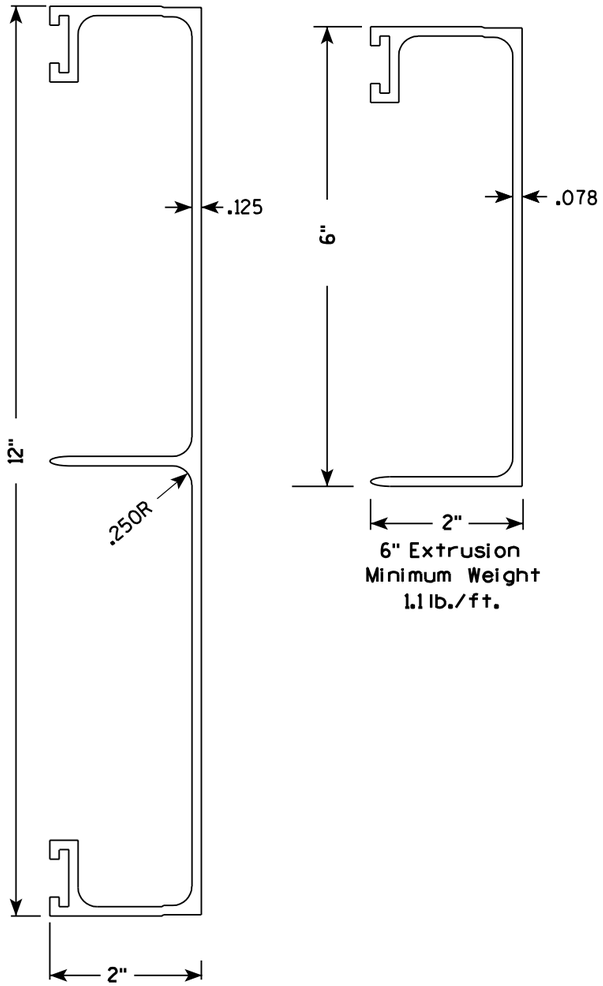
APPROVED Matthew R Rauch
for State Traffic Engineer

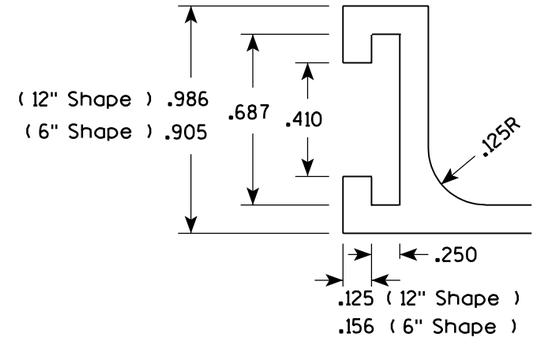
DATE 7/12/07 PLATE NO. A5-10.1

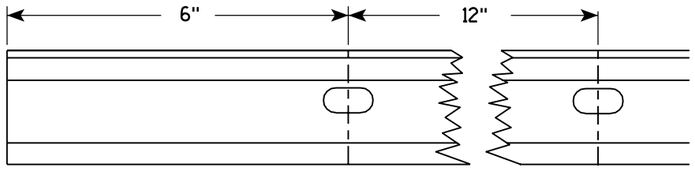
PROJECT NO:

SHEET NO: 311 E

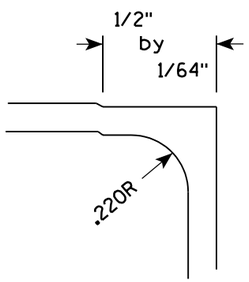
Extruded Shape







Punch 7/16" x 7/8" oval holes beginning 6" in from end of extrusion 12" CC on both edges of 6" and 12" panels.

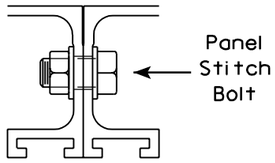


Hardware

STITCH BOLT, WASHER & NUT

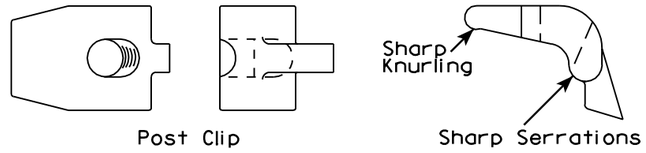
The hardware includes:

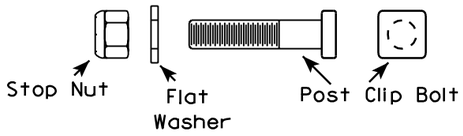
3/8 " - 16 X 3/4 " Economy Bolt 2024-T4 alloy
3/8 " - Stainless steel stop nut
3/8" X .064 Flat Washers, Alclad 2024-T4 alloy



POST CLIP, POST CLIP BOLT, WASHER & NUT

Post Clip shall be Alum. Alloy 356-T6
Post Clip Bolt shall be Stainless Steel.
Flat washer shall be 3/8" X .091, Stainless Steel.
Stop nut shall be stainless steel.





NOTES

1. The contractor may select any brand of extrusion that conforms to the illustrations or meets with the approval of the engineer, but all extrusions used on this contract shall be of the same brand.
2. Panel Stitch Bolts shall be used to assemble adjacent panels. Maximum stitch bolt spacing shall be 24" C-C, and a minimum of 4 bolts shall be used to connect any two extrusions.
3. Post Clips shall be used to attach the sign panel to the sign support.

ALUMINUM EXTRUSIONS FOR TYPE I SIGNS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang
for State Traffic Engineer

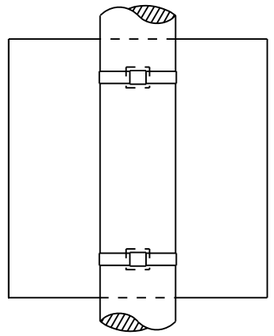
DATE 11/18/99 PLATE NO. A5-2.9

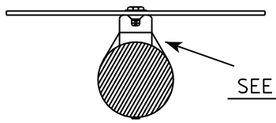
PROJECT NO:

SHEET NO: 312 E

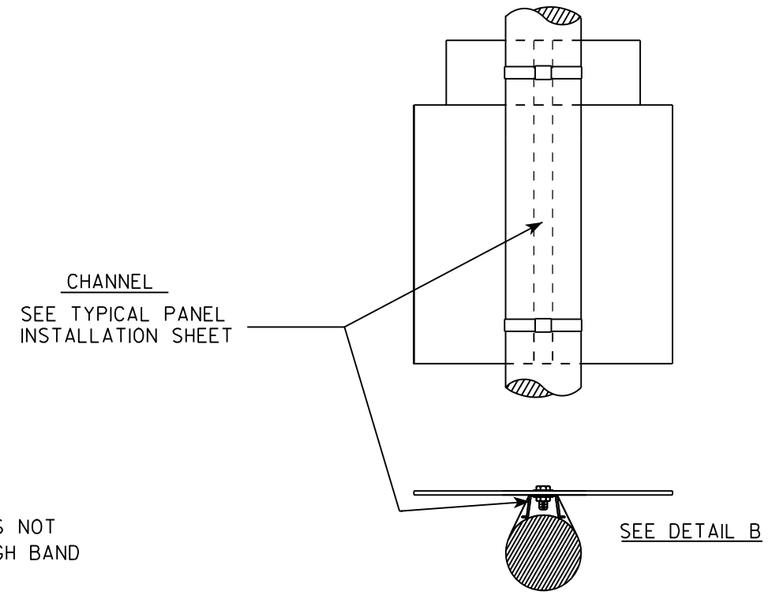
BANDING

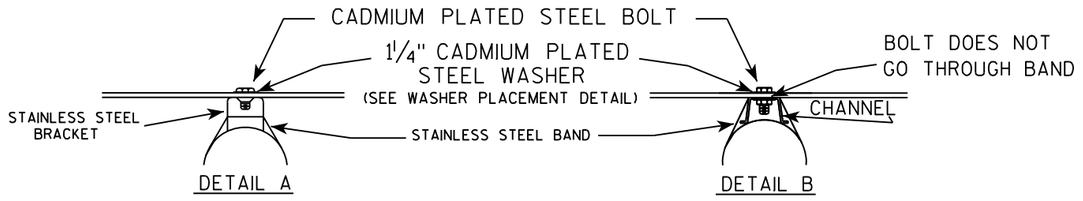
SINGLE SIGN



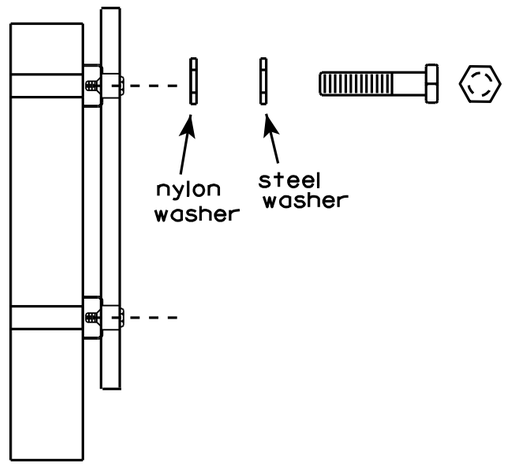


"J" ASSEMBLY





WASHER PLACEMENT



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

GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.

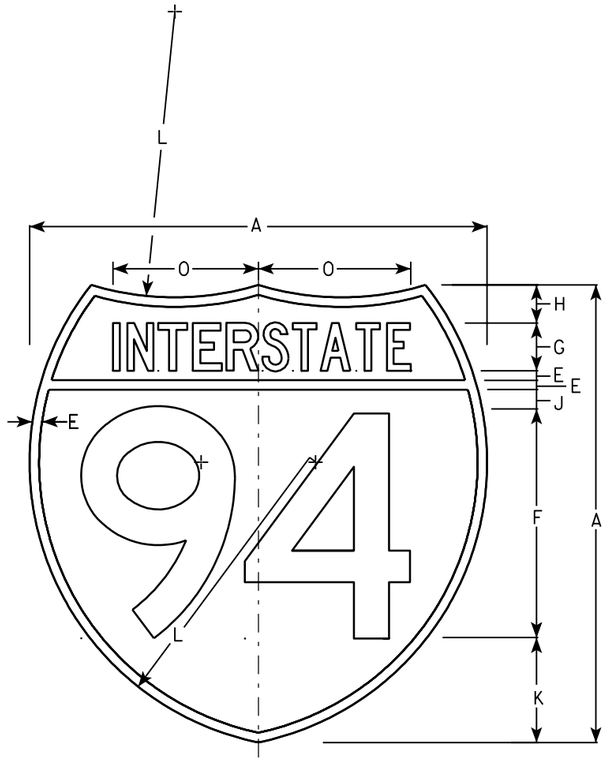
STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

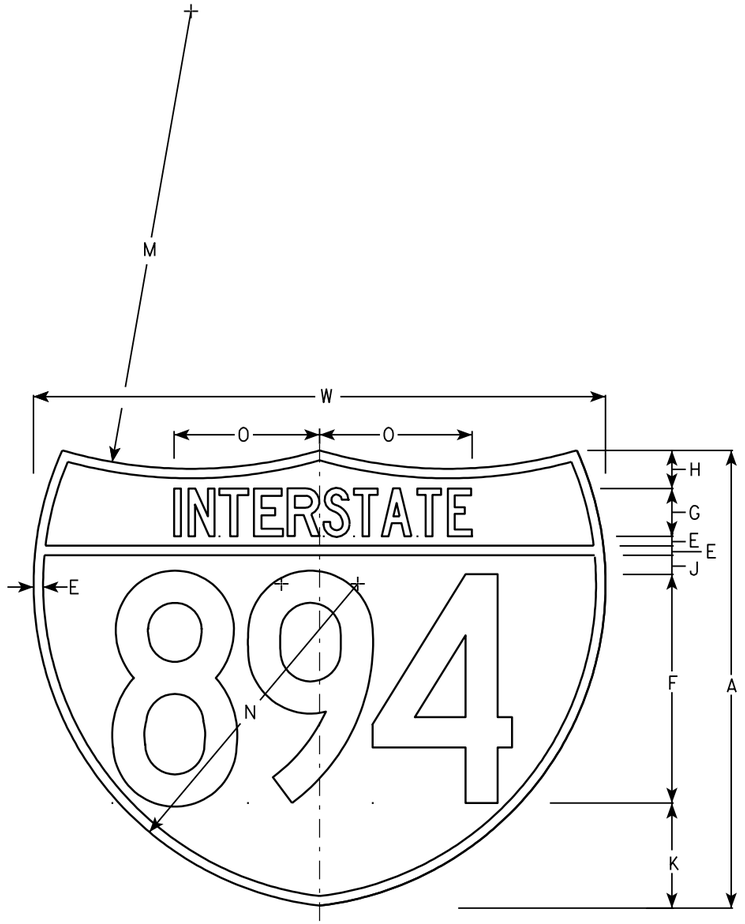
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 8/16/13 PLATE NO. A5-9.3

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 313	E



M1-1



M1-1A

NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Top Red - Bottom Blue (See Note 6)
   Message - White - See Note 6
3. Message Series - See note 5
4. Substitute appropriate numerals & ajust spacing as per plate A10-1.
5. M1-1 - Numerals - D
   Interstate - C
   M1-1A - All copy - C
6. Permanent Signs
   Message - Type H Reflective
   Detour or other temporary signs
   Background - Reflective
   Message - Reflective

Metric equivalent for these signs are:

SIZE	M1-1	SIZE	M1-1A
1			
2	600 mm X 600 mm	2	600 mm X 750 mm
3	900 mm X 900 mm	3	900 mm X 1125 mm
4	900 mm X 900 mm	4	900 mm X 1125 mm
5	900 mm X 900 mm	5	900 mm X 1125 mm

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	M1-1 Area sq. ft.	M1-1A Area sq. ft.	M1-1 Area m2	M1-1A Area m2
1																													
2	24				1/2	12	2 1/2	2		1	5 1/2	15	24	17	7 7/8								30			3.13	3.91	.36	.46
3	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79	.81	1.05
4	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79	.81	1.05
5	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79	.81	1.05

INTERSTATE ROUTE MARKER
M1-1 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

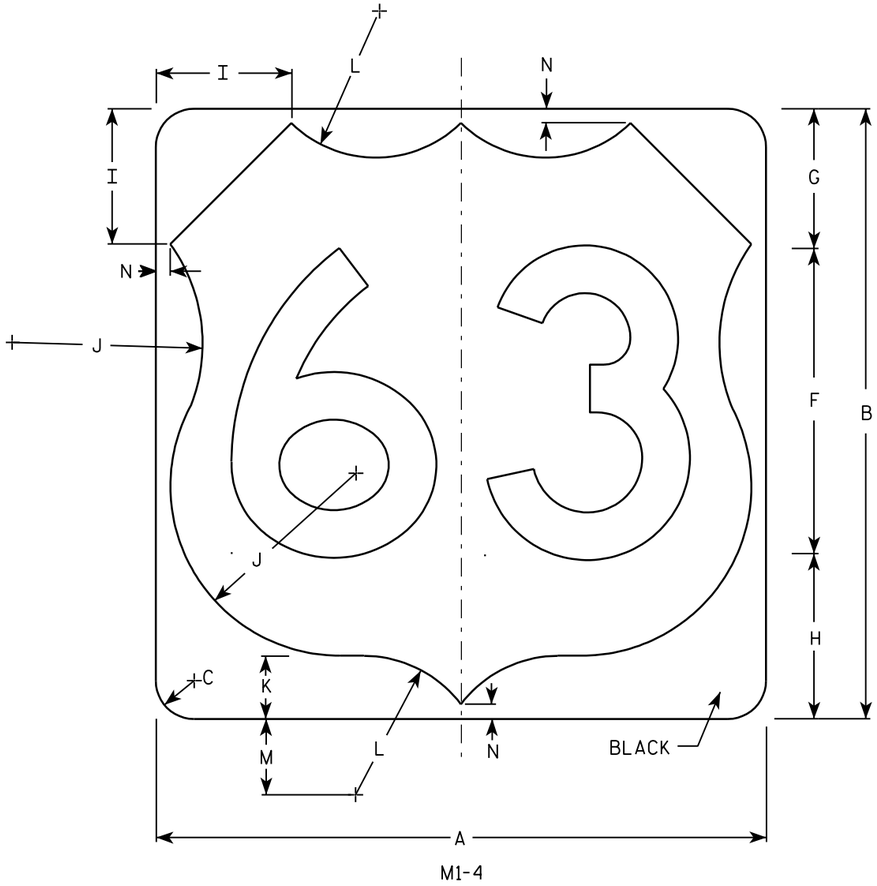
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 08/23/05 PLATE NO. M1-1.8

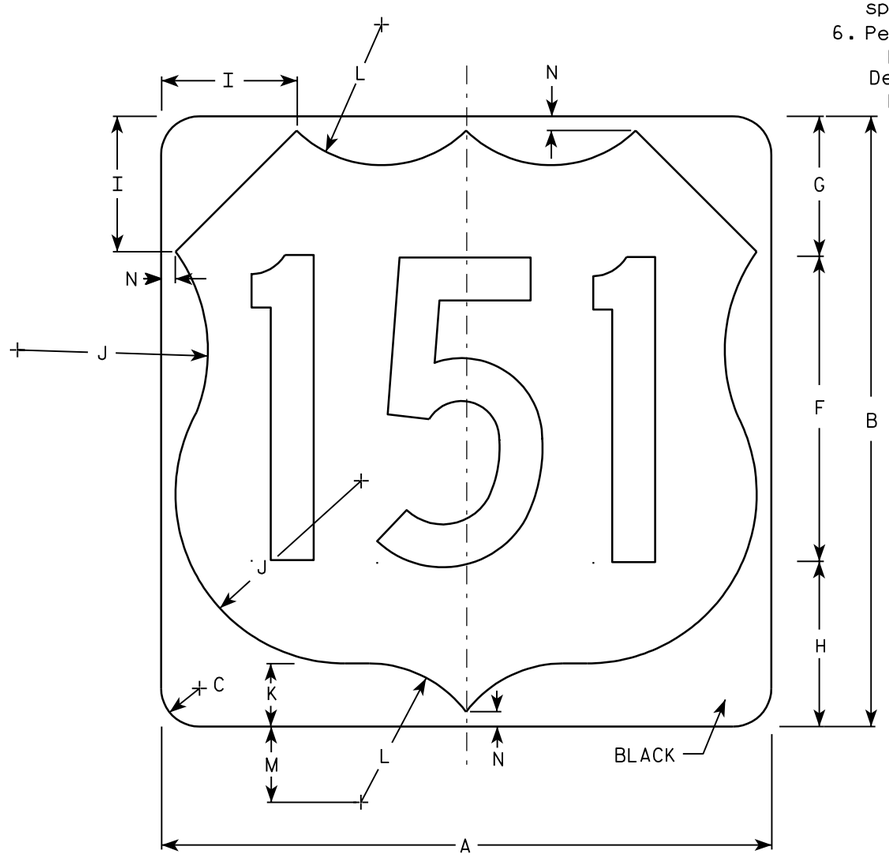
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 314	E

NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White & Black - See Note 6
   Message - Black
3. Message Series - See note 5
4. 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.
5. Substitute appropriate numerals and adjust spacing as per Plate A10-1.
6. Permanent Signs
   Background - Type H Reflective
   Detour or other temporary signs
   Background - Reflective



M1-4



M1-4

Metric equivalent for this sign is:

SIZE	
1	
2	600 mm X 600 mm
3	900 mm X 900 mm
4	900 mm X 900 mm
5	900 mm X 900 mm

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.	Area m2
1																												
2	24	24	1 1/2			12	5 1/2	6 1/2	5	7 1/2	2 1/2	5 1/2	3	1/2													4.0	.36
3	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0	.81
4	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0	.81
5	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0	.81

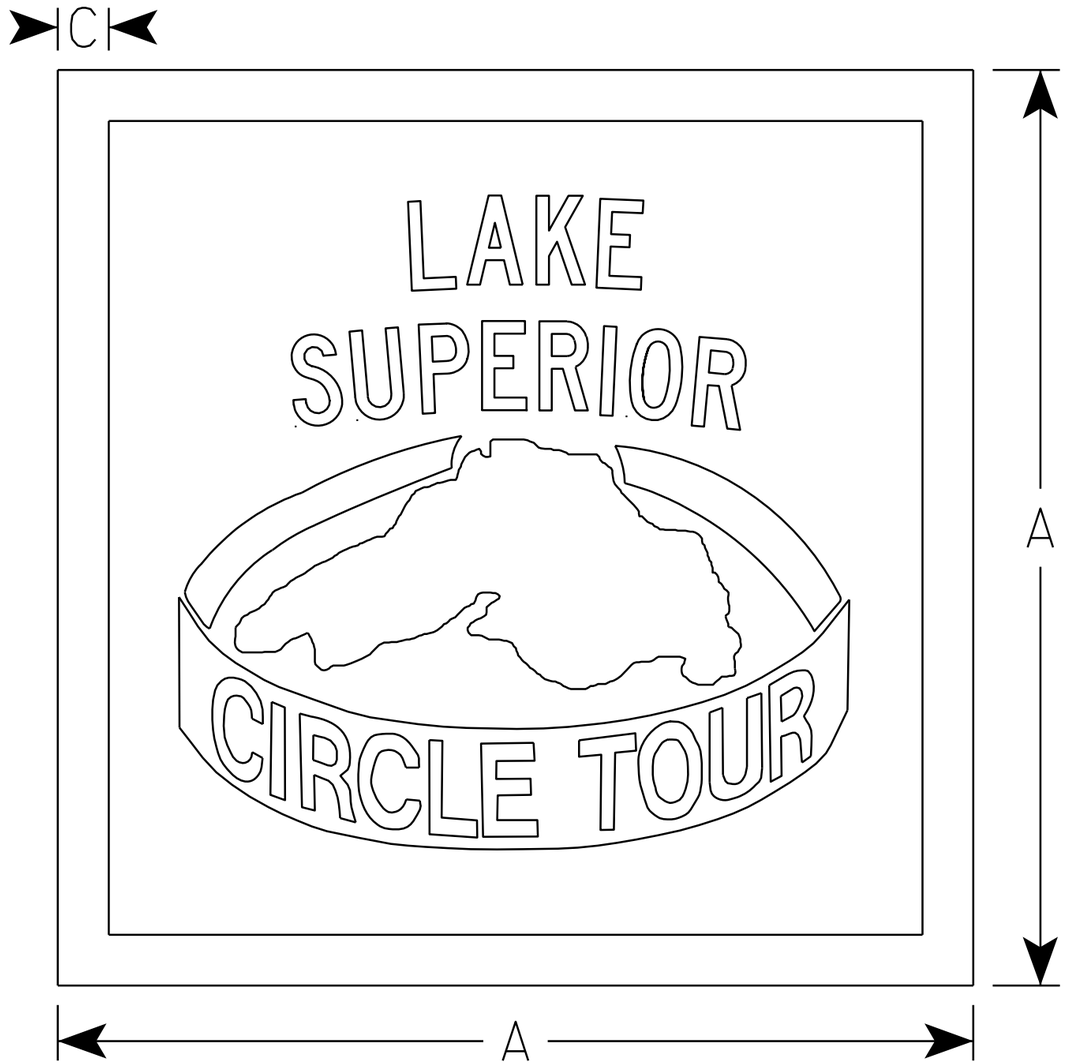
USH MARKER
M1-4 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 08/25/05 PLATE NO. M1-4.9

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 315 | E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Green
   Message - White - Graphics - White
   Circle Tour Message is Green
3. Message Series - Special
4. 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.

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.	Area m2
1																												
2	24		1 ½																								4.0	.36
3																												
4	36		2																								9.0	.81
5																												

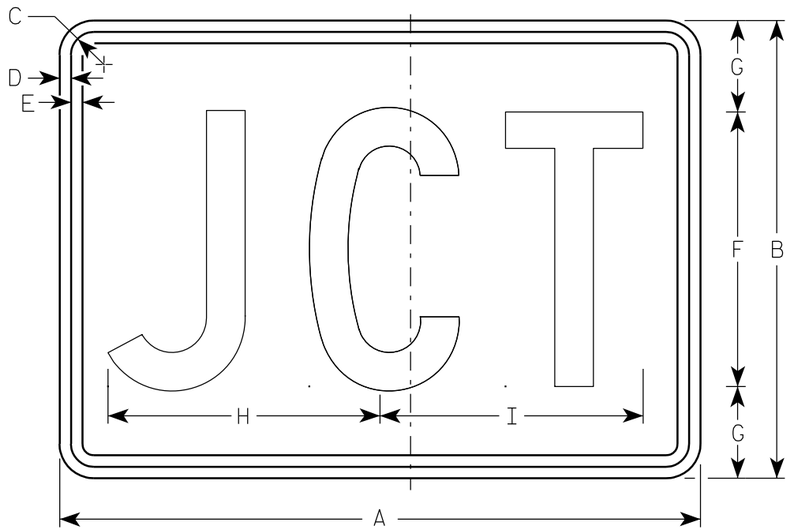
STANDARD SIGN
M1-91

WISCONSIN DEPT OF TRANSPORTATION

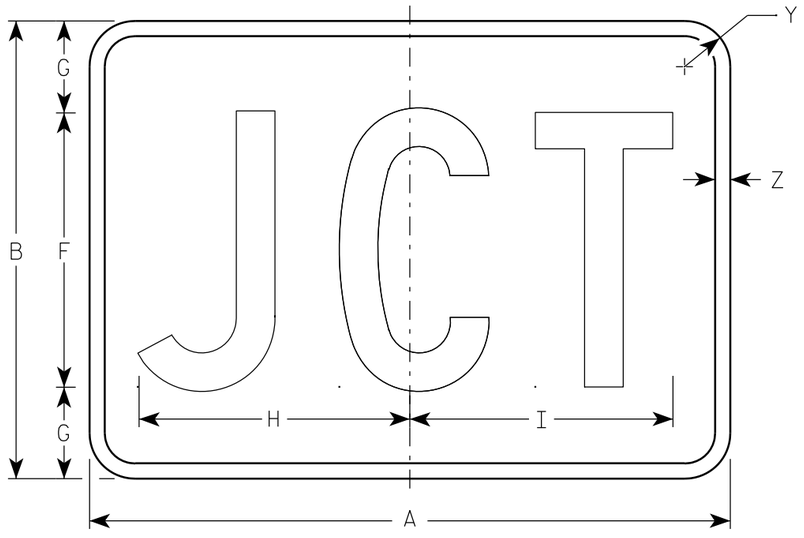
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 10/05/09 PLATE NO. M1-91.1

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 316	E



M2-1
MK2-1
MM2-1
MR2-1



MB2-1
MG2-1
MN2-1

NOTES

1. Sign is Type II - See Note 5 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. 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.
5. M2-1 Background - White - Type H Reflective
   (Detour or temporary Signs - Reflective)
   Message - Black
   MB2-1 Background - Blue
   Message - White - Type H Reflective
   (Detour or temporary Signs - Reflective)
   MG2-1 Background - Green
   Message - White - Type H Reflective
   MK2-1 Background - Green
   Message - White - Type H Reflective
   MM2-1 Background - White - Type H Reflective
   Message - Green
   MN2-1 Background - Brown
   Message - White - Type H Reflective
   MR2-1 Background - Brown
   Message - Yellow - Type H Reflective

Metric equivalent for this sign is:

SIZE	
1	
2	525 mm X 375 mm
3	750 mm X 525 mm
4	750 mm X 525 mm
5	750 mm X 525 mm

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.	Area m2
1																												
2	21	15	1 1/8	3/8	3/8	9	3	8 7/8	8 5/8																1 1/2	1/2	2.20	0.20
3	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20
4	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20
5	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20

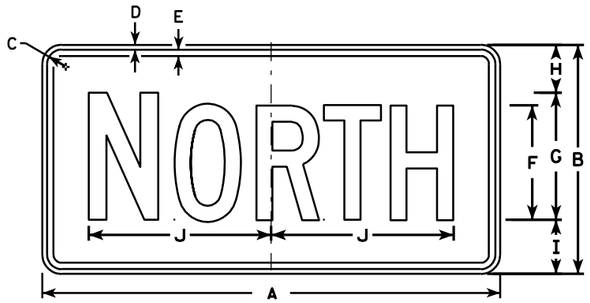
STANDARD SIGN
M2-1

WISCONSIN DEPT OF TRANSPORTATION

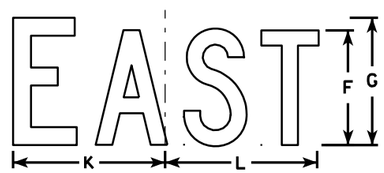
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/16/10 PLATE NO. M2-1.10

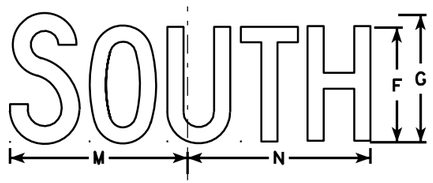
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 317	E



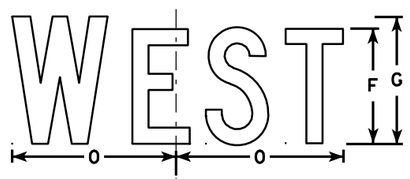
M3-1
MK3-1
MO3-1



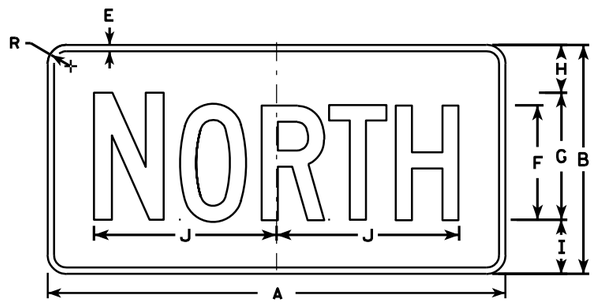
M3-2
MK3-2
MO3-2



M3-3
MK3-3
MO3-3



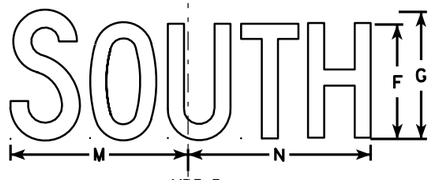
M3-4
MK3-4
MO3-4



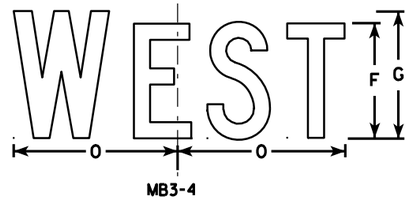
MB3-1
MG3-1
MM3-1
MN3-1



MB3-2
MG3-2
MM3-2
MN3-2



MB3-3
MG3-3
MM3-3
MN3-3



MB3-4
MG3-4
MM3-4
MN3-4

NOTES

1. All Signs Type II - See Note 5 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. 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.
5. M3-1 thru M3-4 Background - White - Type H Reflective
   (Detour or temporary signs - Reflective)
   Message - Black
   MB3-1 thru MB3-4 Background - Blue
   Message - White - Type H Reflective
   (Detour or temporary signs - Reflective)
   MG3-1 thru MG3-4 Background - Green
   Message - White - Type H Reflective
   MK3-1 thru MK3-4 Background - Green
   Message - White - Type H Reflective
   MM3-1 thru MM3-4 Background - White - Type H Reflective
   Message - Green
   MN3-1 thru MN3-4 Background - Brown
   Message - White - Type H Reflective
   M03-1 thru M03-4 Background - Orange - Reflective
   Message - Black
6. Note the first letter of each direction is larger than the remainder of the message.

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																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

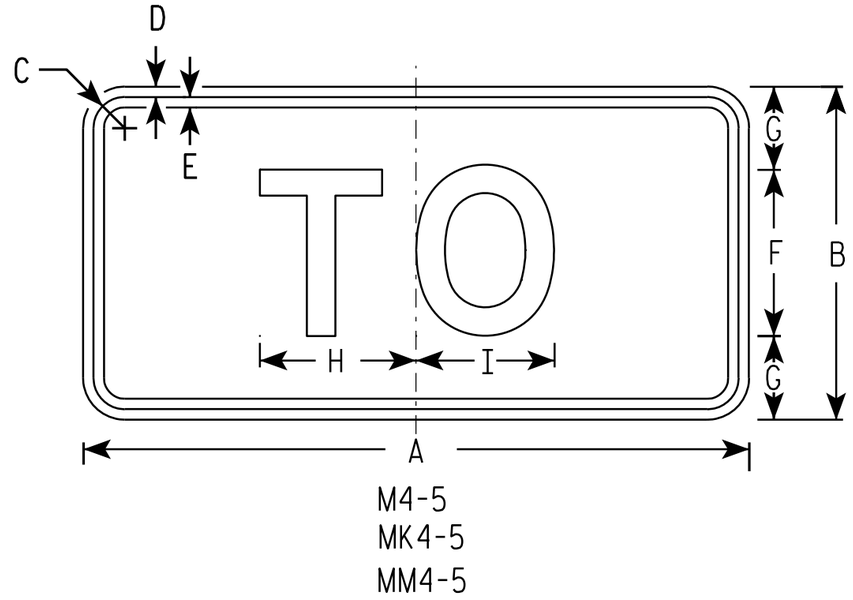
STANDARD SIGNS
M3-1 thur M3-4
SERIES

WISCONSIN DEPT OF TRANSPORTATION

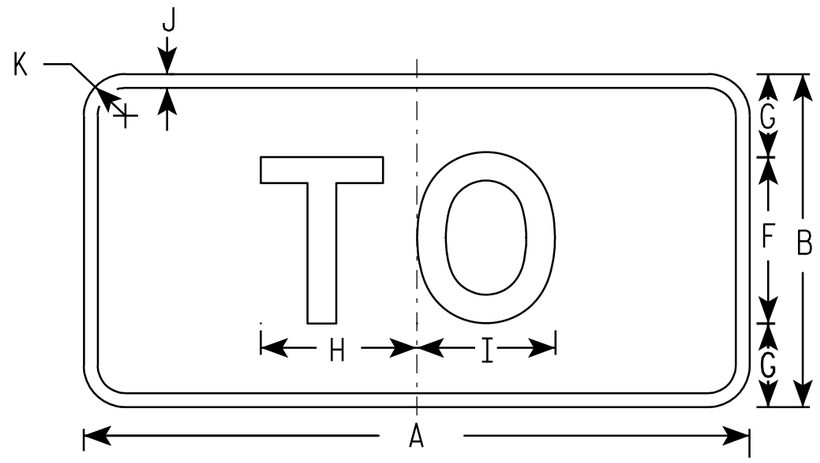
APPROVED Matthew R Rauch for State Traffic Engineer

DATE 11/10/10 PLATE NO. M3-1.12

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 318	E



M4-5
MK4-5
MM4-5



MB4-5
MG4-5
MN4-5

NOTES

1. Sign is Type II - See Note 5 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - E
4. 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.
5. M4-5 Background - White - Type H Reflective (Detour or temporary Signs - Reflective)
   Message - Black
   MB4-5 Background - Blue
   Message - White - Type H Reflective (Detour or temporary Signs - Reflective)
   MG4-5 Background - Green
   Message - White - Type H Reflective
   MK4-5 Background - Green
   Message - White - Type H Reflective
   MM4-5 Background - White - Type H Reflective
   Message - Green
   MN4-5 Background - Brown
   Message - White - Type H Reflective

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																											
2	24	12	1 1/8	3/8	3/8	6	3	5 3/8	5 1/4	1/2	1 1/2																2.00
3	36	18	1 3/8	3/8	1/2	9	4 1/2	8 1/4	8 3/8	1/2	1 1/2																4.5
4	36	18	1 3/8	3/8	1/2	9	4 1/2	8 1/4	8 3/8	1/2	1 1/2																4.5
5	36	18	1 3/8	3/8	1/2	9	4 1/2	8 1/4	8 3/8	1/2	1 1/2																4.5

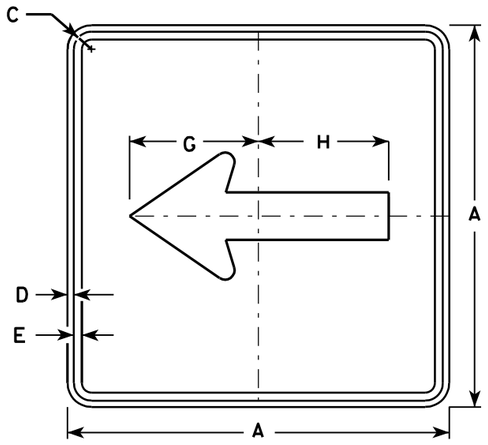
STANDARD SIGN
M4-5

WISCONSIN DEPT OF TRANSPORTATION

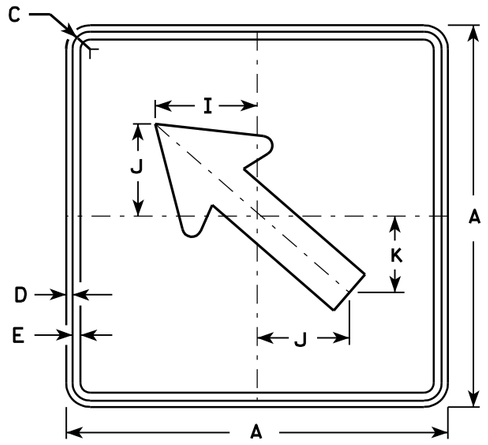
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-5.6

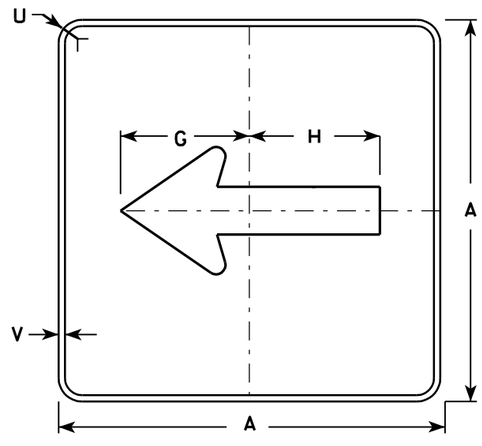
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 319	E



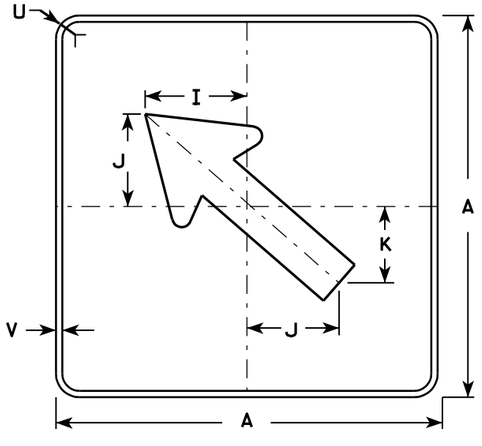
M6-1
MK6-1
MM6-1
MO6-1
MP6-1
MR6-1



M6-2
MK6-2
MM6-2
MO6-2
MP6-2
MR6-2



MB6-1
MG6-1
MN6-1



MB6-2
MG6-2
MN6-2

NOTES

1. Signs are Type II - See Note 4 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - See note 4
   Message - See note 4
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. M6-1 and M6-2 Background - White - Type H Reflective
   Message - Black

   MB6-1 and MB6-2 Background - Blue
   Message - White - Type H Reflective

   MG6-1 and MG6-2 Background - Green
   Message - White - Type H Reflective

   MK6-1 and MK6-2 Background - Green
   Message - White - Type H Reflective

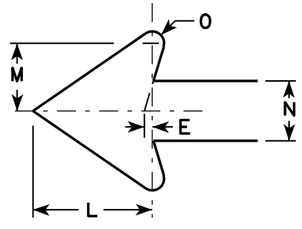
   MM6-1 and MM6-2 Background - White - Type H Reflective
   Message - Green

   MN6-1 and MN6-2 Background - Brown
   Message - White - Type H Reflective

   MO6-1 and MO6-2 Background - Orange - Type F Reflective
   Message - Black

   MP6-1 and MP6-2 Background - White - Type H Reflective
   Message - Blue

   MR6-1 and MR6-2 Background - Brown
   Message - White - Type H Reflective



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																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2						3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25

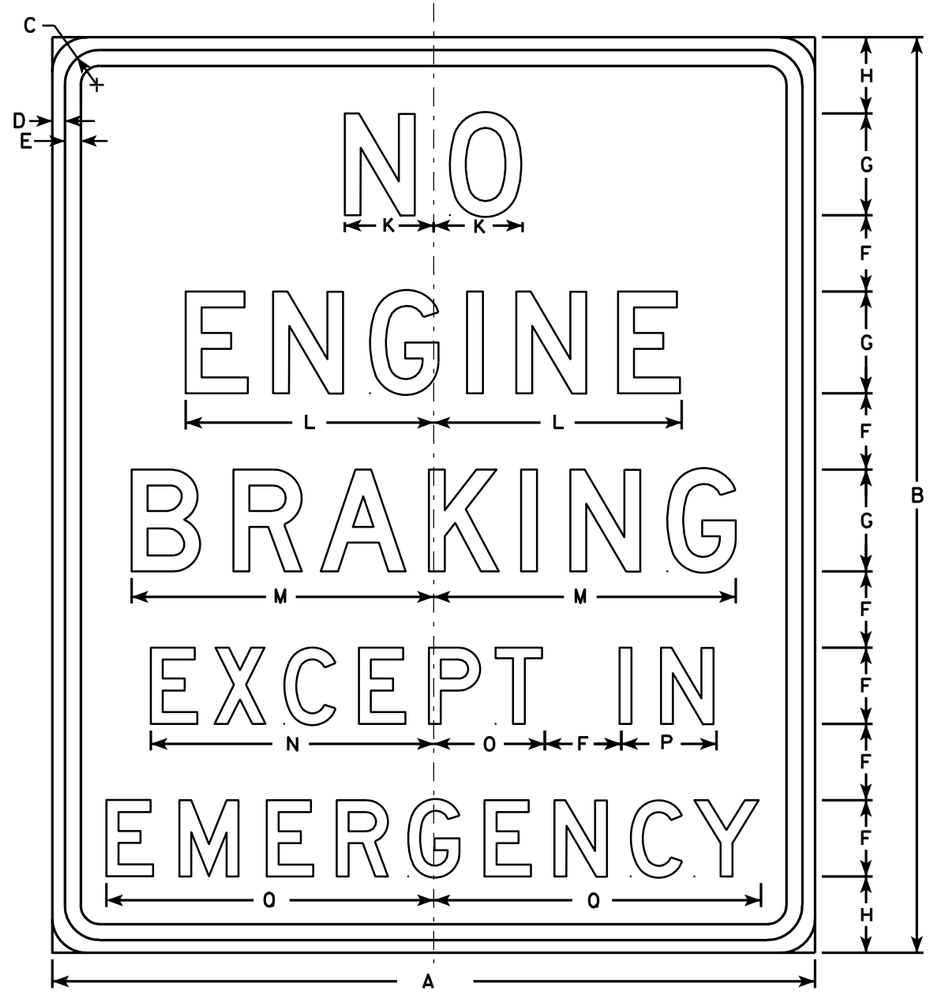
STANDARD SIGN M6-1 & M6-2 SERIES

WISCONSIN DEPT OF TRANSPORTATION

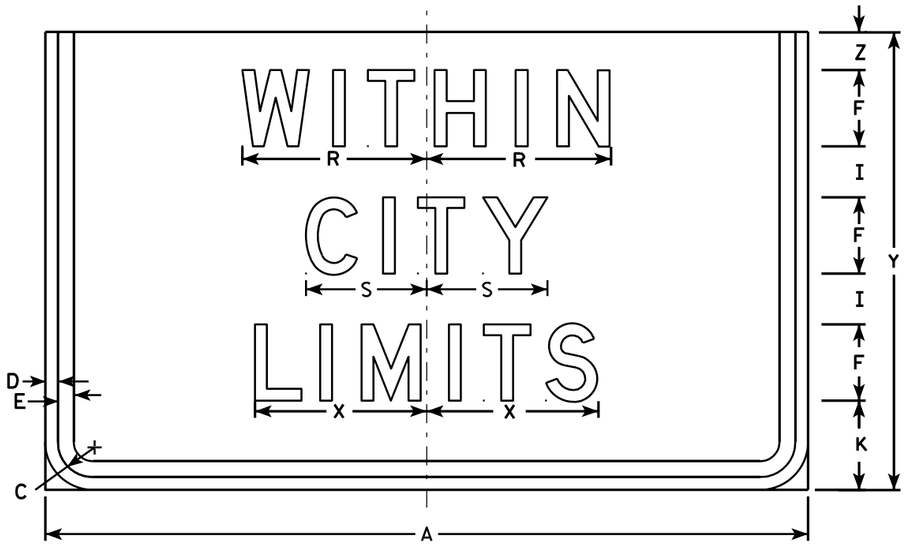
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/29/13 PLATE NO. M6-1.13

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 320	E



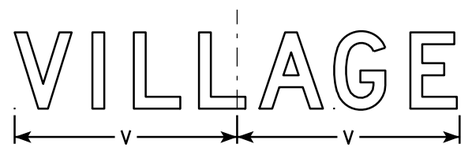
R10-64



R10-64F

NOTES

1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - D See note 5
4. 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.
5. Line 2 of R10-64F is Series C for "TOWNSHIP" Only





Area sq. ft.
3.75
7.0

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	30	36	1 3/8	1/2	5/8	3	4	3	2		3 1/2	9 3/4	11 7/8	11 1/8	4 3/8	3 3/4	12 7/8	7 1/4	4 3/4		8 1/4	8 3/4	5/8	6 3/4	18	1 1/2	7.5
2S	30	36	1 3/8	1/2	5/8	3	4	3	2		3 1/2	9 3/4	11 7/8	11 1/8	4 3/8	3 3/4	12 7/8	7 1/4	4 3/4		8 1/4	8 3/4	5/8	6 3/4	18	1 1/2	7.5
2M	30	36	1 3/8	1/2	5/8	3	4	3	2		3 1/2	9 3/4	11 7/8	11 1/8	4 3/8	3 3/4	12 7/8	7 1/4	4 3/4		8 1/4	8 3/4	5/8	6 3/4	18	1 1/2	7.5
3	42	48	1 3/8	1/2	5/8	4	5	4 1/2	3		4	12 1/4	14 7/8	14 1/8	5 1/4	4 3/4	16 1/4	9	6		11	11 1/4	1 1/2	8 1/2	24	2	14.0
4																											
5																											

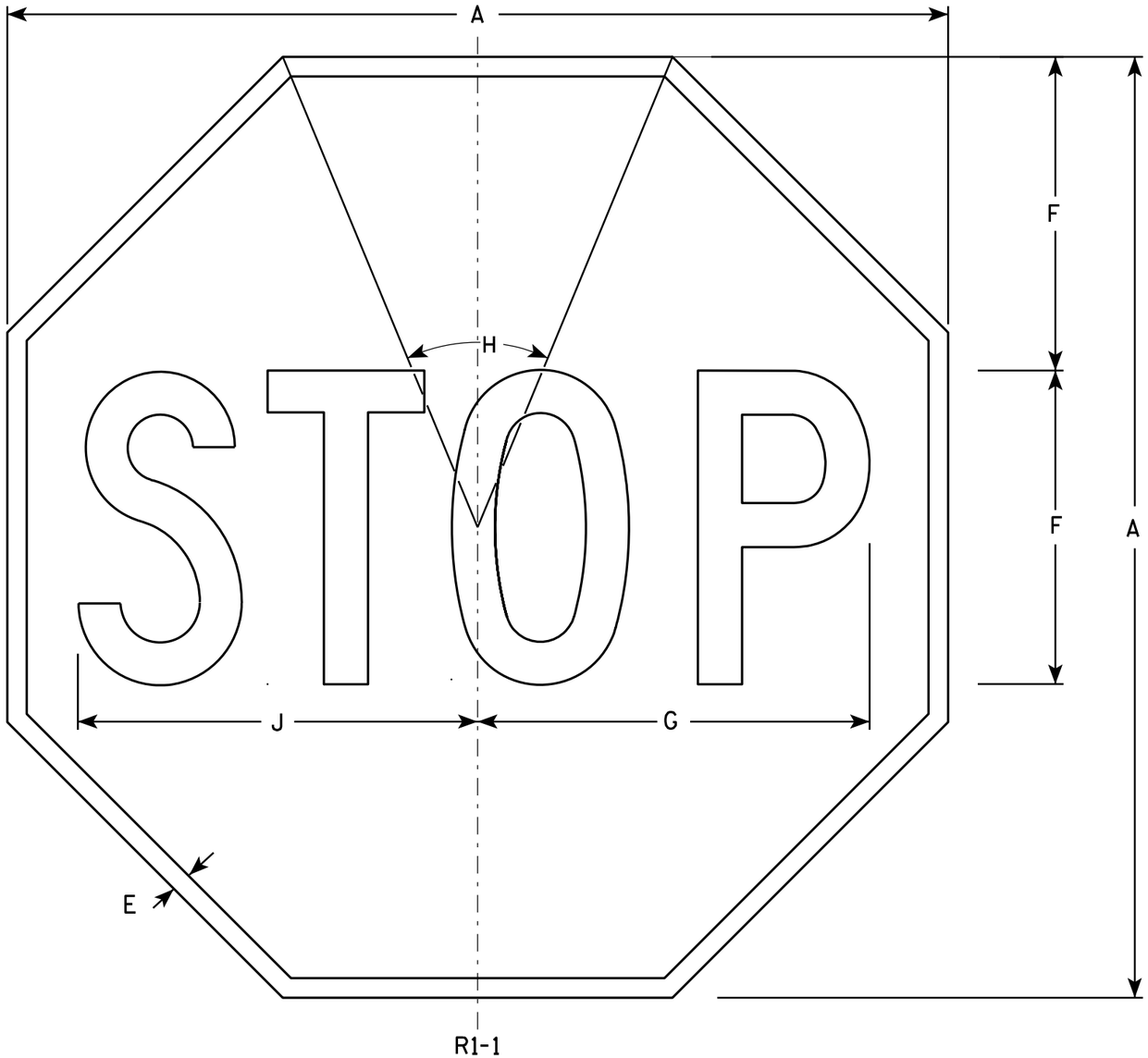
STANDARD SIGN
R10-64 & R10-64F

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/4/11 PLATE NO. R10-64.7

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 321 | E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Red
   Message - White
3. Message Series - C

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	24				3/8	8	10	45°		10 1/4																	3.31
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

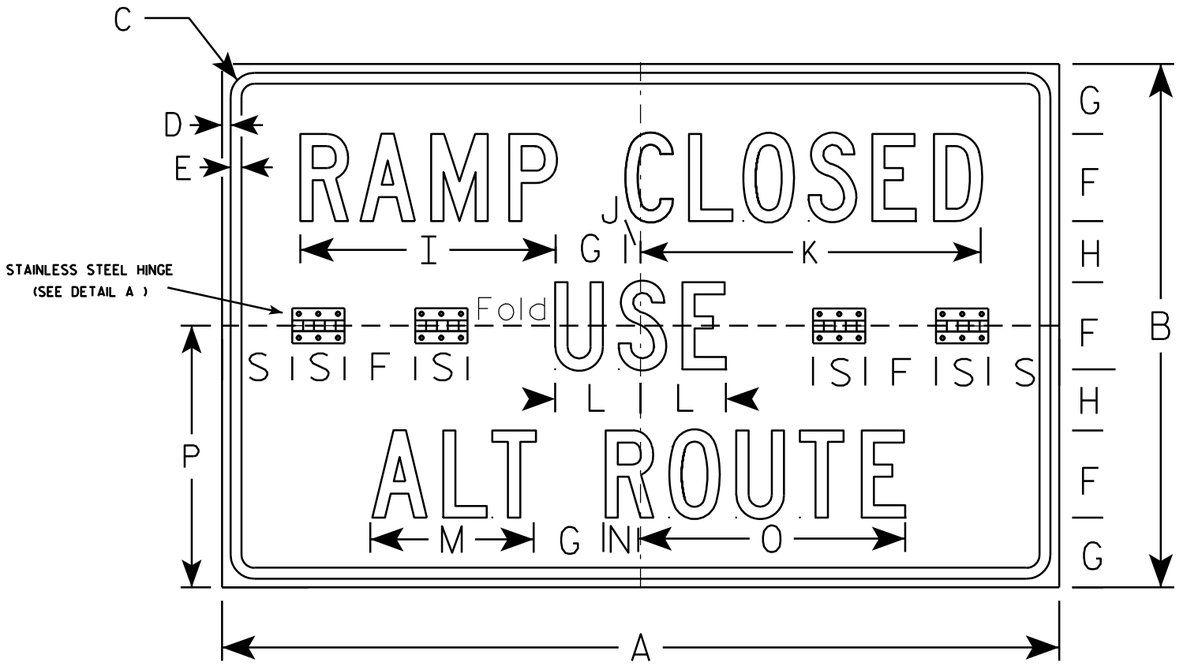
STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

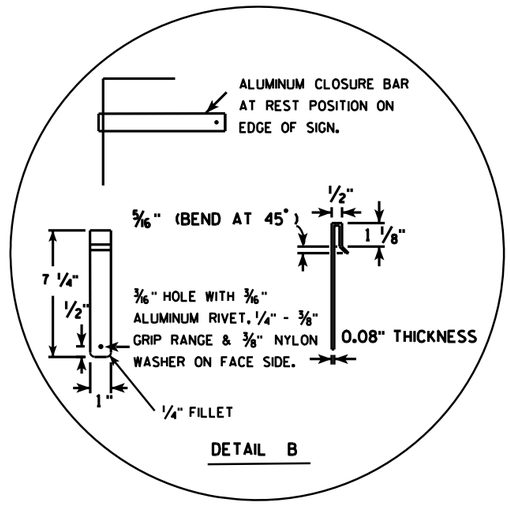
DATE 12/03/10 PLATE NO. R1-1.12

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 322	E



R11-54F

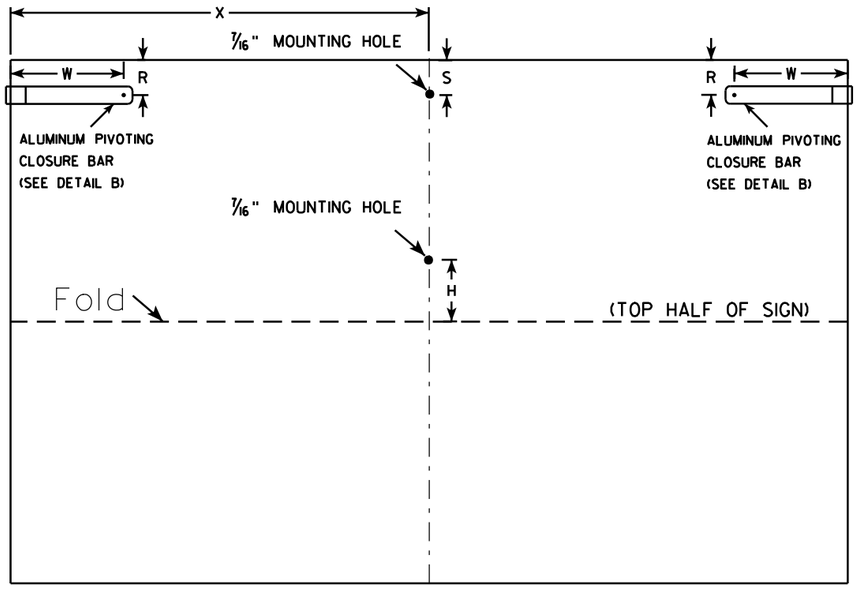
DETAIL A



DETAIL B

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - WHITE
   Message - BLACK
3. Message Series - C
4. Sign Base Material shall be aluminum corners and borders shall be rounded.
5. All hardware used on the folding sign installation shall conform to 637.2.4 of the WIS DOT Standard Specification.



(BACK VIEW)

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	48	30	1 3/8	1/2	5/8	5	4	3 1/2	14 5/8	7/8	19 1/2	4 7/8	9 3/8	2	15 1/4	15		2	3	2 5/8	1 1/4	11/16	6 1/2	24			10.0
2M	48	30	1 3/8	1/2	5/8	5	4	3 1/2	14 5/8	7/8	19 1/2	4 7/8	9 3/8	2	15 1/4	15		2	3	2 5/8	1 1/4	11/16	6 1/2	24			10.0
3																											
4																											
5																											

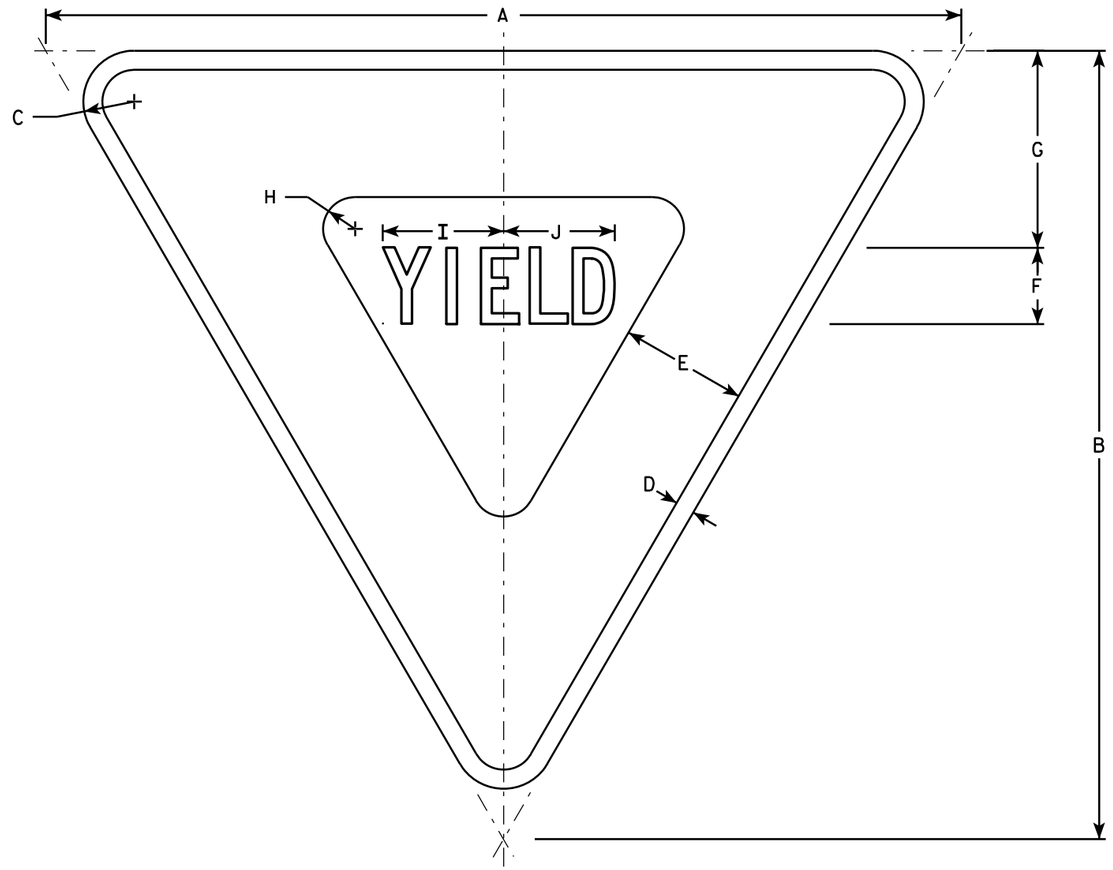
STANDARD SIGN
R11-54F

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-54F.2

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 323	E



R1-2

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - See note 5
3. Message Series - C
4. 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.
5. The border strip and word message are reflectorized red.

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	30	26	1 1/2	5/8	4	2 1/2	6 3/8	7/8	4	3 5/8																	2.71
2S	36	31	2	3/4	5	3	7 3/4	1 1/4	4 3/4	4 3/8																	3.88
2M	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
3	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
4	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
5	60	52	3	1 1/2	8	5	13	2 1/2	7 7/8	7 1/4																	10.83
6	24	21	1 1/2	3/8	3	2	4 3/4	7/8	3 1/4	3																	1.75
7	18	15 1/2	1	3/8	2 1/2	1 1/2	3 7/8	5/8	2 3/8	2 1/4																	0.97

STANDARD SIGN
R1-2

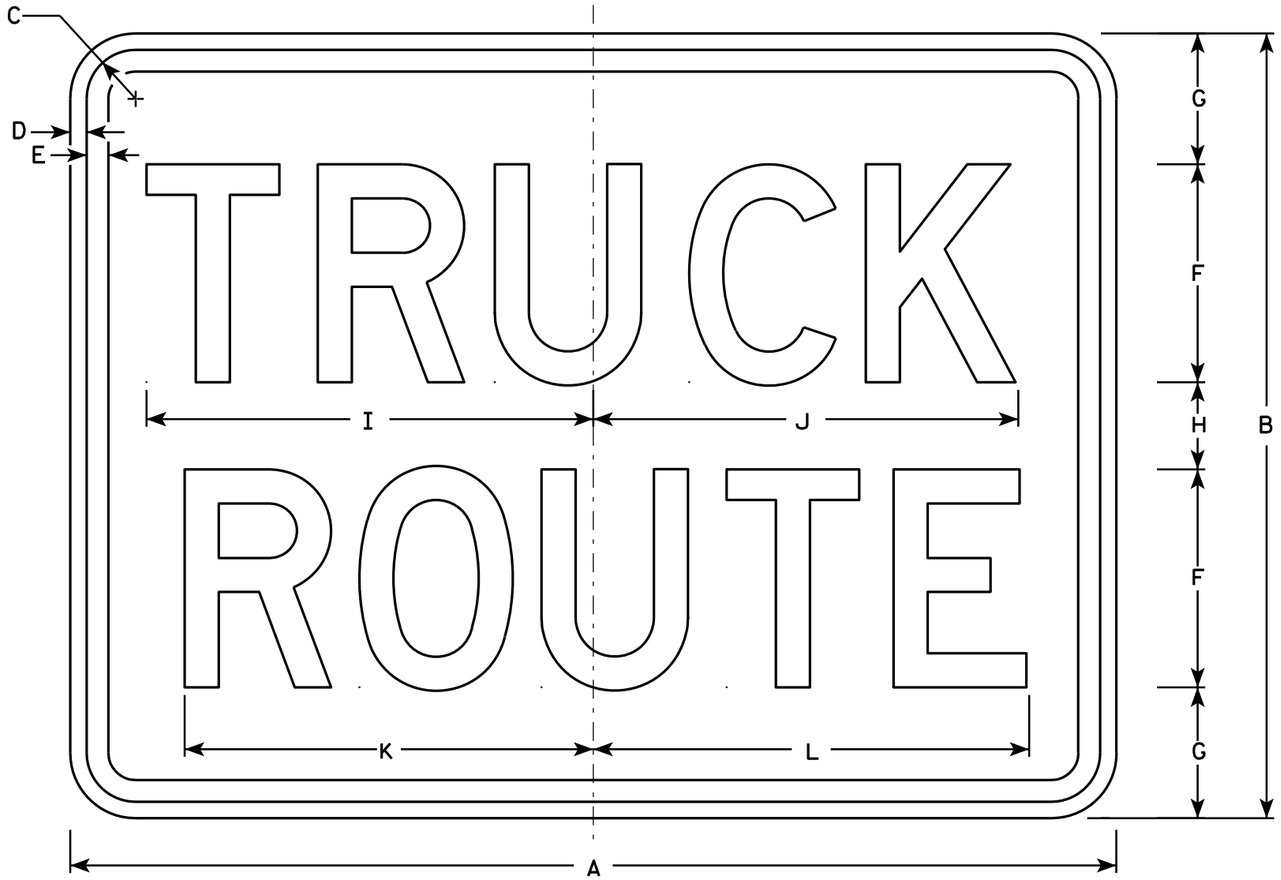
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/02/10 PLATE NO. R1-2.11

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 324 | E

7



R14-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. 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.

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																											
2	24	18	1 1/8	3/8	1/2	5	3	2	10 1/4	9 3/4	9 3/8	10															3.0
2	24	18	1 1/8	3/8	1/2	5	3	2	10 1/4	9 3/4	9 3/8	10															3.0
3	30	24	1 1/8	3/8	1/2	6	4	4	12 1/4	11 3/4	11 1/4	12															5.0
4																											
5																											

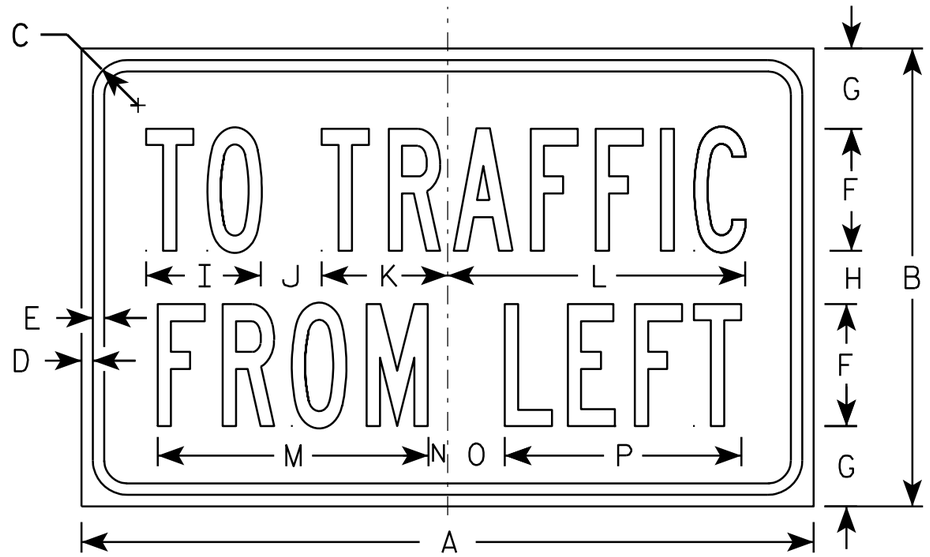
STANDARD SIGN
R14-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R14-1.6

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 325	E



R1-54

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - B

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	24	15	1 1/8	3/8	3/8	4	2 5/8	1 3/4	3 3/4	2	4 1/8	9 3/4	8 7/8	5/8	1 7/8	7 3/4											2.5
2M	24	15	1 1/8	3/8	3/8	4	2 5/8	1 3/4	3 3/4	2	4 1/8	9 3/4	8 7/8	5/8	1 7/8	7 3/4											2.5
3																											
4																											
5																											

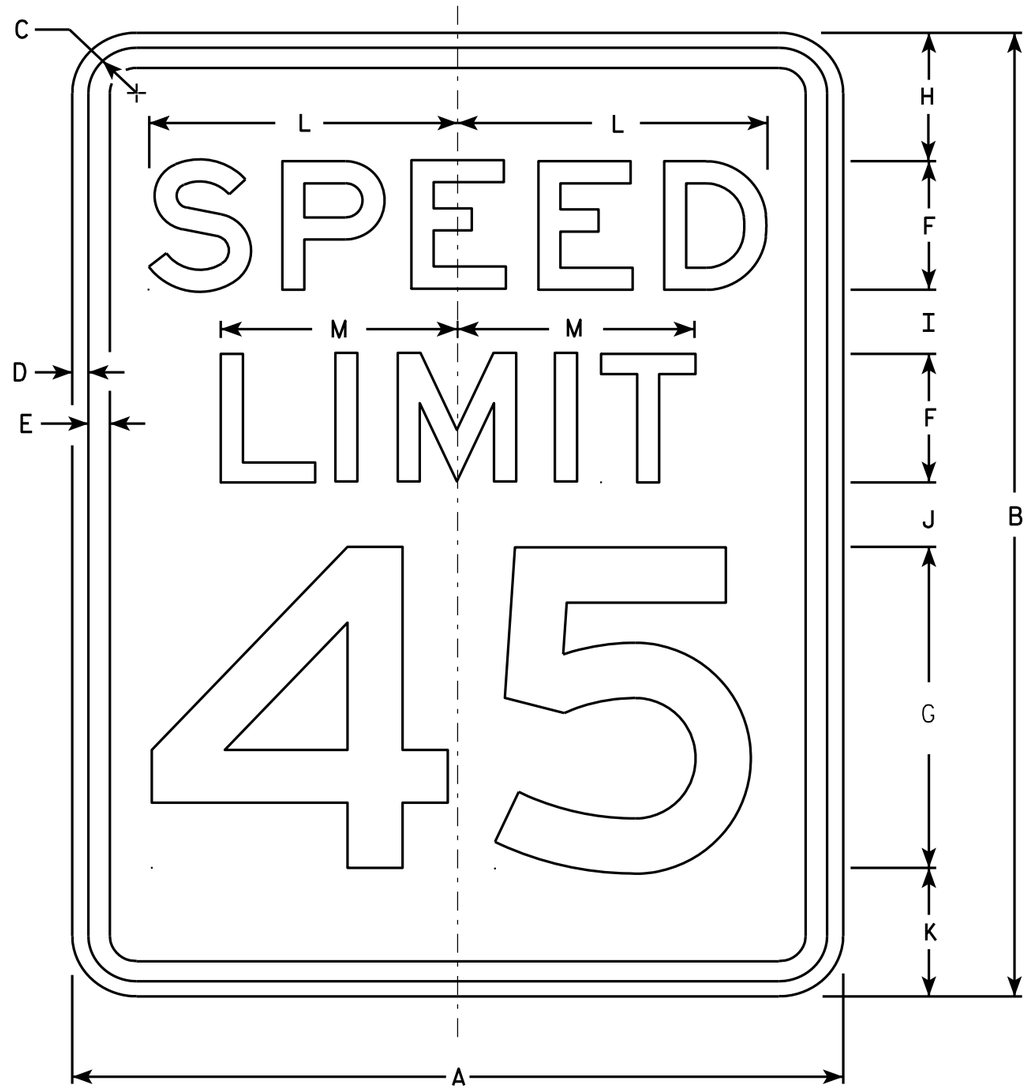
STANDARD SIGN
R1-54

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-54.2

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 326	E



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - E
4. 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.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

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	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

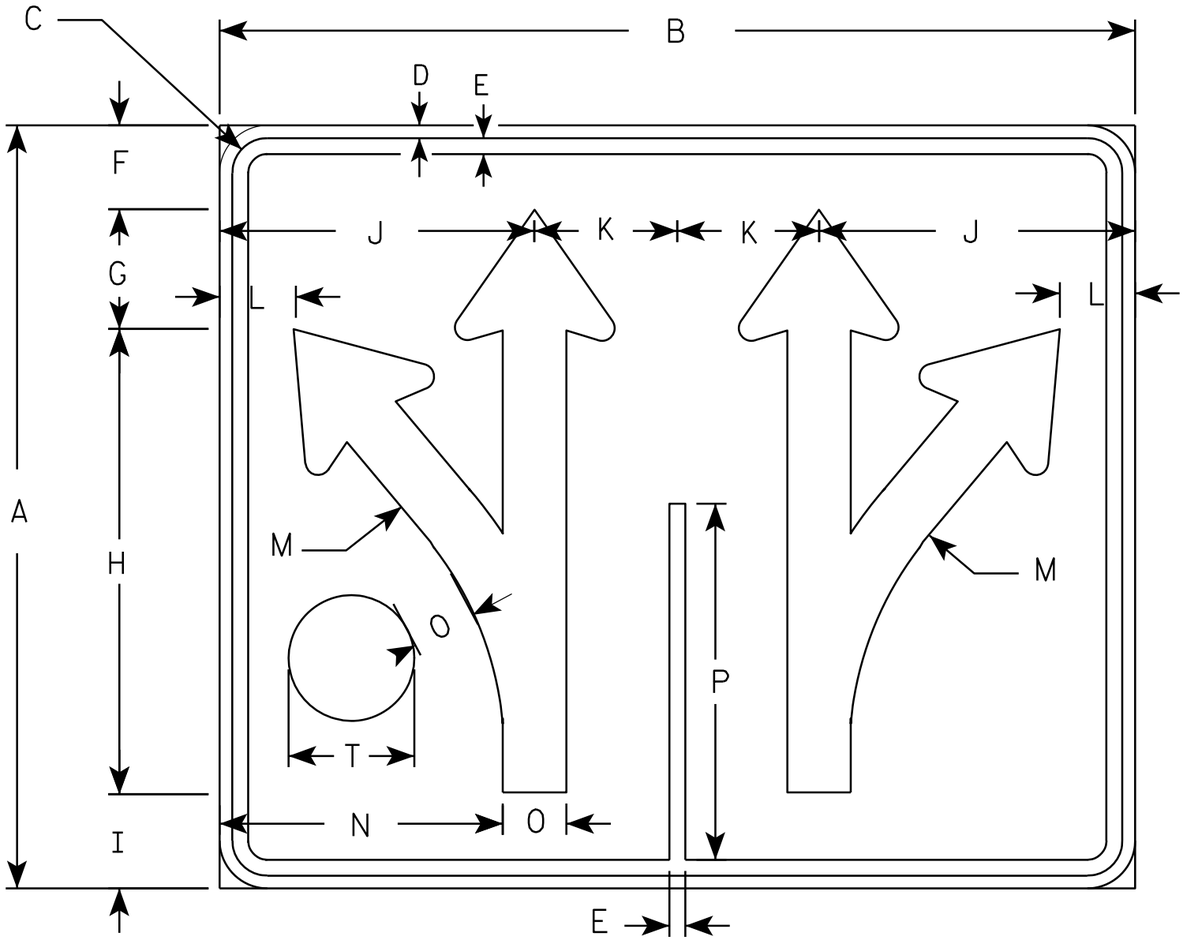
STANDARD SIGN
R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

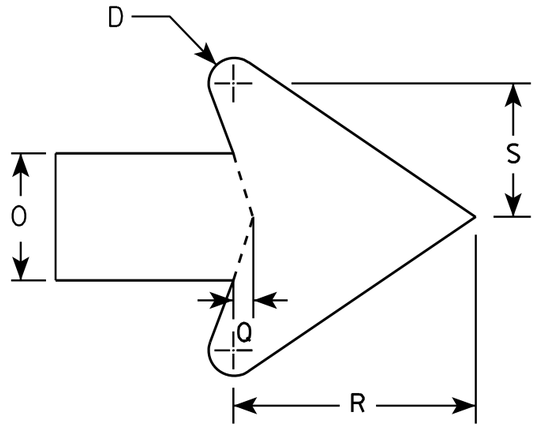
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 327	E



R3-8CC

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - WHITE
   Message - BLACK
3. Message Series - D
4. 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.



ARROW DETAIL

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	30	36	1 3/8	1/2	5/8	3 1/4	4 3/4	18 1/4	3 3/4	12 3/8	5 5/8	3	13 1/4	11 1/8	2 1/2	14	3/8	4 3/4	2 5/8	5							7.5
2M	30	36	1 3/8	1/2	5/8	3 1/4	4 3/4	18 1/4	3 3/4	12 3/8	5 5/8	3	13 1/4	11 1/8	2 1/2	14	3/8	4 3/4	2 5/8	5							7.5
3																											
4																											

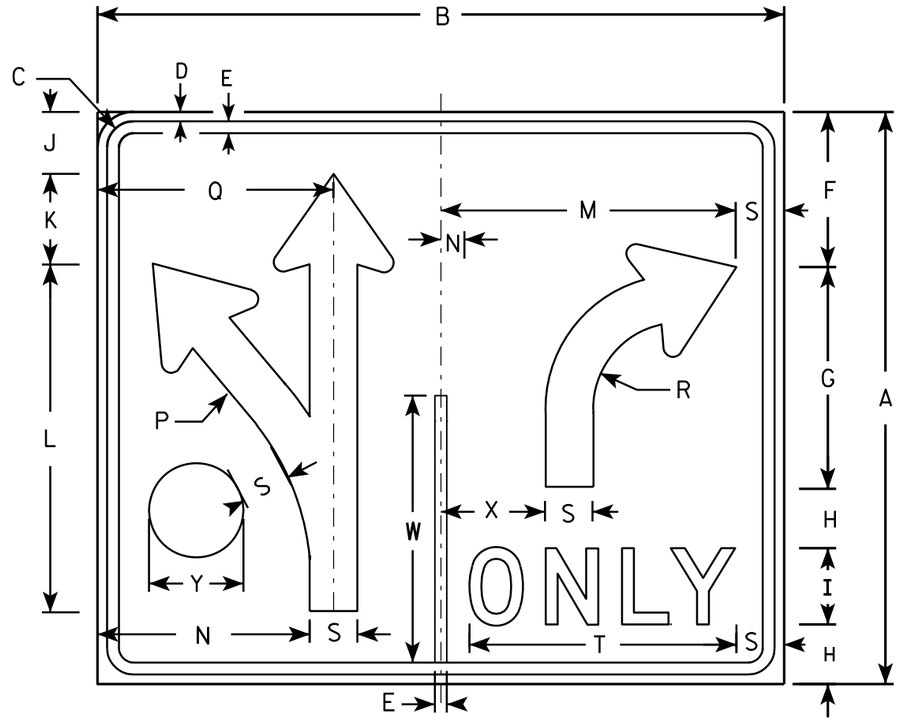
STANDARD SIGN
R3-8CC

WISCONSIN DEPT OF TRANSPORTATION

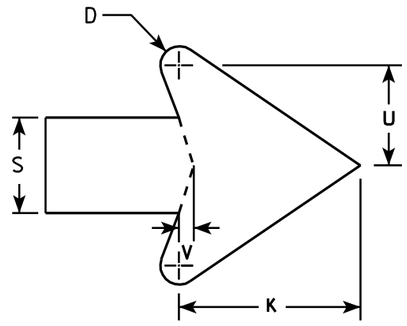
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/2011 PLATE NO. R3-8CC.2

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 328 | E



R3-8DD



ARROW DETAIL

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - WHITE
   Message - BLACK
3. Message Series - D
4. 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.
5. R3-8B & R3-8C is the same but reversed.

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	30	36	1 3/8	1/2	5/8	8 1/8	11 5/8	3 1/8	4	3 1/4	4 3/4	18 1/4	15 1/2	1 1/4		13 1/4	12 3/8	4 1/2	2 1/2	14	2 5/8	3/8	14	5 1/4	4 1/4		7.5
2M	30	36	1 3/8	1/2	5/8	8 1/8	11 5/8	3 1/8	4	3 1/4	4 3/4	18 1/4	15 1/2	1 1/4		13 1/4	12 3/8	4 1/2	2 1/2	14	2 5/8	3/8	14	5 1/4	4 1/4		7.5
3																											

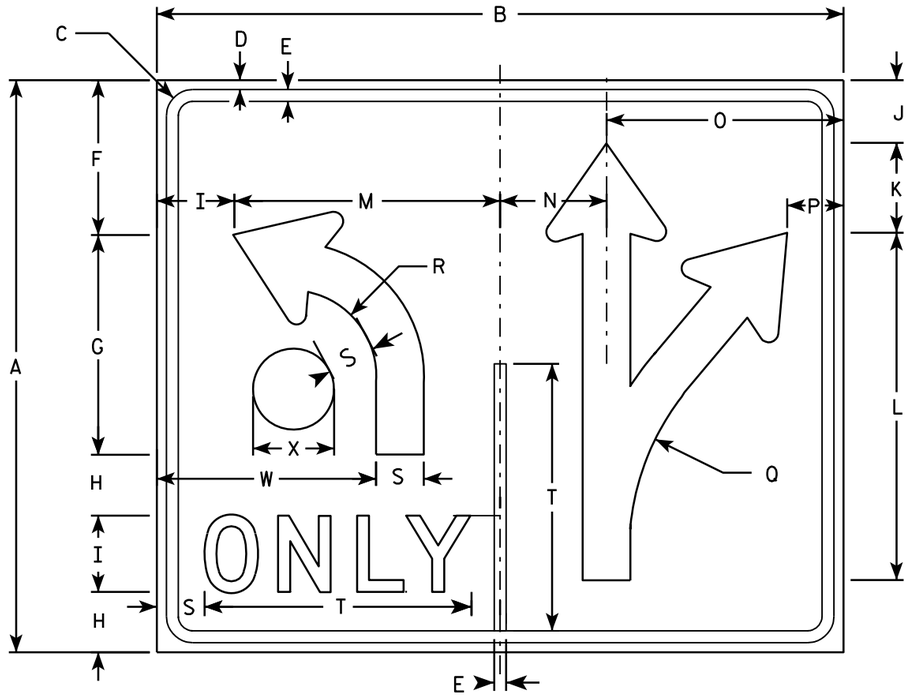
STANDARD SIGN
R3-8DD

WISCONSIN DEPT OF TRANSPORTATION

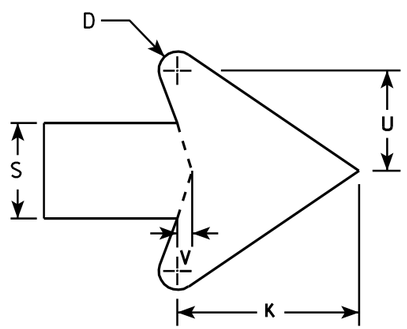
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/2011 PLATE NO. R3-8DD.2

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 329 | E



R3-8EE



ARROW DETAIL

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - WHITE
   Message - BLACK
3. Message Series - D
4. 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.

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	30	36	1 3/8	1/2	5/8	8 1/8	11 5/8	3 1/8	4	3 1/4	4 3/4	18 1/4	14	5 5/8	12 3/8	3	13 1/4	4 1/2	2 1/2	14	2 5/8	3/8	11 1/2	4 1/4			7.5
2M	30	36	1 3/8	1/2	5/8	8 1/8	11 5/8	3 1/8	4	3 1/4	4 3/4	18 1/4	14	5 5/8	12 3/8	3	13 1/4	4 1/2	2 1/2	14	2 5/8	3/8	11 1/2	4 1/4			7.5
3																											
4																											
5																											

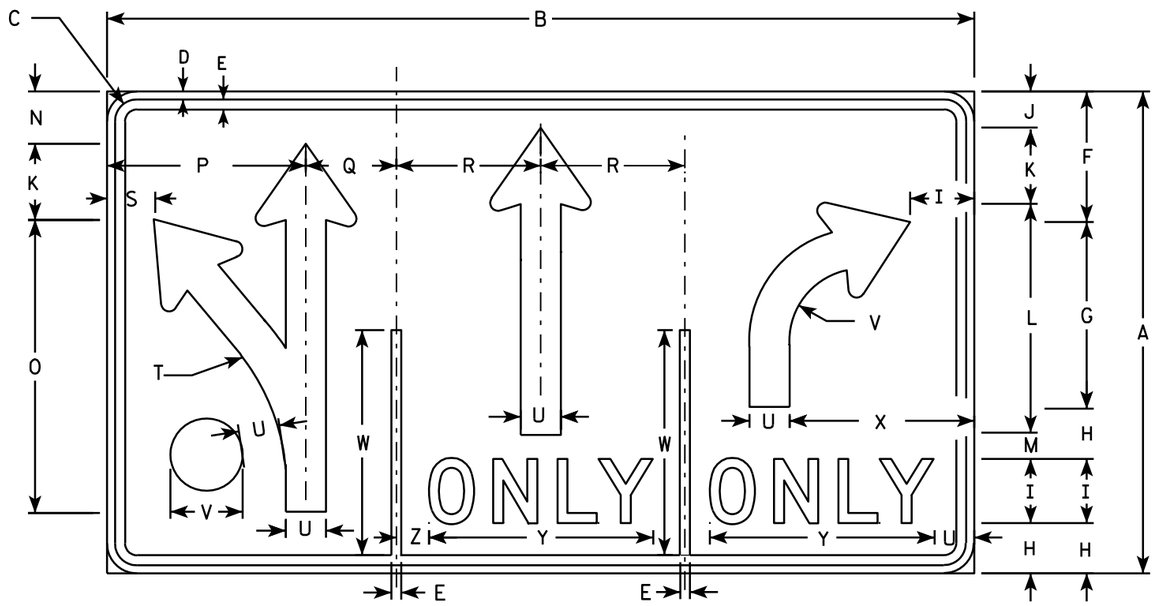
STANDARD SIGN
R3-8EE

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/2011 PLATE NO. R3-8EE.2

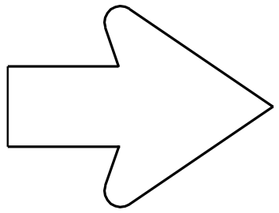
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 330	E



R3-8NN

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - WHITE
   Message - BLACK
3. Message Series - D
4. 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.



SEE R3-8 FOR ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30	54	1 3/8	1/2	5/8	8 1/8	11 5/8	3 1/8	4	2 1/4	4 3/4	14 1/4	1 5/8	3 1/4	18 1/4	12 3/8	5 5/8	9	3	13 1/4	2 1/2	4 1/2	14	11 1/2	14	2	11.25
2M	30	54	1 3/8	1/2	5/8	8 1/8	11 5/8	3 1/8	4	2 1/4	4 3/4	14 1/4	1 5/8	3 1/4	18 1/4	12 3/8	5 5/8	9	3	13 1/4	2 1/2	4 1/2	14	11 1/2	14	2	11.25
3																											
4																											
5																											

STANDARD SIGN
R3-8NN

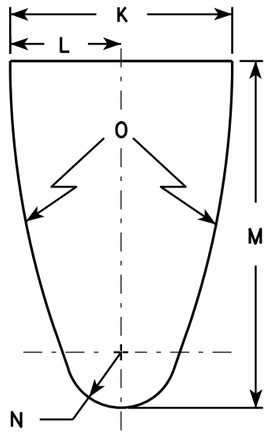
WISCONSIN DEPT OF TRANSPORTATION

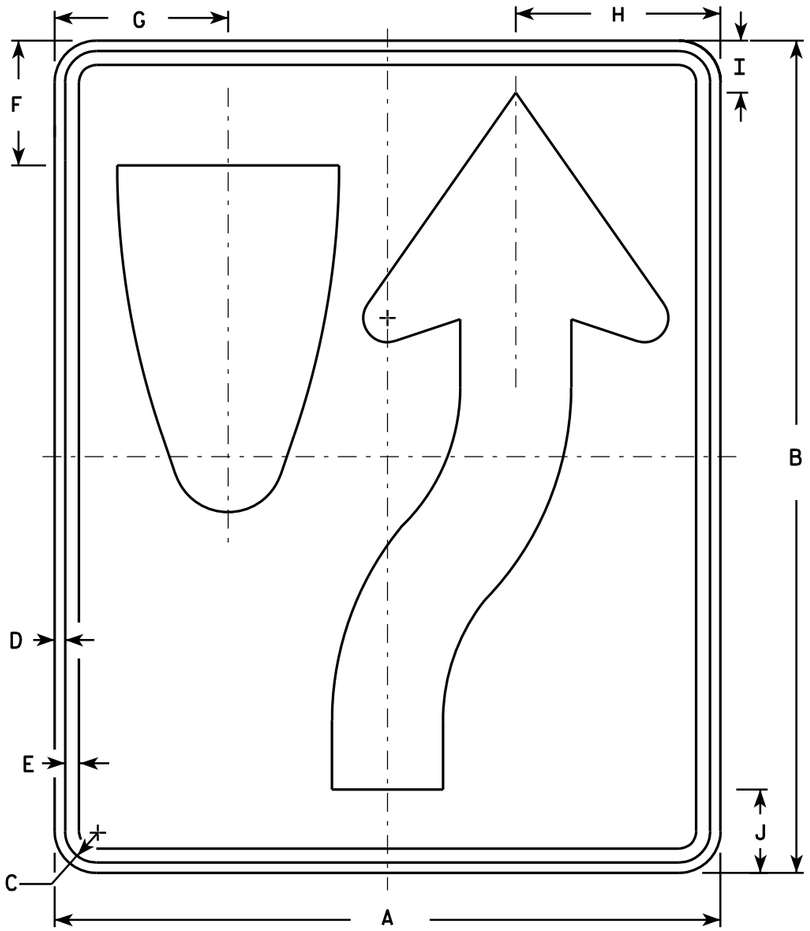
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/21/2011 PLATE NO. R3-8NN.2

PROJECT NO:

SHEET NO: 331 E

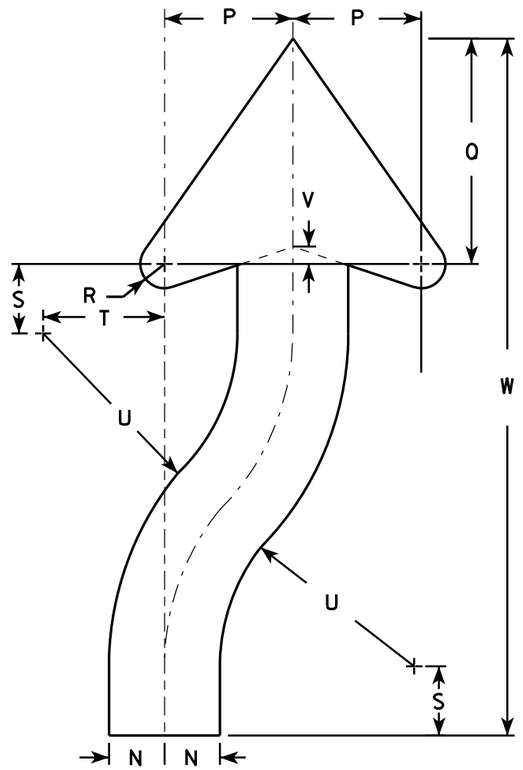




R4-7

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition. material is plywood but borders shall be rounded
2. Color:
   Background - White
   Message - Black
3. Corners may be square or rounded when base as shown. When base material is metal, the corners and borders shall be rounded.
4. R4-8 is the same as R4-7 except Legend is reversed.



ARROW DETAIL

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	18	24	1 1/8	3/8	1/2	3 3/8	4 3/4	5 1/2	1 3/8	2 1/4	6	3	9 3/8	1 1/2	22 1/2	3 1/2	6 1/8	5/8	1 7/8	3 1/4	6 3/4	1/2	20 3/8				3.0
2S	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
2M	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
3	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
4	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
5	48	60	2 1/4	3/4	1	9	12 1/2	14 3/4	3 3/4	6	16	8	25	4	60	9 1/4	16 1/4	1 5/8	5	8 3/4	18	1 1/4	50 1/4				20.0

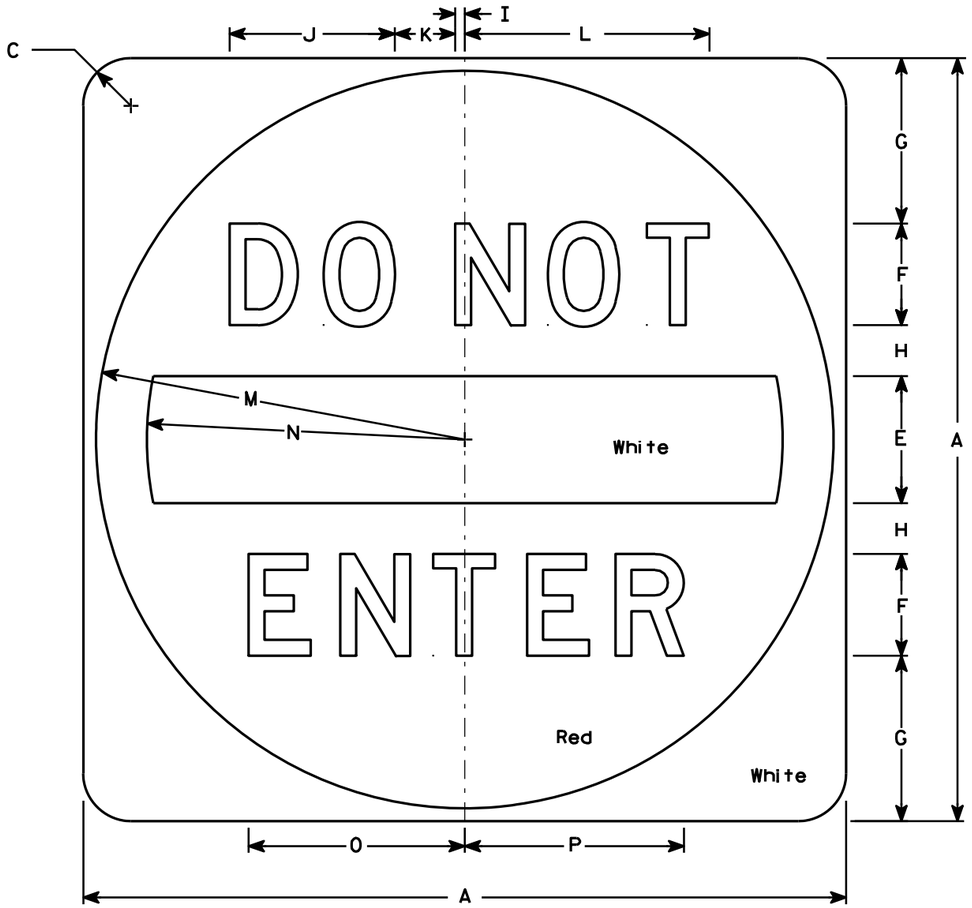
STANDARD SIGN
R4-7 & R4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-7.8

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 332	E



R5-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - See detail
   Message - White - Type H Reflective
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but when base material is metal, the cornors shall be rounded.

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	30		1 7/8		5	4	6 1/2	2	3/8	6 1/2	2 3/8	9 5/8	14 1/2	12 1/2	8 1/2	8 5/8											6.26
2M	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
3	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
4	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
5	48		3		8	6	11	3	5/8	9 3/4	3 5/8	14 1/2	23 1/2	20	12 3/4	12 7/8											16.0

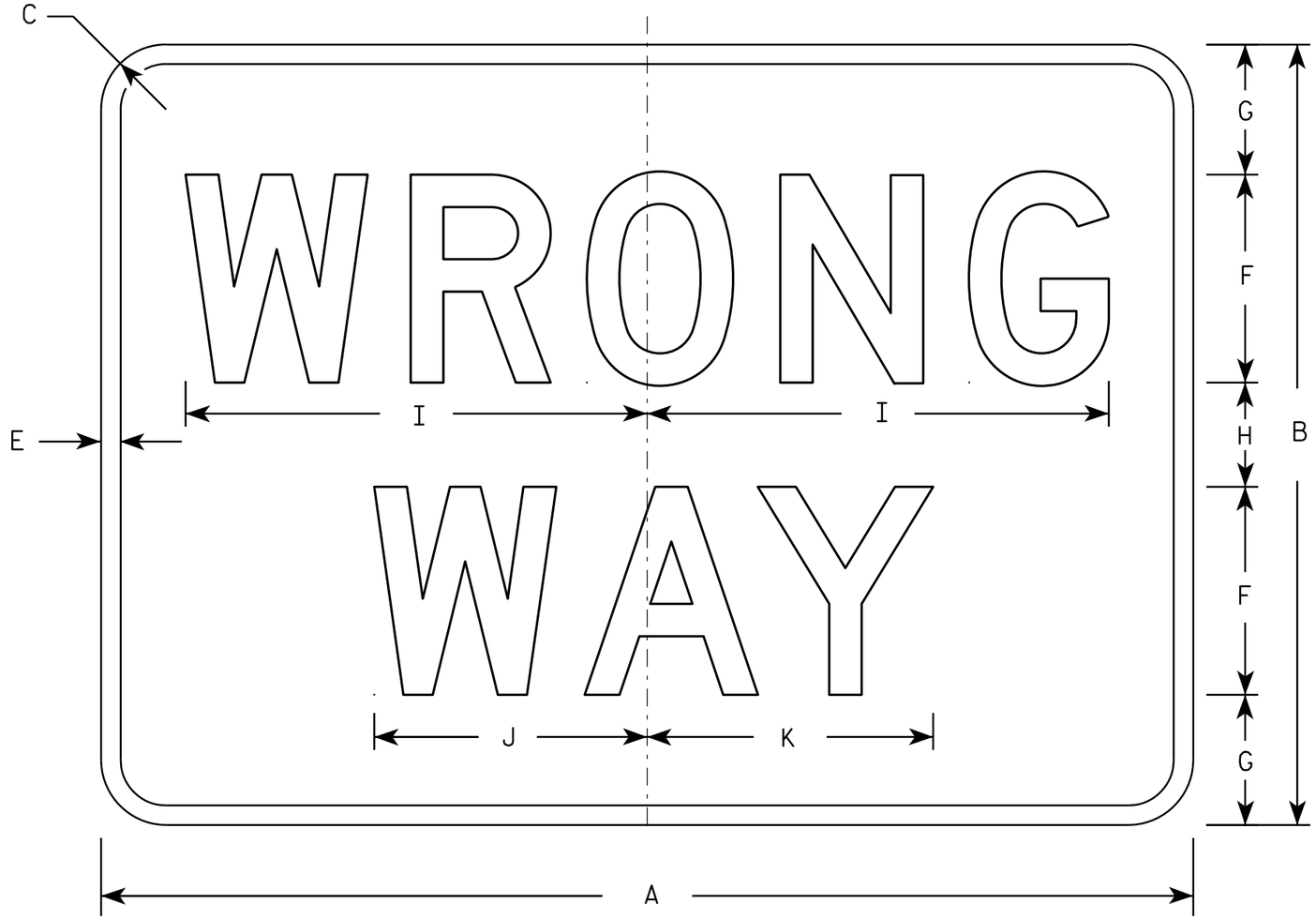
STANDARD SIGN
R5-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1.15

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 333 | E



R5-1A

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Red
   Message - White
3. Message Series - D
4. 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.

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	30	18	1 1/2		1/2	5	3	2	11	6 1/2	6 7/8																3.75
2S	36	24	2		5/8	6	4 1/2	3	13 1/4	7 7/8	8 1/4																6.00
2M	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
3	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
4	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
5	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75

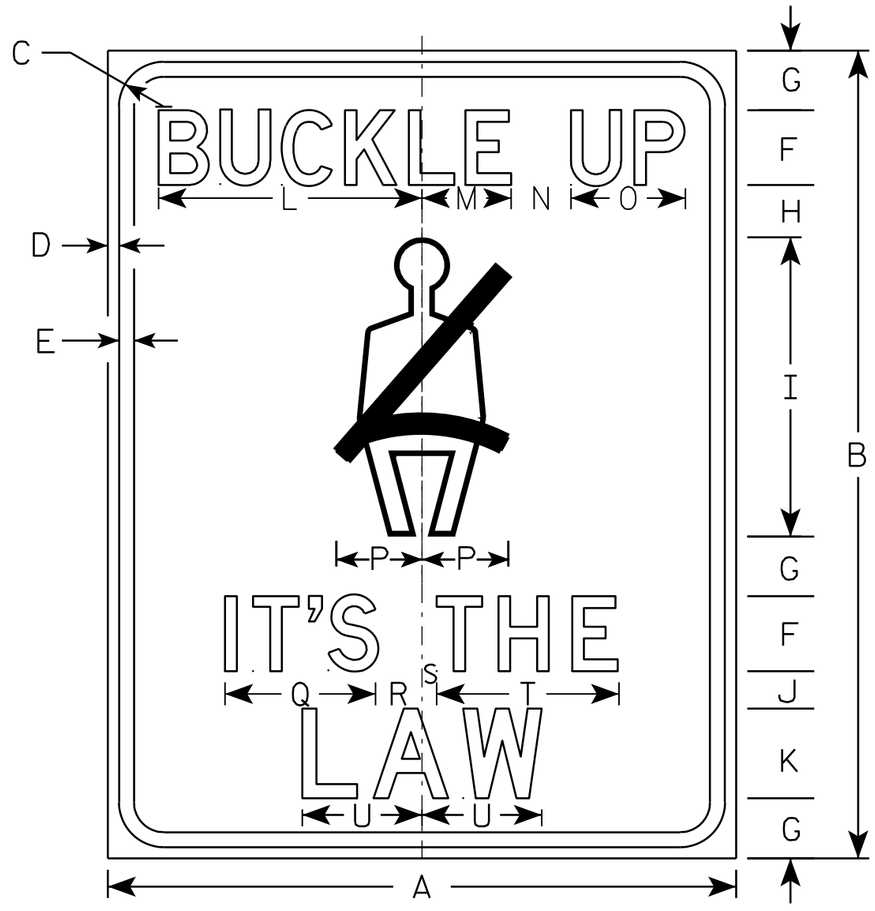
STANDARD SIGN
R5-1A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1A.2

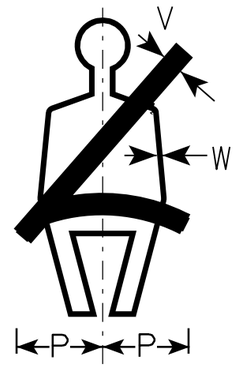
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 334	E



R5-53A

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. 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.



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	18	24	1 1/8	3/8	3/8	2	1 3/4	1 1/2	9	1 1/4	3	6 3/4	2 1/4	1 1/2	2 7/8	2 1/2	3 7/8	1 1/4	3/8	4 5/8	3 7/8	5/8	1/8				3.00
2M	18	24	1 1/8	3/8	3/8	2	1 3/4	1 1/2	9	1 1/4	3	6 3/4	2 1/4	1 1/2	2 7/8	2 1/2	3 7/8	1 1/4	3/8	4 5/8	3 7/8	5/8	1/8				3.00
3																											
4																											
5	42	54	2 1/4	3/4	1	5	4	3 1/2	20	2 1/2	6	17 5/8	6	4	7 5/8	5 3/4	10	3 1/2	1	12 1/4	8	1 1/2	3/8				15.75

STANDARD SIGN
R5-53A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/29/2011 PLATE NO. R5-53A.5

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 335	E



R5-57

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - Lines 1, 2, and 5 are Series C.
   Lines 3 and 4 are Series B.
4. 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.

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																											
2M																											
3																											
4	36		1 5/8	5/8	3/4	4	3	2	3 1/2	14 1/4	14 7/8	11	11 1/2	4 3/4	1 3/4	9		1 3/8	10	11	2 1/2	1 3/4	15 1/2	13	13 5/8		9.0
5	36		1 5/8	5/8	3/4	4	3	2	3 1/2	14 1/4	14 7/8	11	11 1/2	4 3/4	1 3/4	9		1 3/8	10	11	2 1/2	1 3/4	15 1/2	13	13 5/8		9.0

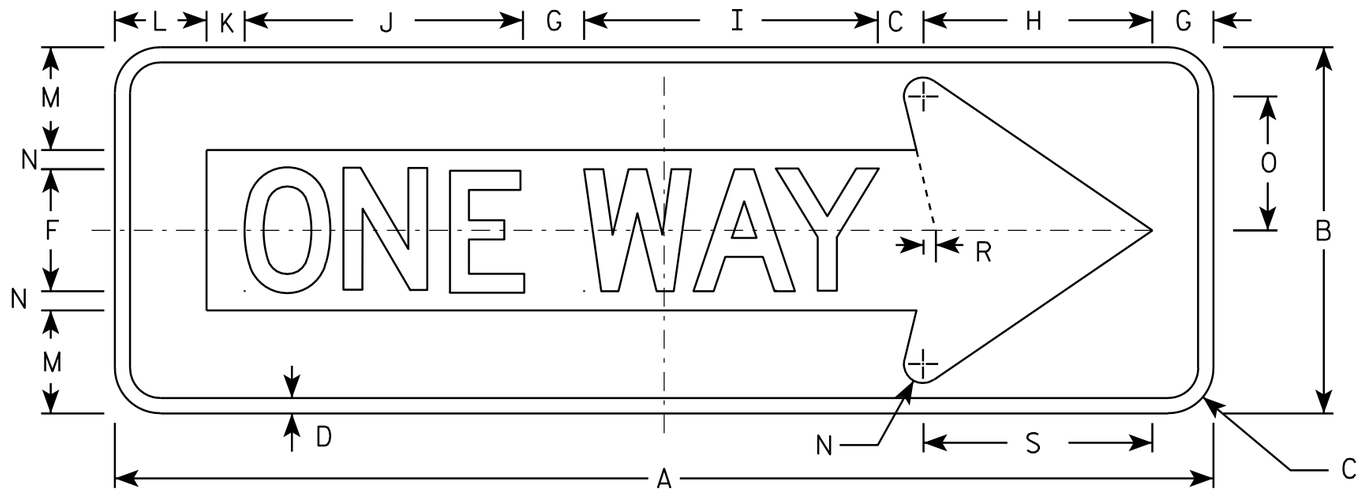
STANDARD SIGN
R5-57

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/29/2011 PLATE NO. R5-57.10

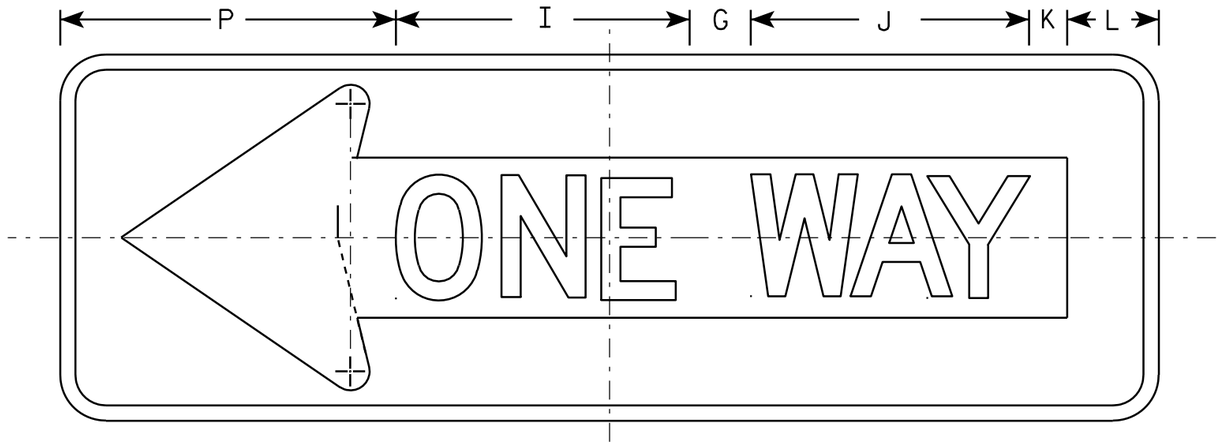
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 336 | E



R6-1R

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - BLACK
   Message - BLACK LEGEND & WHITE ARROW & BORDER
3. Message Series - D
4. 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.



R6-1L

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	36	12	1 ½	½		4	2	7 ½	9 ⅝	9 ⅛	1 ¼	3	3 ⅜	⅝	4 ⅜	11		⅜	7 ½								3.0
2M	54	18	2 ¼	¾		6	3	11 ¼	14 ½	13 ⅝	1 ⅞	4 ½	5	1	6 ½	16 ½		⅝	11 ¼								6.75
3	54	18	2 ¼	¾		6	3	11 ¼	14 ½	13 ⅝	1 ⅞	4 ½	5	1	6 ½	16 ½		⅝	11 ¼								6.75
4	54	18	2 ¼	¾		6	3	11 ¼	14 ½	13 ⅝	1 ⅞	4 ½	5	1	6 ½	16 ½		⅝	11 ¼								6.75
5																											

STANDARD SIGN
R6-1 L & R

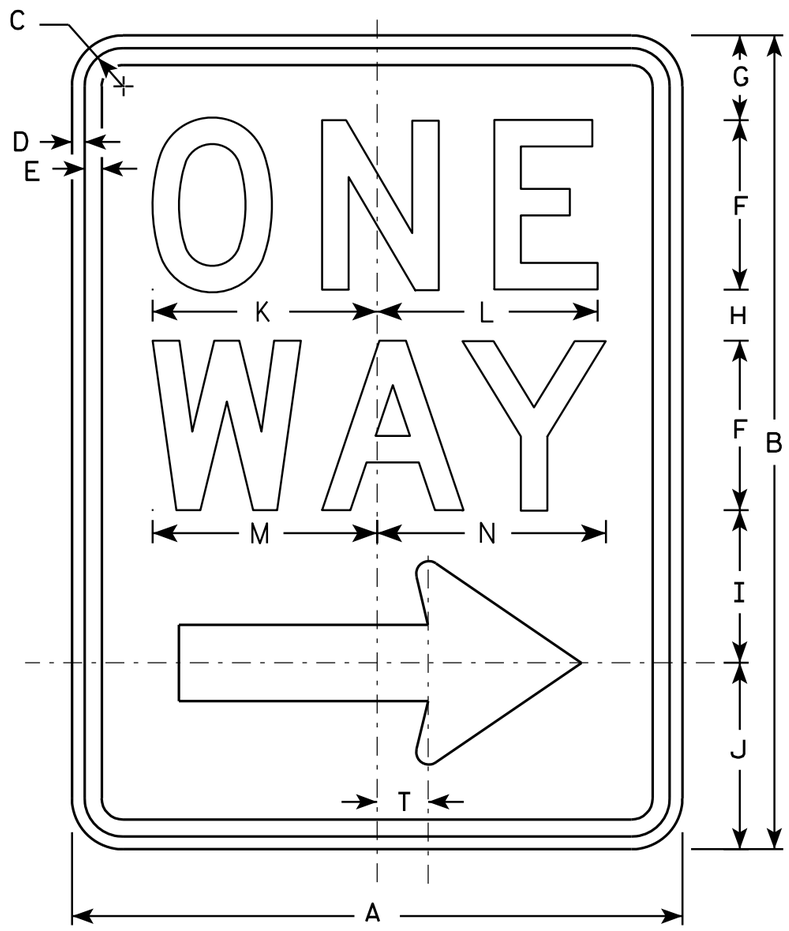
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R6-1.2

PROJECT NO:

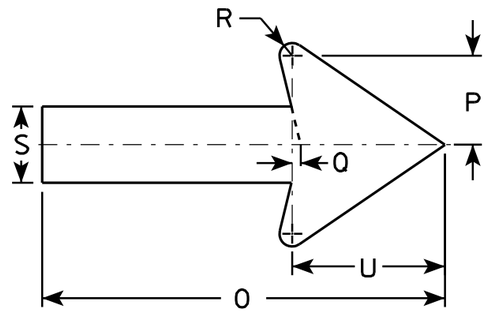
SHEET NO: 337 E



R6-2R

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. 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.
5. R6-2L same as R6-2R except arrow points to the left.



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
1	18	24	1 1/8	3/8	1/2	5	2 1/2	1 1/2	4 1/2	5 1/2	6 5/8	6 1/2	6 5/8	6 3/4	11 7/8	2 5/8	1/4	3/8	2 1/4	1 1/2	4 1/2					
2S	24	30	1 1/8	3/8	1/2	6	3	2 1/2	5 1/2	7	8 1/8	8 1/8	8 1/2	8 5/8	16	3 1/2	3/8	1/2	3	2	6					
2M	30	36	1 3/8	1/2	5/8	8	2 1/2	2 5/8	6 7/8	8	10 1/2	10 1/2	11 1/4	11 1/4	20	4 3/8	1/2	5/8	3 3/4	2 1/2	7 1/2					
3	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
4	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
5																										

STANDARD SIGN
R6-2 R&L

WISCONSIN DEPT OF TRANSPORTATION

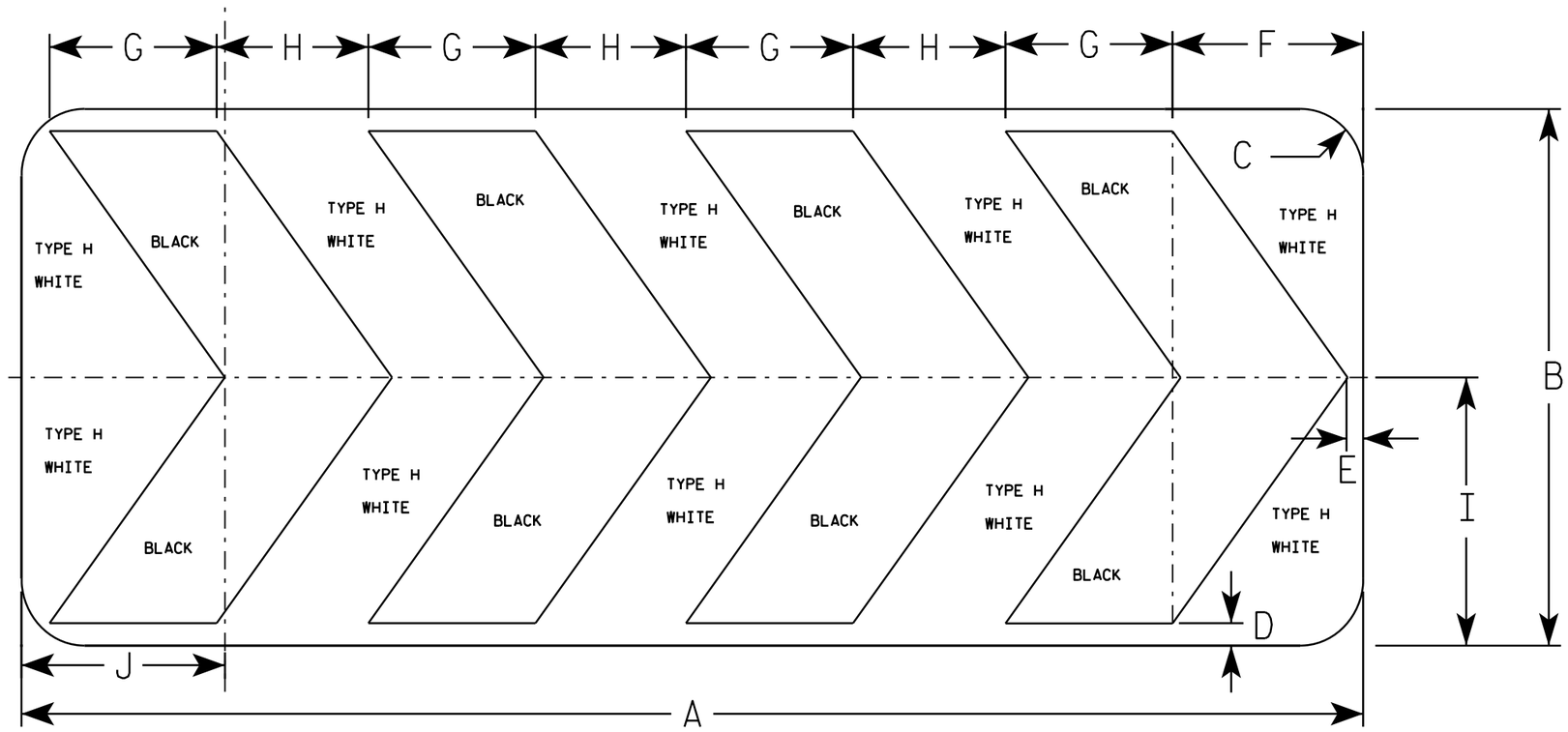
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/2/10 PLATE NO. R6-2.8

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 338	E

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - WHITE
   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.



R6-4B

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	60	24	2 1/4	1	3/4	8 1/2	7 1/2	6 3/4	12	9 1/8																	10.0
2M	60	24	2 1/4	1	3/4	8 1/2	7 1/2	6 3/4	12	9 1/8																	10.0
3																											
4																											
5																											

STANDARD SIGN
R6-4B

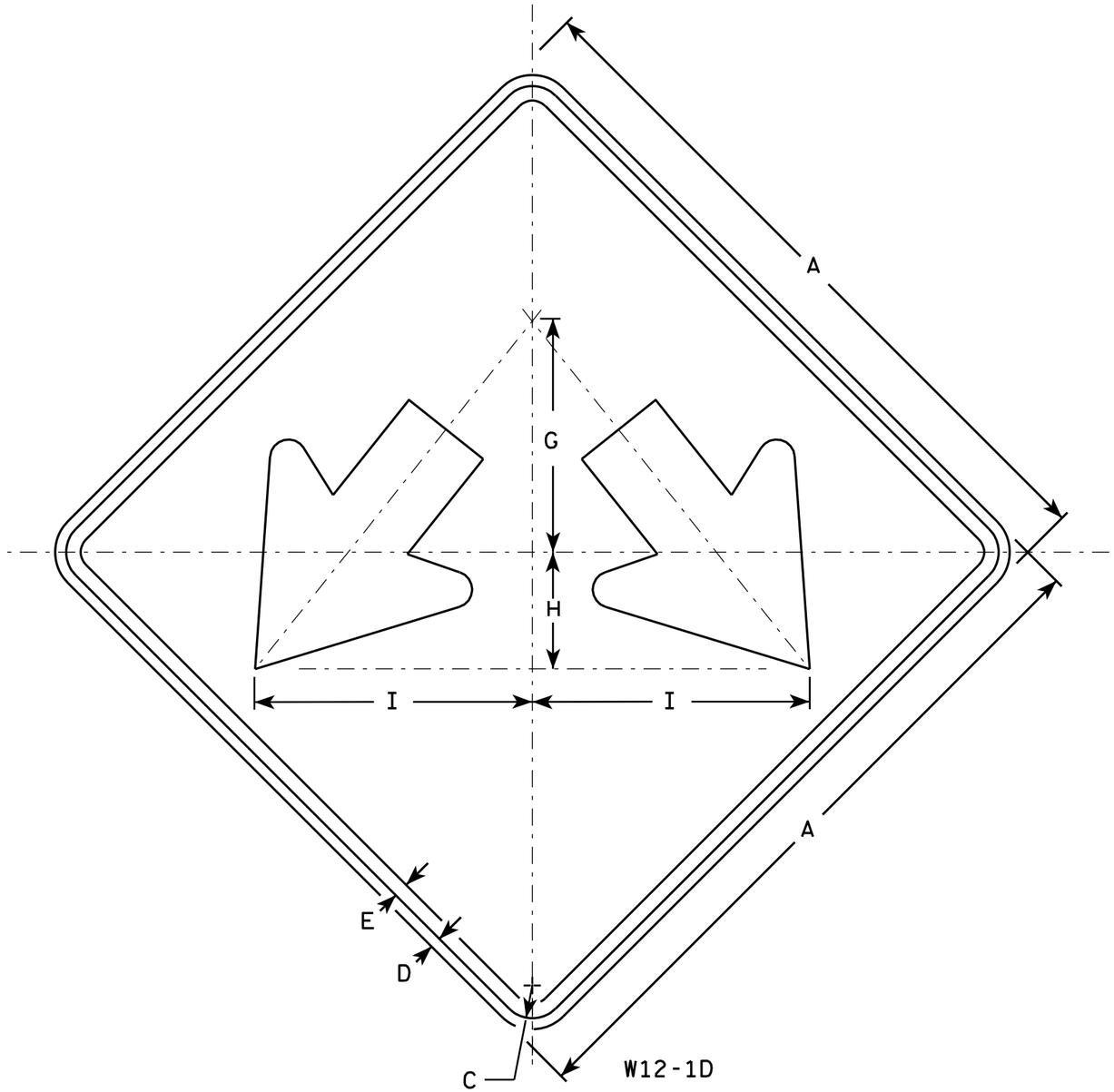
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 1/03/11 PLATE NO. R6-4B.2

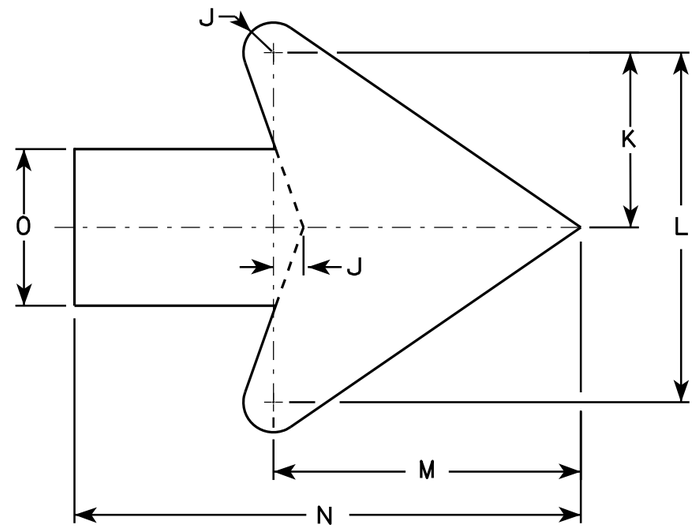
PROJECT NO:

SHEET NO: 339 E



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.



Arrow Detail

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	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
2M	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
3	30		1 3/8	1/2	5/8		10	5	11 7/8	3/4	4 1/2	9	7 7/8	13	4												6.25
4	36		1 3/8	1/2	5/8		12	6	14 1/4	1	5 1/2	10 7/8	9 5/8	15 3/4	4 3/4												9.0
5	48		2 1/4	3/4	1		16	8	19	1 1/4	7 1/4	14 1/2	12 3/4	21	6 1/4												16.0

STANDARD SIGN
W12-1D

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/13/13 PLATE NO. W12-1D.15

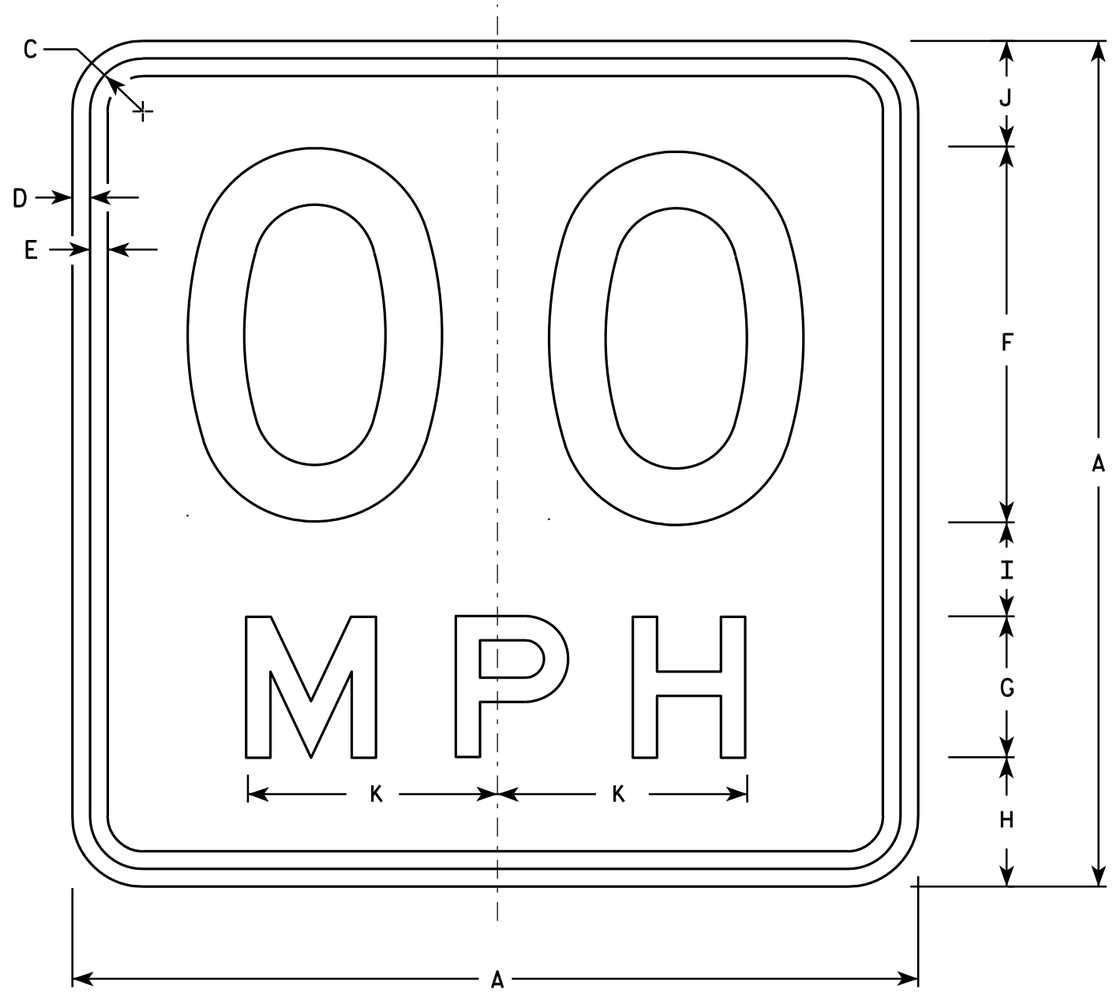
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 340	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\W121D.DGN PLOT DATE : 13-MAR-2013 13:26 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 4.713802:1.000000

WISDOT/CADDS SHEET 42

7

7



W13-1

* For 30" x 30" Warning Signs, use 18" x 18" W13-1 signs.
For 36" x 36" Warning Signs, use 24" x 24" W13-1 signs.

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. Message Series - See Note 6
4. 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.
5. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
6. Line 1 is Series D
   Line 2 is Series E

	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	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
*	2S	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
*	2M	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
	3	24		1 1/8	3/8	1/2	10	4	4	2 3/4	3 1/4	6 5/8																4.00
	4	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
	5	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00

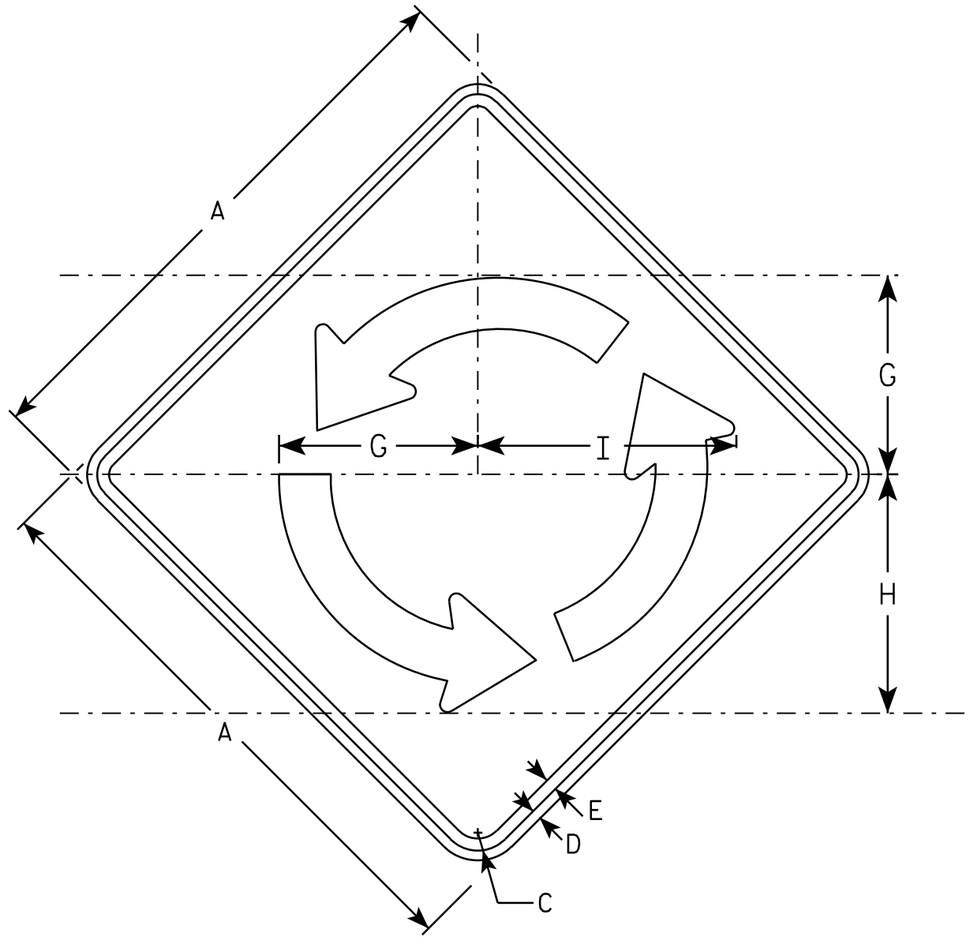
STANDARD SIGN
W13-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 5/31/12 PLATE NO. W13-1.16

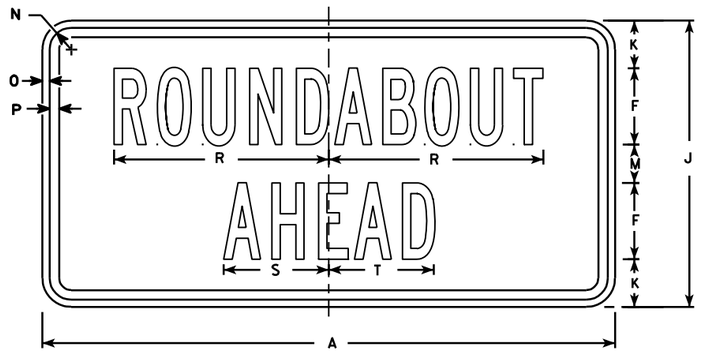
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 341 | E



W2-6

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. Message Series - B
4. 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.



W2-6P

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	W2-6 Area sq. ft.	W2-6P Area sq. ft.
1																										
2S	30		1 3/8	1/2	5/8	4	10 3/8	12 1/2	13 1/2	15	2 1/2		2	1 1/8	3/8	1/2		11 1/4	5 1/2	5 1/2					6.25	3.12
2M	30		1 3/8	1/2	5/8	4	10 3/8	12 1/2	13 1/2	15	2 1/2		2	1 1/8	3/8	1/2		11 1/4	5 1/2	5 1/2					6.25	3.12
3	36		1 5/8	5/8	3/4	5	12 1/2	15	16 1/4	18	2 5/8		2 3/4	1 1/8	3/8	1/2		14	7	6 3/4					9.00	4.50
4	48		2 1/4	3/4	1	6	16 5/8	20	16 1/4	24	4 3/8		3 5/8	1 3/8	1/2	5/8		17	8 1/4	8 1/4					16.0	8.0
5																										

STANDARD SIGN
W2-6

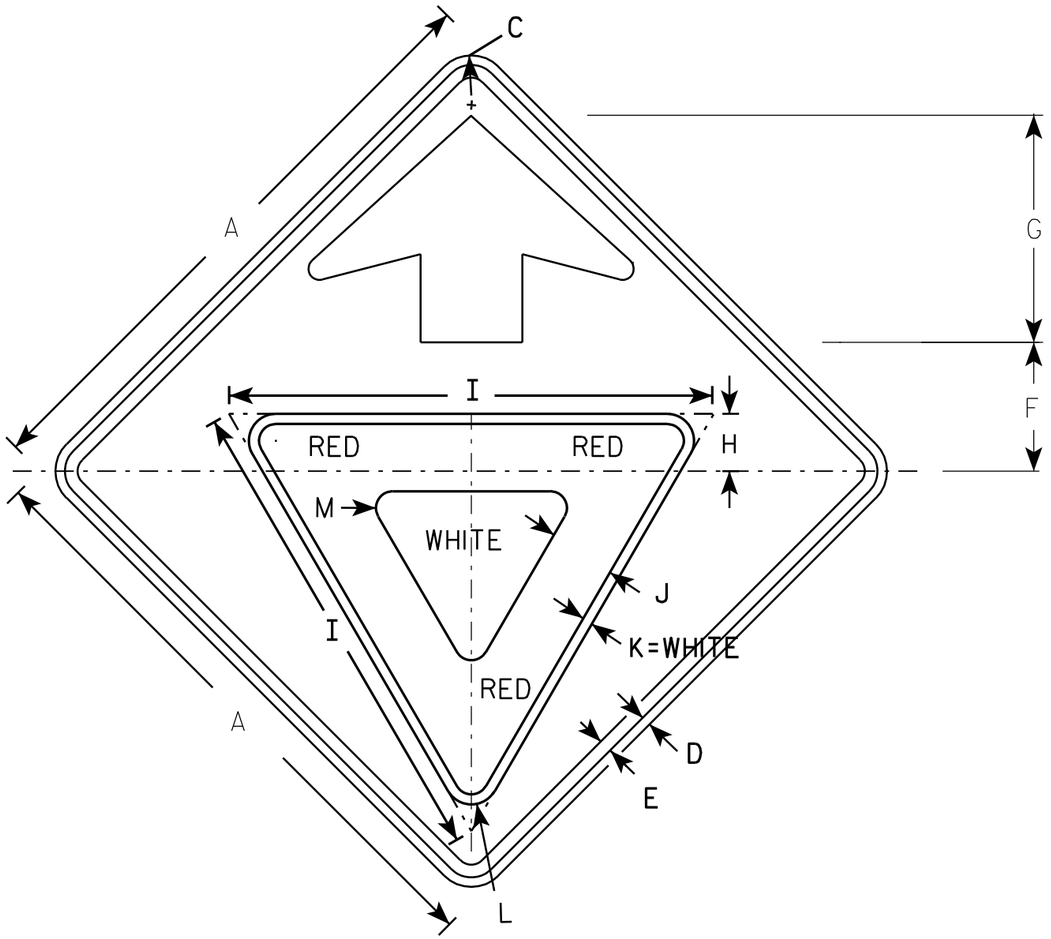
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/29/12 PLATE NO. W2-6.5

PROJECT NO:

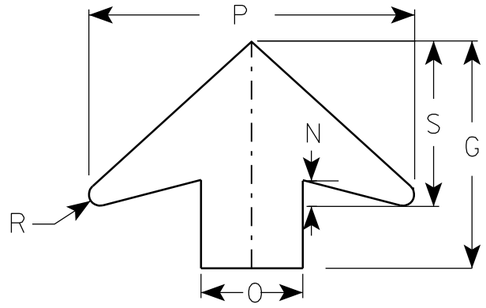
SHEET NO: 342 E



W3-2

NOTES

1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - YELLOW
   Arrow & Border - BLACK
   Yield Symbol - WHITE BORDER ON RED BACKGROUND



ARROW DETAIL

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	30		1 3/8	1/2	5/8	6 1/4	11 1/4	3	25	3 3/8	1/2	1 3/8	7/8	1 1/4	5	16		1/2	8								6.25
2S	36		1 5/8	5/8	3/4	7 1/2	13 1/2	3 3/8	28	3 3/4	5/8	1 1/2	1	1 5/8	6	19 1/4		5/8	9 3/4								9.0
2M	36		1 5/8	5/8	3/4	7 1/2	13 1/2	3 3/8	28	3 3/4	5/8	1 1/2	1	1 5/8	6	19 1/4		5/8	9 3/4								9.0
3	36		1 5/8	5/8	3/4	7 1/2	13 1/2	3 3/8	28	3 3/4	5/8	1 1/2	1	1 5/8	6	19 1/4		5/8	9 3/4								9.0
4	48		2 1/4	3/4	1	10	17 7/8	4 1/2	38	5	3/4	2 1/8	1 3/8	2	8	25 5/8		7/8	13								16.0
5	48		2 1/4	3/4	1	10	17 7/8	4 1/2	38	5	3/4	2 1/8	1 3/8	2	8	25 5/8		7/8	13								16.0

STANDARD SIGN
W3-2

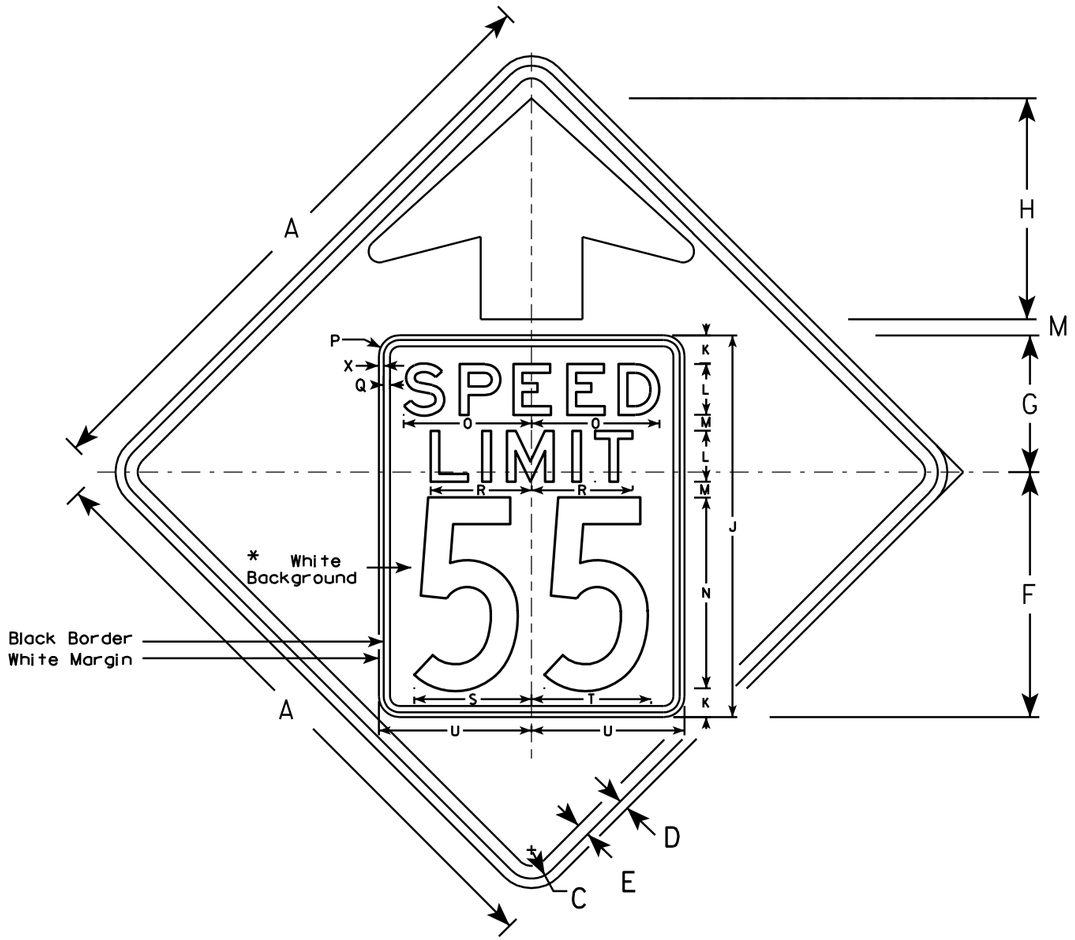
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W3-2..9

PROJECT NO:

SHEET NO: 343 E

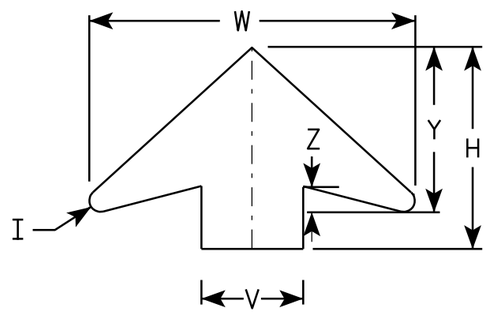


W3-5

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. Message Series - C for numbers Series E for wording
4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

*Speed Limit Sign shall have a White Background



ARROW DETAIL

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	36		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
2M	36		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
3	36		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
4	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
5	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0

STANDARD SIGN
W3-5

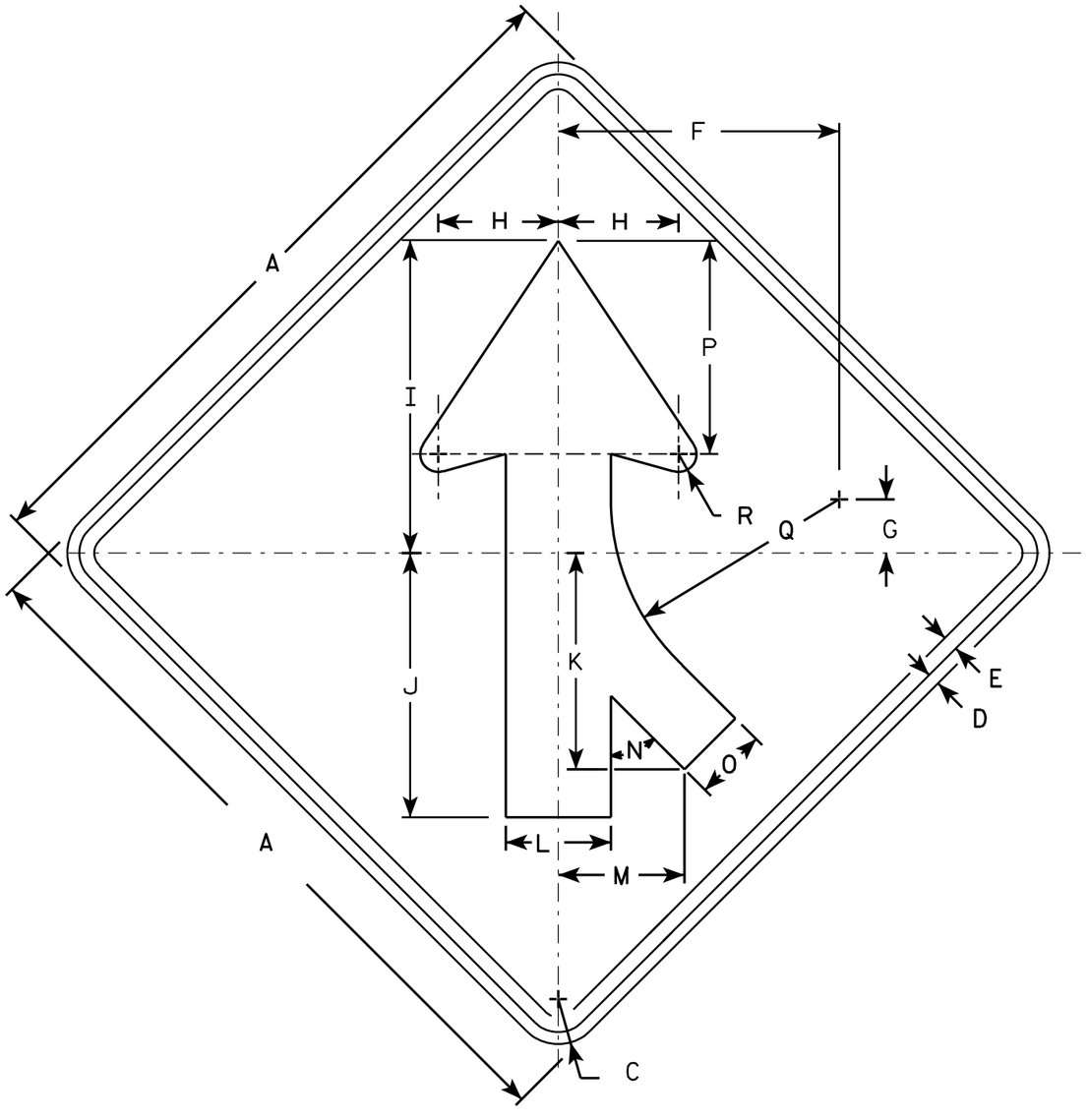
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W3-5.5

PROJECT NO:

SHEET NO: 344 E



W4-1 R

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	11 5/8	2 1/2	5	13	11	9	4 3/8	5 1/4	45°	3	8 7/8	9 1/2	3/4									6.25
2S	36		1 5/8	5/8	3/4	14	2 3/4	6	15 3/4	13 1/4	10 1/4	5 1/4	6 3/8	45°	3 5/8	10 5/8	11 3/8	7/8									9.0
2M	36		1 5/8	5/8	3/4	14	2 3/4	6	15 3/4	13 1/4	10 1/4	5 1/4	6 3/8	45°	3 5/8	10 5/8	11 3/8	7/8									9.0
3	36		1 5/8	5/8	3/4	14	2 3/4	6	15 3/4	13 1/4	10 1/4	5 1/4	6 3/8	45°	3 5/8	10 5/8	11 3/8	7/8									9.0
4	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
5	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0

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. W4-1L is the same as W4-1R except the arrow is reversed along the vertical centerline.

STANDARD SIGN
W4-1

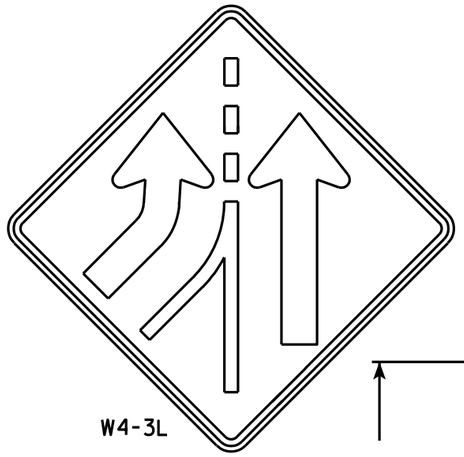
WISCONSIN DEPT OF TRANSPORTATION

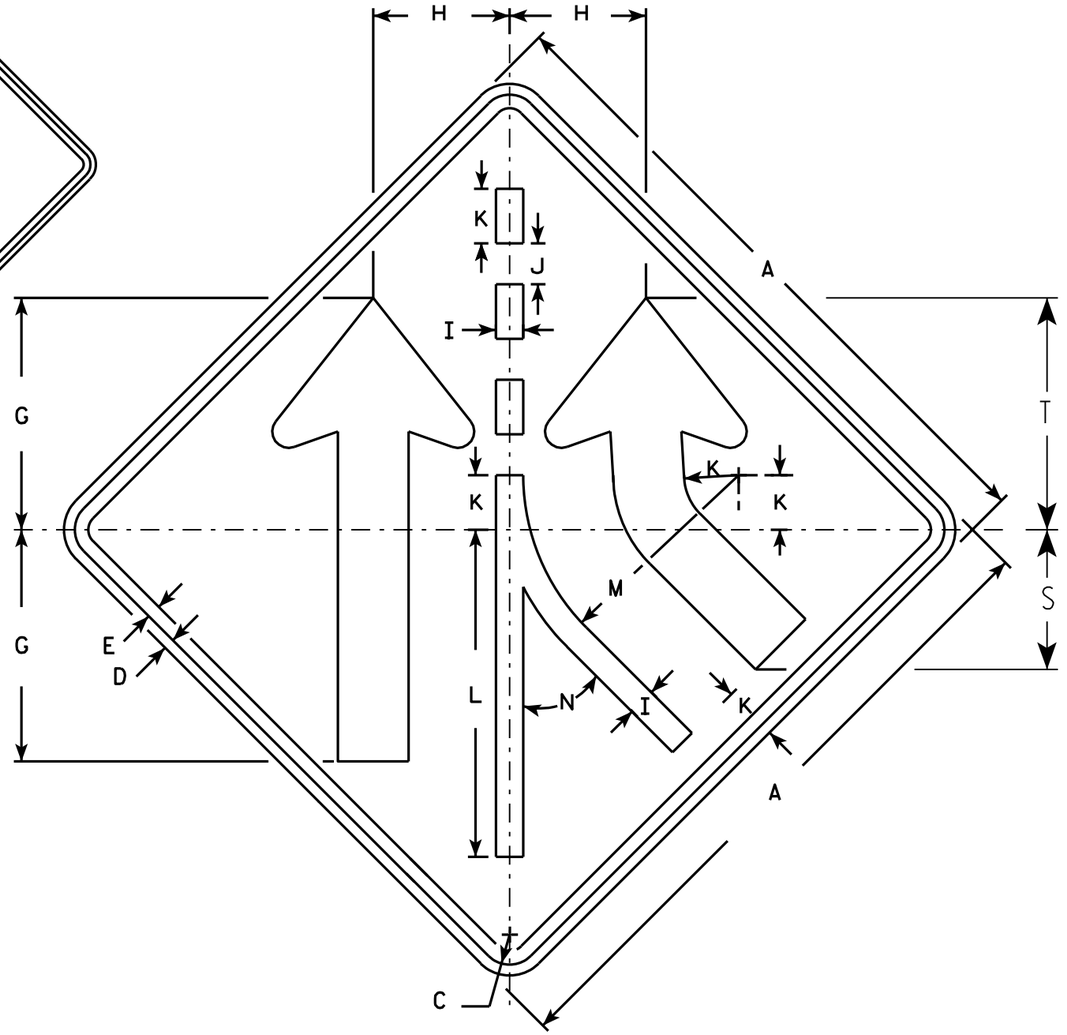
APPROVED Matthew R Rausch for State Traffic Engineer

DATE 03/12/13 PLATE NO. W4-1.14

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 345 | E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\W41.DGN PLOT DATE : 12-MAR-2013 11:06 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 6.202372:1.000000
WISDOT/CADDS SHEET 42

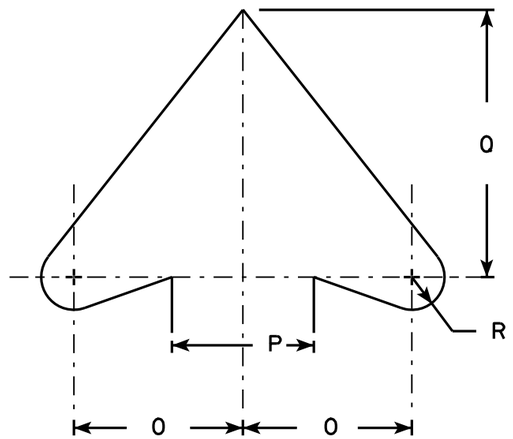




W4-3R

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. W4-3 L is the same as W4-3 R except the arrow is reversed along the vertical centerline.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8		10 5/8	6 1/4	1 1/4	1 7/8	2 1/2	15	9 7/8	45°	3 7/8	3 1/4	6 1/8	3/4	6 3/8	10 5/8							6.25
2S	36		1 5/8	5/8	3/4		12 3/4	7 1/2	1 1/2	2 1/4	3	18	11 7/8	45°	4 5/8	4	7 3/8	7/8	7 3/4	12 3/4							9.0
2M	36		1 5/8	5/8	3/4		12 3/4	7 1/2	1 1/2	2 1/4	3	18	11 7/8	45°	4 5/8	4	7 3/8	7/8	7 3/4	12 3/4							9.0
3																											
4	48		2 1/4	3/4	1		17	10	2	3	4	24	15 3/4	45°	6 1/4	5 1/2	9 7/8	1 1/4	10 1/4	17							16.0
5	48		2 1/4	3/4	1		17	10	2	3	4	24	15 3/4	45°	6 1/4	5 1/2	9 7/8	1 1/4	10 1/4	17							16.0

STANDARD SIGN
W4-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 03/12/13 PLATE NO. W4-3.8

PROJECT NO:

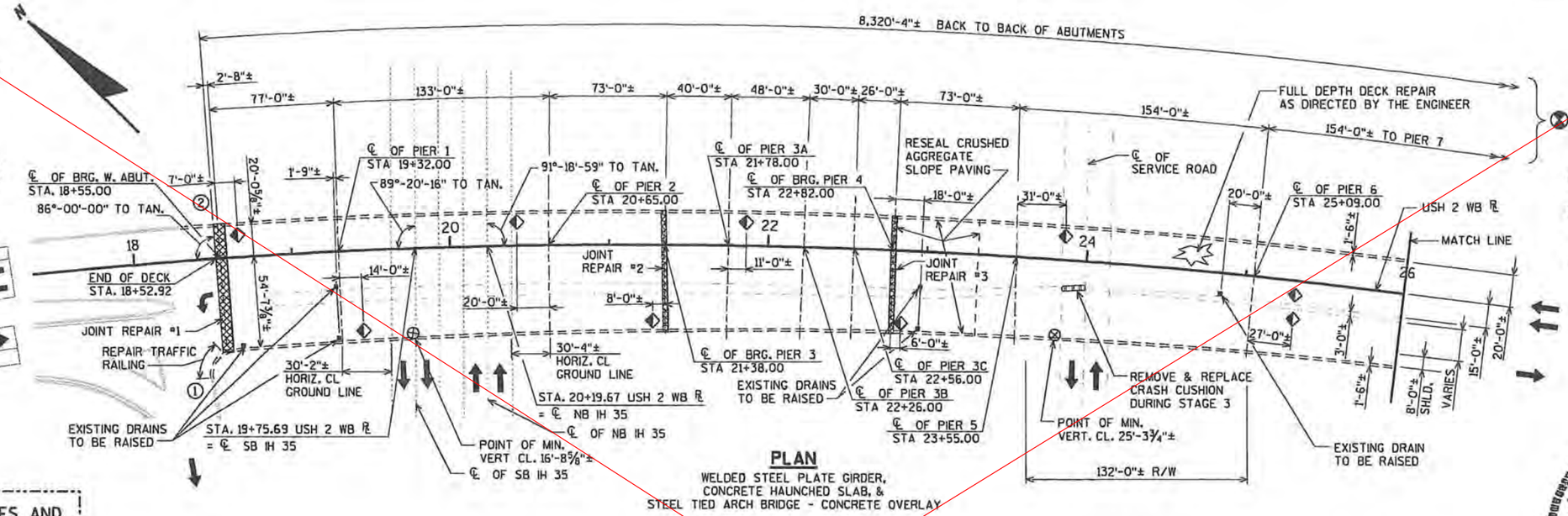
SHEET NO: 346 E

STATE PROJECT NUMBER

8680-04-71

CURVE DATA

USH 2 WB ℄
P.I. STA. 29+42.00
Δ=43°-08'-06.4"
D=1°-30'
T=1,509.83'
L=2,875.67'
R=3,819.72'
S.E.=0.036'/'
P.C. STA. 14+32.17
P.T. STA. 43+07.85



○ DENOTES WING NUMBER

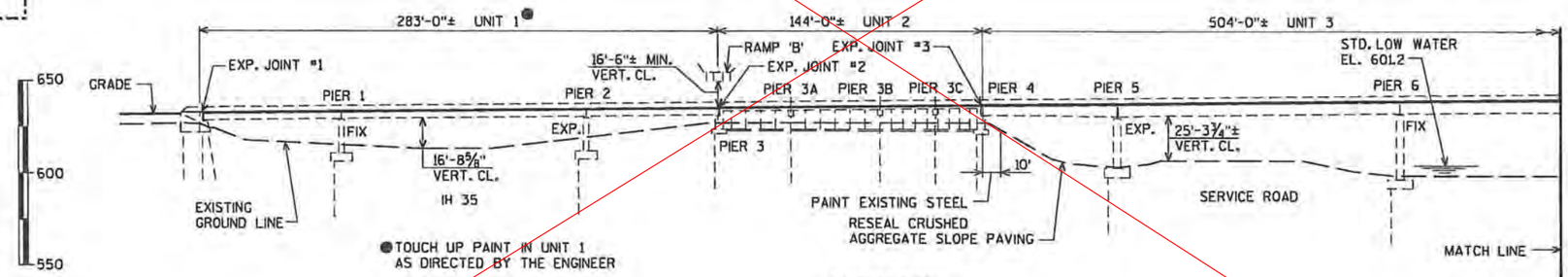
⊗ MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.

◆ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

PLAN

WELDED STEEL PLATE GIRDER, CONCRETE HAUNCHED SLAB, & STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

FOR QUANTITIES AND DESIGN DATA SEE SHEET 16



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

LIST OF DRAWINGS

1. GENERAL PLAN UNITS 1 THRU 3
2. GENERAL PLAN UNITS 3 THRU 5
3. GENERAL PLAN UNITS 5 THRU 7
4. GENERAL PLAN UNITS 7 THRU 9
5. GENERAL PLAN UNITS 9 THRU 12
6. GENERAL PLAN UNITS 12 THRU 14
7. GENERAL PLAN UNITS 14 & 15
8. GENERAL PLAN UNITS 15 THRU 18
9. GENERAL PLAN UNITS 18 & 19
10. CROSS SECTIONS UNITS 1-3
11. CROSS SECTIONS UNIT 4
12. CROSS SECTIONS UNITS 5 & 6
13. CROSS SECTION UNITS 7-12, 14-19
14. CROSS SECTION UNIT 13
15. EXISTING PROFILE GRADE LINE
16. DESIGN DATA, QUANTITIES AND NOTES
17. SIDEWALK OVERHANG REPAIR DETAILS
18. SIDEWALK MANHOLE REPLACEMENT DTLS PIER 20
19. SIDEWALK MANHOLE REPLACEMENT DTLS PIER 29
20. SIDEWALK MANHOLE REPLACEMENT DTLS PIER 30
21. PIER CAP RAILING DETAILS
22. PIPE RAILING
23. NEW TIE GIRDER DOOR DETAILS
24. CABLE SHIM REPAIR DETAILS
25. CABLE SHIM REPAIR DETAILS
26. JOINT REPAIR QUANTITIES SUMMARY
27. STRIP SEAL EXPANSION JOINT 1 DETAILS
28. STRIP SEAL EXPANSION JOINT 1 DETAILS
29. STRIP SEAL EXPANSION JOINT 2 DETAILS
30. STRIP SEAL EXPANSION JOINT 2 DETAILS
31. STRIP SEAL EXPANSION JOINT 3 DETAILS
32. STRIP SEAL EXPANSION JOINT 3 DETAILS
33. MODULAR EXPANSION JOINT 4 DETAILS
34. EXPANSION JOINT 4 DETAILS OUTSIDE PARAPET
35. MODULAR EXPANSION JOINT 4 DETAILS
36. MODULAR EXPANSION JOINT 5 DETAILS
37. EXPANSION JOINT 5 DETAILS OUTSIDE PARAPET
38. EXPANSION JOINT 5 DETAILS MEDIAN PARAPETS
39. MODULAR EXPANSION JOINT 5 DETAILS
40. MODULAR EXPANSION JOINT 6 DETAILS
41. EXPANSION JOINT 6 DETAILS OUTSIDE PARAPET
42. MODULAR EXPANSION JOINT 6 DETAILS
43. MODULAR EXPANSION JOINT 7 DETAILS
44. EXPANSION JOINT 7 DETAILS OUTSIDE PARAPET
45. EXPANSION JOINT 7 DETAILS MEDIAN PARAPET
46. MODULAR EXPANSION JOINT 7 DETAILS
47. MODULAR EXPANSION JOINT 8 DETAILS
48. EXPANSION JOINT 8 DETAILS OUTSIDE PARAPET
49. EXPANSION JOINT 8 DETAILS SIDEWALK & PARAPET
50. MODULAR EXPANSION JOINT 8 DETAILS
51. MODULAR EXPANSION JOINT 9 DETAILS
52. EXPANSION JOINT 9 DETAILS OUTSIDE PARAPET
53. EXPANSION JOINT 9 DETAILS MEDIAN PARAPET
54. EXPANSION JOINT 9 DETAILS SIDEWALK & PARAPET
55. MODULAR EXPANSION JOINT 9 DETAILS
56. MODULAR EXPANSION JOINT 10 DETAILS
57. EXPANSION JOINT 10 DETAILS OUTSIDE PARAPET
58. EXPANSION JOINT 10 DETAILS MEDIAN PARAPET
59. EXPANSION JOINT 10 DETAILS SIDEWALK & PARAPET
60. MODULAR EXPANSION JOINT 10 DETAILS
61. MODULAR EXP. JOINTS 11-15, 19, 20 & 22 DETAILS
62. EXP. JOINTS 11-15, 19, 20 & 22 OUTSIDE PARAPET
63. EXP. JOINTS 11-15, 19, 20 & 22 MEDIAN PARAPET
64. EXP. JOINTS 11-15, 19, 20 & 22 SIDEWALK & PARAPET
65. MODULAR EXP. JOINTS 11-15, 19, 20 & 22 DETAILS
66. MODULAR EXPANSION JOINT 16 DETAILS
67. EXPANSION JOINT 16 DETAILS OUTSIDE PARAPET
68. EXPANSION JOINT 16 DETAILS MEDIAN PARAPET
69. EXPANSION JOINT 16 DETAILS SIDEWALK & PARAPET
70. MODULAR EXPANSION JOINT 16 DETAILS
71. STRIP SEAL EXPANSION JOINT 17 DETAILS
72. MEDIAN PARAPET COVER PLATE JOINT 17 DETAILS
73. SIDEWALK PARAPET COVER PLATE JOINT 17 DETAILS
74. STRIP SEAL EXPANSION JOINT 17 DETAILS
75. STRIP SEAL EXPANSION JOINT 18 DETAILS
76. MEDIAN PARAPET COVER PLATE JOINT 18 DETAILS
77. SIDEWALK PARAPET COVER PLATE JOINT 18 DETAILS
78. STRIP SEAL EXPANSION JOINT 18 DETAILS
79. MODULAR EXPANSION JOINTS 21 & 23 DETAILS
80. EXP. JOINTS 21 & 23 OUTSIDE PARAPET
81. EXP. JOINTS 21 & 23 MEDIAN PARAPET
82. EXP. JOINTS 21 & 23 SIDEWALK & PARAPET
83. MODULAR EXPANSION JOINTS 21 & 23 DETAILS
84. STRIP SEAL EXPANSION JOINT 24 DETAILS
85. INSIDE PARAPET COVER PLATE JOINT 24 DETAILS
86. SIDEWALK PARAPET COVER PLATE JOINT 24 DETAILS
87. STRIP SEAL EXPANSION JOINT 24 DETAILS
88. PARAPET AND MEDIAN REINFORCEMENT DETAILS
89. EXPANSION JOINTS 1-8 BILL OF BARS
90. EXPANSION JOINTS 9-14 BILL OF BARS
91. EXPANSION JOINTS 15-20 BILL OF BARS
92. EXPANSION JOINTS 21-24 BILL OF BARS
93. TEMPORARY MEDIAN GUARDRAIL
94. TRAFFIC RAILING REPAIR DETAILS
95. FLOOR DRAIN SUMMARY
96. FLOOR DRAIN DETAILS
97. FLOOR DRAIN DETAILS
98. STATE LINE REFERENCE PLATE
99. BAR COUPLER DETAILS

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

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

WISCONSIN
CHRISTOPHER B. McMAHON
E-29454
EAU CLAIRE
WI
PROFESSIONAL ENGINEER
9/13/13

NO.	DATE	REVISION	BY

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

MINNESOTA BRIDGE NO. 69100

STH 2 OVER THE ST. LOUIS RIVER
I.H. 35 & RR

CITY OF DULUTH — ST. LOUIS COUNTY

APPROVED: Nancy Daubenberger DATE 10/4/13
STATE BRIDGE ENGINEER

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 10/04/13
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-16-38/69100

USH 2 OVER ST. LOUIS RIVER

COUNTY: DOUGLAS CO., WI / ST. LOUIS CO., MN — ~~TOWN/CITY/VILLAGE~~ SUPERIOR, WI & DULUTH, MN

DESIGN SPEC. — REHABILITATION N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JCK	AEB	CLS	CBM

GENERAL PLAN UNITS 1 THRU 3

SHEET 1 OF 99
347

8

8

9/13/2013

PENTABLE:BReau_shd_util.tbl

DATE:

DATE:

DATE:

CHECKED BY:

BACK CHECKED BY:

CORRECTED BY:

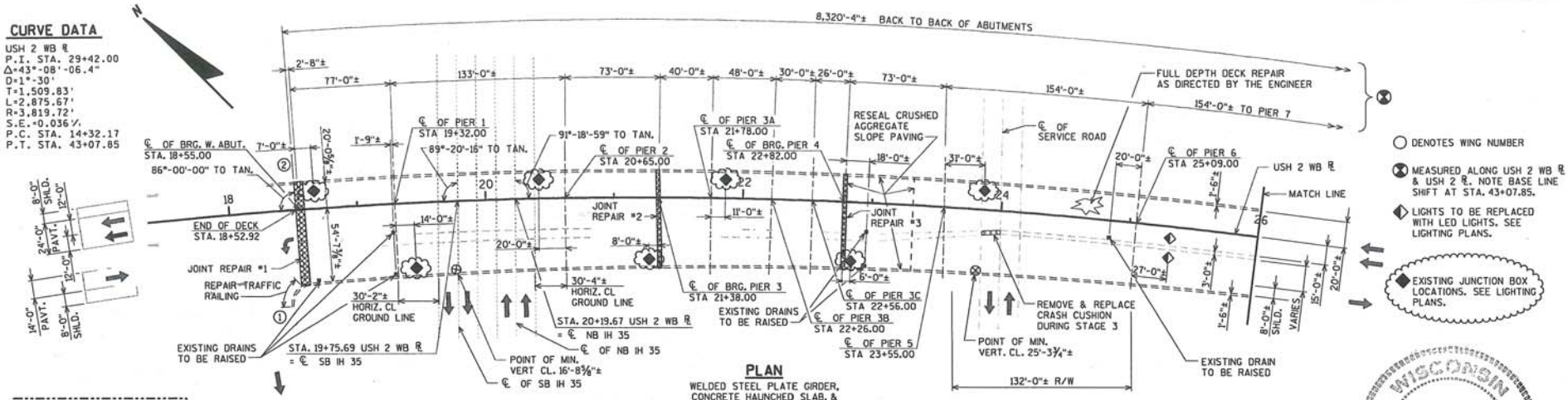
$PREFNAME$
U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 gpl.dgn

STATE PROJECT NUMBER

8680-04-71

CURVE DATA

USH 2 WB ℄
P.I. STA. 29+42.00
Δ=43°-08'-06.4"
D=1°-30'
T=1,509.83'
L=2,875.67'
R=3,819.72'
S.E.=0.036'/'
P.C. STA. 14+32.17
P.T. STA. 43+07.85



○ DENOTES WING NUMBER

⊗ MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.

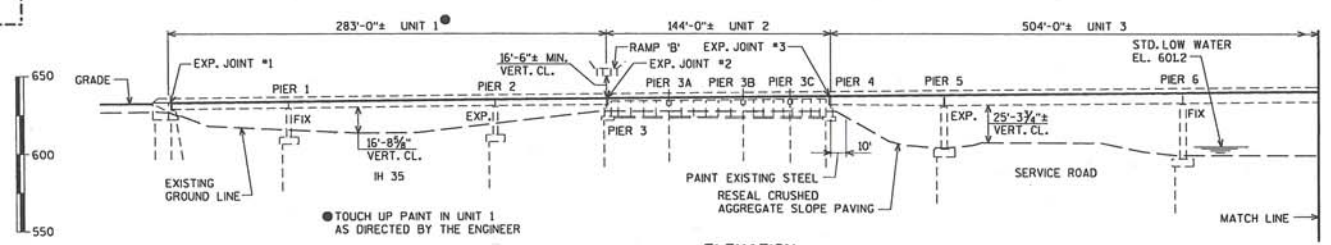
◆ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

◆ EXISTING JUNCTION BOX LOCATIONS. SEE LIGHTING PLANS.

PLAN

WELDED STEEL PLATE GIRDER, CONCRETE HAUNCHED SLAB, & STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

FOR QUANTITIES AND DESIGN DATA SEE SHEET 16



● TOUCH UP PAINT IN UNIT 1 AS DIRECTED BY THE ENGINEER

ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

William C. Dreher KAR 12/17/13

LIST OF DRAWINGS

1. GENERAL PLAN UNITS 1 THRU 3
2. GENERAL PLAN UNITS 3 THRU 5
3. GENERAL PLAN UNITS 5 THRU 7
4. GENERAL PLAN UNITS 7 THRU 9
5. GENERAL PLAN UNITS 9 THRU 12
6. GENERAL PLAN UNITS 12 THRU 14
7. GENERAL PLAN UNITS 14 & 15
8. GENERAL PLAN UNITS 15 THRU 18
9. GENERAL PLAN UNITS 18 & 19
10. CROSS SECTIONS UNITS 1-3
11. CROSS SECTIONS UNIT 4
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17. SIDEWALK OVERHANG REPAIR DETAILS
18. SIDEWALK MANHOLE REPLACEMENT DTLS PIER 20
19. SIDEWALK MANHOLE REPLACEMENT DTLS PIER 29
20. SIDEWALK MANHOLE REPLACEMENT DTLS PIER 30
21. PIER CAP RAILING DETAILS
22. PIPE RAILING
23. NEW TIE GIRDER DOOR DETAILS
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25. CABLE SHIM REPAIR DETAILS
26. JOINT REPAIR QUANTITIES SUMMARY
27. STRIP SEAL EXPANSION JOINT 1 DETAILS
28. STRIP SEAL EXPANSION JOINT 1 DETAILS
29. STRIP SEAL EXPANSION JOINT 2 DETAILS
30. STRIP SEAL EXPANSION JOINT 2 DETAILS
31. STRIP SEAL EXPANSION JOINT 3 DETAILS
32. STRIP SEAL EXPANSION JOINT 3 DETAILS
33. MODULAR EXPANSION JOINT 4 DETAILS
34. EXPANSION JOINT 4 DETAILS OUTSIDE PARAPET
35. MODULAR EXPANSION JOINT 4 DETAILS
36. MODULAR EXPANSION JOINT 5 DETAILS
37. EXPANSION JOINT 5 DETAILS OUTSIDE PARAPET
38. EXPANSION JOINT 5 DETAILS MEDIAN PARAPETS
39. MODULAR EXPANSION JOINT 5 DETAILS
40. MODULAR EXPANSION JOINT 6 DETAILS
41. EXPANSION JOINT 6 DETAILS OUTSIDE PARAPET
42. MODULAR EXPANSION JOINT 6 DETAILS
43. MODULAR EXPANSION JOINT 7 DETAILS
44. EXPANSION JOINT 7 DETAILS OUTSIDE PARAPET
45. EXPANSION JOINT 7 DETAILS MEDIAN PARAPET
46. MODULAR EXPANSION JOINT 7 DETAILS
47. MODULAR EXPANSION JOINT 8 DETAILS
48. EXPANSION JOINT 8 DETAILS OUTSIDE PARAPET
49. EXPANSION JOINT 8 DETAILS SIDEWALK & PARAPET
50. MODULAR EXPANSION JOINT 8 DETAILS
51. MODULAR EXPANSION JOINT 9 DETAILS
52. EXPANSION JOINT 9 DETAILS OUTSIDE PARAPET
53. EXPANSION JOINT 9 DETAILS MEDIAN PARAPET
54. EXPANSION JOINT 9 DETAILS SIDEWALK & PARAPET
55. MODULAR EXPANSION JOINT 9 DETAILS
56. MODULAR EXPANSION JOINT 10 DETAILS
57. EXPANSION JOINT 10 DETAILS OUTSIDE PARAPET
58. EXPANSION JOINT 10 DETAILS MEDIAN PARAPET
59. EXPANSION JOINT 10 DETAILS SIDEWALK & PARAPET
60. MODULAR EXPANSION JOINT 10 DETAILS
61. MODULAR EXP. JOINTS 11-15, 19, 20 & 22 DETAILS
62. EXP. JOINTS 11-15, 19, 20 & 22 OUTSIDE PARAPET
63. EXP. JOINTS 11-15, 19, 20 & 22 MEDIAN PARAPET
64. EXP. JOINTS 11-15, 19, 20 & 22 SIDEWALK & PARAPET
65. MODULAR EXP. JOINTS 11-15, 19, 20 & 22 DETAILS
66. MODULAR EXPANSION JOINT 16 DETAILS
67. EXPANSION JOINT 16 DETAILS OUTSIDE PARAPET
68. EXPANSION JOINT 16 DETAILS MEDIAN PARAPET
69. EXPANSION JOINT 16 DETAILS SIDEWALK & PARAPET
70. MODULAR EXPANSION JOINT 16 DETAILS
71. STRIP SEAL EXPANSION JOINT 17 DETAILS
72. MEDIAN PARAPET COVER PLATE JOINT 17 DETAILS
73. SIDEWALK PARAPET COVER PLATE JOINT 17 DETAILS
74. STRIP SEAL EXPANSION JOINT 17 DETAILS
75. STRIP SEAL EXPANSION JOINT 18 DETAILS
76. MEDIAN PARAPET COVER PLATE JOINT 18 DETAILS
77. SIDEWALK PARAPET COVER PLATE JOINT 18 DETAILS
78. STRIP SEAL EXPANSION JOINT 18 DETAILS
79. MODULAR EXPANSION JOINTS 21 & 23 DETAILS
80. EXP. JOINTS 21 & 23 OUTSIDE PARAPET
81. EXP. JOINTS 21 & 23 MEDIAN PARAPET
82. EXP. JOINTS 21 & 23 SIDEWALK & PARAPET
83. MODULAR EXPANSION JOINTS 21 & 23 DETAILS
84. STRIP SEAL EXPANSION JOINT 24 DETAILS
85. INSIDE PARAPET COVER PLATE JOINT 24 DETAILS
86. SIDEWALK PARAPET COVER PLATE JOINT 24 DETAILS
87. STRIP SEAL EXPANSION JOINT 24 DETAILS
88. PARAPET AND MEDIAN REINFORCEMENT DETAILS
89. EXPANSION JOINTS 1-8 BILL OF BARS
90. EXPANSION JOINTS 9-14 BILL OF BARS
91. EXPANSION JOINTS 15-20 BILL OF BARS
92. EXPANSION JOINTS 21-24 BILL OF BARS
93. TEMPORARY MEDIAN GUARDRAIL
94. TRAFFIC RAILING REPAIR DETAILS
95. FLOOR DRAIN SUMMARY
96. FLOOR DRAIN DETAILS
97. FLOOR DRAIN DETAILS
98. STATE LINE REFERENCE PLATE
99. BAR COUPLER DETAILS

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

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

WISCONSIN
CHRISTOPHER B. McMAHON
E-29454
EAU CLAIRE
WI
PROFESSIONAL ENGINEER
12/16/13

NO.	DATE	REVISION	BY
1	12/13	CALL OUT JUNCTION BOXES	AYRES

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

MINNESOTA BRIDGE NO. 69100

STH 2 OVER THE ST. LOUIS RIVER
I.H. 35 & RR

CITY OF DULUTH — ST. LOUIS COUNTY

APPROVED: Nancy Daubenberger STATE BRIDGE ENGINEER DATE 12/19/13

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED _____ _____
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-16-38/69100

USH 2 OVER ST. LOUIS RIVER

COUNTY: DOUGLAS CO., WI ~~TOWN/CITY/VILLAGE~~ SUPERIOR, WI & ST. LOUIS CO., MN DULUTH, MN

DESIGN SPEC. — REHABILITATION — N/A

DESIGNED BY	JCK	DESIGN CKD.	AEB	DRAWN BY	CLS	PLANS CKD.	CBM

GENERAL PLAN UNITS 1 THRU 3

SHEET 1 OF 99

I.D. — DATE:

Addendum No. 1
ID 8680-00-70
Revised Sheet 347
December 20, 2013

DATE: DATE: DATE:
CHECKED BY: BACK CHECKED BY: CORRECTED BY:

$PRFNAME$
U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 gpl.dgn

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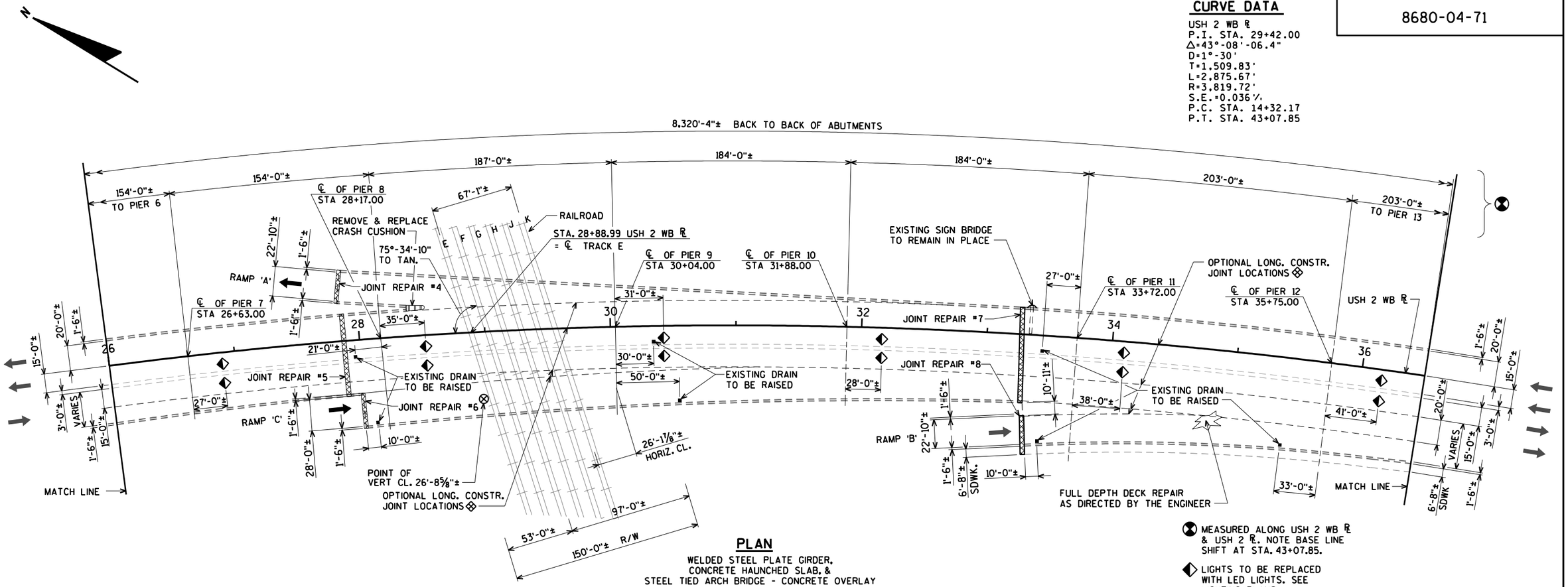
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STATE PROJECT NUMBER

8680-04-71

CURVE DATA

USH 2 WB ℄
P.I. STA. 29+42.00
△=43°-08'-06.4"
D=1°-30'
T=1,509.83'
L=2,875.67'
R=3,819.72'
S.E.=0.036 ⅟
P.C. STA. 14+32.17
P.T. STA. 43+07.85



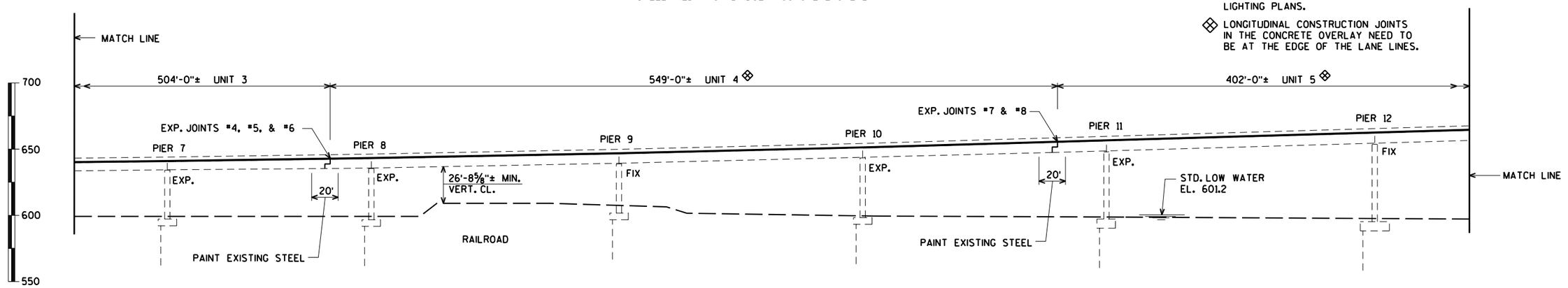
PLAN

WELDED STEEL PLATE GIRDER,
CONCRETE HAUNCHED SLAB, &
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

℄ MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.

◆ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

⊗ LONGITUDINAL CONSTRUCTION JOINTS IN THE CONCRETE OVERLAY NEED TO BE AT THE EDGE OF THE LANE LINES.



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

GENERAL PLAN
UNITS
3 THRU 5

SHEET 2 OF 99
348

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
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Eau Claire, WI 54701
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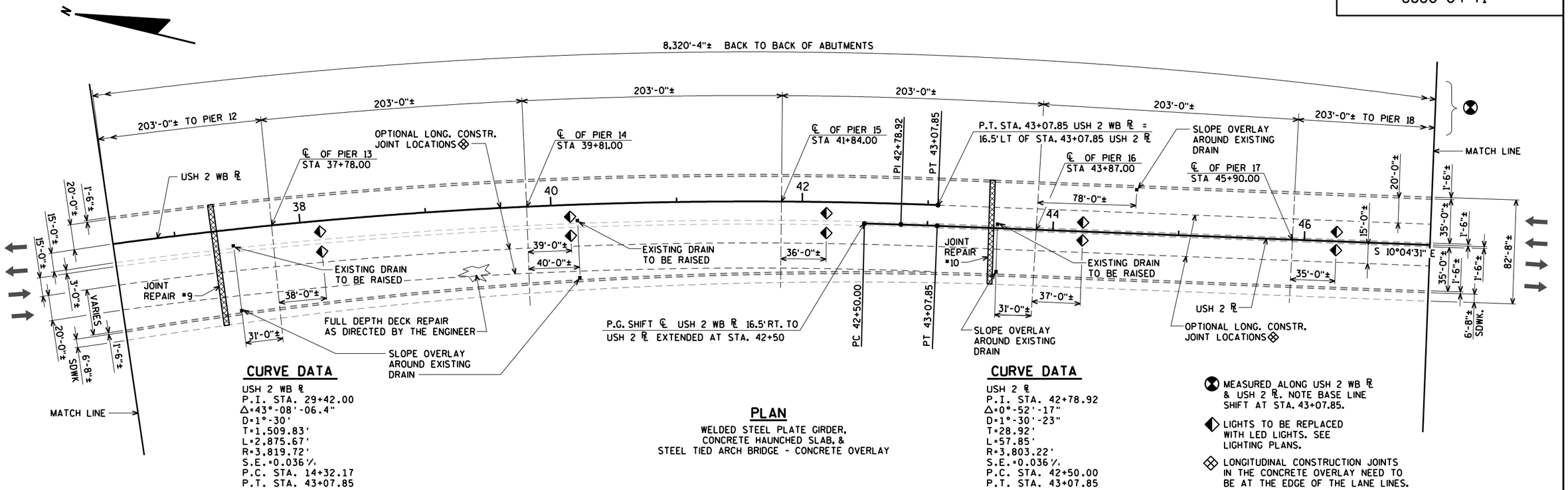
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9/12/2013

PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER

8680-04-71



CURVE DATA

USH 2 WB ℄
P.I. STA. 29+42.00
Δ=43°-08'-06.4"
D=1°-30'
T=1,509.83'
L=2,875.67'
R=3,819.72'
S.E.=0.036'/'
P.C. STA. 14+32.17
P.T. STA. 43+07.85

PLAN

WELDED STEEL PLATE GIRDER, CONCRETE HAUNCHED SLAB, & STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

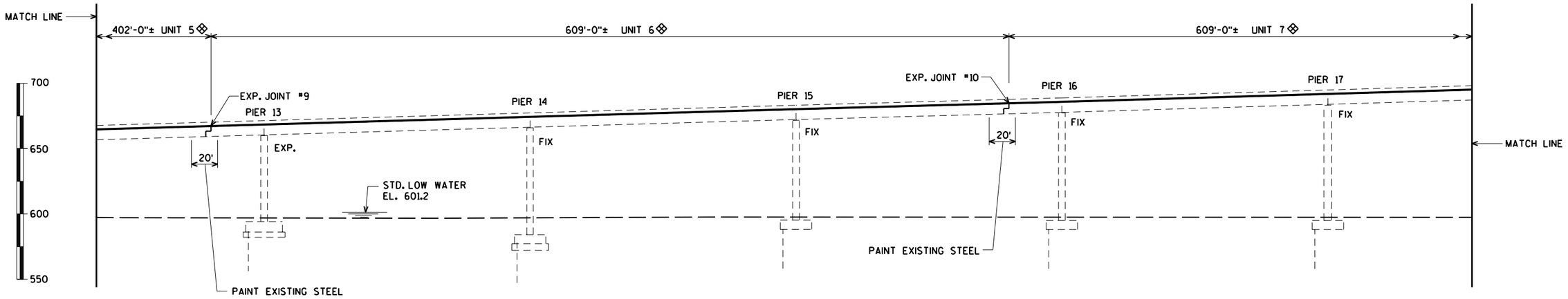
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D=1°-30'-23"
T=28.92'
L=57.85'
R=3,803.22'
S.E.=0.036'/'
P.C. STA. 42+50.00
P.T. STA. 43+07.85

⊠ MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.

◧ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

⊠ LONGITUDINAL CONSTRUCTION JOINTS IN THE CONCRETE OVERLAY NEED TO BE AT THE EDGE OF THE LANE LINES.



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

GENERAL PLAN
UNITS
5 THRU 7

SHEET 3 OF 99
349

ORIGINAL PLANS PREPARED BY
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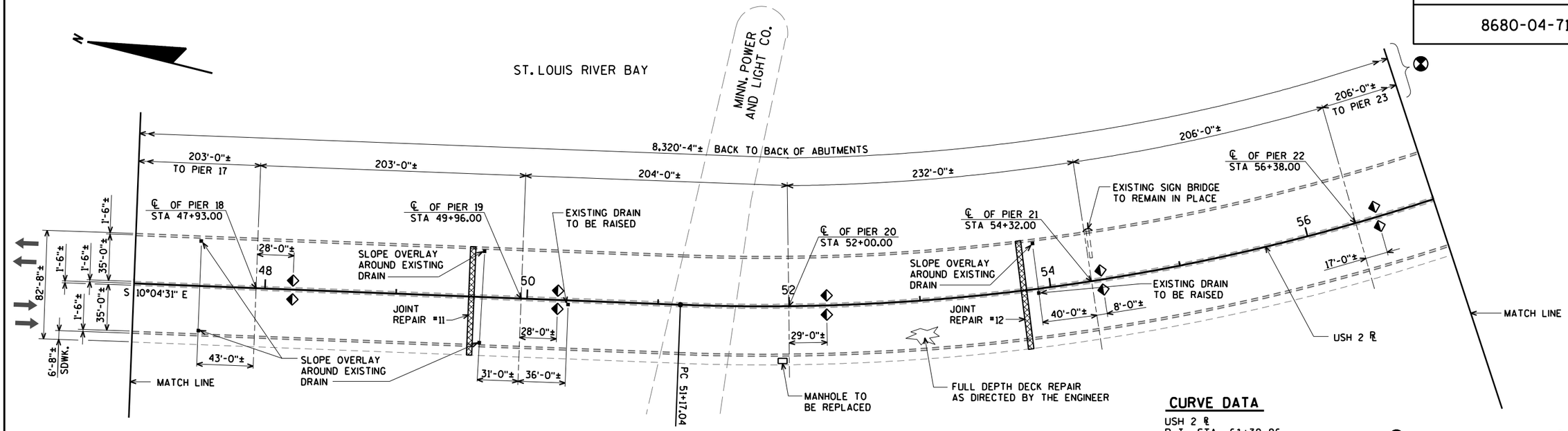
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9/12/2013

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STATE PROJECT NUMBER

8680-04-71



PLAN

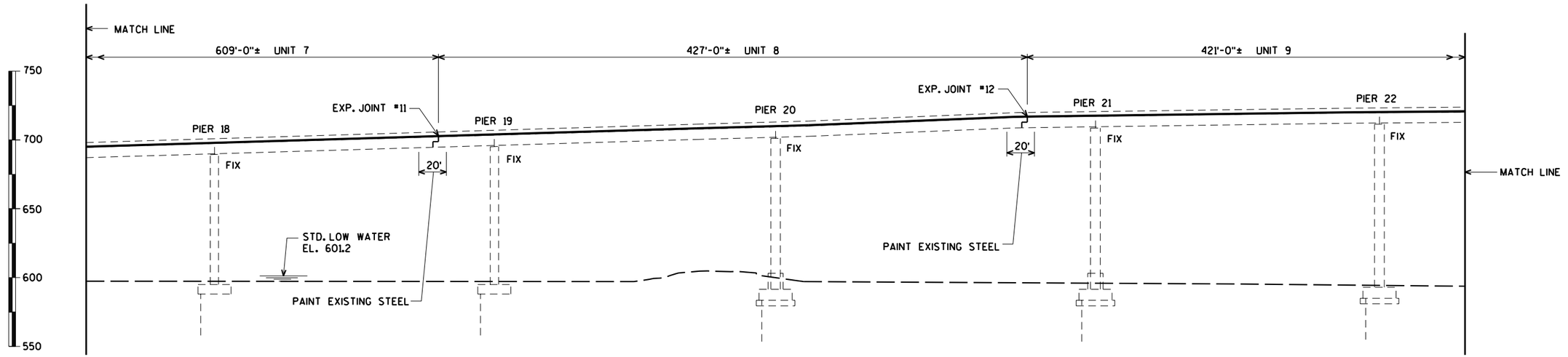
WELDED STEEL PLATE GIRDER,
CONCRETE HAUNCHED SLAB, &
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

CURVE DATA

USH 2 ℄
P.I. STA. 61+39.96
△=64°-00'-00.1"
D=3°-30'
T=1,022.93'
L=1,828.57'
R=1,637.02'
S.E.=0.052'/'
P.C. STA. 51+17.04
P.T. STA. 69+45.61

⊗ MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.

◆ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

GENERAL PLAN
UNITS
7 THRU 9

SHEET 4 OF 99
350

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9/12/2013

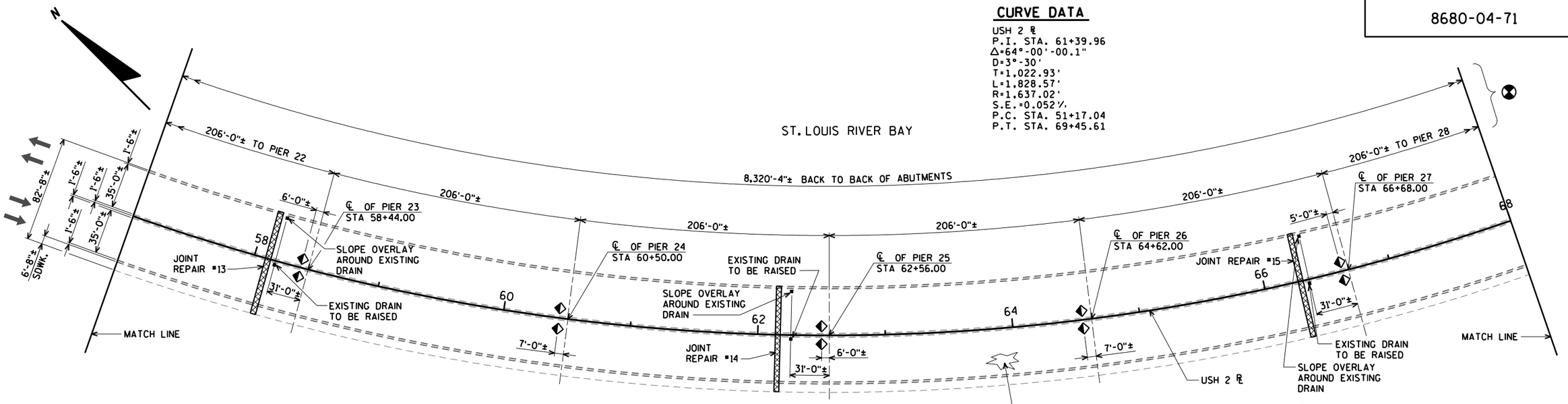
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STATE PROJECT NUMBER

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CURVE DATA

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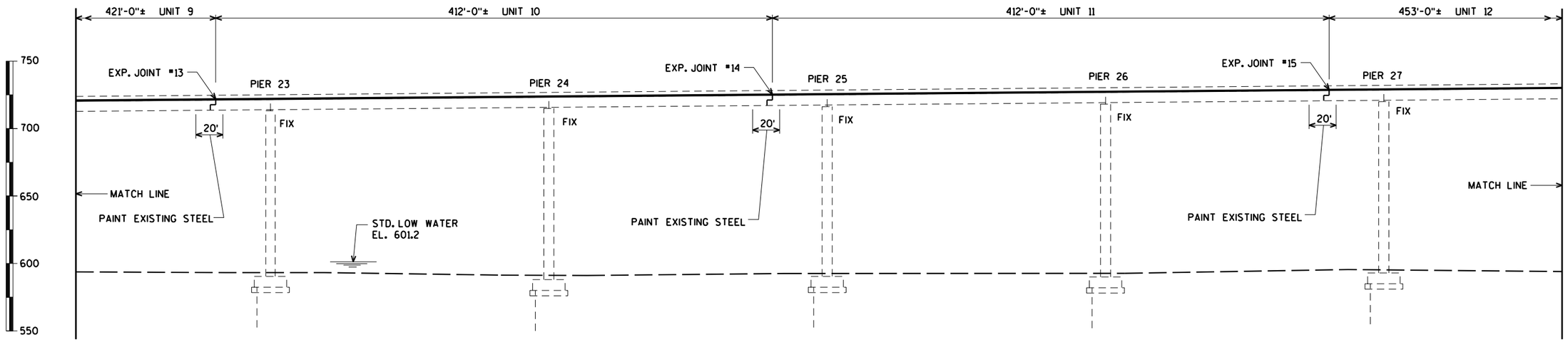


MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.

LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

PLAN

WELDED STEEL PLATE GIRDER,
CONCRETE HAUNCHED SLAB, &
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

GENERAL PLAN
UNITS
9 THRU 12

SHEET 5 OF 99
351

ORIGINAL PLANS PREPARED BY
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9/12/2013

PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER

8680-04-71

N

ST. LOUIS RIVER

STATE LINE

400'-0" NAVIGATION SPAN

8,320'-4"± BACK TO BACK OF ABUTMENTS

● THE STATE LINE IS CURRENTLY MARKED IN THE EXISTING PARAPETS. THE CONTRACTOR WILL PLACE THE STATE LINE REFERENCE PLATES IN THE MARKED LOCATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO MAKE SURE THAT THE EXISTING MARKS ARE NOT DESTROYED.

206'-0"± TO PIER 27

206'-0"±

500'-0"±

205'-0"±

205'-0"± TO PIER 32

CHANNEL LIMIT

℄ OF PIER 28 STA 68+74.00

℄ OF PIER 29 STA 70+80.00

STA. 72+21.39 USH 2 ℞ = BASE LINE OF CHANNEL

℄ OF PIER 30 STA 75+80.00

℄ OF PIER 31 STA 77+85.00

USH 2 ℞

SLOPE OVERLAY AROUND EXISTING DRAIN

82'-8"±

1'-6"±

1'-6"±

35'-0"±

1'-6"±

1'-6"±

35'-0"±

1'-6"±

6'-8"± SDWK.

68

70

72

74

76

78

6'-0"

74°-26'-52.8"

25'-0"±

4'-0"±

STATE LINE REFERENCE PLATE

JOINT REPAIR #16

JOINT REPAIR #17

JOINT REPAIR #18

7'-0"±

10'-0"±

39'-0"±

85'-0"±

MANHOLE TO BE REPLACED

S 74°04'31" E

HARBOR LINE

PT 69+45.61

MATCH LINE

CHANNEL LIMIT

BASE LINE OF CHANNEL

WISCONSIN MINNESOTA

FULL DEPTH DECK REPAIR AS DIRECTED BY THE ENGINEER

350'-0"±

500'-0"±

150'-0"±

DOLPHIN - TYP.

CURVE DATA

USH 2 ℞
P.I. STA. 61+39.96
△=64°-00'-00.1"
D=3°-30'
T=1,022.93'
L=1,828.57'
R=1,637.02'
S.E.=0.052 ½
P.C. STA. 51+17.04
P.T. STA. 69+45.61

PLAN

WELDED STEEL PLATE GIRDER, CONCRETE HAUNCHED SLAB, & STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

✳ POLES TO BE REMOVED, BASES TO BE REPLACED, AND THEN THE POLES TO BE RE-INSTALLED ONTO THE EXISTING ANCHORS. LIGHTS TO ALSO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

⊗ MEASURED ALONG USH 2 WB ℞ & USH 2 ℞. NOTE BASE LINE SHIFT AT STA. 43+07.85.

◆ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

500'-0"± UNIT 13

ARCH, TIED ARCH, GIRDERS, STRINGERS, FLOOR BEAMS, BEARINGS, AND ALL OTHER MISCELLANEOUS STEEL IN UNIT 13 TO BE PAINTED

MATCH LINE

453'-0"± UNIT 12

PIER 28

PIER 29

EXP. JOINT #16

EXP. JOINT #17

PIER 30

EXP. JOINT #18

570'-0"± UNIT 14

PIER 31

750

700

650

600

550

FIX

EXP. 10'

EXP.

120'-0"± VERT. CLEARANCE

180 DEGREES RED NAVIGATIONAL LIGHTS

NAVIGATIONAL LIGHTING TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS - TYP.

360 DEGREES GREEN NAVIGATIONAL LIGHTS

INSIDE OF THE TIED ARCH GIRDERS TO BE PAINTED

180 DEGREES RED NAVIGATIONAL LIGHTS

NAVIGATIONAL LIGHTING TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS - TYP.

PAINT EXISTING STEEL

360 DEGREES RED NAVIGATIONAL LIGHTS TYP. @ DOLPHINS

STD. LOW WATER EL. 601.2

DOLPHIN - TYP.

STREAM BED EL. 572.7±

ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

GENERAL PLAN
UNITS
12 THRU 14

SHEET 6 OF 99
352

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

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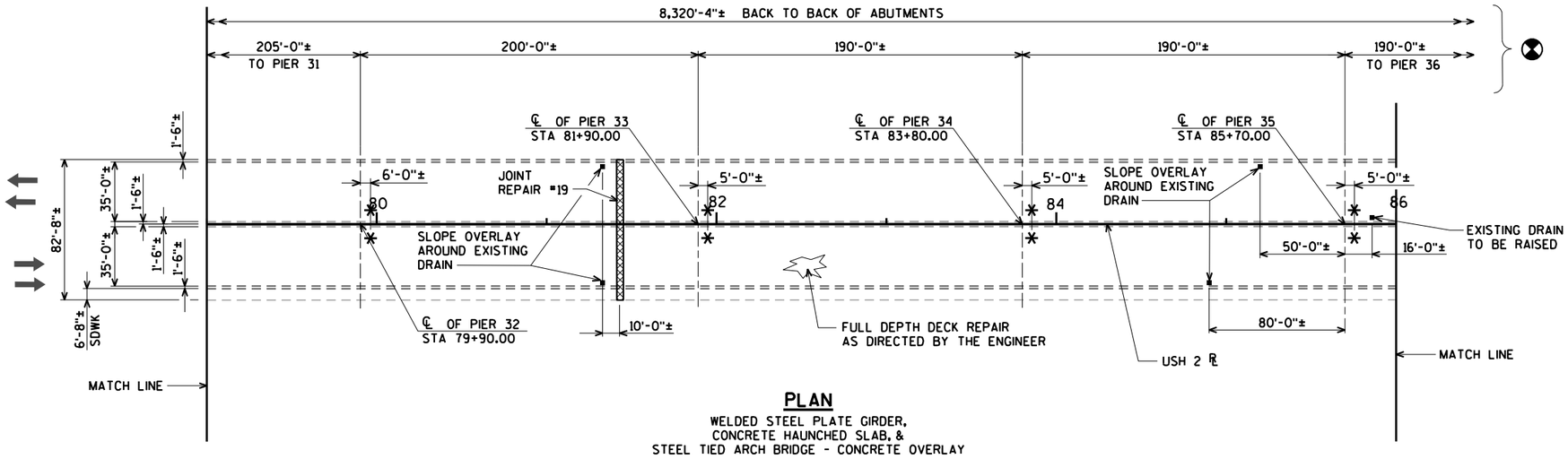
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9/12/2013

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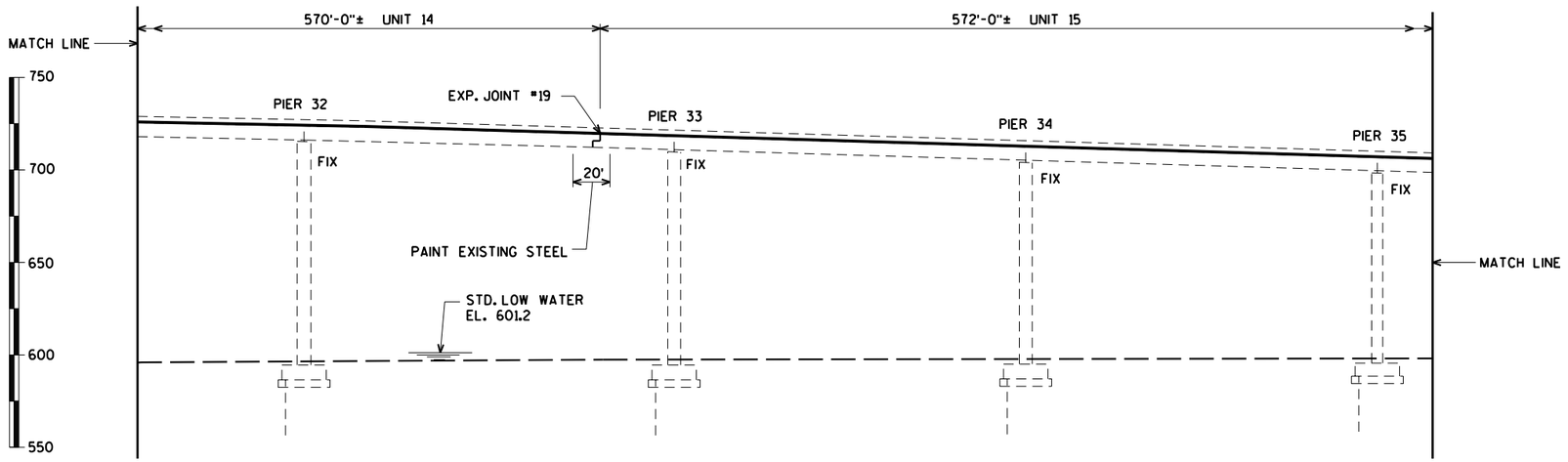


PLAN

WELDED STEEL PLATE GIRDER,
CONCRETE HAUNCHED SLAB, &
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

* POLES TO BE REMOVED, BASES TO BE REPLACED, AND THEN THE POLES TO BE RE-INSTALLED ONTO THE EXISTING ANCHORS. LIGHTS TO ALSO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

⊗ MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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GENERAL PLAN
UNITS
14 & 15

SHEET 7 OF 99
353

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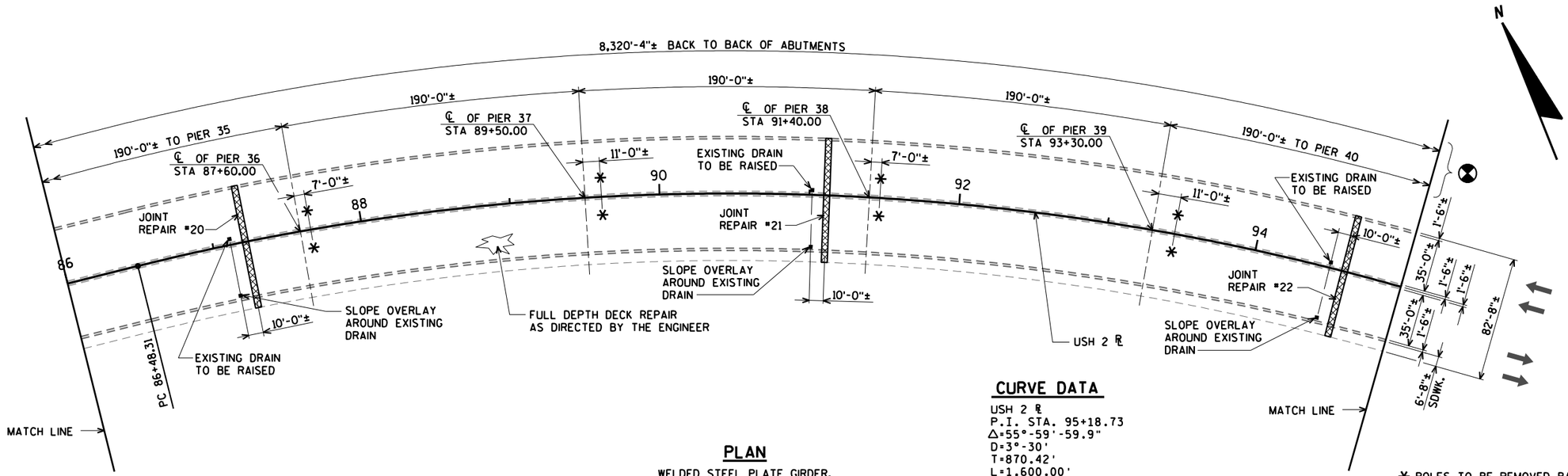
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9/12/2013

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STATE PROJECT NUMBER
8680-04-71



PLAN

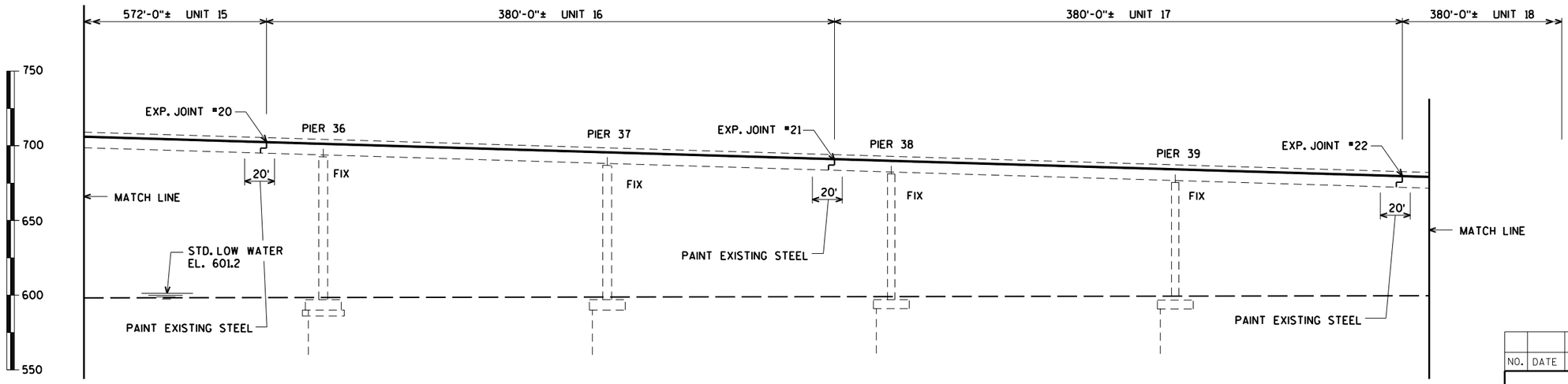
WELDED STEEL PLATE GIRDER,
CONCRETE HAUNCHED SLAB, &
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

CURVE DATA

USH 2 ℄
P.I. STA. 95+18.73
△=55°-59'-59.9"
D=3°-30'
T=870.42'
L=1,600.00'
R=1,637.02'
S.E.=0.052 ⅟.
P.C. STA. 86+48.31
P.T. STA. 102+48.31

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ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

GENERAL PLAN
UNITS
15 THRU 18

SHEET 8 OF 99
354

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9/12/2013

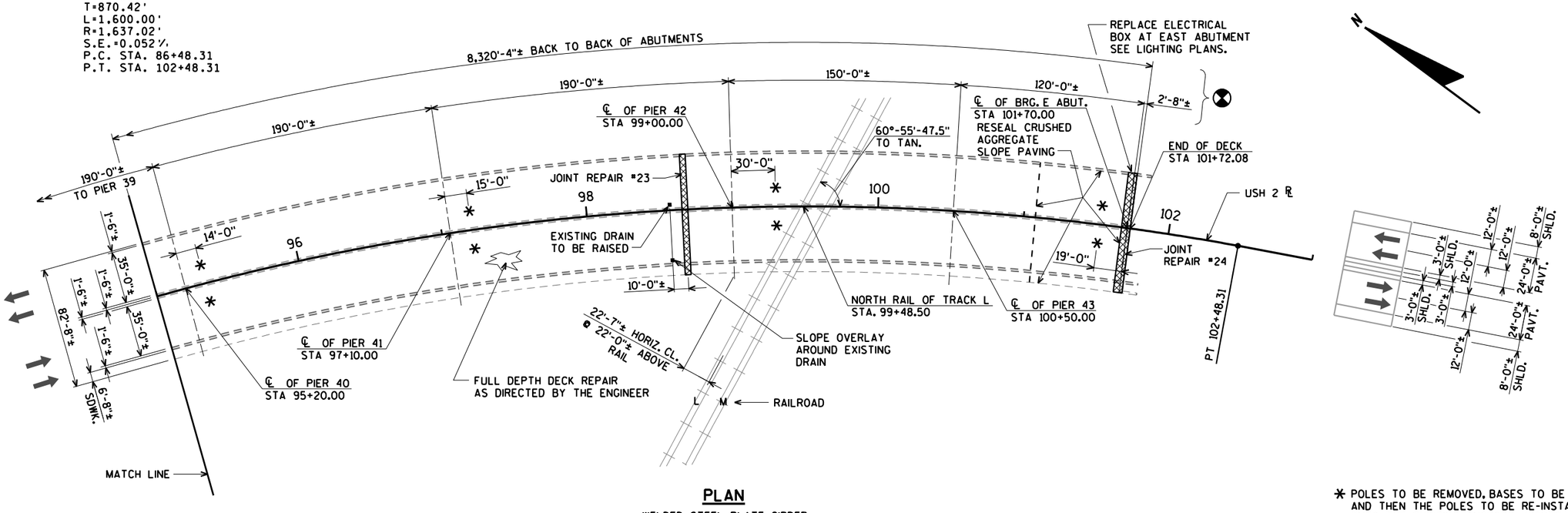
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CURVE DATA

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R=1,637.02'
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P.C. STA. 86+48.31
P.T. STA. 102+48.31

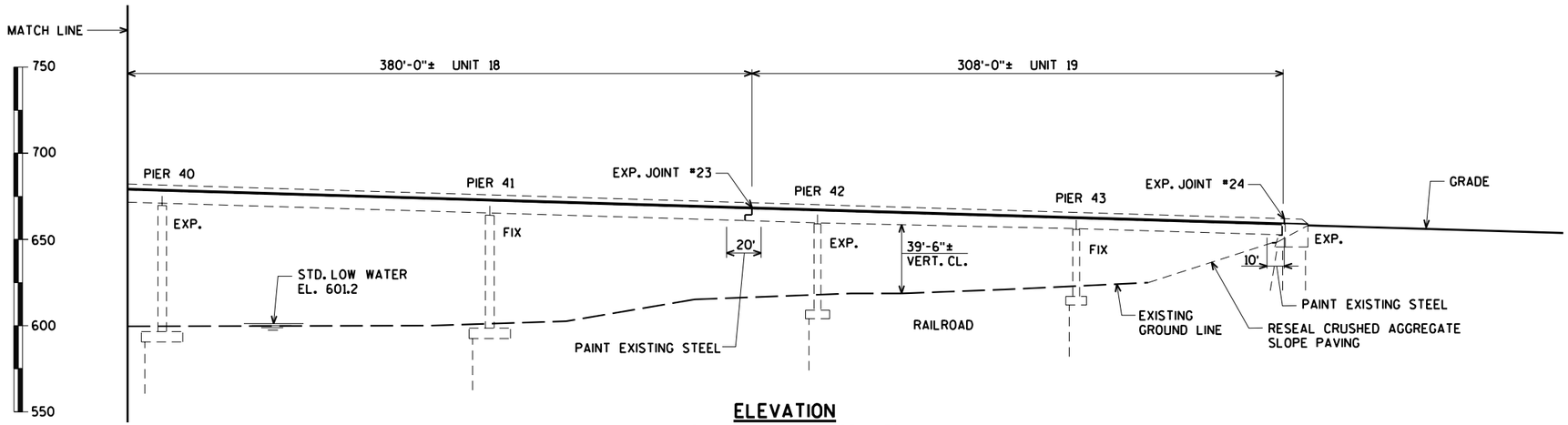


PLAN

WELDED STEEL PLATE GIRDER,
CONCRETE HAUNCHED SLAB, &
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

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ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

GENERAL PLAN
UNITS
18 & 19

SHEET 9 OF 99
355

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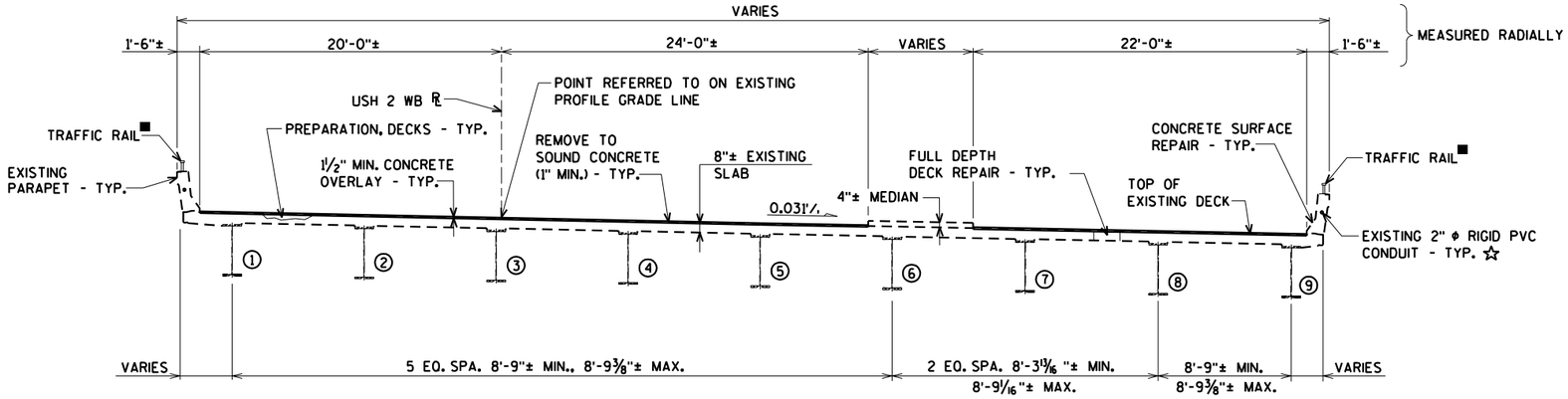
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9/12/2013

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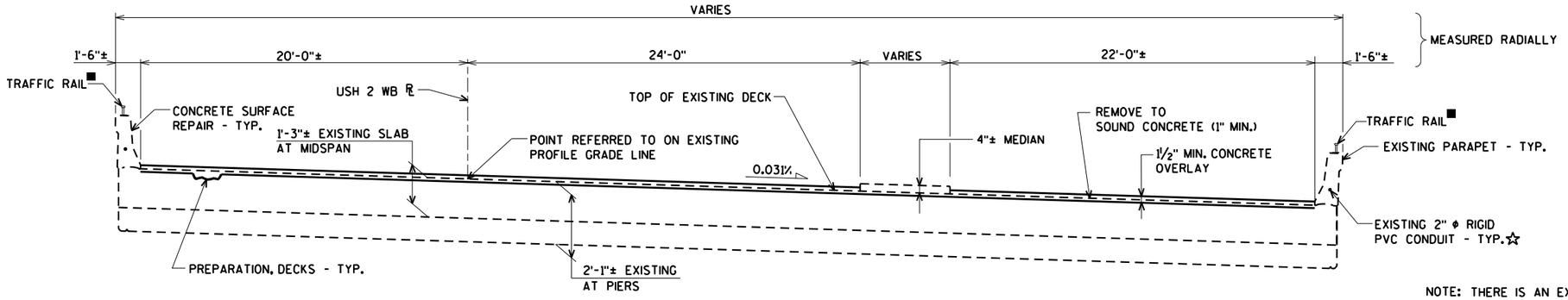
STATE PROJECT NUMBER

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CROSS SECTION THRU ROADWAY - UNIT 1

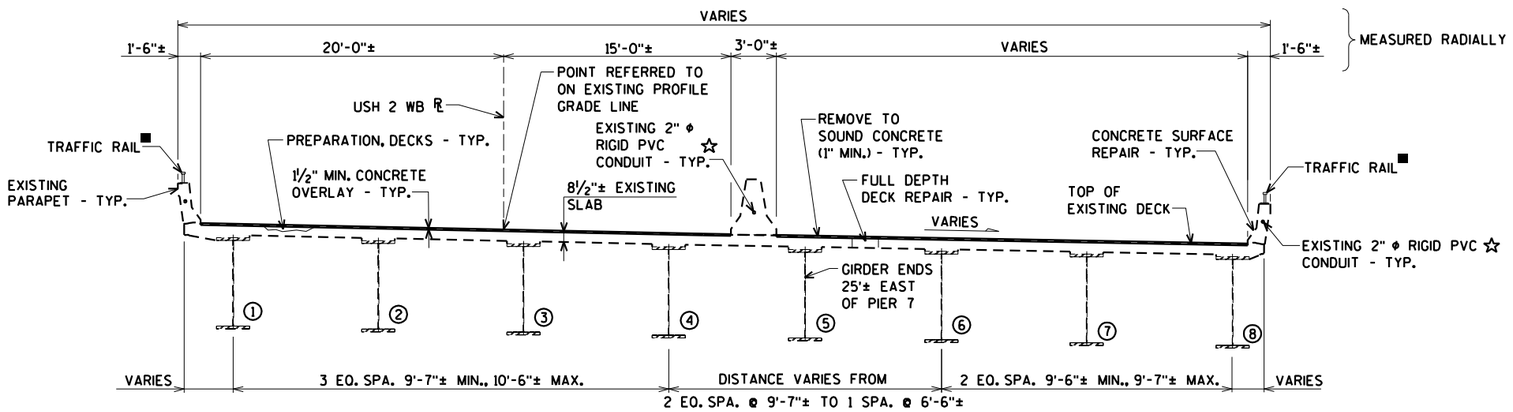
(LOOKING EAST)



CROSS SECTION THRU ROADWAY - UNIT 2

(LOOKING EAST)

NOTE: THERE IS AN EXISTING TRANSVERSE 2" ϕ RIGID PVC CONDUIT IN THE SLAB AT STA. 22+35±



CROSS SECTION THRU ROADWAY - UNIT 3

(LOOKING EAST)

NOTE: THERE IS AN EXISTING TRANSVERSE 1½" ϕ RIGID PVC CONDUIT IN THE SLAB AT STA. 25+38±

■ REMOVE THE EXISTING CAULK FROM AROUND THE BASE PLATES AND RE-CAULK.

☆ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING JOINT REPLACEMENT CONSTRUCTION. SEE LIGHTING PLANS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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CROSS SECTIONS UNITS 1 - 3

SHEET 10 OF 99
356

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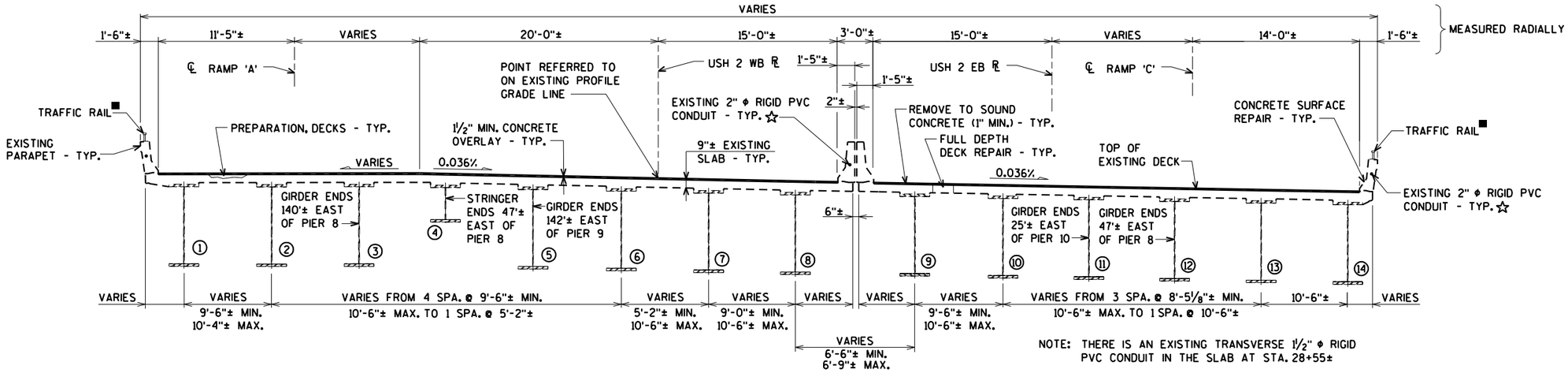
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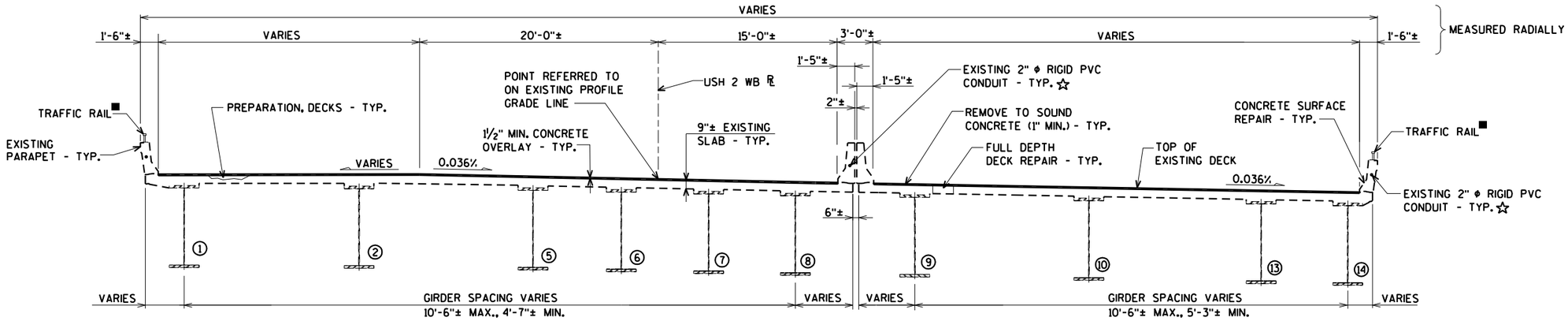
9/12/2013

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CROSS SECTION THRU ROADWAY - UNIT 4 @ WEST END NEAR RAMPS

(LOOKING EAST)



CROSS SECTION THRU ROADWAY - UNIT 4

(LOOKING EAST)

■ REMOVE THE EXISTING CAULK FROM AROUND THE BASE PLATES AND RE-CAULK.

☆ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING JOINT REPLACEMENT CONSTRUCTION. SEE LIGHTING PLANS.

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CROSS SECTIONS UNIT 4

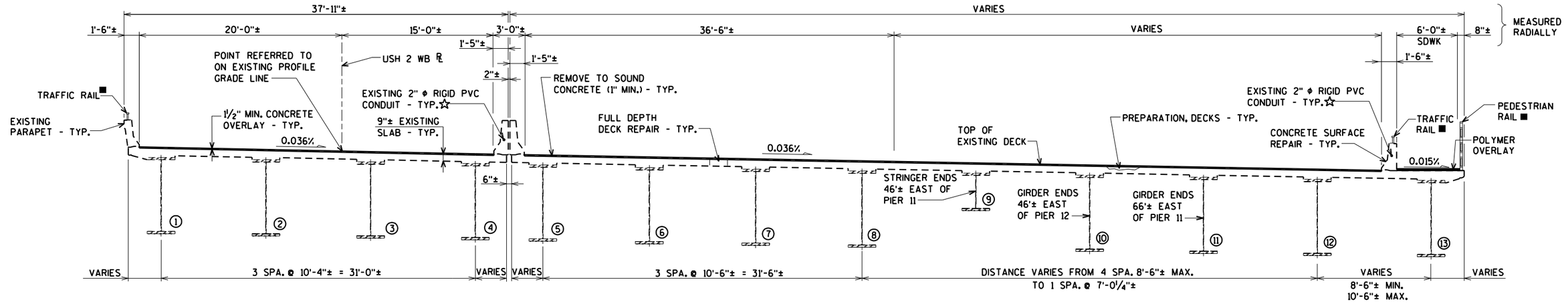
SHEET 11 OF 99
357

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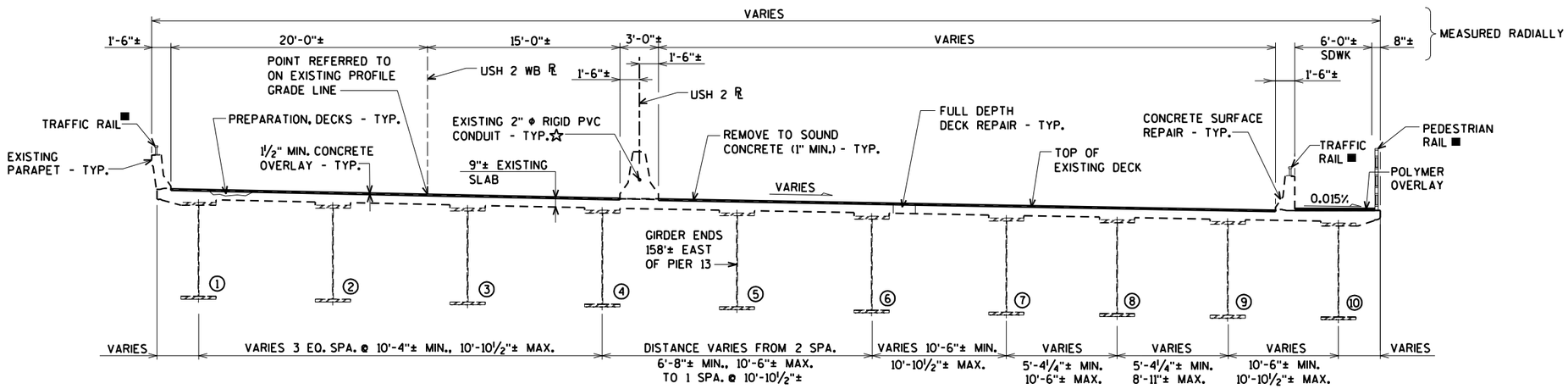
8680-04-71



CROSS SECTION THRU ROADWAY - UNIT 5

(LOOKING EAST)

NOTE: THERE IS AN EXISTING TRANSVERSE 1½" ϕ RIGID PVC CONDUIT IN THE SLAB AT STA. 34+25±



CROSS SECTION THRU ROADWAY - UNIT 6

(LOOKING EAST)

■ REMOVE THE EXISTING CAULK FROM AROUND THE BASE PLATES AND RE-CAULK.

☆ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING JOINT REPLACEMENT CONSTRUCTION. SEE LIGHTING PLANS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
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STRUCTURE B-16-38/69100

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CROSS SECTIONS UNITS 5 & 6

SHEET 12 OF 99
358

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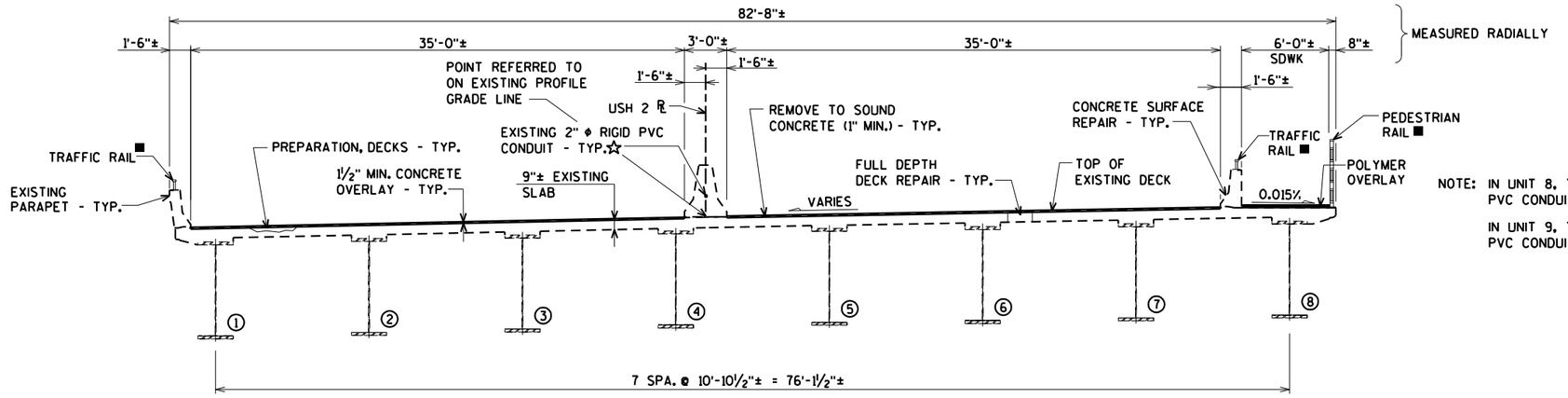
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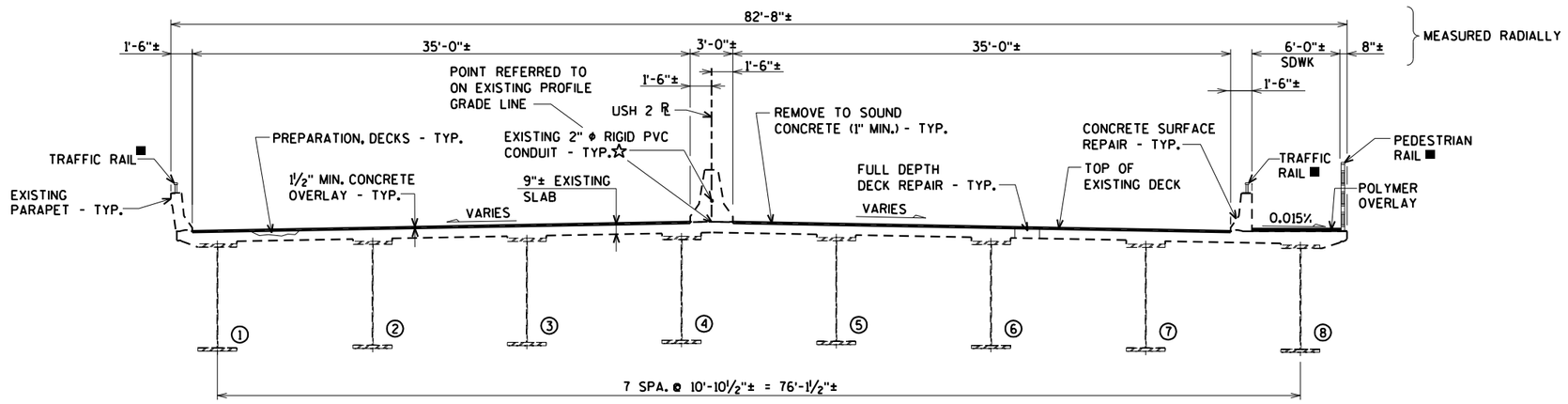


CROSS SECTION THRU ROADWAY - UNITS 8-12

(LOOKING EAST)

NOTE: IN UNIT 8, THERE IS AN EXISTING TRANSVERSE 2" ϕ RIGID PVC CONDUIT IN THE SLAB AT STA. 52+00±

IN UNIT 9, THERE IS AN EXISTING TRANSVERSE 1½" ϕ RIGID PVC CONDUIT IN THE SLAB AT STA. 54+48±

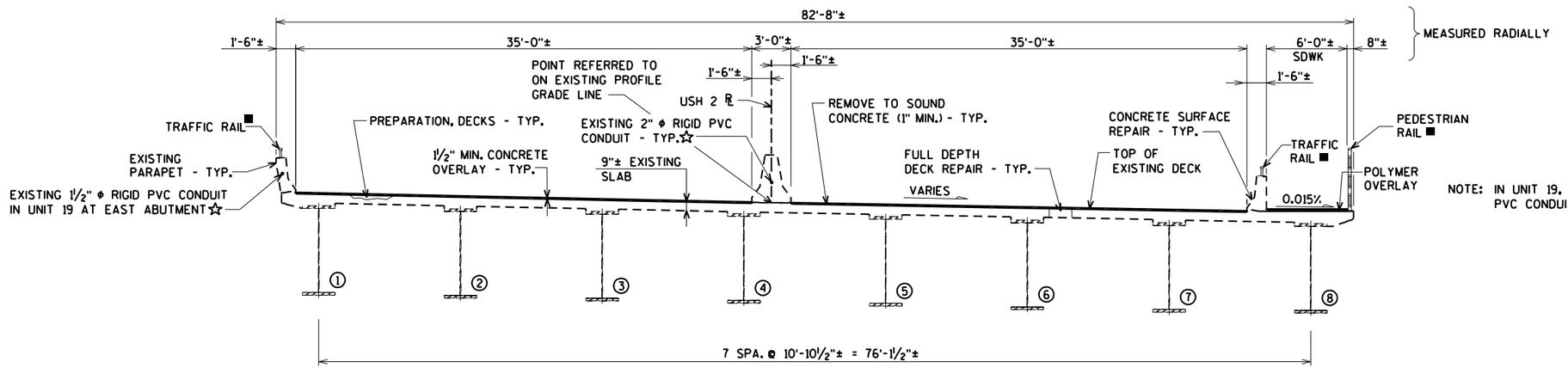


CROSS SECTION THRU ROADWAY - UNITS 7, 14-15

(LOOKING EAST)

■ REMOVE THE EXISTING CAULK FROM AROUND THE BASE PLATES AND RE-CAULK.

☆ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING JOINT REPLACEMENT CONSTRUCTION. SEE LIGHTING PLANS.



CROSS SECTION THRU ROADWAY - UNITS 16-19

(LOOKING EAST)

NOTE: IN UNIT 19, THERE IS AN EXISTING TRANSVERSE 1½" ϕ RIGID PVC CONDUIT IN THE SLAB AT STA. 101+51±

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STRUCTURE B-16-38/69100

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CROSS SECTIONS UNITS 7-12, 14-19

SHEET 13 OF 99
359

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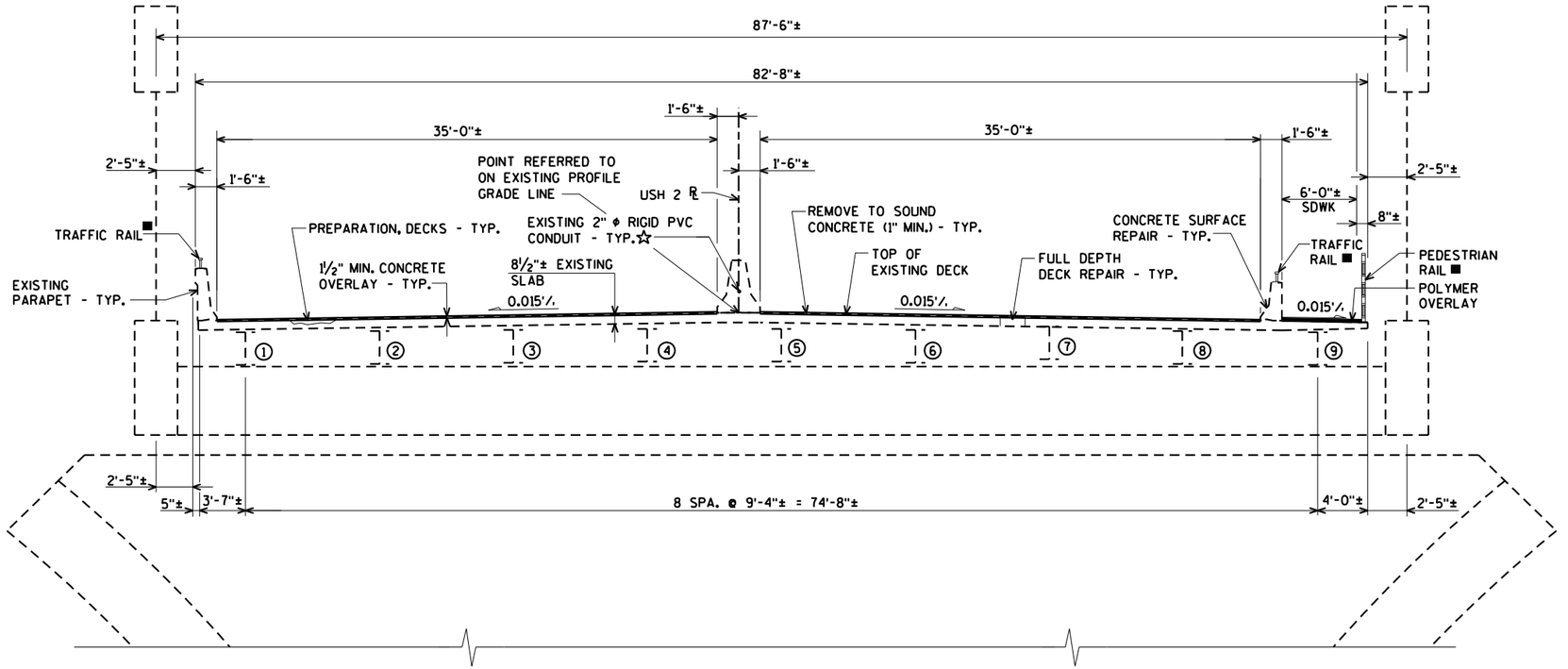
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STATE PROJECT NUMBER

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CROSS SECTION THRU ROADWAY - UNIT 13

(LOOKING EAST)

■ REMOVE THE EXISTING CAULK FROM AROUND THE BASE PLATES AND RE-CAULK.

☆ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING JOINT REPLACEMENT CONSTRUCTION. SEE LIGHTING PLANS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
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STRUCTURE B-16-38/69100

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CROSS SECTION
UNIT 13

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360

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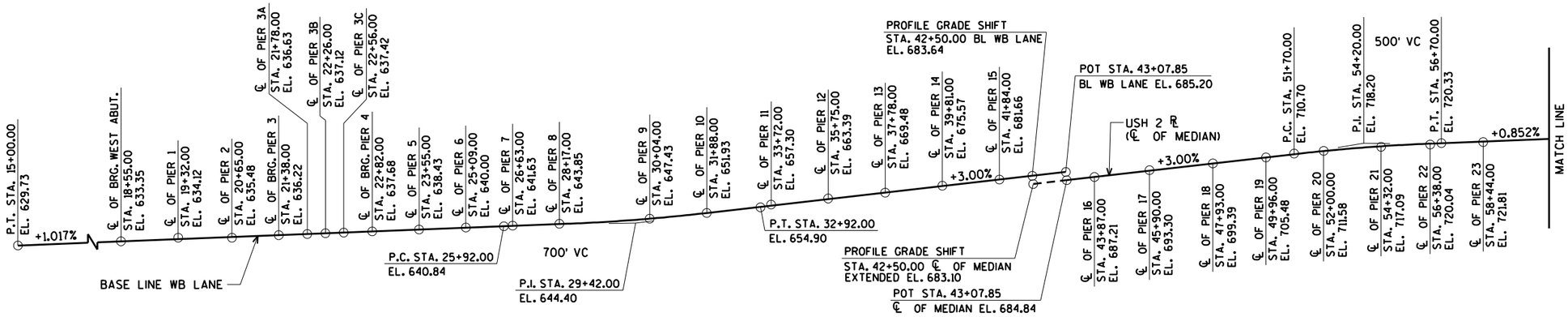
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STATE PROJECT NUMBER

8680-04-71



EXISTING PROFILE GRADE LINE - USH 2 ◪

NOTES

NEW PROFILE GRADE LINE SHALL BE DETERMINED BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER CLEANING. EXPECTED AVERAGE OVERLAY THICKNESS IS 1¾".

VARIATIONS TO THE NEW GRADE LINE OVER ¼" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.

◪ EXISTING PROFILE BASED ON THE ORIGINAL PLANS

BENCH MARKS ON MN SIDE:

NAIL IN NW QUAD CALILIO DR./46TH AVE.
STA. 10+43.12, 67.30' RT.
EL. 629.66

NAIL IN NW QUAD USH 2 AND SB 35 OFF-RAMP
STA. 17+56.16, 85.30' RT.
EL. 629.74

BENCH MARKS ON WI SIDE:

REBAR EAST OF WB USH 2
STA. 105+61.66
EL. 648.19

REBAR EAST OF WB USH 2
STA. 103+06.32, 51.92' LT.
EL. 652.29

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STRUCTURE B-16-38/69100

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EXISTING PROFILE GRADE LINE

SHEET 15 OF 99
361

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TOTAL ESTIMATED QUANTITIES

	BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
	203.0225.S.01	DEBRIS CONTAINMENT B-16-38	LS	1
	203.0700.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM STATION 60+12	LS	1
	204.9060.S	REMOVING CRASH CUSHIONS	EACH	2
	502.0100	CONCRETE MASONRY BRIDGES	CY	160
	502.3100	EXPANSION DEVICE B-16-38	LS	1
	502.3110.S	EXPANSION DEVICE MODULAR B-16-38	LS	1
	502.3200	PROTECTIVE SURFACE TREATMENT	SY	67,190
	502.5005	MASONRY ANCHORS TYPE L No. 5 BARS	EACH	459
	502.5010	MASONRY ANCHORS TYPE L No. 6 BARS	EACH	2,565
	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	91,630
	505.0904	BAR COUPLERS NO. 4	EACH	34
	505.0906	BAR COUPLERS NO. 6	EACH	285
	509.0301	PREPARATION DECKS TYPE 1	SY	6,680
	509.0302	PREPARATION DECKS TYPE 2	SY	670
	509.0500	CLEANING DECKS	SY	66,770
	509.1000	JOINT REPAIR	SY	1,417
◑	509.1500	CONCRETE SURFACE REPAIR	SF	1,000
	509.2000	FULL-DEPTH DECK REPAIR	SY	70
	509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	3,750
	509.5100.S	POLYMER OVERLAY	SY	4,650
	513.2050.S	RAILING PIPE	LF	110
	514.0900	ADJUSTING FLOOR DRAINS	EACH	26
▲	517.0900.S	PREPARATION AND COATING OF TOP FLANGES B-16-38	LS	1
	517.1800.S	STRUCTURE REPAINTING RECYCLED ABRASIVE B-16-38	LS	1
	517.4000.S	CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-16-38	LS	1
	517.4500.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-16-38	LS	1
	517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1
	604.9015.S	RESEAL CRUSHED AGGREGATE SLOPE PAVING	SY	1,300
	614.0800	CRASH CUSHIONS PERMANENT	EACH	2
	SPV.0060.01	CABLE SHIM REPLACEMENT	EACH	44
	SPV.0060.02	TEMPORARY MEDIAN GUARDRAIL	EACH	18
	SPV.0060.03	FIBERGLASS DOWNSPOUTS	EACH	49
	SPV.0060.04	DRAIN GRATE CASTINGS	EACH	54
	SPV.0060.05	TIE GIRDER DOOR REPLACEMENT	EACH	4
	SPV.0060.06	STRUCTURE SIDEWALK MANHOLE	EACH	3
	SPV.0060.07	CLEANING AND PAINTING CABLE COLLARS	EACH	44
	SPV.0090.01	SUSPENDER CABLE COATING	LF	2,210
	SPV.0105.01	STRUCTURE REPAINTING INSIDE TIED ARCH RECYCLED ABRASIVE STRUCTURE B-16-38	LS	1
	SPV.0105.02	REPAIR TRAFFIC RAILING	LS	1
	SPV.0105.15	RE-CAULK RAILING BASE PLATES	LS	1
☆	SPV.0165.01	OVERHEAD CONCRETE SURFACE REPAIR	SF	5,300
	SPV.0180.01	EPOXY SEALER	SY	3,450
	SPV.0180.02	RESEAL PARAPETS	SY	15,000
		NON-BID ITEMS		
		FILLER	SIZE	½"

◑ UNDISTRIBUTED FOR PARAPETS AS DIRECTED IN THE FIELD BY THE ENGINEER.

☆ SIDEWALK OVERHANG

▲ EXPOSED BEAMS AT THE JOINT REPAIR AREAS

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HS-20
INVENTORY RATING: HS-21
OPERATING RATING: HS-35
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 210 KIPS

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY { SLAB ____ f'_c = 4,000 p.s.i.
ALL OTHER ____ f'_c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) ____ f_y = 60,000 p.s.i.
STRUCTURAL CARBON STEEL (A.S.T.M. A588 GRADE 50) ____ f_y = 50,000 p.s.i.

TRAFFIC DATA:

A.D.T. = 19,000 (2015)
A.D.T. = 23,000 (2035)
R.D.S. = 55 M.P.H.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL PLANS.

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

ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1" DEEP SAW CUT.

PREPARATION DECKS AND CONCRETE SURFACE REPAIR AND FULL DEPTH DECK REPAIR SHALL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.

PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE TOP OF THE OVERLAY AND THE TOPS AND SIDES OF THE MEDIAN PER MANUFACTURERS RECOMMENDATIONS.

PROFILE GRADE LINE SHALL BE DETERMINED BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER CLEANING. EXPECTED AVERAGE OVERLAY THICKNESS IS 1¾". VARIATIONS TO THE NEW GRADE LINE OVER ¼" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.

ALL PREVIOUS PATCHES SHALL BE REMOVED UNDER THE BID ITEM "PREPARATION DECKS".

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM, "CLEANING DECKS", BUT LESS THAN 1½" MAXIMUM.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR PAVING BLOCKS AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM 'CONCRETE MASONRY OVERLAY DECKS'.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK.

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

ORIGINAL CONSTRUCTION YEAR IS 1981.

THE COLOR OF THE FINISH EPOXY TOP COAT FOR THE OUTSIDE OF THE ARCH, TIED ARCH GIRDERS, STRINGERS, FLOOR BEAMS, BEARINGS, AND ALL OTHER MISCELLANEOUS STEEL IN UNIT 13 SHALL BE BLUE (FEDERAL STANDARD COLOR NO. 25240).

THE COLOR OF THE FINISH EPOXY TOP COAT FOR ALL THE AREAS AROUND THE JOINT REPAIRS SHALL BE BROWN (FEDERAL STANDARD COLOR NO. 20059).

THE COLOR OF THE FINISH EPOXY TOP COAT FOR ALL THE INSIDE OF THE TIED ARCH GIRDERS OF UNIT 13 SHALL BE WHITE (FEDERAL STANDARD COLOR NO. 27925).

PIGMENTED PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE INSIDE FACES AND TOPS OF THE PARAPETS PER MANUFACTURERS RECOMMENDATIONS UNDER THE BID ITEM "RESEAL PARAPETS". THE COVER OF THE PIGMENTED PROTECTIVE SURFACE TREATMENT SHALL BE WHITE.

THE COLOR OF THE POLYMER OVERLAY SHALL BE BROWN.

THE INSIDE FACES AND TOP SURFACES OF THE OUTSIDE PARAPETS, THE MEDIAN PARAPETS, AND THE SIDEWALK PARAPETS WILL BE RESEALED. SEE SPECIAL PROVISIONS.

THE CONCRETE APPROACH SLABS WILL NEED TO BE 1'-0½"± THICK AT THE ABUTMENTS.

LONGITUDINAL CONSTRUCTION JOINTS IN THE CONCRETE OVERLAY NEED TO BE PLACED AT THE EDGE OF THE LANE LINES.

SALVAGE AND REINSTALL THE EXISTING NAME PLATES IF THEY WILL BE DISTURBED DURING JOINT REPAIR OPERATIONS. COST FOR SALVAGING AND REINSTALLING EXISTING NAME PLATES, IF REQ'D., WILL BE INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY BRIDGES".

ORIGINAL PLANS PREPARED BY
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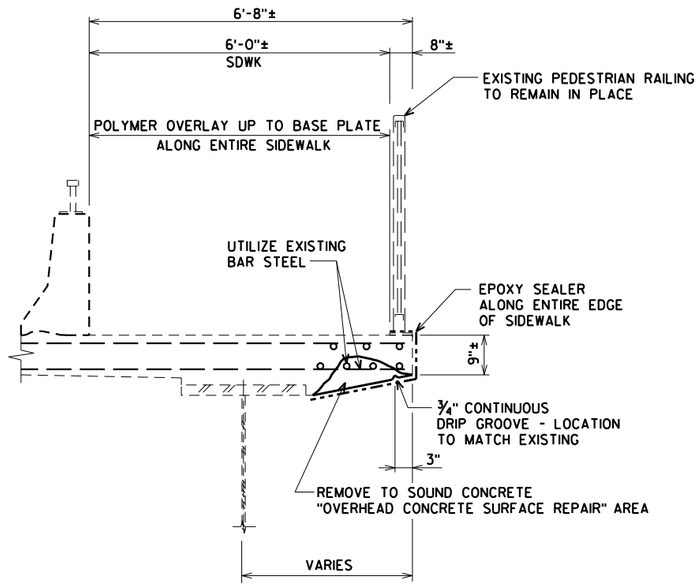
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DESIGN DATA, QUANTITIES AND NOTES

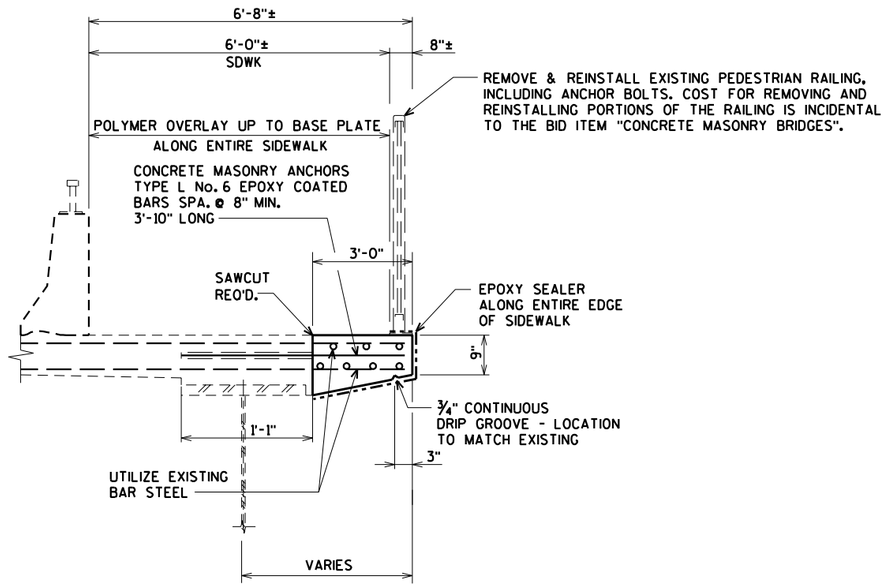
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OVERHANG REPAIR TYPE I



OVERHANG REPAIR TYPE II

ESTIMATED QUANTITIES FOR OVERHANG REPAIR TYPE II

CONCRETE MASONRY BRIDGES - 160 CY
BAR STEEL REINFORCEMENT HS COATED BRIDGES - 14,760 LBS
CONCRETE MASONRY ANCHORS TYPE L No. 6 BARS - 2,565 EACH

NOTES:

THE COLOR OF THE POLYMER OVERLAY SHALL BE BROWN.

OVERHANG REPAIR AREAS TYPE I AND II WILL BE DETERMINED IN THE FIELD BY THE ENGINEER. THE CONTRACTOR WILL PROVIDE ACCESS TO THE SIDEWALK OVERHANG AREA FOR THE ENGINEER IN ORDER TO DETERMINE THE SIDEWALK REPAIR AREAS. COST FOR PROVIDING ACCESS TO THE SIDEWALK OVERHANG AREAS FOR THE ENGINEER IS INCIDENTAL TO THE BID ITEM "REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM STATION 60+12".

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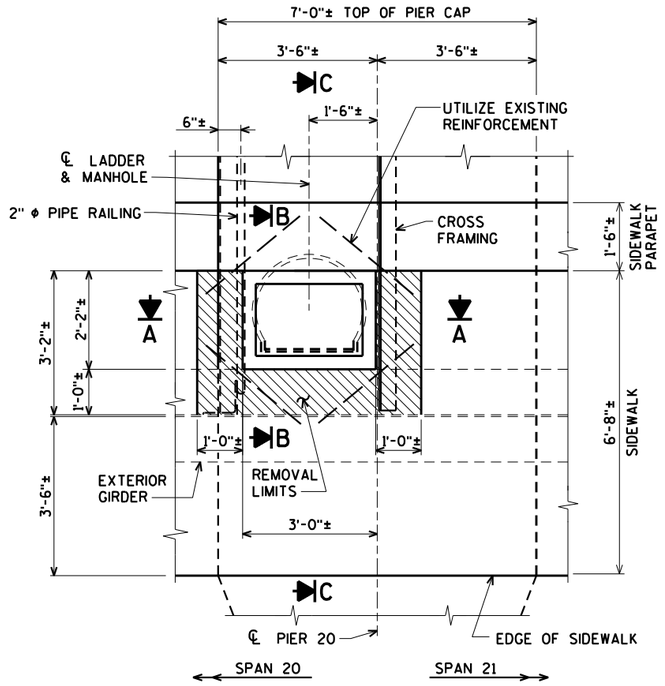
SIDEWALK OVERHANG REPAIR DETAILS

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363

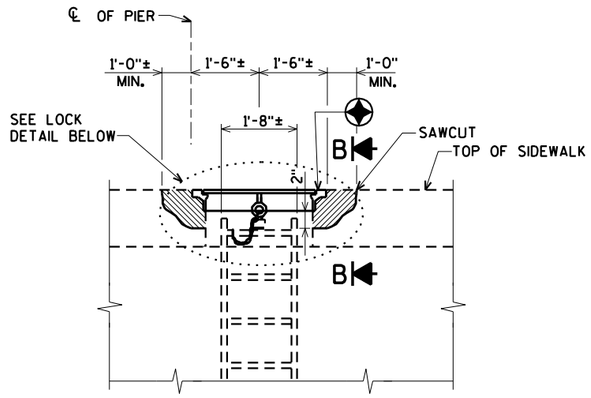
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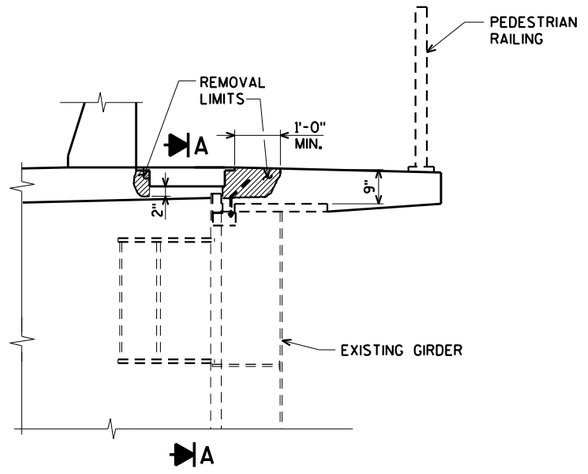
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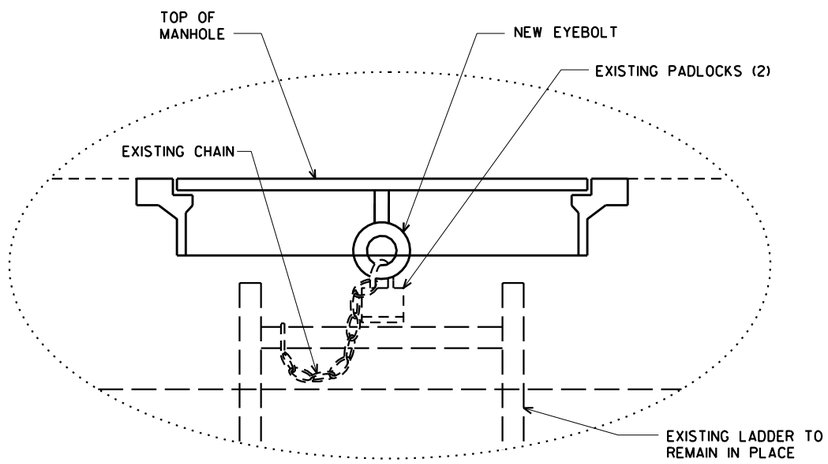
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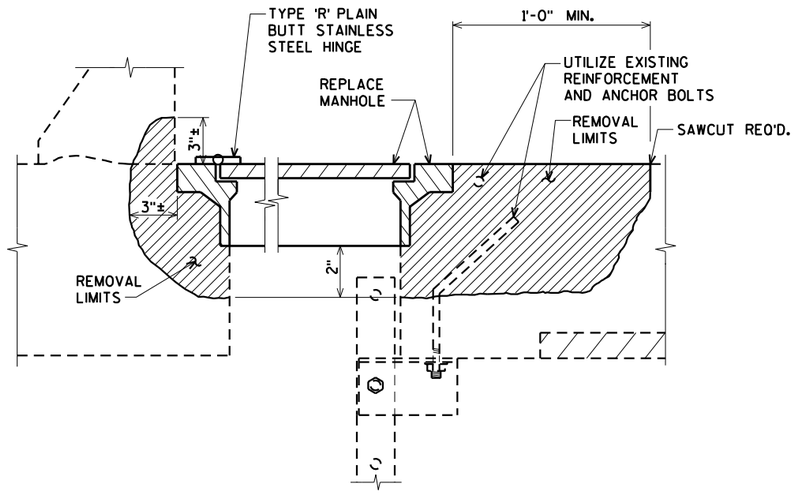
SECTION A



SECTION C



LOCK DETAIL



SECTION B

GENERAL NOTES

BID ITEM WILL BE "STRUCTURAL SIDEWALK MANHOLE", WHICH INCLUDES ALL ITEMS SHOWN.

◈ MANHOLE - (NEENAH R6665-3FH) OR APPROVED EQUAL. COUNTERSUNK FLAT HEAD STAINLESS STEEL BOLTS & TYPE 'R' PLAIN BUTT STAINLESS STEEL HINGE. TYPE 'C' DROP HANDLE REQ'D. EYEBOLT REQ'D. ON BOTTOM OF CASTING.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

SIDEWALK MANHOLE REPLACEMENT DTLS PIER 20

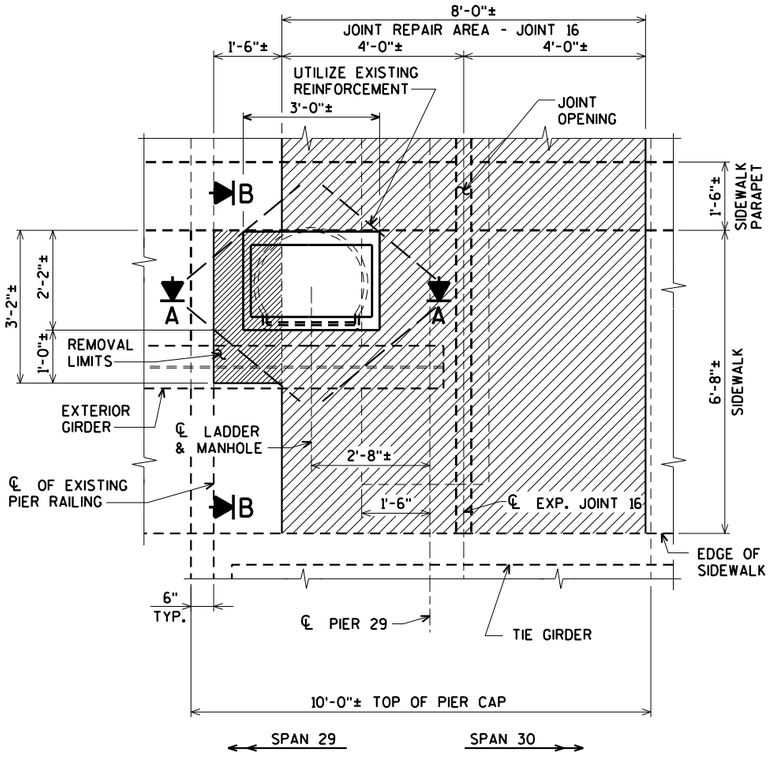
SHEET 18 OF 99
364

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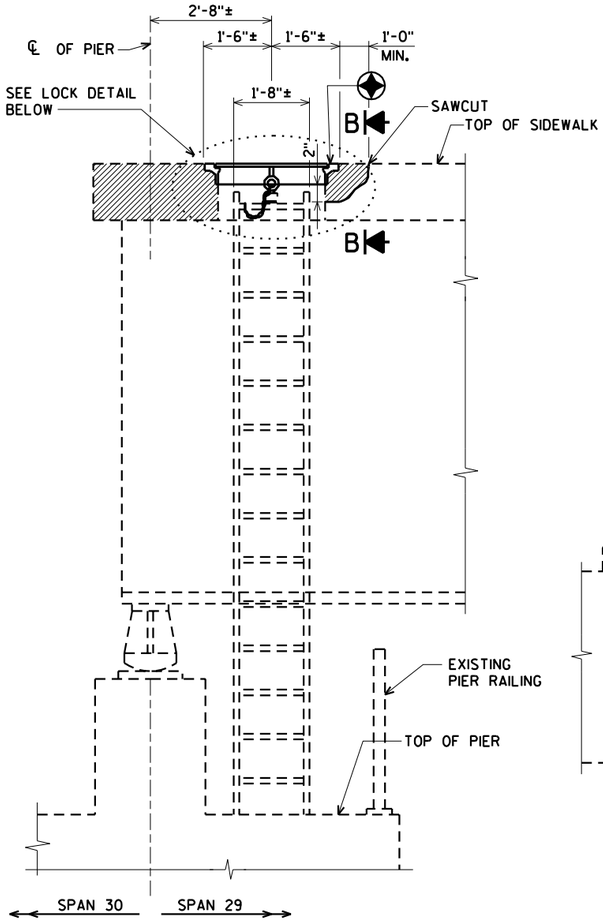
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STATE PROJECT NUMBER

8680-04-71



PLAN @ PIER 29

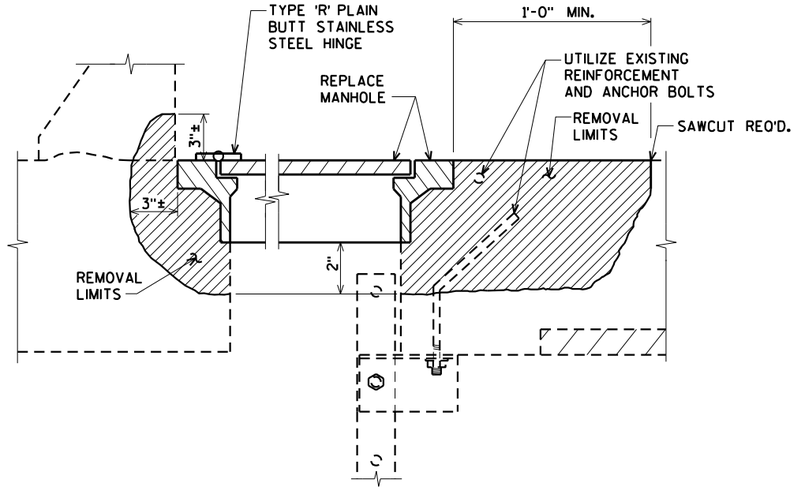


SECTION A

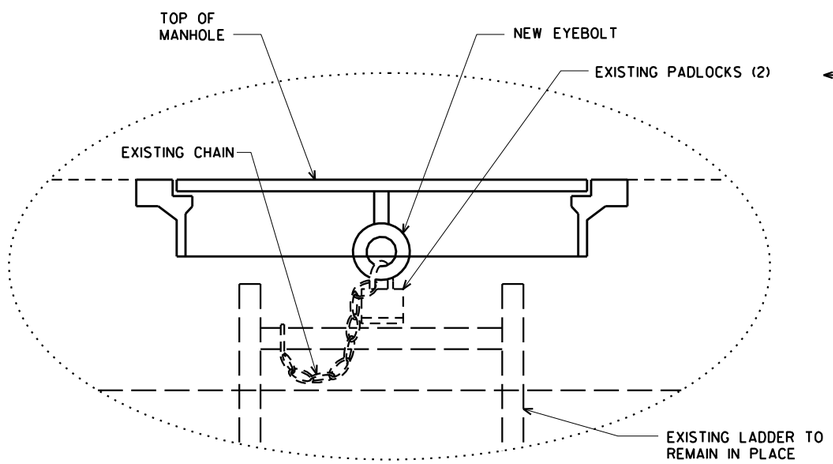
GENERAL NOTES

BID ITEM WILL BE "STRUCTURAL SIDEWALK MANHOLE", WHICH INCLUDES ALL ITEMS SHOWN.

MANHOLE - (NEENAH R6665-3FH) OR APPROVED EQUAL. COUNTERSUNK FLAT HEAD STAINLESS STEEL BOLTS & TYPE 'R' PLAIN BUTT STAINLESS STEEL HINGE. TYPE 'C' DROP HANDLE REQ'D. EYEBOLT REQ'D. ON BOTTOM OF CASTING.



SECTION B



LOCK DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

SIDEWALK MANHOLE REPLACEMENT DTLS PIER 29

SHEET 19 OF 99
365

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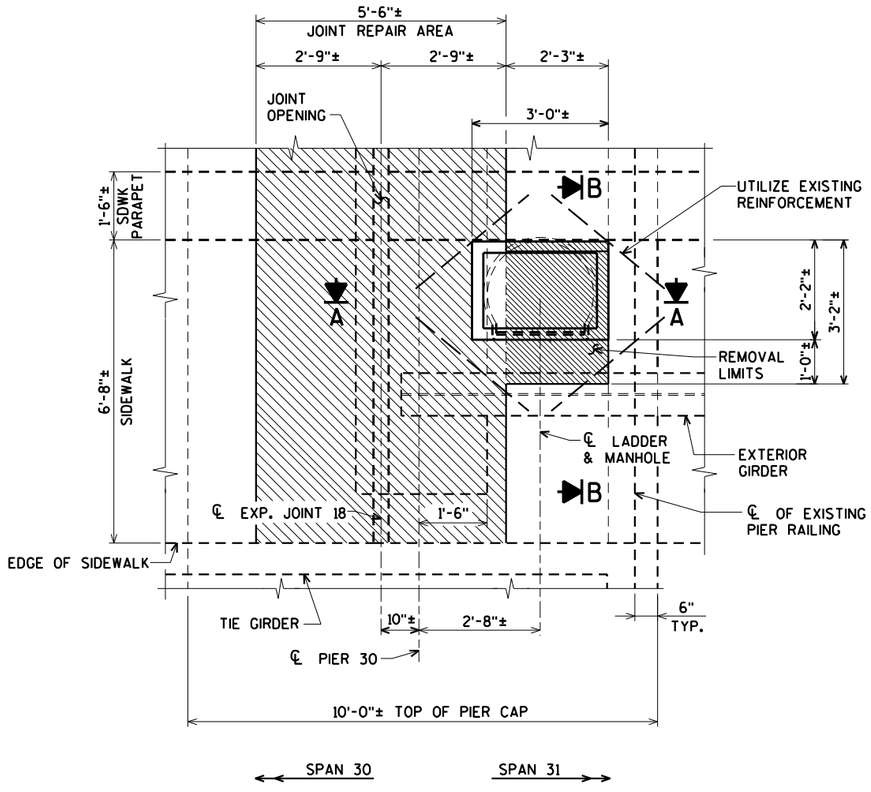
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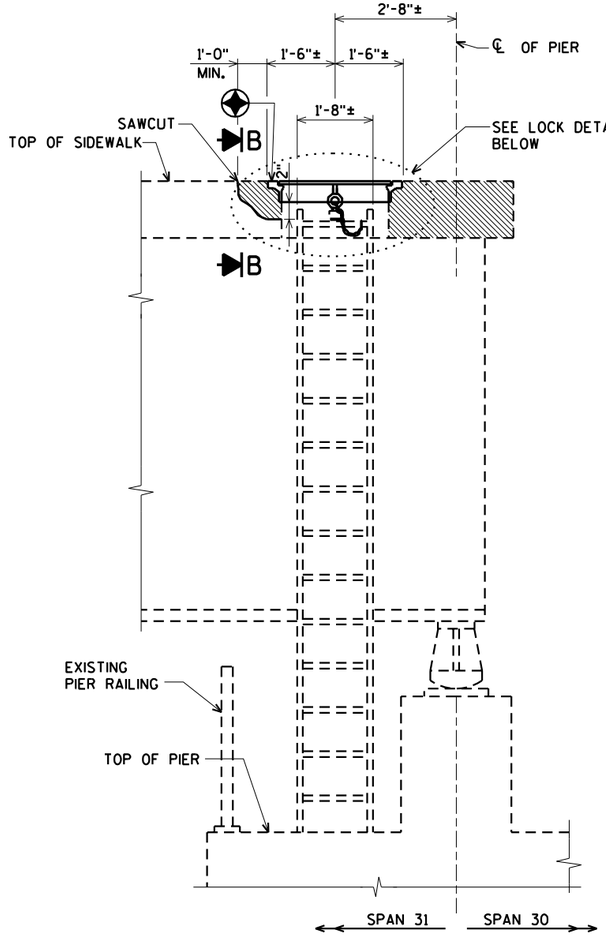
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STATE PROJECT NUMBER

8680-04-71



PLAN @ PIER 30

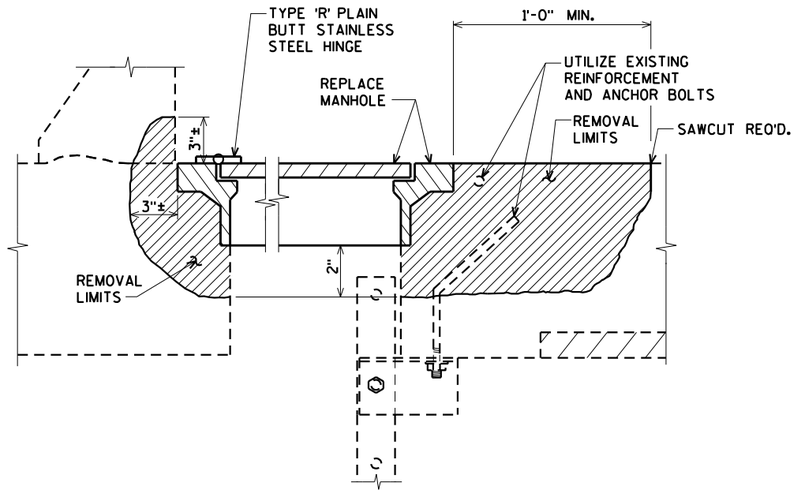


SECTION A

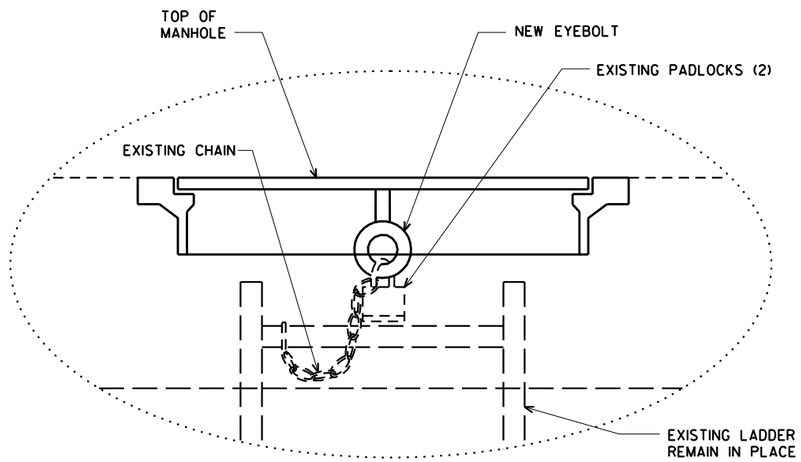
GENERAL NOTES

BID ITEM WILL BE "STRUCTURAL SIDEWALK MANHOLE", WHICH INCLUDES ALL ITEMS SHOWN.

MANHOLE - (NEENAH R6665-3FH) OR APPROVED EQUAL. COUNTERSUNK FLAT HEAD STAINLESS STEEL BOLTS & TYPE 'R' PLAIN BUTT STAINLESS STEEL HINGE. TYPE 'C' DROP HANDLE REQ'D. EYEBOLT REQ'D. ON BOTTOM OF CASTING.



SECTION B



LOCK DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

SIDEWALK MANHOLE REPLACEMENT DTLS PIER 30

SHEET 20 OF 99
366

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8

8

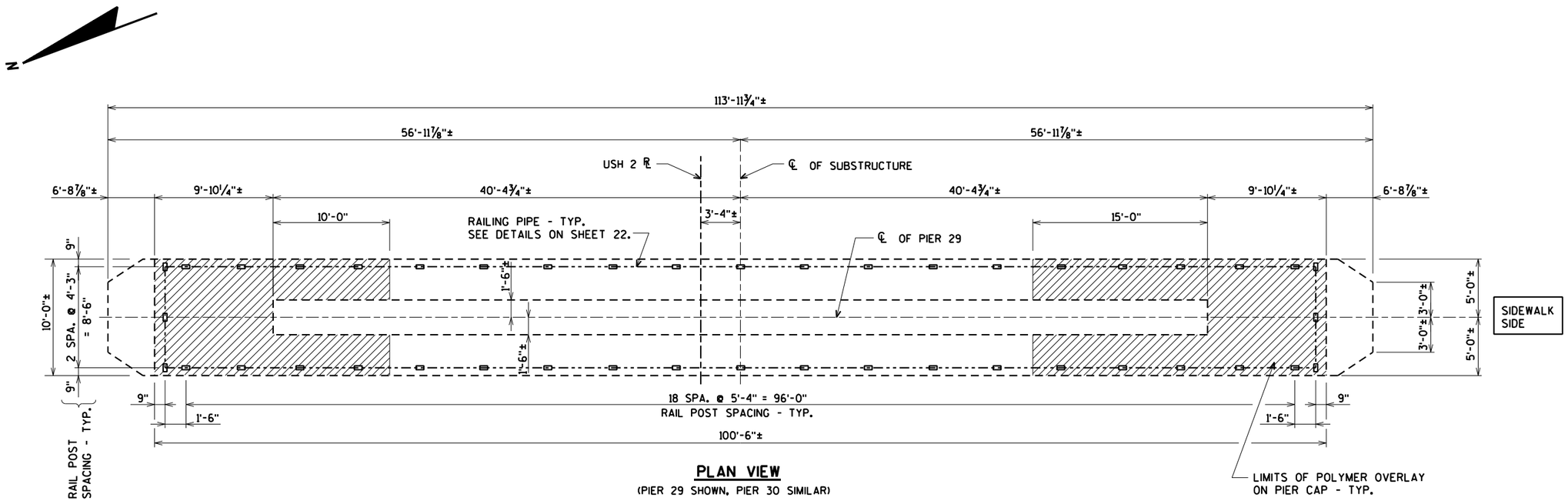
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9/12/2013

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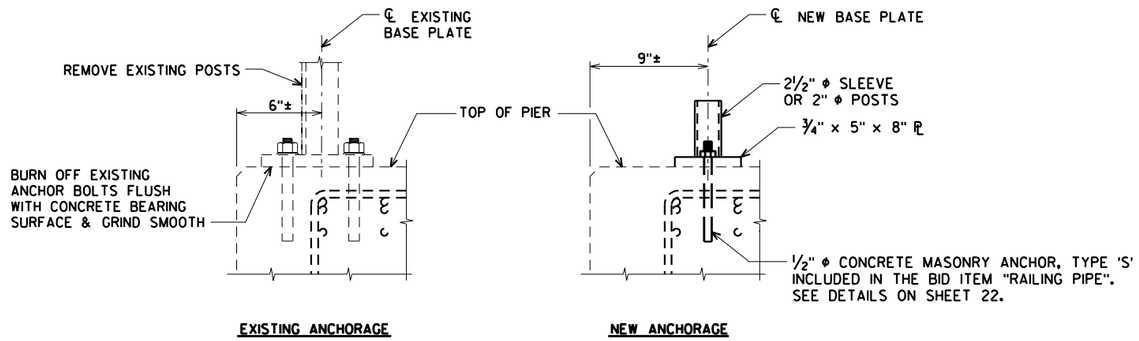
STATE PROJECT NUMBER

8680-04-71



PLAN VIEW

(PIER 29 SHOWN, PIER 30 SIMILAR)



EXISTING ANCHORAGE **NEW ANCHORAGE**

ANCHORAGE DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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PIER CAP RAILING DETAILS

SHEET 21 OF 99
367

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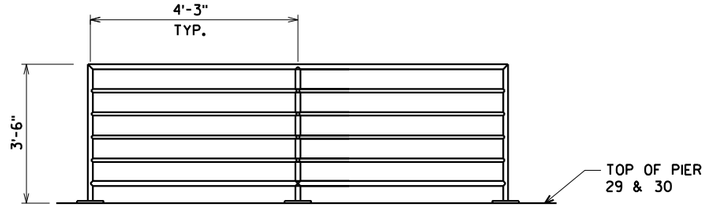
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8

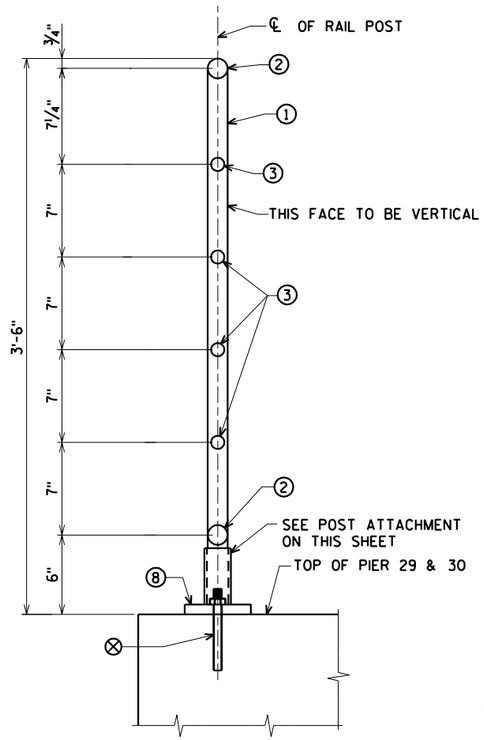
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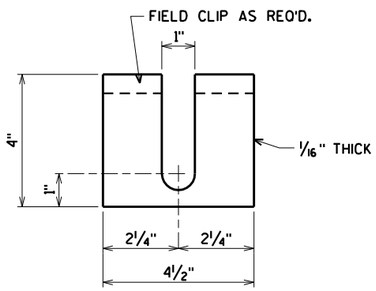
PART ELEVATION OF RAILING AT PIER SIDES



ELEVATION OF RAILING AT PIER ENDS

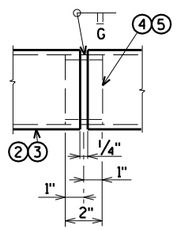


SECTION THRU RAILING



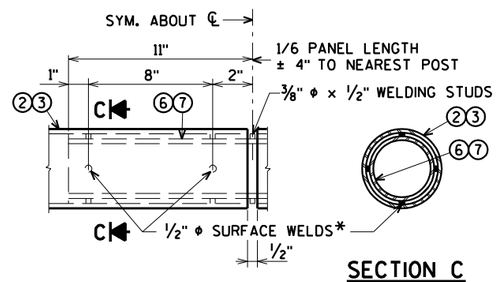
POST SHIM DETAILS

PROVIDE 4 SHIMS PER POST.



SHOP RAIL SPLICE DETAIL

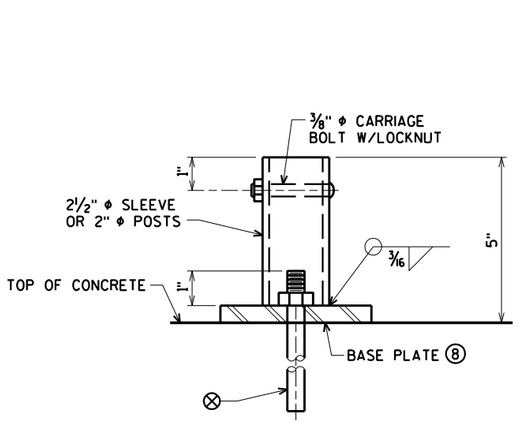
(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)



FIELD ERECTION JOINT DETAIL

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

SECTION C



POST ATTACHMENT

UNIT WILL BE GALV. AFTER FABRICATION

LEGEND

1. 2" ϕ STEEL PIPE FOR POST. PLACE POSTS VERTICAL.
2. 2" ϕ STEEL PIPE FOR TOP & BOT. RAIL. WELD TO NO. 1.
3. 1" ϕ STEEL PIPE FOR INTERMEDIATE RAILS. WELD TO NO. 1.
4. 1" ϕ PIPE SLEEVE FOR NO. 2. PROVIDE "SLIDING FIT" WITH A MINIMUM OUT TO OUT DIMENSION OF 1 9/16".
5. 1/2" ϕ ROD SLEEVE FOR NO. 3. PROVIDE "SLIDING FIT" WITH A MINIMUM OUT TO OUT DIMENSION OF 15/16".
6. 1" ϕ PIPE SLEEVE x 1'-10" LONG FOR NO. 2. PROVIDE 1/2" ϕ SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF NO. 2. PROVIDE 3/8" ϕ x 1/2" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.
7. 1/2" ϕ ROD SLEEVE x 1'-10" LONG FOR NO. 3. PROVIDE 1/2" ϕ SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF NO. 3. PROVIDE 3/8" ϕ x 1/2" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.
8. PLATE 3/4" x 5" x 8", WITH 5/8" ϕ HOLE FOR ANCHOR BOLTS NO. 9. WELD TO NO. 1 OR PIPE SLEEVE AS SHOWN.

GENERAL NOTES

BID ITEM WILL BE "RAILING PIPE", WHICH INCLUDES ALL ITEMS SHOWN.

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

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

ALL MATERIAL WILL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS AND STEEL TUBING WILL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.

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

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

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

ALL RAILS, POSTS AND SLEEVES ARE STANDARD WEIGHT PIPE, SCHEDULE 40.

PLACE ALL NUTS ON OUTSIDE OF POSTS.

⊗ 1/2" ϕ CONCRERE MASONRY ANCHOR, TYPE "S", 6" EMBEDMENT (EPOXY ANCHORED) MIN. PULLOUT OF 10 KIPS. THREADED LENGTH OF ANCHOR, WASHER AND NUT WILL BE GALVANIZED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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PIPE RAILING

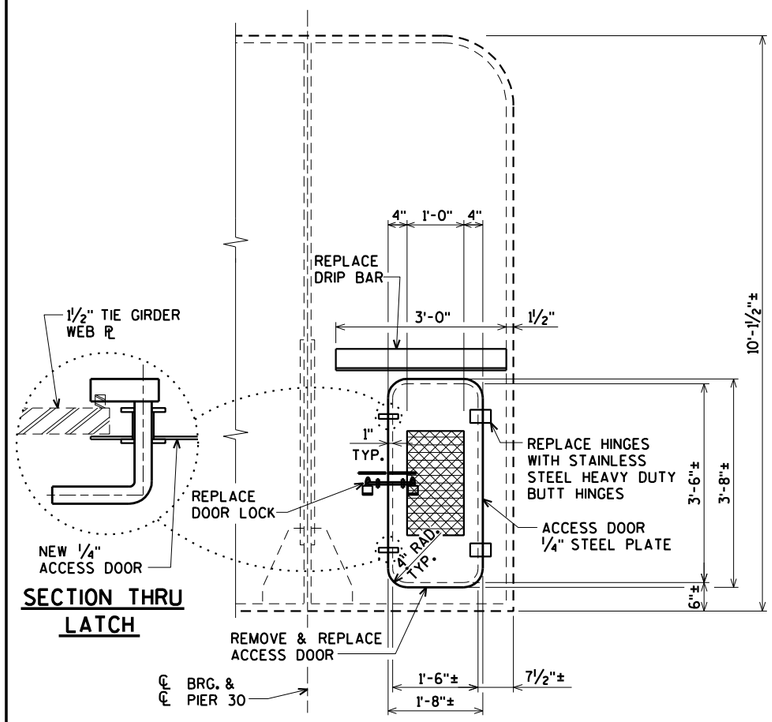
SHEET 22 OF 99
368

ORIGINAL PLANS PREPARED BY
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Eau Claire, WI 54701
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9/12/2013
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STATE PROJECT NUMBER

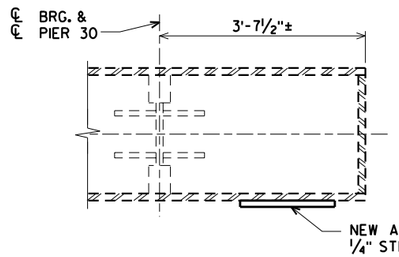
8680-04-71



SECTION THRU LATCH

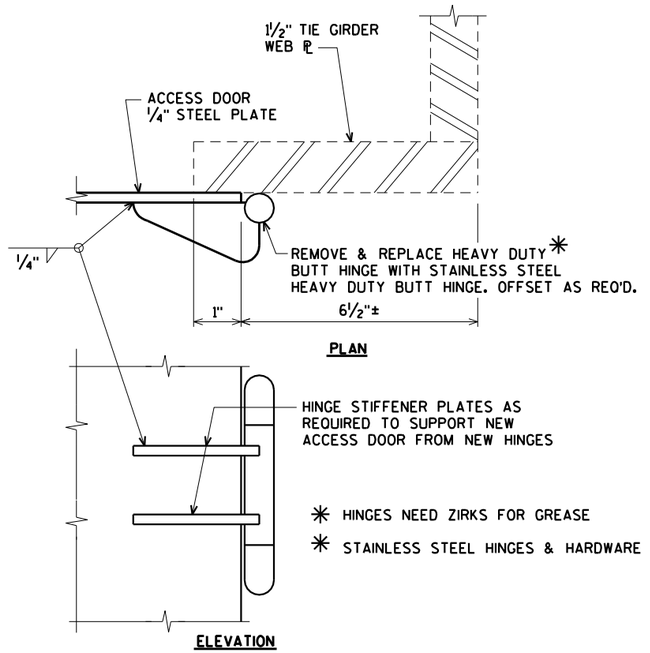
DOOR IN TIE GIRDER ELEVATION

(PIER 30 NORTH TIE GIRDER SHOWN,
PIER 30 SOUTH TIE GIRDER AND PIER 29 TIE GIRDERS SIMILAR)
4 REQUIRED



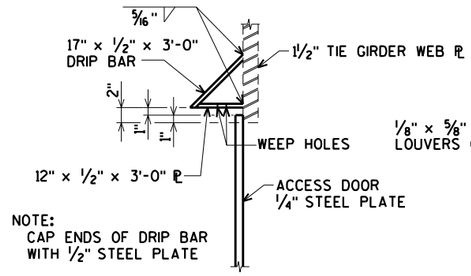
DOOR IN TIE GIRDER PLAN

(PIER 30 NORTH TIE GIRDER SHOWN,
PIER 30 SOUTH TIE GIRDER AND PIER 29 TIE GIRDERS SIMILAR)
4 REQUIRED



DOOR HINGE DETAIL

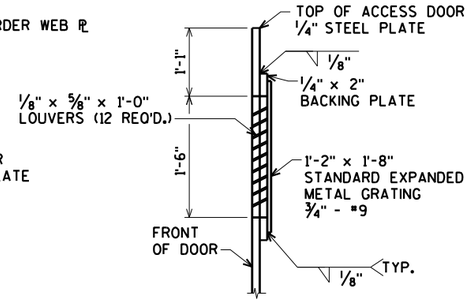
INCIDENTAL TO THE BID ITEM
"TIE GIRDER DOOR REPLACEMENT"



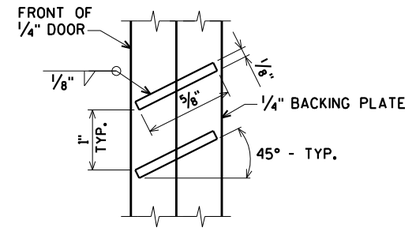
NOTE:
CAP ENDS OF DRIP BAR WITH ½" STEEL PLATE

SECTION THRU ACCESS DOOR AT DRIP BAR

INCIDENTAL TO THE BID ITEM
"TIE GIRDER DOOR REPLACEMENT"

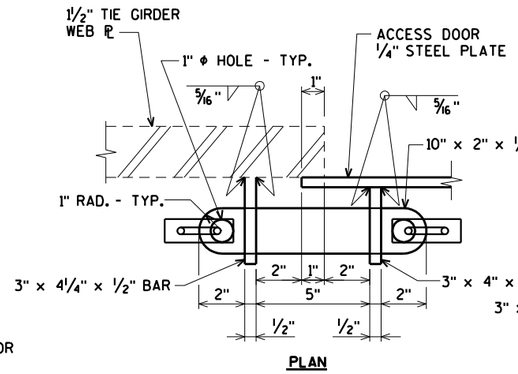


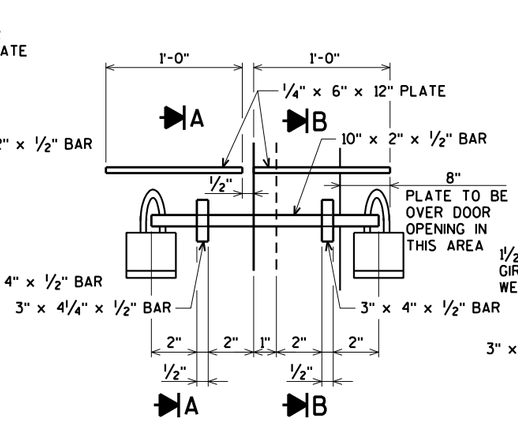
SECTION THRU DOOR

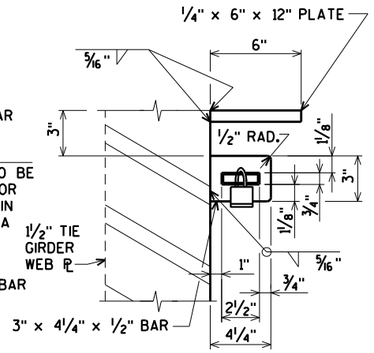


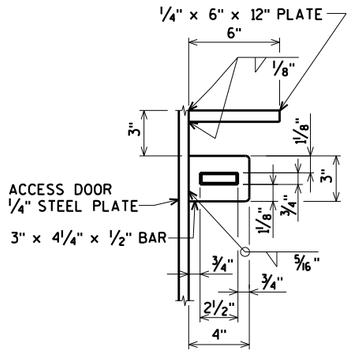
LOUVER DETAIL

12 LOUVERS REQ'D. PER DOOR









DOOR LOCK DETAILS

INCIDENTAL TO THE BID ITEM
"TIE GIRDER DOOR REPLACEMENT"

GENERAL NOTES

BID ITEM SHALL BE "TIE GIRDER DOOR REPLACEMENT", WHICH INCLUDES ALL ITEMS SHOWN.

ALL WELDS MADE TO THE TIE GIRDER SHALL BE MADE BY A CERTIFIED WELDER.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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NEW TIE GIRDER DOOR DETAILS

SHEET 23 OF 99
369

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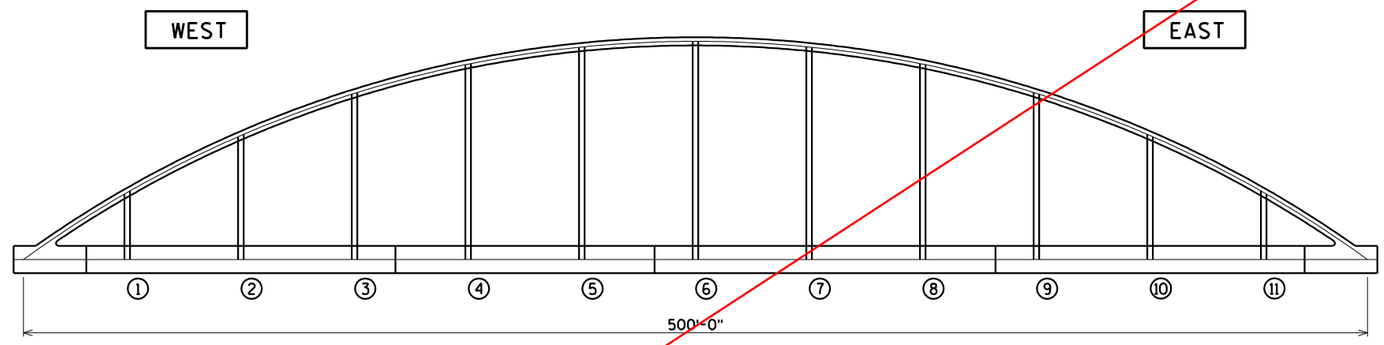
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U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 TRUSS dtls.dgn

STATE PROJECT NUMBER

8680-04-71

SHIM THICKNESS - NORTH TRUSS

CABLE	LOCATION	EXISTING SHIM THICKNESS PER ORIGINAL SHOP DRAWINGS	EXISTING SHIM THICKNESS BASED ON FIELD MEASUREMENTS	SHIMS REQ'D. ★	MINIMUM TENSILE LOAD REQUIRED IN CABLE
1	WEST	1 1/8"	1 5/8"	1 @ 1", 1 @ 1/2", 1 @ 1/8"	73 KIPS
	EAST	1 1/8"	1 1/4"	1 @ 1", 2 @ 1/8"	73 KIPS
2	WEST	7/8"	1 1/2"	1 @ 3/4", 1 @ 1/2", 2 @ 1/8"	93 KIPS
	EAST	7/8"	1 3/16"	1 @ 3/4", 2 @ 1/8", 1 @ 3/16"	93 KIPS
3	WEST	7/8"	3/4"	1 @ 3/4", 1 @ 1/8"	97 KIPS
	EAST	3/4"	5/8"	1 @ 5/8", 1 @ 1/8"	97 KIPS
4	WEST	1 1/16"	1/2"	1 @ 1/2", 1 @ 1/4", 1 @ 1/8", 1 @ 3/16"	100 KIPS
	EAST	15/16"	1/2"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	100 KIPS
5	WEST	15/16"	5/8"	1 @ 1/2", 2 @ 1/8", 1 @ 3/16"	102 KIPS
	EAST	13/16"	5/8"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	102 KIPS
6	WEST	1"	5/8"	1 @ 5/8", 3 @ 1/8"	103 KIPS
	EAST	1"	5/8"	1 @ 5/8", 3 @ 1/8"	103 KIPS
7	WEST	1 1/16"	5/8"	1 @ 5/8", 2 @ 1/8", 1 @ 3/16"	102 KIPS
	EAST	1 1/16"	3/8"	1 @ 1/2", 1 @ 3/8", 1 @ 3/16"	102 KIPS
8	WEST	11/16"	1/2"	1 @ 1/2", 1 @ 3/16"	100 KIPS
	EAST	3/4"	3/4"	1 @ 1/2", 2 @ 1/8"	100 KIPS
9	WEST	7/8"	3/4"	1 @ 5/8", 2 @ 1/8"	97 KIPS
	EAST	7/8"	1/2"	1 @ 1/2", 3 @ 1/8"	97 KIPS
10	WEST	1 1/8"	1 1/8"	1 @ 1", 1 @ 1/8"	93 KIPS
	EAST	15/16"	1 3/8"	1 @ 3/4", 1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	93 KIPS
11	WEST	1 7/16"	1 5/8"	1 @ 1 1/4", 3 @ 1/8", 1 @ 3/16"	73 KIPS
	EAST	1 9/16"	1 3/4"	1 @ 1 3/8", 3 @ 1/8", 1 @ 3/16"	73 KIPS

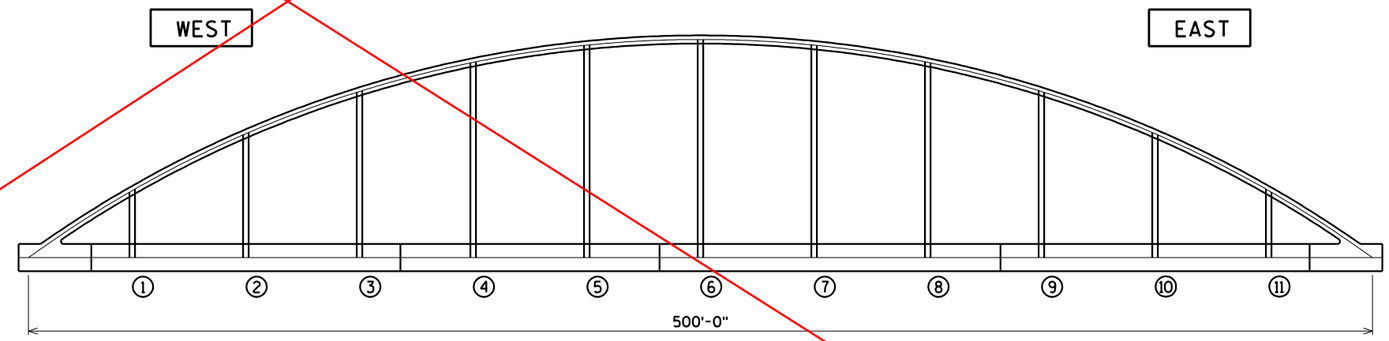


○ DENOTES CABLE NUMBER

NORTH TRUSS
(LOOKING NORTH)

SHIM THICKNESS - SOUTH TRUSS

CABLE	LOCATION	EXISTING SHIM THICKNESS PER ORIGINAL SHOP DRAWINGS	EXISTING SHIM THICKNESS BASED ON FIELD MEASUREMENTS	SHIMS REQ'D. ★	MINIMUM TENSILE LOAD REQUIRED IN CABLE
1	WEST	1 1/4"	1 1/2"	1 @ 1 1/8", 3 @ 1/8"	73 KIPS
	EAST	1 1/4"	1 1/4"	1 @ 1 1/8", 1 @ 1/8"	73 KIPS
2	WEST	1 3/8"	1 1/8"	1 @ 1", 3 @ 1/8"	93 KIPS
	EAST	1 3/8"	1"	1 @ 7/8", 1 @ 3/8", 1 @ 1/8"	93 KIPS
3	WEST	1 5/16"	1"	1 @ 7/8", 2 @ 1/8", 1 @ 3/16"	97 KIPS
	EAST ●	----	1/8"	1 @ 1/8"	97 KIPS
4	WEST	1 3/8"	1"	1 @ 7/8", 1 @ 3/8", 1 @ 1/8"	100 KIPS
	EAST	1 1/2"	1"	1 @ 7/8", 1 @ 1/2", 1 @ 1/8"	100 KIPS
5	WEST	1 5/16"	3/4"	1 @ 5/8", 1 @ 3/8", 1 @ 1/8", 1 @ 3/16"	102 KIPS
	EAST	1 1/4"	3/8"	1 @ 7/8", 1 @ 1/4", 1 @ 1/8"	102 KIPS
6	WEST	1 3/16"	7/8"	1 @ 3/4", 2 @ 1/8", 1 @ 3/16"	103 KIPS
	EAST	1 1/4"	3/8"	1 @ 7/8", 1 @ 1/4", 1 @ 1/8"	103 KIPS
7	WEST	1 1/8"	1/2"	2 @ 1/2", 1 @ 1/8"	102 KIPS
	EAST ●	----	0"	1 @ 3/4", 1 @ 3/16"	102 KIPS
8	WEST	11/16"	1/4"	1 @ 1/4", 2 @ 1/8", 1 @ 3/16"	100 KIPS
	EAST	5/8"	1/16"	1 @ 1/2", 1 @ 1/8"	100 KIPS
9	WEST	5/8"	1/8"	1 @ 1/2", 1 @ 1/8"	97 KIPS
	EAST	5/8"	3/16"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	97 KIPS
10	WEST	3/4"	7/8"	1 @ 5/8", 2 @ 1/8"	93 KIPS
	EAST	11/16"	1/2"	1 @ 1/2", 1 @ 3/16"	93 KIPS
11	WEST	1 1/4"	1 1/4"	1 @ 1", 2 @ 1/8"	73 KIPS
	EAST	1 5/16"	1 1/2"	1 @ 1 1/8", 3 @ 1/8", 1 @ 3/16"	73 KIPS



○ DENOTES CABLE NUMBER

SOUTH TRUSS
(LOOKING NORTH)

● NEW CABLE THAT WAS INSTALLED IN 2010.

★ ALSO PROVIDE 44 - 1/8" THICK SHIMS AND 44 - 3/16" THICK SHIMS TO ADJUST TOTAL SHIM THICKNESS AS NEEDED IN THE FIELD.

NOTE:

EXISTING SHIM THICKNESSES SHOWN ARE TO BE VERIFIED BY THE CONTRACTOR IN THE FIELD PRIOR TO ACCEPTANCE. TOTAL THICKNESS OF THE SHIMS AT EACH CABLE SHALL MATCH THE EXISTING THICKNESS AS MEASURED IN THE FIELD DURING CONSTRUCTION.

WORK THIS SHEET WITH SHEET 25

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

CABLE SHIM REPAIR DETAILS

SHEET 24 OF 99
370

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

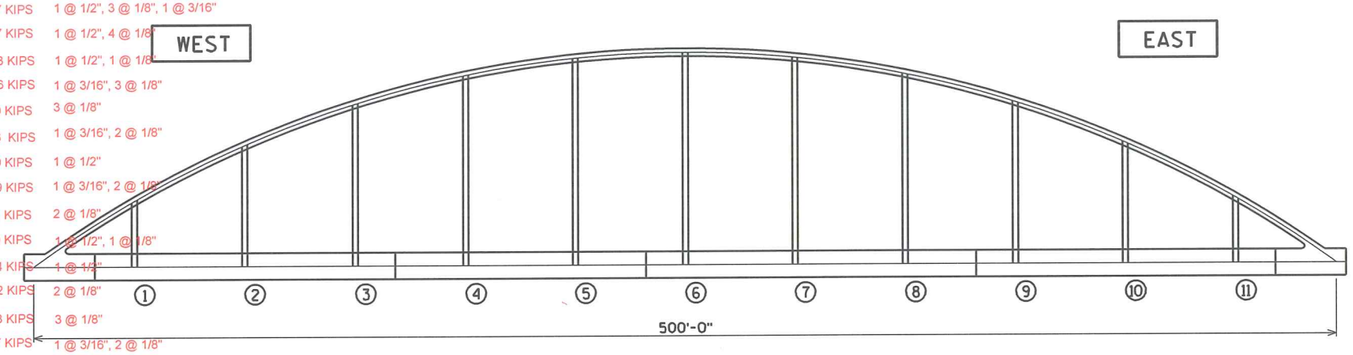
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STATE PROJECT NUMBER

8680-04-71

SHIM THICKNESS - NORTH TRUSS

CABLE	LOCATION	EXISTING SHIM THICKNESS PER ORIGINAL SHOP DRAWINGS	EXISTING SHIM THICKNESS BASED ON FIELD MEASUREMENTS	SHIMS REQ'D. ★	MINIMUM TENSILE LOAD REQUIRED IN CABLE	ACTUAL KIPS	ACTUAL SHIMS USED
1	WEST	1 1/8"	1 5/8" 1 5/16"	1 @ 1", 1 @ 1/2", 1 @ 1/8"	73 KIPS	76.64 KIPS	2 @ 1/2", 1 @ 1/8", 1 @ 3/16"
	EAST	1 1/8"	1 1/4" 1"	1 @ 1", 2 @ 1/8"	73 KIPS	117.90 KIPS	2 @ 1/2"
2	WEST	7/8"	1 1/2" 1 1/16"	1 @ 3/4", 1 @ 1/2", 2 @ 1/8"	93 KIPS	113.97 KIPS	1 @ 1/2", 3 @ 1/8", 1 @ 3/16"
	EAST	7/8"	1 3/16" 1"	1 @ 3/4", 2 @ 1/8", 1 @ 3/16"	93 KIPS	153.27 KIPS	1 @ 1/2", 4 @ 1/8"
3	WEST	7/8"	3/4" 5/8"	1 @ 3/4", 1 @ 1/8"	97 KIPS	200.43 KIPS	1 @ 1/2", 1 @ 1/8"
	EAST	3/4"	5/8" 9/16"	1 @ 5/8", 1 @ 1/8"	97 KIPS	204.36 KIPS	1 @ 3/16", 3 @ 1/8"
4	WEST	1 1/16"	1/2" 3/8"	1 @ 1/2", 1 @ 1/4", 1 @ 1/8", 1 @ 3/16"	100 KIPS	196.50 KIPS	3 @ 1/8"
	EAST	15/16"	1/2" 7/16"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	100 KIPS	204.36 KIPS	1 @ 3/16", 2 @ 1/8"
5	WEST	15/16"	5/8" 1/2"	1 @ 1/2", 2 @ 1/8", 1 @ 3/16"	102 KIPS	196.50 KIPS	1 @ 1/2"
	EAST	13/16"	5/8" 7/16"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	102 KIPS	208.29 KIPS	1 @ 3/16", 2 @ 1/8"
6	WEST	1"	5/8" 1/4"	1 @ 5/8", 3 @ 1/8"	103 KIPS	194.54 KIPS	2 @ 1/8"
	EAST	1"	5/8" 5/8"	1 @ 5/8", 3 @ 1/8"	103 KIPS	196.50 KIPS	1 @ 1/2", 1 @ 1/8"
7	WEST	1 1/16"	5/8" 1/2"	1 @ 5/8", 2 @ 1/8", 1 @ 3/16"	102 KIPS	188.64 KIPS	1 @ 1/8"
	EAST	1 1/16"	3/8" 1/4"	1 @ 1/2", 1 @ 3/8", 1 @ 3/16"	102 KIPS	212.22 KIPS	2 @ 1/8"
8	WEST	11/16"	1/2" 3/8"	1 @ 1/2", 1 @ 3/16"	100 KIPS	200.43 KIPS	3 @ 1/8"
	EAST	3/4"	3/4" 7/16"	1 @ 1/2", 2 @ 1/8"	100 KIPS	192.57 KIPS	1 @ 3/16", 2 @ 1/8"
9	WEST	7/8"	3/4" 9/16"	1 @ 5/8", 2 @ 1/8"	97 KIPS	176.85 KIPS	1 @ 3/16", 3 @ 1/8"
	EAST	7/8"	1/2" 3/8"	1 @ 1/2", 3 @ 1/8"	97 KIPS	157.20 KIPS	3 @ 1/8"
10	WEST	1 1/8"	1 1/8" 3/4"	1 @ 1", 1 @ 1/8"	93 KIPS	157.20 KIPS	1 @ 1/2", 2 @ 1/8"
	EAST	15/16"	1 3/8" 13/16"	1 @ 3/4", 1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	93 KIPS	165.06 KIPS	1 @ 1/2", 1 @ 3/16", 1 @ 1/8"
11	WEST	1 7/16"	1 5/8" 1 5/16"	1 @ 1 1/4", 3 @ 1/8", 1 @ 3/16"	73 KIPS	78.60 KIPS	2 @ 1/2", 1 @ 3/16", 1 @ 1/8"
	EAST	1 9/16"	1 3/4" 1 7/16"	1 @ 1 3/8", 3 @ 1/8", 1 @ 3/16"	73 KIPS	76.64 KIPS	2 @ 1/2", 1 @ 3/16", 2 @ 1/8"

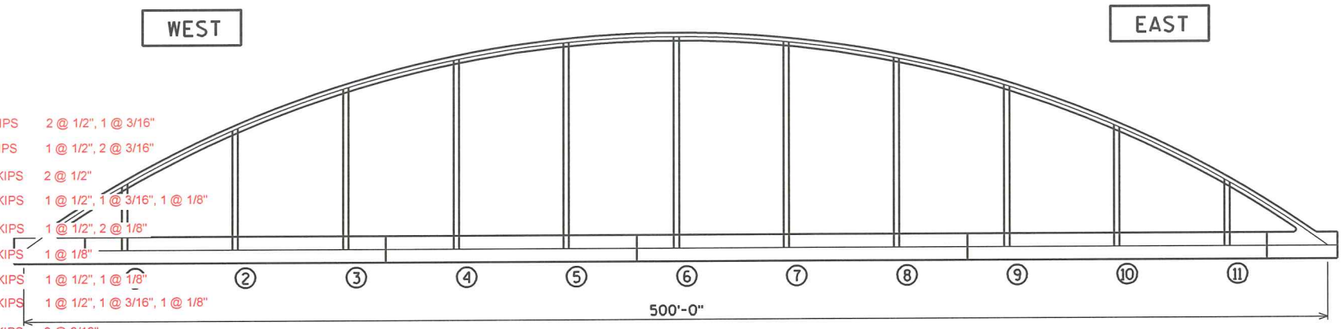


NORTH TRUSS
(LOOKING NORTH)

◯ DENOTES CABLE NUMBER

SHIM THICKNESS - SOUTH TRUSS

CABLE	LOCATION	EXISTING SHIM THICKNESS PER ORIGINAL SHOP DRAWINGS	EXISTING SHIM THICKNESS BASED ON FIELD MEASUREMENTS	SHIMS REQ'D. ★	MINIMUM TENSILE LOAD REQUIRED IN CABLE	ACTUAL KIPS	ACTUAL SHIMS USED
1	WEST	1 1/4"	1 1/2" 1 3/16"	1 @ 1 1/8", 3 @ 1/8"	73 KIPS	74.67 KIPS	2 @ 1/2", 1 @ 3/16"
	EAST	1 1/4"	1 1/4" 7/8"	1 @ 1 1/8", 1 @ 1/8"	73 KIPS	74.67 KIPS	1 @ 1/2", 2 @ 3/16"
2	WEST	1 3/8"	1 1/8" 1"	1 @ 1", 3 @ 1/8"	93 KIPS	172.92 KIPS	2 @ 1/2"
	EAST	1 3/8"	1" 13/16"	1 @ 7/8", 1 @ 3/8", 1 @ 1/8"	93 KIPS	153.27 KIPS	1 @ 1/2", 1 @ 3/16", 1 @ 1/8"
3	WEST	1 5/16"	1" 3/4"	1 @ 7/8", 2 @ 1/8", 1 @ 3/16"	97 KIPS	168.99 KIPS	1 @ 1/2", 2 @ 1/8"
	EAST ●	----	1/8" 1/8"	1 @ 1/8"	97 KIPS	180.78 KIPS	1 @ 1/8"
4	WEST	1 3/8"	1" 5/8"	1 @ 7/8", 1 @ 3/8", 1 @ 1/8"	100 KIPS	188.64 KIPS	1 @ 1/2", 1 @ 1/8"
	EAST	1 1/2"	1" 13/16"	1 @ 7/8", 1 @ 1/2", 1 @ 1/8"	100 KIPS	212.22 KIPS	1 @ 1/2", 1 @ 3/16", 1 @ 1/8"
5	WEST	1 5/16"	3/4" 9/16"	1 @ 5/8", 1 @ 3/8", 1 @ 1/8", 1 @ 3/16"	102 KIPS	200.43 KIPS	3 @ 3/16"
	EAST	1 1/4"	3/8" 5/16"	1 @ 7/8", 1 @ 1/4", 1 @ 1/8"	102 KIPS	200.43 KIPS	1 @ 3/16", 1 @ 1/8"
6	WEST	1 3/16"	7/8" 5/8"	1 @ 3/4", 2 @ 1/8", 1 @ 3/16"	103 KIPS	212.22 KIPS	1 @ 1/2", 1 @ 1/8"
	EAST	1 1/4"	3/8" 5/16"	1 @ 7/8", 1 @ 1/4", 1 @ 1/8"	103 KIPS	188.64 KIPS	1 @ 3/16", 1 @ 1/8"
7	WEST	1 1/8"	1/2" 7/16"	2 @ 1/2", 1 @ 1/8"	102 KIPS	192.57 KIPS	1 @ 3/16", 2 @ 1/8"
	EAST ●	----	0"	1 @ 3/4", 1 @ 3/16"	102 KIPS	220.08 KIPS	
8	WEST	11/16"	1/4" 3/16"	1 @ 1/4", 2 @ 1/8", 1 @ 3/16"	100 KIPS	196.50 KIPS	1 @ 3/16", 2 @ 1/8"
	EAST	5/8"	1/16" 1/16"	1 @ 1/2", 1 @ 1/8"	100 KIPS	192.57 KIPS	1 @ 1/8"
9	WEST	5/8"	1/8" 1/8"	1 @ 1/2", 1 @ 1/8"	97 KIPS	180.78 KIPS	1 @ 1/8"
	EAST	5/8"	3/16" 3/16"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	97 KIPS	180.78 KIPS	1 @ 3/16"
10	WEST	3/4"	7/8" 5/8"	1 @ 5/8", 2 @ 1/8"	93 KIPS	168.99 KIPS	1 @ 1/2", 1 @ 1/8"
	EAST	11/16"	1/2" 7/16"	1 @ 1/2", 1 @ 3/16"	93 KIPS	149.34 KIPS	1 @ 3/16", 2 @ 1/8"
11	WEST	1 1/4"	1 1/4" 15/16"	1 @ 1", 2 @ 1/8"	73 KIPS	86.46 KIPS	1 @ 1/2", 1 @ 3/16", 2 @ 1/8"
	EAST	1 5/16"	1 1/2" 1 1/4"	1 @ 1 1/8", 3 @ 1/8", 1 @ 3/16"	73 KIPS	74.67 KIPS	2 @ 1/2", 2 @ 1/8"



SOUTH TRUSS
(LOOKING NORTH)

◯ DENOTES CABLE NUMBER

● NEW CABLE THAT WAS INSTALLED IN 2010.

▲ ALSO PROVIDE 44 - 1/8" THICK SHIMS AND 44 - 3/16" THICK SHIMS TO ADJUST TOTAL SHIM THICKNESS AS NEEDED IN THE FIELD.

NOTE:
EXISTING SHIM THICKNESSES SHOWN ARE TO BE VERIFIED BY THE CONTRACTOR IN THE FIELD PRIOR TO ACCEPTANCE. TOTAL THICKNESS OF EACH CABLE SHALL MATCH THE EXISTING THICKNESS AS MEASURED IN THE FIELD DURING CONSTRUCTION.

WORK THIS SHEET WITH SHEET 25

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

CABLE SHIM REPAIR DETAILS

SHEET 24 OF 99
370

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

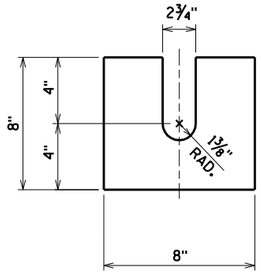
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9/12/2013

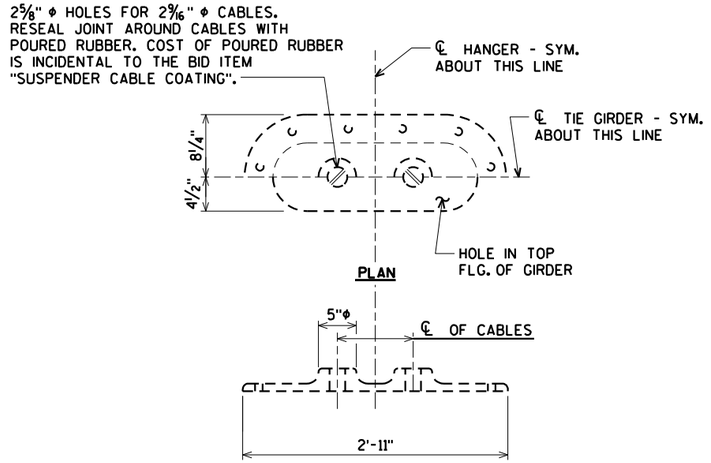
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CABLE SHIM DETAILS

(NOTE THAT THICKNESS OF THE SHIMS IS SHOWN ON SHEET 24)

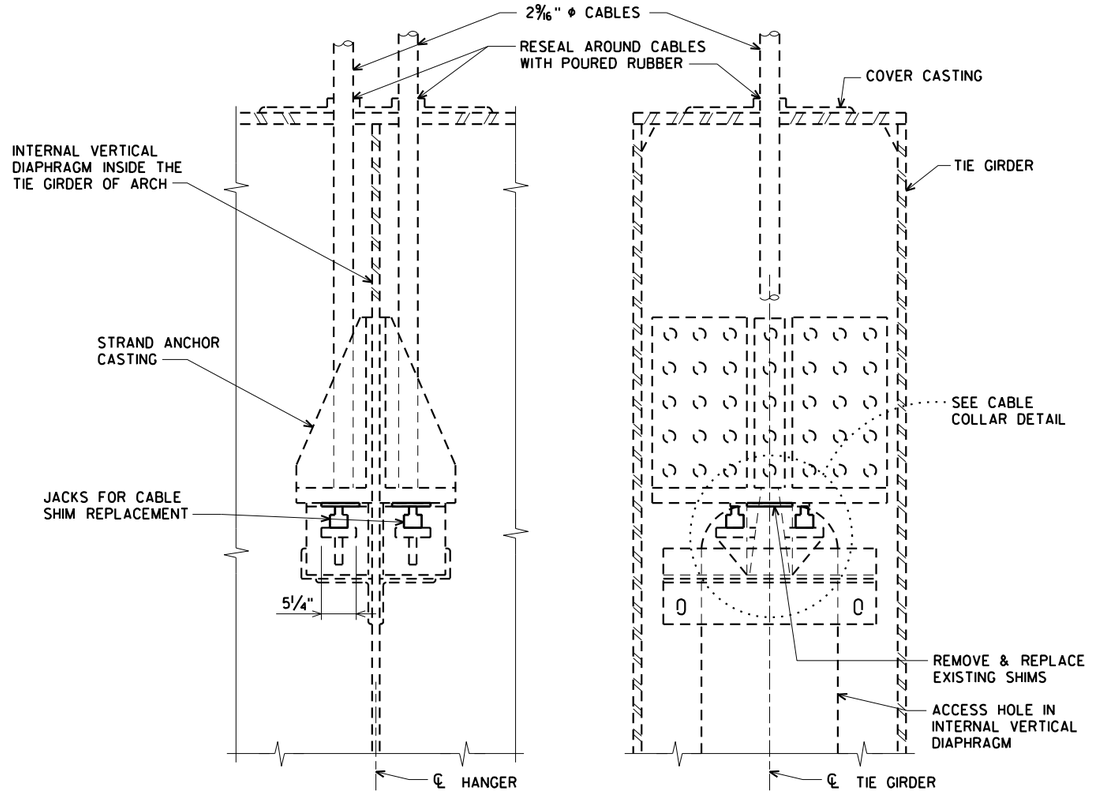
CABLE SHIMS SHALL BE STAINLESS STEEL.



TIE GIRDER COVER CASTING

NOTE:

CABLES TO BE COATED WHERE EXPOSED OUTSIDE OF TIE GIRDERS TO HELP PREVENT LEAKING INTO THE TIE GIRDERS. COST TO BE INCLUDED IN THE BID ITEM "SUSPENDER CABLE COATING".



PART ELEV. OF TIE GIRDER @ ℄ OF HANGERS

JACKING NOTES

THE CONTRACTOR SHALL RECORD JACKING FORCES REQUIRED TO RELEASE THE CABLE COLLAR FROM THE SHIMS AND BOTTOM SUPPORT BRACKET.

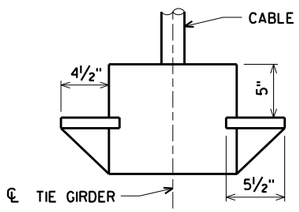
THE JACKING FORCE PER JACK USED IN 2010 WAS 5,200 psi. THIS PROVIDED A FORCE IN EACH CABLE OF 204.2 KIPS. (5,200 psi x 2 JACKS x 19.635 SQ. IN. = 204,204 LBS.)

THE MAXIMUM FORCE PER CABLE THAT WILL BE ALLOWED IS 220.3 KIPS. (THIS IS EQUIVALENT TO 5,600 psi PER JACK). IF THIS MAXIMUM FORCE DOES NOT RELEASE THE CABLE COLLAR AND SHIMS FROM THE BOTTOM SUPPORT BRACKET, CONTACT THE STRUCTURES DESIGN SECTION.

THE CONTRACTOR WILL ONLY BE ALLOWED TO JACK ONE CABLE AT A TIME.

THE CABLES NEED TO BE JACKED AND SHIMS REPLACED PRIOR TO PERFORMING "SUSPENDER CABLE COATING" OPERATIONS.

AFTER THE NEW SHIMS ARE IN PLACE, MAKE SURE THE TENSION IN THE CABLES ARE GREATER THAN OR EQUAL TO THE MINIMUM TENSILE LOAD REQUIRED IN CABLE AS SHOWN ON SHEET 24.



CABLE COLLAR DETAIL

CABLE COLLARS TO BE CLEANED AND PAINTED. COST INCLUDED IN THE BID ITEM "CLEANING AND PAINTING CABLE COLLARS".

AFTER REMOVAL OF THE EXISTING CABLE SHIMS, BUT BEFORE THE NEW CABLE SHIMS ARE INSTALLED, THE BEARING AREAS THAT ARE IN THE CONTRACT WITH THE CABLE SHIMS ON THE BOTTOM OF THE STRAND ANCHOR CASTINGS AND ON TOP OF THE CABLE COLLARS SHALL BE CLEANED BY WIRE BRUSHING AND GIVEN ONE COAT OF AN APPROVED ZINCH RICH PRIMER. COST IS INCIDENTAL TO "CLEANING AND PAINTING CABLE COLLARS".

WORK THIS SHEET WITH SHEET 24

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

CABLE SHIM REPAIR DETAILS

SHEET 25 OF 99
371

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

STATE PROJECT NUMBER

8680-04-71

JOINT REPAIR SUMMARY

EXPANSION JOINT NO.	APPROX. STATION	EXPANSION JOINT LOCATION	QUANTITIES						EXPANSION JOINT TYPE	STAGES	SHEET NUMBERS
			JOINT REPAIR	CONCRETE MASONRY OVERLAY DECKS	BAR STEEL REINFORCEMENT HS COATED BRIDGES	CONCRETE MASONRY ANCHORS TYPE L No. 5 BARS	BAR COUPLERS No. 4	BAR COUPLERS No. 6			
● 1	18+55	WEST ABUTMENT	35 SY	12 CY	2,410 LBS	76 EACH	4 EACH	12 EACH	STRIP SEAL	1 & 3	27 - 28
2	21+38	PIER 3	34 SY	12 CY	2,710 LBS	152 EACH	4 EACH	12 EACH	STRIP SEAL	1 & 3	29 - 30
3	22+82	PIER 4	33 SY	12 CY	2,650 LBS	148 EACH	4 EACH	12 EACH	STRIP SEAL	1 & 3	31 - 32
4	27+86	BTWN RAMP 'A' & UNIT 4	24 SY	9 CY	1,460 LBS	-----	-----	-----	MODULAR 3 CELL	1	33 - 35
5	27+86	BTWN UNITS 3 & 4	58 SY	21 CY	3,550 LBS	-----	-----	-----	MODULAR 3 CELL	1 & 3	36 - 39
6	27+86	BTWN RAMP 'C' & UNIT 4	25 SY	9 CY	1,530 LBS	-----	-----	-----	MODULAR 3 CELL	3	40 - 42
7	33+35	BTWN UNITS 4 & 5	68 SY	24 CY	4,060 LBS	-----	-----	-----	MODULAR 3 CELL	1 & 3	43 - 46
8	33+35	BTWN RAMP 'B' & UNIT 5	29 SY	11 CY	1,790 LBS	-----	-----	-----	MODULAR 3 CELL	3	47 - 50
9	37+37	BTWN UNITS 5 & 6	84 SY	30 CY	5,150 LBS	-----	6 EACH	25 EACH	MODULAR 3 CELL	1 & 3	51 - 55
10	43+46	BTWN UNITS 6 & 7	74 SY	27 CY	4,630 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	56 - 60
11	49+55	BTWN UNITS 7 & 8	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
12	53+82	BTWN UNITS 8 & 9	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
13	58+03	BTWN UNITS 9 & 10	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
14	62+15	BTWN UNITS 10 & 11	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
15	66+27	BTWN UNITS 11 & 12	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
16	70+80	BTWN UNITS 12 & 13	74 SY	28 CY	4,610 LBS	-----	4 EACH	20 EACH	MODULAR 4 CELL	1 & 3	66 - 70
17	73+25	MIDSPAN UNIT 13	51 SY	19 CY	3,960 LBS	-----	8 EACH	24 EACH	STRIP SEAL	1 & 3	71 - 74
18	75+80	BTWN UNITS 13 & 14	51 SY	19 CY	3,960 LBS	-----	4 EACH	19 EACH	STRIP SEAL	1 & 3	75 - 78
19	81+50	BTWN UNITS 14 & 15	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
20	87+22	BTWN UNITS 15 & 16	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
21	91+02	BTWN UNITS 16 & 17	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 2 CELL	1 & 3	79 - 83
22	94+82	BTWN UNITS 17 & 18	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
23	98+62	BTWN UNITS 18 & 19	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 2 CELL	1 & 3	79 - 83
24	101+70	EAST ABUTMENT	37 SY	16 CY	2,760 LBS	83 EACH	-----	7 EACH	STRIP SEAL	1 & 3	84 - 87

NOTES:

JOINT REPAIRS #4, #6, & #8 ARE AT THE ENDS OF APPROACH STRUCTURES. THE MNDOT WILL OVERLAY THESE STRUCTURES AT THE SAME TIME AS THIS PROJECT.

SALVAGE AND REINSTALL THE EXISTING NAME PLATES IF THEY WILL BE DISTURBED DURING JOINT REPAIR OPERATIONS. COST FOR SALVAGING AND REINSTALLING EXISTING NAME PLATES, IF REQUIRED, WILL BE INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY BRIDGES".

● A TEMPORARY NEOPRENE STRIP SEAL (4-INCH) WILL BE REQUIRED AFTER STAGE 1 IS COMPLETED. THE TEMPORARY NEOPRENE STRIP SEAL WILL EXTEND FROM THE OUTSIDE WING PARAPET AT WING 2 TO THE CONSTRUCTION JOINT. THE APPROXIMATE LENGTH OF THE TEMPORARY NEOPRENE STRIP SEAL IS 45 FEET. THE TEMPORARY NEOPRENE STRIP SEAL WILL BE REPLACED WHEN THE NEW NEOPRENE STRIP SEAL IS INSTALLED DURING STAGE 3 CONSTRUCTION. COST OF FURNISHING, INSTALLING AND REMOVING THE TEMPORARY NEOPENE STRIP SEAL (4-INCH) IS INCIDENTAL TO THE BID ITEM "EXPANSION DEVICE B-16-38".

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

JOINT REPAIR SUMMARY

SHEET 26 OF 99
372

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
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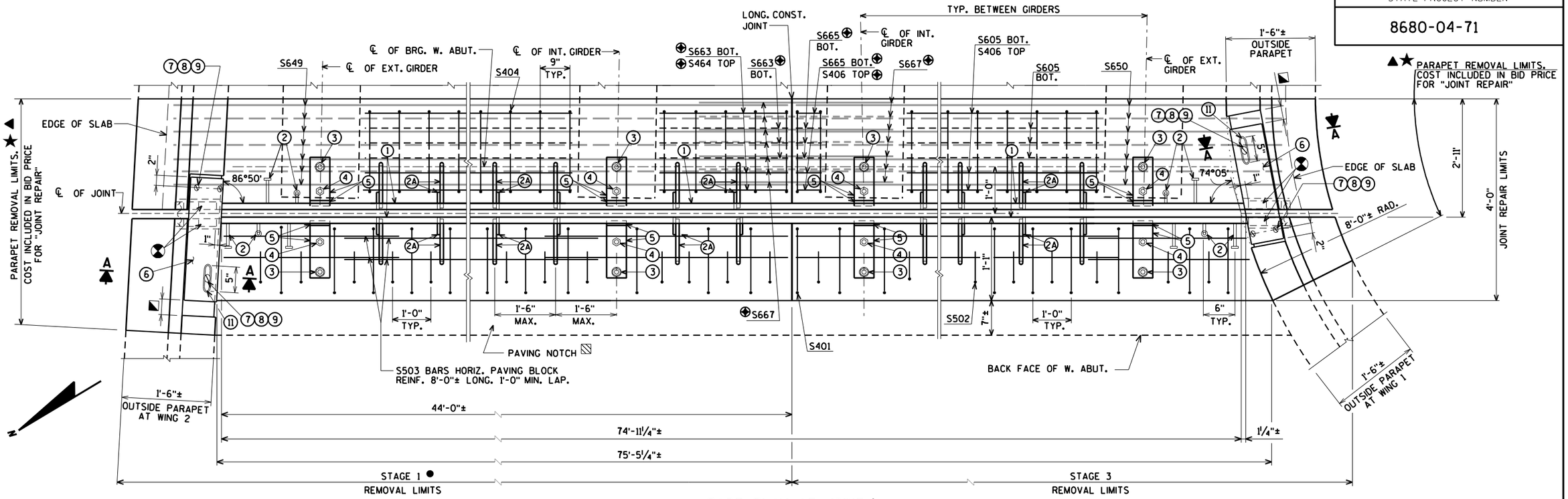
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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 1

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

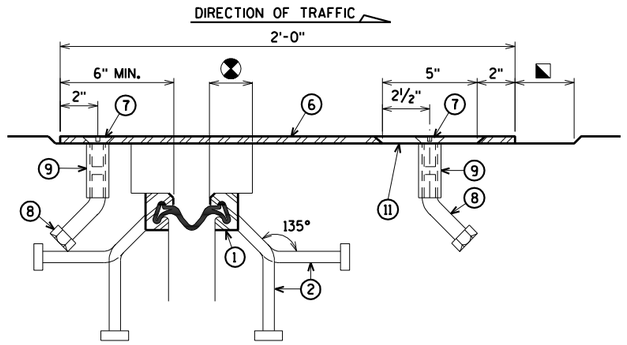
★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

▲ UTILIZE EXISTING VERTICAL BAR STEEL FOR PARAPET REMOVAL LIMITS OUTSIDE OF THE "JOINT REPAIR" LIMITS.

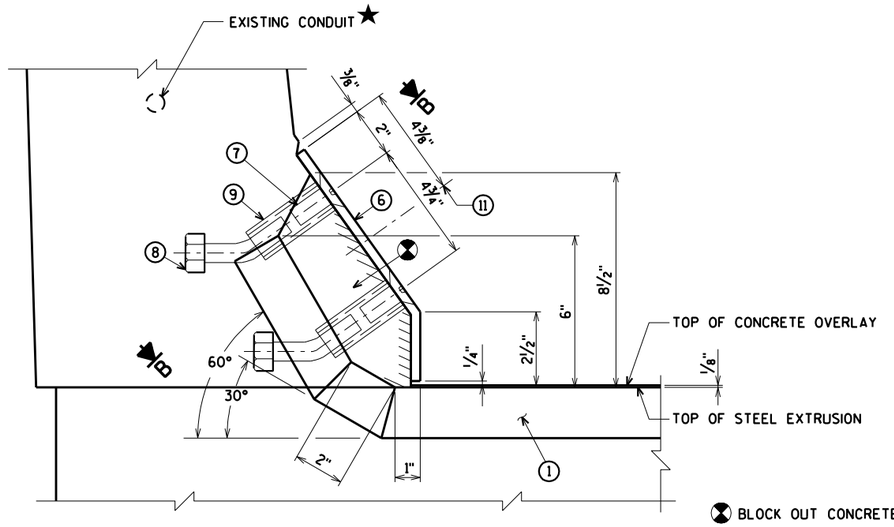
▨ THE CONCRETE APPROACH SLAB WILL NEED TO BE 1'-0½"± THICK AT THE PAVING NOTCH.

● A TEMPORARY NEOPRENE STRIP SEAL (4-INCH) WILL BE REQUIRED AFTER STAGE 1 IS COMPLETED. THE TEMPORARY NEOPRENE STRIP SEAL WILL EXTEND FROM THE OUTSIDE WING PARAPET AT WING 2 TO THE CONSTRUCTION JOINT. THE APPROXIMATE LENGTH OF THE TEMPORARY NEOPRENE STRIP SEAL IS 45 FEET. THE TEMPORARY NEOPRENE STRIP SEAL WILL BE REPLACED WHEN THE NEW NEOPRENE STRIP SEAL IS INSTALLED DURING STAGE 3 CONSTRUCTION. COST OF FURNISHING, INSTALLING AND REMOVING THE TEMPORARY NEOPENE STRIP SEAL (4-INCH) IS INCIDENTAL TO THE BID ITEM "EXPANSION DEVICE B-16-38".

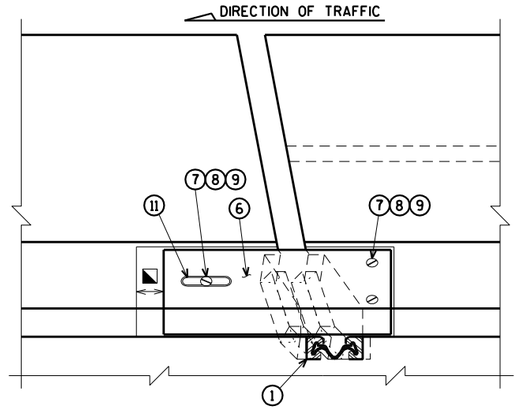
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.



SECTION B



SECTION A
OUTSIDE PARAPET



VIEW OF PARAPET PLATES FROM ROADWAY
PARAPET AT WING 2 SHOWN, WING 1 SIMILAR

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◪ JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

WORK THIS SHEET WITH SHEET 28

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 1 DETAILS

SHEET 27 OF 99
373

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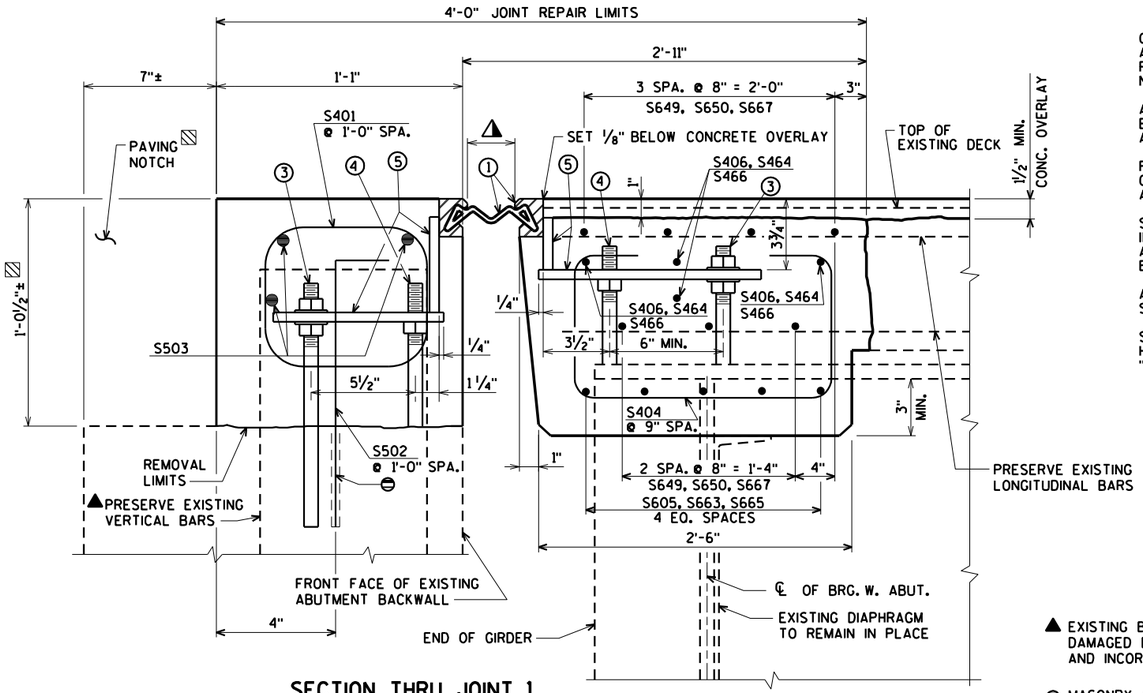
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STATE PROJECT NUMBER

8680-04-71



SECTION THRU JOINT 1

DIMENSIONS ARE NORMAL TO ℄ OF SUBSTRUCTURE UNIT

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING, OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".

LEGEND

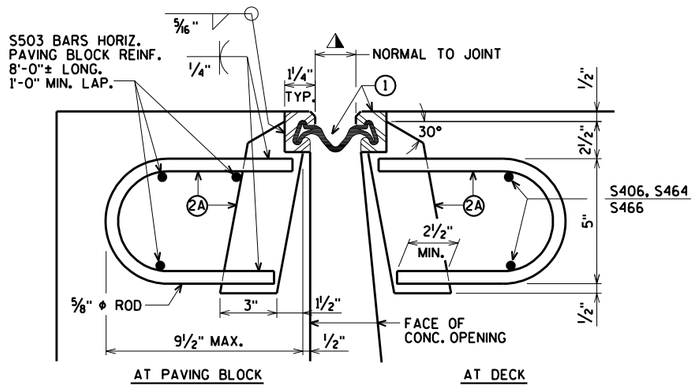
- ● (1) NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
- (2) STUDS 5/8"Φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- (2A) ½" THICK ANCHOR PLATE WITH 5/8"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- (3) ¾" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE, GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- (4) ¾"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- (5) FABRICATE SUPPORT FROM 3" X ½" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" Φ HOLE FOR NO. 3 AND 1" Φ HOLE FOR NO. 4.
- (6) GALVANIZED PLATE ⅜" X 10½" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- (7) ¾"Φ X 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- (8) ¾"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- (9) ¾"Φ X 2¼" GALVANIZED THREADED COUPLING.
- (11) 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

▲ EXISTING BARS LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL.

⊖ MASONRY ANCHORS TYPE L NO. 5 BARS MIN. PULLOUT CAPACITY OF 20 KIPS. EMBED A MINIMUM OF 1'-0" INTO CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.

▨ THE CONCRETE APPROACH SLAB WILL NEED TO BE 1'-0½"± THICK AT THE PAVING NOTCH.

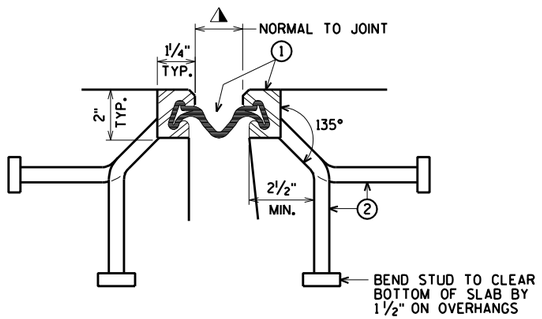
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SECTION THRU JOINT

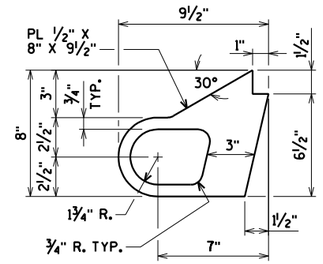
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS



ALTERNATE STRIP SEAL ANCHOR

▲ TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1¼"
75°	1½"
65°	1¾"
55°	2"
45°	2¼"
35°	2½"
25°	2¾"
15°	3"
5°	3¼"

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

WORK THIS SHEET WITH SHEET 27

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

STRIP SEAL EXPANSION JOINT 1 DETAILS

SHEET 28 OF 99
374

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Eau Claire, WI 54701
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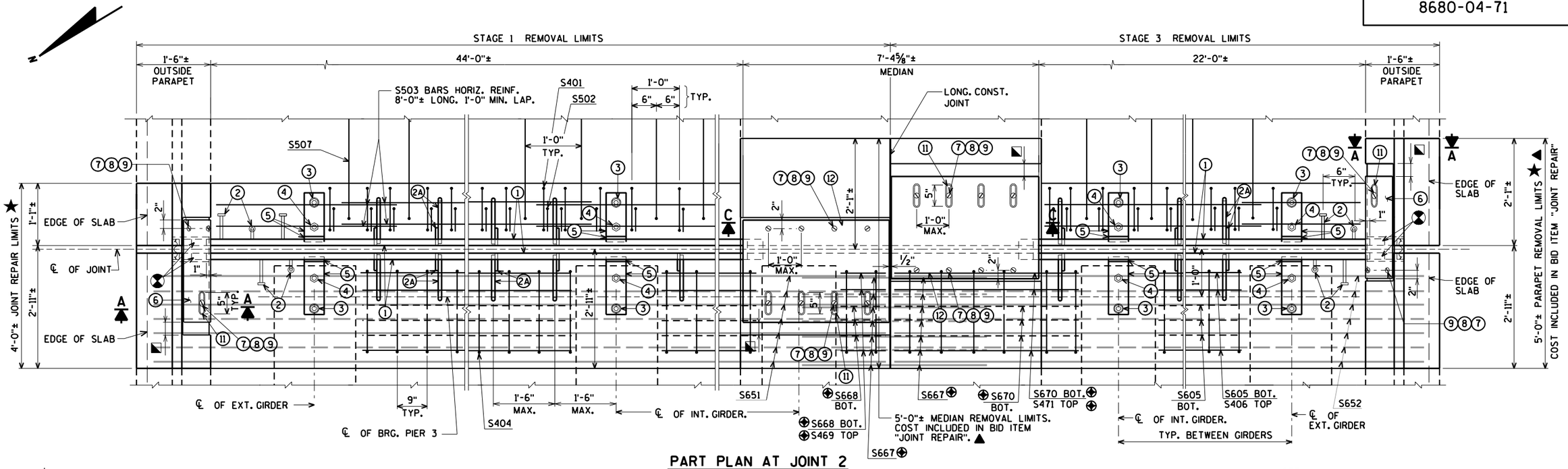
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STATE PROJECT NUMBER

8680-04-71

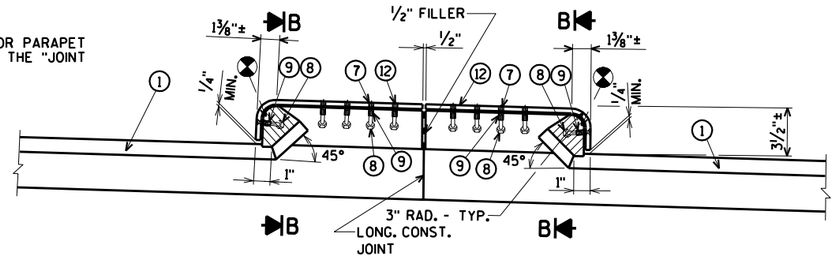


PART PLAN AT JOINT 2

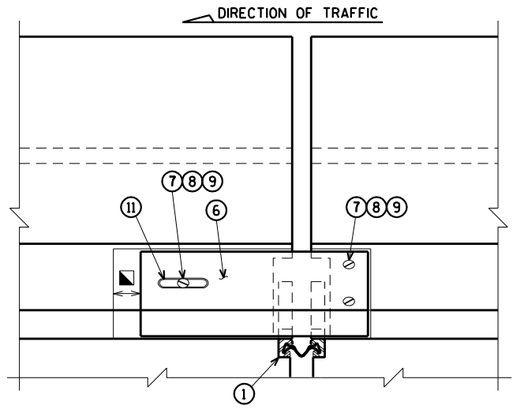
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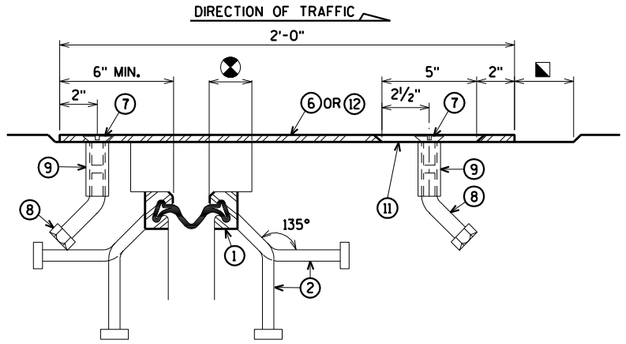
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.



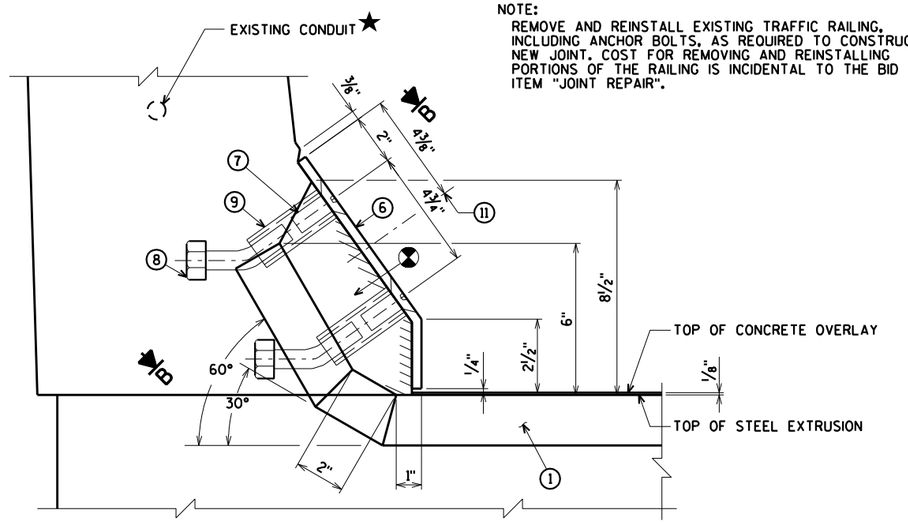
SECTION C
MEDIAN



VIEW OF PARAPET PLATES FROM ROADWAY



SECTION B



NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

SECTION A
OUTSIDE PARAPET

⊠ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◪ JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

WORK THIS SHEET WITH SHEET 30

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 2 DETAILS

SHEET 29 OF 99
375

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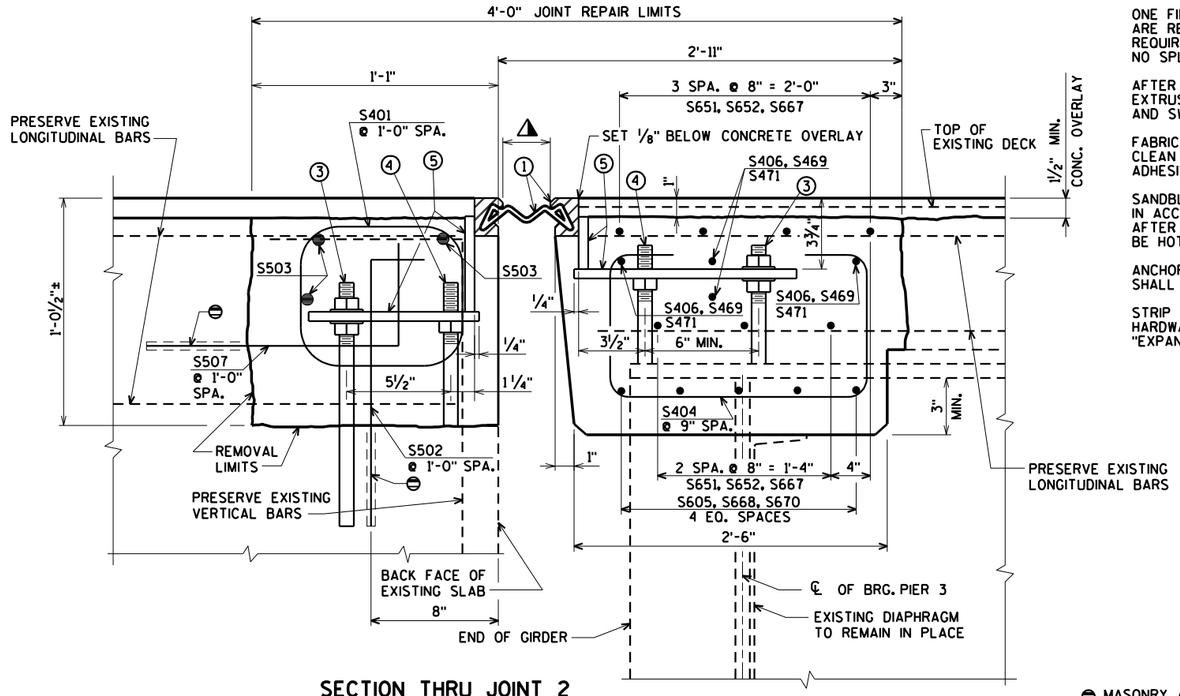
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STATE PROJECT NUMBER

8680-04-71



SECTION THRU JOINT 2

DIMENSIONS ARE NORMAL TO ℄ OF SUBSTRUCTURE UNIT

NOTES

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SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

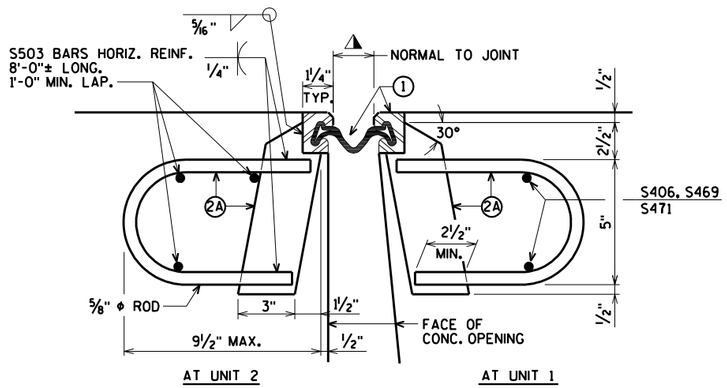
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STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".

LEGEND

1. NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
2. STUDS 5/8"Φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
2A. 1/2" THICK ANCHOR PLATE WITH 5/8"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. 3/4" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON UNIT 2 SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES AS SHOWN.
4. 3/4"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" Φ HOLE FOR NO. 3 AND 1" Φ HOLE FOR NO. 4.
6. GALVANIZED PLATE 3/8" X 10 1/2" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
7. 3/4"Φ X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
8. 3/4"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
9. 3/4"Φ X 2 1/4" GALVANIZED THREADED COUPLING.
11. 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
12. GALVANIZED PLATE 3/8" X 3'-9" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.

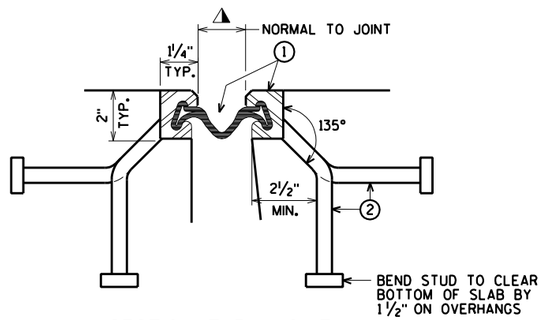
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SECTION THRU JOINT

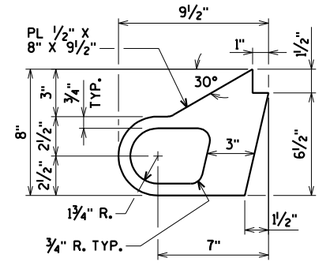
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS AND MEDIANS



ALTERNATE STRIP SEAL ANCHOR

TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1 1/4"
75°	1 1/2"
65°	1 3/4"
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A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

WORK THIS SHEET WITH SHEET 29

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 2 DETAILS

SHEET 30 OF 99
376

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www.AyresAssociates.com

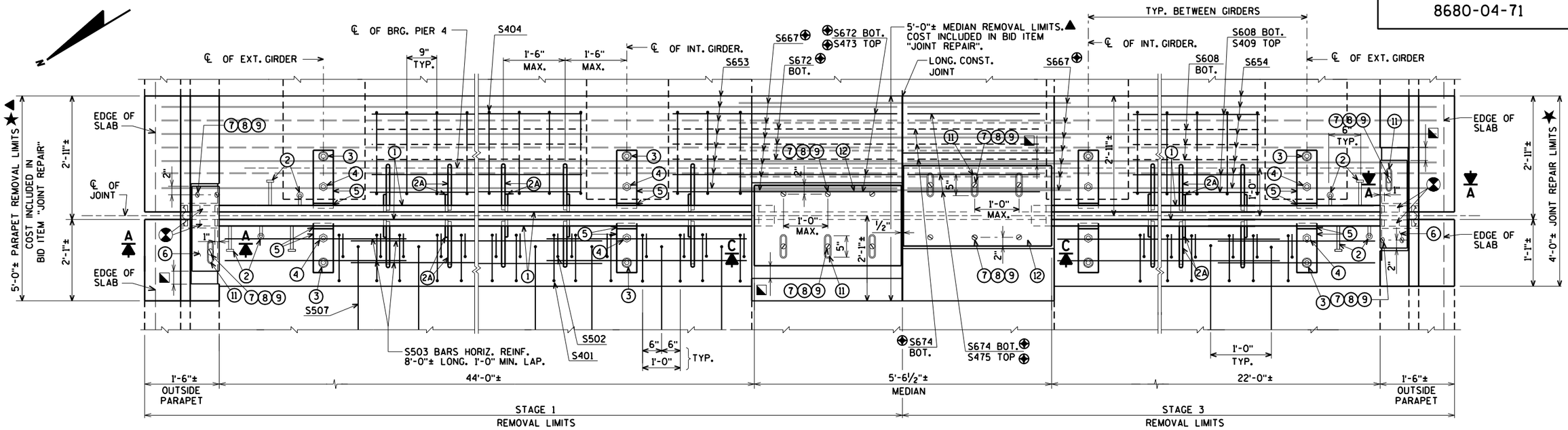
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STATE PROJECT NUMBER

8680-04-71

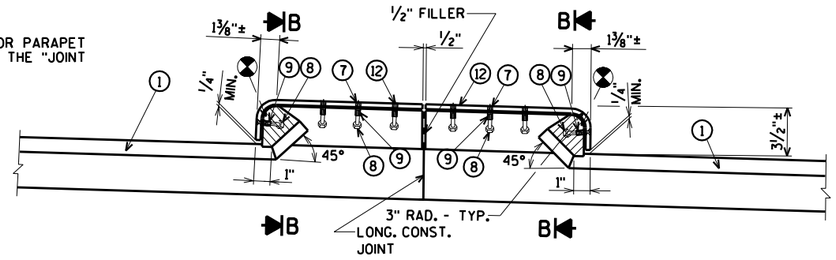


PART PLAN AT JOINT 3

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

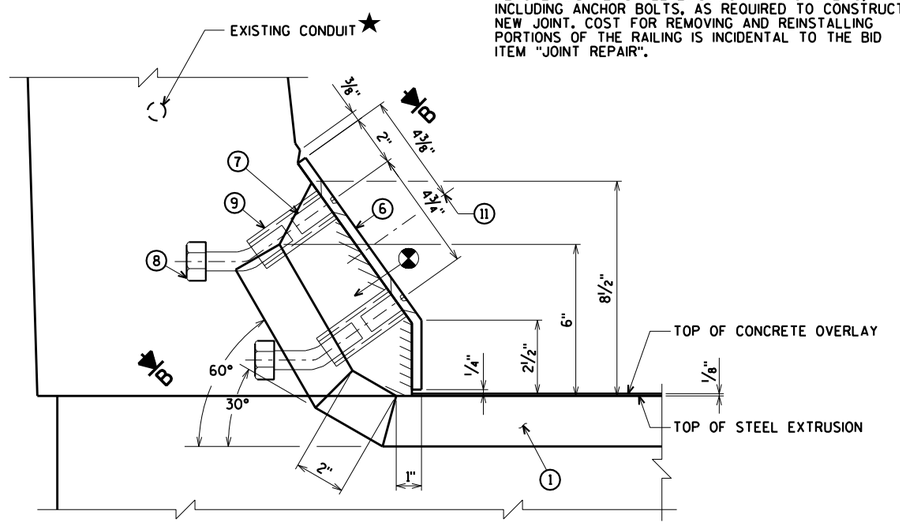
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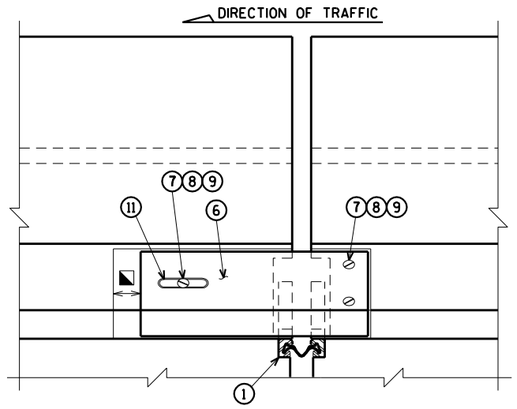


SECTION C
MEDIAN

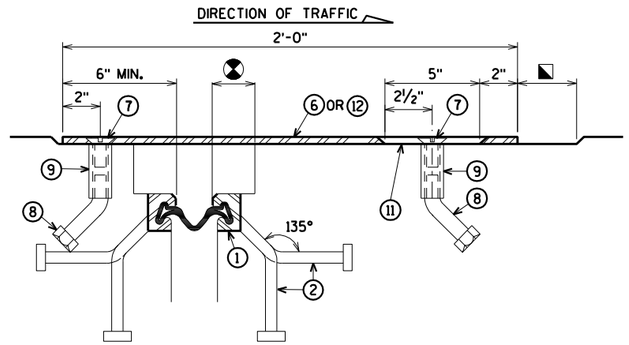
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SECTION A
OUTSIDE PARAPET



VIEW OF PARAPET PLATES FROM ROADWAY



SECTION B

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◪ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

WORK THIS SHEET WITH SHEET 32

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 3 DETAILS

SHEET 31 OF 99
377

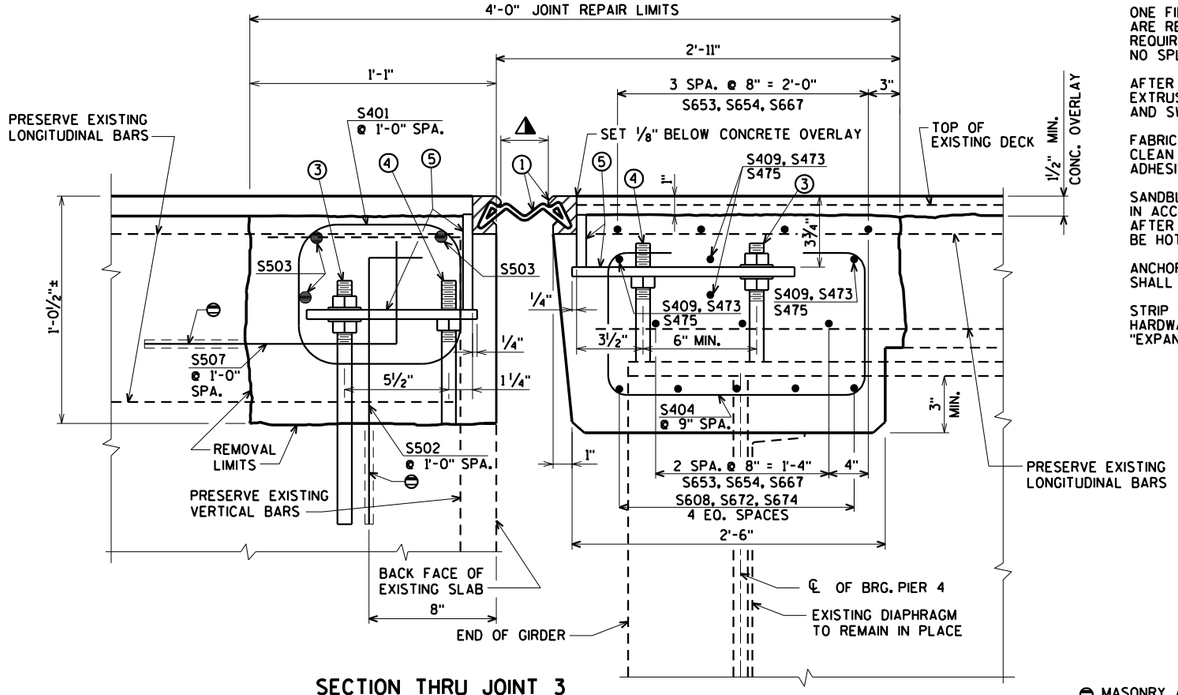
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SECTION THRU JOINT 3

DIMENSIONS ARE NORMAL TO ℄ OF SUBSTRUCTURE UNIT

NOTES

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SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".

LEGEND

(1) NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.

(2) STUDS 5/8"Φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.

(2A) 1/2" THICK ANCHOR PLATE WITH 5/8"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.

(3) 3/4" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON UNIT 2 SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES AS SHOWN.

(4) 3/4"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.

(5) FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" Φ HOLE FOR NO. 3 AND 1" Φ HOLE FOR NO. 4.

(6) GALVANIZED PLATE 3/8" X 10 1/2" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.

(7) 3/4"Φ X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.

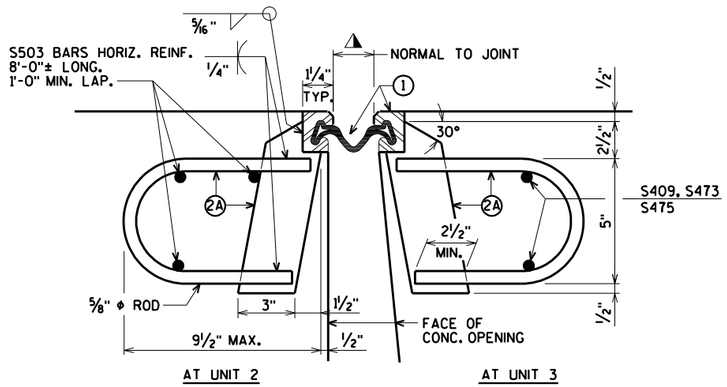
(8) 3/4"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.

(9) 3/4"Φ X 2 1/4" GALVANIZED THREADED COUPLING.

(11) 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

(12) GALVANIZED PLATE 3/8" X 3'-9" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.

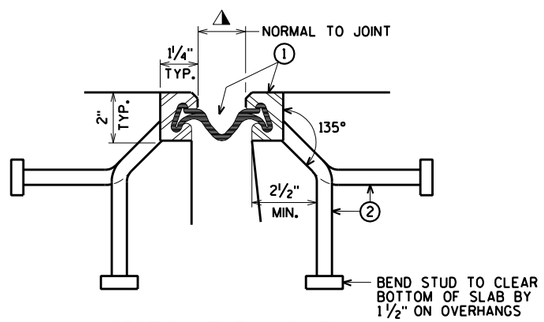
⊖ MASONRY ANCHORS TYPE L NO. 5 BARS MIN. PULLOUT CAPACITY OF 20 KIPS. EMBED A MINIMUM OF 1'-0" INTO CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.



SECTION THRU JOINT

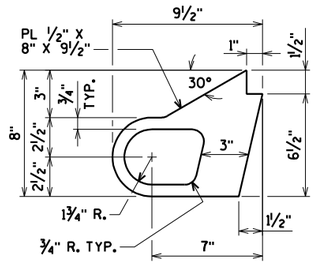
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS AND MEDIANS



ALTERNATE STRIP SEAL ANCHOR

⚠ TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1 1/4"
75°	1 1/2"
65°	1 3/4"
55°	2"
45°	2 1/4"
35°	2 1/2"
25°	2 3/4"
15°	3"
5°	3 1/4"

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

WORK THIS SHEET WITH SHEET 31

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

STRIP SEAL EXPANSION JOINT 3 DETAILS

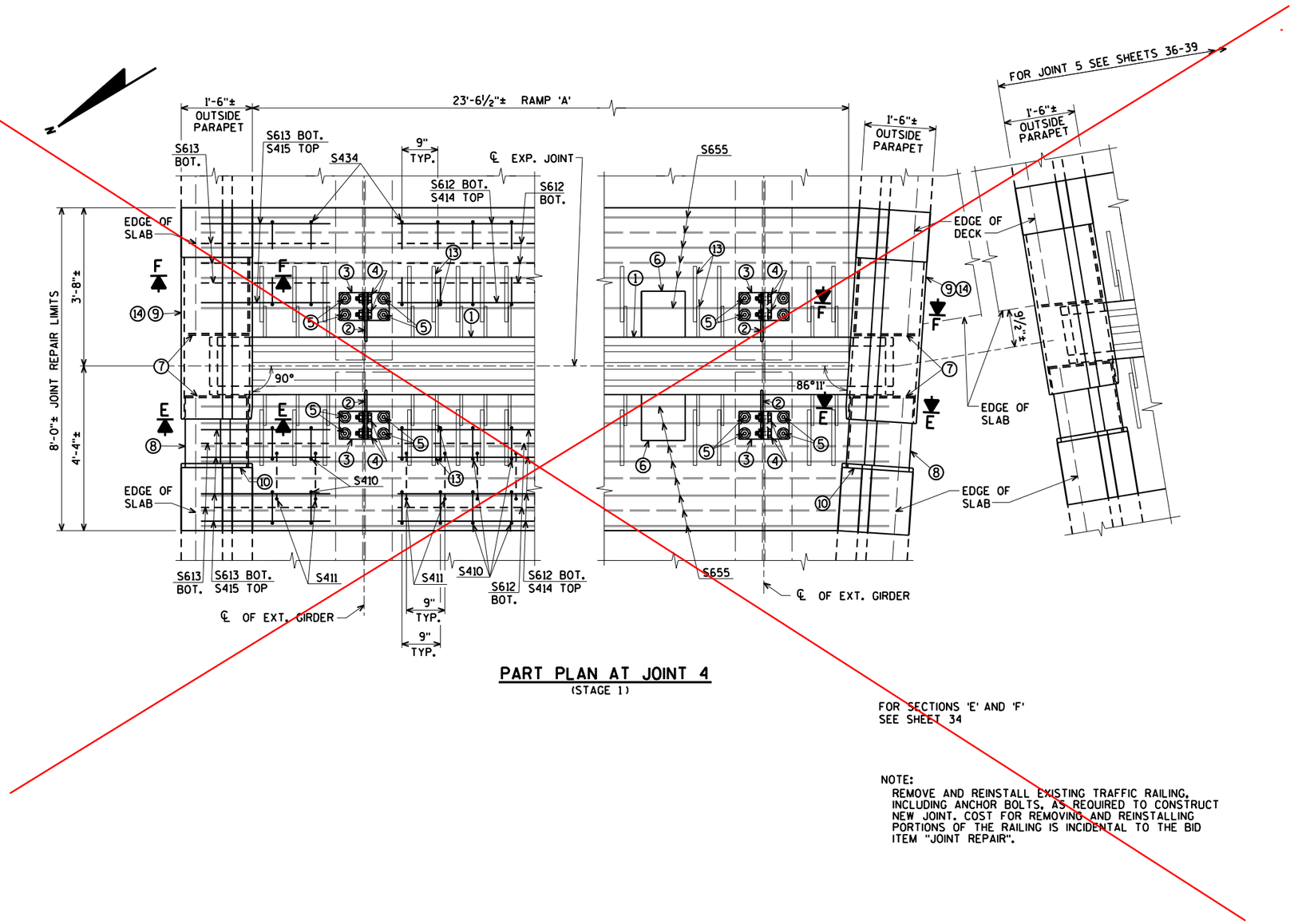
SHEET 32 OF 99
378

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

$PRFNAME$
U:±42-0825.00 - USH 2 St. Louis River Bong Bridge±BRIDGE±42-0825 EXPJT 3 ss.dgn

STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 4
(STAGE 1)

FOR SECTIONS 'E' AND 'F'
SEE SHEET 34

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

See revised details

WORK THIS SHEET WITH SHEETS 34-35

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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

MODULAR EXPANSION JOINT 4 DETAILS

SHEET 33 OF 99
379

8

8

epdf.plt
42-0825 EXPJT 4 .dgn

9/12/2013

black.tbl

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING

GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

SUPPORT BOXES SHALL BE ASTM-A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM-A240, TYPE 304, WITH A 20 MICRO-INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM-A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A-SM-STUD-REP-01, B-FF-STUD-REP-01, OR A-(MC)GF-STUD-REP-01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM-A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM-A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE. IF JOINT HAS MORE THAN ONE ASSEMBLY, THE NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE ONLY IN THE FIRST ASSEMBLY. REMAINDER OF SEAL SHALL BE ROLLED UP ON THE FIELD SPLICE END. SEAL SHALL THEN BE FIELD INSTALLED WITH A LUBRICANT ADHESIVE AFTER FIELD WELDING IS COMPLETE. NO FIELD SPLICES OF THE STRIP SEAL GLANDS SHALL BE PERMITTED. CONTRACTOR SHALL PROTECT SEAL DURING THE INSTALLATION OF 1ST JOINT SECTION TO PREVENT DAMAGE PRIOR TO THE INSTALLATION OF THE 2ND JOINT SECTION.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT. QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT-BRIDGE UNIT-INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

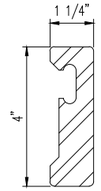
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

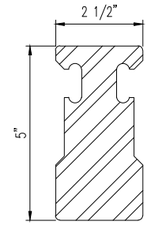
5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 3p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.



4" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.
(LOCATED ON 'D-240' MODULAR EXPANSION JOINTS.)



CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

INSTALLATION PROCEDURES

1) FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.

2) PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)

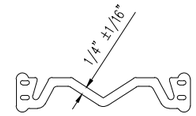
3) BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.

4) REMOVE BLOCKING & BANDING AND ADJUST JOINT TO PROPER JOINT OPENING AS DIRECTED.

5) FIELD LOCATE AND DRILL HOLES IN EXISTING GIRDER FLANGES FOR JOINT SUPPORT HARDWARE. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT ASSEMBLY CONNECTIONS. TACK WELD WT'S TO SUPPORT PLATES (IF REQUIRED).

6) CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.

7) POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. THEN REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2-400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 1
- SEE RAIL AND SEAL DETAILS ON SHEET 1
- SEE INSTALLATION PROCEDURES ON SHEET 1
- SEE SPLICE DETAILS ON SHEET 2
- SEE UPTURN DETAILS ON SHEET 2
- SEE STUD AND LOOP ANCHORS LOCATION & SPACING DETAILS ON SHEET 3
- SEE SPRING & BEARING DIAGRAM ON SHEET 3
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 3
- SEE 'D-240' PLAN VIEW FOR JOINT #4 ON SHEET 4
- SEE 'D-240' PLAN VIEW FOR JOINT #5 ON SHEET 5
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 6
- SEE JOINT SUPPORT DETAILS ON SHEET 6
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 7
- SEE SUPPORT BOX DETAILS ON SHEET 8
- SEE SUPPORT BAR DETAILS ON SHEET 9
- SEE BILL OF MATERIALS ON SHEET 10

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

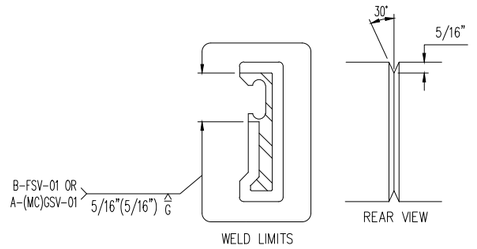
DESCRIPTION:
GENERAL NOTES & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	1 OF 10

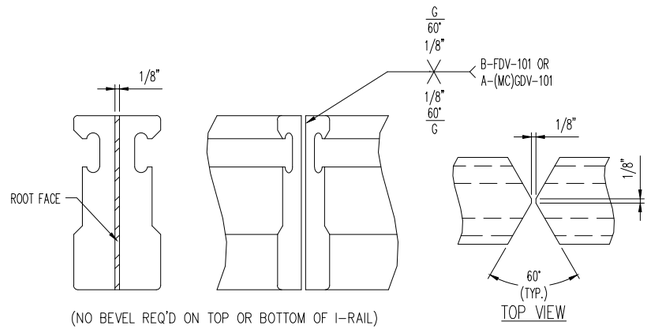
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	1

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING



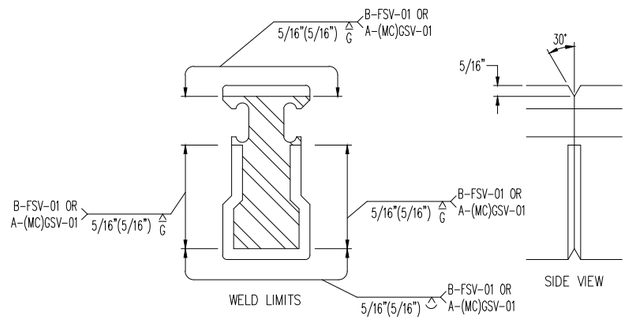
EDGE BEAM SHOP SPLICE DETAIL



(NO BEVEL REQ'D ON TOP OR BOTTOM OF I-RAIL)

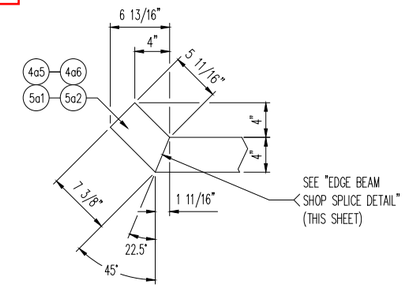
CENTER BEAM SHOP SPLICE DETAIL

COMPLETE PENETRATION WELD

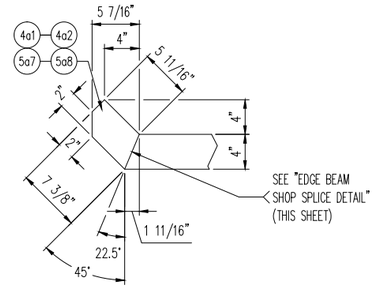


CENTER BEAM UPTURN SHOP SPLICE DETAIL

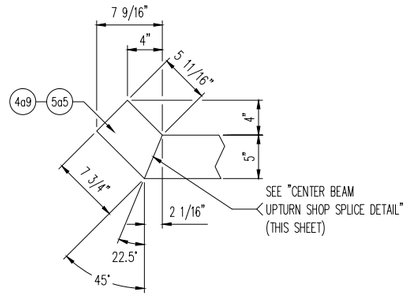
PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)



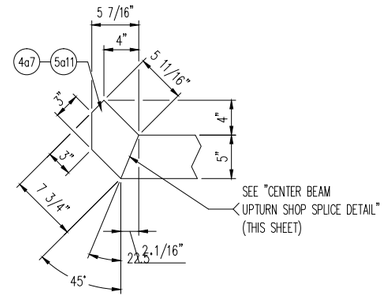
EDGE BEAM UPTURN 1 DETAIL



EDGE BEAM UPTURN 2 DETAIL



CENTER BEAM UPTURN 1 DETAIL



CENTER BEAM UPTURN 2 DETAIL

REV.	DESCRIPTION	DATE	DET.	CKD.

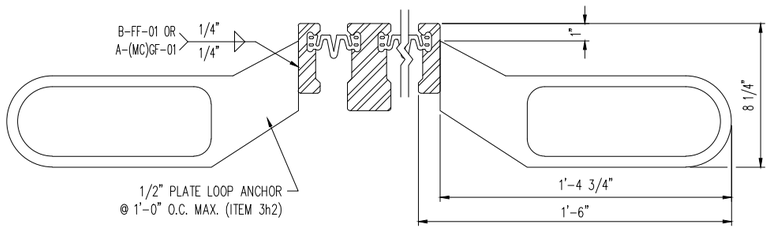
D.S. BROWN
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300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
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FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

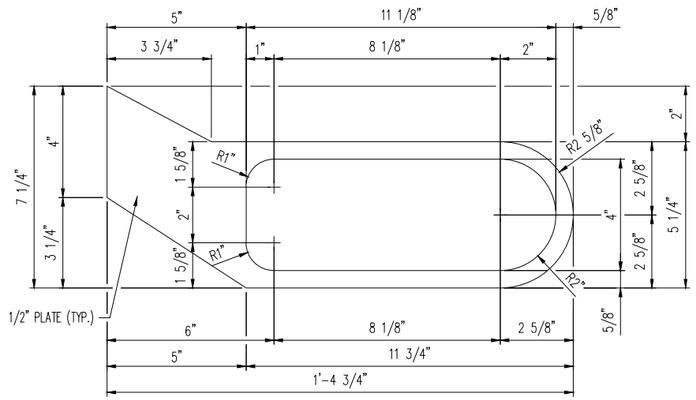
DESCRIPTION:
STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	2 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	2

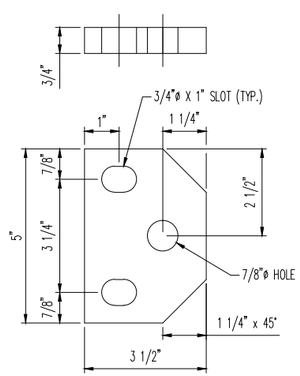


SECTION THRU 'D-240' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)



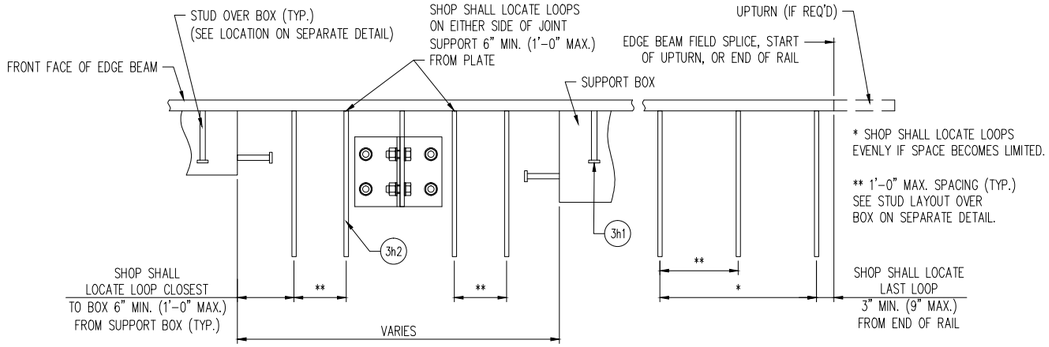
ITEM NO. 3h2
(96) REQ'D.

PLATE ANCHOR DETAIL



ITEM NO. 3p1
(54) REQ'D.

SPRING ACCESS PLATE DETAIL

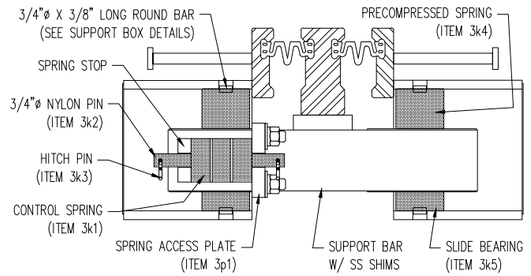


TYP. LOOP ANCHOR LAYOUT SEQUENCE ALONG EDGE BEAM

IF INTERFERENCE OCCURS WITH A GIRDER SUPPORT PLATE,
SHOP SHALL SHIFT STUD AS INDICATED ABOVE.

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING



TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-160" SHOWN - OTHER JOINT SIZES SIMILAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

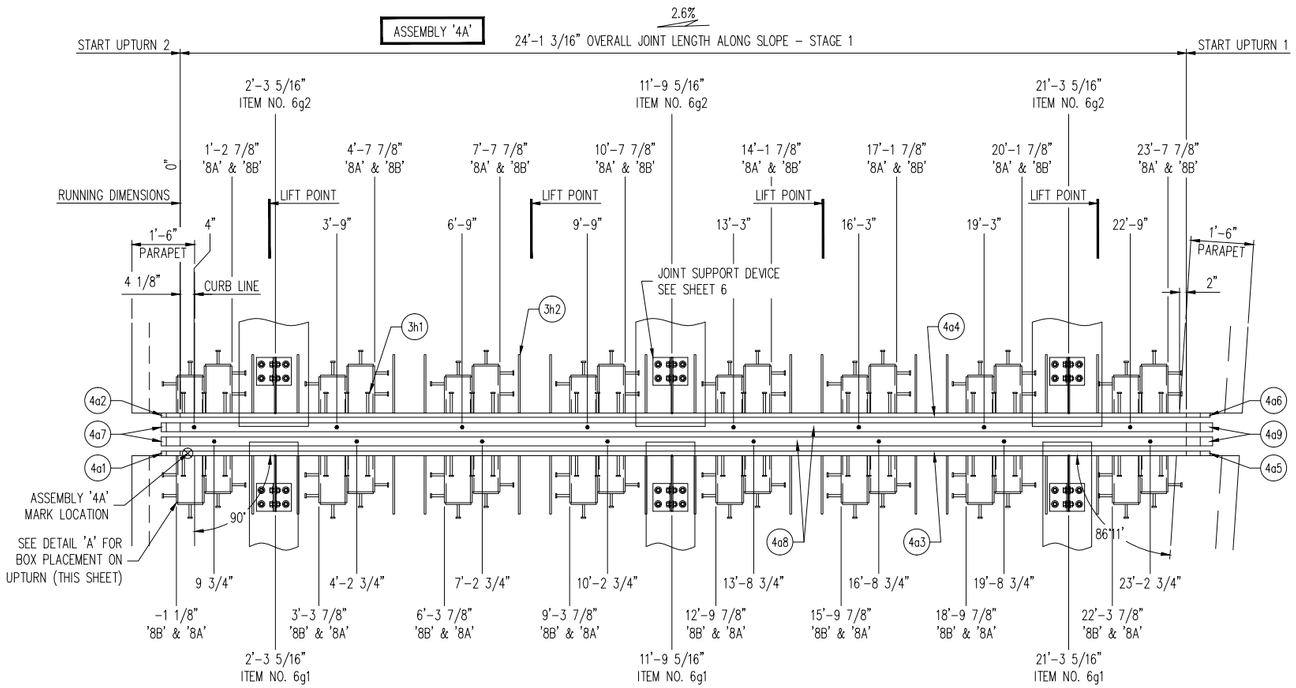
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	ITEM	QUANTITY
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P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION:
SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	3 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	3



'D-240' MODULAR EXPANSION JOINT PLAN VIEW

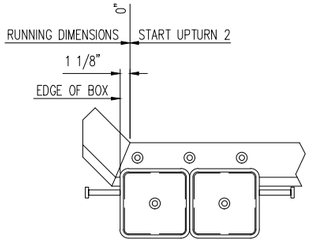
USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. B-16-38 (WI) / 69100 (MN)
JOINT #4 LOCATED AT WESTBOUND LANES RAMP 'A' (LOOKING UPSTATION)
PAY ITEM NO. 502.3110.S (LINE ITEM NO. 0650)

BOX SPACING = VARIES (3'-6" MAX.)
(1) JOINT REQUIRED

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 1
- SEE RAIL AND SEAL DETAILS ON SHEET 1
- SEE INSTALLATION PROCEDURES ON SHEET 1
- SEE SPLICE DETAILS ON SHEET 2
- SEE UPTURN DETAILS ON SHEET 2
- SEE STUD AND LOOP ANCHORS LOCATION & SPACING DETAILS ON SHEET 3
- SEE SPRING & BEARING DIAGRAM ON SHEET 3
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 3
- SEE 'D-240' PLAN VIEW FOR JOINT #4 ON SHEET 4
- SEE 'D-240' PLAN VIEW FOR JOINT #5 ON SHEET 5
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 6
- SEE JOINT SUPPORT DETAILS ON SHEET 6
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 7
- SEE SUPPORT BOX DETAILS ON SHEET 8
- SEE SUPPORT BAR DETAILS ON SHEET 9
- SEE BILL OF MATERIALS ON SHEET 10



DETAIL 'A'

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

REV.	DESCRIPTION	DATE	DET.	CKD.

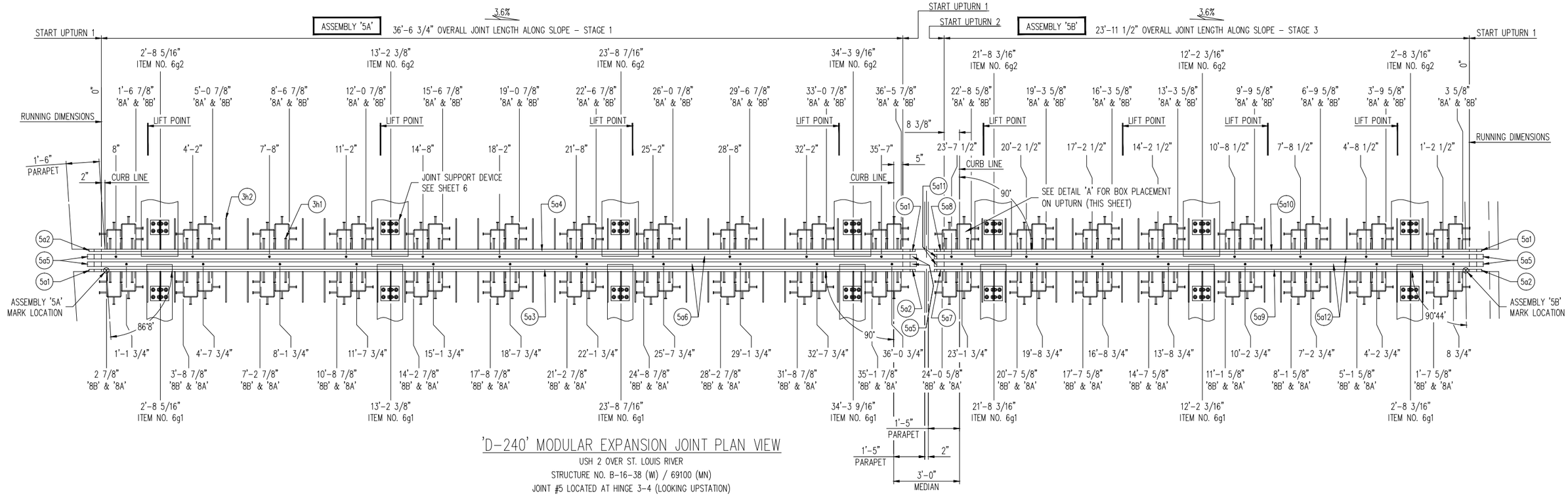
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100 (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: 'D-240' PLAN VIEW & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	4 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	4



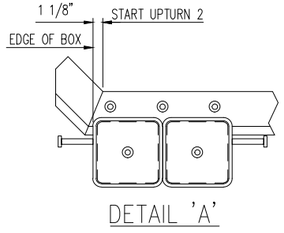
'D-240' MODULAR EXPANSION JOINT PLAN VIEW

USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. B-16-38 (WI) / 69100 (MN)
JOINT #5 LOCATED AT HINGE 3-4 (LOOKING UPSTATION)
PAY ITEM NO. 502.3110.S (LINE ITEM NO. 0650)

BOX SPACING = VARIES (3'-6" MAX.)
(1) JOINT EA. REQUIRED

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING



DETAIL 'A'

FABRICATION NOTE:

– SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

SHOP NOTES:

- SEE GENERAL NOTES ON SHEET 1
- SEE RAIL AND SEAL DETAILS ON SHEET 1
- SEE INSTALLATION PROCEDURES ON SHEET 1
- SEE SPLICE DETAILS ON SHEET 2
- SEE UPTURN DETAILS ON SHEET 2
- SEE STUD AND LOOP ANCHORS LOCATION & SPACING DETAILS ON SHEET 3
- SEE SPRING & BEARING DIAGRAM ON SHEET 3
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 3
- SEE 'D-240' PLAN VIEW FOR JOINT #4 ON SHEET 4
- SEE 'D-240' PLAN VIEW FOR JOINT #5 ON SHEET 5
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 6
- SEE JOINT SUPPORT DETAILS ON SHEET 6
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 7
- SEE SUPPORT BOX DETAILS ON SHEET 8
- SEE SUPPORT BAR DETAILS ON SHEET 9
- SEE BILL OF MATERIALS ON SHEET 10

REV.	DESCRIPTION	DATE	DET.	CKD.

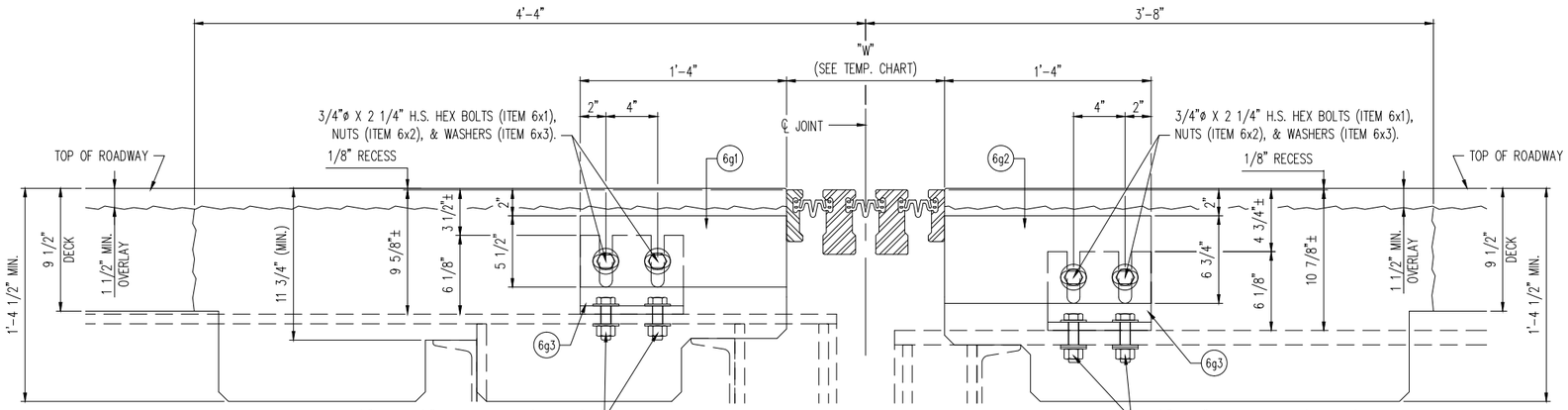
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION: 'D-240' PLAN VIEW & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN

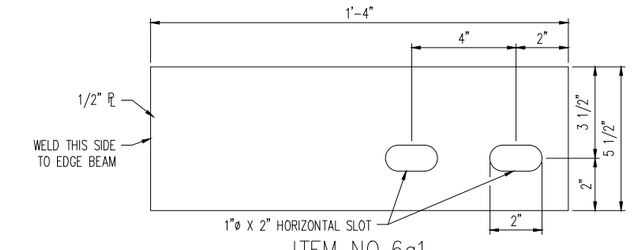
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	5 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	5



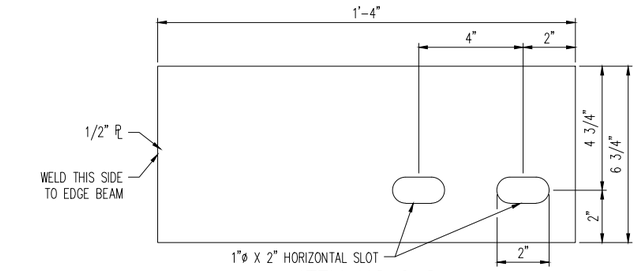
SECTION OF 'D-240' SUPPORTS @ GIRDERS

DIMENSIONS SHOWN ARE AT 45°F



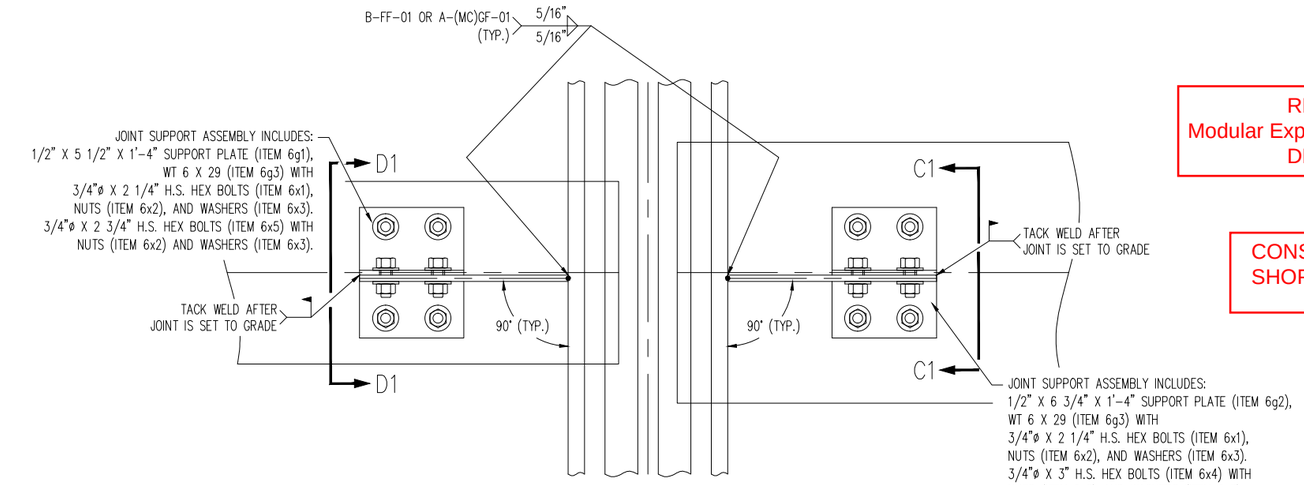
ITEM NO. 6g1

(10) REQ'D.



ITEM NO. 6g2

(10) REQ'D.



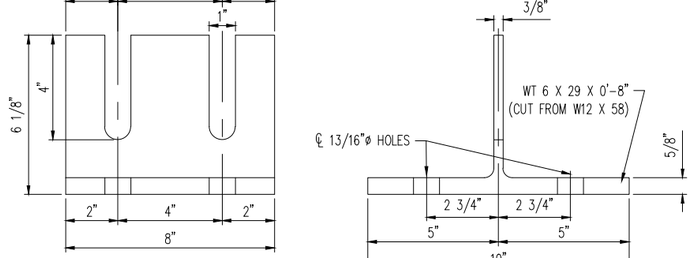
PLAN VIEW OF SUPPORTS @ GIRDERS

DIMENSIONS SHOWN ARE AT 45°F

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING

NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01



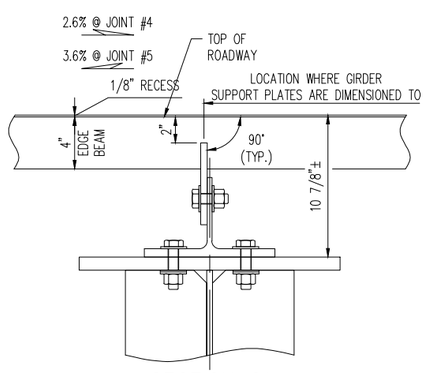
WT6x29 JOINT SUPPORT

ITEM 6g3
(20) REQUIRED

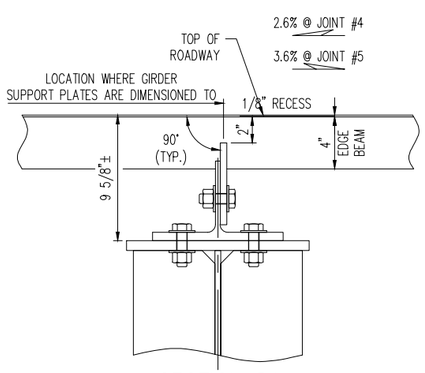
'D-240' OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINT #4 & #5
MAX.	7 1/2"
95°F	9 3/4"
85°F	10 1/4"
75°F	10 3/4"
65°F	11 1/4"
55°F	11 3/4"
MID. @ 45°F	1'-0 1/4"
35°F	1'-0 3/4"
25°F	1'-1 1/4"
15°F	1'-1 3/4"
5°F	1'-2 1/4"
-5°F	1'-2 3/4"
MIN.	1'-4 15/16"

TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT:
1/2" PER 10°F @ JOINT #4 & #5



SECTION C1



SECTION D1

PAGE 379 F

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

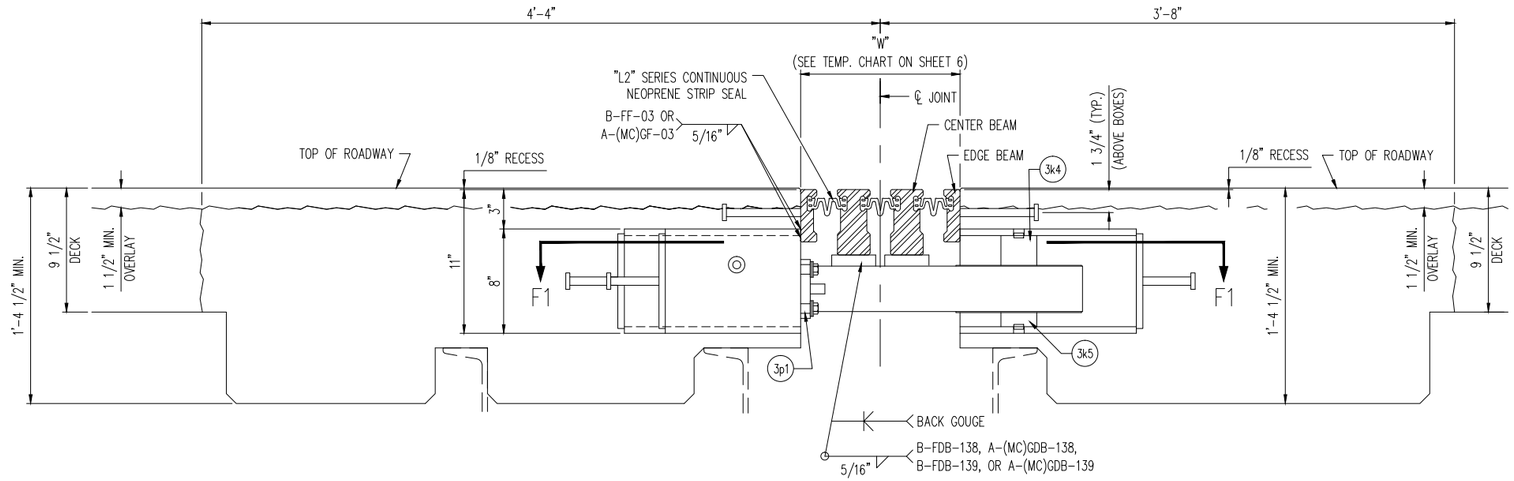
LOCATION — USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)
P.O. NO. — SH9468
DESIGNER — AYRES ASSOCIATES
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)

ITEM	QUANTITY
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–	–

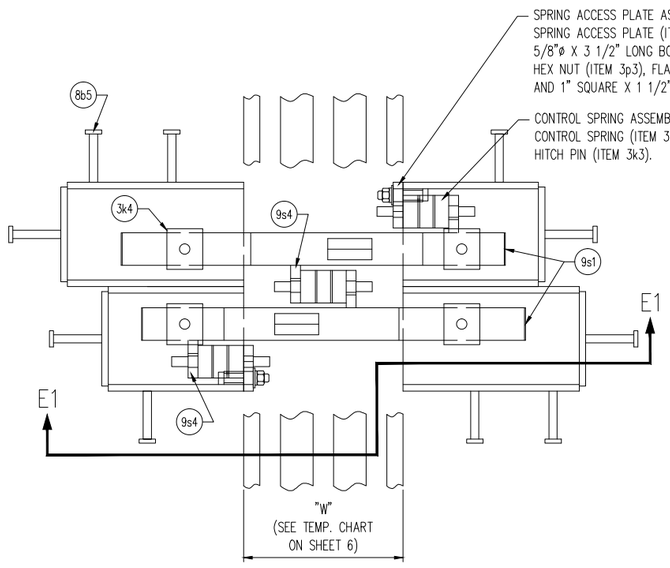
DESCRIPTION: 'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	6 OF 10

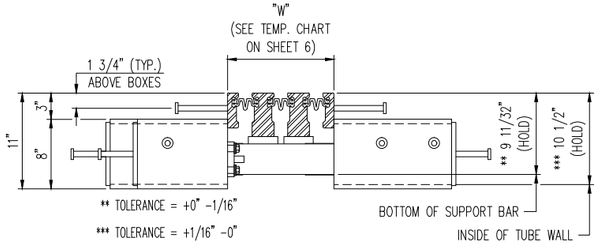
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	6



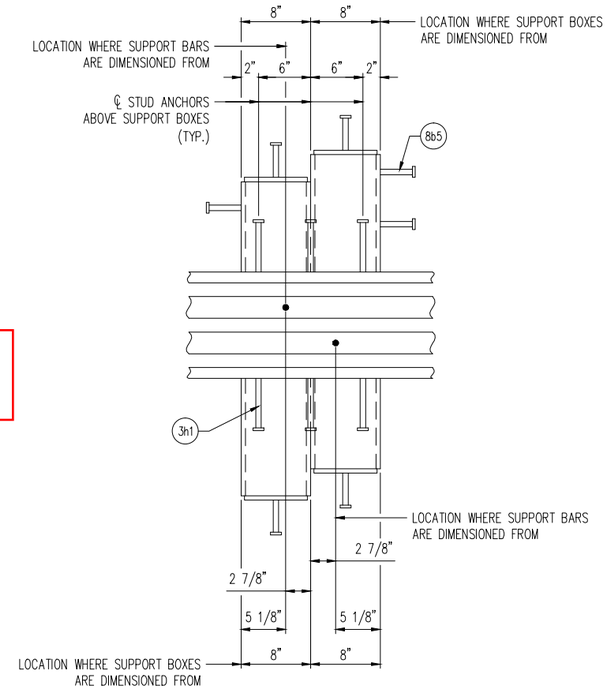
SECTION E1



SECTION F1



SECTION THRU 'D-240' @ SUPPORT BOX



'D-240' SUPPORT BOX DETAIL

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

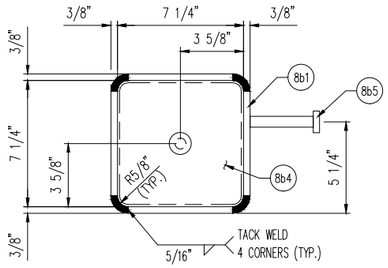
DESCRIPTION: 'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

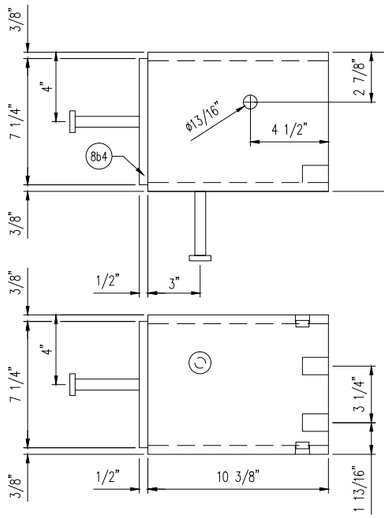
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	7 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	7

REVISED
Modular Expansion Joints 4 & 5
DETAILS

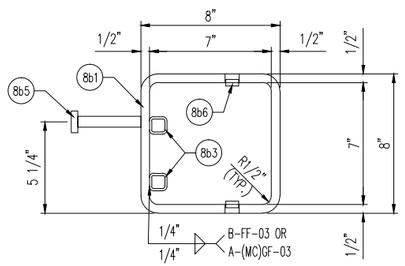
CONSTRUCTION
SHOP DRAWING



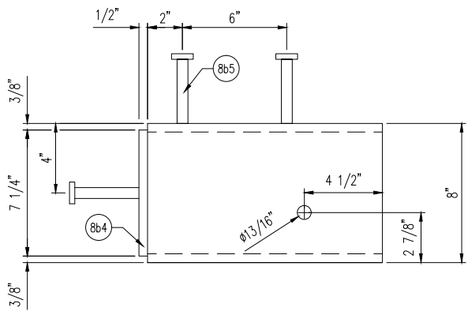


ITEM	DESCRIPTION	QTY.
8b1	1/2" THICK SUPPORT BOX TUBE	54
8b3	1" SQUARE X 1 1/2" LONG TUBING	108
8b4	1/2" PLATE END CAP	54
8b5	5/8"ø X 4" STUD ANCHOR	108
8b6	3/4"ø X 3/8" BAR	108

FOR SHOP USE ONLY

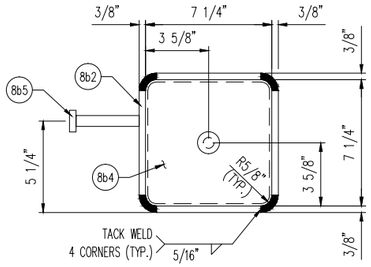


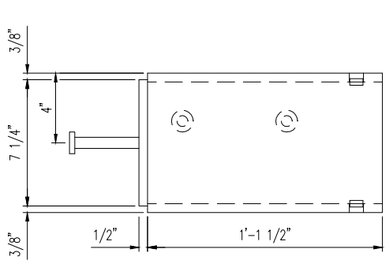
'D-240' SUPPORT BOX DETAIL "8A"
(54) REQUIRED

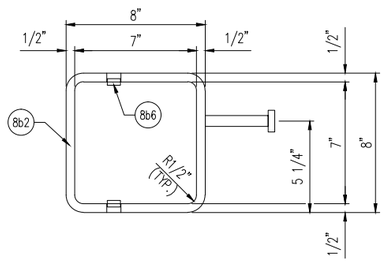


ITEM	DESCRIPTION	QTY.
8b2	1/2" THICK SUPPORT BOX TUBE	54
8b4	1/2" PLATE END CAP	54
8b5	5/8"ø X 4" STUD ANCHOR	162
8b6	3/4"ø X 3/8" BAR	108

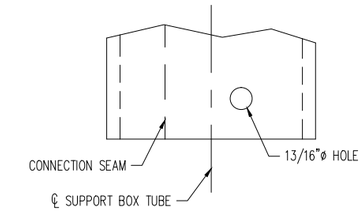
FOR SHOP USE ONLY





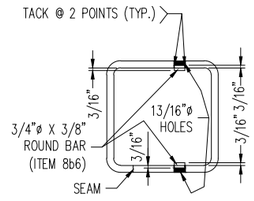


'D-240' SUPPORT BOX DETAIL "8B"
(54) REQUIRED



SHOP NOTE:

WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE ℄ OF BOX.



SUPPORT BOX PIN DETAILS
(W/ RUBBER SPRINGS & BEARINGS)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

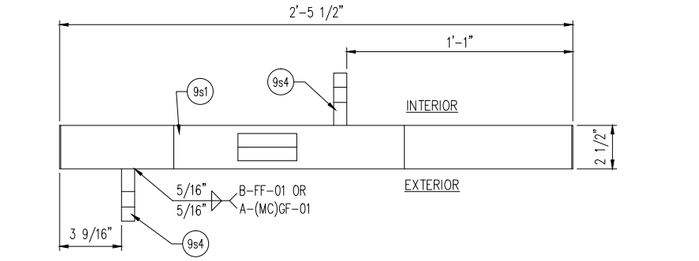
DESCRIPTION:
'D-240' SUPPORT BOX DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	8 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	8

REVISED
Modular Expansion Joints 4 & 5
DETAILS

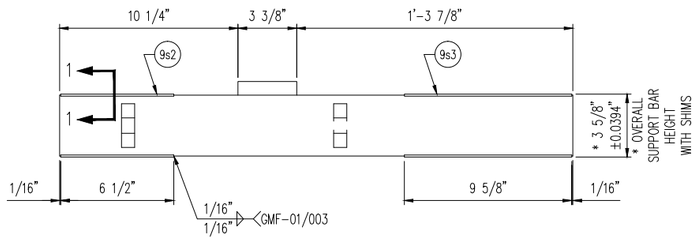
CONSTRUCTION
SHOP DRAWING

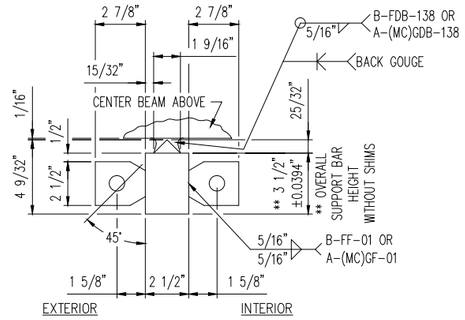


ITEM	DESCRIPTION	QTY.
9s1	2 1/2" X 4 9/32" X 2'-5 1/2" BAR	54
9s2	16GA. X 3 1/8" X 6 1/2" S.S. SHIM	108
9s3	16GA. X 3 1/8" X 9 5/8" S.S. SHIM	108
9s4	3/4" X 2 1/2" X 2 7/8" FLAT BAR	108

FOR SHOP USE ONLY

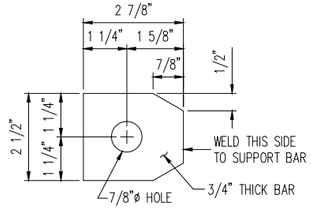
NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.





'D-240' SUPPORT BAR DETAILS

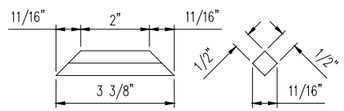
(54) REQUIRED



ITEM NO. 9s4

(108) REQ'D.

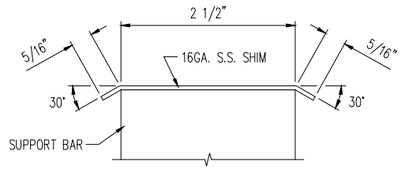
SPRING STOP DETAIL



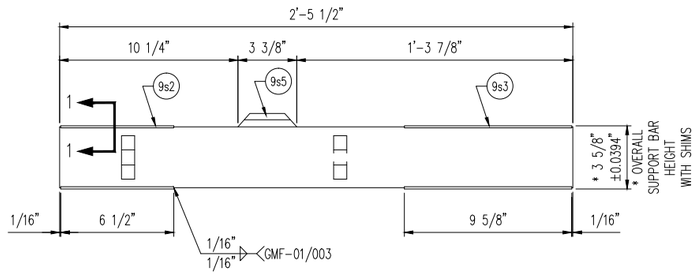
ITEM NO. 9s5

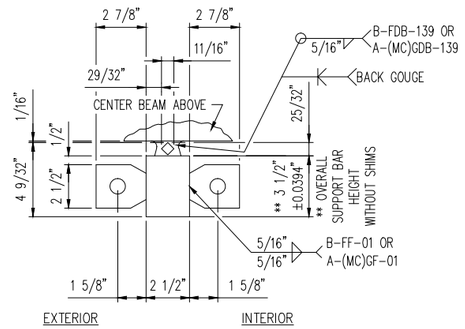
(54) REQ'D.

RIDER BAR DETAIL



SECTION 1-1





OPTIONAL 'D-240' SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	9 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	9

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
4A	1	"D-240" MODULAR EXPANSION JOINT			25'-2 3/16"	6764	
3h1	48	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
3h2	28	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
3k1	24	CONTROL SPRING (80MM)	-		PLAIN	1	
3k2	24	NYLON PIN (80MM)	-		PLAIN	< 1	
3k3	48	HITCH PIN	-		PLAIN	< 1	
3k4	32	PRECOMPRESSED SPRING	-		PLAIN	< 1	
3k5	32	SLIDE BEARING	-		PLAIN	1	
3p1	16	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
3p2	32	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
3p3	32	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
3p4	32	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
3p5	32	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
4a1	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
4a2	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
4a3	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	24'-4 9/16	A123-HDG	315	
4a4	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	24'-4 9/16	A123-HDG	315	
4a5	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
4a6	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
4a7	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-7 3/4	A123-HDG	22	
4a8	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	24'-5 5/16	A123-HDG	843	
4a9	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-7 3/4	A123-HDG	22	
4y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
4y2	3	L2-400 GLAND	NEOPRENE	26'-0	78'-0" TOTAL;	42	
6g1	3	1/2 X 5 1/2	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	12	
6g2	3	1/2 X 6 3/4	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
8b1	16	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
8b2	16	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
8b3	32	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
8b4	32	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
8b5	80	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
8b6	64	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
9s1	16	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
9s2	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
9s3	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
9s4	32	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			3/13/2014 12:06:33 PM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
5A	1	"D-240" MODULAR EXPANSION JOINT			37'-9 7/8"	9583	
3h1	66	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
3h2	40	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
3k1	33	CONTROL SPRING (80MM)	-		PLAIN	1	
3k2	33	NYLON PIN (80MM)	-		PLAIN	< 1	
3k3	66	HITCH PIN	-		PLAIN	< 1	
3k4	44	PRECOMPRESSED SPRING	-		PLAIN	< 1	
3k5	44	SLIDE BEARING	-		PLAIN	1	
3p1	22	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
3p2	44	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
3p3	44	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
3p4	44	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
3p5	44	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
5a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
5a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
5a3	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-10 1/8	A123-HDG	476	
5a4	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-10 1/8	A123-HDG	476	
5a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-7 3/4	A123-HDG	22	
5a6	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	36'-10 7/8	A123-HDG	1272	
5y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
5y2	3	L2-400 GLAND	NEOPRENE	39'-0	117'-0" TOTAL;	62	
6g1	4	1/2 X 5 1/2	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	12	
6g2	4	1/2 X 6 3/4	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
8b1	22	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
8b2	22	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
8b3	44	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
8b4	44	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
8b5	110	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
8b6	88	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
9s1	22	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
9s2	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
9s3	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
9s4	32	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
5B	1	"D-240" MODULAR EXPANSION JOINT			25'-0 1/2"	6750	
3h1	48	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
3h2	28	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
3k1	24	CONTROL SPRING (80MM)	-		PLAIN	1	
3k2	24	NYLON PIN (80MM)	-		PLAIN	< 1	
3k3	48	HITCH PIN	-		PLAIN	< 1	
3k4	32	PRECOMPRESSED SPRING	-		PLAIN	< 1	
3k5	32	SLIDE BEARING	-		PLAIN	1	
3p1	16	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
3p2	32	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
3p3	32	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
3p4	32	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
3p5	32	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
5a1	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
5a2	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
5a5	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-7 3/4	A123-HDG	22	
5a7	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
5a8	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
5a9	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	24'-2 7/8	A123-HDG	313	
5a10	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	24'-2 7/8	A123-HDG	313	
5a11	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-7 3/4	A123-HDG	22	
5a12	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	24'-3 5/8	A123-HDG	838	
5y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
5y2	3	L2-400 GLAND	NEOPRENE	26'-0	78'-0" TOTAL;	42	
6g1	3	1/2 X 5 1/2	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	12	
6g2	3	1/2 X 6 3/4	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
8b1	16	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
8b2	16	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
8b3	32	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
8b4	32	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
8b5	80	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
8b6	64	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
9s1	16	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
9s2	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
9s3	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
9s4	32	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			3/13/2014 12:06:33 PM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
6GA	20	JOINT SUPPORT ITEM				19	
6g3	20	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
6XA	40	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
6x1	40	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
6XB	120	JOINT SUPPORT HARDWARE - HEX NUT (ROCAP)				< 1	
6x2	120	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
6XC	280	JOINT SUPPORT HARDWARE - FLAT WASHER (ROCAP)				< 1	
6x3	280	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
6XD	40	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
6x4	40	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
6XE	40	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
6x5	40	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
6XAT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
6t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
6XBT	9	TESTING HARDWARE - HEX NUT (ROCAP)				< 1	
6t2	9	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
6XCT	18	TESTING HARDWARE - FLAT WASHER (ROCAP)				< 1	
6t3	18	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
6XDT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
6t1	3	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
6XET	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
6t1	3	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			3/13/2014 12:06:33 PM		

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

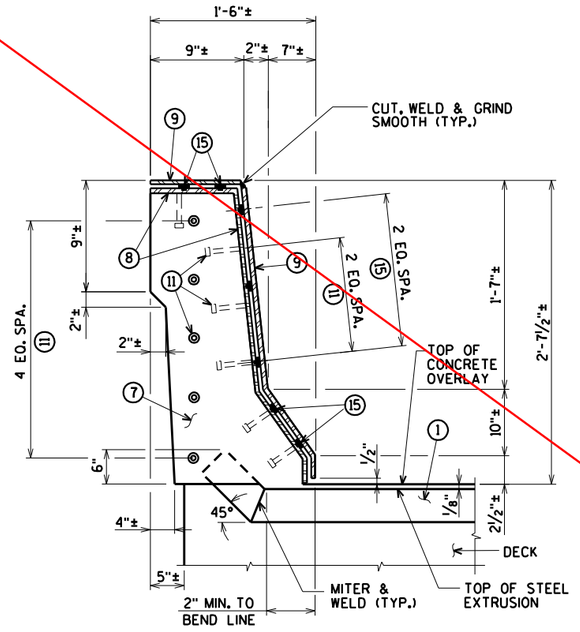
DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	10 OF 10

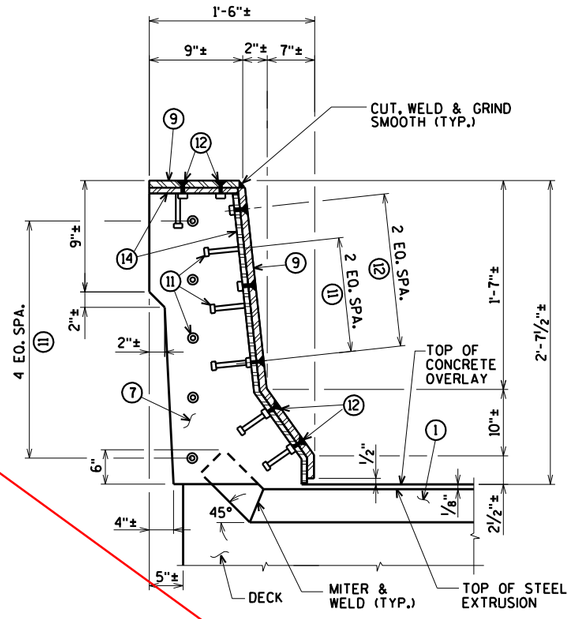
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	10

STATE PROJECT NUMBER

8680-04-71



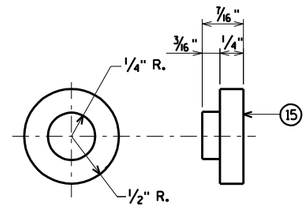
SECTION E



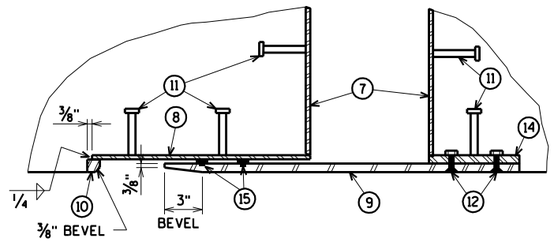
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

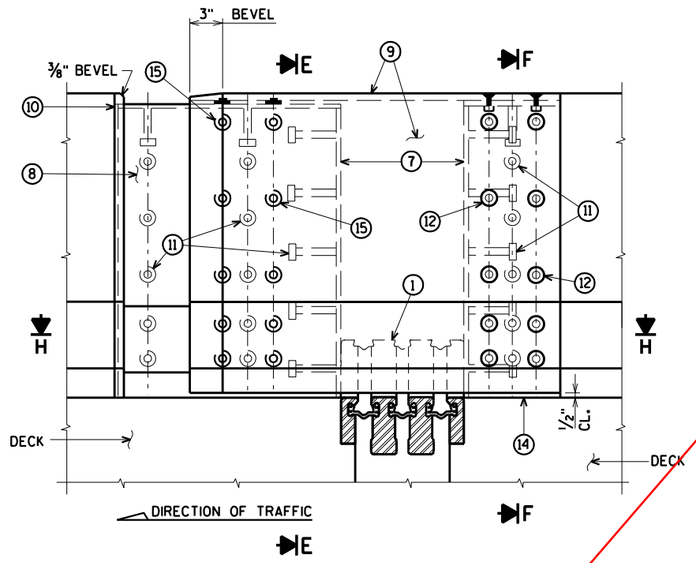
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 33



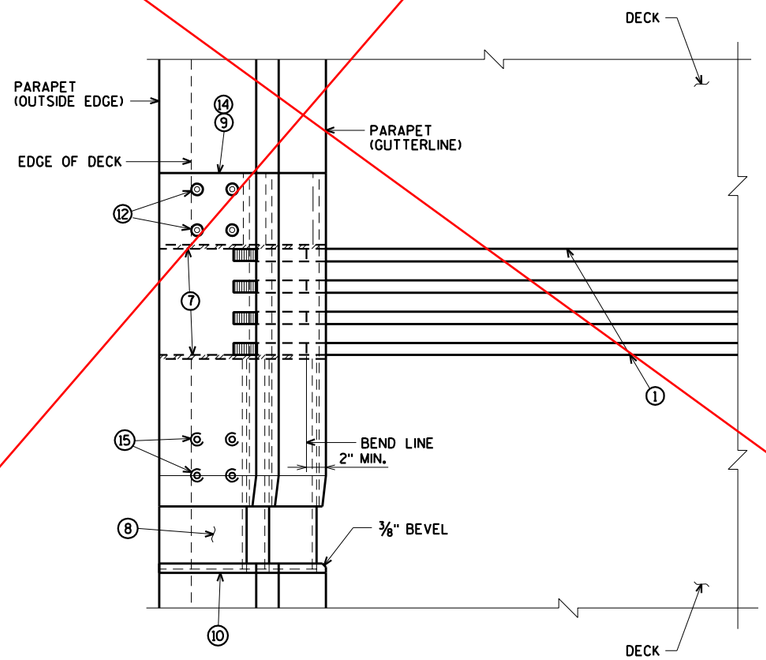
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET
(NORTH PARAPET SHOWN, OTHER SIDE SIMILAR)



PLAN OF OUTSIDE PARAPET
(NORTH PARAPET SHOWN, OTHER SIDE SIMILAR)

See revised joint details PAGE 379.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 33 & 35

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 4 DETAILS OUTSIDE PARAPET

SHEET 34 OF 99
380

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

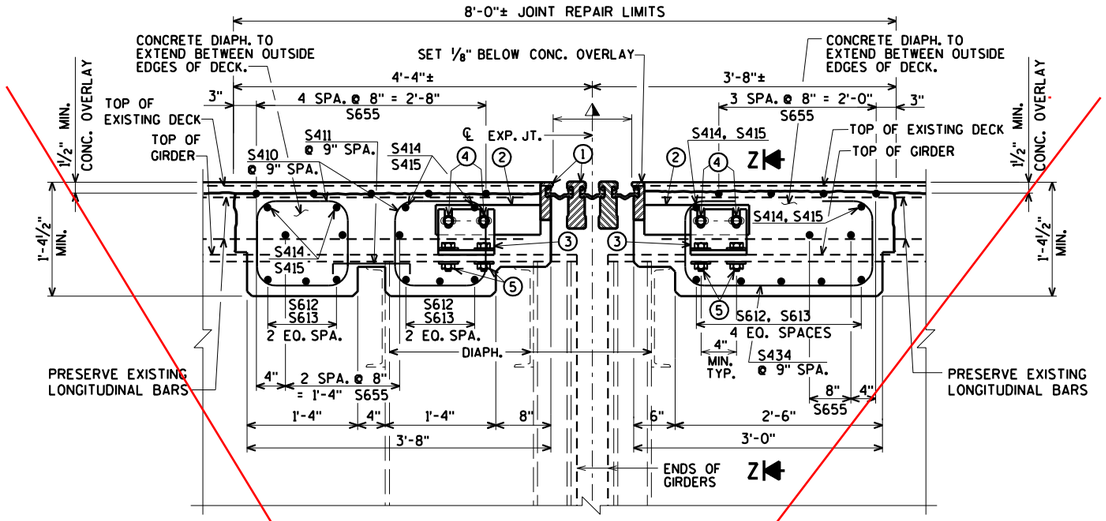
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8

8

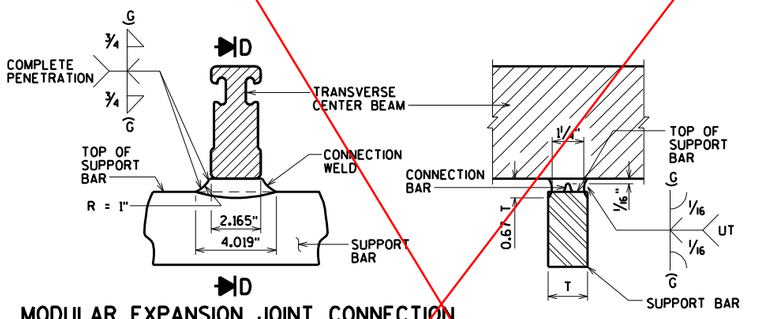
STATE PROJECT NUMBER

8680-04-71



SECTION THRU JOINT 4

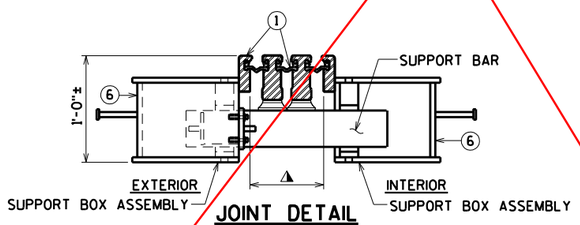
NORMAL TO ℄ OF JOINT



D

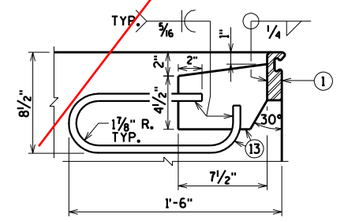
MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

SECTION D



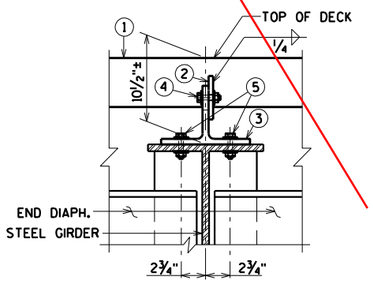
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY

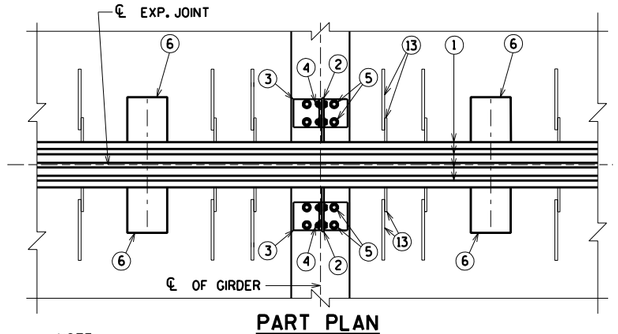


ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK ⊄ CONC. DIAPH.



SECTION Z-Z



PART PLAN

NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED.

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② 1/2" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM 1/2" PLATES.

⑦ 3/8" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM 3/8" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑩ 7/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.

⑪ 3/4" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ 3/4" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ 1/2" PLATE WITH 5/8" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

See revised joint details PAGE 379.
Cover plate details PAGE 409.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. 1/2 IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 33-34

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 4 DETAILS

SHEET 35 OF 99
381

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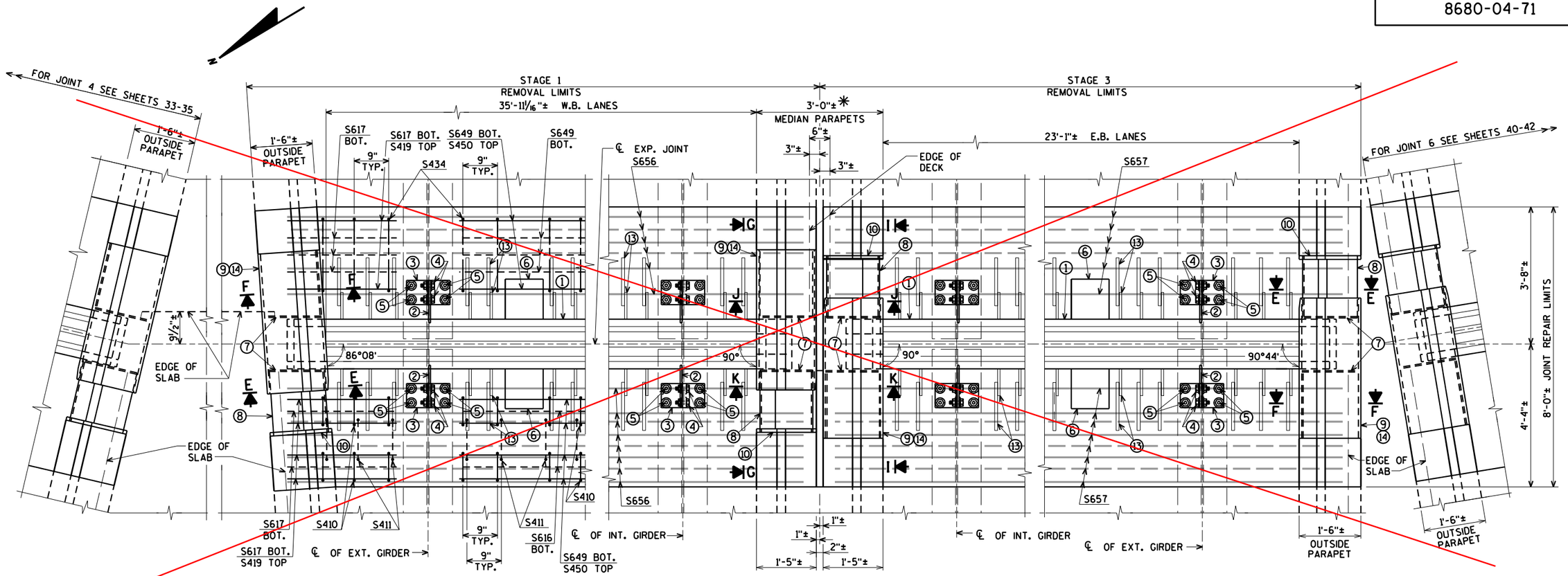
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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 5

* THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

FOR SECTIONS 'E' AND 'F'
SEE SHEET 37

FOR SECTIONS 'G', 'I', 'J' AND 'K'
SEE SHEET 38

See revised joint details PAGE 379.
Cover plate details PAGE 409.

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

WORK THIS SHEET WITH SHEETS 37-39

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 5 DETAILS

SHEET 36 OF 99
382

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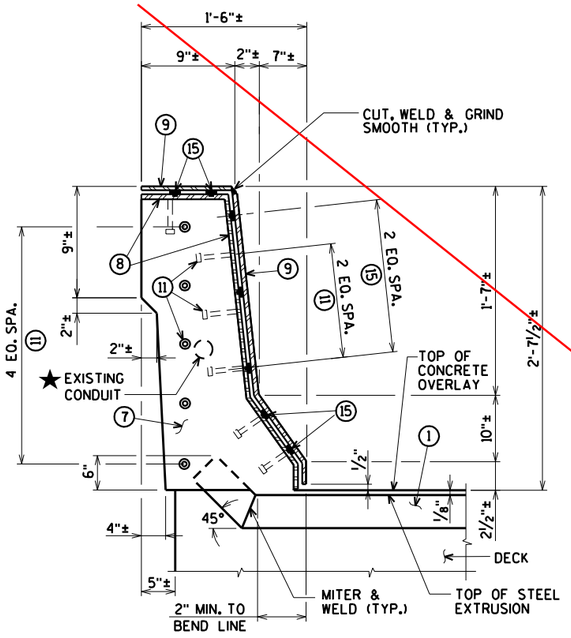
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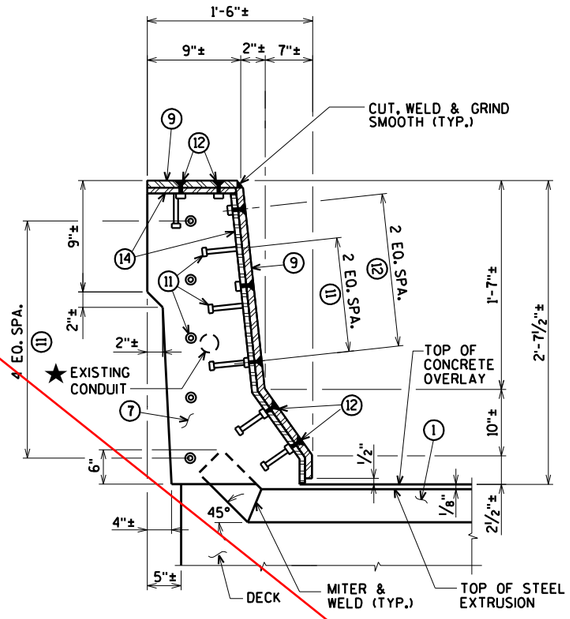
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STATE PROJECT NUMBER

8680-04-71



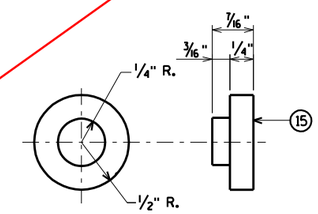
SECTION E



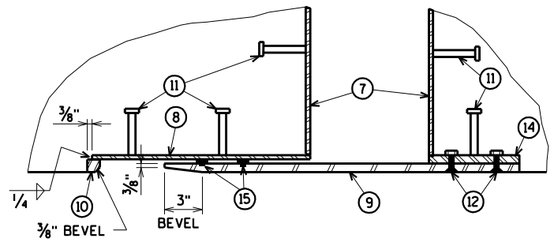
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

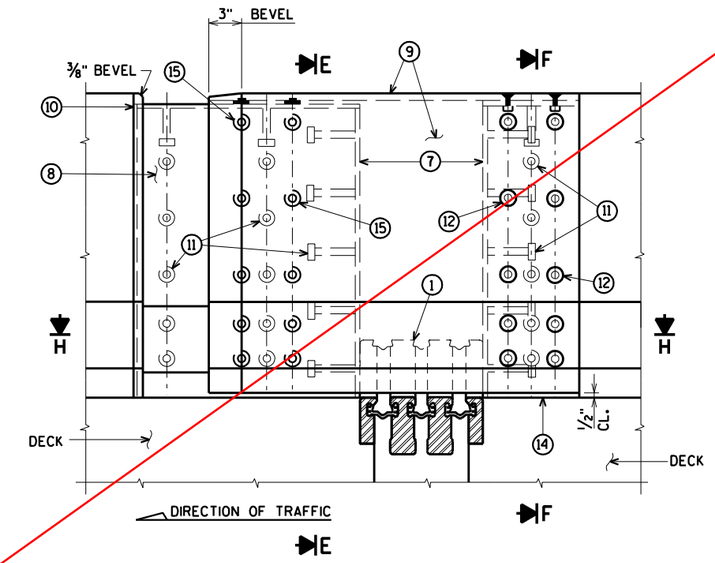


ADIPRENE BUTTON DETAIL

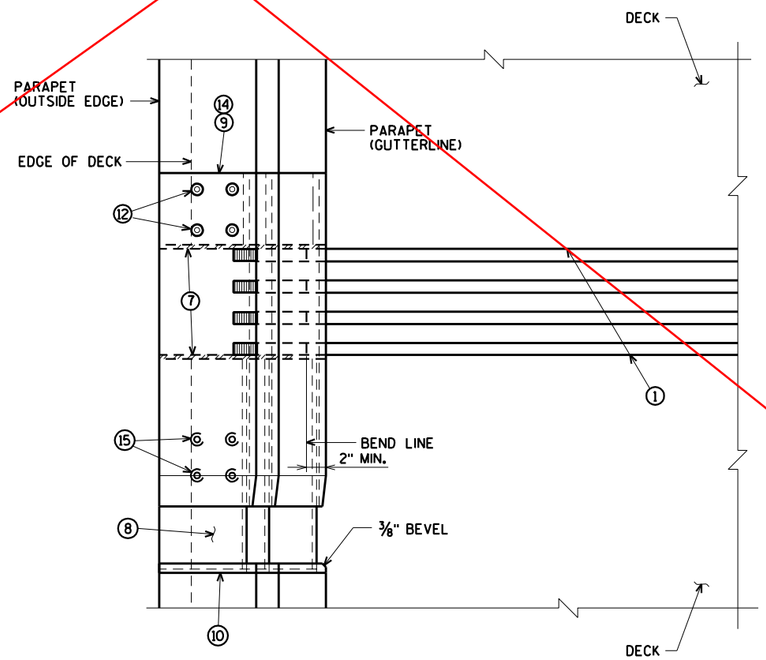


SECTION H

FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 36



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 379.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 36, 38-39

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 5 DETAILS OUTSIDE PARAPET

SHEET 37 OF 99
383

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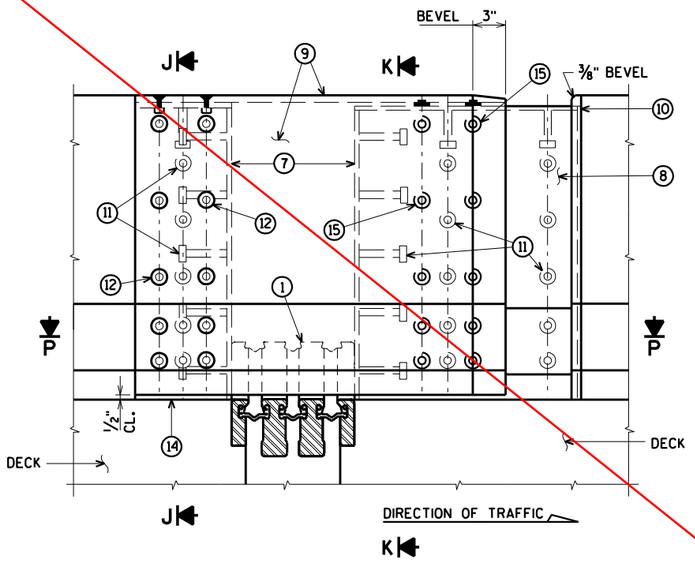
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9/12/2013

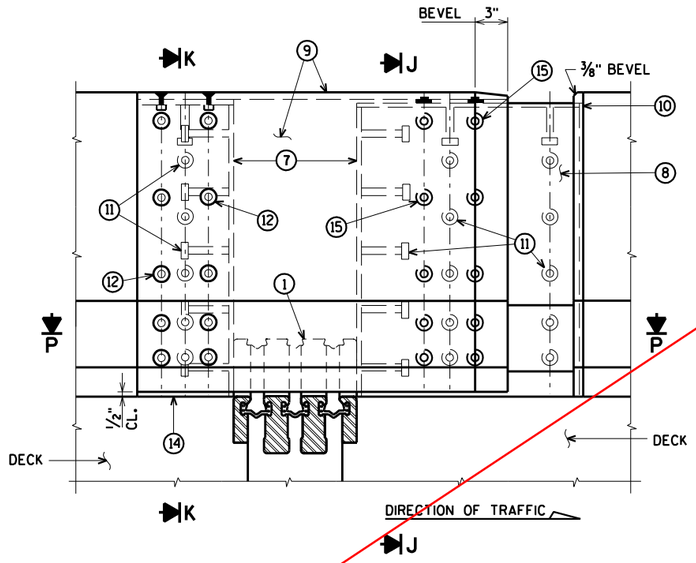
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STATE PROJECT NUMBER

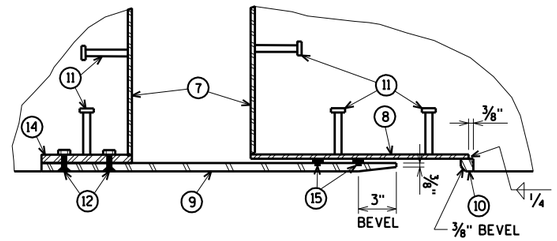
8680-04-71



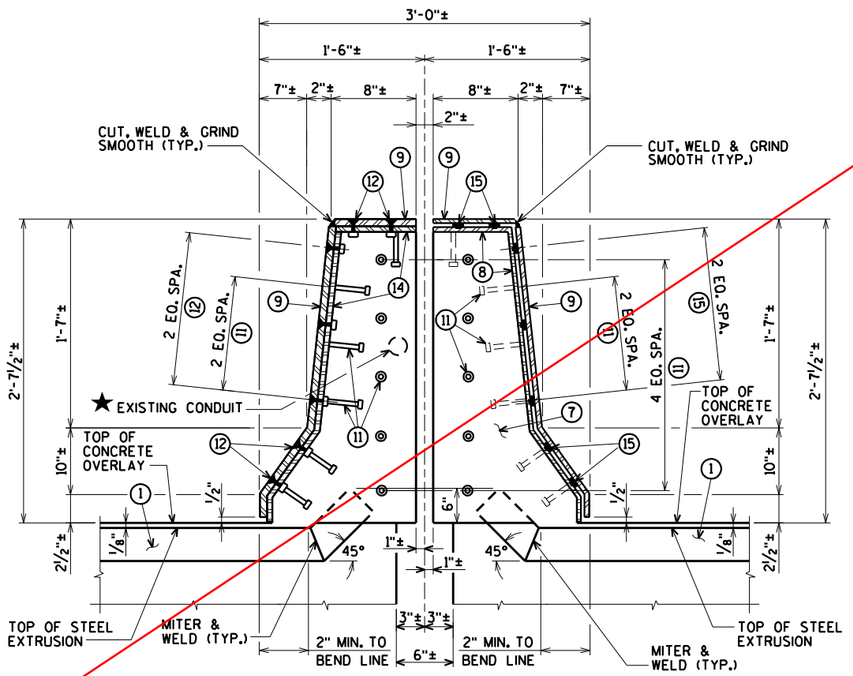
ELEVATION OF MEDIAN PARAPET
SECTION G



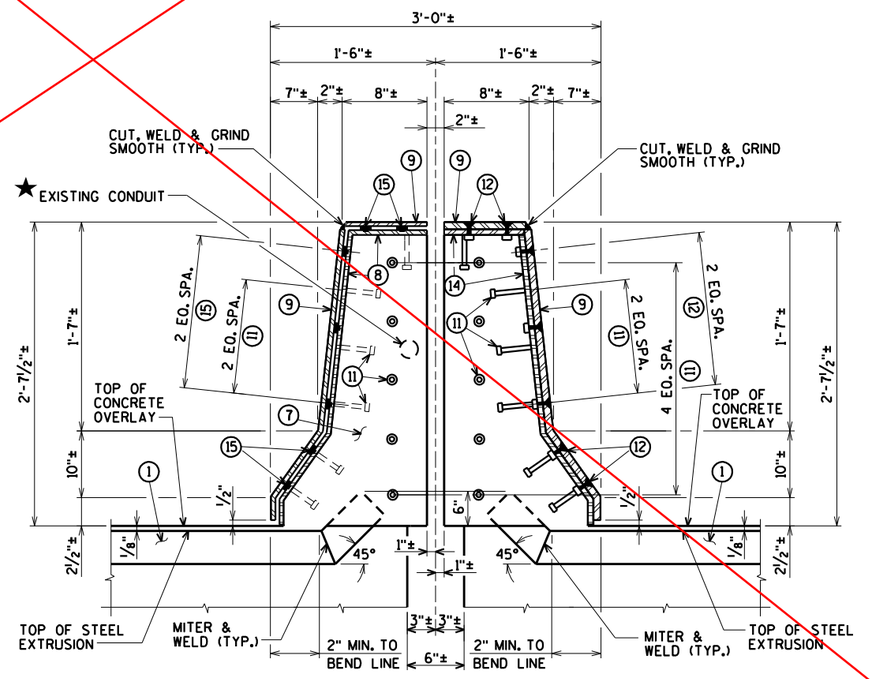
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 36

See revised joint details
PAGE 379.
Cover plate details
PAGE 409.

WORK THIS SHEET WITH SHEETS 36-37, 39

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION
JOINT 5 DETAILS
MEDIAN PARAPETS

SHEET 38 OF 99
384

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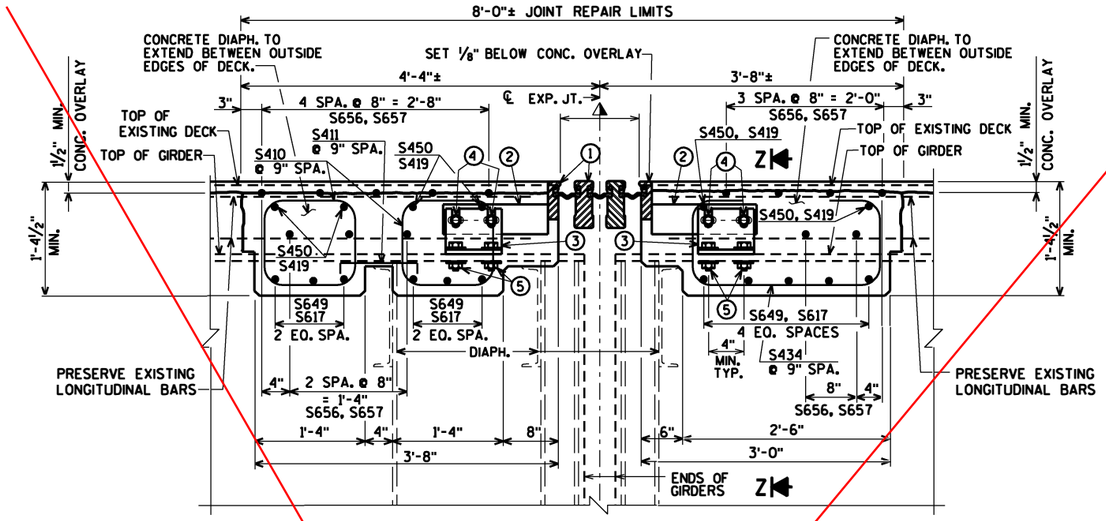
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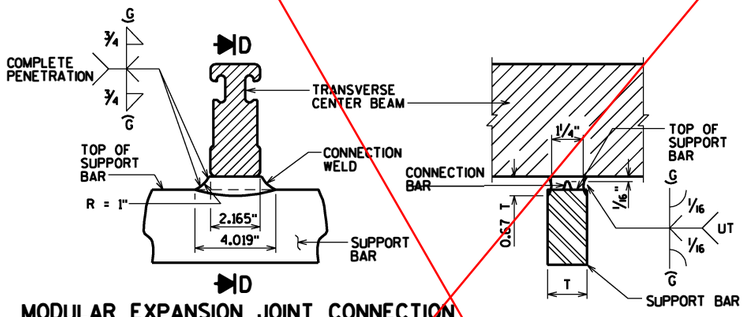
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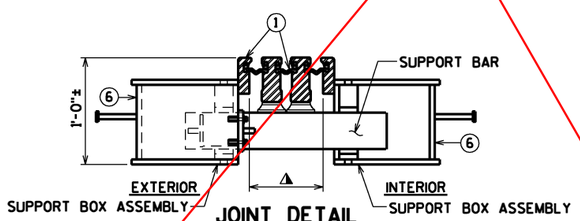
SECTION THRU JOINT 5

NORMAL TO ℄ OF JOINT



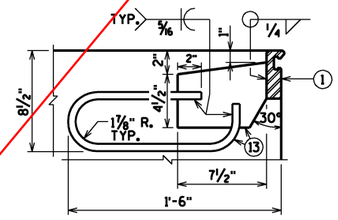
MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

SECTION D



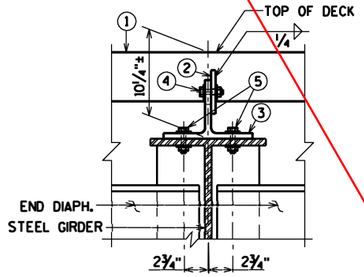
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY

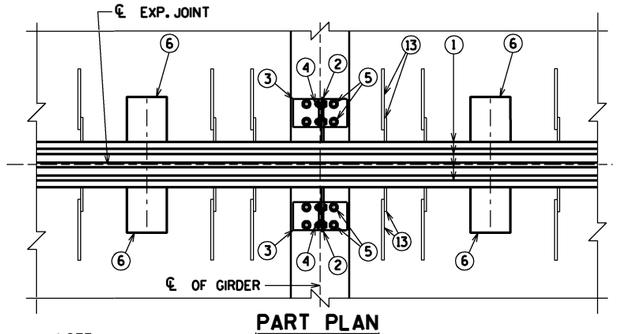


ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK @ CONC. DIAPH.



SECTION Z-Z



PART PLAN

NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED.

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

STATE PROJECT NUMBER

8680-04-71

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② ½" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM ½" PLATES.

⑦ ⅜" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM ⅜" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑩ ⅞" SO. BAR. WELD TO NO. 8 AS SHOWN.

⑪ ¾" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ ¾" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ ½" PLATE WITH ⅝" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

See revised joint details PAGE 379.
Cover plate details PAGE 409.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. ½ IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 36-38

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 5 DETAILS

SHEET 39 OF 99
385

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Eau Claire, WI 54701
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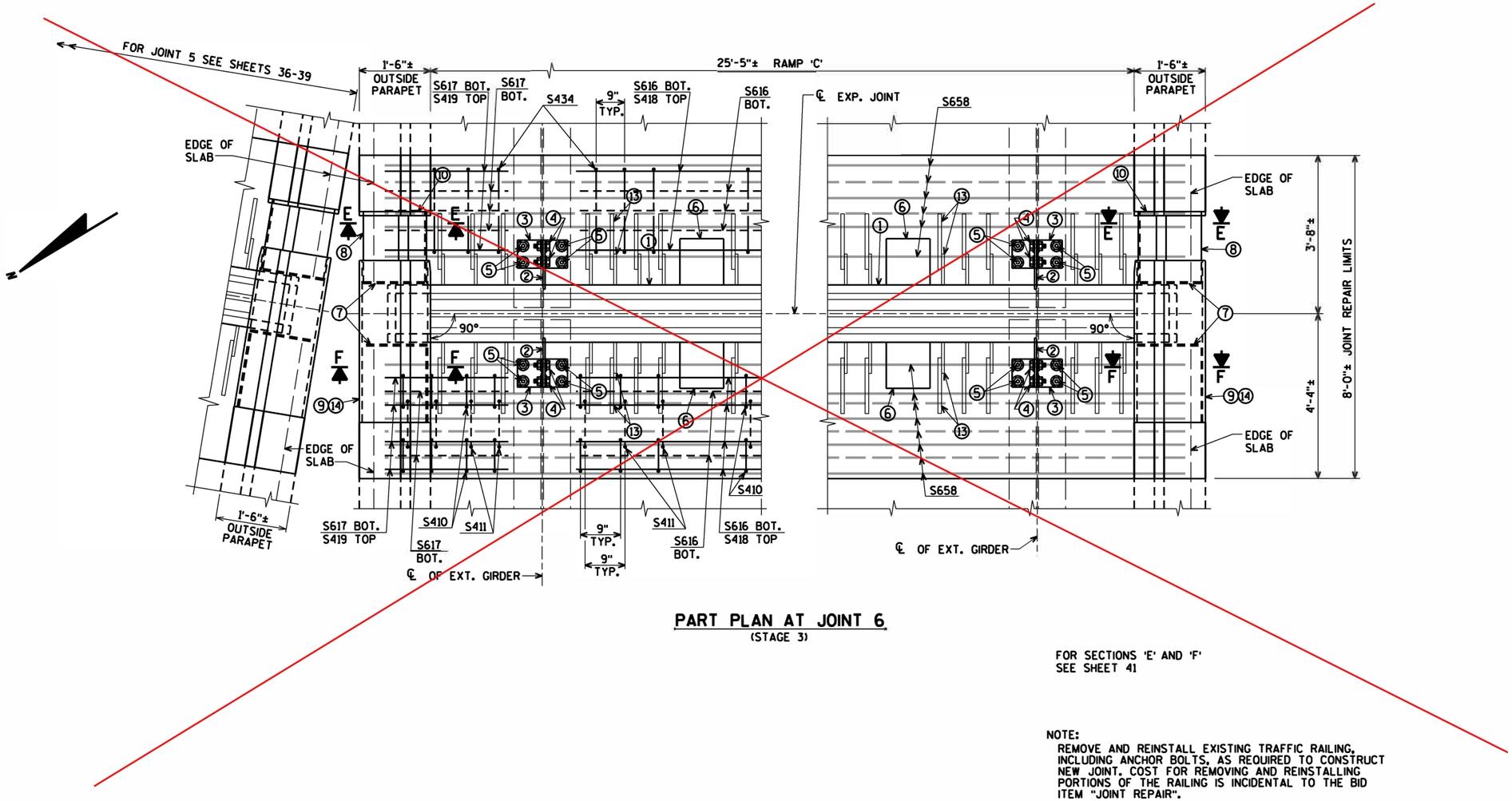
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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 6
(STAGE 3)

FOR SECTIONS 'E' AND 'F'
SEE SHEET 41

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

See revised details
PAGE 386 A

WORK THIS SHEET WITH SHEETS 41-42

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 6 DETAILS

SHEET 40 OF 99
386

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REVISED
Modular Expansion Joints 6 & 8
DETAILS

GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM–A572) OR GRADE 50W (ASTM–A588) STEEL.

SUPPORT BOXES SHALL BE ASTM–A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM–A240, TYPE 304, WITH A 20 MICRO–INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM–A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A–SM–STUD–REP–01, B–FF–STUD–REP–01, OR A–(MC)GF–STUD–REP–01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT–DIPPED GALVANIZED IN ACCORDANCE WITH ASTM–A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM–A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP–6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE. IF JOINT HAS MORE THAN ONE ASSEMBLY, THE NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE ONLY IN THE FIRST ASSEMBLY. REMAINDER OF SEAL SHALL BE ROLLED UP ON THE FIELD SPLICE END. SEAL SHALL THEN BE FIELD INSTALLED WITH A LUBRICANT ADHESIVE AFTER FIELD WELDING IS COMPLETE. NO FIELD SPLICES OF THE STRIP SEAL GLANDS SHALL BE PERMITTED. CONTRACTOR SHALL PROTECT SEAL DURING THE INSTALLATION OF 1ST JOINT SECTION TO PREVENT DAMAGE PRIOR TO THE INSTALLATION OF THE 2ND JOINT SECTION.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT. QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT–BRIDGE UNIT–INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B–F–REP–100 OR A–(MC)G–REP–100.

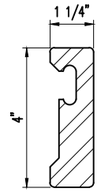
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B–F–REP–100 OR A–(MC)G–REP–100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

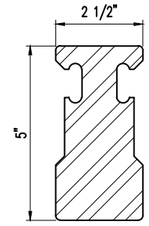
5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 77p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.



4" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM–A572) OR GRADE 50W (ASTM–A588) STEEL.
(LOCATED ON 'D–240' MODULAR EXPANSION JOINTS.)



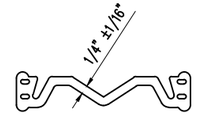
CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM–A572) OR GRADE 50W (ASTM–A588) STEEL.

CONSTRUCTION
SHOP DRAWING

INSTALLATION PROCEDURES

1. FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.
2. PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)
3. BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.
4. BEFORE REMOVING BLOCK AND BANDING, ANCHOR ONE SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. FIELD LOCATE AND DRILL HOLES IN SUPPORTING STRUCTURAL STEEL FOR JOINT SUPPORT HARDWARE.
5. REMOVE BLOCK AND BANDING AFTER ONE SIDE HAS BEEN ATTACHED TO STRUCTURE.
6. ADJUST JOINT OPENING, AS DETERMINED BY THE FIELD ENGINEER.
7. ANCHOR THE OTHER SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT CONNECTIONS. IF NEEDED, CONTRACTOR MAY TACK WELD JOINT SUPPORTS AFTER FINAL ADJUSTMENT.
8. CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.
9. POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2–400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 75
- SEE RAIL AND SEAL DETAILS ON SHEET 75
- SEE INSTALLATION PROCEDURES ON SHEET 75
- SEE SPLICE DETAILS ON SHEET 76
- SEE UPTURN DETAILS ON SHEET 76
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 77
- SEE SPRING & BEARING DIAGRAM ON SHEET 77
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 77
- SEE 'D–240' PLAN VIEW FOR JOINTS #6 & #8 ON SHEET 78
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 79
- SEE JOINT SUPPORT DETAILS ON SHEET 79
- SEE 'D–240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 80
- SEE SUPPORT BOX DETAILS ON SHEET 81
- SEE SUPPORT BAR DETAILS ON SHEET 82
- SEE BILL OF MATERIALS ON SHEET 83

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B–16–38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680–04–71 (WI) / 6937–69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

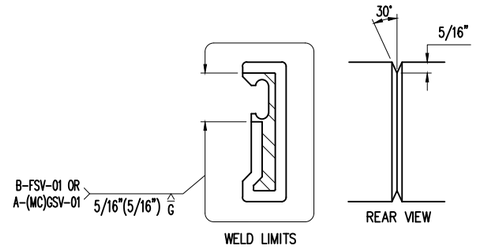
DESCRIPTION: GENERAL NOTES & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	1 OF 9

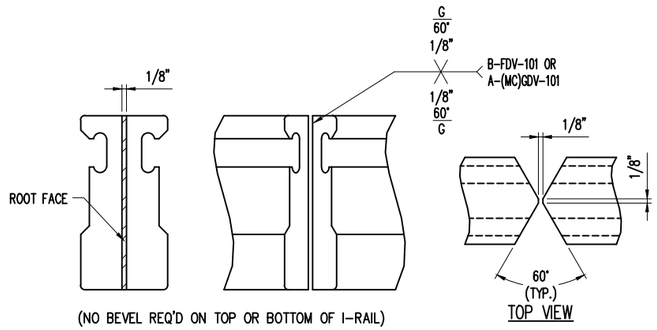
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	75

PAGE 386 A

REVISED
Modular Expansion Joints 6 & 8
DETAILS

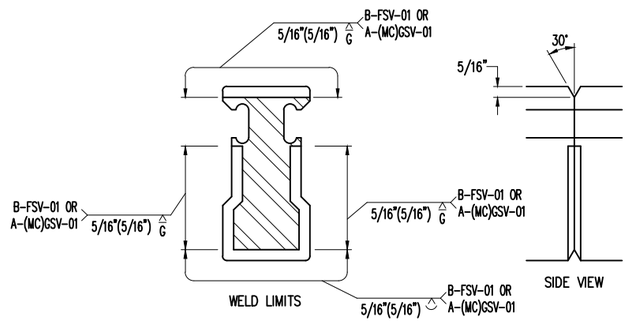


EDGE BEAM SHOP SPLICE DETAIL



CENTER BEAM SHOP SPLICE DETAIL

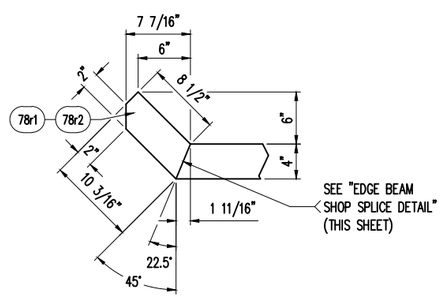
COMPLETE PENETRATION WELD



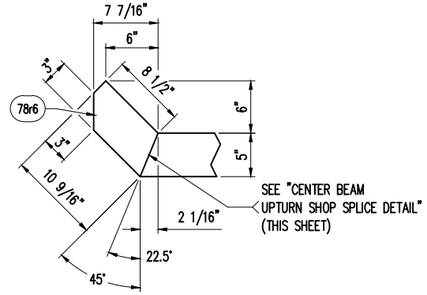
CENTER BEAM UPTURN SHOP SPLICE DETAIL

PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)

CONSTRUCTION
SHOP DRAWING



EDGE BEAM UPTURN DETAIL



CENTER BEAM UPTURN DETAIL

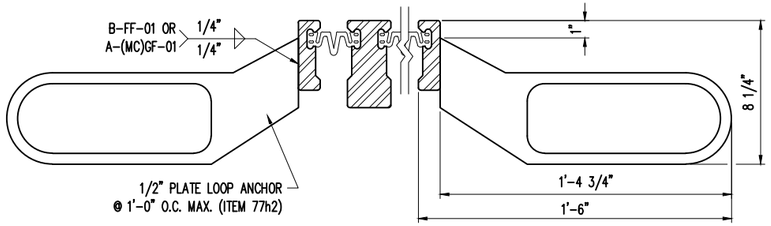
REV.	DESCRIPTION	DATE	DET.	CKD.

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A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

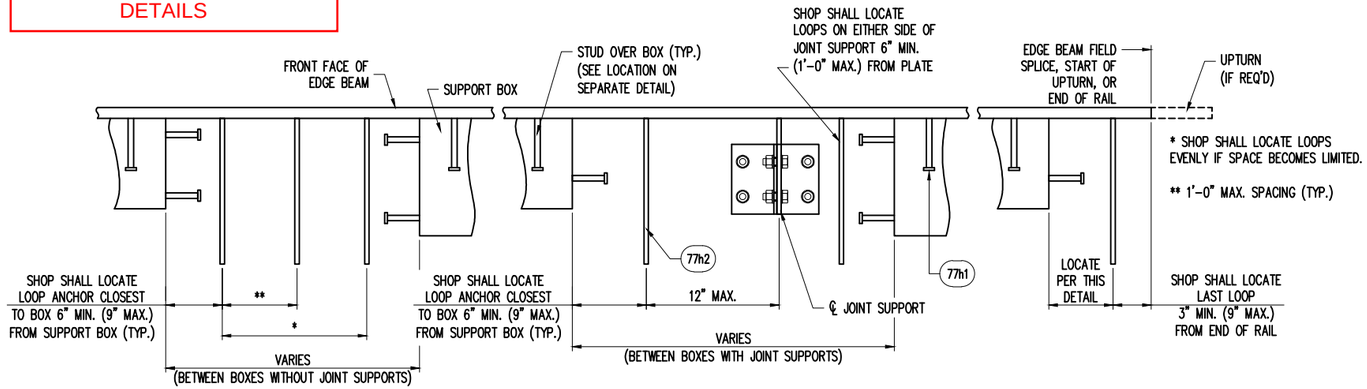
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	BLB	JLW	04/04/14	2 OF 9
PROJECT NUMBER: 42790	PRODUCT CODE: 1021	RELEASE: 1	SHEET: 76		

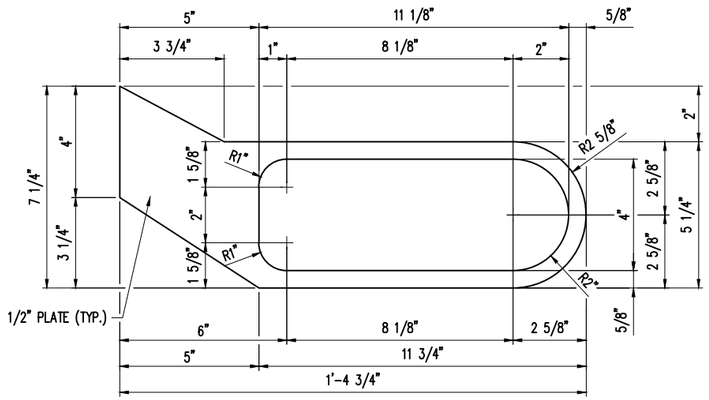
REVISED
Modular Expansion Joints 6 & 8
DETAILS



SECTION THRU 'D-240' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)

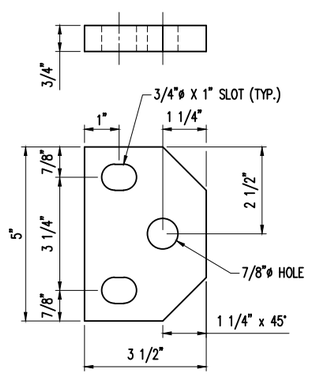


TYP. LOOP ANCHOR LAYOUT SEQUENCE ALONG EDGE BEAM



ITEM NO. 77h2
(60) REQ'D.

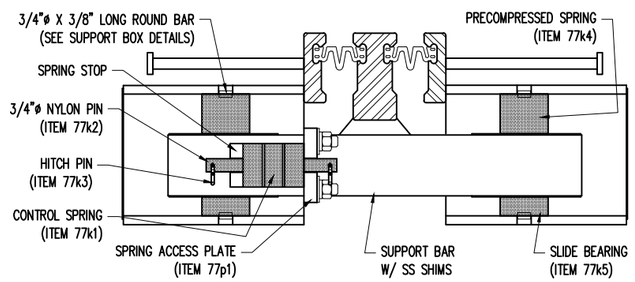
PLATE ANCHOR DETAIL



ITEM NO. 77p1
(32) REQ'D.

SPRING ACCESS PLATE DETAIL

CONSTRUCTION
SHOP DRAWING



TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-240" SHOWN - OTHER JOINT SIZES SIMILAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

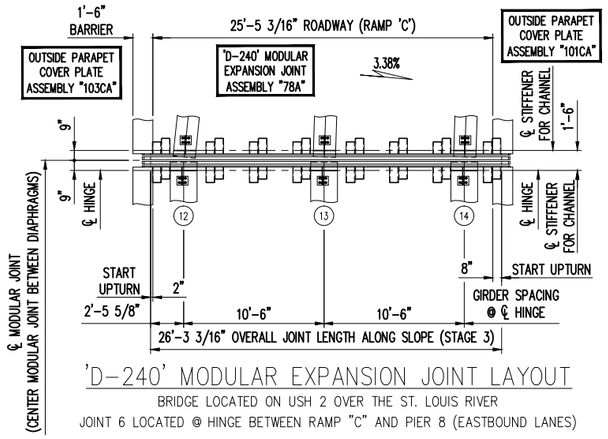
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-

DESCRIPTION:
SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

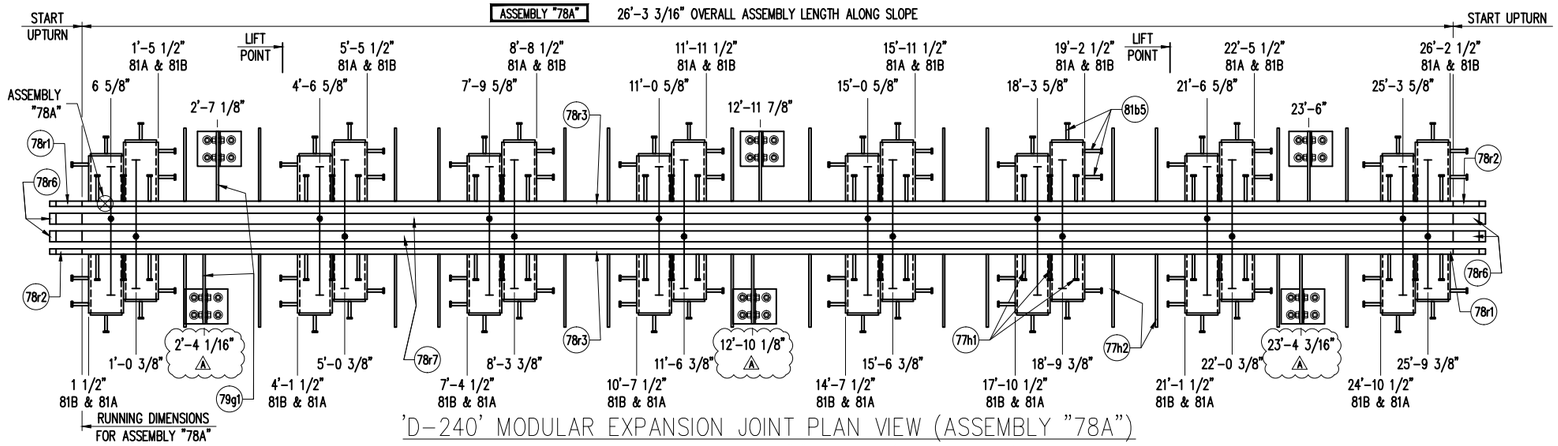
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	3 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	77



'D-240' MODULAR EXPANSION JOINT LAYOUT

BRIDGE LOCATED ON USH 2 OVER THE ST. LOUIS RIVER
JOINT 6 LOCATED @ HINGE BETWEEN RAMP "C" AND PIER 8 (EASTBOUND LANES)

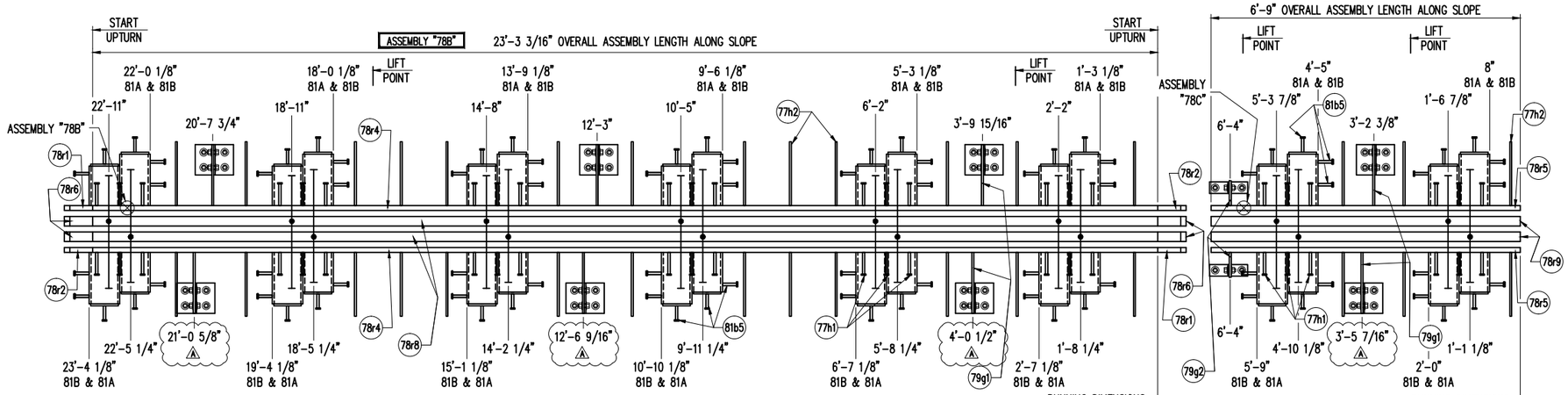


'D-240' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "78A")

JOINT 6 LOCATED @ HINGE BETWEEN RAMP "C" AND PIER 8 (EASTBOUND LANES)
(1) ASSEMBLY REQUIRED TOTAL
BOX SPACING = 4'-0" MAX. & 3'-3" MIN.

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 75
- SEE RAIL AND SEAL DETAILS ON SHEET 75
- SEE INSTALLATION PROCEDURES ON SHEET 75
- SEE SPLICE DETAILS ON SHEET 76
- SEE UPTURN DETAILS ON SHEET 76
- SEE STUD LOCATION & SPACING DETAILS ON SHEET 77
- SEE SPRING & BEARING DIAGRAM ON SHEET 77
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 77
- SEE 'D-240' PLAN VIEWS ON SHEET 78
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 79
- SEE JOINT SUPPORT DETAILS ON SHEET 79
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 80
- SEE SUPPORT BOX DETAILS ON SHEET 81
- SEE SUPPORT BAR DETAILS ON SHEET 82
- SEE BILL OF MATERIALS ON SHEET 83
- COVER PLATES NOT SHOWN FOR CLARITY PURPOSES (SEE SHEETS AFTER 100 FOR COVER PLATE DETAILS)

NORTH APPROX.

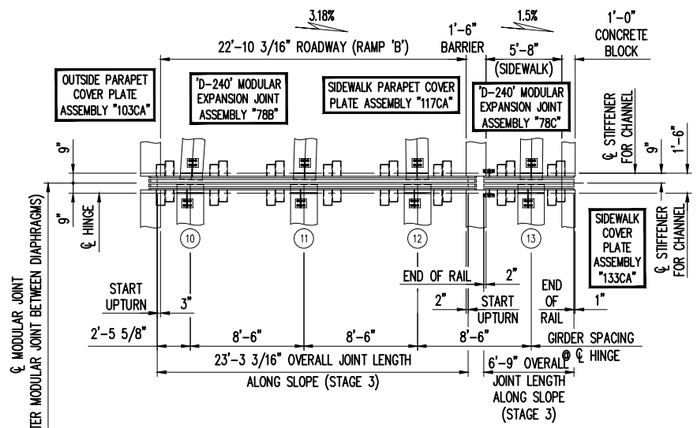


'D-240' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "78B")

JOINT 8 LOCATED @ HINGE BETWEEN RAMP "B" AND PIER 11 (EASTBOUND LANES)
(1) ASSEMBLY REQUIRED TOTAL
BOX SPACING = 4'-3" MAX. & 4'-0" MIN.

'D-240' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "78C")

JOINT 8 LOCATED @ HINGE
BETWEEN RAMP "B" AND PIER 11 (SIDEWALK)
(1) ASSEMBLY REQUIRED TOTAL
BOX SPACING = 3'-9"



'D-240' MODULAR EXPANSION JOINT LAYOUT

BRIDGE LOCATED ON USH 2 OVER THE ST. LOUIS RIVER
JOINT 8 LOCATED @ HINGE BETWEEN RAMP "B" AND PIER 11 (EASTBOUND LANES)

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

REVISED
Modular Expansion Joints 6 & 8
DETAILS

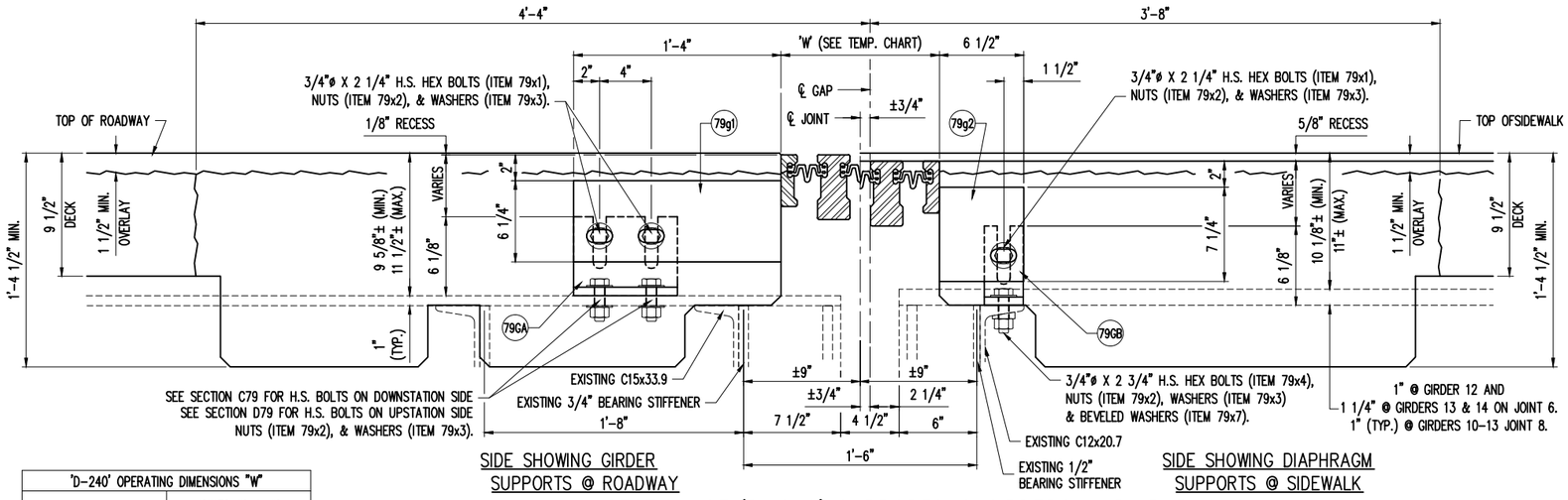
CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.
1	REVISED JOINT SUPPORT LOCATIONS	10/24/14	BLB	JLW

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION	SCALE	DRAWN BY	CHECKED BY	DATE	BRIDGE SHEET
'D-240' PLAN VIEW & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	BLB	JLW	04/04/14	4 OF 9
	PROJECT NUMBER 42790	PRODUCT CODE 1021	RELEASE 1	SHEET 78	



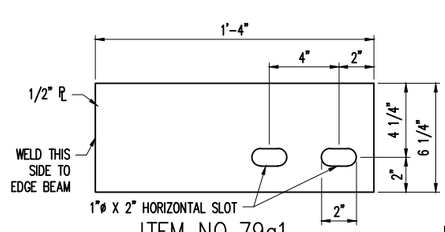
SIDE SHOWING GIRDER SUPPORTS @ ROADWAY

SIDE SHOWING DIAPHRAGM SUPPORTS @ SIDEWALK

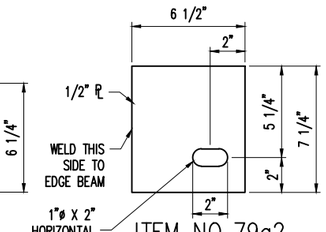
SECTION OF 'D-240' SUPPORTS @ GIRDERS & DIAPHRAGMS

DIMENSIONS SHOWN ARE AT 45°F

HIGH STRENGTH BOLT SCHEDULE (FOR ALL SUPPORTS)						
JOINT LOCATION	GIRDER / LOCATOIN	SIDE OF JOINT	CONNECTION TYPE OR TOP FLANGE THICKNESS	BOLT LENGTH	MK#	QTY
#6 & #8	ALL SUPPORTS	BOTH	PLATE TO WT	2 1/4"	79x1	30
#6 & #8	DIAPHRAGM	BOTH	CHANNEL	2 3/4"	79x4	4
#6	12	UPSTATION	1"	3"	79x5	4
#6	13 & 14	UPSTATION	1 1/4"	3 1/4"	79x6	8
#8	10 – 13	UPSTATION	1"	3"	79x5	16
#6 & #8	ALL GIRDERS	BACKSTATION	1" (ASSUMED)	3"	79x5	28



ITEM NO. 79g1
(14) REQ'D.

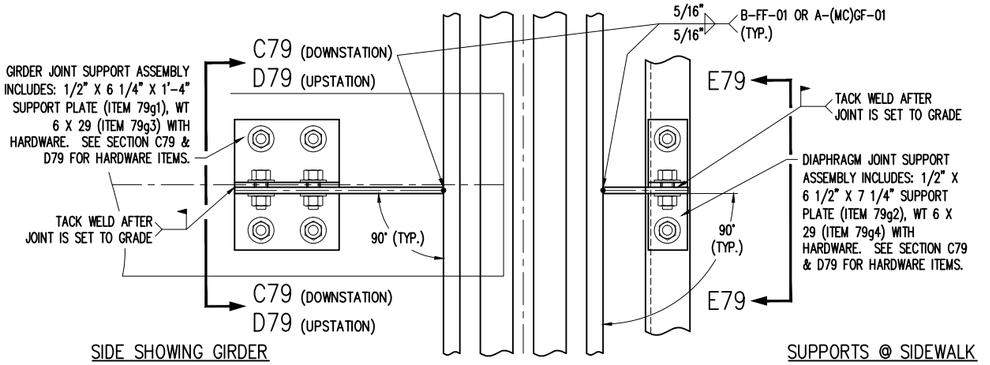


ITEM NO. 79g2
(2) REQ'D.

'D-240' OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINTS #6 & #8
MAX.	7 1/2"
120°F	8 1/2"
110°F	9"
100°F	9 1/2"
90°F	10"
80°F	10 1/2"
70°F	11"
60°F	11 1/2"
50°F	1'-0"
MID. @ 45°F	1'-0 1/4"
40°F	1'-0 1/2"
30°F	1'-1"
20°F	1'-1 1/2"
10°F	1'-2"
0°F	1'-2 1/2"
-10°F	1'-3"
-20°F	1'-3 1/2"
-30°F	1'-4"
MIN.	1'-4 15/16"

TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT:
1/2" PER 10°F @ JOINTS #6 & #8



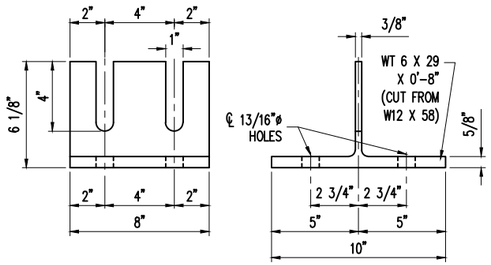
SIDE SHOWING GIRDER SUPPORTS @ ROADWAY

SUPPORTS @ SIDEWALK SIDE SHOWING DIAPHRAGM

PLAN VIEW OF SUPPORTS @ GIRDERS AND DIAPHRAGMS

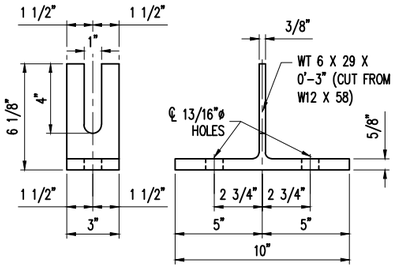
DIMENSIONS SHOWN ARE AT 45°F

NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01

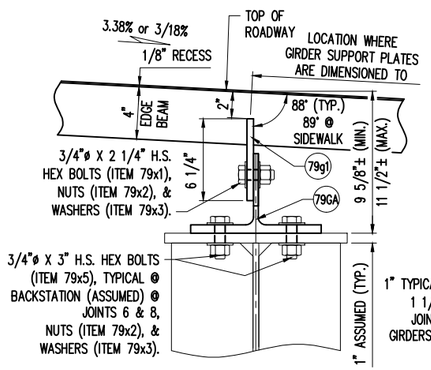


WT6x29 JOINT SUPPORT
ASSEMBLY 79GA (ITEM 79g3)
(14) REQUIRED

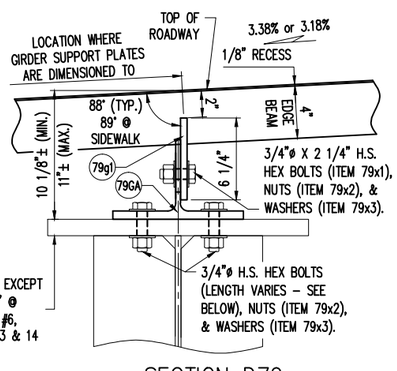
NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01



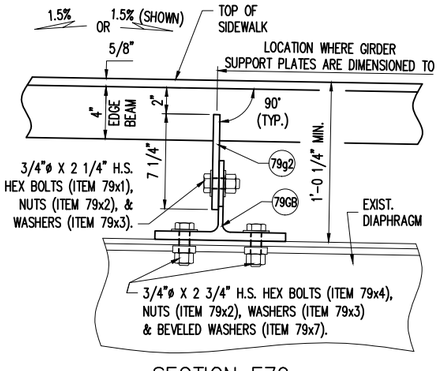
WT6x29 JOINT SUPPORT
ASSEMBLY 79GB (ITEM 79g4)
(2) REQUIRED



SECTION C79
(ON DOWNSTATION SIDE OF JOINT – LOOKING UPSTATION)



SECTION D79
(ON UPSTATION SIDE OF JOINT – LOOKING DOWNSTATION)
3/4"ø X 3" H.S. BOLTS (ITEM 79x5) (TYP.) TYPICAL, EXCEPT
3/4"ø X 3 1/4" H.S. BOLTS (ITEM 79x6) @ JOINT 6 GIRDERS 13 & 14.



SECTION E79
(HARDWARE TYPICAL DOWNSTATION & UPSTATION SIDE OF JOINT)

REVISED
Modular Expansion Joints 6 & 8
DETAILS

CONSTRUCTION SHOP DRAWING

PAGE 386 E

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

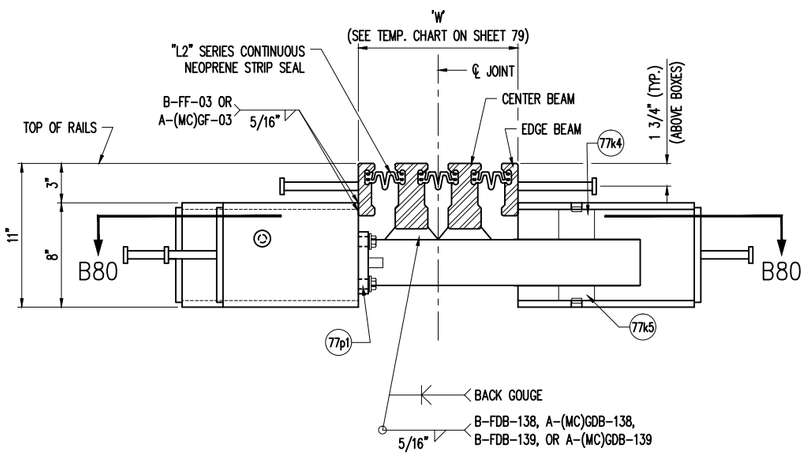
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: 'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

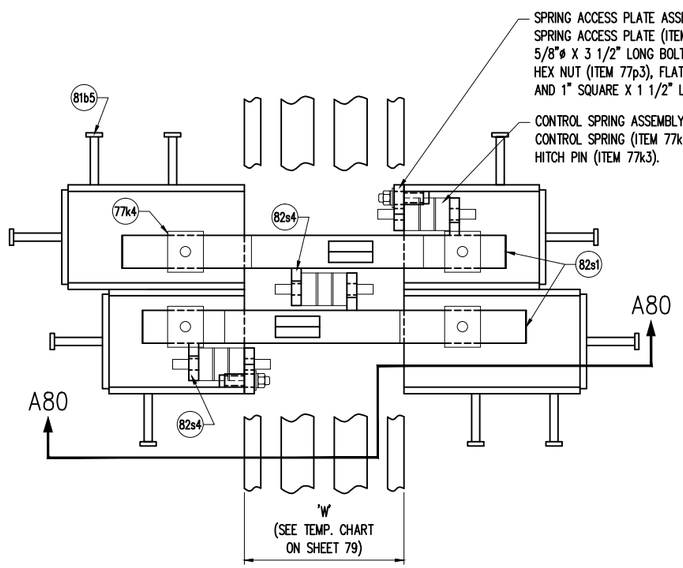
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	5 OF 9
PROJECT NUMBER	PRODUCT CODE		RELEASE	SHEET
42790	1021		1	79

REVISED
Modular Expansion Joints 6 & 8
DETAILS

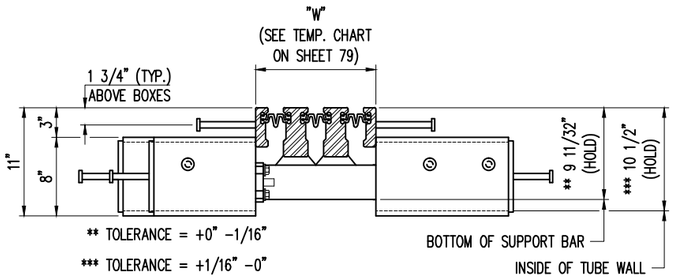
CONSTRUCTION
SHOP DRAWING



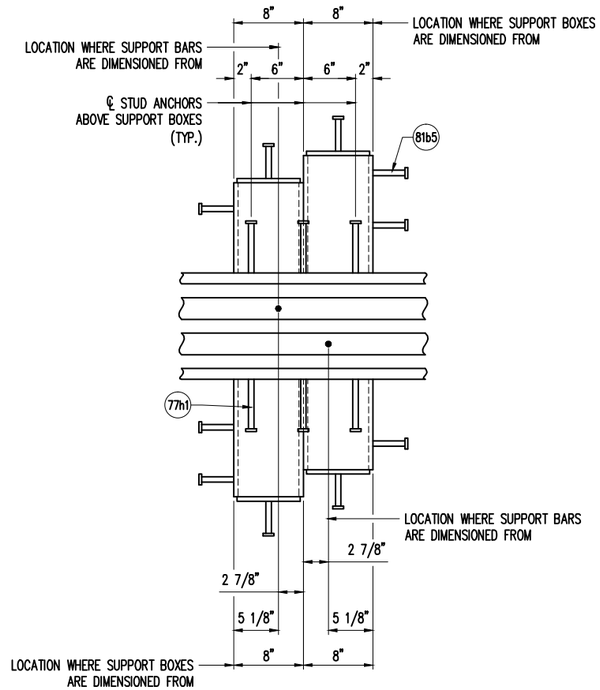
SECTION A80



SECTION B80



SECTION THRU 'D-240' @ SUPPORT BOX



'D-240' SUPPORT BOX DETAIL

REV.	DESCRIPTION	DATE	DET.	CKD.

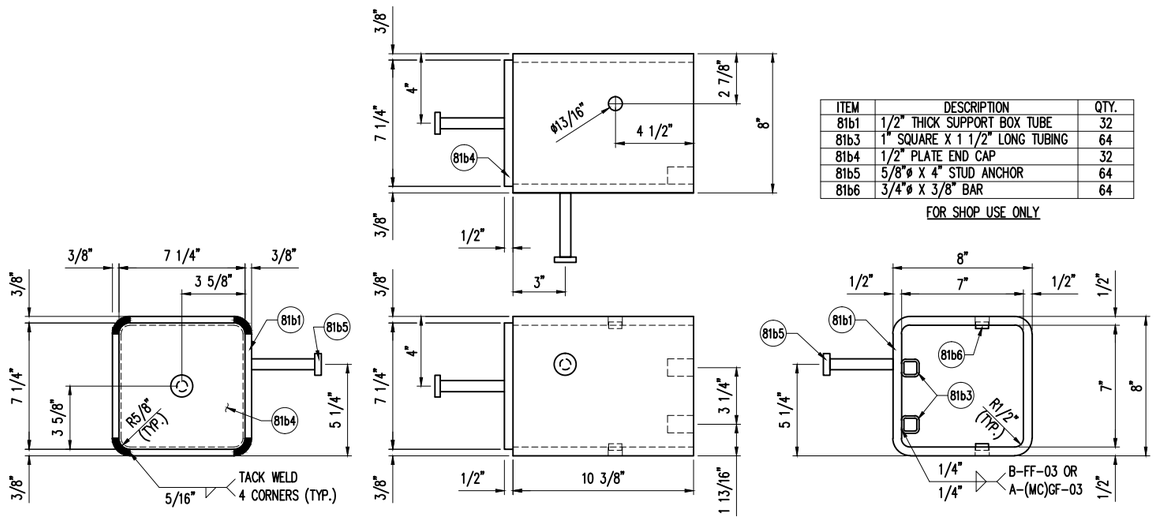
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	6 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	80

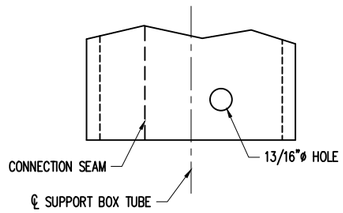


ITEM	DESCRIPTION	QTY.
81b1	1/2" THICK SUPPORT BOX TUBE	32
81b3	1" SQUARE X 1 1/2" LONG TUBING	64
81b4	1/2" PLATE END CAP	32
81b5	5/8"ø X 4" STUD ANCHOR	64
81b6	3/4"ø X 3/8" BAR	64

FOR SHOP USE ONLY

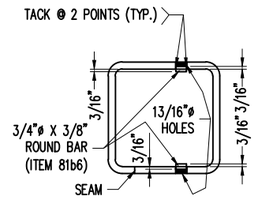
'D-240' SUPPORT BOX DETAIL '81A'

(32) REQUIRED



SHOP NOTE:

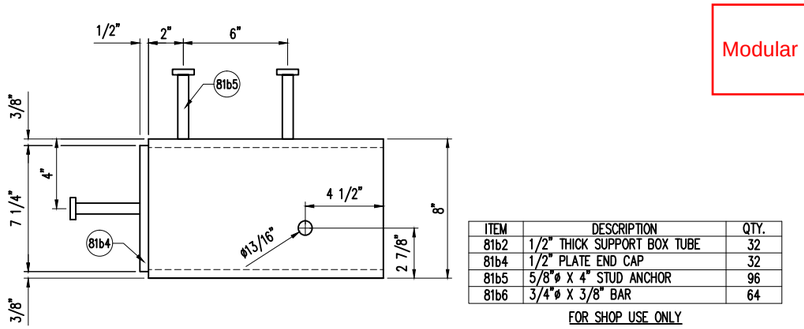
WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE ℄ OF BOX.



SUPPORT BOX PIN DETAILS

(W/ RUBBER SPRINGS & BEARINGS)

REVISED
Modular Expansion Joints 6 & 8
DETAILS

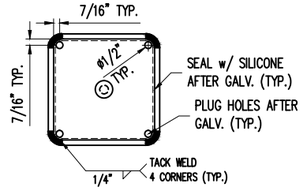


ITEM	DESCRIPTION	QTY.
81b2	1/2" THICK SUPPORT BOX TUBE	32
81b4	1/2" PLATE END CAP	32
81b5	5/8"ø X 4" STUD ANCHOR	96
81b6	3/4"ø X 3/8" BAR	64

FOR SHOP USE ONLY

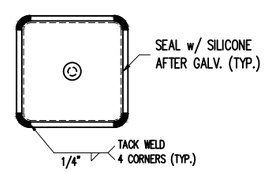
'D-240' SUPPORT BOX DETAIL '81B'

(32) REQUIRED



SUPPORT BOX BACK PLATE OPTION NO. 1

(ATTACH PRIOR TO GALV.)



SUPPORT BOX BACK PLATE OPTION NO. 2

(ATTACH AFTER GALV.)

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

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A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
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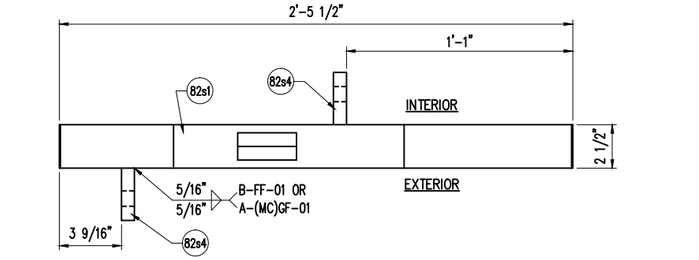
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SUPPORT BOX DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	7 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	81

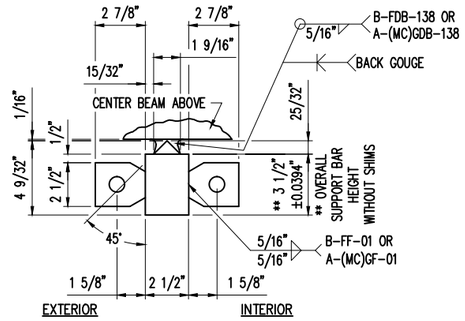
REVISED
Modular Expansion Joints 6 & 8
DETAILS



ITEM	DESCRIPTION	QTY.
82s1	2 1/2" X 4 9/32" X 2'-5 1/2" BAR	32
82s2	16GA. X 3 1/8" X 6 1/2" S.S. SHIM	64
82s3	16GA. X 3 1/8" X 9 5/8" S.S. SHIM	64
82s4	3/4" X 2 1/2" X 2 7/8" FLAT BAR	64

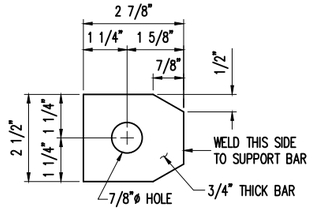
FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.



'D-240' SUPPORT BAR DETAILS

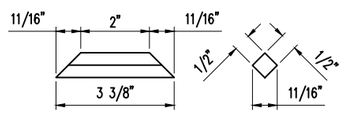
(32) REQUIRED



ITEM NO. 82s4

(64) REQ'D.

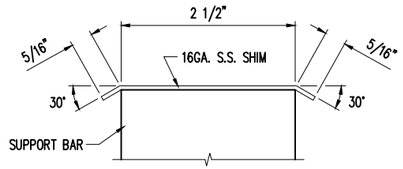
SPRING STOP DETAIL



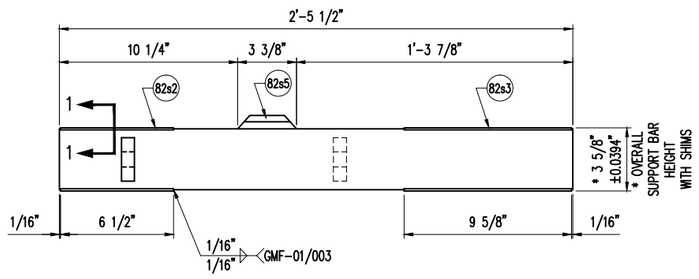
ITEM NO. 82s5

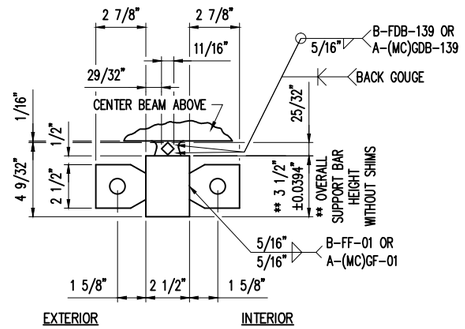
(32) REQ'D.

RIDER BAR DETAIL



SECTION 1-1





OPTIONAL 'D-240' SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

CONSTRUCTION
SHOP DRAWING

PAGE 386 H

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
'D-240' SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	8 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	82

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
78A	1	"D-240" MODULAR EXPANSION JOINT			27'-6 1/16" - JOINT 6 (@ RAMP C, EASTBOUND)	7029	
77h1	48	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
77h2	28	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
77k1	24	CONTROL SPRING (80MM)	-		PLAIN	1	
77k2	24	NYLON PIN (80MM)	-		PLAIN	< 1	
77k3	48	HITCH PIN	-		PLAIN	< 1	
77k4	32	PRECOMPRESSED SPRING	-		PLAIN	< 1	
77k5	32	SLIDE BEARING	-		PLAIN	1	
77p1	16	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
77p2	32	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
77p3	32	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
77p4	32	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
77p5	32	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
78r1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
78r2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
78r3	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	26'-6 9/16	A123-HDG	343	
78r6	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
78r7	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	26'-7 5/16	A123-HDG	917	
78y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
78y2	3	L2-400 GLAND	NEOPRENE	29'-0	87'-0" TOTAL;	46	
79g1	6	1/2 X 6 1/4	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
81b1	16	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
81b2	16	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
81b3	32	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
81b4	32	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
81b5	80	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
81b6	64	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
82s1	16	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
82s2	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
82s3	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
82s4	32	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
78B	1	"D-240" MODULAR EXPANSION JOINT			24'-6 1/16" - JOINT 8 (@ RAMP B, EASTBOUND)	5789	
77h1	36	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
77h2	26	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
77k1	18	CONTROL SPRING (80MM)	-		PLAIN	1	
77k2	18	NYLON PIN (80MM)	-		PLAIN	< 1	
77k3	36	HITCH PIN	-		PLAIN	< 1	
77k4	24	PRECOMPRESSED SPRING	-		PLAIN	< 1	
77k5	24	SLIDE BEARING	-		PLAIN	1	
77p1	12	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
77p2	24	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
77p3	24	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
77p4	24	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
77p5	24	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
78r1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
78r2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
78r4	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	23'-6 9/16	A123-HDG	304	
78r6	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
78r8	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	23'-7 5/16	A123-HDG	814	
78y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
78y2	3	L2-400 GLAND	NEOPRENE	26'-0	78'-0" TOTAL;	42	
79g1	6	1/2 X 6 1/4	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
81b1	12	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
81b2	12	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
81b3	24	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
81b4	24	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
81b5	60	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
81b6	48	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
82s1	12	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
82s2	24	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
82s3	24	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
82s4	24	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
78C	1	"D-240" MODULAR EXPANSION JOINT			6'-9" - JOINT 8 (@ RAMP B, SIDEWALK)	1736	
77h1	12	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
77h2	6	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
77k1	6	CONTROL SPRING (80MM)	-		PLAIN	1	
77k2	6	NYLON PIN (80MM)	-		PLAIN	< 1	
77k3	12	HITCH PIN	-		PLAIN	< 1	
77k4	8	PRECOMPRESSED SPRING	-		PLAIN	< 1	
77k5	8	SLIDE BEARING	-		PLAIN	1	
77p1	4	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
77p2	8	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
77p3	8	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
77p4	8	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
77p5	8	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
78r5	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
78r9	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
78y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
78y2	3	L2-400 GLAND	NEOPRENE	7'-0	21'-0" TOTAL;	11	
79g1	2	1/2 X 6 1/4	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
79g2	2	1/2 X 6 1/2	A36	0'-7 1/4	DIAPHRAGM SUPPORT PLATE; A123-HDG	7	
81b1	4	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
81b2	4	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
81b3	8	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
81b4	8	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
81b5	20	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
81b6	16	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
82s1	4	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
82s2	8	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
82s3	8	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
82s4	8	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			9/17/2014 10:36:56 AM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
79GA	14	JOINT SUPPORT ITEM				19	
79g3	14	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
79GB	2	JOINT SUPPORT ITEM				7	
79g4	2	WT6X29	A36	0'-3	CUT FROM W12 X 58; A123-HDG	7	
79XA	30	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
79x1	30	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XB	90	JOINT SUPPORT HARDWARE - HEX NUT (ROCAP)				< 1	
79x2	90	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
79XC	176	JOINT SUPPORT HARDWARE - FLAT WASHER (ROCAP)				< 1	
79x3	176	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
79XD	4	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
79x4	4	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XE	48	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
79x5	48	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XF	8	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
79x6	8	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XG	4	JOINT SUPPORT HARDWARE - BEVELED WASHER (ROCAP)				< 1	
79x7	4	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
79XAT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
79t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XBT	24	TESTING HARDWARE - HEX NUT (ROCAP)				< 1	
79t2	24	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
79XCT	48	TESTING HARDWARE - FLAT WASHER (ROCAP)				< 1	
79t3	48	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
79XDT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
79t4	3	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XET	3	TESTING HARDWARE - HEX BOLT (ROCAP)				1	
79t5	6	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XFT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				1	
79t6	6	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XGT	6	TESTING HARDWARE - BEVELED WASHER (ROCAP)				< 1	
79t7	6	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			9/17/2014 10:36:56 AM		

REVISED
Modular Expansion Joints 6 & 8
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

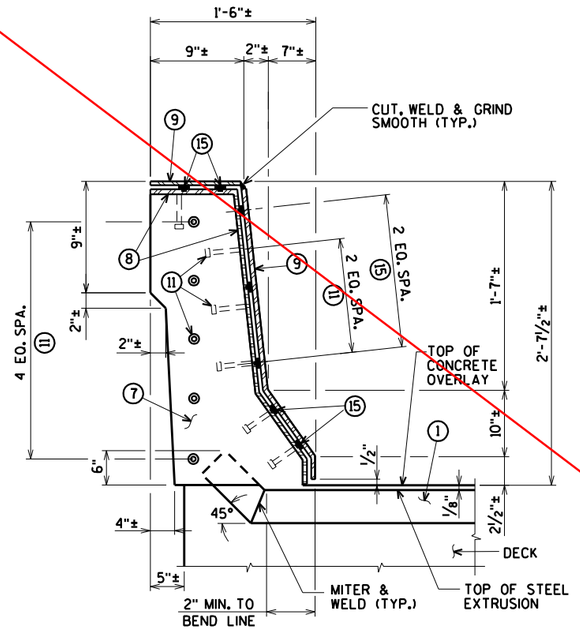
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LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

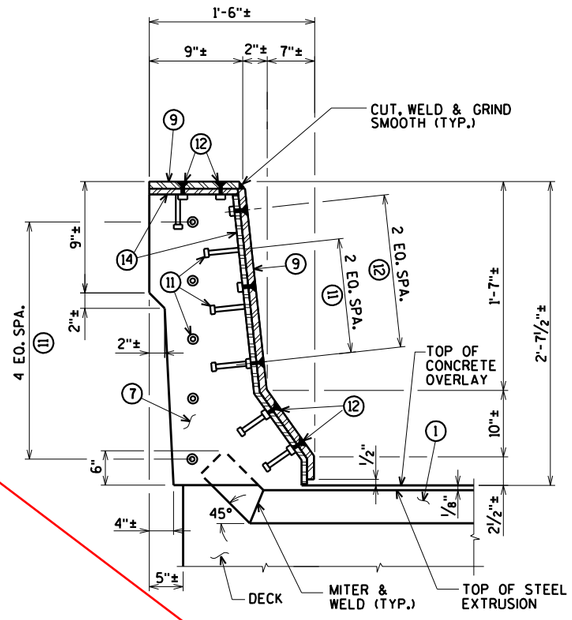
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	9 OF 9
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	83	

STATE PROJECT NUMBER

8680-04-71

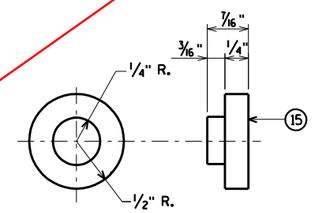


SECTION E



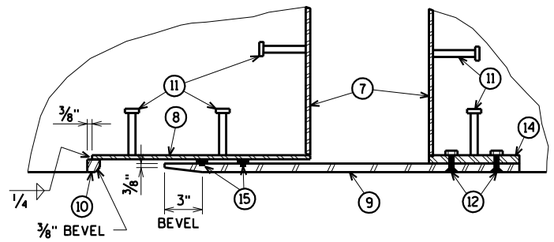
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

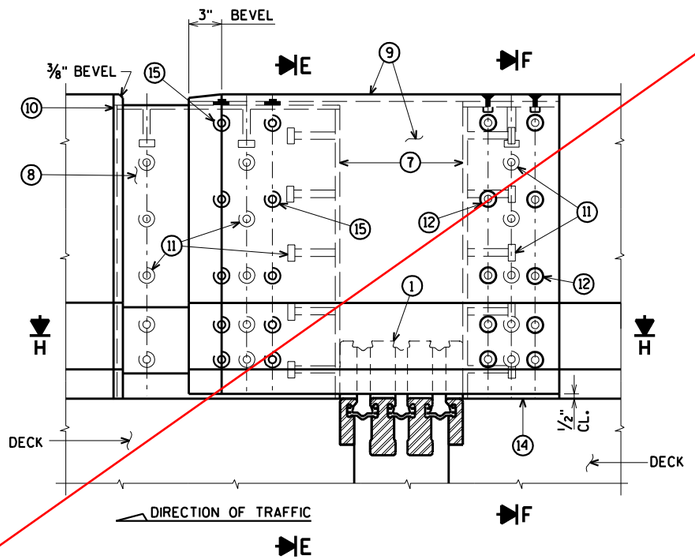


ADIPRENE BUTTON DETAIL

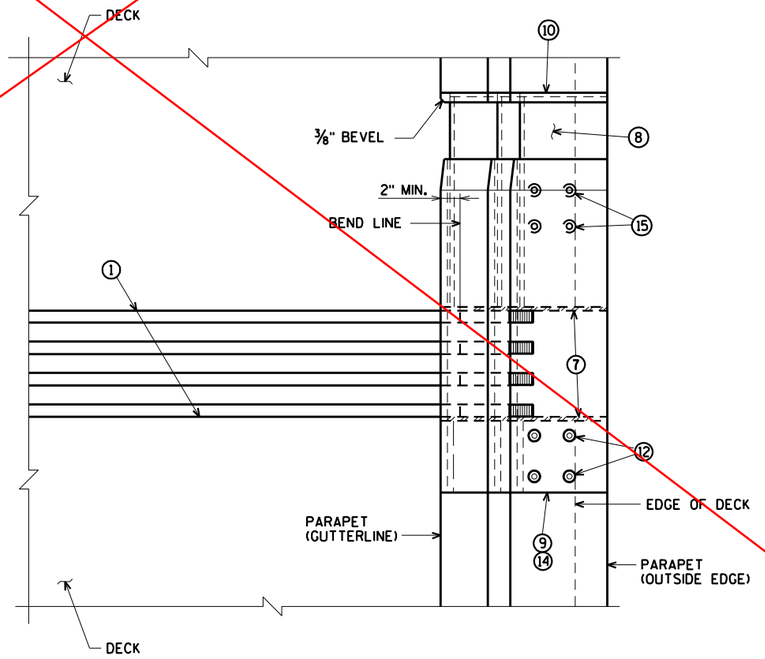
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 40



SECTION H



ELEVATION OF OUTSIDE PARAPET
(SOUTH PARAPET SHOWN, OTHER SIDE SIMILAR)



PLAN OF OUTSIDE PARAPET
(SOUTH PARAPET SHOWN, OTHER SIDE SIMILAR)

See revised joint details PAGE 386. Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 40 & 42

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 6 DETAILS OUTSIDE PARAPET

SHEET 41 OF 99
387

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

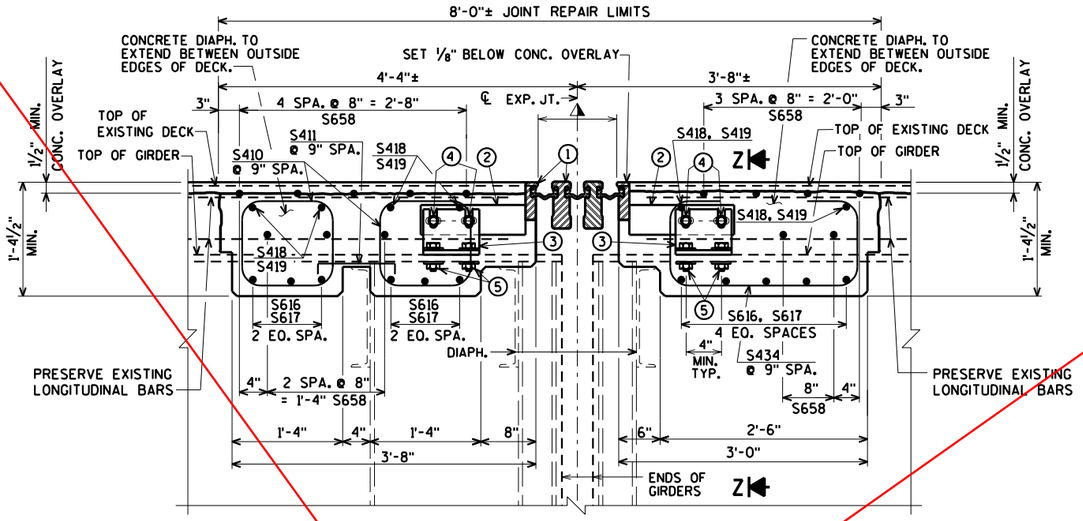
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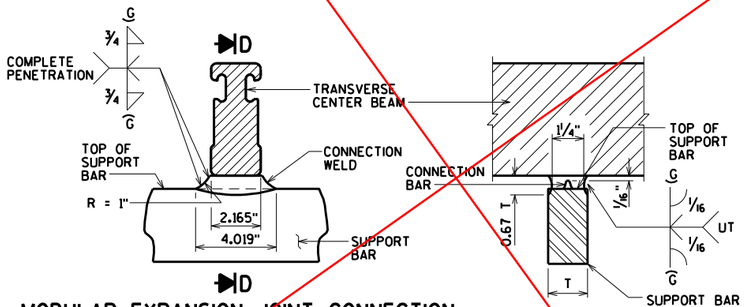
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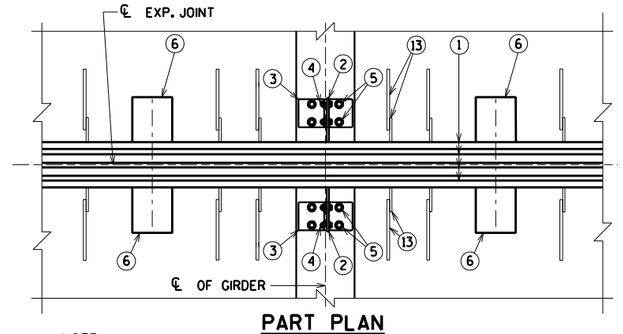
SECTION THRU JOINT 6

NORMAL TO ℄ OF JOINT



MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

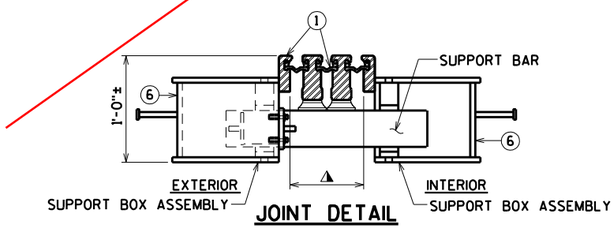
SECTION D



PART PLAN

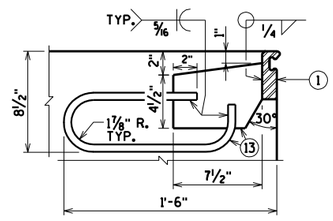
NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.



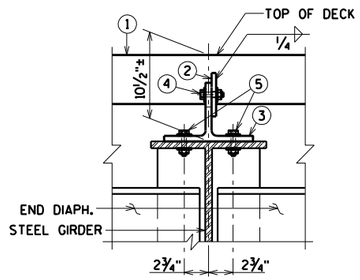
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK @ CONC. DIAPH.



SECTION Z-Z

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED.

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

1. MODULAR EXPANSION JOINT DEVICE, 3 CELLS.
2. 1/2" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.
3. WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.
4. 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
5. 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).
6. SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM 1/2" PLATES.
7. 3/8" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.
8. INSIDE PLATE. FABRICATE FROM 3/8" PLATE.
9. OUTSIDE PLATE. FABRICATE FROM 5/8" PLATE.
10. 7/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.
11. 3/4" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.
12. 3/4" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.
13. 1/2" PLATE WITH 5/8" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
14. INSIDE PLATE. FABRICATE FROM 5/8" PLATE.
15. ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

See revised joint details PAGE 386.
Cover plate details PAGE 409.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. 1/2 IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 40-41

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

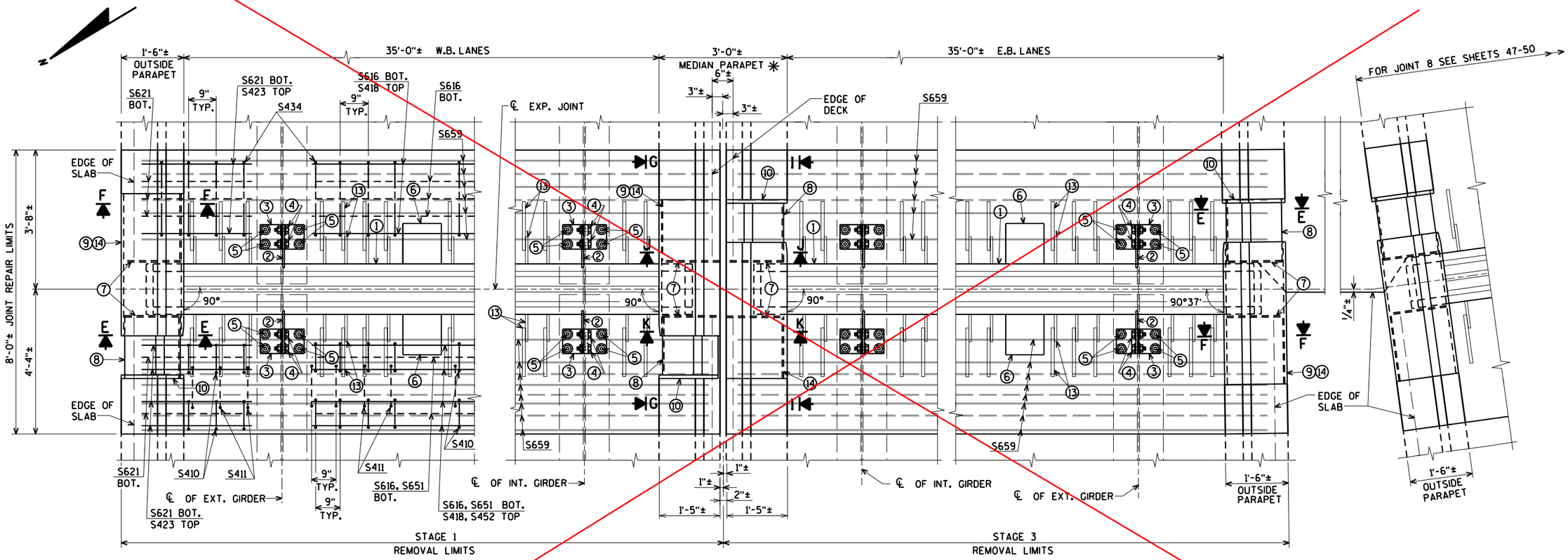
MODULAR EXPANSION JOINT 6 DETAILS

SHEET 42 OF 99
388

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

STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 7

* THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

FOR SECTIONS 'E' AND 'F' SEE SHEET 44

FOR SECTIONS 'G', 'I', 'J' AND 'K' SEE SHEET 45

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

See revised details PAGE 389 A

WORK THIS SHEET WITH SHEETS 44-46

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 7 DETAILS

SHEET 43 OF 99
389

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

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42-0825 EXPJT 7.dgn

9/12/2013

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GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

SUPPORT BOXES SHALL BE ASTM-A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM-A240, TYPE 304, WITH A 20 MICRO-INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM-A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A-SM-STUD-REP-01, B-FF-STUD-REP-01, OR A-(MC)GF-STUD-REP-01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM-A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM-A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE. IF JOINT HAS MORE THAN ONE ASSEMBLY, THE NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE ONLY IN THE FIRST ASSEMBLY. REMAINDER OF SEAL SHALL BE ROLLED UP ON THE FIELD SPLICE END. SEAL SHALL THEN BE FIELD INSTALLED WITH A LUBRICANT ADHESIVE AFTER FIELD WELDING IS COMPLETE. NO FIELD SPLICES OF THE STRIP SEAL GLANDS SHALL BE PERMITTED. CONTRACTOR SHALL PROTECT SEAL DURING THE INSTALLATION OF 1ST JOINT SECTION TO PREVENT DAMAGE PRIOR TO THE INSTALLATION OF THE 2ND JOINT SECTION.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT. QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT-BRIDGE UNIT-INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

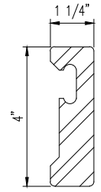
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 28p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.

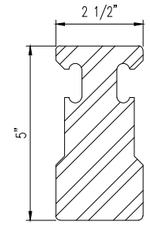


4" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.
(LOCATED ON 'D-240' MODULAR EXPANSION JOINTS.)

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

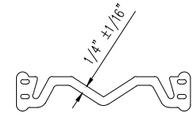


CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

INSTALLATION PROCEDURES

1. FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.
2. PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)
3. BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.
4. BEFORE REMOVING BLOCK AND BANDING, ANCHOR ONE SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. FIELD LOCATE AND DRILL HOLES IN SUPPORTING STRUCTURAL STEEL FOR JOINT SUPPORT HARDWARE.
5. REMOVE BLOCK AND BANDING AFTER ONE SIDE HAS BEEN ATTACHED TO STRUCTURE.
6. ADJUST JOINT OPENING, AS DETERMINED BY THE FIELD ENGINEER.
7. ANCHOR THE OTHER SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT CONNECTIONS. IF NEEDED, CONTRACTOR MAY TACK WELD JOINT SUPPORTS AFTER FINAL ADJUSTMENT.
8. CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.
9. POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2-400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 26
- SEE RAIL AND SEAL DETAILS ON SHEET 26
- SEE INSTALLATION PROCEDURES ON SHEET 26
- SEE SPLICE DETAILS ON SHEET 27
- SEE UPTURN DETAILS ON SHEET 27
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 28
- SEE SPRING & BEARING DIAGRAM ON SHEET 28
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 28
- SEE 'D-240' PLAN VIEW FOR JOINT #7 ON SHEET 29
- SEE 'D-240' PLAN VIEW FOR JOINT #9 ON SHEET 30
- SEE 'D-240' PLAN VIEW FOR JOINT #10 ON SHEET 31
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 32
- SEE JOINT SUPPORT DETAILS ON SHEET 32
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 33
- SEE SUPPORT BOX DETAILS ON SHEET 34
- SEE SUPPORT BAR DETAILS ON SHEET 35
- SEE BILL OF MATERIALS ON SHEET 36-38

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

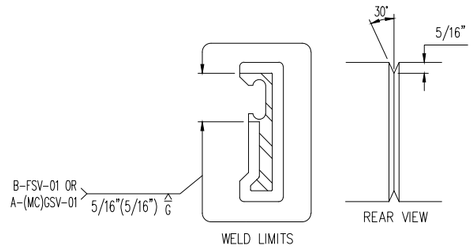
DESCRIPTION:
GENERAL NOTES & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	1 OF 13

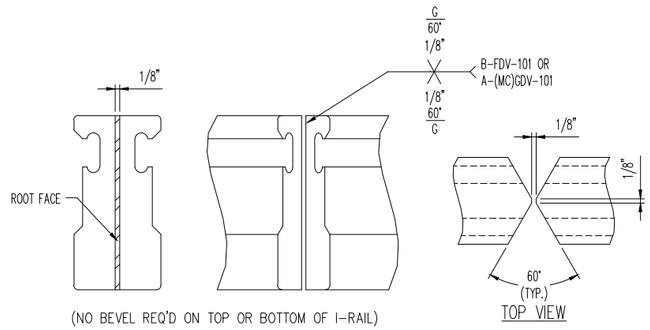
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	26

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING



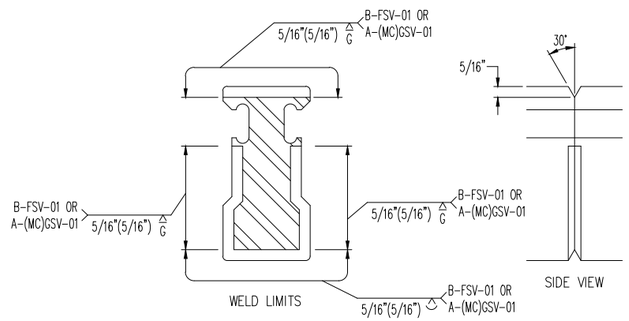
EDGE BEAM SHOP SPLICE DETAIL



(NO BEVEL REQ'D ON TOP OR BOTTOM OF I-RAIL)

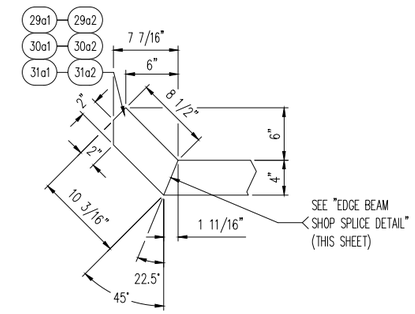
CENTER BEAM SHOP SPLICE DETAIL

COMPLETE PENETRATION WELD

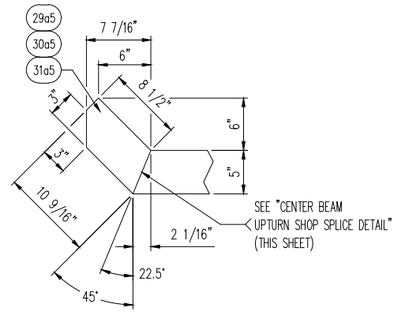


CENTER BEAM UPTURN SHOP SPLICE DETAIL

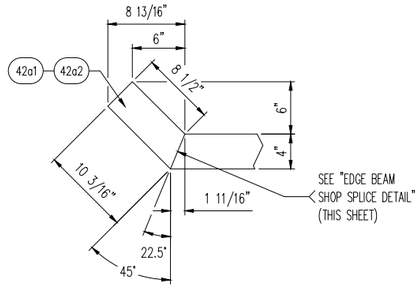
PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)



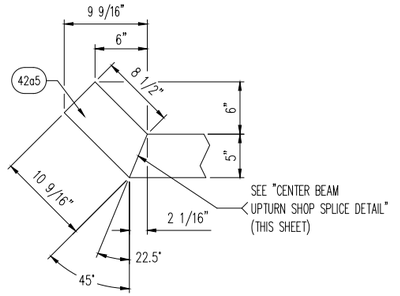
EDGE BEAM UPTURN 1 DETAIL



CENTER BEAM UPTURN 1 DETAIL



EDGE BEAM UPTURN 2 DETAIL



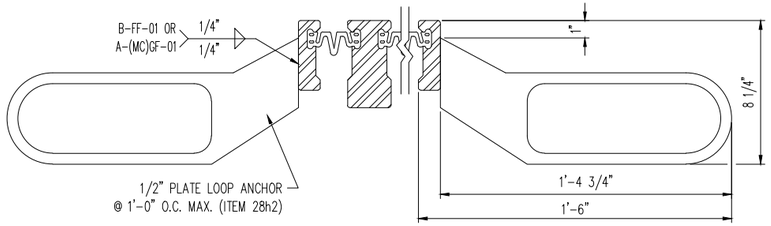
CENTER BEAM UPTURN 2 DETAIL

REV.	DESCRIPTION	DATE	DET.	CKD.

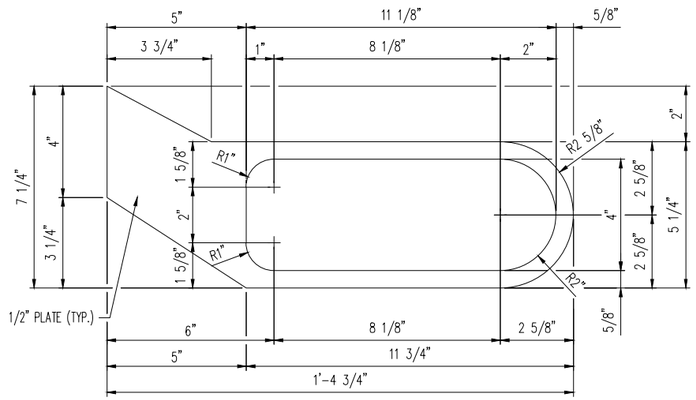
D.S. BROWN
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WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	JLW	03/2014	2 OF 13
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET		
42790	1021	1	27		

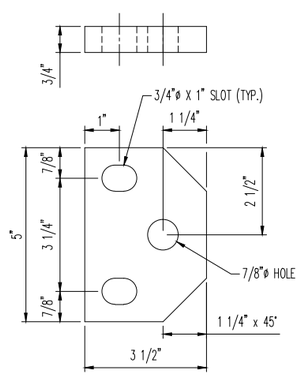


SECTION THRU 'D-240' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)



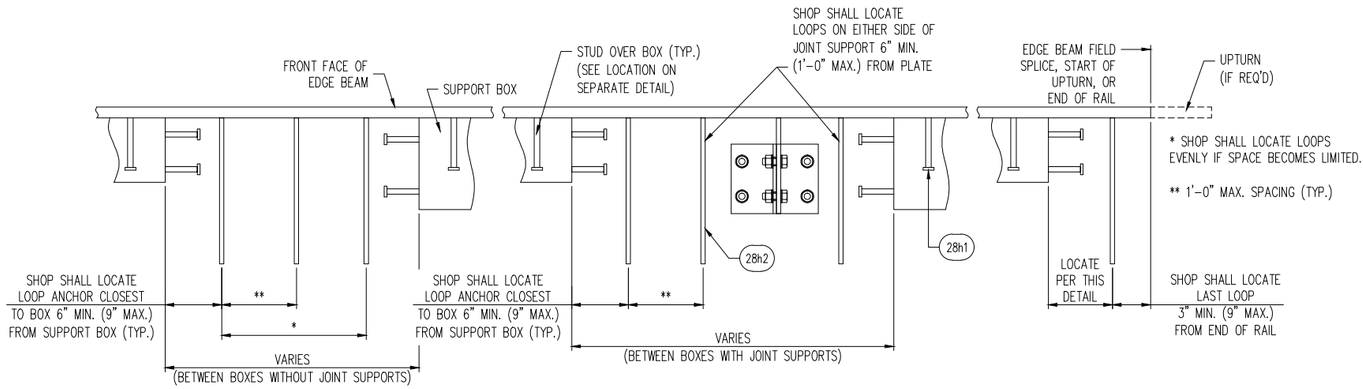
ITEM NO. 28h2
(265) REQ'D.

PLATE ANCHOR DETAIL



ITEM NO. 28p1
(144) REQ'D.

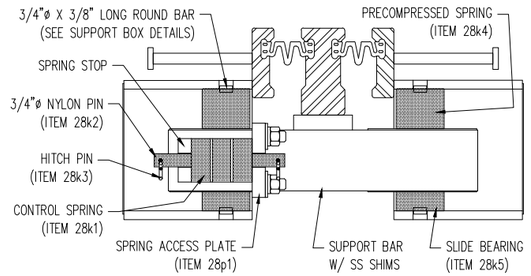
SPRING ACCESS PLATE DETAIL



TYP. LOOP ANCHOR LAYOUT SEQUENCE ALONG EDGE BEAM

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING



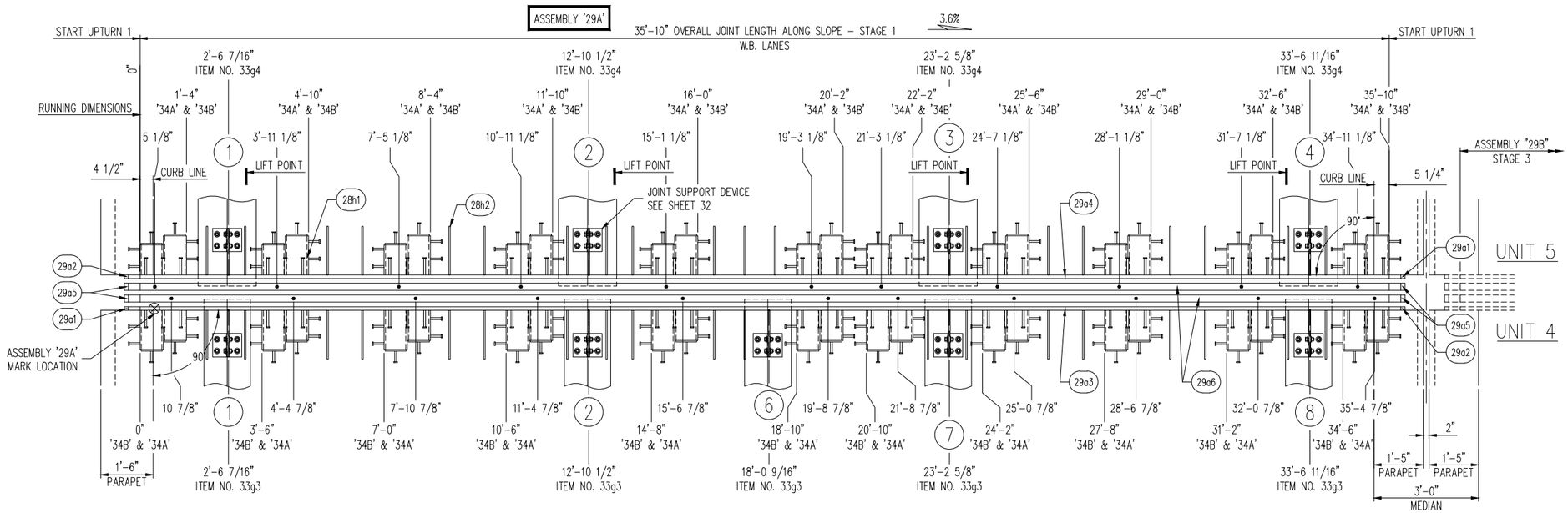
TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-160" SHOWN - OTHER JOINT SIZES SIMILAR)

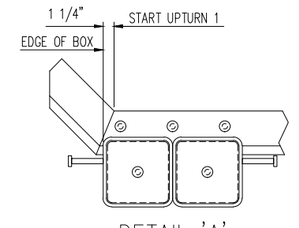
REV.	DESCRIPTION	DATE	DET.	CKD.

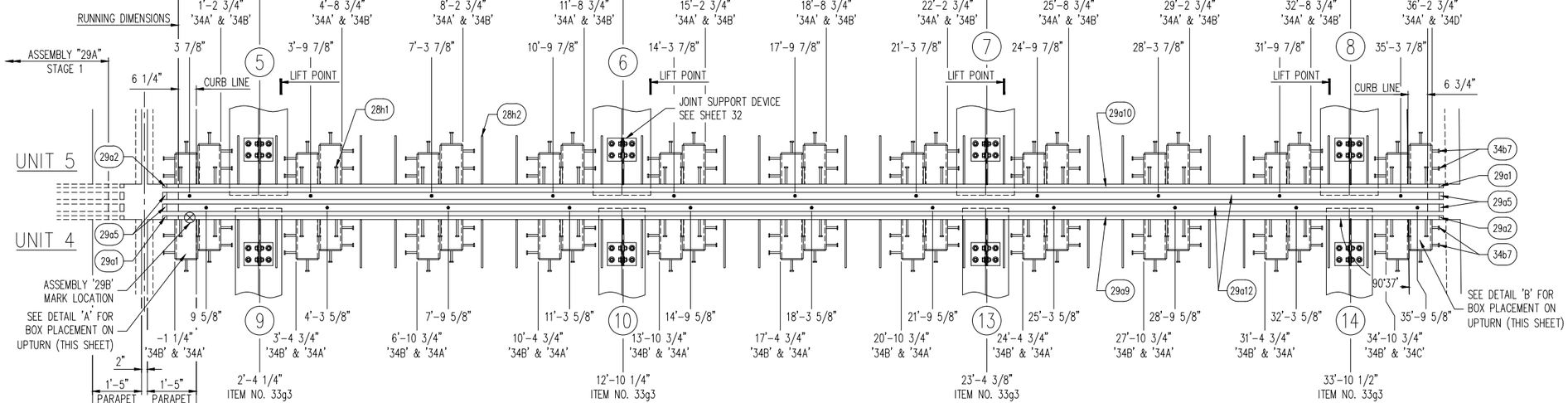
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
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FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
SECTIONS & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	JLW	03/2014	3 OF 13
	PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
	42790	1021	1	28	







'D-240' MODULAR EXPANSION JOINT PLAN VIEW

USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. B-16-38 (WI) / 69100 (MN)
JOINT #7 LOCATED AT HINGE 4-5 (LOOKING UPSTATION)
PAY ITEM NO. 502.3110.S (LINE ITEM NO. 0650)

BOX SPACING = 3'-6"
(1) JOINT EA. REQUIRED

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

FABRICATION NOTE:

– SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

SHOP NOTES:

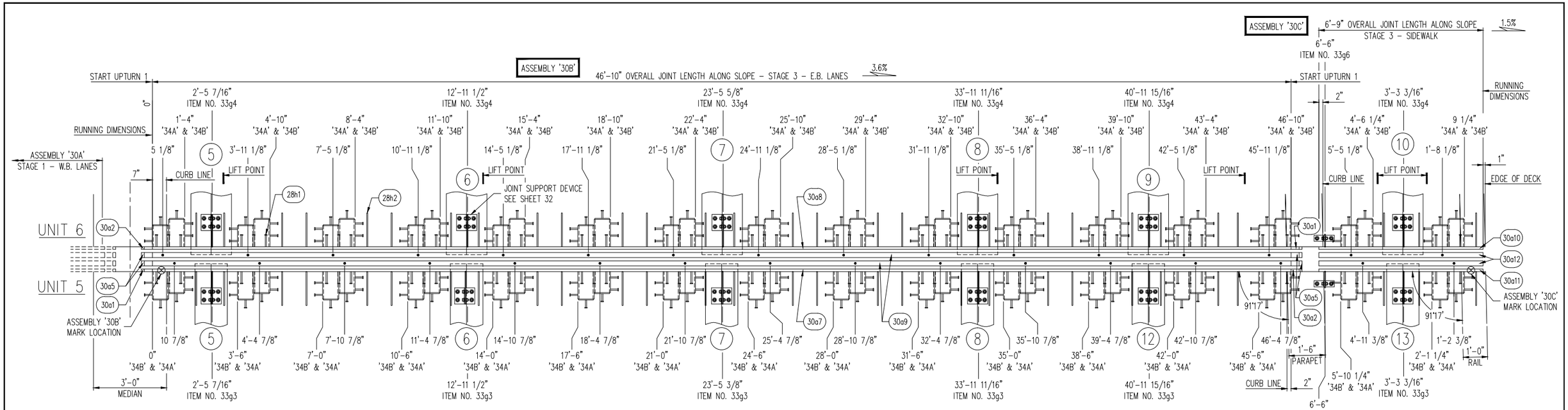
- SEE GENERAL NOTES ON SHEET 26
- SEE RAIL AND SEAL DETAILS ON SHEET 26
- SEE INSTALLATION PROCEDURES ON SHEET 26
- SEE SPLICE DETAILS ON SHEET 27
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- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 33
- SEE SUPPORT BOX DETAILS ON SHEET 34
- SEE SUPPORT BAR DETAILS ON SHEET 35
- SEE BILL OF MATERIALS ON SHEET 36 & 37

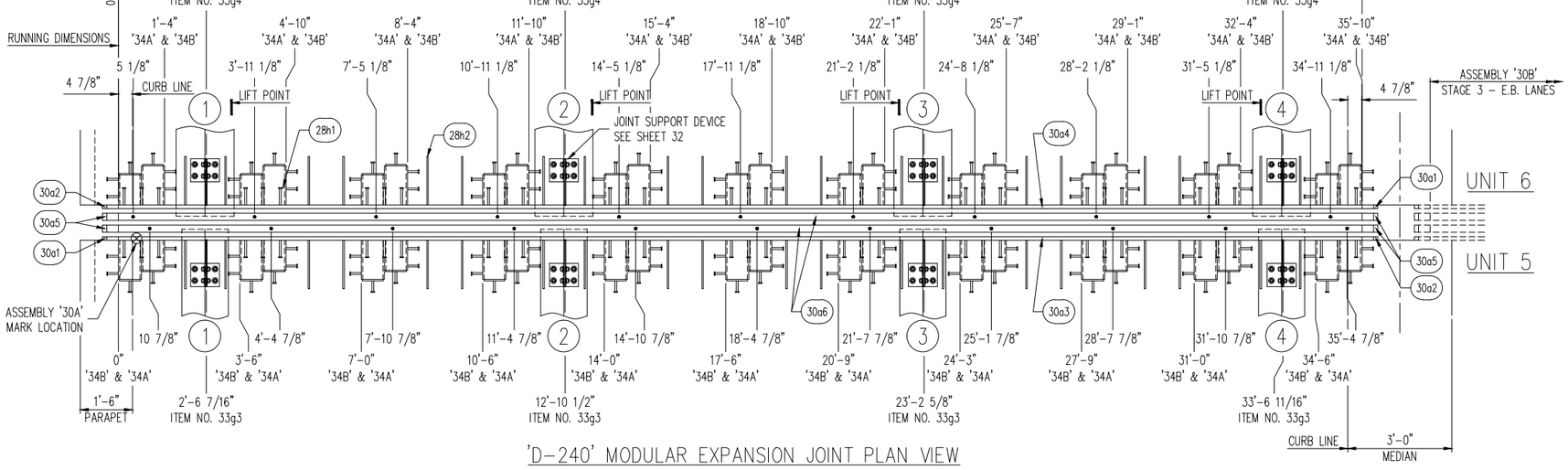
REV.	DESCRIPTION	DATE	DET.	CKD.

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	ITEM	QUANTITY
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P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION	SCALE	DRAWN BY	CHECKED BY	DATE	BRIDGE SHEET
'D-240' PLAN VIEW & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	JLW	03/2014	4 OF 13
	PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
	42790	1021	1	29	





'D-240' MODULAR EXPANSION JOINT PLAN VIEW

USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. B-16-38 (WI) / 69100 (MN)
JOINT #9 LOCATED AT HINGE 5-6 (LOOKING UPSTATION)
PAY ITEM NO. 502.3110.S (LINE ITEM NO. 0650)

BOX SPACING = VARIES (3'-6" MAX.)
(1) JOINT EA. REQUIRED

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

SHOP NOTES:

- SEE GENERAL NOTES ON SHEET 26
- SEE RAIL AND SEAL DETAILS ON SHEET 26
- SEE INSTALLATION PROCEDURES ON SHEET 26
- SEE SPLICE DETAILS ON SHEET 27
- SEE UPTURN DETAILS ON SHEET 27
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- SEE JOINT SUPPORT DETAILS ON SHEET 32
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 33
- SEE SUPPORT BOX DETAILS ON SHEET 34
- SEE SUPPORT BAR DETAILS ON SHEET 35
- SEE BILL OF MATERIALS ON SHEET 36 & 37

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

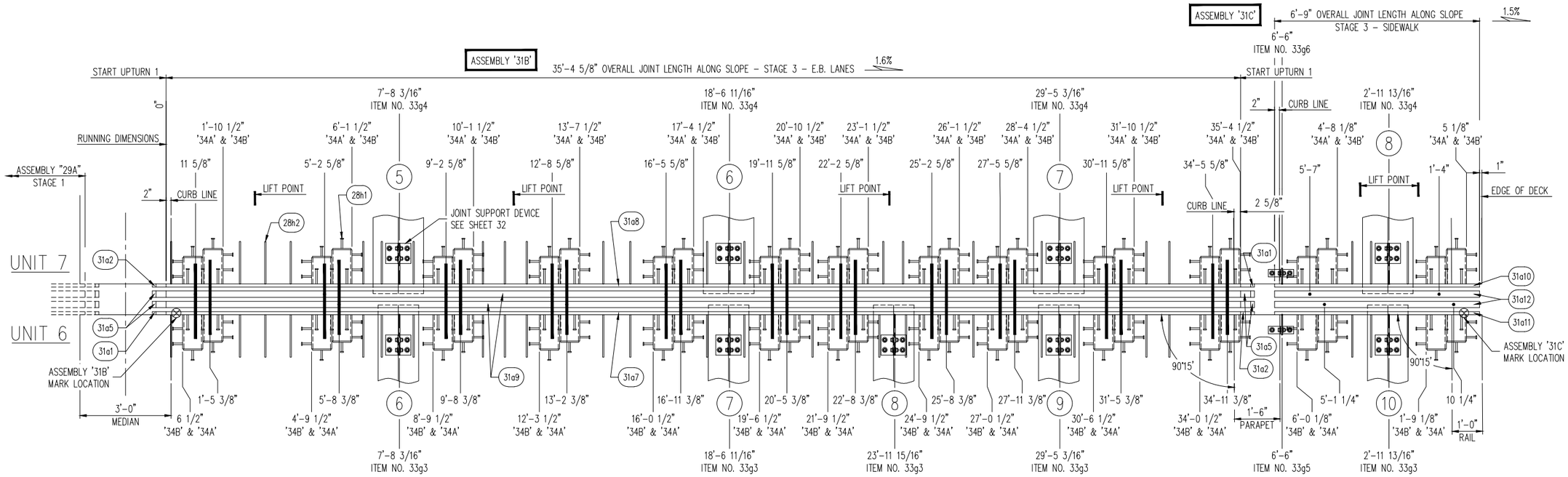
REV.	DESCRIPTION	DATE	DET.	CKD.

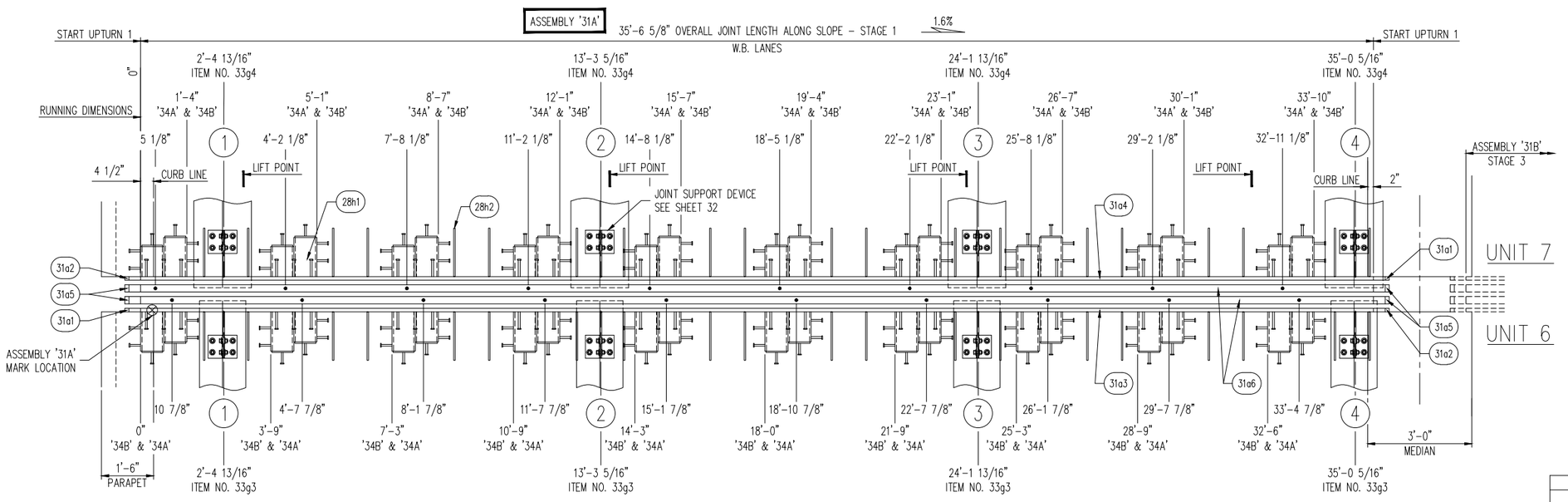
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
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P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
'D-240' PLAN VIEW & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	JLW	03/2014	5 OF 13

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	30





'D-240' MODULAR EXPANSION JOINT PLAN VIEW

USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. B-16-38 (WI) / 69100 (MN)
JOINT #10 LOCATED AT HINGE 6-7 (LOOKING UPSTATION)
PAY ITEM NO. 502.3110.S (LINE ITEM NO. 0650)

BOX SPACING = VARIES (3'-9" MAX.)
(1) JOINT EA. REQUIRED

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

SHOP NOTES:

- SEE GENERAL NOTES ON SHEET 26
- SEE RAIL AND SEAL DETAILS ON SHEET 26
- SEE INSTALLATION PROCEDURES ON SHEET 26
- SEE SPLICE DETAILS ON SHEET 27
- SEE UPTURN DETAILS ON SHEET 27
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 28
- SEE SPRING & BEARING DIAGRAM ON SHEET 28
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 28
- SEE 'D-240' PLAN VIEW FOR JOINT #7 ON SHEET 29
- SEE 'D-240' PLAN VIEW FOR JOINT #9 ON SHEET 30
- SEE 'D-240' PLAN VIEW FOR JOINT #10 ON SHEET 31
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 32
- SEE JOINT SUPPORT DETAILS ON SHEET 32
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 33
- SEE SUPPORT BOX DETAILS ON SHEET 34
- SEE SUPPORT BAR DETAILS ON SHEET 35
- SEE BILL OF MATERIALS ON SHEET 36 & 37

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

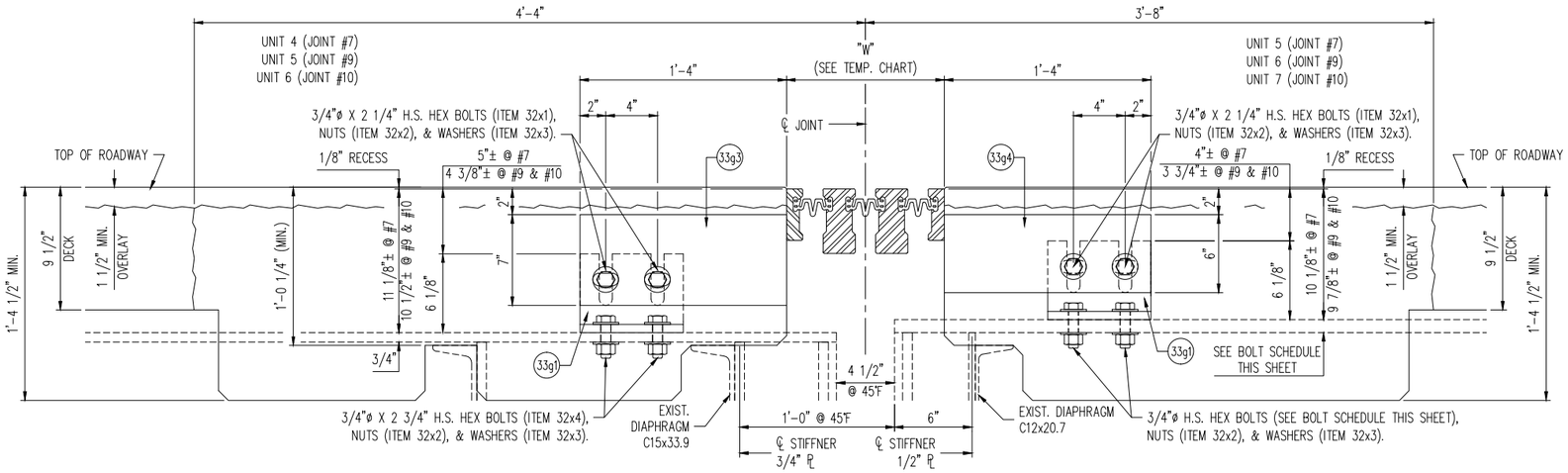
REV.	DESCRIPTION	DATE	DET.	CKD.

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

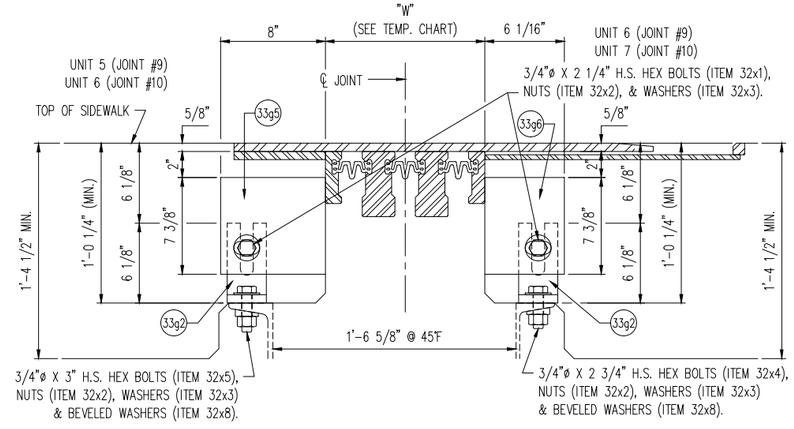
DESCRIPTION: 'D-240' PLAN VIEW & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	6 OF 13
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	31	



SECTION OF 'D-240' SUPPORTS @ GIRDERS

DIMENSIONS SHOWN ARE AT 45°F



SECTION OF 'D-240' SUPPORTS ON DIAPHRAGMS @ SIDEWALK

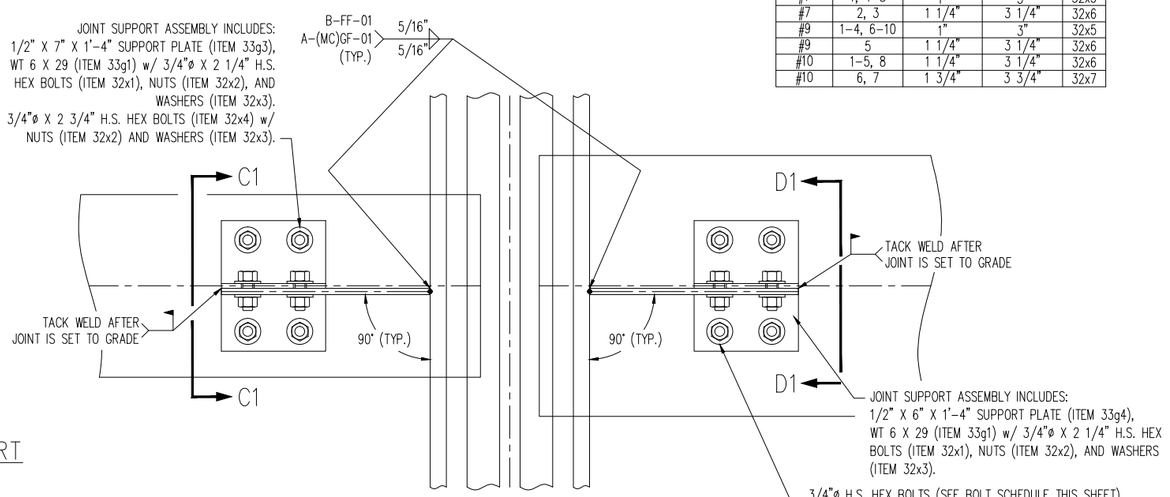
DIMENSIONS SHOWN ARE AT 45°F

'D-240' OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINTS #7, #9 & #10
MAX.	7 1/2"
120°F	8 1/2"
110°F	9"
100°F	9 1/2"
90°F	10"
80°F	10 1/2"
70°F	11"
60°F	11 1/2"
50°F	1'-0"
MID. @ 45°F	1'-0 1/4"
40°F	1'-0 1/2"
30°F	1'-1"
20°F	1'-1 1/2"
10°F	1'-2"
0°F	1'-2 1/2"
-10°F	1'-3"
-20°F	1'-3 1/2"
-30°F	1'-4"
MIN.	1'-4 15/16"

TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT:
1/2" PER 10°F @ JOINTS #7, #9 & #10

JOINT SUPPORT ASSEMBLY INCLUDES: 1/2" X 7" X 1'-4" SUPPORT PLATE (ITEM 33g3), WT 6 X 29 (ITEM 33g1) w/ 3/4"ø X 2 1/4" H.S. HEX BOLTS (ITEM 32x1), NUTS (ITEM 32x2), AND WASHERS (ITEM 32x3). 3/4"ø X 2 3/4" H.S. HEX BOLTS (ITEM 32x4) w/ NUTS (ITEM 32x2) AND WASHERS (ITEM 32x3).



PLAN VIEW OF SUPPORTS @ GIRDERS

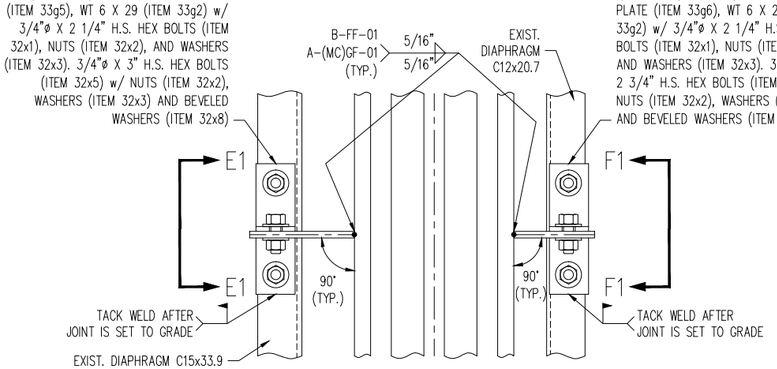
DIMENSIONS SHOWN ARE AT 45°F

BOLT SCHEDULE				
JOINT	GIRDER	℄ THICKNESS	BOLT LENGTH	MK#
#7	1, 4-8	1"	3"	32x5
#7	2, 3	1 1/4"	3 1/4"	32x6
#9	1-4, 6-10	1"	3"	32x5
#9	5	1 1/4"	3 1/4"	32x6
#10	1-5, 8	1 1/4"	3 1/4"	32x6
#10	6, 7	1 3/4"	3 3/4"	32x7

JOINT SUPPORT ASSEMBLY INCLUDES: 1/2" X 7 3/8" X 8" SUPPORT PLATE (ITEM 33g5), WT 6 X 29 (ITEM 33g2) w/ 3/4"ø X 2 1/4" H.S. HEX BOLTS (ITEM 32x1), NUTS (ITEM 32x2), AND WASHERS (ITEM 32x3). 3/4"ø X 3" H.S. HEX BOLTS (ITEM 32x5) w/ NUTS (ITEM 32x2), WASHERS (ITEM 32x3) AND BEVELED WASHERS (ITEM 32x8)

COVER PLATE HARDWARE NOT SHOWN FOR CLARITY
SEE SHEETS 133-136 FOR COVER PLATE DETAILS

JOINT SUPPORT ASSEMBLY INCLUDES: 1/2" X 7 3/8" X 6 1/16" SUPPORT PLATE (ITEM 33g6), WT 6 X 29 (ITEM 33g2) w/ 3/4"ø X 2 1/4" H.S. HEX BOLTS (ITEM 32x1), NUTS (ITEM 32x2), AND WASHERS (ITEM 32x3). 3/4"ø X 2 3/4" H.S. HEX BOLTS (ITEM 32x4) w/ NUTS (ITEM 32x2), WASHERS (ITEM 32x3) AND BEVELED WASHERS (ITEM 32x8)

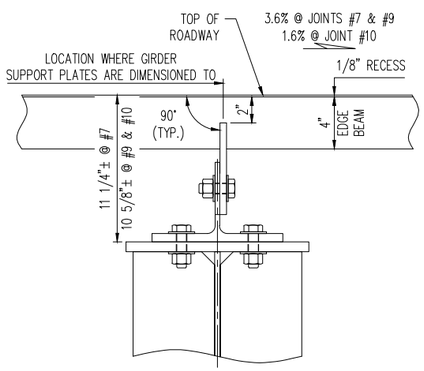


PLAN VIEW OF SUPPORTS @ SIDEWALK DIAPHRAGMS

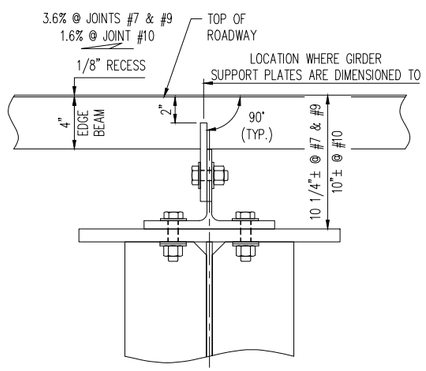
DIMENSIONS SHOWN ARE AT 45°F

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

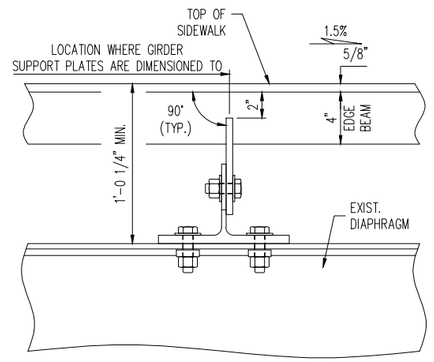
CONSTRUCTION
SHOP DRAWING



SECTION C1



SECTION D1



SECTION E1
(SECTION F1 - OPP. HAND)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
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WWW.DSBROWN.COM

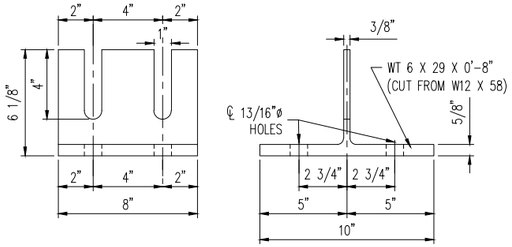
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	7 OF 13

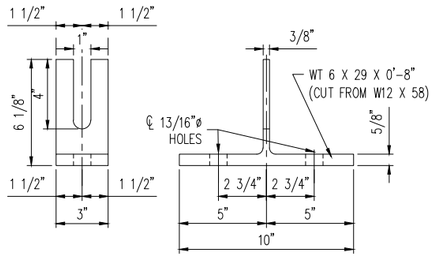
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	32

NOTE:
– IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  – 3/8" VERTICAL PLATE
  – 5/8" BASE PLATE
  – 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A–(MC)GF–01 OR B–FF–01

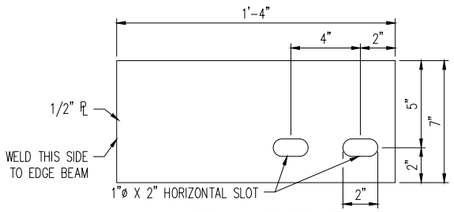


WT6x29 JOINT SUPPORT
ITEM 33g1
(54) REQUIRED

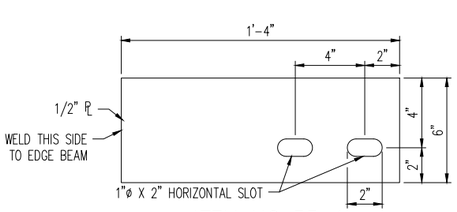
NOTE:
– IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  – 3/8" VERTICAL PLATE
  – 5/8" BASE PLATE
  – 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A–(MC)GF–01 OR B–FF–01



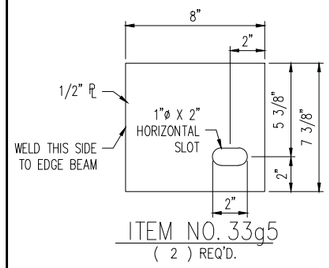
WT6x29 JOINT SUPPORT
ITEM 33g2
(4) REQUIRED



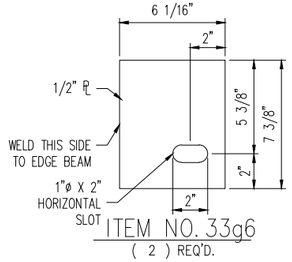
ITEM NO. 33g3
(28) REQ'D.



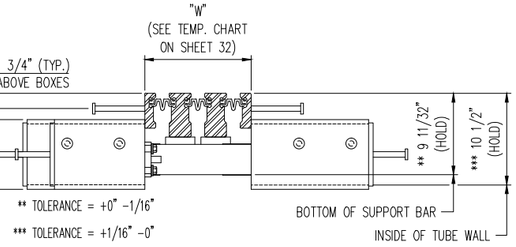
ITEM NO. 33g4
(26) REQ'D.



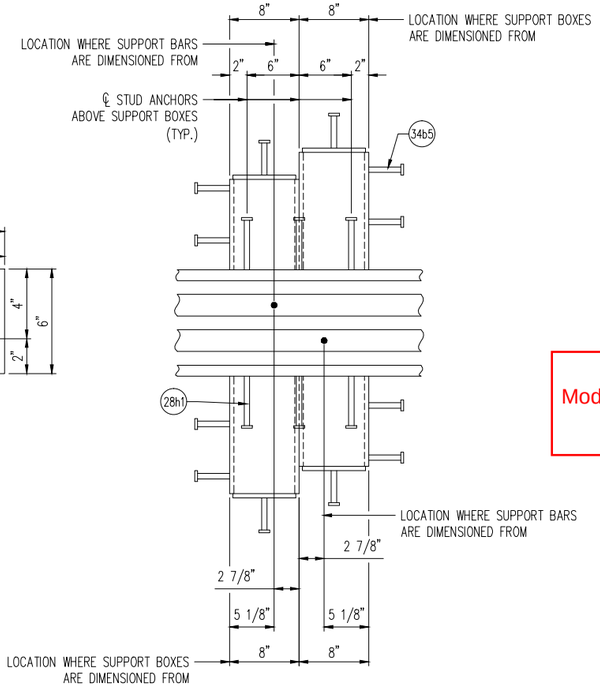
ITEM NO. 33g5
(2) REQ'D.



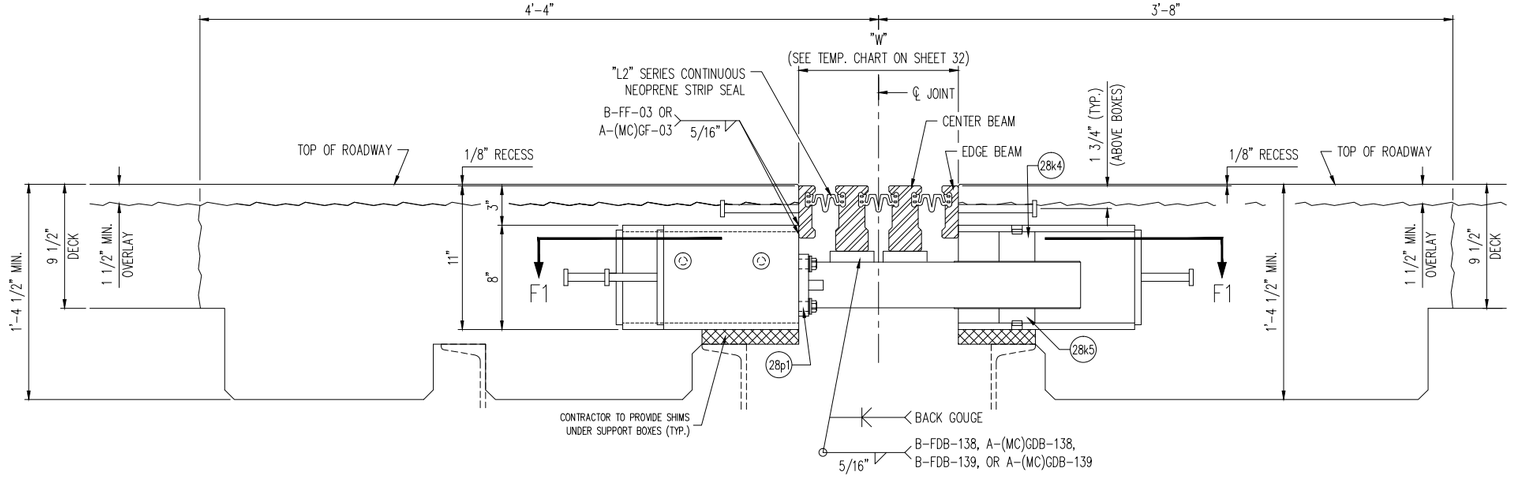
ITEM NO. 33g6
(2) REQ'D.



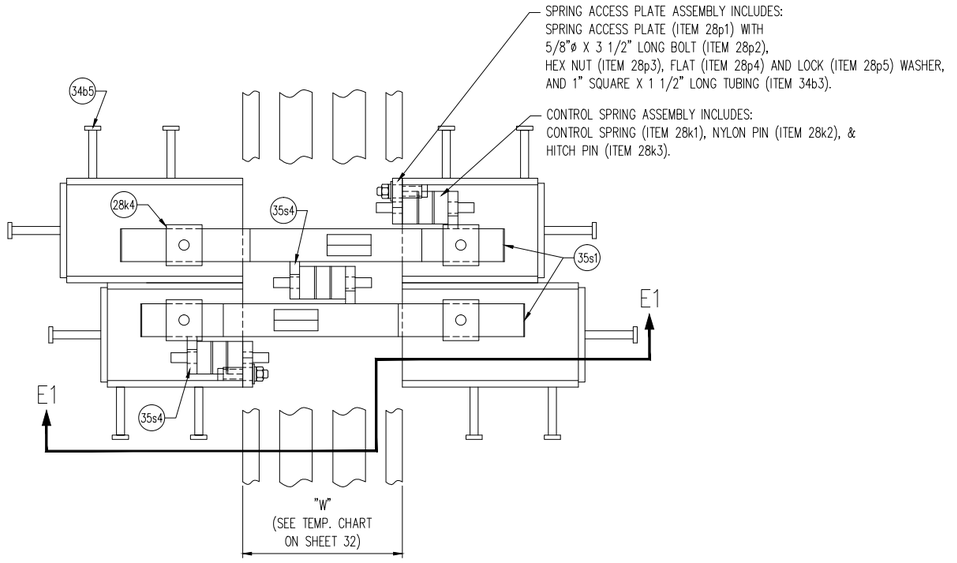
SECTION THRU 'D–240' @ SUPPORT BOX



'D–240' SUPPORT BOX DETAIL



SECTION E1



SECTION F1

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

PAGE 389 H

REV.	DESCRIPTION	DATE	DET.	CKD.

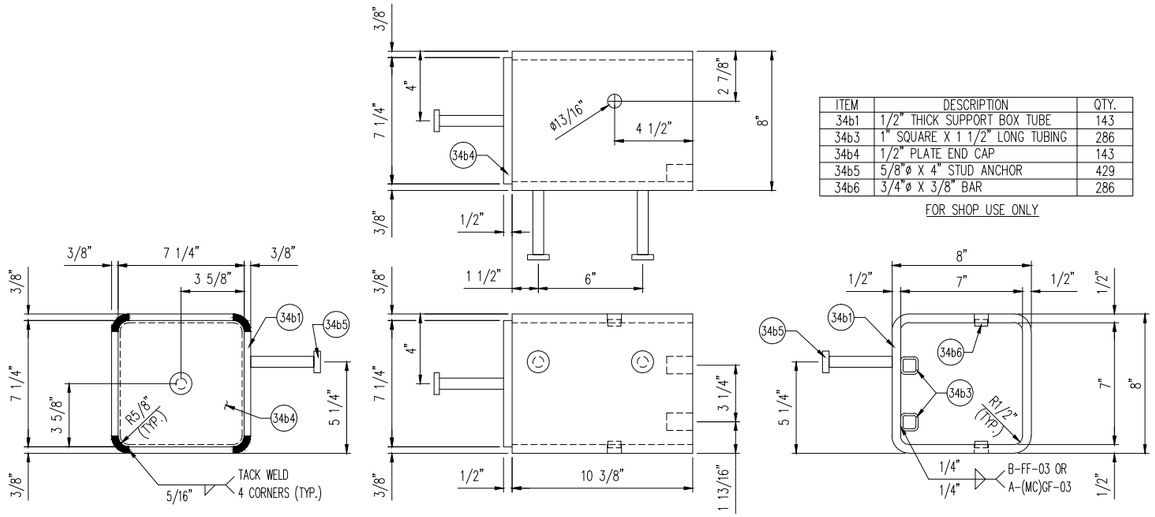
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B–16–38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680–04–71 (WI) / 6937–69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: 'D–240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	8 OF 13

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	33

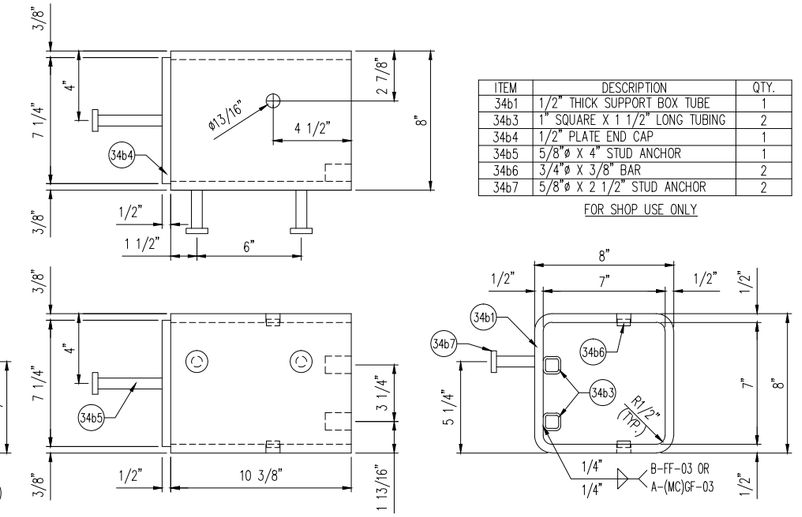


ITEM	DESCRIPTION	QTY.
34b1	1/2" THICK SUPPORT BOX TUBE	143
34b3	1" SQUARE X 1 1/2" LONG TUBING	286
34b4	1/2" PLATE END CAP	143
34b5	5/8"ø X 4" STUD ANCHOR	429
34b6	3/4"ø X 3/8" BAR	286

FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '34A'

(143) REQUIRED



ITEM	DESCRIPTION	QTY.
34b1	1/2" THICK SUPPORT BOX TUBE	1
34b3	1" SQUARE X 1 1/2" LONG TUBING	2
34b4	1/2" PLATE END CAP	1
34b5	5/8"ø X 4" STUD ANCHOR	1
34b6	3/4"ø X 3/8" BAR	2
34b7	5/8"ø X 2 1/2" STUD ANCHOR	2

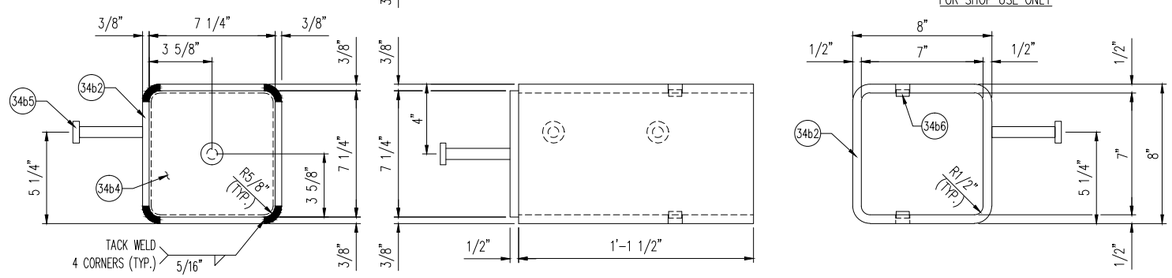
FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '34C'

(1) REQUIRED

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

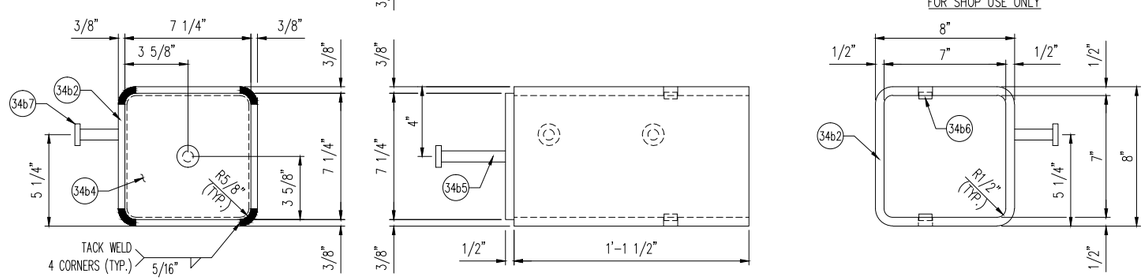


ITEM	DESCRIPTION	QTY.
34b2	1/2" THICK SUPPORT BOX TUBE	143
34b4	1/2" PLATE END CAP	143
34b5	5/8"ø X 4" STUD ANCHOR	429
34b6	3/4"ø X 3/8" BAR	286

FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '34B'

(143) REQUIRED

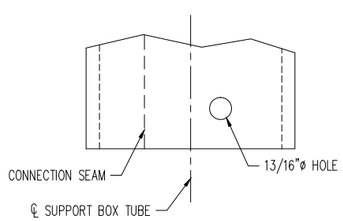


ITEM	DESCRIPTION	QTY.
34b2	1/2" THICK SUPPORT BOX TUBE	1
34b4	1/2" PLATE END CAP	1
34b5	5/8"ø X 4" STUD ANCHOR	1
34b6	3/4"ø X 3/8" BAR	2
34b7	5/8"ø X 2 1/2" STUD ANCHOR	2

FOR SHOP USE ONLY

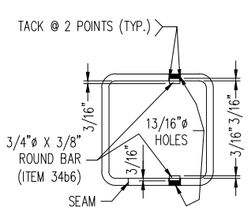
'D-240' SUPPORT BOX DETAIL '34D'

(1) REQUIRED



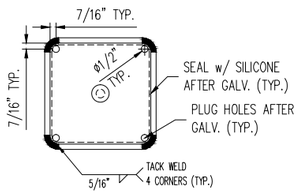
SHOP NOTE:

WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE ℄ OF BOX.



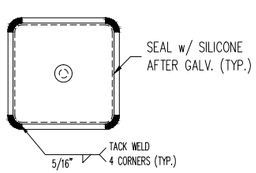
SUPPORT BOX PIN DETAILS

(W/ RUBBER SPRINGS & BEARINGS)



SUPPORT BOX BACK PLATE OPTION NO. 1

(ATTACH PRIOR TO GALV.)



SUPPORT BOX BACK PLATE OPTION NO. 2

(ATTACH AFTER GALV.)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

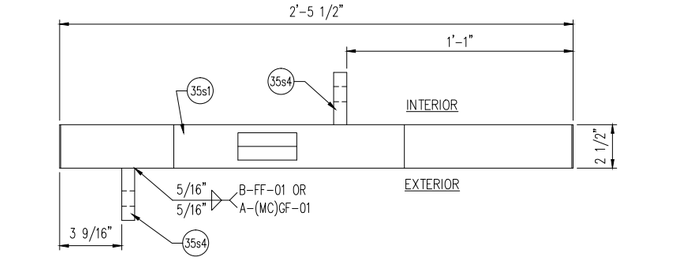
DESCRIPTION: 'D-240' SUPPORT BOX DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	9 OF 13

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	34

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

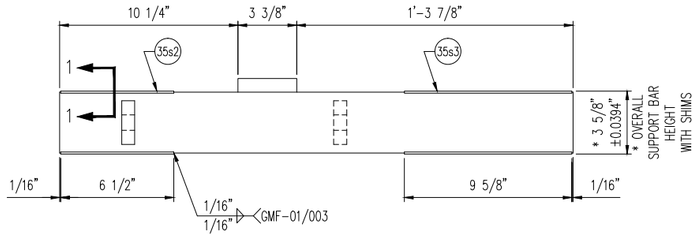
CONSTRUCTION
SHOP DRAWING

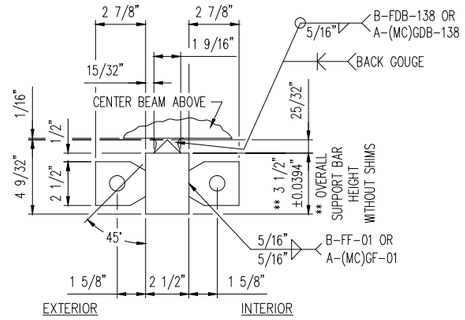


ITEM	DESCRIPTION	QTY.
35s1	2 1/2" X 4 9/32" X 2'-5 1/2" BAR	144
35s2	16GA. X 3 1/8" X 6 1/2" S.S. SHIM	288
35s3	16GA. X 3 1/8" X 9 5/8" S.S. SHIM	288
35s4	3/4" X 2 1/2" X 2 7/8" FLAT BAR	288

FOR SHOP USE ONLY

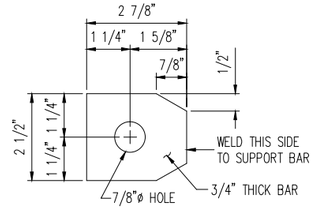
NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.





'D-240' SUPPORT BAR DETAILS

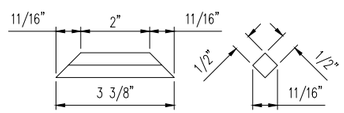
(144) REQUIRED



ITEM NO. 35s4

(288) REQ'D.

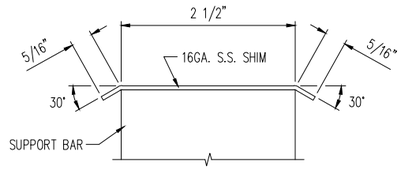
SPRING STOP DETAIL



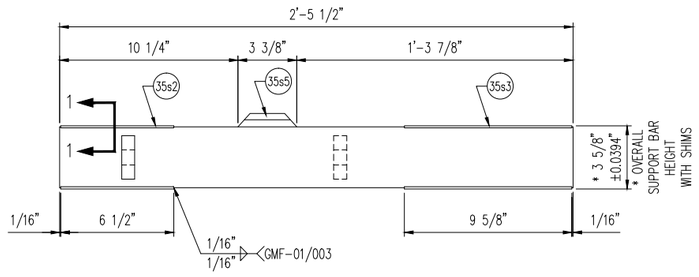
ITEM NO. 35s5

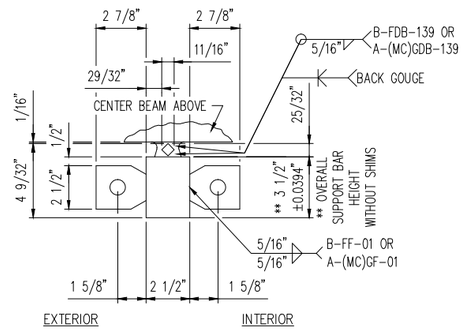
(144) REQ'D.

RIDER BAR DETAIL



SECTION 1-1





OPTIONAL 'D-240' SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	10 OF 13

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	35

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
29A	1	"D-240" MODULAR EXPANSION JOINT			37'-0 7/8"	9585	
28h1	66	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	39	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	33	CONTROL SPRING (80MM)	–		PLAIN	1	
28k2	33	NYLON PIN (80MM)	–		PLAIN	< 1	
28k3	66	HITCH PIN	–		PLAIN	< 1	
28k4	44	PRECOMPRESSED SPRING	–		PLAIN	< 1	
28k5	44	SLIDE BEARING	–		PLAIN	1	
28p1	22	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	44	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	44	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	44	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	44	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
29a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
29a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
29a3	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-1 3/8	A123-HDG	467	
29a4	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-1 3/8	A123-HDG	467	
29a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
29a6	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	36'-2 1/8	A123-HDG	1247	
29y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
29y2	3	L2-400 GLAND	NEOPRENE	38'-0	114'-0" TOTAL;	61	
33g3	5	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	4	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
34b1	22	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	22	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	44	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	44	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	132	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	88	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	22	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	44	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
29B	1	"D-240" MODULAR EXPANSION JOINT			37'-4 1/8"	9612	
28h1	66	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	40	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	33	CONTROL SPRING (80MM)	–		PLAIN	1	
28k2	33	NYLON PIN (80MM)	–		PLAIN	< 1	
28k3	66	HITCH PIN	–		PLAIN	< 1	
28k4	44	PRECOMPRESSED SPRING	–		PLAIN	< 1	
28k5	44	SLIDE BEARING	–		PLAIN	1	
28p1	22	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	44	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	44	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	44	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	44	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
29a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
29a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
29a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
29a9	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-4 5/8	A123-HDG	470	
29a10	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-4 5/8	A123-HDG	470	
29a12	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	36'-5 3/8	A123-HDG	1257	
29y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
29y2	3	L2-400 GLAND	NEOPRENE	38'-0	114'-0" TOTAL;	61	
33g3	4	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	4	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
34b1	22	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	22	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	44	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	44	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	128	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	88	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
34b7	4	Ø3/4 X 2 1/2 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
35s1	22	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	44	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			4/14/2014 3:05:29 PM		

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	11 OF 13

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	36

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
30A	1	"D-240" MODULAR EXPANSION JOINT			37'-0 7/8"	9587	
28h1	66	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	40	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	33	CONTROL SPRING (80MM)	–		PLAIN	1	
28k2	33	NYLON PIN (80MM)	–		PLAIN	< 1	
28k3	66	HITCH PIN	–		PLAIN	< 1	
28k4	44	PRECOMPRESSED SPRING	–		PLAIN	< 1	
28k5	44	SLIDE BEARING	–		PLAIN	1	
28p1	22	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	44	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	44	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	44	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	44	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
30a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
30a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
30a3	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-1 3/8	A123-HDG	467	
30a4	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-1 3/8	A123-HDG	467	
30a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
30a6	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	36'-2 1/8	A123-HDG	1247	
30y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
30y2	3	L2-400 GLAND	NEOPRENE	38'-0	114'-0" TOTAL;	61	
33g3	4	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	4	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
34b1	22	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	22	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	44	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	44	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	132	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	88	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	22	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR – MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	44	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
30B	1	"D-240" MODULAR EXPANSION JOINT			48'-0 7/8"	12275	
28h1	84	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	52	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	42	CONTROL SPRING (80MM)	–		PLAIN	1	
28k2	42	NYLON PIN (80MM)	–		PLAIN	< 1	
28k3	84	HITCH PIN	–		PLAIN	< 1	
28k4	56	PRECOMPRESSED SPRING	–		PLAIN	< 1	
28k5	56	SLIDE BEARING	–		PLAIN	1	
28p1	28	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	56	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	56	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	56	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	56	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
30a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
30a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
30a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
30a7	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	47'-1 3/8	A123-HDG	609	
30a8	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	47'-1 3/8	A123-HDG	609	
30a9	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	47'-2 1/8	A123-HDG	1626	
30y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
30y2	3	L2-400 GLAND	NEOPRENE	48'-0	144'-0" TOTAL;	77	
33g3	5	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	5	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
34b1	28	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	28	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	56	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	56	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	168	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	112	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	28	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR – MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	56	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	56	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	56	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
30C	1	"D-240" MODULAR EXPANSION JOINT			6'-9"	1740	
28h1	12	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	6	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	6	CONTROL SPRING (80MM)	–		PLAIN	1	
28k2	6	NYLON PIN (80MM)	–		PLAIN	< 1	
28k3	12	HITCH PIN	–		PLAIN	< 1	
28k4	8	PRECOMPRESSED SPRING	–		PLAIN	< 1	
28k5	8	SLIDE BEARING	–		PLAIN	1	
28p1	4	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	8	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	8	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	8	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	8	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
30a10	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
30a11	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
30a12	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
30y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
30y2	3	L2-400 GLAND	NEOPRENE	7'-0	21'-0" TOTAL;	11	
33g3	1	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	1	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
33g5	1	1/2 X 7 3/8	A36	0'-8	JOINT SUPPORT PLATE; A123-HDG	8	
33g6	1	1/2 X 7 3/8	A36	0'-6 1/16	JOINT SUPPORT PLATE; A123-HDG	6	
34b1	4	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	4	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	8	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	8	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	24	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	16	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	4	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR – MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	8	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	8	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	8	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			4/14/2014 3:05:29 PM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
32XA	112	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
32x1	112	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XB	336	JOINT SUPPORT HARDWARE – HEX NUT (ROCAP)				< 1	
32x2	336	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
32XC	664	JOINT SUPPORT HARDWARE – FLAT WASHER (ROCAP)				< 1	
32x3	664	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
32XD	116	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
32x4	116	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XE	64	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
32x5	64	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XF	36	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
32x6	36	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XG	8	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
32x7	8	Ø3/4 X 3 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
32XH	8	JOINT SUPPORT HARDWARE – BEVELED WASHER (ROCAP)				< 1	
32x8	8	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
32XAT	3	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
32t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XBT	21	TESTING HARDWARE – HEX NUT (ROCAP)				< 1	
32t2	21	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
32XCT	36	TESTING HARDWARE – FLAT WASHER (ROCAP)				< 1	
32t3	36	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
32XDT	6	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
32t4	6	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XET	6	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
32t5	6	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XFT	3	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
32t6	3	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
32XGT	3	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
32t7	3	Ø3/4 X 3 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XHT	6	TESTING HARDWARE – BEVELED WASHER (ROCAP)				< 1	
32t8	6	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			4/14/2014 3:05:29 PM		

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

PAGE 389 L

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	12 OF 13
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	37	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
31A	1	"D-240" MODULAR EXPANSION JOINT			36'-9 1/2"	9106	
28h1	60	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	40	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	30	CONTROL SPRING (80MM)	-		PLAIN	1	
28k2	30	NYLON PIN (80MM)	-		PLAIN	< 1	
28k3	60	HITCH PIN	-		PLAIN	< 1	
28k4	40	PRECOMPRESSED SPRING	-		PLAIN	< 1	
28k5	40	SLIDE BEARING	-		PLAIN	1	
28p1	20	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	40	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	40	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	40	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	40	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
31a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
31a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
31a3	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-10	A123-HDG	463	
31a4	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-10	A123-HDG	463	
31a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
31a6	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-10 3/4	A123-HDG	1238	
31y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
31y2	3	L2-400 GLAND	NEOPRENE	38'-0	114'-0" TOTAL;	61	
33g3	4	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	4	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
34b1	20	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	20	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	40	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	40	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	120	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	80	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	20	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	40	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	40	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	40	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
31B	1	"D-240" MODULAR EXPANSION JOINT			36'-7 1/2"	9599	
28h1	66	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	44	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	33	CONTROL SPRING (80MM)	-		PLAIN	1	
28k2	33	NYLON PIN (80MM)	-		PLAIN	< 1	
28k3	66	HITCH PIN	-		PLAIN	< 1	
28k4	44	PRECOMPRESSED SPRING	-		PLAIN	< 1	
28k5	44	SLIDE BEARING	-		PLAIN	1	
28p1	22	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	44	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	44	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	44	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	44	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
31a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
31a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
31a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
31a7	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-8	A123-HDG	461	
31a8	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-8	A123-HDG	461	
31a9	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-8 3/4	A123-HDG	1232	
31y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
31y2	3	L2-400 GLAND	NEOPRENE	38'-0	114'-0" TOTAL;	61	
33g3	4	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	3	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
34b1	22	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	22	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	44	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	44	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	132	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	88	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	22	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	44	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
31C	1	"D-240" MODULAR EXPANSION JOINT			6'-9"	1705	
28h1	12	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	4	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	6	CONTROL SPRING (80MM)	-		PLAIN	1	
28k2	6	NYLON PIN (80MM)	-		PLAIN	< 1	
28k3	12	HITCH PIN	-		PLAIN	< 1	
28k4	8	PRECOMPRESSED SPRING	-		PLAIN	< 1	
28k5	8	SLIDE BEARING	-		PLAIN	1	
28p1	4	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	8	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	8	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	8	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	8	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
31a10	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
31a11	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
31a12	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
31y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
31y2	3	L2-400 GLAND	NEOPRENE	7'-0	21'-0" TOTAL;	11	
33g3	1	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	1	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
33g5	1	1/2 X 7 3/8	A36	0'-8	JOINT SUPPORT PLATE; A123-HDG	8	
33g6	1	1/2 X 7 3/8	A36	0'-6 1/16	JOINT SUPPORT PLATE; A123-HDG	6	
34b1	4	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	4	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	8	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	8	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	24	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	16	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	4	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	8	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	8	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	8	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			4/14/2014 3:05:29 PM		

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
33GA	54	JOINT SUPPORT ITEM				52	
33g1	146	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
33GB	4	JOINT SUPPORT ITEM				19	
33g2	4	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
		*Approx. Gross Wt. Lbs Per Single Unit			4/14/2014 3:05:29 PM		

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

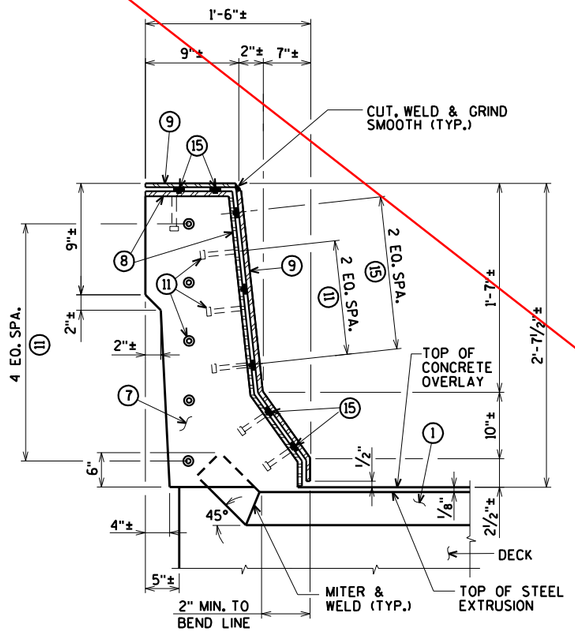
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	13 OF 13

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	38

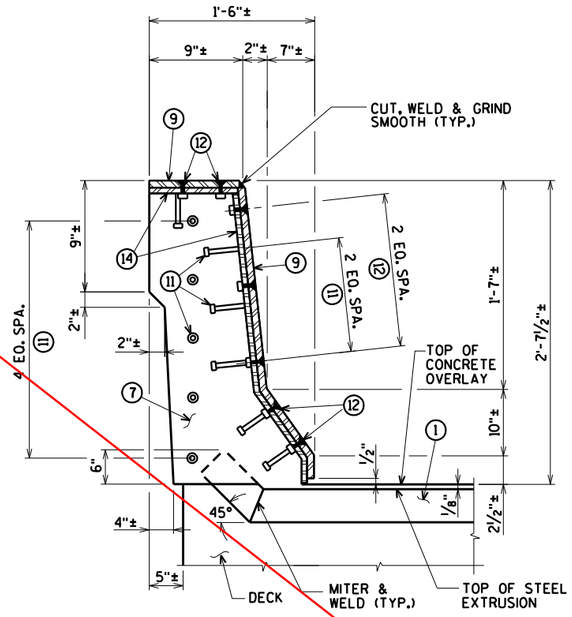
PAGE 389 M

STATE PROJECT NUMBER

8680-04-71



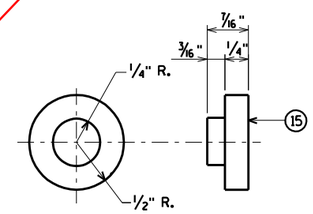
SECTION E



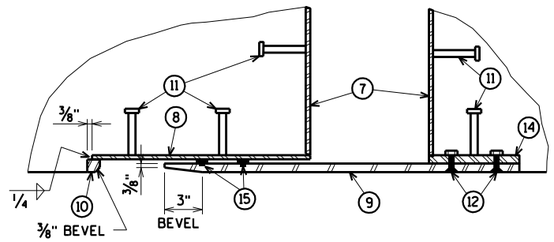
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

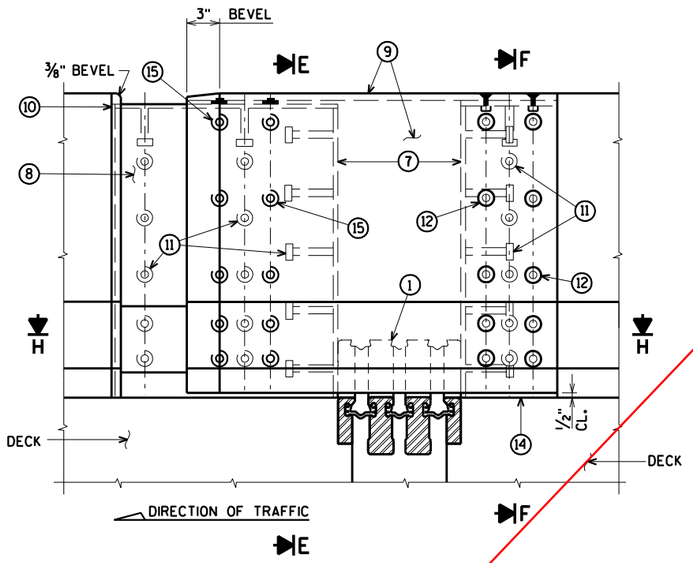
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 43



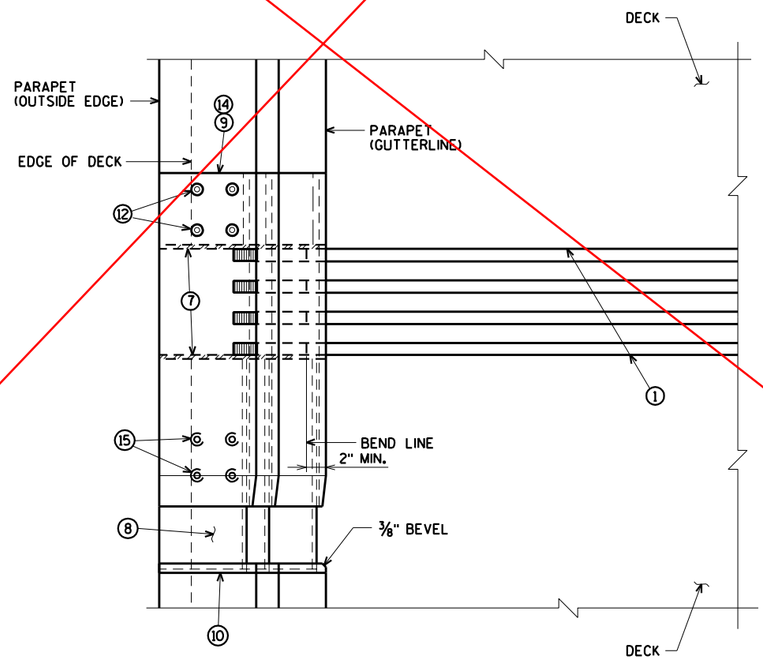
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 389.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 43, 45-46

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 7 DETAILS OUTSIDE PARAPET

SHEET 44 OF 99
390

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

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42-0825 EXPJT 7.dgn

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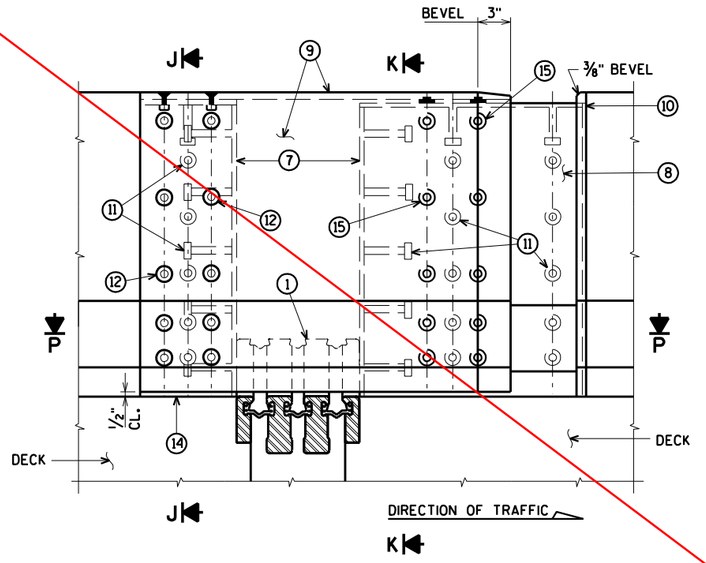
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9/12/2013

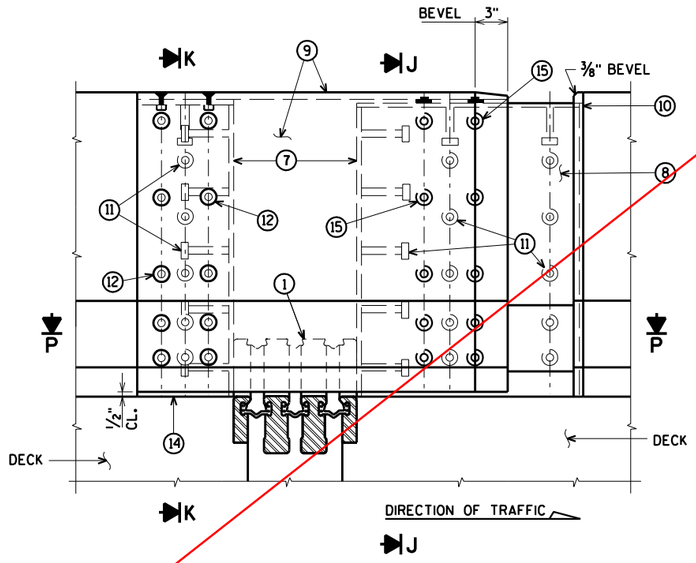
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STATE PROJECT NUMBER

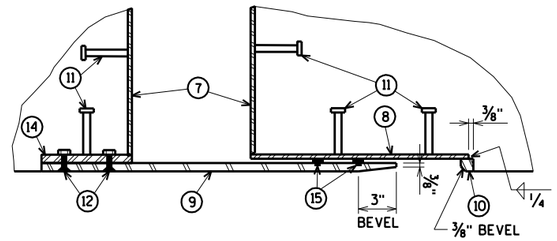
8680-04-71



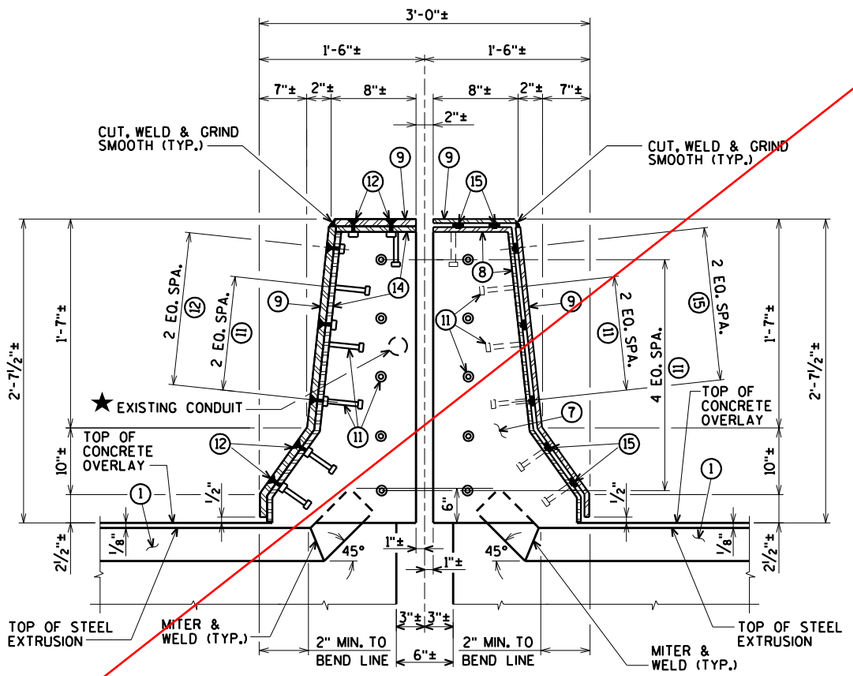
ELEVATION OF MEDIAN PARAPET
SECTION G



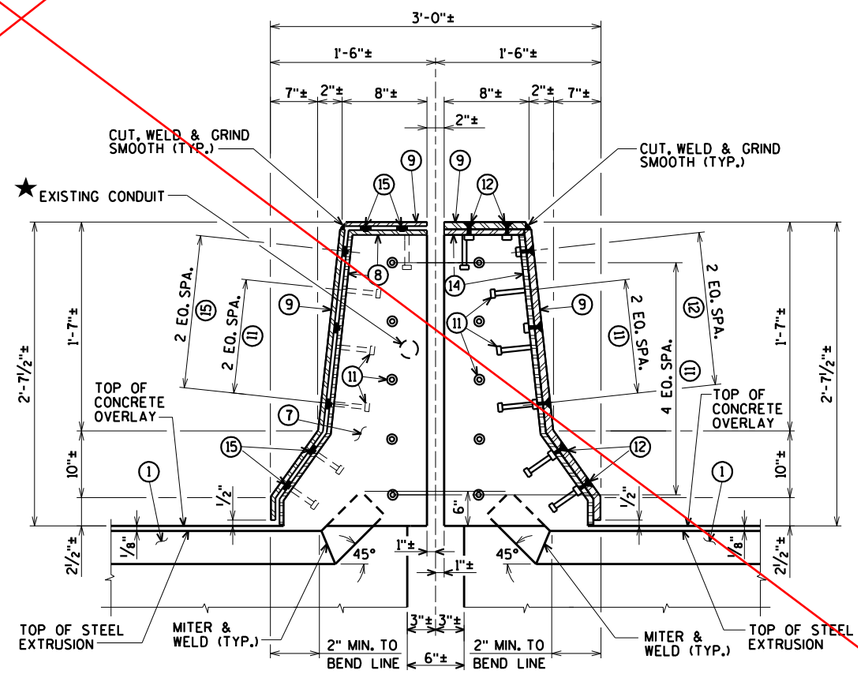
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 43

See revised joint details
PAGE 389.
Cover plate details
PAGE 409.

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

WORK THIS SHEET WITH SHEETS 43-44, 46

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 7 DETAILS MEDIAN PARAPET

SHEET 45 OF 99
391

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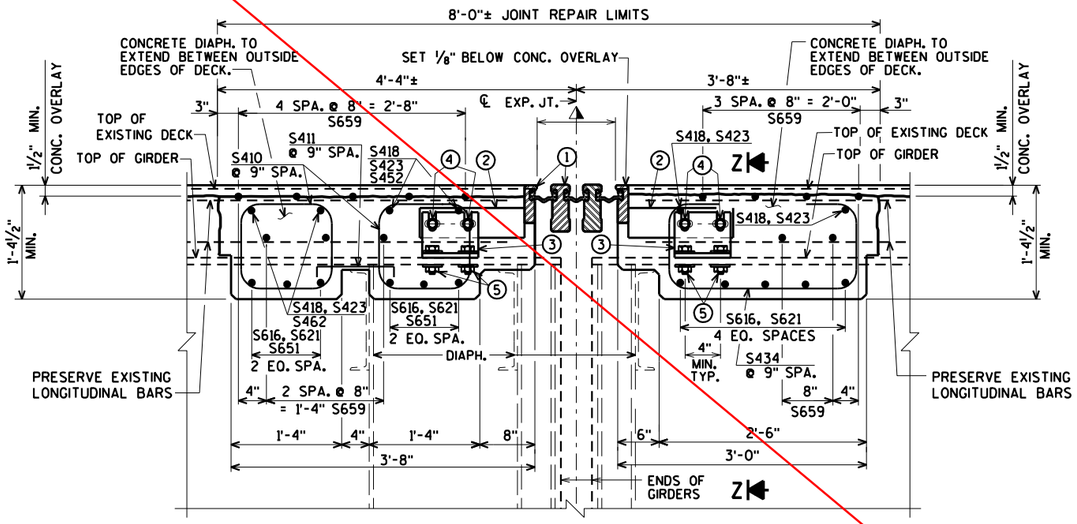
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9/12/2013

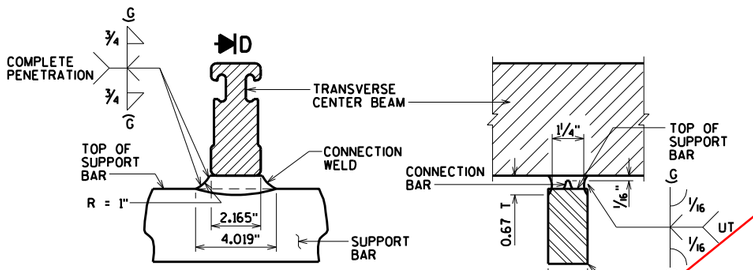
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STATE PROJECT NUMBER
8680-04-71



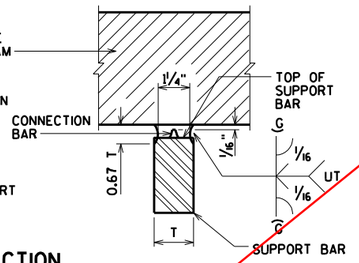
SECTION THRU JOINT 7

NORMAL TO ℄ OF JOINT

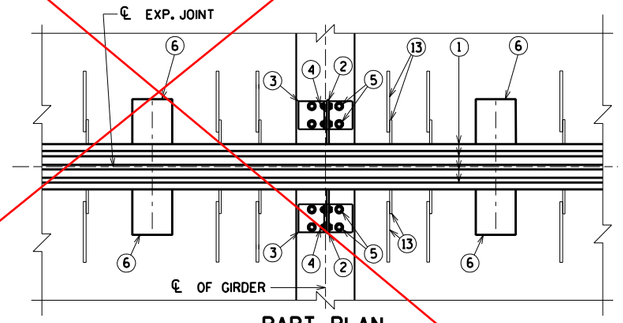


D

MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION



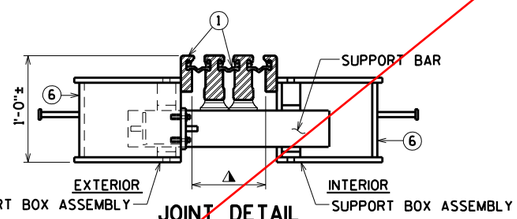
SECTION D



PART PLAN

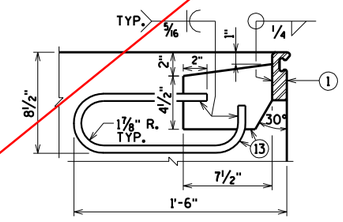
NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.



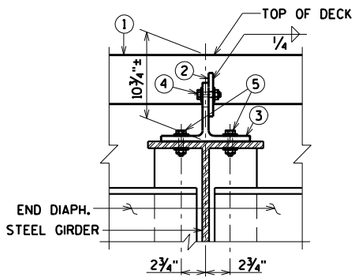
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK @ CONC. DIAPH.



SECTION Z-Z

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED.

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② 1/2" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION), ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM 1/2" PLATES.

⑦ 3/8" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM 3/8" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑩ 7/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.

⑪ 3/4" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ 3/4" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ 1/2" PLATE WITH 5/8" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

See revised joint details
PAGE 389.
Cover plate details
PAGE 409.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. 1/2 IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 43-45

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 7 DETAILS

SHEET 46 OF 99
392

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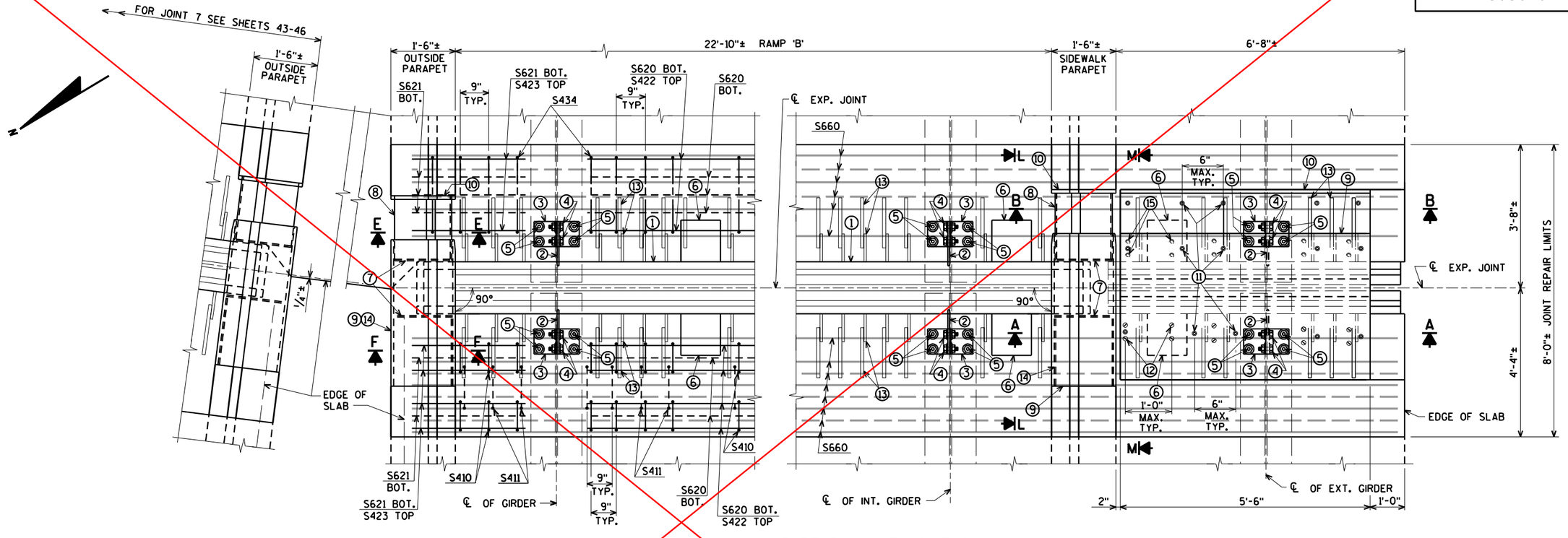
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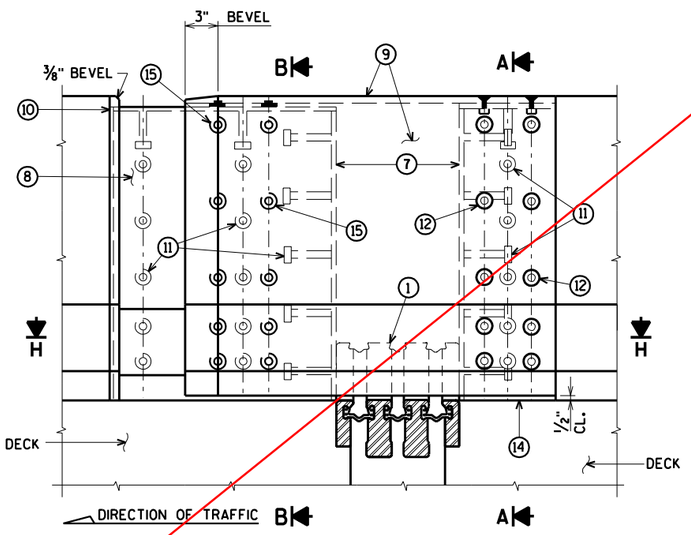
PART PLAN AT JOINT 8

(STAGE 3)

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

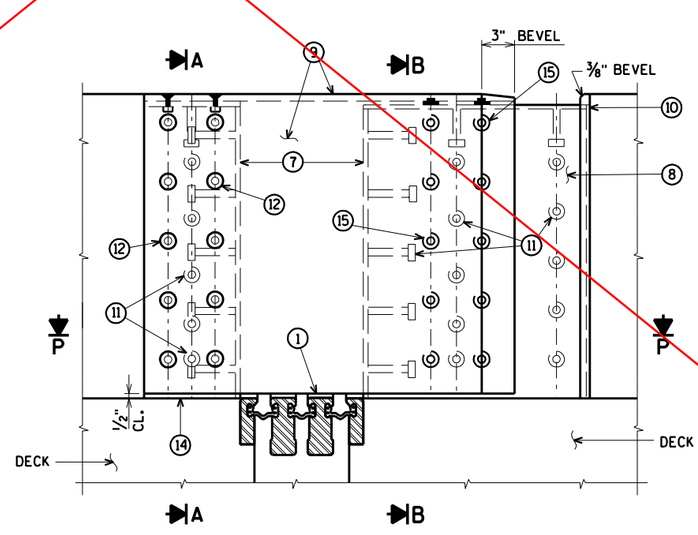
FOR SECTIONS 'A' AND 'B' SEE SHEET 49

FOR SECTIONS 'E' AND 'F' SEE SHEET 48

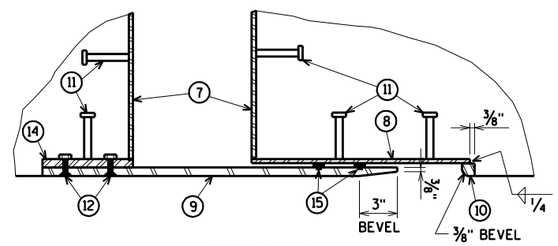


ELEVATION OF SIDEWALK PARAPET
SECTION L

FOR SECTION 'H' SEE SHEET 48



ELEVATION OF SIDEWALK PARAPET
SECTION M



SECTION P

See revised joint details PAGE 386. Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 48-50

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 8 DETAILS

SHEET 47 OF 99
393

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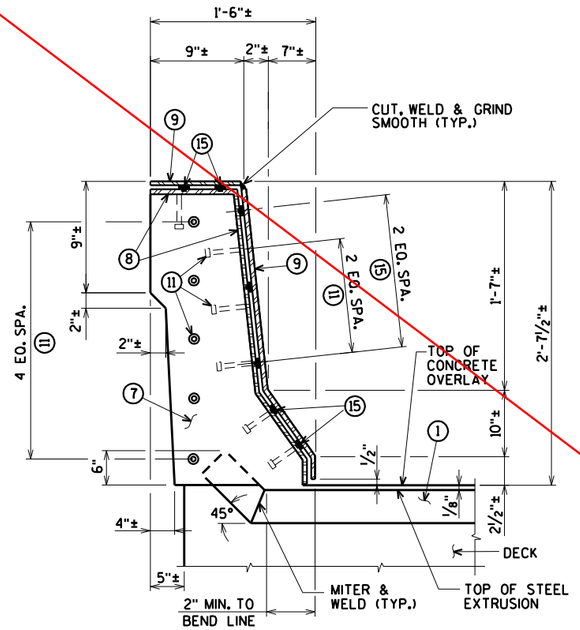
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9/12/2013

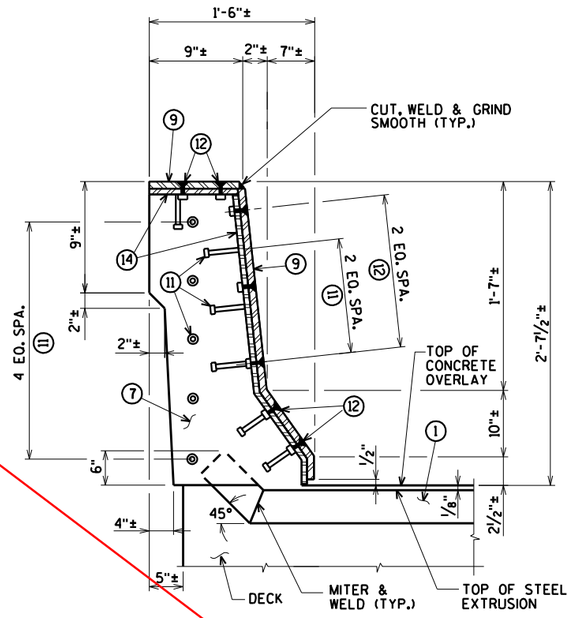
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STATE PROJECT NUMBER

8680-04-71



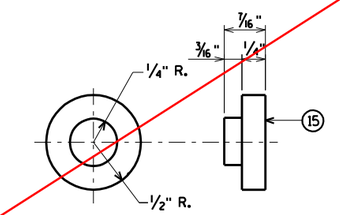
SECTION E



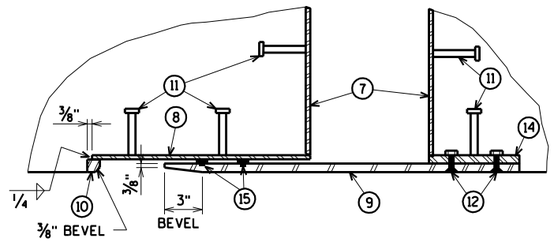
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

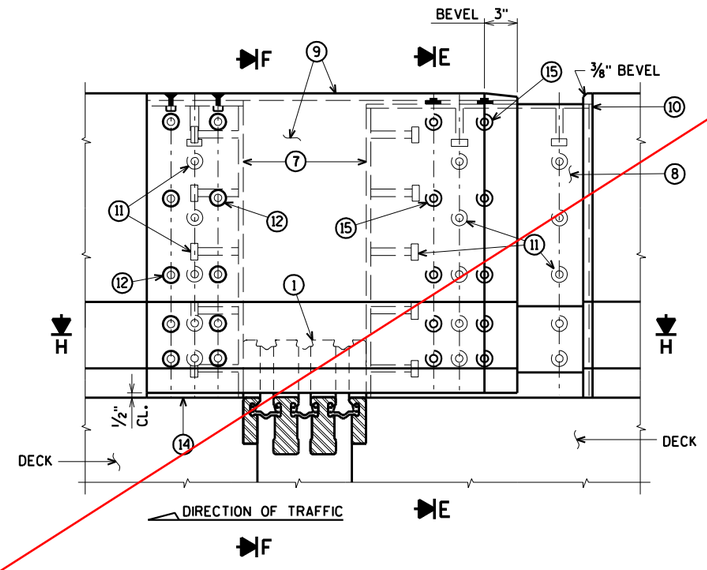
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 47



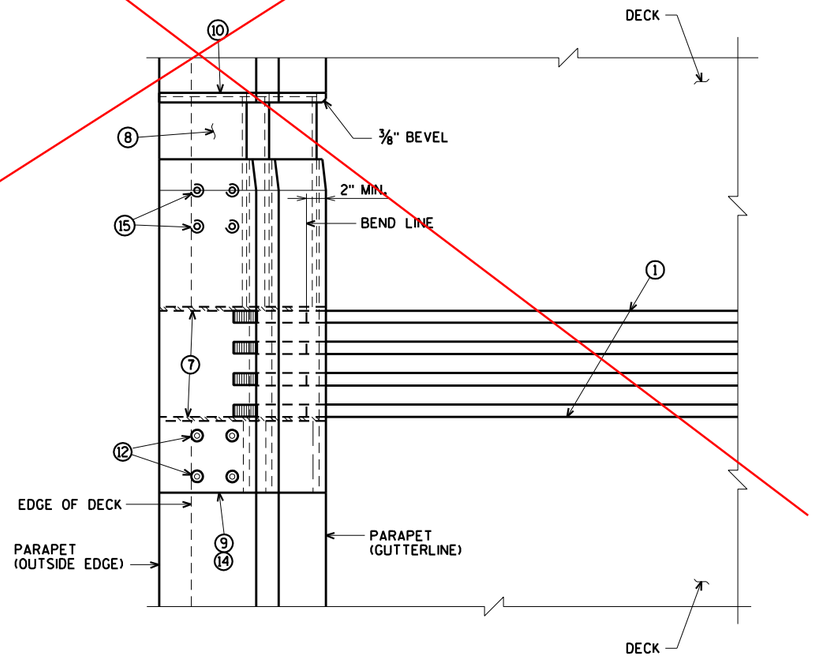
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 386.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 47, 49-50

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINT 8 DETAILS OUTSIDE PARAPET

SHEET 48 OF 99
394

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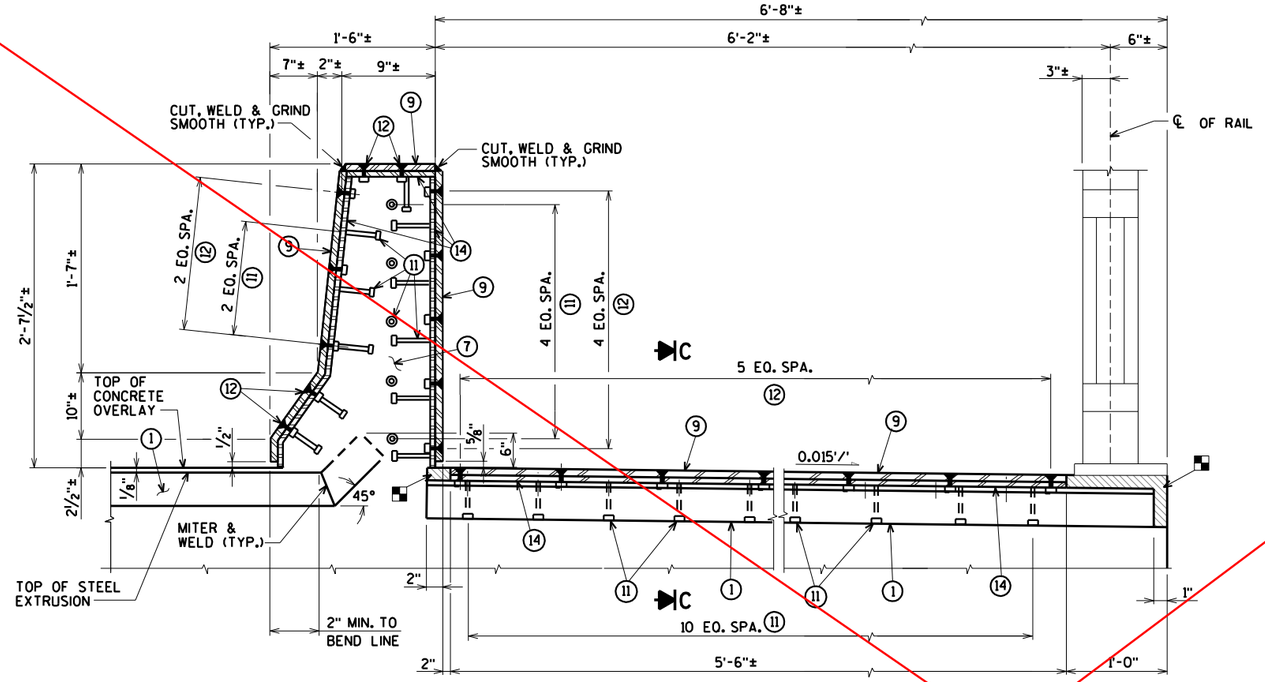
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9/12/2013

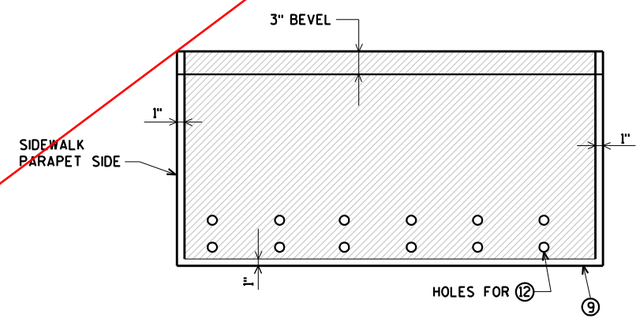
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ELEVATION OF SIDEWALK W/PARAPET SECTION A

FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 47

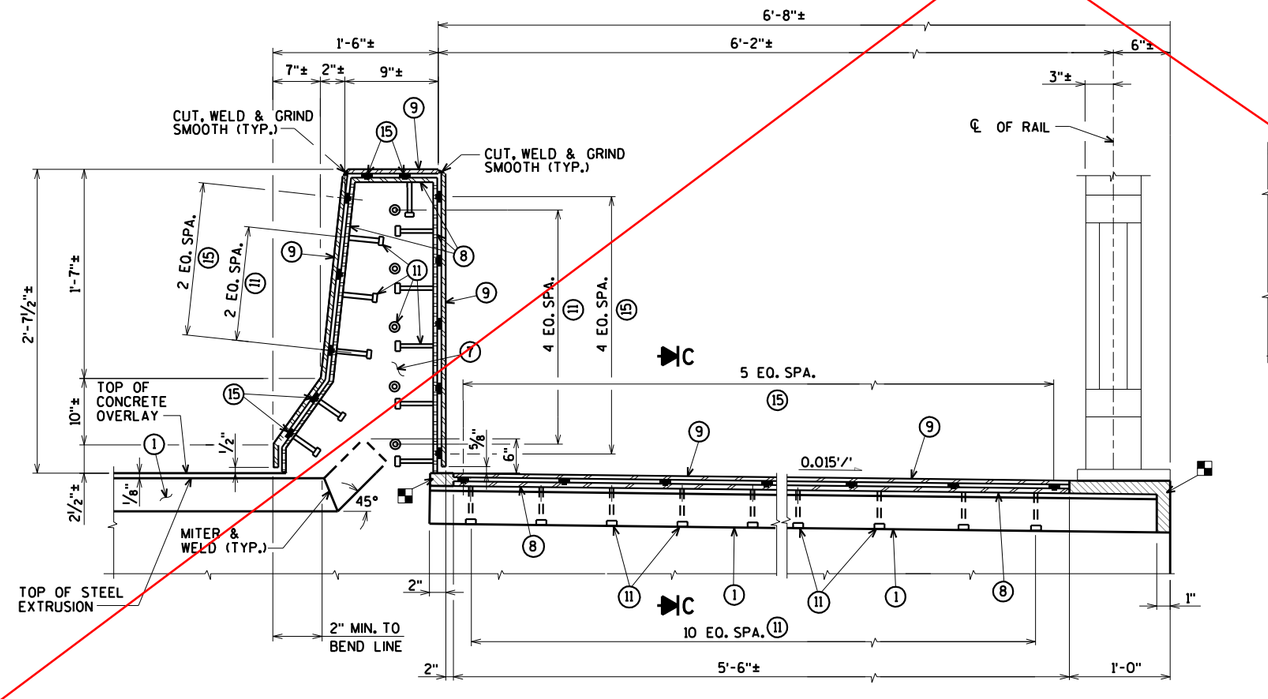
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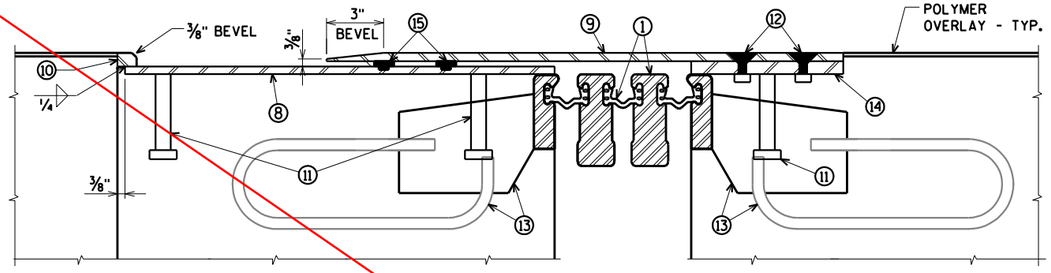
PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE ▲

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



ELEVATION OF SIDEWALK W/PARAPET SECTION B



SECTION C

■ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

See revised joint details PAGE 386.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 47-48, 50

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINT 8 DETAILS SIDEWALK & PARAPET

SHEET 49 OF 99
395

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www.AyresAssociates.com

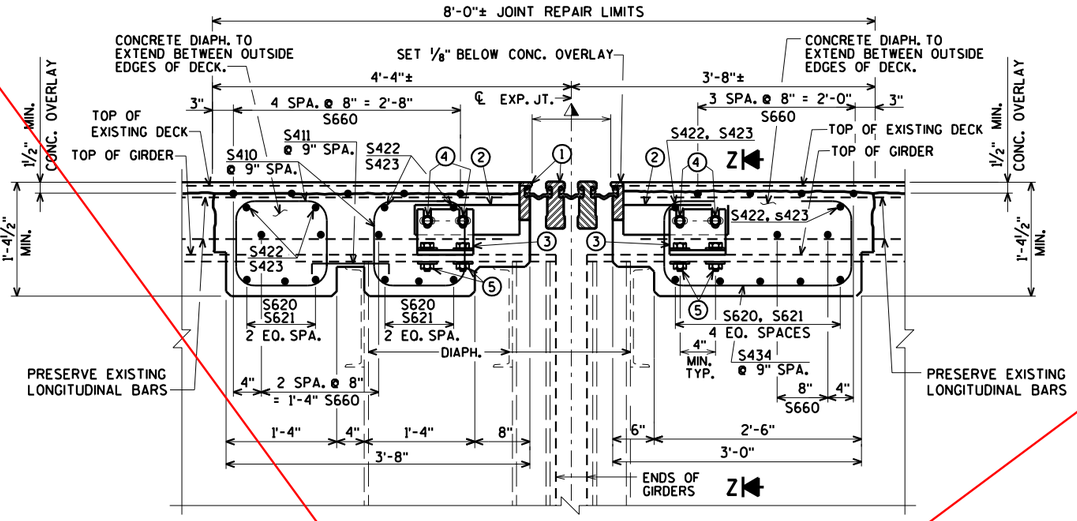
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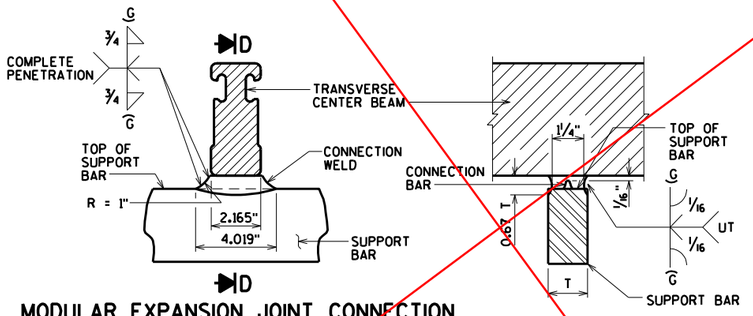
STATE PROJECT NUMBER

8680-04-71



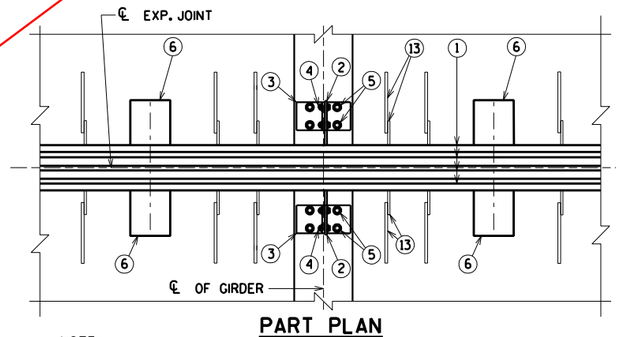
SECTION THRU JOINT 8

NORMAL TO ℄ OF JOINT



MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

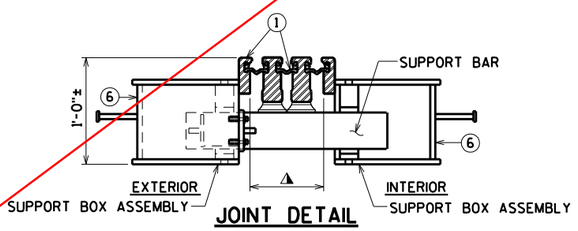
SECTION D



PART PLAN

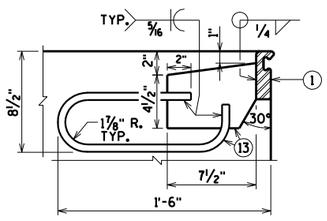
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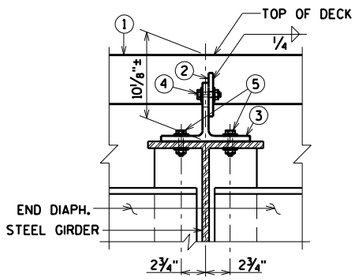
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK ℄ CONC. DIAPH.



SECTION Z-Z

GENERAL NOTES

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AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② ½" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM ½" PLATES.

⑦ ⅜" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM ⅜" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑩ ⅞" SQ. BAR. WELD TO NO. 8 AS SHOWN.

⑪ ¾" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ ¾" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ ½" PLATE WITH ⅝" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

See revised joint details PAGE 386.
Cover plate details PAGE 409.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. ½ IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 47-49

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 8 DETAILS

SHEET 50 OF 99
396

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8

8

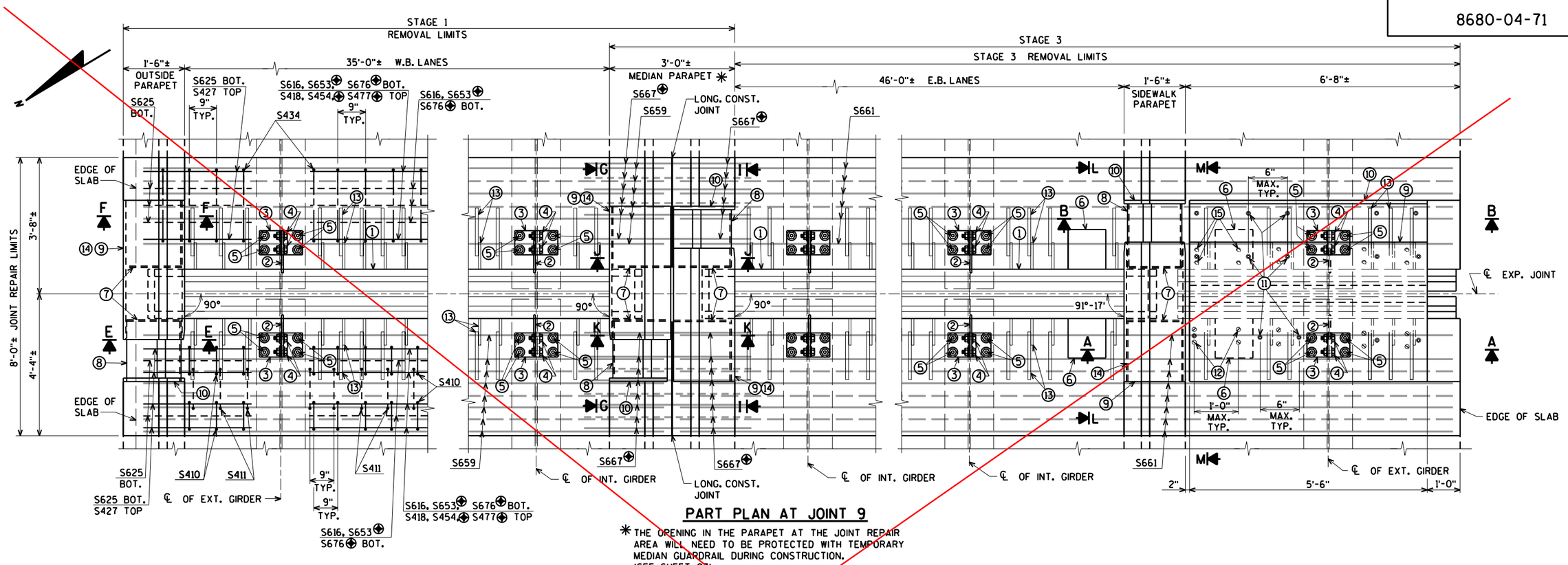
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42-0825 EXPJT 8 .dgn

9/12/2013

black.tbl

STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 9

* THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

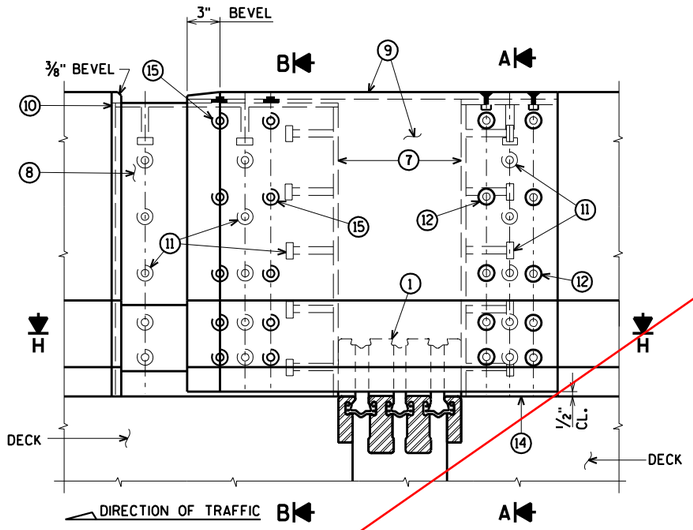
⊕ BARS WITH COUPLERS, SEE SHEET 99 FOR DETAILS.

FOR SECTIONS 'A' AND 'B' SEE SHEET 54

FOR SECTIONS 'E' AND 'F' SEE SHEET 52

FOR SECTIONS 'G', 'I', 'J' AND 'K' SEE SHEET 53

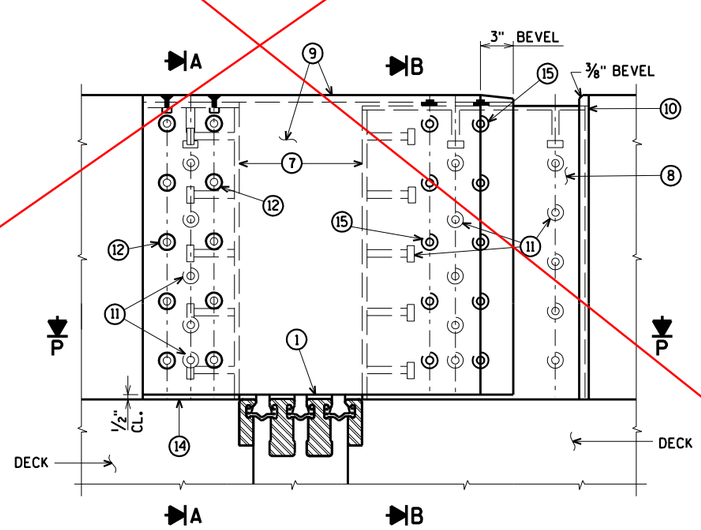
NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



ELEVATION OF SIDEWALK PARAPET SECTION L

FOR SECTION 'H' SEE SHEET 52

FOR SECTION 'P' SEE SHEET 53



ELEVATION OF SIDEWALK PARAPET SECTION M

See revised joint details PAGE 389.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 52-55

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 9 DETAILS

SHEET 51 OF 99
397

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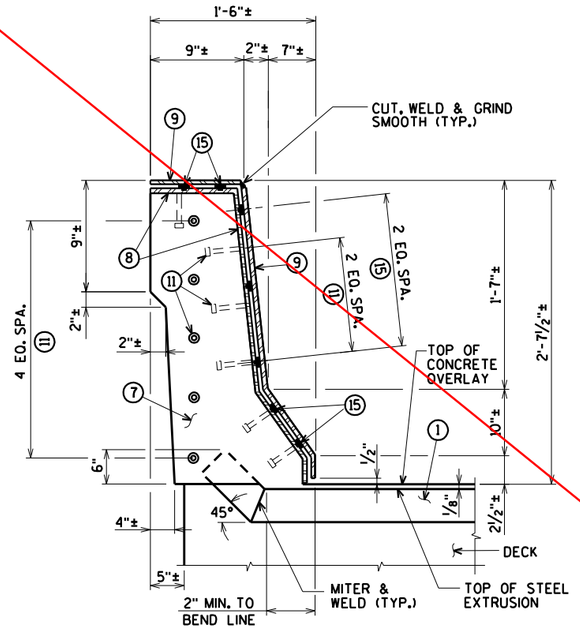
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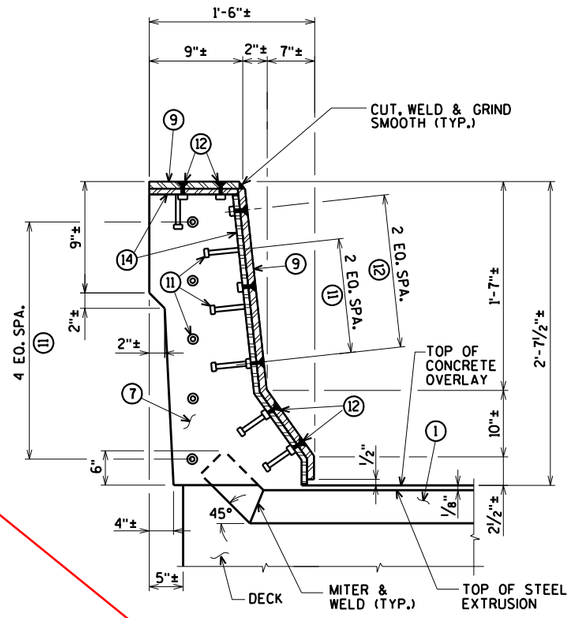
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STATE PROJECT NUMBER

8680-04-71



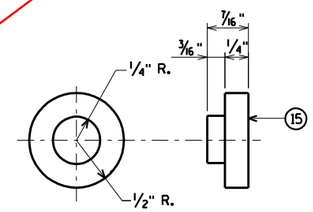
SECTION E



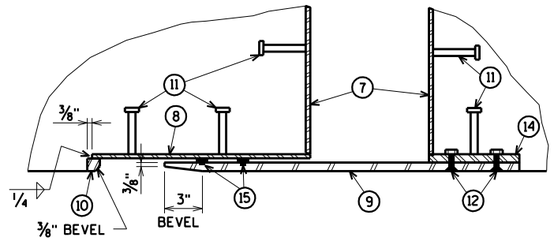
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

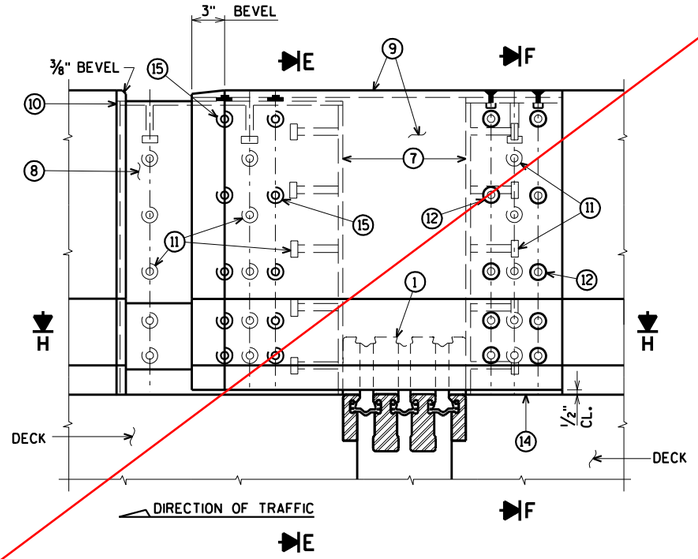
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 51



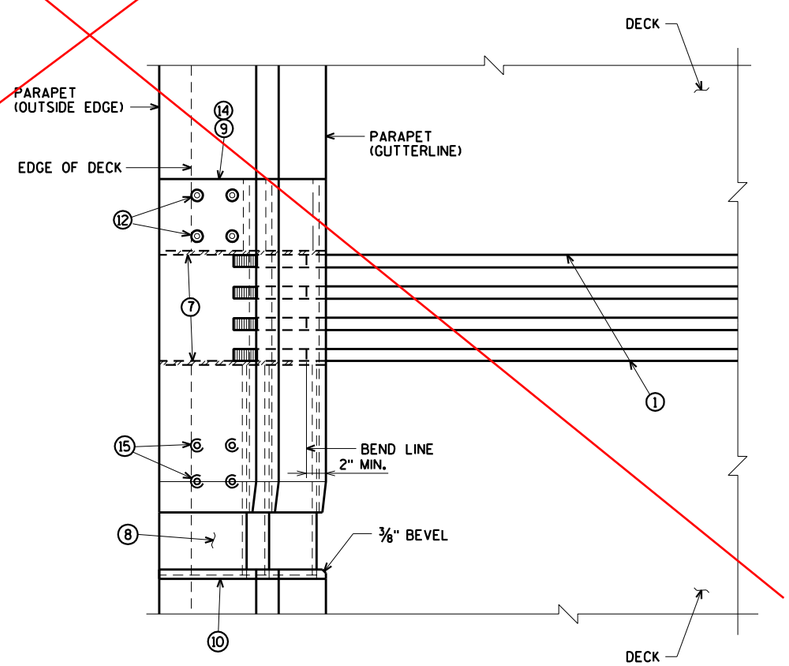
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 389.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 51, 53-55

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY	PLANS CK'D.
CLS	CBM

EXPANSION JOINT 9 DETAILS OUTSIDE PARAPET

SHEET 52 OF 99
398

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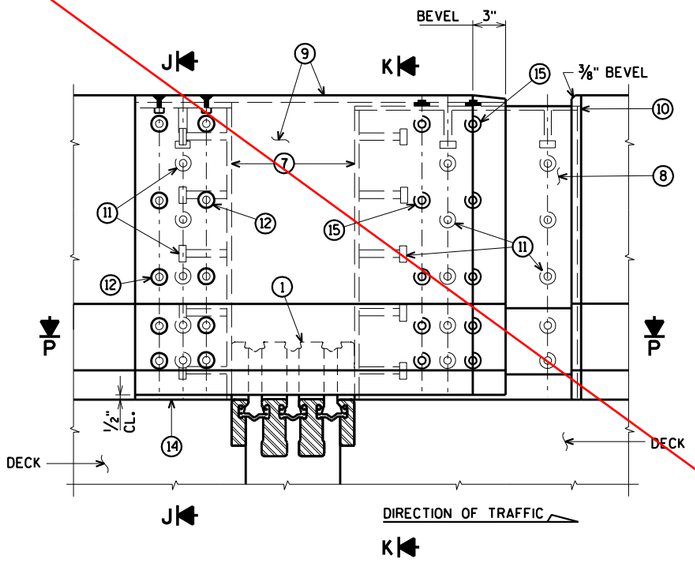
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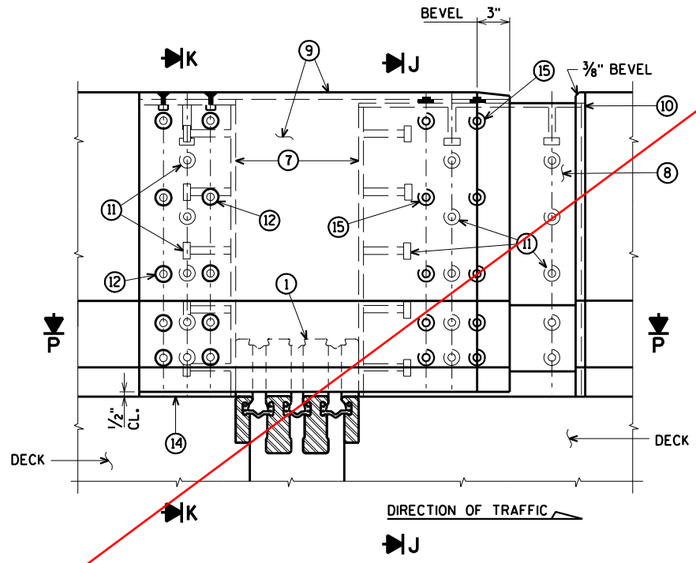
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STATE PROJECT NUMBER

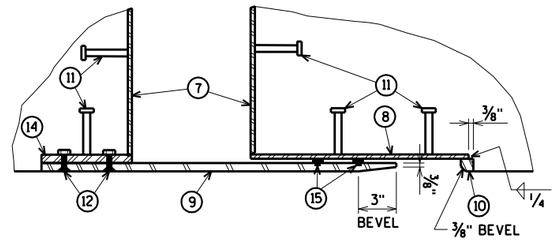
8680-04-71



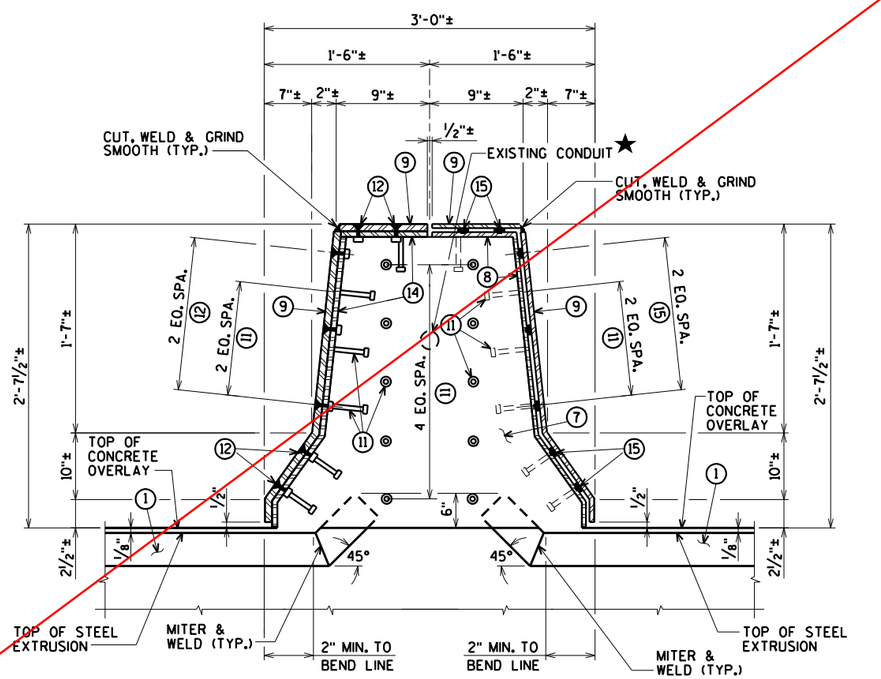
ELEVATION OF MEDIAN PARAPET
SECTION G



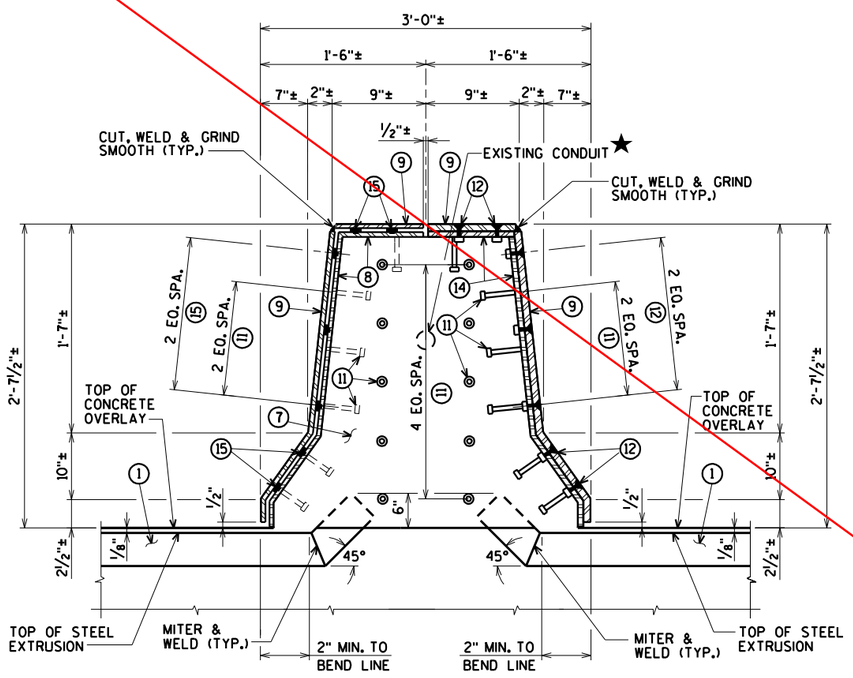
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 51

See revised joint details
PAGE 389.
Cover plate details
PAGE 409.

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

WORK THIS SHEET WITH SHEETS 51-52, 54-55

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 9 DETAILS MEDIAN PARAPET

SHEET 53 OF 99
399

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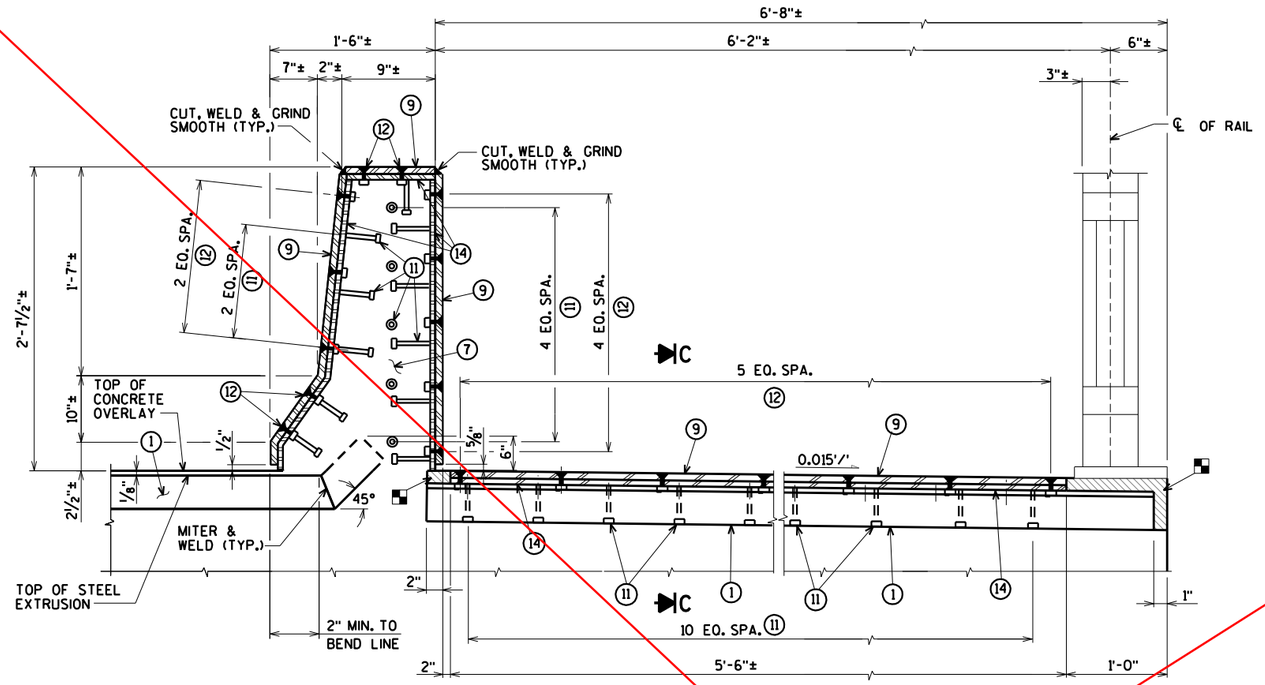
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9/12/2013

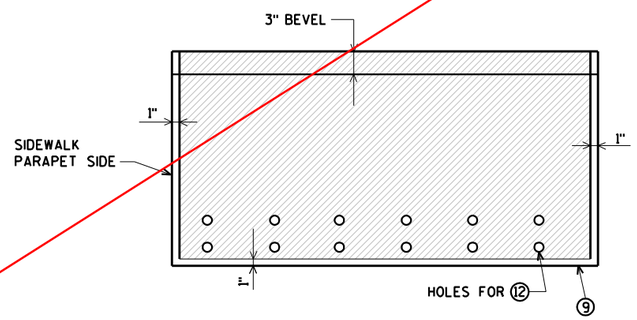
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ELEVATION OF SIDEWALK W/PARAPET SECTION A

FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 51

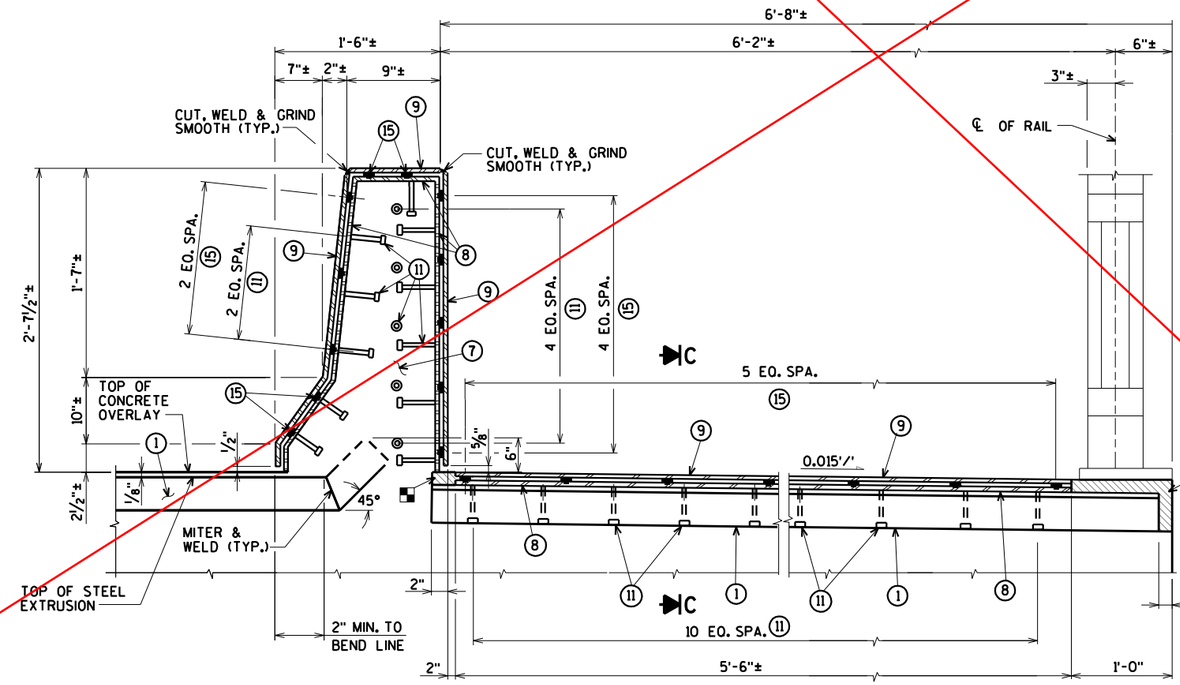
NOTE:
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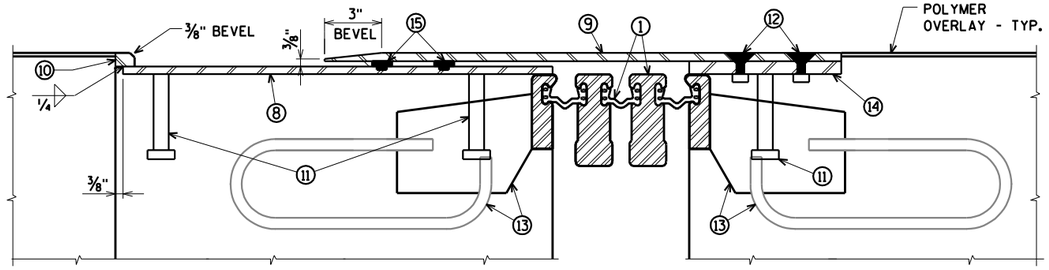
PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE ▲

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



ELEVATION OF SIDEWALK W/PARAPET SECTION B



SECTION C

■ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

See revised joint details PAGE 389.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 51-53, 55

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINT 9 DETAILS SIDEWALK & PARAPET

SHEET 54 OF 99
400

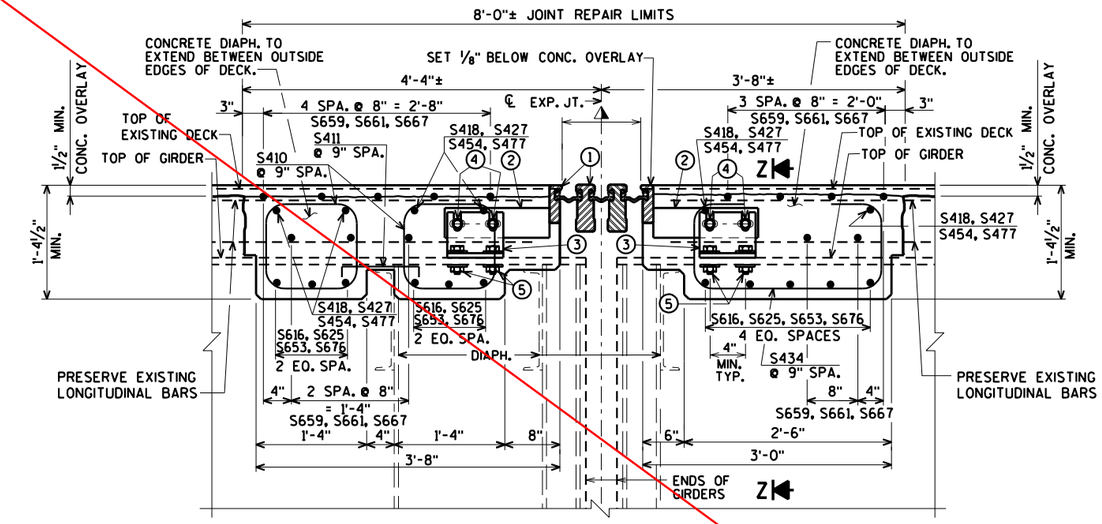
ORIGINAL PLANS PREPARED BY
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$PRFNAME$
U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 EXPJT 8-22 mod dtl.dgn
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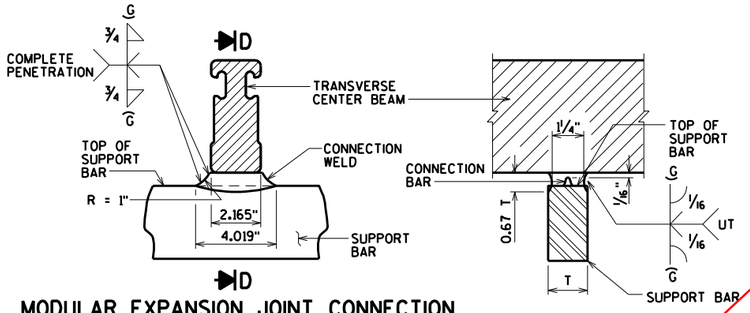
STATE PROJECT NUMBER

8680-04-71



SECTION THRU JOINT 9

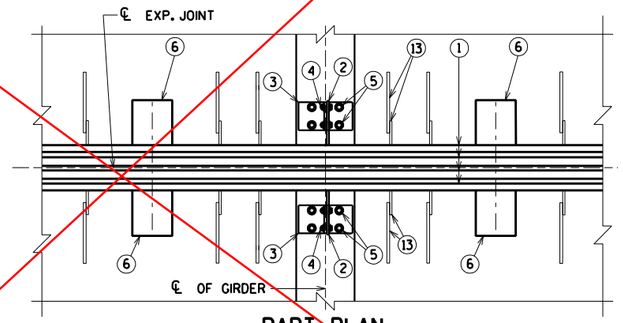
NORMAL TO ℄ OF JOINT



D

MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

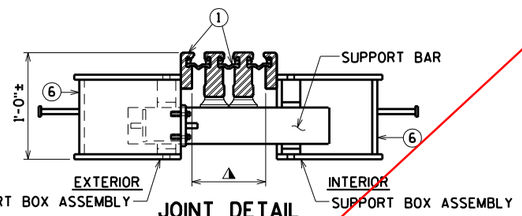
SECTION D



PART PLAN

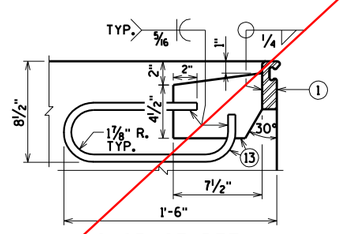
NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.



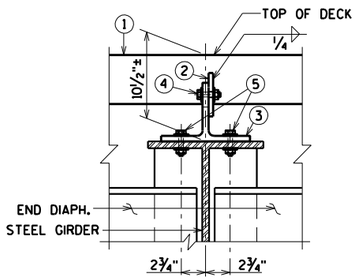
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK ⊄ CONC. DIAPH.



SECTION Z-Z

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② ½" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM ½" PLATES.

⑦ ⅜" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM ⅜" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑩ ⅞" SQ. BAR. WELD TO NO. 8 AS SHOWN.

⑪ ¾" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ ¾" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ ½" PLATE WITH ⅝" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. ½ IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 51-54

See revised joint details PAGE 389. Cover plate details PAGE 409.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MODULAR EXPANSION JOINT 9 DETAILS

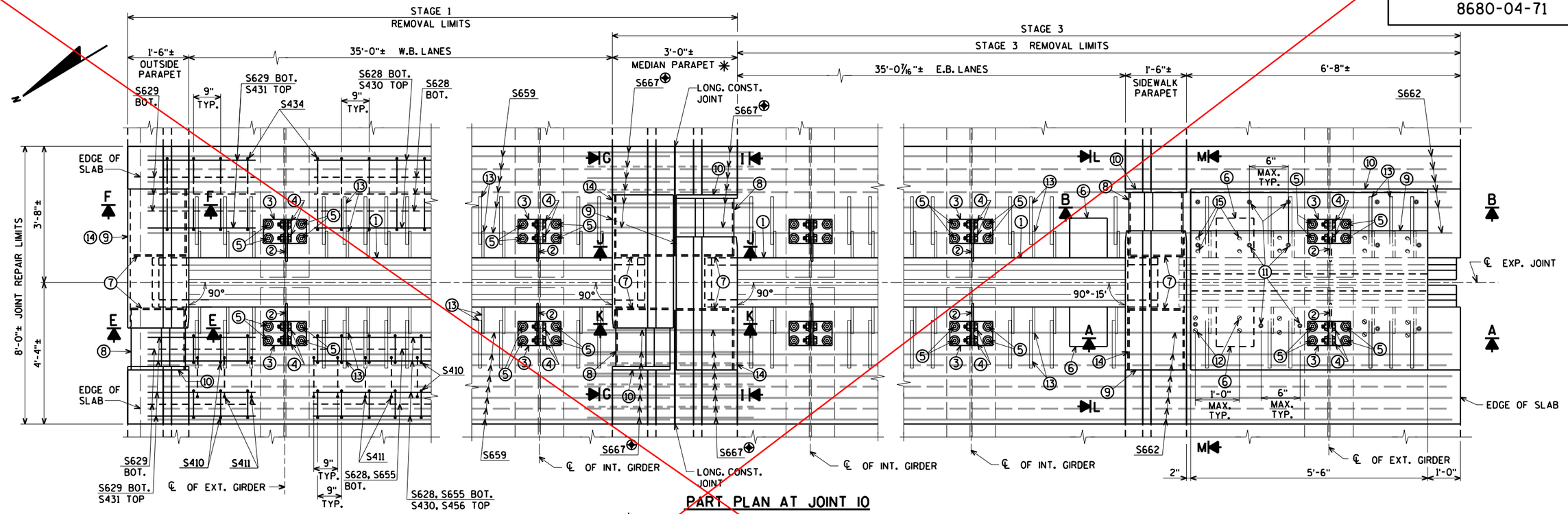
SHEET 55 OF 99
401

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STATE PROJECT NUMBER

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PART PLAN AT JOINT 10

✳ THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

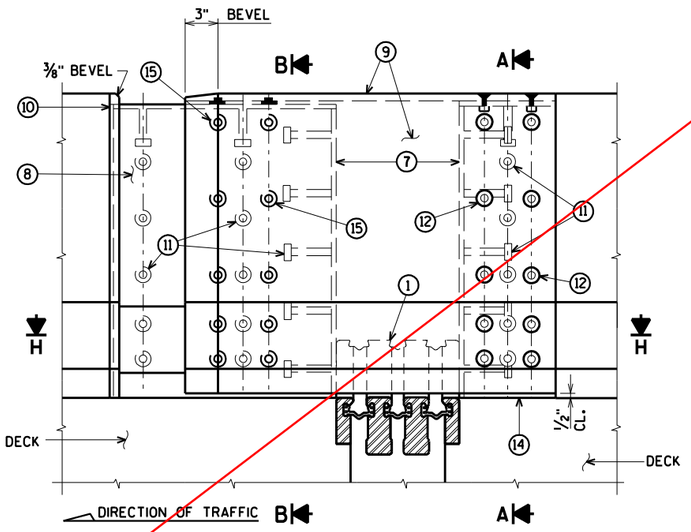
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

FOR SECTIONS 'A' AND 'B' SEE SHEET 59

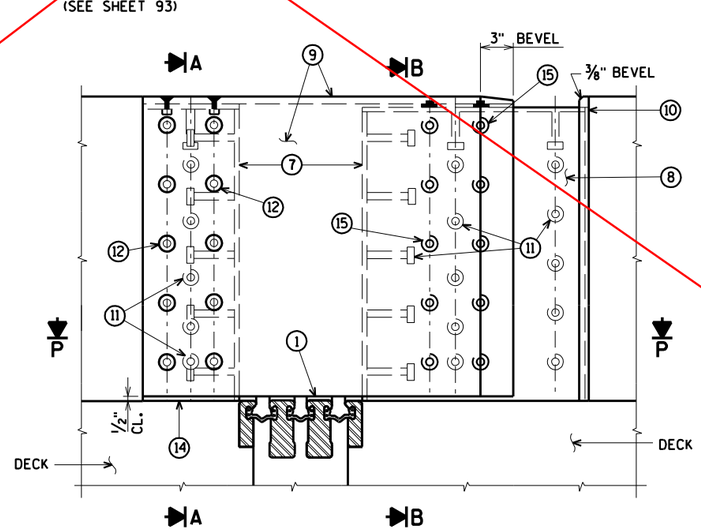
FOR SECTIONS 'E' AND 'F' SEE SHEET 57

FOR SECTIONS 'G', 'I', 'J' AND 'K' SEE SHEET 58

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



ELEVATION OF SIDEWALK PARAPET SECTION L



ELEVATION OF SIDEWALK PARAPET SECTION M

FOR SECTION 'H' SEE SHEET 57

FOR SECTION 'P' SEE SHEET 58

See revised joint details PAGE 389. Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 57-60

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MODULAR EXPANSION JOINT 10 DETAILS

SHEET 56 OF 99
402

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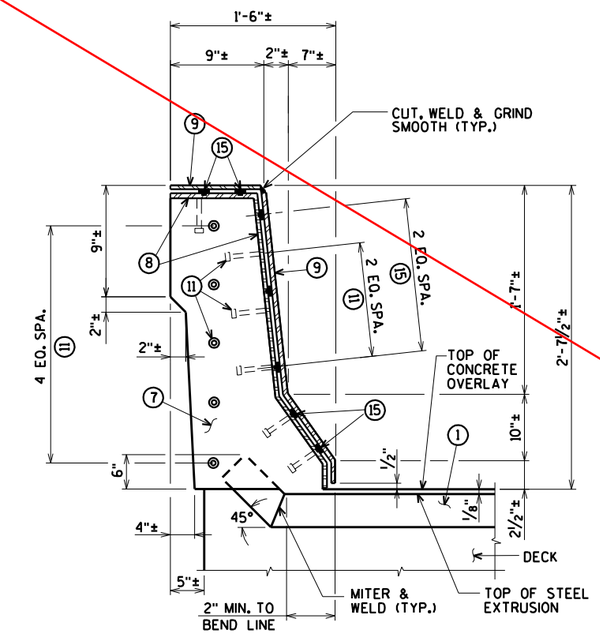
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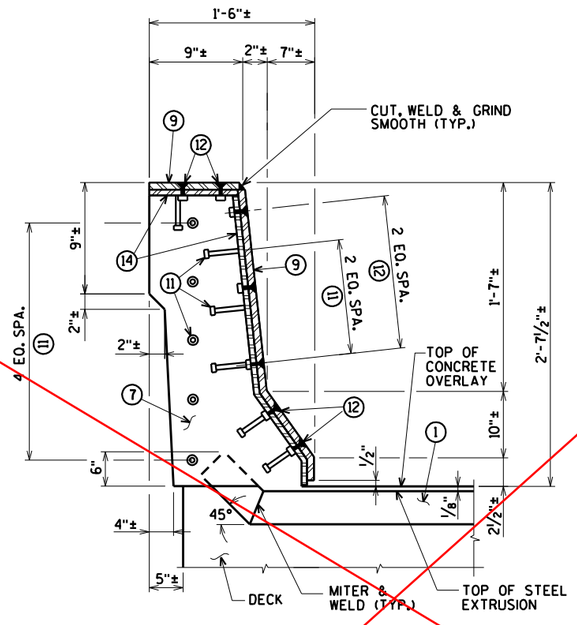
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STATE PROJECT NUMBER

8680-04-71



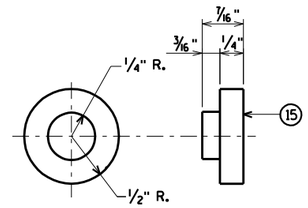
SECTION E



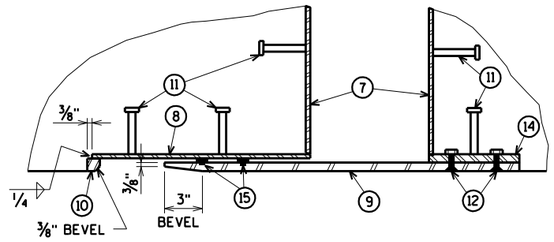
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

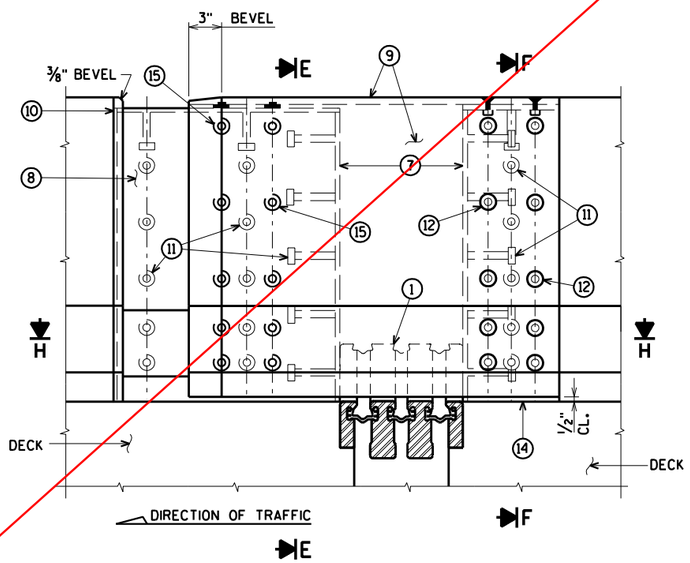
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 56



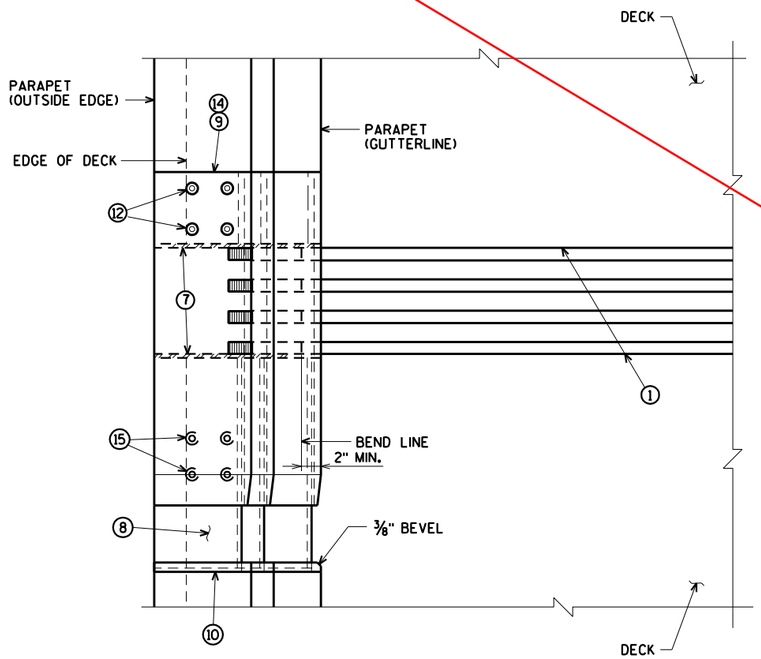
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 389.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 56, 58-60

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINT 10 DETAILS OUTSIDE PARAPET

SHEET 57 OF 99
403

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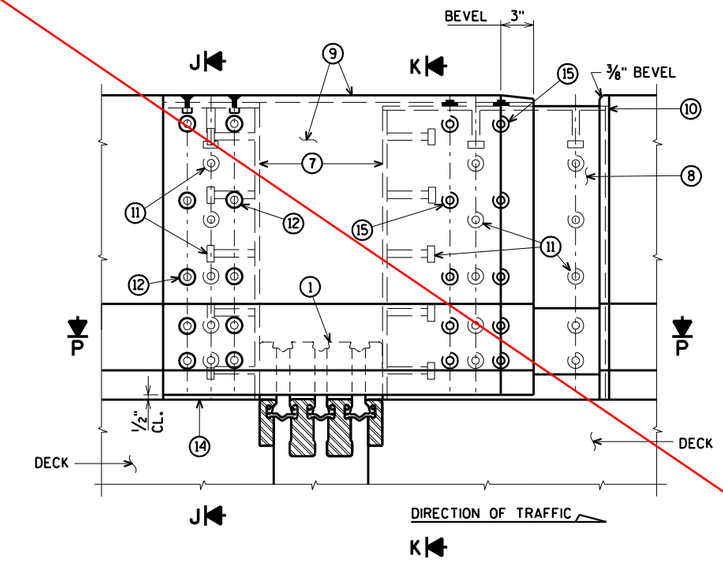
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9/12/2013

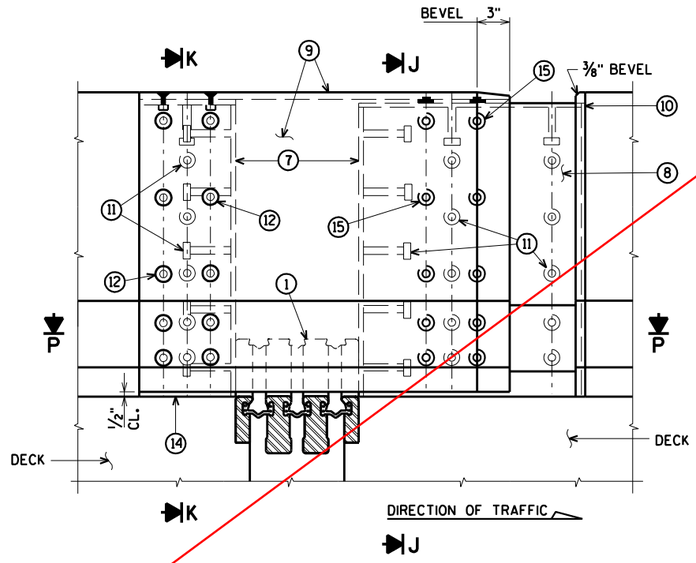
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STATE PROJECT NUMBER

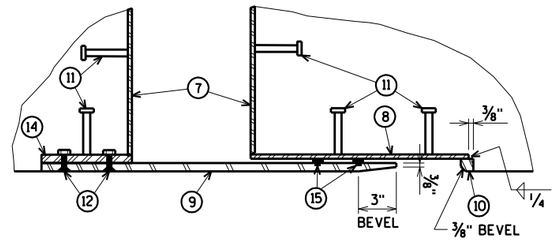
8680-04-71



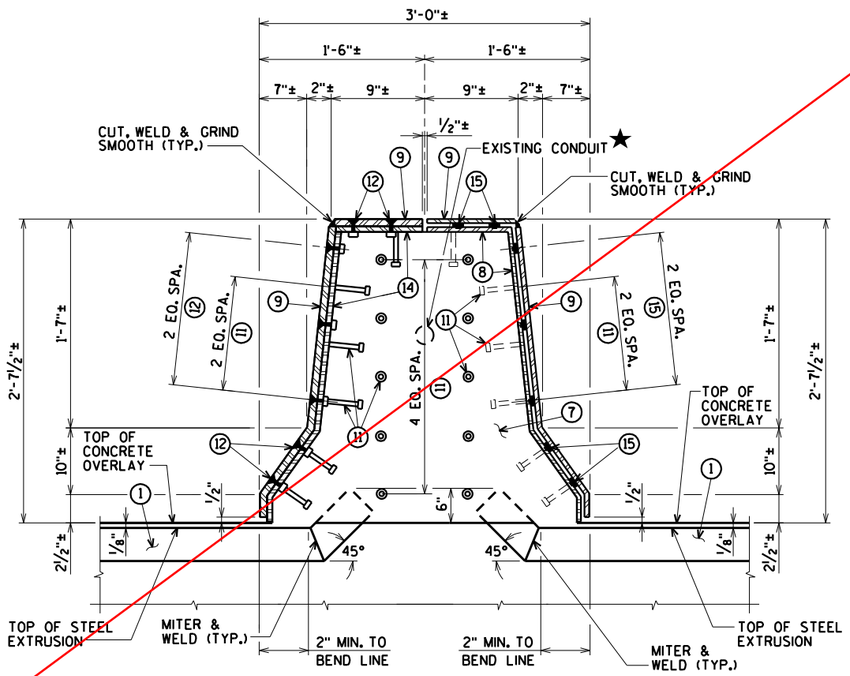
ELEVATION OF MEDIAN PARAPET
SECTION G



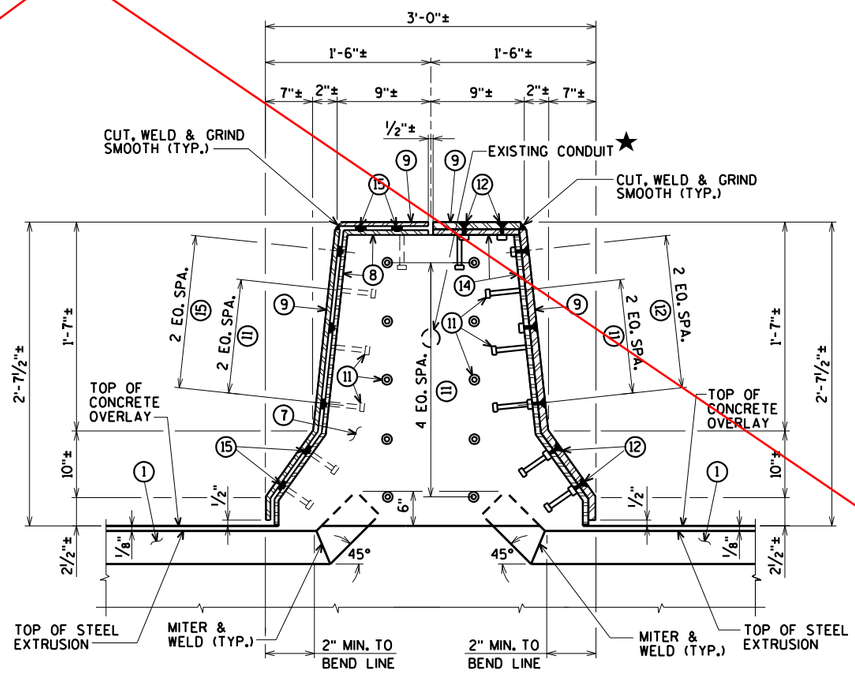
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 56

See revised joint details
PAGE 389.
Cover plate details
PAGE 409.

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

WORK THIS SHEET WITH SHEETS 56-57, 59-60

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINT 10 DETAILS MEDIAN PARAPET

SHEET 58 OF 99
404

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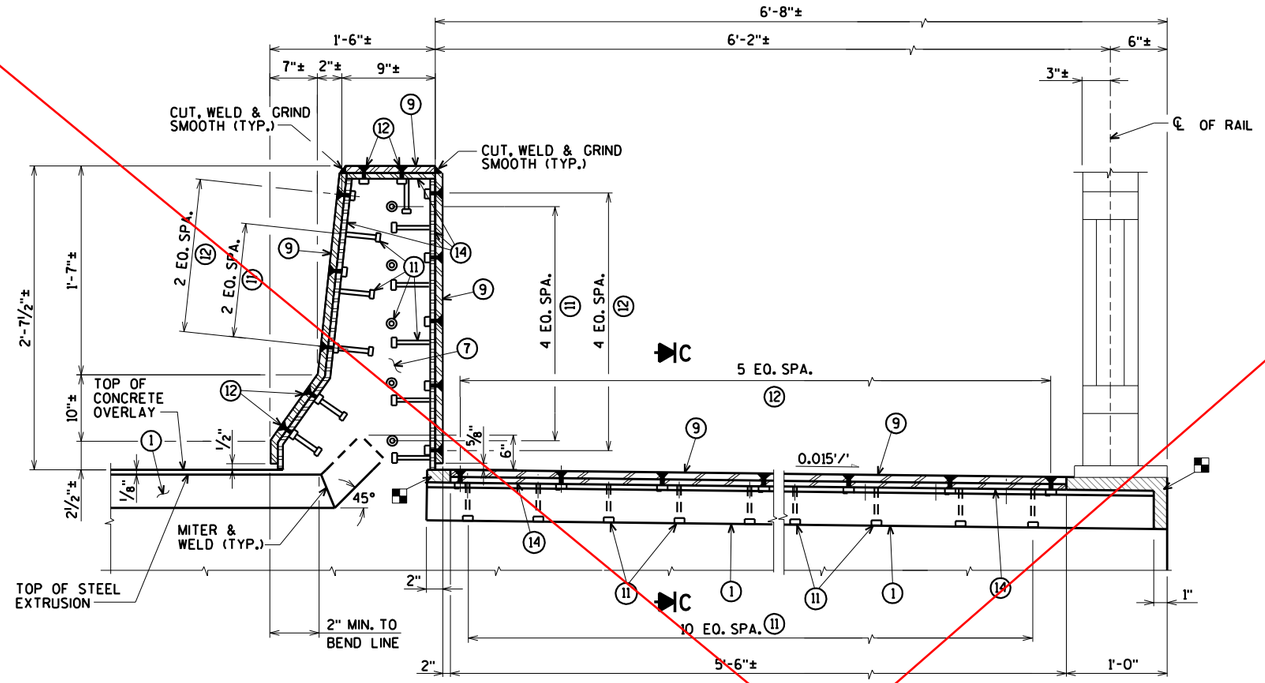
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9/12/2013

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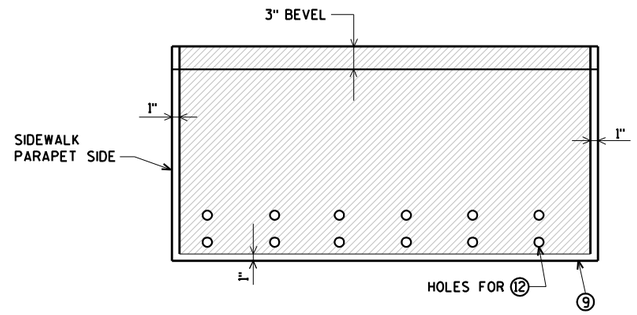
STATE PROJECT NUMBER

8680-04-71



ELEVATION OF SIDEWALK W/PARAPET
SECTION A

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

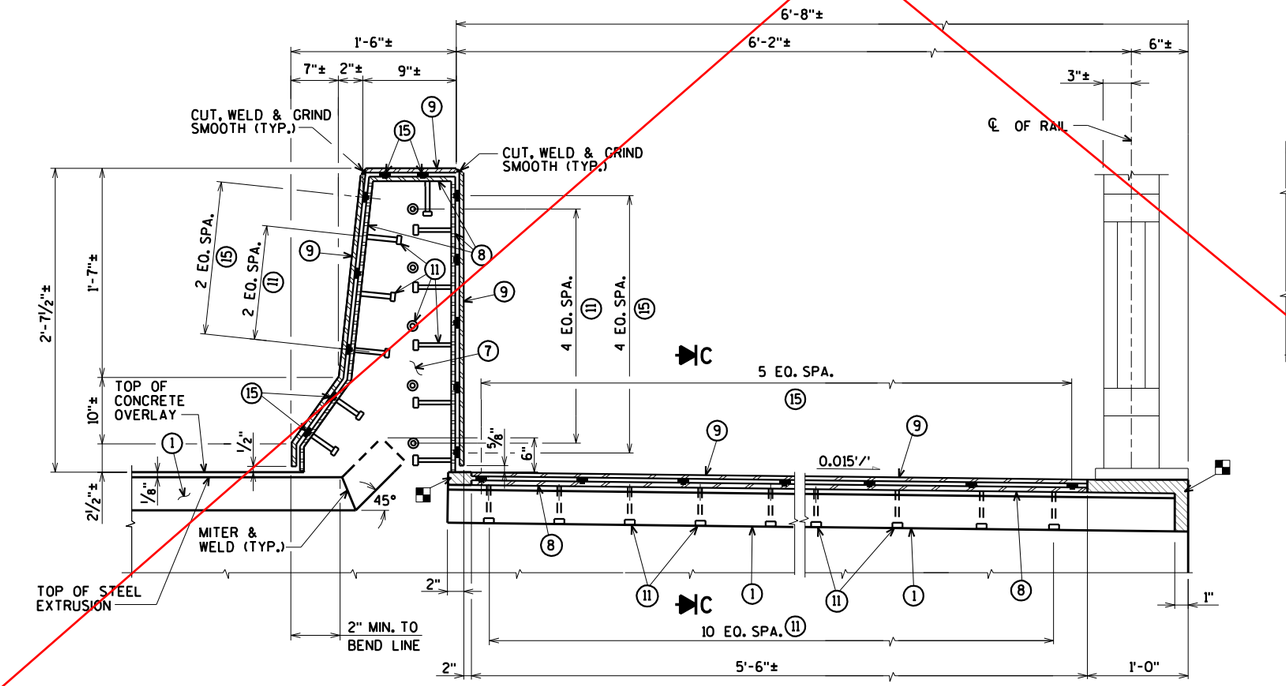


PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE ▲

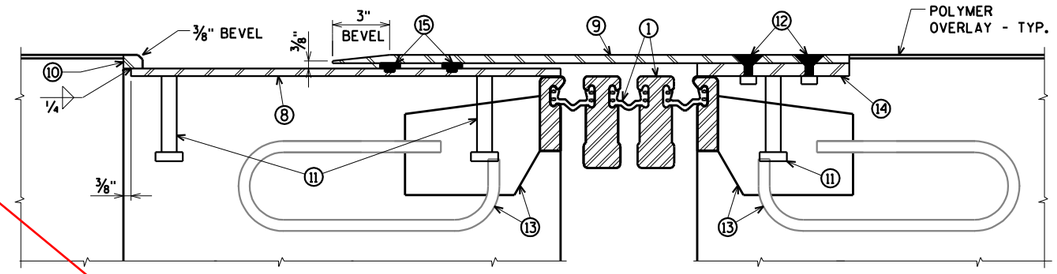
FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 56

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



ELEVATION OF SIDEWALK W/PARAPET
SECTION B



SECTION C

▲ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

See revised joint details PAGE 389.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 56-58, 60

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINT 10 DETAILS SIDEWALK & PARAPET

SHEET 59 OF 99
405

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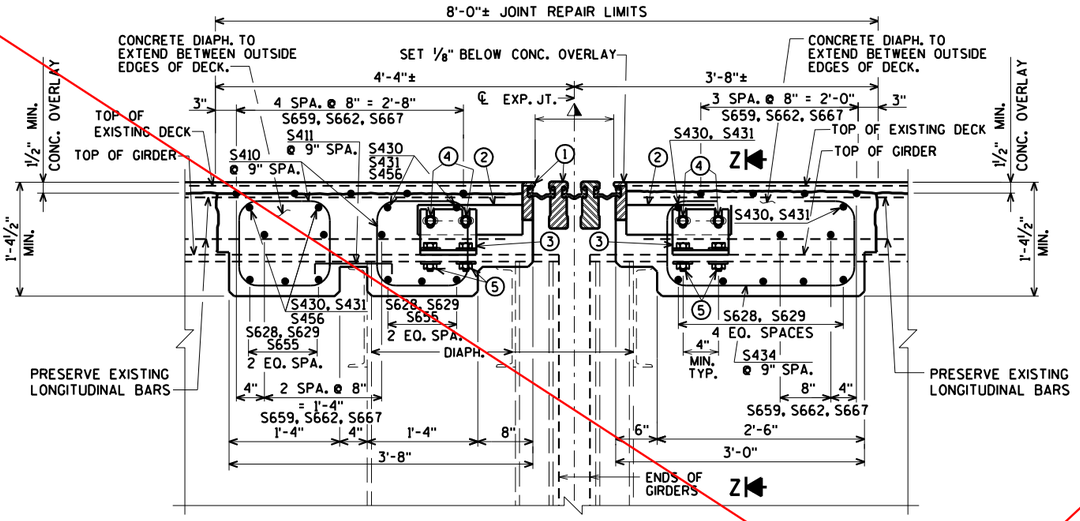
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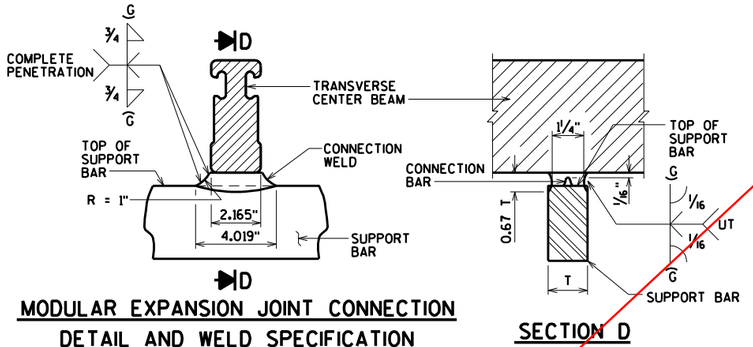
STATE PROJECT NUMBER

8680-04-71



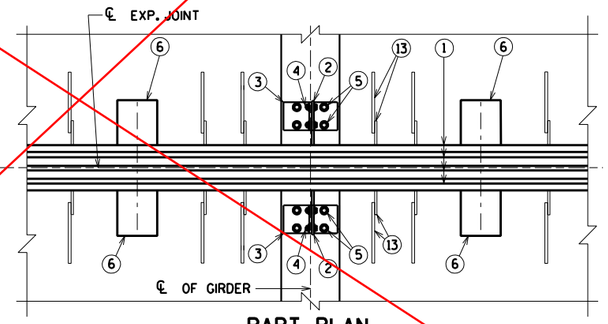
SECTION THRU JOINT 10

NORMAL TO ℄ OF JOINT



MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

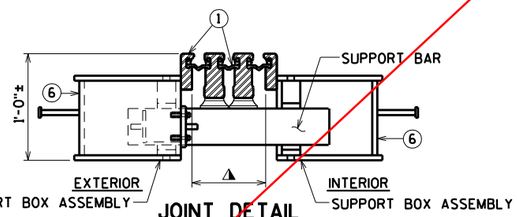
SECTION D



PART PLAN

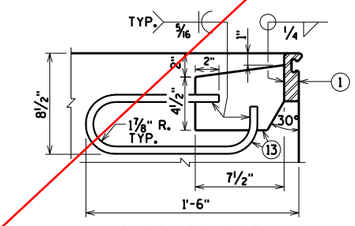
NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.



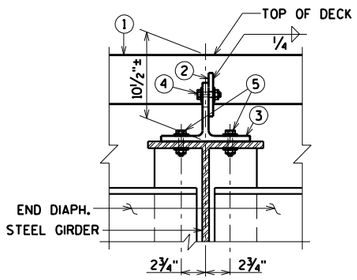
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK ⊕ CONC. DIAPH.



SECTION Z-Z

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② ½" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION), ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM ½" PLATES.

⑦ ⅜" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM ⅜" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑩ ⅞" SQ. BAR. WELD TO NO. 8 AS SHOWN.

⑪ ¾" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ ¾" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ ½" PLATE WITH ⅝" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

See revised joint details PAGE 389. Cover plate details PAGE 409.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. ½ IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 56-59

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MODULAR EXPANSION JOINT 10 DETAILS

SHEET 60 OF 99
406

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8

8

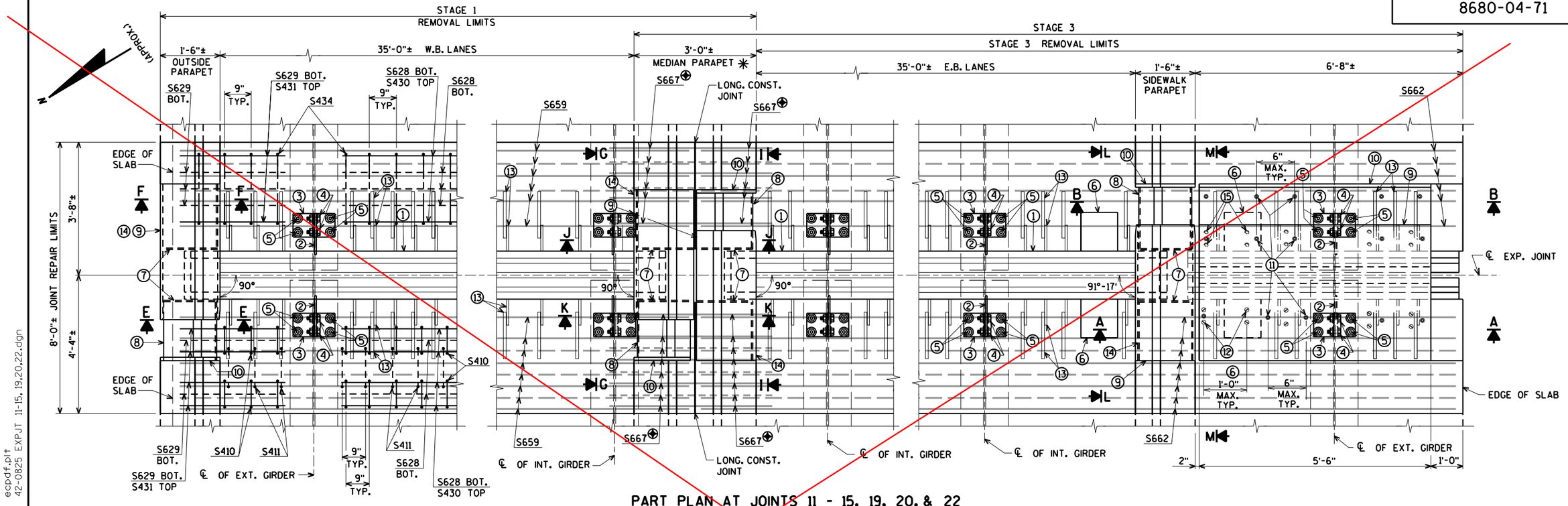
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9/12/2013

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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINTS 11 - 15, 19, 20, & 22

✳ THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

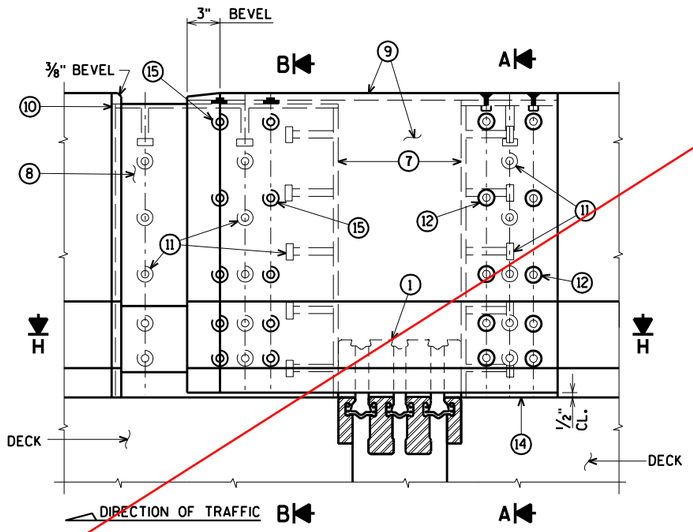
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

FOR SECTIONS 'A' AND 'B' SEE SHEET 64

FOR SECTIONS 'E' AND 'F' SEE SHEET 62

FOR SECTIONS 'G', 'I', 'J' AND 'K' SEE SHEET 63

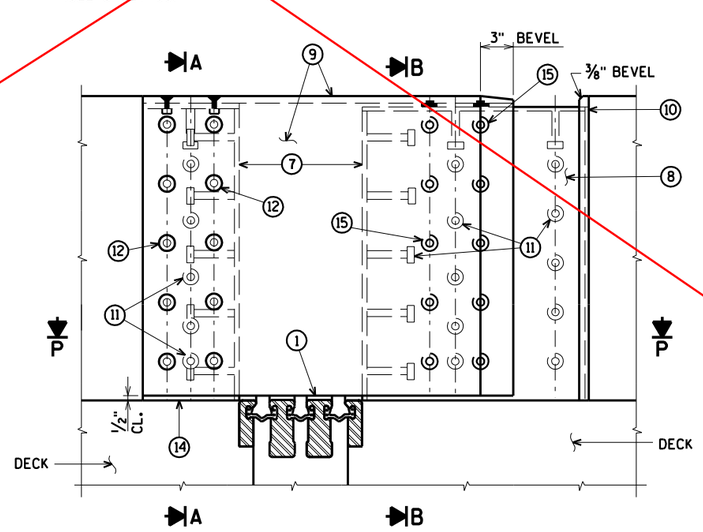
NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



ELEVATION OF SIDEWALK PARAPET SECTION L

FOR SECTION 'H' SEE SHEET 62

FOR SECTION 'P' SEE SHEET 63



ELEVATION OF SIDEWALK PARAPET SECTION M

WORK THIS SHEET WITH SHEETS 62-65

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXP. JOINTS 11-15, 19, 20 & 22 DETAILS

SHEET 61 OF 99
407

See revised details

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

ecpdf.plt
42-0825 EXPJT 11-15, 19,20,22.dgn

9/13/2013

black.tbl

REVISED
Modular Expansion Joints 11 & 19
DETAILS

CONSTRUCTION
SHOP DRAWING

GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

SUPPORT BOXES SHALL BE ASTM-A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM-A240, TYPE 304, WITH A 20 MICRO-INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM-A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A-SM-STUD-REP-01, B-FF-STUD-REP-01, OR A-(MC)GF-STUD-REP-01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM-A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM-A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE. IF JOINT HAS MORE THAN ONE ASSEMBLY, THE NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE ONLY IN THE FIRST ASSEMBLY. REMAINDER OF SEAL SHALL BE ROLLED UP ON THE FIELD SPLICE END. SEAL SHALL THEN BE FIELD INSTALLED WITH A LUBRICANT ADHESIVE AFTER FIELD WELDING IS COMPLETE. NO FIELD SPLICES OF THE STRIP SEAL GLANDS SHALL BE PERMITTED. CONTRACTOR SHALL PROTECT SEAL DURING THE INSTALLATION OF 1ST JOINT SECTION TO PREVENT DAMAGE PRIOR TO THE INSTALLATION OF THE 2ND JOINT SECTION.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT. QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT-BRIDGE UNIT-INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

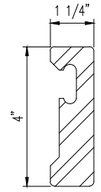
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

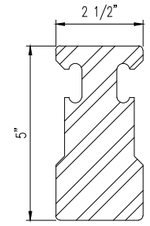
5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 41p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.



4" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.
(LOCATED ON 'D-240' MODULAR EXPANSION JOINTS.)

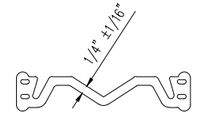


CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

INSTALLATION PROCEDURES

1. FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.
2. PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)
3. BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.
4. BEFORE REMOVING BLOCK AND BANDING, ANCHOR ONE SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. FIELD LOCATE AND DRILL HOLES IN SUPPORTING STRUCTURAL STEEL FOR JOINT SUPPORT HARDWARE.
5. REMOVE BLOCK AND BANDING AFTER ONE SIDE HAS BEEN ATTACHED TO STRUCTURE.
6. ADJUST JOINT OPENING, AS DETERMINED BY THE FIELD ENGINEER.
7. ANCHOR THE OTHER SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT CONNECTIONS. IF NEEDED, CONTRACTOR MAY TACK WELD JOINT SUPPORTS AFTER FINAL ADJUSTMENT.
8. CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.
9. POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2-400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 39
- SEE RAIL AND SEAL DETAILS ON SHEET 39
- SEE INSTALLATION PROCEDURES ON SHEET 39
- SEE SPLICE DETAILS ON SHEET 40
- SEE UPTURN DETAILS ON SHEET 40
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 41
- SEE SPRING & BEARING DIAGRAM ON SHEET 41
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 41
- SEE 'D-240' PLAN VIEW FOR JOINTS #11 & #19 ON SHEET 42
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 43
- SEE JOINT SUPPORT DETAILS ON SHEET 43
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 44
- SEE SUPPORT BOX DETAILS ON SHEET 45
- SEE SUPPORT BAR DETAILS ON SHEET 46
- SEE BILL OF MATERIALS ON SHEET 47

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
GENERAL NOTES & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

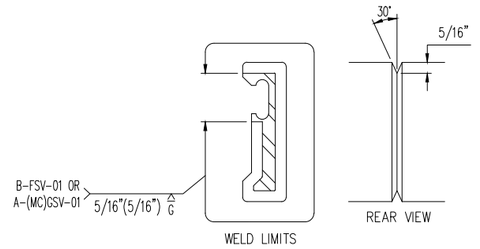
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N.T.S.	J.KIS	MJS	03/2014	1 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	39

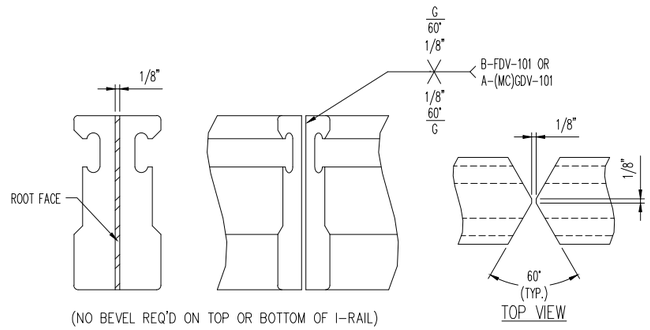
PAGE 407 A

REVISED
Modular Expansion Joints 11 & 19
DETAILS

CONSTRUCTION
SHOP DRAWING

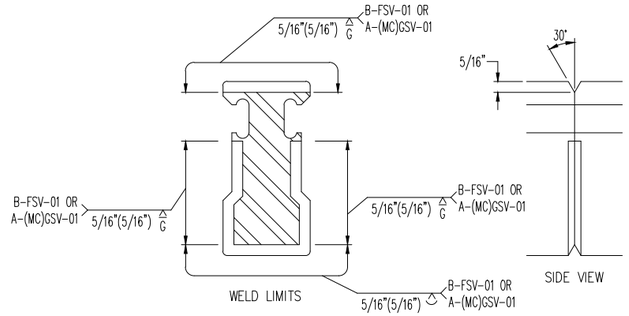


EDGE BEAM SHOP SPLICE DETAIL



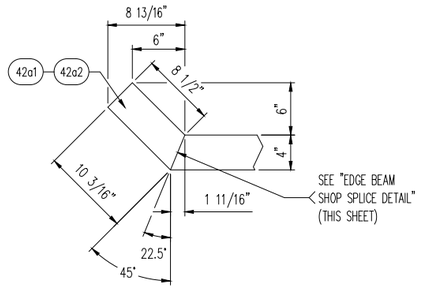
CENTER BEAM SHOP SPLICE DETAIL

COMPLETE PENETRATION WELD

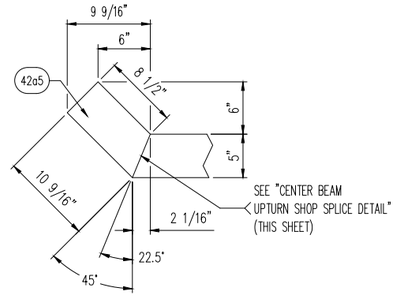


CENTER BEAM UPTURN SHOP SPLICE DETAIL

PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)



EDGE BEAM UPTURN DETAIL



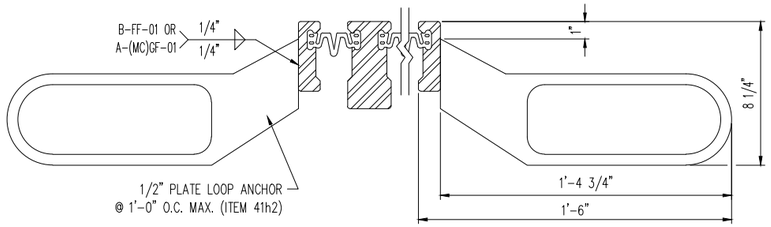
CENTER BEAM UPTURN DETAIL

REV.	DESCRIPTION	DATE	DET.	CKD.

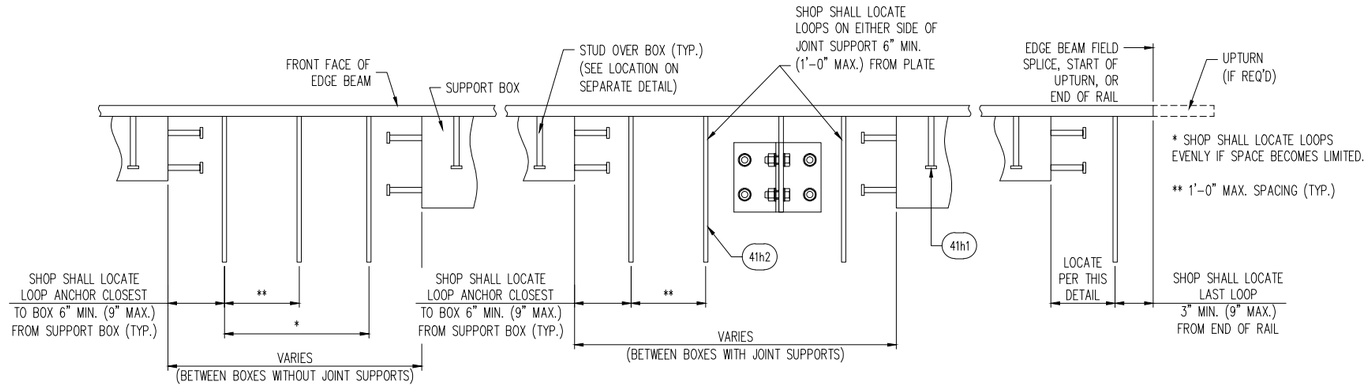
D.S. BROWN
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300 E. CHERRY STREET
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
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P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	MJS	03/2014	2 OF 9
PROJECT NUMBER	PRODUCT CODE		RELEASE	SHEET	
42790	1021		1	40	



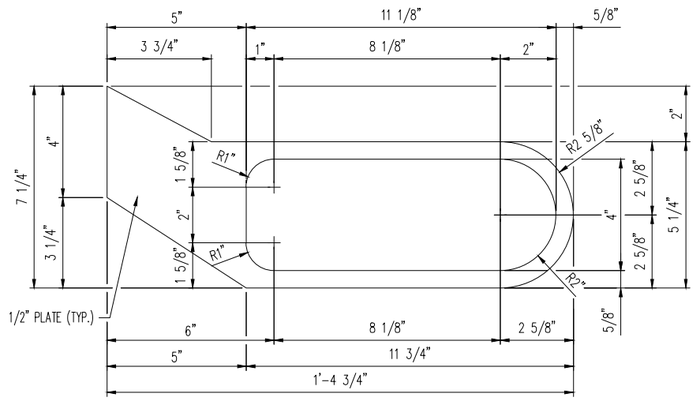
SECTION THRU 'D-240' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)



TYP. LOOP ANCHOR LAYOUT SEQUENCE ALONG EDGE BEAM

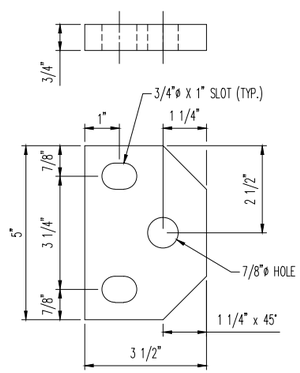
REVISED
Modular Expansion Joints 11 & 19
DETAILS

CONSTRUCTION
SHOP DRAWING



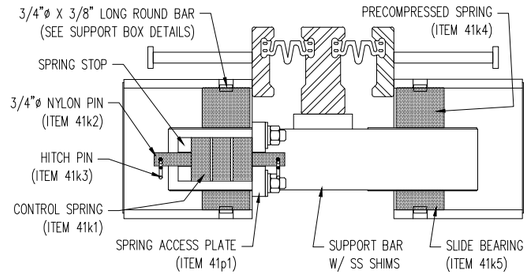
ITEM NO. 41h2
(180) REQ'D.

PLATE ANCHOR DETAIL



ITEM NO. 41p1
(88) REQ'D.

SPRING ACCESS PLATE DETAIL



TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-160" SHOWN - OTHER JOINT SIZES SIMILAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

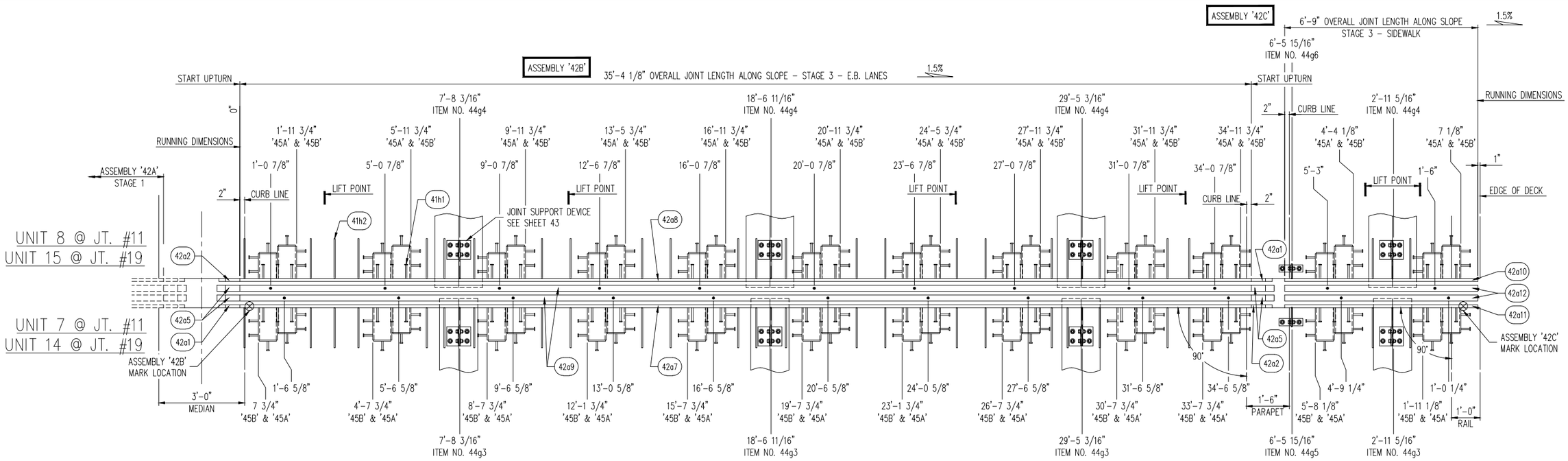
D.S. BROWN
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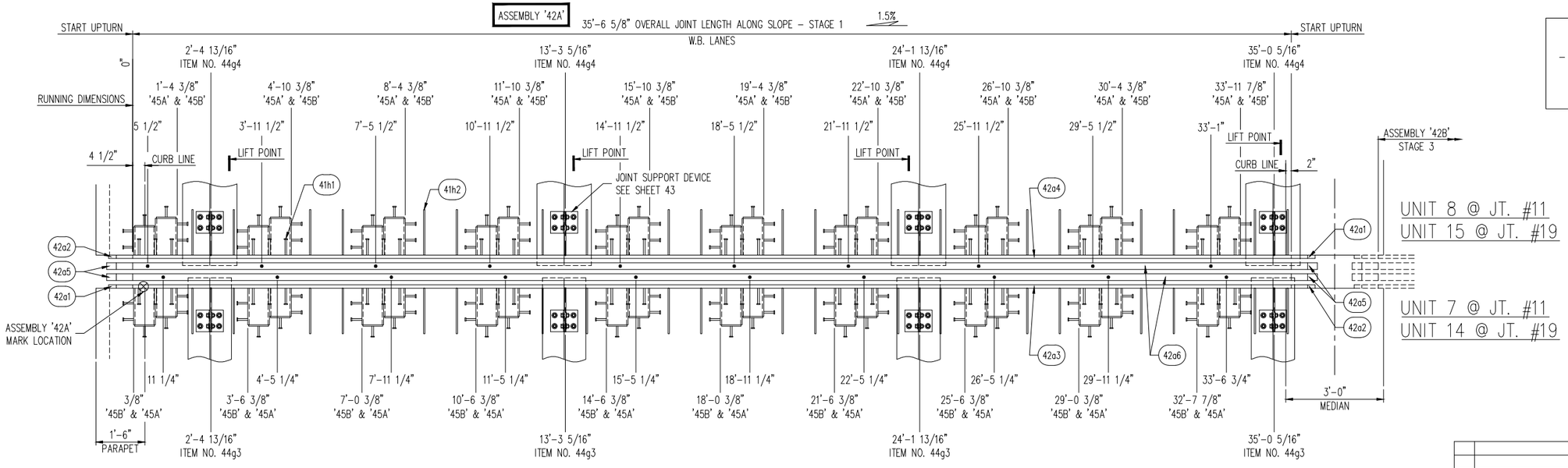
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	MJS	03/2014	3 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	41

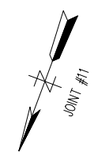


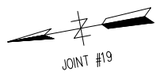


'D-240' MODULAR EXPANSION JOINT PLAN VIEW

USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. B-16-38 (WI) / 69100 (MN)
JOINT #11 LOCATED AT HINGE 7-8 (LOOKING UPSTATION)
JOINT #19 LOCATED AT HINGE 14-15 (LOOKING UPSTATION)
PAY ITEM NO. 502.3110.S (LINE ITEM NO. 0650)

BOX SPACING = VARIES (4'-0" MAX.)
(2) JOINTS EA. REQUIRED





REVISED
Modular Expansion Joints 11 & 19
DETAILS

CONSTRUCTION
SHOP DRAWING

FABRICATION NOTE:

– SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

SHOP NOTES:

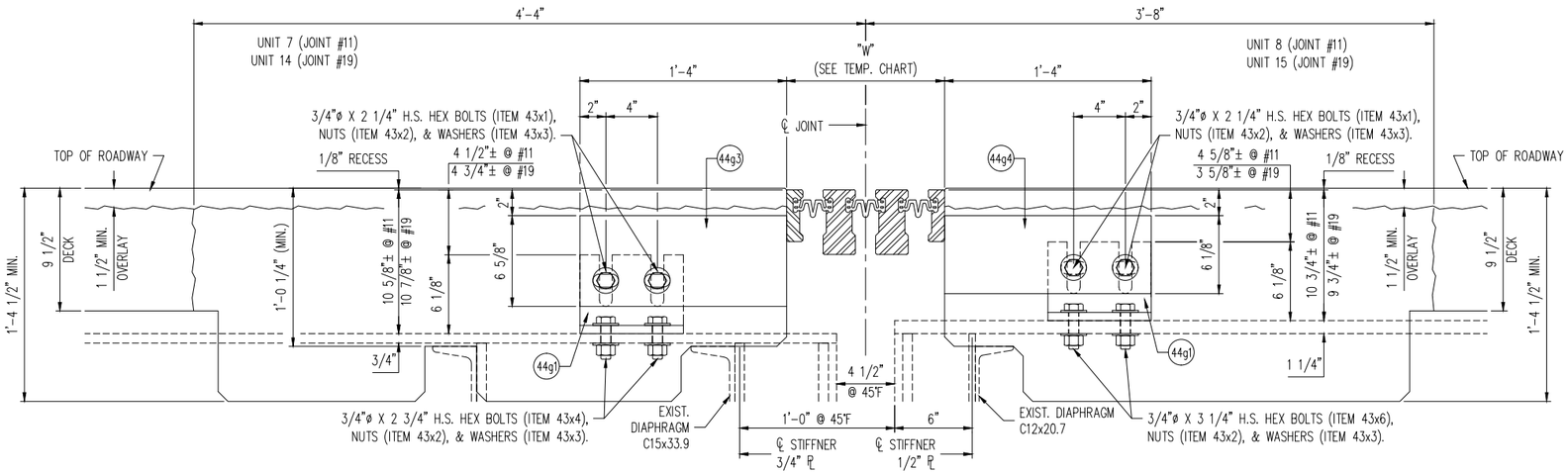
- SEE GENERAL NOTES ON SHEET 39
- SEE RAIL AND SEAL DETAILS ON SHEET 39
- SEE INSTALLATION PROCEDURES ON SHEET 39
- SEE SPLICE DETAILS ON SHEET 40
- SEE UPTURN DETAILS ON SHEET 40
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 41
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- SEE JOINT SUPPORT DETAILS ON SHEET 43
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 44
- SEE SUPPORT BOX DETAILS ON SHEET 45
- SEE SUPPORT BAR DETAILS ON SHEET 46
- SEE BILL OF MATERIALS ON SHEET 47

REV.	DESCRIPTION	DATE	DET.	CKD.

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A GIBRALTAR INDUSTRIES COMPANY
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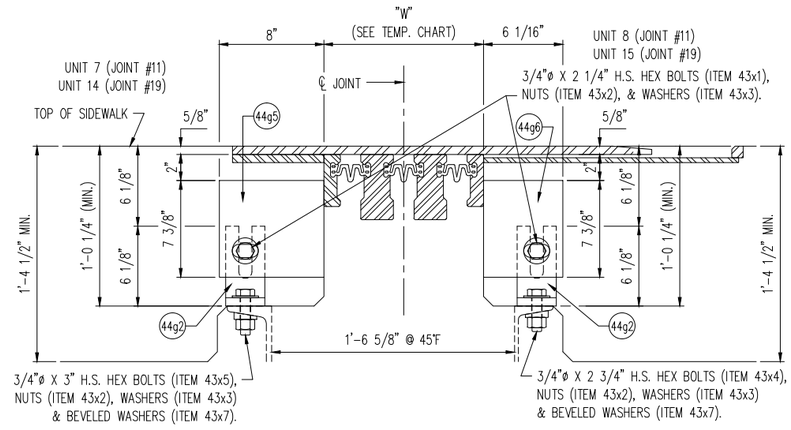
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
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P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
'D-240' PLAN VIEW & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	MJS	03/2014	4 OF 9
	PROJECT NUMBER: 42790	PRODUCT CODE: 1021	RELEASE: 1	SHEET: 42	



SECTION OF 'D-240' SUPPORTS @ GIRDERS

DIMENSIONS SHOWN ARE AT 45°F



SECTION OF 'D-240' SUPPORTS ON DIAPHRAGMS @ SIDEWALK

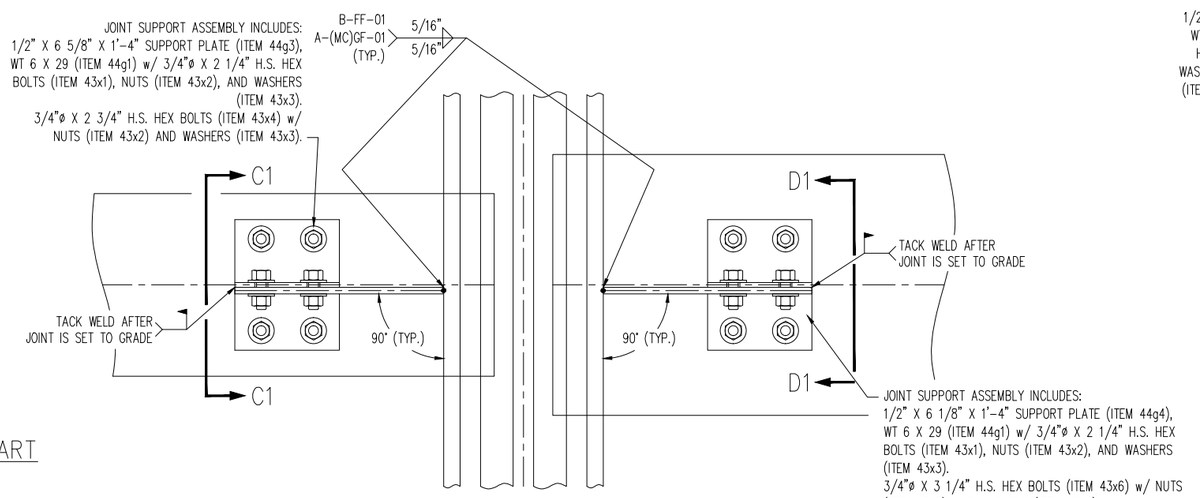
DIMENSIONS SHOWN ARE AT 45°F

COVER PLATE HARDWARE NOT SHOWN FOR CLARITY
SEE SHEETS 135-136 FOR COVER PLATE DETAILS

'D-240' OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINTS #11 & #19
MAX.	7 1/2"
120°F	8 1/2"
110°F	9"
100°F	9 1/2"
90°F	10"
80°F	10 1/2"
70°F	11"
60°F	11 1/2"
50°F	1'-0"
MID. @ 45°F	1'-0 1/4"
40°F	1'-0 1/2"
30°F	1'-1"
20°F	1'-1 1/2"
10°F	1'-2"
0°F	1'-2 1/2"
-10°F	1'-3"
-20°F	1'-3 1/2"
-30°F	1'-4"
MIN.	1'-4 15/16"

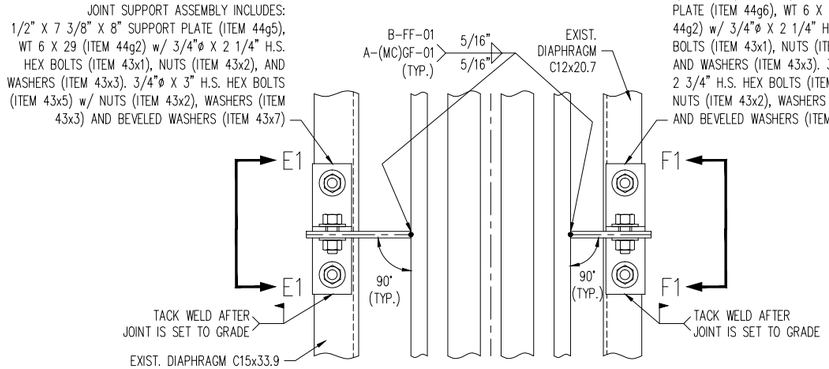
TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT:
1/2" PER 10°F @ JOINTS #11 & #19



PLAN VIEW OF SUPPORTS @ GIRDERS

DIMENSIONS SHOWN ARE AT 45°F

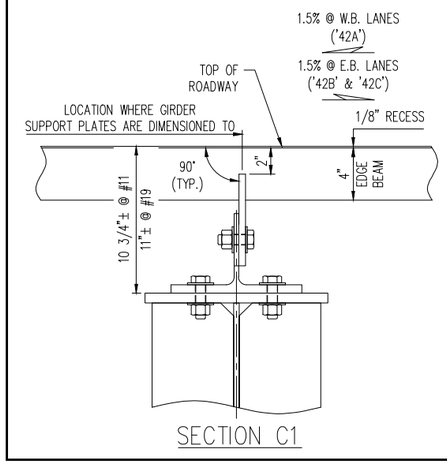


PLAN VIEW OF SUPPORTS @ SIDEWALK DIAPHRAGMS

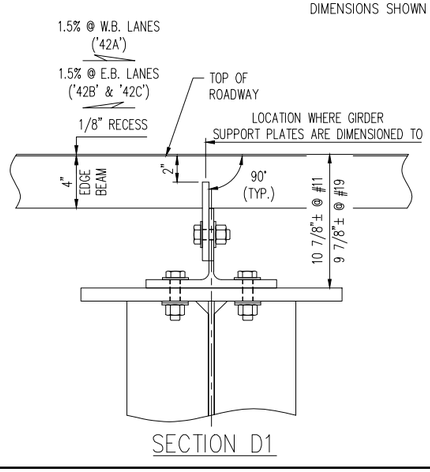
DIMENSIONS SHOWN ARE AT 45°F

REVISED
Modular Expansion Joints 11 & 19
DETAILS

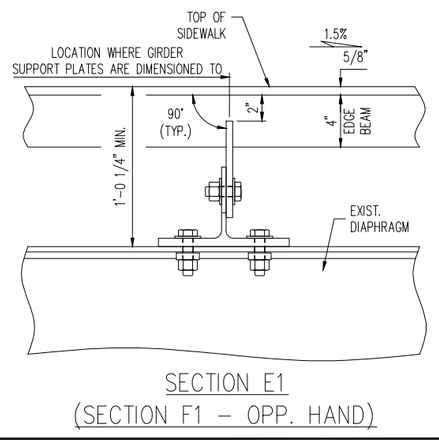
CONSTRUCTION
SHOP DRAWING



SECTION C1



SECTION D1



SECTION E1
(SECTION F1 - OPP. HAND)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

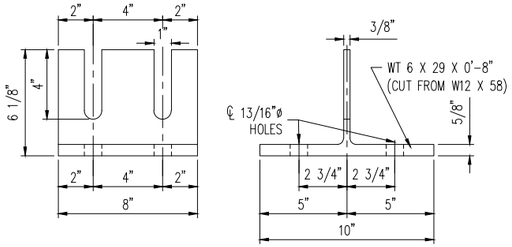
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	MJS	03/2014	5 OF 9

PROJECT NUMBER	PROJECT CODE	RELEASE	SHEET
42790	1021	1	43

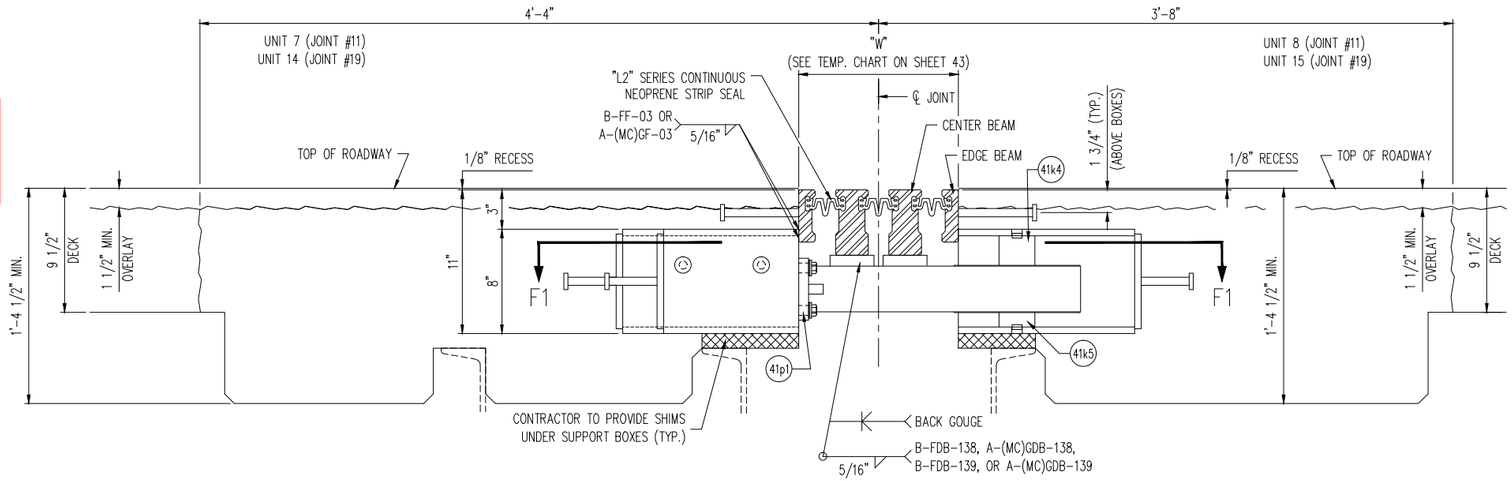
NOTE:
– IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  – 3/8" VERTICAL PLATE
  – 5/8" BASE PLATE
  – 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A–(MC)GF–01 OR B–FF–01



WT6x29 JOINT SUPPORT
ITEM 44g1
(32) REQUIRED

REVISED
Modular Expansion Joints 11 & 19
DETAILS

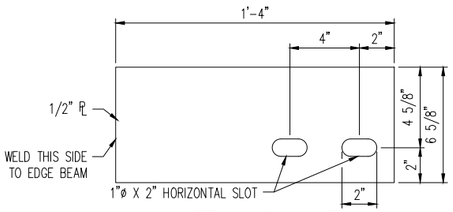
CONSTRUCTION
SHOP DRAWING



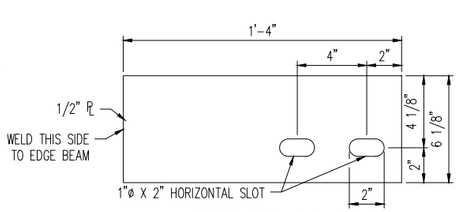
NOTE:
– IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  – 3/8" VERTICAL PLATE
  – 5/8" BASE PLATE
  – 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A–(MC)GF–01 OR B–FF–01

WT6x29 JOINT SUPPORT
ITEM 44g2
(4) REQUIRED

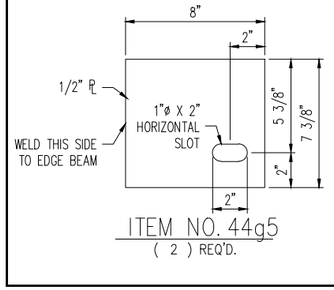
SECTION THRU 'D–240' @ SUPPORT BOX



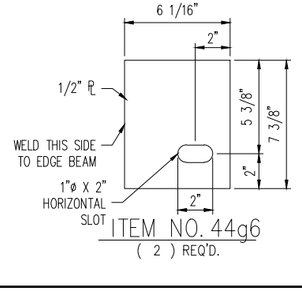
ITEM NO. 44g3
(16) REQ'D.



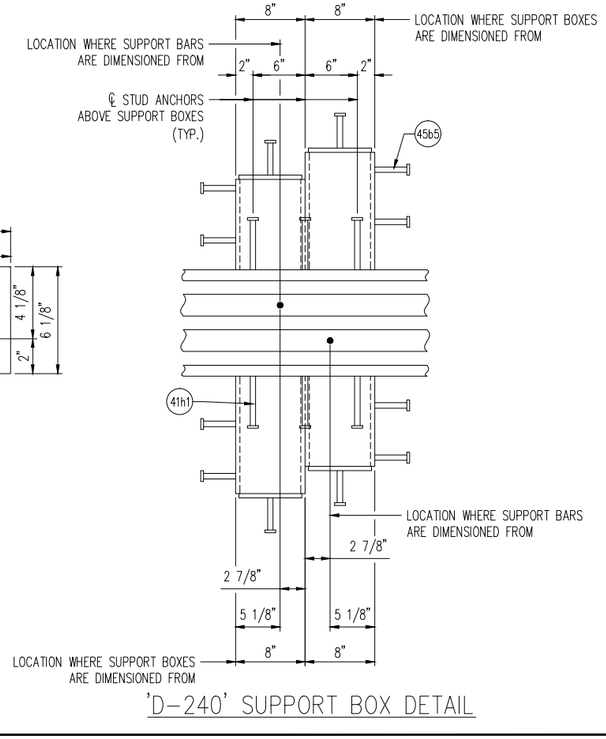
ITEM NO. 44g4
(16) REQ'D.



ITEM NO. 44g5
(2) REQ'D.



ITEM NO. 44g6
(2) REQ'D.



'D–240' SUPPORT BOX DETAIL

SECTION E1
THRU SUPPORT BOXES

SECTION F1
PLAN VIEW THRU SUPPORT BOXES

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B–16–38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680–04–71 (WI) / 6937–69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

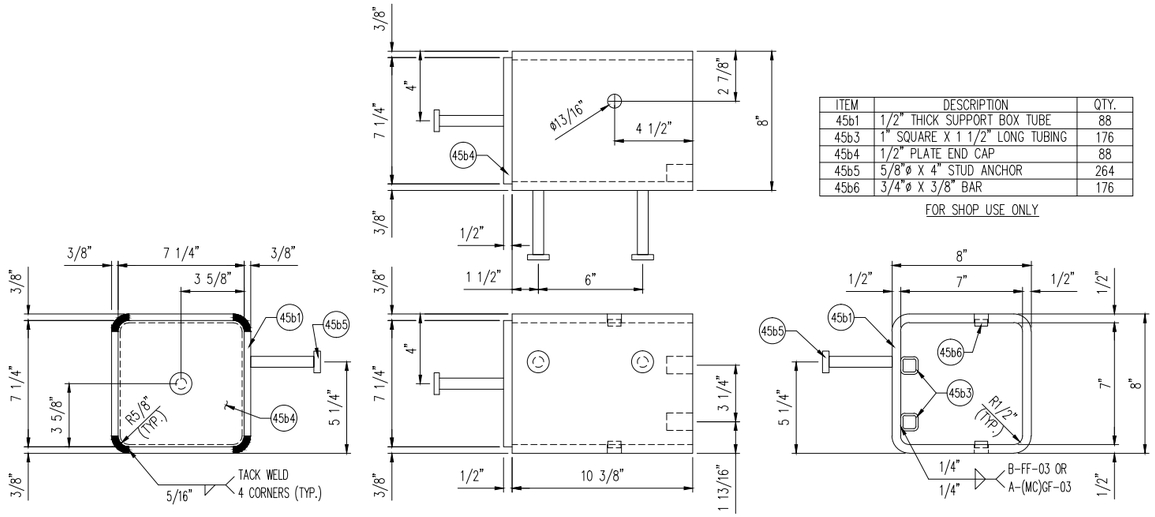
DESCRIPTION: 'D–240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	MJS	03/2014	6 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	44

REVISED
Modular Expansion Joints 11 & 19
DETAILS

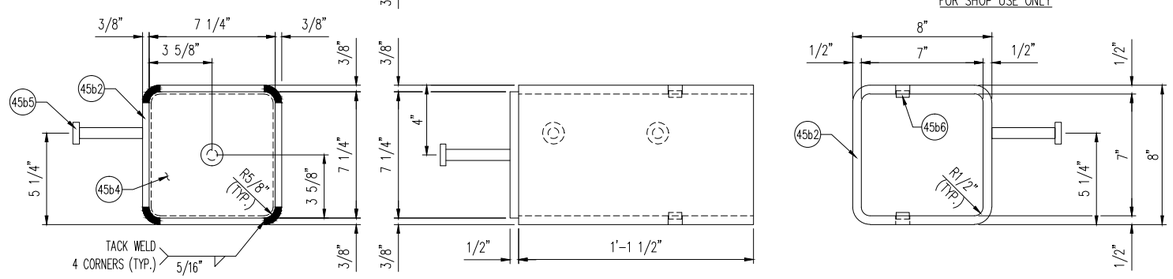
CONSTRUCTION
SHOP DRAWING



ITEM	DESCRIPTION	QTY.
45b1	1/2" THICK SUPPORT BOX TUBE	88
45b3	1" SQUARE X 1 1/2" LONG TUBING	176
45b4	1/2" PLATE END CAP	88
45b5	5/8"ø X 4" STUD ANCHOR	264
45b6	3/4"ø X 3/8" BAR	176

FOR SHOP USE ONLY

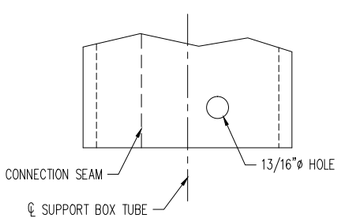
'D-240' SUPPORT BOX DETAIL '45A'
(88) REQUIRED



ITEM	DESCRIPTION	QTY.
45b2	1/2" THICK SUPPORT BOX TUBE	88
45b4	1/2" PLATE END CAP	88
45b5	5/8"ø X 4" STUD ANCHOR	264
45b6	3/4"ø X 3/8" BAR	176

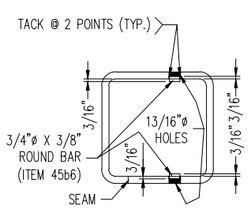
FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '45B'
(88) REQUIRED

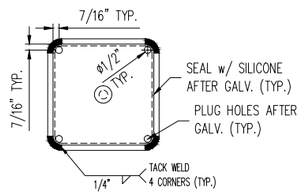


SHOP NOTE:

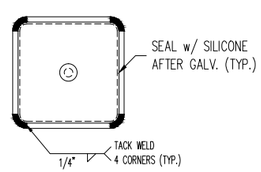
WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE ℄ OF BOX.



SUPPORT BOX PIN DETAILS
(W/ RUBBER SPRINGS & BEARINGS)



SUPPORT BOX BACK PLATE
OPTION NO. 1
(ATTACH PRIOR TO GALV.)



SUPPORT BOX BACK PLATE
OPTION NO. 2
(ATTACH AFTER GALV.)

PAGE 407 G

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
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NORTH BALTIMORE, OHIO 45872
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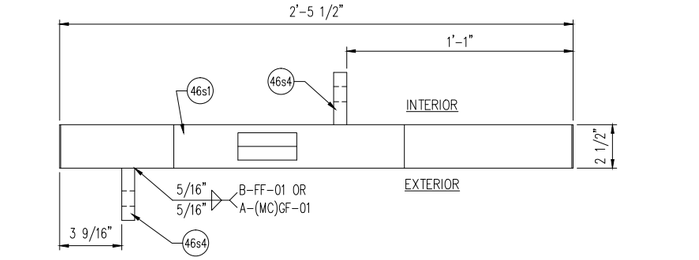
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
'D-240' SUPPORT BOX DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	MJS	03/2014	7 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	45

REVISED
Modular Expansion Joints 11 & 19
DETAILS

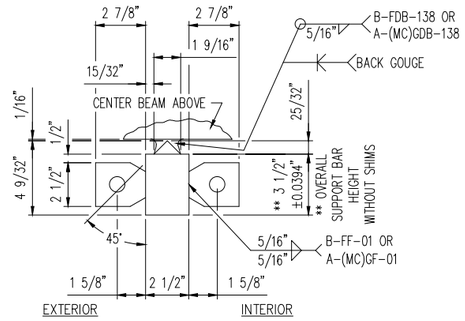
CONSTRUCTION
SHOP DRAWING



ITEM	DESCRIPTION	QTY.
46s1	2 1/2" X 4 9/32" X 2'-5 1/2" BAR	88
46s2	16GA. X 3 1/8" X 6 1/2" S.S. SHIM	176
46s3	16GA. X 3 1/8" X 9 5/8" S.S. SHIM	176
46s4	3/4" X 2 1/2" X 2 7/8" FLAT BAR	176

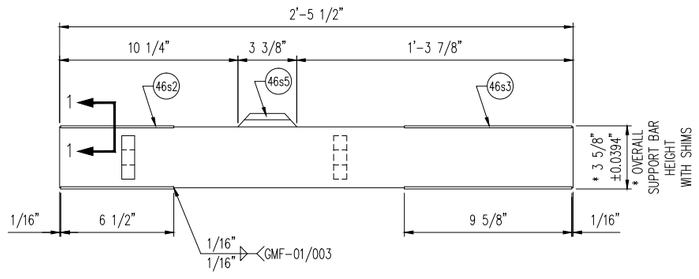
FOR SHOP USE ONLY

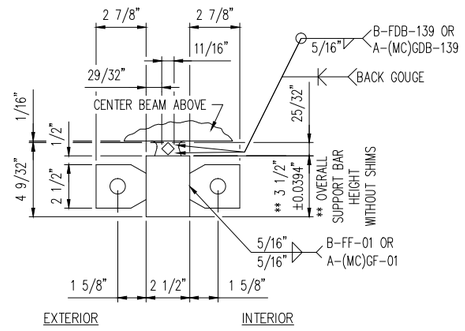
NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.



'D-240' SUPPORT BAR DETAILS

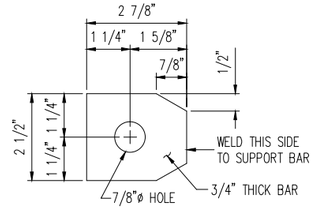
(88) REQUIRED





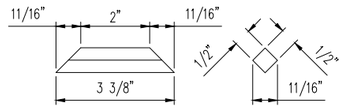
OPTIONAL 'D-240' SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)



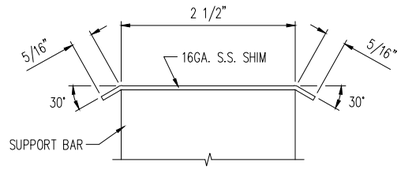
ITEM NO. 46s4
(176) REQ'D.

SPRING STOP DETAIL



ITEM NO. 46s5
(88) REQ'D.

RIDER BAR DETAIL



SECTION 1-1

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	MJS	03/2014	8 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	46

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
42A	2	"D-240" MODULAR EXPANSION JOINT			37'-1 3/4"	9104	
41h1	120	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
41h2	80	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
41k1	60	CONTROL SPRING (80MM)	–		PLAIN	1	
41k2	60	NYLON PIN (80MM)	–		PLAIN	< 1	
41k3	120	HITCH PIN	–		PLAIN	< 1	
41k4	80	PRECOMPRESSED SPRING	–		PLAIN	< 1	
41k5	80	SLIDE BEARING	–		PLAIN	1	
41p1	40	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
41p2	80	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
41p3	80	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
41p4	80	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
41p5	80	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
42a1	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
42a2	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
42a3	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-10	A123-HDG	463	
42a4	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-10	A123-HDG	463	
42a5	8	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
42a6	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-10 3/4	A123-HDG	1238	
42y1	2	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
42y2	6	L2-400 GLAND	NEOPRENE	38'-0	228'-0" TOTAL;	61	
44g3	8	1/2 X 6 5/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
44g4	8	1/2 X 6 1/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
45b1	40	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
45b2	40	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
45b3	80	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
45b4	80	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
45b5	240	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
45b6	160	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
46s1	40	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR – MACHINE TO DETAILED DIMS.; A123-HDG	94	
46s2	80	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
46s3	80	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
46s4	80	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
42B	2	"D-240" MODULAR EXPANSION JOINT			36'-11 1/4"	9158	
41h1	120	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
41h2	92	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
41k1	60	CONTROL SPRING (80MM)	–		PLAIN	1	
41k2	60	NYLON PIN (80MM)	–		PLAIN	< 1	
41k3	120	HITCH PIN	–		PLAIN	< 1	
41k4	80	PRECOMPRESSED SPRING	–		PLAIN	< 1	
41k5	80	SLIDE BEARING	–		PLAIN	1	
41p1	40	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
41p2	80	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
41p3	80	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
41p4	80	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
41p5	80	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
42a1	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
42a2	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
42a5	8	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
42a7	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 1/2	A123-HDG	461	
42a8	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 1/2	A123-HDG	461	
42a9	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-8 1/4	A123-HDG	1230	
42y1	2	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
42y2	6	L2-400 GLAND	NEOPRENE	38'-0	228'-0" TOTAL;	61	
44g3	6	1/2 X 6 5/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
44g4	6	1/2 X 6 1/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
45b1	40	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
45b2	40	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
45b3	80	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
45b4	80	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
45b5	240	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
45b6	160	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
46s1	40	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR – MACHINE TO DETAILED DIMS.; A123-HDG	94	
46s2	80	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
46s3	80	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
46s4	80	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
42C	2	"D-240" MODULAR EXPANSION JOINT			6'-9"	1694	
41h1	24	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
41h2	8	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
41k1	12	CONTROL SPRING (80MM)	–		PLAIN	1	
41k2	12	NYLON PIN (80MM)	–		PLAIN	< 1	
41k3	24	HITCH PIN	–		PLAIN	< 1	
41k4	16	PRECOMPRESSED SPRING	–		PLAIN	< 1	
41k5	16	SLIDE BEARING	–		PLAIN	1	
41p1	8	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
41p2	16	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
41p3	16	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
41p4	16	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
41p5	16	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
42a10	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
42a11	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
42a12	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
42y3	6	L2-400 GLAND	NEOPRENE	7'-0	42'-0" TOTAL;	11	
44g3	2	1/2 X 6 5/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
44g4	2	1/2 X 6 1/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
44g5	2	1/2 X 8	A36	0'-7 3/8	JOINT SUPPORT PLATE; A123-HDG	8	
44g6	2	1/2 X 6 1/16	A36	0'-7 3/8	JOINT SUPPORT PLATE; A123-HDG	6	
45b1	8	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
45b2	8	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
45b3	16	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
45b4	16	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
45b5	48	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
45b6	32	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
46s1	8	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR – MACHINE TO DETAILED DIMS.; A123-HDG	94	
46s2	16	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
46s3	16	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
46s4	16	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			4/17/2014 3:19:47 PM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
43XA	68	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
43x1	68	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XB	204	JOINT SUPPORT HARDWARE – HEX NUT (ROCAP)				< 1	
43x2	204	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
43XC	400	JOINT SUPPORT HARDWARE – FLAT WASHER (ROCAP)				< 1	
43x3	400	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
43XD	68	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
43x4	68	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XE	4	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
43x5	4	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XF	64	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
43x6	64	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XG	8	JOINT SUPPORT HARDWARE – BEVELED WASHER (ROCAP)				< 1	
43x7	8	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
43XAT	3	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
43t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XBT	15	TESTING HARDWARE – HEX NUT (ROCAP)				< 1	
43t2	15	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
43XCT	24	TESTING HARDWARE – FLAT WASHER (ROCAP)				< 1	
43t3	24	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
43XDT	6	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
43t4	6	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XET	3	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
43t5	3	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XFT	3	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
43t6	3	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XGT	6	TESTING HARDWARE – BEVELED WASHER (ROCAP)				< 1	
43t7	6	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			4/17/2014 3:19:47 PM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
44GA	32	JOINT SUPPORT ITEM				19	
44g1	32	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
44GB	4	JOINT SUPPORT ITEM				7	
44g2	4	WT6X29	A36	0'-3	CUT FROM W12 X 58; A123-HDG	7	
		*Approx. Gross Wt. Lbs Per Single Unit			4/17/2014 3:19:47 PM		

REVISED
Modular Expansion Joints 11 & 19
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

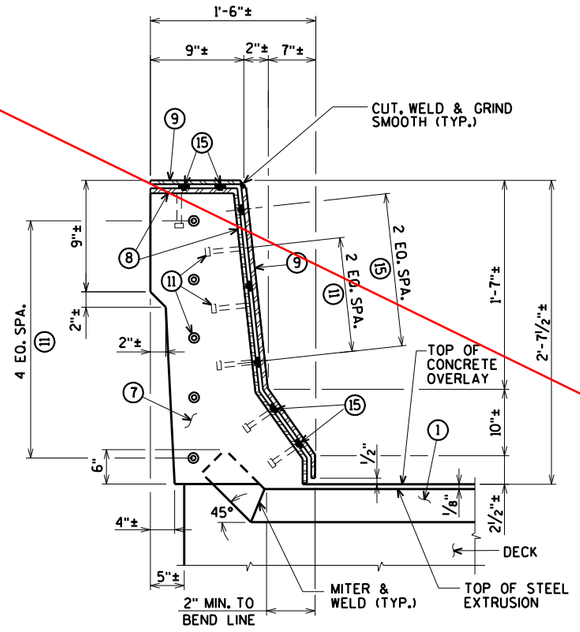
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

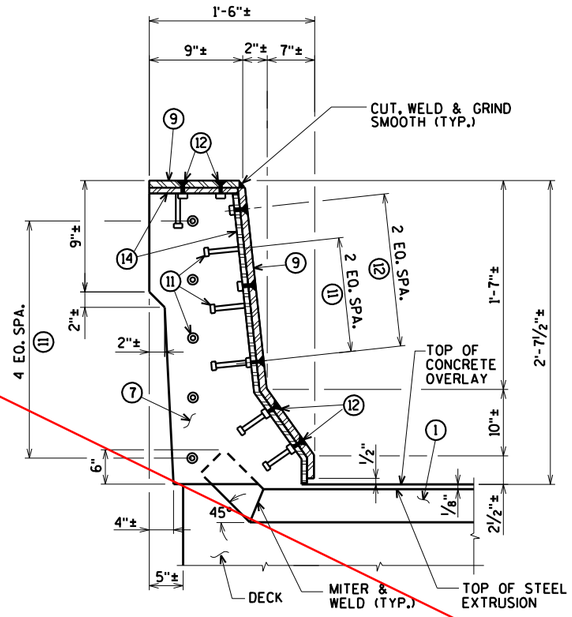
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N.T.S.	J.KIS	MJS	03/2014	9 OF 9
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	47	

STATE PROJECT NUMBER

8680-04-71



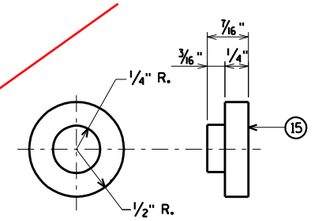
SECTION E



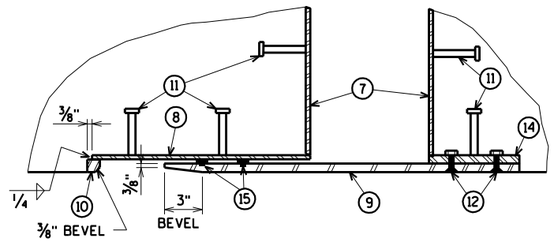
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

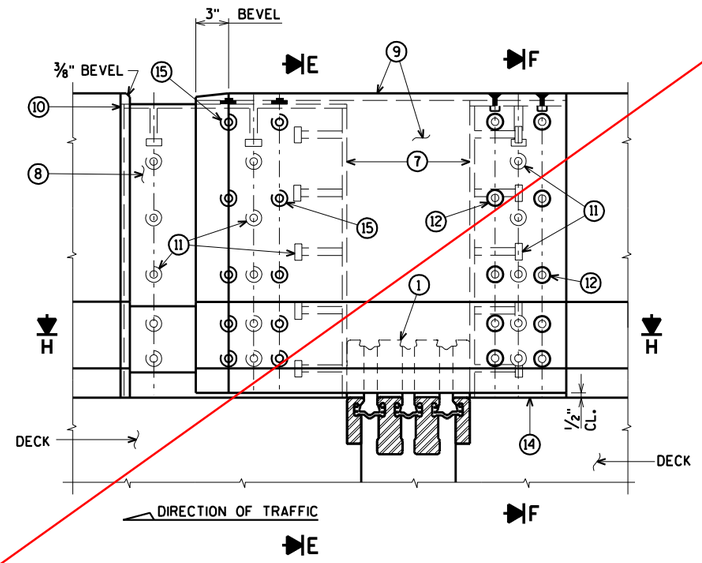
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 61



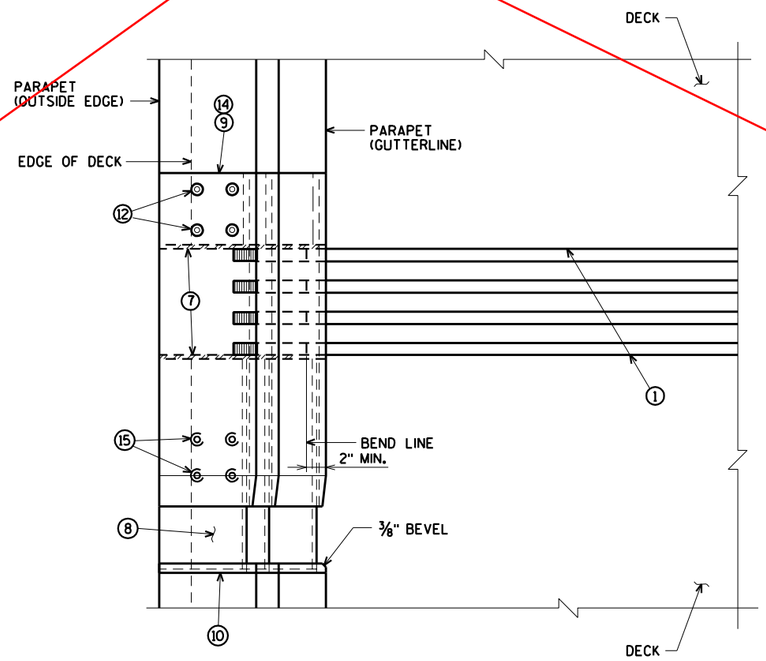
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 407 & PAGE 408. Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 61, 63-65

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXP. JOINTS 11-15, 19, 20 & 22 OUTSIDE PARAPET

SHEET 62 OF 99
408

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

ecpdf.plt
42-0825 EXPJT 11-15, 19,20,22.dgn

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9/12/2013

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GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

SUPPORT BOXES SHALL BE ASTM-A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM-A240, TYPE 304, WITH A 20 MICRO-INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM-A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A-SM-STUD-REP-01, B-FF-STUD-REP-01, OR A-(MC)GF-STUD-REP-01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM-A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM-A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE. IF JOINT HAS MORE THAN ONE ASSEMBLY, THE NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE ONLY IN THE FIRST ASSEMBLY. REMAINDER OF SEAL SHALL BE ROLLED UP ON THE FIELD SPLICE END. SEAL SHALL THEN BE FIELD INSTALLED WITH A LUBRICANT ADHESIVE AFTER FIELD WELDING IS COMPLETE. NO FIELD SPLICES OF THE STRIP SEAL GLANDS SHALL BE PERMITTED. CONTRACTOR SHALL PROTECT SEAL DURING THE INSTALLATION OF 1ST JOINT SECTION TO PREVENT DAMAGE PRIOR TO THE INSTALLATION OF THE 2ND JOINT SECTION.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT. QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT-BRIDGE UNIT-INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

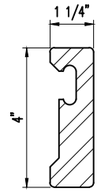
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 68p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.

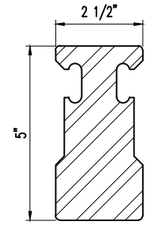


4" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.
(LOCATED ON 'D-240' MODULAR EXPANSION JOINTS.)

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION
SHOP DRAWING

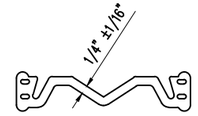


CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

INSTALLATION PROCEDURES

1. FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.
2. PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)
3. BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.
4. BEFORE REMOVING BLOCK AND BANDING, ANCHOR ONE SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. FIELD LOCATE AND DRILL HOLES IN SUPPORTING STRUCTURAL STEEL FOR JOINT SUPPORT HARDWARE.
5. REMOVE BLOCK AND BANDING AFTER ONE SIDE HAS BEEN ATTACHED TO STRUCTURE.
6. ADJUST JOINT OPENING, AS DETERMINED BY THE FIELD ENGINEER.
7. ANCHOR THE OTHER SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT CONNECTIONS. IF NEEDED, CONTRACTOR MAY TACK WELD JOINT SUPPORTS AFTER FINAL ADJUSTMENT.
8. CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.
9. POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2-400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 66
- SEE RAIL AND SEAL DETAILS ON SHEET 66
- SEE INSTALLATION PROCEDURES ON SHEET 66
- SEE SPLICE DETAILS ON SHEET 67
- SEE UPTURN DETAILS ON SHEET 67
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 68
- SEE SPRING & BEARING DIAGRAM ON SHEET 68
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 68
- SEE 'D-240' PLAN VIEW FOR JOINTS #12, #13, #14 & #15 ON SHEET 69
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 70
- SEE JOINT SUPPORT DETAILS ON SHEET 70
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 71
- SEE SUPPORT BOX DETAILS ON SHEET 72
- SEE SUPPORT BAR DETAILS ON SHEET 73
- SEE BILL OF MATERIALS ON SHEET 74

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
GENERAL NOTES & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

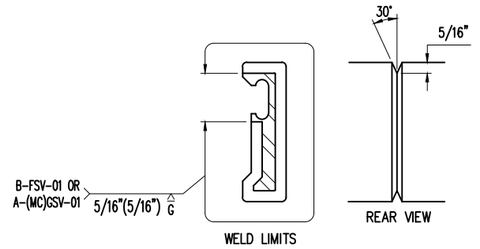
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N.T.S.	BLB	JLW	04/04/14	1 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
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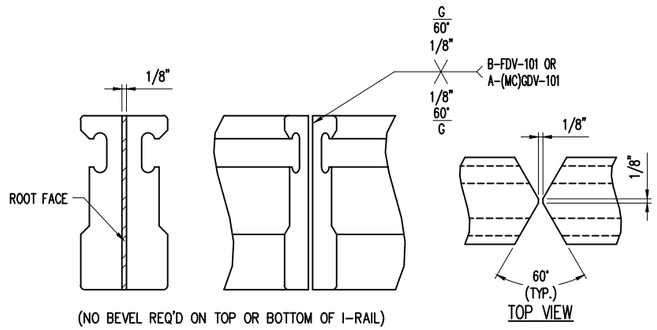
PAGE 408 A

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION
SHOP DRAWING

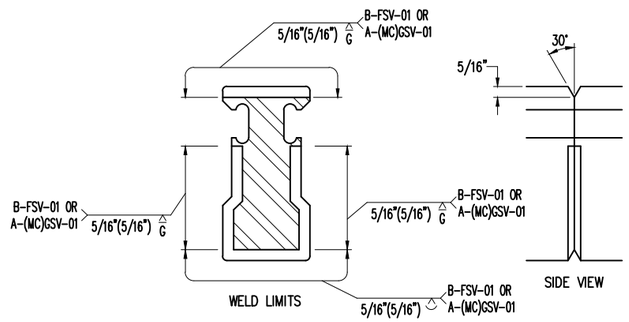


EDGE BEAM SHOP SPLICE DETAIL



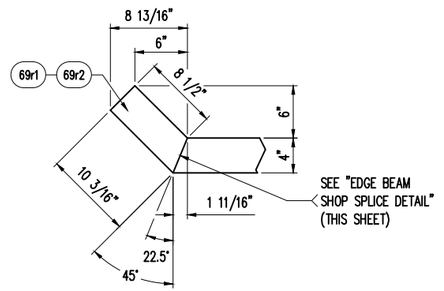
CENTER BEAM SHOP SPLICE DETAIL

COMPLETE PENETRATION WELD

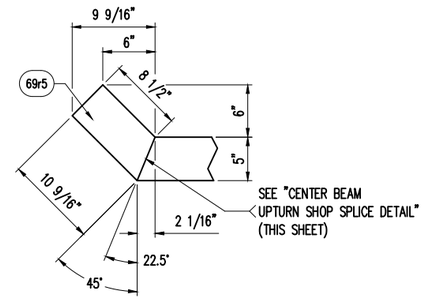


CENTER BEAM UPTURN SHOP SPLICE DETAIL

PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)



EDGE BEAM UPTURN DETAIL



CENTER BEAM UPTURN DETAIL

REV.	DESCRIPTION	DATE	DET.	CKD.

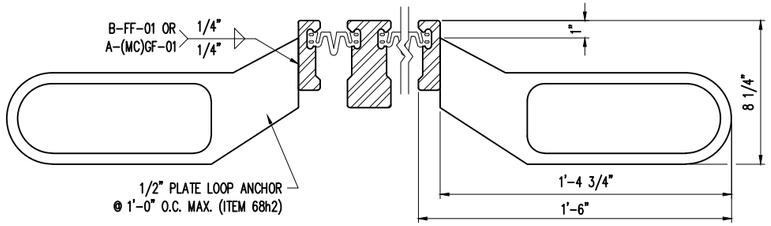
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

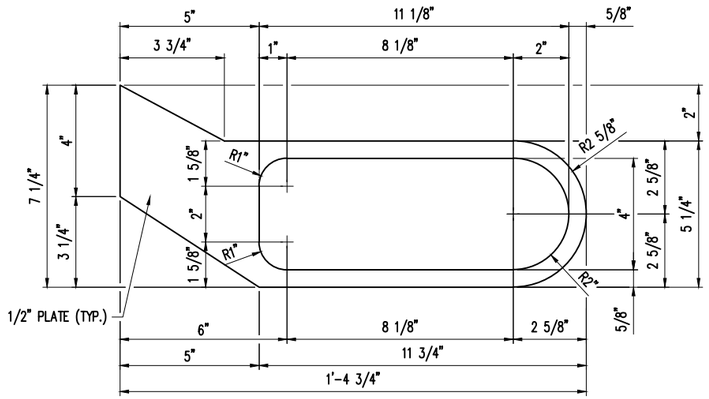
DESCRIPTION:
STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	2 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	67

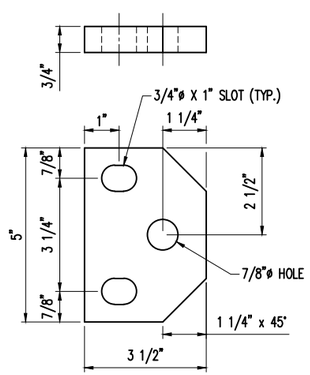


SECTION THRU 'D-240' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)



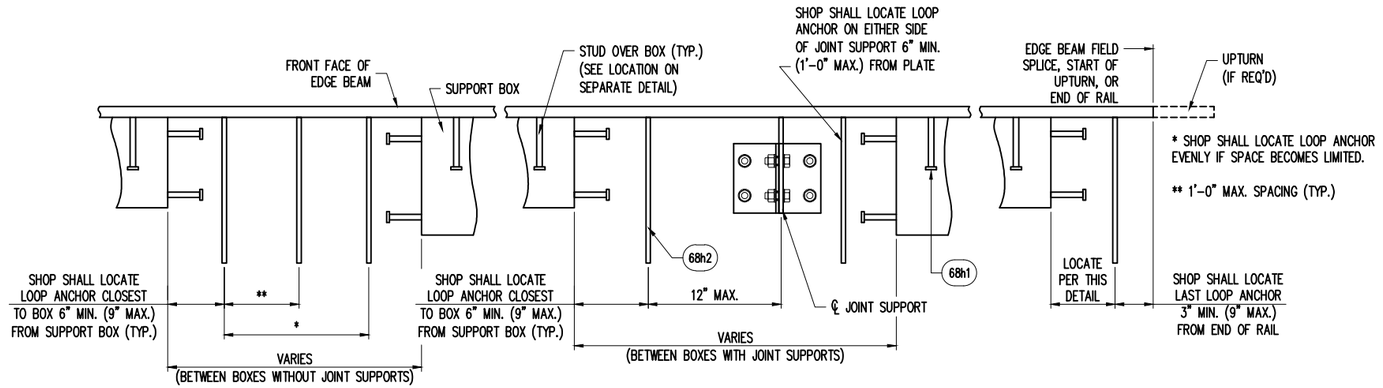
ITEM NO. 68h2
(328) REQ'D.

PLATE ANCHOR DETAIL



ITEM NO. 68p1
(176) REQ'D.

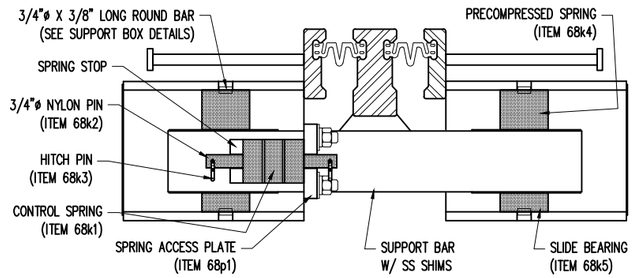
SPRING ACCESS PLATE DETAIL



TYP. LOOP ANCHOR LAYOUT SEQUENCE ALONG EDGE BEAM

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION
SHOP DRAWING



TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-240" SHOWN - OTHER JOINT SIZES SIMILAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

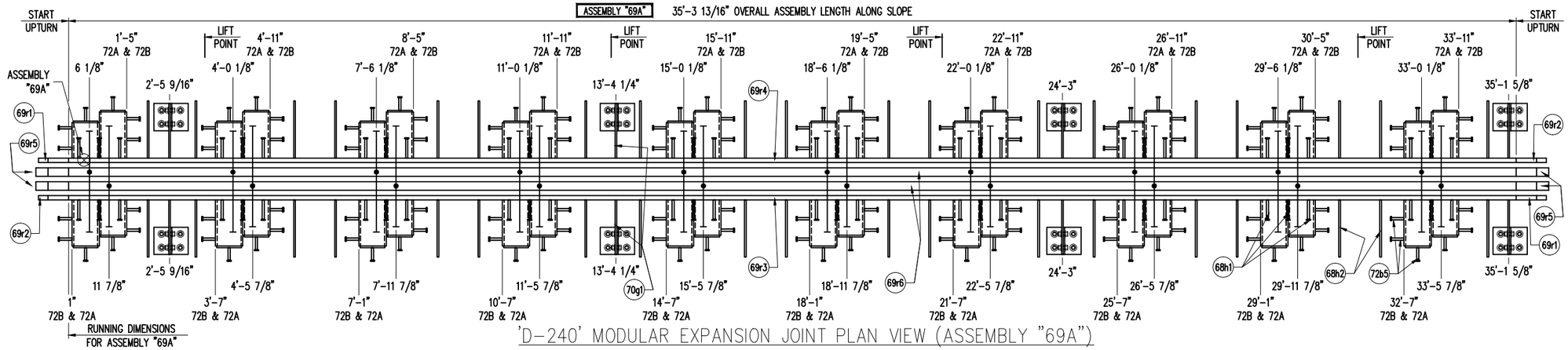
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	3 OF 9

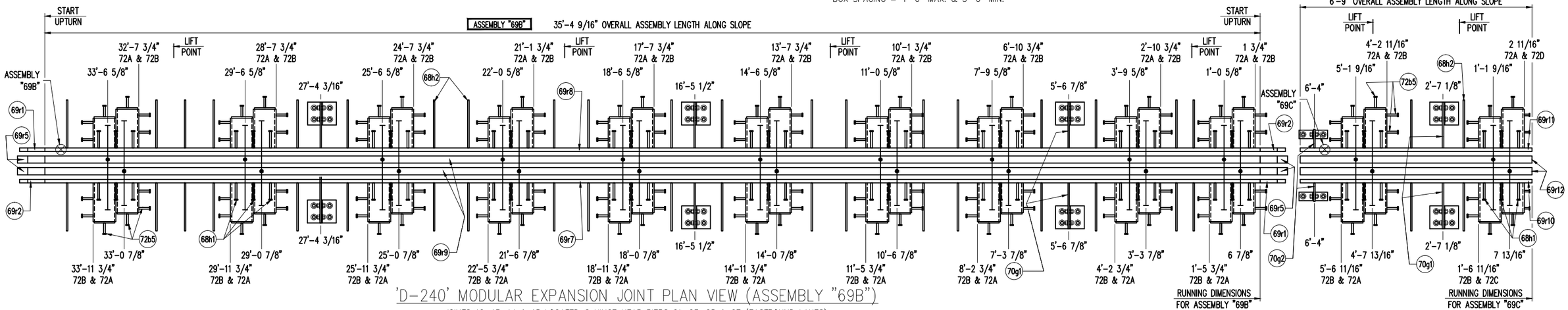
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	68

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 66
- SEE RAIL AND SEAL DETAILS ON SHEET 66
- SEE INSTALLATION PROCEDURES ON SHEET 66
- SEE SPLICE DETAILS ON SHEET 67
- SEE UPTURN DETAILS ON SHEET 67
- SEE STUD LOCATION & SPACING DETAILS ON SHEET 68
- SEE SPRING & BEARING DIAGRAM ON SHEET 68
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 68
- SEE 'D-240' PLAN VIEWS ON SHEET 69
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 70
- SEE JOINT SUPPORT DETAILS ON SHEET 70
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 71
- SEE SUPPORT BOX DETAILS ON SHEET 72
- SEE SUPPORT BAR DETAILS ON SHEET 73
- SEE BILL OF MATERIALS ON SHEET 74
- COVER PLATES NOT SHOWN FOR CLARITY PURPOSES (SEE SHEETS AFTER 100 FOR COVER PLATE DETAILS)



'D-240' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "69A")

JOINTS 12, 13, 14 & 15 LOCATED @ HINGE NEAR PIERS 21, 23, 25 & 27 (WESTBOUND LANES)
(4) ASSEMBLIES REQUIRED TOTAL
BOX SPACING = 4'-0" MAX. & 3'-0" MIN.

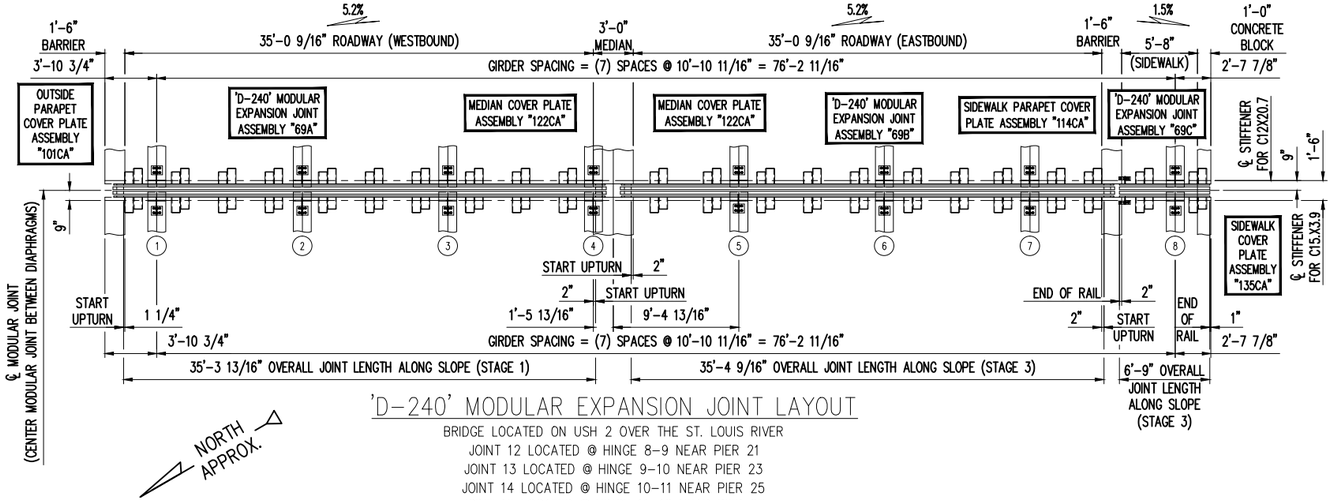


'D-240' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "69B")

JOINTS 12, 13, 14 & 15 LOCATED @ HINGE NEAR PIERS 21, 23, 25 & 27 (EASTBOUND LANES)
(4) ASSEMBLIES REQUIRED TOTAL
BOX SPACING = 4'-0" MAX. & 3'-0" MIN.

'D-240' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "69C")

JOINTS 12, 13, 14 & 15 LOCATED @ HINGE
NEAR PIERS 21, 23, 25 & 27 (SIDEWALK)
(4) ASSEMBLIES REQUIRED TOTAL
BOX SPACING = 4'-0"



'D-240' MODULAR EXPANSION JOINT LAYOUT

BRIDGE LOCATED ON USH 2 OVER THE ST. LOUIS RIVER
JOINT 12 LOCATED @ HINGE 8-9 NEAR PIER 21
JOINT 13 LOCATED @ HINGE 9-10 NEAR PIER 23
JOINT 14 LOCATED @ HINGE 10-11 NEAR PIER 25
JOINT 15 LOCATED @ HINGE 11-12 NEAR PIER 27

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION SHOP DRAWING

PAGE 408 D

REV.	DESCRIPTION	DATE	DET.	CKD.

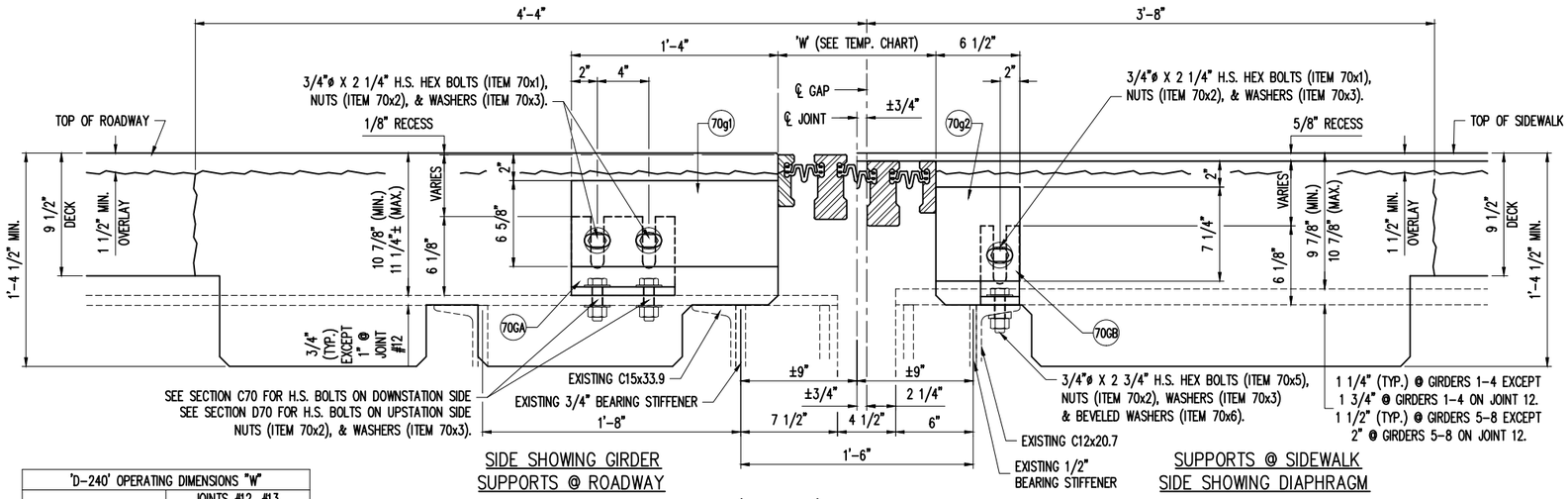
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: 'D-240' PLAN VIEW & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	4 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	69



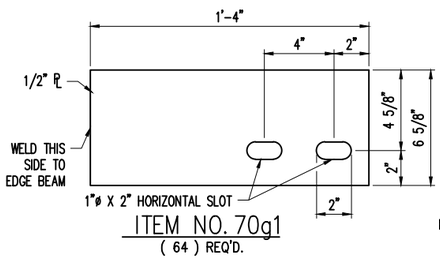
SIDE SHOWING GIRDER SUPPORTS @ ROADWAY

SUPPORTS @ SIDEWALK SIDE SHOWING DIAPHRAGM

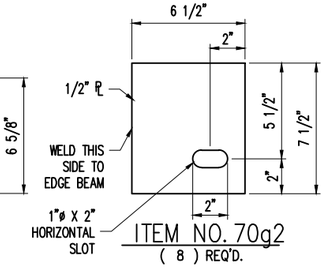
SECTION OF 'D-240' SUPPORTS @ GIRDERS & DIAPHRAGMS

DIMENSIONS SHOWN ARE AT 45°F

HIGH STRENGTH BOLT SCHEDULE (FOR ALL SUPPORTS)						
JOINT LOCATION	GIRDER / LOCATOIN	SIDE OF JOINT	CONNECTION TYPE OR TOP FLANGE THICKNESS	BOLT LENGTH	MK#	QTY
#12, #13, #14 & #15	ALL SUPPORTS	BOTH	PLATE TO WT	2 1/4"	70x1	136
#12, #13, #14 & #15	DIAPHRAGM	BOTH	CHANNEL	2 3/4"	70x5	16
#13, #14 & #15	1 - 8	DOWNSTATION	3/4"	2 3/4"	70x5	96
#12	1 - 8	DOWNSTATION	1"	3"	70x4	32
#13, #14 & #15	1 - 4	UPSTATION	1 1/4"	3 1/4"	70x7	48
#12	1 - 4	UPSTATION	1 3/4"	3 3/4"	70x8	16
#13, #14 & #15	5 - 8	UPSTATION	1 1/2"	3 1/2"	70x9	48
#12	5 - 8	UPSTATION	2"	4"	70x10	16



ITEM NO. 70g1
(64) REQ'D.

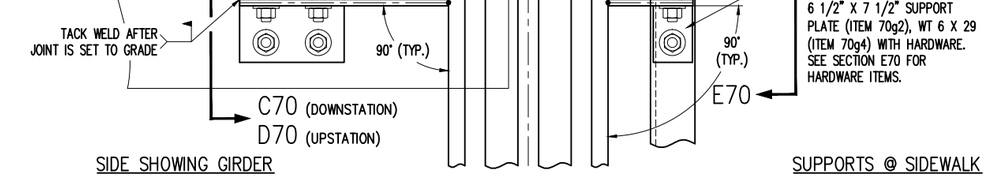


ITEM NO. 70g2
(8) REQ'D.

'D-240' OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINTS #12, #13, #14 & #15
MAX.	7 1/2"
120°F	8 1/2"
110°F	9"
100°F	9 1/2"
90°F	10"
80°F	10 1/2"
70°F	11"
60°F	11 1/2"
50°F	1'-0"
MID. @ 45°F	1'-0 1/4"
40°F	1'-0 1/2"
30°F	1'-1"
20°F	1'-1 1/2"
10°F	1'-2"
0°F	1'-2 1/2"
-10°F	1'-3"
-20°F	1'-3 1/2"
-30°F	1'-4"
MIN.	1'-4 15/16"

TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT:
1/2" PER 10°F @ JOINTS #12, #13, #14 & #15

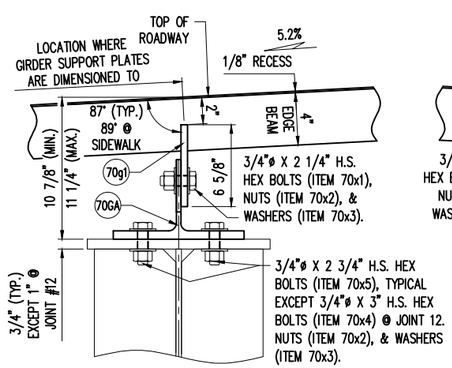


SIDE SHOWING GIRDER SUPPORTS @ ROADWAY

SUPPORTS @ SIDEWALK SIDE SHOWING DIAPHRAGM

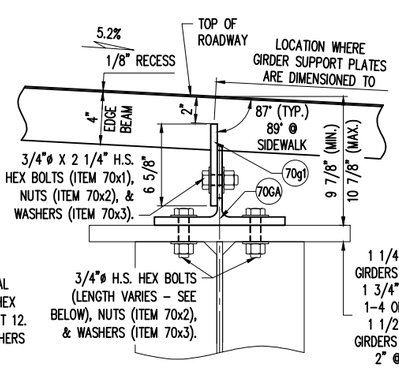
PLAN VIEW OF SUPPORTS @ GIRDERS AND DIAPHRAGMS

DIMENSIONS SHOWN ARE AT 45°F



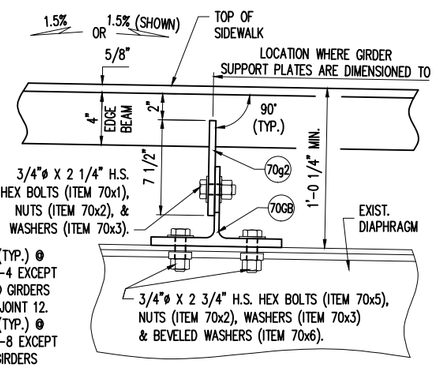
SECTION C70

(ON DOWNSTATION SIDE OF JOINT – LOOKING UPSTATION)



SECTION D70

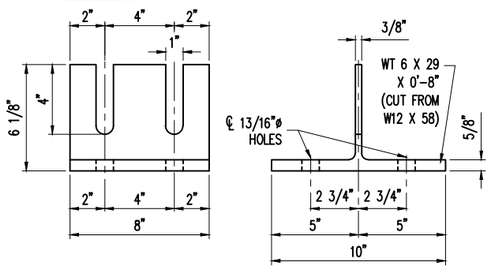
(ON UPSTATION SIDE OF JOINT – LOOKING DOWNSTATION)
3/4"ø X 3 1/4" H.S. BOLTS (ITEM 70x7) (TYP.) @ GIRDERS 1-4 EXCEPT
3/4"ø X 3 3/4" H.S. BOLTS (ITEM 70x8) @ GIRDERS 1-4 ON JOINT 12.
3/4"ø X 3 1/2" H.S. BOLTS (ITEM 70x9) (TYP.) @ GIRDERS 5-8 EXCEPT
3/4"ø X 4" @ H.S. BOLTS (ITEM 70x10) GIRDERS 5-8 ON JOINT 12.



SECTION E70

(HARDWARE TYPICAL DOWNSTATION & UPSTATION SIDE OF JOINT)

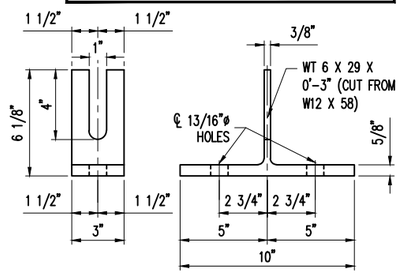
NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01



WT6x29 JOINT SUPPORT

ASSEMBLY 70GA (ITEM 70g3)
(64) REQUIRED

NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01



WT6x29 JOINT SUPPORT

ASSEMBLY 70GB (ITEM 70g4)
(8) REQUIRED

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION SHOP DRAWING

PAGE 408 E

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

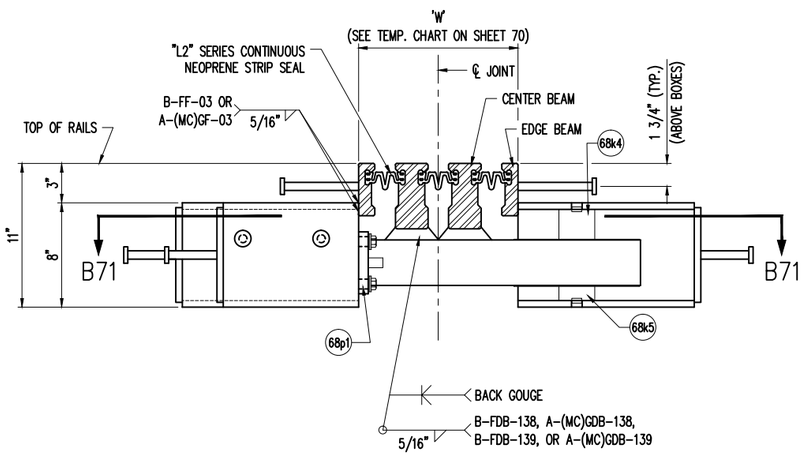
DESCRIPTION: 'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	5 OF 9

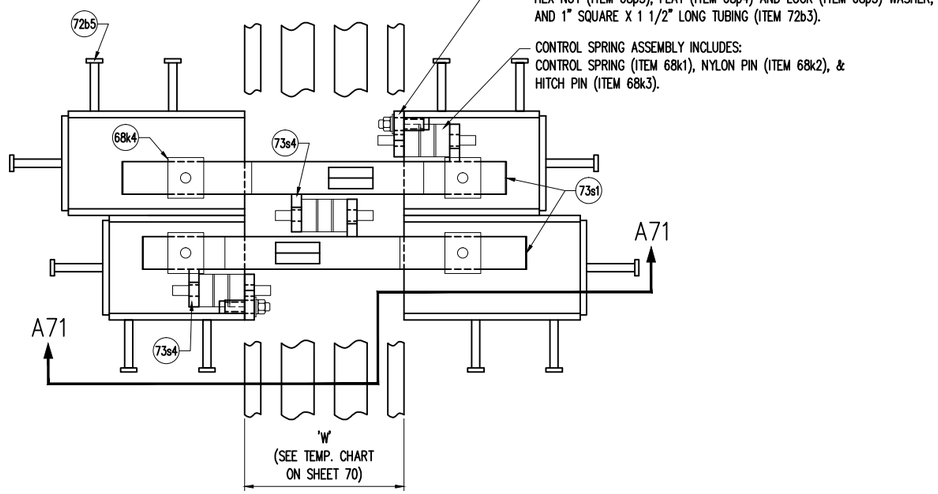
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	70

REVISED
Modular Expansion Joints 12 - 15
DETAILS

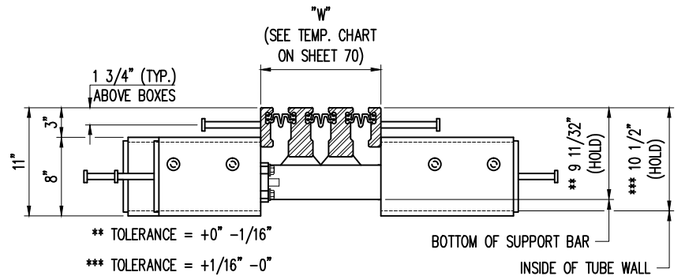
CONSTRUCTION
SHOP DRAWING



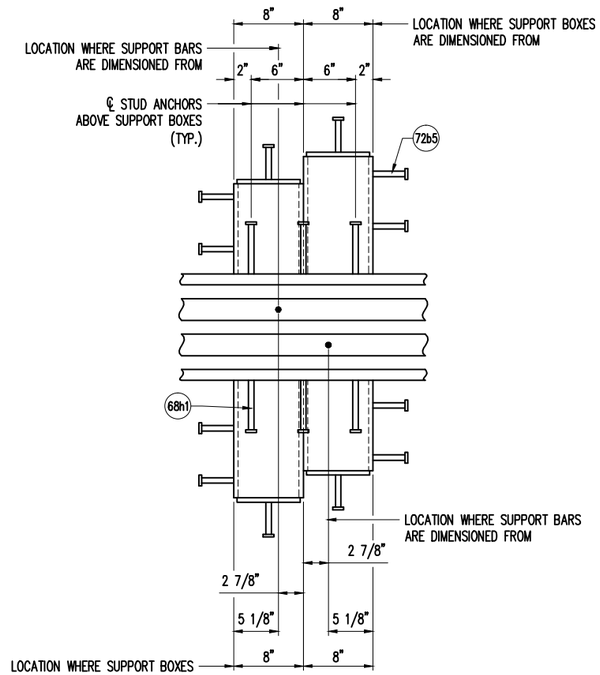
SECTION A71



SECTION B71



SECTION THRU 'D-240' @ SUPPORT BOX



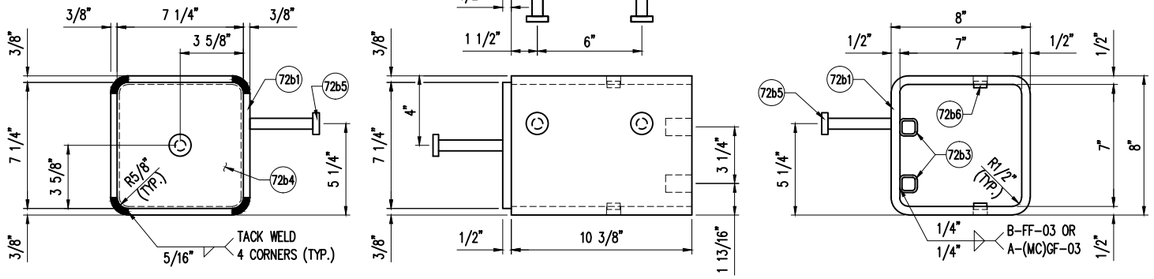
'D-240' SUPPORT BOX DETAIL

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
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WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
'D-240' SECTIONS & STANDARD DETAILS	N.T.S.	BLB	JLW	04/04/14	6 OF 9
DOUGLAS COUNTY, WISCONSIN	PROJECT NUMBER: 42790	PRODUCT CODE: 1021	RELEASE: 1	SHEET: 71	

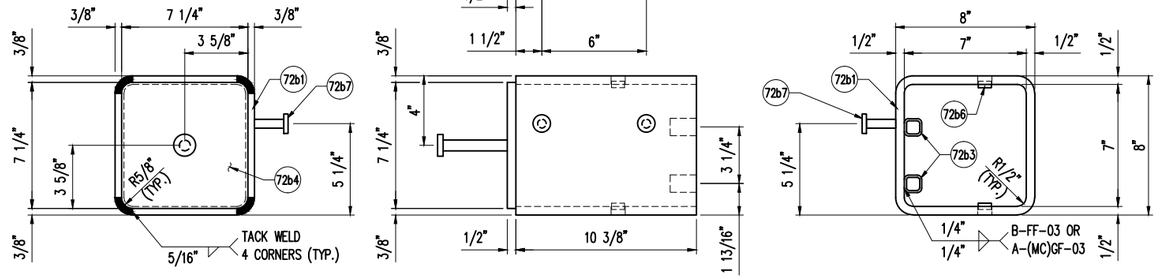


ITEM	DESCRIPTION	QTY.
72b1	1/2" THICK SUPPORT BOX TUBE	172
72b3	1" SQUARE X 1 1/2" LONG TUBING	344
72b4	1/2" PLATE END CAP	172
72b5	5/8"ø X 4" STUD ANCHOR	516
72b6	3/4"ø X 3/8" BAR	344

FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '72A'

(172) REQUIRED



ITEM	DESCRIPTION	QTY.
72b1	1/2" THICK SUPPORT BOX TUBE	4
72b3	1" SQUARE X 1 1/2" LONG TUBING	8
72b4	1/2" PLATE END CAP	4
72b7	1/2"ø X 2" STUD ANCHOR	12
72b6	3/4"ø X 3/8" BAR	8

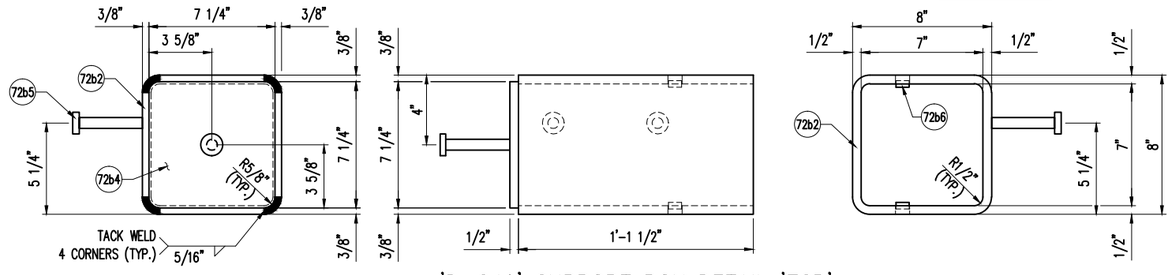
FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '72C'

(4) REQUIRED

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION
SHOP DRAWING

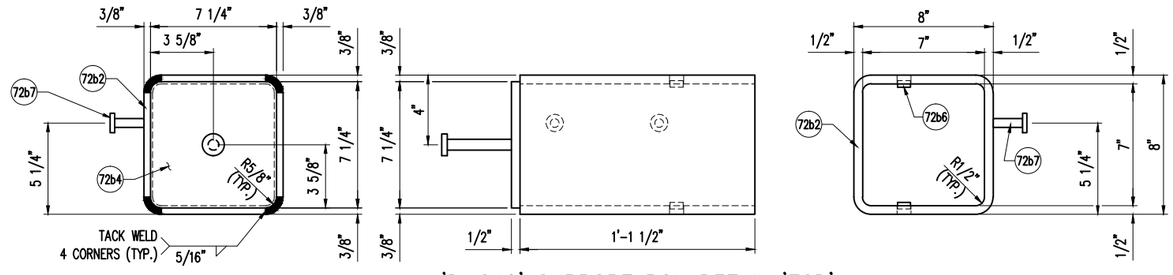


ITEM	DESCRIPTION	QTY.
72b2	1/2" THICK SUPPORT BOX TUBE	172
72b4	1/2" PLATE END CAP	172
72b5	5/8"ø X 4" STUD ANCHOR	516
72b6	3/4"ø X 3/8" BAR	344

FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '72B'

(172) REQUIRED

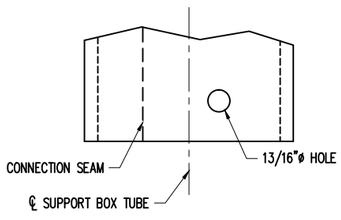


ITEM	DESCRIPTION	QTY.
72b2	1/2" THICK SUPPORT BOX TUBE	4
72b4	1/2" PLATE END CAP	4
72b7	1/2"ø X 2" STUD ANCHOR	12
72b6	3/4"ø X 3/8" BAR	8

FOR SHOP USE ONLY

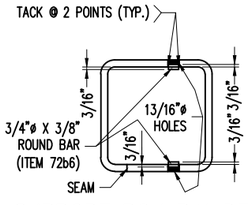
'D-240' SUPPORT BOX DETAIL '72D'

(4) REQUIRED



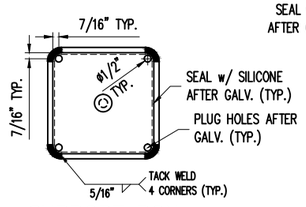
SHOP NOTE:

WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE ℄ OF BOX.



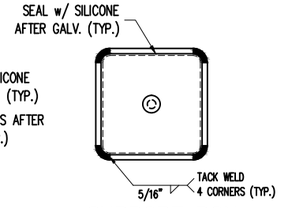
SUPPORT BOX PIN DETAILS

(W/ RUBBER SPRINGS & BEARINGS)



SUPPORT BOX BACK PLATE OPTION NO. 1

(ATTACH PRIOR TO GALV.)



SUPPORT BOX BACK PLATE OPTION NO. 2

(ATTACH AFTER GALV.)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

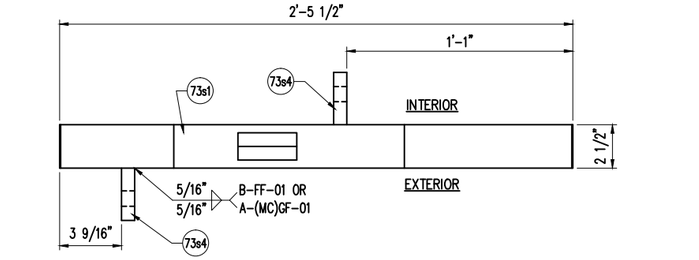
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SUPPORT BOX DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	7 OF 9
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	72	

REVISED
Modular Expansion Joints 12 - 15
DETAILS

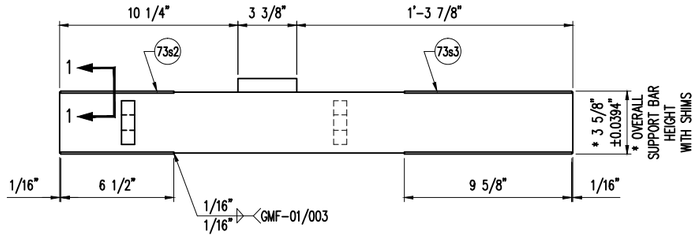
CONSTRUCTION
SHOP DRAWING

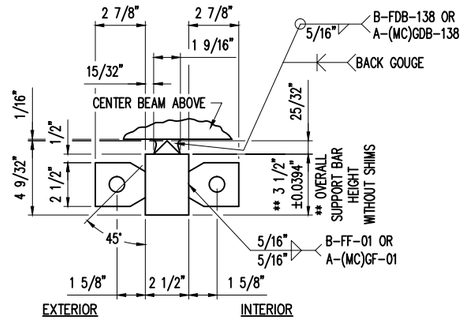


ITEM	DESCRIPTION	QTY.
73s1	2 1/2" X 4 9/32" X 2'-5 1/2" BAR	176
73s2	16GA. X 3 1/8" X 6 1/2" S.S. SHIM	352
73s3	16GA. X 3 1/8" X 9 5/8" S.S. SHIM	352
73s4	3/4" X 2 1/2" X 2 7/8" FLAT BAR	352

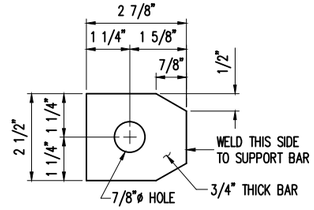
FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.



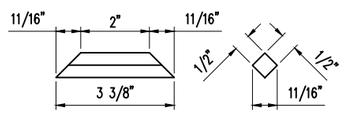


'D-240' SUPPORT BAR DETAILS
(176) REQUIRED



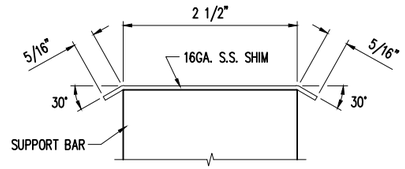
ITEM NO. 73s4
(352) REQ'D.

SPRING STOP DETAIL

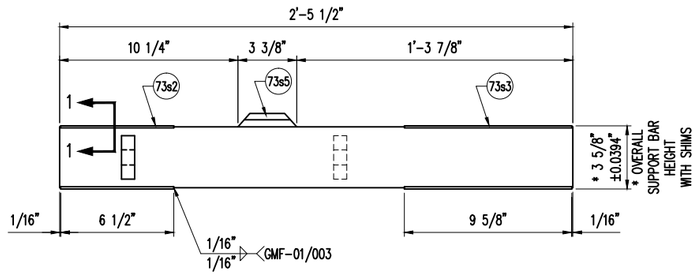


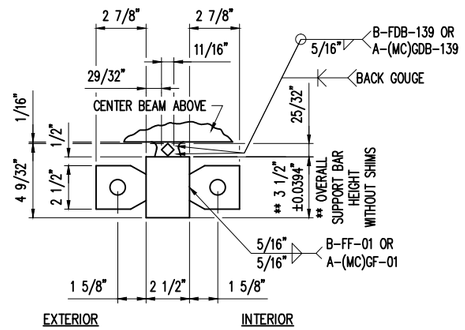
ITEM NO. 73s5
(176) REQ'D.

RIDER BAR DETAIL



SECTION 1-1





OPTIONAL 'D-240' SUPPORT BAR DETAIL (WITH RIDER BAR)
(IN LIEU OF MACHINED SUPPORT BAR)

PAGE 408 H

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	8 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	73

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
69A	4	"D-240" MODULAR EXPANSION JOINT			36'-10 15/16" - JOINT 12, 13, 14 & 15 (WESTBOUND)	9046	
68h1	240	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
68h2	152	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
68k1	120	CONTROL SPRING (80MM)	-		PLAIN	1	
68k2	120	NYLON PIN (80MM)	-		PLAIN	< 1	
68k3	240	HITCH PIN	-		PLAIN	< 1	
68k4	160	PRECOMPRESSED SPRING	-		PLAIN	< 1	
68k5	160	SLIDE BEARING	-		PLAIN	1	
68p1	80	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
68p2	160	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
68p3	160	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
68p4	160	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
68p5	160	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
69r1	8	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
69r2	8	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
69r3	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 3/16	A123-HDG	460	
69r4	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 3/16	A123-HDG	460	
69r5	16	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
69r6	8	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-7 15/16	A123-HDG	1229	
69y1	4	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
69y2	12	L2-400 GLAND	NEOPRENE	37'-0	444'-0" TOTAL;	59	
70g1	32	1/2 X 6 5/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
72b1	80	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
72b2	80	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
72b3	160	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
72b4	160	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
72b5	480	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
72b6	320	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
73s1	80	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
73s2	160	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
73s3	160	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
73s4	160	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
69B	4	"D-240" MODULAR EXPANSION JOINT			36'-11 11/16" - JOINT 12, 13, 14 & 15 (EASTBOUND)	9056	
68h1	240	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
68h2	160	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
68k1	120	CONTROL SPRING (80MM)	-		PLAIN	1	
68k2	120	NYLON PIN (80MM)	-		PLAIN	< 1	
68k3	240	HITCH PIN	-		PLAIN	< 1	
68k4	160	PRECOMPRESSED SPRING	-		PLAIN	< 1	
68k5	160	SLIDE BEARING	-		PLAIN	1	
68p1	80	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
68p2	160	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
68p3	160	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
68p4	160	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
68p5	160	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
69r1	8	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
69r2	8	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
69r5	16	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
69r7	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 15/16	A123-HDG	461	
69r8	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 15/16	A123-HDG	461	
69r9	8	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-8 11/16	A123-HDG	1232	
69y1	4	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
69y2	12	L2-400 GLAND	NEOPRENE	37'-0	444'-0" TOTAL;	59	
70g1	24	1/2 X 6 5/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
72b1	80	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
72b2	80	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
72b3	160	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
72b4	160	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
72b5	480	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
72b6	320	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
73s1	80	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
73s2	160	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
73s3	160	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
73s4	160	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
69C	4	"D-240" MODULAR EXPANSION JOINT			6'-9" - JOINT 12, 13, 14 & 15 (SIDEWALK)	1696	
68h1	48	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
68h2	16	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
68k1	24	CONTROL SPRING (80MM)	-		PLAIN	1	
68k2	24	NYLON PIN (80MM)	-		PLAIN	< 1	
68k3	48	HITCH PIN	-		PLAIN	< 1	
68k4	32	PRECOMPRESSED SPRING	-		PLAIN	< 1	
68k5	32	SLIDE BEARING	-		PLAIN	1	
68p1	16	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
68p2	32	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
68p3	32	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
68p4	32	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
68p5	32	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
69r10	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
69r11	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
69r12	8	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
69y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
69y2	12	L2-400 GLAND	NEOPRENE	7'-0	84'-0" TOTAL;	11	
70g1	8	1/2 X 6 5/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
70g2	8	1/2 X 6 1/2	A36	0'-7 1/2	DIAPHRAGM SUPPORT PLATE; A123-HDG	7	
72b1	16	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
72b2	16	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
72b3	32	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
72b4	32	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
72b5	80	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
72b6	64	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
72b7	16	Ø1/2 X 2 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
73s1	16	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
73s2	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
73s3	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
73s4	32	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			4/28/2014 11:11:32 AM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
70GA	64	JOINT SUPPORT ITEM				19	
70g3	64	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
70GB	8	JOINT SUPPORT ITEM				7	
70g4	8	WT6X29	A36	0'-3	CUT FROM W12 X 58; A123-HDG	7	
70XA	136	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x1	136	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XB	408	JOINT SUPPORT HARDWARE - HEX NUT (ROCAP)				< 1	
70x2	408	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
70XC	800	JOINT SUPPORT HARDWARE - FLAT WASHER (ROCAP)				< 1	
70x3	800	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
70XD	32	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x4	32	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XE	112	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x5	112	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XF	16	JOINT SUPPORT HARDWARE - BEVELED WASHER (ROCAP)				< 1	
70x6	16	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
70XG	48	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x7	48	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XH	16	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x8	16	Ø3/4 X 3 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
70XJ	48	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x9	48	Ø3/4 X 3 1/2 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XK	16	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x10	16	Ø3/4 X 4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XAT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
70t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XBT	24	TESTING HARDWARE - HEX NUT (ROCAP)				< 1	
70t2	24	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
70XCT	48	TESTING HARDWARE - FLAT WASHER (ROCAP)				< 1	
70t3	48	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
70XDT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
70t4	3	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
70XET	6	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
70t5	6	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XFT	6	TESTING HARDWARE - BEVELED WASHER (ROCAP)				< 1	
70t6	6	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
70XGT	3	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70t7	3	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XHT	3	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70t8	3	Ø3/4 X 3 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XJT	3	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70t9	3	Ø3/4 X 3 1/2 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XKT	3	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70t10	3	Ø3/4 X 4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			4/28/2014 11:11:32 AM		

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION
SHOP DRAWING

PAGE 408 I

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

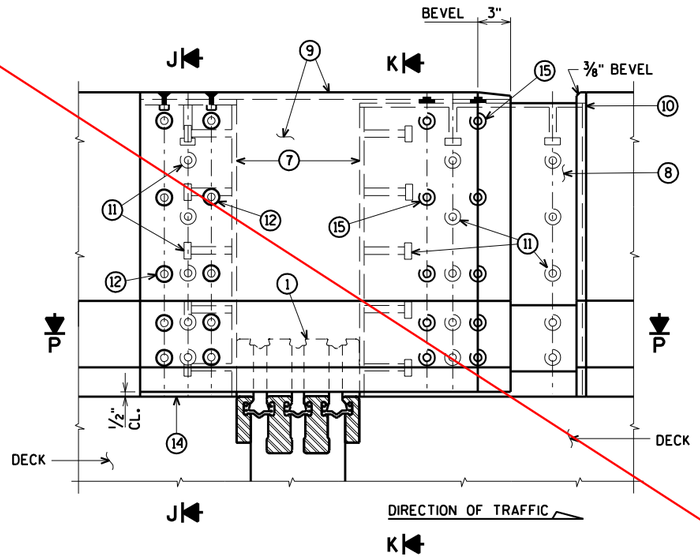
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

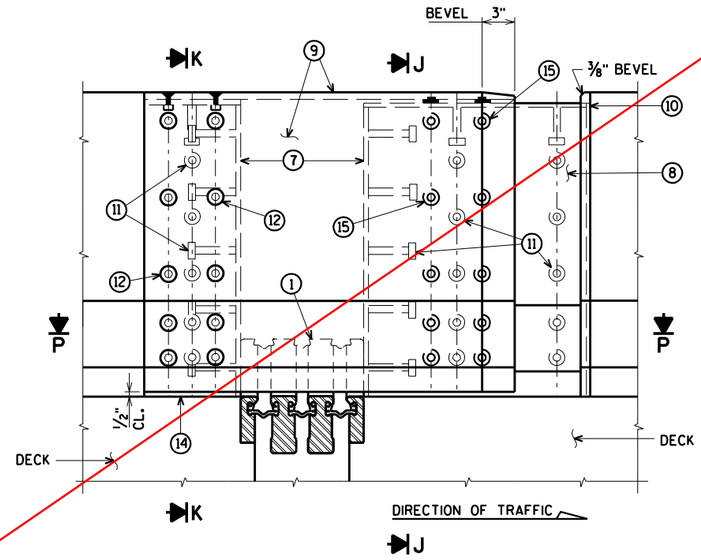
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	9 OF 9
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	74	

STATE PROJECT NUMBER

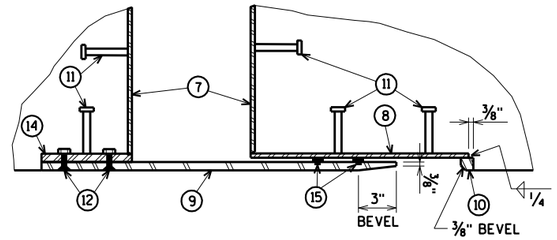
8680-04-71



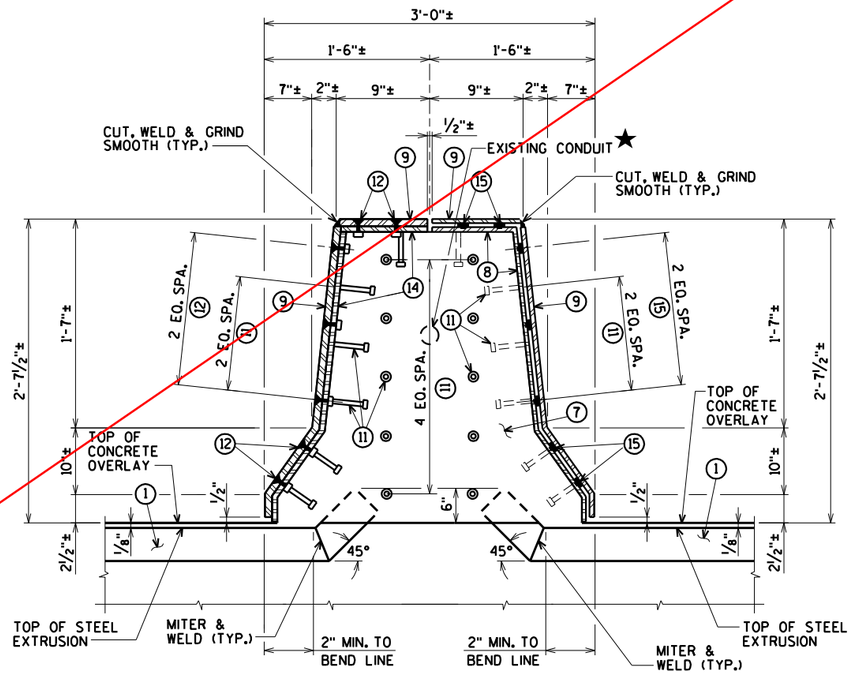
ELEVATION OF MEDIAN PARAPET
SECTION G



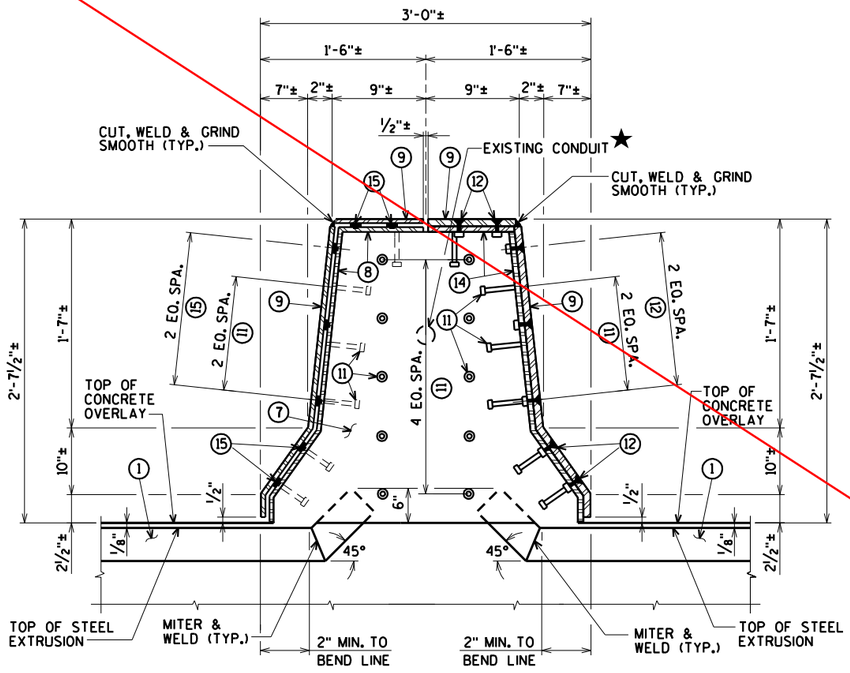
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 61

See revised joint details
PAGE 407 &
PAGE 408.
Cover plate details
PAGE 409.

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

WORK THIS SHEET WITH SHEETS 61-62, 64-65

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXP. JOINTS
11-15, 19, 20 & 22
MEDIAN PARAPET

SHEET 63 OF 99
409

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

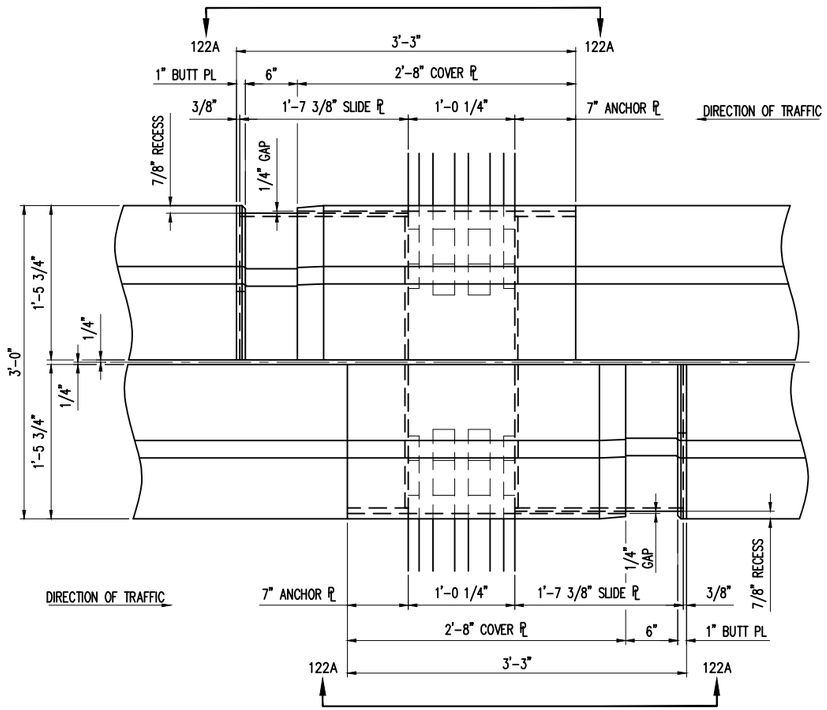
8

8

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42-0825 EXPJT 11-15, 19,20,22.dgn

9/12/2013

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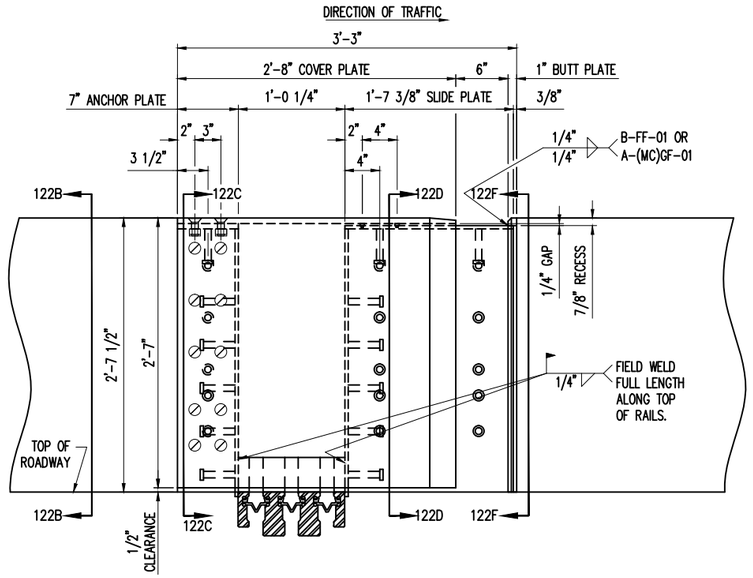


MEDIAN PARAPET COVER PLATE PLAN VIEW

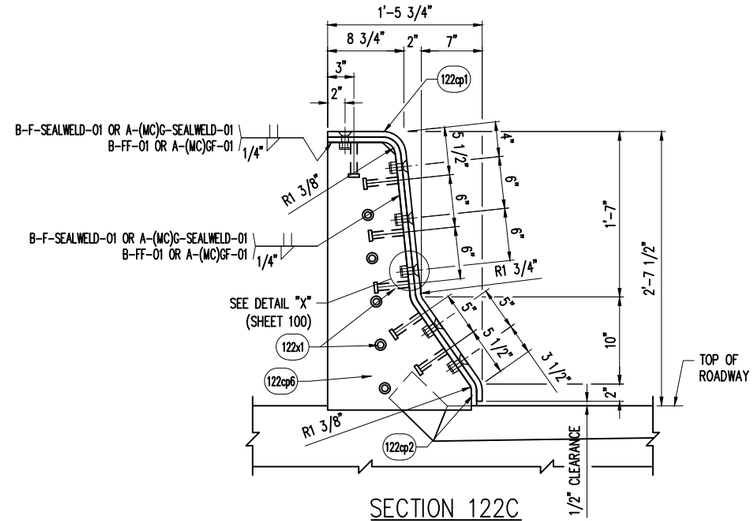
COVER PLATE ASSEMBLY "122CA"
LOCATED AT JOINTS 9, 10, 11–15, 19, 20 & 22 (STRUCTURE B–16–38/69100)
– LOOKING AHEAD STATION –
(20) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING

REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

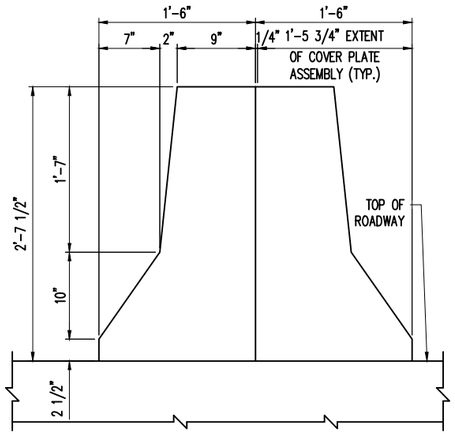


VIEW 122A – MEDIAN PARAPET COVER PLATE ELEVATION



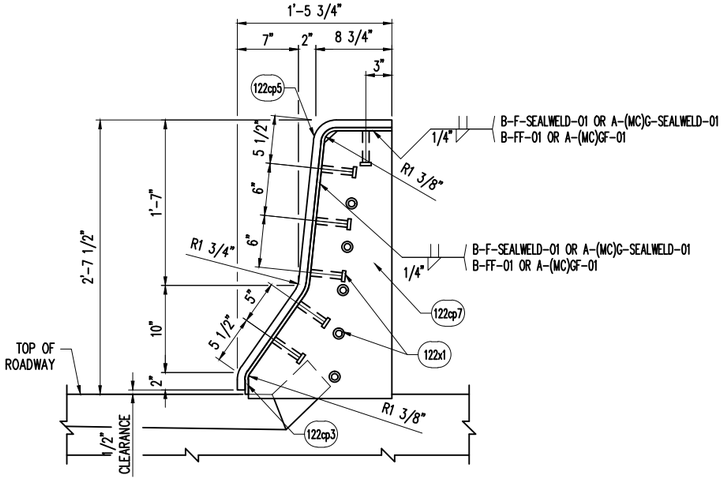
SECTION 122C

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE



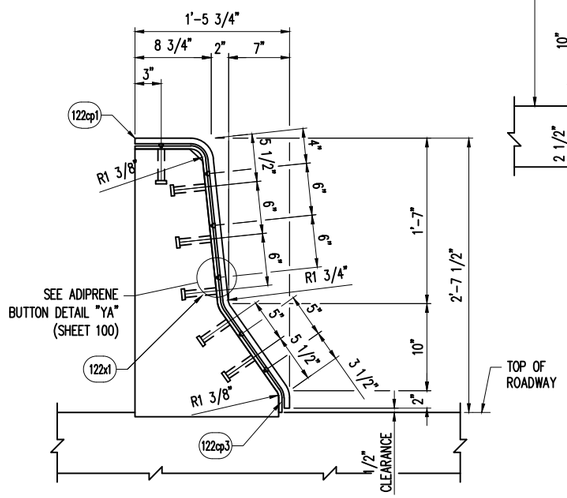
SECTION 122B

THROUGH MEDIAN BARRIER



SECTION 122F

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE



SECTION 122D

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
122CA	20	MEDIAN PARAPET COVER PLATE ASSEMBLY				530	-
100x1	240	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	-
100x2	240	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	-
100x3	240	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	-
100x4	240	ADIPRENE BUTTONS	-		PLAIN	< 1	-
122cp1	20	5/8 X 32	A36	3'-7 5/8	COVER PLATE; A123-HDG	247	-
122cp2	20	5/8 X 7	A36	3'-7 1/8	ANCHOR PLATE; A123-HDG	53	-
122cp3	20	3/8 X 19 3/8	A36	3'-6 15/16	SLIDE PLATE; A123-HDG	88	-
122cp5	20	7/8 X 1	A36	3'-7 3/8	BUTT PLATE; A123-HDG	11	-
122cp6	20	3/8 X 16 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	54	-
122cp7	20	3/8 X 16 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	54	-
122x1	560	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	-
		*Approx. Gross Wt. Lbs Per Single Unit			5/29/2014 8:08:35 AM		

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 123
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

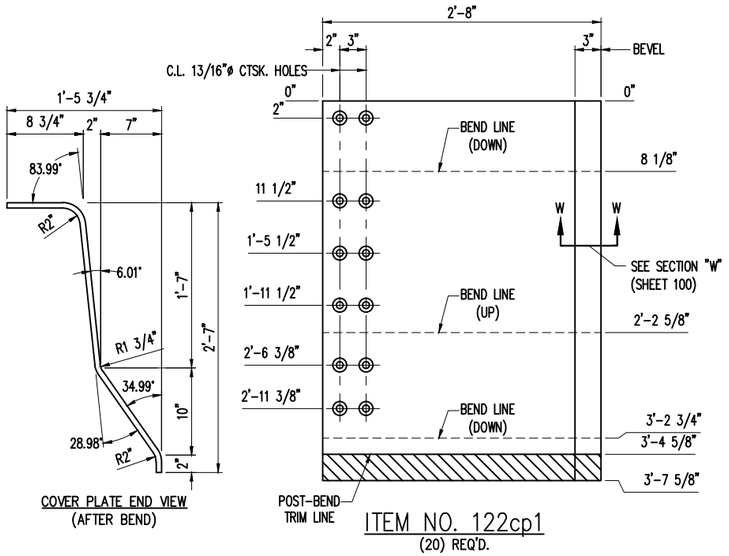
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

DESCRIPTION: COVER PLATE DETAILS
DOUGLAS COUNTY, WI

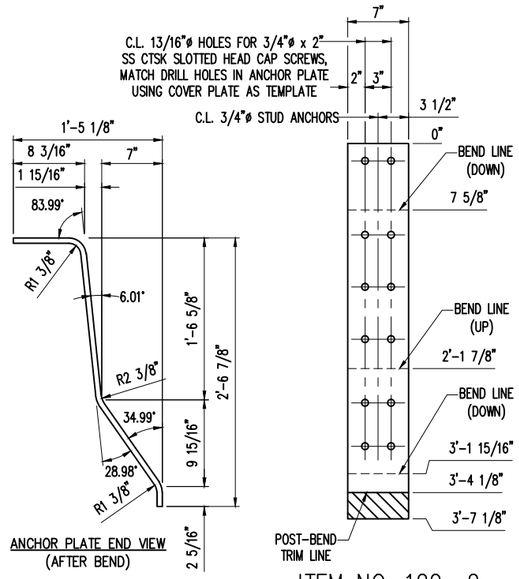
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	23 OF 47

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	122



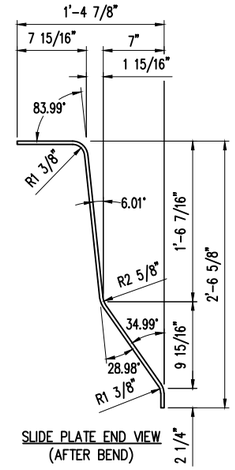
ITEM NO. 122cp1
(20) REQ'D.

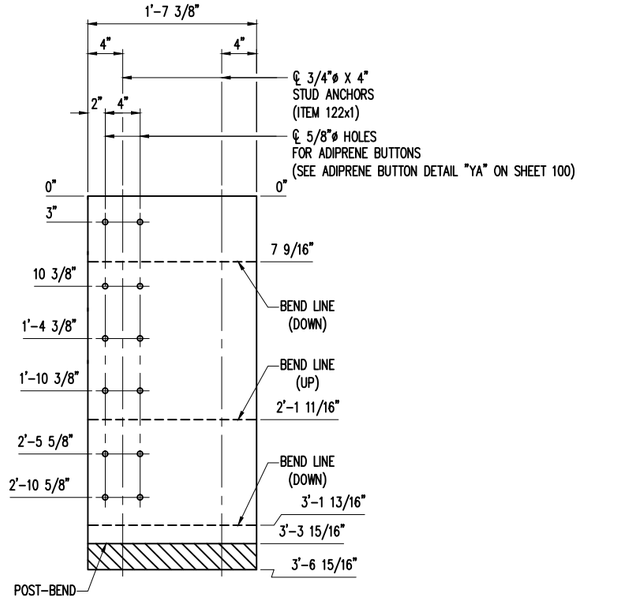
COVER PLATE



ITEM NO. 122cp2
(20) REQ'D.

ANCHOR PLATE



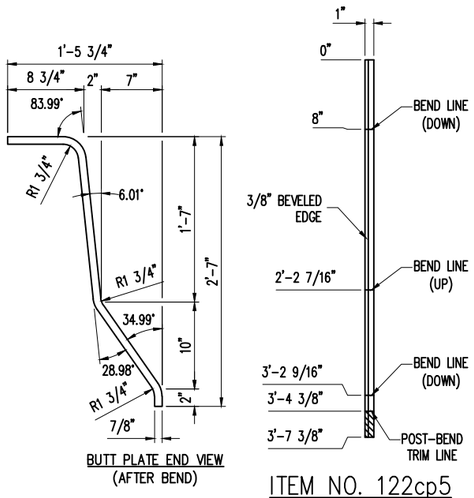


ITEM NO. 122cp3
(20) REQ'D.

SLIDE PLATE

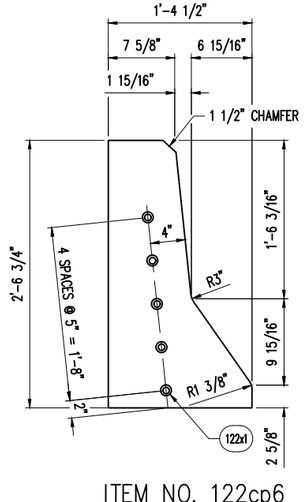
REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING



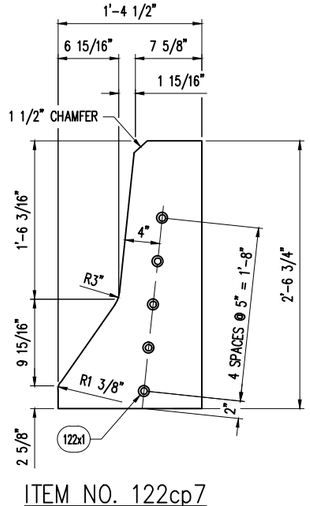
ITEM NO. 122cp5
(20) REQ'D.

FRONT BUTT PLATE



ITEM NO. 122cp6
(20) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 122cp7
(20) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

SHOP NOTES:

- SEE MEDIAN PARAPET DETAILS ON SHEET 122
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 122

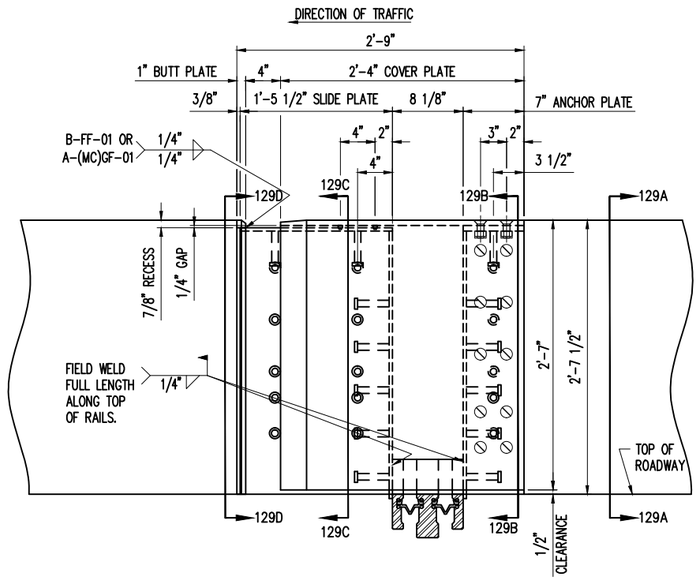
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	24 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	123	

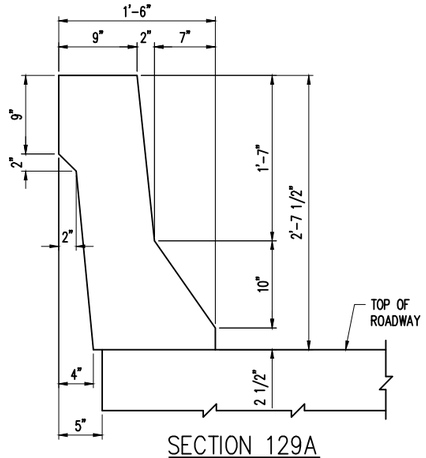


EXTERIOR PARAPET COVER PLATE ELEVATION

COVER PLATE ASSEMBLY "129CA"
LOCATED AT JOINTS 21 & 23 (STRUCTURE B-16-38/69100)
(2) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING

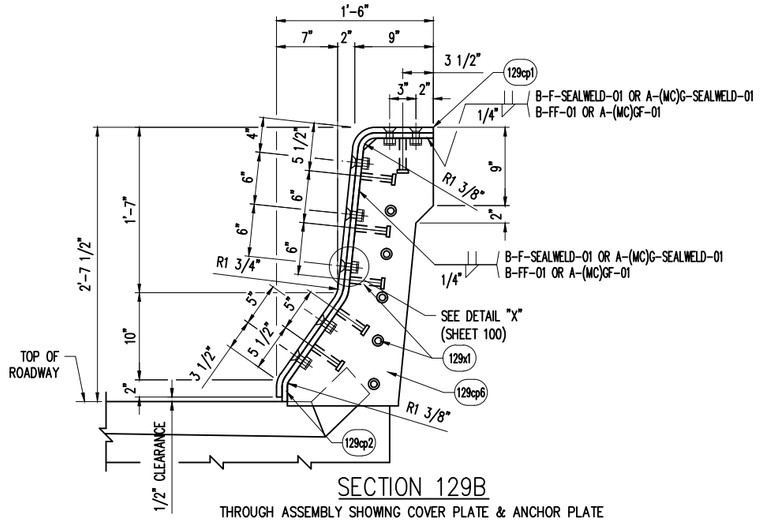
REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING



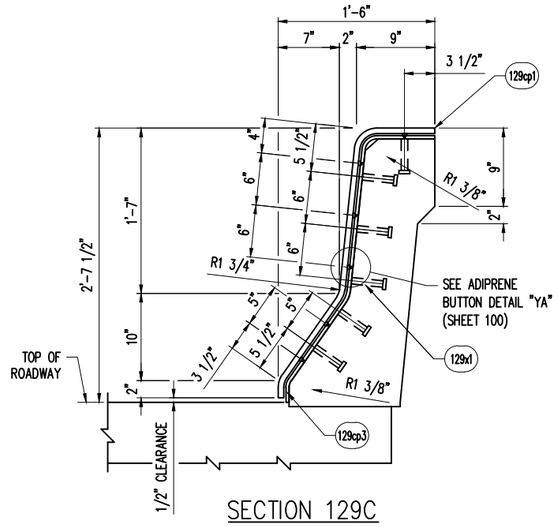
SECTION 129A

THROUGH EXTERIOR BARRIER



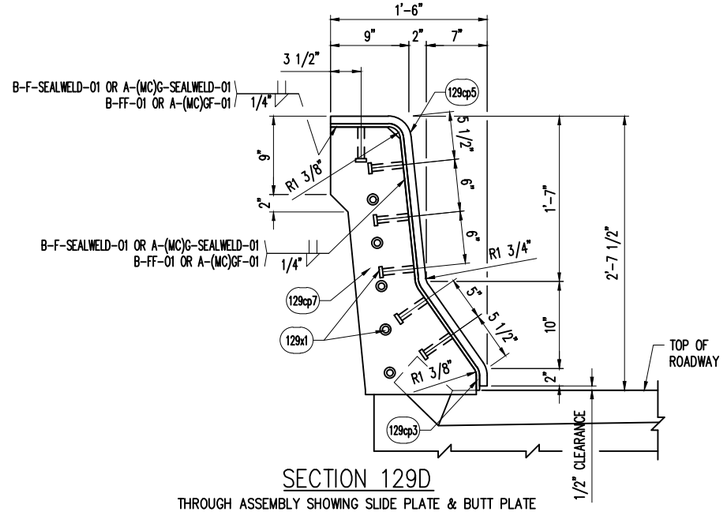
SECTION 129B

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE



SECTION 129C

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE



SECTION 129D

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
129CA	2	EXTERIOR PARAPET COVER PLATE ASSEMBLY				496	-
100x1	28	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	-
100x2	28	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	-
100x3	28	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	-
100x4	24	ADIPRENE BUTTONS	-		PLAIN	< 1	-
129cp1	2	5/8 X 28	A36	3'-7 7/8	COVER PLATE; A123-HDG	218	-
129cp2	2	5/8 X 7	A36	3'-7 3/8	ANCHOR PLATE; A123-HDG	54	-
129cp3	2	3/8 X 17 1/2	A36	3'-7 3/16	SLIDE PLATE; A123-HDG	80	-
129cp5	2	7/8 X 1	A36	3'-7 5/8	BUTT PLATE (FRONT); A123-HDG	11	-
129cp6	2	3/8 X 16 3/4	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	55	-
129cp7	2	3/8 X 16 3/4	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	55	-
129x1	56	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	-
		*Approx. Gross Wt. Lbs Per Single Unit			5/29/2014 8:08:35 AM		

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 130
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

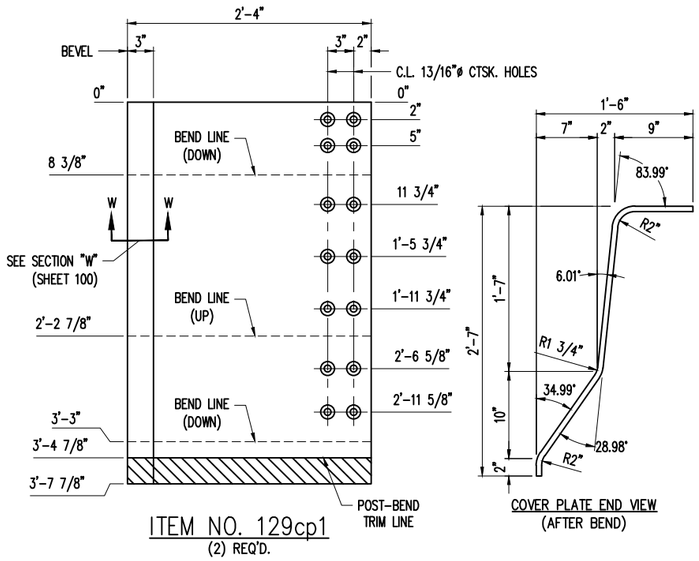
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-

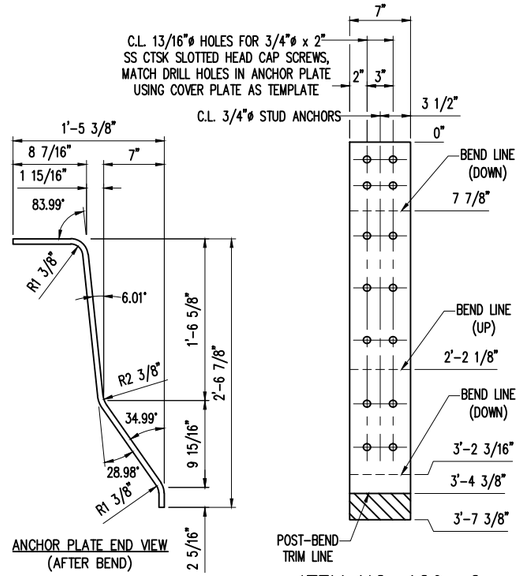
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	30 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	129	



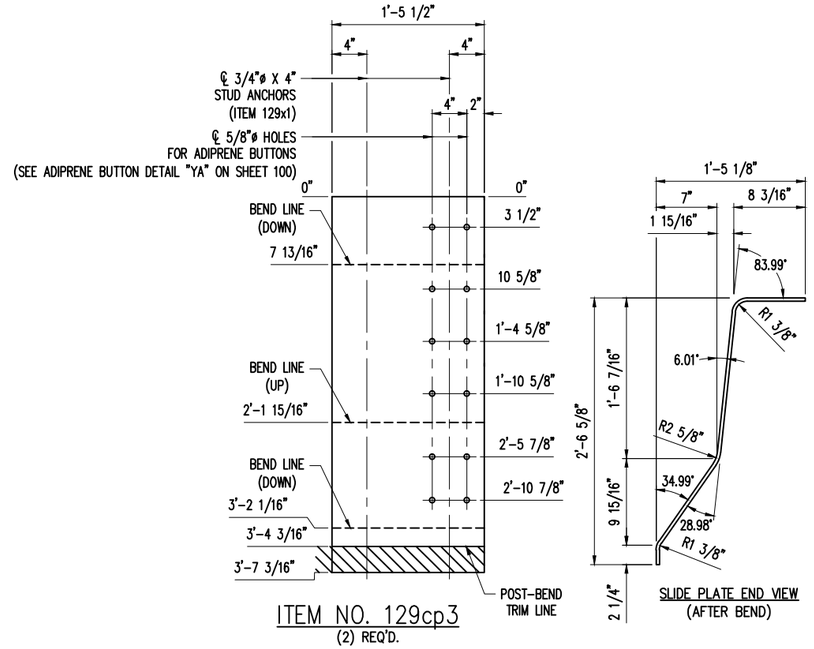
ITEM NO. 129cp1
(2) REQ'D.

COVER PLATE



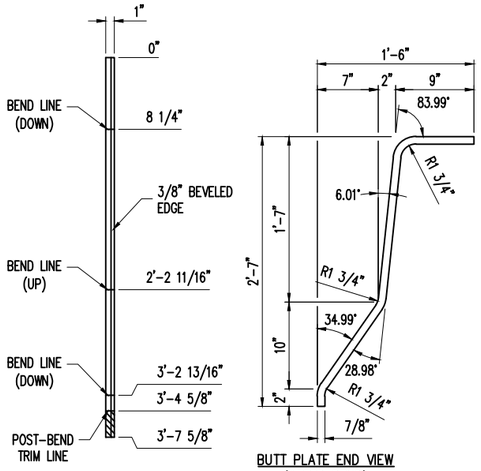
ITEM NO. 129cp2
(2) REQ'D.

ANCHOR PLATE



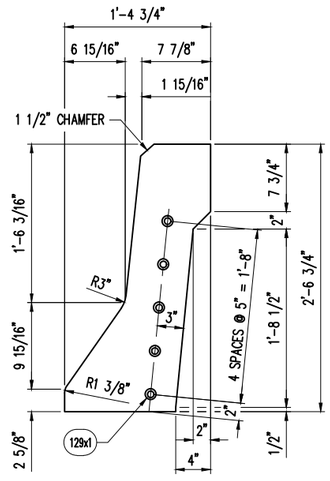
ITEM NO. 129cp3
(2) REQ'D.

SLIDE PLATE



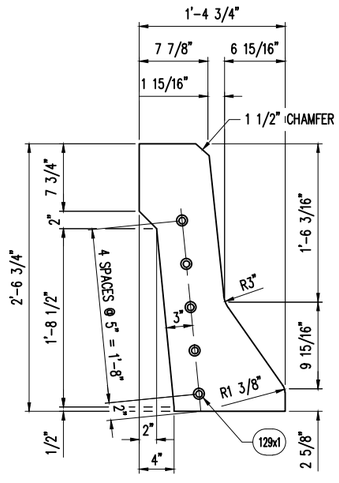
ITEM NO. 129cp5
(2) REQ'D.

FRONT BUTT PLATE



ITEM NO. 129cp6
(2) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 129cp7
(2) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE EXTERIOR PARAPET DETAILS ON SHEET 129
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 129

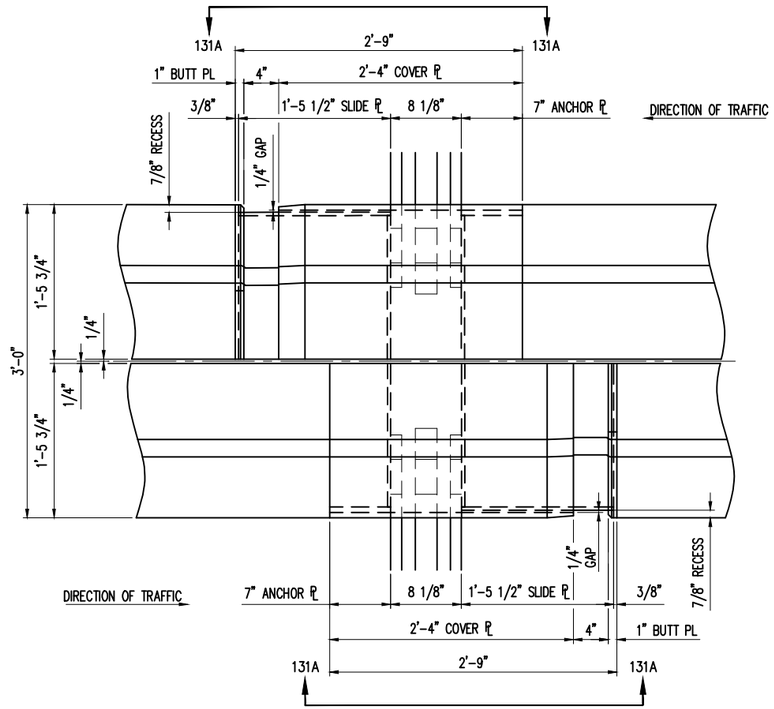
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	31 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	130	

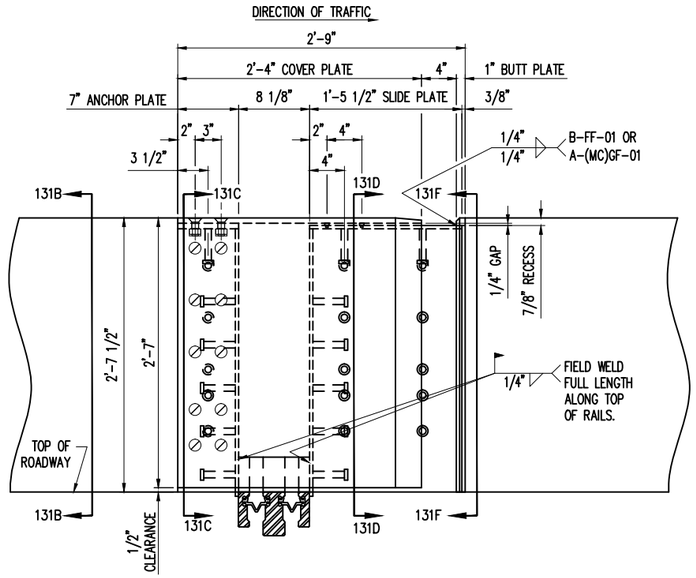


MEDIAN PARAPET COVER PLATE PLAN VIEW

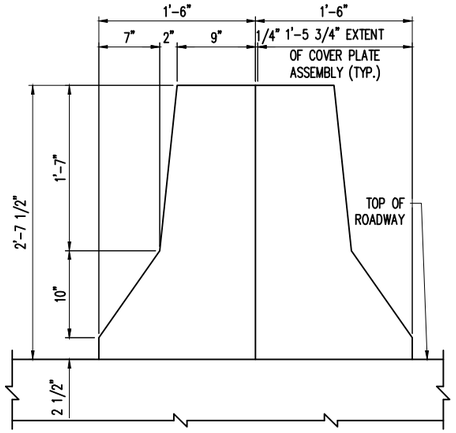
COVER PLATE ASSEMBLY "131CA"
LOCATED AT JOINTS 21 & 23 (STRUCTURE B-16-38/69100)
– LOOKING AHEAD STATION –
(4) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING

REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

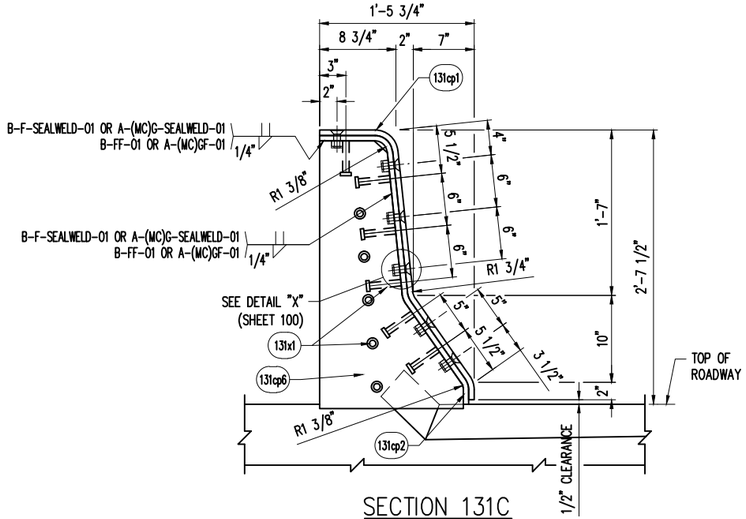


VIEW 131A – MEDIAN PARAPET COVER PLATE ELEVATION



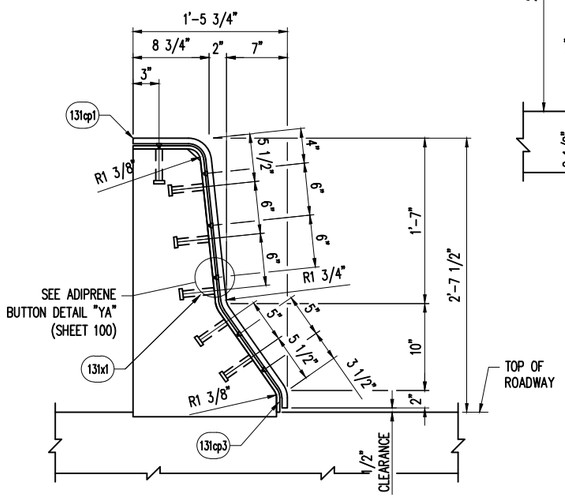
SECTION 131B

THROUGH MEDIAN BARRIER



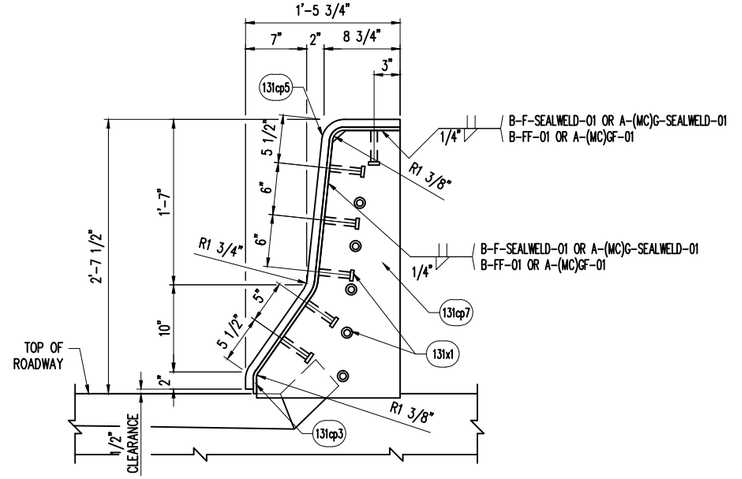
SECTION 131C

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE



SECTION 131D

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE



SECTION 131F

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 132
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
131CA	4	MEDIAN PARAPET COVER PLATE ASSEMBLY				491	-
100x1	48	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	-
100x2	48	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	-
100x3	48	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	-
100x4	48	ADIPRENE BUTTONS	-		PLAIN	< 1	-
131cp1	4	5/8 X 28	A36	3'-7 5/8	COVER PLATE; A123-HDG	216	-
131cp2	4	5/8 X 7	A36	3'-7 1/8	ANCHOR PLATE; A123-HDG	53	-
131cp3	4	3/8 X 17 1/2	A36	3'-6 15/16	SLIDE PLATE; A123-HDG	80	-
131cp5	4	7/8 X 1	A36	3'-7 3/8	BUTT PLATE (FRONT); A123-HDG	11	-
131cp6	4	3/8 X 16 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	54	-
131cp7	4	3/8 X 16 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	54	-
131x1	112	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	-
		*Approx. Gross Wt. Lbs Per Single Unit			5/29/2014 8:08:35 AM		

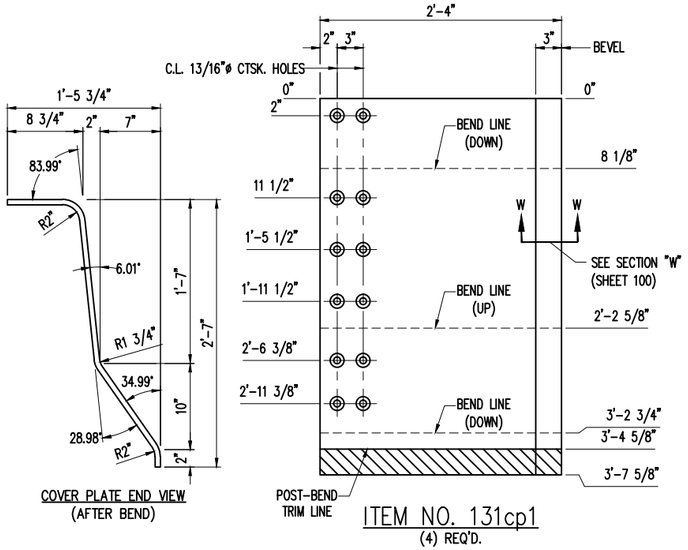
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

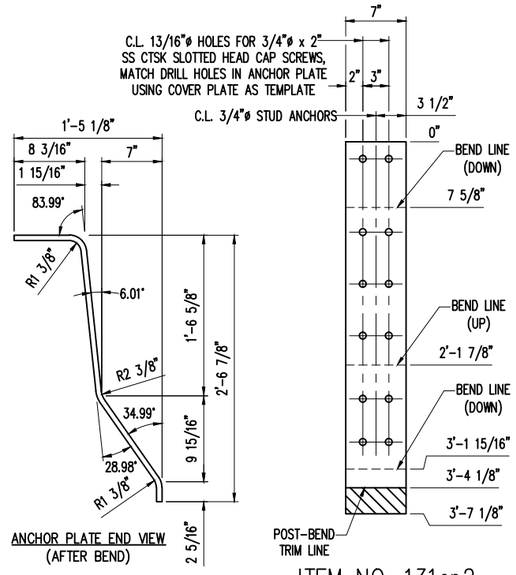
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	32 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	131	



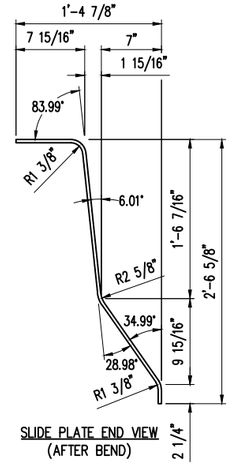
ITEM NO. 131cp1
(4) REQ'D.

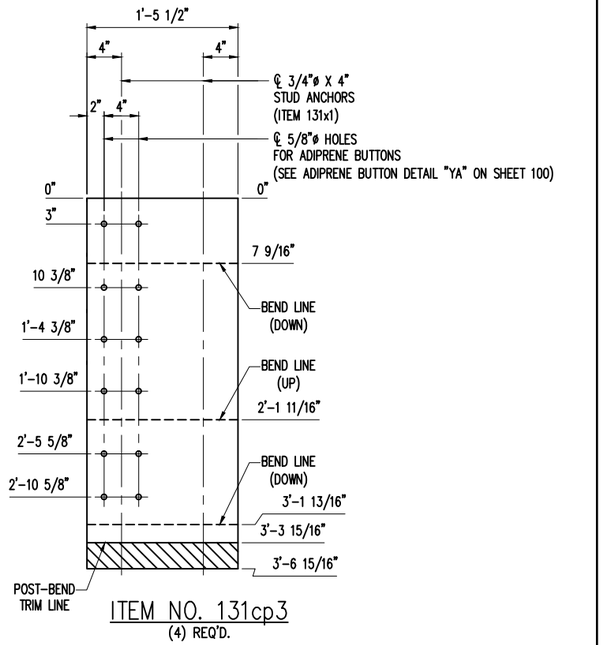
COVER PLATE



ITEM NO. 131cp2
(4) REQ'D.

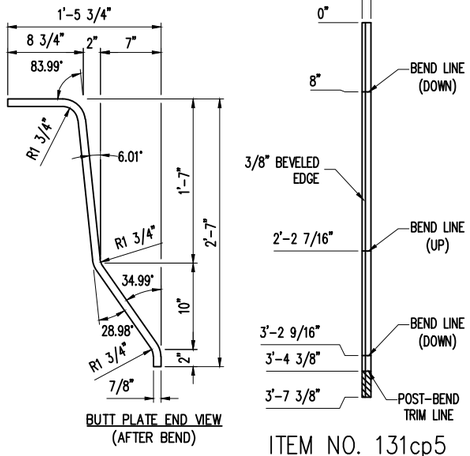
ANCHOR PLATE





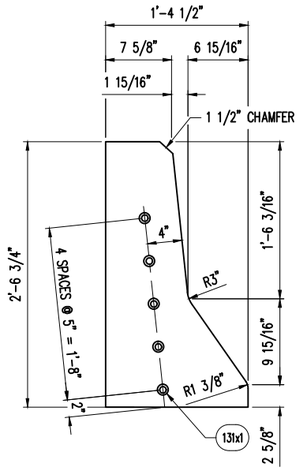
ITEM NO. 131cp3
(4) REQ'D.

SLIDE PLATE



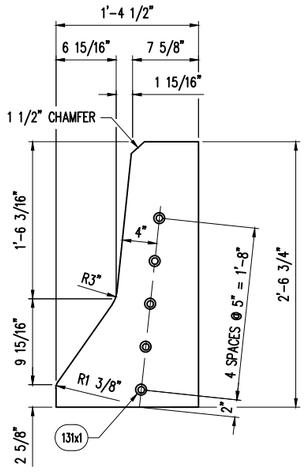
ITEM NO. 131cp5
(4) REQ'D.

FRONT BUTT PLATE



ITEM NO. 131cp6
(4) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 131cp7
(4) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE MEDIAN PARAPET DETAILS ON SHEET 131
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 131

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

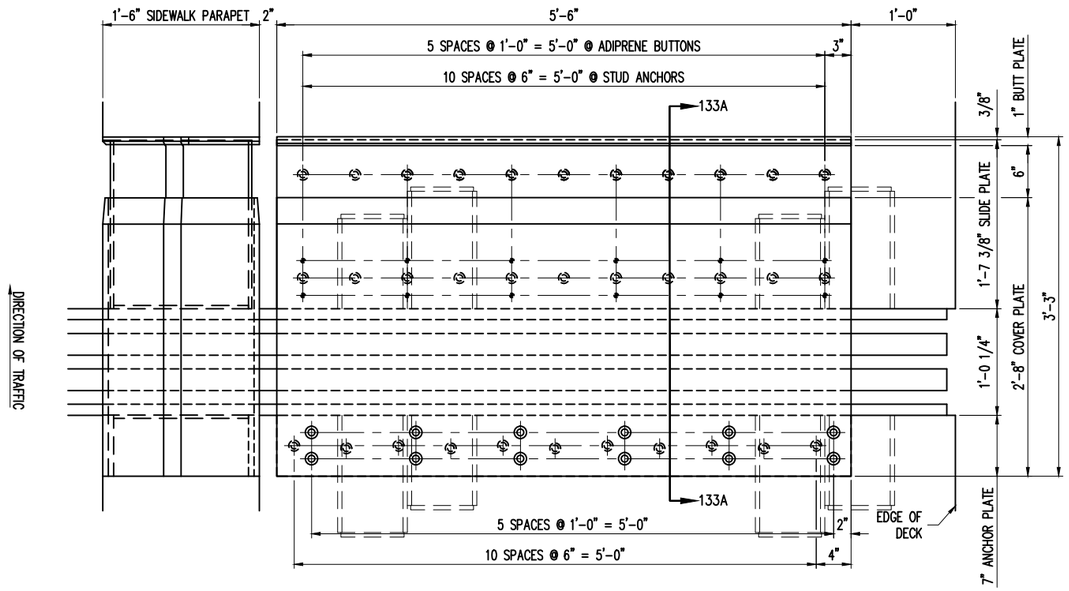
DESCRIPTION: COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	33 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	132	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
133CA	2	SIDEWALK COVER PLATE				628	-
100x1	24	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	-
100x2	24	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	-
100x3	24	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	-
100x4	24	ADIPRENE BUTTONS	-		PLAIN	< 1	-
133cp1	2	5/8 X 32	A36	5'-6	COVER PLATE; A123-HDG	374	-
133cp2	2	5/8 X 7	A36	5'-6	ANCHOR PLATE; A123-HDG	82	-
133cp3	2	3/8 X 19 3/8	A36	5'-6	SLIDE PLATE; A123-HDG	136	-
133cp4	2	7/8 X 1	A36	5'-6	BUTT PLATE; A123-HDG	16	-
133x1	36	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	-
133x2	30	Ø1/2 X 2 WELD STUD	A108		A123-HDG	< 1	-
		*Approx. Gross Wt. Lbs Per Single Unit			5/29/2014 8:08:35 AM		

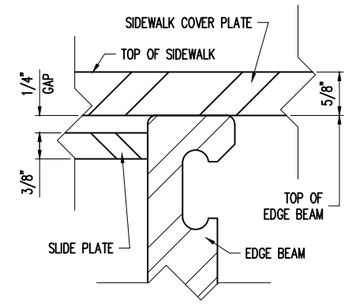
REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

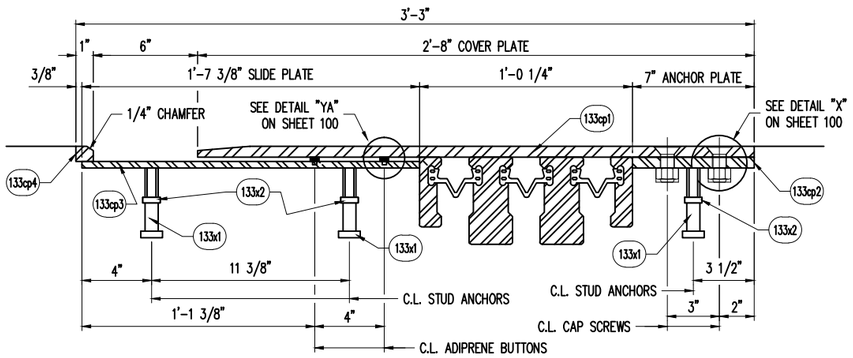


SIDEWALK COVER PLATE PLAN VIEW

COVER PLATE ASSEMBLY "133CA"
LOCATED AT JOINTS 8 & 10 (STRUCTURE B-16-38/69100)
- LOOKING AHEAD STATION -
(2) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING

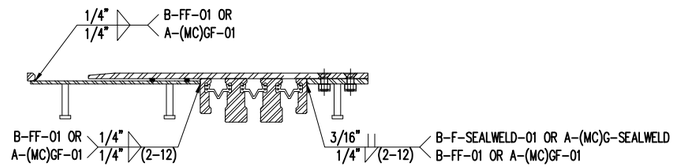


DETAIL @ SLIDE PLATE ONLY



SECTION 133A

(DIMENSIONS SHOWN ARE AT MID. JOINT OPENING)



COVER PLATE WELDS

SHOP NOTES:

- SEE PLATE DETAILS ON SHEET 134
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

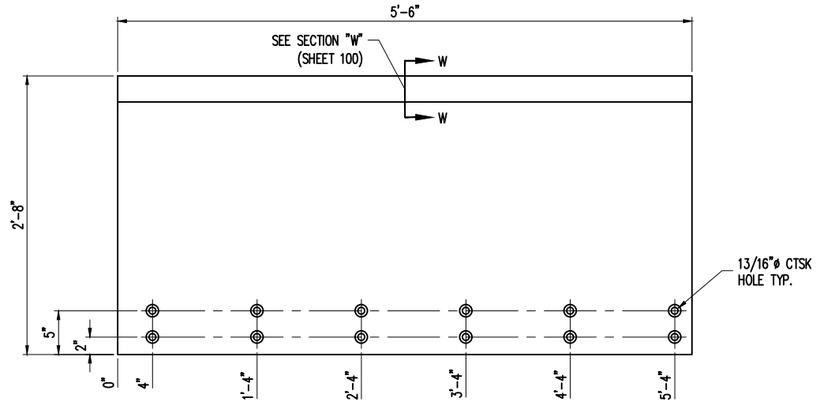
	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	34 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	133	

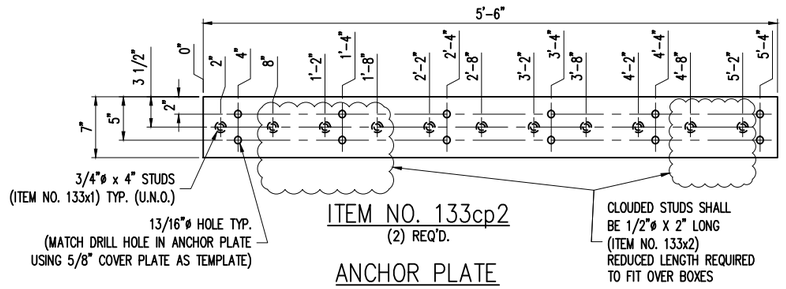
REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING



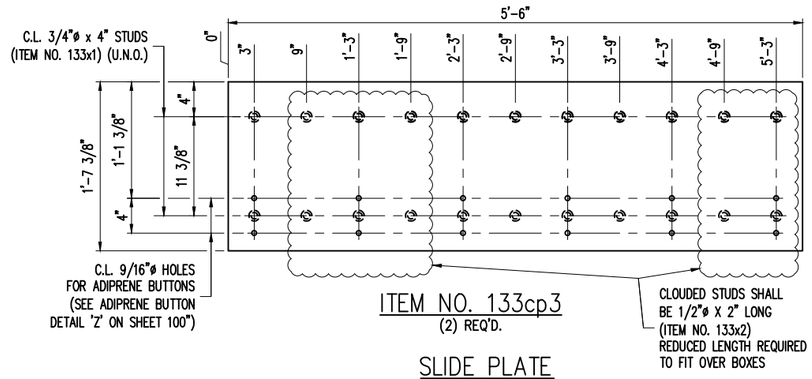
ITEM NO. 133cp1
(2) REQ'D.

COVER PLATE



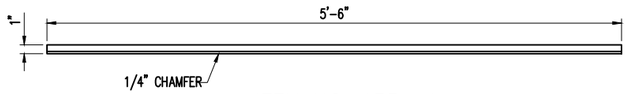
ITEM NO. 133cp2
(2) REQ'D.

ANCHOR PLATE



ITEM NO. 133cp3
(2) REQ'D.

SLIDE PLATE



ITEM NO. 133cp4
(2) REQ'D.

BUTT PLATE

SHOP NOTES:

- SEE SIDEWALK DETAILS ON SHEET 133
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

PAGE 409 H

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

LOCATION — OVER ST. LOUIS RIVER
BRIDGE — B-16-38/69100
PROJECT — 8680-04-71
FEDERAL PROJECT — WISC 2014007
P.O. NO. — -
DESIGNER — AYRES ASSOCIATES
CUSTOMER — LUNDA CONSTRUCTION

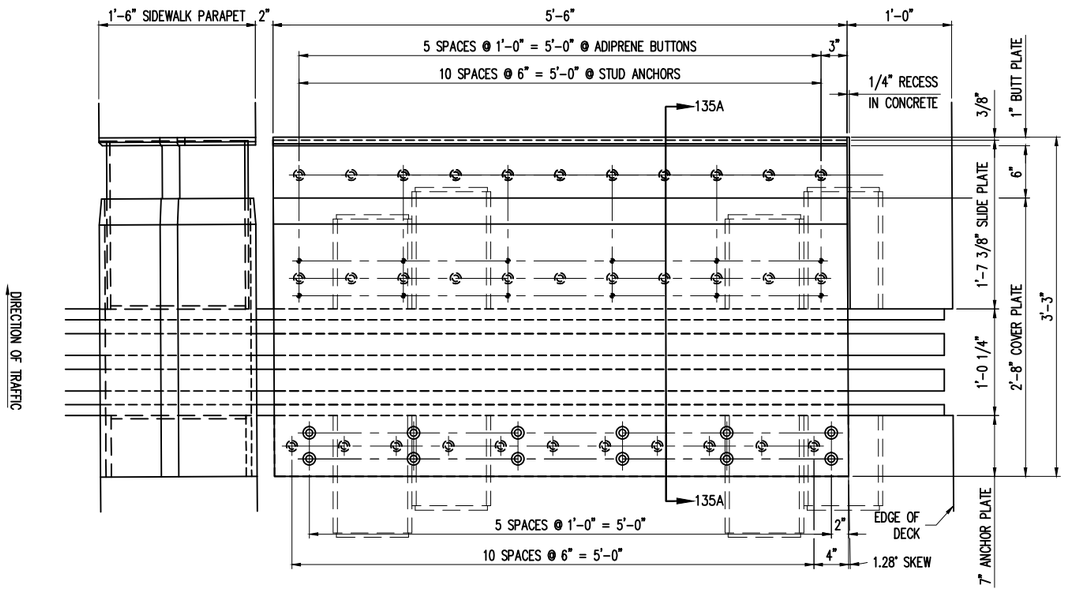
ITEM	QUANTITY
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	35 OF 47

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	134

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
135CA	9	SIDEWALK COVER PLATE				634	-
100x1	108	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	-
100x2	108	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	-
100x3	108	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	-
100x4	108	ADIPRENE BUTTONS	-		PLAIN	< 1	-
135cp1	9	5/8 X 32	A36	5'-6 11/16	COVER PLATE; SHAPE CUT; A123-HDG	378	-
135cp2	9	5/8 X 7	A36	5'-6 3/16	ANCHOR PLATE; SHAPE CUT; A123-HDG	82	-
135cp3	9	3/8 X 19 3/8	A36	5'-6 7/16	SLIDE PLATE; SHAPE CUT; A123-HDG	137	-
135cp4	9	7/8 X 1	A36	5'-6	BUTT PLATE; A123-HDG	16	-
135x1	189	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	-
135x2	108	Ø1/2 X 2 WELD STUD	A108		A123-HDG	< 1	-
		*Approx. Gross Wt. Lbs Per Single Unit			5/29/2014 8:08:35 AM		

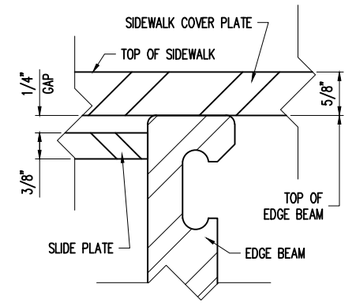


SIDEWALK COVER PLATE PLAN VIEW

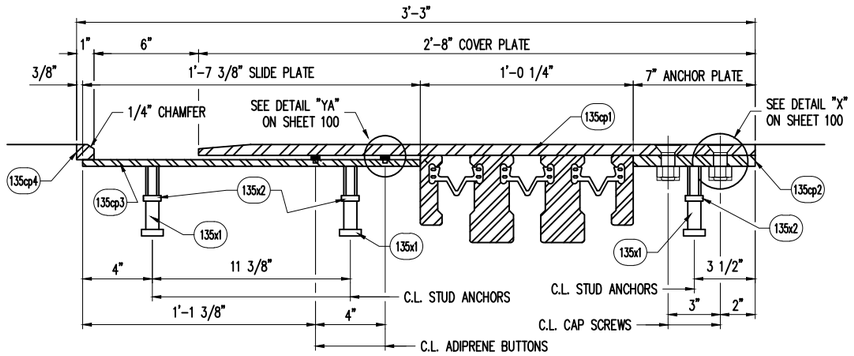
COVER PLATE ASSEMBLY "135CA"
LOCATED AT JOINTS 9, 11-15, 19, 20 & 22 (STRUCTURE B-16-38/69100)
- LOOKING AHEAD STATION -
(9) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING

REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

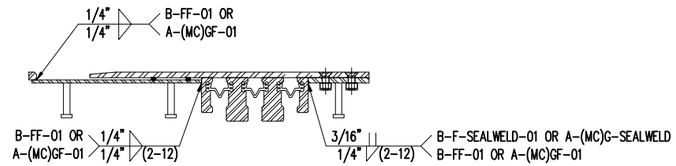


DETAIL @ SLIDE PLATE ONLY



SECTION 135A

(DIMENSIONS SHOWN ARE AT MID. JOINT OPENING)



COVER PLATE WELDS

SHOP NOTES:

- SEE PLATE DETAILS ON SHEET 136
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

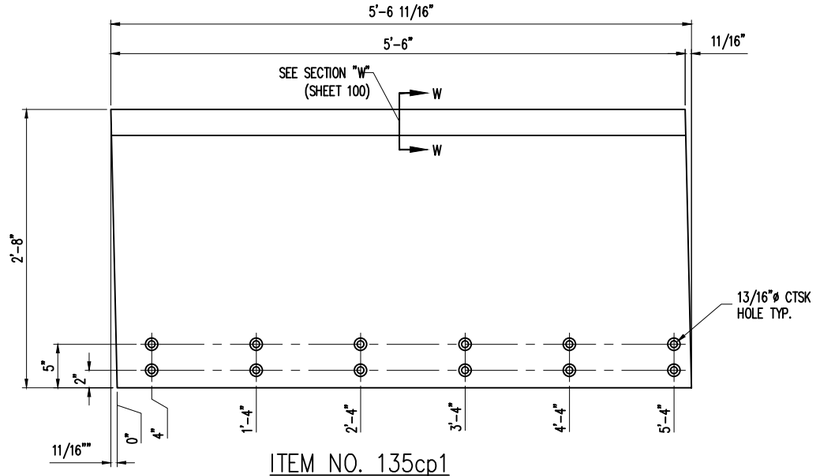
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

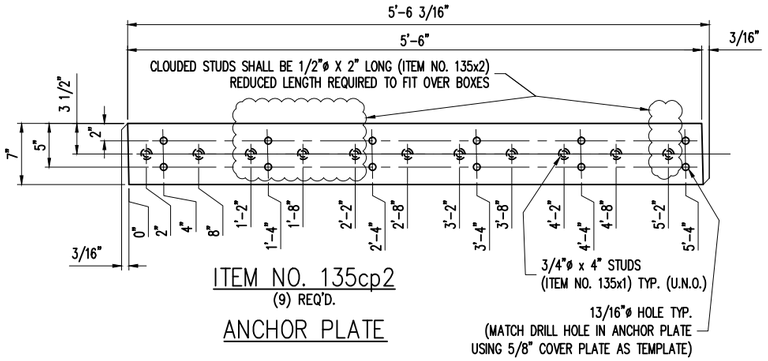
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	36 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	135	



ITEM NO. 135cp1
(9) REQ'D.

COVER PLATE

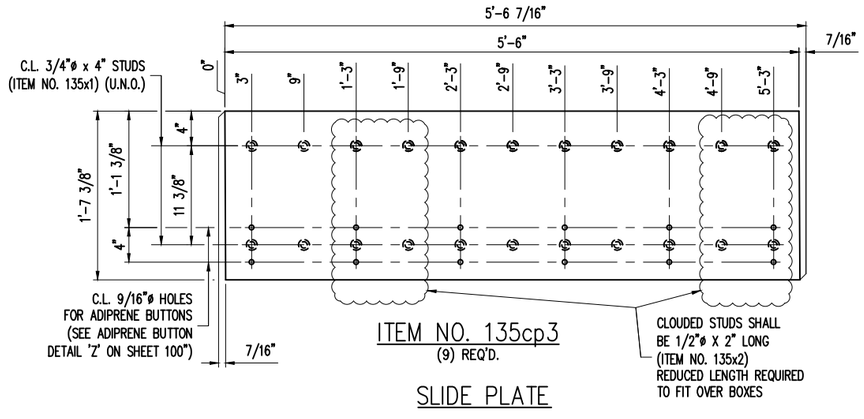


ITEM NO. 135cp2
(9) REQ'D.

ANCHOR PLATE

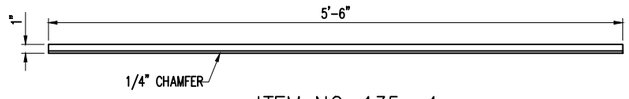
REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING



ITEM NO. 135cp3
(9) REQ'D.

SLIDE PLATE



ITEM NO. 135cp4
(9) REQ'D.

BUTT PLATE

SHOP NOTES:

- SEE SIDEWALK DETAILS ON SHEET 135
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

LOCATION — OVER ST. LOUIS RIVER
BRIDGE — B-16-38/69100
PROJECT — 8680-04-71
FEDERAL PROJECT — WISC 2014007
P.O. NO. — –
DESIGNER — AYRES ASSOCIATES
CUSTOMER — LUNDA CONSTRUCTION

ITEM	QUANTITY
–	–
–	–
–	–
–	–
–	–
–	–
–	–
–	–
–	–

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	37 OF 47

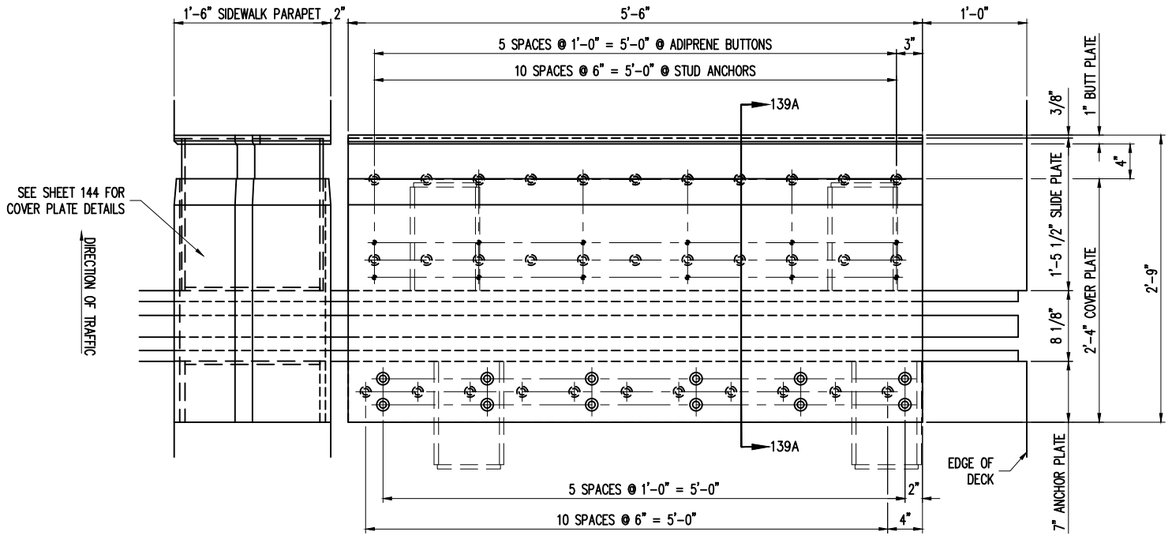
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	136

PAGE 409 J

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
139CA	2	SIDEWALK COVER PLATE				561	-
100x1	24	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	-
100x2	24	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	-
100x3	24	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	-
100x4	24	ADIPRENE BUTTONS	-		PLAIN	< 1	-
139cp1	2	5/8 X 28	A36	5'-6	COVER PLATE; A123-HDG	328	-
139cp2	2	5/8 X 7	A36	5'-6	ANCHOR PLATE; A123-HDG	82	-
139cp3	2	3/8 X 16 3/4	A36	5'-6	SLIDE PLATE; A123-HDG	118	-
139cp4	2	7/8 X 7/8	A36	5'-6	BUTT PLATE; A123-HDG	14	-
139x1	42	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	-
139x2	24	Ø1/2 X 2 WELD STUD	A108		A123-HDG	< 1	-
		*Approx. Gross Wt. Lbs Per Single Unit			5/29/2014 8:08:35 AM		

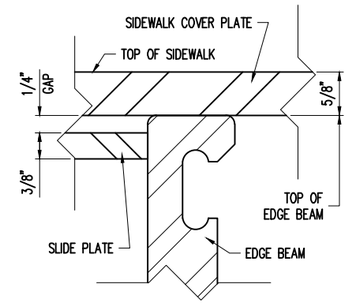
REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

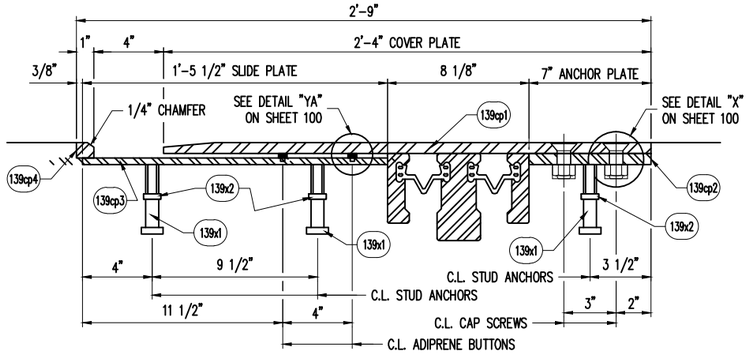


SIDEWALK COVER PLATE PLAN VIEW

COVER PLATE ASSEMBLY "139CA"
LOCATED AT JOINTS 21 & 23 (STRUCTURE B-16-38/69100)
- LOOKING AHEAD STATION -
(2) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING

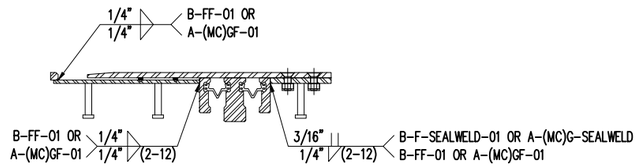


DETAIL @ SLIDE PLATE ONLY



SECTION 139A

(DIMENSIONS SHOWN ARE AT MID. JOINT OPENING)



COVER PLATE WELDS

SHOP NOTES:

- SEE PLATE DETAILS ON SHEET 140
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

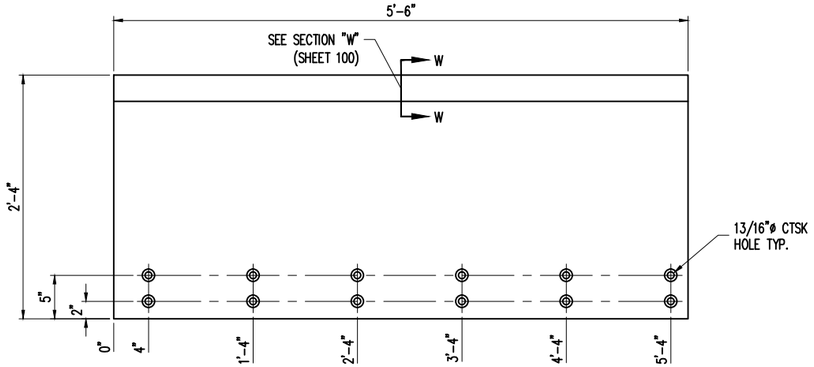
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

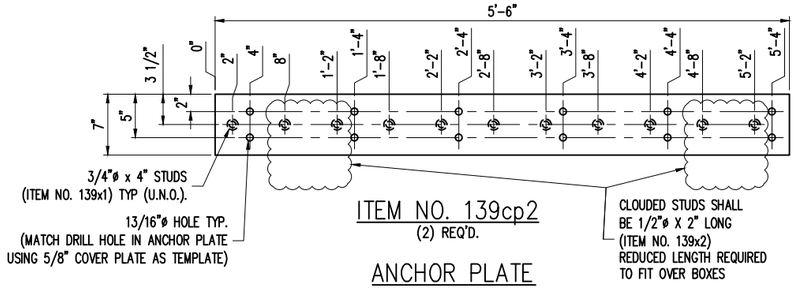
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	40 OF 47

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	139



ITEM NO. 139cp1
(2) REQ'D.

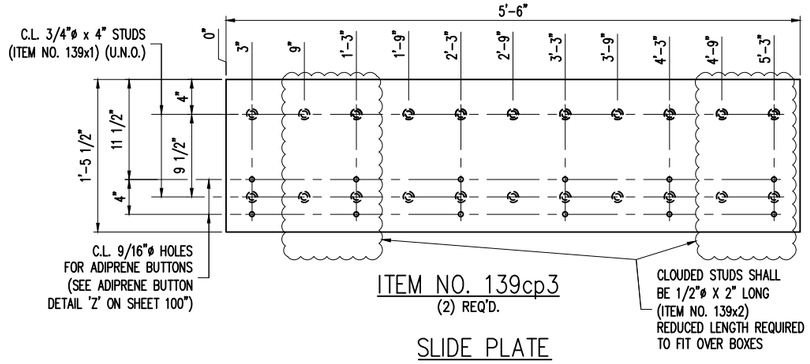
COVER PLATE



ITEM NO. 139cp2
(2) REQ'D.

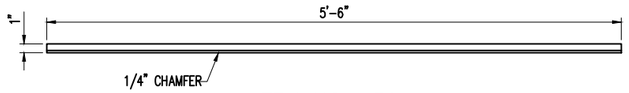
ANCHOR PLATE

REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS



ITEM NO. 139cp3
(2) REQ'D.

SLIDE PLATE



ITEM NO. 139cp4
(2) REQ'D.

BUTT PLATE

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE SIDEWALK DETAILS ON SHEET 139
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

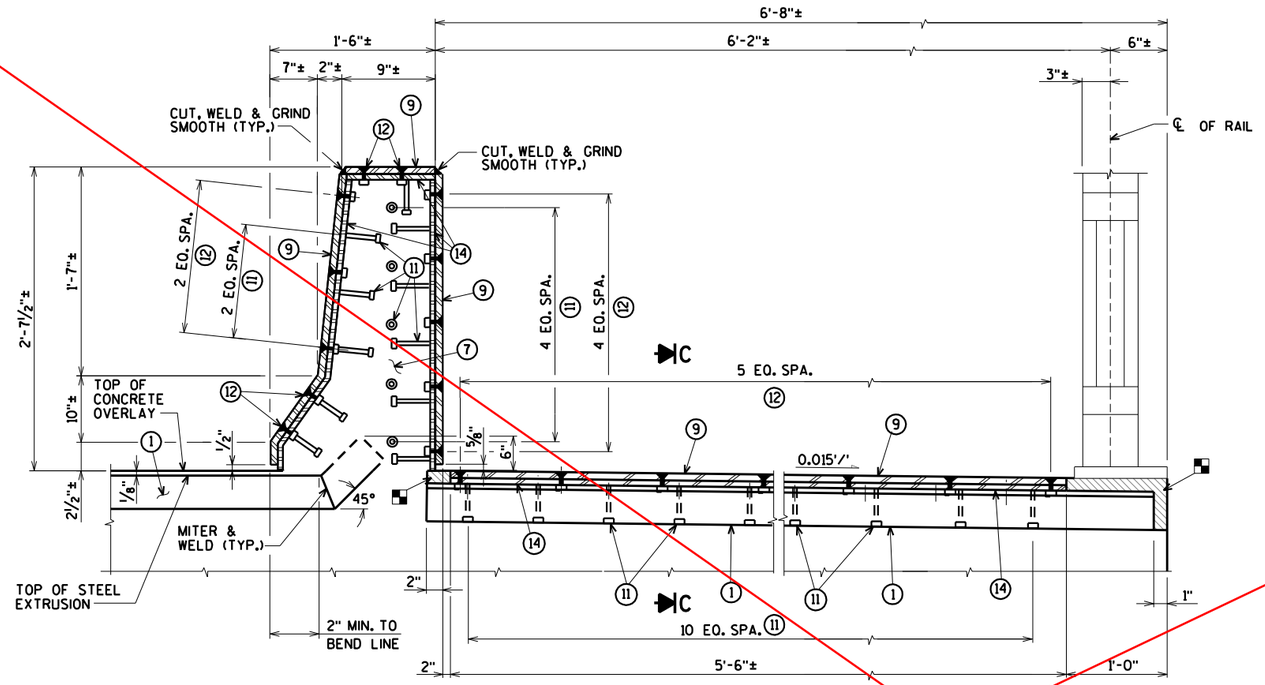
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

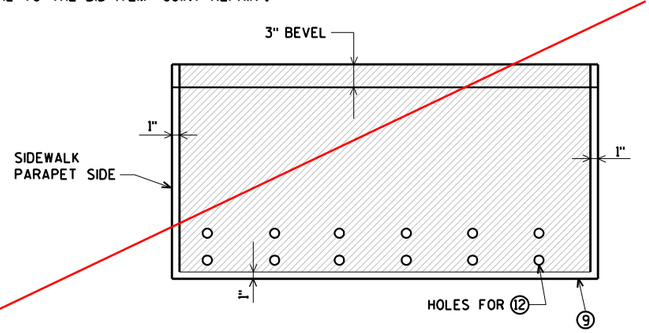
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	41 OF 47

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	140



ELEVATION OF SIDEWALK W/PARAPET SECTION A

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

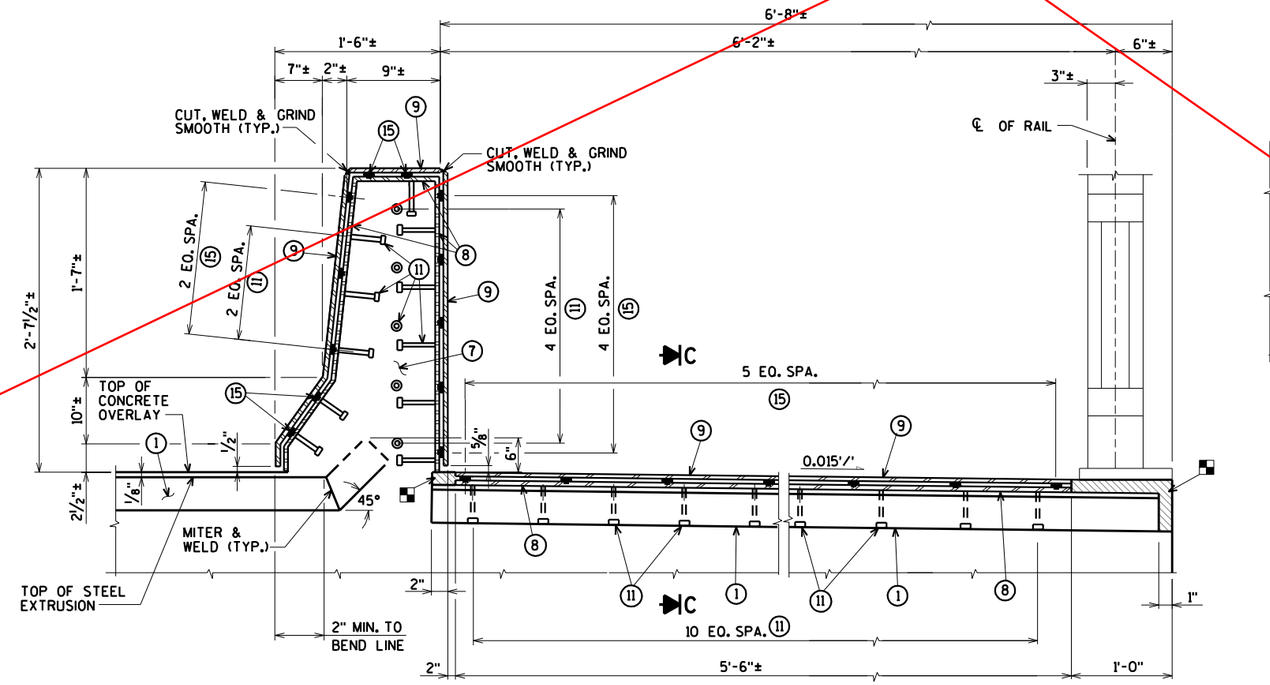


PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE ▲

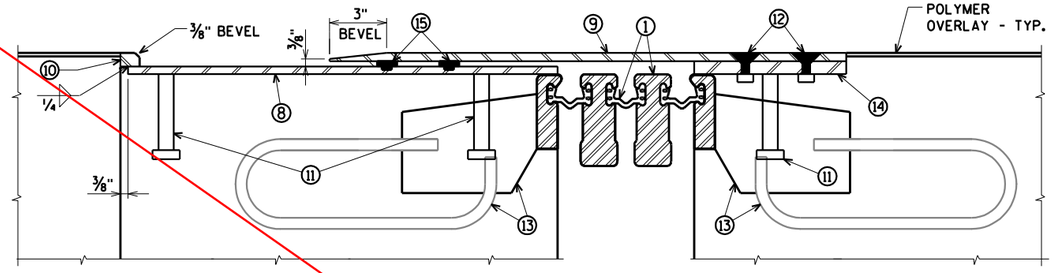
FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 61

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



ELEVATION OF SIDEWALK W/PARAPET SECTION B



SECTION C

■ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

See revised joint details
PAGE 407 &
PAGE 408.
Cover plate details
PAGE 409.

WORK THIS SHEET WITH SHEETS 61-63, 65

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXP. JOINTS 11-15, 19, 20 & 22
SIDEWALK & PARAPET

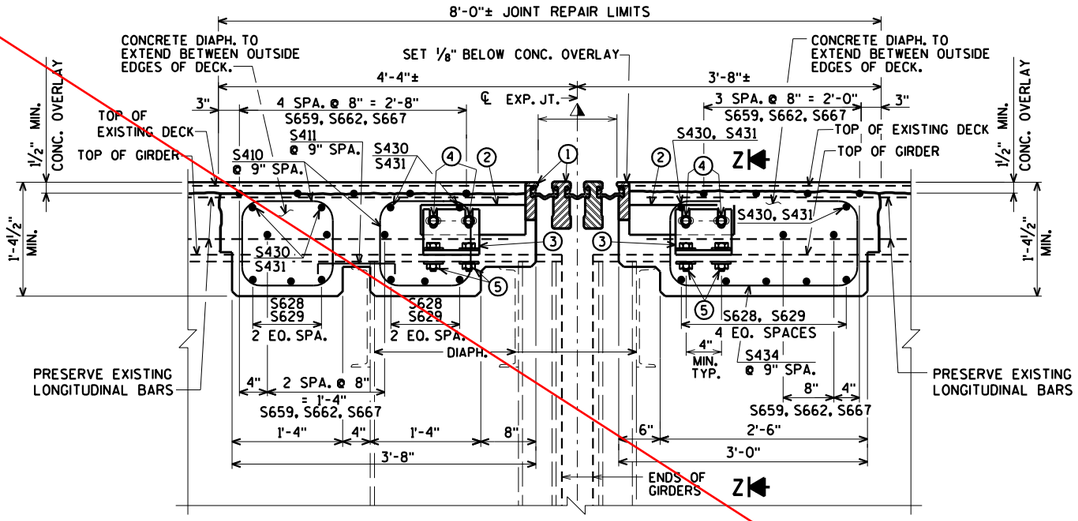
SHEET 64 OF 99
410

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

8

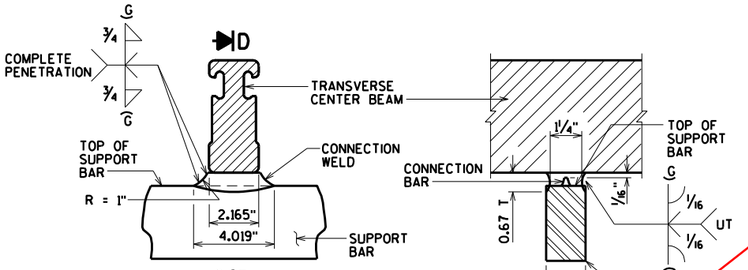
8

$PRFNAME$
U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 EXPJT 8-22 mod dtl.dgn
9/12/2013
PENTABLE:SBReco_Shd_CTB.ctb



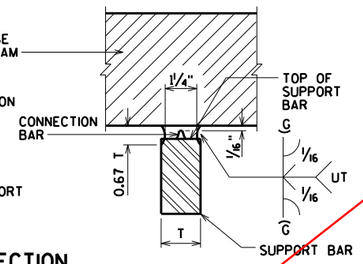
SECTION THRU JOINTS 11 - 15, 19, 20, & 22

NORMAL TO ℄ OF JOINT

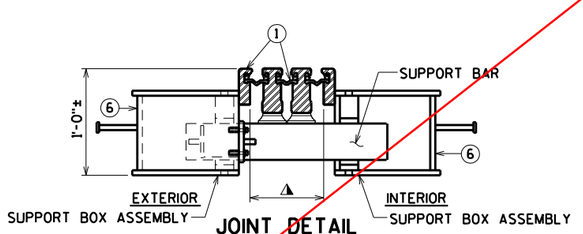


D

MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

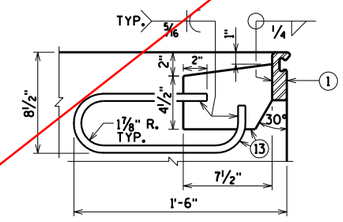


SECTION D



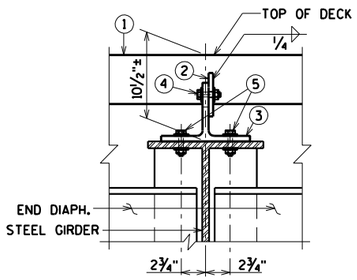
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY

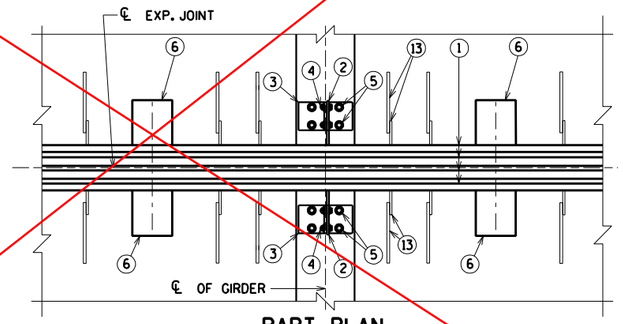


ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK ℄ CONC. DIAPH.



SECTION Z-Z



PART PLAN

NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② ½" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION), ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM ½" PLATES.

⑦ ⅜" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM ⅜" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑩ ⅞" SO. BAR. WELD TO NO. 8 AS SHOWN.

⑪ ¾" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ ¾" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ ½" PLATE WITH ⅝" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. ½ IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

See revised joint details
PAGE 407 &
PAGE 408.
Cover plate details
PAGE 409.

WORK THIS SHEET WITH SHEETS 61-64

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

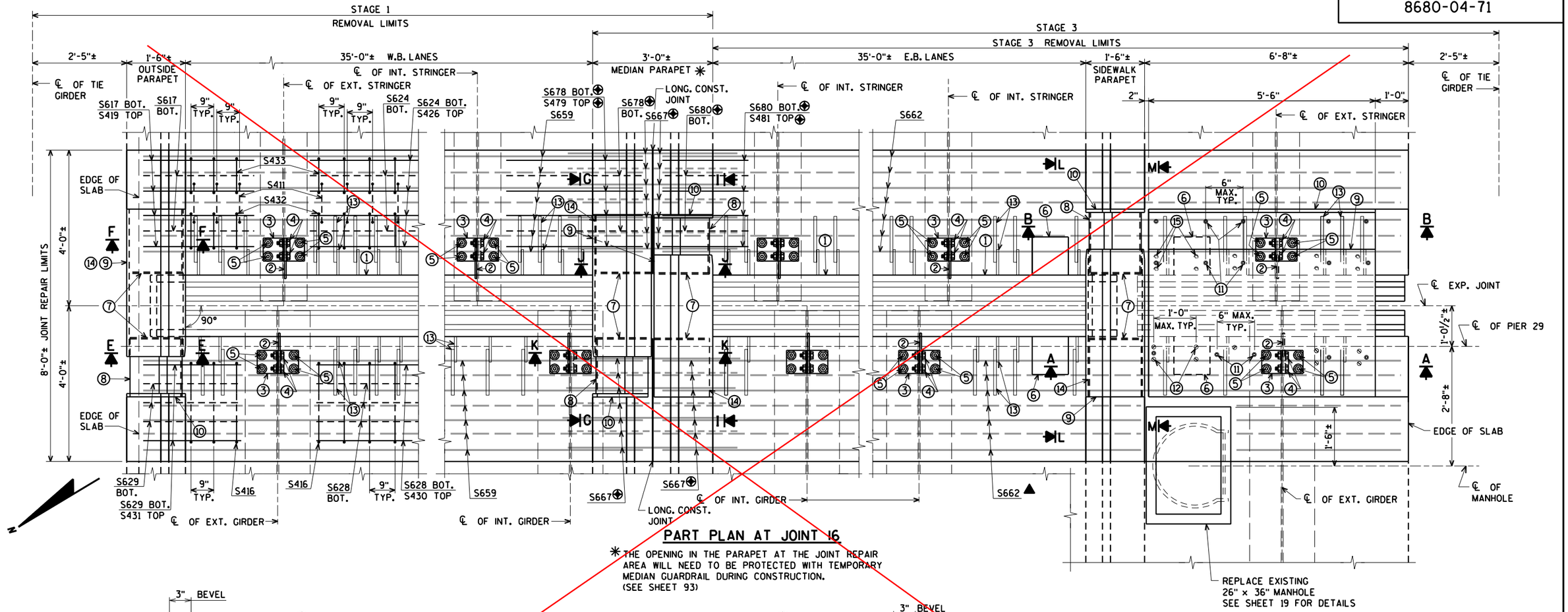
MODULAR EXP. JOINTS 11-15, 19, 20 & 22 DETAILS

SHEET 65 OF 99
411

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

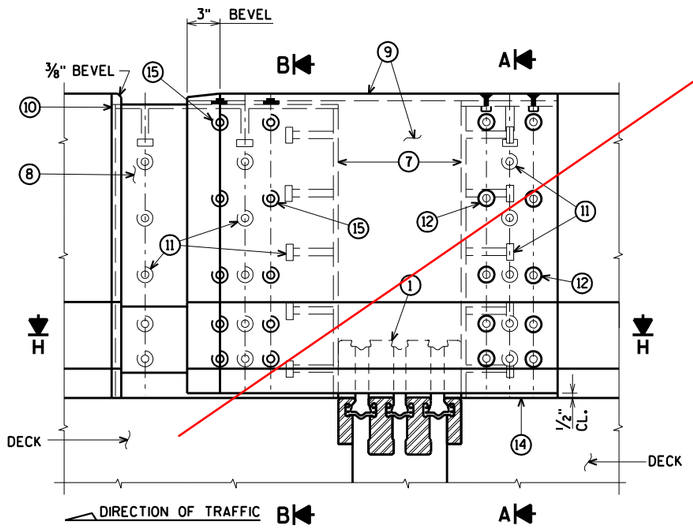
STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 16

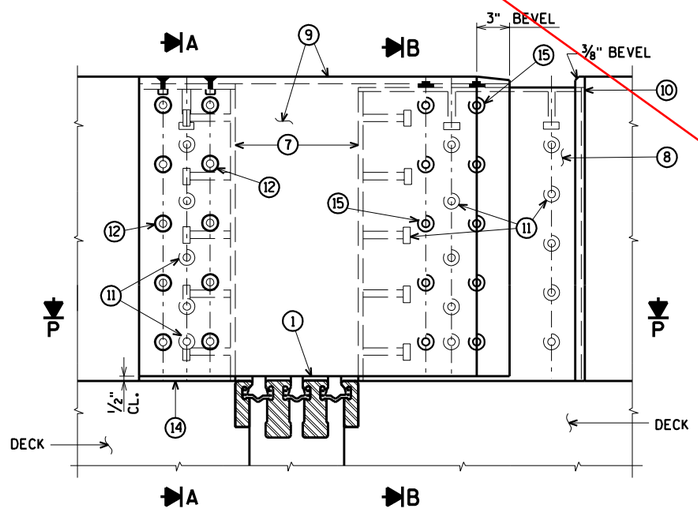
* THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)



ELEVATION OF SIDEWALK PARAPET SECTION L

FOR SECTION 'H' SEE SHEET 67

FOR SECTION 'P' SEE SHEET 68



ELEVATION OF SIDEWALK PARAPET SECTION M

▲ CUT S662 BARS IN THE FIELD TO MISS THE NEW MANHOLE. COST OF CUTTING THE BARS AND COATING THE ENDS OF THE CUTS IS INCIDENTAL TO THE BID ITEM "BAR STEEL REINFORCEMENT HS COATED BRIDGES".

FOR SECTIONS 'A' AND 'B' SEE SHEET 69

FOR SECTIONS 'E' AND 'F' SEE SHEET 67

FOR SECTIONS 'G', 'I', 'J' AND 'K' SEE SHEET 68

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

See revised details

WORK THIS SHEET WITH SHEETS 67-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 16 DETAILS

SHEET 66 OF 99
412

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

8

8

epdf.plt
42-0825 EXPJT 16.dgn

9/13/2013

black.tbl

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM–A572) OR GRADE 50W (ASTM–A588) STEEL.

SUPPORT BOXES SHALL BE ASTM–A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM–A240, TYPE 304, WITH A 20 MICRO–INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM–A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A–SM–STUD–REP–01, B–FF–STUD–REP–01, OR A–(MC)GF–STUD–REP–01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT–DIPPED GALVANIZED IN ACCORDANCE WITH ASTM–A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM–A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP–6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT. QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT–BRIDGE UNIT–INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B–F–REP–100 OR A–(MC)G–REP–100.

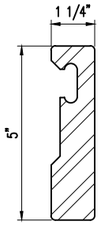
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B–F–REP–100 OR A–(MC)G–REP–100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

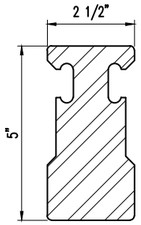
5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 13p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.



5" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM–A572) OR GRADE 50W (ASTM–A588) STEEL.
(LOCATED ON "D–320" MODULAR EXPANSION JOINTS.)



CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM–A572) OR GRADE 50W (ASTM–A588) STEEL.

INSTALLATION PROCEDURES

1) FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.

2) PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)

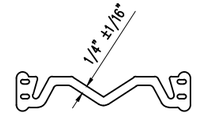
3) BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.

4) REMOVE BLOCKING & BANDING AND ADJUST JOINT TO PROPER JOINT OPENING AS DIRECTED.

5) FIELD LOCATE AND DRILL HOLES IN EXISTING GIRDER FLANGES FOR JOINT SUPPORT HARDWARE. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT ASSEMBLY CONNECTIONS. TACK WELD WT'S TO SUPPORT PLATES (IF REQUIRED).

6) CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.

7) POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. THEN REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2–400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 11
- SEE RAIL AND SEAL DETAILS ON SHEET 11
- SEE INSTALLATION PROCEDURES ON SHEET 11
- SEE SPLICE DETAILS ON SHEET 12
- SEE UPTURN DETAILS ON SHEET 12
- SEE STUD AND LOOP ANCHORS LOCATION & SPACING DETAILS ON SHEET 13
- SEE SPRING & BEARING DIAGRAM ON SHEET 13
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 13
- SEE 'D–320' PLAN VIEW FOR JOINT #16 ON SHEET 14
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 15
- SEE JOINT SUPPORT DETAILS ON SHEET 15
- SEE 'D–320' SUPPORT BOX SECTIONS AND DETAILS ON SHEETS 16, 17 & 18
- SEE SUPPORT BOX DETAILS ON SHEETS 19, 20 & 21
- SEE SUPPORT BAR DETAILS ON SHEETS 22 & 23
- SEE BILL OF MATERIALS ON SHEETS 24 & 25

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B–16–38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680–04–71 (WI) / 6937–69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

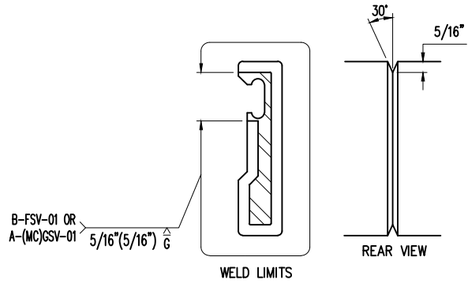
DESCRIPTION:
GENERAL NOTES & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11–25

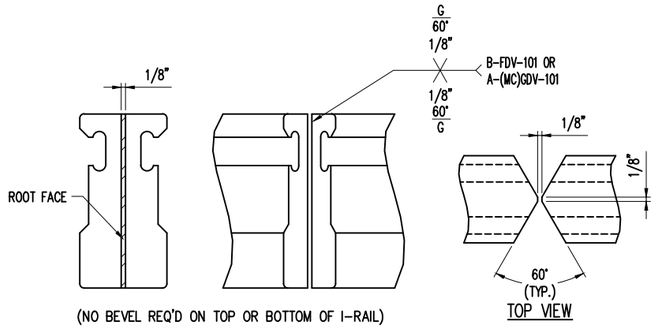
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	11

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

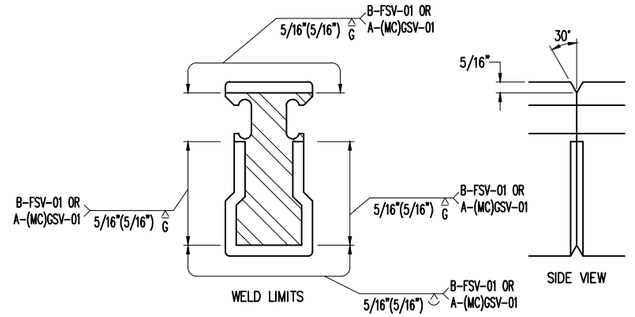


EDGE BEAM SHOP SPLICE DETAIL



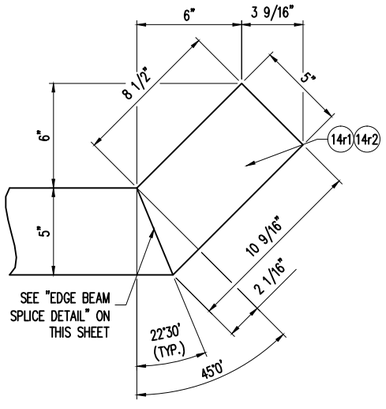
CENTER BEAM SHOP SPLICE DETAIL

COMPLETE PENETRATION WELD

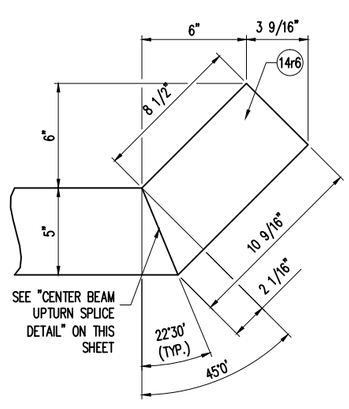


CENTER BEAM UPTURN SHOP SPLICE DETAIL

PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)



EDGE BEAM
UPTURN DETAILS



CENTER BEAM
UPTURN DETAILS

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

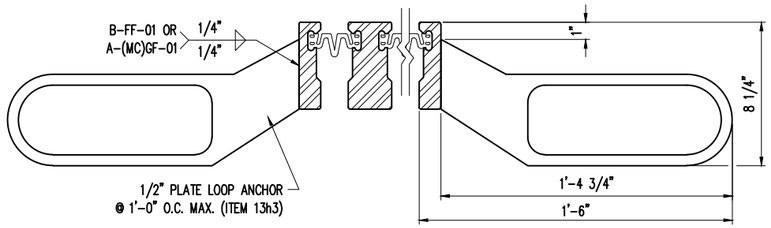
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

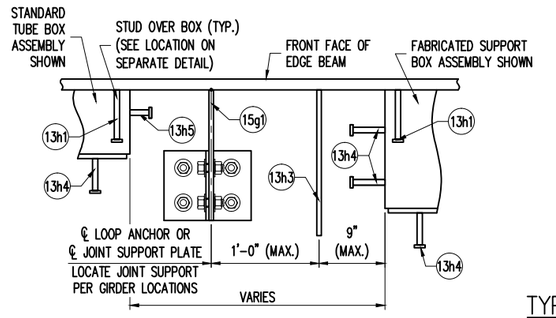
DESCRIPTION:
UPTURN & SPLICE DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

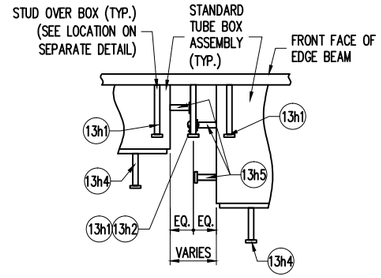
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	12



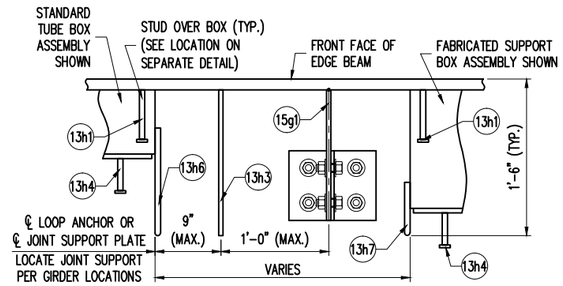
SECTION THRU 'D-320' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)



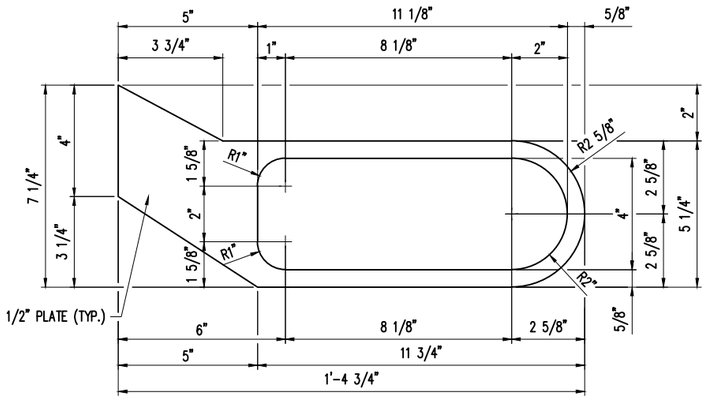
TYP. LOOP ANCHOR LAYOUT SEQUENCE
FOR 'D-320' MODULAR EXPANSION JOINT



TYP. STUD ANCHOR LAYOUT SEQUENCE
FOR 'D-320' MODULAR EXPANSION JOINT
BETWEEN BOXES WITHOUT A LOOP ANCHOR

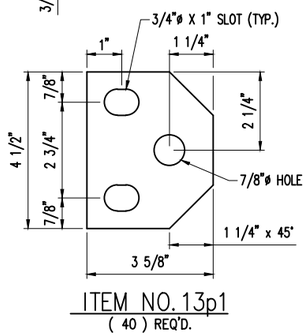


TYP. LOOP ANCHOR LAYOUT SEQUENCE
FOR 'D-320' MODULAR EXPANSION JOINT
@ SIDEWALK ASSEMBLY '14C' ONLY



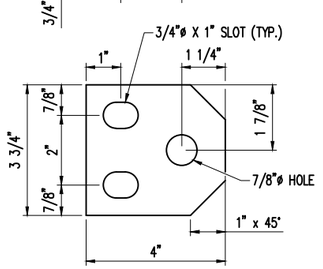
ITEM NO. 13h3
(44) REQ'D.

PLATE ANCHOR DETAIL



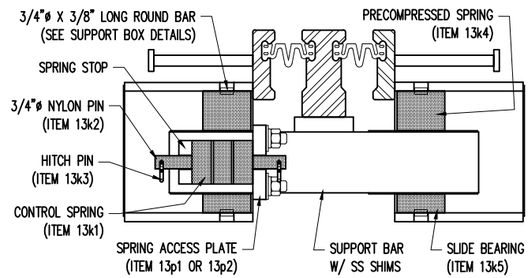
ITEM NO. 13p1
(40) REQ'D.

SPRING ACCESS PLATE DETAIL
FOR STANDARD BOXES

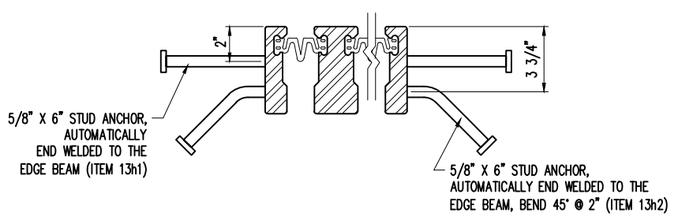


ITEM NO. 13p2
(6) REQ'D.

SPRING ACCESS PLATE DETAIL
FOR SHALLOW BOXES



TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-160" SHOWN - OTHER JOINT SIZES SIMILAR)



SECTION SHOWING STUDS
BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
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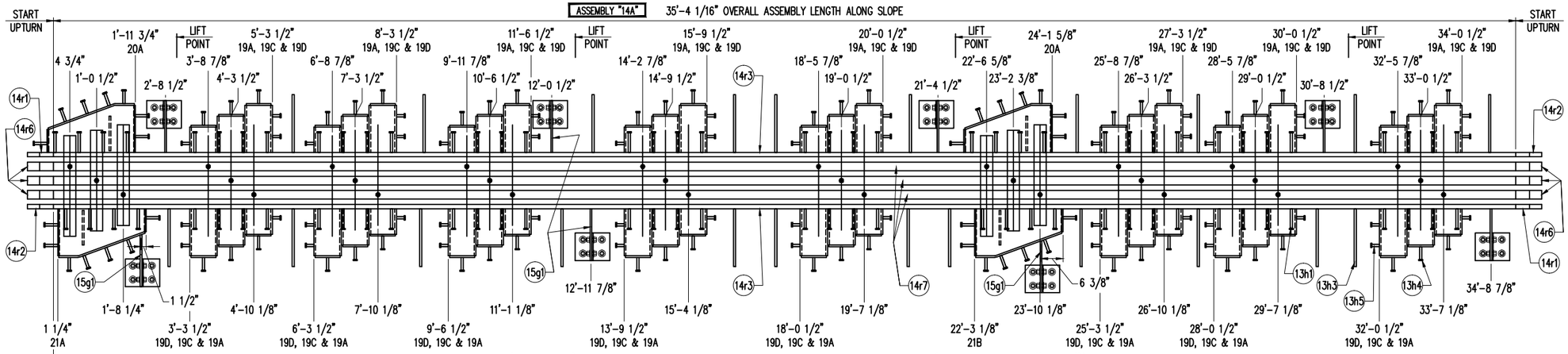
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
STANDARD SECTIONS AND DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

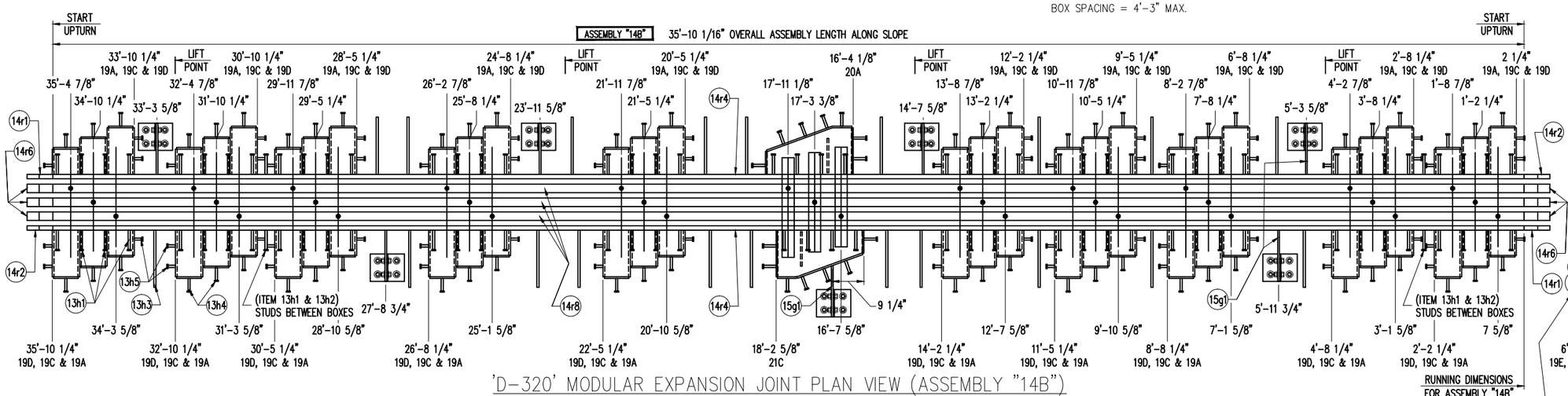
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	13

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 11
- SEE RAIL AND SEAL DETAILS ON SHEET 11
- SEE INSTALLATION PROCEDURES ON SHEET 11
- SEE SPLICE DETAILS ON SHEET 12
- SEE UPTURN DETAILS ON SHEET 12
- SEE STUD LOCATION & SPACING DETAILS ON SHEET 13
- SEE SPRING & BEARING DIAGRAM ON SHEET 13
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 13
- SEE 'D-320' PLAN VIEWS ON SHEET 14
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 15
- SEE JOINT SUPPORT DETAILS ON SHEET 15
- SEE 'D-320' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 16, 17 & 18
- SEE SUPPORT BOX DETAILS ON SHEET 19 20 & 21
- SEE SUPPORT BAR DETAILS ON SHEET 22 & 23
- SEE BILL OF MATERIALS ON SHEET 24 & 25
- COVER PLATES NOT SHOWN FOR CLARITY PURPOSES (SEE SHEETS 100-143 FOR COVER PLATE DETAILS)



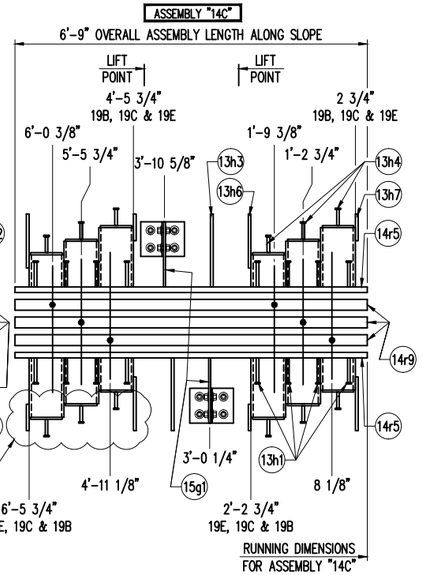
'D-320' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "14A")

JOINT 16 LOCATED @ PIER 29 (WESTBOUND LANES)
(1) ASSEMBLY REQUIRED TOTAL
BOX SPACING = 4'-3" MAX.



'D-320' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "14B")

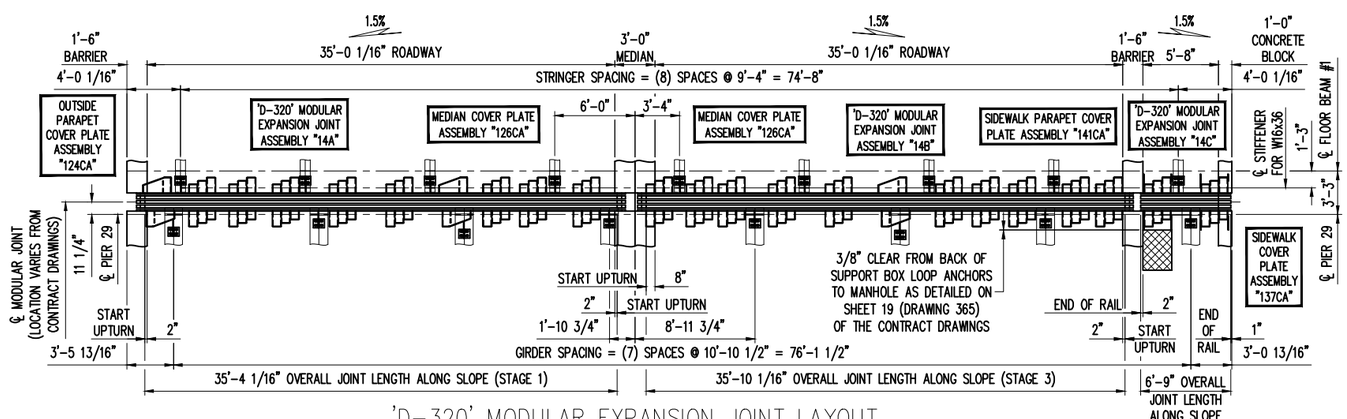
JOINT 16 LOCATED @ PIER 29 (EASTBOUND LANES)
(1) ASSEMBLY REQUIRED TOTAL
BOX SPACING = 4'-3" MAX.



'D-320' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "14C")

JOINT 16 LOCATED @ PIER 29 (SIDEWALK)
(1) ASSEMBLY REQUIRED TOTAL
BOX SPACING = 4'-3"

NOTE:
CONTRACTOR MAY MODIFY LOOP ANCHOR & STUD IF INTERFERENCE OCCURS WITH MANHOLE LOCATION.



'D-320' MODULAR EXPANSION JOINT LAYOUT

BRIDGE LOCATED ON USH 2 OVER THE ST. LOUIS RIVER
JOINT 16 LOCATED @ PIER 29

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

PAGE 412 D

REV.	DESCRIPTION	DATE	DET.	CKD.

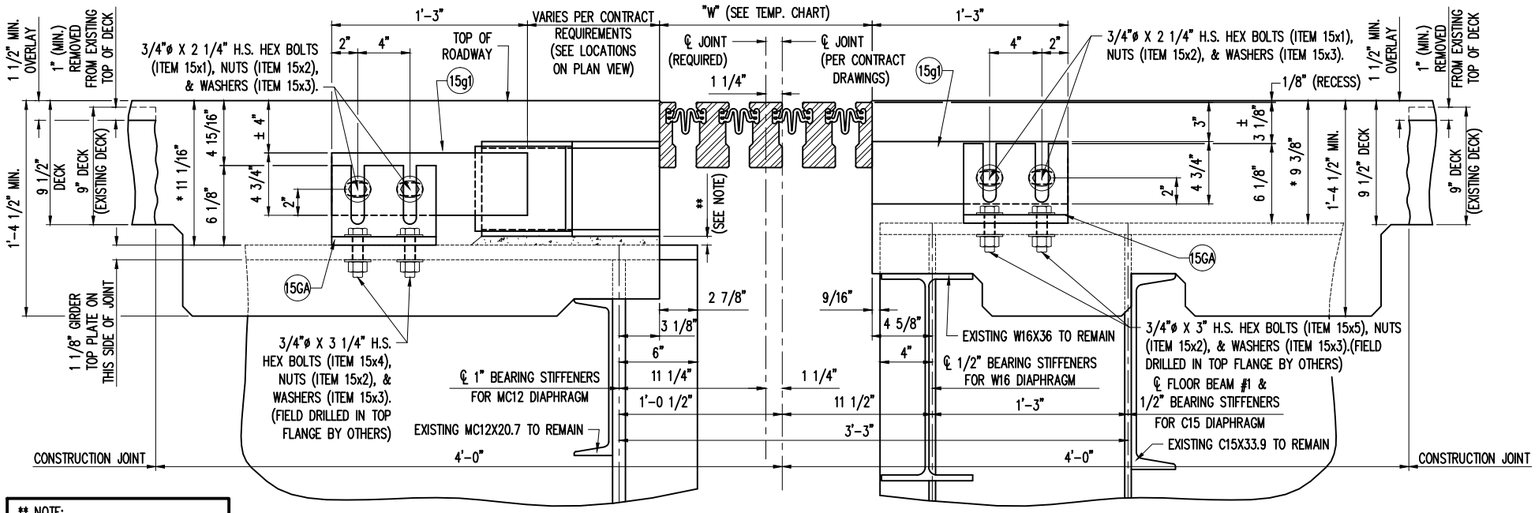
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

DESCRIPTION: 'D-320' LAYOUT & PLAN VIEWS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	14



SECTION OF 'D-320' SUPPORTS @ GIRDERS

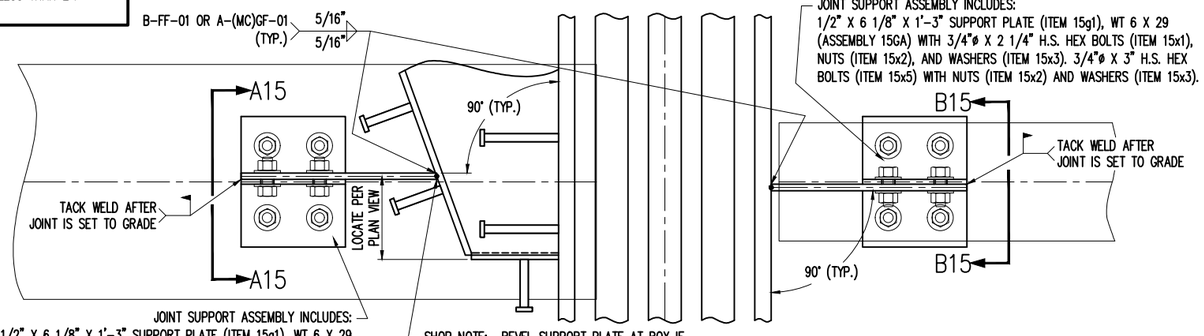
NOTE:
CONTRACTOR SHALL EITHER SHIM FULLY OR PLACE NON-SHRINK GROUT BENEATH SUPPORT BOXES WHERE CLEARANCE IS LESS THAN 2". (BY OTHERS)

"D-320" OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINT 16 (PIER 29)
MAX.	10"
120°F	11 5/8"
110°F	1'-0 1/4"
100°F	1'-0 7/8"
90°F	1'-1 1/2"
80°F	1'-2 1/8"
70°F	1'-2 3/4"
60°F	1'-3 3/8"
50°F	1'-4
45°F	1'-4 5/16"
40°F	1'-4 5/8"
30°F	1'-5 1/4"
20°F	1'-5 7/8"
10°F	1'-6 1/2"
0°F	1'-7 1/8"
-10°F	1'-7 3/4"
-20°F	1'-8 3/8"
-30°F	1'-9"
MIN.	1'-10 5/8"

TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT:
5/8" PER 10°F

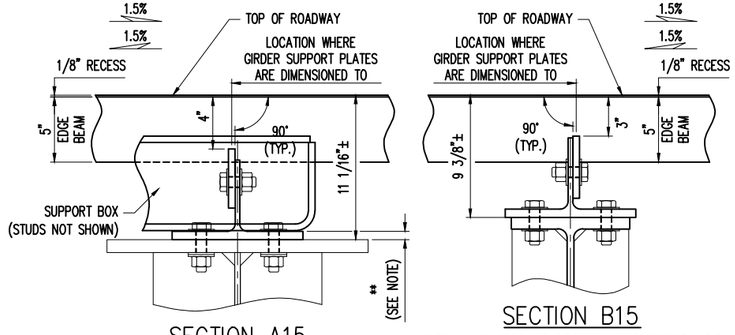
DIMENSIONS SHOWN ARE AT 45°F
SECTION THROUGH SIDEWALK VARIES



SHOP NOTE: BEVEL SUPPORT PLATE AT BOX IF REQUIRED TO ASSURE PROPER FIT-UP.

PLAN VIEW OF SUPPORTS @ GIRDERS

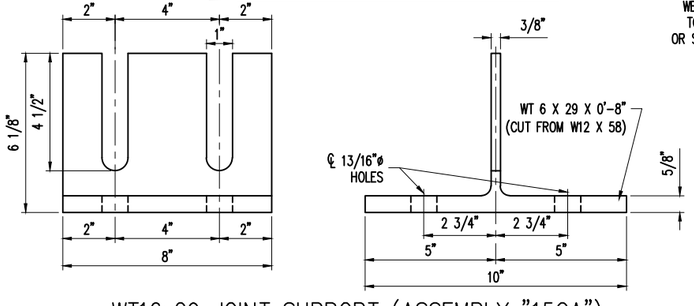
DIMENSIONS SHOWN ARE AT 45°F



SECTION A15
WHEN SUPPORTS ARE CONNECTED TO BOXES ONLY

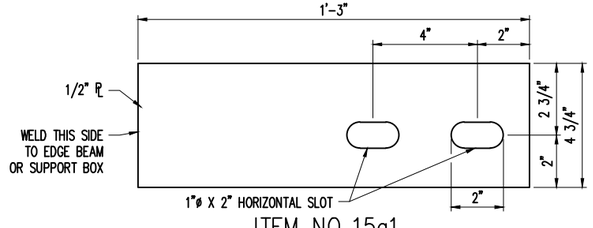
SECTION B15
(TYPICAL, EXCEPT AT SIDEWALK AND SECTION C1)
WHEN SUPPORTS ARE CONNECTED TO EDGE BEAMS

NOTE:
- IN LIEU OF WT16x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 5/8" BASE PLATE (ITEM 15ga1)
  - 3/8" VERTICAL PLATE (ITEM 15ga2)
    - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01



WT16x29 JOINT SUPPORT (ASSEMBLY "15GA")

ITEM 15g2
(17) REQUIRED



ITEM NO. 15g1
(17) REQ'D.

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

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A GIBRALTAR INDUSTRIES COMPANY

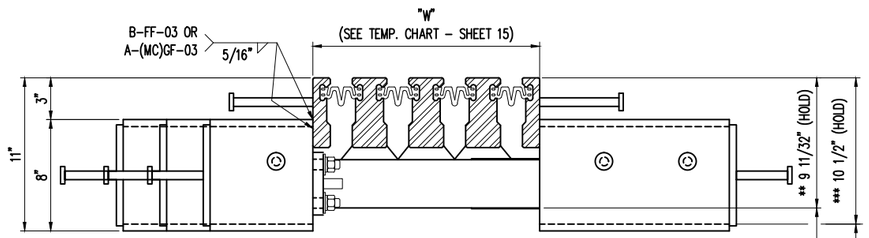
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

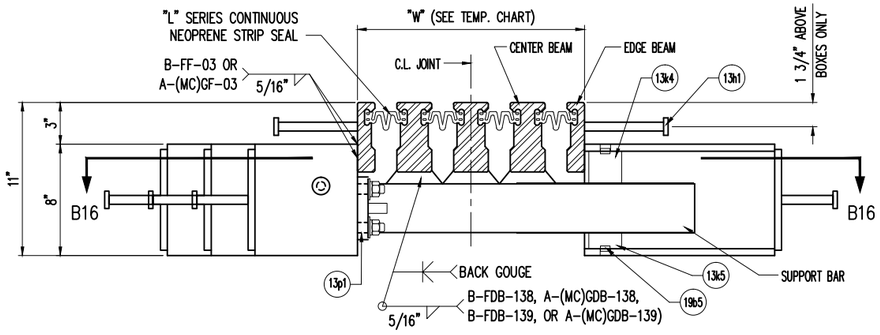
DESCRIPTION:
JOINT SUPPORT DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	15



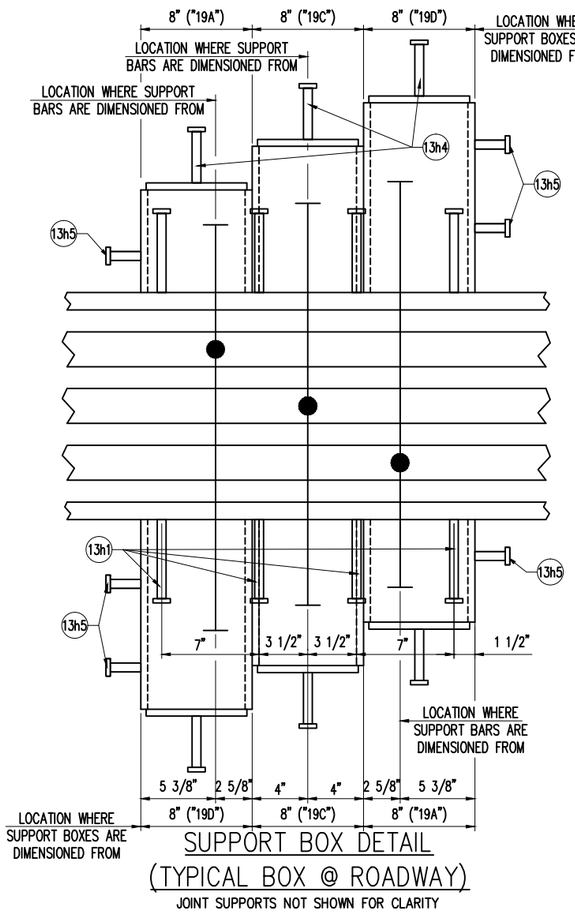
SECTION THROUGH 'D-320'
(TYPICAL BOX @ ROADWAY)
JOINT SUPPORTS NOT SHOWN FOR CLARITY



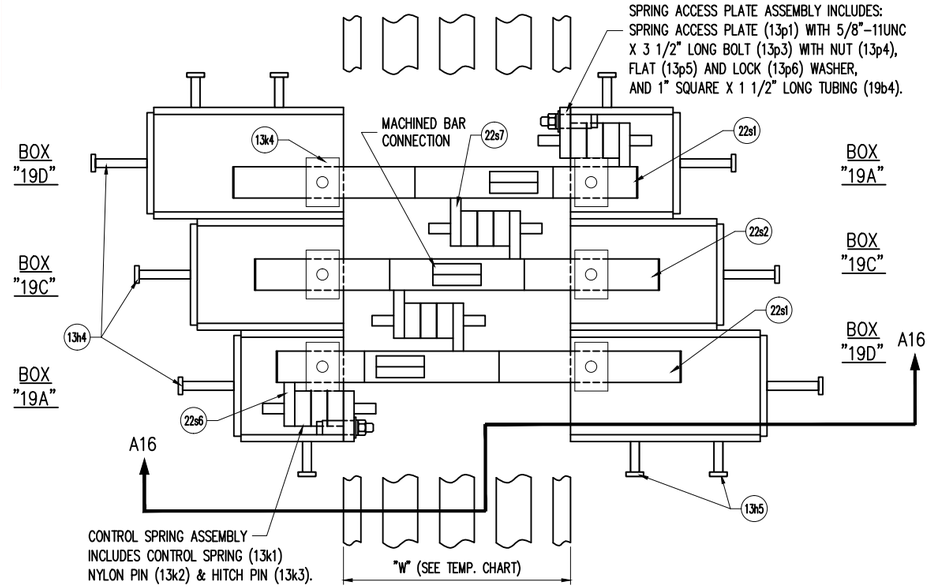
SECTION A16
JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 15)

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING



SUPPORT BOX DETAIL
(TYPICAL BOX @ ROADWAY)
JOINT SUPPORTS NOT SHOWN FOR CLARITY



SECTION B16
JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 15)

REV.	DESCRIPTION	DATE	DET.	CKD.

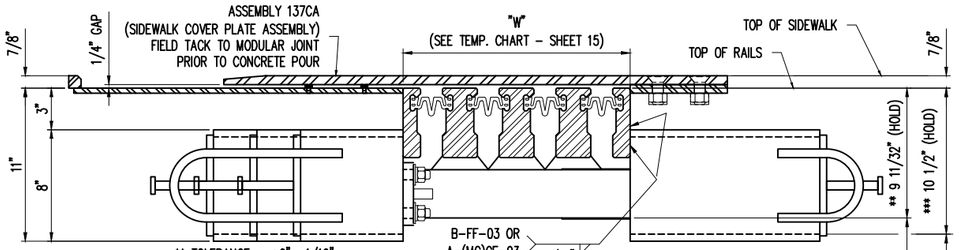
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
TYPICAL SECTIONS AND DETAILS
DOUGLAS COUNTY, WISCONSIN

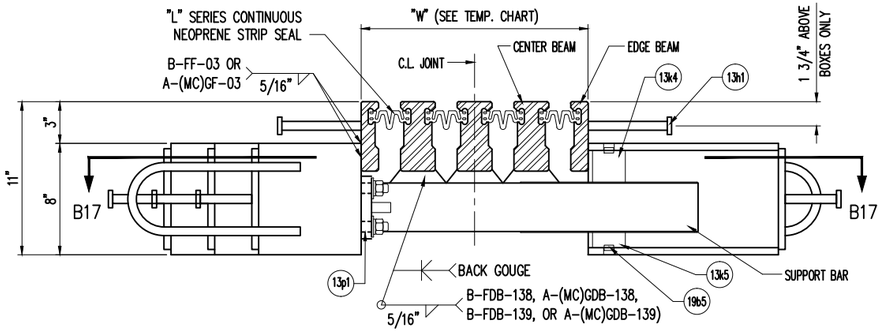
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	16



SECTION THROUGH 'D-320'
(@ SIDEWALK JOINT ONLY)

JOINT SUPPORTS NOT SHOWN FOR CLARITY

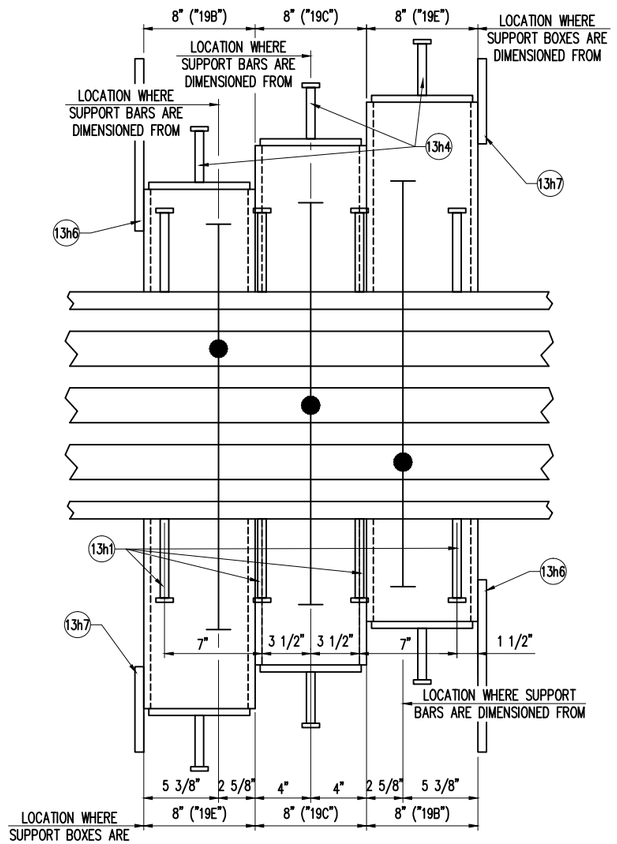


SECTION A17

JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 15)

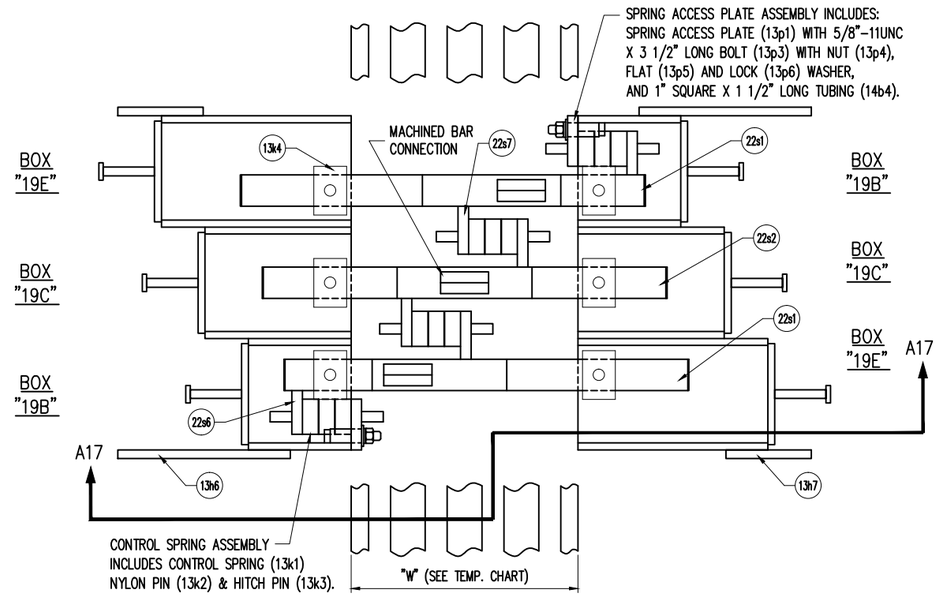
REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING



SUPPORT BOX DETAIL
(@ SIDEWALK JOINT ONLY)

JOINT SUPPORTS NOT SHOWN FOR CLARITY



SECTION B17

JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 15)

REV.	DESCRIPTION	DATE	DET.	CKD.

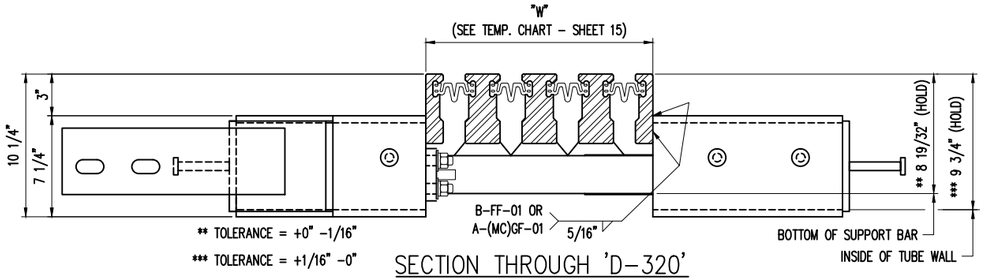
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
SIDEWALK SECTIONS AND DETAILS
DOUGLAS COUNTY, WISCONSIN

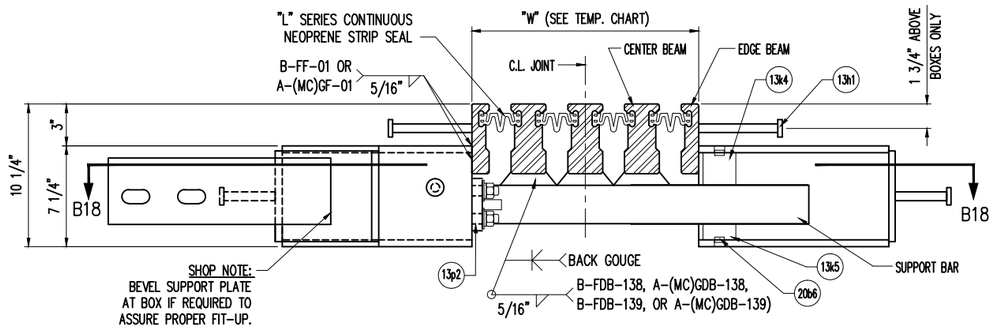
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	17



SECTION THROUGH 'D-320'
(SHALLOW BOXES OVER GIRDERS)

JOINT SUPPORTS NOT SHOWN FOR CLARITY

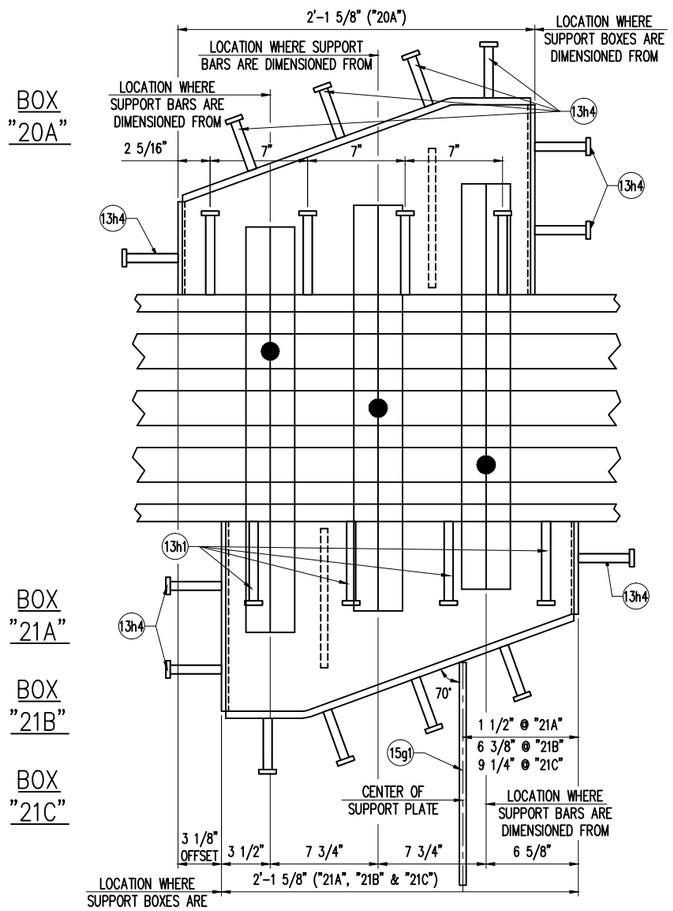


SECTION A18

JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 15)

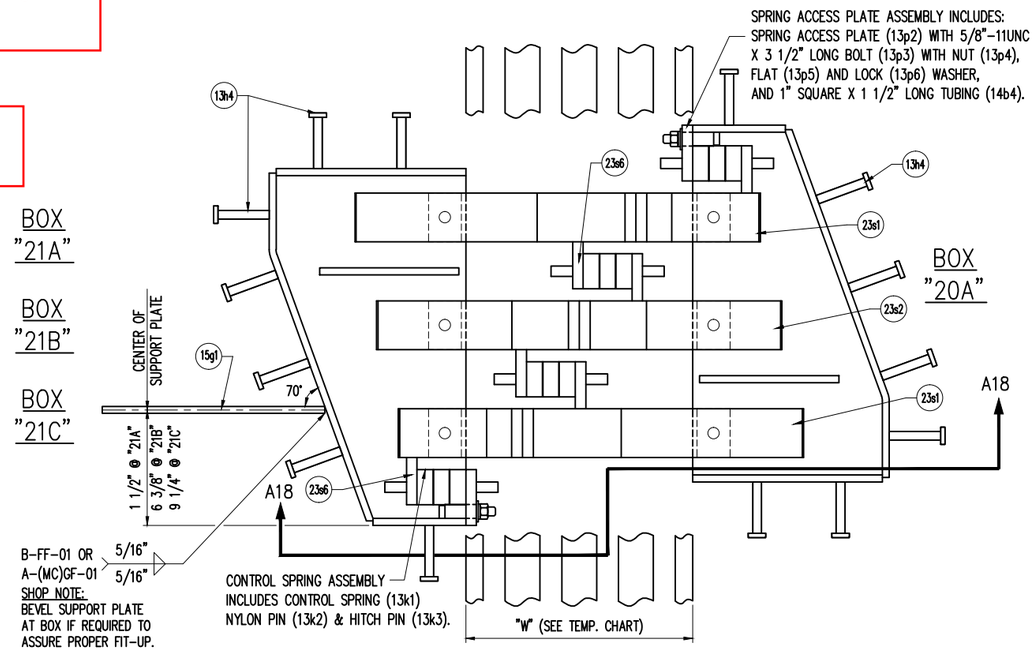
REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING



SUPPORT BOX DETAIL
(SHALLOW BOXES OVER GIRDERS)

JOINT SUPPORTS NOT SHOWN FOR CLARITY



SECTION B18

JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 15)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

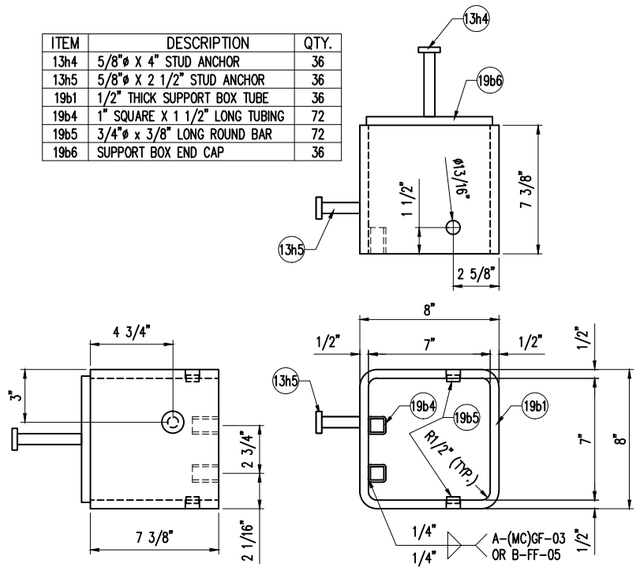
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
SHALLOW SECTIONS AND DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	18

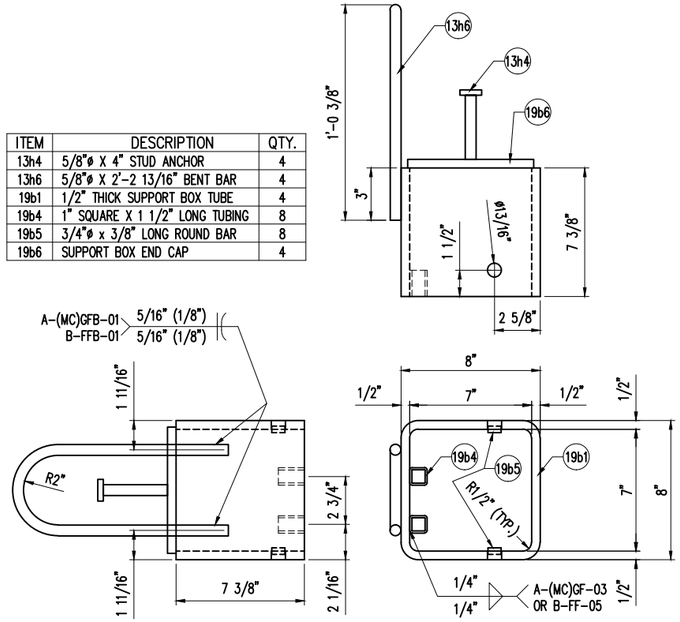
ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	36
13h5	5/8"ø X 2 1/2" STUD ANCHOR	36
19b1	1/2" THICK SUPPORT BOX TUBE	36
19b4	1" SQUARE X 1 1/2" LONG TUBING	72
19b5	3/4"ø x 3/8" LONG ROUND BAR	72
19b6	SUPPORT BOX END CAP	36



'D-320' SUPPORT BOX DETAIL "19A"

(36) REQUIRED

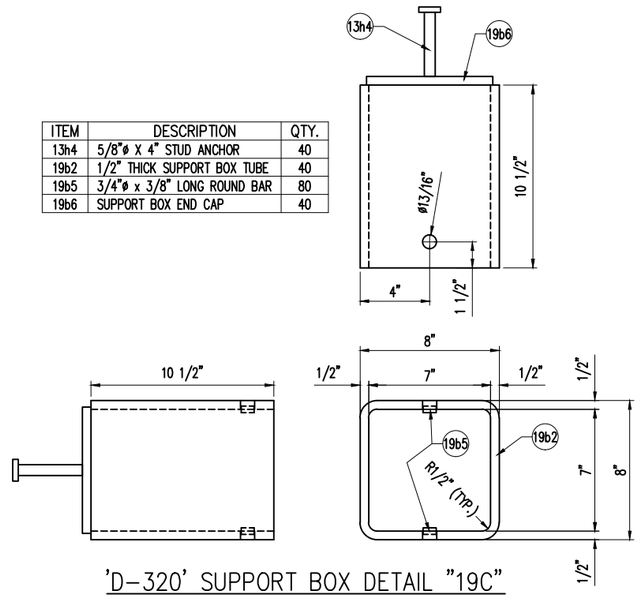
ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	4
13h6	5/8"ø X 2'-2 13/16" BENT BAR	4
19b1	1/2" THICK SUPPORT BOX TUBE	4
19b4	1" SQUARE X 1 1/2" LONG TUBING	8
19b5	3/4"ø x 3/8" LONG ROUND BAR	8
19b6	SUPPORT BOX END CAP	4



'D-320' SUPPORT BOX DETAIL "19B"

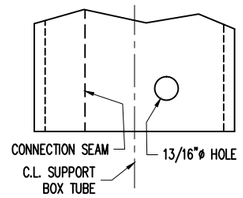
(4) REQUIRED

ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	40
19b2	1/2" THICK SUPPORT BOX TUBE	40
19b5	3/4"ø x 3/8" LONG ROUND BAR	80
19b6	SUPPORT BOX END CAP	40



'D-320' SUPPORT BOX DETAIL "19C"

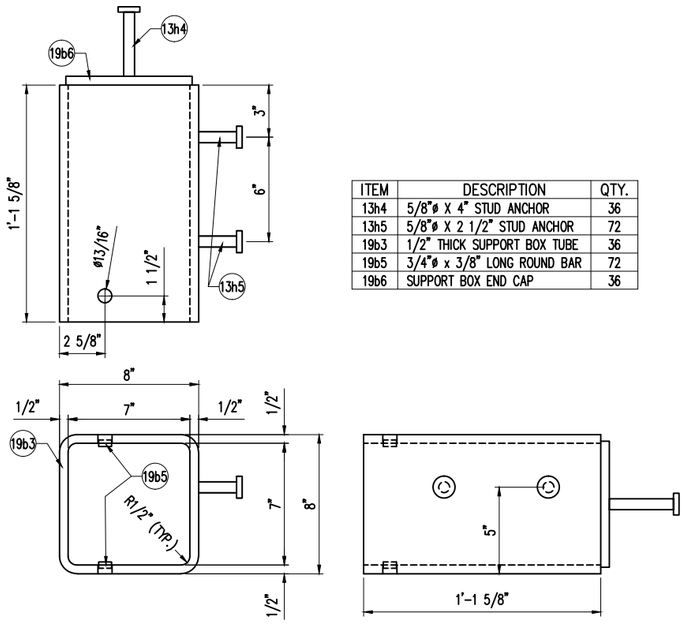
(40) REQUIRED



SHOP NOTE:

WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE C.L. OF BOX.

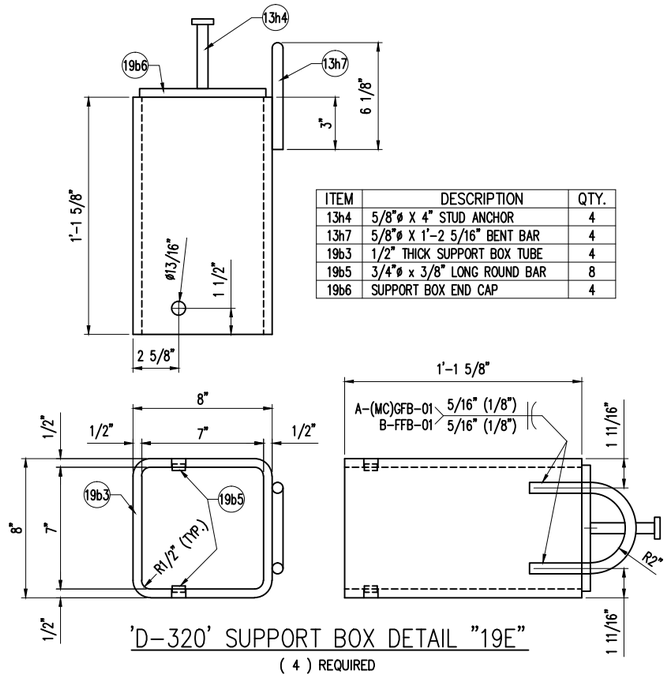
ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	36
13h5	5/8"ø X 2 1/2" STUD ANCHOR	72
19b3	1/2" THICK SUPPORT BOX TUBE	36
19b5	3/4"ø x 3/8" LONG ROUND BAR	72
19b6	SUPPORT BOX END CAP	36



'D-320' SUPPORT BOX DETAIL "19D"

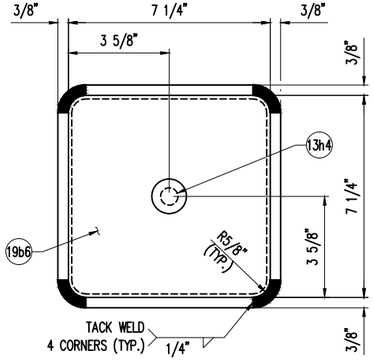
(36) REQUIRED

ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	4
13h7	5/8"ø X 1'-2 5/16" BENT BAR	4
19b3	1/2" THICK SUPPORT BOX TUBE	4
19b5	3/4"ø x 3/8" LONG ROUND BAR	8
19b6	SUPPORT BOX END CAP	4



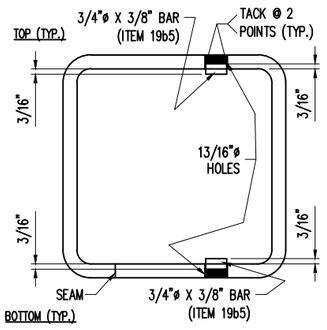
'D-320' SUPPORT BOX DETAIL "19E"

(4) REQUIRED



BACK PLATE DETAIL

(SUPPORT BOX END CAP)



BOX PIN DETAILS

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

THE D.S. BROWN COMPANY
A GIBRALTAR INDUSTRIES COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

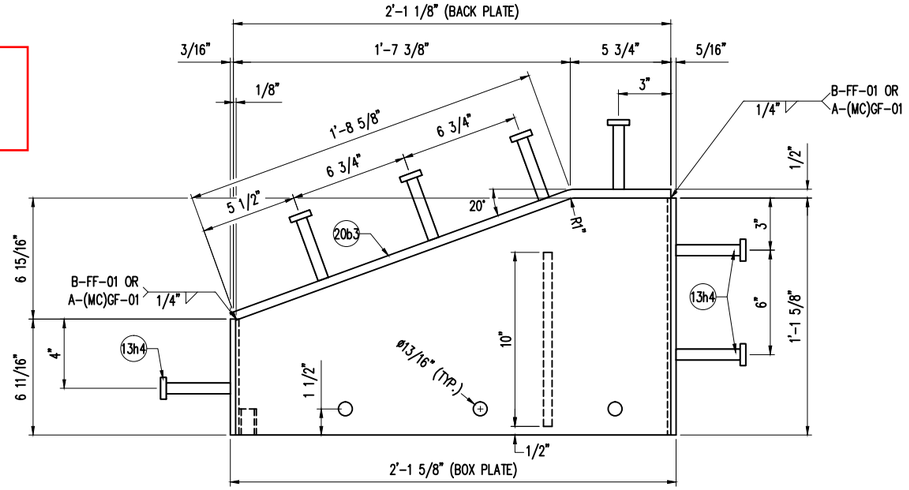
DESCRIPTION:
SUPPORT BOX TUBE DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	19

REVISED
Modular Expansion Joint 16
DETAILS

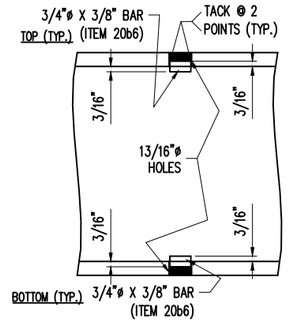
CONSTRUCTION
SHOP DRAWING



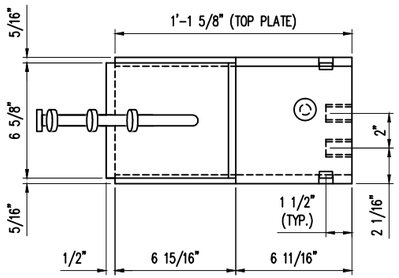
TOP VIEW

ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	21
20b1	1/2" X 13 5/8" X 3'-1 1/8" PLATE	3
20b2	1/2" X 13 5/8" X 2'-1" PLATE	3
20b3	1/2" X 6 5/8" X 2'-2 5/16" PLATE	3
20b4	1/2" X 6 1/4" X 10" PLATE	3
20b5	1" SQUARE X 1 1/2" LONG TUBING	6
20b6	3/4"ø x 3/8" LONG ROUND BAR	18
20b7	1/2"ø PLASTIC PLUGS	18

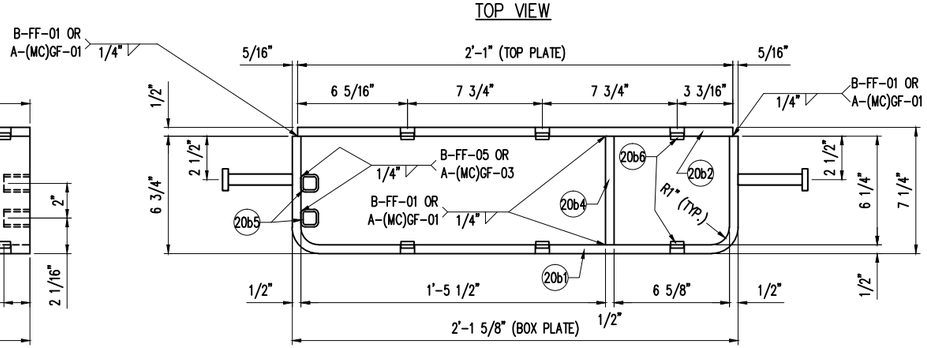
NOTE: QUANTITIES ARE FOR ASSEMBLY "20A" ONLY
SEE SHEET 21 FOR ADDITIONAL MATERIAL



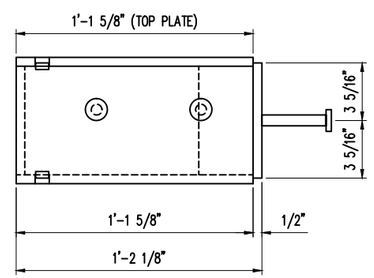
BOX PIN DETAILS



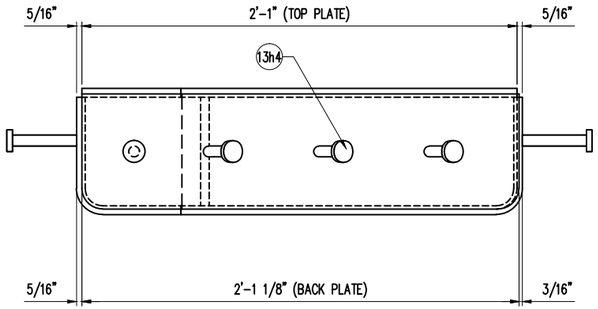
LEFT END



FRONT VIEW



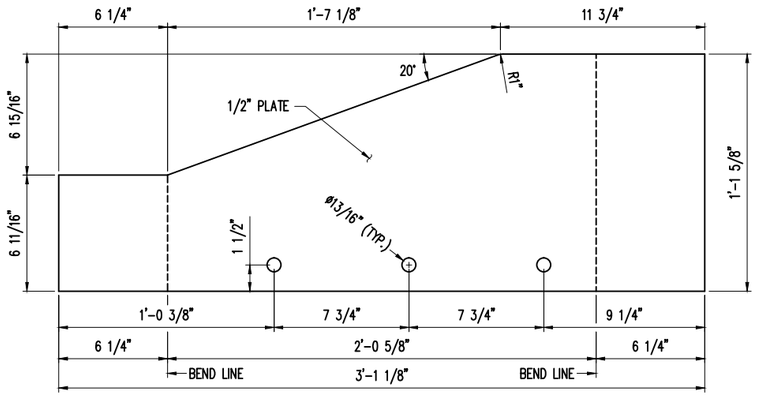
RIGHT END



BACK VIEW

'D-320' SHALLOW FABRICATED BOX DETAILS (ASSEMBLY '20A')

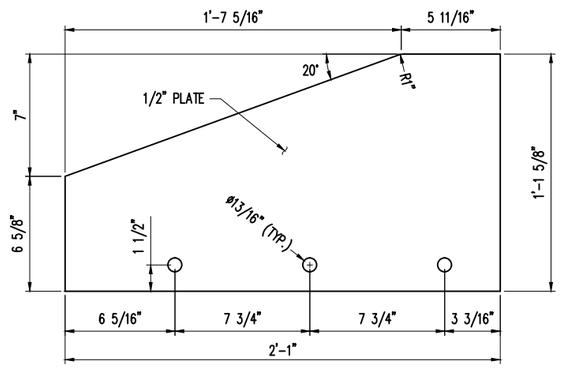
(3) REQUIRED



VIEWED FROM TOP OF BOX ASSEMBLY

ITEM NO. 20b1

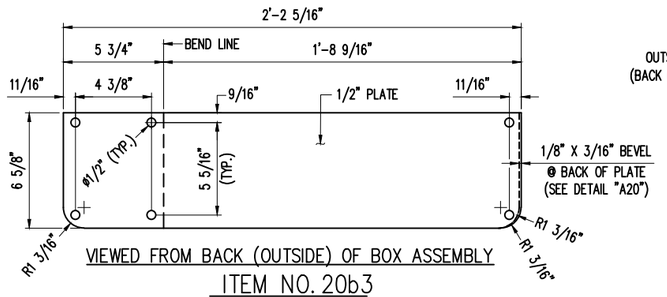
(6) REQ'D.



VIEWED FROM TOP OF BOX ASSEMBLY

ITEM NO. 20b2

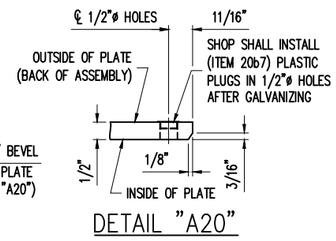
(6) REQ'D.



VIEWED FROM BACK (OUTSIDE) OF BOX ASSEMBLY

ITEM NO. 20b3

(6) REQ'D.



DETAIL "A20"

REV.	DESCRIPTION	DATE	DET.	CKD.

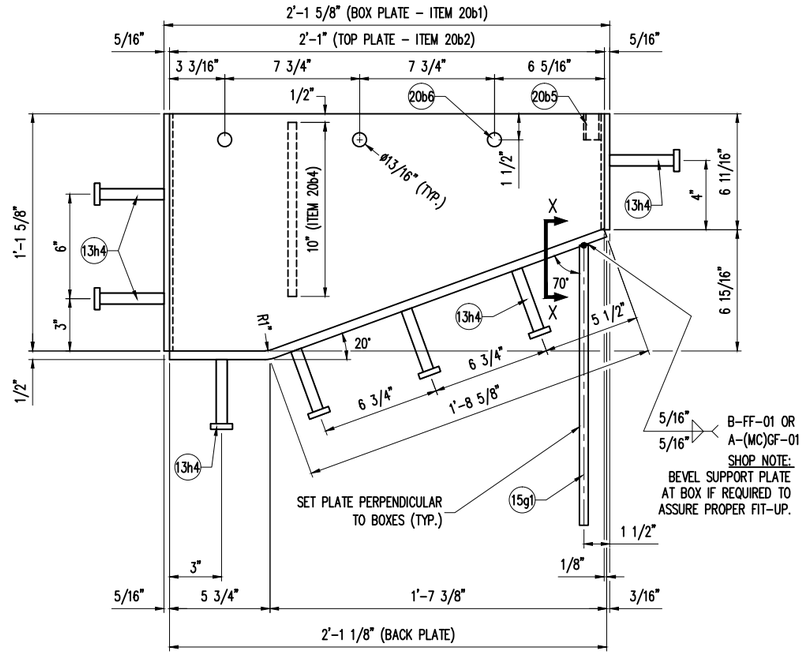
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
SHALLOW FABRICATED BOX DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

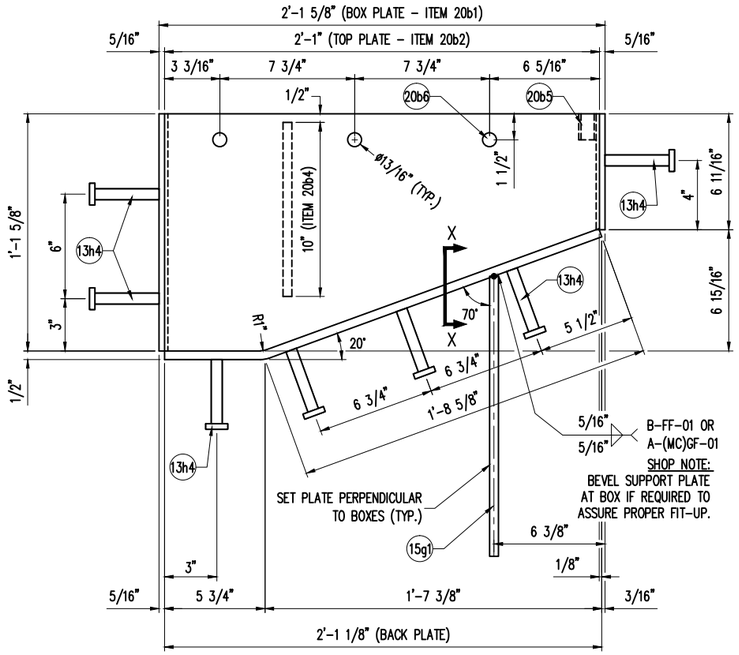
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	20



TOP VIEW

ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	7
15g1	1/2" X 4 3/4" X 1'-3" PLATE	1
20b1	1/2" X 13 5/8" X 3'-1 1/8" PLATE	1
20b2	1/2" X 13 5/8" X 2'-1" PLATE	1
20b3	1/2" X 6 5/8" X 2'-2 5/16" PLATE	1
20b4	1/2" X 6 1/4" X 10" PLATE	1
20b5	1" SQUARE X 1 1/2" LONG TUBING	2
20b6	3/4"ø x 3/8" LONG ROUND BAR	6
20b7	1/2"ø PLASTIC PLUGS	6

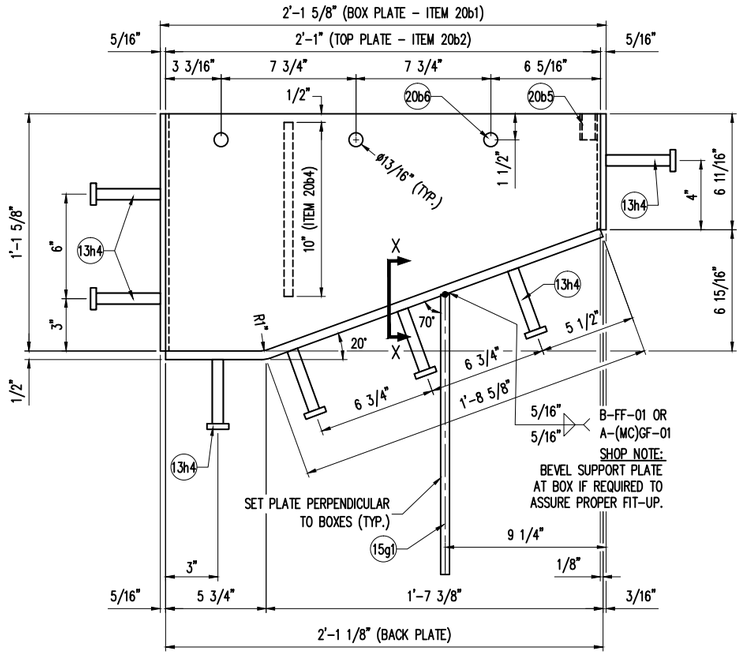
'D-320' SHALLOW FABRICATED BOX DETAIL
(ASSEMBLY '21A')
(1) REQUIRED



TOP VIEW

ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	7
15g1	1/2" X 4 3/4" X 1'-3" PLATE	1
20b1	1/2" X 13 5/8" X 3'-1 1/8" PLATE	1
20b2	1/2" X 13 5/8" X 2'-1" PLATE	1
20b3	1/2" X 6 5/8" X 2'-2 5/16" PLATE	1
20b4	1/2" X 6 1/4" X 10" PLATE	1
20b5	1" SQUARE X 1 1/2" LONG TUBING	2
20b6	3/4"ø x 3/8" LONG ROUND BAR	6
20b7	1/2"ø PLASTIC PLUGS	6

'D-320' SHALLOW FABRICATED BOX DETAIL
(ASSEMBLY '21B')
(1) REQUIRED

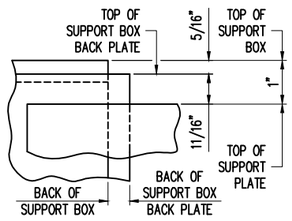


TOP VIEW

ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	7
15g1	1/2" X 4 3/4" X 1'-3" PLATE	1
20b1	1/2" X 13 5/8" X 3'-1 1/8" PLATE	1
20b2	1/2" X 13 5/8" X 2'-1" PLATE	1
20b3	1/2" X 6 5/8" X 2'-2 5/16" PLATE	1
20b4	1/2" X 6 1/4" X 10" PLATE	1
20b5	1" SQUARE X 1 1/2" LONG TUBING	2
20b6	3/4"ø x 3/8" LONG ROUND BAR	6
20b7	1/2"ø PLASTIC PLUGS	6

'D-320' SHALLOW FABRICATED BOX DETAIL
(ASSEMBLY '21C')
(1) REQUIRED

SHOP NOTES:
- SEE SUPPORT BOX FABRICATION DETAILS ON SHEET 20.



SECTION X-X

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

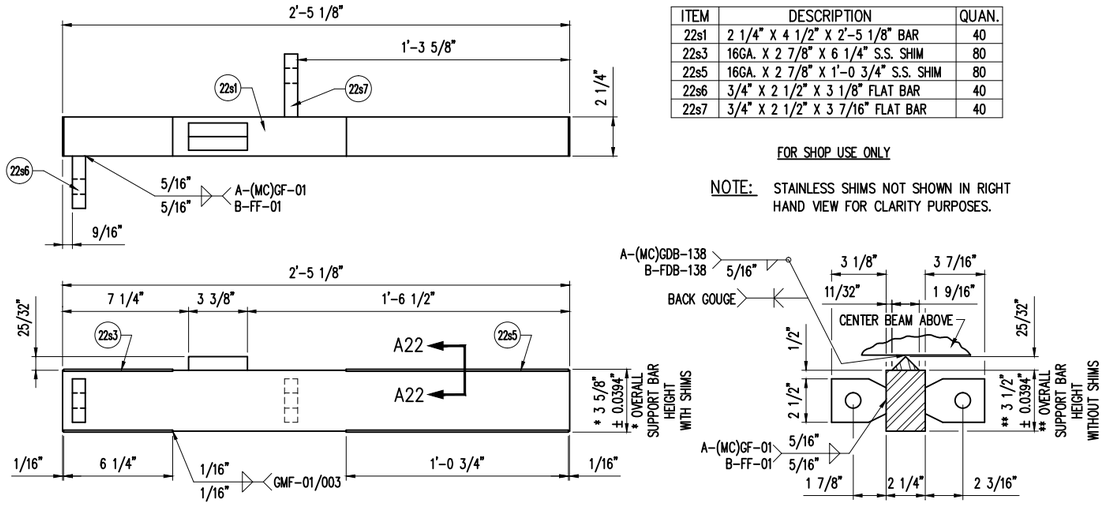
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
SHALLOW FABRICATED BOX DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	21



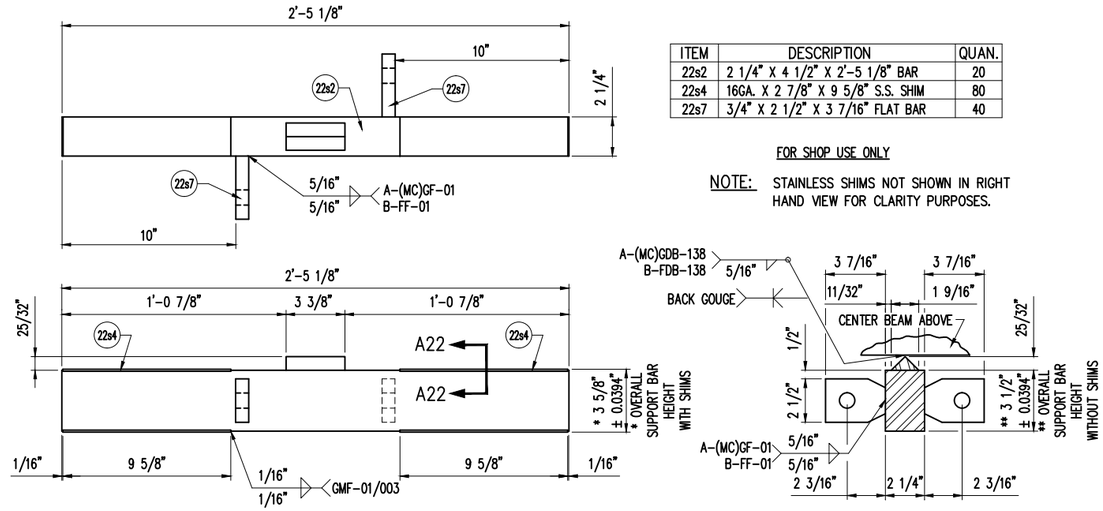
ITEM	DESCRIPTION	QUAN.
22s1	2 1/4" X 4 1/2" X 2'-5 1/8" BAR	40
22s3	16GA. X 2 7/8" X 6 1/4" S.S. SHIM	80
22s5	16GA. X 2 7/8" X 1'-0 3/4" S.S. SHIM	80
22s6	3/4" X 2 1/2" X 3 1/8" FLAT BAR	40
22s7	3/4" X 2 1/2" X 3 7/16" FLAT BAR	40

FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.

'D-320' MACHINED EXTERIOR SUPPORT BAR DETAIL

(40) REQUIRED



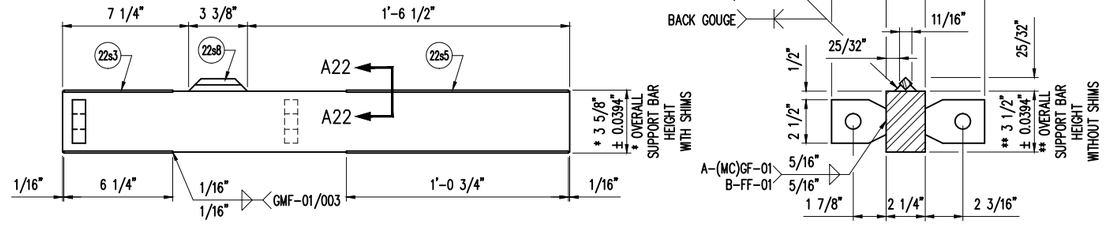
ITEM	DESCRIPTION	QUAN.
22s2	2 1/4" X 4 1/2" X 2'-5 1/8" BAR	20
22s4	16GA. X 2 7/8" X 9 5/8" S.S. SHIM	80
22s7	3/4" X 2 1/2" X 3 7/16" FLAT BAR	40

FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.

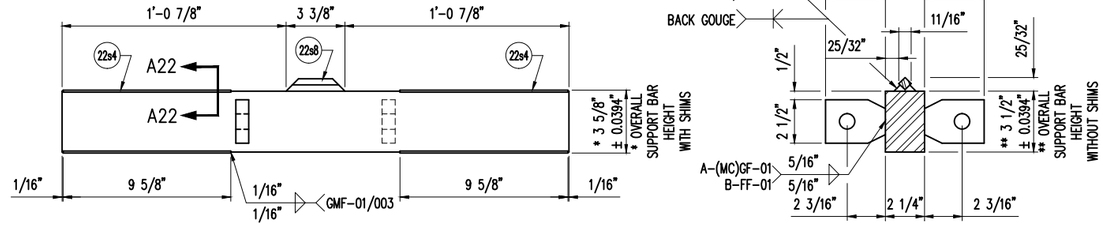
'D-320' MACHINED INTERIOR SUPPORT BAR DETAIL

(20) REQUIRED



OPTIONAL "D-320" EXTERIOR SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

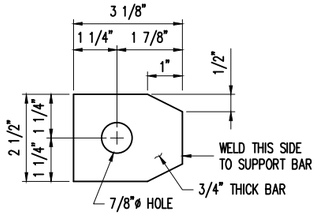


OPTIONAL "D-320" INTERIOR SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

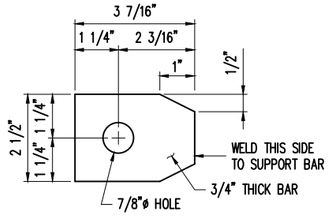
REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING



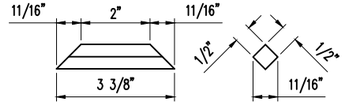
ITEM NO. 22s6
(40) REQ'D.

'D-320' EXTERIOR SPRING STOP DETAIL



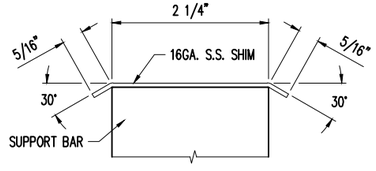
ITEM NO. 22s7
(80) REQ'D.

'D-320' INTERIOR SPRING STOP DETAIL



ITEM NO. 22s8
(60) REQ'D.

TYPICAL RIDER BAR DETAIL
USED @ OPTIONAL SUPPORT BAR DETAIL ONLY



SECTION A22

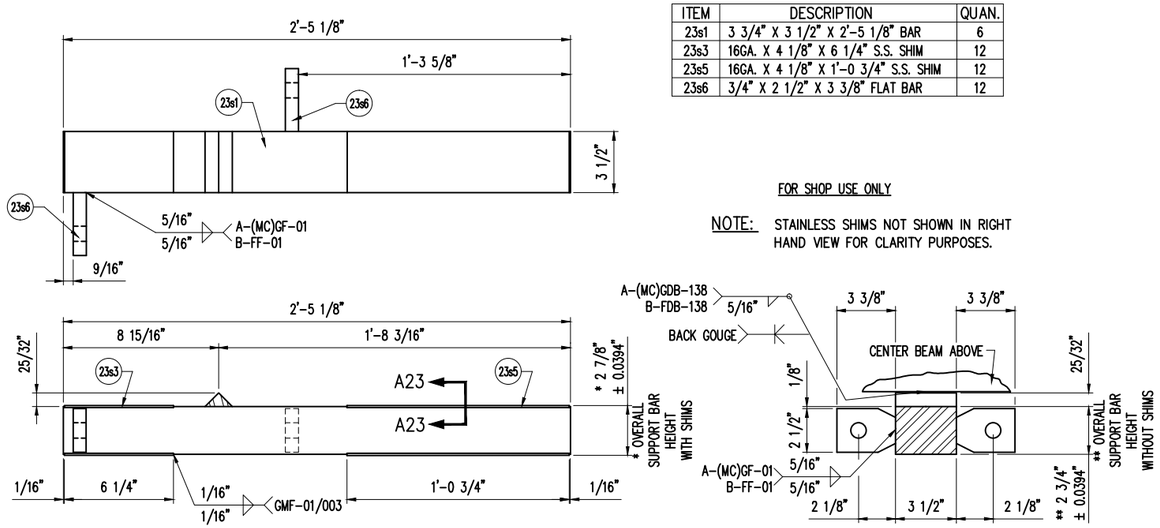
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
STANDARD SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	22	



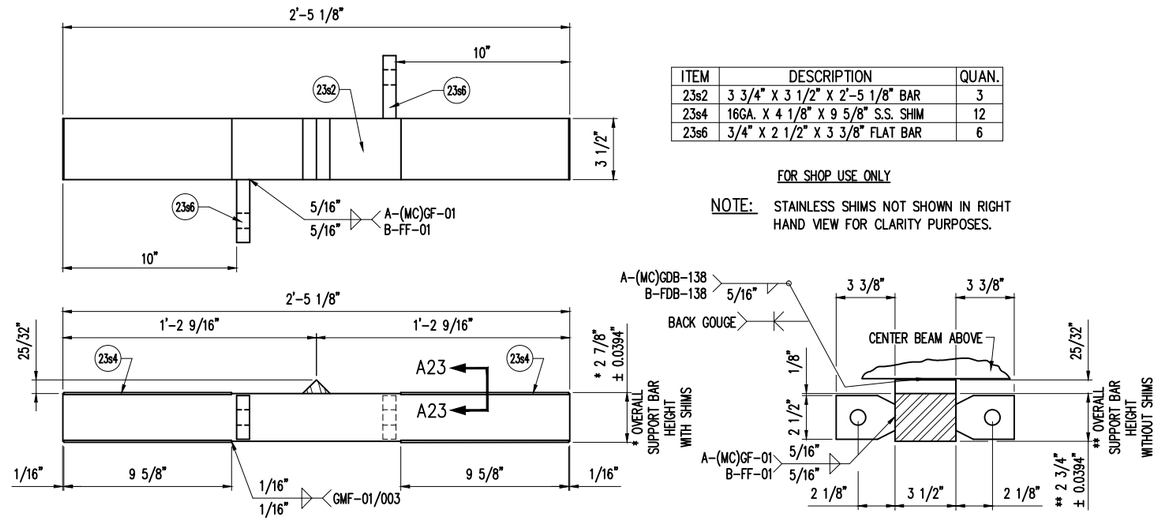
ITEM	DESCRIPTION	QUAN.
23s1	3 3/4" X 3 1/2" X 2'-5 1/8" BAR	6
23s3	16GA. X 4 1/8" X 6 1/4" S.S. SHIM	12
23s5	16GA. X 4 1/8" X 1'-0 3/4" S.S. SHIM	12
23s6	3/4" X 2 1/2" X 3 3/8" FLAT BAR	12

FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.

'D-320' SHALLOW MACHINED EXTERIOR SUPPORT BAR DETAIL

(6) REQUIRED



ITEM	DESCRIPTION	QUAN.
23s2	3 3/4" X 3 1/2" X 2'-5 1/8" BAR	3
23s4	16GA. X 4 1/8" X 9 5/8" S.S. SHIM	12
23s6	3/4" X 2 1/2" X 3 3/8" FLAT BAR	6

FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.

'D-320' MACHINED SHALLOW INTERIOR SUPPORT BAR DETAIL

(3) REQUIRED

OPTIONAL "D-320" SHALLOW EXTERIOR SUPPORT BAR DETAIL (WITH RIDER BAR)

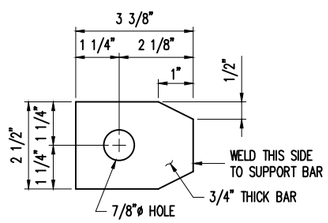
(IN LIEU OF MACHINED SUPPORT BAR)

OPTIONAL "D-320" SHALLOW INTERIOR SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

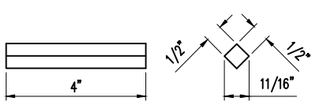
REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING



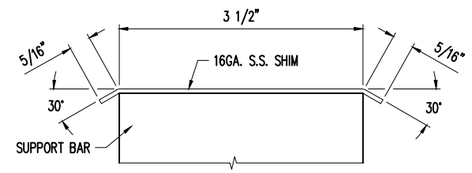
ITEM NO. 23s6
(18) REQ'D.

'D-320' SHALLOW SPRING STOP DETAIL



ITEM NO. 23s7
(9) REQ'D.

SHALLOW RIDER BAR DETAIL
USED @ OPTIONAL SUPPORT BAR DETAIL ONLY



SECTION A23

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: SHALLOW SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	23

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
14A	1	D-320' MODULAR JOINT			36'-11 3/16" - JOINT 16 (WESTBOUND)	12046	
13h1	80	Ø5/8 X 6 WELD STUD	A108		A123-HDG	< 1	
13h3	22	1/2 X 7 1/4	A709 GR 36 OR 50	1'-4 3/4	SHAPE CUT; A123-HDG	17	
13h4	76	Ø5/8 X 4 WELD STUD	A108		A123-HDG	< 1	
13h5	48	Ø5/8 X 2 1/2 WELD STUD	A108		A123-HDG	< 1	
13k1	40	CONTROL SPRING (80MM)	-			1	
13k2	40	NYLON PIN (80MM)	-			< 1	
13k3	80	HITCH PIN	-			< 1	
13k4	60	PRECOMPRESSED SPRING	-		RUBBER;	< 1	
13k5	60	SLIDE BEARING	-		RUBBER;	1	
13p1	16	3/4 X 3 5/8	A36	0'-4 1/2	SHAPE CUT; A123-HDG	3	
13p2	4	3/4 X 4	A36	0'-4 1/2	SHAPE CUT; A123-HDG	4	
13p3	40	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		B695-MG OR; ZINC PLATED	< 1	
13p4	40	Ø5/8 HEX NUT	A563 GR A		B695-MG	< 1	
13p5	40	Ø5/8 FLAT WASHER	F844		B695-MG	< 1	
13p6	40	Ø5/8 LOCK WASHER	ASME 18.21.1-1990		B695-MG	< 1	
14r1	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	15	
14r2	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	15	
14r3	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	35'-8 3/16	A123-HDG	614	
14r6	6	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
14r7	3	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-8 3/16	A123-HDG	1230	
14w1	2	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
14w2	4	L2-400 GLAND	NEOPRENE	37'-0	148'-0" TOTAL;	59	
15g1	8	1/2 X 4 3/4	A709 GR 36 OR 50	1'-3	SHAPE CUT; A123-HDG	10	
19b1	16	HSS 8 X 8 X 1/2	A500 GR B	0'-7 3/8	A123-HDG	30	
19b2	16	HSS 8 X 8 X 1/2	A500 GR B	0'-10 1/2	A123-HDG	43	
19b3	16	HSS 8 X 8 X 1/2	A500 GR B	1'-1 5/8	A123-HDG	55	
19b4	32	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
19b5	96	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
19b6	48	1/2 X 7 1/4	A709 GR 36 OR 50	0'-7 1/4	A123-HDG	7	
20b1	4	1/2 X 13 5/8	A709 GR 36 OR 50	3'-1 1/8	SHAPE CUT; A123-HDG	72	
20b2	4	1/2 X 13 5/8	A709 GR 36 OR 50	2'-1	SHAPE CUT; A123-HDG	48	
20b3	4	1/2 X 6 5/8	A709 GR 36 OR 50	2'-2 5/16	SHAPE CUT; A123-HDG	25	
20b4	4	1/2 X 6 1/4	A709 GR 36 OR 50	0'-10	A123-HDG	9	
20b5	8	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
20b6	24	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
20b7	24	Ø1/2 PLASTIC PLUG CAP	-		ATTACH AFTER GALV.; PLAIN	< 1	
22s1	16	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	84	
22s2	8	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	84	
22s3	32	16 GA. X 2 7/8	SEE REMARKS	0'-6 1/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s4	32	16 GA. X 2 7/8	SEE REMARKS	0'-9 5/8	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s5	32	16 GA. X 2 7/8	SEE REMARKS	1'-0 3/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s6	16	3/4 X 2 1/2	A36	0'-3 1/8	SHAPE CUT; A123-HDG	2	
22s7	32	3/4 X 2 1/2	A36	0'-3 7/16	SHAPE CUT; A123-HDG	2	
23s1	4	3 3/4 X 3 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	108	
23s2	2	3 3/4 X 3 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	108	
23s3	8	16 GA. X 4 1/8	SEE REMARKS	0'-6 1/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
23s4	8	16 GA. X 4 1/8	SEE REMARKS	0'-9 5/8	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
23s5	8	16 GA. X 4 1/8	SEE REMARKS	1'-0 3/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
23s6	12	3/4 X 2 1/2	A36	0'-3 3/8	SHAPE CUT; A123-HDG	2	

14B	1	D-320' MODULAR JOINT			37'-5 3/16" - JOINT 16 (EASTBOUND)	12598	
13h1	92	Ø5/8 X 6 WELD STUD	A108		A123-HDG	< 1	
13h2	4	Ø5/8 X 6 WELD STUD	A108		BEND 45° @ 2"; A123-HDG	< 1	
13h3	20	1/2 X 7 1/4	A709 GR 36 OR 50	1'-4 3/4	SHAPE CUT; A123-HDG	17	
13h4	74	Ø5/8 X 4 WELD STUD	A108		A123-HDG	< 1	
13h5	60	Ø5/8 X 2 1/2 WELD STUD	A108		A123-HDG	< 1	
13k1	44	CONTROL SPRING (80MM)	-			1	
13k2	44	NYLON PIN (80MM)	-			< 1	
13k3	88	HITCH PIN	-			< 1	
13k4	66	PRECOMPRESSED SPRING	-		RUBBER;	< 1	
13k5	66	SLIDE BEARING	-		RUBBER;	1	
13p1	20	3/4 X 3 5/8	A36	0'-4 1/2	SHAPE CUT; A123-HDG	3	
13p2	2	3/4 X 4	A36	0'-4 1/2	SHAPE CUT; A123-HDG	4	
13p3	44	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		B695-MG OR; ZINC PLATED	< 1	
13p4	44	Ø5/8 HEX NUT	A563 GR A		B695-MG	< 1	
13p5	44	Ø5/8 FLAT WASHER	F844		B695-MG	< 1	
13p6	44	Ø5/8 LOCK WASHER	ASME 18.21.1-1990		B695-MG	< 1	
14r1	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	15	
14r2	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	15	
14r4	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	36'-2 3/16	A123-HDG	623	
14r6	6	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
14r8	3	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	36'-2 3/16	A123-HDG	1247	
14w1	2	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
14w3	4	L2-400 GLAND	NEOPRENE	38'-0	152'-0" TOTAL;	61	
15g1	7	1/2 X 4 3/4	A709 GR 36 OR 50	1'-3	SHAPE CUT; A123-HDG	10	
19b1	20	HSS 8 X 8 X 1/2	A500 GR B	0'-7 3/8	A123-HDG	30	
19b2	20	HSS 8 X 8 X 1/2	A500 GR B	0'-10 1/2	A123-HDG	43	
19b3	20	HSS 8 X 8 X 1/2	A500 GR B	1'-1 5/8	A123-HDG	55	
19b4	40	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
19b5	120	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
19b6	60	1/2 X 7 1/4	A709 GR 36 OR 50	0'-7 1/4	A123-HDG	7	
20b1	2	1/2 X 13 5/8	A709 GR 36 OR 50	3'-1 1/8	SHAPE CUT; A123-HDG	72	
20b2	2	1/2 X 13 5/8	A709 GR 36 OR 50	2'-1	SHAPE CUT; A123-HDG	48	
20b3	2	1/2 X 6 5/8	A709 GR 36 OR 50	2'-2 5/16	SHAPE CUT; A123-HDG	25	
20b4	2	1/2 X 6 1/4	A709 GR 36 OR 50	0'-10	A123-HDG	9	
20b5	4	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
20b6	12	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
20b7	12	Ø1/2 PLASTIC PLUG CAP	-		ATTACH AFTER GALV.; PLAIN	< 1	
22s1	20	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	84	
22s2	10	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	84	
22s3	40	16 GA. X 2 7/8	SEE REMARKS	0'-6 1/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s4	40	16 GA. X 2 7/8	SEE REMARKS	0'-9 5/8	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s5	40	16 GA. X 2 7/8	SEE REMARKS	1'-0 3/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s6	20	3/4 X 2 1/2	A36	0'-3 1/8	SHAPE CUT; A123-HDG	2	
22s7	40	3/4 X 2 1/2	A36	0'-3 7/16	SHAPE CUT; A123-HDG	2	
23s1	2	3 3/4 X 3 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	108	
23s2	1	3 3/4 X 3 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	108	
23s3	4	16 GA. X 4 1/8	SEE REMARKS	0'-6 1/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
23s4	4	16 GA. X 4 1/8	SEE REMARKS	0'-9 5/8	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
23s5	4	16 GA. X 4 1/8	SEE REMARKS	1'-0 3/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
23s6	6	3/4 X 2 1/2	A36	0'-3 3/8	SHAPE CUT; A123-HDG	2	

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
BILL OF MATERIALS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	24

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

14C	1	D-320' MODULAR JOINT			6'-9" - JOINT 16 (SIDEWALK)	2253	
13h1	16	Ø5/8 X 6 WELD STUD	A108		A123-HDG	< 1	
13h3	2	1/2 X 7 1/4	A709 GR 36 OR 50	1'-4 3/4	SHAPE CUT; A123-HDG	17	
13h4	12	Ø5/8 X 4 WELD STUD	A108		A123-HDG	< 1	
13h6	4	Ø5/8	A36	2'-2 13/16	A123-HDG	2	
13h7	4	Ø5/8	A36	1'-2 5/16	A123-HDG	1	
13k1	8	CONTROL SPRING (80MM)	-			1	
13k2	8	NYLON PIN (80MM)	-			< 1	
13k3	16	HITCH PIN	-			< 1	
13k4	12	PRECOMPRESSED SPRING	-		RUBBER;	< 1	
13k5	12	SLIDE BEARING	-		RUBBER;	1	
13p1	4	3/4 X 3 5/8	A36	0'-4 1/2	SHAPE CUT; A123-HDG	3	
13p3	8	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		B695-MG OR; ZINC PLATED	< 1	
13p4	8	Ø5/8 HEX NUT	A563 GR A		B695-MG	< 1	
13p5	8	Ø5/8 FLAT WASHER	F844		B695-MG	< 1	
13p6	8	Ø5/8 LOCK WASHER	ASME 18.21.1-1990		B695-MG	< 1	
14r5	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	116	
14r9	3	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
14w1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
14w4	4	L2-400 GLAND	NEOPRENE	7'-0	28'-0" TOTAL;	11	
15g1	2	1/2 X 4 3/4	A709 GR 36 OR 50	1'-3	SHAPE CUT; A123-HDG	10	
19b1	4	HSS 8 X 8 X 1/2	A500 GR B	0'-7 3/8	A123-HDG	30	
19b2	4	HSS 8 X 8 X 1/2	A500 GR B	0'-10 1/2	A123-HDG	43	
19b3	4	HSS 8 X 8 X 1/2	A500 GR B	1'-1 5/8	A123-HDG	55	
19b4	8	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
19b5	24	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
19b6	12	1/2 X 7 1/4	A709 GR 36 OR 50	0'-7 1/4	A123-HDG	7	
22s1	4	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	84	
22s2	2	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	84	
22s3	8	16 GA. X 2 7/8	SEE REMARKS	0'-6 1/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s4	8	16 GA. X 2 7/8	SEE REMARKS	0'-9 5/8	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s5	8	16 GA. X 2 7/8	SEE REMARKS	1'-0 3/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s6	4	3/4 X 2 1/2	A36	0'-3 1/8	SHAPE CUT; A123-HDG	2	
22s7	8	3/4 X 2 1/2	A36	0'-3 7/16	SHAPE CUT; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			3/24/2014 3:05:34 PM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
15GA	17	JOINT SUPPORT ITEM				19	
15g2	17	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
15XA	34	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
15x1	34	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
15XB	102	JOINT SUPPORT HARDWARE - HEX NUT (ROCAP)				< 1	
15x2	102	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
15XC	204	JOINT SUPPORT HARDWARE - FLAT WASHER (ROCAP)				< 1	
15x3	204	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
15XD	32	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
15x4	32	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
15XE	36	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
15x5	36	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
15XAT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
15t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
15XBT	9	TESTING HARDWARE - HEX NUT (ROCAP)				< 1	
15t2	9	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
15XCT	18	TESTING HARDWARE - FLAT WASHER (ROCAP)				< 1	
15t3	18	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
15XDT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
15t1	3	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
15XET	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
15t1	3	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			3/24/2014 3:05:34 PM		

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

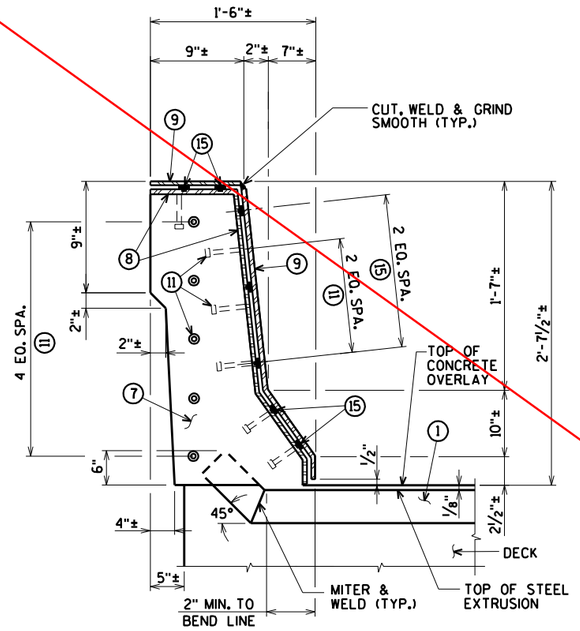
DESCRIPTION:
BILL OF MATERIALS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

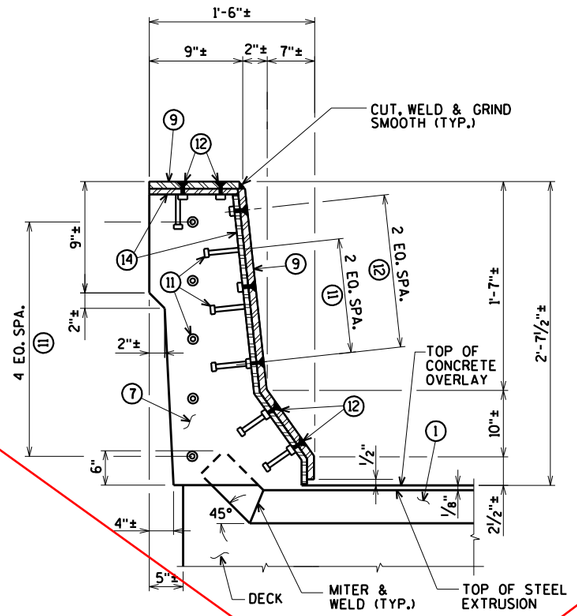
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	25

STATE PROJECT NUMBER

8680-04-71



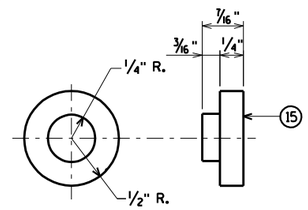
SECTION E



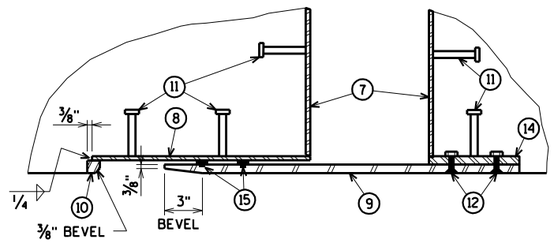
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

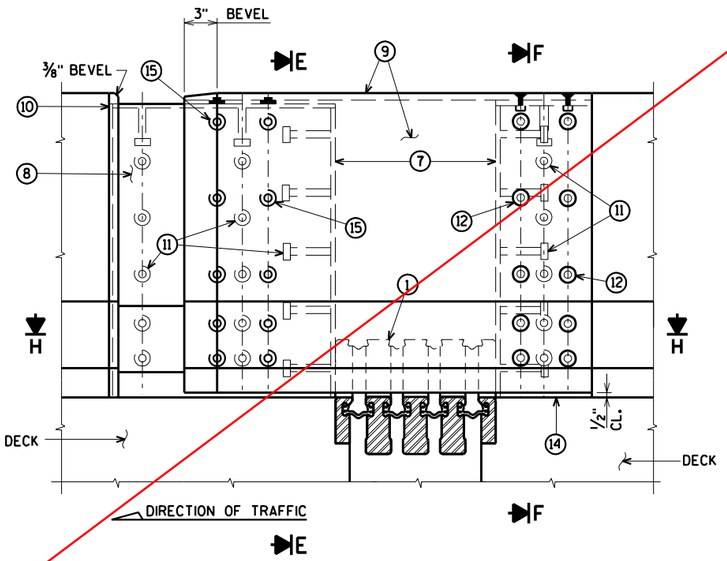
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 66



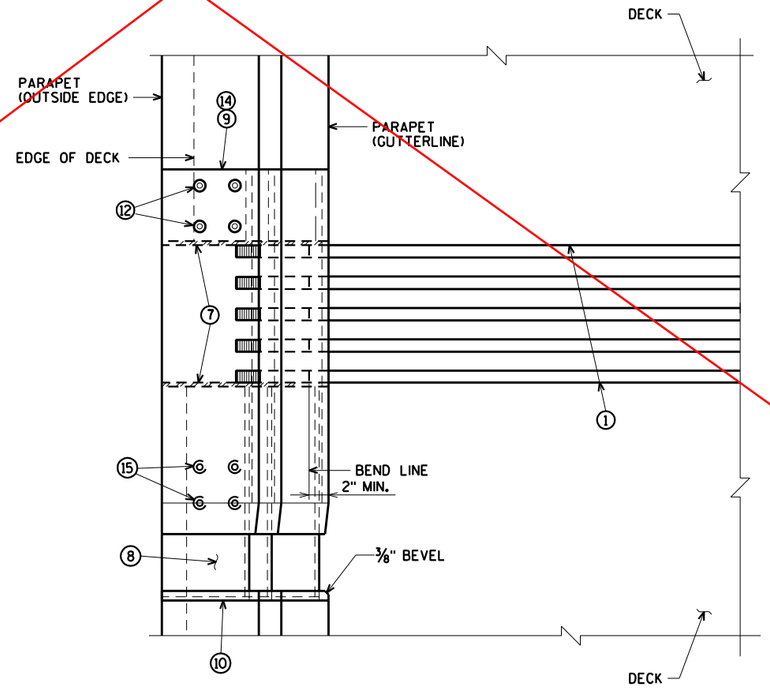
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 412.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 66, 68-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 16 DETAILS OUTSIDE PARAPET

SHEET 67 OF 99
413

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

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42-0825 EXPJT 16.dgn

8

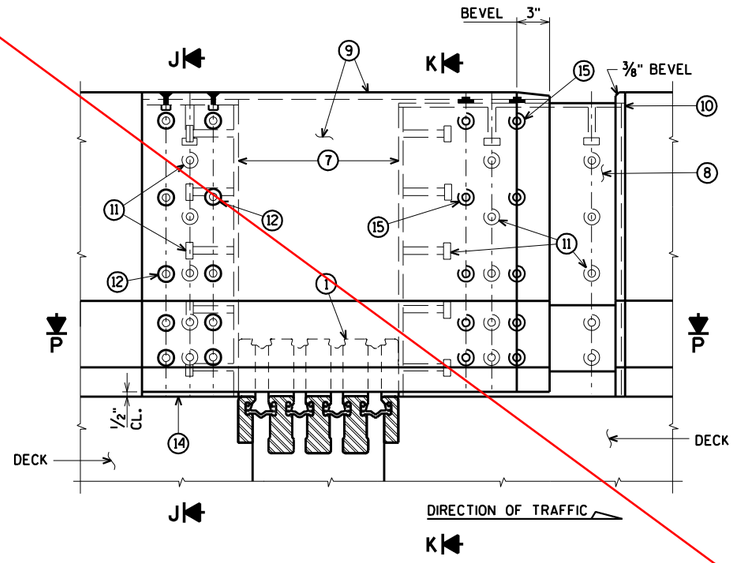
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9/12/2013

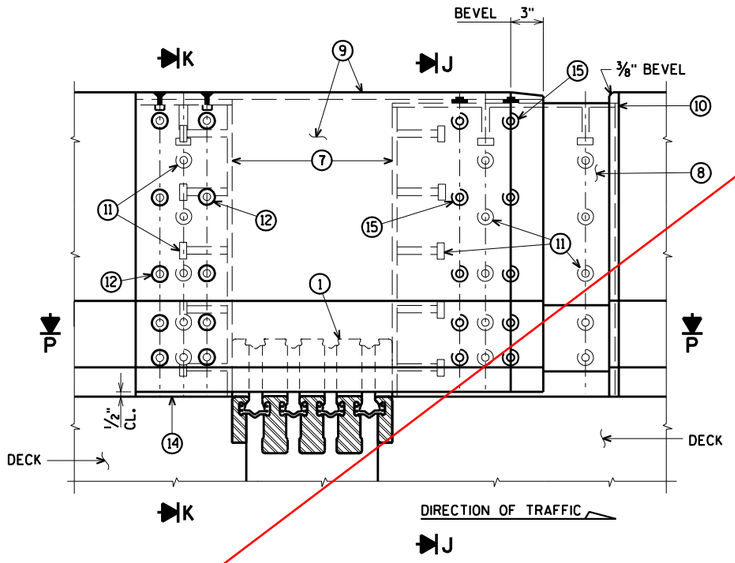
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STATE PROJECT NUMBER

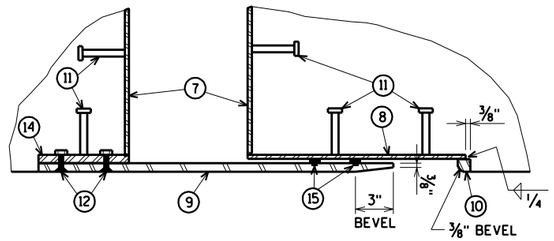
8680-04-71



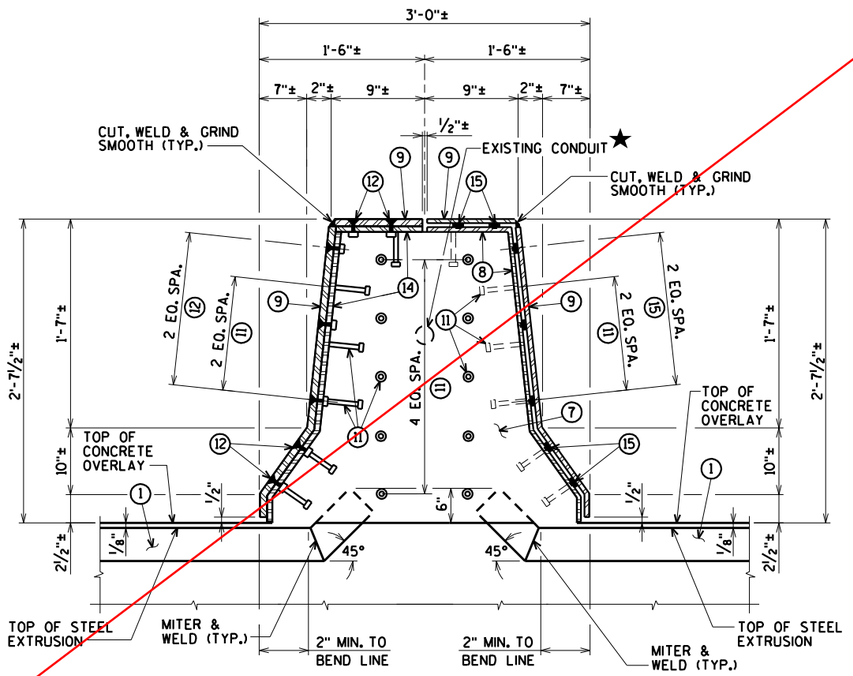
ELEVATION OF MEDIAN PARAPET
SECTION G



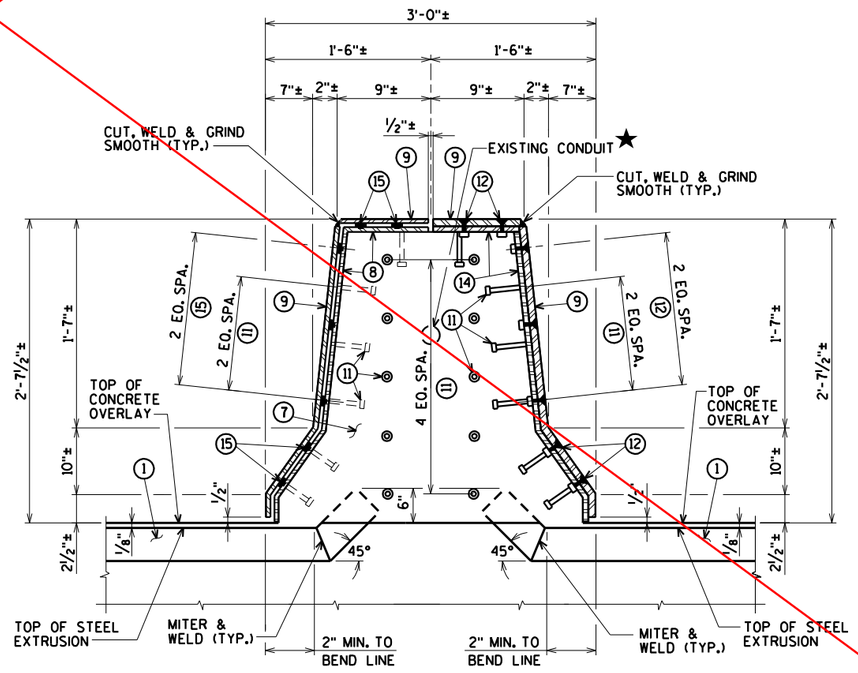
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 66

See revised joint details
PAGE 412.
Cover plate details
PAGE 409.

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

WORK THIS SHEET WITH SHEETS 66-67, 69-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 16 DETAILS MEDIAN PARAPET

SHEET 68 OF 99
414

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

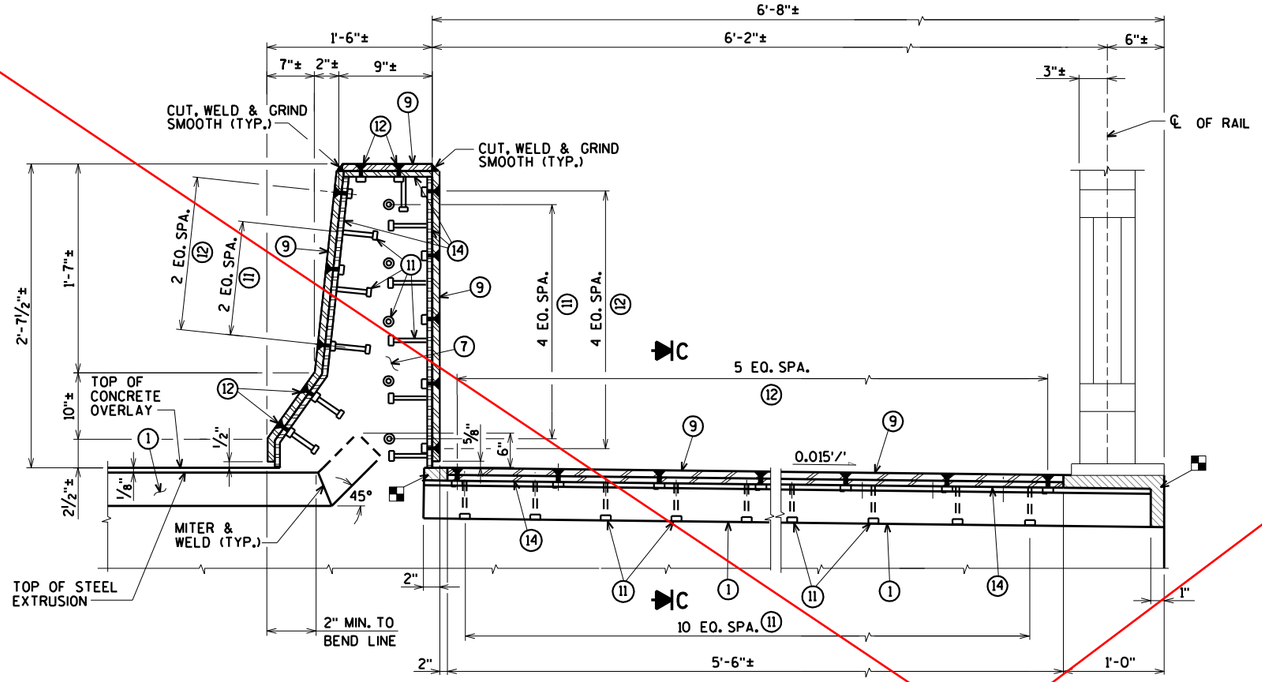
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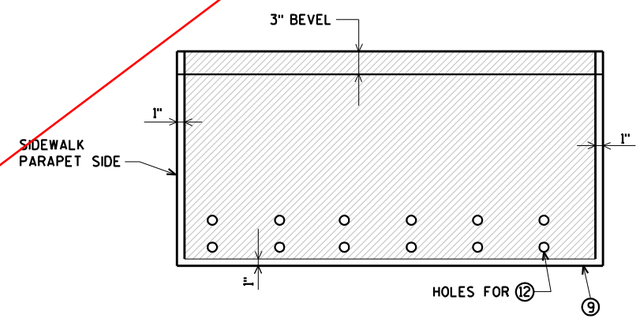
9/12/2013

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ELEVATION OF SIDEWALK W/PARAPET
SECTION A

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

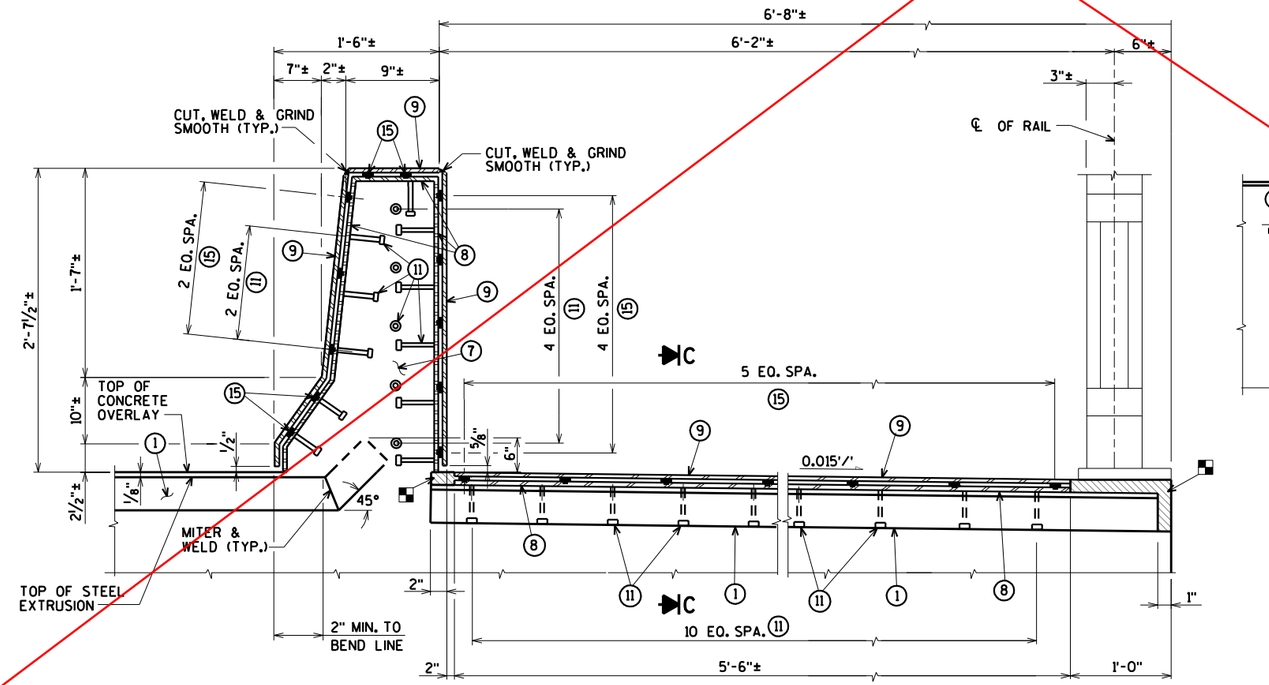


PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE ▲

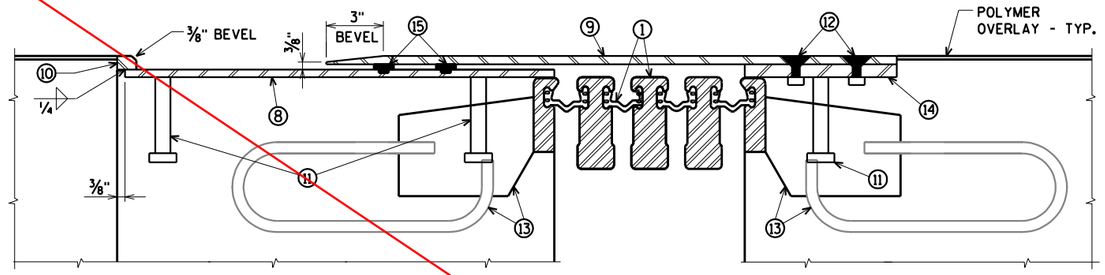
FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 66

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



ELEVATION OF SIDEWALK W/PARAPET
SECTION B



SECTION C

See revised joint details
PAGE 412.
Cover plate details
PAGE 409.

■ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 66-68, 70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 16 DETAILS SIDEWALK & PARAPET

SHEET 69 OF 99
415

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

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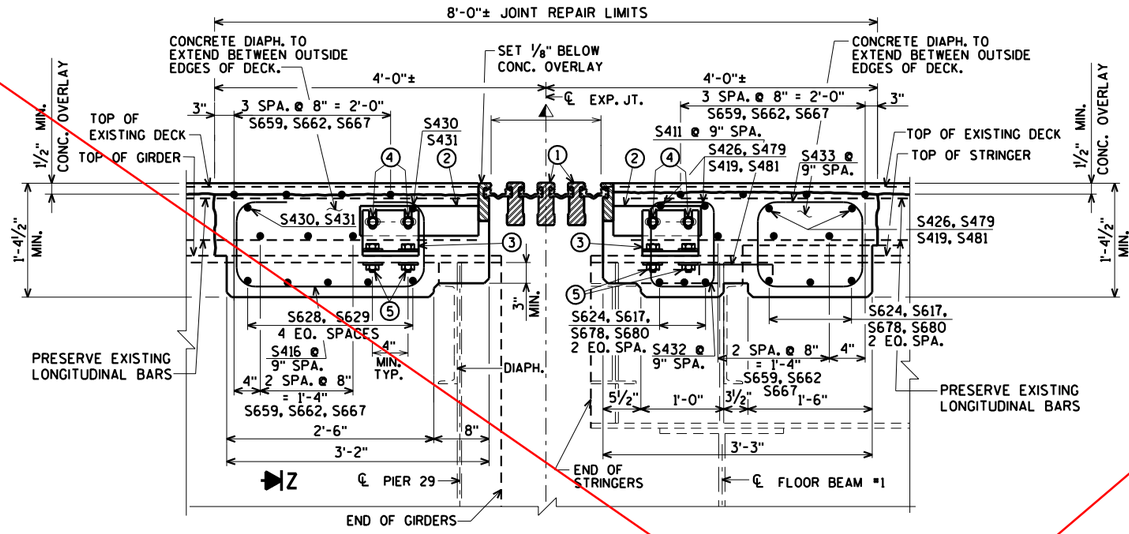
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9/12/2013

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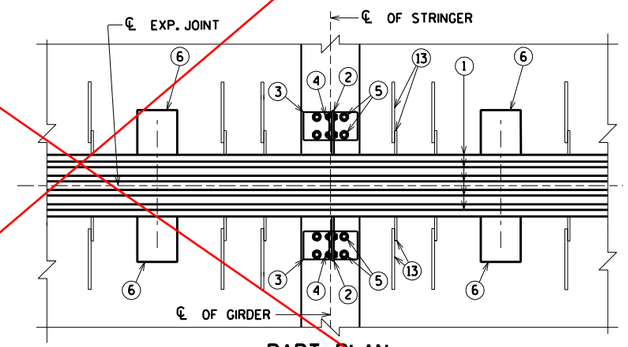
STATE PROJECT NUMBER

8680-04-71

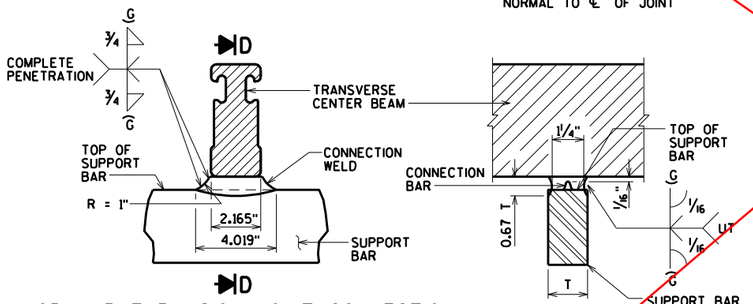


SECTION THRU JOINT 16

NORMAL TO ℄ OF JOINT

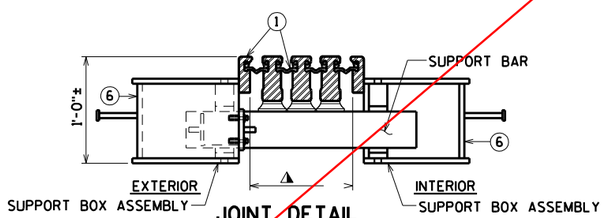


PART PLAN



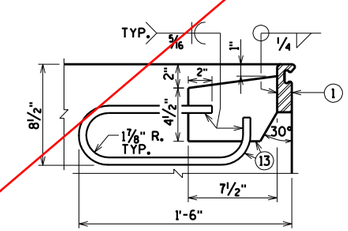
MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

SECTION D



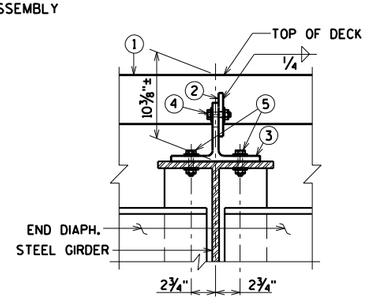
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK ℄ CONC. DIAPH.



SECTION Z-Z

NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 4 CELLS.

② 1/2" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM 1/2" PLATES.

⑦ 3/8" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM 3/8" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑩ 7/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.

⑪ 3/4" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ 3/4" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ 1/2" PLATE WITH 5/8" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. 5/8 IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

See revised joint details PAGE 412.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 66-69

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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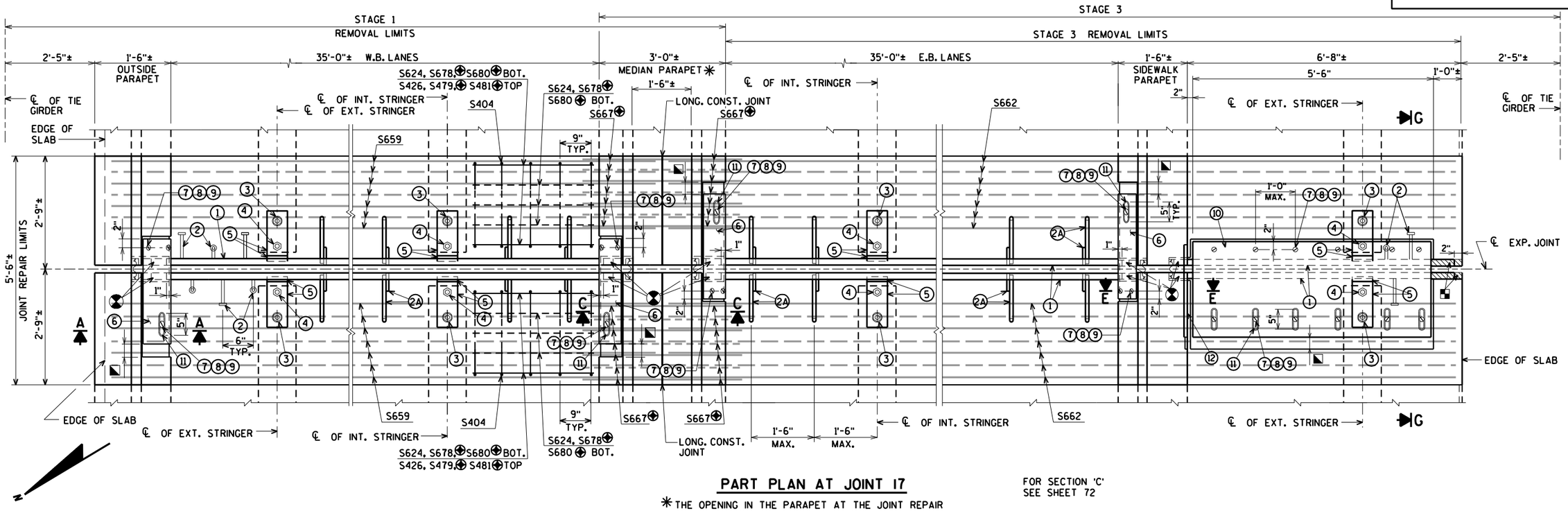
MODULAR EXPANSION JOINT 16 DETAILS

SHEET 70 OF 99
416

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

STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 17

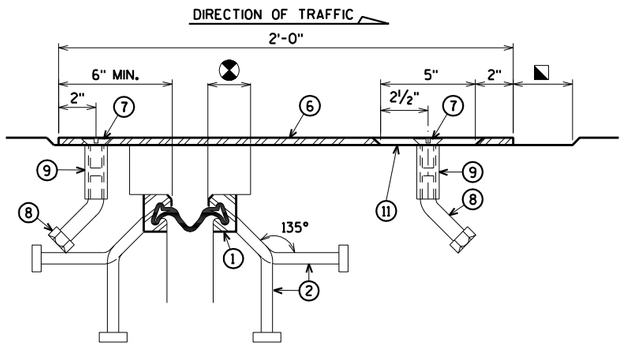
* THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

FOR SECTION 'C' SEE SHEET 72

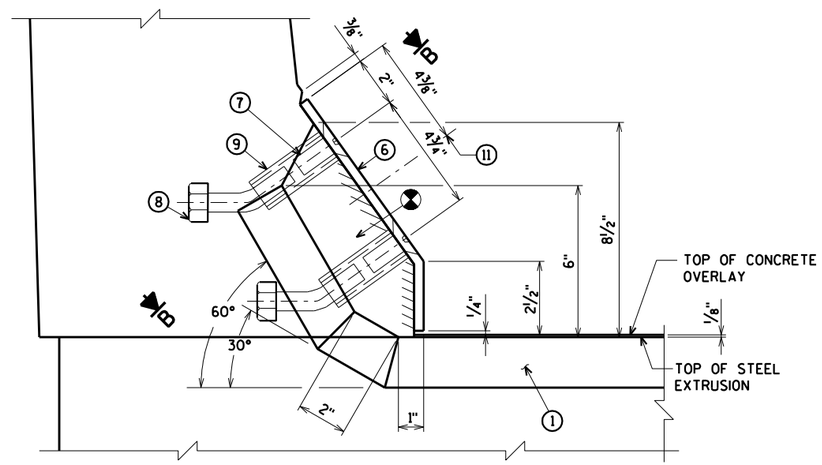
FOR SECTIONS 'E' AND 'G' SEE SHEET 73

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

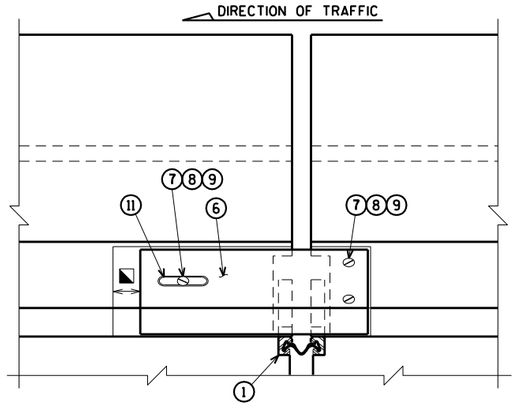


SECTION B



SECTION A

OUTSIDE PARAPET



VIEW OF PARAPET PLATES FROM ROADWAY

OUTSIDE PARAPET

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◺ JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

◪ BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 72-74

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

STRIP SEAL EXPANSION JOINT 17 DETAILS

SHEET 71 OF 99
417

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Eau Claire, WI 54701
www.AyresAssociates.com

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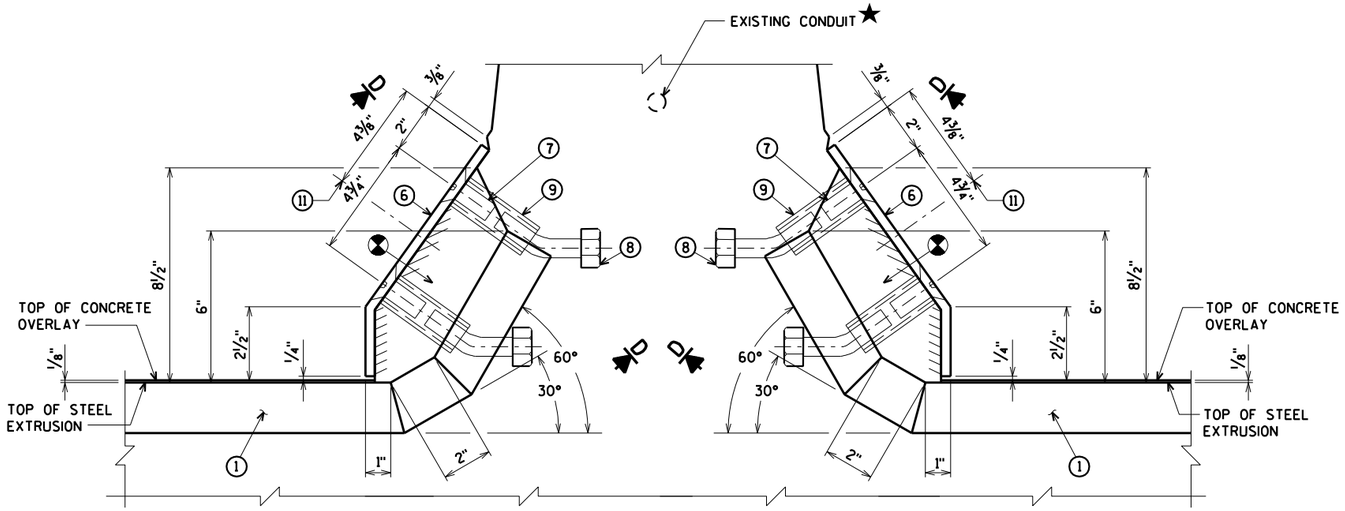
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STATE PROJECT NUMBER

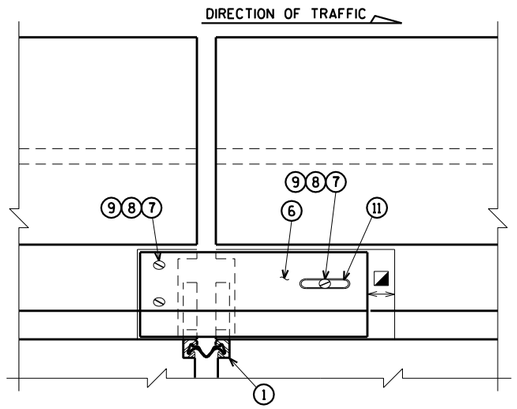
8680-04-71



SECTION C

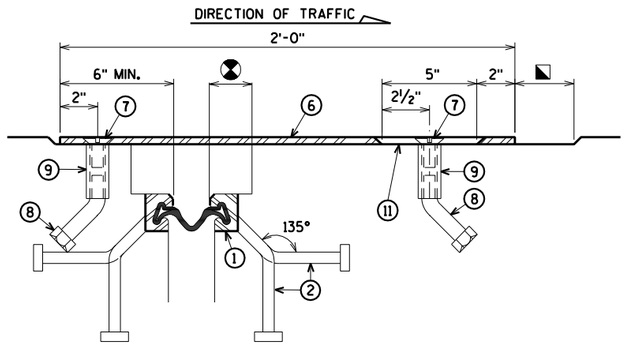
MEDIAN PARAPET

FOR LOCATION OF SECTION 'C' SEE SHEET 71



VIEW OF PARAPET PLATES FROM ROADWAY

MEDIAN PARAPET



SECTION D

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

WORK THIS SHEET WITH SHEETS 71, 73-74

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MEDIAN PARAPET COVER PLATE JOINT 17 DETAILS

SHEET 72 OF 99
418

ORIGINAL PLANS PREPARED BY
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Eau Claire, WI 54701
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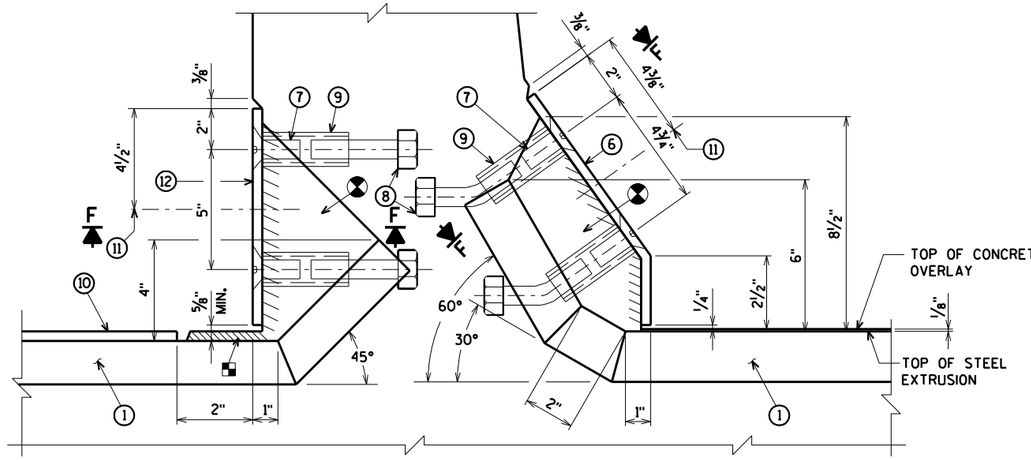
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STATE PROJECT NUMBER

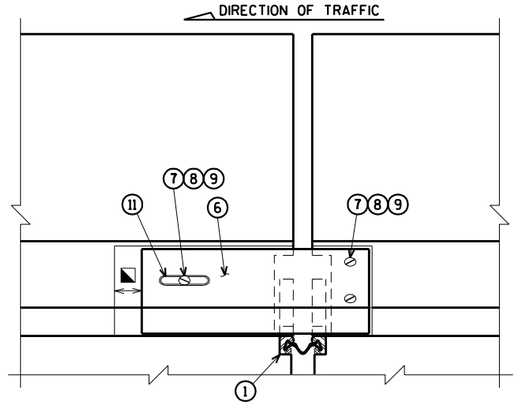
8680-04-71



SECTION E

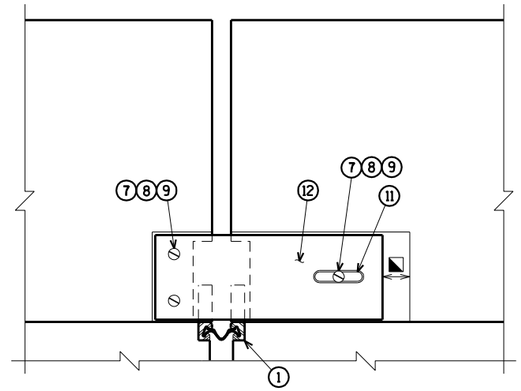
SIDEWALK PARAPET

FOR LOCATION OF SECTIONS 'E' AND 'G' SEE SHEET 71



VIEW OF PARAPET PLATES FROM ROADWAY

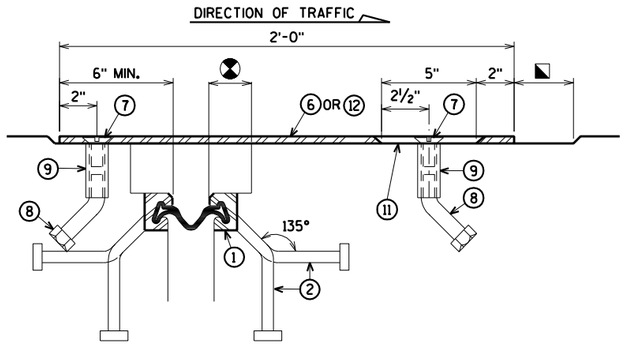
SIDEWALK PARAPET



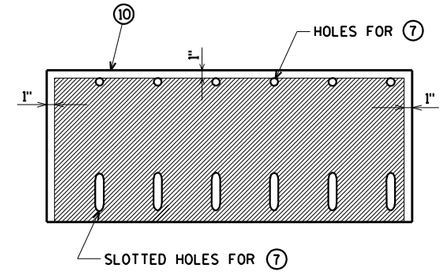
VIEW OF PARAPET PLATES FROM SIDEWALK

SIDEWALK PARAPET

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

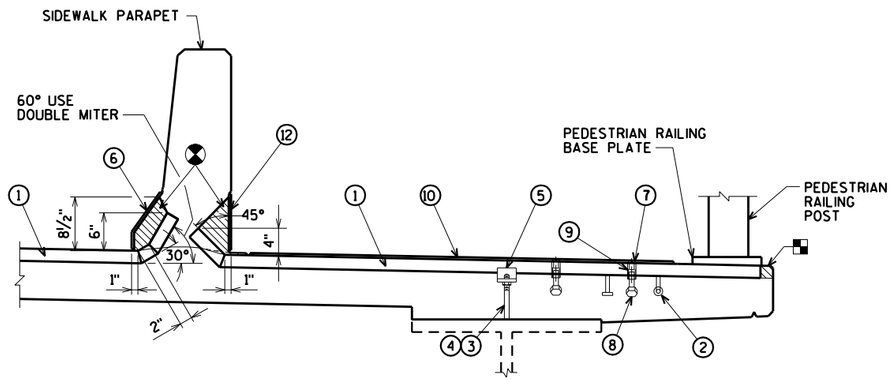


SECTION F

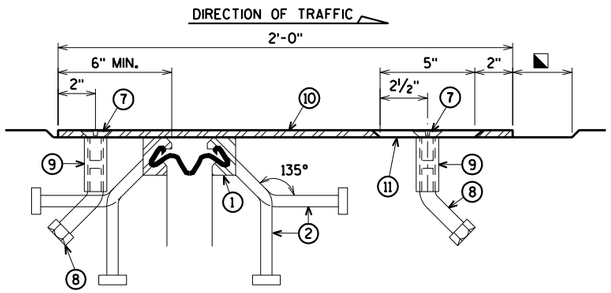


PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY.



SECTION AT SIDEWALK



SECTION G

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 71-72, 74

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

SIDEWALK PARAPET COVER PLATE JOINT 17 DETAILS

SHEET 73 OF 99
419

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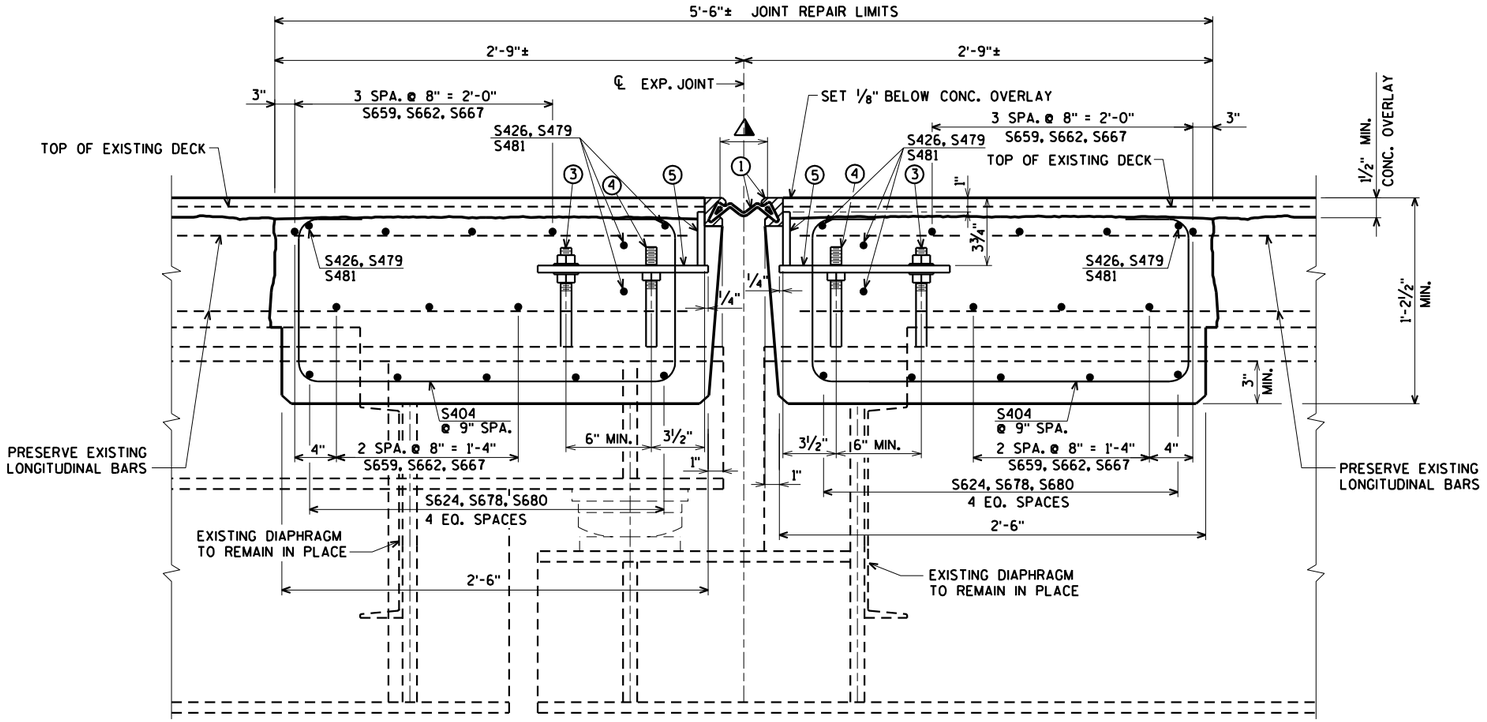
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STATE PROJECT NUMBER

8680-04-71



SECTION THRU JOINT 17

DIMENSIONS ARE NORMAL TO ℄ OF JOINT

LEGEND

1. NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 2¼".
2. STUDS ⅝"Φ X 6⅜" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
2A. ½" THICK ANCHOR PLATE WITH ⅝"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE. WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. ¾" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE.
4. ¾"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X ½" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" Φ HOLE FOR NO. 3 AND 1" Φ HOLE FOR NO. 4.
6. GALVANIZED PLATE ⅜" X 10½" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
7. ¾"Φ X 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
8. ¾"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
9. ¾"Φ X 2¼" GALVANIZED THREADED COUPLING.
10. SIDEWALK COVER PLATE ⅜" X 2'-0" X LIMITS SHOWN WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.
11. 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
12. GALVANIZED PLATE ⅜" X 10" X 2'-0" LONG WITH HOLES FOR NO. 7.

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING, OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

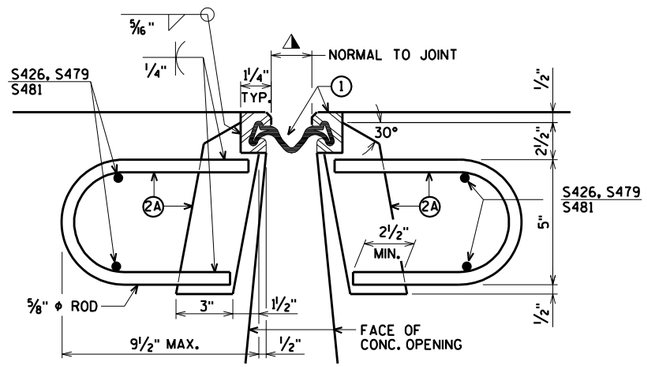
AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

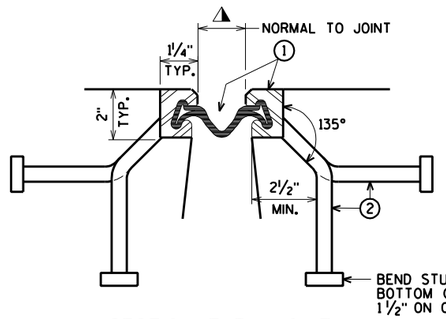
ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".



SECTION THRU JOINT

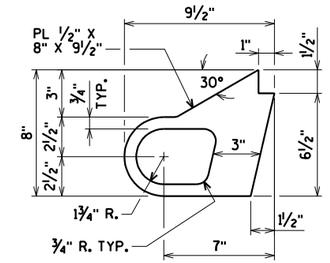
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR STRINGERS



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



ALTERNATE STRIP SEAL ANCHOR

WORK THIS SHEET WITH SHEETS 71-73

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 17 DETAILS

SHEET 74 OF 99
420

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8

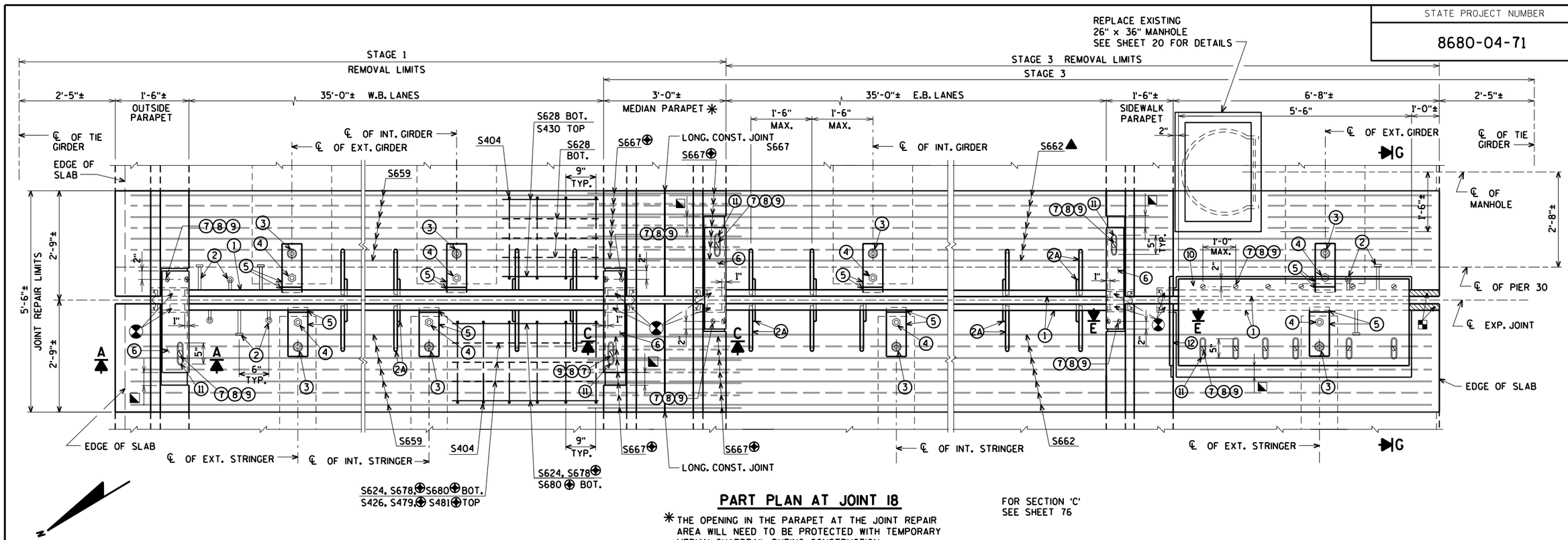
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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 18

✳ THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

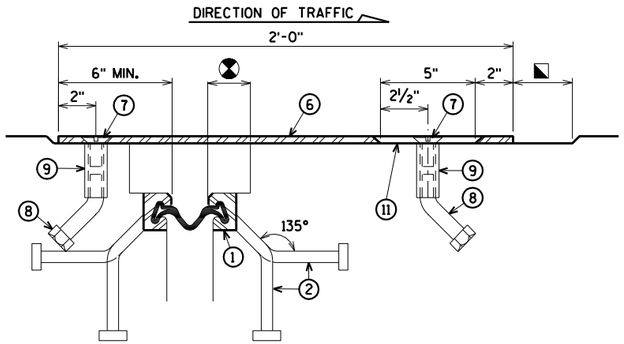
FOR SECTION 'C' SEE SHEET 76

FOR SECTIONS 'E' AND 'G' SEE SHEET 77

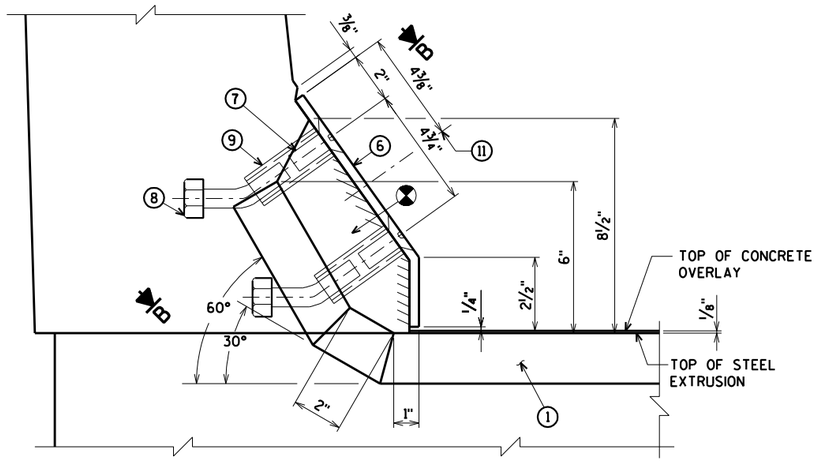
NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

▲ CUT S662 BARS IN THE FIELD TO MISS THE NEW MANHOLE. COST OF CUTTING THE BARS AND COATING THE ENDS OF THE CUTS IS INCIDENTAL TO THE BID ITEM "BAR STEEL REINFORCEMENT HS COATED BRIDGES".

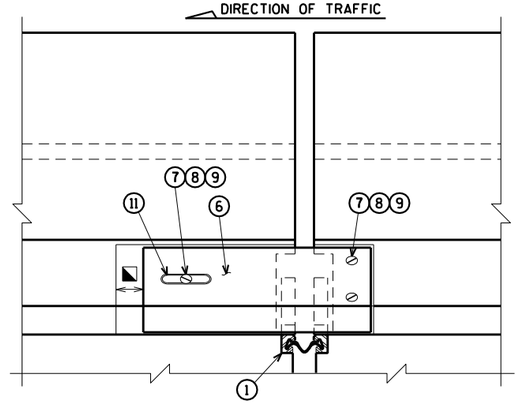
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.



SECTION B



SECTION A
OUTSIDE PARAPET



VIEW OF PARAPET PLATES FROM ROADWAY
OUTSIDE PARAPET

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◪ JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

▪ BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 76-78

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 18 DETAILS

SHEET 75 OF 99
421

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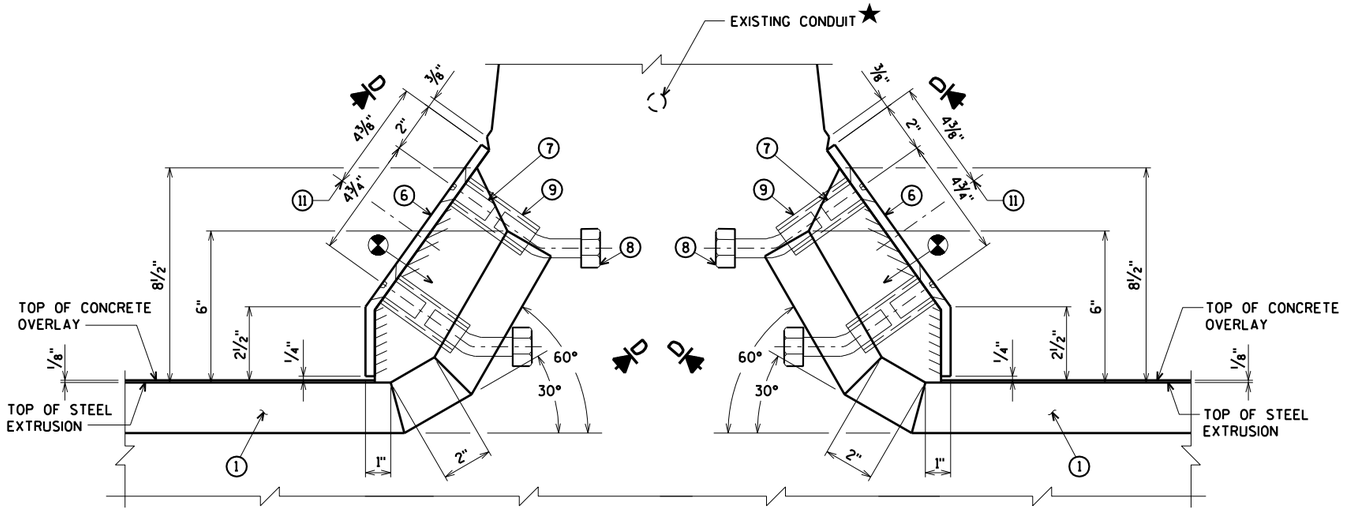
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STATE PROJECT NUMBER

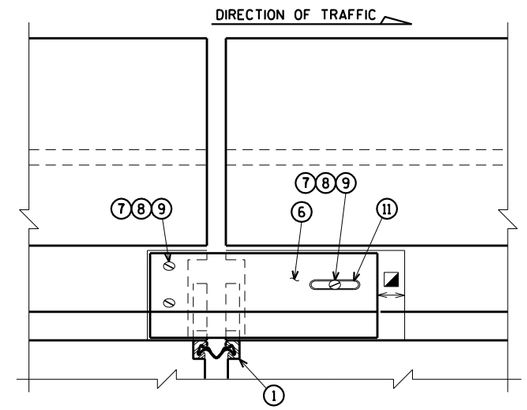
8680-04-71



SECTION C

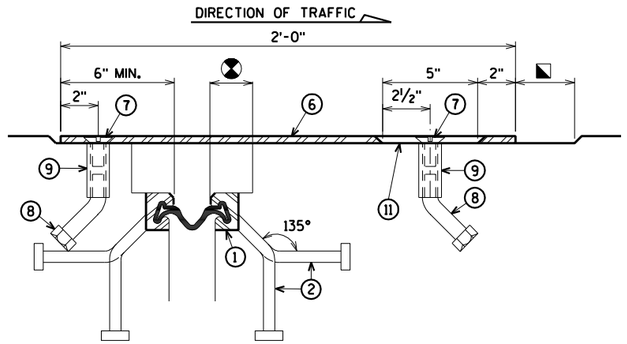
MEDIAN PARAPET

FOR LOCATION OF SECTION 'C' SEE SHEET 75



VIEW OF PARAPET PLATES FROM ROADWAY

MEDIAN PARAPET



SECTION D

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

WORK THIS SHEET WITH SHEETS 75, 77-78

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MEDIAN PARAPET COVER PLATE JOINT 18 DETAILS

SHEET 76 OF 99

422

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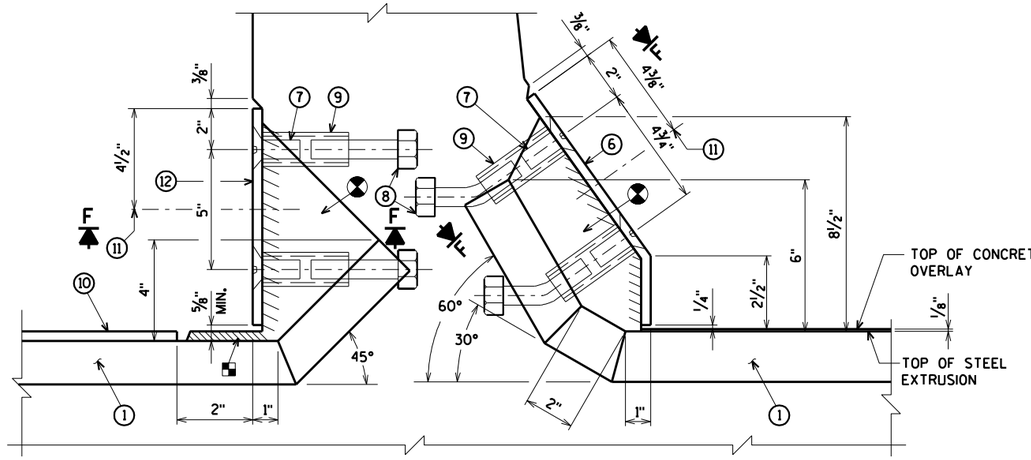
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STATE PROJECT NUMBER

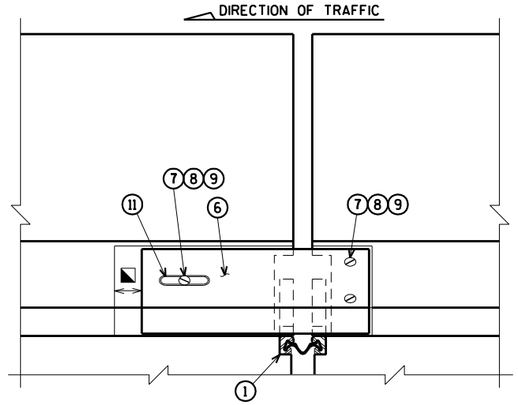
8680-04-71



SECTION E

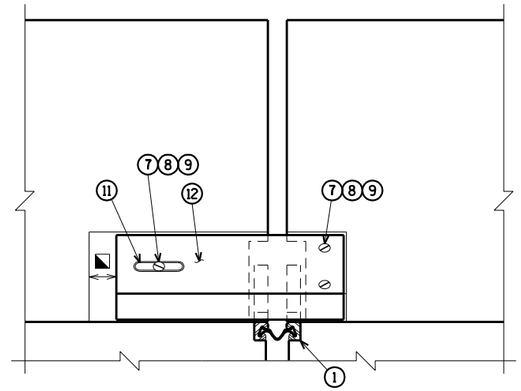
SIDEWALK PARAPET

FOR LOCATION OF SECTIONS 'E' AND 'G' SEE SHEET 75



VIEW OF PARAPET PLATES FROM ROADWAY

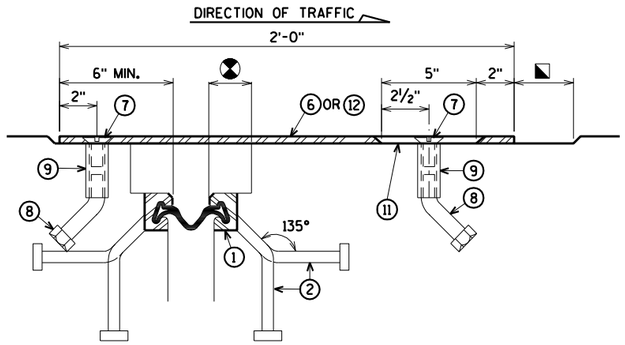
SIDEWALK PARAPET



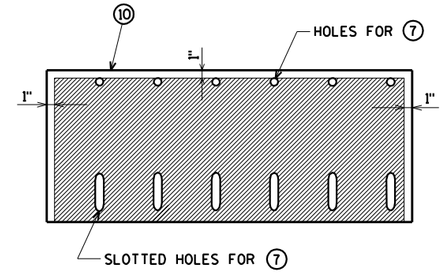
VIEW OF PARAPET PLATES FROM SIDEWALK

SIDEWALK PARAPET

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

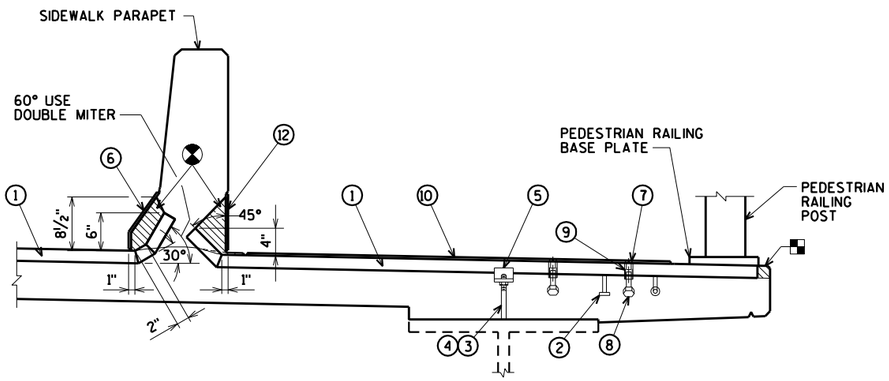


SECTION F

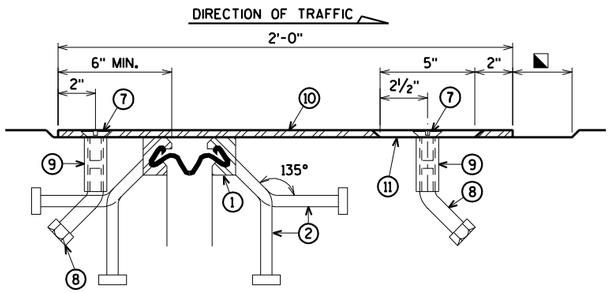


PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY.



SECTION AT SIDEWALK



SECTION G

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 75-76, 78

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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SIDEWALK PARAPET COVER PLATE JOINT 18 DETAILS

SHEET 77 OF 99
423

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Eau Claire, WI 54701
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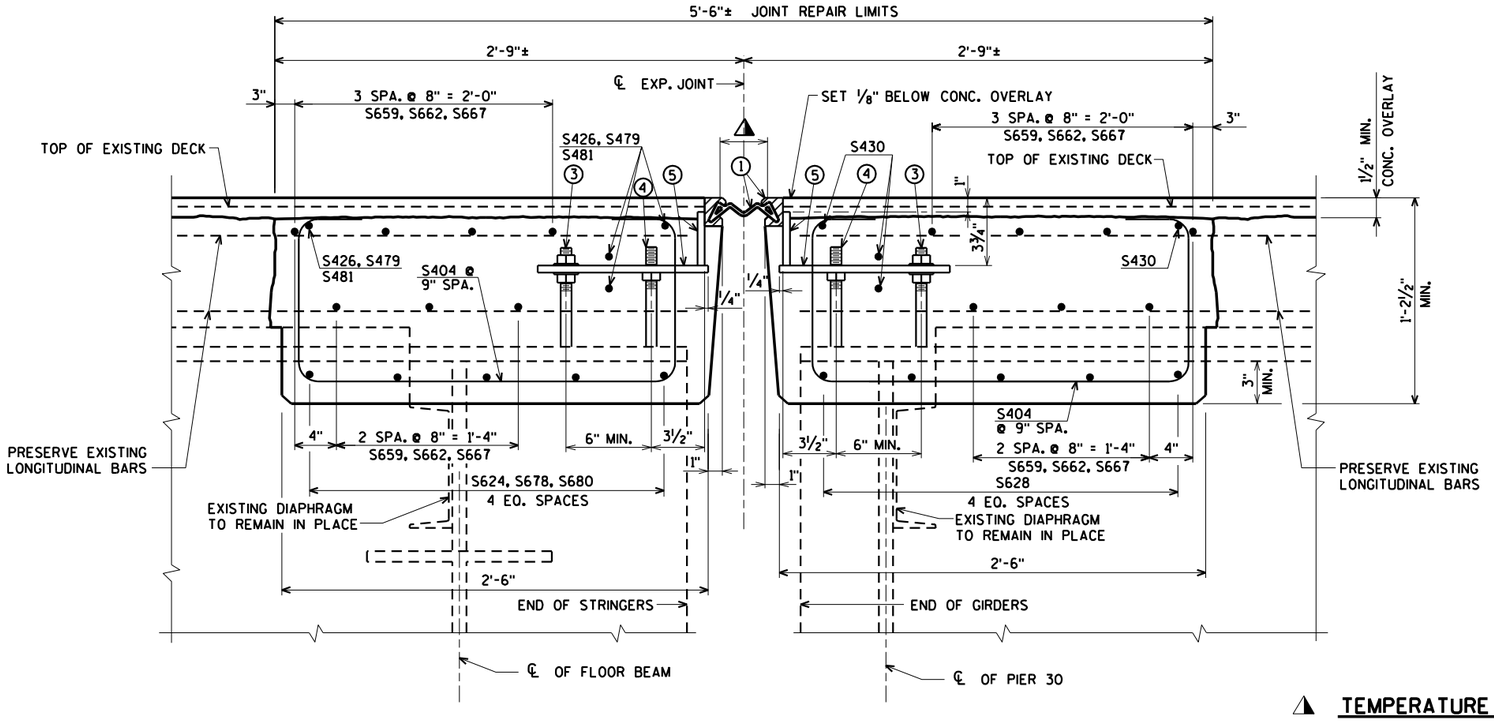
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STATE PROJECT NUMBER

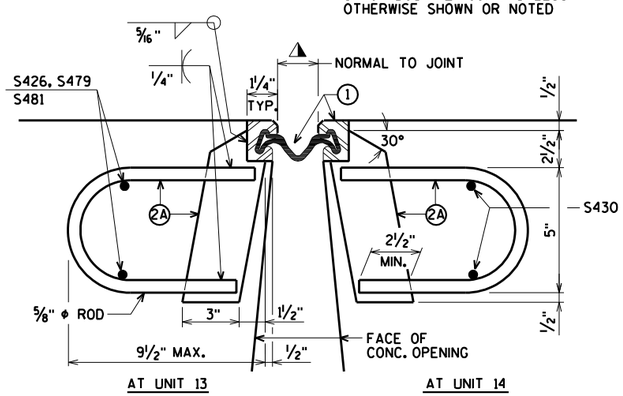
8680-04-71



SECTION THRU JOINT 18

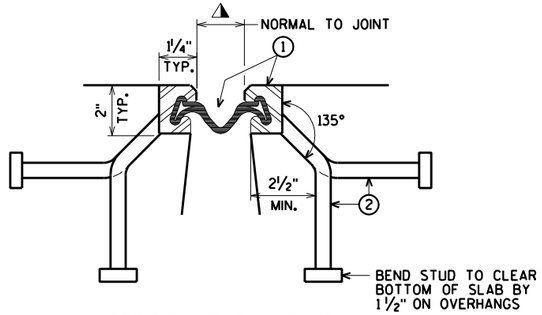
DIMENSIONS ARE NORMAL TO ℄ OF JOINT

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS

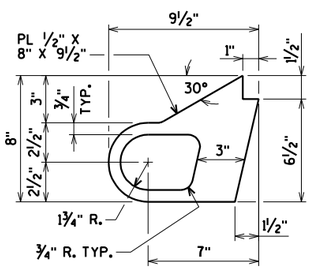
LEGEND

1. NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
2. STUDS 5/8"ϕ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
2A. 1/2" THICK ANCHOR PLATE WITH 5/8"ϕ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. 3/4" ϕ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
4. 3/4"ϕ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" ϕ HOLE FOR NO. 3 AND 1" ϕ HOLE FOR NO. 4.
6. GALVANIZED PLATE 3/8" X 10 1/2" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
7. 3/4"ϕ X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
8. 3/4"ϕ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
9. 3/4"ϕ X 2 1/4" GALVANIZED THREADED COUPLING.
10. 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
11. SIDEWALK COVER PLATE 3/8" X 2'-0" X LIMITS SHOWN WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.
12. GALVANIZED PLATE 3/8" X 10" X 2'-0" LONG WITH HOLES FOR NO. 7.

⚠ TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1 1/4"
75°	1 1/2"
65°	1 3/4"
55°	2"
45°	2 1/4"
35°	2 1/2"
25°	2 3/4"
15°	3"
5°	3 1/4"

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.



ALTERNATE STRIP SEAL ANCHOR

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING, OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

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SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. *6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".

WORK THIS SHEET WITH SHEETS 75-77

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 18 DETAILS

SHEET 78 OF 99
424

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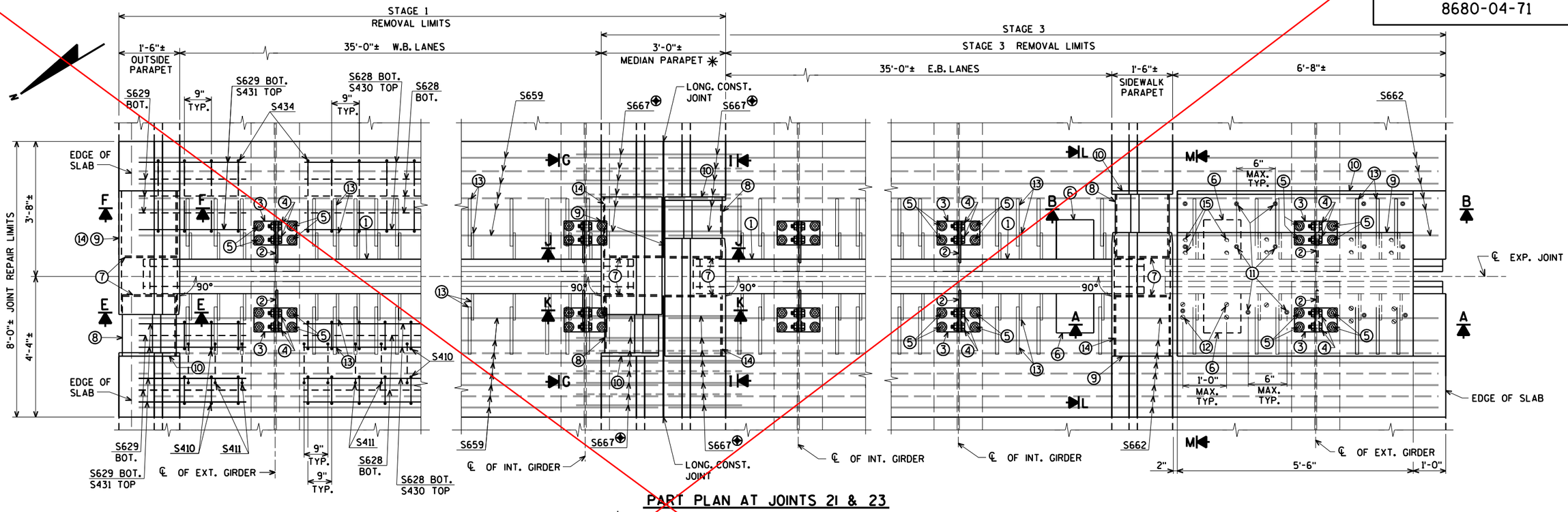
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9/12/2013

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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINTS 21 & 23

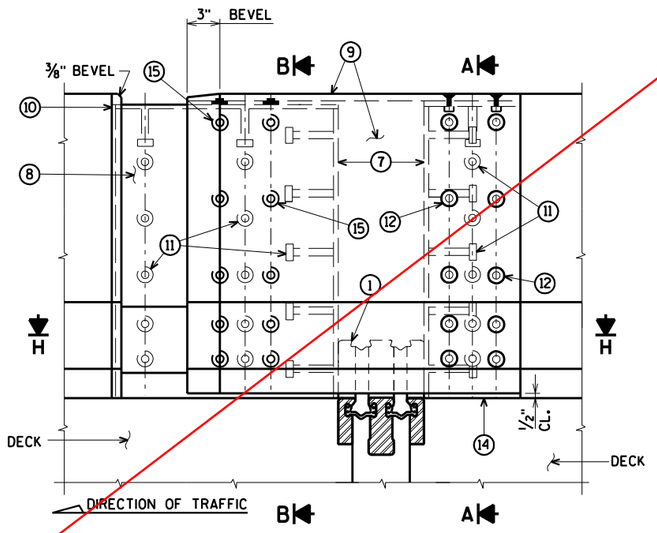
✳ THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

FOR SECTIONS 'A' AND 'B' SEE SHEET 82

FOR SECTIONS 'E' AND 'F' SEE SHEET 80

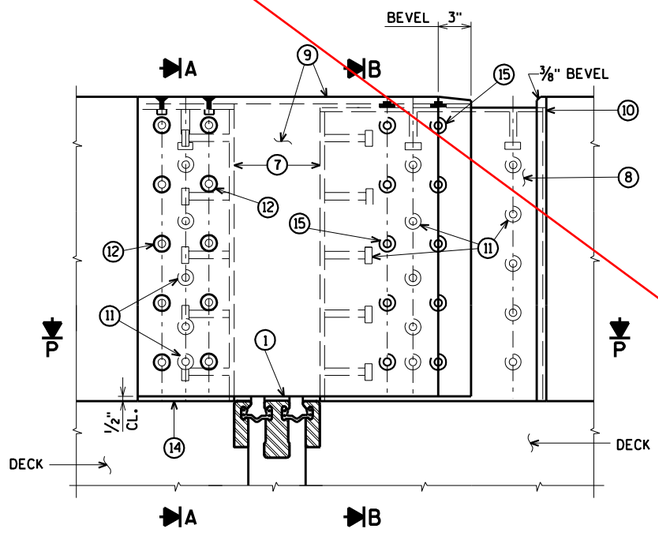
FOR SECTIONS 'G', 'I', 'J' AND 'K' SEE SHEET 81



ELEVATION OF SIDEWALK PARAPET
SECTION L

FOR SECTION 'H' SEE SHEET 80

FOR SECTION 'P' SEE SHEET 81



ELEVATION OF SIDEWALK PARAPET
SECTION M

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

See revised details

WORK THIS SHEET WITH SHEETS 80-83

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MODULAR EXPANSION JOINTS 21 & 23 DETAILS

SHEET 79 OF 99
425

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42-0825 EXPJT 2123.dgn

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9/13/2013

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REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

SUPPORT BOXES SHALL BE ASTM-A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM-A240, TYPE 304, WITH A 20 MICRO-INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM-A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A-SM-STUD-REP-01, B-FF-STUD-REP-01, OR A-(MC)GF-STUD-REP-01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM-A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM-A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT.
QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT-BRIDGE UNIT-INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

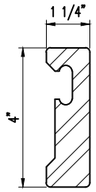
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

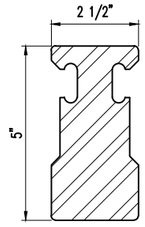
5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 50p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.



4" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.
(LOCATED ON "D-160" MODULAR EXPANSION JOINTS.)

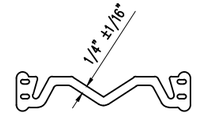


CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

INSTALLATION PROCEDURES

1. FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.
2. PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)
3. BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.
4. BEFORE REMOVING BLOCK AND BANDING, ANCHOR ONE SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. FIELD LOCATE AND DRILL HOLES IN SUPPORTING STRUCTURAL STEEL FOR JOINT SUPPORT HARDWARE.
5. REMOVE BLOCK AND BANDING AFTER ONE SIDE HAS BEEN ATTACHED TO STRUCTURE.
6. ADJUST JOINT OPENING, AS DETERMINED BY THE FIELD ENGINEER.
7. ANCHOR THE OTHER SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT CONNECTIONS. IF NEEDED, CONTRACTOR MAY TACK WELD JOINT SUPPORTS AFTER FINAL ADJUSTMENT.
8. CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.
9. POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2-400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 48
- SEE RAIL AND SEAL DETAILS ON SHEET 48
- SEE INSTALLATION PROCEDURES ON SHEET 48
- SEE SPLICE DETAILS ON SHEET 49
- SEE UPTURN DETAILS ON SHEET 49
- SEE STUD AND LOOP ANCHORS LOCATION & SPACING DETAILS ON SHEET 50
- SEE SPRING & BEARING DIAGRAM ON SHEET 50
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 50
- SEE 'D-160' PLAN VIEW FOR JOINTS #21 & #23 ON SHEET 51
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 52
- SEE JOINT SUPPORT DETAILS ON SHEET 52
- SEE 'D-160' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 53
- SEE SUPPORT BOX DETAILS ON SHEET 54
- SEE SUPPORT BAR DETAILS ON SHEET 55
- SEE BILL OF MATERIALS ON SHEET 56

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

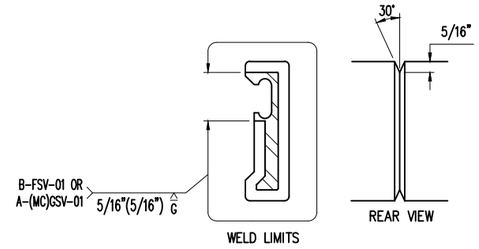
DESCRIPTION: GENERAL NOTES & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

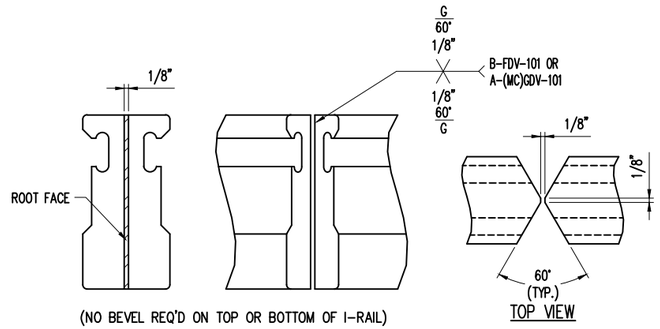
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	48

REVISED
Modular Expansion Joints 21 & 23
DETAILS

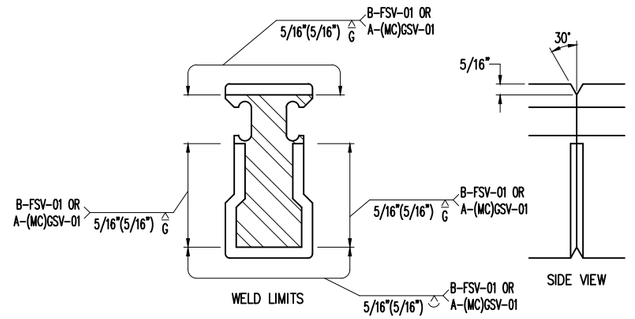
CONSTRUCTION
SHOP DRAWING



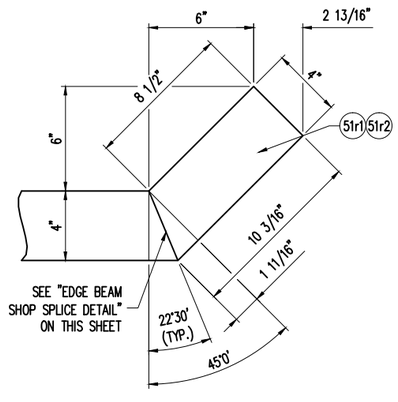
EDGE BEAM SHOP SPLICE DETAIL



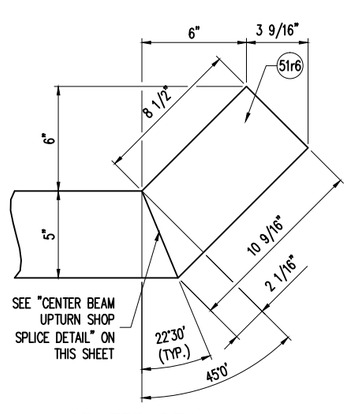
CENTER BEAM SHOP SPLICE DETAIL
COMPLETE PENETRATION WELD



CENTER BEAM UPTURN SHOP SPLICE DETAIL
PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)



EDGE BEAM
UPTURN DETAILS



CENTER BEAM
UPTURN DETAILS

REV.	DESCRIPTION	DATE	DET.	CKD.

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THE D.S. BROWN COMPANY
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NORTH BALTIMORE, OHIO 45872
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	ITEM	QUANTITY
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FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

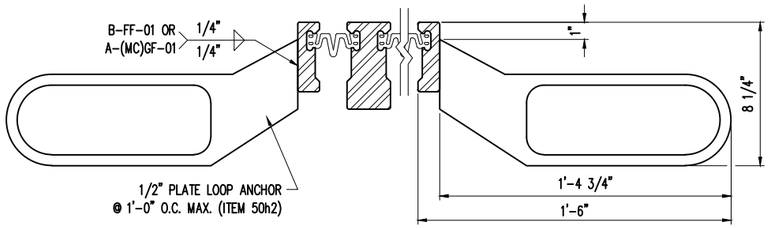
DESCRIPTION:
UPTURN & SPLICE DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

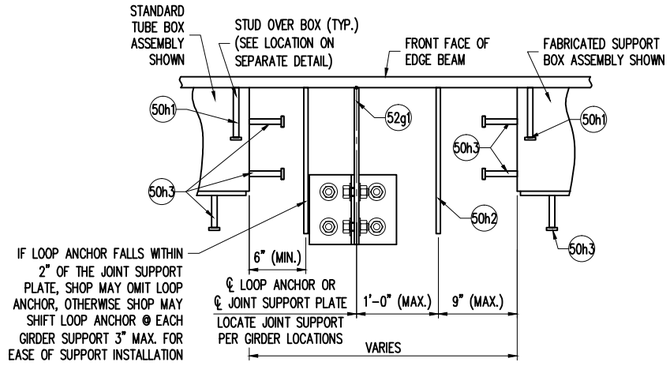
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	49

REVISED
Modular Expansion Joints 21 & 23
DETAILS

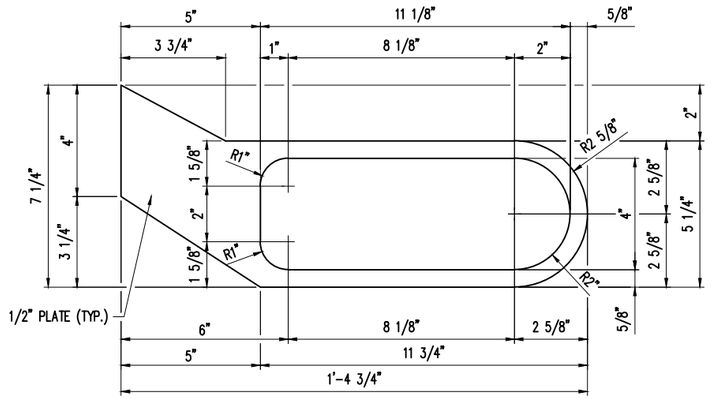
CONSTRUCTION
SHOP DRAWING



SECTION THRU 'D-160' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)

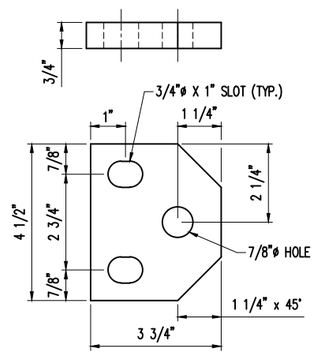


TYP. LOOP ANCHOR LAYOUT SEQUENCE
FOR 'D-160' MODULAR EXPANSION JOINT



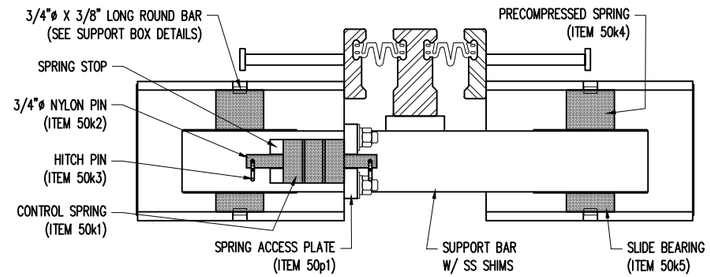
ITEM NO. 50h2
(234) REQ'D.

PLATE ANCHOR DETAIL



ITEM NO. 50p1
(88) REQ'D.

SPRING ACCESS PLATE DETAIL
FOR STANDARD BOXES



TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-160" SHOWN – OTHER JOINT SIZES SIMILAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

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A GIBRALTAR INDUSTRIES COMPANY
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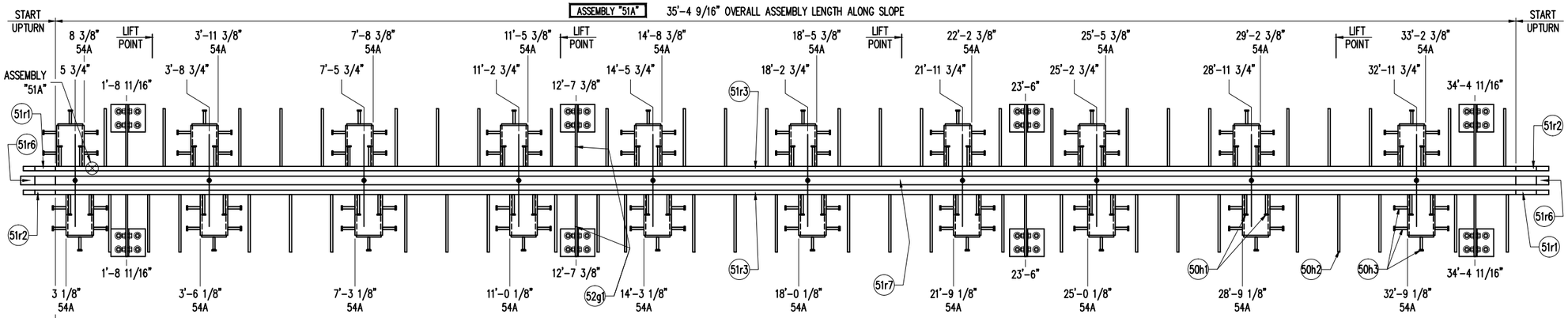
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
STANDARD SECTIONS AND DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

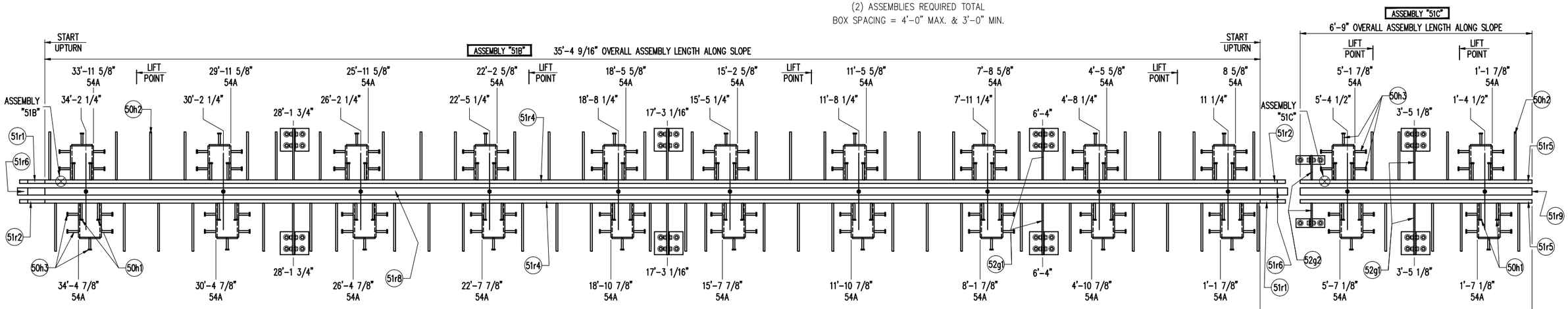
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	50

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 48
- SEE RAIL AND SEAL DETAILS ON SHEET 48
- SEE INSTALLATION PROCEDURES ON SHEET 48
- SEE SPLICE DETAILS ON SHEET 49
- SEE UPTURN DETAILS ON SHEET 49
- SEE STUD LOCATION & SPACING DETAILS ON SHEET 50
- SEE SPRING & BEARING DIAGRAM ON SHEET 50
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 50
- SEE 'D-160' PLAN VIEWS ON SHEET 51
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 52
- SEE JOINT SUPPORT DETAILS ON SHEET 52
- SEE 'D-160' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 53
- SEE SUPPORT BOX DETAILS ON SHEET 54
- SEE SUPPORT BAR DETAILS ON SHEET 55
- SEE BILL OF MATERIALS ON SHEET 56
- COVER PLATES NOT SHOWN FOR CLARITY PURPOSES (SEE SHEETS AFTER 100 FOR COVER PLATE DETAILS)



'D-160' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "51A")

JOINTS 21 & 23 LOCATED @ HINGE NEAR PIERS 38 & 42 (WESTBOUND LANES)
(2) ASSEMBLIES REQUIRED TOTAL
BOX SPACING = 4'-0" MAX. & 3'-0" MIN.

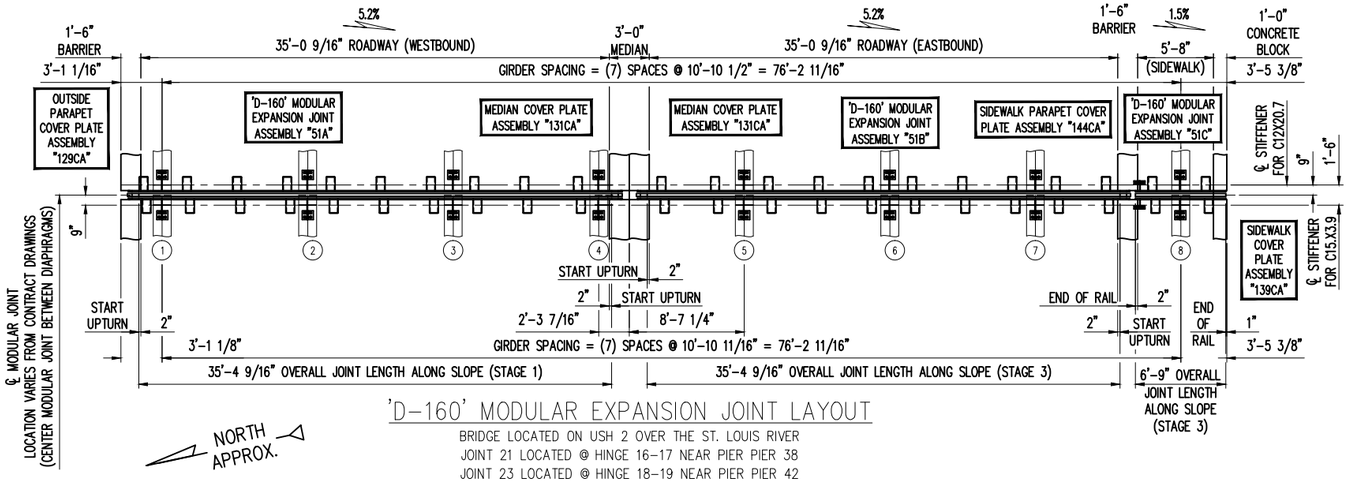


'D-160' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "51B")

JOINTS 21 & 23 LOCATED @ HINGE NEAR PIERS 38 & 42 (EASTBOUND LANES)
(2) ASSEMBLIES REQUIRED TOTAL
BOX SPACING = 4'-0" MAX. & 3'-3" MIN.

'D-160' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "51C")

JOINTS 21 & 23 LOCATED @ HINGE NEAR PIERS 38 & 42 (SIDEWALK)
(2) ASSEMBLIES REQUIRED TOTAL
BOX SPACING = 4'-0"



'D-160' MODULAR EXPANSION JOINT LAYOUT

BRIDGE LOCATED ON USH 2 OVER THE ST. LOUIS RIVER
JOINT 21 LOCATED @ HINGE 16-17 NEAR PIER PIER 38
JOINT 23 LOCATED @ HINGE 18-19 NEAR PIER PIER 42

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION SHOP DRAWING

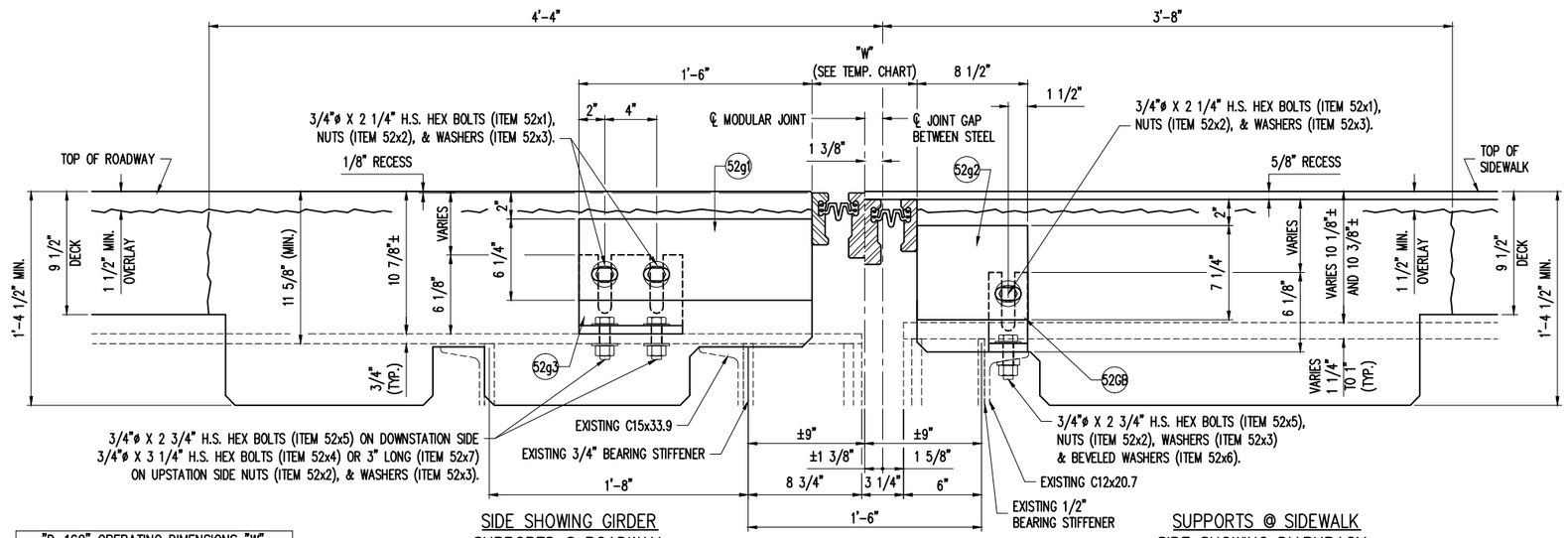
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A GIBRALTAR INDUSTRIES COMPANY
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300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
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REV.	DESCRIPTION	DATE	DET.	CKD.

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: 'D-160' LAYOUT & PLAN VIEWS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	51	



SIDE SHOWING GIRDER SUPPORTS @ ROADWAY

SUPPORTS @ SIDEWALK SIDE SHOWING DIAPHRAGM

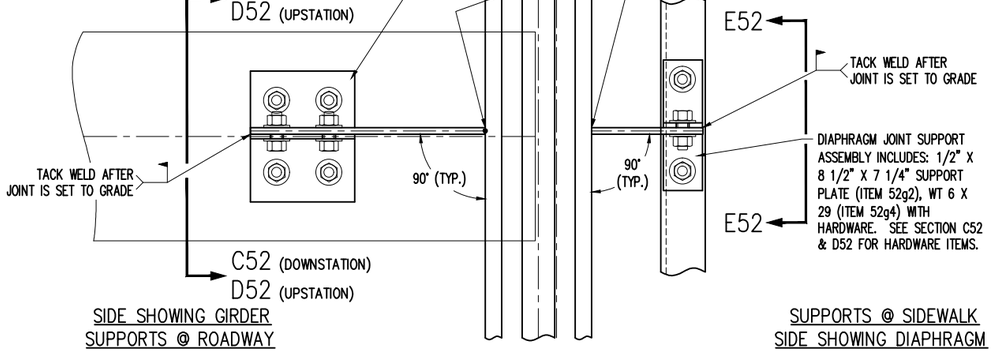
SECTION OF 'D-160' SUPPORTS @ GIRDERS & DIAPHRAGMS

DIMENSIONS SHOWN ARE AT 45°F

"D-160" OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINT #21 NEAR PIER 38 & JOINT #23 NEAR PIER 42
MAX.	5"
120°F	5 5/16"
110°F	5 11/16"
100°F	6 1/16"
90°F	6 7/16"
80°F	6 13/16"
70°F	7 3/16"
60°F	7 9/16"
50°F	7 15/16"
45°F	8 1/8"
40°F	8 5/16"
30°F	8 11/16"
20°F	9 1/16"
10°F	9 7/16"
0°F	9 13/16"
-10°F	10 3/16"
-20°F	10 9/16"
-30°F	10 15/16"
MIN.	11 5/16"

TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT: 3/8" PER 10°F

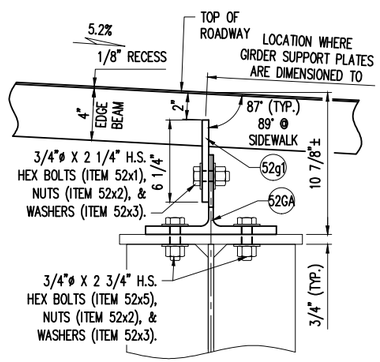


SIDE SHOWING GIRDER SUPPORTS @ ROADWAY

SUPPORTS @ SIDEWALK SIDE SHOWING DIAPHRAGM

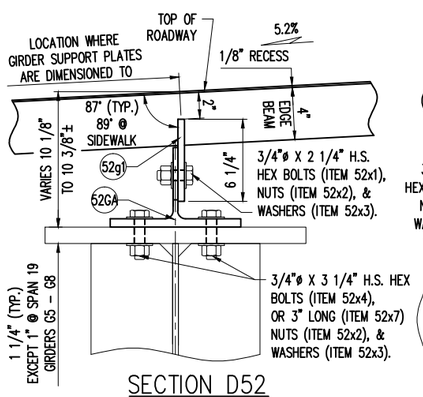
PLAN VIEW OF SUPPORTS @ GIRDERS AND DIAPHRAGMS

DIMENSIONS SHOWN ARE AT 45°F



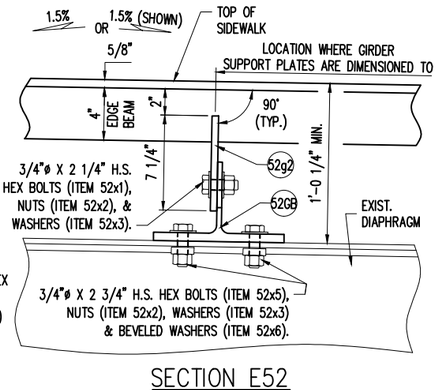
SECTION C52

(ON DOWNSTATION SIDE OF JOINT - LOOKING UPSTATION)



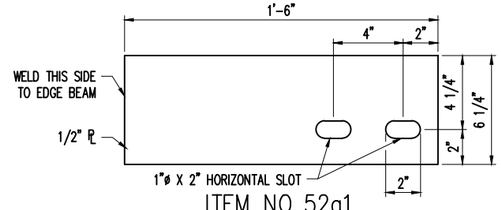
SECTION D52

(ON UPSTATION SIDE OF JOINT - LOOKING DOWNSTATION)



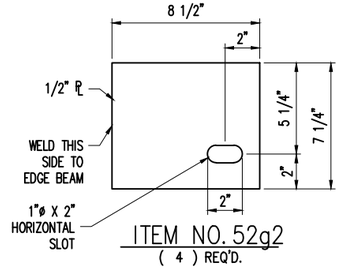
SECTION E52

(HARDWARE TYPICAL DOWNSTATION & UPSTATION SIDE OF JOINT)



ITEM NO. 52g1

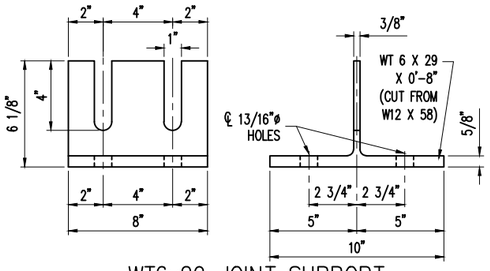
(32) REQ'D.



ITEM NO. 52g2

(4) REQ'D.

NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01

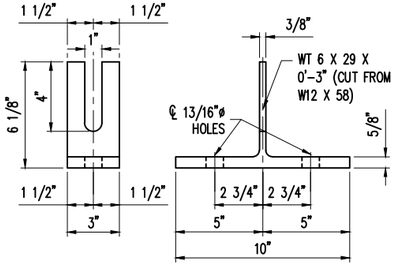


WT6x29 JOINT SUPPORT

ASSEMBLY 52GA (ITEM 52g3)

(32) REQUIRED

NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01



WT6x29 JOINT SUPPORT

ASSEMBLY 52GB (ITEM 52g4)

(4) REQUIRED

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

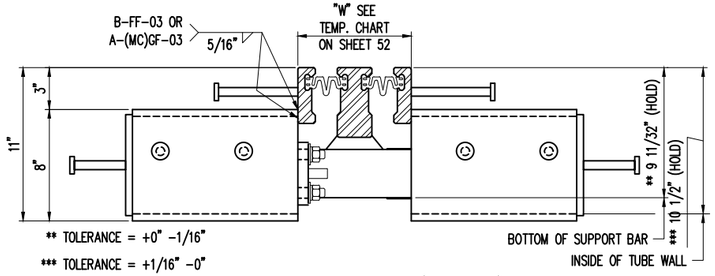
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-

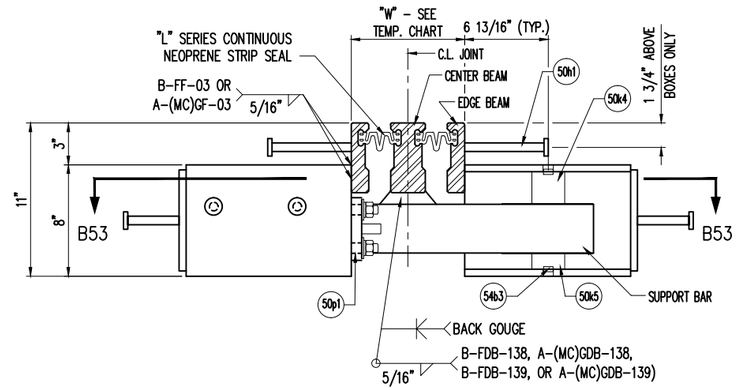
DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
JOINT SUPPORT DETAILS	N.T.S.	BLB	JLW	03/2014	48-56
DOUGLAS COUNTY, WISCONSIN	PROJECT NUMBER: 42790	PRODUCT CODE: 1021	RELEASE: 1	SHEET: 52	

REVISED
Modular Expansion Joints 21 & 23
DETAILS

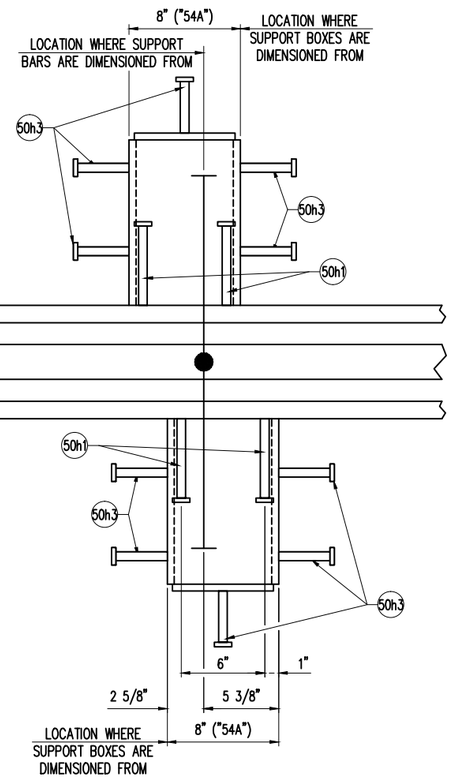
CONSTRUCTION
SHOP DRAWING



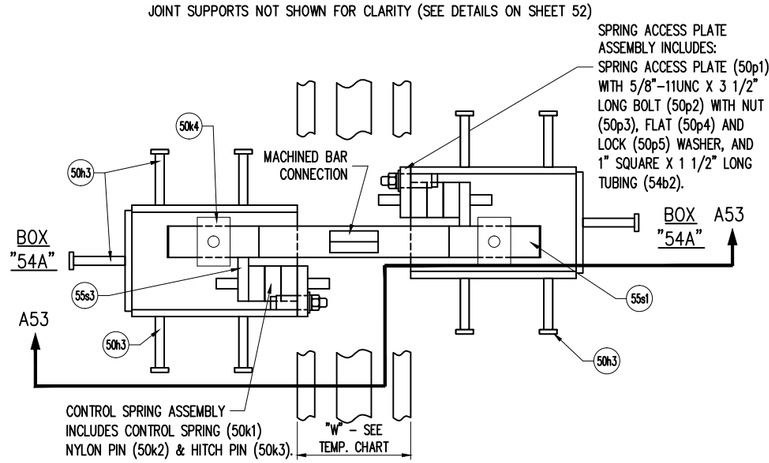
SECTION THROUGH 'D-160'
(TYPICAL BOX @ ROADWAY)
JOINT SUPPORTS NOT SHOWN FOR CLARITY



SECTION A53
JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 52)



SUPPORT BOX DETAIL
(TYPICAL BOX @ ROADWAY)
JOINT SUPPORTS NOT SHOWN FOR CLARITY



SECTION B53
JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 52)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

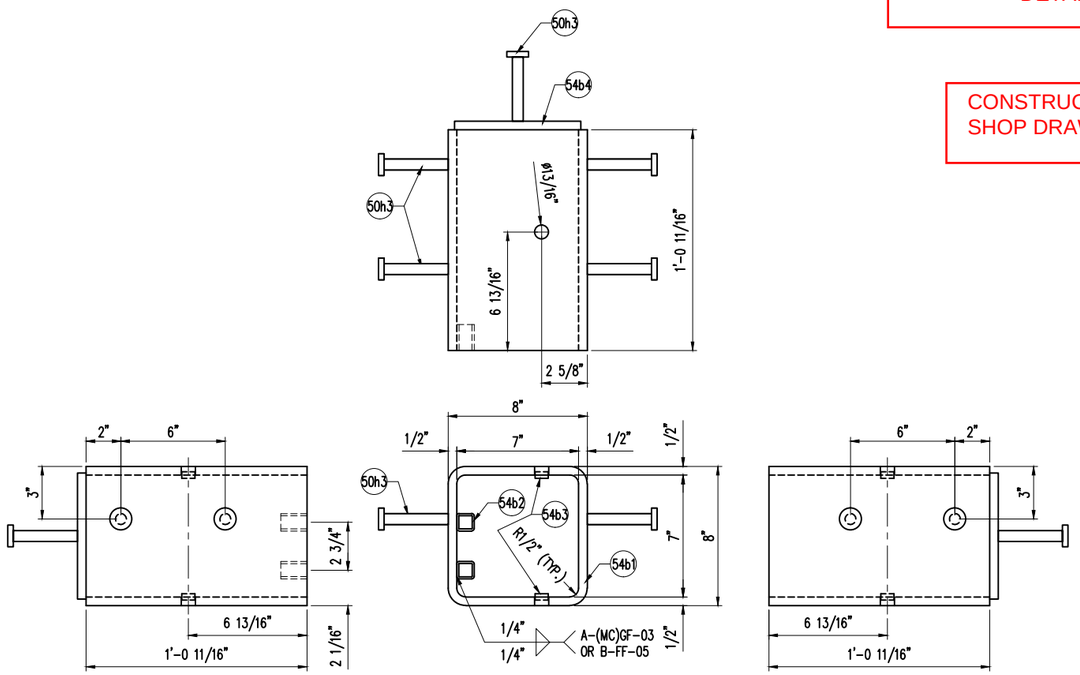
DESCRIPTION:
TYPICAL SECTIONS AND DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	53

REVISED
Modular Expansion Joints 21 & 23
DETAILS

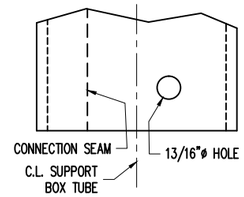
CONSTRUCTION
SHOP DRAWING



ITEM	DESCRIPTION	QTY.
50h3	5/8"ø X 4" STUD ANCHOR	440
54b1	1/2" THICK SUPPORT BOX TUBE	88
54b2	1" SQUARE X 1 1/2" LONG TUBING	176
54b3	3/4"ø x 3/8" LONG ROUND BAR	176
54b4	SUPPORT BOX END CAP	88

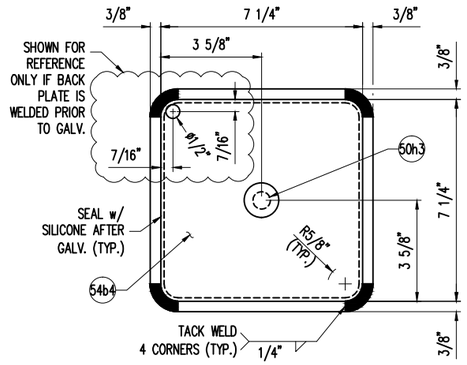
'D-160' SUPPORT BOX DETAIL "54A"

(88) REQUIRED



SHOP NOTE:

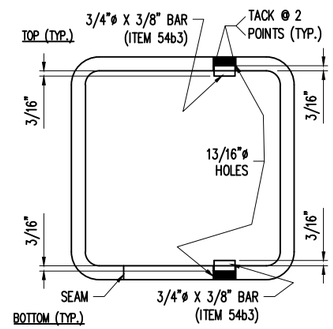
WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE C.L. OF BOX.



BACK PLATE DETAIL

(SUPPORT BOX END CAP)

AT THE SHOPS OPTION IF ATTACHED PRIOR TO GALVANIZING, SHOP SHALL LOCATE 1/2"ø HOLES IN EACH CORNER 7/16" FROM EACH EDGE TO CENTER OF HOLE. AFTER GALVANIZING, HOLES SHALL BE PLUGGED USING PLASTIC PLUGS OR ANOTHER METHOD.



BOX PIN DETAILS

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION:
SUPPORT BOX TUBE DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	54

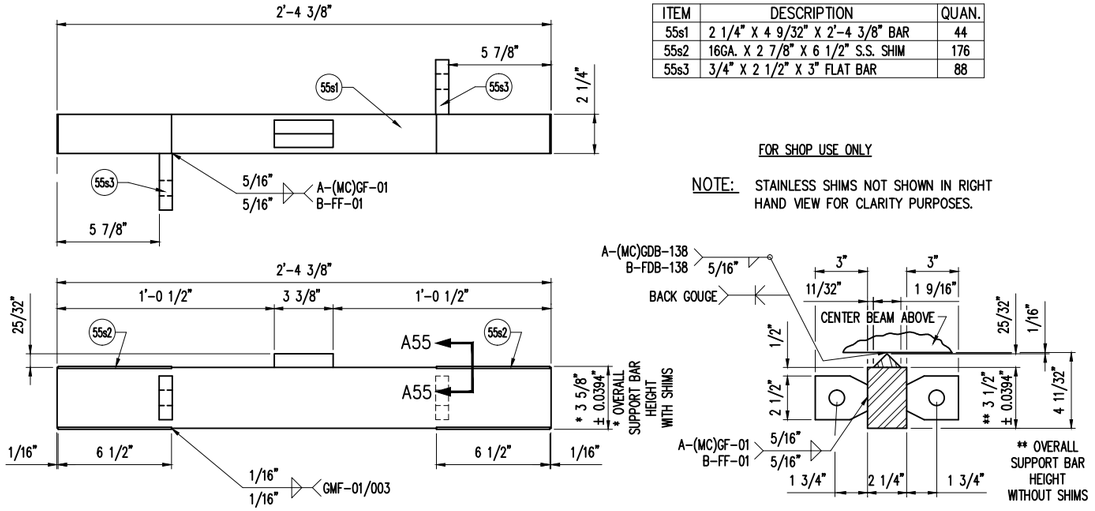
REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

ITEM	DESCRIPTION	QUAN.
55s1	2 1/4" X 4 9/32" X 2'-4 3/8" BAR	44
55s2	16GA. X 2 7/8" X 6 1/2" S.S. SHIM	176
55s3	3/4" X 2 1/2" X 3" FLAT BAR	88

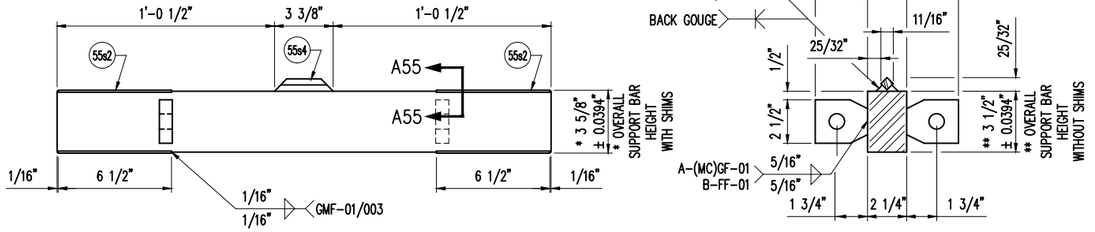
FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.



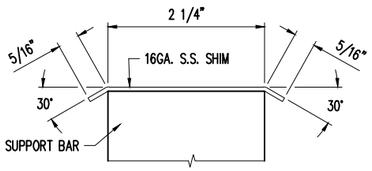
'D-160' MACHINED SUPPORT BAR DETAIL

(44) REQUIRED

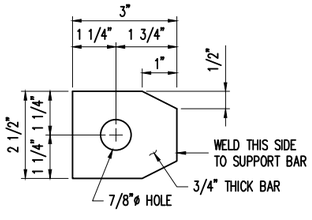


OPTIONAL "D-160" SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

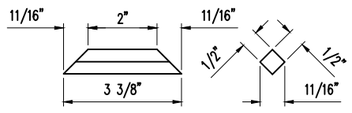


SECTION A55



ITEM NO. 55s3
(88) REQ'D.

'D-160' SPRING STOP DETAIL



ITEM NO. 55s4
(44) REQ'D.

TYPICAL RIDER BAR DETAIL

USED @ OPTIONAL SUPPORT BAR DETAIL ONLY

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
STANDARD SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	55

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
51A	2	D-160' MODULAR JOINT			36'-11 11/16" - JOINT 21 & 23 (WESTBOUND)	5719	
50h1	80	Ø5/8 X 6 WELD STUD	A108		A123-HDG	< 1	
50h2	108	1/2 X 7 1/4	A709 GR 36 OR 50	1'-4 3/4	SHAPE CUT; A123-HDG	17	
50h3	200	Ø5/8 X 4 WELD STUD	A108		A123-HDG	< 1	
50k1	40	CONTROL SPRING (80MM)	-			1	
50k2	40	NYLON PIN (80MM)	-			< 1	
50k3	80	HITCH PIN	-			< 1	
50k4	40	PRECOMPRESSED SPRING	-		RUBBER;	< 1	
50k5	40	SLIDE BEARING	-		RUBBER;	1	
50p1	40	3/4 X 3 3/4	A36	0'-4 1/2	SHAPE CUT; A123-HDG	4	
50p2	80	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		B695-MG OR; ZINC PLATED	< 1	
50p3	80	Ø5/8 HEX NUT	A563 GR A		B695-MG	< 1	
50p4	80	Ø5/8 FLAT WASHER	F844		B695-MG	< 1	
50p5	80	Ø5/8 LOCK WASHER	ASME 18.21.1-1990		B695-MG	< 1	
51r1	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
51r2	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
51r3	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 15/16	A123-HDG	461	
51r6	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
51r7	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-8 11/16	A123-HDG	1232	
51w1	2	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
51w2	4	L2-400 GLAND	NEOPRENE	38'-0	152'-0" TOTAL;	61	
52g1	16	1/2 X 6 1/4	A709 GR 36 OR 50	1'-6	A123-HDG	16	
54b1	40	HSS 8 X 8 X 1/2	A500 GR B	1'-0 11/16	A123-HDG	52	
54b2	80	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
54b3	80	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
54b4	40	1/2 X 7 1/4	A36	0'-7 1/4	SHAPE CUT; A123-HDG	7	
55s1	20	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-4 3/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	81	
55s2	80	16 GA. X 2 7/8	SEE REMARKS	0'-6 1/2	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
55s3	40	3/4 X 2 1/2	A36	0'-3	SHAPE CUT; A123-HDG	2	

51B	2	D-160' MODULAR JOINT			36'-11 11/16" - JOINT 21 & 23 (EASTBOUND)	5704	
50h1	80	Ø5/8 X 6 WELD STUD	A108		A123-HDG	< 1	
50h2	110	1/2 X 7 1/4	A709 GR 36 OR 50	1'-4 3/4	SHAPE CUT; A123-HDG	17	
50h3	200	Ø5/8 X 4 WELD STUD	A108		A123-HDG	< 1	
50k1	40	CONTROL SPRING (80MM)	-			1	
50k2	40	NYLON PIN (80MM)	-			< 1	
50k3	80	HITCH PIN	-			< 1	
50k4	40	PRECOMPRESSED SPRING	-		RUBBER;	< 1	
50k5	40	SLIDE BEARING	-		RUBBER;	1	
50p1	40	3/4 X 3 3/4	A36	0'-4 1/2	SHAPE CUT; A123-HDG	4	
50p2	80	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		B695-MG OR; ZINC PLATED	< 1	
50p3	80	Ø5/8 HEX NUT	A563 GR A		B695-MG	< 1	
50p4	80	Ø5/8 FLAT WASHER	F844		B695-MG	< 1	
50p5	80	Ø5/8 LOCK WASHER	ASME 18.21.1-1990		B695-MG	< 1	
51r1	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
51r2	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
51r4	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 15/16	A123-HDG	461	
51r6	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
51r8	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-8 11/16	A123-HDG	1232	
51w1	2	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
51w2	4	L2-400 GLAND	NEOPRENE	38'-0	152'-0" TOTAL;	61	
52g1	12	1/2 X 6 1/4	A709 GR 36 OR 50	1'-6	A123-HDG	16	
54b1	40	HSS 8 X 8 X 1/2	A500 GR B	1'-0 11/16	A123-HDG	52	
54b2	80	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
54b3	80	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
54b4	40	1/2 X 7 1/4	A36	0'-7 1/4	SHAPE CUT;	7	
55s1	20	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-4 3/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	81	
55s2	80	16 GA. X 2 7/8	SEE REMARKS	0'-6 1/2	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
55s3	40	3/4 X 2 1/2	A36	0'-3	SHAPE CUT; A123-HDG	2	

51C	2	D-160' MODULAR JOINT			6'-9" - JOINT 21 & 23 (SIDEWALK)	1080	
50h1	16	Ø5/8 X 6 WELD STUD	A108		A123-HDG	< 1	
50h2	16	1/2 X 7 1/4	A709 GR 36 OR 50	1'-4 3/4	SHAPE CUT; A123-HDG	17	
50h3	40	Ø5/8 X 4 WELD STUD	A108		A123-HDG	< 1	
50k1	8	CONTROL SPRING (80MM)	-			1	
50k2	8	NYLON PIN (80MM)	-			< 1	
50k3	16	HITCH PIN	-			< 1	
50k4	8	PRECOMPRESSED SPRING	-		RUBBER;	< 1	
50k5	8	SLIDE BEARING	-		RUBBER;	1	
50p1	8	3/4 X 3 3/4	A36	0'-4 1/2	SHAPE CUT; A123-HDG	4	
50p2	16	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		B695-MG OR; ZINC PLATED	< 1	
50p3	16	Ø5/8 HEX NUT	A563 GR A		B695-MG	< 1	
50p4	16	Ø5/8 FLAT WASHER	F844		B695-MG	< 1	
50p5	16	Ø5/8 LOCK WASHER	ASME 18.21.1-1990		B695-MG	< 1	
51r5	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
51r9	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
51w1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
51w2	4	L2-400 GLAND	NEOPRENE	8'-0	32'-0" TOTAL;	13	
52g1	4	1/2 X 6 1/4	A709 GR 36 OR 50	1'-6	A123-HDG	16	
52g2	4	1/2 X 7 1/4	A709 GR 36 OR 50	0'-8 1/2	A123-HDG	9	
54b1	8	HSS 8 X 8 X 1/2	A500 GR B	1'-0 11/16	A123-HDG	52	
54b2	16	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
54b3	16	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
54b4	8	1/2 X 7 1/4	A36	0'-7 1/4	SHAPE CUT;	7	
55s1	4	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-4 3/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	81	
55s2	16	16 GA. X 2 7/8	SEE REMARKS	0'-6 1/2	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
55s3	8	3/4 X 2 1/2	A36	0'-3	SHAPE CUT; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			5/14/2014 11:01:38 AM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
52GA	32	JOINT SUPPORT ITEM				19	
52g3	32	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
52GB	4	JOINT SUPPORT ITEM				7	
52g4	4	WT6X29	A36	0'-3	CUT FROM W12 X 58; A123-HDG	7	
52XA	68	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
52x1	68	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XB	204	JOINT SUPPORT HARDWARE - HEX NUT (ROCAP)				< 1	
52x2	204	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
52XC	400	JOINT SUPPORT HARDWARE - FLAT WASHER (ROCAP)				< 1	
52x3	400	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
52XD	48	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
52x4	48	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XE	72	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
52x5	72	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XF	8	JOINT SUPPORT HARDWARE - BEVELED WASHER (ROCAP)				< 1	
52x6	8	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
52XG	16	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
52x5	16	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XAT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
52t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XBT	12	TESTING HARDWARE - HEX NUT (ROCAP)				< 1	
52t2	12	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
52XCT	21	TESTING HARDWARE - FLAT WASHER (ROCAP)				< 1	
52t3	21	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
52XDT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
52t4	3	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XET	6	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
52t5	6	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XFT	6	TESTING HARDWARE - BEVELED WASHER (ROCAP)				< 1	
52t6	6	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
52XGT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
52t5	3	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			5/14/2014 11:01:38 AM		

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

PAGE 425 I

REV.	DESCRIPTION	DATE	DET.	CKD.

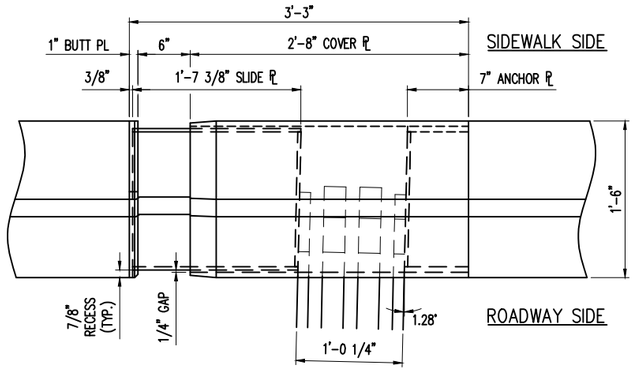
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
BILL OF MATERIALS
DOUGLAS COUNTY, WISCONSIN

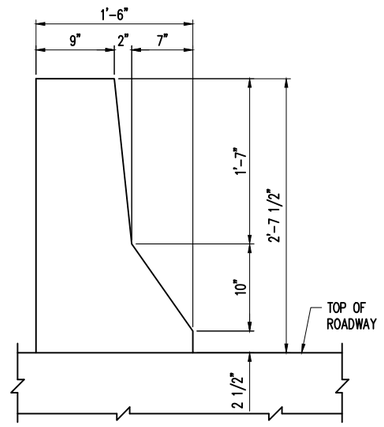
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	56



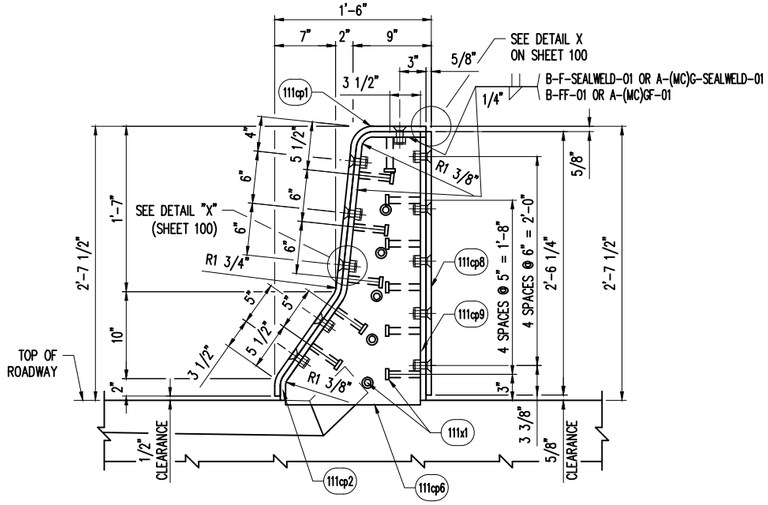
SIDEWALK PARAPET COVER PLATE PLAN VIEW

COVER PLATE ASSEMBLY "111CA"



SECTION 111A

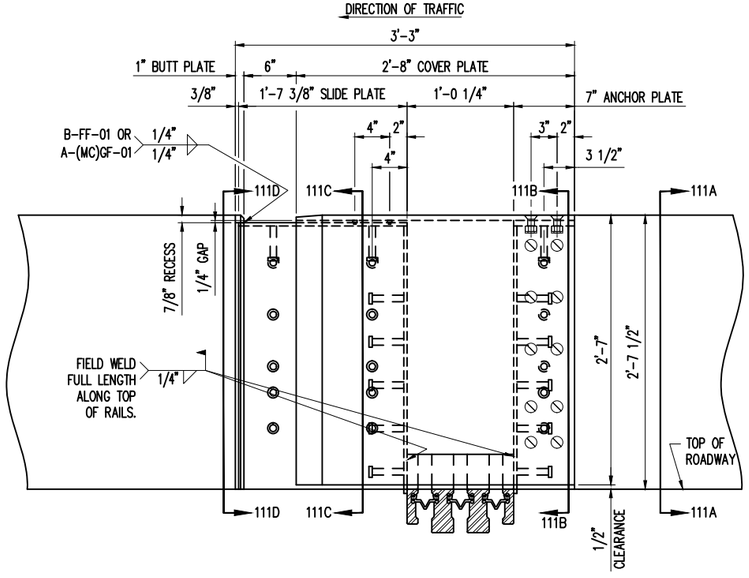
THROUGH SIDEWALK BARRIER



SECTION 111B

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE

DIRECTION OF TRAFFIC



SIDEWALK PARAPET COVER PLATE ELEVATION

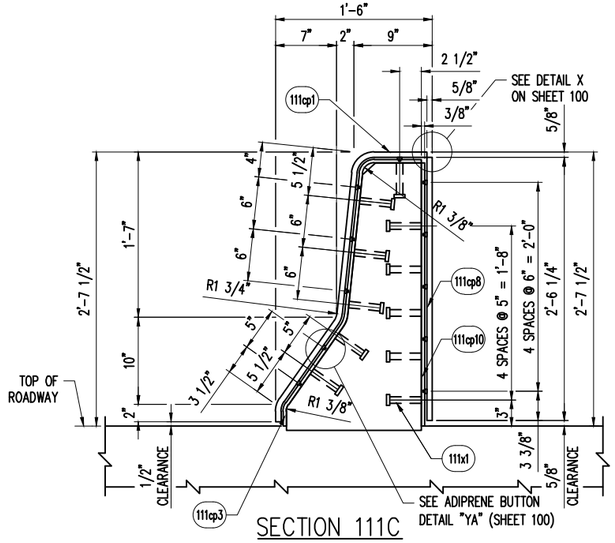
COVER PLATE ASSEMBLY "111CA"

LOCATED AT JOINTS 9, 11–15, 19, 20 & 22 (STRUCTURE B-16-38/69100)

– LOOKING FROM ROADWAY SIDE –

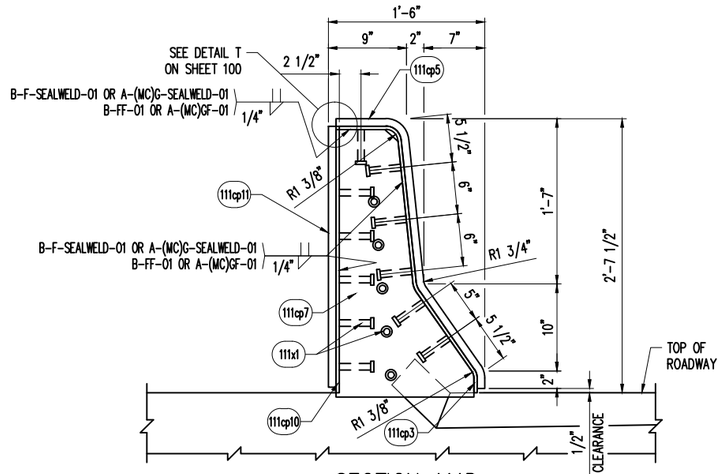
(9) REQUIRED

DIMENSIONS SHOWN ARE AT MID. JOINT OPENING



SECTION 111C

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE



SECTION 111D

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 112
- SEE BACK PLATE DETAILS ON SHEET 113
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 113

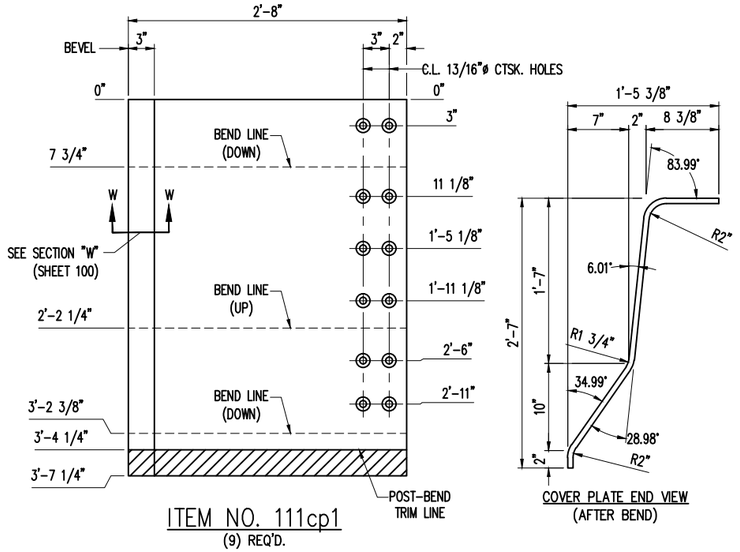
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

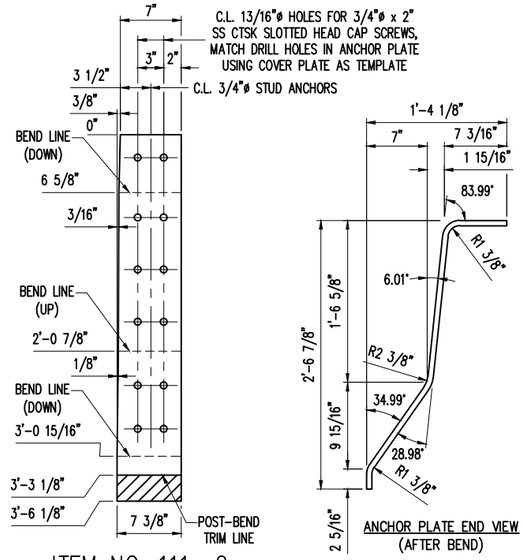
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	12 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	111	



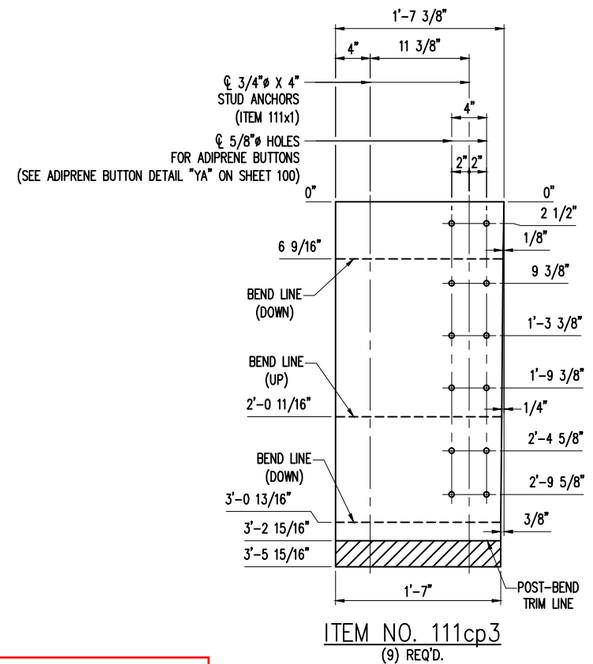
ITEM NO. 111cp1
(9) REQ'D.

COVER PLATE



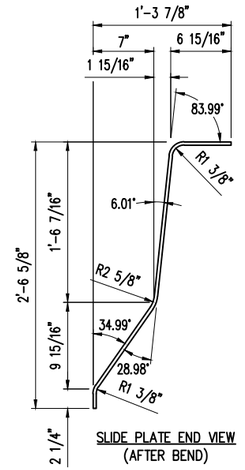
ITEM NO. 111cp2
(9) REQ'D.

ANCHOR PLATE



ITEM NO. 111cp3
(9) REQ'D.

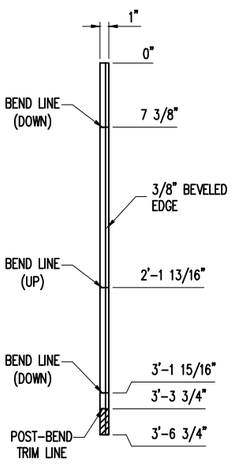
SLIDE PLATE



SLIDE PLATE END VIEW
(AFTER BEND)

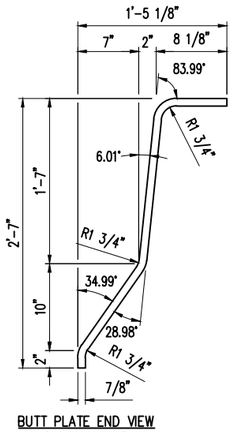
REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

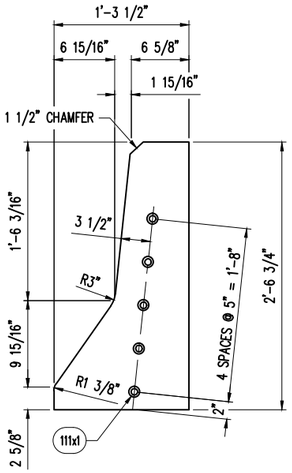


ITEM NO. 111cp5
(9) REQ'D.

FRONT BUTT PLATE

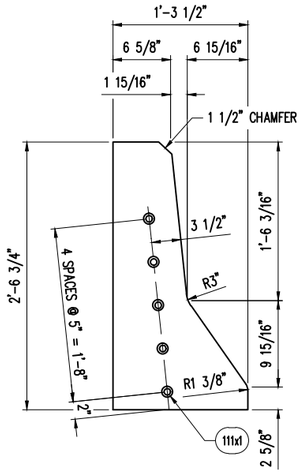


BUTT PLATE END VIEW
(AFTER BEND)



ITEM NO. 111cp6
(9) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 111cp7
(9) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 111
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 113

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–
	–	–

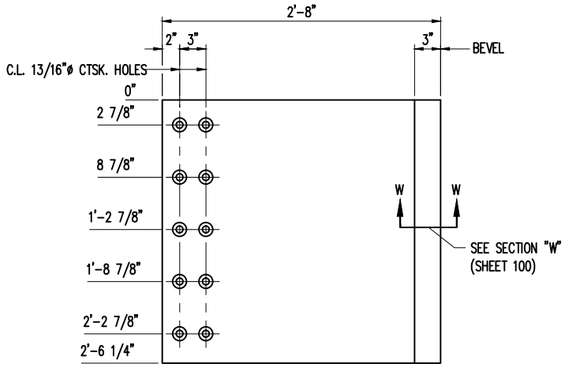
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	13 OF 47

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	112

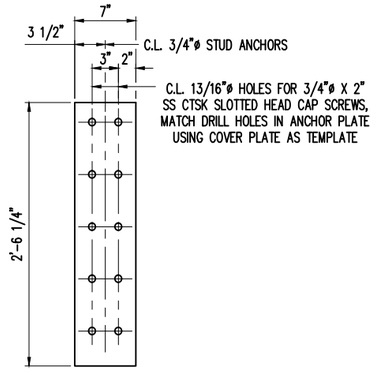
REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING



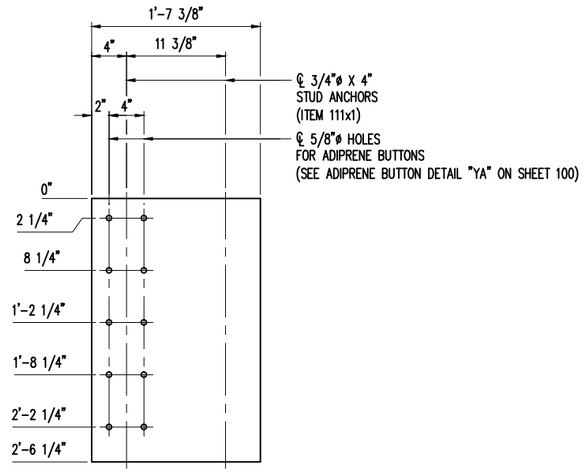
ITEM NO. 111cp8
(9) REQ'D.

BACK COVER PLATE



ITEM NO. 111cp9
(9) REQ'D.

BACK ANCHOR PLATE



ITEM NO. 111cp10
(9) REQ'D.

BACK SLIDE PLATE

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
111CA	9	SIDEWALK PARAPET COVER PLATE ASSEMBLY				814	
100x1	198	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	
100x2	198	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	
100x3	198	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	
100x4	198	ADIPRENE BUTTONS	-		PLAIN	< 1	
111cp1	9	5/8 X 32	A36	3'-7 1/4	COVER PLATE; A123-HDG	245	
111cp2	9	5/8 X 7 3/8	A36	3'-6 1/8	SHAPE CUT ANCHOR PLATE; A123-HDG	55	
111cp3	9	3/8 X 19 3/8	A36	3'-5 15/16	SHAPE CUT SLIDE PLATE; A123-HDG	86	
111cp5	9	7/8 X 1	A36	3'-6 3/4	BUTT PLATE; A123-HDG	11	
111cp6	9	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
111cp7	9	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
111cp8	9	5/8 X 30 1/4	A36	2'-8	BACK COVER PLATE; A123-HDG	172	
111cp9	9	5/8 X 7	A36	2'-6 1/4	BACK ANCHOR PLATE; A123-HDG	38	
111cp10	9	3/8 X 19 3/8	A36	2'-6 1/4	BACK SLIDE PLATE; A123-HDG	62	
111cp11	9	7/8 X 1	A36	2'-6	BACK BUTT PLATE; A123-HDG	7	
111x1	387	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			5/6/2014 10:49:49 AM		

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 111
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

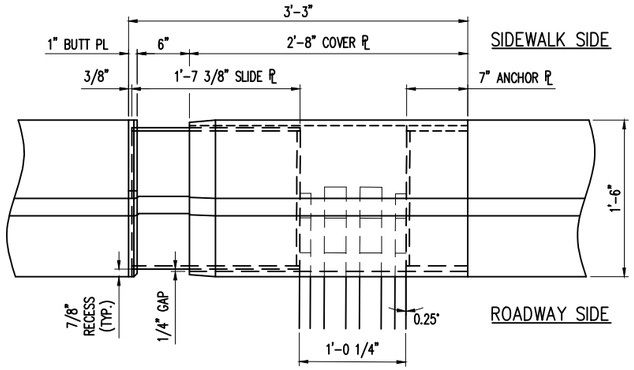
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

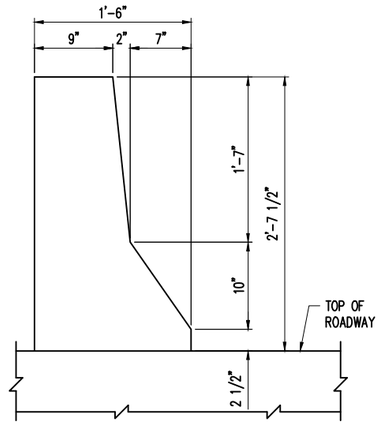
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	14 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	113	



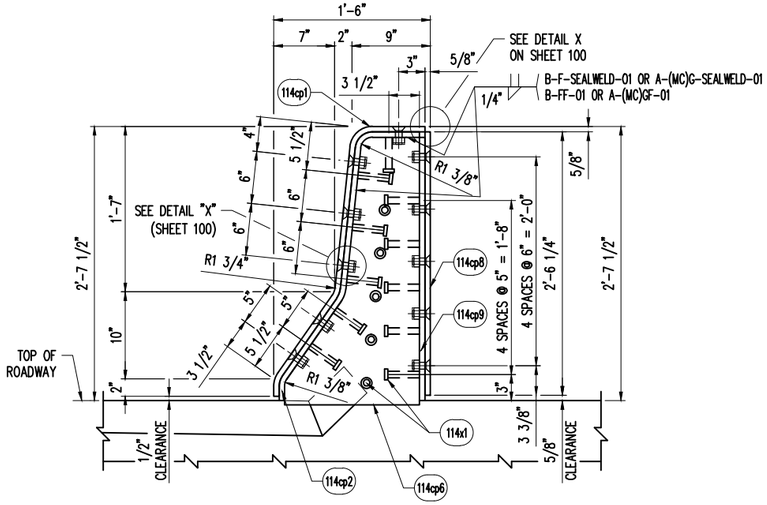
SIDEWALK PARAPET COVER PLATE PLAN VIEW

COVER PLATE ASSEMBLY "114CA"



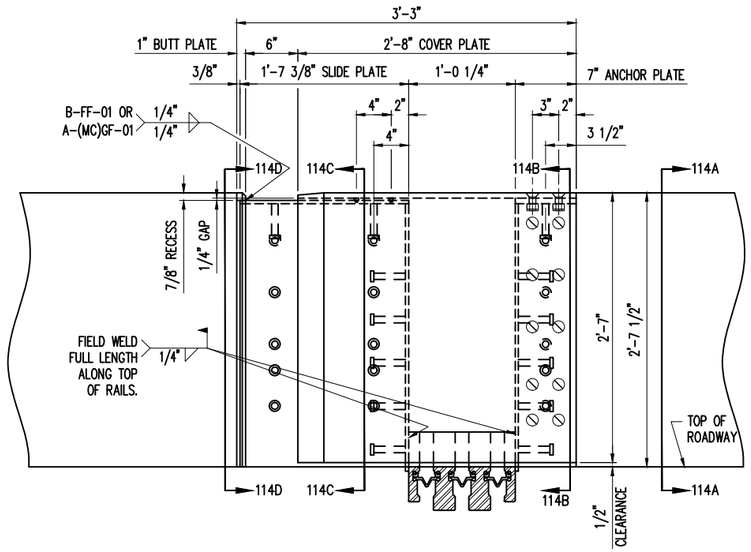
SECTION 114A

THROUGH SIDEWALK BARRIER



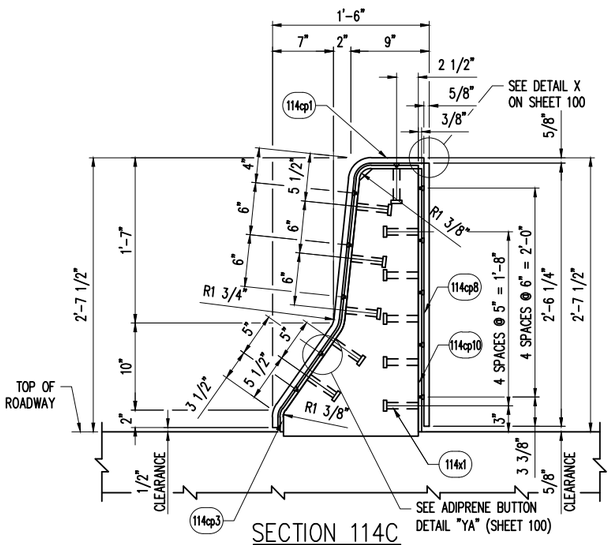
SECTION 114B

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE



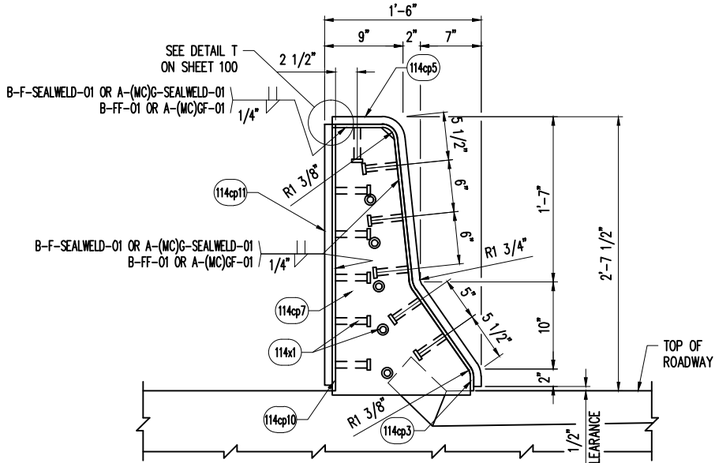
SIDEWALK PARAPET COVER PLATE ELEVATION

COVER PLATE ASSEMBLY "114CA"
LOCATED AT JOINT 10 (STRUCTURE B-16-38/69100)
– LOOKING FROM ROADWAY SIDE –
(1) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING



SECTION 114C

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE



SECTION 114D

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 115
- SEE BACK PLATE DETAILS ON SHEET 116
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 116

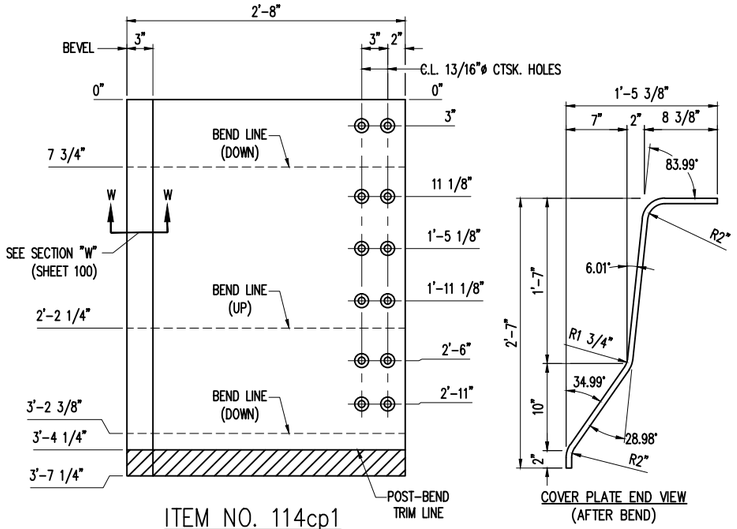
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

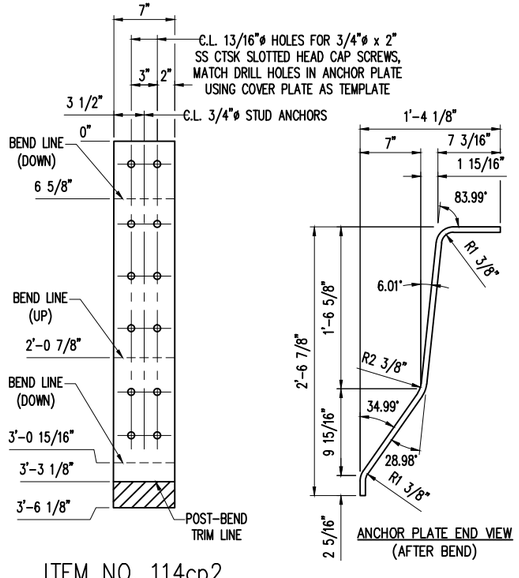
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	15 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	114	



ITEM NO. 114cp1
(1) REQ'D.

COVER PLATE

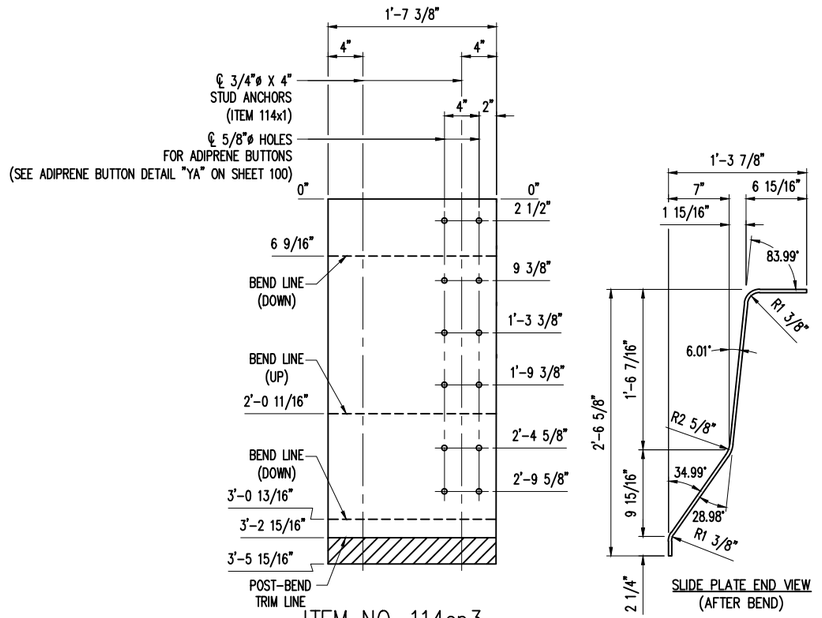
COVER PLATE END VIEW
(AFTER BEND)



ITEM NO. 114cp2
(1) REQ'D.

ANCHOR PLATE

ANCHOR PLATE END VIEW
(AFTER BEND)



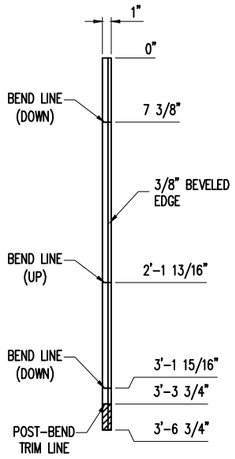
ITEM NO. 114cp3
(1) REQ'D.

SLIDE PLATE

SLIDE PLATE END VIEW
(AFTER BEND)

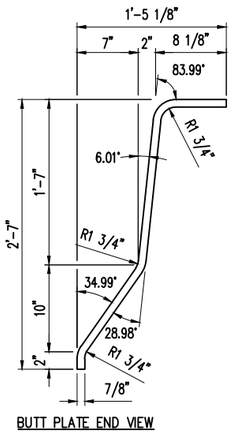
REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

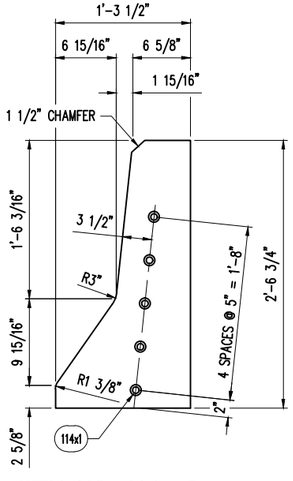


ITEM NO. 114cp5
(1) REQ'D.

FRONT BUTT PLATE

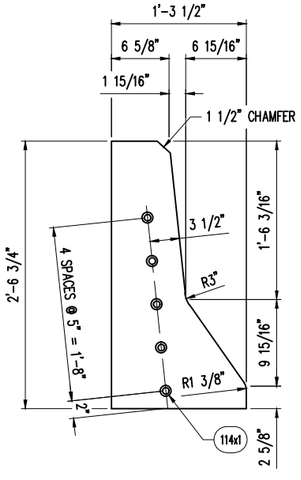


BUTT PLATE END VIEW
(AFTER BEND)



ITEM NO. 114cp6
(1) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 114cp7
(1) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 114
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 116

REV.	DESCRIPTION	DATE	DET.	CKD.

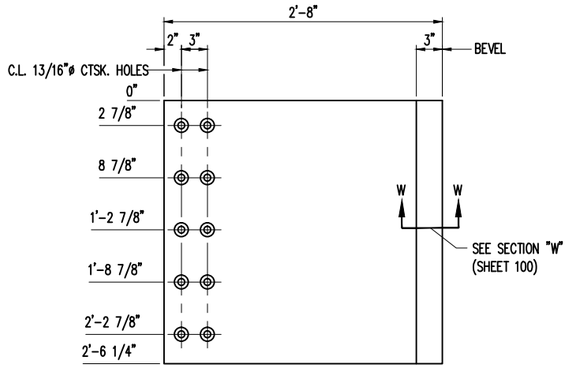
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION: COVER PLATE DETAILS
DOUGLAS COUNTY, WI

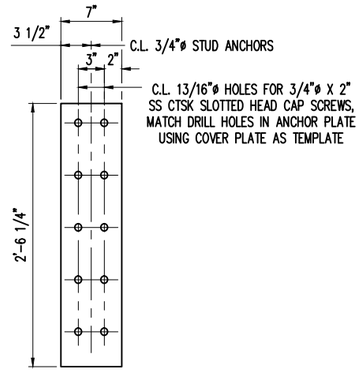
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	16 OF 47

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	115



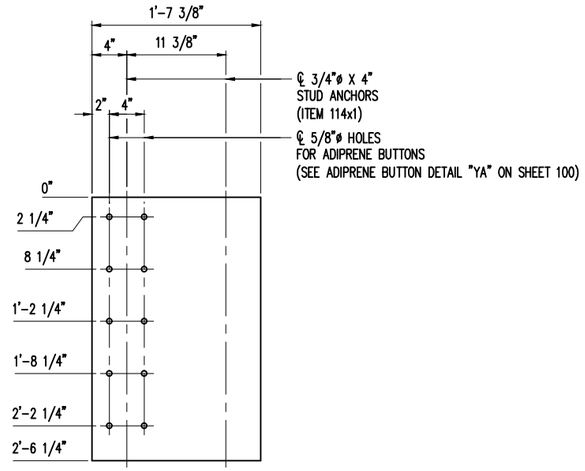
ITEM NO. 114cp8
(1) REQ'D.

BACK COVER PLATE



ITEM NO. 114cp9
(1) REQ'D.

BACK ANCHOR PLATE



ITEM NO. 114cp10
(1) REQ'D.

BACK SLIDE PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
114CA	1	SIDEWALK PARAPET COVER PLATE ASSEMBLY				812	
100x1	22	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	
100x2	22	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	
100x3	22	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	
100x4	22	ADIPRENE BUTTONS	-		PLAIN	< 1	
114cp1	1	5/8 X 32	A36	3'-7 1/4	COVER PLATE; A123-HDG	245	
114cp2	1	5/8 X 7	A36	3'-6 1/8	ANCHOR PLATE; A123-HDG	52	
114cp3	1	3/8 X 19 3/8	A36	3'-5 15/16	SLIDE PLATE; A123-HDG	86	
114cp5	1	7/8 X 1	A36	3'-6 3/4	BUTT PLATE; A123-HDG	11	
114cp6	1	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
114cp7	1	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
114cp8	1	5/8 X 30 1/4	A36	2'-8	BACK COVER PLATE; A123-HDG	172	
114cp9	1	5/8 X 7	A36	2'-6 1/4	BACK ANCHOR PLATE; A123-HDG	38	
114cp10	1	3/8 X 19 3/8	A36	2'-6 1/4	BACK SLIDE PLATE; A123-HDG	62	
114cp11	1	7/8 X 1	A36	2'-6	BACK BUTT PLATE; A123-HDG	7	
114x1	43	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			5/6/2014 10:49:49 AM		

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 114
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

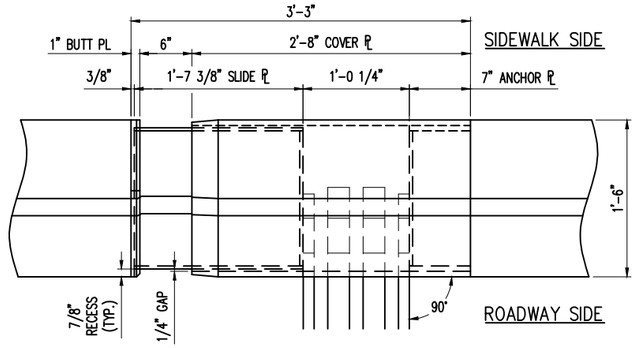
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

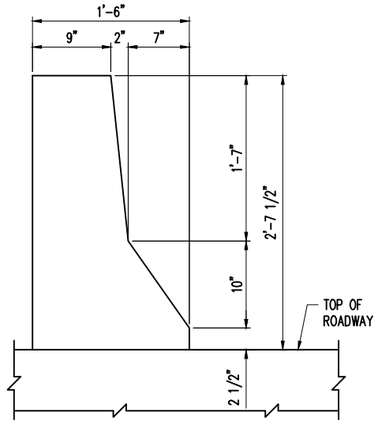
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	17 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	116	



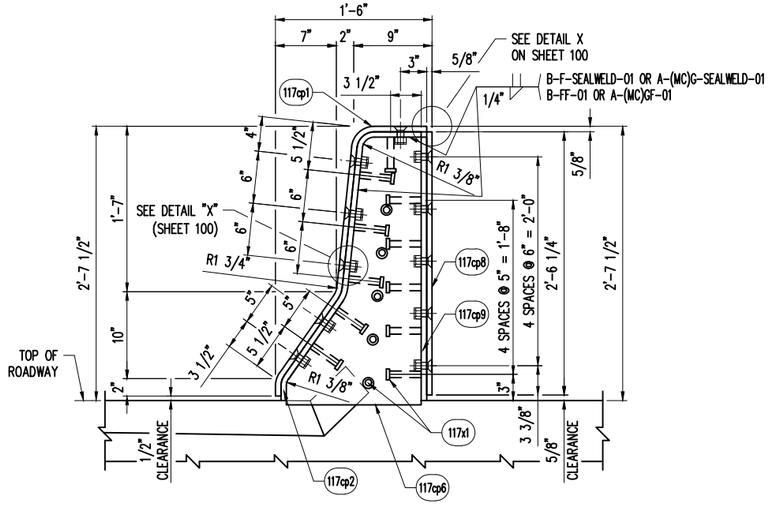
SIDEWALK PARAPET COVER PLATE PLAN VIEW

COVER PLATE ASSEMBLY "117CA"



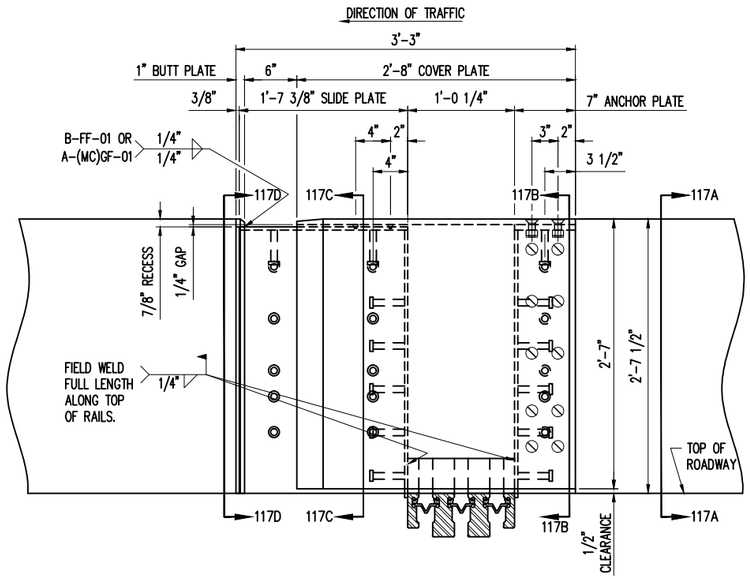
SECTION 117A

THROUGH SIDEWALK BARRIER



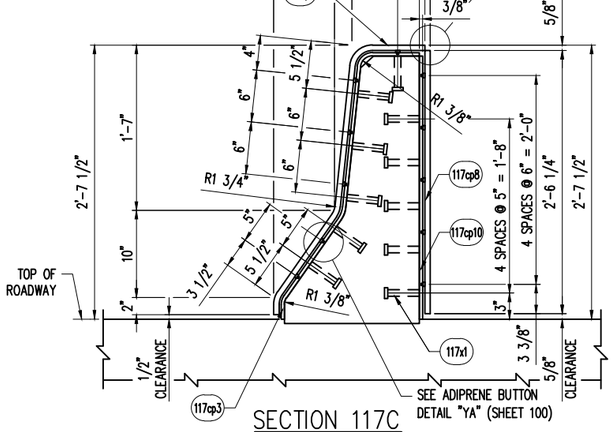
SECTION 117B

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE



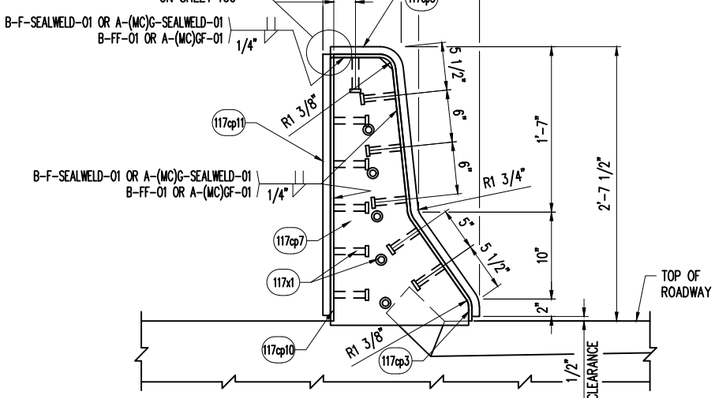
SIDEWALK PARAPET COVER PLATE ELEVATION

COVER PLATE ASSEMBLY "117CA"
LOCATED AT JOINT 8 (STRUCTURE B-16-38/69100)
- LOOKING FROM ROADWAY SIDE -
(1) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING



SECTION 117C

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE



SECTION 117D

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 118
- SEE BACK PLATE DETAILS ON SHEET 119
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 119

PAGE 425 P

REV.	DESCRIPTION	DATE	DET.	CKD.

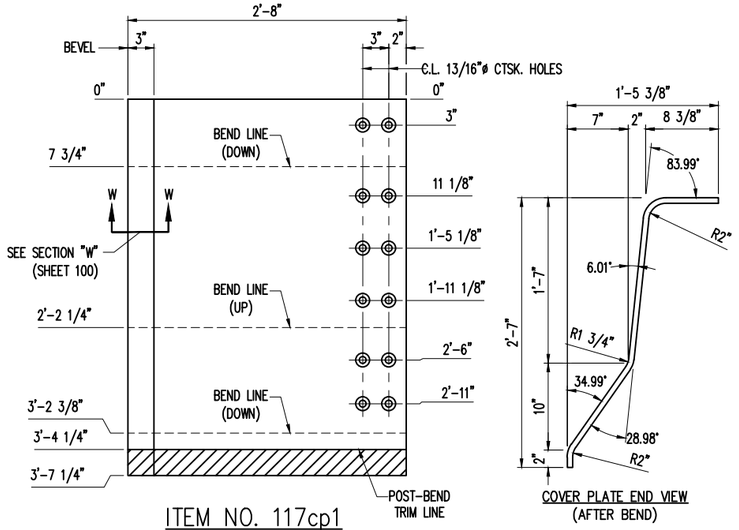
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION: COVER PLATE DETAILS
DOUGLAS COUNTY, WI

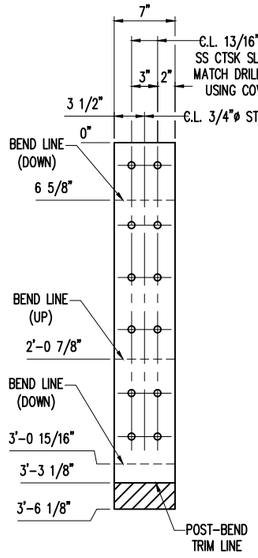
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	18 OF 47

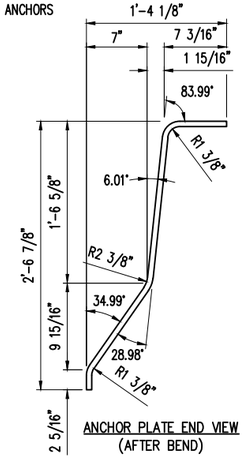
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	117



ITEM NO. 117cp1
(1) REQ'D.

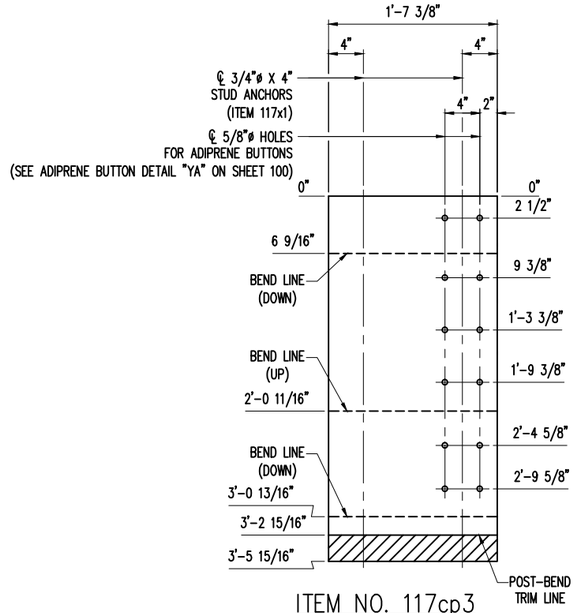
COVER PLATE

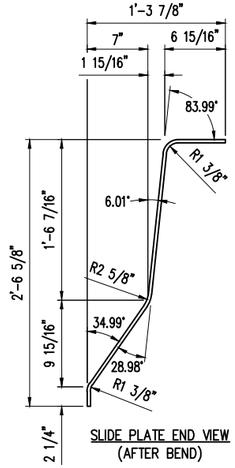




ITEM NO. 117cp2
(1) REQ'D.

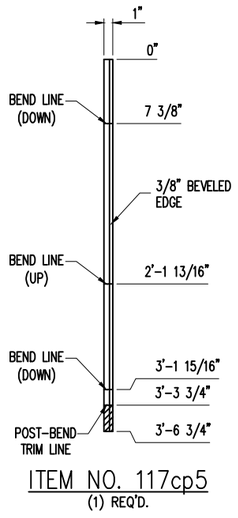
ANCHOR PLATE

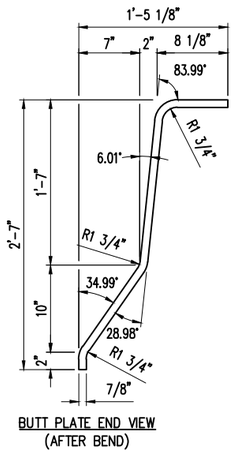




ITEM NO. 117cp3
(1) REQ'D.

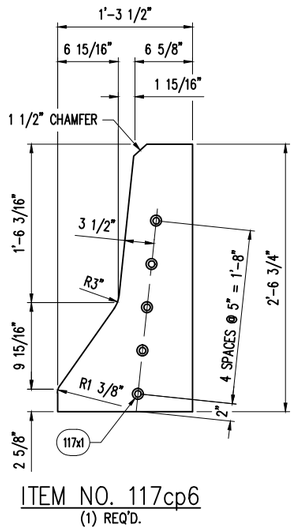
SLIDE PLATE





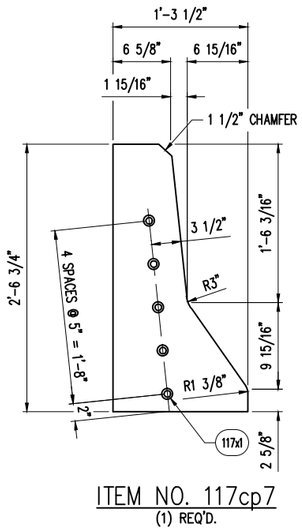
ITEM NO. 117cp5
(1) REQ'D.

FRONT BUTT PLATE



ITEM NO. 117cp6
(1) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 117cp7
(1) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 117
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 119

REV.	DESCRIPTION	DATE	DET.	CKD.

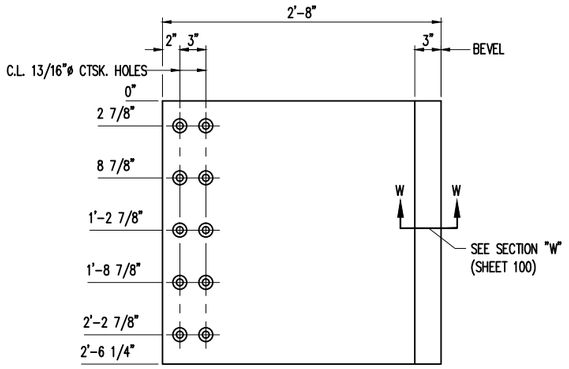
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

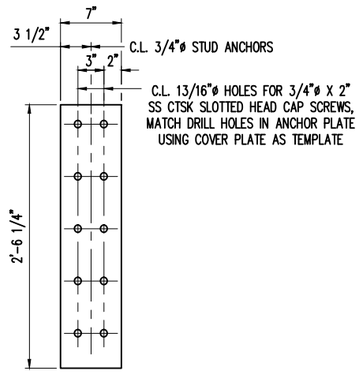
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	19 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	118	



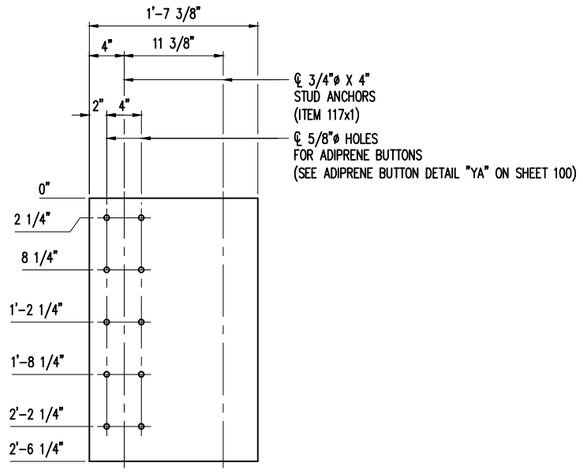
ITEM NO. 117cp8
(1) REQ'D.

BACK COVER PLATE



ITEM NO. 117cp9
(1) REQ'D.

BACK ANCHOR PLATE



ITEM NO. 117cp10
(1) REQ'D.

BACK SLIDE PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
117CA	1	SIDEWALK PARAPET COVER PLATE ASSEMBLY				812	
100x1	22	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	
100x2	22	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	
100x3	22	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	
100x4	22	ADIPRENE BUTTONS	-		PLAIN	< 1	
117cp1	1	5/8 X 32	A36	3'-7 1/4	COVER PLATE; A123-HDG	245	
117cp2	1	5/8 X 7	A36	3'-6 1/8	ANCHOR PLATE; A123-HDG	52	
117cp3	1	3/8 X 19 3/8	A36	3'-5 15/16	SLIDE PLATE; A123-HDG	86	
117cp5	1	7/8 X 1	A36	3'-6 3/4	BUTT PLATE; A123-HDG	11	
117cp6	1	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
117cp7	1	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
117cp8	1	5/8 X 30 1/4	A36	2'-8	BACK COVER PLATE; A123-HDG	172	
117cp9	1	5/8 X 7	A36	2'-6 1/4	BACK ANCHOR PLATE; A123-HDG	38	
117cp10	1	3/8 X 19 3/8	A36	2'-6 1/4	BACK SLIDE PLATE; A123-HDG	62	
117cp11	1	7/8 X 1	A36	2'-6	BACK BUTT PLATE; A123-HDG	7	
117x1	43	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			5/6/2014 10:49:49 AM		

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 117
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

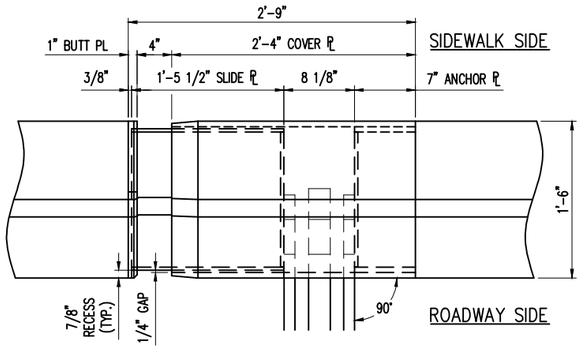
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

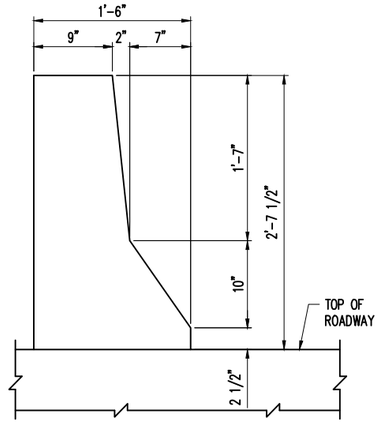
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	20 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	119	



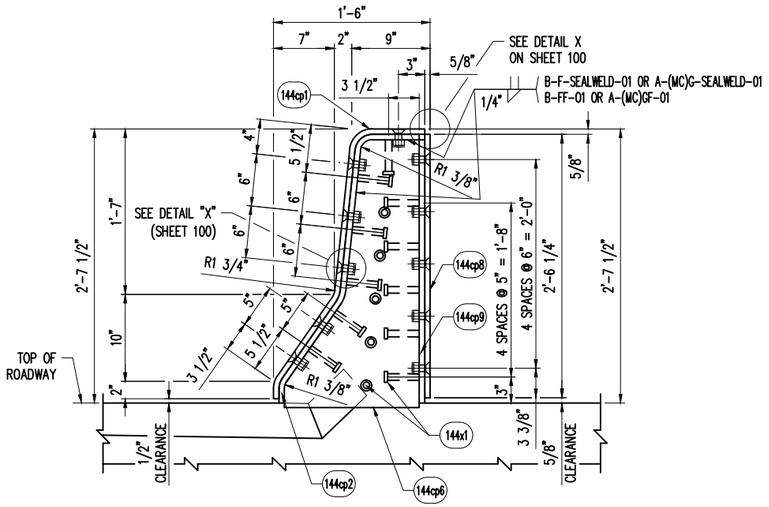
SIDEWALK PARAPET COVER PLATE PLAN VIEW

COVER PLATE ASSEMBLY "144CA"



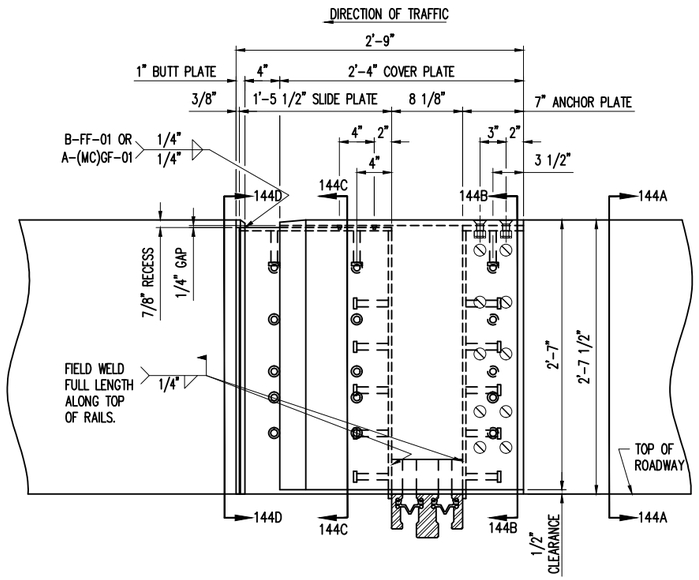
SECTION 144A

THROUGH SIDEWALK BARRIER



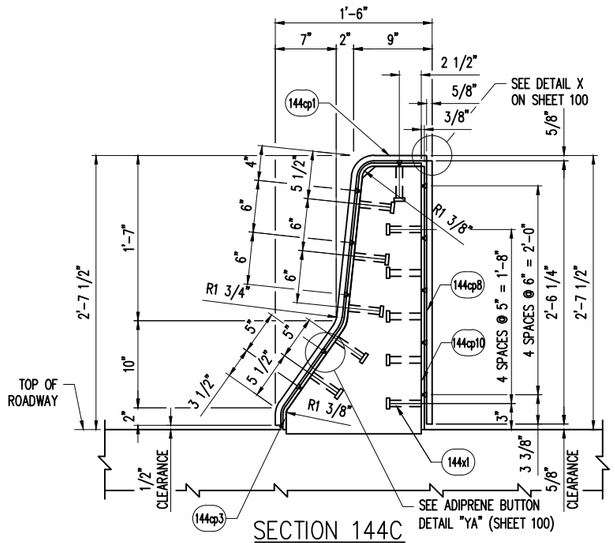
SECTION 144B

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE



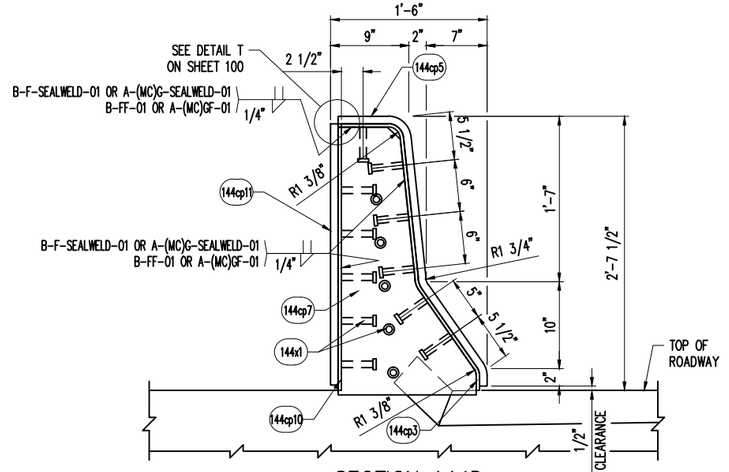
SIDEWALK PARAPET COVER PLATE ELEVATION

COVER PLATE ASSEMBLY "144CA"
LOCATED AT JOINTS 21 & 23 (STRUCTURE B-16-38/69100)
– LOOKING FROM ROADWAY SIDE –
(2) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING



SECTION 144C

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE



SECTION 144D

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 145
- SEE BACK PLATE DETAILS ON SHEET 146
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 146

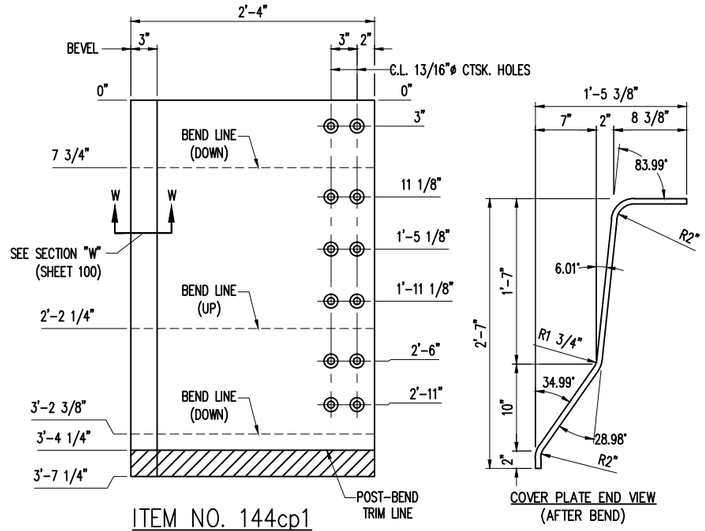
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION: COVER PLATE DETAILS
DOUGLAS COUNTY, WI

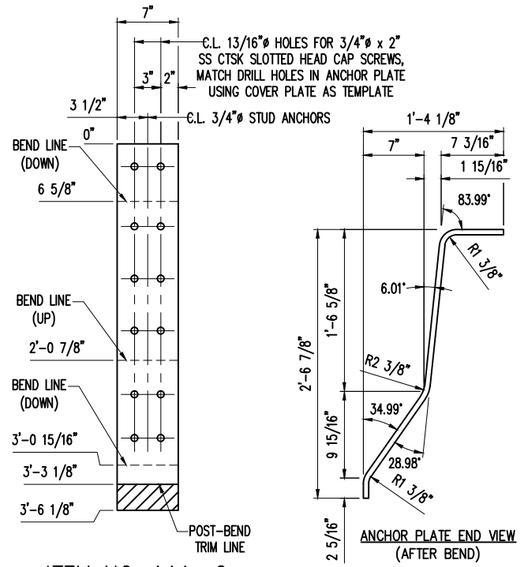
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	45 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	144	



ITEM NO. 144cp1
(2) REQ'D.

COVER PLATE

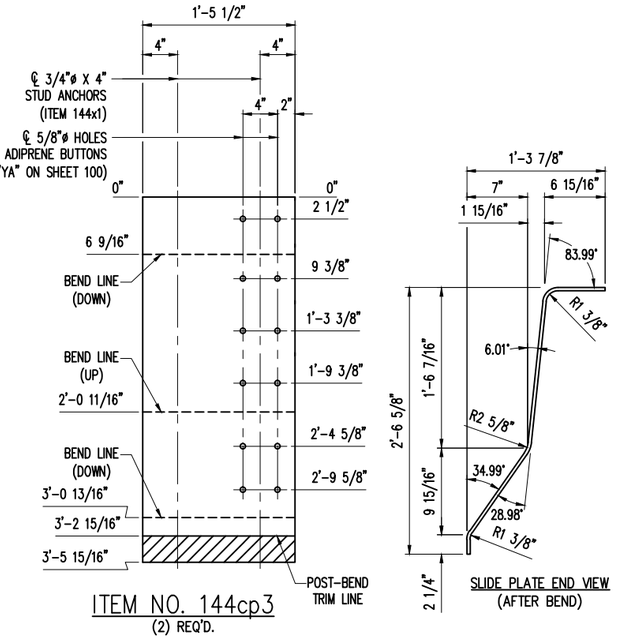
COVER PLATE END VIEW
(AFTER BEND)



ITEM NO. 144cp2
(2) REQ'D.

ANCHOR PLATE

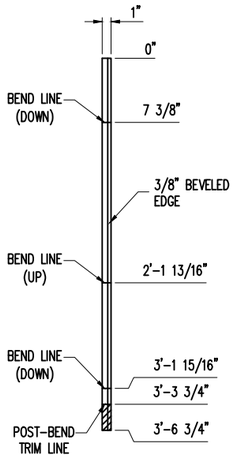
ANCHOR PLATE END VIEW
(AFTER BEND)



ITEM NO. 144cp3
(2) REQ'D.

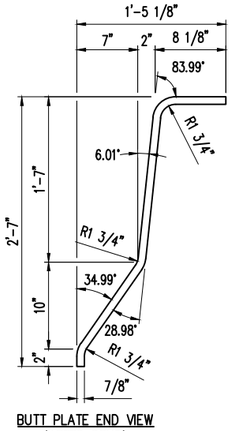
SLIDE PLATE

SLIDE PLATE END VIEW
(AFTER BEND)

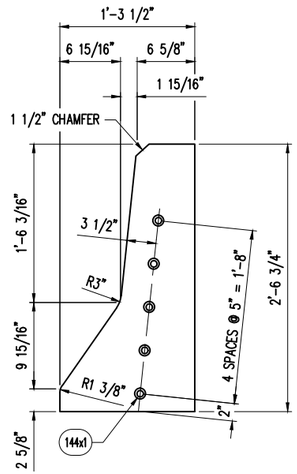


ITEM NO. 144cp5
(2) REQ'D.

FRONT BUTT PLATE

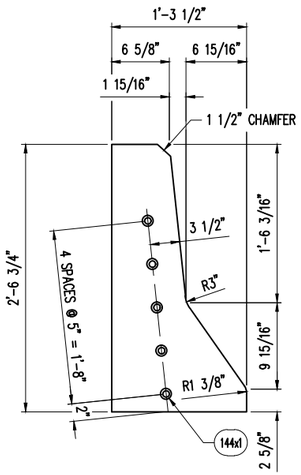


BUTT PLATE END VIEW
(AFTER BEND)



ITEM NO. 144cp6
(2) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 144cp7
(2) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 144
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 146

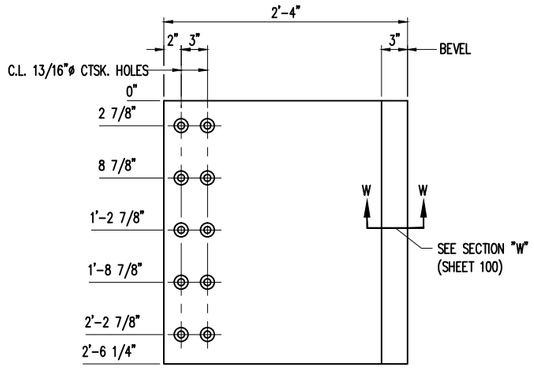
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

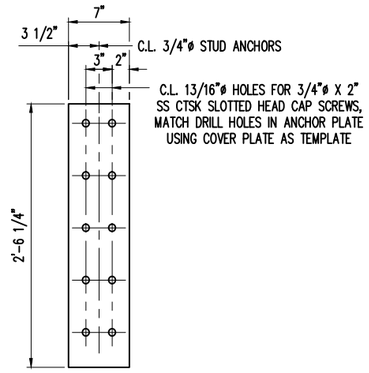
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	46 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	145	



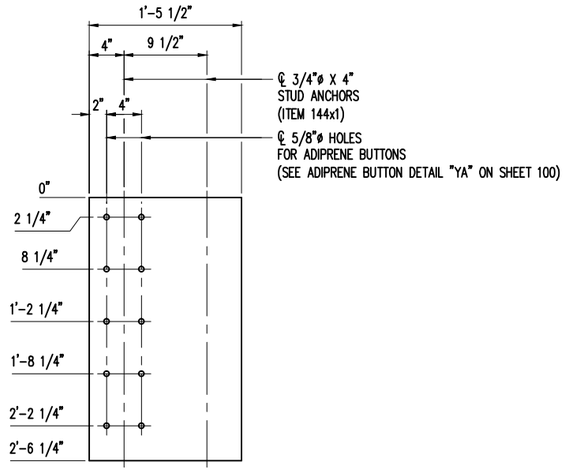
ITEM NO. 144cp8
(2) REQ'D.

BACK COVER PLATE



ITEM NO. 144cp9
(2) REQ'D.

BACK ANCHOR PLATE



ITEM NO. 144cp10
(2) REQ'D.

BACK SLIDE PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
144CA	2	SIDEWALK PARAPET COVER PLATE ASSEMBLY				745	
100x1	44	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	
100x2	44	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	
100x3	44	Ø3/4 PLASTIC COVER CAP	–		PLAIN	< 1	
100x4	44	ADIPRENE BUTTONS	–		PLAIN	< 1	
144cp1	2	5/8 X 28	A36	3'-7 1/4	COVER PLATE; A123-HDG	215	
144cp2	2	5/8 X 7	A36	3'-6 1/8	ANCHOR PLATE; A123-HDG	52	
144cp3	2	3/8 X 17 1/2	A36	3'-5 15/16	SLIDE PLATE; A123-HDG	78	
144cp5	2	7/8 X 1	A36	3'-6 3/4	BUTT PLATE (FRONT); A123-HDG	11	
144cp6	2	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
144cp7	2	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
144cp8	2	5/8 X 28	A36	2'-6 1/4	BACK COVER PLATE; A123-HDG	150	
144cp9	2	5/8 X 7	A36	2'-6 1/4	BACK ANCHOR PLATE; A123-HDG	38	
144cp10	2	3/8 X 17 1/2	A36	2'-6 1/4	BACK SLIDE PLATE; A123-HDG	56	
144cp11	2	7/8 X 1	A36	2'-6	BACK BUTT PLATE; A123-HDG	7	
144x1	86	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			5/6/2014 10:49:49 AM		

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 144
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

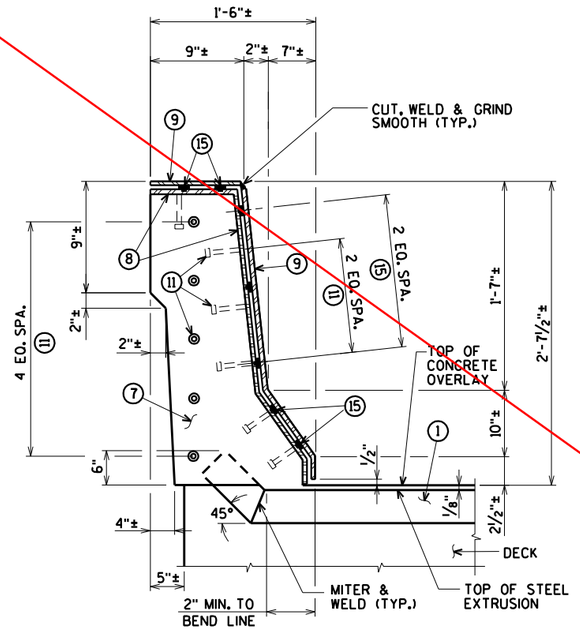
	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

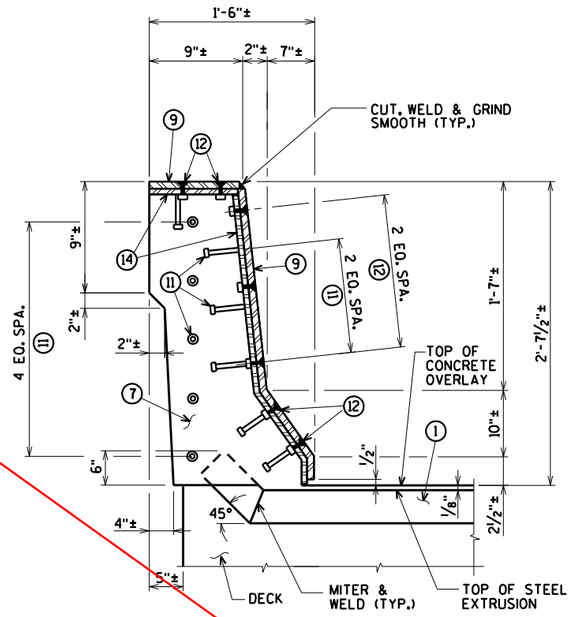
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	47 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	146	

STATE PROJECT NUMBER

8680-04-71

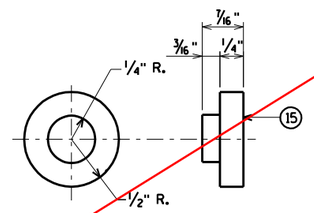


SECTION E



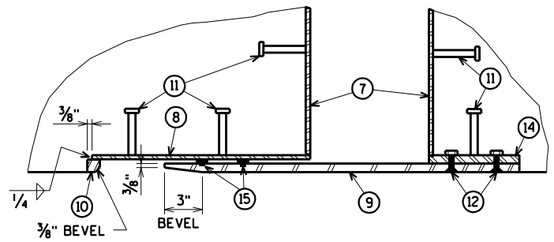
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

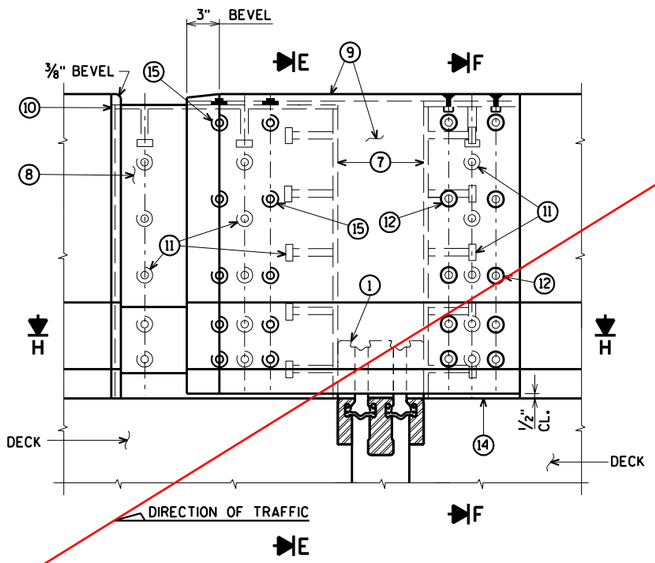


ADIPRENE BUTTON DETAIL

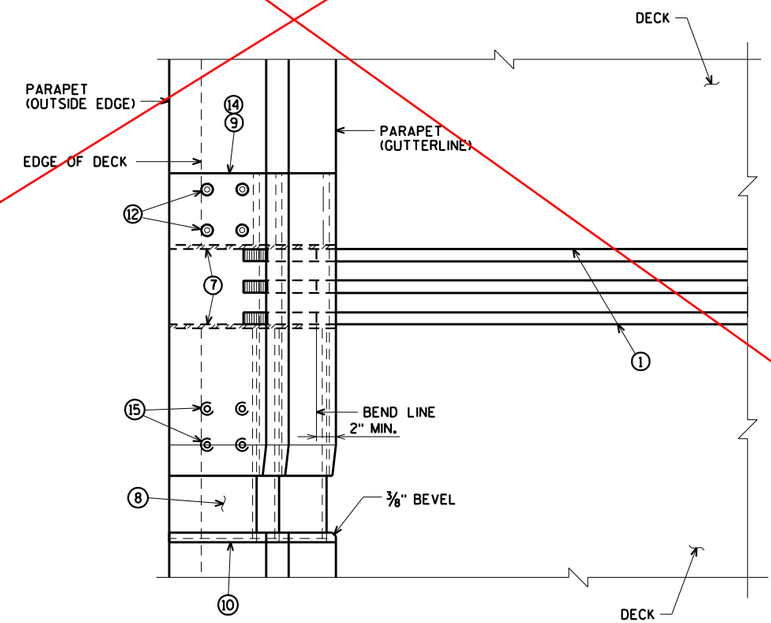
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 79



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 425. Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 79, 81-83

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXP. JOINTS 21 & 23 OUTSIDE PARAPET

SHEET 80 OF 99
426

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

ecpdf.plt
42-0825 EXPJT 2123.dgn

8

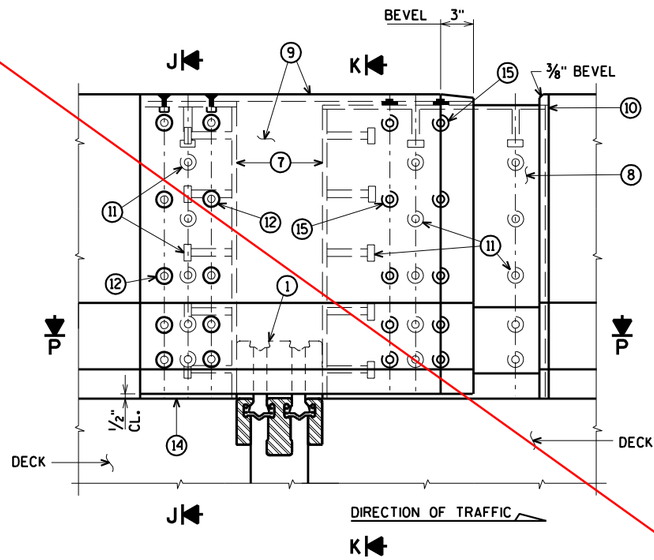
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9/12/2013

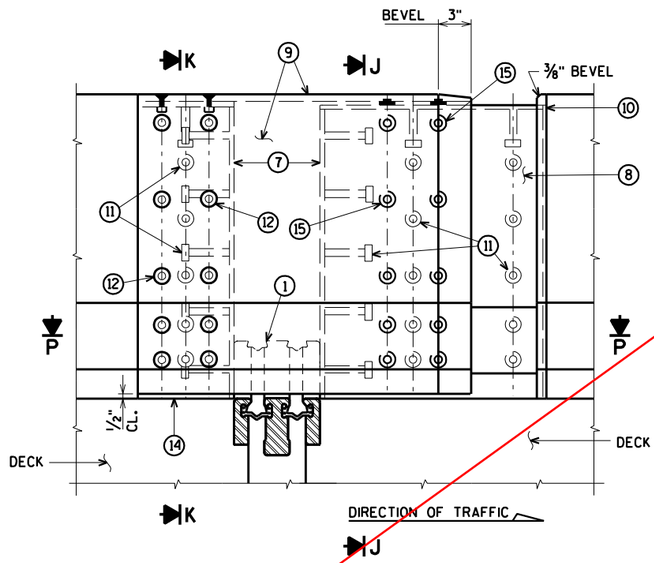
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STATE PROJECT NUMBER

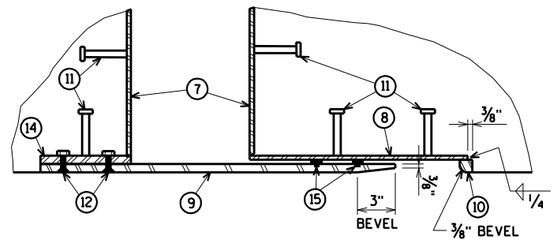
8680-04-71



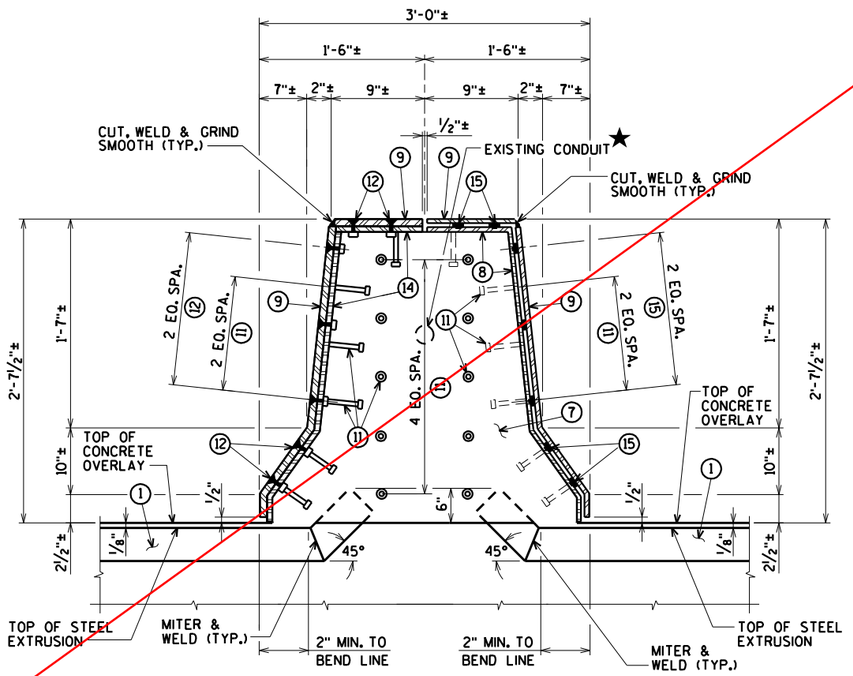
ELEVATION OF MEDIAN PARAPET
SECTION G



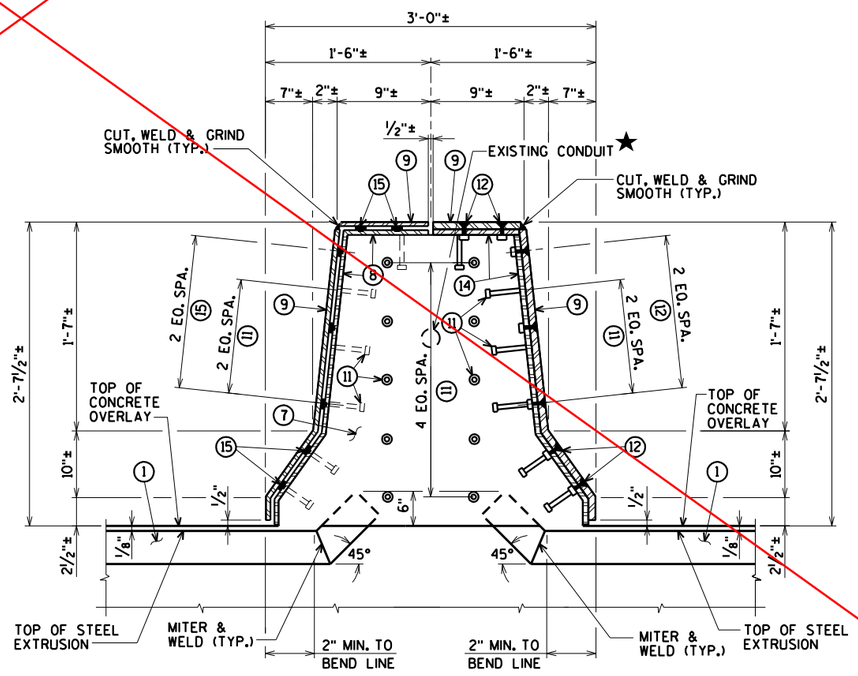
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

See revised joint details
PAGE 425.
Cover plate details
PAGE 409.

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 79

WORK THIS SHEET WITH SHEETS 79-80, 82-83

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY	CLS	PLANS CK'D.	CBM

EXP. JOINTS
21 & 23
MEDIAN PARAPET

SHEET 81 OF 99
427

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

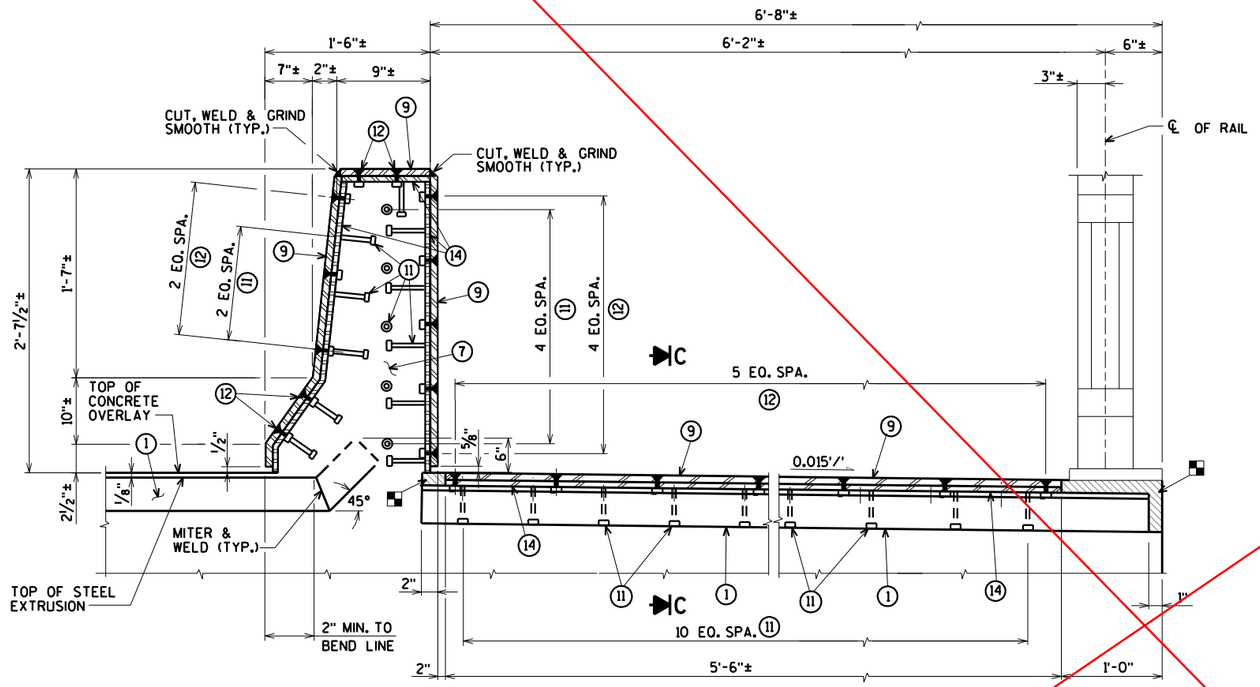
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8

8

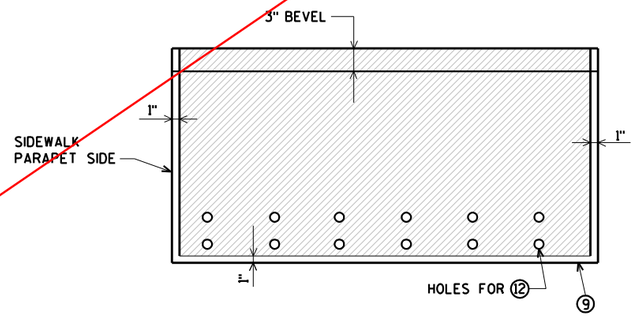
9/12/2013

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ELEVATION OF SIDEWALK W/PARAPET
SECTION A

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

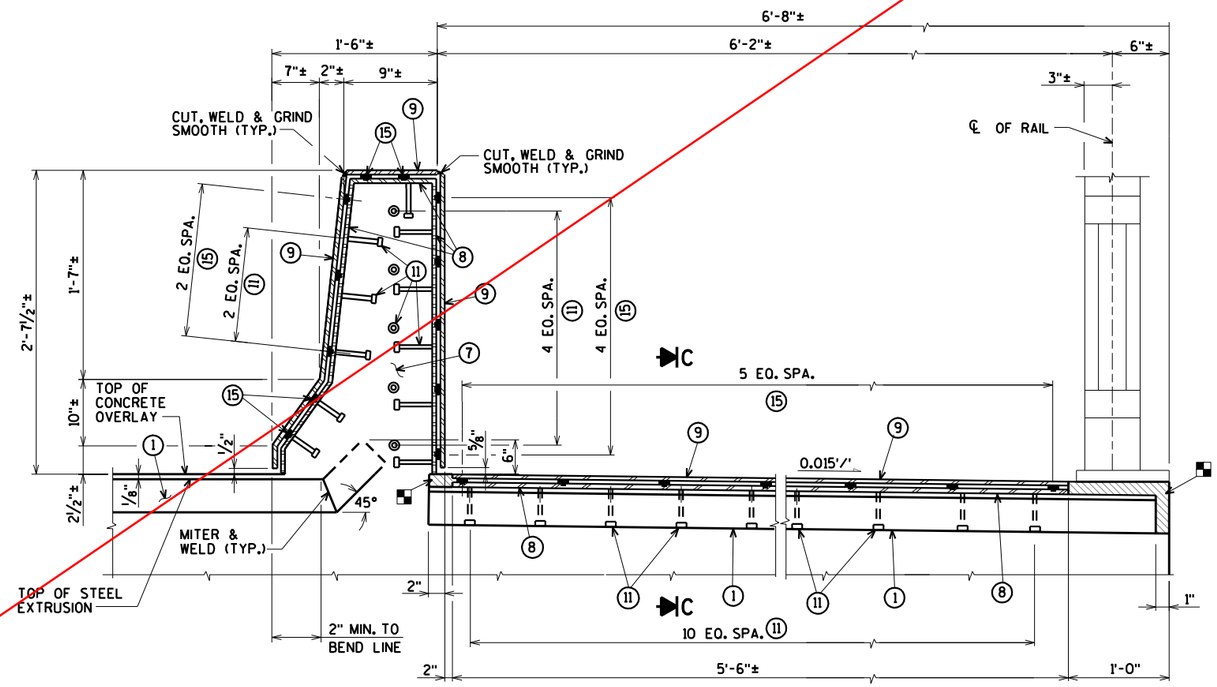


PLAN OF SIDEWALK COVER PLATE
WITH SLIP-RESISTANT SURFACE ▲

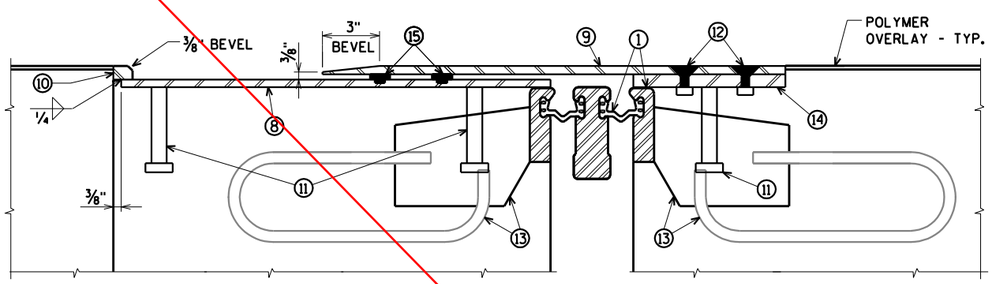
FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 79

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



ELEVATION OF SIDEWALK W/PARAPET
SECTION B



SECTION C

■ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

See revised joint details
PAGE 425.
Cover plate details
PAGE 409.

WORK THIS SHEET WITH SHEETS 79-81, 83

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXP. JOINTS
21 & 23
SIDEWALK & PARAPET

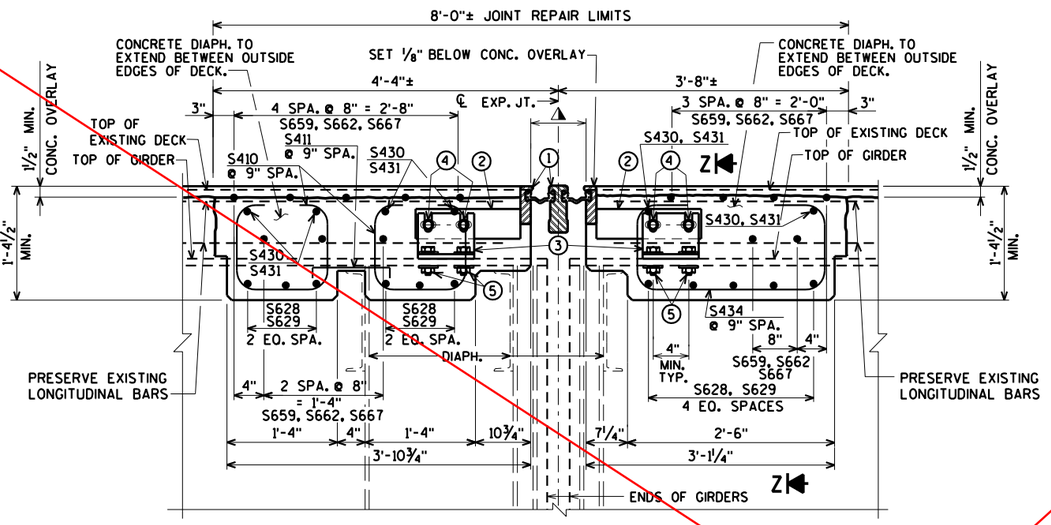
SHEET 82 OF 99
428

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

$PRFNAME$
U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 EXPJT 8-22 mod dtl.dgn

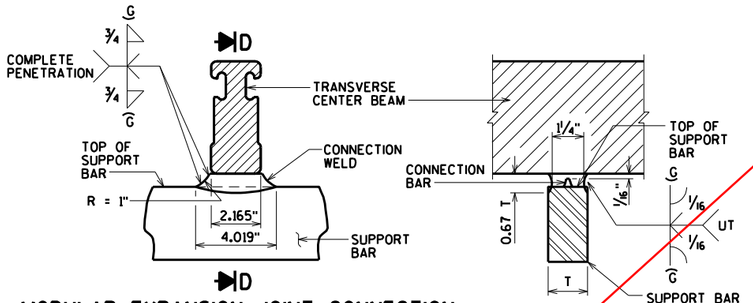
STATE PROJECT NUMBER

8680-04-71



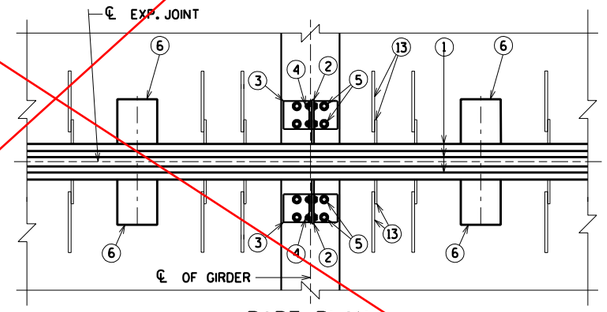
SECTION THRU JOINTS 21 & 23

NORMAL TO ℄ OF JOINT



MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

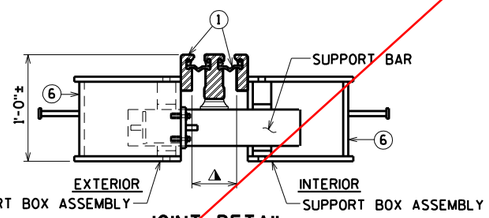
SECTION D



PART PLAN

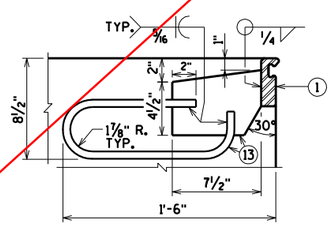
NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.



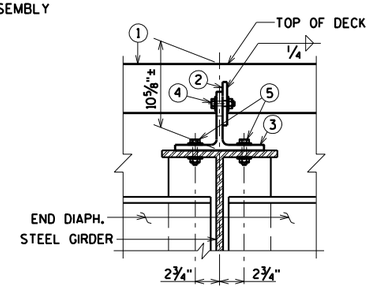
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK @ CONC. DIAPH.



SECTION Z-Z

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 2 CELLS.

② ½" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM ½" PLATES.

⑦ ⅜" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM ⅜" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑩ ⅞" SO. BAR. WELD TO NO. 8 AS SHOWN.

⑪ ¾" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ ¾" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ ½" PLATE WITH ⅝" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. ⅜ IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 79-82

See revised joint details PAGE 425.
Cover plate details PAGE 409.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

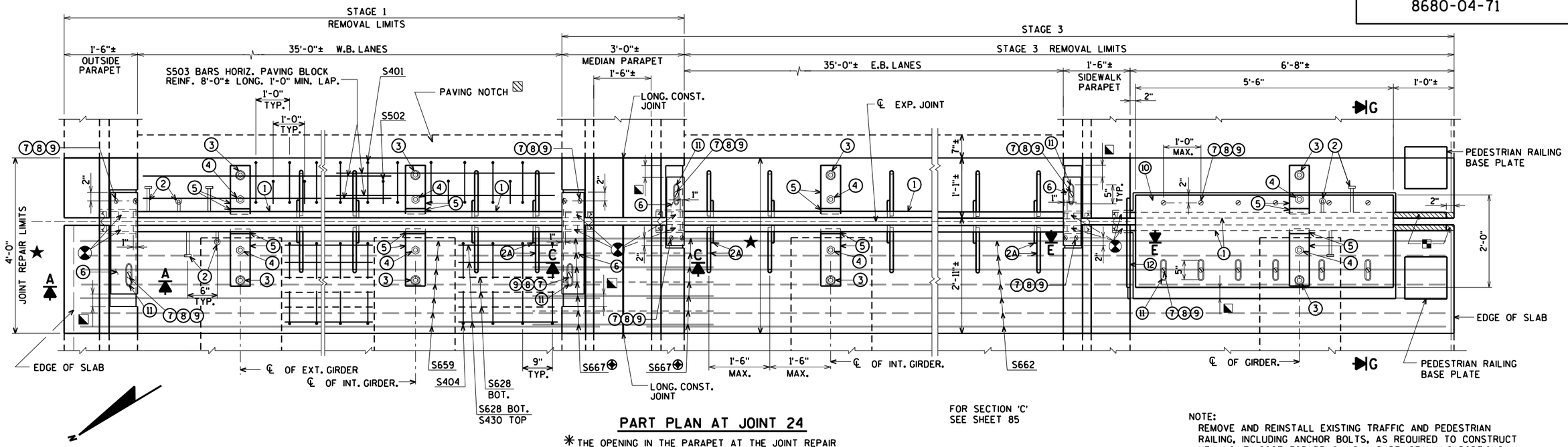
MODULAR EXPANSION JOINTS 21 & 23 DETAILS

SHEET 83 OF 99
429

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

STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 24

✳ THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

FOR SECTION 'C' SEE SHEET 85

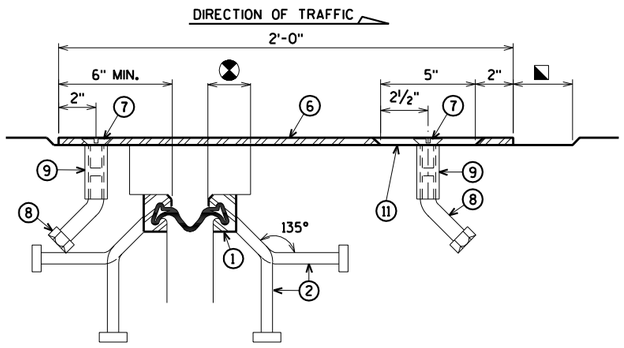
FOR SECTIONS 'E' AND 'G' SEE SHEET 86

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

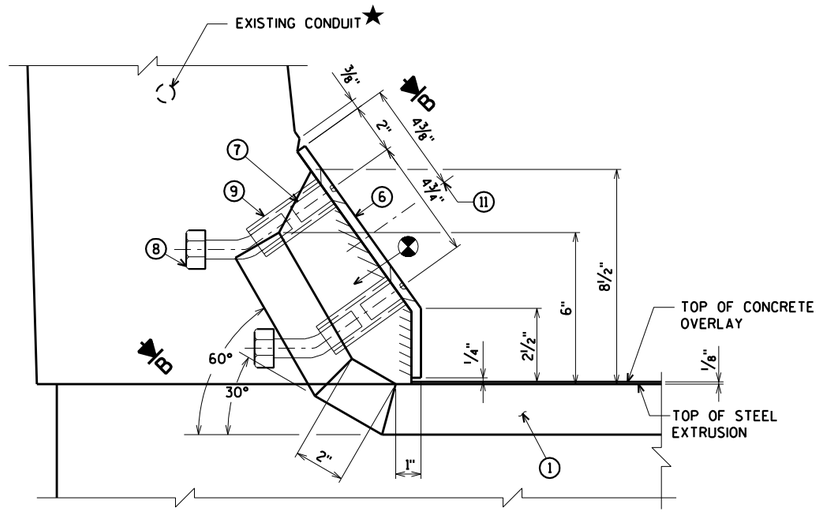
★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

▨ THE CONCRETE APPROACH SLAB WILL NEED TO BE 1'-0½"± THICK AT THE PAVING NOTCH.

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

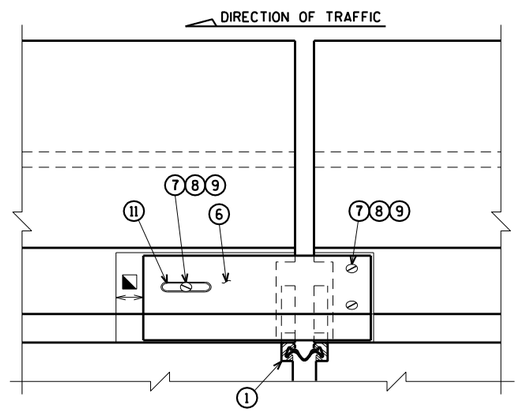


SECTION B



SECTION A

OUTSIDE PARAPET



VIEW OF PARAPET PLATES FROM ROADWAY

OUTSIDE PARAPET

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◺ JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

◪ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 85-87

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

STRIP SEAL EXPANSION JOINT 24 DETAILS

SHEET 84 OF 99
430

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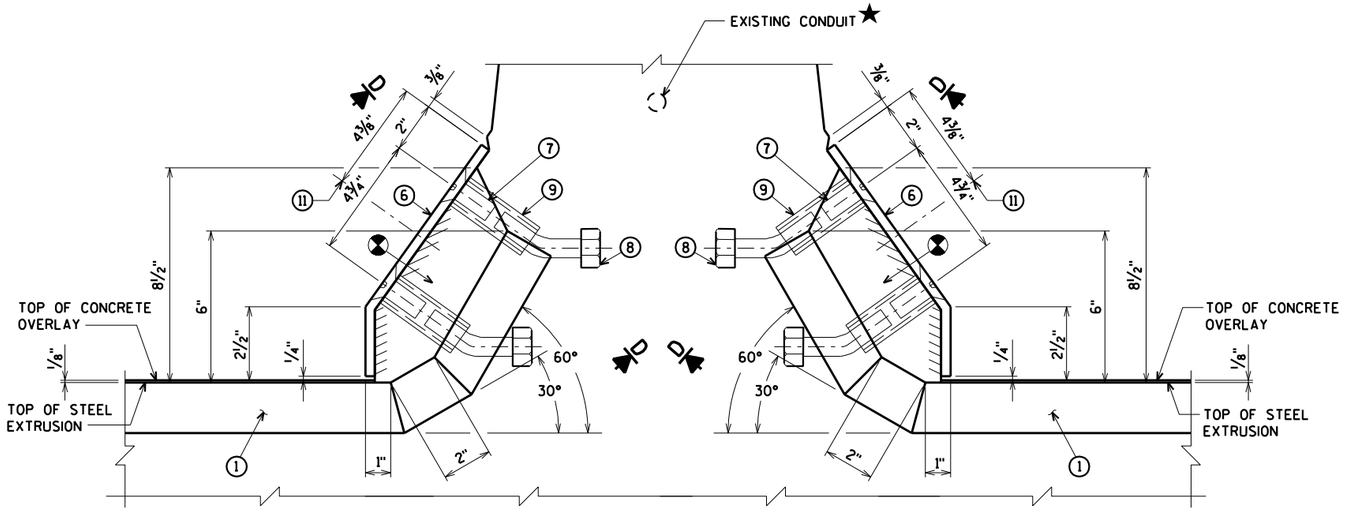
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STATE PROJECT NUMBER

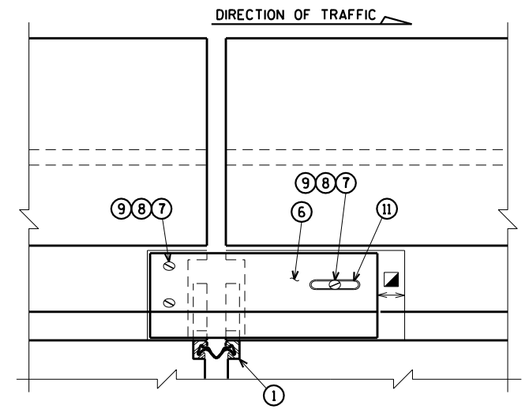
8680-04-71



SECTION C

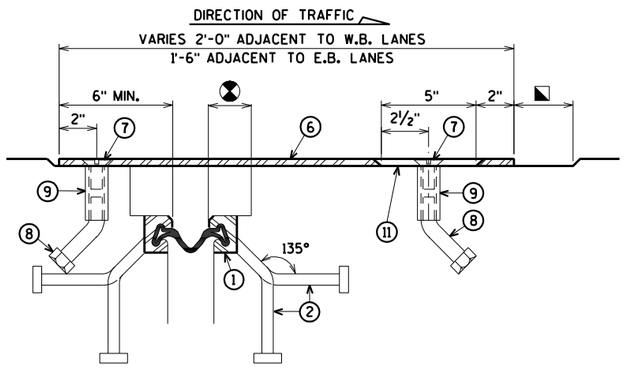
MEDIAN PARAPET

FOR LOCATION OF SECTION 'C'
SEE SHEET 84



VIEW OF PARAPET PLATES FROM ROADWAY

MEDIAN PARAPET



SECTION D

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

WORK THIS SHEET WITH SHEETS 84, 86-87

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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INSIDE PARAPET COVER PLATE JOINT 24 DETAILS

SHEET 85 OF 99
431

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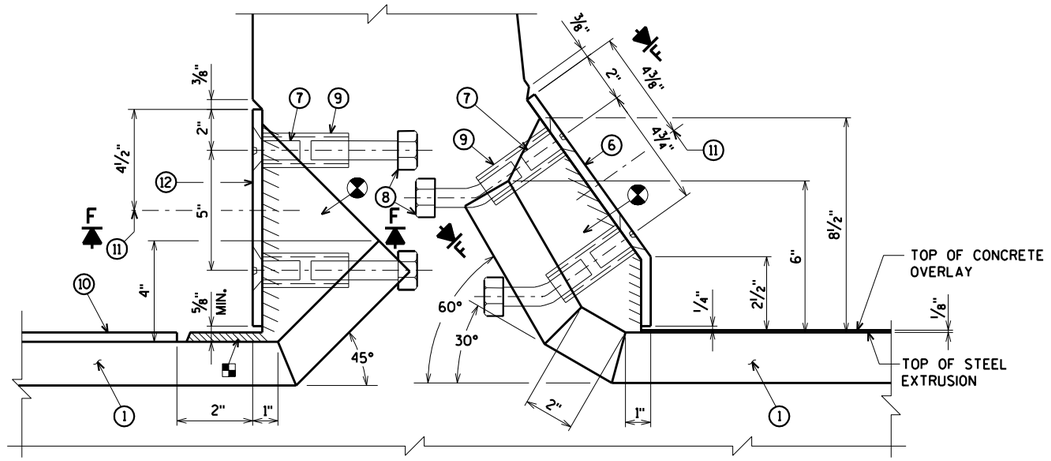
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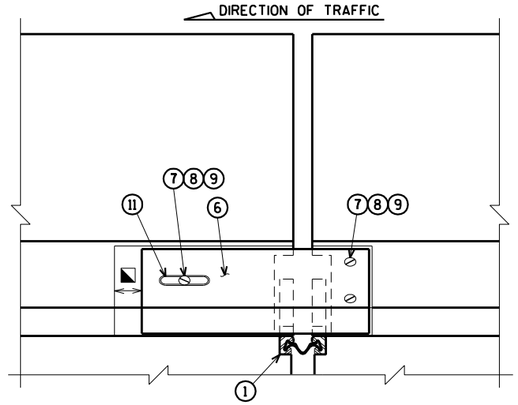
STATE PROJECT NUMBER

8680-04-71

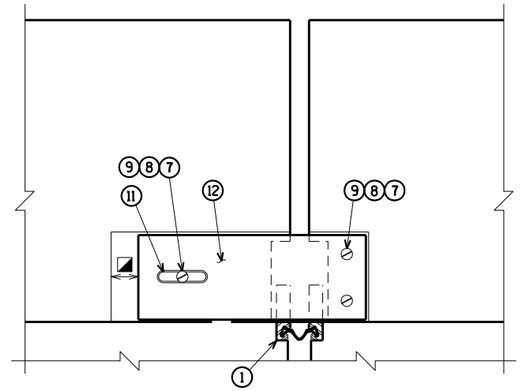


SECTION E
SIDEWALK PARAPET

FOR LOCATION OF SECTIONS 'E' AND 'G'
SEE SHEET 84

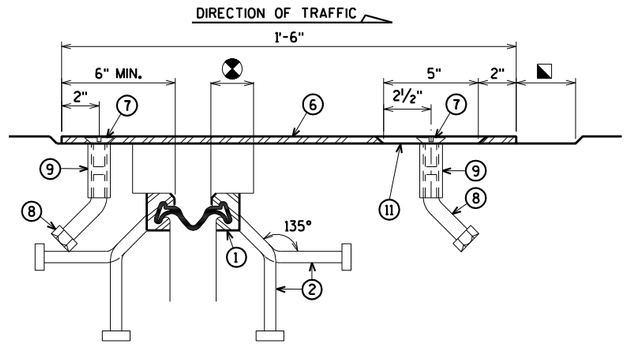


VIEW OF PARAPET PLATES FROM ROADWAY
SIDEWALK PARAPET

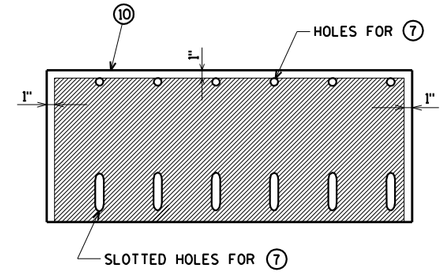


VIEW OF PARAPET PLATES FROM SIDEWALK
SIDEWALK PARAPET

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

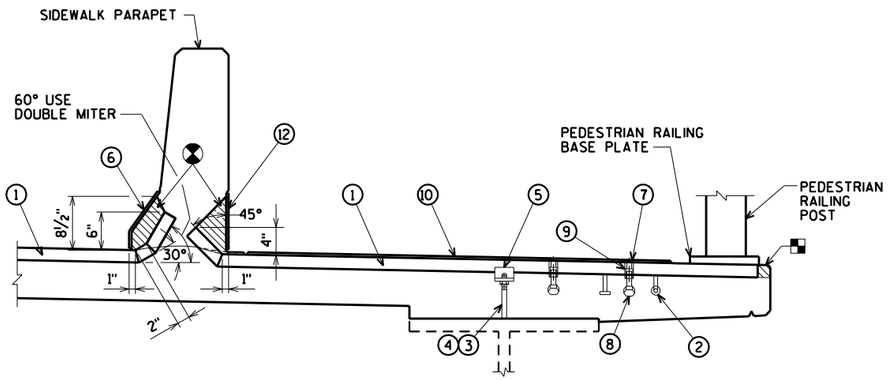


SECTION F

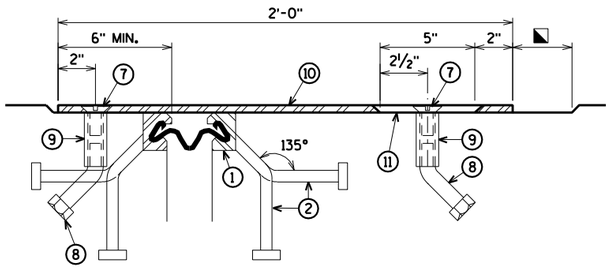


PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY.



SECTION AT SIDEWALK



SECTION G

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

⊠ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◪ JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

◪ BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 84-85, 87

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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SIDEWALK PARAPET COVER PLATE JOINT 24 DETAILS

SHEET 86 OF 99
432

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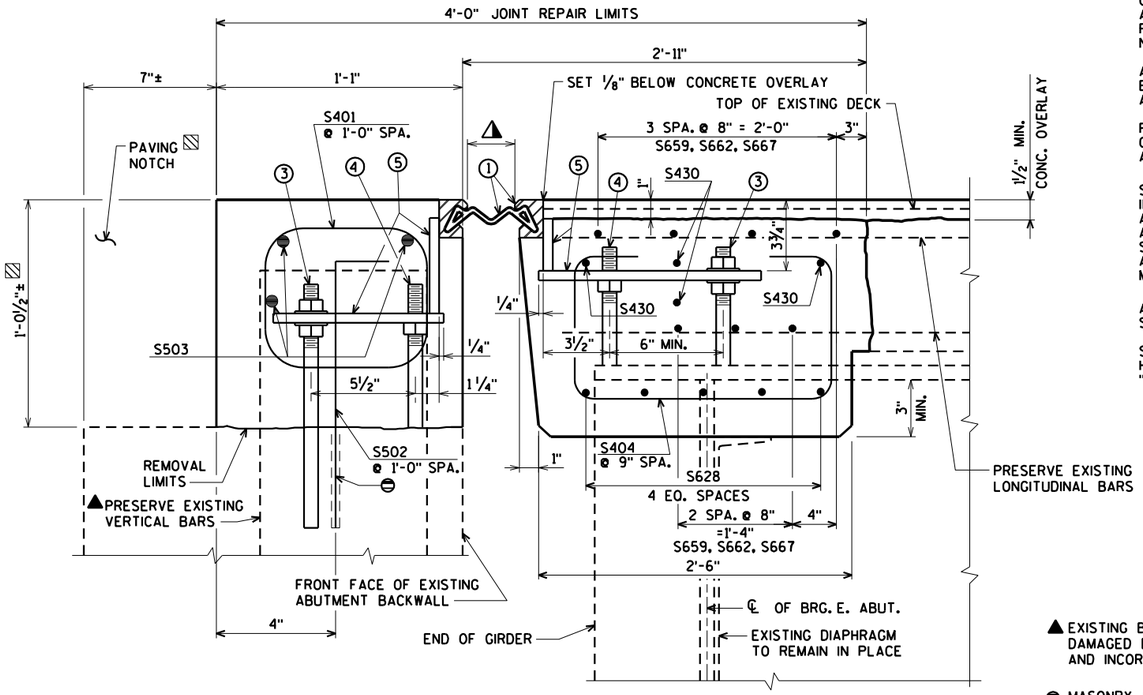
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STATE PROJECT NUMBER

8680-04-71



SECTION THRU JOINT 24

DIMENSIONS ARE NORMAL TO ℄ OF SUBSTRUCTURE UNIT

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING, OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PROTECTION ANGLE, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".

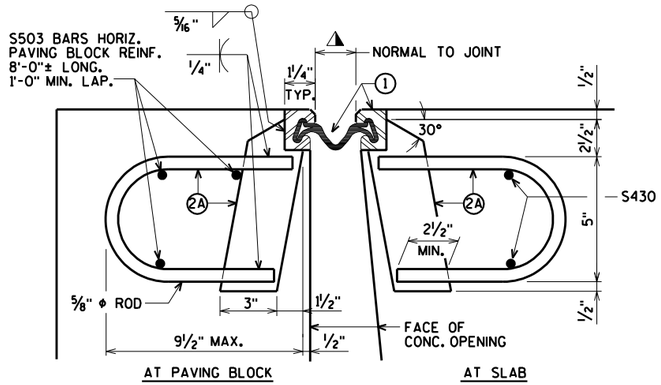
▲ EXISTING BARS LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL.

⊖ MASONRY ANCHORS TYPE L NO. 5 BARS MIN. PULLOUT CAPACITY OF 20 KIPS. EMBED A MINIMUM OF 1'-0" INTO CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.

▨ THE CONCRETE APPROACH SLAB WILL NEED TO BE 1'-0½"± THICK AT THE PAVING NOTCH.

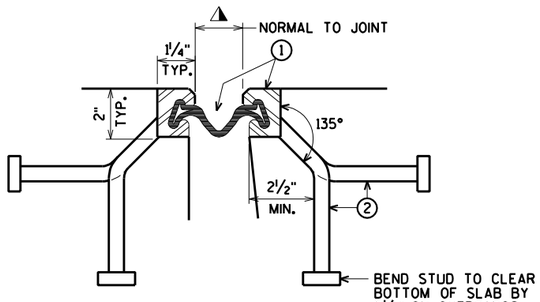
LEGEND

1. NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
2. STUDS ⅝"Φ X 6⅜" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
2A. ½" THICK ANCHOR PLATE WITH ⅝"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. ¾" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE, GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
4. ¾"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X ½" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" Φ HOLE FOR NO. 3 AND 1" Φ HOLE FOR NO. 4.
6. GALVANIZED PLATE ⅜" X 10½" X 2'-0" LONG ADJACENT TO W.B. LANES AND 1'-6" LONG ADJACENT TO E.B. LANES WITH HOLES FOR NO. 7. BEND AS SHOWN.
7. ¾"Φ X 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
8. ¾"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
9. ¾"Φ X 2¼" GALVANIZED THREADED COUPLING.
10. SIDEWALK COVER PLATE ⅜" X 2'-0" X LIMITS SHOWN WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.
11. 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
12. GALVANIZED PLATE ⅜" X 9" X 2'-0" LONG WITH HOLES FOR NO. 7.



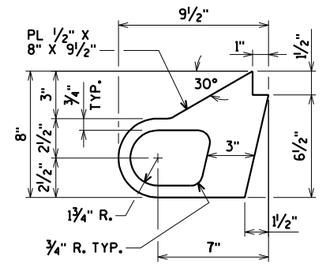
SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN GIRDERS.



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS AND SIDEWALKS



ALTERNATE STRIP SEAL ANCHOR

⚠ TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1¾"
75°	1⅞"
65°	2"
55°	2⅛"
45°	2¼"
35°	2⅜"
25°	2½"
15°	2⅝"
5°	2¾"

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED

WORK THIS SHEET WITH SHEETS 84-86

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

STRIP SEAL EXPANSION JOINT 24 DETAILS

SHEET 87 OF 99
433

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

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42-0825 EXPJT 24 ss.dgn

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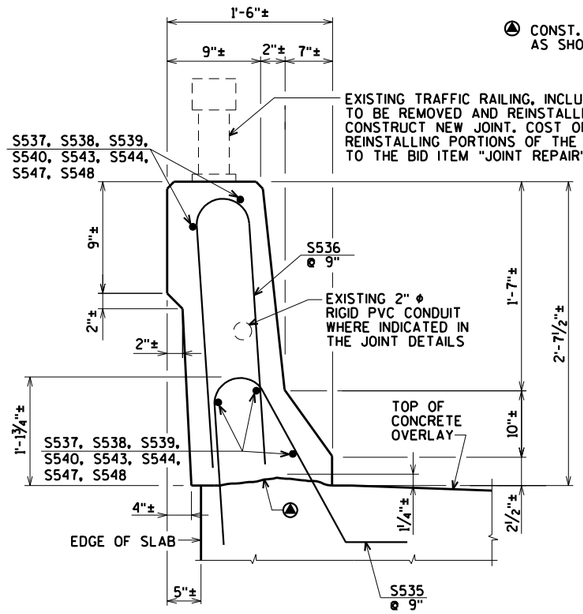
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9/12/2013

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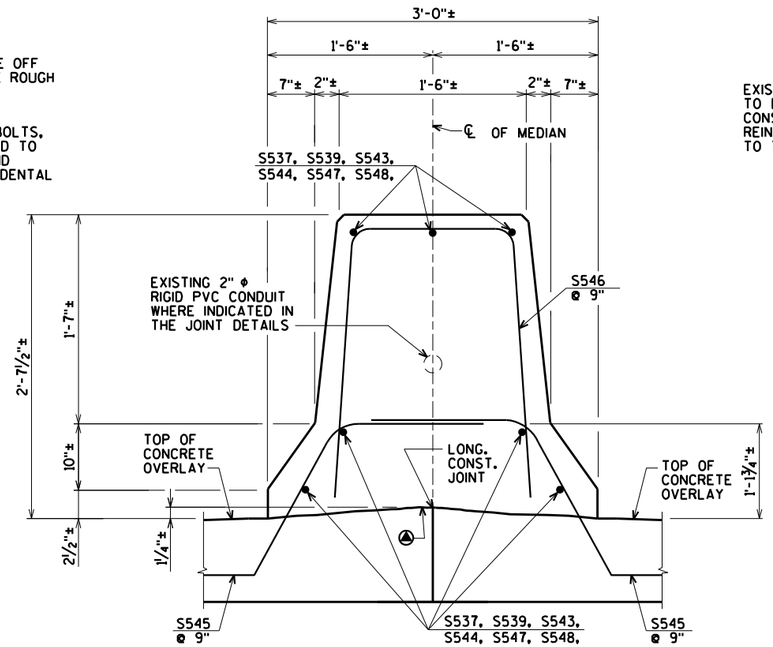
STATE PROJECT NUMBER

8680-04-71



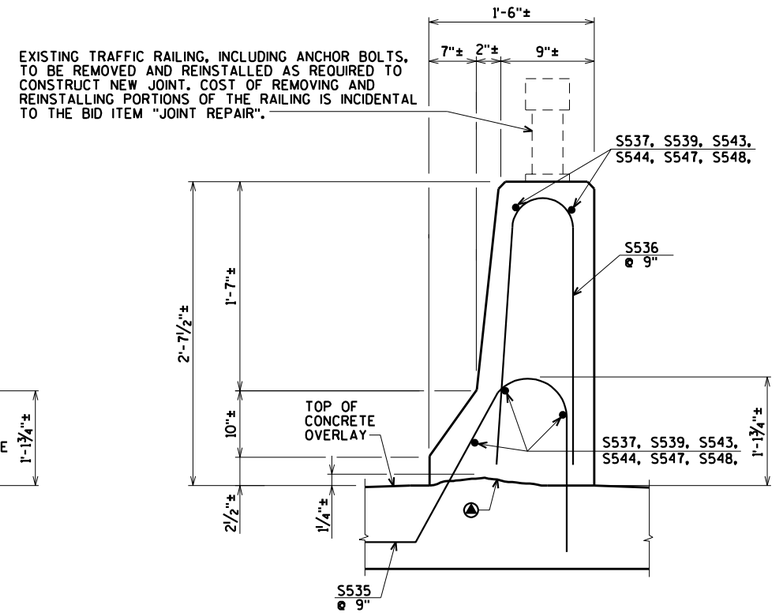
TYPICAL OUTSIDE PARAPET

(JOINTS 1-24)



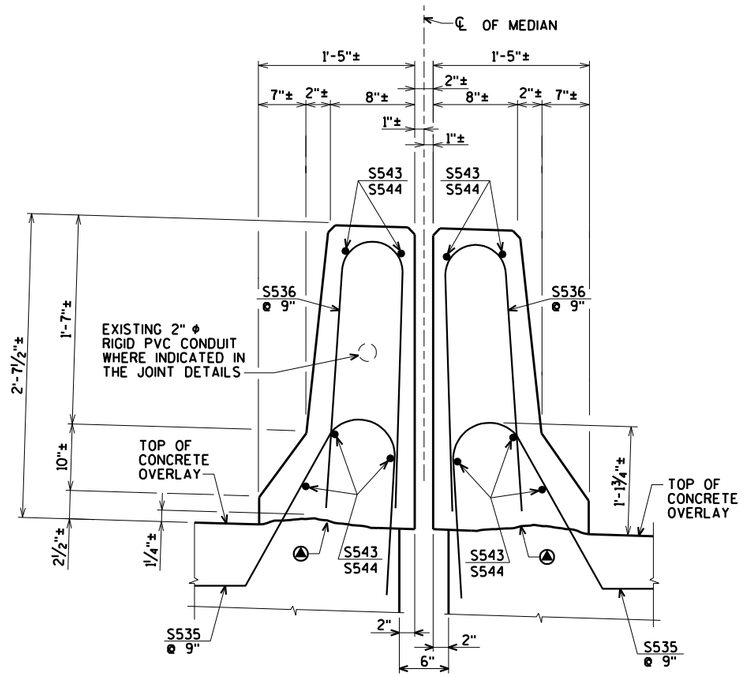
TYPICAL MEDIAN PARAPET

(JOINTS 9-24)



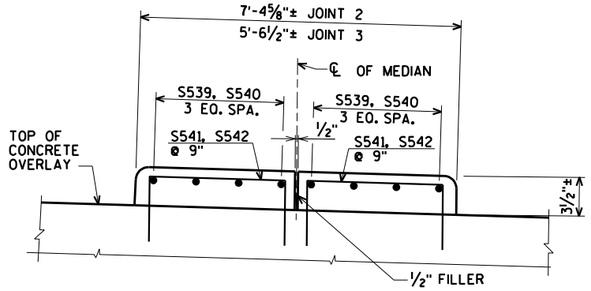
TYPICAL SIDEWALK PARAPET

(JOINTS 8-24)



TYPICAL MEDIAN PARAPET

(JOINTS 5 & 7)



TYPICAL MEDIAN

(JOINTS 2 & 3)

NOTE:

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

NOTES:

UTILIZE EXISTING VERTICAL STEEL FOR PARAPET AND MEDIAN REMOVAL LIMITS OUTSIDE OF THE "JOINT REPAIR" LIMITS INDICATED IN THE PLANS. THIS APPLIES TO JOINTS 1-3.

PRESERVE AND INCORPORATE AS MUCH EXISTING LONGITUDINAL PARAPET AND MEDIAN REBAR AS PRACTICAL AND INCORPORATE IT INTO THE NEW WORK.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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PARAPET & MEDIAN REINFORCEMENT DETAILS

SHEET 88 OF 99
434

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

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$PRFNAME$
U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 EXPJT bill of bars.dgn

STATE PROJECT NUMBER

8680-04-71

BILL OF BARS - JOINT 1

	BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2,410# COATED LOCATION
	S401	X	76	3-4	X		W. ABUT. PAVING BLOCK VERT.
●	S502	X	76	2-5	X		W. ABUT. PAVING BLOCK VERT.
	S503	X	30	8-0			W. ABUT. PAVING BLOCK HORIZ.
	S404	X	80	4-5	X		DIAPH. VERT. UNIT 1
	S605	X	35	7-0			DIAPH. BOT. HORIZ. UNIT 1
	S406	X	28	7-0			DIAPH. HORIZ. UNIT 1
	S535	X	12	4-3	X		PARAPET VERT.
	S536	X	12	4-10	X		PARAPET VERT.
	S537	X	5	0-8			PARAPET HORIZ. WING 1
	S538	X	5	1-0			PARAPET HORIZ. WING 2
	S539	X	10	2-4			PARAPET HORIZ. UNIT 1
	S649	X	7	44-6			TRANSVERSE TOP & BOT. STAGE 1
	S650	X	7	29-3			TRANSVERSE TOP & BOT. STAGE 3
⊕	S663	X	5	6-0			DIAPH. BOT. HORIZ. UNIT 1 STAGE 1
⊕	S464	X	4	6-0			DIAPH. HORIZ. UNIT 1 STAGE 1
⊕	S665	X	5	1-0			DIAPH. BOT. HORIZ. UNIT 1 STAGE 3
⊕	S466	X	4	1-0			DIAPH. HORIZ. UNIT 1 STAGE 3
⊕	S667	X	14	3-2			TRANSVERSE TOP & BOT. @ LONG. JT.

BILL OF BARS - JOINT 2

	BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2,710# COATED LOCATION
	S404	X	80	4-5	X		DIAPH. VERT. UNIT 1
	S605	X	35	7-0			DIAPH. BOT. HORIZ. UNIT 1
	S406	X	28	7-0			DIAPH. HORIZ. UNIT 1
	S401	X	76	3-4	X		UNIT 2 VERT.
●	S502	X	76	2-5	X		UNIT 2 VERT.
	S503	X	30	8-0			UNIT 2 HORIZ.
●	S507	X	76	2-7	X		UNIT 2 LONG.
	S535	X	12	4-3	X		PARAPET VERT.
	S536	X	12	4-10	X		PARAPET VERT.
	S539	X	10	2-4			PARAPET HORIZ. UNIT 1
	S537	X	5	0-8			PARAPET HORIZ. UNIT 2
	S540	X	5	1-7			PARAPET HORIZ. UNIT 2
	S541	X	12	4-8	X		MEDIAN VERT.
	S539	X	8	2-4			MEDIAN LONG. UNIT 1
	S540	X	8	1-7			MEDIAN LONG. UNIT 2
	S651	X	7	48-3			TRANSVERSE TOP & BOT. STAGE 1
	S652	X	7	26-3			TRANSVERSE TOP & BOT. STAGE 3
⊕	S668	X	5	1-9			DIAPH. BOT. HORIZ. UNIT 1 STAGE 1
⊕	S469	X	4	1-9			DIAPH. HORIZ. UNIT 1 STAGE 1
⊕	S670	X	5	5-3			DIAPH. BOT. HORIZ. UNIT 1 STAGE 3
⊕	S471	X	4	5-3			DIAPH. HORIZ. UNIT 1 STAGE 3
⊕	S667	X	14	3-2			TRANSVERSE TOP & BOT. @ LONG. JT.

BILL OF BARS - JOINT 3

	BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2,650# COATED LOCATION
	S401	X	74	3-4	X		UNIT 2 VERT.
●	S502	X	74	2-5	X		UNIT 2 VERT.
	S503	X	30	8-0			UNIT 2 HORIZ.
●	S507	X	74	2-7	X		UNIT 2 LONG.
	S404	X	77	4-5	X		DIAPH. VERT. UNIT 3
	S608	X	30	7-10			DIAPH. BOT. HORIZ. UNIT 3
	S409	X	24	7-10			DIAPH. HORIZ. UNIT 3
	S535	X	12	4-3	X		PARAPET VERT.
	S536	X	12	4-10	X		PARAPET VERT.
	S540	X	5	1-7			PARAPET HORIZ. UNIT 2
	S537	X	5	0-8			PARAPET HORIZ. UNIT 2
	S539	X	10	2-4			PARAPET HORIZ. UNIT 3
	S542	X	12	3-9	X		MEDIAN VERT.
	S540	X	8	1-7			MEDIAN LONG. UNIT 2
	S539	X	8	2-4			MEDIAN LONG. UNIT 3
	S653	X	7	47-6			TRANSVERSE TOP & BOT. STAGE 1
	S654	X	7	25-6			TRANSVERSE TOP & BOT. STAGE 3
⊕	S672	X	5	5-5			DIAPH. BOT. HORIZ. UNIT 3 STAGE 1
⊕	S473	X	4	5-5			DIAPH. HORIZ. UNIT 3 STAGE 1
⊕	S674	X	5	2-5			DIAPH. BOT. HORIZ. UNIT 3 STAGE 3
⊕	S475	X	4	2-5			DIAPH. HORIZ. UNIT 3 STAGE 3
⊕	S667	X	14	3-2			TRANSVERSE TOP & BOT. @ LONG. JT.

BILL OF BARS - JOINT 4

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	1,460# COATED LOCATION
S410	X	56	4-4	X		DIAPH. VERT. RAMP 'A'
S411	X	28	1-7	X		DIAPH. VERT. RAMP 'A'
S612	X	12	8-6			DIAPH. BOT. HORIZ. INT. RAMP 'A'
S613	X	12	1-9			DIAPH. BOT. HORIZ. EXT. RAMP 'A'
S414	X	8	8-6			DIAPH. HORIZ. INT. RAMP 'A'
S415	X	8	1-9			DIAPH. HORIZ. EXT. RAMP 'A'
S434	X	28	4-11	X		DIAPH. VERT. UNIT 4
S612	X	10	8-6			DIAPH. BOT. HORIZ. INT. UNIT 4
S613	X	10	1-9			DIAPH. BOT. HORIZ. EXT. UNIT 4
S414	X	4	8-6			DIAPH. HORIZ. INT. UNIT 4
S415	X	4	1-9			DIAPH. HORIZ. EXT. UNIT 4
S535	X	18	4-3	X		PARAPET VERT.
S536	X	18	4-10	X		PARAPET VERT.
S543	X	10	3-4			PARAPET HORIZ. RAMP 'A'
S544	X	10	2-8			PARAPET HORIZ. UNIT 4
S655	X	14	25-0			TRANSVERSE TOP & BOT.

BILL OF BARS - JOINT 5

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	3,550# COATED LOCATION
S410	X	140	4-4	X		DIAPH. VERT. UNIT 3
S411	X	70	1-7	X		DIAPH. VERT. UNIT 3
S649	X	30	8-5			DIAPH. BOT. HORIZ. INT. UNIT 3
S617	X	24	2-6			DIAPH. BOT. HORIZ. EXT. UNIT 3
S450	X	20	8-5			DIAPH. HORIZ. INT. UNIT 3
S419	X	16	2-6			DIAPH. HORIZ. EXT. UNIT 3
S434	X	70	4-11	X		DIAPH. VERT. UNIT 4
S649	X	25	8-5			DIAPH. BOT. HORIZ. INT. UNIT 4
S617	X	20	2-6			DIAPH. BOT. HORIZ. EXT. UNIT 4
S450	X	10	8-5			DIAPH. HORIZ. INT. UNIT 4
S419	X	8	2-6			DIAPH. HORIZ. EXT. UNIT 4
S535	X	18	4-3	X		OUTSIDE PARAPET VERT.
S536	X	18	4-10	X		OUTSIDE PARAPET VERT.
S543	X	10	3-4			OUTSIDE PARAPET HORIZ. UNIT 3
S544	X	10	2-8			OUTSIDE PARAPET HORIZ. UNIT 4
S535	X	18	4-3	X		MEDIAN PARAPET VERT.
S536	X	18	4-10	X		MEDIAN PARAPET VERT.
S543	X	10	3-4			MEDIAN PARAPET HORIZ. UNIT 3
S544	X	10	2-8			MEDIAN PARAPET HORIZ. UNIT 4
S656	X	14	37-3			TRANSVERSE TOP & BOT. STAGE 1
S657	X	14	24-9			TRANSVERSE TOP & BOT. STAGE 3

BILL OF BARS - JOINT 6

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	1,530# COATED LOCATION
S410	X	64	4-4	X		DIAPH. VERT. RAMP 'C'
S411	X	32	1-7	X		DIAPH. VERT. RAMP 'C'
S616	X	12	8-9			DIAPH. BOT. HORIZ. INT. RAMP 'C'
S617	X	12	2-6			DIAPH. BOT. HORIZ. EXT. RAMP 'C'
S418	X	8	8-9			DIAPH. HORIZ. INT. RAMP 'C'
S419	X	8	2-6			DIAPH. HORIZ. EXT. RAMP 'C'
S434	X	32	4-11	X		DIAPH. VERT. UNIT 4
S616	X	10	8-9			DIAPH. BOT. HORIZ. INT. UNIT 4
S617	X	10	2-6			DIAPH. BOT. HORIZ. EXT. UNIT 4
S418	X	4	8-9			DIAPH. HORIZ. INT. UNIT 4
S419	X	4	2-6			DIAPH. HORIZ. EXT. UNIT 4
S535	X	18	4-3	X		PARAPET VERT.
S536	X	18	4-10	X		PARAPET VERT.
S543	X	10	3-4			PARAPET HORIZ. RAMP 'C'
S544	X	10	2-8			PARAPET HORIZ. UNIT 4
S658	X	14	24-3			TRANSVERSE TOP & BOT.

BILL OF BARS - JOINT 7

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	4,060# COATED LOCATION
S410	X	160	4-4	X		DIAPH. VERT. UNIT 4
S411	X	80	1-7	X		DIAPH. VERT. UNIT 4
S616	X	30	8-9			DIAPH. BOT. HORIZ. INT. UNIT 4
S621	X	24	2-3			DIAPH. BOT. HORIZ. EXT. UNIT 4
S418	X	20	8-9			DIAPH. HORIZ. INT. UNIT 4
S423	X	16	2-3			DIAPH. HORIZ. EXT. UNIT 4
S651	X	12	3-2			DIAPH. BOT. HORIZ. INT. UNIT 4
S452	X	8	3-2			DIAPH. HORIZ. INT. UNIT 4
S434	X	80	4-11	X		DIAPH. VERT. UNIT 5
S616	X	30	8-9			DIAPH. BOT. HORIZ. INT. UNIT 5
S621	X	20	2-3			DIAPH. BOT. HORIZ. EXT. UNIT 5
S418	X	12	8-9			DIAPH. HORIZ. INT. UNIT 5
S423	X	8	2-3			DIAPH. HORIZ. EXT. UNIT 5
S535	X	18	4-3	X		OUTSIDE PARAPET VERT.
S536	X	18	4-10	X		OUTSIDE PARAPET VERT.
S543	X	10	3-4			OUTSIDE PARAPET HORIZ. UNIT 4
S544	X	10	2-8			OUTSIDE PARAPET HORIZ. UNIT 5
S535	X	18	4-3	X		MEDIAN PARAPET VERT.
S536	X	18	4-10	X		MEDIAN PARAPET VERT.
S543	X	10	3-4			MEDIAN PARAPET HORIZ. UNIT 4
S544	X	10	2-8			MEDIAN PARAPET HORIZ. UNIT 5
S659	X	28	36-9			TRANSVERSE TOP & BOT.

BILL OF BARS - JOINT 8

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	1,790# COATED LOCATION
S410	X	76	4-4	X		DIAPH. VERT. RAMP 'B'
S411	X	38	1-7	X		DIAPH. VERT. RAMP 'B'
S620	X	18	6-9			DIAPH. BOT. HORIZ. INT. RAMP 'B'
S621	X	12	2-3			DIAPH. BOT. HORIZ. EXT. RAMP 'B'
S422	X	12	6-9			DIAPH. HORIZ. INT. RAMP 'B'
S423	X	8	2-3			DIAPH. HORIZ. EXT. RAMP 'B'
S434	X	38	4-11	X		DIAPH. VERT. UNIT 5
S620	X	15	6-9			DIAPH. BOT. HORIZ. INT. UNIT 5
S621	X	10	2-3			DIAPH. BOT. HORIZ. EXT. UNIT 5
S422	X	6	6-9			DIAPH. HORIZ. INT. UNIT 5
S423	X	4	2-3			DIAPH. HORIZ. EXT. UNIT 5
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. RAMP 'B'
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 5
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. RAMP 'B'
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 5
S660	X	14	31-6			TRANSVERSE TOP & BOT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

● CONCRETE MASONRY ANCHORS TYPE L No. 5 BARS

FOR BAR BENDING DETAILS, SEE SHEET 92.

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

WORK THIS SHEET WITH SHEETS 90-92

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINTS 1 - 8 BILL OF BARS

SHEET 89 OF 99
435

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

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STATE PROJECT NUMBER

8680-04-71

BILL OF BARS - JOINT 9

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	5,150# COATED LOCATION
S410	X	232	4-4	X		DIAPH. VERT. UNIT 5
S411	X	116	1-7	X		DIAPH. VERT. UNIT 5
S616	X	42	8-9			DIAPH. BOT. HORIZ. INT. UNIT 5
S625	X	24	2-3			DIAPH. BOT. HORIZ. EXT. UNIT 5
S418	X	28	8-9			DIAPH. HORIZ. INT. UNIT 5
S427	X	16	2-3			DIAPH. HORIZ. EXT. UNIT 5
⊕ S653	X	6	3-1			DIAPH. BOT. HORIZ. UNIT 5 STAGE 1
⊕ S454	X	4	3-1			DIAPH. HORIZ. UNIT 5 STAGE 1
S434	X	116	4-11	X		DIAPH. VERT. UNIT 6
S616	X	35	8-9			DIAPH. BOT. HORIZ. INT. UNIT 6
S625	X	10	2-3			DIAPH. BOT. HORIZ. EXT. UNIT 6
S418	X	14	8-9			DIAPH. HORIZ. INT. UNIT 6
S427	X	4	2-3			DIAPH. HORIZ. EXT. UNIT 6
⊕ S653	X	5	3-1			DIAPH. BOT. HORIZ. UNIT 6 STAGE 1
⊕ S454	X	2	3-1			DIAPH. HORIZ. UNIT 6 STAGE 1
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. UNIT 5
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 6
S545	X	18	3-8	X		MEDIAN PARAPET VERT.
S546	X	9	5-4	X		MEDIAN PARAPET VERT.
S543	X	7	3-4			MEDIAN PARAPET HORIZ. UNIT 5
S544	X	7	2-8			MEDIAN PARAPET HORIZ. UNIT 6
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. UNIT 5
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 6
S659	X	14	36-9			TRANSVERSE TOP & BOT. STAGE 1
S661	X	14	54-9			TRANSVERSE TOP & BOT. STAGE 3
⊕ S676	X	6	2-9			DIAPH. BOT. HORIZ. UNIT 5 STAGE 3
⊕ S477	X	4	2-9			DIAPH. HORIZ. UNIT 5 STAGE 3
⊕ S676	X	5	2-9			DIAPH. BOT. HORIZ. UNIT 6 STAGE 3
⊕ S477	X	2	2-9			DIAPH. HORIZ. UNIT 6 STAGE 3
⊕ S667	X	28	3-2			TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 10

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	4,630# COATED LOCATION
S410	X	206	4-4	X		DIAPH. VERT. UNIT 6
S411	X	103	1-7	X		DIAPH. VERT. UNIT 6
S628	X	36	9-0			DIAPH. BOT. HORIZ. INT. UNIT 6
S629	X	12	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 6
S430	X	24	9-0			DIAPH. HORIZ. INT. UNIT 6
S431	X	8	2-0			DIAPH. HORIZ. EXT. UNIT 6
S655	X	12	4-3			DIAPH. BOT. HORIZ. INT. UNIT 6
S456	X	8	4-3			DIAPH. HORIZ. INT. UNIT 6
S434	X	103	4-11	X		DIAPH. VERT. UNIT 7
S628	X	35	9-0			DIAPH. BOT. HORIZ. INT. UNIT 7
S629	X	10	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 7
S430	X	14	9-0			DIAPH. HORIZ. INT. UNIT 7
S431	X	4	2-0			DIAPH. HORIZ. EXT. UNIT 7
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. UNIT 6
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 7
S545	X	18	3-8	X		MEDIAN PARAPET VERT.
S546	X	9	5-4	X		MEDIAN PARAPET VERT.
S543	X	7	3-4			MEDIAN PARAPET HORIZ. UNIT 6
S544	X	7	2-8			MEDIAN PARAPET HORIZ. UNIT 7
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. UNIT 6
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 7
S659	X	14	36-9			TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9			TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2			TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 11

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X		DIAPH. VERT. UNIT 7
S411	X	103	1-7	X		DIAPH. VERT. UNIT 7
S628	X	42	9-0			DIAPH. BOT. HORIZ. INT. UNIT 7
S629	X	12	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 7
S430	X	28	9-0			DIAPH. HORIZ. INT. UNIT 7
S431	X	8	2-0			DIAPH. HORIZ. EXT. UNIT 7
S434	X	103	4-11	X		DIAPH. VERT. UNIT 8
S628	X	35	9-0			DIAPH. BOT. HORIZ. INT. UNIT 8
S629	X	10	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 8
S430	X	14	9-0			DIAPH. HORIZ. INT. UNIT 8
S431	X	4	2-0			DIAPH. HORIZ. EXT. UNIT 8
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. UNIT 7
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 8
S545	X	18	3-8	X		MEDIAN PARAPET VERT.
S546	X	9	5-4	X		MEDIAN PARAPET VERT.
S543	X	7	3-4			MEDIAN PARAPET HORIZ. UNIT 7
S544	X	7	2-8			MEDIAN PARAPET HORIZ. UNIT 8
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. UNIT 7
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 8
S659	X	14	36-9			TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9			TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2			TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 12

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X		DIAPH. VERT. UNIT 8
S411	X	103	1-7	X		DIAPH. VERT. UNIT 8
S628	X	42	9-0			DIAPH. BOT. HORIZ. INT. UNIT 8
S629	X	12	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 8
S430	X	28	9-0			DIAPH. HORIZ. INT. UNIT 8
S431	X	8	2-0			DIAPH. HORIZ. EXT. UNIT 8
S434	X	103	4-11	X		DIAPH. VERT. UNIT 9
S628	X	35	9-0			DIAPH. BOT. HORIZ. INT. UNIT 9
S629	X	10	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 9
S430	X	14	9-0			DIAPH. HORIZ. INT. UNIT 9
S431	X	4	2-0			DIAPH. HORIZ. EXT. UNIT 9
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. UNIT 8
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 9
S545	X	18	3-8	X		MEDIAN PARAPET VERT.
S546	X	9	5-4	X		MEDIAN PARAPET VERT.
S543	X	7	3-4			MEDIAN PARAPET HORIZ. UNIT 8
S544	X	7	2-8			MEDIAN PARAPET HORIZ. UNIT 9
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. UNIT 8
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 9
S659	X	14	36-9			TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9			TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2			TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 13

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X		DIAPH. VERT. UNIT 9
S411	X	103	1-7	X		DIAPH. VERT. UNIT 9
S628	X	42	9-0			DIAPH. BOT. HORIZ. INT. UNIT 9
S629	X	12	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 9
S430	X	28	9-0			DIAPH. HORIZ. INT. UNIT 9
S431	X	8	2-0			DIAPH. HORIZ. EXT. UNIT 9
S434	X	103	4-11	X		DIAPH. VERT. UNIT 10
S628	X	35	9-0			DIAPH. BOT. HORIZ. INT. UNIT 10
S629	X	10	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 10
S430	X	14	9-0			DIAPH. HORIZ. INT. UNIT 10
S431	X	4	2-0			DIAPH. HORIZ. EXT. UNIT 10
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. UNIT 9
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 10
S545	X	18	3-8	X		MEDIAN PARAPET VERT.
S546	X	9	5-4	X		MEDIAN PARAPET VERT.
S543	X	7	3-4			MEDIAN PARAPET HORIZ. UNIT 9
S544	X	7	2-8			MEDIAN PARAPET HORIZ. UNIT 10
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. UNIT 9
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 10
S659	X	14	36-9			TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9			TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2			TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 14

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X		DIAPH. VERT. UNIT 10
S411	X	103	1-7	X		DIAPH. VERT. UNIT 10
S628	X	42	9-0			DIAPH. BOT. HORIZ. INT. UNIT 10
S629	X	12	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 10
S430	X	28	9-0			DIAPH. HORIZ. INT. UNIT 10
S431	X	8	2-0			DIAPH. HORIZ. EXT. UNIT 10
S434	X	103	4-11	X		DIAPH. VERT. UNIT 11
S628	X	35	9-0			DIAPH. BOT. HORIZ. INT. UNIT 11
S629	X	10	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 11
S430	X	14	9-0			DIAPH. HORIZ. INT. UNIT 11
S431	X	4	2-0			DIAPH. HORIZ. EXT. UNIT 11
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. UNIT 10
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 11
S545	X	18	3-8	X		MEDIAN PARAPET VERT.
S546	X	9	5-4	X		MEDIAN PARAPET VERT.
S543	X	7	3-4			MEDIAN PARAPET HORIZ. UNIT 10
S544	X	7	2-8			MEDIAN PARAPET HORIZ. UNIT 11
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. UNIT 10
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 11
S659	X	14	36-9			TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9			TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2			TRANSVERSE TOP & BOT. ℄ LONG. JT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

FOR BAR BENDING DETAILS, SEE SHEET 92.

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

WORK THIS SHEET WITH SHEETS 89, 91-92

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINTS 9 - 14 BILL OF BARS

SHEET 90 OF 99

436

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
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Eau Claire, WI 54701
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U:\42-0825.00 - USH 2 St. Louis River Bong\Bridge\BRIDGE\42-0825 EXPJT bill of bars.dgn

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STATE PROJECT NUMBER

8680-04-71

BILL OF BARS - JOINT 15

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X			DIAPH. VERT. UNIT 11
S411	X	103	1-7	X			DIAPH. VERT. UNIT 11
S628	X	42	9-0				DIAPH. BOT. HORIZ. INT. UNIT 11
S629	X	12	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 11
S430	X	28	9-0				DIAPH. HORIZ. INT. UNIT 11
S431	X	8	2-0				DIAPH. HORIZ. EXT. UNIT 11
S434	X	103	4-11	X			DIAPH. VERT. UNIT 12
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 12
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 12
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 12
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 12
S535	X	9	4-3	X			OUTSIDE PARAPET VERT.
S536	X	9	4-10	X			OUTSIDE PARAPET VERT.
S543	X	5	3-4				OUTSIDE PARAPET HORIZ. UNIT 11
S544	X	5	2-8				OUTSIDE PARAPET HORIZ. UNIT 12
S545	X	18	3-8	X			MEDIAN PARAPET VERT.
S546	X	9	5-4	X			MEDIAN PARAPET VERT.
S543	X	7	3-4				MEDIAN PARAPET HORIZ. UNIT 11
S544	X	7	2-8				MEDIAN PARAPET HORIZ. UNIT 12
S535	X	9	4-3	X			SIDEWALK PARAPET VERT.
S536	X	9	4-10	X			SIDEWALK PARAPET VERT.
S543	X	5	3-4				SIDEWALK PARAPET HORIZ. UNIT 11
S544	X	5	2-8				SIDEWALK PARAPET HORIZ. UNIT 12
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 16

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,610# COATED LOCATION
S434	X	103	4-11	X			DIAPH. VERT. UNIT 12
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 12
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 12
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 12
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 12
S432	X	103	3-8	X			DIAPH. VERT. UNIT 13
S433	X	103	4-8	X			DIAPH. VERT. UNIT 13
S411	X	103	1-7	X			DIAPH. VERT. UNIT 13
S624	X	42	8-0				DIAPH. BOT. HORIZ. INT. UNIT 13
S617	X	12	2-6				DIAPH. BOT. HORIZ. EXT. UNIT 13
S426	X	28	8-0				DIAPH. HORIZ. INT. UNIT 13
S419	X	8	2-6				DIAPH. HORIZ. EXT. UNIT 13
S535	X	8	4-3	X			OUTSIDE PARAPET VERT.
S536	X	8	4-10	X			OUTSIDE PARAPET VERT.
S547	X	10	3-0				OUTSIDE PARAPET HORIZ. UNITS 12 & 13
S545	X	16	3-8	X			MEDIAN PARAPET VERT.
S546	X	8	5-4	X			MEDIAN PARAPET VERT.
S547	X	14	3-0				MEDIAN PARAPET HORIZ. UNITS 12 & 13
S535	X	8	4-3	X			SIDEWALK PARAPET VERT.
S536	X	8	4-10	X			SIDEWALK PARAPET VERT.
S547	X	10	3-0				SIDEWALK PARAPET HORIZ. UNITS 12 & 13
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S678	X	6	4-4				DIAPH. BOT. HORIZ. UNIT 13 STAGE 1
⊕ S479	X	4	4-4				DIAPH. HORIZ. UNIT 13 STAGE 1
⊕ S680	X	6	3-8				DIAPH. BOT. HORIZ. UNIT 13 STAGE 3
⊕ S481	X	4	3-8				DIAPH. HORIZ. UNIT 13 STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 17

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	3,960# COATED LOCATION
S404	X	192	4-5	X			DIAPH. VERT. UNIT 13
S624	X	70	8-0				DIAPH. BOT. HORIZ. UNIT 13
S426	X	56	8-0				DIAPH. HORIZ. UNIT 13
S535	X	6	4-3	X			OUTSIDE PARAPET VERT.
S536	X	6	4-10	X			OUTSIDE PARAPET VERT.
S548	X	10	2-1				OUTSIDE PARAPET UNIT 13
S545	X	12	3-8	X			MEDIAN PARAPET VERT.
S546	X	6	5-4	X			MEDIAN PARAPET VERT.
S548	X	14	2-1				MEDIAN PARAPET HORIZ. UNIT 13
S535	X	6	4-3	X			SIDEWALK PARAPET VERT.
S536	X	6	4-10	X			SIDEWALK PARAPET VERT.
S548	X	10	2-1				SIDEWALK PARAPET HORIZ. UNIT 13
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S678	X	10	4-4				DIAPH. BOT. HORIZ. UNIT 13 STAGE 1
⊕ S479	X	8	4-4				DIAPH. HORIZ. UNIT 13 STAGE 1
⊕ S680	X	10	3-8				DIAPH. BOT. HORIZ. UNIT 13 STAGE 3
⊕ S481	X	8	3-8				DIAPH. HORIZ. UNIT 13 STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 18

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	3,960# COATED LOCATION
S404	X	96	4-5	X			DIAPH. VERT. UNIT 13
S624	X	35	8-0				DIAPH. BOT. HORIZ. UNIT 13
S426	X	28	8-0				DIAPH. HORIZ. UNIT 13
S404	X	98	4-5	X			DIAPH. VERT. UNIT 14
S628	X	35	9-0				DIAPH. BOT. HORIZ. UNIT 14
S430	X	28	9-0				DIAPH. HORIZ. UNIT 14
S535	X	6	4-3	X			OUTSIDE PARAPET VERT.
S536	X	6	4-10	X			OUTSIDE PARAPET VERT.
S548	X	10	2-1				OUTSIDE PARAPET HORIZ. UNITS 13 & 14
S545	X	12	3-8	X			MEDIAN PARAPET VERT.
S546	X	6	5-4	X			MEDIAN PARAPET VERT.
S548	X	14	2-1				MEDIAN PARAPET HORIZ. UNITS 13 & 14
S535	X	6	4-3	X			SIDEWALK PARAPET VERT.
S536	X	6	4-10	X			SIDEWALK PARAPET VERT.
S548	X	10	2-1				SIDEWALK PARAPET HORIZ. UNITS 13 & 14
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S678	X	5	4-4				DIAPH. BOT. HORIZ. UNIT 13 STAGE 1
⊕ S479	X	4	4-4				DIAPH. HORIZ. UNIT 13 STAGE 1
⊕ S680	X	5	3-8				DIAPH. BOT. HORIZ. UNIT 13 STAGE 3
⊕ S481	X	4	3-8				DIAPH. HORIZ. UNIT 13 STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 19

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X			DIAPH. VERT. UNIT 14
S411	X	103	1-7	X			DIAPH. VERT. UNIT 14
S628	X	42	9-0				DIAPH. BOT. HORIZ. INT. UNIT 14
S629	X	12	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 14
S430	X	28	9-0				DIAPH. HORIZ. INT. UNIT 14
S431	X	8	2-0				DIAPH. HORIZ. EXT. UNIT 14
S434	X	103	4-11	X			DIAPH. VERT. UNIT 15
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 15
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 15
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 15
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 15
S535	X	9	4-3	X			OUTSIDE PARAPET VERT.
S536	X	9	4-10	X			OUTSIDE PARAPET VERT.
S543	X	5	3-4				OUTSIDE PARAPET HORIZ. UNIT 14
S544	X	5	2-8				OUTSIDE PARAPET HORIZ. UNIT 15
S545	X	18	3-8	X			MEDIAN PARAPET VERT.
S546	X	9	5-4	X			MEDIAN PARAPET VERT.
S543	X	7	3-4				MEDIAN PARAPET HORIZ. UNIT 14
S544	X	7	2-8				MEDIAN PARAPET HORIZ. UNIT 15
S535	X	9	4-3	X			SIDEWALK PARAPET VERT.
S536	X	9	4-10	X			SIDEWALK PARAPET VERT.
S543	X	5	3-4				SIDEWALK PARAPET HORIZ. UNIT 14
S544	X	5	2-8				SIDEWALK PARAPET HORIZ. UNIT 15
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 20

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X			DIAPH. VERT. UNIT 15
S411	X	103	1-7	X			DIAPH. VERT. UNIT 15
S628	X	42	9-0				DIAPH. BOT. HORIZ. INT. UNIT 15
S629	X	12	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 15
S430	X	28	9-0				DIAPH. HORIZ. INT. UNIT 15
S431	X	8	2-0				DIAPH. HORIZ. EXT. UNIT 15
S434	X	103	4-11	X			DIAPH. VERT. UNIT 16
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 16
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 16
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 16
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 16
S535	X	9	4-3	X			OUTSIDE PARAPET VERT.
S536	X	9	4-10	X			OUTSIDE PARAPET VERT.
S543	X	5	3-4				OUTSIDE PARAPET HORIZ. UNIT 15
S544	X	5	2-8				OUTSIDE PARAPET HORIZ. UNIT 16
S545	X	18	3-8	X			MEDIAN PARAPET VERT.
S546	X	9	5-4	X			MEDIAN PARAPET VERT.
S543	X	7	3-4				MEDIAN PARAPET HORIZ. UNIT 15
S544	X	7	2-8				MEDIAN PARAPET HORIZ. UNIT 16
S535	X	9	4-3	X			SIDEWALK PARAPET VERT.
S536	X	9	4-10	X			SIDEWALK PARAPET VERT.
S543	X	5	3-4				SIDEWALK PARAPET HORIZ. UNIT 15
S544	X	5	2-8				SIDEWALK PARAPET HORIZ. UNIT 16
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

FOR BAR BENDING DETAILS, SEE SHEET 92.

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

WORK THIS SHEET WITH SHEETS 89-90, 92

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINTS 15 - 20 BILL OF BARS

SHEET 91 OF 99
437

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U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 EXPJT bill of bars.dgn

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BILL OF BARS - JOINT 21

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X			DIAPH. VERT. UNIT 16
S411	X	103	1-7	X			DIAPH. VERT. UNIT 16
S628	X	42	9-0				DIAPH. BOT. HORIZ. INT. UNIT 16
S629	X	12	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 16
S430	X	28	9-0				DIAPH. HORIZ. INT. UNIT 16
S431	X	8	2-0				DIAPH. HORIZ. EXT. UNIT 16
S434	X	103	4-11	X			DIAPH. VERT. UNIT 17
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 17
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 17
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 17
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 17
S535	X	9	4-3	X			OUTSIDE PARAPET VERT.
S536	X	9	4-10	X			OUTSIDE PARAPET VERT.
S543	X	5	3-4				OUTSIDE PARAPET HORIZ. UNIT 16
S544	X	5	2-8				OUTSIDE PARAPET HORIZ. UNIT 17
S545	X	18	3-8	X			MEDIAN PARAPET VERT.
S546	X	9	5-4	X			MEDIAN PARAPET VERT.
S543	X	7	3-4				MEDIAN PARAPET HORIZ. UNIT 16
S544	X	7	2-8				MEDIAN PARAPET HORIZ. UNIT 17
S535	X	9	4-3	X			SIDEWALK PARAPET VERT.
S536	X	9	4-10	X			SIDEWALK PARAPET VERT.
S543	X	5	3-4				SIDEWALK PARAPET HORIZ. UNIT 16
S544	X	5	2-8				SIDEWALK PARAPET HORIZ. UNIT 17
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 22

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X			DIAPH. VERT. UNIT 17
S411	X	103	1-7	X			DIAPH. VERT. UNIT 17
S628	X	42	9-0				DIAPH. BOT. HORIZ. INT. UNIT 17
S629	X	12	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 17
S430	X	28	9-0				DIAPH. HORIZ. INT. UNIT 17
S431	X	8	2-0				DIAPH. HORIZ. EXT. UNIT 17
S434	X	103	4-11	X			DIAPH. VERT. UNIT 18
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 18
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 18
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 18
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 18
S535	X	9	4-3	X			OUTSIDE PARAPET VERT.
S536	X	9	4-10	X			OUTSIDE PARAPET VERT.
S543	X	5	3-4				OUTSIDE PARAPET HORIZ. UNIT 17
S544	X	5	2-8				OUTSIDE PARAPET HORIZ. UNIT 18
S545	X	18	3-8	X			MEDIAN PARAPET VERT.
S546	X	9	5-4	X			MEDIAN PARAPET VERT.
S543	X	7	3-4				MEDIAN PARAPET HORIZ. UNIT 17
S544	X	7	2-8				MEDIAN PARAPET HORIZ. UNIT 18
S535	X	9	4-3	X			SIDEWALK PARAPET VERT.
S536	X	9	4-10	X			SIDEWALK PARAPET VERT.
S543	X	5	3-4				SIDEWALK PARAPET HORIZ. UNIT 17
S544	X	5	2-8				SIDEWALK PARAPET HORIZ. UNIT 18
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 23

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X			DIAPH. VERT. UNIT 18
S411	X	103	1-7	X			DIAPH. VERT. UNIT 18
S628	X	42	9-0				DIAPH. BOT. HORIZ. INT. UNIT 18
S629	X	12	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 18
S430	X	28	9-0				DIAPH. HORIZ. INT. UNIT 18
S431	X	8	2-0				DIAPH. HORIZ. EXT. UNIT 18
S434	X	103	4-11	X			DIAPH. VERT. UNIT 19
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 19
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 19
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 19
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 19
S535	X	9	4-3	X			OUTSIDE PARAPET VERT.
S536	X	9	4-10	X			OUTSIDE PARAPET VERT.
S543	X	5	3-4				OUTSIDE PARAPET HORIZ. UNIT 18
S544	X	5	2-8				OUTSIDE PARAPET HORIZ. UNIT 19
S545	X	18	3-8	X			MEDIAN PARAPET VERT.
S546	X	9	5-4	X			MEDIAN PARAPET VERT.
S543	X	7	3-4				MEDIAN PARAPET HORIZ. UNIT 18
S544	X	7	2-8				MEDIAN PARAPET HORIZ. UNIT 19
S535	X	9	4-3	X			SIDEWALK PARAPET VERT.
S536	X	9	4-10	X			SIDEWALK PARAPET VERT.
S543	X	5	3-4				SIDEWALK PARAPET HORIZ. UNIT 18
S544	X	5	2-8				SIDEWALK PARAPET HORIZ. UNIT 19
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

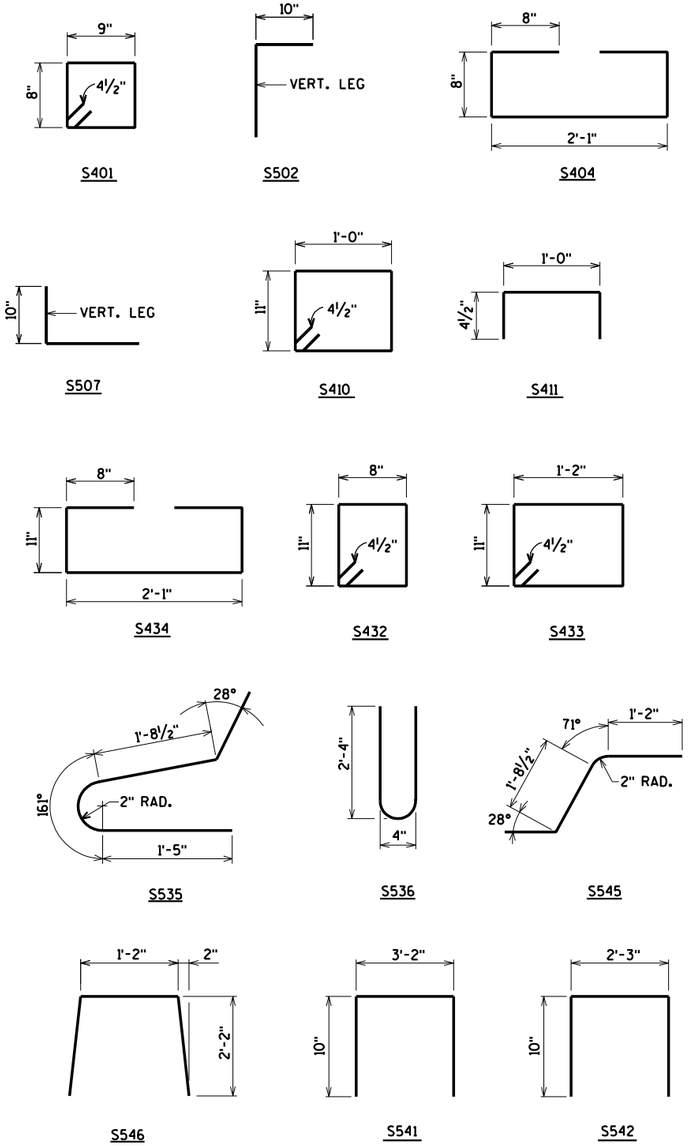
BILL OF BARS - JOINT 24

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	2,760# COATED LOCATION
S404	X	98	4-5	X			DIAPH. VERT. UNIT 19
S628	X	35	9-0				DIAPH. BOT. HORIZ. UNIT 19
S430	X	28	9-0				DIAPH. HORIZ. UNIT 19
S401	X	83	3-4	X			E. ABUT. PAVING BLOCK VERT.
● S502	X	83	2-5	X			E. ABUT. PAVING BLOCK VERT.
S503	X	33	8-0				E. ABUT. PAVING BLOCK HORIZ.
S535	X	6	4-3	X			OUTSIDE PARAPET VERT.
S536	X	6	4-10	X			OUTSIDE PARAPET VERT.
S539	X	5	2-4				OUTSIDE PARAPET HORIZ. UNIT 19
S537	X	5	0-8				OUTSIDE PARAPET HORIZ. E. ABUT.
S545	X	12	3-8	X			MEDIAN PARAPET VERT.
S546	X	6	5-4	X			MEDIAN PARAPET VERT.
S539	X	7	2-4				MEDIAN PARAPET HORIZ. UNIT 19
S537	X	7	0-8				MEDIAN PARAPET HORIZ. E. ABUT.
S535	X	6	4-3	X			SIDEWALK PARAPET VERT.
S536	X	6	4-10	X			SIDEWALK PARAPET VERT.
S539	X	5	2-4				SIDEWALK PARAPET HORIZ. UNIT 19
S537	X	5	0-8				SIDEWALK PARAPET HORIZ. E. ABUT.
S659	X	7	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	7	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	14	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

● CONCRETE MASONRY ANCHORS TYPE L No. 5 BARS

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.



WORK THIS SHEET WITH SHEETS 89-91

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINTS 21 - 24 BILL OF BARS

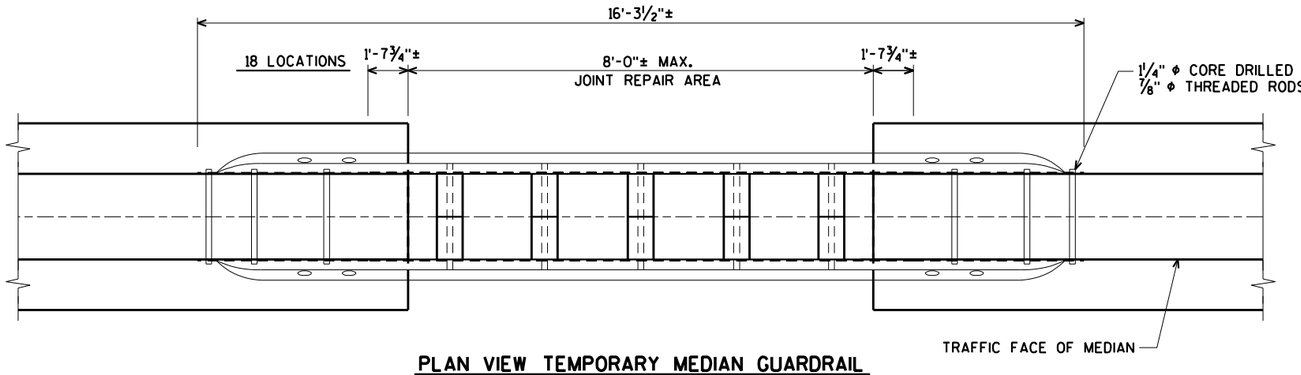
SHEET 92 OF 99
438

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

$PRFNAME$
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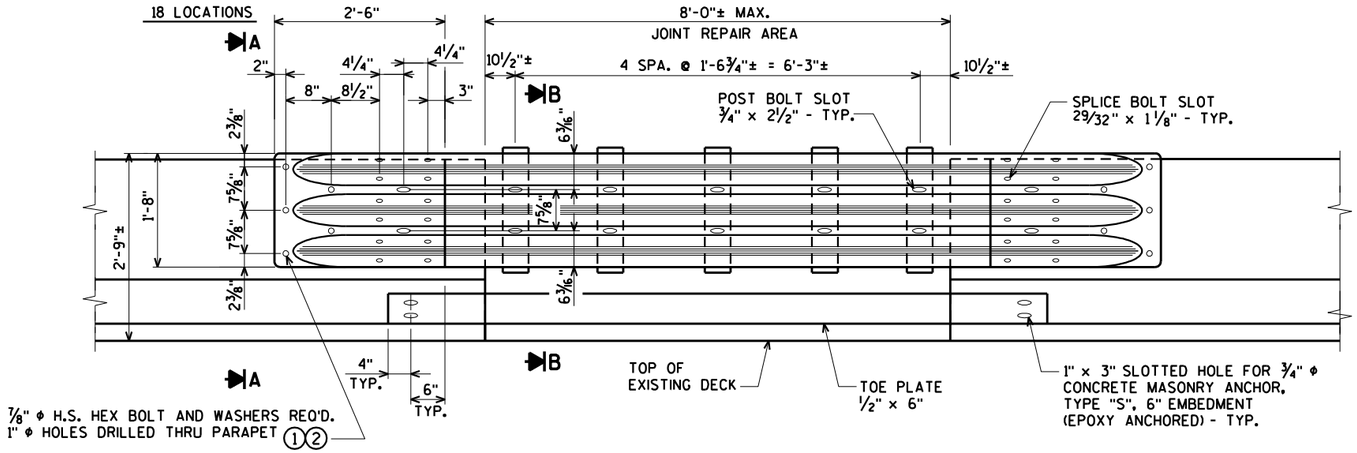
STATE PROJECT NUMBER

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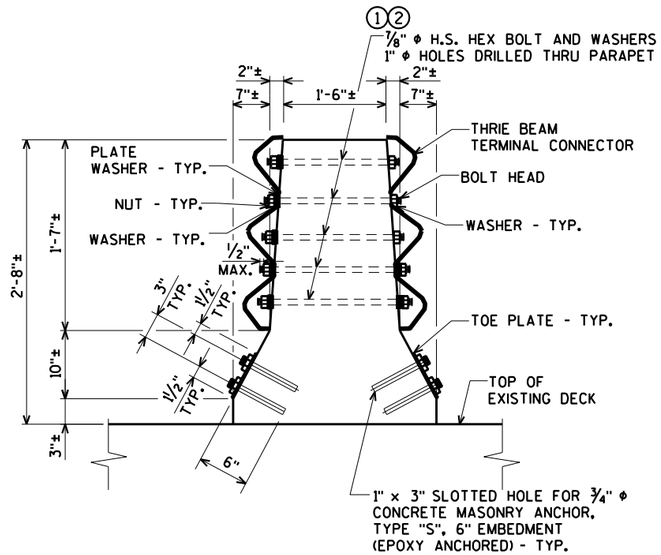
PLAN VIEW TEMPORARY MEDIAN GUARDRAIL

REQUIRED AT JOINTS 5, 7, & 9 - 24

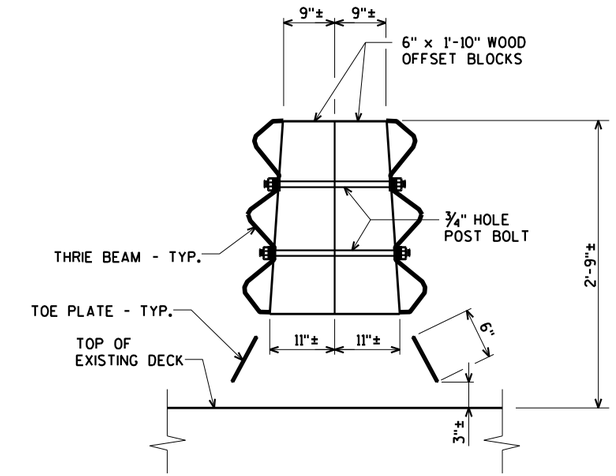


ELEVATION TEMPORARY MEDIAN GUARDRAIL

REQUIRED AT JOINTS 5, 7, & 9 - 24



SECTION A-A



SECTION B-B

GENERAL NOTES

BID ITEM WILL BE "TEMPORARY MEDIAN GUARDRAIL", WHICH INCLUDES ALL ITEMS SHOWN.

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, NUTS, AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

① DRILLING BOLT HOLES THROUGH THE PARAPET. BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② BOLTS MAY BE A325 OR A449 BOLTS. LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM THERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. x ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

REMOVE THREADED RODS & GROUT HOLES AFTER JOINT REPLACEMENT WORK IS COMPLETED.

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TEMPORARY MEDIAN GUARDRAIL

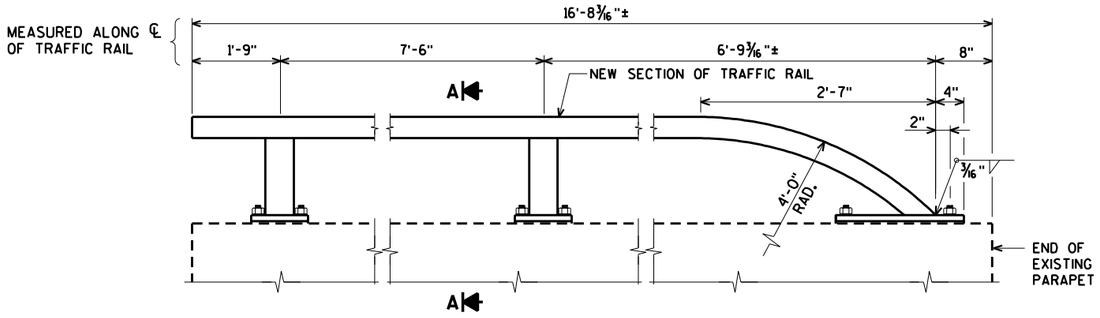
SHEET 93 OF 99
439

ORIGINAL PLANS PREPARED BY
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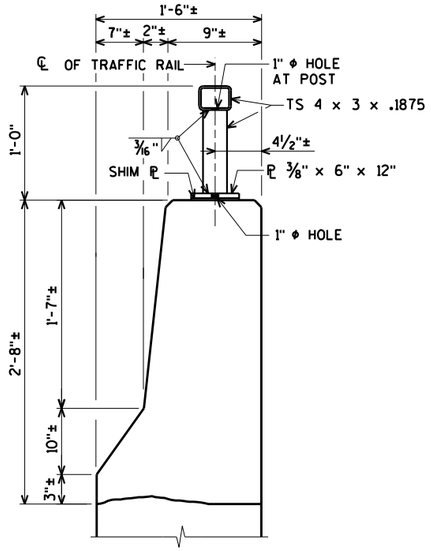
STATE PROJECT NUMBER

8680-04-71



ELEVATION OF TRAFFIC RAILING

WING 1 TRAFFIC RAILING REPAIR



SECTION A

GENERAL NOTES

BID ITEM WILL BE "REPAIR TRAFFIC RAILING", WHICH INCLUDES ALL ITEMS SHOWN. THE EXISTING ANCHOR BOLTS, NUTS AND WASHERS CAN BE RE-USED. IF NEW NUTS AND WASHERS ARE USED, THEY SHALL BE STAINLESS STEEL.

RAIL, POSTS, BASE PLATES, AND SHIMS TO BE ASTM A36. ALL MATERIAL WILL BE GALVANIZED AFTER FABRICATION.

ALL POST SPACINGS ARE TAKEN HORIZONTALLY ALONG CENTER LINE OF RAILING AT BASE OF POST.

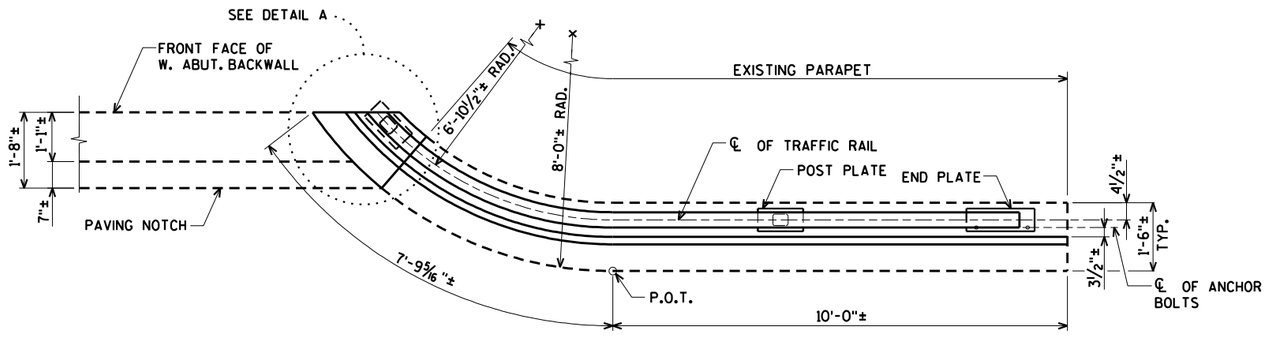
RAIL SHALL BE CURVED TO FIT THE STRUCTURE.

SHIMS SHALL BE USED UNDER POSTS AND UNDER END PLATES WHERE REQ'D. FOR ALIGNMENT.

CAULK EXPOSED OPENINGS BETWEEN SHIMS.

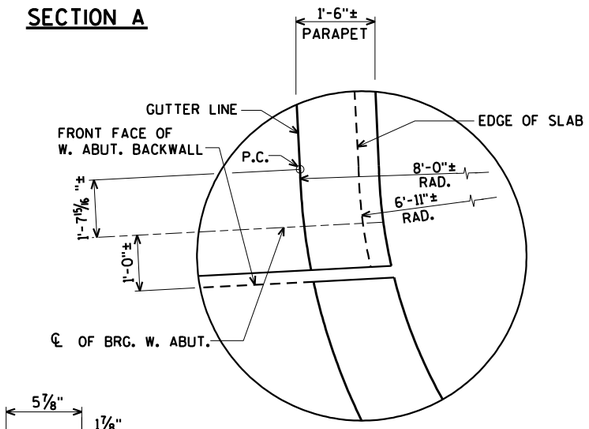
FILL POST ANCHOR BOLT HOLES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

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.

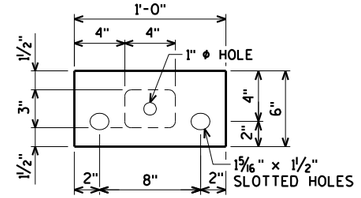


PLAN OF TRAFFIC RAILING

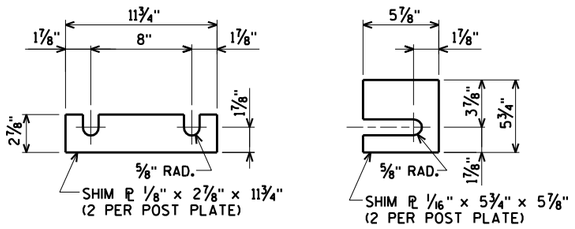
WING 1 TRAFFIC RAILING REPAIR



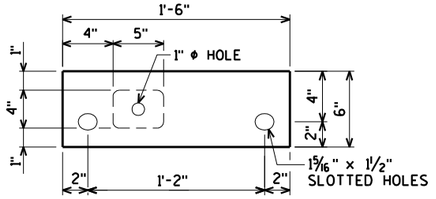
DETAIL A



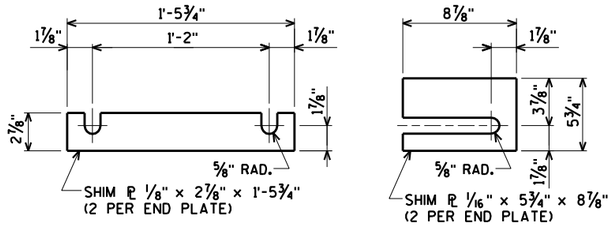
POST PLATE



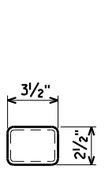
POST SHIM DETAILS



END PLATE

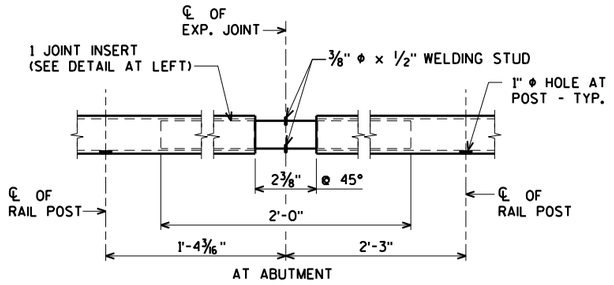


END PLATE SHIM DETAILS



JOINT INSERT

USE SOLID BAR 2 1/2" x 3 1/2" OR FABRICATED TUBE BY 1/4" THICK. SHAPE CORNERS TO PROVIDE 1/16" CLEAR EACH SIDE TO INSIDE OF TS 4 x 3



SPLICE DETAILS AT EXPANSION JOINT

GRIND ALL EDGES OF INSERT BAR TO FIT FREELY INSIDE OF RAIL TUBE.

NOTE THAT ONE SIDE IS THE EXISTING RAIL THAT WILL REMAIN IN PLACE

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STRUCTURE B-16-38/69100

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TRAFFIC RAILING REPAIR DETAILS

SHEET 94 OF 99
440

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9/12/2013
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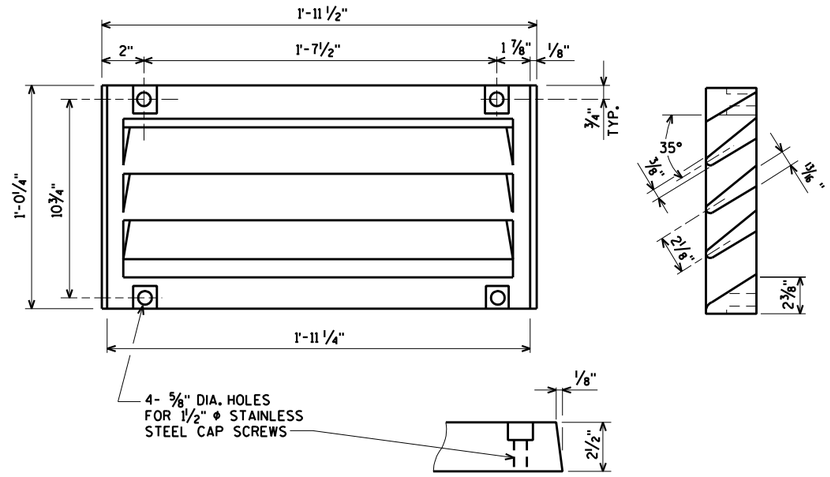
STATE PROJECT NUMBER

8680-04-71

FLOOR DRAIN SUMMARY

	DRAIN NUMBER	DRAIN APPROX. LOCATION	WORK TO BE PERFORMED	DETAIL ✳	EXTENSION	LENGTH OF NEW DOWNSPOUT	EXISTING DRAIN TYPE	QUANTITIES: ADJUSTING FLOOR DRAINS	QUANTITIES: FIBERGLASS DOWNSPOUTS	QUANTITIES: DRAIN GRATE CASTINGS
UNIT 1	1	STA. 18+60, 54.5' RT. EB	RAISE DRAIN & NEW GRATE	1	N/A	3'-7"	GC	1	-----	1
	2	STA. 19+29, 24' RT. WB	RAISE DRAIN & NEW GRATE	3	N/A	3'-7"	GC	1	-----	1
	3	STA. 19+29, 54.5' RT. EB	RAISE DRAIN & NEW GRATE	1	N/A	3'-7"	GC	1	-----	1
UNIT 3	4	STA. 23+00, 24' RT. WB	RAISE DRAIN & NEW GRATE	6	N/A	4'-5"	GC	1	-----	1
	5	STA. 23+00, 51.5' RT. EB	RAISE DRAIN & NEW GRATE	1	N/A	4'-5"	GC	1	-----	1
	6	STA. 24+90, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	2	4 FT.	9'-10"	GC	1	1	1
UNIT 4	7	STA. 27+96, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-0"	GC	1	1	1
	8	STA. 28+10, 64' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-0"	GC	1	1	1
	9	STA. 30+34, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-0"	GC	1	1	1
	10	STA. 30+54, 55' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-0"	GC	1	1	1
UNIT 5	11	STA. 33+45, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	1	1	1
	12	STA. 33+45, 83' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	1	1	1
	13	STA. 35+42, 68' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	1	1	1
UNIT 6	14	STA. 37+47, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	6	4 FT.	11'-6"	GC	1	1	1
	15	STA. 37+47, 63' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
	16	STA. 40+21, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	5	4 FT.	11'-6"	HC	1	1	1
	17	STA. 40+21, 60' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
UNIT 7	18	STA. 43+56, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	6	4 FT.	11'-6"	GC	1	1	1
	19	STA. 43+56, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
	20	STA. 44+65, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	21	STA. 47+50, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	22	STA. 47+50, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
UNIT 8	23	STA. 49+65, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	24	STA. 49+65, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
	25	STA. 50+32, 3' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	3	4 FT.	11'-6"	GC	1	1	1
UNIT 9	26	STA. 53+92, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	27	STA. 53+92, 3' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	3	4 FT.	11'-6"	GC	1	1	1
UNIT 10	28	STA. 58+13, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	29	STA. 58+13, 3' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	3	4 FT.	11'-6"	GC	1	1	1
UNIT 11	30	STA. 62+25, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	31	STA. 62+25, 3' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	3	4 FT.	11'-6"	GC	1	1	1
UNIT 12	32	STA. 66+37, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	33	STA. 66+37, 3' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	3	4 FT.	11'-6"	GC	1	1	1
	34	STA. 70+70, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	35	STA. 70+70, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
UNIT 13	36	STA. 71+05, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	7	3 IN.	10'-0"	GC	-----	1	1
	37	STA. 71+19, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	8	3 IN.	9'-3"	GC	-----	1	1
	38	STA. 75+41, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	8	3 IN.	9'-3"	GC	-----	1	1
	39	STA. 75+55, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	7	3 IN.	10'-0"	GC	-----	1	1
UNIT 14	40	STA. 77+00, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	41	STA. 77+00, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
	42	STA. 81+40, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	43	STA. 81+40, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
UNIT 15	44	STA. 84+90, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-0"	GC	-----	1	1
	45	STA. 85+20, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-0"	GC	-----	1	1
	46	STA. 85+86, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	2	4 FT.	11'-0"	GC	1	1	1
	47	STA. 87+12, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	2	4 FT.	11'-0"	GC	1	1	1
	48	STA. 87+12, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-0"	GC	-----	1	1
UNIT 16	49	STA. 90+92, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	2	4 FT.	11'-0"	GC	1	1	1
	50	STA. 90+92, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-0"	GC	-----	1	1
UNIT 17	51	STA. 94+72, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	2	4 FT.	11'-0"	GC	1	1	1
	52	STA. 94+72, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-0"	GC	-----	1	1
UNIT 18	53	STA. 98+52, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	2	4 FT.	11'-0"	GC	1	1	1
	54	STA. 98+52, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-0"	GC	-----	1	1

✳ FOR DETAILS, SEE SHEET 96



NEW GRATE CASTING DETAIL

(54 GRATES REQUIRED)

NEW GRATE CASTINGS TO BE PAID FOR UNDER THE BID ITEM "DRAIN GRATE CASTINGS".

GENERAL NOTES

ALL MATERIAL FOR NEW GRATE CASTING, EXCLUDING GRATE HOLD DOWN SCREWS, SHALL BE GRAY IRON CONFORMING TO ASTM A48, CLASS 30. (APPROX. WEIGHT = 225#)

MATERIAL FOR DRAIN RAISING FRAMES, CONNECTION TABS, AND SHIMS SHALL CONFORM TO ASTM A36.

NEW FLANGED 6" DIA. DOWNSPOUTS SHALL BE FIBERGLASS CONFORMING TO ASTM D2996, GRADE 1, CLASS A.

WORK THIS SHEET WITH SHEETS 96-97

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS/KAZ | PLANS CK'D. CBM

FLOOR DRAIN SUMMARY

SHEET 95 OF 99
441

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

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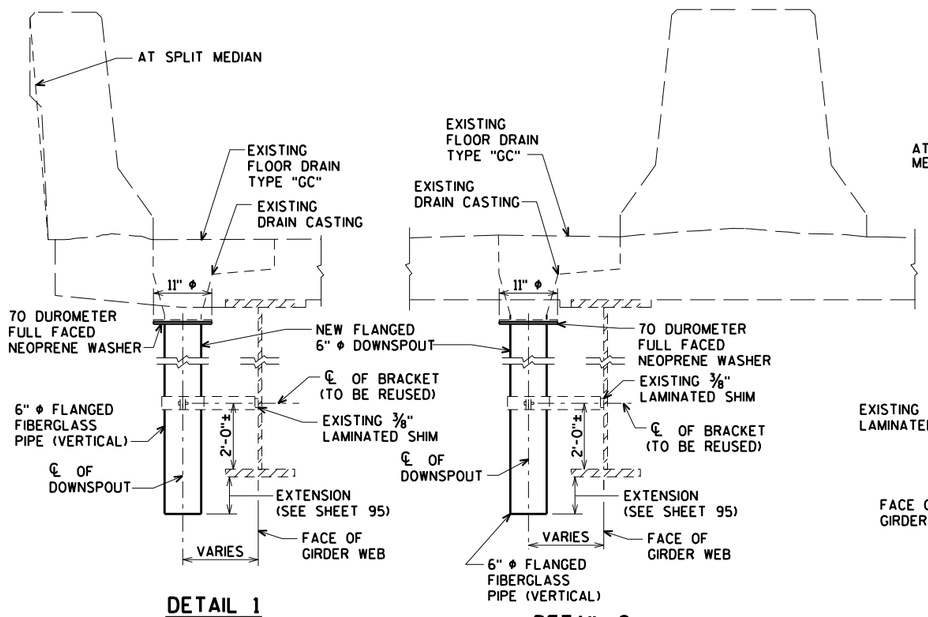
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9/12/2013

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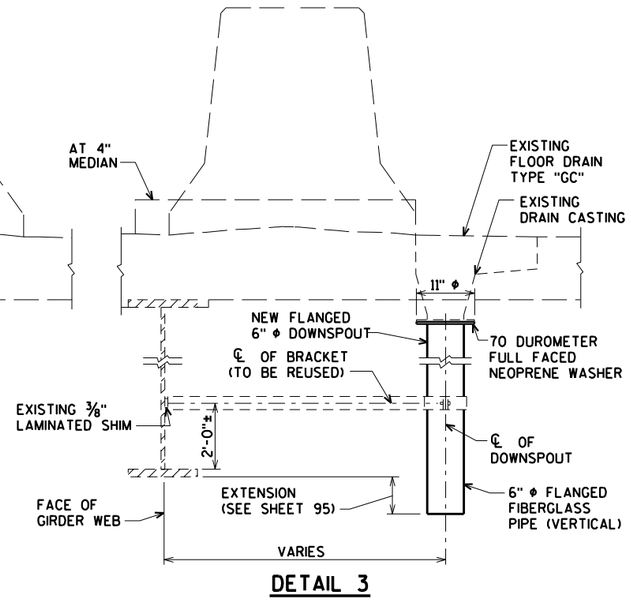
STATE PROJECT NUMBER

8680-04-71

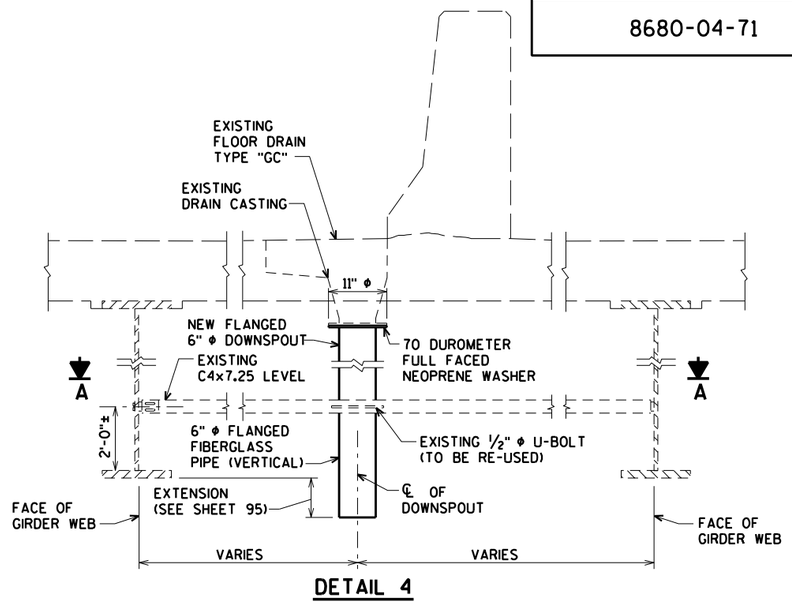


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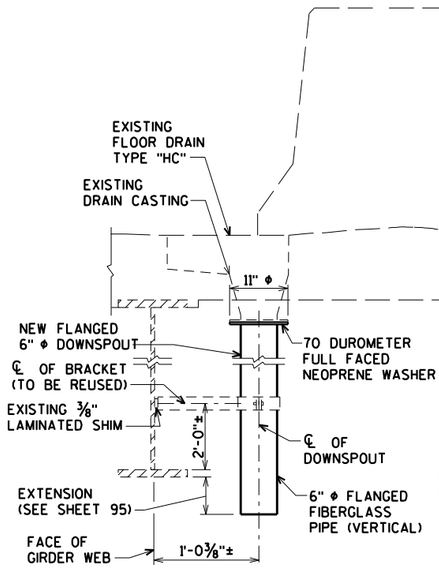
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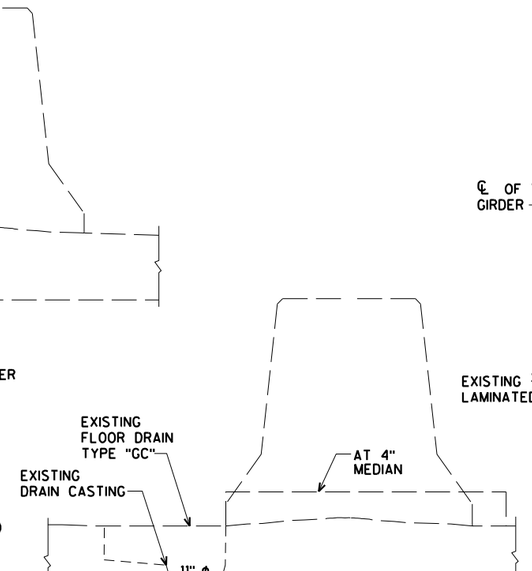
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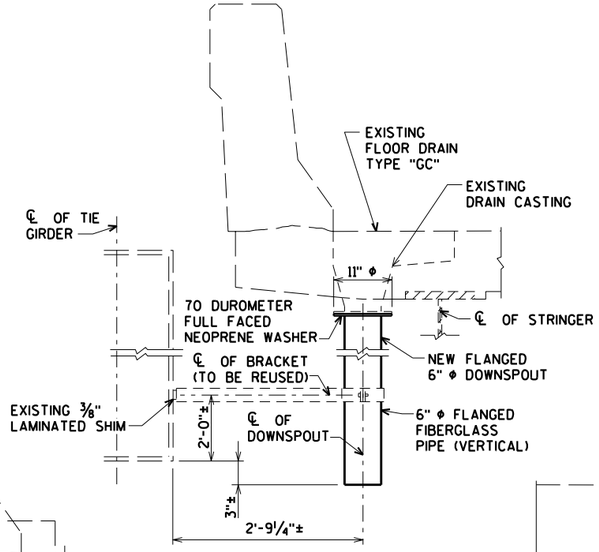
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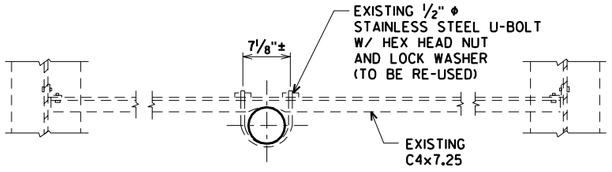
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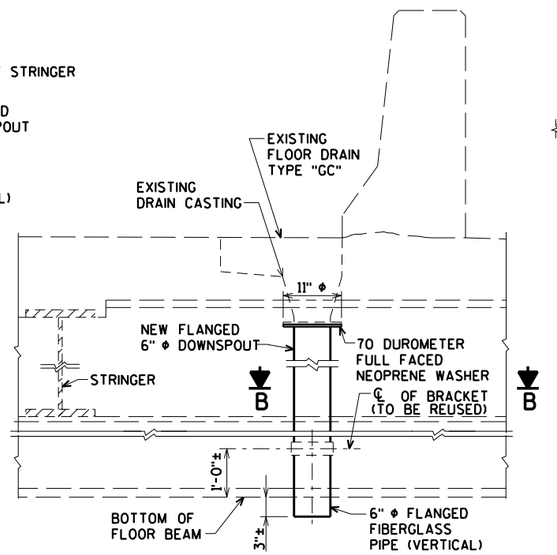
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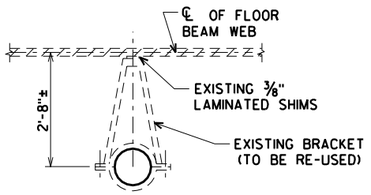
DETAIL 7



SECTION A



DETAIL 8



SECTION B

WORK THIS SHEET WITH SHEETS 95 & 97

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY KAZ | PLANS CK'D. CBM

FLOOR DRAIN DETAILS

SHEET 96 OF 99
442

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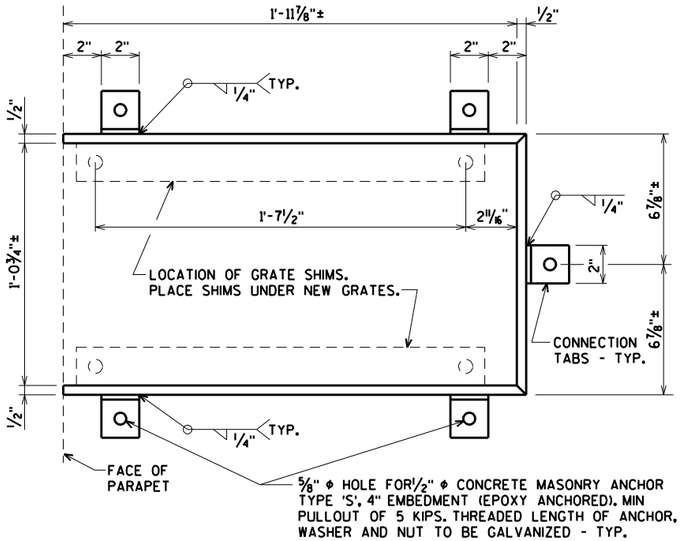
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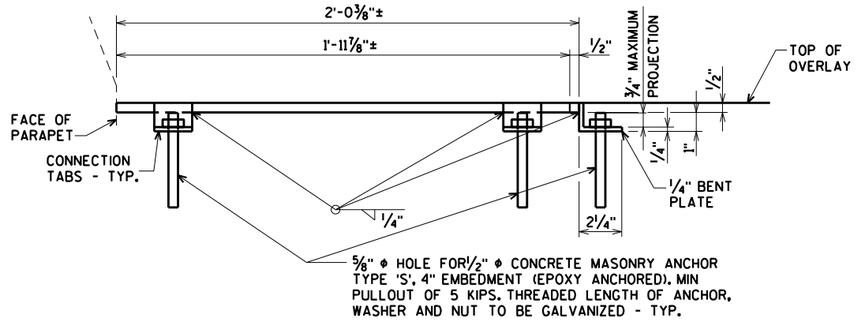
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STATE PROJECT NUMBER

8680-04-71



PLAN



ELEVATION

ADJUSTING FLOOR DRAIN FRAME DETAILS

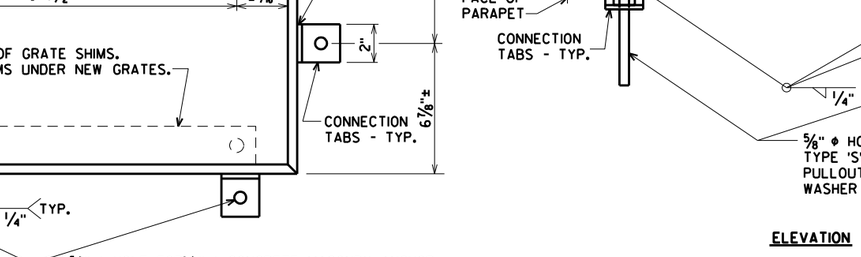
TYPICAL ⊗ DRAIN NUMBERS 1-14, 16, 18, 25, 27, 29, 31, 33, 46-47, 49, 51, & 53

GENERAL NOTES

BID ITEM WILL BE "ADJUSTING FLOOR DRAINS", WHICH INCLUDES ALL ITEMS SHOWN.

ALL MATERIAL WILL BE GALVANIZED AFTER FABRICATION, PRIOR TO GALVANIZING, ALL STEEL WILL BE GIVEN A No. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.

MAKE SURE FRAMES ARE FLUSH WITH THE TOP OF THE EXISTING DRAIN CASTINGS.



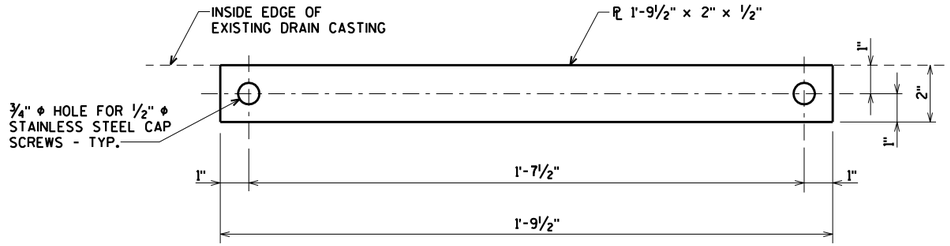
SECTION THRU DRAIN

SECTION C

SLOPE OVERLAY AROUND EXISTING DRAIN DETAIL

TYPICAL ⊗ DRAIN NUMBERS 15, 17, 19-24, 26, 28, 30, 32, 34-45, 48, 50, 52, & 54

COST TO SLOPE OVERLAY AROUND THE EXISTING DRAINS INDIACTED IS INCLUDED IN THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".



PLAN

GRATE SHIM DETAILS

2 REQUIRED PER GRATE WHERE DRAIN WILL BE RAISED.

COST OF SHIMS INCLUDED IN THE BID ITEM "ADJUSTING FLOOR DRAINS".

WORK THIS SHEET WITH SHEETS 95-96

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY KAZ | PLANS CK'D. CBM

FLOOR DRAIN DETAILS

SHEET 97 OF 99
443

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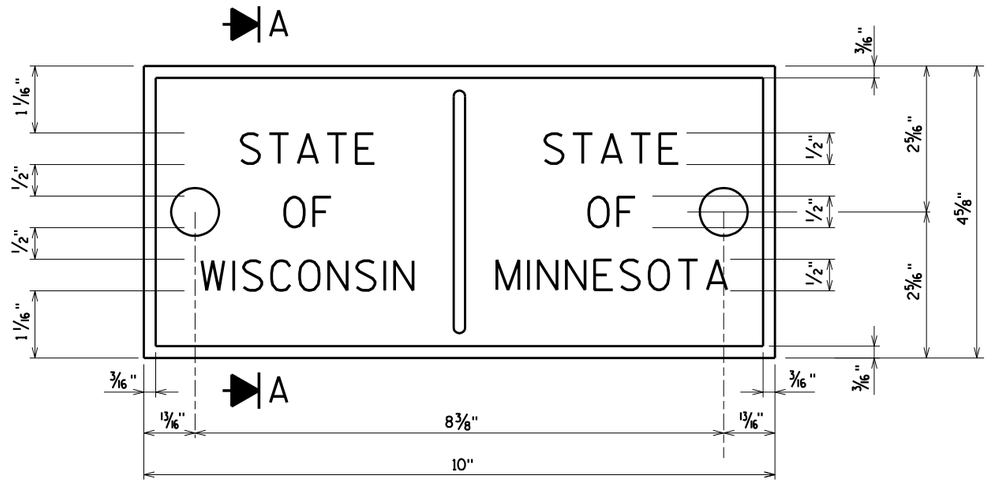
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9/12/2013

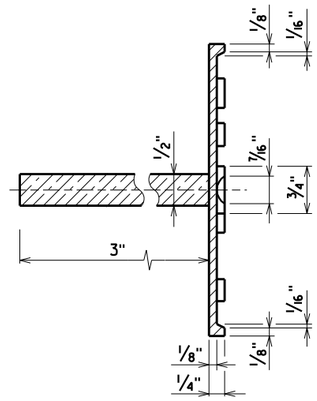
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STATE PROJECT NUMBER
8680-04-71

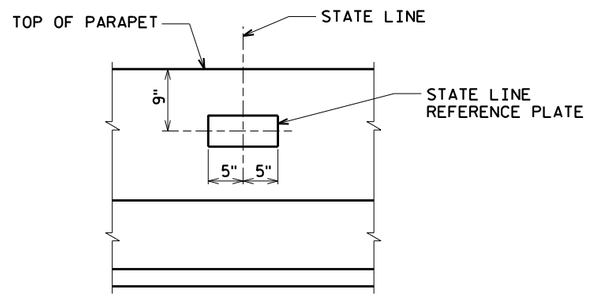


STATE LINE REFERENCE PLATE DETAIL

(RIGHT SIDE PARAPET SHOWN, LEFT SIDE PARAPET OPPOSITE)



SECTION A-A



PART PLAN OF PARAPET

GENERAL NOTES

STATE LINE REFERENCE PLATE TO BE INSTALLED SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

STATE LINE REFERENCE PLATE TO BE EPOXY ANCHORED INTO THE EXISTING PARAPETS AS SHOWN ON THE GENERAL PLAN SHEETS.

THE STATE LINE IS CURRENTLY MARKED IN THE EXISTING PARAPETS. THE CONTRACTOR WILL PLACE THE STATE LINE REFERENCE PLATES IN THE MARKED LOCATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO MAKE SURE THAT THE EXISTING MARKS ARE NOT DESTROYED.

COST FOR FURNISHING AND INSTALLING THE STATE LINE REFERENCE PLATES IS INCIDENTAL TO THE BID ITEM "RESEAL PARAPETS".

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY	CLS	PLANS CK'D.	CBM

STATE LINE REFERENCE PLATE

SHEET 08 OF 99
444

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AYRES ASSOCIATES
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NOTES

STEEL SPLICE (COUPLER) ASSEMBLY SHALL BE AN APPROVED TYPE AND SHALL DEVELOP IN TENSION AT LEAST 125% OF THE YIELD STRENGTH OF THE SPLICED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL BE OF MINIMUM 60 ksi YIELD STRENGTH, AND HAVE TENSILE STRENGTH AREA EQUAL OR GREATER THAN THAT OF THE LAPPED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL MEET THE DEFORMATION REQUIREMENTS FOR STANDARD ASTM DEFORMED REINFORCING BARS.

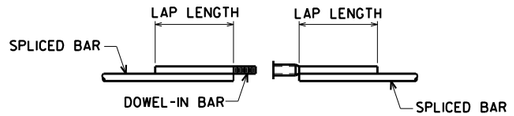
FOR DOWEL BAR SPLICERS, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE SPLICER BARS.

SPLICER (COUPLER) ASSEMBLY IN THE SLAB SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMENTS FOR REINFORCEMENT BARS.

OTHER SYSTEMS OF SIMILAR DESIGN MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL. APPROVAL SHALL BE BASED ON CERTIFIED TEST RESULTS FROM AN APPROVED TESTING LABORATORY THAT THE PROPOSED SPLICER (COUPLER) ASSEMBLY SATISFIES THE FOLLOWING REQUIREMENT:

① MINIMUM CAPACITY = 1.25 X fy X AREA OF SPLICED REINFORCEMENT BAR.

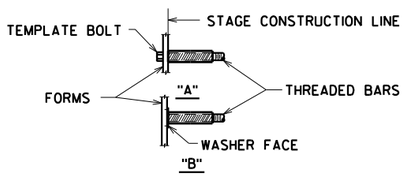
WHERE fy = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS



DOWEL BAR SPLICER

ONE PIECE THREADED SPLICER

SPLICER ALTERNATIVES



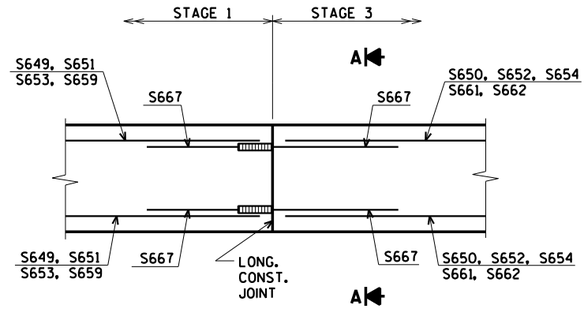
INSTALLATION AND SETTING METHODS

"A" SET SPLICER BY MEANS OF A TEMPLATE BOLT
"B" SET SPLICER BY NAILING TO WOOD FORMS OR CEMENTING TO STEEL FORMS.

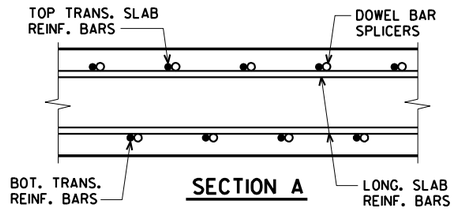
DOWEL BAR SPLICER LAP LENGTHS

CONCRETE UNDER BAR	BAR SIZE	4	5	6	7	8	9	10	11
12" OR LESS	f'c = 3500	1'-8"	2'-8"	3'-2"	4'-3"	5'-6"	7'-0"	8'-9"	10'-11"
	f'c = 4000	1'-8"	2'-8"	3'-2"	4'-0"	5'-2"	6'-6"	8'-3"	10'-2"
MORE THAN 12"	f'c = 3500	2'-3"	2'-11"	3'-6"	4'-8"	6'-1"	7'-10"	9'-10"	12'-1"
	f'c = 4000	2'-3"	2'-11"	3'-6"	4'-5"	5'-8"	7'-4"	9'-2"	11'-4"

BAR LENGTH COMPUTED TO ℄ LONGIT. JOINT AND SHALL BE MODIFIED IF REQ'D. TO BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED.



LONGITUDINAL CONST. JOINT AND BAR COUPLER DETAIL FOR TRANSVERSE BARS



SECTION A

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

BAR COUPLER DETAILS

SHEET 99 OF 99
445

ORIGINAL PLANS PREPARED BY
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8

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9/12/2013

PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER
8680-04-74

BENCHMARK

STA.	DESCRIPTION	ELEV.
129+50.46, 46.93' LT	¾" CAPPED REBAR 127' WEST OF WEST END OF BRIDGE, 13.7' NORTH OF WB LANE	656.65

DESIGN DATA

LIVE LOAD:
DESIGN LOADING = HS-20
INVENTORY RATING = HS-22
OPERATING RATING = HS-37
WIS. MAX. STD. PERMIT VEHICLE LOAD = 230 KIPS

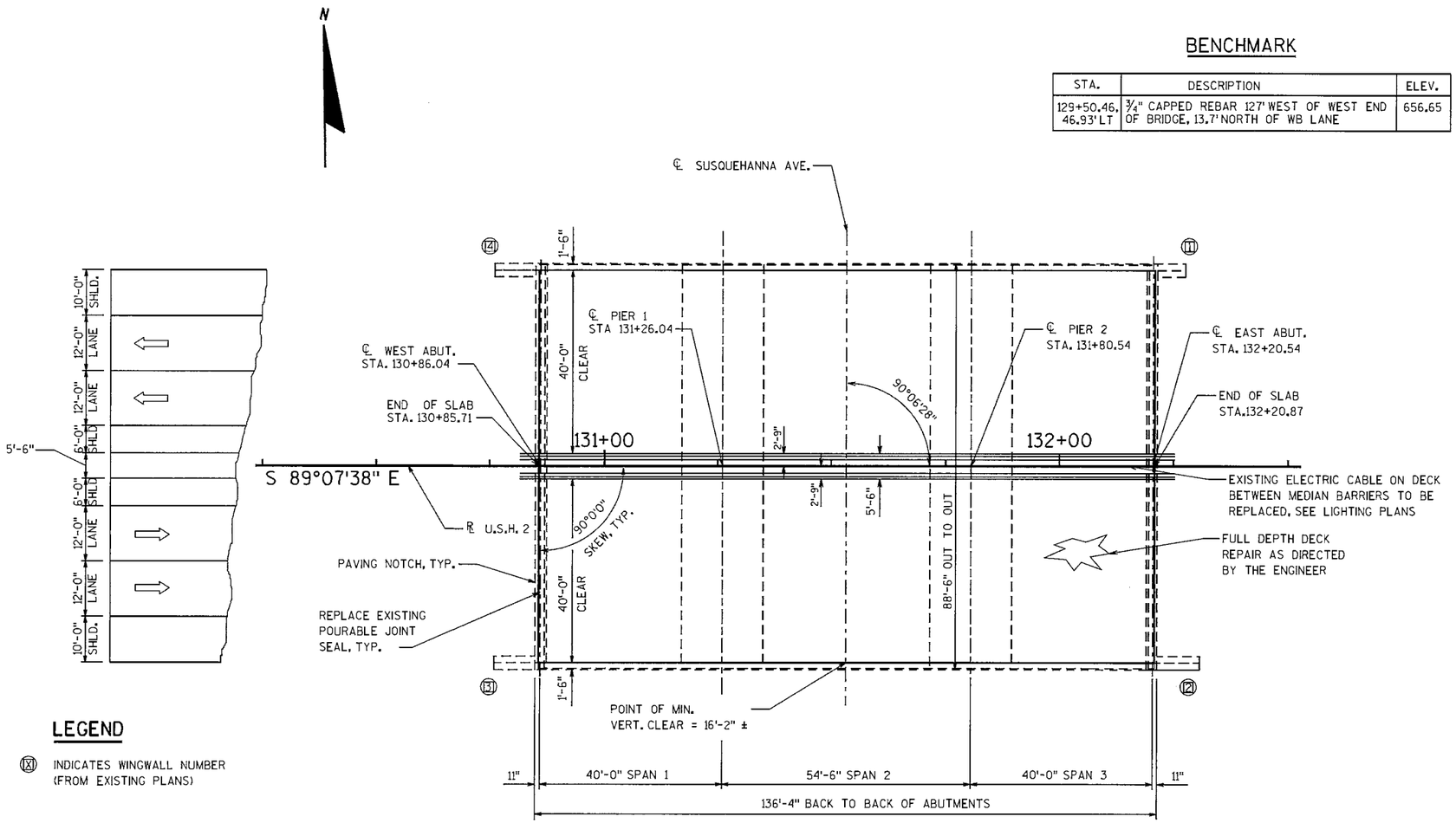
ULTIMATE DESIGN STRESSES (NEW WORK):
CONCRETE MASONRY DECK----------f'c = 4,000 psi
ALL OTHER-----f'c = 3,500 psi

TRAFFIC DATA U.S.H. 2

A.D.T. = 14,900 (2014)
= 17,700 (2034)

R.D.S. = 55 MPH

% TRUCKS = 16.5%

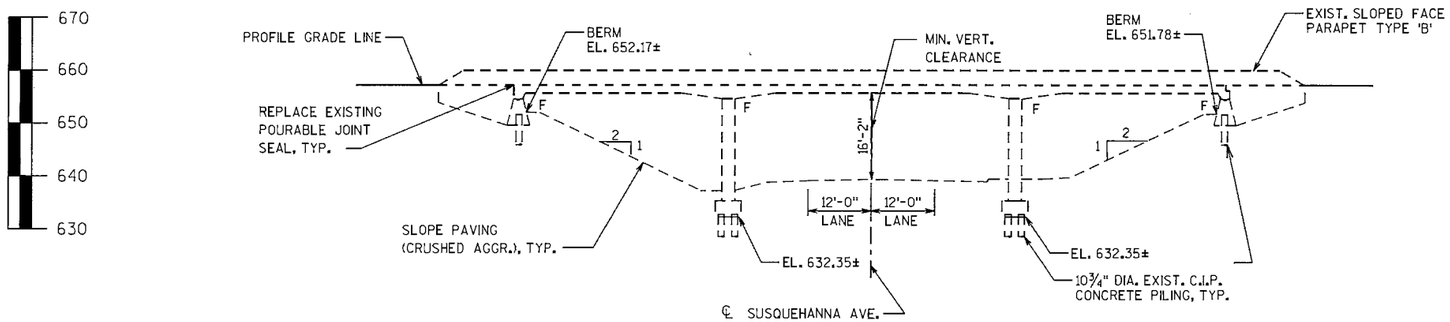


PLAN

(CONCRETE OVERLAY OF 3 SPAN HAUNCHED SLAB)

LEGEND

⑫ INDICATES WINGWALL NUMBER (FROM EXISTING PLANS)



ELEVATION

(NORMAL TO SUSQUEHANNA AVE. LOOKING NORTH)

LIST OF DRAWINGS

1. GENERAL PLAN
2. CONCRETE OVERLAY DETAILS

STRUCTURES DESIGN CONTACTS:
BUREAU OF STRUCTURES:
WILLIAM DREHER (608) 266-8489

CONSULTANT CONTACT:
MAHMOUD MALAS (262) 821-1171

WISCONSIN
YOON-MOON CHUN
E-39076
WHITEFISH BAY WIS.
PROFESSIONAL ENGINEER
8-1-2013

NO.	DATE	REVISION	BY

KSA K. Singh & Associates, Inc.
Engineers, Scientists and Environmental Management Consultants

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED William C. Dreher KAR 08/19/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-16-49

U.S.H. 2 OVER SUSQUEHANNA AVENUE

COUNTY	TOWN/CITY/VILLAGE
DOUGLAS	SUPERIOR

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
DRJ	MNM	DRJ	MNM

GENERAL PLAN

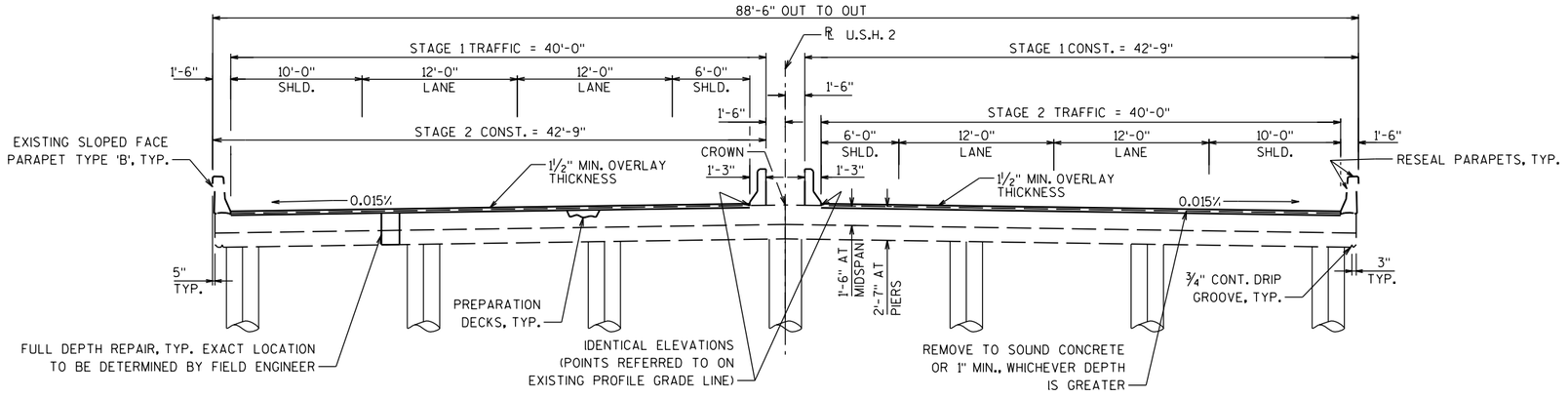
SHEET 1 OF 2
446

8

8

STATE PROJECT NUMBER

8680-04-74



CROSS SECTION THRU ROADWAY

(LOOKING EAST)

NOTE: EXISTING CROSS SLOPE OF 0.015% WILL BE MAINTAINED.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

TOP OF EXISTING DECK ELEVATIONS SHALL BE DETERMINED FROM A FIELD SURVEY AT LOCATIONS DEEMED NECESSARY FOR ESTABLISHING OVERLAY THICKNESS.

A MINIMUM OF 1" OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".

PROFILE GRADE LINE SHALL BE DETERMINED BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER CLEANING. EXPECTED AVERAGE OVERLAY THICKNESS IS 2" TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE AFTER CLEANING. VARIATIONS TO THE NEW GRADE LINE OVER ¼" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR PAVING BLOCK AT ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM, "CONCRETE MASONRY OVERLAY DECKS".

ALL CONCRETE REMOVAL NOT COVERED WTIH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1" DEEP SAW CUT.

EXISTING LONGITUDINAL AND TRANSVERSE CRACKS SHALL BE CLEANED AND FILLED WITH PENETRATING EPOXY AS DIRECTED BY THE FIELD ENGINEER. MATERIAL, EQUIPMENT, AND LABOR NECESSARY TO COMPLETE THIS WORK IS INCIDENTIAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

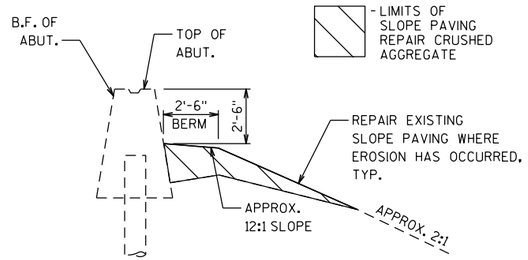
APPLY PIGMENTED PROTECTIVE SURFACE TREATMENT TO THE INSIDE FACES AND TOPS OF PARAPETS, INCLUDING PARAPETS ON ABUTMENT WINGS. WORK SHALL BE PAID FOR UNDER BID ITEM, "RESEAL PARAPETS".

APPLY PROTECTIVE SURFACE TREATMENT TO TOP OF DECK. WORK SHALL BE PAID FOR UNDER BID ITEM, "PROTECTIVE SURFACE TREATMENT".

REPLACING POURABLE JOINT SEAL IS INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

IF A NEW NAME PLATE IS REQUIRED, THE ORIGINAL CONSTRUCTION YEAR IS 1982.

RECONSTRUCTING INLETS WILL BE PAID FOR AS A PART OF THE ROADWAY WORK. SEE ROADWAY PLANS FOR FURTHER DETAIL.

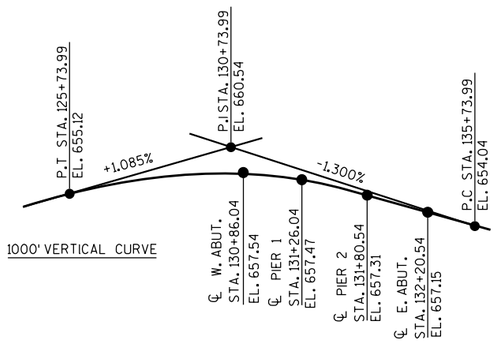


SLOPE PAVING AT ABUTMENTS (TYP.)

TOTAL ESTIMATED QUANTITIES

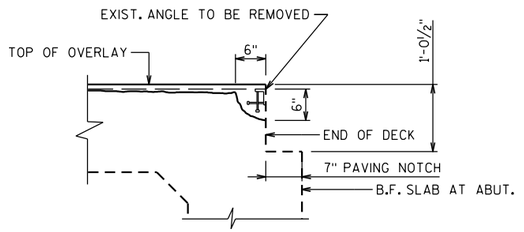
	NO.	BID ITEMS	UNIT	TOTAL
	203.0225.S.02	DEBRIS CONTAINMENT STRUCTURE (B-16-0049)	LS	1
	502.3200	PROTECTIVE SURFACE TREATMENT	SY	1,215
	509.0301	PREPARATION DECKS TYPE 1	SY	305
	509.0302	PREPARATION DECKS TYPE 2	SY	75
	509.0500	CLEANING DECKS	SY	1,215
✳	509.1500	CONCRETE SURFACE REPAIR	SF	10
✳	509.2000	FULL DEPTH DECK REPAIR	SY	20
	509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	95
✳	604.9010.S	SLOPE PAVING REPAIR CRUSHED AGGREGATE	CY	13
	604.9015.S	RESEAL CRUSHED AGGREGATE SLOPE PAVING	SY	710
	SPV.0180.02	RESEAL PARAPETS	SY	235

✳ AS DIRECTED IN THE FIELD BY THE ENGINEER.



EXISTING PROFILE GRADE LINE - U.S.H 2

BASED ON ORIGINAL STRUCTURE PLANS



SECTION AT END OF SLAB

CONCRETE OVERLAY

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-49

DRAWN BY DRJ | PLANS CK'D. MNM

CONCRETE OVERLAY DETAILS

SHEET 2 OF 2

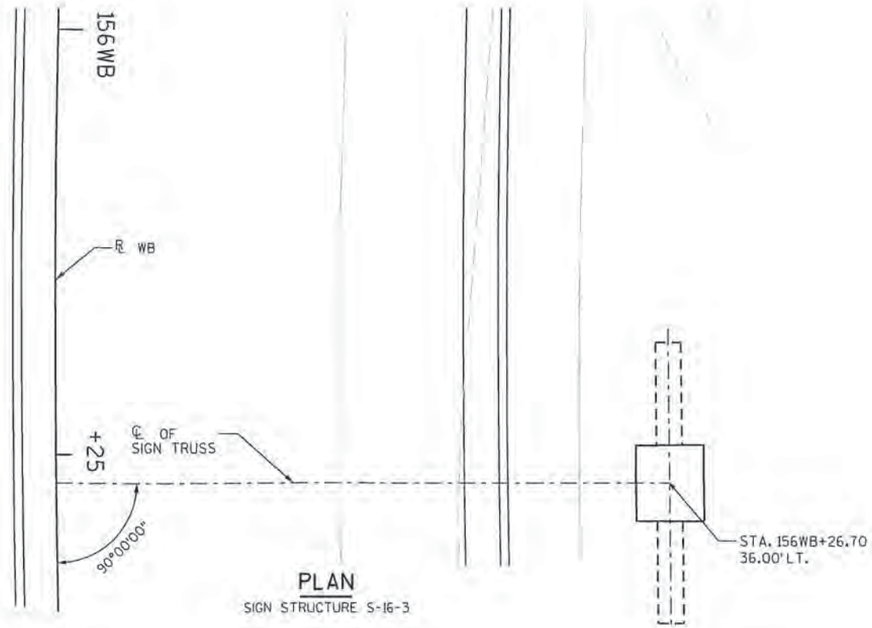
447

8

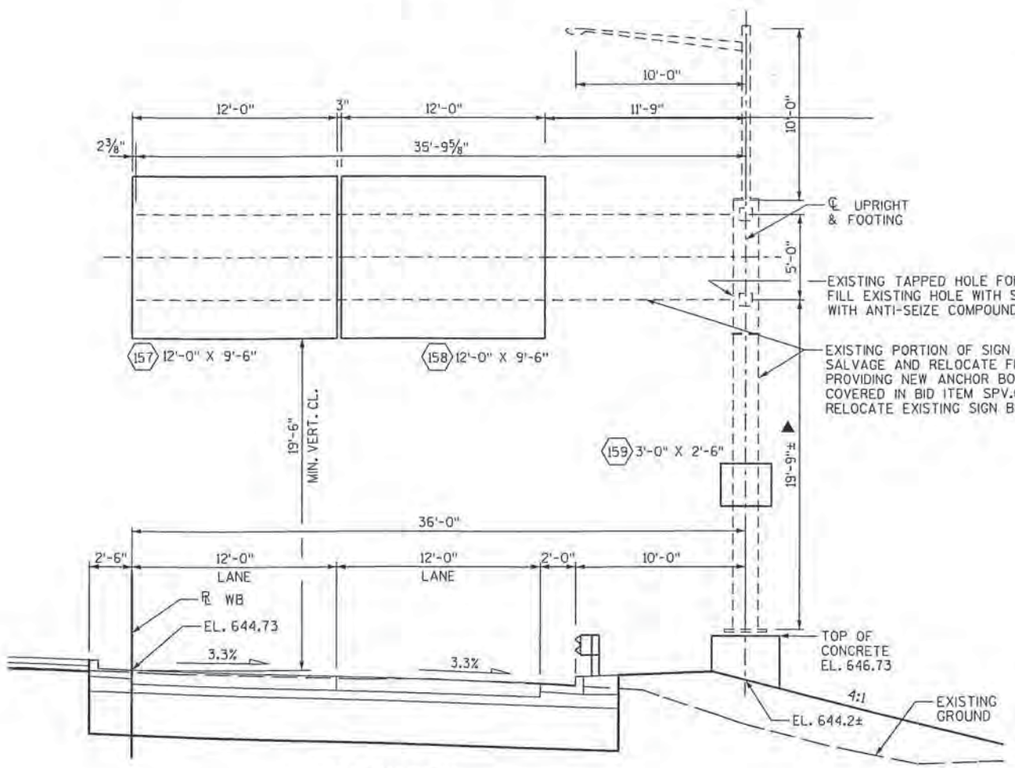
8

STATE PROJECT NUMBER
8680-04-74





PLAN
SIGN STRUCTURE S-16-3



ELEVATION
(LOOKING NORTHWEST AT FRONT FACE OF SIGNS)
STA. 156WB+26.70

⬡ SIGN NUMBER

▲ BASED ON INSPECTION PEPORT DATED 04-28-2009

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

CENTER SIGNS VERTICALLY ON TRUSS.

ELEVATIONS ARE IN FEET UNLESS OTHERWISE SHOWN OR NOTED.

ALTERNATE DESIGNS ARE NOT ALLOWED.

GROUND RODS ARE REQUIRED.

EXACT LOCATION OF SIGN BRIDGE SHALL BE DETERMINED BY THE DISTRICT TRAFFIC ENGINEER.

SIGN BRIDGE IDENTIFICATION PLAQUE SHALL BE CONSIDERED INCIDENTAL TO "REMOVE AND RELOCATE EXISTING SIGN BRIDGE CANTILEVERED S-16-3".

DESIGN DATA

DESIGN SIGN AREA = 264 SF
MAX. SIGN DEPTH = 12 FT

DEAD LOAD - WT. OF SIGN AND SUPPORTING STRUCTURE.
ICE LOAD - 3 PSF TO 1 FACE OF SIGN & AROUND SURFACE OF MEMBERS.
WIND VELOCITY - 90 MPH (3-SECOND GUST SPEED) TO SIGN AREA & EXPOSED MEMBERS.

WIND COMPNENTS	NORMAL	TRANSVERSE
COMBINATION 1	1.0	0.2
COMBINATION 2	0.6	0.3

GROUP LOADS	% OF ALLOWABLE STRESS
1. DEAD	100
2. DEAD + WIND	133
3. DEAD + ICE + 1/2 (WIND*)	133

* MIN. VALUE OF 25 PSF FOR GROUP 3.

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEMS	UNIT	TOTAL
636.0100	SIGN SUPPORTS CONCRETE MASONRY	CY	12
636.1000	SIGN SUPPORTS STEEL REINFORCEMENT HS	LB	1,580
SPV.0105.03	REMOVE AND RELOCATE EXISTING SIGN BRIDGE CANTILEVERED S-16-3	LS	1

LIST OF DRAWINGS

1. GENERAL PLAN & ELEVATION
2. CANTILEVER TRUSS FOOTING

WISCONSIN
YOON-MOON CHUN
E-39078
WHITEFISH BAY WIS.
PROFESSIONAL ENGINEER
8-1-2013

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
WILLIAM DREHER, P.E. (608) 266-8489
CONSULTANT:
MAHMOUD MALAS, P.E. (262) 821-1171

NO.	DATE	REVISION	BY

KSA K. Singh & Associates, Inc.
Engineers, Scientists and Environmental Consultants

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 10/09/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE S-16-3

USH 2 WB

COUNTY	~~TOWN~~/CITY/~~VILLAGE~~
DOUGLAS	SUPERIOR

DESIGN SPEC.	LOAD 90 MPH 3 SEC. SPEED
AASHTO SIGN SPEC.	

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
NA	YC	NA	YC

GENERAL PLAN & ELEVATION

SHEET 1 OF 2

SIGN BRIDGE VERTICAL CLEARANCE

Project Label
(Optional)

Project ID: 8680-04-74	Contract: 20140114014	Region: NW - Superior
Highway: USH2 over/under UNDER	County: Douglas	Bridge Number: S -16-03
	Contractor: Lunda\Mattison Contractor	Supervisor: Dave Ostrowski

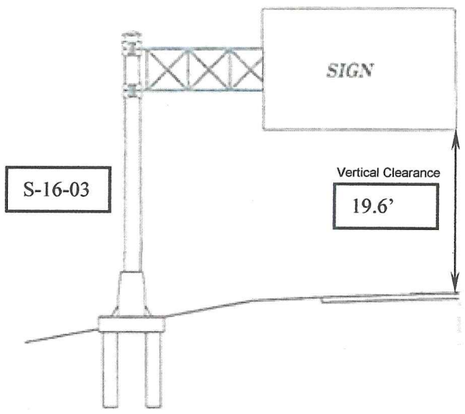
SHEET 348 A

Submit completed form to Regional Bridge Engineer before opening road to traffic.
To fill in form: Click on text boxes and enter applicable clearances.

Project Leader: Brian Mattson **Telephone #:** 715-395-3035

Recorded By: Rebecca Olson **Date:** 7-21-2015

Cardinal Direction: WEST

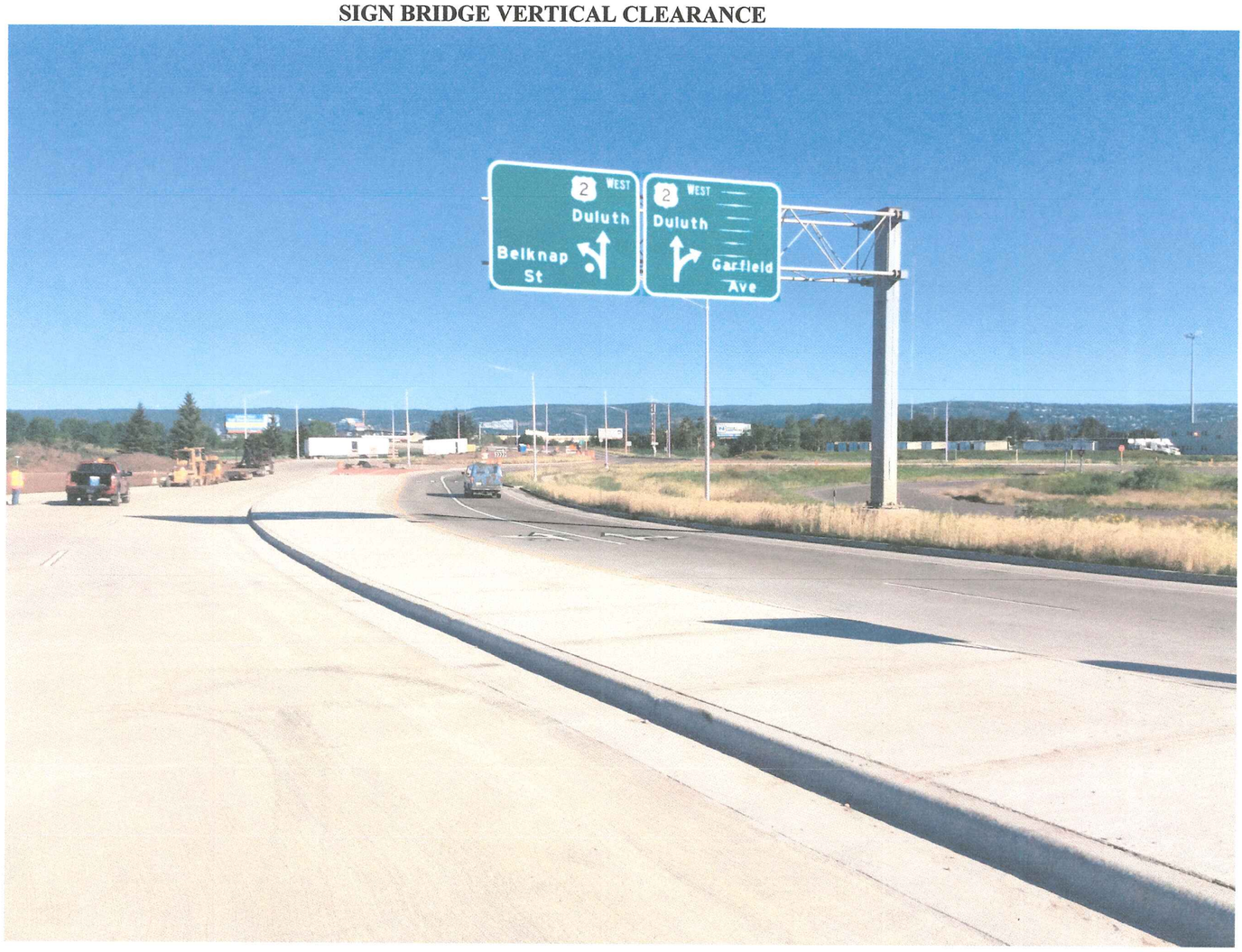


CANTILEVER STRUCTURE

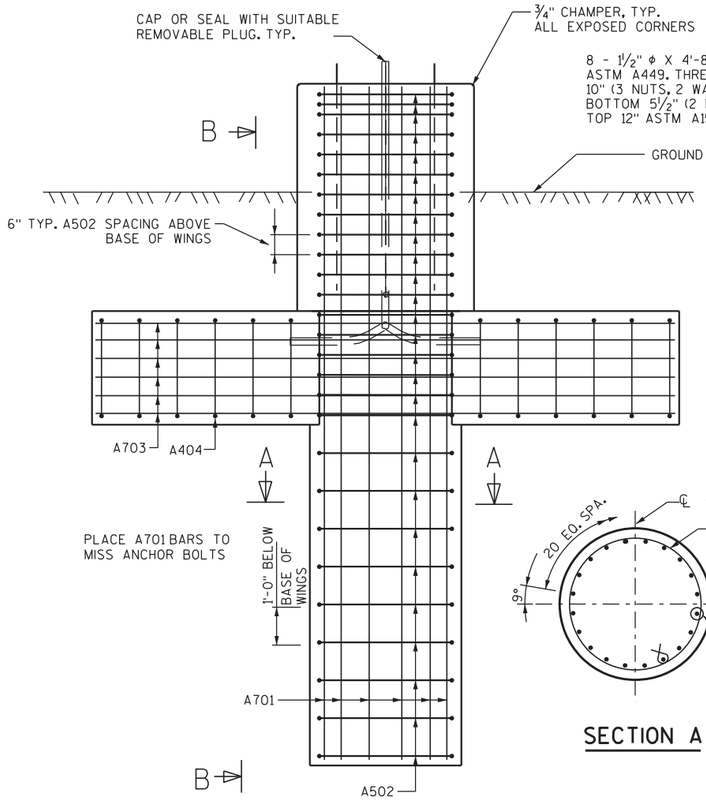
LOOKING WEST

NOTE: Structure is on the RT side of WB USH2. (not LH as shown)

SIGN BRIDGE VERTICAL CLEARANCE

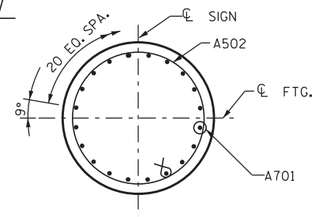


STATE PROJECT NUMBER
8680-04-74

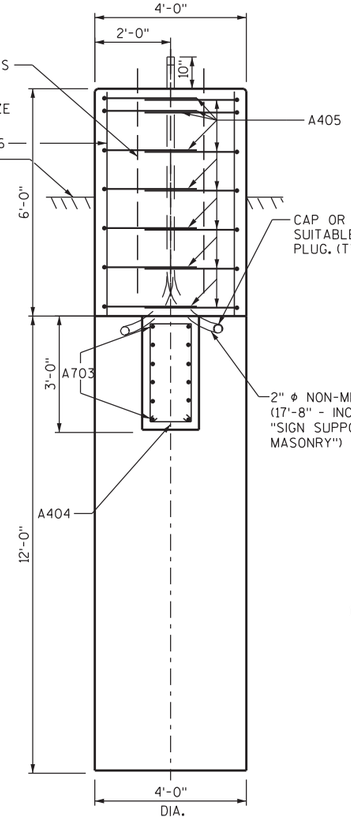


ELEVATION

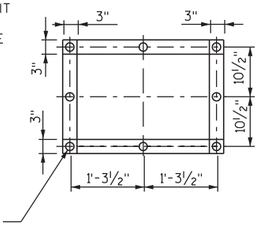
(12 CY)



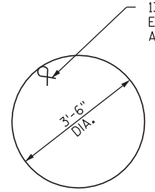
SECTION A



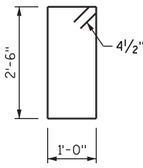
SECTION B



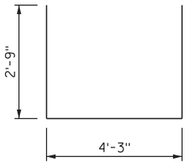
TOP VIEW OF TOP & BOTTOM TEMPLATES



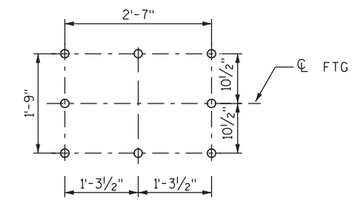
A502



A404
(STIRRUP)



A405



BILL OF BARS

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.
BAR DIMENSIONS ARE OUT TO OUT OF BAR.

1580 LB

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	CUT. DIAG.	BUN-DLE	LOCATION
A701		20	17'-6"				FOOTING - COLUMN/TOP
A502		27	12'-0"	X			FOOTING - COLUMN/TOP
A703		12	15'-0"				FOOTING - WINGS
A404		12	7'-6"	X			FOOTING - WINGS
A405		14	9'-7"	X			FOOTING - TOP
A406		4	3'-6"				FOOTING - TOP - COLUMNS

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 3" CLEAR UNLESS DETAILED OTHERWISE.

ALLOWABLE DESIGN STRESSES

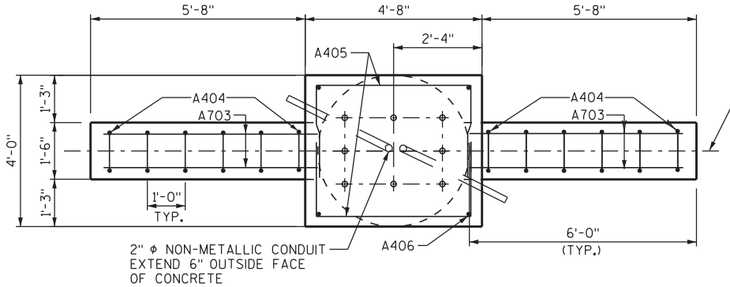
CONCRETE MASONRY	f'c=3.500 PSI
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy=60,000 PSI
ANCHOR BOLTS (1½" DIA.) ASTM A449	fy=81,000 PSI

FOUNDATION DATA

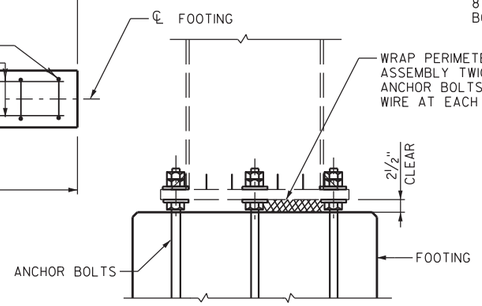
ALLOWABLE SOIL BEARING PRESSURE = 2.0T/SF

TOTAL ESTIMATED QUANTITIES (1 FTG.)

SIGN SUPPORTS CONCRETE MASONRY	12 CY
SIGN SUPPORTS STEEL REINFORCEMENT HS	1580 LB

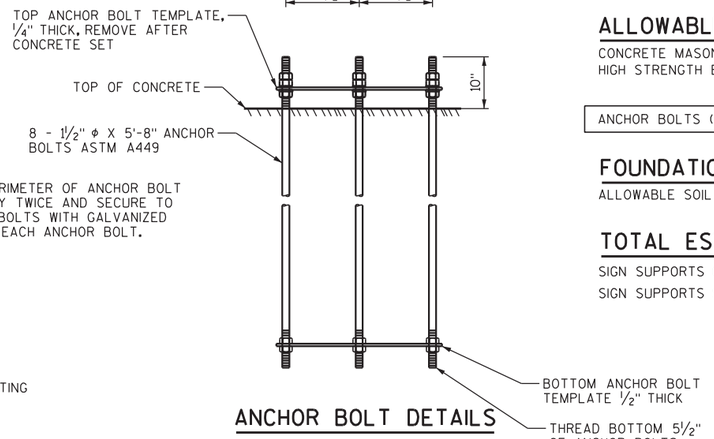


PLAN



RODENT SCREEN

(ONLY REQ'D WHEN ELECTRICAL DEVICES ARE INSTALLED)



ANCHOR BOLT DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-16-3

DRAWN BY NA | PLANS CK'D. YC

CANTILEVER TRUSS FOOTING

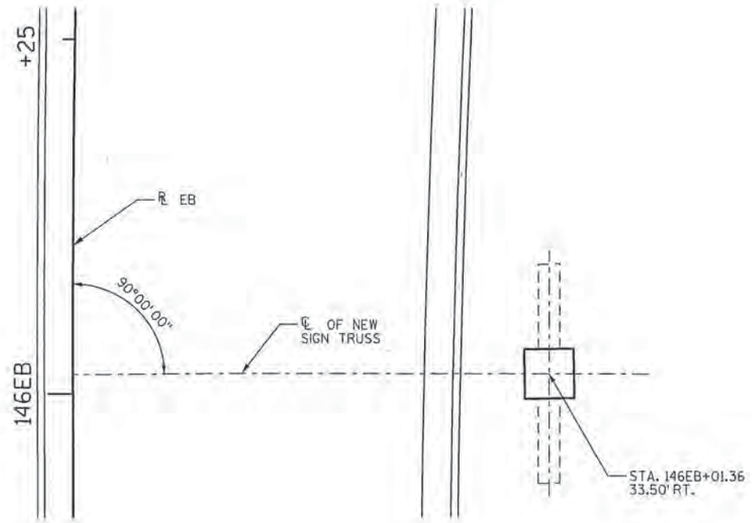
SHEET 2 OF 2
449

8

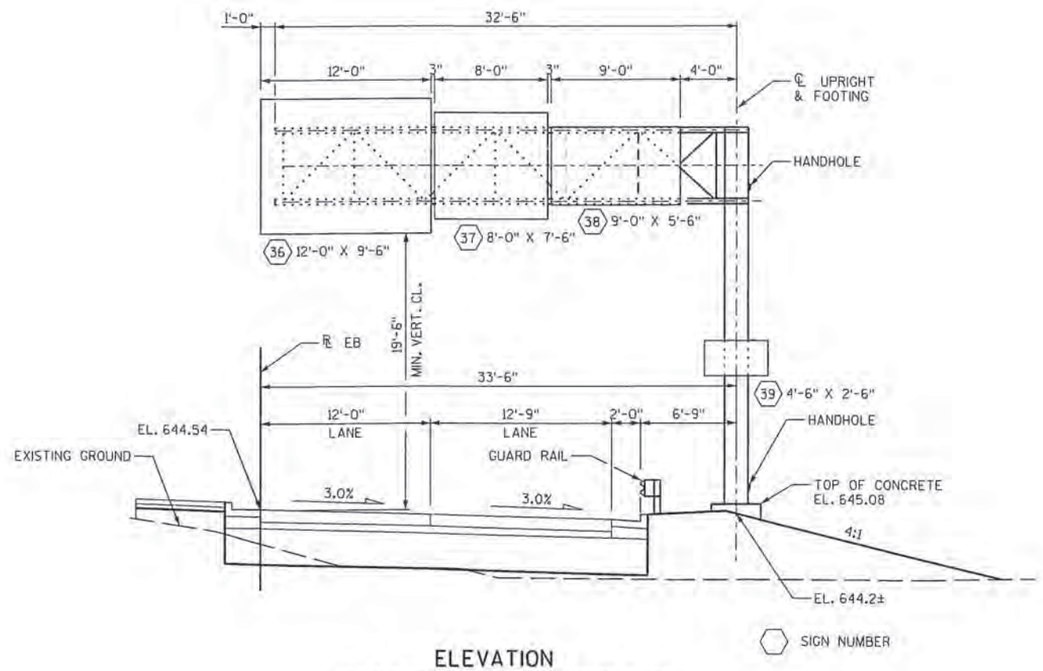
8

STATE PROJECT NUMBER
8680-04-74





PLAN
SIGN STRUCTURE S-16-13



ELEVATION
(LOOKING SOUTHEAST AT FRONT FACE OF SIGNS)
STA. 146EB+01.36

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

CENTER SIGNS VERTICALLY ON TRUSS.

ELEVATIONS ARE IN FEET UNLESS OTHERWISE SHOWN OR NOTED.

ALTERNATE DESIGNS ARE NOT ALLOWED.

GROUND RODS ARE REQUIRED.

HANDHOLES ARE REQUIRED.

EXACT LOCATION OF SIGN BRIDGE SHALL BE DETERMINED BY THE DISTRICT TRAFFIC ENGINEER.

SIGN BRIDGE IDENTIFICATION PLAQUE SHALL BE CONSIDERED INCIDENTAL TO "SIGN BRIDGE CANTILEVERED S-16-13".

DESIGN DATA

DESIGN SIGN AREA = 264 SF
MAX. SIGN DEPTH = 12 FT

DEAD LOAD - WT. OF SIGN AND SUPPORTING STRUCTURE.
ICE LOAD - 3 PSF TO 1 FACE OF SIGN & AROUND SURFACE OF MEMBERS.
WIND VELOCITY - 90 MPH (3-SECOND GUST SPEED) TO SIGN AREA & EXPOSED MEMBERS.

WIND COMPONENTS	NORMAL	TRANSVERSE
COMBINATION 1	1.0	0.2
COMBINATION 2	0.6	0.3

GROUP LOADS	% OF ALLOWABLE STRESS
1. DEAD	100
2. DEAD + WIND	133
3. DEAD + ICE + ½ (WIND*)	133

*MIN. VALUE OF 25 PSF FOR GROUP 3.

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEMS	UNIT	TOTAL
636.0100	SIGN SUPPORTS CONCRETE MASONRY	CY	8
636.1000	SIGN SUPPORTS STEEL REINFORCEMENT HS	LB	1,380
641.1200	SIGN BRIDGE CANTILEVERED S-16-13	LS	1

LIST OF DRAWINGS

1. GENERAL PLAN & ELEVATION
2. GALVANIZED STEEL CANTILEVER SIGN TRUSS
3. GALVANIZED STEEL CANTILEVER SIGN TRUSS DETAILS
4. CANTILEVER TRUSS FOOTING
5. HANDHOLE DETAILS

WISCONSIN
YOON-MOON CHUN
E-39076
WHITEFISH BAY
WIS.
PROFESSIONAL ENGINEER

Yoon-Moon Chun
8-1-2013

NO.	DATE	REVISION	BY

KSA K. Singh & Associates, Inc.
Engineers, Scientists and Environmental Consultants

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 10/09/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE S-16-13

USH 2 EB

COUNTY	TOWN/CITY/~~VILLAGE~~
DOUGLAS	SUPERIOR

DESIGN SPEC.	LOAD
AASHTO SIGN SPEC.	90 MPH 3 SEC. SPEED

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
NA	YC	NA	YC

GENERAL PLAN & ELEVATION

SHEET 1 OF 5

STRUCTURES DESIGN CONTACTS
BRIDGE OFFICE:
WILLIAM DREHER, P.E. (608) 266-8489
CONSULTANT:
MAHMOUD MALAS, P.E. (262) 821-1171

FILE NAME : P:\8359 Bong Memorial Bridge\8359B (S-16-013 & S-16-003)\Structural\CADD\S-16-13\S-16-13-001.dgn
PLOT DATE : 8/1/2013
PLOT BY : ychun
PLOT NAME : $FILE$
PLOT SCALE : 1:40

SIGN BRIDGE VERTICAL CLEARANCE

SHEET 350 A

Project Label
(Optional)

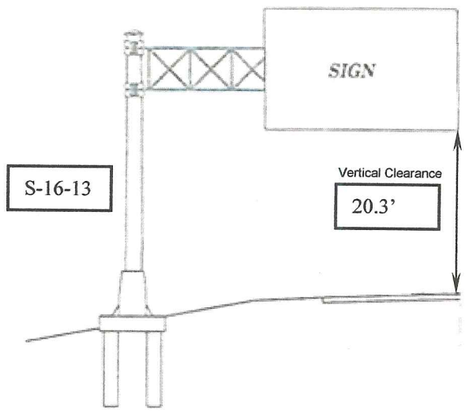
Project ID: 8680-04-74	Contract: 20140114014	Region: NW - Superior
Highway: USH2 over/under UNDER	County: Douglas	Bridge Number: S -16-13
	Contractor: Lunda\Mattison Contractor	Supervisor: Dave Ostrowski

Submit completed form to Regional Bridge Engineer before opening road to traffic.
To fill in form: Click on text boxes and enter applicable clearances.

Project Leader: Brian Mattson **Telephone #:** 715-395-3035

Recorded By: Rebecca Olson **Date:** 7-21-2015

Cardinal Direction: EAST

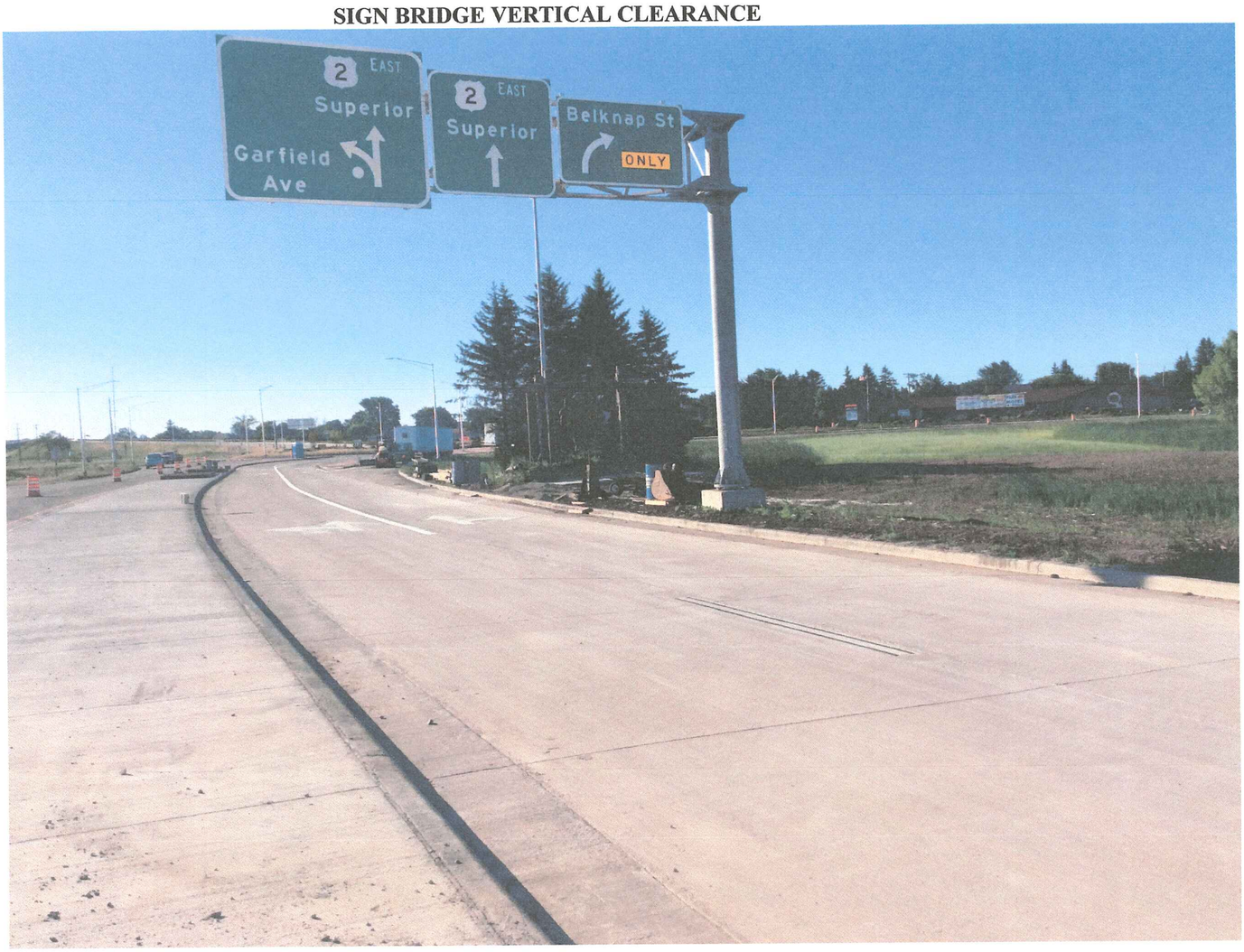


CANTILEVER STRUCTURE

LOOKING EAST

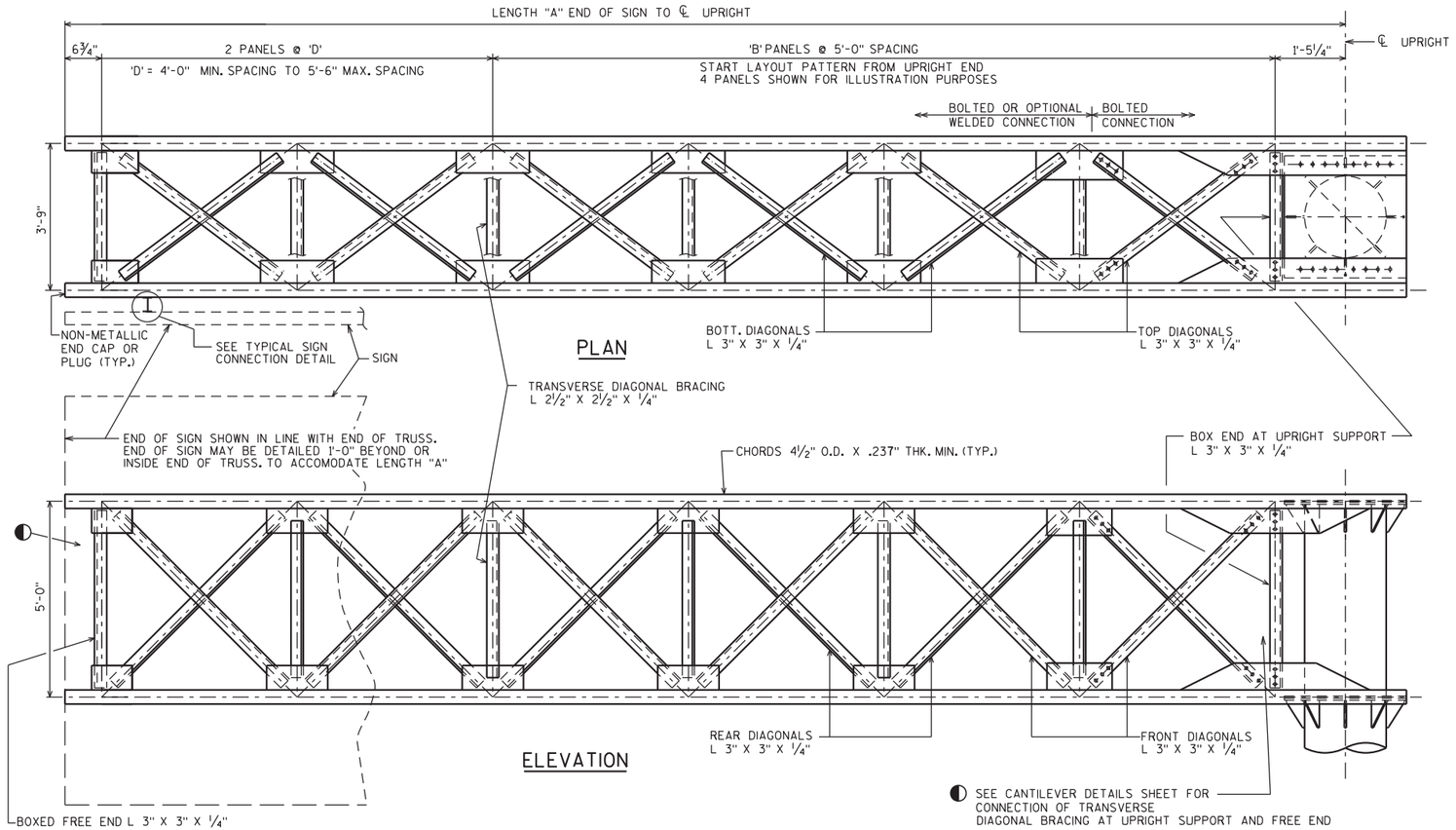
NOTE: Structure is on the RT side of EB USH2. (not LH as shown)

SIGN BRIDGE VERTICAL CLEARANCE



STATE PROJECT NUMBER

8680-04-74



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DESIGNED ACCORDING TO AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS. LUMINARIES AND TRAFFIC SIGNALS"

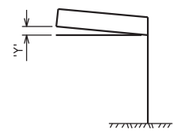
WIND VELOCITY = 90 MPH (3-SECOND GUST SPEED)

PREFABRICATE CAMBER INTO THE HORIZONTAL SUPPORT PROVIDING AN AMOUNT "Y" AT END OF TRUSS SHOWN IN "CAMBER DIAGRAM". DO NOT RAKE VERTICAL UPRIGHT BY ADJUSTMENT OF LEVELING NUTS.

ALLOWABLE DESIGN STRESSES

CHORDS & COLUMN (INCLD. HANDHOLE) — API-5L-X42 — fy=42,000 P.S.I.
STRUCTURAL ANGLES — A.S.T.M. A709 GRADE 36 — fy=36,000 P.S.I.
PLATES & BARS — A.S.T.M. A709 GRADE 36 — fy=36,000 P.S.I.
ANCHOR BOLTS — A.A.S.H.T.O. M314 — fy=55,000 P.S.I.
HIGH STRENGTH BOLTS- A325 — fy=92,000 P.S.I.
STRUCTURAL MEMBERS GALVANIZED A123
HARDWARE GALVANIZED — A153 CLASS C

STRUCTURE	"A"	"L"	"B"	"D"	"Y"
S-16-13	33'-6"	26'-0"	4	5'-3"	3"

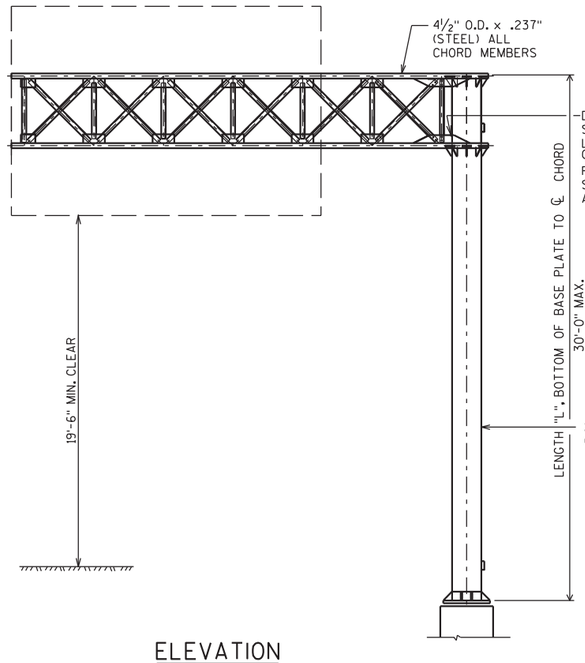


CAMBER DIAGRAM

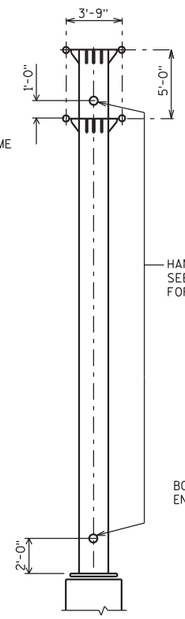
DESIGNER NOTES

CAMBER VALUES 'Y' (IN.)					
L \ A	32	30	28	26	24
30	4⅛	3½	2⅞	2⅜	1⅞
28	3⅞	3¼	2¾	2¼	1¾
26	3⅝	3	2½	2⅛	1¾
24	3⅜	2⅞	2⅜	2	1⅝
22	3⅛	2⅝	2¼	1⅞	1½

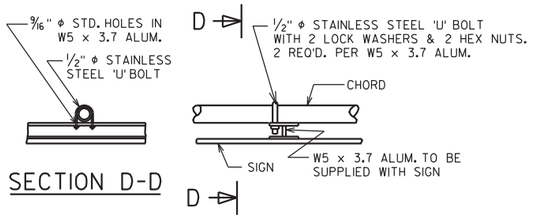
'A' & 'L' IN FT.
INTERPOLATE FOR VALUES NOT SHOWN
TABLES REFLECT CATWALK LOADING . FOR CAMBER VALUES WITHOUT CATWALK LOADING, MULTIPLY TABLE VALUES ABOVE AS FOLLOWS:
MULTIPLY 'Y' BY .72



ELEVATION

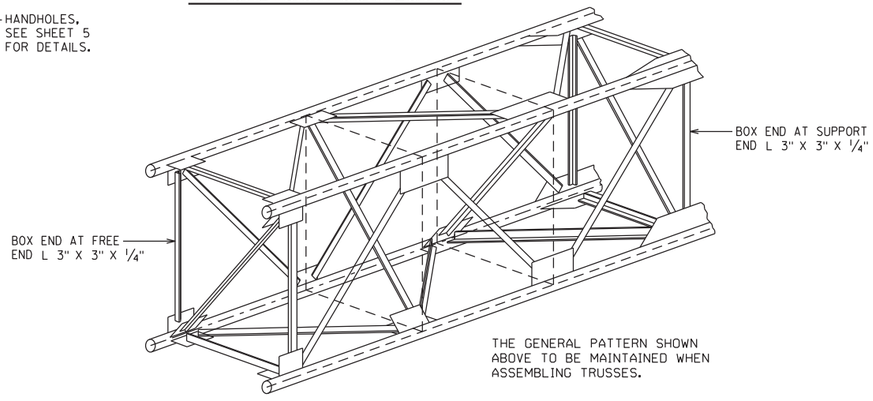


END VIEW



SECTION D-D

TYPICAL SIGN CONNECTION



TYPICAL TRUSS SECTION

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-16-13

DRAWN BY NA | PLANS CK'D. YC

GALVANIZED STEEL CANTILEVER SIGN TRUSS

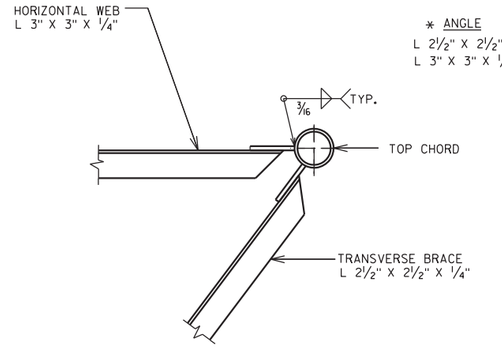
SHEET 2 OF 5
451

8

8

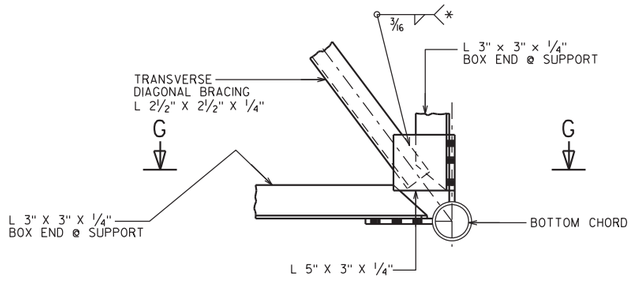
STATE PROJECT NUMBER

8680-04-74

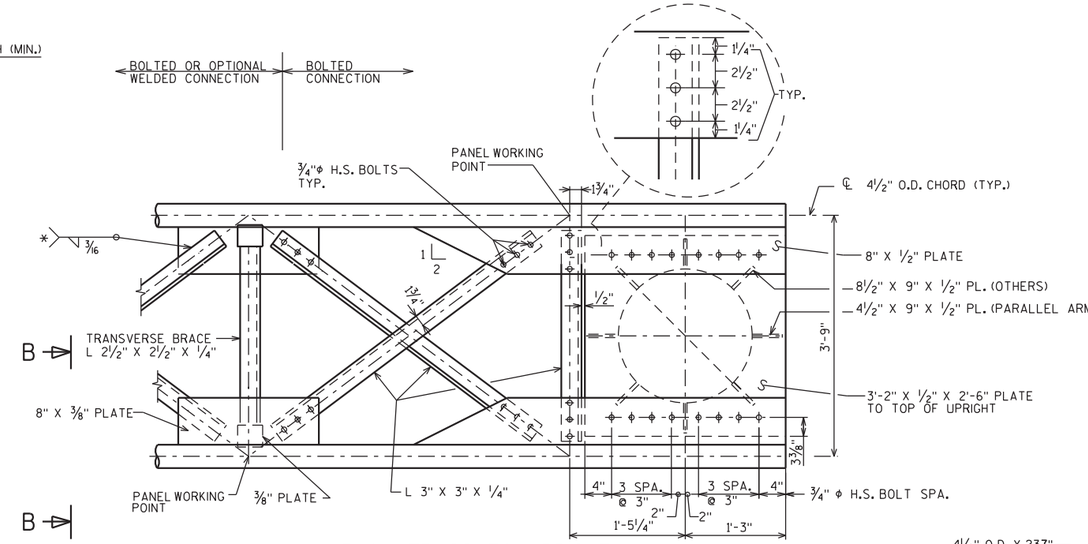


* ANGLE	WELD LENGTH (MIN.)
L 2 1/2" X 2 1/2" X 1/4"	7"
L 3" X 3" X 1/4"	8"

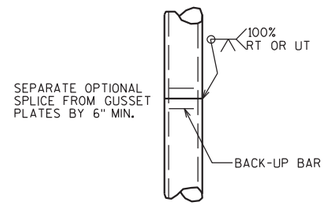
SECTION B-B



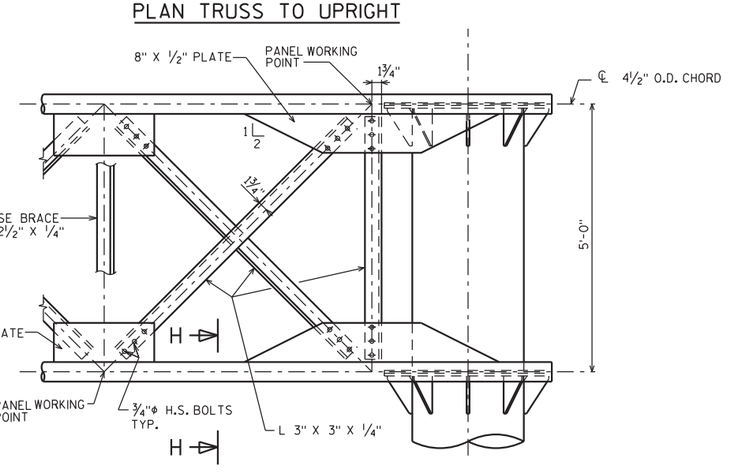
SECTION H-H



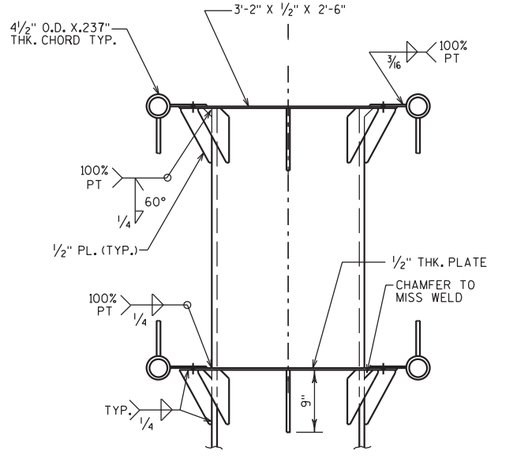
PLAN TRUSS TO UPRIGHT



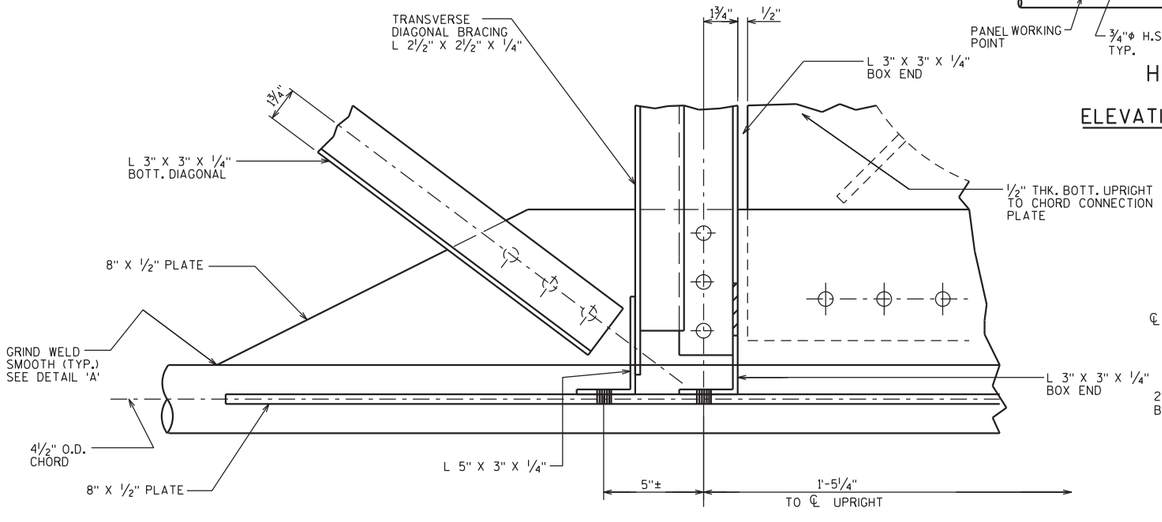
OPTIONAL COLUMN OR CHORD SPLICE DETAIL



ELEVATION TRUSS TO UPRIGHT

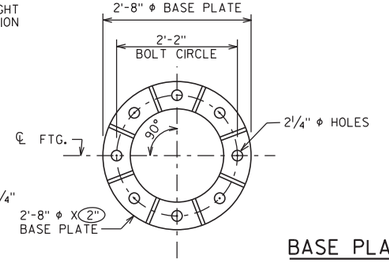


END VIEW
TRUSS TO UPRIGHT

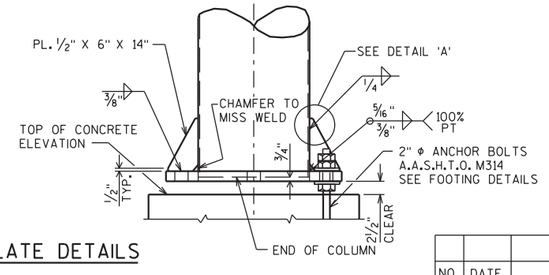


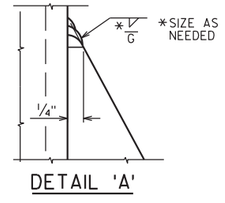
SECTION G-G

(LOOKING DOWN @ BOTT. HORIZ. PLANE @ FRONT CHORD)



BASE PLATE DETAILS





DETAIL 'A'

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-16-13

DRAWN BY NA | PLANS CK'D. YC

GALVANIZED STEEL CANTILEVER SIGN TRUSS DETAILS

SHEET 3 OF 5

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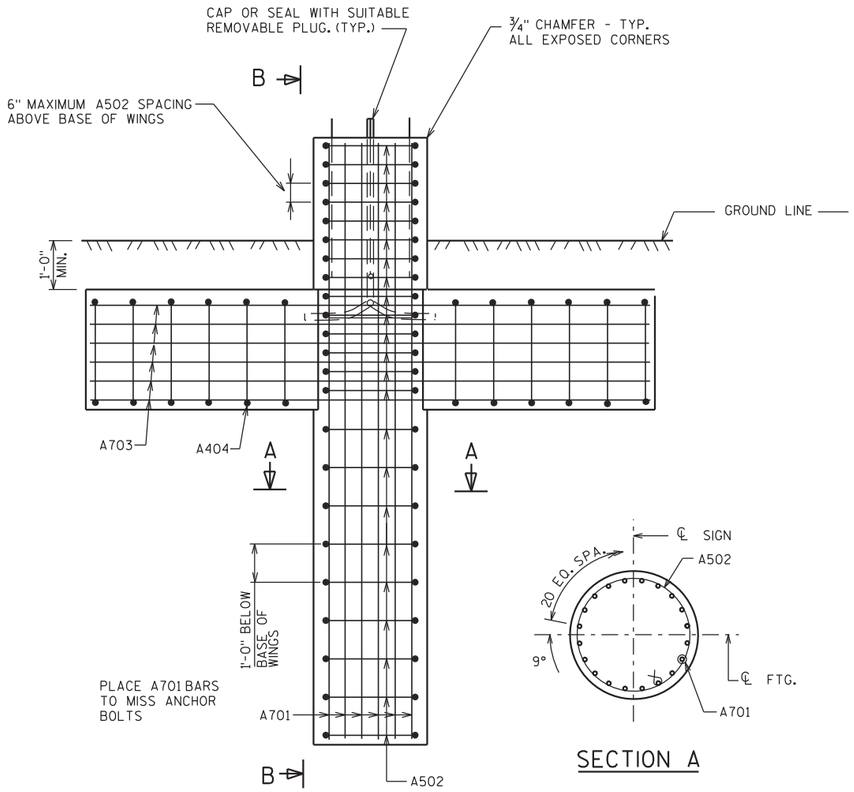
8

8

FILE NAME : P:\8359 Bong Memorial Bridge\8359B (S-16-013 & S-16-003)\Structural\CADD\S-16-13\S-16-13-003.dgn PLOT DATE : 8/1/2013 PLOT BY : ychun PLOT NAME : $FILE$ PLOT SCALE : 1:40.0001

STATE PROJECT NUMBER

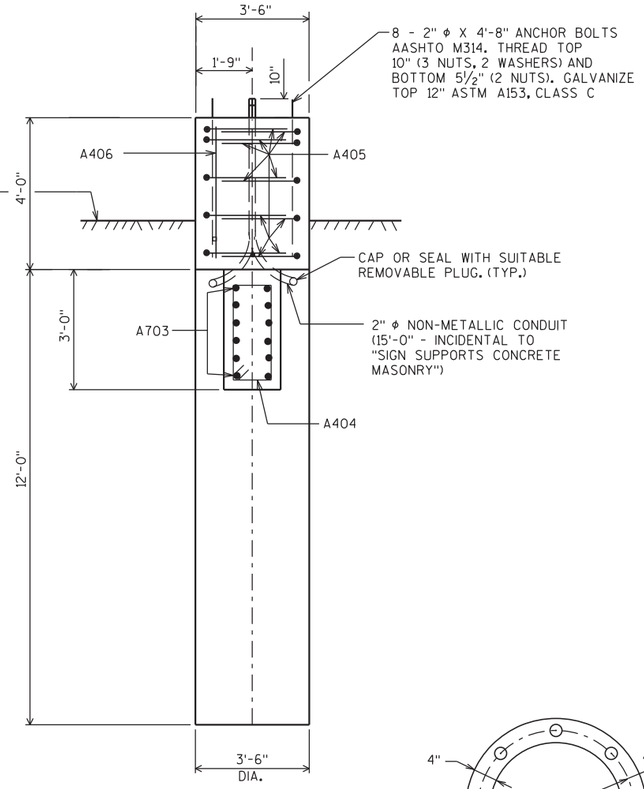
8680-04-74



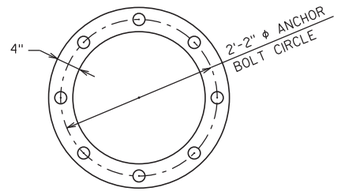
ELEVATION

(8 CY)

SECTION A



SECTION B



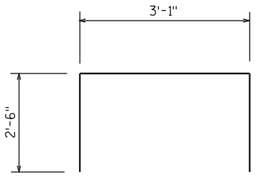
TOP VIEW OF TOP & BOTTOM TEMPLATES

BILL OF BARS

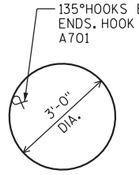
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.
BAR DIMENSIONS ARE OUT TO OUT OF BAR.

1380 LB

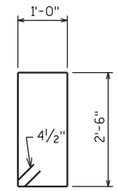
BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	CUT. DIAG.	BUN-DLE	LOCATION
A701		20	15'-6"				FOOTING - COLUMN/TOP
A502		23	10'-5"	X			FOOTING - COLUMN/TOP
A703		12	15'-0"				FOOTING - WINGS
A404		12	7'-6"	X			FOOTING - WINGS
A405		10	7'-11"	X			FOOTING - TOP
A406		4	3'-6"				FOOTING - TOP - COLUMNS



A405



A502



A404
(STIRRUP)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 3" CLEAR UNLESS DETAILED OTHERWISE.

ALLOWABLE DESIGN STRESSES

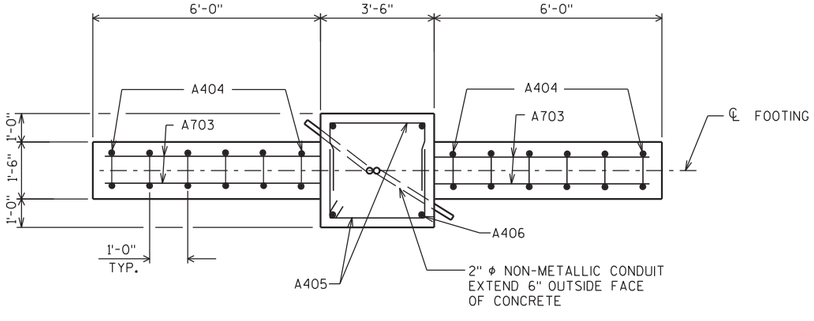
CONCRETE MASONRY ——— f'c=3,500 PSI
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 ——— fy=60,000 PSI
ANCHOR BOLTS AASHTO M314 ——— fy=55,000 PSI

FOUNDATION DATA

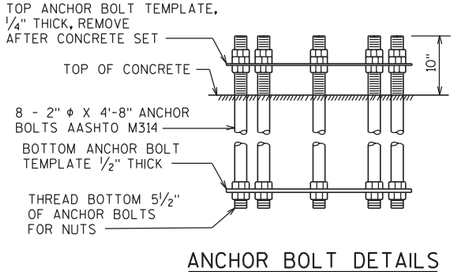
ALLOWABLE SOIL BEARING PRESSURE = 2.0T/SQ. FT.

TOTAL ESTIMATED QUANTITIES (1 FTG.)

SIGN SUPPORTS CONCRETE MASONRY ——— 8 CY
SIGN SUPPORTS STEEL REINFORCEMENT HS ——— 1380 LB



PLAN



ANCHOR BOLT DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-16-13

DRAWN BY NA | PLANS CK'D. YC

CANTILEVER TRUSS FOOTING

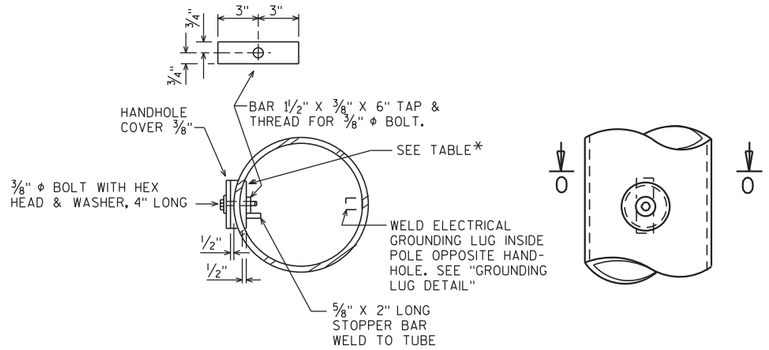
SHEET 4 OF 5
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STATE PROJECT NUMBER

8680-04-74

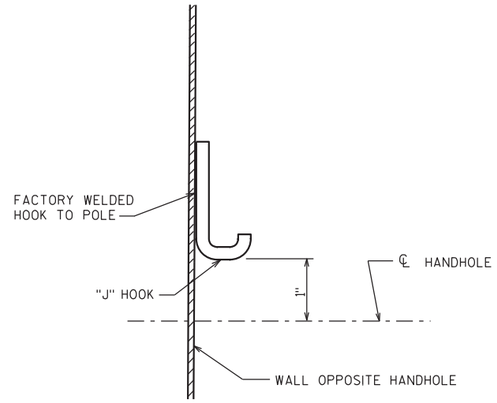


SECTION 'O'

HANDHOLE DETAILS

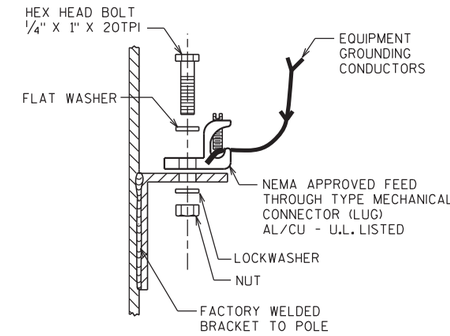
HANDHOLE NOTES

HANDHOLES SHALL BE LOCATED IN COLUMN AS DETAILED ON SHEET 3.



TYPICAL "J" HOOK LOCATION

THE "J" HOOK SHALL BE FACTORY WELDED TO THE INSIDE OF ALL COLUMNS CONTAINING ELECTRICAL WIRING. THE "J" HOOK SHALL BE ATTACHED ABOVE THE CENTERLINE OF THE UPPER HANDHOLE AND MOUNTED DIRECTLY OPPOSITE THE HANDHOLE AS SHOWN IN THE DRAWING.

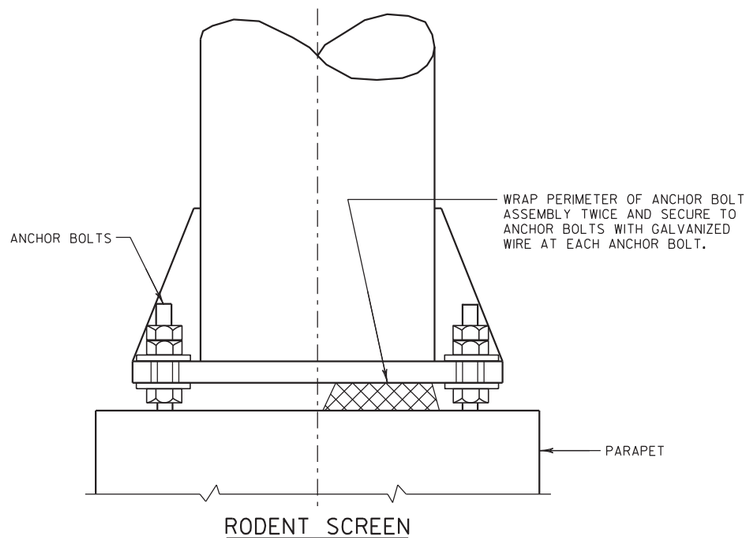


GROUNDING LUG DETAIL

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

✳

UPRIGHT DIAM. SIZE	HANDHOLE PIPE O.D. X MIN. THK.
UP TO AND INCLD. 16" X .375"	5.562" X .500"
GREATER THAN 16" X .375" TO AND INCLD. 24" X .562"	6.625" X .562"



RODENT SCREEN

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-16-13

DRAWN BY NA | PLANS CK'D. YC

HANDHOLE DETAILS

SHEET 5 OF 5
454

EARTHWORK DATA - USH 2 EASTBOUND - EB LINE

STATION	COMMON SF	MARSH SF	FILL SF	COMMON CY	MARSH CY	FILL CY	MASS HAUL
134+55.00	154.08	0.00	81.99	0.00	0.00	0.00	0.00
135+00.00	140.02	0.00	91.40	245.08	0.00	180.61	64.47
135+50.00	141.29	0.00	63.48	260.47	0.00	179.26	145.68
136+00.00	166.14	0.00	21.86	284.66	0.00	98.77	331.57
136+50.00	188.01	0.00	3.67	327.92	0.00	29.55	629.93
137+00.00	189.04	0.00	39.82	349.12	0.00	50.34	928.72
137+50.00	205.98	0.00	2.48	365.76	0.00	48.96	1245.52
138+00.00	219.14	0.00	2.49	393.63	0.00	5.75	1633.40
138+50.00	231.33	0.00	1.77	417.10	0.00	4.93	2045.57
139+00.00	244.01	0.00	4.76	440.13	0.00	7.56	2478.14
139+50.00	265.66	0.00	6.44	471.92	0.00	12.96	2937.09
140+00.00	277.32	0.00	7.00	502.76	0.00	15.56	3424.30
140+50.00	288.16	0.00	7.53	523.59	0.00	16.82	3931.07
141+00.00	298.53	0.00	7.65	543.23	0.00	17.57	4456.73
141+50.00	295.64	0.00	7.63	550.16	0.00	17.69	4989.21
142+00.00	291.30	0.00	7.39	543.46	0.00	17.38	5515.29
142+50.00	284.56	0.00	11.80	533.20	0.00	22.21	6026.28
143+00.00	288.60	0.00	16.03	530.70	0.00	32.21	6524.77
143+50.00	19.40	0.00	58.01	285.19	0.00	85.69	6724.26
144+00.00	17.33	43.93	108.20	34.01	40.68	192.37	6565.90
144+50.00	15.06	65.10	154.71	29.99	100.95	304.29	6291.60
145+00.00	99.48	0.00	16.56	106.06	60.28	198.23	6199.42
145+50.00	17.96	100.63	108.10	108.74	93.18	144.28	6163.88
146+00.00	20.35	119.11	95.04	35.47	203.46	235.12	5964.24
146+01.36	20.39	70.58	94.07	1.03	4.78	5.95	5959.31
146+50.00	30.80	77.75	76.21	46.11	133.61	191.72	5813.70
147+00.00	46.10	79.91	15.55	71.20	145.98	106.20	5778.70
147+50.00	134.12	79.90	22.43	166.87	147.97	43.96	5901.61
148+00.00	41.82	86.66	58.04	162.91	154.22	93.14	5971.38
148+50.00	60.90	62.05	53.53	95.11	137.69	129.13	5937.36
149+00.00	71.64	89.34	14.75	122.72	140.18	79.03	5981.05
149+50.00	93.99	46.37	23.63	153.36	125.66	44.42	6089.99
150+00.00	95.04	15.29	36.49	175.03	57.09	69.58	6195.44
150+50.00	63.26	18.33	66.68	146.57	31.13	119.41	6222.60

EARTHWORK DATA - USH 2 EASTBOUND - EB LINE

STATION	COMMON SF	MARSH SF	FILL SF	COMMON CY	MARSH CY	FILL CY	MASS HAUL
152+50.00	185.63	21.05	3.12	0.00	0.00	0.00	0.00
153+00.00	116.77	18.67	68.93	280.00	36.78	83.39	196.61
153+50.00	138.41	19.33	54.51	236.28	35.19	142.87	290.02
154+00.00	85.26	20.70	45.09	207.10	37.06	115.28	381.84
154+50.00	135.30	0.00	41.25	204.22	19.17	99.93	486.13
155+00.00	141.09	0.00	19.00	255.92	0.00	69.73	672.31
155+50.00	124.43	0.00	0.14	245.85	0.00	22.15	896.01
156+00.00	142.35	0.00	46.01	247.02	0.00	53.41	1089.62
156+50.00	123.41	0.00	42.44	246.07	0.00	102.37	1233.32
157+00.00	121.69	0.00	40.92	226.94	0.00	96.48	1363.78
157+50.00	17.70	0.00	30.60	129.06	0.00	82.78	1410.07
158+00.00	18.76	0.00	23.97	33.76	0.00	63.16	1380.67
158+50.00	21.07	0.00	14.85	36.88	0.00	44.93	1372.62
159+00.00	31.20	0.00	1.32	48.40	0.00	18.72	1402.30
159+50.00	43.50	0.00	0.58	69.17	0.00	2.20	1469.27
160+00.00	40.95	0.00	1.03	78.19	0.00	1.86	1545.60
160+50.00	37.05	0.00	0.76	72.22	0.00	2.07	1615.75
161+00.00	34.99	0.00	0.14	66.70	0.00	1.04	1681.41
161+50.00	34.40	0.00	0.00	64.25	0.00	0.16	1745.50
162+00.00	32.59	0.00	0.34	62.03	0.00	0.39	1807.13
162+50.00	62.42	0.00	0.00	87.97	0.00	0.39	1894.71

EARTHWORK DATA - RAB CIRCLE - R LINE

STATION	COMMON SF	FILL SF	COMMON CY	FILL CY	MASS HAUL
100+00.00	68.40	179.80	0.00	0.00	0.00
100+25.00	96.15	240.10	76.18	243.00	-166.82
100+50.00	44.44	209.32	65.09	260.08	-361.81
100+75.00	158.12	90.50	93.78	173.51	-441.54
101+00.00	171.10	87.19	152.42	102.83	-391.95
101+25.00	145.68	88.80	146.66	101.85	-347.14
101+50.00	147.91	92.51	135.92	104.92	-316.14
101+75.00	96.30	101.80	113.06	112.45	-315.53
102+00.00	75.39	104.34	79.49	119.29	-355.34
102+25.00	113.55	115.49	87.47	127.22	-395.08
102+50.00	132.51	137.41	113.92	146.35	-427.52
102+75.00	89.43	161.88	102.75	173.20	-497.97
103+00.00	0.00	332.77	41.40	286.26	-742.83
103+25.00	29.46	286.83	13.64	358.56	-1087.75
103+50.00	38.19	253.42	31.32	312.64	-1369.08
103+75.00	67.29	229.50	48.83	279.47	-1599.71
104+00.00	76.28	213.53	66.47	256.38	-1789.63

EARTHWORK DATA - BELKNAP WESTBOUND - BW LINE

STATION	COMMON SF	MARSH SF	FILL SF	COMMON CY	MARSH CY	FILL CY	MASS HAUL
32+50.00	153.80	0.00	0.00	0.00	0.00	0.00	0.00
33+00.00	153.28	0.00	1.24	284.33	0.00	1.44	282.90
33+50.00	206.40	0.00	2.74	333.04	0.00	4.61	611.33
34+00.00	182.56	0.00	6.95	360.15	0.00	11.22	960.26
34+50.00	67.60	49.80	110.67	231.63	46.11	136.13	1055.76
35+00.00	174.88	0.00	13.37	224.52	46.11	143.56	1136.71
35+50.00	172.04	0.00	21.42	321.22	0.00	40.27	1417.67
36+00.00	133.81	0.00	20.96	283.19	0.00	49.05	1651.81
36+50.00	52.19	0.00	26.91	172.22	0.00	55.41	1768.63
37+00.00	28.83	0.00	27.17	75.02	0.00	62.59	1781.05

EARTHWORK DATA - BELKNAP WESTBOUND - BW LINE

STATION	COMMON SF	FILL SF	COMMON CY	FILL CY	MASS HAUL
39+00.00	58.02	52.36	0.00	0.00	0.00
39+50.00	73.54	51.84	121.81	120.60	1.21
40+00.00	118.36	11.51	177.69	73.32	105.58
40+50.00	64.67	11.16	169.47	26.24	248.81

EARTHWORK DATA - USH 2 WESTBOUND - WB LINE

STATION	COMMON SF	FILL SF	COMMON CY	FILL CY	MASS HAUL
134+55.00	24.81	0.23	0.00	0.00	0.00
135+00.00	22.41	1.61	39.35	1.92	37.43
135+50.00	28.20	2.55	46.86	4.81	79.48
136+00.00	35.35	2.29	58.84	5.60	132.72
136+50.00	52.35	1.43	81.20	4.31	209.62
137+00.00	53.91	1.39	98.39	3.26	304.74
137+50.00	60.19	0.58	105.65	2.28	408.11
138+00.00	60.75	0.19	111.98	0.89	519.20
138+50.00	62.07	0.15	113.72	0.39	632.53
139+00.00	56.88	2.32	110.14	2.86	739.81
139+50.00	51.51	3.35	100.36	6.56	833.61
140+00.00	46.02	3.39	90.31	7.80	916.11
140+50.00	46.60	3.22	85.76	7.65	994.22
141+00.00	41.37	3.66	81.45	7.96	1067.71
141+50.00	41.78	3.96	76.99	8.82	1135.88
142+00.00	42.23	3.84	77.79	9.03	1204.64
142+50.00	39.37	3.83	75.56	8.88	1271.32
143+00.00	37.37	3.78	71.06	8.81	1333.57
143+50.00	34.73	4.44	66.76	9.51	1390.82
144+00.00	35.79	3.91	65.30	9.66	1446.45
144+50.00	36.08	5.39	66.55	10.76	1502.23
145+00.00	35.87	4.25	66.62	11.16	1557.69
145+50.00	38.99	4.48	69.31	10.10	1616.90
146+00.00	37.94	4.98	71.23	10.95	1677.19
146+50.00	45.15	4.13	76.94	10.54	1743.58
147+00.00	50.18	3.40	88.27	8.72	1823.13
147+50.00	58.03	2.69	100.19	7.05	1916.28
148+00.00	290.85	1.86	323.04	5.27	2234.05
148+10.94	298.69	1.61	119.44	0.88	2352.60
148+50.00	280.96	0.00	419.28	1.46	2770.43
149+00.00	295.58	0.00	533.83	0.00	3304.26
149+50.00	304.73	0.00	555.84	0.00	3860.10
150+00.00	190.69	17.74	458.72	20.53	4298.29
150+50.00	187.72	50.36	350.38	78.82	4569.85
150+85.00	145.53	58.62	216.00	88.29	4697.56
151+00.00	69.24	52.25	59.66	38.50	4718.72

EARTHWORK DATA - USH 2 WESTBOUND - WB LINE

STATION	COMMON SF	FILL SF	COMMON CY	FILL CY	MASS HAUL
153+00.00	221.75	34.12	0.00	0.00	0.00
153+50.00	201.08	0.10	391.51	39.61	351.90
154+00.00	186.27	4.18	358.66	4.95	705.61
154+50.00	155.49	22.35	316.44	30.71	991.34
155+00.00	149.41	28.34	282.31	58.67	1214.99
155+50.00	156.01	19.16	282.80	54.98	1442.81
155+62.74	150.90	13.58	72.41	9.66	1505.56
156+00.00	148.94	25.58	206.89	33.78	1678.68
156+26.70	142.96	29.63	144.33	34.12	1788.88
156+50.00	141.86	24.92	122.89	29.42	1882.36
157+00.00	147.14	22.76	267.59	55.19	2094.76
157+50.00	38.64	36.29	172.02	68.34	2198.44
158+00.00	46.59	37.81	78.92	85.76	2191.59
158+50.00	47.16	51.00	86.81	102.79	2175.61
159+00.00	47.81	53.98	87.94	121.50	2142.04
159+50.00	35.95	42.52	77.56	111.69	2107.90
160+00.00	31.91	50.95	62.83	108.18	2062.55
160+50.00	28.20	50.27	55.66	117.15	2001.06
161+00.00	27.25	73.34	51.34	143.07	1909.33
161+50.00	27.14	100.12	50.36	200.76	1758.93
162+00.00	29.12	5.33	52.09	122.05	1688.97

EARTHWORK DATA - RAB BYPASS LANE - B LINE

STATION	COMMON SF	MARSH SF	FILL SF	COMMON CY	MARSH CY	FILL CY	MASS HAUL
149+00.00	26.12	0.00	37.39	0.00	0.00	0.00	0.00
149+25.00	32.82	0.00	33.66	27.29	0.00	41.12	-13.83
149+50.00	41.70	0.00	30.17	34.50	0.00	36.94	-16.27
149+75.00	48.15	0.00	26.14	41.60	0.00	32.59	-7.26
150+00.00	66.20	0.00	23.02	52.94	0.00	28.45	17.23
150+25.00	72.29	0.00	27.81	64.12	0.00	29.42	51.93
150+50.00	65.69	0.00	30.46	63.88	0.00	33.72	82.09
150+75.00	50.24	14.26	27.35	53.67	6.60	33.45	102.31
151+00.00	52.96	0.00	25.27	47.78	6.60	30.45	119.63
151+25.00	54.99	0.00	23.03	49.98	0.00	27.95	141.66
151+50.00	68.61	0.00	18.22	57.22	0.00	23.87	175.01

EARTHWORK DATA - BELKNAP EASTBOUND - BE LINE

STATION	COMMON SF	FILL SF	COMMON CY	FILL CY	MASS HAUL
30+00.00	11.84	0.03	0.00	0.00	0.00
30+50.00	10.44	0.40	20.63	0.50	20.13
31+00.00	12.58	2.05	21.31	2.84	38.61
31+50.00	20.82	2.49	30.93	5.25	64.28
32+00.00	73.33	7.33	87.18	11.37	140.09
32+50.00	219.71	0.00	271.33	8.48	402.94
32+62.00	217.13	0.00	97.08	0.00	500.02
33+00.00	84.76	4.13	212.44	3.63	708.83
33+50.00	91.38	8.47	163.09	14.58	857.34
34+00.00	95.26	17.90	172.81	30.52	999.63
34+50.00	92.09	7.72	173.47	29.65	1143.45
35+00.00	99.26	15.61	177.18	27.00	1293.62
35+50.00	86.23	81.14	171.75	111.98	1353.39
36+00.00	108.36	31.56	180.18	130.44	1403.13
36+50.00	119.32	44.04	210.81	87.50	1526.44
37+00.00	123.09	69.43	224.45	131.33	1619.57

EARTHWORK DATA - BELKNAP EASTBOUND - BE LINE

STATION	COMMON SF	FILL SF	COMMON CY	FILL CY	MASS HAUL
39+05.43	253.21	0.00	0.00	0.00	0.00
39+50.00	195.99	15.87	370.76	16.37	354.38
40+00.00	81.84	22.80	257.25	44.76	566.88
40+50.00	73.73	20.36	144.05	49.95	660.97
41+00.00	281.28	26.27	328.71	53.97	935.71
41+50.00	258.13	0.00	499.45	30.41	1404.76
42+00.00	114.18	0.00	344.73	0.00	1749.49
42+50.00	92.55	19.91	191.42	23.04	1917.86
43+00.00	89.47	0.00	168.54	23.04	2063.36
43+50.00	89.60	0.00	165.81	0.00	2229.16
44+00.00	82.18	0.00	159.06	0.00	2388.22
44+20.00	75.80	0.00	58.51	0.00	2446.73

EARTHWORK DATA - PATH - P LINE

STATION	COMMON SF	FILL SF	COMMON CY	FILL CY	MASS HAUL
33+00.00	11.37	0.00	0.00	0.00	0.00
33+25.00	5.25	0.87	7.69	0.50	7.19
33+50.00	5.11	1.00	4.80	1.08	10.91
33+75.00	3.90	1.71	4.17	1.57	13.51
34+00.00	3.34	2.01	3.35	2.15	14.71
34+25.00	2.54	6.52	2.72	4.94	12.49
34+50.00	4.49	5.85	3.25	7.16	8.59
34+75.00	8.61	6.81	6.06	7.33	7.33
35+00.00	24.94	5.67	15.53	7.22	15.64
35+25.00	34.65	4.03	27.59	5.61	37.61
35+50.00	60.70	4.04	44.14	4.67	77.09
35+75.00	48.63	5.70	50.62	5.64	122.06
36+00.00	117.12	7.49	76.74	7.63	191.17
36+25.00	123.79	10.44	111.53	10.38	292.32
36+50.00	7.39	0.37	60.73	6.26	346.80
36+75.00	7.85	10.74	7.06	6.43	347.43
37+00.00	35.87	15.03	20.24	14.91	352.75
37+25.00	103.54	17.87	64.54	19.04	398.26
37+50.00	145.70	19.47	115.39	21.61	492.04
37+75.00	111.19	18.15	118.93	21.77	589.20
38+00.00	87.81	18.96	92.13	21.48	659.85
38+25.00	91.96	16.13	83.23	20.31	722.77
38+50.00	39.03	16.15	60.64	18.68	764.73
38+75.00	21.88	16.05	28.20	18.63	774.30
39+00.00	11.22	16.48	15.32	18.83	770.80
39+25.00	2.96	14.65	6.56	18.02	759.35
39+50.00	7.13	0.20	4.67	8.59	755.42
39+75.00	0.00	0.00	3.30	0.12	758.61
40+00.00	2.78	0.96	1.29	0.56	759.34

EARTHWORK DATA - GARFIELD S. - G LINE

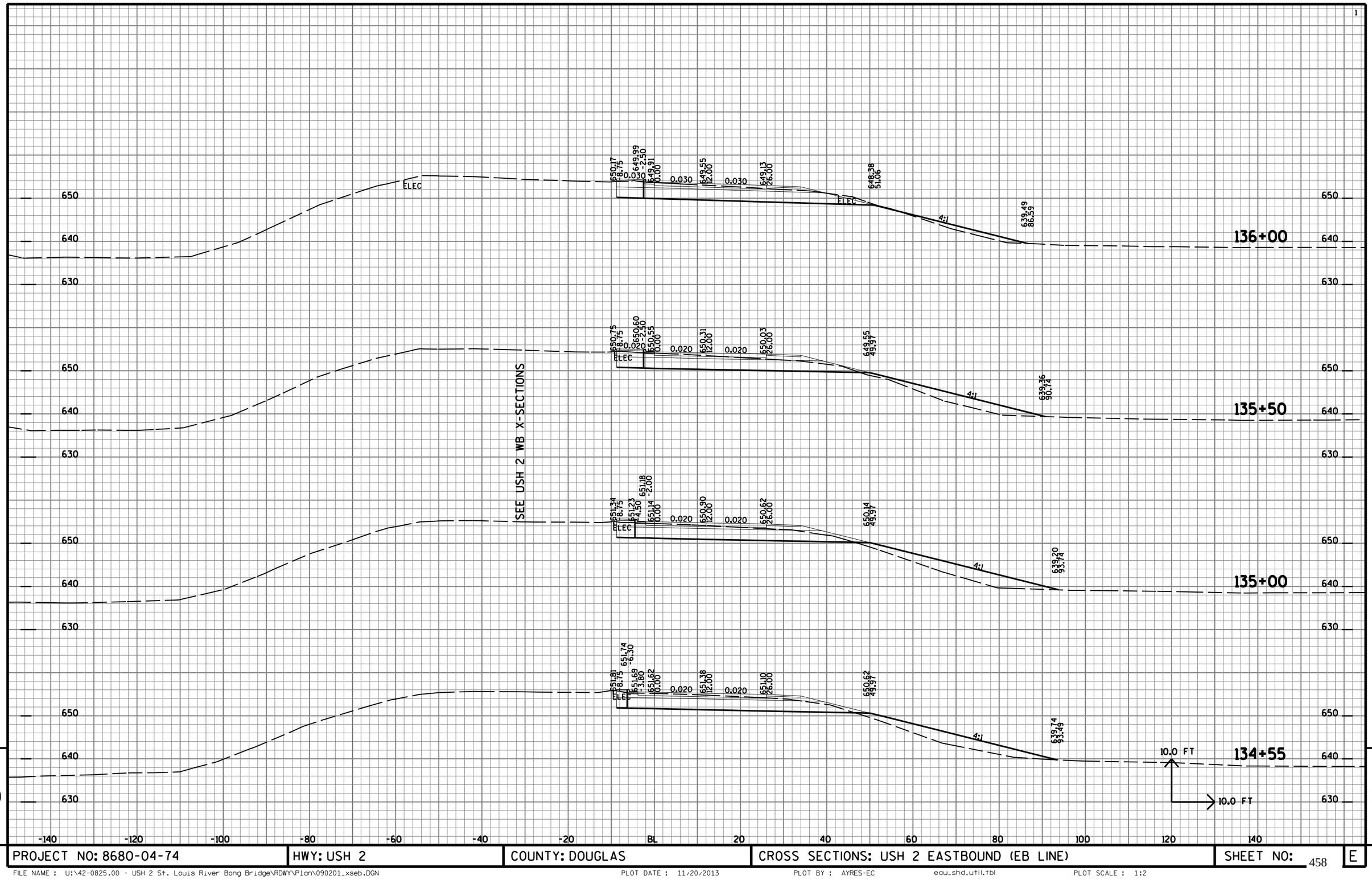
STATION	COMMON SF	FILL SF	COMMON CY	FILL CY	MASS HAUL
3+50.00	0.00	0.00	0.00	0.00	0.00
3+75.00	48.21	1.11	22.32	0.64	21.68
4+00.00	37.02	7.37	39.46	4.91	56.23
4+25.00	37.93	4.36	34.70	6.79	84.14
4+50.00	27.40	20.97	30.25	14.66	99.73

EARTHWORK DATA - PATH CONNECTION - S LINE

STATION	COMMON SF	FILL SF	COMMON CY	FILL CY	MASS HAUL
47+75.00	9.12	0.11	0.00	0.00	0.00
48+00.00	1.22	0.27	4.79	0.22	4.57
48+25.00	8.90	0.00	4.69	0.16	9.10
48+50.00	16.42	0.01	11.72	0.01	20.81
48+75.00	22.56	0.00	18.05	0.01	38.85
49+00.00	30.55	0.00	24.59	0.00	63.44
49+10.00	33.02	0.00	11.77	0.00	75.21
49+25.00	19.07	0.00	14.47	0.00	89.68
49+50.00	9.23	0.00	13.10	0.00	102.78

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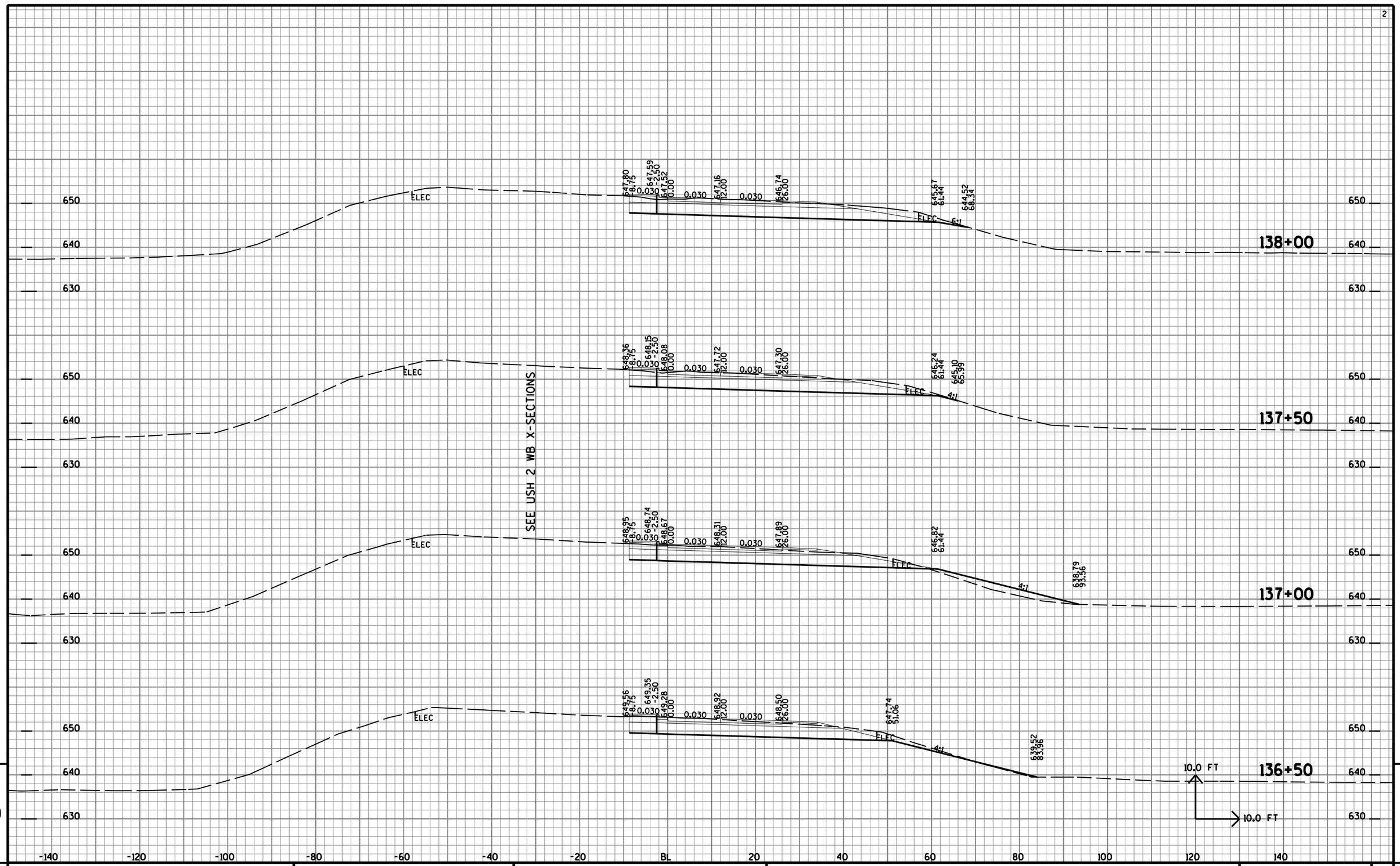


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PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 EASTBOUND (EB LINE)	SHEET NO: 458	E

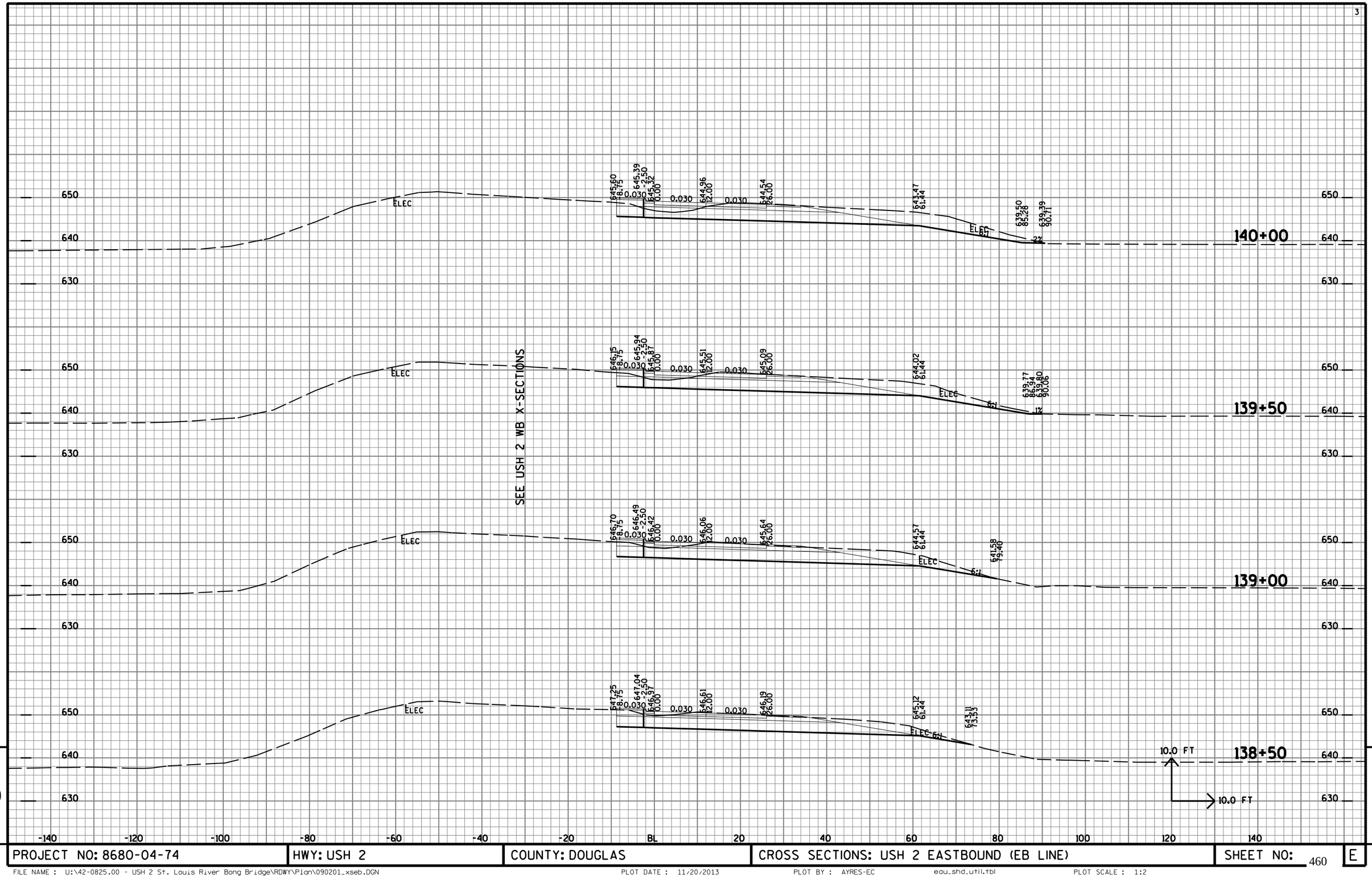
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9 9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 EASTBOUND (EB LINE)	SHEET NO: 459	E

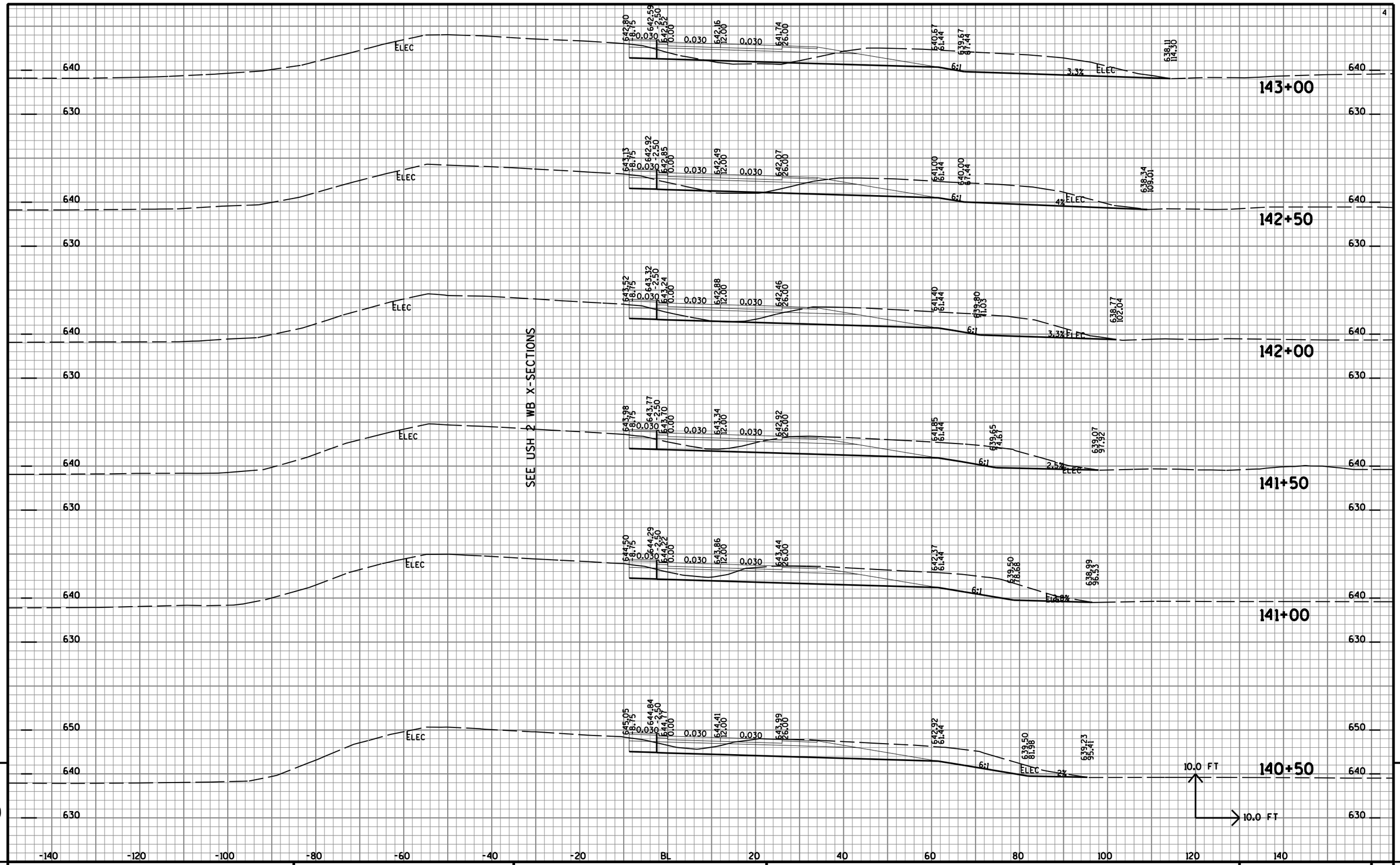
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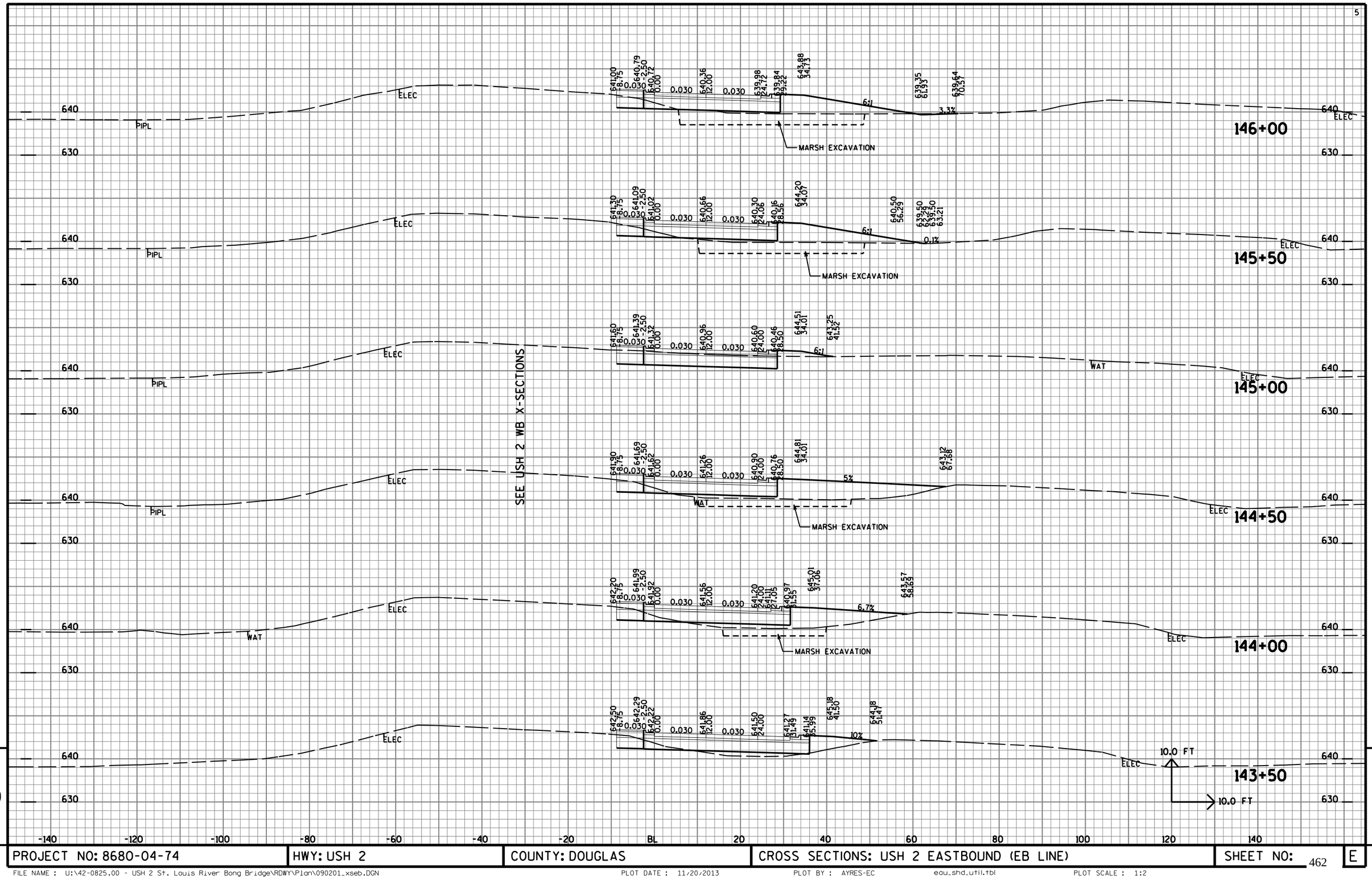
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9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 EASTBOUND (EB LINE)	SHEET NO: 460	E



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 EASTBOUND (EB LINE)	SHEET NO: 461 E



9 9

PROJECT NO: 8680-04-74 | HWY: USH 2 | COUNTY: DOUGLAS | CROSS SECTIONS: USH 2 EASTBOUND (EB LINE) | SHEET NO: 462 E

SEE USH 2 WB X-SECTIONS

148+50



148+00

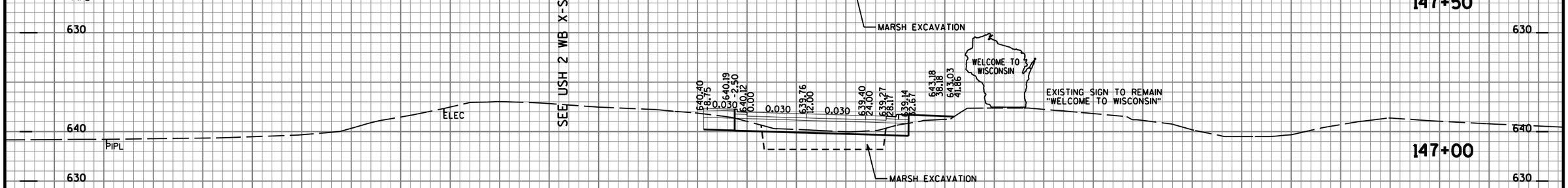


SEE STORM SEWER SHEETS FOR PIPE INFORMATION

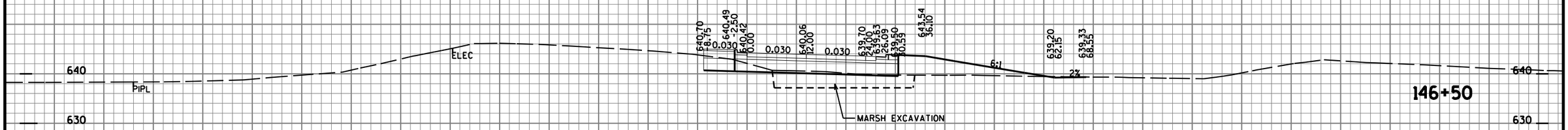
147+50



147+00



146+50



146+01.36



-140 -120 -100 -80 -60 -40 -20 BL 20 40 60 80 100 120 140

9 9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 EASTBOUND (EB LINE)	SHEET NO: 463	E

SEE USH 2 WB X-SECTIONS

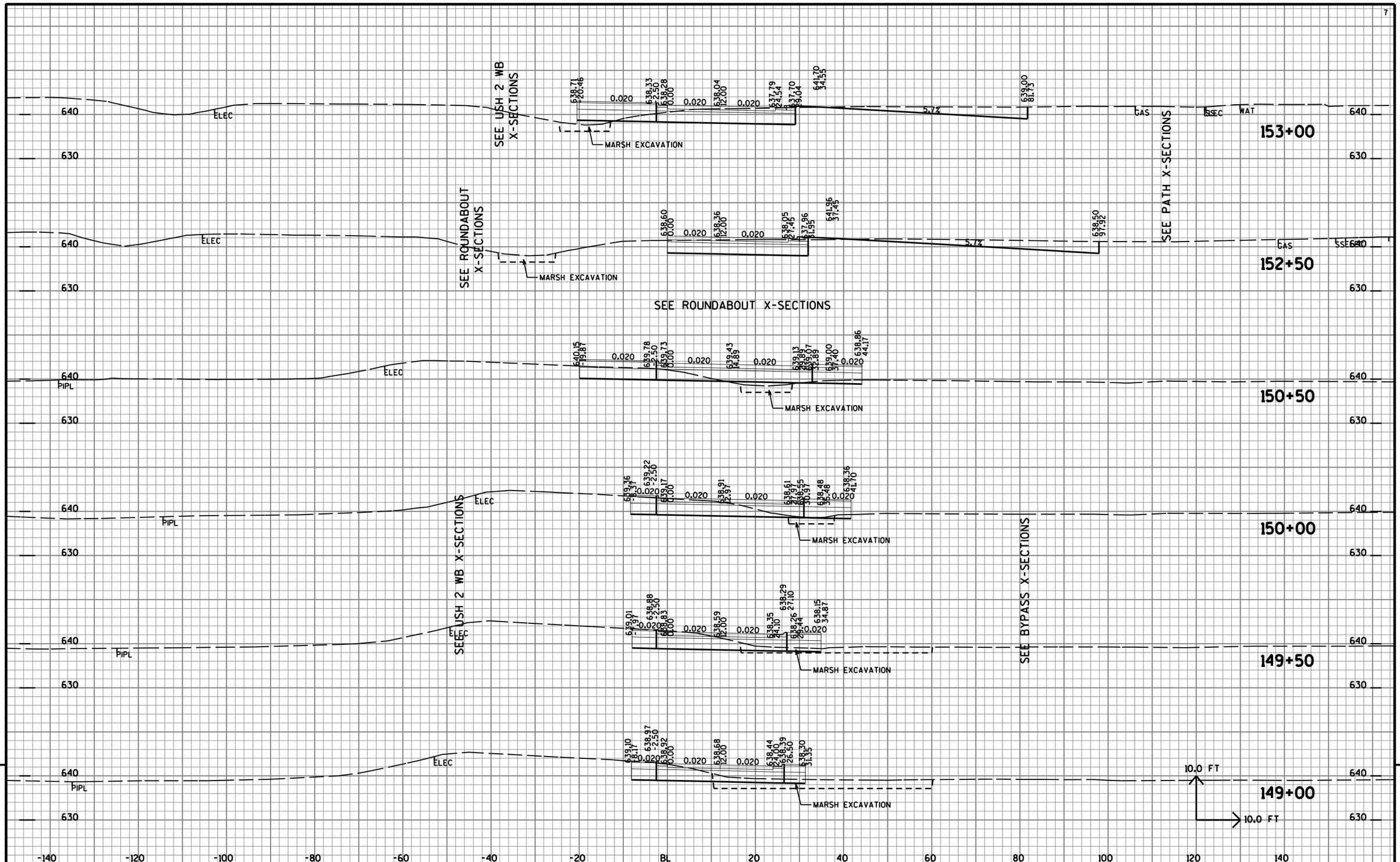
SEE ROUNDABOUT X-SECTIONS

SEE PATH X-SECTIONS

SEE ROUNDABOUT X-SECTIONS

SEE USH 2 WB X-SECTIONS

SEE BYPASS X-SECTIONS



9

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PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 EASTBOUND (EB LINE)	SHEET NO: 464	E

SEE USH 2 WB X-SECTIONS

SEE PATH X-SECTIONS

S GARFIELD AVE

156+00

155+50

155+00

154+50

154+00

153+50

MARSH EXCAVATION

MARSH EXCAVATION

10.0 FT

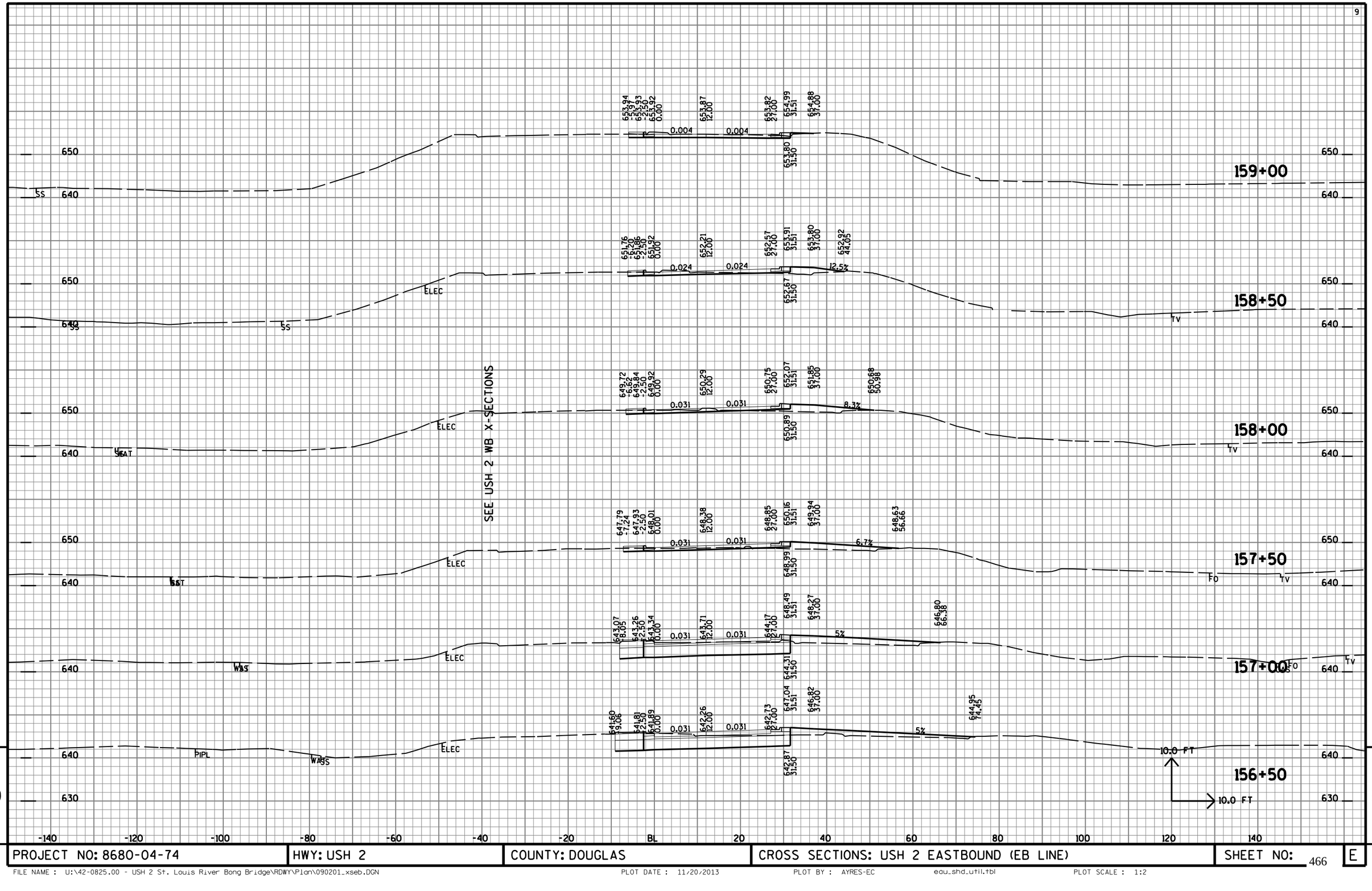
10.0 FT

-140 -120 -100 -80 -60 -40 -20 BL 20 40 60 80 100 120 140

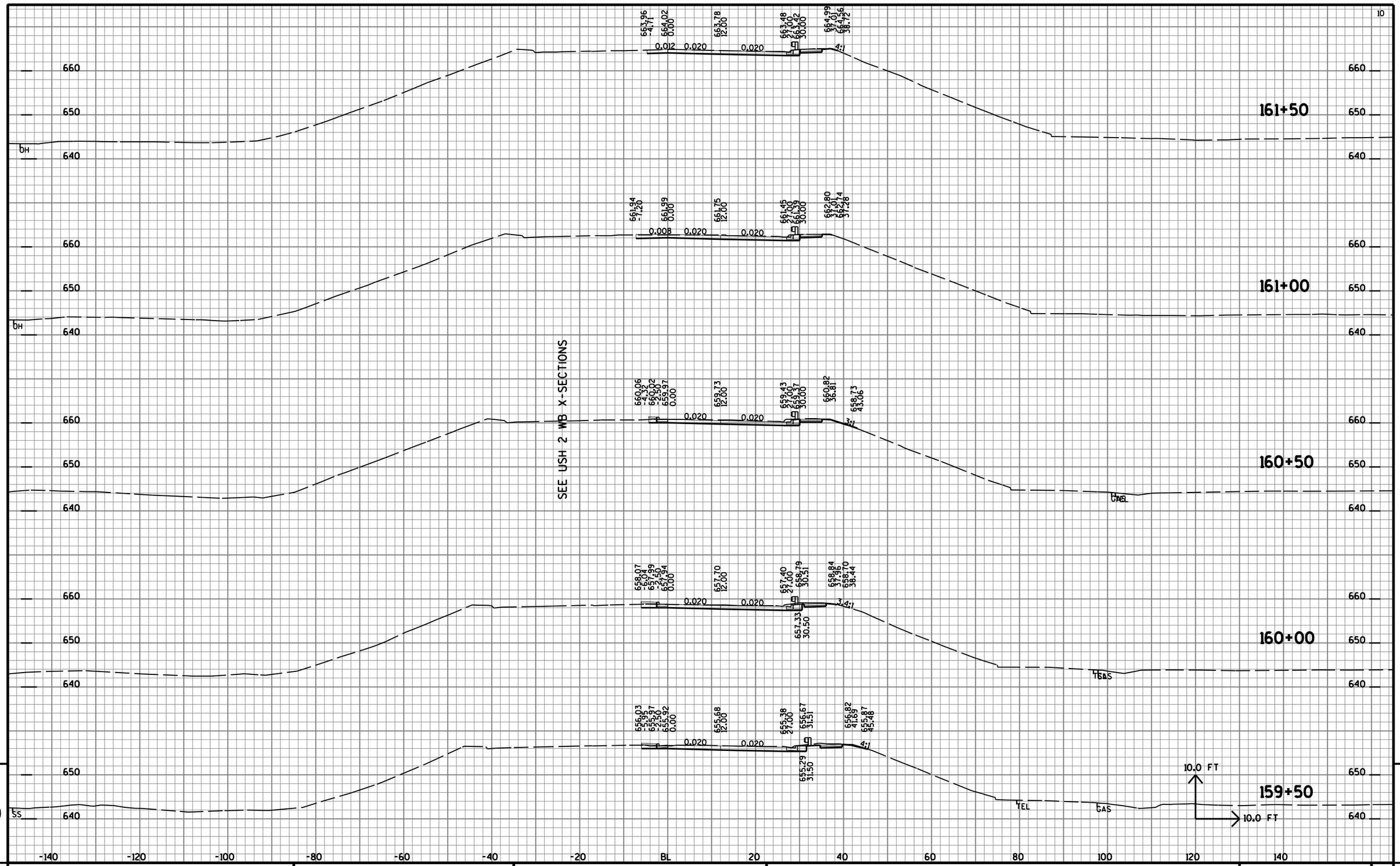
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9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 EASTBOUND (EB LINE)	SHEET NO: 465	E



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 EASTBOUND (EB LINE)	SHEET NO: 466 E



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 EASTBOUND (EB LINE)	SHEET NO: 467 E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090201_xseb.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

163+00

162+50

162+00

SEE USH 2 WB
X-SECTIONS

668.94
-33.63
668.85
-31.94
667.50
-28.44
667.43
-31.94
667.80
-13.62
668.07
0.00
667.83
12.00
667.53
27.47
666.30
35.01
666.01
-33.63
666.05
-31.94
665.81
-28.44
665.51
-13.62
665.45
0.00
666.86
12.00
666.63
27.47
37.53

0.020 0.020 0.020 0.020
0.014 0.020 0.020

660 650 640 670

DH

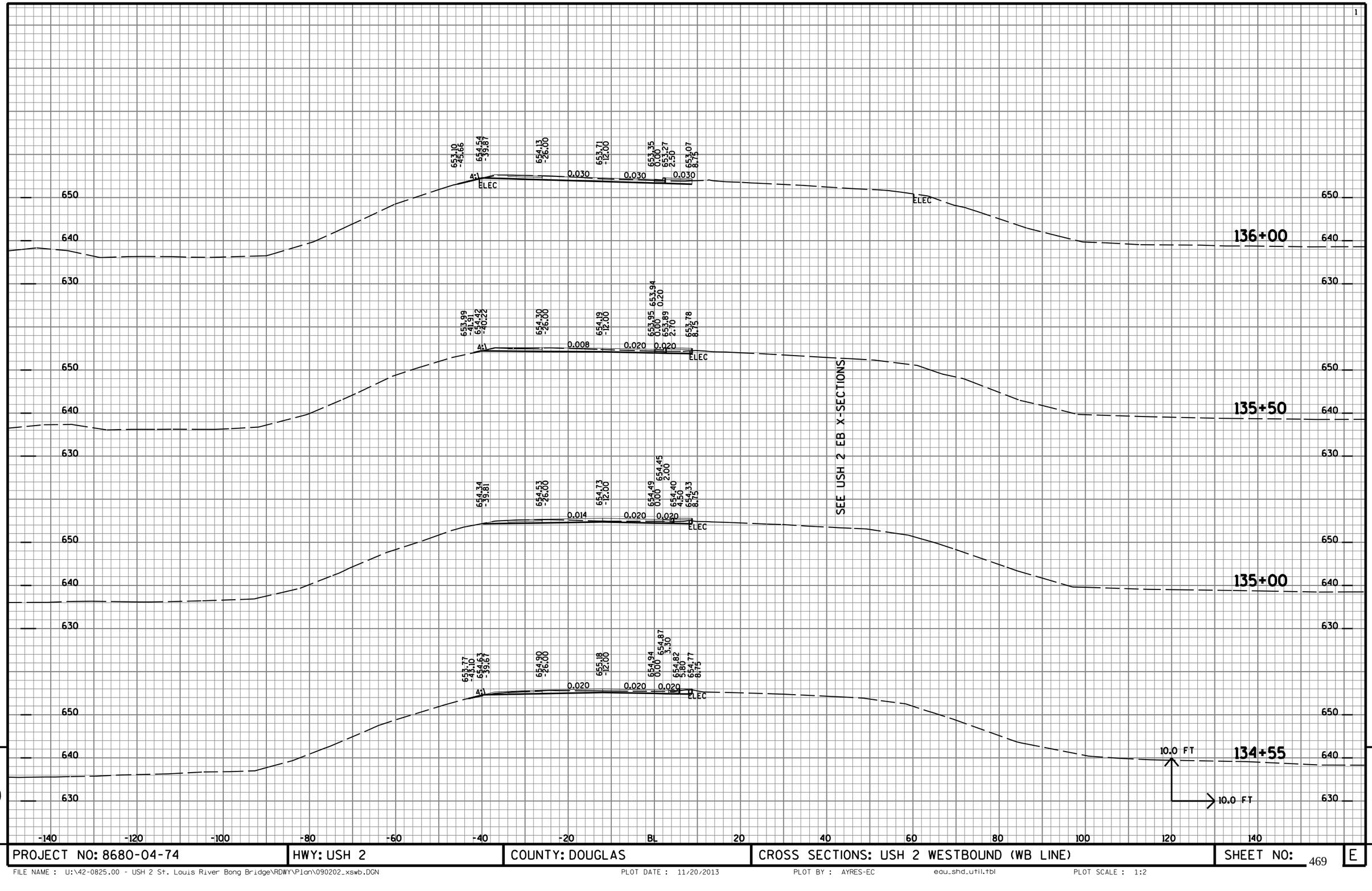
10.0 FT
10.0 FT

-140 -120 -100 -80 -60 -40 -20 BL 20 40 60 80 100 120 140

9 9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 EASTBOUND (EB LINE)	SHEET NO: 468 E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090201_xseb.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

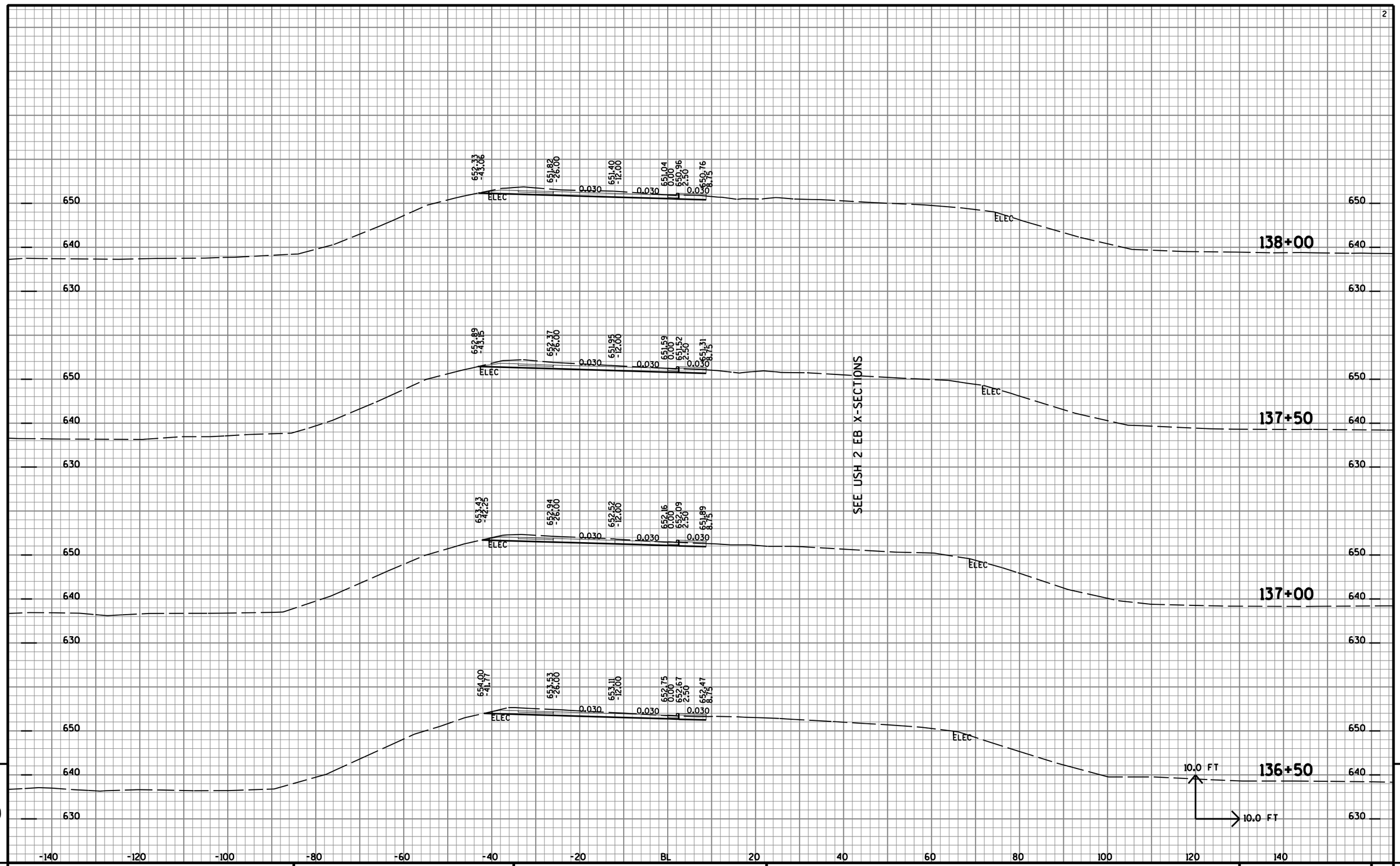


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9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)	SHEET NO: 469	E

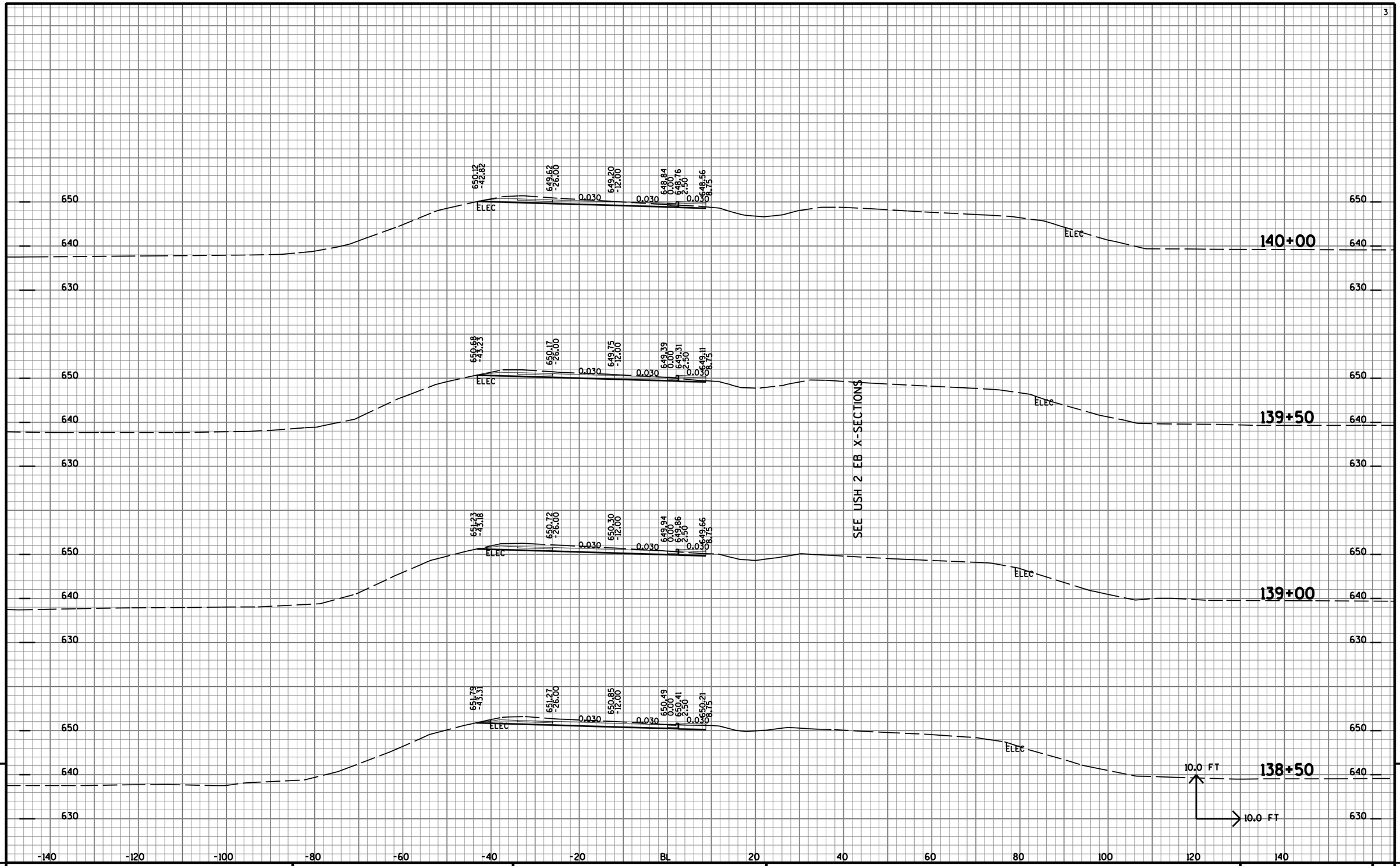
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9 9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)	SHEET NO: 470	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090202_xswb.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

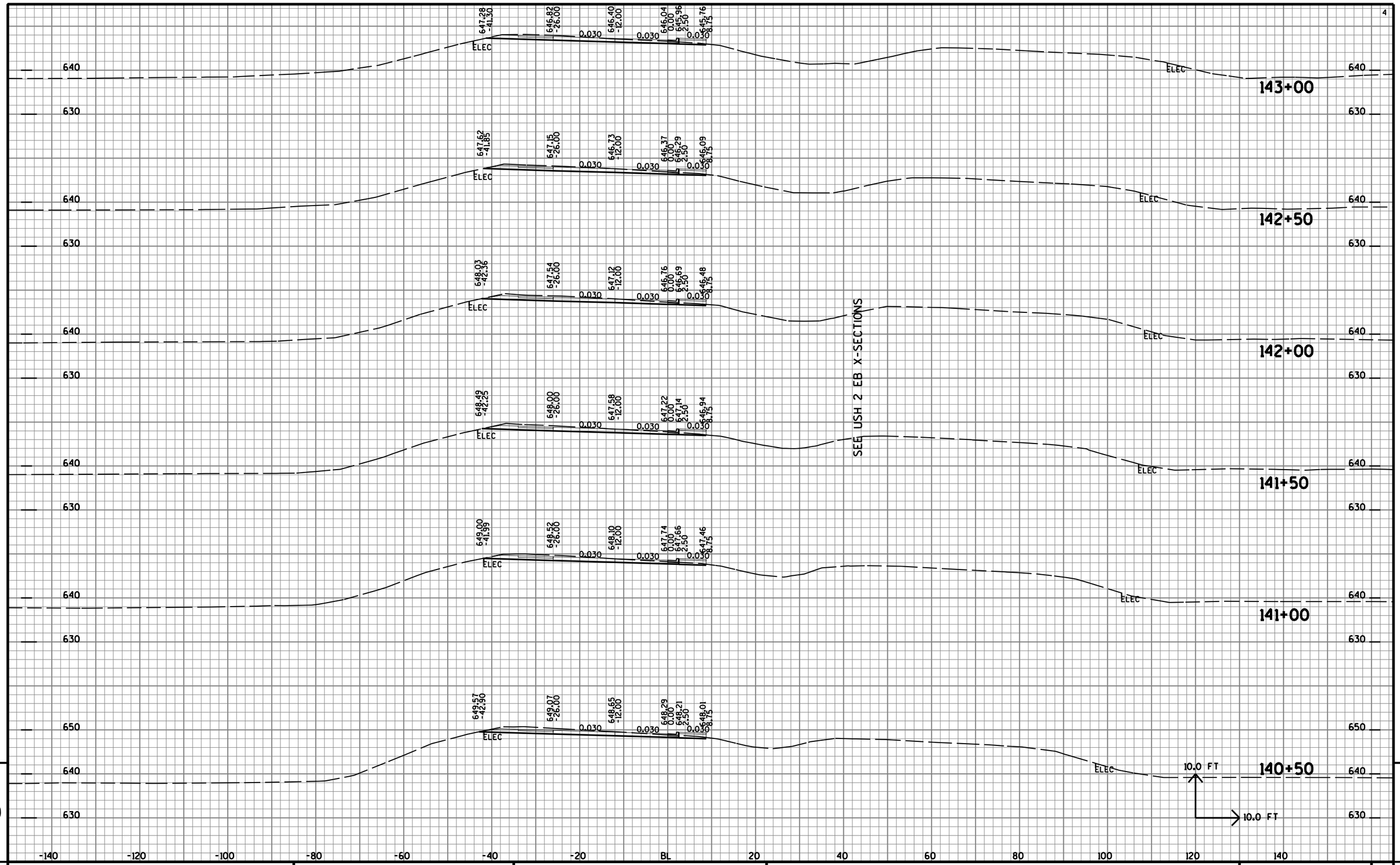


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PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)	SHEET NO: 471	E

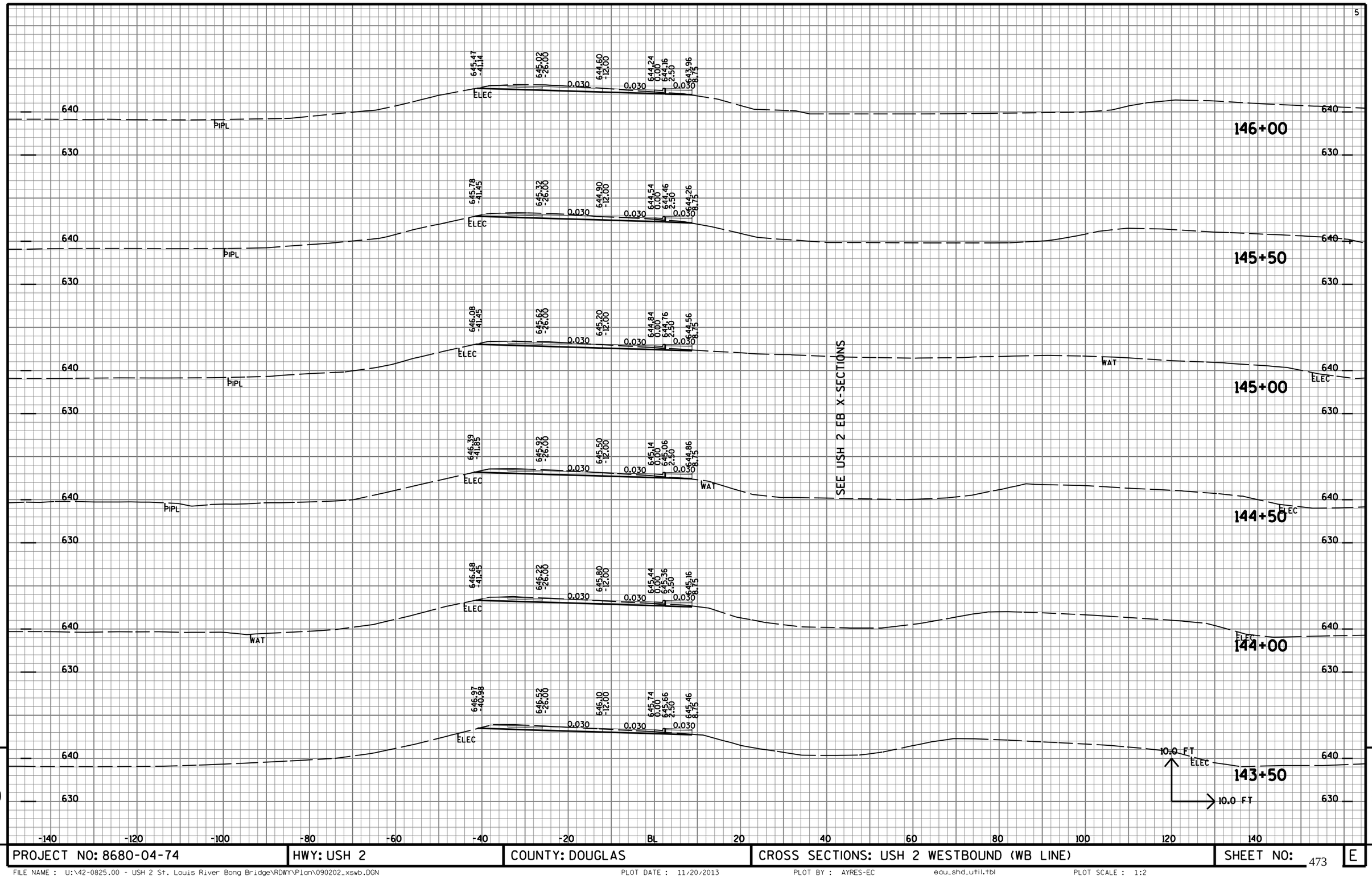
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9 9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)	SHEET NO: 472	E

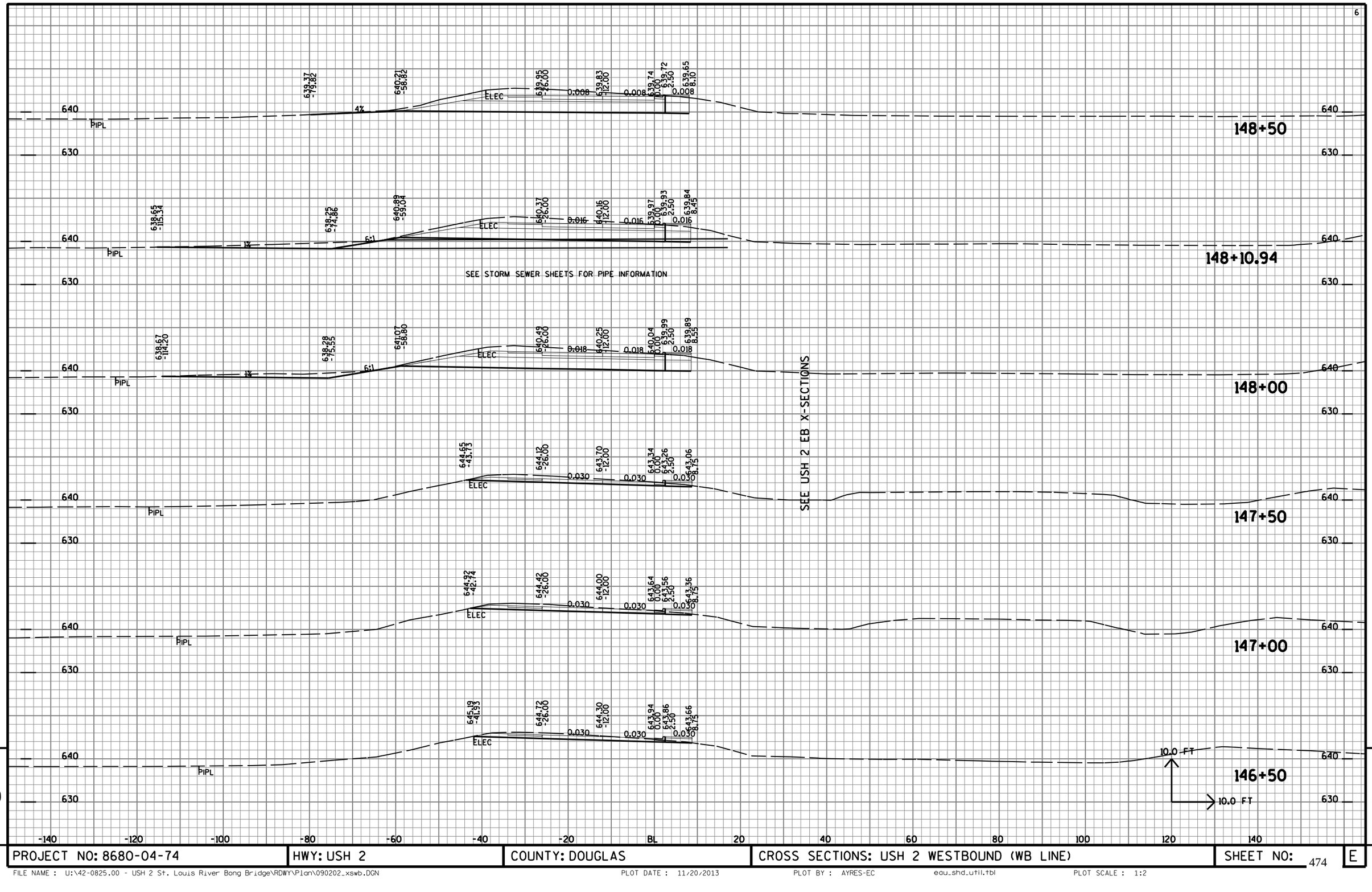
FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090202_xswb.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2



9 9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)	SHEET NO: 473	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090202_xswb.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC eau_shd_util.tbl PLOT SCALE : 1:2



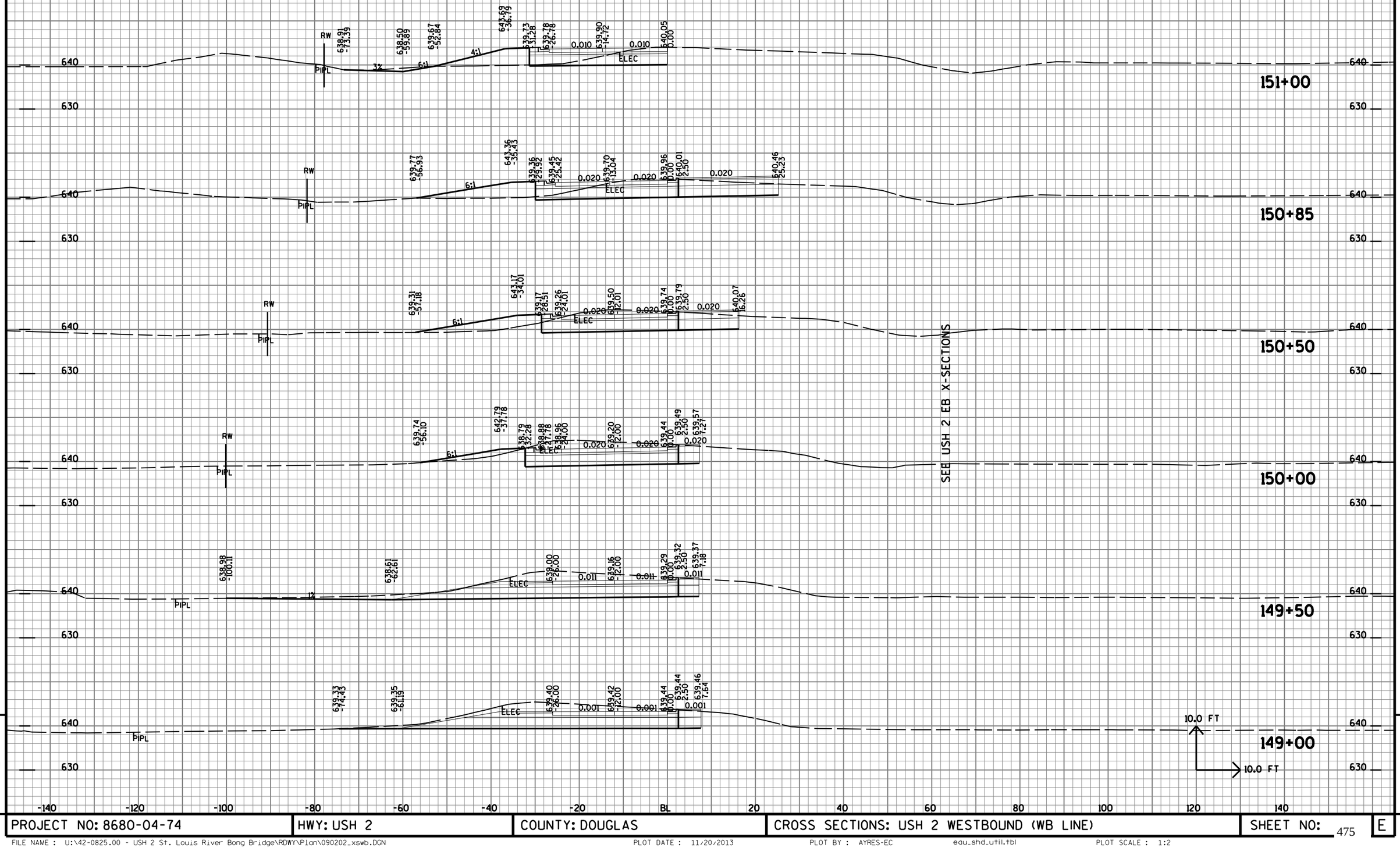
9

9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)	SHEET NO: 474	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090202_xswb.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

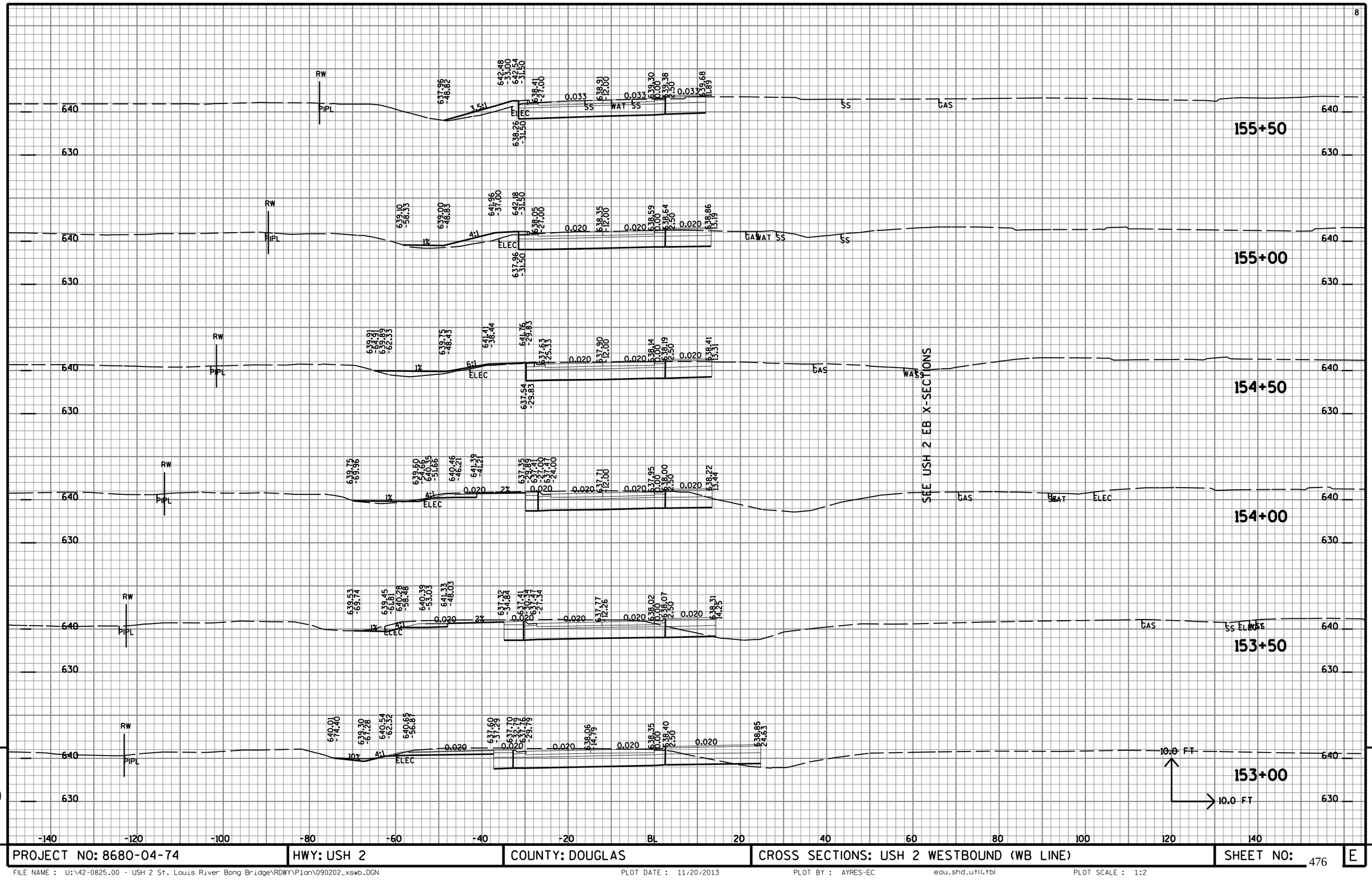
SEE ROUNDABOUT X-SECTIONS



SEE USH 2 EB X-SECTIONS

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)	SHEET NO: 475 E

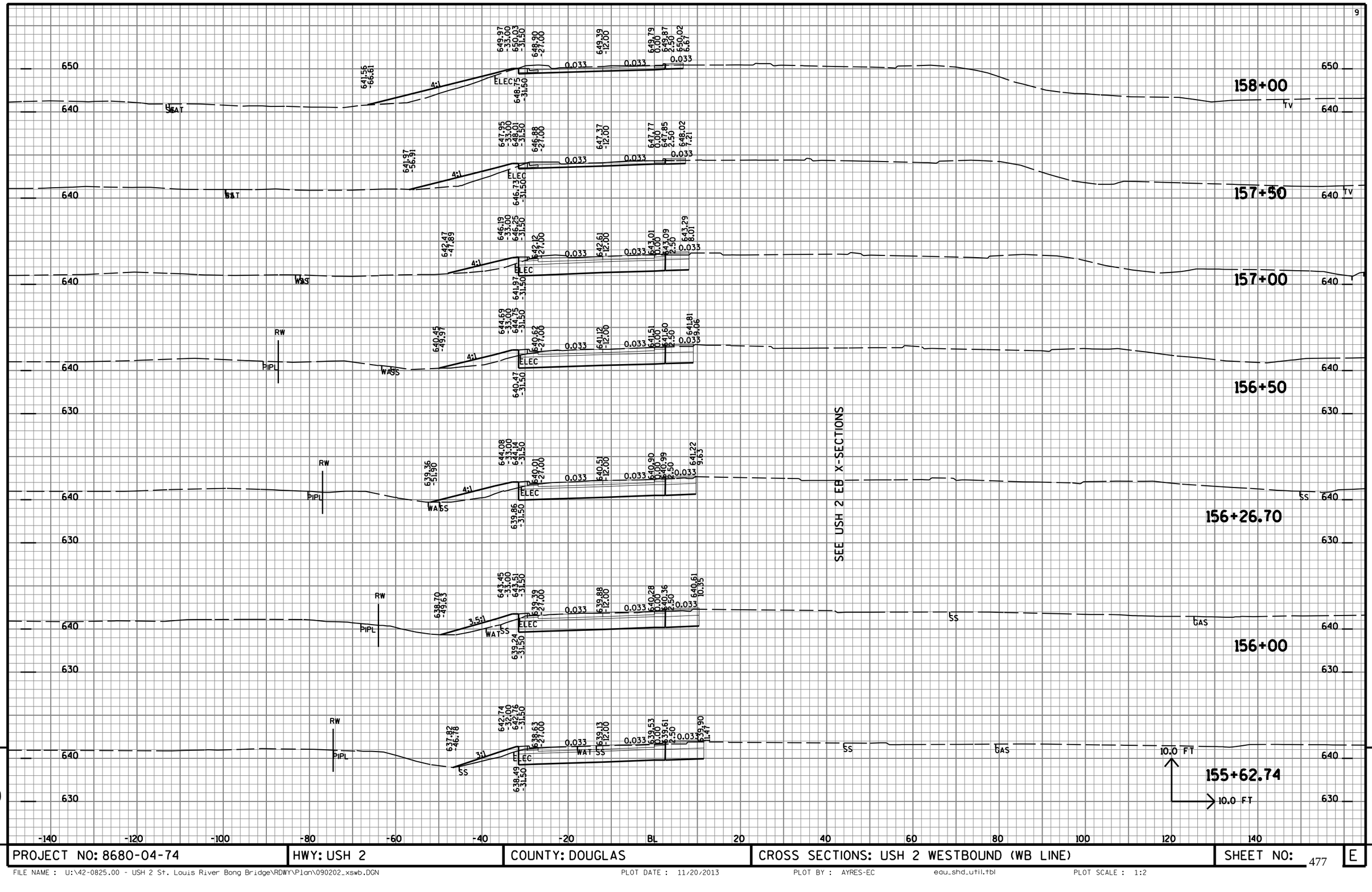
FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090202_xswb.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2



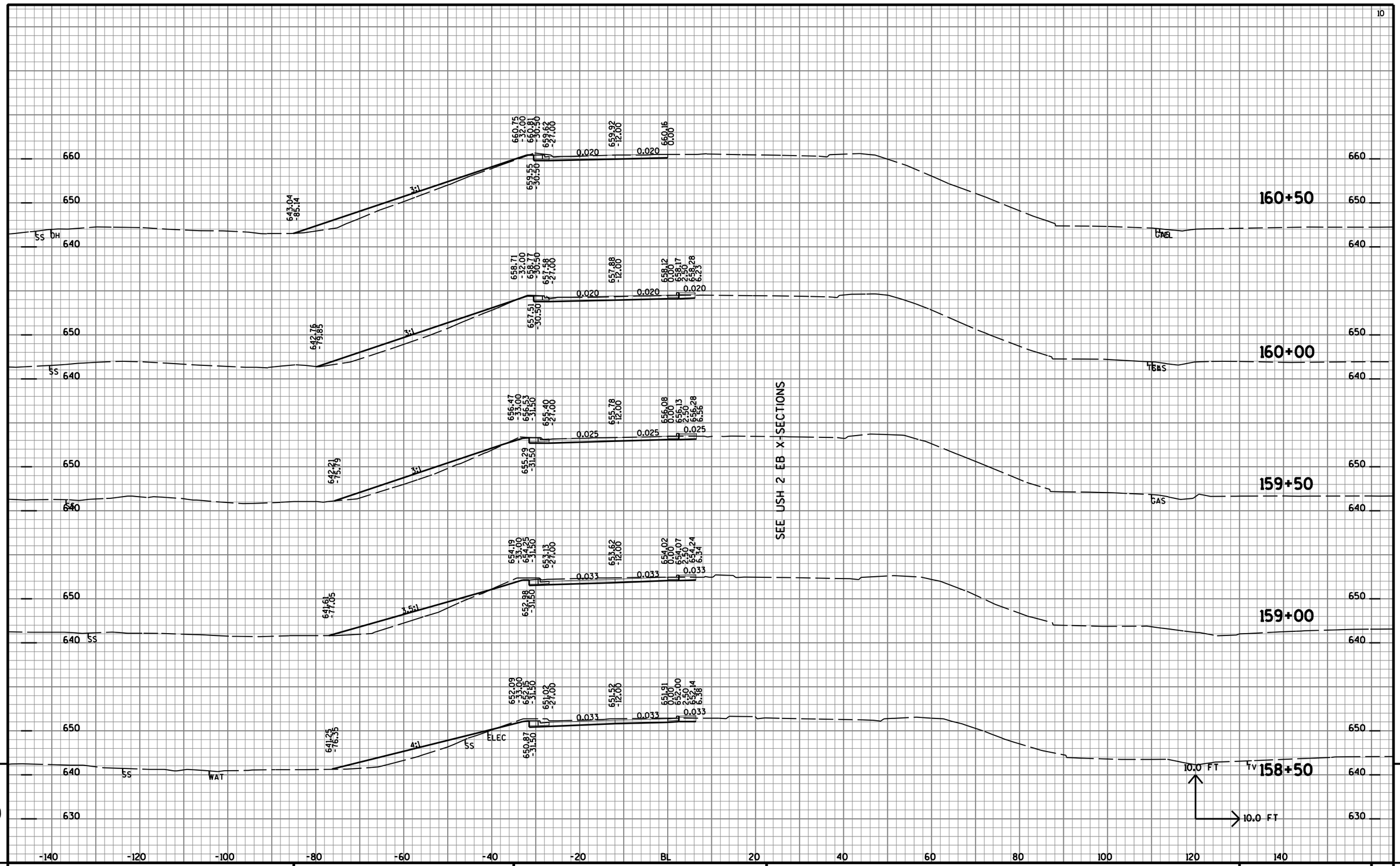
9

9

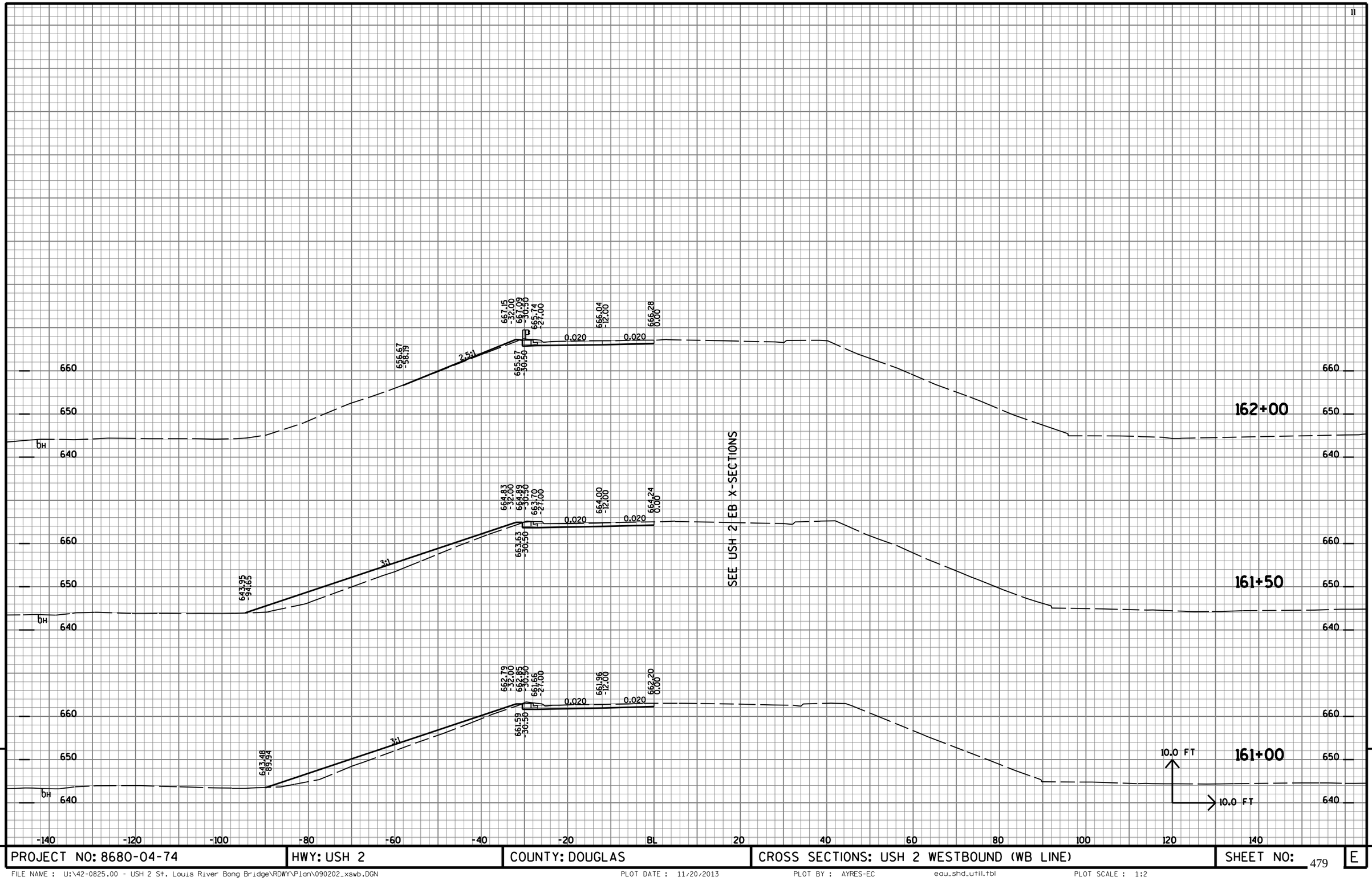
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)	SHEET NO: 476	E



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)	SHEET NO: 477 E



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)	SHEET NO: 478 E



9

9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)	SHEET NO: 479	E

SEE BELKNAP WB X-SECTIONS

MARYLAND AVE

32+50

32+00

31+50

31+00

30+50

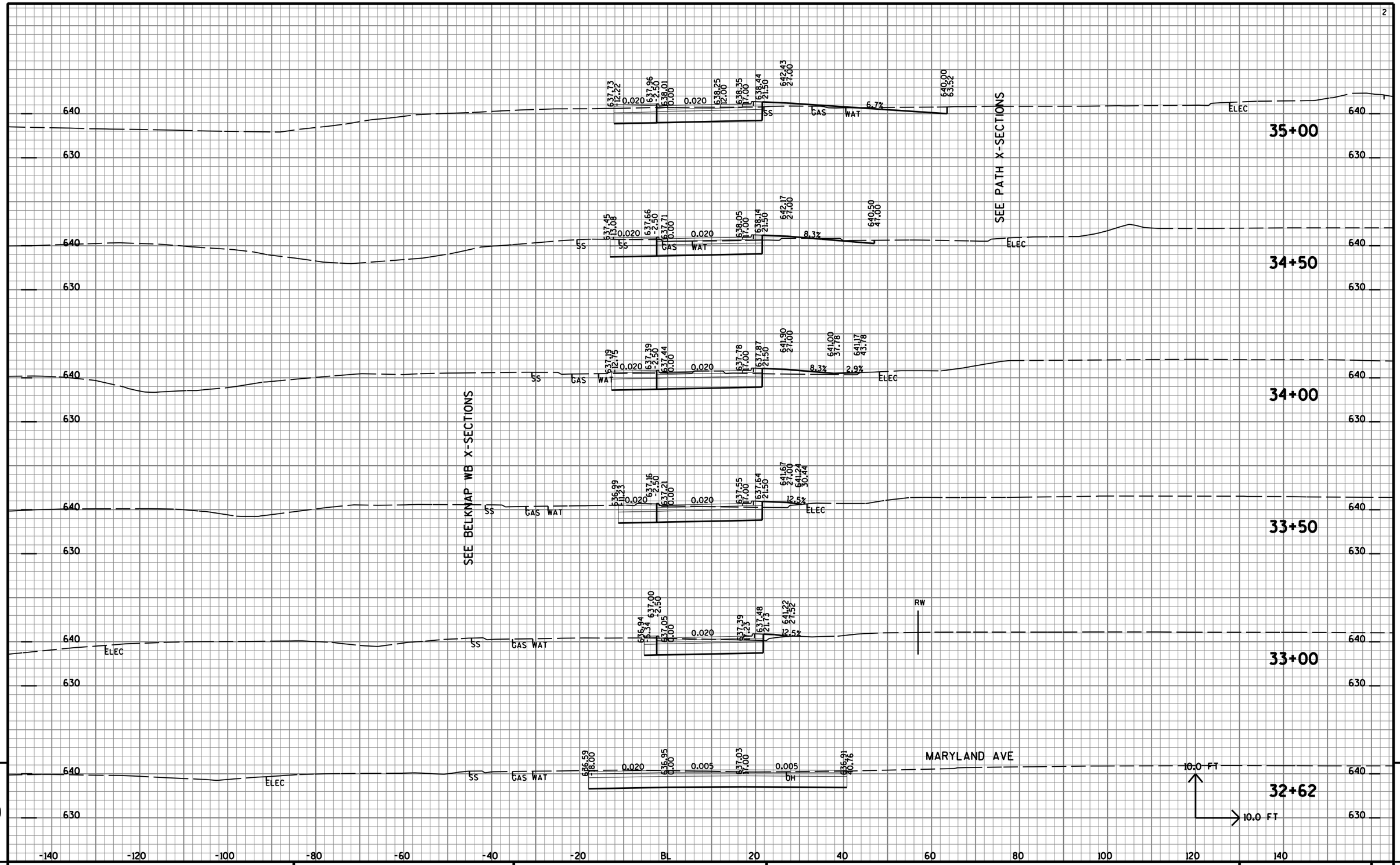
30+00

10.0 FT

10.0 FT

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: BELKNAP EASTBOUND / N GARFIELD AVE (BE LINE)	SHEET NO: 480	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090203_xsbe.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC egu_shd_util.tbl PLOT SCALE : 1:2

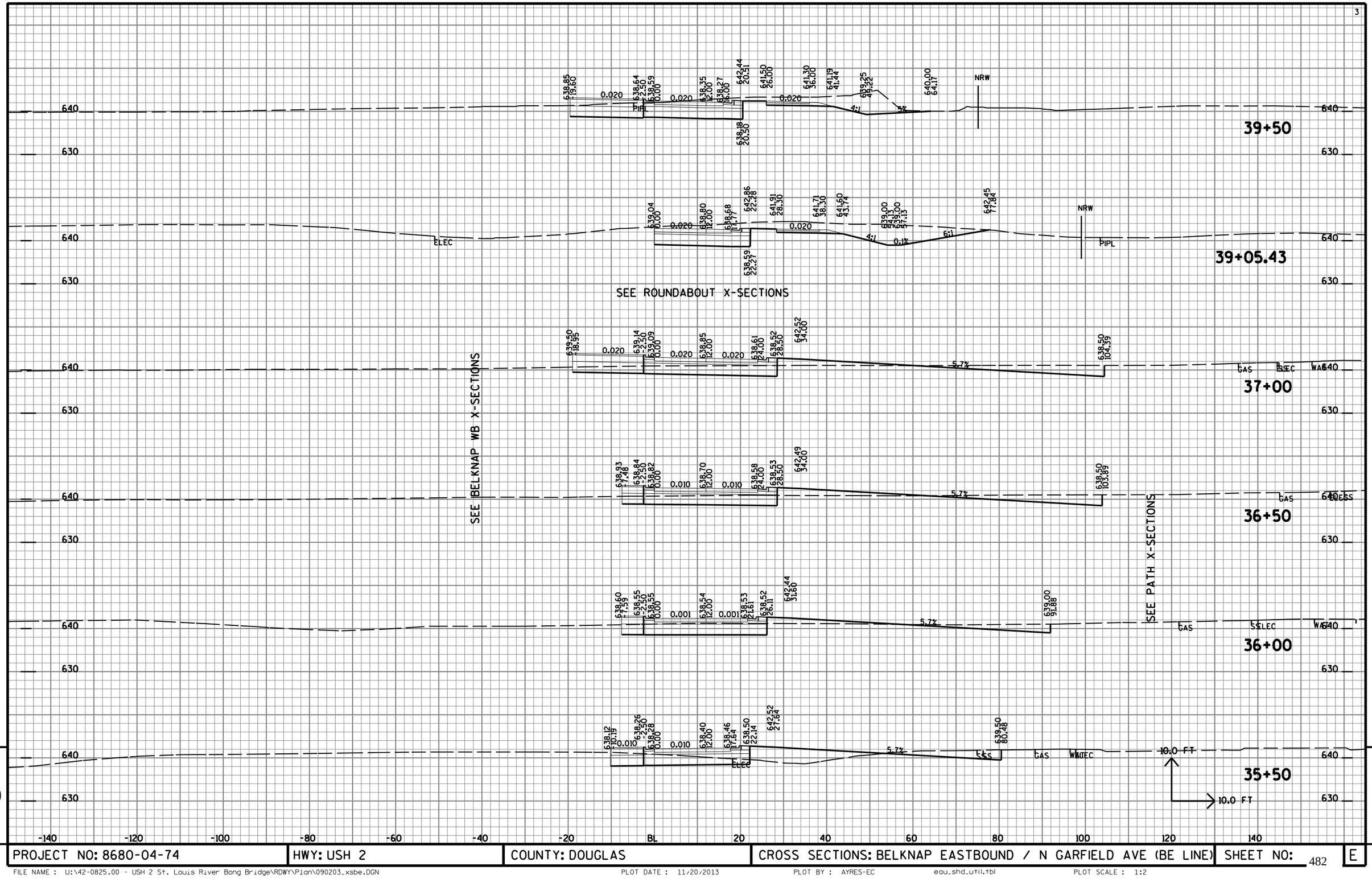


9

9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: BELKNAP EASTBOUND / N GARFIELD AVE (BE LINE)	SHEET NO: 481	E

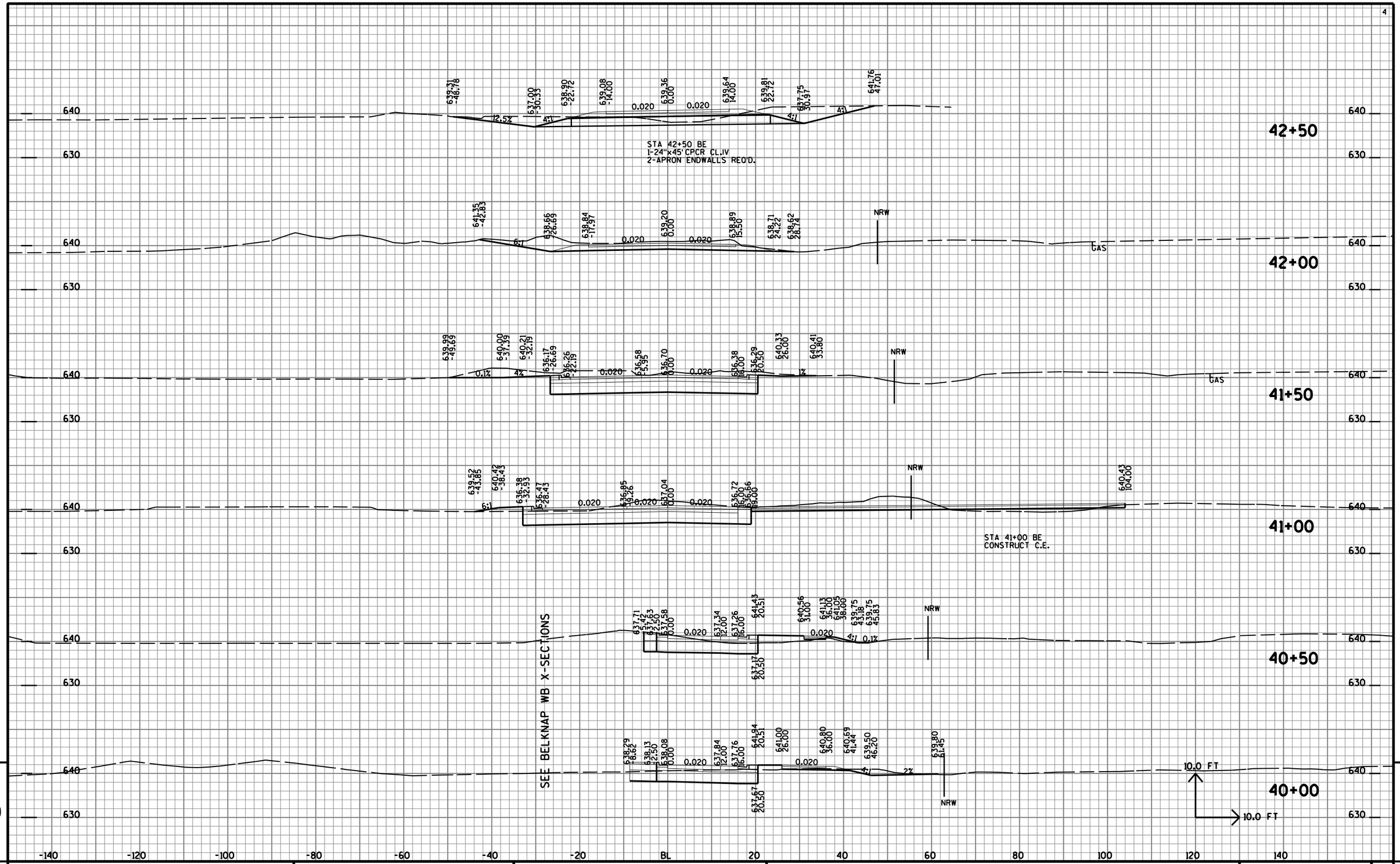
FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090203_xsbe.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2



9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: BELKNAP EASTBOUND / N GARFIELD AVE (BE LINE)	SHEET NO: 482	E

9

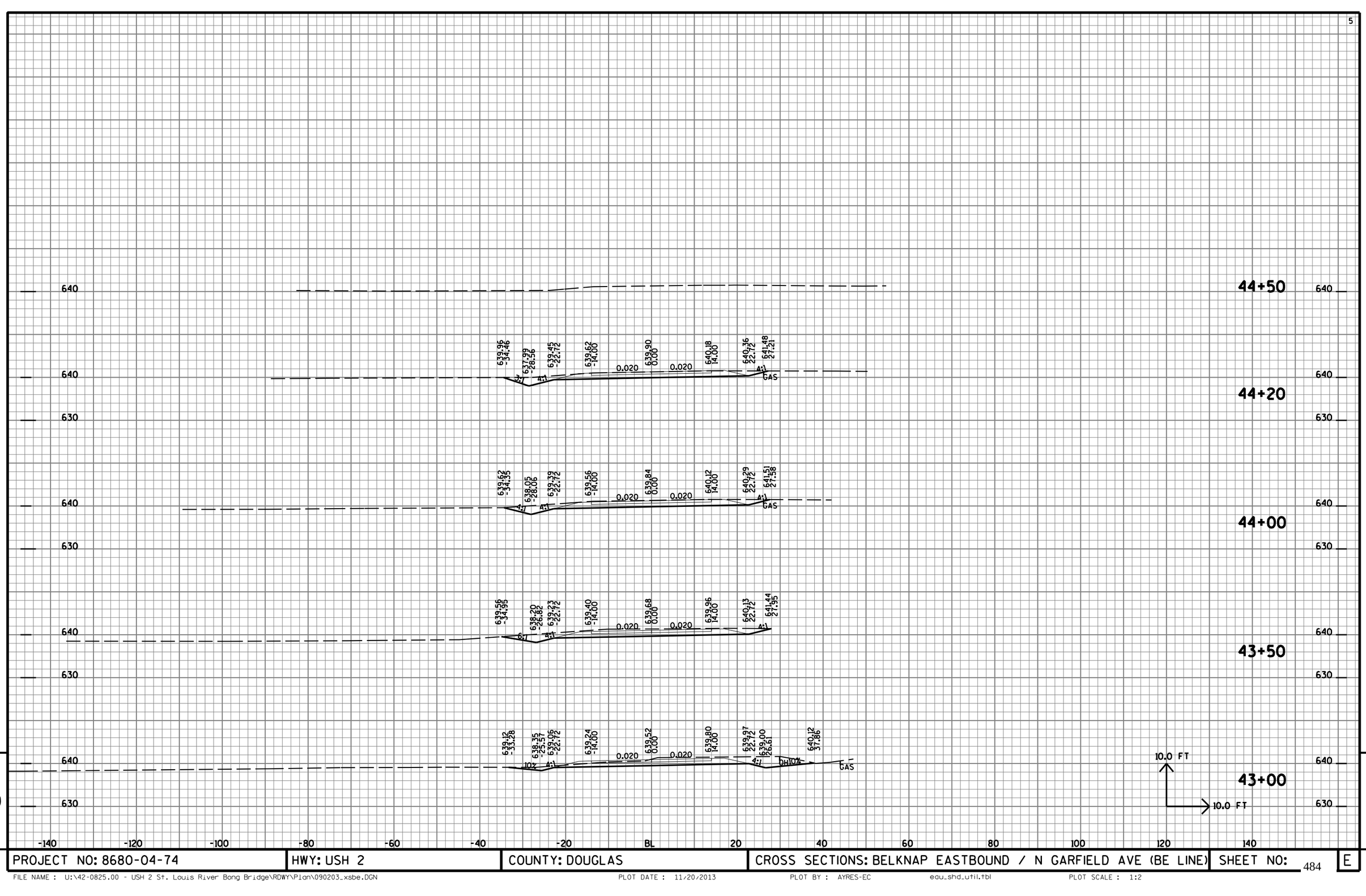


9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: BELKNAP EASTBOUND / N GARFIELD AVE (BE LINE)	SHEET NO: 483	E

9

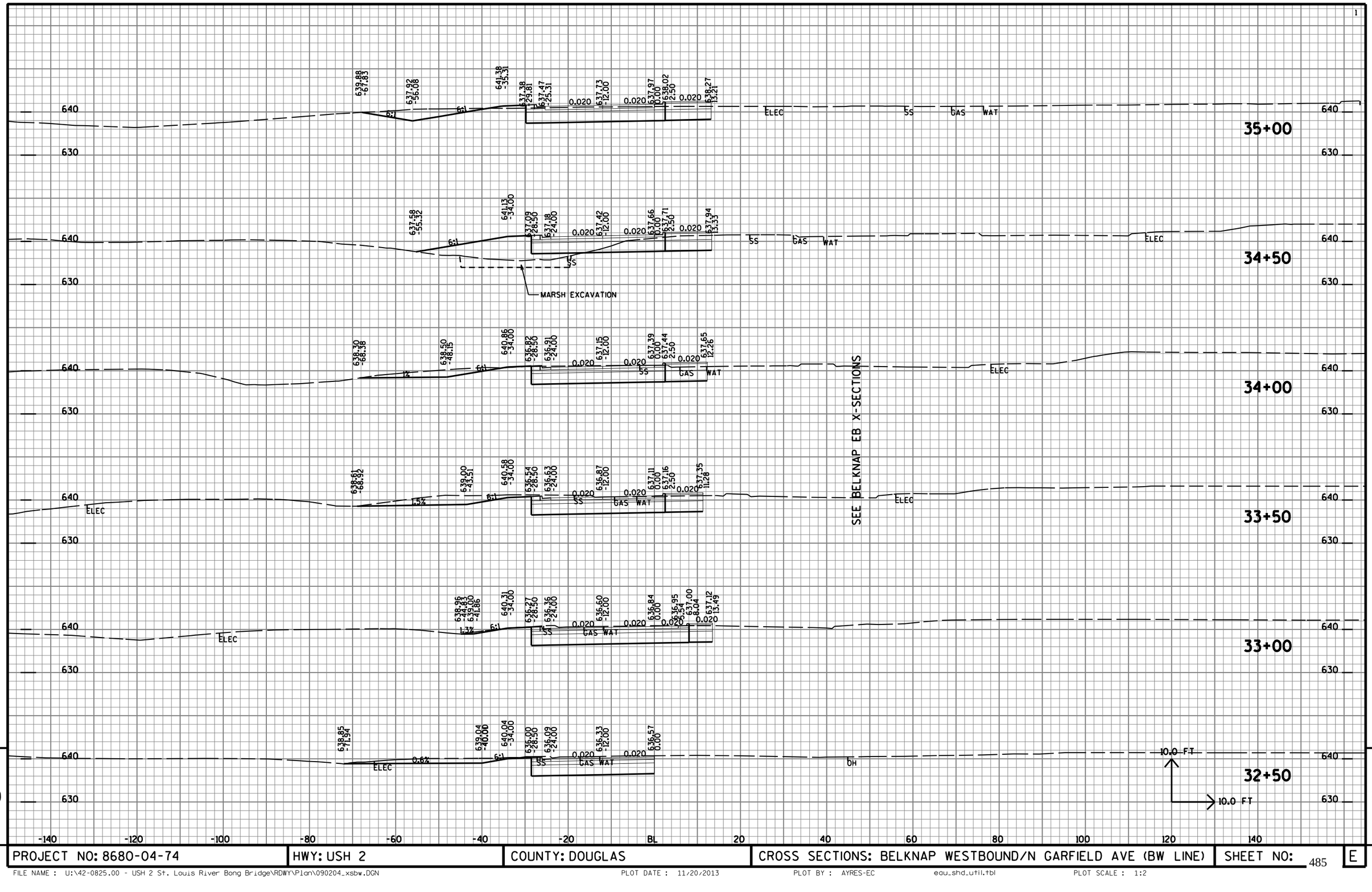
FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090203_xsbe.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2



9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: BELKNAP EASTBOUND / N GARFIELD AVE (BE LINE)	SHEET NO: 484	E

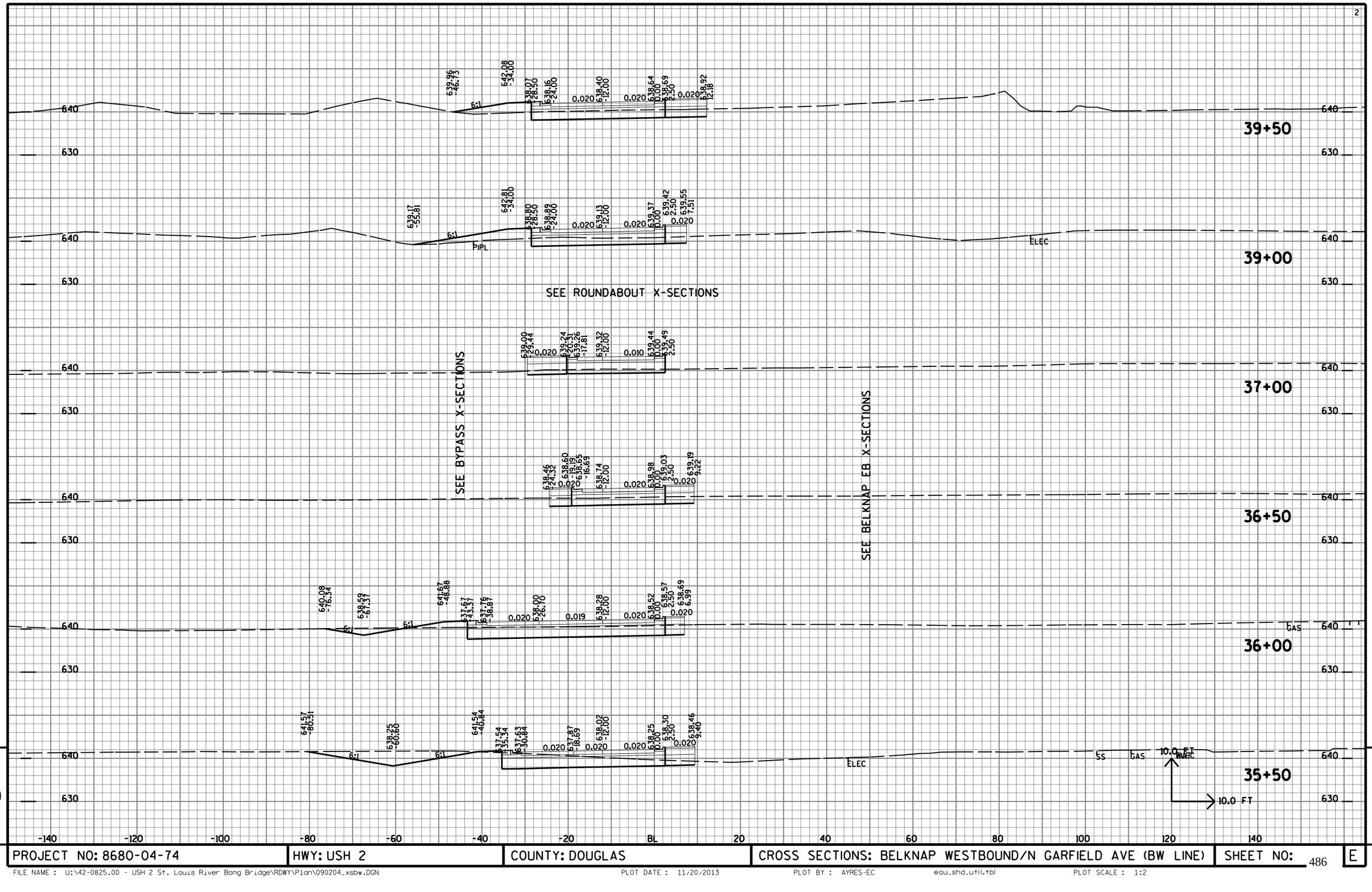
FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090203_xsbe.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC egu_shd_util.tbl PLOT SCALE : 1:2



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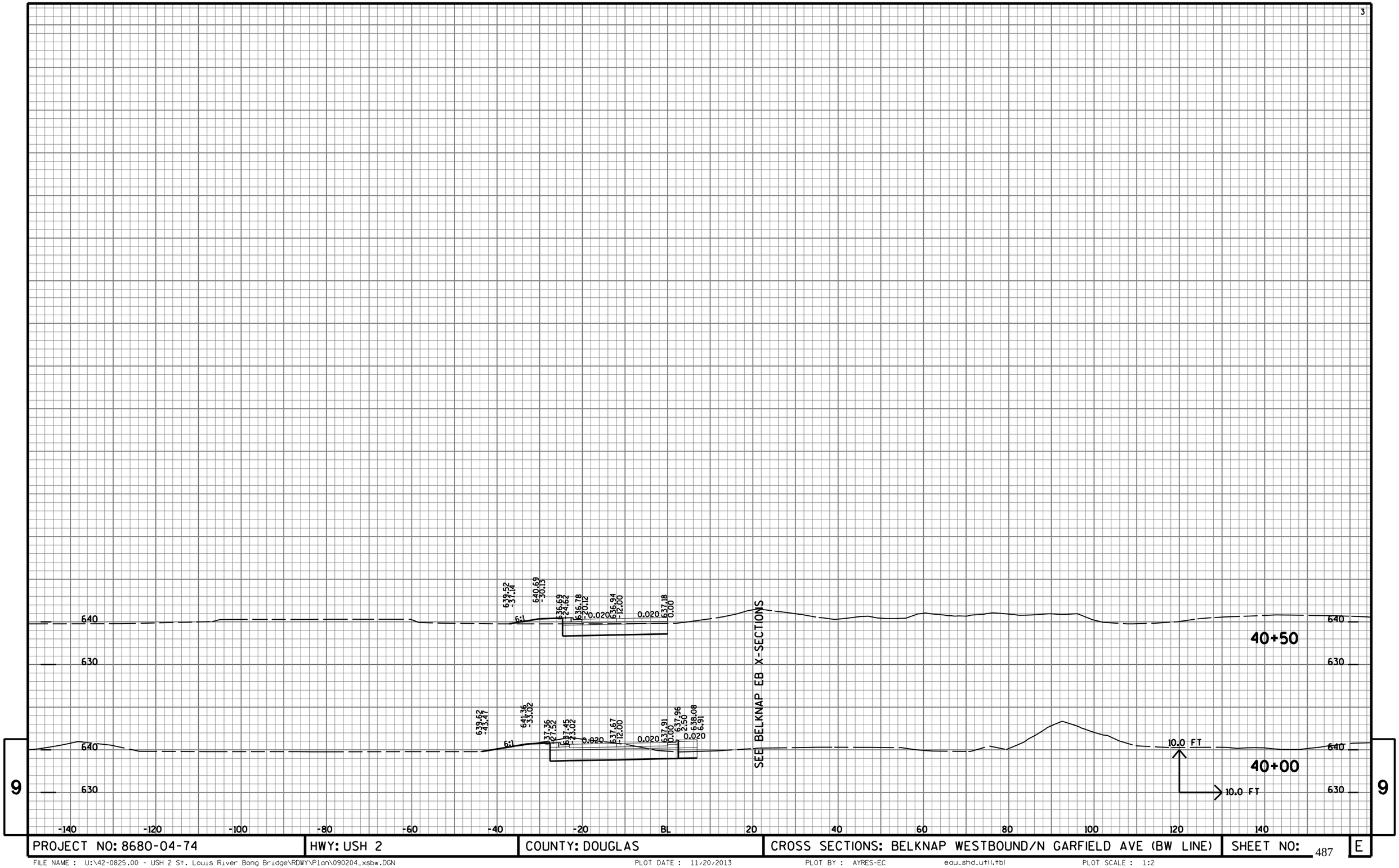
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PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: BELKNAP WESTBOUND/N GARFIELD AVE (BW LINE)	SHEET NO: 485	E



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: BELKNAP WESTBOUND/N GARFIELD AVE (BW LINE)	SHEET NO: 486	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090204_xsbw.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

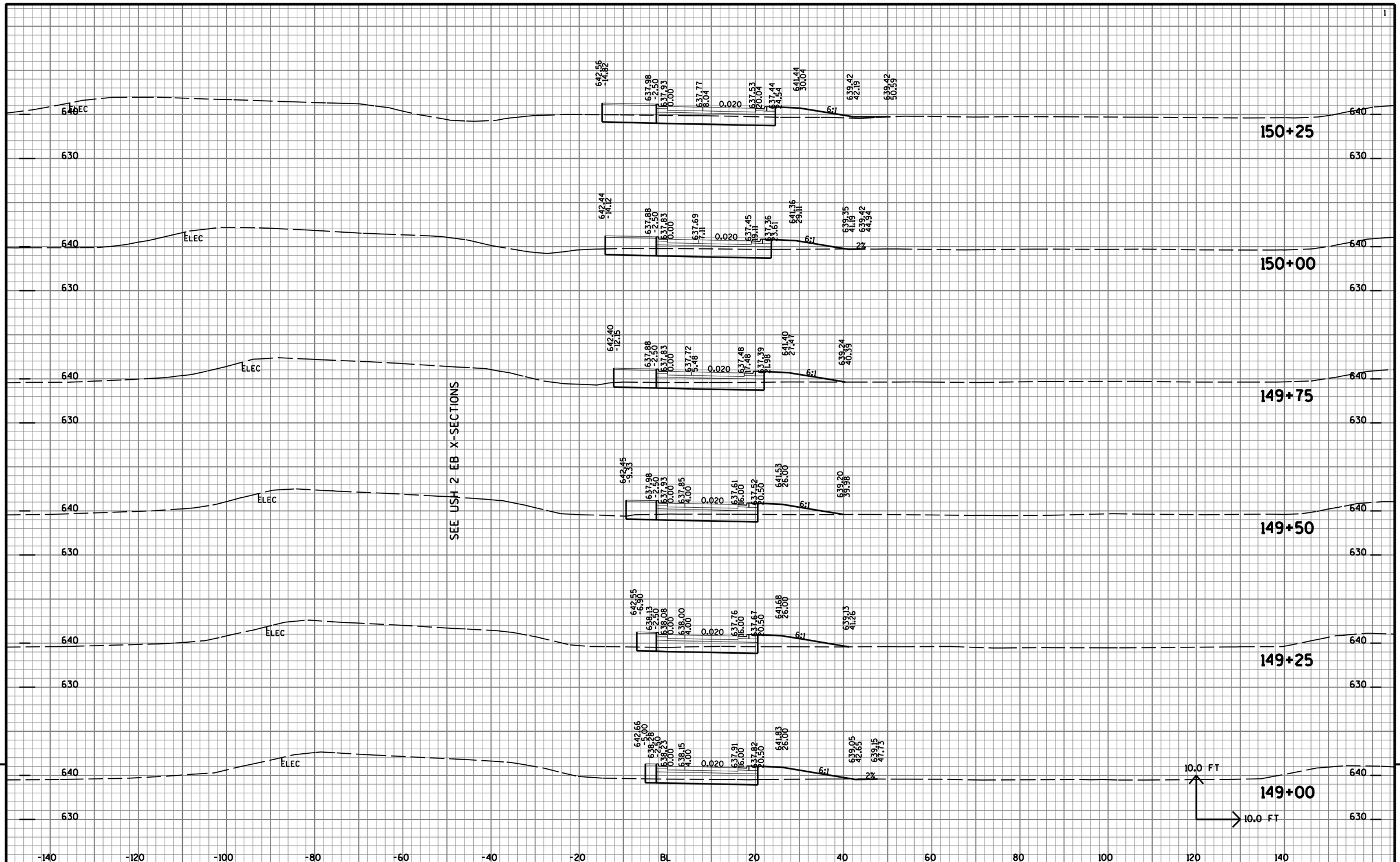


9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: BELKNAP WESTBOUND/N GARFIELD AVE (BW LINE)	SHEET NO: 487	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090204_xsbw.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

SEE USH 2 EB X-SECTIONS

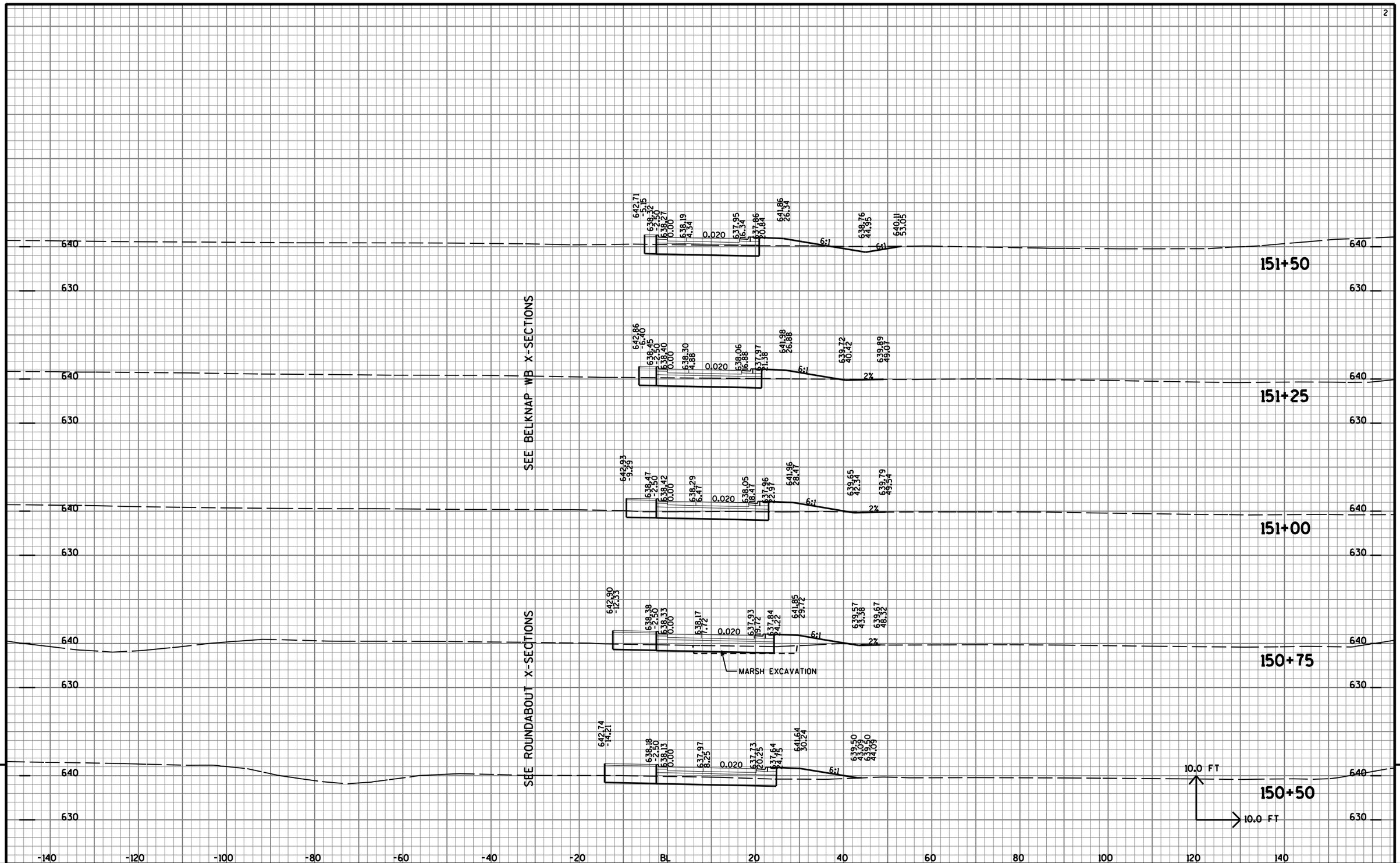


PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: BYPASS (B LINE)	SHEET NO: 488	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090205_xsb.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

SEE BELKNAP WB X-SECTIONS

SEE ROUNDABOUT X-SECTIONS

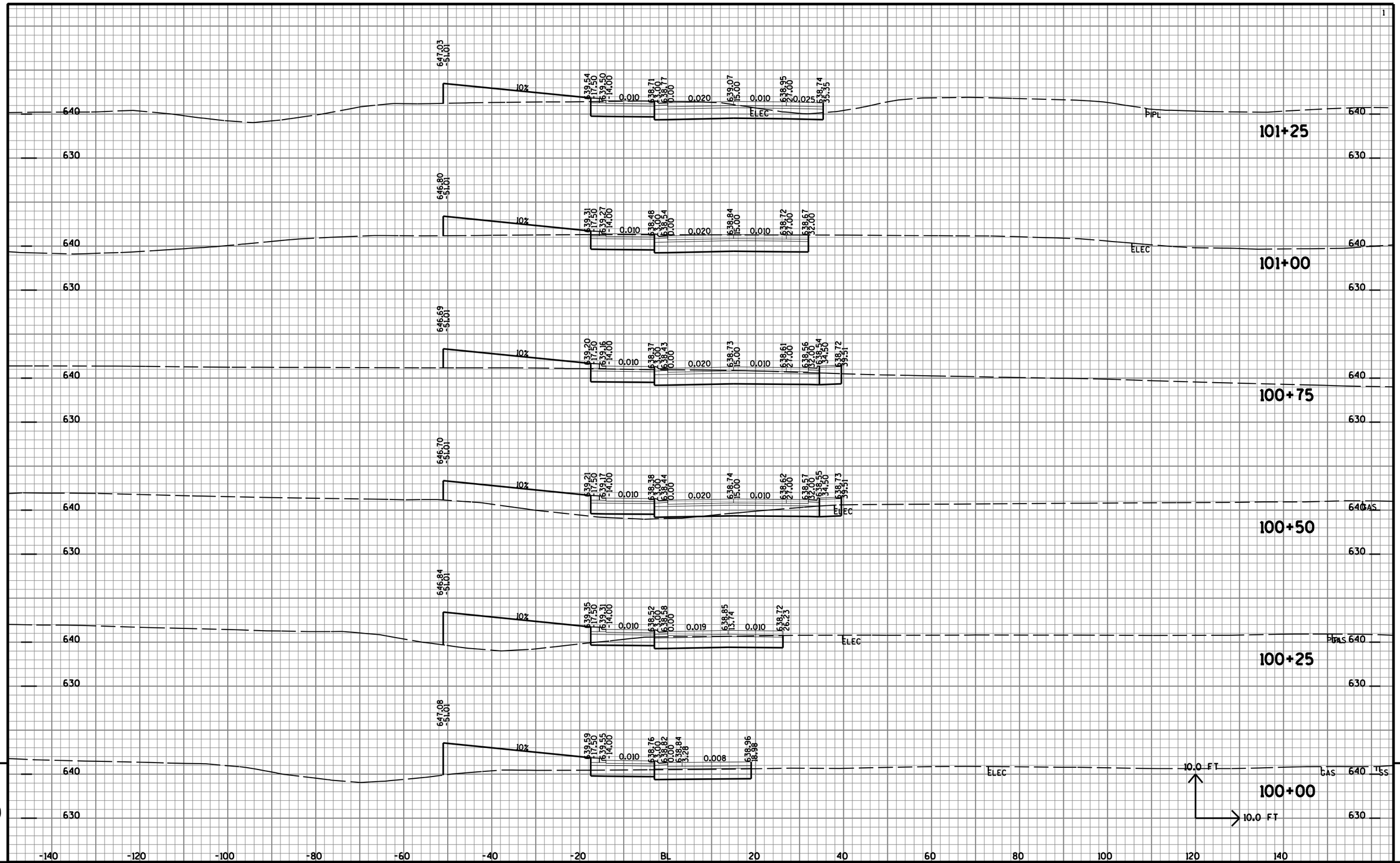


9

9

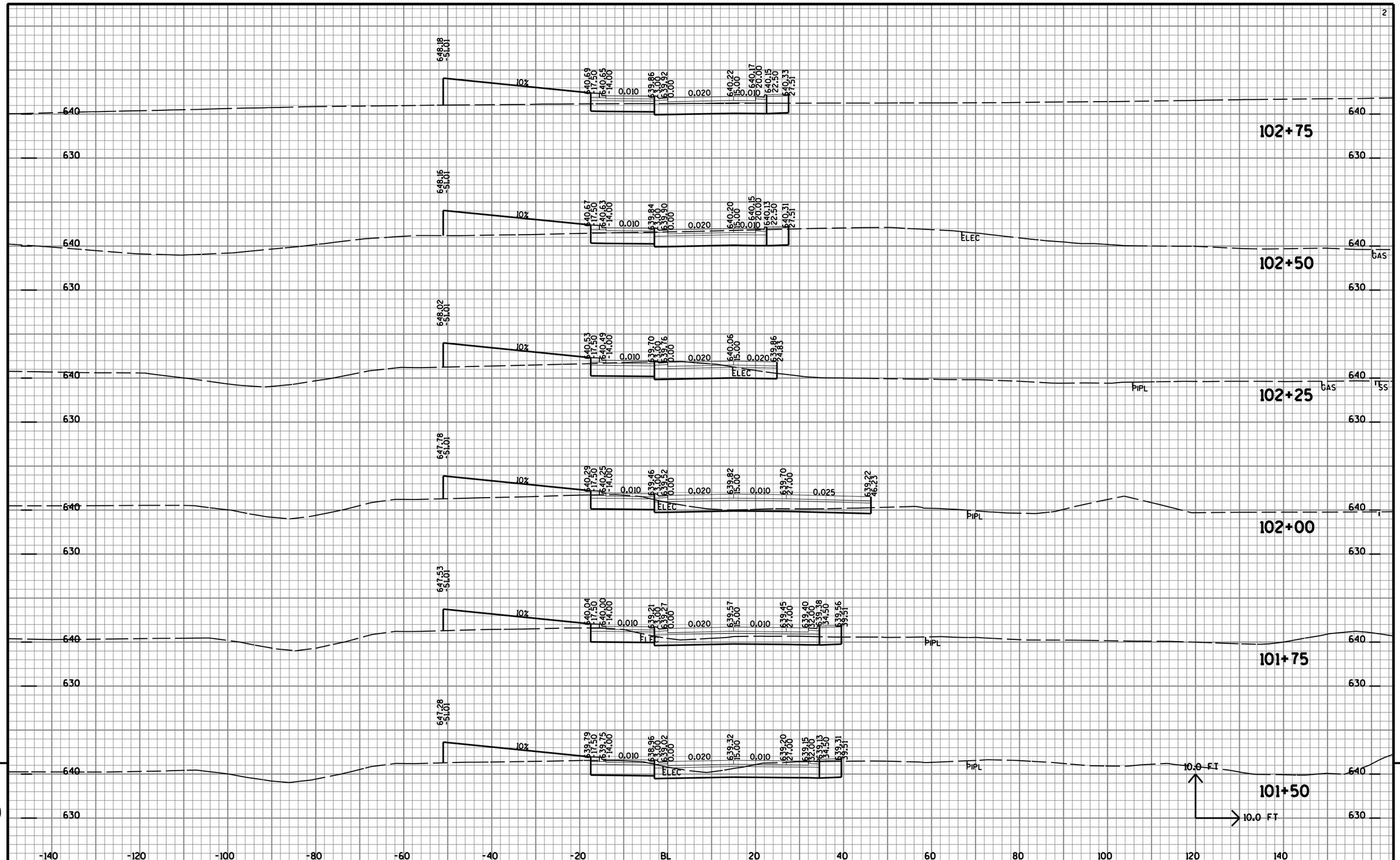
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: BYPASS (B LINE)	SHEET NO: 489	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090205_xsb.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2



9 9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: ROUNDABOUT CIRCLE (R LINE)	SHEET NO: 490	E

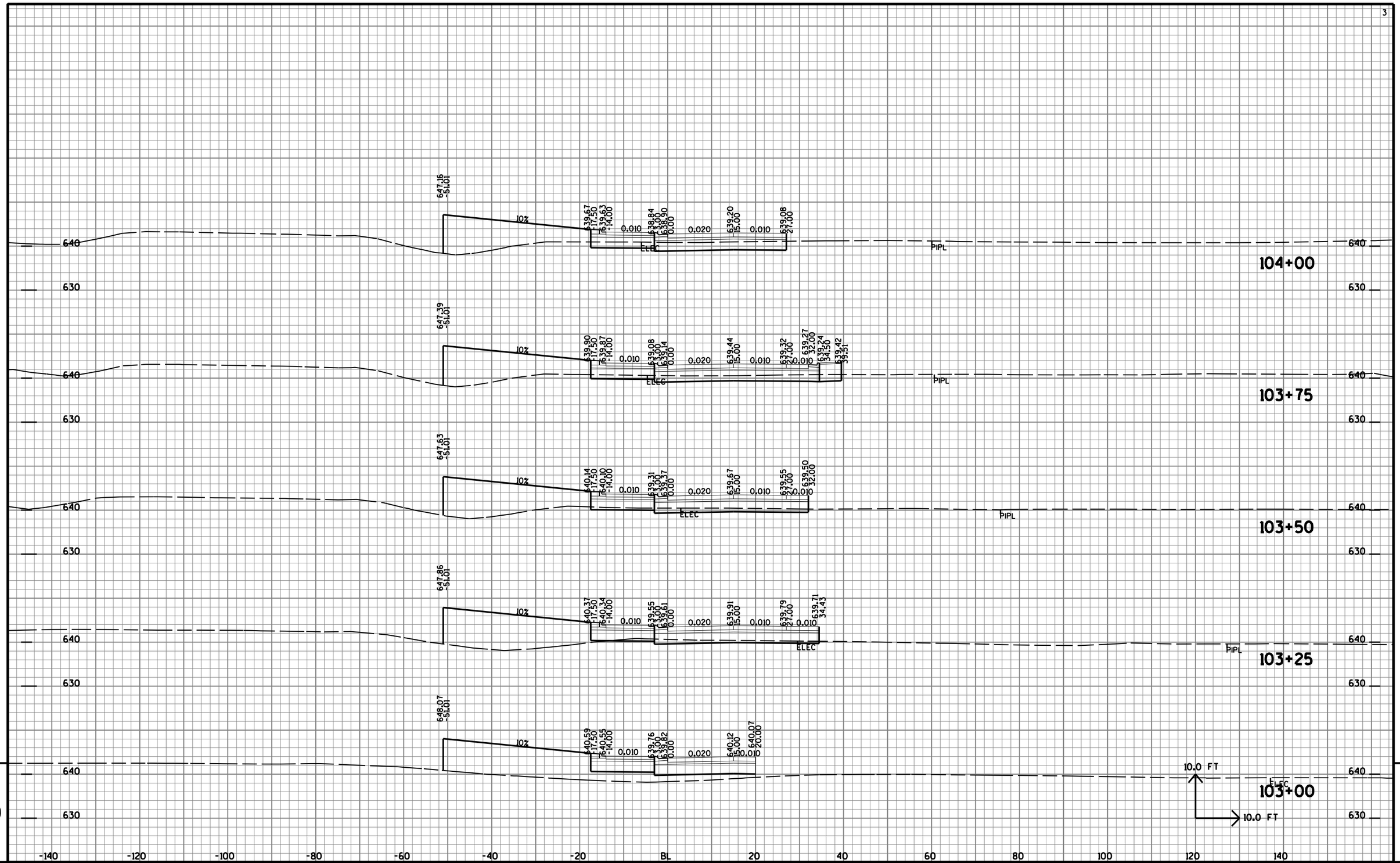


9

9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: ROUNDABOUT CIRCLE (R LINE)	SHEET NO: 491	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090206_xsr.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: ROUNDABOUT CIRCLE (R LINE)	SHEET NO: 492	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090206_xsr.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

USH 2 EB

642.75
-47.64
641.98
-30.84
642.10
-26.34
642.55
-8.26
642.50
-5.77
642.93
5.15
642.98
9.06
643.45
27.87
643.56
32.37
645.03
57.87
644.10
47.14
6.7%
0.025
0.025
10%
GAS
SS
640
4+50
640

642.90
-39.07
641.98
-22.12
642.07
-17.62
642.42
0.00
642.79
18.50
642.88
23.00
643.85
38.21
0.020
0.020
GAS
SS
640
4+25
640

643.01
-26.92
641.71
-19.52
641.80
-15.02
642.10
0.00
642.21
16.11
642.24
20.61
643.37
32.62
0.020
0.007
GAS
SS
640
4+00
640

642.95
-24.50
641.56
-19.50
641.65
-15.00
641.95
0.00
641.65
15.15
641.56
19.65
642.97
24.15
0.020
0.020
GAS
SS
640
3+75
640

OH
SS
GAS
SS
640
3+50
640

OH
640
SS
GAS
SS
3+25
640

10.0 FT
10.0 FT

-140 -120 -100 -80 -60 -40 -20 BL 20 40 60 80 100 120 140

9

9

PROJECT NO: 8680-00-70	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: S GARFIELD AVE (G LINE)	SHEET NO: 493	E

SEE BELKNAP EB X-SECTIONS

34+25

640.82
-25.06
641.30
12.00
641.54
0.00
642.41
5.35
10%
0.020
0.1%
RW
ELEC
SS
GAS
WAT
OH

34+00

641.15
-17.11
641.17
12.00
641.41
0.00
642.28
4.83
6:1
0.020
0.1%
RW
ELEC

33+75

641.14
-16.42
641.05
12.00
641.29
0.00
642.16
4.11
6:1
0.020
0.1%
RW
ELEC

33+50

641.10
-15.26
640.92
12.00
641.16
0.00
642.03
4.25
5:1
0.020
0.1%
RW
ELEC

33+25

641.05
-14.32
640.80
12.00
641.04
0.00
641.91
4.39
4:1
0.020
0.1%
RW
ELEC

33+00

640.29
-12.03
640.03
12.00
640.53
0.00
641.40
5.53
641.85
2.00
10%
0.020
RW
10.0 FT
10.0 FT

640
630
-160
-140
-120
-100
-80
-60
-40
-20
BL
20
40
60
80
100
120

MARYLAND AVE

9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: PATH (P LINE)	SHEET NO: 494	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090208_xsp.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

SEE BELKNAP EB X-SECTIONS

35+75

640.00 -78.69 | 642.01 +12.00 5.0% 10.00 | 642.25 0.00 | 643.12 2.00 | 645.33 10.85 | RW | 0.020 | 4:1 | 4.3%

35+50

639.50 -76.73 | 641.90 +12.00 5.0% 10.00 | 642.14 0.00 | 643.02 2.00 | 644.00 7.91 | RW | 0.020 | 6:1 | 5%

35+25

640.00 -57.94 | 641.79 +12.00 5.0% 10.00 | 642.03 0.00 | 642.91 2.00 | 643.64 7.91 | RW | 0.020 | 12.5% | 5.7%

35+00

640.00 -49.57 | 641.67 +12.00 5.0% 10.00 | 641.91 0.00 | 642.78 2.00 | 642.78 2.06 | RW | 0.020 | 0.1% | 6.7%

34+75

640.50 -35.50 | 641.55 +12.00 5.0% 10.00 | 641.79 0.00 | 642.66 2.00 | 642.66 2.76 | RW | 0.020 | 0.1% | 8%

34+50

640.50 -29.55 | 641.42 +12.00 5.0% 10.00 | 641.66 0.00 | 642.53 2.00 | 642.53 3.69 | RW | 0.020 | 0.1% | 10%

10.0 FT

10.0 FT

-160 -140 -120 -100 -80 -60 -40 -20 BL 20 40 60 80 100 120

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: PATH (P LINE)	SHEET NO: 495	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090208_xsp.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

SEE PATH CONNECTION X-SECTIONS

639.50 -113.44 | 642.42 -12.00 642.06 -10.00 | 642.66 0.00 643.54 2.00 | 643.11 10.45 | RW | 0.020 | 5% | 3.7% | GAS | ELEC | WAT | OH | 640 | 630 | 37+25

640.75 -78.33 | 642.37 -12.00 642.01 -10.00 | 642.61 0.00 643.49 2.00 | 643.20 7.75 | RW | 0.020 | 5% | 3.7% | GAS | ELEC | WAT | OH | 640 | 630 | 37+00

642.50 -30.14 | 642.32 -12.13 642.36 -10.13 | 642.56 0.00 643.43 2.00 | 643.29 4.85 | RW | 0.020 | 5% | 3.6% | GAS | ELEC | WAT | OH | 640 | 630 | 36+75

SEE PATH CONNECTION

642.29 -10.00 | 642.49 0.00 643.37 2.00 | 643.21 5.20 | RW | 0.020 | 5% | GAS | ELEC | WAT | OH | 640 | 630 | 36+50

SEE BELKNAP EB X-SECTIONS

639.00 -123.25 | 642.14 -13.96 642.18 -11.96 | 642.42 0.00 643.29 2.00 | 643.12 5.53 | RW | 0.020 | 5% | 3.6% | GAS | ELEC | WAT | OH | 640 | 630 | 36+25

639.00 -118.12 | 642.10 -12.00 642.14 -10.00 | 642.34 0.00 643.21 2.00 | 643.44 4.31 | RW | 0.020 | 10% | 3.7% | ELEC | GAS | WAT | OH | 640 | 630 | 36+00

10.0 FT | 10.0 FT

-160 -140 -120 -100 -80 -60 -40 -20 BL 20 40 60 80 100 120

9 9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: PATH (P LINE)	SHEET NO: 496	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090208_xsp.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC eau_shd_util.tbl PLOT SCALE : 1:2

SEE USH 2 EB X-SECTIONS

38+75

38+50

38+25

38+00

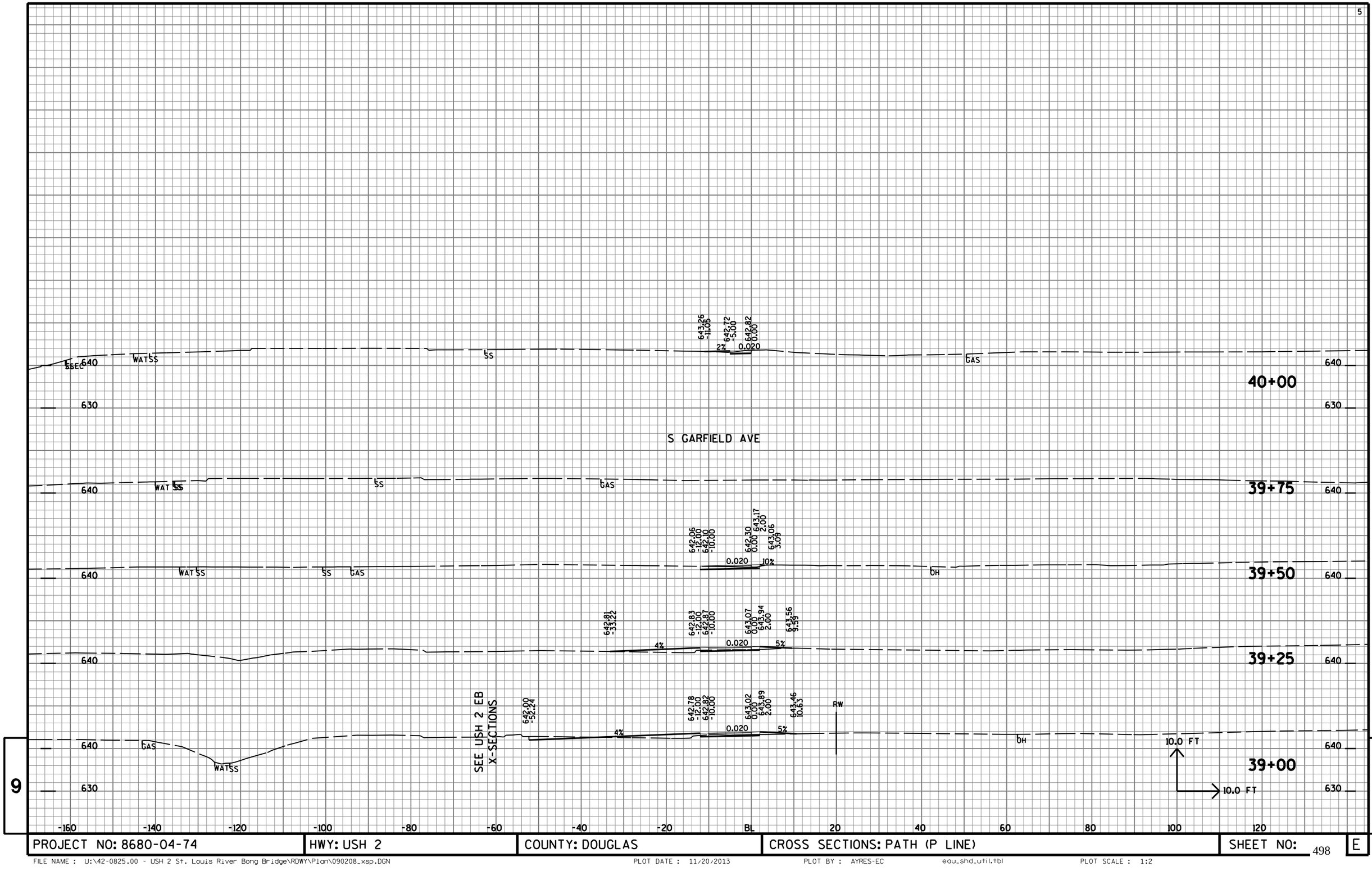
37+75

37+50

10.0 FT

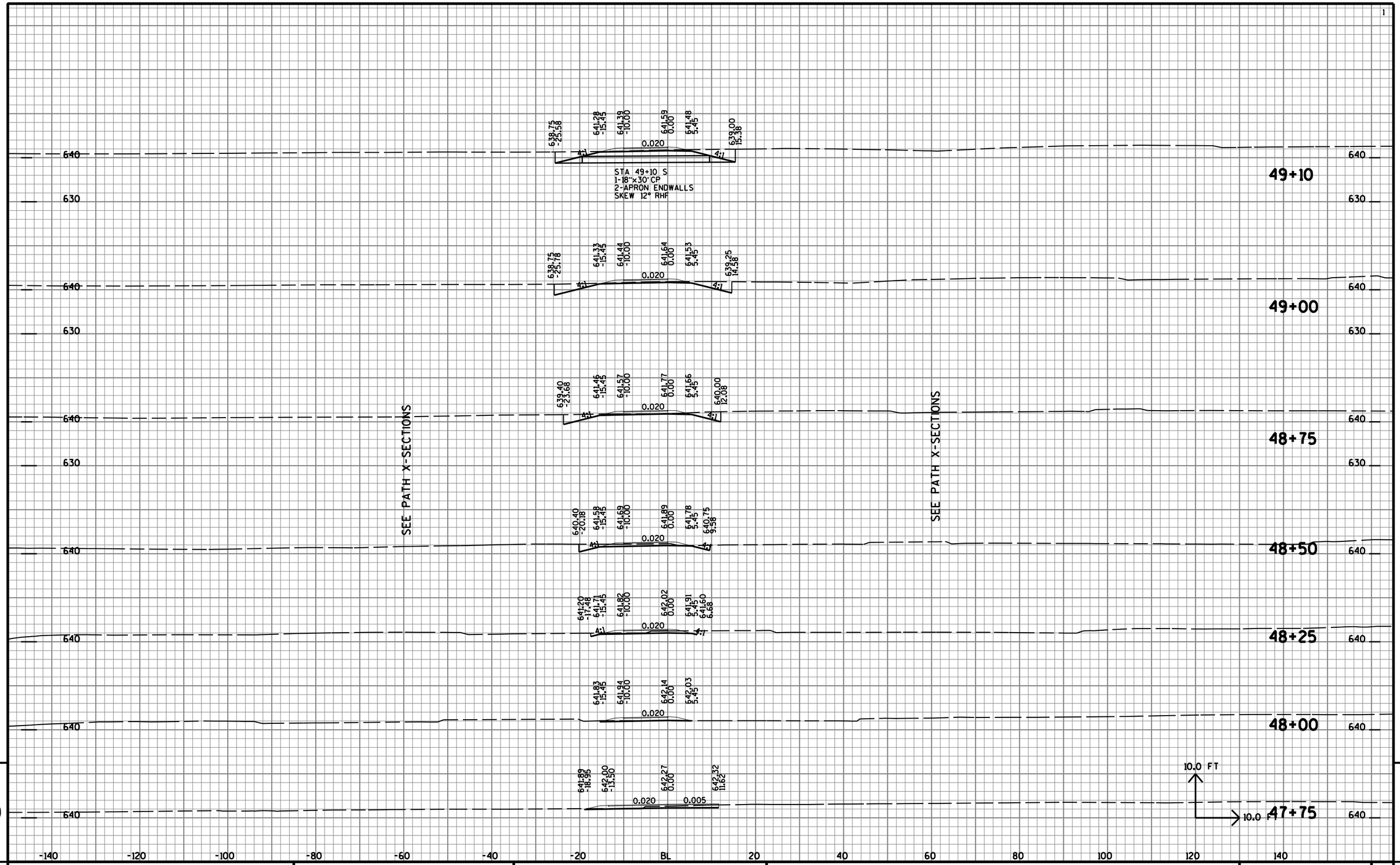
10.0 FT

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: PATH (P LINE)	SHEET NO: 497	E



9

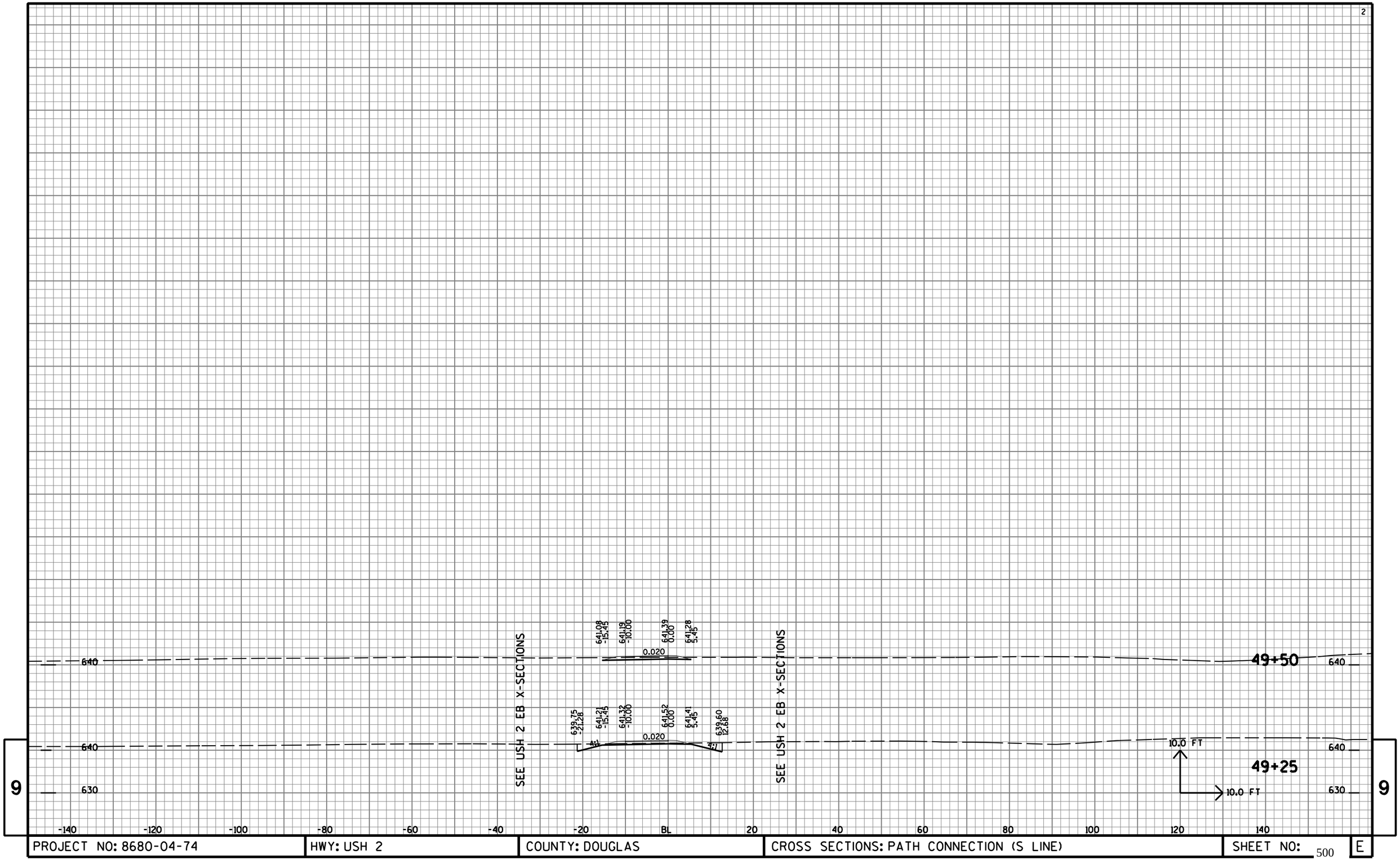
PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: PATH (P LINE)	SHEET NO: 498	E



9

9

PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: PATH CONNECTION (S LINE)	SHEET NO: 499	E



PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: PATH CONNECTION (S LINE)	SHEET NO: 500	E

FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090209_xss.DGN PLOT DATE : 11/20/2013 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

Notes

Wisconsin Department of Transportation

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