

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

COUNTY: DOUGLAS

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

BELKNAP STREET  
GARFIELD AVENUE INTERSECTION

BONG BRIDGE  
ST LOUIS RIVER BRIDGE B-16-038/69100

BONG BRIDGE APPROACHES  
ST LOUIS RIVER - BELKNAP STREET

USH 2  
DOUGLAS COUNTY

USH 2  
DOUGLAS COUNTY

USH 2  
DOUGLAS COUNTY

STATE PROJECT NUMBER  
**8680-00-70**

WI STATE PROJECT NUMBER  
**8680-04-71**

MN STATE PROJECT NUMBER  
**6937-69100D**

STATE PROJECT NUMBER  
**8680-04-74**

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)

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

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

STRUCTURE B-16-0049

S-16-13

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.

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

MARSH AREA

WOODED OR SHRUB AREA

PROFILE

GRADE LINE

ORIGINAL GROUND

MARSH OR ROCK PROFILE

(To be noted as such)

SPECIAL DITCH

GRADE ELEVATION

CULVERT (Profile View)

UTILITIES

ELECTRIC

FIBER OPTIC

GAS

SANITARY SEWER

STORM SEWER

TELEPHONE

WATER

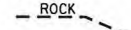
UTILITY PEDESTAL

POWER POLE

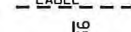
TELEPHONE POLE



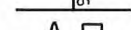
ROCK



LABEL



95.36



E

FO

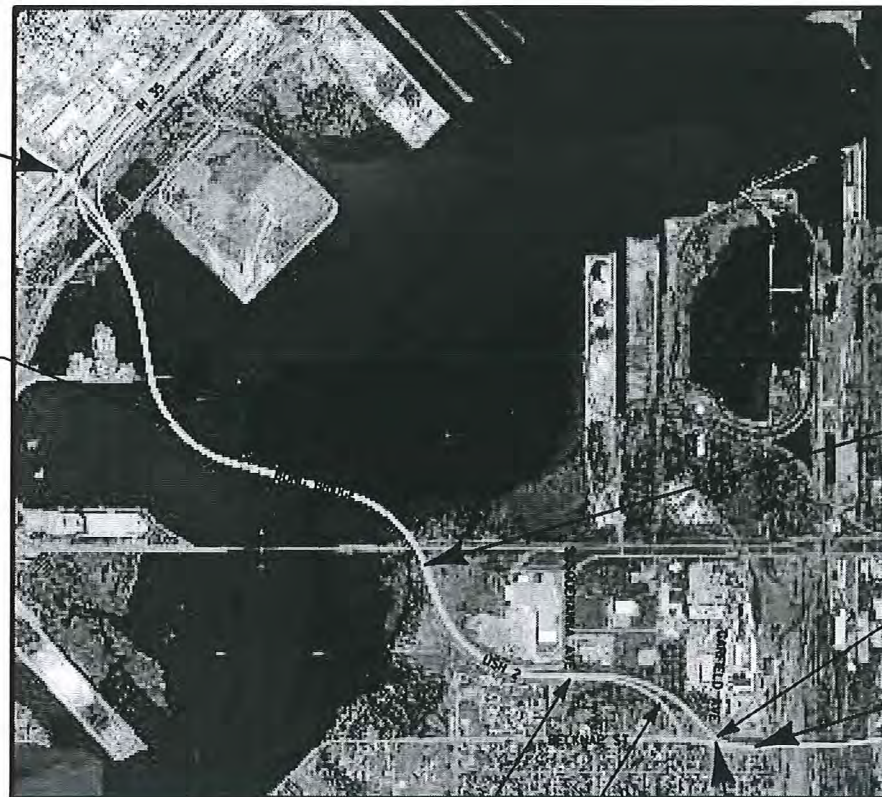
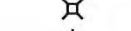
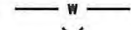
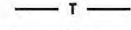
G

SAN

SS

T

W



ACCEPTED FOR  
CITY OF SUPERIOR

7/31/13  
Date) Signature & Title of Official

ORIGINAL PLANS PREPARED BY



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

**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	1701N 4TH STREET SUPERIOR, WI 54880	MORRIS LUKE (715) 392-7886 morris.luke@dot.wi.gov	TRAFFIC SIGNALS/LIGHTING
WISDOT LIGHTING/ NORTHWEST REGION	1701N 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



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  
1701N 4TH STREET  
SUPERIOR, WI 54880  
ATTN: MATT DICKENSON  
(715) 395-3022  
mattthew.dickenson@dot.wi.gov

**MINNESOTA CONTACT**

MINNESOTA DEPARTMENT OF TRANSPORTATION  
1123 MESABA AVENUE  
DULUTH, MN 55811  
ATTN: PERRY C. COLLINS, PE  
MNDOT D1 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	REOD	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

BEGIN PROJECT 8680-04-71  
STA 18+11.27

BONG BRIDGE  
WI STRUCTURE B-16-0038  
MN STRUCTURE 69100  
PROJECT 8680-04-71

SAINT LOUIS BAY



END PROJECT 8680-04-71  
BEGIN PROJECT 8680-04-74  
STA 101+89.00

STRUCTURE B-16-0049

SIGN STRUCTURE S-16-03  
END PROJECT 8680-04-74  
STA 162+78.75

SIGN STRUCTURE S-16-13

PROJECT 8680-00-70  
BEGIN STA 3+50.00 G  
END STA 4+76.00 G

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



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

PROJECT ID 8680-04-74  
CATEGORY 0070

PROJECT ID 8680-04-74  
CATEGORY 0010

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

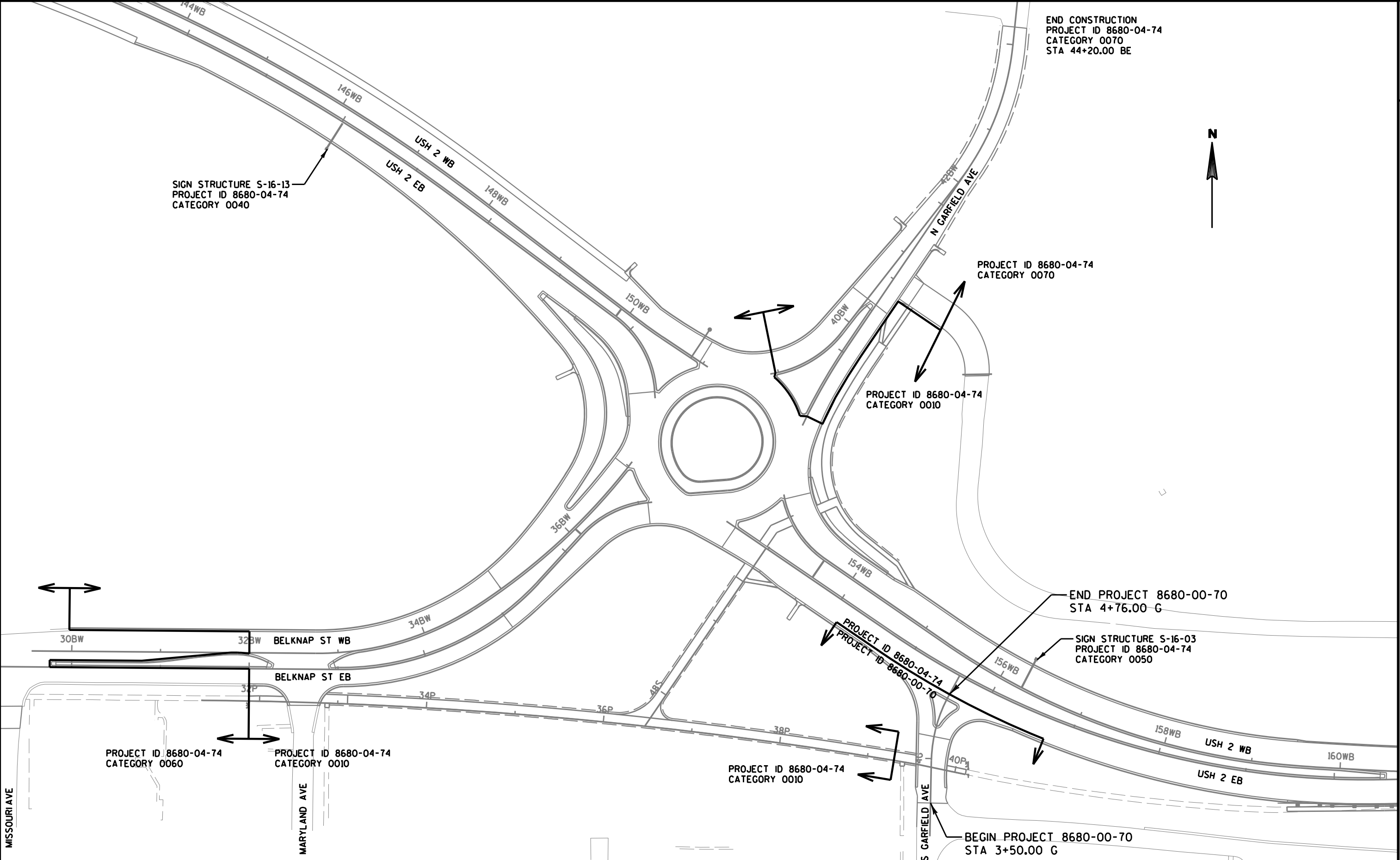
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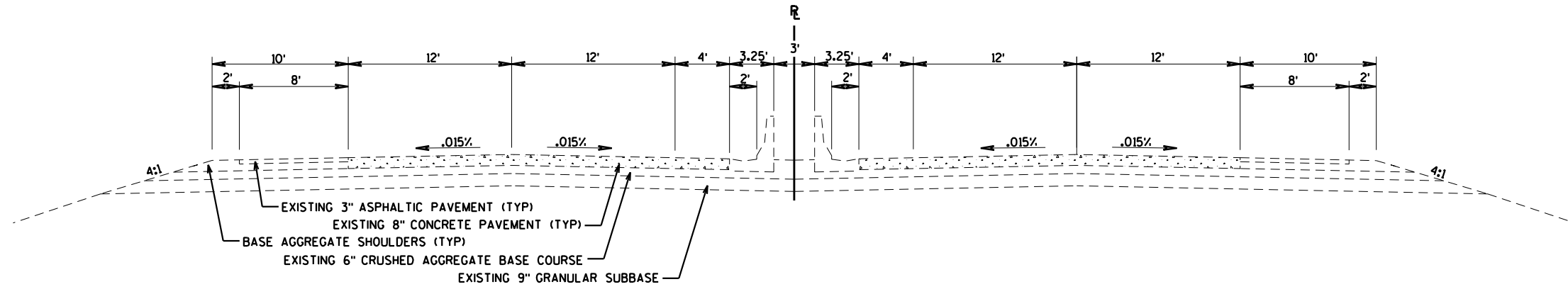
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CATEGORY 0060

PROJECT ID 8680-04-74  
CATEGORY 0010

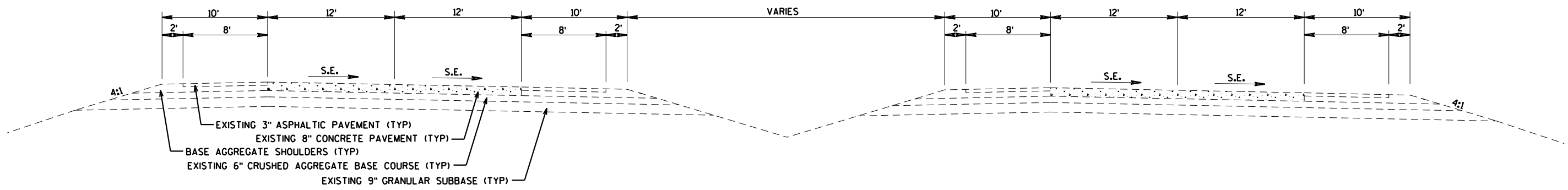
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CATEGORY 0010

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

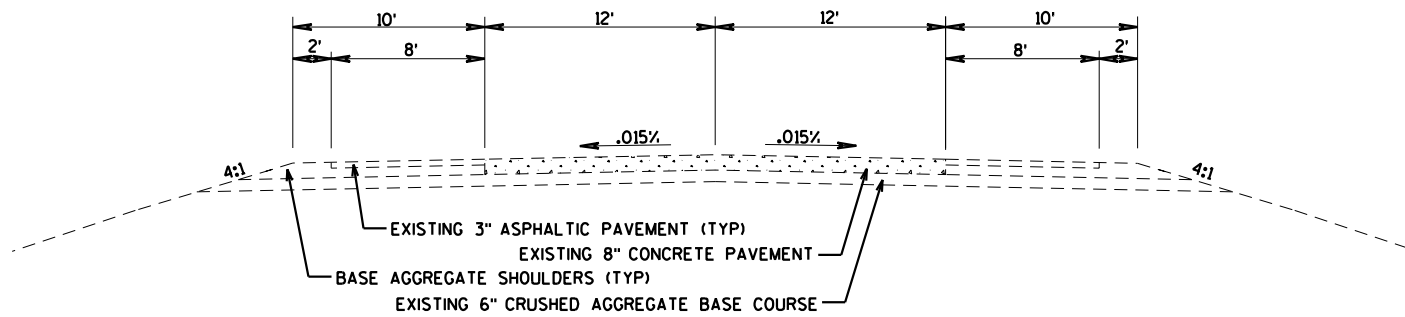




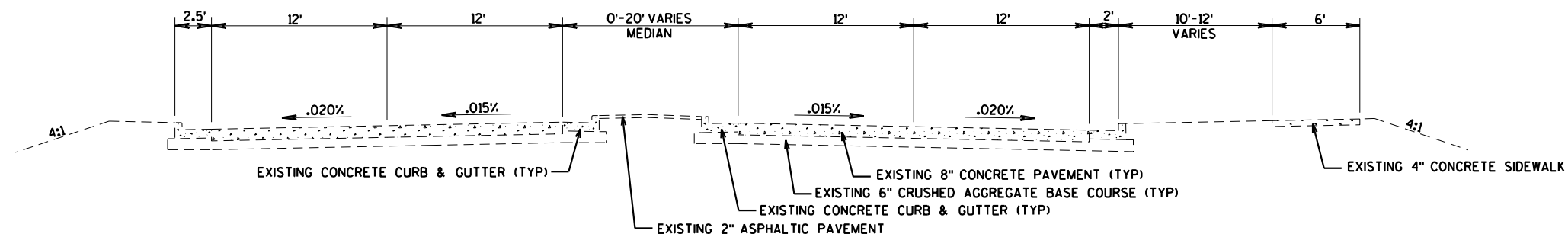
EXISTING TYPICAL SECTION - USH 2



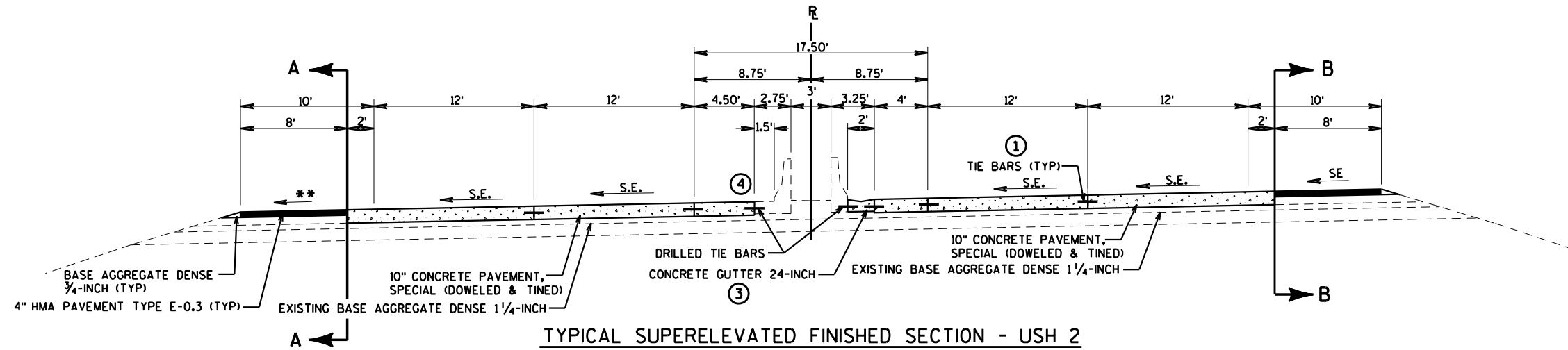
EXISTING TYPICAL SECTION - USH 2



EXISTING TYPICAL SECTION - USH 2 RAMPS

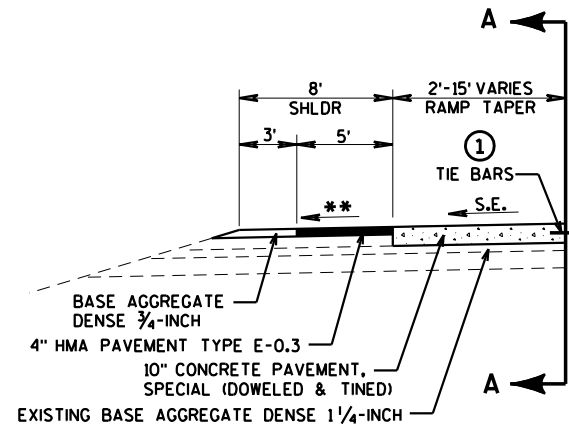


EXISTING TYPICAL SECTION - BELKNAP ST/USH 2



TYPICAL SUPERELEVATED FINISHED SECTION - USH 2

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

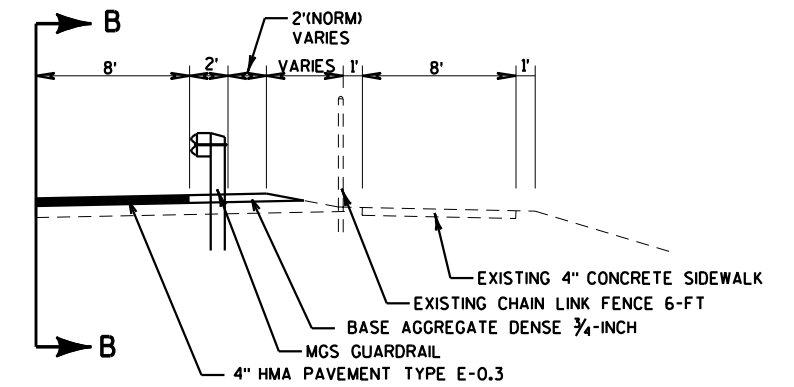


SECTION A-A - RAMP

STA 107+76.00 - STA 122+13.00

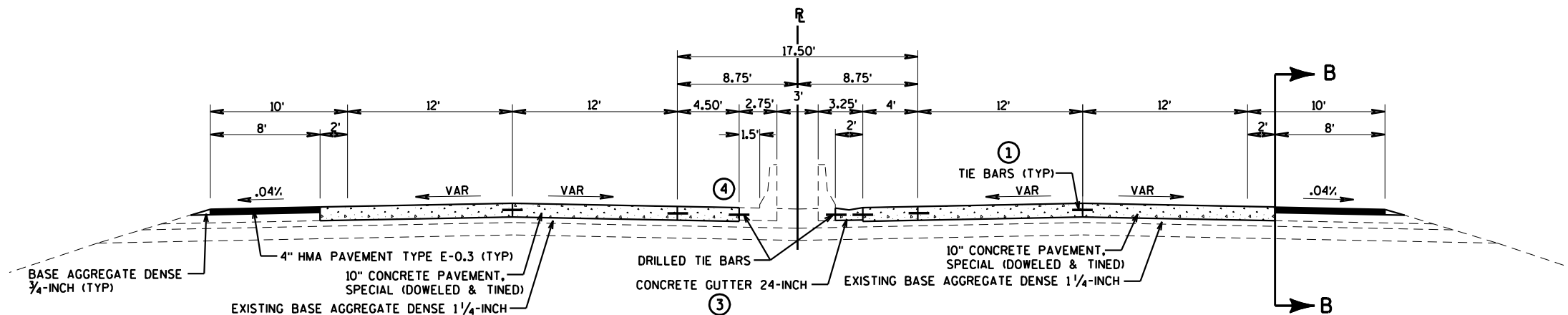
- ① TIE BARS ARE INCIDENTAL TO CONCRETE PAVEMENT. (UNLESS DRILLED INTO EXISTING PAVEMENT)
- ③ STA 101+72 - STA 132+20 (EB LANES)  
CONCRETE BARRIER TO REMAIN. REPLACE THE CONCRETE GUTTER 24-INCH, SAWCUT REQUIRED ALONG BASE OF BARRIER. TIE NEW CONCRETE GUTTER TO EXISTING BARRIER USING DRILLED TIE BARS (#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



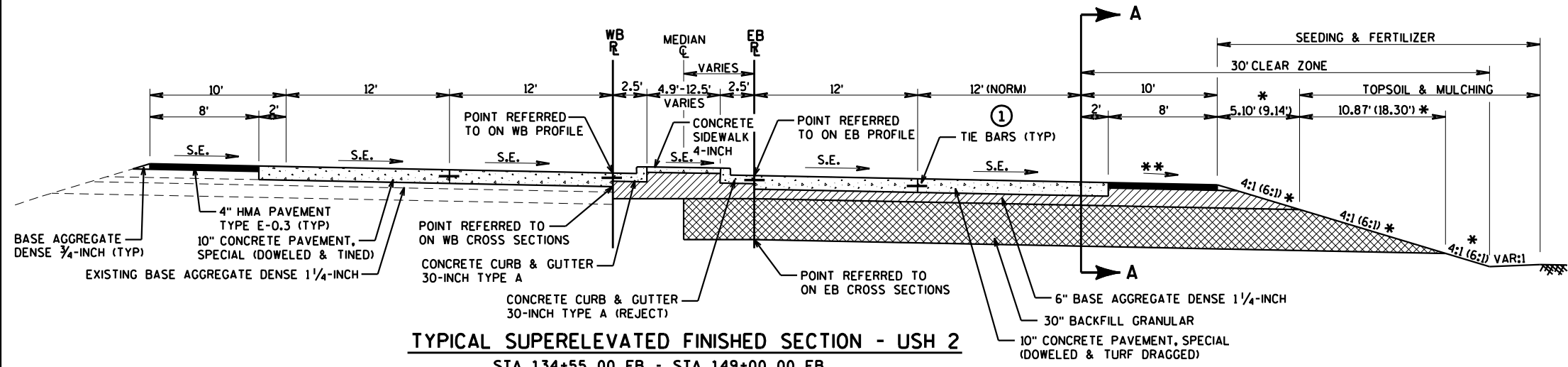
SECTION B-B

STA 102+10.00 - STA 107+65.00



TYPICAL FINISHED SECTION - USH 2

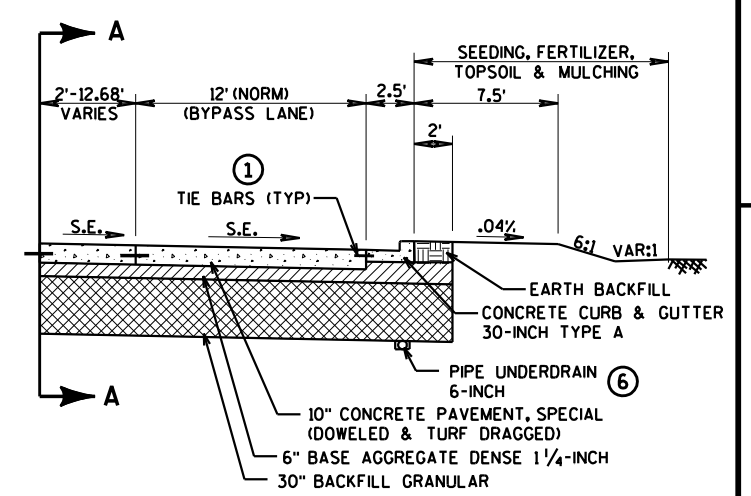
STA 104+00.00 - STA 106+00.00



TYPICAL SUPERELEVATED FINISHED SECTION - USH 2

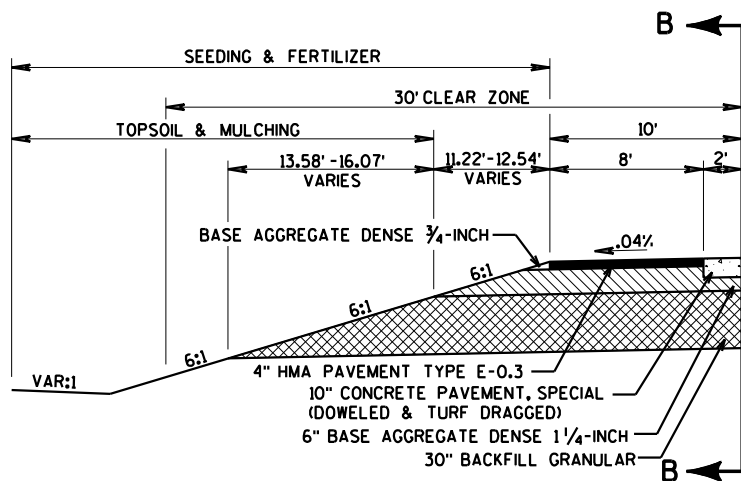
STA 134+55.00 EB - STA 149+00.00 EB  
STA 134+55.00 WB - STA 148+00.00 WB

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



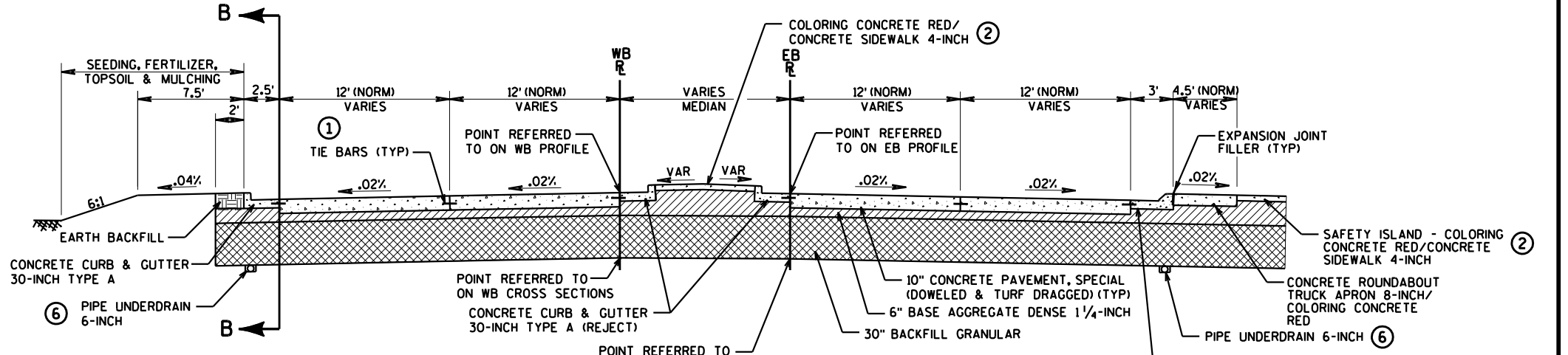
SECTION A-A - USH 2

STA 143+50.00 EB - STA 149+00.00 EB



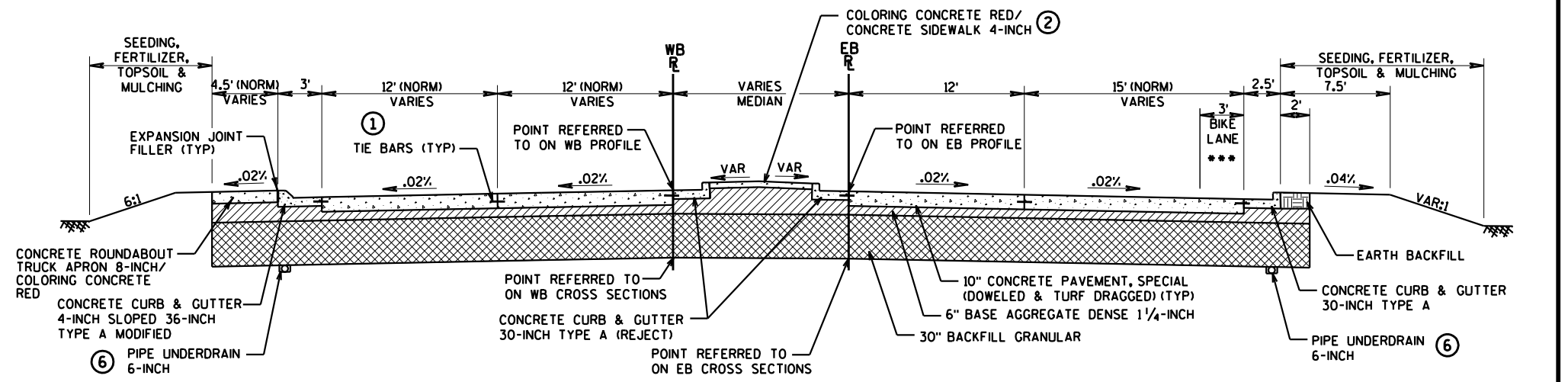
SECTION B-B - USH 2

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



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

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

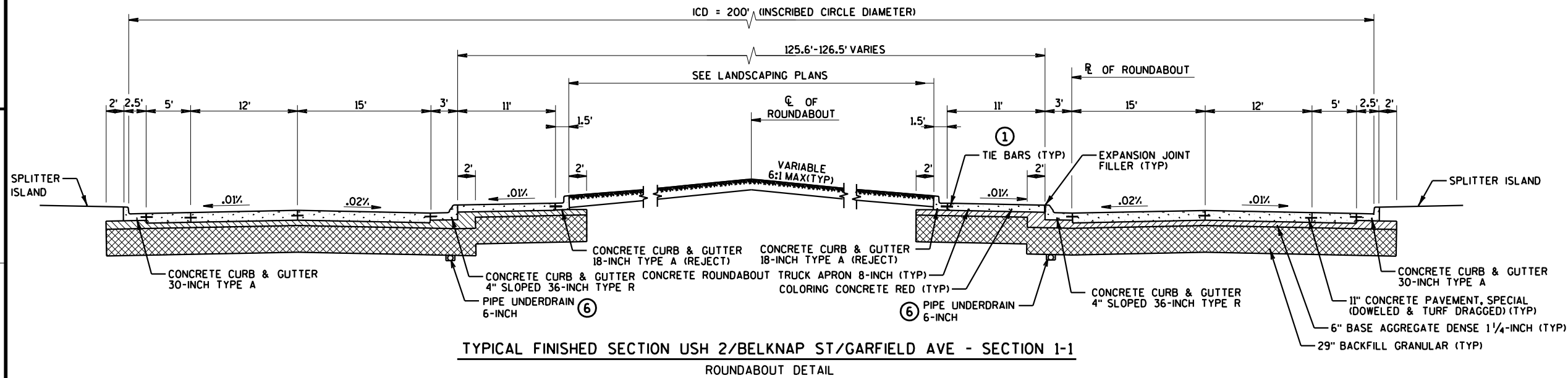
② SEE INTERSECTION DETAILS FOR LIMITS OF CONCRETE SIDEWALK 4-INCH, COLORING CONCRETE RED/CONCRETE SIDEWALK 4-INCH, AND COLORING CONCRETE RED/CONCRETE ROUNDABOUT TRUCK APRON 8-INCH.

⑥ SEE PIPE UNDERDRAIN LAYOUT SHEET FOR LIMITS.

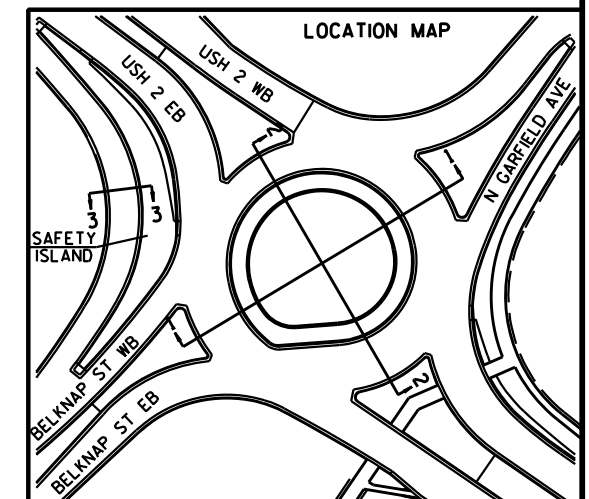
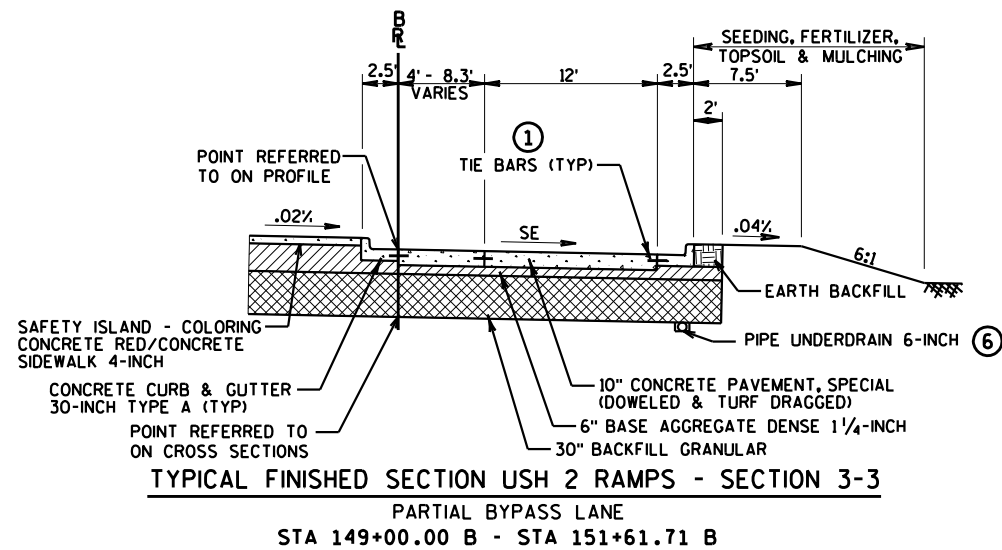
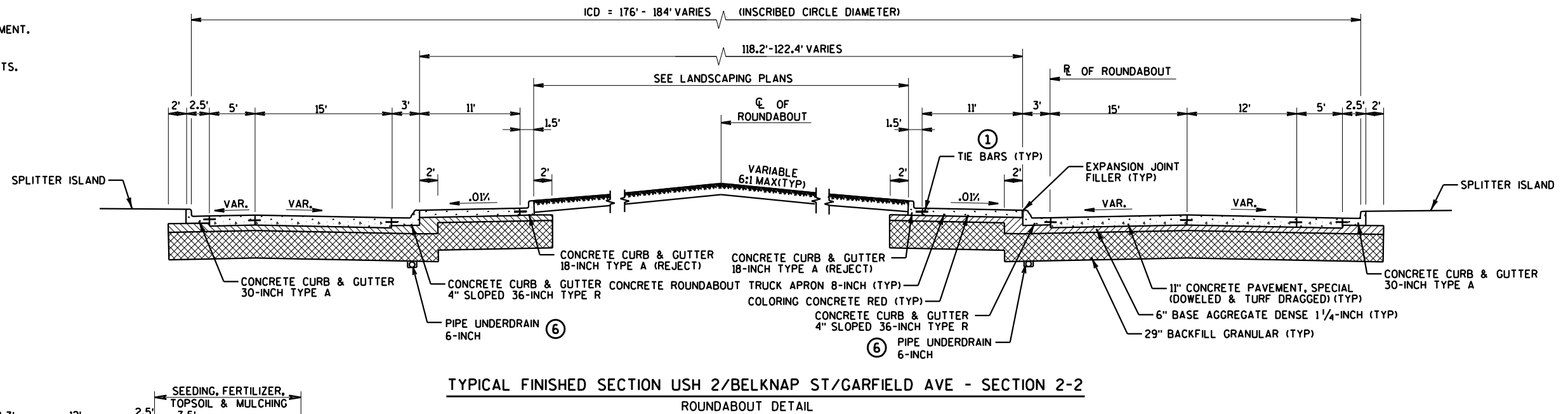
\*\* THE LOW SIDE SHOULDER SLOPE ON SUPERELEVATED SECTION EQUALS THE SUPERELEVATION RATE WHEN THE SUPERELEVATION RATE IS GREATER THAN 4%. IF THE SUPERELEVATION RATE IS LESS THAN OR EQUAL TO 4%. THE LOW SIDE SHOULDER SLOPE IS 4%. HIGH SIDE SHOULDER SLOPE ON SUPERELEVATED SECTIONS EQUALS THE SUPERELEVATION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

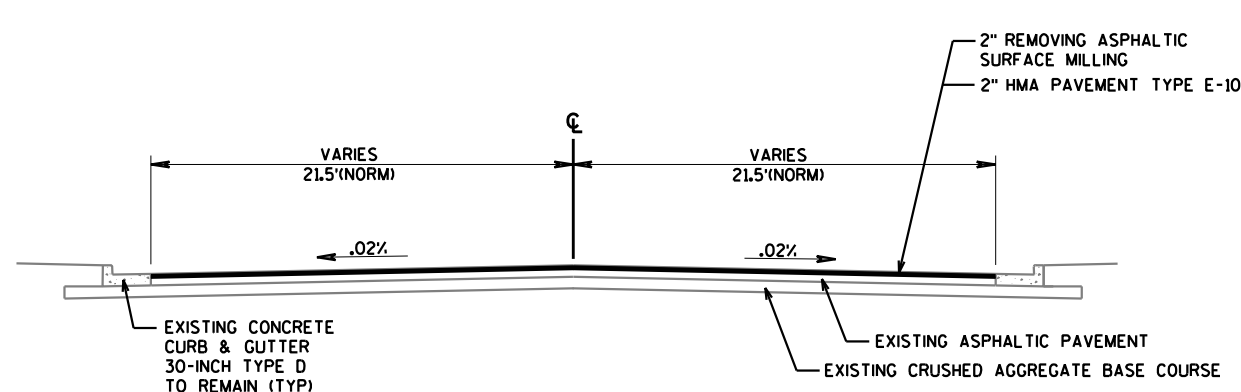




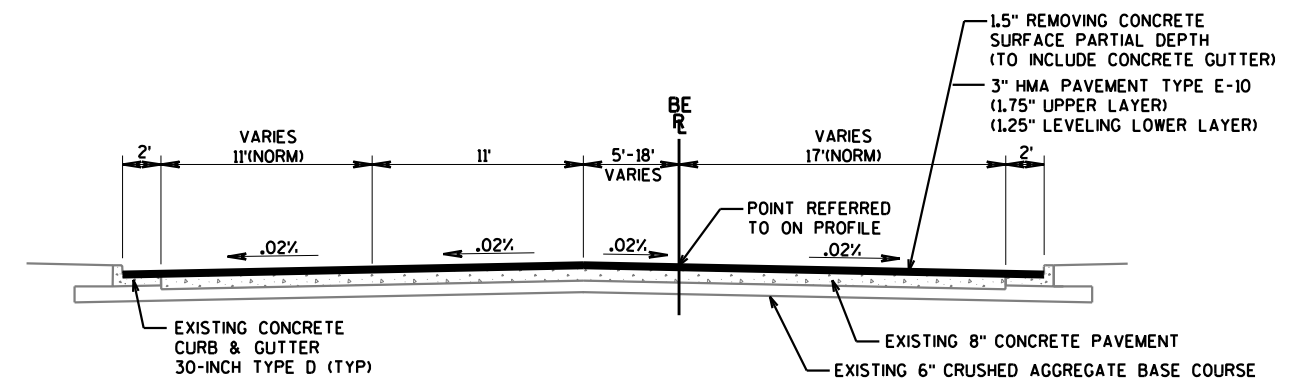


- ① TIE BARS ARE INCIDENTAL TO CONCRETE PAVEMENT. (UNLESS DRILLED INTO EXISTING PAVEMENT)
- ⑥ SEE PIPE UNDERDRAIN LAYOUT SHEET FOR LIMITS.

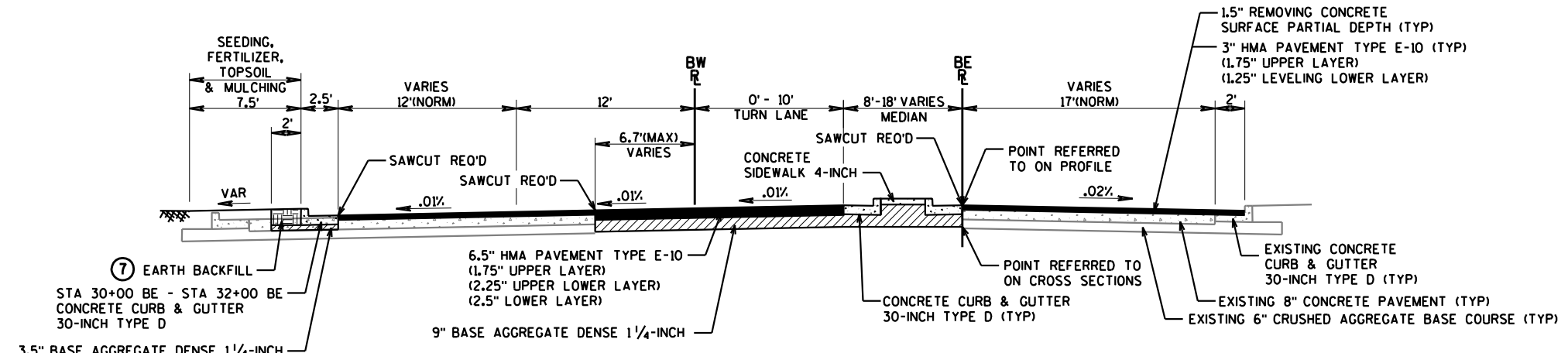




**TYPICAL FINISHED SECTION - BELKNAP ST**  
 SUSQUEHANNA AVE - STA 26+82.00 BE  
 (INCLUDE THE SUSQUEHANNA INTERSECTION)

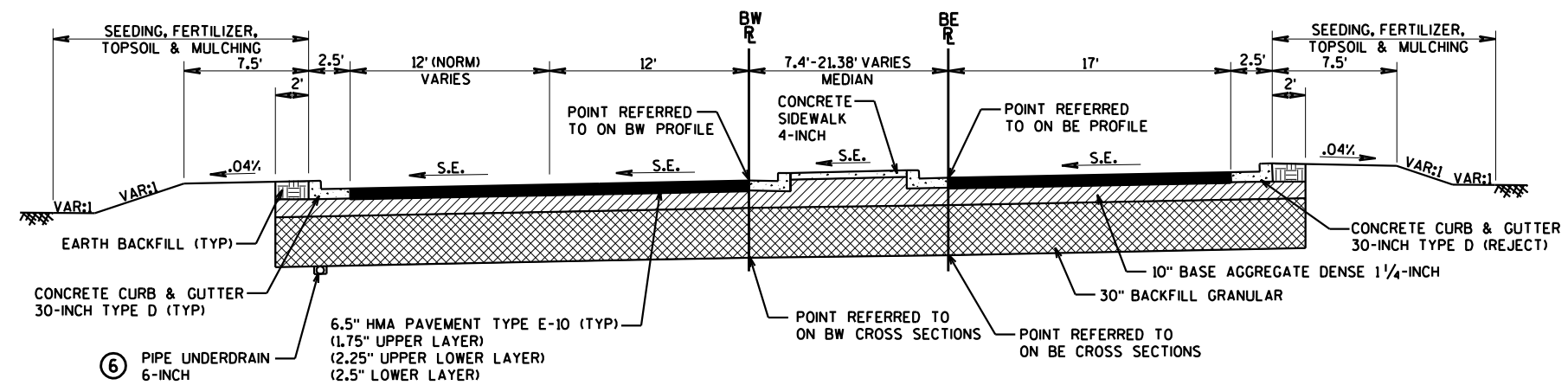


**TYPICAL FINISHED SECTION - BELKNAP ST**  
 STA 26+82.00 BE - STA 29+75.00 BE

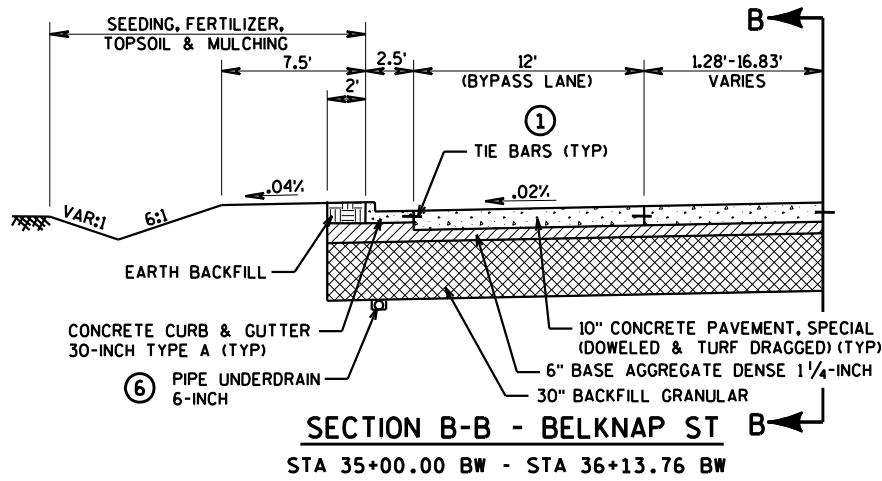


**TYPICAL FINISHED SECTION - BELKNAP ST**  
 STA 29+75.00 BE - STA 32+00.00 BE

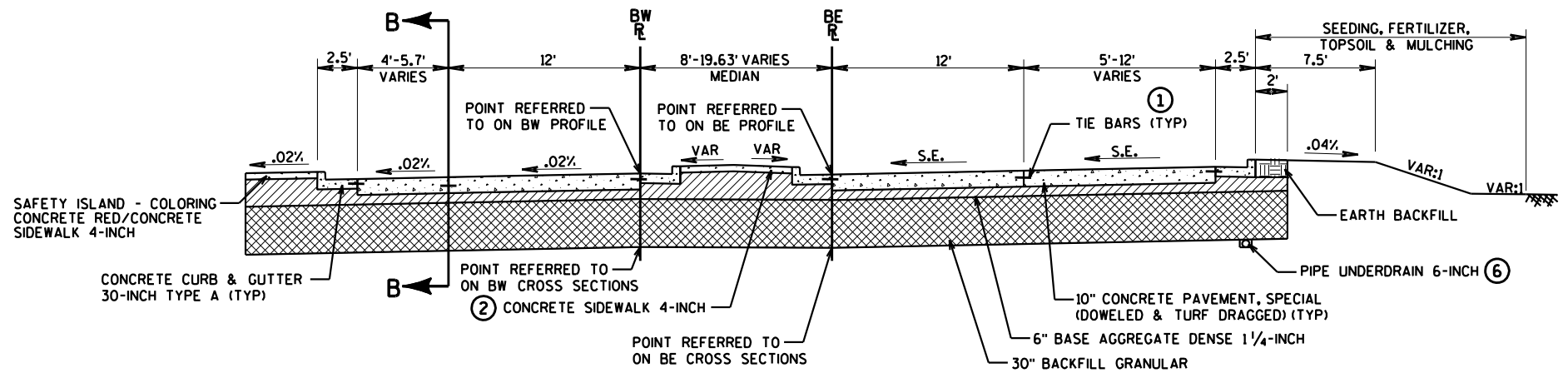
- ⑥ SEE PIPE UNDERDRAIN LAYOUT SHEET FOR LIMITS.
- ⑦ SHAPING BEHIND THE CURB IS INCIDENTAL TO PLACEMENT OF THE CURB.



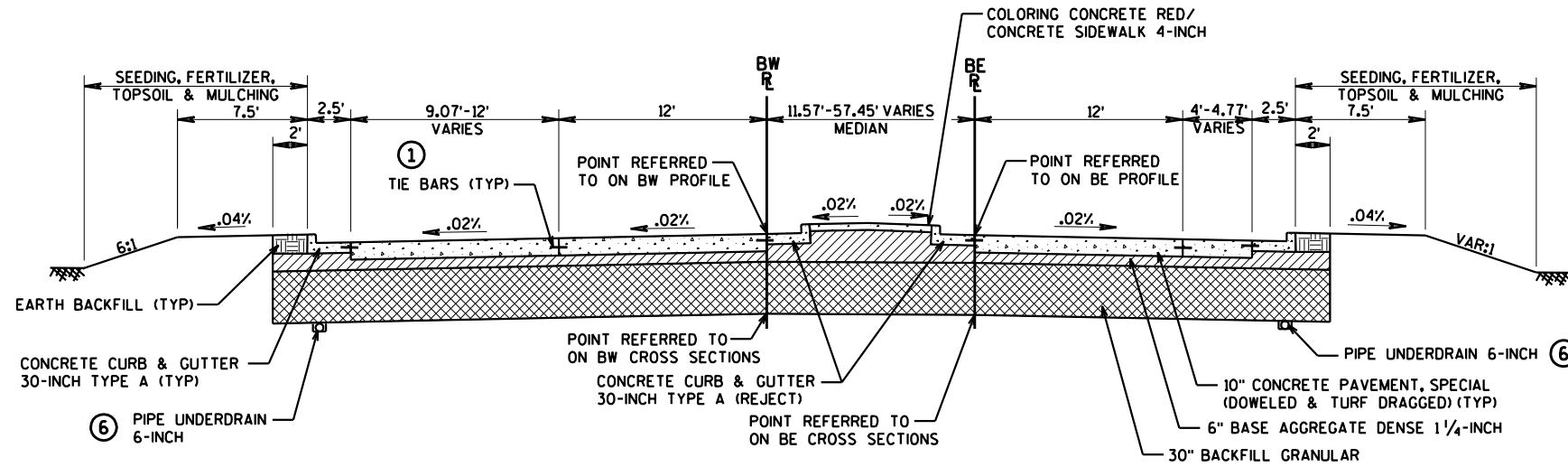
**TYPICAL SUPERELEVATED FINISHED SECTION - BELKNAP ST**  
 STA 32+00.00 BE - STA 35+00.00 BE



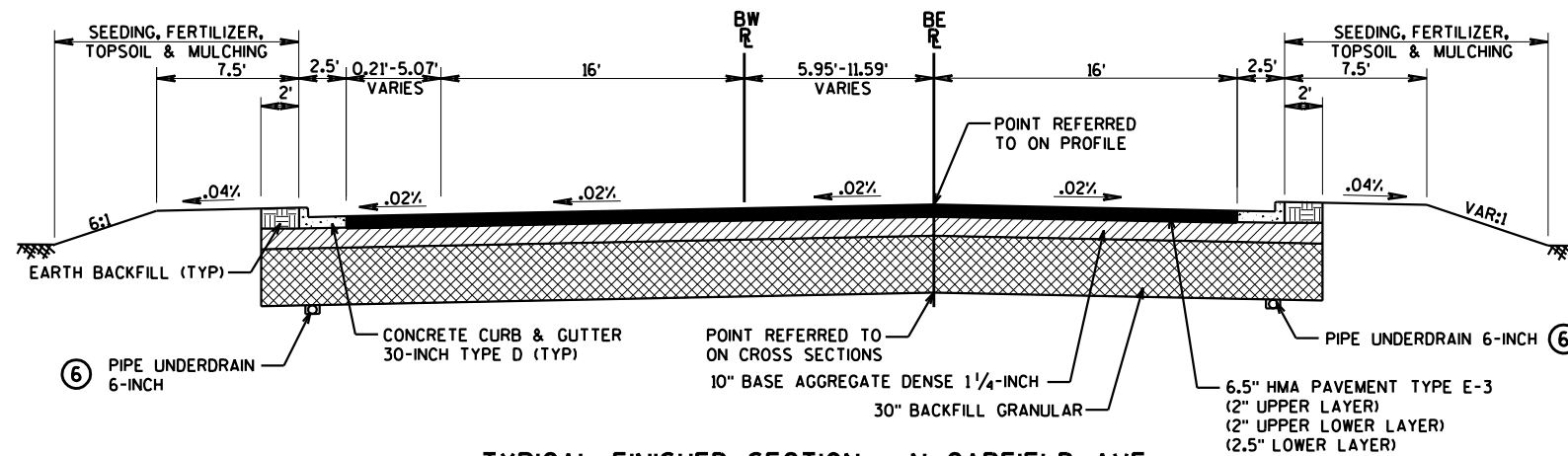
**SECTION B-B - BELKNAP ST**  
 STA 35+00.00 BW - STA 36+13.76 BW



**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

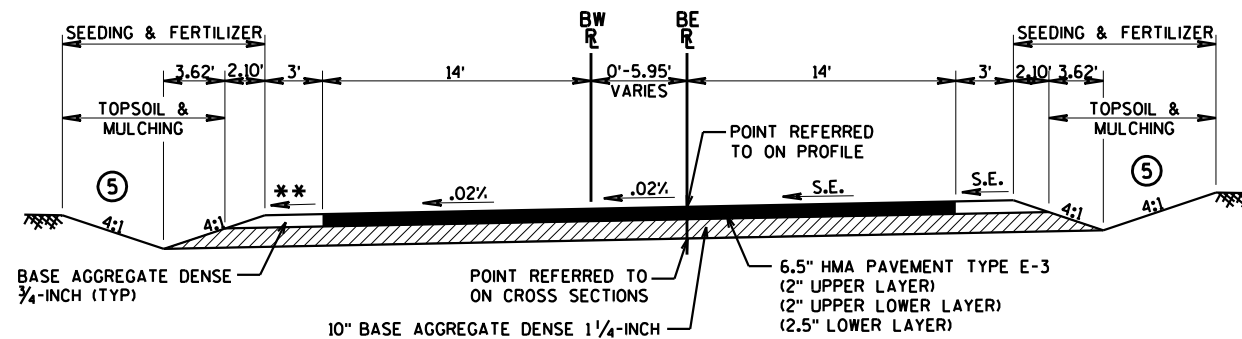


**TYPICAL FINISHED SECTION - N GARFIELD AVE**  
 STA 39+21.00 BE - STA 40+64.50 BE  
 STA 38+99.00 BW - STA 40+33.80 BW



**TYPICAL FINISHED SECTION - N GARFIELD AVE**  
 STA 40+64.50 BE - STA 41+50.00 BE

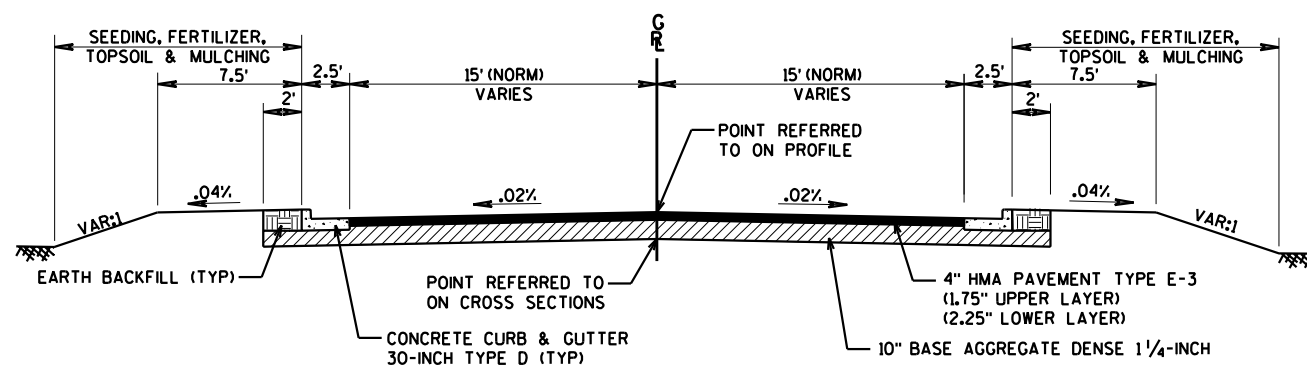
- ① TIE BARS ARE INCIDENTAL TO CONCRETE PAVEMENT. (UNLESS DRILLED INTO EXISTING PAVEMENT)
- ② SEE INTERSECTION DETAILS FOR LIMITS OF CONCRETE SIDEWALK 4-INCH, COLORING CONCRETE RED/CONCRETE SIDEWALK 4-INCH, AND COLORING CONCRETE RED/CONCRETE ROUNDABOUT TRUCK APRON 8-INCH.
- ⑥ SEE PIPE UNDERDRAIN LAYOUT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



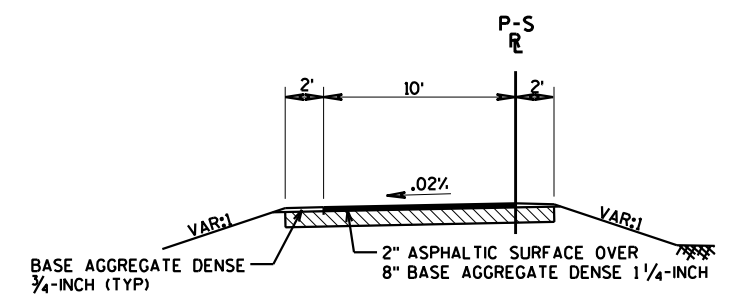
**TYPICAL FINISHED SECTION - N GARFIELD AVE**  
STA 41+50.00 BE - STA 44+20.00 BE

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

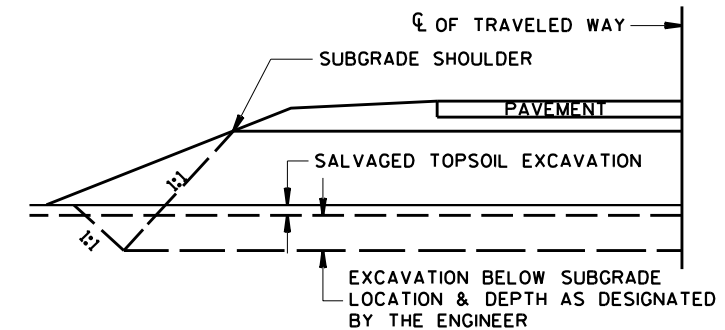


**TYPICAL FINISHED SECTION - MULTI-USE PATH**  
STA 32+86.00 P - STA 39+54.00 P  
STA 47+68.84 S - STA 49+75.37 S

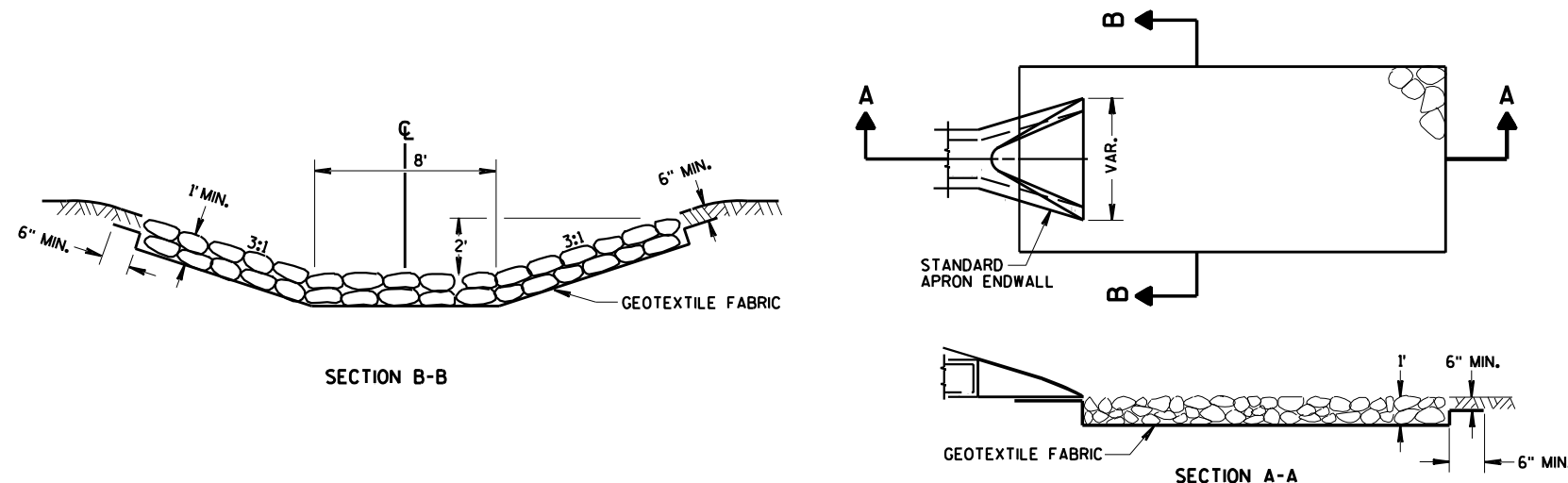
### RUNOFF COEFFICIENT TABLE

LAND USE:	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
	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

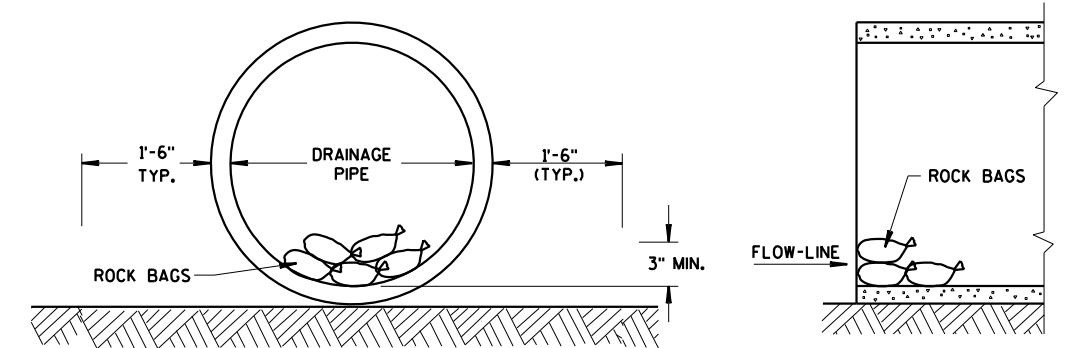


**DETAIL FOR EXCAVATION BELOW SUBGRADE**



**RIPRAP AND GEOTEXTILE FABRIC DETAIL**

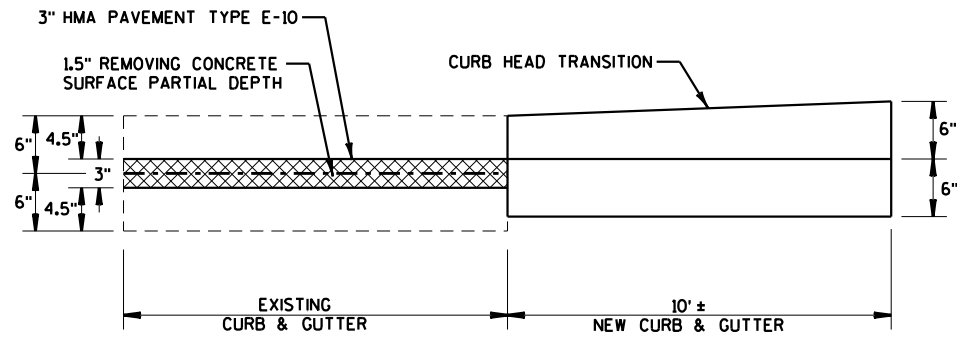
NOTE: SEE MISCELLANEOUS QUANTITIES FOR TYPE OF RIPRAP AND GEOTEXTILE FABRIC TO BE USED.



**FRONT VIEW**

**SECTION VIEW**

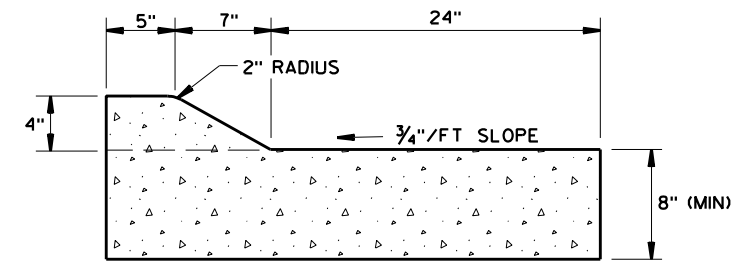
**CULVERT PIPE CHECKS**  
 (PLACE AT ALL INLET ENDS OF ALL PIPES)



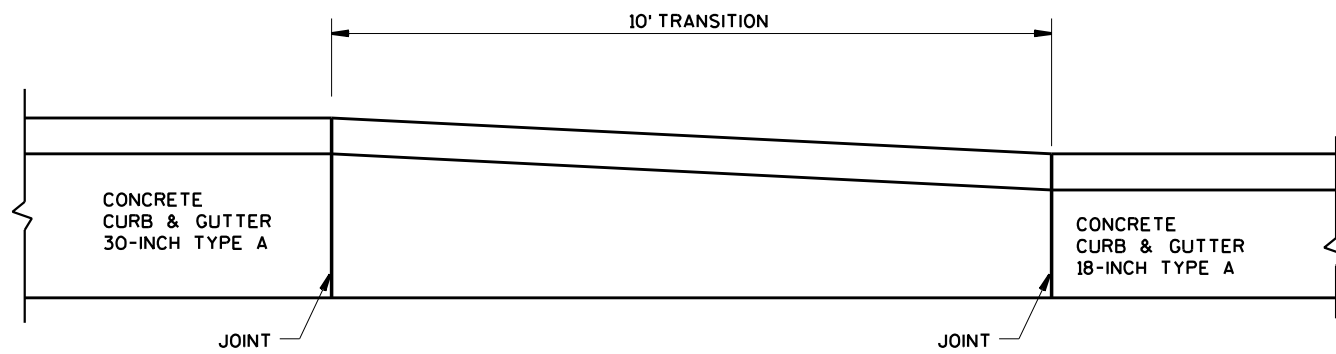
FRONT VIEW

**CURB HEAD TRANSITION DETAIL**

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

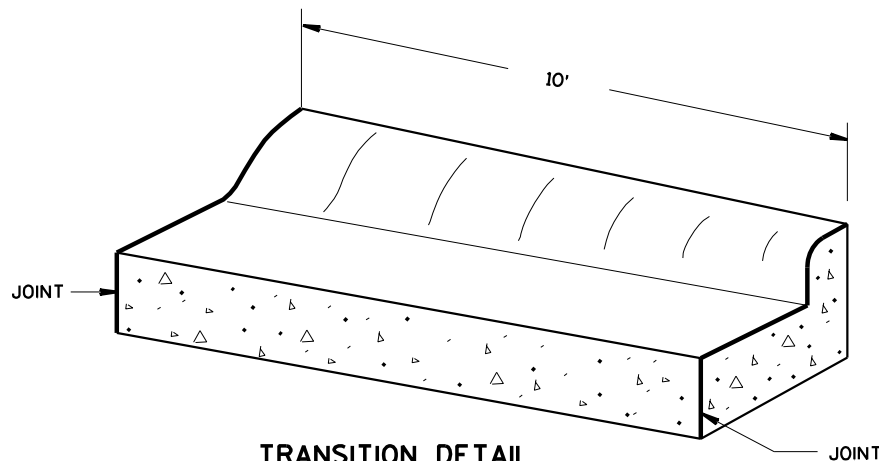


**DETAIL FOR CONCRETE CURB & GUTTER  
4-INCH SLOPED 36-INCH TYPE A MODIFIED**



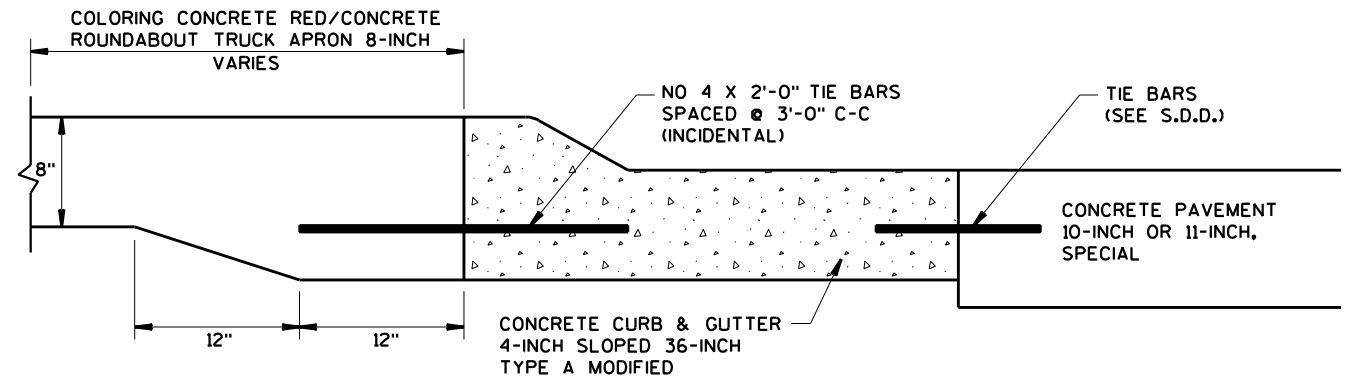
**30-INCH TO 18-INCH TRANSITION DETAIL**

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)

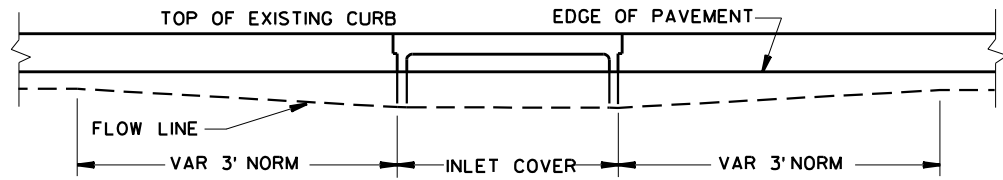


**TRANSITION DETAIL**

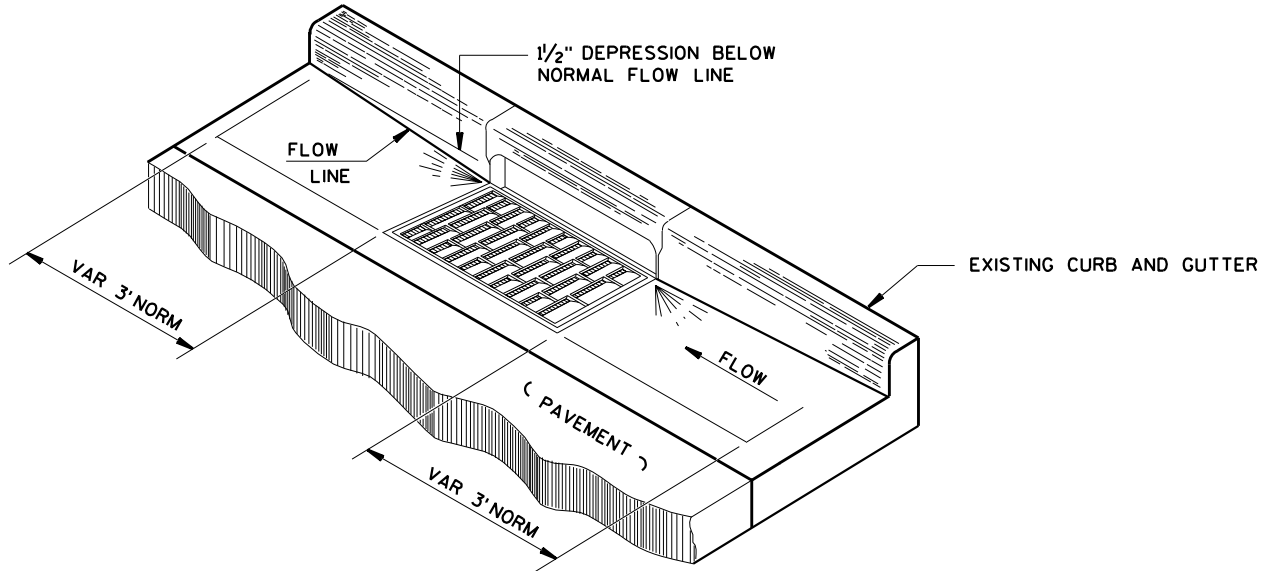
CONCRETE CURB & GUTTER 36-INCH TYPE A/D TO  
CONCRETE CURB & GUTTER 30-INCH TYPE A/D  
(TO BE MEASURED & PAID FOR AS CONCRETE  
CURB & GUTTER 36-INCH TYPE A/D)



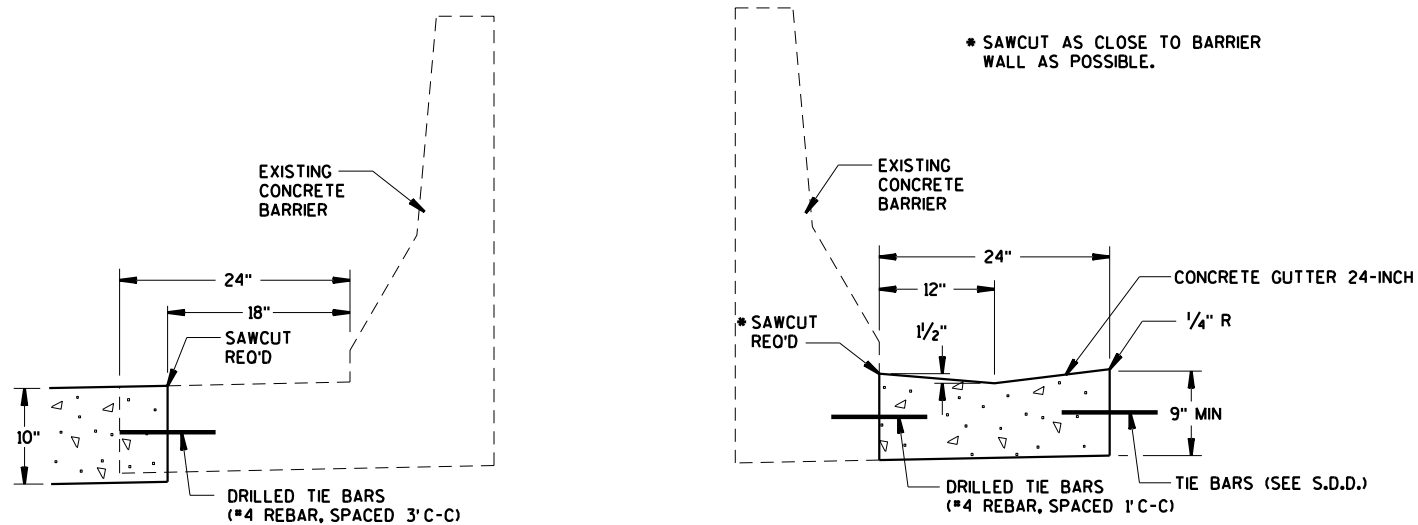
**TRUCK OVERTRACKING PAD DETAIL**



ELEVATION



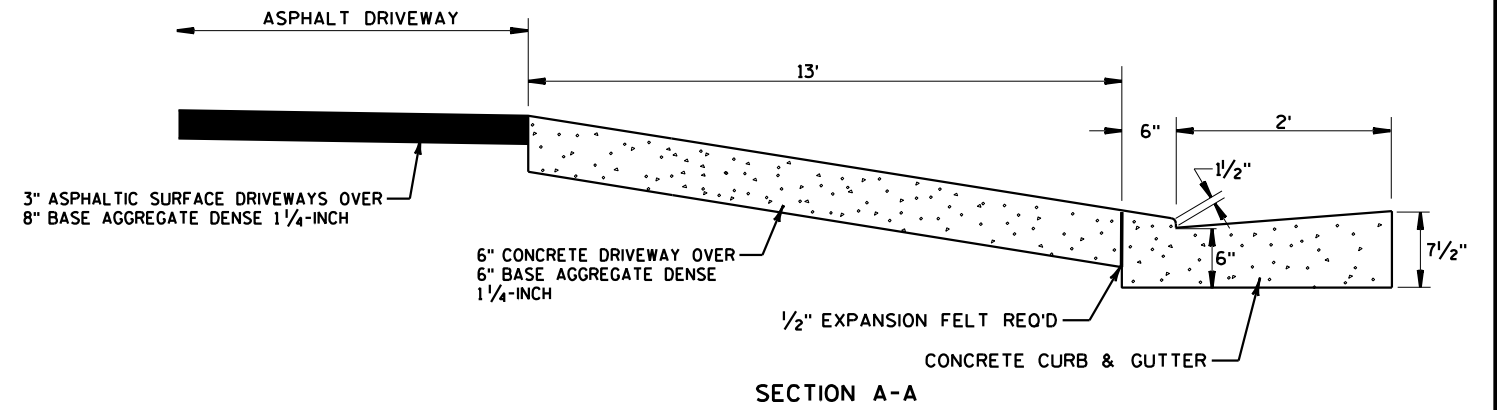
**INLET DEPRESSION DETAIL**  
(BELKNAP CONCRETE MILL & OVERLAY)



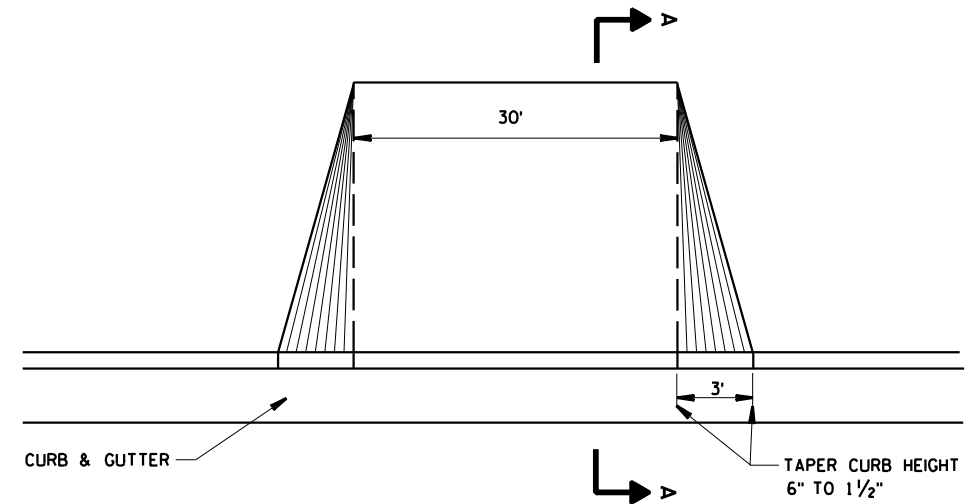
STA 101+72 - STA 130+86 (WB LANES, RT)  
STA 132+21 - STA 134+56  
(EB LANES, LT & WB LANES, RT)

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

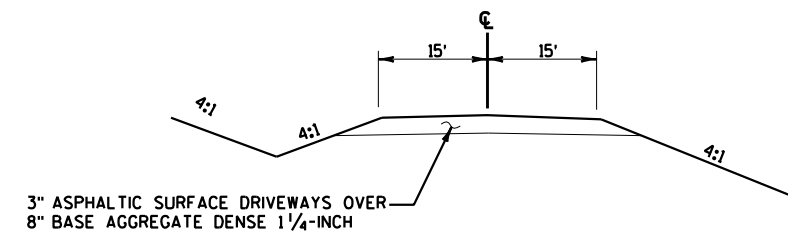
**MEDIAN BARRIER DETAIL**



SECTION A-A



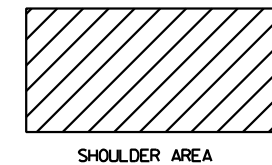
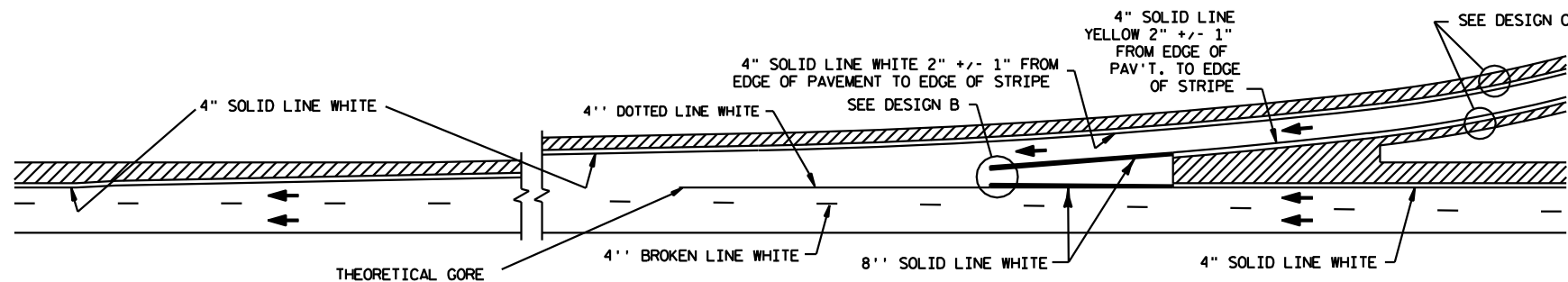
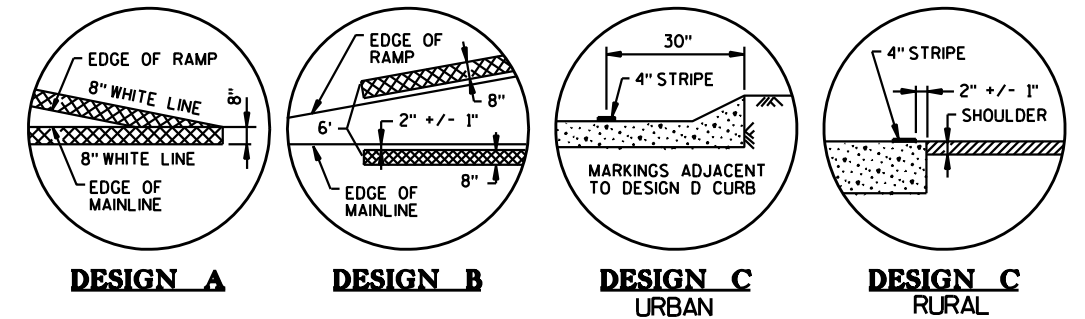
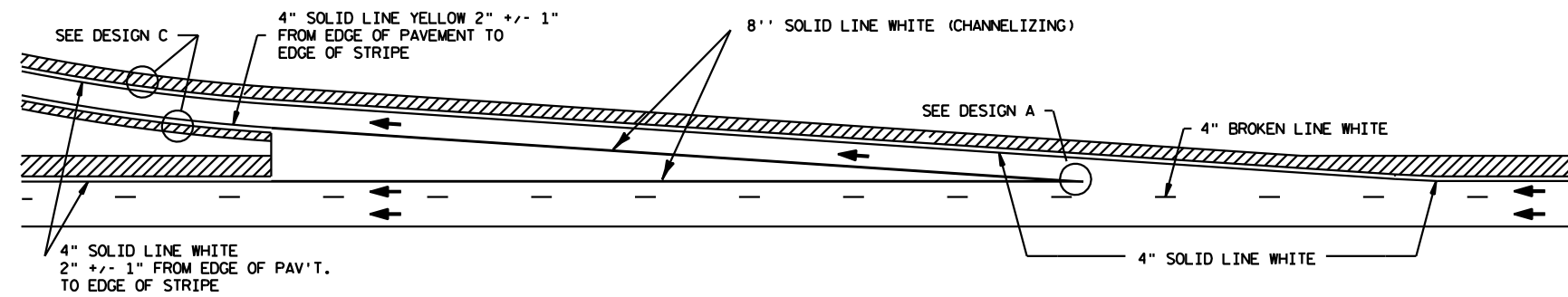
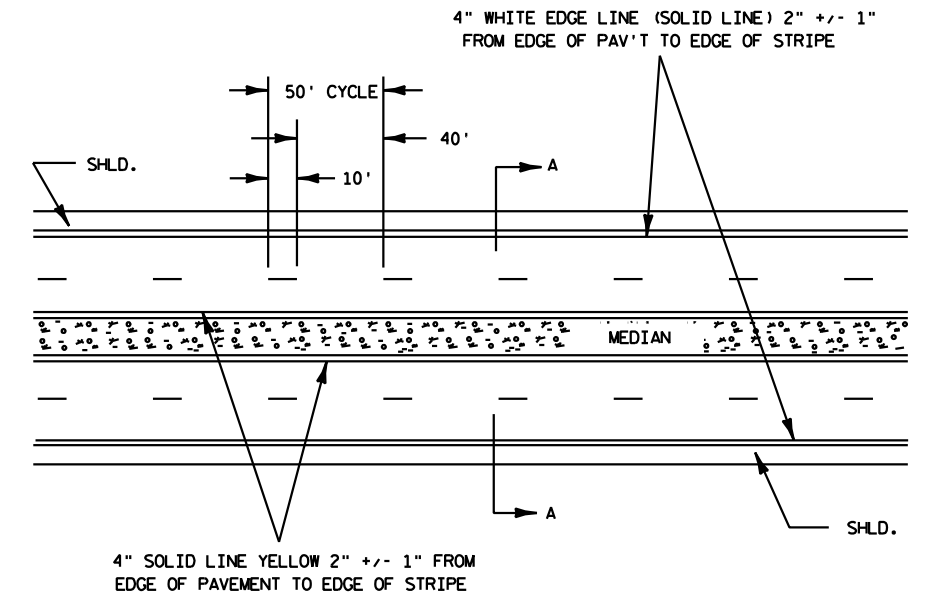
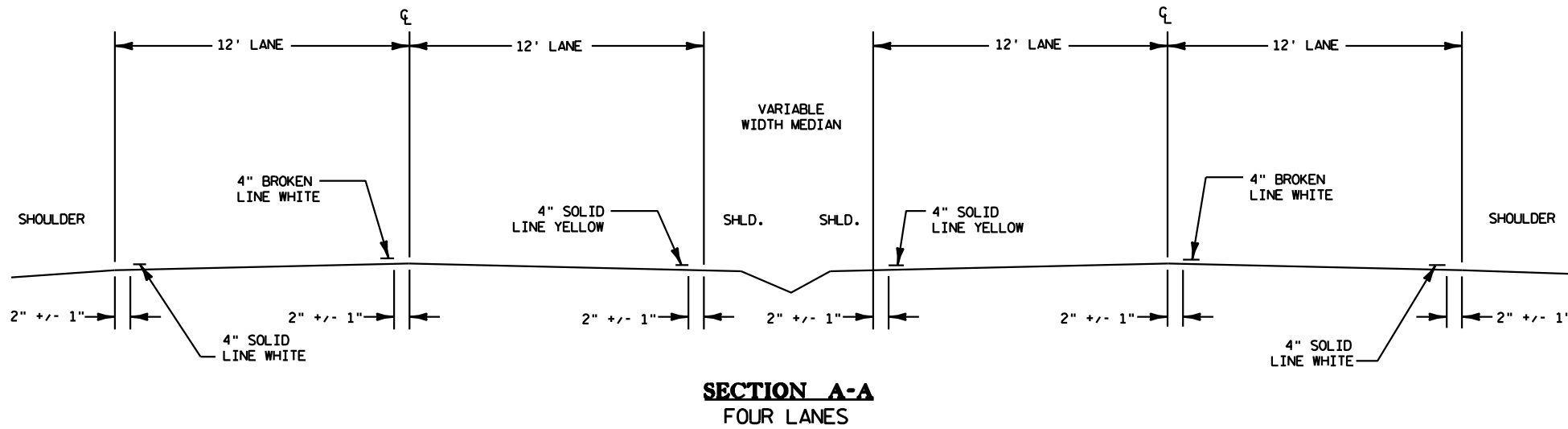
PLAN VIEW



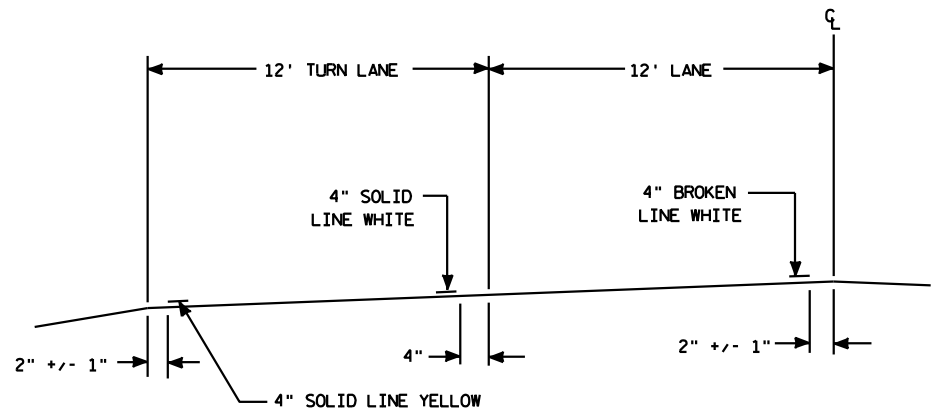
CROSS SECTION

**COMMERCIAL ENTRANCE**

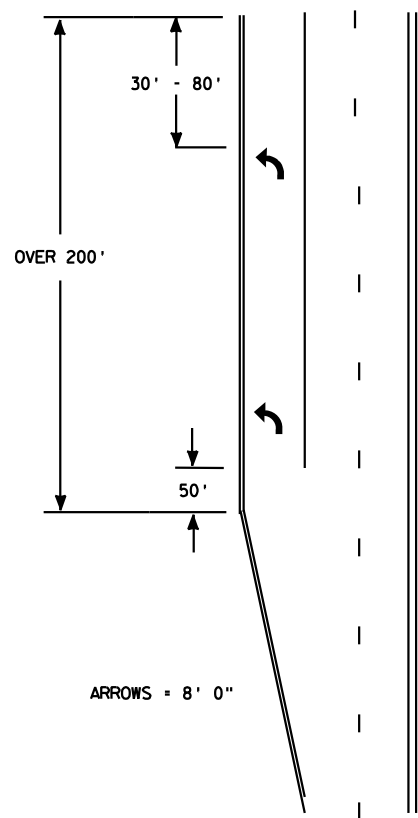
STA 41+00 BE, RT



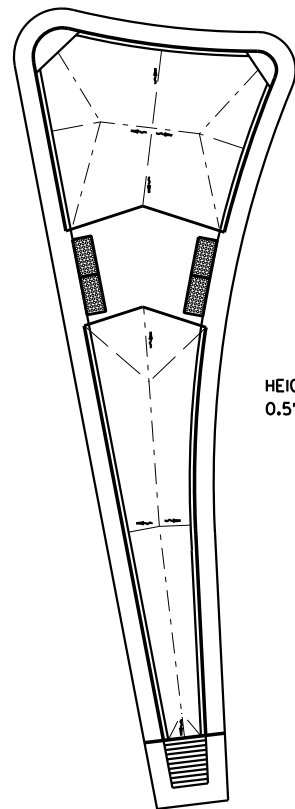




**TYPICAL LEFT TURN LANE**

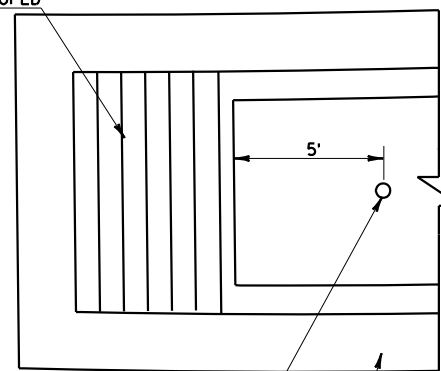


**TYPICAL MESSAGE PLACEMENT FOR TURN LANES**



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

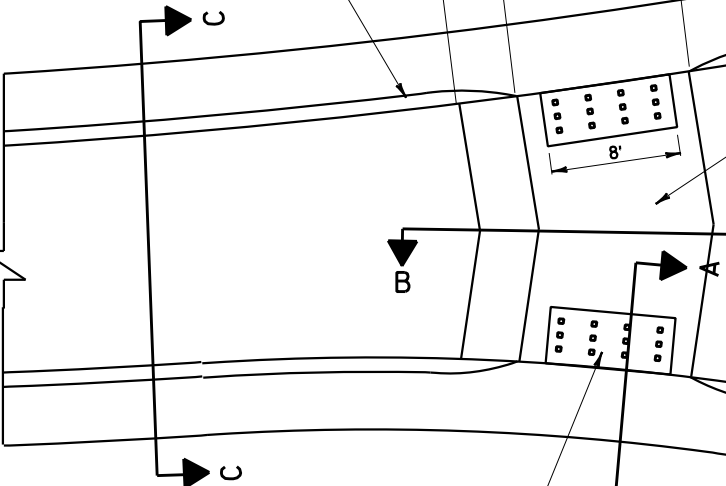
CONCRETE MEDIAN SLOPED  
NOSE TYPE 1, REO'D.



PROVIDE CUT-OUT IN  
CONCRETE FOR SIGN POST  
(ALL SIGNS IN SAFETY ISLAND  
WILL BE REMOVABLE) (TYP)

CONCRETE CURB AND GUTTER  
30-INCH TYPE A

CONCRETE CURB AND GUTTER  
30-INCH TYPE A

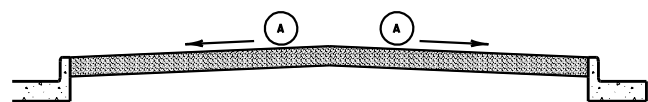


CURB RAMP DETECTABLE WARNING FIELD  
DIMENSION = 2' X 8' EACH  
YELLOW ON 4-INCH CONCRETE SIDEWALK  
(SEE SDD "CURB RAMPS TYPES 5, 6, 7A,  
7B & 8)

CONCRETE CURB AND GUTTER  
30-INCH TYPE A

CONCRETE MEDIAN SLOPED  
NOSE TYPE 2, REO'D.

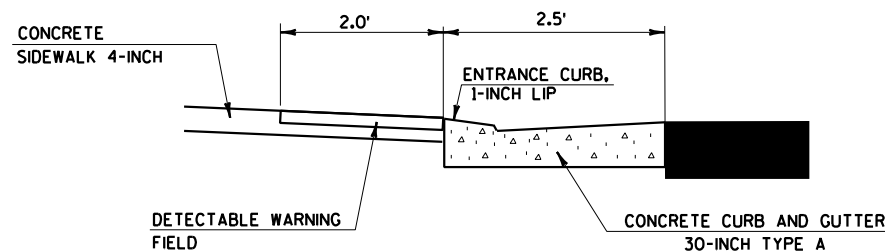
**SPLITTER ISLAND DETAIL**



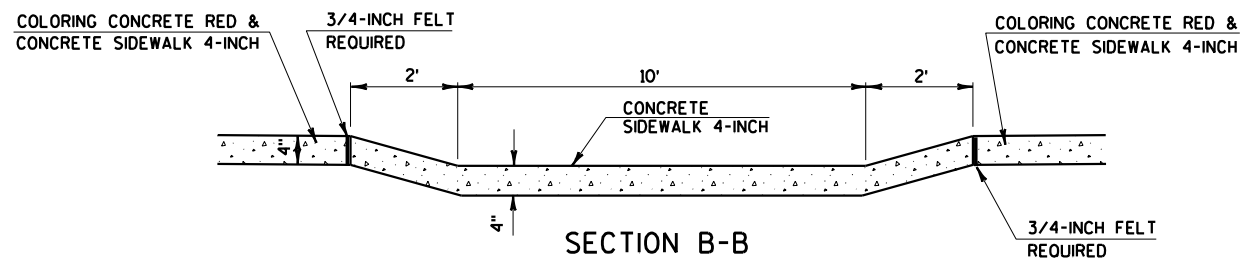
(A) SLOPE OF CONCRETE:  
4:1 MIN. TO 6:1 MAX.

**SECTION C-C**

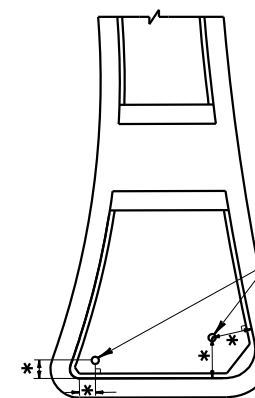
HEIGHT: ABOVE TOP  
OF CURB 0.5 FEET  
MIN. TO 1.5 FEET MAX.



**SECTION A-A**



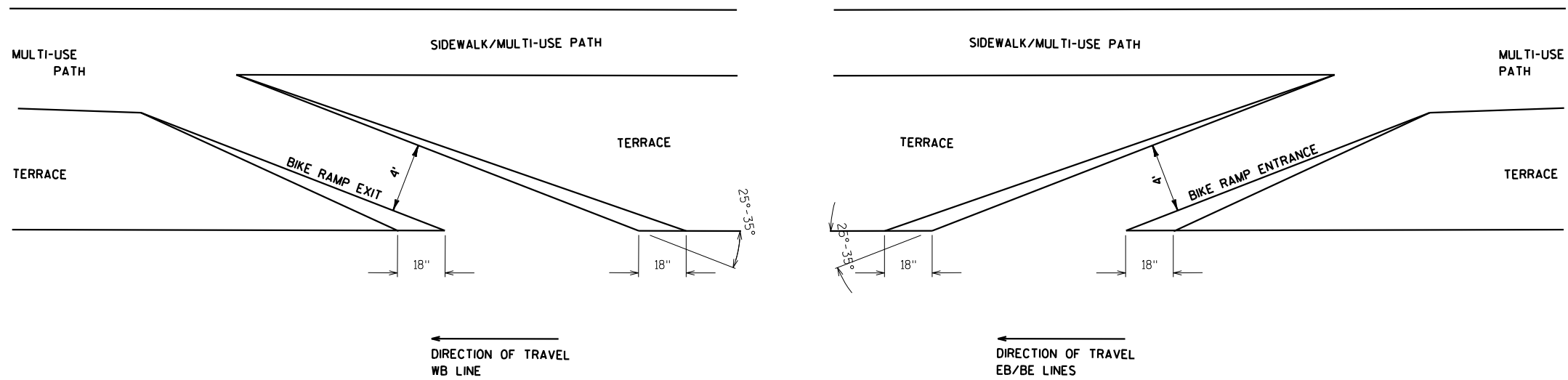
**SECTION B-B**



PROVIDE CUT-OUT IN  
CONCRETE FOR SIGN POST  
(ALL SIGNS IN ISLAND WILL  
BE REMOVABLE) (TYP)

\*-DISTANCE TO BE LAID OUT IN  
THE FIELD BASED ON SIGN SIZE.  
TWO FOOT MINIMUM CLEARANCE  
BETWEEN THE EDGE OF SIGN AND  
THE FACE OF CURB.

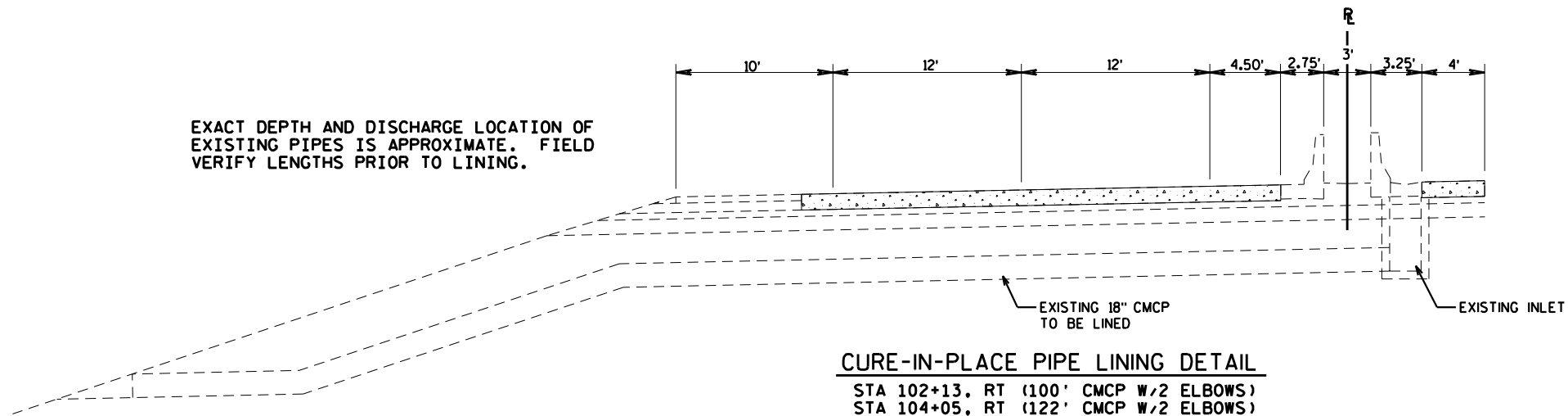
**ISLAND SIGN LOCATION DETAIL (TYP)**



**BIKE RAMP ENTRANCE AND EXIT**

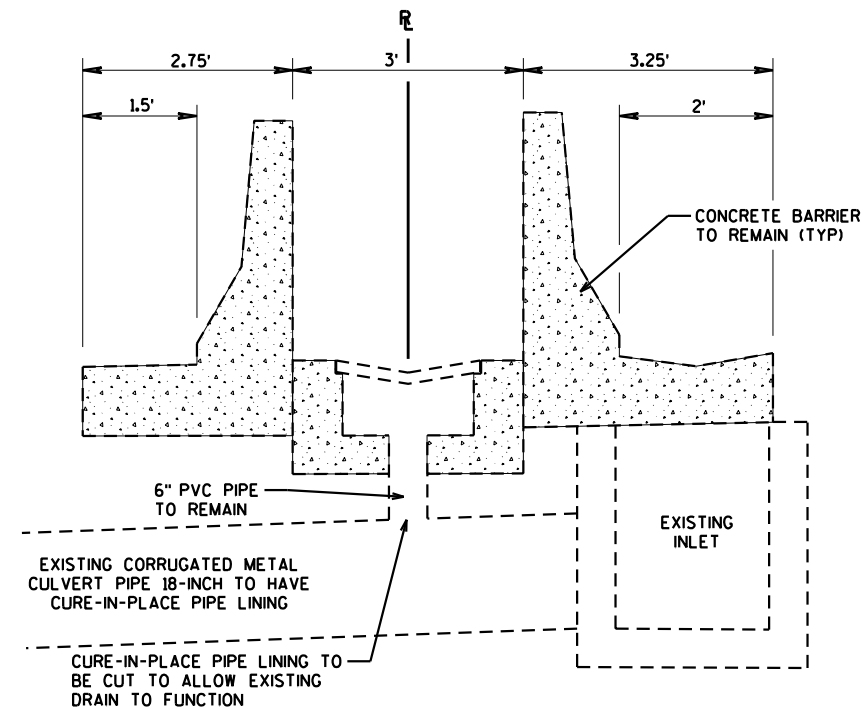
EB, WB & BE ALIGNMENTS  
PAID FOR AS CONCRETE SIDEWALK 4-INCH

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



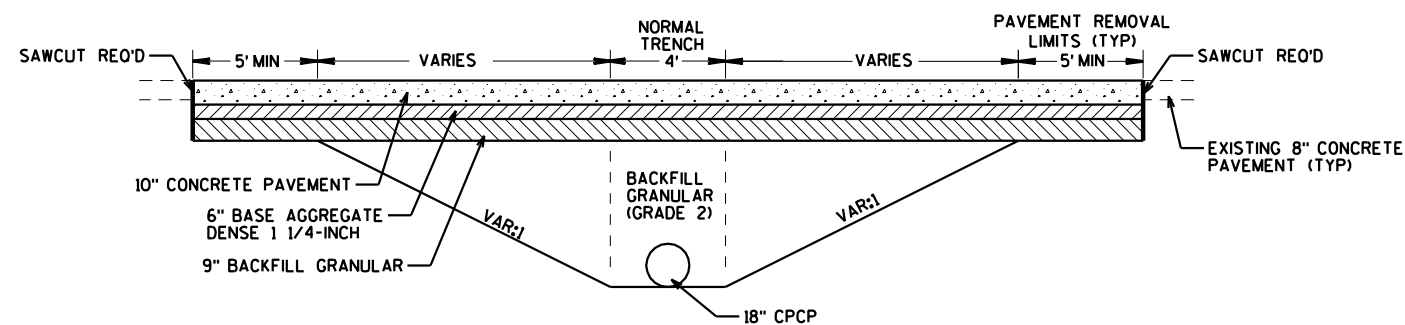
**CURE-IN-PLACE PIPE LINING DETAIL**

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)



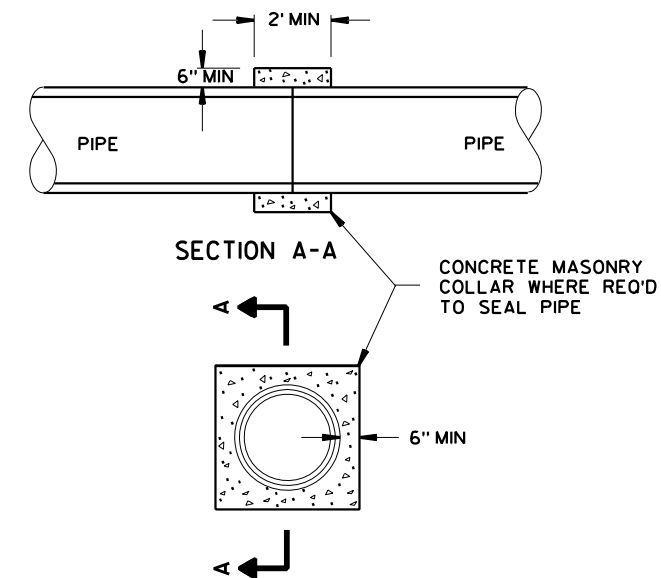
**BARRIER INLET DETAIL**

STA 111+83  
STA 120+04



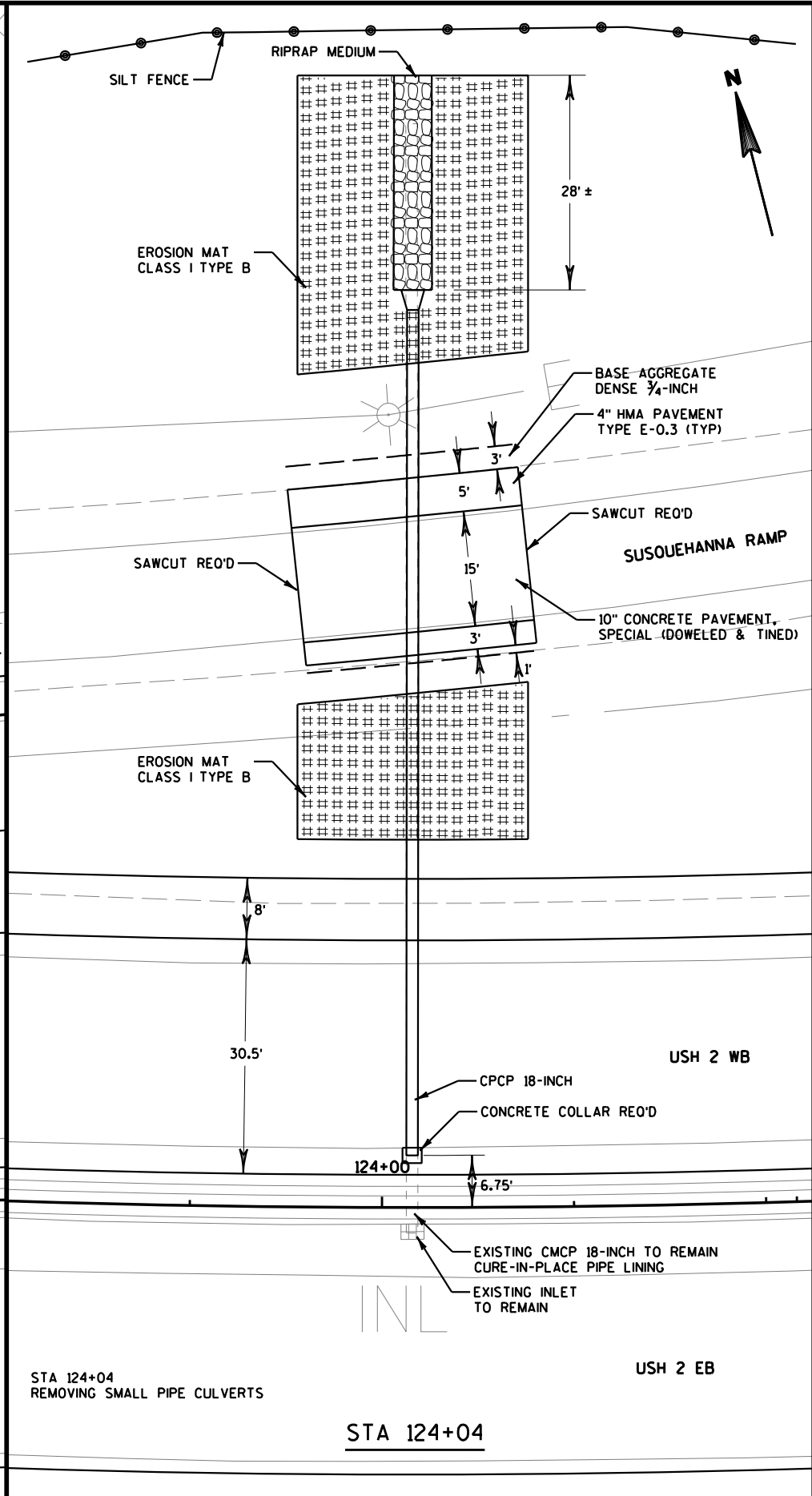
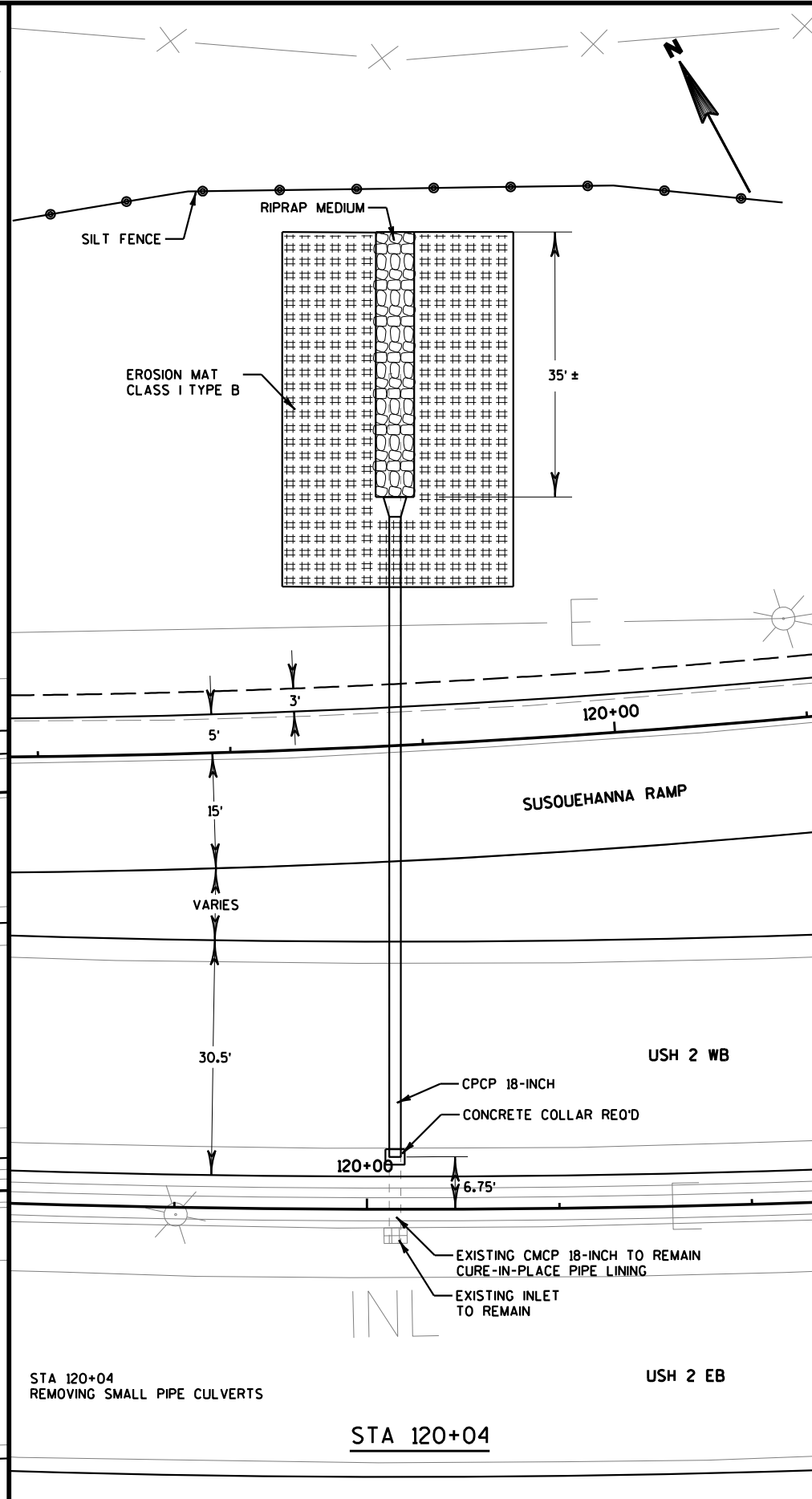
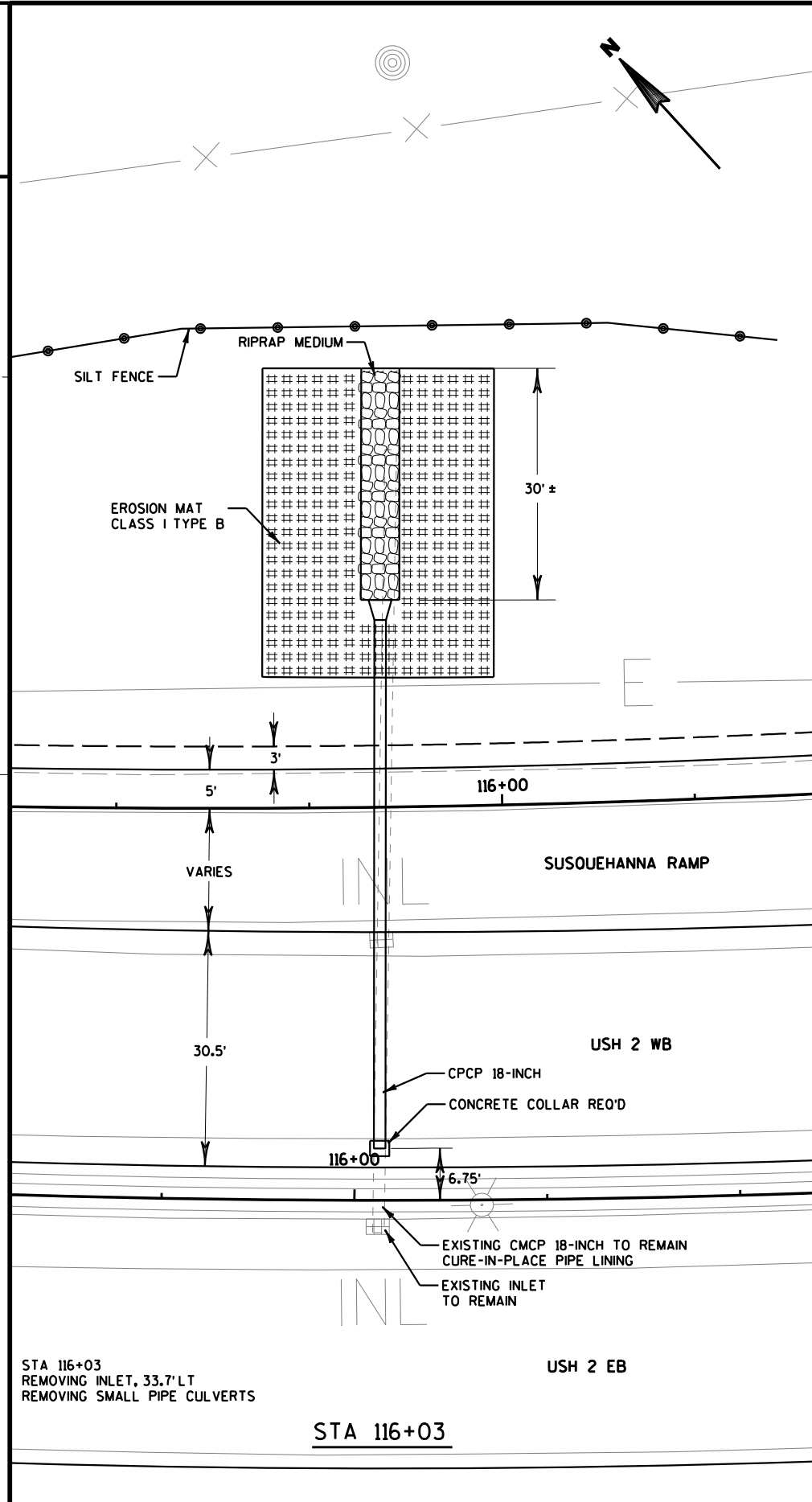
**PIPE TRENCH DETAIL**

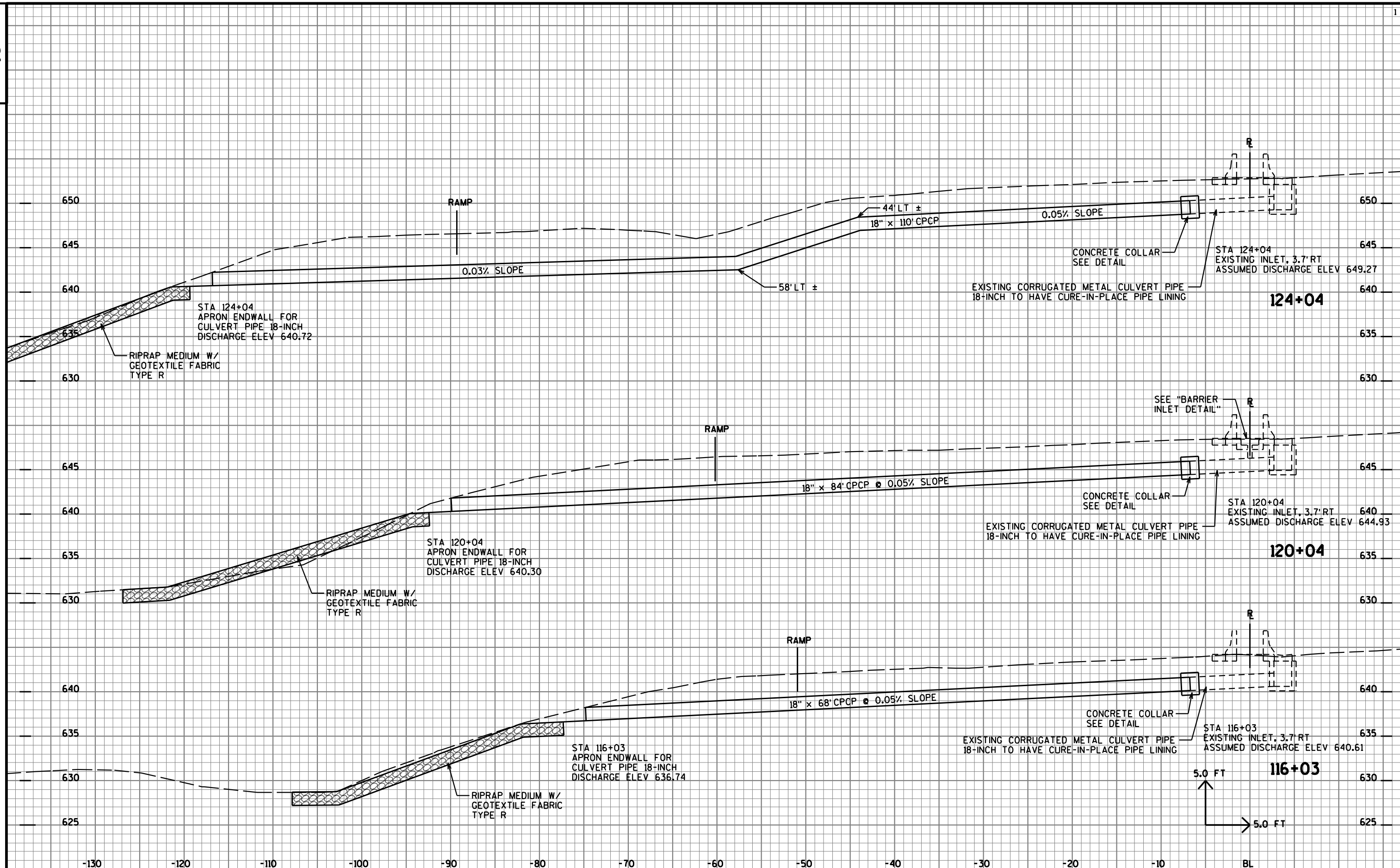
SUSQUEHANNA RAMP  
STA 116+03  
STA 120+04  
STA 124+04



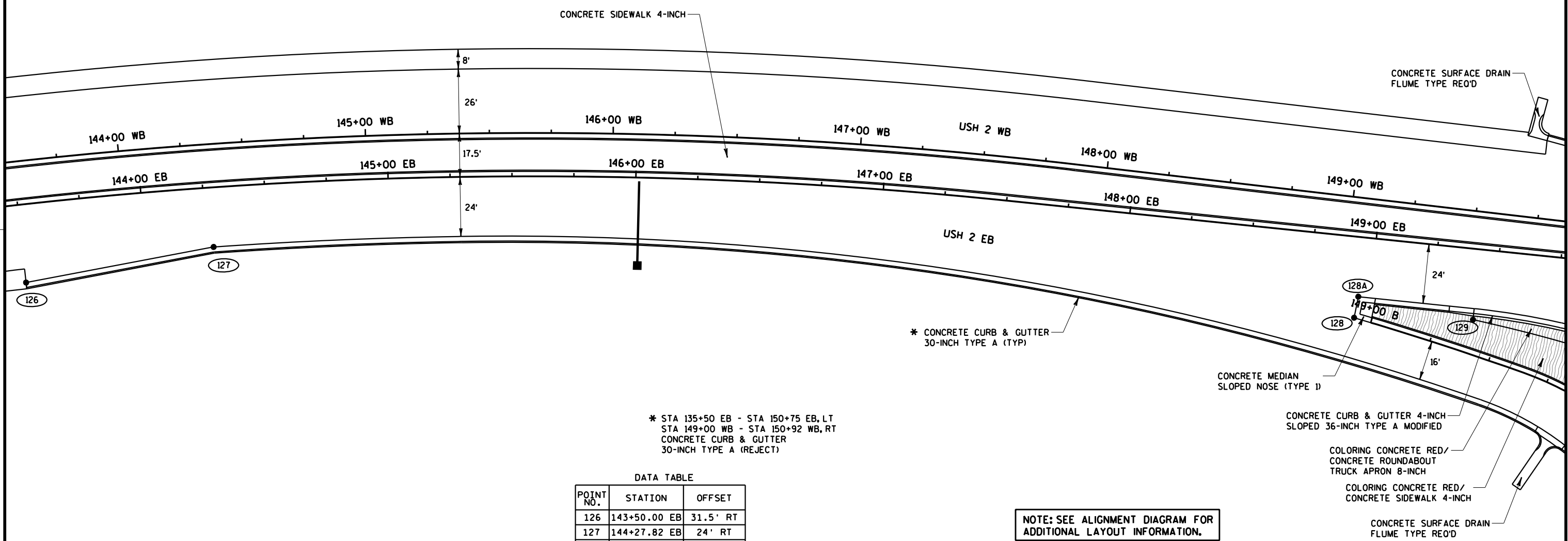
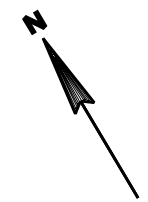
**CONCRETE COLLAR DETAIL**

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





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

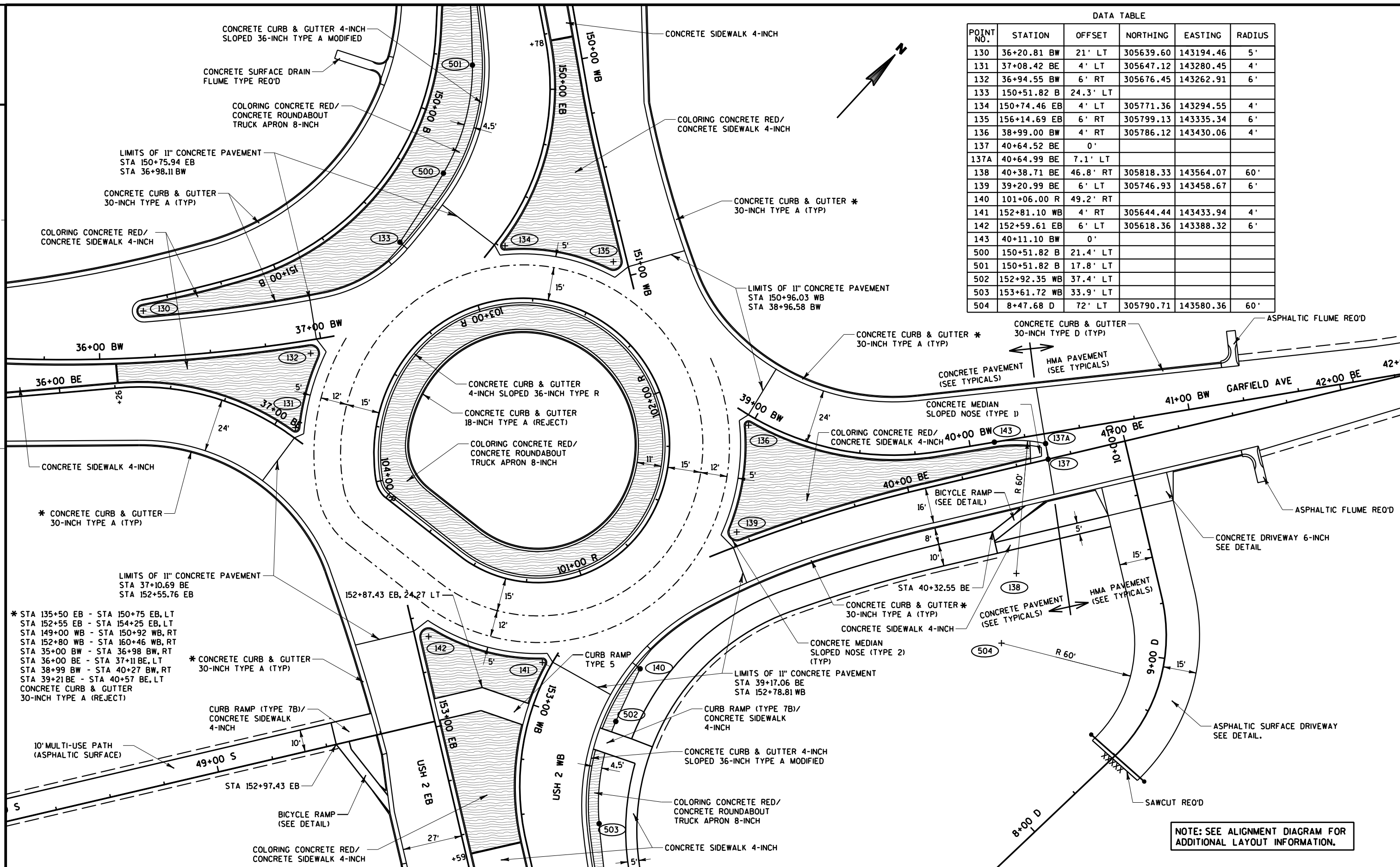
DATA TABLE

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.

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'

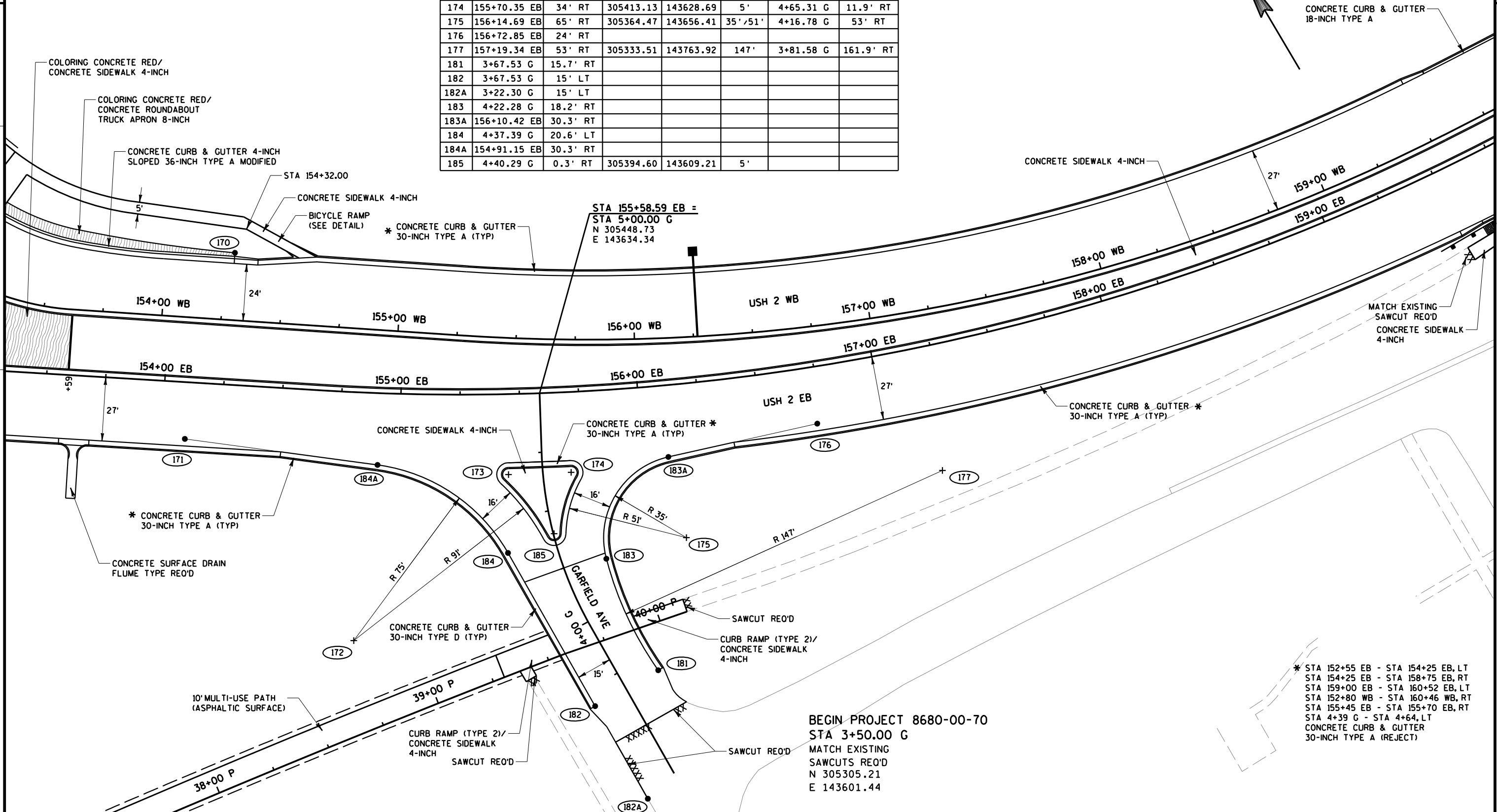
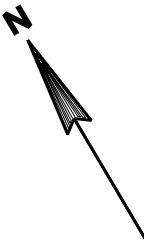


NOTE: SEE ALIGNMENT DIAGRAM FOR ADDITIONAL LAYOUT INFORMATION.



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.



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

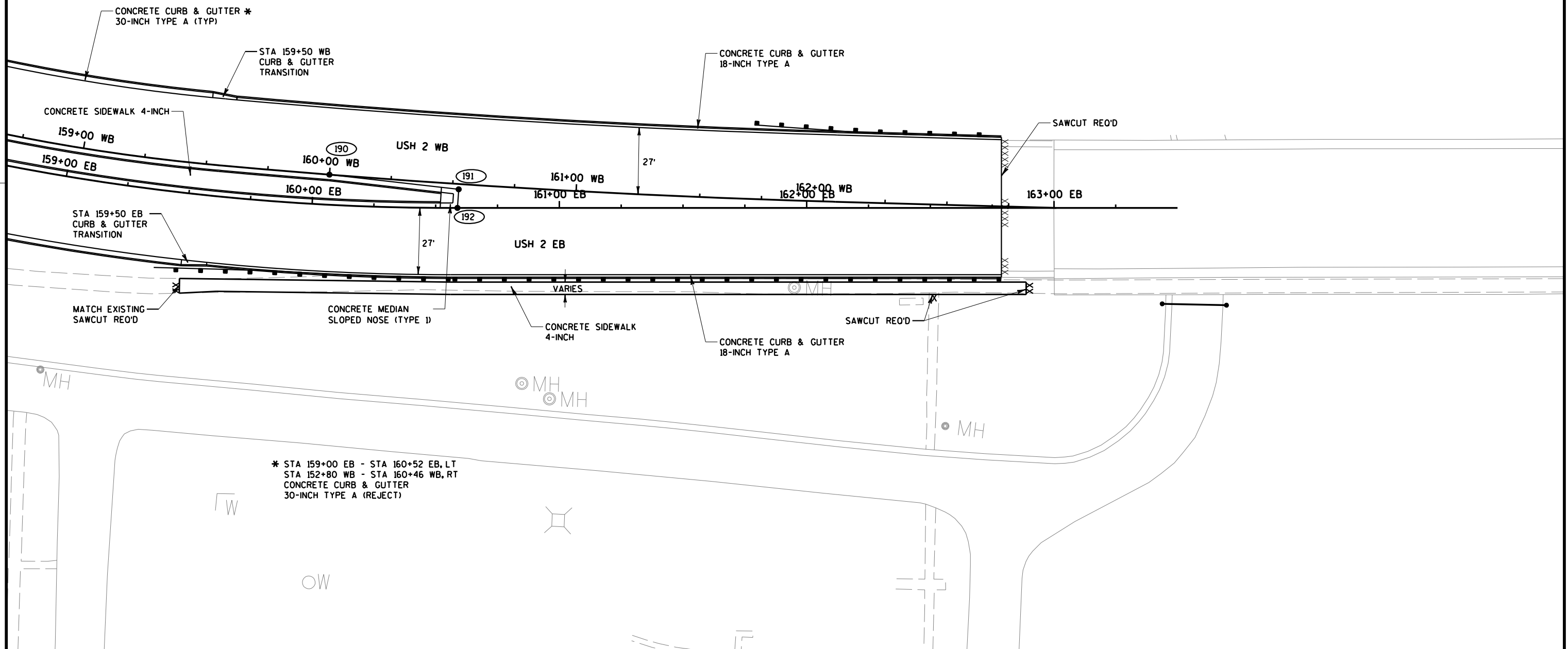
BEGIN PROJECT 8680-00-70  
 STA 3+50.00 G  
 MATCH EXISTING  
 SAWCUTS REO'D  
 N 305305.21  
 E 143601.44

\* 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)

DATA TABLE

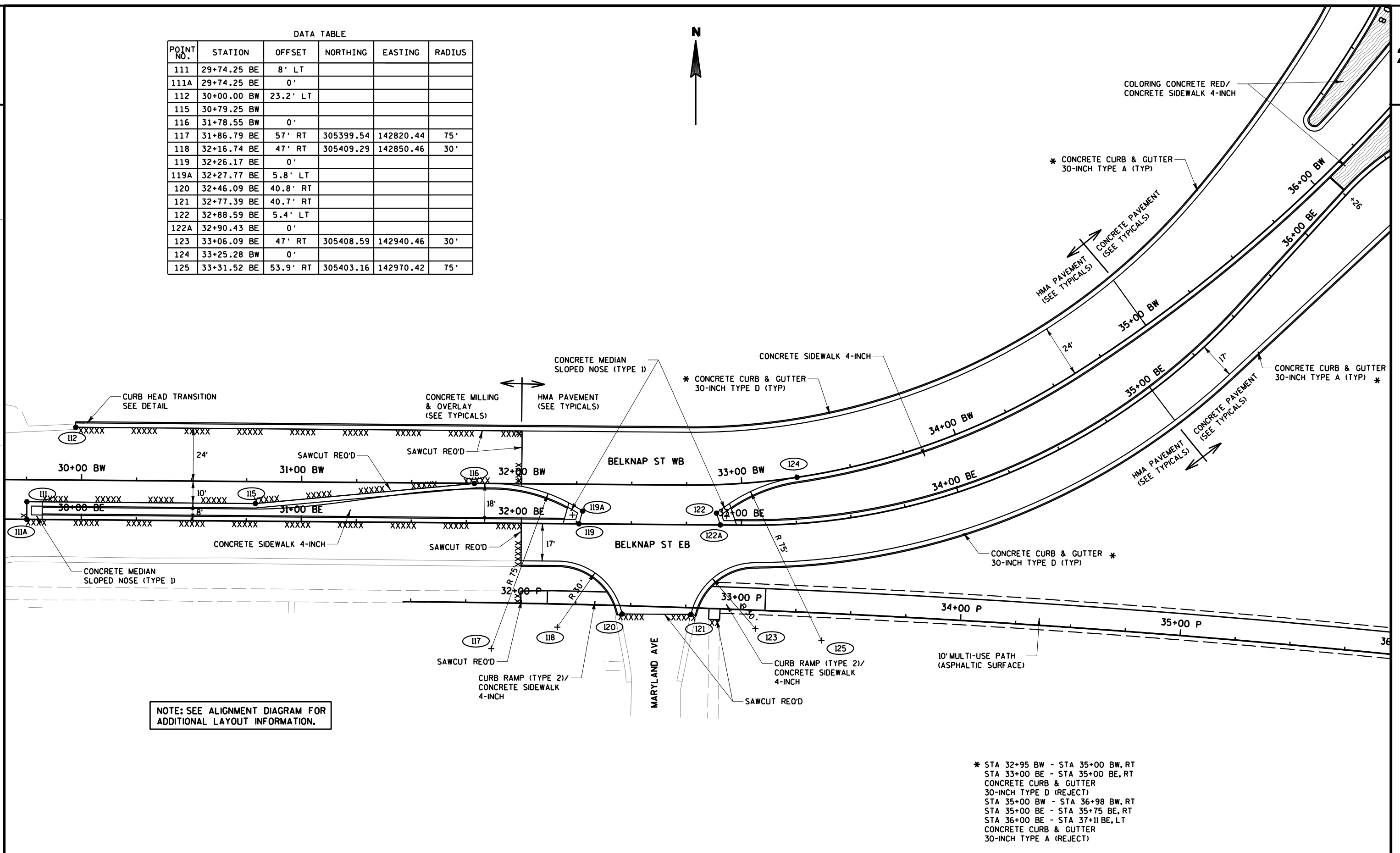
POINT NO.	STATION	OFFSET
190	160+00.00 WB	0'
191	160+59.29 EB	7.5' LT
192	160+58.79 EB	0'

NOTE: SEE ALIGNMENT DIAGRAM FOR ADDITIONAL LAYOUT INFORMATION.



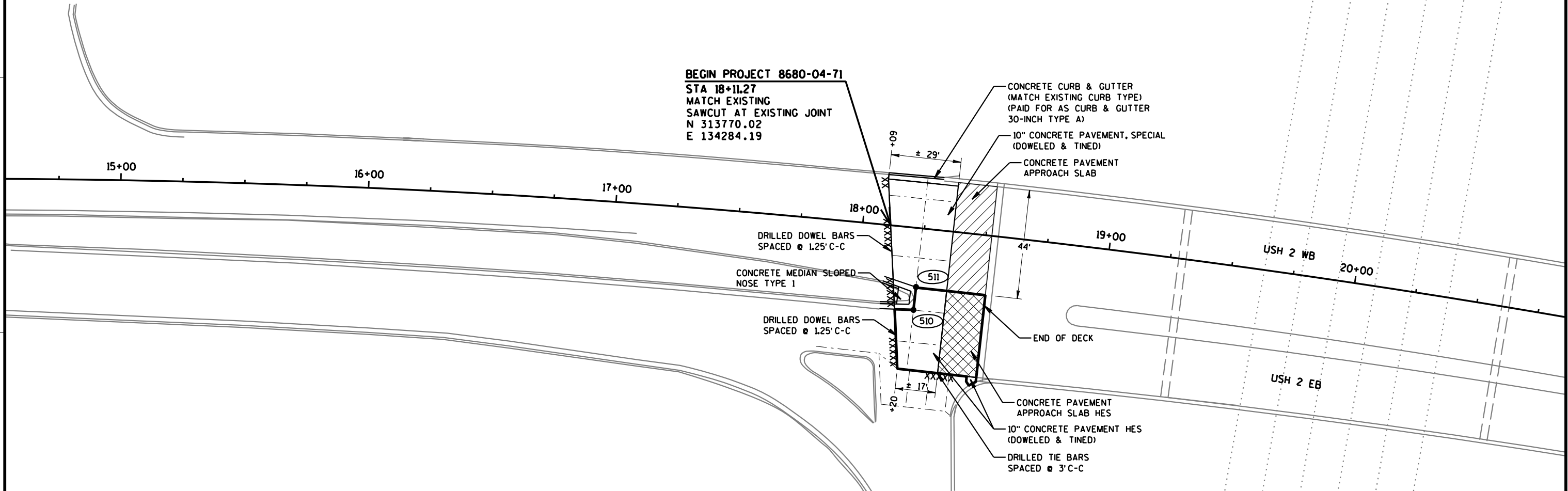
DATA TABLE

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)



**CURVE DATA**

P.I. 29+42.01  
 N 313107.51  
 E 135201.49  
 $\Delta = 43^{\circ}08'06''$   
 D =  $1^{\circ}30'00''$   
 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

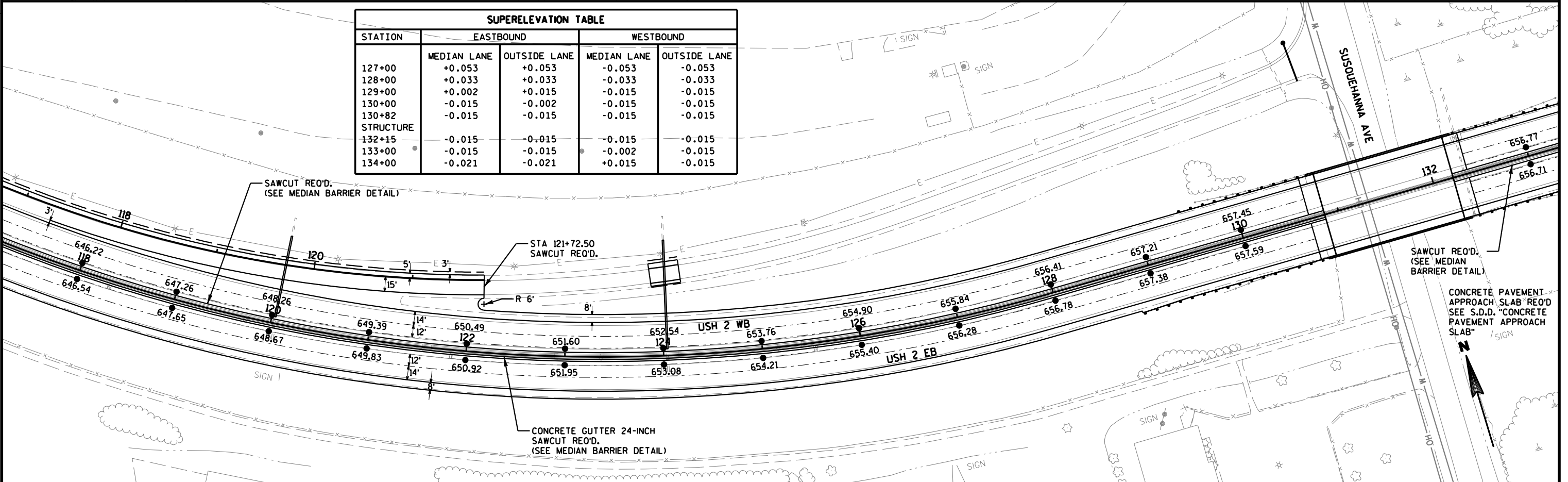
**NOTE:**  
 REMOVE EXISTING CONCRETE APPROACH SLAB, EXISTING CURB & GUTTER, AND EXISTING CONCRETE PAVEMENT BACK TO THE FIRST JOINT.

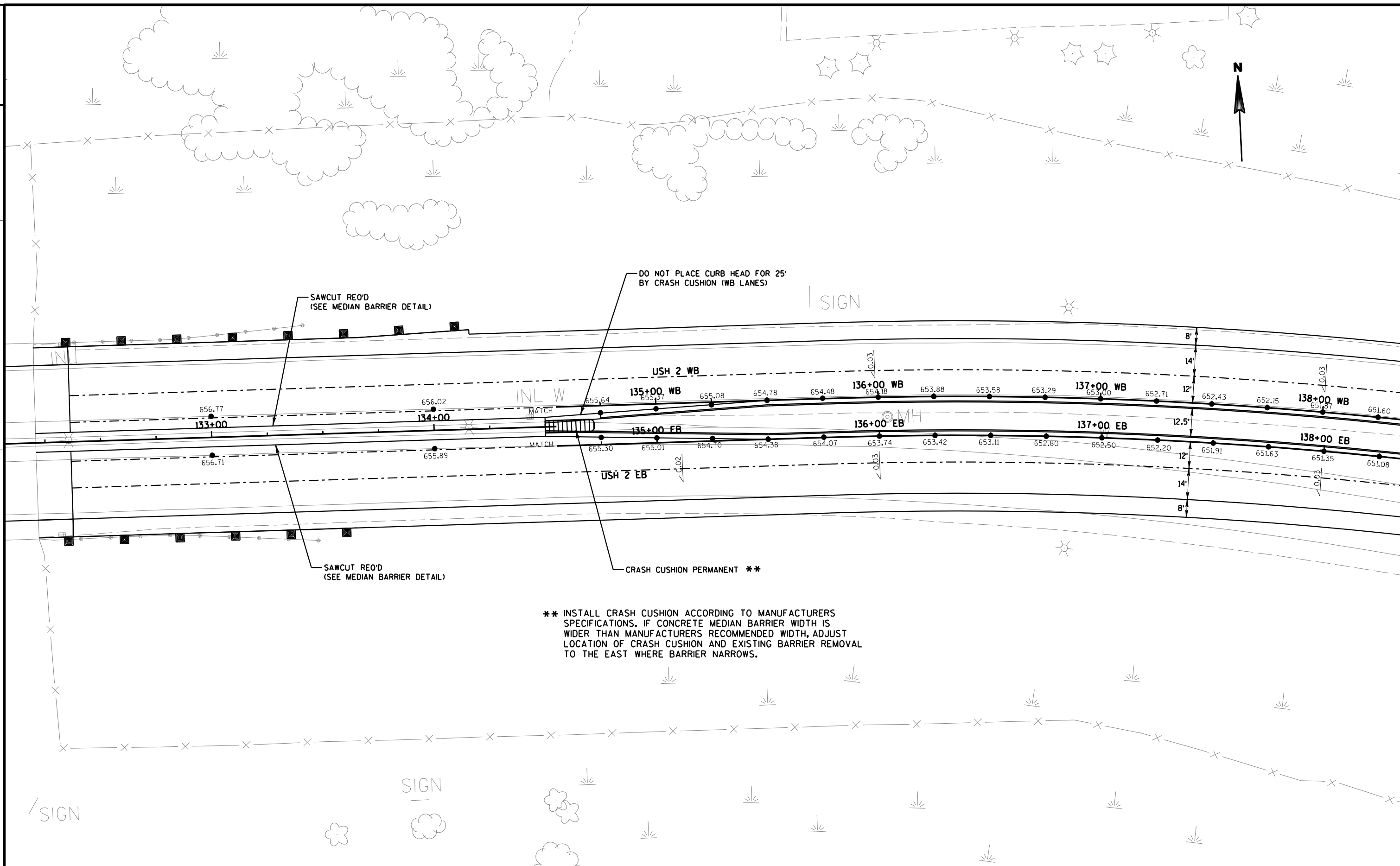
NOTE: SUPERELEVATION TABLES DETERMINED FROM AS-BUILT PLANS. THE CONTRACTOR WILL CONFIRM ACTUAL SLOPES OF EXISTING PAVEMENT IN THE FIELD FOR THE PAVEMENT REPLACEMENT SECTION FROM STA 101+72 TO STA 134+55 TO MATCH THE EXISTING PAVEMENT GRADES.

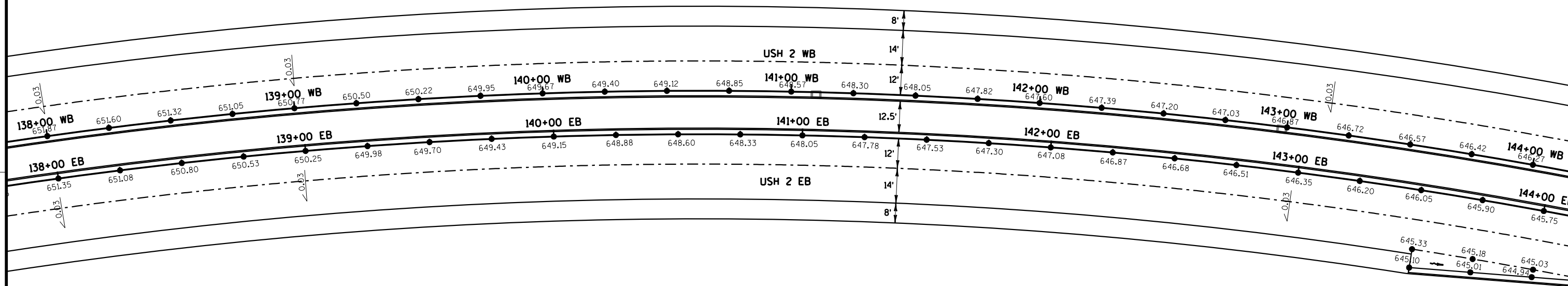
SUPERELEVATION TABLE		
STATION	WESTBOUND	
	MEDIAN LANE	OUTSIDE LANE
101+00	+0.053	+0.053
101+72	+0.053	+0.053
102+00	+0.051	+0.051
102+40	+0.038	+0.038
103+00	+0.019	+0.019
104+00	+0.015	-0.012
105+00	+0.015	-0.015
106+00	+0.020	-0.020
107+00	-0.016	-0.016
107+40	-0.029	-0.029
108+00	-0.048	-0.048
109+00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

STATION	SUPERELEVATION TABLE			
	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

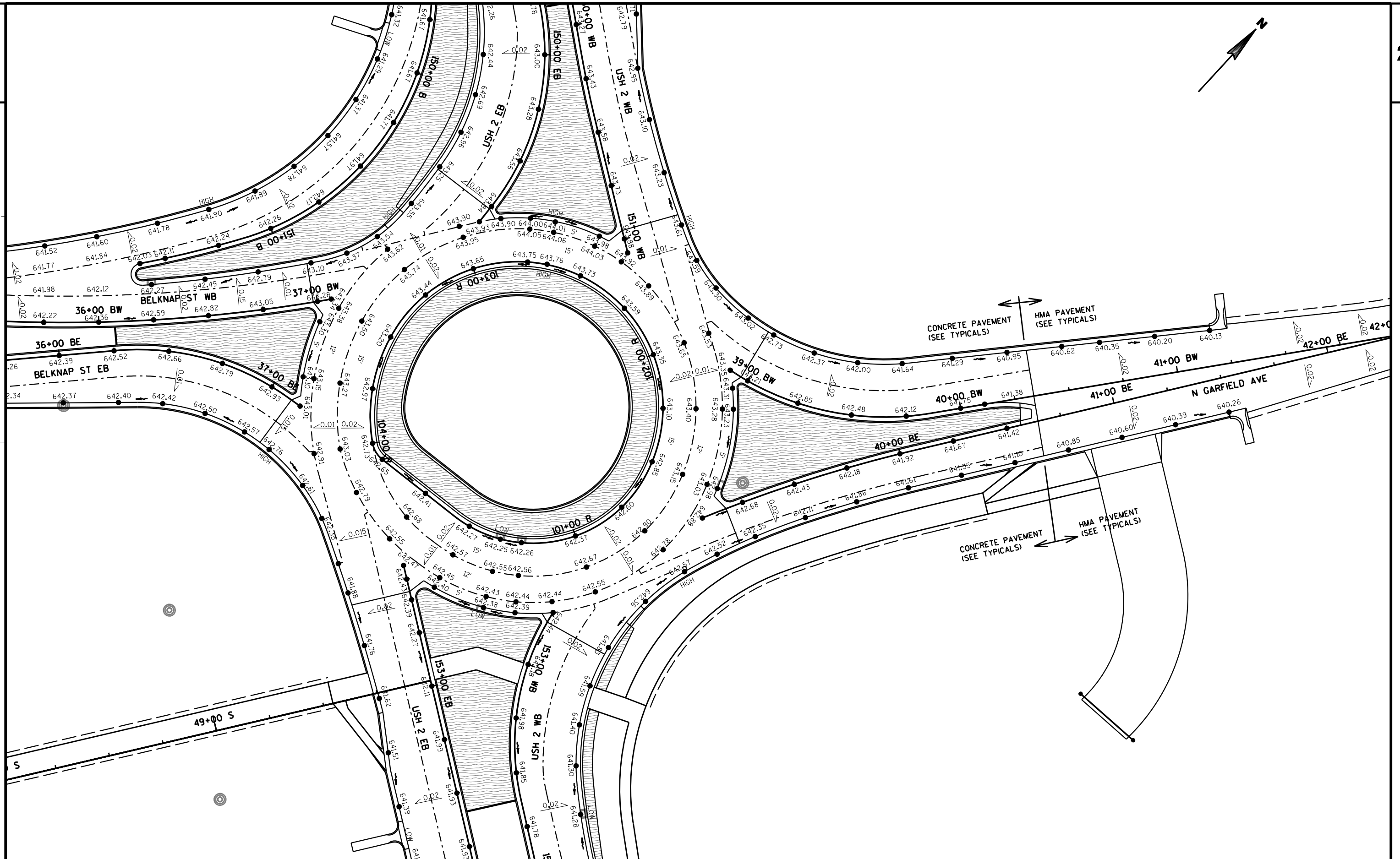
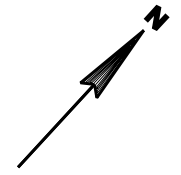












PROJECT NO: 8680-04-74

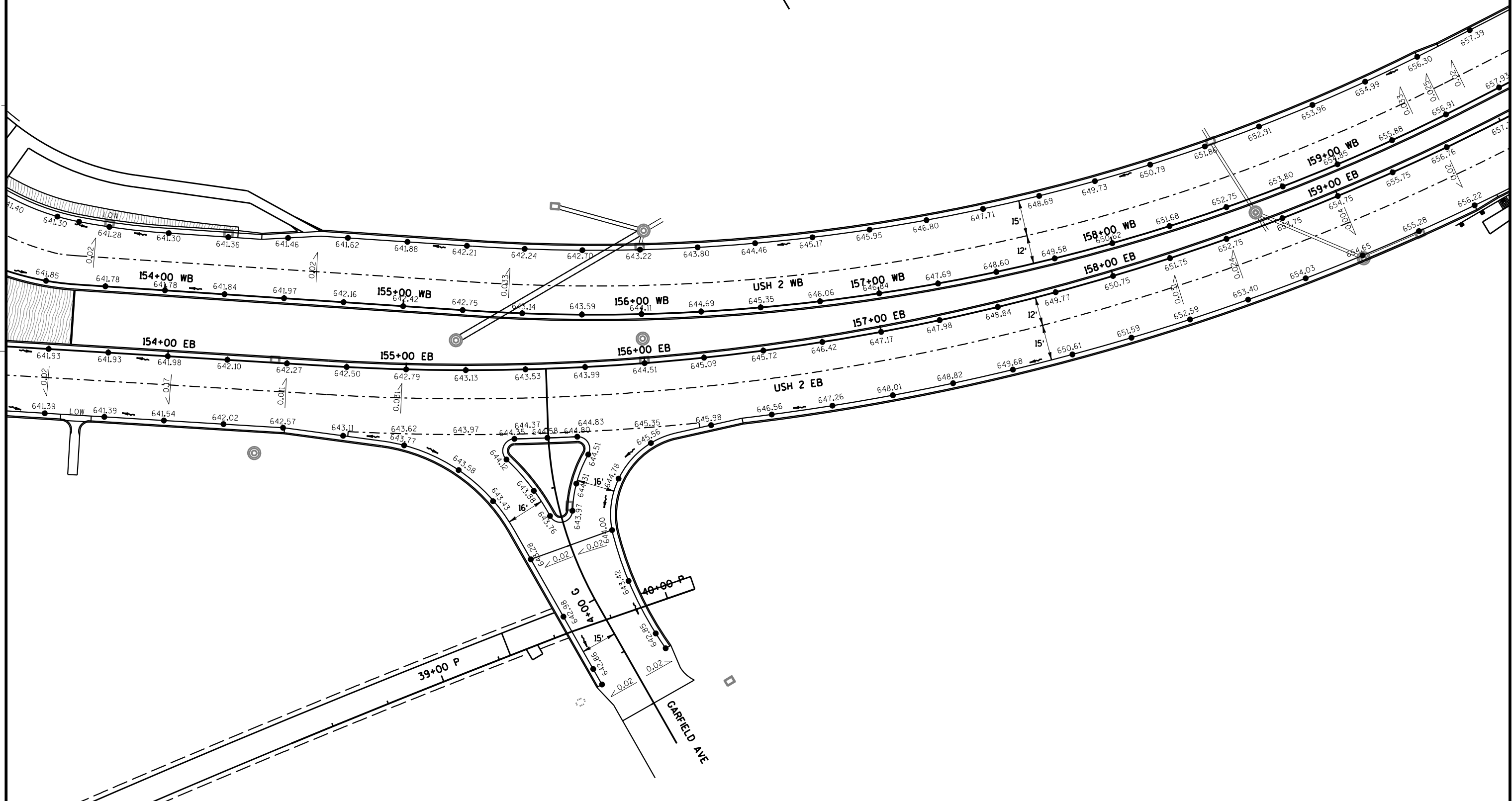
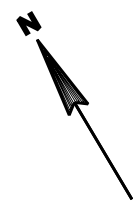
HWY: USH 2

COUNTY: DOUGLAS

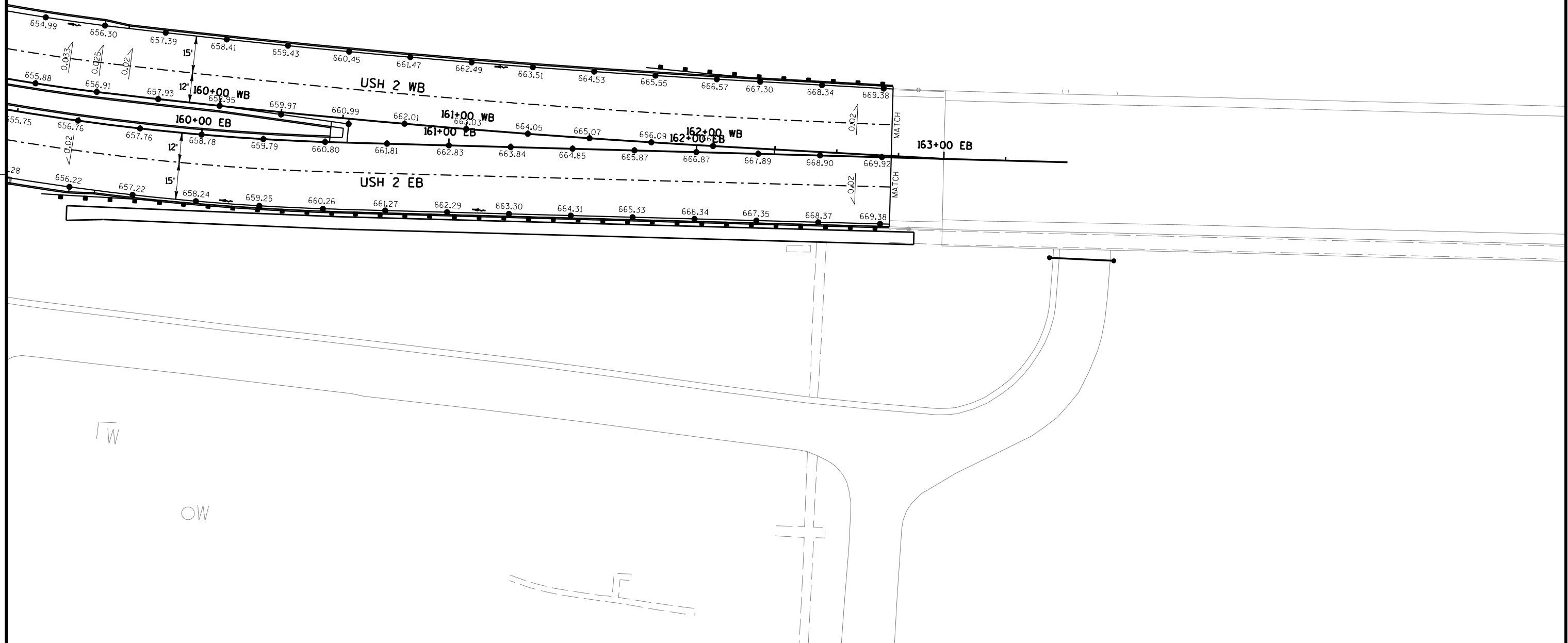
PAVING DETAIL - USH 2/BELKNAP ST

SHEET

E



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

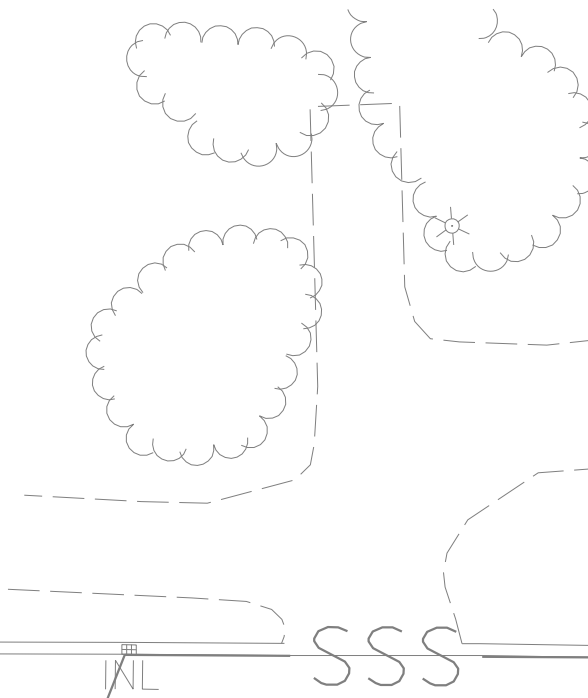


NOTES:

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.



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

SUSQUEHANNA AVE

SAWCUT REO'D.

CONCRETE CURB & GUTTER  
TO REMAIN

18+00 BE

19+00 BE

20+00 BE

21+00 BE

VARIES

22+00 BE

23+00 BE

24+00 BE

BELKNAP ST

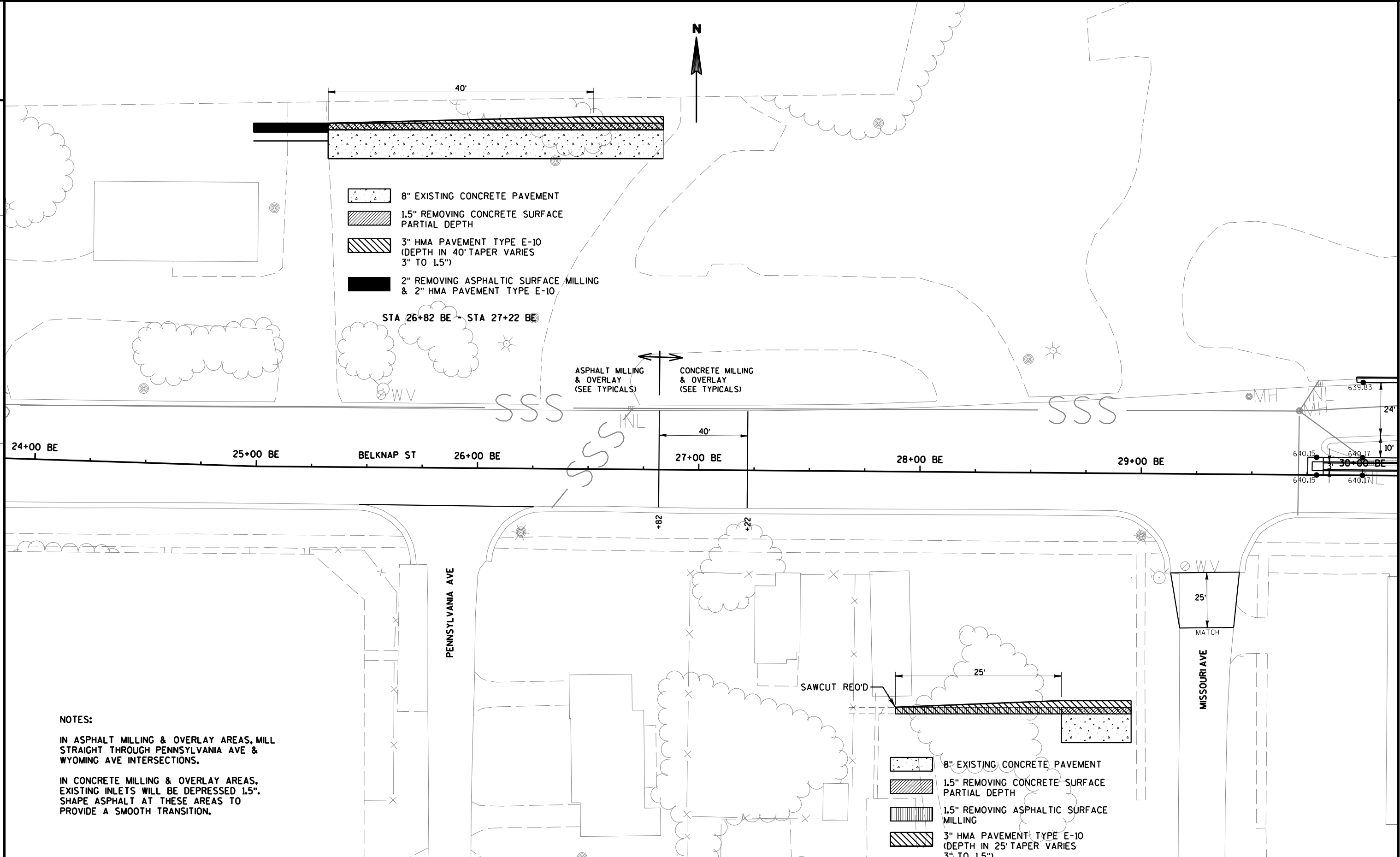
VARIES





CONCRETE CURB & GUTTER  
TO REMAIN

SAWCUT REO'D.

SUSQUEHANNA AVE

WYOMING AVE



-  8" EXISTING CONCRETE PAVEMENT
-  1.5" REMOVING CONCRETE SURFACE PARTIAL DEPTH
-  3" HMA PAVEMENT TYPE E-10 (DEPTH IN 40' TAPER VARIES 3" TO 1.5")
-  2" REMOVING ASPHALTIC SURFACE MILLING & 2" HMA PAVEMENT TYPE E-10

STA 26+82 BE - STA 27+22 BE

ASPHALT MILLING & OVERLAY (SEE TYPICALS)

CONCRETE MILLING & OVERLAY (SEE TYPICALS)

24+00 BE      25+00 BE      BELKNAP ST      26+00 BE      27+00 BE      28+00 BE      29+00 BE      30+00 BE





PENNSYLVANIA AVE

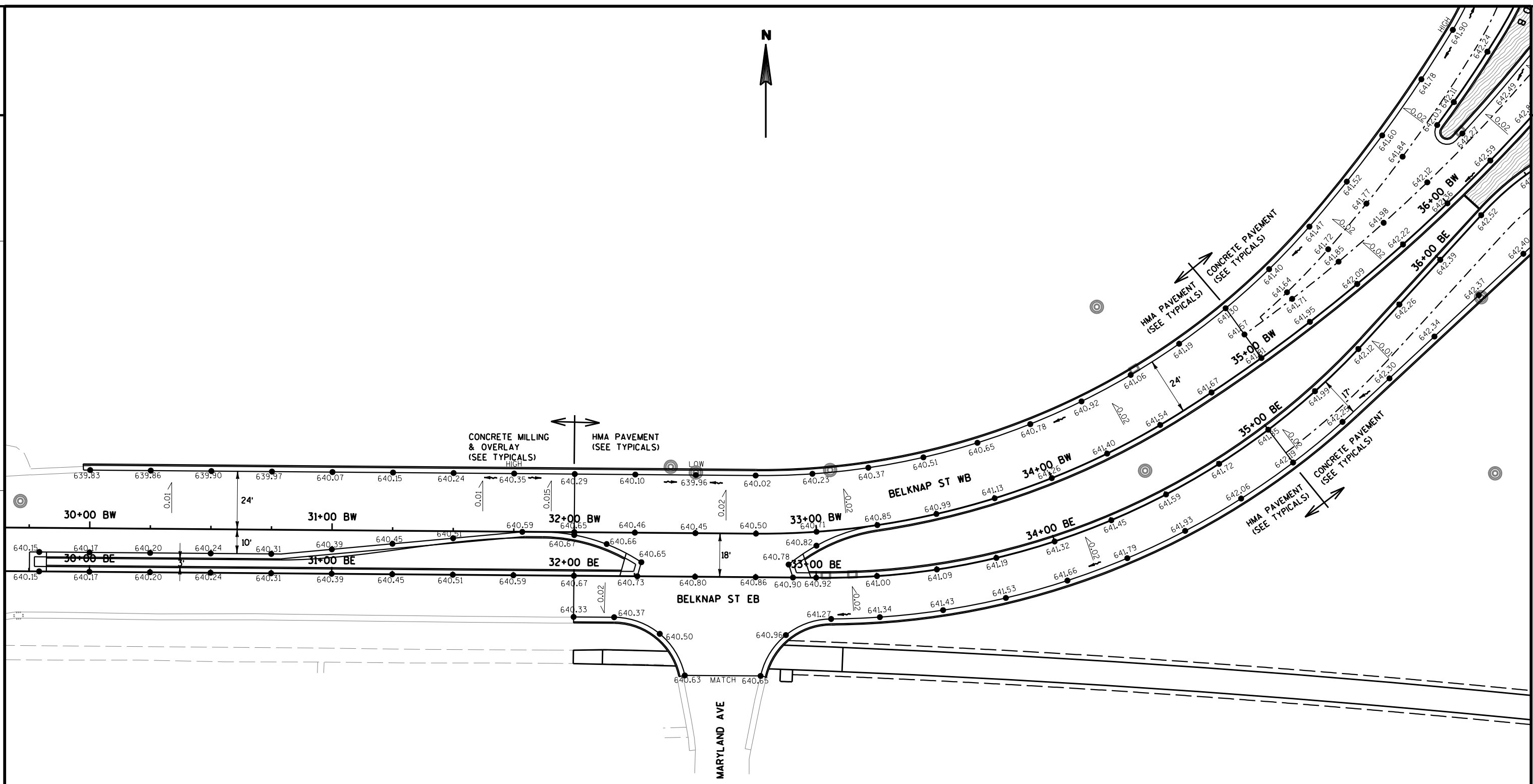
MISSOURI AVE

**NOTES:**

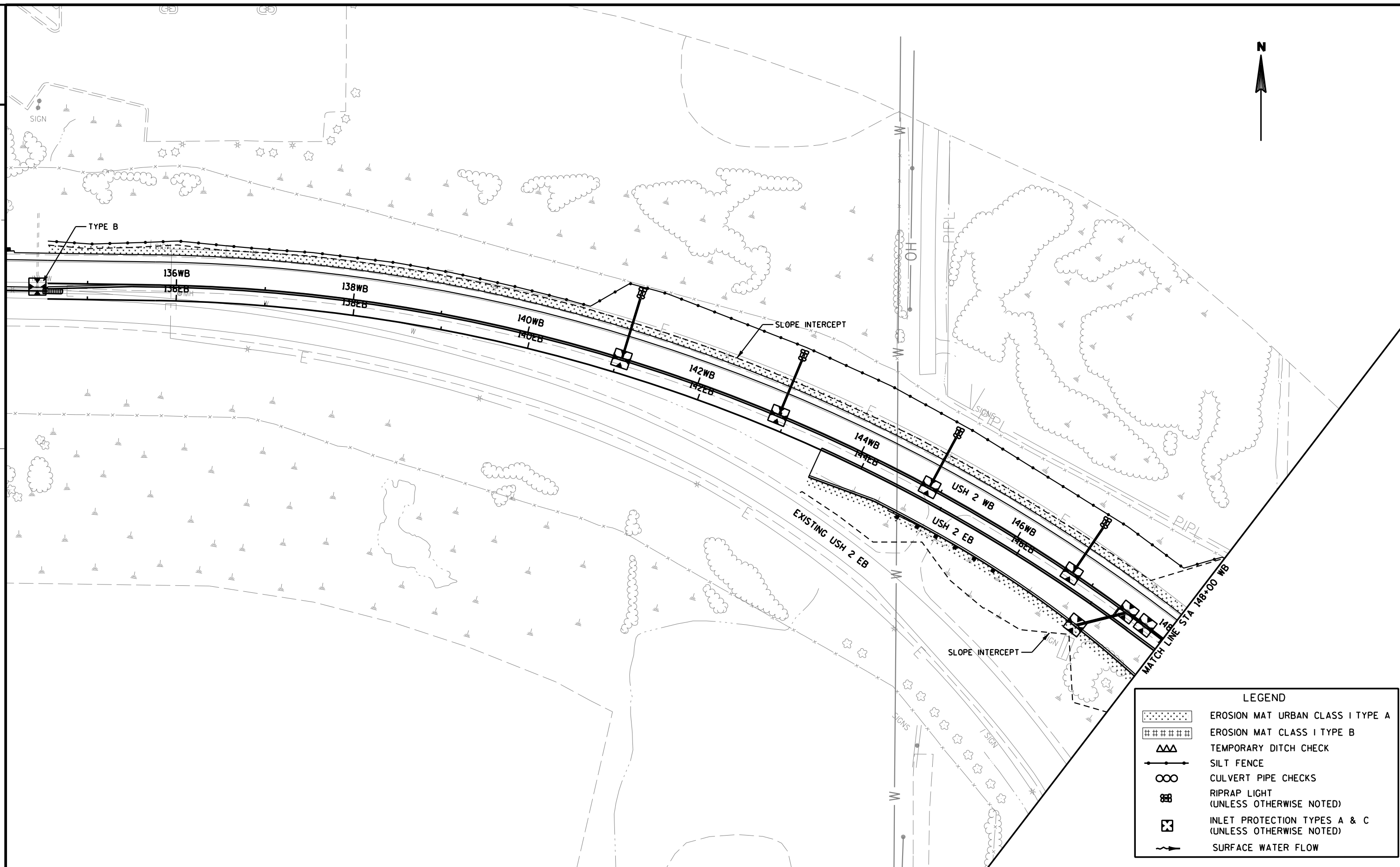
IN ASPHALT MILLING & OVERLAY AREAS, MILL STRAIGHT THROUGH PENNSYLVANIA AVE & WYOMING AVE INTERSECTIONS.

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

-  8" EXISTING CONCRETE PAVEMENT
-  1.5" REMOVING CONCRETE SURFACE PARTIAL DEPTH
-  1.5" REMOVING ASPHALTIC SURFACE MILLING
-  3" HMA PAVEMENT TYPE E-10 (DEPTH IN 25' TAPER VARIES 3" TO 1.5")

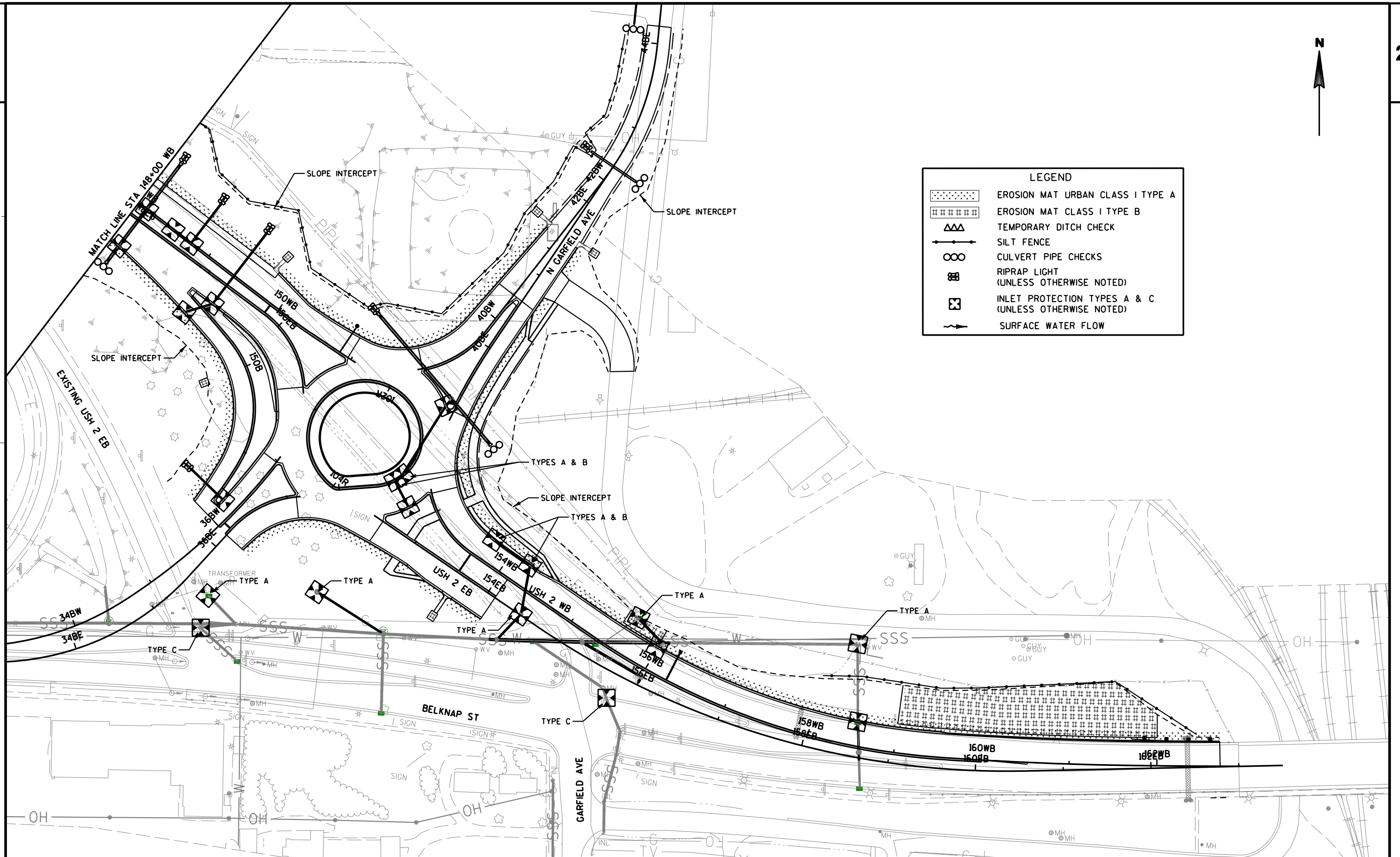


PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	PAVING DETAIL - BELKNAP ST	SHEET E
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**LEGEND**

	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



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

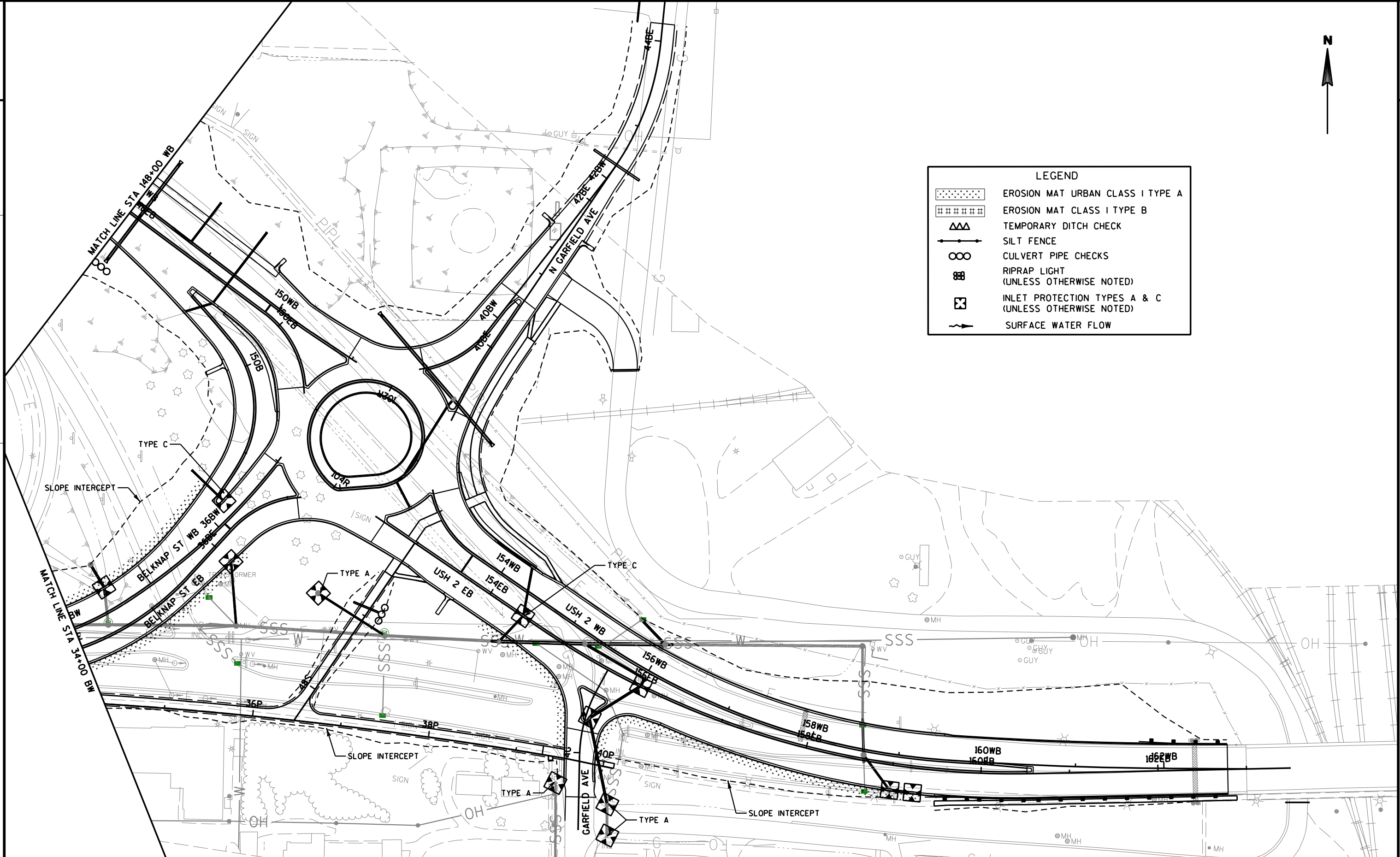





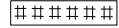






LEGEND	
	EROSION MAT URBAN CLASS I TYPE A
	EROSION MAT CLASS I TYPE B
	TEMPORARY DITCH CHECK
	SILT FENCE
	CULVERT PIPE CHECKS
	RIPRAP LIGHT (UNLESS OTHERWISE NOTED)
	INLET PROTECTION TYPES A & C (UNLESS OTHERWISE NOTED)
	SURFACE WATER FLOW

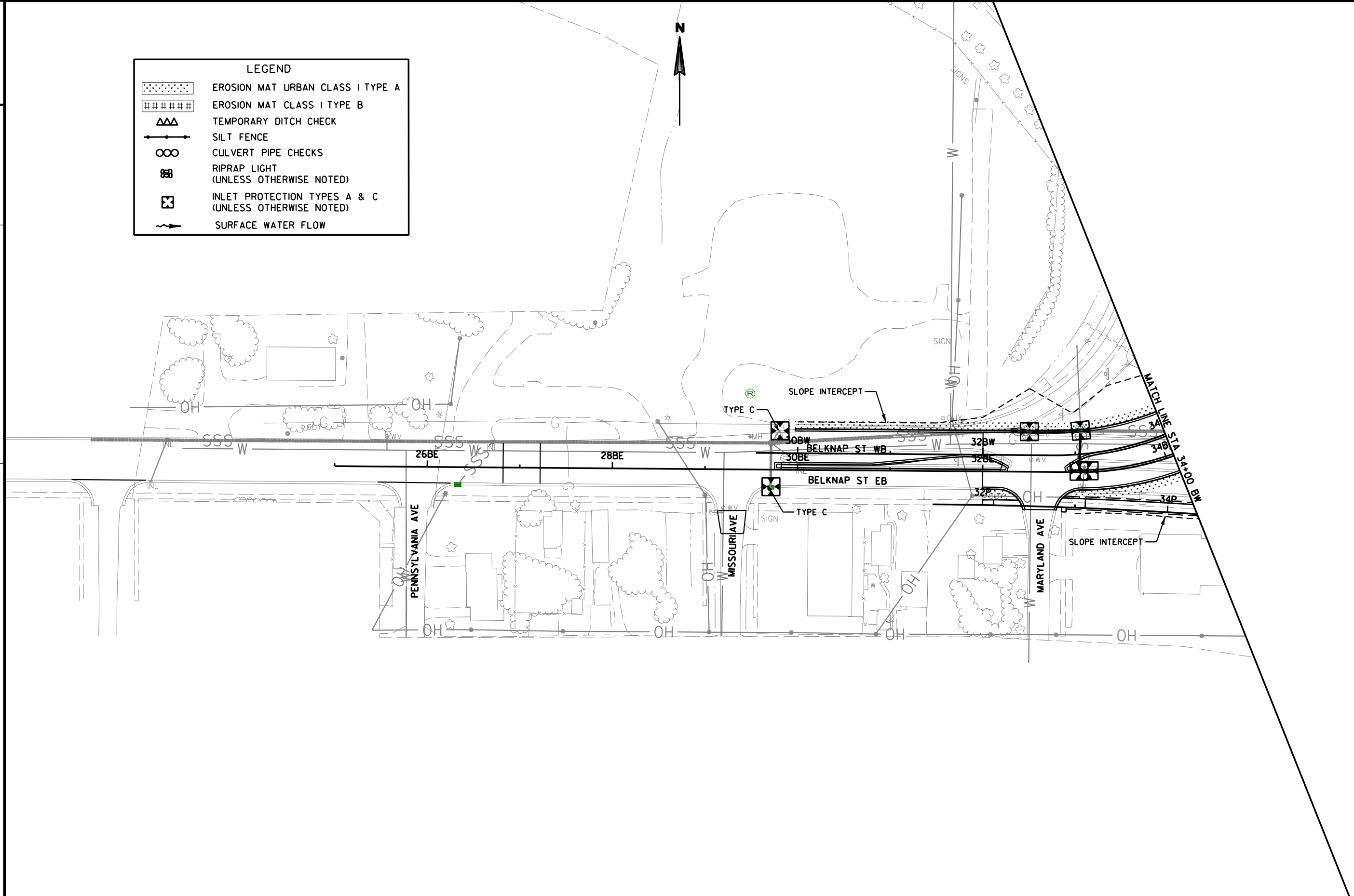


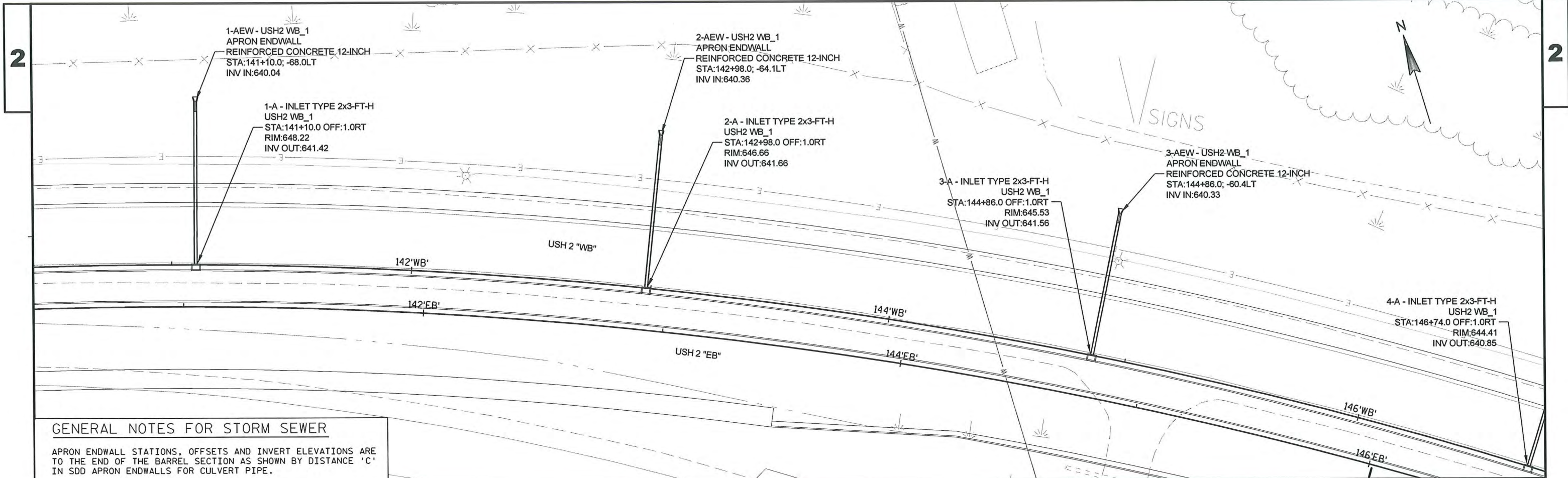
LEGEND	
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	EROSION MAT CLASS I TYPE B
	TEMPORARY DITCH CHECK
	SILT FENCE
	CULVERT PIPE CHECKS
	RIPRAP LIGHT (UNLESS OTHERWISE NOTED)
	INLET PROTECTION TYPES A & C (UNLESS OTHERWISE NOTED)
	SURFACE WATER FLOW



PROJECT NO: 8680-00-70/04-74	HWY: USH 2	COUNTY: DOUGLAS	EROSION CONTROL - STAGE 3	SHEET	E
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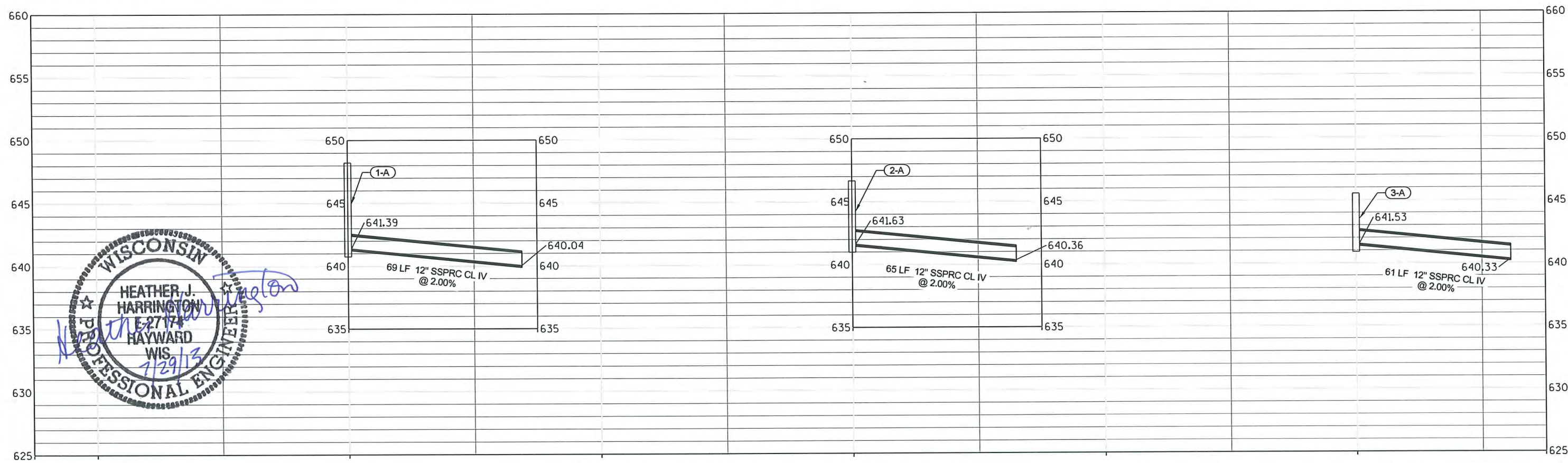
LEGEND	
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	EROSION MAT CLASS I TYPE B
	TEMPORARY DITCH CHECK
	SILT FENCE
	CULVERT PIPE CHECKS
	RIPRAP LIGHT (UNLESS OTHERWISE NOTED)
	INLET PROTECTION TYPES A & C (UNLESS OTHERWISE NOTED)
	SURFACE WATER FLOW

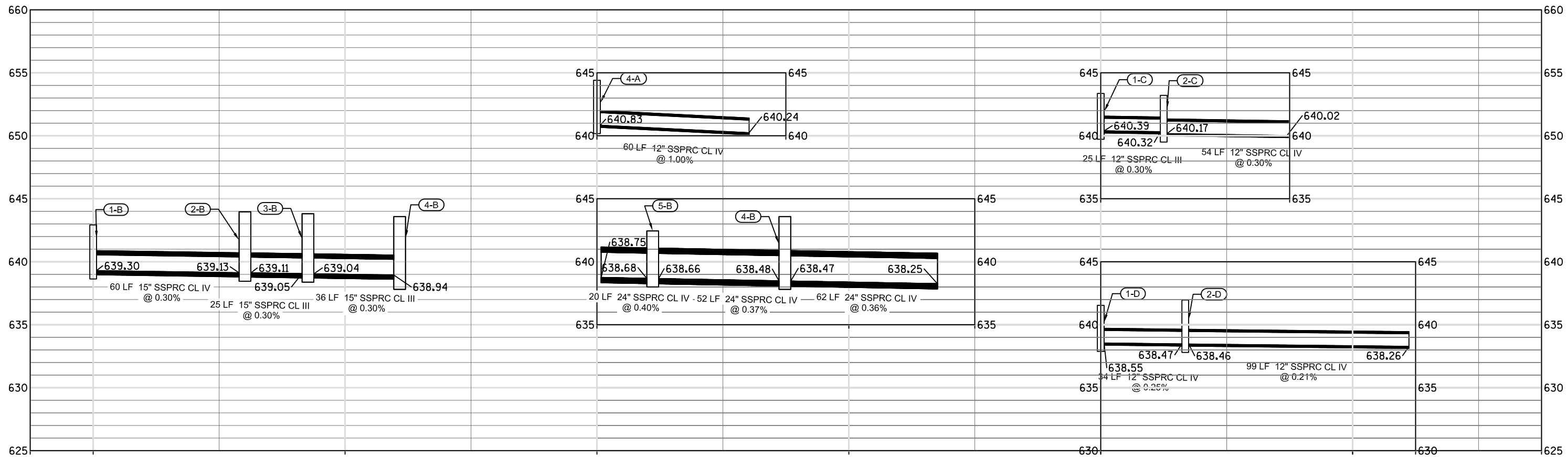
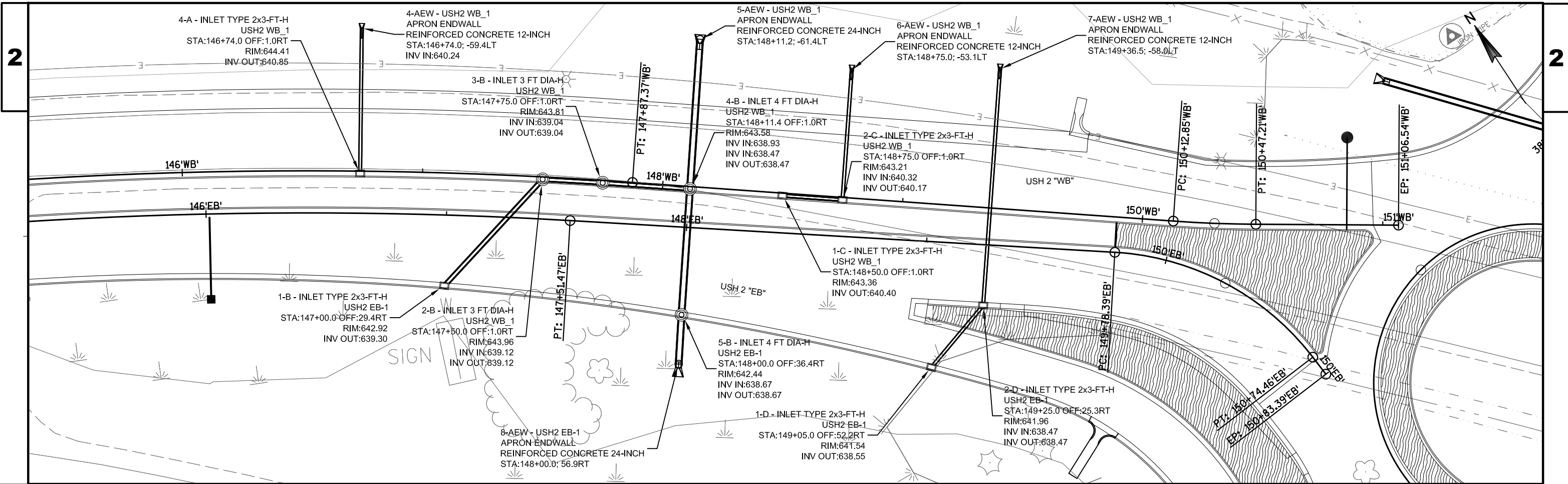




**GENERAL NOTES FOR STORM SEWER**

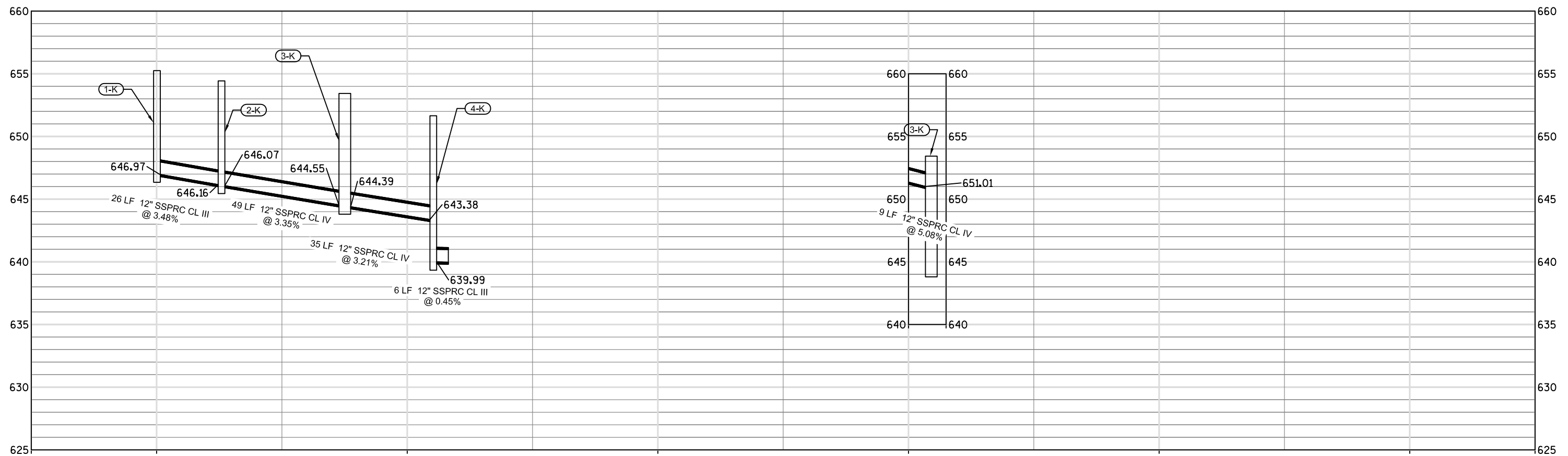
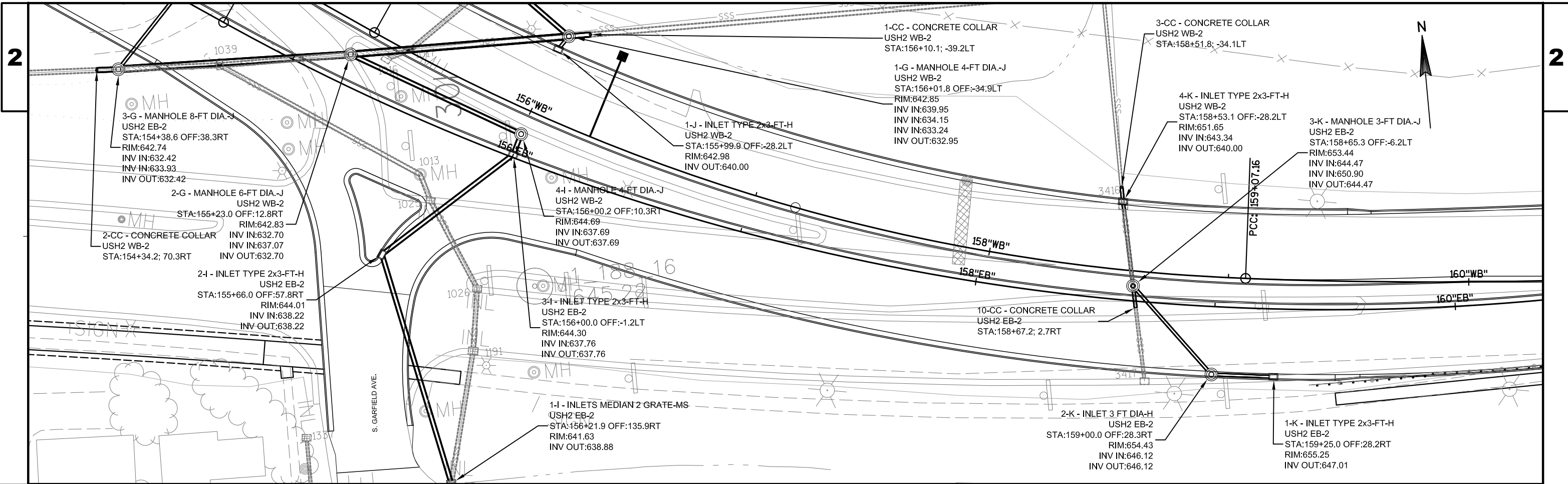
APRON ENDWALL STATIONS, OFFSETS AND INVERT ELEVATIONS ARE TO THE END OF THE BARREL SECTION AS SHOWN BY DISTANCE 'C' IN SDD APRON ENDWALLS FOR CULVERT PIPE.



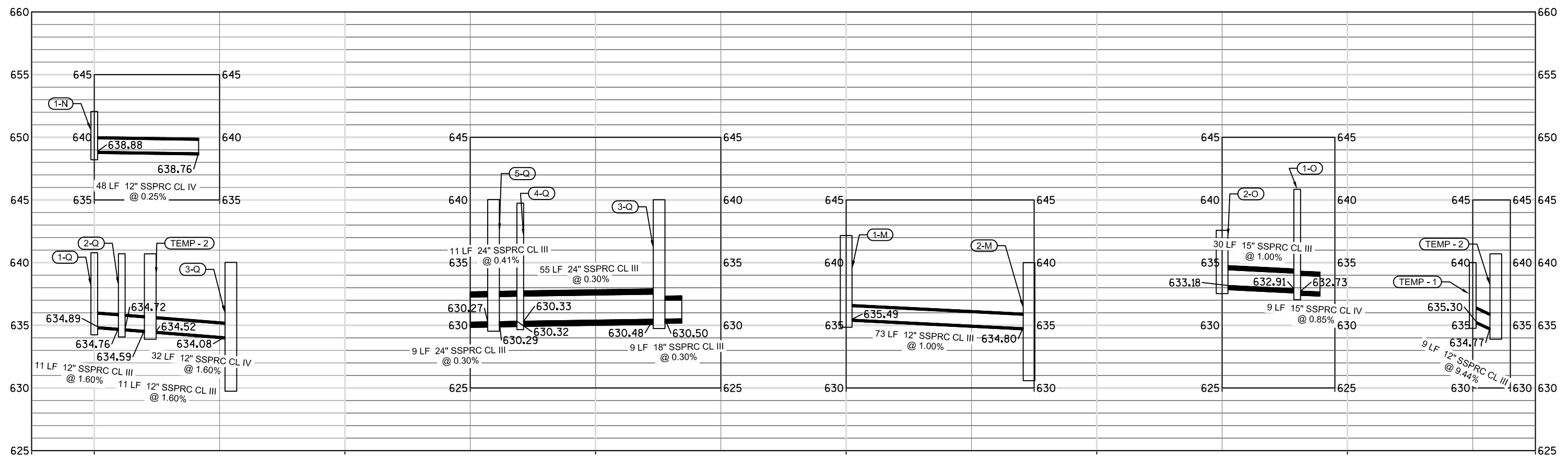
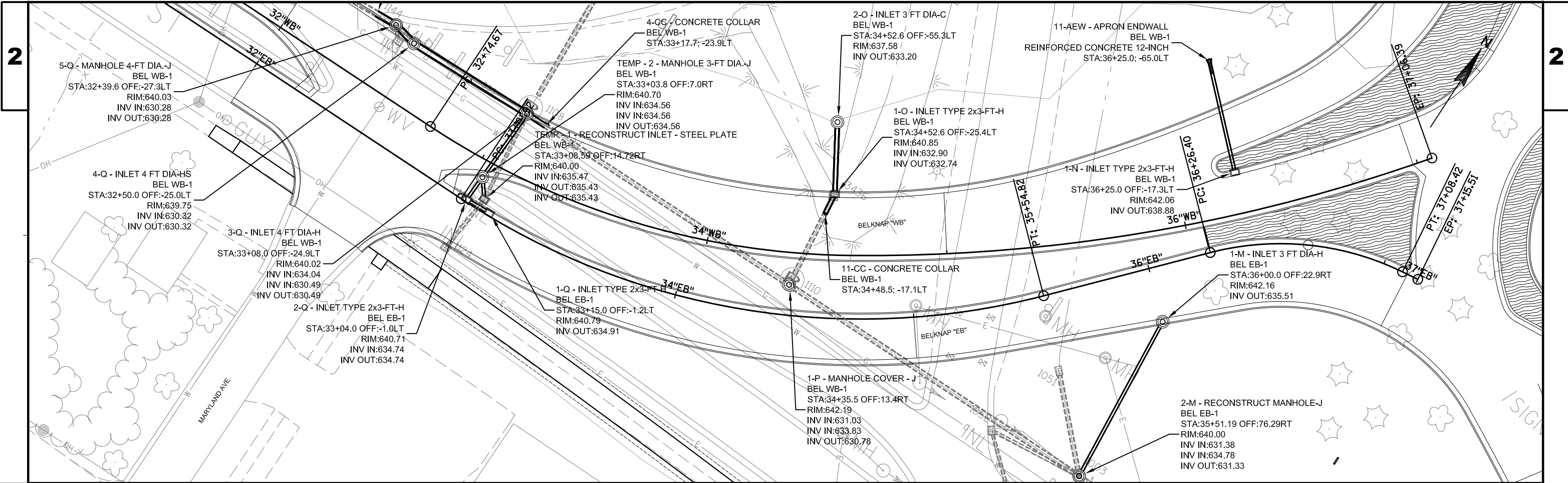


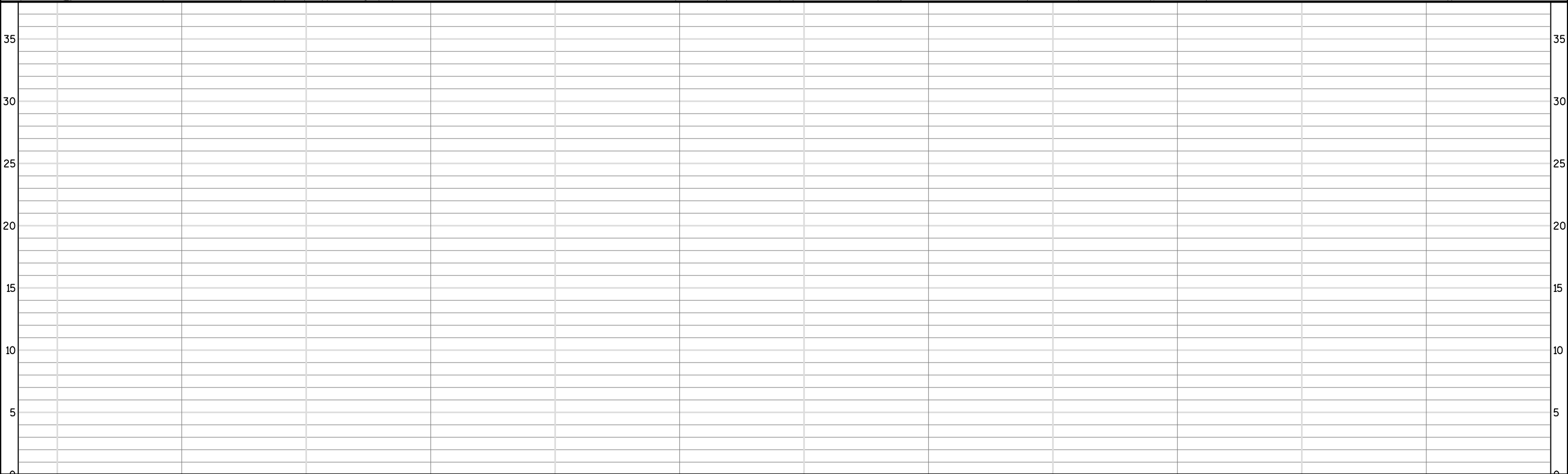
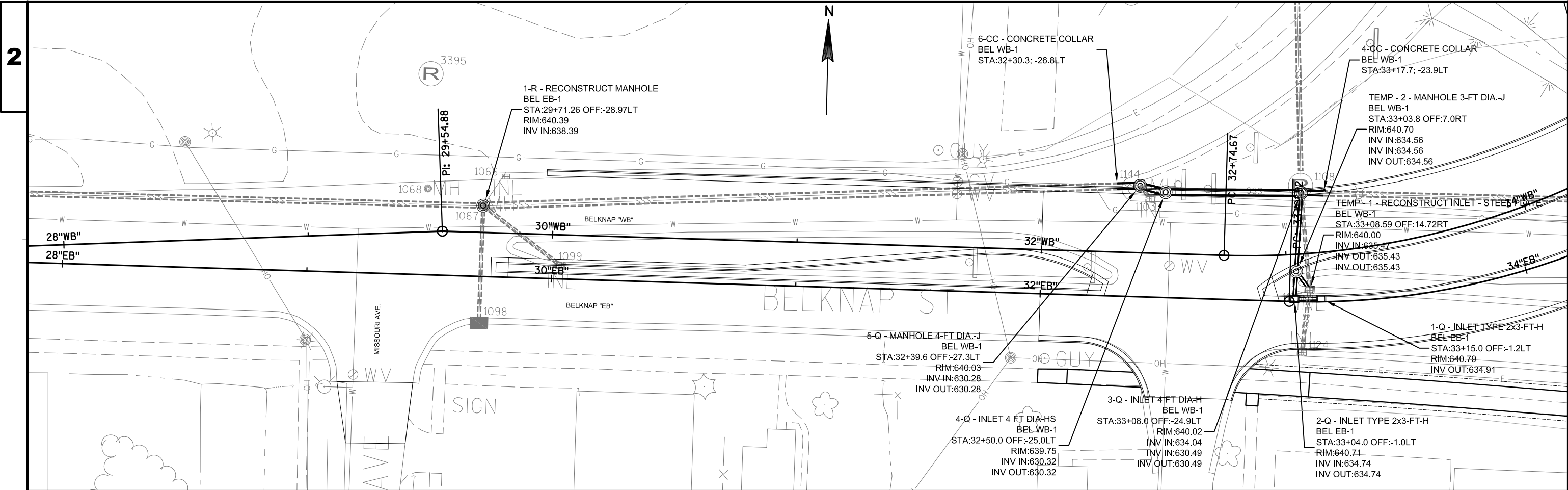




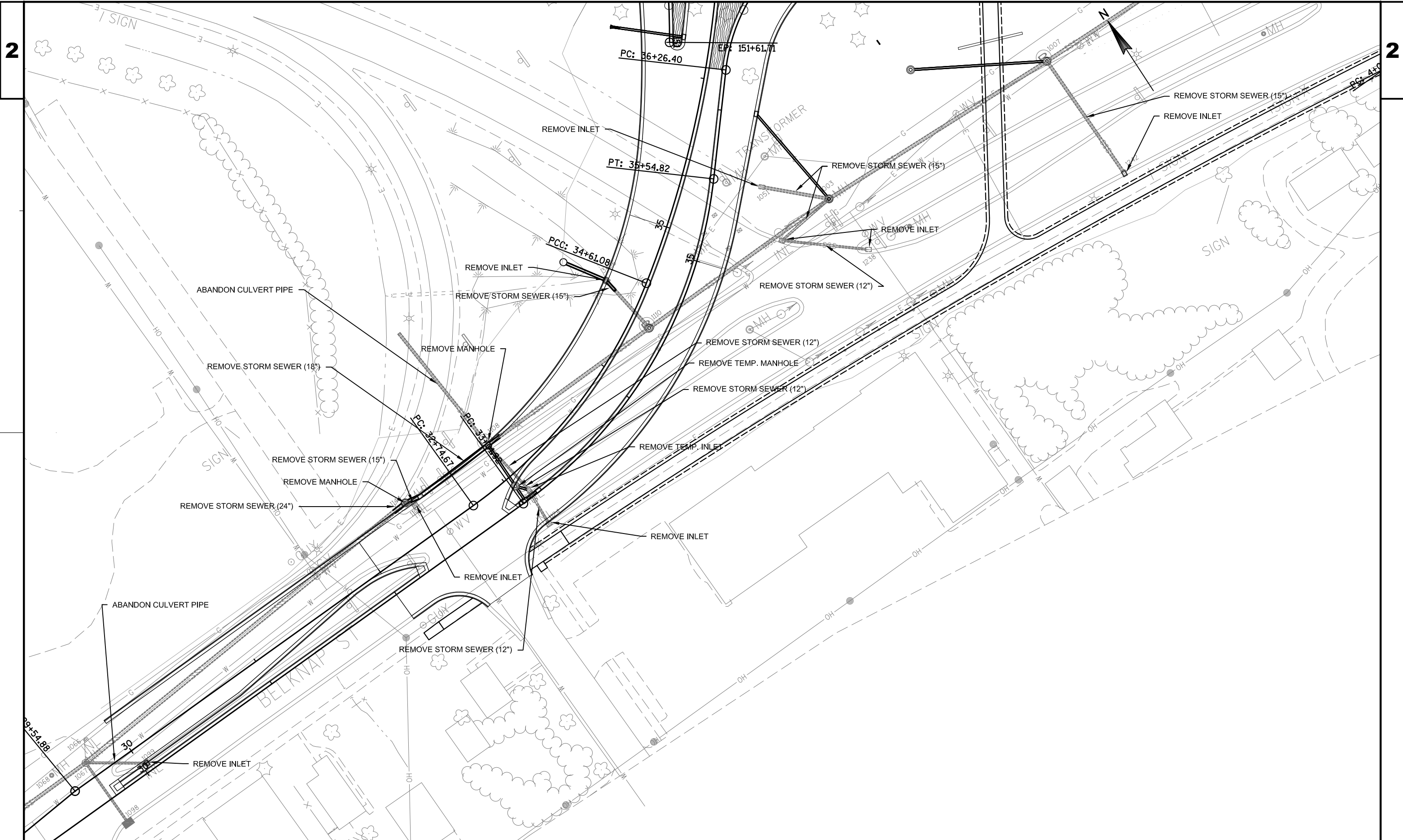








PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	STORM SEWER	SHEET	<b>E</b>
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PROJECT NO: 8680-04-74

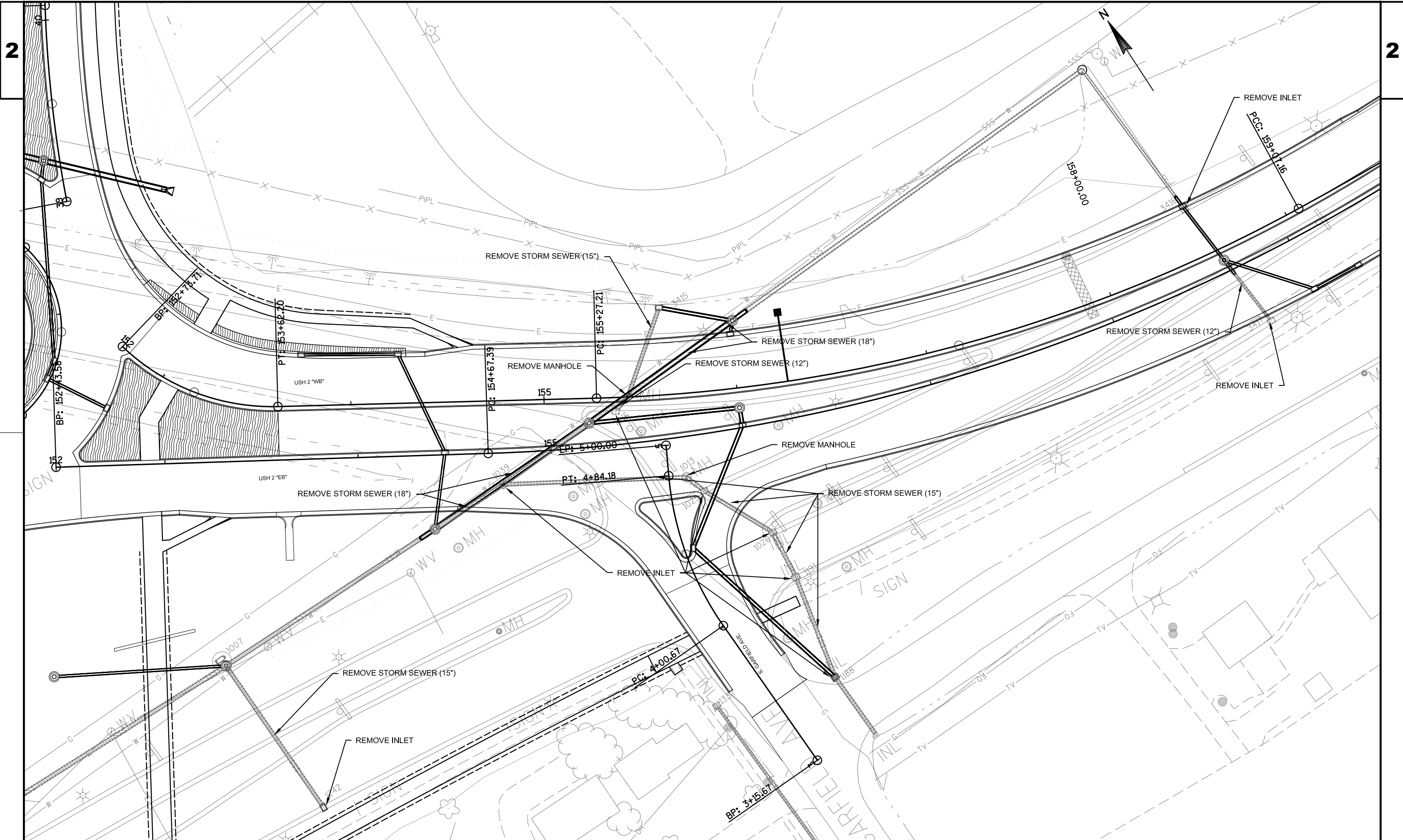
HWY: USH 2

COUNTY: DOUGLAS

STORM SEWER REMOVALS

SHEET

E



PROJECT NO: 8680-04-74

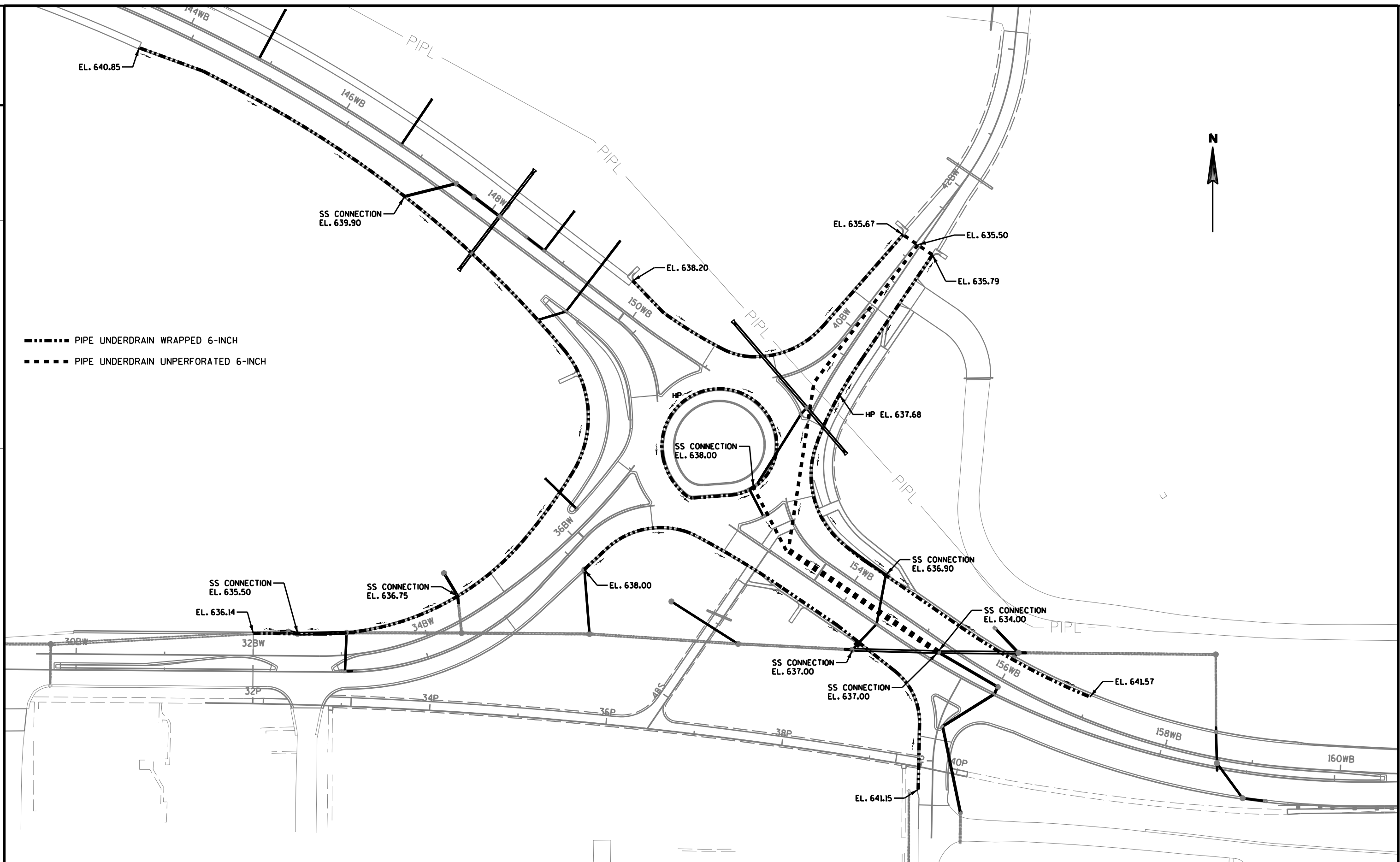
HWY: USH 2

COUNTY: DOUGLAS

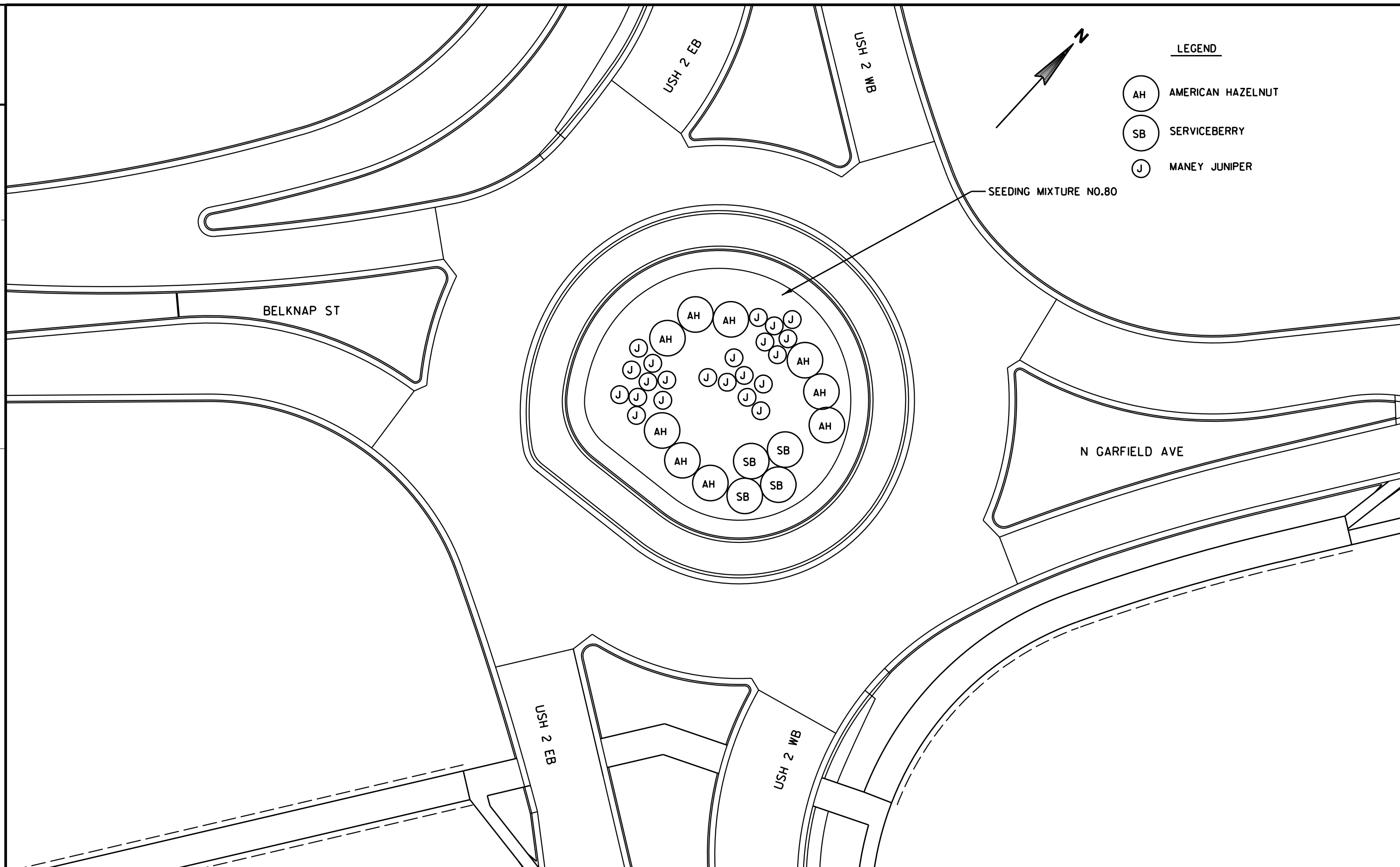
STORM SEWER REMOVALS

SHEET

E

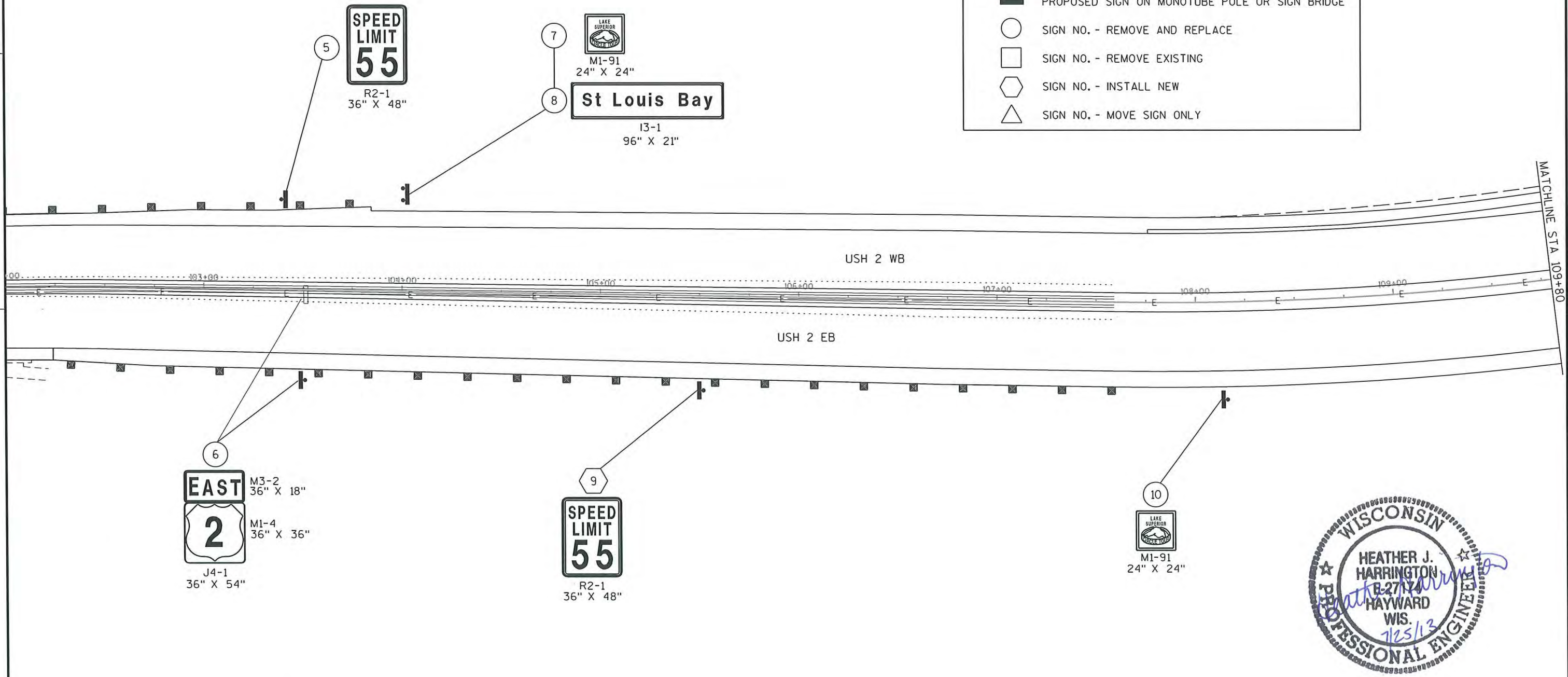


- - - - - PIPE UNDERDRAIN WRAPPED 6-INCH  
 - . - . - . PIPE UNDERDRAIN UNPERFORATED 6-INCH












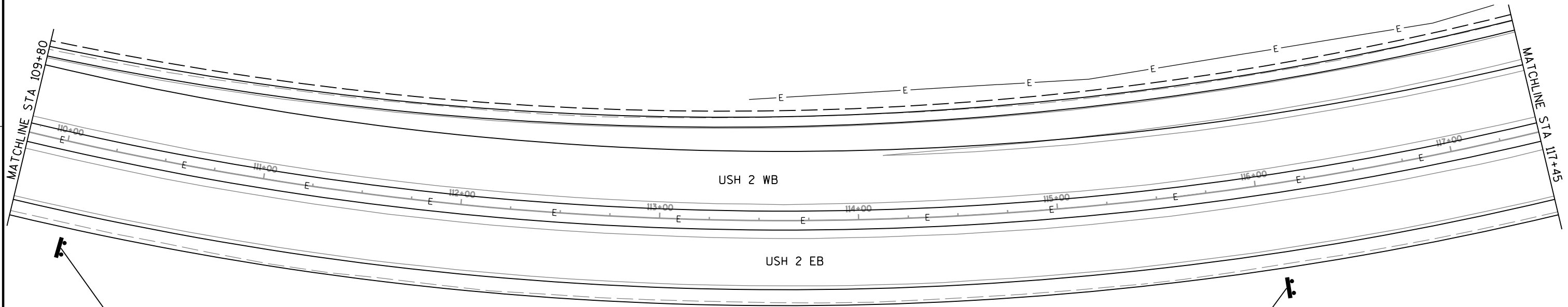
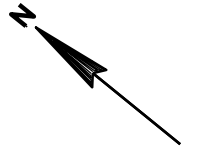
**SIGN LEGEND**

-  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



**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




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

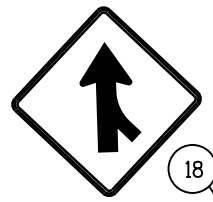
TREE CITY USA

Arbor Day Foundation



SIGN LEGEND

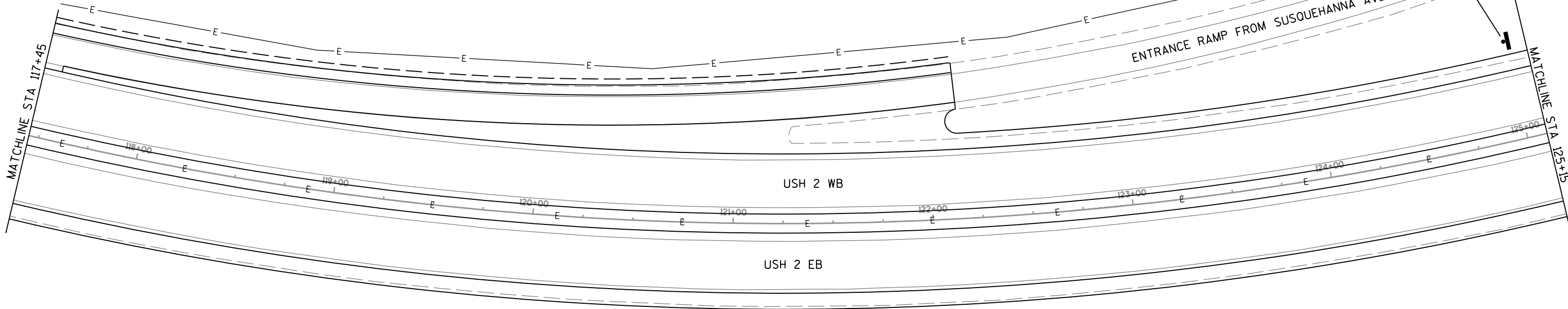
	EXISTING SIGN ON WOOD/STEEL POST(S)
	EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
	PROPOSED SIGN ON WOOD POST(S)
	PROPOSED SIGN ON TUBULAR STEEL POST(S)
	PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
	SIGN NO. - REMOVE AND REPLACE
	SIGN NO. - REMOVE EXISTING
	SIGN NO. - INSTALL NEW
	SIGN NO. - MOVE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



W4-1  
36" X 36"

18

ENTRANCE RAMP FROM SUSQUEHANNA AVE



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

20



ENTRANCE RAMP TO USH 2 WB

SUSQUEHANNA AVE.

MATCHLINE STA 125+15

MATCHLINE STA 132+75

USH 2 WB

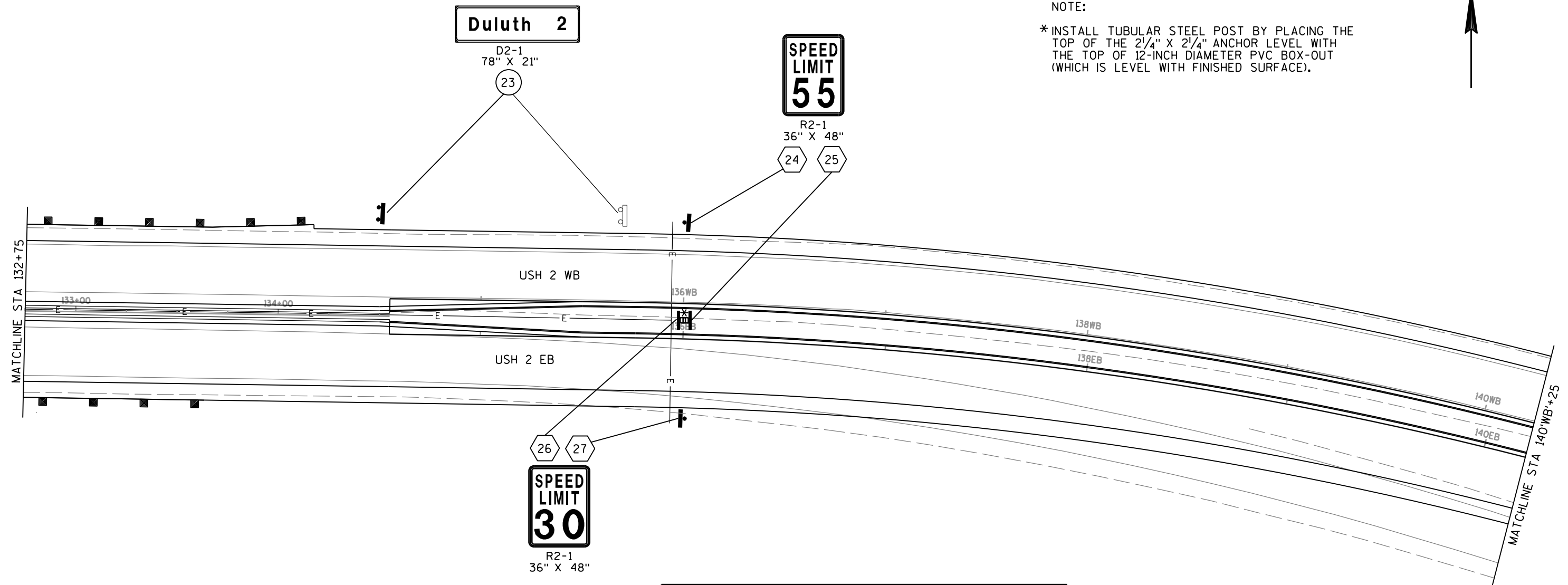
USH 2 EB



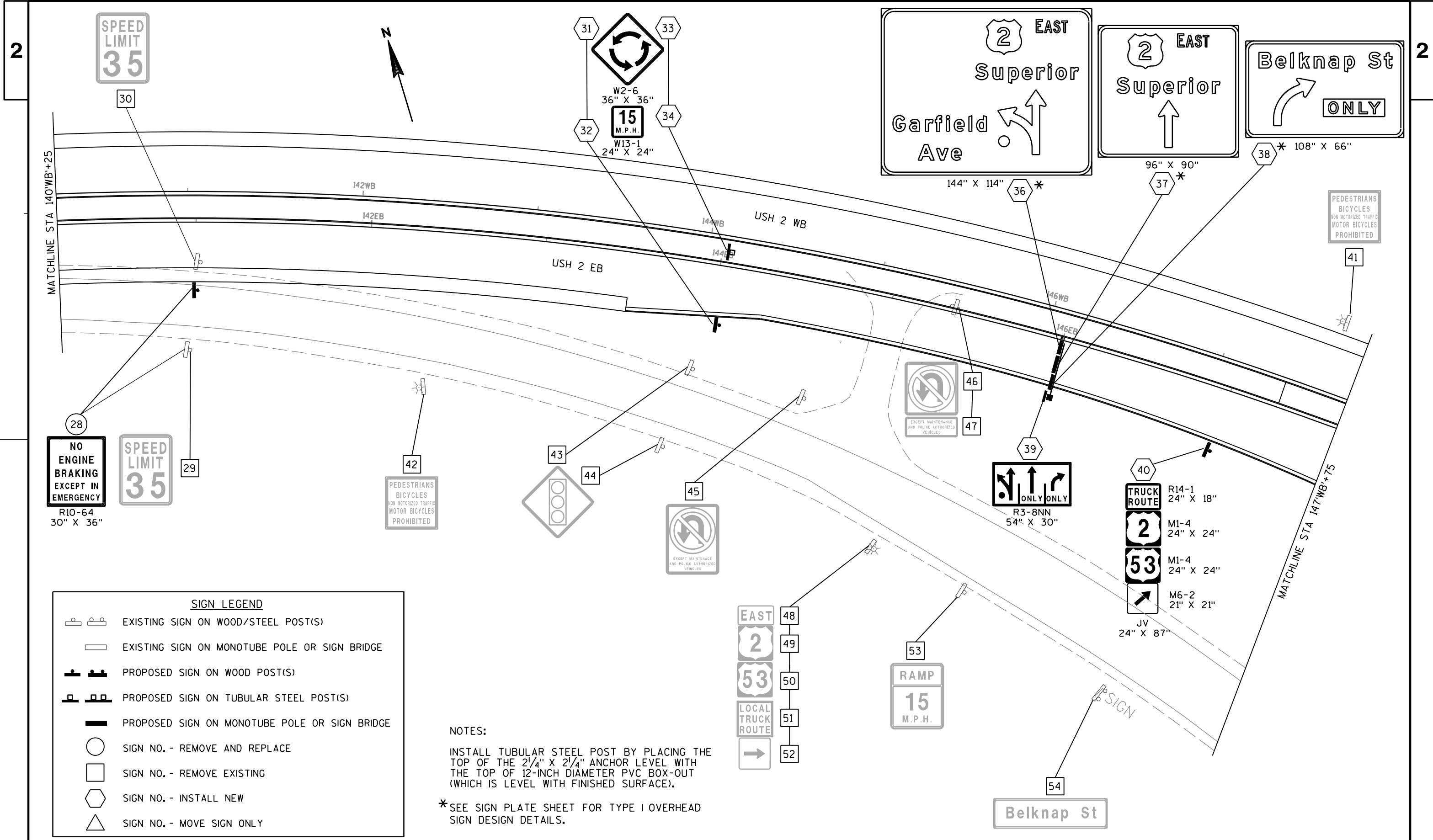
SIGN LEGEND	
	EXISTING SIGN ON WOOD/STEEL POST(S)
	EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
	PROPOSED SIGN ON WOOD POST(S)
	PROPOSED SIGN ON TUBULAR STEEL POST(S)
	PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
	SIGN NO. - REMOVE AND REPLACE
	SIGN NO. - REMOVE EXISTING
	SIGN NO. - INSTALL NEW
	SIGN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



NOTE:  
 \*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).



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:

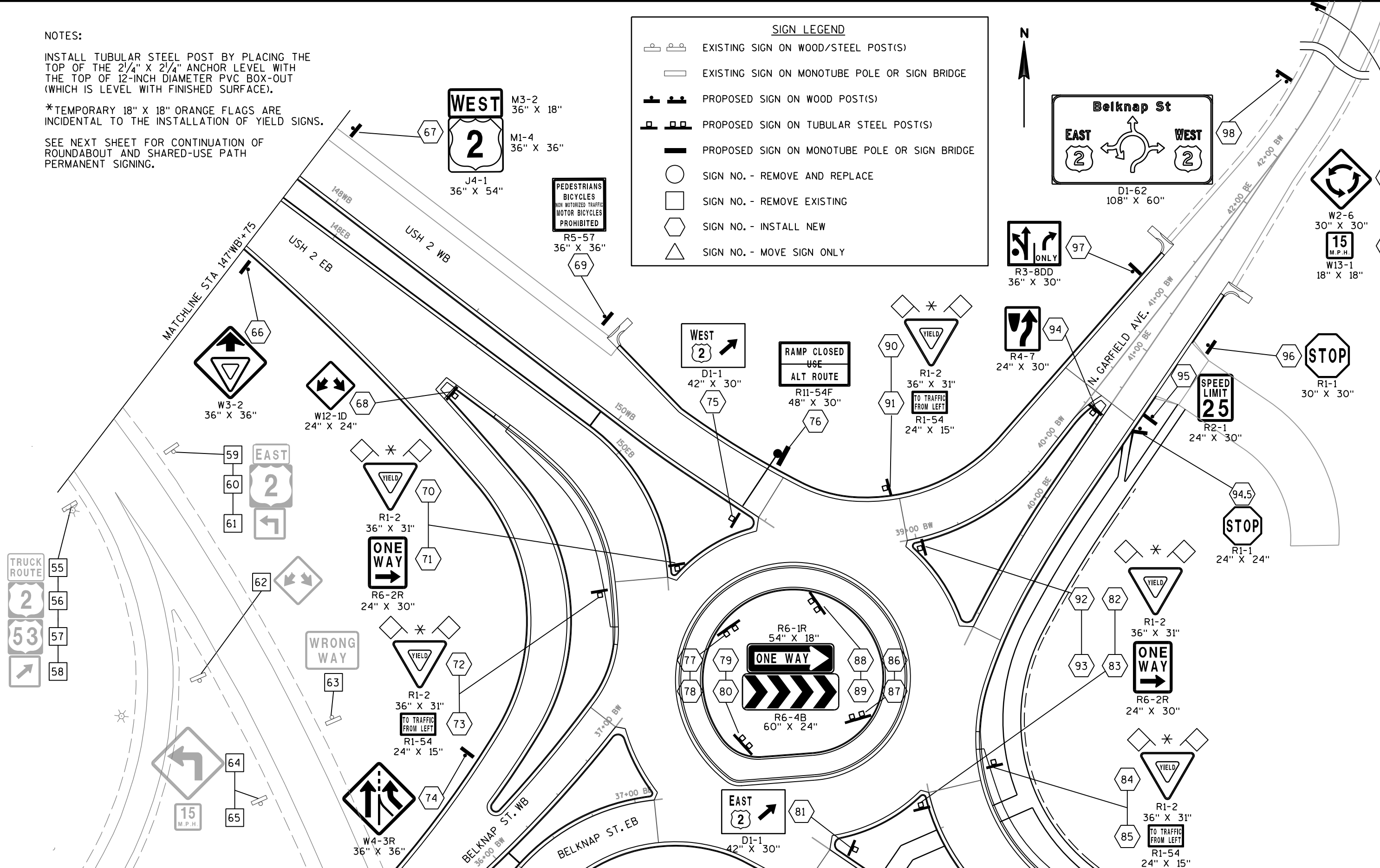
INSTALL TUBULAR STEEL POST BY PLACING THE TOP OF THE 2 1/4" X 2 1/4" ANCHOR LEVEL WITH THE TOP OF 12-INCH DIAMETER PVC BOX-OUT (WHICH IS LEVEL WITH FINISHED SURFACE).

\*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



SIGN LEGEND

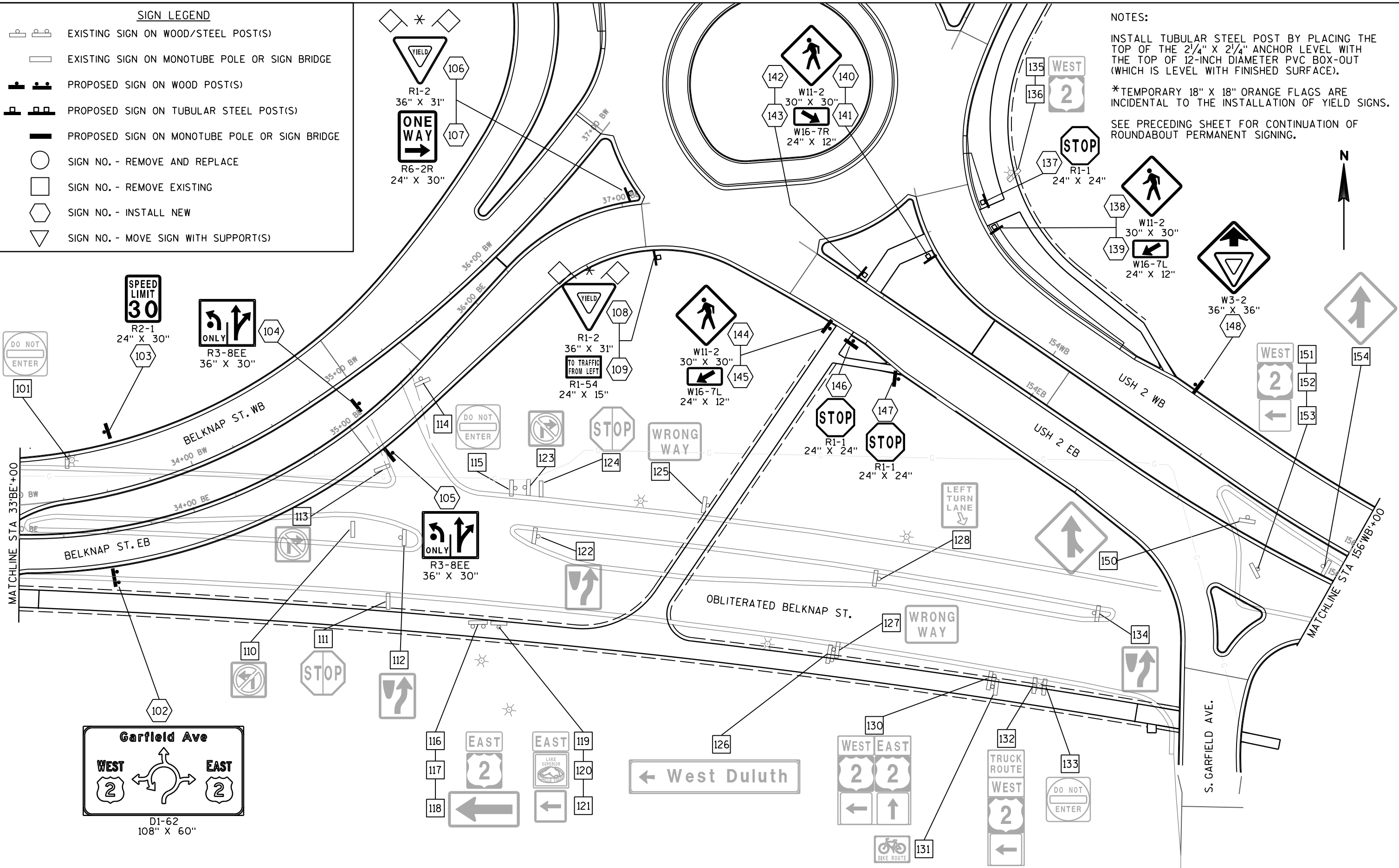
-  EXISTING SIGN ON WOOD/STEEL POST(S)
-  EXISTING SIGN ON MONOTUBE POLE OR SIGN BRIDGE
-  PROPOSED SIGN ON WOOD POST(S)
-  PROPOSED SIGN ON TUBULAR STEEL POST(S)
-  PROPOSED SIGN ON MONOTUBE POLE OR SIGN BRIDGE
-  SIGN NO. - REMOVE AND REPLACE
-  SIGN NO. - REMOVE EXISTING
-  SIGN NO. - INSTALL NEW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

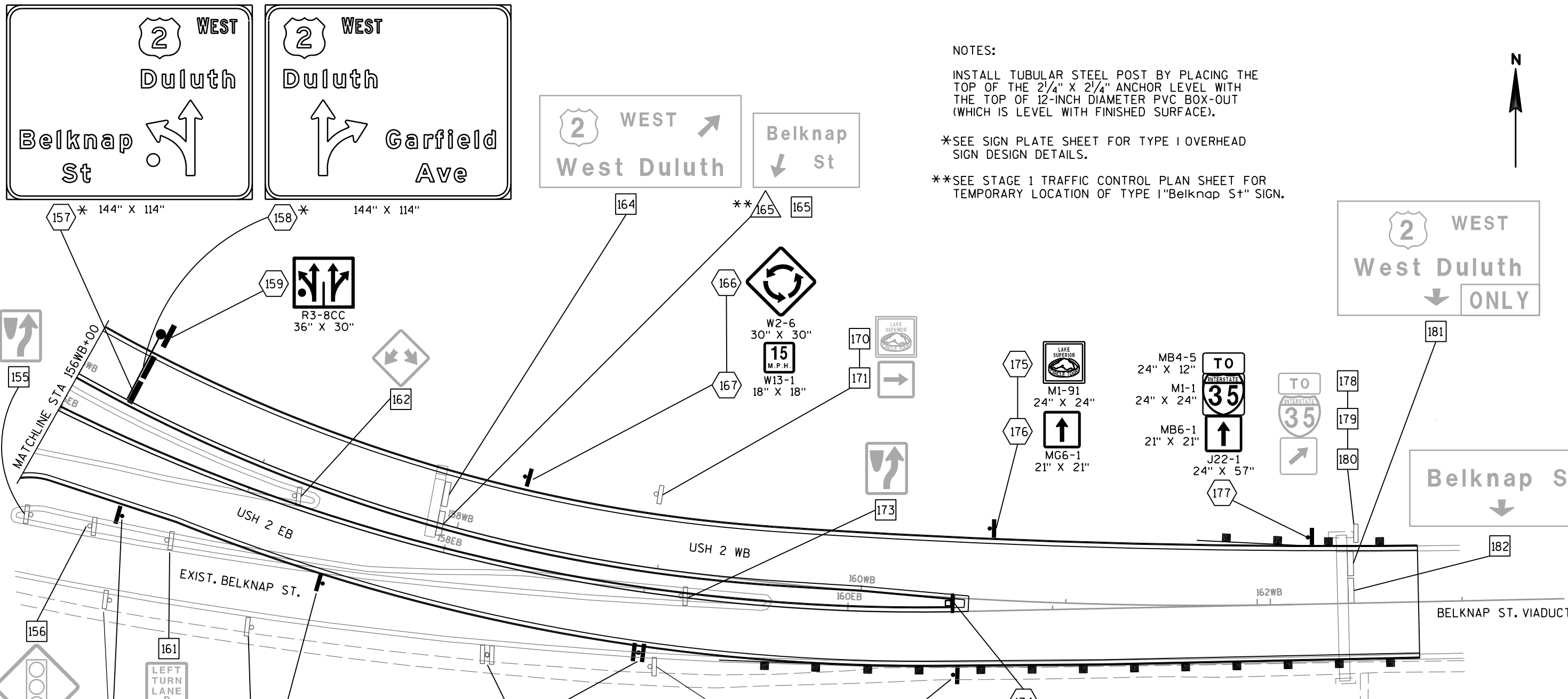
NOTES:

INSTALL TUBULAR STEEL POST BY PLACING THE TOP OF THE 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 PRECEDING SHEET FOR CONTINUATION OF ROUNDABOUT PERMANENT SIGNING.





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).

\*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.

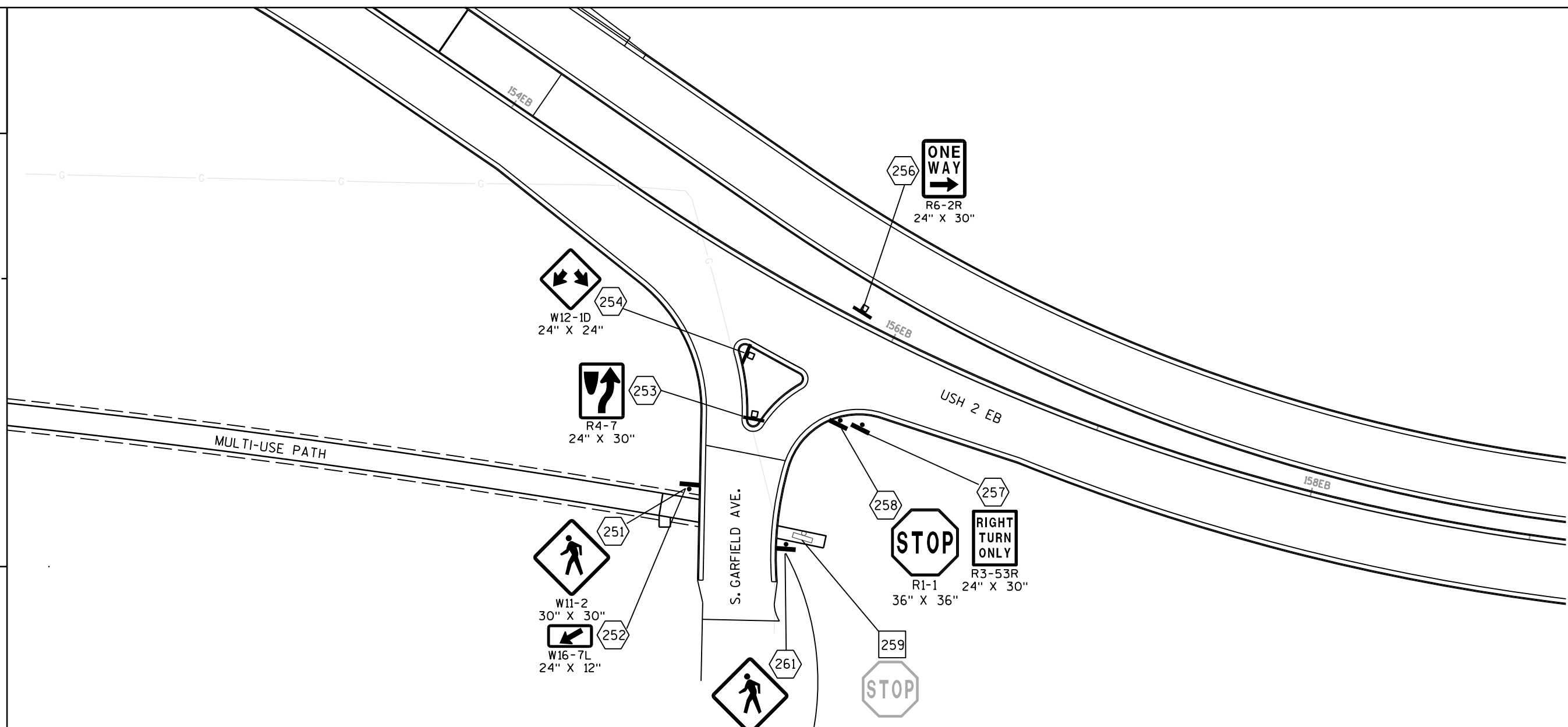


**SIGN LEGEND**

	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





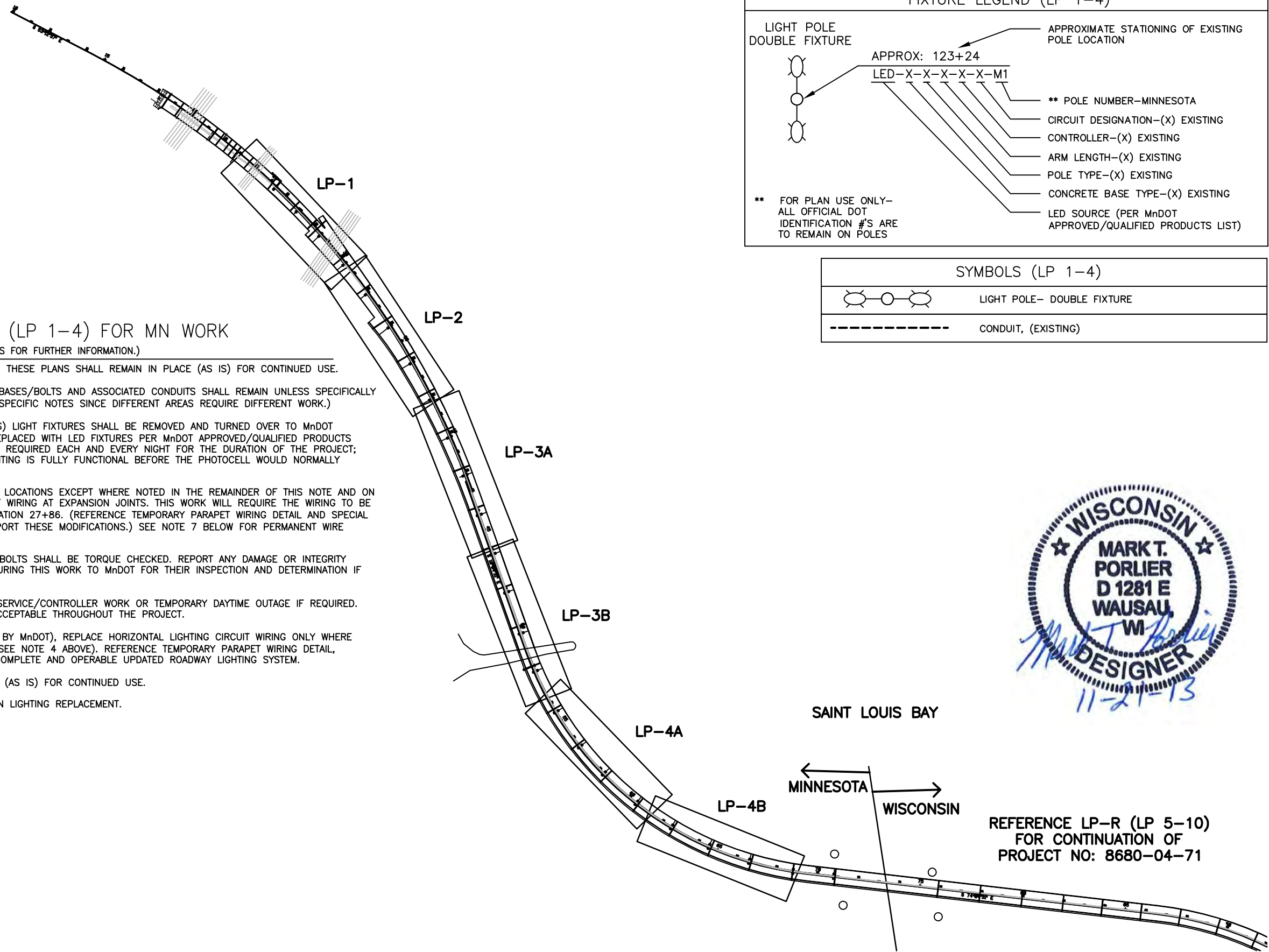


NOTES:

INSTALL TUBULAR STEEL POST BY PLACING THE TOP OF THE 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).

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)



FIXTURE LEGEND (LP 1-4)	
	APPROXIMATE STATIONING OF EXISTING POLE LOCATION
	APPROX: 123+24
	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
** FOR PLAN USE ONLY- ALL OFFICIAL DOT IDENTIFICATION #'S ARE TO REMAIN ON POLES	
LED SOURCE (PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST)	

SYMBOLS (LP 1-4)	
	LIGHT POLE- DOUBLE FIXTURE
	CONDUIT, (EXISTING)

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

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

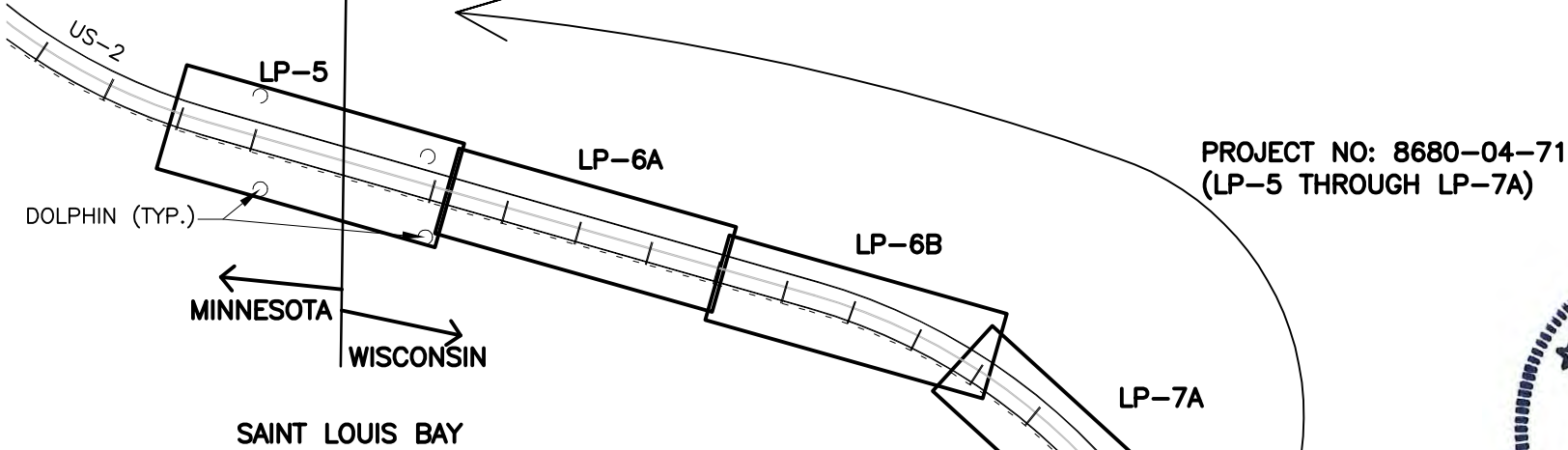
1. ALL EXISTING MEDIAN MOUNTED LIGHT POLES AND ARMS ON THESE PLANS SHALL REMAIN IN PLACE (AS IS) FOR CONTINUED USE.
2. ALL EXISTING MEDIAN LOCATED CONCRETE POLE MOUNTING BASES/BOLTS AND ASSOCIATED CONDUITS SHALL REMAIN UNLESS SPECIFICALLY NOTED OTHERWISE. (REFERENCE NOTES BELOW AND SHEET SPECIFIC NOTES 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 PHOTOCCELL 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.



REFERENCE PLAN

REFERENCE LP-R (LP 5-10)  
FOR CONTINUATION OF  
PROJECT NO: 8680-04-71

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



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



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

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

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

- 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.)
- ALL EXISTING MEDIAN LOCATED CONCRETE POLE MOUNTING BASES/BOLTS AND ASSOCIATED CONDUITS SHALL REMAIN (UNLESS SPECIFICALLY NOTED OTHERWISE).
- 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.)
- 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:
  - DISCONNECT VERTICAL WIRING FROM HORIZONTAL WIRING (LEAVING HORIZONTAL WIRING AND SPLICES INTACT).
  - REMOVE TRANSFORMER BREAKAWAY BASES AND TURN OVER TO WISDOT.
  - PROVIDE NEW STANDARD WISDOT TRANSFORMER BREAKAWAY BASES AND RE-SET POLE ON ITS EXISTING PARAPET FOUNDATION AND RE-TORQUE AS REQUIRED.
  - 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.
  - THIS WORK SHALL BE PERFORMED IN TANDEM WITH INTENT NOTE #3 WORK.
  - 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.
- 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.)
- 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.
- 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.
- 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
	LIGHT POLE DOUBLE FIXTURE
	CONDUIT, (1)2-INCH PVC EXCEPT WHERE NOTED.
	NUMBER OF CONDUCTORS IN CONDUIT
	CONDUCTOR TAG
	CONDUCTOR SIZE (AWG)
	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

SYMBOLS (LP 5-10)	
	LIGHT POLE- DOUBLE FIXTURE
	LIGHT POLE- SINGLE FIXTURE
	CONDUIT, (1)2-INCH PVC EXCEPT WHERE NOTED.
	NUMBER OF CONDUCTORS IN CONDUIT
	CONDUCTOR TAG
	CONDUCTOR SIZE (AWG)
	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

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

REFERENCE PLAN

# 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:

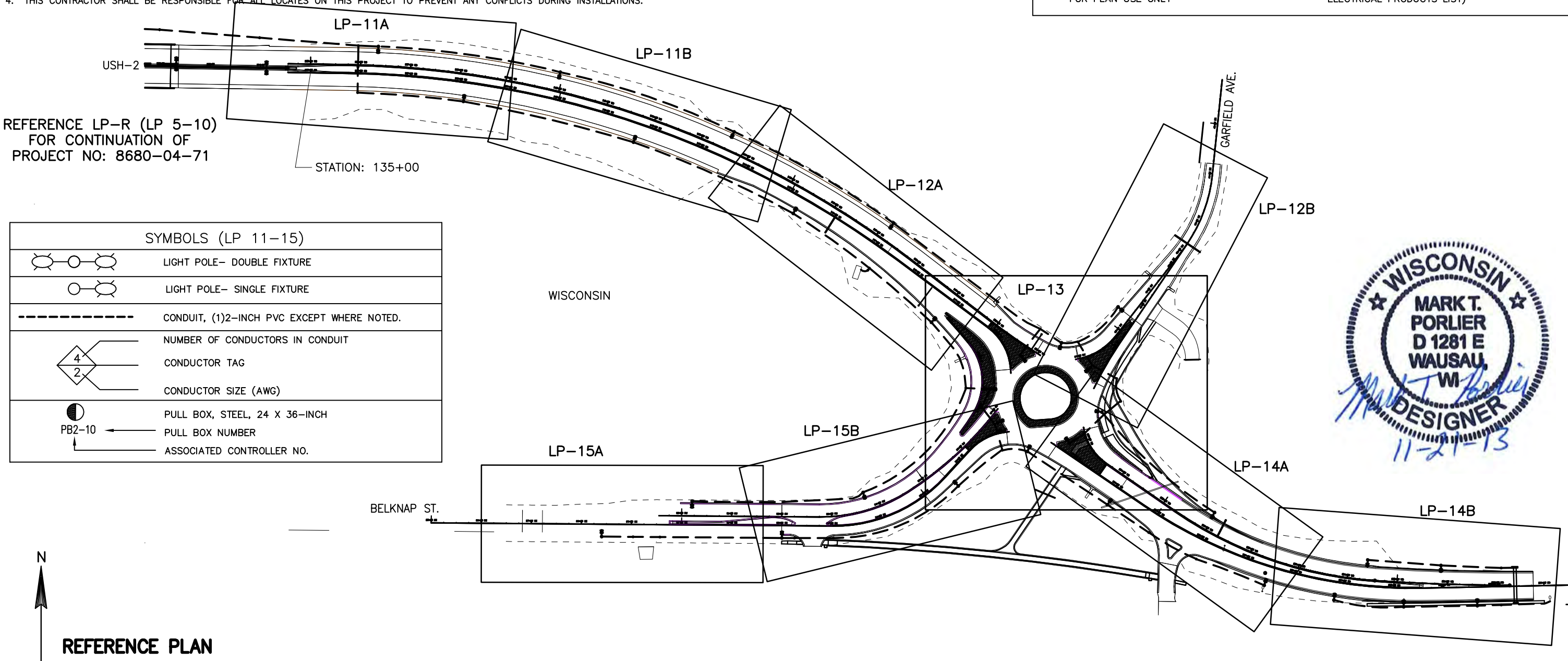
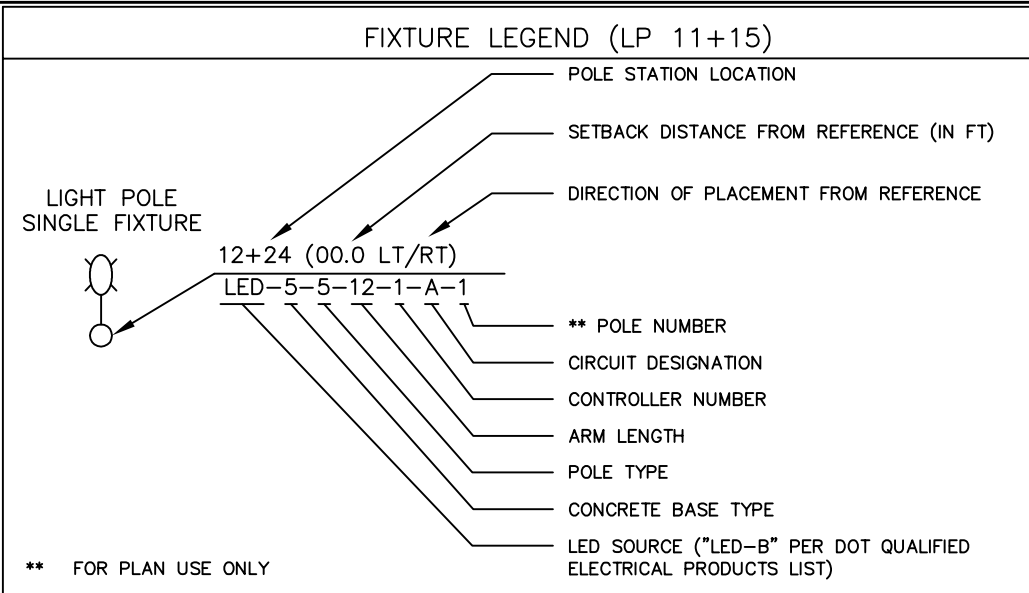
- a. REMOVE ALL EXISTING 17 LIGHT POLE ASSEMBLIES FED FROM THE EXISTING SUSQUEHANNA LIGHTING CONTROLLER (FOLLOWING ALONG USH-2 FROM STATION 135+00 TO USH-2'S RAMP INTERSECTIONS WITH BELKNAP) INCLUDING FIXTURES, ARMS, POLES, AND TRANSFORMER BASES, AND TURN OVER TO WISDOT. (INCLUDE LOCAL DELIVERY AS DIRECTED 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.



REFERENCE LP-R (LP 5-10)  
 FOR CONTINUATION OF  
 PROJECT NO: 8680-04-71

### SYMBOLS (LP 11-15)

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

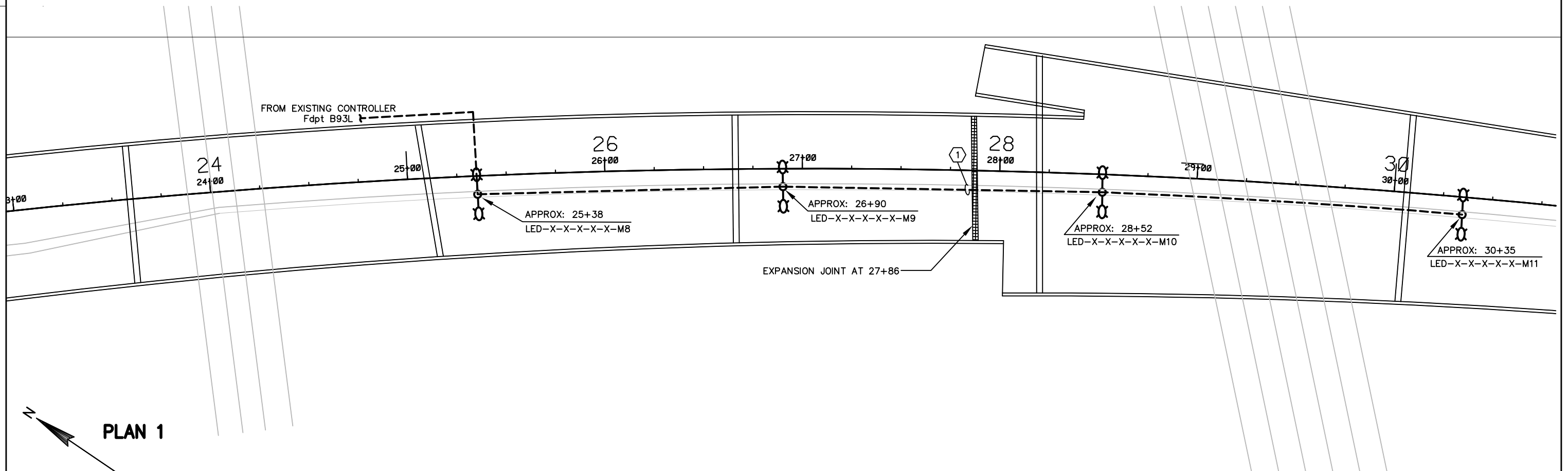


### GENERAL NOTES

- 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.



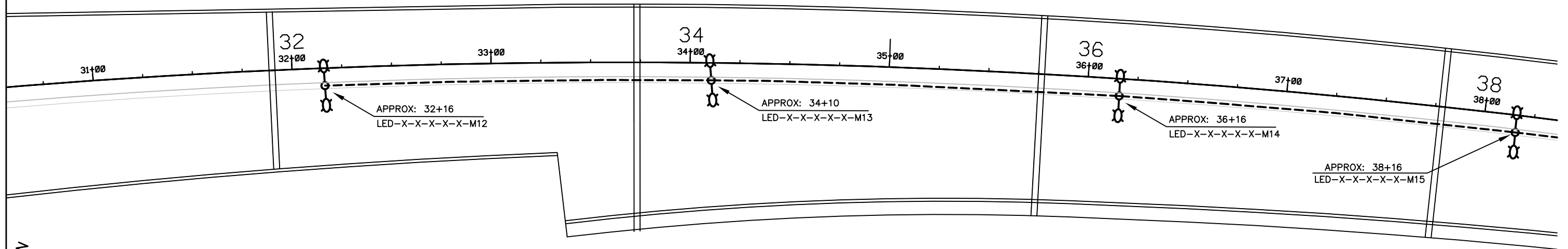
PLAN 1

### 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.



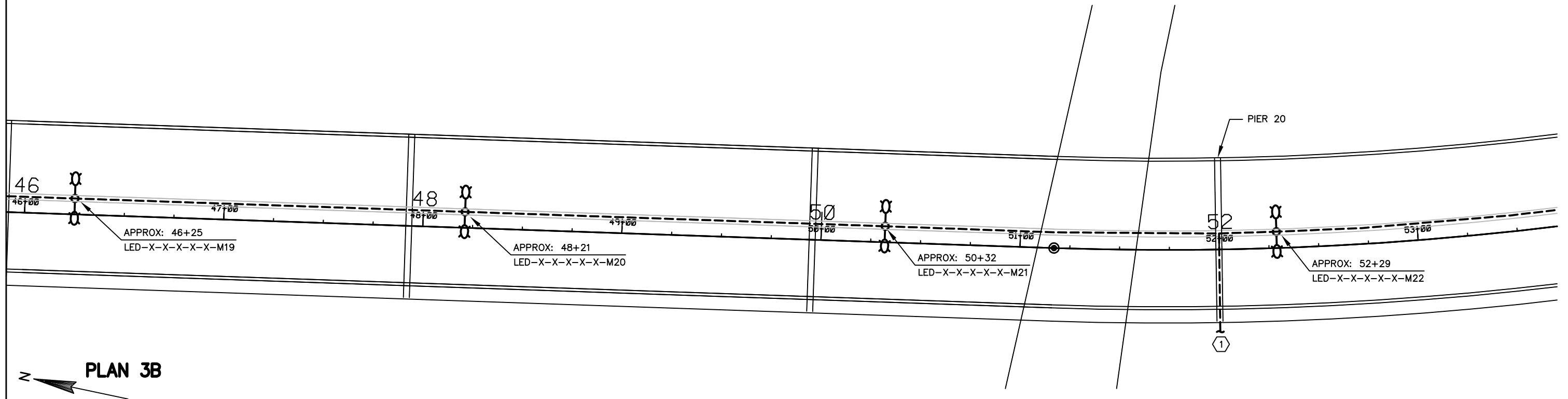
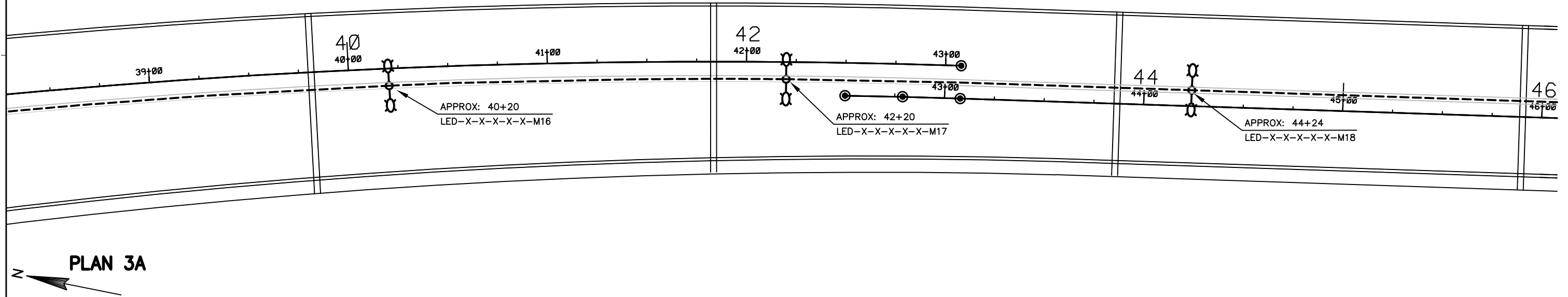
PLAN 2

### 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.

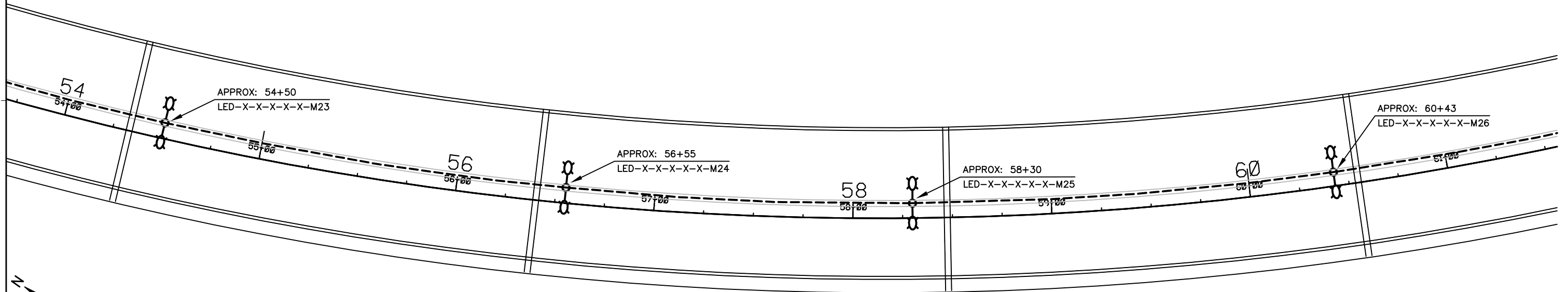


### GENERAL NOTES

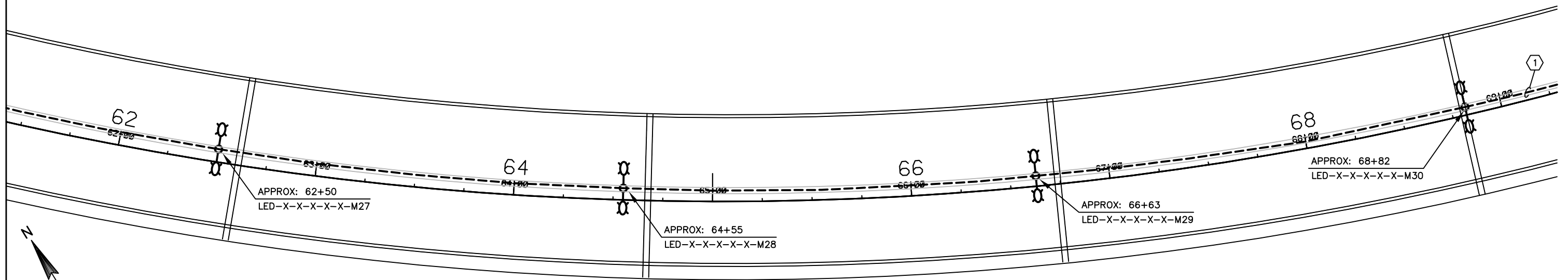
1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 1-4) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM.

### 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.



PLAN 4A



PLAN 4B

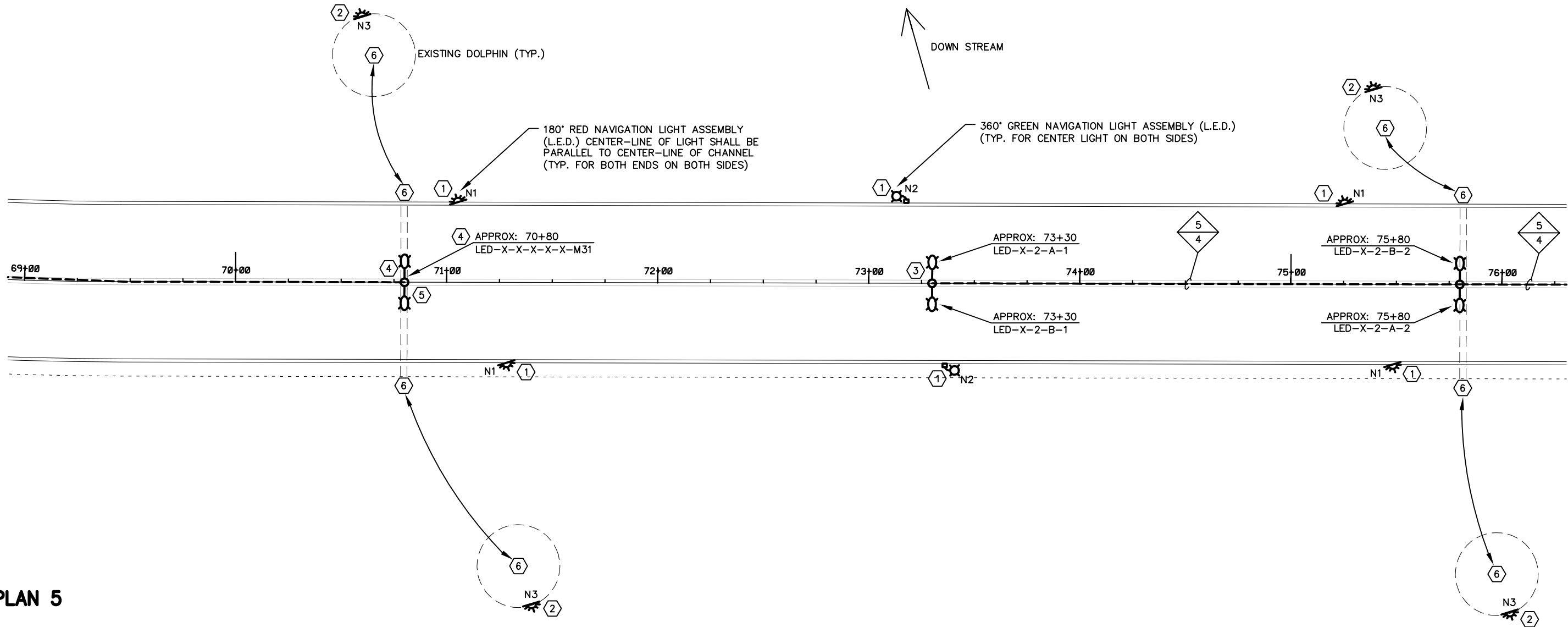


# GENERAL NOTES

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.



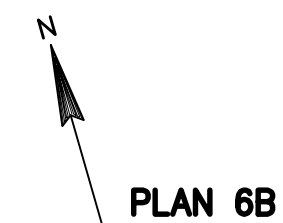
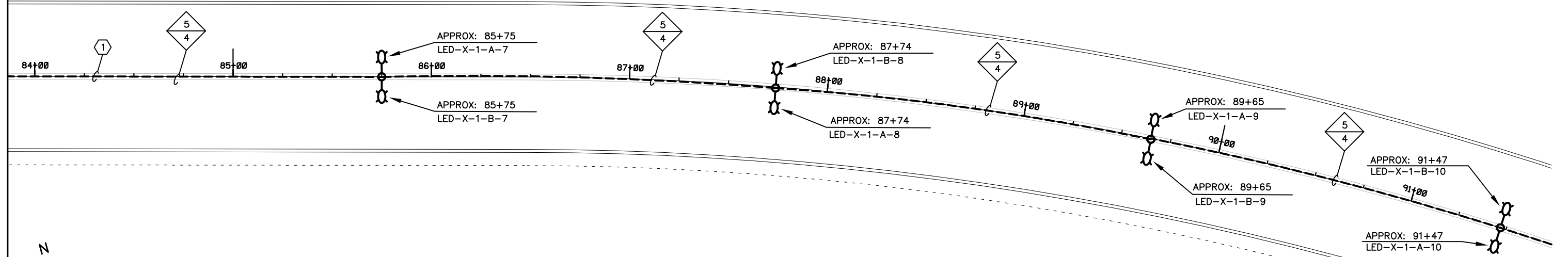
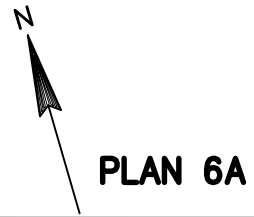
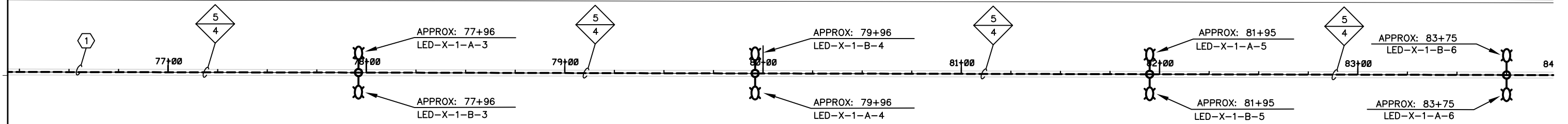
PLAN 5

### 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.)

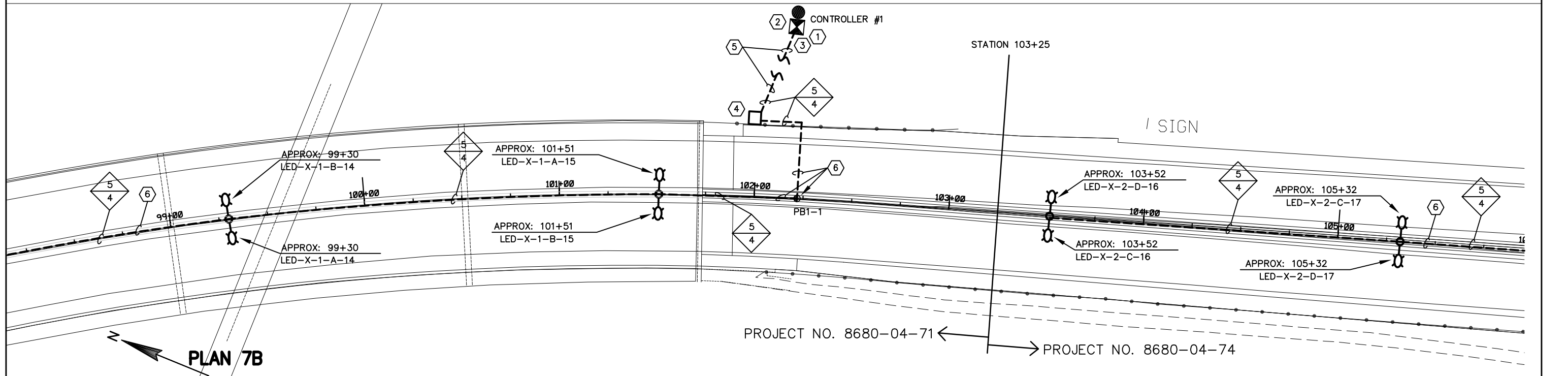
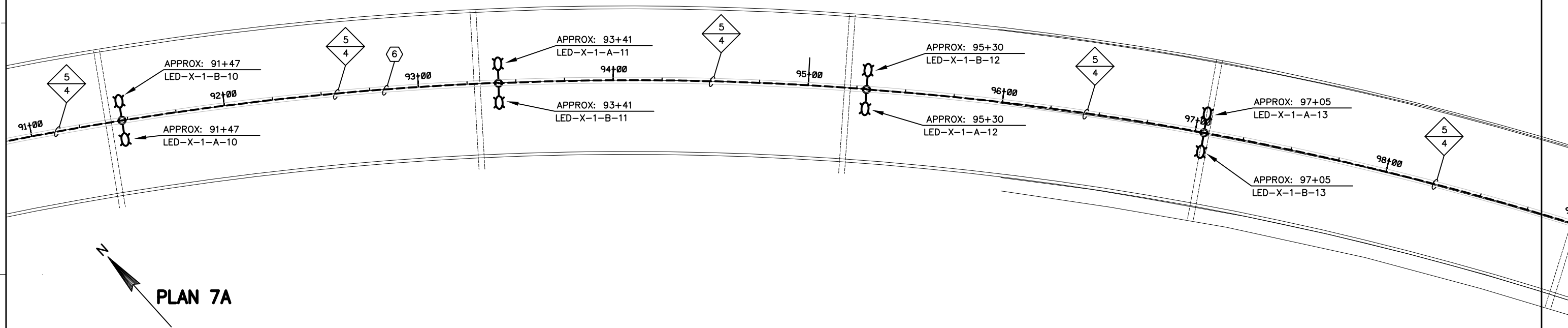


### GENERAL NOTES

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, 1 $\phi$  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.



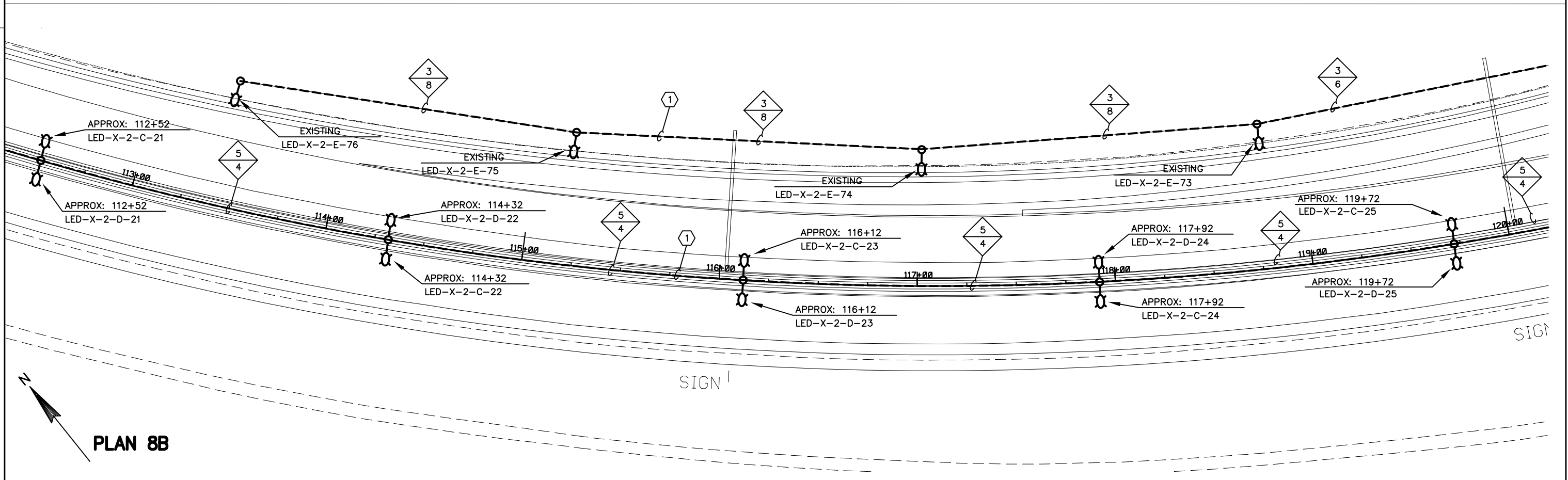
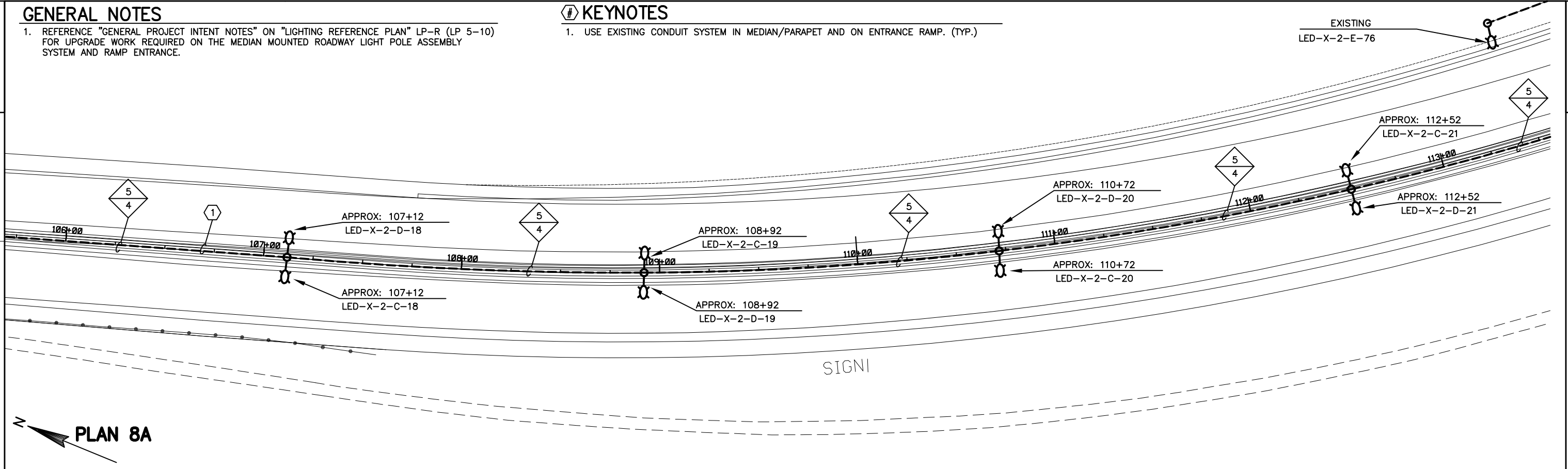
**GENERAL NOTES**

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.)

EXISTING  
LED-X-2-E-76

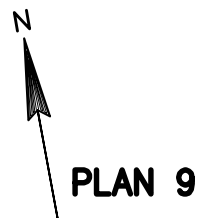
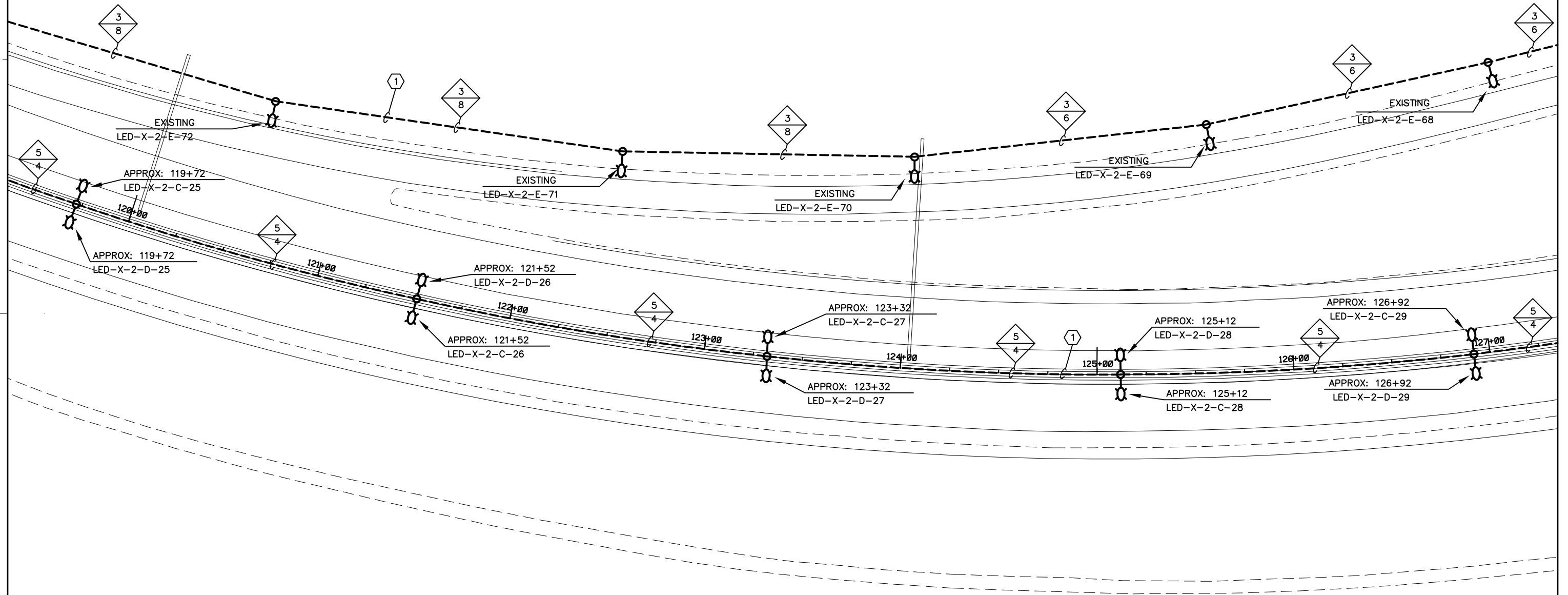


### GENERAL NOTES

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.)

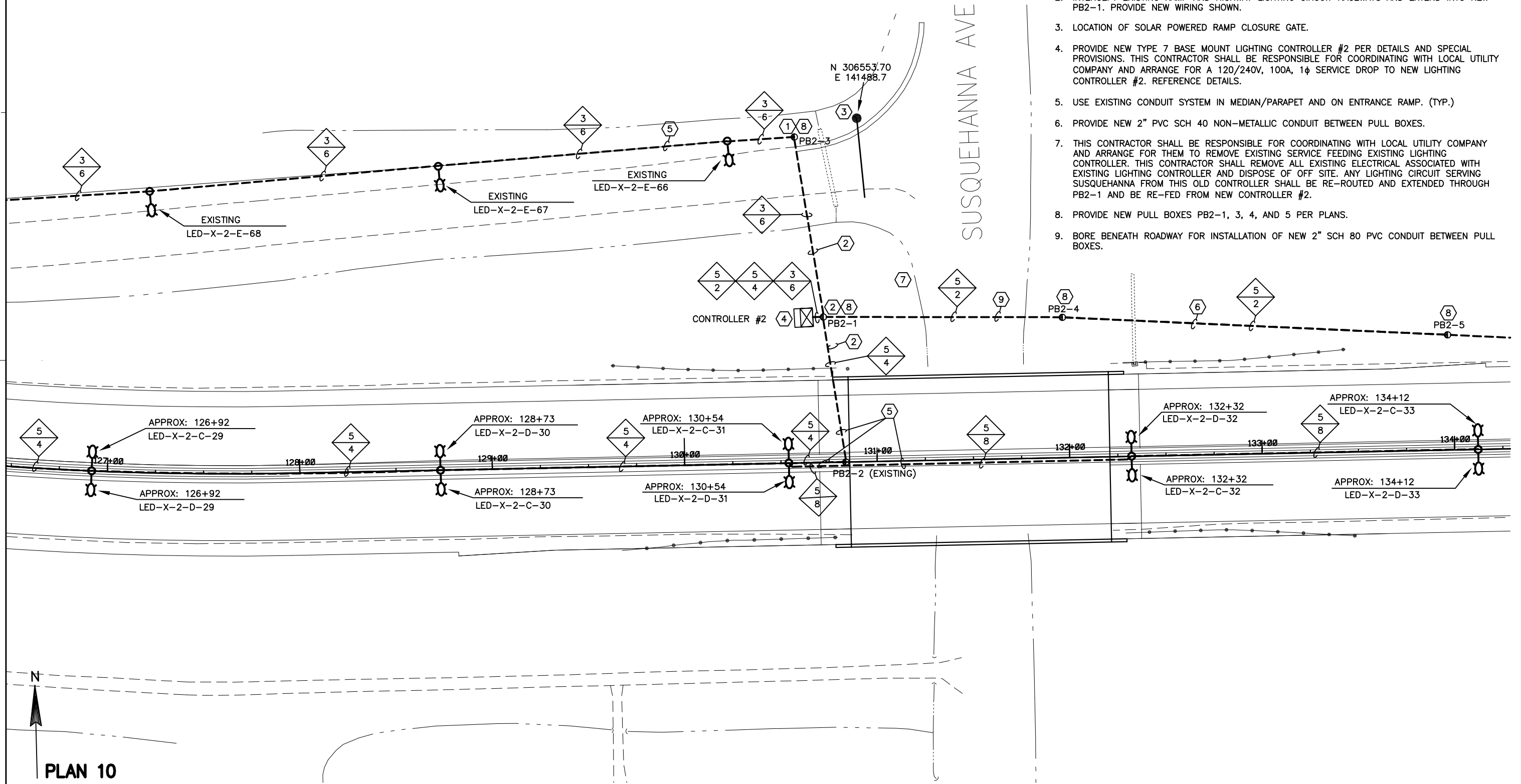


### GENERAL NOTES

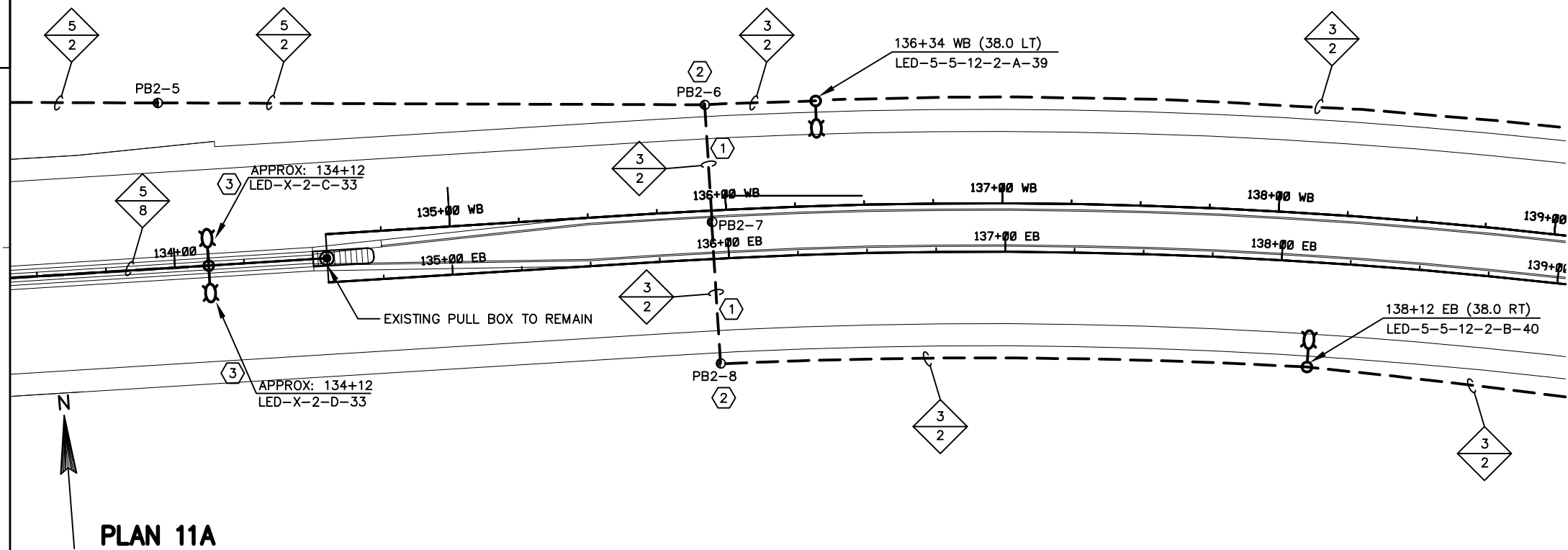
1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 5-10) FOR UPGRADE WORK REQUIRED ON THE MEDIAN MOUNTED ROADWAY LIGHT POLE ASSEMBLY SYSTEM AND RAMP ENTRANCE.

### # 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, 1 $\phi$  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.



PLAN 10

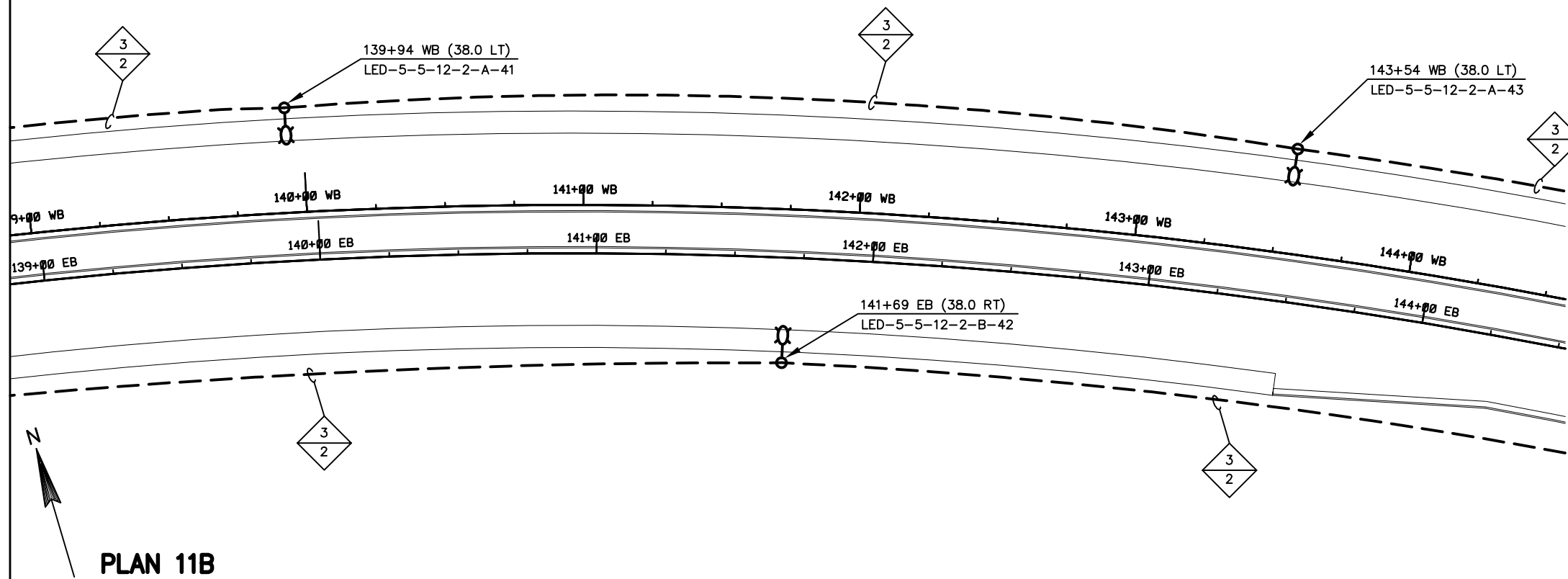


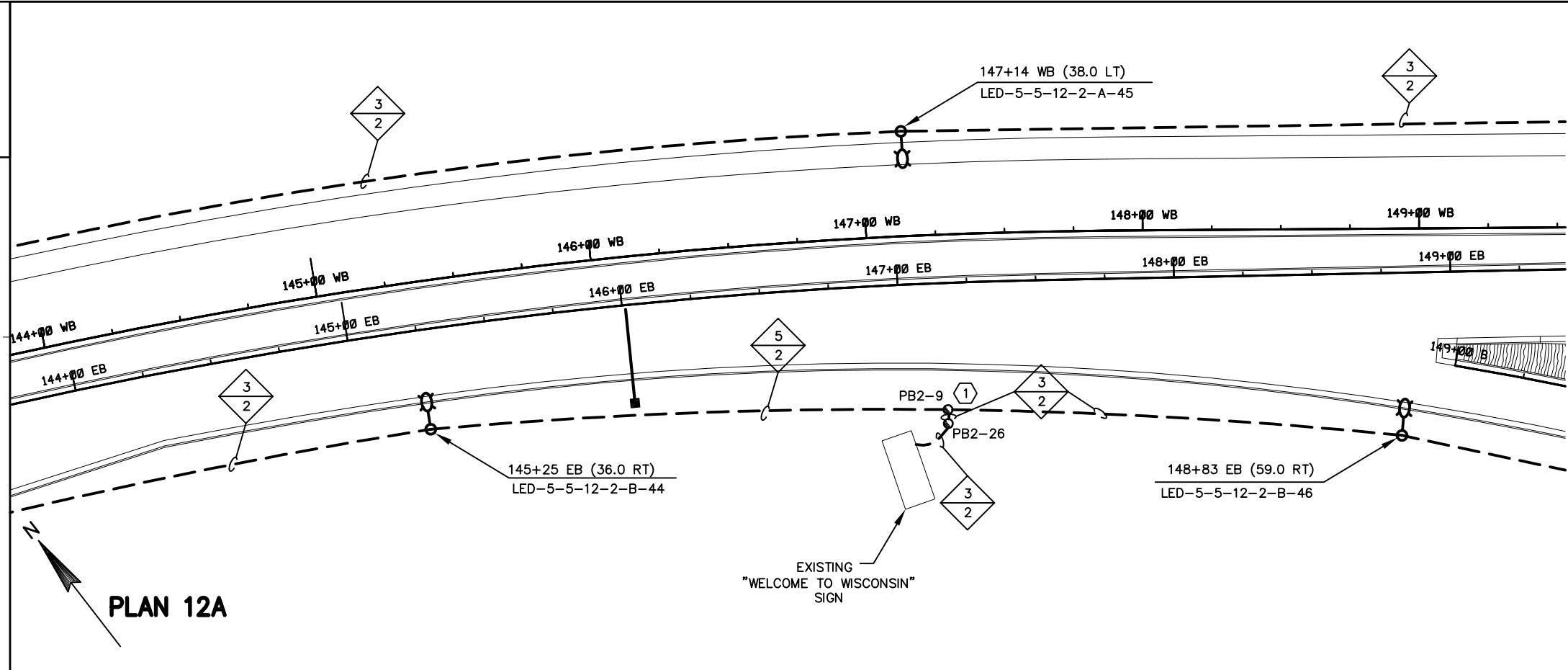
### GENERAL NOTES

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.



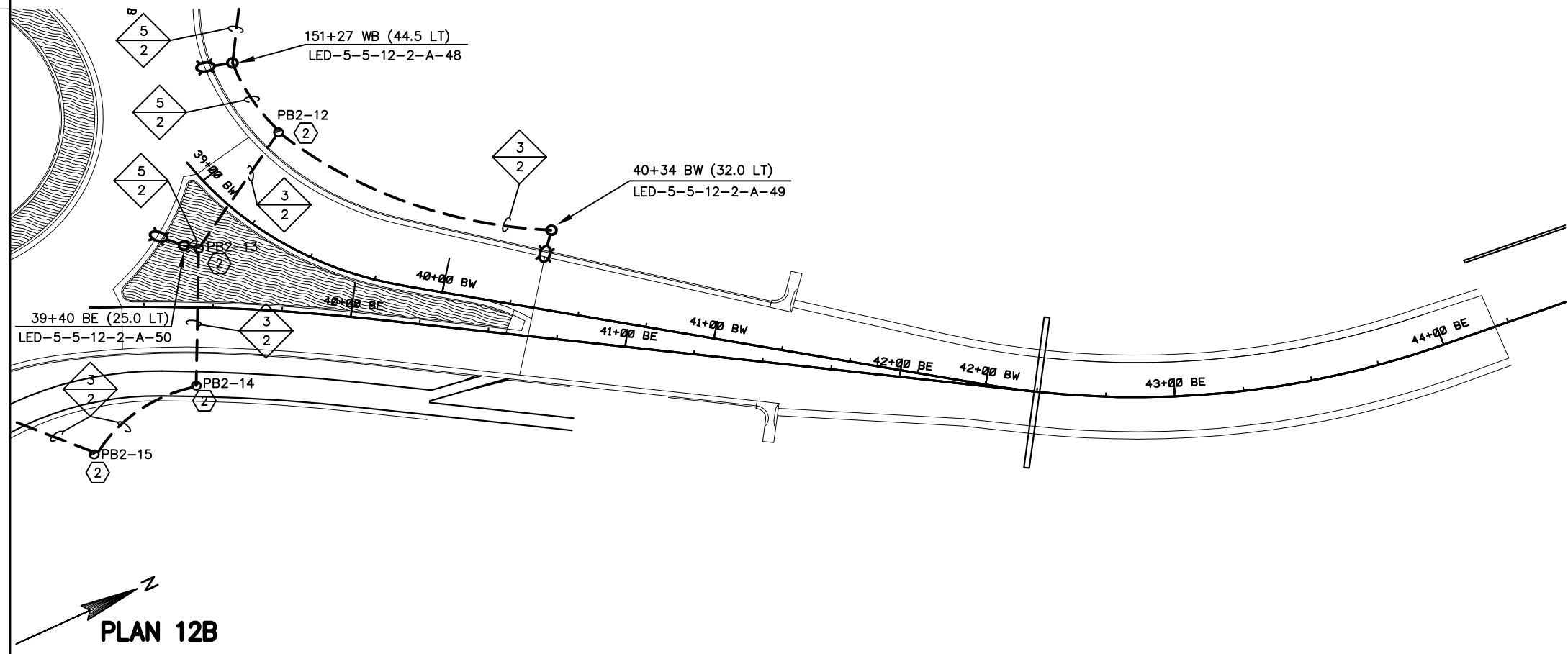


### GENERAL NOTES

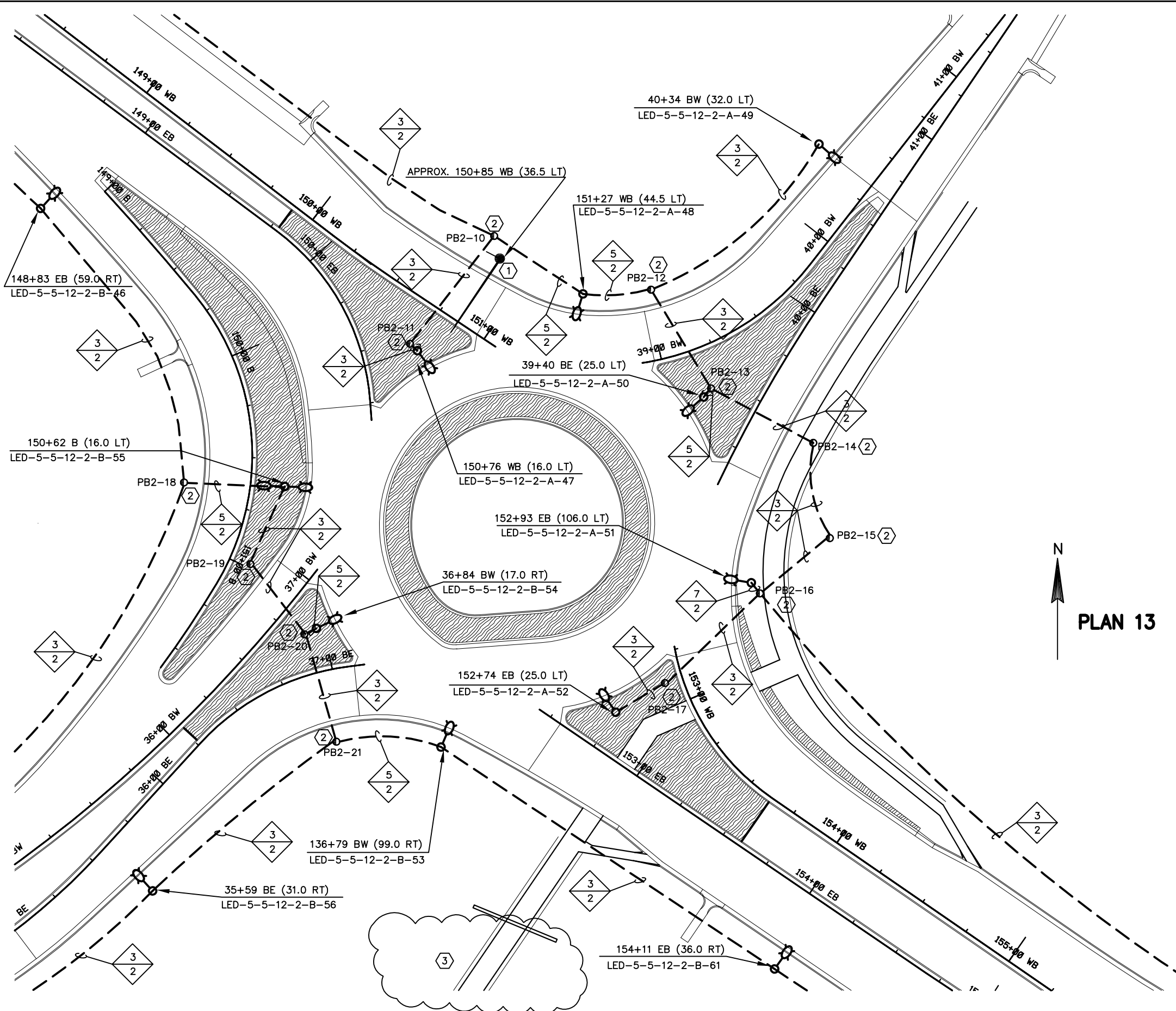
1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 11-15) FOR FURTHER INFORMATION REGARDING WORK REQUIRED ON THIS PROJECT.
2. ALL WORK ON THESE PLANS SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
3. ALL CABLE SPLICING SHALL TAKE PLACE ABOVE GROUND INSIDE LIGHT POLES 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.







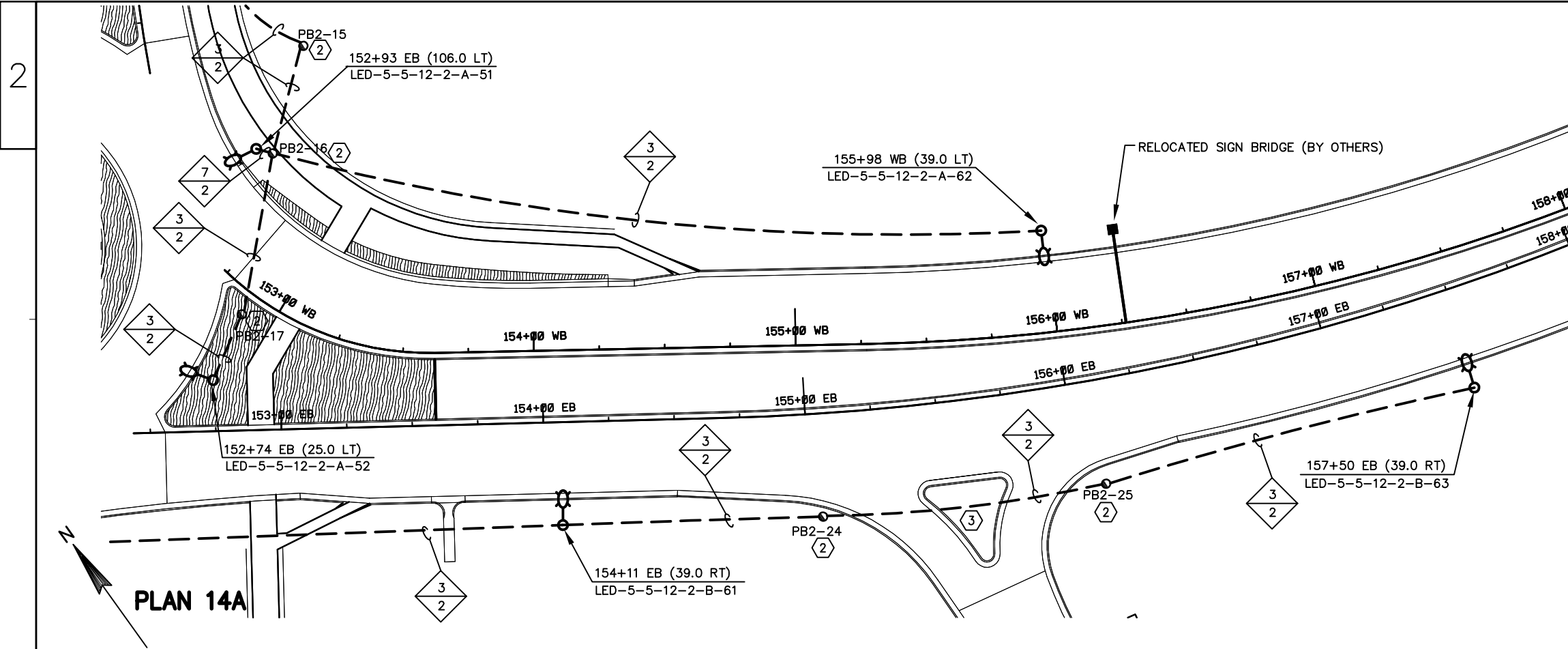
PLAN 13

**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.



### GENERAL NOTES

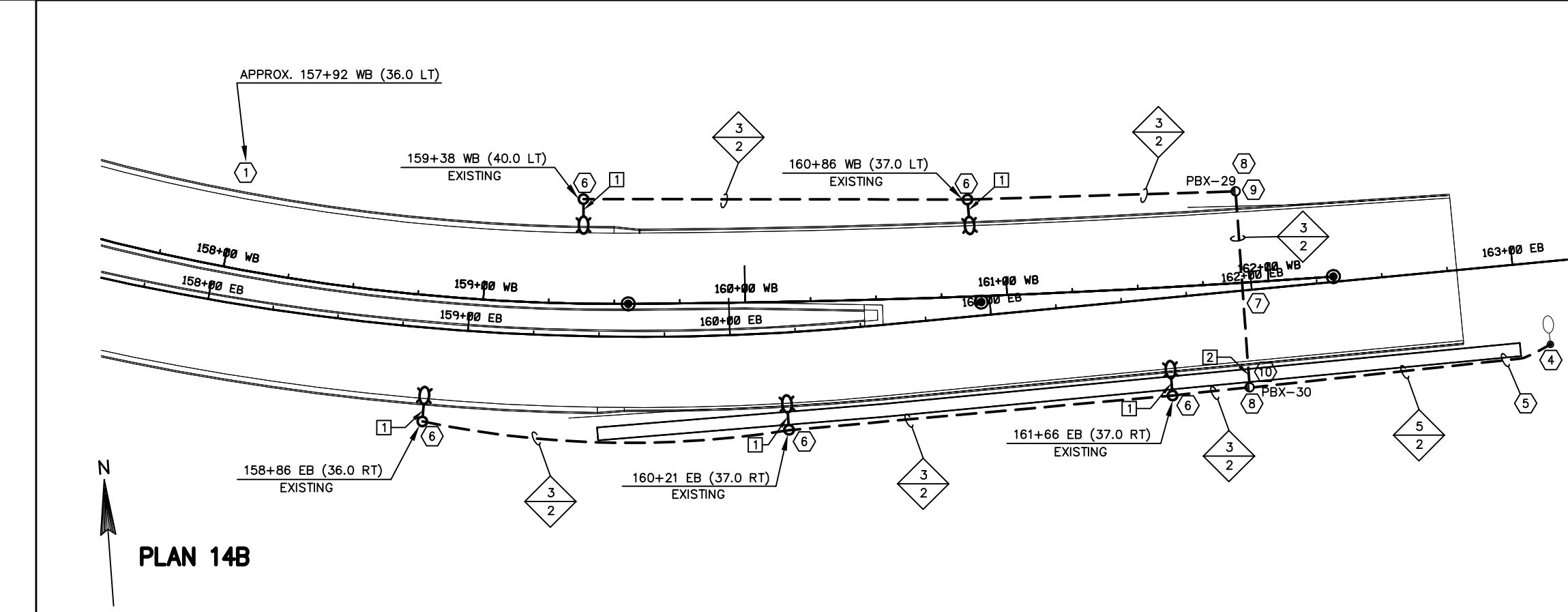
1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 11-15) FOR FURTHER INFORMATION REGARDING WORK REQUIRED ON THIS PROJECT.
2. ALL WORK ON THESE PLANS SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
3. ALL CABLE SPlicing SHALL TAKE PLACE ABOVE GROUND INSIDE LIGHT POLES 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 SPlicing BETWEEN LIGHT OF NOTE 4 AND LIGHT AT STATIONING 160+86 WB.

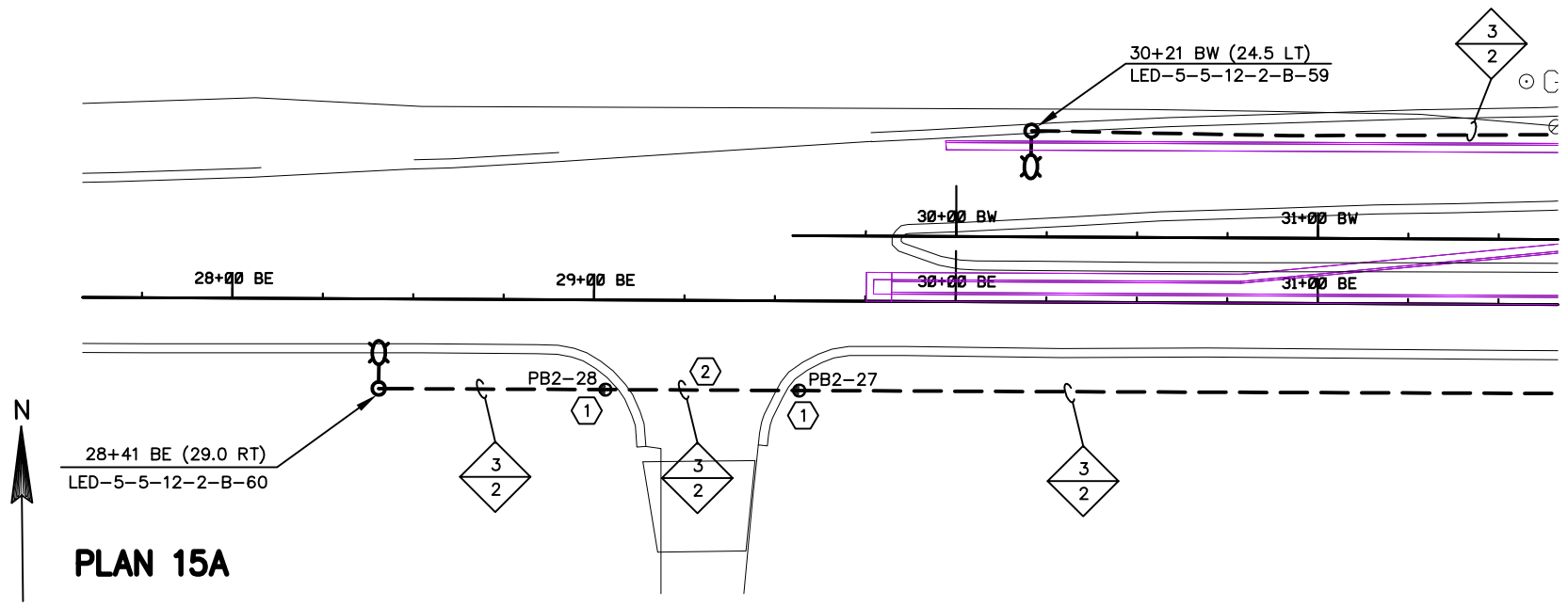


### GENERAL NOTES

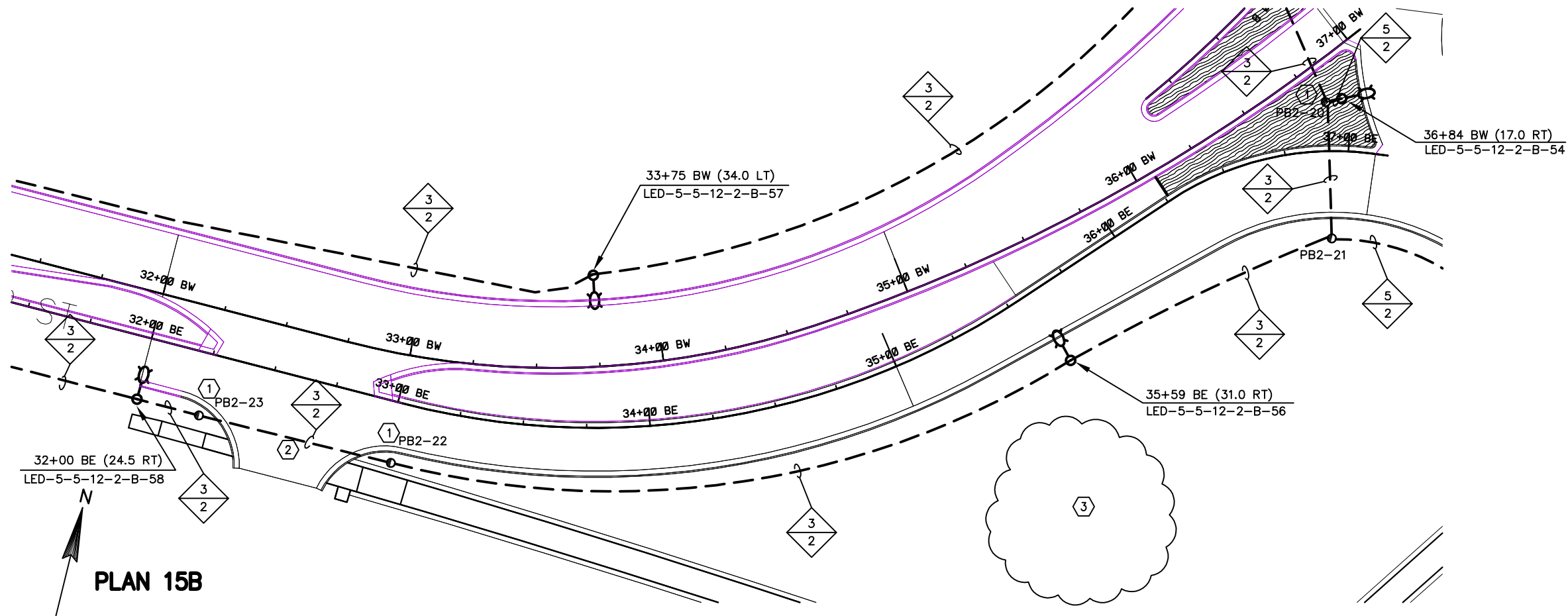
1. REFERENCE "GENERAL PROJECT INTENT NOTES" ON "LIGHTING REFERENCE PLAN" LP-R (LP 11-15) FOR FURTHER INFORMATION REGARDING WORK REQUIRED ON THIS PROJECT.
2. ALL WORK ON THESE PLANS SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
3. ALL CABLE SPlicing SHALL TAKE PLACE ABOVE GROUND INSIDE LIGHT POLES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

### # KEYNOTES

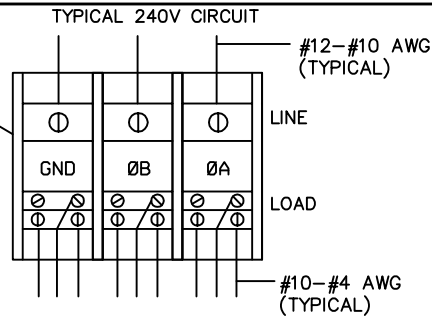
1. PROVIDE PULL BOX PER PLANS AND DETAILS.
2. BORE UNDER EXISTING ROADWAY FOR NEW 2" SCH 80 PVC CONDUIT INSTALLATION.
3. APPROXIMATE LOCATION OF TRAFFIC SIGNAL LIGHTS FOR BELKNAP AND EASTBOUND USH-2. THE REMOVAL OF ALL TRAFFIC SIGNAL LIGHTS, ANY ASSOCIATED LIGHTING MOUNTED ON SIGNAL POLES, AND CONDUIT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



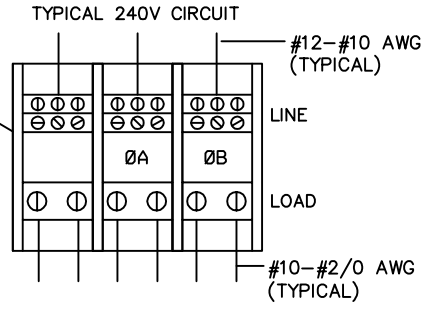
PLAN 15A



PLAN 15B

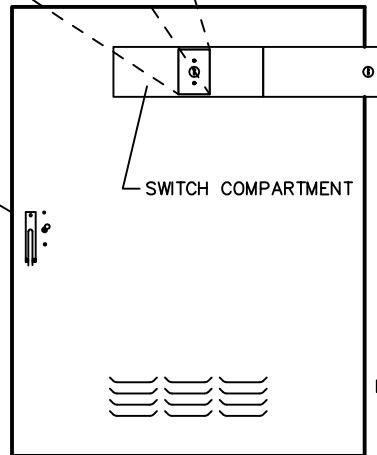
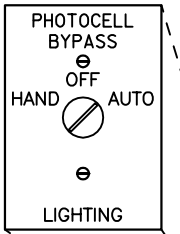


TERMINAL BLOCK  
EQUAL TO SQUARE D  
CAT. NO. LBA362104  
(TYPICAL)



TERMINATION BLOCK  
EQUAL TO SQUARE D  
CAT. NO. LBA363206  
(TYPICAL)

**TERMINAL BLOCKS**



HINGED SWITCH  
COMPARTMENT DOOR  
WITH KEYED LOCK AND  
DUST CAP

FRONT VIEW OF DOOR

**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.

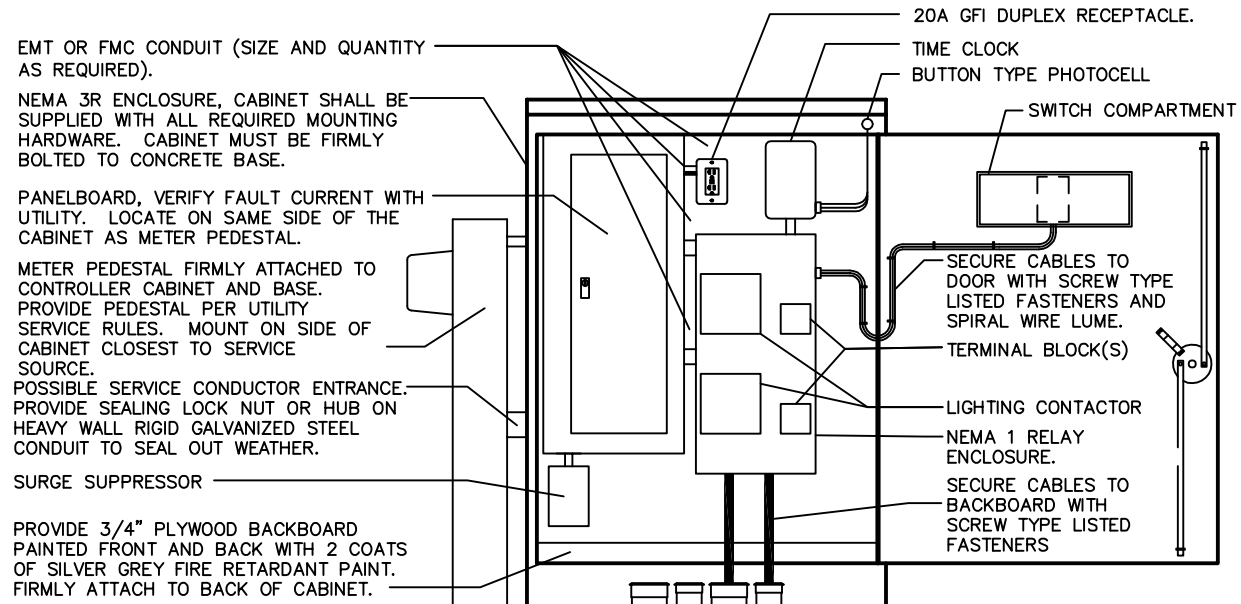
ALUMINUM SHALL BE TYPE 5052-H32.

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.



EMT OR FMC CONDUIT (SIZE AND QUANTITY AS REQUIRED).

NEMA 3R ENCLOSURE, CABINET SHALL BE SUPPLIED WITH ALL REQUIRED MOUNTING HARDWARE. CABINET MUST BE FIRMLY BOLTED TO CONCRETE BASE.

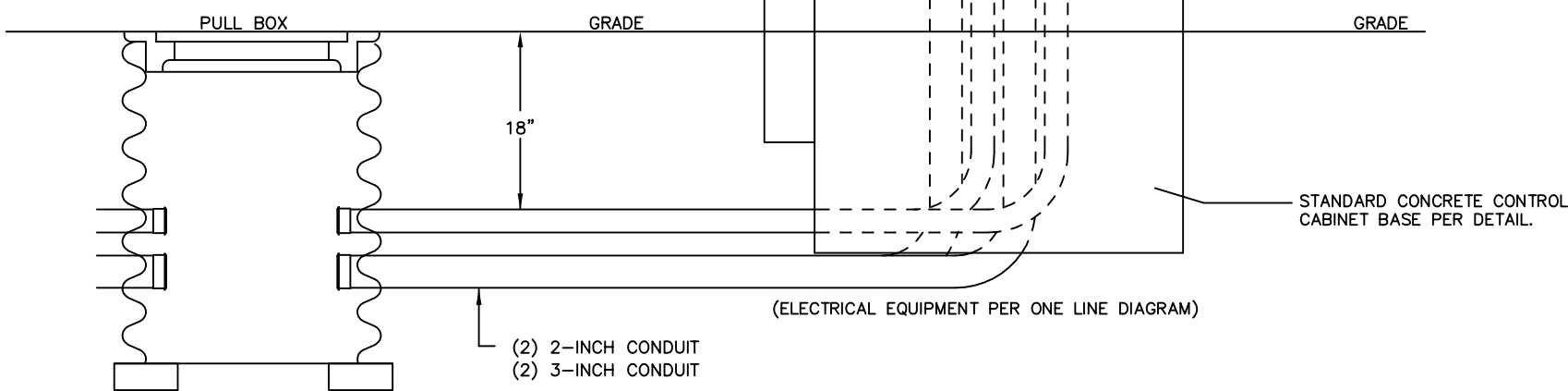
PANELBOARD, VERIFY FAULT CURRENT WITH UTILITY. LOCATE ON SAME SIDE OF THE CABINET AS METER PEDESTAL.

METER PEDESTAL FIRMLY ATTACHED TO CONTROLLER CABINET AND BASE. PROVIDE PEDESTAL PER UTILITY SERVICE RULES. MOUNT ON SIDE OF CABINET CLOSEST TO SERVICE SOURCE.

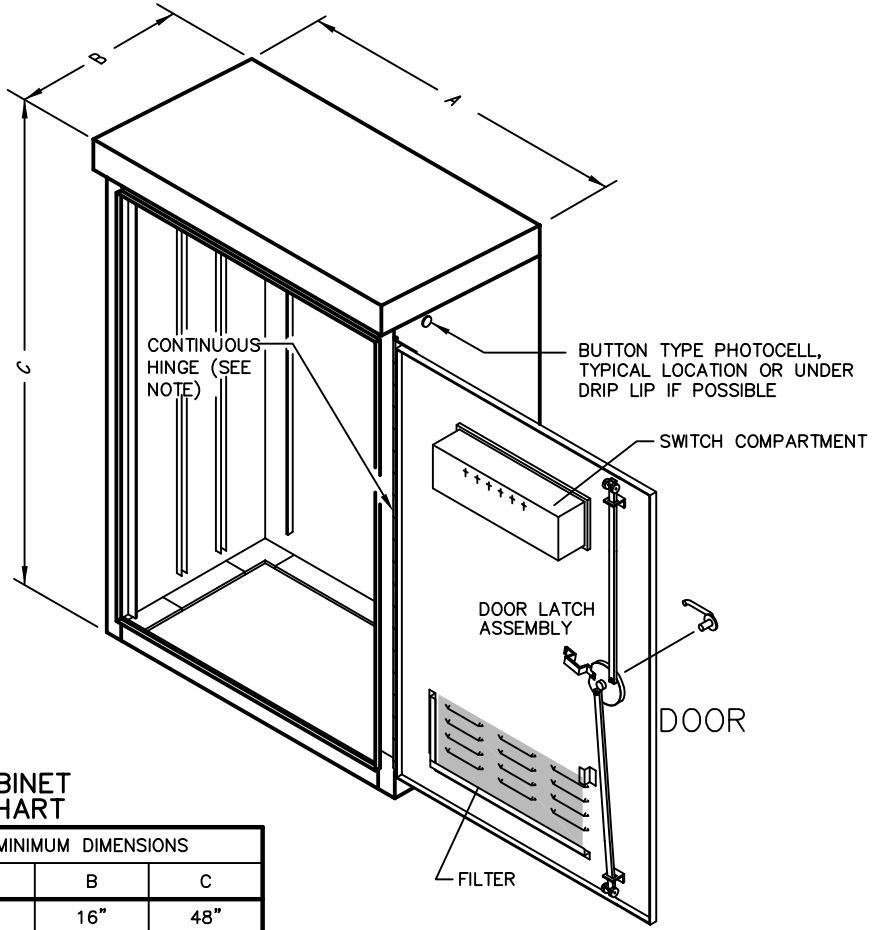
POSSIBLE SERVICE CONDUCTOR ENTRANCE. PROVIDE SEALING LOCK NUT OR HUB ON HEAVY WALL RIGID GALVANIZED STEEL CONDUIT TO SEAL OUT WEATHER.

SURGE SUPPRESSOR

PROVIDE 3/4" PLYWOOD BACKBOARD PAINTED FRONT AND BACK WITH 2 COATS OF SILVER GREY FIRE RETARDANT PAINT. FIRMLY ATTACH TO BACK OF CABINET.



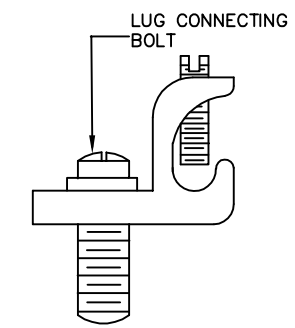
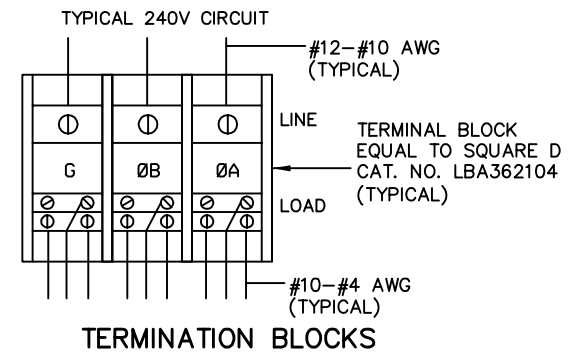
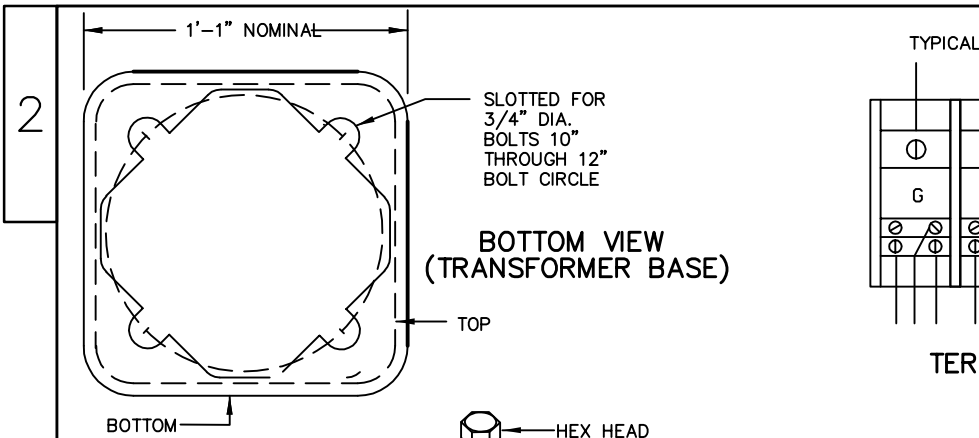
**CONTROL CABINET INSTALLATION**



**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**



**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.

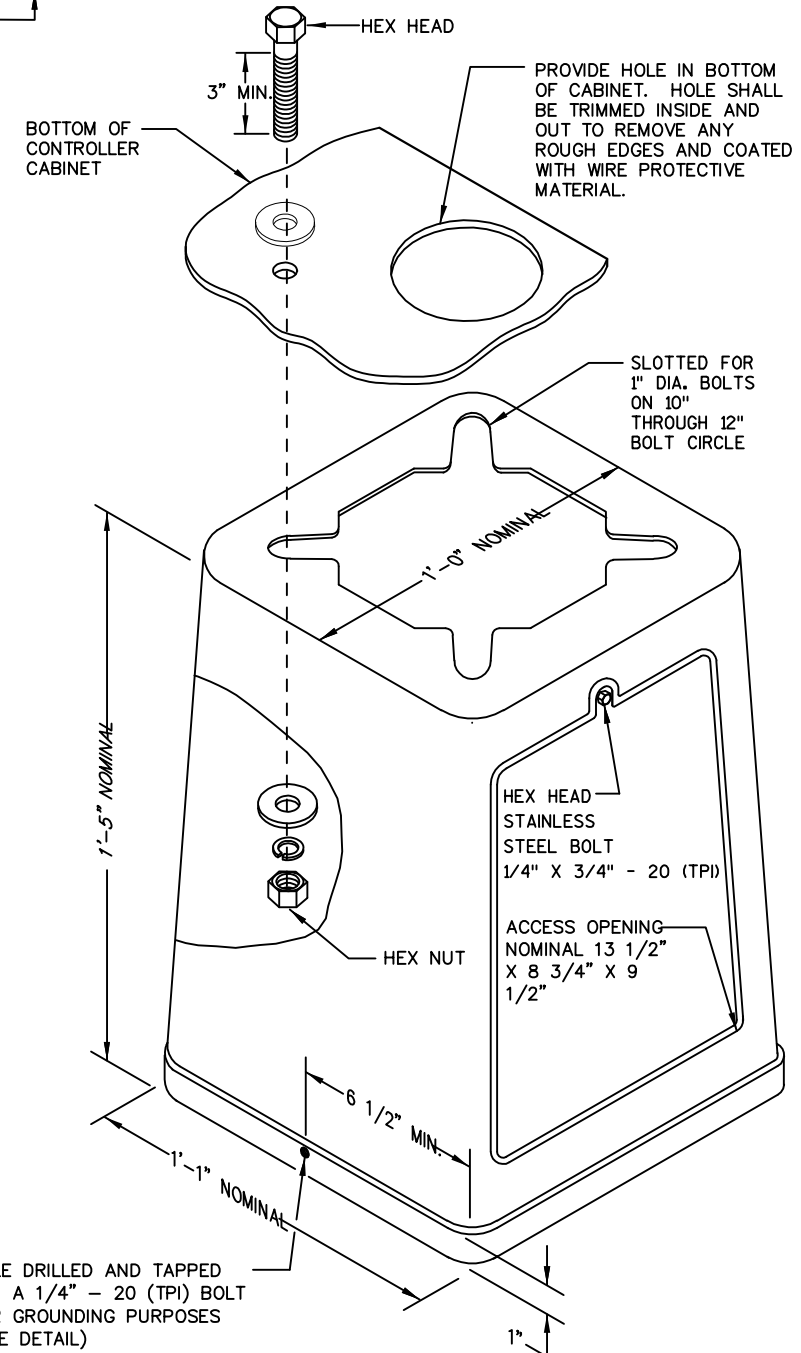
SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

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

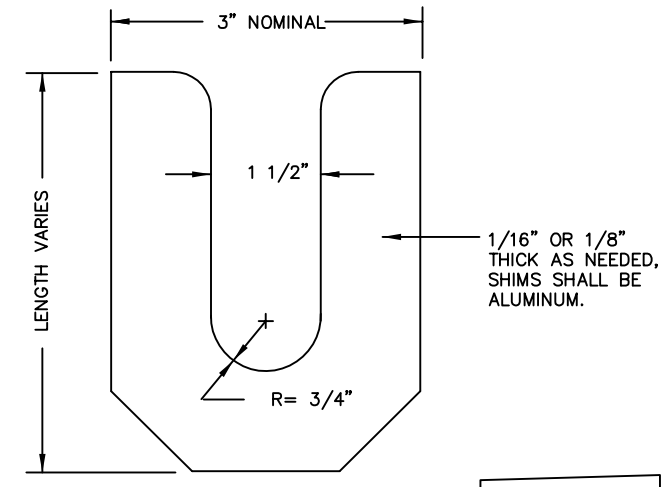
SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID STEEL OR SCHEDULE 80 PVC ELECTRICAL CONDUIT. NIPPLES AND/OR CONDULETS, WITH LOCK NUTS AND GROUNDING BUSHINGS AS REQUIRED BY THE N.E.C. OR THE LOCAL UTILITY.

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

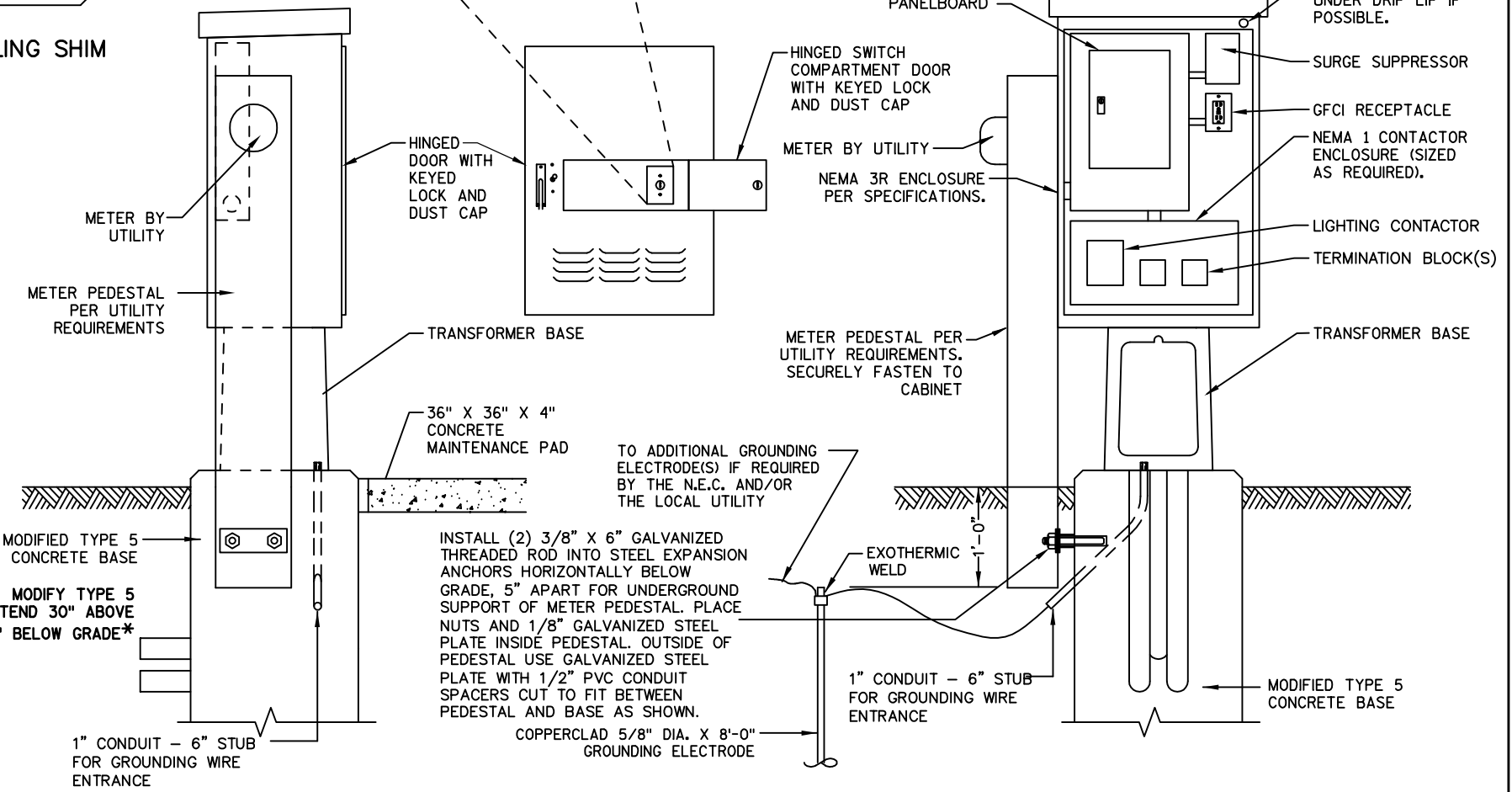
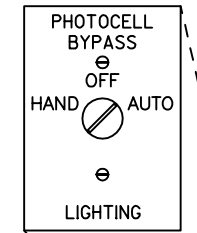
PROVIDE A SIEMENS-EAGLE CABINET SIZE "4", ECONOLITE TYPE "G", OR EQUAL WITH TOP OF POST MOUNTING HARDWARE AND AIR FILTER SLOT IN THE DOOR.



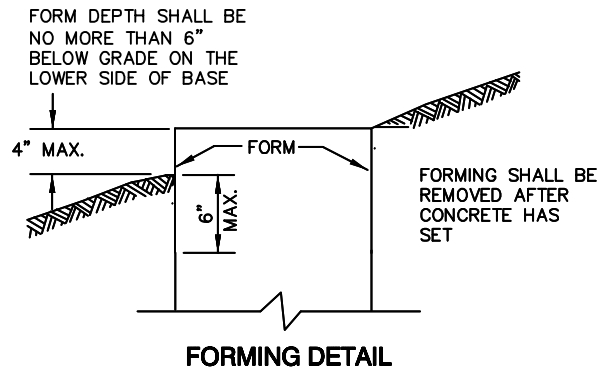
**ISOMETRIC VIEW**  
**TRANSFORMER BASE**  
FOR USE WITH CONTROLLER PEDESTAL



**LEVELING SHIM**



**TRANSFORMER BASE MOUNTED SERVICE AND CONTROLLER CABINET DETAIL**



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

### 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.

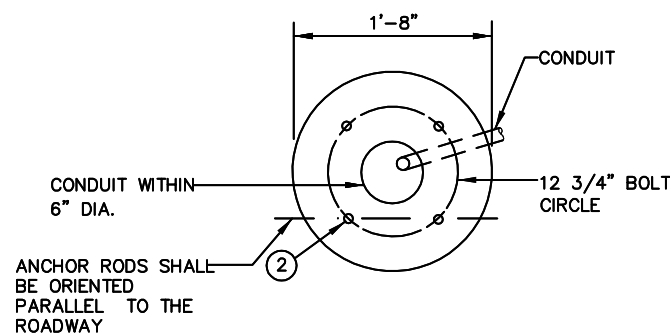
WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4" "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND END SHALL NOT BE THREADED.

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.

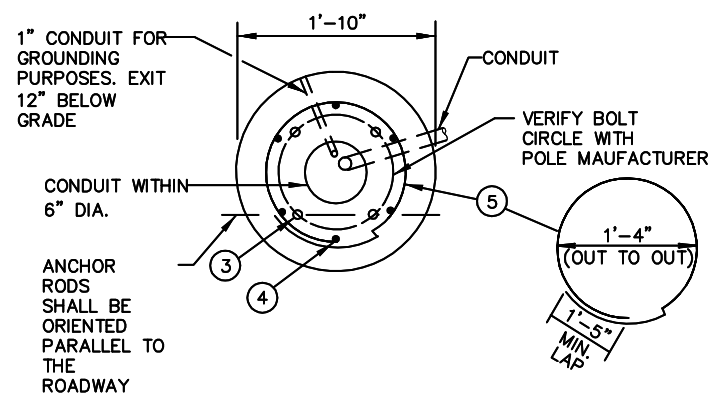
BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN.

- 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.



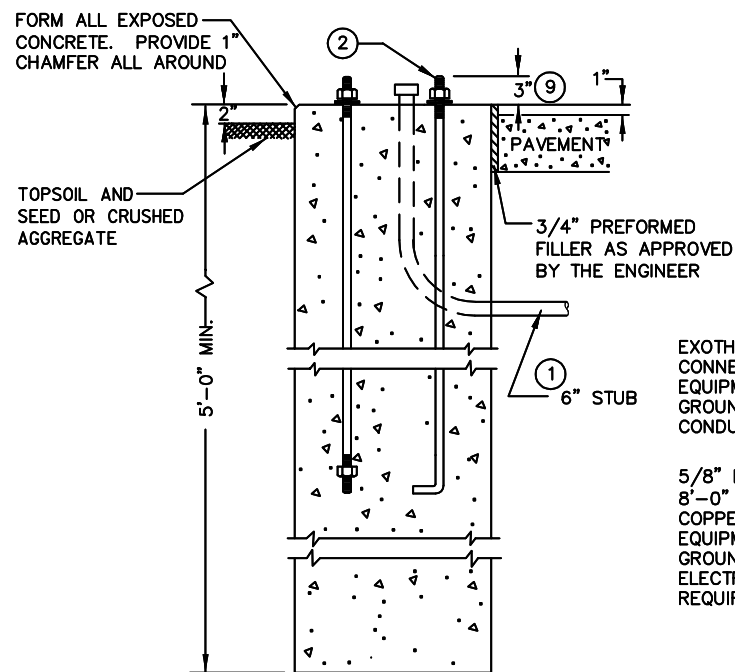
HALF SECTION IN UNPAVED AREA

(TYPICAL FOR TYPES 1, 2 & 5)

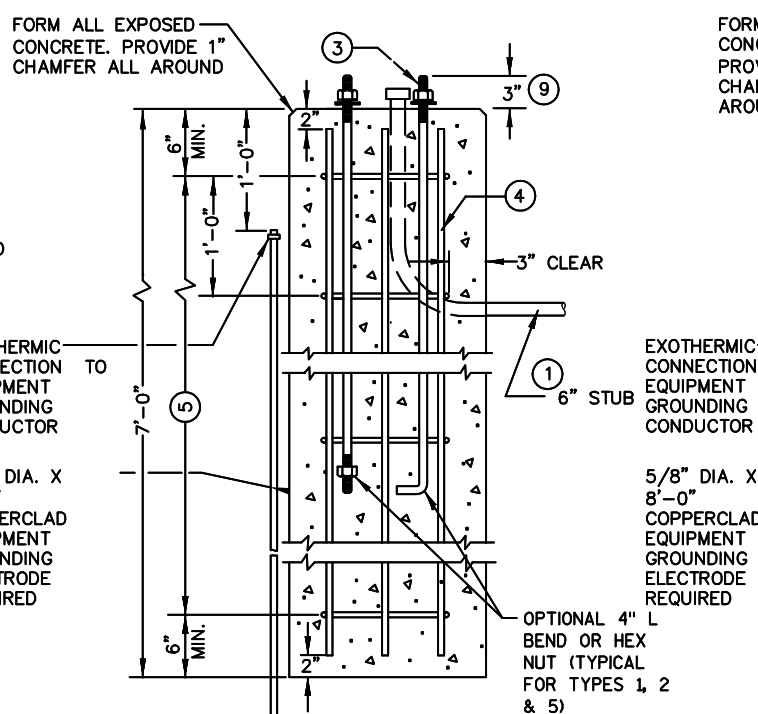


HALF SECTION IN PAVEMENT

(TYPICAL FOR TYPES 1, 2 & 5)

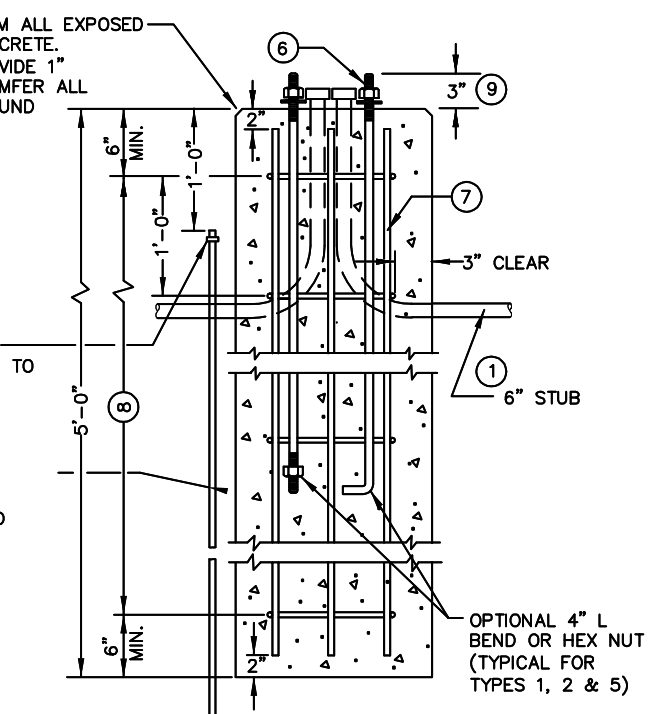


TYPE 1

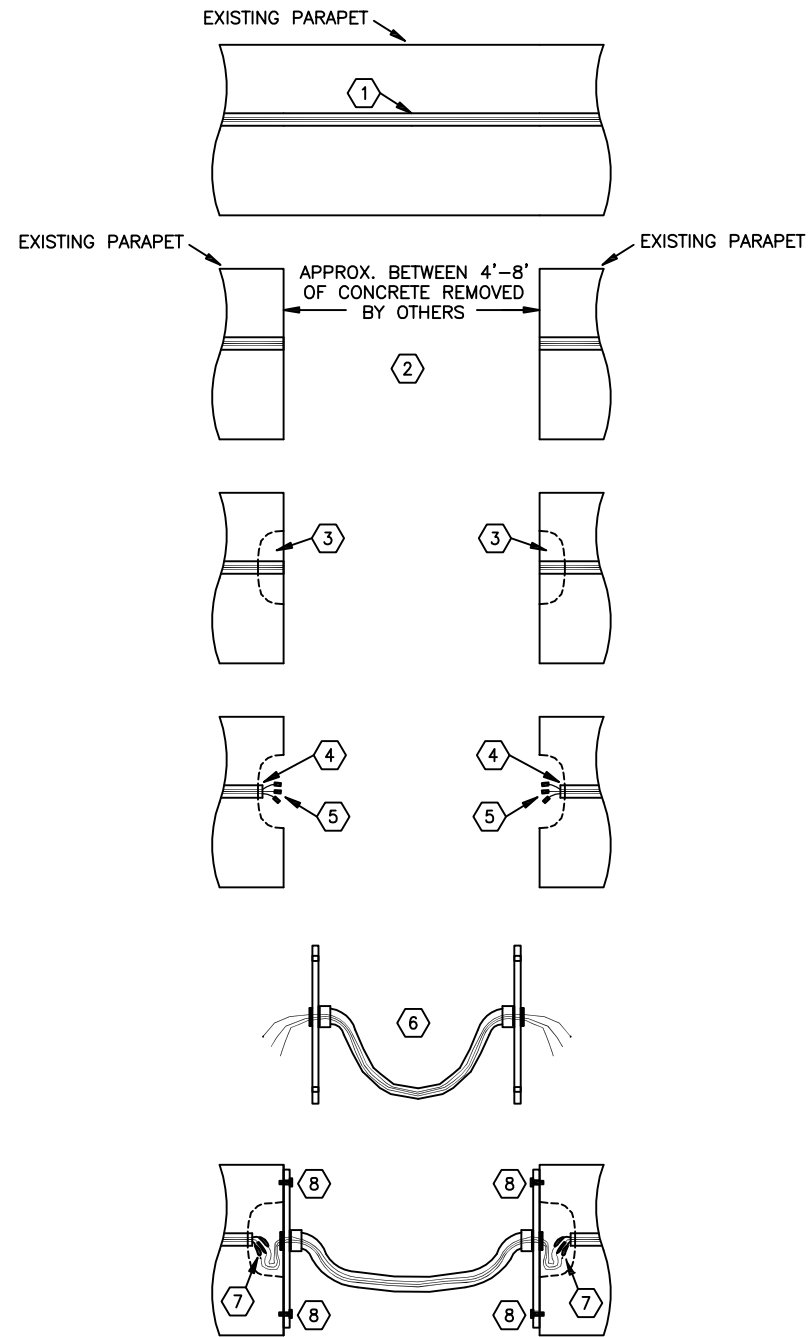


TYPE 2

CONCRETE BASES



TYPE 5



1 TEMPORARY PARAPET WIRING  
NTS

**GENERAL NOTES**

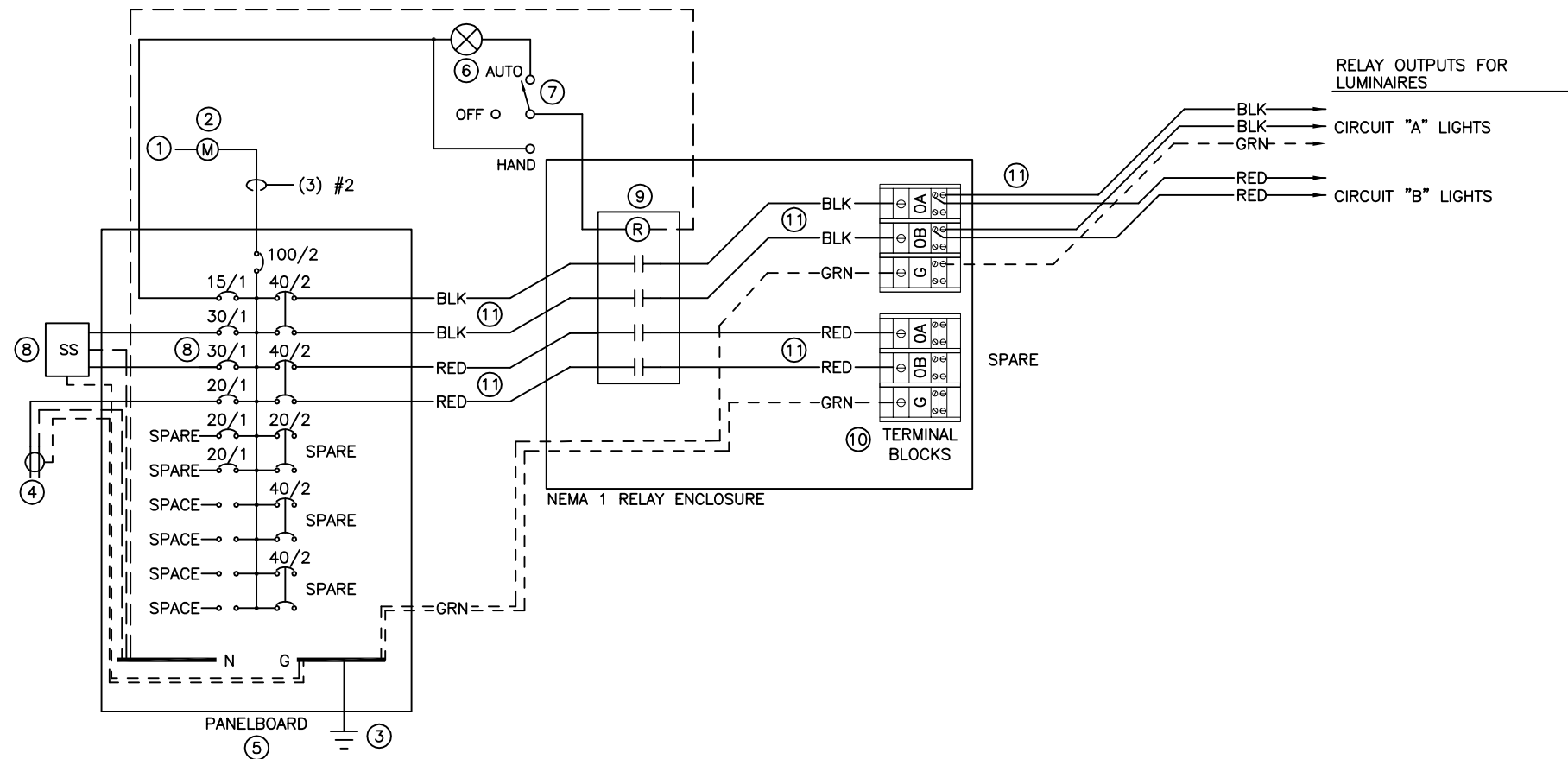
1. REFERENCE CIVIL DRAWINGS FOR DEMOLITION OF APPROXIMATELY 4' OF CONCRETE PARAPET BY OTHERS AT SEVERAL LOCATIONS. USE THESE DRAWINGS TO GET A QUANTITY COUNT FOR USE IN THE ELECTRICAL BID.
2. TEMPORARY ELECTRICAL WORK IS REQUIRED TO ALLOW THE PROJECT TO BE PHASED AND WILL LIKELY STAY IN PLACE FOR A YEAR 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.

### 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.

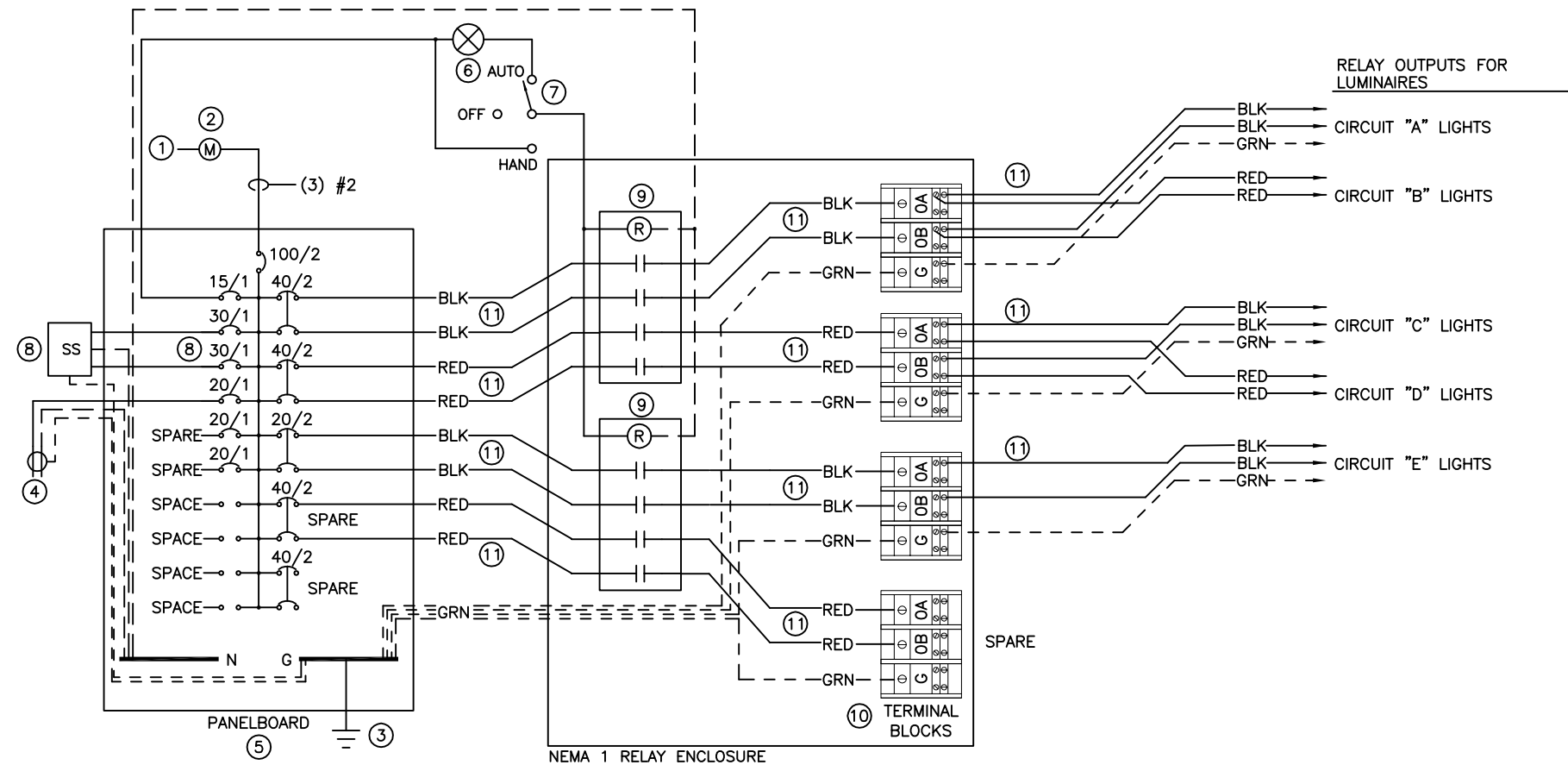


**LIGHTING CONTROLLER #1 ONE-LINE ELECTRICAL DIAGRAM**  
 NTS



### 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

MINNESOTA LUMINAIRES						
POLE NO.	LOCATION OF EXISTING		POLES-- EXISTING 35--FOOT	LUMINAIRE ARMS--EXISTING 6--FOOT	LUMINAIRES UTILITY MnDOT SPV.0060.09	NOTES
	ROAD	APPROX STATION				
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 FIXTURE. EACH SEPARATE BID ITEM SHALL INCLUDE DISCONNECTION OF EXISTING 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. TOTAL (LF)	NOTES
26+90		28+52	162	172	5	860
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		SPV #	NOTES
	STATION	OFFSET		
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.

CONTROLLERS				CONCRETE CONTROL CABINET BASES		LIGHTING CONTROLLER ELECTRICAL SERVICE			SERVES	NOTES	
CONTROLLER NO.	BID ITEM NO.	ROAD	STATION	OFFSET	TYPE	BID ITEM NO.	TYPE	SERVICE SIZE			
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		SPV #	NOTES
	STATION	OFFSET		
LUMINAIRES UTILITY LED-B LIGHTING CONTROLLER #1			SPV.0060.08	
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				NOTES
					TOTAL LENGTH (LF)	10 AWG 655.0615 NO. TOTAL (LF)	4 AWG 655.0630 NO. TOTAL (LF)		
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	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			SIZE	NOTES
	ROAD	STATION	OFFSET	24X36-INCH 653.0135	
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		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
	ROAD	APPROX STATION							
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		RIGID NONMETALLIC SCHEDULE 40		RIGID NONMETALLIC SCHEDULE 80		ELECTRICAL WIRE LIGHTING		NOTES
		HORIZONTAL LENGTH (LF)	2-INCH 652.0225 NO. TOTAL (LF)	2-INCH 652.0325 NO. TOTAL (LF)	WIRE LENGTH SLACK & RISER ALLOWANCE	TOTAL LENGTH (LF)	2 AWG 655.0635 NO. TOTAL (LF)			
CONTROLLER #2 CIRCUIT 2A										
PB2-1	PB2-4	5	1 5	0	15	20	5	100		
PB2-4	PB2-5	124	0	1 124	10	134	5	670		
PB2-5	PB2-6	200	1 200	0	10	210	5	1,050		
PB2-6	39	196	1 196	0	10	206	5	XR		
39	41	39	1 41	0	10	51	3	153		
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	0	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	0	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		
TOTALS			5,867	1,068				23,746		

NOTES  
1. THIS SECTION IS BORED UNDER EXISTING ROAD.

CONTROLLERS

LIGHTING CONTROLLERS		LOCATION		CONCRETE CONTROL CABINET BASES		LIGHTING CONTROLLER ELECTRICAL SERVICE		SERVES	NOTES
CONTROLLER NO.	BID ITEM NO.	ROAD	STATION	OFFSET	TYPE	BID ITEM NO.	SERVICE SIZE		
CONTROLLER #2	SPV.0105.09				TYPE 7		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.

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

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

ROUTE FROM TO		CONDUIT		ELECTRICAL WIRE LIGHTING		NOTES
		HORIZONTAL LENGTH (LF)	WIRE LENGTH TOTAL LENGTH (LF)	8 AWG 655.0620 NO. TOTAL (LF)	4 AWG 655.0630 NO. TOTAL (LF)	
CIRCUIT 2C & D						
CONTROLLER #2						
PB2-1	PB2-2	20	20	0	5	100
PB2-1	31	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
TOTALS			0	1,900	15,085	

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

ROUTE FROM TO		CONDUIT		ELECTRICAL WIRE LIGHTING		NOTES
		HORIZONTAL LENGTH (LF)	WIRE LENGTH TOTAL LENGTH (LF)	8 AWG 655.0620 NO. TOTAL (LF)	6 AWG 655.0625 NO. TOTAL (LF)	
CIRCUIT 2E						
CONTROLLER #2						
PB2-1	PB2-3	19	19	0	3	57
PB2-1	66	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
TOTALS			0	3,213	2,412	

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

POLE NO.	LOCATION			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	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
	ROAD	APPROX STATION	OFFSET								
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	1	144	
40	USH-2	138+12 EB	38.0 RT	1	1	1	1	1	1	144	
41	USH-2	139+94 WB	38.0 LT	1	1	1	1	1	1	144	
42	USH-2	141+69 EB	38.0 RT	1	1	1	1	1	1	144	
43	USH-2	143+54 WB	38.0 LT	1	1	1	1	1	1	144	
44	USH-2	145+25 EB	36.0 RT	1	1	1	1	1	1	144	
45	USH-2	147+14 WB	38.0 LT	1	1	1	1	1	1	144	
46	USH-2	148+83 EB	59.0 RT	1	1	1	1	1	1	144	
47	USH-2	150+76 WB	16.0 LT	1	1	1	1	1	1	144	
48	USH-2	151+27 WB	44.5 LT	1	1	1	1	1	1	144	
49	USH-2	40+34 BW	32.0 LT	1	1	1	1	1	1	144	
50	USH-2	39+40 BE	25.0 LT	1	1	1	1	1	1	144	
51	USH-2	152+93 EB	106.0 LT	1	1	1	1	1	1	144	
52	USH-2	152+79 EB	27.0 LT	1	1	1	1	1	1	144	
53	USH-2	136+79 BW	99.0 RT	1	1	1	1	1	1	144	
54	USH-2	36+84 BW	17.0 RT	1	1	1	1	1	1	144	
55	USH-2	150+62 B	16.0 LT	1	1	1	1	2	2	288	
56	USH-2	35+59 BE	31.0 RT	1	1	1	1	1	1	144	
57	USH-2	33+75 BW	34.0 LT	1	1	1	1	1	1	144	
58	USH-2	32+00 BE	24.5 RT	1	1	1	1	1	1	144	
59	USH-2	30+21 BW	24.5 LT	1	1	1	1	1	1	144	
60	USH-2	28+41 BE	29.0 RT	1	1	1	1	1	1	144	
61	USH-2	154+11 EB	39.0 RT	1	1	1	1	1	1	144	
62	USH-2	155+98 WB	39.0 LT	1	1	1	1	1	1	144	
63	USH-2	157+50 EB	39.0 RT	1	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)			SIZE 24X36-INCH 653.0135	NOTES
	ROAD	STATION	OFFSET		
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		SPV #	NOTES
	STATION	OFFSET		
LUMINAIRES UTILITY LED-B LIGHTING CONTROLLER #2			SPV.0060.08	
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			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
	ROAD	APPROX STATION	OFFSET							
	USH-2	158+86 EB	36.0 RT	1	1					
	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	
<b>TOTALS</b>				<b>5</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>720</b>	
NOTES										

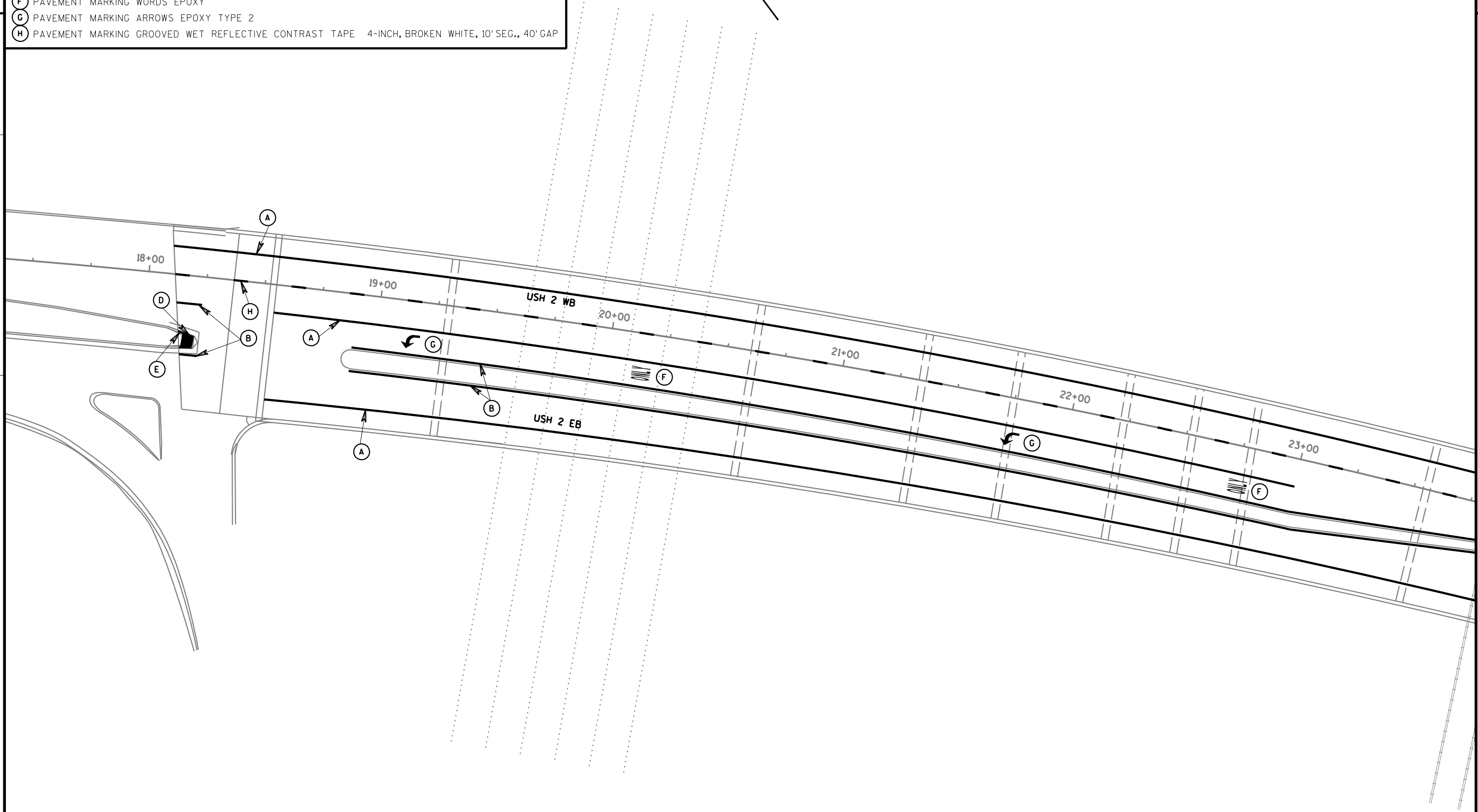
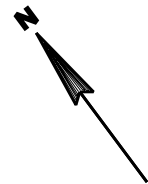
PULL BOXES STEEL (EXISTING CIRCUIT)					
NO.	LOCATION (REFERENCE NOTES)			SIZE 24X36-INCH 653.0135	NOTES
	ROAD	STATION	OFFSET		
PB2-29				1	1
PB2-30				1	1
<b>TOTALS</b>				<b>2</b>	
NOTES					
1. REFERENCE PLAN SHEETS FOR LOCATION PROXIMITY. REASONABLE FIELD JUDGMENT SHALL BE EXERCISED WHEN DETERMINING EXACT LOCATIONS REQUIRED.					

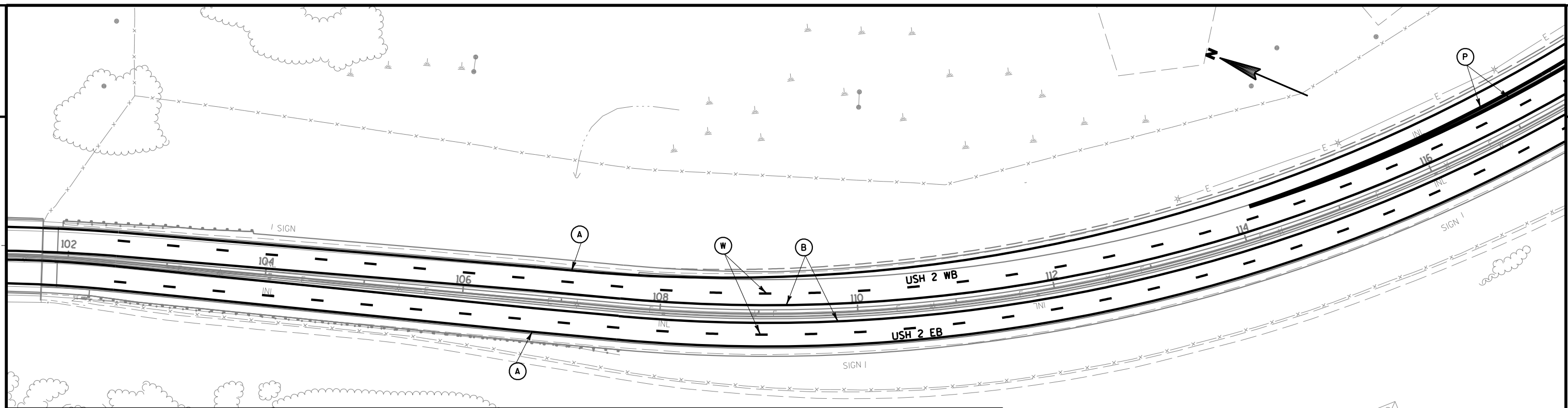
CONDUIT AND ELECTRICAL WIRE SCHEDULE (EXISTING CIRCUIT)							
ROUTE STATIONING		CONDUIT HORIZONTAL LENGTH (LF)	RIGID NONMETALLIC SCHEDULE 40 2-INCH 652.0225		ELECTRICAL WIRE LIGHTING		NOTES
			NO.	TOTAL (LF)	WIRE LENGTH TOTAL LENGTH (LF)	2 AWG 655.0635 NO. TOTAL (LF)	
FROM	TO						
UNDISTURBED LT	PBX-30	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
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
<b>TOTALS</b>				<b>688</b>			<b>2,710</b>
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		SPV #	NOTES
	STATION	OFFSET		
EXISTING ROADWAY LIGHTING REMOVAL AND RELOCATION	N/A	N/A	SPV.0060.21	
NOTES				

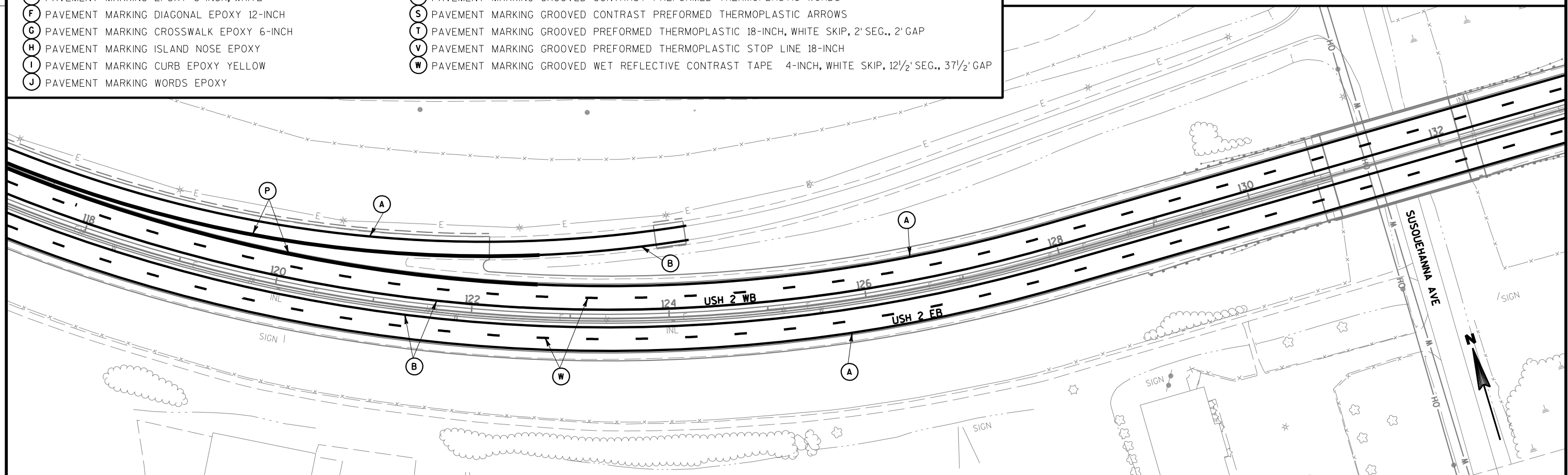
ALL ITEMS ON THIS SHEET ARE CATEGORY 0020 UNLESS OTHERWISE NOTED.

- (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

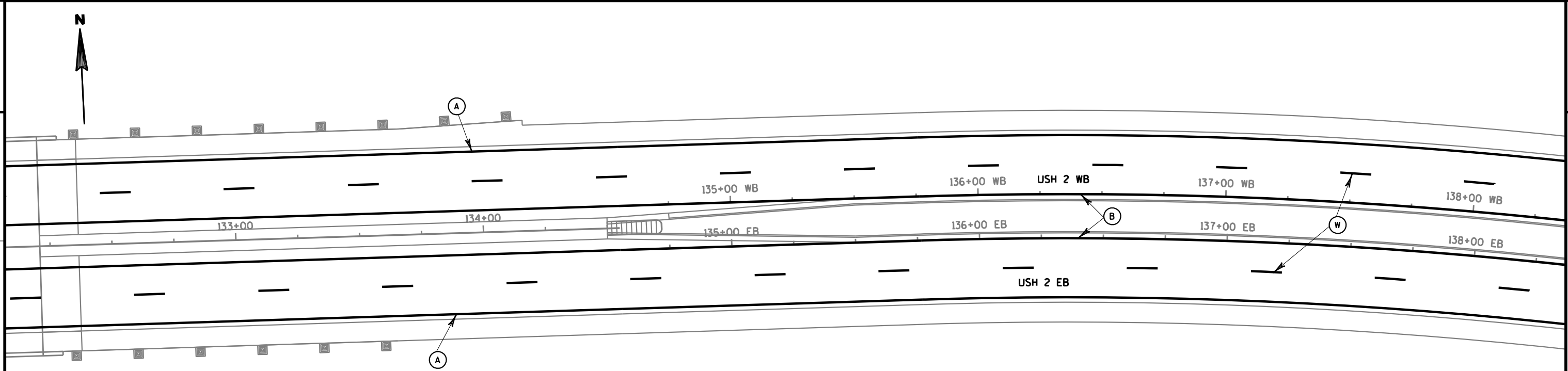




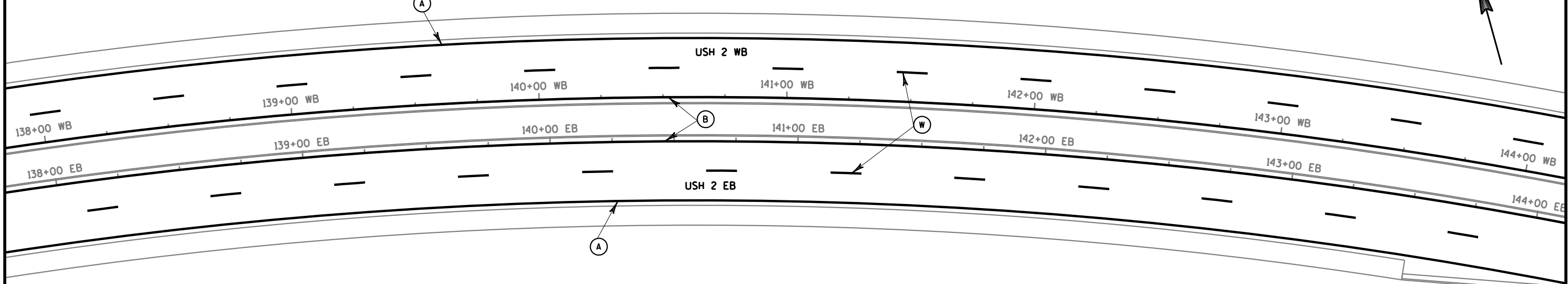
<b>A</b> PAVEMENT MARKING EPOXY 4-INCH, WHITE	<b>K</b> PAVEMENT MARKING ARROWS EPOXY
<b>B</b> PAVEMENT MARKING EPOXY 4-INCH, YELLOW	<b>L</b> PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 1' SEG., 3' GAP
<b>C</b> PAVEMENT MARKING EPOXY 4-INCH, DOUBLE YELLOW	<b>M</b> PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 6' SEG., 3' GAP
<b>D</b> PAVEMENT MARKING EPOXY 4-INCH, WHITE SKIP, 12 1/2' SEG., 37 1/2' GAP	<b>P</b> PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 8-INCH, WHITE
<b>E</b> PAVEMENT MARKING EPOXY 8-INCH, WHITE	<b>R</b> PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC WORDS
<b>F</b> PAVEMENT MARKING DIAGONAL EPOXY 12-INCH	<b>S</b> PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS
<b>G</b> PAVEMENT MARKING CROSSWALK EPOXY 6-INCH	<b>T</b> PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC 18-INCH, WHITE SKIP, 2' SEG., 2' GAP
<b>H</b> PAVEMENT MARKING ISLAND NOSE EPOXY	<b>V</b> PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC STOP LINE 18-INCH
<b>I</b> PAVEMENT MARKING CURB EPOXY YELLOW	<b>W</b> PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH, WHITE SKIP, 12 1/2' SEG., 37 1/2' GAP
<b>J</b> PAVEMENT MARKING WORDS EPOXY	

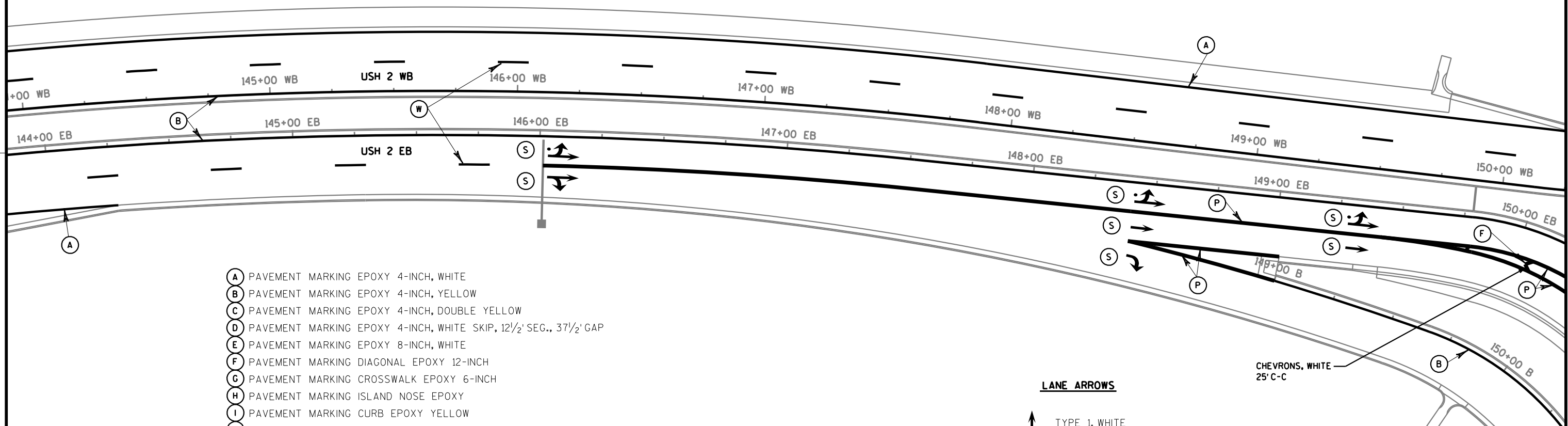
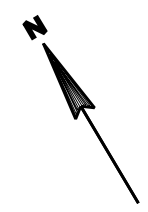






(A) PAVEMENT MARKING EPOXY 4-INCH, WHITE	(K) PAVEMENT MARKING ARROWS EPOXY
(B) PAVEMENT MARKING EPOXY 4-INCH, YELLOW	(L) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 1' SEG., 3' GAP
(C) PAVEMENT MARKING EPOXY 4-INCH, DOUBLE YELLOW	(M) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 4-INCH, WHITE SKIP, 6' SEG., 3' GAP
(D) PAVEMENT MARKING EPOXY 4-INCH, WHITE SKIP, 12 1/2' SEG., 37 1/2' GAP	(P) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC 8-INCH, WHITE
(E) PAVEMENT MARKING EPOXY 8-INCH, WHITE	(R) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC WORDS
(F) PAVEMENT MARKING DIAGONAL EPOXY 12-INCH	(S) PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC ARROWS
(G) PAVEMENT MARKING CROSSWALK EPOXY 6-INCH	(T) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC 18-INCH, WHITE SKIP, 2' SEG., 2' GAP
(H) PAVEMENT MARKING ISLAND NOSE EPOXY	(V) PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC STOP LINE 18-INCH
(I) PAVEMENT MARKING CURB EPOXY YELLOW	(W) PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH, WHITE SKIP, 12 1/2' SEG., 37 1/2' GAP
(J) PAVEMENT MARKING WORDS EPOXY	



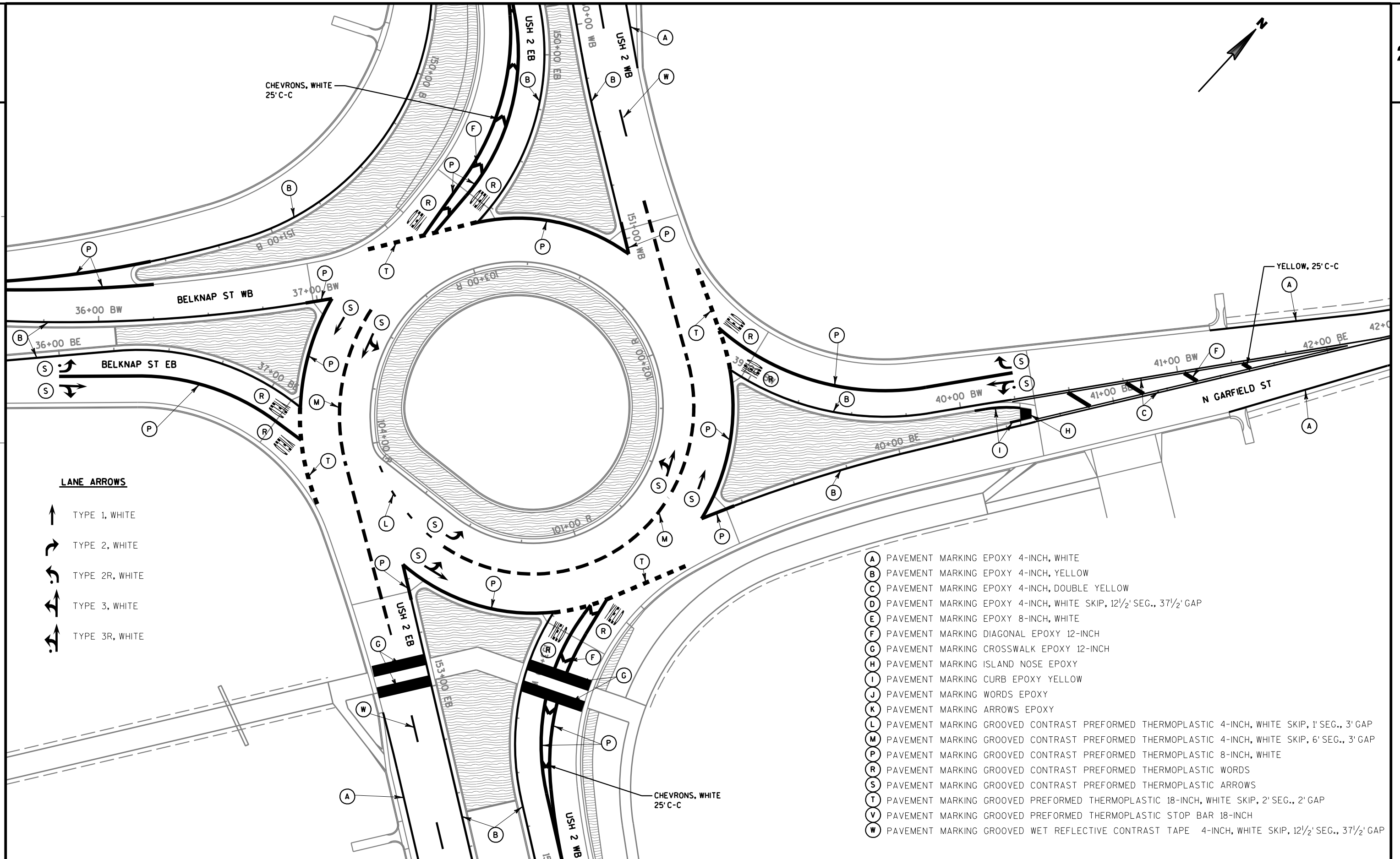


- (A) PAVEMENT MARKING EPOXY 4-INCH, WHITE
- (B) PAVEMENT MARKING EPOXY 4-INCH, YELLOW
- (C) PAVEMENT MARKING EPOXY 4-INCH, DOUBLE YELLOW
- (D) PAVEMENT MARKING EPOXY 4-INCH, WHITE SKIP, 12 1/2' SEG., 37 1/2' GAP
- (E) PAVEMENT MARKING EPOXY 8-INCH, WHITE
- (F) PAVEMENT MARKING DIAGONAL EPOXY 12-INCH
- (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, 12 1/2' SEG., 37 1/2' GAP

**LANE ARROWS**

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

CHEVRONS, WHITE  
25' C-C



**LANE ARROWS**

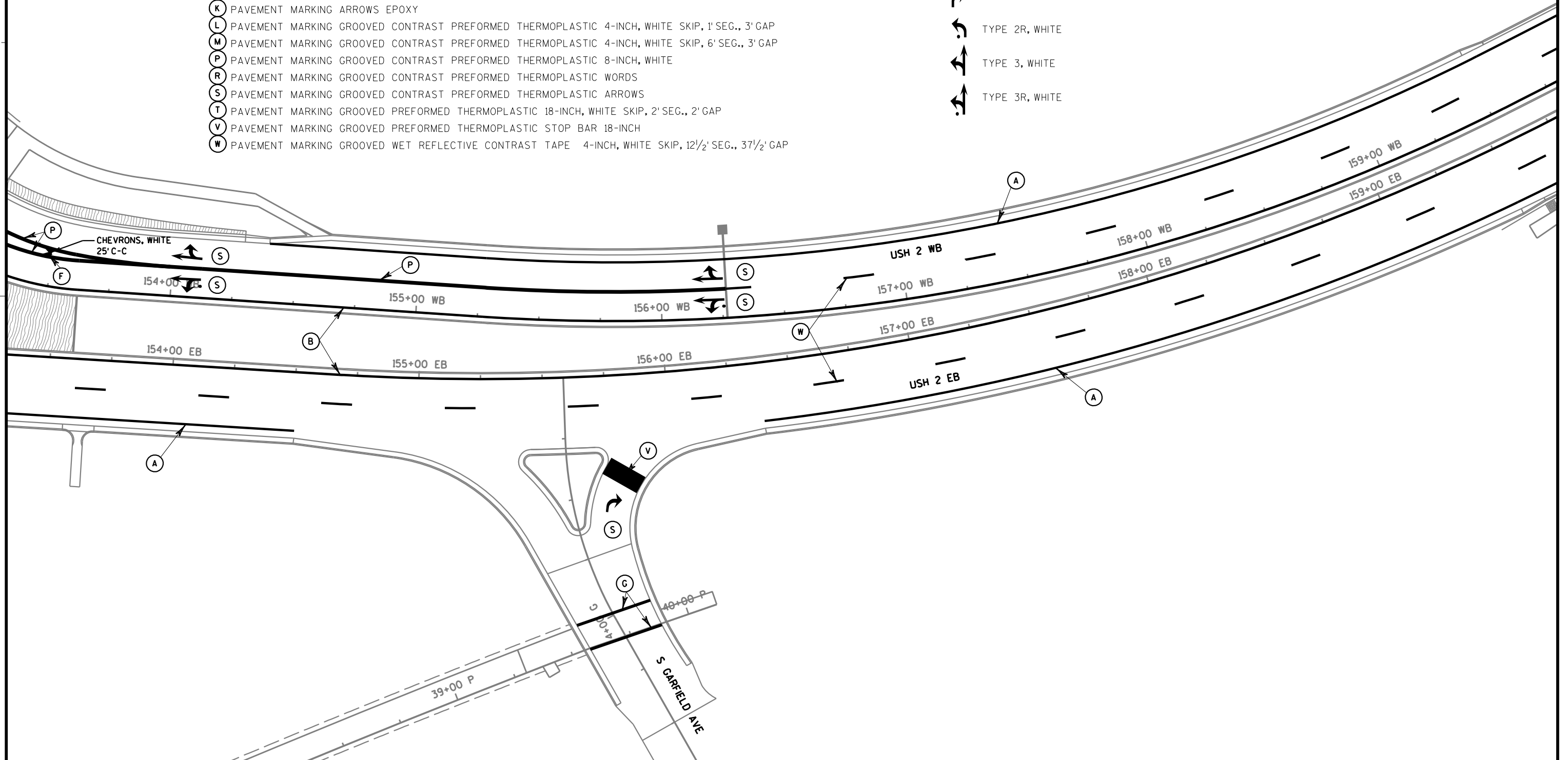
- ↑ TYPE 1, WHITE
- ↷ TYPE 2, WHITE
- ↷ TYPE 2R, WHITE
- ↷ TYPE 3, WHITE
- ↷ TYPE 3R, WHITE

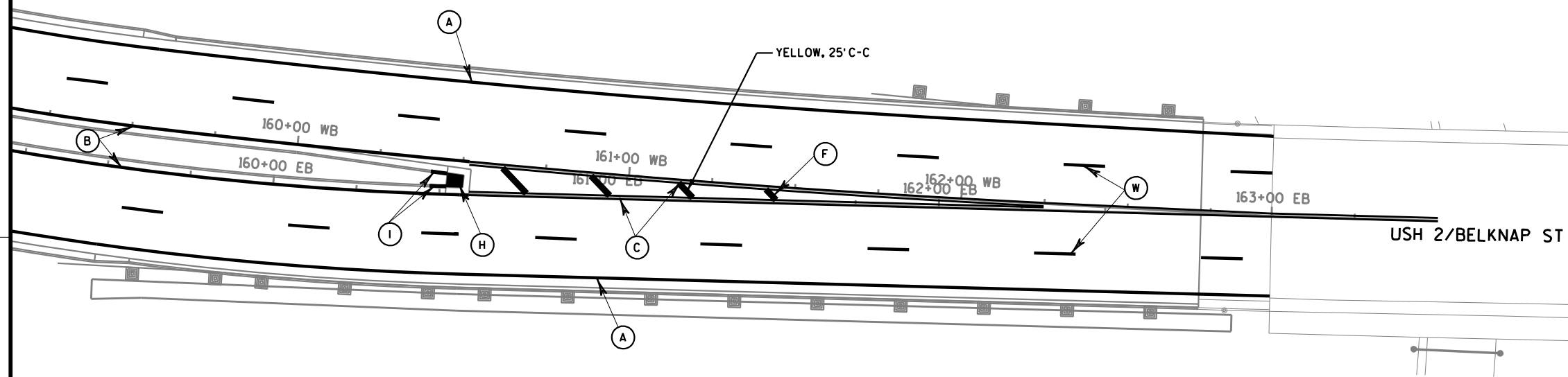
- (A) PAVEMENT MARKING EPOXY 4-INCH, WHITE
- (B) PAVEMENT MARKING EPOXY 4-INCH, YELLOW
- (C) PAVEMENT MARKING EPOXY 4-INCH, DOUBLE YELLOW
- (D) PAVEMENT MARKING EPOXY 4-INCH, WHITE SKIP, 12 1/2' SEG., 37 1/2' GAP
- (E) PAVEMENT MARKING EPOXY 8-INCH, WHITE
- (F) PAVEMENT MARKING DIAGONAL EPOXY 12-INCH
- (G) PAVEMENT MARKING CROSSWALK EPOXY 12-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, 12 1/2' SEG., 37 1/2' GAP

- (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, 12 1/2' SEG., 37 1/2' 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, 12 1/2' SEG., 37 1/2' GAP

**LANE ARROWS**

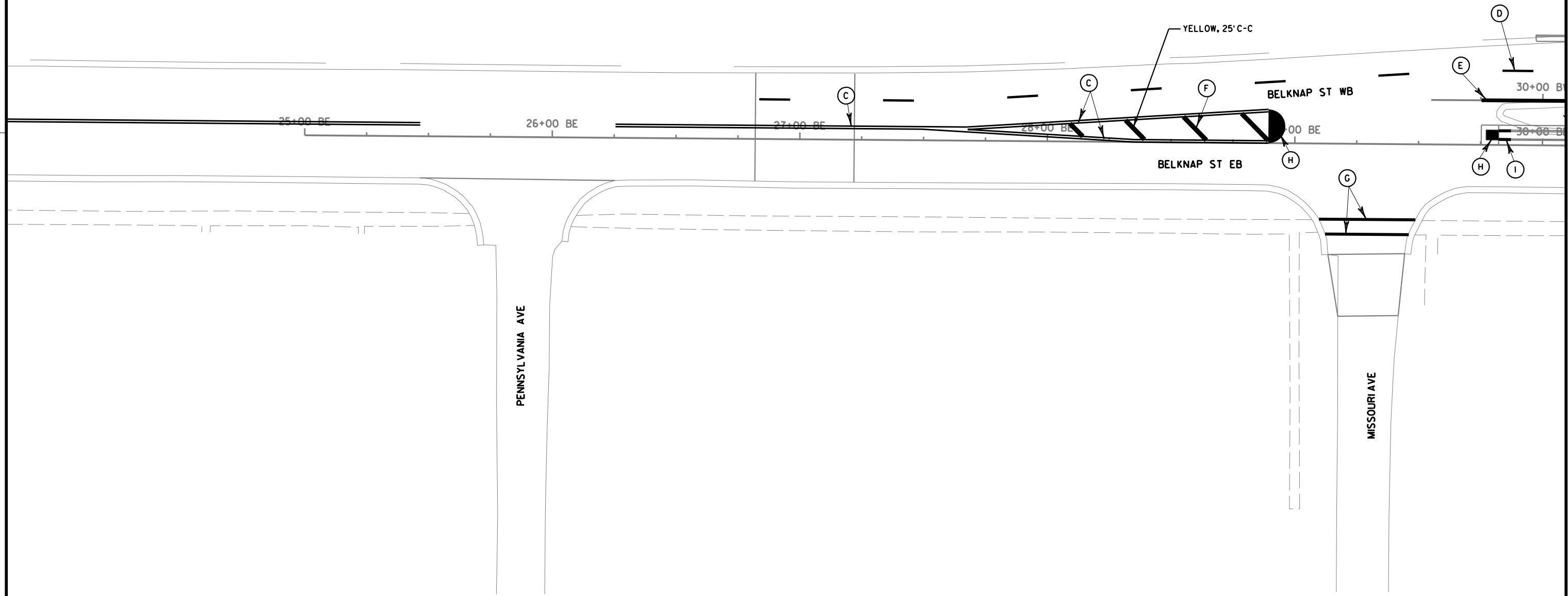
- ↑ TYPE 1, WHITE
- ↩ TYPE 2, WHITE
- ↪ TYPE 2R, WHITE
- ↗ TYPE 3, WHITE
- ↘ TYPE 3R, WHITE





- (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, 12 1/2' SEG., 37 1/2' 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
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- (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

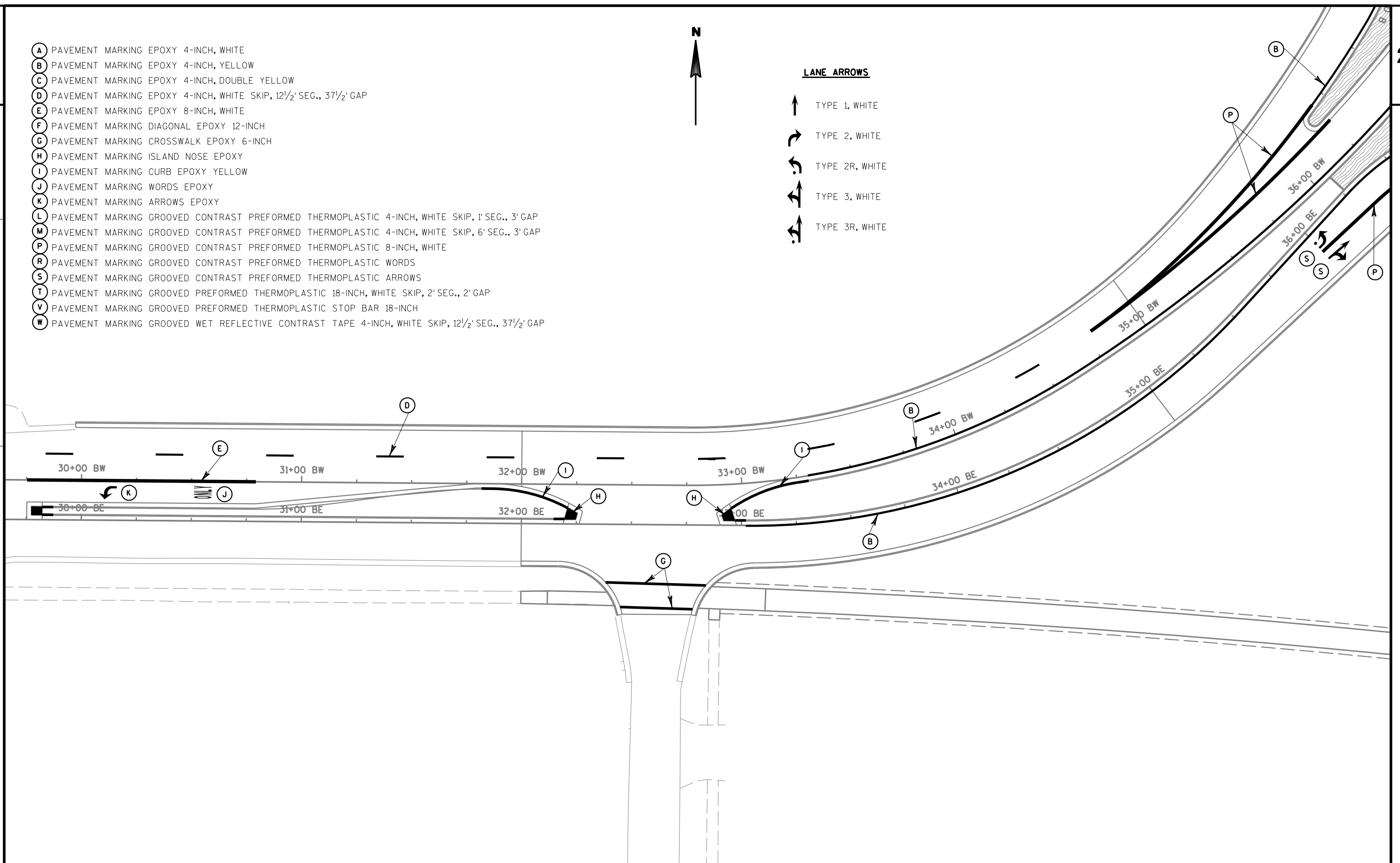


- (A) PAVEMENT MARKING EPOXY 4-INCH, WHITE
- (B) PAVEMENT MARKING EPOXY 4-INCH, YELLOW
- (C) PAVEMENT MARKING EPOXY 4-INCH, DOUBLE YELLOW
- (D) PAVEMENT MARKING EPOXY 4-INCH, WHITE SKIP, 12 1/2' SEG., 37 1/2' GAP
- (E) PAVEMENT MARKING EPOXY 8-INCH, WHITE
- (F) PAVEMENT MARKING DIAGONAL EPOXY 12-INCH
- (G) PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
- (H) PAVEMENT MARKING ISLAND NOSE EPOXY
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- (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
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- (W) PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH, WHITE SKIP, 12 1/2' SEG., 37 1/2' GAP



**LANE ARROWS**

- ↑ TYPE 1, WHITE
- ↷ TYPE 2, WHITE
- ↶ TYPE 2R, WHITE
- ↗ TYPE 3, WHITE
- ↘ TYPE 3R, WHITE







**TEMPORARY PM LEGEND**

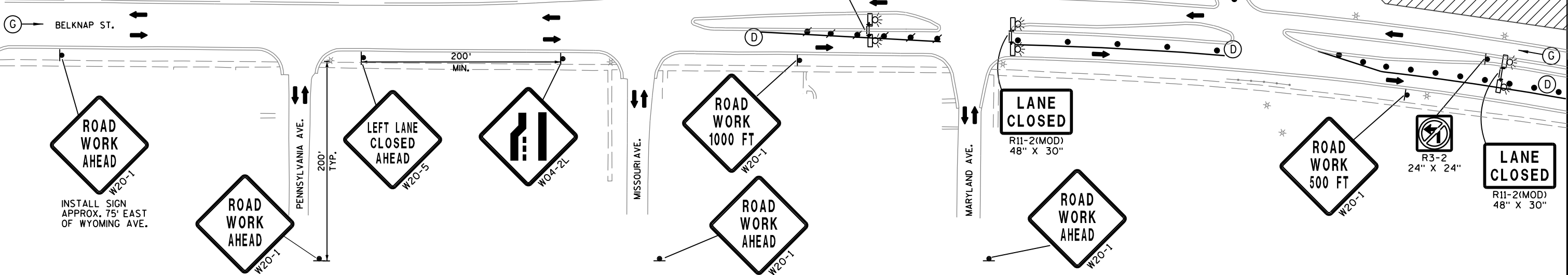
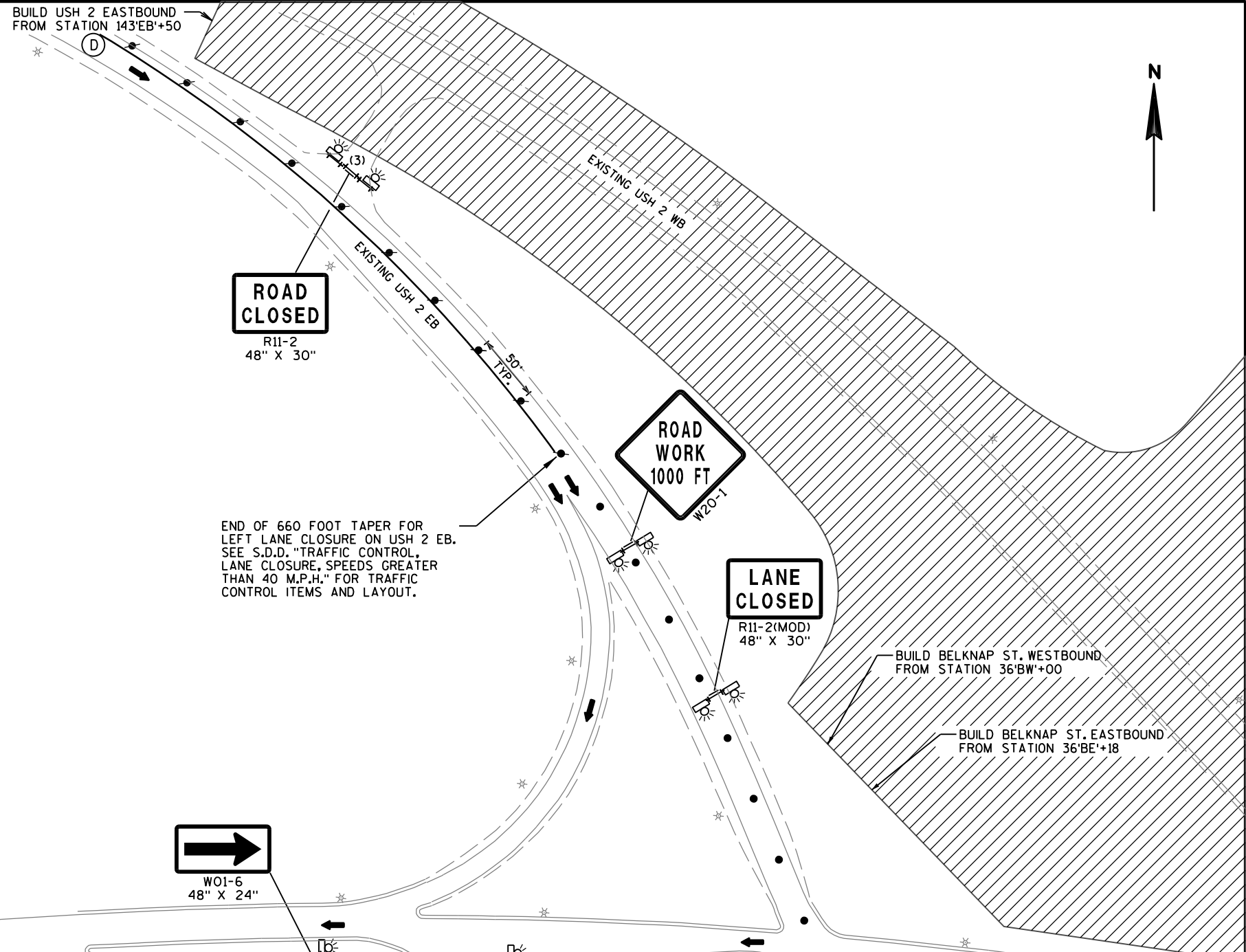
(A) REMOVING PAVEMENT MARKINGS	(D) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (YELLOW)
(B) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)	(E) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (WHITE)
(C) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)	(F) TEMPORARY PAVEMENT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

**WORK**  
CONSTRUCT USH 2 WESTBOUND AND ROUNDABOUT INCLUDING 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



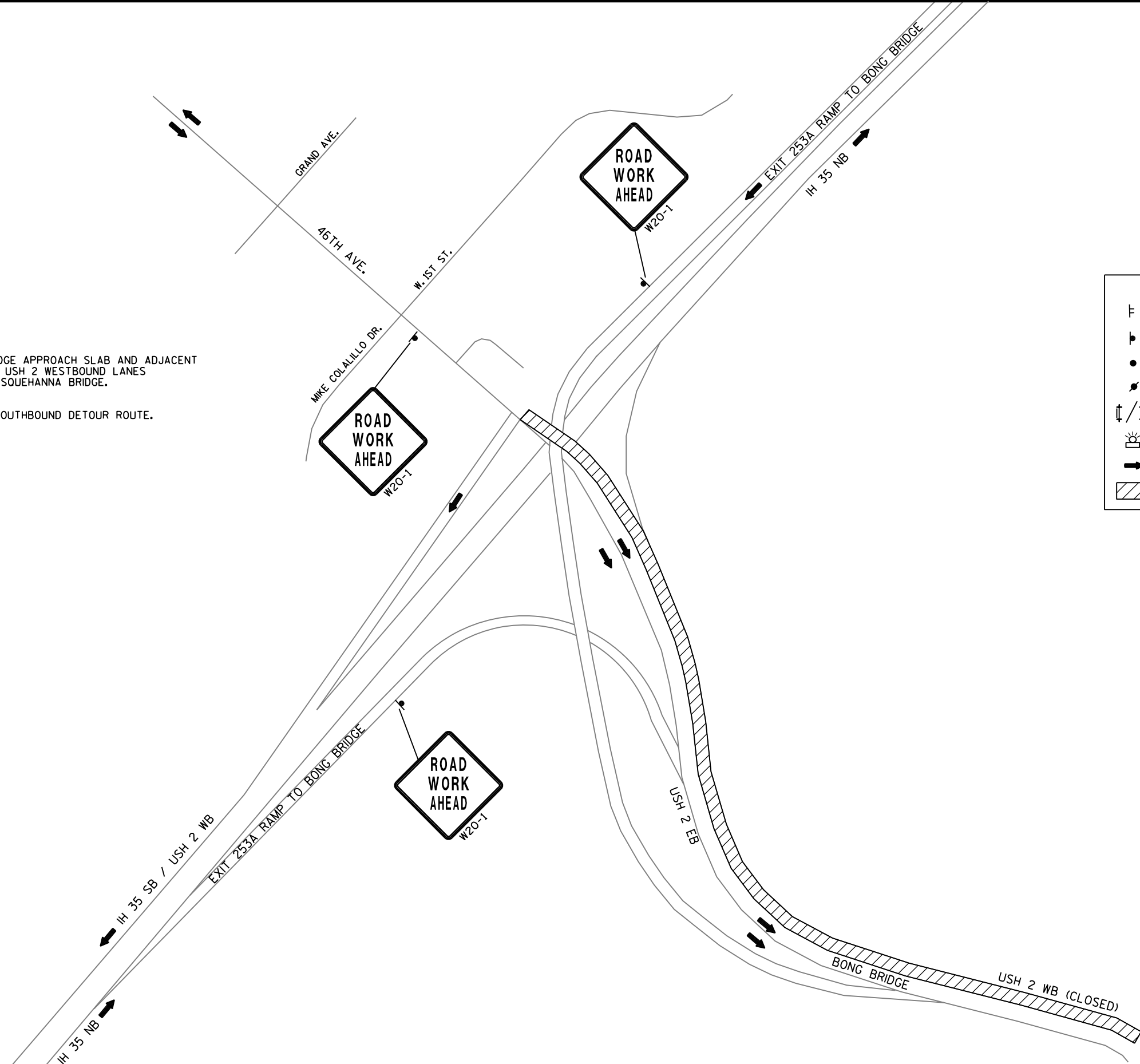


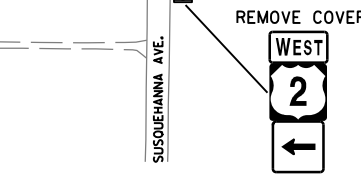
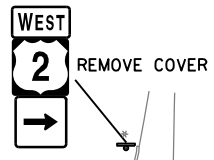


**WORK**  
 REPLACE WESTBOUND BONG BRIDGE APPROACH SLAB AND ADJACENT CONCRETE PAVEMENT. OVERLAY USH 2 WESTBOUND LANES INCLUDING BONG BRIDGE AND SUSQUEHANNA BRIDGE.

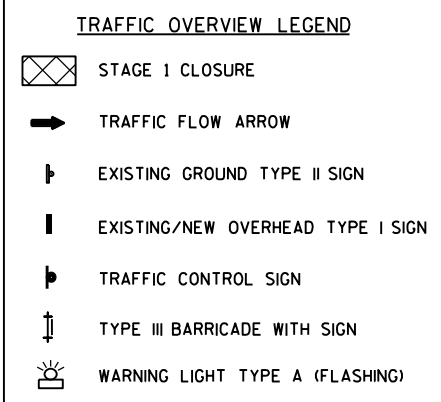
**TRAFFIC**  
 SEE DETOUR PLAN FOR IH 35 SOUTHBOUND DETOUR ROUTE.

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





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.



**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.

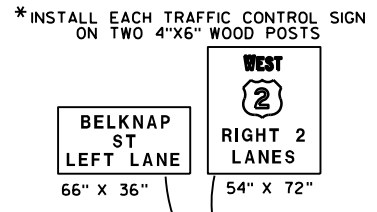
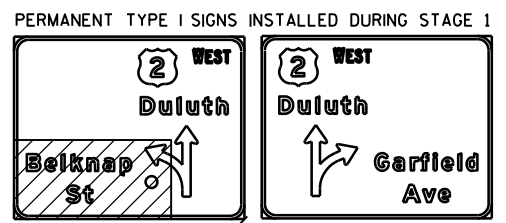
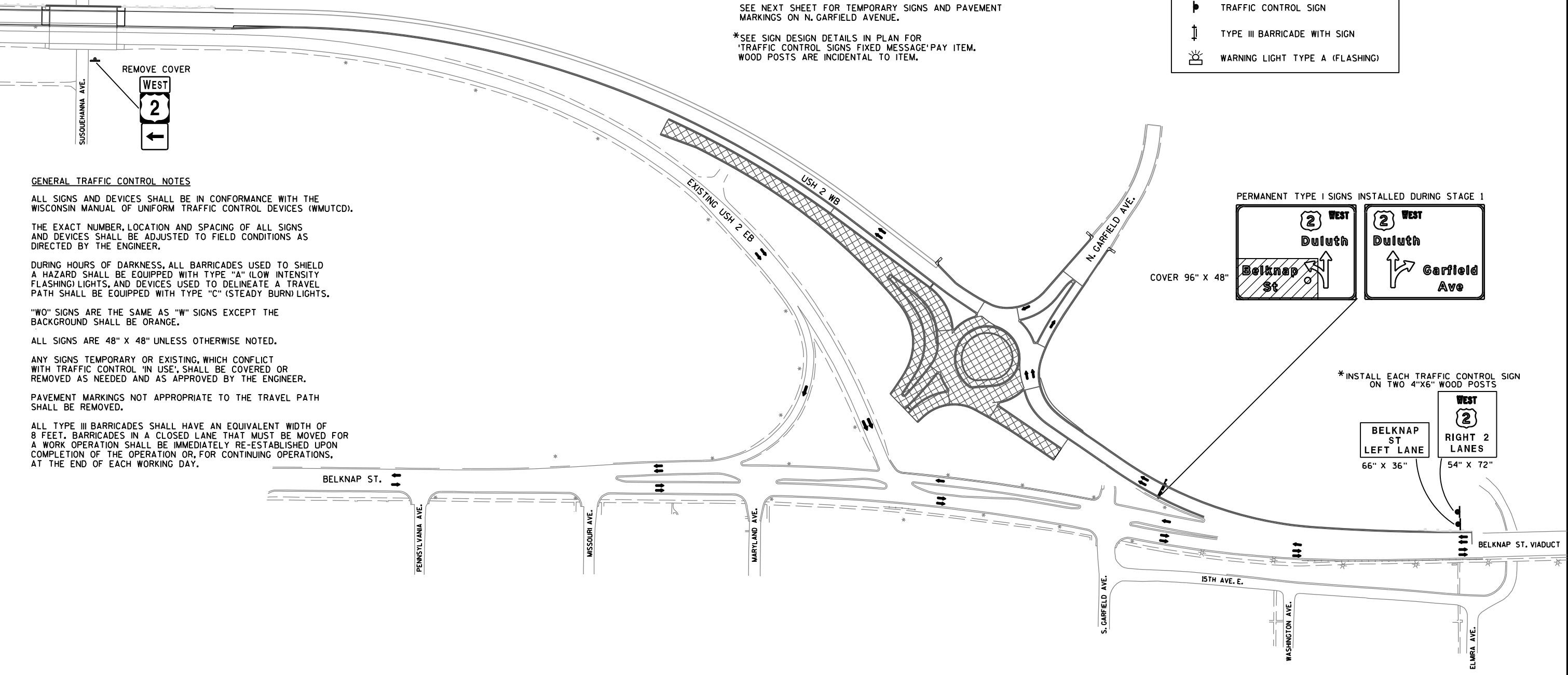
"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND SHALL BE ORANGE.

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 CLOSED**  
R11-2  
48" X 30"

**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

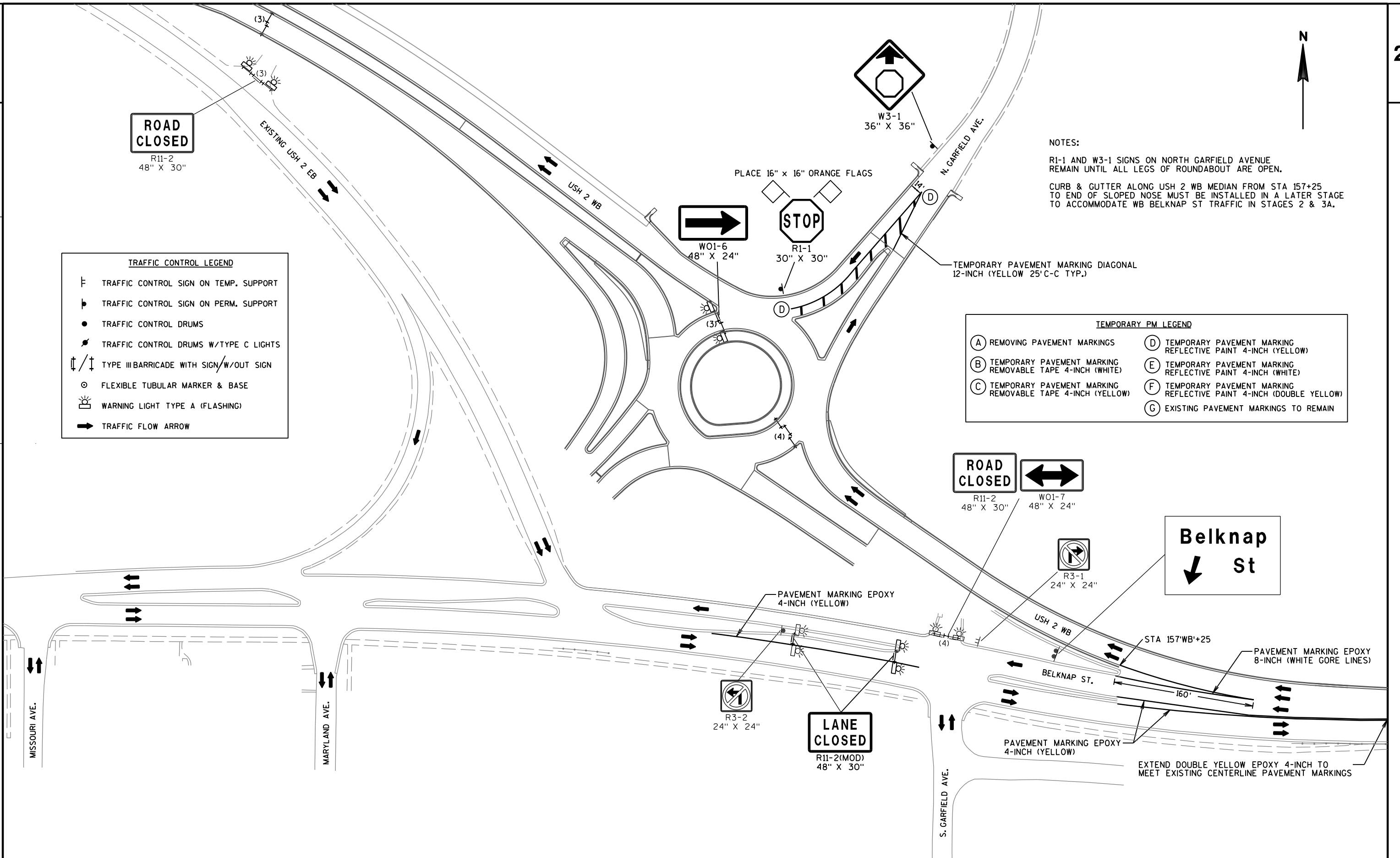
**NOTES:**

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.

**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










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)



**GENERAL TRAFFIC CONTROL NOTES**

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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.

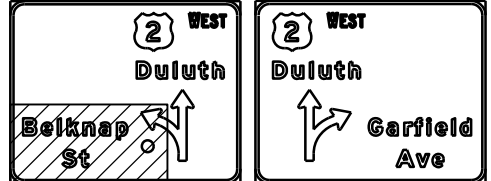
PAVEMENT MARKINGS NOT APPROPRIATE TO THE TRAVEL PATH SHALL BE REMOVED.

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.


INSTALL SIGN APPROX. 300' WEST OF SUSQUEHANNA AVE.

SIGN COVER FROM STAGE 2

PERMANENT TYPE I SIGNS INSTALLED DURING STAGE 1



INPLACE TC SIGNS FROM STAGE 2



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

**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.

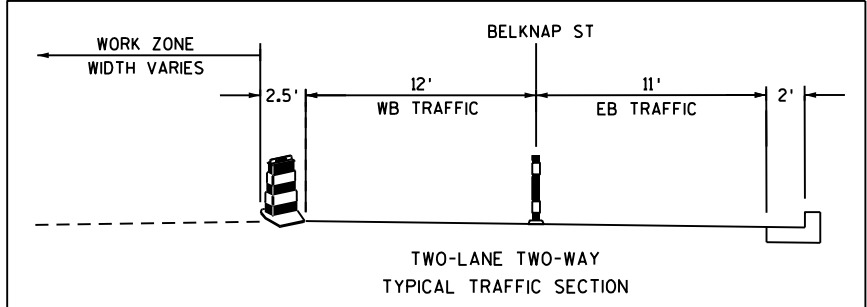
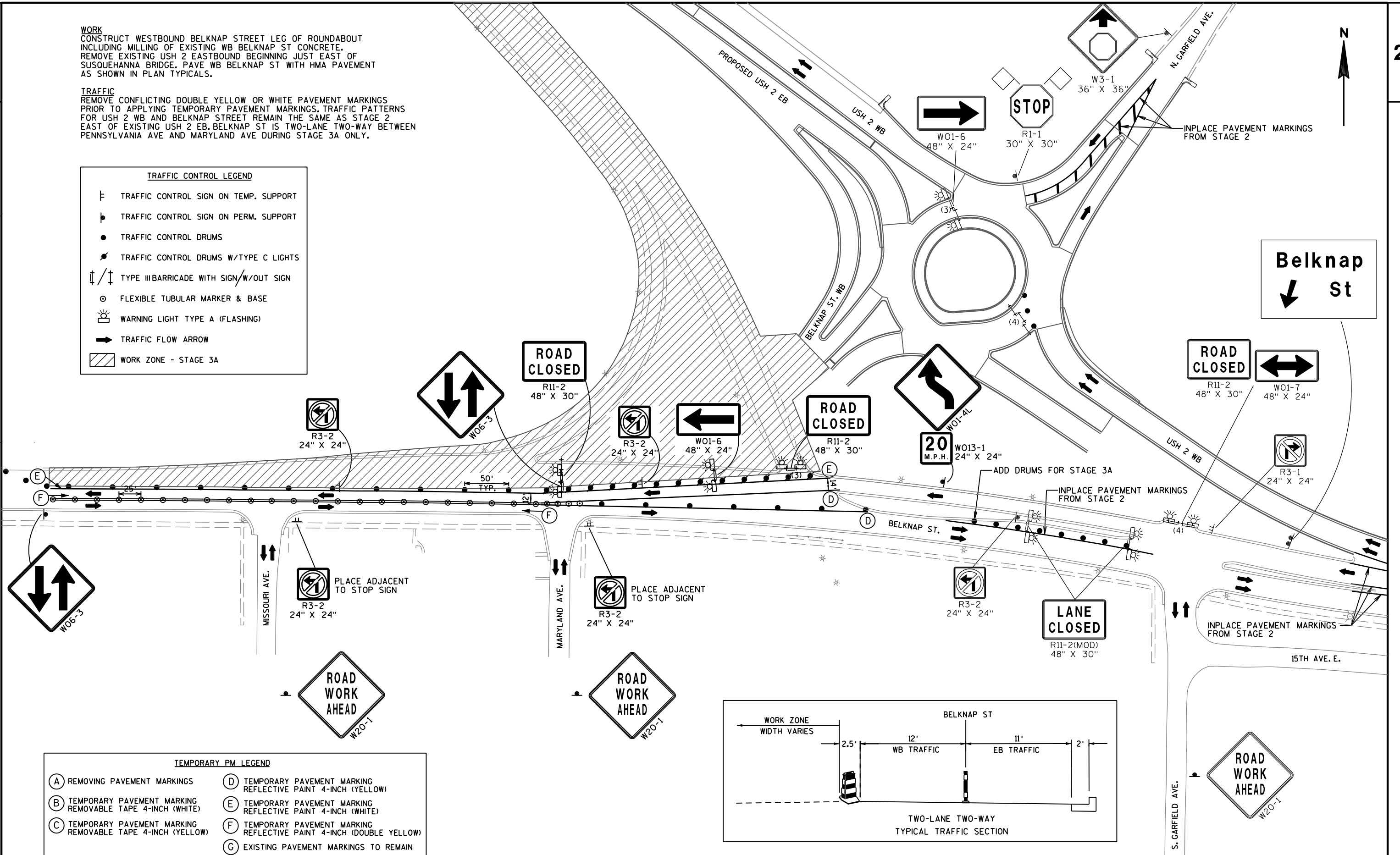
**TRAFFIC**  
 REMOVE CONFLICTING DOUBLE YELLOW OR WHITE PAVEMENT MARKINGS PRIOR TO APPLYING TEMPORARY PAVEMENT MARKINGS. TRAFFIC PATTERNS FOR USH 2 WB AND BELKNAP STREET REMAIN THE SAME AS STAGE 2 EAST OF EXISTING USH 2 EB. BELKNAP ST IS TWO-LANE TWO-WAY BETWEEN PENNSYLVANIA AVE AND MARYLAND AVE DURING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



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.

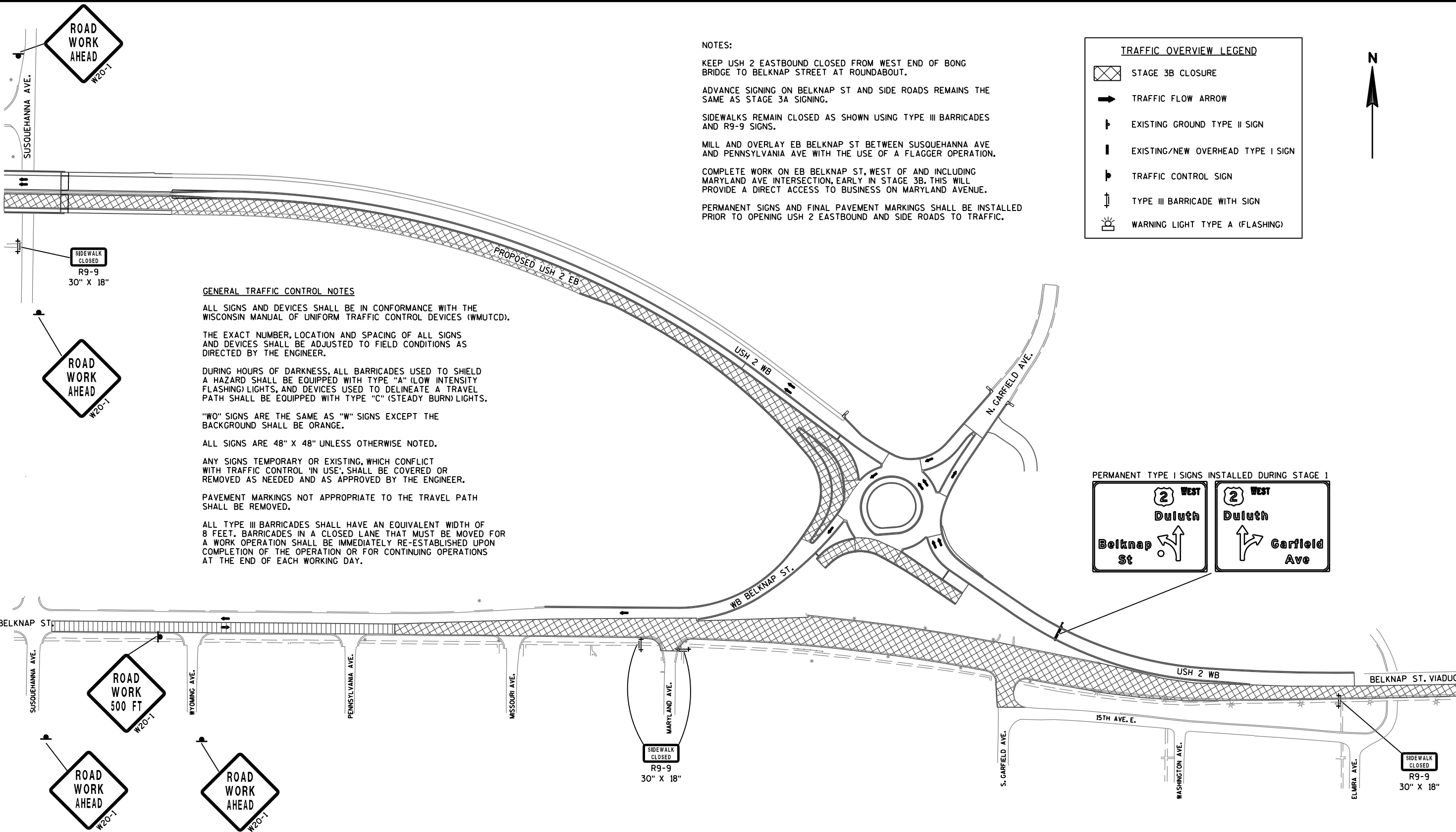
MILL AND OVERLAY EB BELKNAP ST BETWEEN SUSQUEHANNA AVE AND PENNSYLVANIA AVE WITH THE USE OF A FLAGGER OPERATION.

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)



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.

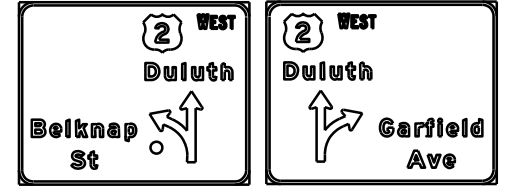
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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





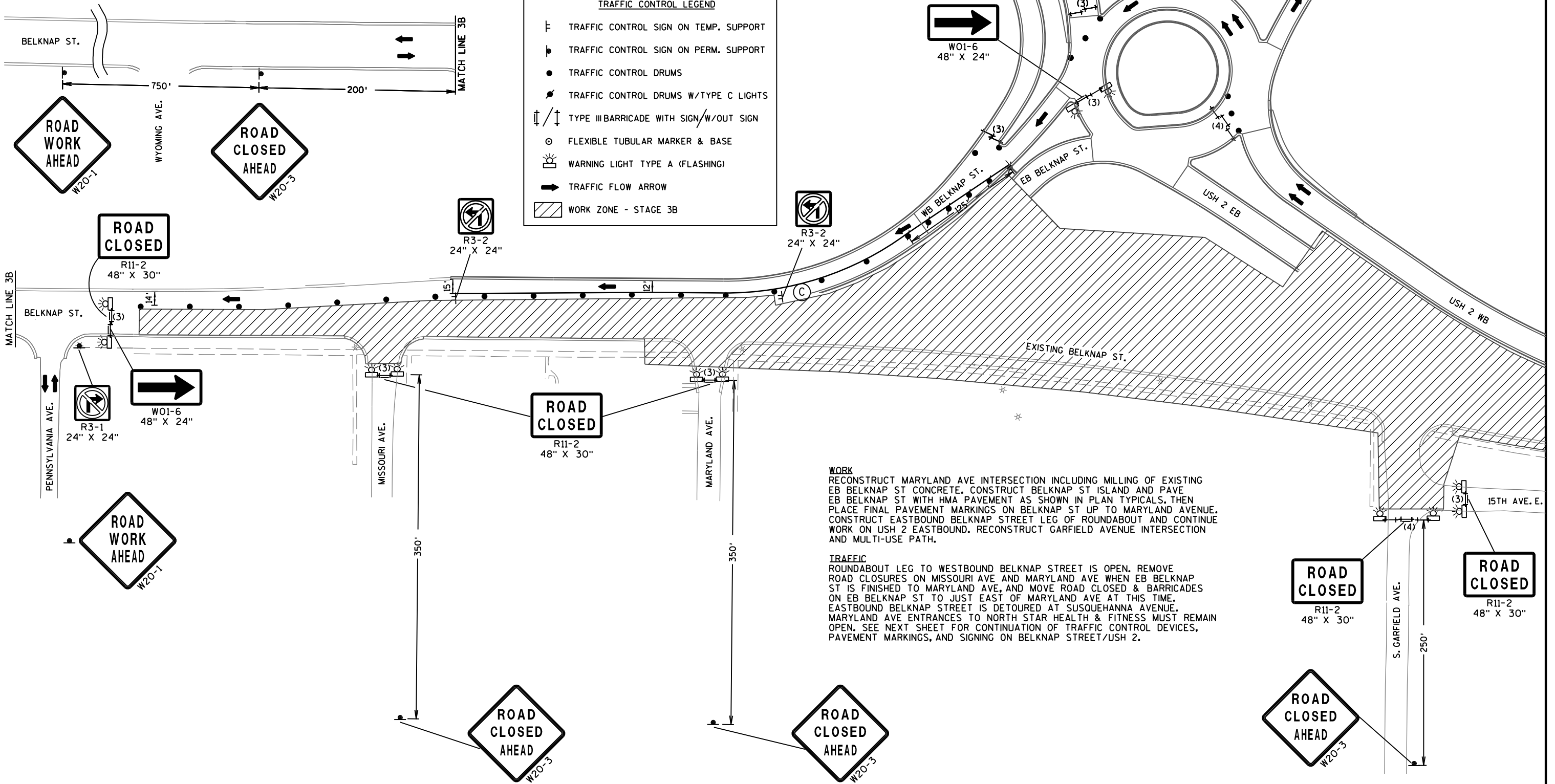
**TEMPORARY PM LEGEND**

(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

**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

INPLACE PAVEMENT MARKINGS, STOP AHEAD & STOP SIGNS FROM STAGE 3A REMAIN.



**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.

**TRAFFIC CONTROL LEGEND**

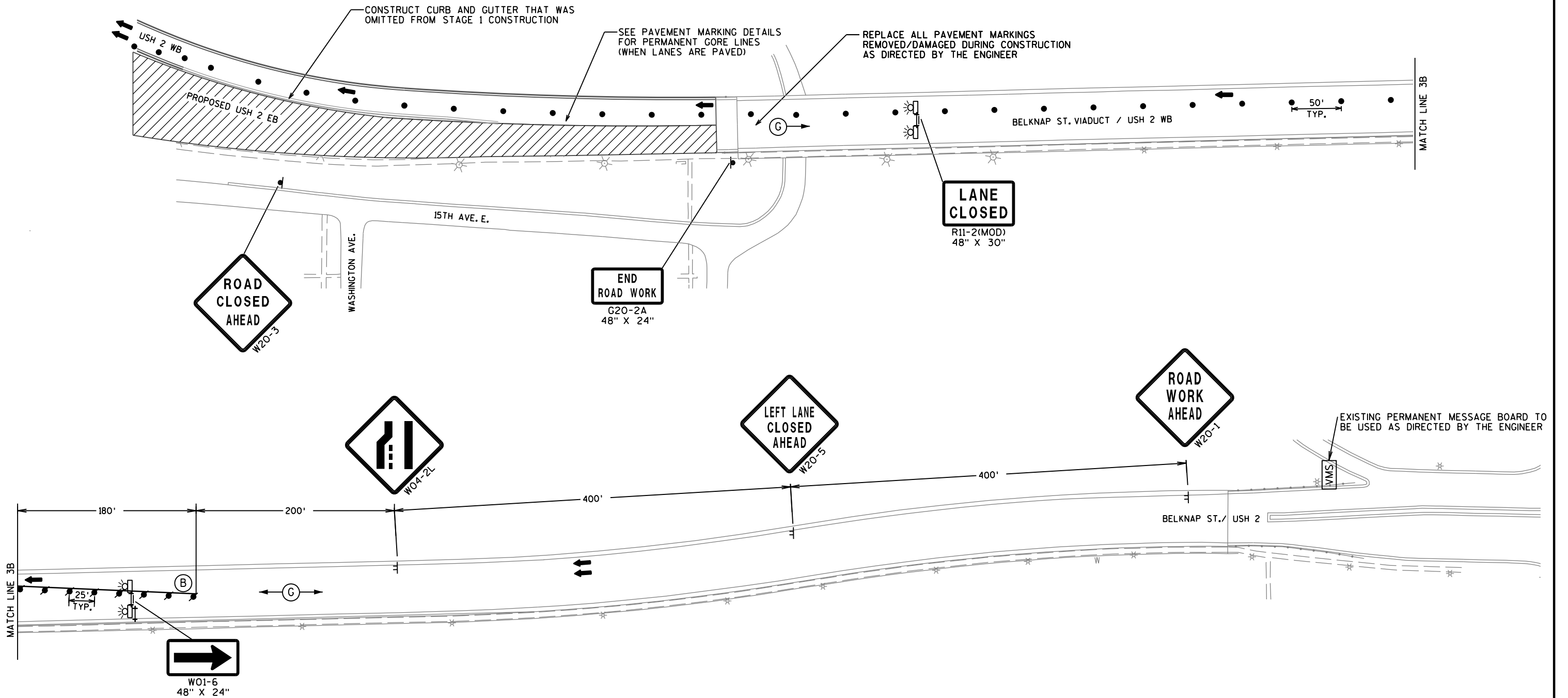
- ⌄ TRAFFIC CONTROL SIGN ON TEMP. SUPPORT
- ⌄ TRAFFIC CONTROL SIGN ON PERM. SUPPORT
- TRAFFIC CONTROL DRUMS
- ⊙ TRAFFIC CONTROL DRUMS W/TYPE C LIGHTS
- ⌄/⌄ TYPE III BARRICADE WITH SIGN/W/OUT SIGN
- FLEXIBLE TUBULAR MARKER & BASE
- ☀ WARNING LIGHT TYPE A (FLASHING)
- ➔ TRAFFIC FLOW ARROW
- ▨ WORK ZONE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



NOTES:

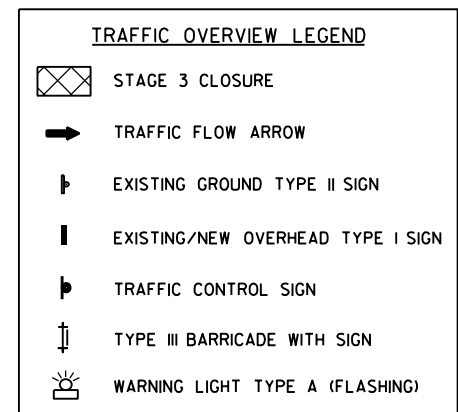
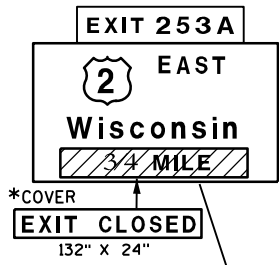
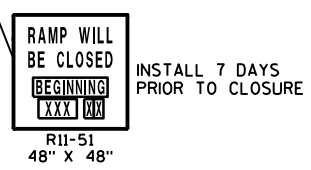
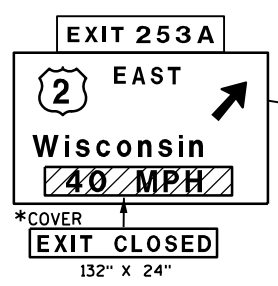
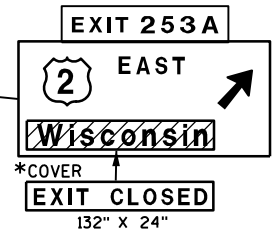
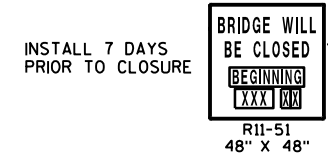
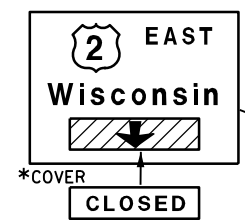
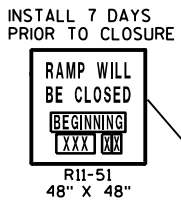
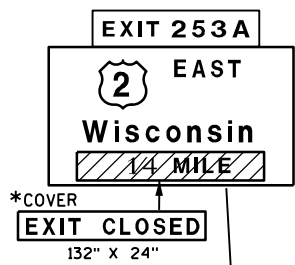
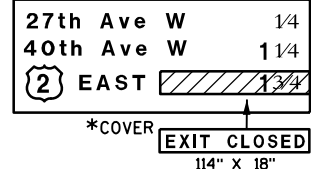
TRAFFIC CONTROL SHOWN FOR STAGE 3 OVERVIEW INCLUDES THE TIME PERIODS FOR STAGES 3A AND 3B.

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'.



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.

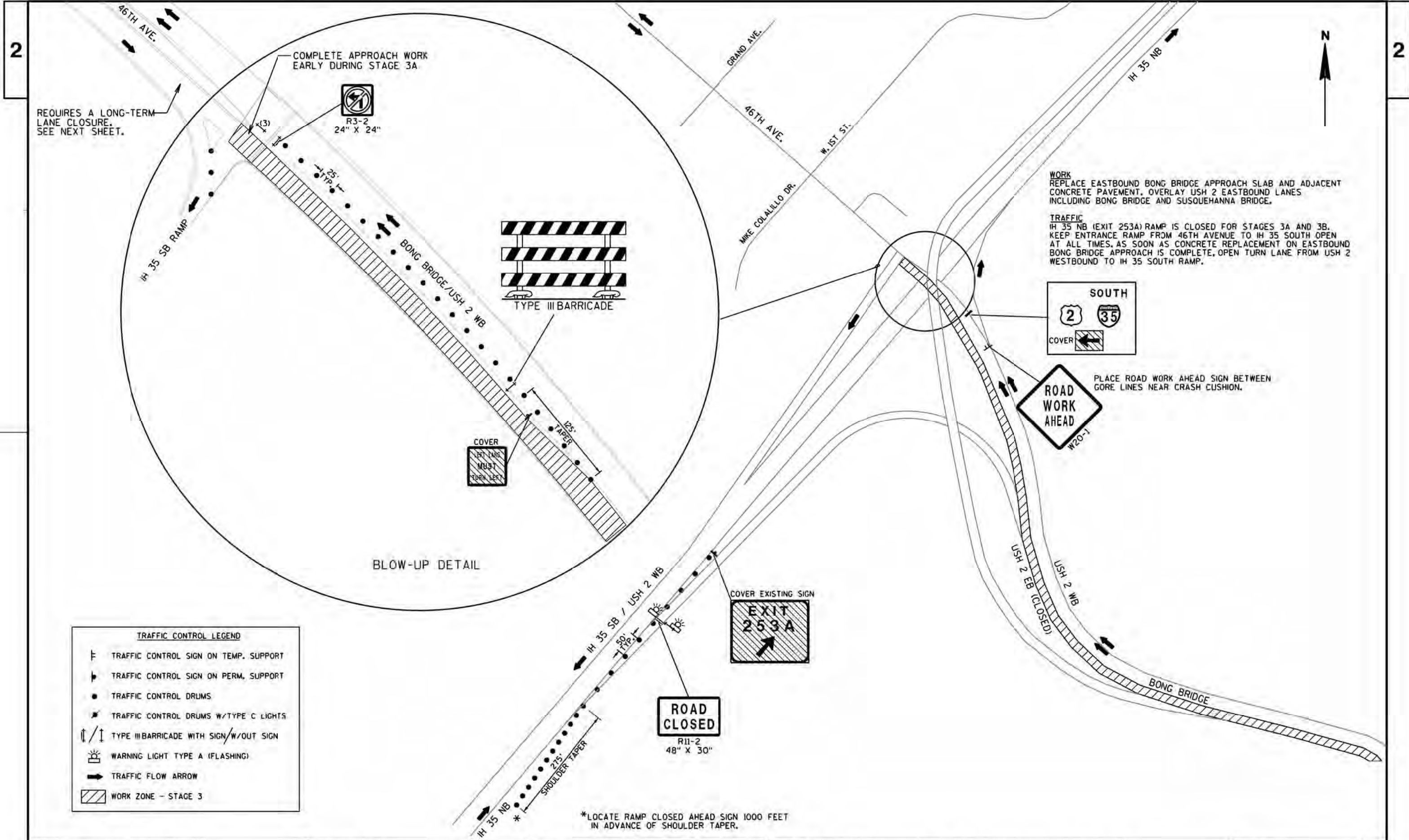
"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND SHALL BE ORANGE.

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.



REQUIRES A LONG-TERM LANE CLOSURE. SEE NEXT SHEET.

COMPLETE APPROACH WORK EARLY DURING STAGE 3A.

**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 NB (EXIT 253A) RAMP IS CLOSED FOR STAGES 3A AND 3B. KEEP ENTRANCE RAMP FROM 46TH AVENUE TO IH 35 SOUTH OPEN AT ALL TIMES. AS SOON AS CONCRETE REPLACEMENT ON EASTBOUND BONG BRIDGE APPROACH IS COMPLETE, OPEN TURN LANE FROM USH 2 WESTBOUND TO IH 35 SOUTH RAMP.



PLACE ROAD WORK AHEAD SIGN BETWEEN GORE LINES NEAR CRASH CUSHION.



\*LOCATE RAMP CLOSED AHEAD SIGN 1000 FEET IN ADVANCE OF SHOULDER TAPER.

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 3



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.

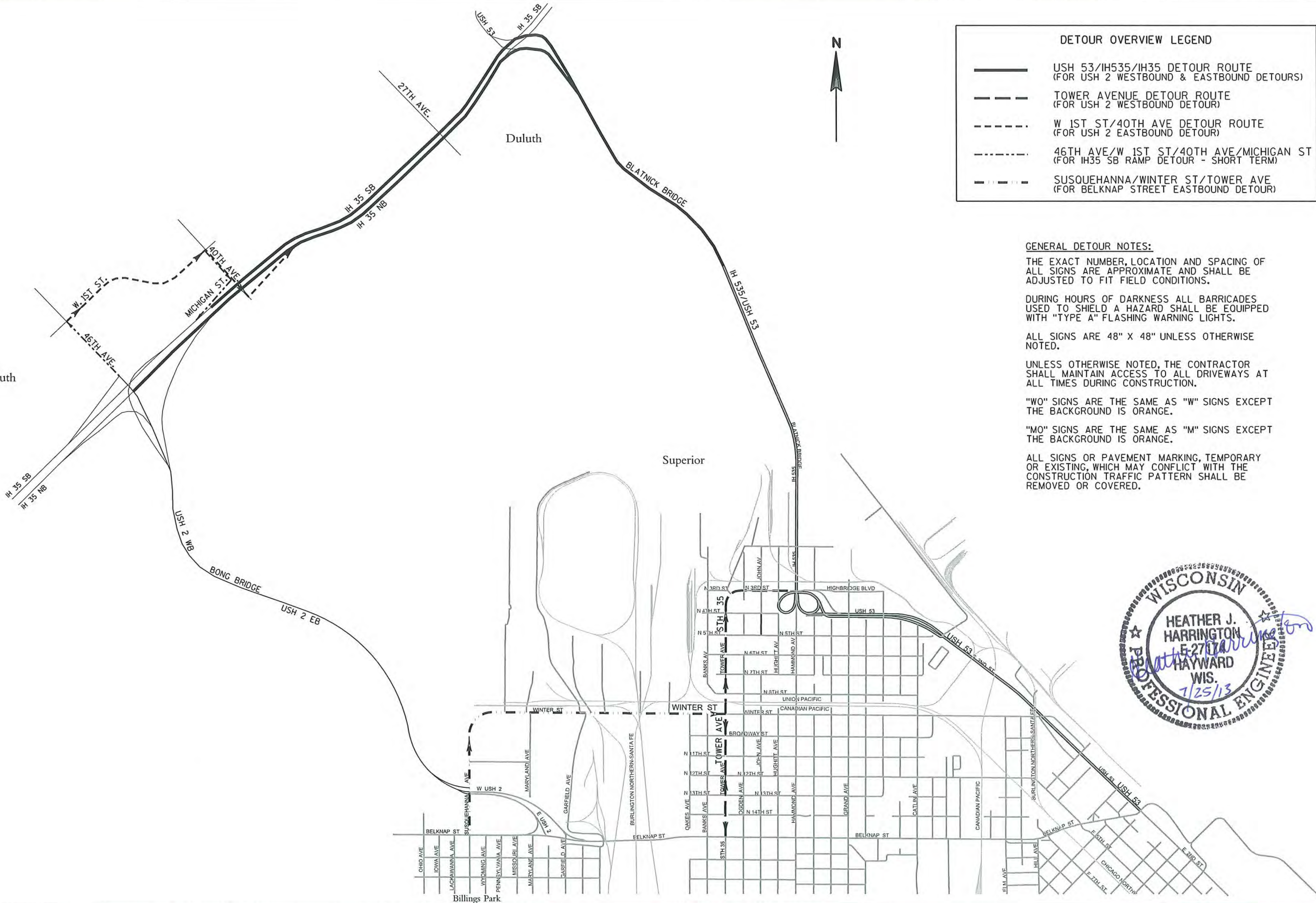
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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.



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.

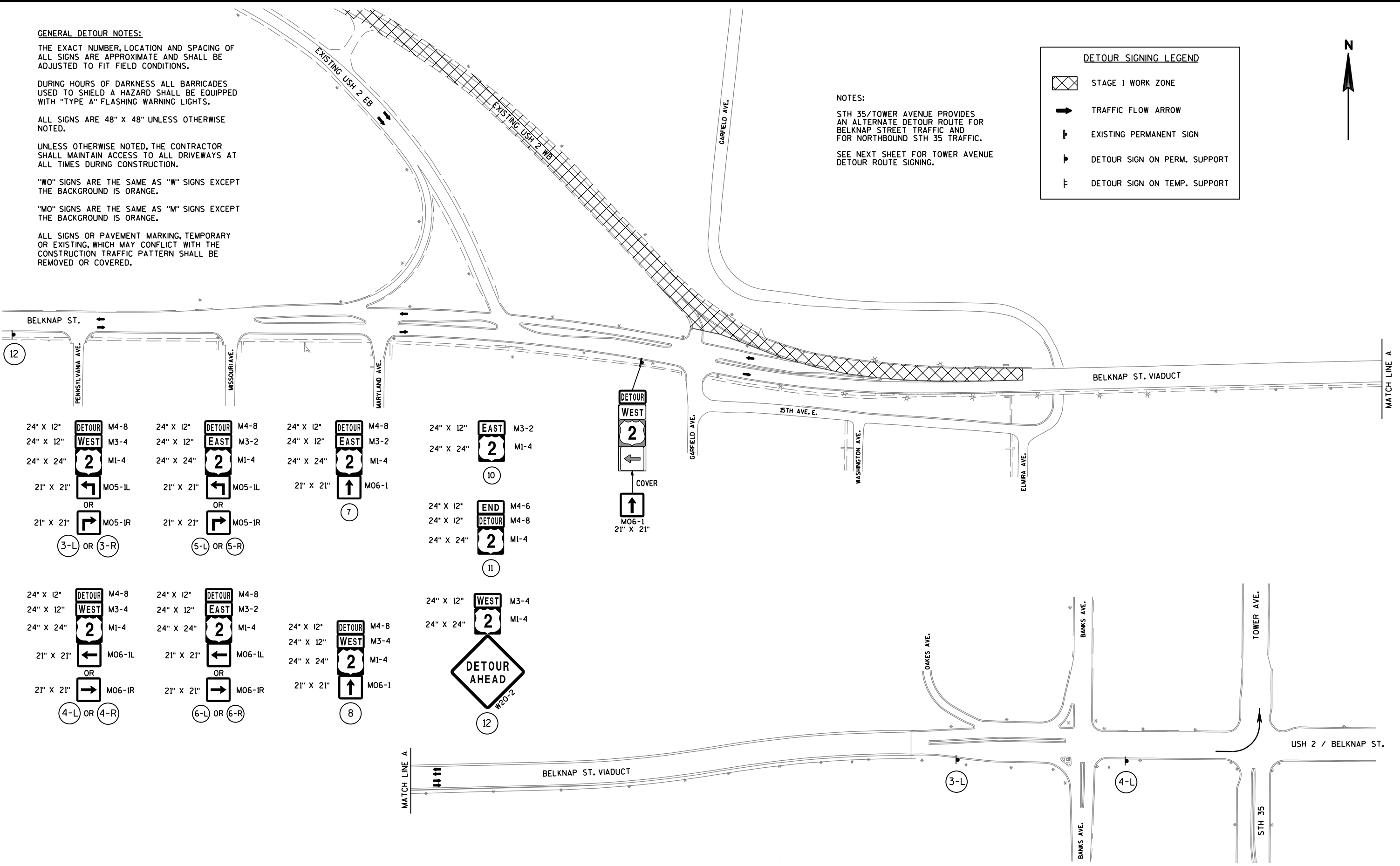
**DETOUR SIGNING LEGEND**

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

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.








24" X 12"  M4-8	24" X 12"  M4-8	24" X 12"  M4-8	24" X 12"  M3-2
24" X 12"  M3-4	24" X 12"  M3-2	24" X 12"  M3-2	24" X 24"  M1-4
24" X 24"  M1-4	24" X 24"  M1-4	24" X 24"  M1-4	24" X 24"  10
21" X 21"  M05-1L	21" X 21"  M05-1L	21" X 21"  M06-1	24" X 12"  M4-6
OR	OR	7	24" X 12"  M4-8
21" X 21"  M05-1R	21" X 21"  M05-1R	11	24" X 24"  M1-4
3-L OR 3-R	5-L OR 5-R		
24" X 12"  M4-8	24" X 12"  M4-8	24" X 12"  M4-8	24" X 12"  M3-4
24" X 12"  M3-4	24" X 12"  M3-2	24" X 12"  M4-8	24" X 24"  M1-4
24" X 24"  M1-4	24" X 24"  M1-4	24" X 12"  M4-8	24" X 24"  M1-4
21" X 21"  M06-1L	21" X 21"  M06-1L	24" X 12"  M3-4	24" X 24"  M1-4
OR	OR	24" X 12"  M1-4	21" X 21"  M06-1
21" X 21"  M06-1R	21" X 21"  M06-1R	12	
4-L OR 4-R	6-L OR 6-R		





**DETOUR SIGNING LEGEND**

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



**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.



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 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.  
 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.

- 24" X 12" DETOUR M4-B
- 24" X 12" WEST M3-4
- 24" X 24" 2 M1-4
- 36" X 18" DETOUR M4-E
- 36" X 18" WEST M3-2
- 36" X 36" 2 M1-4
- 24" X 12" DETOUR M4-B
- 24" X 12" EAST M3-2
- 24" X 24" 2 M1-4
- 36" X 18" DETOUR M4-B
- 36" X 18" WEST M3-2
- 36" X 36" 2 M1-4
- 21" X 21" M05-1L
- OR
- 21" X 21" M05-1R
- 21" X 21" M05-1L
- OR
- 21" X 21" M05-1R
- 30" X 30" M05-2L
- OR
- 30" X 30" M05-2R
- 24" X 12" DETOUR M4-B
- 24" X 12" WEST M3-4
- 24" X 24" 2 M1-4
- 24" X 12" DETOUR M4-B
- 24" X 12" EAST M3-2
- 24" X 24" 2 M1-4
- 21" X 21" M06-1L
- OR
- 21" X 21" M06-1R
- 21" X 21" M06-1L
- OR
- 21" X 21" M06-1R
- 30" X 30" M06-2L
- OR
- 30" X 30" M06-2R
- 24" X 12" DETOUR M4-B
- 24" X 12" WEST M3-4
- 24" X 24" 2 M1-4
- 24" X 12" DETOUR M4-B
- 24" X 12" EAST M3-2
- 24" X 24" 2 M1-4
- 21" X 21" M06-1
- OR
- 21" X 21" M06-1
- 24" X 12" END M04-6
- 24" X 12" DETOUR M4-B
- 24" X 24" 2 M1-4
- 24" X 24" 2 M1-4

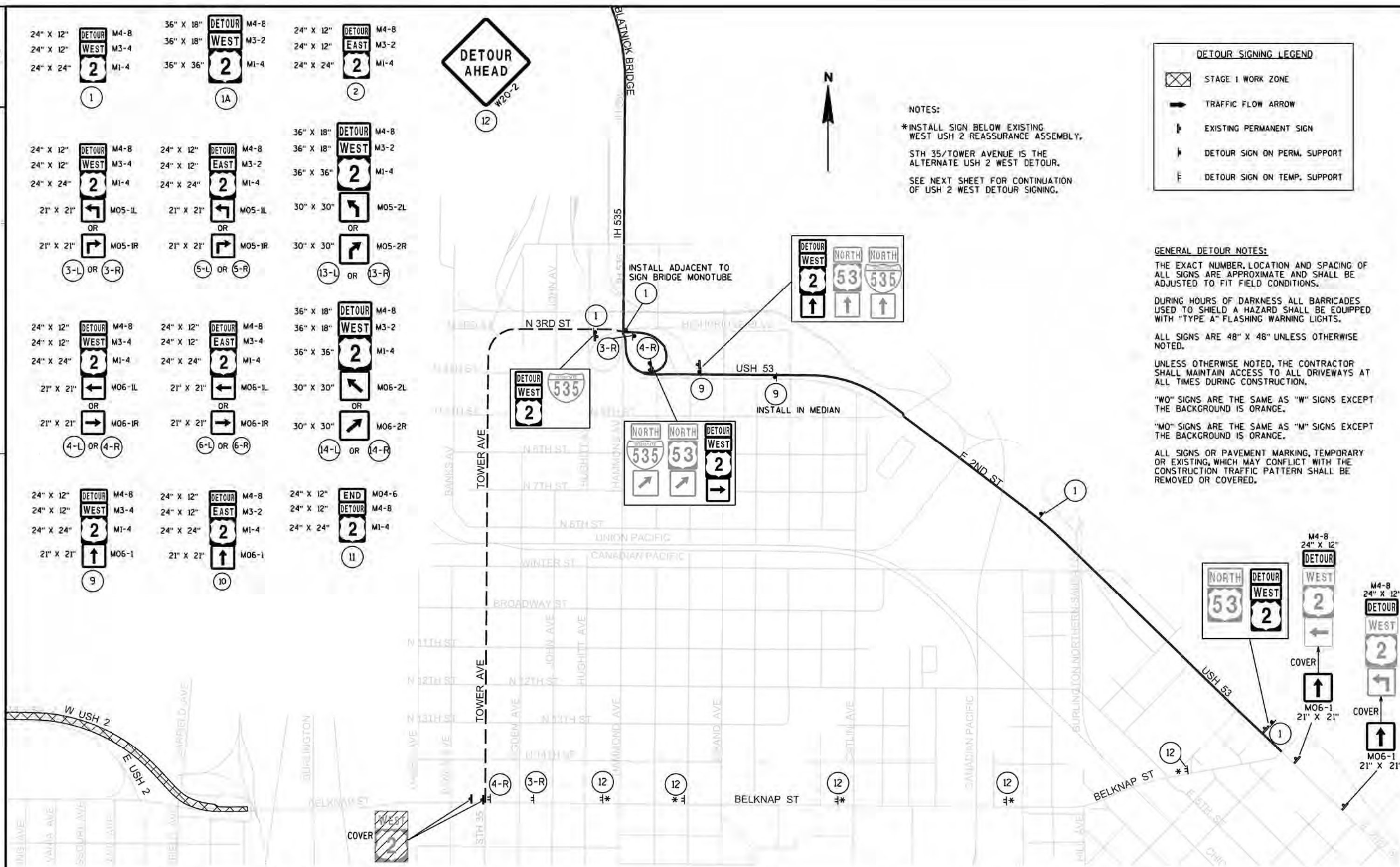


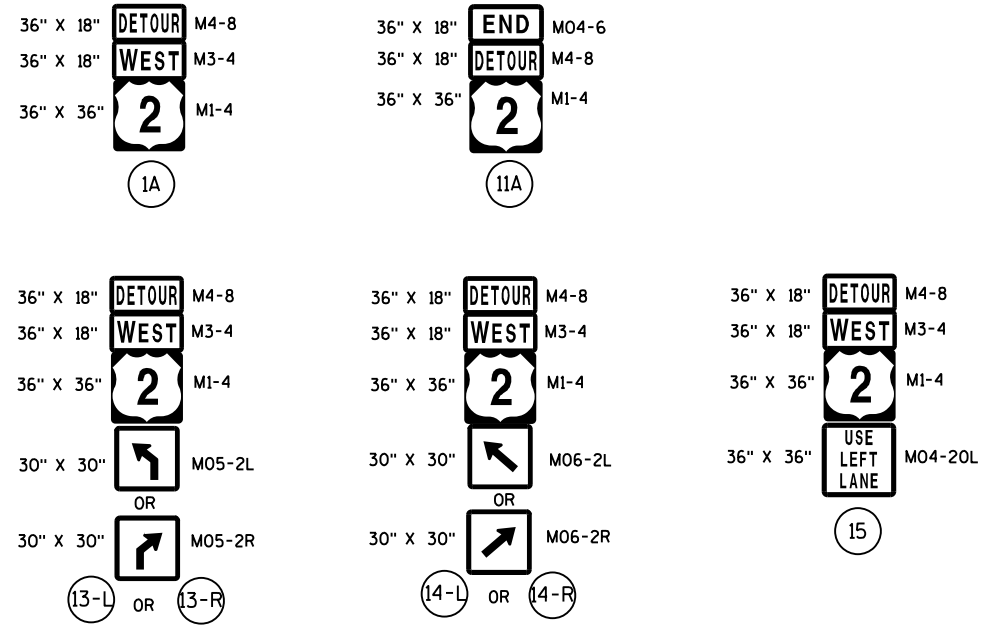
NOTES:  
 \*INSTALL SIGN BELOW EXISTING WEST USH 2 REASSURANCE ASSEMBLY.  
 STH 35/TOWER AVENUE IS THE ALTERNATE USH 2 WEST DETOUR.  
 SEE NEXT SHEET FOR CONTINUATION OF USH 2 WEST DETOUR SIGNING.

**DETOUR SIGNING LEGEND**

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

**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:**  
 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.

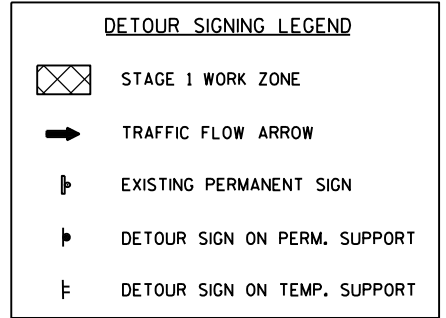
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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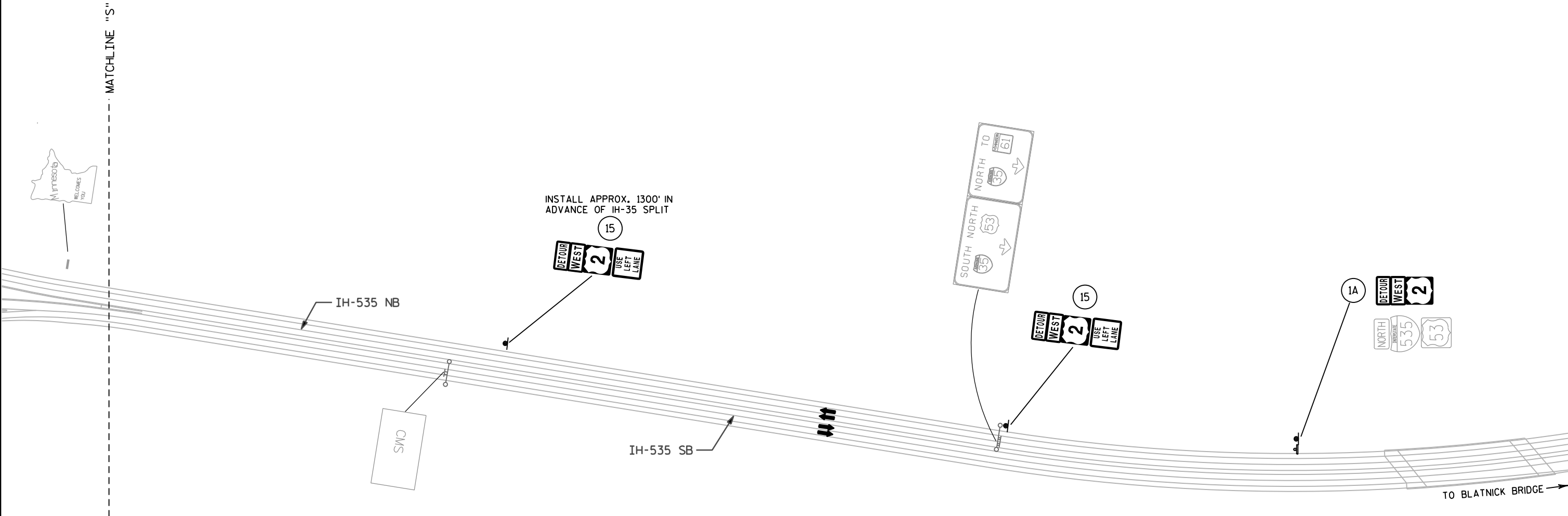
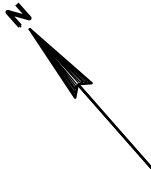
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"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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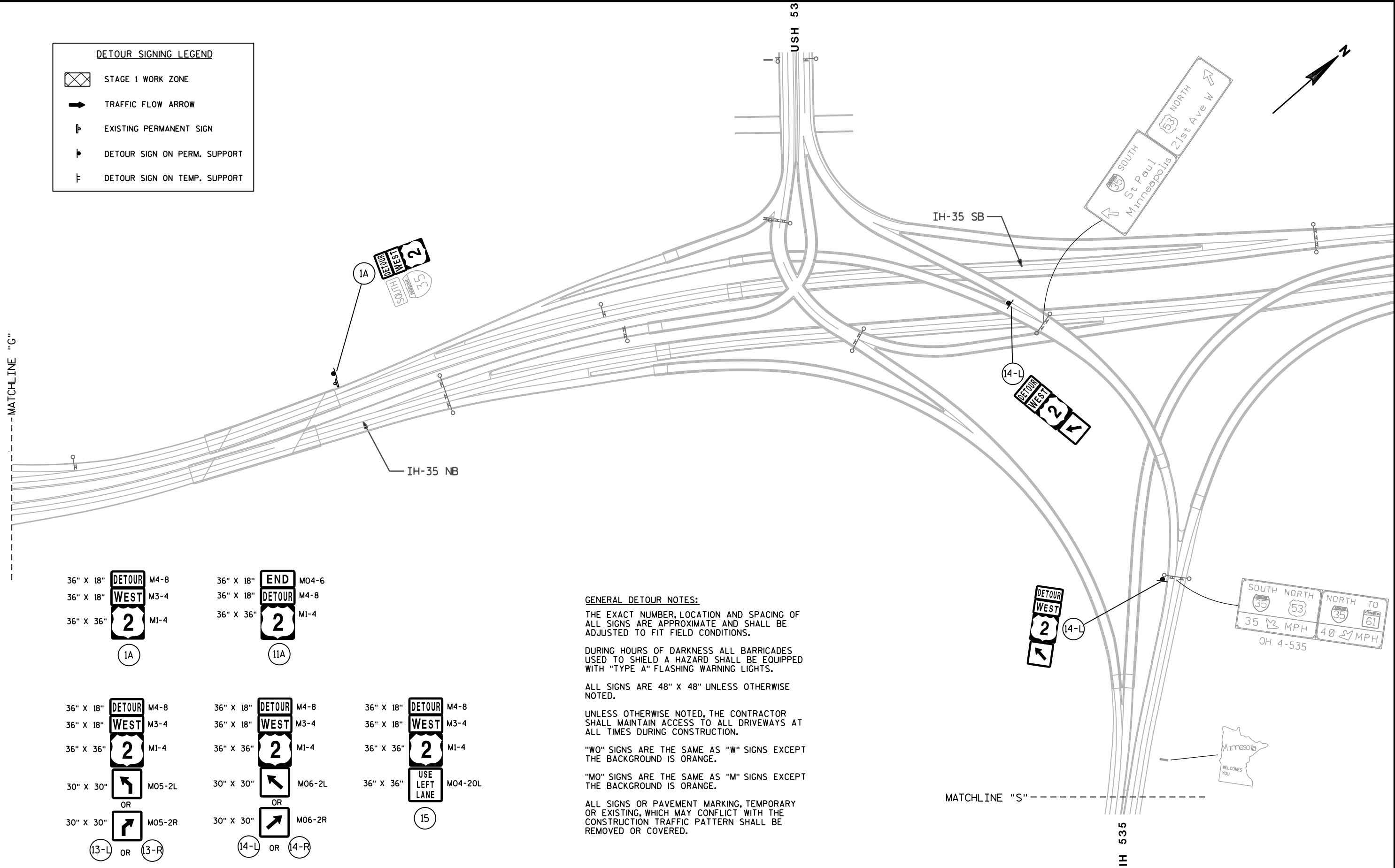
NOTE:  
 SEE PRECEDING SHEET FOR USH 2 WEST DETOUR SIGNING IN WISCONSIN.



**DETOUR SIGNING LEGEND**

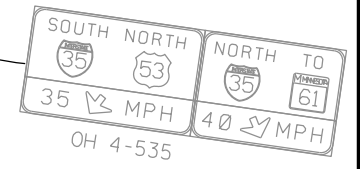
- STAGE 1 WORK ZONE
- TRAFFIC FLOW ARROW
- EXISTING PERMANENT SIGN
- DETOUR SIGN ON PERM. SUPPORT
- DETOUR SIGN ON TEMP. SUPPORT

MATCHLINE "G"



36" X 18" DETOUR M4-8 36" X 18" WEST M3-4 36" X 36" 2 MI-4 1A	36" X 18" END M04-6 36" X 18" DETOUR M4-8 36" X 36" 2 MI-4 11A	36" X 18" DETOUR M4-8 36" X 18" WEST M3-4 36" X 18" 2 MI-4 36" X 36" USE LEFT LANE M04-20L 15
36" X 18" DETOUR M4-8 36" X 18" WEST M3-4 36" X 36" 2 MI-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 MI-4 30" X 30" M06-2L OR 30" X 30" M06-2R 14-L OR 14-R	

**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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MATCHLINE "S"

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.

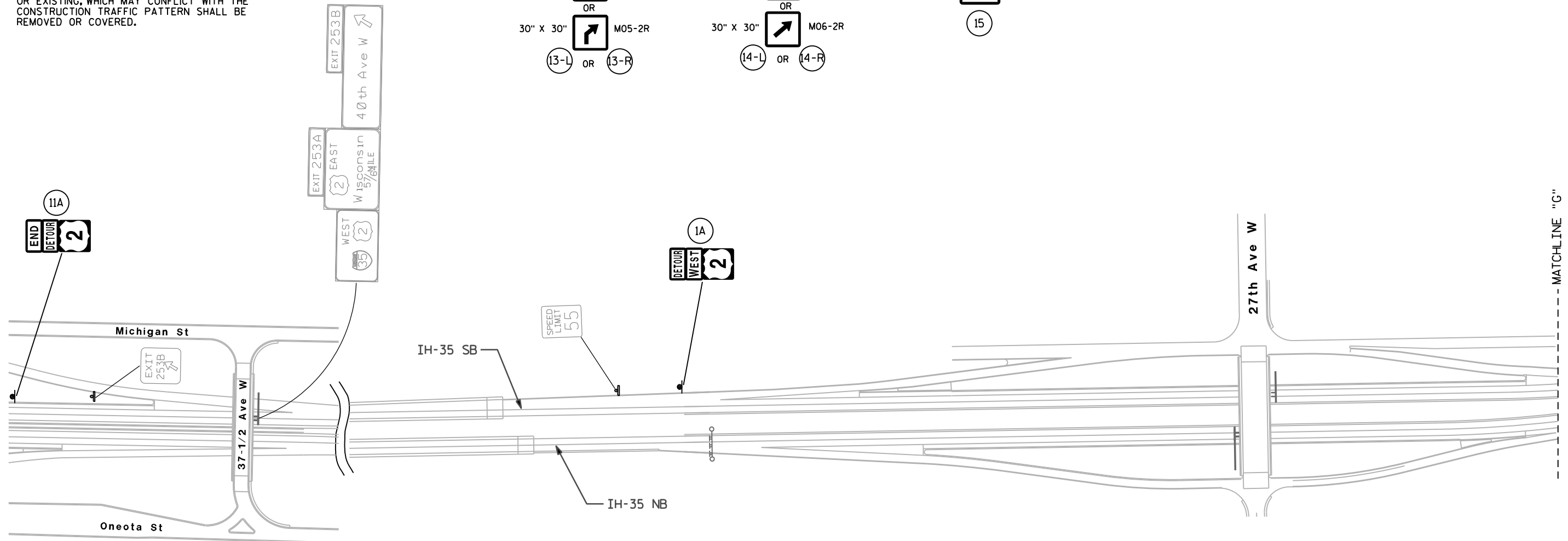
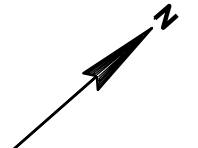
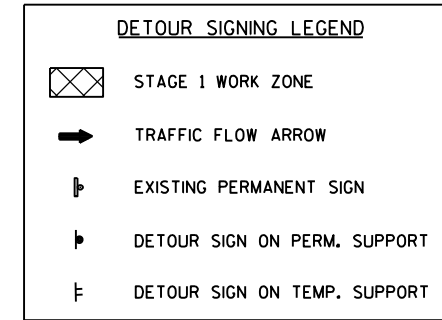
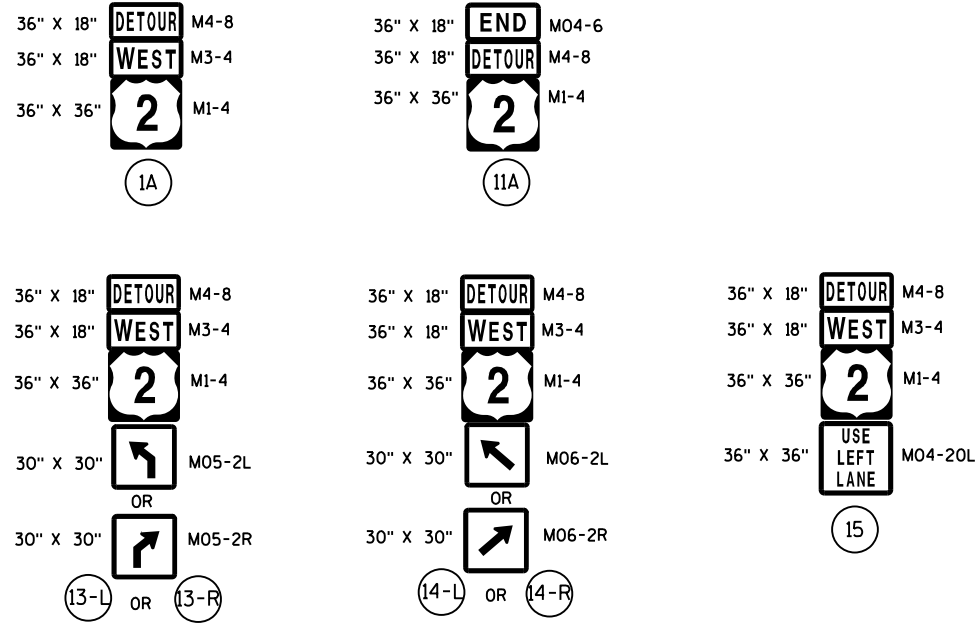
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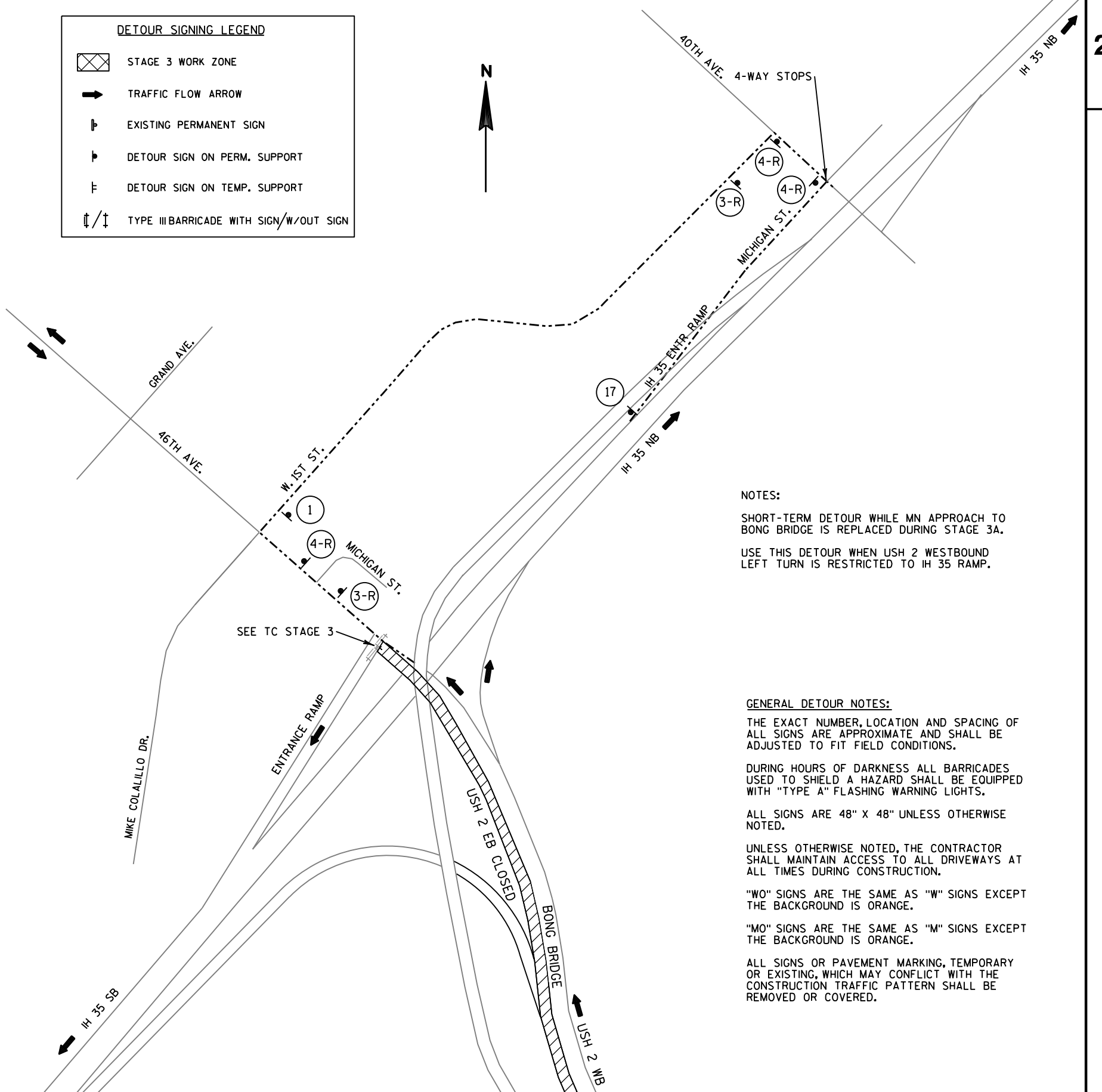
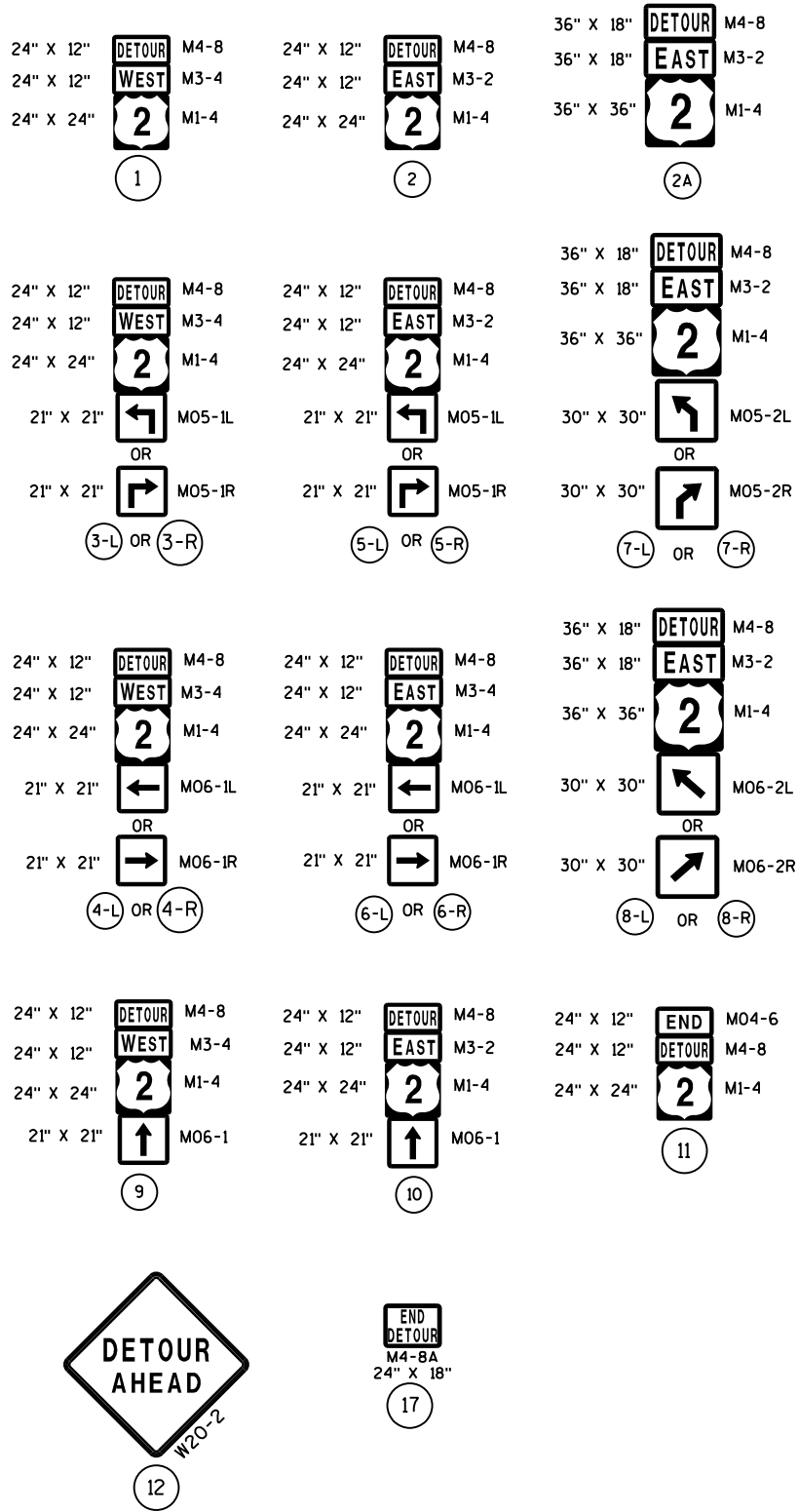
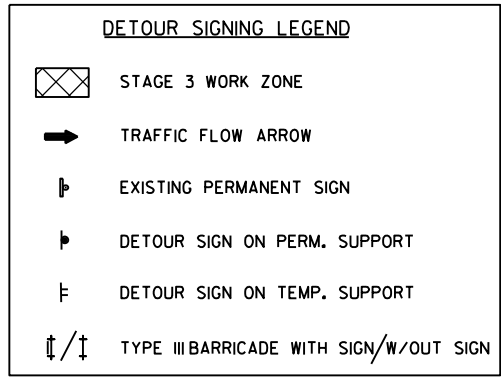
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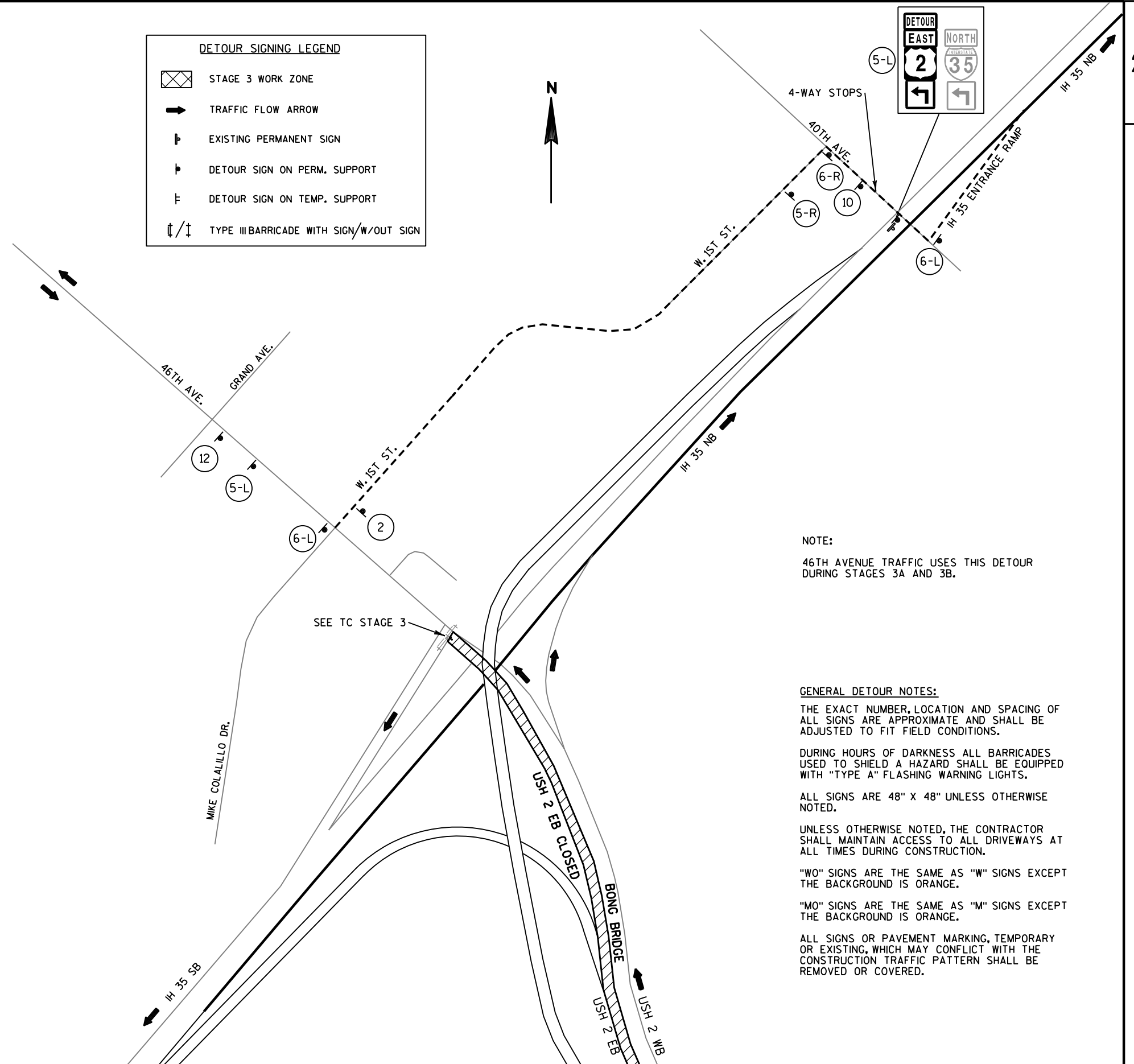
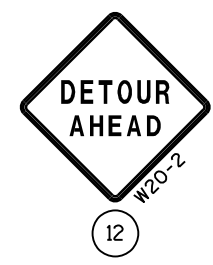
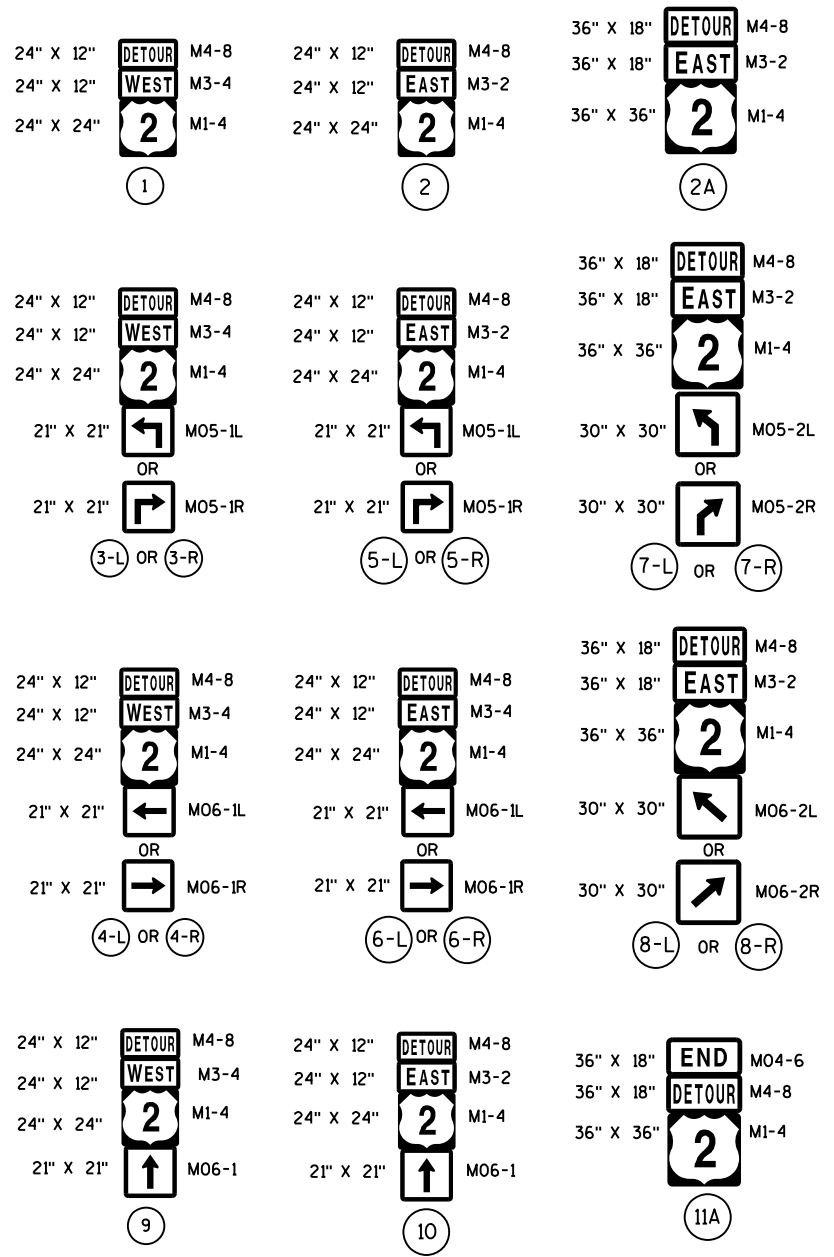
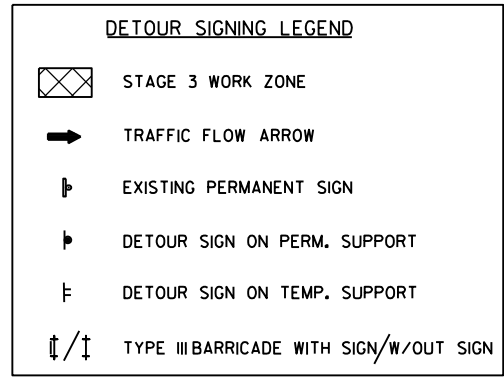
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**NOTES:**  
 SHORT-TERM DETOUR WHILE MN APPROACH TO BONG BRIDGE IS REPLACED DURING STAGE 3A.  
 USE THIS DETOUR WHEN USH 2 WESTBOUND LEFT TURN IS RESTRICTED TO IH 35 RAMP.

**GENERAL DETOUR NOTES:**  
 THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.  
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**NOTE:**  
46TH AVENUE TRAFFIC USES THIS DETOUR DURING STAGES 3A AND 3B.

**GENERAL DETOUR NOTES:**  
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GENERAL DETOUR NOTES:

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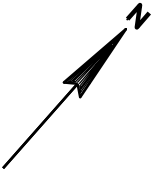
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"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

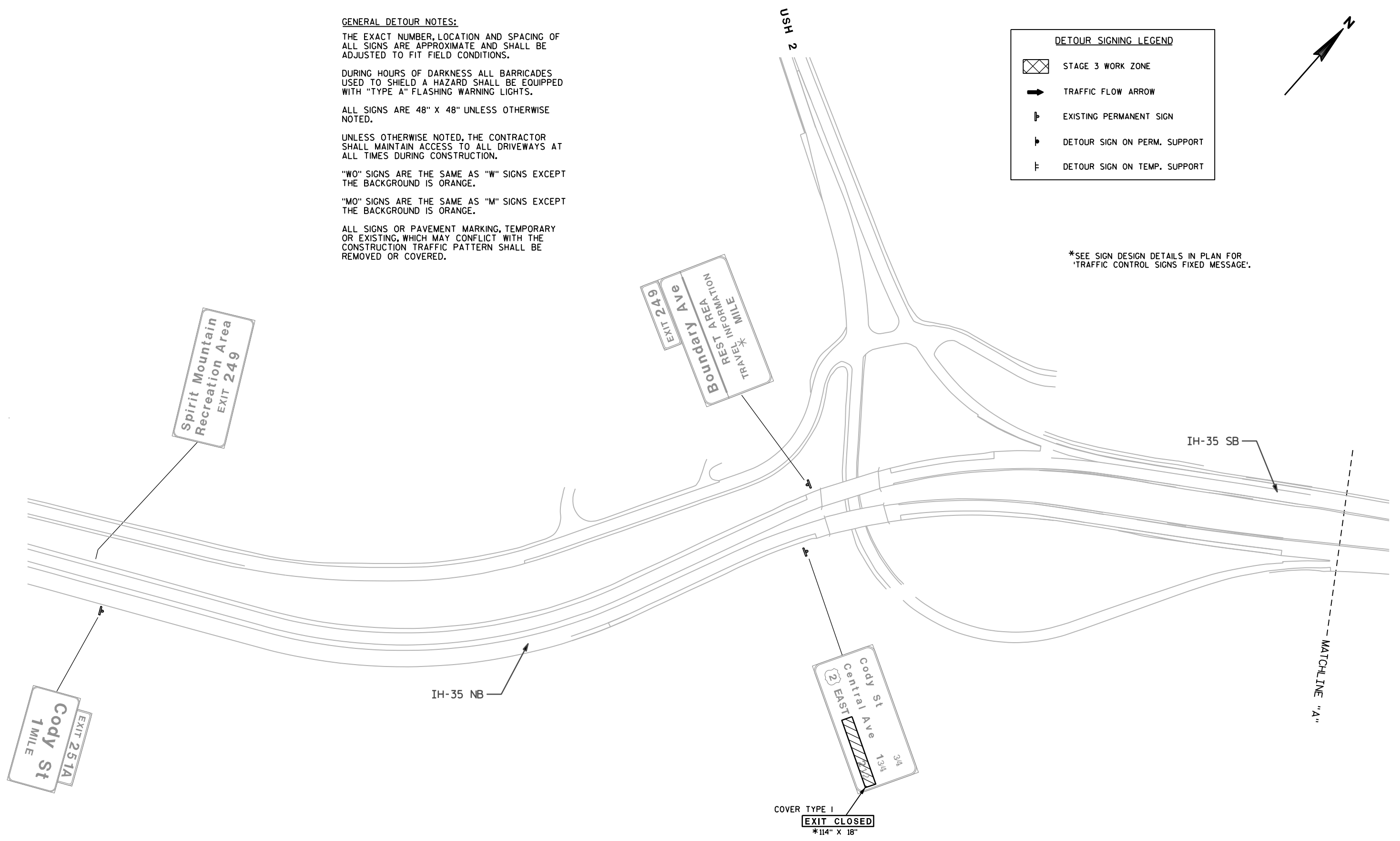
ALL SIGNS OR PAVEMENT MARKING, TEMPORARY OR EXISTING, WHICH MAY CONFLICT WITH THE CONSTRUCTION TRAFFIC PATTERN SHALL BE REMOVED OR COVERED.

**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'.

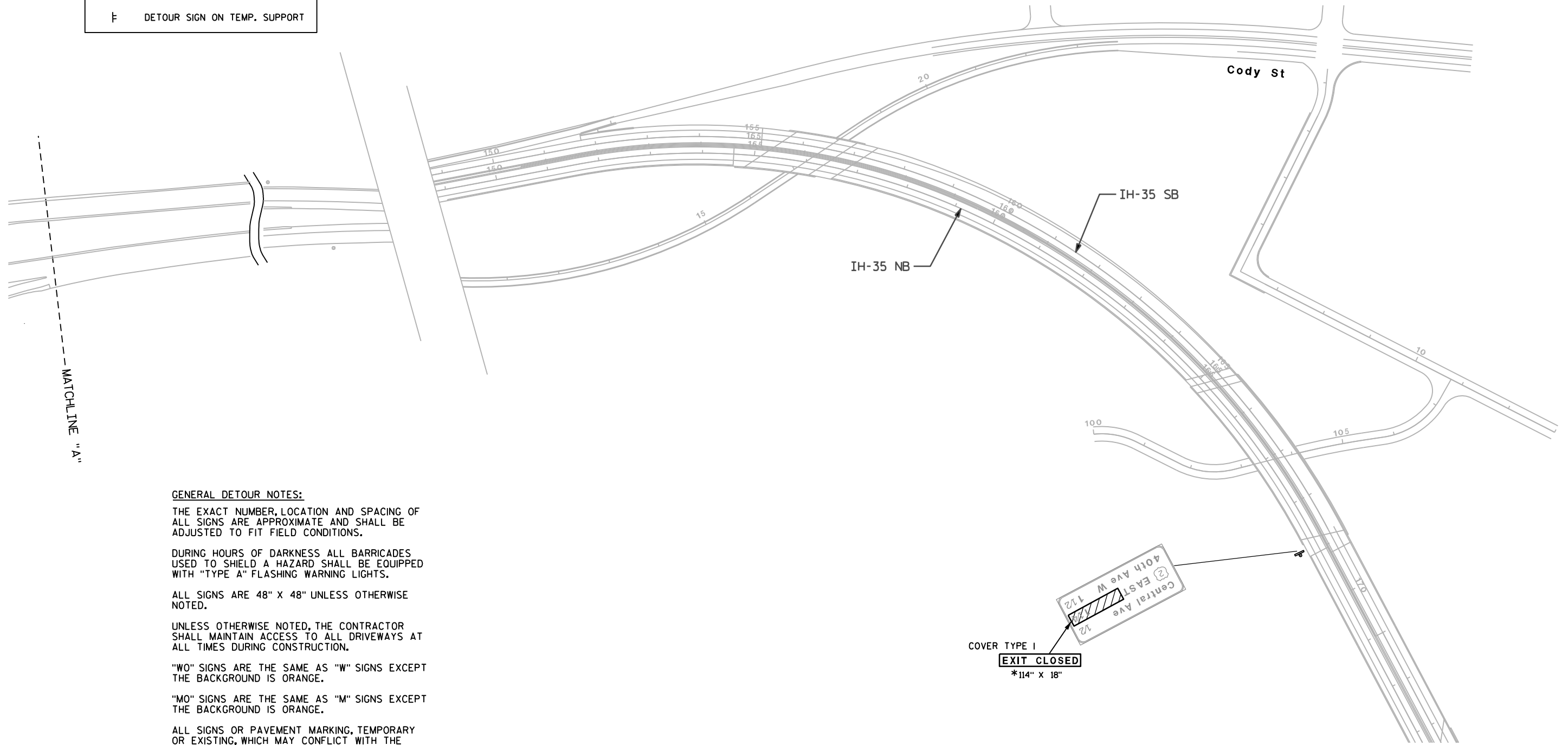




**DETOUR SIGNING LEGEND**

	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'.



MATCHLINE "A"

**GENERAL DETOUR NOTES:**

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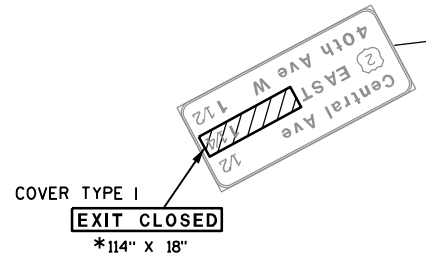
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

"W0" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

"M0" 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:**

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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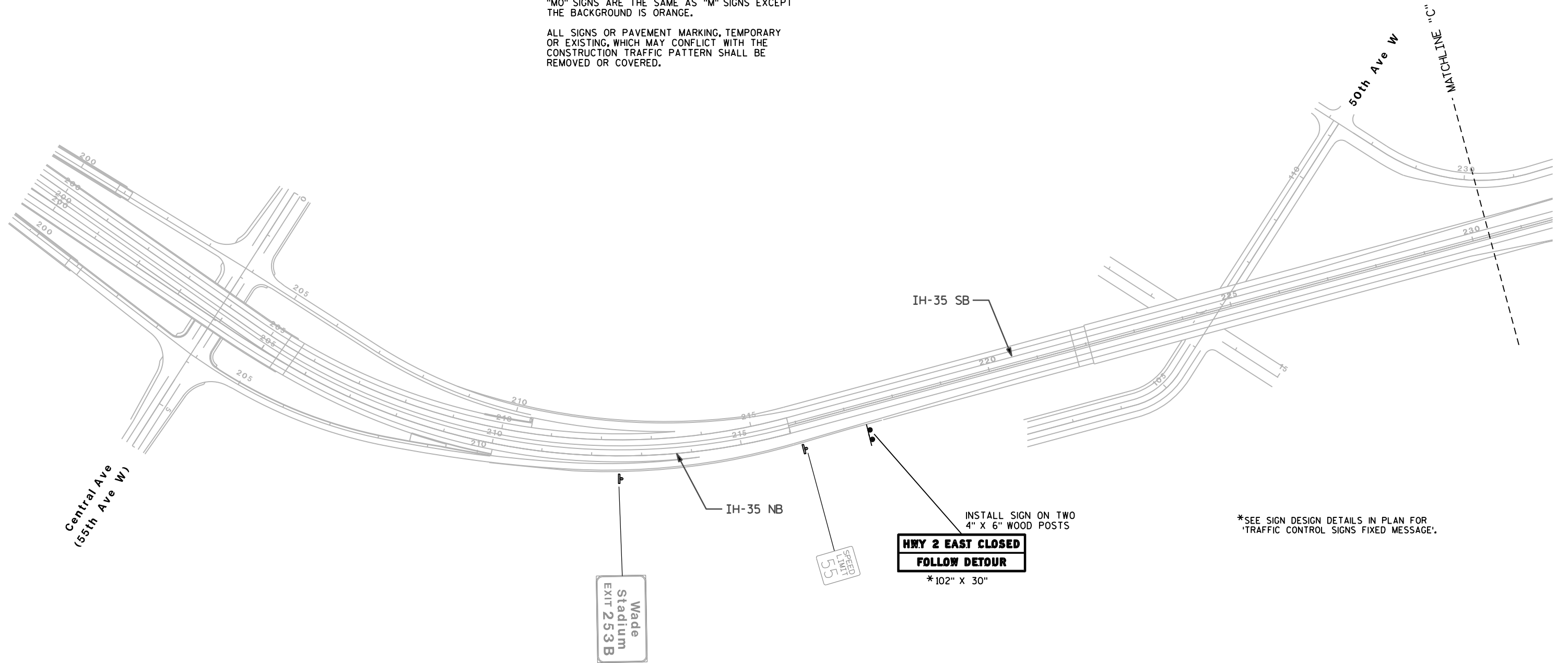
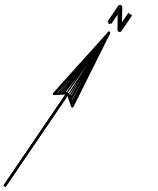
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**DETOUR SIGNING LEGEND**

-  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:

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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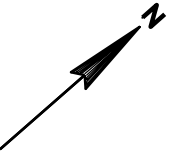
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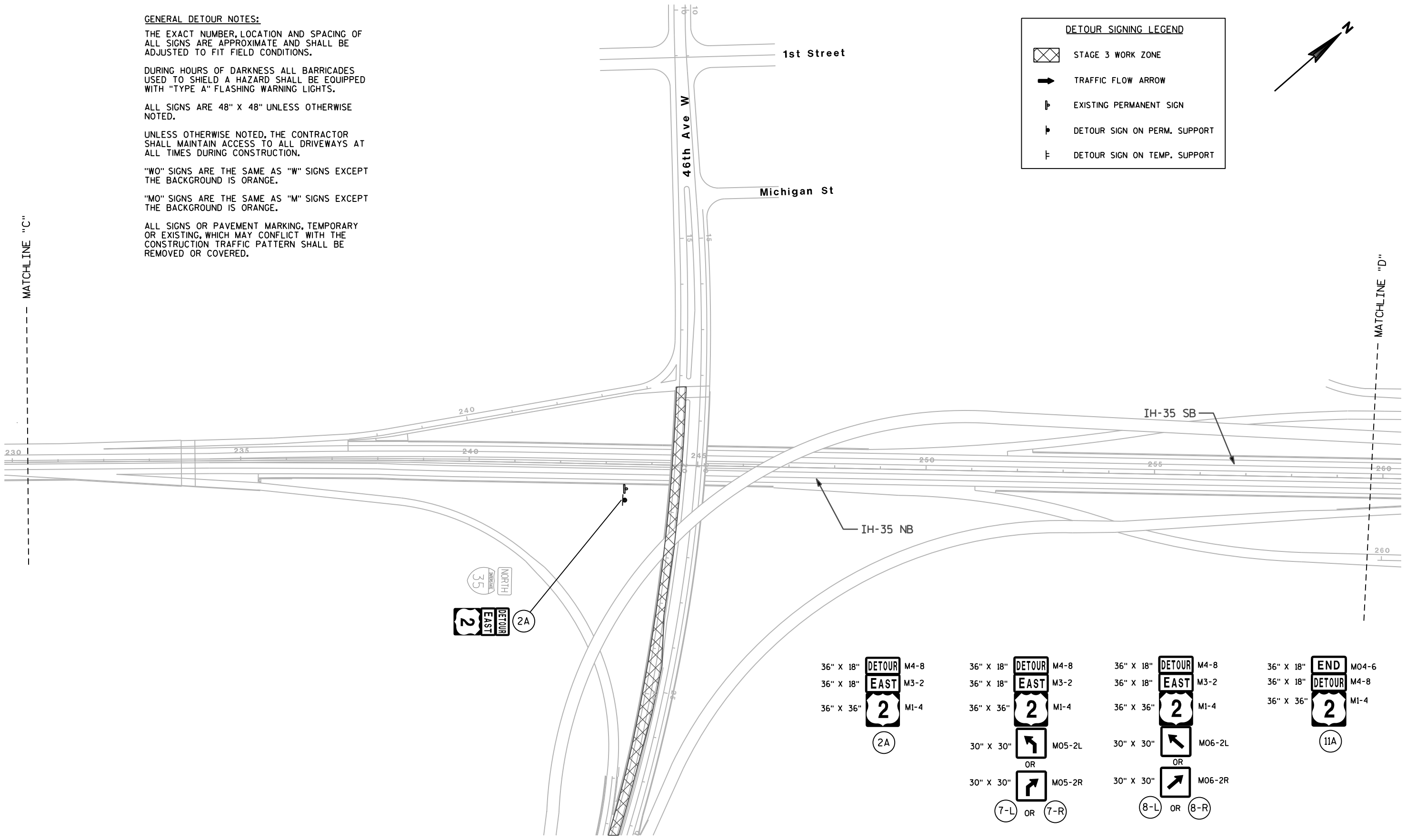
**DETOUR SIGNING LEGEND**

-  STAGE 3 WORK ZONE
-  TRAFFIC FLOW ARROW
-  EXISTING PERMANENT SIGN
-  DETOUR SIGN ON PERM. SUPPORT
-  DETOUR SIGN ON TEMP. SUPPORT



MATCHLINE "C"

MATCHLINE "D"



35 NORTH  
DETOUR EAST  
2  
2A

36" X 18" DETOUR M4-8  
36" X 18" EAST M3-2  
36" X 36" 2 MI-4  
2A

36" X 18" DETOUR M4-8  
36" X 18" EAST M3-2  
36" X 36" 2 MI-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 MI-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 MI-4  
11A

NOTE:  
 THIS SHEET IS FOR REFERENCE ONLY.  
 THERE ARE NO DETOUR SIGNS SHOWN.

**GENERAL DETOUR NOTES:**

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
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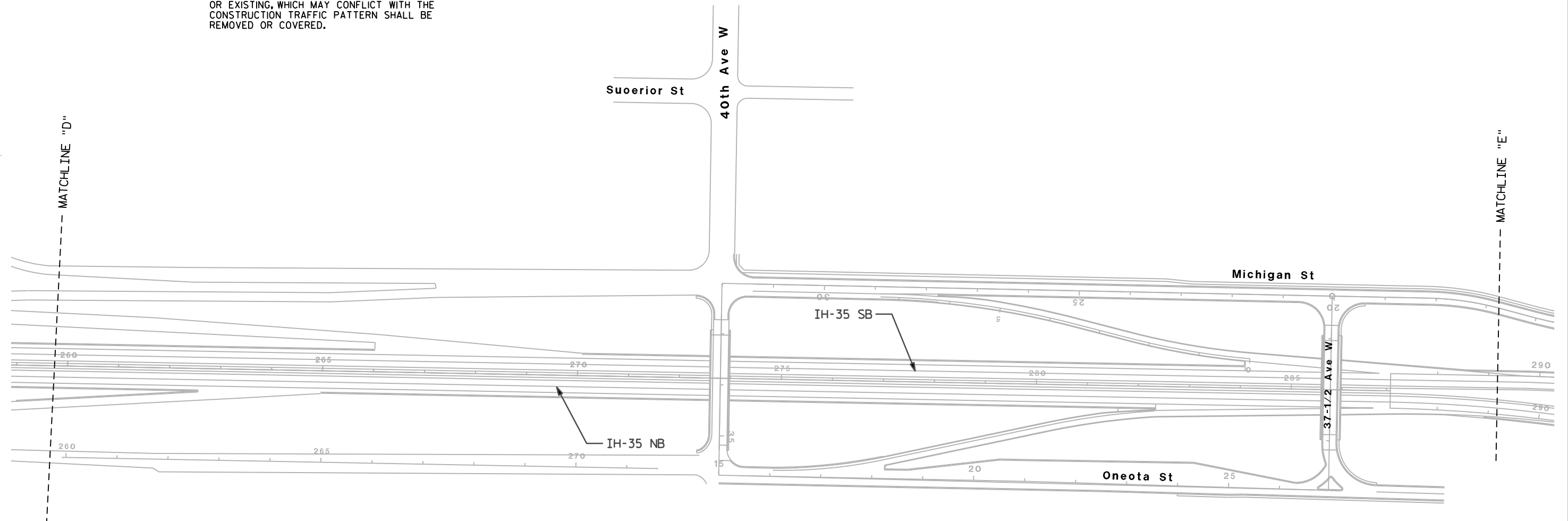
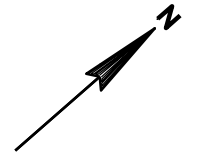
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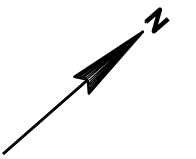
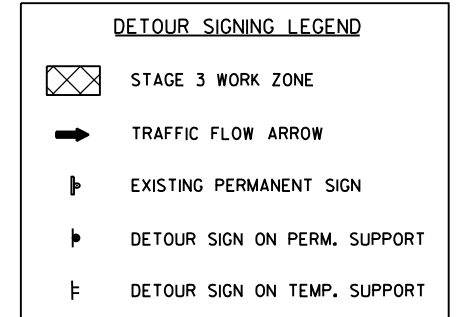
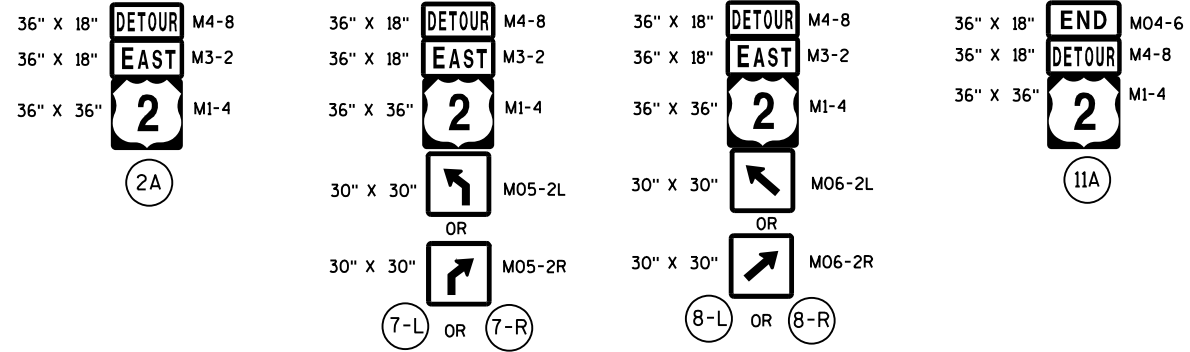
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**DETOUR SIGNING LEGEND**

-  STAGE 3 WORK ZONE
-  TRAFFIC FLOW ARROW
-  EXISTING PERMANENT SIGN
-  DETOUR SIGN ON PERM. SUPPORT
-  DETOUR SIGN ON TEMP. SUPPORT





**GENERAL DETOUR NOTES:**

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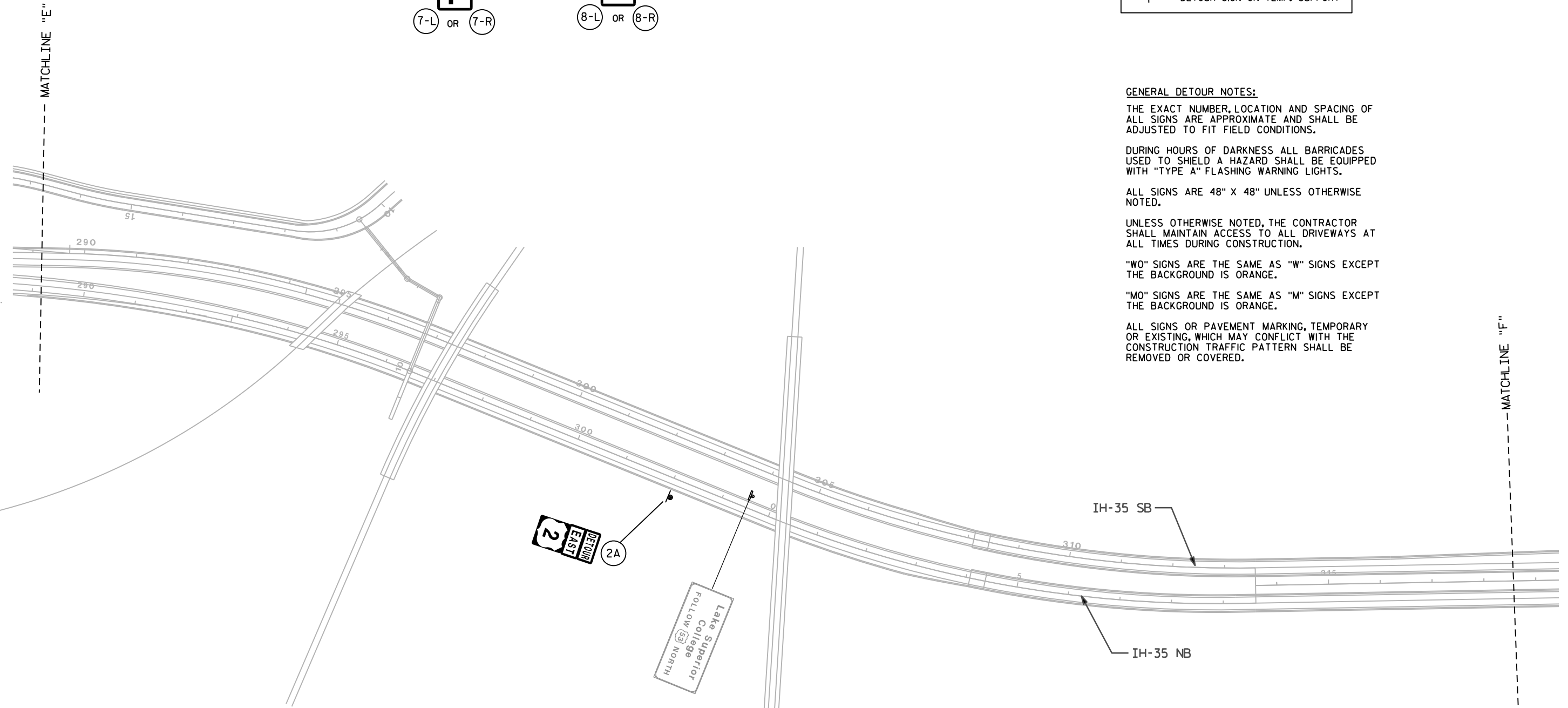
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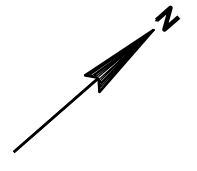
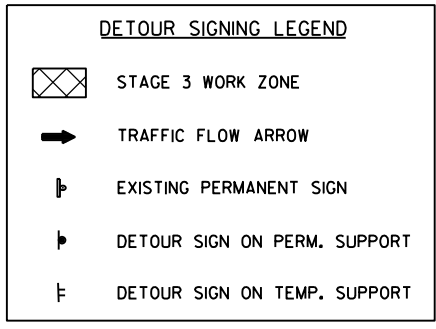
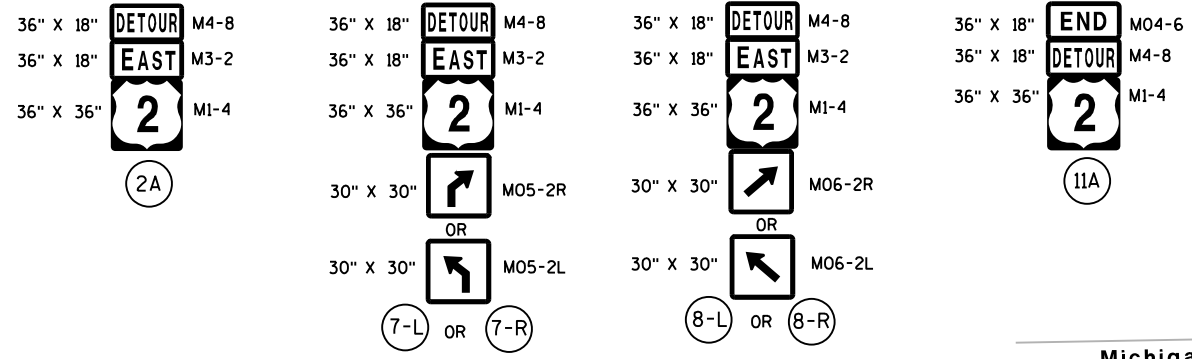
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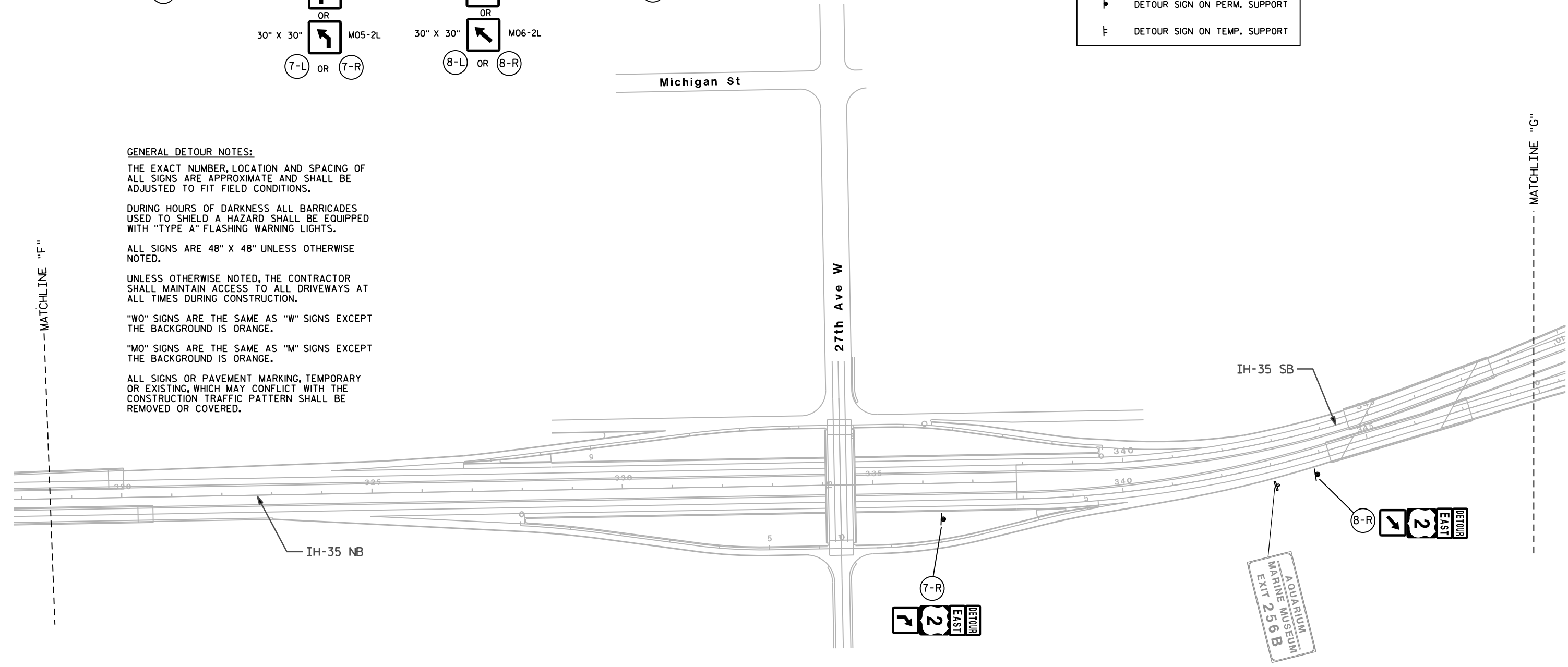
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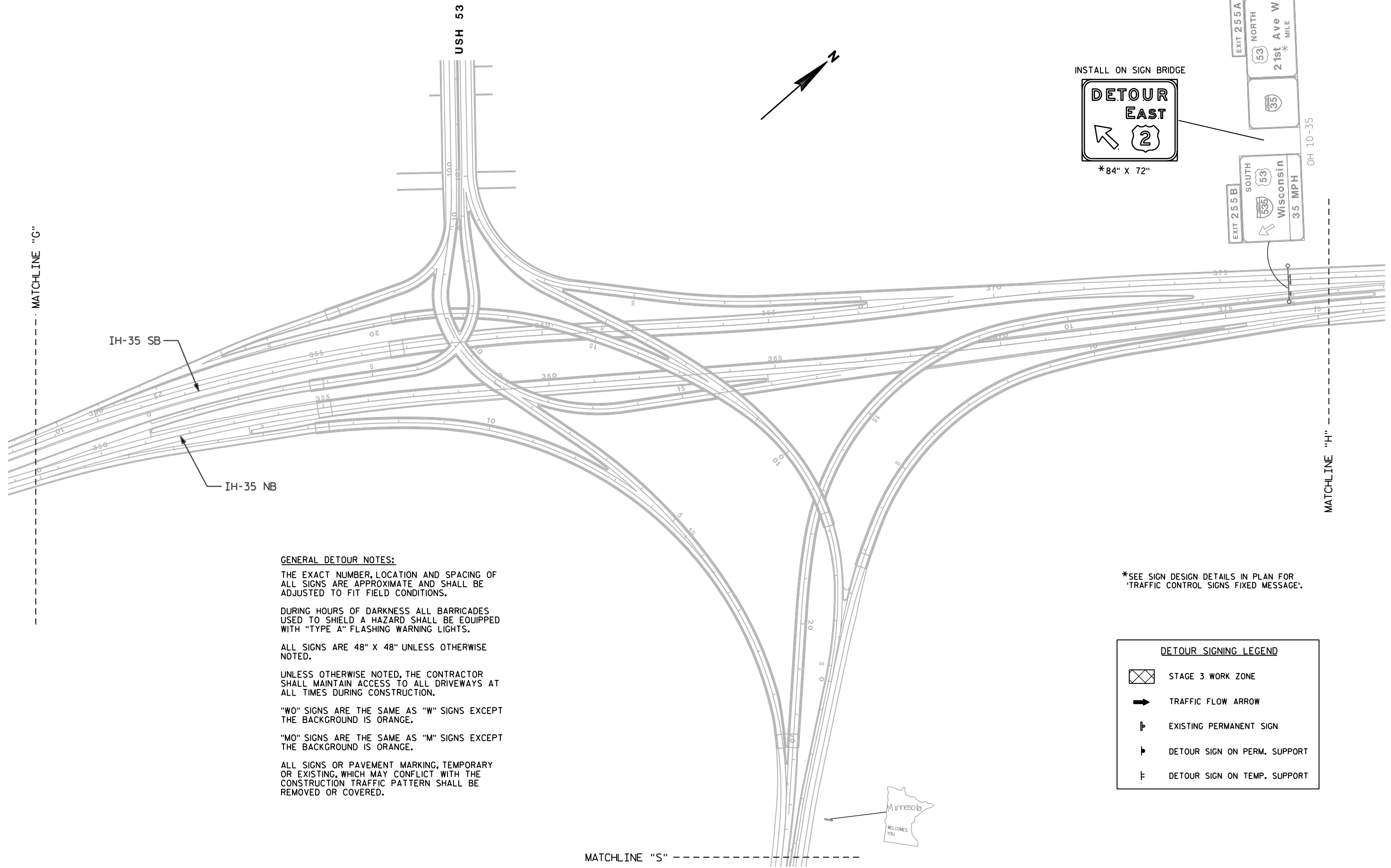
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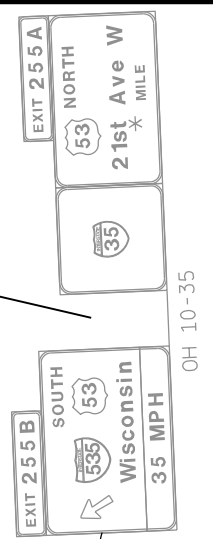




INSTALL ON SIGN BRIDGE



\*84" X 72"



**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.

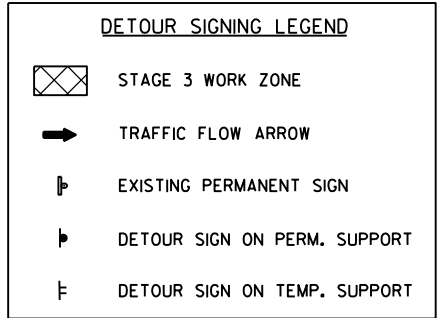
UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION.

"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.

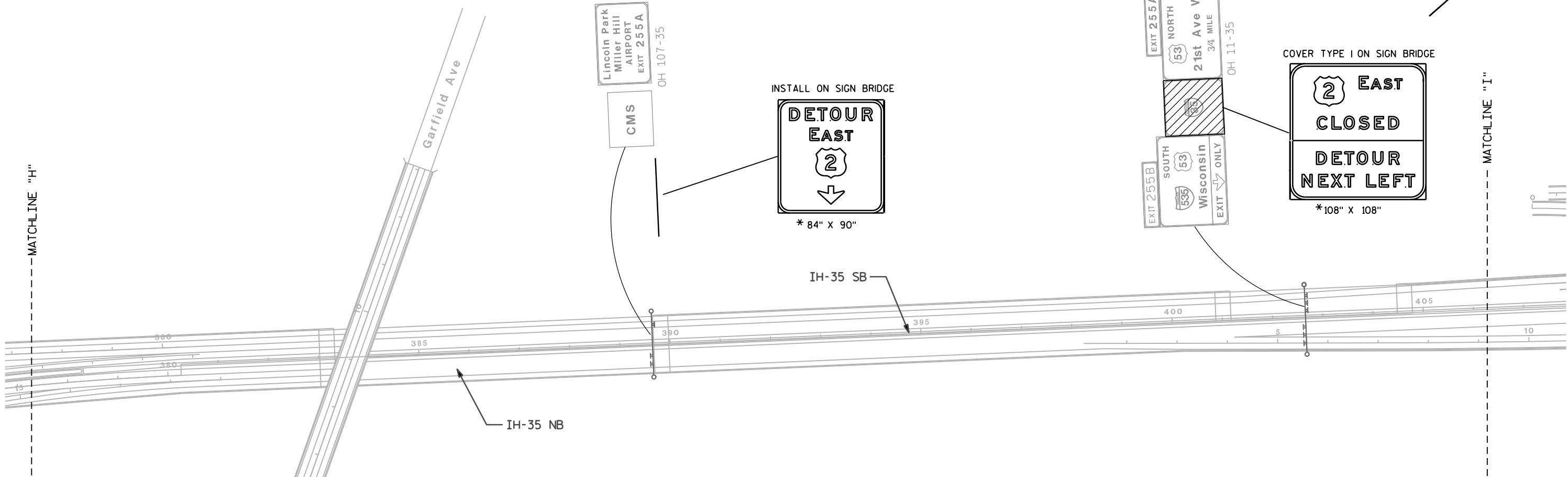
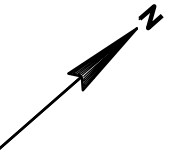
ALL SIGNS OR PAVEMENT MARKING, TEMPORARY OR EXISTING, WHICH MAY CONFLICT WITH THE CONSTRUCTION TRAFFIC PATTERN SHALL BE REMOVED OR COVERED.

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



MATCHLINE "S"

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



**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.

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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DETOUR SIGNING LEGEND	
	STAGE 3 WORK ZONE
	TRAFFIC FLOW ARROW
	EXISTING PERMANENT SIGN
	DETOUR SIGN ON PERM. SUPPORT
	DETOUR SIGN ON TEMP. SUPPORT



**DETOUR SIGNING LEGEND**

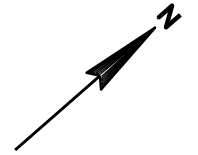
-  STAGE 3 WORK ZONE
-  TRAFFIC FLOW ARROW
-  EXISTING PERMANENT SIGN
-  DETOUR SIGN ON PERM. SUPPORT
-  DETOUR SIGN ON TEMP. SUPPORT

INSTALL ON SIGN BRIDGE

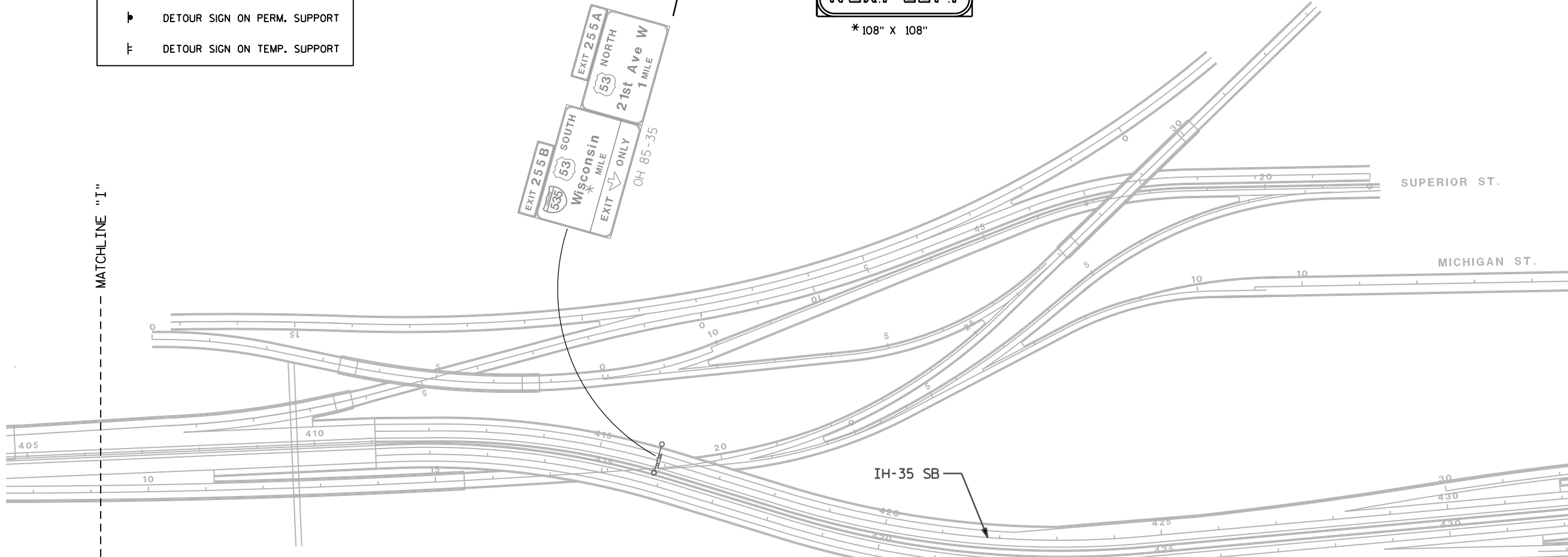


\* 108" X 108"

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



MATCHLINE "I"



**GENERAL DETOUR NOTES:**

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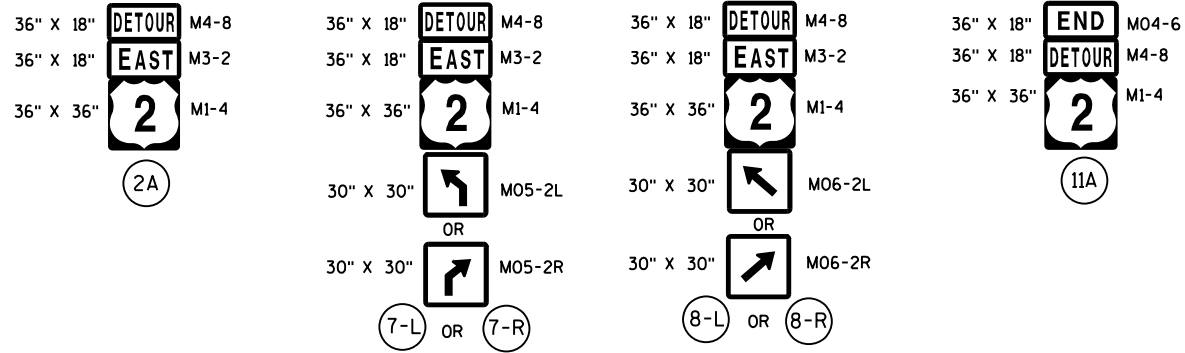
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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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GENERAL DETOUR NOTES:

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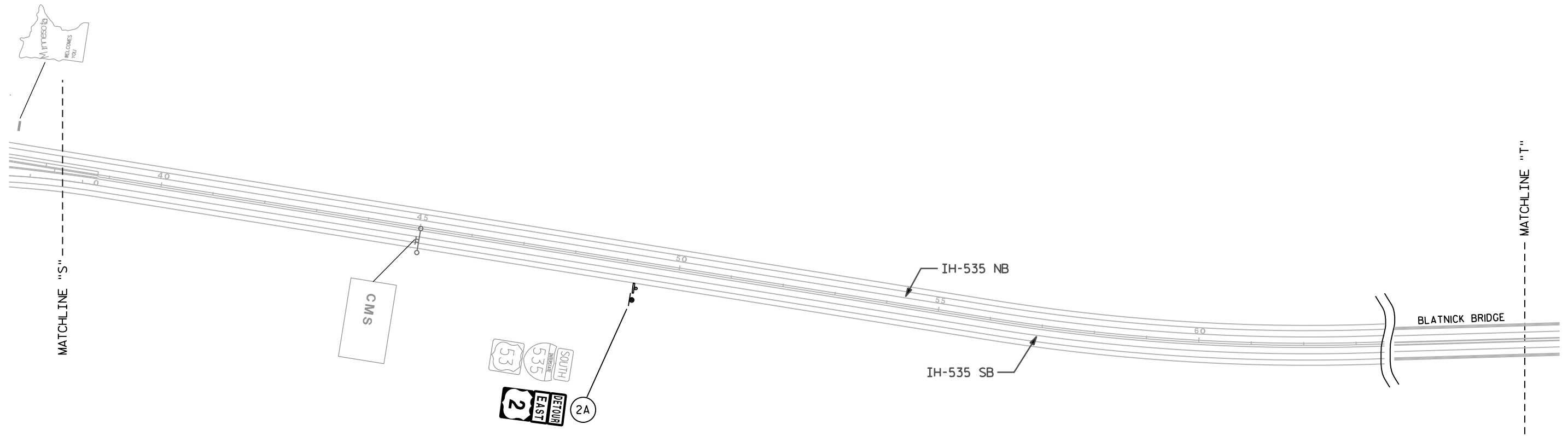
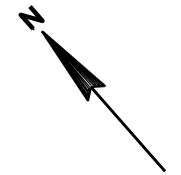
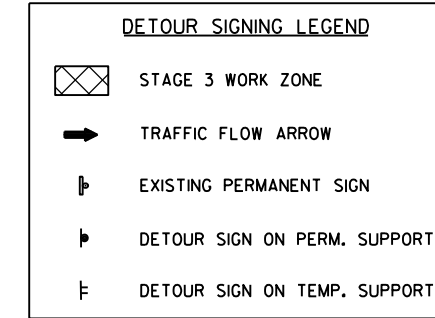
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

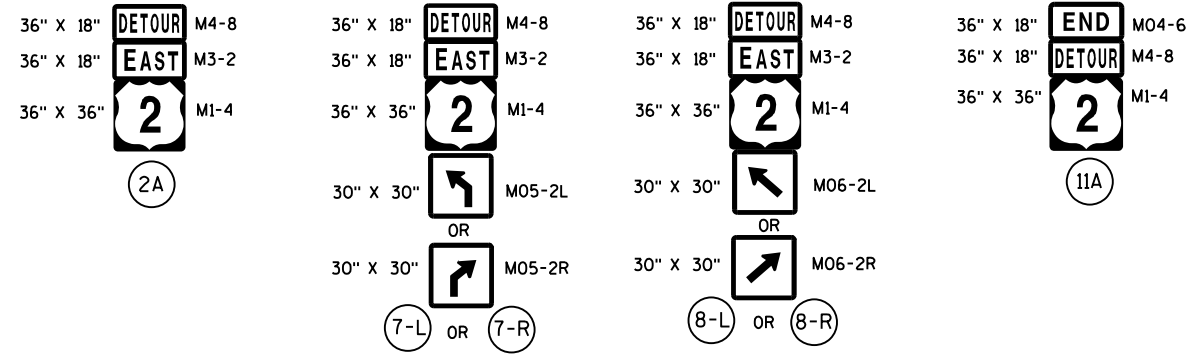
UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION.

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

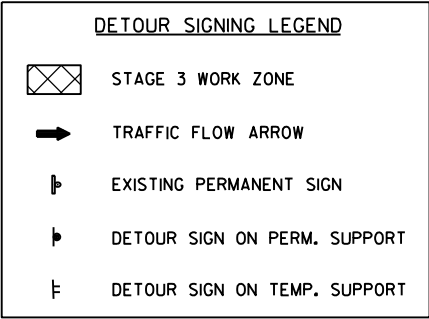
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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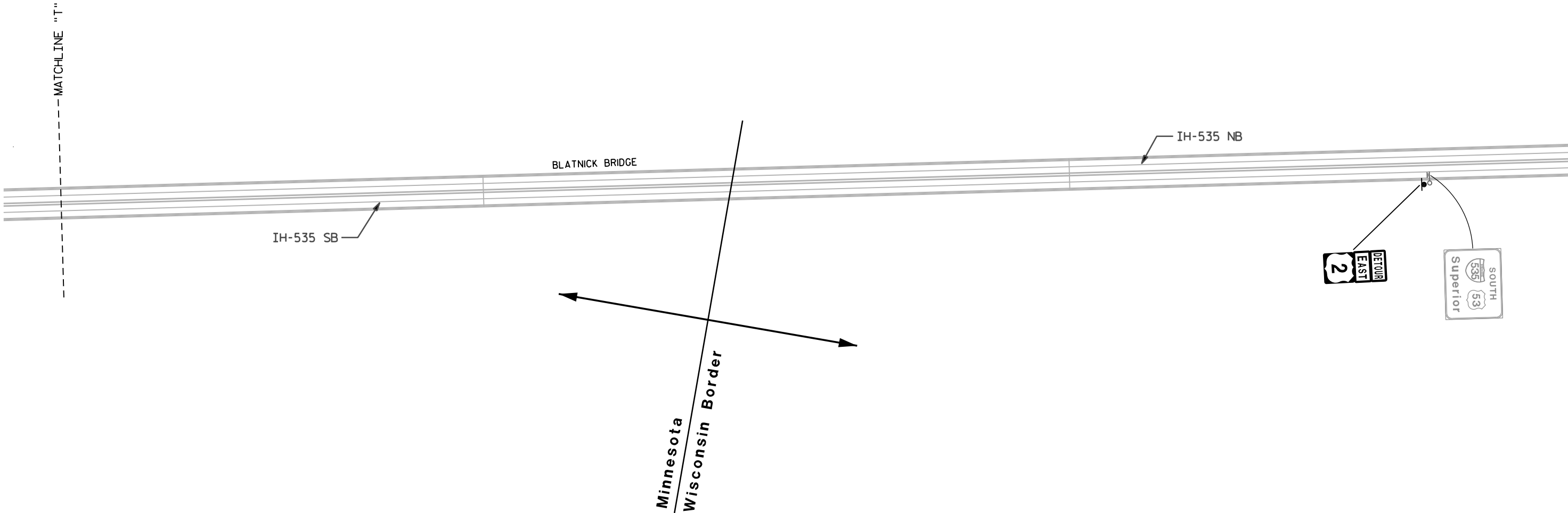


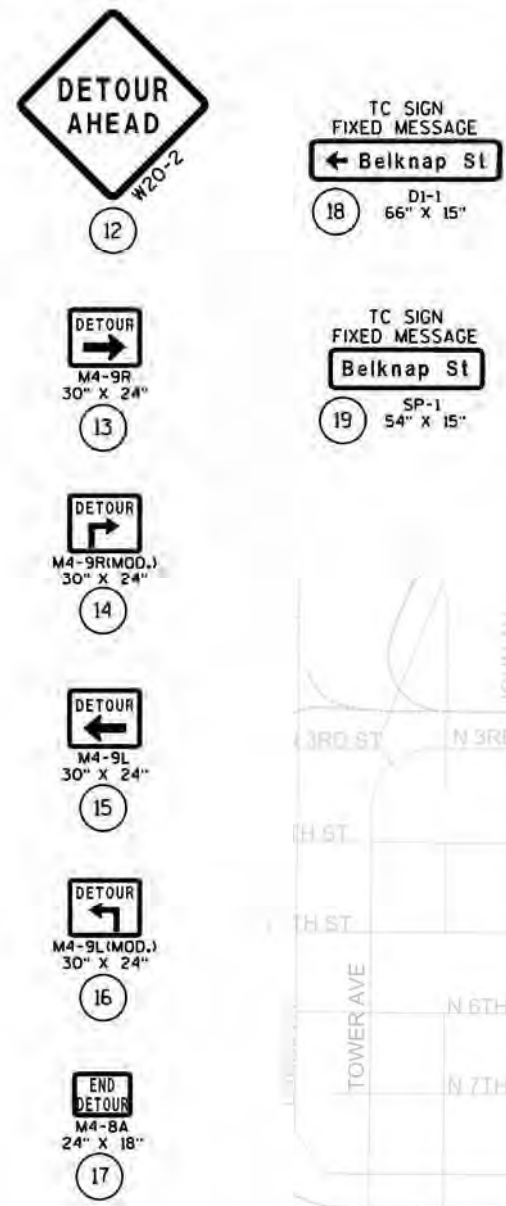
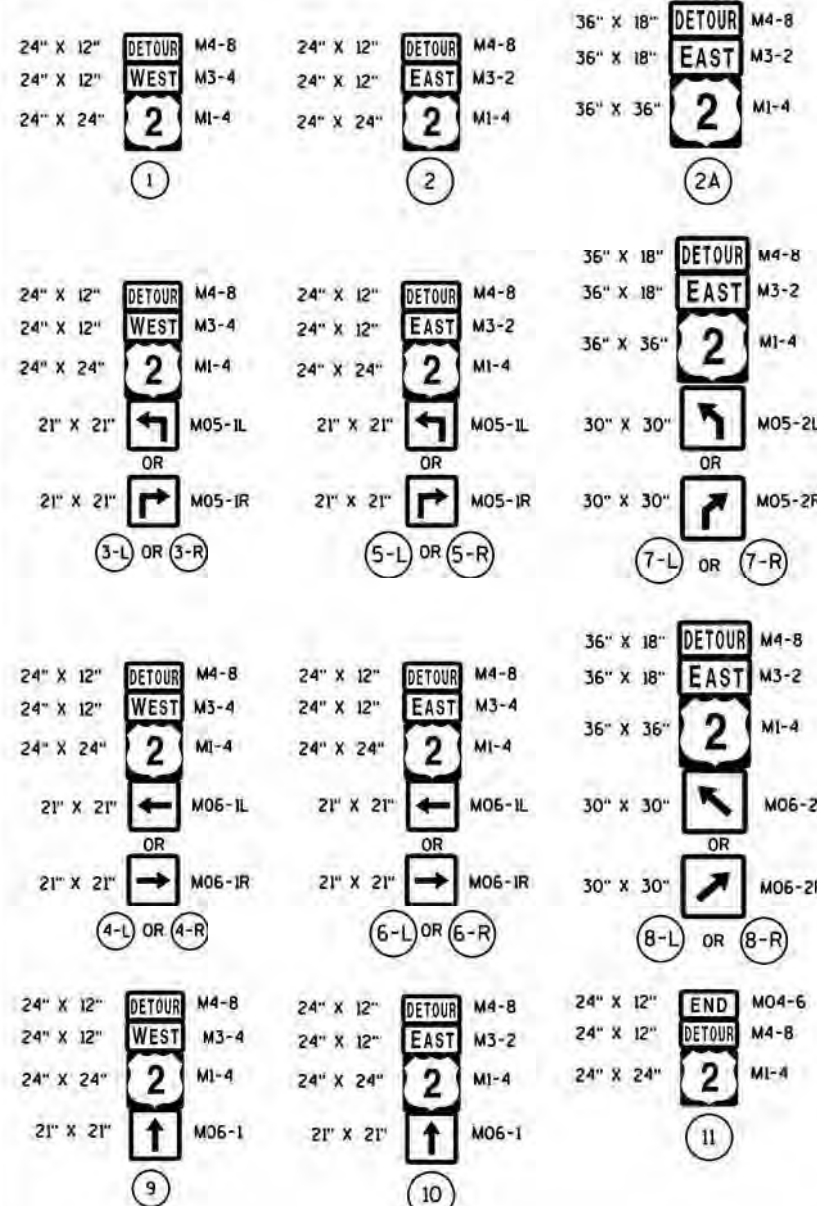


**GENERAL DETOUR NOTES:**  
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 "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.  
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**NOTE:**  
 SEE NEXT SHEET FOR USH 2 EAST DETOUR SIGNING IN WISCONSIN.



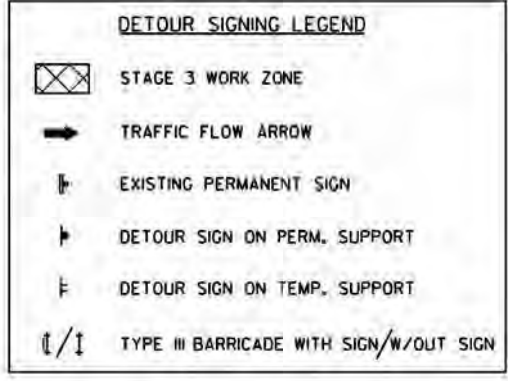


NOTES:

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.



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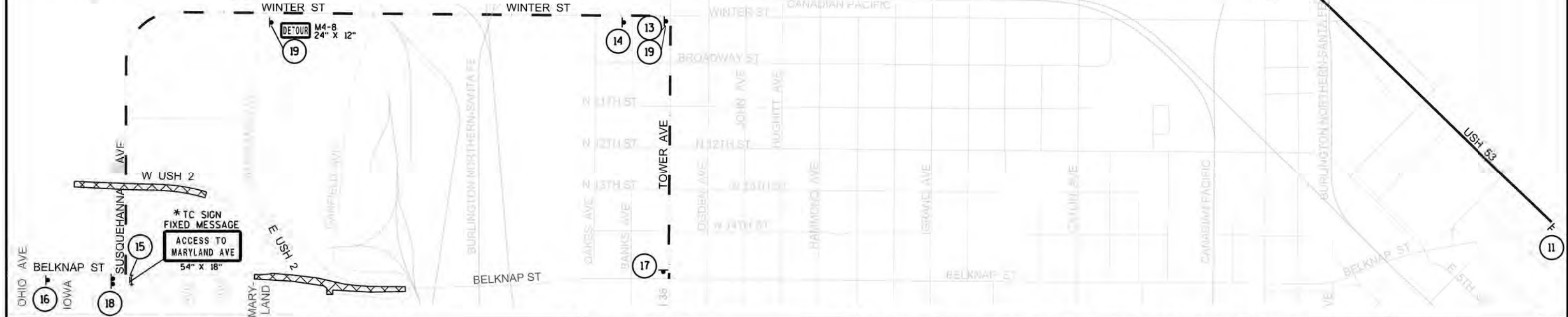
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"WC" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

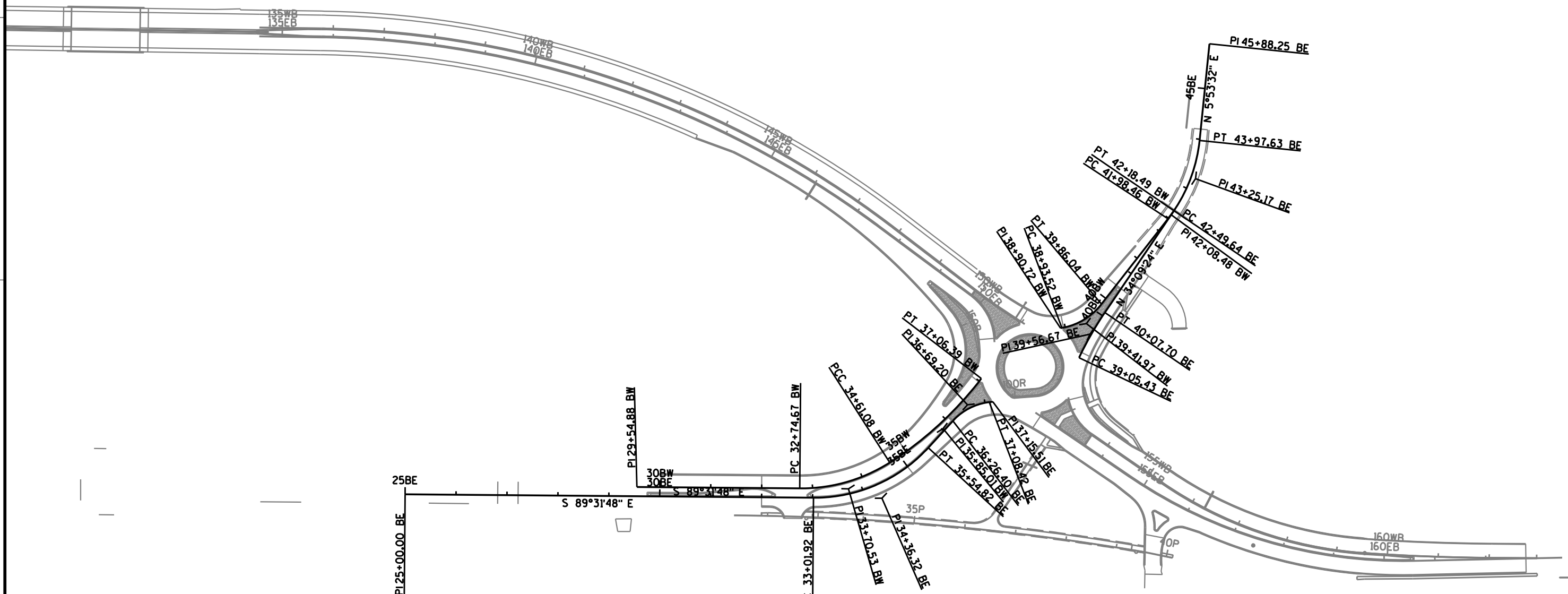
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P.I. DATA	CURVE DATA	CURVE DATA	P.I. DATA	CURVE DATA	CURVE DATA
P.I. 29+54.88 BW N 305476.44 E 142589.15	P.I. 33+70.53 BW N 305473.03 E 143004.79 Δ = 32°57'50" D = 17°41'02" T = 95.86' L = 186.41' E = 13.88' R = 324.00' P.C. 32+74.67 BW P.C.C34+61.08 BW	P.I. 35+85.01 BW N 305591.10 E 143190.17 Δ = 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 Δ = 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 Δ = 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 Δ = 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 Δ = 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 Δ = 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 Δ = 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

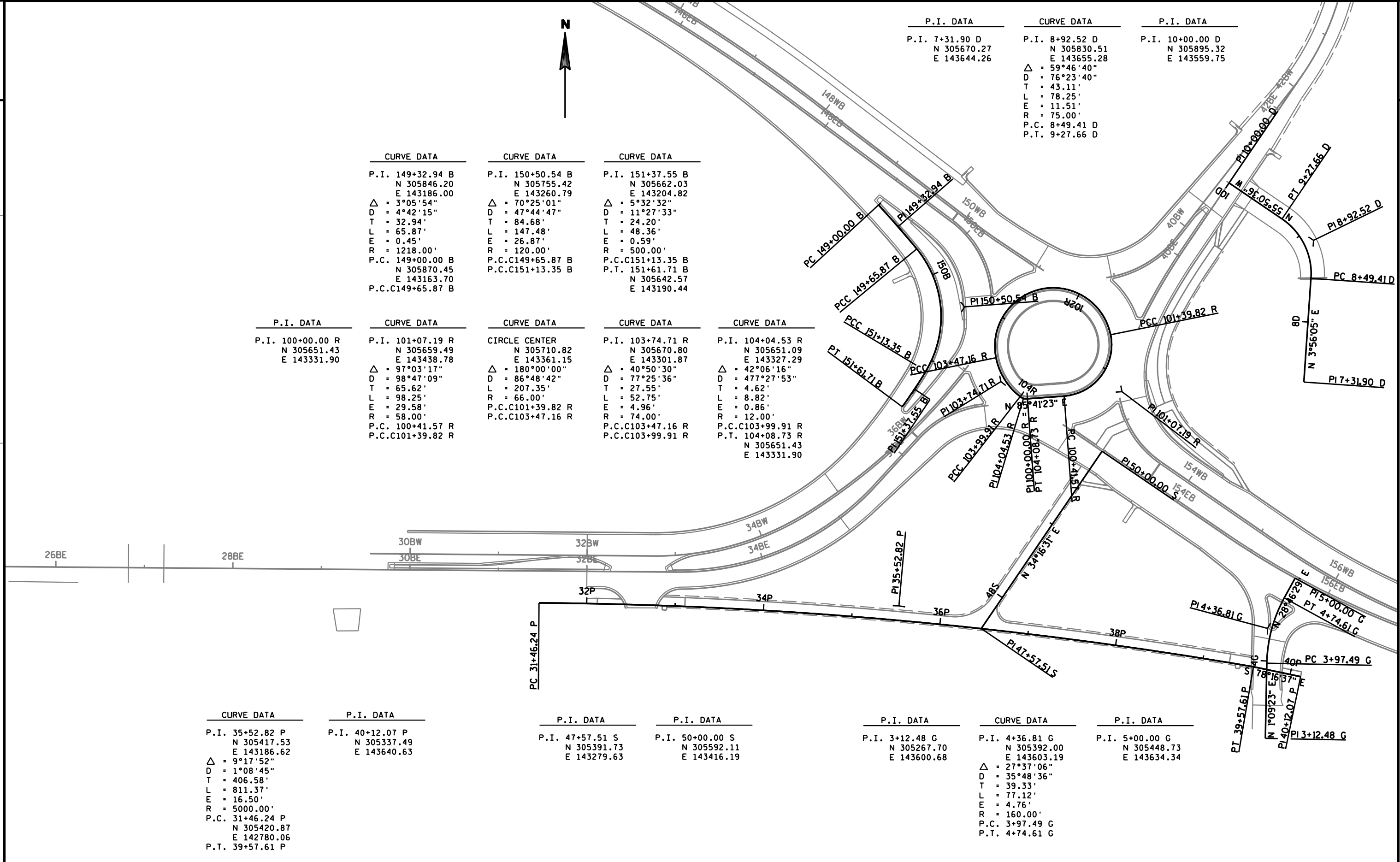


P.I. DATA	CURVE DATA	P.I. DATA
P.I. 7+31.90 D N 305670.27 E 143644.26	P.I. 8+92.52 D N 305830.51 E 143655.28 Δ = 59°46'40" D = 76°23'40" T = 43.11' L = 78.25' E = 11.51' R = 75.00' P.C. 8+49.41 D P.T. 9+27.66 D	P.I. 10+00.00 D N 305895.32 E 143559.75

CURVE DATA	CURVE DATA	CURVE DATA
P.I. 149+32.94 B N 305846.20 E 143186.00 Δ = 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	P.I. 150+50.54 B N 305755.42 E 143260.79 Δ = 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	P.I. 151+37.55 B N 305662.03 E 143204.82 Δ = 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	CURVE DATA	CURVE DATA	CURVE DATA	CURVE DATA	CURVE DATA
P.I. 100+00.00 R N 305651.43 E 143331.90	P.I. 101+07.19 R N 305659.49 E 143438.78 Δ = 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	CIRCLE CENTER N 305710.82 E 143361.15 Δ = 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	P.I. 103+74.71 R N 305670.80 E 143301.87 Δ = 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	P.I. 104+04.53 R N 305651.09 E 143327.29 Δ = 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. DATA	P.I. DATA	P.I. DATA	P.I. DATA	CURVE DATA	P.I. DATA
P.I. 35+52.82 P N 305417.53 E 143186.62 Δ = 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. 40+12.07 P N 305337.49 E 143640.63	P.I. 47+57.51 S N 305391.73 E 143279.63	P.I. 50+00.00 S N 305592.11 E 143416.19	P.I. 3+12.48 G N 305267.70 E 143600.68	P.I. 4+36.81 G N 305392.00 E 143603.19 Δ = 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. 5+00.00 G N 305448.73 E 143634.34



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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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  
Δ = 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

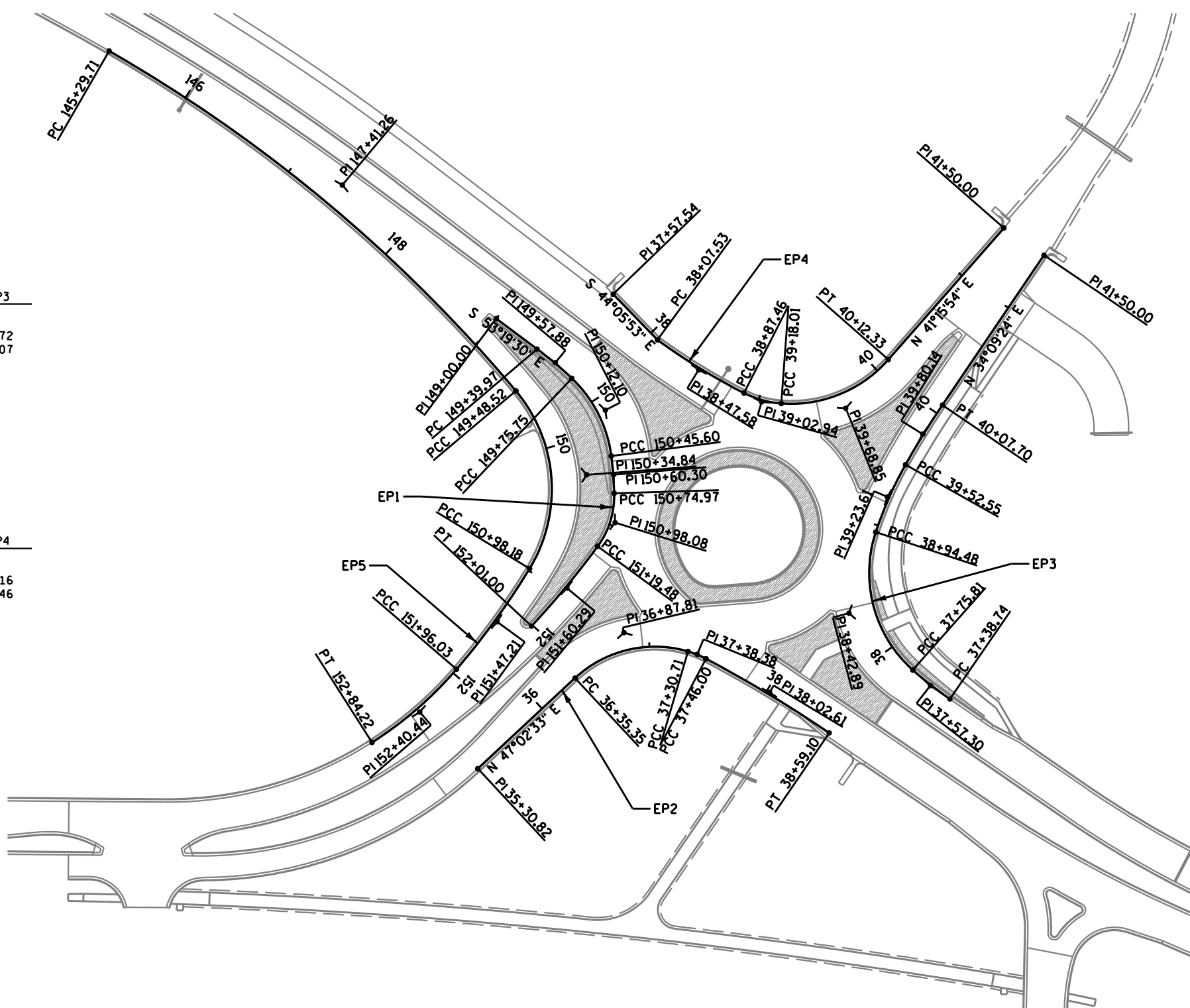
P.I. 150+34.84  
N 305755.14  
E 143241.46  
Δ = 71°27'32"  
D = 47°44'47"  
T = 86.32'  
L = 149.66'  
E = 27.82'  
R = 120.00'  
P.C.C149+48.52  
P.C.C150+98.18

CURVE DATA - EP5

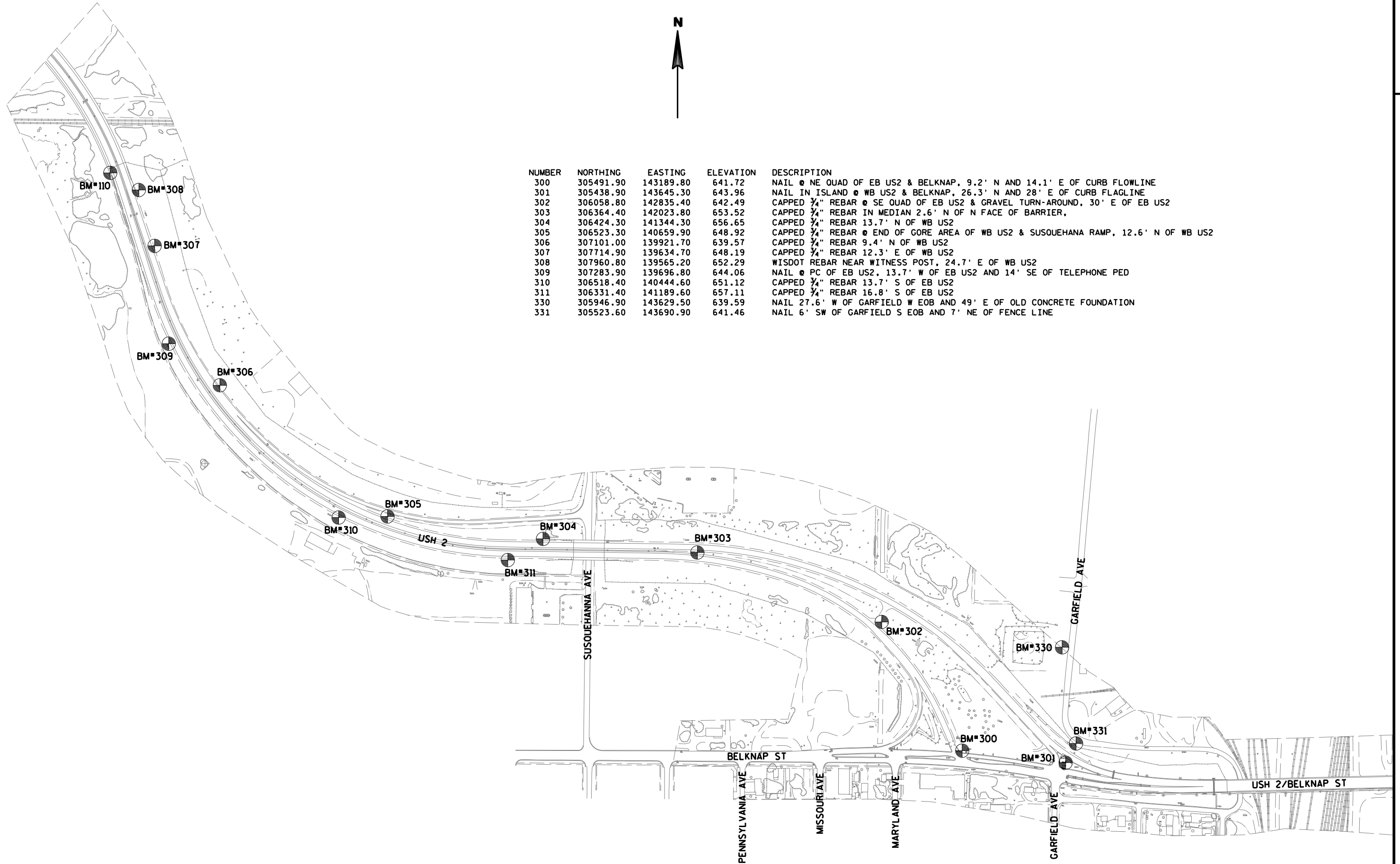
P.I. 151+47.21  
N 305639.51  
E 143171.10  
Δ = 9°20'38"  
D = 9°32'57"  
T = 49.03'  
L = 97.85'  
E = 2.00'  
R = 600.00'  
P.C.C150+98.18  
P.C.C151+96.03

CURVE DATA - EP5

P.I. 152+40.44  
N 305568.63  
E 143110.21  
Δ = 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







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 3/4" REBAR @ SE QUAD OF EB US2 & GRAVEL TURN-AROUND, 30' E OF EB US2
303	306364.40	142023.80	653.52	CAPPED 3/4" REBAR IN MEDIAN 2.6' N OF N FACE OF BARRIER,
304	306424.30	141344.30	656.65	CAPPED 3/4" REBAR 13.7' N OF WB US2
305	306523.30	140659.90	648.92	CAPPED 3/4" REBAR @ END OF GORE AREA OF WB US2 & SUSQUEHANNA RAMP, 12.6' N OF WB US2
306	307101.00	139921.70	639.57	CAPPED 3/4" REBAR 9.4' N OF WB US2
307	307714.90	139634.70	648.19	CAPPED 3/4" 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 3/4" REBAR 13.7' S OF EB US2
311	306331.40	141189.60	657.11	CAPPED 3/4" 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

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## ESTIMATE OF QUANTITIES

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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## ESTIMATE OF QUANTITIES

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	DRI LLED TIE BARS	EACH	4,056.000		35.000	4,021.000
0480	416.0620	DRI LLED 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	ASPHALTI C MATERIAL PG58-34	TON	128.000	3.000		125.000
0520	455.0145	ASPHALTI C 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	ASPHALTI C SURFACE	TON	141.000			141.000
0590	465.0110	ASPHALTI C SURFACE PATCHING	TON	30.000			30.000
0600	465.0120	ASPHALTI C SURFACE DRIVEWAYS AND FIELD ENTRANCES	TON	80.000			80.000
0610	465.0125	ASPHALTI C SURFACE TEMPORARY	TON	227.000			227.000
0620	465.0315	ASPHALTI C 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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## ESTIMATE OF QUANTITIES

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 AGGREGATE	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	RI PRAP LIGHT	CY	13.000			13.000
1070	606.0200	RI PRAP 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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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
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 BRIGHTNESS" - 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 4X6-1INCH X 14-FT	EACH	24.000	5.000		19.000
1710	634.0616	POSTS WOOD 4X6-1INCH X 16-FT	EACH	34.000			34.000
1720	634.0805	POSTS TUBULAR STEEL 2X2-1INCH X 5-FT	EACH	3.000	1.000		2.000
1730	634.0809	POSTS TUBULAR STEEL 2X2-1INCH X 9.5-FT	EACH	14.000	1.000		13.000
1740	634.0811	POSTS TUBULAR STEEL 2X2-1INCH 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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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
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

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## ESTIMATE OF QUANTITIES

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	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-ALUMI NUM	EACH	25.000			25.000
2500	657.0425	TRAFFIC SIGNAL STANDARDS ALUMI NUM 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.1TOA	ON-THE-JOB TRAINING APPRENTICE AT \$5.00/HR	HRS	4,100.000		2,100.000	2,000.000
2600	ASP.1TOG	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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## ESTIMATE OF QUANTITIES

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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## ESTIMATE OF QUANTITIES

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

REMOVING PAVEMENT

STATION TO STATION	LOCATION	204.0100 SY
3+78 G - 4+06 G	GARFIELD	166
<b>PROJECT ID TOTAL</b>		<b>166</b>

REMOVING ASPHALTIC SURFACE

STATION TO STATION	LOCATION	204.0110 SY
3+50 G - 3+78 G	GARFIELD	115
<b>PROJECT ID TOTAL</b>		<b>115</b>

REMOVING CONCRETE SIDEWALK

STATION TO STATION	LOCATION	204.0155 SY
3+78 G	RT	9
3+91 G - 4+00 G	LT	5
<b>PROJECT ID TOTAL</b>		<b>14</b>

BACKFILL GRANULAR

STATION TO STATION	LOCATION	209.0100 CY
4+25 G - 4+76 G	LT/RT	471
<b>PROJECT ID TOTAL</b>		<b>471</b>

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) EXPANDED FILL CY	(4) ORDINATE CY	(5) MASS 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	
<b>DIVISION 1 SUBTOTAL</b>				<b>132</b>	<b>---</b>	<b>132</b>	<b>10</b>	<b>23</b>	<b>28</b>	<b>34</b>	<b>103</b>	<b>103</b>	<b>12</b>		
<b>PROJECT ID TOTALS</b>				<b>142</b>				<b>12</b>							

- (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 EXCAVATION \* 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) UNDISTRICTED SELECT BORROW IS USED TO ACCOUNT FOR EBS

FINISHING ROADWAY

LOCATION	213.0100 EACH	
01. 8680-00-70	1	
<b>PROJECT ID TOTAL</b>		<b>1</b>

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
<b>PROJECT ID TOTALS</b>		<b>1</b>	<b>425</b>

HMA PAVEMENT ITEMS

STATION TO STATION	LOCATION	455.0110 ASPHALTIC MATERIAL TON	460.1103 TYPE E-3 PG58-34 TON	455.0605 TACK COAT GAL
3+50 G - 4+25 G	GARFIELD	61	3	7
<b>PROJECT ID TOTALS</b>		<b>61</b>	<b>3</b>	<b>7</b>

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
<b>PROJECT ID TOTALS</b>		<b>373</b>	<b>115</b>

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
<b>PROJECT ID TOTAL</b>		<b>901</b>

CURB RAMP DETECTABLE  
WARNING FIELD YELLOW

STATION	602.0505 SF	
39+55 P	18	
39+90 P	8	
<b>PROJECT ID TOTAL</b>		<b>26</b>

PIPE UNDERDRAIN WRAPPED 6-INCH

STATION TO STATION	LOCATION	612.0406 LF
3+68 G - 4+75 G	LT	107
<b>PROJECT ID TOTAL</b>		<b>107</b>

\* 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
<b>PROJECT ID TOTAL</b>	<b>1</b>

**MOBILIZATION**

PROJECT	619.1000
	EACH
8680-00-70	0.005
<b>PROJECT ID TOTAL</b>	<b>0.005</b>

**WATER**

LOCATION	624.0100
	MGAL
DUST CONTROL	40
<b>PROJECT ID TOTAL</b>	<b>40</b>

**EROSION MAT URBAN CLASS I TYPE A**

STATION TO STATION	LOCATION	628.2006
		SY
4+00 G - 4+86 G	LT/RT	280
<b>PROJECT ID TOTAL</b>		<b>280</b>

**INLET PROTECTION TYPE A**

STATION	STRUCTURE NUMBER	STAGE	628.7005
			EACH
3+42 G	1-I	3	1
3+66 G	EXISTING	3	1
<b>PROJECT ID TOTAL</b>			<b>2</b>

**SALVAGED TOPSOIL, FERTILIZER, & SEEDING**

STATION TO STATION	LOCATION	625.0500	629.0210	630.0110	630.0200
		SALVAGED	FERTILIZER	SEEDING	SEEDING
		TOPSOIL	TYPE B	MIXTURE	TEMPORARY
		SY	CWT	NO. 10	LB
3+50 G - 4+50 G	LT/RT	252	1	5	7
<b>PROJECT ID TOTALS</b>		<b>252</b>	<b>1</b>	<b>5</b>	<b>7</b>

**REMOVING SIGNS TYPE II & SMALL SIGN SUPPORTS**

SIGN NO.	STATION	LOCATION	SIGN CODE	TYPE II EACH	SMALL SIGN SUPPORTS EACH
259	---	S. Garfield Ave.	R1-1	1	1
<b>PROJECT ID TOTALS</b>				<b>1</b>	<b>1</b>

**CONSTRUCTION STAKING**

STATION TO STATION	650.4500	650.5000	650.7000	650.9920
	SUBGRADE	BASE	CONCRETE PAVEMENT	SLOPE STAKES
	LF	LF	LF	LF
3+50 G - 4+76 G	126	126	---	126
4+25 G - 4+76 G	---	---	51	---
<b>PROJECT ID TOTALS</b>	<b>126</b>	<b>126</b>	<b>51</b>	<b>126</b>

**CONCRETE PAVEMENT 10-INCH SPECIAL**

STATION TO STATION	LOCATION	SPV.0180.03
		SY
4+25 G - 4+76 G	GARFIELD	333
<b>PROJECT ID TOTAL</b>		<b>333</b>

**SIGNS TYPE II ITEMS**

SIGN NO.	STATION	LOCATION	SIGN CODE	SIGN SIZE (INCHES)	REFLECTIVE SF	H F	POSTS WOOD 4X6-INCH EACH	POSTS TUBULAR 2X2-INCH EACH	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
<b>PROJECT ID TOTALS</b>					<b>22.46</b>	<b>20.50</b>	<b>5</b>	<b>1</b>	<b>1</b>	

**PAVEMENT MARKING CROSSWALK EPOXY 6-INCH**

STATION	647.0766
	LF
39+73 P	63
<b>PROJECT ID TOTAL</b>	<b>63</b>

**PAVEMENT MARKING PREFORMED THERMOPLASTIC**

STATION	647.0168	SPV.0090.08
	ARROWS	GROOVED STOP LINE
	TYPE 2	18-INCH
	EACH	LF
4+41 G	1	---
4+57 G	---	16
<b>PROJECT ID TOTALS</b>	<b>1</b>	<b>16</b>

**SAWING**

STATION TO STATION	LOCATION	690.0150	690.0250
		ASPHALT	CONCRETE
		LF	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	---
<b>PROJECT ID TOTALS</b>		<b>80</b>	<b>11</b>

**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
<b>PROJECT ID TOTAL</b>		<b>488</b>

**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
<b>PROJECT ID TOTAL</b>		<b>114</b>

**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
<b>PROJECT ID TOTAL</b>		<b>901</b>

**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

REMOVING PAVEMENT

STATION TO STATION	LOCATION	204.0100 SY
18+09 - 18+52	LT/RT	320
<b>PROJECT ID TOTAL</b>		<b>320</b>

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
<b>PROJECT ID TOTAL</b>		<b>172</b>

CONCRETE PAVEMENT HES 10-INCH

LOCATION	415.1100 SY
USH 2 EB LANES	62
<b>PROJECT ID TOTAL</b>	<b>62</b>

CONCRETE PAVEMENT APPROACH SLAB HES

LOCATION	415.1410 SY
USH 2 EB LANES	58
<b>PROJECT ID TOTAL</b>	<b>58</b>

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
<b>PROJECT ID TOTAL</b>		<b>35</b>

DRILLED DOWEL BARS

STATION TO STATION	LOCATION	416.0620 EACH
18+09 - 18+20	LT/RT	56
<b>PROJECT ID TOTAL</b>		<b>56</b>

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
<b>PROJECT ID TOTAL</b>		<b>37</b>

MOBILIZATION

LOCATION	619.1000 EACH
8680-04-71	0.9
<b>PROJECT ID TOTAL</b>	<b>0.9</b>

CONCRETE MEDIAN SLOPED NOSE

STATION	LOCATION	620.0300 SF
18+24	RT	68
<b>PROJECT ID TOTAL</b>		<b>68</b>

TRAFFIC CONTROL DETOUR

PROJECT	643.2000 EACH
8680-04-71	1
<b>PROJECT ID TOTAL</b>	<b>1</b>

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 40TH 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
<b>PROJECT ID TOTAL</b>		<b>491.89</b>	

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
<b>PROJECT ID TOTAL</b>				<b>41216</b>

\* 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		646.0126
		4-INCH	8-INCH	WHITE
		WHITE LF	YELLOW LF	WHITE LF
18+09 - 28+39 (WB LANES)	EDGE LINE	1030	---	---
27+86 - 101+89 (WB LANES)	EDGE LINE	7403	---	---
18+13 - 18+24 (WB LANES)	EDGE LINE	---	11	---
18+90 - 101+89 (WB LANES)	EDGE LINE	---	8299	---
27+84 - 28+39 (A RAMP)	EDGE LINE	---	56	---
18+55 - 28+00 (EB LANES)	EDGE LINE	945	---	---
28+00 - 33+31 (EB LANES)	EDGE LINE	531	---	---
33+31 - 101+89 (EB LANES)	EDGE LINE	6858	---	---
18+16 - 18+24 (EB LANES)	EDGE LINE	---	8	---
18+90 - 101+89 (EB LANES)	EDGE LINE	---	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		COMMENT
	ARROWS	647.0356	
	TYPE 2	WORDS	
	EACH	EACH	
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	652.0225		653.0135		654.0105		654.0220		657.0255*		676.0300	
				CONDUIT RIGID	NONMETALLIC	PULL BOXES	CONCRETE	CONTROL	CONCRETE	TRANSFORMER	BASES BREAKAWAY	TRAFFIC SIGNAL	SIGNAL		
				SCHEDULE 40	STEEL	BASES	CABINET	PEDESTAL	11 1/2-INCH	POLES	STANDARDS	ALUMINUM 15-FT	FLASHER	TYPE 1	
				2-INCH	24x36-INCH	TYPE 5	BASE TYPE 10	BASES	BOLT	CIRCLE	TYPE 5-STEEL	ALUMINUM 15-FT	FLASHER	TYPE 1	
				LF	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	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

ALL ITEMS ON THIS SHEET ARE CATEGORY 0030 UNLESS OTHERWISE NOTED

**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	

**CLEARING AND GRUBBING**

STATION TO STATION	LOCATION	201.0105	201.0205
		CLEARING STA	GRUBBING STA
147+00 EB - 148+00 EB	RT	1	1
149+00 EB - 153+00 EB	RT	4	4
<b>PROJECT ID TOTALS</b>		<b>5</b>	<b>5</b>

**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
<b>CATEGORY 0010 TOTAL</b>			<b>6</b>
0070	42+70 BE		2
<b>CATEGORY 0070 TOTAL</b>			<b>2</b>
<b>PROJECT ID TOTAL</b>			<b>8</b>

**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
<b>PROJECT ID TOTAL</b>		<b>44166</b>

**REMOVING CONCRETE SURFACE PARTIAL DEPTH**

CATEGORY	STATION TO STATION	LOCATION	204.0109.S SF
0060	26+82 BE - 32+00 BE	BELKNAP	27835
<b>PROJECT ID TOTAL</b>			<b>27835</b>

**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
<b>PROJECT ID TOTAL</b>		<b>5849</b>

**REMOVING ASPHALTIC SURFACE MILLING**

CATEGORY	LOCATION	204.0120 SY
0060	SUSQUEHANNA AVE - PENNSYLVANIA AVE	4550
<b>PROJECT ID TOTAL</b>		<b>4550</b>

**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
<b>PROJECT ID TOTAL</b>		<b>2345</b>

**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
<b>PROJECT ID TOTAL</b>		<b>1227</b>

**REMOVING FENCE**

CATEGORY	STATION TO STATION	LOCATION	204.0170 LF
0070	151+00 WB - 153+00 WB	LT	240
<b>PROJECT ID TOTAL</b>			<b>240</b>

**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
<b>PROJECT ID TOTAL</b>		<b>366</b>

**REMOVING CONCRETE BARRIER**

STATION TO STATION	LOCATION	204.0157 LF
134+50 - 134+55		5
134+55 EB - 138+83 EB	LT/RT	428
<b>PROJECT ID TOTAL</b>		<b>433</b>

**REMOVING DELINEATORS AND MARKERS**

LOCATION	204.0180 EACH	
EB LANES - USH 2	30	
WB LANES - USH 2	30	
<b>PROJECT ID TOTAL</b>		<b>60</b>

**REMOVING CONCRETE BASES**

LOCATION	204.0195 EACH	
162+42 EB (SIGN STRUCTURE)	2	
USH 2 & BELKNAP ST INTERSECTION	8	
<b>PROJECT ID TOTAL</b>		<b>10</b>

**REMOVING INLETS**

STATION	LOCATION	204.0220* EACH
116+03	LT	1
<b>SUBTOTAL</b>		<b>1</b>
<b>PROJECT ID TOTAL</b>		<b>19</b>

**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

**REMOVING AND ABANDONING STORM SEWER ITEMS**

STATION	LOCATION	OFFSET	STRUCTURE NUMBER	STAGE	204.0220*		204.0210		204.0245		204.0245		204.0245		204.0270		COMMENTS
					REMOVING		REMOVING		REMOVING		REMOVING		ABANDONING				
					INLETS EACH	MANHOLES EACH	STORM SEWER (12-INCH) LF	STORM SEWER (15-INCH) LF	STORM SEWER (18-INCH) LF	STORM SEWER (24-INCH) LF	PIPES EACH	CULVERT					
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
<b>SUBTOTALS</b>						<b>18</b>	<b>5</b>	<b>178</b>	<b>600</b>	<b>275</b>	<b>9</b>	<b>2</b>					
<b>PROJECT ID TOTALS</b>						<b>19</b>	<b>5</b>	<b>175</b>	<b>600</b>	<b>275</b>	<b>9</b>	<b>2</b>					

**\* OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET  
ARE CATEGORY 0010  
UNLESS OTHERWISE NOTED

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	
<b>DIVISION 1 SUBTOTAL</b>				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			
<b>DIVISION 3 SUBTOTAL</b>				14146	1858	12288	---	111	1896	1996	2495	9793	9793	---	
<b>CATEGORY 0010 TOTALS</b>					28027			1810						500	
<b>CATEGORY 0070 TOTALS</b>					3197			0						0	
<b>PROJECT ID TOTALS</b>					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 EXCAVATION \* 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) UNDISTRICTED 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
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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

CONCRETE DRIVEWAY 6-INCH

CATEGORY	STATION	LOCATION	416.0160 SY
0070	41+00 BE	RT	52
<b>PROJECT ID TOTAL</b>			<b>52</b>

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
<b>PROJECT ID TOTAL</b>		<b>550</b>

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
<b>PROJECT ID TOTAL</b>		<b>4021</b>

DRILLED DOWEL BARS

STATION	LOCATION	416.0620 EACH
SUSQUEHANNA RAMP		22
122+14	LT	11
162+79 EB	LT/RT	39
<b>PROJECT ID TOTAL</b>		<b>72</b>

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
<b>PROJECT ID TOTAL</b>			<b>4</b>

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
<b>PROJECT ID TOTAL</b>		<b>141</b>

HMA PAVEMENT ITEMS

CATEGORY	STATION TO STATION	LOCATION	HMA PAVEMENT					
			460.1100 TYPE E-0.3 TON	460.1103 TYPE E-3 TON	460.1110 TYPE E-10 TON	455.0110 ASPHALTIC PG58-34 TON	455.0145 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
<b>CATEGORY 0010 TOTALS</b>			<b>1774</b>	<b>0</b>	<b>602</b>	<b>98</b>	<b>33</b>	<b>274</b>
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
<b>CATEGORY 0060 TOTALS</b>			<b>0</b>	<b>0</b>	<b>1141</b>	<b>0</b>	<b>63</b>	<b>270</b>
0070	40+65 BE - 44+20 BE	LT/RT	---	482	---	27	---	66
<b>CATEGORY 0070 TOTALS</b>			<b>0</b>	<b>482</b>	<b>0</b>	<b>27</b>	<b>0</b>	<b>66</b>
<b>PROJECT ID TOTALS</b>			<b>1774</b>	<b>482</b>	<b>1743</b>	<b>125</b>	<b>96</b>	<b>610</b>

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
<b>PROJECT ID TOTAL</b>		<b>227</b>

ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES

CATEGORY	STATION	LOCATION	465.0120 TON
0070	41+00 BE	RT	68
	44+59 BE	LT	12
<b>PROJECT ID TOTAL</b>			<b>80</b>

ASPHALTIC SURFACE PATCHING

CATEGORY	STATION TO STATION	LOCATION	465.0110 TON
0060	18+63 BE - 32+00 BE	LT/RT	30
<b>PROJECT ID TOTAL</b>			<b>30</b>

ASPHALTIC FLUME

CATEGORY	STATION	LOCATION	465.0315 SY
0070	41+50 BE	RT	9
	41+50 BE	LT	9
<b>PROJECT ID TOTAL</b>			<b>18</b>

\* 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	521.0118	521.1012	521.1018	THICKNESS
			12-INCH	18-INCH	12-INCH	18-INCH	
0010	49+10 S	LT/RT	---	43	---	2	0.064
<b>CATEGORY 0010 TOTALS</b>			---	<b>43</b>	---	<b>2</b>	
0070	44+19 BE - 45+00 BE	LT	81	---	2	---	0.064
<b>CATEGORY 0070 TOTALS</b>			<b>81</b>	---	<b>2</b>	---	
<b>PROJECT ID TOTALS</b>			<b>81</b>	<b>43</b>	<b>2</b>	<b>2</b>	

**CONCRETE SIDEWALK 4-INCH**

CATEGORY	STATION TO STATION	LOCATION	602.0405	COMMENTS
			SF	
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	
<b>CATEGORY 0010 TOTAL</b>			<b>49290</b>	
0070	39+18 BE - 40+58 BE	LT	2636	COLORED
<b>CATEGORY 0070 TOTAL</b>			<b>2636</b>	
<b>PROJECT ID TOTAL</b>			<b>51926</b>	

**CULVERT PIPE ITEMS**

STATION	LOCATION	520.1018	530.0118	COMMENTS
		18-INCH	18-INCH	
116+03	LT	1	1	68
120+04	LT	1	1	84
124+04	LT	1	1	110 (2) ELBOWS
<b>SUBTOTALS</b>		<b>3</b>	<b>3</b>	<b>262</b>
<b>CATEGORY TOTALS</b>		<b>3</b>	<b>13</b>	<b>262</b>
<b>PROJECT ID TOTALS</b>		<b>3</b>	<b>13</b>	<b>262</b>

**CONCRETE CURB AND GUTTER**

CATEGORY	STATION TO STATION	LOCATION	601.0405	601.0409	601.0411	601.0580	SPV.0090.09
			18-INCH	30-INCH	4-INCH	SLOPED	36-INCH
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	---	---	---	---
<b>CATEGORY 0010 TOTALS</b>			<b>944</b>	<b>8204</b>	<b>1675</b>	<b>396</b>	<b>300</b>
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	---	---
<b>CATEGORY 0070 TOTALS</b>			<b>0</b>	<b>592</b>	<b>170</b>	<b>0</b>	<b>0</b>
<b>PROJECT ID TOTALS</b>			<b>944</b>	<b>8796</b>	<b>1845</b>	<b>396</b>	<b>300</b>

**CULVERT PIPE REINFORCED CONCRETE 24-INCH**

CATEGORY	STATION	522.0324	522.1024*
		CLASS IV	APRON ENDWALLS
0070	42+50 BE	45	2
<b>CATEGORY TOTALS</b>		<b>45</b>	<b>2</b>
<b>PROJECT ID TOTALS</b>		<b>45</b>	<b>6</b>

**CONCRETE GUTTER 24-INCH**

STATION TO STATION	LOCATION	601.0205
		LF
101+89 - 130+86	USH 2 (EB LANES)	2900
<b>PROJECT ID TOTAL</b>		<b>2900</b>

\* OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

**STORM SEWER ITEMS**

608.0312 608.0315 608.0318 608.0324 608.0412 608.0415 608.0424 522.1012 522.1024\* 520.8000\*

STATION	LOCATION	OFFSET	STRUCT. NUMBER	INVERT INLET ELEV FT	INVERT DISCH. ELEV FT	TO STRUCT.	SLOPE %	STAGE	STORM SEWER PIPE REINFORCED CONCRETE CLASS III				STORM SEWER PIPE REINFORCED CONCRETE CLASS IV			APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE		
									12-INCH LF	15-INCH LF	18-INCH LF	24-INCH LF	12-INCH LF	15-INCH LF	24-INCH LF	12-INCH EACH	24-INCH EACH	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 EB	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

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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	611.2003 611.2004 611.2006 611.2008 611.3220 611.3225 611.3230 611.3003 611.3004									
									MANHOLES, DIAMETER				INLETS		INLETS, DIAMETER			
									3-FT EACH	4-FT EACH	6-FT EACH	8-FT EACH	2x2FT EACH	2x2.5FT EACH	2x3FT EACH	3-FT EACH	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	-	-	-	-	-	-	-	-	-
<b>PROJECT ID TOTALS</b>									<b>2</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>20</b>	<b>6</b>	<b>4</b>	

**•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	611.3902 INLETS		611.0612 INLET COVERS					611.0624 MANHOLE		611.0420 RECONSTRUCTING	
									GRATE EACH	MEDIAN 2 EACH	TYPE C EACH	TYPE H EACH	TYPE H-S EACH	TYPE MS EACH	TYPE A EACH	TYPE T EACH	COVERS TYPE J EACH	MANHOLES EACH	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	-	-	-
<b>PROJECT ID TOTALS</b>									<b>1</b>	<b>2</b>	<b>27</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>4</b>	<b>11</b>	<b>5</b>	<b>2</b>	

**•OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

**MGS GUARDRAIL ITEMS**

**RIPRAP & GEOTEXTILE FABRIC**

**ADJUSTING INLET COVERS**

STATION TO STATION	LOCATION	614.2500	614.2300	614.2610	614.2620
		THRIE BEAM TRANSITION LF	MGS GUARDRAIL 3 LF	MGS GUARDRAIL TERMINAL EAT EACH	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
<b>PROJECT ID TOTALS</b>		<b>117</b>	<b>1123</b>	<b>3</b>	<b>3</b>

CATEGORY	STATION	LOCATION	STAGE	606.0100	606.0200	645.0130
				RIPRAP LIGHT CY	RIPRAP MEDIUM CY	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
<b>CATEGORY 0010 TOTALS</b>				<b>12</b>	<b>16</b>	<b>135</b>

STATION	LOCATION	611.8115 EACH
102+17	RT	1
102+20	RT	1
132+34	LT&RT	2
<b>PROJECT ID TOTAL</b>		<b>4</b>

**GATES PIPE SINGLE LEAF**

**COVER PLATES TEMPORARY**

CATEGORY	STATION	LOCATION	616.0360.S.01	616.0360.S.02
			13-FEET EACH	16-FEET EACH
0070	163+50 EB	RT	2	---
	9+43 D	LT/RT	---	2
<b>PROJECT ID TOTAL</b>			<b>2</b>	<b>2</b>

0070	42+50 BW	LT	1A/1B	1	---	6
<b>CATEGORY 0070 TOTALS</b>				<b>1</b>	<b>0</b>	<b>6</b>
<b>PROJECT ID TOTALS</b>				<b>13</b>	<b>16</b>	<b>141</b>

LOCATION	611.8120.S EACH
EXISTING BELKNAP STREET	4
UNDISTRIBUTED	2
<b>PROJECT ID TOTAL</b>	<b>6</b>

**TOPSOIL, SALVAGED TOPSOIL, MULCHING, FERTILIZER, & SEEDING**

**CRASH CUSHIONS PERMANENT**

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
<b>CATEGORY 0010 TOTAL</b>				<b>449</b>
0070	38+97 BW	RT	2	26
	39+17 BE	LT	2	26
	40+60 BE	LT	1	65
<b>CATEGORY 0070 TOTAL</b>				<b>117</b>
<b>PROJECT ID TOTAL</b>				<b>566</b>

CATEGORY	STATION TO STATION	LOCATION	625.0100	625.0500	627.0200	629.0210	630.0110	630.0200
			TOPSOIL SY	SALVAGED TOPSOIL SY	MULCHING SY	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 10 LB	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
<b>CATEGORY 0010 TOTALS</b>			<b>9700</b>	<b>28400</b>	<b>27800</b>	<b>29</b>	<b>515</b>	<b>1030</b>
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
<b>CATEGORY 0070 TOTALS</b>			<b>700</b>	<b>2600</b>	<b>2750</b>	<b>3</b>	<b>45</b>	<b>90</b>
<b>PROJECT ID TOTALS</b>			<b>10400</b>	<b>31000</b>	<b>30550</b>	<b>32</b>	<b>560</b>	<b>1120</b>

STATION	614.0800 EACH
134+50	1
<b>PROJECT ID TOTAL</b>	<b>1</b>

**MAINTENANCE AND REPAIR OF HAUL ROADS**

LOCATION	618.0100 EACH
02. 8680-04-74	1
<b>PROJECT ID TOTAL</b>	<b>1</b>

**MOBILIZATION**

PROJECT	619.1000 EACH
8680-04-74	0.095
<b>PROJECT ID TOTAL</b>	<b>0.095</b>

\* OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN

ALL ITEMS ON THIS SHEET  
ARE CATEGORY 0010  
UNLESS OTHERWISE NOTED

**INLET PROTECTION**

STATION	STRUCTURE NUMBER	STAGE	628.7005	628.7010	628.7015
			TYPE A EACH	TYPE B EACH	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
<b>PROJECT ID TOTALS</b>			<b>43</b>	<b>5</b>	<b>35</b>

**WATER**

CATEGORY	LOCATION	624.0100 MGAL
0010	DUST CONTROL	280
	EXCAVATION	100
<b>CATEGORY 0010 TOTAL</b>		<b>380</b>
0070	DUST CONTROL	40
	EXCAVATION	10
<b>CATEGORY 0070 TOTAL</b>		<b>50</b>
<b>PROJECT ID TOTAL</b>		<b>430</b>

**SILT FENCE**

CATEGORY	STATION TO STATION	LOCATION	STAGE	628.1504	628.1520
				LF	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
<b>CATEGORY 0010 TOTALS</b>				<b>4850</b>	<b>9700</b>
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
<b>CATEGORY 0070 TOTALS</b>				<b>590</b>	<b>1180</b>
<b>PROJECT ID TOTALS</b>				<b>5440</b>	<b>10880</b>

**EROSION MAT**

CATEGORY	STATION TO STATION	LOCATION	STAGE	628.2004	628.2006
				CLASS I TYPE B SY	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
<b>CATEGORY 0010 TOTALS</b>				<b>2650</b>	<b>6491</b>
0060	30+00 BW - 32+00 BW	LT	1A/1B	---	179
<b>CATEGORY 0060 TOTALS</b>				<b>0</b>	<b>179</b>
0070	38+91 BW - 41+18 BW	LT	1A/1B	---	246
	39+05 BE - 41+50 BE	RT	1A/1B	---	262
<b>CATEGORY 0070 TOTALS</b>				<b>0</b>	<b>508</b>
<b>PROJECT ID TOTALS</b>				<b>2650</b>	<b>7178</b>

**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
<b>CATEGORY 0010 TOTAL</b>				<b>9</b>
0070	39+05 BE	RT	1A/1B	3
	42+50 BE	RT	1A/1B	3
	44+14 BE	LT	1A/1B	2
<b>CATEGORY 0070 TOTAL</b>				<b>8</b>
<b>PROJECT ID TOTAL</b>				<b>17</b>

**TEMPORARY DITCH CHECKS**

STATION	LOCATION	628.7504 LF
UNDISTRIBUTED	PROJECT	100
<b>PROJECT ID TOTAL</b>		<b>100</b>

**MOBILIZATIONS EROSION CONTROL**

LOCATION	628.1905 EACH
8680-04-74	10
<b>PROJECT ID TOTAL</b>	<b>10</b>

**MOBILIZATIONS EMERGENCY EROSION CONTROL**

LOCATION	628.1910 EACH
8680-04-74	5
<b>PROJECT ID TOTAL</b>	<b>5</b>

**\* OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET  
ARE CATEGORY 0010  
UNLESS OTHERWISE NOTED



PIPE UNDERDRAIN 6-INCH

CATEGORY	STATION TO STATION	LOCATION	612.0406	612.0206	
			WRAPPED LF	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	---	---	
	<b>CATEGORY 0010 TOTALS</b>			<b>2586</b>	<b>651</b>
	0070	39+17 BE - 41+50 BE	RT	233	278
38+97 BW - 41+18 BW		LT	221	---	
<b>CATEGORY 0070 TOTALS</b>			<b>454</b>	<b>278</b>	
<b>PROJECT ID TOTALS</b>			<b>3040</b>	<b>929</b>	

\* OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN

ALL ITEMS ON THIS SHEET  
ARE CATEGORY 0010  
UNLESS OTHERWISE NOTED

3

3

**SIGNS TYPE II ITEMS**

CATEGORY	SIGN NO.	STATION	LOCATION	SIGN CODE	SIGN SIZE (INCHES)	637.2210 637.2215 637.2230			634.0614 634.0616		634.0805 634.0809		634.0811	REMARKS
						SIGNS TYPE II REFLECTIVE			POSTS WOOD		POSTS TUBULAR		STEEL	
						W X H	H	H FOLDING	4X6-INCH	2X2-INCH	14-FT	16-FT	5-FT	
			SF	SF	SF	EACH	EACH	EACH	EACH	EACH				
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"
	7	104+00	USH 2 WB LT	M1-91	24 X 24	4.00	---	---	---	2	---	---	---	"2"
	8	104+00	USH 2 WB LT	I3-1	96 X 21	14.00	---	---	---	---	---	---	---	Mount above sign No. 8 on inside post
	9	105+50	USH 2 EB RT	R2-1	36 X 48	12.00	---	---	---	1	---	---	---	"St Louis Bay"
	10	108+15	USH 2 EB RT	M1-91	24 X 24	4.00	---	---	1	---	---	---	---	"55"
	11	110+10	USH 2 EB RT	I2-2	84 X 21	12.25	---	---	---	2	---	---	---	---
	12	113+00	USH 2 EB RT	R5-53A	42 X 54	15.75	---	---	---	1	---	---	---	"Douglas Co"
	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	---	---	---	---
	20	---	Susquehanna Ave. Ramp	R11-54F	48 X 30	---	10.00	---	---	---	---	---	---	"30"
	23	134'WB'+50	USH 2 WB LT	D2-1	78 X 21	11.38	---	---	---	2	---	---	---	Band sign to gate post
	24	136'WB'+00	USH 2 WB LT	R2-1	36 X 48	12.00	---	---	---	1	---	---	---	"Duluth 2"
	25	136'WB'+00	USH 2 WB Median	R2-1	36 X 48	12.00	---	---	---	---	---	---	---	"55"
	26	136'EB'+00	USH 2 EB Median	R2-1	36 X 48	12.00	---	---	---	---	---	---	1	"55" (Facing WB traffic)
	27	136'EB'+00	USH 2 EB RT	R2-1	36 X 48	12.00	---	---	---	1	---	---	---	"30" (Facing EB traffic on same post as Sign No. 25)
	28	141'EB'+00	USH 2 EB RT	R10-64	30 X 36	7.50	---	---	1	---	---	---	---	"30"
	31	144'EB'+05	USH 2 EB RT	W2-6	36 X 36	---	---	9.00	---	---	---	---	---	"NO ENGINE BRAKING EXCEPT IN EMERGENCY"
	32	144'EB'+05	USH 2 EB RT	W13-1	24 X 24	---	---	4.00	---	1	---	---	---	---
	33	144'EB'+05	USH 2 EB Median	W2-6	36 X 36	---	---	9.00	---	---	---	---	1	"15"
	34	144'EB'+05	USH 2 EB Median	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
	40	147'EB'+00	USH 2 EB RT	JV	24 X 87	14.50	---	---	---	1	---	---	---	"TRUCK ROUTE" (R14-1)
	66	147'EB'+70	USH 2 EB RT	W3-2	36 X 36	---	---	9.00	---	1	---	---	---	"2"
	67	147'WB'+84	USH 2 WB LT	J4-1	36 X 54	13.50	---	---	---	1	---	---	---	"53"
	68	149'EB'+08	USH 2 EB RT Island	W12-1D	24 X 24	---	---	4.00	---	---	1	---	---	Diagonal arrow right (M6-2)
	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	"WEST"
	71	150'EB'+70	USH 2 NW Splitter Island	R6-2R	24 X 30	5.00	---	---	---	---	---	---	---	"2"
	72	150'EB'+80	USH 2 EB RT Island	R1-2	36 X 31	3.88	---	---	---	---	---	---	1	Mount bottom of double arrow sign 2 feet above island
	73	150'EB'+80	USH 2 EB RT Island	R1-54	24 X 15	2.50	---	---	---	---	---	---	---	Mount bottom of YIELD sign 7 feet above island
	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	---	---	---	---	---	2	---	Mount bottom of chevron sign 4 feet above the truck apron. Signs face USH 2 eastbound traffic
	78	151'WB'+20	Roundabout Central Island	R6-4B	60 X 24	10.00	---	---	---	---	---	---	---	Mount bottom of chevron sign 4 feet above the truck apron. Signs face USH 2 eastbound traffic
	79	37'BE'+65	Roundabout Central Island	R6-1R	54 X 18	6.75	---	---	---	---	---	2	---	Mount bottom of chevron sign 4 feet above the truck apron. Signs face Belknap Street eastbound traffic
	80	37'BE'+65	Roundabout Central Island	R6-4B	60 X 24	10.00	---	---	---	---	---	---	---	Mount bottom of chevron sign 4 feet above the truck 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	152'WB'+85	USH 2 SE Splitter Island	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	152'WB'+75	USH 2 WB LT	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 637.2215 637.2230			634.0614 634.0616 634.0805 634.0809 634.0811		POSTS TUBULAR STEEL		REMARKS	
						SIGNS TYPE II REFLECTIVE			POSTS WOOD		POSTS TUBULAR STEEL			
						H	H FOLDING	F	4X6-INCH		2X2-INCH			
			SF	SF	SF	14-FT	16-FT	5-FT	9.5-FT	11-FT				
							EACH	EACH	EACH	EACH	EACH			
	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 apron. Signs face USH 2 westbound traffic
	87			R6-4B	60 X 24	10.00	---	---	---	---	---	---	---	
	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 apron. Signs face North Garfield Avenue
	89			R6-4B	60 X 24	10.00	---	---	---	---	---	---	---	
	102	33'BE'+55	Belknap Street EB RT	D1-62	108 X 60	45.00	---	---	---	---	---	---	---	
	103	33'BW'+60	Belknap St. WB LT	R2-1	24 X 30	5.00	---	---	---	---	---	---	---	"30"
	104	35'BE'+10	Belknap SW Splitter Island	R3-8EE	36 X 30	7.50	---	---	---	---	---	---	---	
	105	35'BE'+10	Belknap Street EB RT	R3-8EE	36 X 30	7.50	---	---	---	---	---	---	---	
	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	---	---	---	---	---
	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	---	---	---	---	---
	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	---	---	---	---	---	---	---	---
	176			MG6-1	21 X 21	3.06	---	---	---	---	1	---	---	---
	177	162'WB'+20	USH 2 WB LT	J23-1	24 X 57	9.50	---	---	---	---	---	---	---	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 (INCHES)	637.2210 637.2215 637.2230			634.0614 634.0616 634.0805 634.0809 634.0811		REMARKS			
						SIGNS TYPE II REFLECTIVE			POSTS WOOD			POSTS TUBULAR STEEL		
						W X H	H	H FOLDING	4X6-INCH	2X2-INCH				
	SF	SF	SF	14-FT EACH	16-FT EACH	5-FT EACH	9.5-FT EACH	11-FT EACH						
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	---	---	---	---		
	100			W13-1	18 X 18	---	---	2.25	---	1	---	"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	---	---	---		
<b>CATEGORY 0060 TOTALS</b>						<b>128.11</b>	<b>0</b>	<b>17.00</b>	<b>9</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>4</b>	
<b>PROJECT ID TOTALS</b>						<b>607.01</b>	<b>20.00</b>	<b>133.50</b>	<b>19</b>	<b>34</b>	<b>2</b>	<b>13</b>	<b>15</b>	

**SIGNING TYPE I ITEMS**

SIGN NO.	STATION	LOCATION	SIGN CODE	SIGN SIZE (INCHES)	REFLECTIVE SF	637.1220 638.2101 638.2601 638.3100			REMARKS	
						SIGNS TYPE I	SIGNS MOVING	SIGNS REMOVING		REMOVING STRUCTURAL STEEL SIGN SUPPORTS
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	1	*	
181	162' WB'+38	Old USH 2 WB overhead	N/A	---	---	---	1	1	Remove sign from overhead sign bridge during Stage 1	
182	162' WB'+38	Old USH 2 WB overhead	N/A	---	---	---	1	2	Remove sign from overhead sign bridge during Stage 1	
<b>PROJECT ID TOTALS</b>						<b>451.50</b>	<b>1</b>	<b>4</b>	<b>3</b>	

\*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	638.3000	REMARKS
					SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	
0010	5	103+40	USH 2 WB LT	R2-1	1	1	"55"
	6	103+50	USH 2 EB RT	J4-1	1	---	Inplace "EAST" sign on light pole
	7	104+00	USH 2 WB LT	M1-91	1	---	Inplace "2" route marker on light pole
	8	104+00	USH 2 WB LT	I3-1	1	2	---
	10	108+15	USH 2 EB RT	M1-91	1	1	"St Louis Bay"
	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

REMOVING SIGNS TYPE II & SMALL SIGN SUPPORTS

CATEGORY	SIGN NO.	STATION	LOCATION	SIGN CODE	638.2602	638.3000	REMARKS
					REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	
	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
		---		R14-1		---	
	132	---	Old Belknap St. EB	M3-4	1	---	4 signs on one J-type board attached to light pole
		---		M1-4		---	
		---		M6-1L		---	
	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	1	1	---
				M1-4	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	---		M1-91	1	1	---
	171	---	Old USH 2 WB	MG6-1	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

REMOVING SIGNS TYPE II & SMALL SIGN SUPPORTS

CATEGORY	SIGN NO.	STATION	LOCATION	SIGN CODE	638.2602 638.3000		REMARKS
					REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	
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	---		M1-4	1	---	
	203	---	Old USH 2 WB Slip Ramp	M3-3	1	---	Inplace signs attached to light pole
	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	---
<b>CATEGORY 0060 TOTALS</b>					<b>17</b>	<b>9</b>	
<b>PROJECT ID TOTALS</b>					<b>109</b>	<b>68</b>	

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
<b>PROJECT ID TOTAL</b>			<b>2</b>	

\* OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

**FIELD OFFICE TYPE C**

LOCATION	642.5201 EACH
8680-04-74	1
<b>PROJECT ID TOTAL</b>	<b>1</b>

**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
<b>PROJECT ID TOTALS</b>		<b>74</b>	<b>69</b>

**TRAFFIC CONTROL SURVEILLANCE AND MAINTENANCE**

PROJECT	643.0200 DAY
8680-04-74	579
<b>PROJECT ID TOTAL</b>	<b>579</b>

**TRAFFIC CONTROL ARROW BOARDS**

LOCATION	643.0800 DAY
8680-04-74	214
<b>PROJECT ID TOTAL</b>	<b>214</b>

**TRAFFIC CONTROL ITEMS**

LOCATION	STAGE	DAYS (NUMBER)	643.0300		643.0420		643.0705		643.0715		643.0900	
			DRUMS DAY	(COUNT)	BARRICADES TYPE III	(COUNT)	WARNING LIGHTS TYPE A	(COUNT)	TYPE C	(COUNT)	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
<b>PROJECT ID TOTALS</b>				<b>50554</b>		<b>17499</b>		<b>13696</b>		<b>13432</b>		<b>22182</b>

**TRAFFIC CONTROL COVERING SIGNS**

LOCATION	STAGE	643.0910		643.0920		REMARKS
		TYPE I EACH	(COUNT)	TYPE II EACH	(COUNT)	
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
<b>PROJECT ID TOTALS</b>		<b>2</b>		<b>18</b>		

**\* OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET  
ARE CATEGORY 0010  
UNLESS OTHERWISE NOTED



**REMOVING PAVEMENT MARKINGS ITEMS**

646.0600 647.0955 647.0965

LOCATION	STAGE	LF	ARROWS EACH	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
<b>PROJECT ID TOTALS</b>		<b>6770</b>	<b>1</b>	<b>1</b>	

**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
<b>PROJECT ID TOTAL</b>		<b>2754</b>

**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"
<b>PROJECT ID TOTALS</b>		<b>1</b>	<b>1</b>	

**PAVEMENT MARKING EPOXY**

CATEGORY	STATION TO STATION	DESCRIPTION	646.0106 4-INCH		646.0126 8-INCH	647.0726 12-INCH	647.0766 CROSSWALK 6-INCH	647.0776 CROSSWALK 12-INCH
			WHITE LF	YELLOW LF	WHITE LF	DIAGONAL LF	WHITE LF	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
<b>CATEGORY 0010 TOTALS</b>			<b>26563</b>		<b>320</b>	<b>98</b>	<b>78</b>	<b>110</b>
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
<b>CATEGORY 0060 TOTALS</b>			<b>2057</b>		<b>104</b>	<b>47</b>	<b>82</b>	<b>0</b>
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
<b>CATEGORY 0070 TOTALS</b>			<b>1840</b>		<b>0</b>	<b>34</b>	<b>0</b>	<b>0</b>
<b>PROJECT ID TOTALS</b>			<b>30460</b>		<b>424</b>	<b>179</b>	<b>160</b>	<b>110</b>

\* OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN

ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

TEMPORARY PAVEMENT MARKING ITEMS

649.0200 649.0400 649.1500  
 TEMPORARY PAVEMENT MARKING  
 REFLECTIVE REMOVABLE  
 PAINT TAPE DIAGONAL  
 4-INCH 4-INCH 12-INCH

PAVEMENT MARKING ISLAND NOSE EPOXY

647.0606

CATEGORY	STATION	LOCATION	EACH
0010	160+55 EB	LT	1
	32+23.13 BE	LT	1
	32+93.29 BE	LT	1
<b>CATEGORY 0010 TOTAL</b>			<b>3</b>
0060	28+92 BE	LT	1
	29+75.25 BE	LT	1
<b>CATEGORY 0060 TOTAL</b>			<b>2</b>
0070	40+59.88 BE	LT	1
<b>CATEGORY 0070 TOTAL</b>			<b>1</b>
<b>PROJECT ID TOTAL</b>			<b>6</b>

LOCATION	STAGE	LF	LF	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
<b>PROJECT ID TOTALS</b>		<b>7545</b>	<b>1330</b>	<b>102</b>	

**\* OTHER QUANTITIES LOCATED ELSEWHERE IN PLAN**

ALL ITEMS ON THIS SHEET  
 ARE CATEGORY 0010  
 UNLESS OTHERWISE NOTED

CONSTRUCTION STAKING

CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER

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
<b>PROJECT ID TOTAL</b>			<b>2</b>

CONSTRUCTION STAKING RESURFACING REFERENCE

CATEGORY	STATION TO STATION	650.8000 LF
0060	SUSQUEHANNA AVE - 32+00 BE	1000
<b>PROJECT ID TOTAL</b>		<b>1000</b>

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	
<b>PROJECT ID TOTAL</b>		<b>6</b>

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	---	---
<b>CATEGORY 0010 TOTALS</b>		<b>5462</b>	<b>1453</b>	<b>13992</b>	<b>4609</b>

0060	29+75 BE - 32+00 BE	225	225	---	225
<b>CATEGORY 0060 TOTALS</b>		<b>225</b>	<b>225</b>	<b>0</b>	<b>225</b>

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	---	---
<b>CATEGORY 0070 TOTALS</b>		<b>634</b>	<b>355</b>	<b>279</b>	<b>634</b>

<b>PROJECT ID TOTALS</b>		<b>6321</b>	<b>2033</b>	<b>14271</b>	<b>5468</b>
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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

<b>CATEGORY 0010 TOTAL</b>			<b>1675</b>
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0070	40+34 BW - 41+18 BW	LT	84
	40+65 BE - 41+50 BE	RT	86

<b>CATEGORY 0070 TOTAL</b>			<b>170</b>
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<b>PROJECT ID TOTAL</b>			<b>1845</b>
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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

<b>PROJECT ID TOTAL</b>		<b>56</b>
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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

**SAWING**

CATEGORY	STATION TO STATION	LOCATION	690.0150	690.0250
			ASPHALT	CONCRETE
			LF	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 ---

**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

**PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC WORDS/ARROWS**

CATEGORY	STATION	SPV.0060.12	SPV.0060.19	SPV.0060.13	SPV.0060.14	SPV.0060.20	SPV.0060.15	WORDS	COMMENT
		TYPE 1 EACH	TYPE 2R EACH	ARROWS TYPE 2 EACH	TYPE 3R EACH	TYPE 3 EACH	EACH		
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

**PAVEMENT MARKING GROOVED CONTRAST PREFORMED THERMOPLASTIC**

CATEGORY	STATION TO STATION	DESCRIPTION	SPV.0090.05	SPV.0090.06	SPV.0090.04
			4-INCH WHITE LF	8-INCH WHITE LF	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
<b>CATEGORY 0010 TOTALS</b>			<b>292</b>	<b>3646</b>	<b>107</b>
0070	38+75 BW - 40+26 BW, LT	CHANNELIZING	---	142	---
<b>CATEGORY 0070 TOTALS</b>			<b>0</b>	<b>142</b>	<b>0</b>
<b>PROJECT ID TOTALS</b>			<b>292</b>	<b>3788</b>	<b>107</b>

**PROJECT CONCRETE CRACK MITIGATION AND REPAIR SPECIAL**

PROJECT	SPV.0105.04 LS
8680-04-74	1
<b>CONSTRUCTION STAKING CONCRETE ROUNDABOUT USH 2 AND BELKNAP STREET</b>	
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
<b>CATEGORY 0010 TOTAL</b>			<b>14418</b>
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
<b>CATEGORY 0070 TOTAL</b>			<b>762</b>
<b>PROJECT ID TOTAL</b>			<b>15180</b>

**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
<b>CATEGORY 0010 TOTAL</b>				<b>449</b>
0070	38+97 BW	RT	2	26
	39+17 BE	LT	2	26
	40+60 BE	LT	1	65
<b>CATEGORY 0070 TOTAL</b>				<b>117</b>
<b>PROJECT ID TOTAL</b>				<b>566</b>

**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
<b>CATEGORY 0010 TOTAL</b>			<b>49290</b>
0070	39+18 BE - 40+58 BE	LT	2636
<b>CATEGORY 0070 TOTAL</b>			<b>2636</b>
<b>PROJECT ID TOTAL</b>			<b>51926</b>

**\* 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		MINIMUM HOLE		FRET. UNITS REQ'D	RODENT PROTECTION REQ'D	MULCH RING DIAMETER	BRACE OR GUY	632.0101	632.0201	SPV.0060.18
							SIZE	DEPTH	SIZE	DEPTH					TREES EACH	SHRUBS EACH	LANDSCAPE SPECIAL
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
<b>PROJECT ID TOTALS</b>															<b>4</b>	<b>31</b>	<b>15</b>

\*\*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.

CONCRETE PAVEMENT SPECIAL

LOCATION	SPV.0165.04 SF	CATEGORY	STATION TO STATION	LOCATION	SPV.0180.03	SPV.0180.04
					10-INCH SY	11-INCH SY
CENTRAL ISLAND	5800	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
<b>PROJECT ID TOTAL</b>					<b>645</b>	

CATEGORY	TOTALS	10-INCH SY	11-INCH SY
0010	TOTALS	39838	2206
0070	TOTALS	599	---
	<b>PROJECT ID TOTALS</b>	<b>40437</b>	<b>2206</b>

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
<b>PROJECT ID TOTAL</b>		<b>550</b>

\* 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.

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  
Δ = 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  
Δ = 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

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  
Δ = 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.C117+21.87

END PROJECT 8680-04-71

BEGIN PROJECT 8680-04-74

STA 101+89.00

N 308056.01  
E 139478.61

STA 101+92 - STA 103+07, LT  
REMOVING GUARDRAIL

STA 101+93 - STA 103+84, LT  
MGS GUARDRAIL REQ'D

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.)

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

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  
Δ = 20°16'43"  
D = 4°30'00"  
T = 227.70'  
L = 450.64'  
E = 20.20'  
R = 1273.24'  
P.C.C117+21.87  
N 306558.98  
E 140646.22

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

STA 120+04  
PIPE REPLACEMENT &  
CURE-IN-PLACE PIPE LINING  
SEE DETAILS

STA 124+04  
PIPE REPLACEMENT &  
CURE-IN-PLACE PIPE LINING  
SEE DETAILS

RAMP CLOSURE GATE  
SOLAR 40-FT  
N 306553.70  
E 141488.70

STA 132+34  
(WB LANES, LT & EB LANES, RT)  
ADJUSTING INLET COVER

STA 132+34, LT  
CURE-IN-PLACE PIPE LINING  
SEE DETAIL

STA 129+42 - STA 130+78, LT  
STA 132+29 - STA 134+17, LT  
MGS GUARDRAIL REQ'D

STA 129+62 - STA 130+79, LT  
STA 132+28 - STA 133+44, LT  
REMOVING GUARDRAIL

CENTURYLINK

CONCRETE PAVEMENT  
APPROACH SLAB REQ'D  
(SEE S.D.D. "CONCRETE  
PAVEMENT APPROACH  
SLAB")

SUPERIOR WATER LIGHT  
AND POWER COMPANY

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

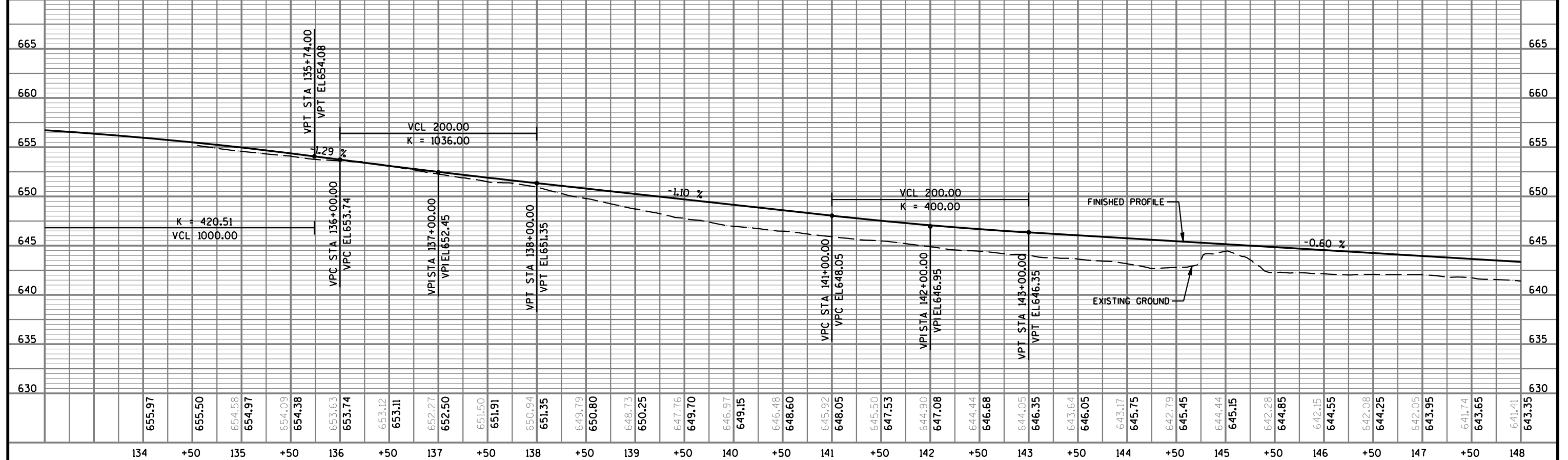
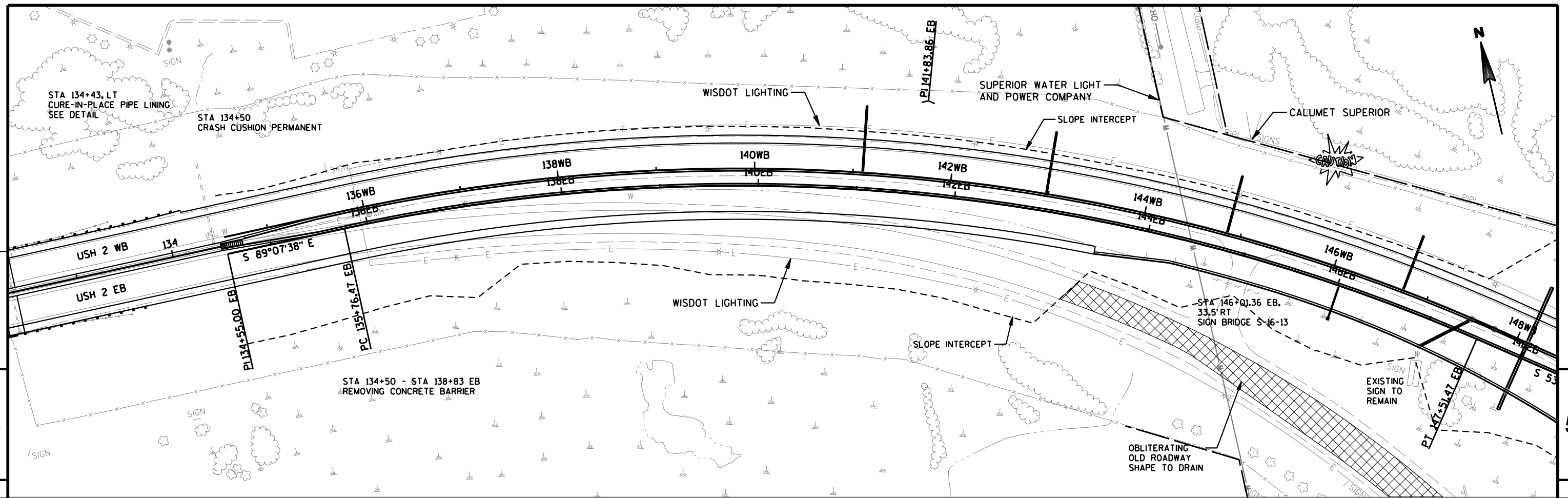
CITY OF SUPERIOR - WATER

MINNESOTA POWER

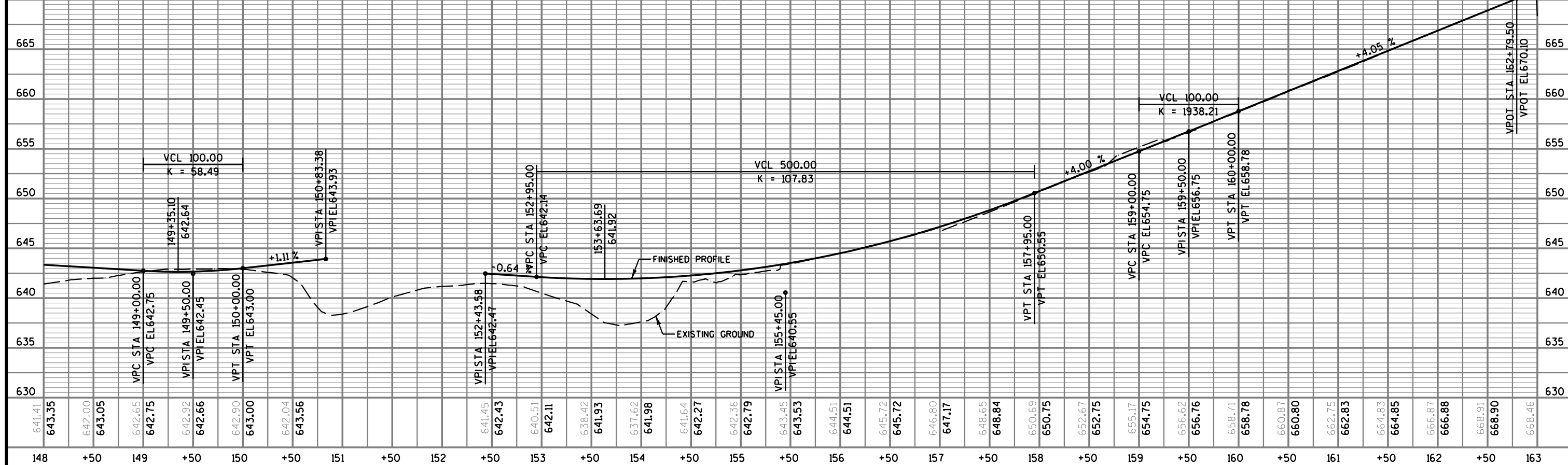
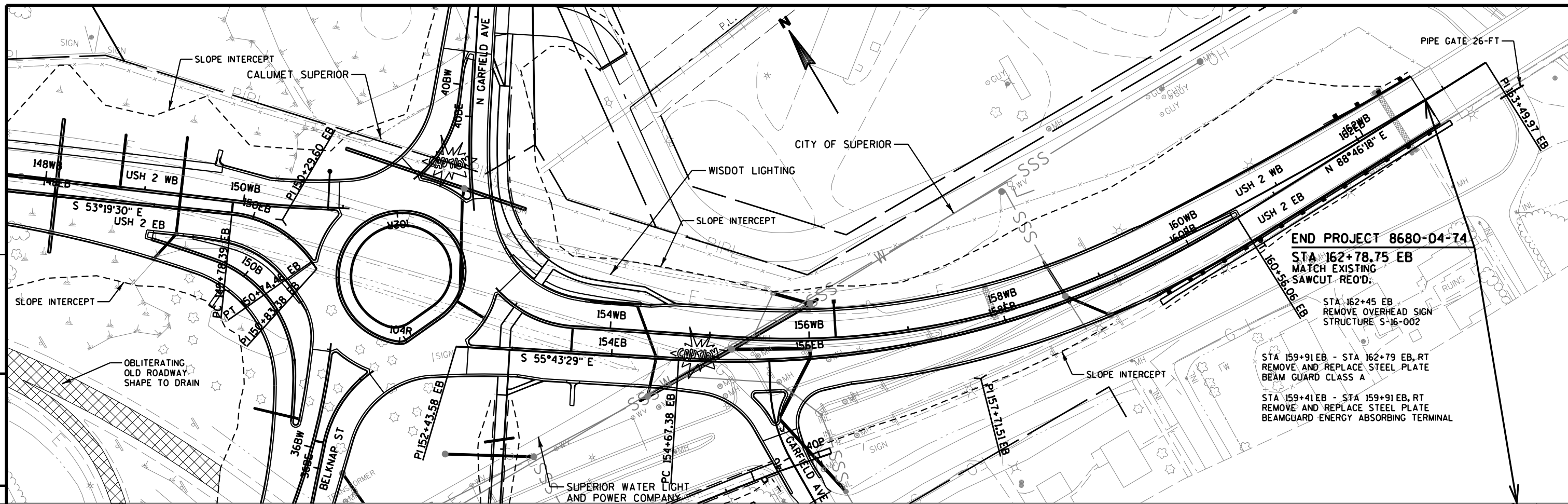
CITY OF SUPERIOR - SANITARY

STA 132+21 - STA 134+56  
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SAWCUT REQ'D.  
(SEE MEDIAN BARRIER DETAILS  
FOR ADDITIONAL INFORMATION.)

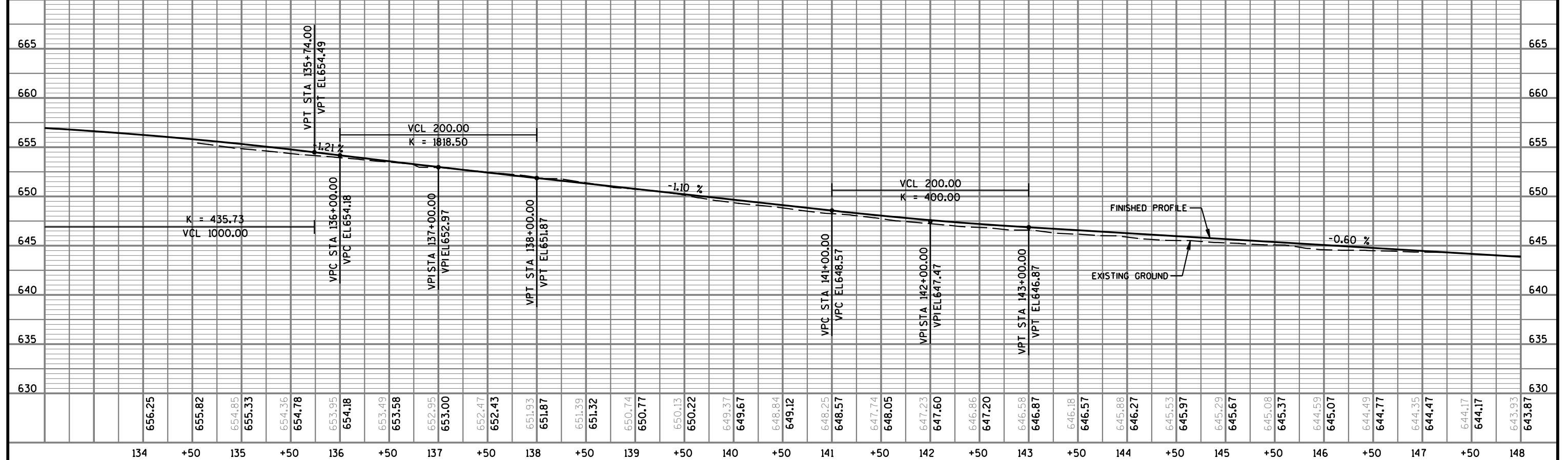
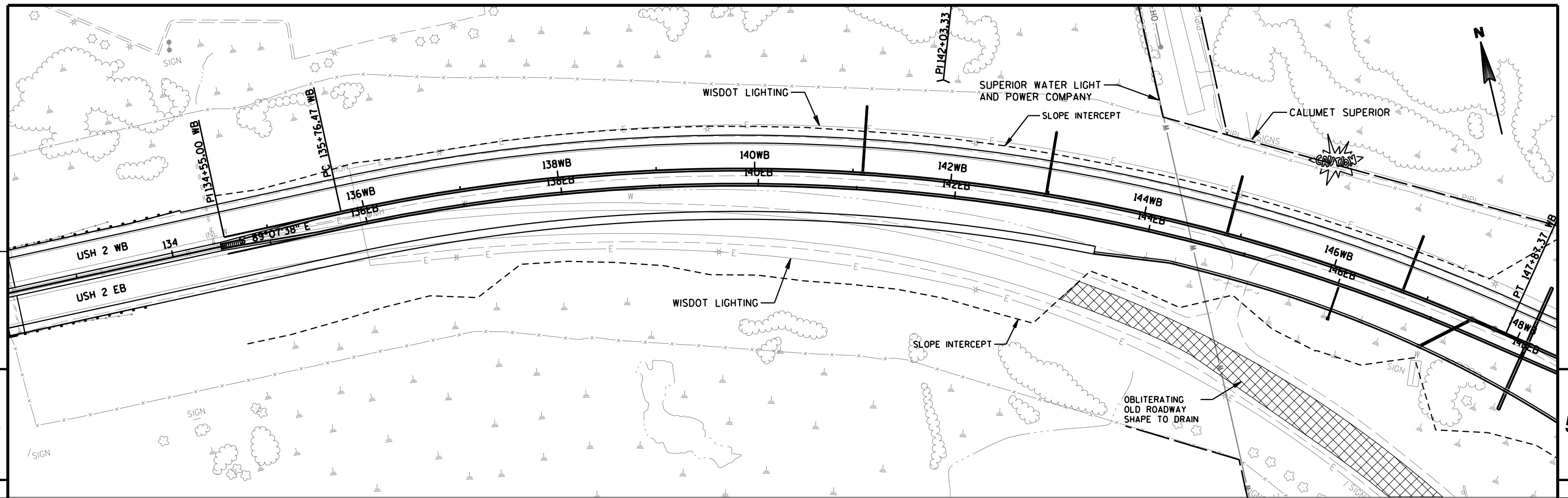




PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      PLAN & PROFILE - USH 2 EB      SHEET      E

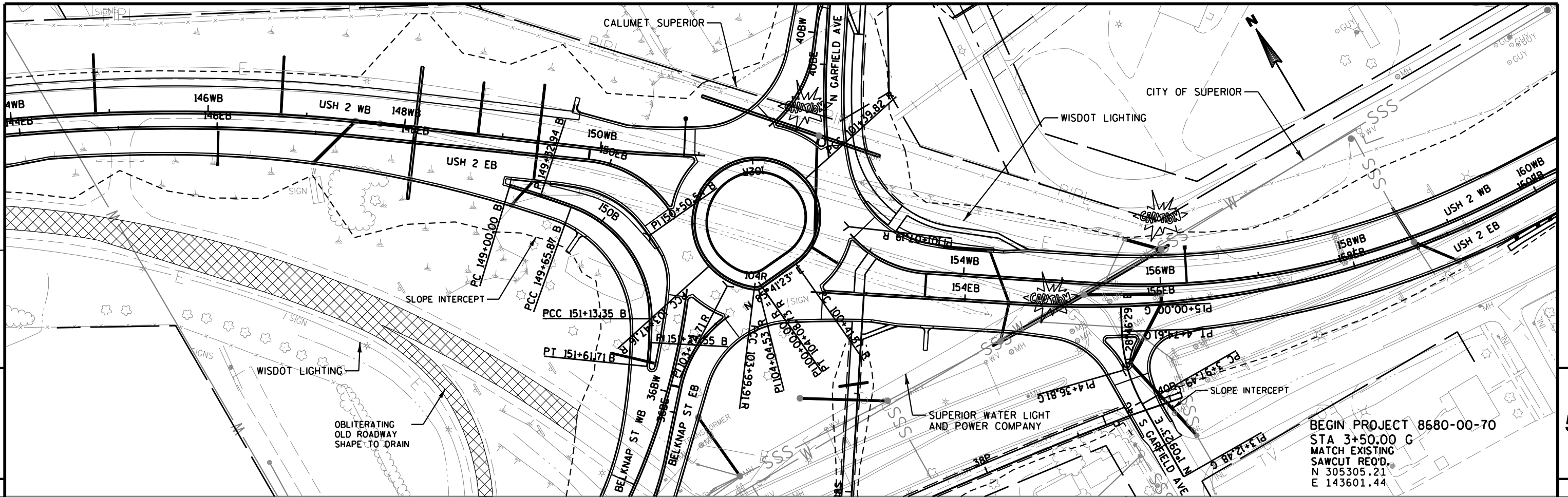


PROJECT NO: 8680-00-70/04-74	HWY: USH 2	COUNTY: DOUGLAS	PLAN & PROFILE - USH 2 EB	SHEET	E
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PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      PLAN & PROFILE - USH 2 WB      SHEET      E

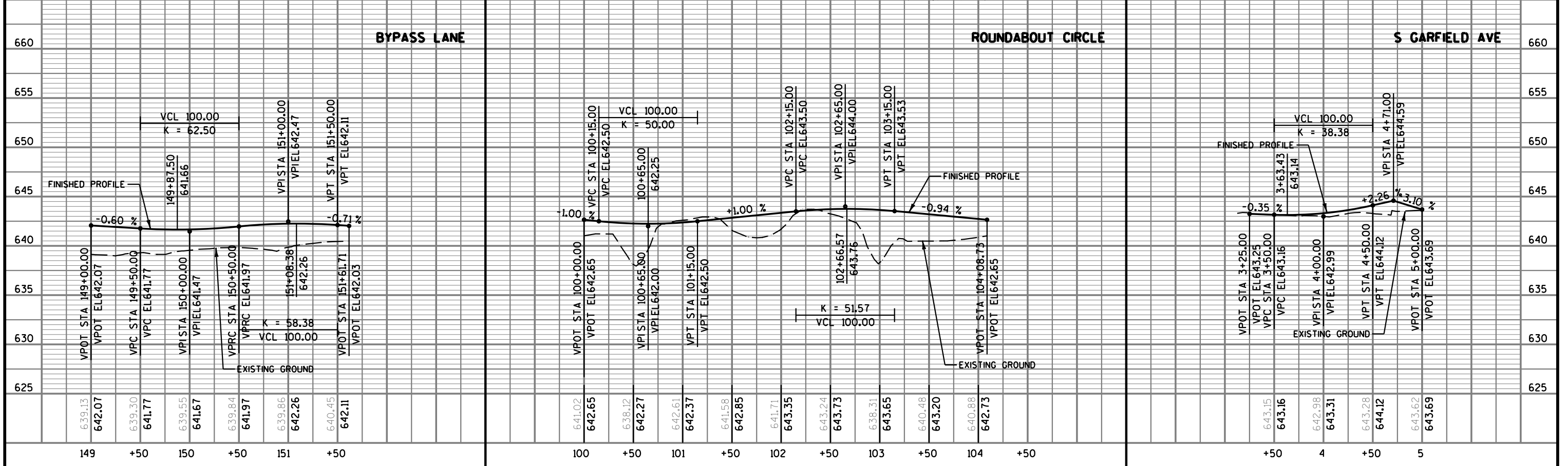




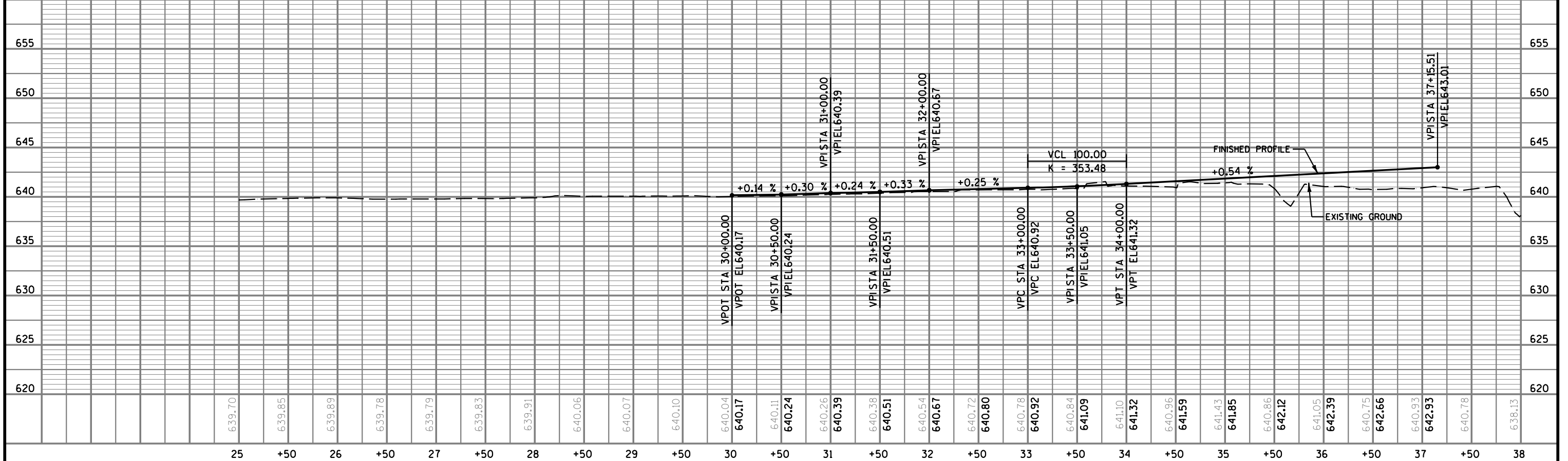
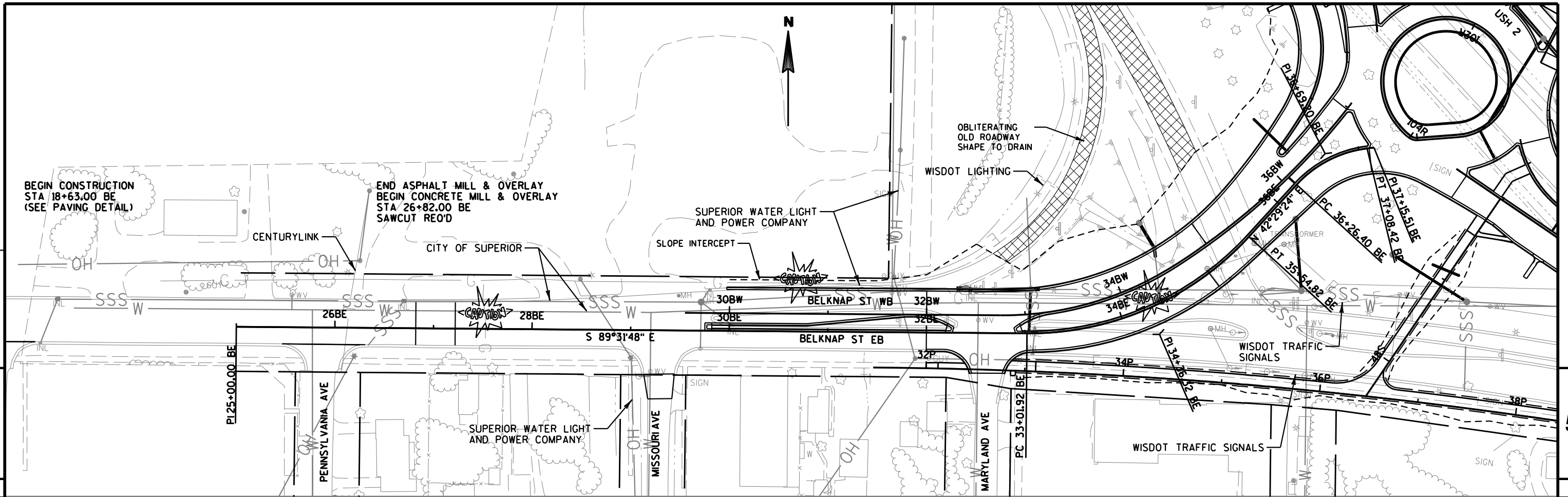
BEGIN PROJECT 8680-00-70  
 STA 3+50.00 G  
 MATCH EXISTING  
 SAWCUT REOD.  
 N 305305.21  
 E 143601.44

5

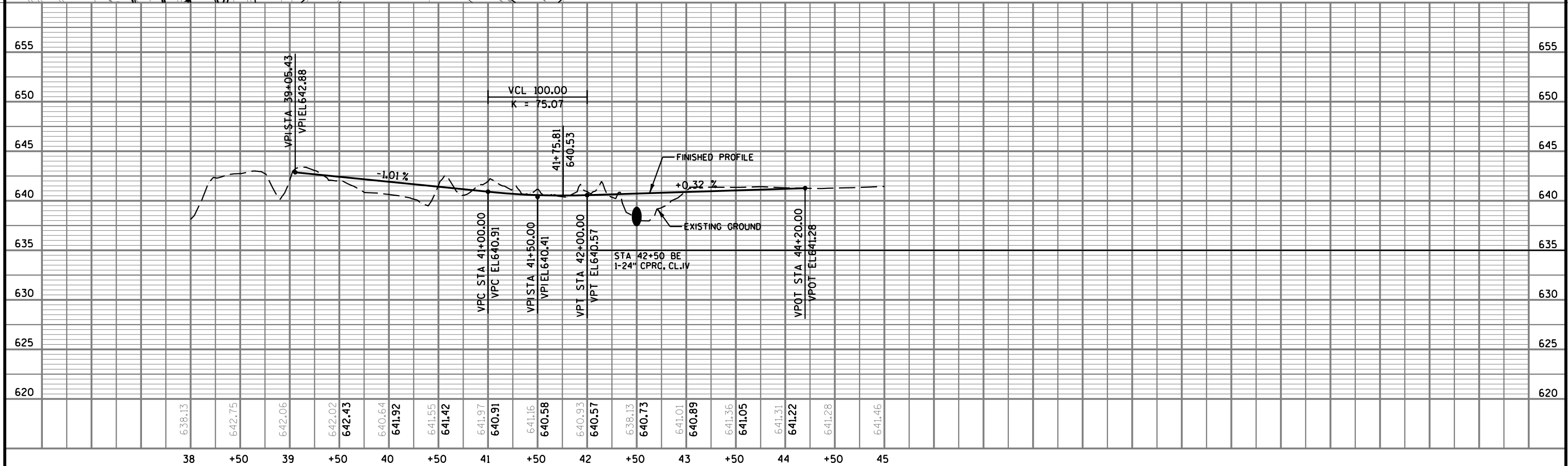
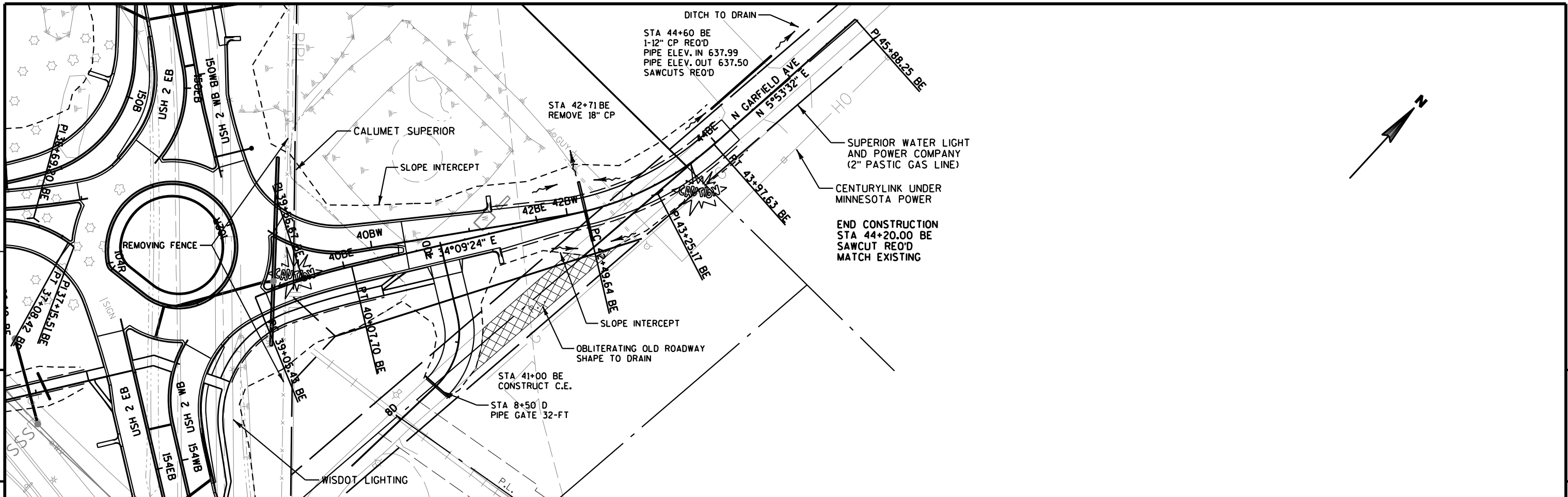
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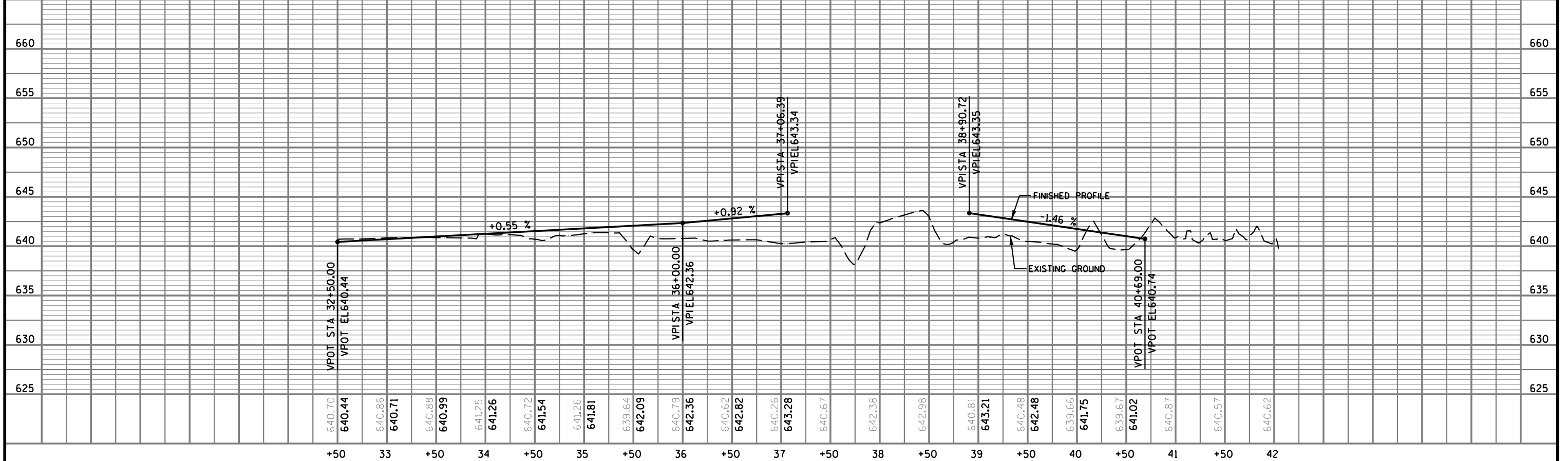
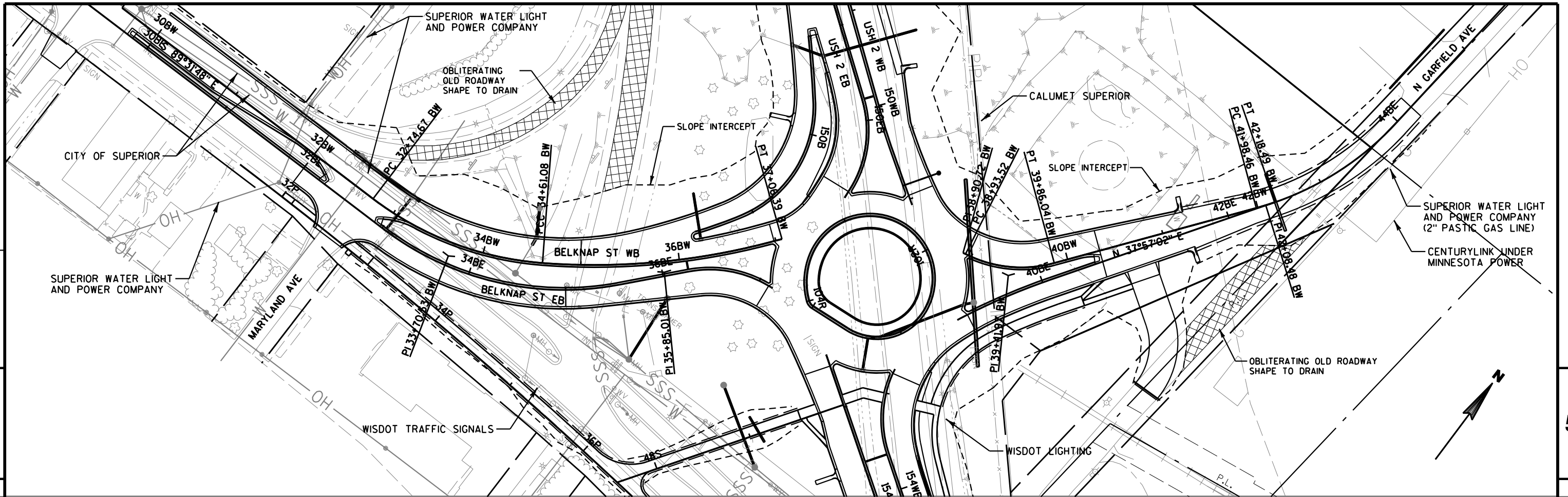
PROJECT NO: 8680-00-70/04-74    HWY: USH 2    COUNTY: DOUGLAS    PLAN & PROFILE - BYPASS LANE/RAB CIRCLE/GARFIELD AVE    SHEET E



PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      PLAN & PROFILE - BELKNAP ST (BE)      SHEET E

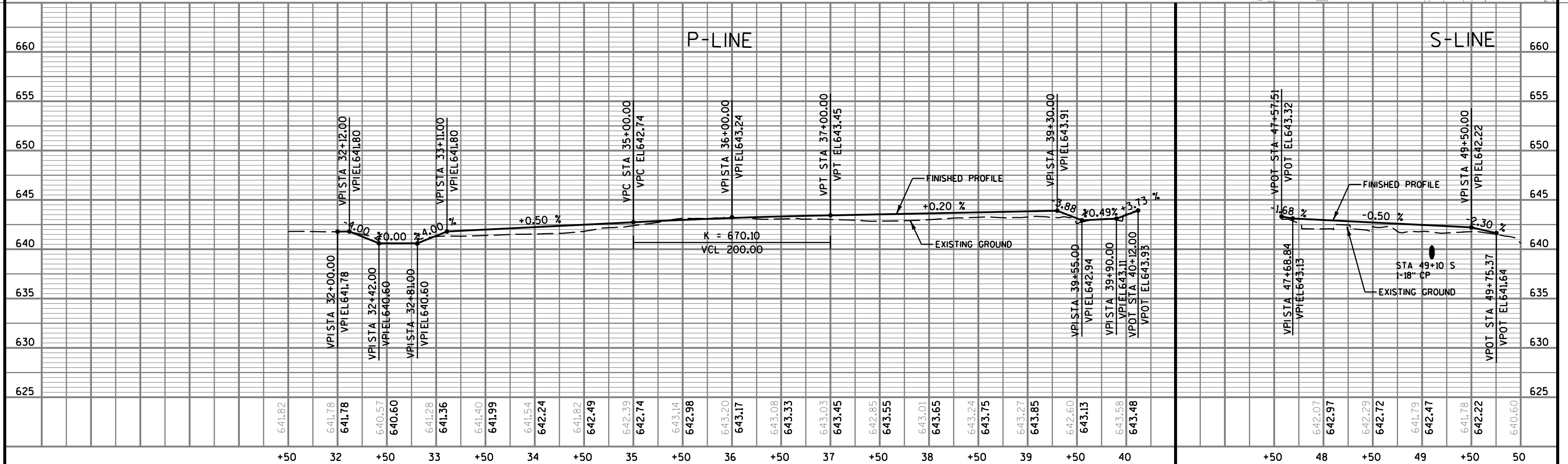
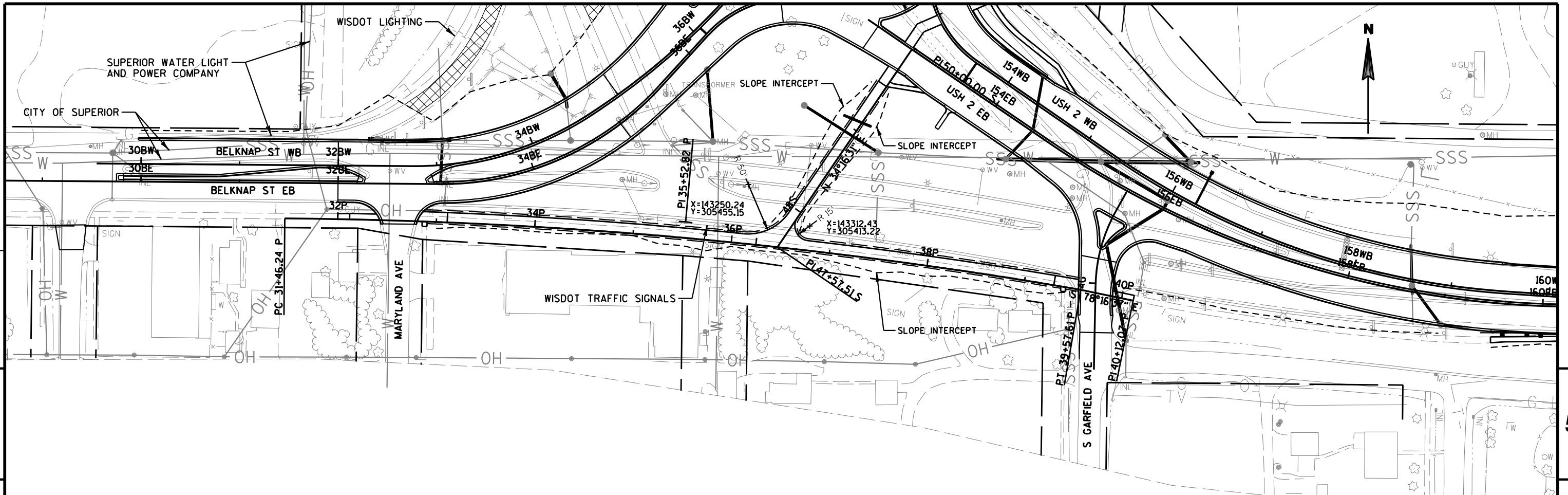


PROJECT NO: 8680-00-70/04-74	HWY: USH 2	COUNTY: DOUGLAS	PLAN & PROFILE - N GARFIELD AVE (BE)	SHEET	E
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PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      PLAN & PROFILE - BELKNAP ST WB/N GARFIELD AVE      SHEET      E





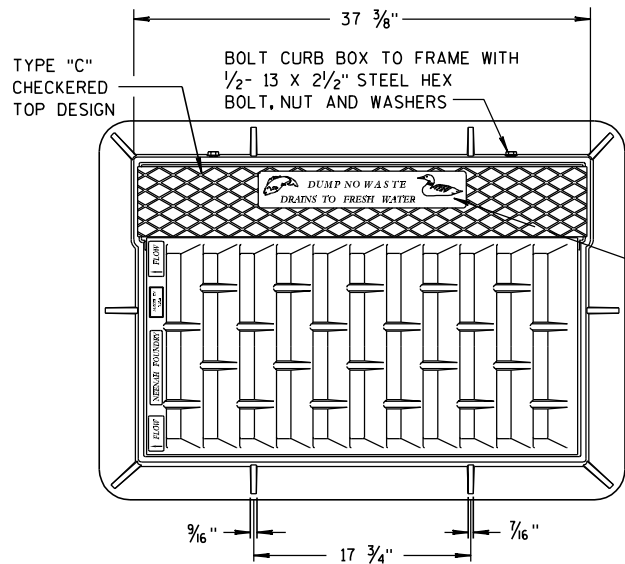
PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      PLAN & PROFILE - MULTI-USE PATH      SHEET      E

## Standard Detail Drawing List

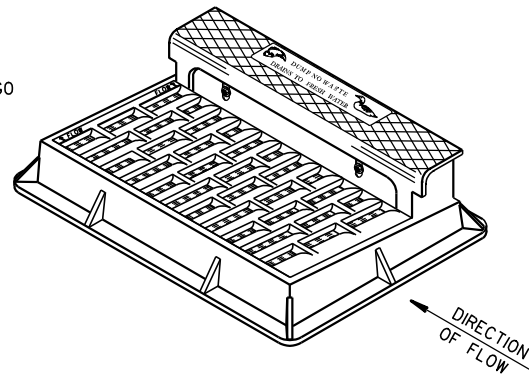
08A05-18A	INLET COVERS TYPE A, H, A-S, & H-S
08A05-18B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-18C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08A05-18D	INLET COVER, TYPE BW, Z MANHOLE COVERS, TYPE K, J, J-S, L & M
08A08-01	CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER
08A09-01	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 THREE BEAM TRANSITION (MGS)
14B45-03B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03D	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03E	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)

## Standard Detail Drawing List

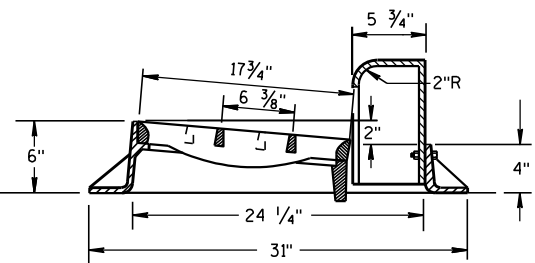
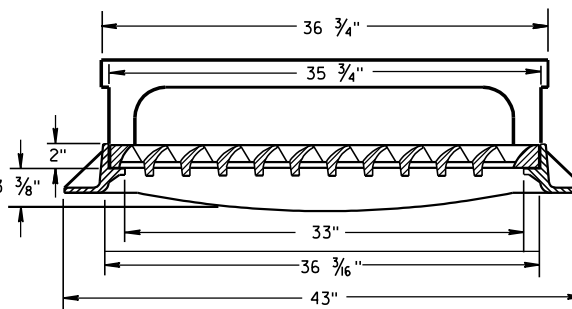
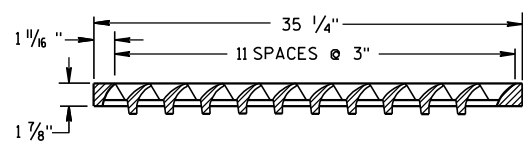
14B45-03F	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03G	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03H	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03I	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03J	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (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	ROUNDBABOUT 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 GOES)
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



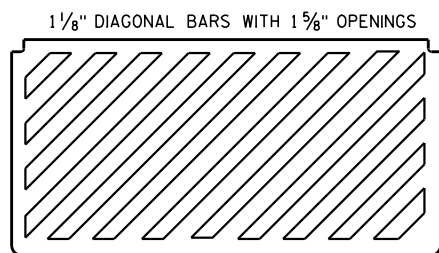
NOTE:  
GRATE IS REVERSIBLE.



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

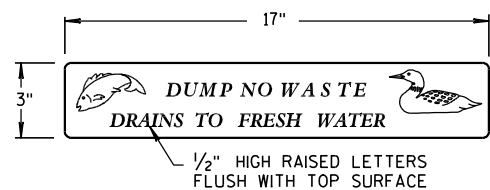


**TYPE "H"**  
(APPROXIMATE WEIGHT 441 LBS.)  
FRAME..... 181 LBS.  
GRATE..... 146 LBS.  
CURB BOX..... 114 LBS.

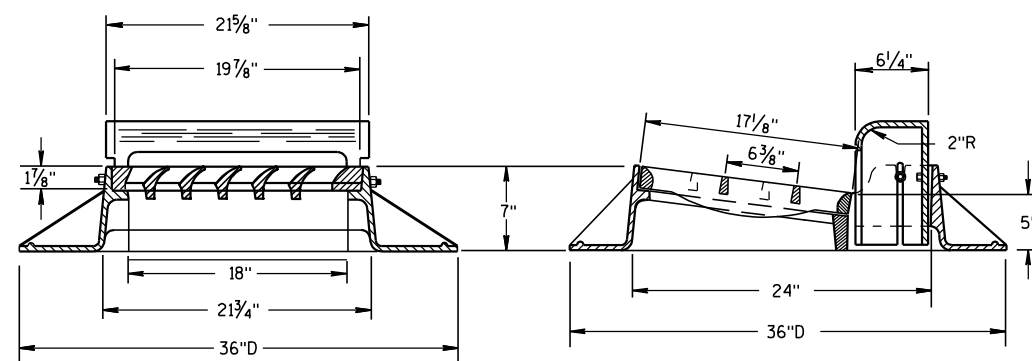
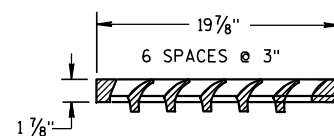
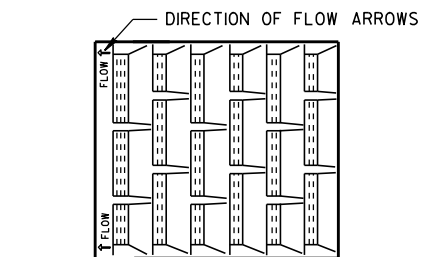


**SPECIAL GRATE FOR TYPE "H" COVER**

(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



**TYPE "A"**

(APPROXIMATE WEIGHT 340 LBS.)  
FRAME..... 185 LBS.  
GRATE..... 71 LBS.  
CURB BOX..... 84 LBS.

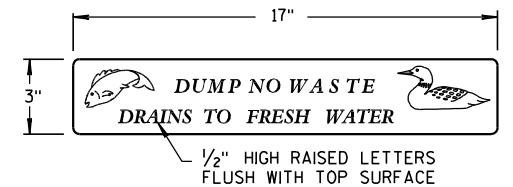
**GENERAL NOTES**

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.

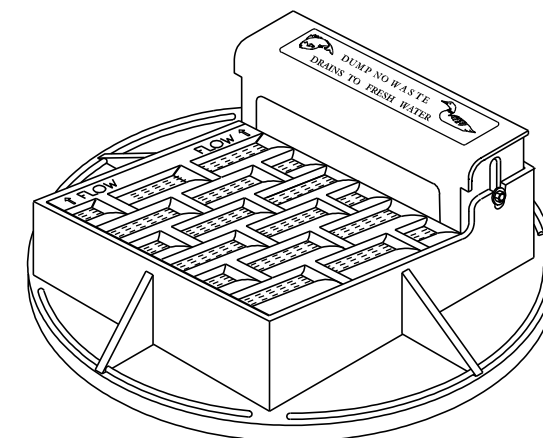
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



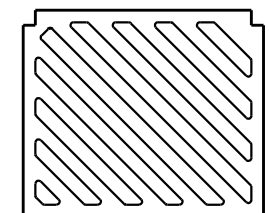
LOGO DETAIL

NOTE:  
GRATE IS REVERSIBLE.



NOTE: CURB BOX ADJUSTABLE 4" TO 9"

1" DIAGONAL BARS WITH 1 1/2" OPENINGS



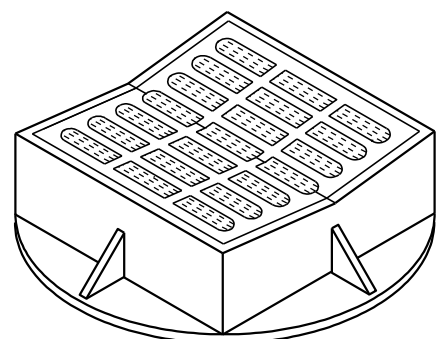
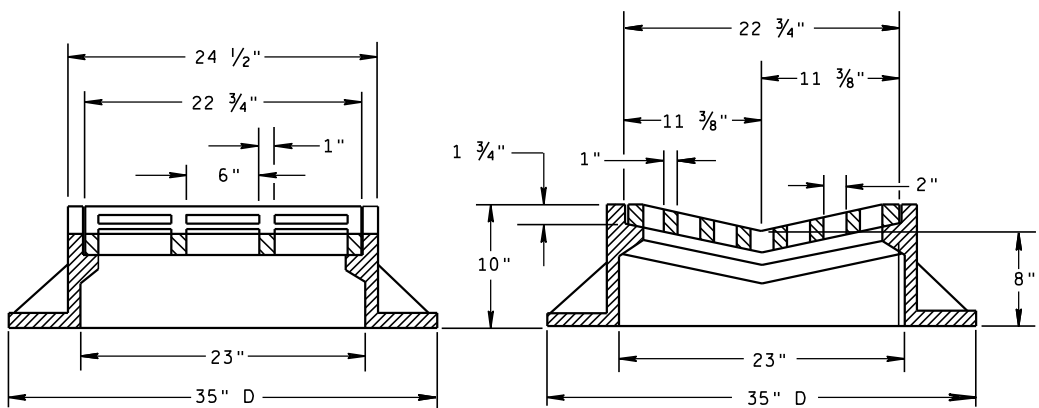
**SPECIAL GRATE FOR TYPE "A" COVER**

(MEASURES 19 3/4" X 17" X 1 7/8")  
GRATE..... 84 LBS.  
(NOTED AS TYPE A-S ON DRAINAGE TABLE)

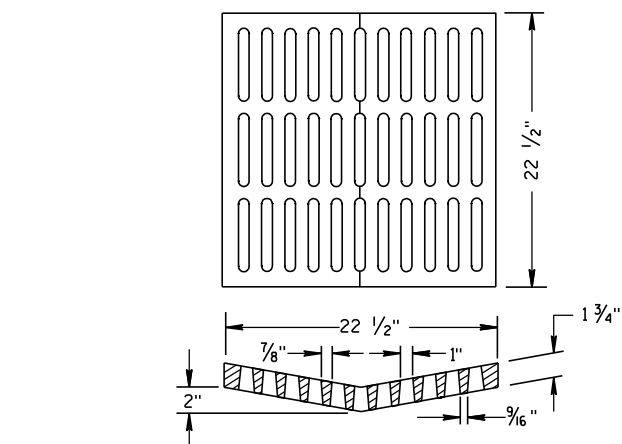
**INLET COVERS  
TYPE A, H, A-S, & H-S**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/5/2012 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



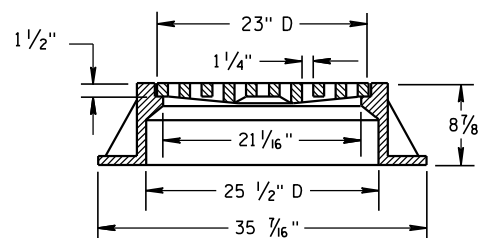
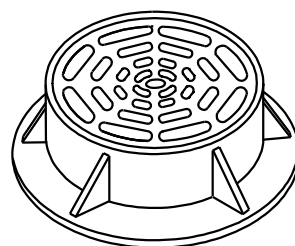
**TYPE "B"**  
(APPROXIMATE WEIGHT 405 LBS.)  
FRAME..... 294 LBS.  
GRATE..... 111 LBS.



**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.

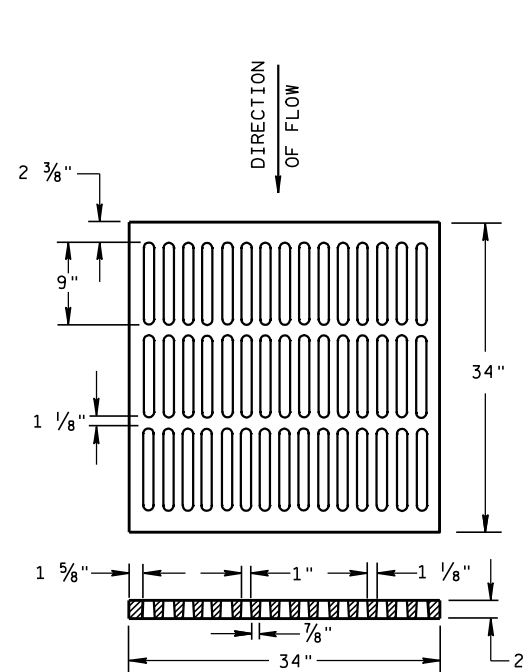
**GENERAL NOTES**

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.

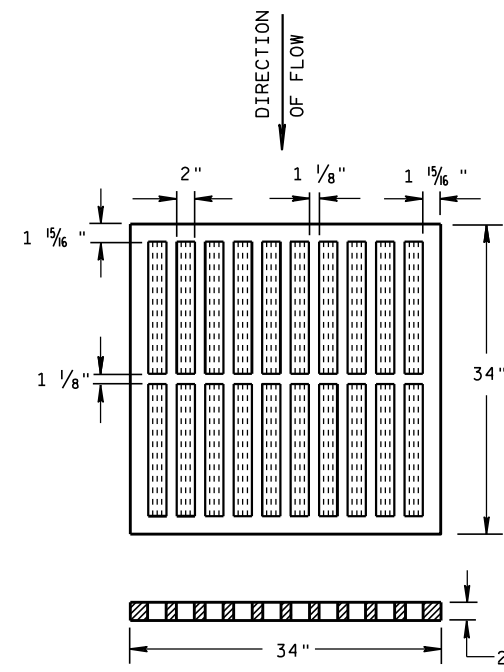
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



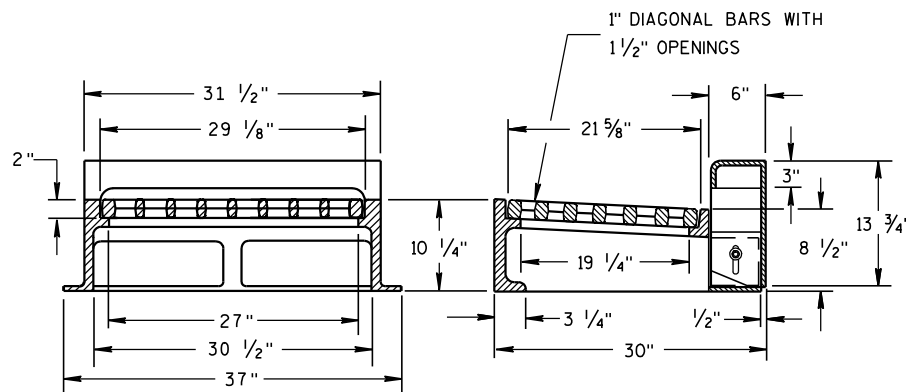
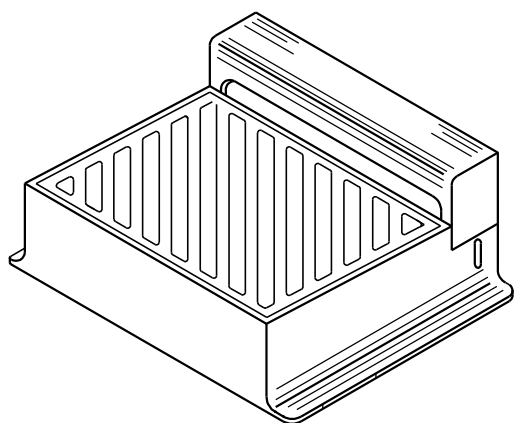
**ALTERNATIVE TYPE "MS"**  
(APPROXIMATE GRATE WEIGHT 329 LBS.)

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



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

**TYPE "WM"**  
(APPROXIMATE WEIGHT 648 LBS.)

FRAME..... 355 LBS.  
GRATE..... 156 LBS.  
CURB BOX..... 137 LBS.

DIAGONAL SLOTS, SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED. GRATES ARE MANUFACTURED TO BE REVERSIBLE.

DIRECTION OF FLOW

**INLET COVERS**  
TYPE B, B-A, C, MS, MS-A, & WM

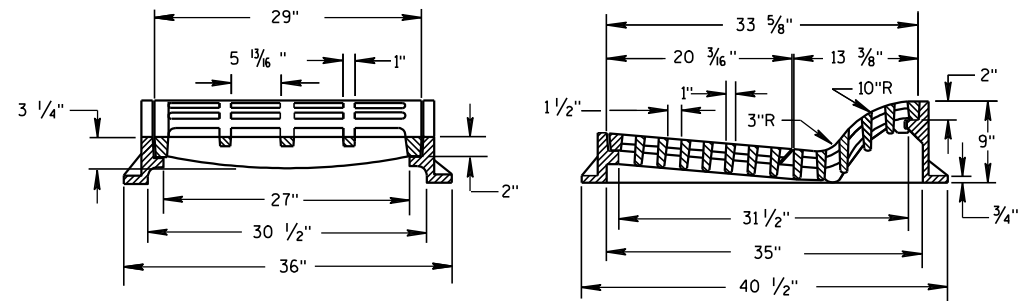
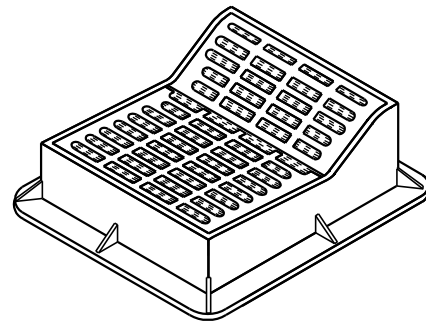
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

6/5/2012  
DATE

FHWA

/s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



**TYPE "F"**

(APPROXIMATE WEIGHT 644 LBS.)

FRAME.....302 LBS.  
 GRATE.....160 LBS.  
 GRATE.....182 LBS.

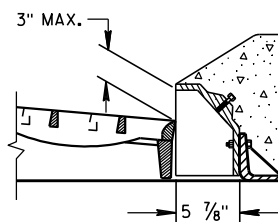
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

**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.

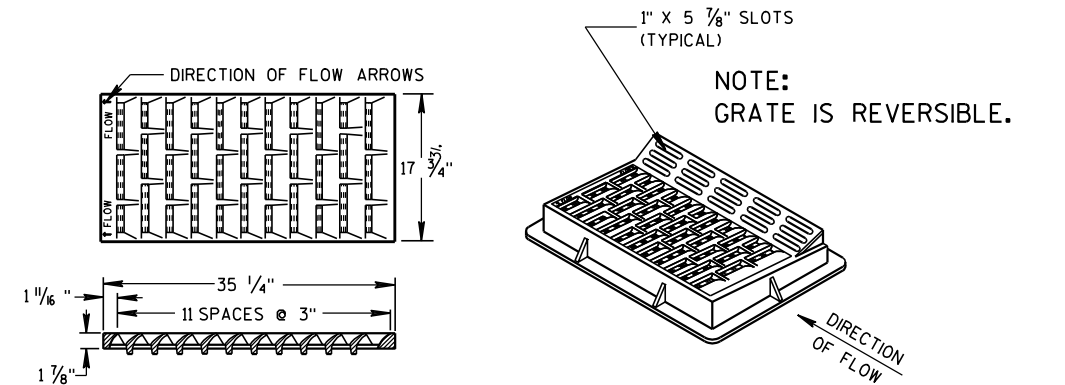
THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



**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



**TYPE "HM"**

(APPROXIMATE WEIGHT 414 LBS.)

FRAME.....181 LBS.  
 GRATE.....159 LBS.  
 CURB BOX.....74 LBS.

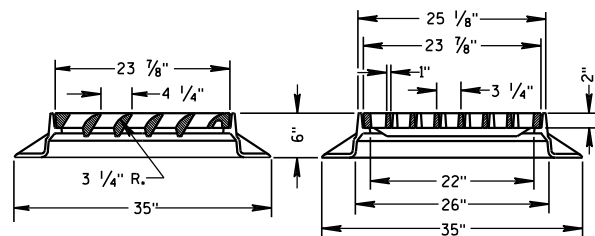
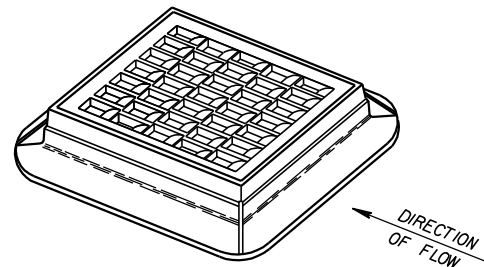
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

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

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

6

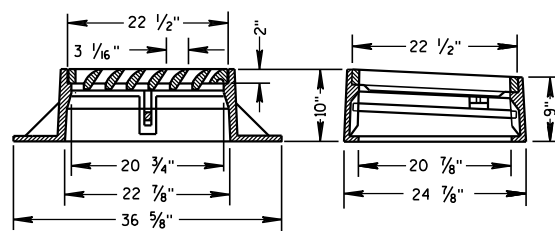
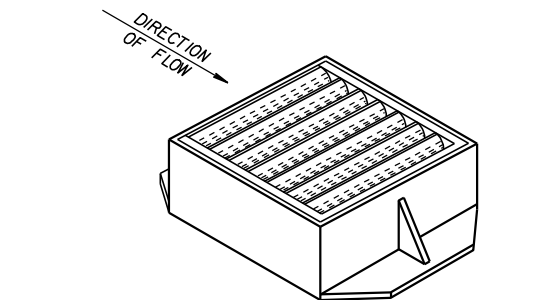
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**TYPE "S"**

(APPROXIMATE WEIGHT 333 LBS.)

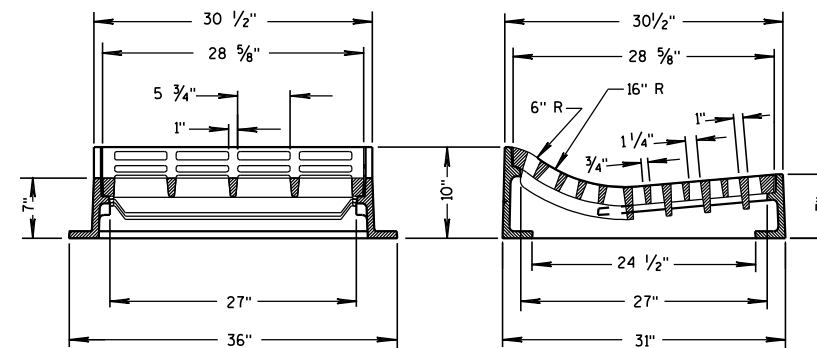
FRAME.....164 LBS.  
 GRATE.....169 LBS.



**TYPE "V"**

(APPROXIMATE WEIGHT 410 LBS.)

FRAME.....269 LBS.  
 GRATE.....136 LBS.  
 SAFETY BAR.....5 LBS.

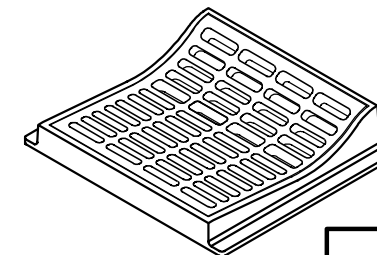


**TYPE "T"**

(APPROXIMATE WEIGHT 530 LBS.)

FRAME.....270 LBS.  
 GRATE.....260 LBS.

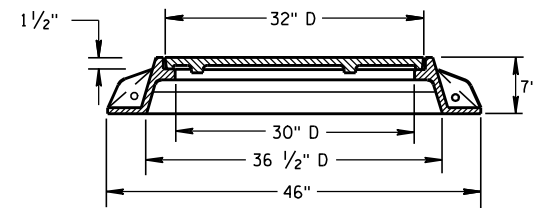
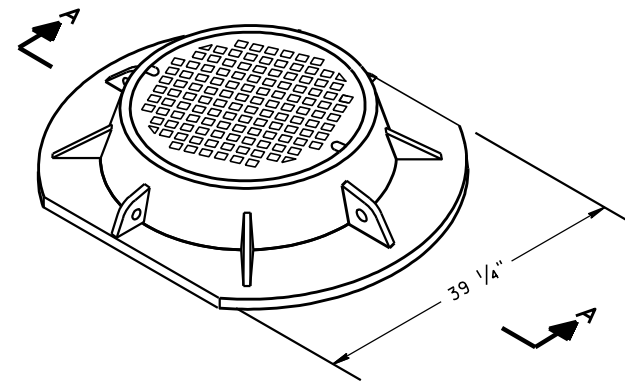
USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



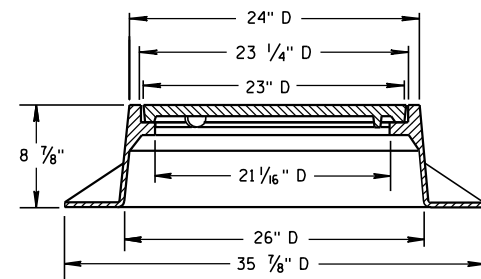
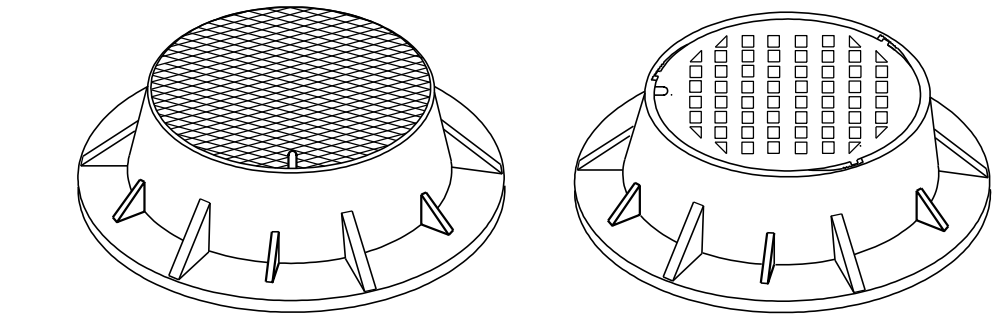
**INLET COVERS  
 TYPE F, HM, HM-S, S, T, V,  
 HM-GJ, & HM-GJ-S**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

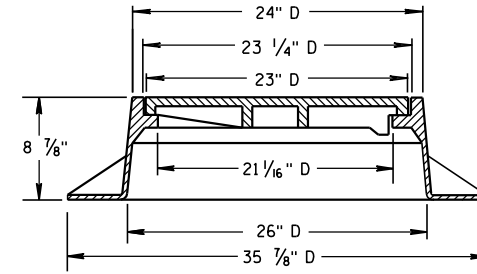
APPROVED  
 6/5/2012 /s/ Jerry H. Zogg  
 DATE ROADWAY STANDARDS DEVELOPMENT  
 ENGINEER  
 FHWA



**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)

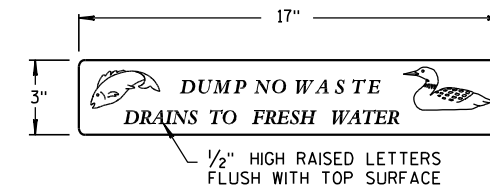
**GENERAL NOTES**

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.

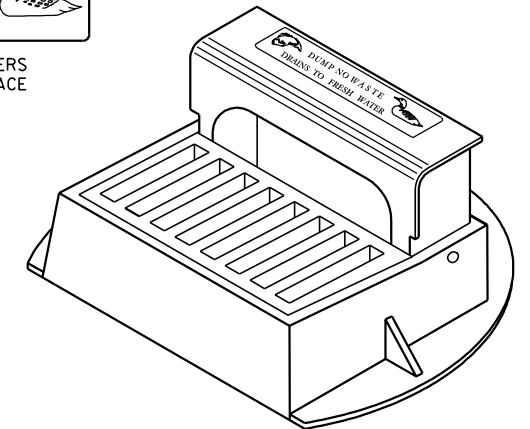
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

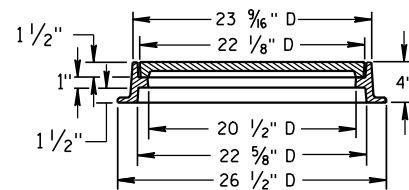
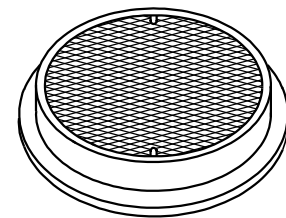
THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



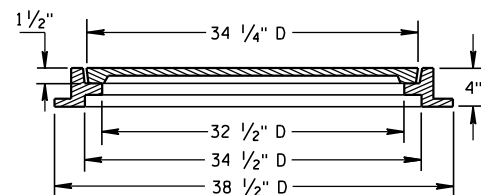
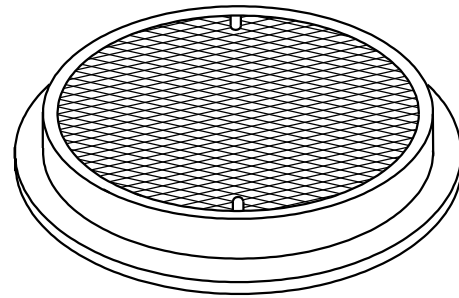
**LOGO DETAIL**



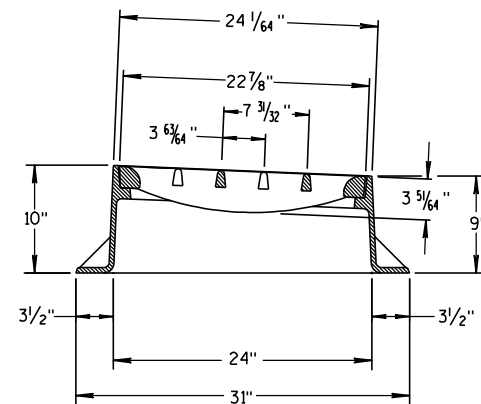
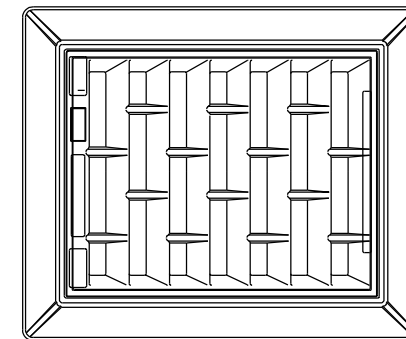
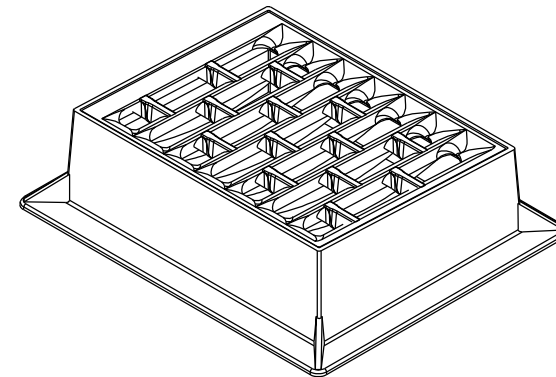
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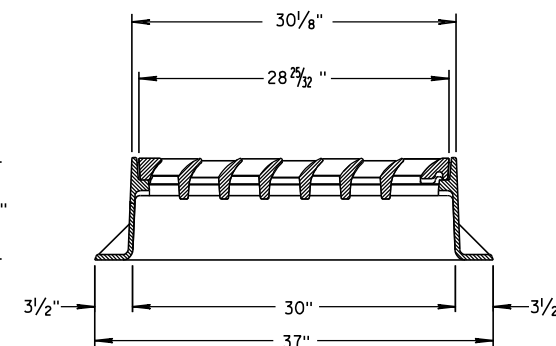
**TYPE "L"**  
(APPROXIMATE WEIGHT 158 LBS.)  
FRAME.....81 LBS.  
LID.....77 LBS.



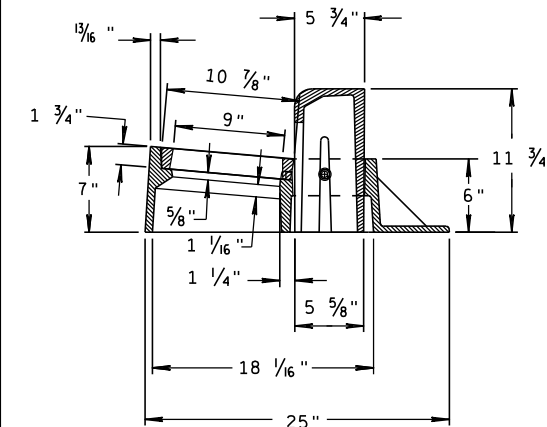
**TYPE "M"**  
(APPROXIMATE WEIGHT 377 LBS.)  
FRAME.....125 LBS.  
LID.....252 LBS.



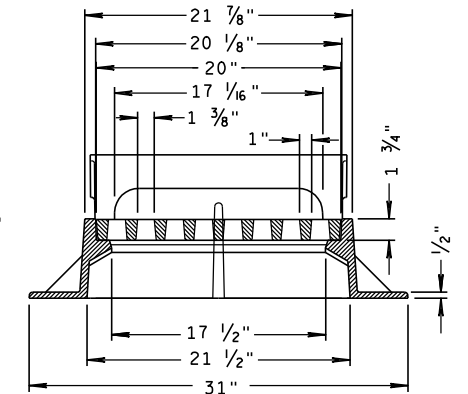
**INLET COVER TYPE "BW"**



6



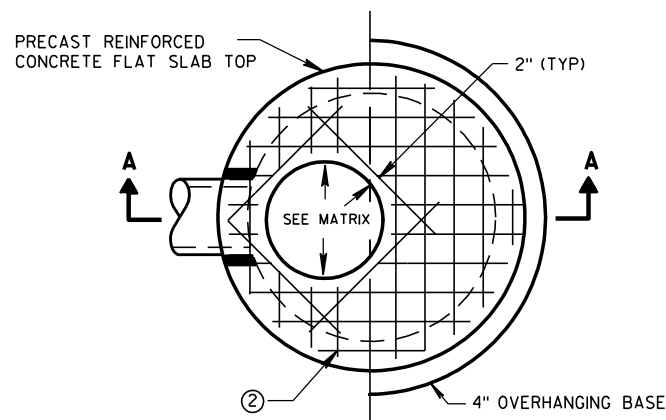
**INLET COVER TYPE "Z"**  
(APPROXIMATE WEIGHT 344 LBS.)  
FRAME.....206 LBS.  
GRATE.....46 LBS.  
CURB BOX.....92 LBS.



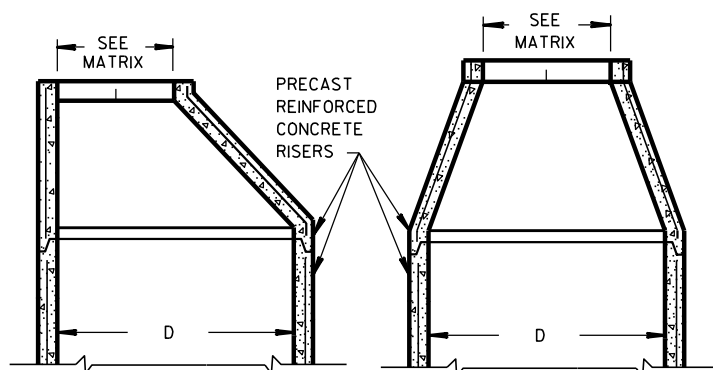
**INLET COVERS, TYPE BW, Z  
MANHOLE COVERS, TYPE  
K, J, J-S, L & M**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/5/2012 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

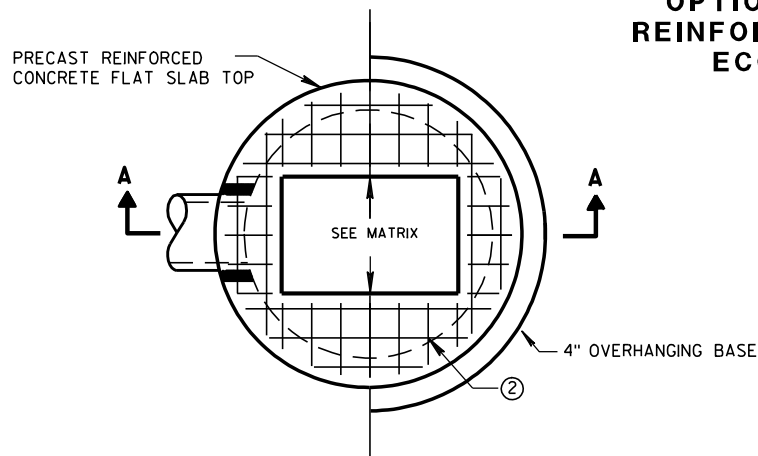


**PLAN VIEW CIRCULAR OPENING**

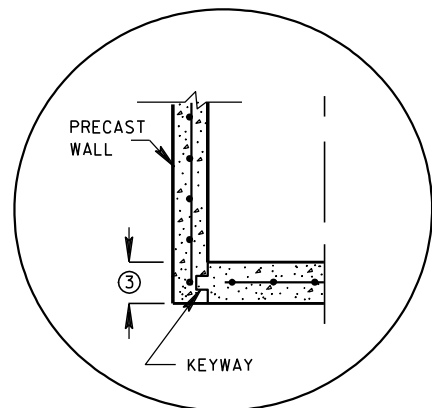


**OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP**

**OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP**

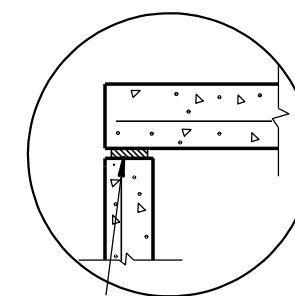


**PLAN VIEW RECTANGULAR OPENING**

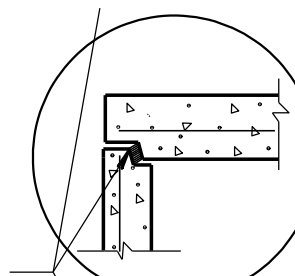


**PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION**

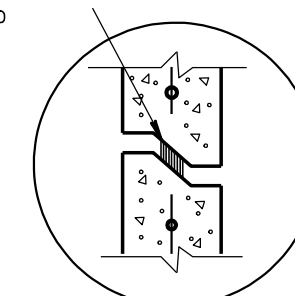
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



TOP WITH PLAIN END JOINT

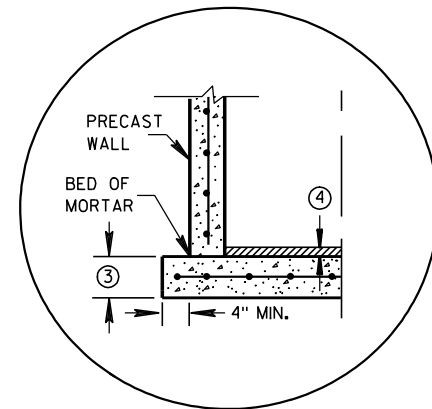


TOP WITH TONGUE AND GROOVE JOINT



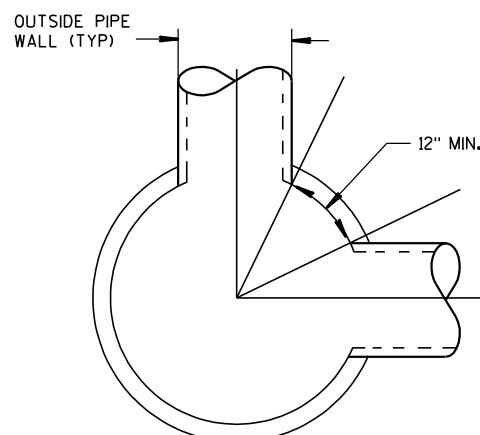
RISER WITH TONGUE AND GROOVE JOINT

**DETAIL "B"**

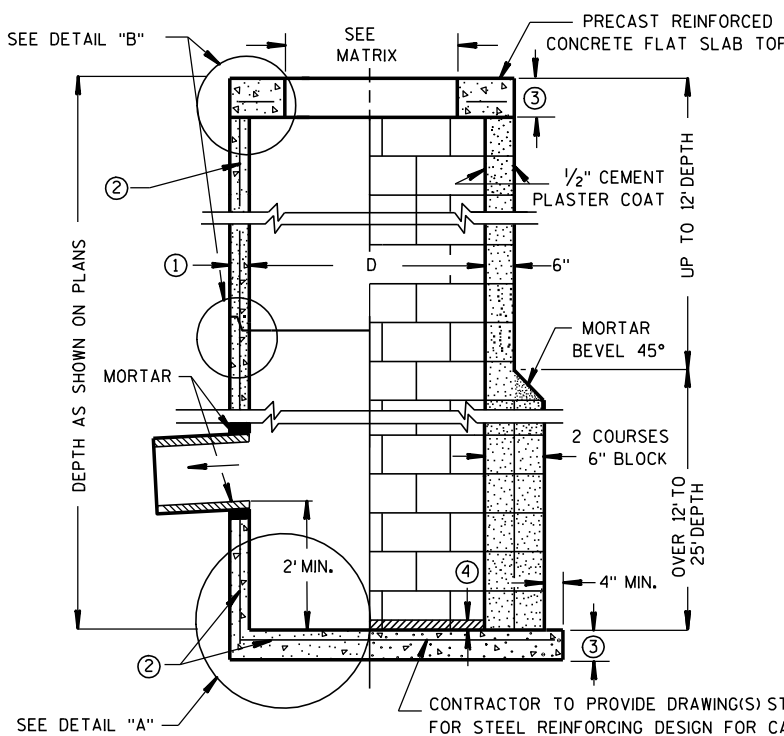


**SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION**

**DETAIL "A"**



**DETAIL "C"**



**SECTION A-A**

**PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE**

**CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②**

**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 1/2 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 PERMITTED 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
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

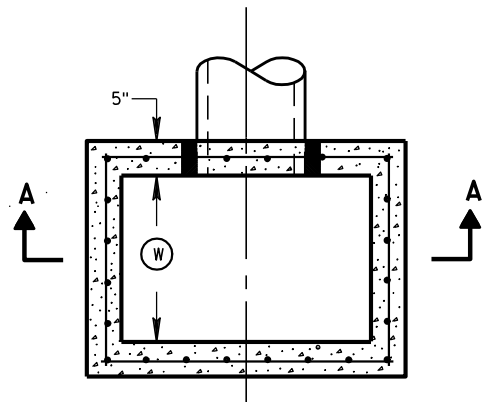
**CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

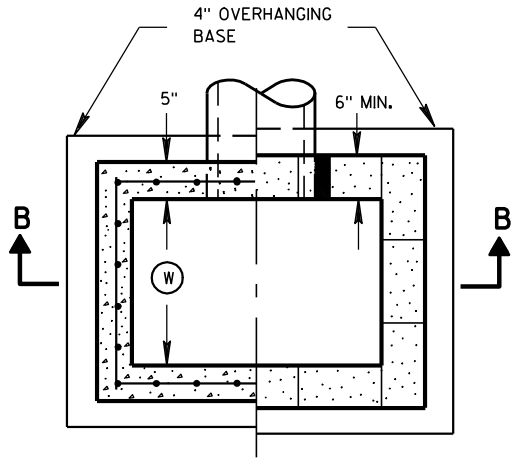
APPROVED  
6/5/2012 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA

**CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER**

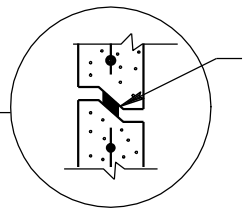




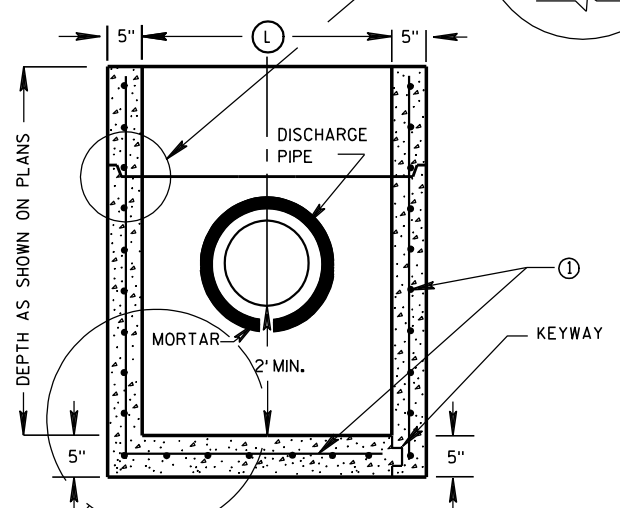
PLAN VIEW



PLAN VIEW

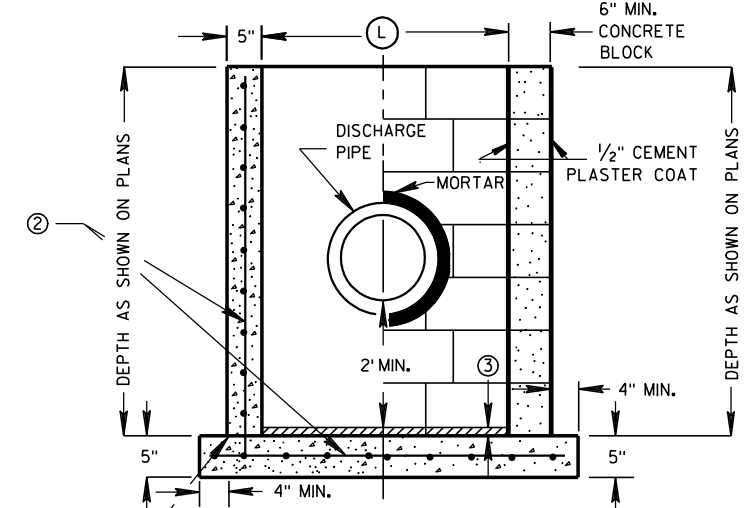


RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



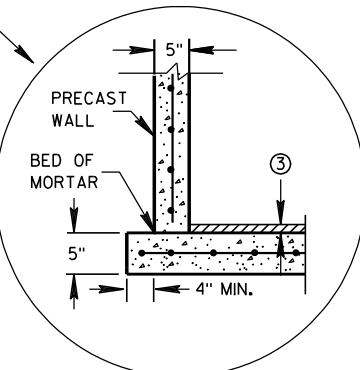
PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE  
 PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE

SECTION A-A



CAST-IN-PLACE REINFORCED CONCRETE  
 CONCRETE BLOCK ON CAST-IN-PLACE CONCRETE BASE

SECTION B-B



SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

CATCH BASINS 2X3-FT AND 2.5X3-FT

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.

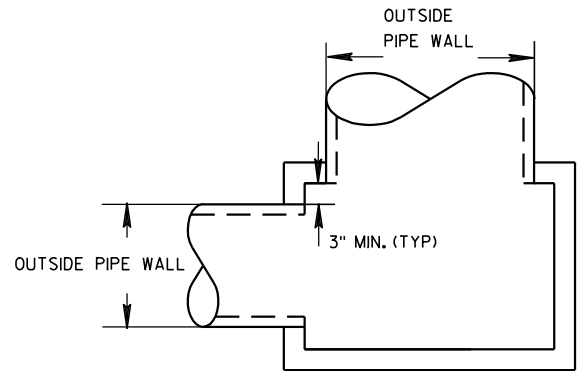
- ① FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.
- ③ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2' SUMP MEASURED FROM TOP OF KEY.

CATCH BASIN COVER MATRIX

CATCH BASIN SIZE	INLET COVER TYPE		F	ALL H'S
	WIDTH (1) (FT)	LENGTH (2) (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



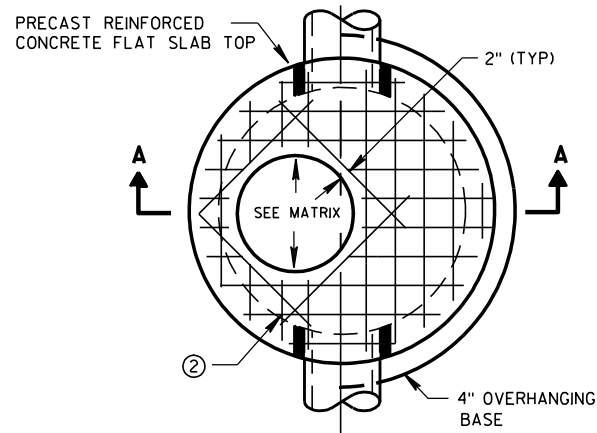
DETAIL "A"

**CATCH BASINS 2X3-FT AND 2.5X3-FT**

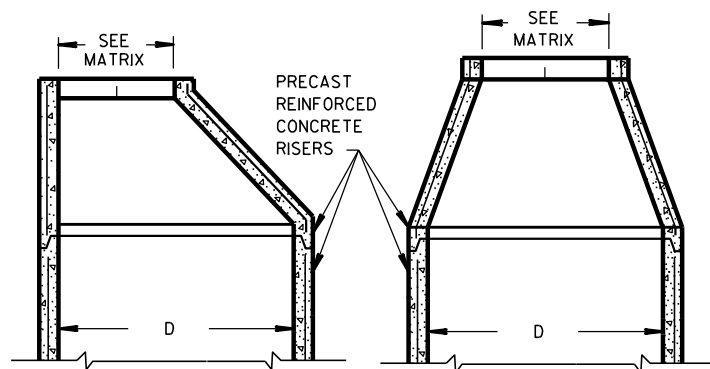
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/5/2012 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

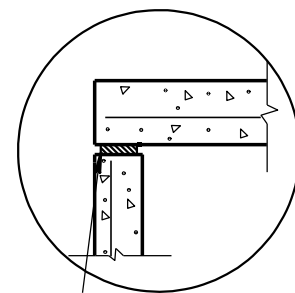


PLAN VIEW CIRCULAR OPENING

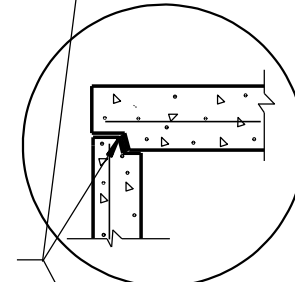


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

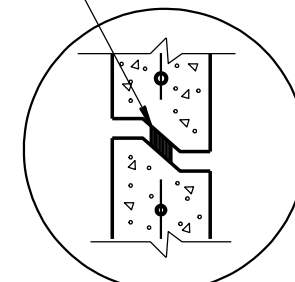
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



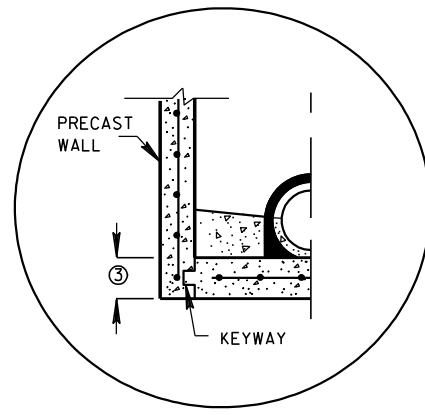
TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT

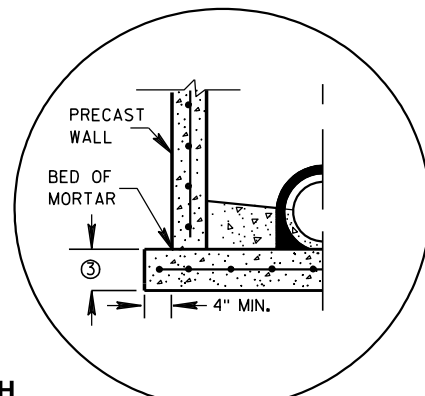


RISER WITH TONGUE AND GROOVE JOINT

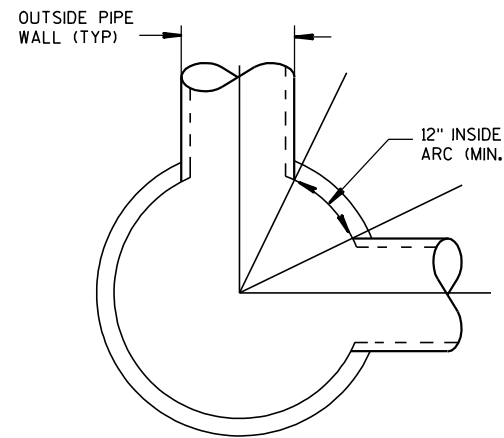


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

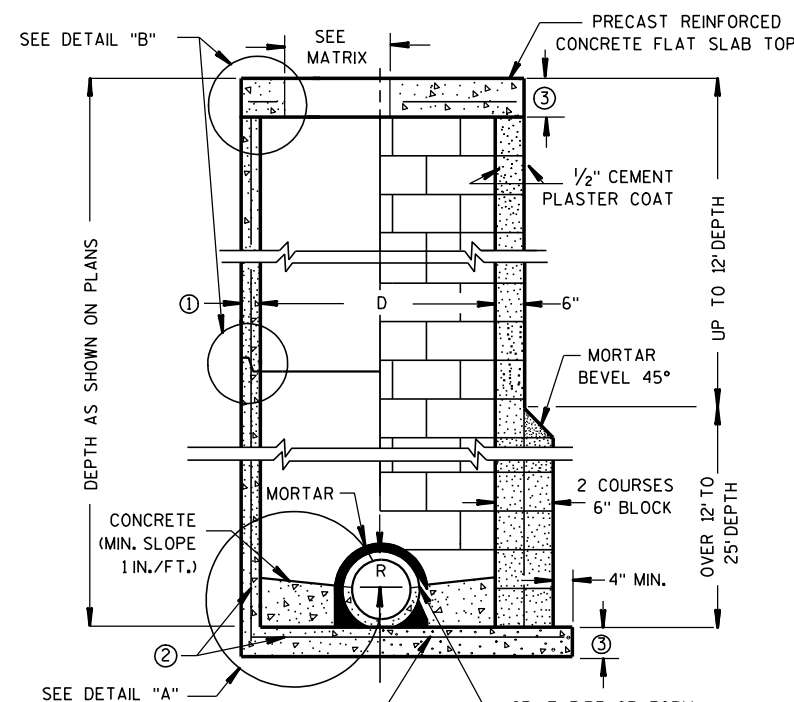
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)



SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION



DETAIL "C"



PRECAST REINFORCED CONCRETE BLOCK WITH CONCRETE WITH MONOLITHIC BASE CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES

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 MANHOLE 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 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 1/2" 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 PERMITTED 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

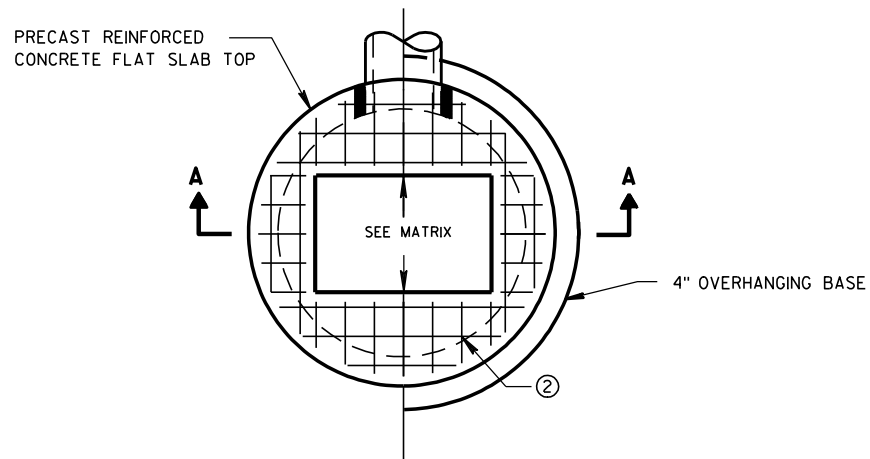
MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

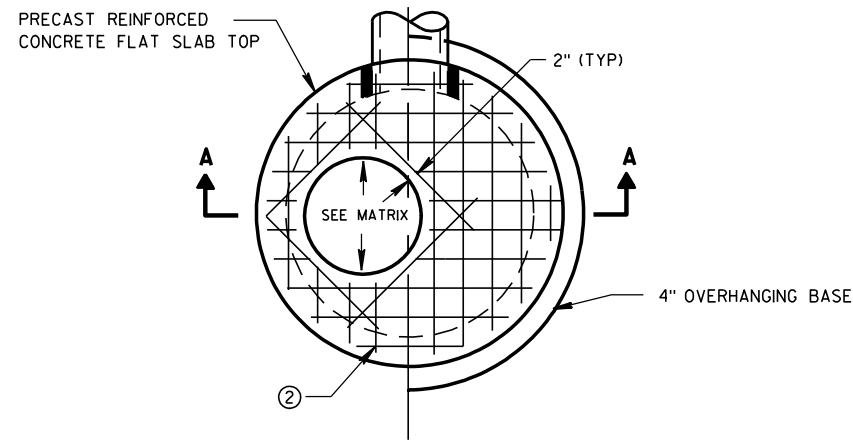
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED  
6/5/2012 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA

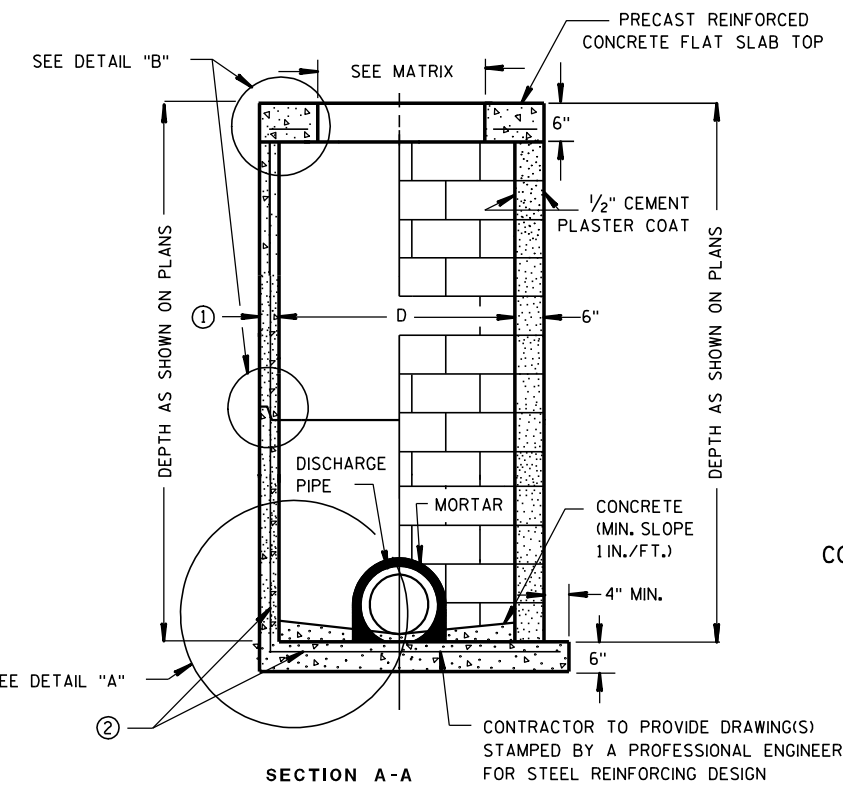
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER



**PLAN VIEW RECTANGULAR OPENING**



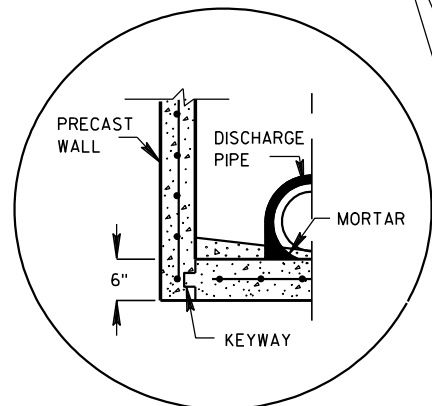
**PLAN VIEW CIRCULAR OPENING**



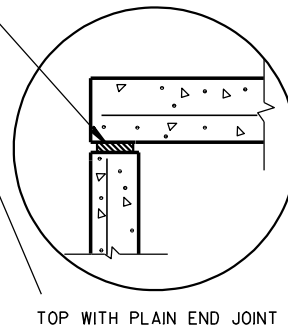
**PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE**  
**CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②**

**CIRCULAR INLETS W/ FLAT TOP**

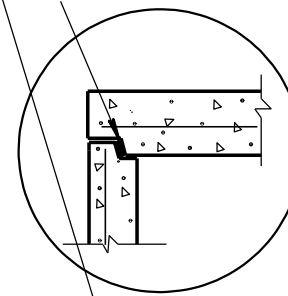
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)



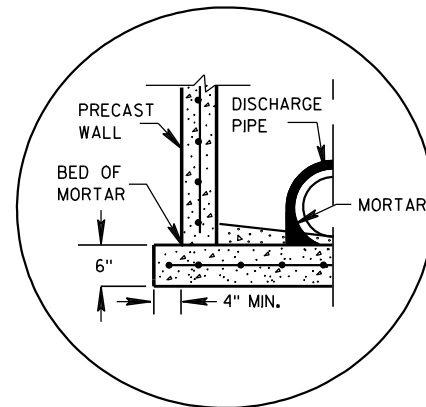
**PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION**



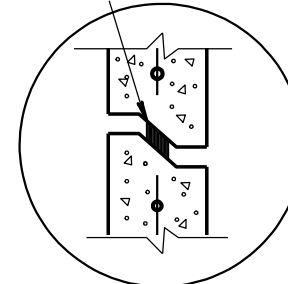
**TOP WITH PLAIN END JOINT**



**TOP WITH TONGUE AND GROOVE JOINT**



**SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION**



**RISER WITH TONGUE AND GROOVE JOINT**

**DETAIL "A"**

**DETAIL "B"**

**INLETS 3-FT AND 4-FT DIAMETER**

**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 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.

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.

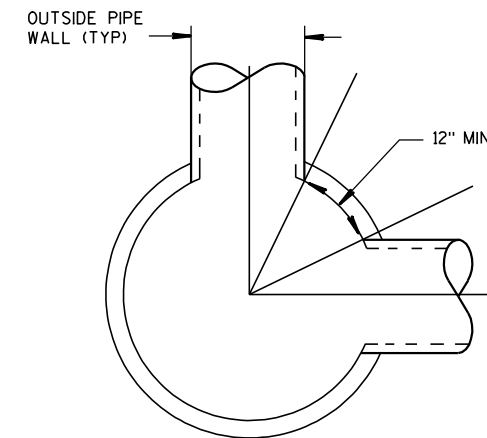
4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPERATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

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-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 SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
3-FT	2 DIA.				X							X
	2X2	X	X					X		X		
4-FT	2 DIA.				X							X
	2X2	X	X					X	X	X	X	
	2X2.5			X								
	2X3						X					
	2.5X3					X						



**DETAIL "C"**

**PIPE MATRIX**

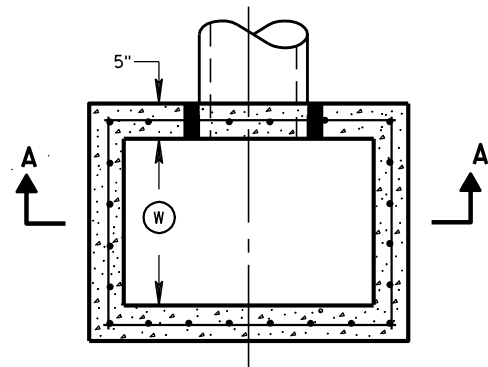
INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

**INLETS 3-FT AND 4-FT DIAMETER**

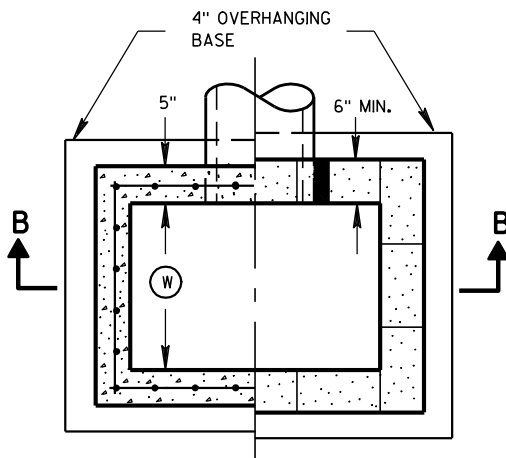
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 6/5/2012 /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

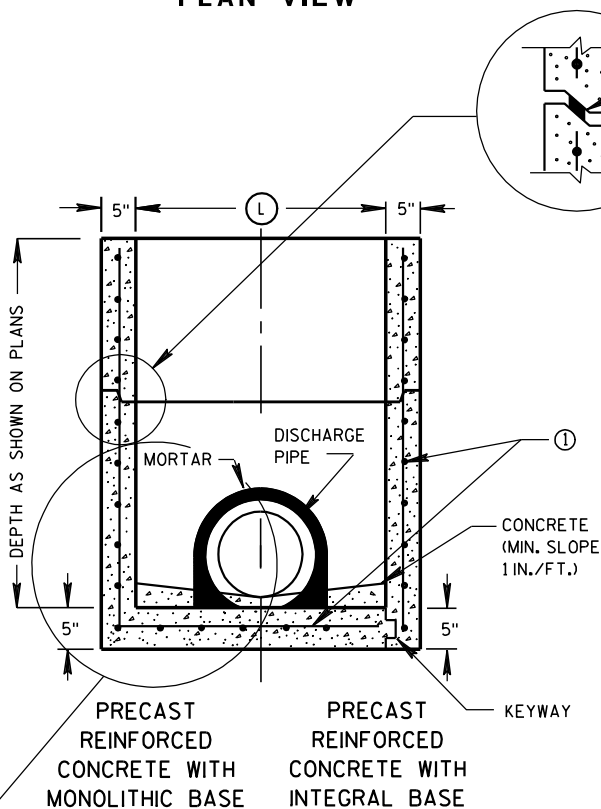


PLAN VIEW

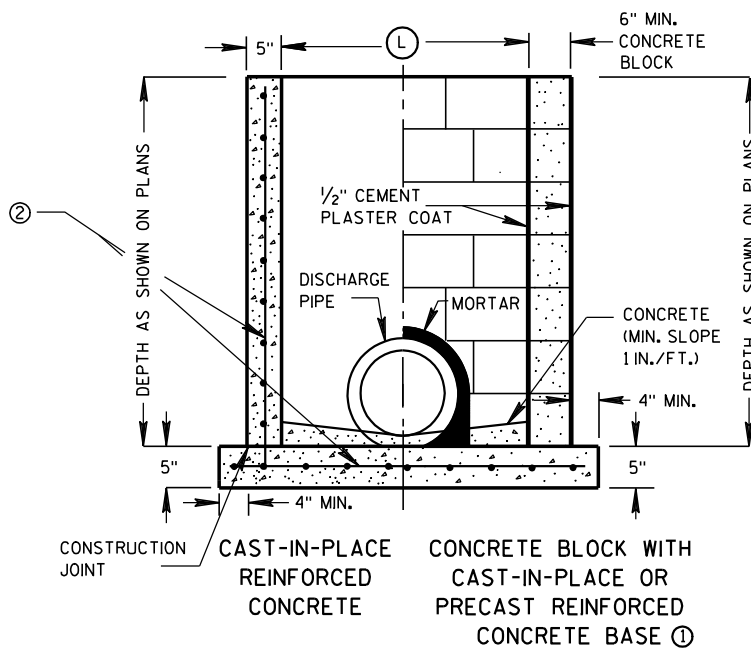


PLAN VIEW

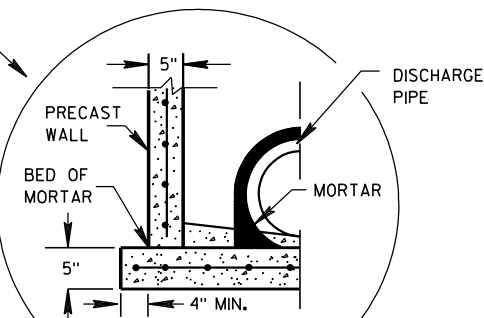
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



SECTION A-A



SECTION B-B



SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

**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 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 INLET 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 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

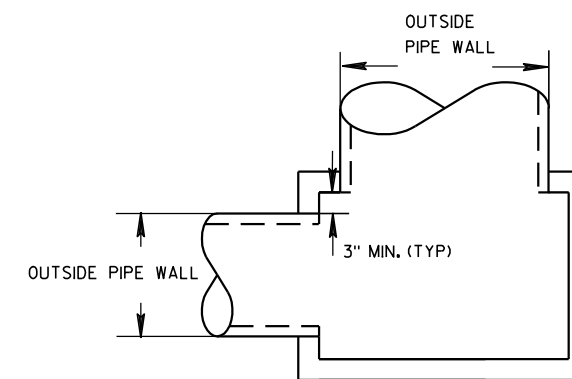
- ① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

**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



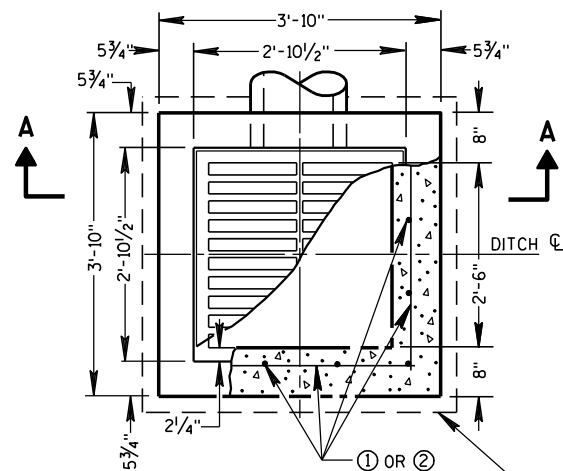
DETAIL "A"

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

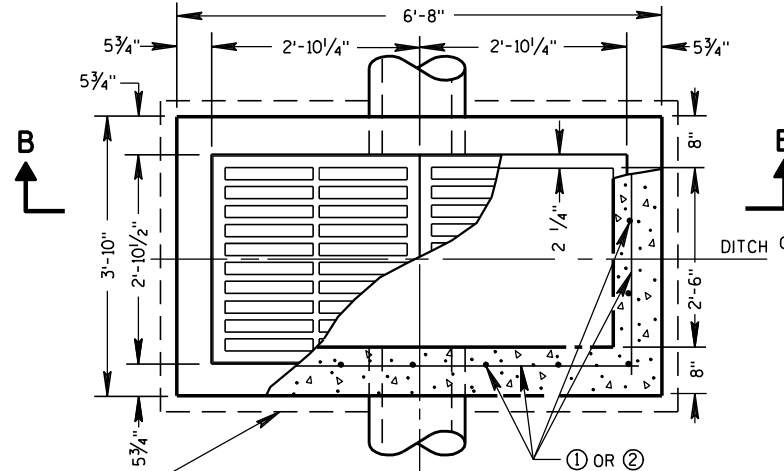
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 6/5/2012  
DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

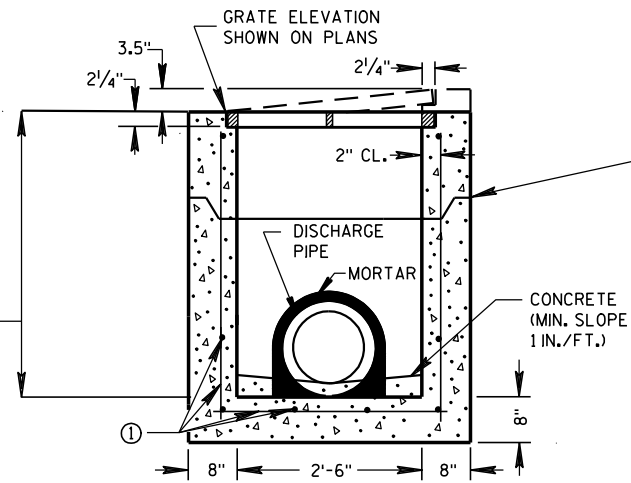


PLAN VIEW

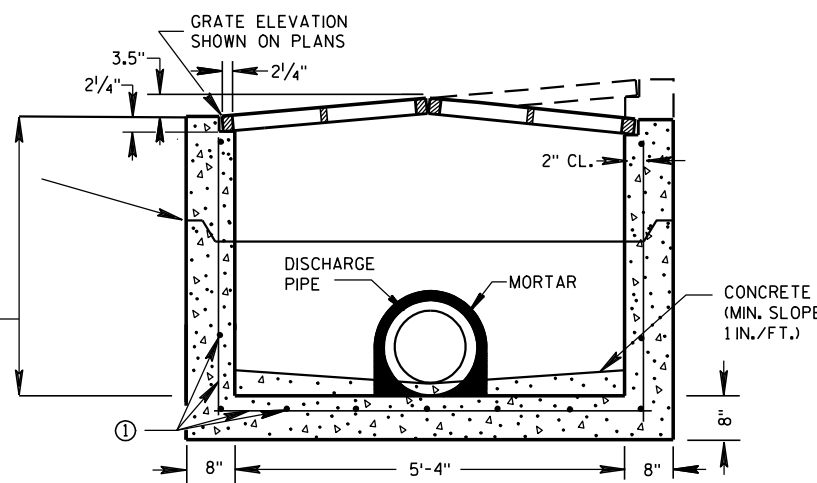


PLAN VIEW

4" OVERHANGING BASE ON REINFORCED CAST-IN-PLACE CONCRETE INLETS



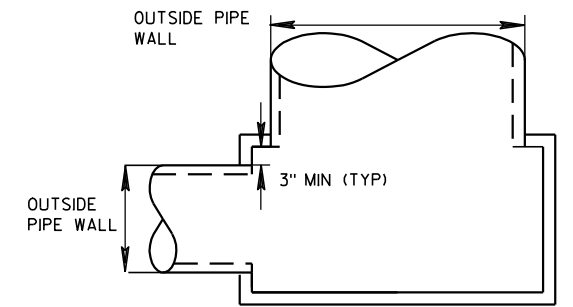
PRECAST REINFORCED CONCRETE SECTION A-A



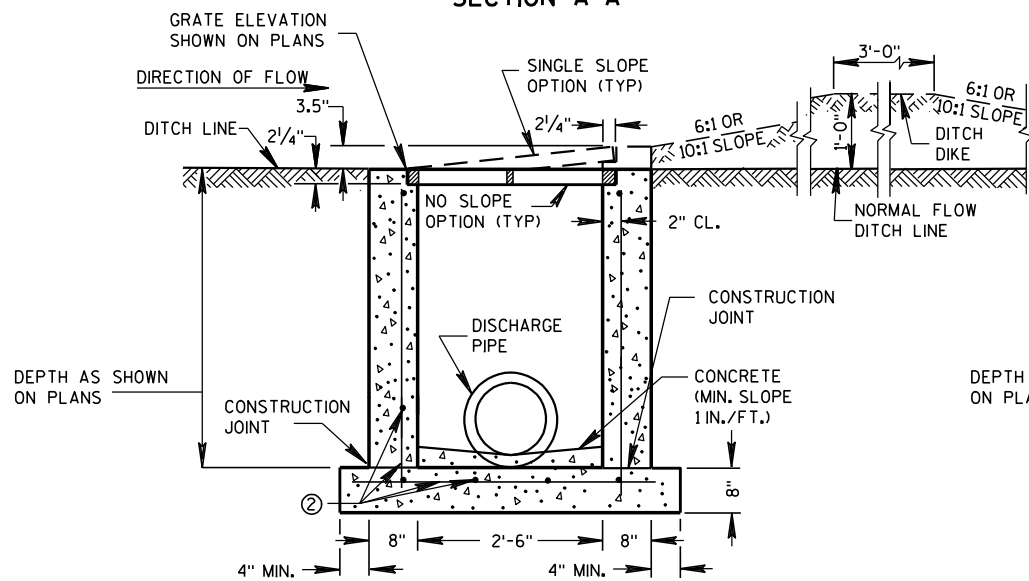
PRECAST REINFORCED CONCRETE SECTION B-B

PIPE MATRIX

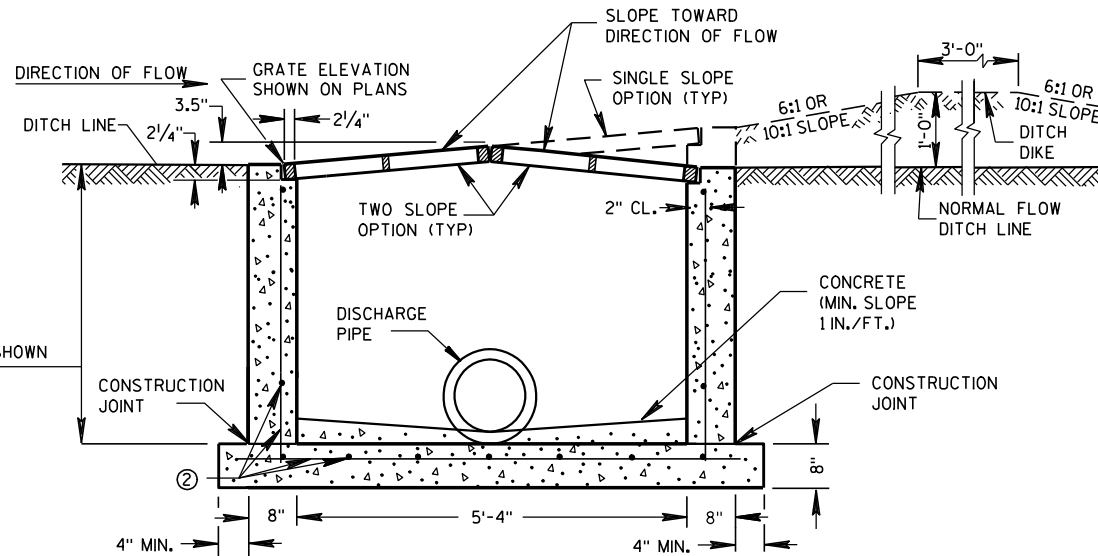
INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
1 GRATE	18	18
2 GRATE	18	42



DETAIL "A"

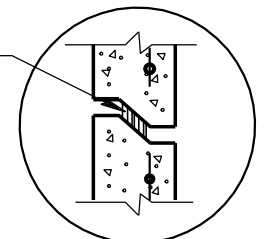


REINFORCED CAST-IN-PLACE CONCRETE SECTION A-A



REINFORCED CAST-IN-PLACE CONCRETE SECTION B-B

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



DETAIL "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 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, IG-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.

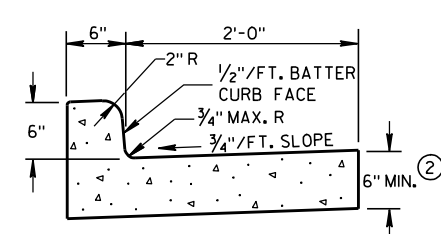
MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

- 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.

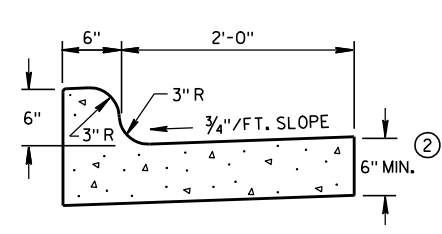
**INLETS MEDIAN 1 AND 2 GRATE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

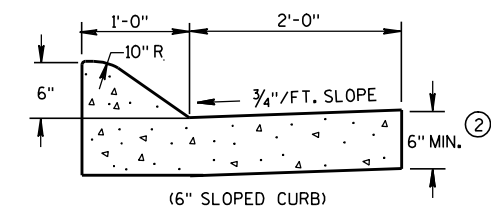
APPROVED  
6/5/2012 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



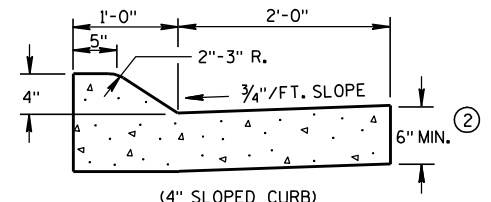
TYPES A & D ①



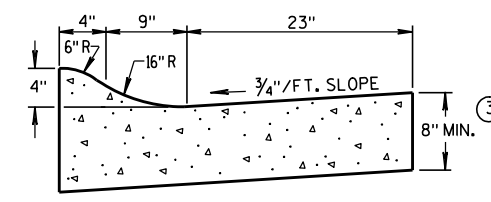
TYPES K & L ①



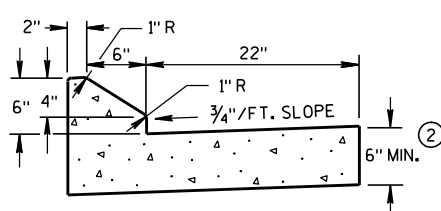
(6" SLOPED CURB)



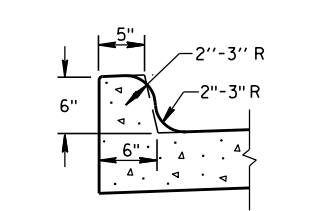
(4" SLOPED CURB)



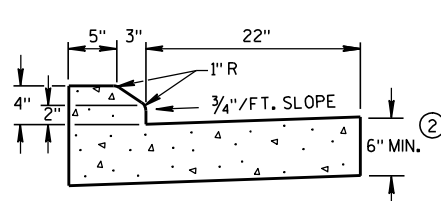
4" SLOPED CURB TYPES R & T ① ④



6" SLOPED CURB TYPES G & J ①

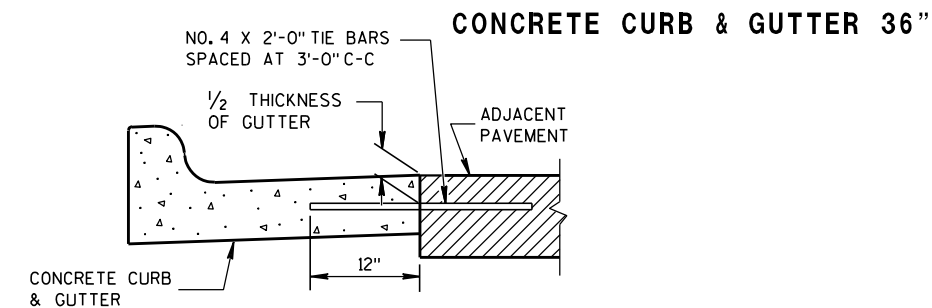


OPTIONAL CURB SHAPE FOR TYPES K & L ①

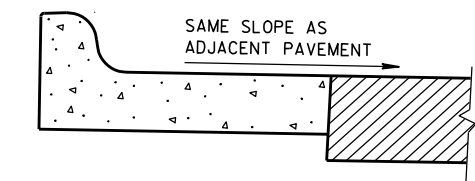


4" SLOPED CURB TYPES G & J ①

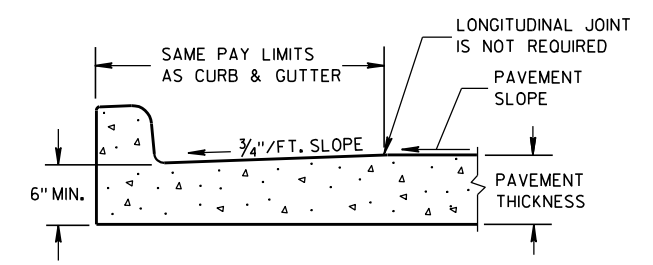
CONCRETE CURB & GUTTER 30"



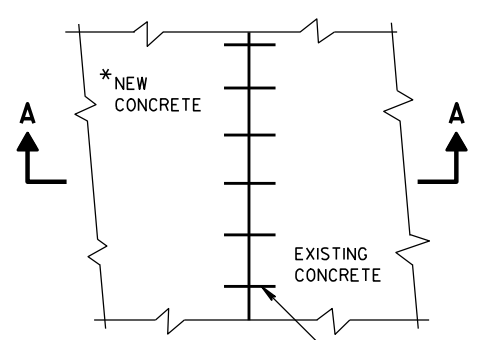
TYPICAL TIE BAR LOCATION ①



REVERSE SLOPE GUTTER ⑤  
(TYPICAL FOR ALL CURB & GUTTER TYPES)

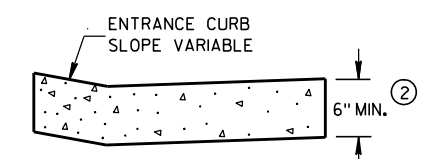


PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER

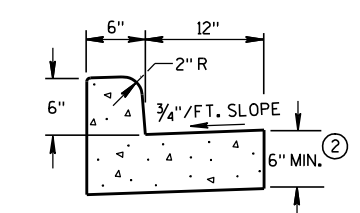


PLAN VIEW

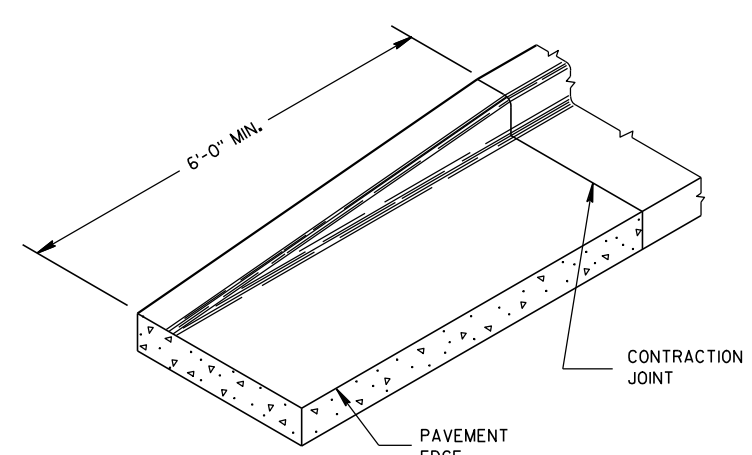
\* NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.



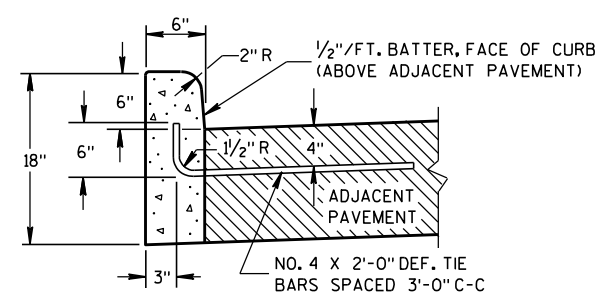
DRIVEWAY ENTRANCE CURB (WHEN DIRECTED BY THE ENGINEER)



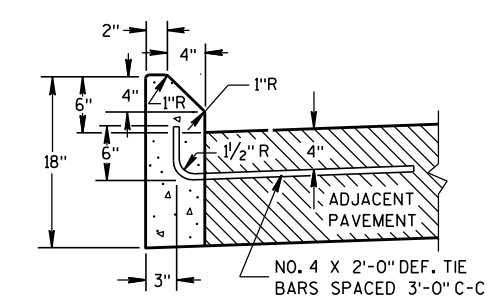
TYPES A & D  
CONCRETE CURB & GUTTER 18"



END SECTION CURB & GUTTER



TYPES A & D



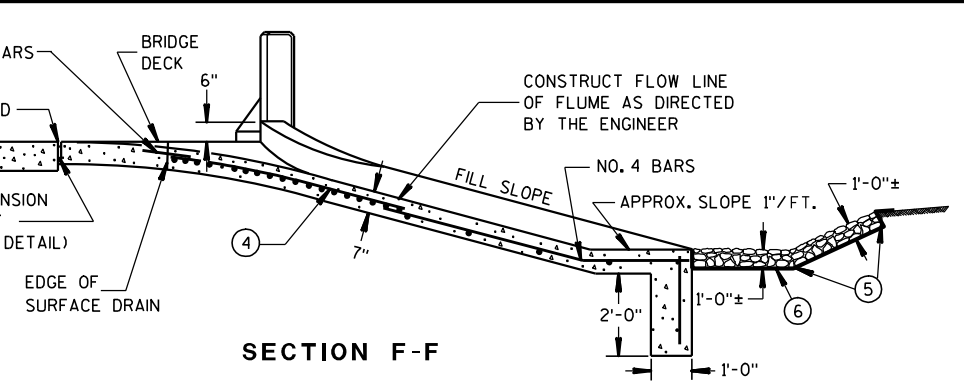
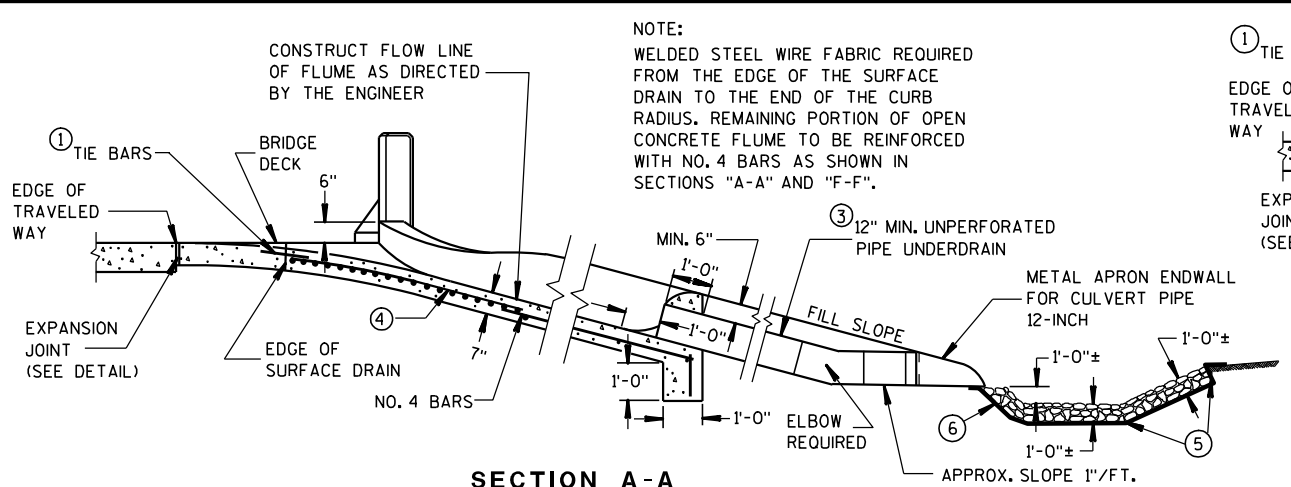
TYPES G & J

CONCRETE CURB

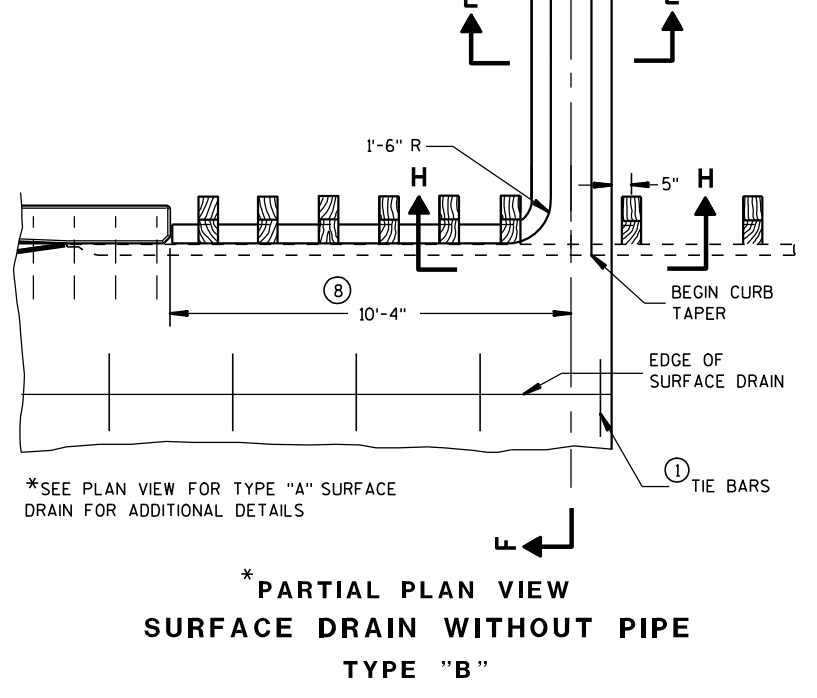
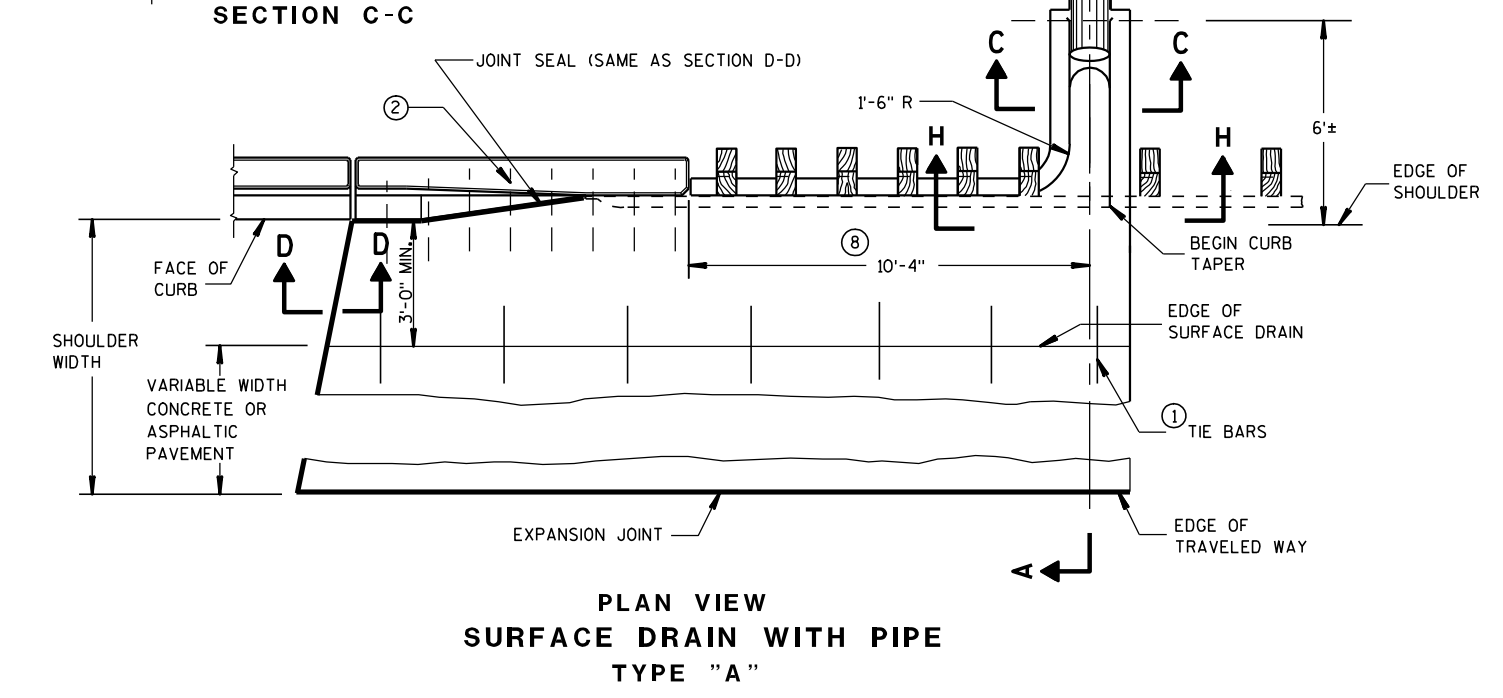
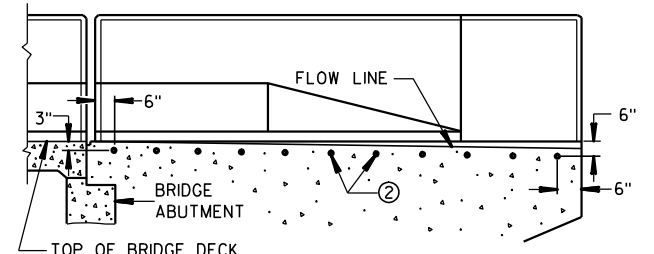
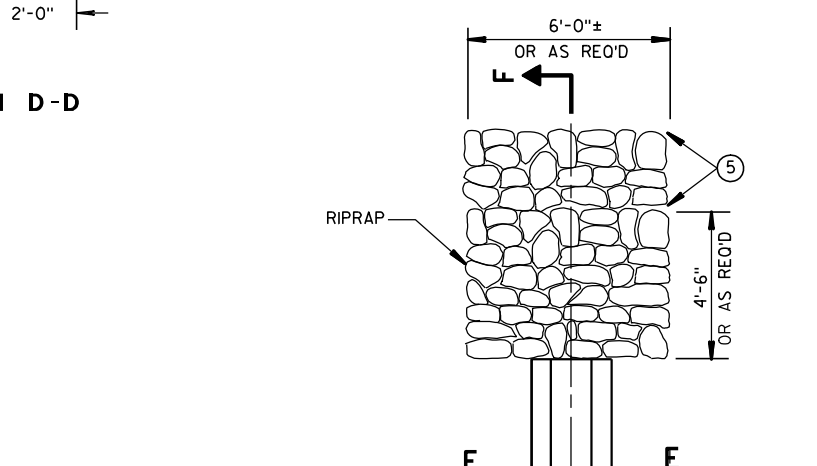
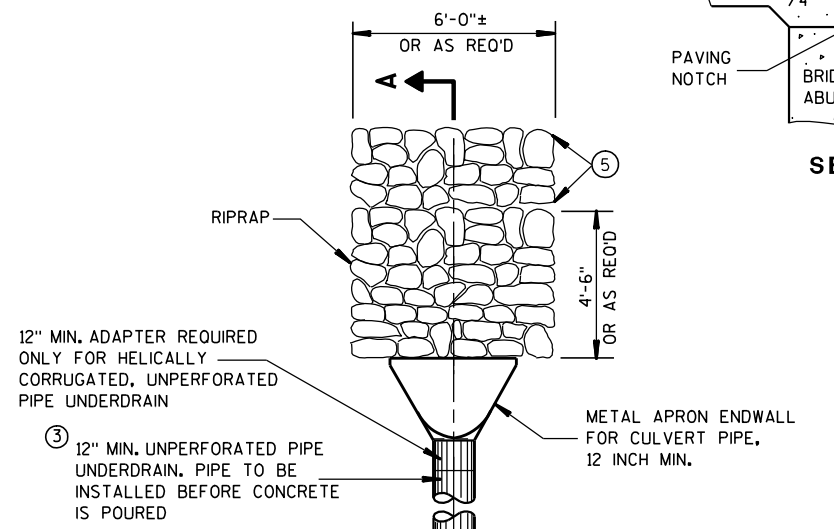
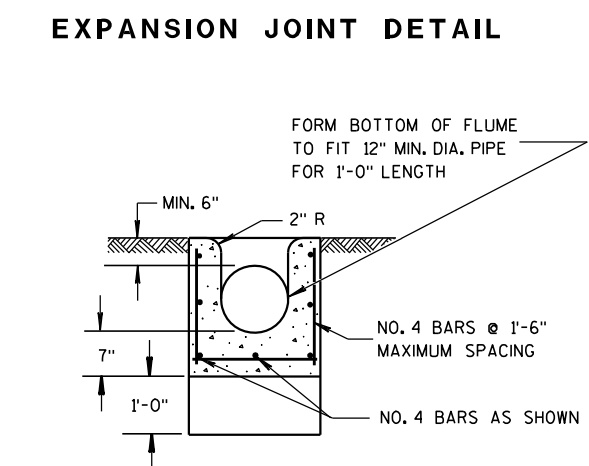
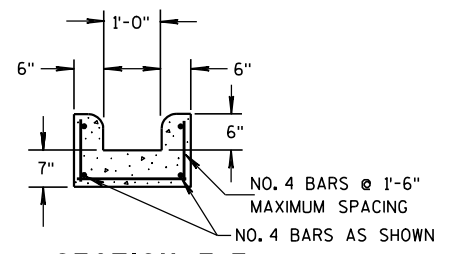
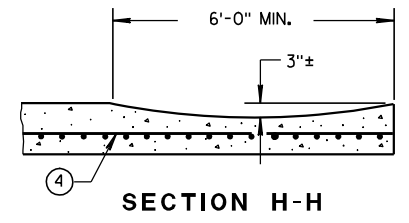
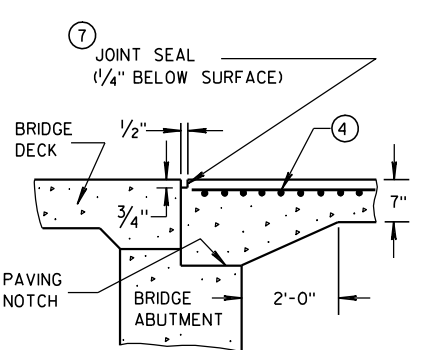
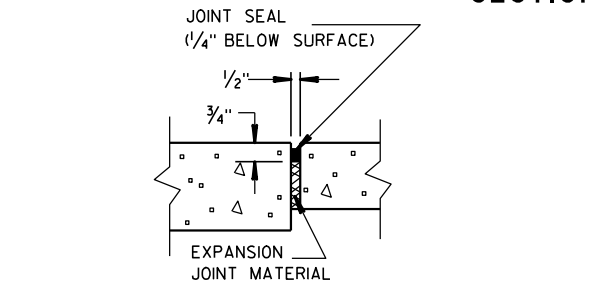
**GENERAL NOTES**

- 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.

<b>CONCRETE CURB, CONCRETE CURB &amp; GUTTER AND TIES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 9/4/08 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



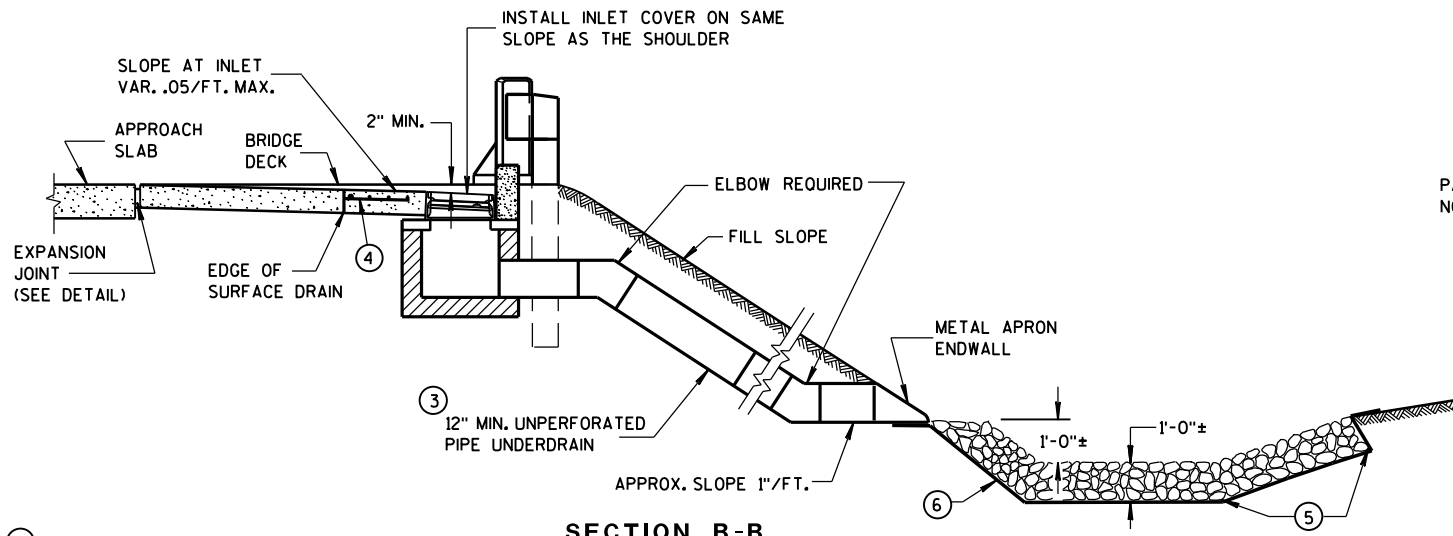
- GENERAL NOTES**
- DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.
  - 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.
  - PIPE UNDERDRAIN MAY BE ANY OF THE MATERIALS LISTED IN SECTION 612.2 OF THE STANDARD SPECIFICATIONS EXCEPT DRAIN TILE.
  - MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
  - LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
  - GEOTEXTILE FABRIC, TYPE "R"
  - HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.
  - 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'-1/2".



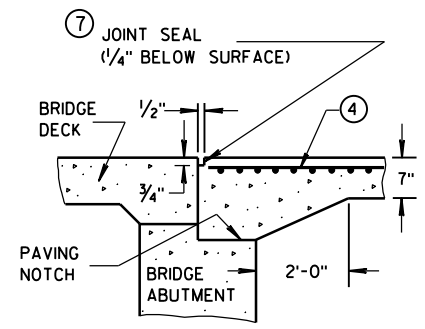
<b>CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 9/4/08 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

S.D.D. 8 D 2-6

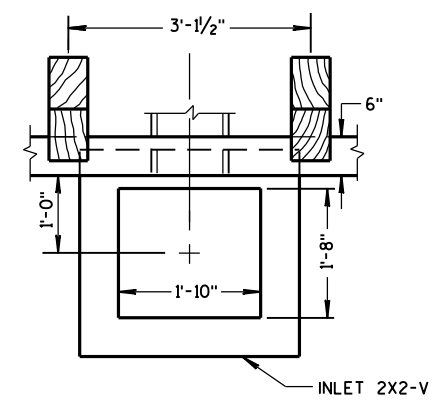
S.D.D. 8 D 2-6



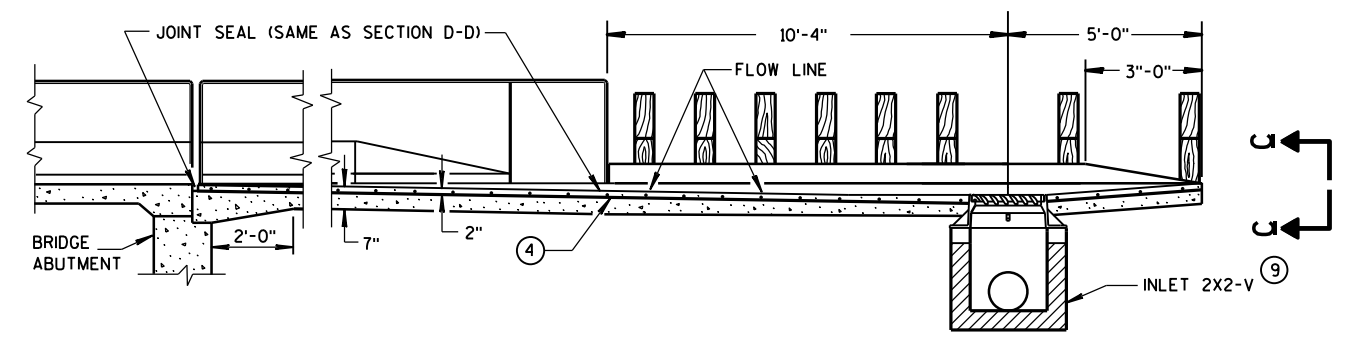
SECTION B-B



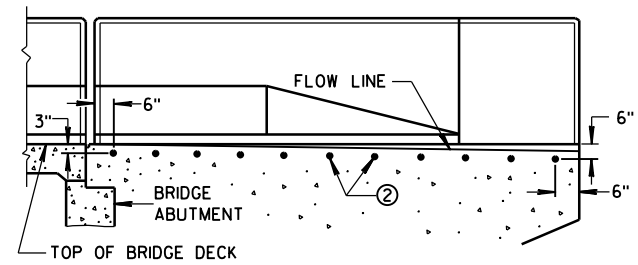
SECTION D-D



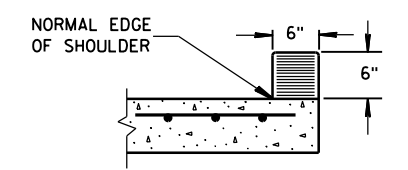
PLAN VIEW



SECTION A-A



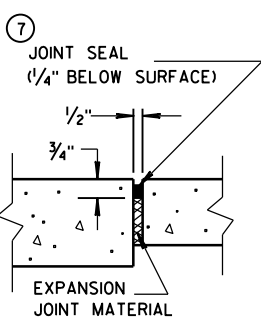
LOCATION OF TIE BARS IN WINGWALL



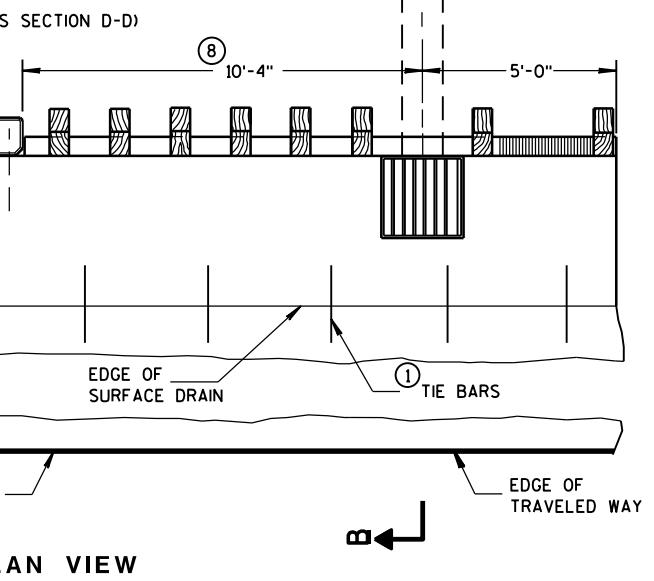
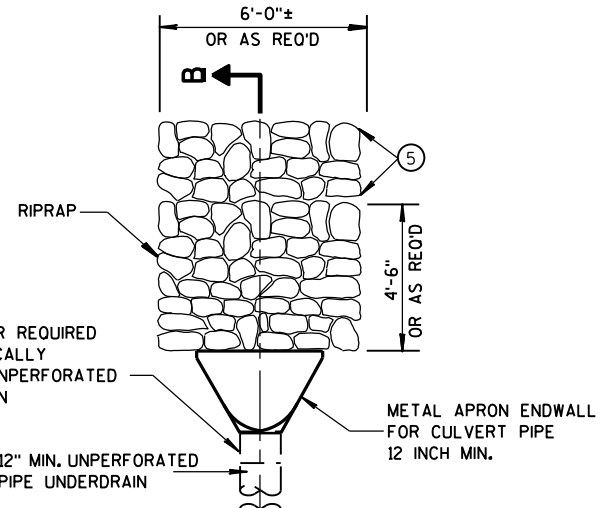
SECTION C-C

**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'-1/2".
  - ⑨ SEE CURRENT STANDARD DETAIL DRAWINGS 8A5 AND 8C7 FOR DETAILS.



EXPANSION JOINT DETAIL



PLAN VIEW

6

6

S.D.D. 8 D 3-6

S.D.D. 8 D 3-6

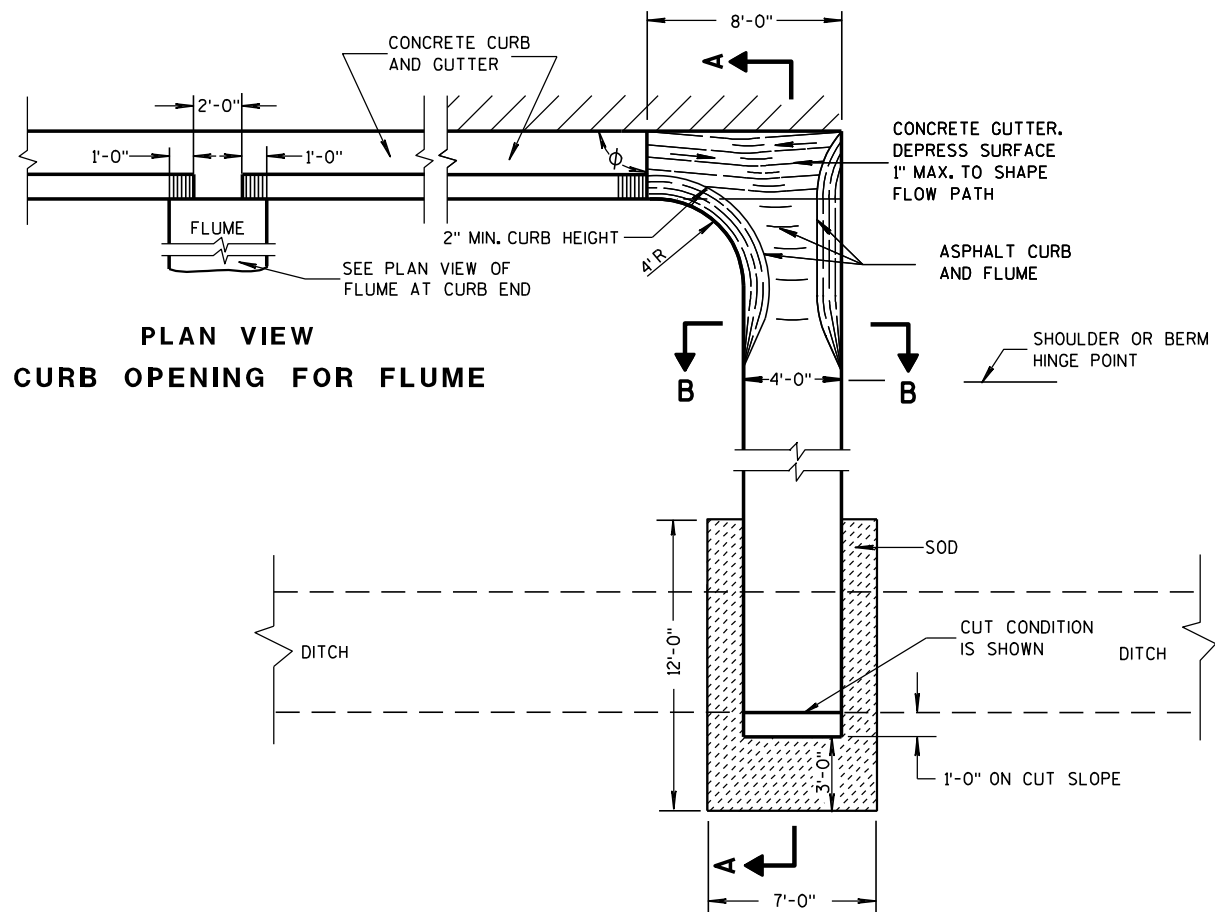
<b>CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	/S/ Jerry H. Zogg
DATE	9/4/08
FHWA	ROADWAY STANDARDS DEVELOPMENT ENGINEER



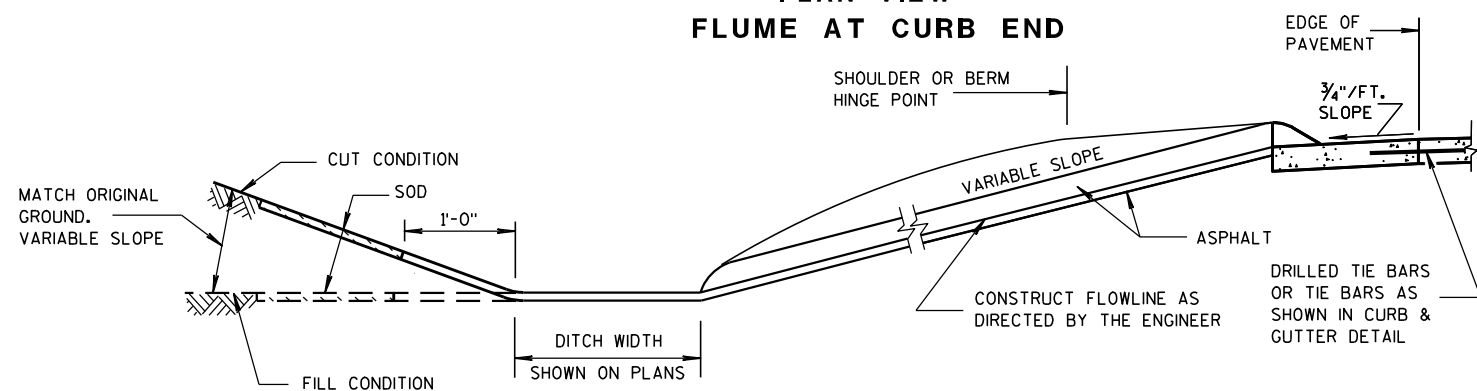
**ASPHALTIC FLUME**

NOTE: TAPER CURB ENDS TO GUTTER IN 1'-0"

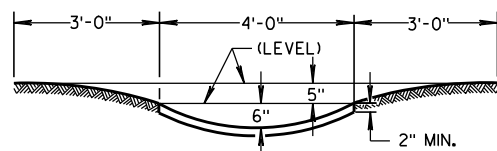
INCREASE  $\phi$  FROM RIGHT ANGLE TO BEST FIT FIELD CONDITIONS



**PLAN VIEW FLUME AT CURB END**



**SECTION B-B**



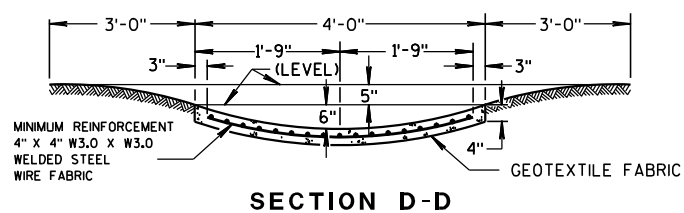
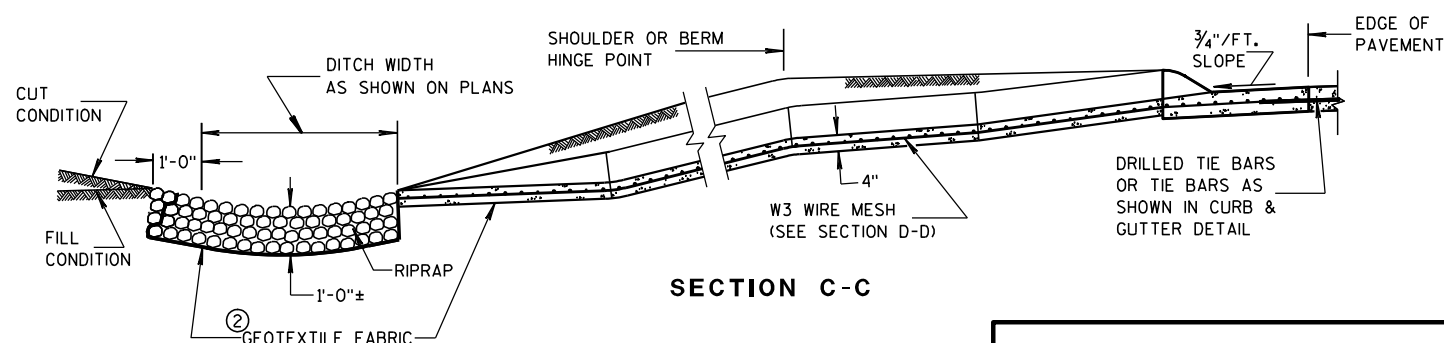
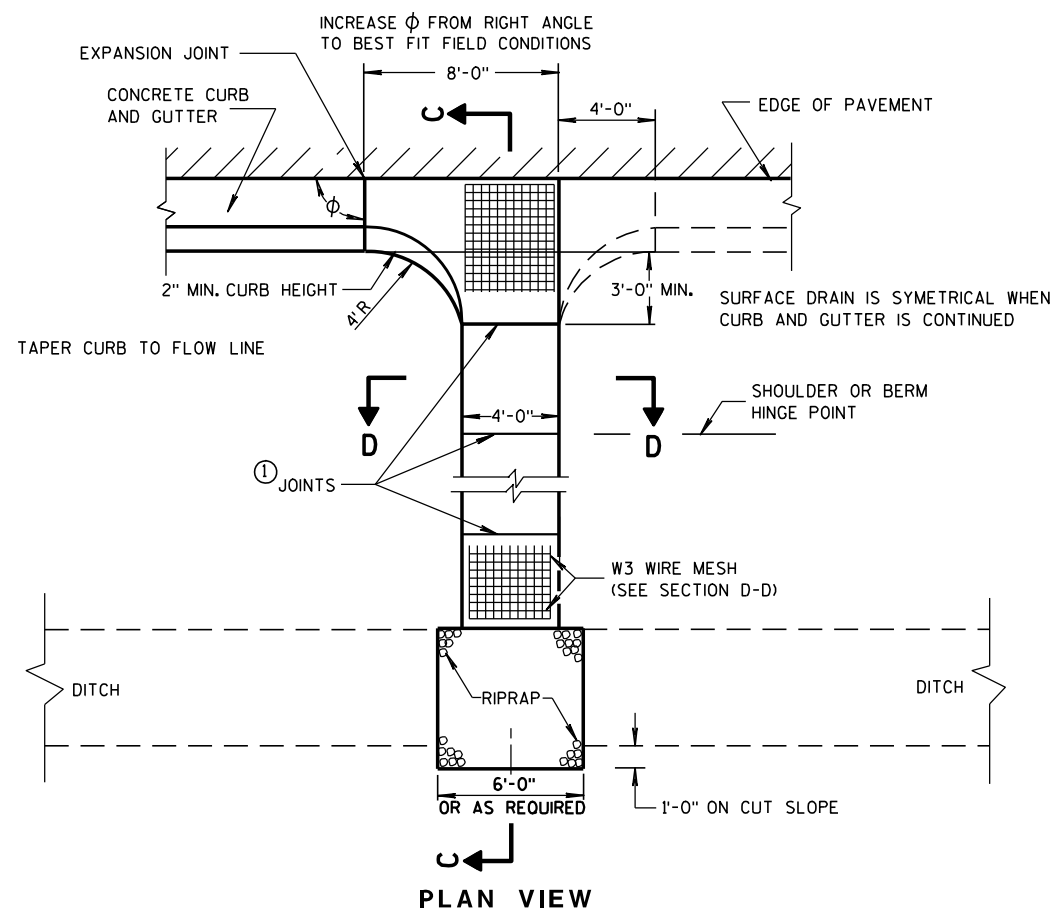
**GENERAL NOTES**

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 1/8 TO 1/4 INCH WIDE BY 1 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

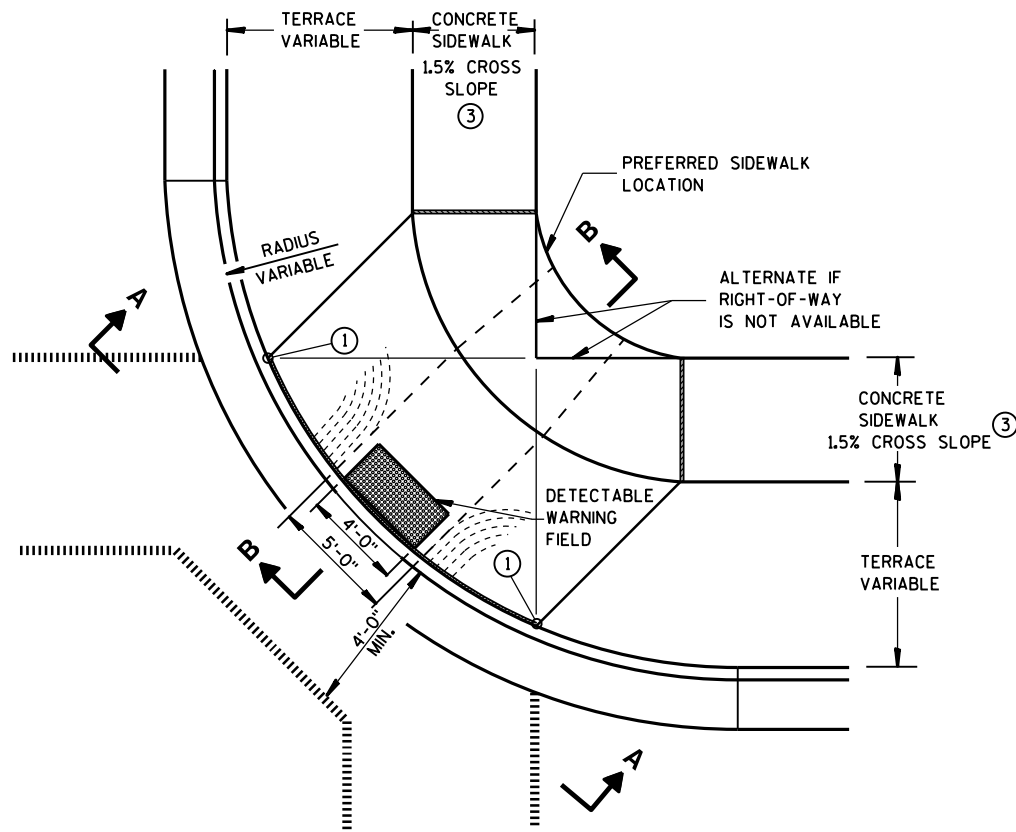
**③ CONCRETE SURFACE DRAIN**



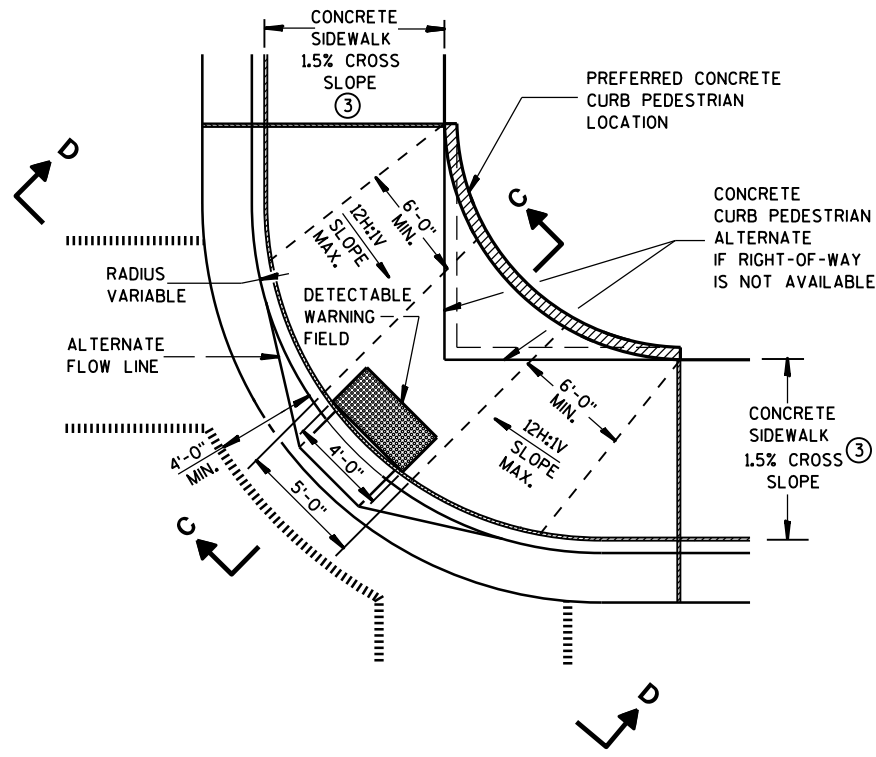
**CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

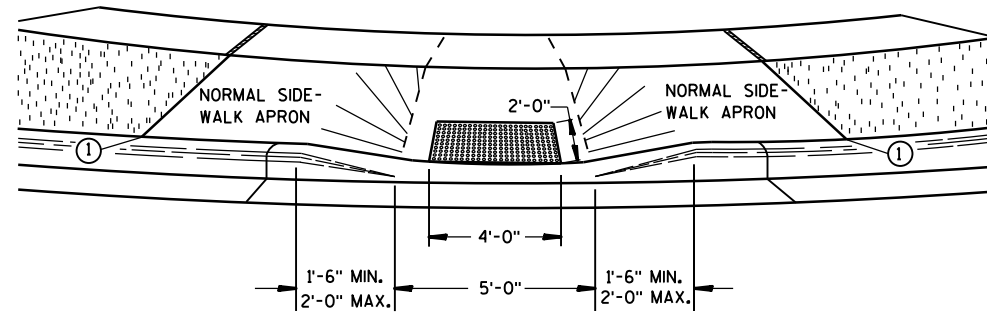
APPROVED  
9-4-08 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA



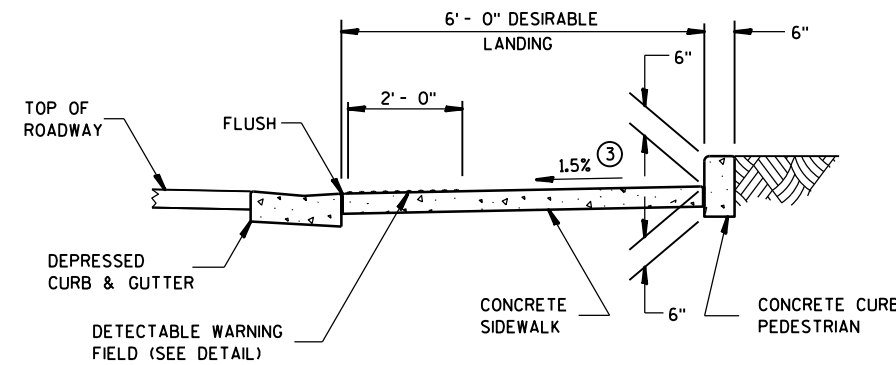
**PLAN VIEW  
TYPE 1 RAMP**  
(CENTER OF CORNER RADIUS)



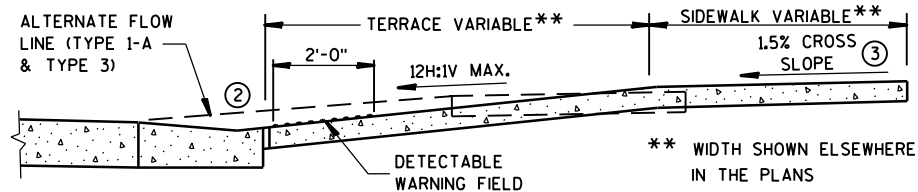
**PLAN VIEW  
TYPE 1-A RAMP**  
(NO TERRACE)



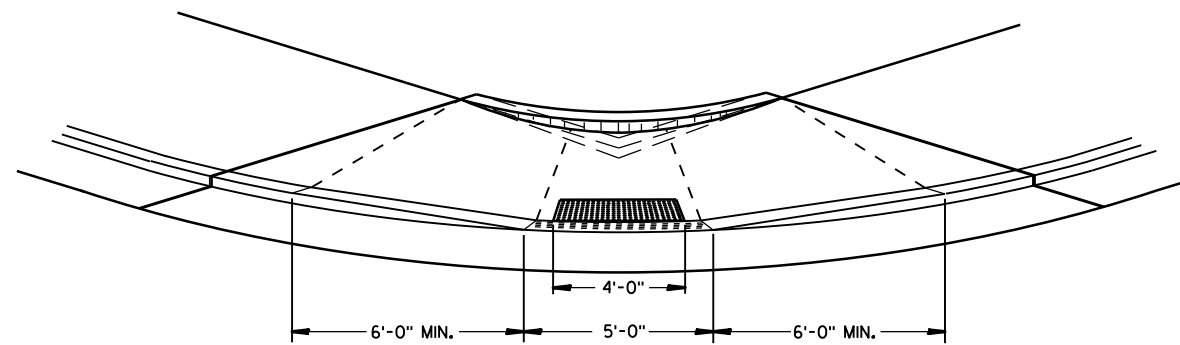
**VIEW A-A**



**SECTION C-C**



**SECTION B-B**



**VIEW D-D**

**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.

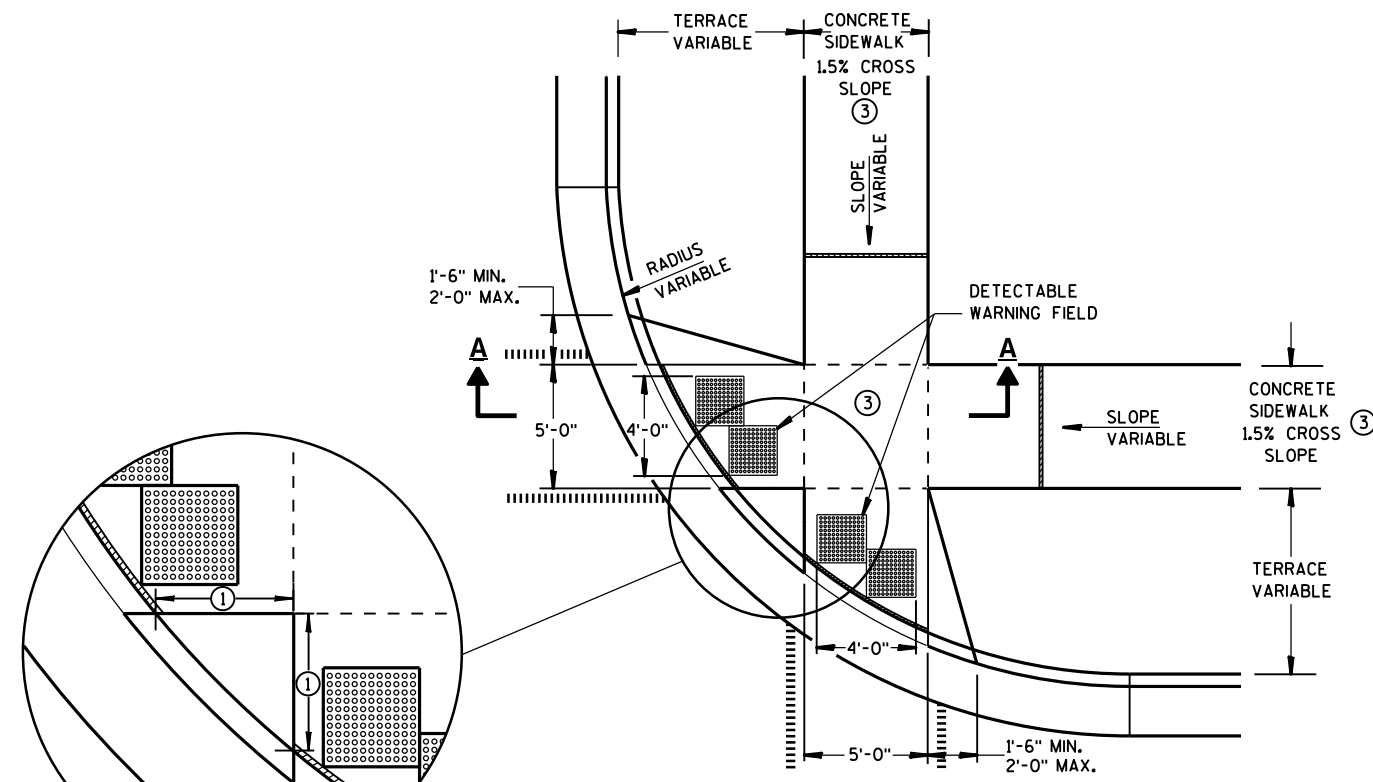
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.
- ③ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

**LEGEND**

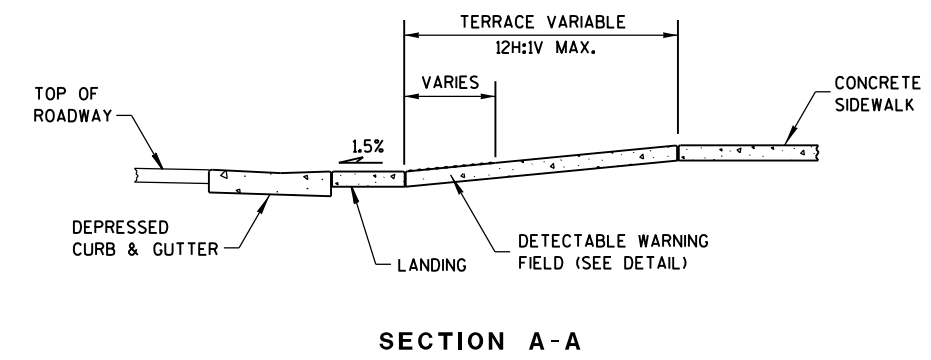
- 1/2" EXPANSION JOINT-SIDEWALK
- - - - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT

**CURB RAMPS  
TYPES 1 AND 1-A**

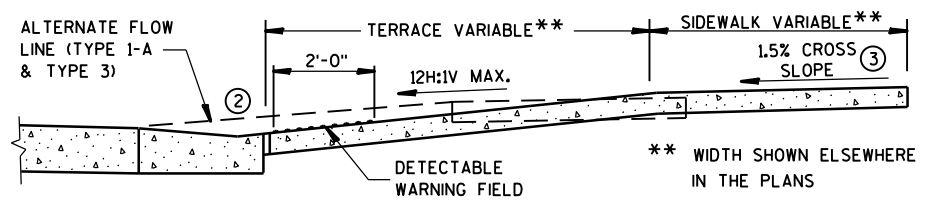
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**PLAN VIEW  
TYPE 2 RAMP**  
(ON LINE WITH SIDEWALK)



**SECTION A-A**



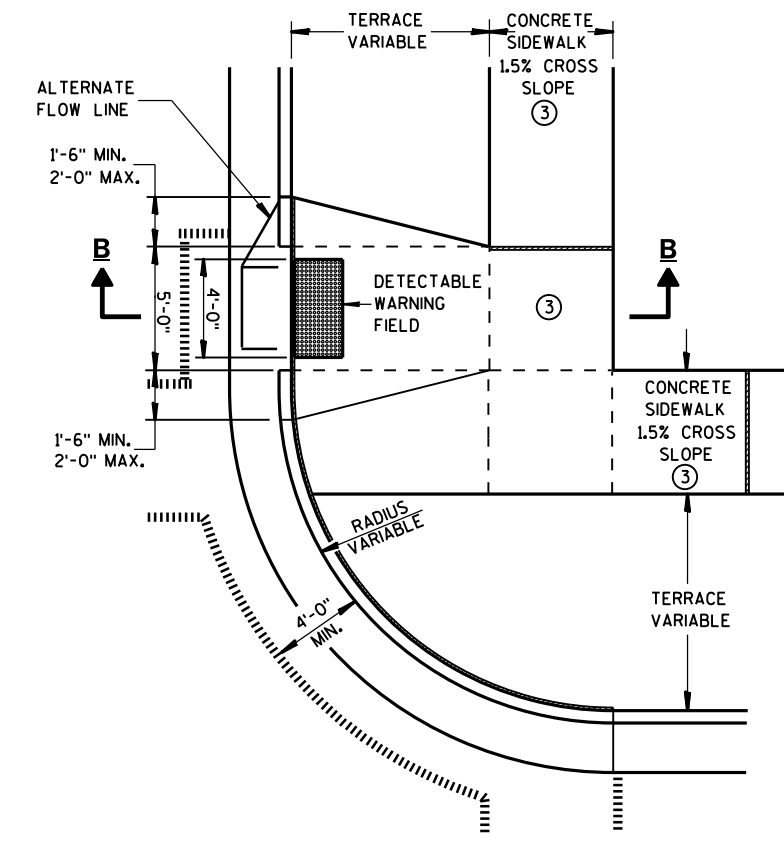
**SECTION B-B**

**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 1%. 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**

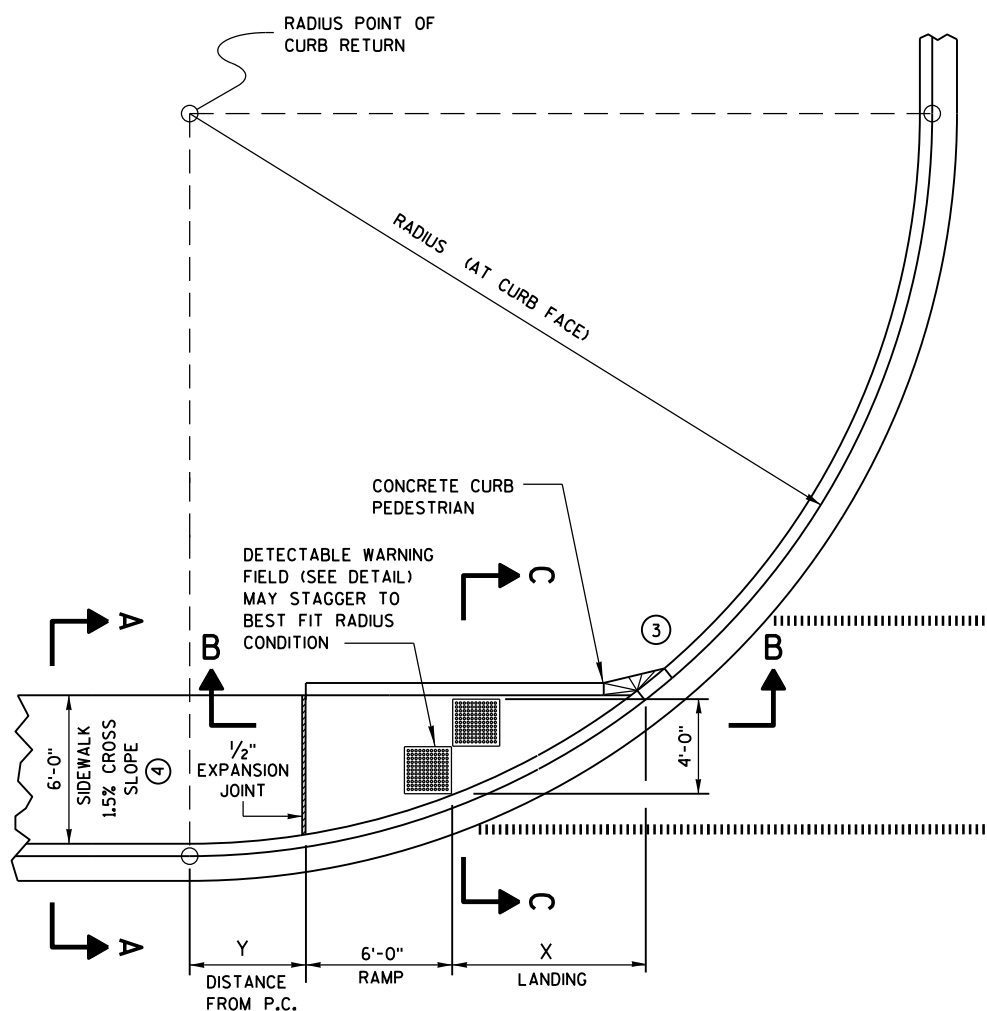
- 1/2" EXPANSION JOINT-SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



**PLAN VIEW  
TYPE 3 RAMP**  
(OUTSIDE OF CROSSWALK AREA)

**CURB RAMPS  
TYPES 2 AND 3**

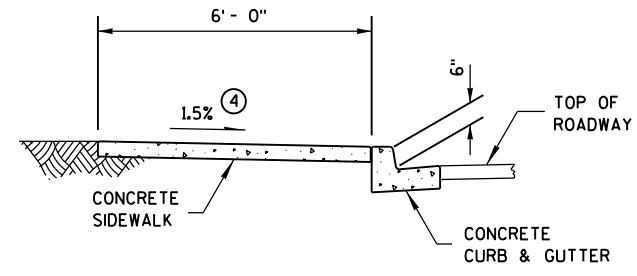
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



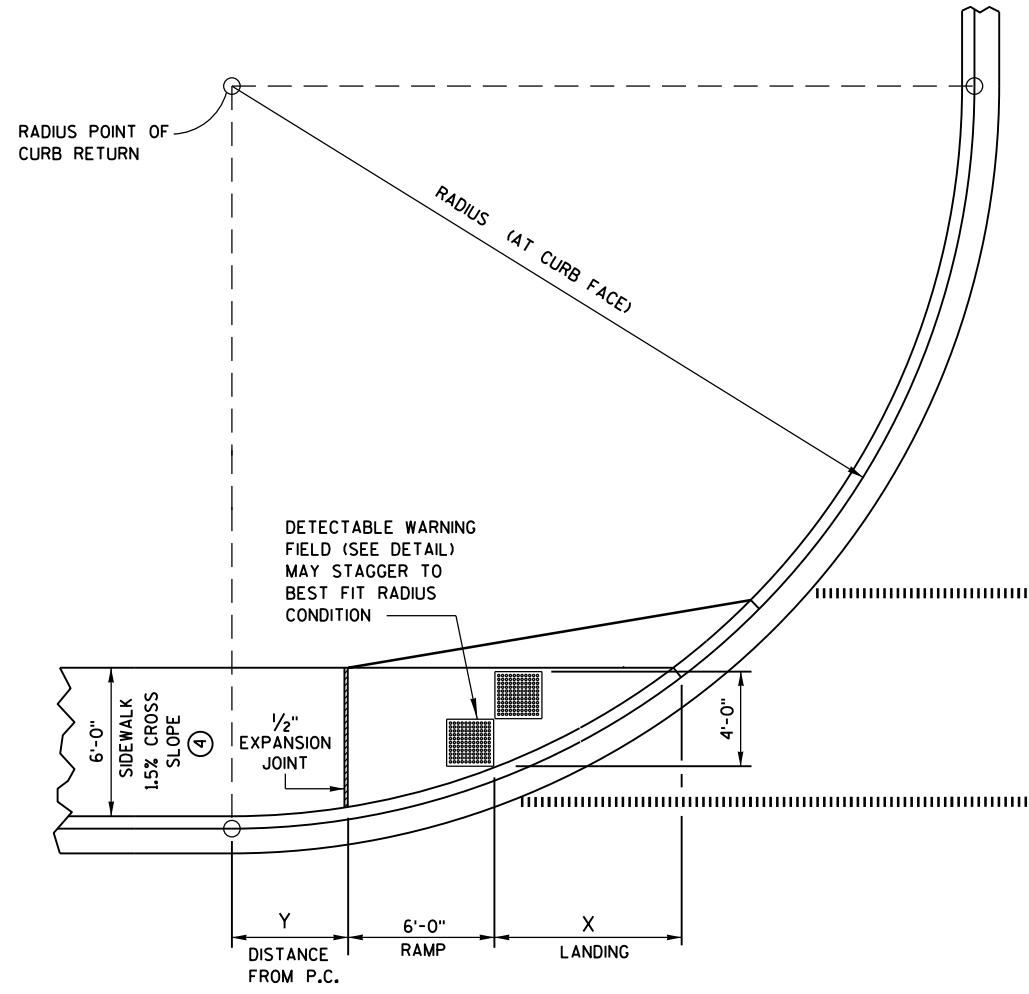
**CURB RAMP TYPE 4A**  
PLAN VIEW

RADIUS (AT CURB FACE)	X	Y
20 FEET	6'-13/4"	2'-7/4"
30 FEET	7'-113/4"	4'-8/4"
40 FEET	9'-5/4"	6'-5"
50 FEET	10'-83/4"	7'-11/4"
60 FEET	11'-10/4"	9'-3/2"

INTERMEDIATE RADII CAN BE INTERPOLATED



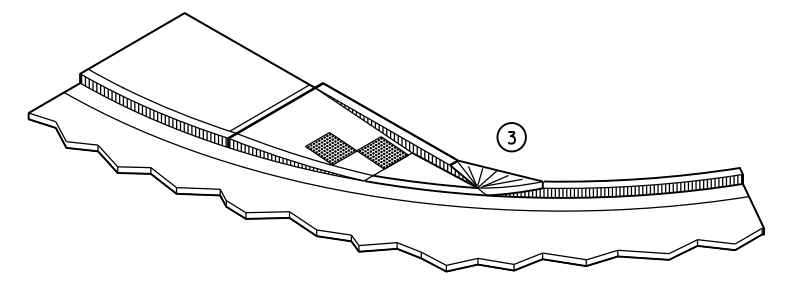
**SECTION A-A FOR TYPE 4A**



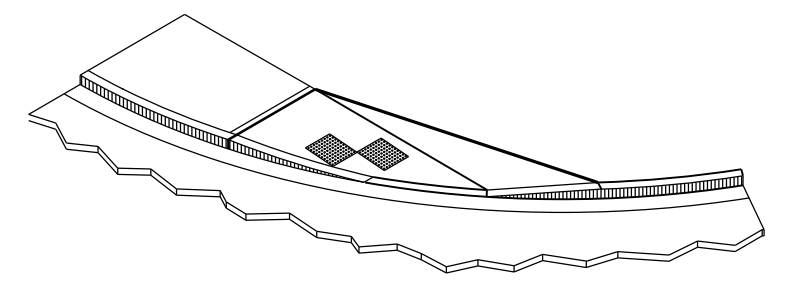
**CURB RAMP TYPE 4A1**  
PLAN VIEW

**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**



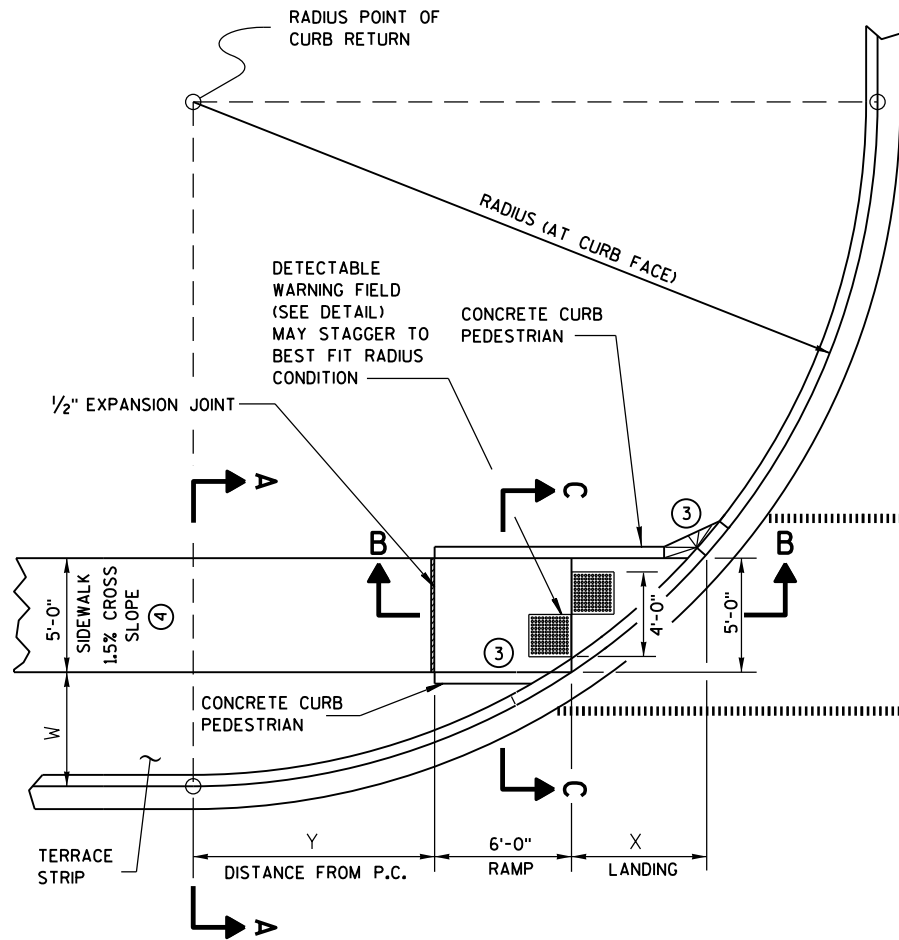
**ISOMETRIC VIEW FOR TYPE 4A1**

**LEGEND**

- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

**CURB RAMPS**  
**TYPES 4A AND 4A1**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

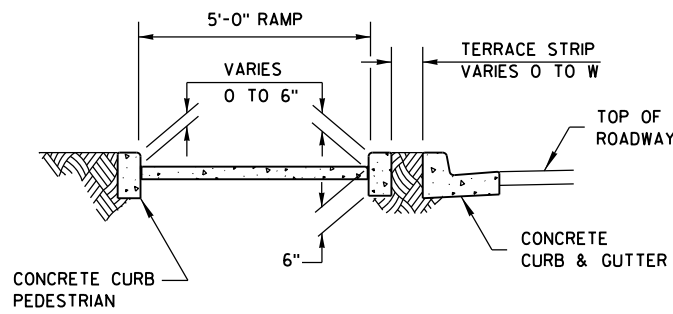


**LEGEND**

- 1/2" 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'-5 1/2"	4'-6 1/2"	4'-8 1/2"	6'-0"	4'-1"	7'-2 3/4"	3'-7"	8'-3 1/2"	3'-1 1/2"	9'-2 1/2"
30 FEET	7'-3 3/4"	7'-1"	6'-5 1/2"	8'-11 1/2"	5'-9 1/4"	10'-7"	5'-2 1/2"	12'-0"	4'-8 3/4"	13'-3 1/4"
40 FEET	8'-9 1/2"	9'-2 1/2"	7'-10"	11'-5 1/4"	7'-1"	13'-4 1/2"	6'-5 3/4"	15'-3 1/4"	5'-11 1/2"	16'-7 1/4"
50 FEET	10'-3 1/4"	11'-3 1/4"	9'-1 1/4"	13'-7 1/4"	8'-2 1/2"	15'-9 1/2"	7'-6 1/2"	17'-9"	6'-11 3/4"	19'-6 1/4"
60 FEET	11'-2 1/2"	12'-8 3/4"	10'-3 1/4"	15'-6 1/2"	9'-2 1/4"	17'-11 3/4"	8'-5 3/4"	20'-1 3/4"	7'-10 1/2"	22'-1 1/2"

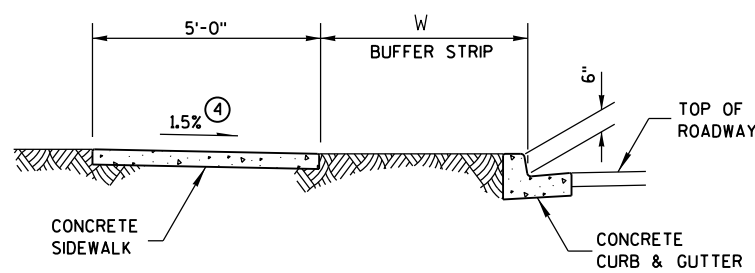
INTERMEDIATE RADII CAN BE INTERPOLATED



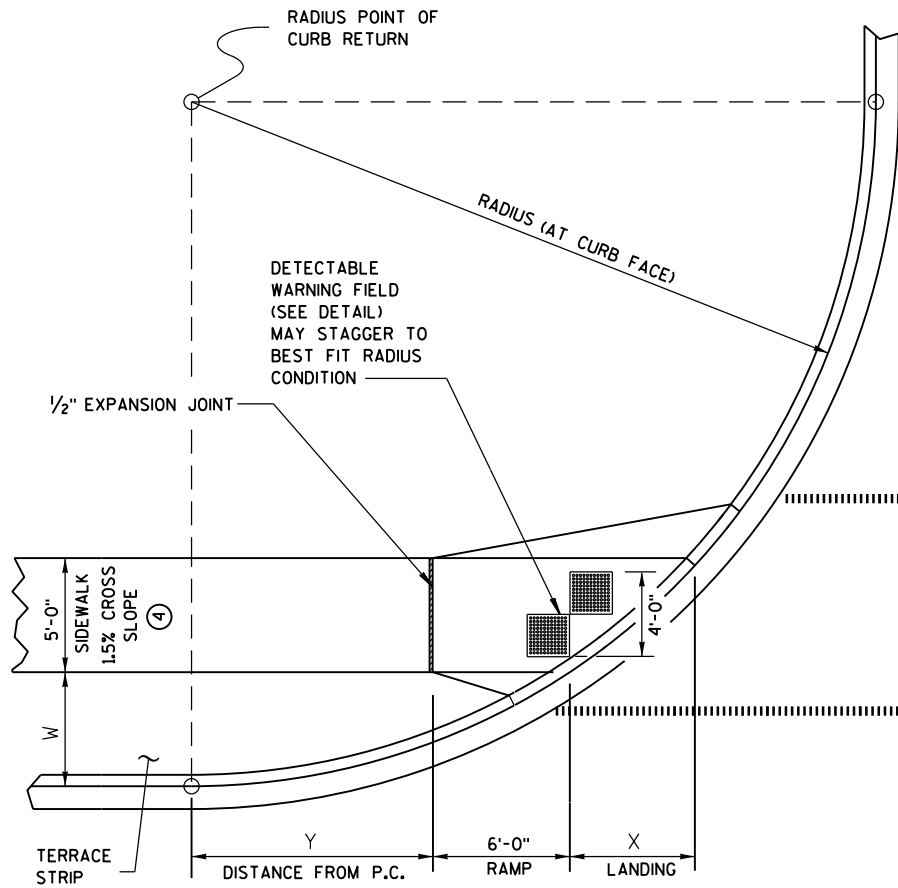
**SECTION C-C FOR TYPE 4B**

**GENERAL NOTES**

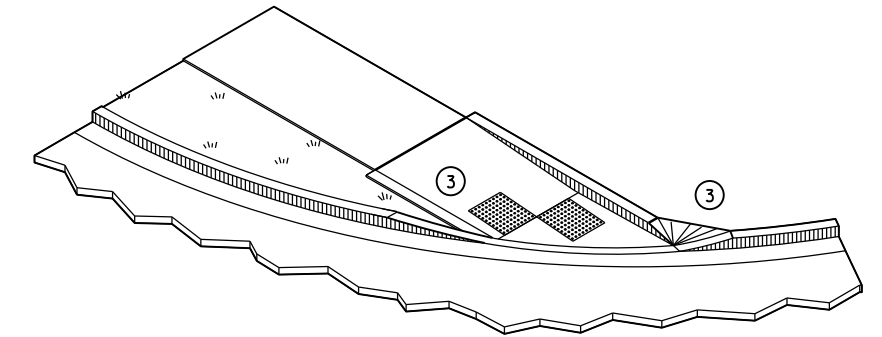
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ③ INSTALL TRANSITION NOSE. (INCIDENTAL 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.



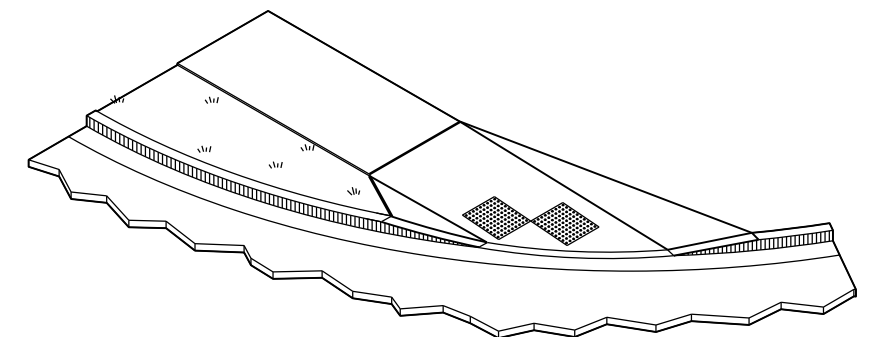
**SECTION A-A FOR TYPE 4B**



**CURB RAMP TYPE 4B1  
PLAN VIEW**



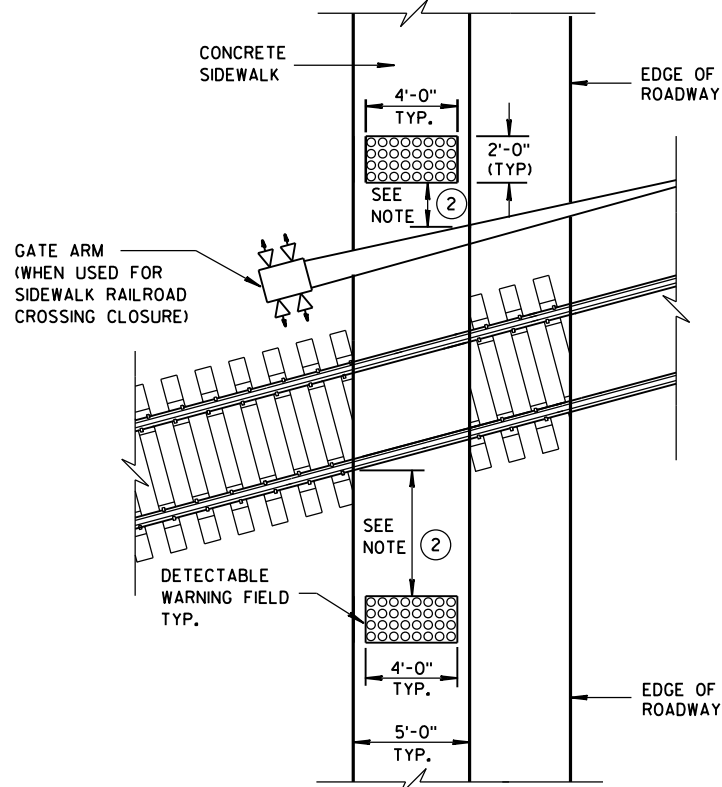
**ISOMETRIC VIEW FOR TYPE 4B**



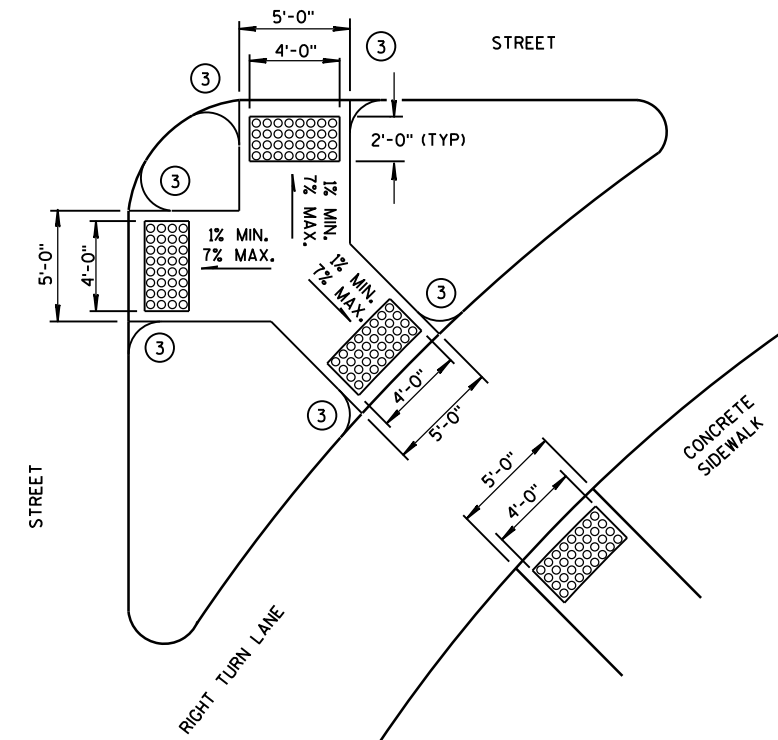
**ISOMETRIC VIEW FOR TYPE 4B1**

**CURB RAMPS  
TYPE 4B AND 4B1**

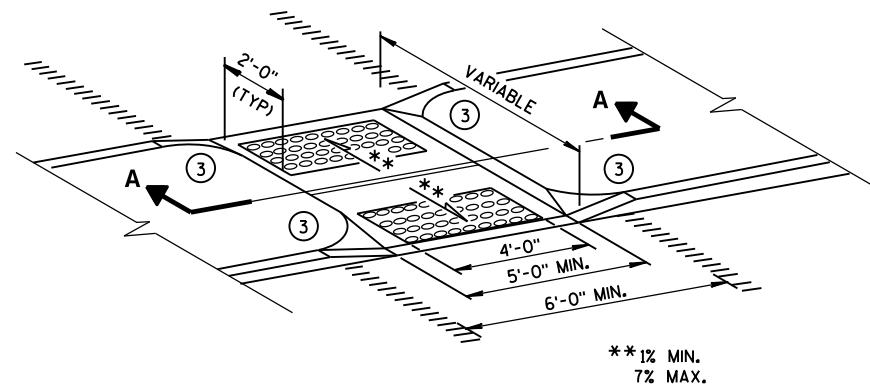
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



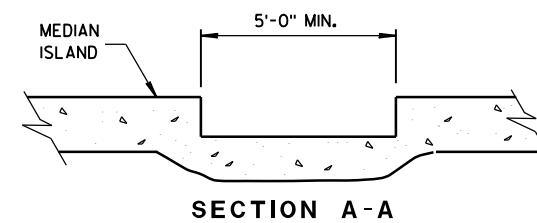
**TYPE 8  
DETECTABLE WARNINGS  
AT RAILROAD CROSSING**



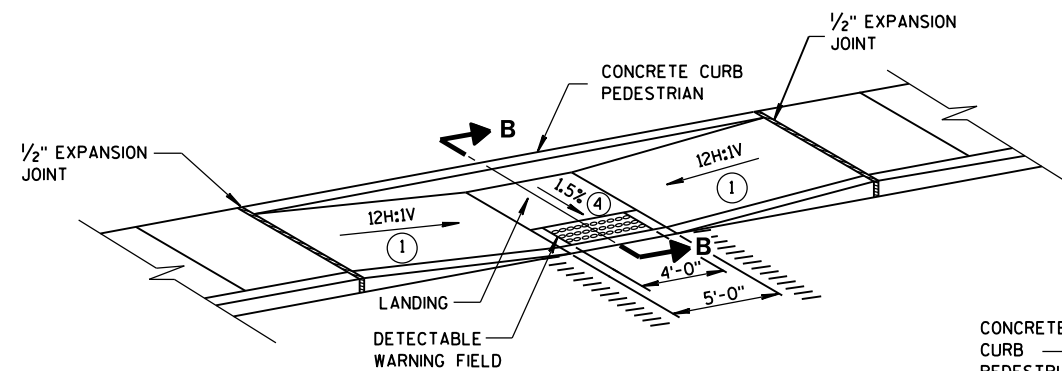
**TYPE 6  
DETECTABLE WARNING AT ISLANDS**



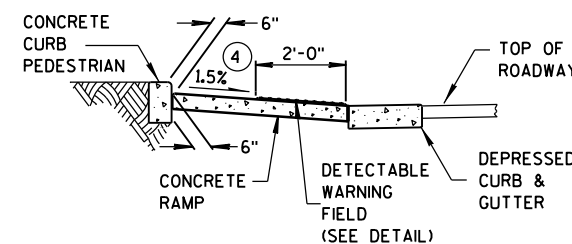
**MEDIAN ISLAND  
NON-ELEVATED CROSSING  
TYPE 5**



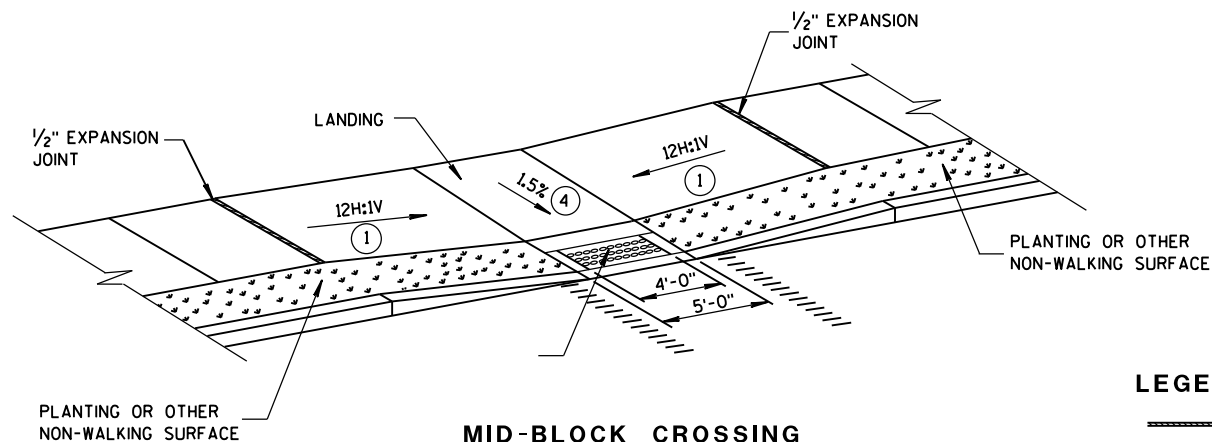
**SECTION A-A**



**MID-BLOCK CROSSING  
TYPE 7A**



**SECTION B-B**

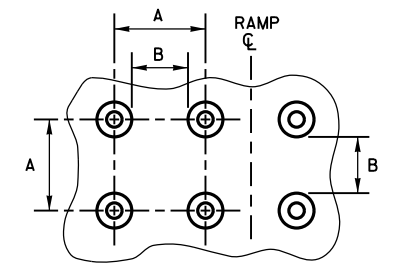


**MID-BLOCK CROSSING  
TYPE 7B**

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

**GENERAL NOTES**

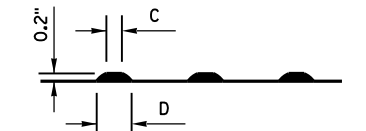
- SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ① SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.
- ② THE EDGE OF THE DETECTABLE 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.



**PLAN VIEW**

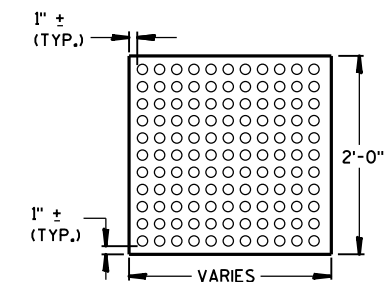
	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

\* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.



**ELEVATION VIEW**

**TRUNCATED DOMES  
DETECTABLE WARNING  
PATTERN DETAIL**



**PLAN VIEW  
DETECTABLE WARNING  
FIELD (TYPICAL)**

**LEGEND**

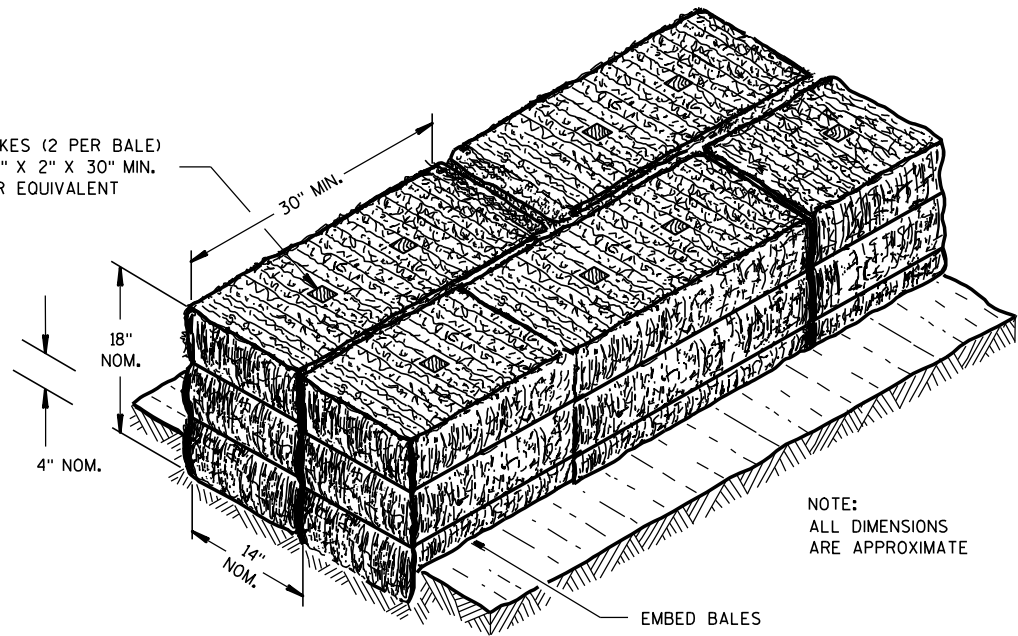
- 1/2" EXPANSION JOINT-SIDEWALK
- - - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)

**CURB RAMPS  
TYPES 5, 6, 7A, 7B & 8**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
2-6-2013 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

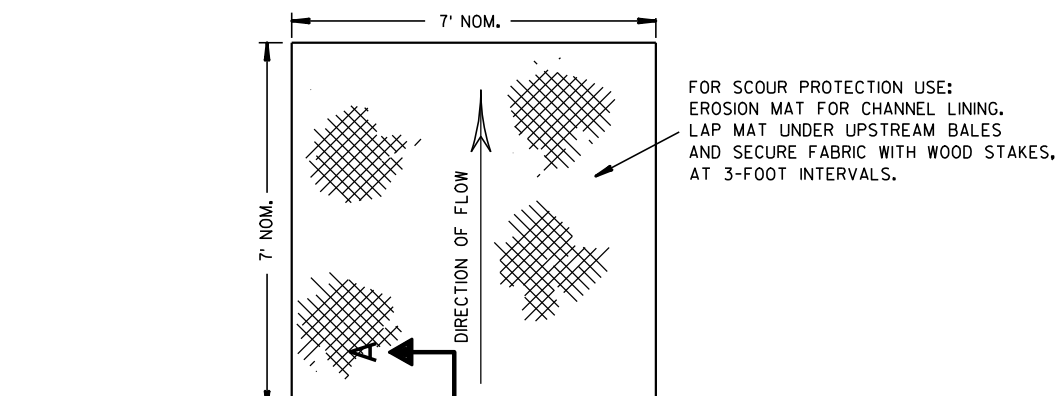
WOOD STAKES (2 PER BALE)  
NOMINAL 2" X 2" X 30" MIN.  
LENGTH OR EQUIVALENT



NOTE:  
ALL DIMENSIONS  
ARE APPROXIMATE

EMBED BALES

SECTION A-A

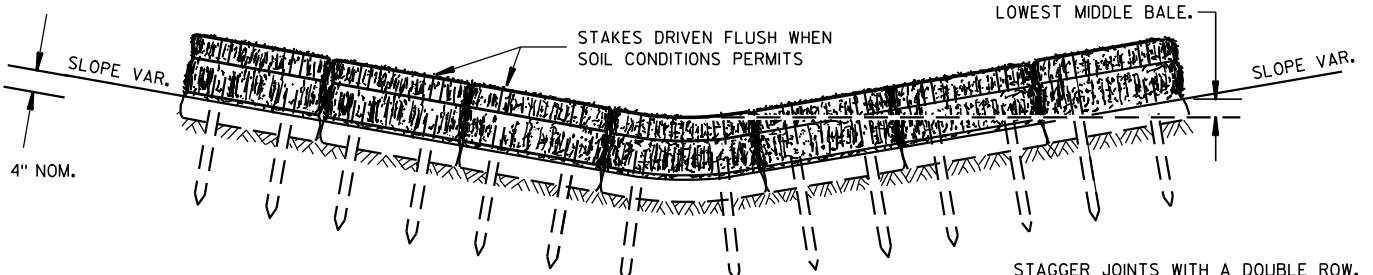


FOR SCOUR PROTECTION USE:  
EROSION MAT FOR CHANNEL LINING.  
LAP MAT UNDER UPSTREAM BALES  
AND SECURE FABRIC WITH WOOD STAKES,  
AT 3-FOOT INTERVALS.

PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT  
ROWS OF BALES.

BOTTOM ELEVATION OF END BALE SHALL  
BE EQUAL TO OR GREATER THAN TOP OF  
LOWEST MIDDLE BALE.



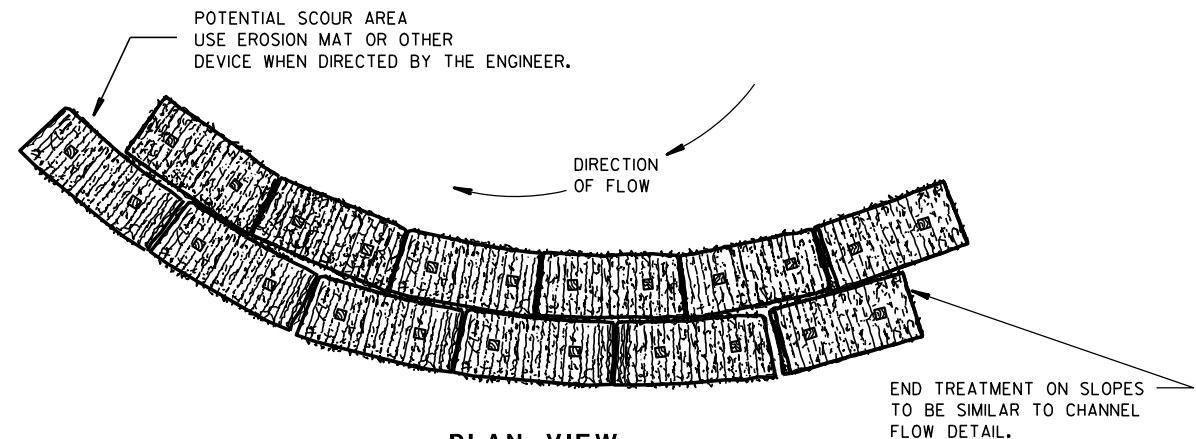
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

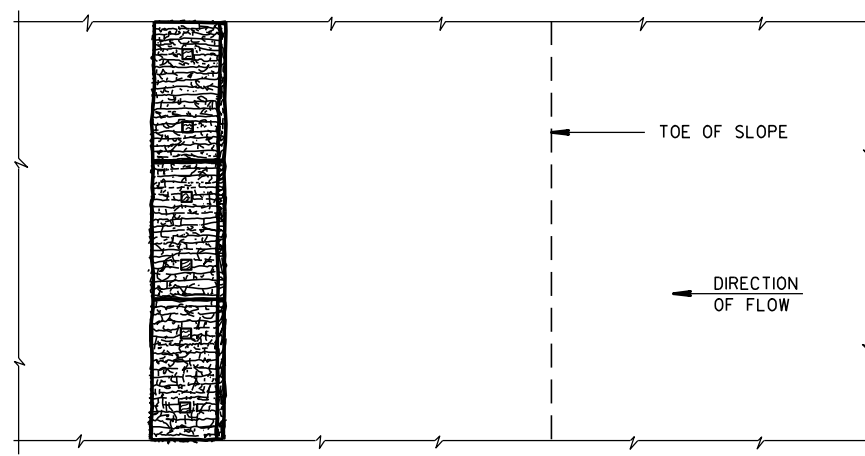
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- 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.

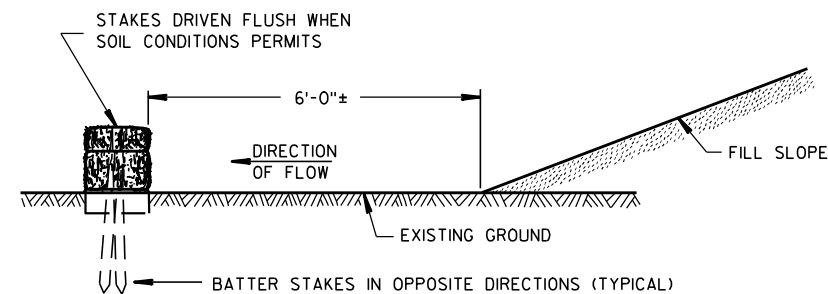


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

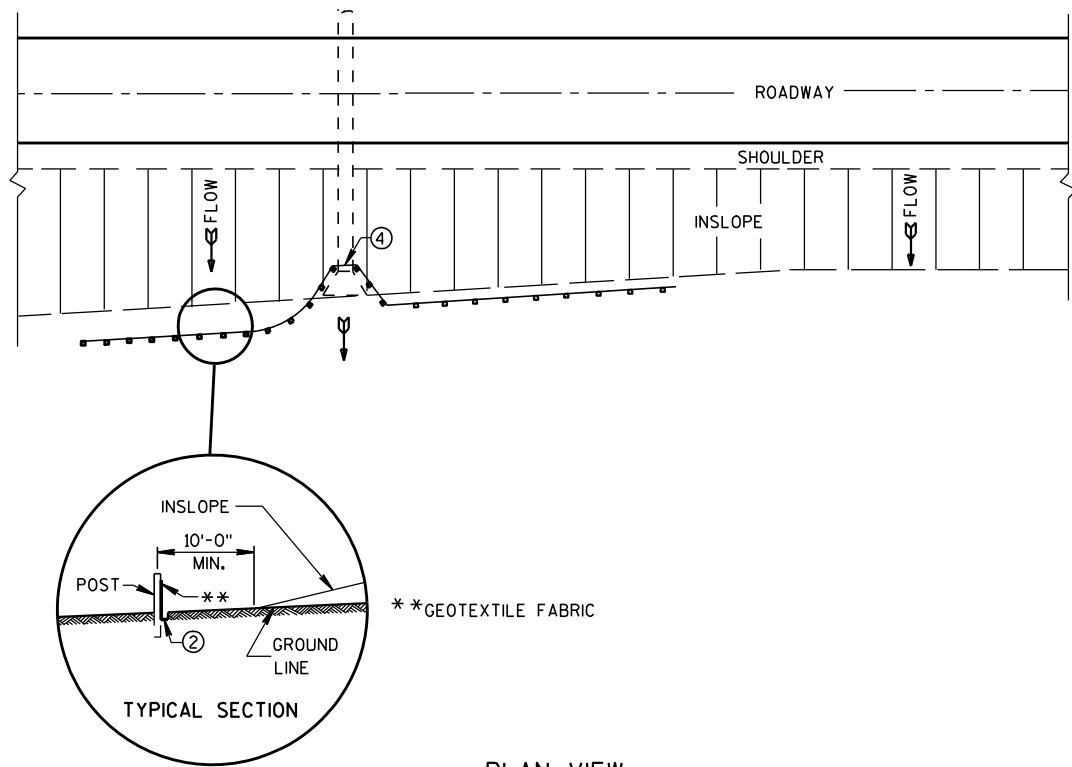
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

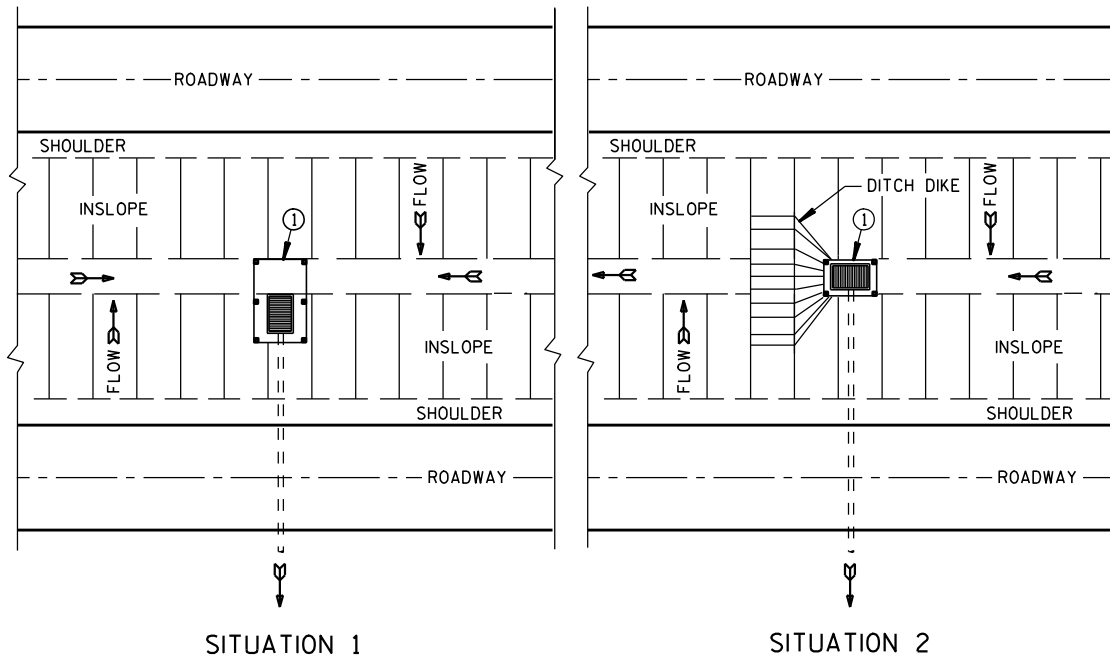
TYPICAL INSTALLATIONS OF  
EROSION BALES / TEMPORARY  
DITCH CHECKS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

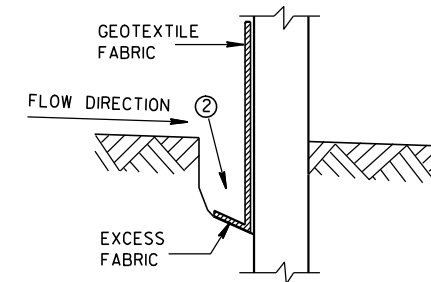


SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

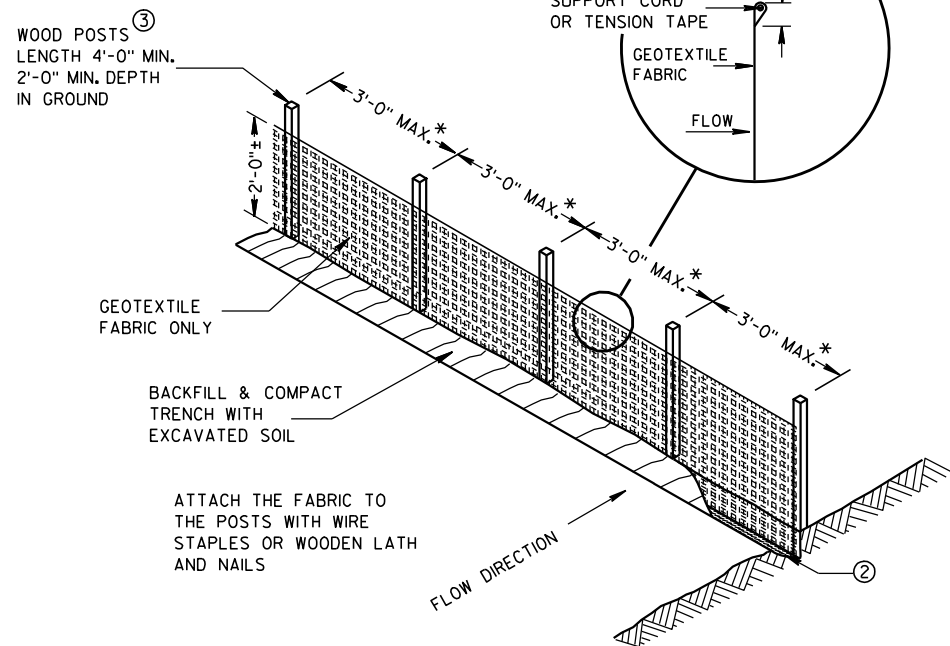
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- 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 1 1/8" X 1 1/8" 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.



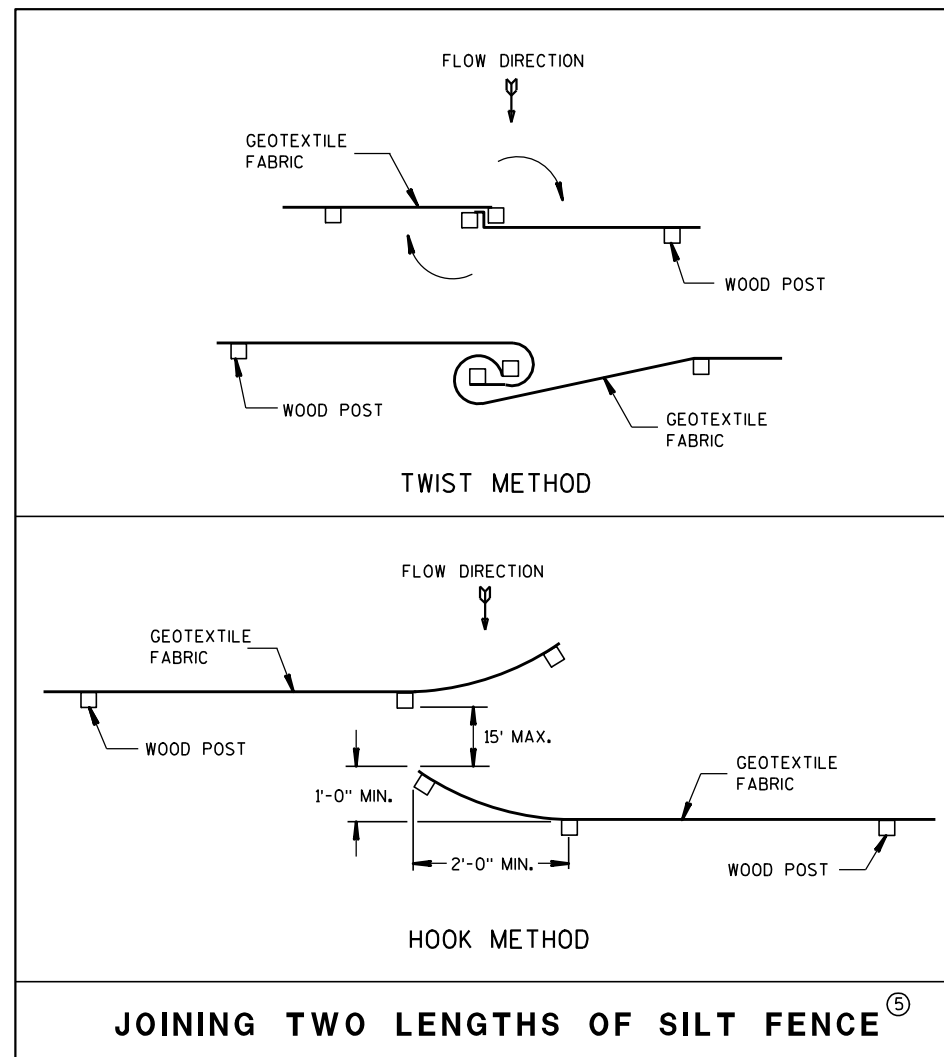
TRENCH DETAIL

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

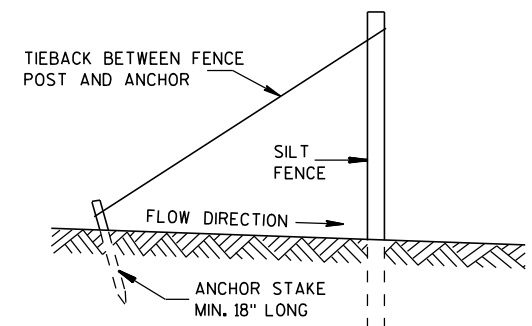


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

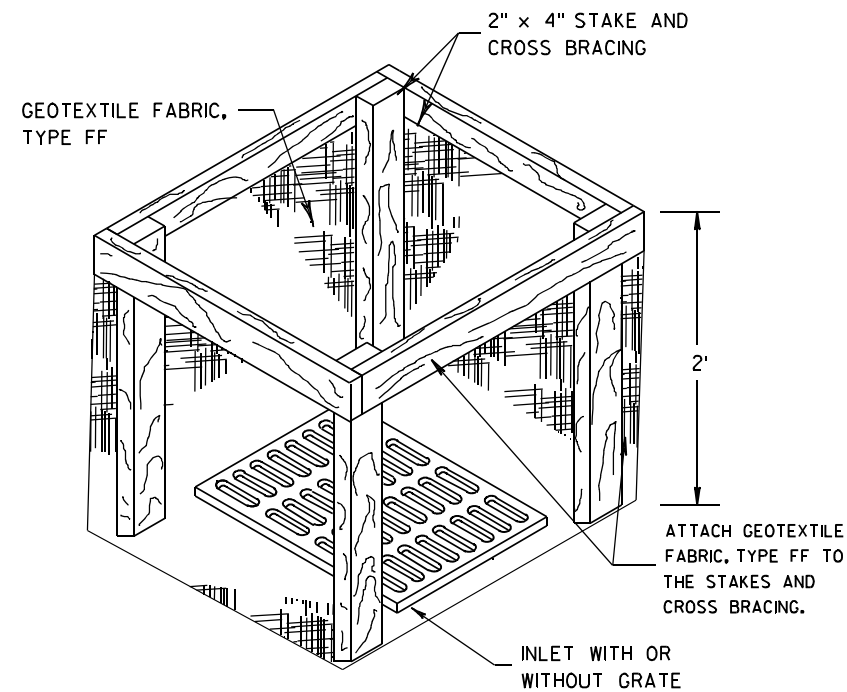
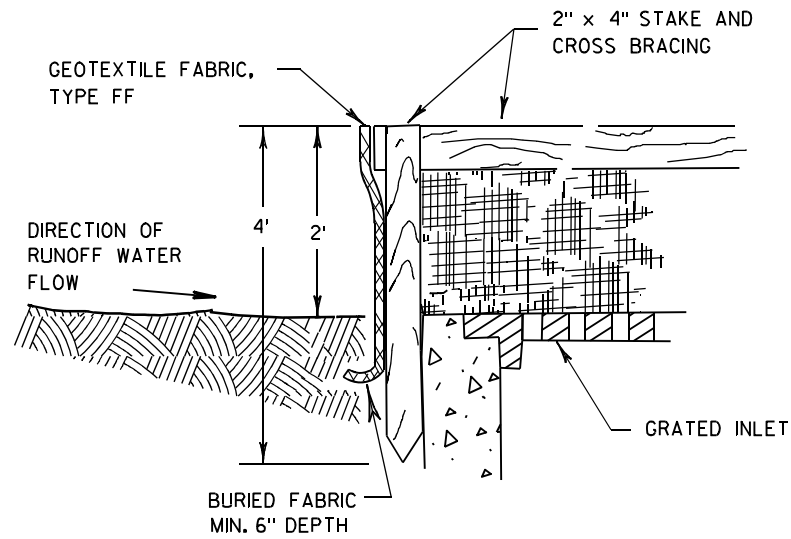
APPROVED

4-29-05  
DATE

FHWA

/S/ Beth Cannestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER





**INLET PROTECTION, TYPE A**

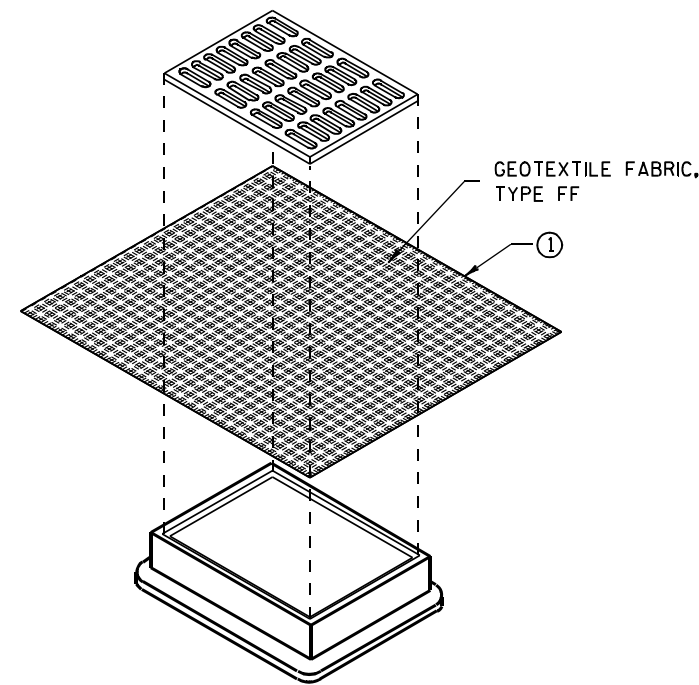
**GENERAL NOTES**

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.

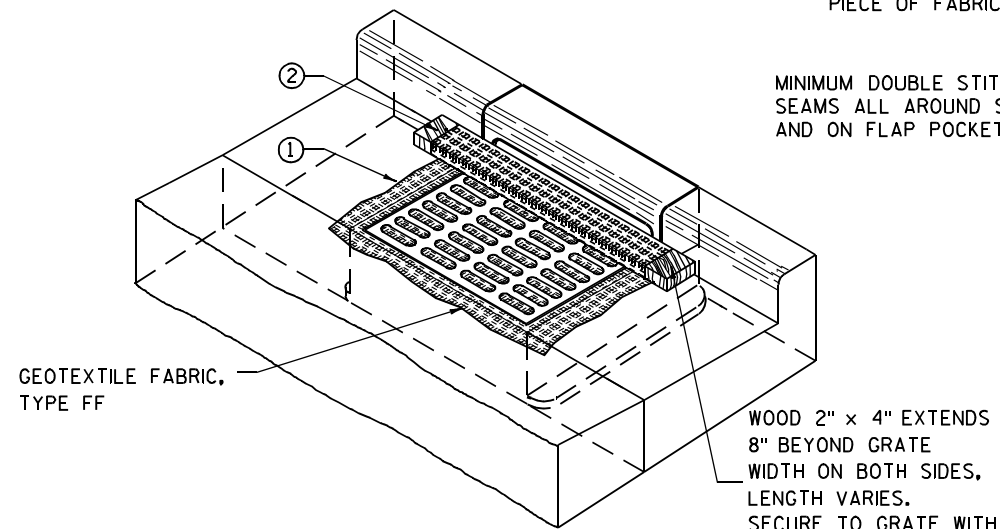
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- 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.



**INLET PROTECTION, TYPE B  
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



**INLET PROTECTION, TYPE C (WITH CURB BOX)**

**INSTALLATION NOTES**

**TYPE B & C**

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

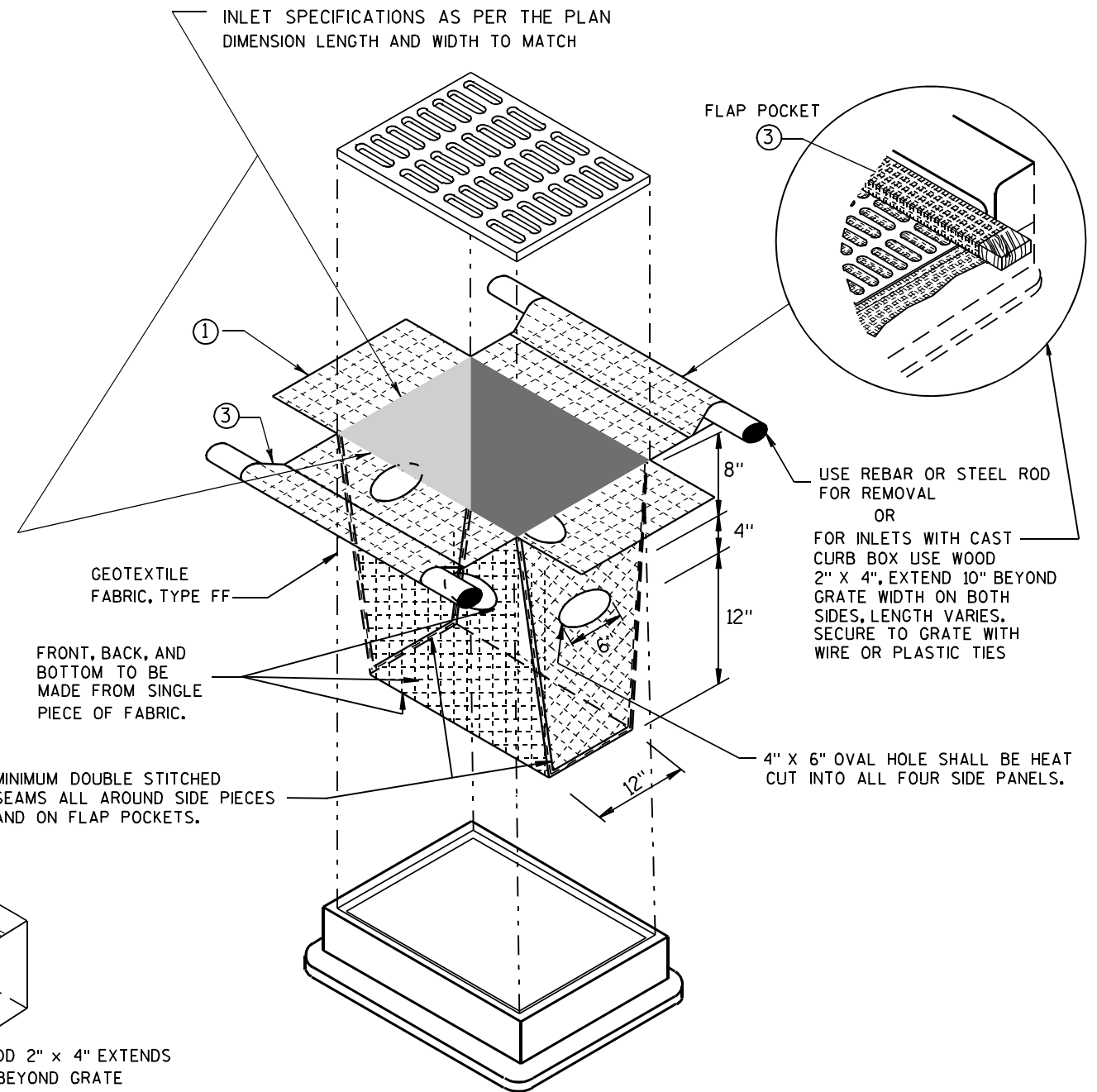
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

**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 D**

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

**INLET PROTECTION  
TYPE A, B, C, AND D**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

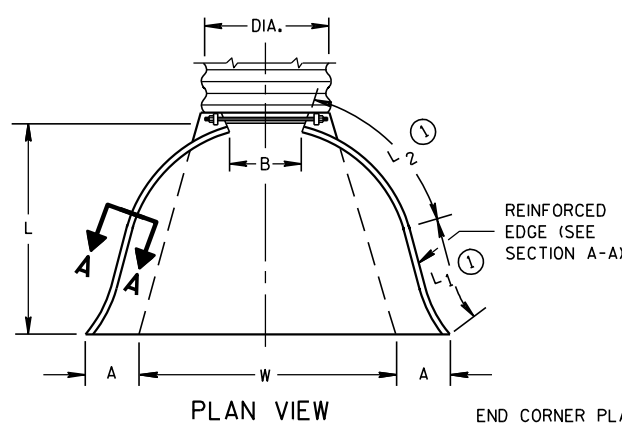
APPROVED  
10/16/02 /S/ Beth Connestra  
DATE  
CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1	L2	W (±2")		
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	.109x	.105x	18	33	12	87	—	114	120	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	120	144	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	126	156	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	132	180	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	138	216	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	144	270	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	150	324	1 1/2 to 1	3 Pc.

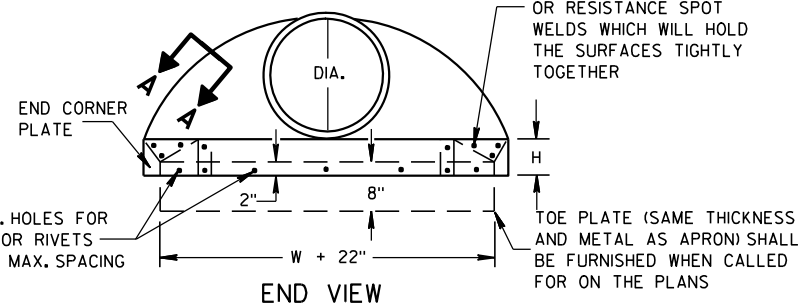
\* EXCEPT CENTER PANEL SEE GENERAL NOTES

REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 1/8	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 1/2 to 1	
60	6	30-35	60	39	99	96	5	2 to 1	
66	6 1/2	30-35	72-78	21-27	99	102	5 1/2	2 to 1	
72	7	30-35	78	21	99	108	6	2 to 1	
78	7 1/2	30-35	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	

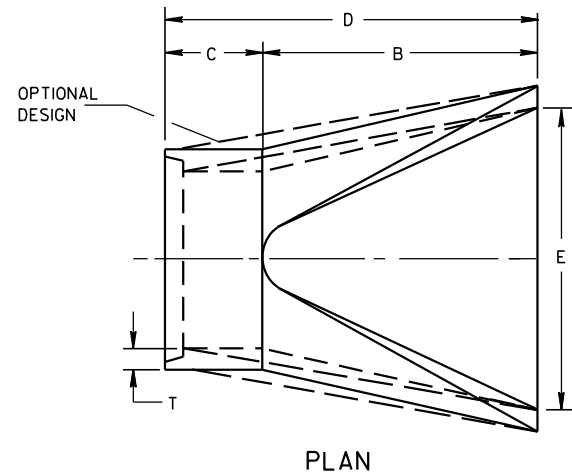
\* MINIMUM  
\*\* MAXIMUM



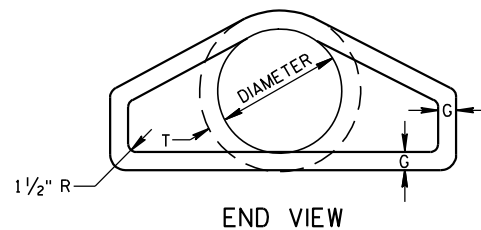
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



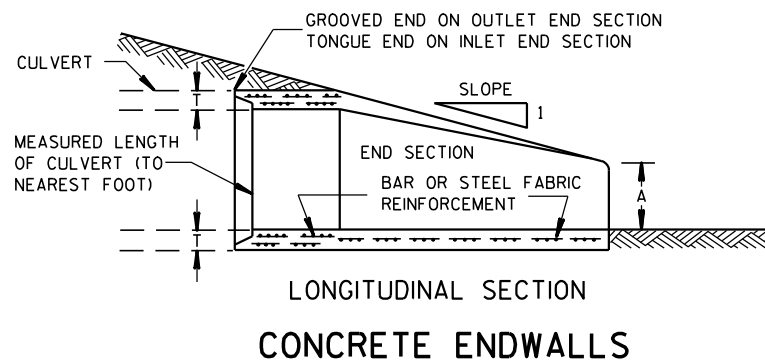
SIDE ELEVATION  
METAL ENDWALLS



PLAN

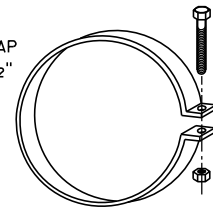


END VIEW

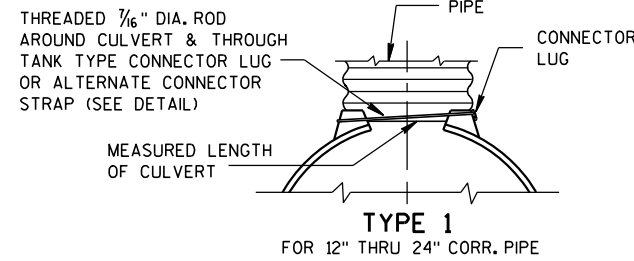


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

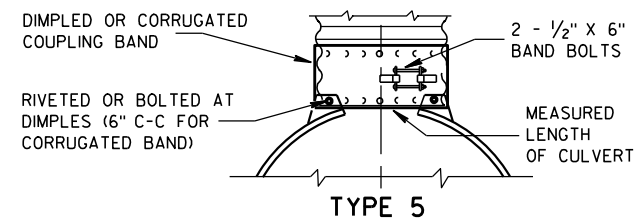
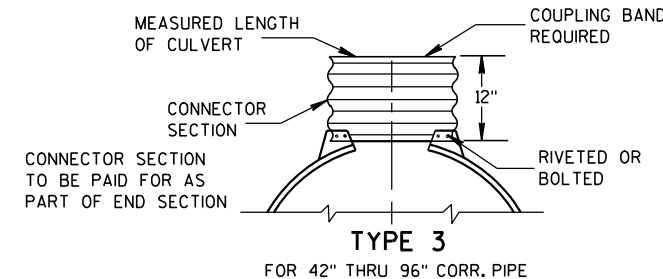
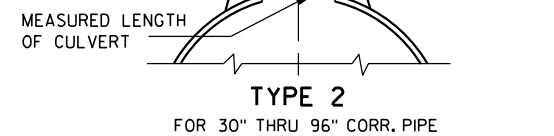
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



THREADED 1/16" DIA. ROD OVER TOP OF APRON, SIDE LUGS TO BE RIVETED TO APRON



ALTERNATE FOR:  
ALL SIZES CORRUGATED CIRCULAR PIPE

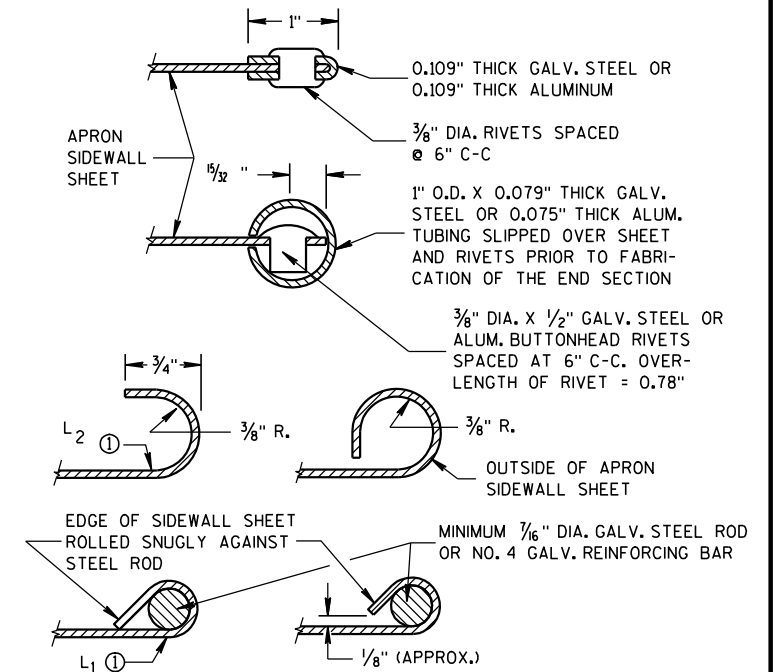
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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 VICE 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.

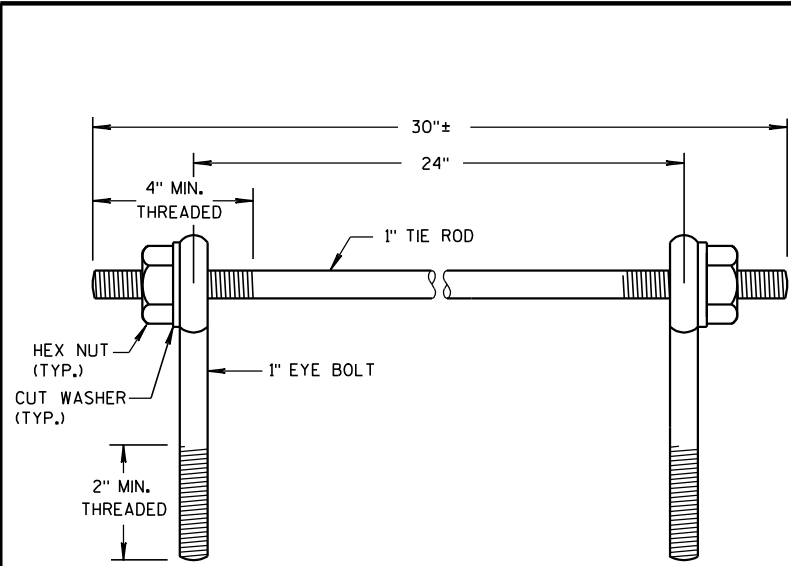
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

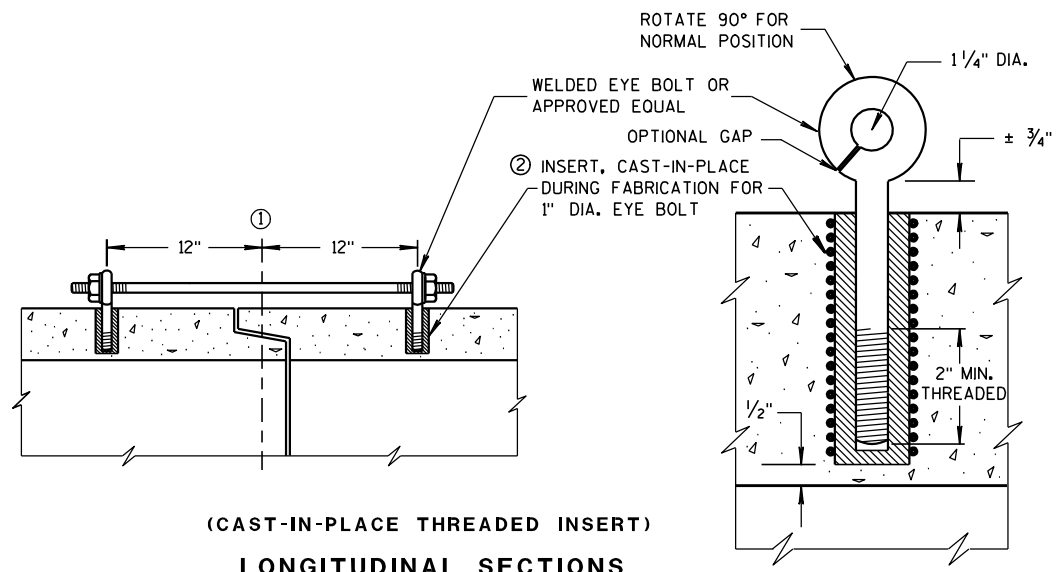
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



EYE BOLTS AND TIE ROD

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



(CAST-IN-PLACE THREADED INSERT)  
LONGITUDINAL SECTIONS

GENERAL NOTES

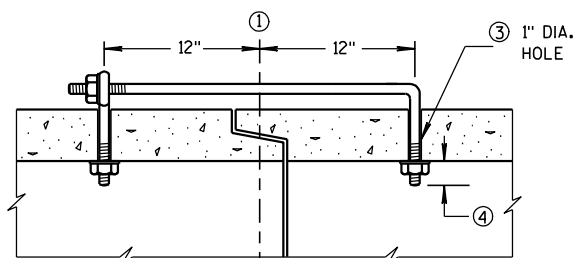
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.

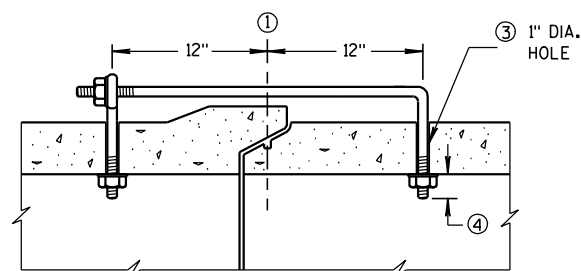
DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- ①  $\phi$  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  $\phi$  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  $\frac{1}{2}$  INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)



(MODIFIED BELL PIPE)  
LONGITUDINAL SECTION

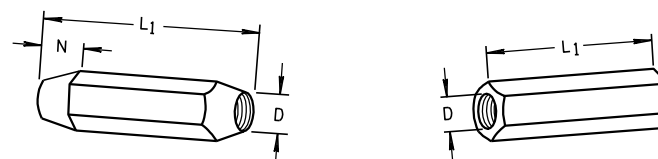
EYE BOLT DIMENSION TABLE

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"	

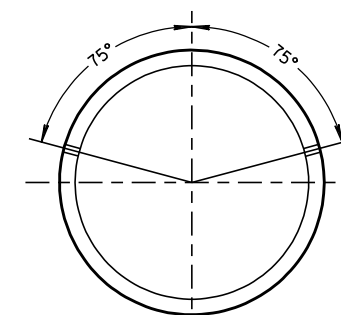
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L <sub>1</sub>	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 1/6

DIMENSIONS SHOWN ARE IN INCHES

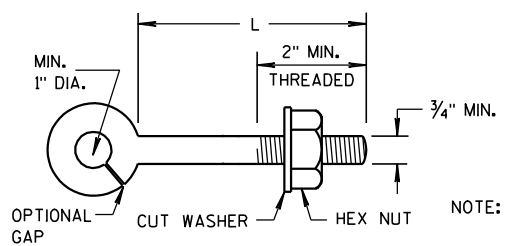


TAPERED PLAIN  
RIGHT AND LEFT THREADS  
SLEEVE NUTS



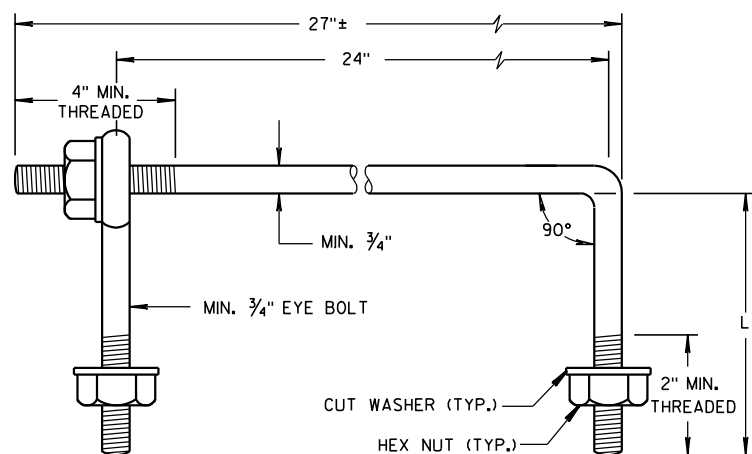
PLACEMENT OF (2) CAST-IN-PLACE  
INSERTS OR HOLES DURING FABRICATION  
FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



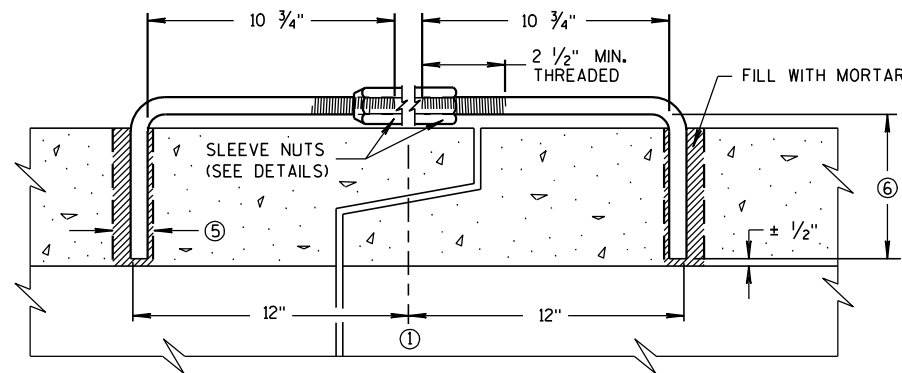
EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



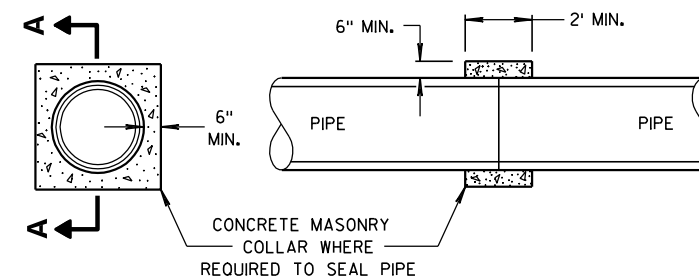
EYE BOLT AND TIE ROD

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)  
EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



LONGITUDINAL SECTION

(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)  
ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



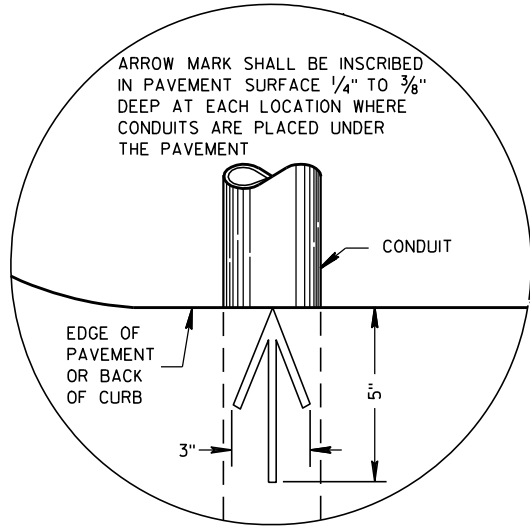
SECTION A-A

CONCRETE COLLAR DETAIL

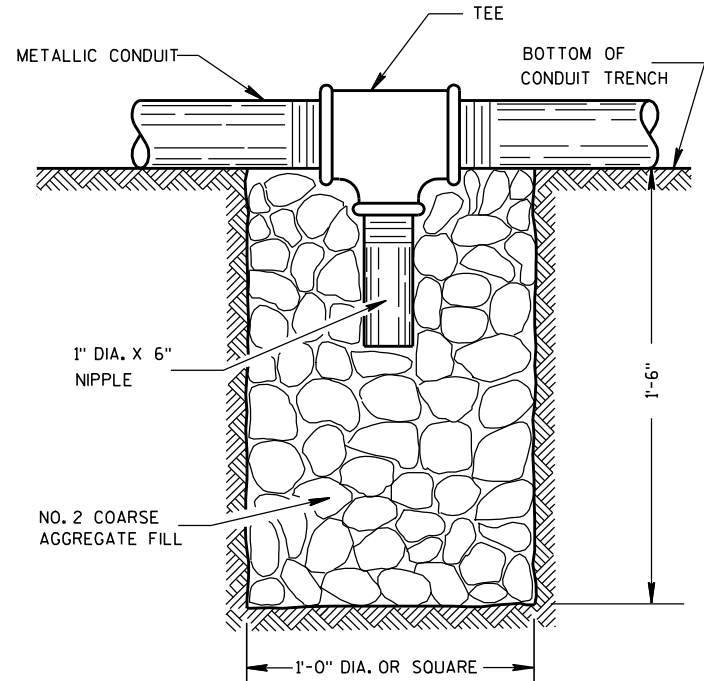
JOINT TIES FOR CONCRETE  
PIPE AND CONCRETE  
COLLAR DETAIL

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/5/2012 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

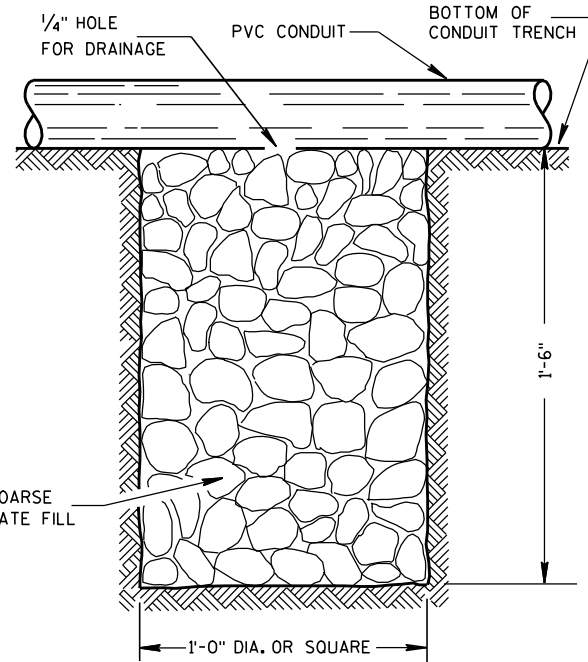


**PLAN VIEW  
ARROW MARK**



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 EMERSON 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.

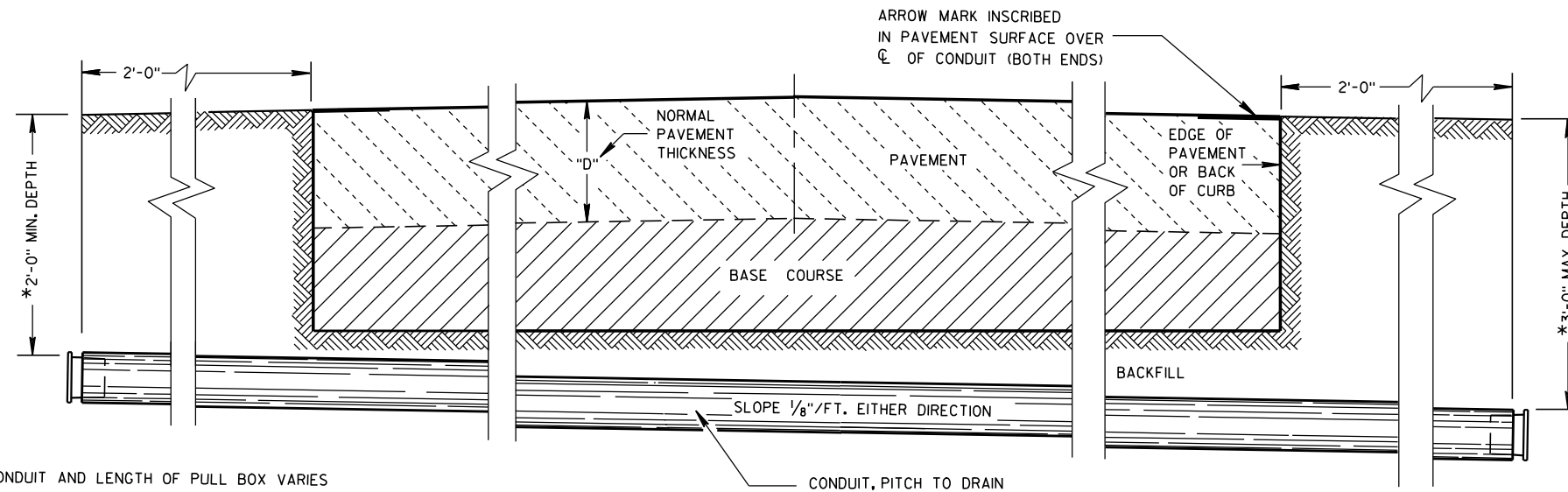
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

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

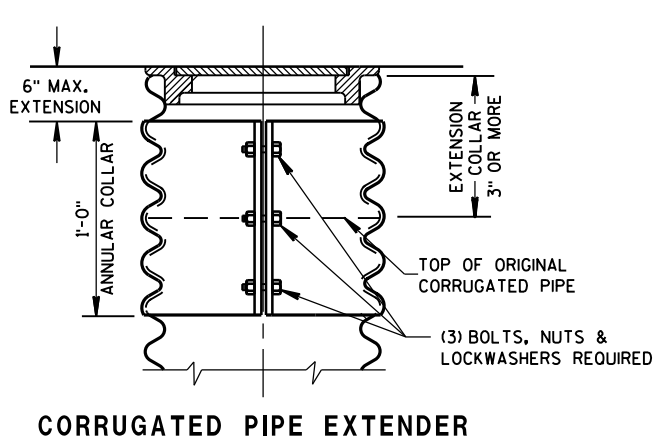
APPROVED  
10/23/03 /S/ Balu Ananthanarayanan  
DATE STATE ELECTRICAL ENGINEER FOR HWYS  
FHWA

**TABLE OF NOMINAL DIMENSIONS AND WEIGHTS**

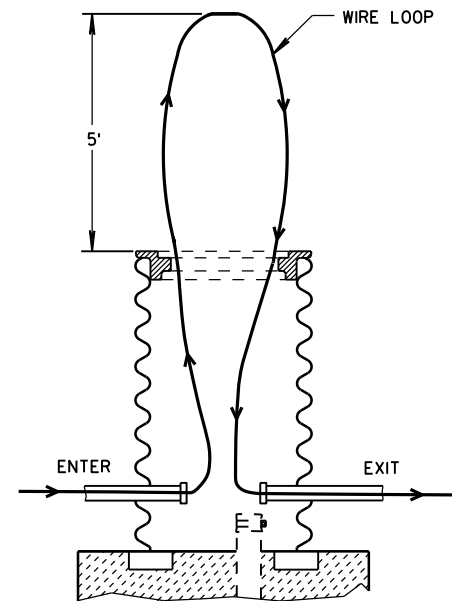
DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	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.

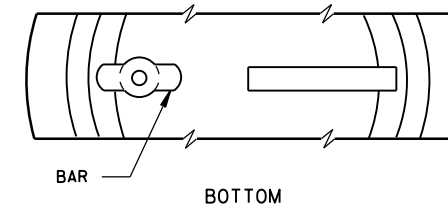
\*\* NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.



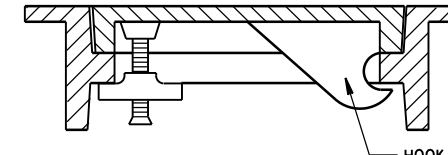
**CORRUGATED PIPE EXTENDER**



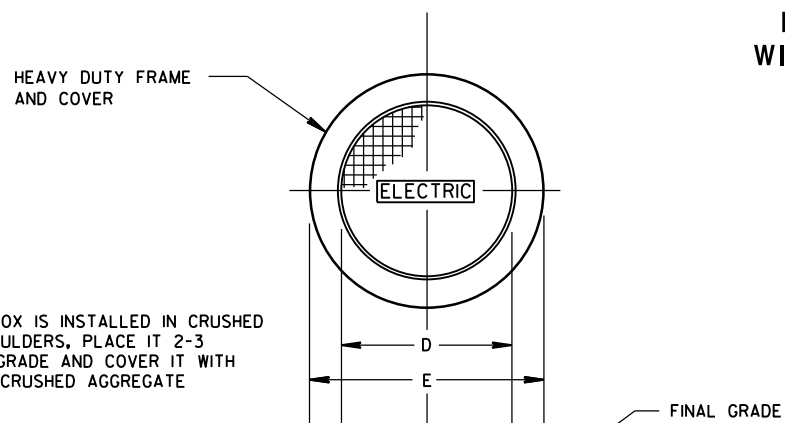
**MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX**



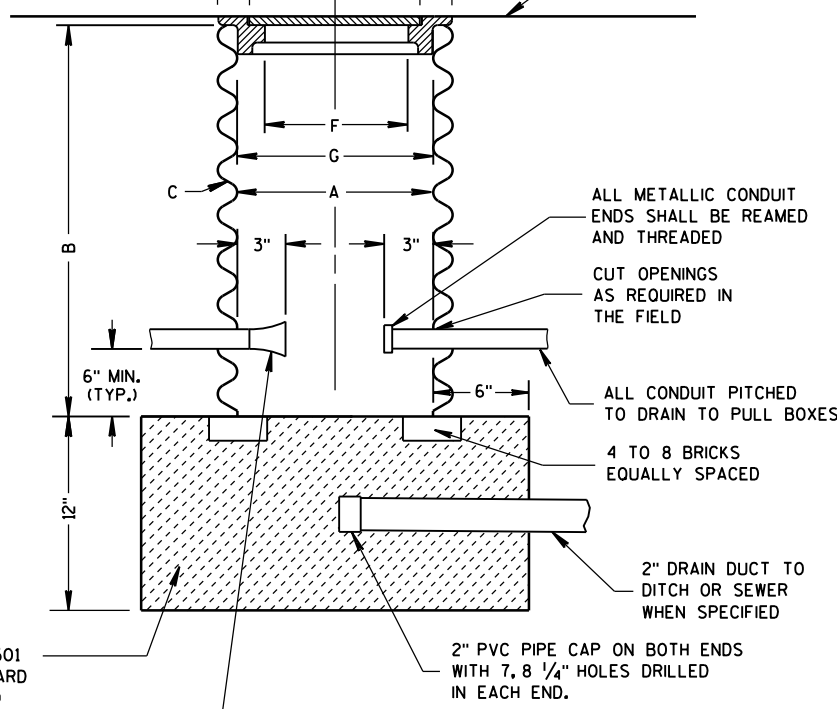
**ALTERNATE COVER (LOCKING)**



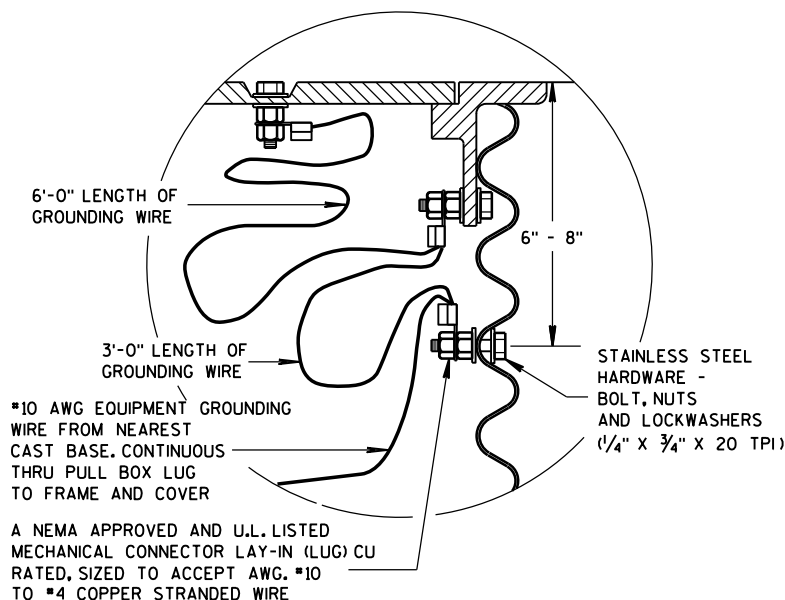
**TIGHTENING BAR TYPE**



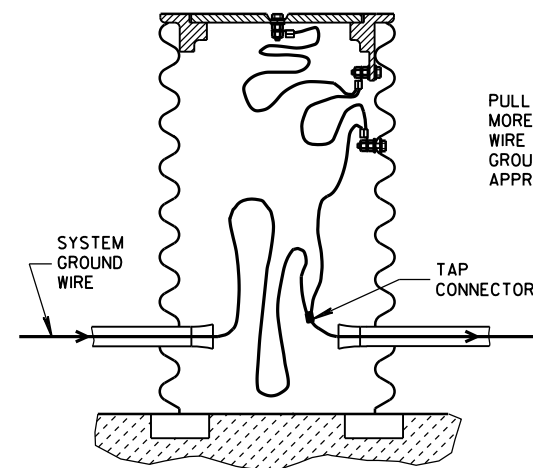
WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE



**PULL BOX**



**EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES**



**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.

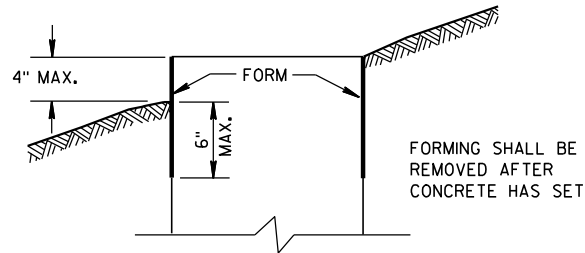
WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG. THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.

INSTALL END BELLS (U.L. LISTED FOR ELECTRICAL USE) ON ALL NONMETALLIC CONDUIT BEFORE INSTALLATION OF WIRE AND/OR CABLE.

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.

<b>PULL BOX</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 2-7-2013	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
FHWA	

FORM DEPTH SHALL BE NO MORE THAN 6" BELOW GRADE ON THE LOWER SIDE OF BASE



**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.

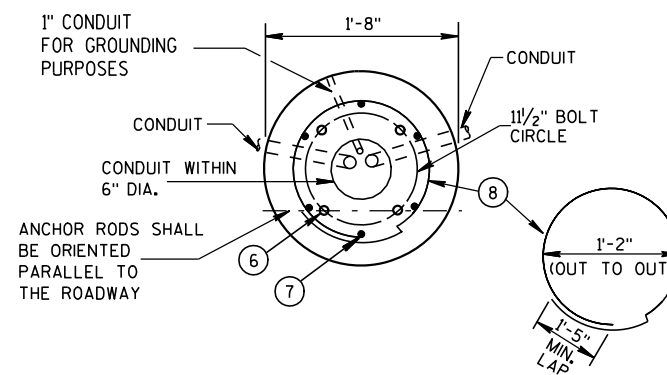
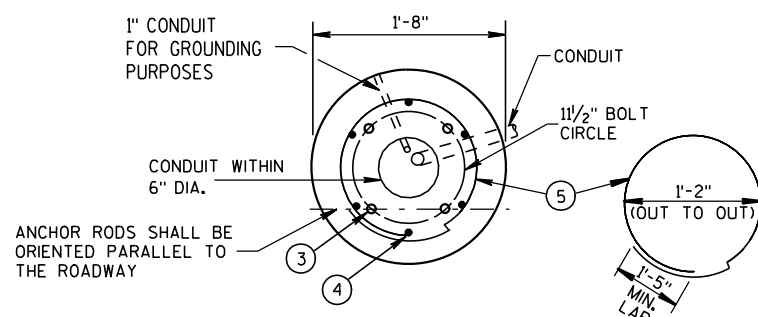
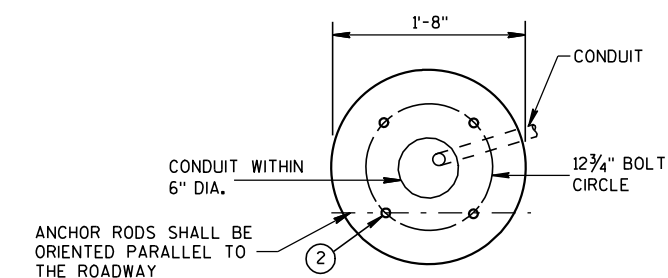
ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

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.

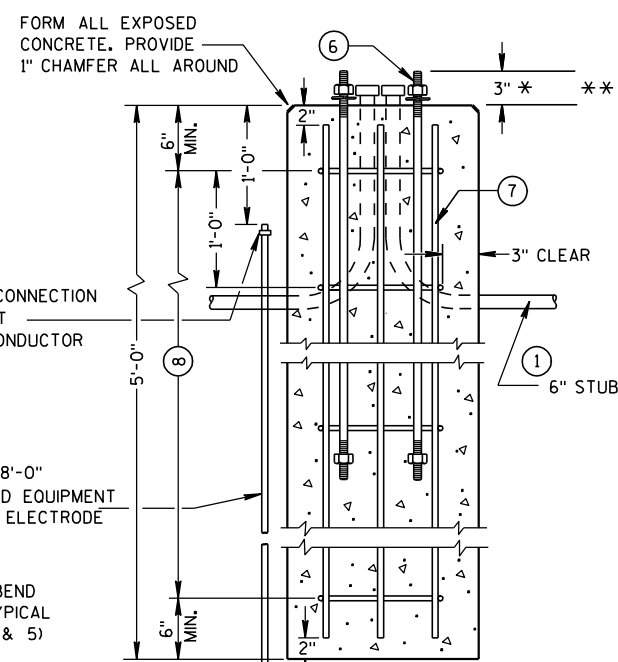
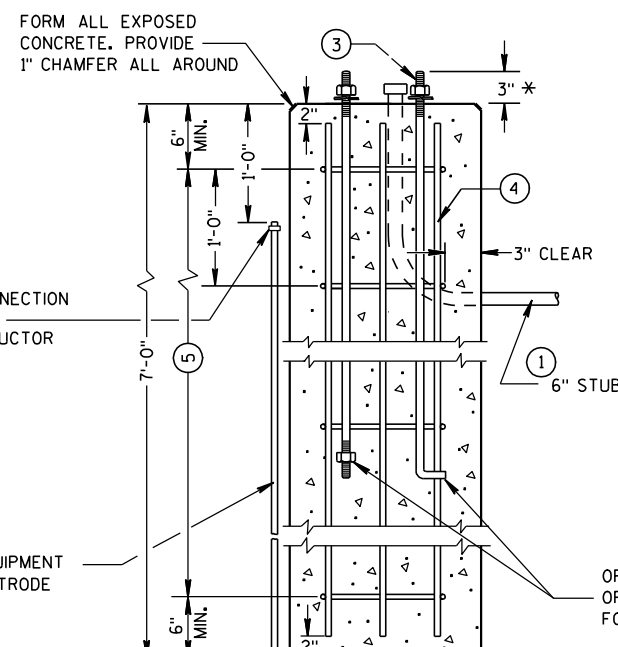
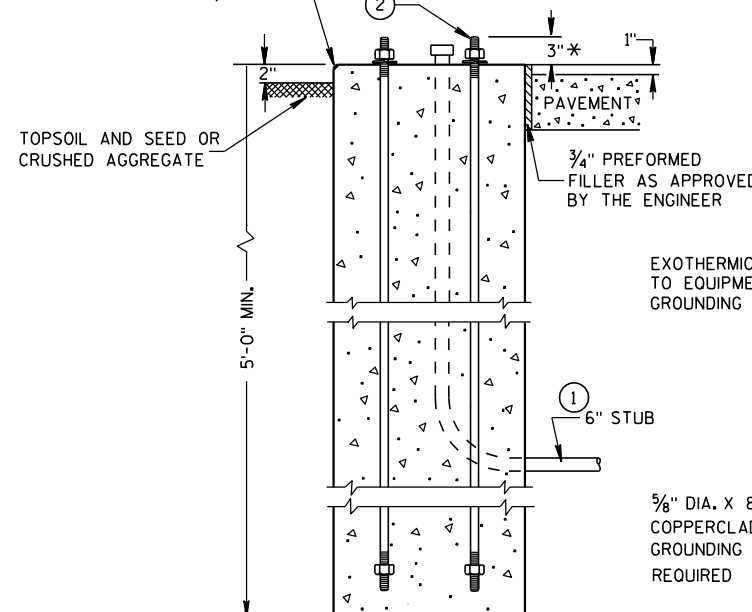
- ② (4) 1" DIA. X 3'-6" ANCHOR RODS.
- ③ (4) 1" DIA. X 5'-0" ANCHOR RODS.
- ④ (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.
- ⑤ (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.
- ⑥ (4) 1" DIA. X 3'-6" ANCHOR RODS.
- ⑦ (6) NO. 4 X 4'-8" BAR STEEL REINFORCEMENT.
- ⑧ (5) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 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)



**CONCRETE BASES**

\* 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 CONTRACTORS EXPENSE.

\*\* FOR NONBREAKAWAY INSTALLATIONS, 4 1/2" ± 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. Bush  
STATE ELECTRICAL ENGINEER FOR HWYS  
FHWA

**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.

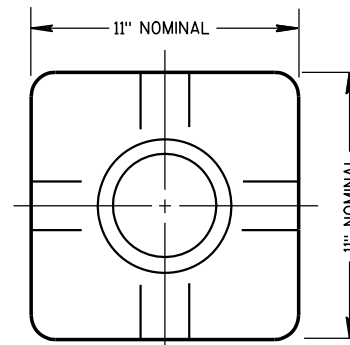
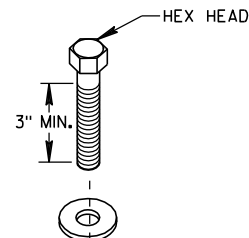
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

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.

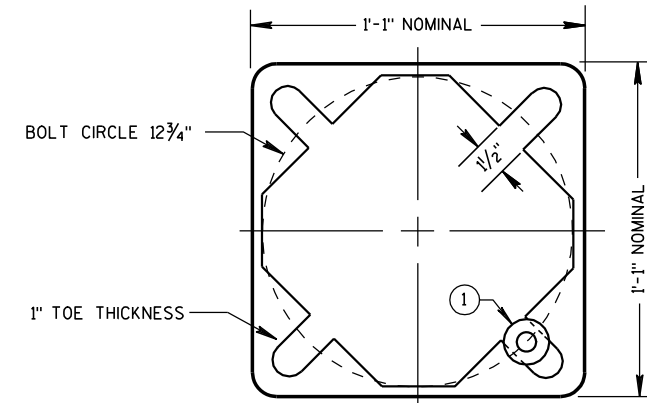
PEDESTAL BASE COLLAR THREADING SHALL BE TAPERED AND IN ACCORDANCE WITH NATIONAL PIPE THREADING DIMENSIONS.

BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1/2", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

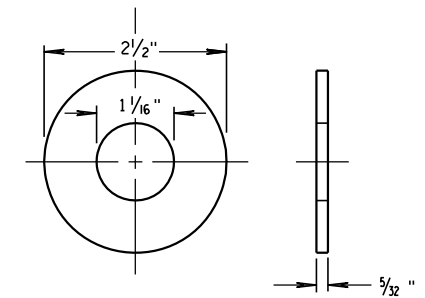
THE ACCESS DOOR SHALL BE OF THE SAME MATERIAL AS THE BASE.



TOP VIEW  
(PEDESTAL BASE)

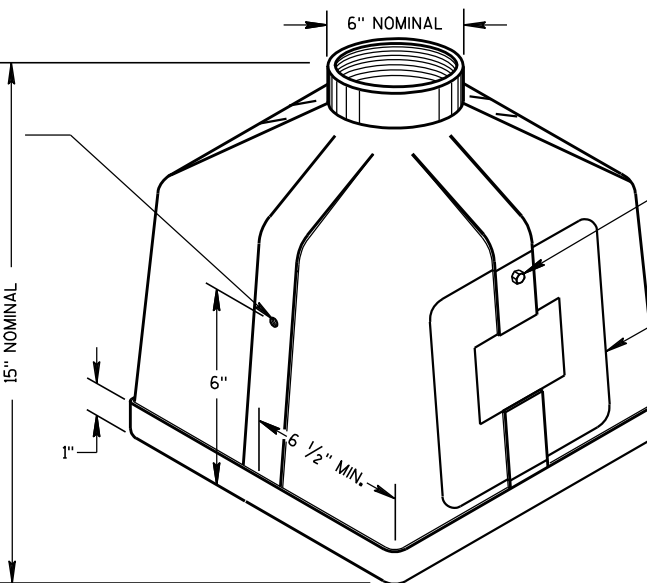
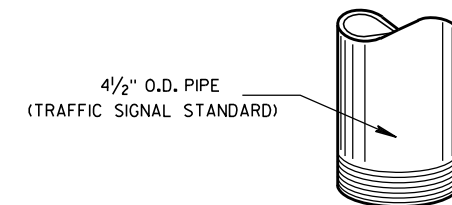


BOTTOM VIEW  
(PEDESTAL BASE)

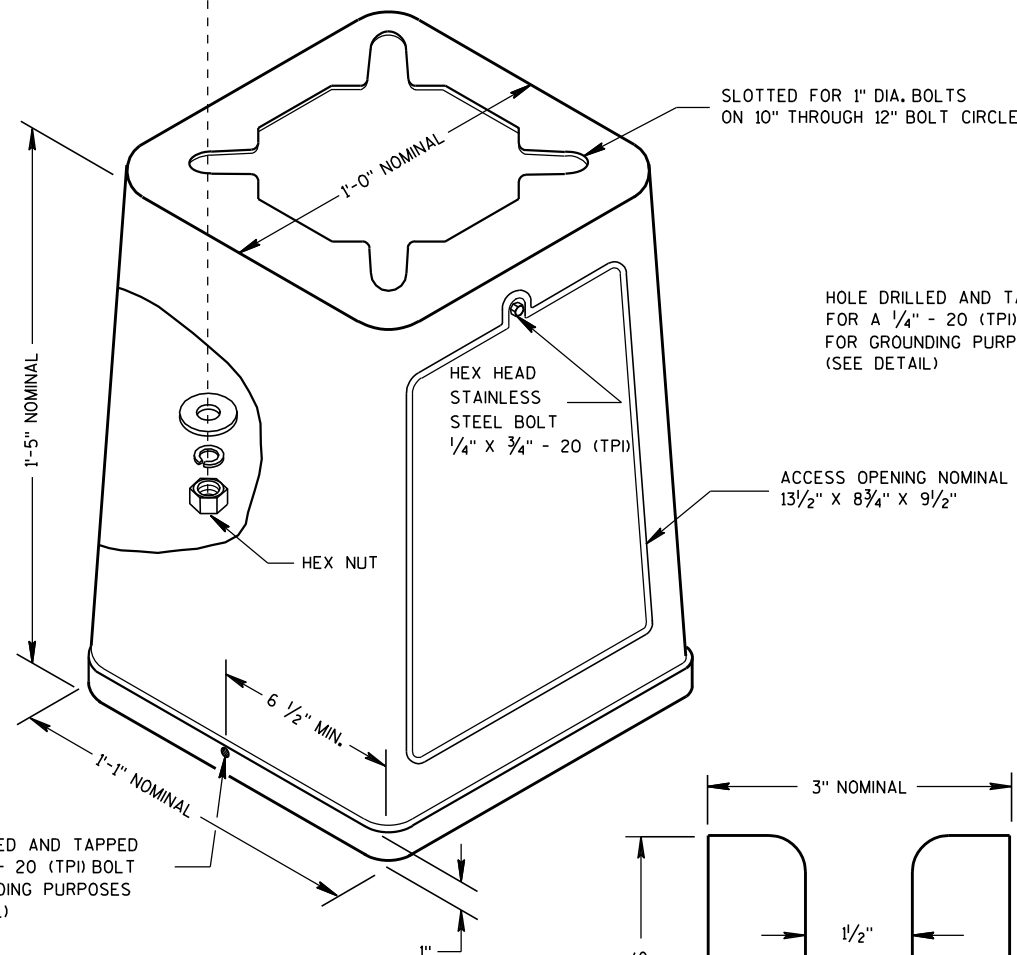


ZINC COATED STEEL WASHER  
TO BE PROVIDED BY THE CONTRACTOR

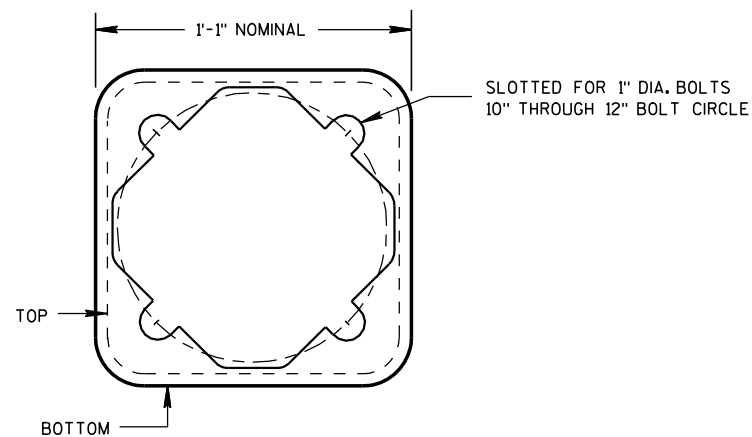
PEDESTAL  
BASE WASHER (1)



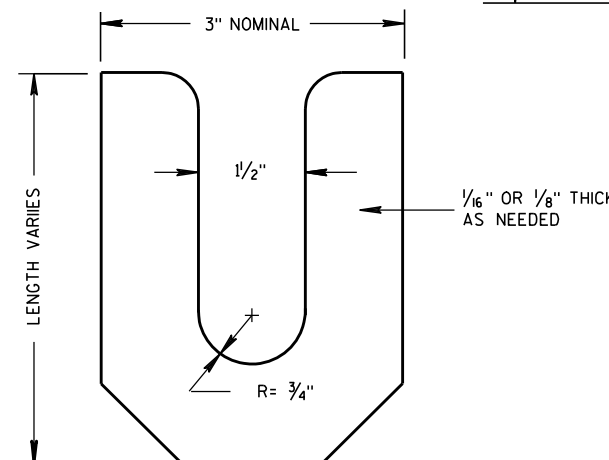
ISOMETRIC VIEW  
PEDESTAL BASE



ISOMETRIC VIEW



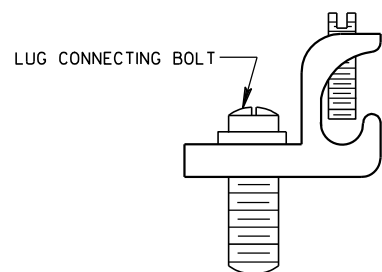
BOTTOM VIEW  
(TRANSFORMER BASE)



LEVELING SHIM

**TRANSFORMER BASE**

INTENDED FOR USE WITH TYPE 2, 3, 4, 5 & 6 POLES



**TYPICAL MECHANICAL  
CONNECTOR LUG**

TO BE FURNISHED WITH EACH BASE

**TRANSFORMER/PEDESTAL BASES**

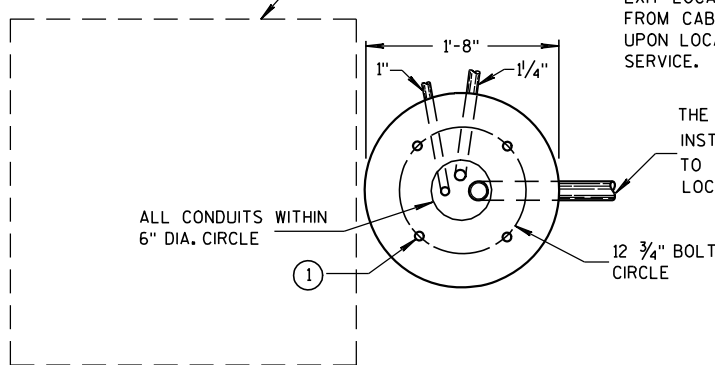
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
10/27/09 /s/ Joanna L. Bush  
DATE STATE ELECTRICAL ENGINEER FOR HWYS  
FHWA

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 *

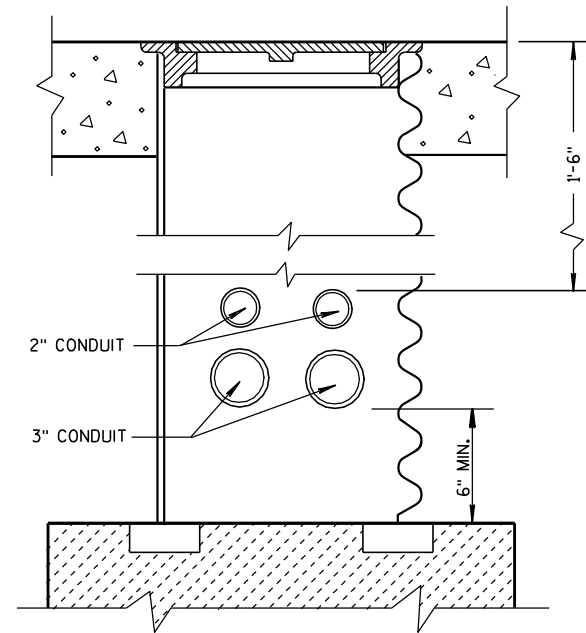
\* INCLUDES MAINTENANCE PLATFORM.

TYPICAL 3'-0" X 3'-0" X 4" THICK MAINTENANCE PLATFORM. LOCATION TO BE DETERMINED IN THE FIELD. COST TO BE INCLUDED UNDER CONCRETE CONTROL CABINET TYPE 10.



EXIT LOCATION OF 1/4" CONDUIT FROM CABINET BASE DEPENDENT UPON LOCATION OF ELECTRIC SERVICE.

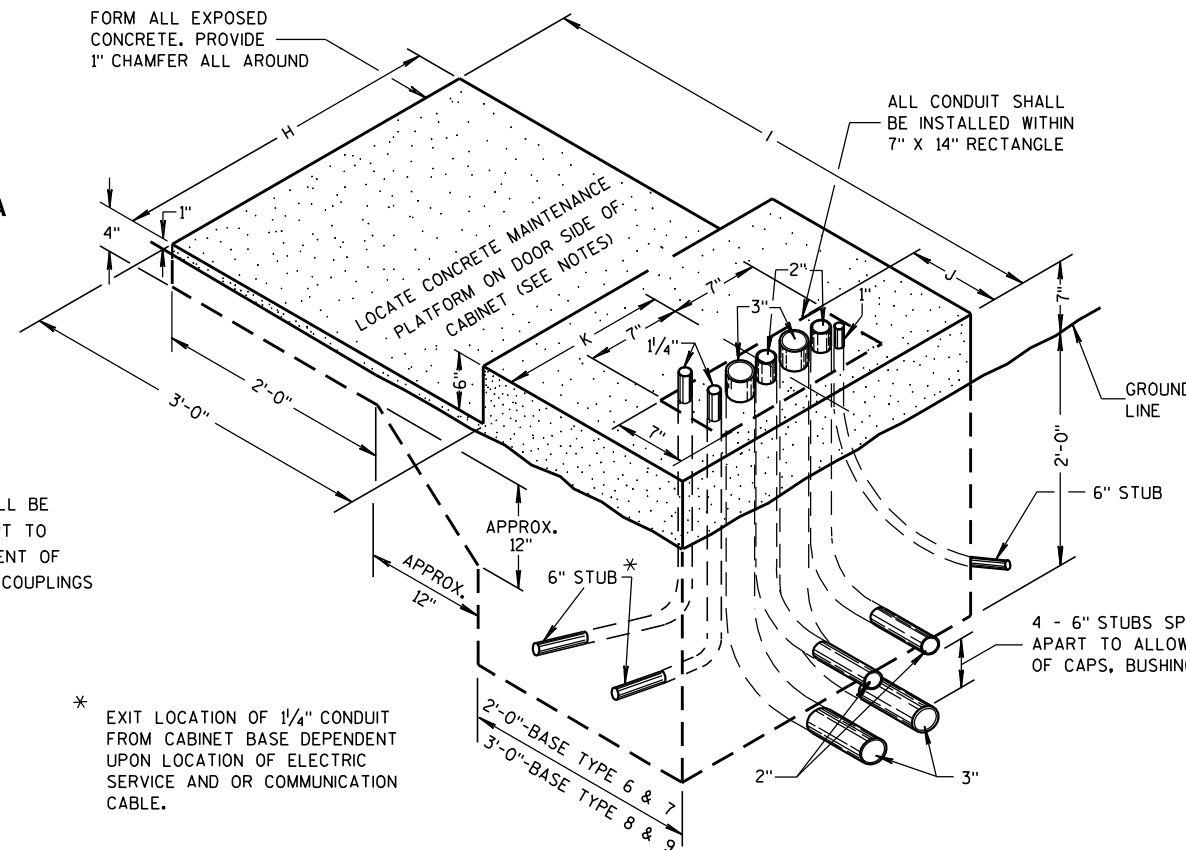
THE 3" CONDUIT SHALL BE INSTALLED FROM THE CABINET BASE TO THE FIRST (NEAREST) PULL BOX LOCATED AS SHOWN ON THE PLAN



### CONDUIT LOCATIONS IN 24" X 36" PULL BOX

(LEADING TO CONTROLLER CABINET BASE TYPE 6, 7, 8 AND 9)

FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND



ALL CONDUIT SHALL BE INSTALLED WITHIN 7" X 14" RECTANGLE

GROUND LINE

4 - 6" STUBS SPACED 2" MIN. APART TO ALLOW FOR PLACEMENT OF CAPS, BUSHING OR COUPLINGS

\* EXIT LOCATION OF 1/4" CONDUIT FROM CABINET BASE DEPENDENT UPON LOCATION OF ELECTRIC SERVICE AND OR COMMUNICATION CABLE.

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.

### GENERAL NOTES

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

INSTALL FOUR 1/2 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.

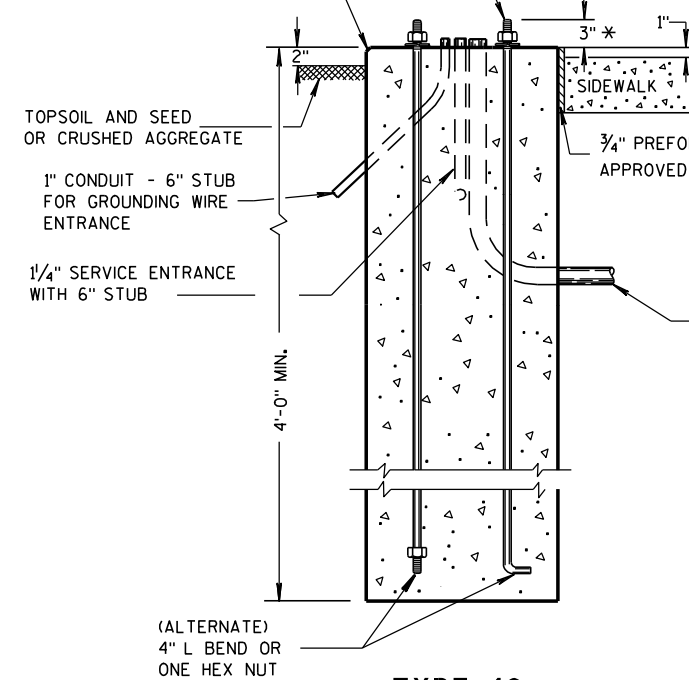
STRAIGHT ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD.

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.

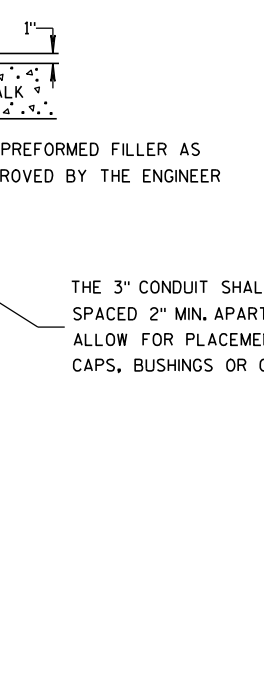
6

### HALF SECTION IN UNPAVED AREA



TYPE 10

### HALF SECTION IN PAVED AREA



\* 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 CONTRACTORS EXPENSE.

## CONCRETE CONTROL CABINET BASES

TYPE 6, 7, 8 AND 9  
(ISOMETRIC VIEW)

### CONCRETE CONTROL CABINET BASES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

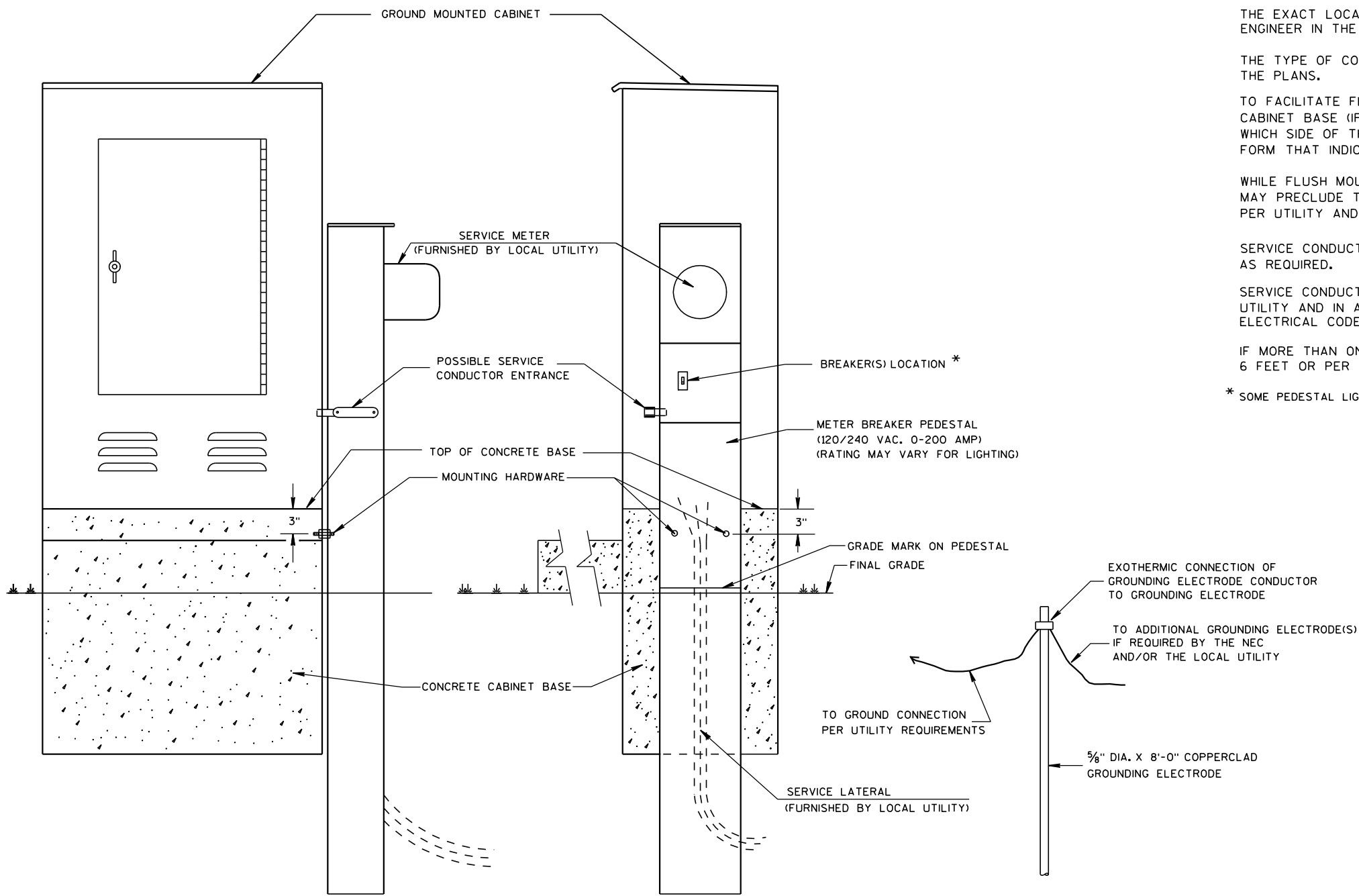
APPROVED

3/3/10  
DATE

/s/ Joanna L. Bush  
STATE ELECTRICAL ENGINEER FOR HWYS

FHWA





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.

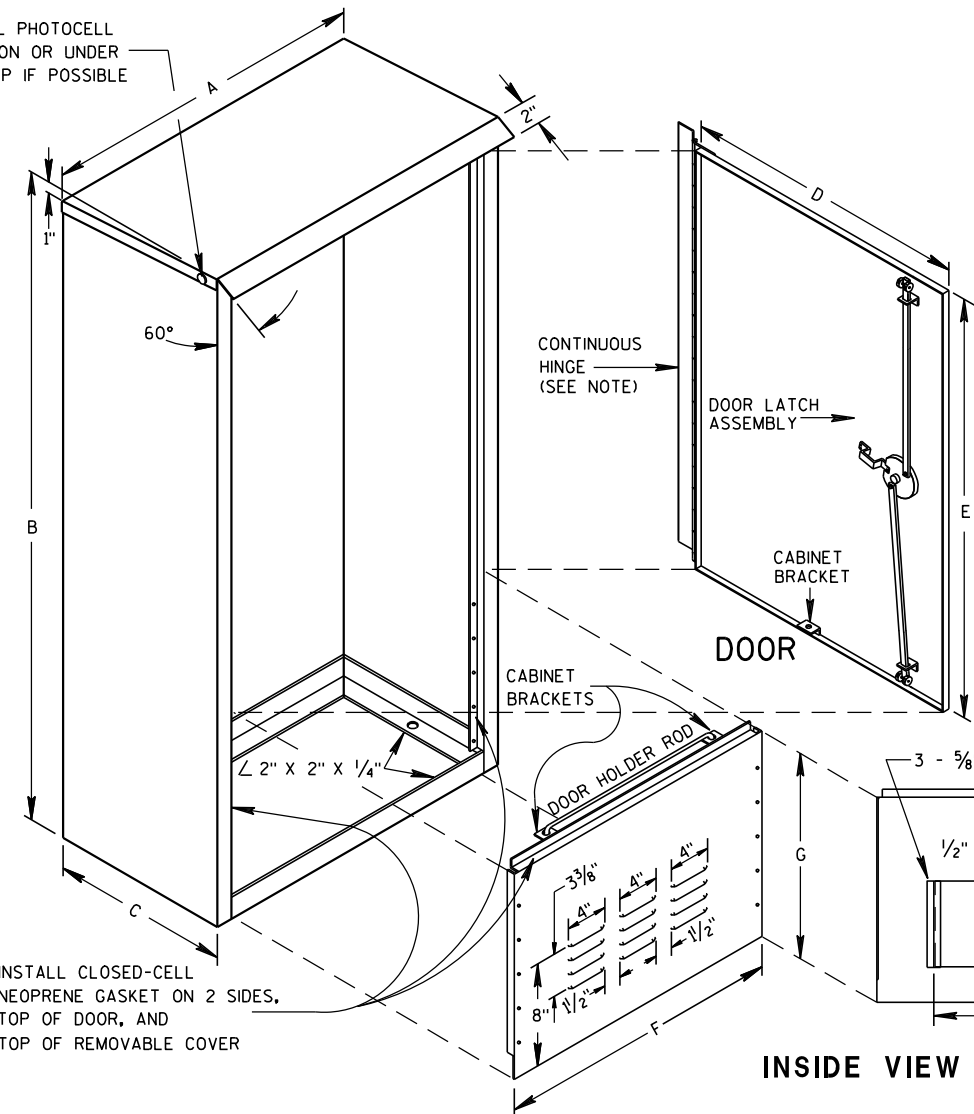
\* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)

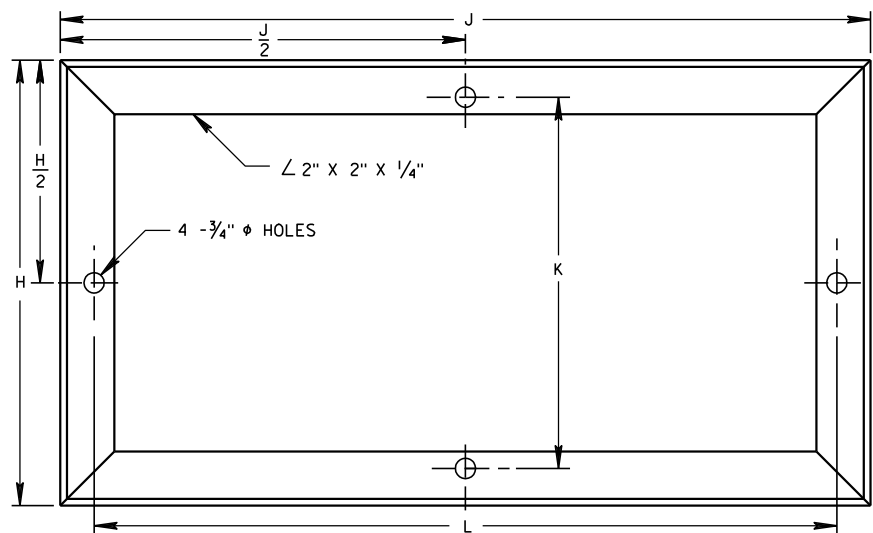
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED 10/27/09 /S/ Joanna L. Bush DATE STATE ELECTRICAL ENGINEER FOR HWYS FHWA

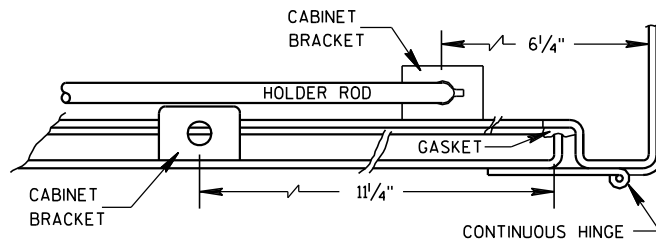
TYPICAL PHOTOCELL LOCATION OR UNDER DRIP LIP IF POSSIBLE



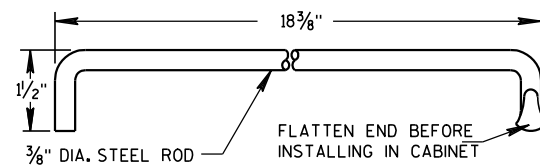
REMOVABLE COVER



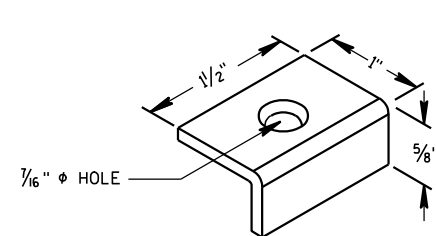
MOUNTING BASE



HINGE & DOOR HOLDER



HOLDER ROD



CABINET BRACKET

INSIDE VIEW SHOWING FILTER

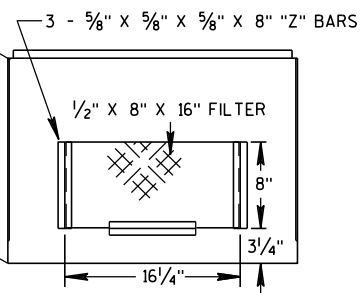


TABLE OF DIMENSIONS (INCHES)

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

**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.

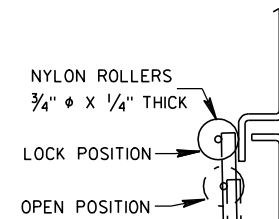
ALL SEAMS SHALL BE CONTINUOUSLY WELDED.

ALUMINUM SHALL BE TYPE 5052-H32.

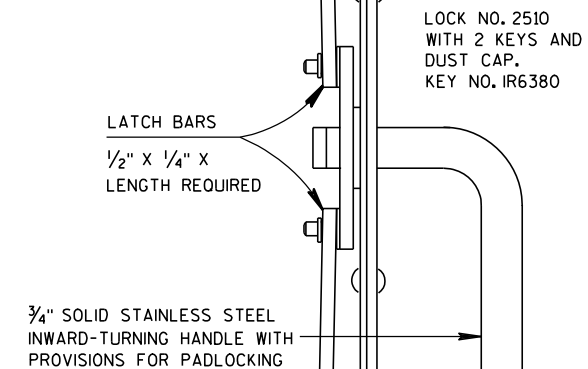
CONTINUOUS HINGE SHALL BE HEAVY GAUGE ALUMINUM WITH 1/4" DIAMETER STAINLESS STEEL HINGE PIN. HINGE IS SECURED WITH 1/4" X 20 TPI STAINLESS STEEL CARRIAGE BOLTS AND STAINLESS STEEL NYLOCK NUTS.

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.

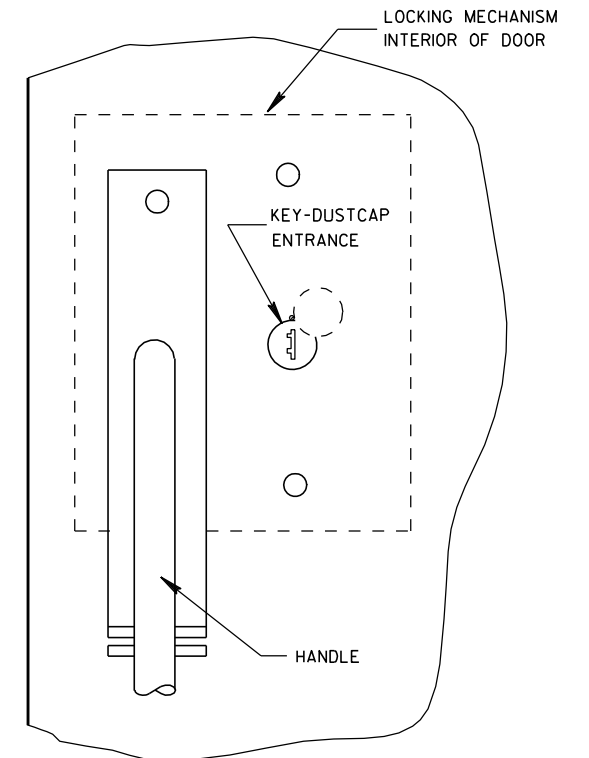
DOOR LATCH ASSEMBLY TO BE PROVIDED WITH THREE-POINT LOCKING MECHANISM.



LATCH BAR GUIDE

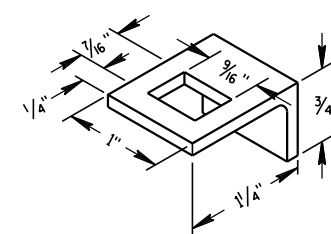


SIDE VIEW



FRONT VIEW

LATCH ASSEMBLY



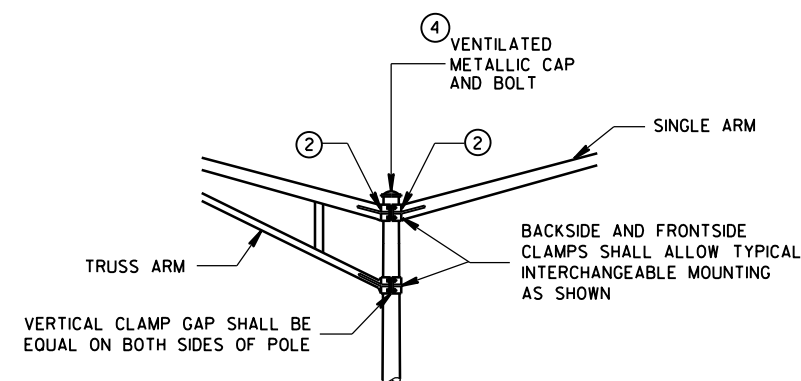
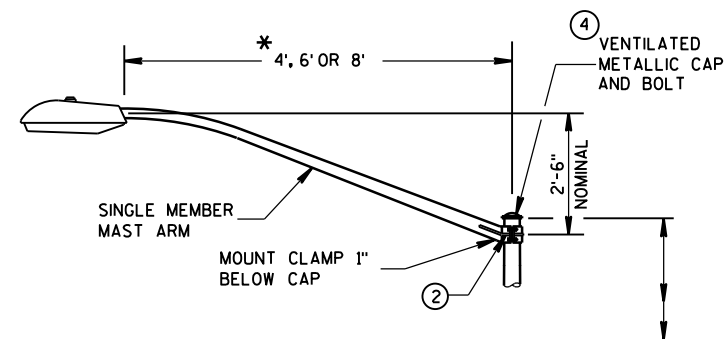
LATCH BAR GUIDE

**SIGNAL OR LIGHTING CONTROL CABINET**

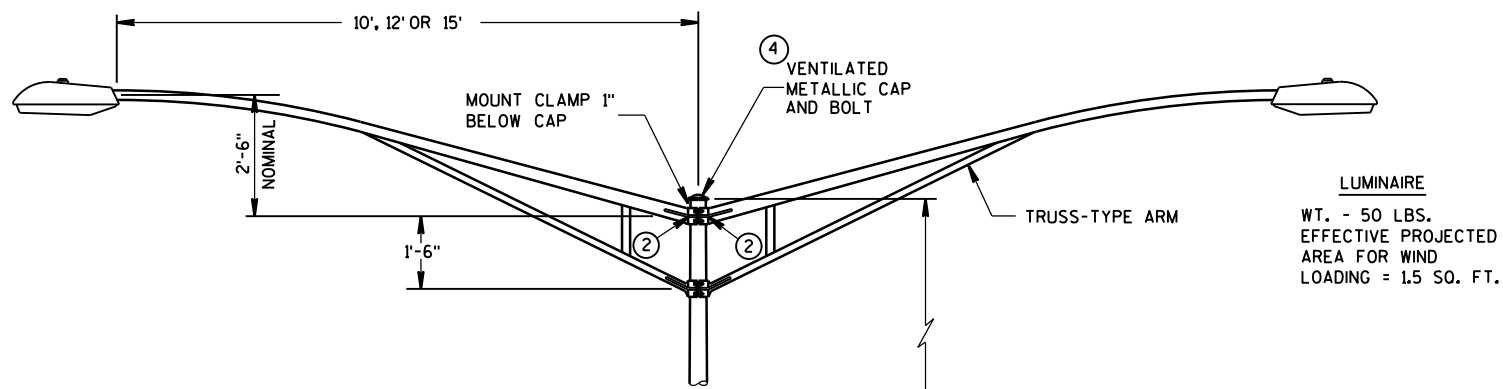
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
10/21/96 /S/ Balu Ananthanarayanan  
DATE STATE ELECTRICAL ENGINEER FOR HWYS  
FHWA

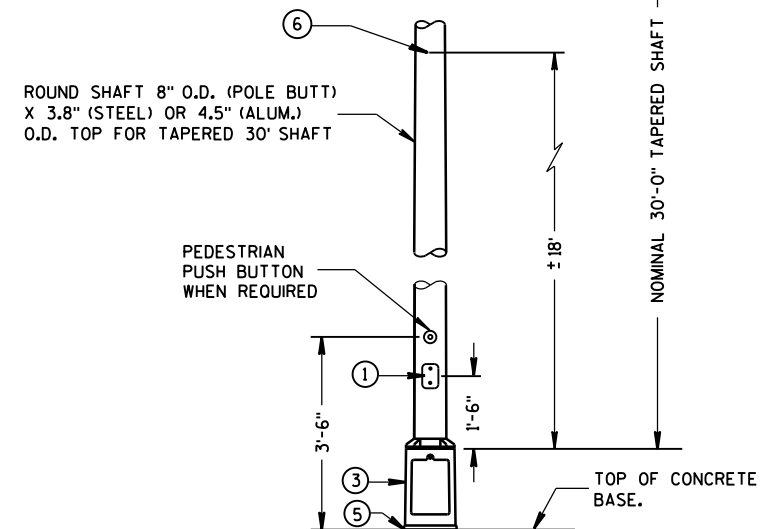
\* RISE FOR 4' ARM SHALL BE 2'-0".



INTERCHANGEABLE MOUNTING DETAIL



LUMINAIRE  
WT. - 50 LBS.  
EFFECTIVE PROJECTED  
AREA FOR WIND  
LOADING = 1.5 SQ. FT.



TYPE 5 POLE MOUNTING CONFIGURATION  
(MAXIMUM LOAD)  
LIGHTING ONLY

**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.

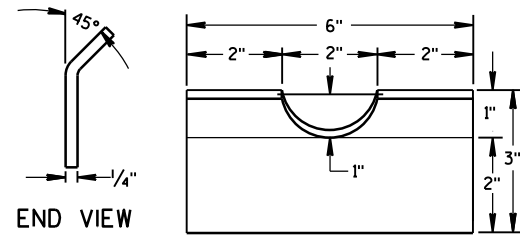
POLES SHALL BE GALVANIZED STEEL OR ALUMINUM, AS CALLED FOR IN THE CONTRACT.  
TYPE 5 ALUMINUM POLES SHALL BE CONSTRUCTED OF 6063-T6 ALUMINUM ALLOY. SLEEVING INSIDE THE POLE IS NOT ACCEPTABLE.

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").

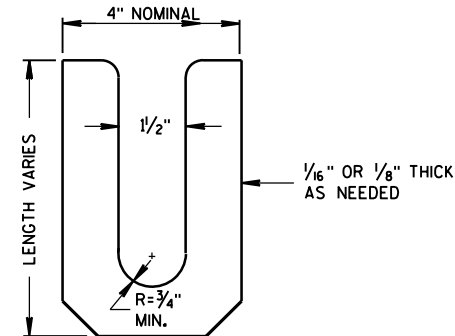
THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 2 3/8 INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.  
WHEN TRANSFORMER BASES ARE USED, WIRE CONNECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

- ① 4" x 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) 1/4" x 3/4" - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.
- ② GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1 3/8" 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) 1/4" x 3/4" - 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.

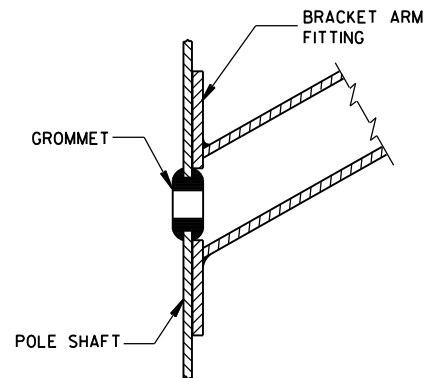
POLE MONTINGS FOR  
LIGHTING UNITS, TYPE 5  
(30 FEET)  
  
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



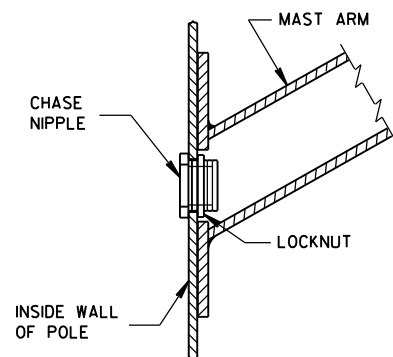
**FRONT VIEW  
RECTANGULAR CLAMP SHIM**  
(4 TO A SET)



**LEVELING SHIM** (15)  
SHALL BE ALUMINUM



**TYPICAL APPLICATION OF  
GROMMET IN POLE SHAFT**

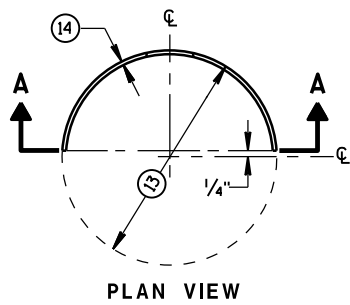


**TYPICAL APPLICATION OF  
CHASE NIPPLE IN POLE SHAFT**

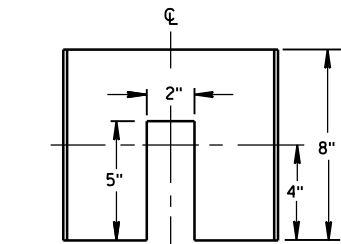
**GENERAL NOTES**

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.

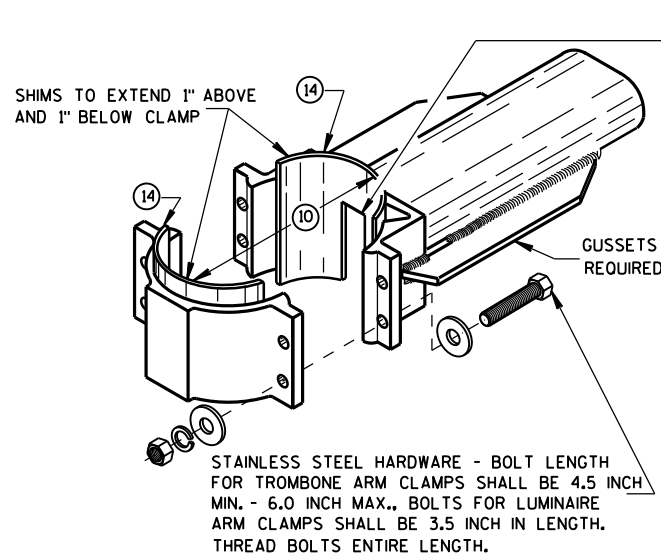
- (10) 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP.  
6.625" I.D. FOR TROMBONE MAST ARM CLAMP.
- (11) INDIVIDUAL BASE PLATE ANCHOR ROD COVERS. (4 REQUIRED)
- (12) BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR RODS.
- (13) OUTSIDE SHIM DIAMETER - (4.5" O.D. FOR LUMINAIRE 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.



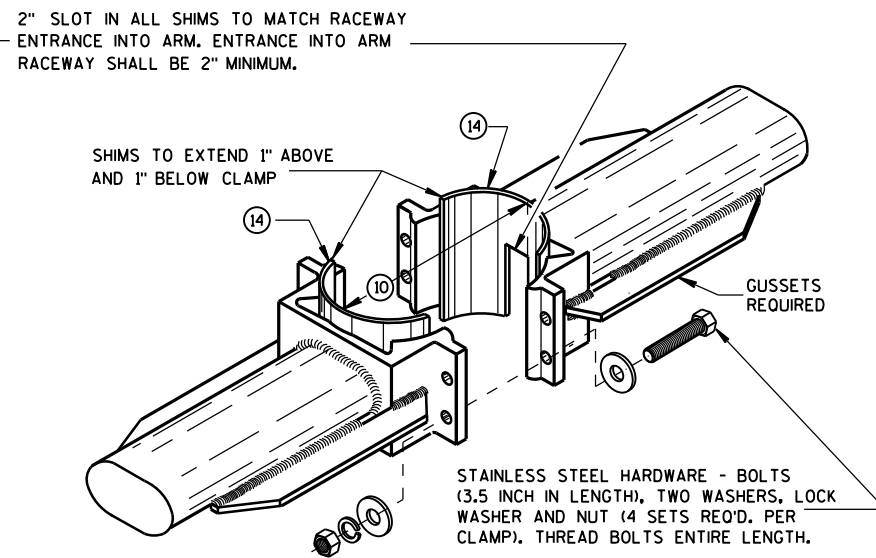
**PLAN VIEW**



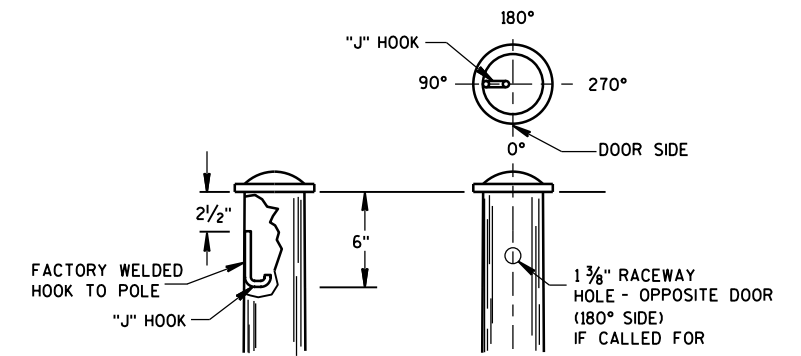
**SECTION A-A  
CIRCULAR CLAMP SHIM**  
(2 TO A SET)



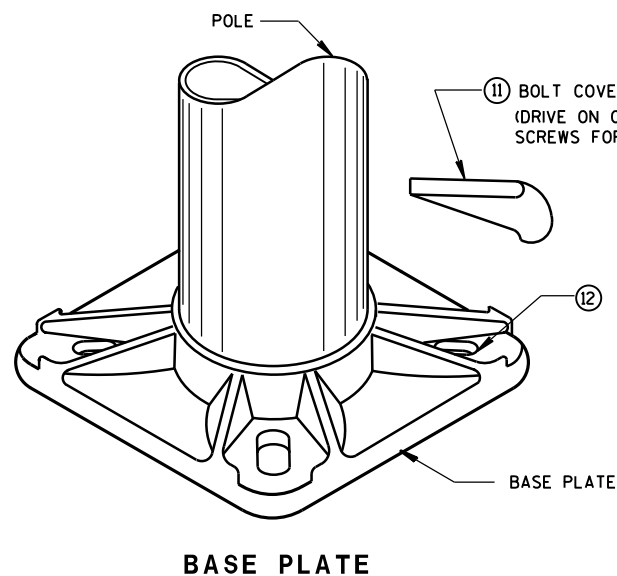
**TYPICAL TROMBONE MAST ARM AND SINGLE  
LUMINAIRE MAST ARM MOUNTING CLAMP**



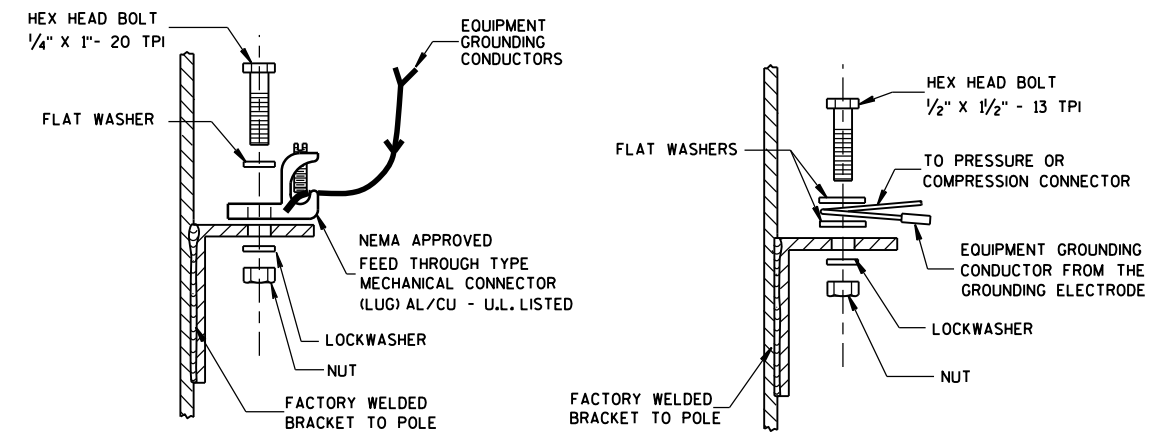
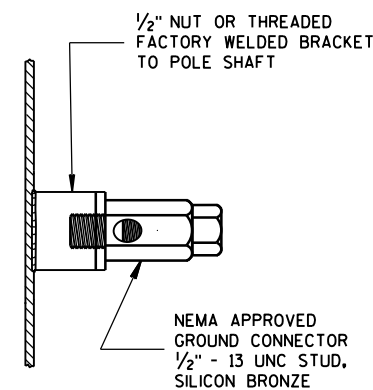
**TYPICAL LUMINAIRE MAST ARM  
(DOUBLE) MOUNTING BRACKETS**



**TYPICAL "J" HOOK LOCATION**



**BASE PLATE**

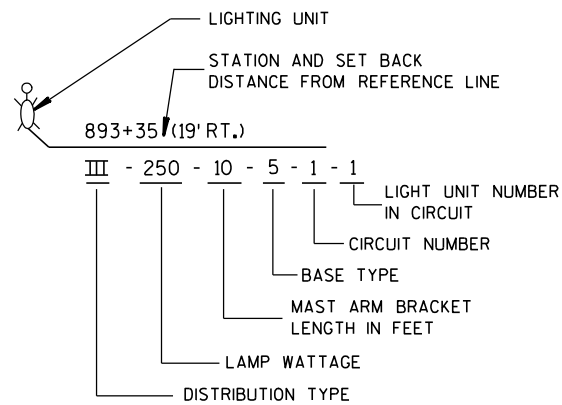


**TYPICAL GROUNDING CONNECTIONS**  
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

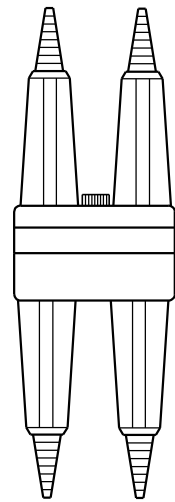
**HARDWARE DETAILS FOR  
POLE MOUNTINGS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

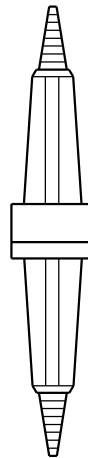
APPROVED  
2/7/2013  
DATE  
/S/ Ahmet Demirbilek  
STATE ELECTRICAL ENGINEER  
FHWA



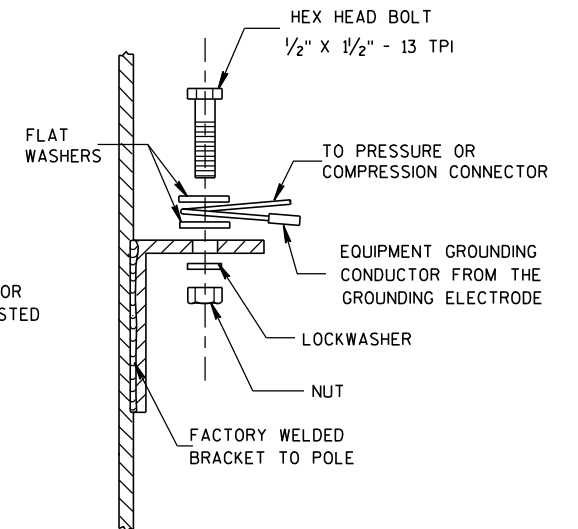
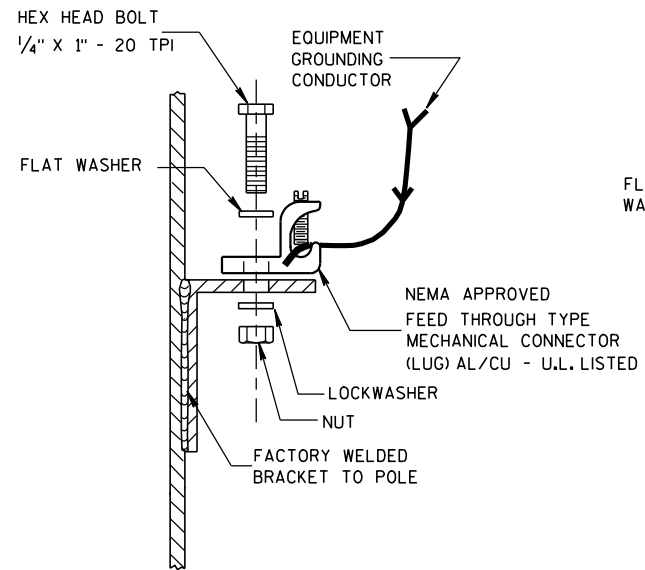
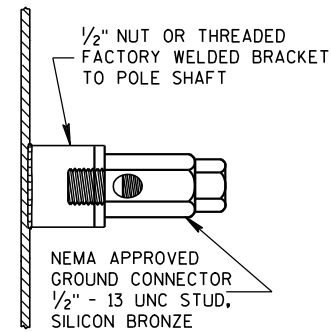
**LIGHTING UNIT CODE**  
(TYPICAL)



**DETAIL "A"**  
**BREAKAWAY**  
**DOUBLE POLE WITH**  
**WATERPROOF**  
**INSULATING BOOT**



**DETAIL "B"**  
**BREAKAWAY**  
**SINGLE POLE WITH**  
**WATERPROOF**  
**INSULATING BOOT**



**TYPICAL GROUNDING CONNECTIONS**  
NUT, BOLT, WASHERS AND LOCKWASHERS SHALL BE STAINLESS STEEL

**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.

ADDITIONAL CONDUCTORS AND FUSE FOR TWIN LIGHTING UNITS

EQUIPMENT GROUNDING CONDUCTOR(S) TO LUMINAIRE(S)

APPROVED MECHANICAL TYPE CONNECTOR FOR EQUIPMENT GROUNDING CONDUCTORS. COMPRESSION, CRIMP OR WIRE NUT CONNECTORS ARE NOT ALLOWED.

TYPICAL GROUNDING CONNECTION - STAINLESS STEEL BOLT, NUT AND WASHERS 1/2" X 1/2" - 13 TPI

AWG #4 (MIN.) BARE EQUIPMENT GROUNDING CONDUCTOR. NOTE: THIS WIRE SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE GROUNDING ELECTRODE TO THE EQUIPMENT GROUNDING CONDUCTOR SPLICE CONNECTOR.

INSULATED EQUIPMENT GROUNDING CONDUCTORS FROM SYSTEM RACEWAY

EXOTHERMICALLY WELDED TO GROUNDING ELECTRODE

CONDUCTORS TO LUMINAIRES SHALL BE #12 AWG, COPPER STRANDED, U.S.E. RATED, XLP INSULATED. SINGLE LIGHTING UNIT SHOWN

CIRCUIT TAGS, BOTH SIDES OF ALL FUSES (TYPICAL)

IN LINE SINGLE POLE FUSE ASSEMBLY. 600 VAC, WITH 5 AMP FNO FUSE (SEE DETAIL "B") TAPE AND VARNISH CRIMPED END FERRULES

HANDHOLE & COVER

18" PIGTAIL BETWEEN CONNECTOR AND FUSEHOLDER

APPROVED INSULATED MULTITAP TERMINAL BLOCK TYPE CONNECTORS. COMPRESSION, CRIMP OR WIRE NUT CONNECTORS ARE NOT ALLOWED.

INSULATED UNGROUNDED CIRCUIT CONDUCTORS FROM SYSTEM RACEWAY

ALTERNATE PHASE UNGROUNDED CIRCUIT CONDUCTOR PASSING THROUGH THIS POLE

UNGROUNDING CONDUCTORS TO LUMINAIRES SHALL BE #12 AWG, COPPER STRANDED, U.S.E. RATED, XLP INSULATED. SINGLE LIGHTING UNIT SHOWN

TWIN LIGHTING UNITS REQUIRE INDIVIDUAL SETS OF UNGROUNDED CONDUCTORS AND FUSE ASSEMBLY.

AWG #4 (MIN.) BARE EQUIPMENT GROUNDING CONDUCTOR. NOTE: THIS WIRE SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE GROUNDING ELECTRODE TO THE EQUIPMENT GROUNDING CONDUCTOR SPLICE CONNECTOR.

EQUIPMENT GROUNDING CONDUCTOR(S) TO LUMINAIRE(S)

TYPICAL GROUNDING CONNECTION - STAINLESS STEEL BOLT, NUT AND WASHERS 1/2" X 1/2" - 13 TPI

APPROVED MECHANICAL TYPE CONNECTOR FOR EQUIPMENT GROUNDING CONDUCTORS. COMPRESSION, CRIMP OR WIRE NUT CONNECTORS ARE NOT ALLOWED.

INSULATED EQUIPMENT GROUNDING CONDUCTORS FROM SYSTEM RACEWAY

EXOTHERMICALLY WELDED TO GROUNDING ELECTRODE

CIRCUIT TAGS, BOTH SIDES OF ALL FUSES (TYPICAL)

IN LINE FUSE ASSEMBLY TWO POLE, 600 VAC, WITH 5 AMP FNO FUSES (SEE DETAIL "A") TAPE AND VARNISH CRIMPED END FERRULES

HANDHOLE & COVER

18" PIGTAIL BETWEEN CONNECTORS AND FUSEHOLDERS

APPROVED INSULATED MULTITAP TERMINAL BLOCK TYPE CONNECTORS. COMPRESSION, CRIMP OR WIRE NUT CONNECTORS ARE NOT ALLOWED.

INSULATED UNGROUNDED CIRCUIT CONDUCTORS FROM SYSTEM RACEWAY

**3 WIRE - 120, 240 OR 480 VAC (UNGROUNDING CONDUCTOR)**  
**WITH GROUNDED CONDUCTOR AND**  
**WITH EQUIPMENT GROUNDING CONDUCTOR**

**2 WIRE - 240 OR 480 VAC (UNGROUNDING CONDUCTORS)**  
**WITH EQUIPMENT GROUNDING CONDUCTOR**

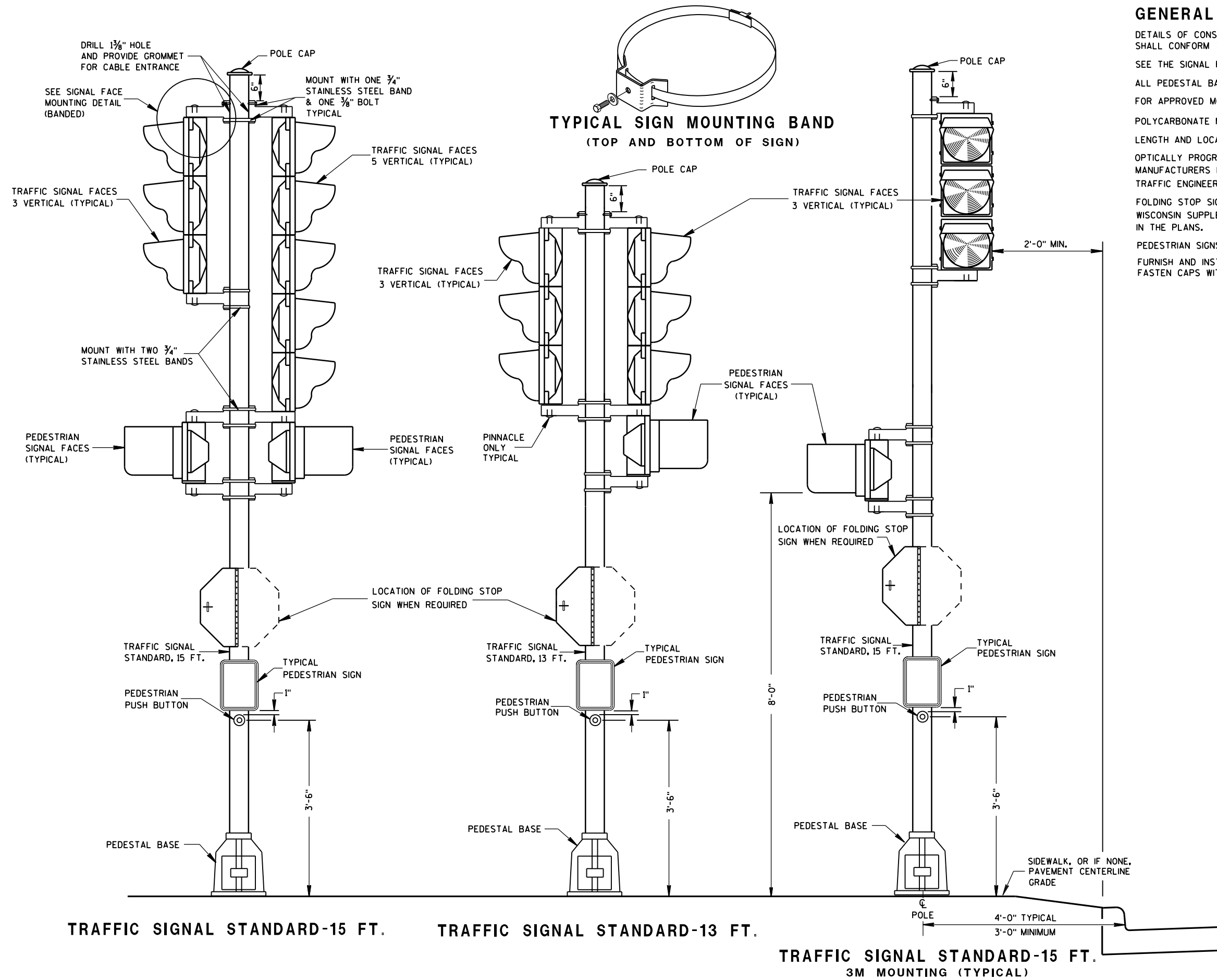
**NON-FREWAY LIGHTING UNIT**  
**POLE WIRING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
3/2/2011 /S/ Thomas J. Goring  
DATE STATE ELECTRICAL ENGINEER FOR HWYS  
FHWA

6

6



### 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.

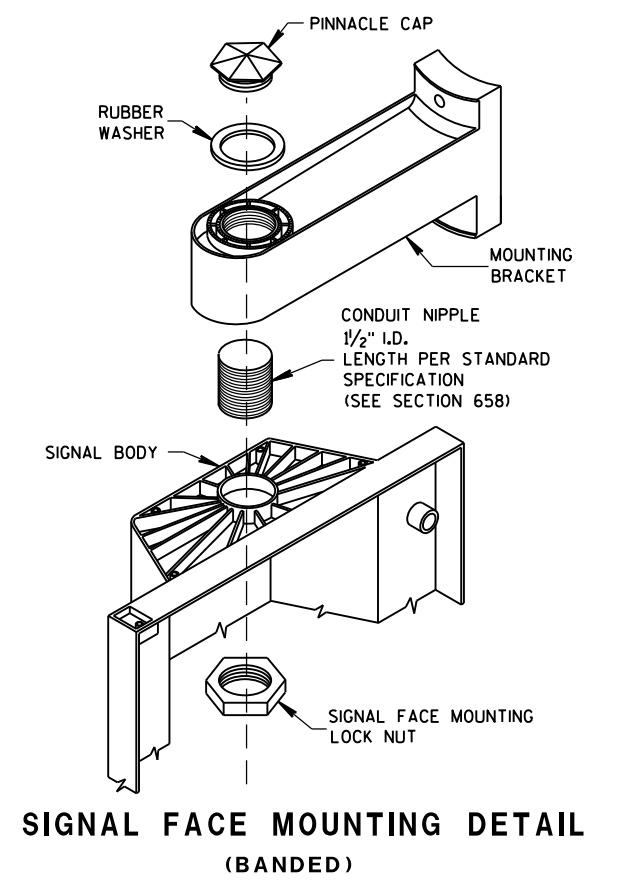
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

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 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) 1/4" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.



TRAFFIC SIGNAL STANDARD-15 FT.

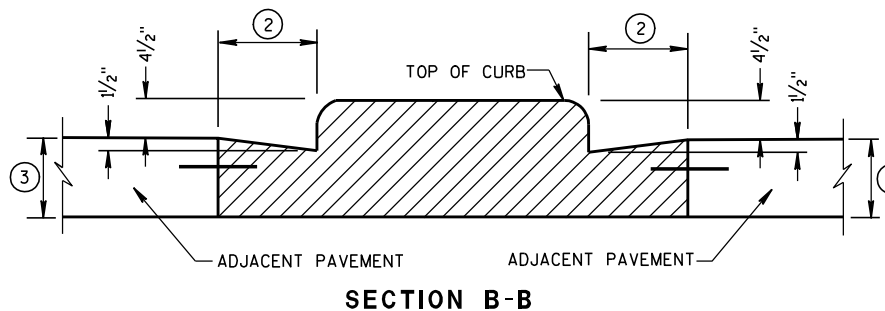
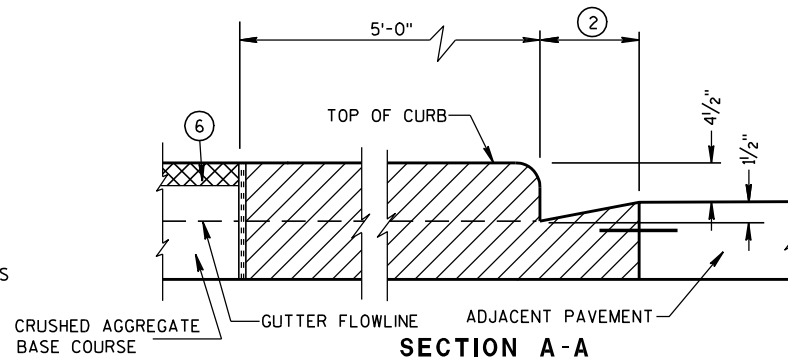
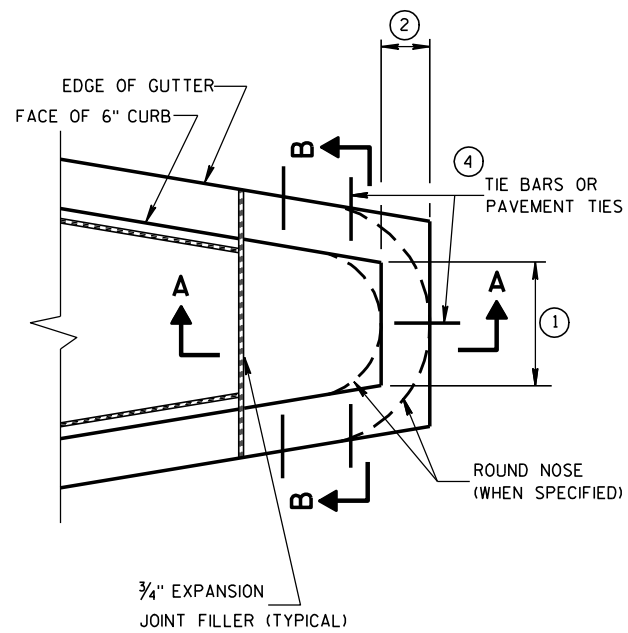
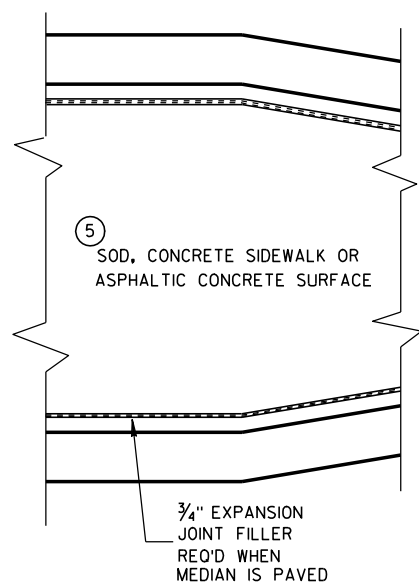
TRAFFIC SIGNAL STANDARD-13 FT.

TRAFFIC SIGNAL STANDARD-15 FT. 3M MOUNTING (TYPICAL)

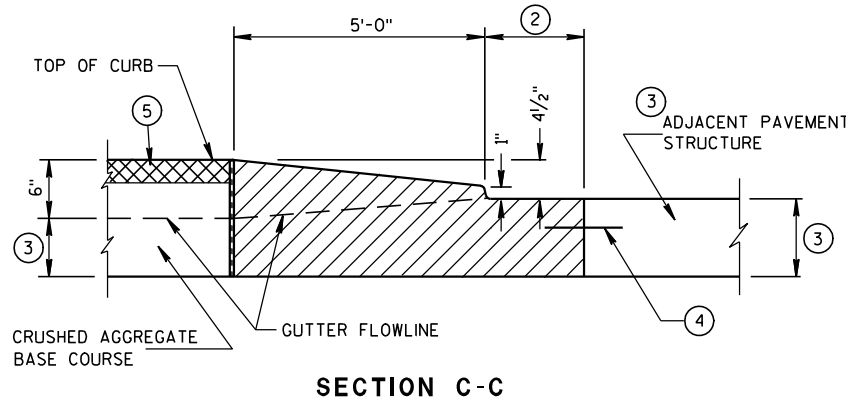
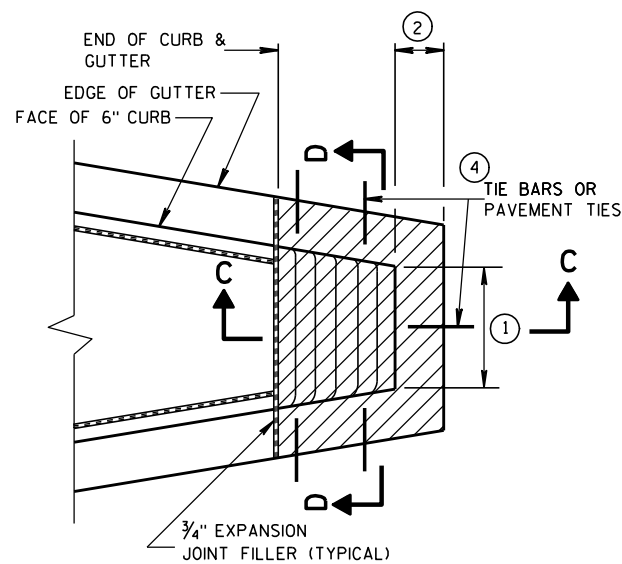
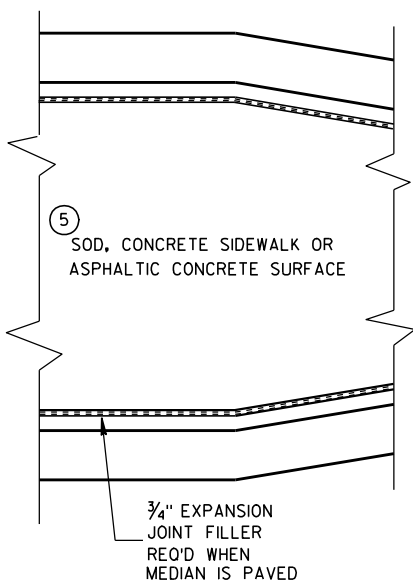
TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 2/28/2013 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
FHWA	

S.D.D. 9 E 6-5

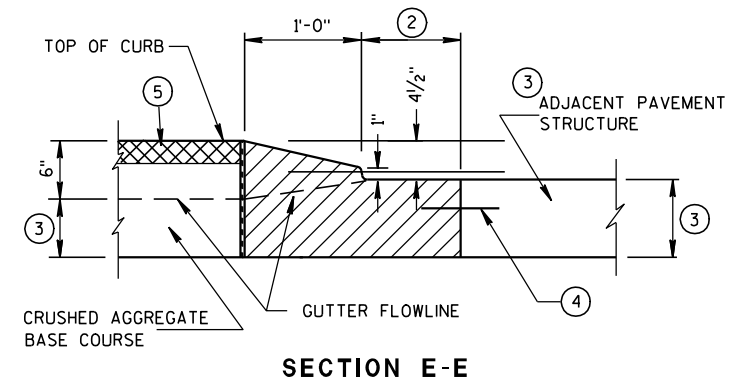
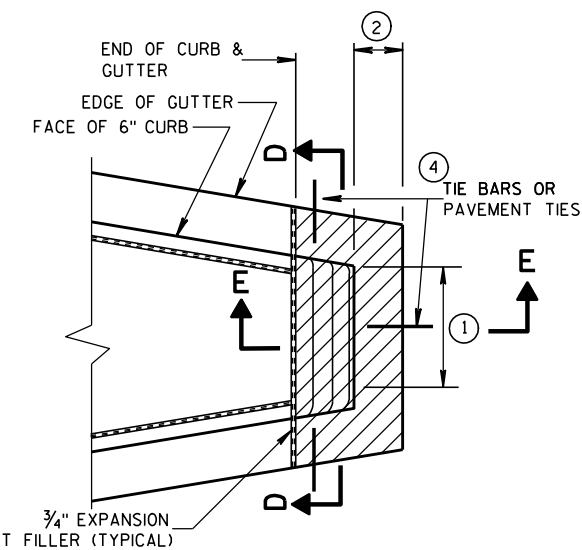
S.D.D. 9 E 6-5



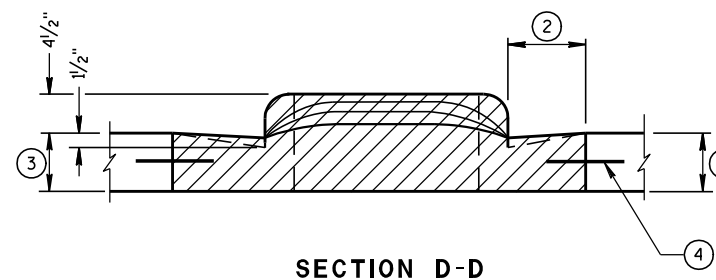
CONCRETE MEDIAN BLUNT NOSE DETAIL



CONCRETE MEDIAN SLOPED NOSE TYPE 1



CONCRETE MEDIAN SLOPED NOSE TYPE 2



**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.

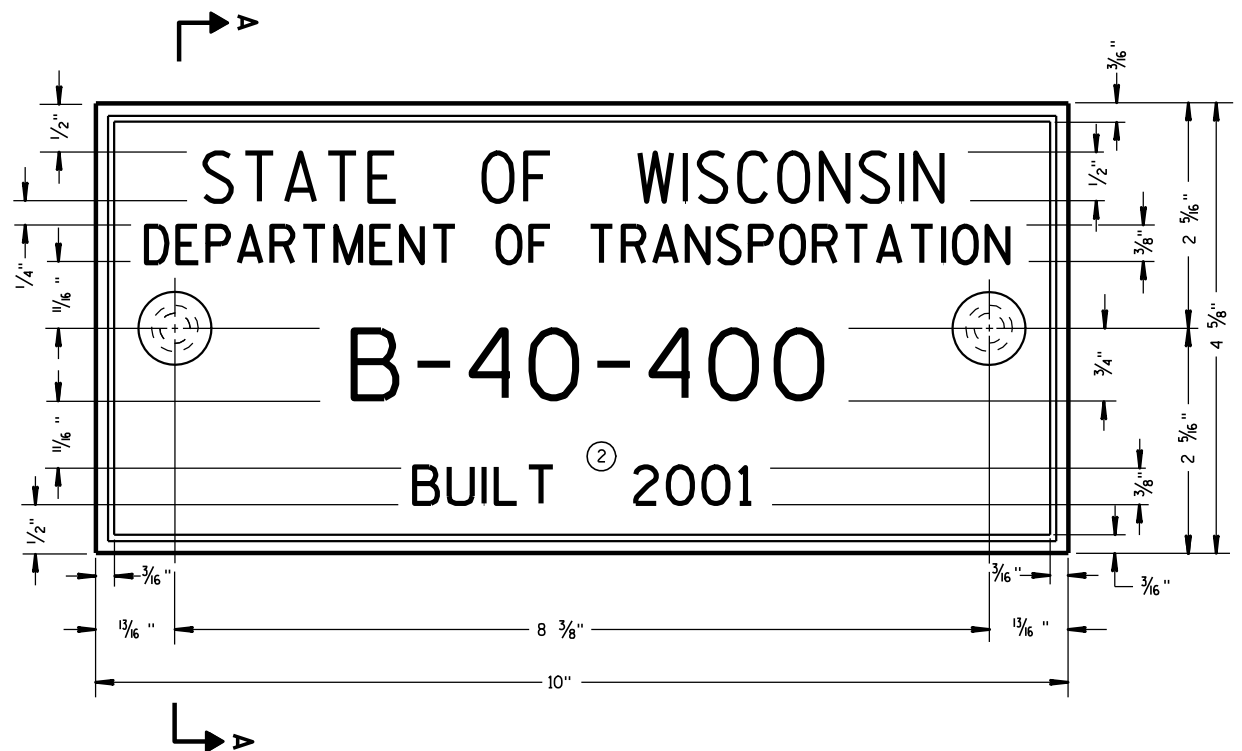
- ① SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).
- ② WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.
- ③ DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:
  - (1) NEW OR EXISTING 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.

<b>CONCRETE MEDIAN NOSE</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 6/8/2006 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



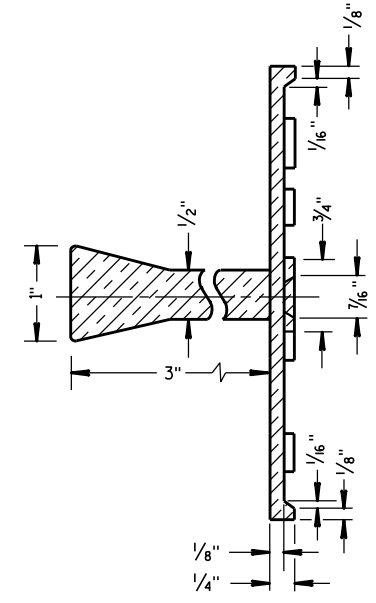
**TYPICAL NAME PLATE**  
(BRIDGES, CULVERTS, AND RETAINING WALLS)

**GENERAL NOTES**

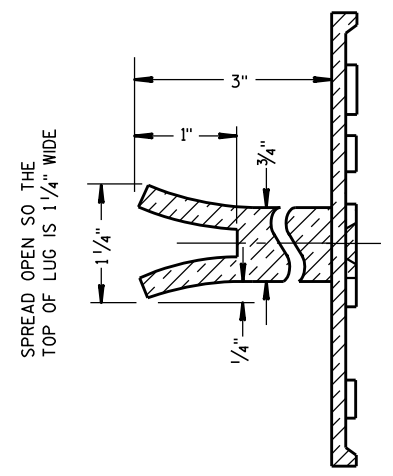
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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**

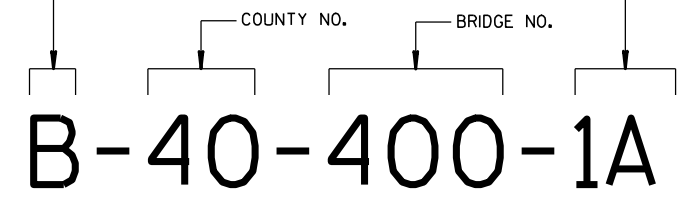
6

6

FOR MULTI-UNIT STRUCTURES  
LINE 3 ABOVE SHALL READ

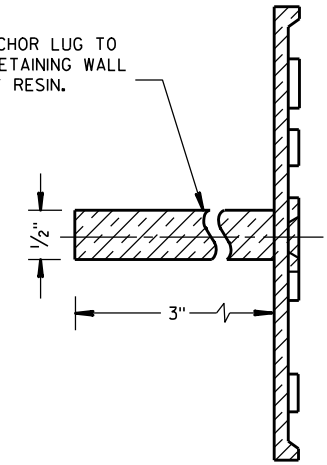
B = BRIDGE  
C = CULVERT  
R = RETAINING WALL

UNIT NO. FOR MULTIPLE  
UNIT BRIDGE



**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



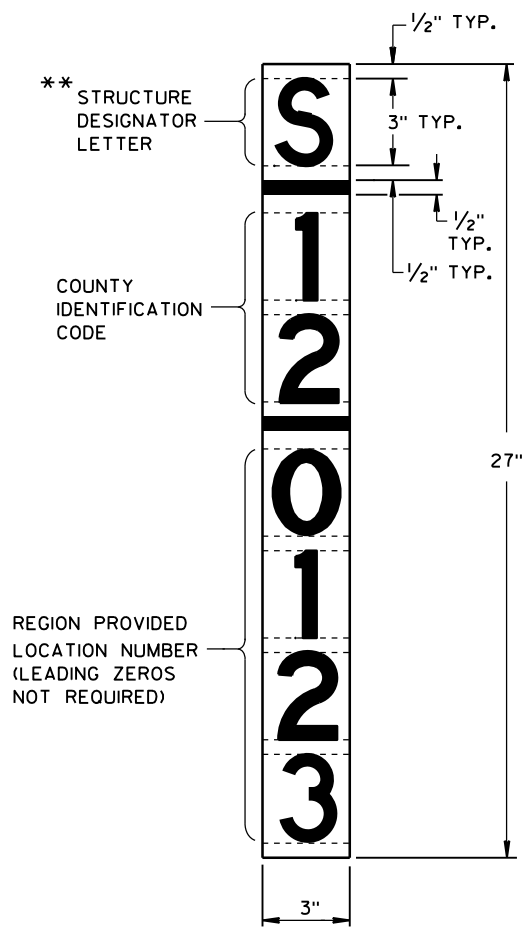
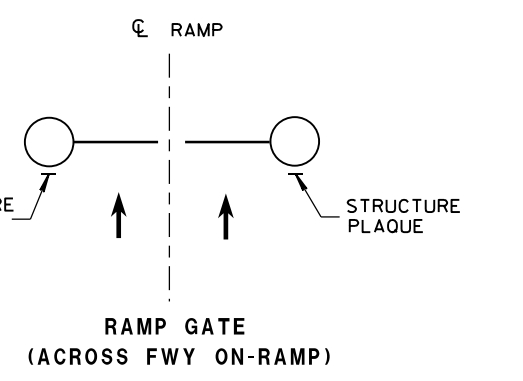
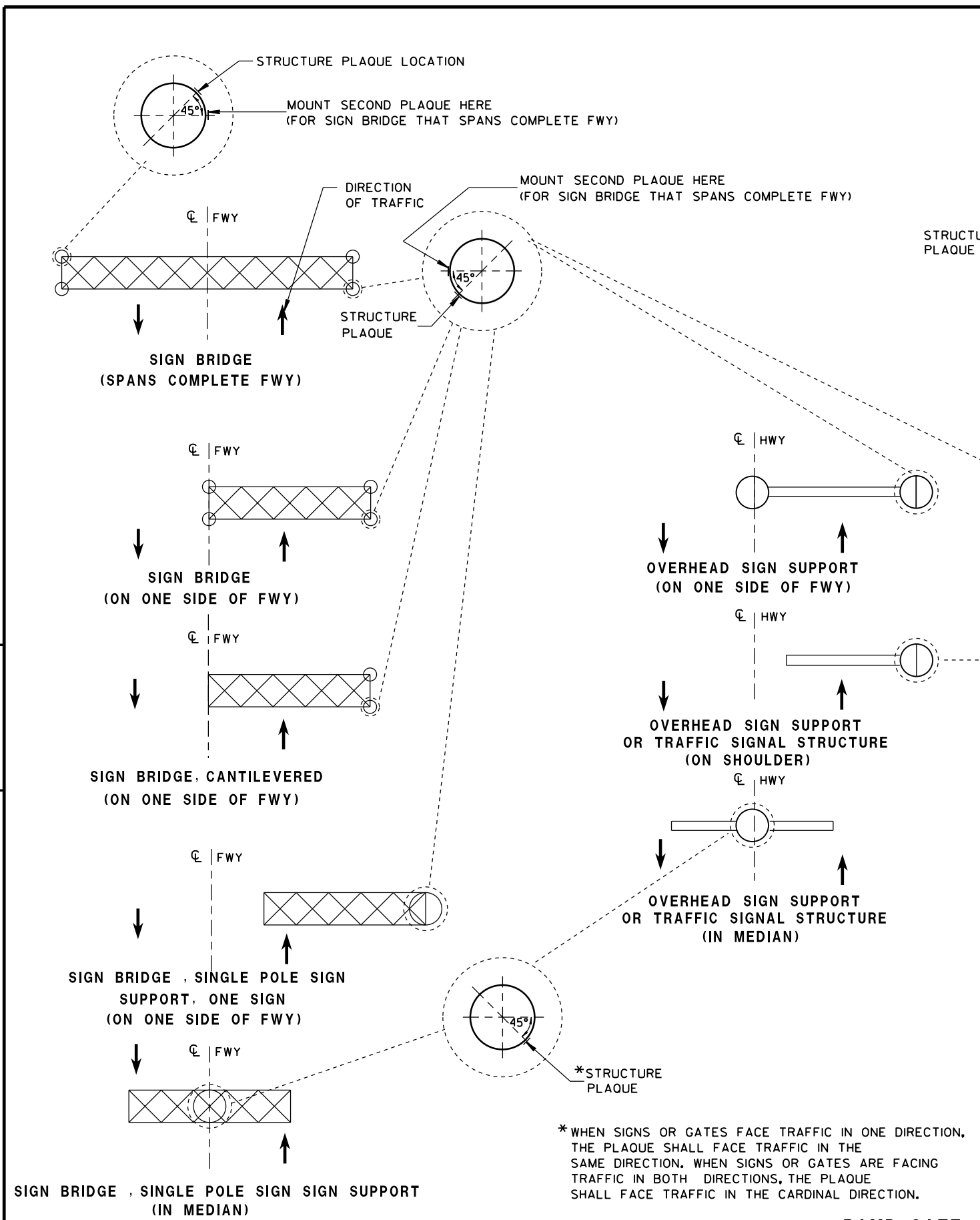
**ALTERNATE LUG**  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

S.D.D. 12 A 3-10

S.D.D. 12 A 3-10

<b>NAME PLATE (STRUCTURES)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 3/26/10	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	





**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

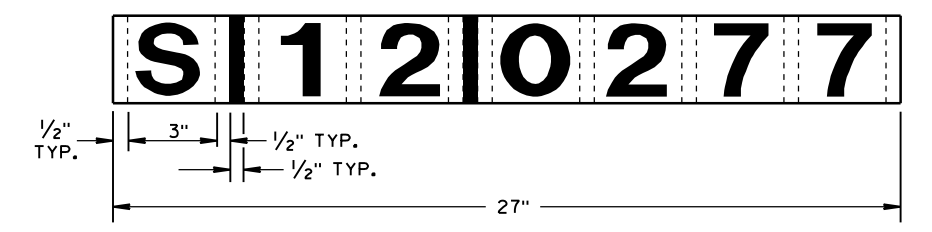
MOUNTING HEIGHT SHALL BE APPROXIMATELY 5.0' ABOVE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL OBSTRUCT.

**PLAQUE MATERIALS:**

- BASE - SHEET ALUMINUM, 0.060" THICK.
- FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETROREFLECTIVE
- LINES - BLACK, 1/2" 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**

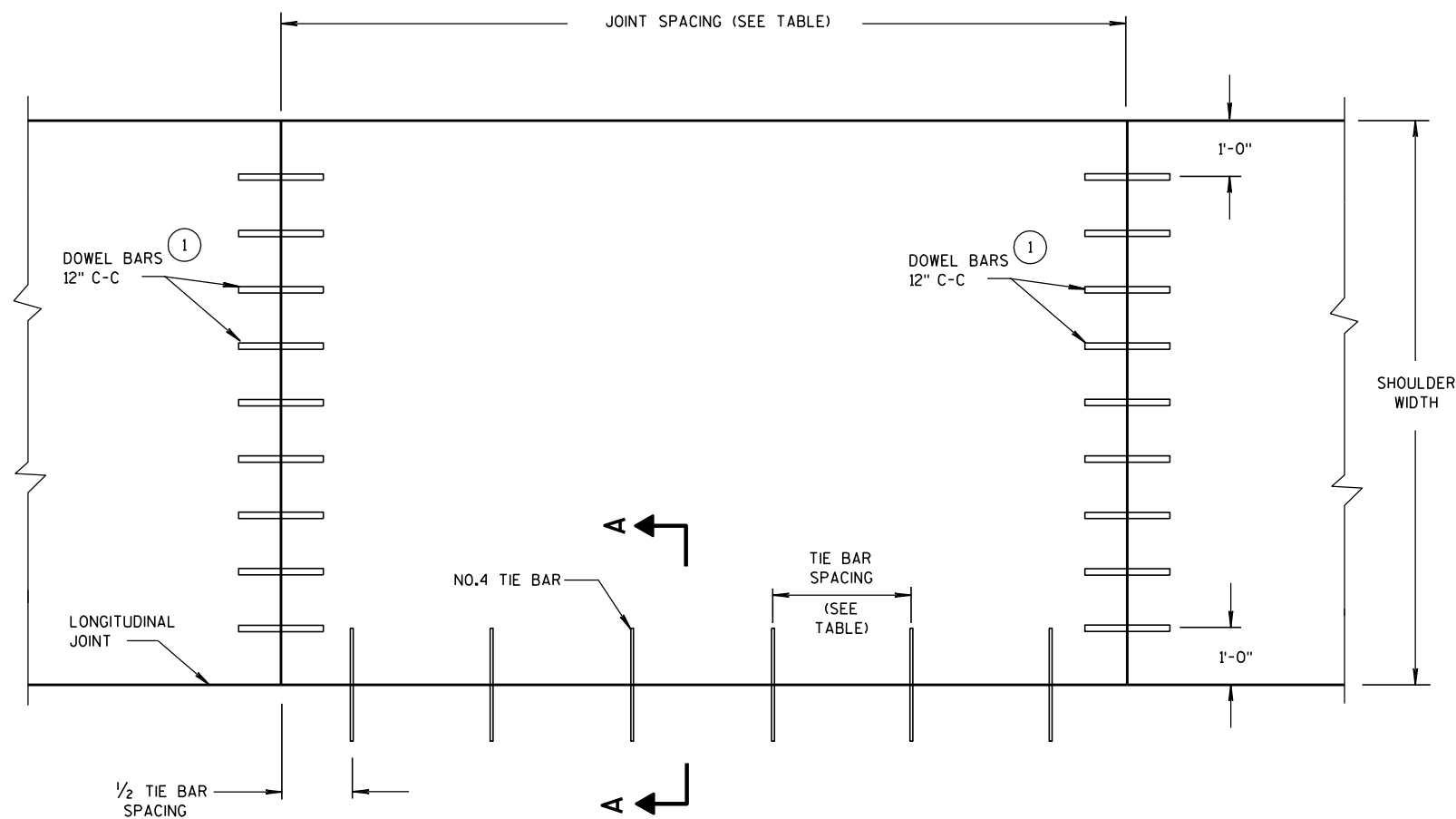
\*\* LETTER "G" UTILIZED FOR RAMP GATES. LETTER "S" UTILIZED FOR SIGN BRIDGES, OVERHEAD SIGN SUPPORTS, AND TRAFFIC SIGNALS.

\* 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, SIGN BRIDGE, OVERHEAD SIGN SUPPORT AND TRAFFIC SIGNAL STRUCTURE PLAQUE FOR SIGN BRIDGES AND OVERHEAD SIGN SUPPORT WHICH ARE NOT 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 OF DESIGN
FHWA	



**PLAN VIEW  
CONCRETE PAVEMENT SHOULDER**

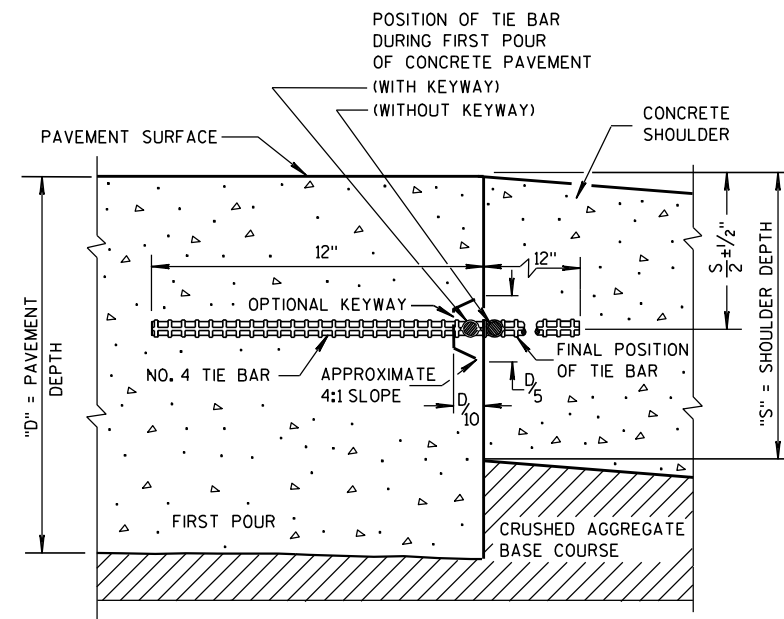
**GENERAL NOTES**

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**

**1  
PAVEMENT DEPTH, DOWEL BAR SIZE  
AND JOINT SPACING TABLE**

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 SHOULDER
CONTINUOUSLY REINFORCED	36"	12' FOR 3' WIDE SHOULDER

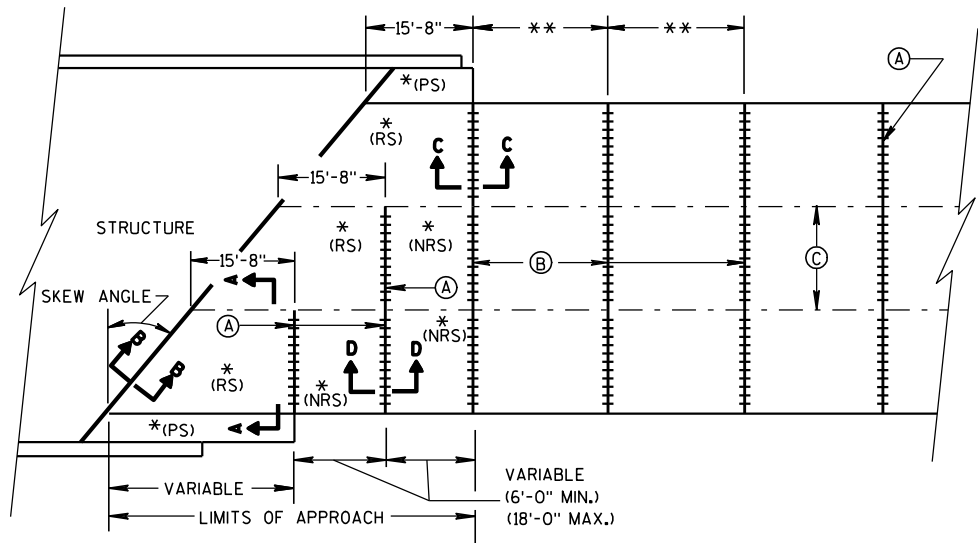
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'

FOR DOWELED CONCRETE SHOULDER 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.

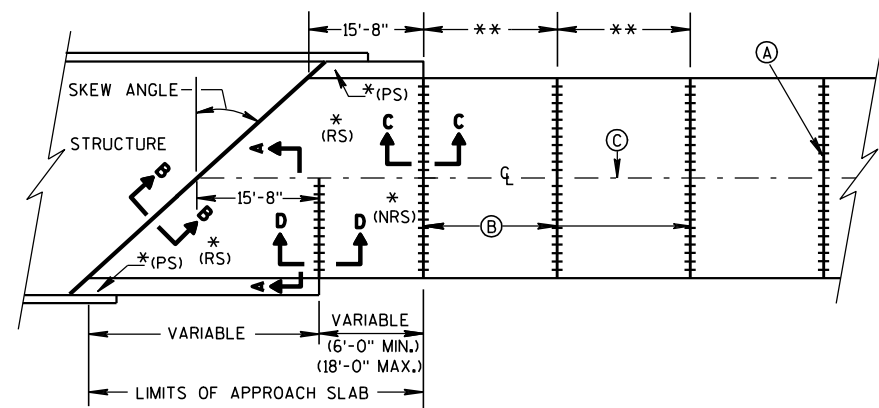
**CONCRETE PAVEMENT SHOULDERS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

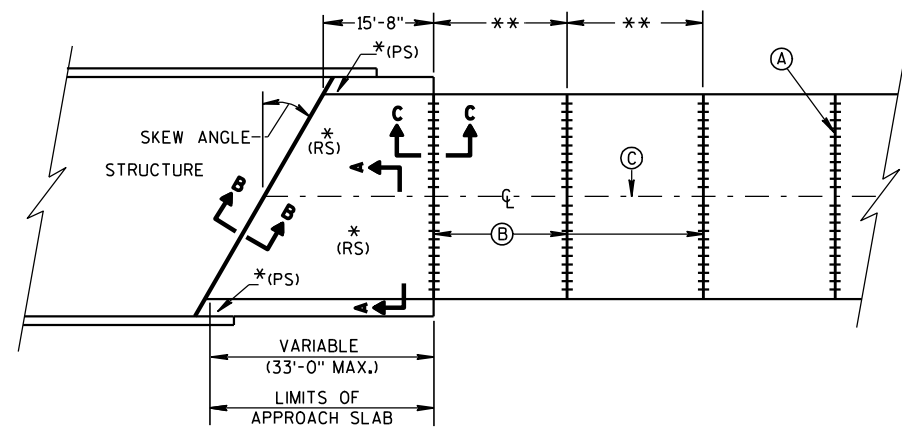
APPROVED  
8/15/2011 /S/ Deb Blschoff  
DATE PAVEMENT POLICY & DESIGN ENGINEER  
FHWA



**SKewed APPROACH  
(PAVEMENT MORE THAN 2 LANES)**

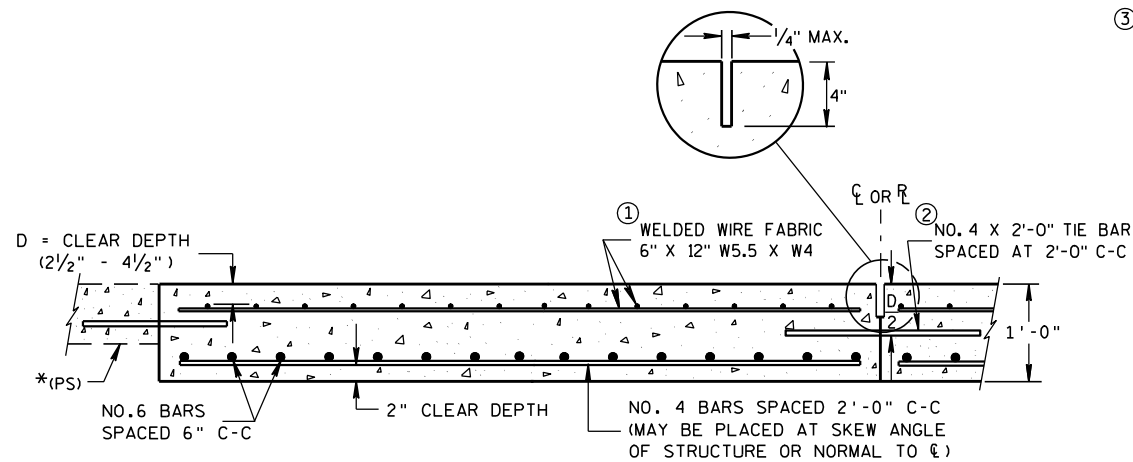


**SKEWS > 30°  
(PAVEMENT WIDTH ≤ 30')**

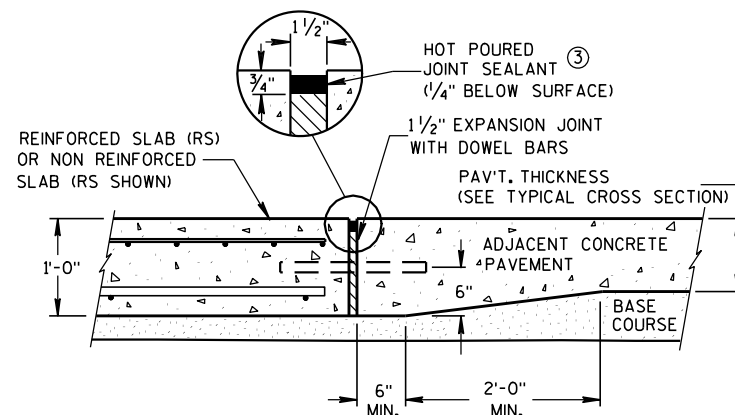


**SKEWS ≤ 30°  
(PAVEMENT WIDTH ≤ 30')  
APPROACH SLAB AND ADJACENT PAVEMENT**

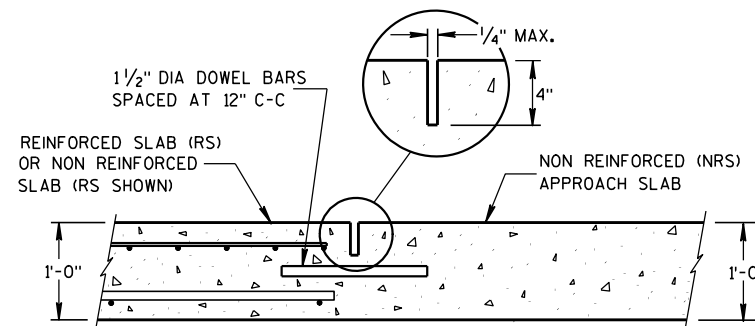
- \* (RS) = REINFORCED CONCRETE SLAB
- \* (PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN (SEE DETAILS ELSEWHERE IN THE PLAN)
- \* (NRS) = NON-REINFORCED CONCRETE SLAB
- \*\* STANDARD TRANSVERSE JOINT SPACING (SEE SDD 13C4, SDD 13C11, & SDD 13C13)
- (A) STANDARD CONTRACTION JOINT NORMAL TO  $R_L$  OR  $R_C$
- (B) 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $R_L$  OR  $R_C$
- (C) STANDARD LONGITUDINAL JOINT AND TIE BARS.



**SECTION A-A  
REINFORCEMENT POSITIONING DETAIL**



**SECTION C-C  
TRANSITION DETAIL  
APPROACH SLAB TO ADJACENT PAVEMENT**



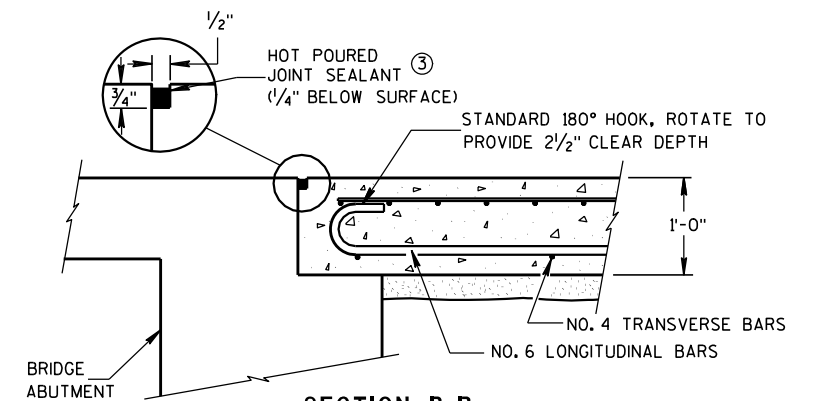
**SECTION D-D  
CONTRACTION JOINT**

**GENERAL NOTES**

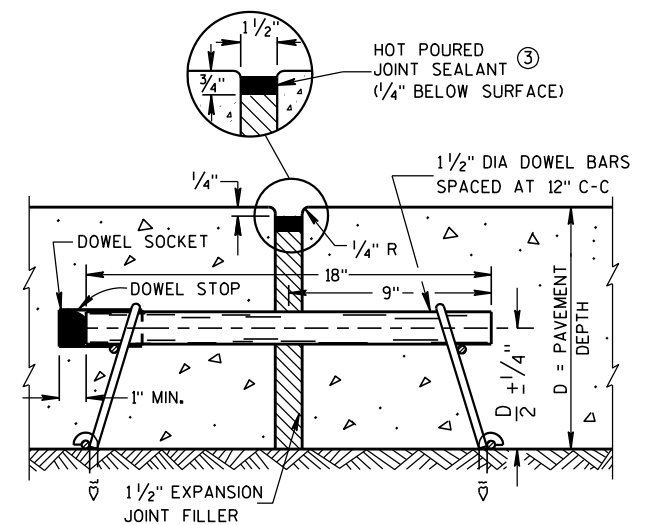
APPROACH SLABS ABUTTING AN HMA PAVEMENT OVER BASE COURSE DO NOT NEED TO BE DOWELED.

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**

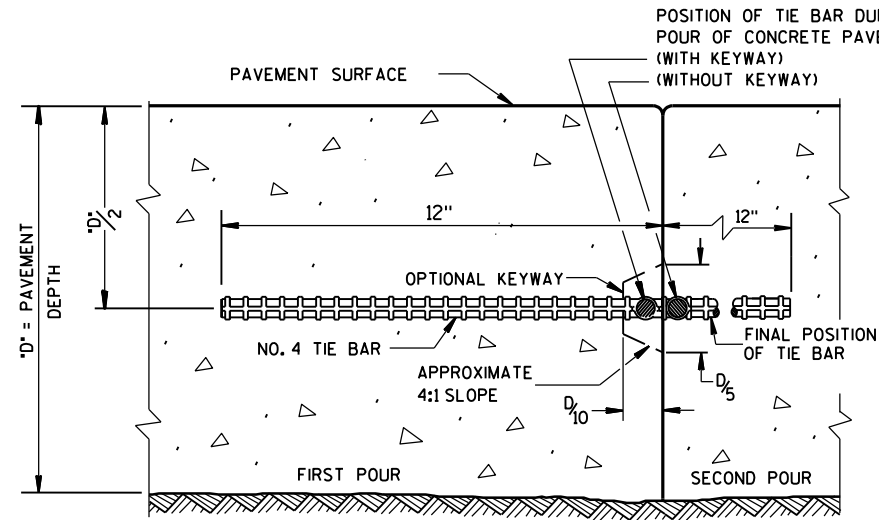


**EXPANSION JOINT**

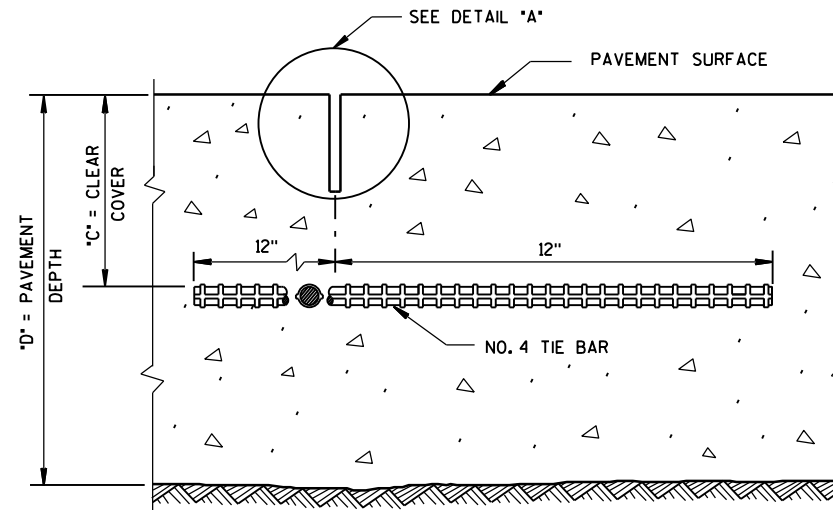
**CONCRETE PAVEMENT  
APPROACH SLAB**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
12/11/2009 /S/ Deb Bischoff  
DATE PAVEMENT POLICY & DESIGN ENGINEER  
FHWA



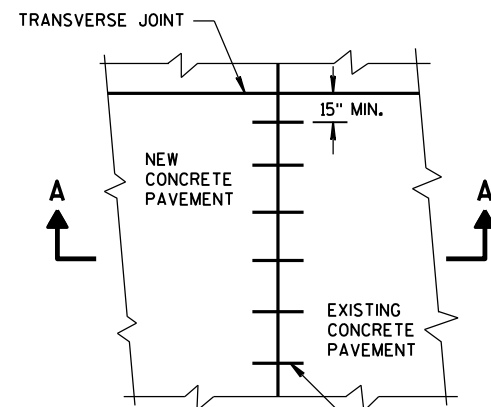
**CONSTRUCTION JOINT**



**SAWED JOINT**

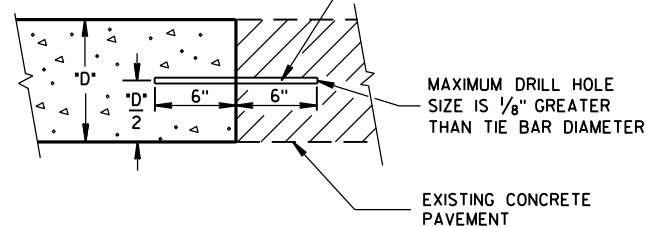
**GENERAL NOTES**

- 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.

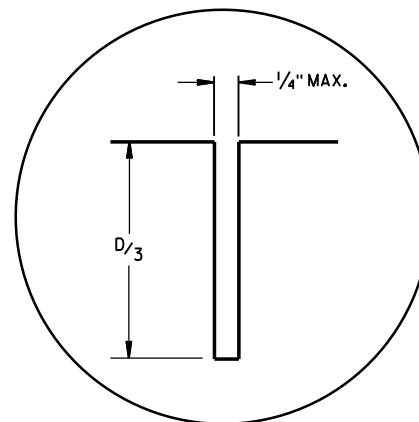


**PLAN VIEW**

NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



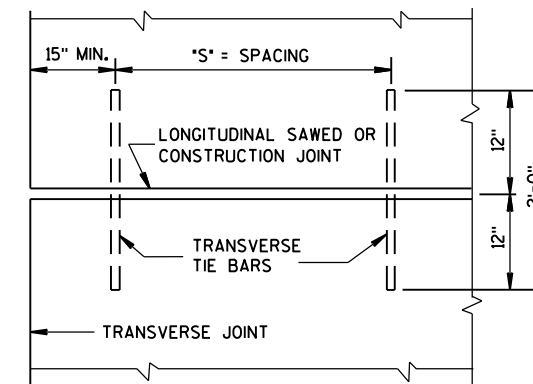
**SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT**



**DETAIL "A"**

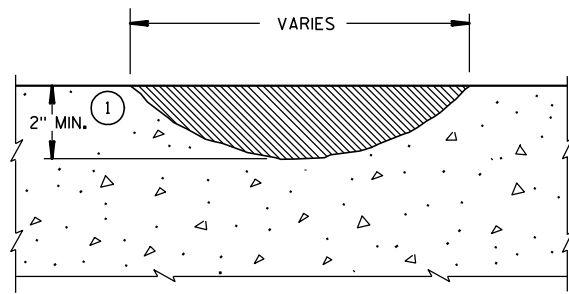
**TIE BAR TABLE**

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"

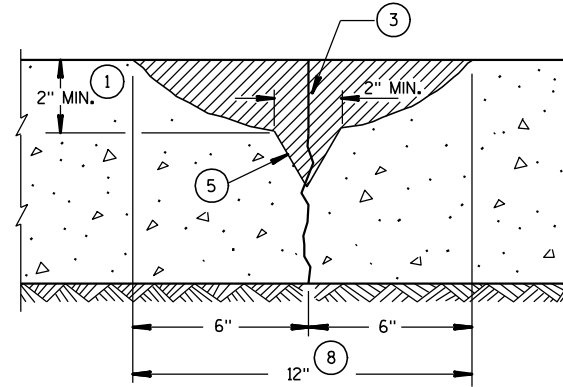


**PLAN VIEW  
SHOWING LOCATION OF TIE BARS**

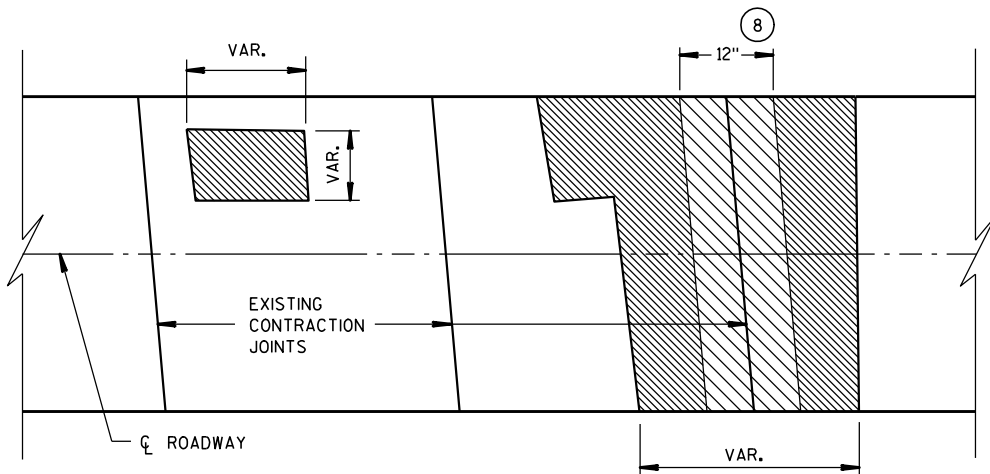
<b>CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5-3-2013 DATE	/S/ Deb Bischoff PAVEMENT POLICY & DESIGN ENGINEER
FHWA	



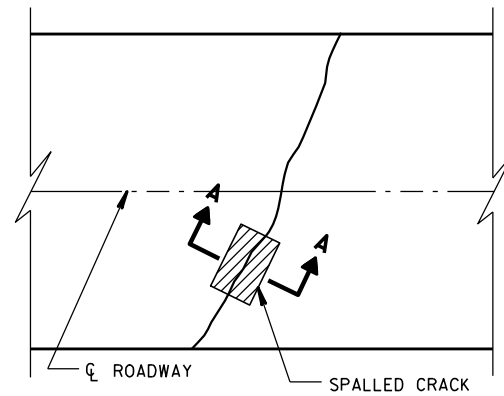
PROFILE VIEW



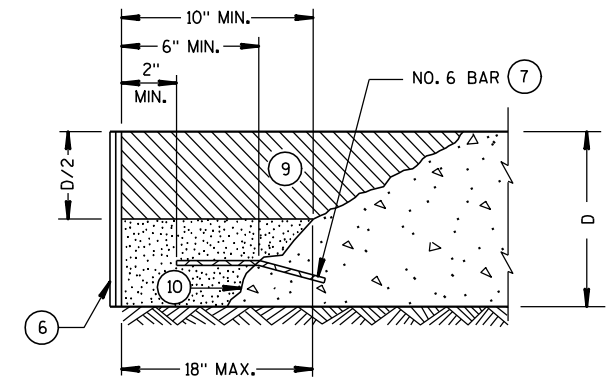
SECTION A-A



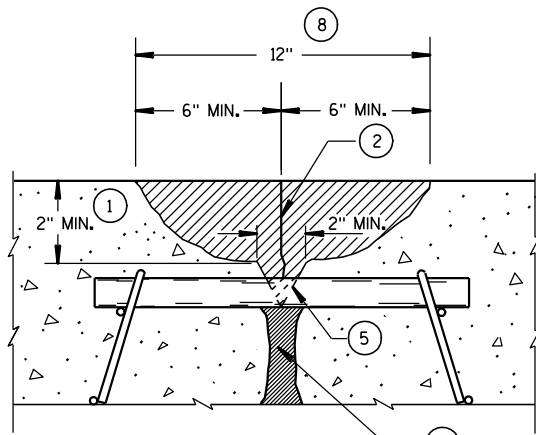
PLAN VIEW  
SURFACE REPAIR



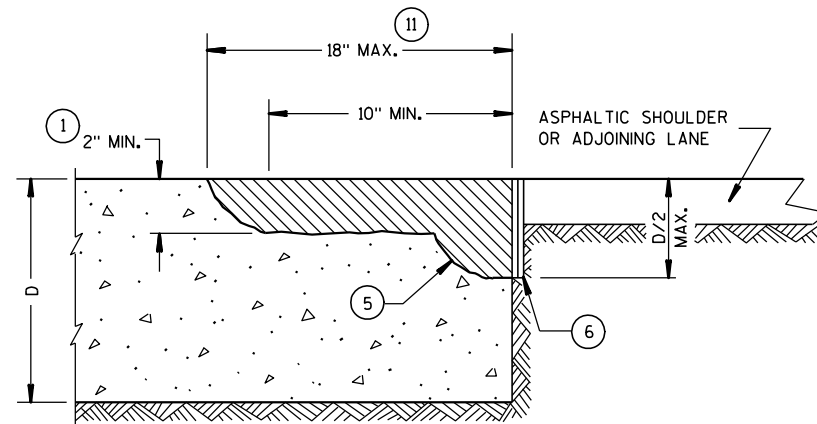
PLAN VIEW  
CRACK REPAIR



PROFILE VIEW

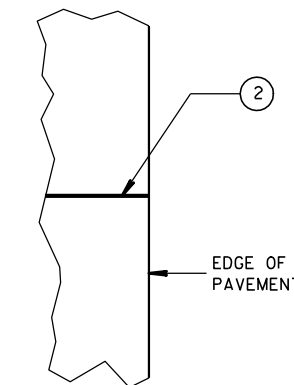


PROFILE VIEW  
JOINT REPAIR

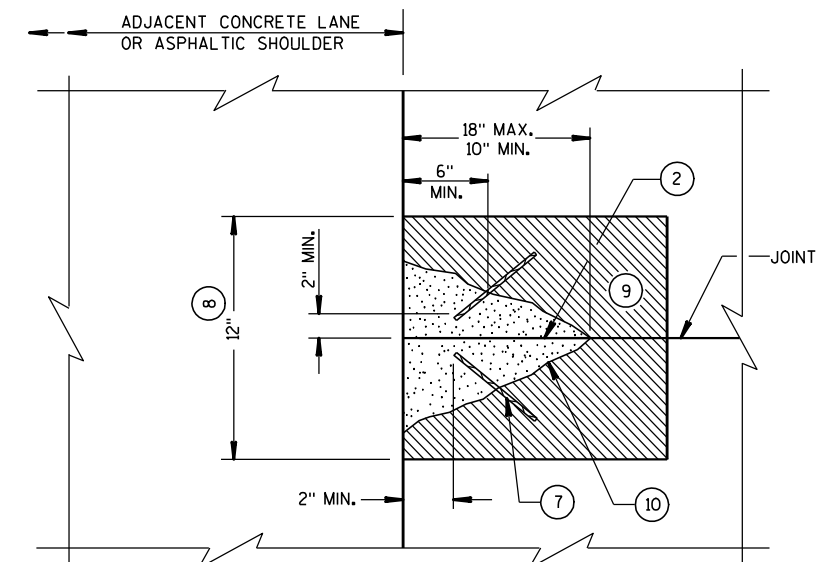


PROFILE VIEW

EDGE REPAIR



PLAN VIEW



PLAN VIEW  
FULL DEPTH REPAIR ADJUSTMENT

**GENERAL NOTES**

- 1 REMOVE ALL CONCRETE, TO LIMITS SHOWN, TO A MAXIMUM OF 1/2 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 1/4" 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.

**CONCRETE PAVEMENT  
PARTIAL DEPTH REPAIR**

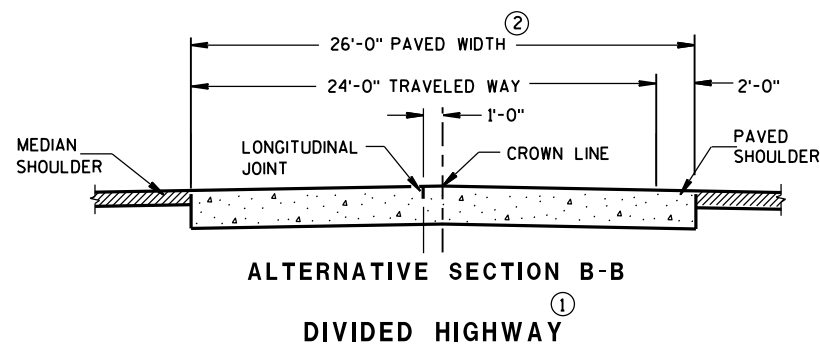
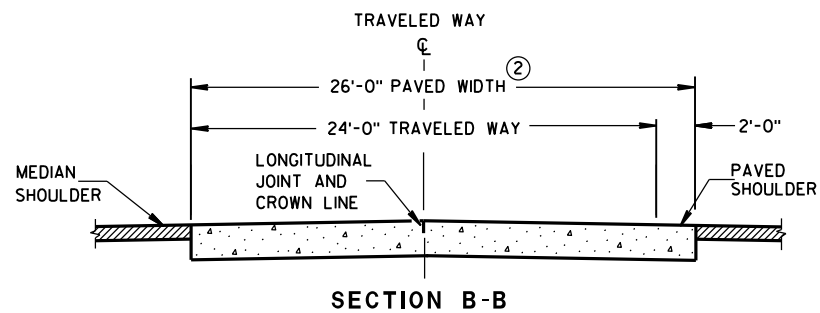
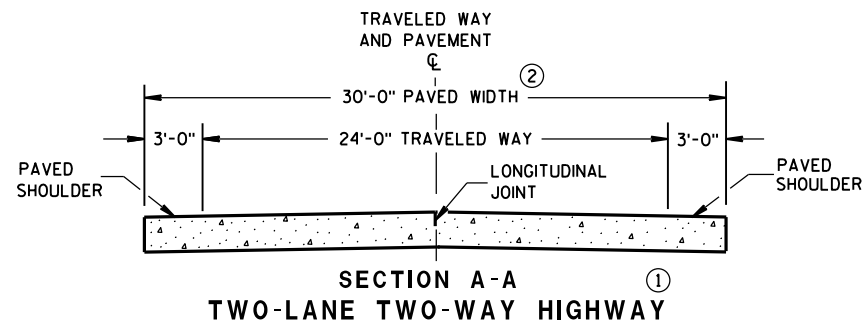
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

3/21/03  
DATE

FHWA

/S/ Bill Duckert  
PAVEMENT ENGINEER



**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.

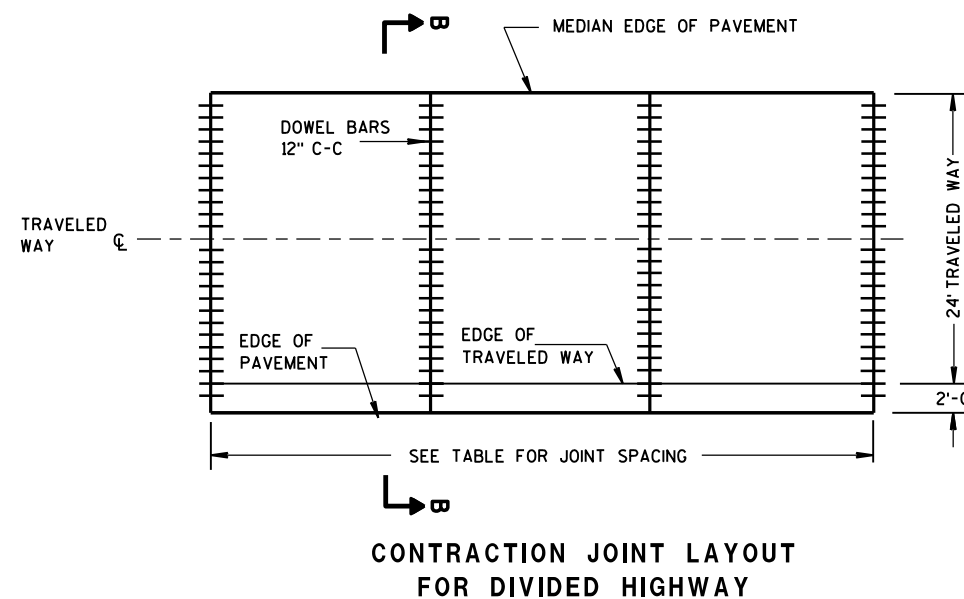
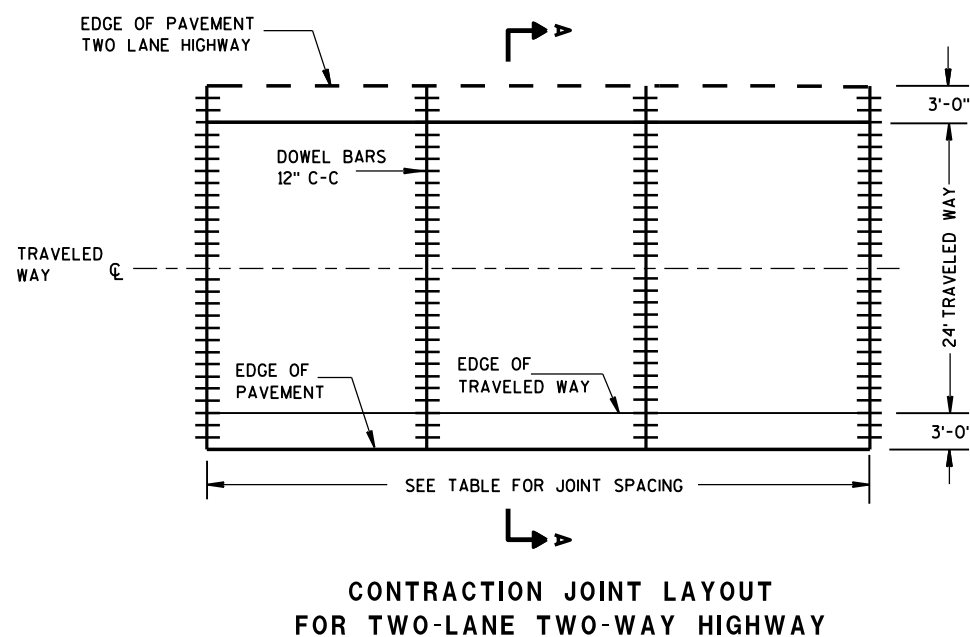
- ① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.
- ② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED PAVED SHOULDER AS CONCRETE PAVEMENT.

**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'

6

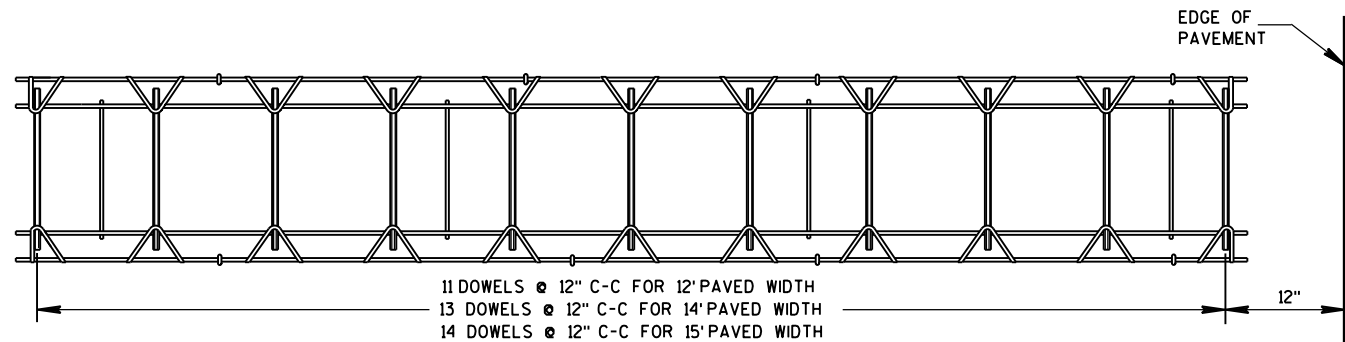
6



**RURAL DOWELED  
CONCRETE PAVEMENT**

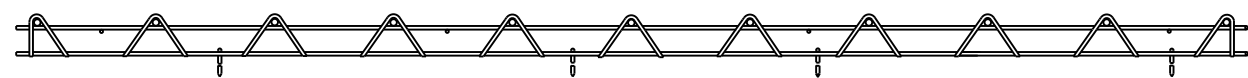
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STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



11 DOWELS @ 12" C-C FOR 12' PAVED WIDTH  
 13 DOWELS @ 12" C-C FOR 14' PAVED WIDTH  
 14 DOWELS @ 12" C-C FOR 15' PAVED WIDTH

PLAN VIEW

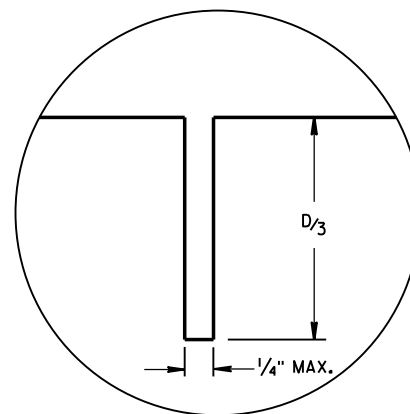


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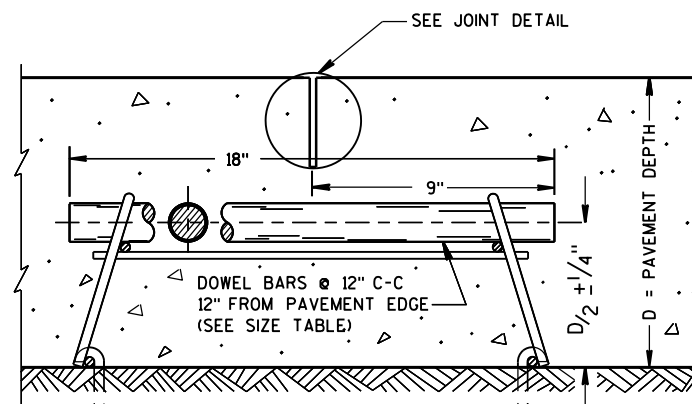
SIDE VIEW

(NORMAL TO CENTERLINE)

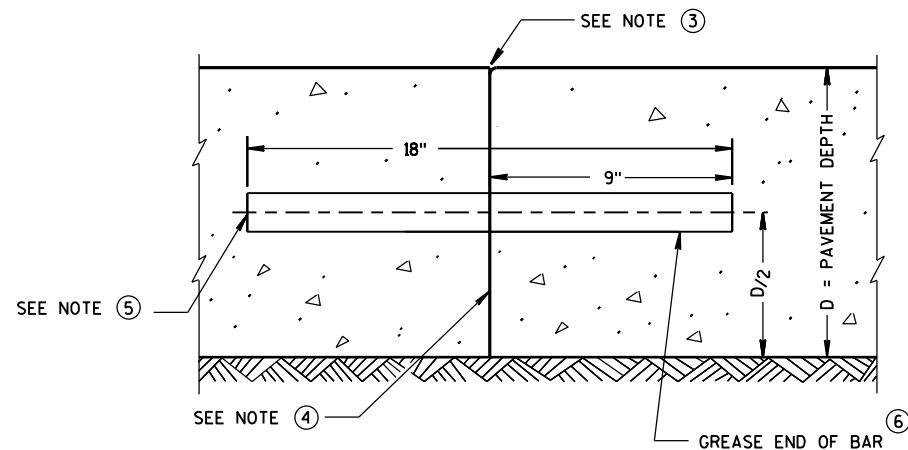
CONTRACTION JOINT DOWEL ASSEMBLY ①



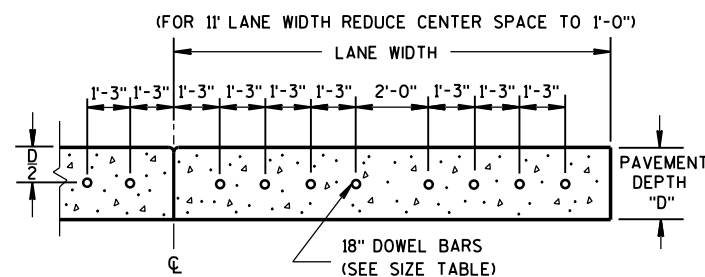
JOINT DETAIL



DOWELED CONTRACTION JOINT



TRANSVERSE CONSTRUCTION JOINT

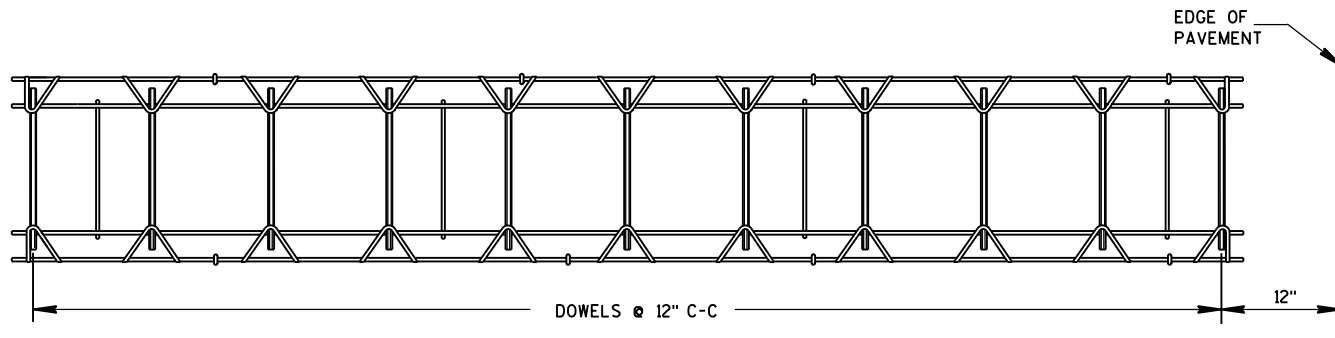


DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦

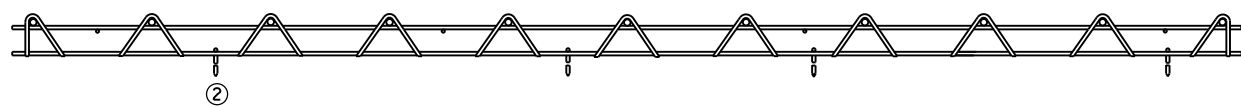
GENERAL NOTES

- 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.

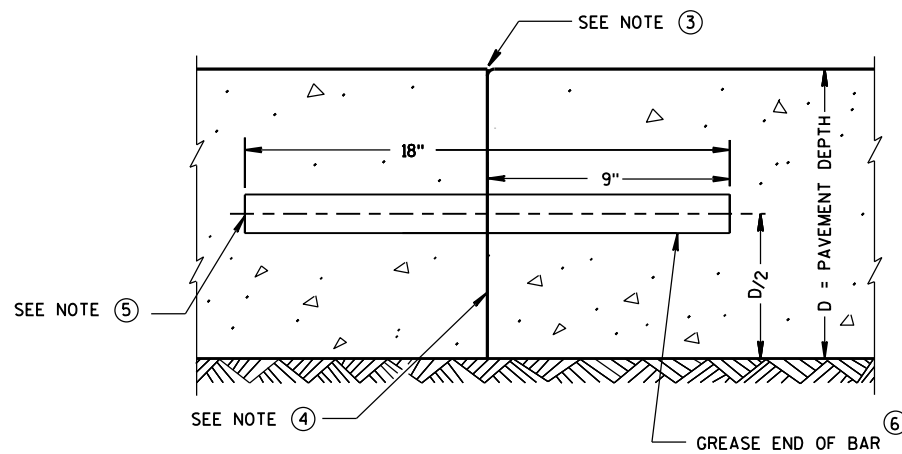
<b>RURAL DOWELED CONCRETE PAVEMENT</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 5/3/2013	/S/ Deb Bischoff PAVEMENT POLICY & DESIGN ENGINEER
FHWA	



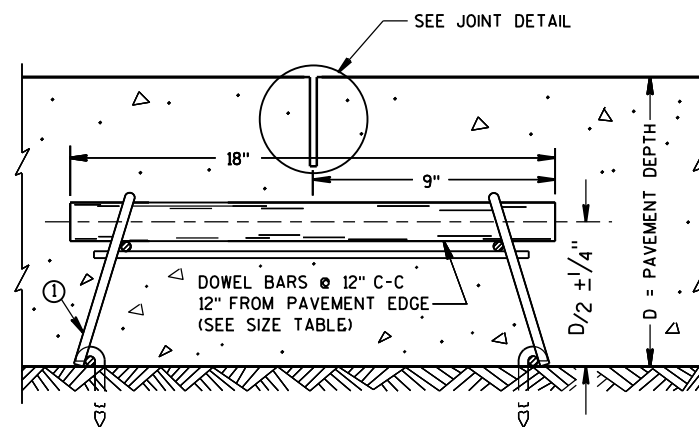
PLAN VIEW



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 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'

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.

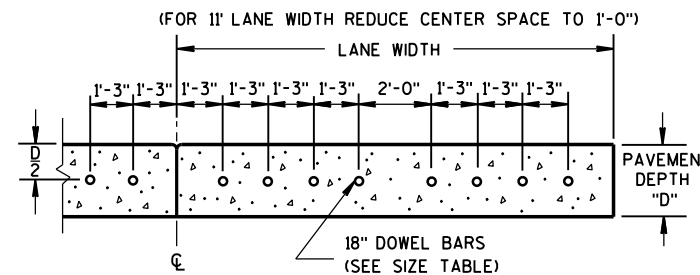
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

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.

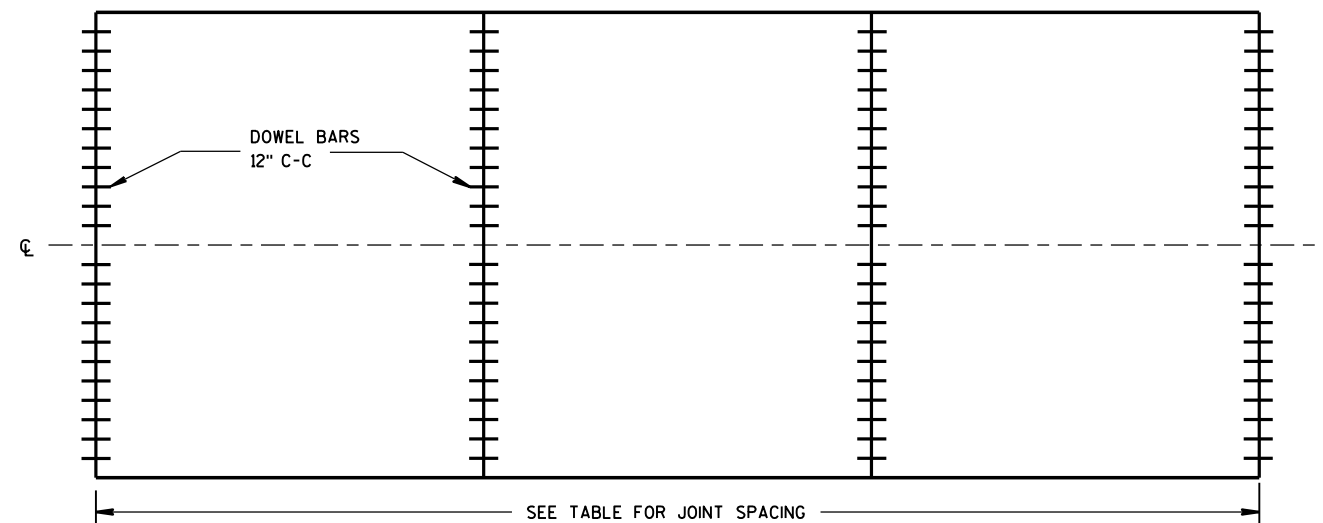
CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

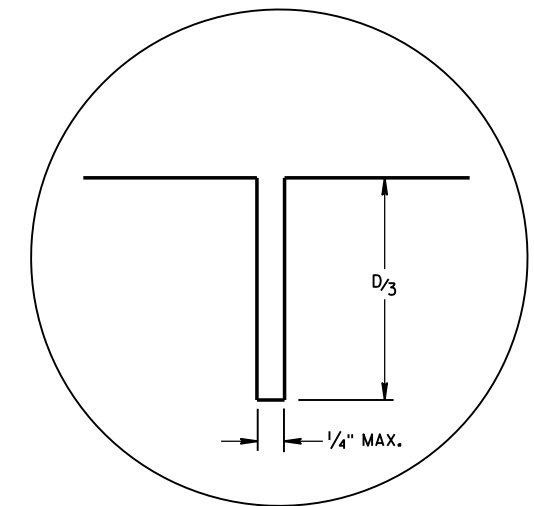
- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 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.



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



CONTRACTION JOINT LOCATIONS



JOINT DETAIL

URBAN DOWELED  
CONCRETE PAVEMENT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

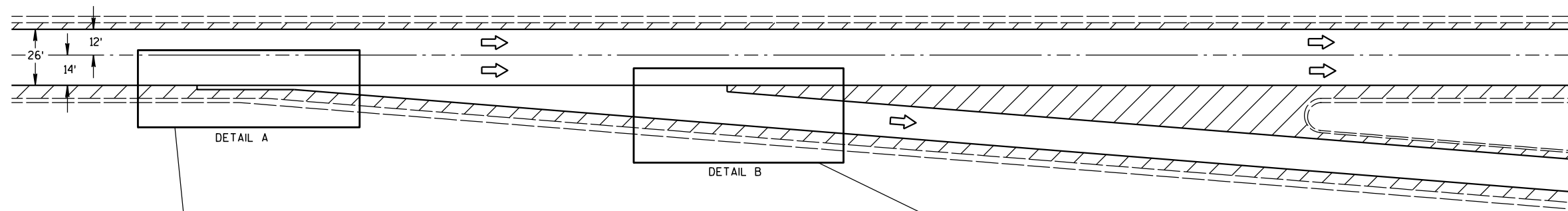
APPROVED

5/3/2013  
DATE

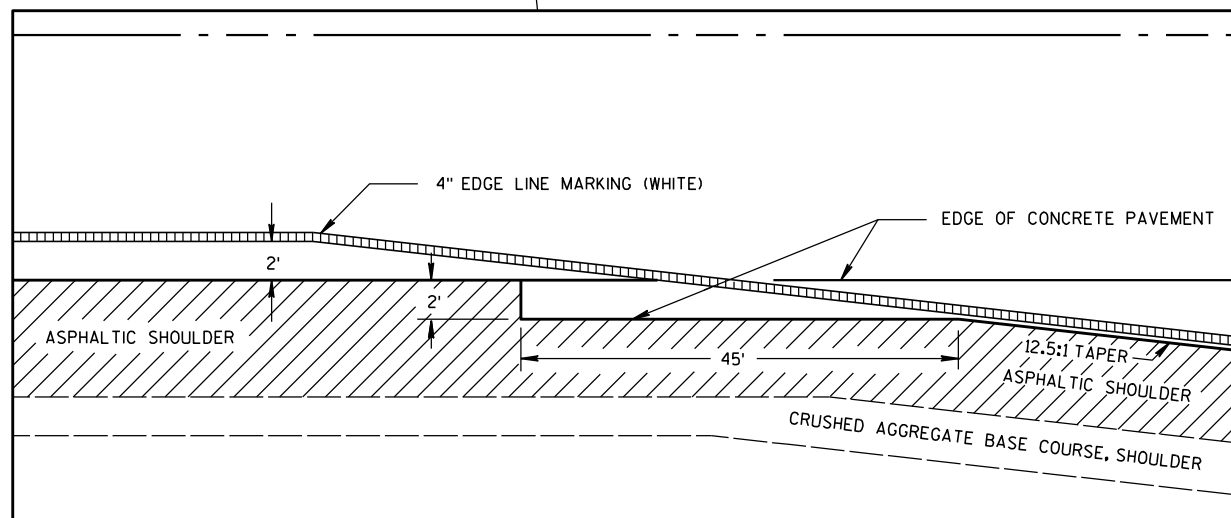
/S/ Deb Bischoff  
PAVEMENT POLICY & DESIGN ENGINEER

FHWA

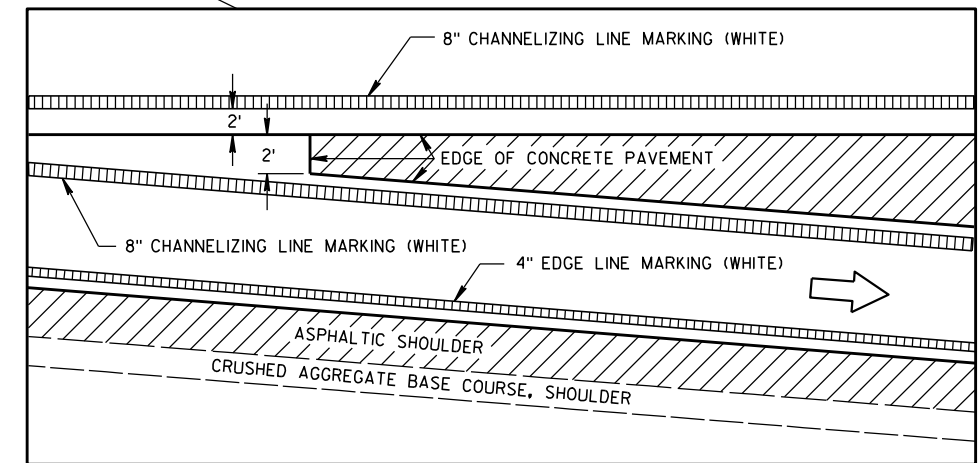




EXIT RAMP DETAIL



DETAIL A



DETAIL B

CONCRETE JOINT PAVING DETAILS

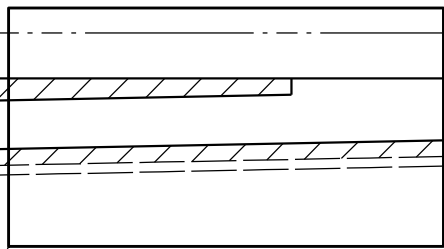
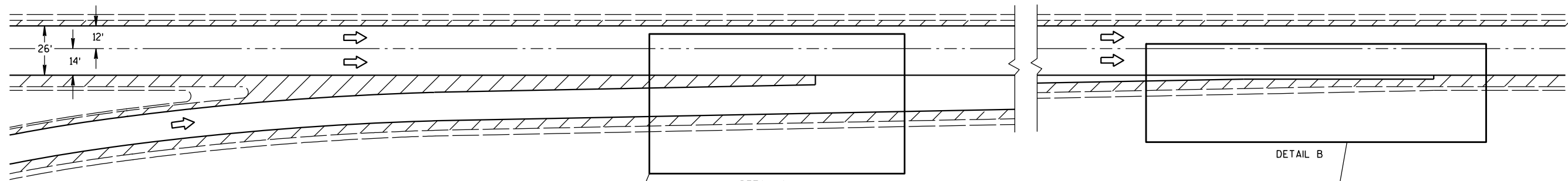
GENERAL NOTES

PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

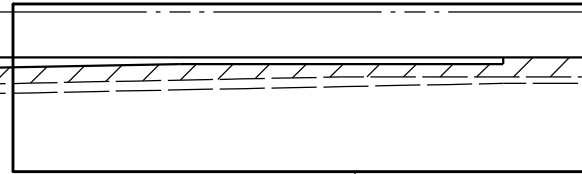
SEE SDD 13 A 4-4c OR SDD 13 A 5-1b FOR RAMP AND GORE RUMBLE STRIP LOCATION.

CONCRETE JOINT DETAIL FOR  
EXIT RAMP TERMINI

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

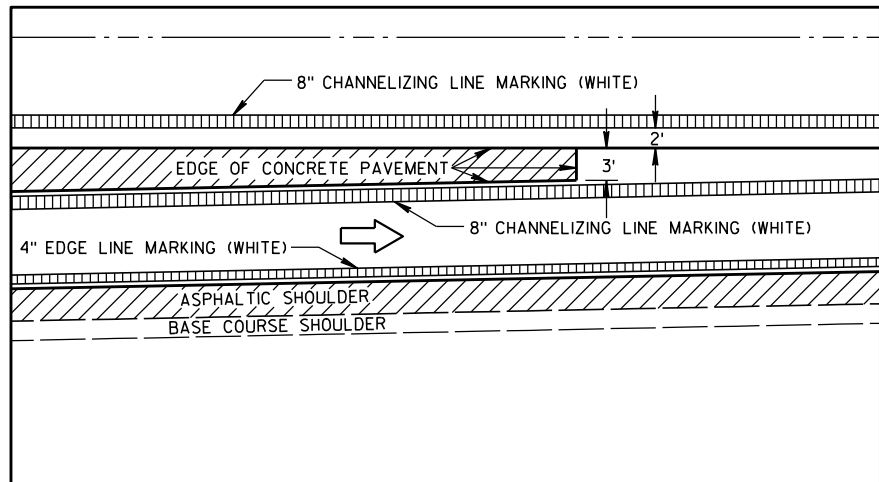


DETAIL A

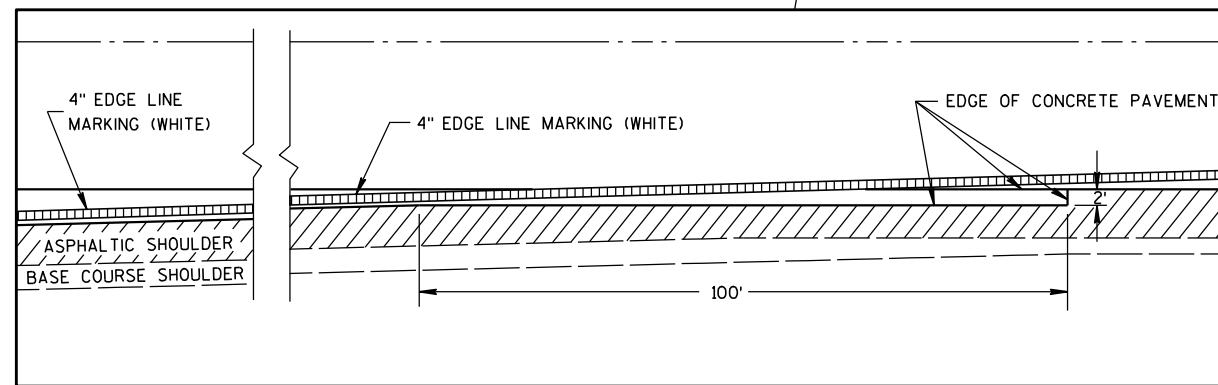


DETAIL B

ENTRANCE RAMP DETAIL



DETAIL A



DETAIL B

CONCRETE JOINT PAVING DETAILS

GENERAL NOTES

PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

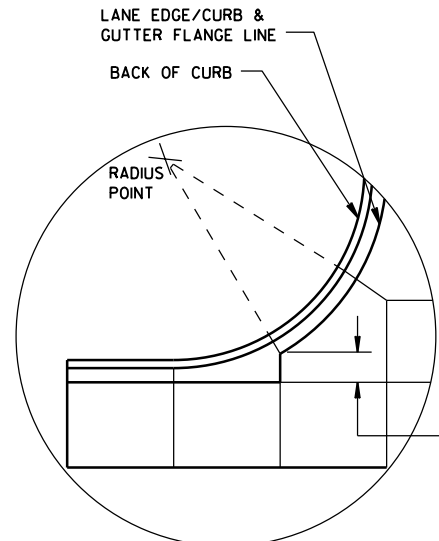
SEE SDD 13 A 4-4c OR SDD 13 A 5-1b FOR RAMP AND GORE RUMBLE STRIP LOCATION.

CONCRETE JOINT DETAIL FOR  
ENTRANCE RAMP TERMINI

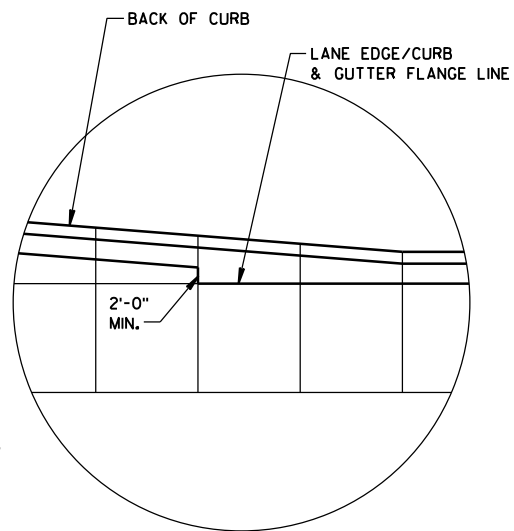
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
5/27/98 /S/ Rory L. Rhinesmith  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER

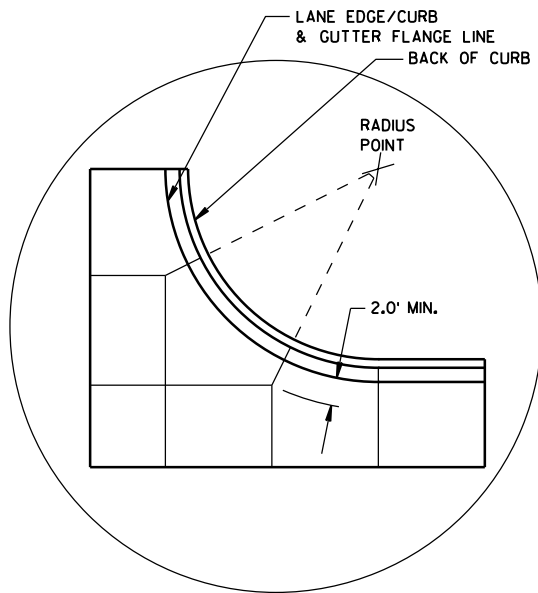
FHWA



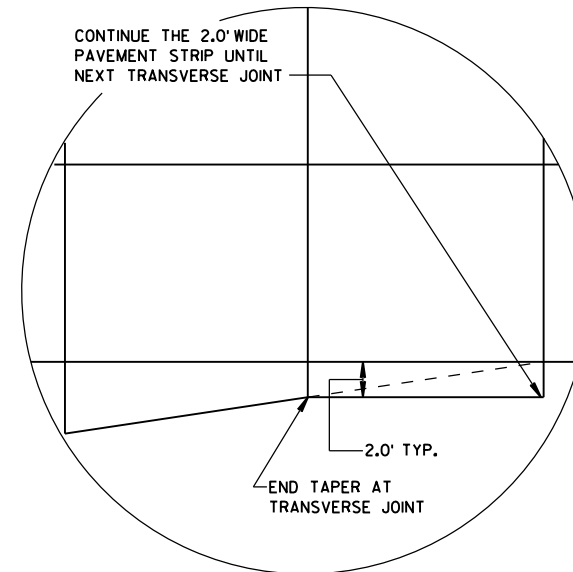
DETAIL "A"



DETAIL "B"



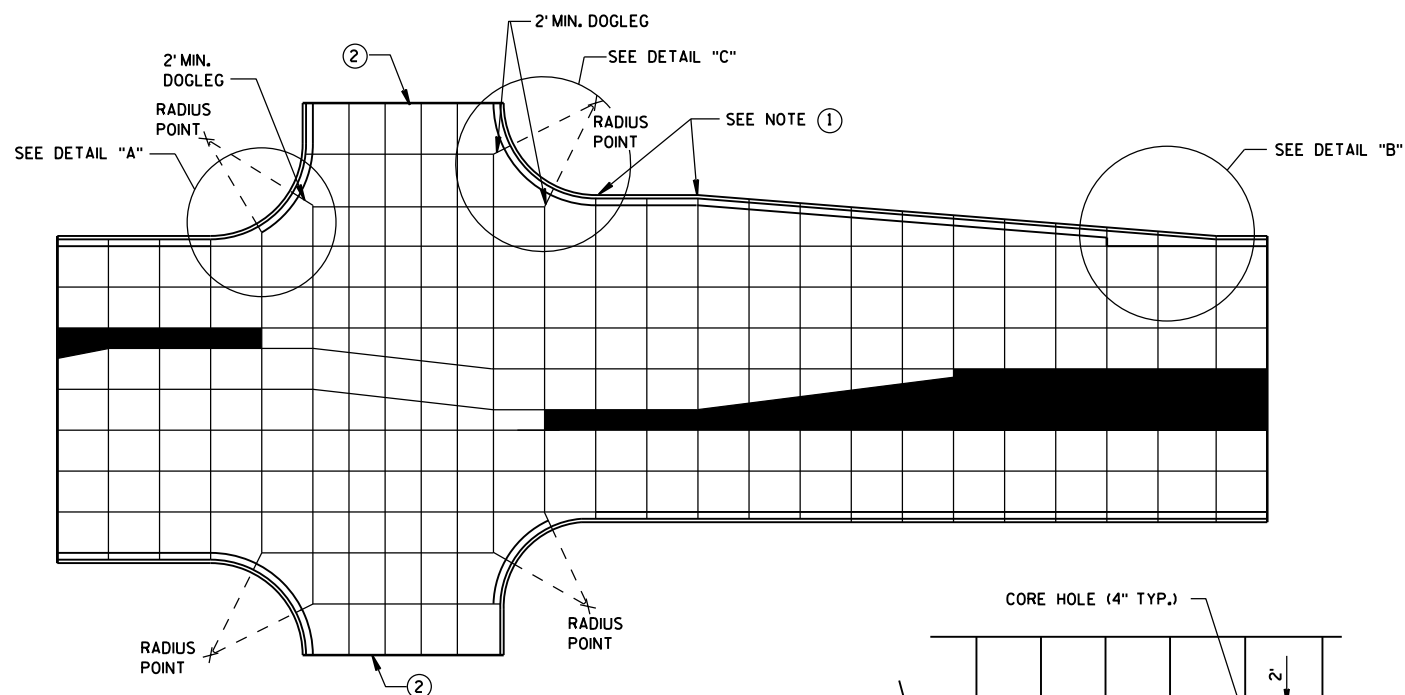
DETAIL "C"



DETAIL "D"

**GENERAL NOTES**

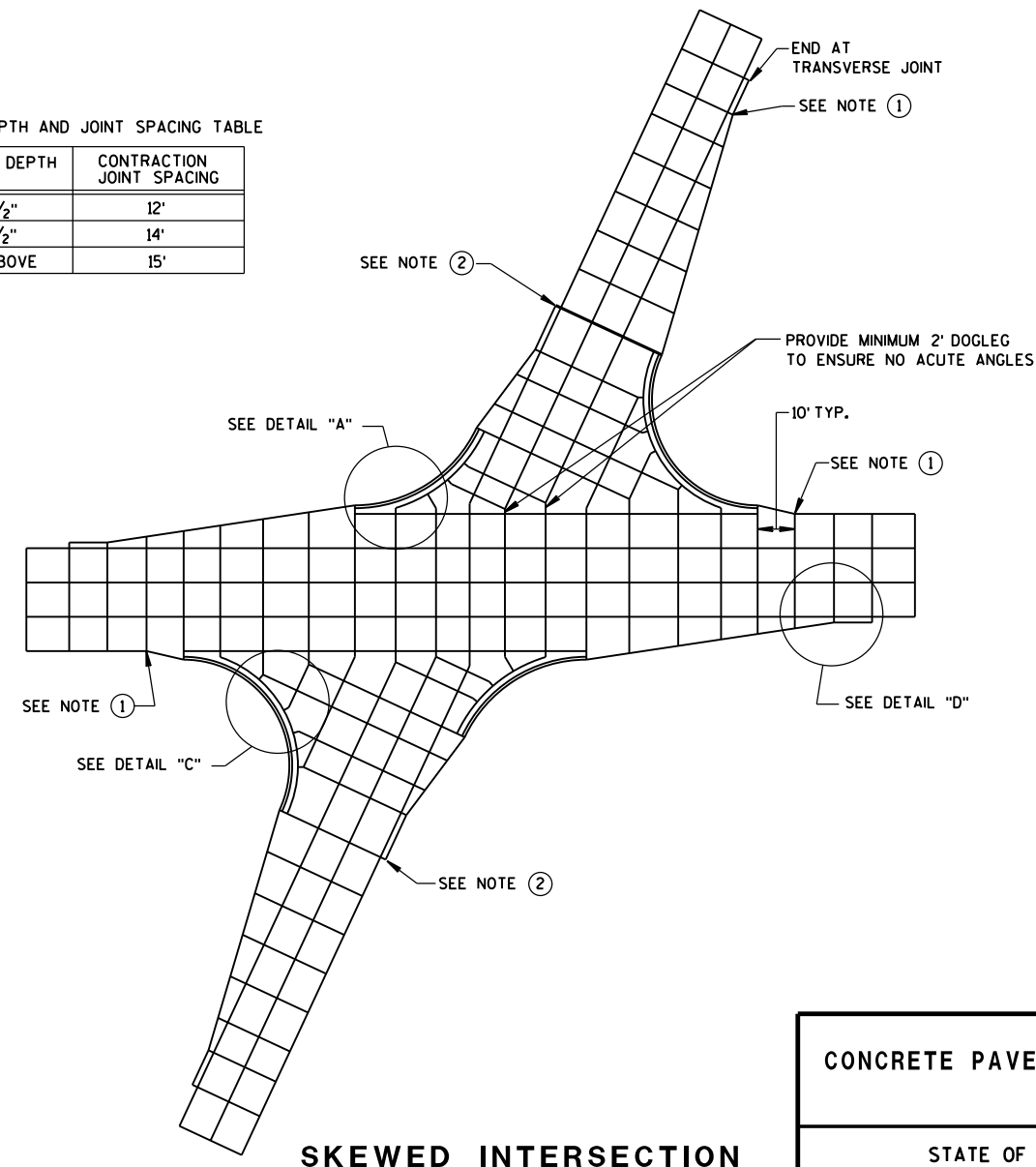
- THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.
- ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.
- CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.
- ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G. MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER 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.



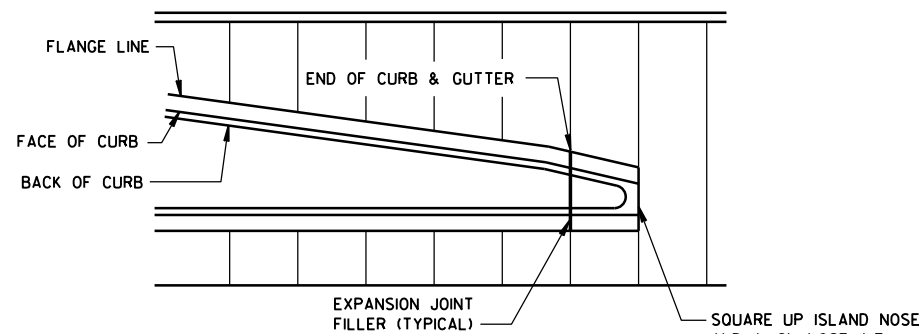
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

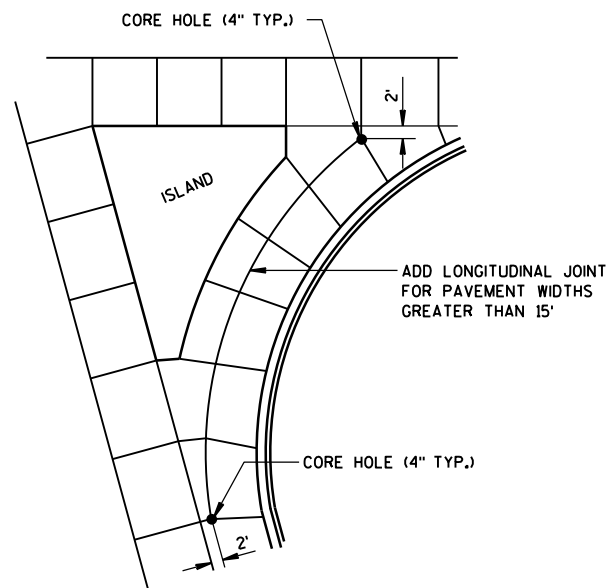
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



SKEWED INTERSECTION



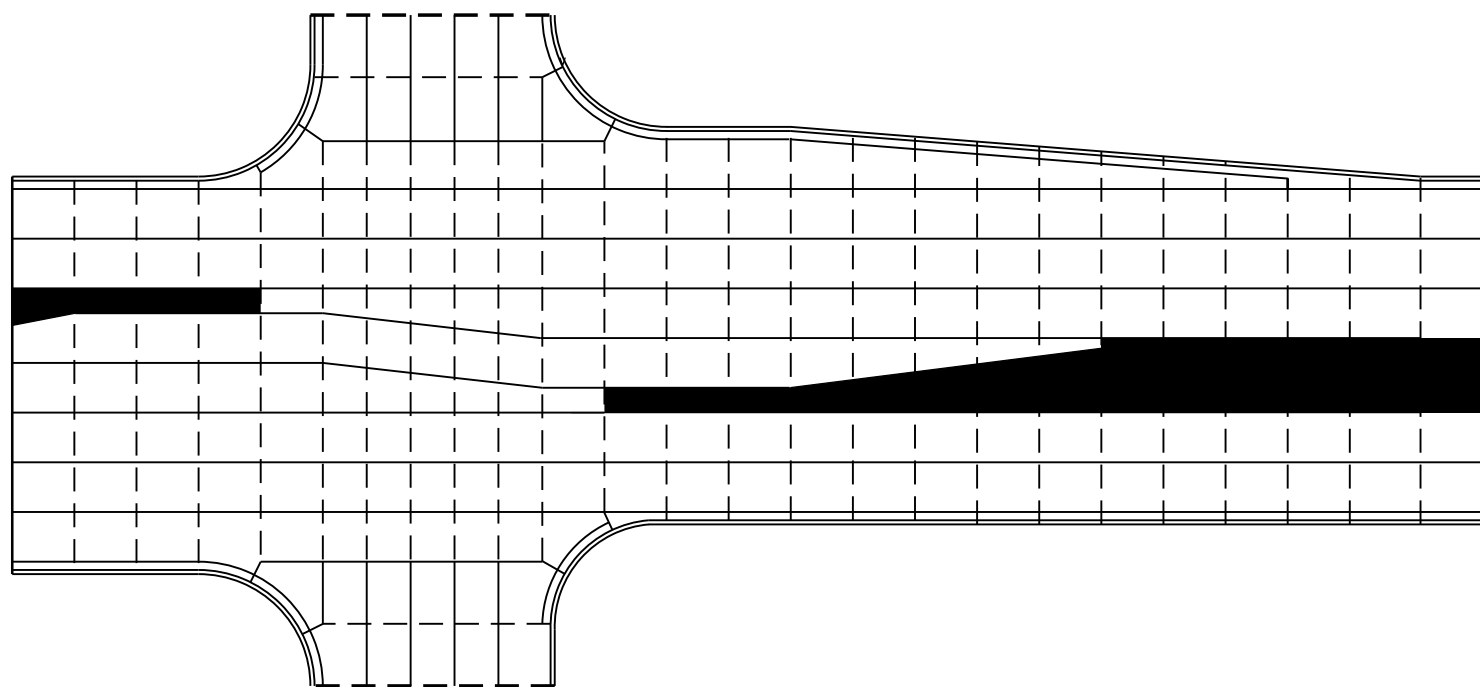
APPROACH TO MEDIAN



LARGE RIGHT TURN

**LEGEND**

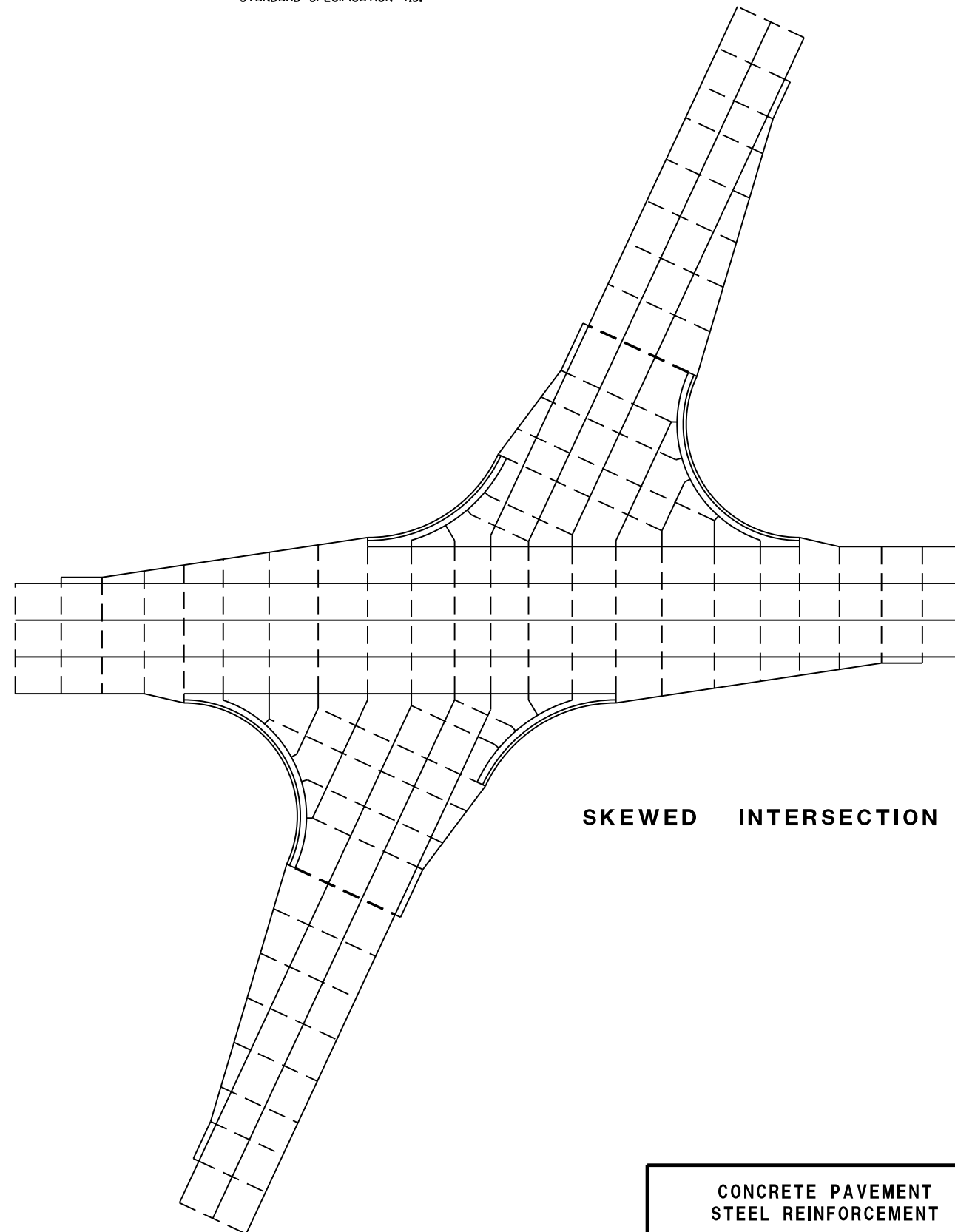
- POTENTIAL DOWELED EXPANSION JOINT
- - - - - DOWELED JOINT
- TIED JOINT



**STANDARD INTERSECTION**

**GENERAL NOTES**

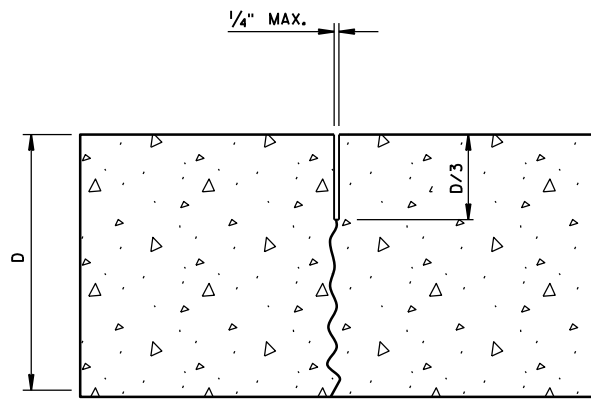
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



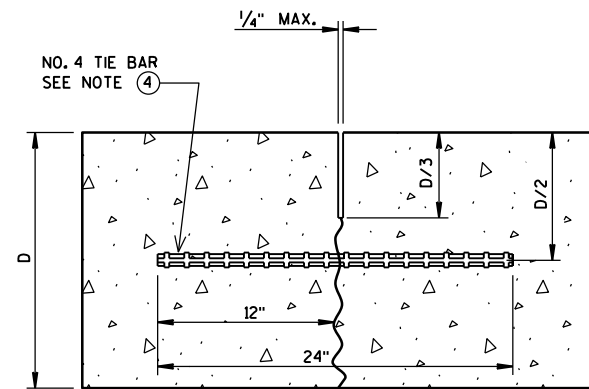
**SKEWED INTERSECTION**

CONCRETE PAVEMENT  
STEEL REINFORCEMENT

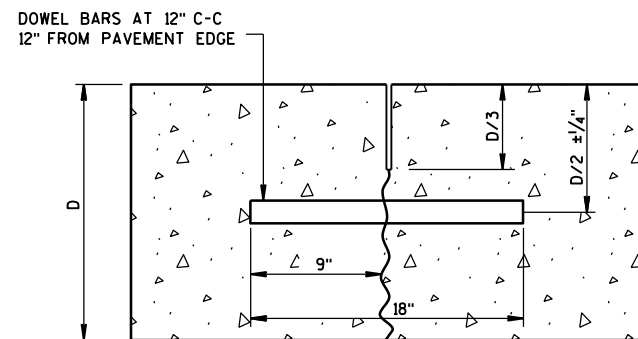
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



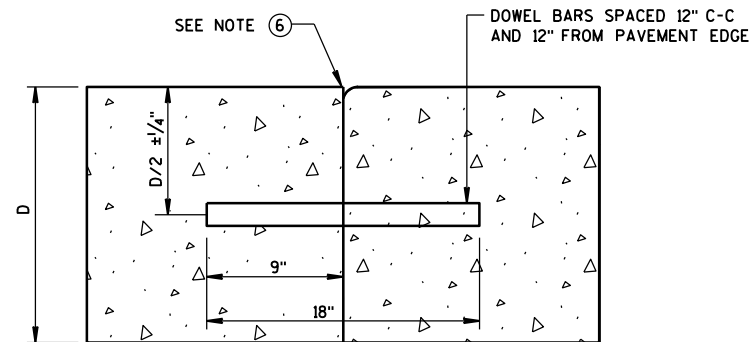
UNDOWELED-TRANSVERSE



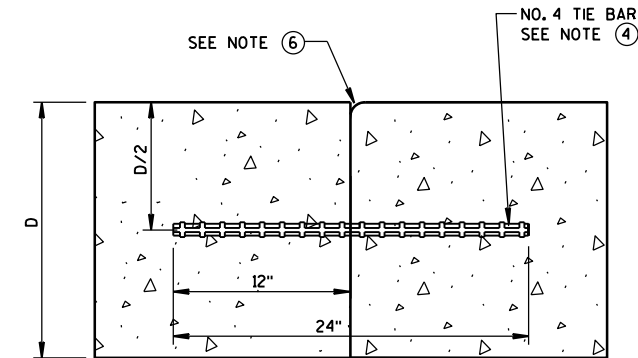
TIED LONGITUDINAL



DOWELED-TRANSVERSE



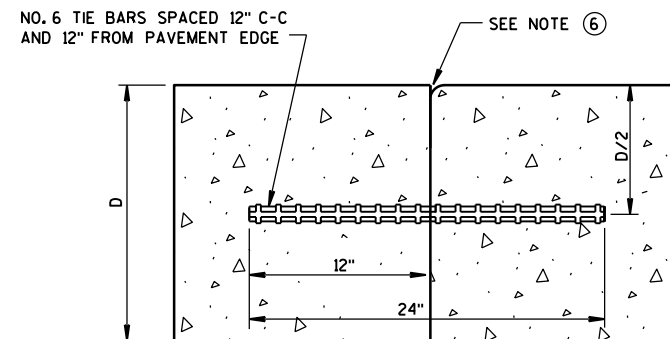
DOWELED TRANSVERSE



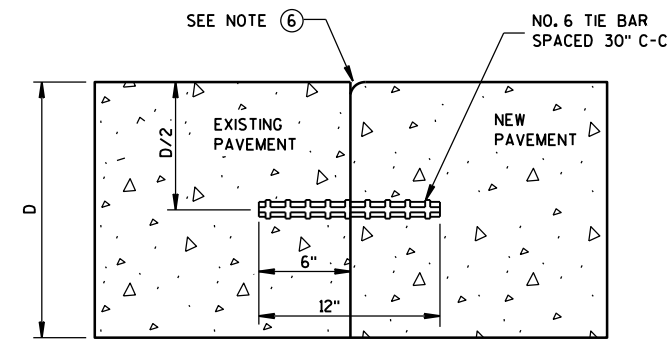
TIED LONGITUDINAL

CONTRACTION JOINTS

SEE NOTE ②



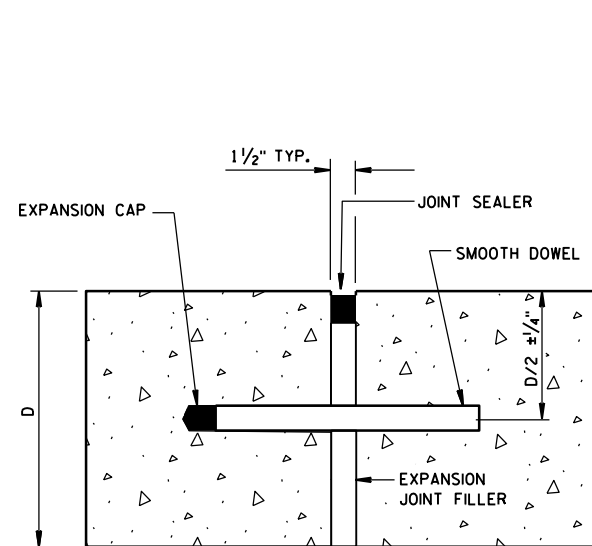
TIED TRANSVERSE  
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



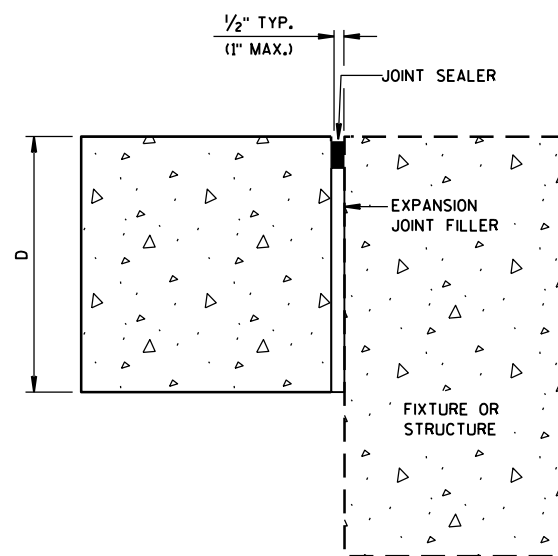
TIED LONGITUDINAL TO EXISTING

CONSTRUCTION JOINTS

SEE NOTE ⑤



DOWELED-TRANSVERSE  
SEE NOTE ①

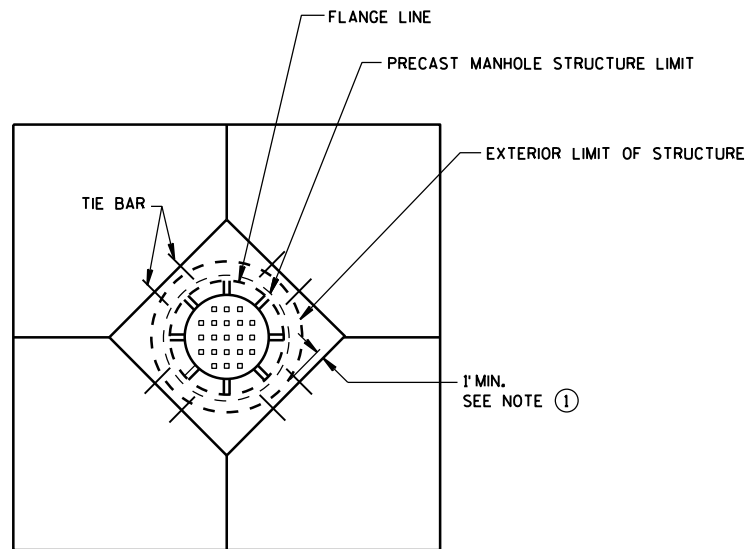


UNTIED-LONGITUDINAL

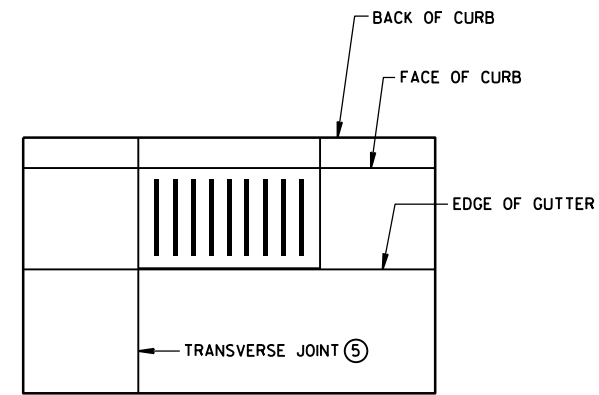
EXPANSION JOINTS

GENERAL NOTES

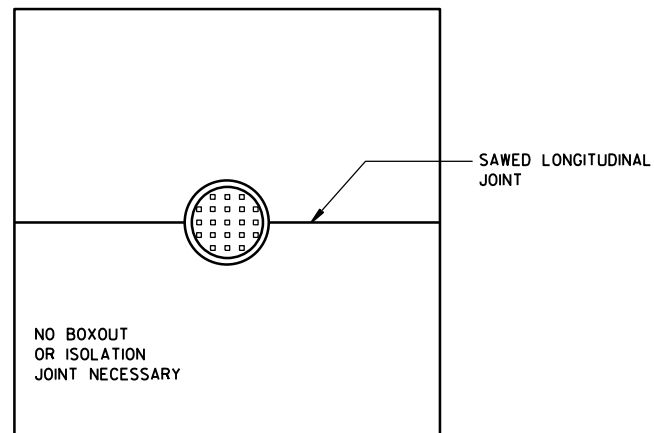
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 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.



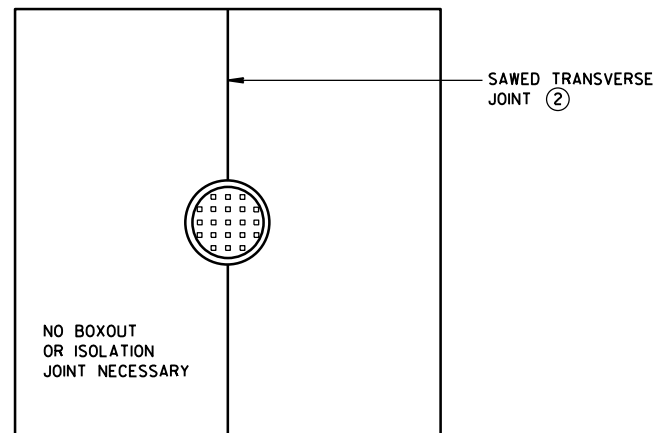
**DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS**



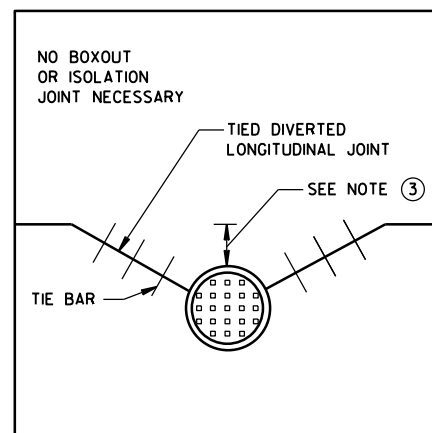
**INLET WITH TRANSVERSE JOINT**



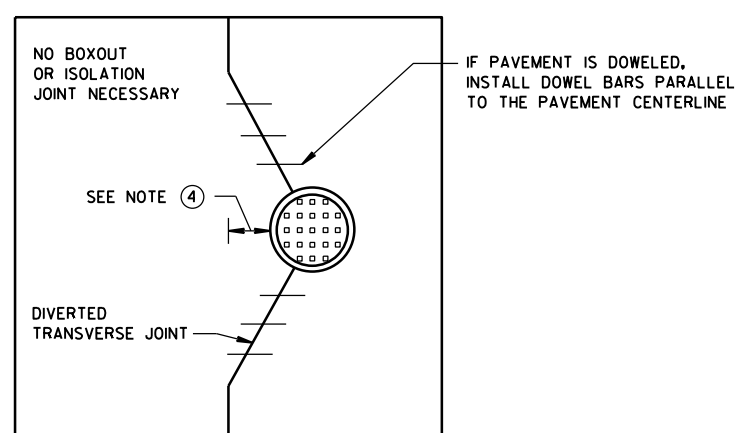
**MANHOLE WITH LONGITUDINAL JOINT**



**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 LONGITUDINAL 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.

<b>CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5-3-2013 DATE	/S/ Deb Bischoff PAVEMENT POLICY & DESIGN ENGINEER
FHWA	

**LEGEND**

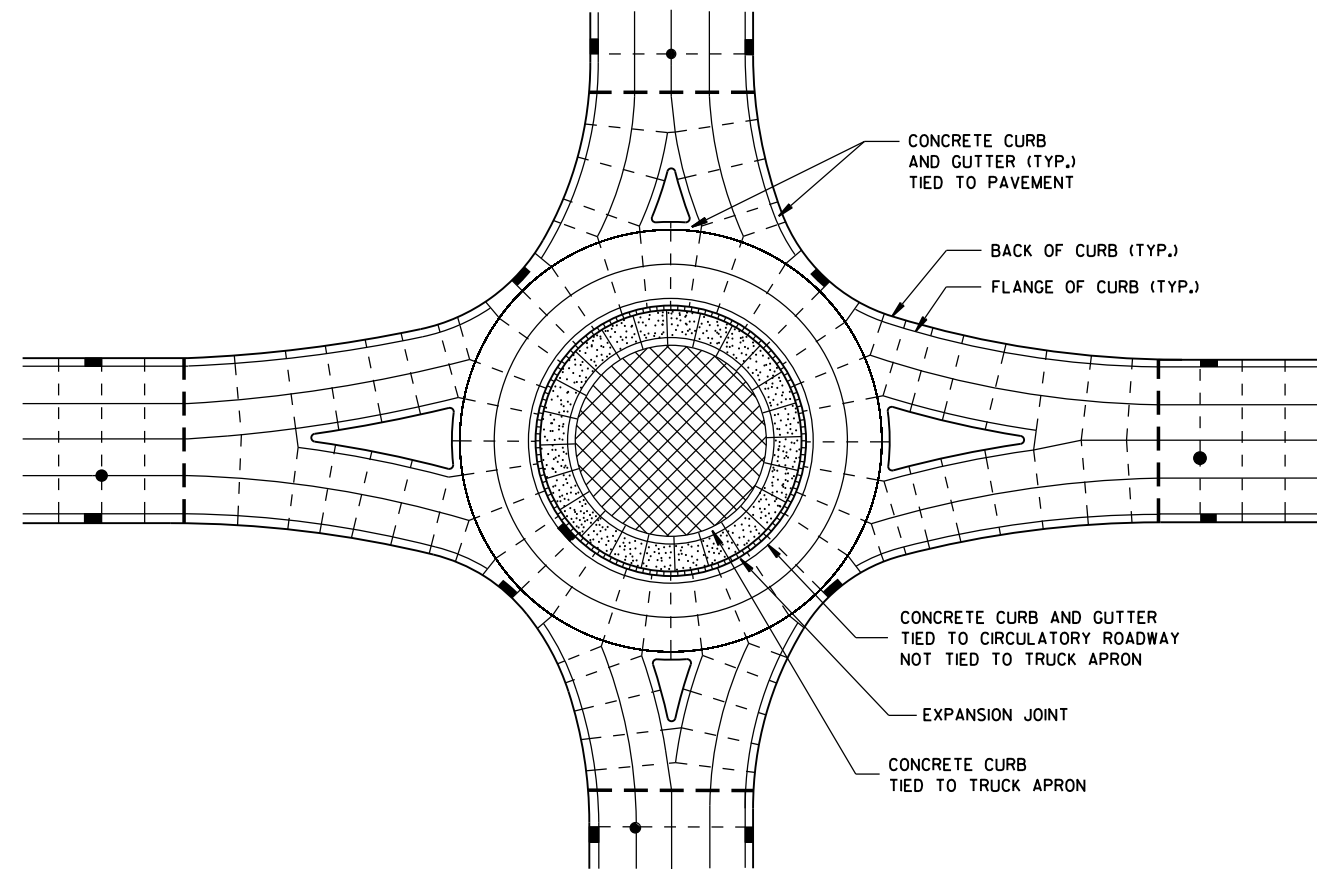
- — DOWELED JOINT
- TIED JOINT
- ▬▬▬ EXPANSION JOINT
- — POTENTIAL DOWELED EXPANSION JOINT
- ▨ TRUCK APRON
- ▩ CENTRAL ISLAND
- ● UTILITY STRUCTURES

**GENERAL NOTES**

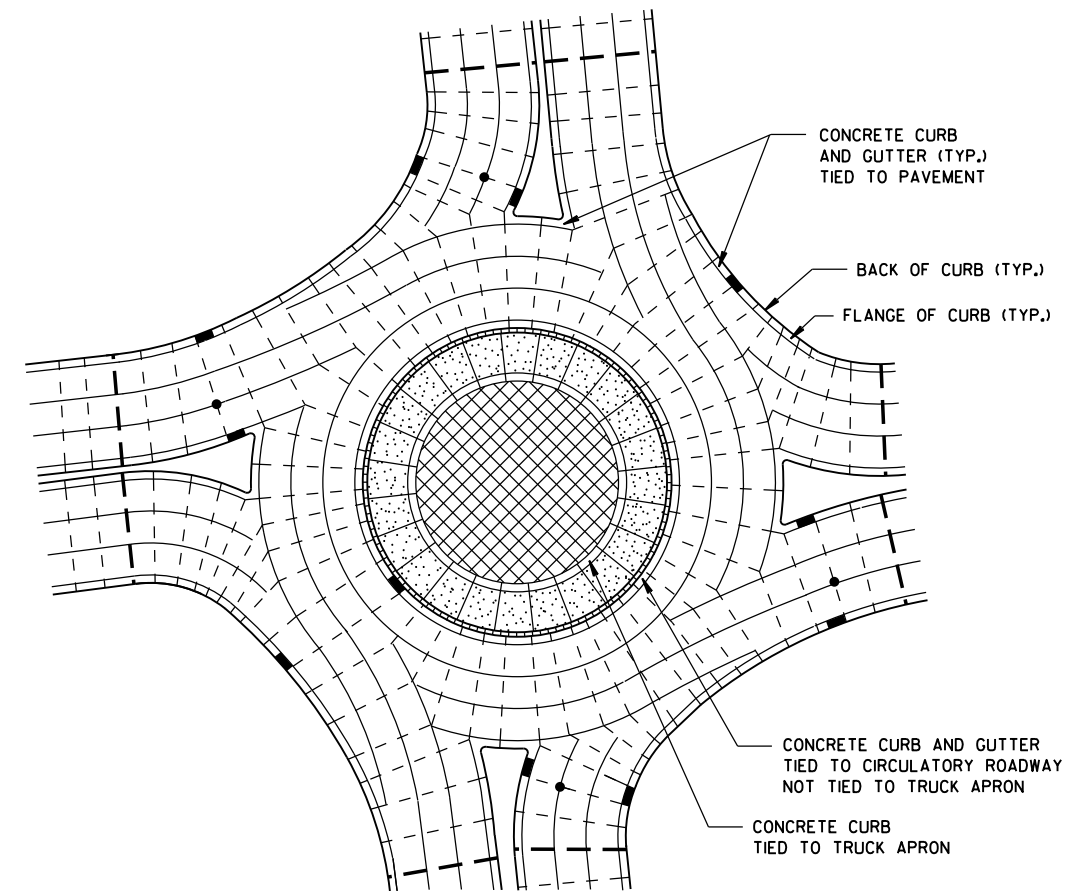
MAXIMUM JOINT SPACING IS IN ACCORDANCE WITH THE TABLE SHOWN ON SDD 13C18 SHEET "a".

USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.

DO NOT DOWEL OR TIE THE TRUCK APRON TRANSVERSE JOINTS.



**ISOLATED CIRCLE JOINT LAYOUT FOR ROUNDABOUTS**



**PINWHEEL JOINT LAYOUT FOR ROUNDABOUTS**

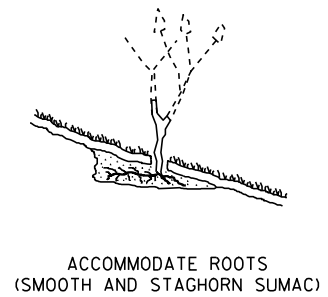
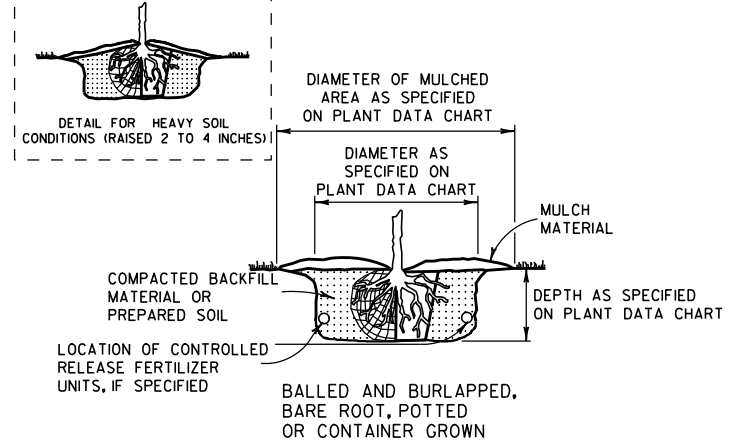
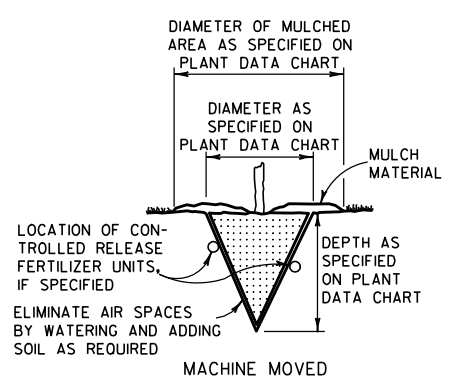
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6

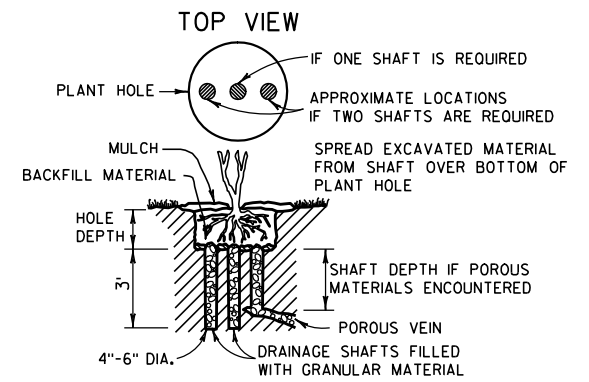
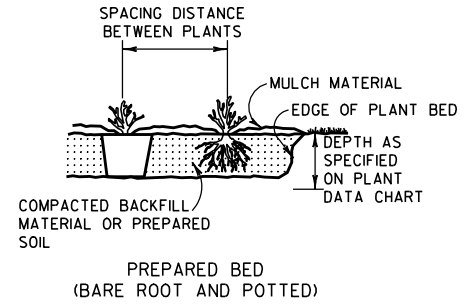
S.D.D. 13 C 18-2e

S.D.D. 13 C 18-2e

<b>CONCRETE PAVEMENT JOINTING AND STEEL REINFORCEMENT IN ROUNDABOUTS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5-3-2013 DATE	/S/ Deb Bischoff PAVEMENT POLICY & DESIGN ENGINEER
FHWA	



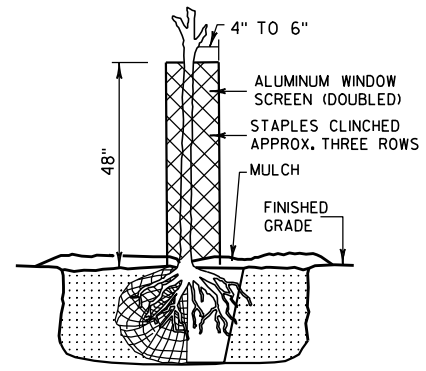
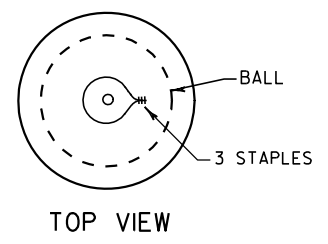
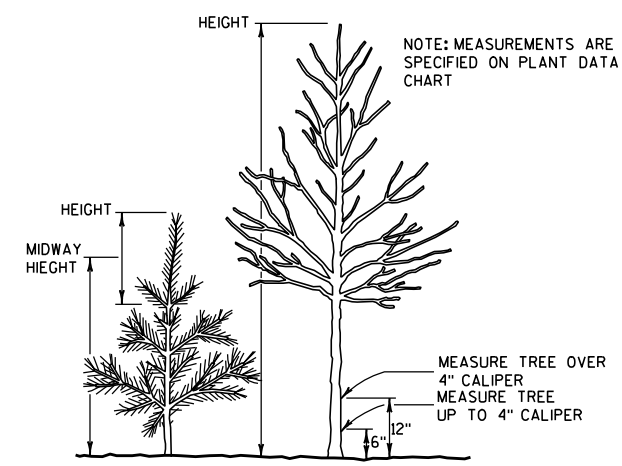
NOTE:  
 1) ENGINEER SHALL REQUIRE 3 SLITS IN POT TO SPEED DETERIORATION  
 2) METAL, PLASTIC OR OTHER NONDEGRADABLE POTS SHALL BE REMOVED PRIOR TO PLANTING



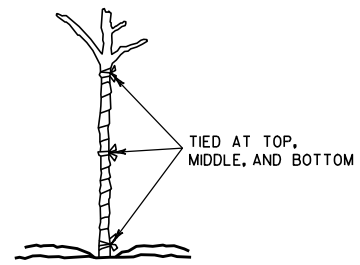
NOTE:  
 DRAINAGE SHAFT AS SPECIFIED ON PLANT DATA CHART

PLANTING

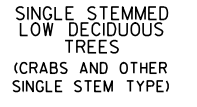
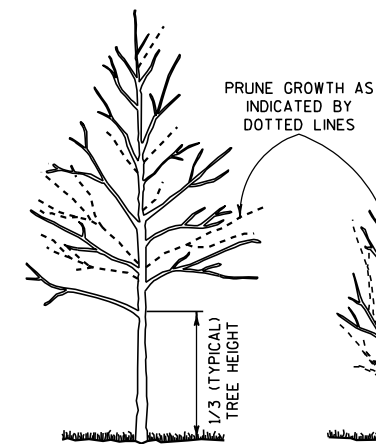
DRAINING



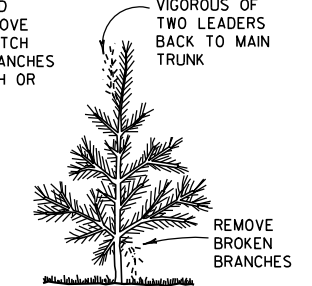
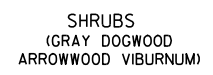
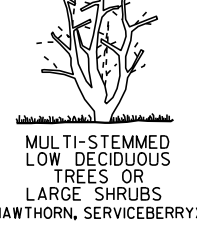
RODENT PROTECTION



WRAPPING



SINGLE STEMMED LOW DECIDUOUS TREES (CRABS AND OTHER SINGLE STEM TYPE)

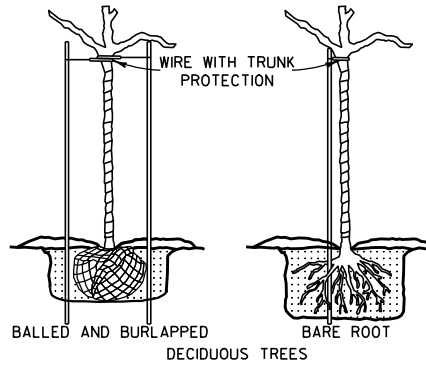
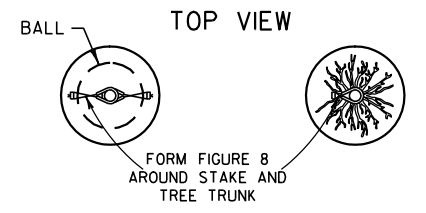


NOTE: WHEN PRUNING, PRESERVE CHARACTER AND SHAPE OF TREE. AVOID LEAVING STUBS - REMOVE BRANCH OR TWIG BACK TO THE NEAREST CROTCH  
 1) PRUNE TO REMOVE DEAD AND BROKEN BRANCHES  
 2) PRUNE TO REMOVE BRANCHES THAT TOUCH OR ARE TOO CLOSE TO OTHER BRANCHES

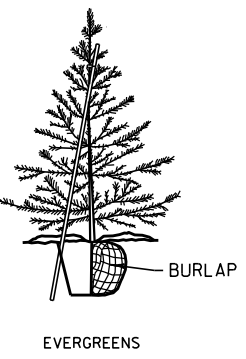
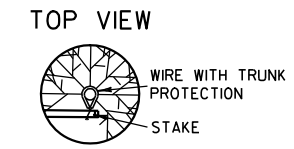
PRUNING

6

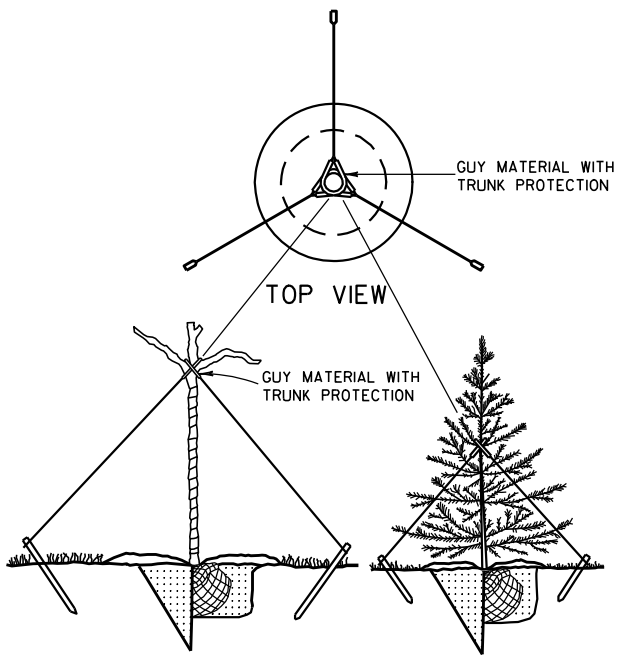
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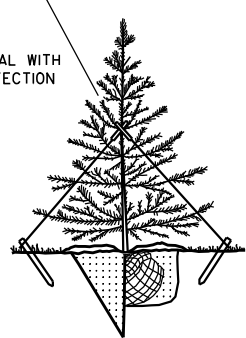
BRACING



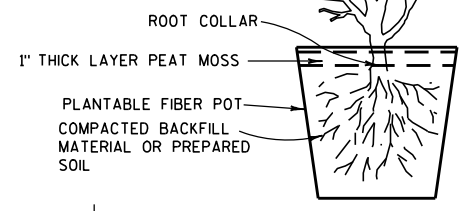
NOTE: BRACING STAKE  
 1) SHALL BE DRIVEN INTO THE GROUND AS CLOSE TO THE TREE AS POSSIBLE WITHOUT DAMAGING THE BRANCHES.  
 2) MAY BE DRIVEN AT SUCH AN ANGLE THAT IT DOES NOT PENETRATE THE BALL OR POT.  
 3) SHALL NOT PROTRUDE ABOVE THE TOP OF THE TREE; AND  
 4) SHALL HAVE A HOLE NEAR THE TOP TO HOLD THE WIRE IN PLACE.



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

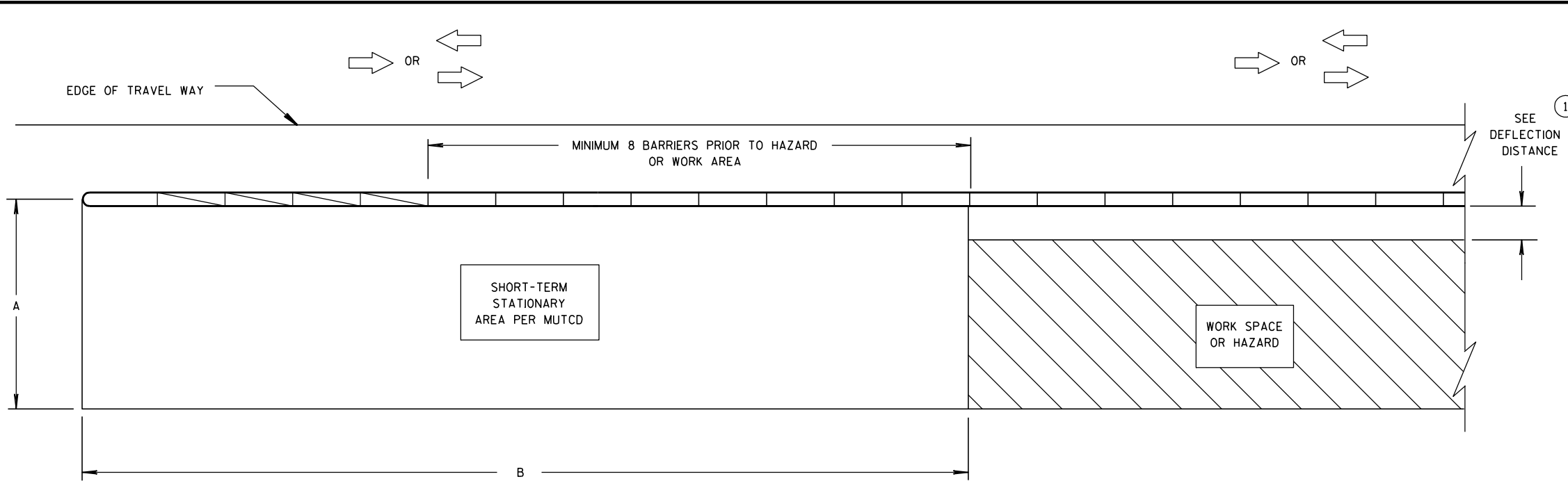
STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

APPROVED  
 4/11/94 /s/ Rory L. Rhinesmith  
 DATE CHIEF METHODS DEVELOPMENT ENGINEER  
 FHWA

S.D.D. 14 A 2-1

S.D.D. 14 A 2-1





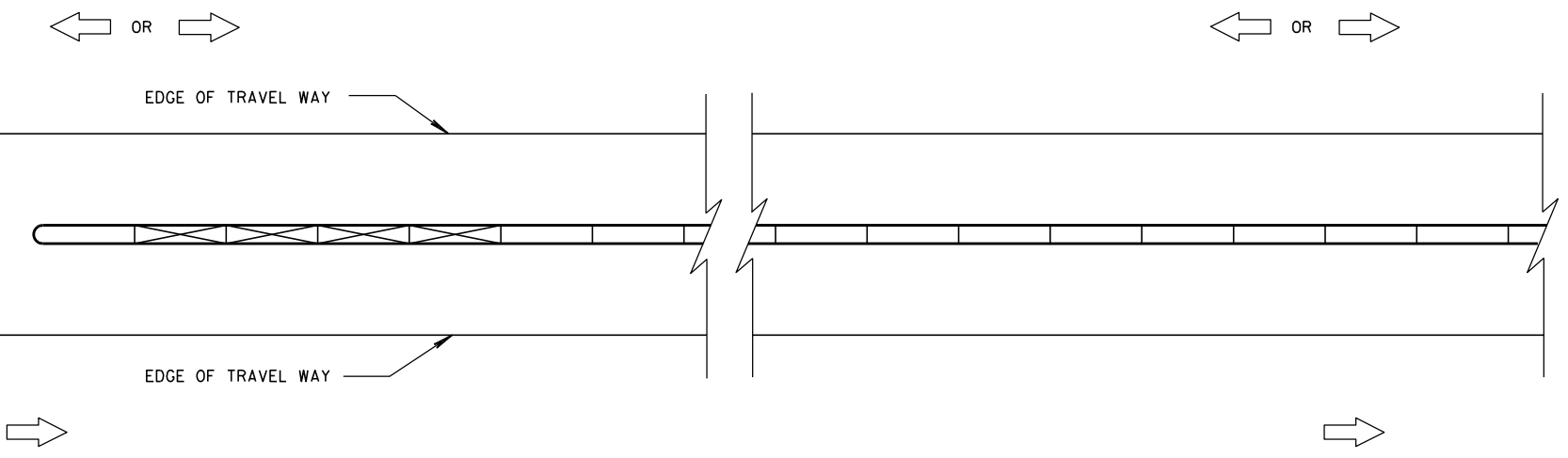
**DIMENSION A TABLE** <sup>(2)</sup>

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

**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER**

**DIMENSION B TABLE** <sup>(2)</sup>

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



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON BOTH SIDES OF 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

**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**

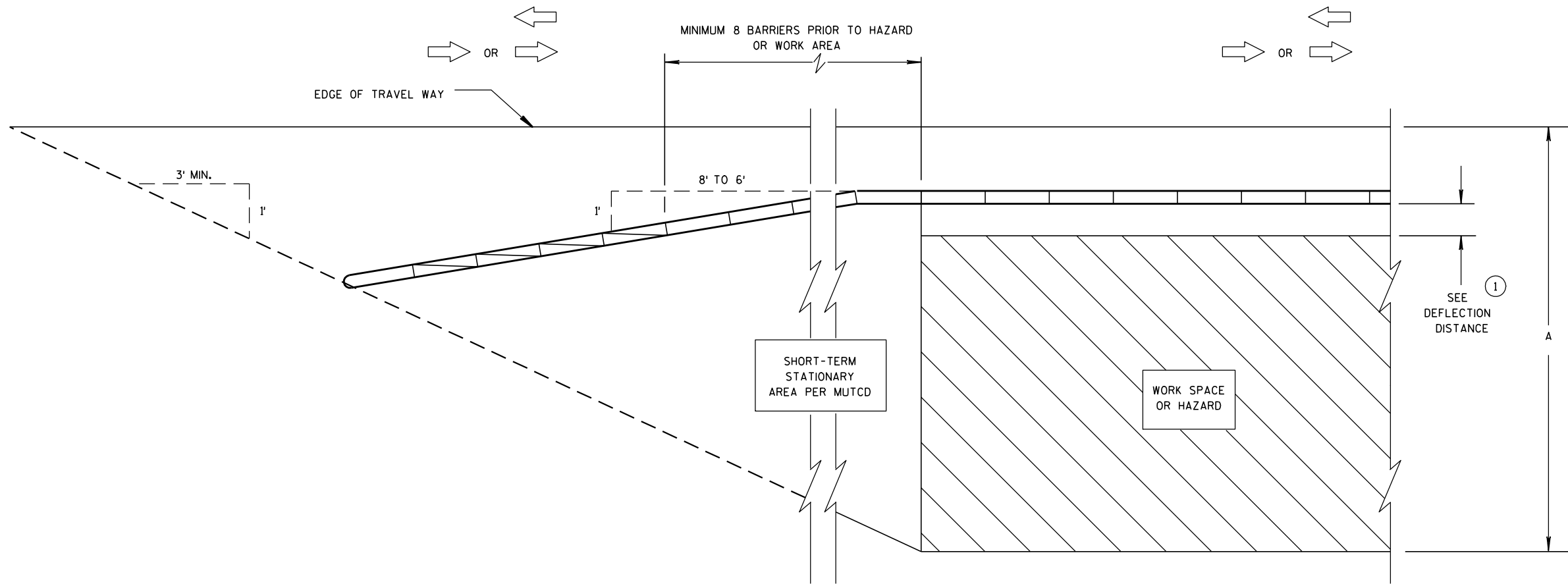
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

S.D.D. 14 B 8-1a

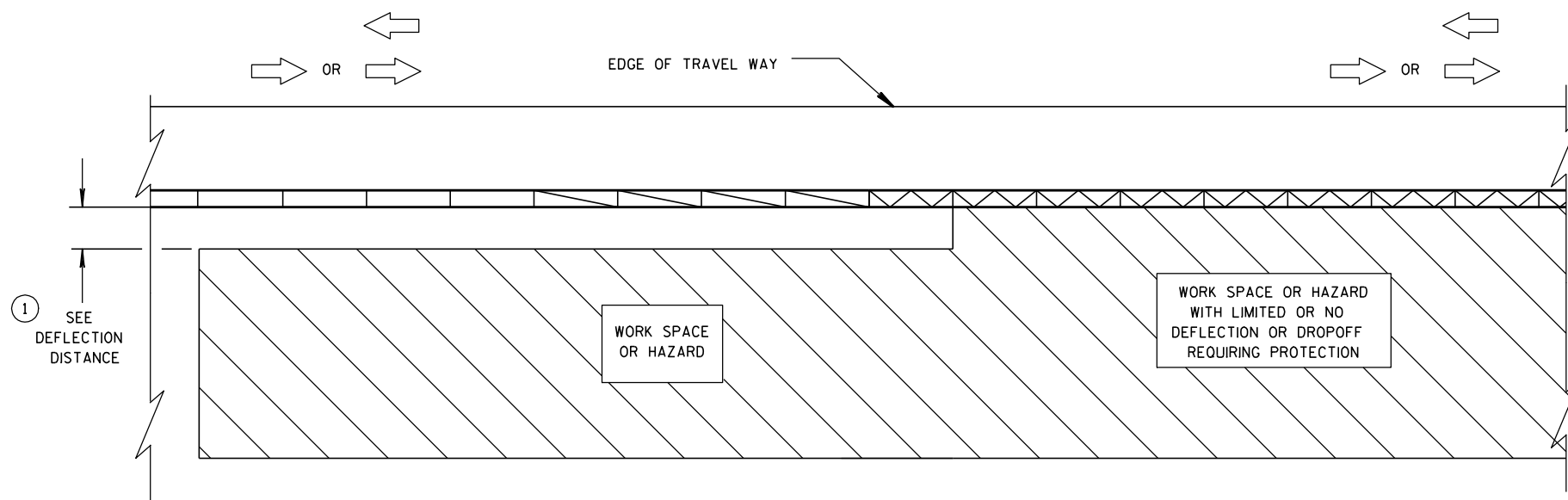
S.D.D. 14 B 8-1a



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**

6

6



**TRANSITION FROM FREE STANDING TEMPORARY BARRIER  
TO ANCHORED BARRIER**

**LEGEND**

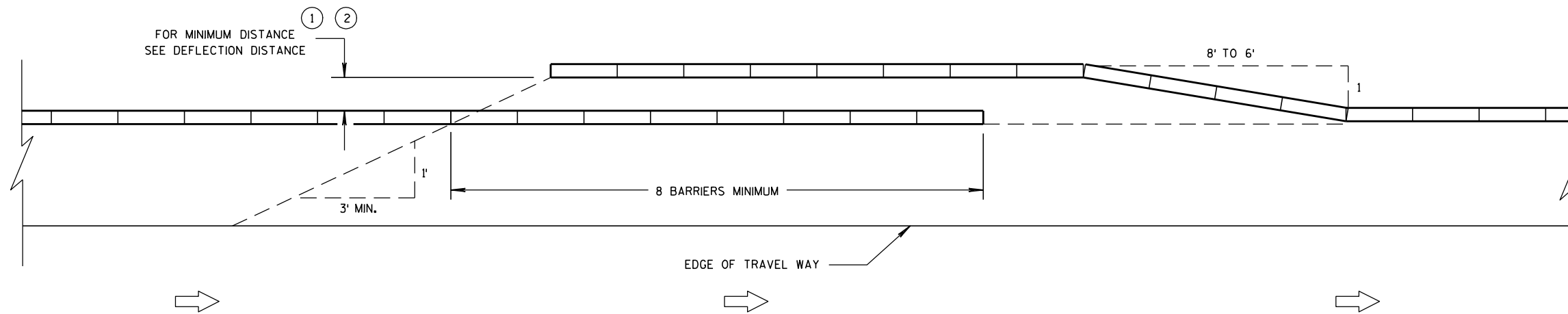
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

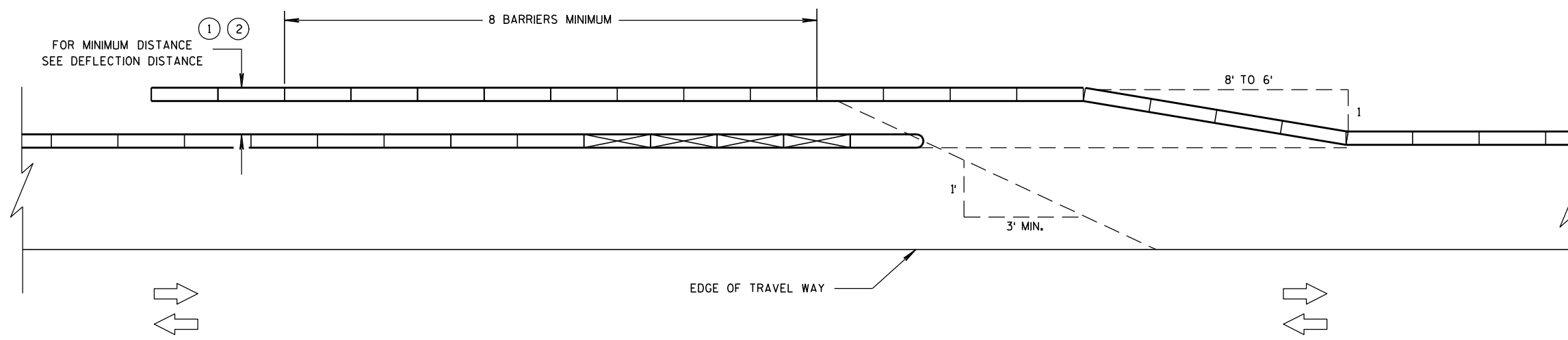
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

S.D.D. 14 B 8-1b

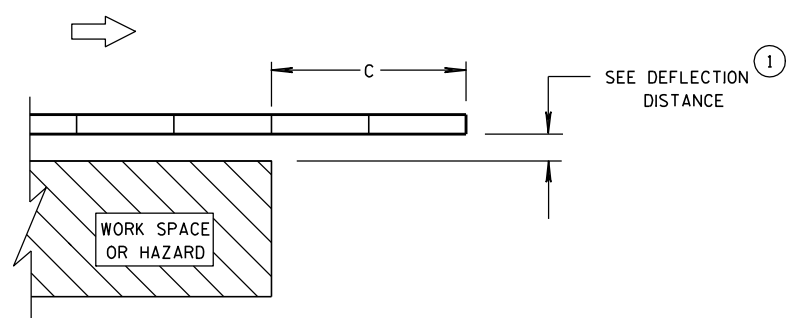
S.D.D. 14 B 8-1b



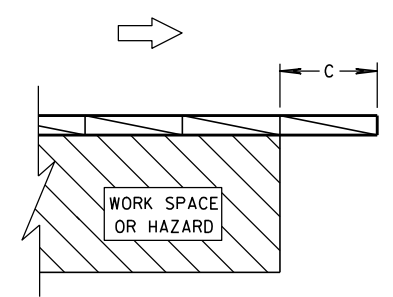
**TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC**



**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**

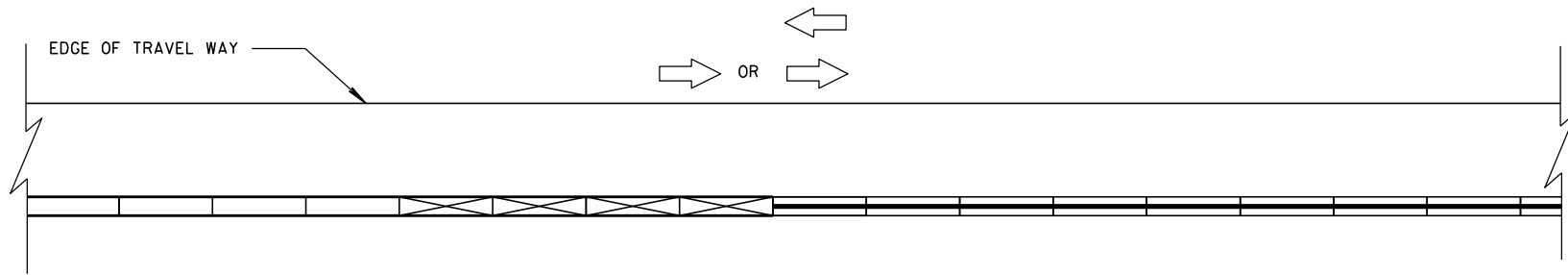
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

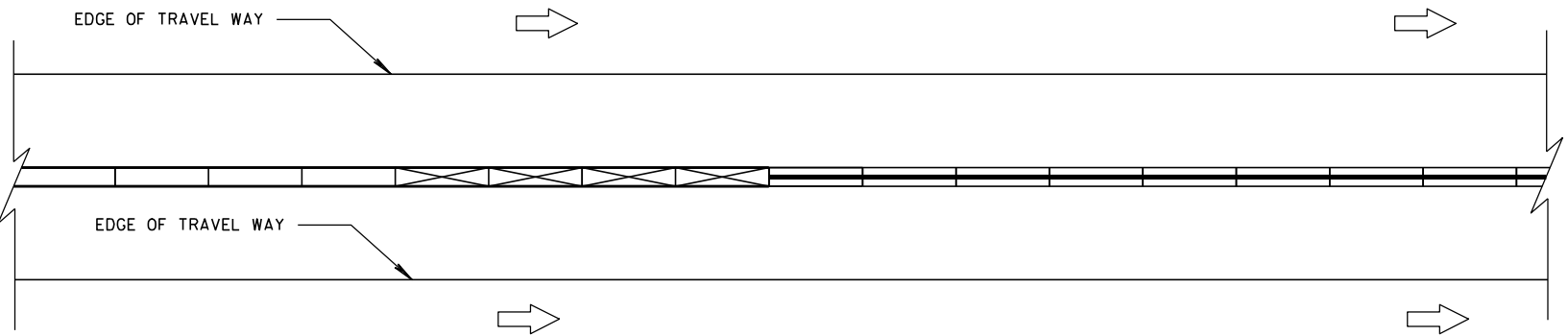
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S.D.D. 14 B 8-1c

S.D.D. 14 B 8-1c



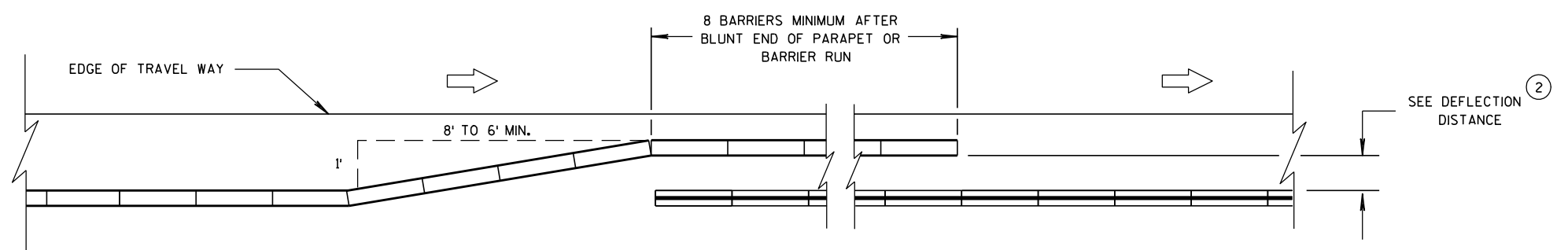
**CONNECTING TEMPORARY BARRIER TO PERMANENT  
CONCRETE BARRIER-TRAFFIC ON ONE SIDE**



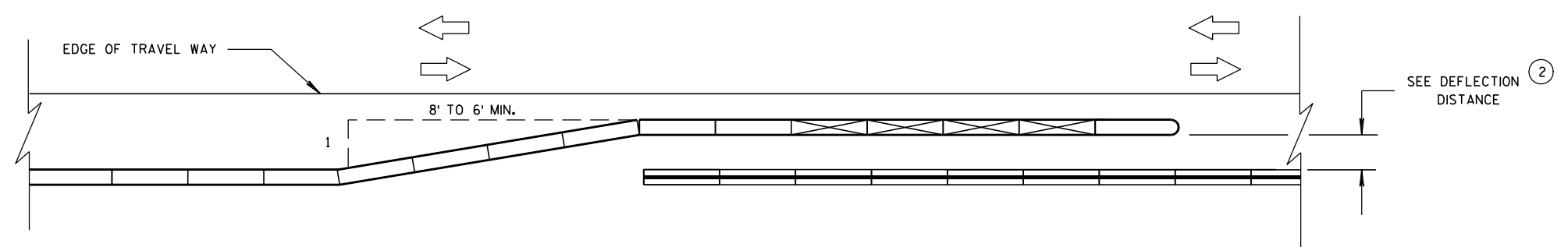
**CONNECTING TEMPORARY BARRIER TO PERMANENT  
CONCRETE BARRIER-TRAFFIC ON BOTH SIDES**

**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 TRANSPORTATION

6

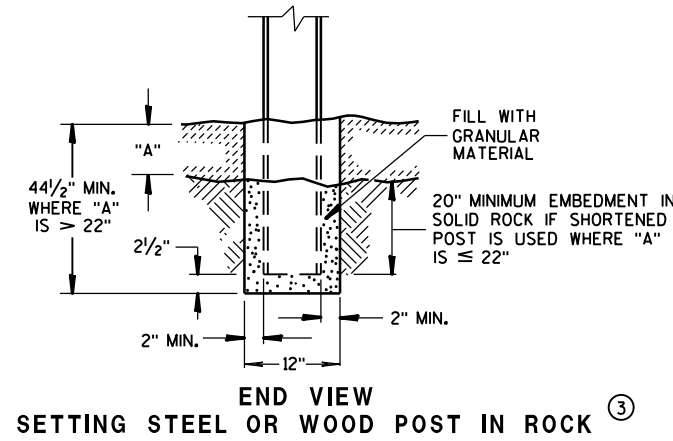
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S.D.D. 14 B 8-1d

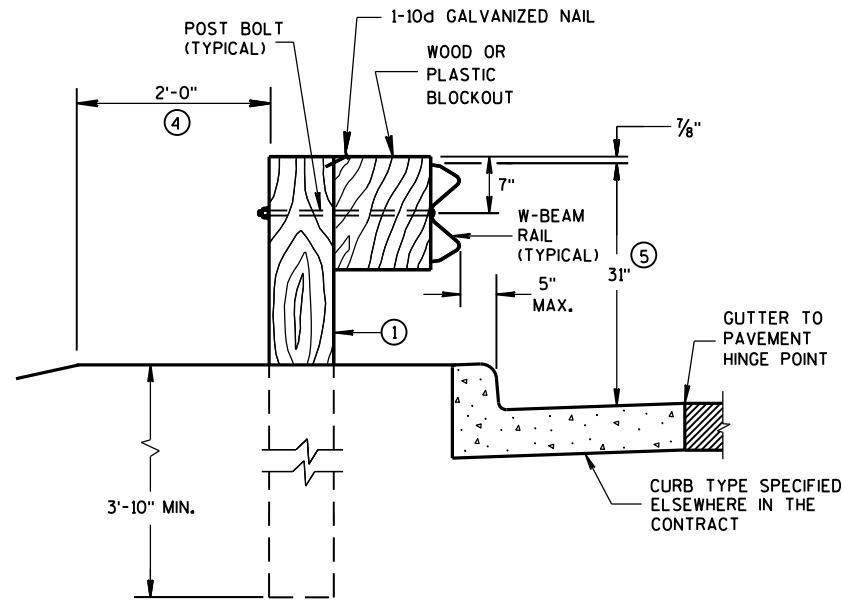
S.D.D. 14 B 8-1d

**GENERAL NOTES**

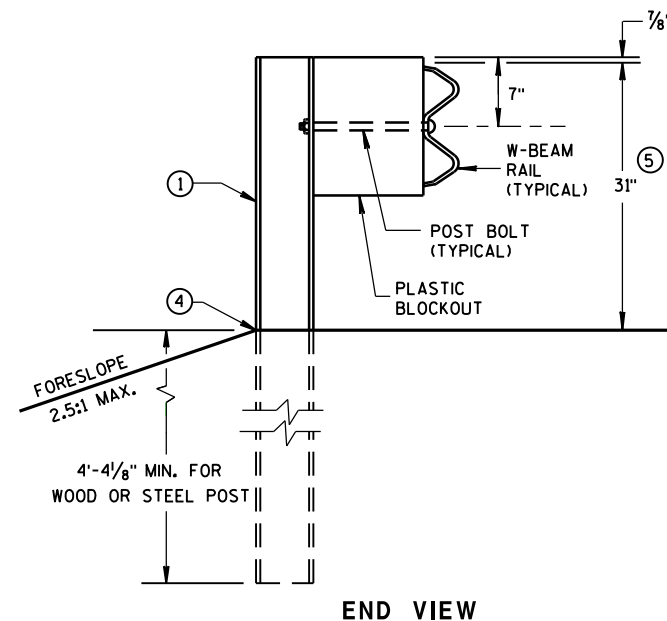
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. 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 2 1/2 INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS TO LENGTH AND 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 27 3/4" TO 32".



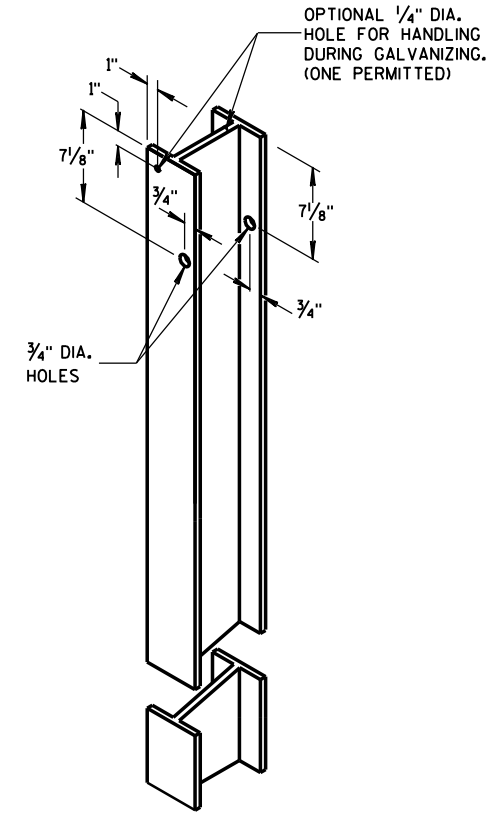
**END VIEW SETTING STEEL OR WOOD POST IN ROCK ③**



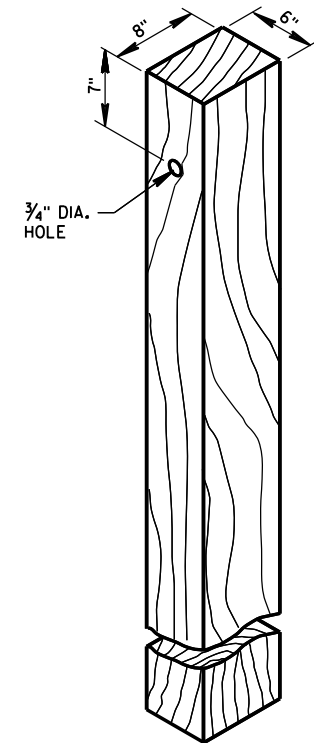
**END VIEW LOCATED ALONG A CURBED ROADWAY**



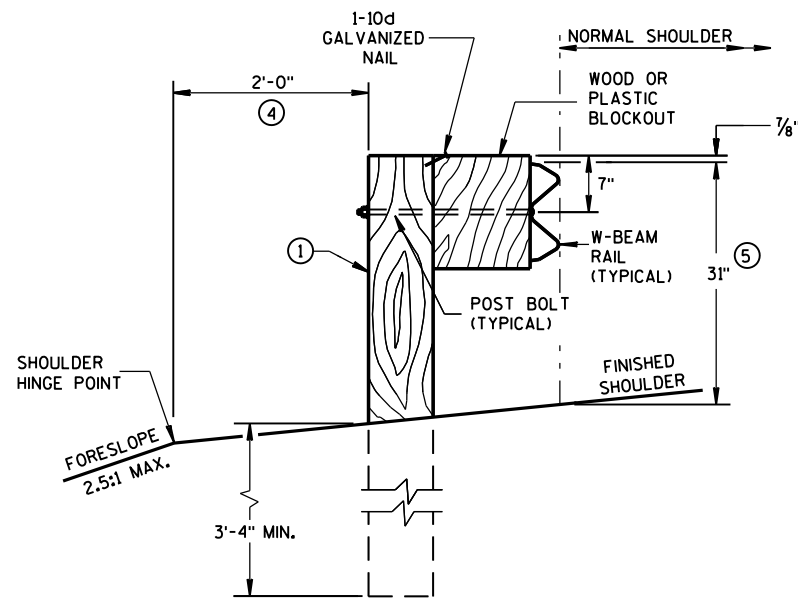
**END VIEW MGS LONGER POST AT HALFPOST SPACING W BEAM (K)**



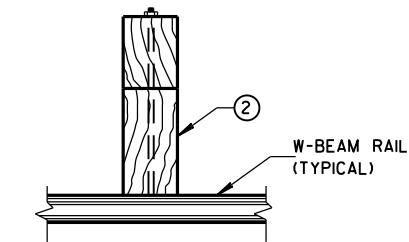
**STEEL POST & HOLE PUNCHING DETAIL (w6X9) ①**



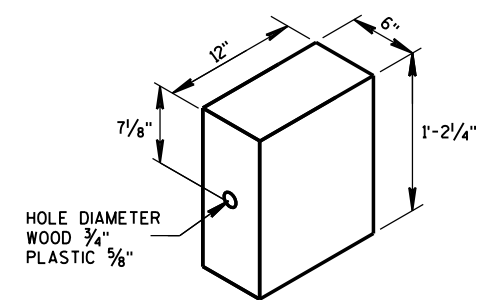
**WOOD POST (6" X 8") NOMINAL ①**



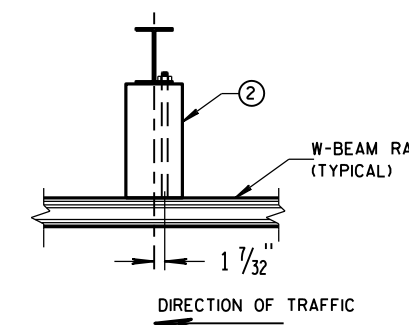
**END VIEW LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION**



**PLAN VIEW WOOD POST, BLOCKOUT & BEAM**



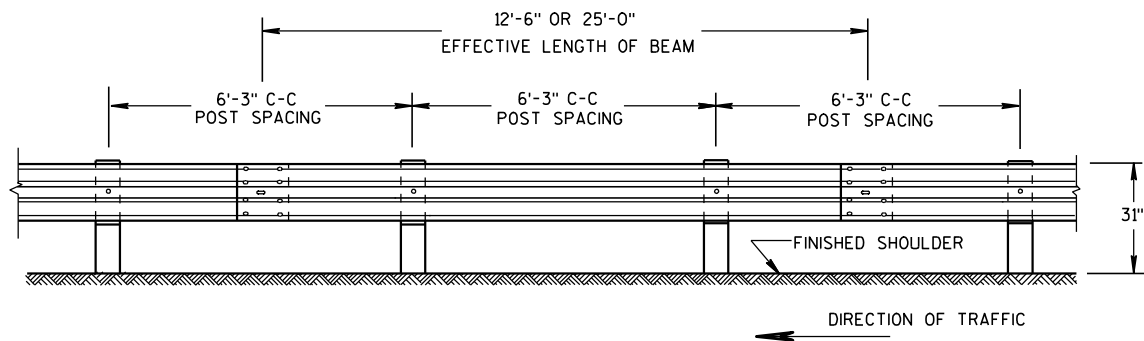
**WOOD OR PLASTIC BLOCKOUT ②**



**PLAN VIEW STEEL POST, PLASTIC BLOCKOUT & BEAM**

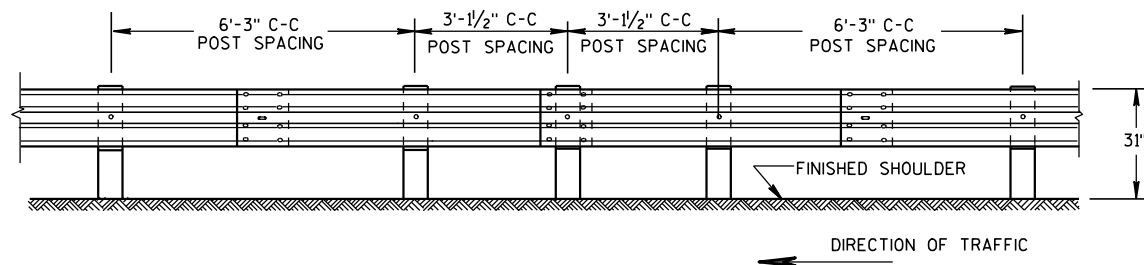
**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



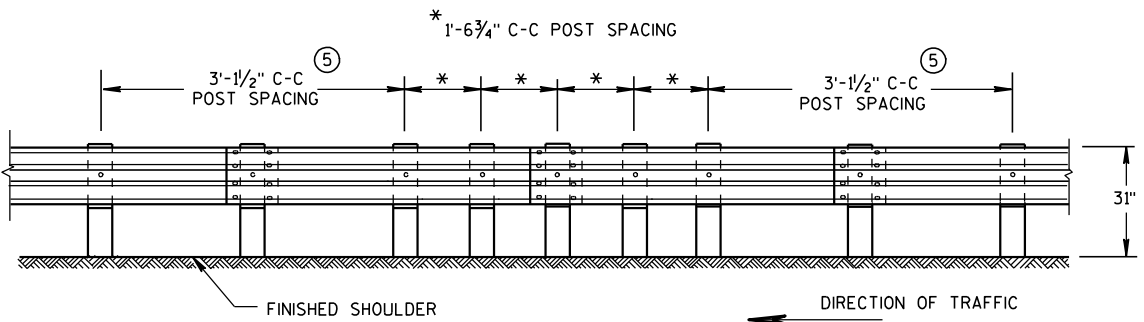
FRONT VIEW

**POST SPACING STANDARD INSTALLATION**



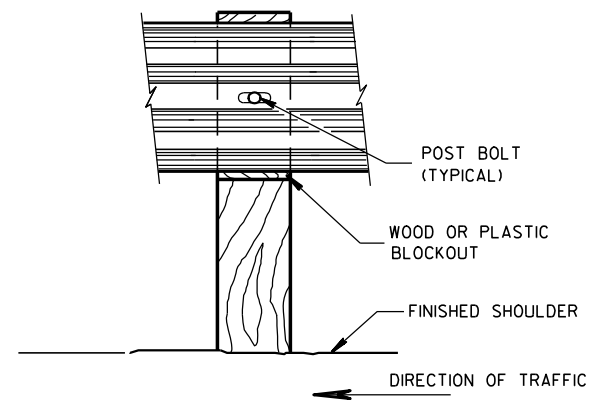
FRONT VIEW

**HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**

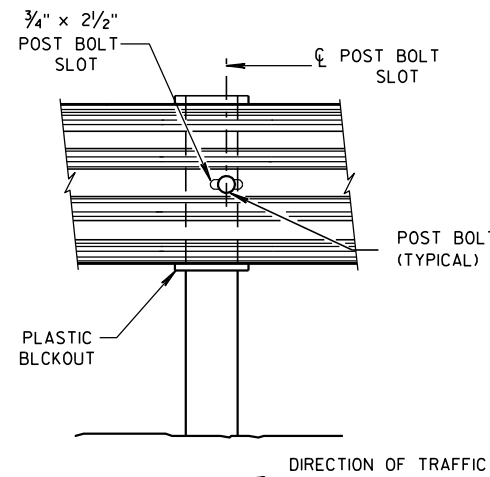


FRONT VIEW

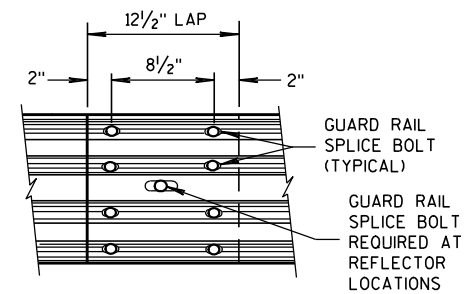
**QUARTER POST SPACING (QS)**



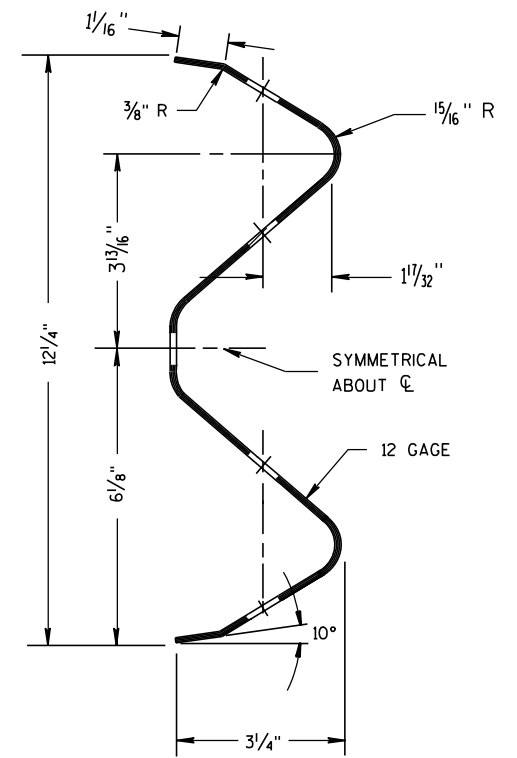
FRONT VIEW AT WOOD POST



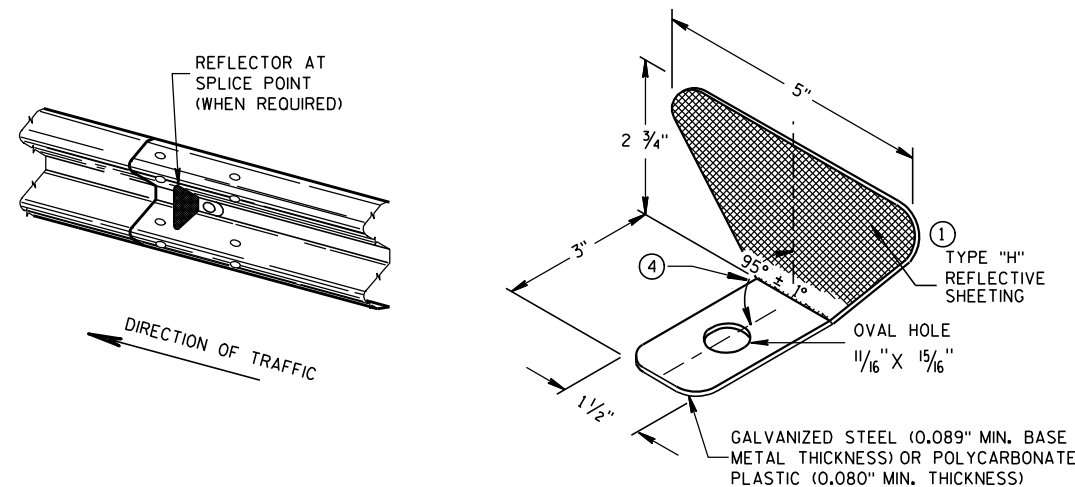
FRONT VIEW AT STEEL POST



FRONT VIEW  
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



**ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION**

**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.

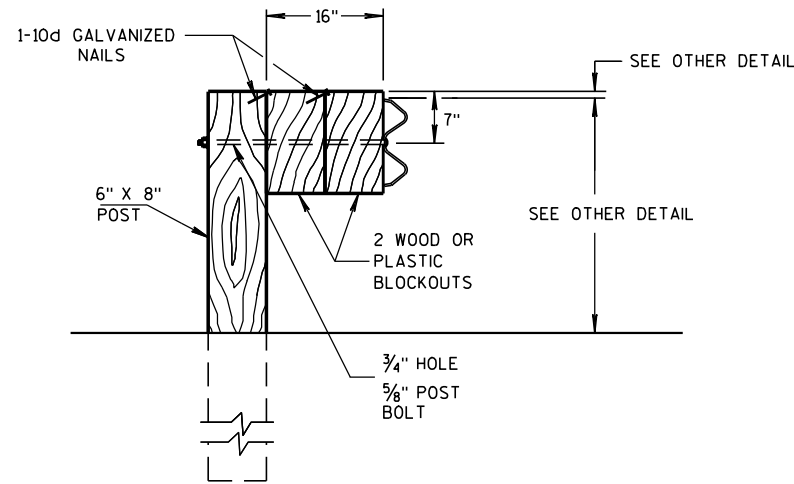
GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

**REFLECTOR SPACING**

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	1
TWO WAY TRAFFIC	< 200'	25' C-C	1	6
	> 200'	50' C-C	1	3
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2	1

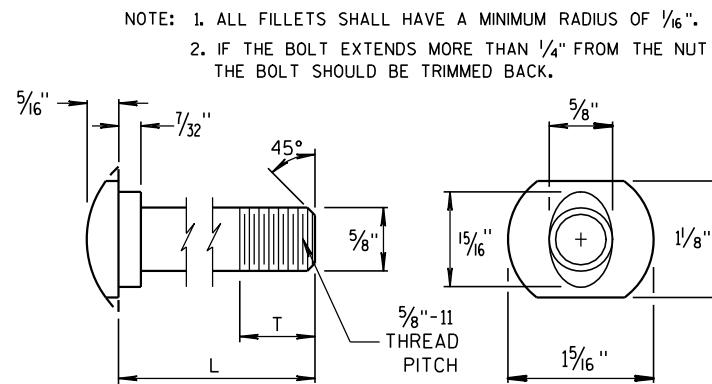
**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



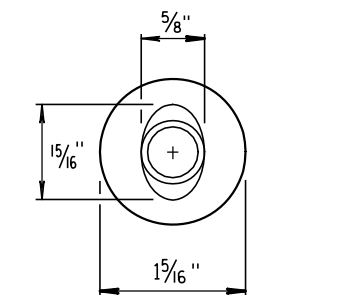
**DETAIL FOR 16" BLOCKOUT DEPTH**

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.

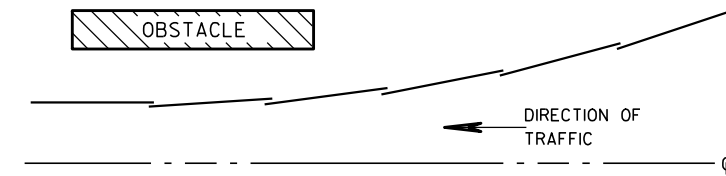


**POST BOLT TABLE**

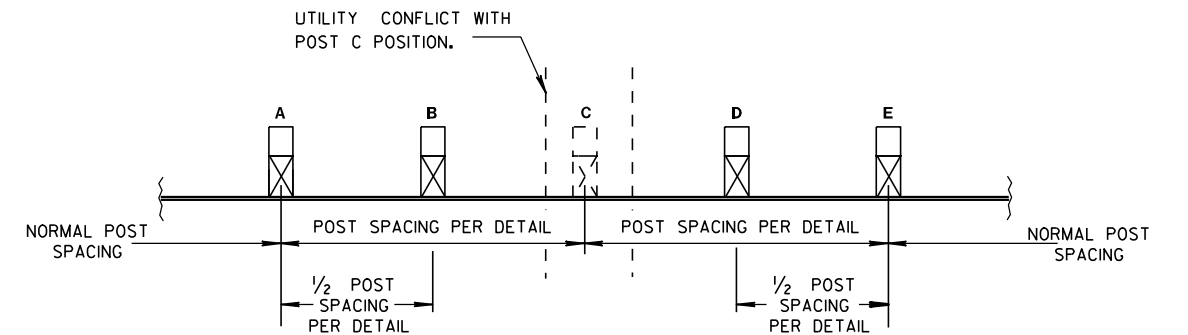
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



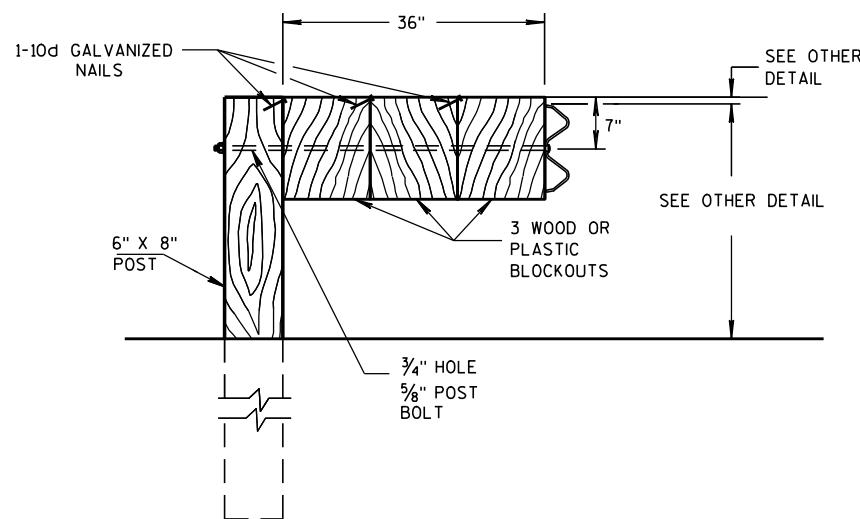
**ALTERNATE BOLT HEAD**



**PLAN VIEW  
BEAM LAPPING DETAIL**



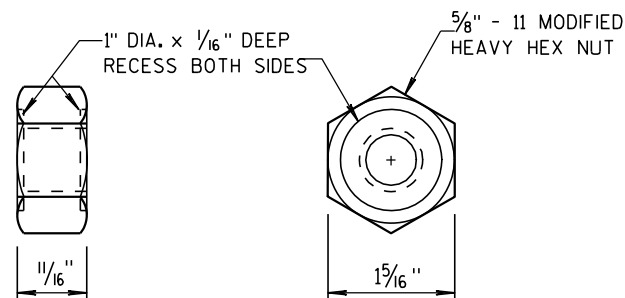
**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**



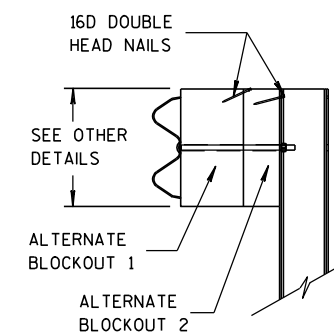
**DETAIL FOR 36" BLOCKOUT DEPTH**

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.

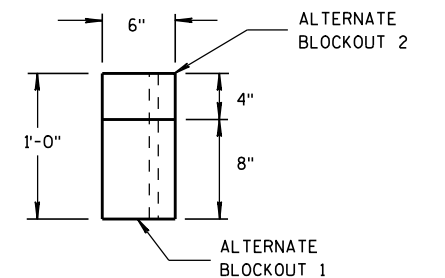
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



**POST BOLT  
AND RECESS NUT**



**SIDE VIEW**



**TOP VIEW**

**ALTERNATE WOOD  
BLOCKOUT DETAIL**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

11/15/2011  
DATE

FHWA

/s/ Jerry H. Zogg

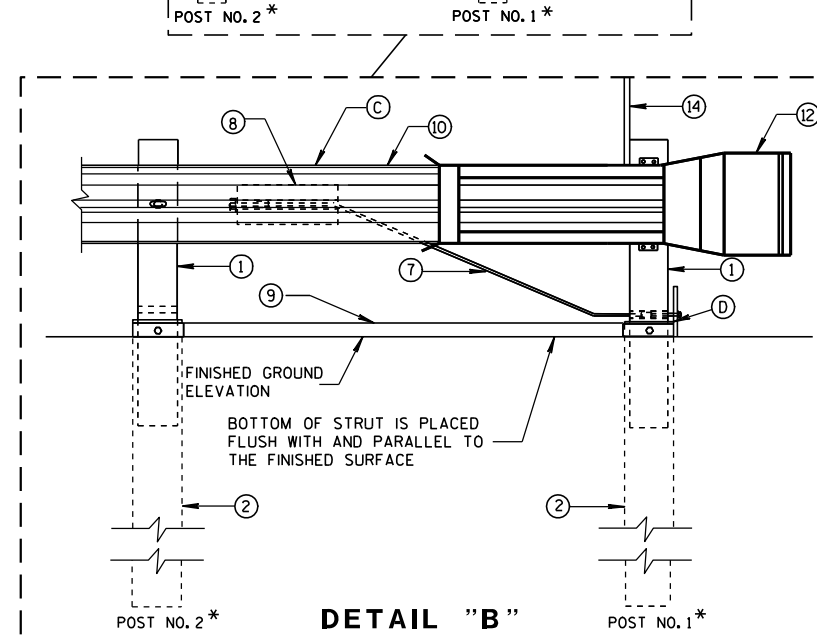
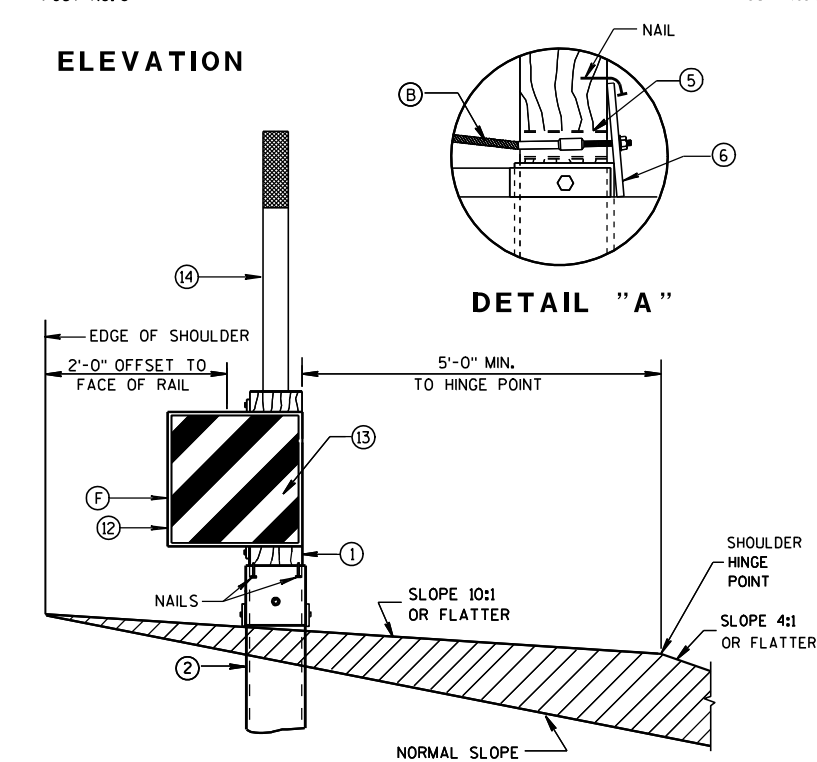
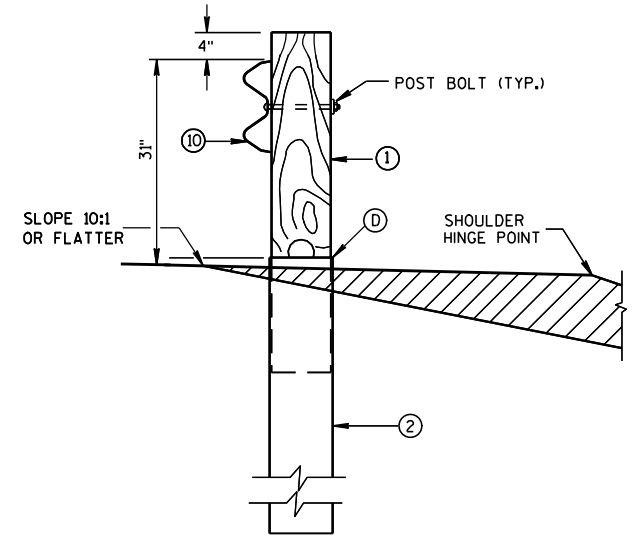
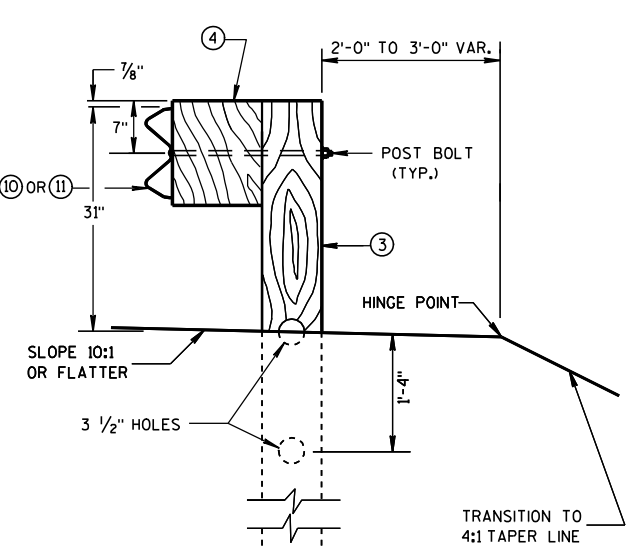
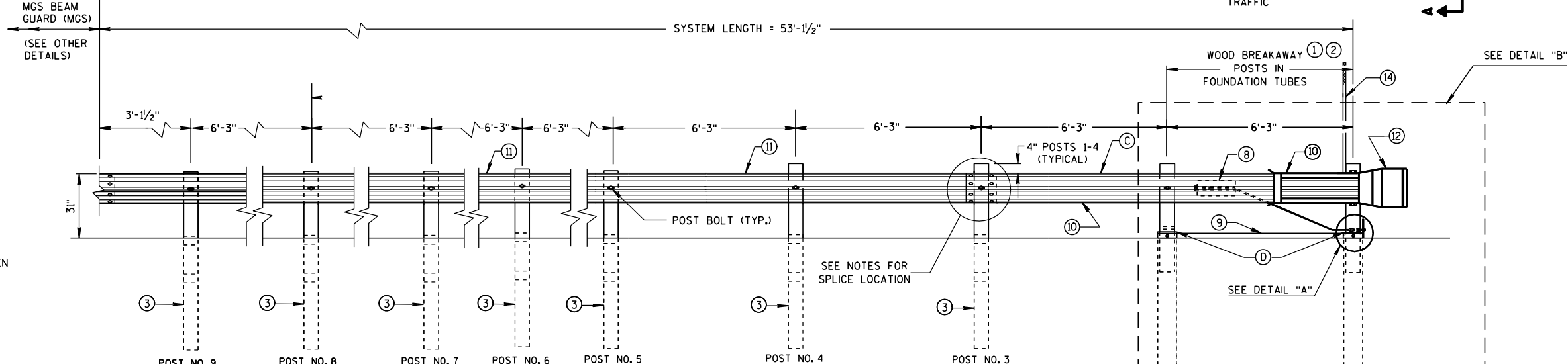
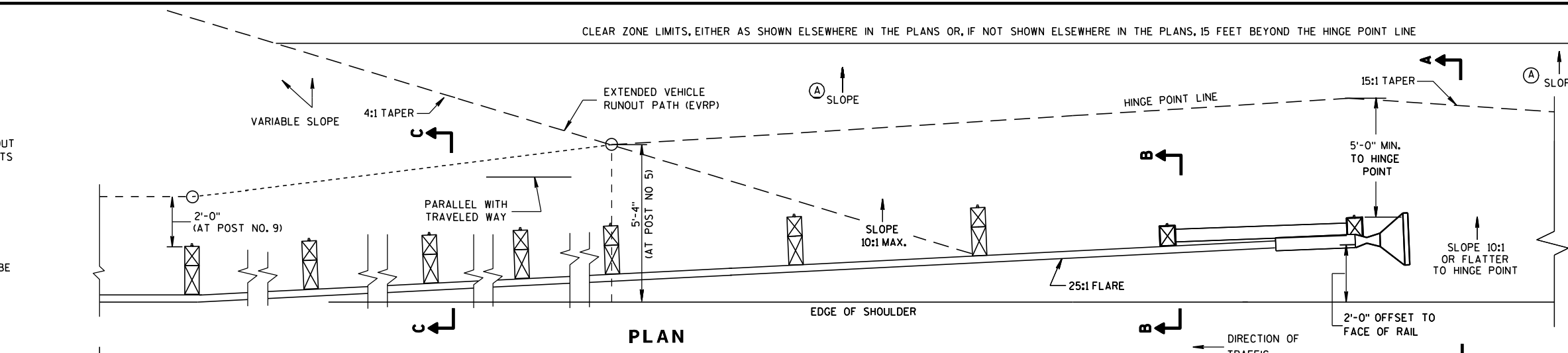
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE

**GENERAL NOTES**

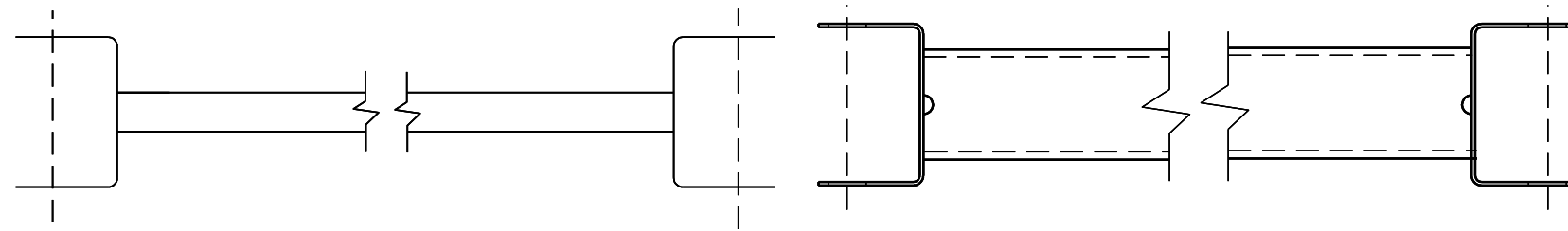
- (A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURER'S 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.
- (E) 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.
- (F) 1/2" DIAMETER X 3" LONG LAG BOLT AND WASHER.
- (G) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURERS. SEE MANUFACTURE'S DRAWING FOR INFORMATION.
- (H) 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 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE ( $\pm 3/4$ ")

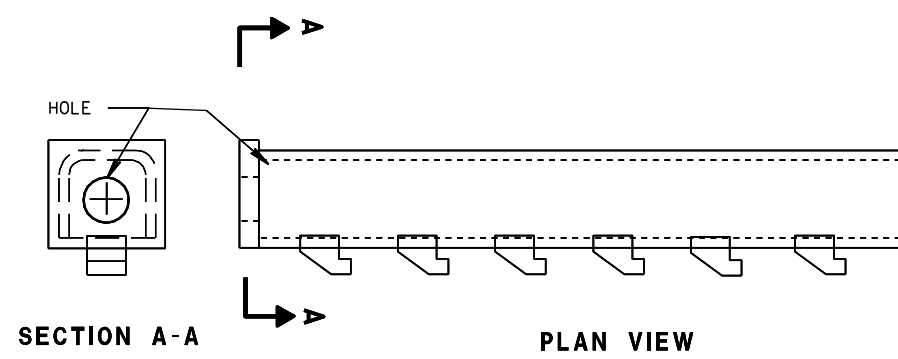
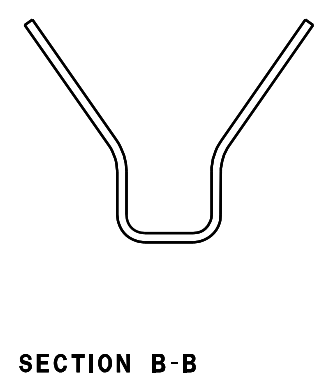
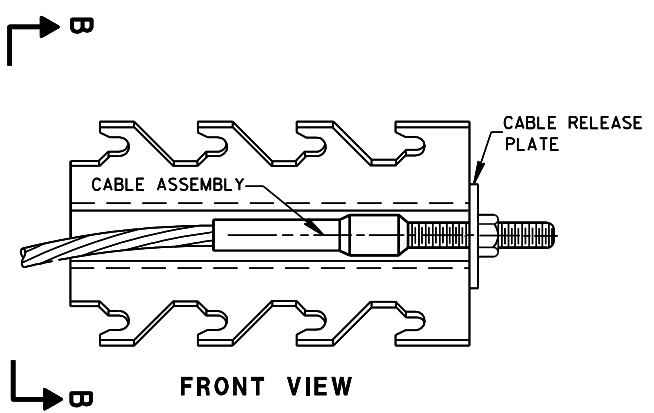


**MIDWEST GUARDRAIL SYSTEM  
 ENERGY ABSORBING TERMINAL  
 (MGS)**  
 STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION





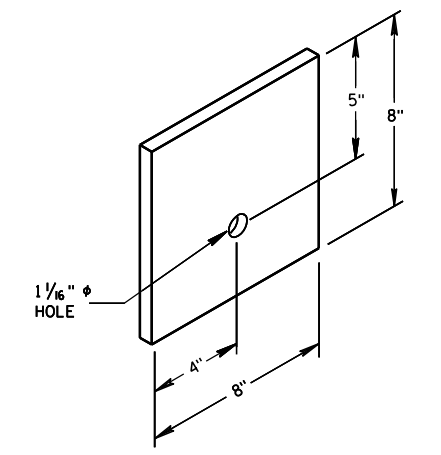
⑨ H  
**GENERIC GROUND STRUT**



⑧ H  
**GENERIC ANCHOR CABLE BOX**

**BILL OF MATERIALS**

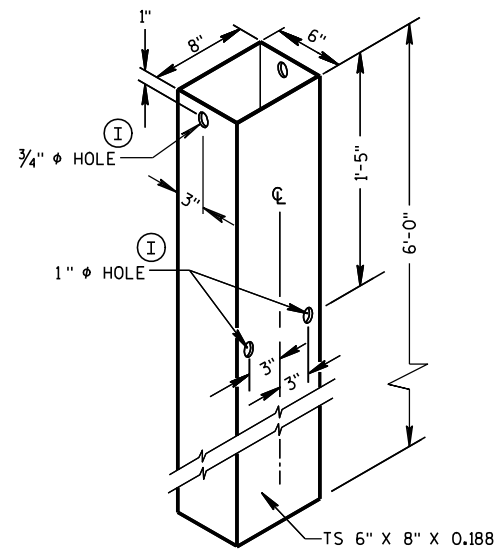
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND 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)



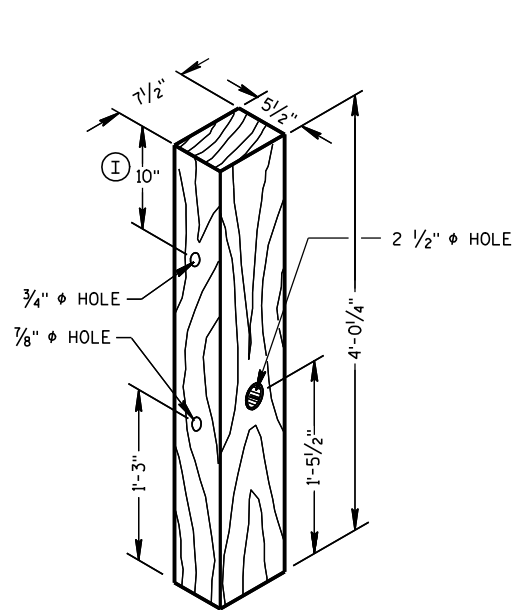
⑥  
**BEARING PLATE**

6

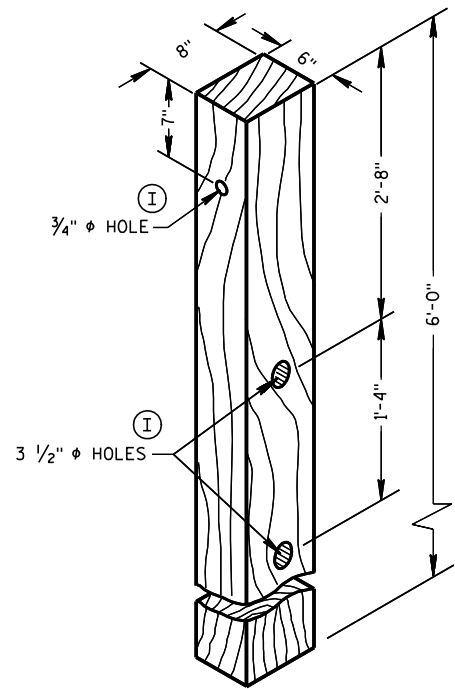
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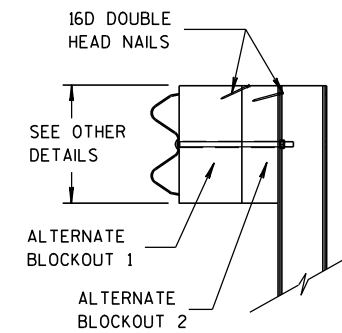
**FOUNDATION TUBE** ②



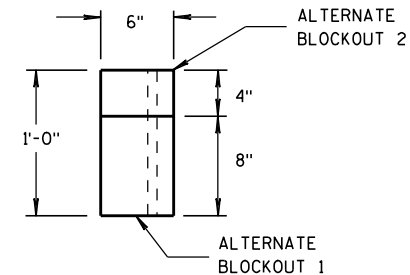
POSTS NUMBER 1 AND 2  
**WOOD BREAKAWAY POST** ①



POSTS NUMBER 3-9  
**WOOD CRT POST** ③

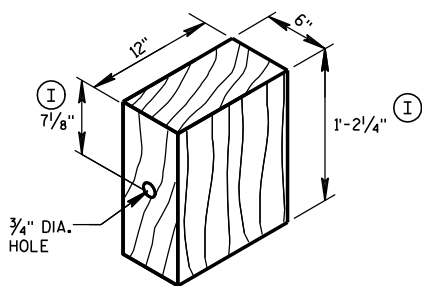


**SIDE VIEW**



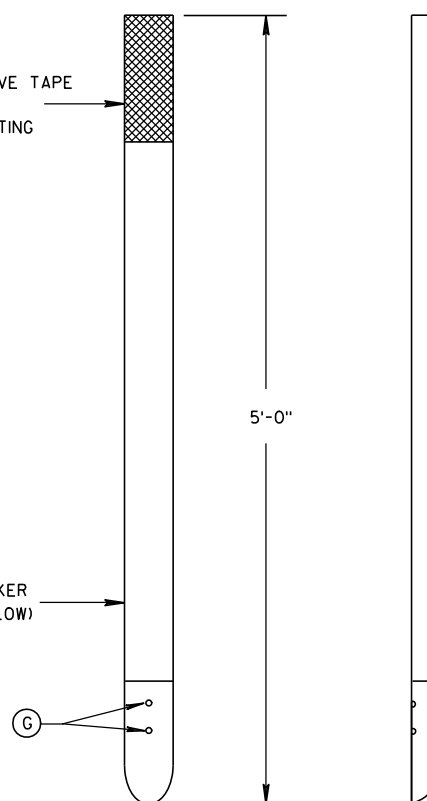
**TOP VIEW**

**ALTERNATE WOOD  
BLOCKOUT DETAIL**



**WOOD BLOCKOUT** ④  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

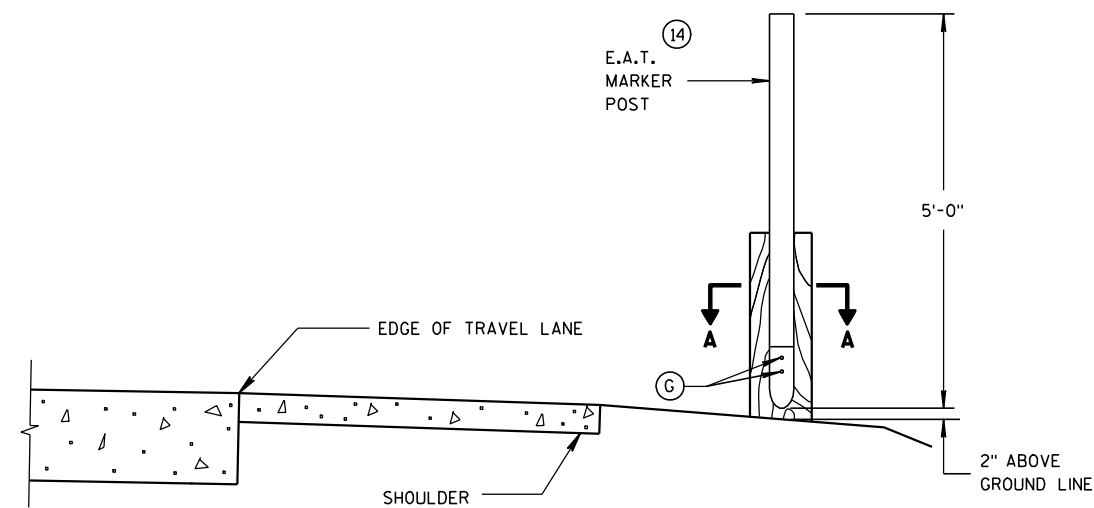
YELLOW REFLECTIVE TAPE  
3" X 9" TYPE H  
REFLECTIVE SHEETING



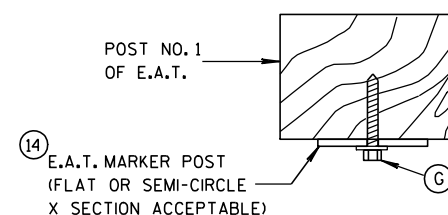
**FRONT VIEW**

**SIDE VIEW**

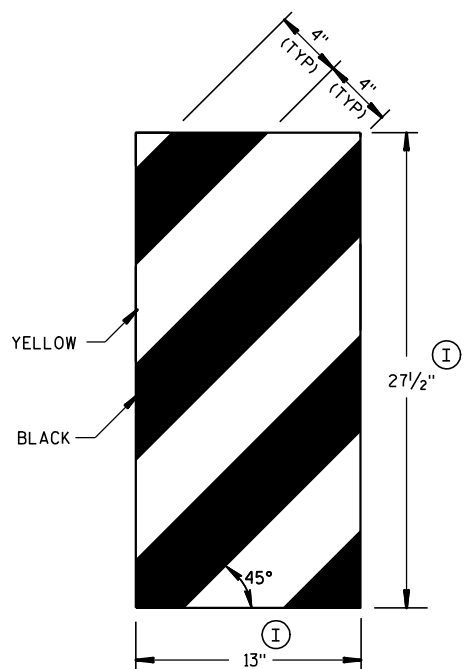
**E.A.T. MARKER POST** ⑭



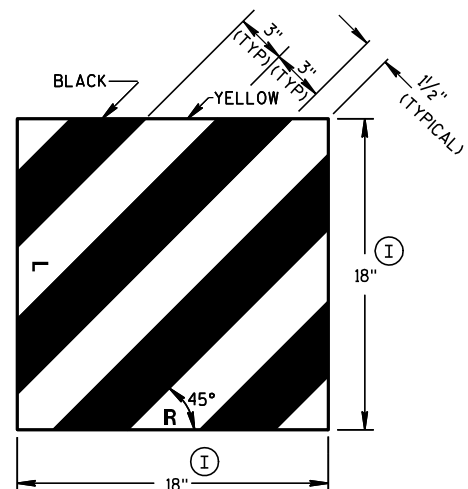
**TYPICAL INSTALLATION OF E.A.T.  
MARKER POST BACKSIDE OF POST NO. 1**  
(E.A.T. AND RAIL REMOVED FOR CLARITY)



**SECTION A-A**



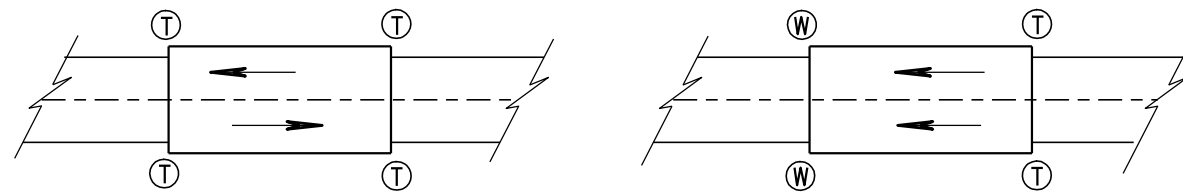
**GENERIC REFLECTIVE SHEETING** ⑬ ①



**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
5/23/2011 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



TWO WAY TRAFFIC

ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

**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".

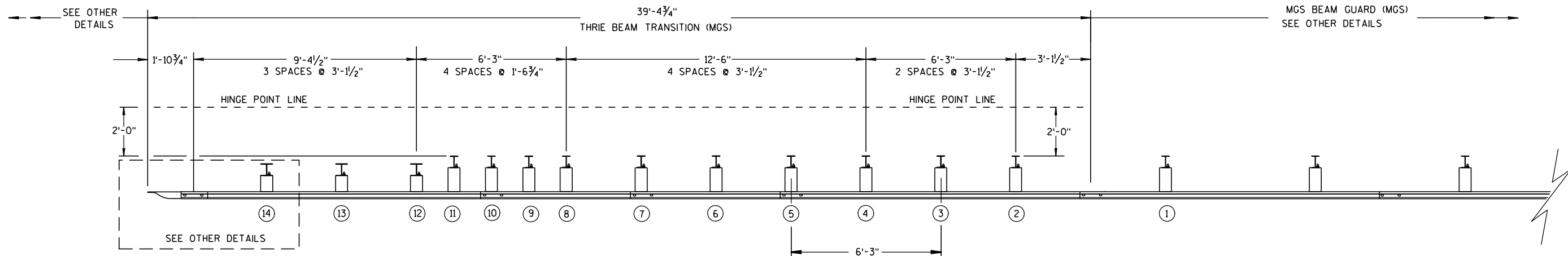
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

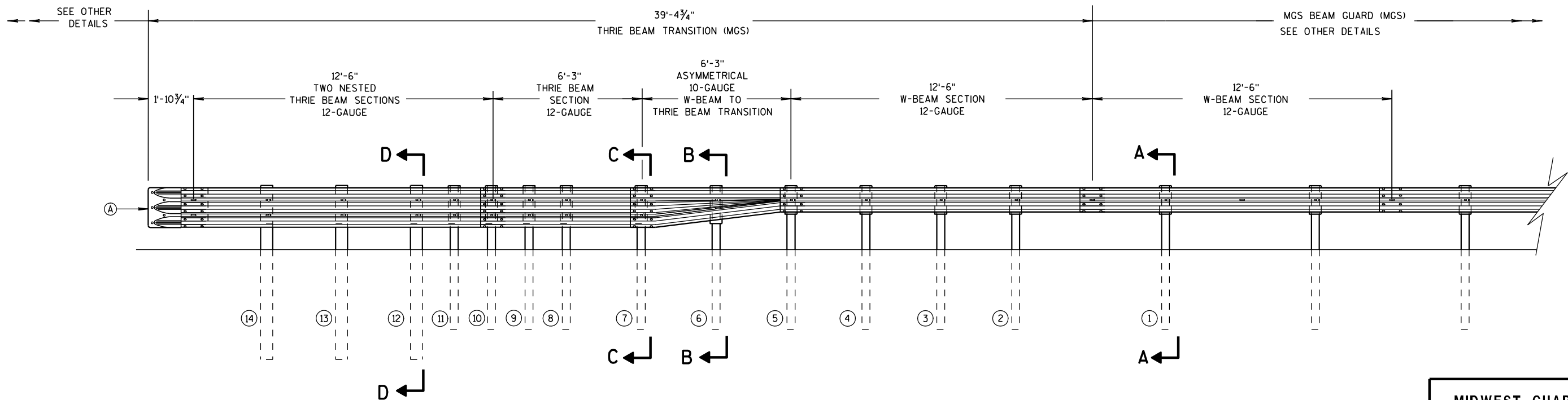
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

(A) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

**TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE**



PLAN VIEW



ELEVATION VIEW

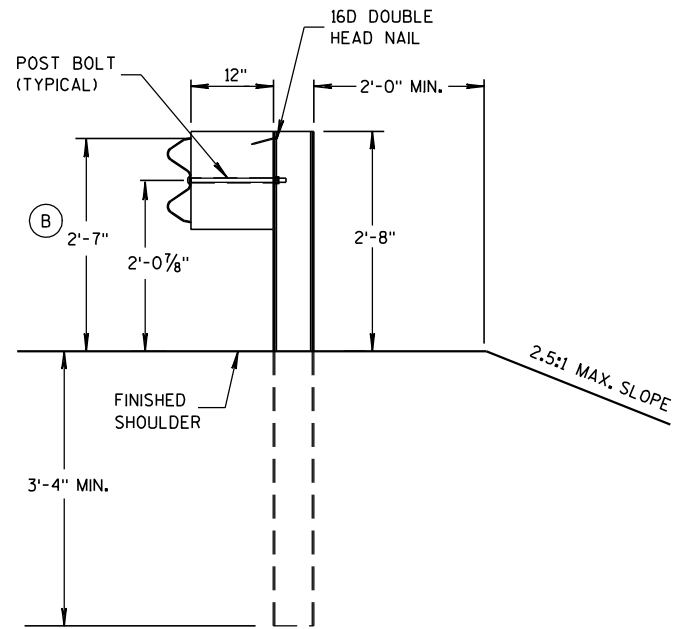
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

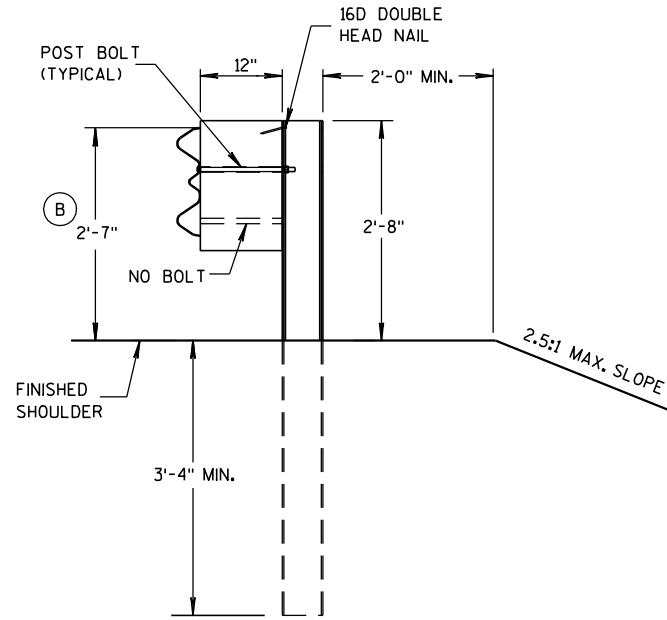
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

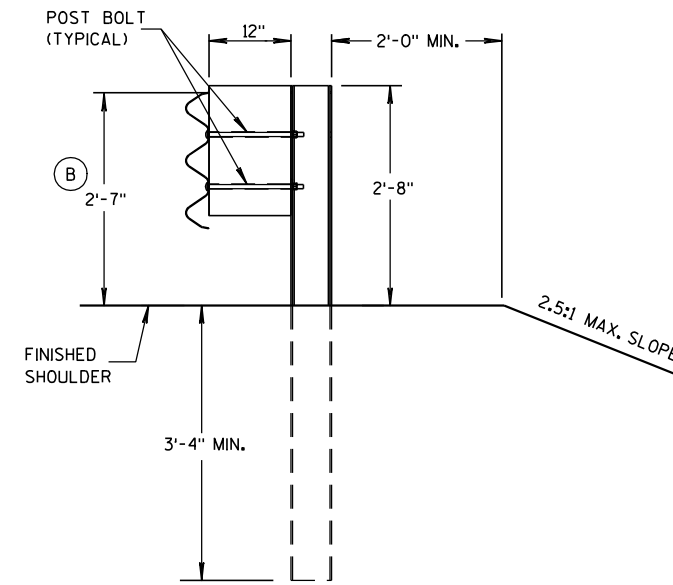
(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS  $\pm 1"$ .



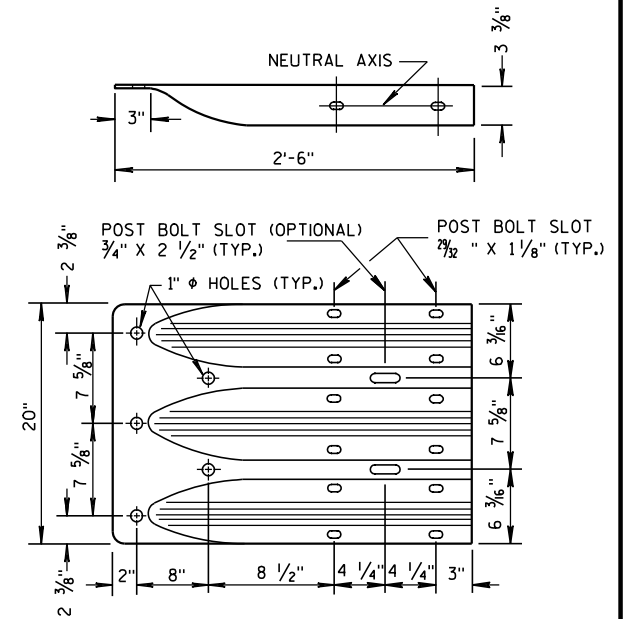
**SECTION A-A  
POSTS 1-5**



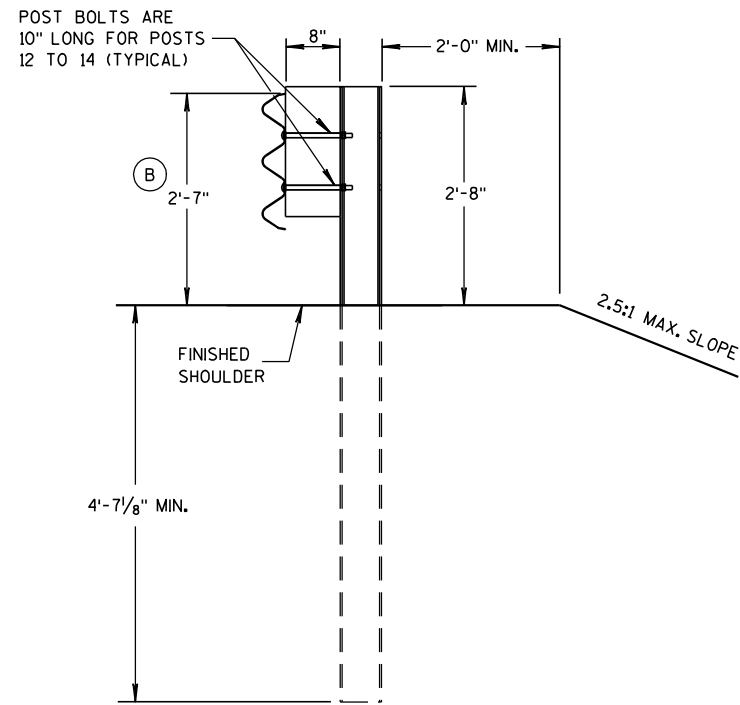
**SECTION B-B  
POST 6**



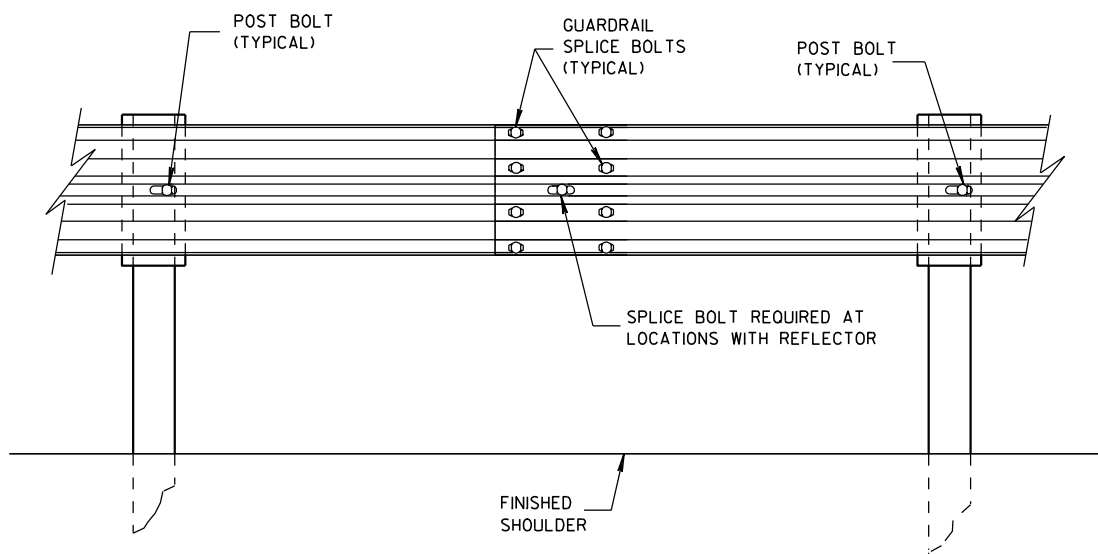
**SECTION C-C  
POSTS 7-11**



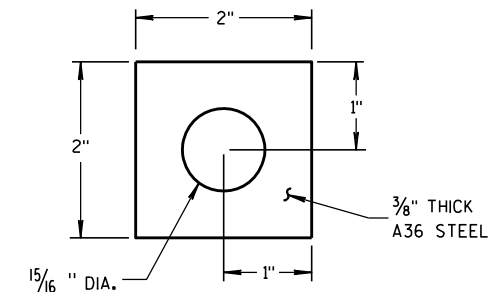
**THRIE BEAM  
TERMINAL CONNECTOR**



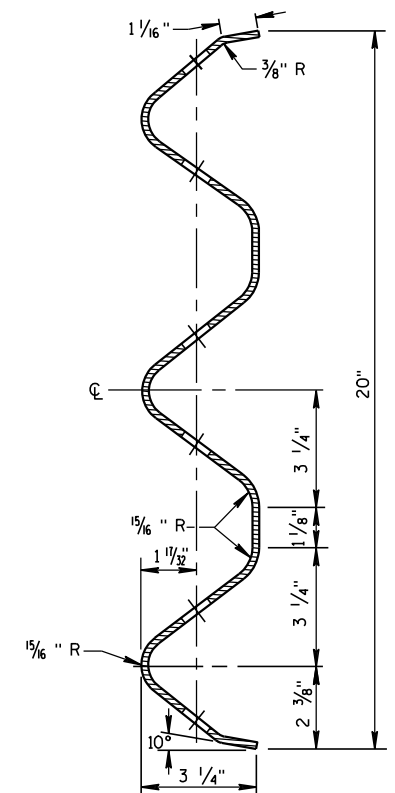
**SECTION D-D  
POSTS 12-14**



**SPlice DETAIL**



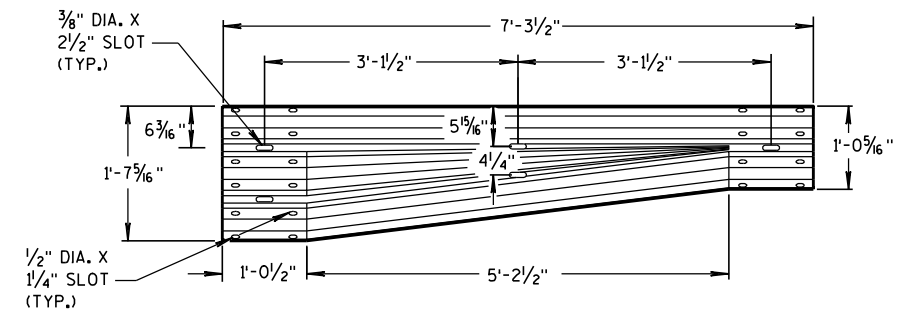
**PLATE WASHER DETAIL**



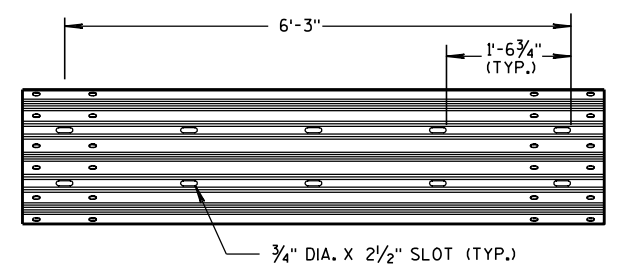
**SECTION THRU THRIE  
BEAM RAIL ELEMENT**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

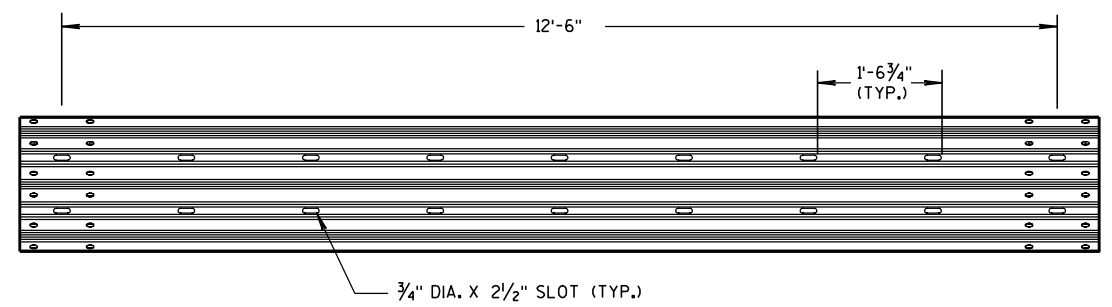
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



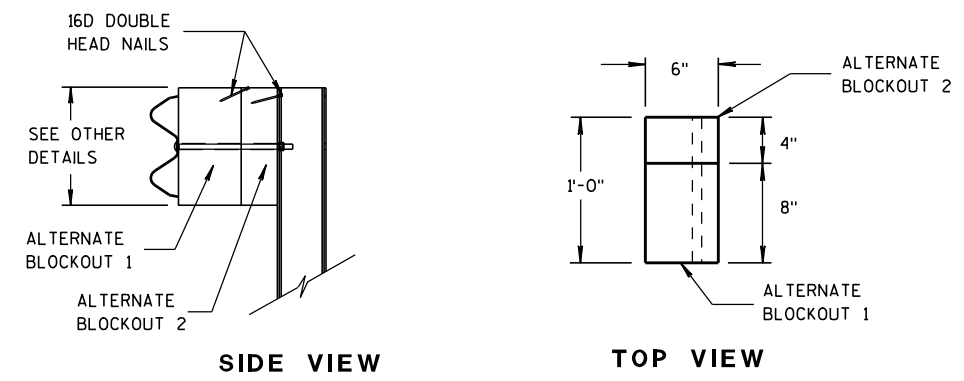
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



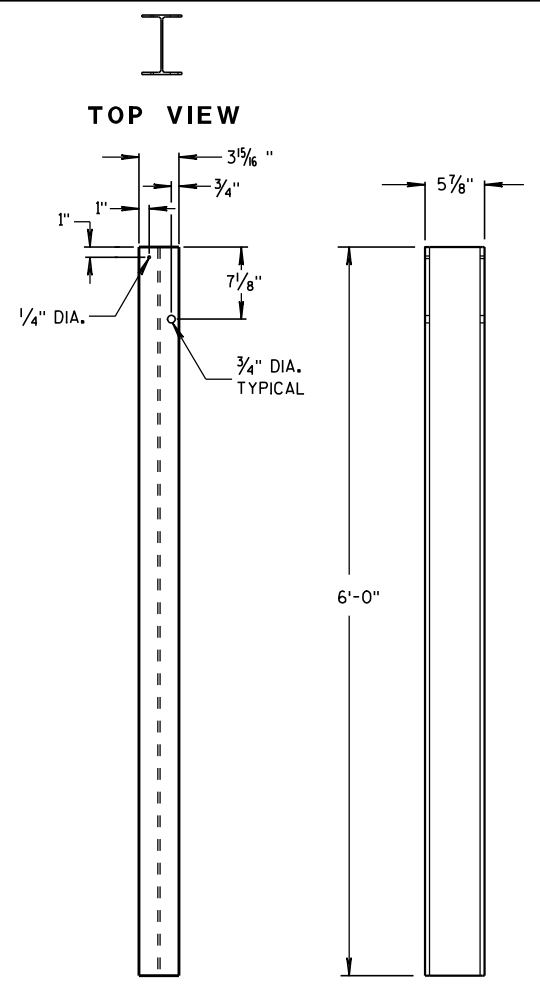
**6'-3" THRIE BEAM SECTION**



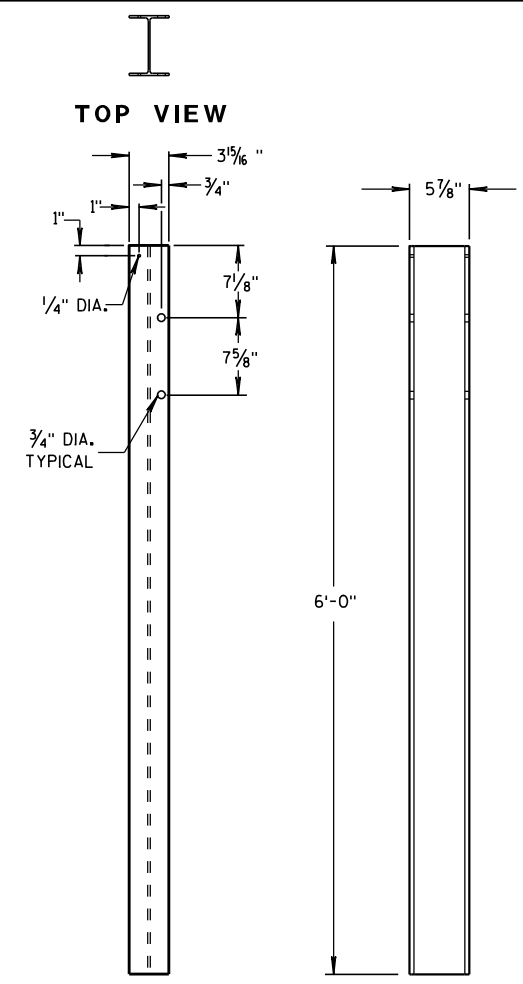
**12'-6" THRIE BEAM SECTION**



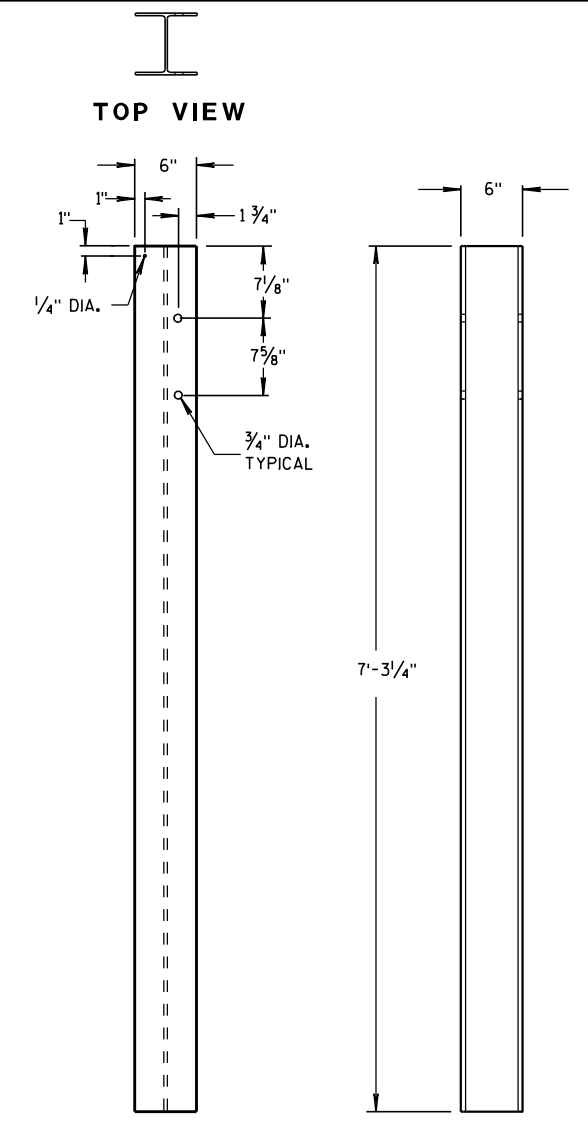
**ALTERNATE WOOD BLOCKOUT DETAIL**



**STEEL POSTS 1-5**

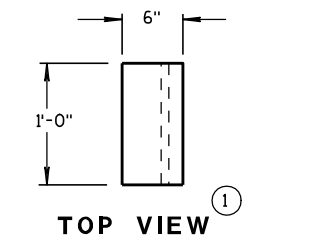


**STEEL POSTS 6-11**

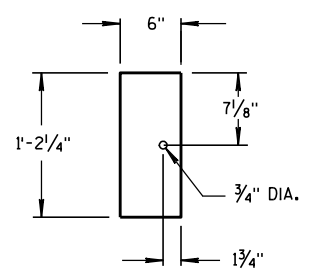


**STEEL POSTS 12-14**

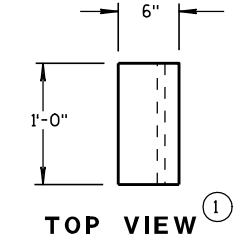
① WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.



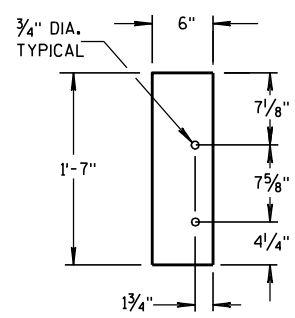
**TOP VIEW**



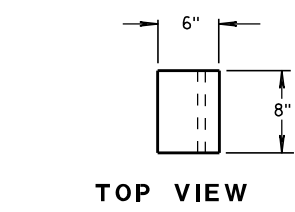
**FRONT VIEW  
BLOCKOUT  
POSTS 1-5**



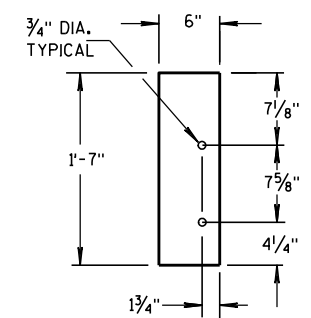
**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 6-11**



**TOP VIEW**



**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)**

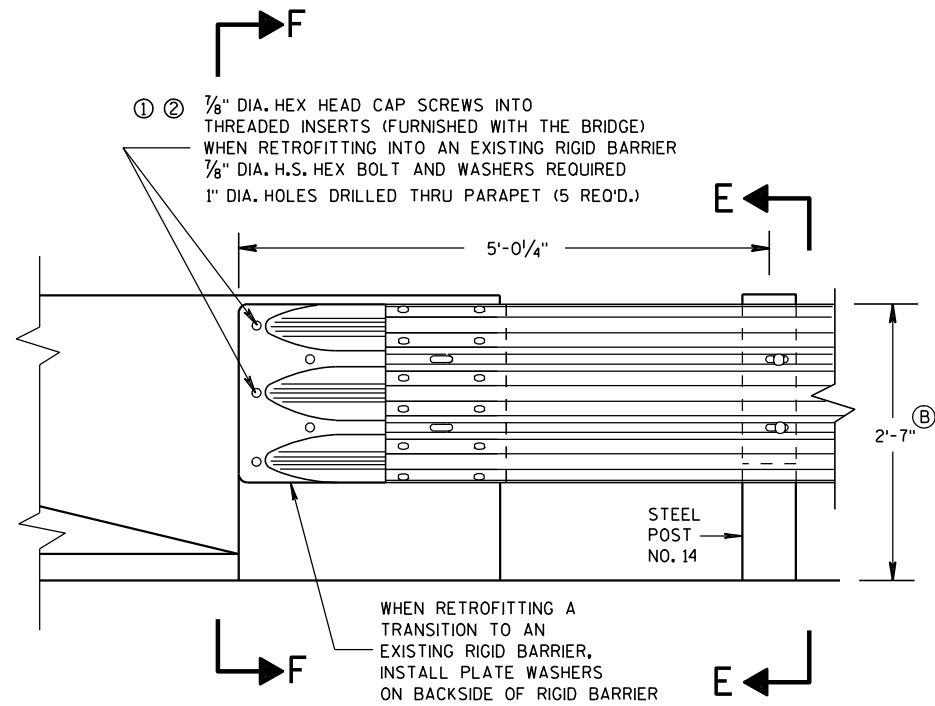
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

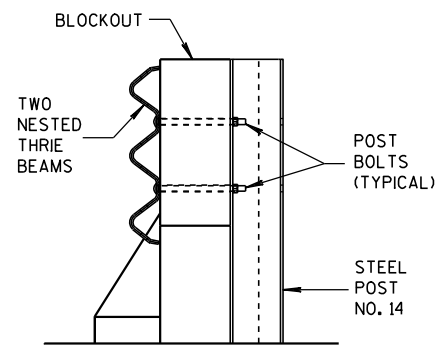
S.D.D. 14 B 45-3C

S.D.D. 14 B 45-3C



FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE  
PARAPET WITH SQUARE ENDS**

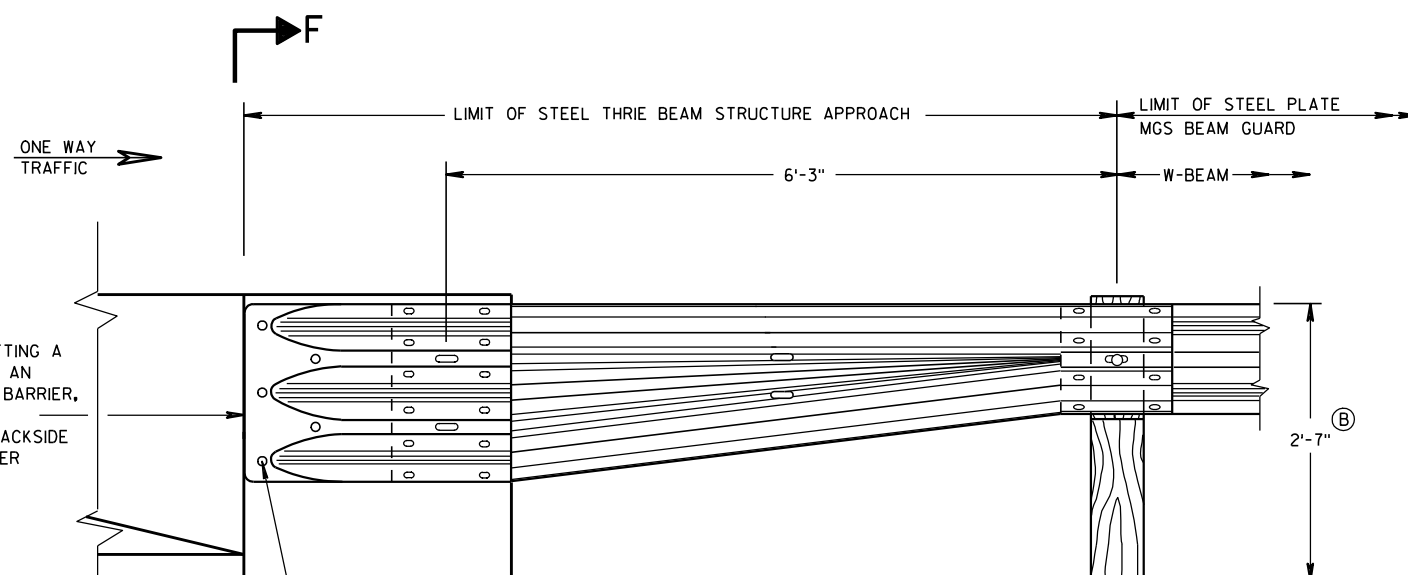


SECTION E-E

**GENERAL NOTES**

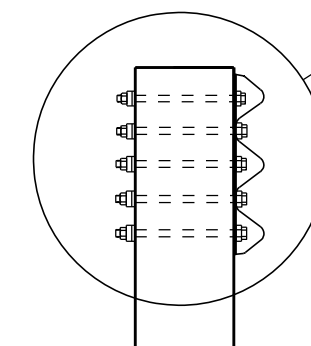
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- 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".
- (B) TOLERANCE FOR TOP OF BEAM IS ± 1".

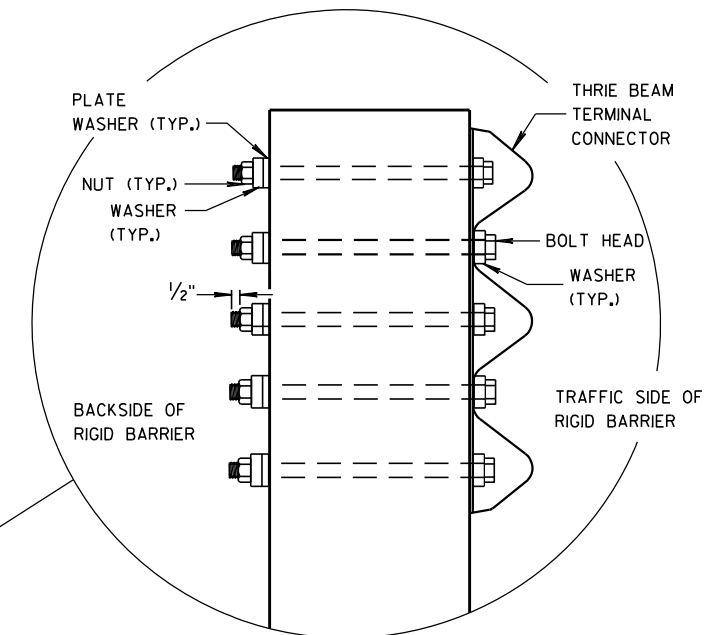


FRONT VIEW

**W BEAM TRANSITION AND CONNECTION TO  
BRIDGE PARAPETS WITH SQUARE ENDS  
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**



SECTION F-F



**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012

DATE

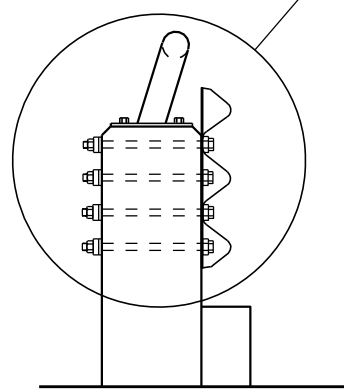
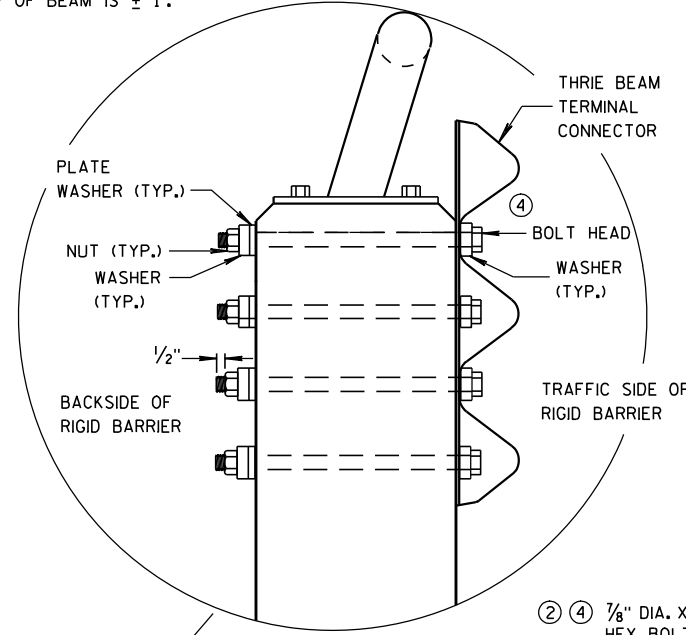
FHWA

/s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

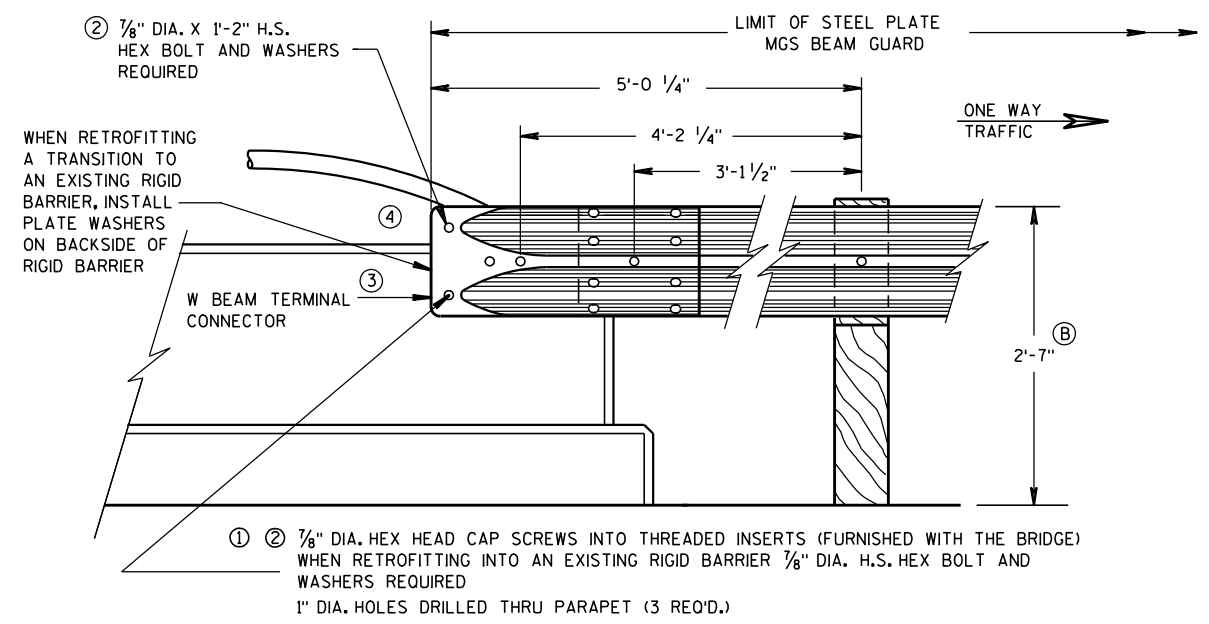
**GENERAL NOTES**

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

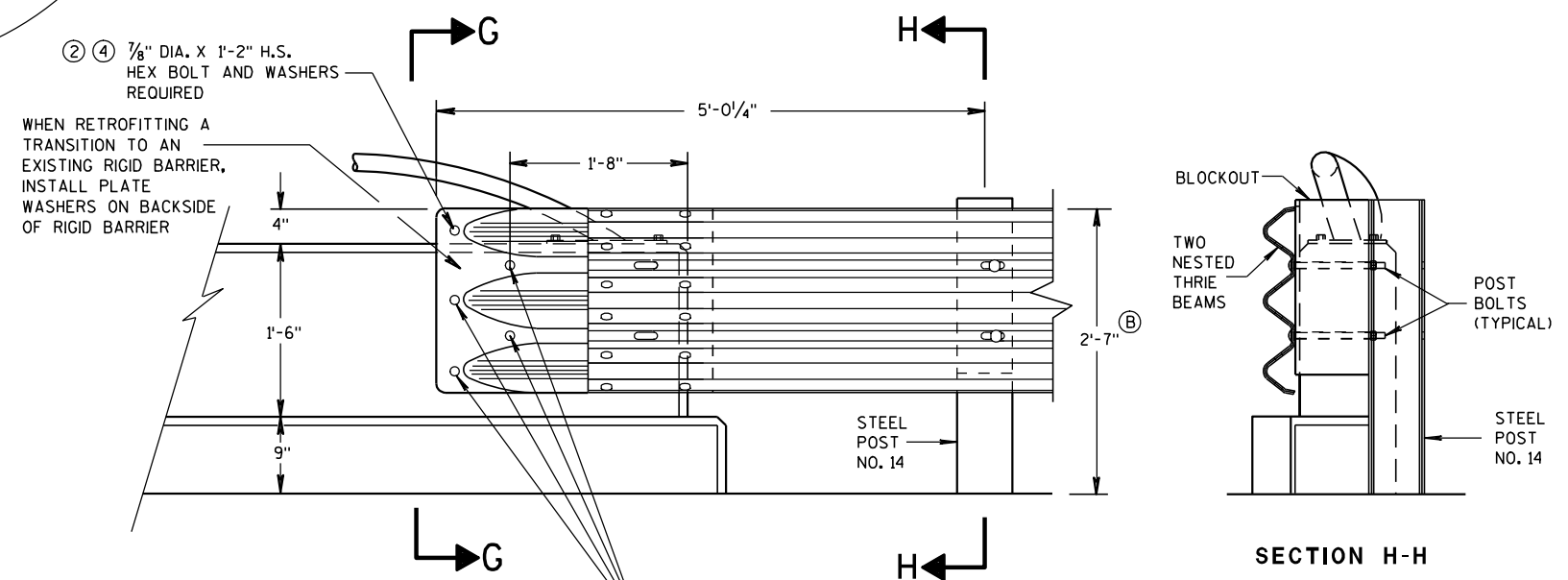
- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR 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 PARAPET 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**  
**W BEAM CONNECTION TO VERTICAL FACE PARAPET**  
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



**FRONT VIEW**

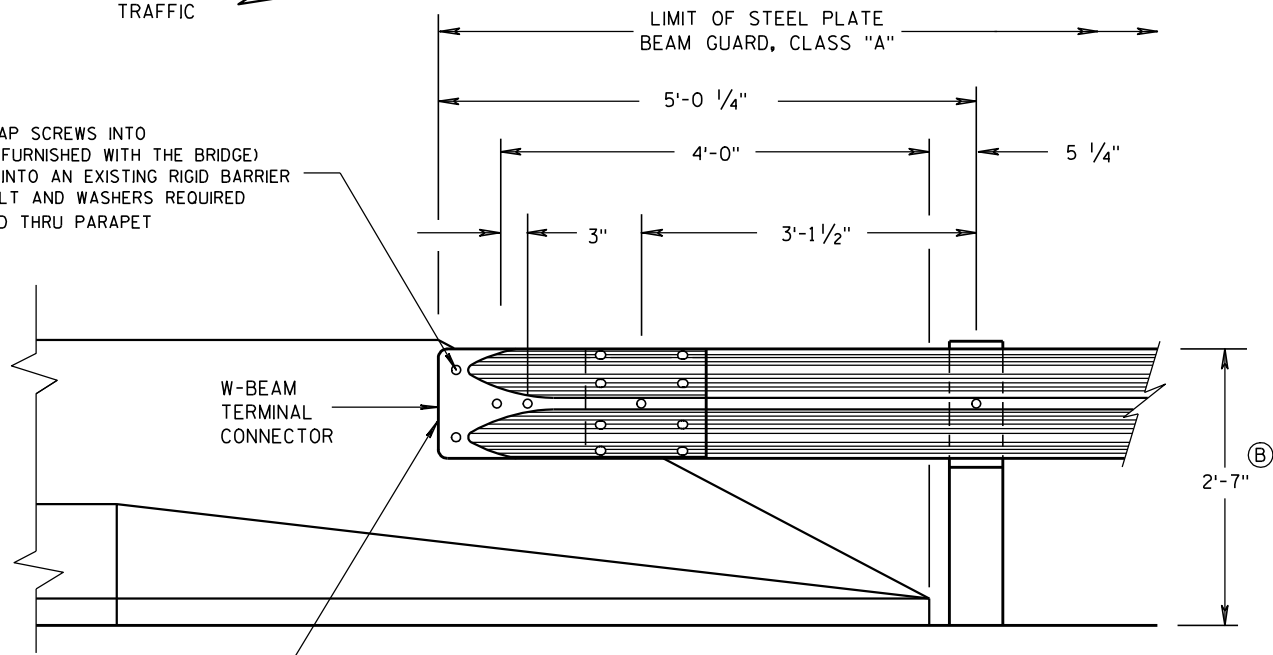
**THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS**

- ① ② 7/8" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER 7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED 1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)

<b>MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8-31-2012 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

ONE WAY  
TRAFFIC →

① ② 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(4 REQ'D.)



WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

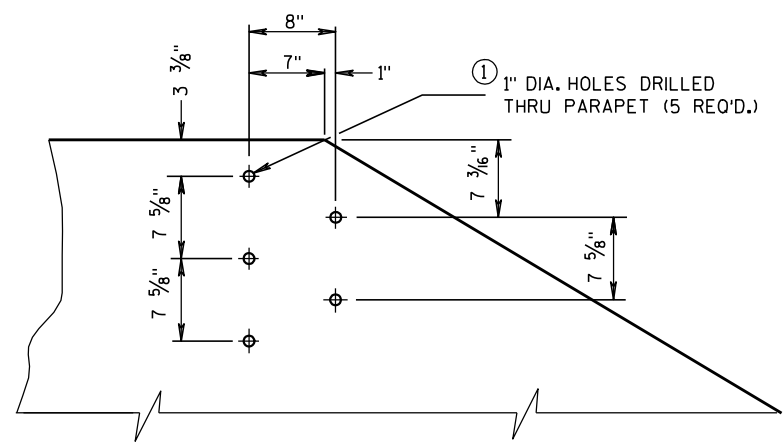
FRONT VIEW

**W BEAM CONNECTION TO  
PARAPETS WITH SLOPED ENDS**

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

**GENERAL NOTES**

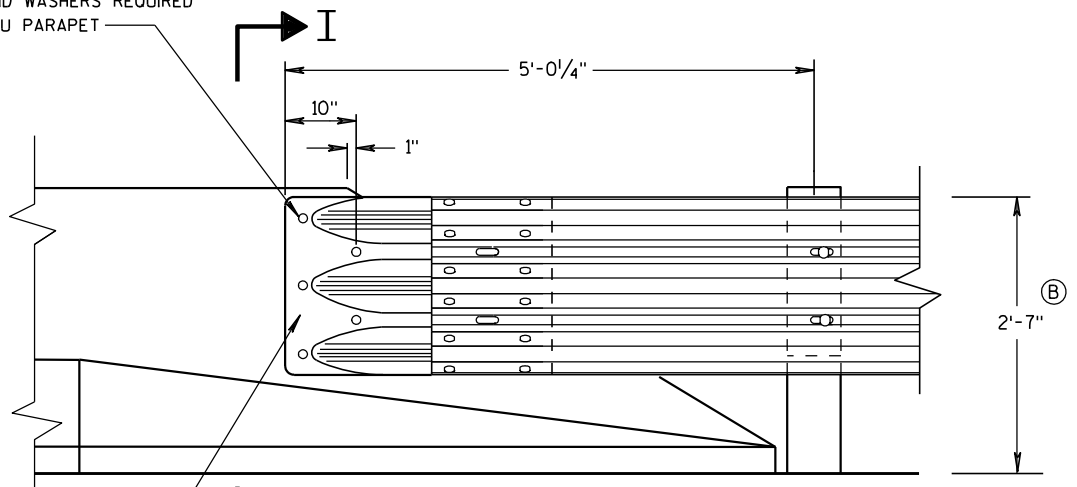
- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR 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**

6

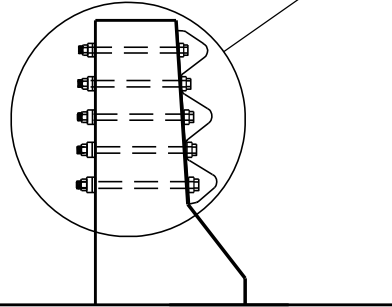
① ② 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(5 REQ'D.)



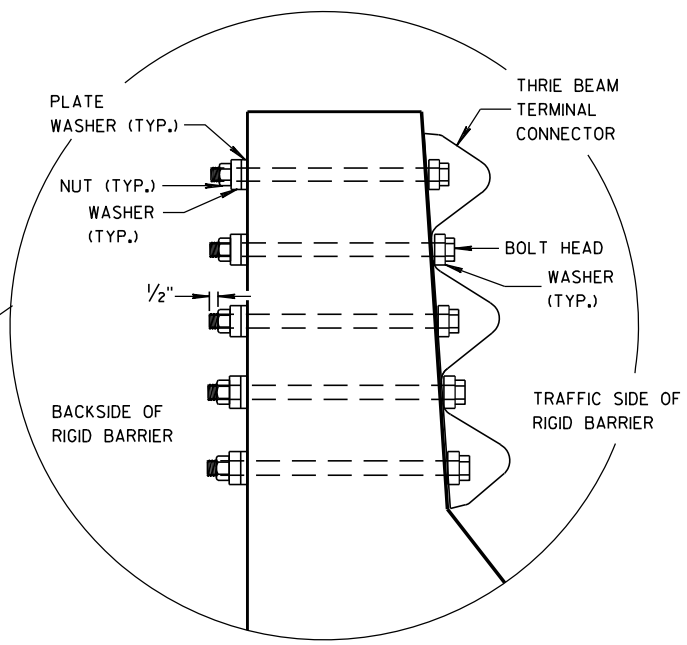
WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE  
PARAPETS WITH SLOPED ENDS**



SECTION I-I



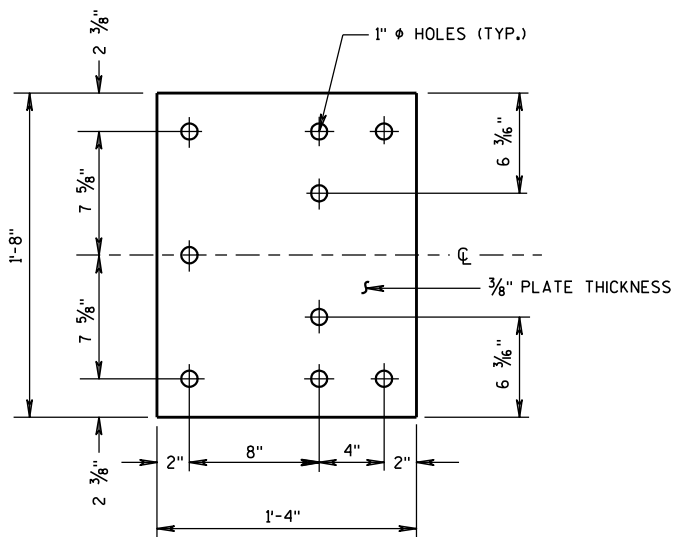
6

S.D.D. 14 B 45-3f

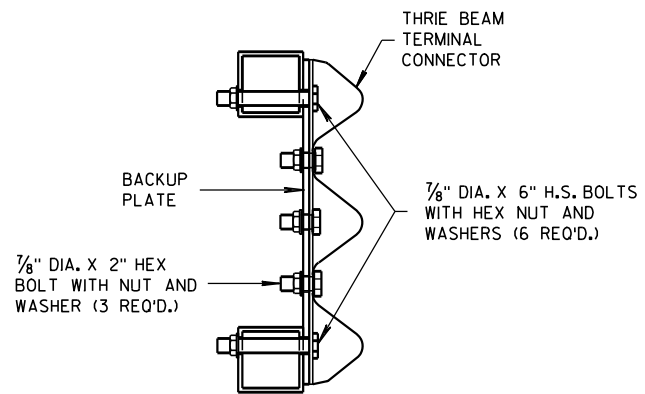
S.D.D. 14 B 45-3f

<b>MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/31/2012 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

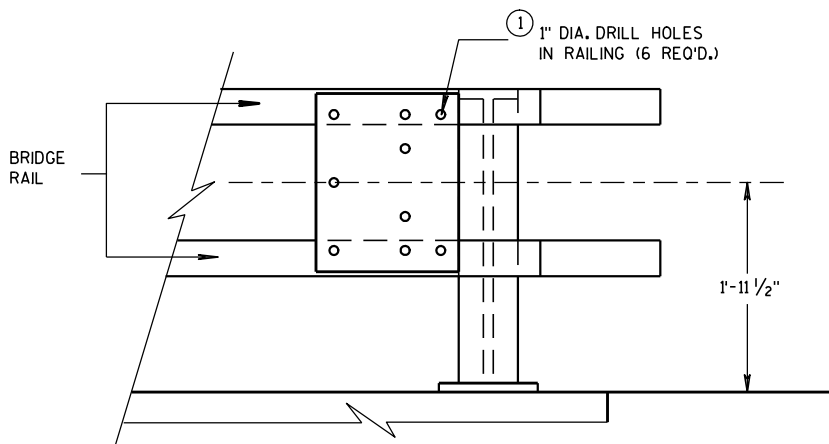




**BACK-UP PLATE DETAIL**



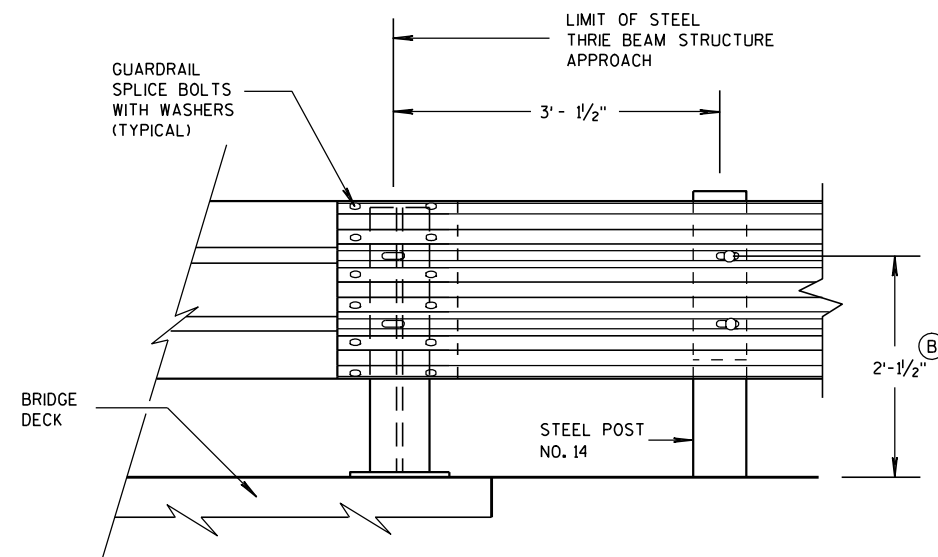
**SECTION J-J**



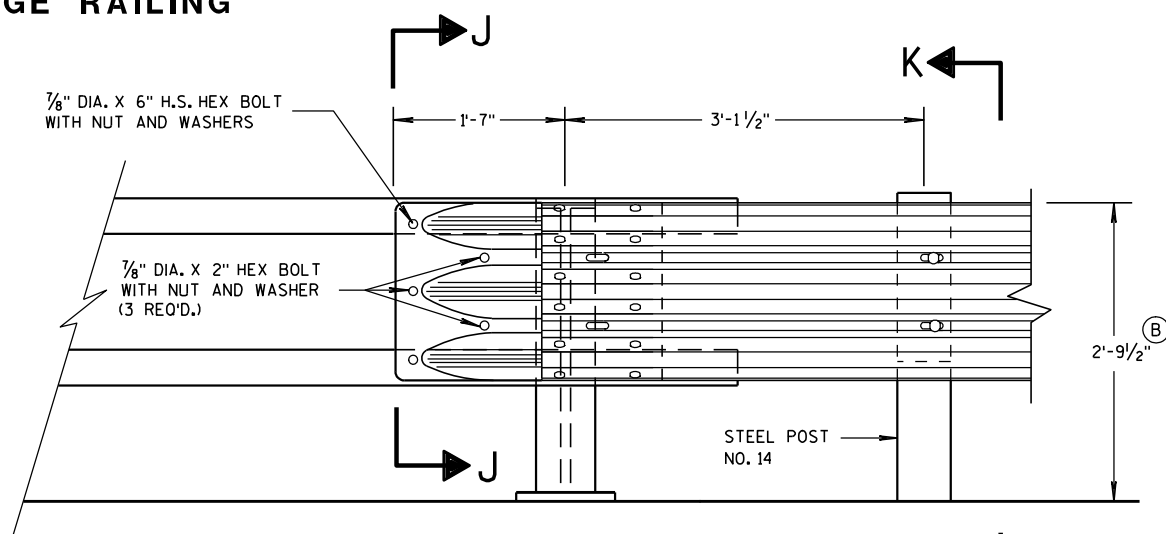
**BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING**

**GENERAL NOTES**

- ① DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .

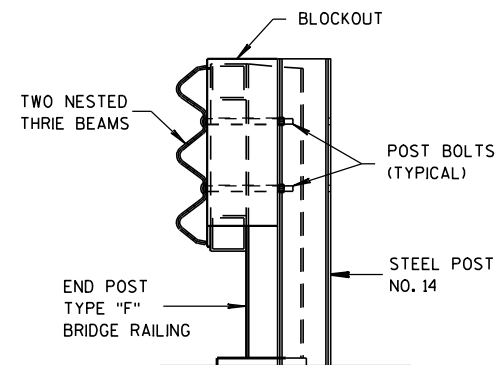


**FRONT VIEW THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"**



**FRONT VIEW**

**THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"**



**SECTION K-K**

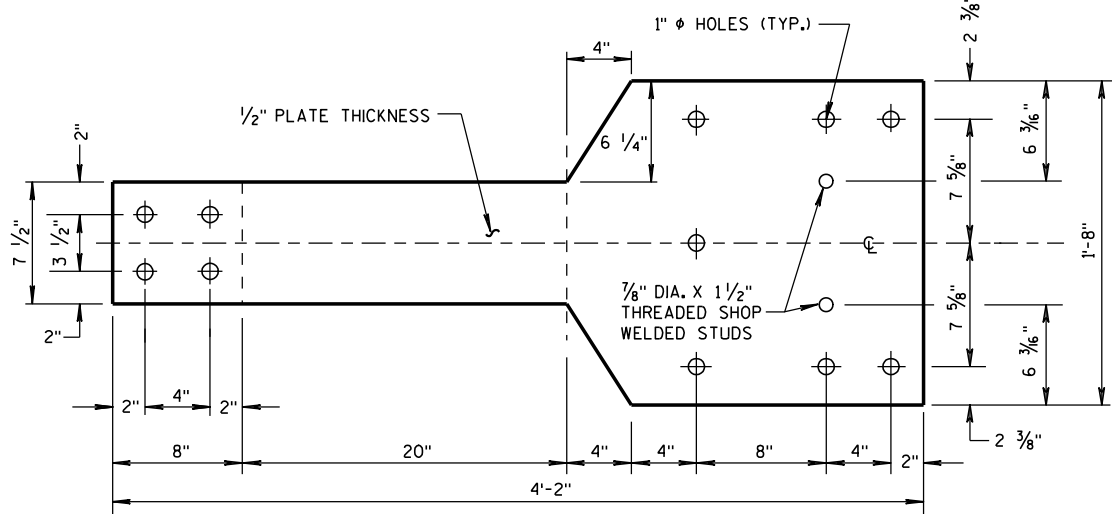
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

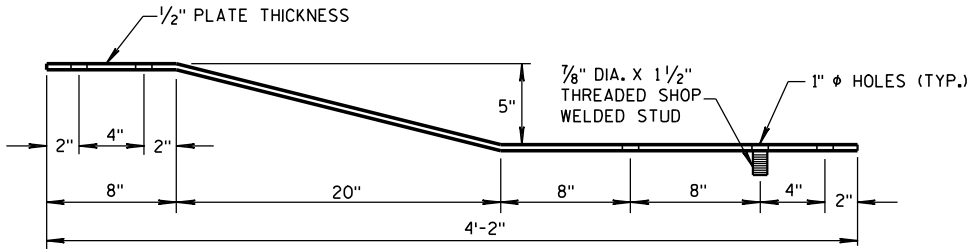
APPROVED  
8/31/2012 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA

**GENERAL NOTES**

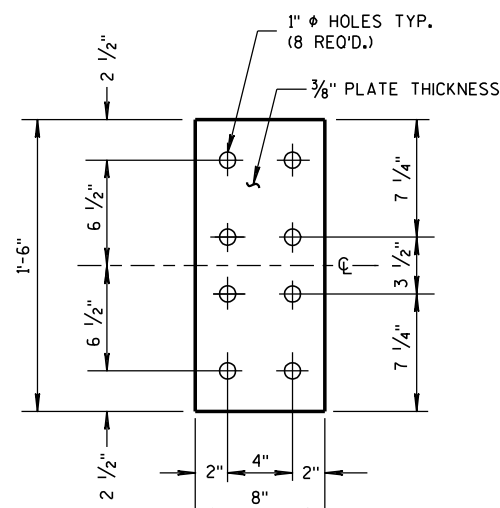
(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



**FRONT VIEW**

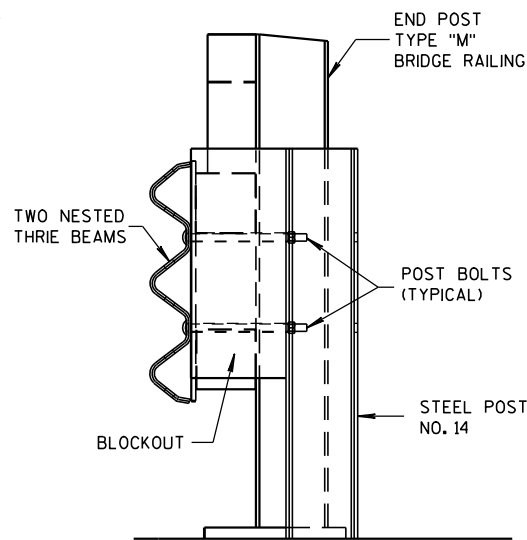


**PLAN VIEW  
BACK-UP PLATE DETAIL, TYPE "M"**

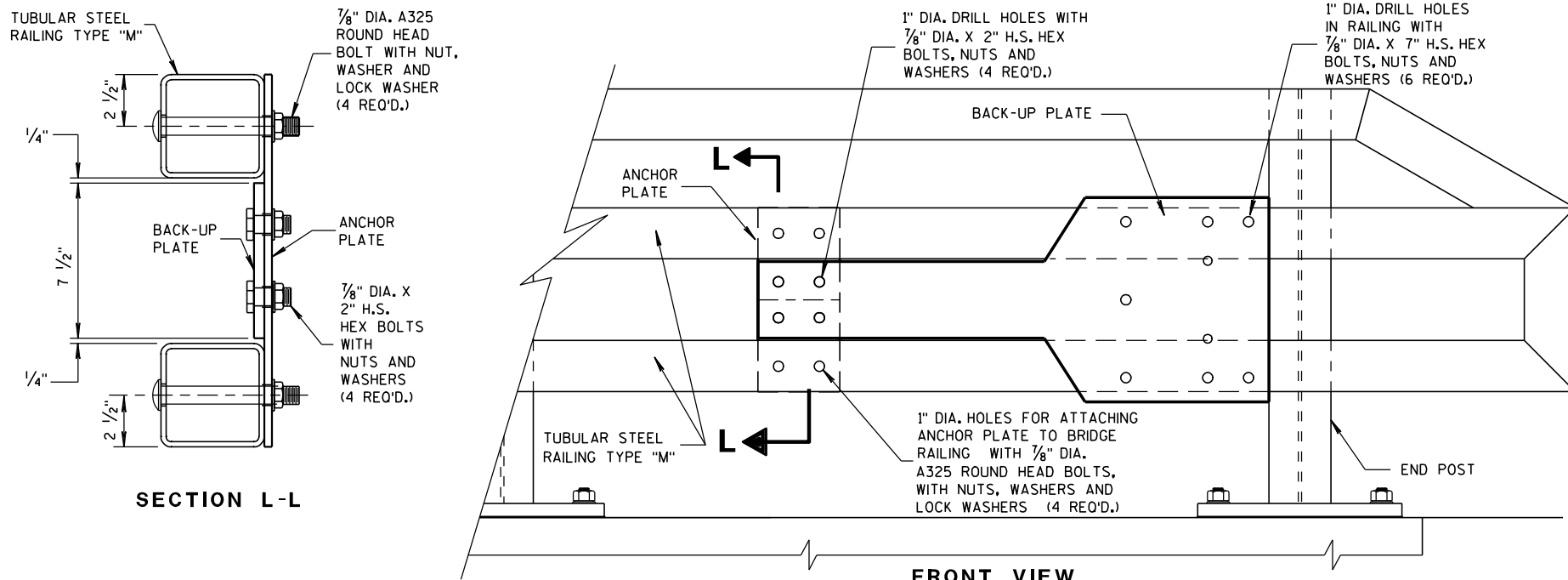


**FRONT VIEW**

**ANCHOR PLATE DETAIL, TYPE "M"**



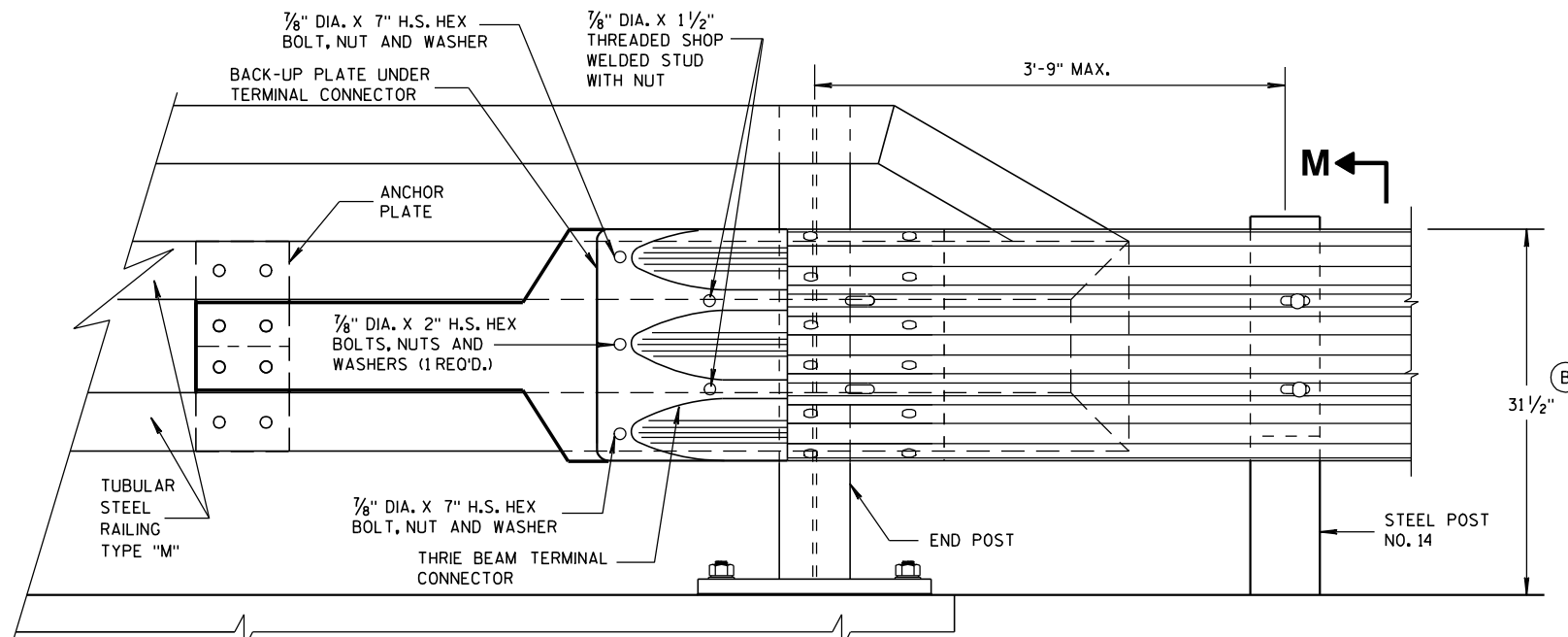
**SECTION M-M**



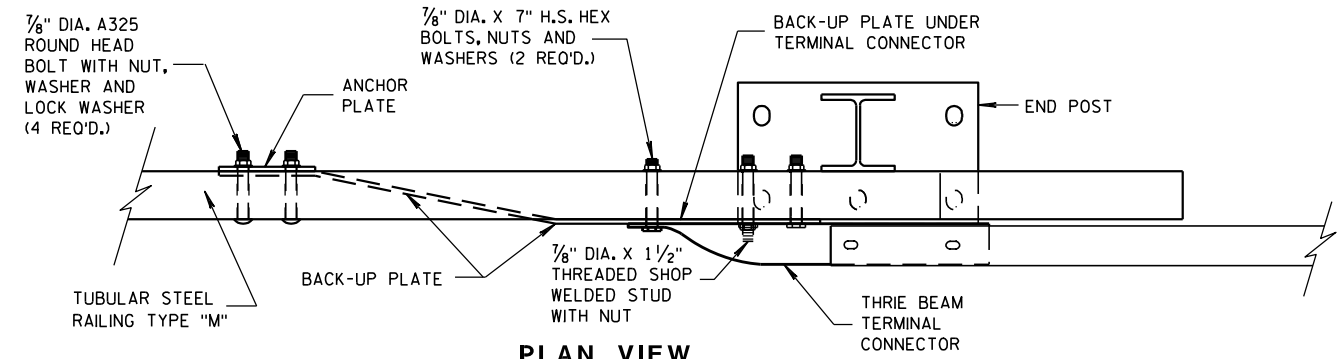
**SECTION L-L**

**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"**

6

6

S.D.D. 14 B 45-3h

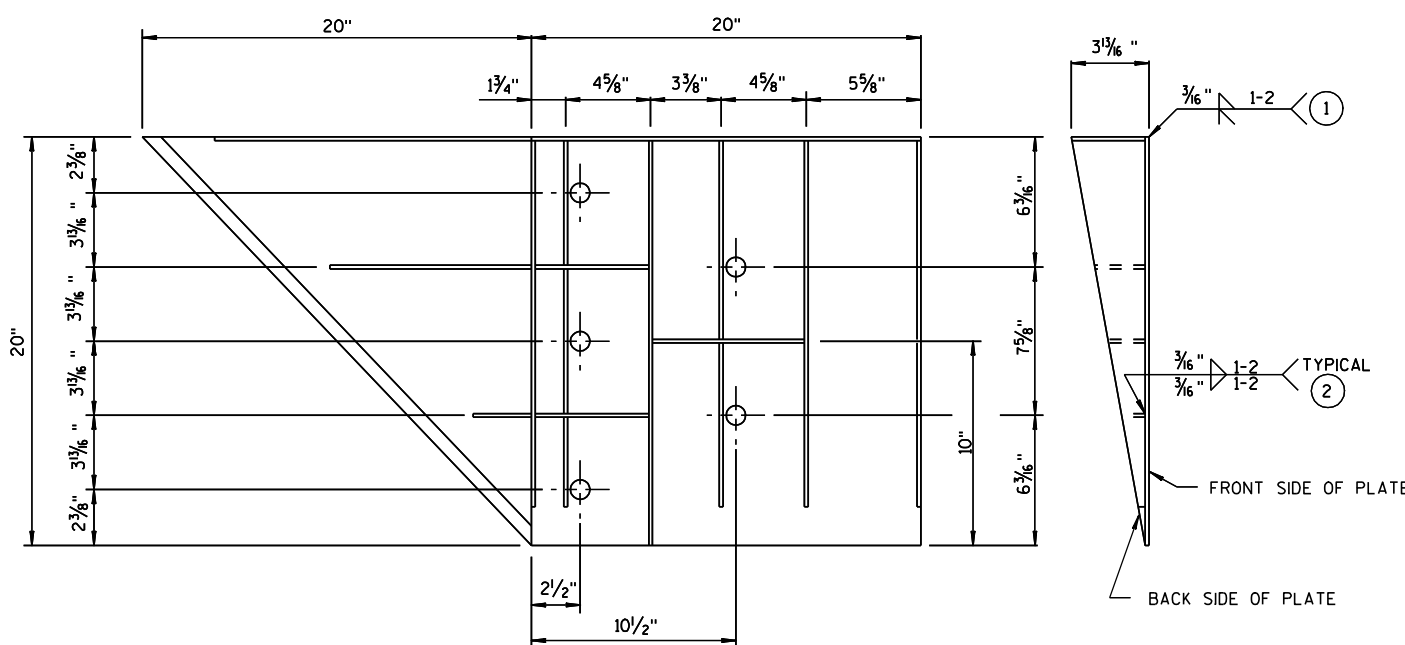
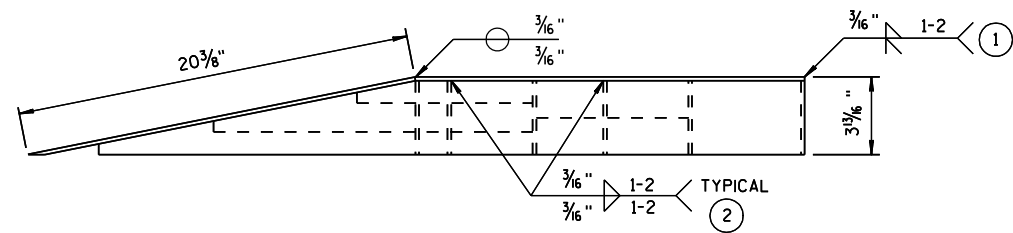
S.D.D. 14 B 45-3h

<b>MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8-31-2012 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

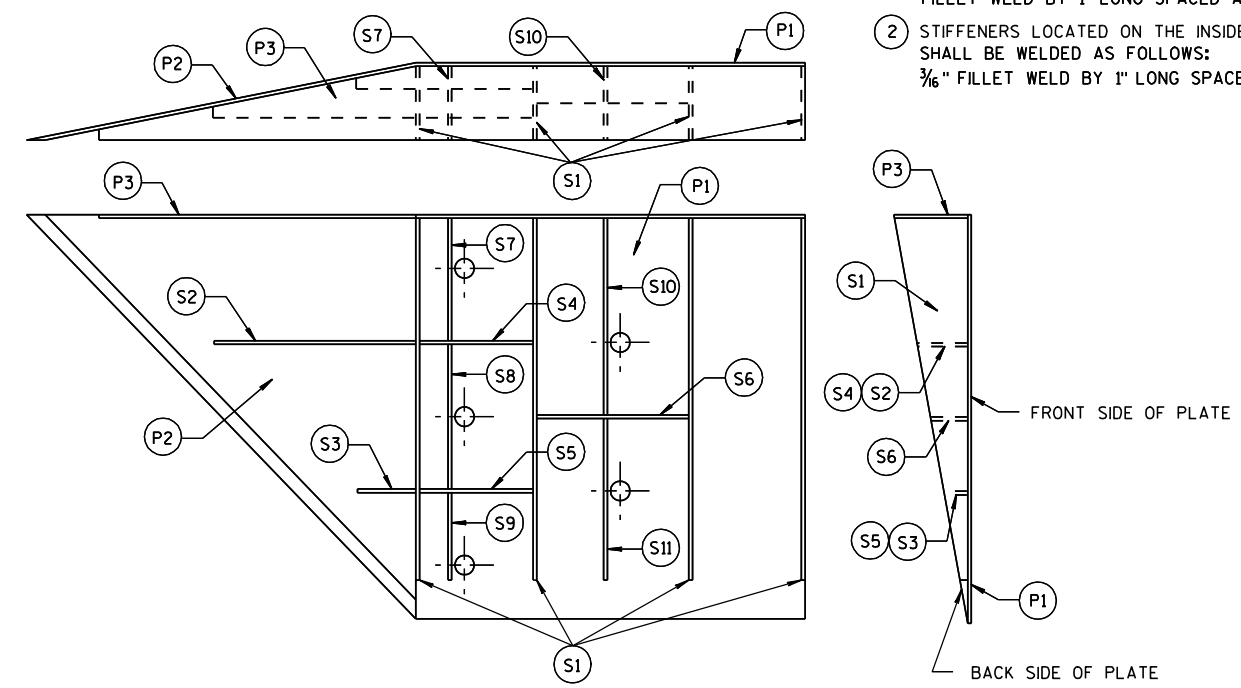
**GENERAL NOTES**

- 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".



**WELDING INSTRUCTION**  
(VIEWED FROM BACK SIDE OF PLATE)



**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 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 1/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" 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 1/16"	1/4"
S5	1		6 1/8" x 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 1/8"	1/4"
S8	1		1 3/32" 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 1/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 1/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 1/16"	1/4"

**SINGLE SLOPE CONNECTION PLATE**

**MIDWEST GUARDRAIL SYSTEM  
THREE BEAM TRANSITION (MGS)**

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STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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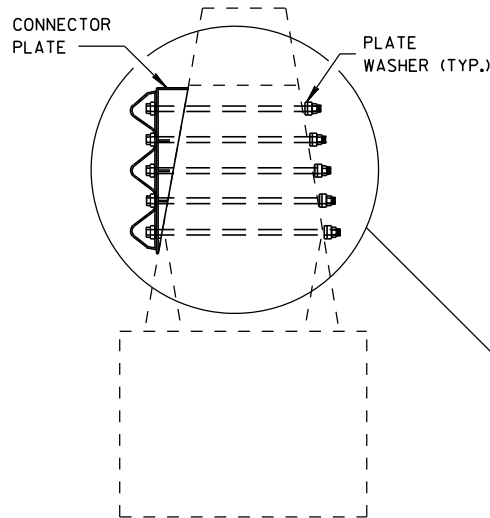
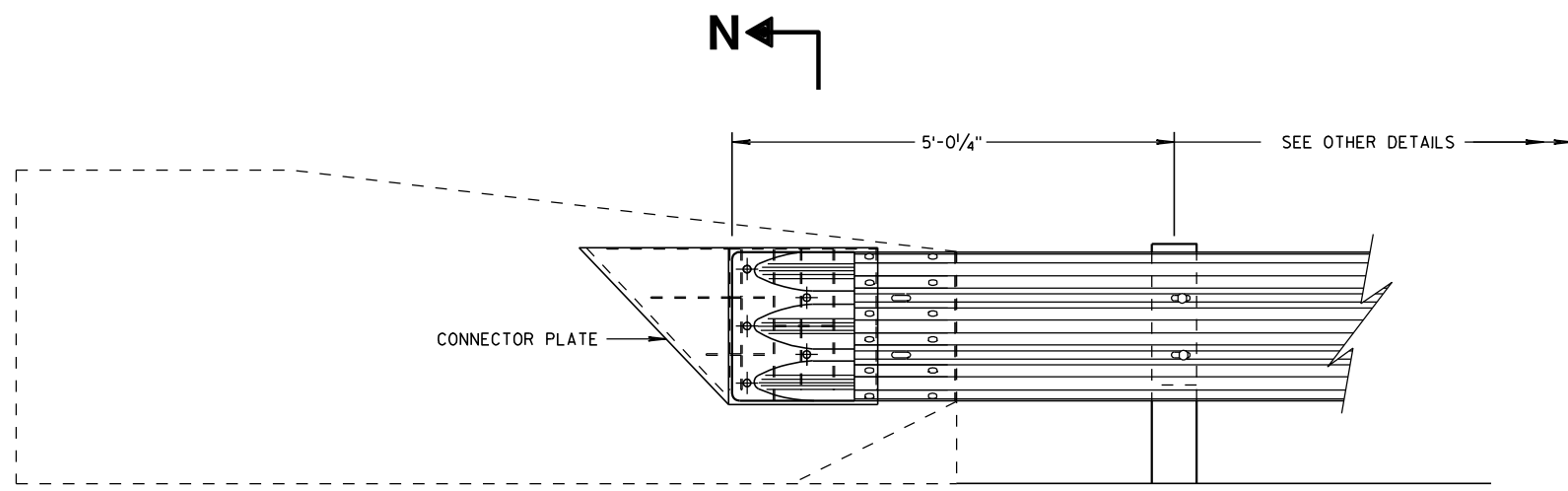
APPROVED  
8/31/2012 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

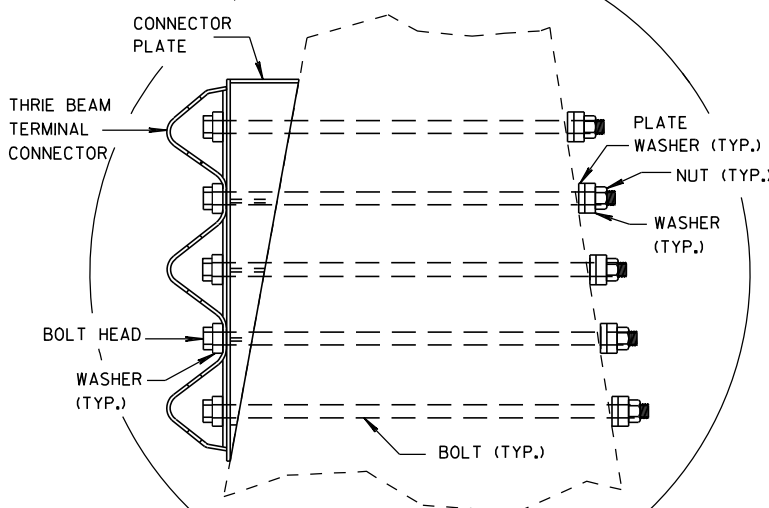
**GENERAL NOTES**

CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

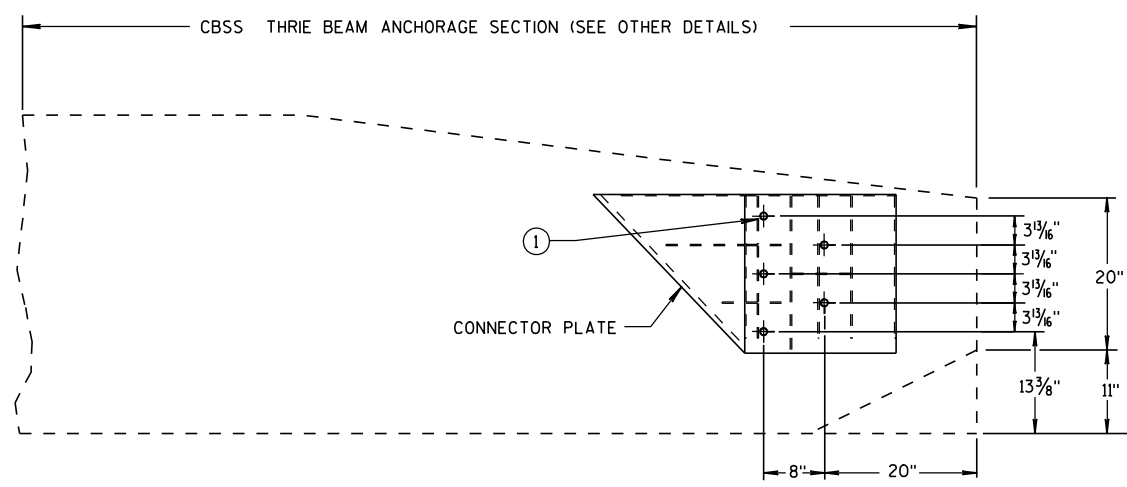
- ① BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



**THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER**

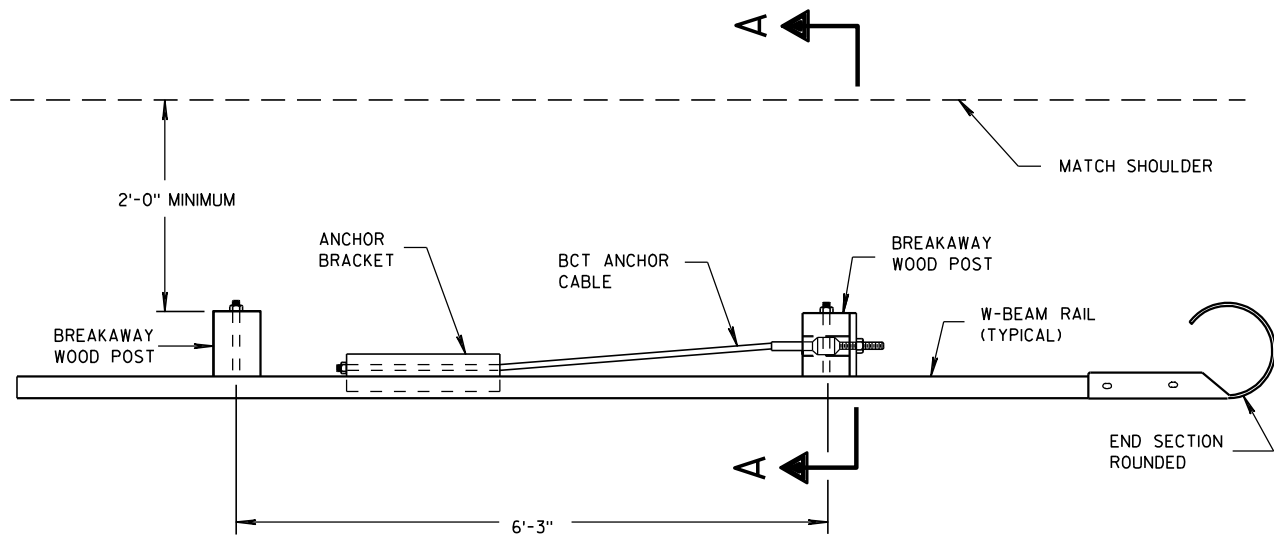


**SINGLE SLOPE CONNECTION PLATE PLACEMENT**

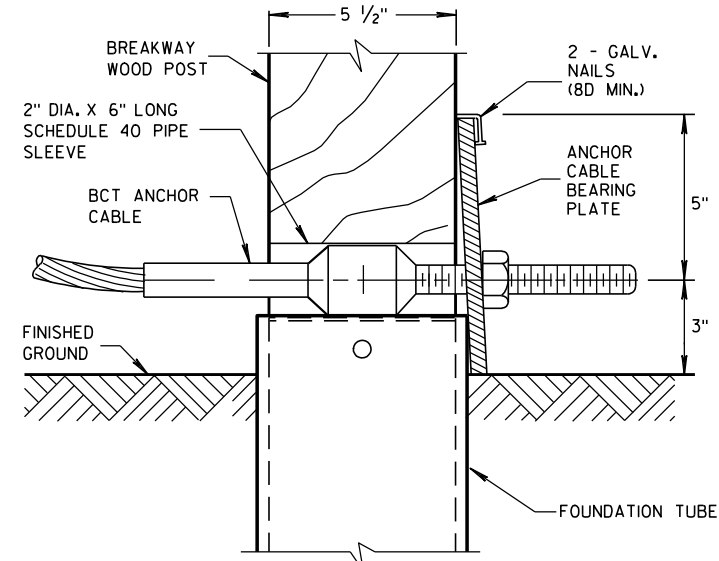
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
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APPROVED  
8/31/2012 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA

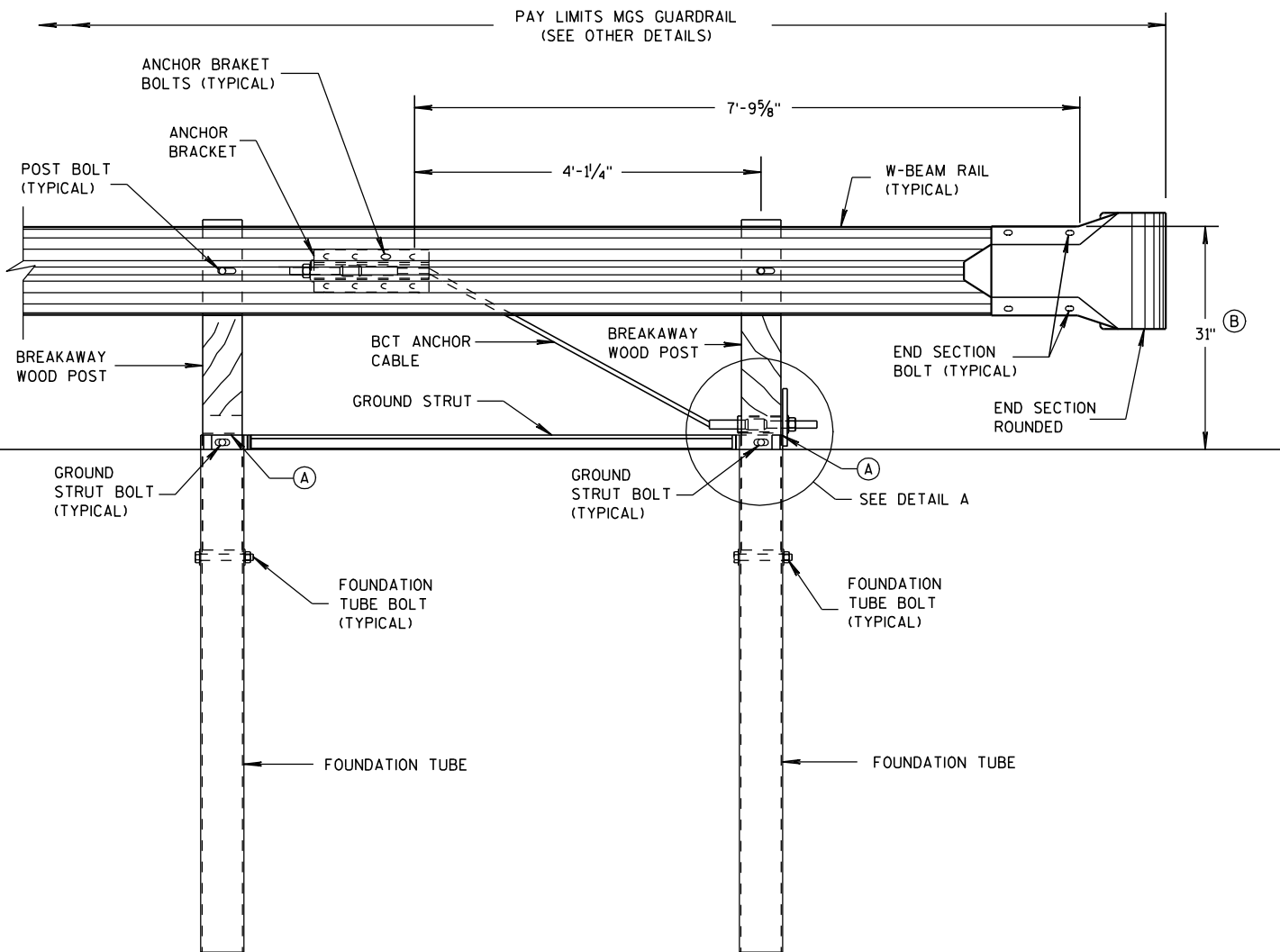


**PLAN VIEW**



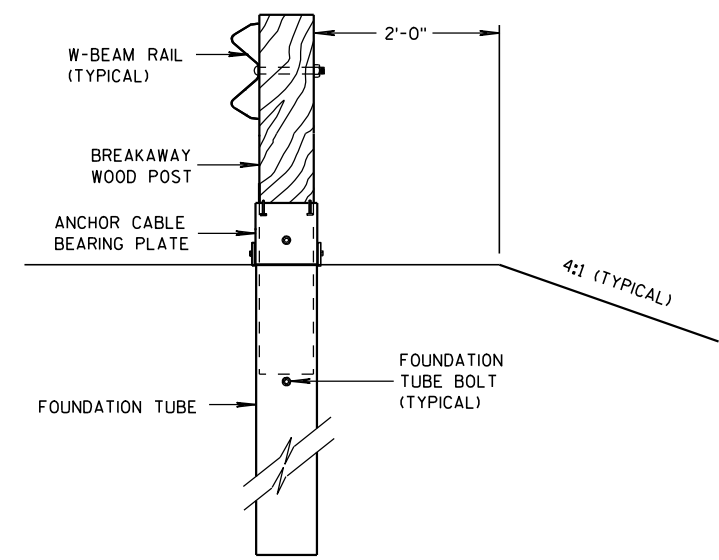
**DETAIL A**

POST NO. 1  
GROUND STRUT NOT SHOWN FOR CLARITY.



**FRONT VIEW**

**END RAIL DETAIL**



**SECTION A-A**

**GENERAL NOTES**

SEE SDD 14 B 42 FOR MORE INFORMATION.

POST BOLTS ARE A 5/8" DIAMETER X 10" LONG GUARDRAIL BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER DH MODIFIED (RECESSED) HEAVY HEX NUT AND 5/8" DIAMETER FLAT WASHER.

FOUNDATION TUBE BOLTS ARE A 7/8" DIAMETER X 7 1/2" LONG HEAVY HEX HEAD BOLT. A FOUNDATION TUBE BOLT REQUIRES A 7/8" DIAMETER DH HEAVY HEX NUT AND A 5/8" DIAMETER FLAT WASHER.

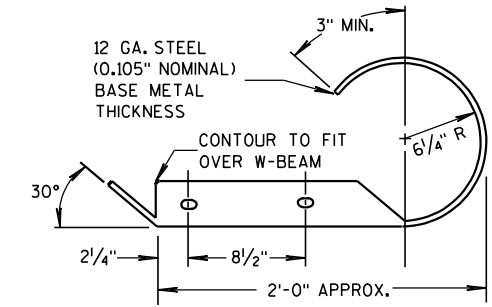
GROUND STRUT BOLTS ARE A 5/8" DIAMETER X 10" LONG HEAVY HEX HEAD BOLT. A GROUND STRUT BOLT REQUIRES A 5/8" DIAMETER DH HEAVY HEX NUT AND A 5/8" DIAMETER FLAT WASHER.

ANCHOR BRACKET BOLTS ARE A 5/8" DIAMETER X 1 1/2" LONG HEAVY HEX HEAD BOLT. AN ANCHOR BRACKET BOLT REQUIRES A 5/8" DIAMETER DH HEAVY HEX NUT AND A FLAT WASHER.

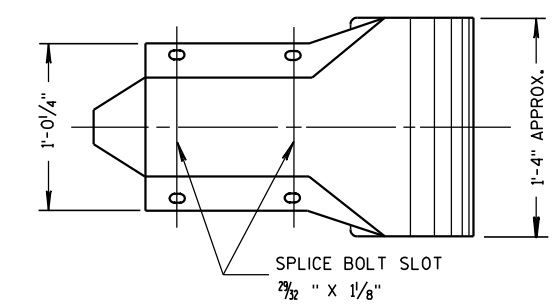
END SECTION BOLTS ARE A 5/8" DIAMETER X 1 1/2" HEAVY HEX HEAD BOLT. AN END SECTION BOLT REQUIRES 5/8" DIAMETER DH HEAVY HEX NUT AND A 5/8" DIAMETER FLAT WASHER.

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 27 3/4" TO 32" ± 1".



**PLAN VIEW**

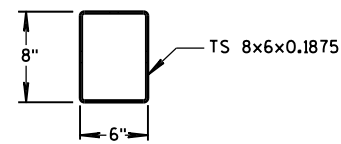


**FRONT VIEW**

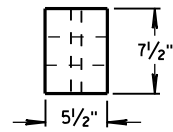
**W BEAM END SECTION ROUNDED**

**MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL**

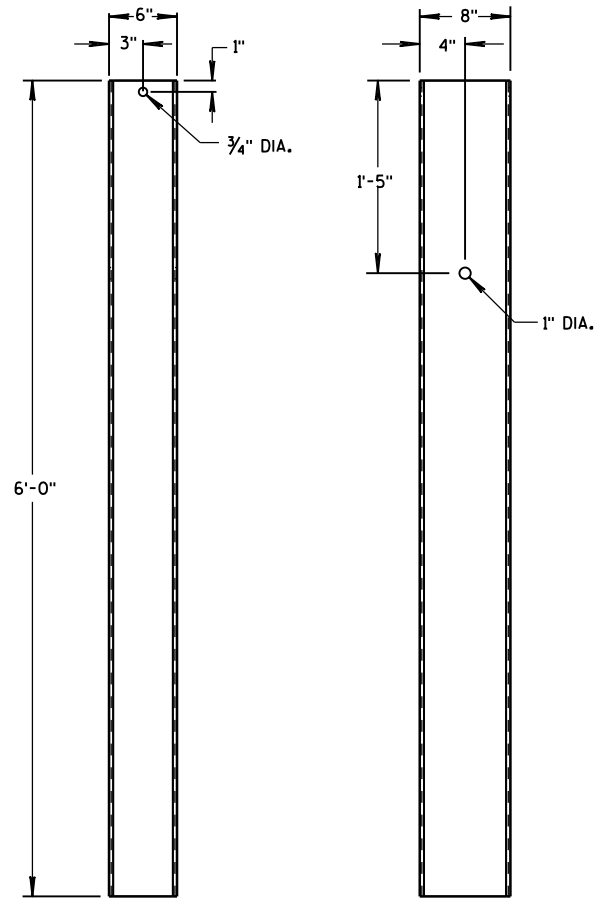
STATE OF WISCONSIN  
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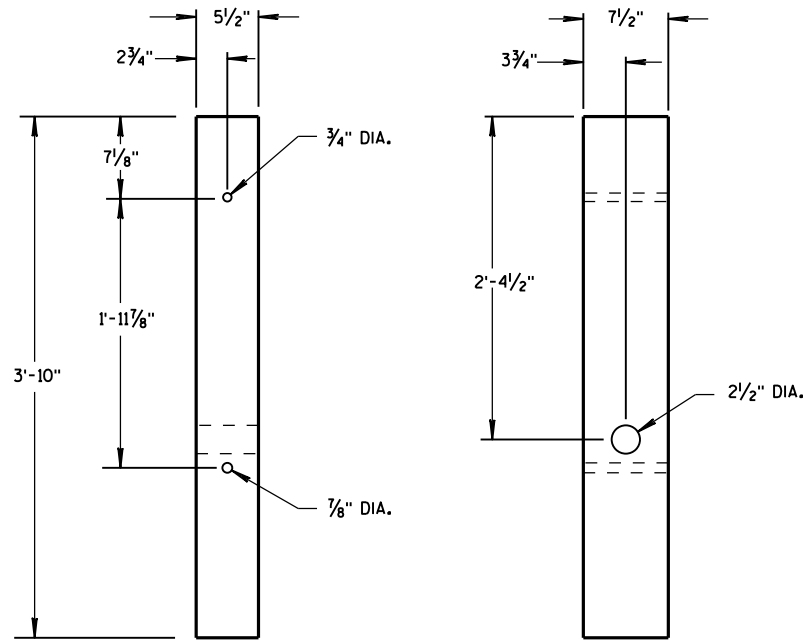
PLAN VIEW



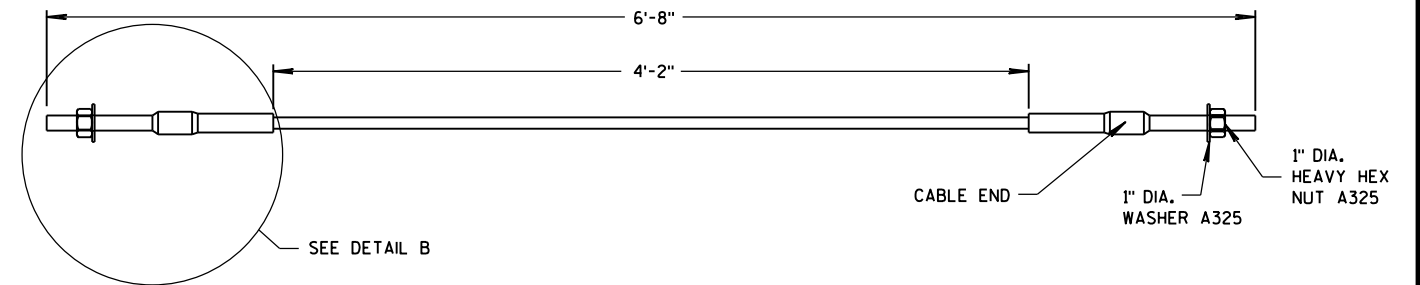
PLAN VIEW



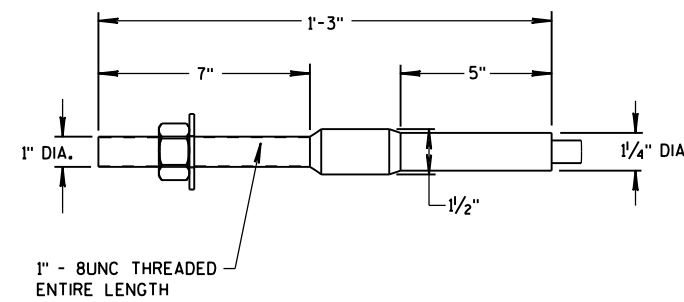
FRONT VIEW SIDE VIEW  
FOUNDATION TUBE



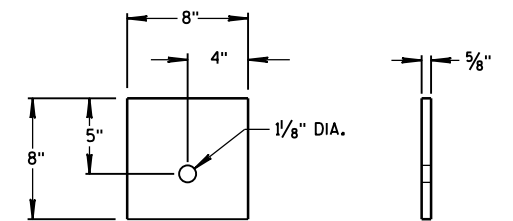
FRONT VIEW SIDE VIEW  
BREAKAWAY WOOD POST



BCT ANCHOR CABLE



DETAIL B



SIDE VIEW FRONT VIEW  
ANCHOR CABLE BEARING PLATE

**GENERAL NOTES**

BCT ANCHOR CABLE IS A 3/8" 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.

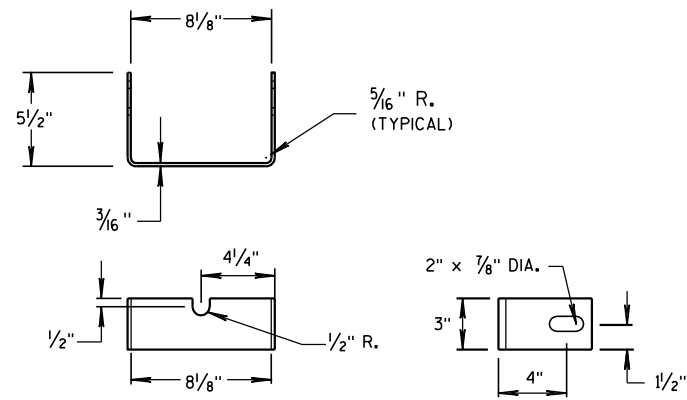
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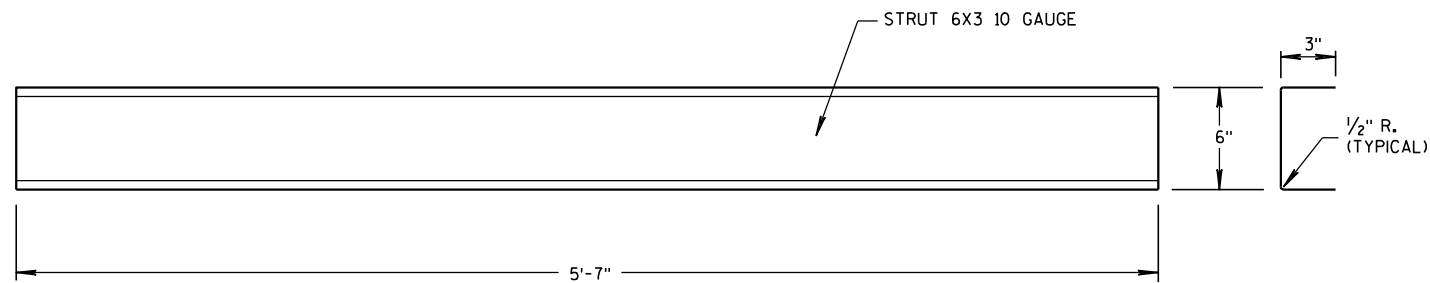
S.D.D. 14 B 47-1b

S.D.D. 14 B 47-1b

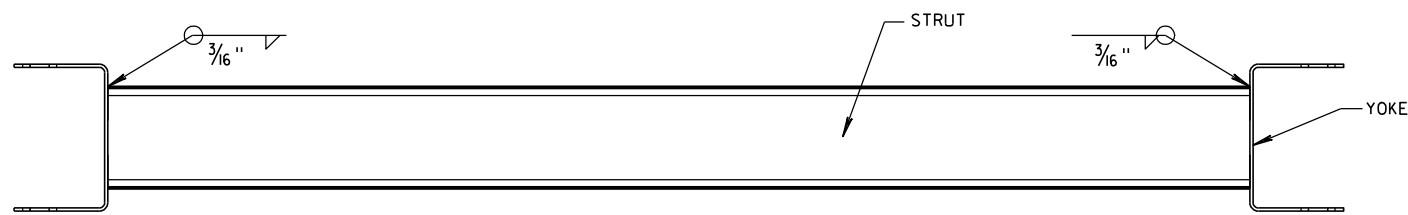
MIDWEST GUARDRAIL  
SYSTEM (MGS) TYPE 2 TERMINAL  
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



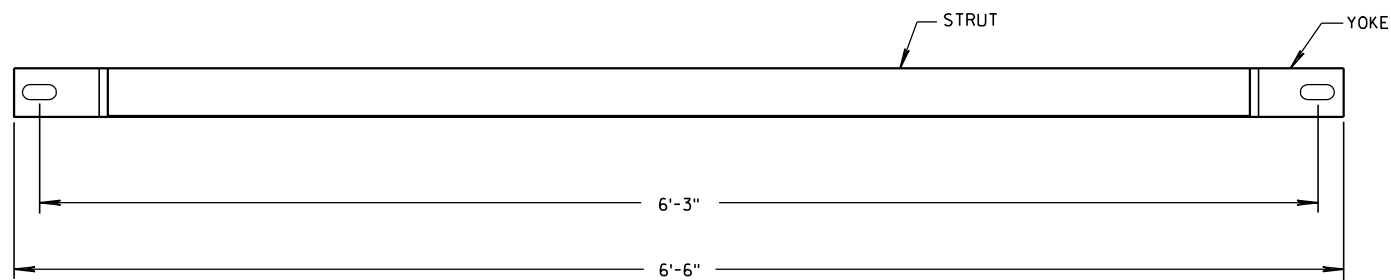
**YOKE DETAIL**



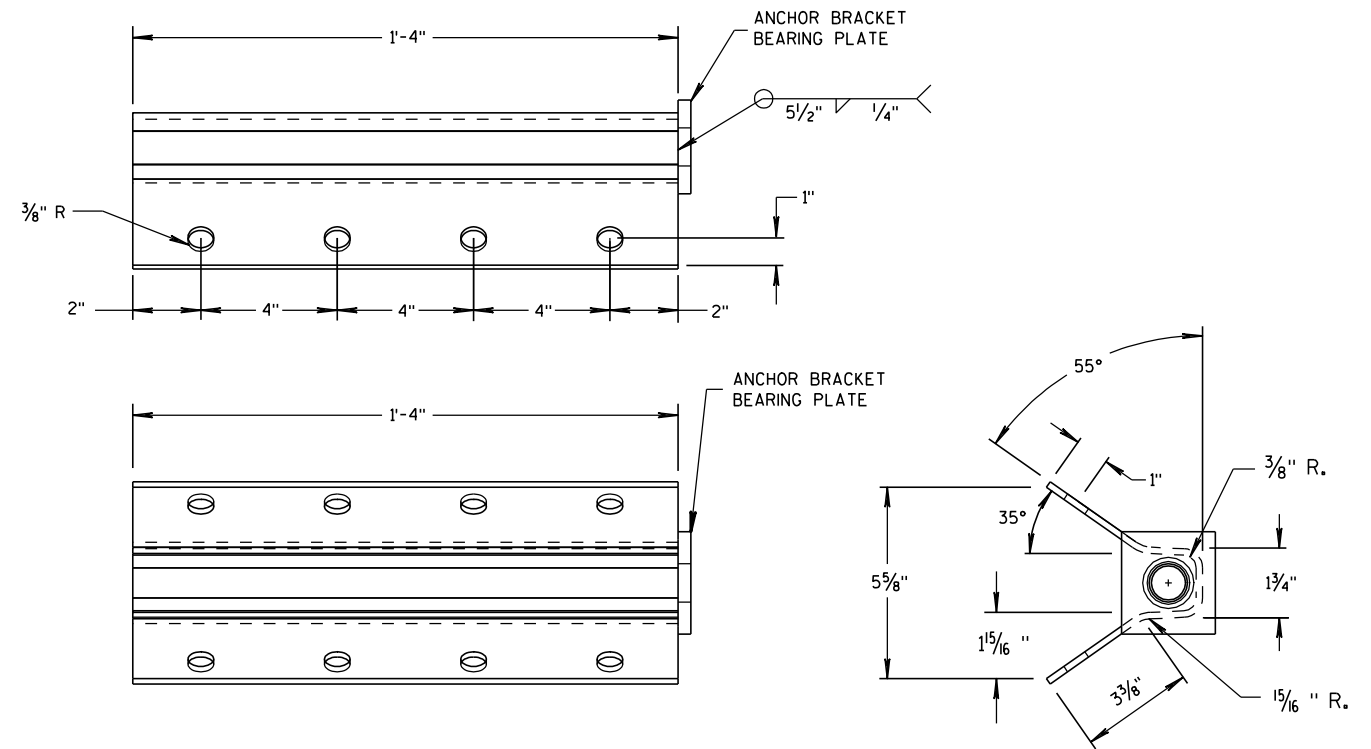
**STRUT DETAIL**



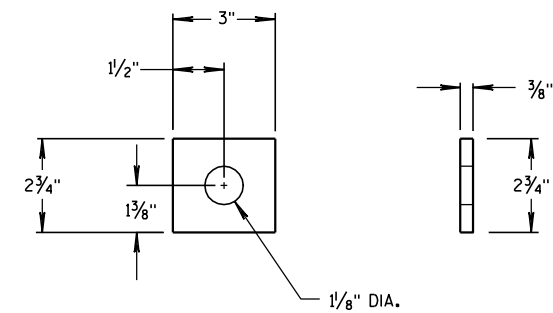
**PLAN VIEW**



**FRONT VIEW  
GROUND STRUT DETAIL**

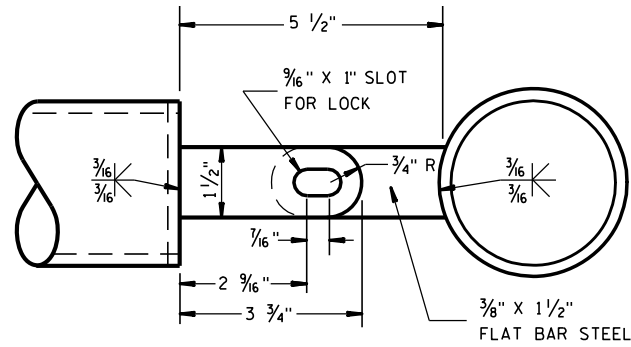


**ANCHOR BRACKET**

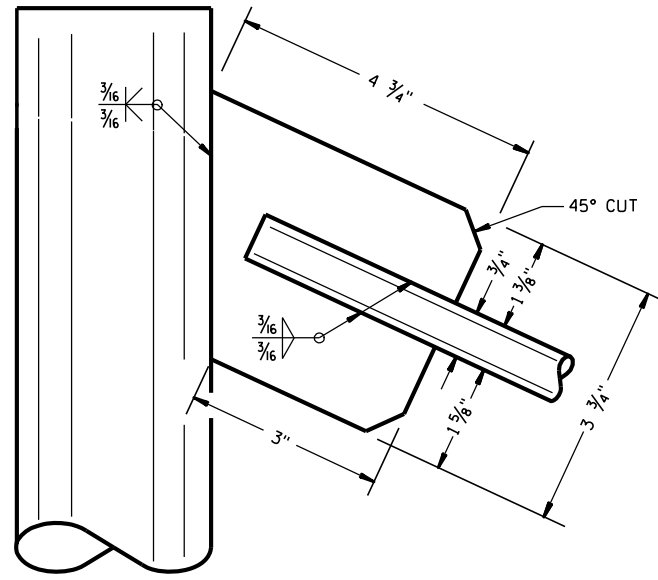


**ANCHOR BRACKET  
BEARING PLATE**

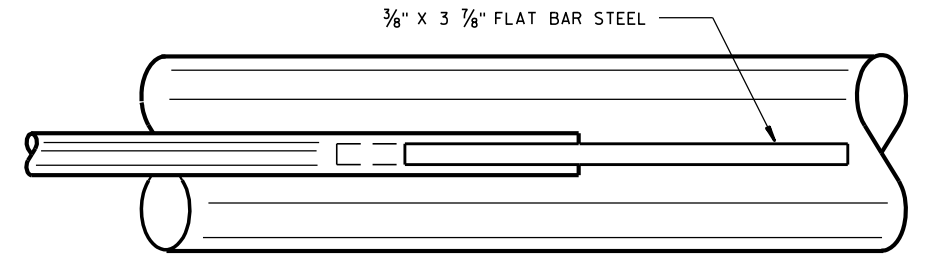
<b>MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5/23/2011 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



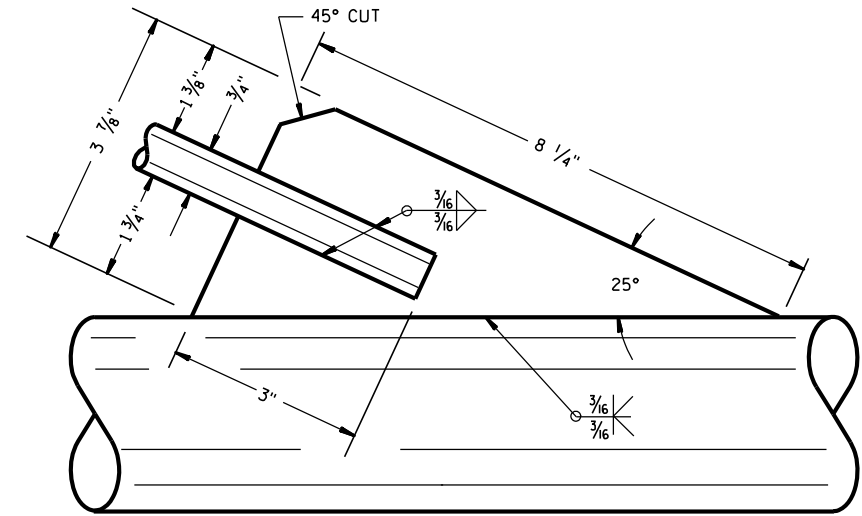
PLAN VIEW  
DETAIL A



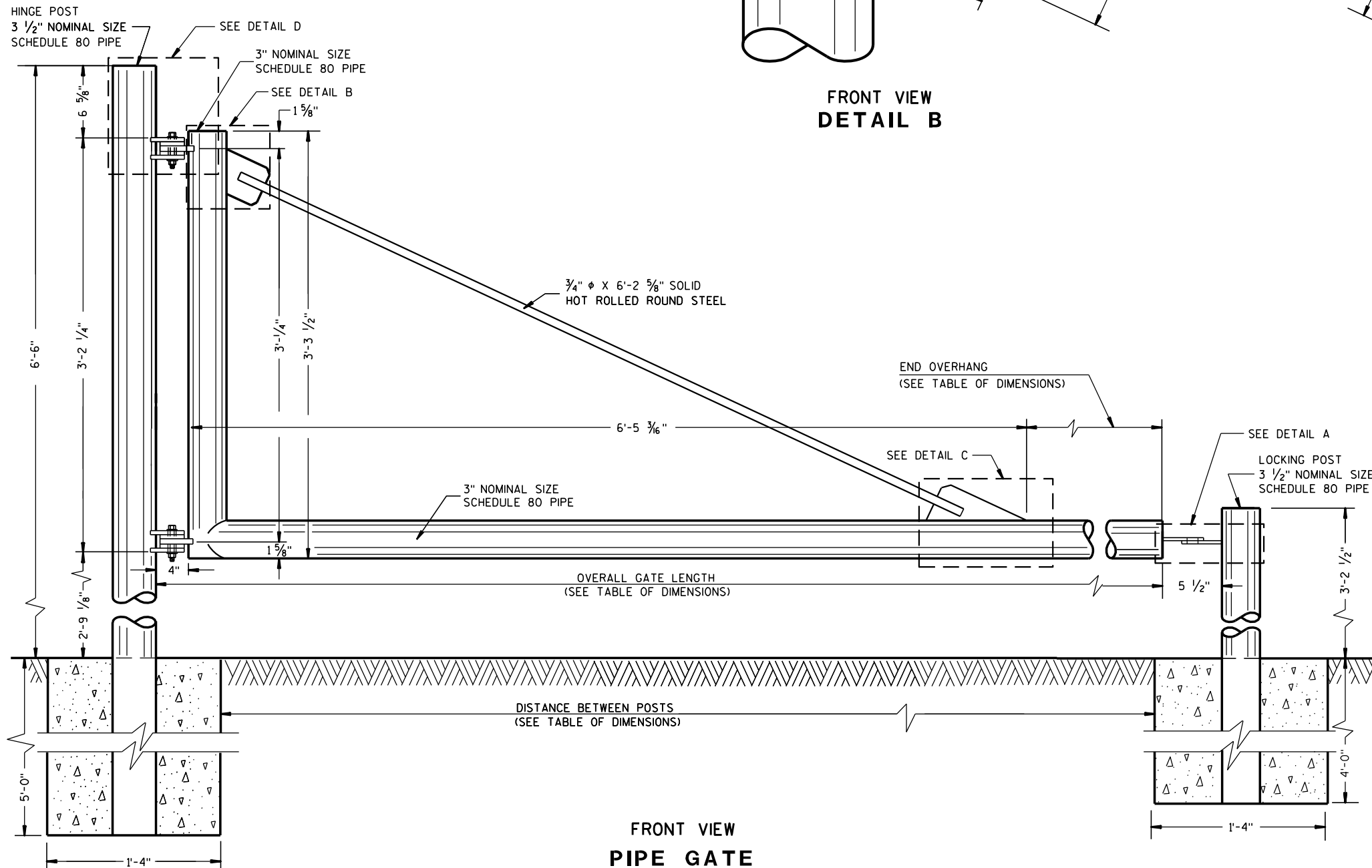
FRONT VIEW  
DETAIL B



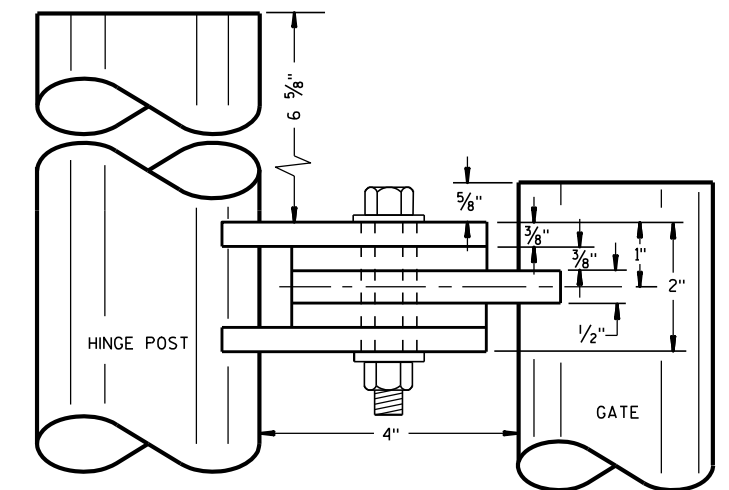
PLAN VIEW



FRONT VIEW  
DETAIL C



FRONT VIEW  
PIPE GATE

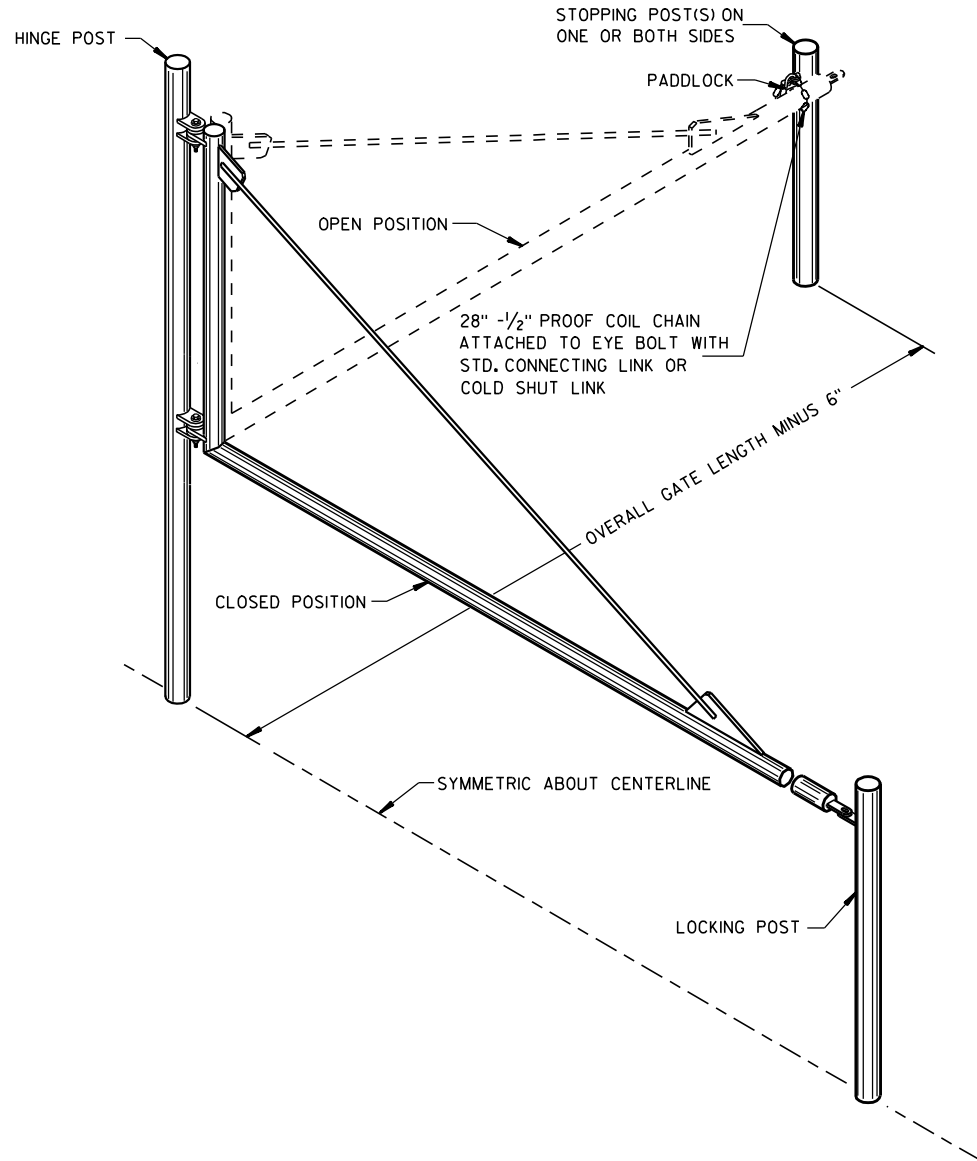


FRONT VIEW  
DETAIL D

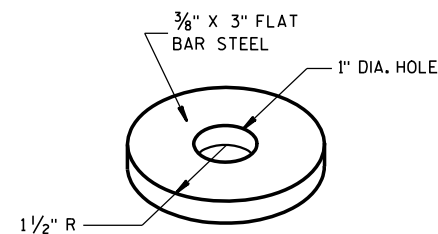
PIPE GATE DETAILS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

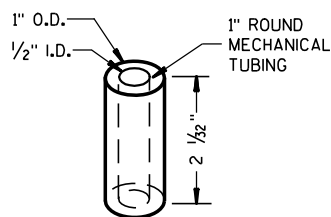




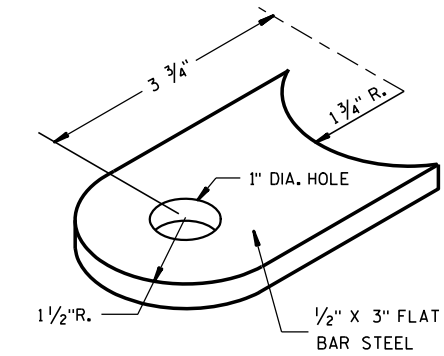
ISOMETRIC VIEW  
PIPE GATE PARTIAL LAYOUT (ONE SIDE ONLY)



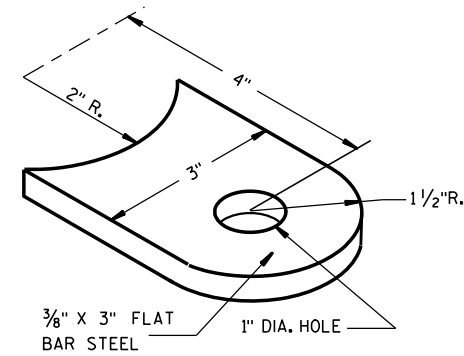
ISOMETRIC VIEW  
SPACING RING  
4 REQUIRED



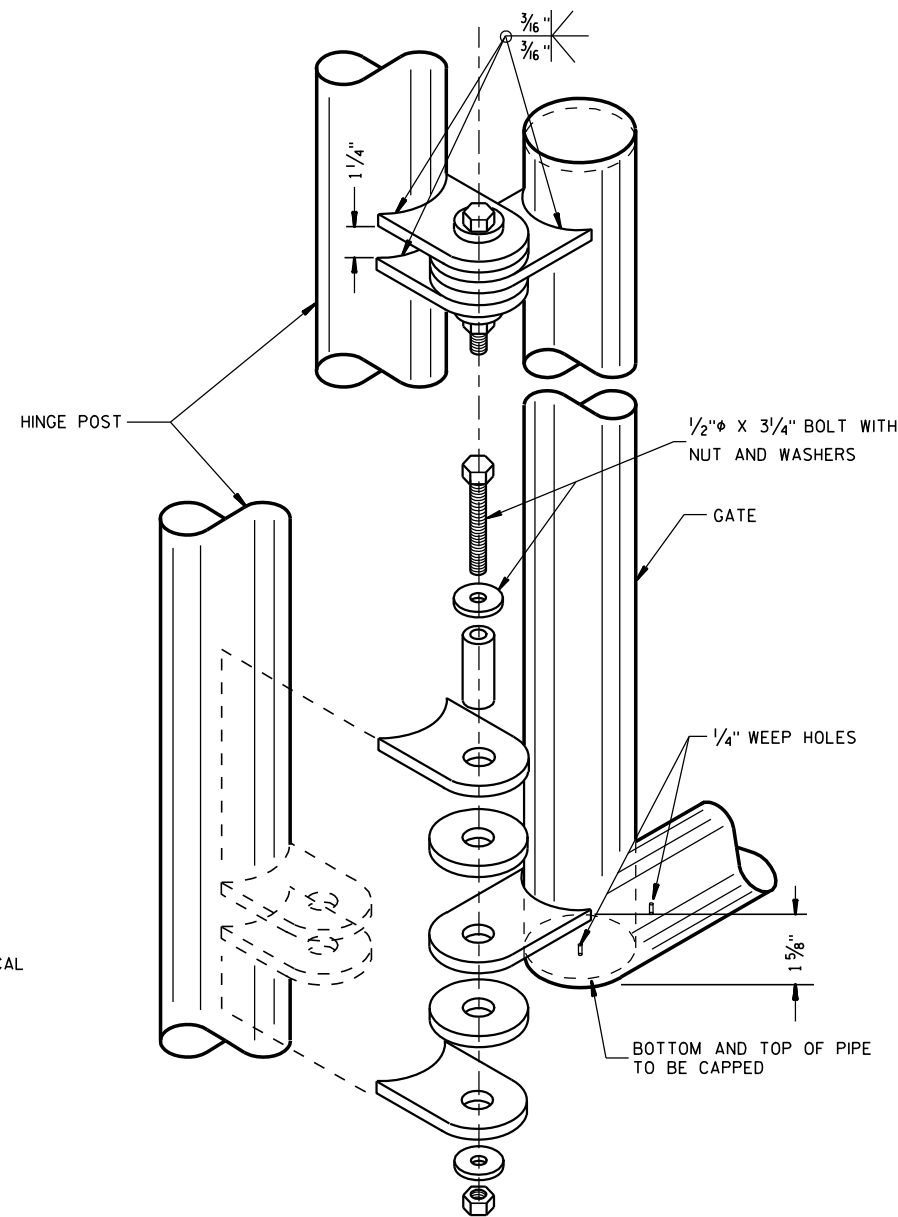
ISOMETRIC VIEW  
SLEEVE  
2 REQUIRED



ISOMETRIC VIEW  
SWING ARM BRACKET  
2 REQUIRED



ISOMETRIC VIEW  
POST BRACKET  
4 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 3/8", VERTICAL CLEARANCE OF 1 1/2", HORIZONTAL CLEARANCE OF 1 1/2".
- 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 1/4"	10'-7 1/4"	9'-9 3/4"
12'-0"	5'-5 1/4"	12'-7 1/4"	11'-9 3/4"

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 1/4"	14'-7"	7'-3/4"
16'-0"	1'- 3 1/4"	16'-7"	8'-3/4"
18'-0"	2'- 3 1/4"	18'-7"	9'-3/4"

**DESIGN NOTE:**

GATE SIZE SHALL BE SPECIFIED AS THE CLEAR WIDTH OF OPENING.

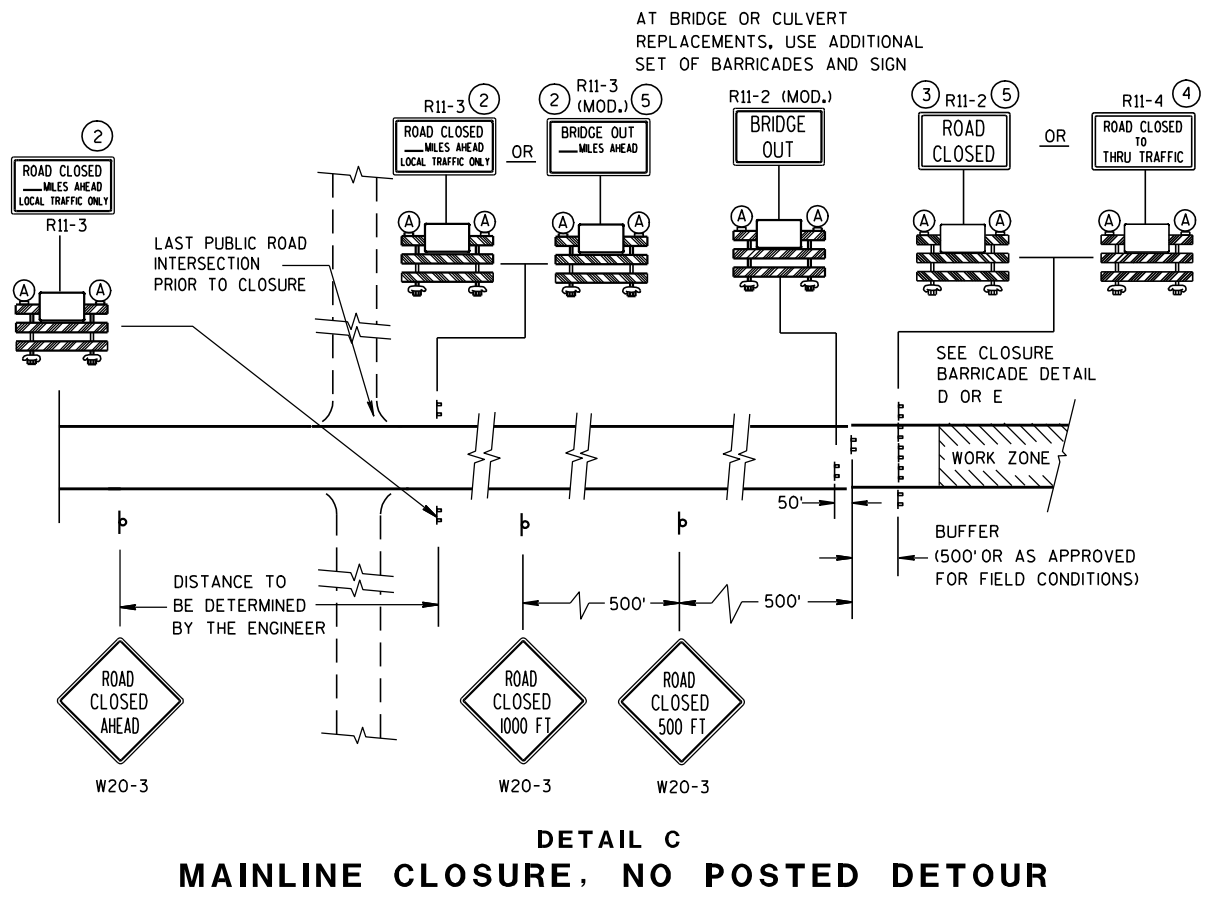
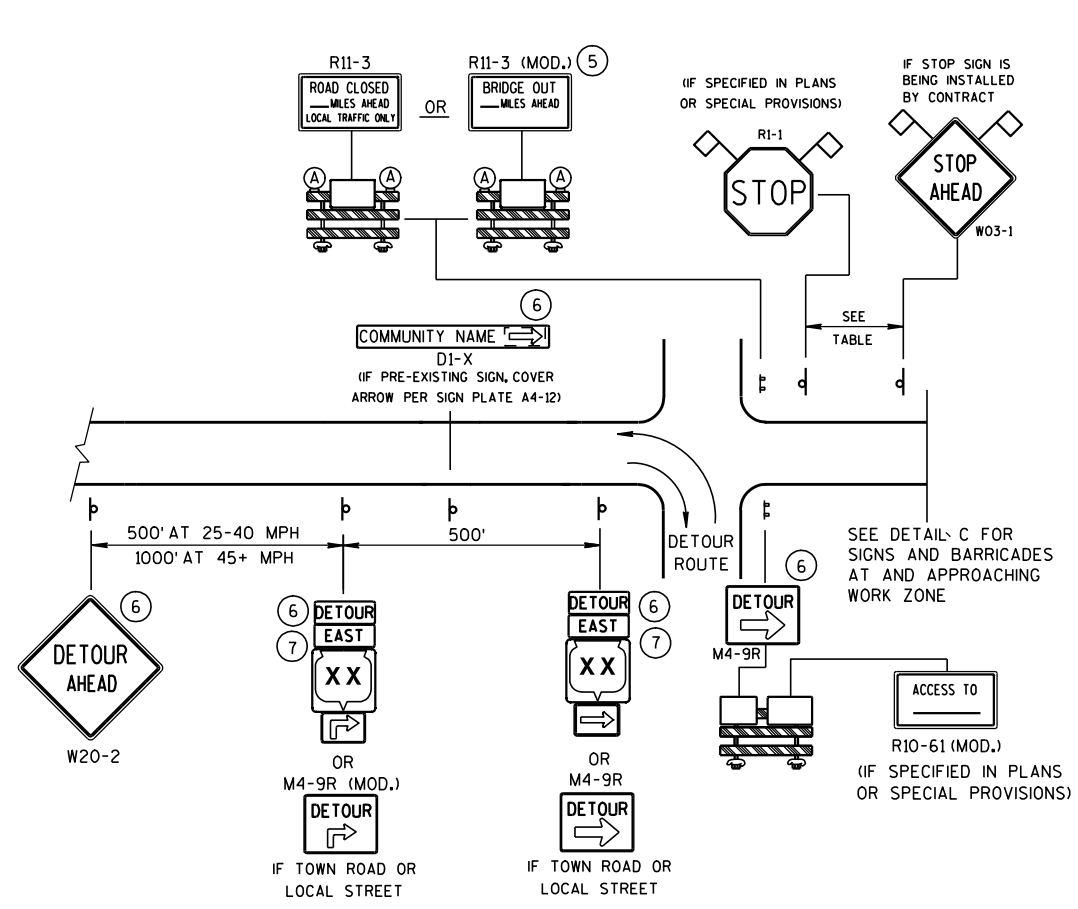
**PIPE GATE DETAILS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

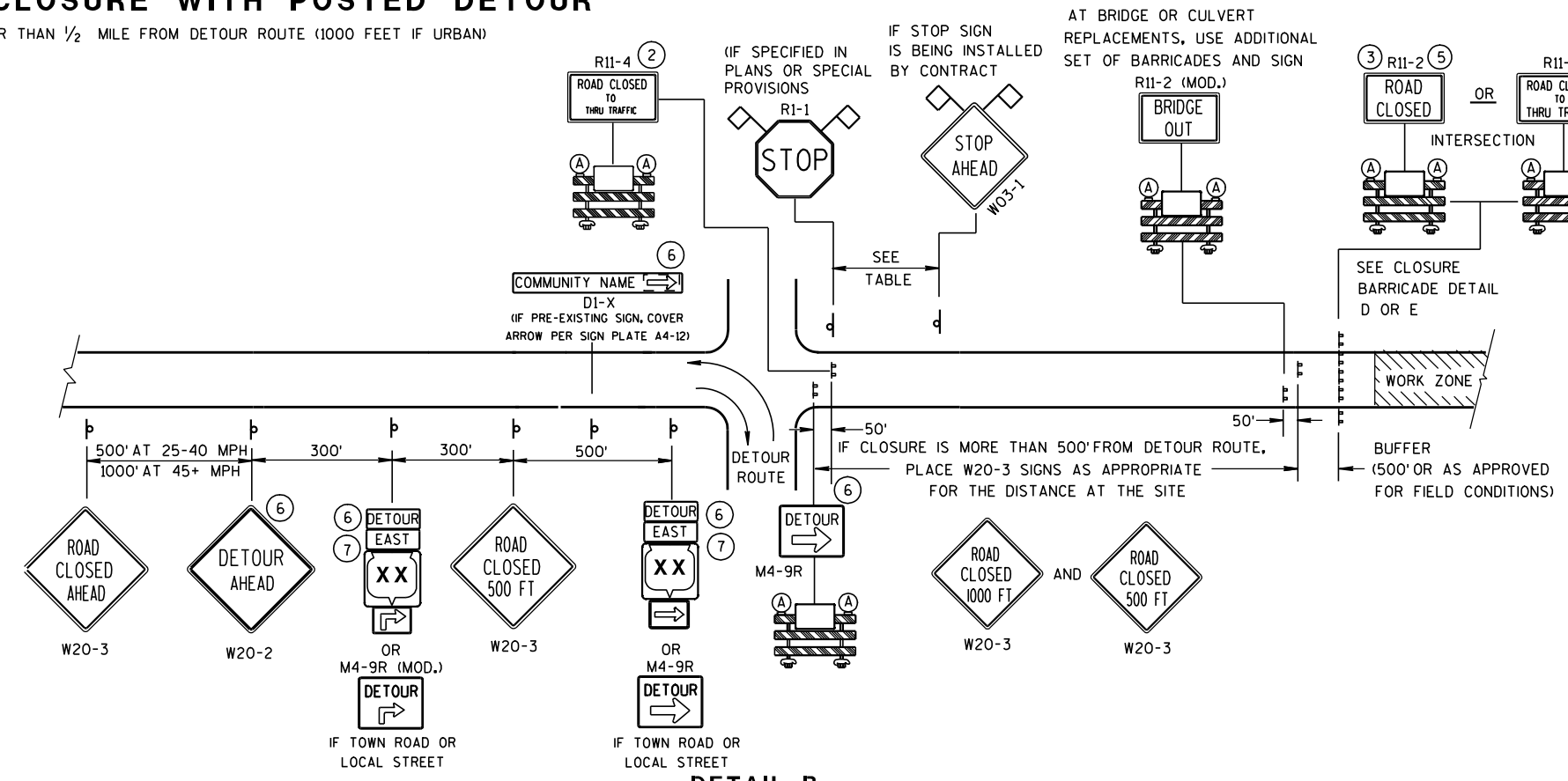
1/5/94 /S/ Rory L. Rhinesmith  
DATE CHIEF METHODS DEVELOPMENT ENGINEER

FHWA



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

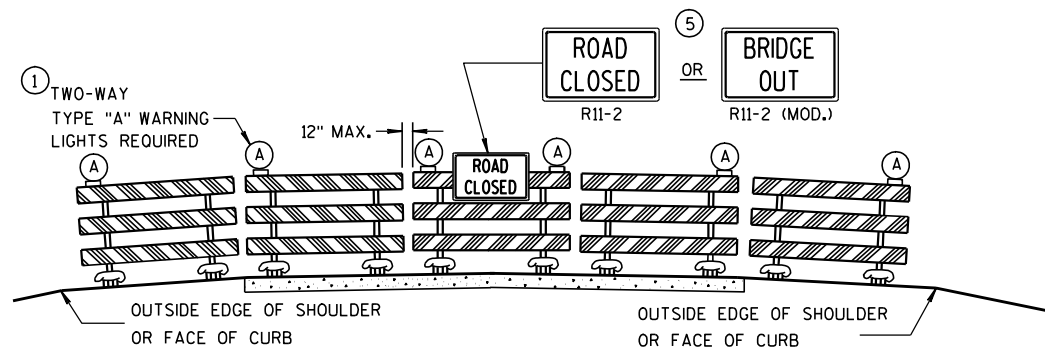


**LEGEND**

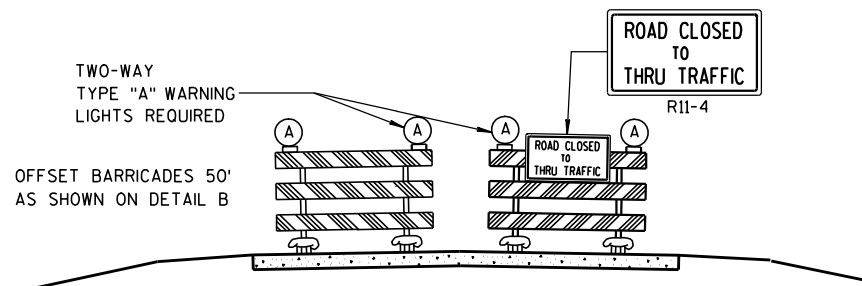
- ▬ POST MOUNTED SIGN
- ▬ TYPE III BARRICADES
- Ⓐ TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- ▨ WORK ZONE
- DETOUR EAST M4-8 M3-X
- MI-4 OR COUNTY MI-5A OR MI-6
- M05-1 OR M06-1
- ◇ FLAGS, 16" X 16" MIN., (ORANGE)

**BARRICADES AND SIGNS FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION



**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.

<b>BARRICADES AND SIGNS FOR MAINLINE CLOSURES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
9/16/03 DATE	/S/ Thomas N. Notbohm CHIEF SIGNS AND MARKING ENGINEER
FHWA	

**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.

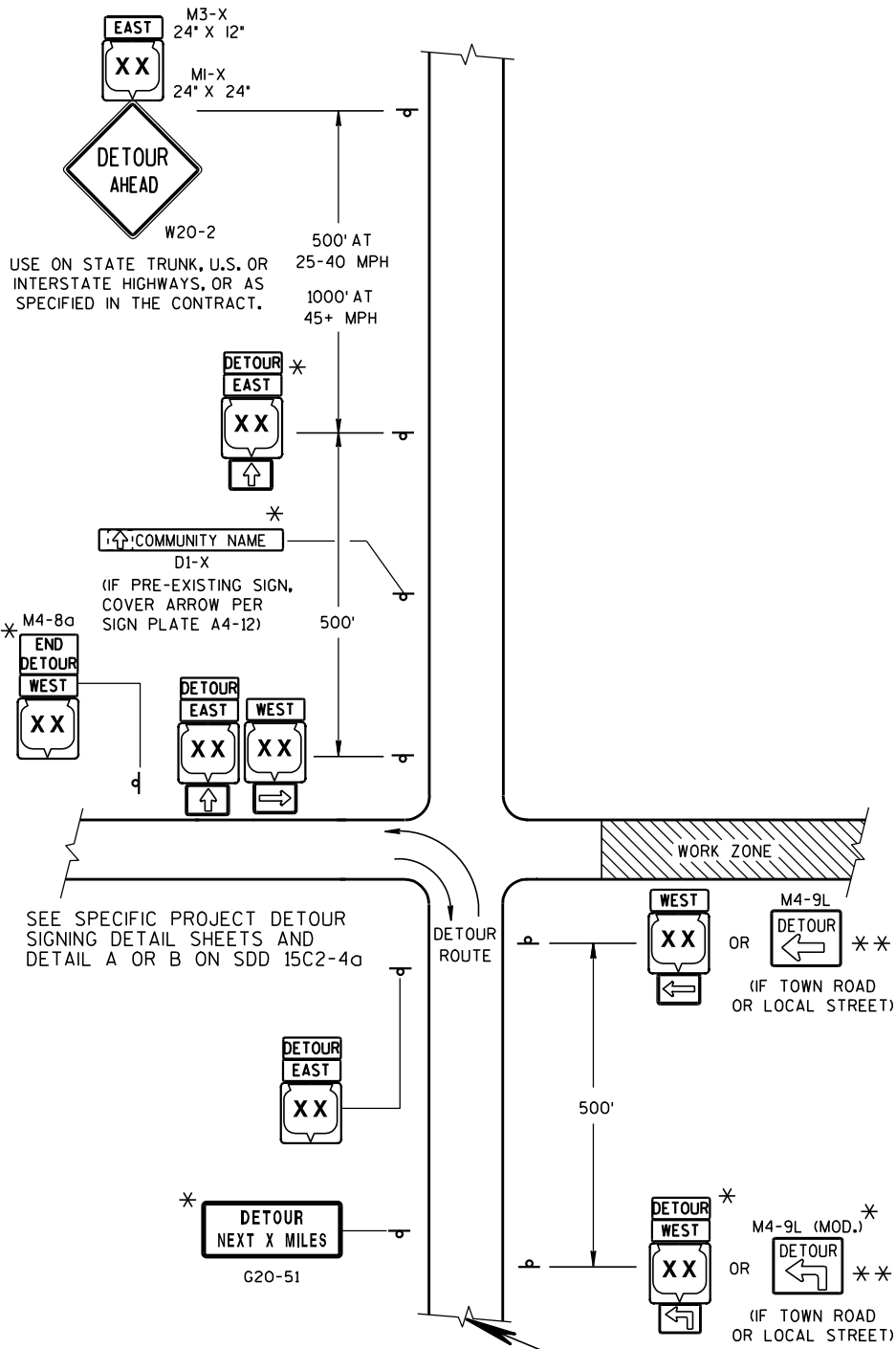
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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.



SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD 15C2-4a

**LEGEND**

⌋ POST MOUNTED SIGN

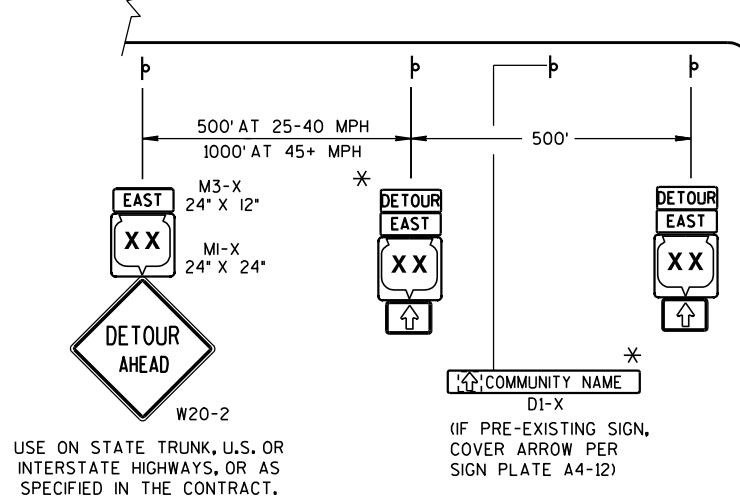
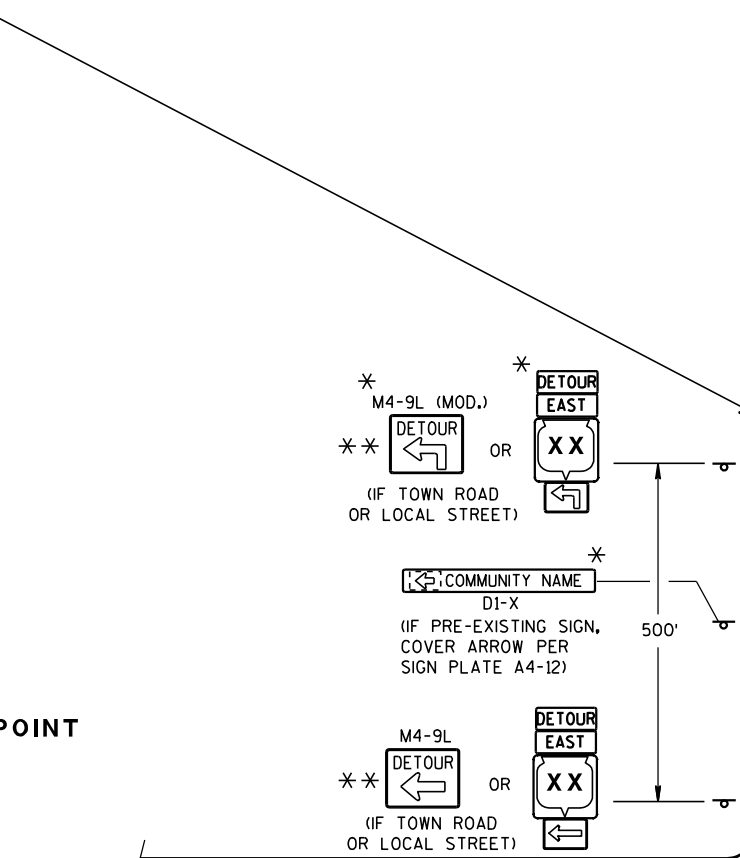
▨ WORK ZONE

DETOUR EAST M4-8  
M3-X

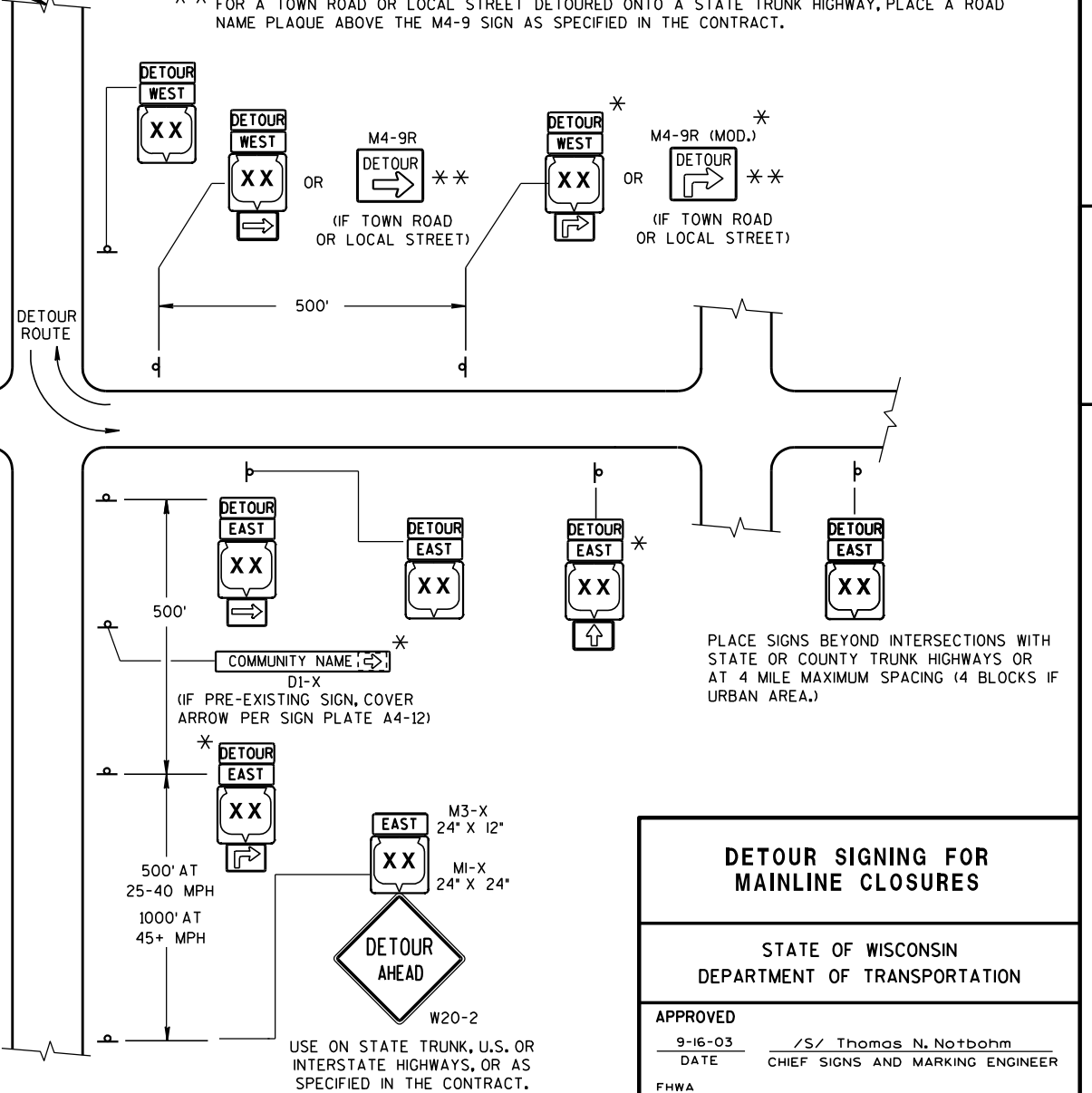
XX OR XX OR XX  
M1-4 M1-5A M1-6

OR OR OR  
M05-1 M06-1 M06-1

**MATCH POINT**



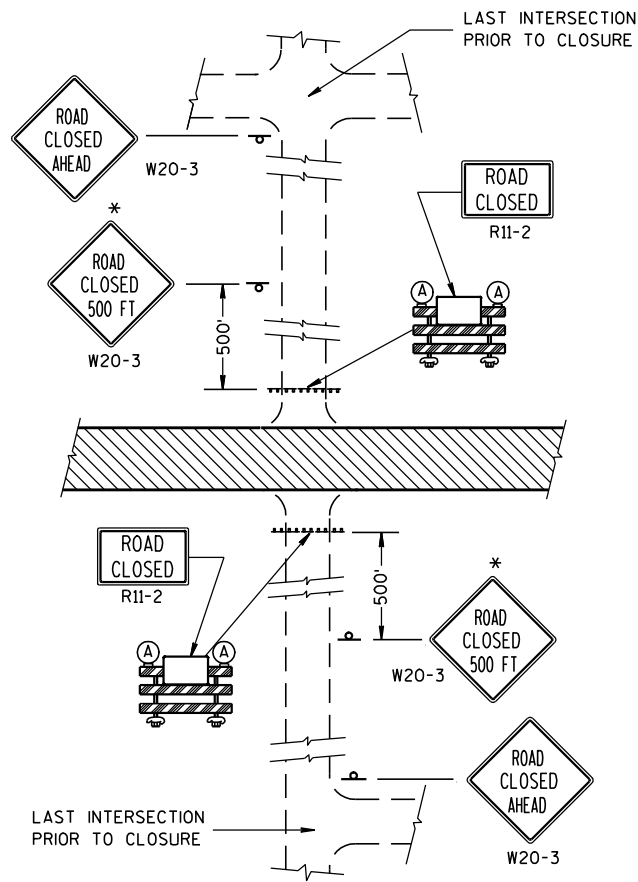
**DETAIL F  
DETOUR SIGNING**



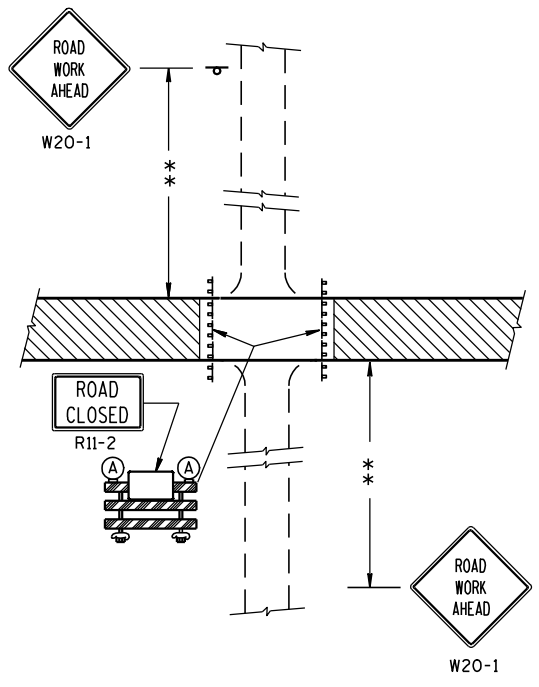
**DETOUR SIGNING FOR  
MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

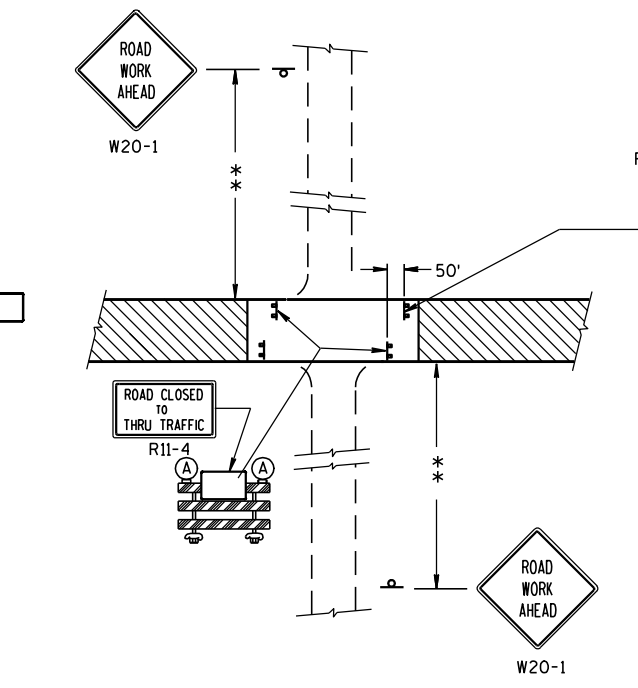
APPROVED  
9-16-03 /S/ Thomas N. Notbohm  
DATE CHIEF SIGNS AND MARKING ENGINEER  
FHWA



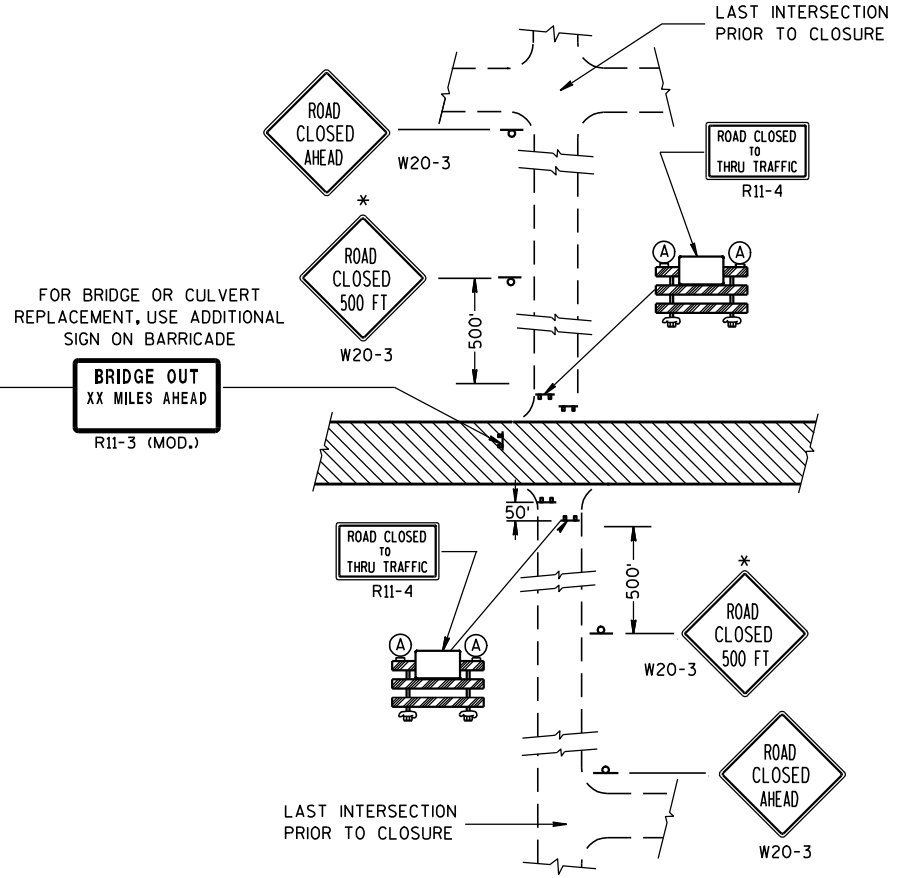
**DETAIL 1**  
(NO ACCESS TO PROJECT)



**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**

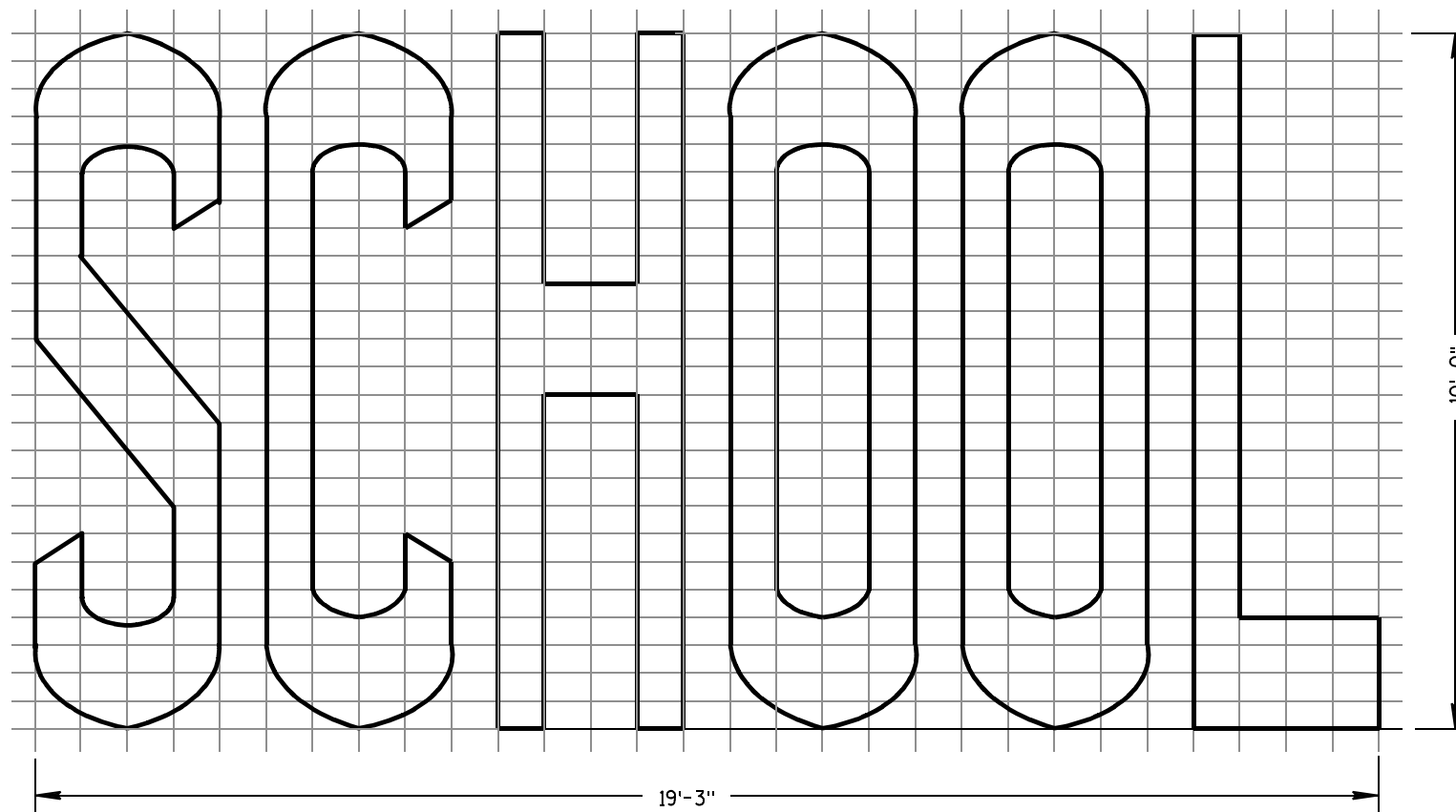
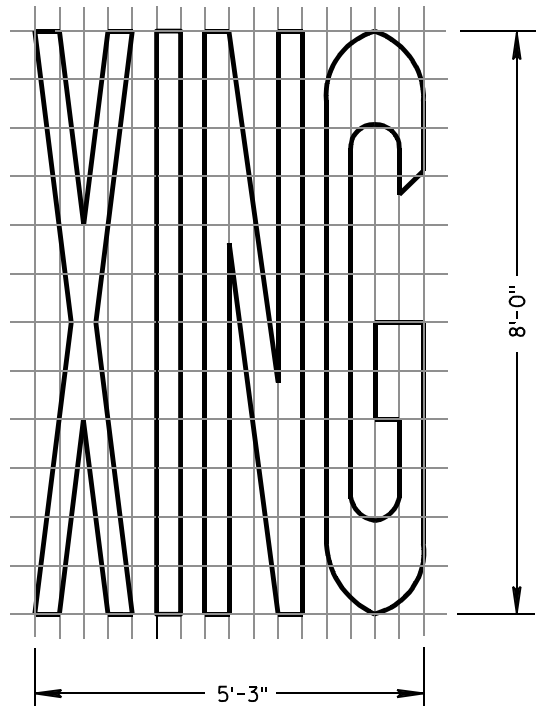
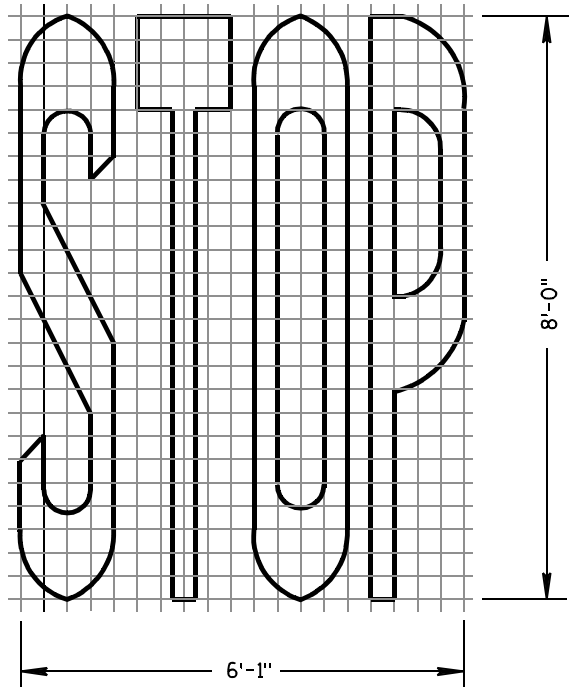
- ⊥ POST MOUNTED WARNING SIGN
- ⊥ TYPE III BARRICADES
- Ⓐ TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- ▨ WORK AREA

<b>BARRICADES AND SIGNS FOR SIDEROAD CLOSURES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
9-16-03 DATE	/S/ Thomas N. Notbohm CHIEF SIGNS AND MARKING ENGINEER
FHWA	

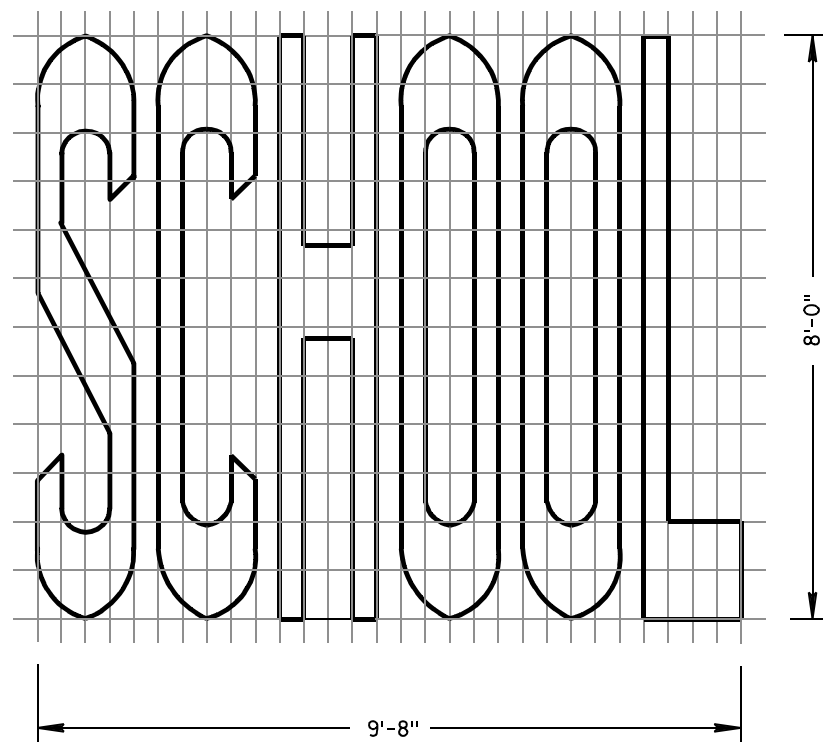
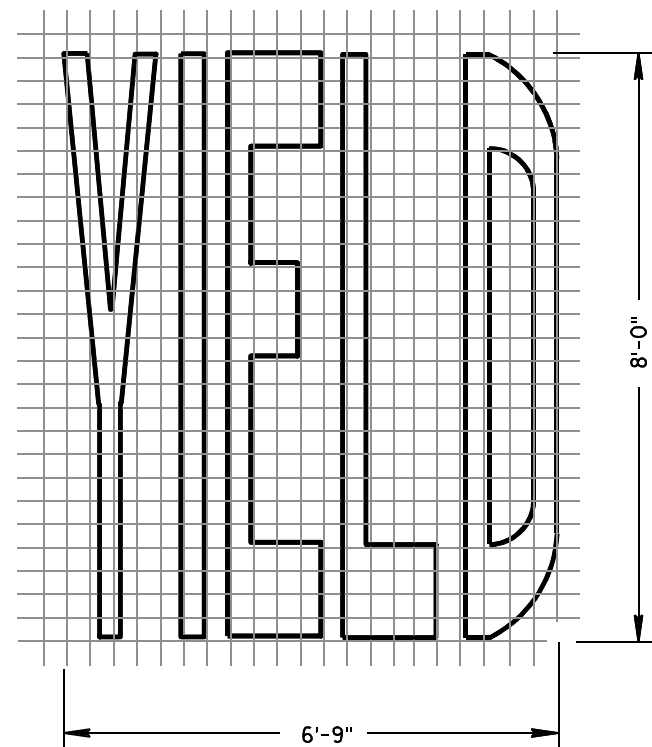
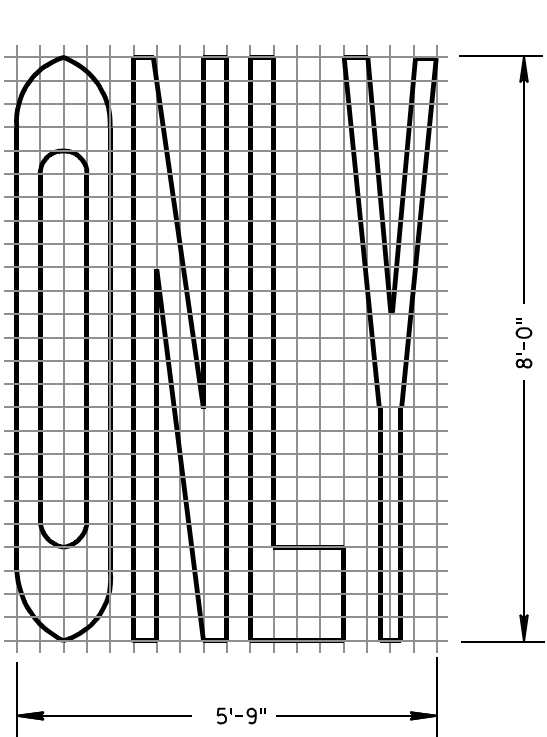
**GENERAL NOTES**

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.

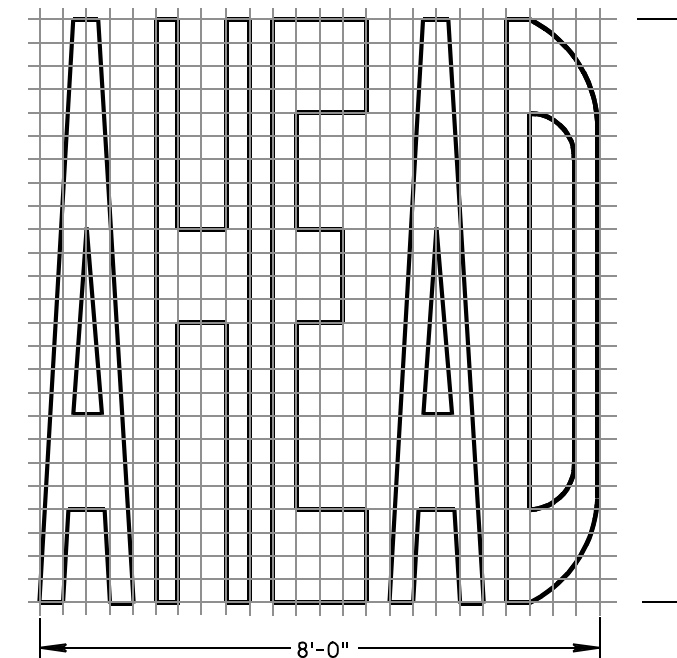
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.



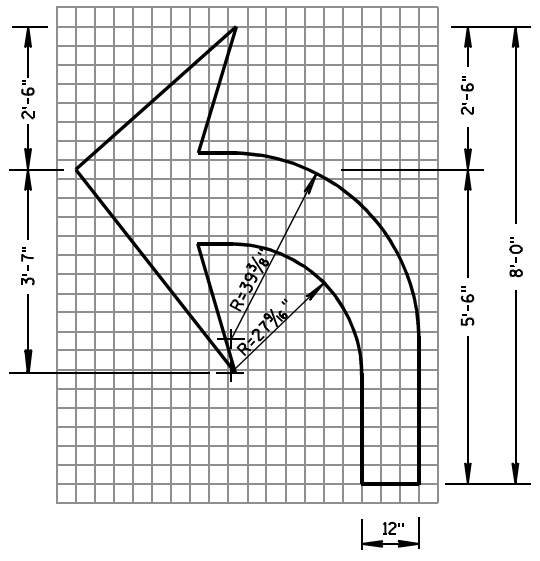
**TWO-LANE**



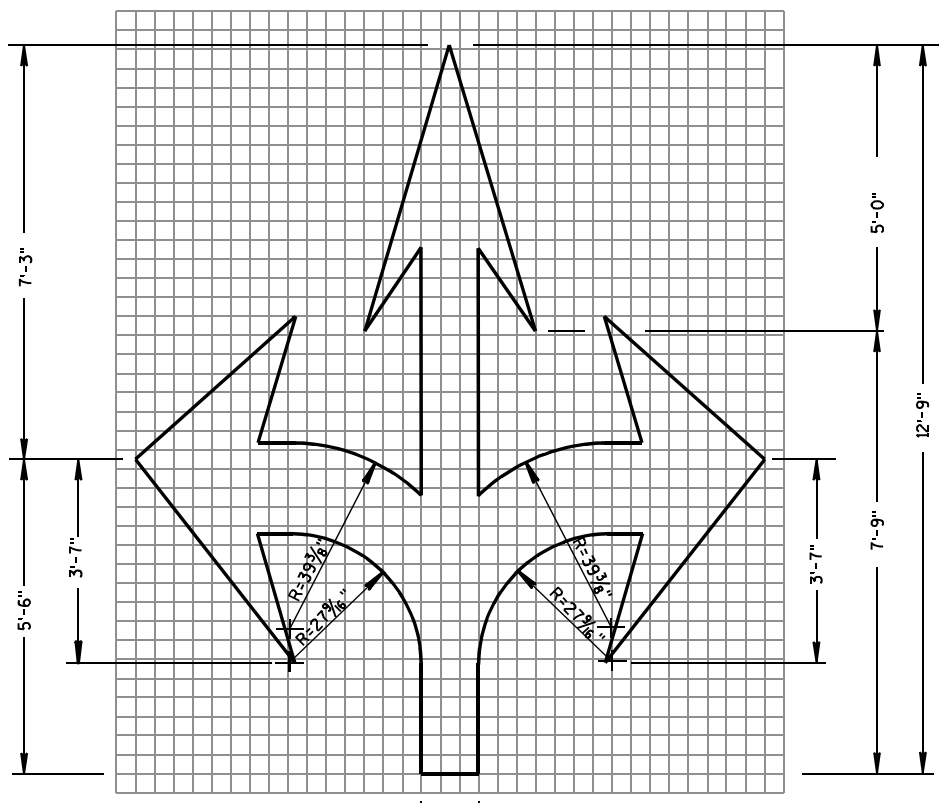
**SINGLE-LANE**



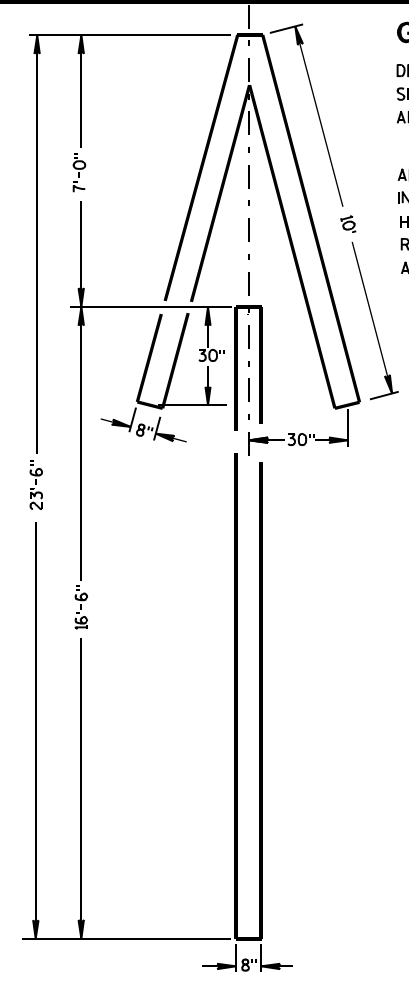
<b>PAVEMENT MARKING WORDS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	/S/ Thomas N. Notbohm
7-1-11 DATE	STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



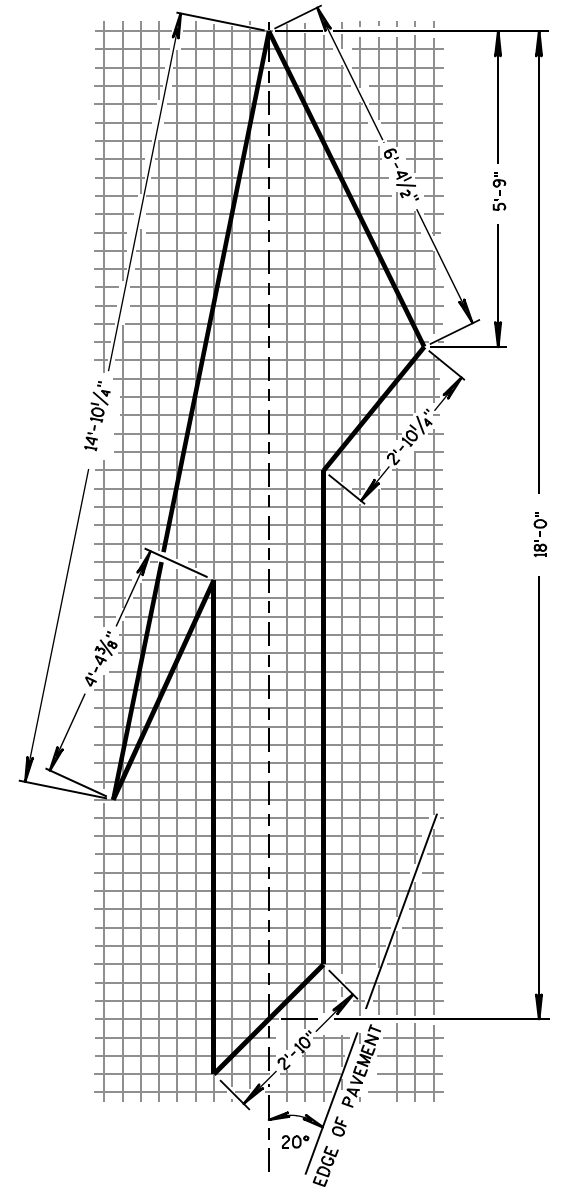
TYPE 2



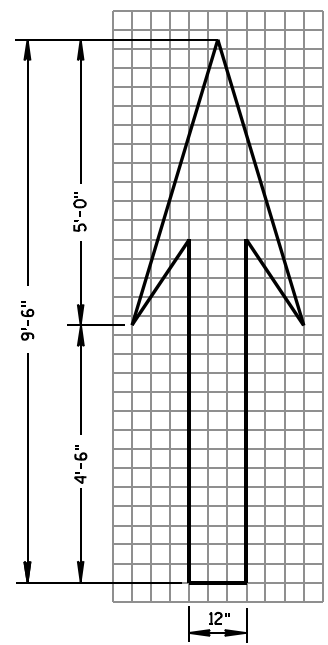
TYPE 6



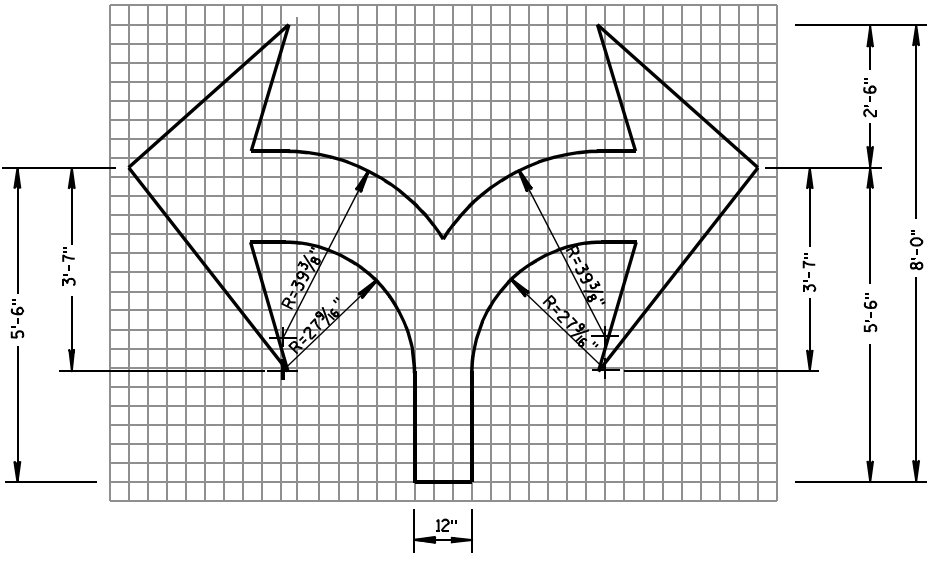
TYPE 4



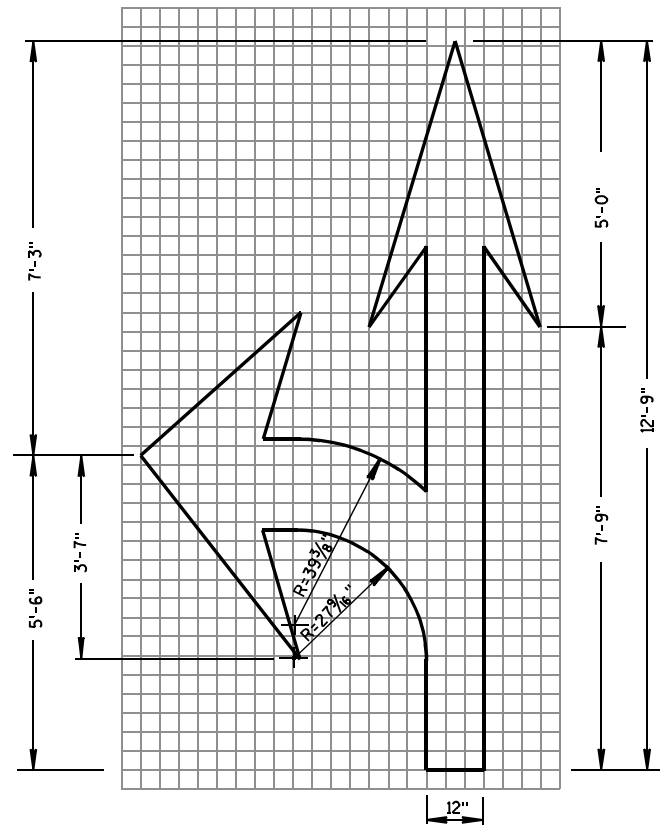
TYPE 5 LANE DROP ARROW



TYPE 1



TYPE 7



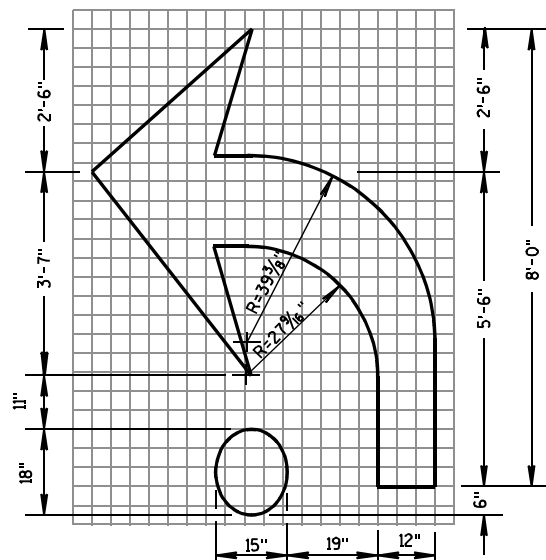
TYPE 3

GENERAL NOTES

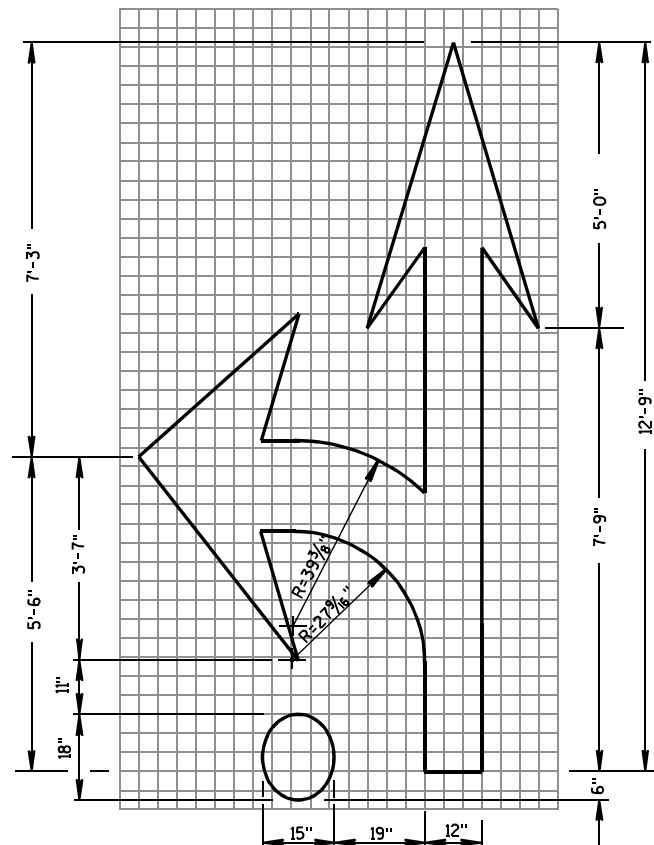
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.

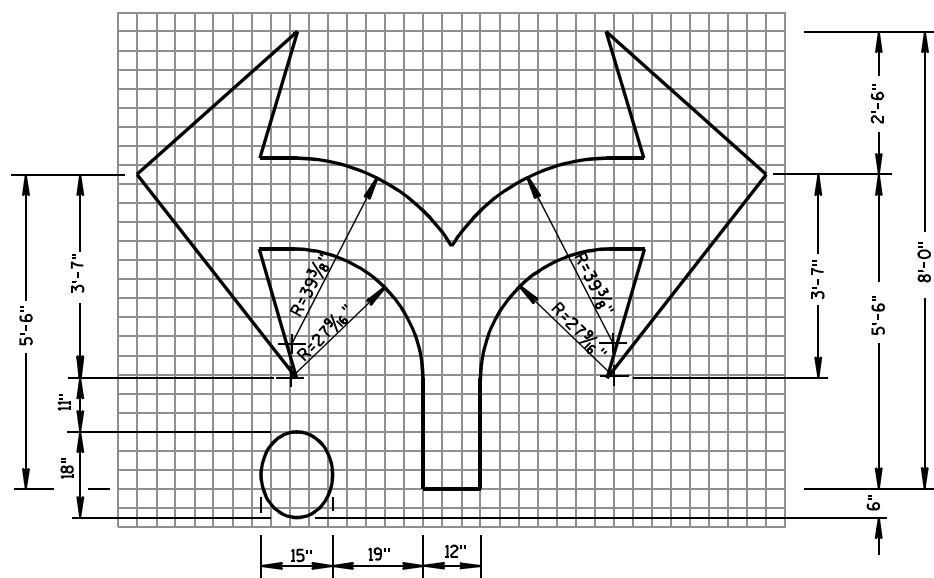
<b>PAVEMENT MARKING ARROWS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	/S/ Thomas N. Notbohm
DATE	7/1/11
STATE TRAFFIC ENGINEER OF DESIGN	
FHWA	



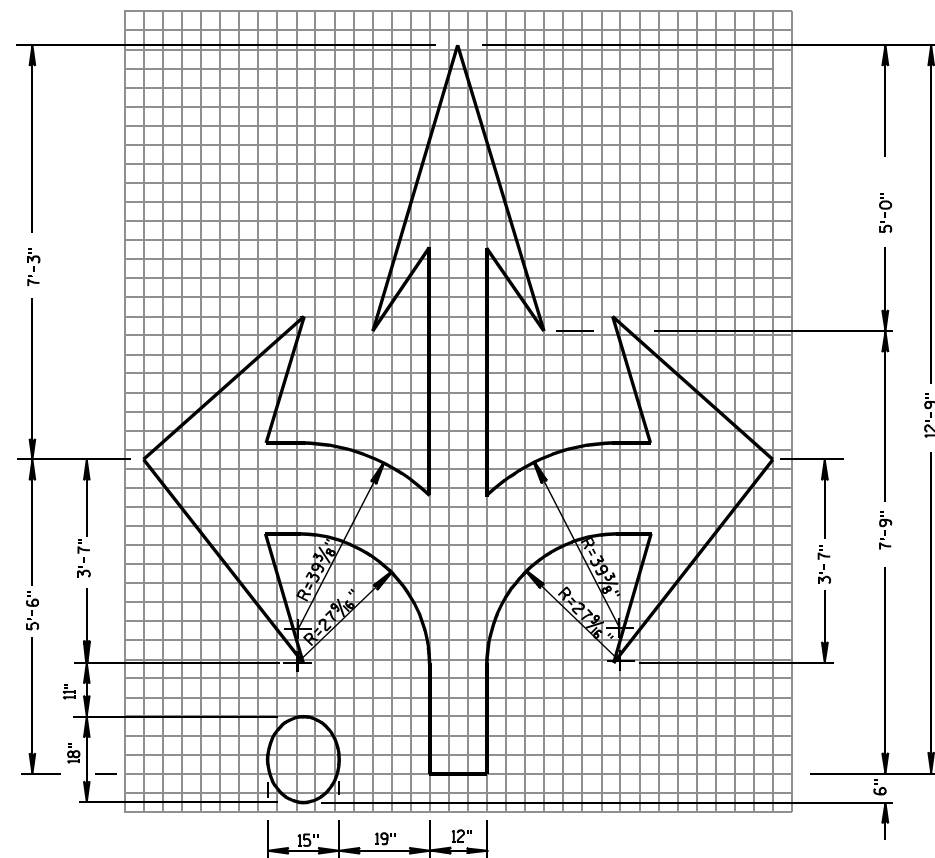
TYPE 2R



TYPE 3R



TYPE 7R



TYPE 6R

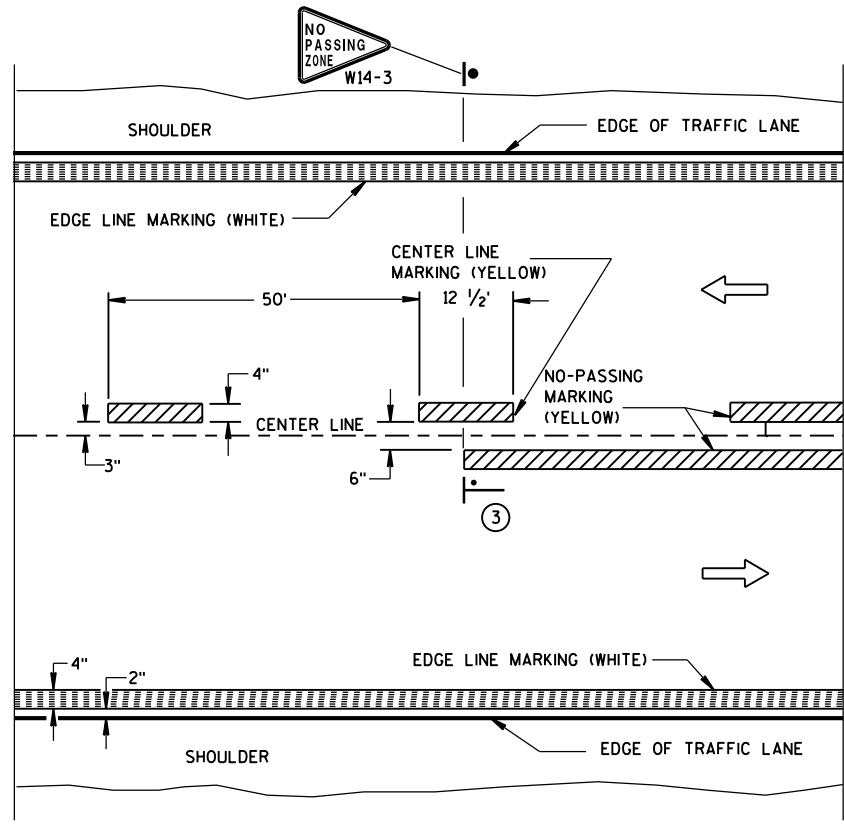
**GENERAL NOTES**

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.

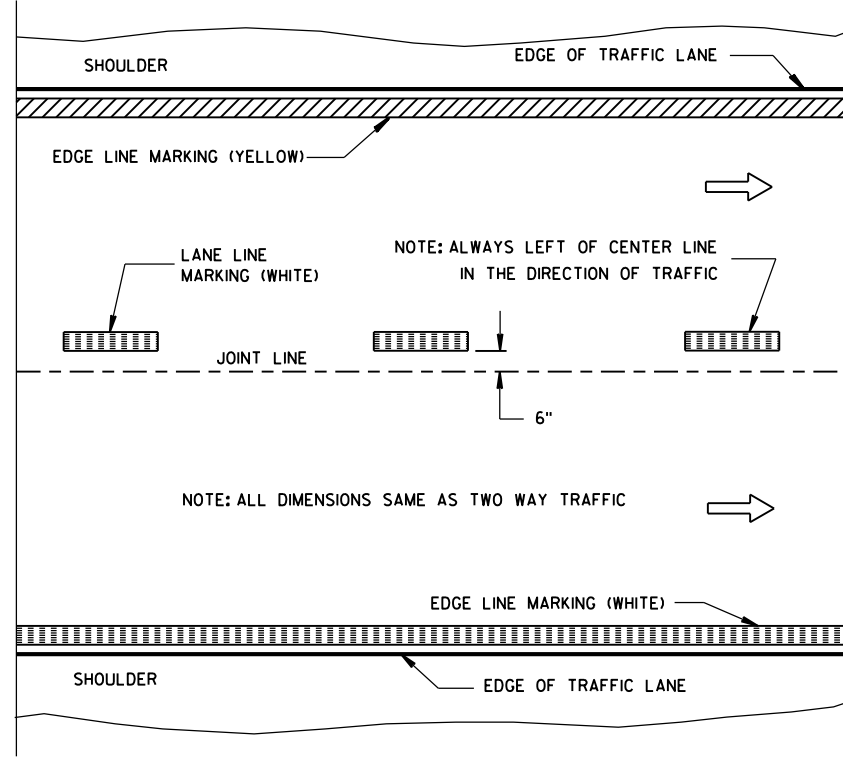
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.

<b>ROUNDABOUT ARROWS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
DATE	/S/ Thomas N. Notbohm STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



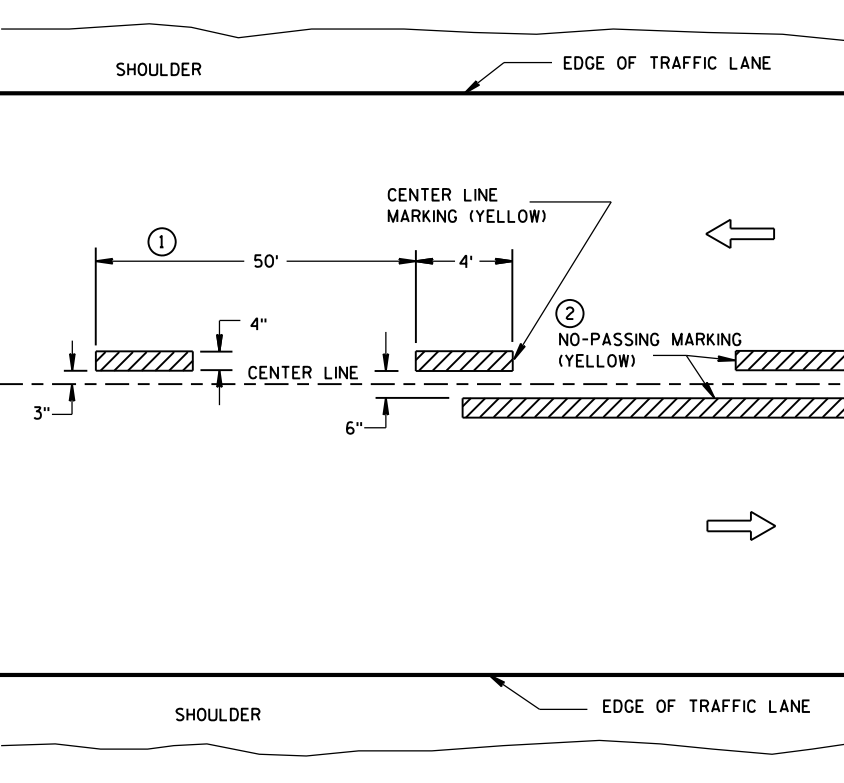


TWO WAY TRAFFIC

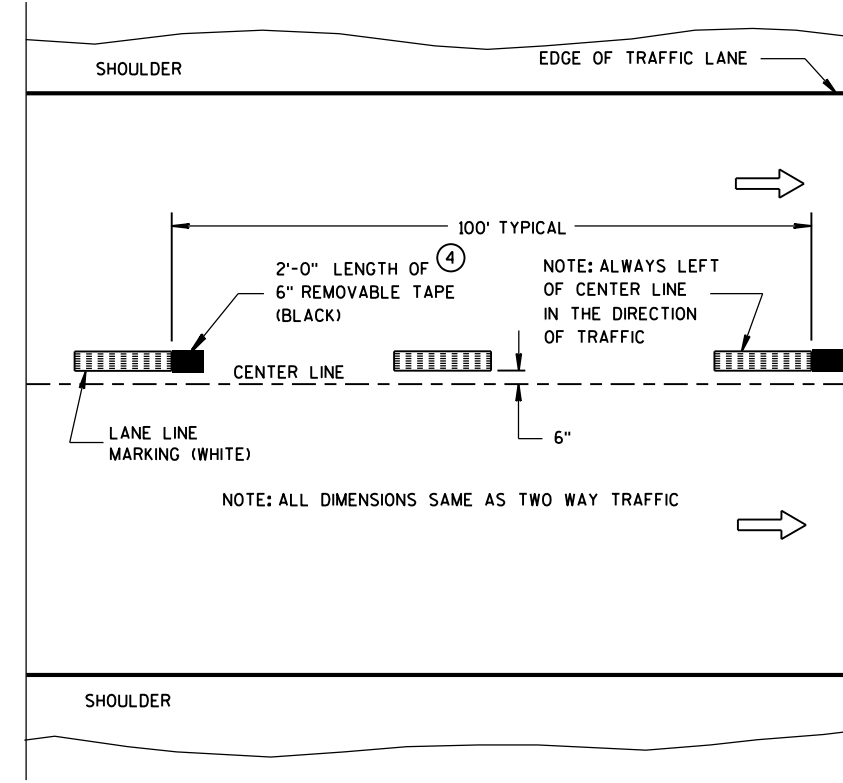


ONE WAY TRAFFIC

**PERMANENT PAVEMENT MARKING**



TWO WAY TRAFFIC



ONE WAY TRAFFIC

**TEMPORARY (INTERMEDIATE) PAVEMENT MARKING**  
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

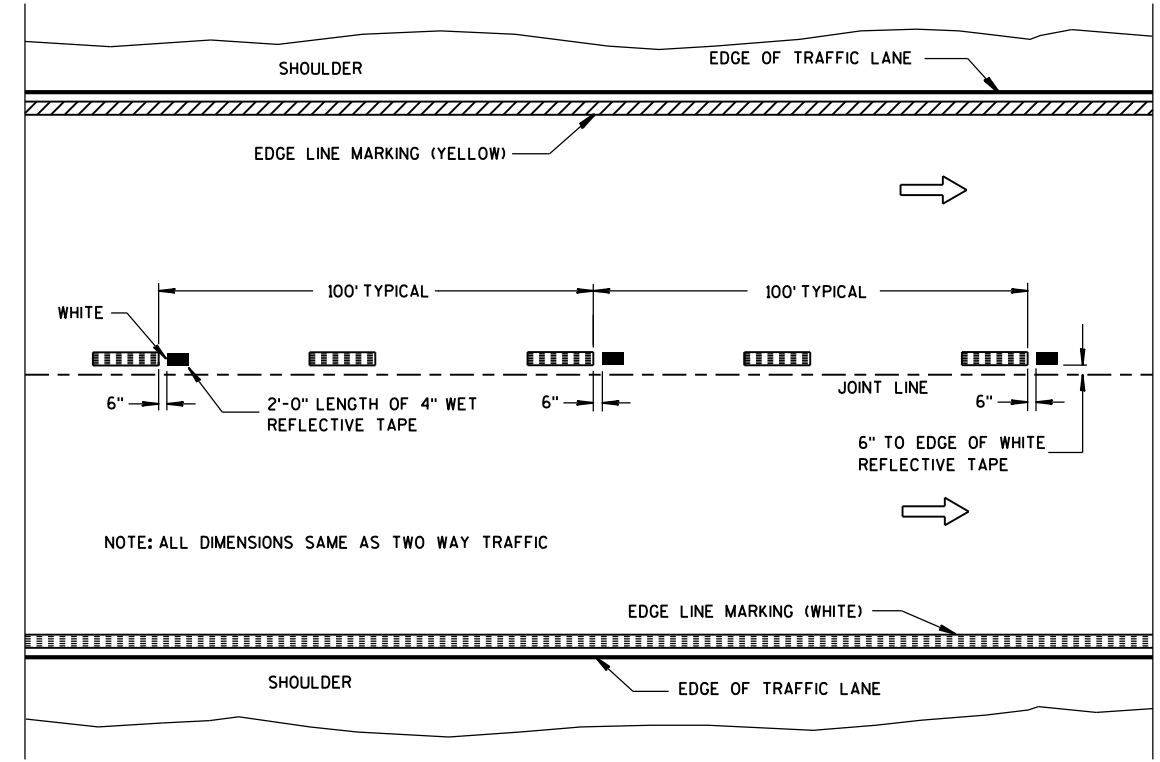
**GENERAL NOTES**

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

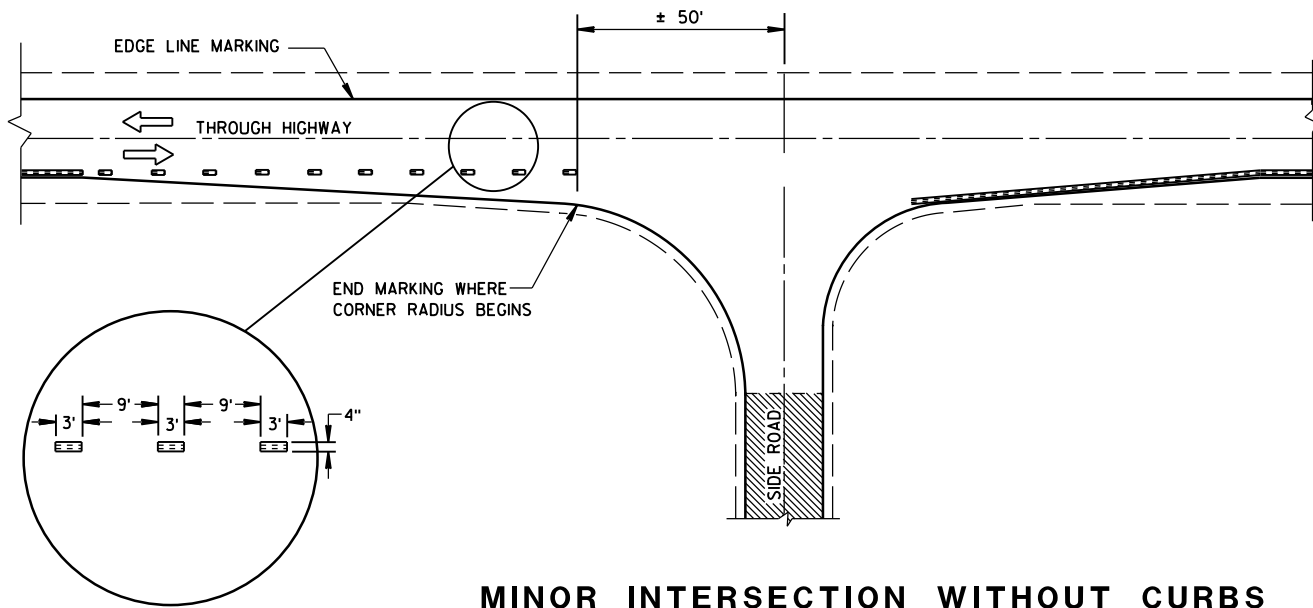
● POST MOUNTED SIGN

**PAVEMENT MARKING  
(MAINLINE)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
5-13-2013  
DATE  
FHWA

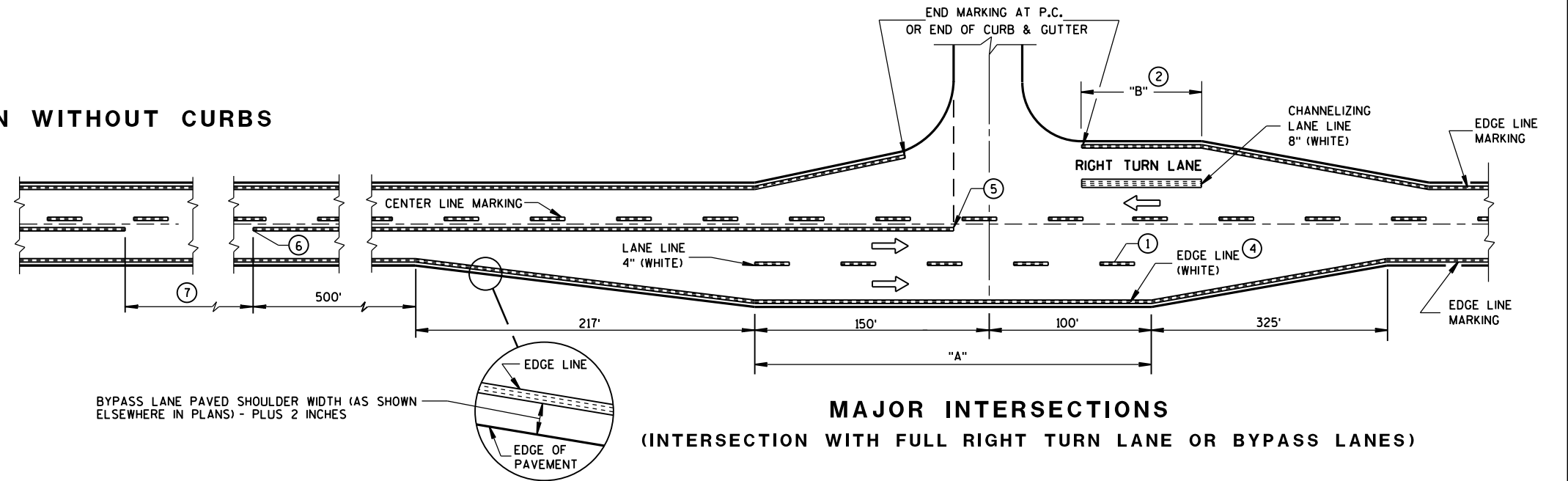
/S/ Travis Feltes  
STATE TRAFFIC ENGINEER



**MINOR INTERSECTION WITHOUT CURBS**

⑦

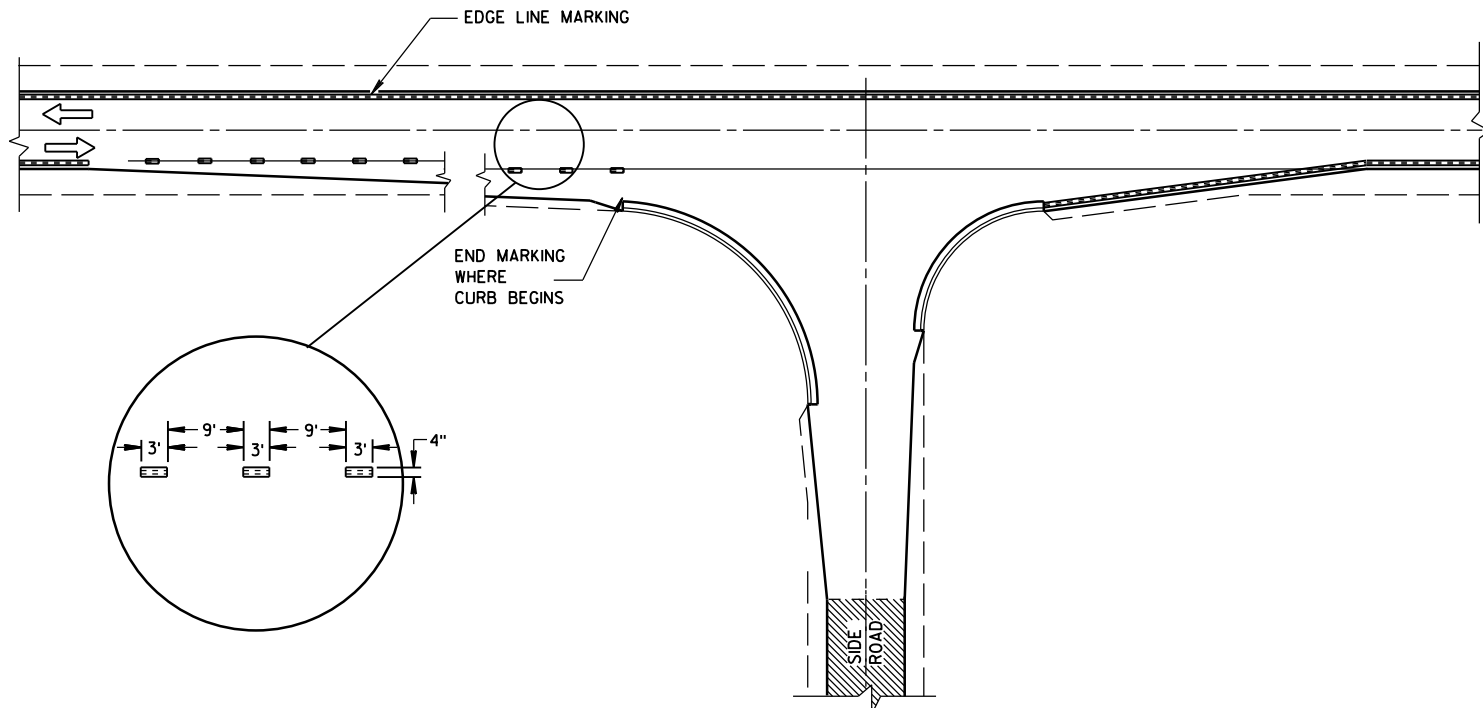
POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



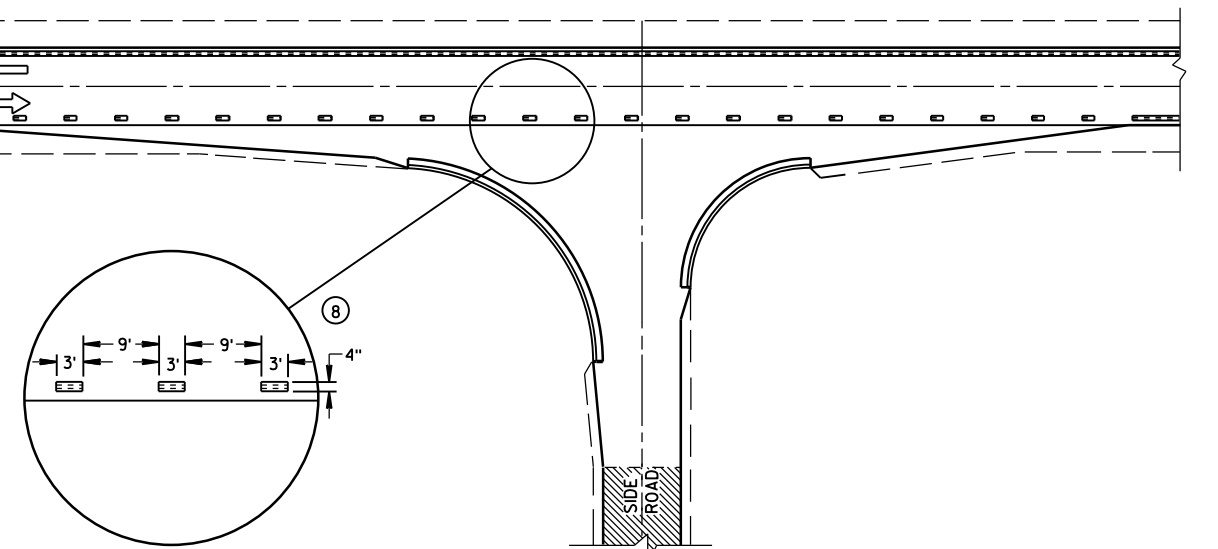
**MAJOR INTERSECTIONS  
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)**

**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



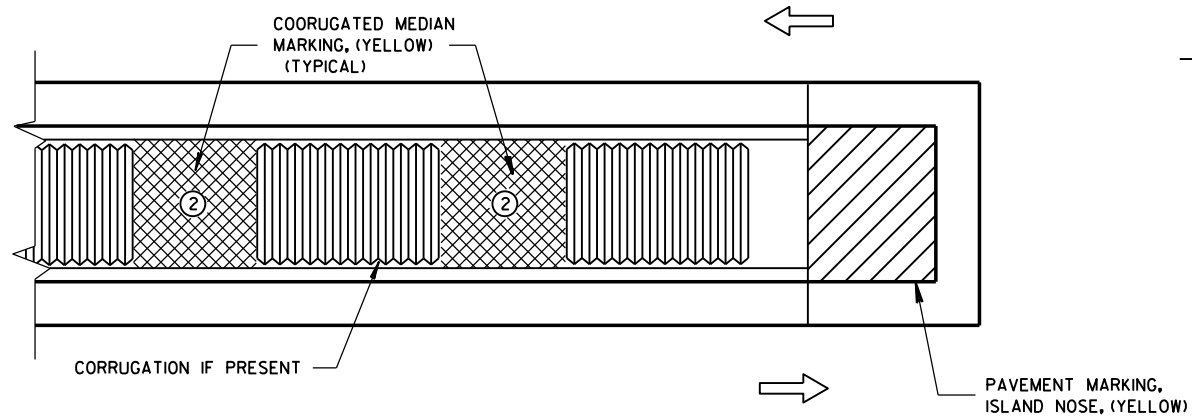
**MINOR INTERSECTION WITH CURBS  
(TYPICAL MARKING)**



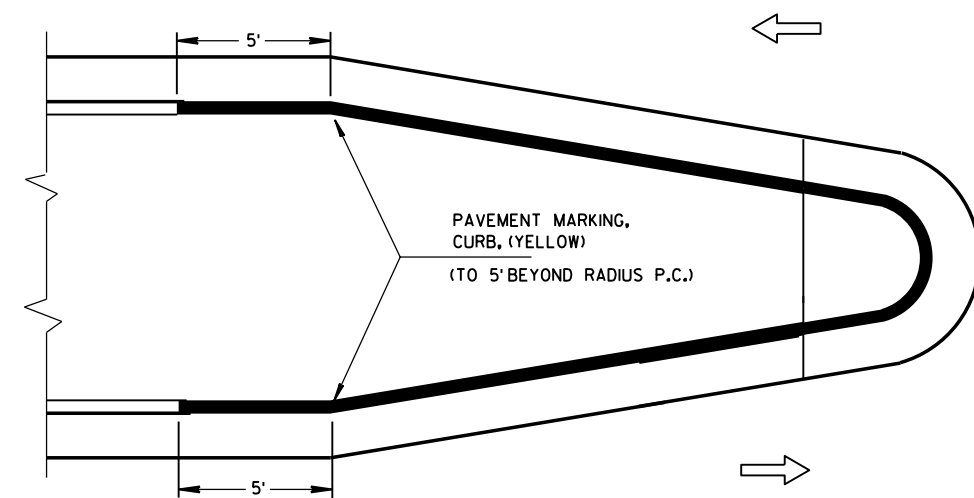
**MINOR INTERSECTION WITH CURBS  
③ (FOR SPECIAL CONDITIONS AS SPECIFIED)**

**PAVEMENT MARKING  
(INTERSECTIONS)**

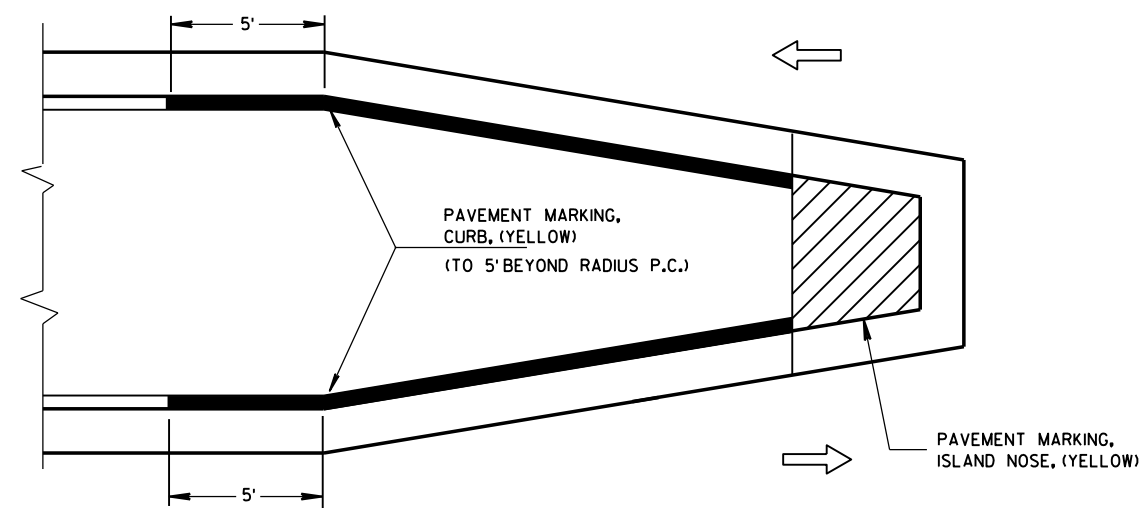
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**MEDIAN ISLAND WITH SQUARE BLUNT NOSE**

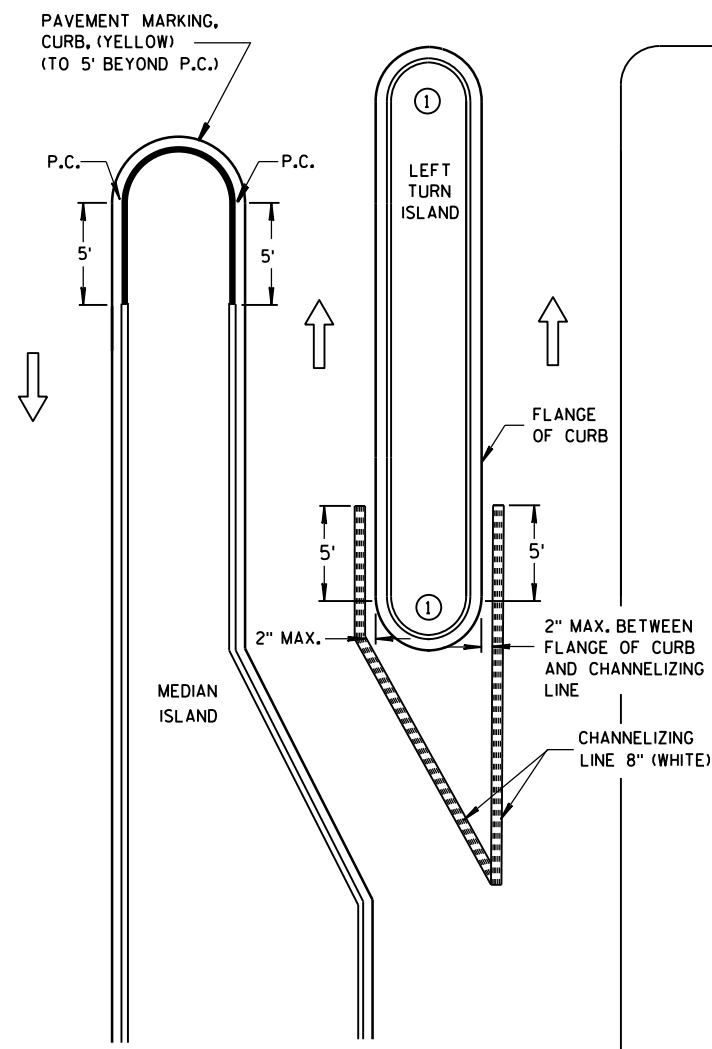


**MEDIAN ISLAND WITH ROUND BLUNT NOSE**



**MEDIAN ISLAND WITH SLOPED NOSE**

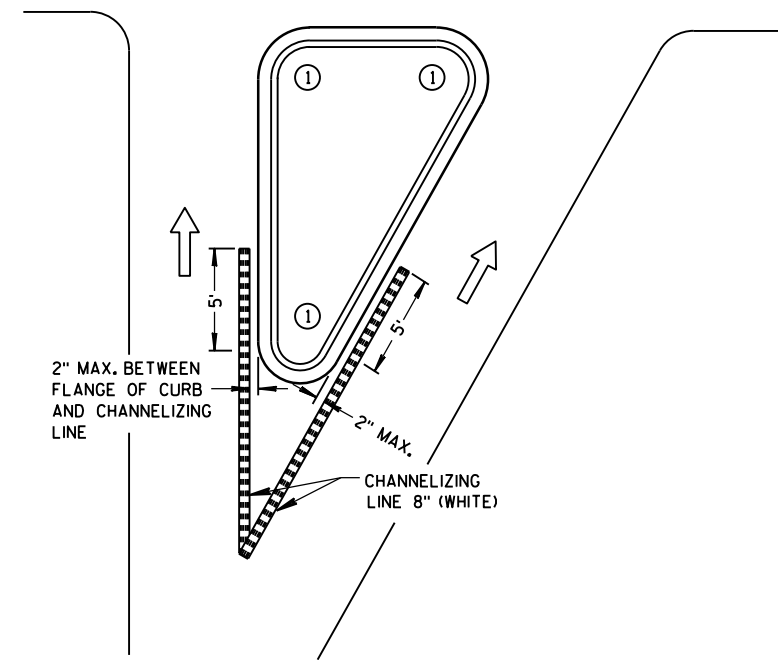
**TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS**



**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 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 TRANSPORTATION

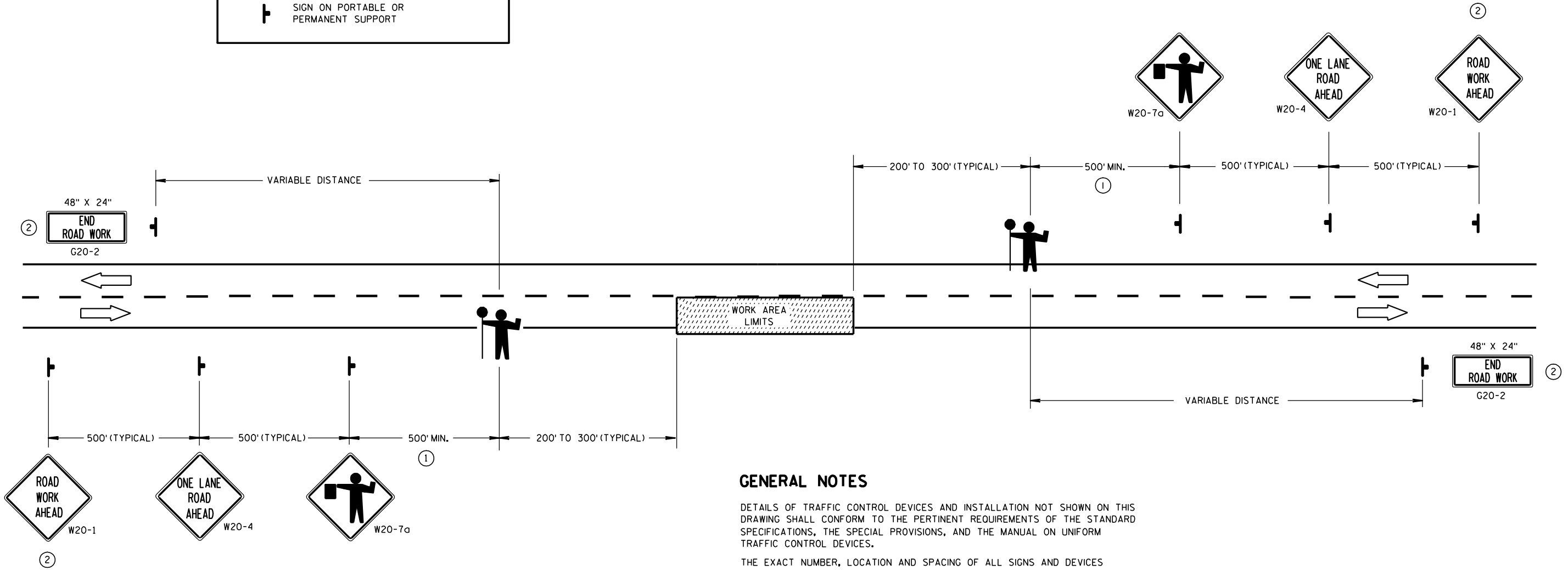
TWO-LANE ROADWAY

**SYMBOLS**

- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF
- SIGN ON PORTABLE OR PERMANENT SUPPORT



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.



**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.

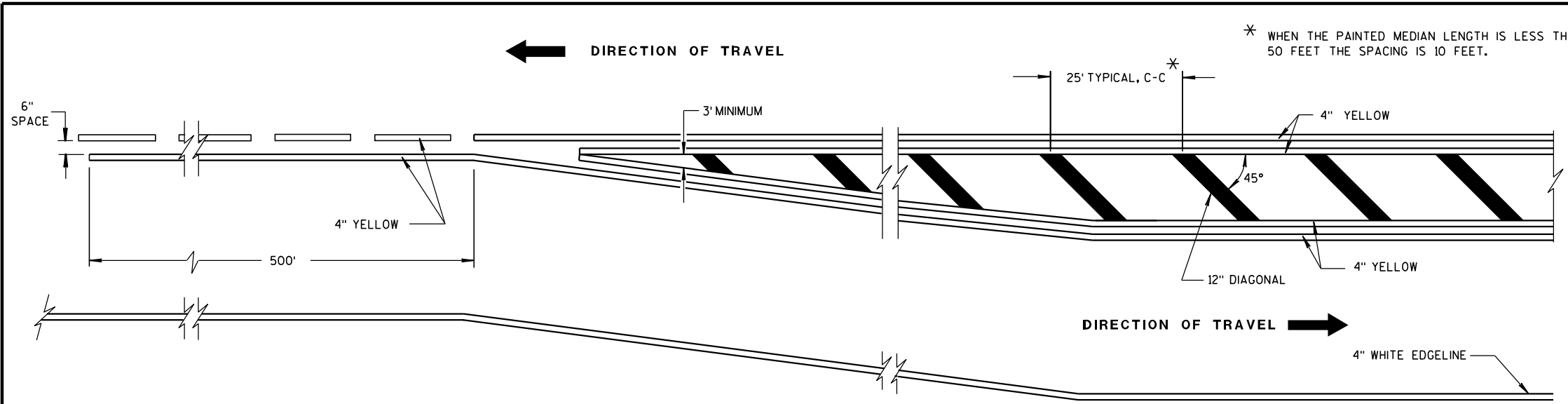
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

- 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.

**TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
9/5/06 /S/ Thomas N. Notbohm  
DATE STATE TRAFFIC ENGINEER OF DESIGN  
FHWA

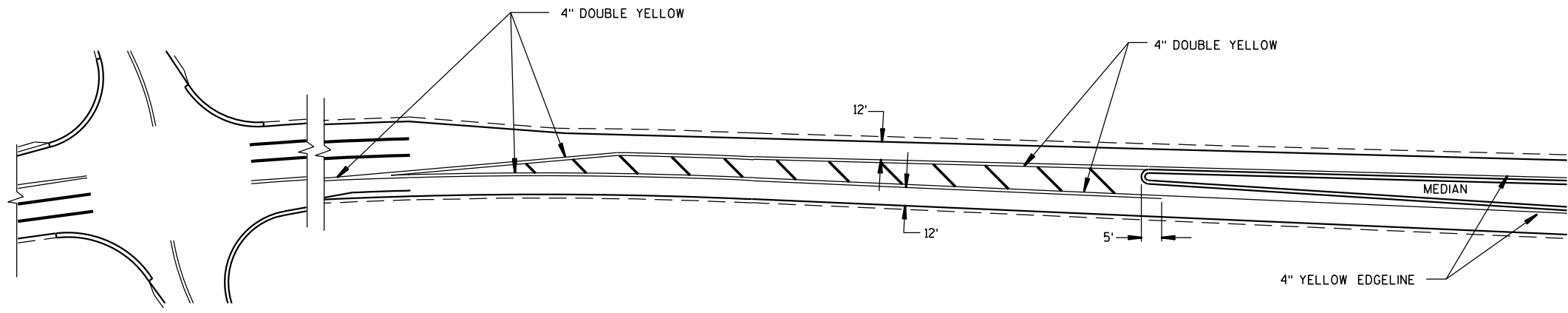


\* WHEN THE PAINTED MEDIAN LENGTH IS LESS THAN 50 FEET THE SPACING IS 10 FEET.

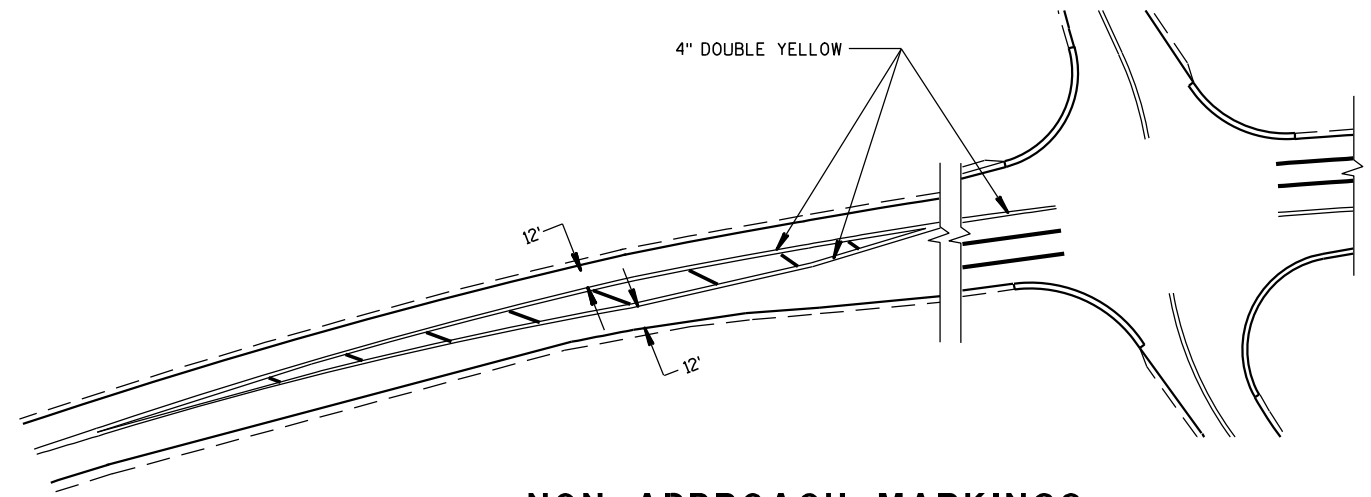
**GENERAL NOTE**

DIAGONALS ARE OPTIONAL WHEN PAINTED ISLAND IS LESS THAN 6 FEET AT WIDEST POINT.

**MEDIAN ISLAND DETAIL**



**APPROACH MARKINGS FOR OTHER MEDIAN TYPES**



**NON APPROACH MARKINGS**

6

6

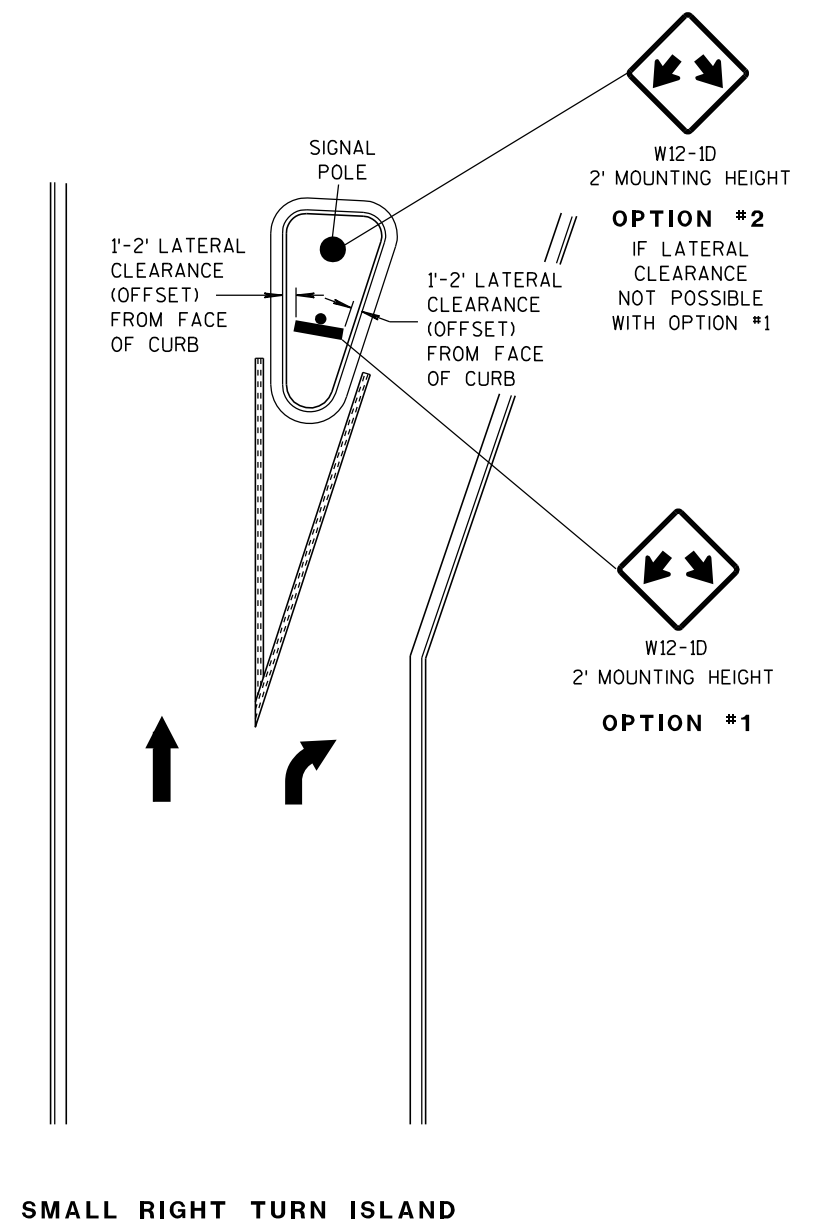
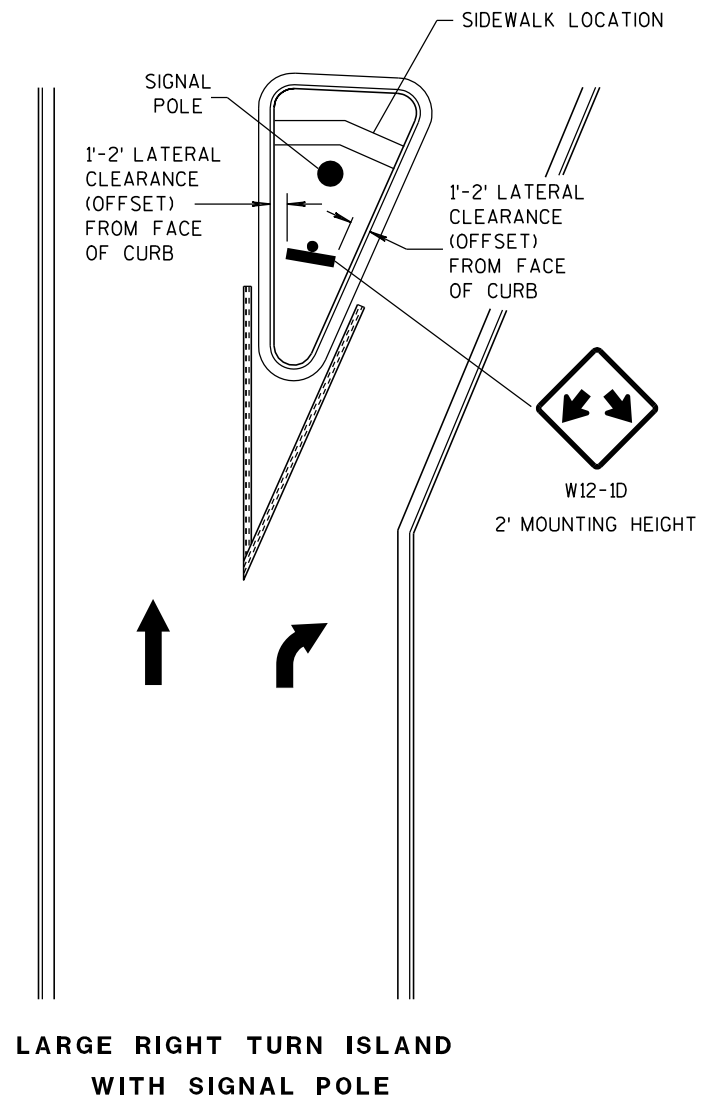
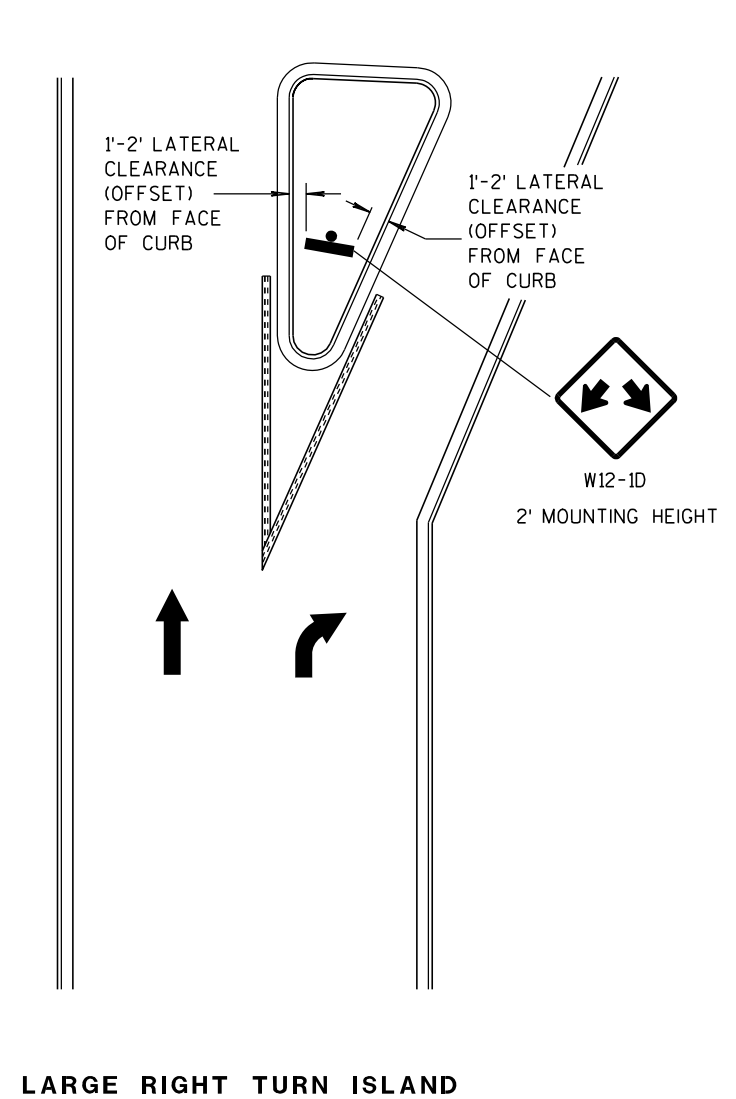
S.D.D. 15 C 18-3

S.D.D. 15 C 18-3

<b>MEDIAN ISLAND MARKING</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 2-5-09 DATE	/S/ Thomas N. Notbohm STATE TRAFFIC ENGINEER OF DESIGN
FHWA	

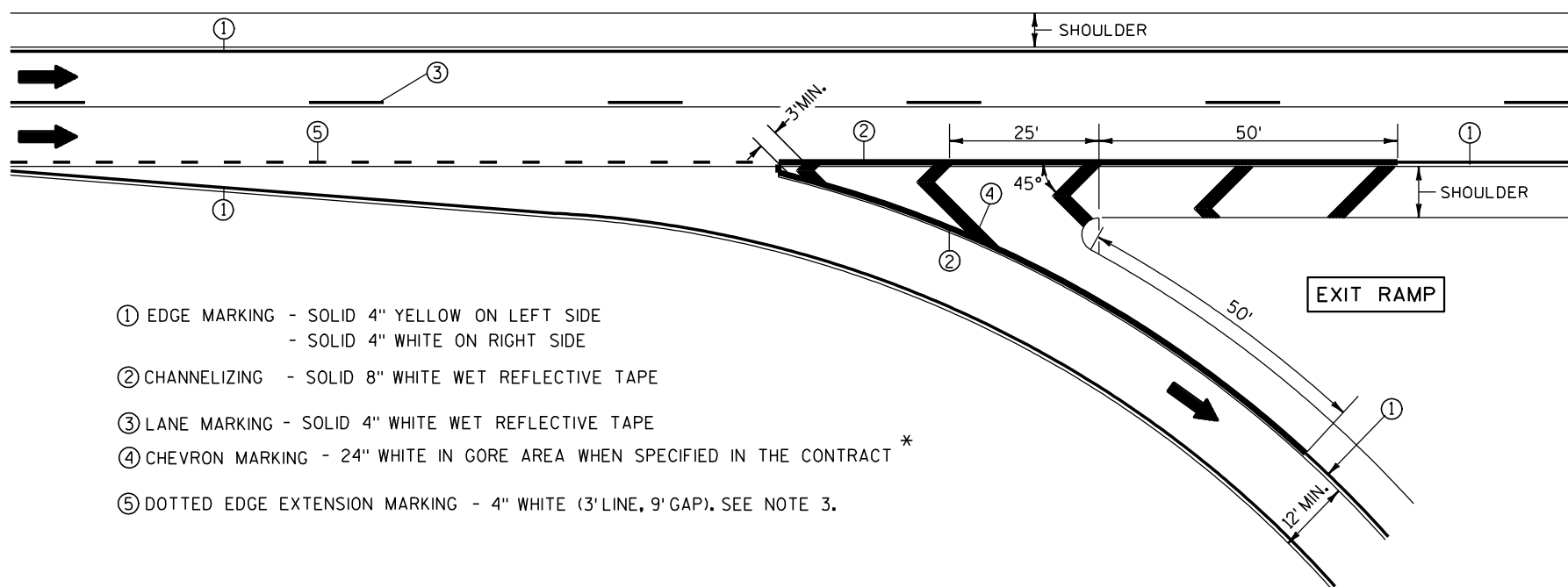
### GENERAL NOTE

APPLIES TO ISLANDS AT LEFT TURNS AT ONE WAY ROADWAYS AS WELL.  
SEE MISCELLANEOUS QUANTITIES FOR SIGN SIZE.



### DOUBLE ARROW WARNING SIGN PLACEMENT

<b>DOUBLE ARROW WARNING SIGN PLACEMENT</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10-22-08 DATE	/S/ Thomas N. Notbohm STATE TRAFFIC ENGINEER OF DESIGN
FHWA	

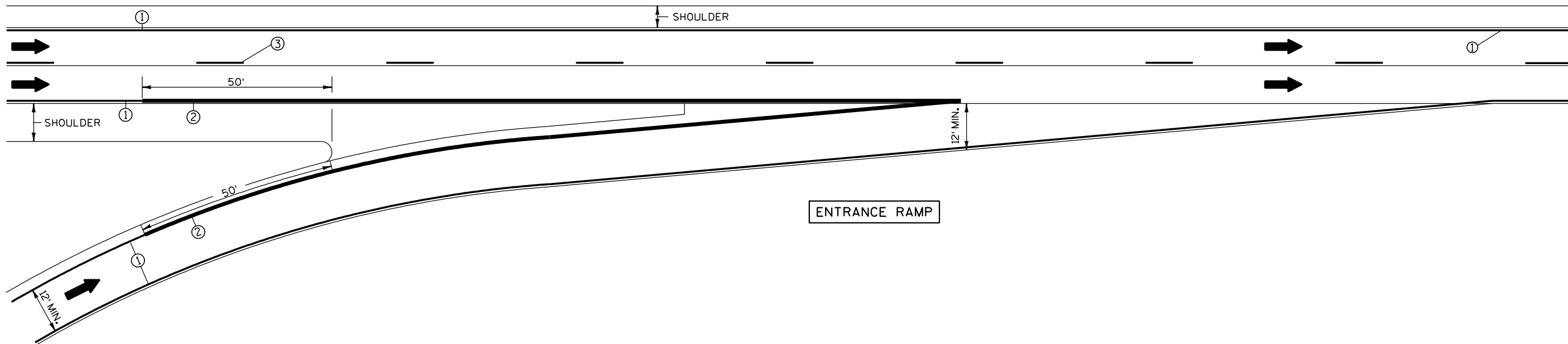


- ① EDGE MARKING - SOLID 4" YELLOW ON LEFT SIDE  
- SOLID 4" WHITE ON RIGHT SIDE
- ② CHANNELIZING - SOLID 8" WHITE WET REFLECTIVE TAPE
- ③ LANE MARKING - SOLID 4" WHITE WET REFLECTIVE TAPE
- ④ CHEVRON MARKING - 24" WHITE IN GORE AREA WHEN SPECIFIED IN THE CONTRACT \*
- ⑤ DOTTED EDGE EXTENSION MARKING - 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

<b>PAVEMENT MARKING (RAMPS AND GORES)</b>
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
- \*-x-\* 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.

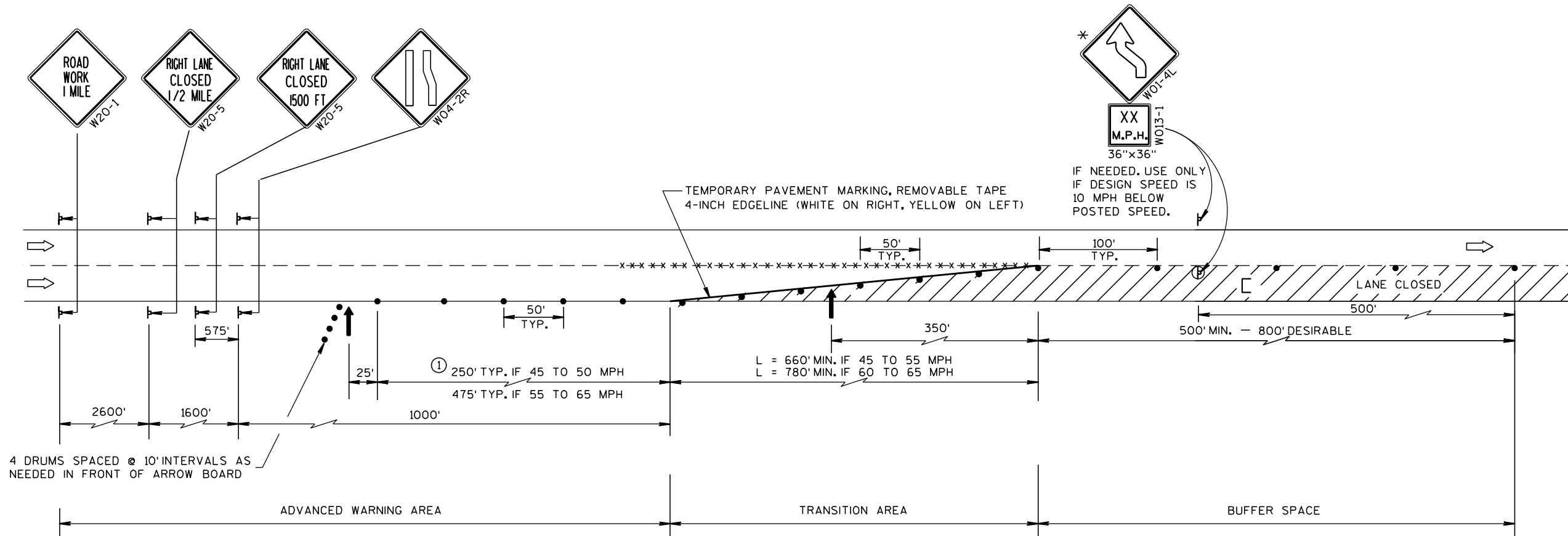
IF LANE CLOSURE IS MORE THAN 1 MILE, PLACE A TYPE III BARRICADE APPROXIMATELY EVERY 1/4 MILE ACROSS THE CLOSED LANE TO HELP ENFORCE THE DRUM LINE.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST 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 (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.

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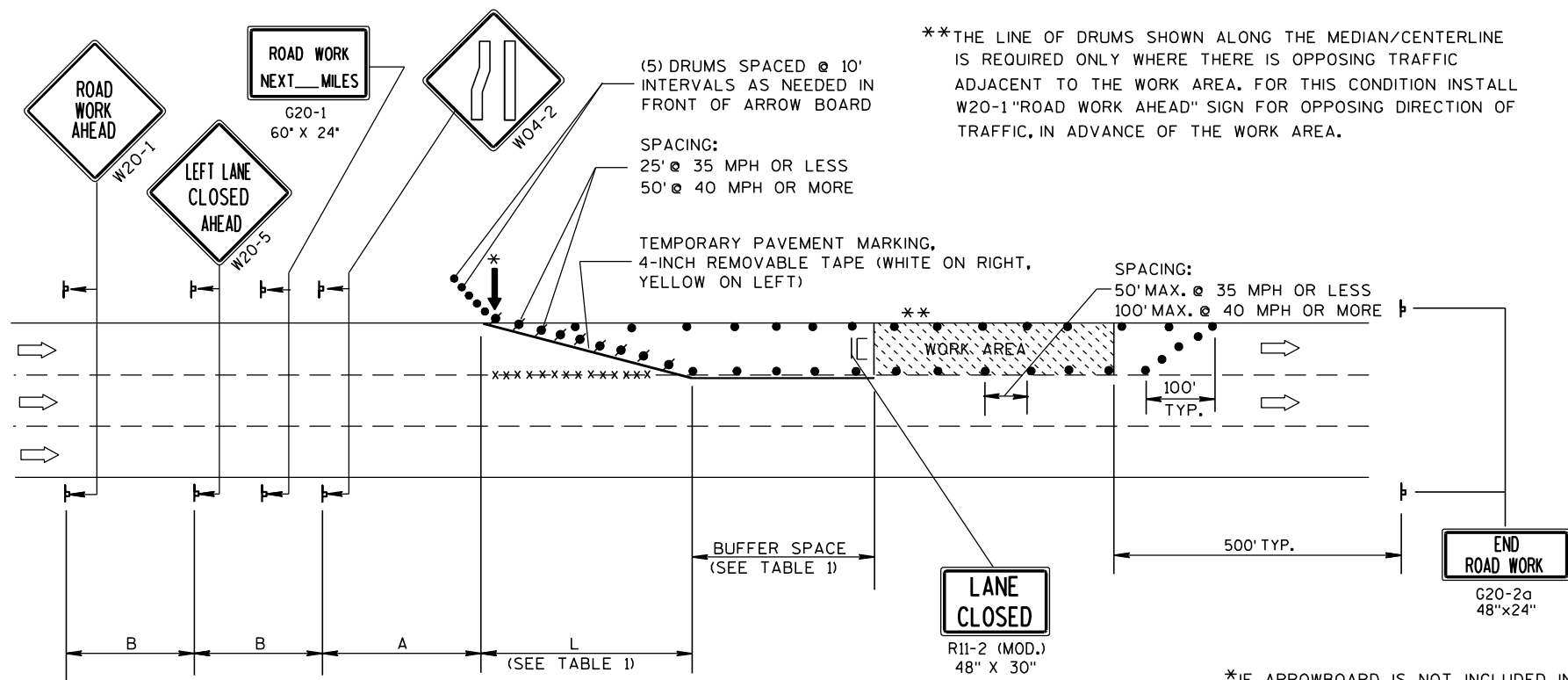


<b>TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H.</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8-7-95 DATE	/S/ Chester J. Spang DIRECTOR, OFFICE OF TRAFFIC
FHWA	

S.D.D. 15 D 12-2

S.D.D. 15 D 12-2





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

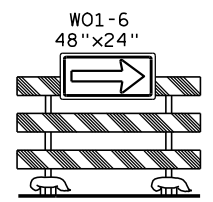
TABLE 1  
TAPER AND BUFFER SPACE  
FOR 12' LANE WIDTH

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

(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.



LEGEND

- /● DRUM WITH/WITHOUT WARNING LIGHT, TYPE C (STEADY-BURN)
- ⌋ POST MOUNTED SIGN
- ↑ ARROW BOARD
- IC/C TYPE III BARRICADE (8' EQUIVALENT) AND WARNING LIGHTS, TYPE A (FLASHING) WITH/WITHOUT SIGN
- ➡ DIRECTION OF TRAFFIC FLOW
- x x x x 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 /S/ Chester J. Spang  
DATE CHIEF SIGNS AND MARKING ENGINEER

FHWA

**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.

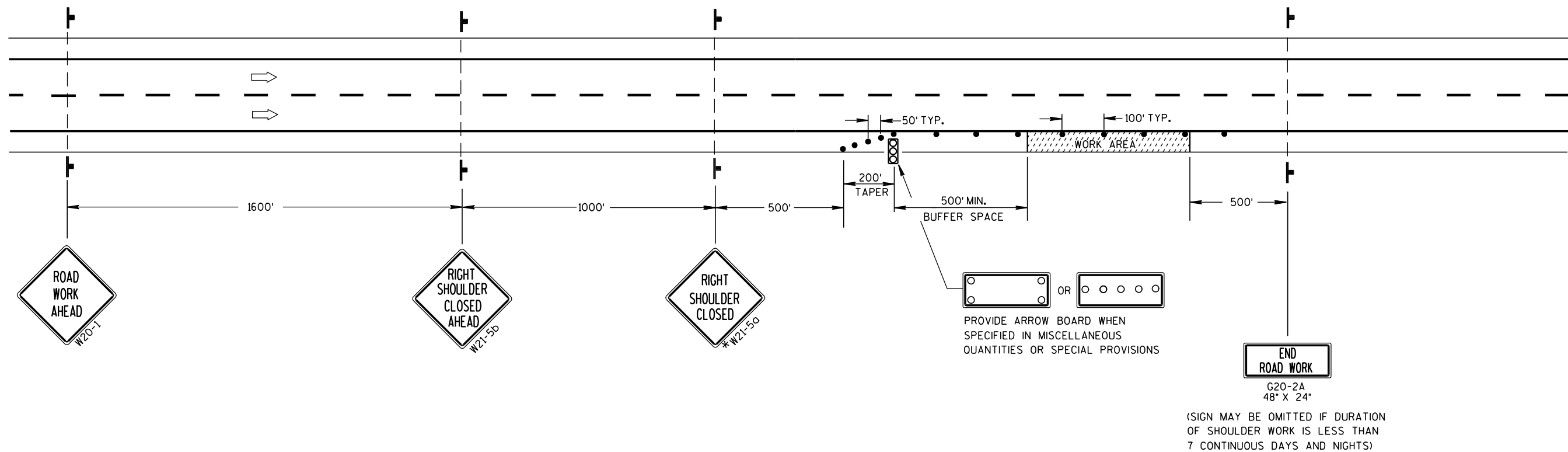
CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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.

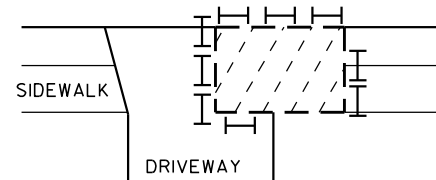
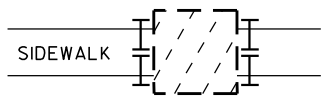
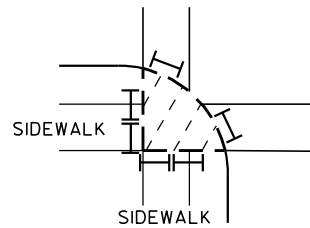
**SYMBOLS**

- TRAFFIC CONTROL DRUM
- ┆ POST MOUNTED SIGN
- ➡ DIRECTION OF TRAFFIC FLOW
- ⊞ ARROW BOARD IN CAUTION MODE



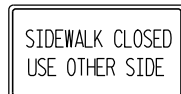
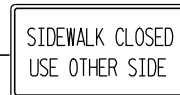
<b>TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
5/23/00 DATE	/S/ Chester J. Spang CHIEF SIGNS AND MARKING ENGINEER
FHWA	

WARNING OF LOCALIZED SIDEWALK WORK AREAS



200' TYP.

IF WORK AREA ENCROACHES INTO THE ROADWAY,  
SEE OTHER TRAFFIC CONTROL DETAILS FOR  
ADDITIONAL TRAFFIC CONTROL



**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.

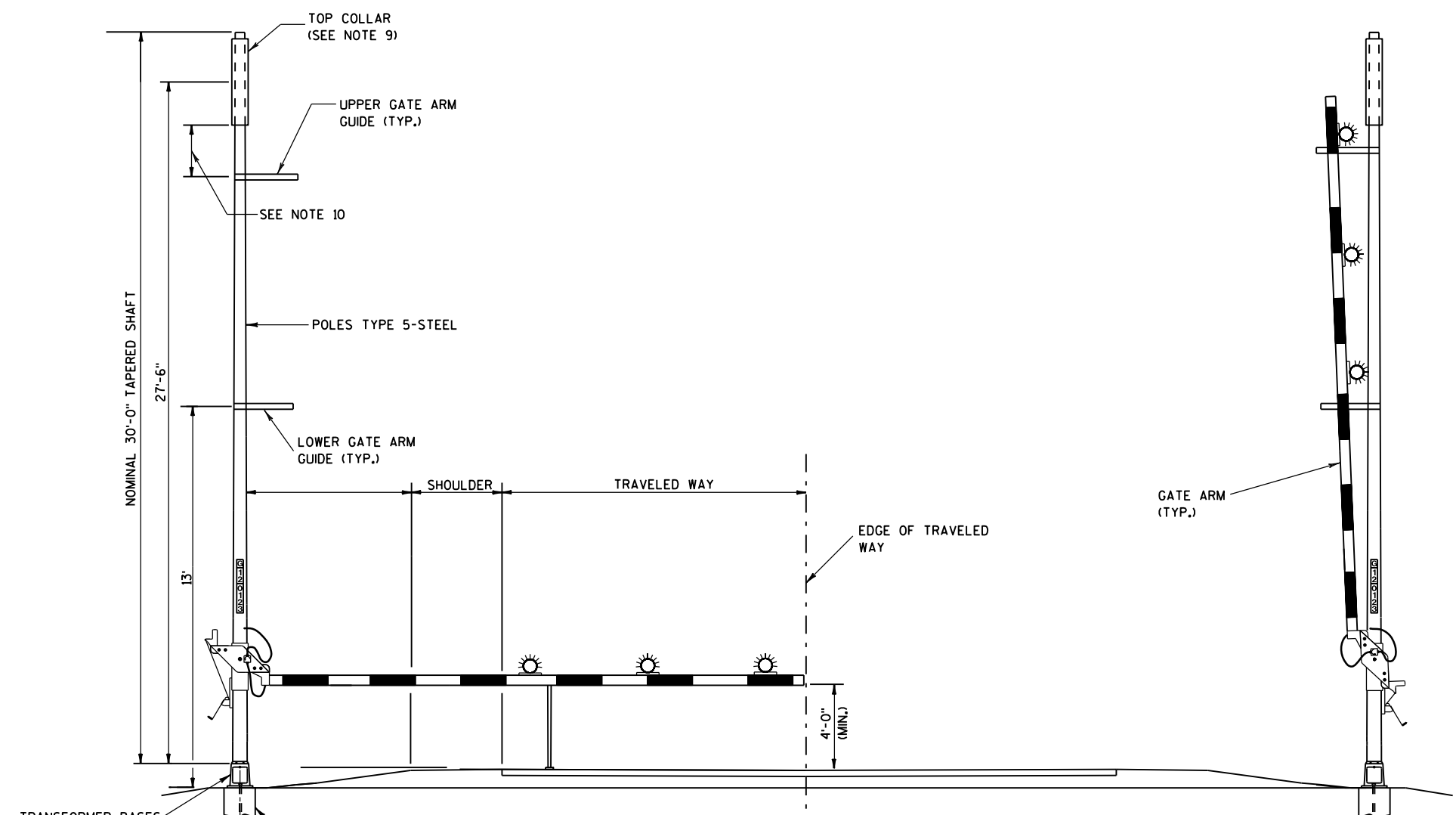
WARNING SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

**TRAFFIC CONTROL,  
SIDEWALK CLOSURE**

**TRAFFIC CONTROL,  
SIDEWALK CLOSURE**

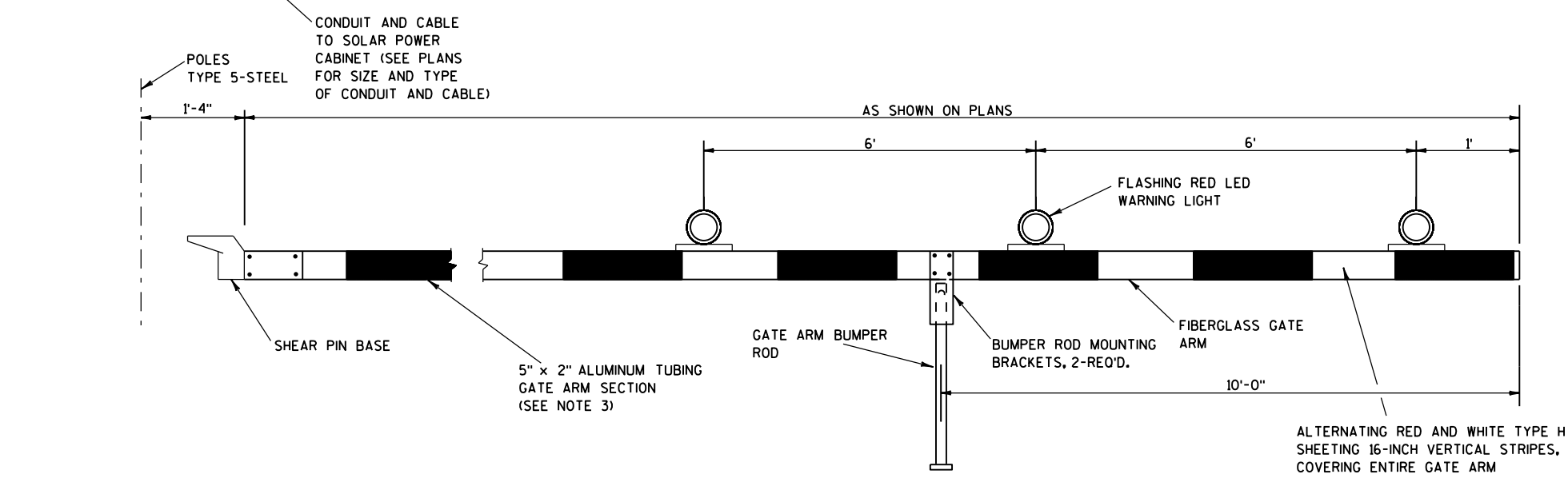
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
5/23/2000 /S/ Chester J. Spang  
DATE CHIEF SIGNS AND MARKING ENGINEER  
FHWA



TYPICAL LOWERED POSITION

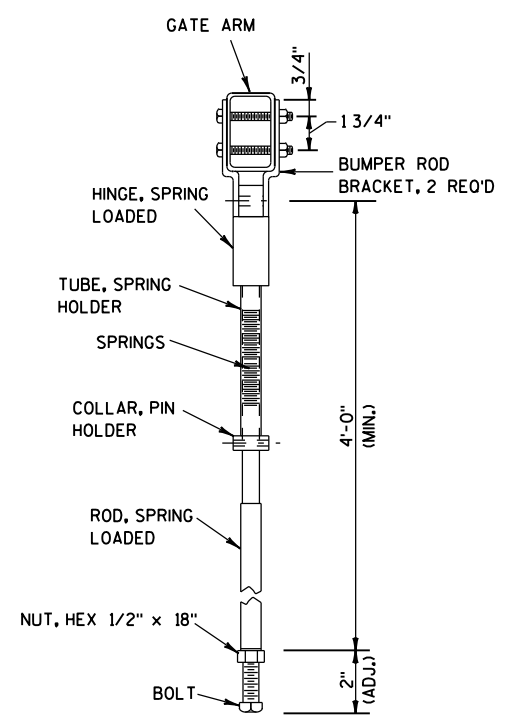
TYPICAL RAISED POSITION



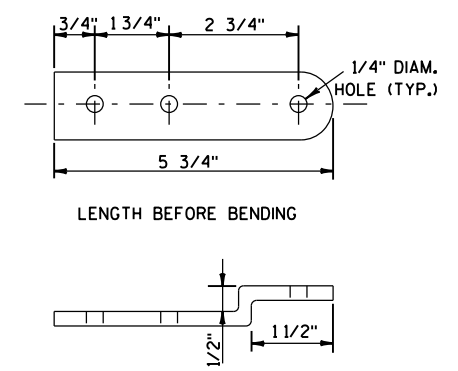
GATE DETAIL  
(SOLAR POWER OPTION)

### 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.



GATE ARM BUMPER ROD DETAIL



BUMPER ROD MOUNTING BRACKET DETAIL

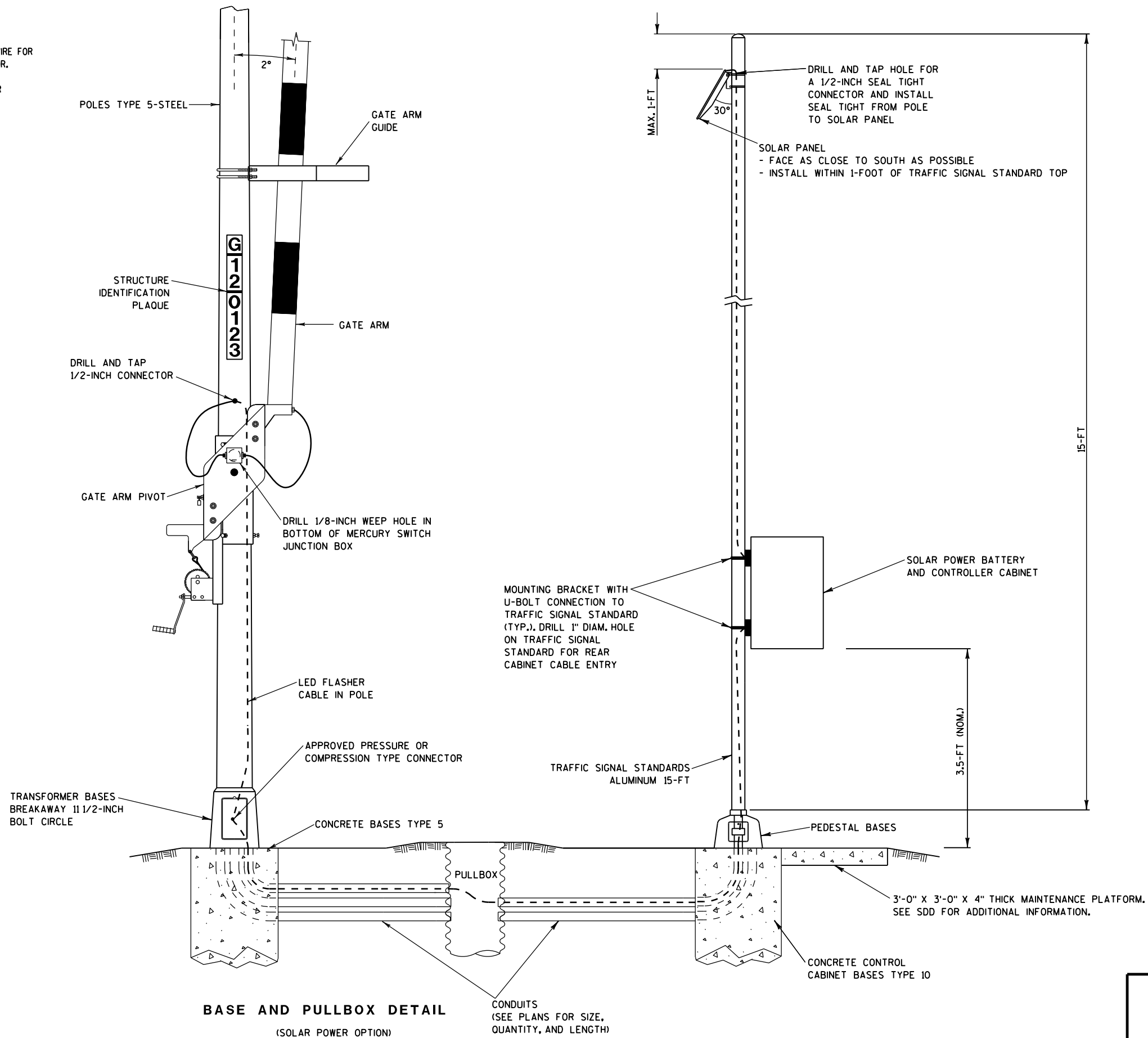
**RAMP GATE  
SOLAR POWER**

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STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**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)

CONDUITS  
(SEE PLANS FOR SIZE,  
QUANTITY, AND LENGTH)

**RAMP GATE  
SOLAR POWER**

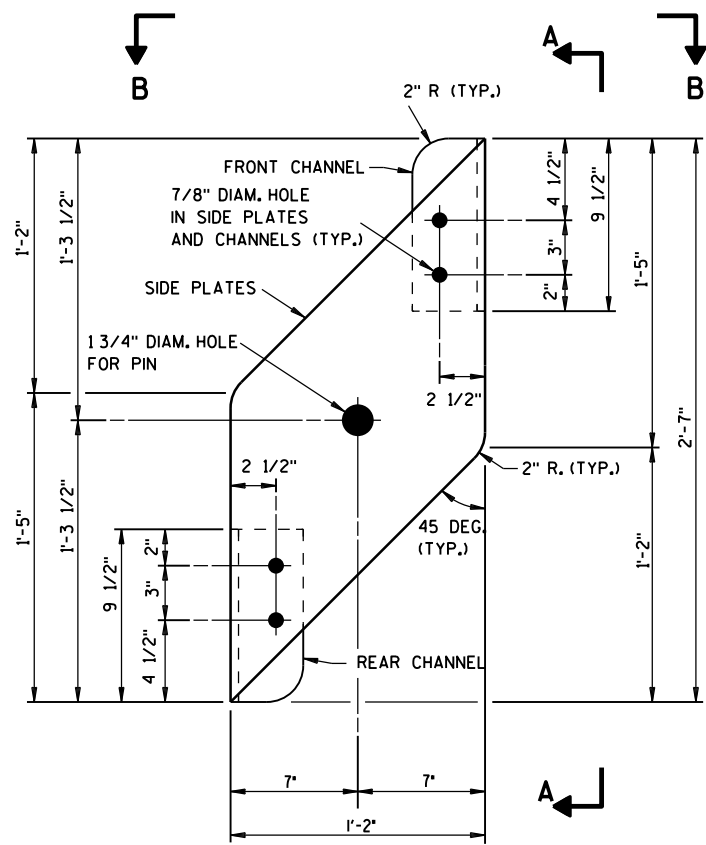
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

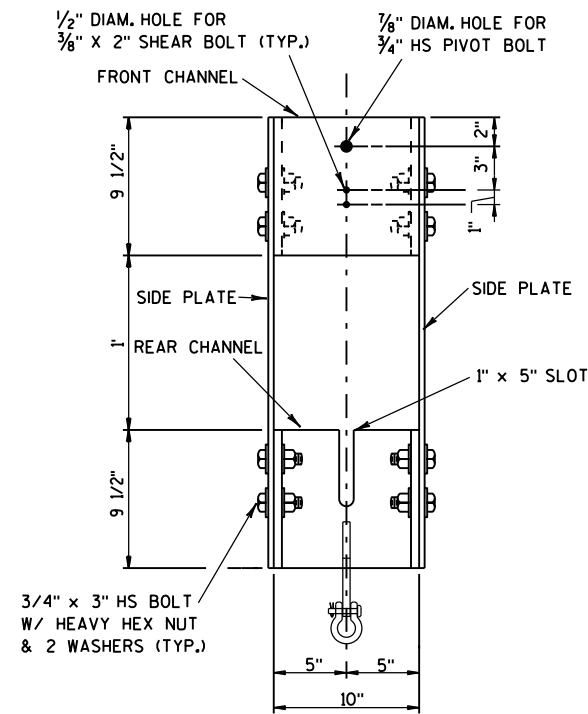
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S.D.D. 15 D 34-1b

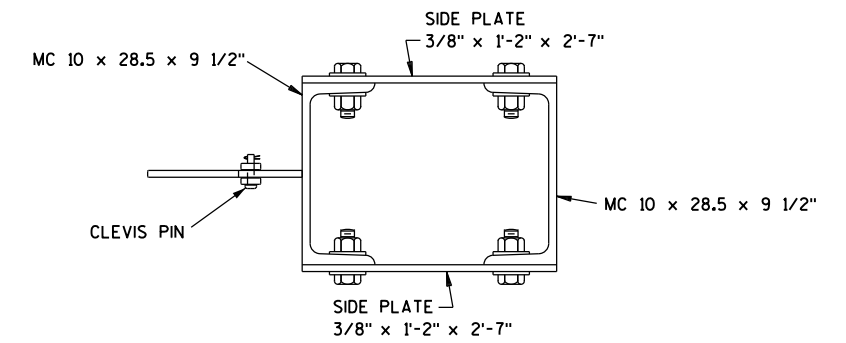
S.D.D. 15 D 34-1b



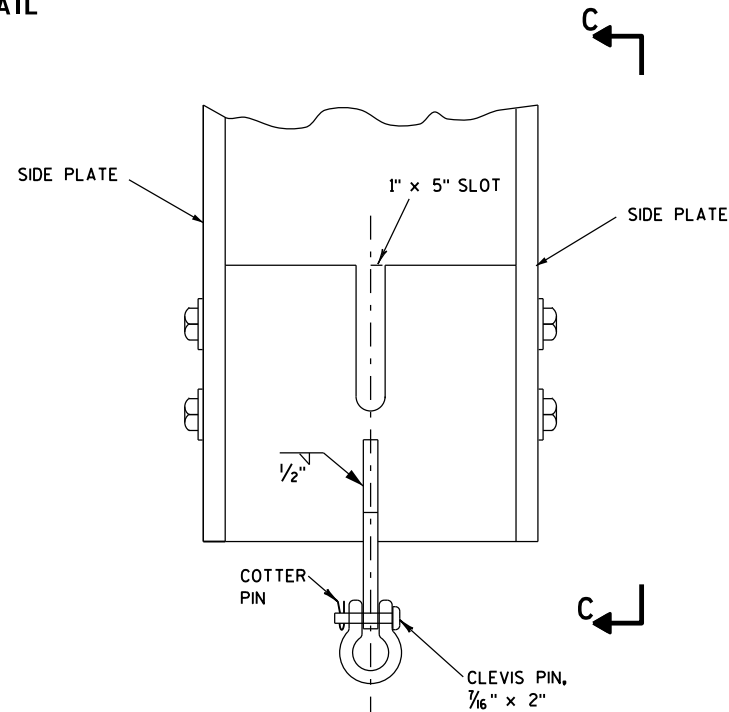
SIDE PLATE DETAIL



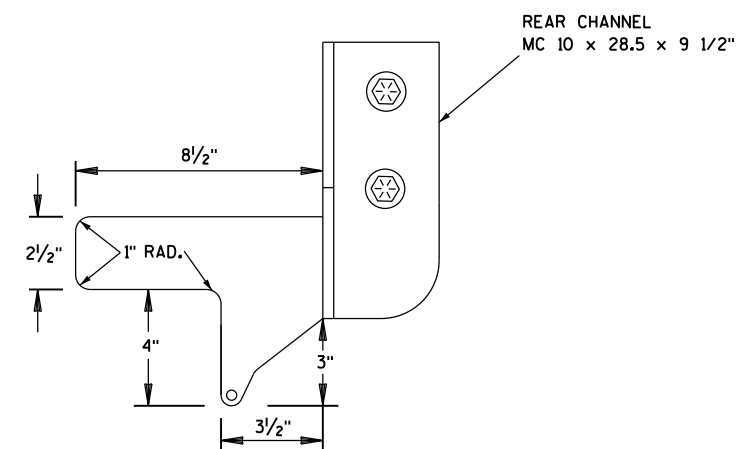
SECTION A-A



SECTION B-B



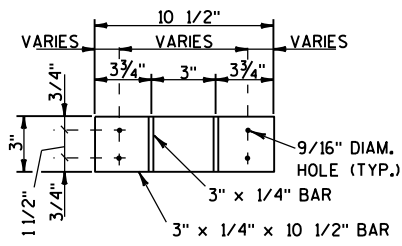
YOKE ASSEMBLY DETAIL



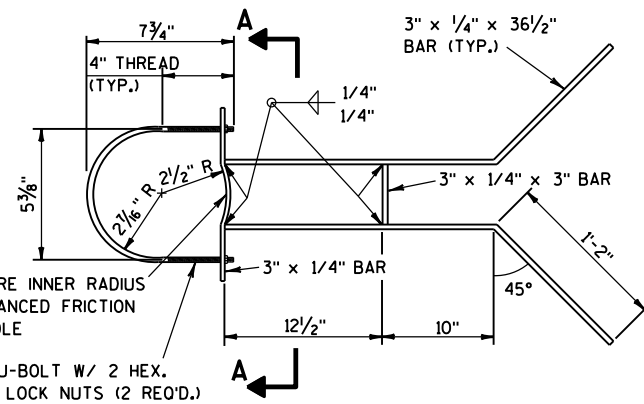
SECTION C-C

**GENERAL NOTES**

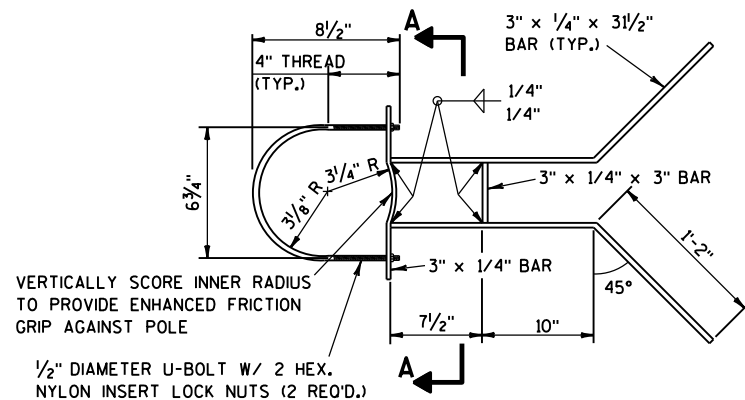
1. WHEN THE GATE IS FULLY RAISED, THE NUT AND WASHER SHALL BE PLACED SNUGLY AGAINST THE OUTSIDE OF THE REAR CHANNEL AND PADLOCKED IN PLACE.
2. WHEN THE GATE IS FULLY LOWERED, THE NUT AND WASHER SHALL BE PLACED SNUGLY AGAINST THE INSIDE OF THE REAR CHANNEL AND PADLOCKED INTO PLACE.
3. ANTI-SEIZE LUBRICATING 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 DIAMETER OR LESS MAY BE STAINLESS STEEL.



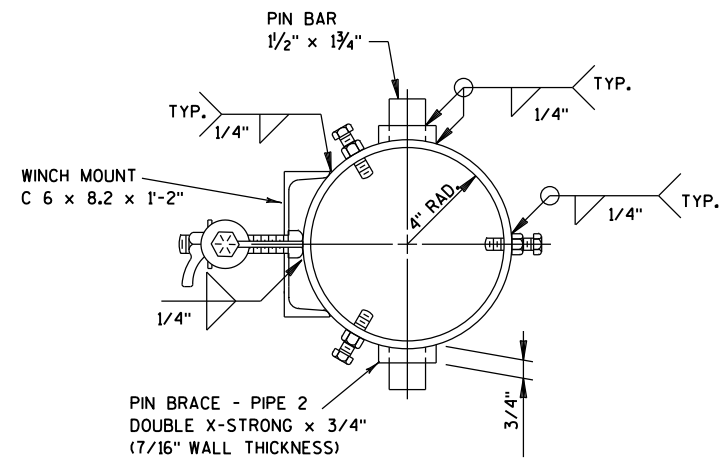
**SECTION A-A**  
U-BOLTS NOT SHOWN



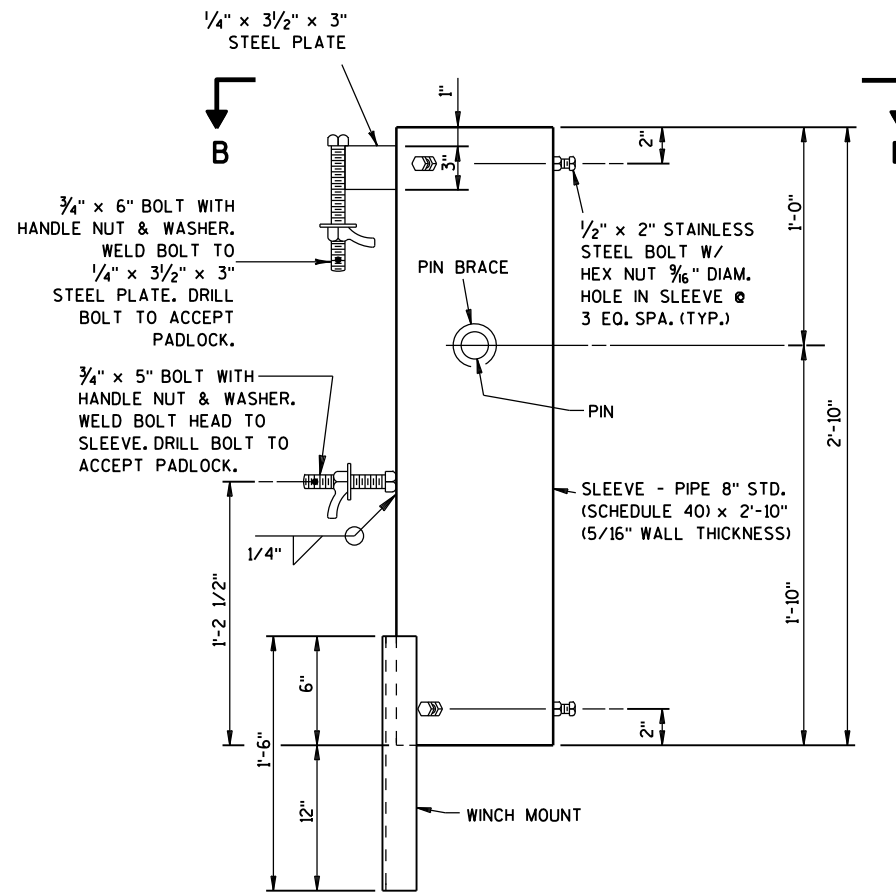
**UPPER GATE ARM GUIDE DETAIL**



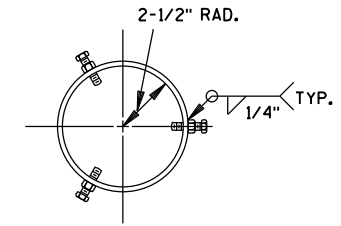
**LOWER GATE ARM GUIDE DETAIL**



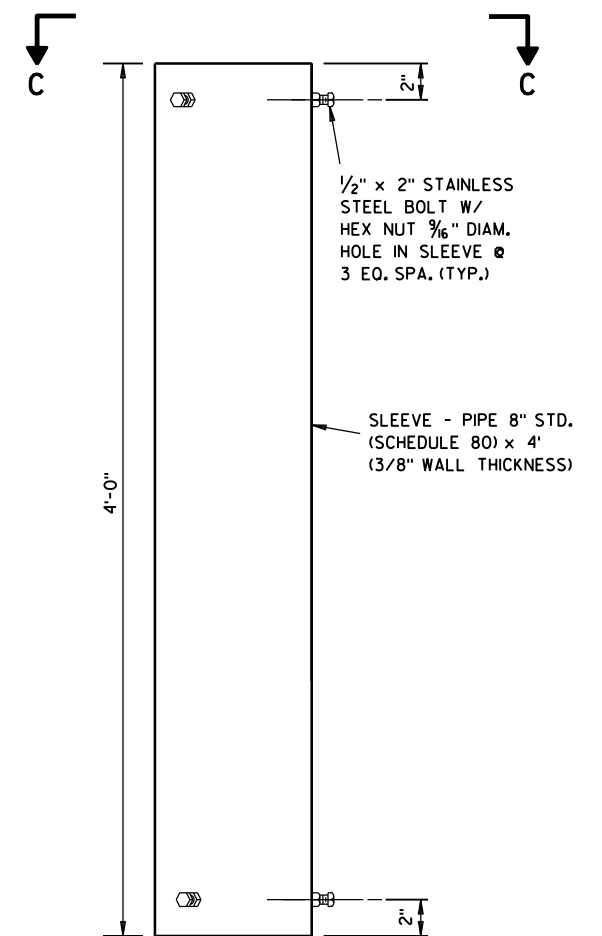
**SECTION B-B**



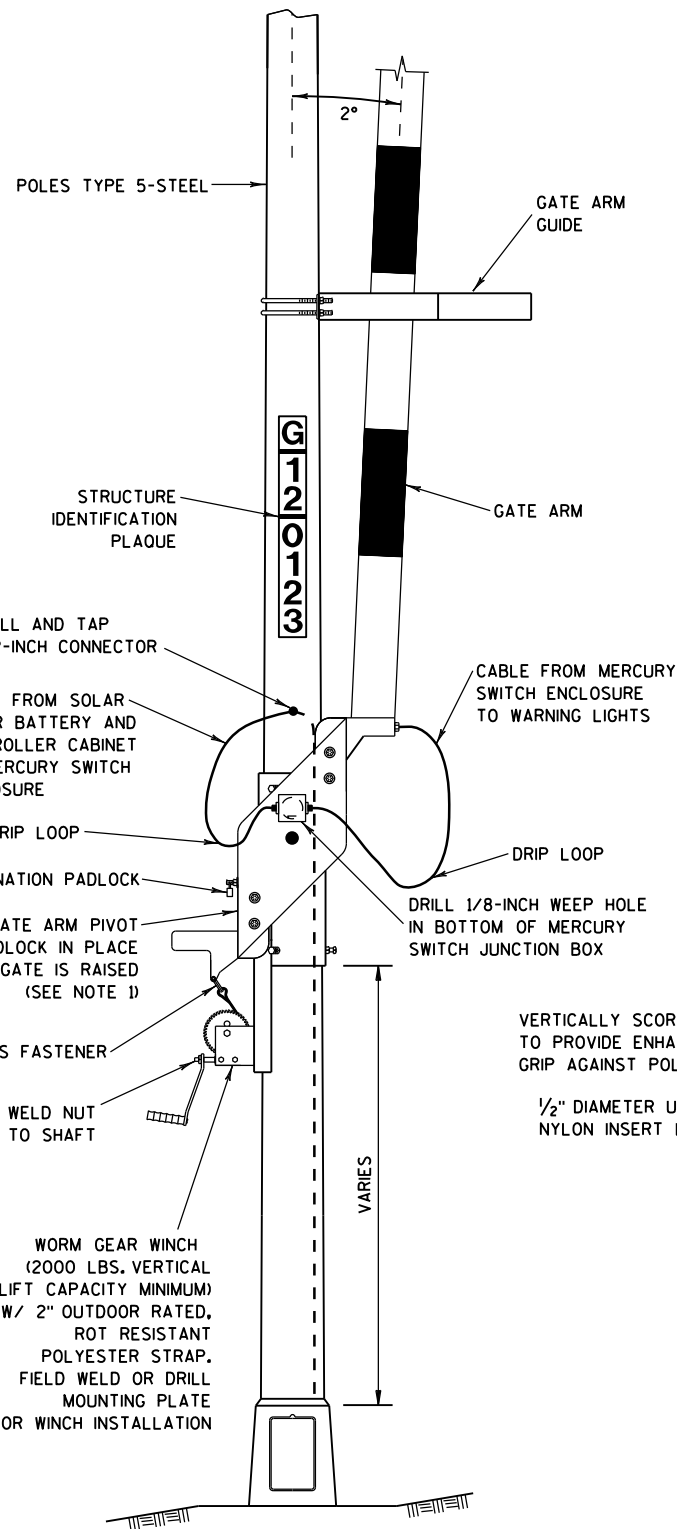
**PIVOT SLEEVE DETAIL**



**SECTION C-C**



**TOP COLLAR**



**GATE PIVOT ASSEMBLY**

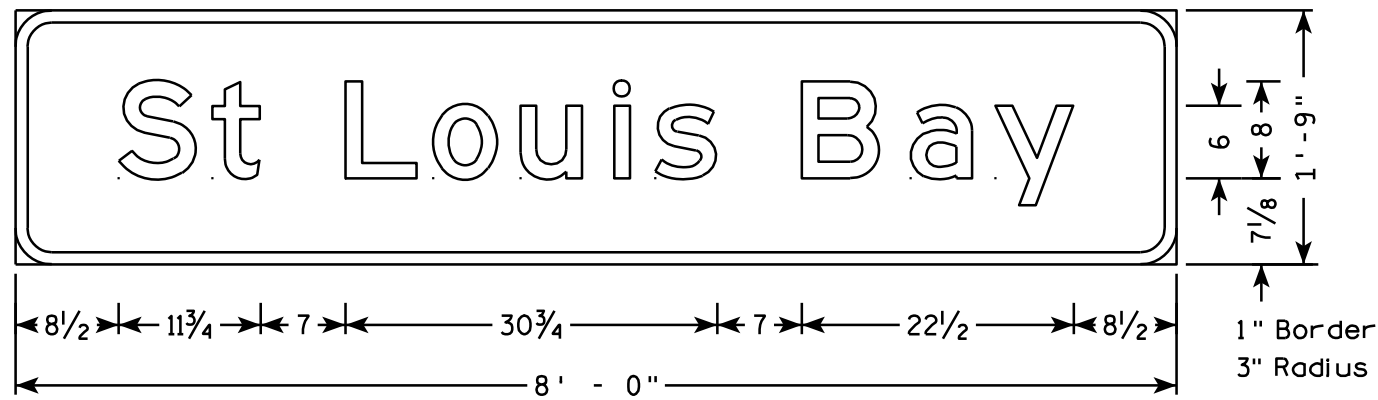
6

6

S.D.D. 15 D 34-1d

S.D.D. 15 D 34-1d

<b>RAMP GATE SOLAR POWER</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-30-2013 DATE	/S/ Bill Wondrachek STATE TRAFFIC INCIDENT MANAGEMENT ENGINEER
FHWA	

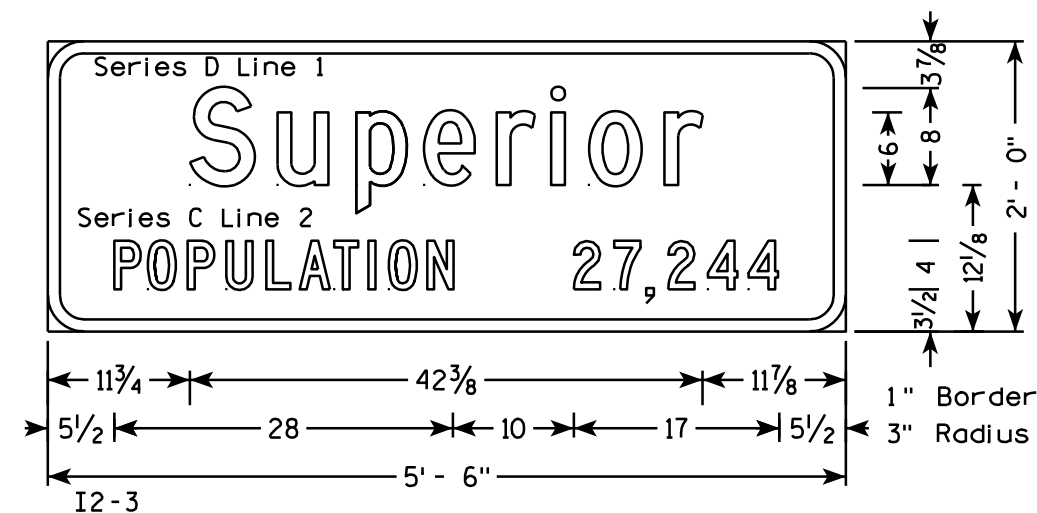


I3-1

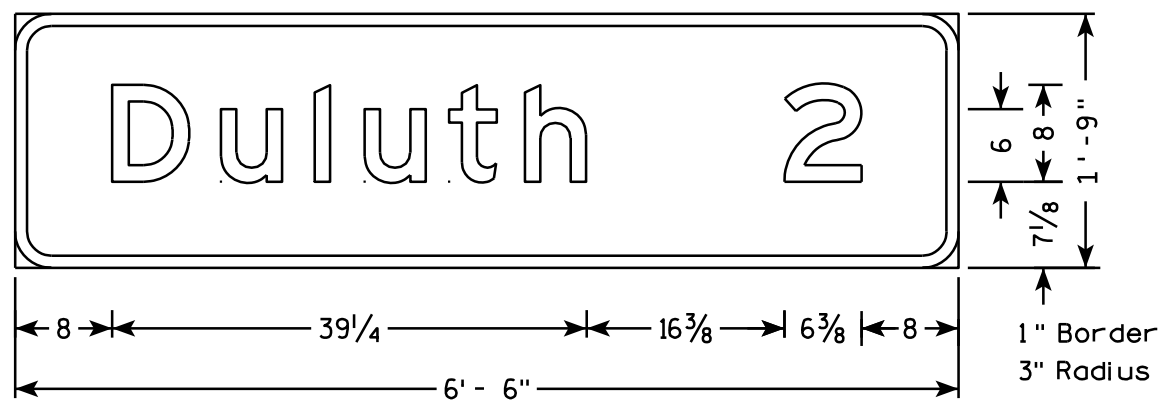
- NOTES**
1. All Signs Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
  2. Color:  
Background - GREEN  
Message - WHITE
  3. Message Series - E except as Shown



I2-2



I2-3

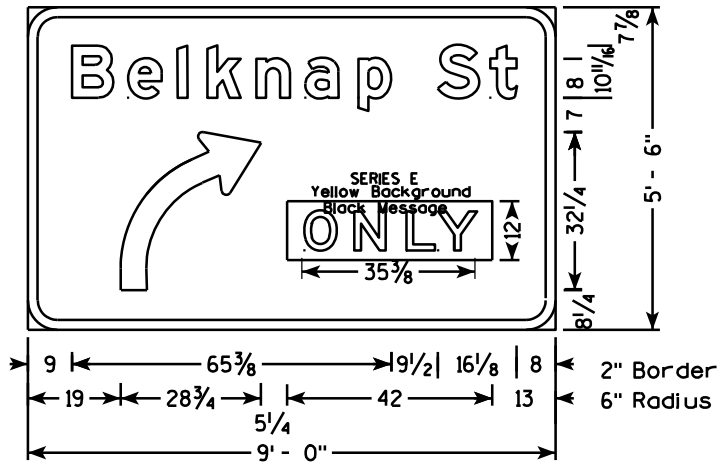
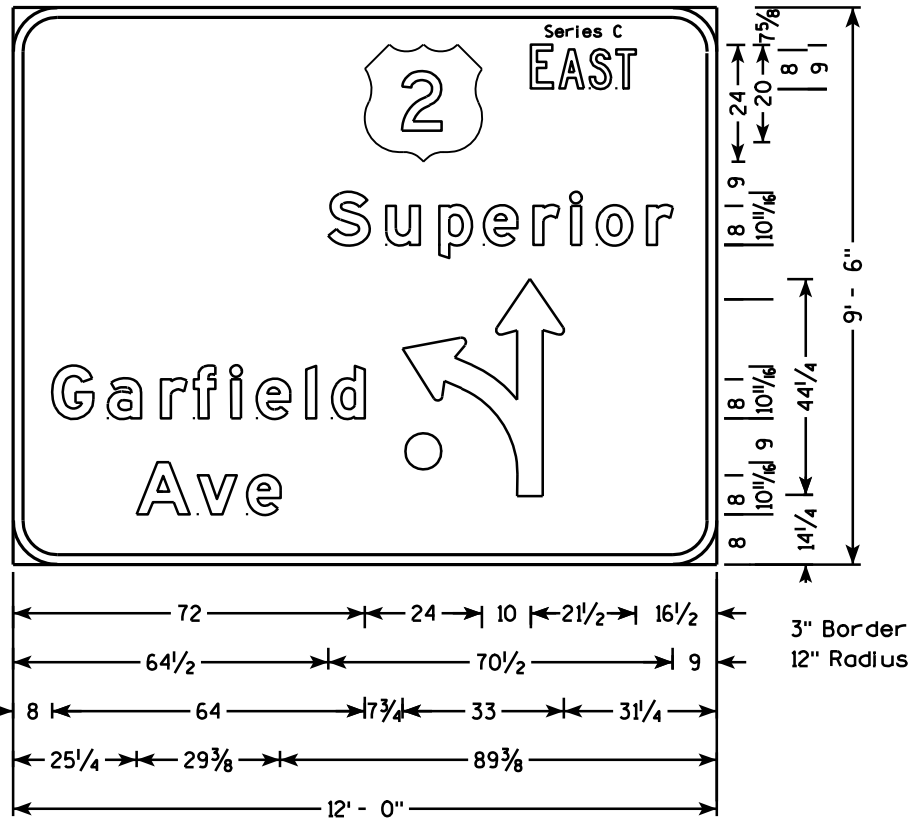


D2-1

7

7

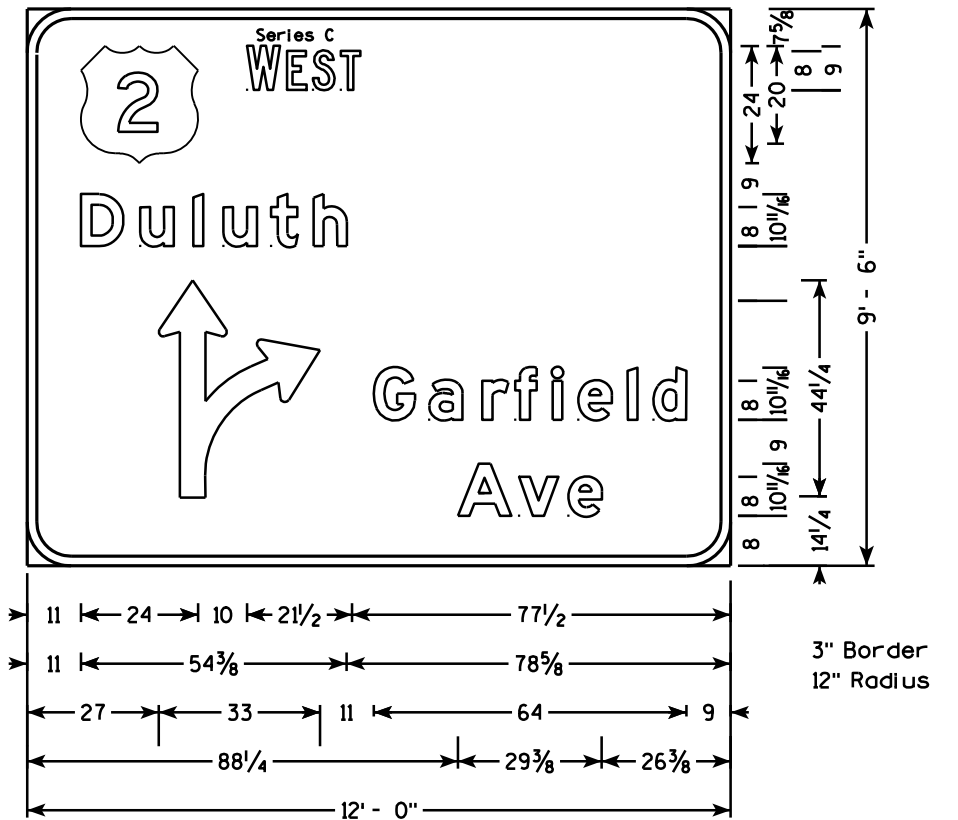
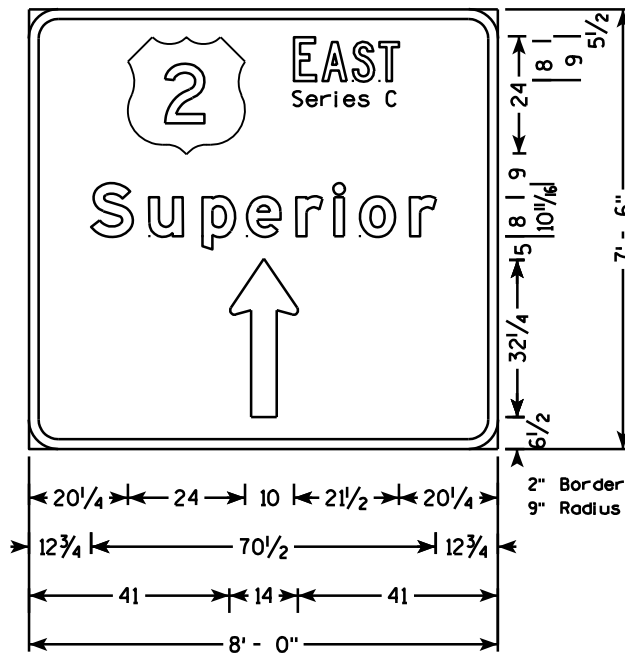
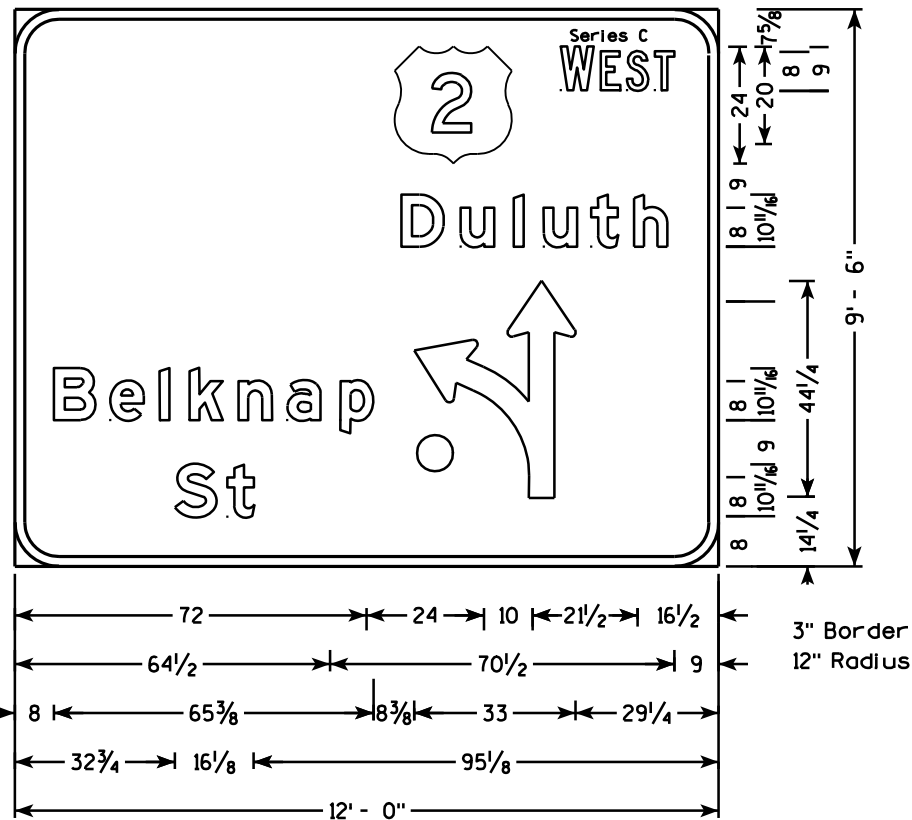




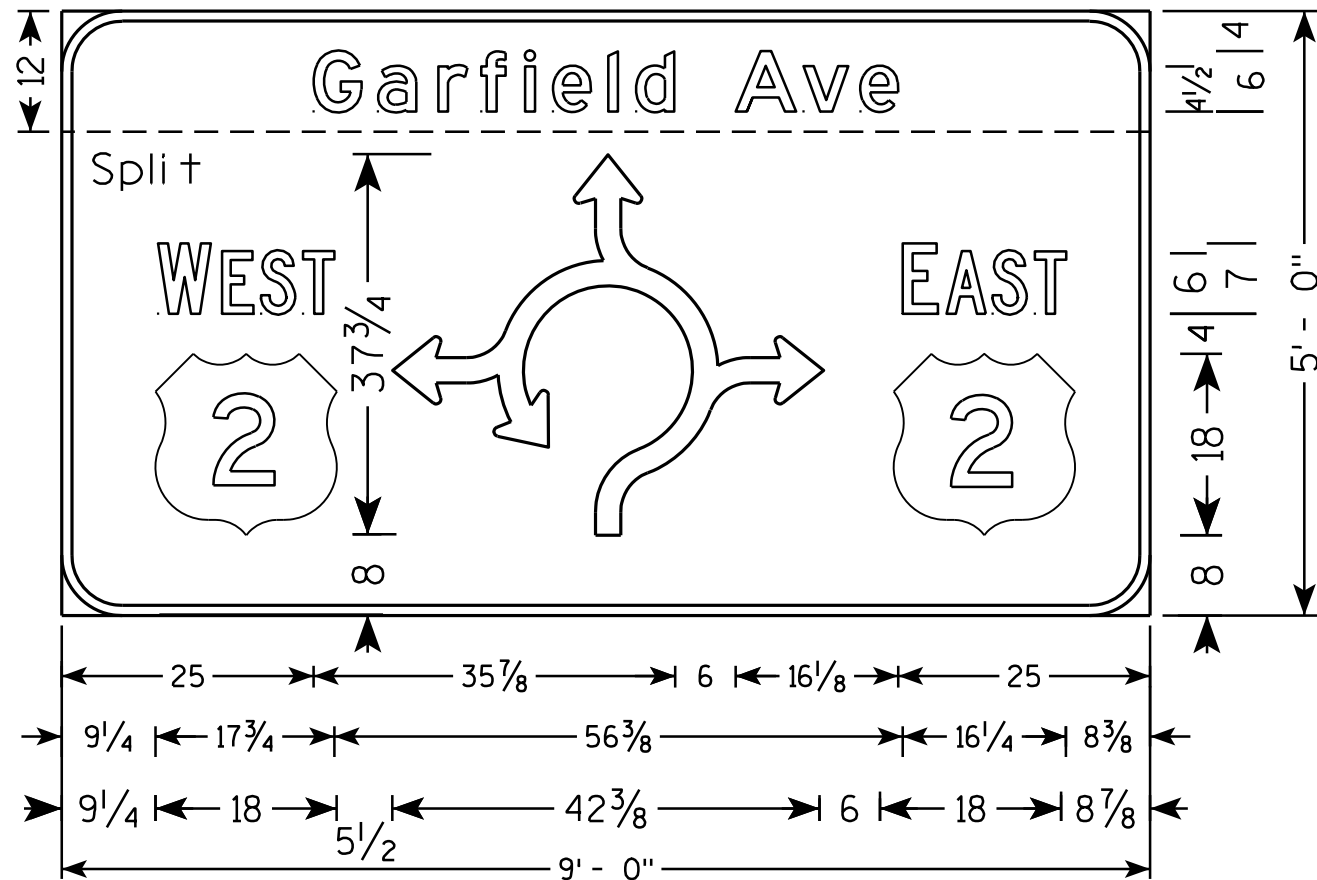
**NOTES**

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

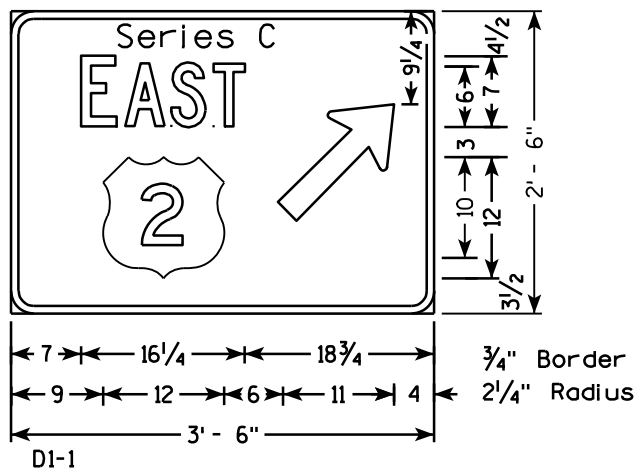
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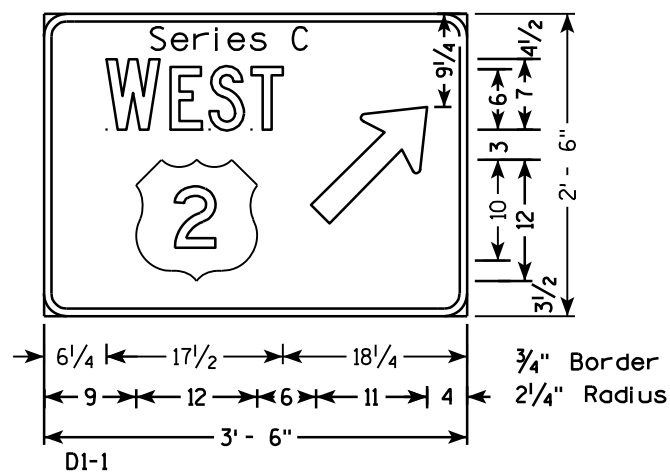
7



D1-62



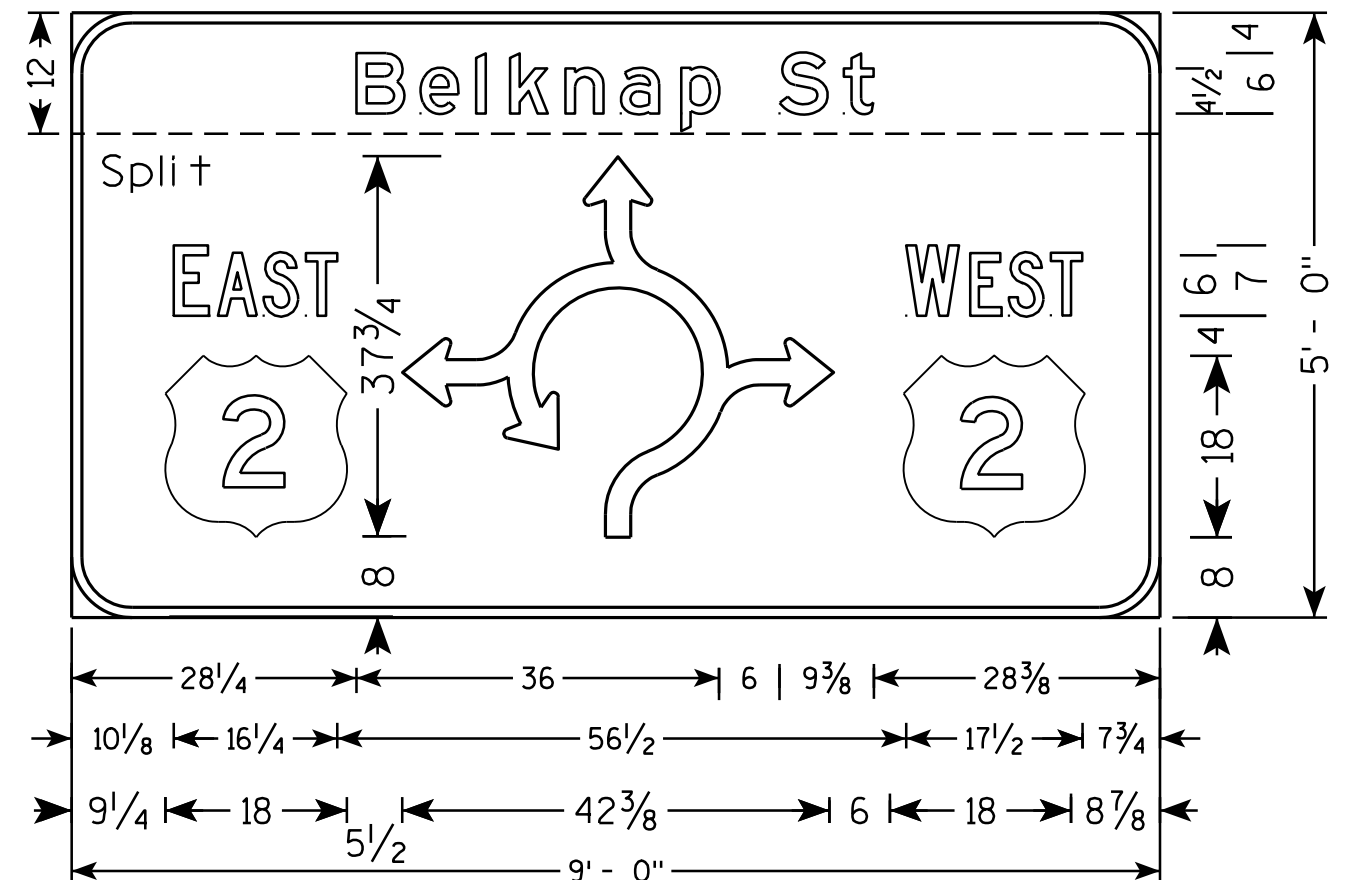
D1-1



D1-1

**NOTES**

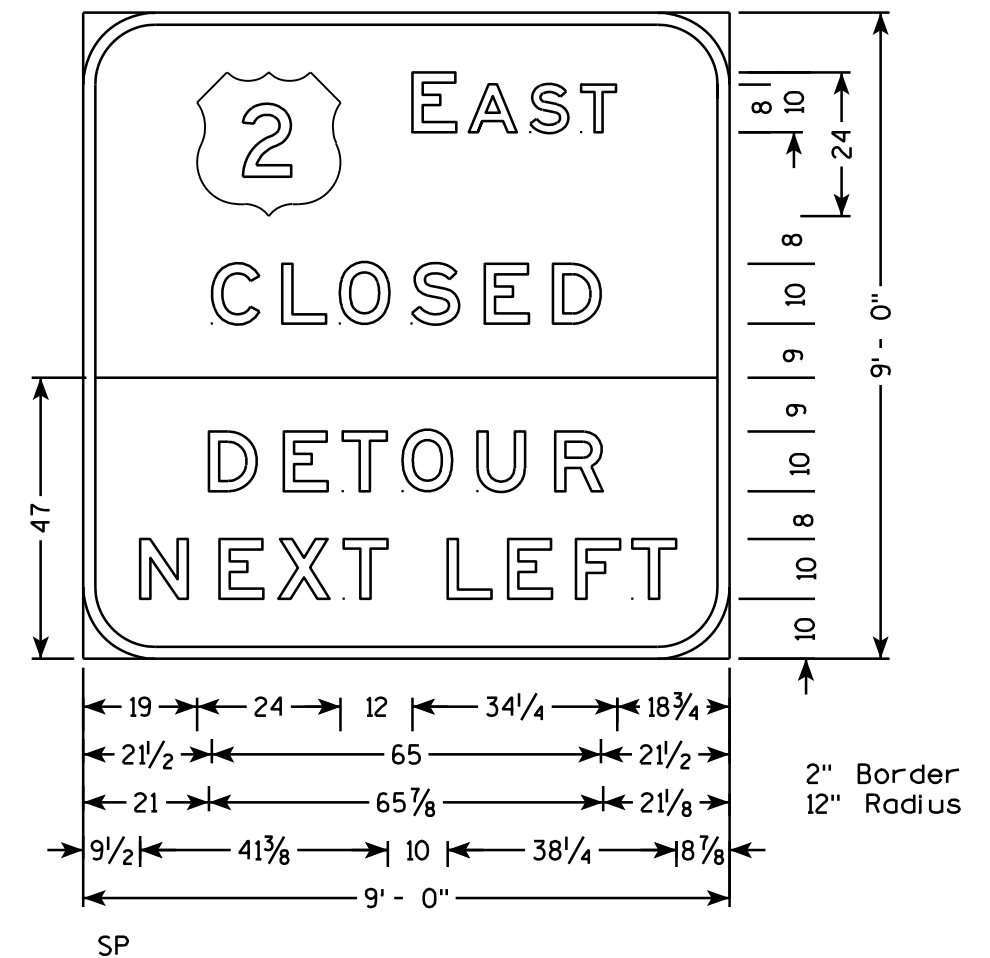
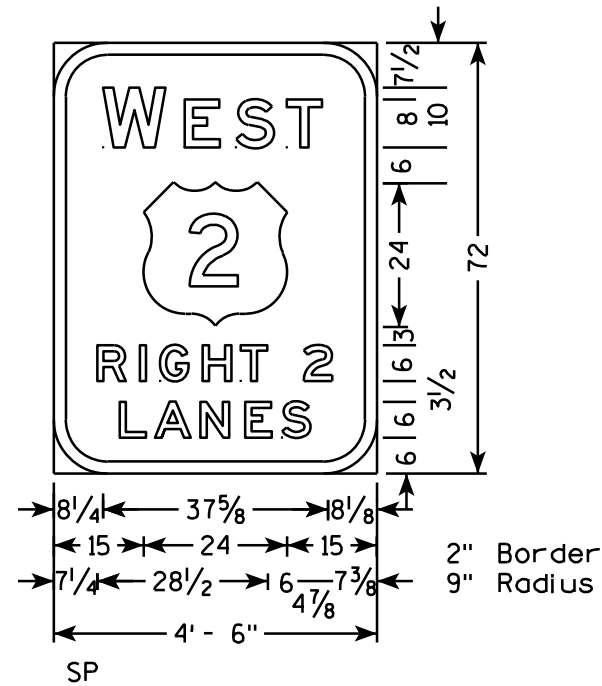
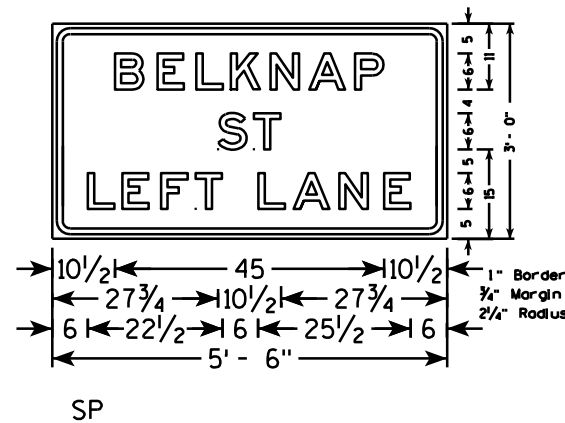
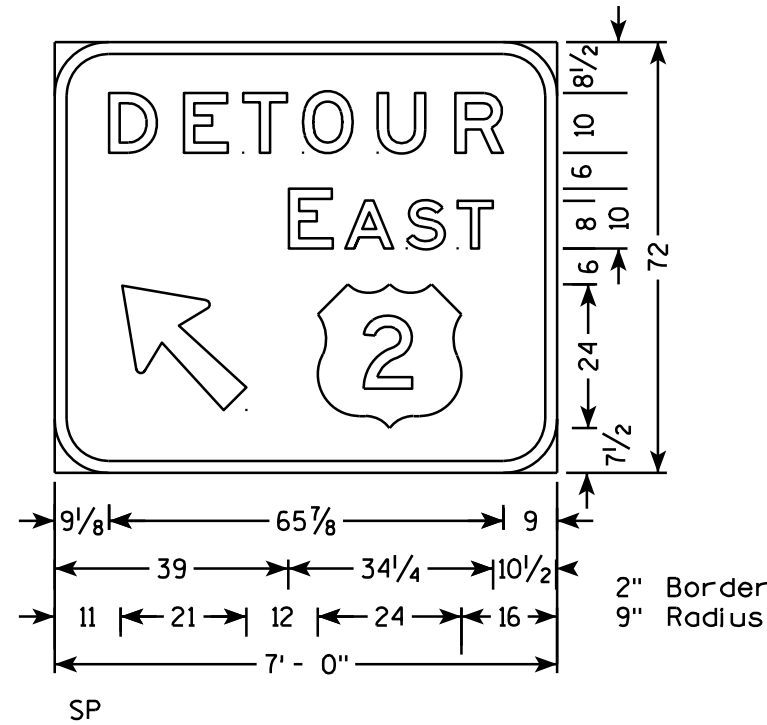
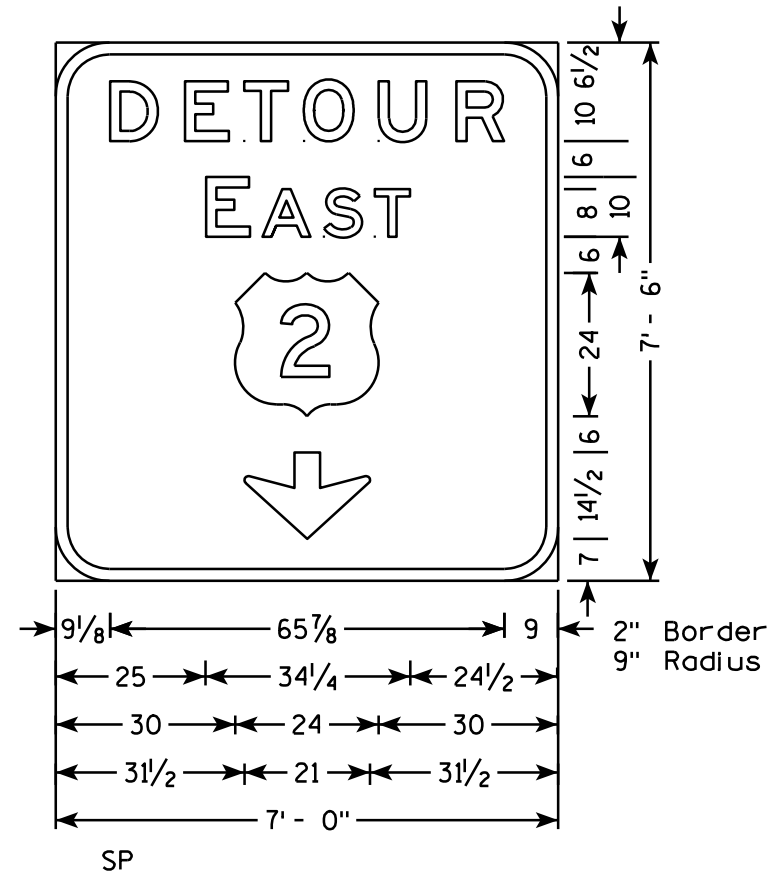
1. All Signs Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - GREEN  
Message - WHITE
3. Message Series - E except as Shown



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

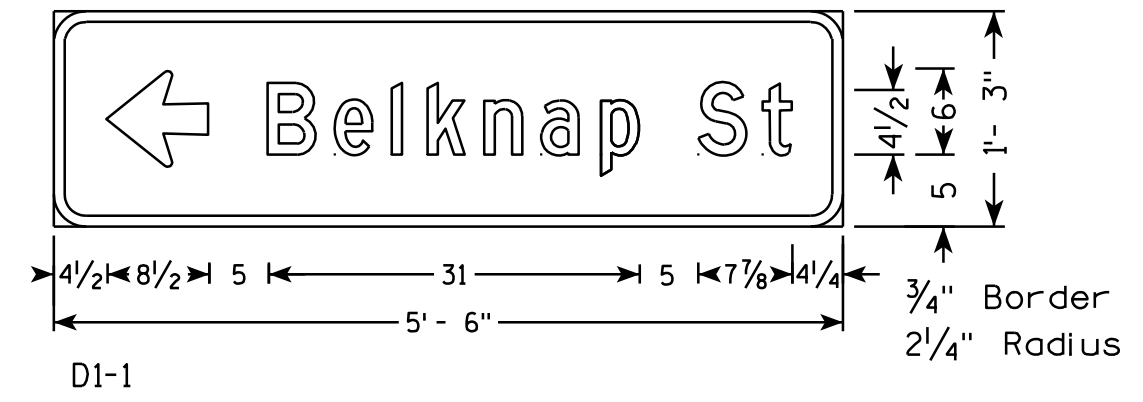
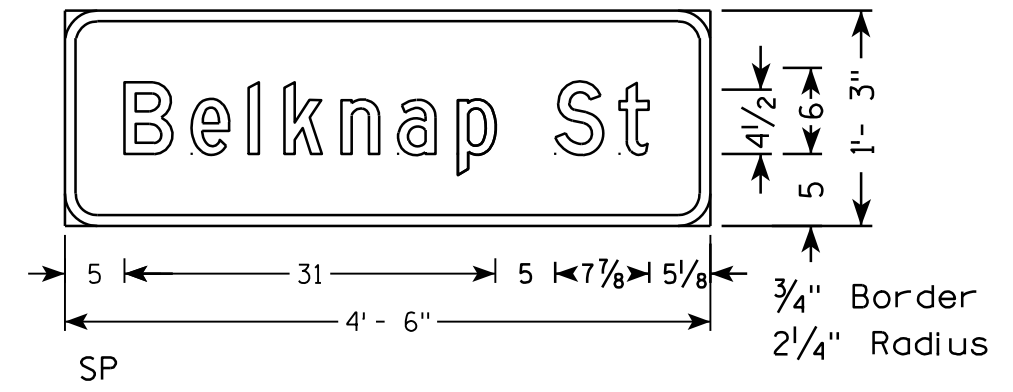
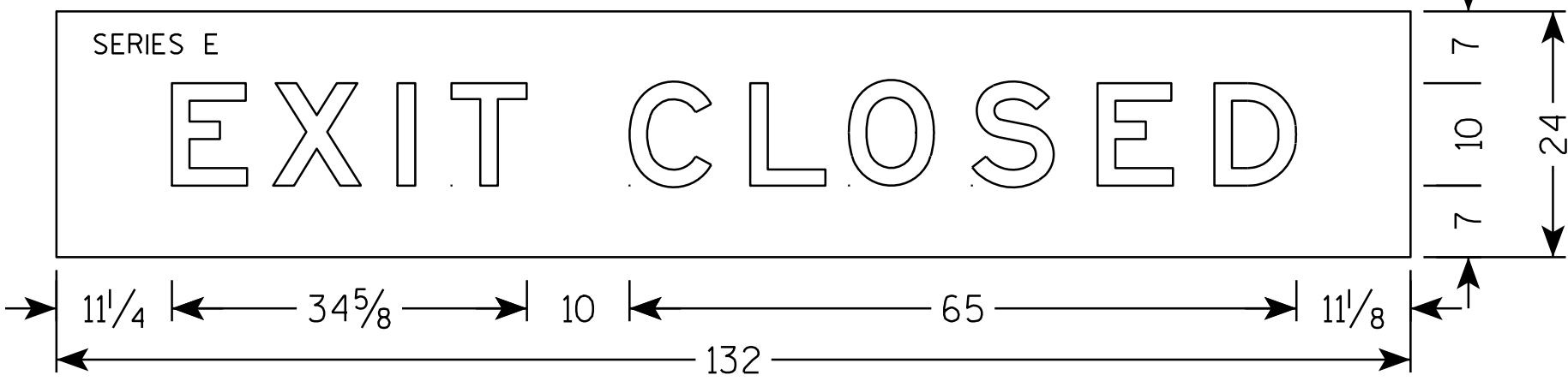
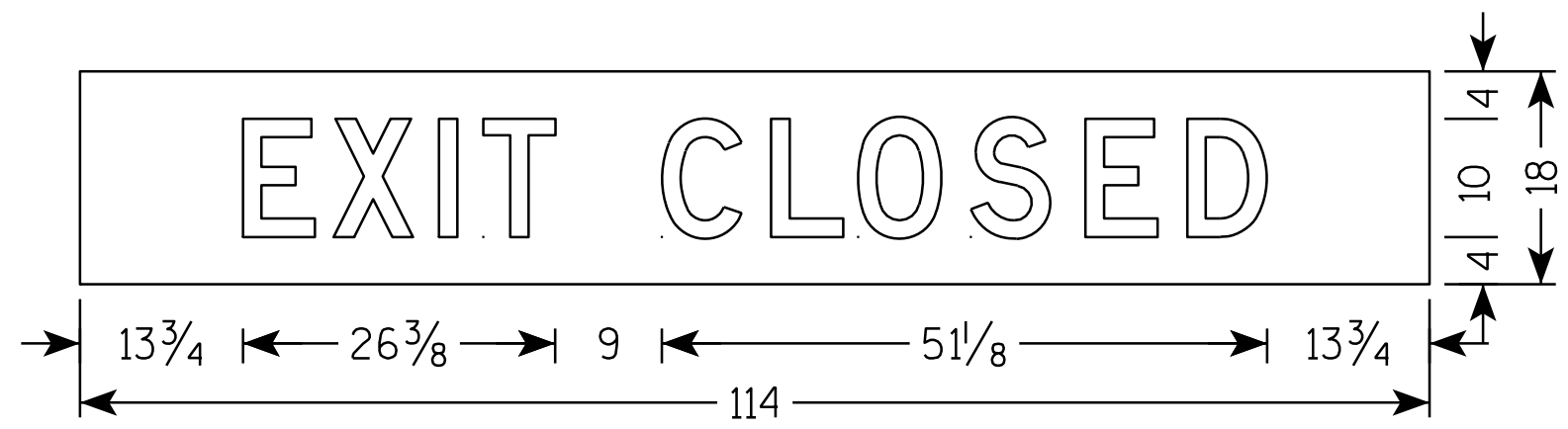


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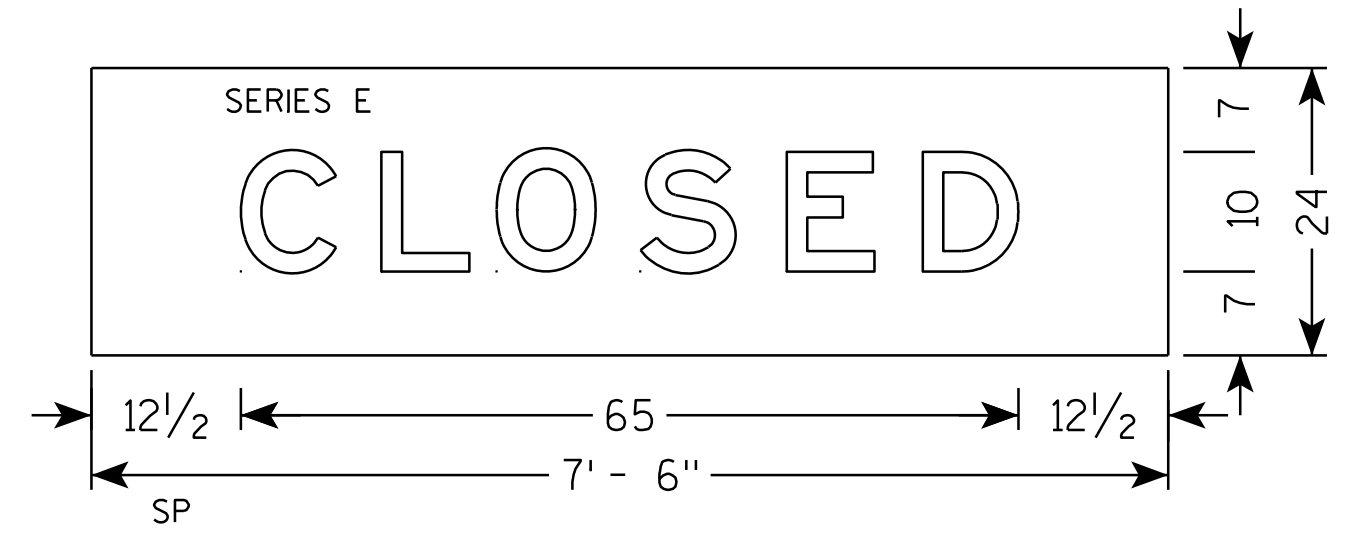
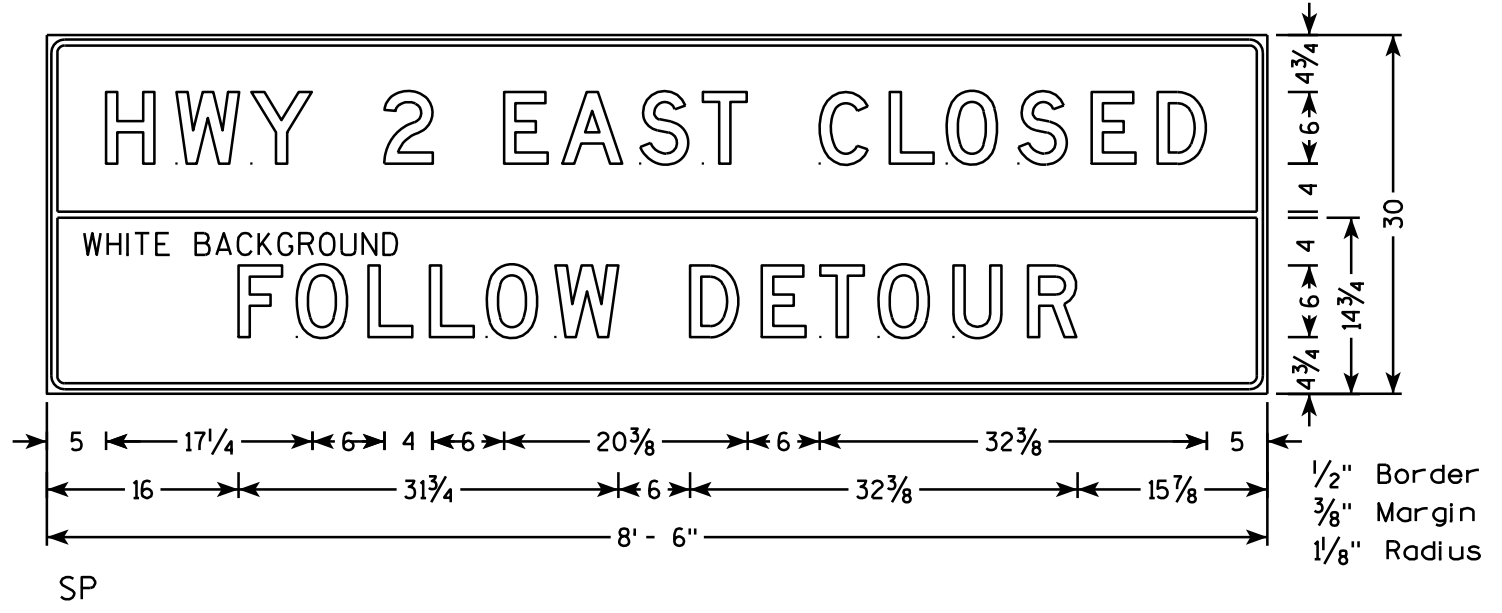
7

**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

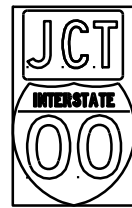


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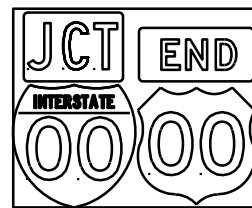


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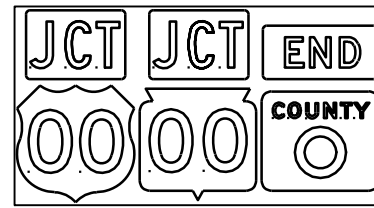
## TYPICAL ASSEMBLIES



J1-1



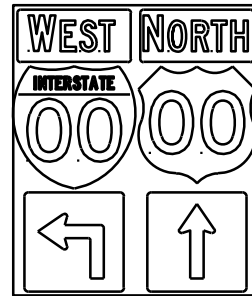
J1-2



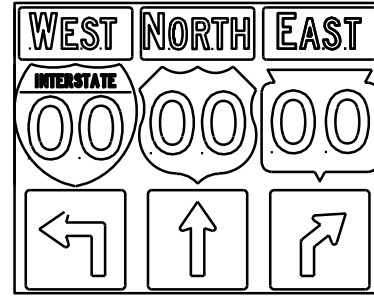
J1-3



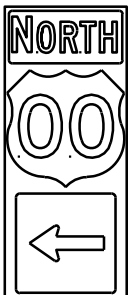
J2-1



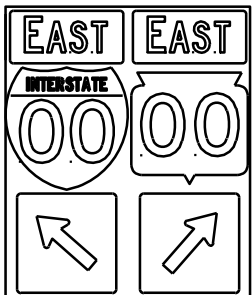
J2-2



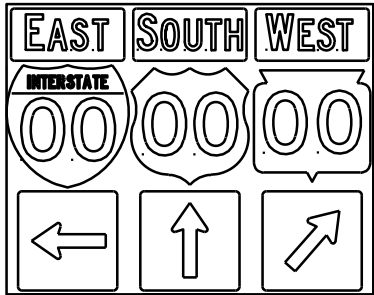
J2-3



J3-1



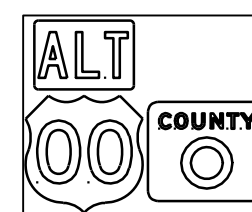
J3-2



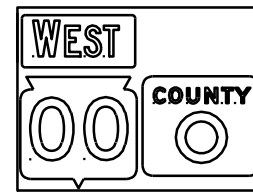
J3-3



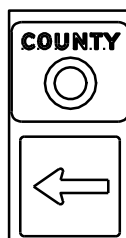
J4-1



J4-2



J4-2



J13-1



J12-1



J32-1



J33-1



J23-1



J22-1



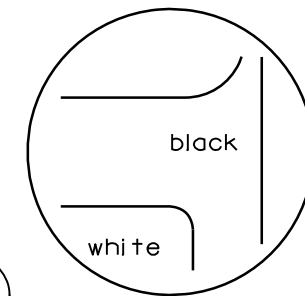
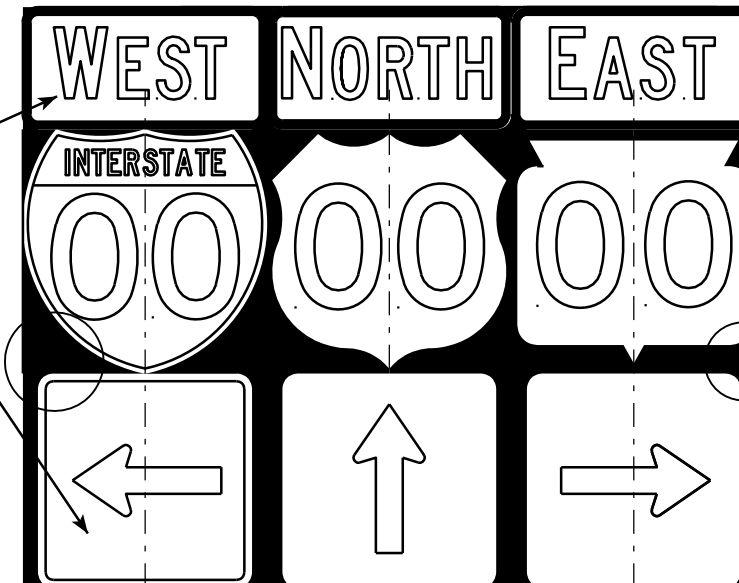
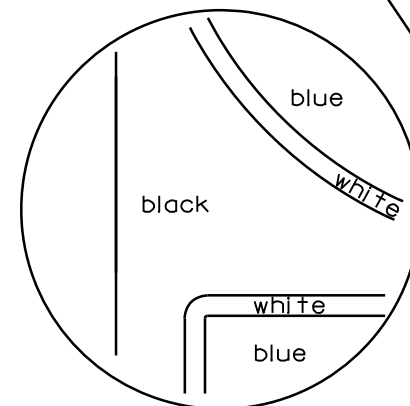
JV

(Typical Vertical J-Assembly  
See Note 10 and 11)

## NOTES

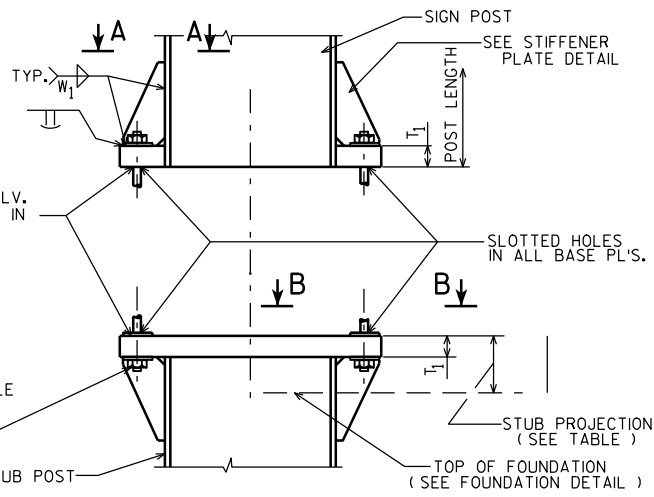
- Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:  
Background - Black Non-reflective  
Message - see Note 5
- Message Series - See Note 5
- Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
- The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
- 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.
- 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.
- 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.
- Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (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.
- All Vertical J Assemblies are given a Sign Code of JV
- For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

[blue background with interstate]

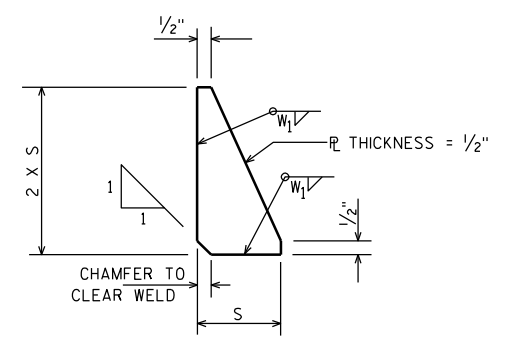


[black background]

ROUTE MARKERS & COMPONENTS IN TYPICAL ASSEMBLIES	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/25/13	PLATE NO. A2-1S.7

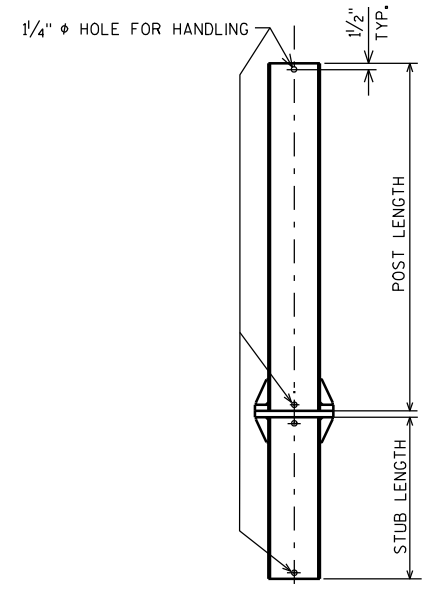


**SIGN POST AND STUB POST ELEVATION**



**STIFFENER PLATE DETAIL**

(SEE TABLE FOR DIMENSIONS)



**POST DETAIL**

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.

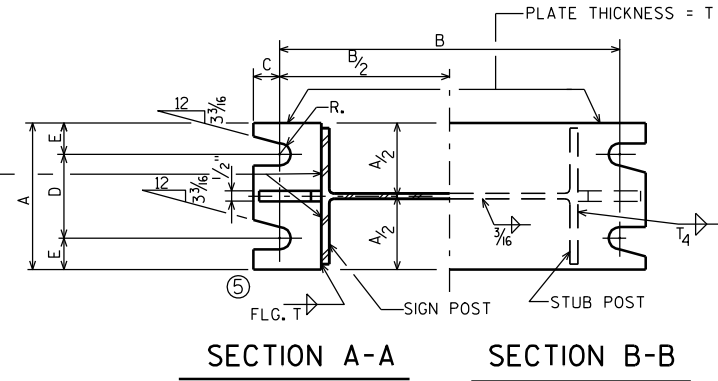
**SHIM DETAIL**

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
E	1.0	62

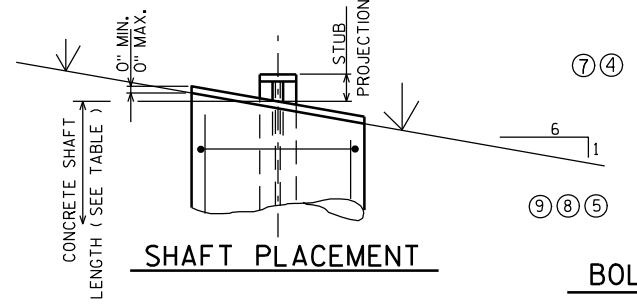
REINF.	TYPE	#3	#4
		A	8 @ 4'-5"
B	8 @ 6'-5"	7 @ 6'-3"	
C	8 @ 6'-11"	7 @ 6'-3"	
D	8 @ 7'-5"	8 @ 6'-3"	
E	8 @ 7'-11"	9 @ 6'-3"	

TYPE	DIMENSION POST SIZE	BOLT SIZE & TORQUE	BASE CONNECTION DATA TABLE										FOUNDATION DATA				K	
			A	B	C	D	E	T <sub>1</sub>	T <sub>4</sub>	W <sub>1</sub>	R	S	STUB LENGTH	STUB PROJECTION	SHAFT DIAMETER	SHAFT LENGTH		
④	A	3/4" φ @ 75#-FT.	5 1/4"	1'-0 3/8"	7/8"	3 1/2"	7/8"	1"	3/16"	5/16"	1 1/2"	1 1/2"	3"	3'-6"	3"	2'-0 φ	5'-0"	76.0#
④	B	7/8" φ @ 85#-FT.	5 1/2"	1'-4 1/4"	1"	3 1/2"	1"	1 1/4"	1/4"	5/16"	1 1/2"	1 1/2"	3"	5'-6"	3"	2'-0 φ	7'-0"	146.5#
	C	7/8" φ @ 85#-FT.	5 1/2"	1'-4 1/4"	1"	3 1/2"	1"	1 1/2"	3/16"	5/16"	1 1/2"	1 1/2"	3"	6'-0"	3"	2'-0 φ	7'-6"	182.1#
	D	7/8" φ @ 85#-FT.	5 1/2"	1'-4 1/4"	1"	3 1/2"	1"	1 1/2"	3/16"	5/16"	1 1/2"	1 1/2"	3"	6'-6"	3"	2'-0 φ	8'-0"	210.5#
③	E	1" φ @ 90#-FT.	7"	1'-4 1/4"	1 1/4"	4"	1 1/2"	1 1/2"	3/8"	5/16"	1 1/2"	1 1/2"	3"	7'-0"	3"	2'-0 φ	8'-6"	293.0#

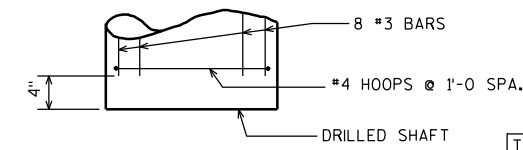
STRUCTURAL CARBON STEEL PAY WTS. (1POST) = K + (POST LENGTH X POST WT.)  
 "K" INCLUDES STUB, BASE PLATES, STIFFS., BOLTS, AND WASHERS.



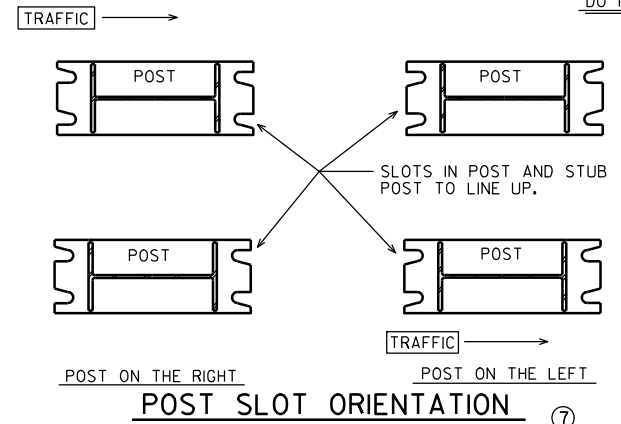
**SECTION A-A SECTION B-B**



**SHAFT PLACEMENT**



**FOUNDATION DETAIL**



**POST SLOT ORIENTATION**

**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 140 Δ25 P.S.F. MIN.  
 ALLOWABLE SOIL PRESSURE = 1 1/2 T / 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**

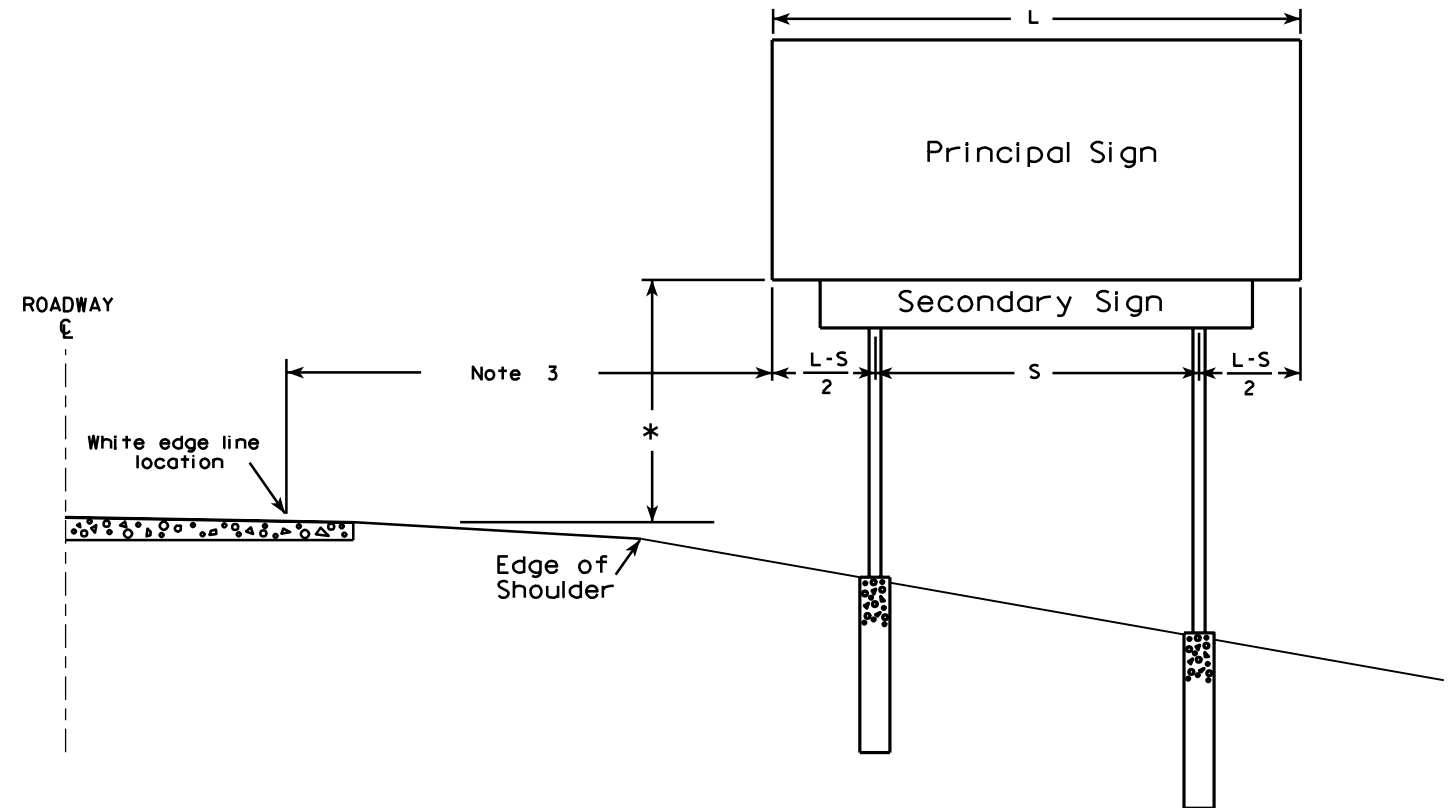
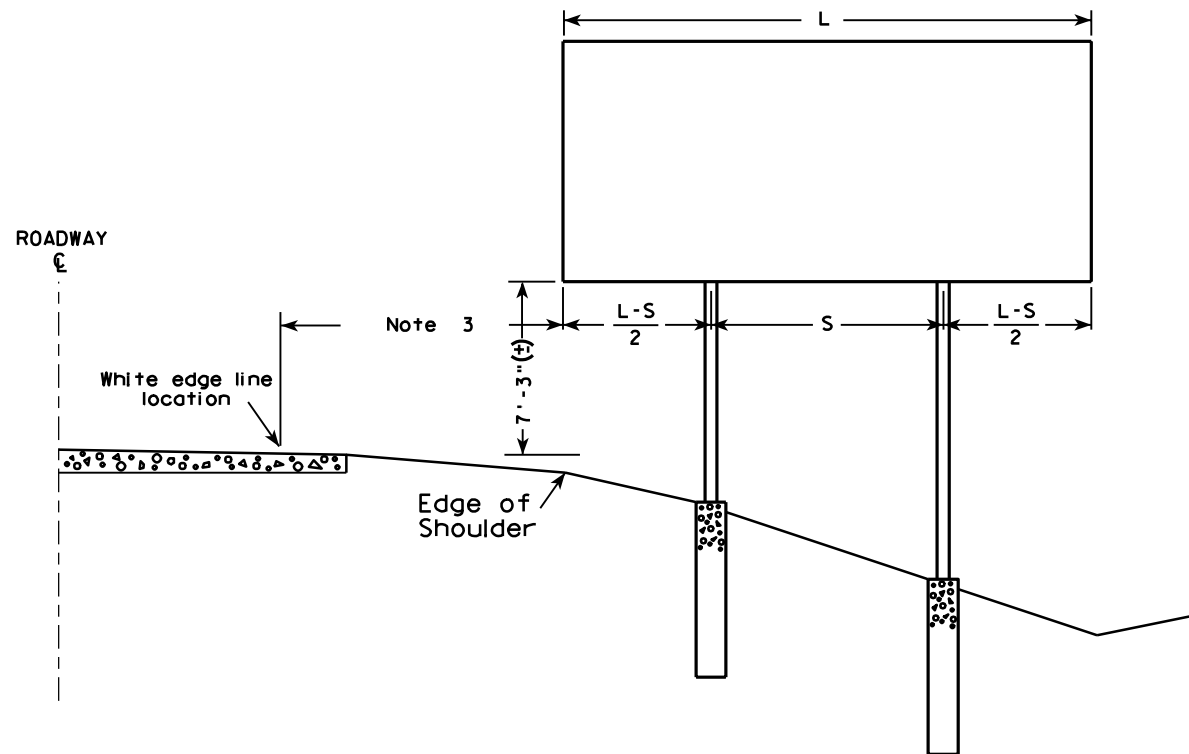
DRAWINGS SHALL NOT BE SCALED.  
 DESIGN CONFORMS WITH A.A.S.H.T.O. SPECIFICATIONS 1985.  
 ALL POSTS, POST STUBS & ATTACHMENTS SHALL BE A.S.T.M. A709 GRADE 50.  
 THE POST, BASE PLATES, UPPER SIX INCHES OF STUB POST FLANGE SPlice PLATE AND FUSE PLATE SHALL BE GALVANIZED AFTER FABRICATION.  
 H.S. BOLTS, WASHERS & NUTS SHALL BE A325 GALVANIZED WHEN POSTS, POST STUBS AND ATTACHMENTS ARE A709 GRADE 50 AND GALVANIZED.

**BOLTING PROCEDURE - BASE CONNECTION**

- ASSEMBLE SIGN POST TO STUB POST WITH BOLTS AND ONE OF THE FLAT WASHERS ON EACH BOLT BETW. PLATES.
  - SHIM AS REQ'D. TO PLUMB POST.
  - 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)
  - 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.

WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i>
DATE 4/26/11	PLATE NO. A3-1.13
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 R 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 <sub>1</sub> · T <sub>2</sub> & W <sub>1</sub>
NO.	DATE REVISION

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	



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" (±).

TYPICAL INSTALLATION  
OF TYPE I SIGNS

WISCONSIN DEPT OF TRANSPORTATION

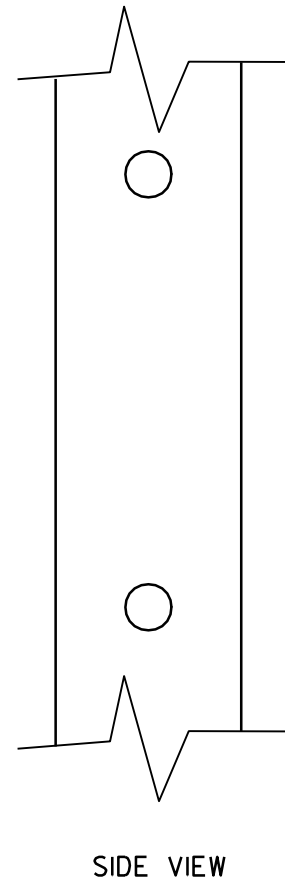
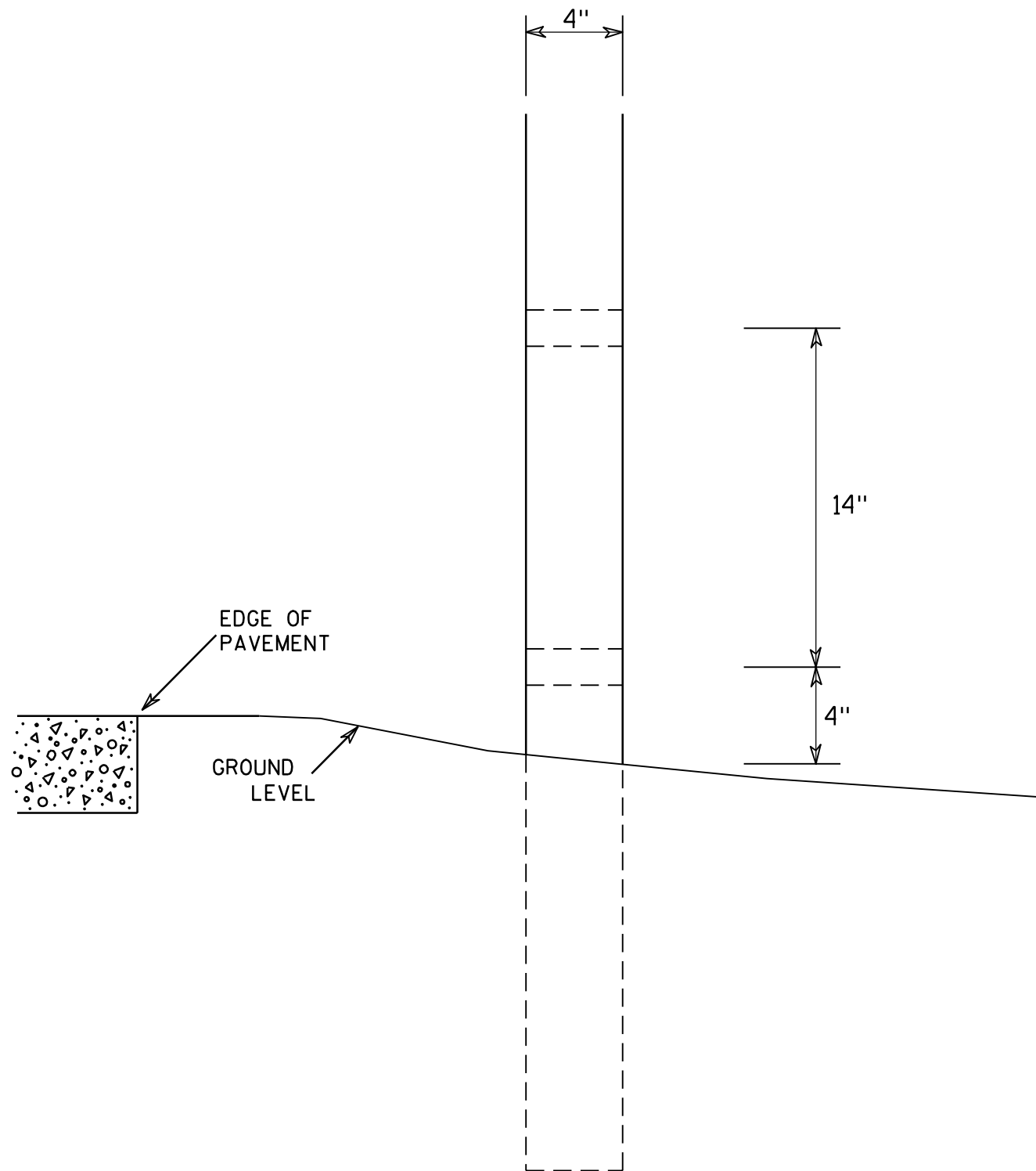
APPROVED *Matthew R. Raush*  
for State Traffic Engineer

DATE 4/02/08 PLATE NO. A4-1.9

PROJECT NO:

SHEET NO:

E




GENERAL NOTES

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

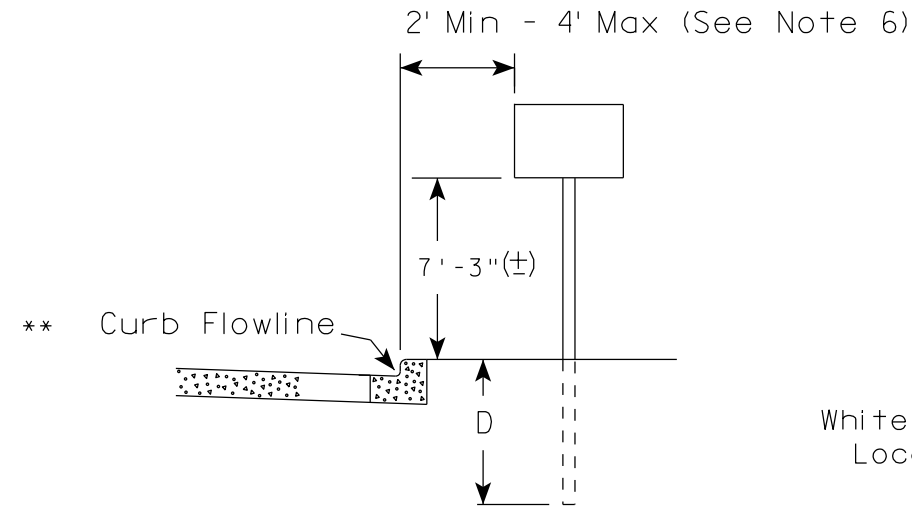
7

7

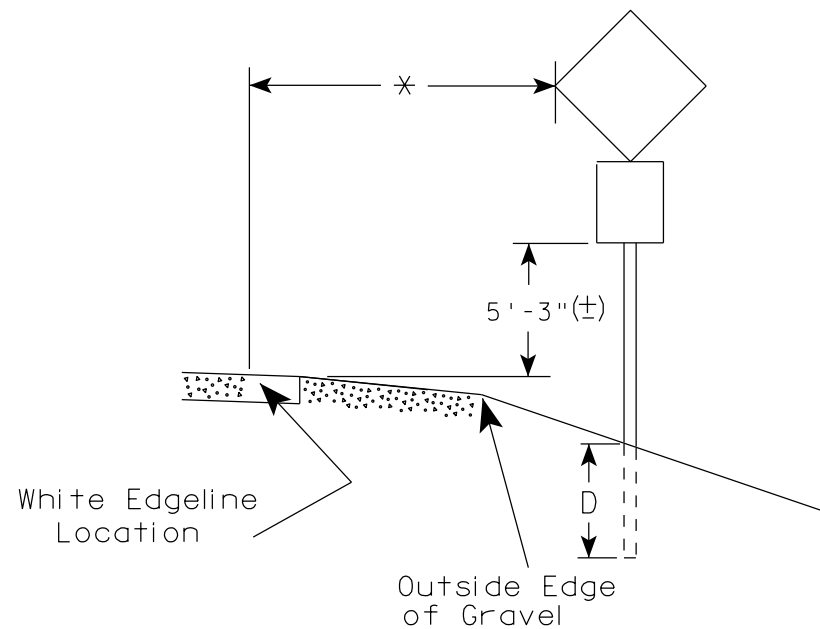
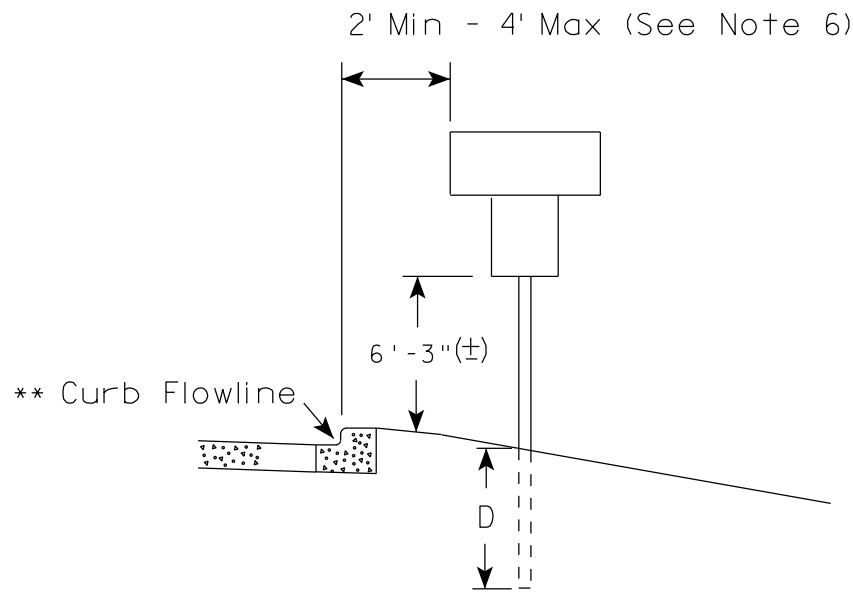
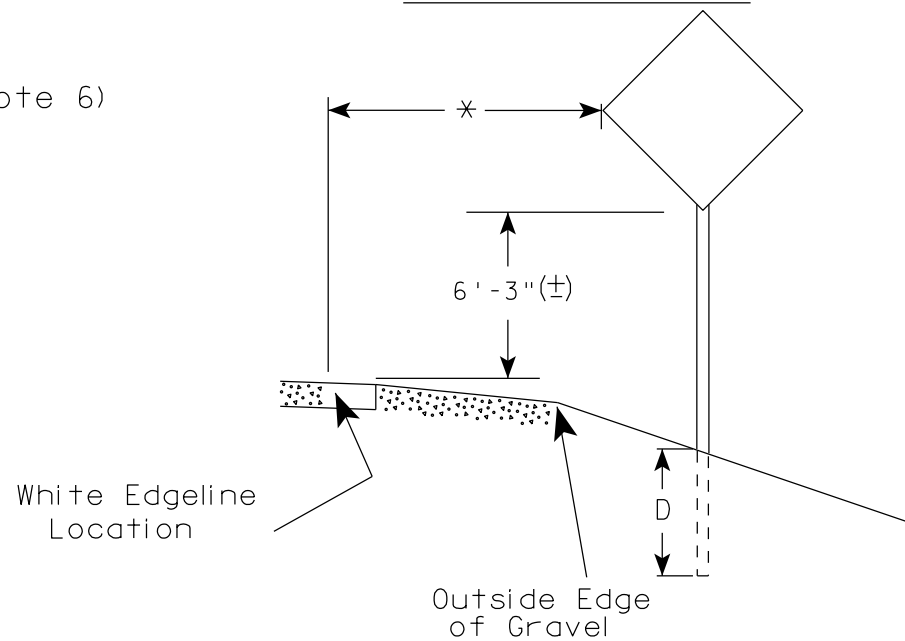
<b>4 X 6 WOOD POST MODIFICATIONS</b>	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	 <small>for State Traffic Engineer</small>
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>



URBAN AREA



RURAL AREA (See Note 2)



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'

✖✖ 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.

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

**GENERAL NOTES**

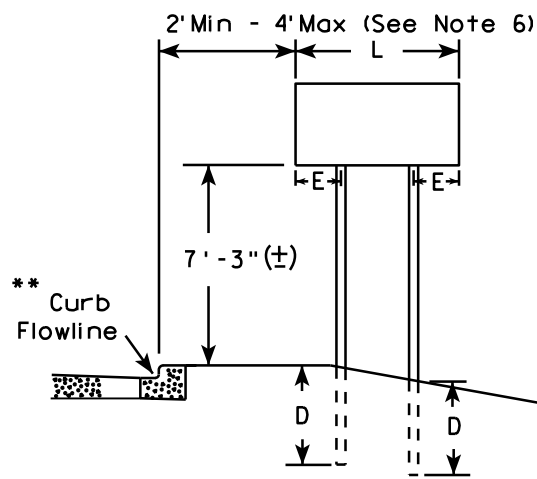
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
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.

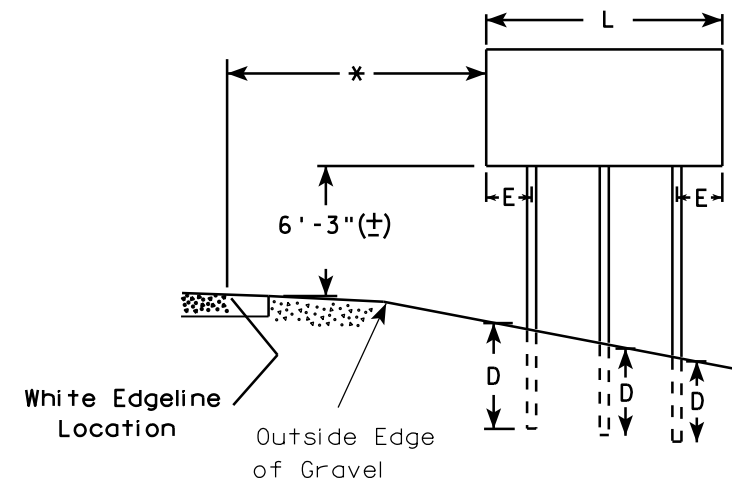
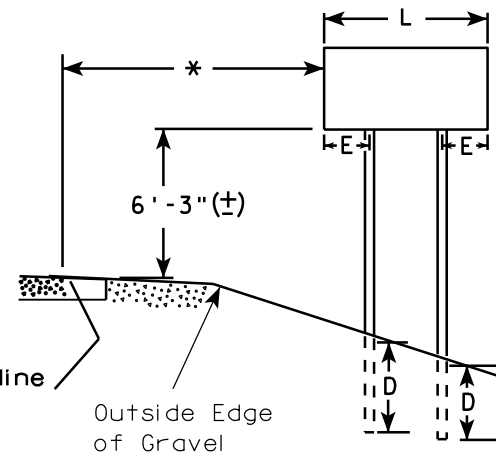
\*\* The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of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

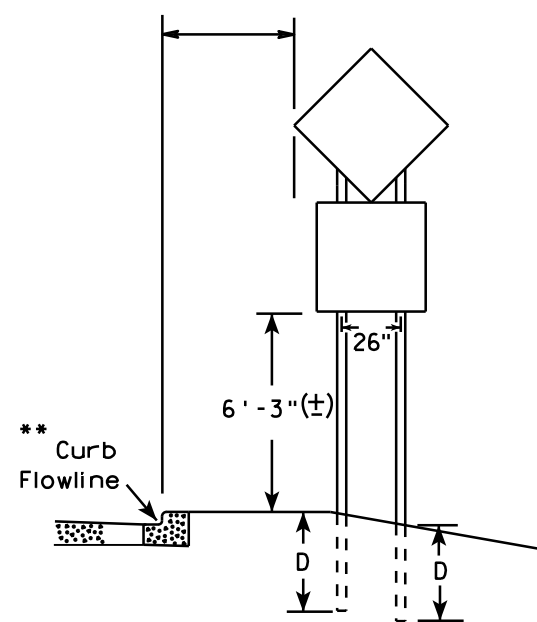
**URBAN AREA**



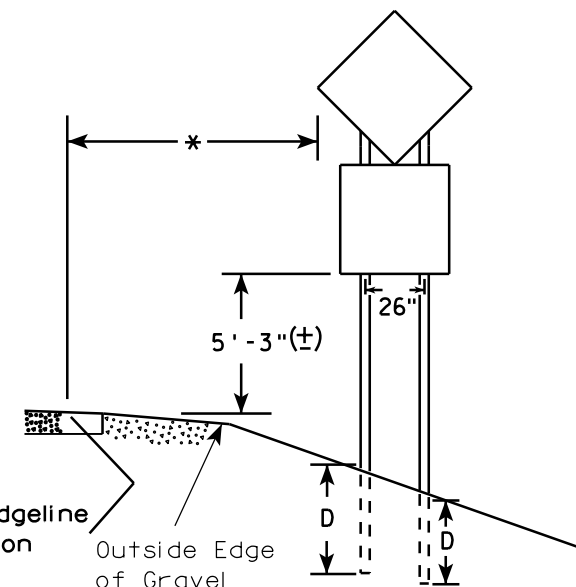
**RURAL AREA (See Note 3)**



2' Min - 4' Max (See Note 6)



**48" DIAMOND WARNING SIGN**



**48" DIAMOND WARNING SIGN**

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'

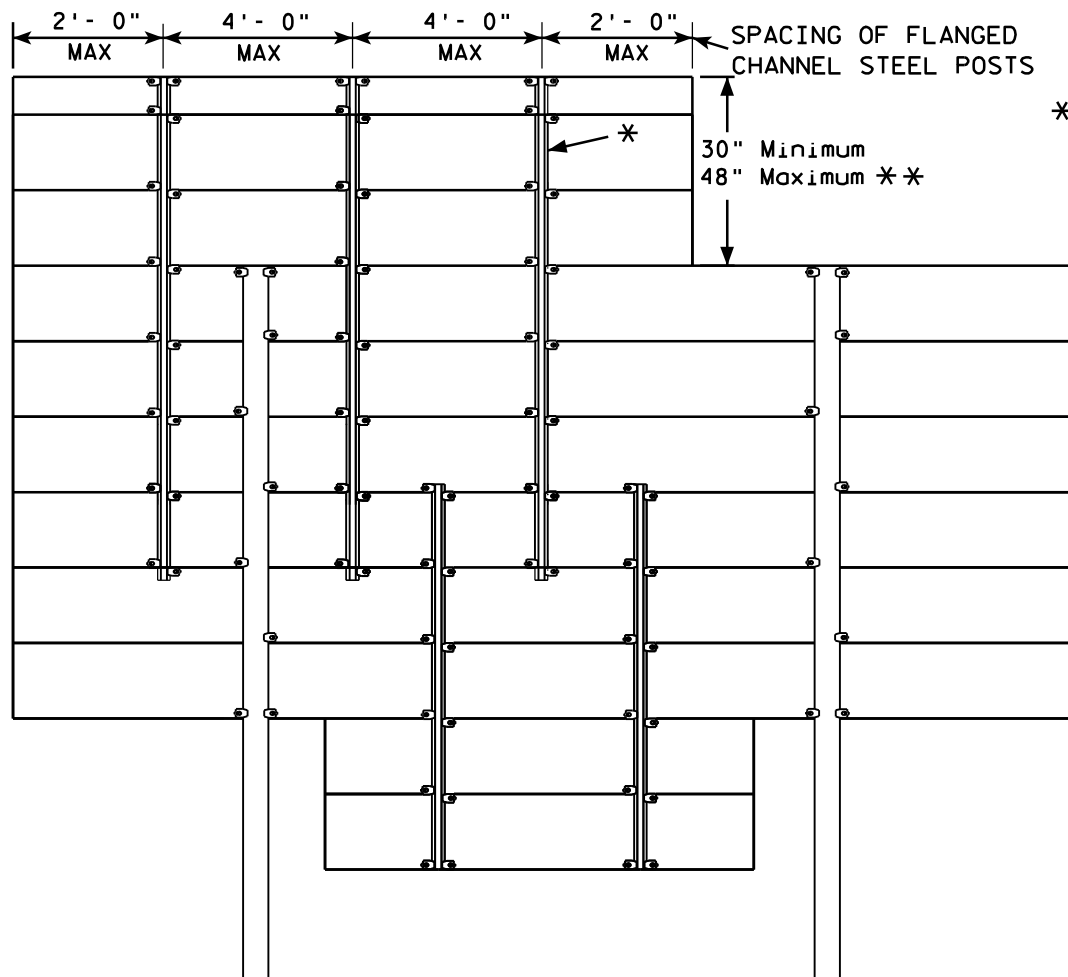
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

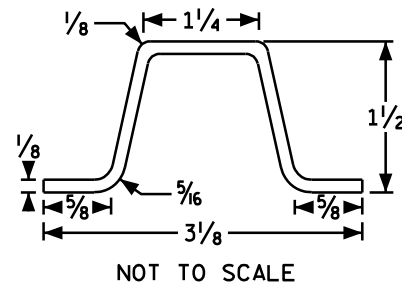
DATE 9/30/13 PLATE NO. A4-4.12

# GROUND MOUNTED SIGN

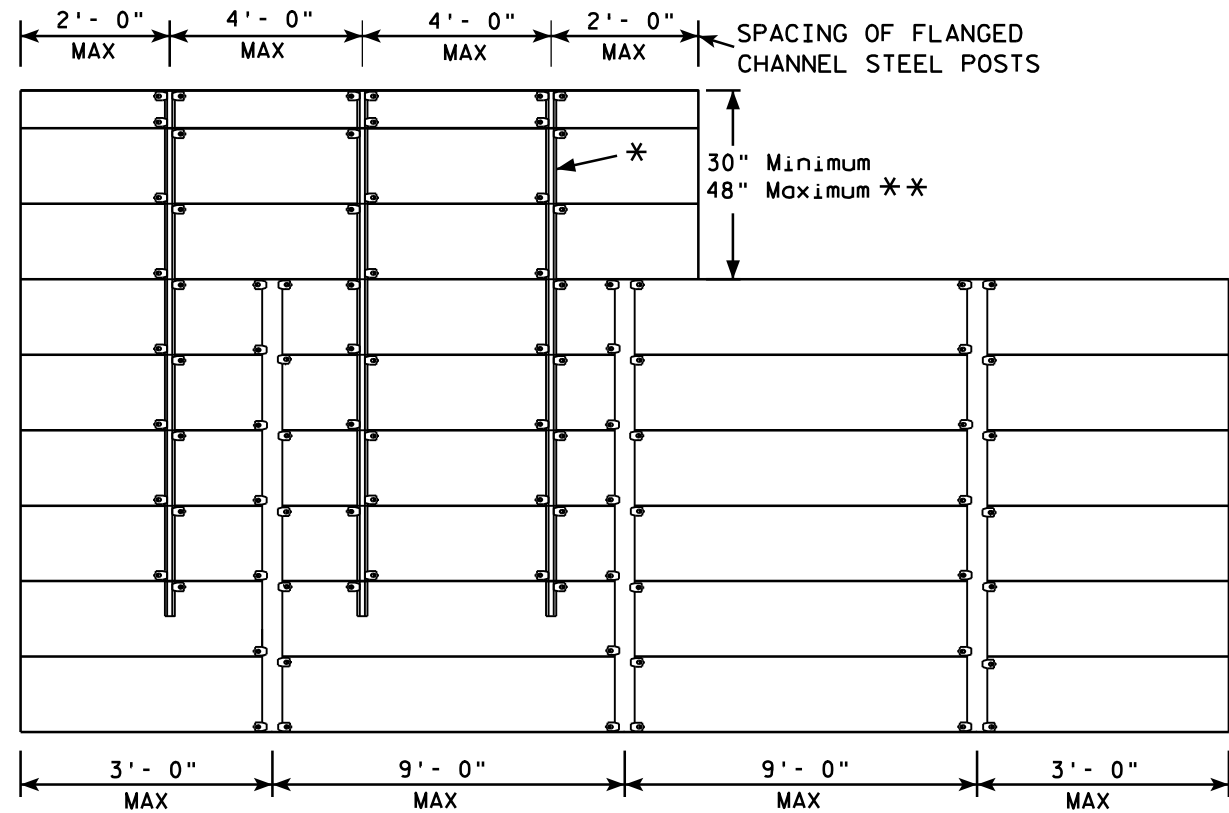


\* = 2.00 lb/ft FLANGED CHANNEL, MIN. YIELD STRENGTH = 60,000 PSI (GRADE 60) GALVANIZED  
 \*\* = FOR 48" HEIGHT PANELS ON OVERHEAD STRUCTURES, ENTIRE SIGN SHALL BE CENTERED VERTICALLY ABOUT THE DEPTH OF THE TRUSS.

## FLANGE CHANNEL DETAIL



# SIGN BRIDGE MOUNTED SIGN



SPACING OF ALUMINUM SIGN SUPPORTS  
 5" X 3.5" X 3.7 LBS./ft.

## 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

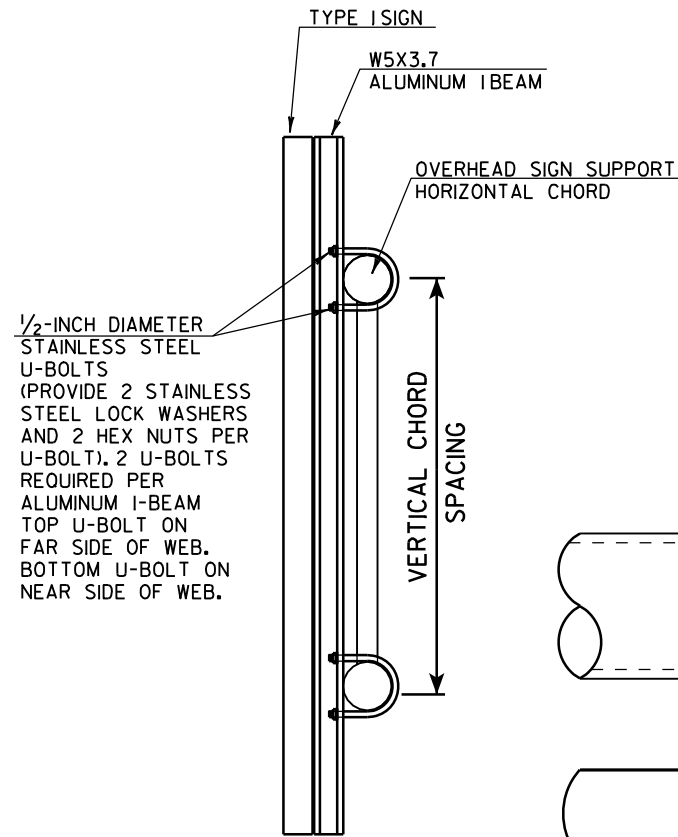
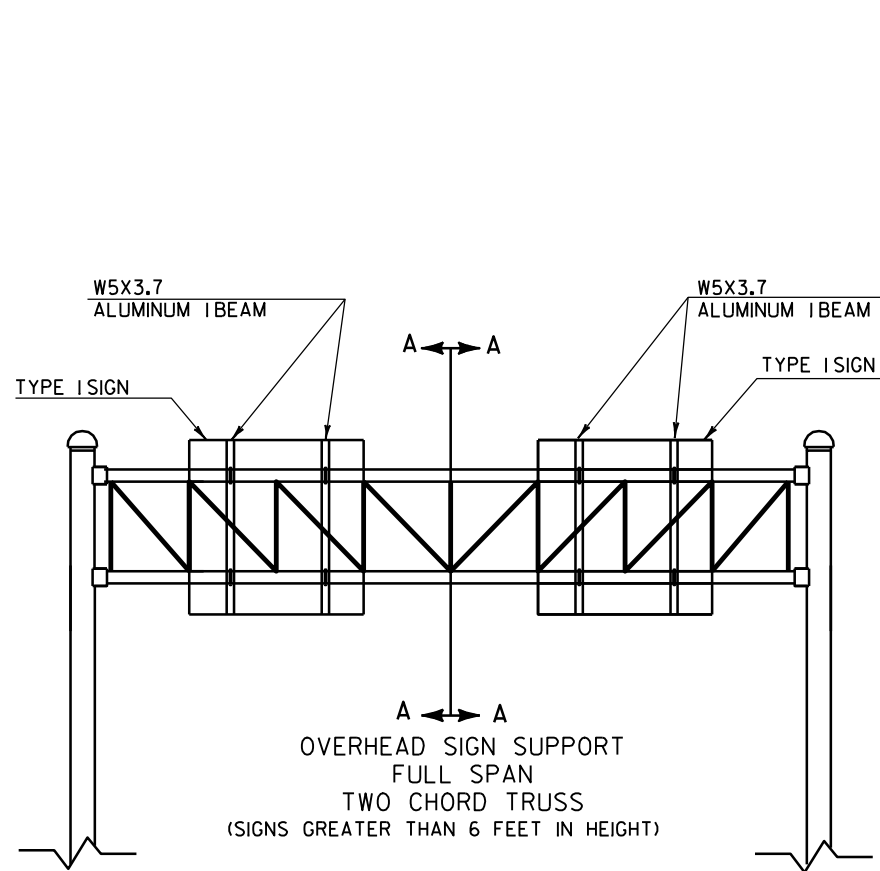
PROJECT NO:

SHEET NO:

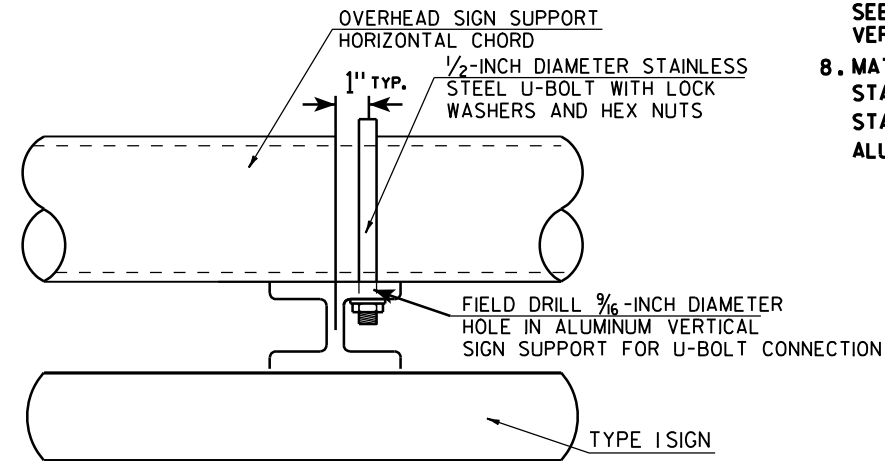
E

**GENERAL NOTES**

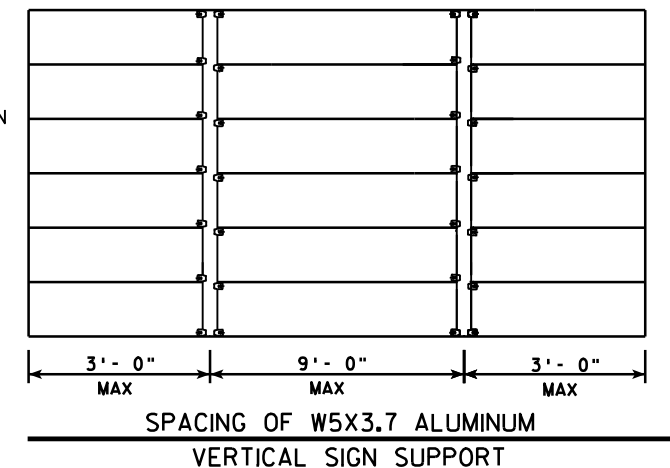
1. USE STAINLESS STEEL U-BOLTS, WASHERS, AND NUTS.
2. USE CLIPS ON EVERY EXTRUDED PANEL JOINT PER SIGN PLATE A4-6.
3. USE ALUMINUM VERTICAL SIGN SUPPORT BEAMS HAVING A 5 INCH BEAM DEPTH AND WEIGHT OF 3.7 LBS PER FOOT.
4. U-BOLTS SHALL BE STAINLESS STEEL AND MANUFACTURED TO THE PROPER SIZE TO FIT THE 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.



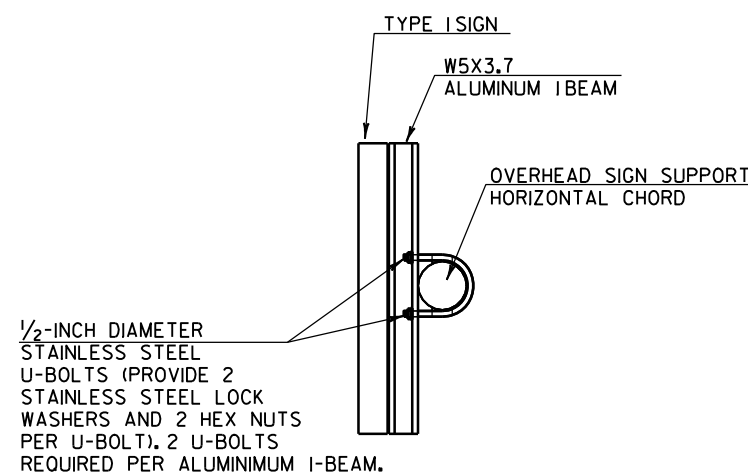
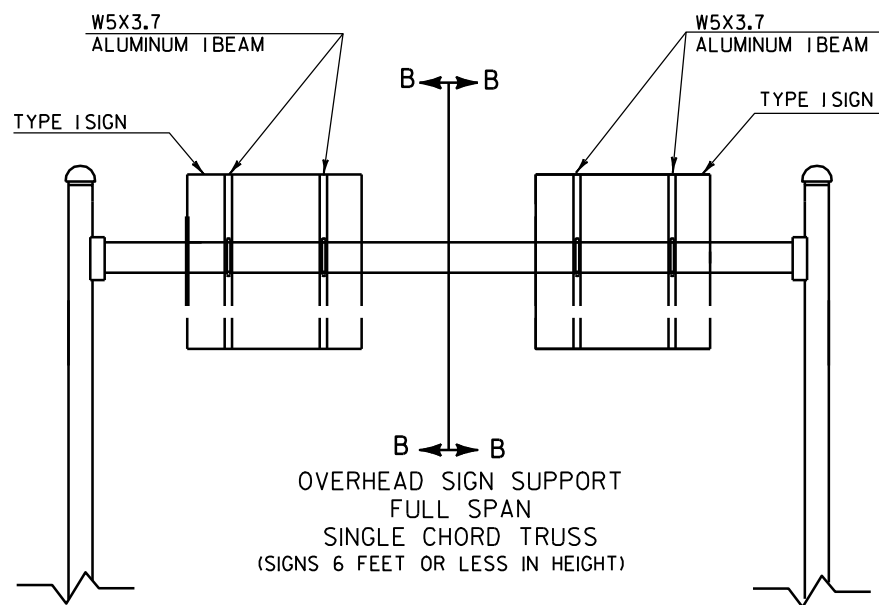
CUT SECTION A-A



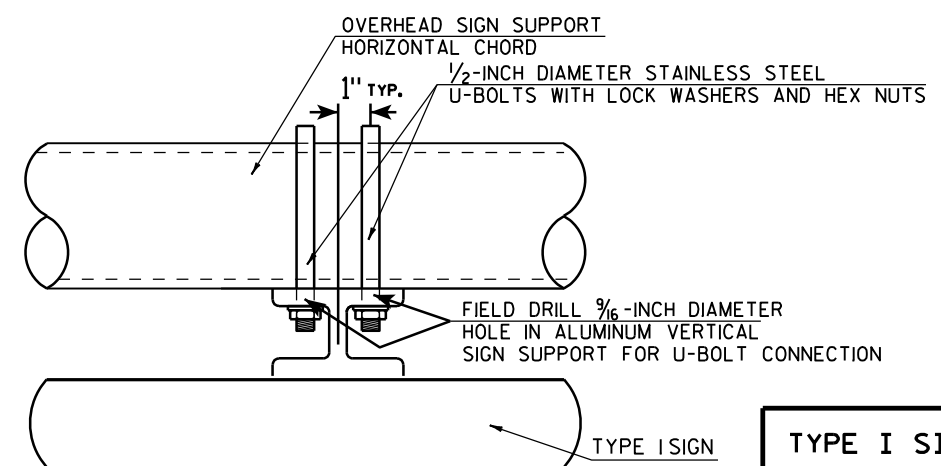
TYPICAL SIGN CONNECTION FOR TWO CHORD TRUSS  
PLAN VIEW



7



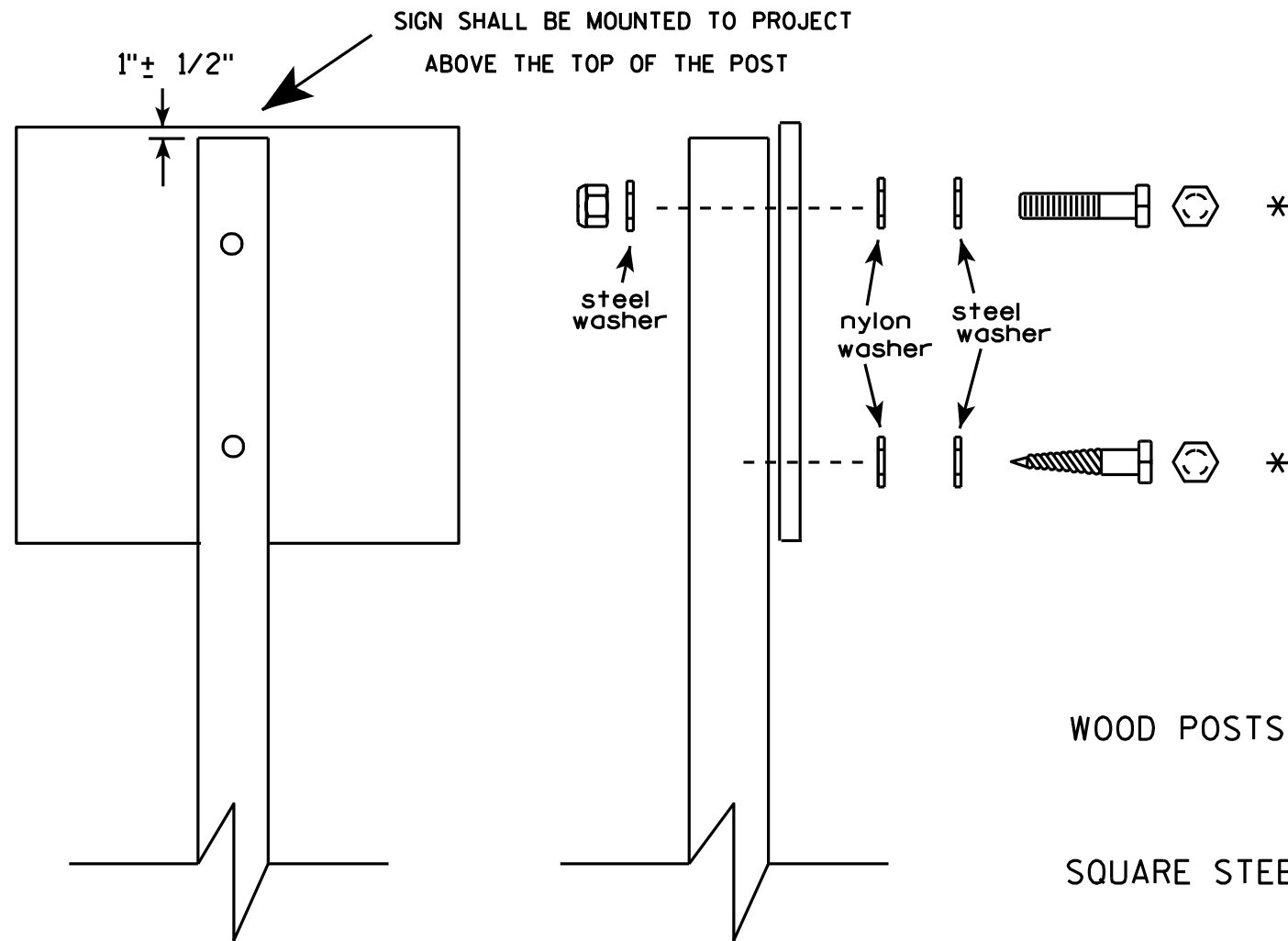
CUT SECTION B-B



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* State Traffic Engineer  
DATE 11/12/12 PLATE NO. A4-7.3

7



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

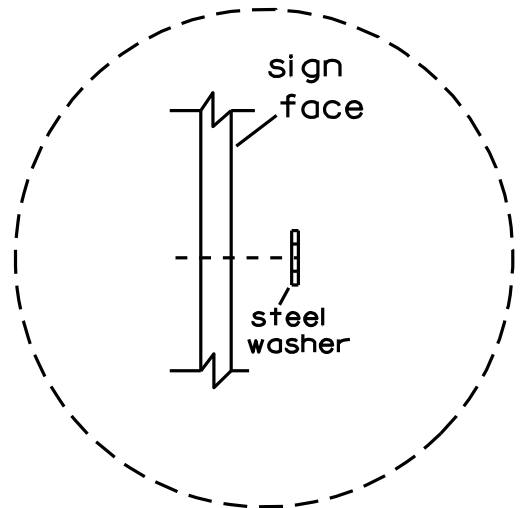
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL

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

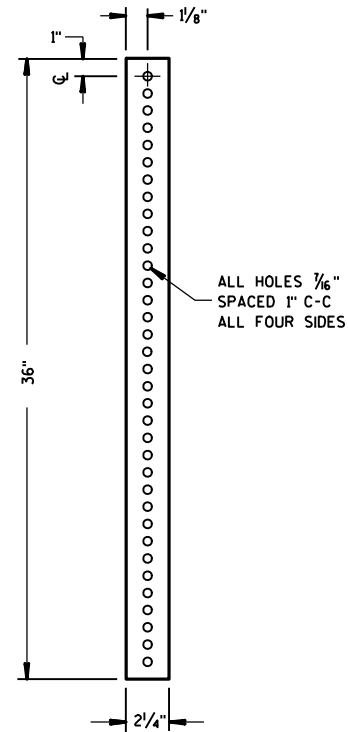
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*  
For State Traffic Engineer

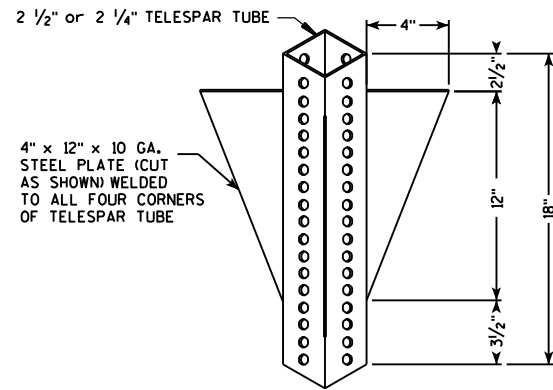
DATE 3/23/10 PLATE NO. A4-8.7

**TELESCOPIC TUBING ANCHORS  
TWO PIECE SYSTEM**

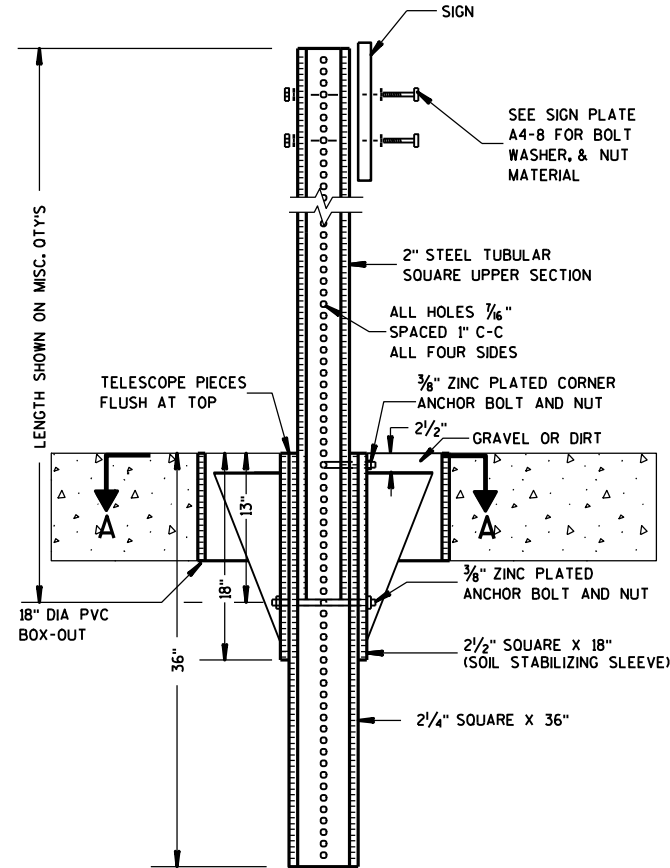
2 1/4" SQUARE  
12 GAUGE  
PERFORATED  
GALVANIZED FINISH



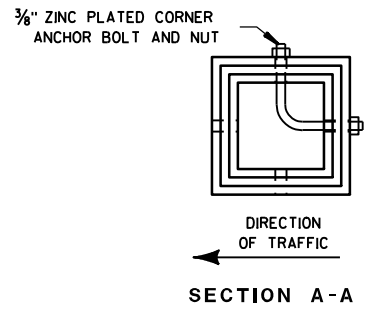
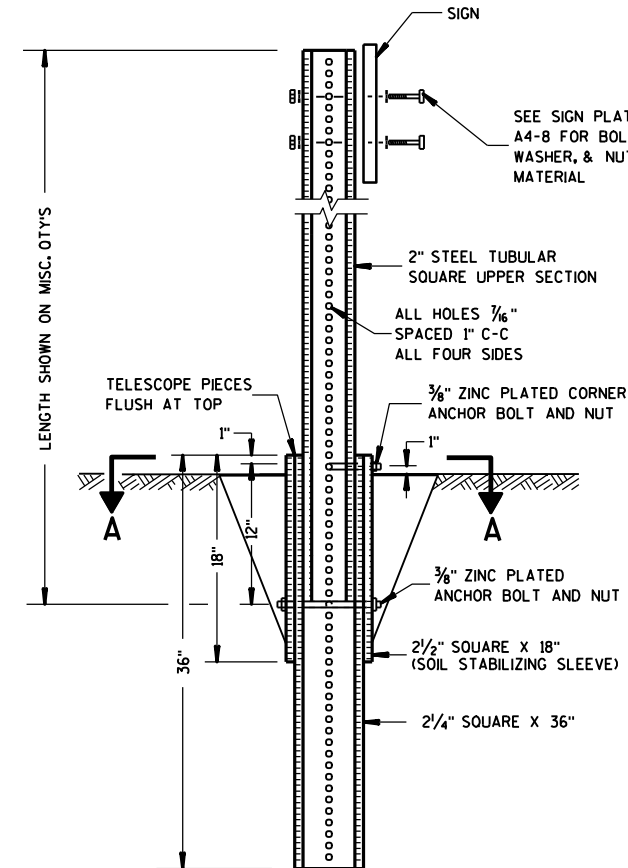
2 1/2" SQUARE  
12 GAUGE  
OMNI-DIRECTIONAL  
PERFORATED  
SOIL STABILIZING SLEEVE  
GALVANIZED FINISH



**DETAIL OF TUBULAR STEEL SIGN POST  
(IN POURED CONCRETE OR ASPHALT)**



**DETAIL OF TUBULAR STEEL SIGN POST  
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)**



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

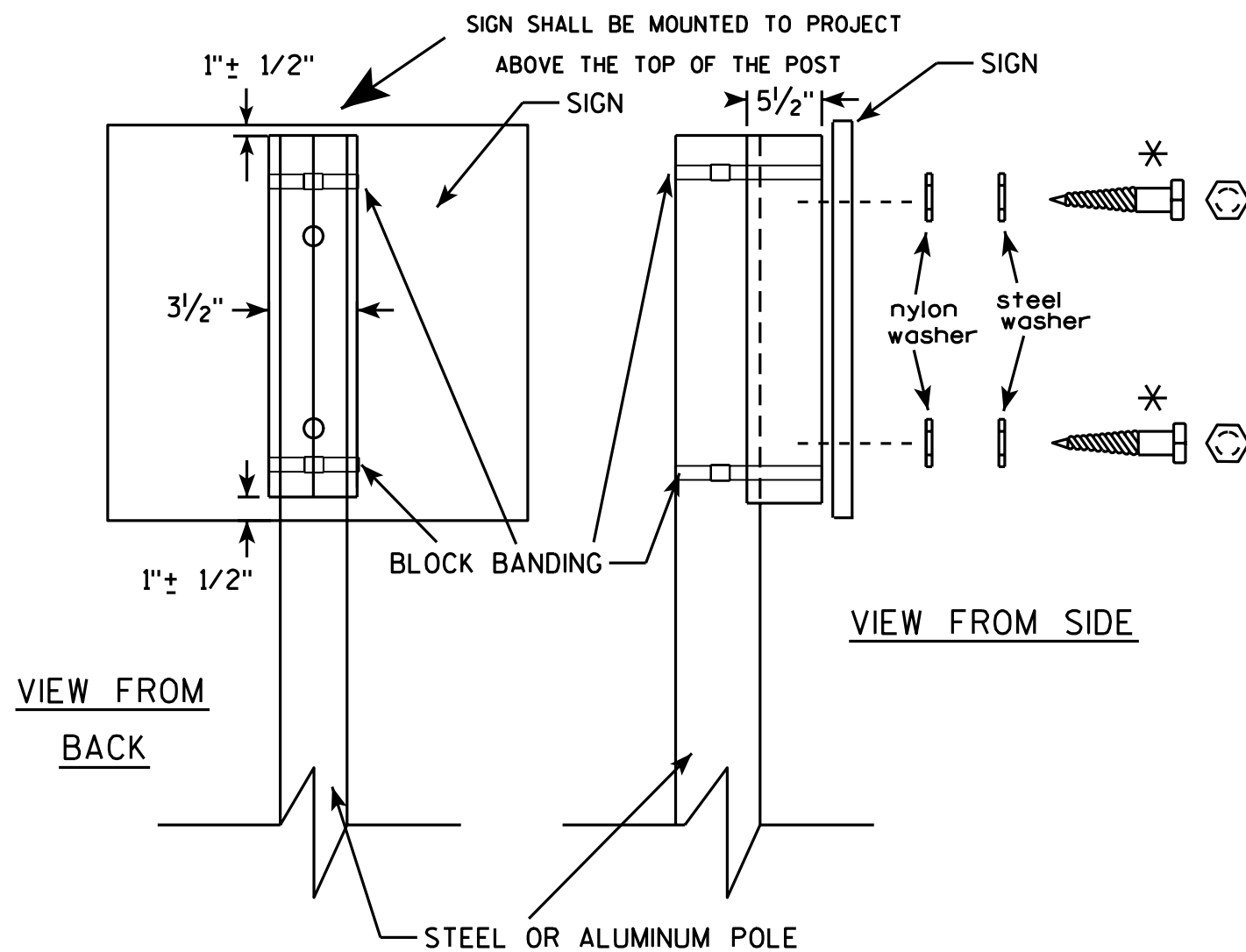
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

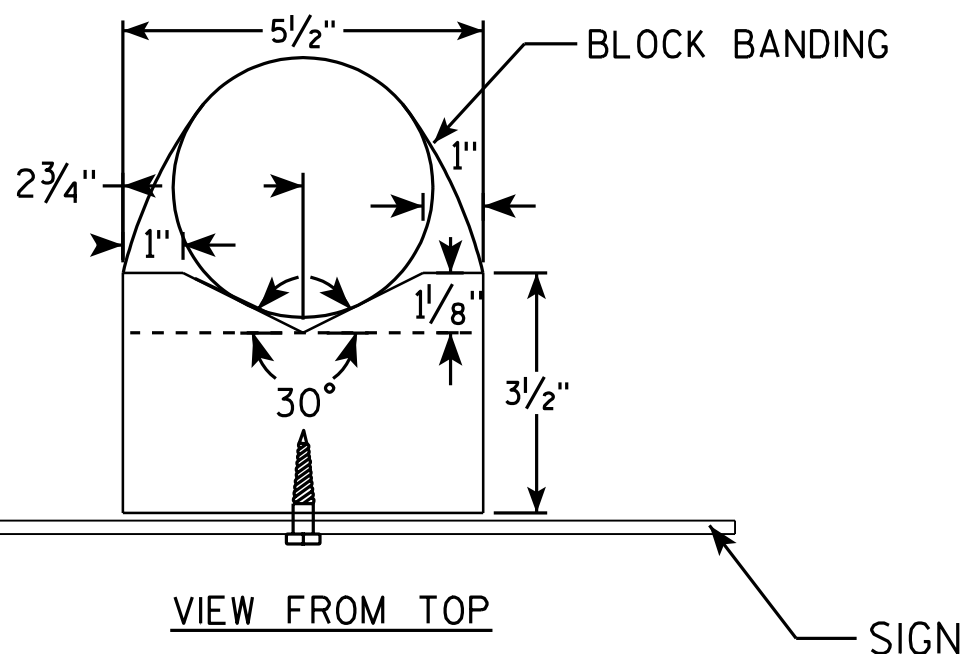
E



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, 3/4" 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 NORMALLY 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 1/4" O.D. X 3/8" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1/4" O.D. X 3/8" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

\* LAG BOLTS SHALL BE 3/8" X 2 1/2"



BLOCK BANDING DETAIL  
( V-BLOCK OPTION )

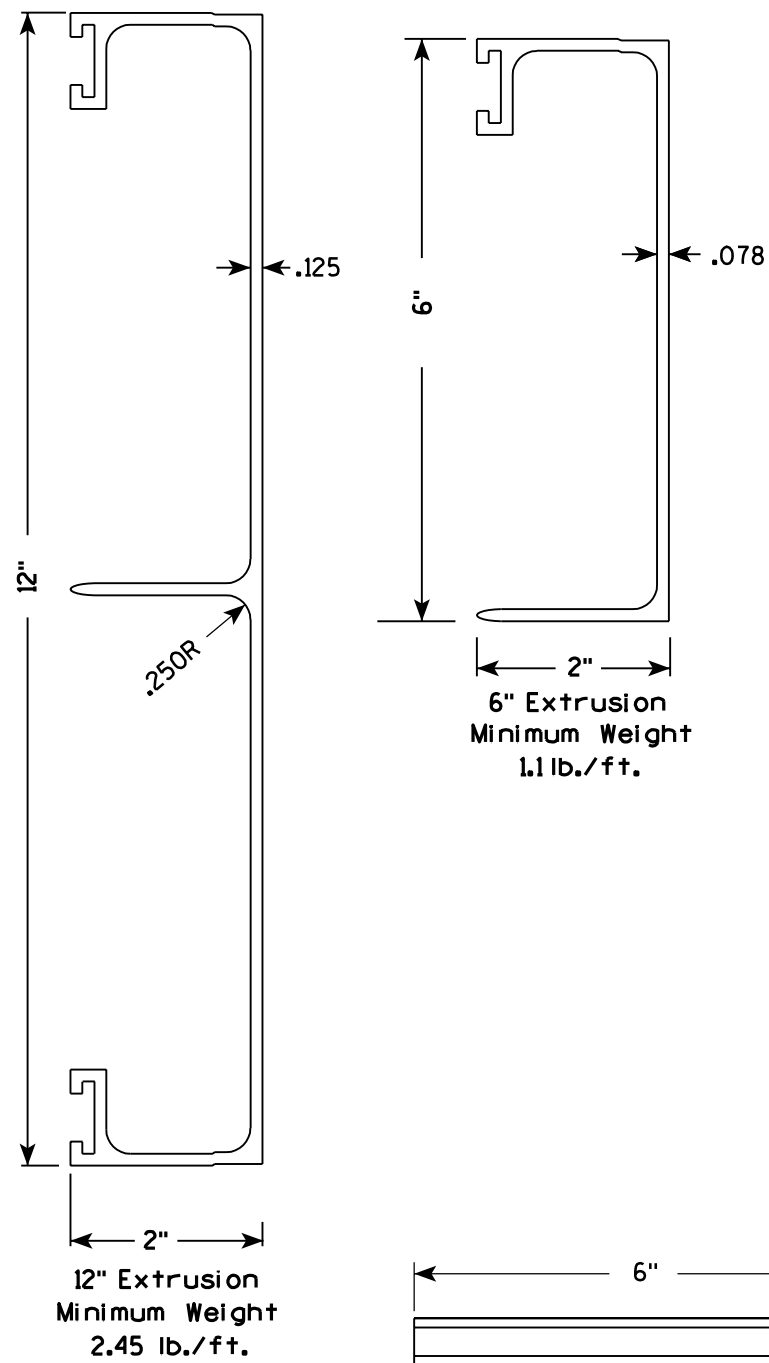
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 7/12/07 PLATE NO. A5-10.1

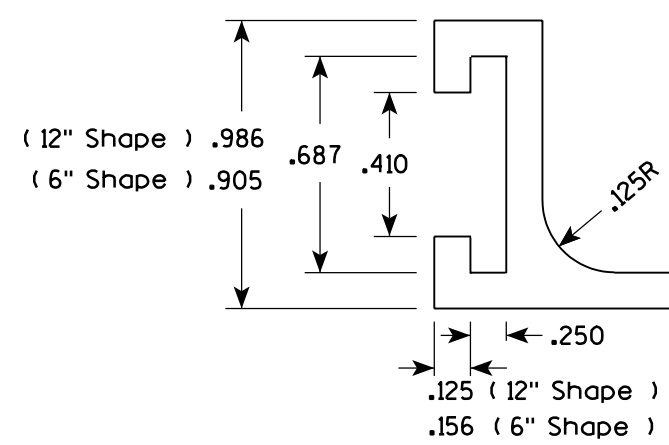
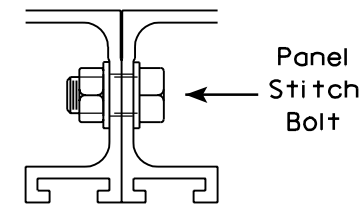
Extruded Shape

Hardware



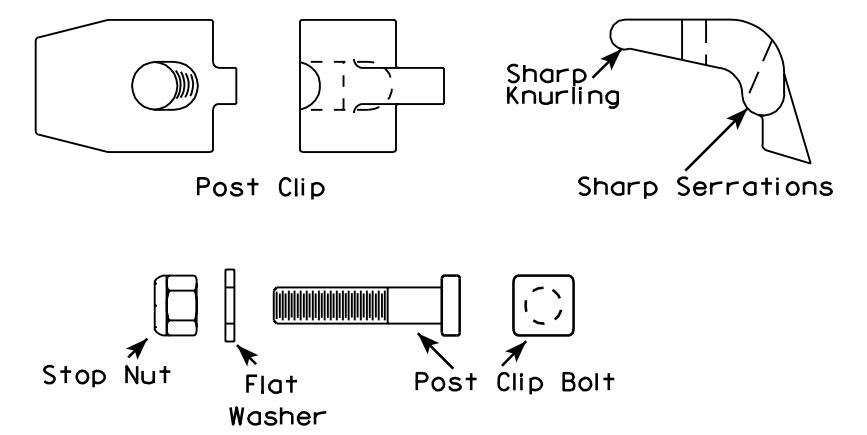
STITCH BOLT, WASHER & NUT

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



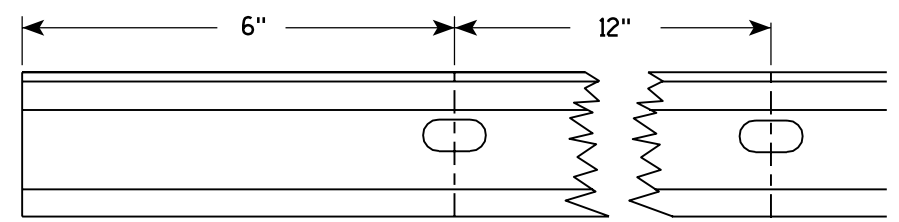
POST CLIP, POST CLIP BOLT, WASHER & NUT

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.

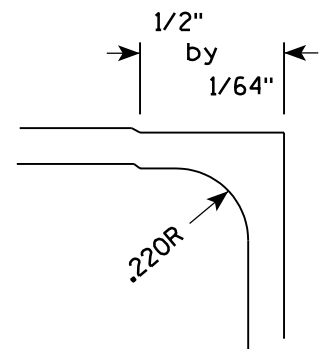


NOTES

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.



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.

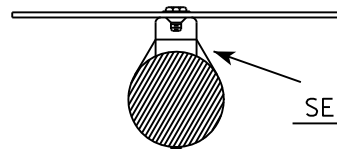
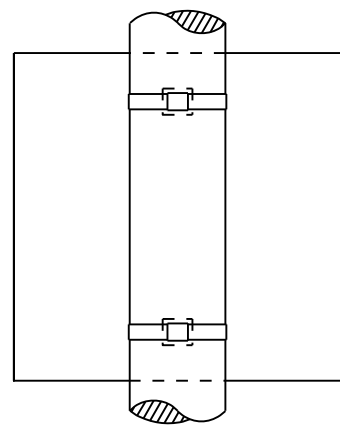


ALUMINUM EXTRUSIONS FOR TYPE I SIGNS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Chester J. Spang</i> for State Traffic Engineer
DATE 11/18/99	PLATE NO. A5-2.9



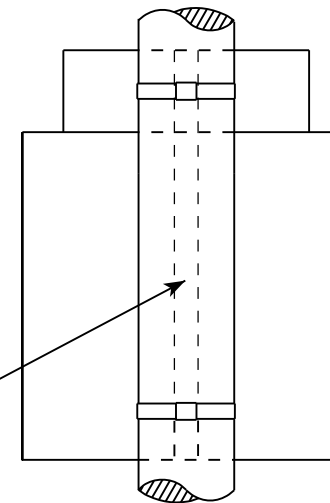
# BANDING

SINGLE SIGN

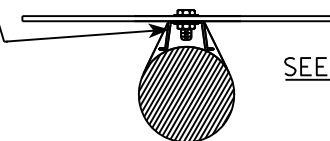


SEE DETAIL A

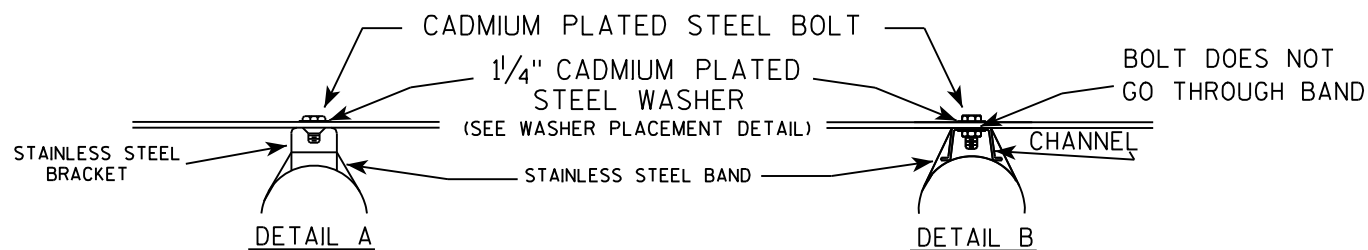
"J" ASSEMBLY



CHANNEL  
SEE TYPICAL PANEL  
INSTALLATION SHEET



SEE DETAIL B

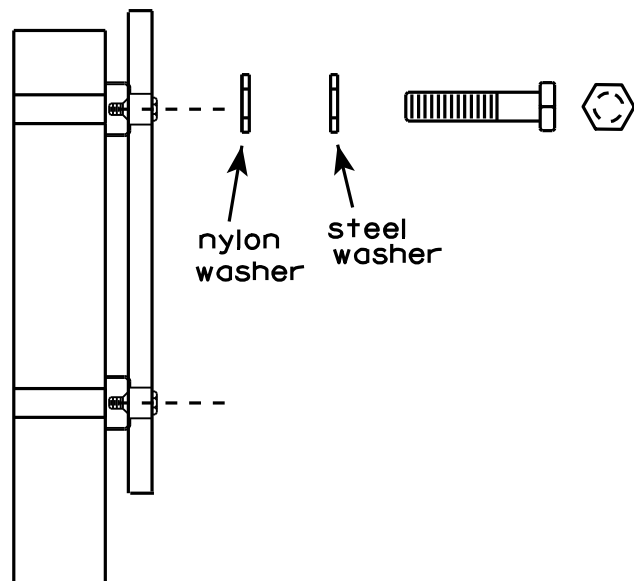


BOLT DOES NOT  
GO THROUGH BAND

## 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  $\frac{3}{4}$ " in width and 0.025" thickness.

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

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

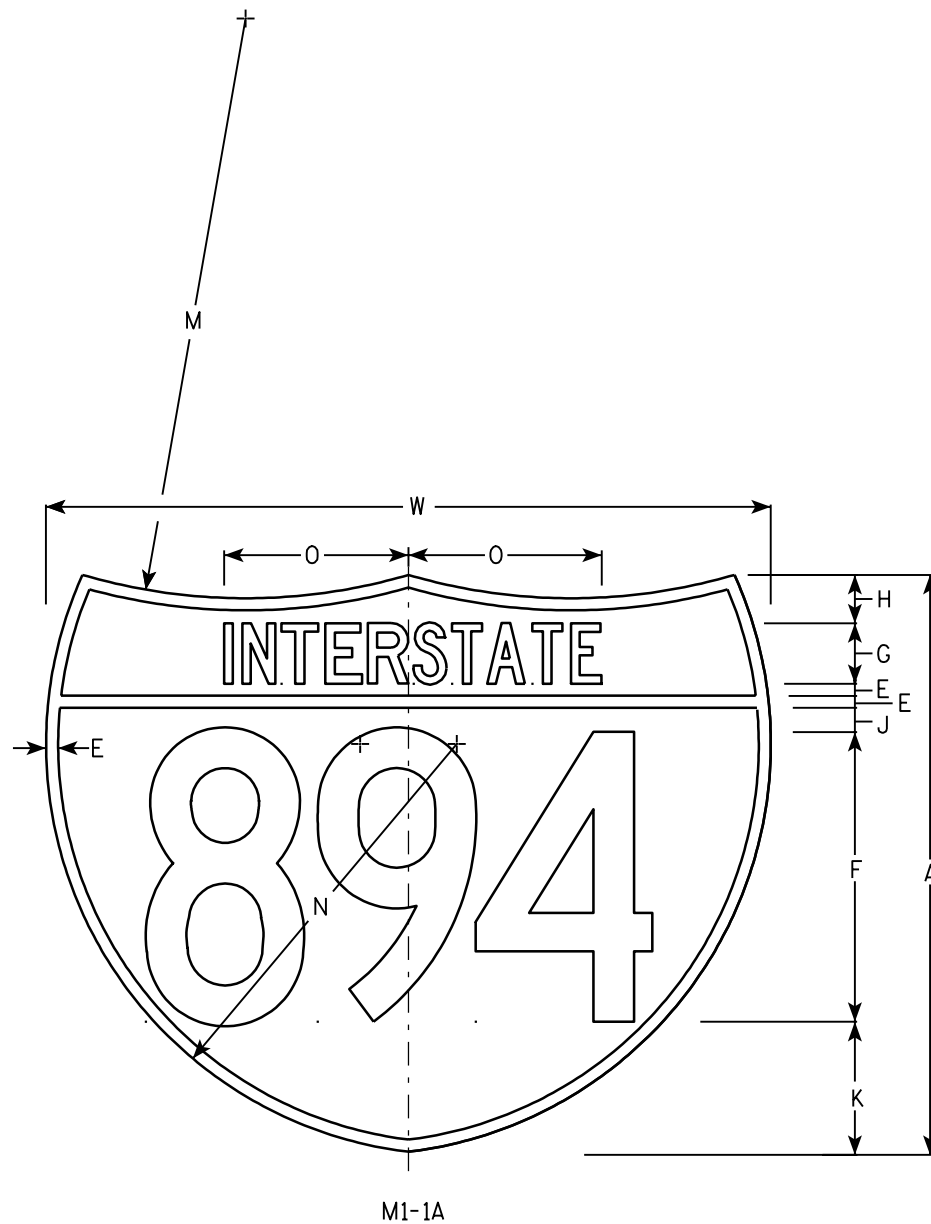
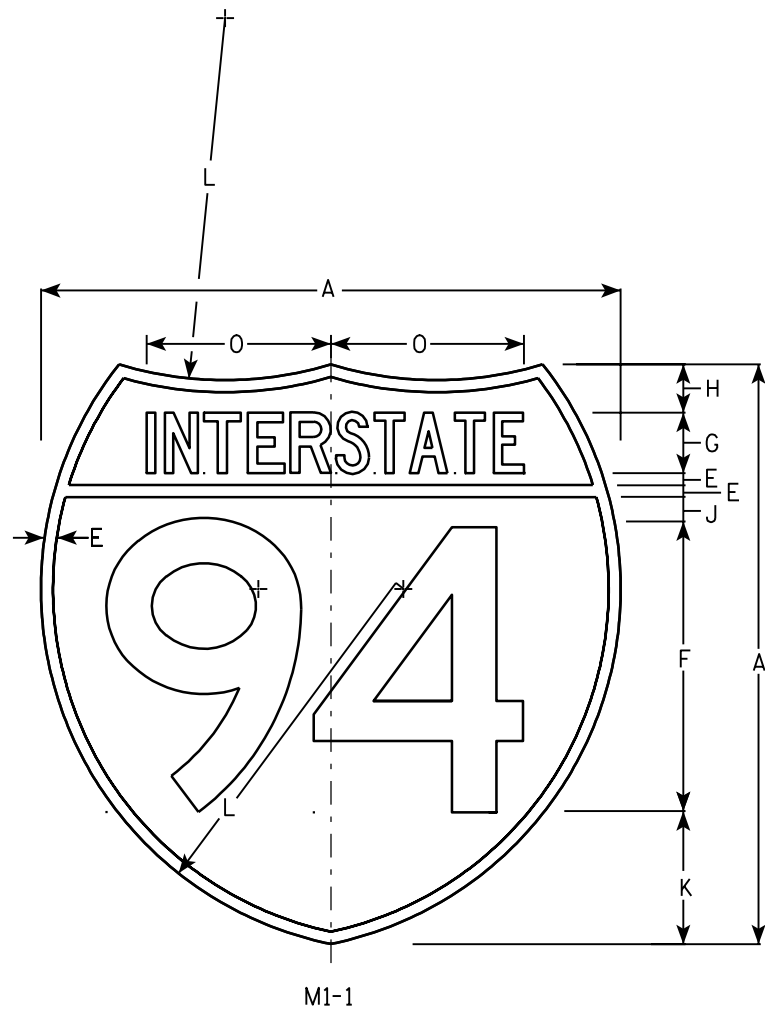
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

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 - Top Red - Bottom Blue (See Note 6)  
Message - White - See Note 6
3. Message Series - See note 5
4. Substitute appropriate numerals & adjust 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

7

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 m <sup>2</sup>	M1-1A Area m <sup>2</sup>
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

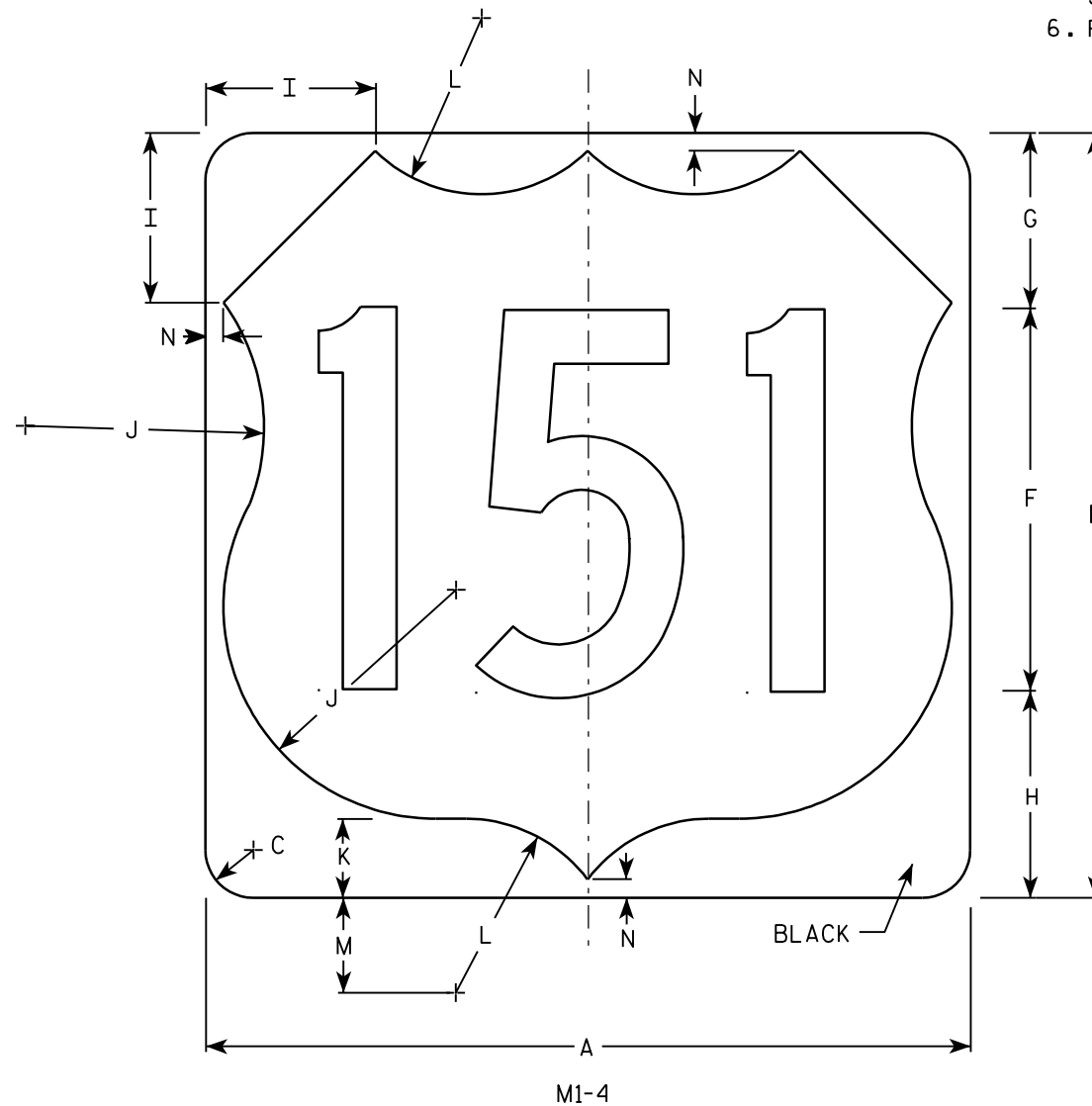
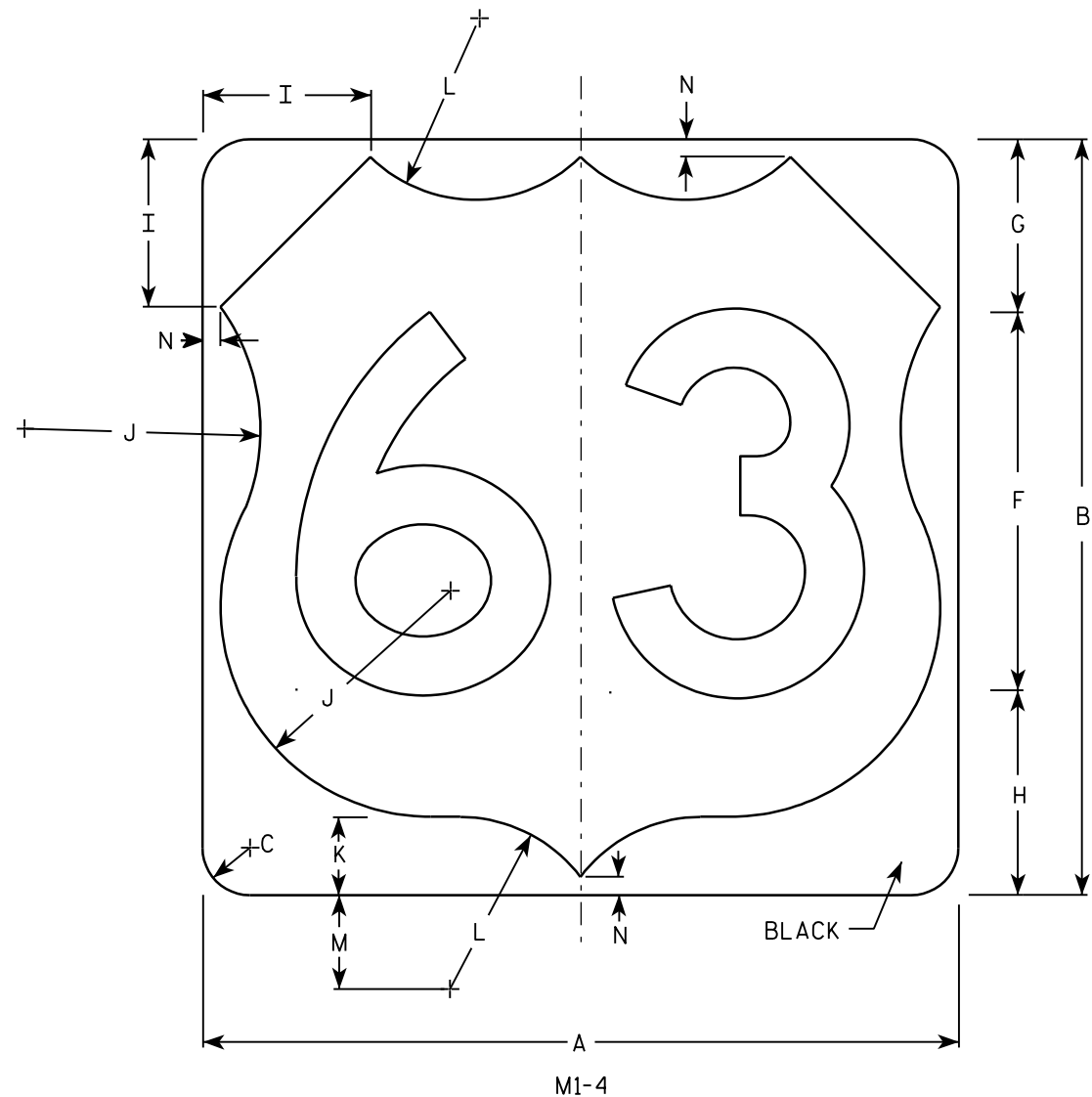
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*  
for State Traffic Engineer

DATE 08/23/05 PLATE NO. M1-1.8

**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



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 m <sup>2</sup>
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

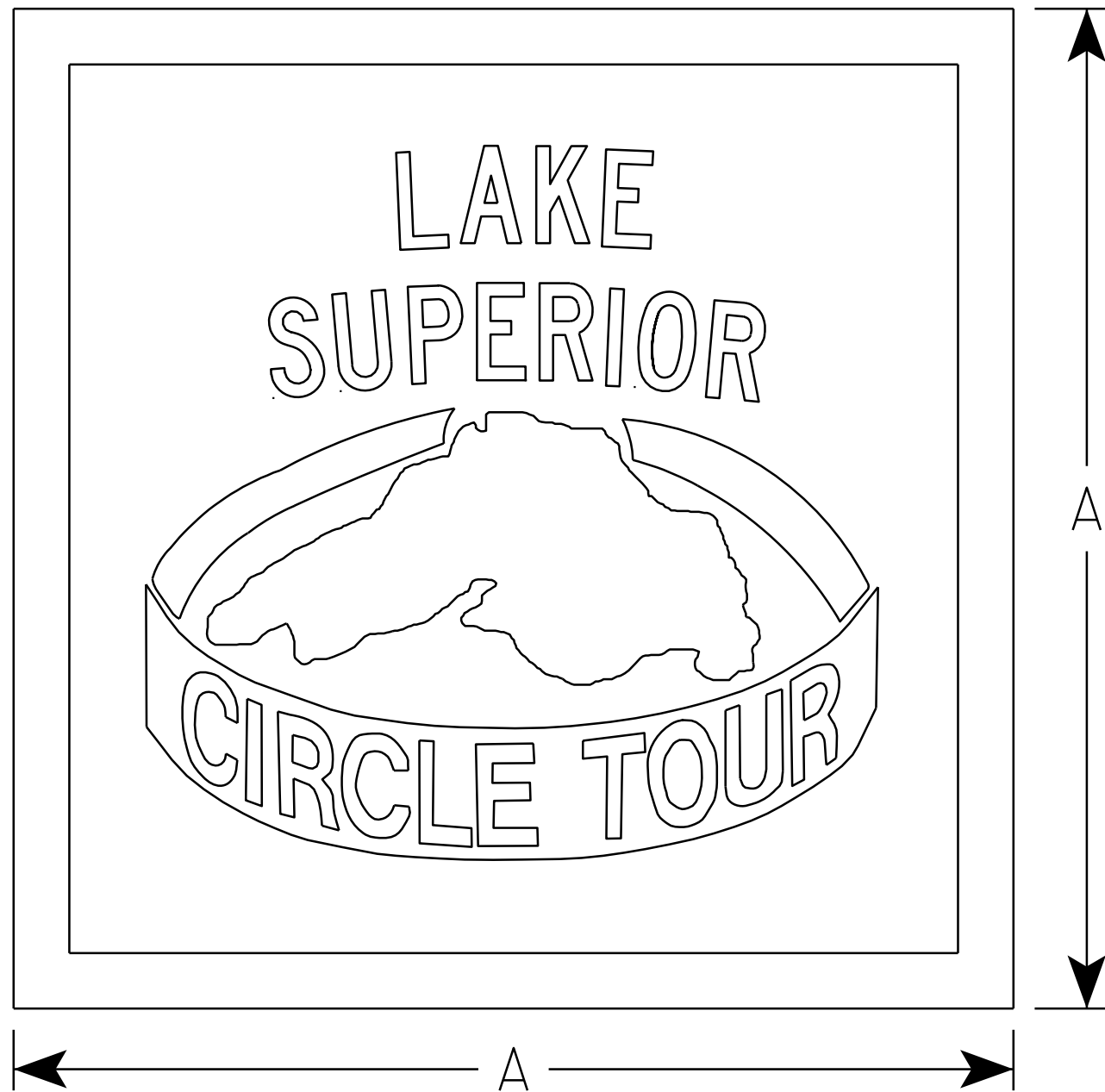
USH MARKER  
M1-4 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 08/25/05 PLATE NO. M1-4.9

▶|C|◀



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.

7

7

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 m <sup>2</sup>
1																												
2	24		1 1/2																								4.0	.36
3																												
4	36		2																								9.0	.81
5																												

**STANDARD SIGN**  
M1-91

WISCONSIN DEPT OF TRANSPORTATION

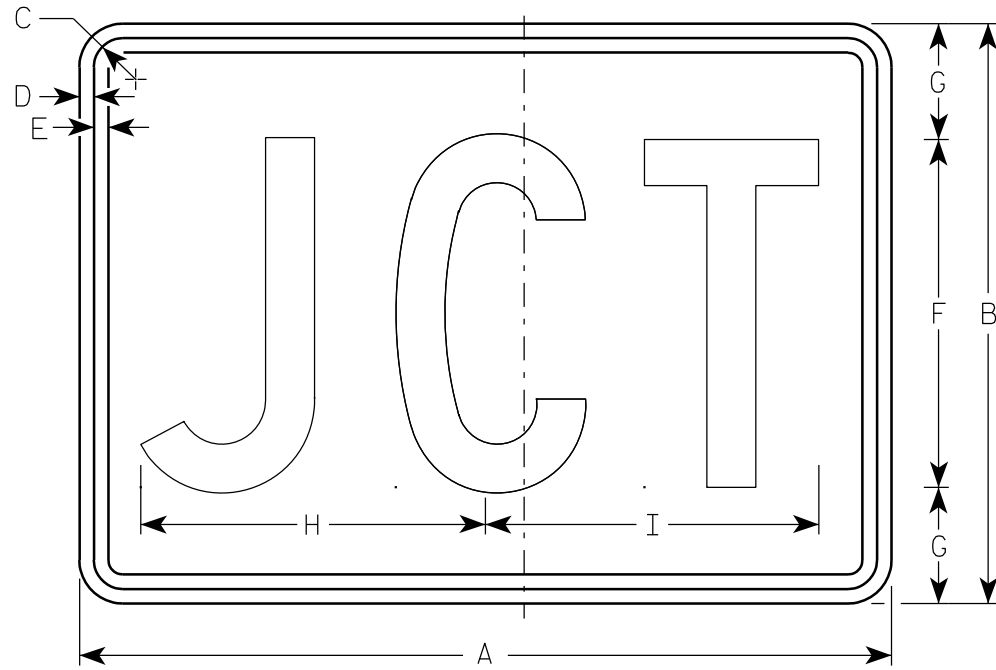
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 10/05/09 PLATE NO. MI-91.1

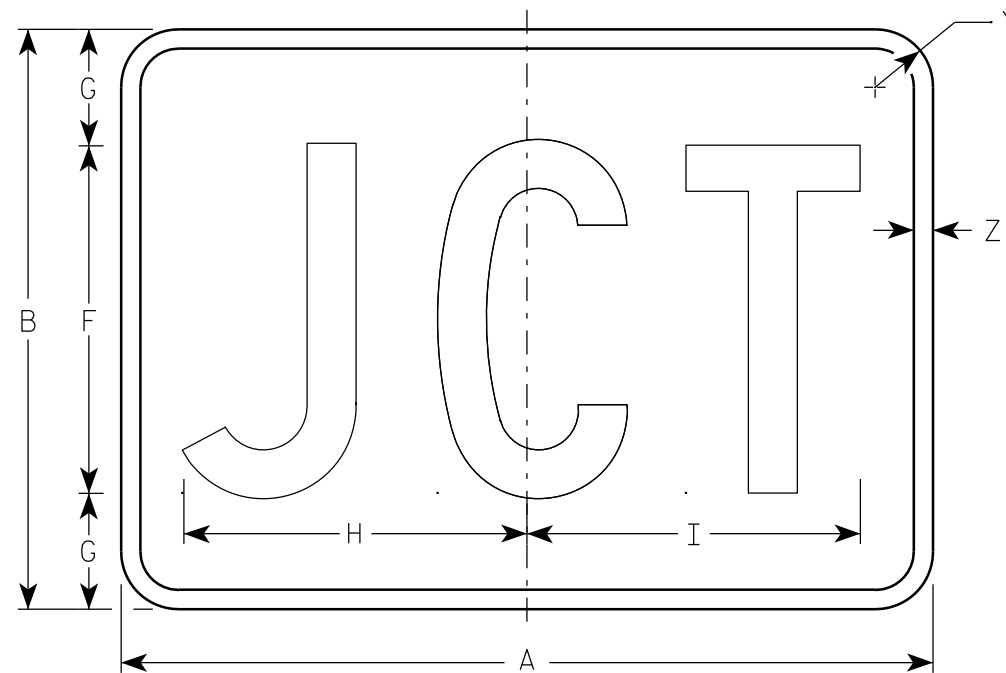
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

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



M2-1  
MK2-1  
MM2-1  
MR2-1



MB2-1  
MG2-1  
MN2-1

7

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

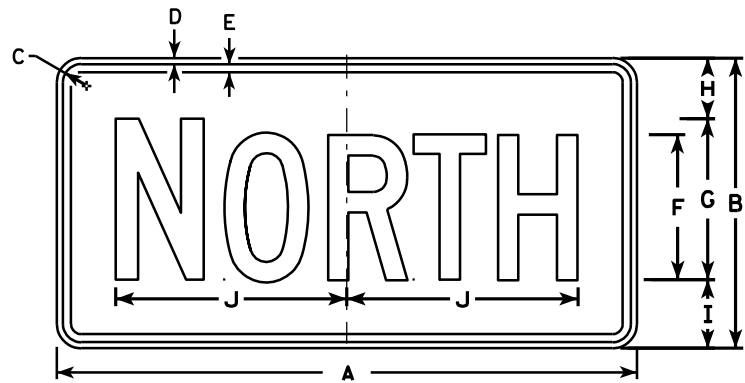
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m <sup>2</sup>
1																												
2	21	15	1 1/8	3/8	3/8	9	3	8 7/8	8 5/8																1 1/2	1/2	2.20	0.20
3	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20
4	30	21	1 1/8	3/8	3/8	13	4	12 7/8	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

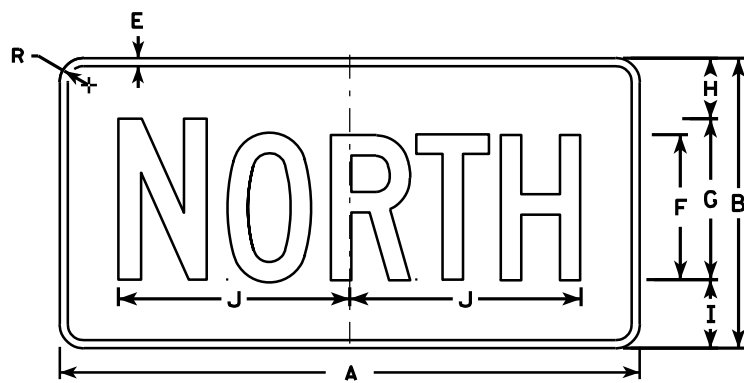
WISCONSIN DEPT OF TRANSPORTATION  
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/16/10 PLATE NO. M2-1.10

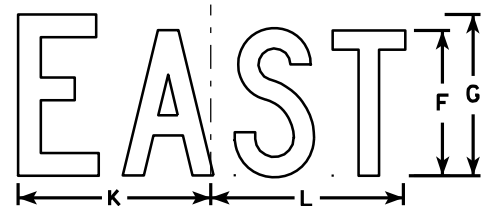
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



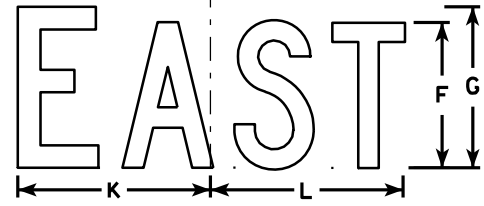
M3-1  
MK3-1  
M03-1



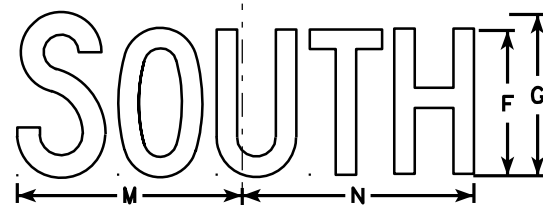
MB3-1  
MG3-1  
MM3-1  
MN3-1



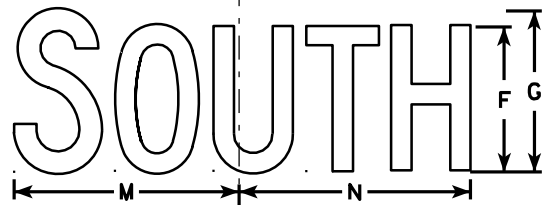
M3-2  
MK3-2  
M03-2



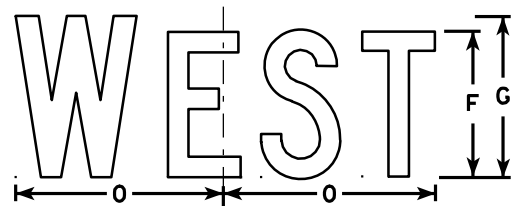
MB3-2  
MG3-2  
MM3-2  
MN3-2



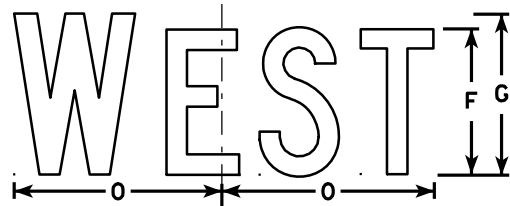
M3-3  
MK3-3  
M03-3



MB3-3  
MG3-3  
MM3-3  
MN3-3



M3-4  
MK3-4  
M03-4



MB3-4  
MG3-4  
MM3-4  
MN3-4

NOTES

- All Signs Type II - See Note 5 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:  
Background - See note 5  
Message - See note 5
- Message Series - C
- 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.
- 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
- Note the first letter of each direction is larger than the remainder of the message.

7

7

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

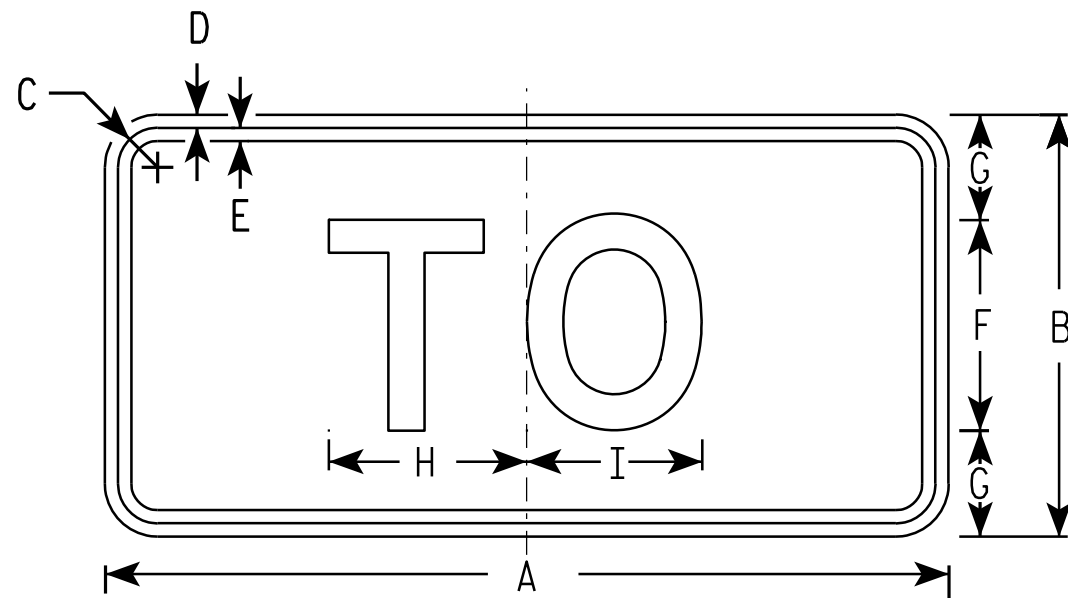
STANDARD SIGNS  
M3-1 thru M3-4  
SERIES

WISCONSIN DEPT OF TRANSPORTATION

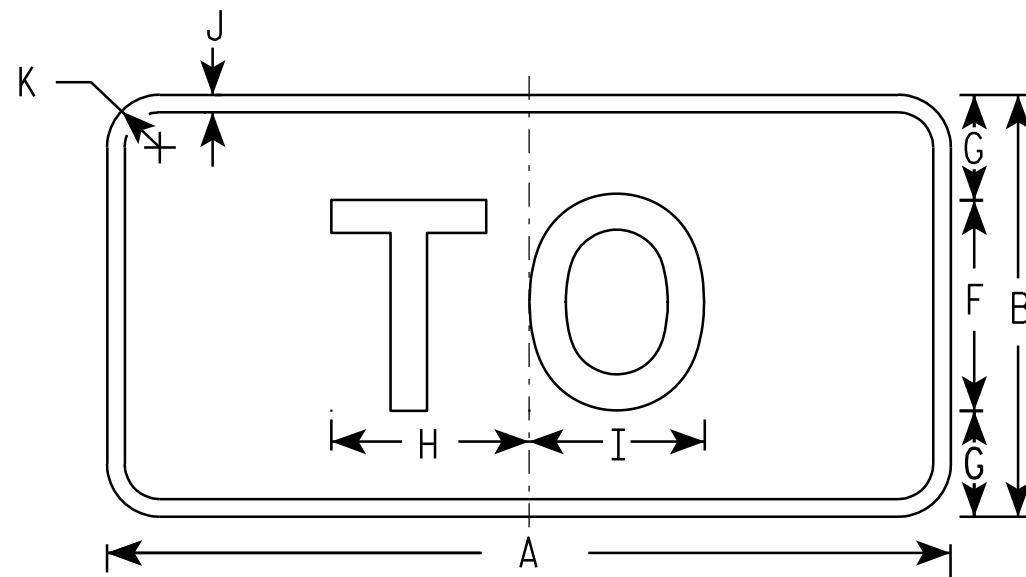
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 11/10/10 PLATE NO. M3-1.12

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ 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

7

7

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

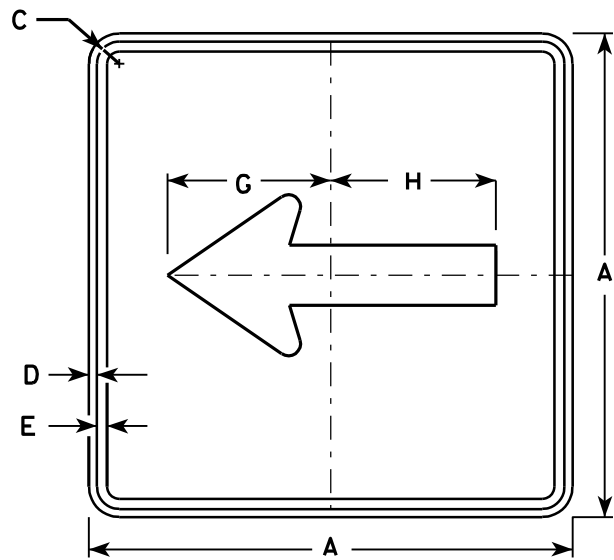
**STANDARD SIGN**  
**M4-5**

WISCONSIN DEPT OF TRANSPORTATION

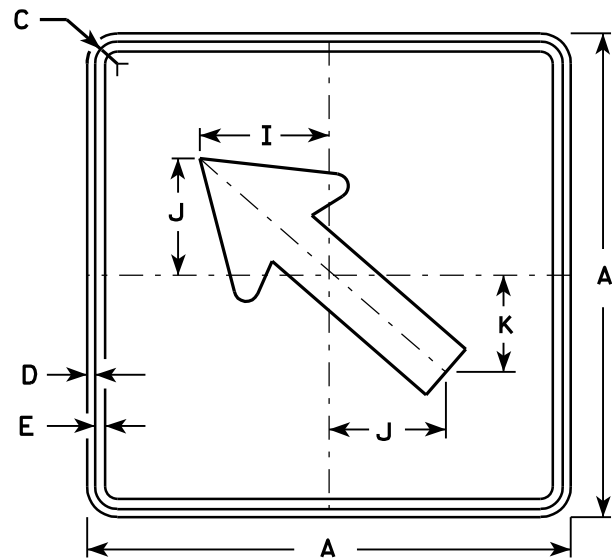
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-5.6

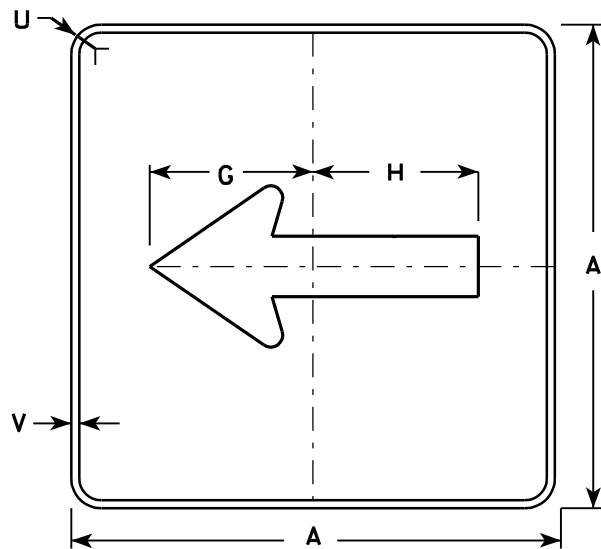
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



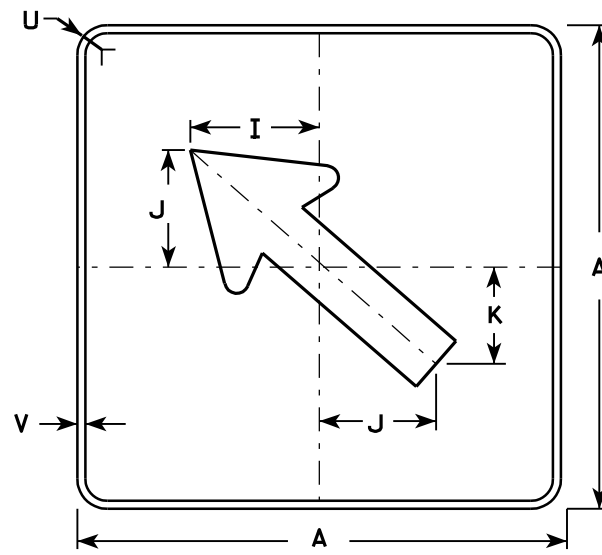
M6-1  
MK6-1  
MM6-1  
MO6-1  
MP6-1  
MR6-1



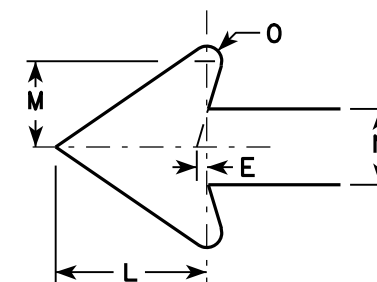
M6-2  
MK6-2  
MM6-2  
MO6-2  
MP6-2  
MR6-2



MB6-1  
MG6-1  
MN6-1



MB6-2  
MG6-2  
MN6-2



**NOTES**

- Signs are Type II - See Note 4 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:  
Background - See note 4  
Message - See note 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.
- 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 - Yellow - Type H Reflective

7

7

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**

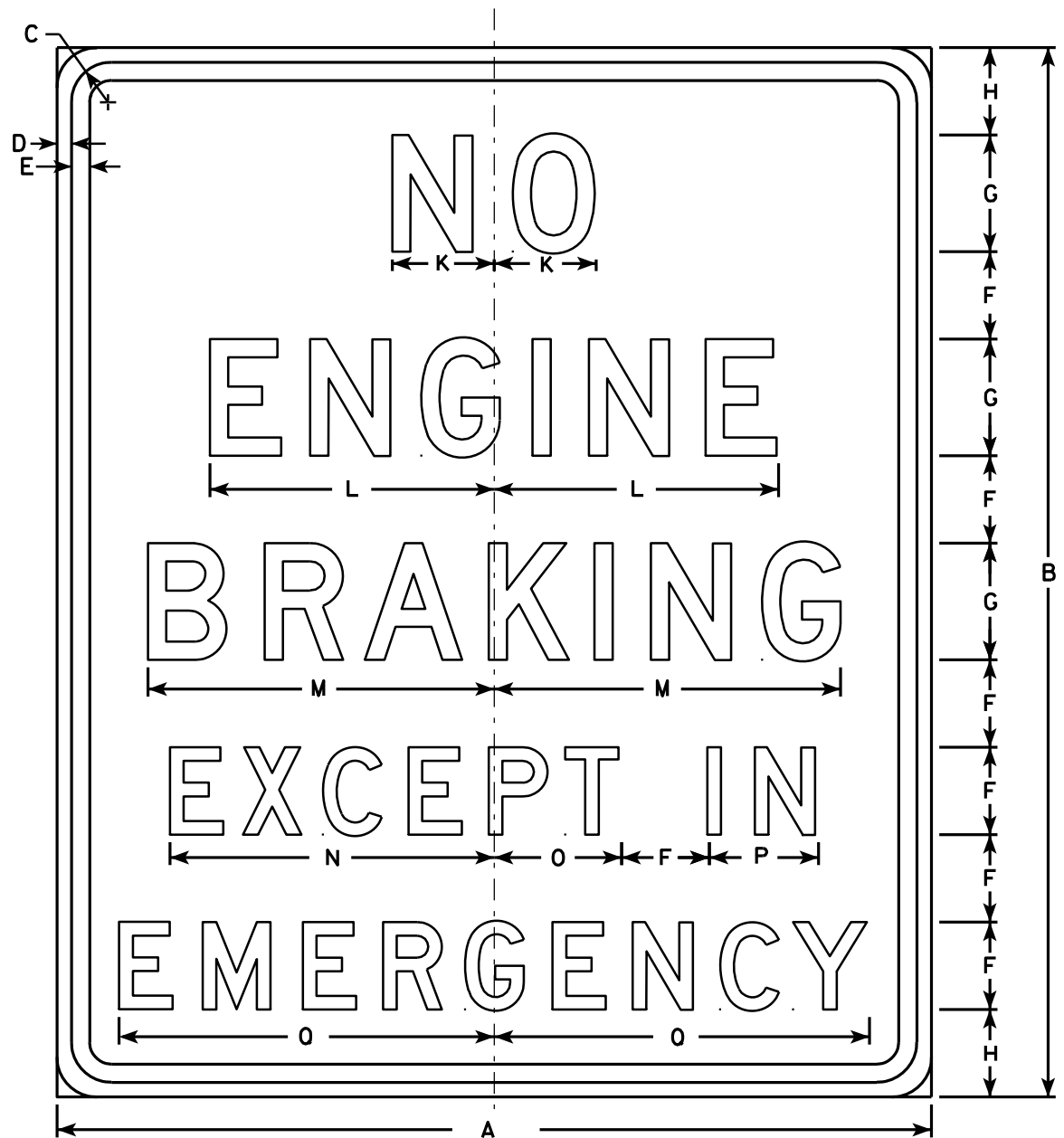
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

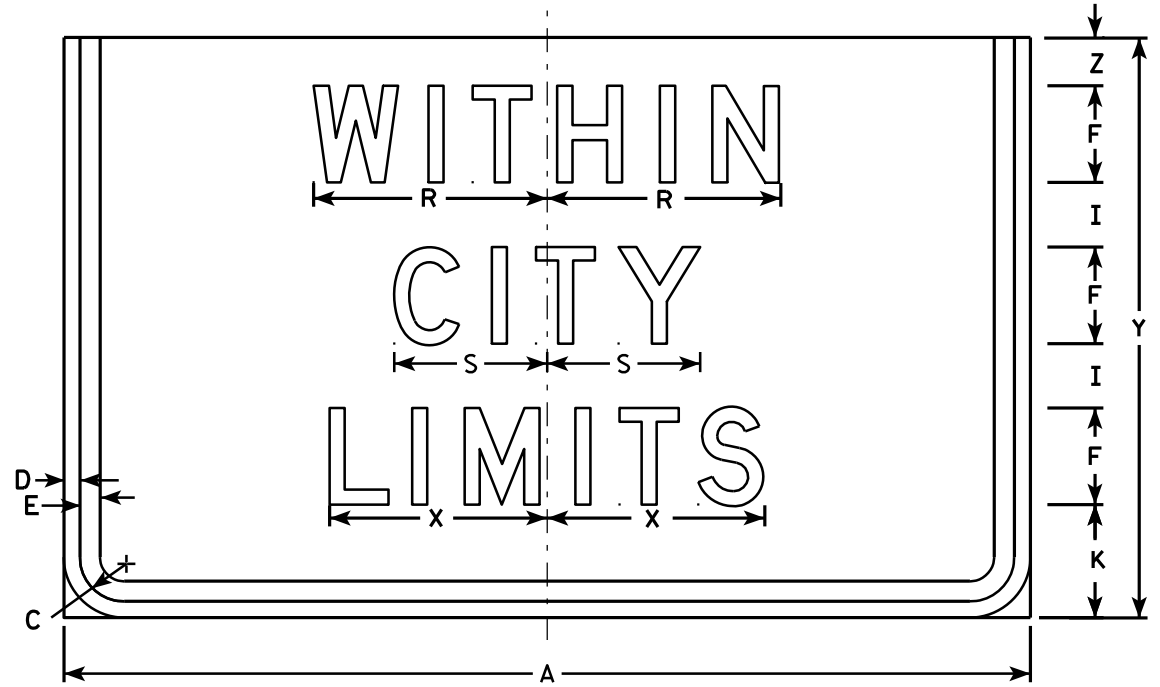
DATE 7/29/13 PLATE NO. M6-1.13

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ 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

VILLAGE

Area sq. ft.
3.75
7.0

TOWNSHIP

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																											

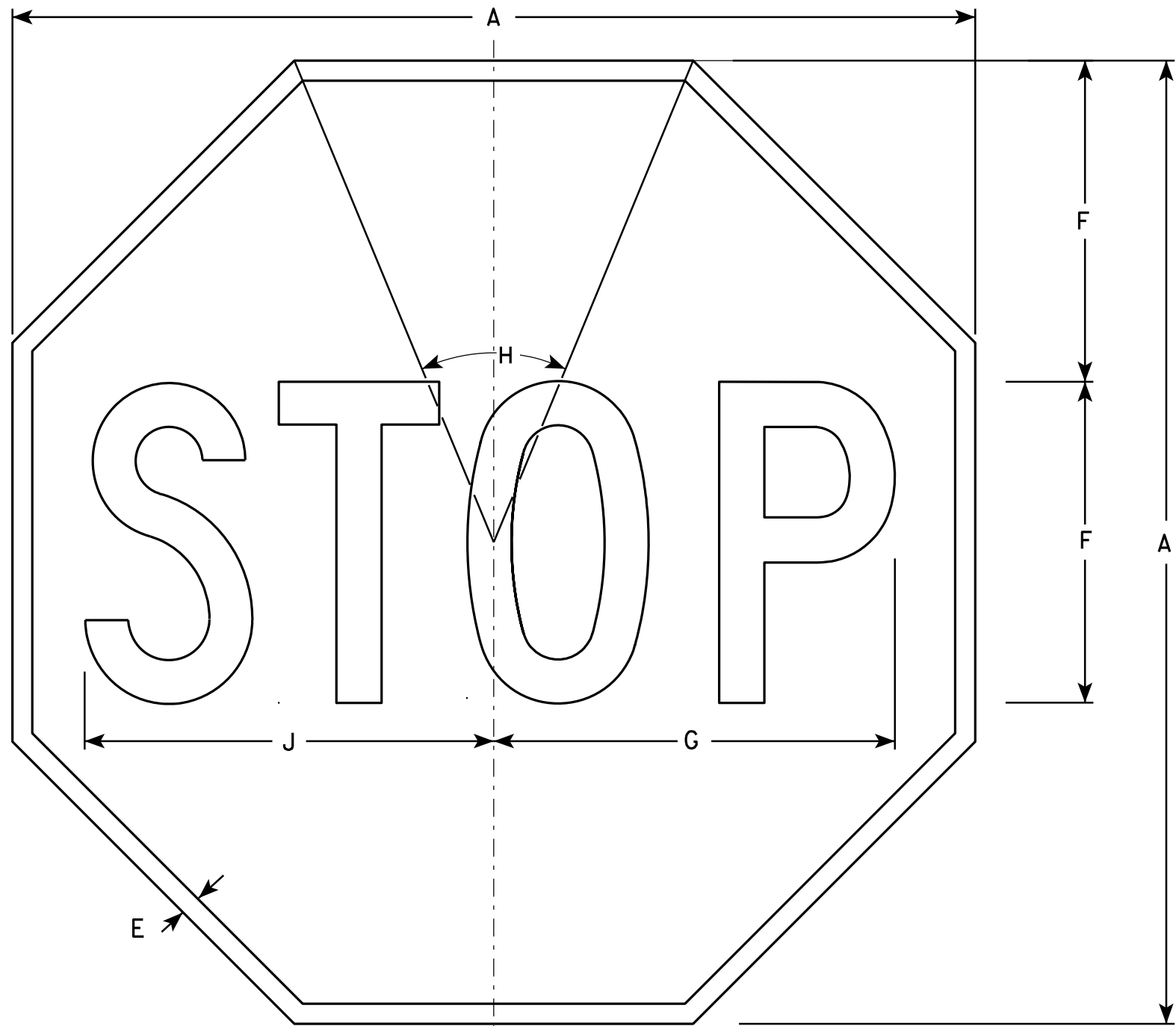
STANDARD SIGN  
R10-64 & R10-64F

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: \_\_\_\_\_ 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

R1-1

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

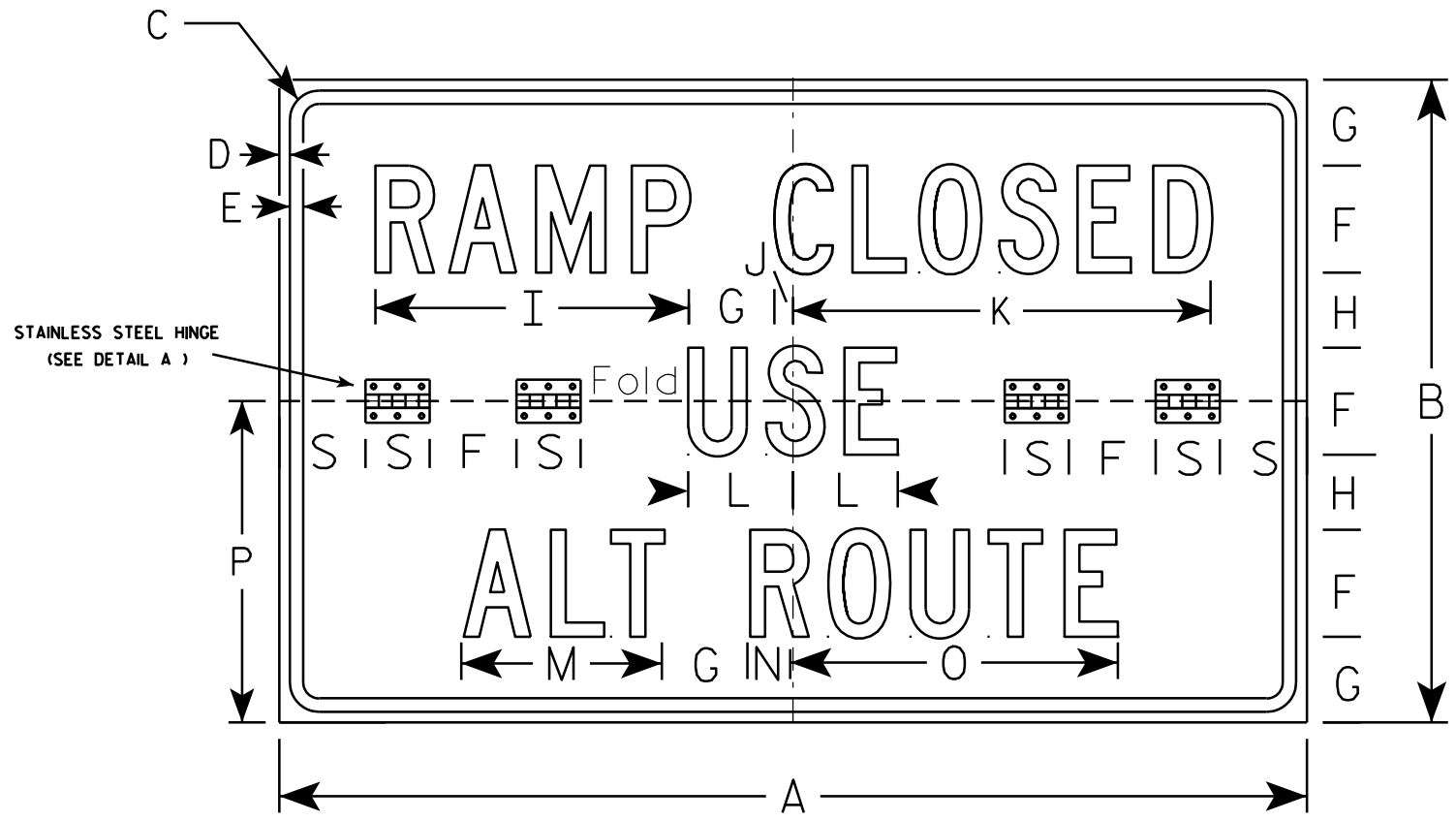
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

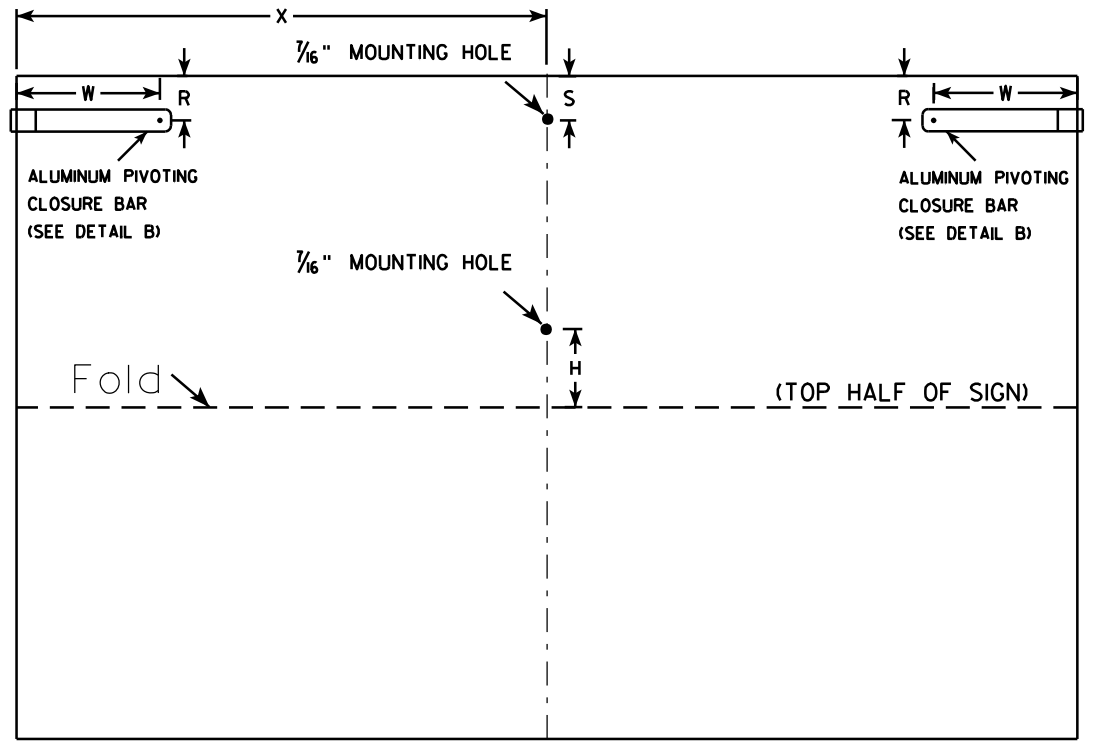
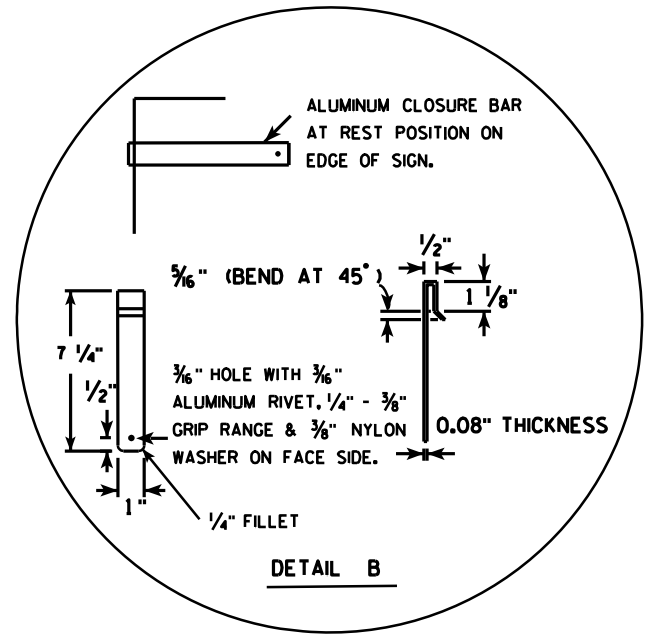
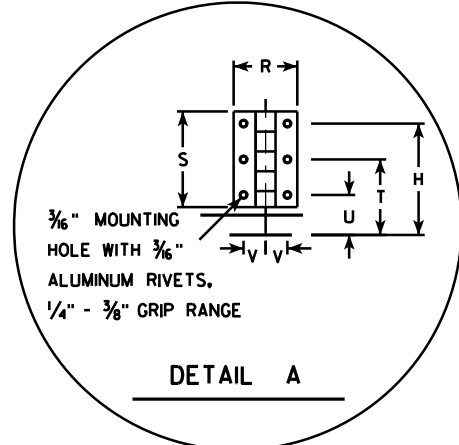


R11-54F

**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.

STAINLESS STEEL HINGE  
(SEE DETAIL A)



(BACK VIEW)

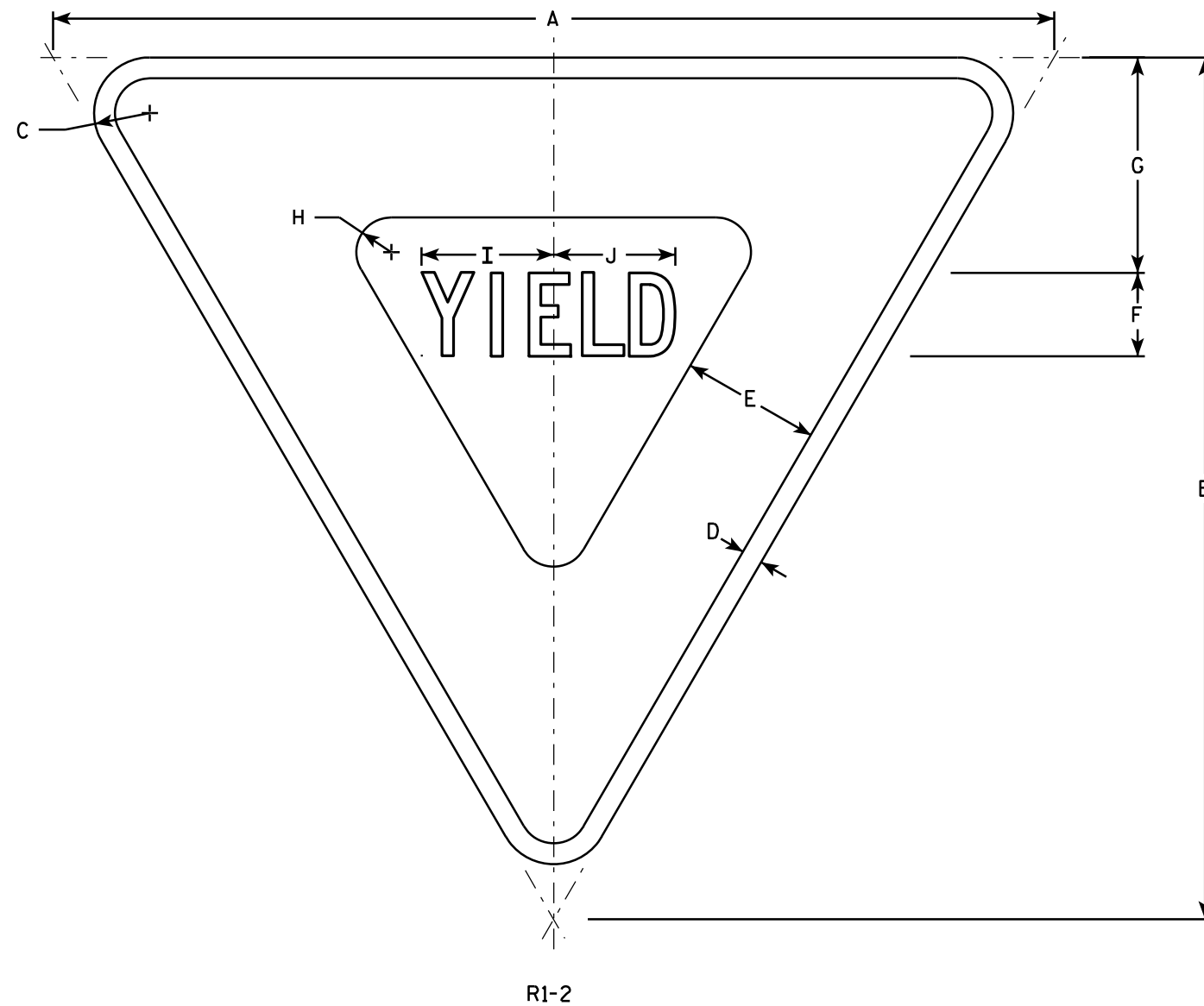
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	5	4	3 1/2	14 5/8	7/8	19 1/2	4 7/8	9 3/8	2	15 1/4	15		2	3	2 5/8	1 1/4	1/16	6 1/2	24			10.0
2M	48	30	1 3/8	1/2	5/8	5	4	3 1/2	14 5/8	7/8	19 1/2	4 7/8	9 3/8	2	15 1/4	15		2	3	2 5/8	1 1/4	1/16	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



**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.

R1-2

7

7

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

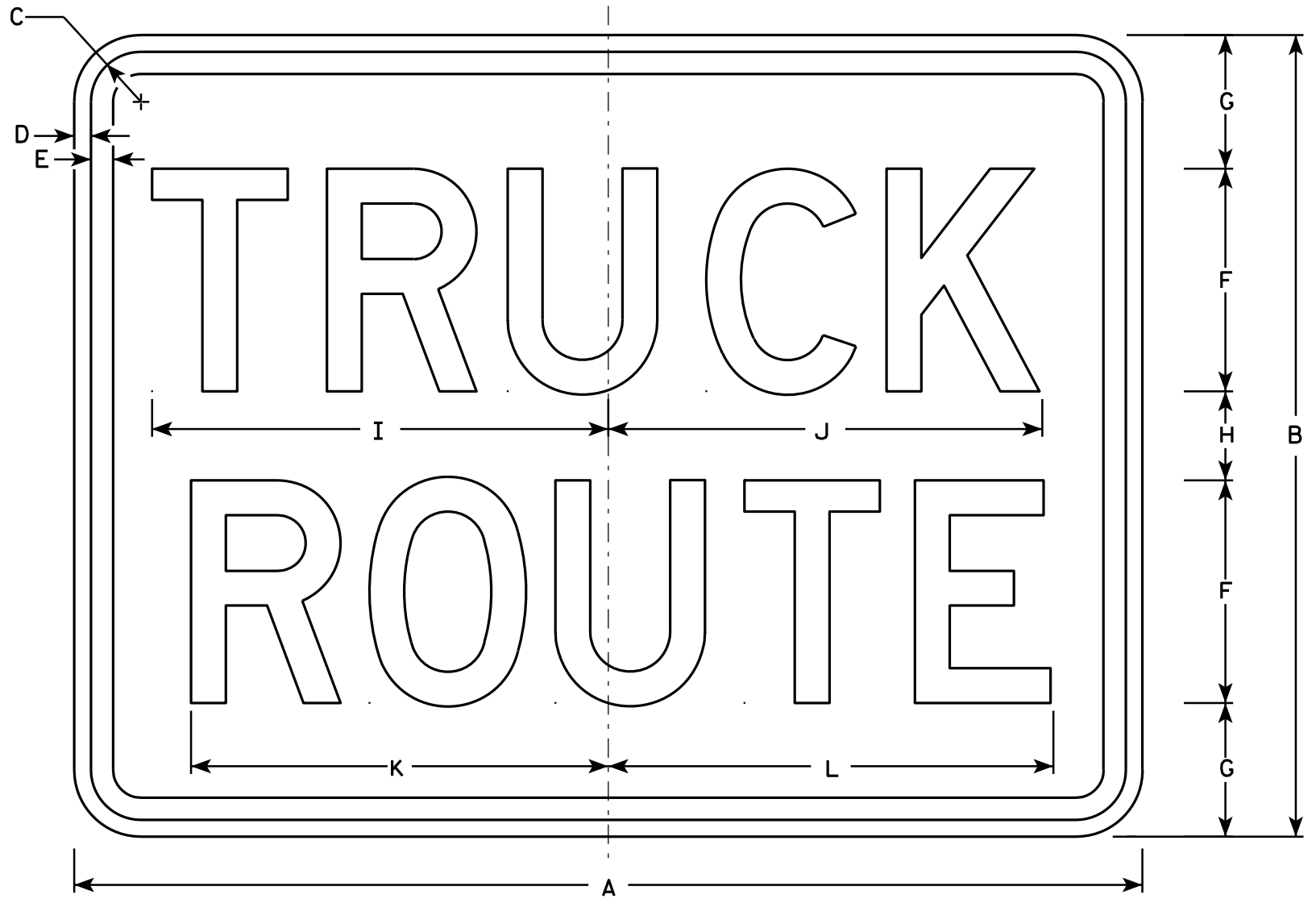
**STANDARD SIGN**  
**R1-2**

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: **E**



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.

7

7

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. Raush*  
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R14-1.6

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **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. Message Series - B



R1-54

7

7

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

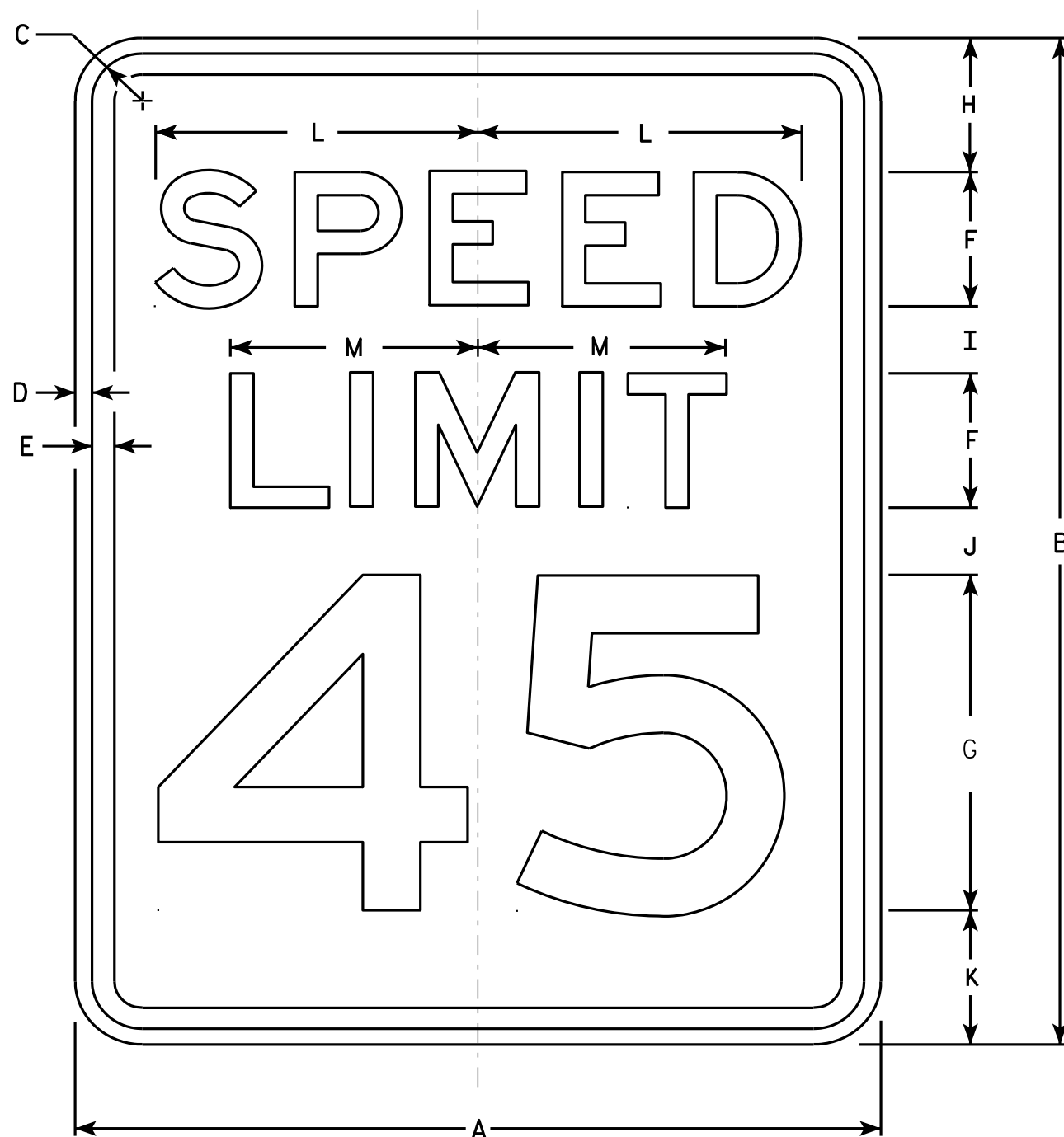
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

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.

7

7

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

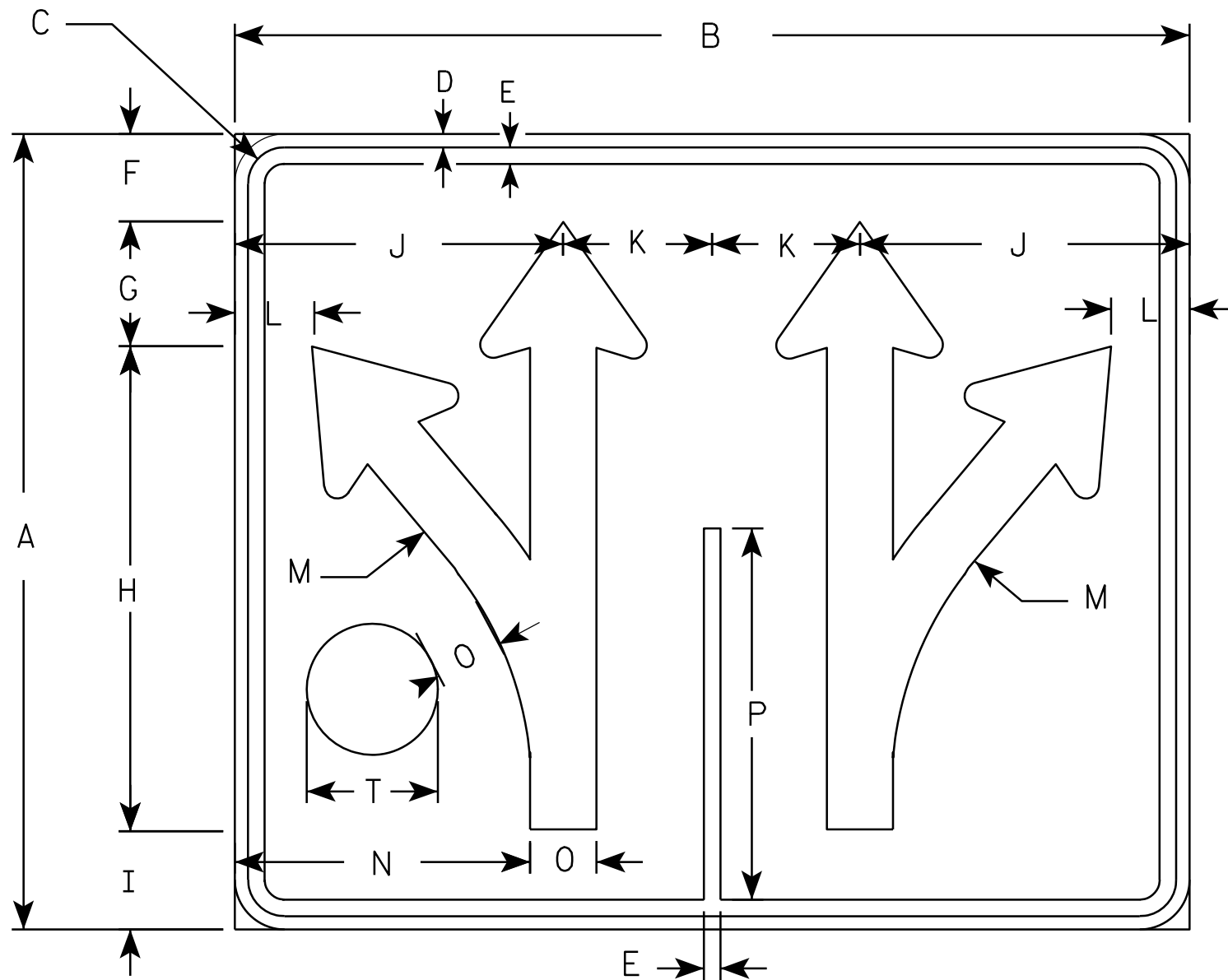
STANDARD SIGN  
R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

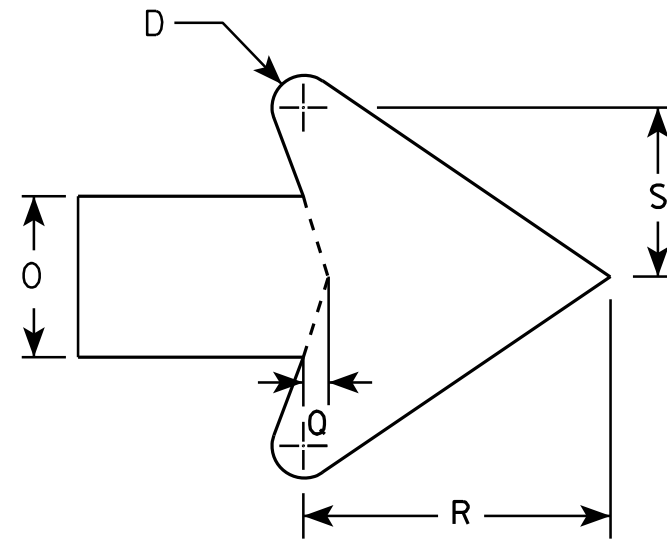
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



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

7

7

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	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**

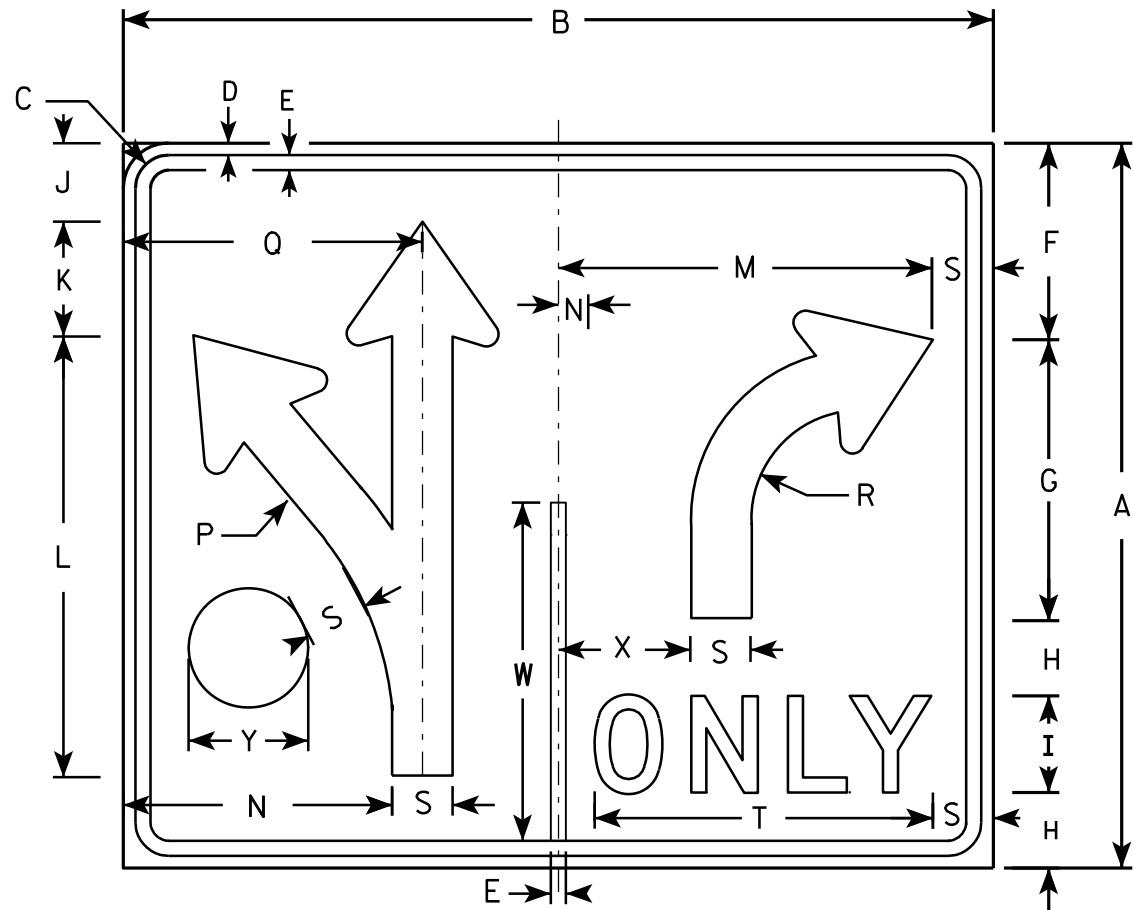
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

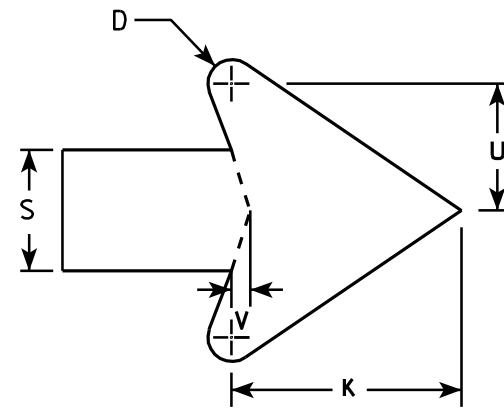
DATE 3/18/2011 PLATE NO. R3-8CC.2

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ 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.

7

7

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

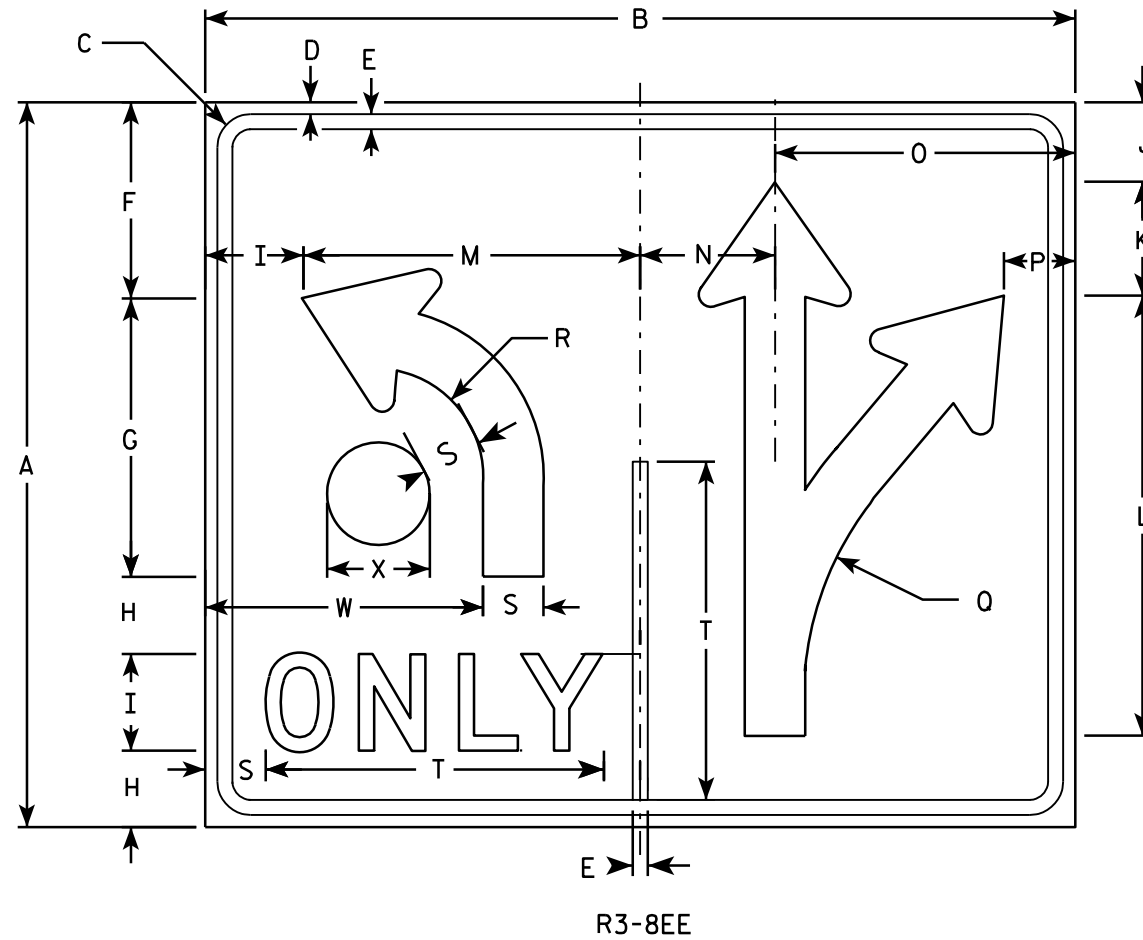
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/18/2011 PLATE NO. R3-8DD.2

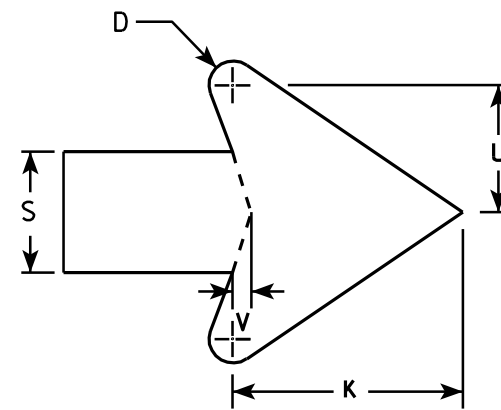
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

**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. 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.



R3-8EE



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	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**

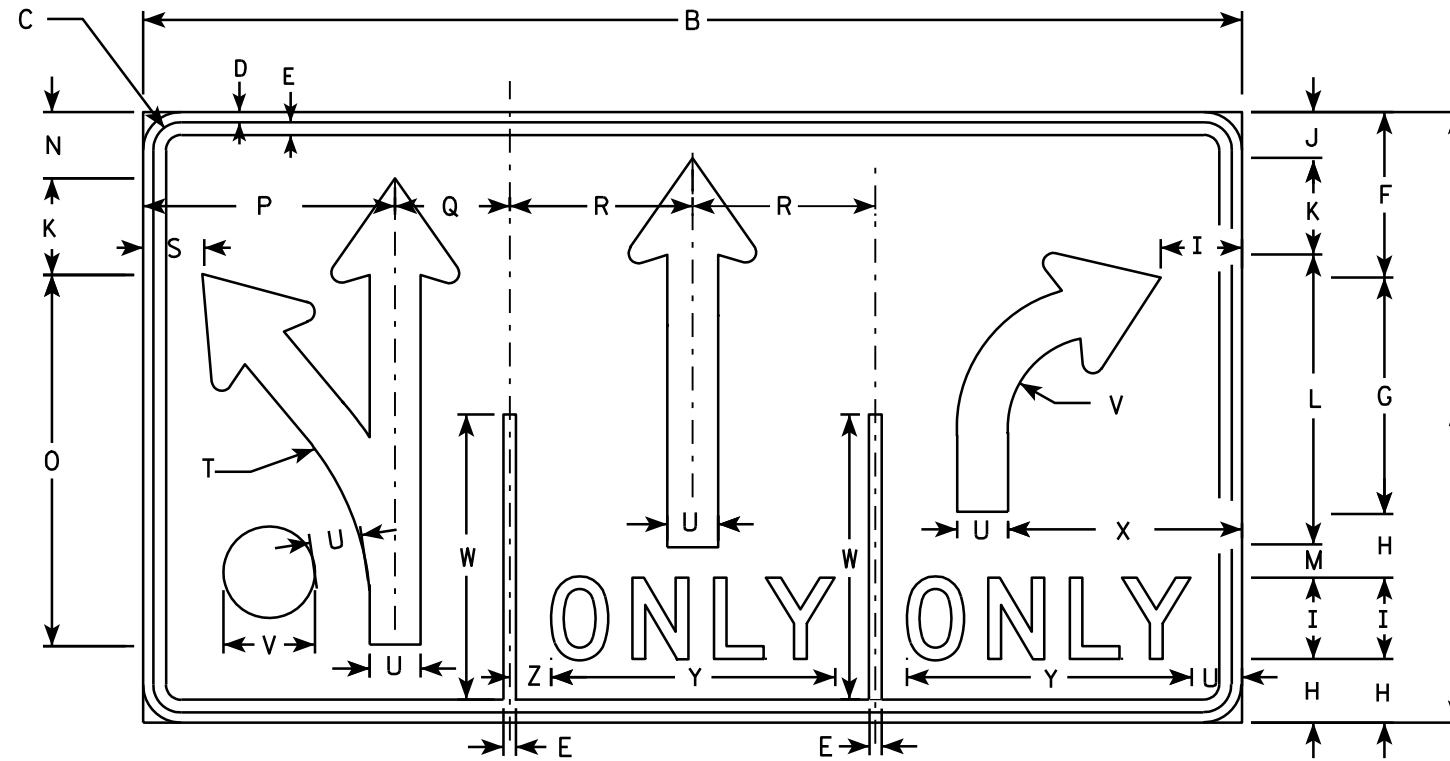
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

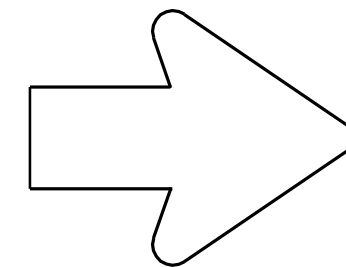
DATE 3/18/2011 PLATE NO. R3-8EE.2

**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.



R3-8NN



SEE R3-8 FOR ARROW DETAIL

7

7

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	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**

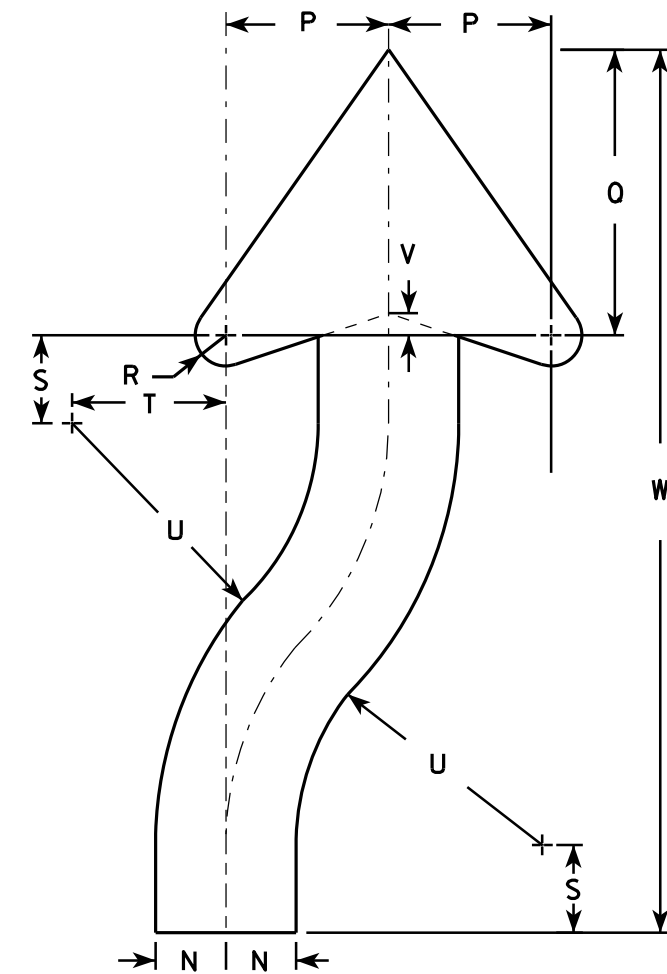
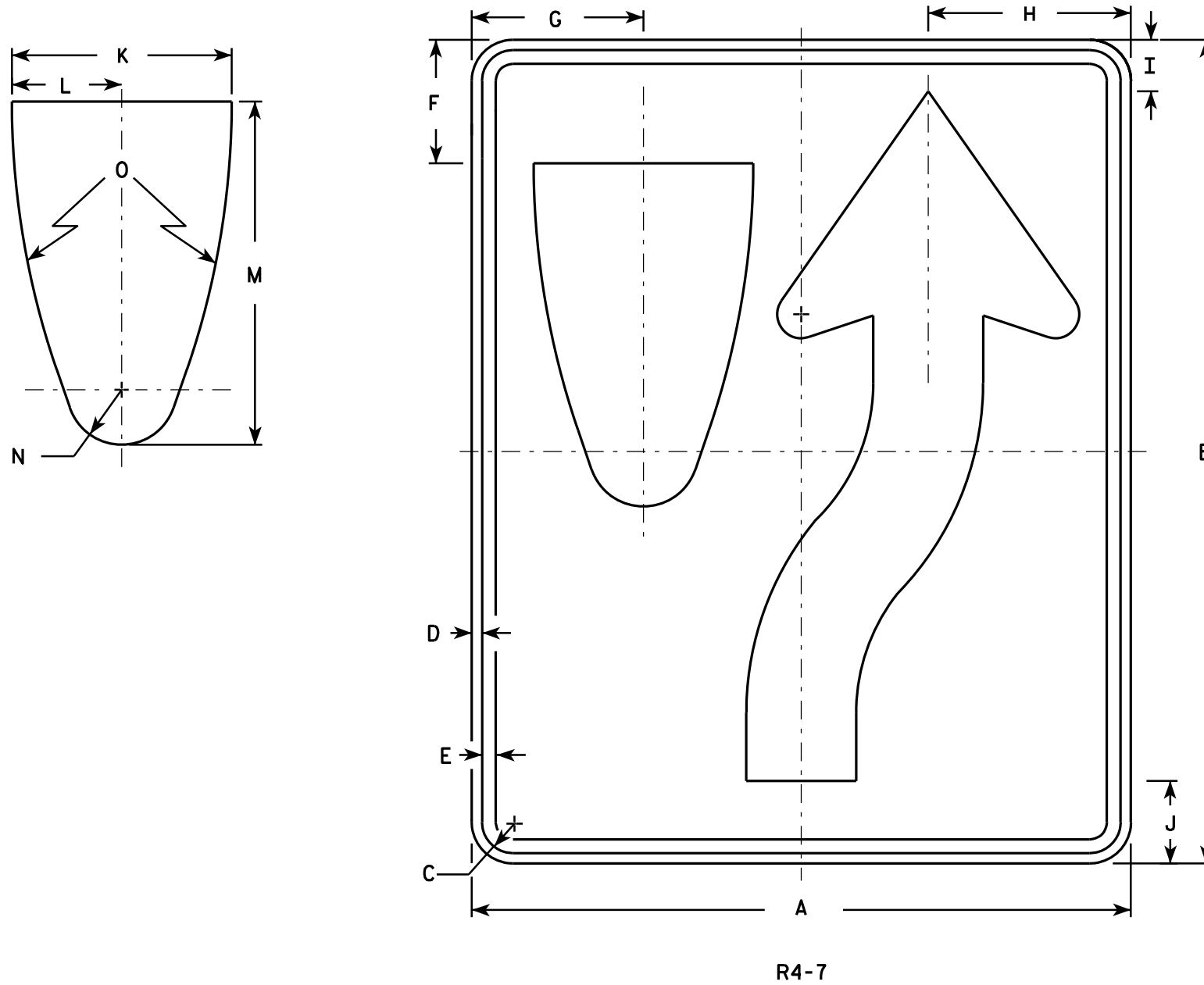
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/21/2011 PLATE NO. R3-8NN.2

**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.



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

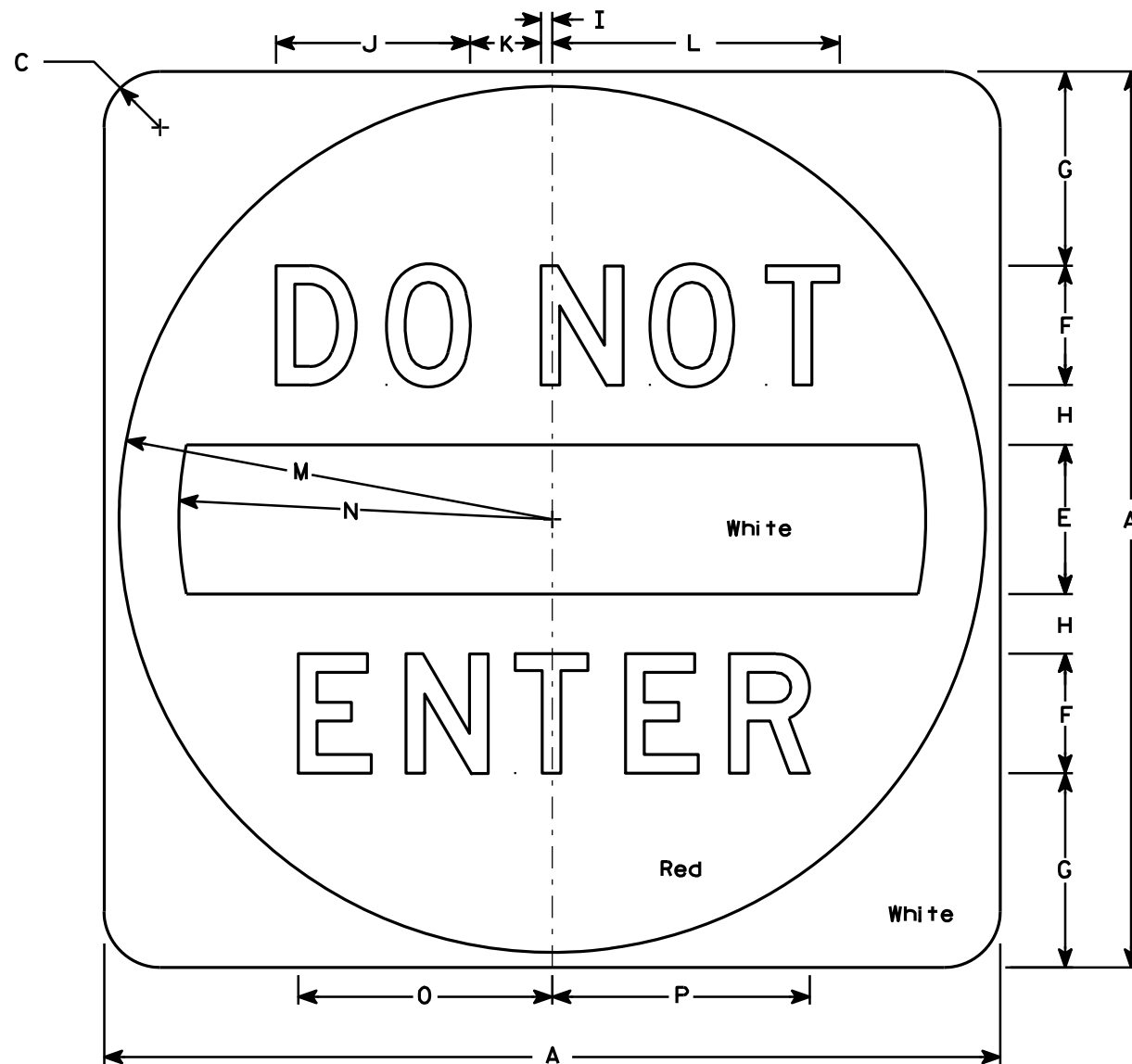
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-7.8

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ 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 - 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 corners shall be rounded.



R5-1

7

7

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

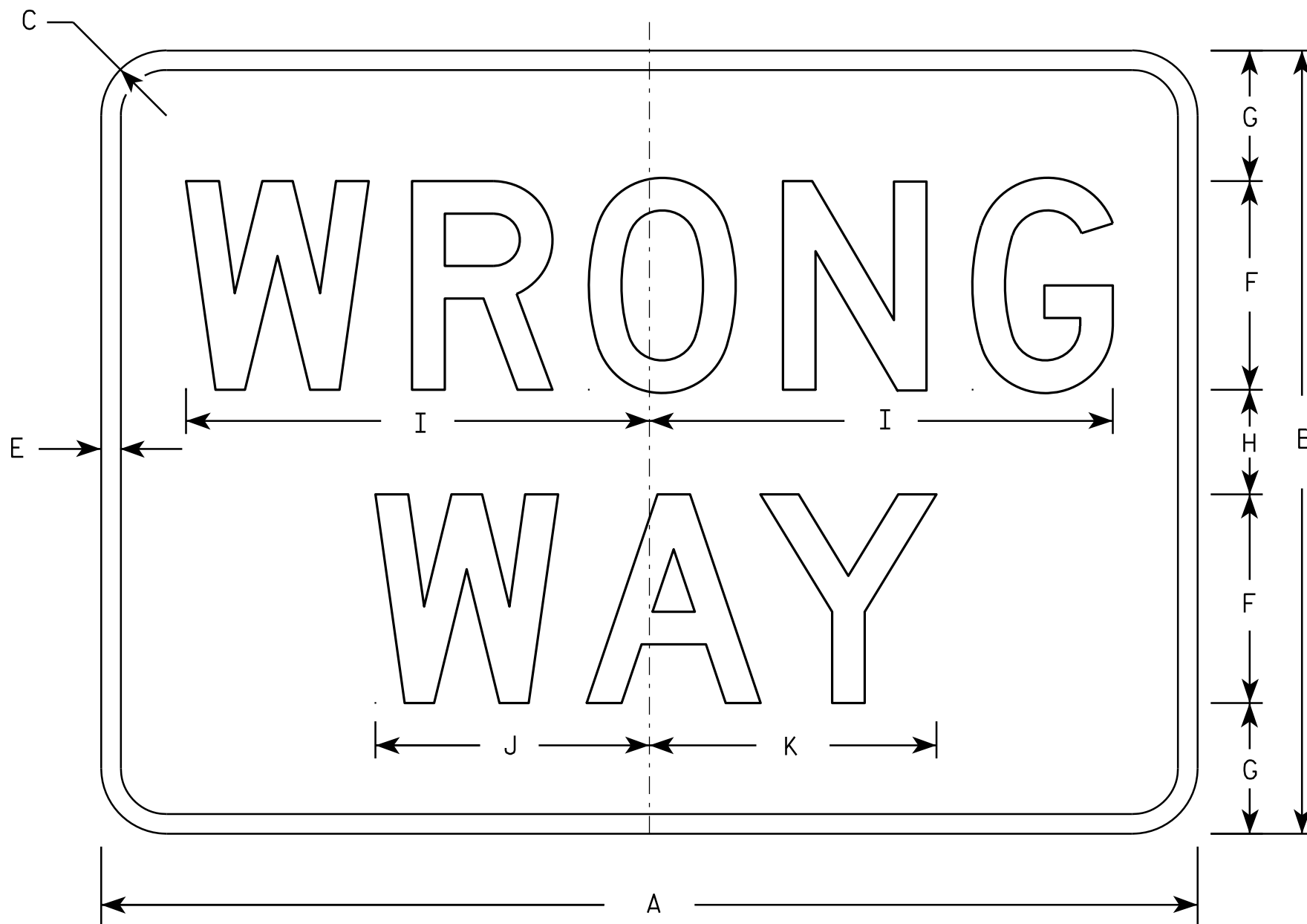
**STANDARD SIGN**  
**R5-1**

*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: \_\_\_\_\_ 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 - 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.

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R5-1A

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*

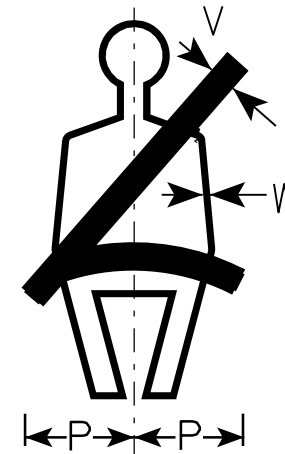
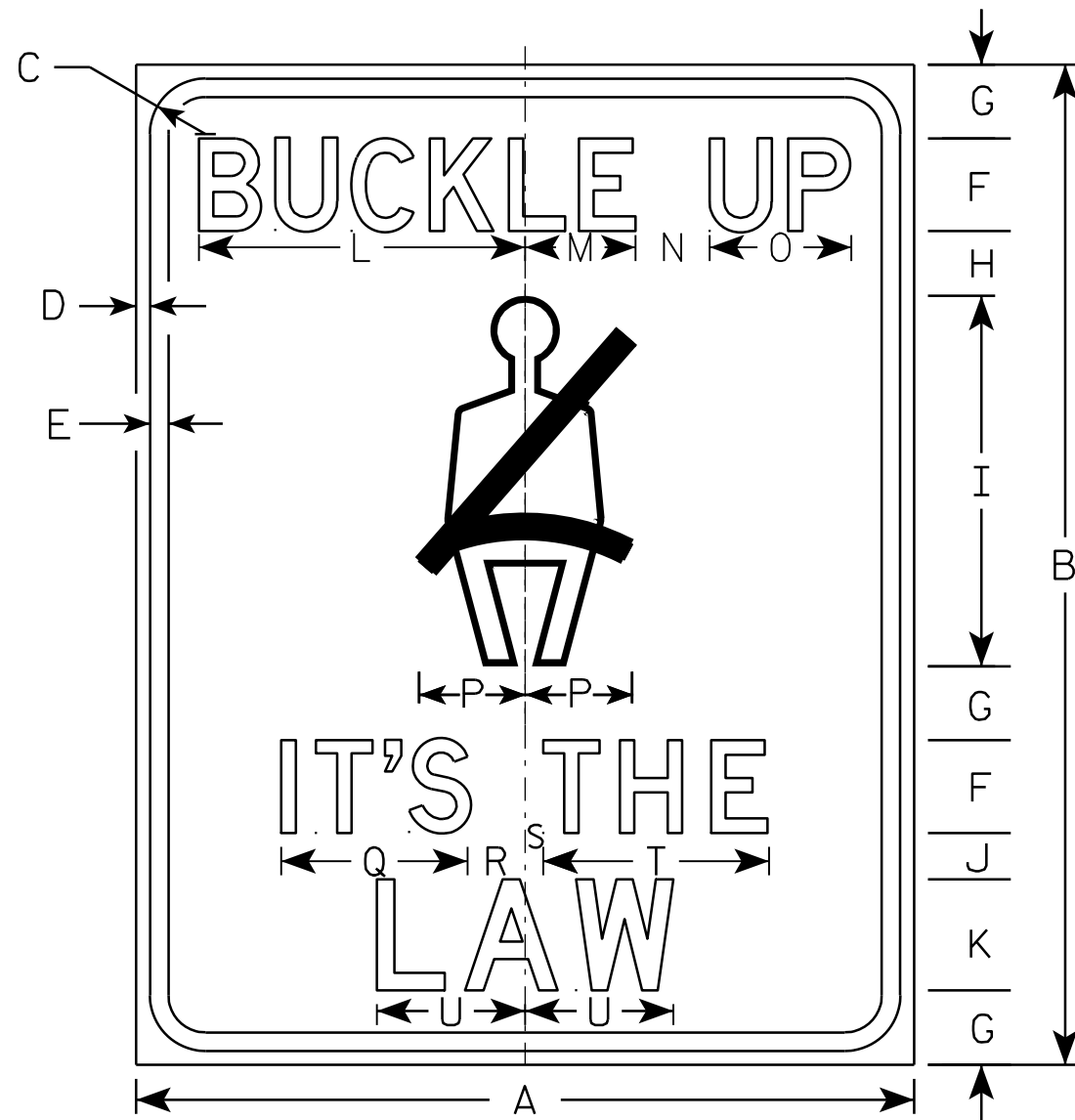
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1A.2

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ 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. 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.



R5-53A

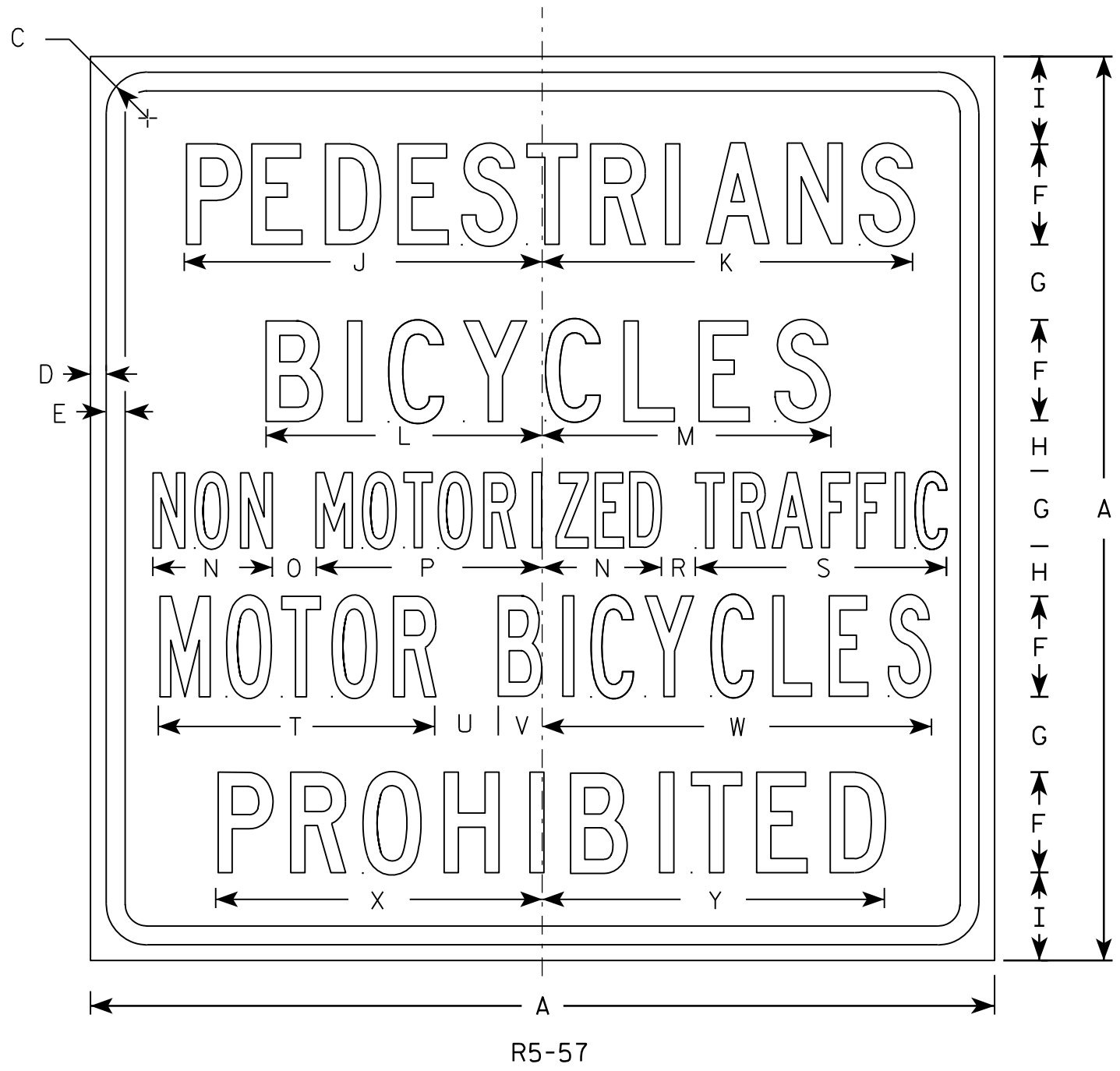
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	18	24	1 1/8	3/8	3/8	2	1 3/4	1 1/2	9	1 1/4	3	6 3/4	2 1/4	1 1/2	2 7/8	2 1/2	3 7/8	1 1/4	3/8	4 5/8	3 7/8	5/8	1/8				3.00
2M	18	24	1 1/8	3/8	3/8	2	1 3/4	1 1/2	9	1 1/4	3	6 3/4	2 1/4	1 1/2	2 7/8	2 1/2	3 7/8	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: \_\_\_\_\_ 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. 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.

7

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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

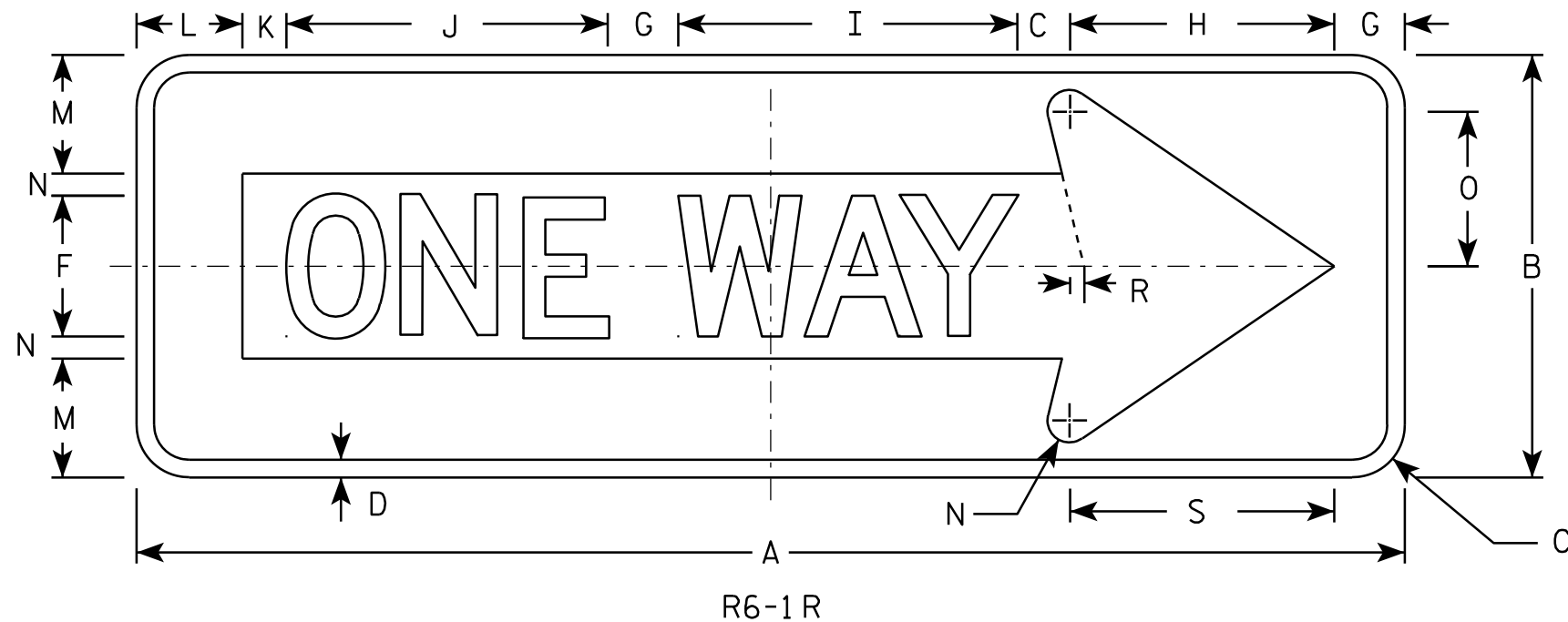
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/29/2011 PLATE NO. R5-57.10

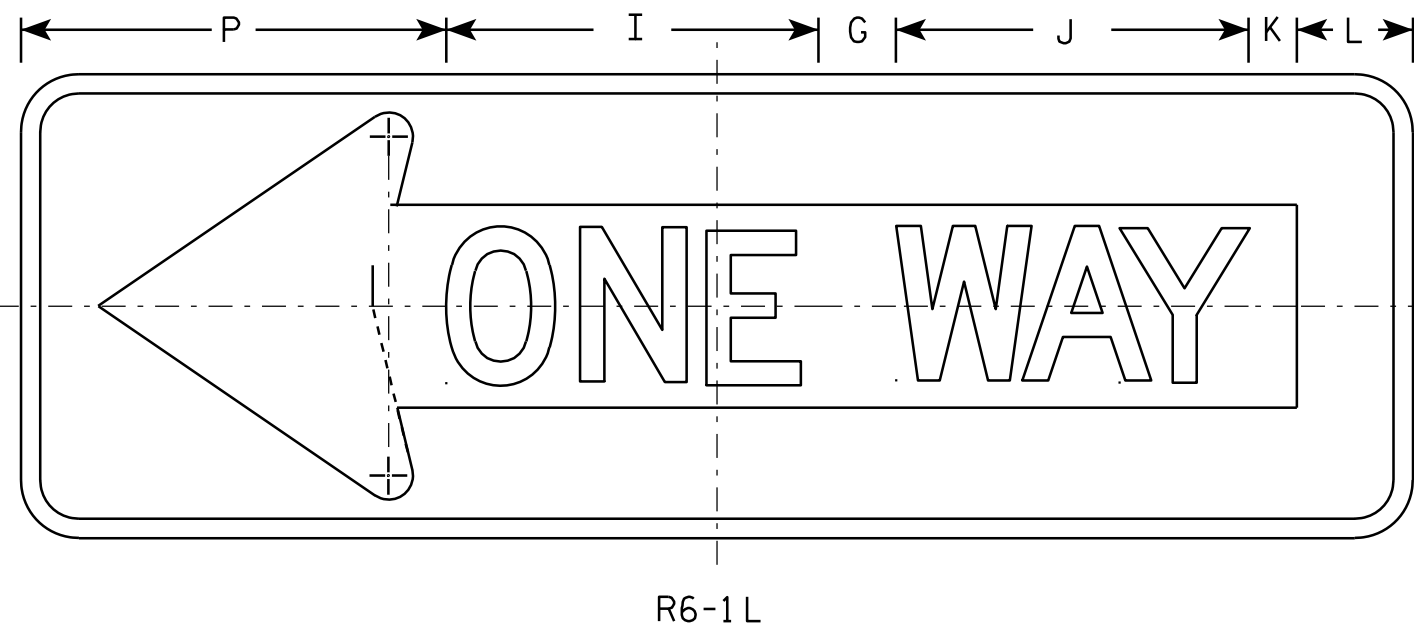
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E





**NOTES**

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - 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.



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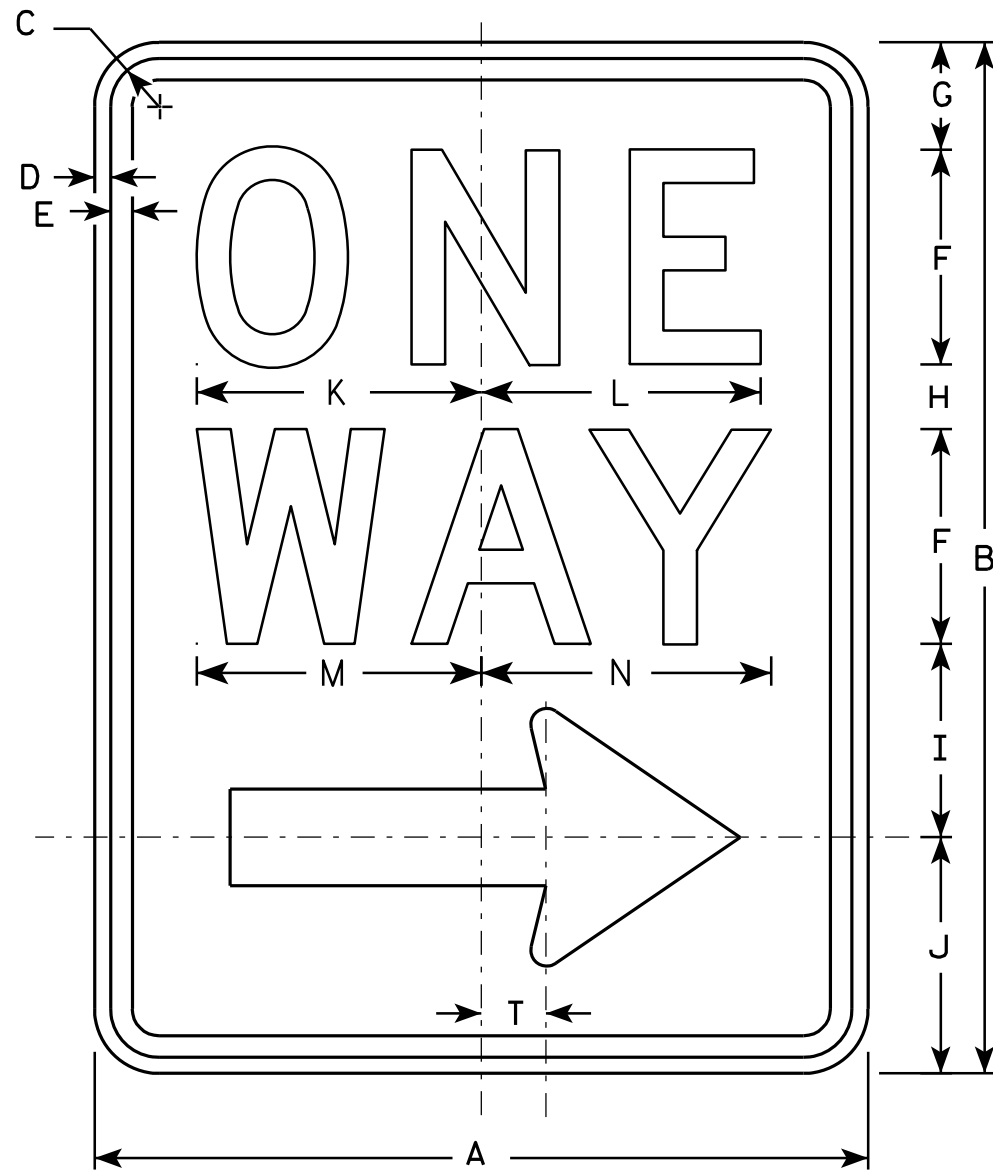
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	36	12	1 1/2	1/2		4	2	7 1/2	9 5/8	9 1/8	1 1/4	3	3 3/8	5/8	4 3/8	11		3/8	7 1/2							3.0	
2M	54	18	2 1/4	3/4		6	3	11 1/4	14 1/2	13 5/8	1 7/8	4 1/2	5	1	6 1/2	16 1/2		5/8	11 1/4							6.75	
3	54	18	2 1/4	3/4		6	3	11 1/4	14 1/2	13 5/8	1 7/8	4 1/2	5	1	6 1/2	16 1/2		5/8	11 1/4							6.75	
4	54	18	2 1/4	3/4		6	3	11 1/4	14 1/2	13 5/8	1 7/8	4 1/2	5	1	6 1/2	16 1/2		5/8	11 1/4							6.75	
5																											

**STANDARD SIGN**  
**R6-1 L & R**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

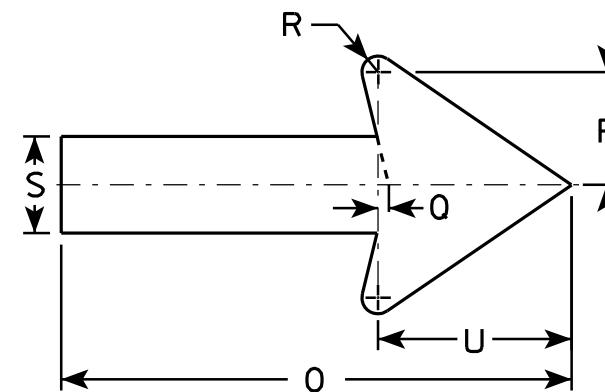
DATE 12/17/10 PLATE NO. R6-1.2



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.



7

7

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

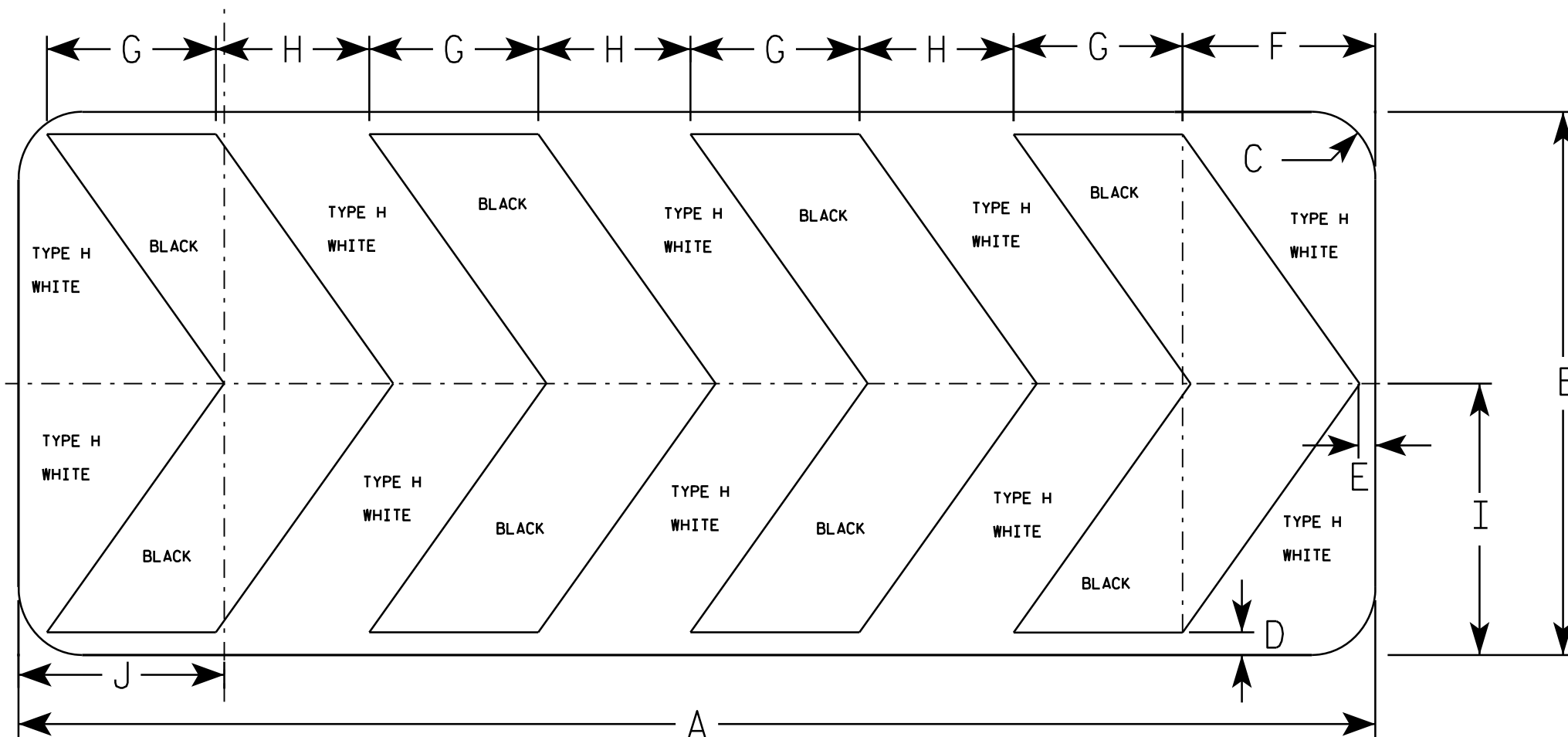
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 11/2/10 PLATE NO. R6-2.8

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ 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

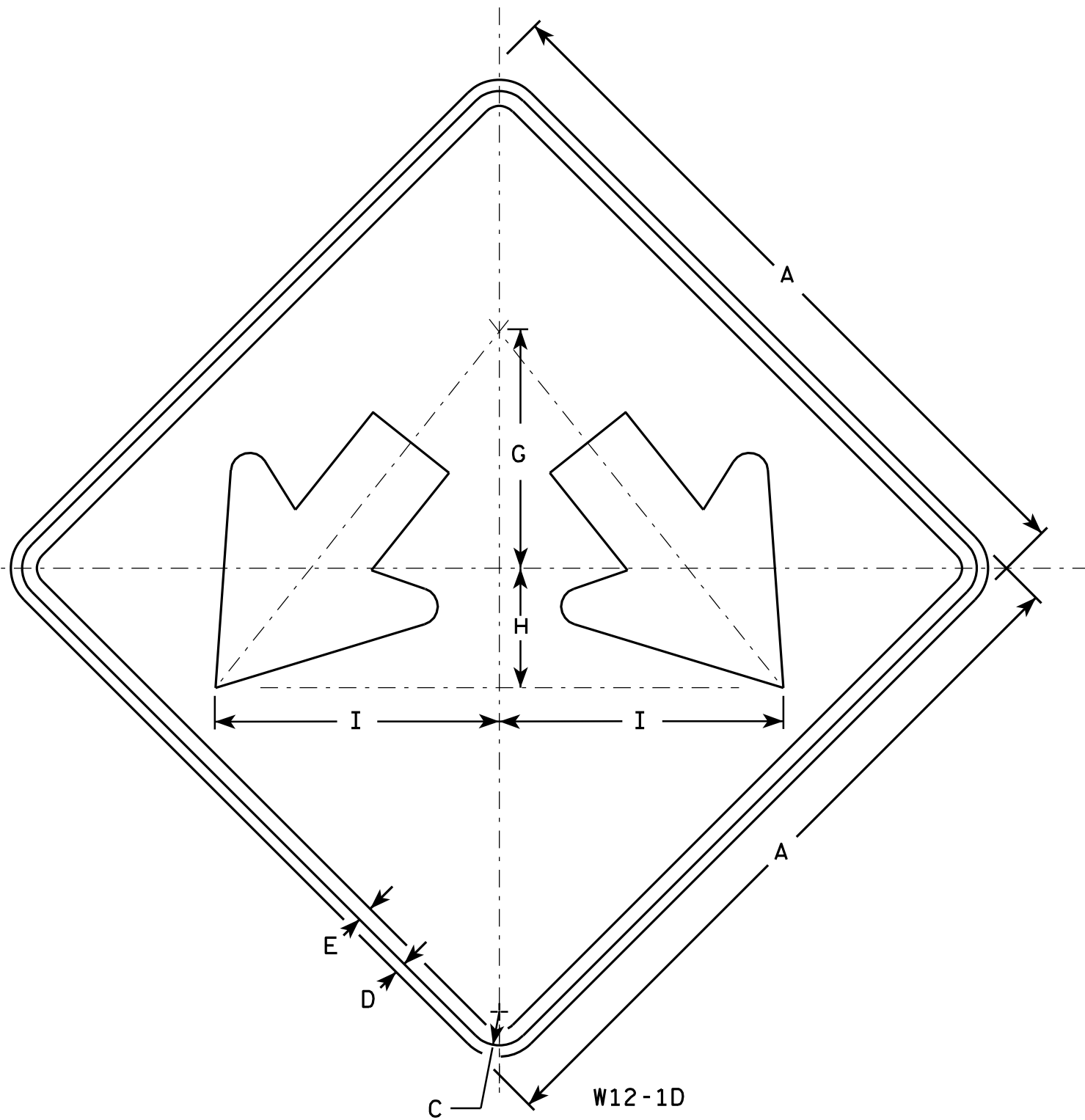
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	60	24	2 1/4	1	3/4	8 1/2	7 1/2	6 3/4	12	9 1/8																	10.0
2M	60	24	2 1/4	1	3/4	8 1/2	7 1/2	6 3/4	12	9 1/8																	10.0
3																											
4																											
5																											

**STANDARD SIGN**  
**R6-4B**

WISCONSIN DEPT OF TRANSPORTATION

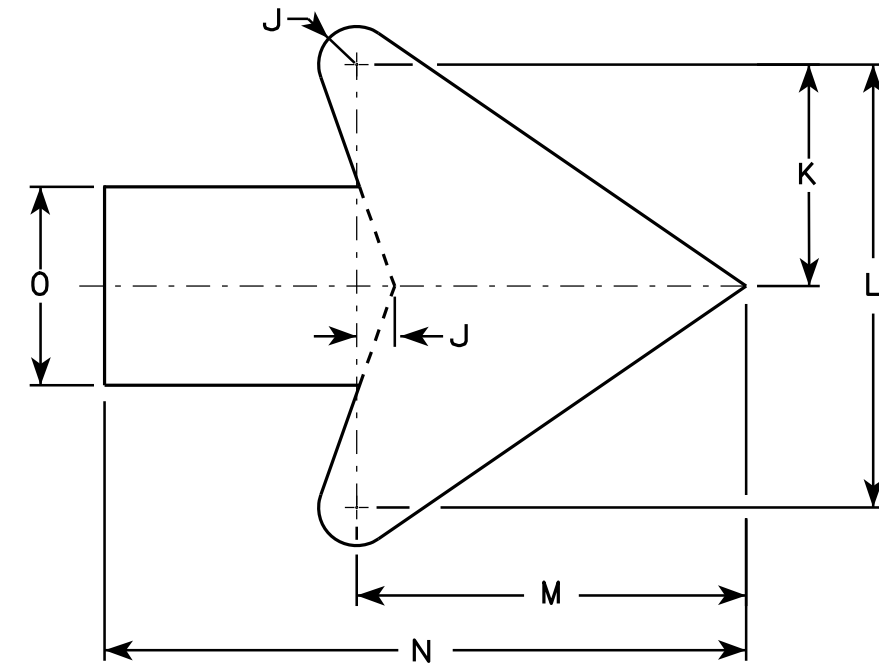
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 1/03/11 PLATE NO. R6-4B.2



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

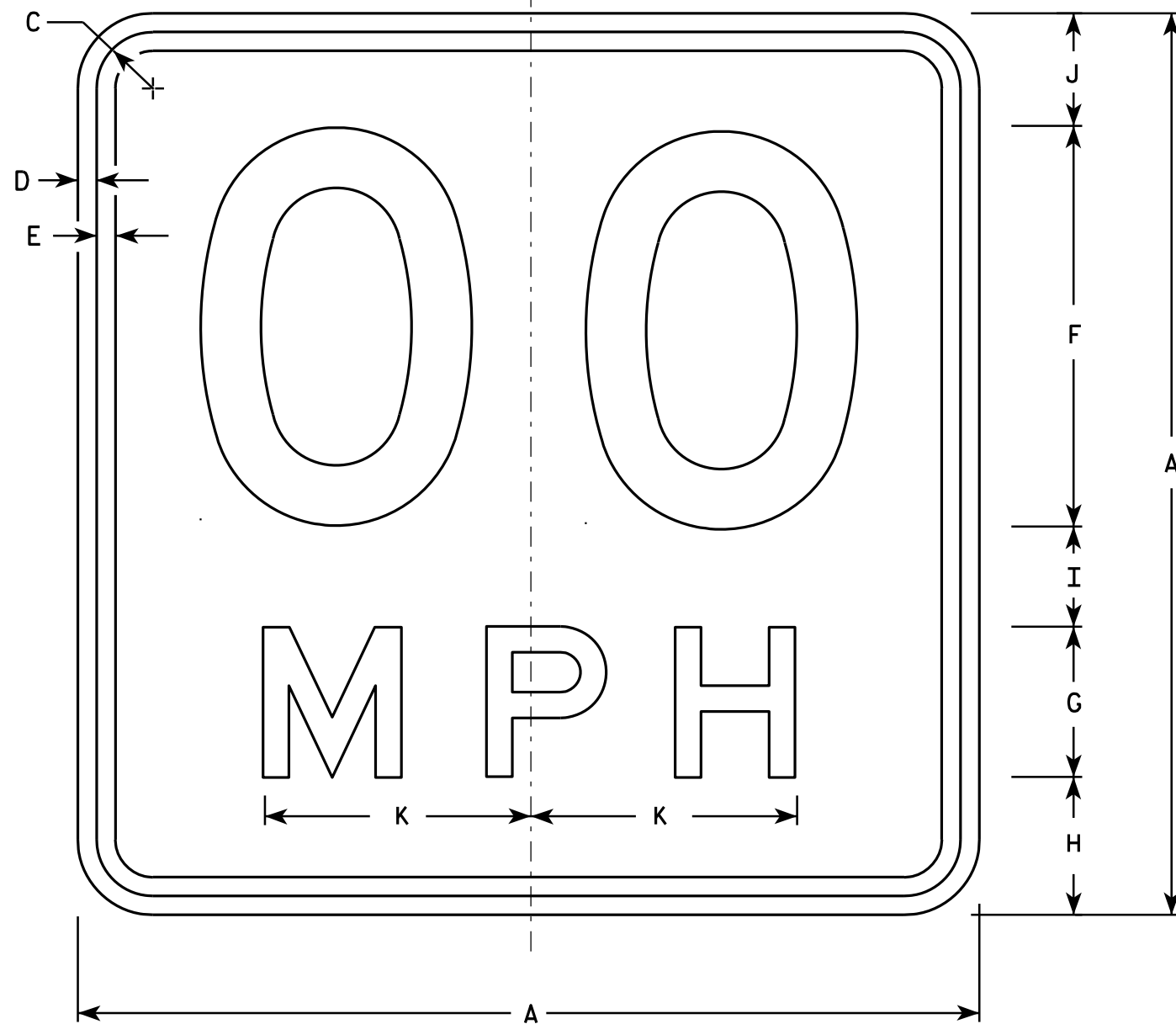
**STANDARD SIGN**  
**W12-1D**

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: **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. 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

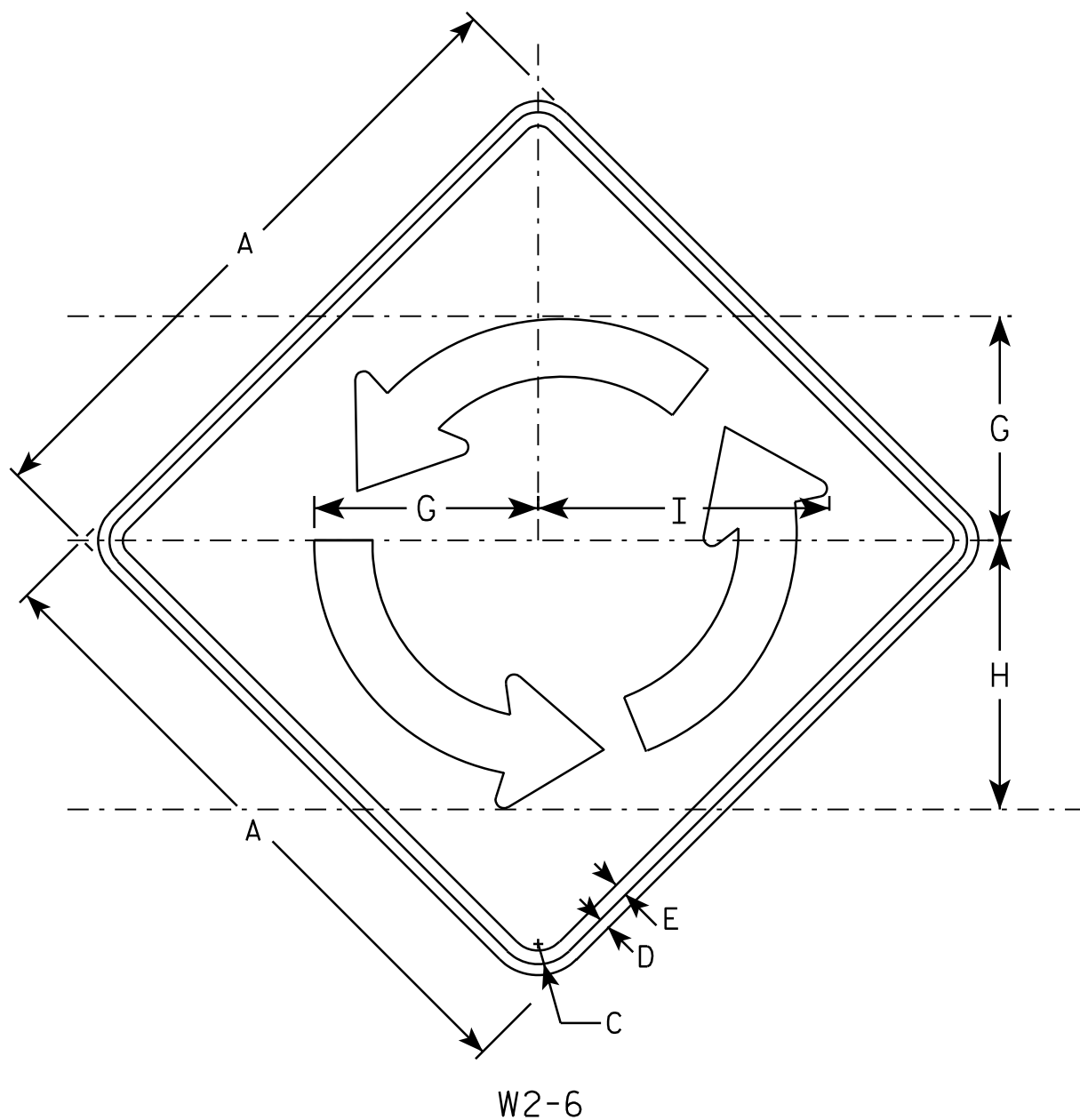
W13-1

\* 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.

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

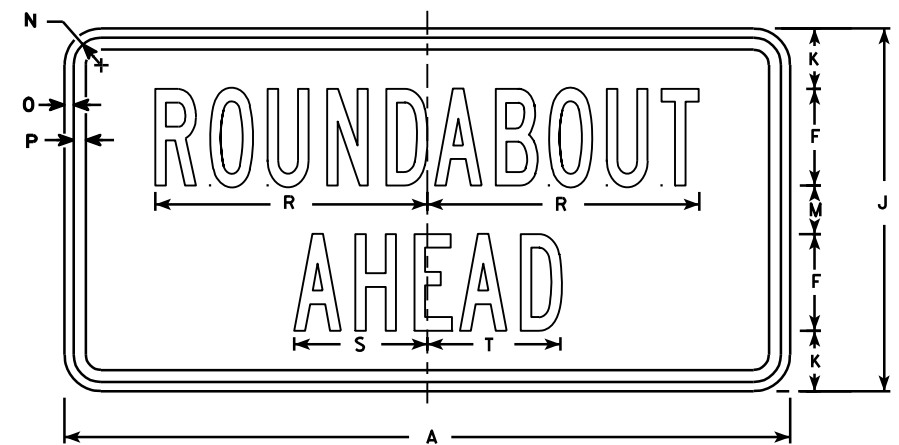
WISCONSIN DEPT OF TRANSPORTATION  
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer  
DATE 5/31/12 PLATE NO. W13-1.16



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

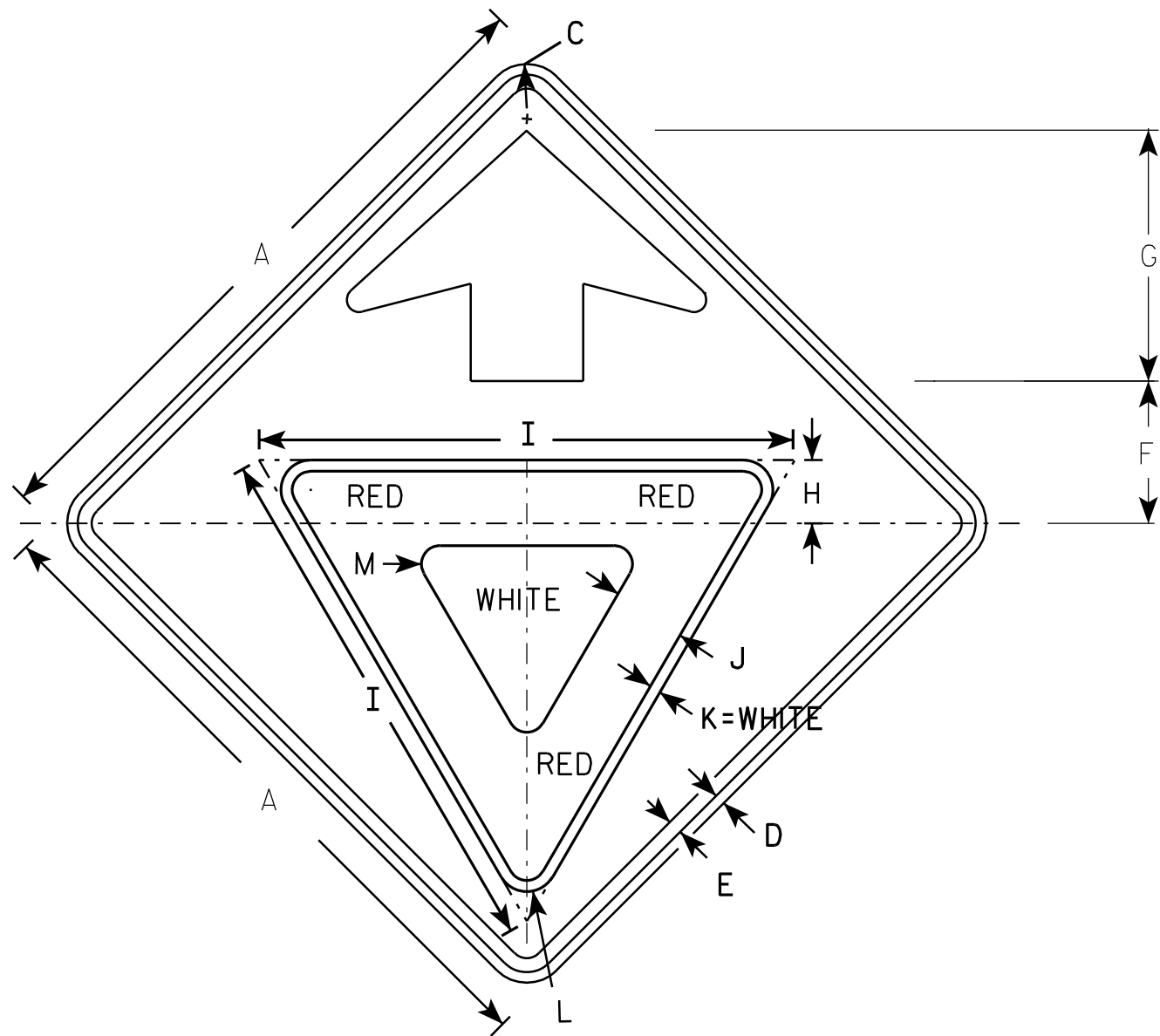
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	W2-6 Area sq. ft.	W2-6P Area sq. ft.
1																										
2S	30		1 3/8	1/2	5/8	4	10 3/8	12 1/2	13 1/2	15	2 1/2		2	1 1/8	3/8	1/2		11 1/4	5 1/2	5 1/2					6.25	3.12
2M	30		1 3/8	1/2	5/8	4	10 3/8	12 1/2	13 1/2	15	2 1/2		2	1 1/8	3/8	1/2		11 1/4	5 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

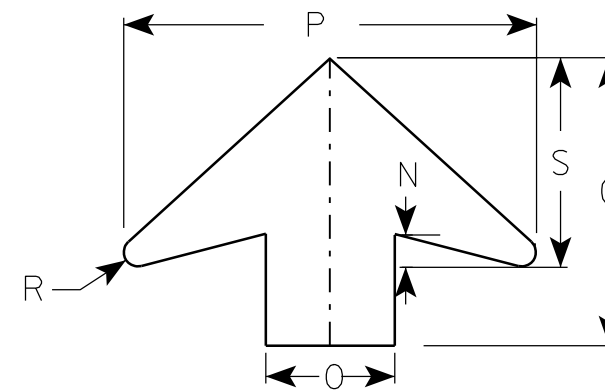
DATE 6/29/12 PLATE NO. W2-6.5



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

7

7

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

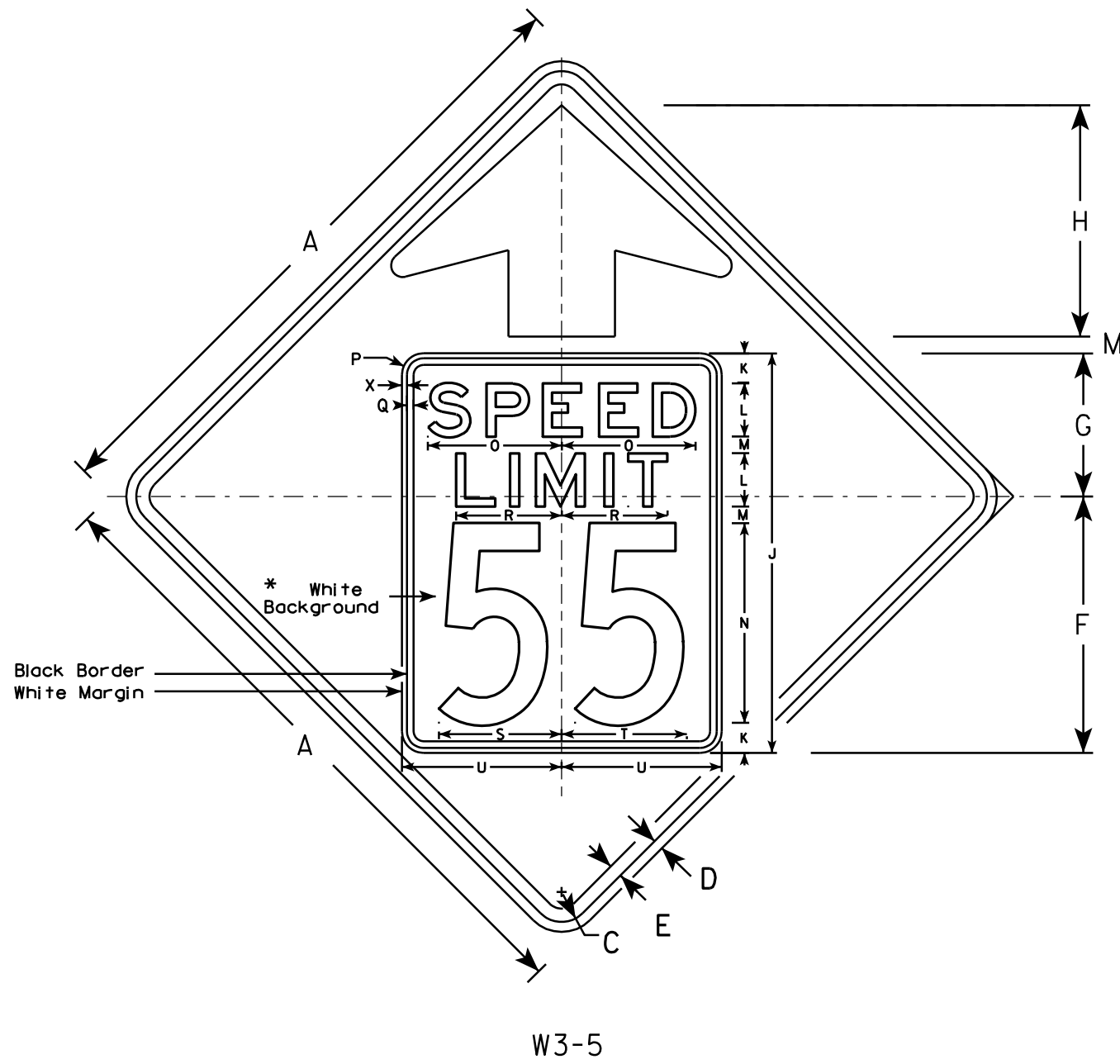
**STANDARD SIGN**  
W3-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W3-2..9

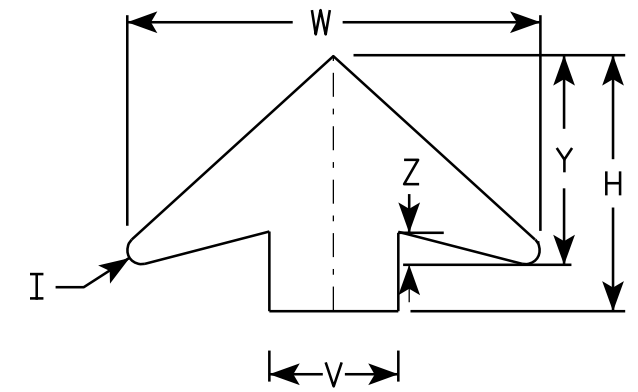
PROJECT NO: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



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. 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

W3-5

7

7

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

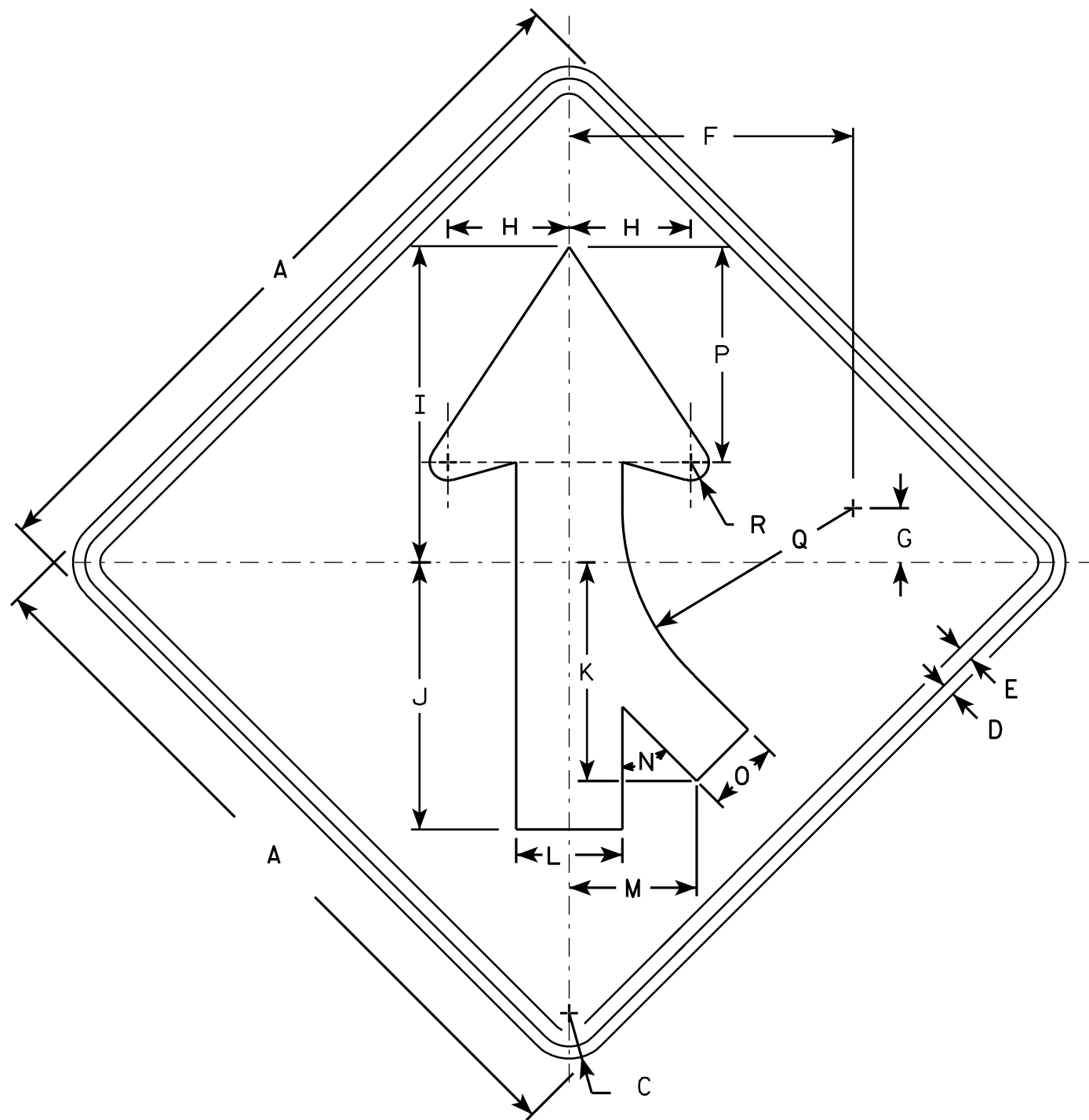
**STANDARD SIGN**  
**W3-5**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W3-5.5





W4-1R

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.

7

7

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	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

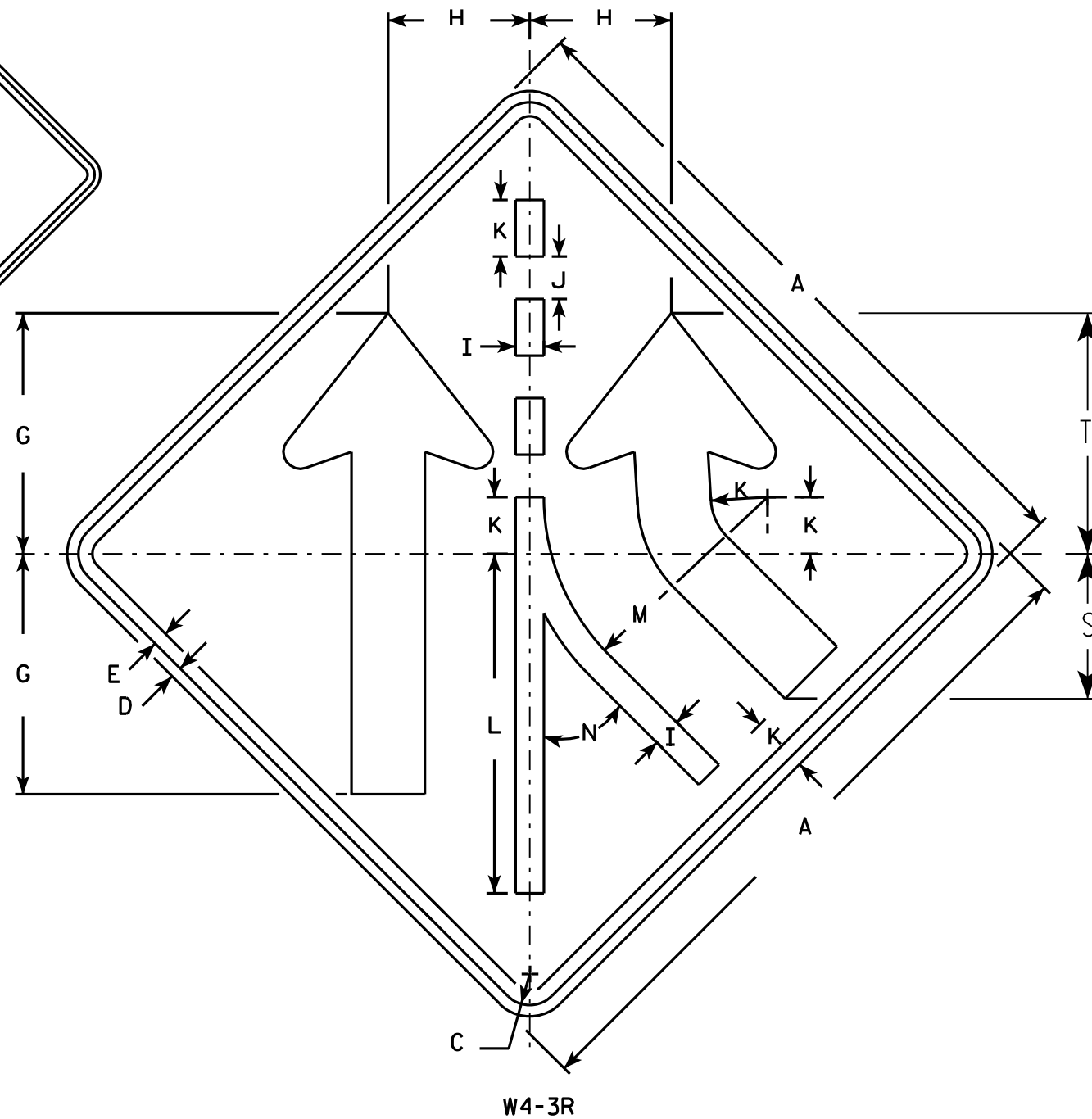
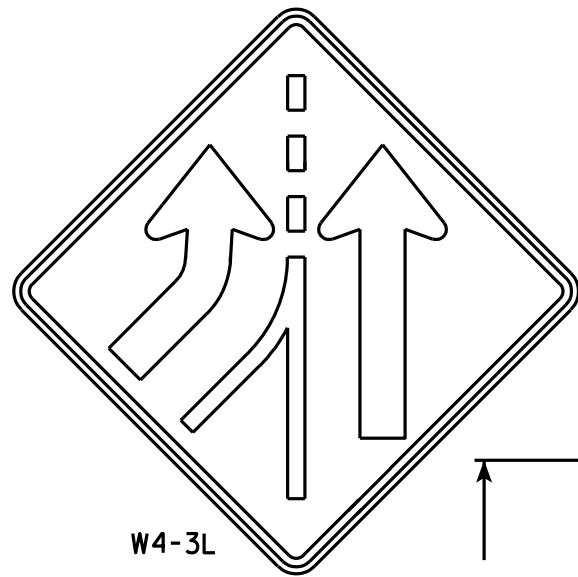
**STANDARD SIGN**  
W4-1

*WISCONSIN DEPT OF TRANSPORTATION*

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

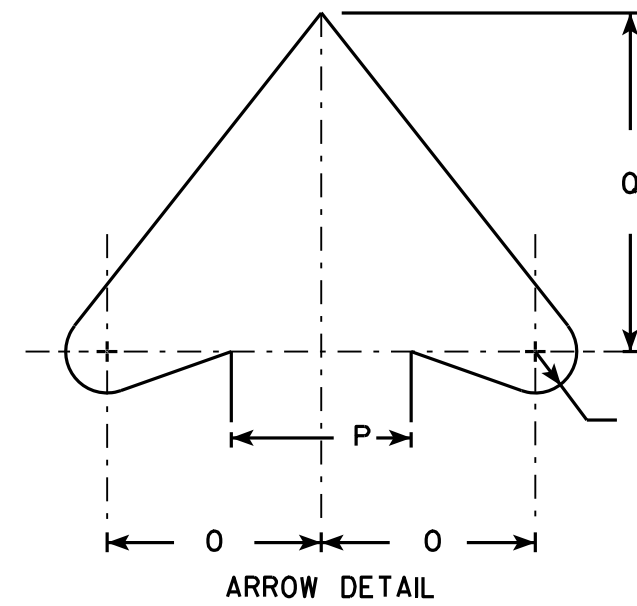
DATE 03/12/13 PLATE NO. W4-1.14

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ **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.
4. W4-3 L is the same as W4-3 R except the arrow is reversed along the vertical centerline.



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**

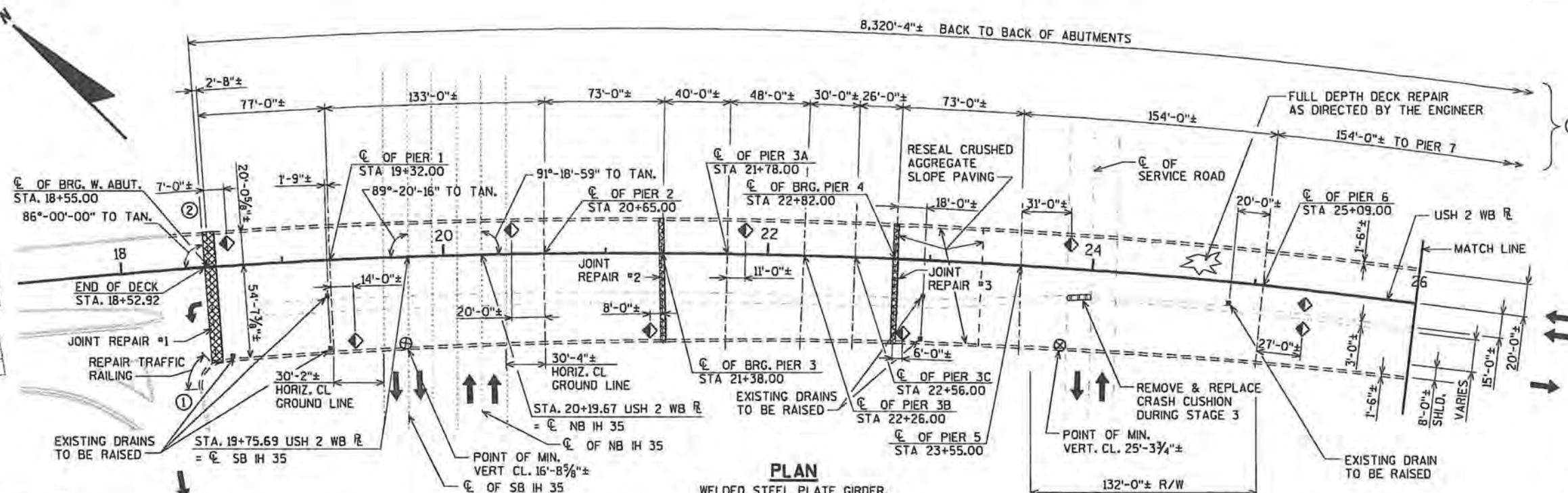
*WISCONSIN DEPT OF TRANSPORTATION*

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 03/12/13 PLATE NO. W4-3.8

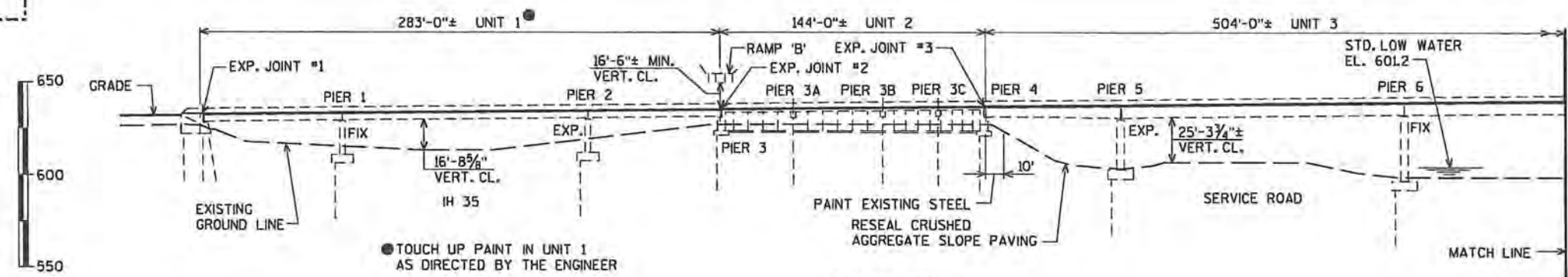
CURVE DATA

USH 2 WB R
P.I. STA. 29+42.00
Delta=43°-08'-06.4"
D=1°-30'



PLAN

WELDED STEEL PLATE GIRDER, CONCRETE HAUNCHED SLAB, & STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

FOR QUANTITIES AND DESIGN DATA SEE SHEET 16

- Legend for symbols: circle with dot for wing number, circle with cross for measurements, diamond for lights to be replaced.



Table with columns: NO., DATE, REVISION, BY. Includes State of Minnesota Department of Transportation and State Bridge Engineer approval.

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

BRIDGE OFFICE CONTACT: WILLIAM DREHER (608)-266-8489
CONSULTANT CONTACT: CHRIS MCMAHON (715)-834-3161

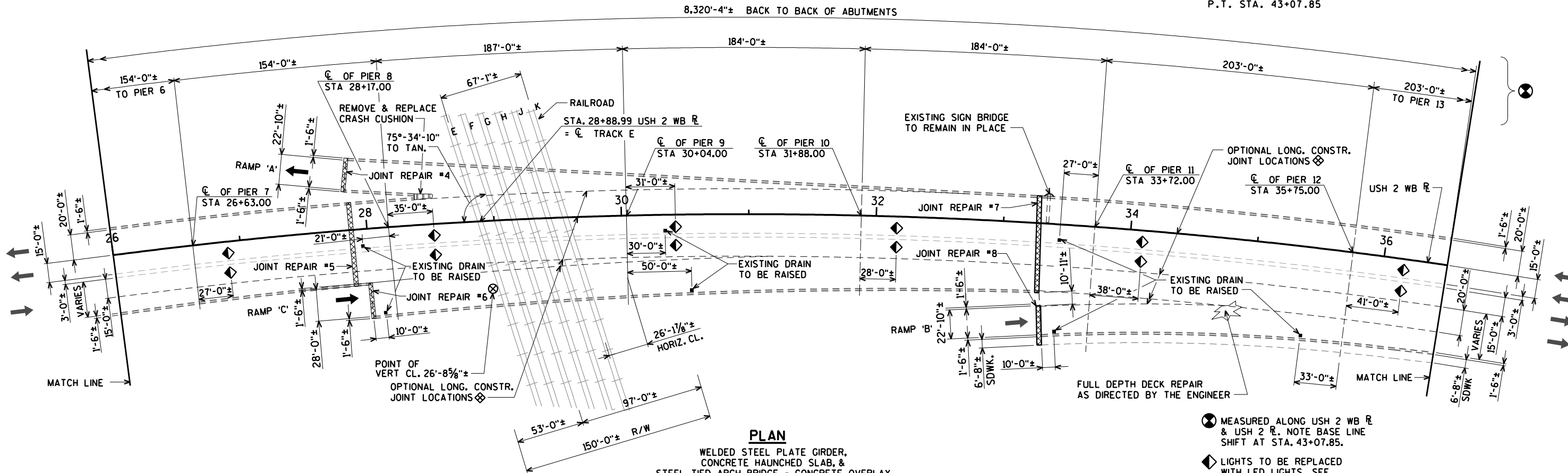
Project information block including: ORIGINAL PLANS PREPARED BY AVRES ASSOCIATES, STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION, STRUCTURE B-16-38/69100, USH 2 OVER ST. LOUIS RIVER, COUNTY DOUGLAS CO., WI, ST. LOUIS COUNTY, MN, SHEET 1 OF 99.

Vertical text on the left margin: \$PRNAME\$, U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 gp1.dgn, CHECKED BY: DATE: BACK CHECKED BY: DATE: CORRECTED BY: DATE:

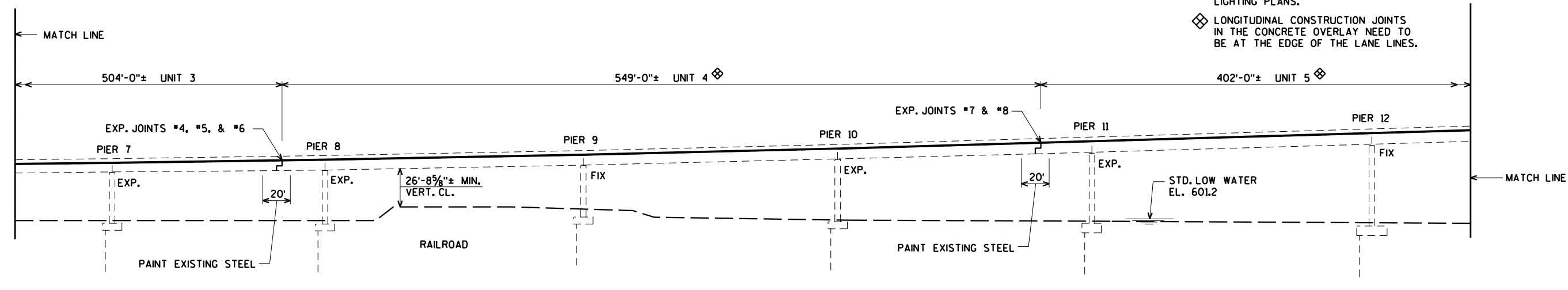
**CURVE DATA**

USH 2 WB R  
 P.I. STA. 29+42.00  
 $\Delta=43^{\circ}-08'-06.4"$   
 $D=1^{\circ}-30'$   
 $T=1,509.83'$   
 $L=2,875.67'$   
 $R=3,819.72'$   
 $S.E.=0.036\%$   
 P.C. STA. 14+32.17  
 P.T. STA. 43+07.85

8,320'-4"± BACK TO BACK OF ABUTMENTS



- ⊗ MEASURED ALONG USH 2 WB R & USH 2 R. 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.



\$PRNAME\$ U:\42-0825.00 - Ush 2 St. Louis River Bong Bridge\BRIDGE\42-0825 gp2.dgn

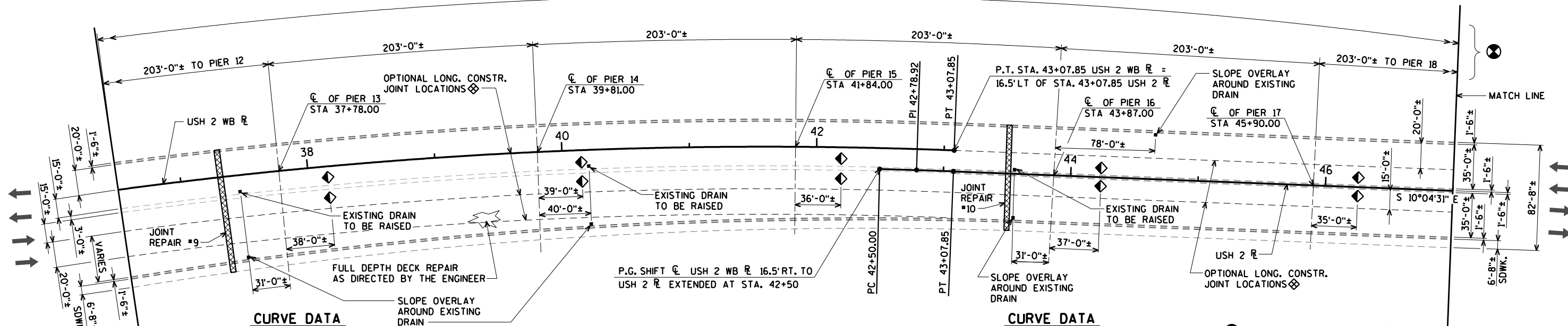
8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>GENERAL PLAN UNITS 3 THRU 5</b>			SHEET 2 OF 99

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

8,320'-4"± BACK TO BACK OF ABUTMENTS



**CURVE DATA**

USH 2 WB R  
 P.I. STA. 29+42.00  
 $\Delta=43^{\circ}-08'-06.4''$   
 $D=1^{\circ}-30'$   
 $T=1,509.83'$   
 $L=2,875.67'$   
 $R=3,819.72'$   
 $S.E.=+0.036\%$   
 P.C. STA. 14+32.17  
 P.T. STA. 43+07.85

**CURVE DATA**

USH 2 R  
 P.I. STA. 42+78.92  
 $\Delta=0^{\circ}-52'-17''$   
 $D=1^{\circ}-30'-23''$   
 $T=28.92'$   
 $L=57.85'$   
 $R=3,803.22'$   
 $S.E.=+0.036\%$   
 P.C. STA. 42+50.00  
 P.T. STA. 43+07.85

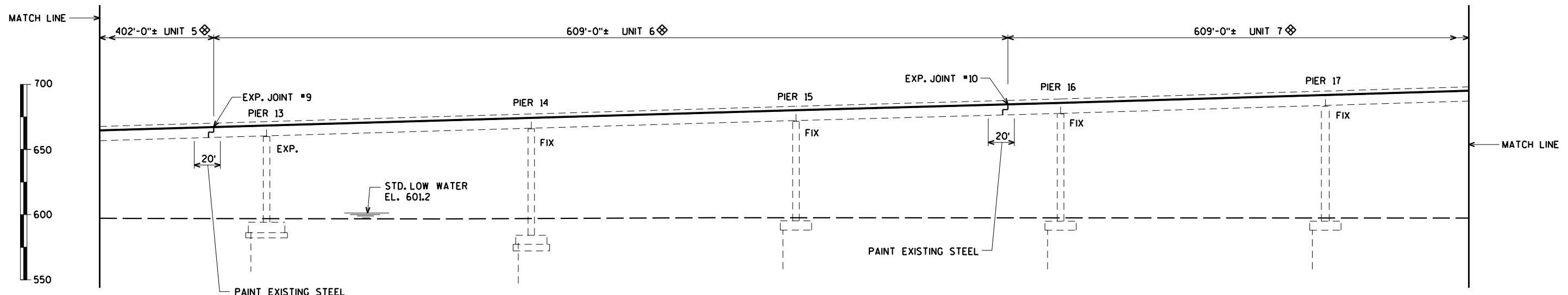
**PLAN**

WELDED STEEL PLATE GIRDER,  
 CONCRETE HAUNCHED SLAB, &  
 STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

⊗ MEASURED ALONG USH 2 WB R & USH 2 R. 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)

\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 gp3.dgn

8

8

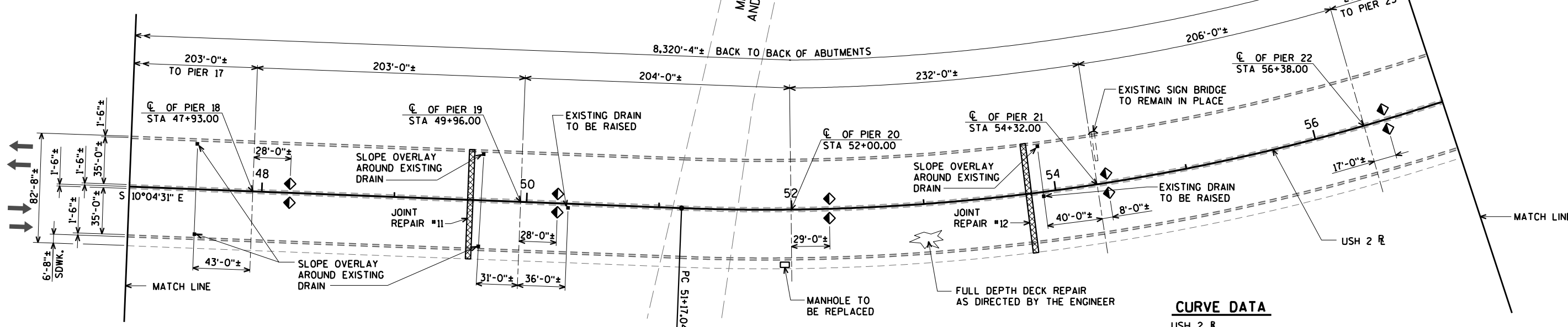
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>GENERAL PLAN UNITS</b>			SHEET 3 OF 99
<b>5 THRU 7</b>			

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



ST. LOUIS RIVER BAY

MINN. POWER AND LIGHT CO.



**PLAN**

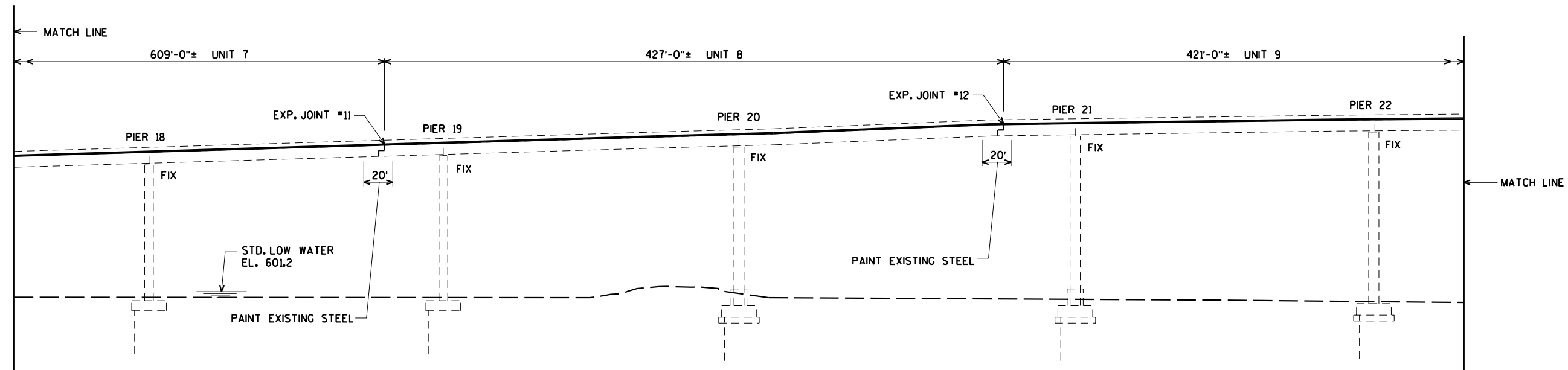
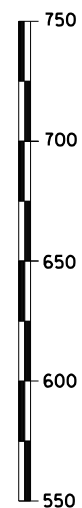
WELDED STEEL PLATE GIRDER,  
CONCRETE HAUNCHED SLAB, &  
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

**CURVE DATA**

USH 2 R  
P.I. STA. 61+39.96  
Δ=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 R & USH 2 R. NOTE BASE LINE SHIFT AT STA. 43+07.85.

◊ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.



**ELEVATION**

(NORMAL TO SUBSTRUCTURE UNITS)

\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 gp4.dgn

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>GENERAL PLAN UNITS 7 THRU 9</b>			SHEET 4 OF 99

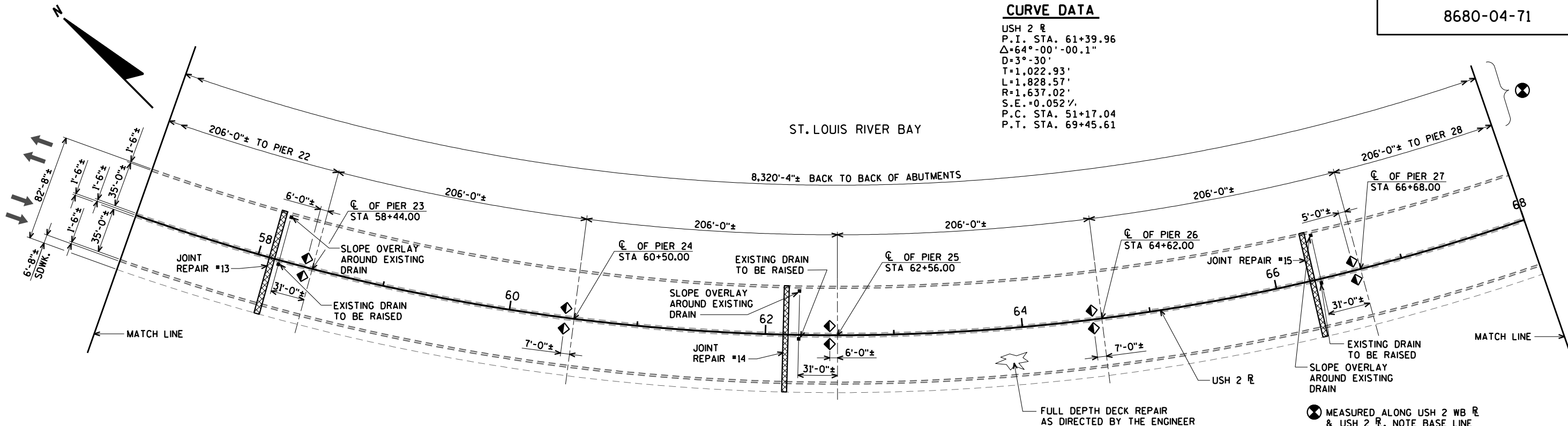
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

**CURVE DATA**

USH 2 R  
 P.I. STA. 61+39.96  
 $\Delta=64^{\circ}-00'-00.1''$   
 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

ST. LOUIS RIVER BAY

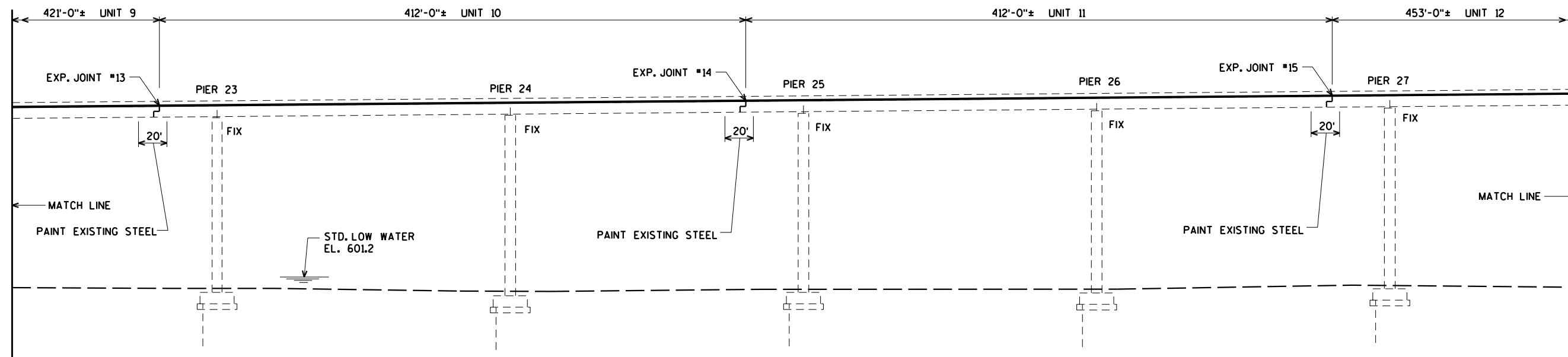
8,320'-4"± BACK TO BACK OF ABUTMENTS



**PLAN**

WELDED STEEL PLATE GIRDER,  
 CONCRETE HAUNCHED SLAB, &  
 STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

- ⊗ MEASURED ALONG USH 2 WB R & USH 2 R. NOTE BASE LINE SHIFT AT STA. 43+07.85.
- ◊ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.



**ELEVATION**

(NORMAL TO SUBSTRUCTURE UNITS)

\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 gp5.dgn

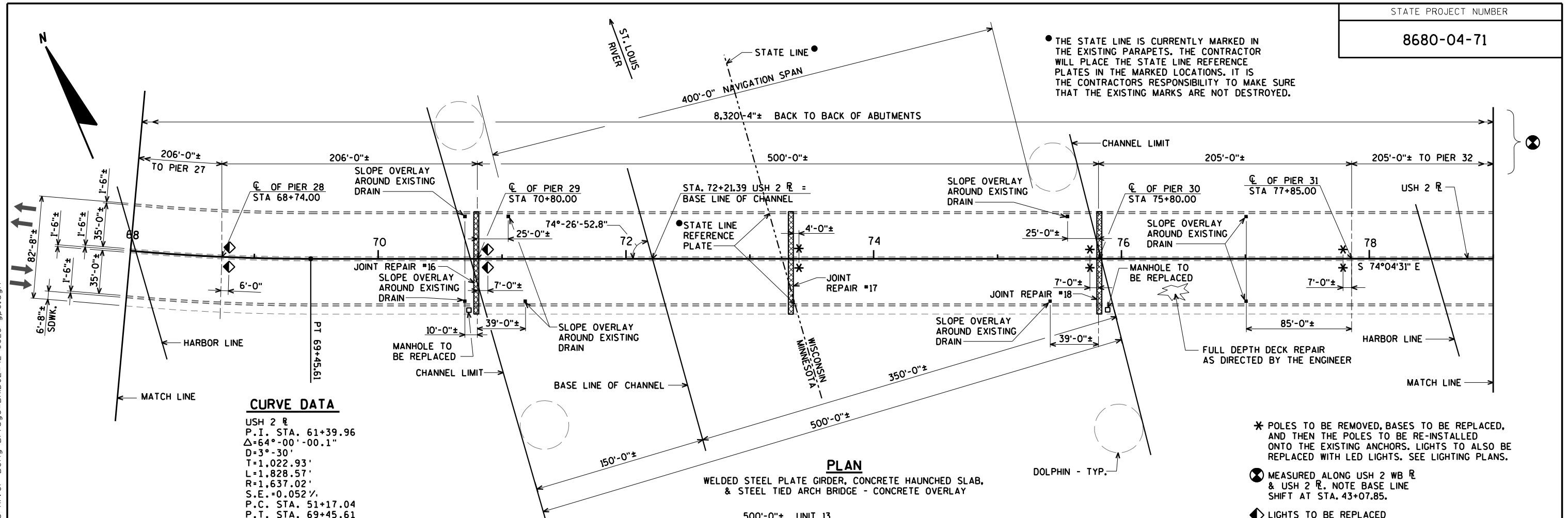
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8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>GENERAL PLAN UNITS</b>			SHEET 5 OF 99
<b>9 THRU 12</b>			

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

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.



**CURVE DATA**

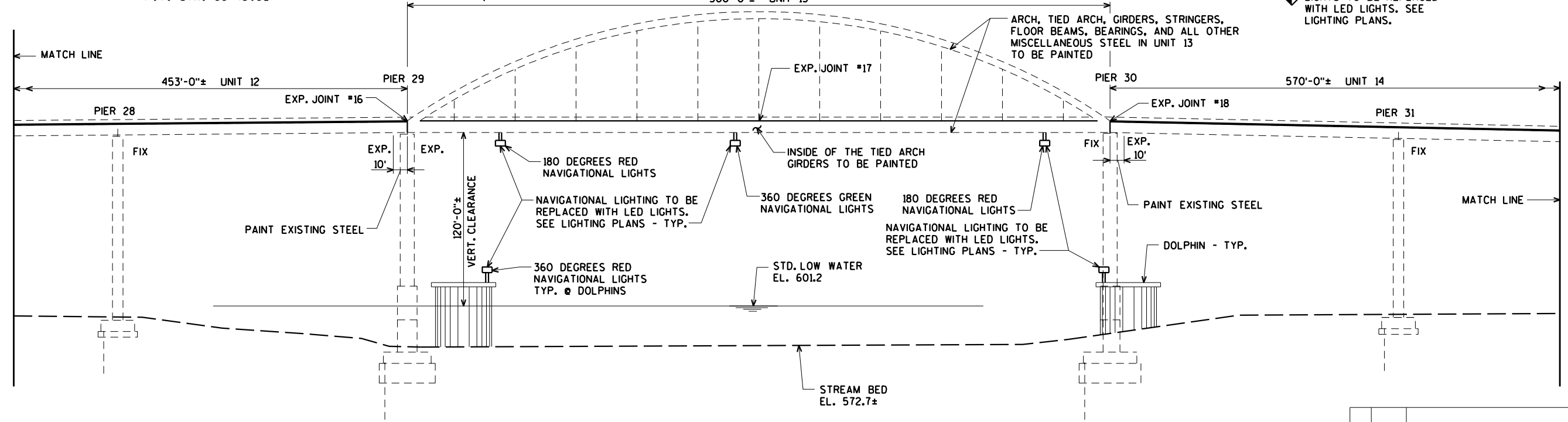
USH 2 R  
 P.I. STA. 61+39.96  
 $\Delta=64^{\circ}-00'-00.1"$   
 $D=3^{\circ}-30'$   
 $T=1,022.93'$   
 $L=1,828.57'$   
 $R=1,637.02'$   
 $S.E.=0.052\%$   
 P.C. STA. 51+17.04  
 P.T. STA. 69+45.61

- \* 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 R & USH 2 R. NOTE BASE LINE SHIFT AT STA. 43+07.85.
- ◊ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 gp6.dgn

8

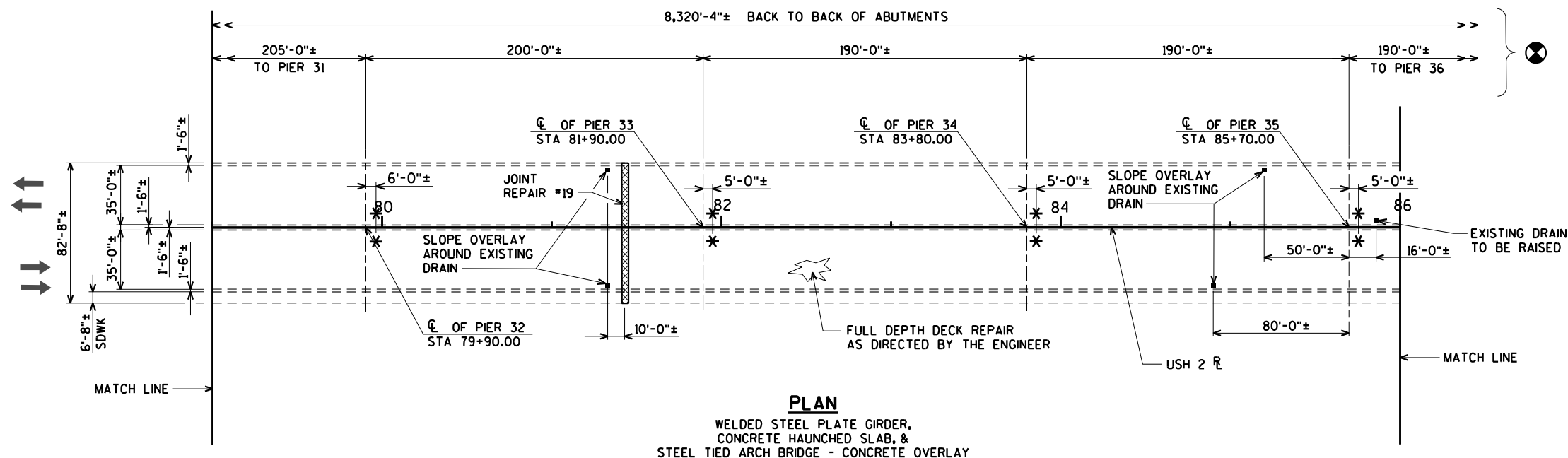
8



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>GENERAL PLAN UNITS 12 THRU 14</b>			SHEET 6 OF 99

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

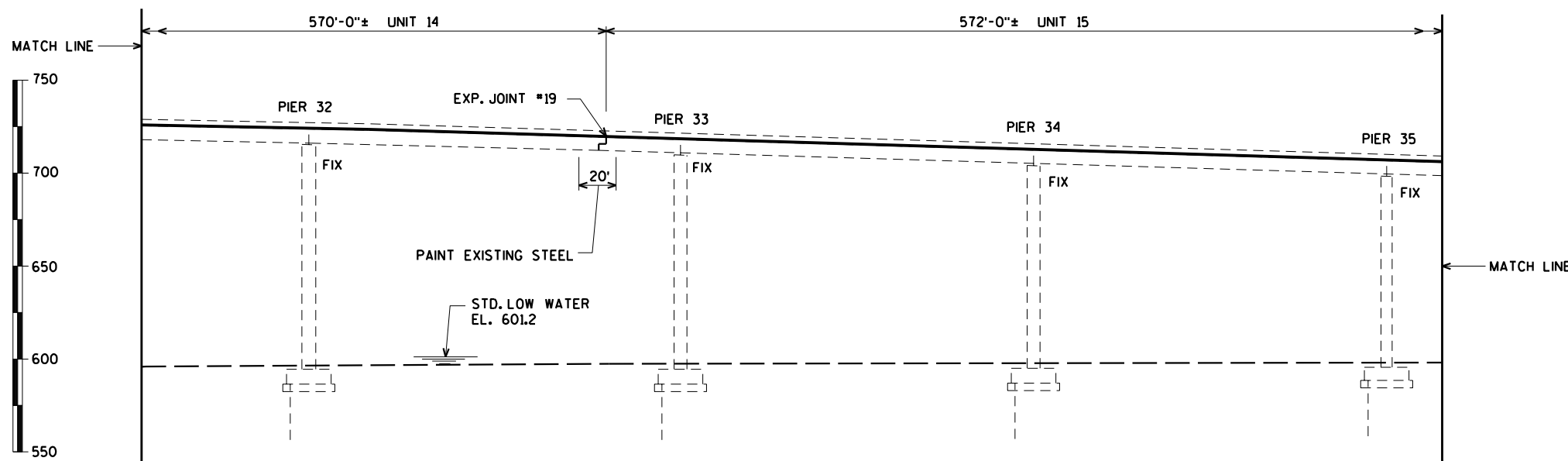




**PLAN**  
 WELDED STEEL PLATE GIRDER,  
 CONCRETE HAUNCHED SLAB, &  
 STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

\* 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 R & USH 2 R. NOTE BASE LINE SHIFT AT STA. 43+07.85.



**ELEVATION**  
 (NORMAL TO SUBSTRUCTURE UNITS)

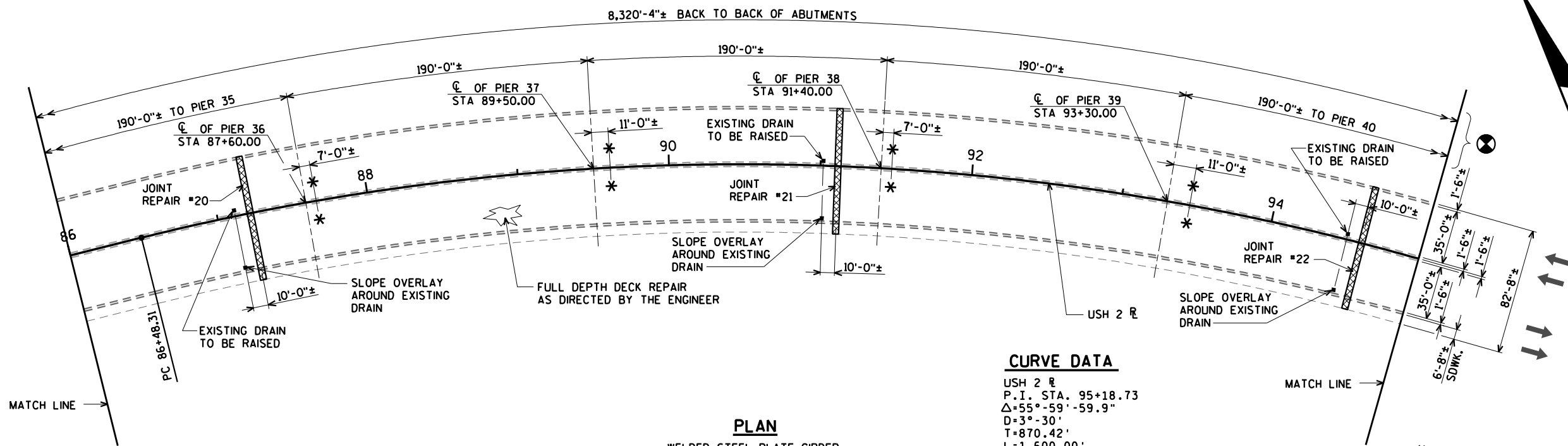
\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 gp7.dgn

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>GENERAL PLAN UNITS 14 &amp; 15</b>			SHEET 7 OF 99

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



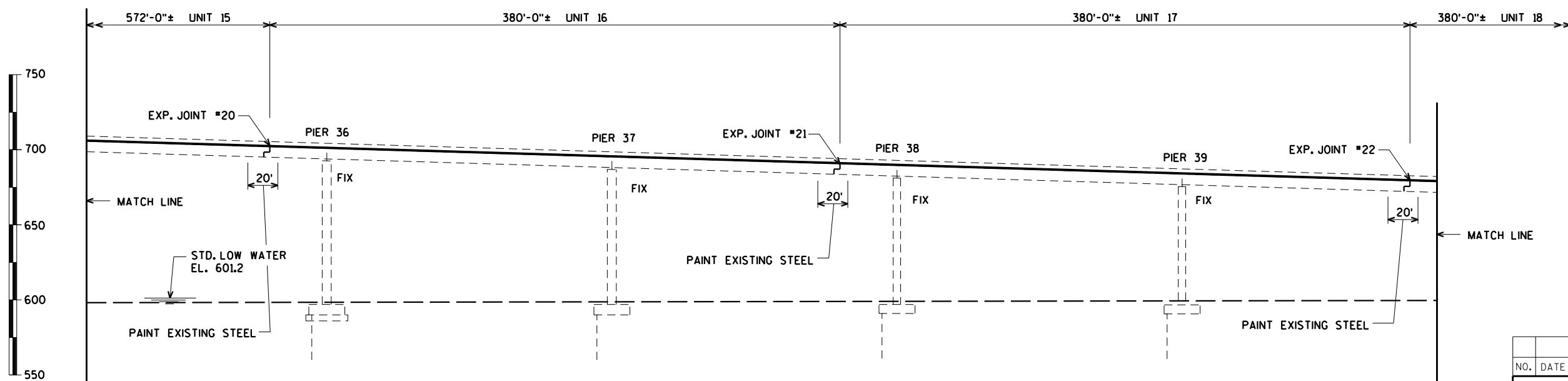
**PLAN**  
 WELDED STEEL PLATE GIRDER,  
 CONCRETE HAUNCHED SLAB, &  
 STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

**CURVE DATA**

USH 2 R  
 P.I. STA. 95+18.73  
 $\Delta=55^{\circ}-59'-59.9''$   
 $D=3^{\circ}-30'$   
 $T=870.42'$   
 $L=1,600.00'$   
 $R=1,637.02'$   
 $S.E.=0.052\%$   
 P.C. STA. 86+48.31  
 P.T. STA. 102+48.31

\* 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 R & USH 2 R. NOTE BASE LINE SHIFT AT STA. 43+07.85.



**ELEVATION**  
 (NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY	CLS	PLANS CK'D.	CBM
<b>GENERAL PLAN UNITS 15 THRU 18</b>			SHEET 8 OF 99

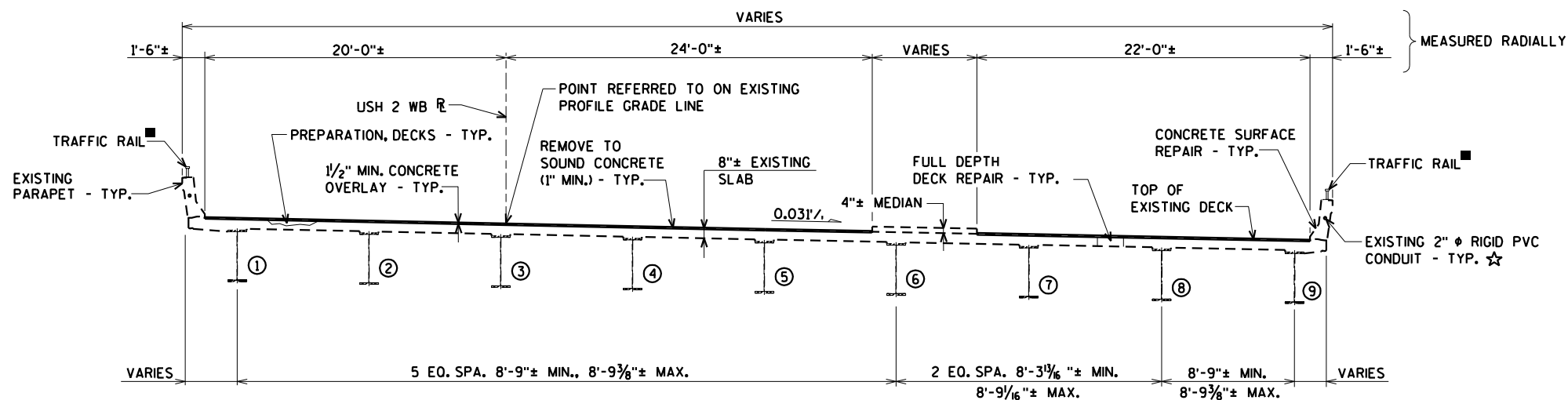
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
 3433 Oakwood Hills Parkway  
 Eau Claire, WI 54701  
 www.AyresAssociates.com

\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 gp8.dgn

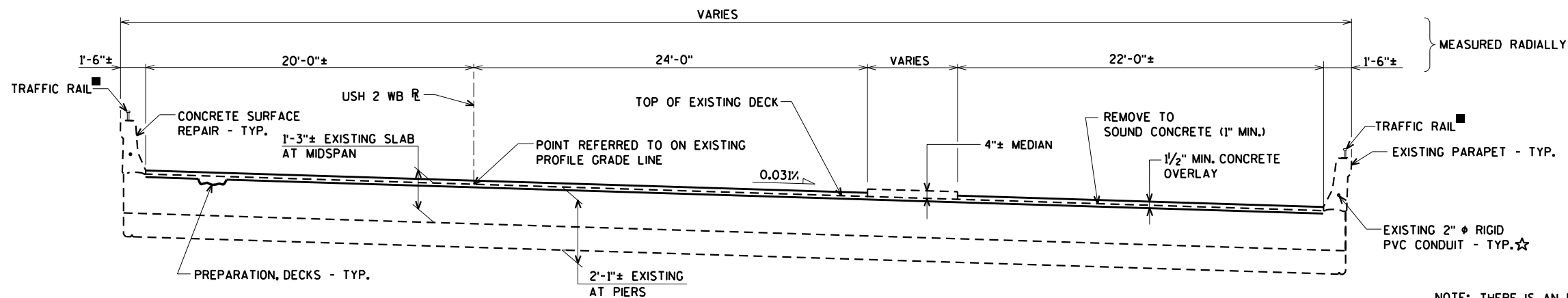
8

8



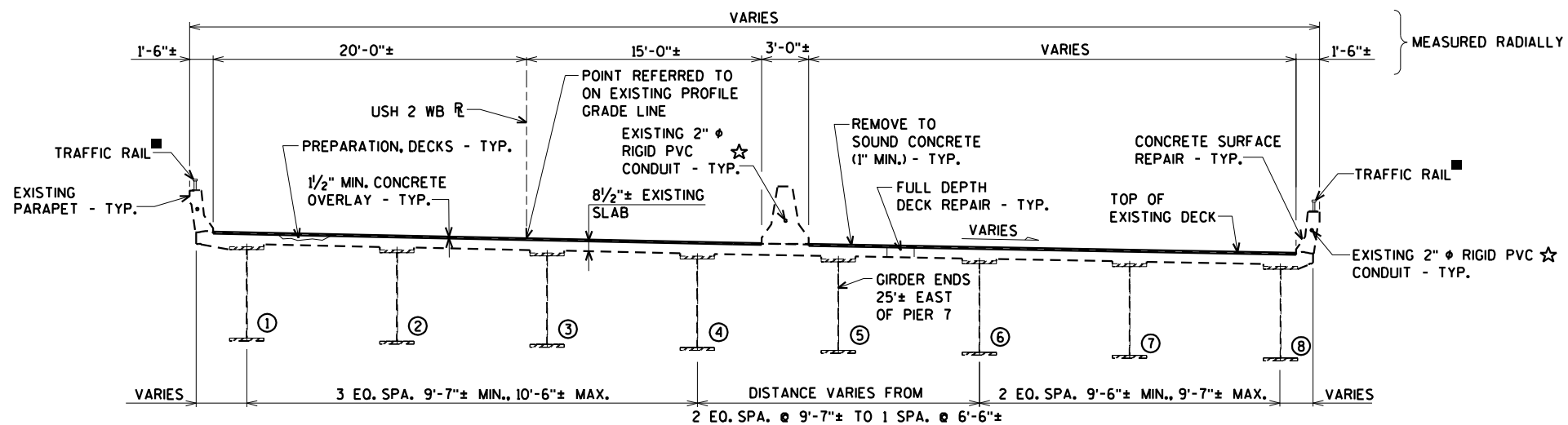


**CROSS SECTION THRU ROADWAY - UNIT 1**  
(LOOKING EAST)



**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 1/2" 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.

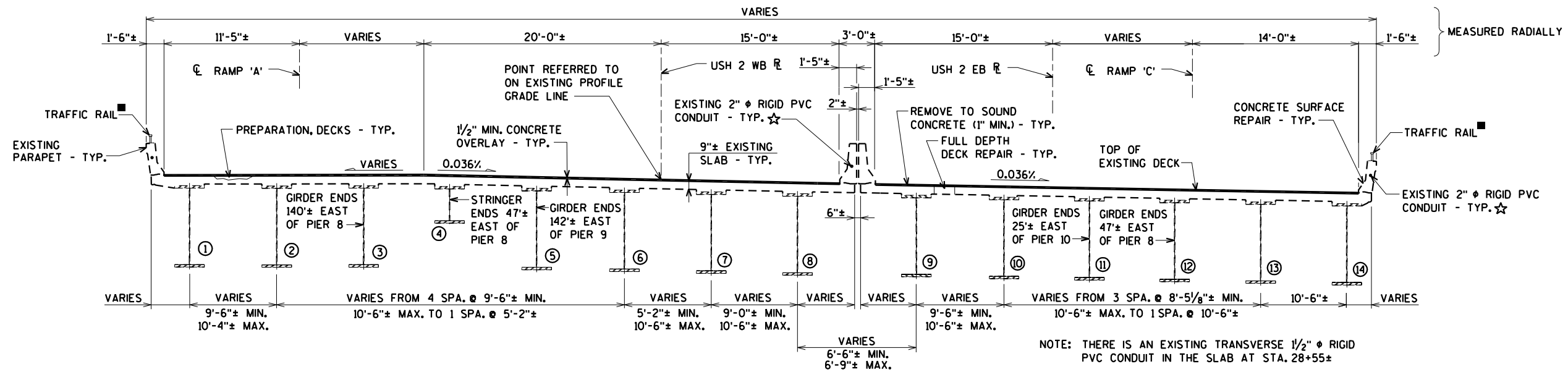
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>CROSS SECTIONS UNITS 1 - 3</b>			SHEET 10 OF 99

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

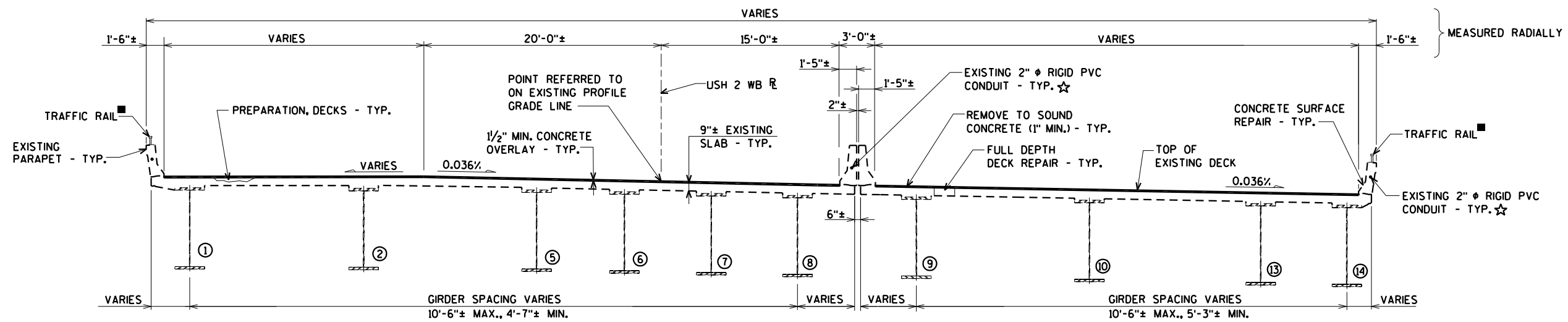
\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 TYP.dgn

8

8



**CROSS SECTION THRU ROADWAY - UNIT 4 @ WEST END NEAR RAMPS**  
(LOOKING EAST)



**CROSS SECTION THRU ROADWAY - UNIT 4**  
(LOOKING EAST)

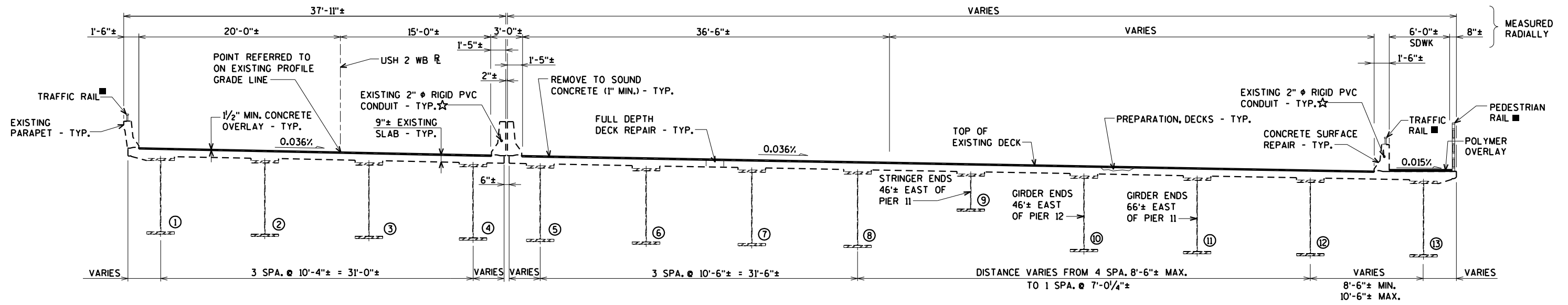
■ REMOVE THE EXISTING CAULK FROM AROUND THE BASE PLATES AND RE-CAULK.

☆ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING JOINT REPLACEMENT CONSTRUCTION. SEE LIGHTING PLANS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>CROSS SECTIONS UNIT 4</b>			SHEET 11 OF 99

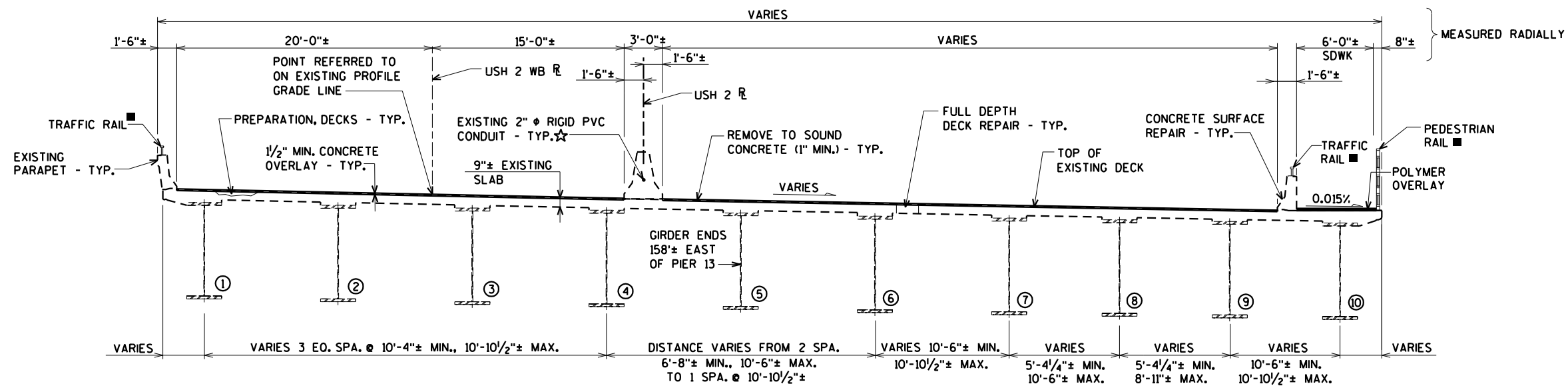
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
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**CROSS SECTION THRU ROADWAY - UNIT 5**  
(LOOKING EAST)

NOTE: THERE IS AN EXISTING TRANSVERSE 1/2" Ø 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.

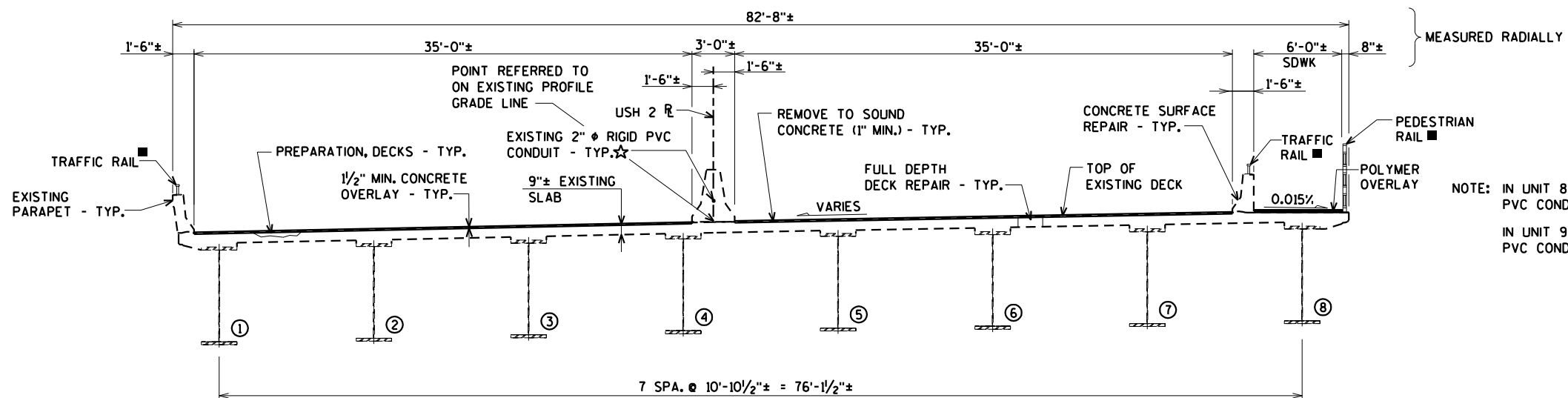
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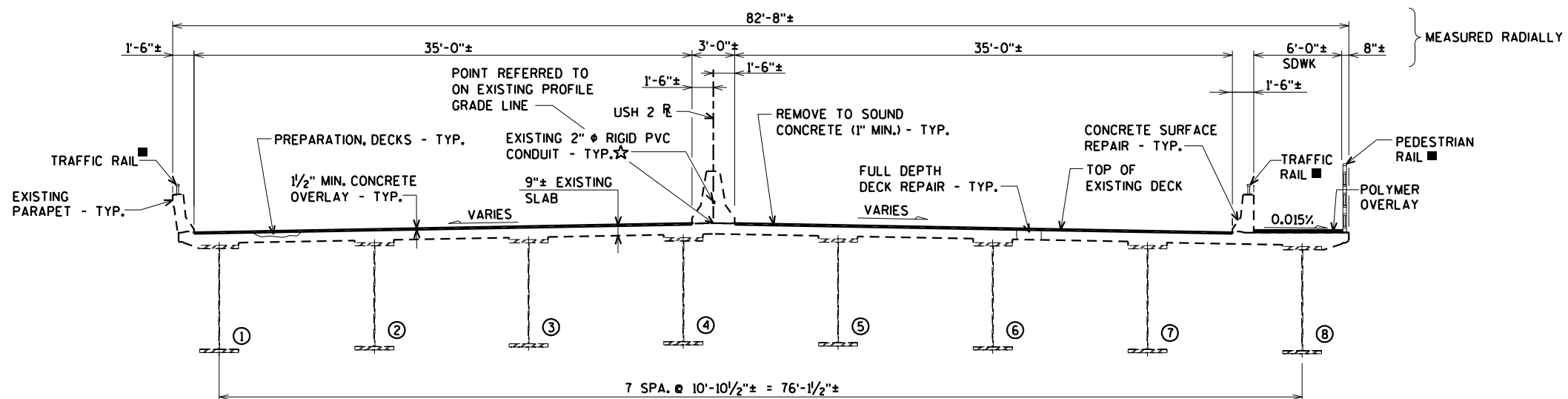
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<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY	CLS	PLANS CK'D.	CBM
<b>CROSS SECTIONS UNITS 5 &amp; 6</b>			SHEET 12 OF 99

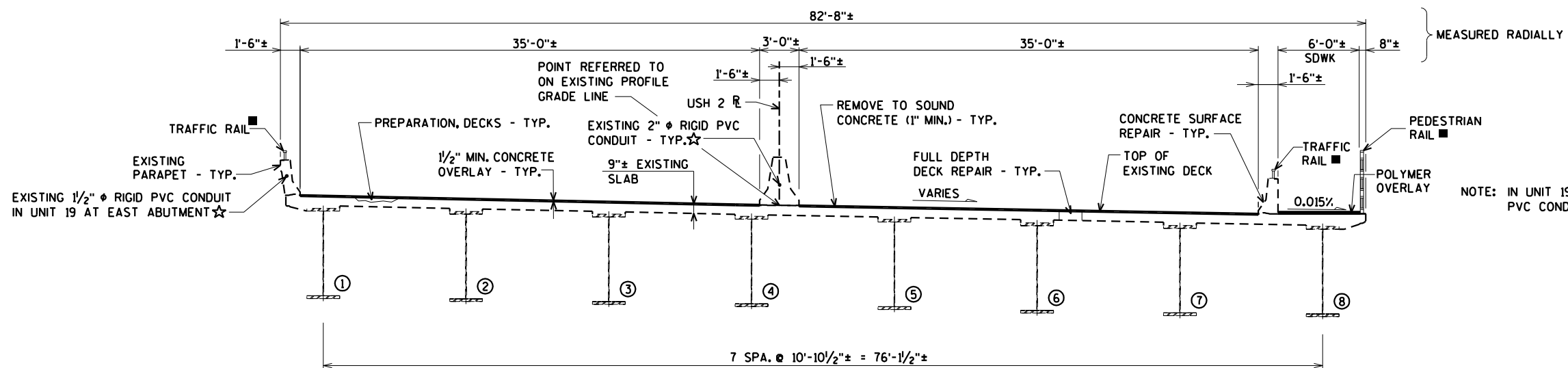
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**CROSS SECTION THRU ROADWAY - UNITS 8-12**  
(LOOKING EAST)



**CROSS SECTION THRU ROADWAY - UNITS 7, 14-15**  
(LOOKING EAST)



**CROSS SECTION THRU ROADWAY - UNITS 16-19**  
(LOOKING EAST)

NOTE: IN UNIT 8, THERE IS AN EXISTING TRANSVERSE 2" Ø RIGID PVC CONDUIT IN THE SLAB AT STA. 52+00±  
IN UNIT 9, THERE IS AN EXISTING TRANSVERSE 1/2" Ø RIGID PVC CONDUIT IN THE SLAB AT STA. 54+48±

■ 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.

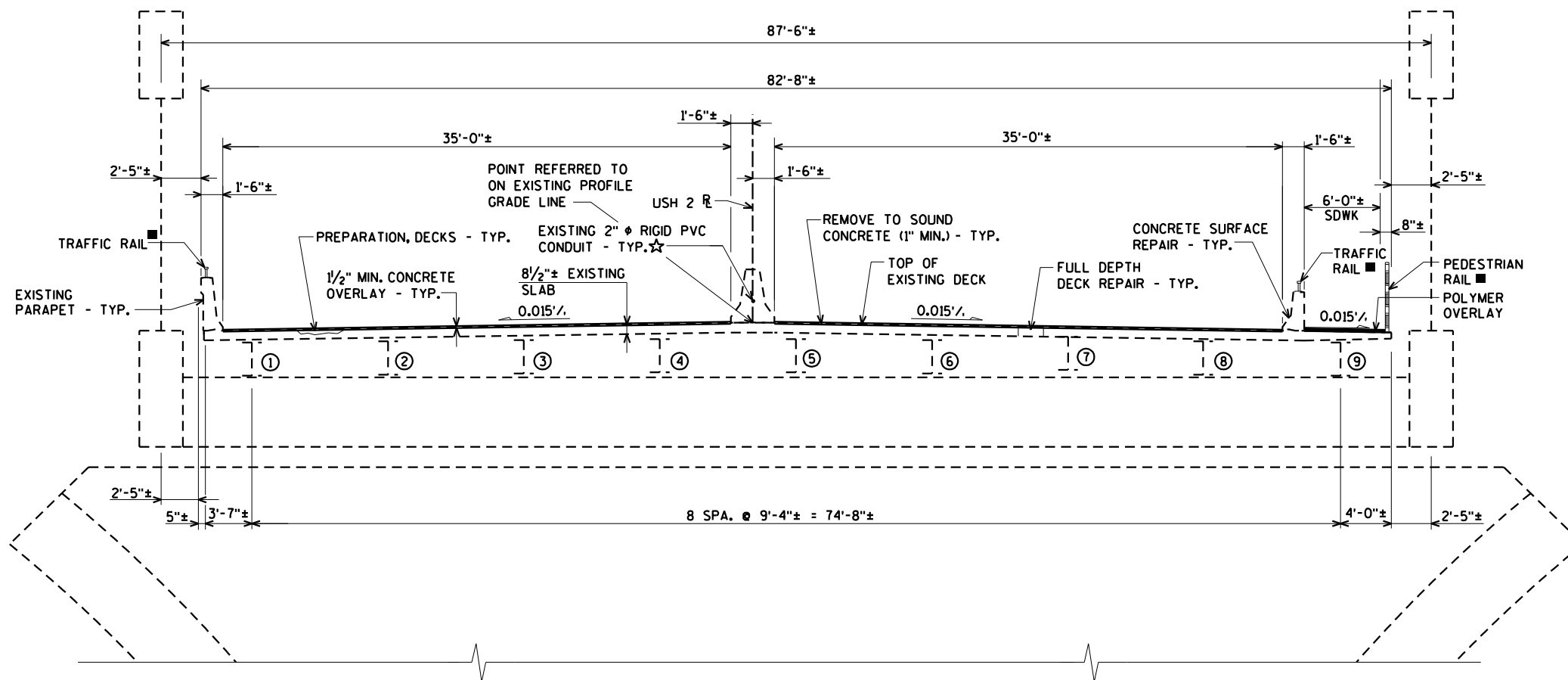
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<b>STRUCTURE B-16-38/69100</b>			
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<b>CROSS SECTIONS UNITS 7-12, 14-19</b>			SHEET 13 OF 99

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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.

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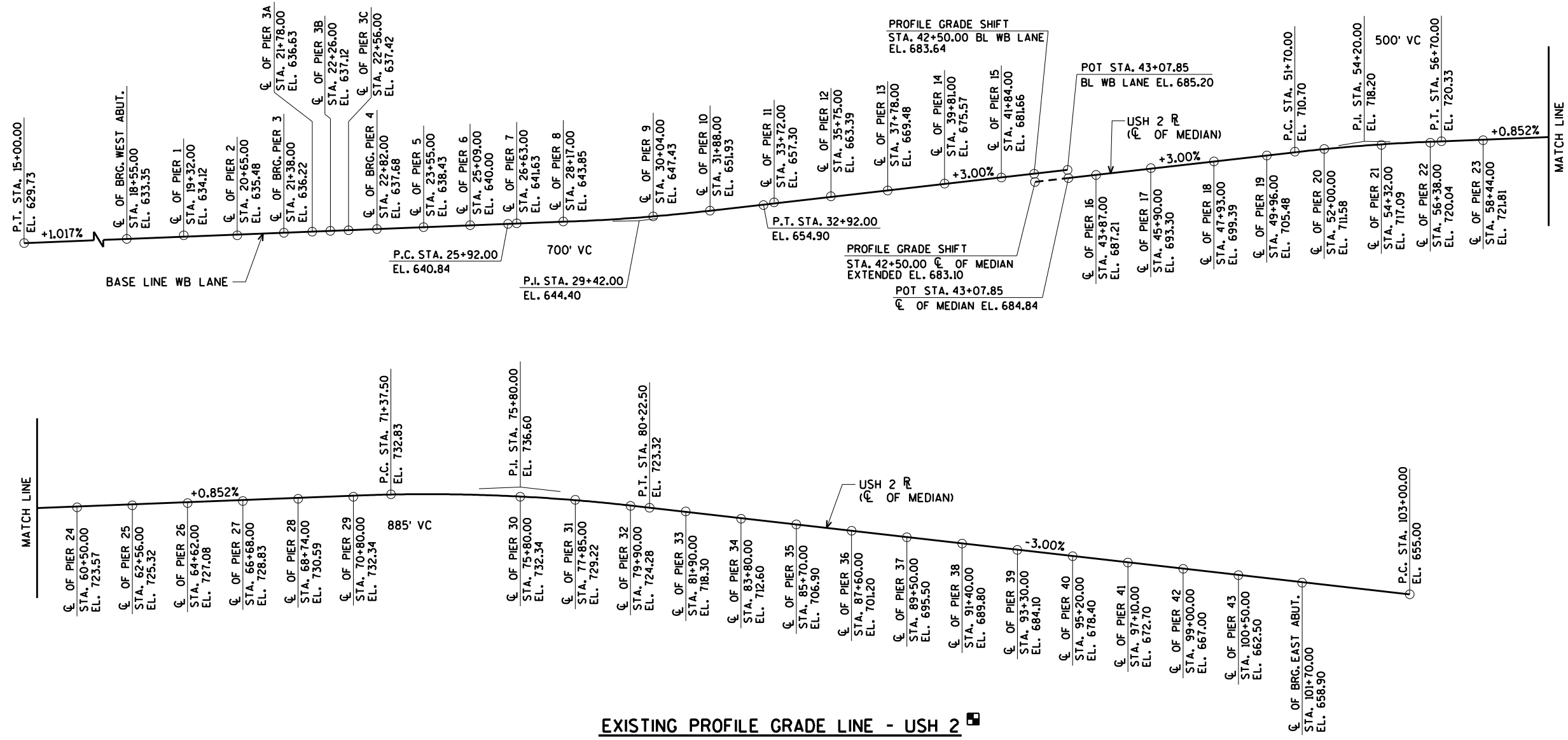
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>CROSS SECTION UNIT 13</b>			SHEET 14 OF 99

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**EXISTING PROFILE GRADE LINE - USH 2**

**NOTES**

NEW PROFILE GRADE LINE SHALL BE DETERMINED BASED ON A MINIMUM OVERLAY THICKNESS OF 1 1/2" PLACED ABOVE THE DECK SURFACE AFTER CLEANING. EXPECTED AVERAGE OVERLAY THICKNESS IS 1 3/4".

VARIATIONS TO THE NEW GRADE LINE OVER 1/4" 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 WISIDE:**

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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<b>STRUCTURE B-16-38/69100</b>			
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<b>EXISTING PROFILE GRADE LINE</b>			SHEET 15 OF 99

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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	1/2"

① 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<sub>y</sub> = 60,000 p.s.i.  
 STRUCTURAL CARBON STEEL (A.S.T.M. A588 GRADE 50) \_\_\_\_\_ f<sub>y</sub> = 50,000 p.s.i.

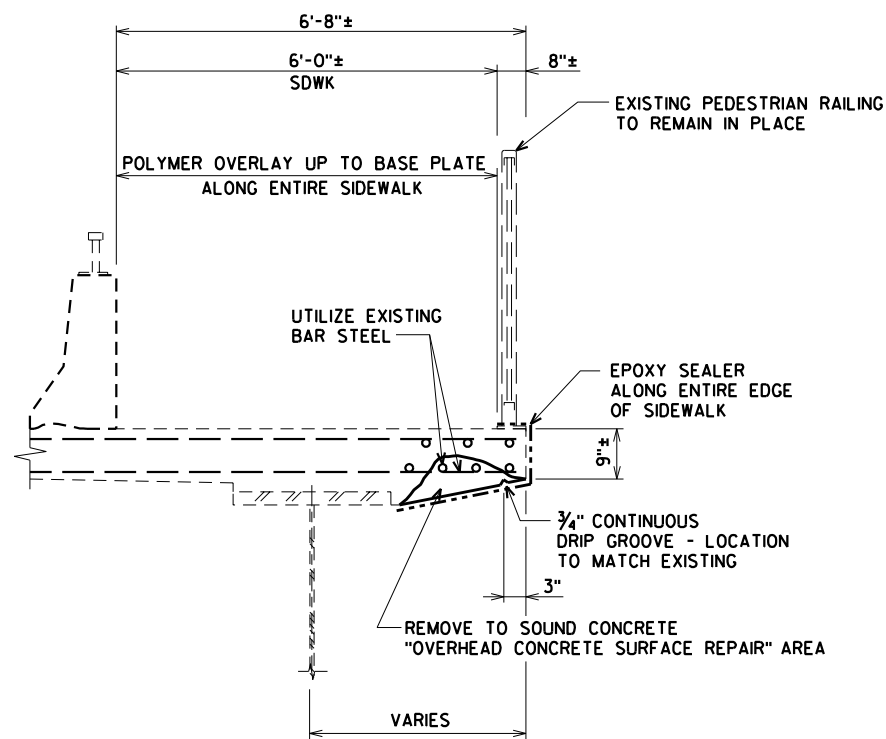
**TRAFFIC DATA:**

A.D.T. = 19,000 (2015)  
 A.D.T. = 23,000 (2035)  
 R.D.S. = 55 M.P.H.

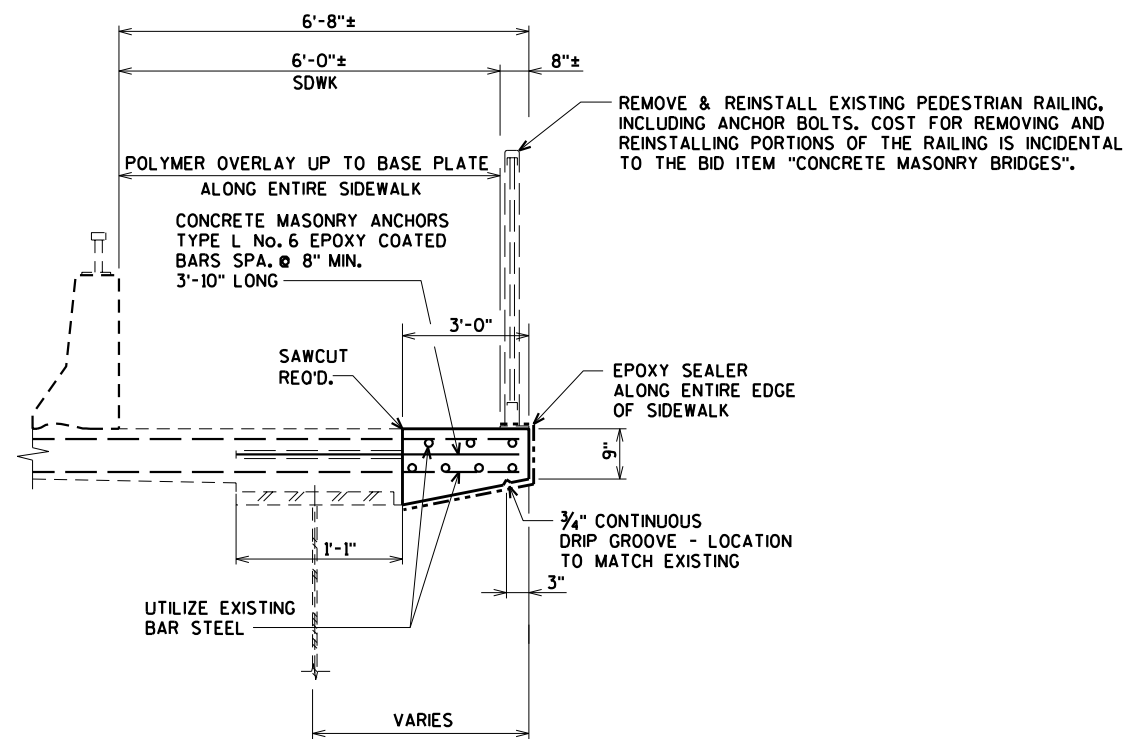
**GENERAL NOTES**

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 1 1/2" PLACED ABOVE THE DECK SURFACE AFTER CLEANING. EXPECTED AVERAGE OVERLAY THICKNESS IS 1 3/4". VARIATIONS TO THE NEW GRADE LINE OVER 1/4" 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 1 1/2" 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'-0 1/2" ± 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".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS/KAZ	PLANS CK'D. CBM
<b>DESIGN DATA, QUANTITIES AND NOTES</b>			SHEET 16 OF 99



**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".

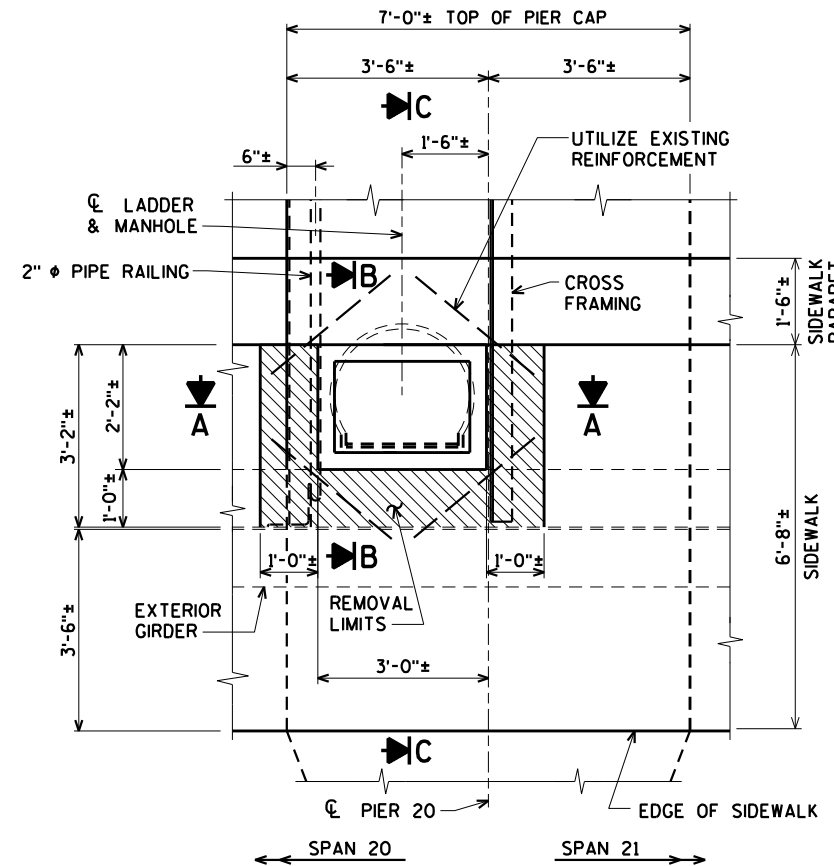
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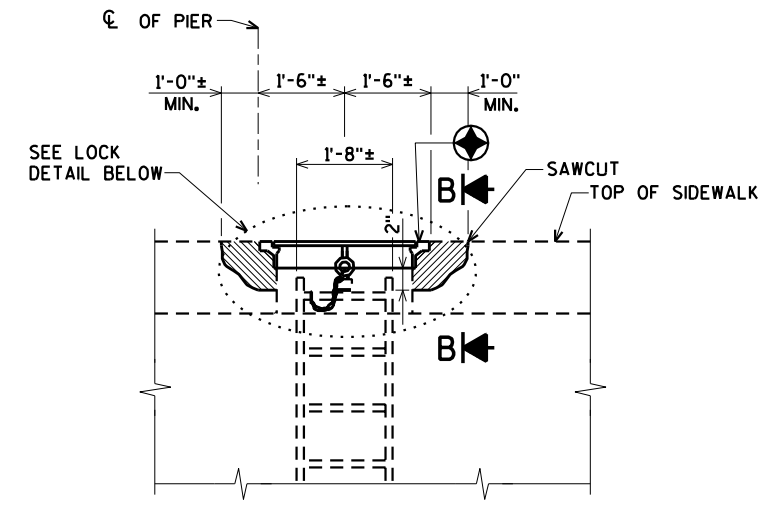
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<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>SIDEWALK OVERHANG REPAIR DETAILS</b>			SHEET 17 OF 99

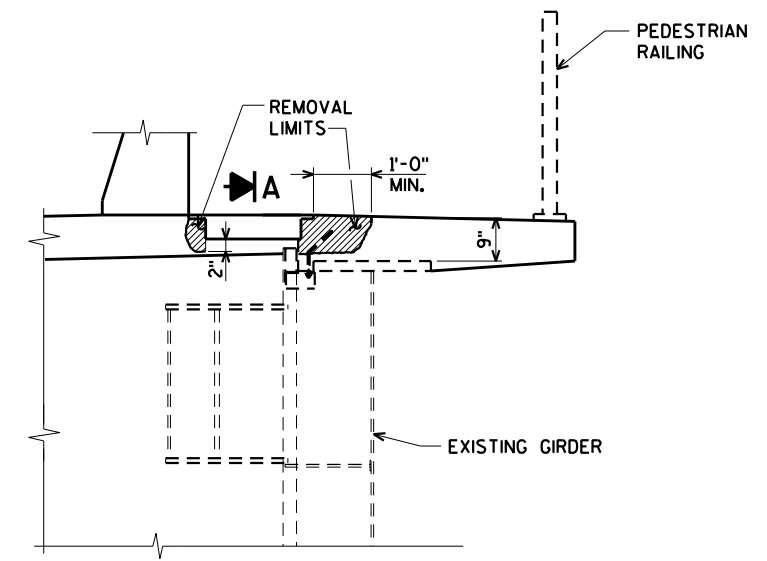
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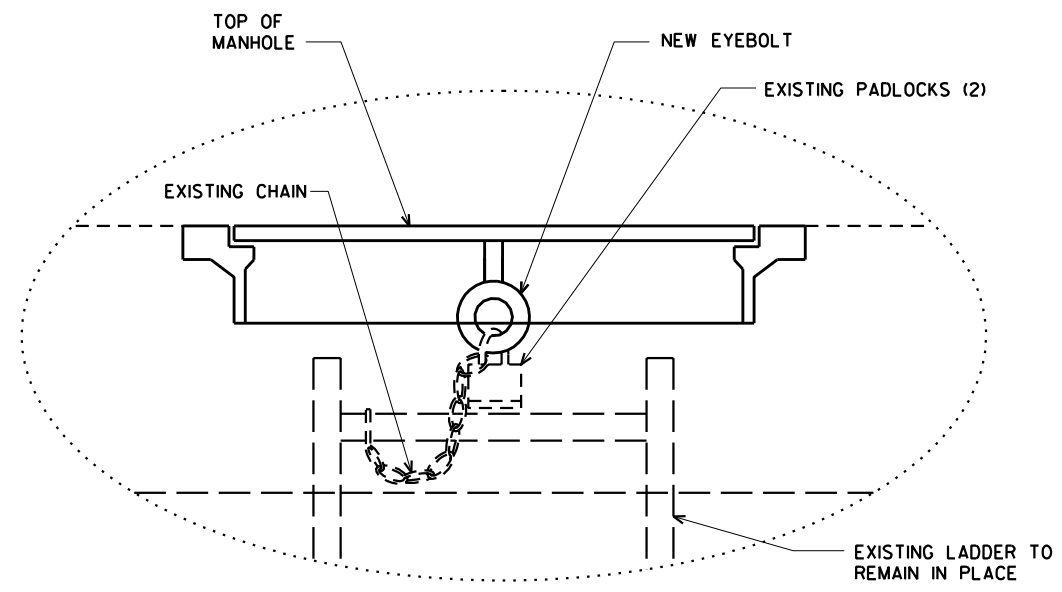
PLAN of PIER 20



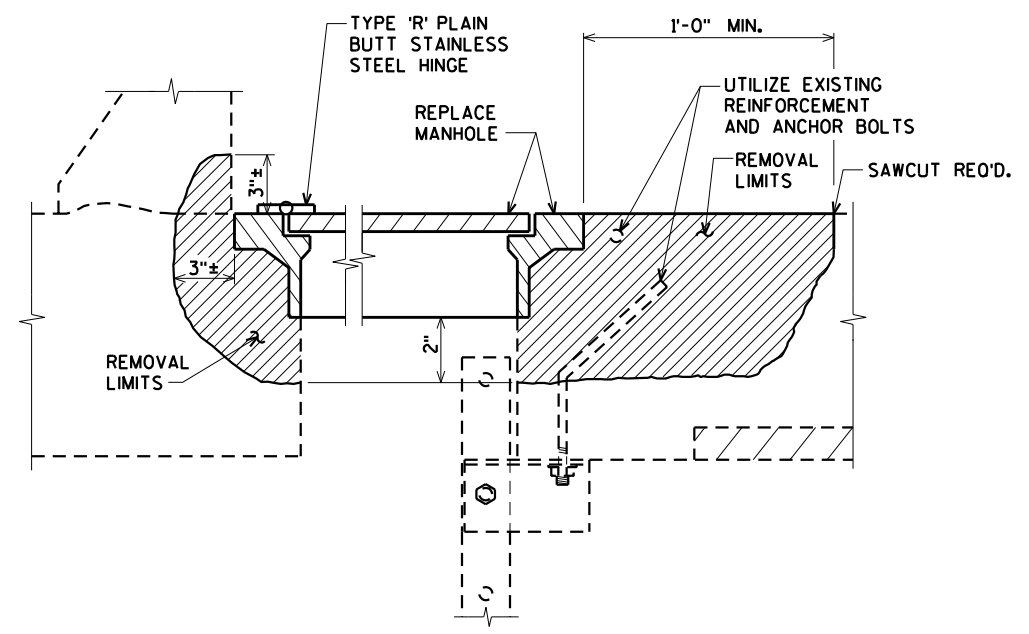
SECTION A



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.

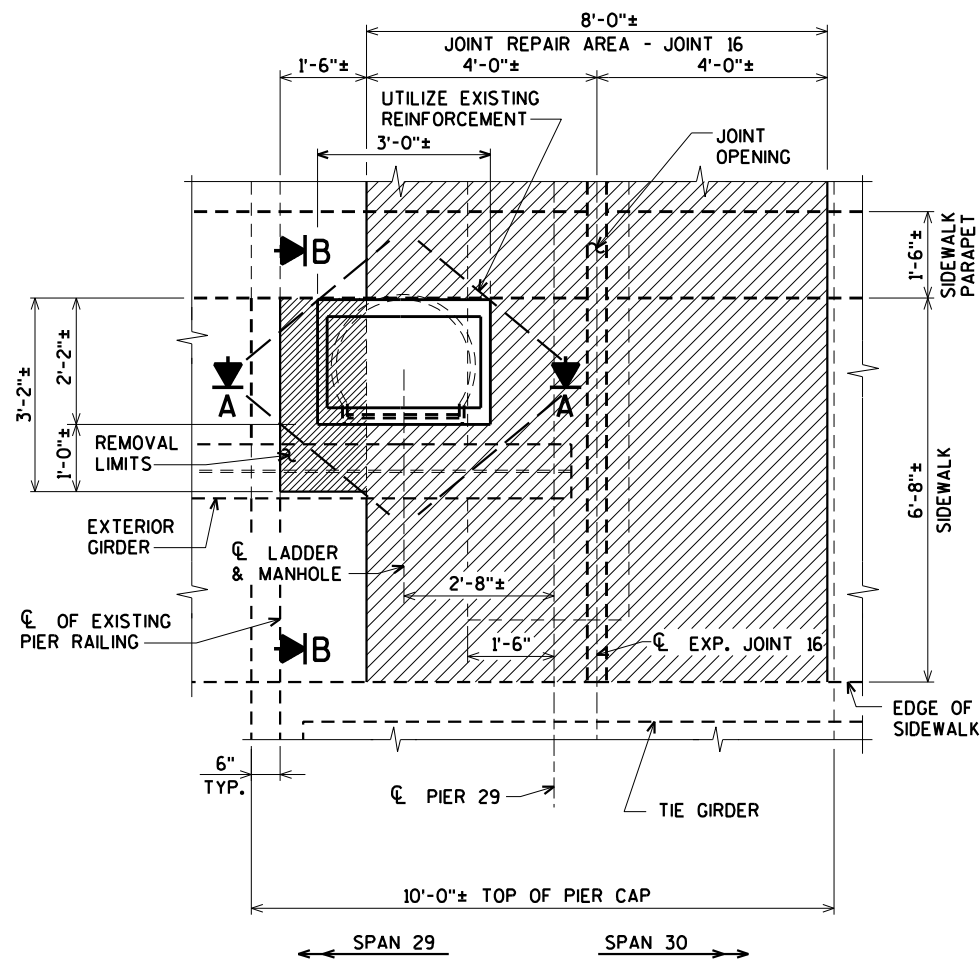
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<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>SIDEWALK MANHOLE REPLACEMENT DTLS</b>			SHEET 18 OF 99
<b>PIER 20</b>			

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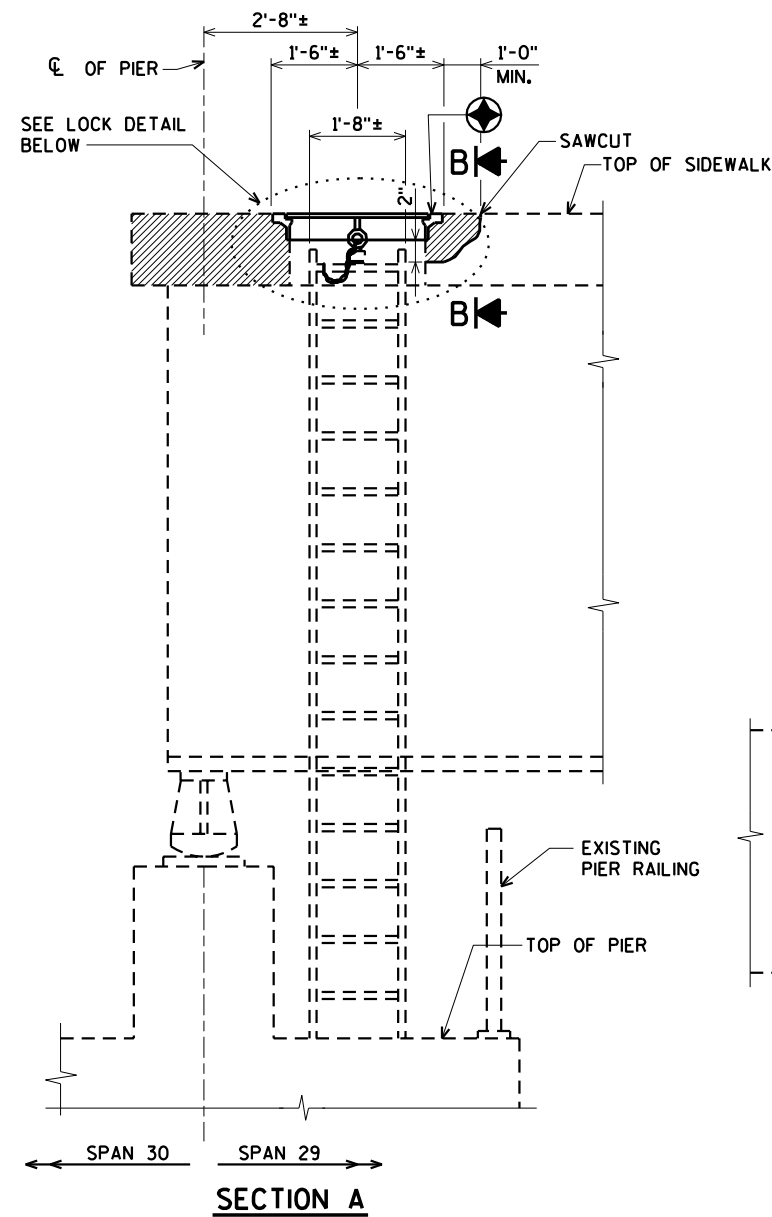
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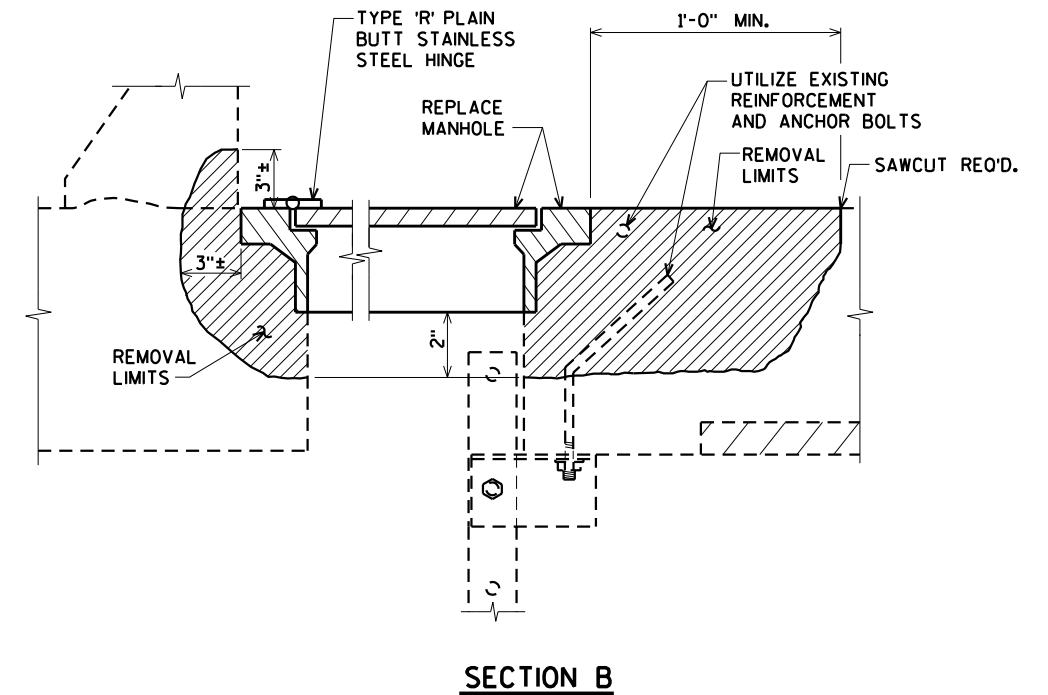
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**PLAN of PIER 29**



**SECTION A**

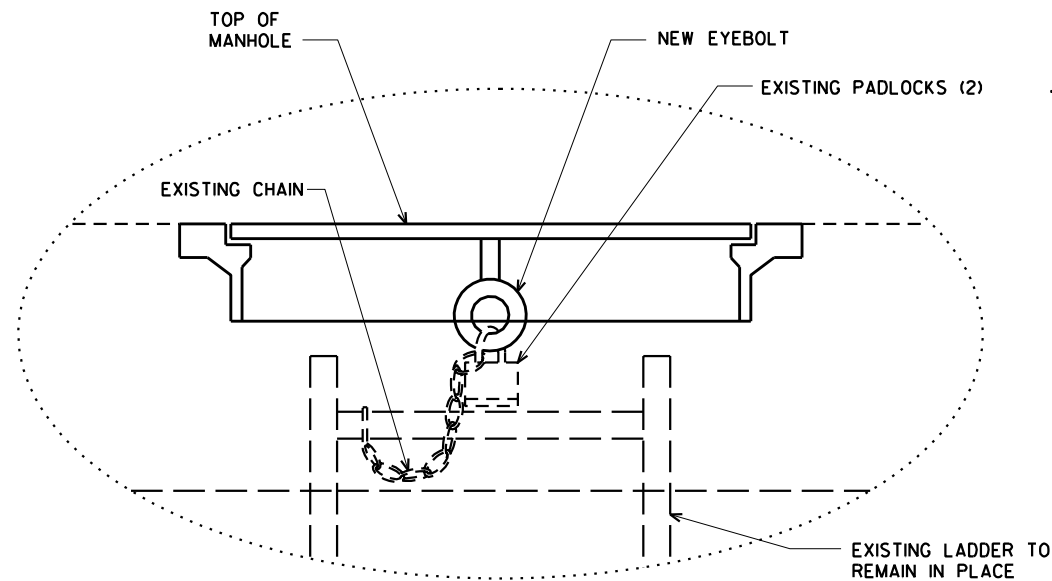


**SECTION B**

**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.



**LOCK DETAIL**

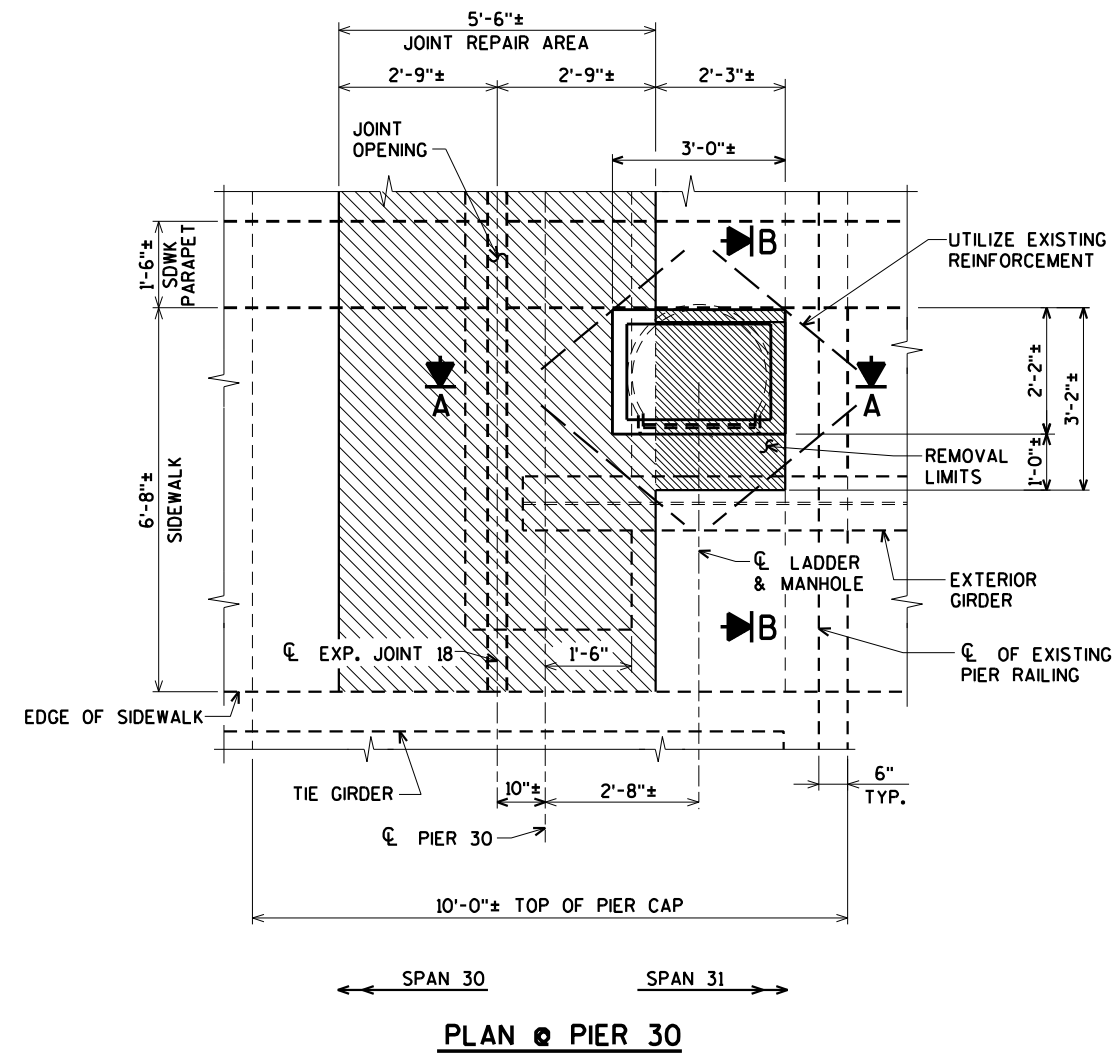
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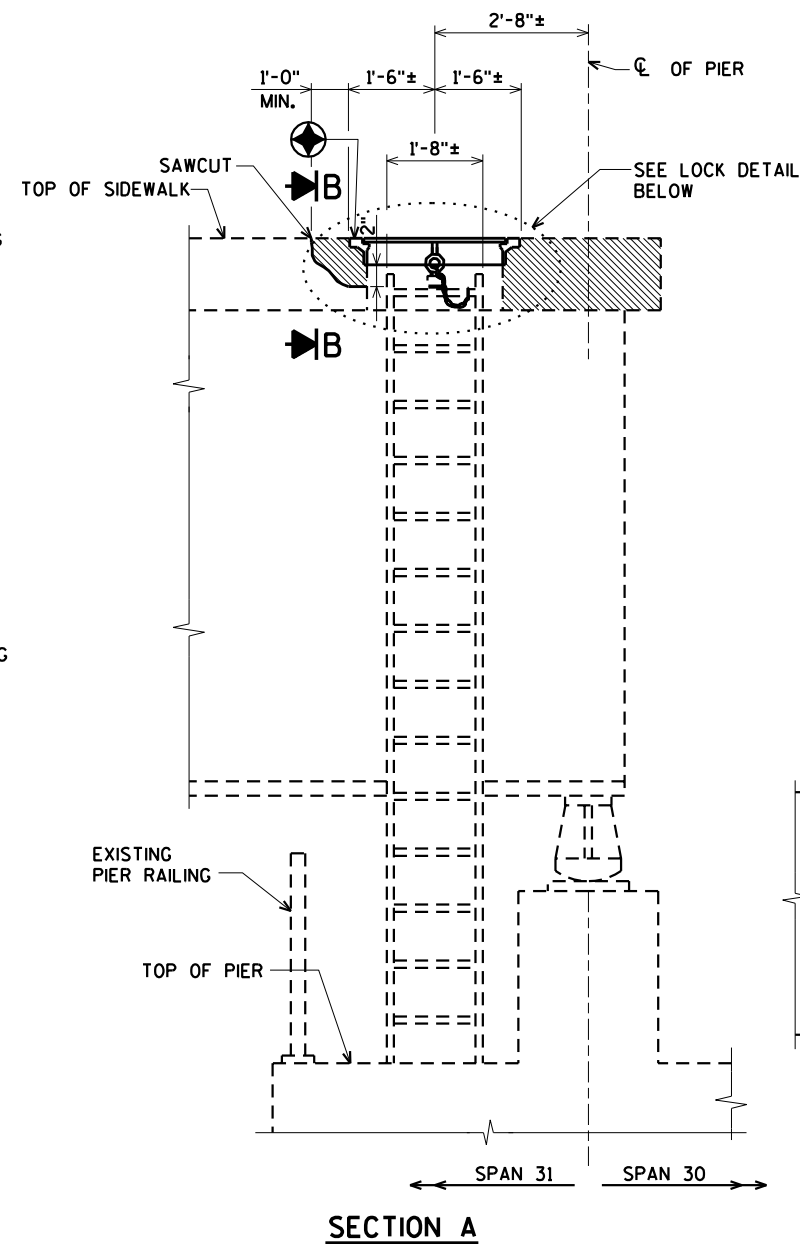
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<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS			PLANS CK'D. CBM
<b>SIDEWALK MANHOLE REPLACEMENT DTLS</b>			SHEET 19 OF 99
<b>PIER 29</b>			

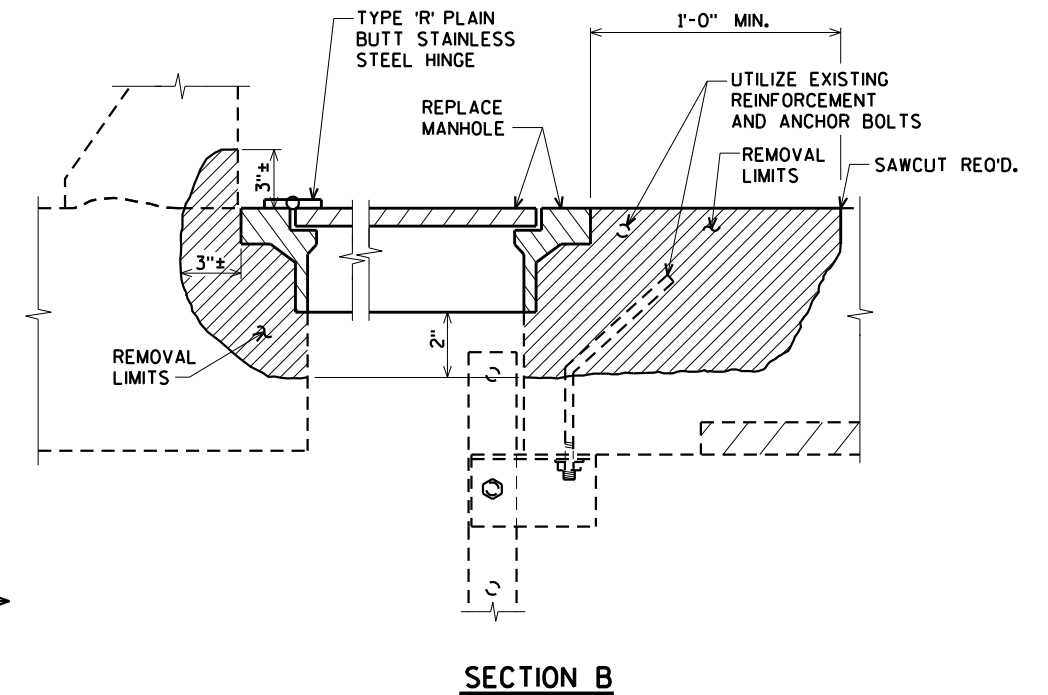
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PLAN @ PIER 30



SECTION A

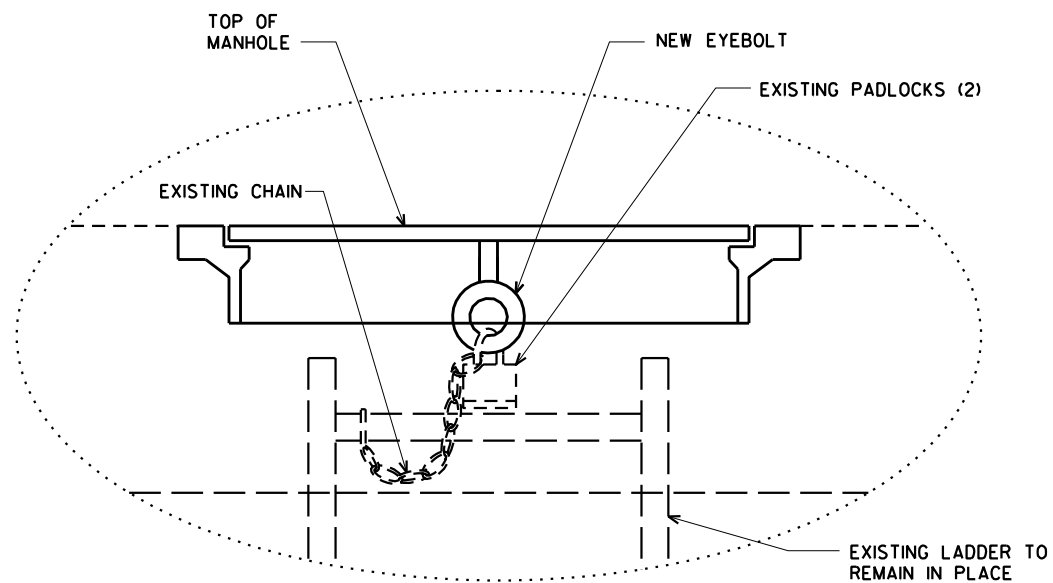


SECTION B

**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.



LOCK DETAIL

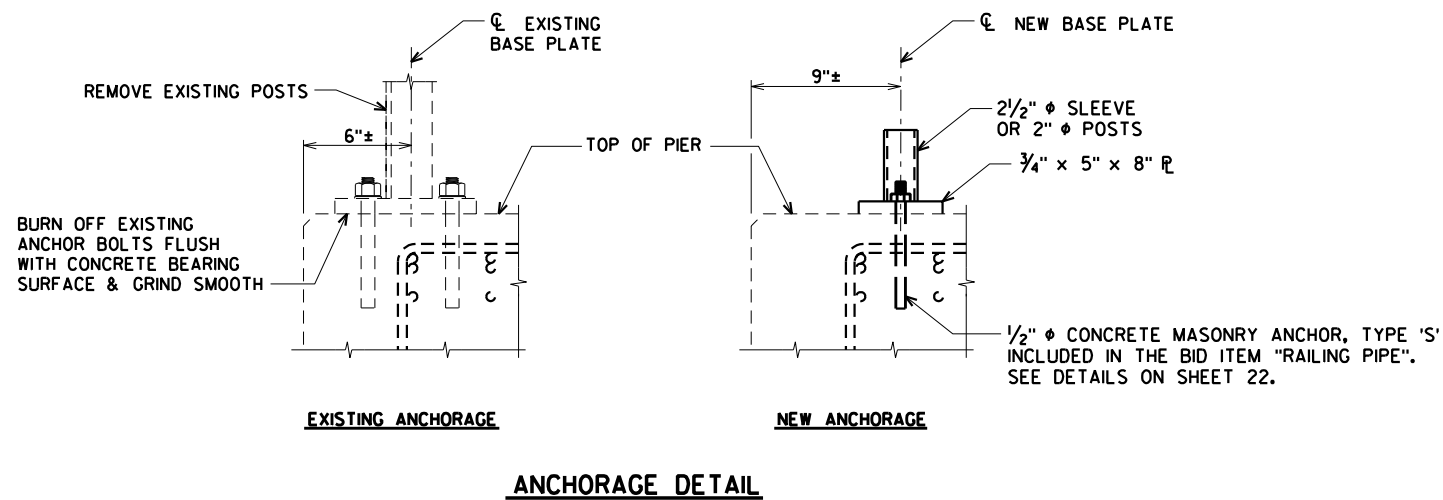
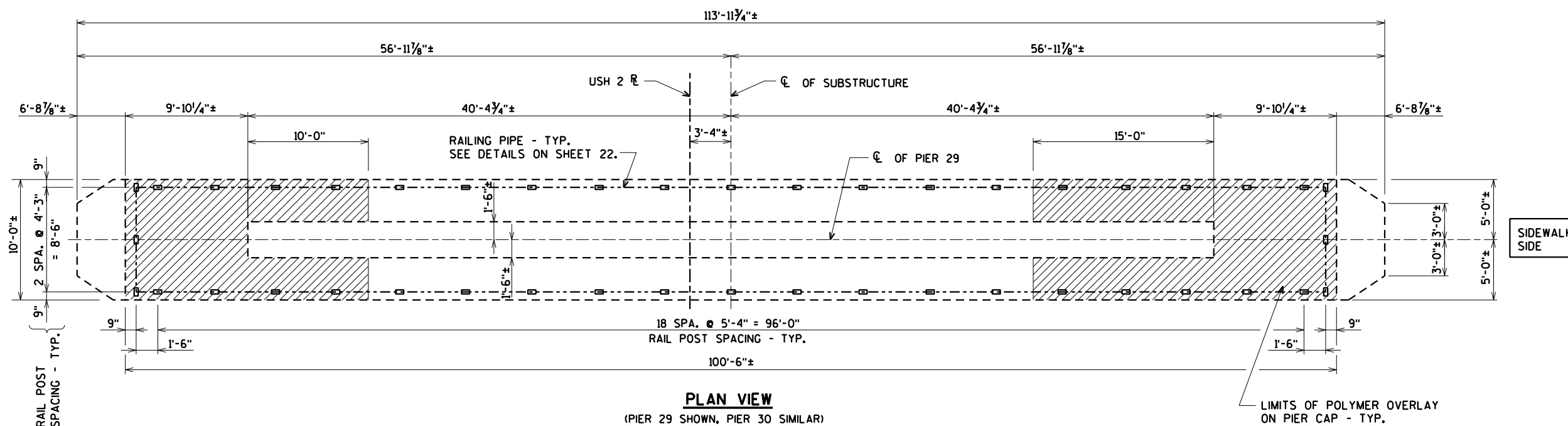
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-38/69100			
DRAWN BY		CLS	PLANS CK'D. CBM
SIDWALK MANHOLE REPLACEMENT DTLS PIER 30			SHEET 20 OF 99

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NO.	DATE	REVISION	BY
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STRUCTURE B-16-38/69100			
DRAWN BY		CLS	PLANS CK'D. CBM
PIER CAP RAILING DETAILS			SHEET 21 OF 99

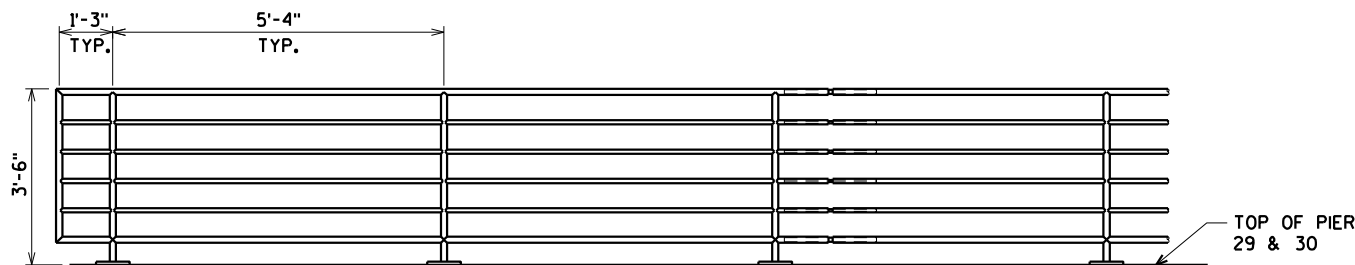
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**LEGEND**

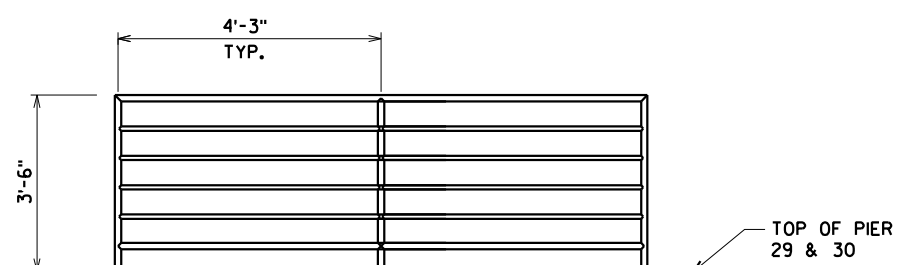
- ① 2"  $\phi$  STEEL PIPE FOR POST. PLACE POSTS VERTICAL.
- ② 2"  $\phi$  STEEL PIPE FOR TOP & BOT. RAIL. WELD TO NO. 1.
- ③ 1"  $\phi$  STEEL PIPE FOR INTERMEDIATE RAILS. WELD TO NO. 1.
- ④ 1"  $\phi$  PIPE SLEEVE FOR NO. 2. PROVIDE "SLIDING FIT" WITH A MINIMUM OUT TO OUT DIMENSION OF 1 3/16".
- ⑤ 1/2"  $\phi$  ROD SLEEVE FOR NO. 3. PROVIDE "SLIDING FIT" WITH A MINIMUM OUT TO OUT DIMENSION OF 1 5/16".
- ⑥ 1"  $\phi$  PIPE SLEEVE  $\times$  1'-10" LONG FOR NO. 2. PROVIDE 1/2"  $\phi$  SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF NO. 2. PROVIDE 3/8"  $\phi$   $\times$  1/2" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.
- ⑦ 1/2"  $\phi$  ROD SLEEVE  $\times$  1'-10" LONG FOR NO. 3. PROVIDE 1/2"  $\phi$  SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF NO. 3. PROVIDE 3/8"  $\phi$   $\times$  1/2" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.
- ⑧ PLATE 3/4"  $\times$  5"  $\times$  8", WITH 5/8"  $\phi$  HOLE FOR ANCHOR BOLTS NO. 9. WELD TO NO. 1 OR PIPE SLEEVE AS SHOWN.

**GENERAL NOTES**

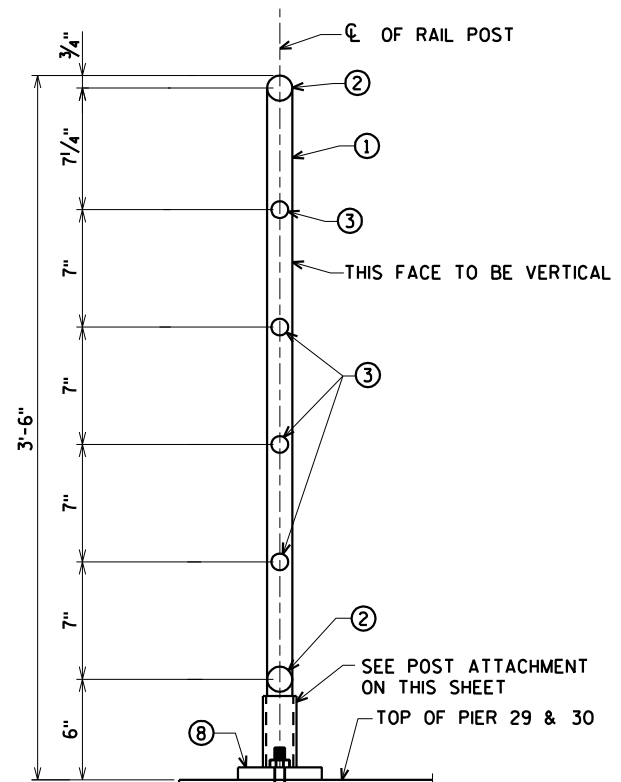
- BID ITEM WILL BE "RAILING PIPE", WHICH INCLUDES ALL ITEMS SHOWN.
- RAILING WILL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.
- POST BASE PLATES WILL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS WILL BE MACHINE OR MACHINE FLAME 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"  $\phi$  CONCRETE MASONRY ANCHOR, TYPE "S", 6" EMBEDMENT (EPOXY ANCHORED) MIN. PULLOUT OF 10 KIPS. THREADED LENGTH OF ANCHOR, WASHER AND NUT WILL BE GALVANIZED.



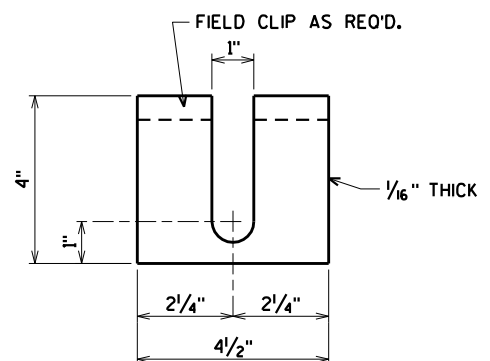
**PART ELEVATION OF RAILING AT PIER SIDES**



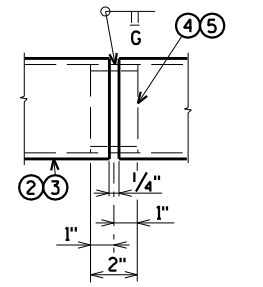
**ELEVATION OF RAILING AT PIER ENDS**



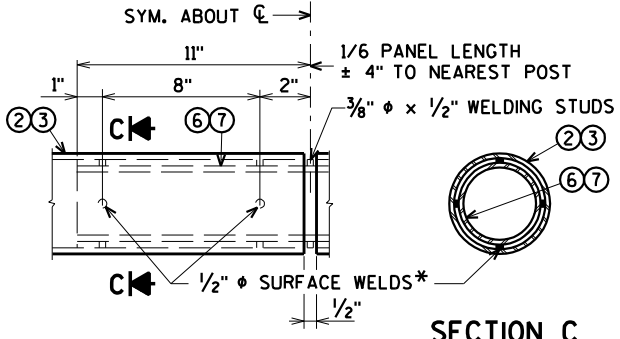
**SECTION THRU RAILING**



**POST SHIM DETAILS**  
PROVIDE 4 SHIMS PER POST.

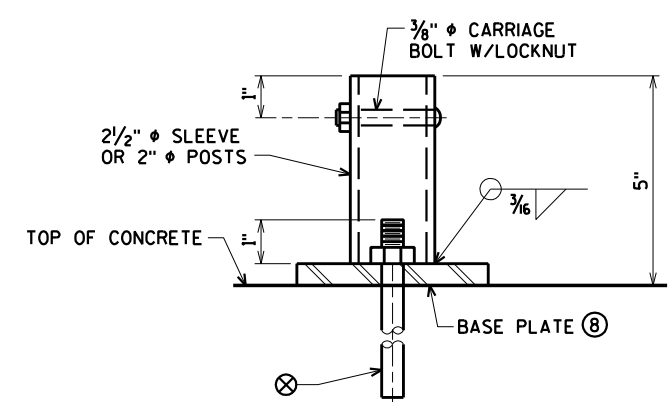


**SHOP RAIL SPLICE DETAIL**  
(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)

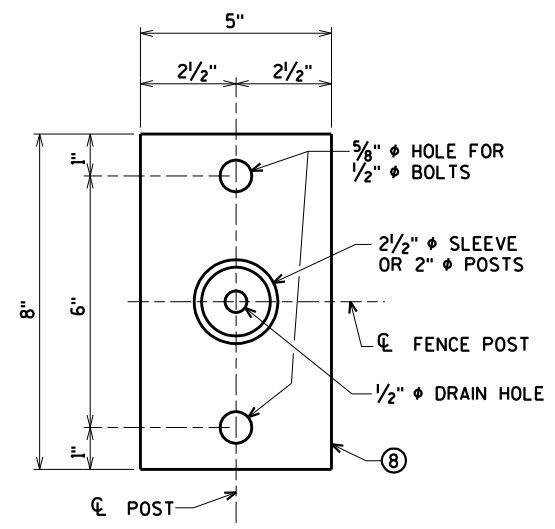


**FIELD ERECTION JOINT DETAIL**

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



**ELEVATION**



**PLAN BASE PLATE**

**POST ATTACHMENT**  
UNIT WILL BE GALV. AFTER FABRICATION

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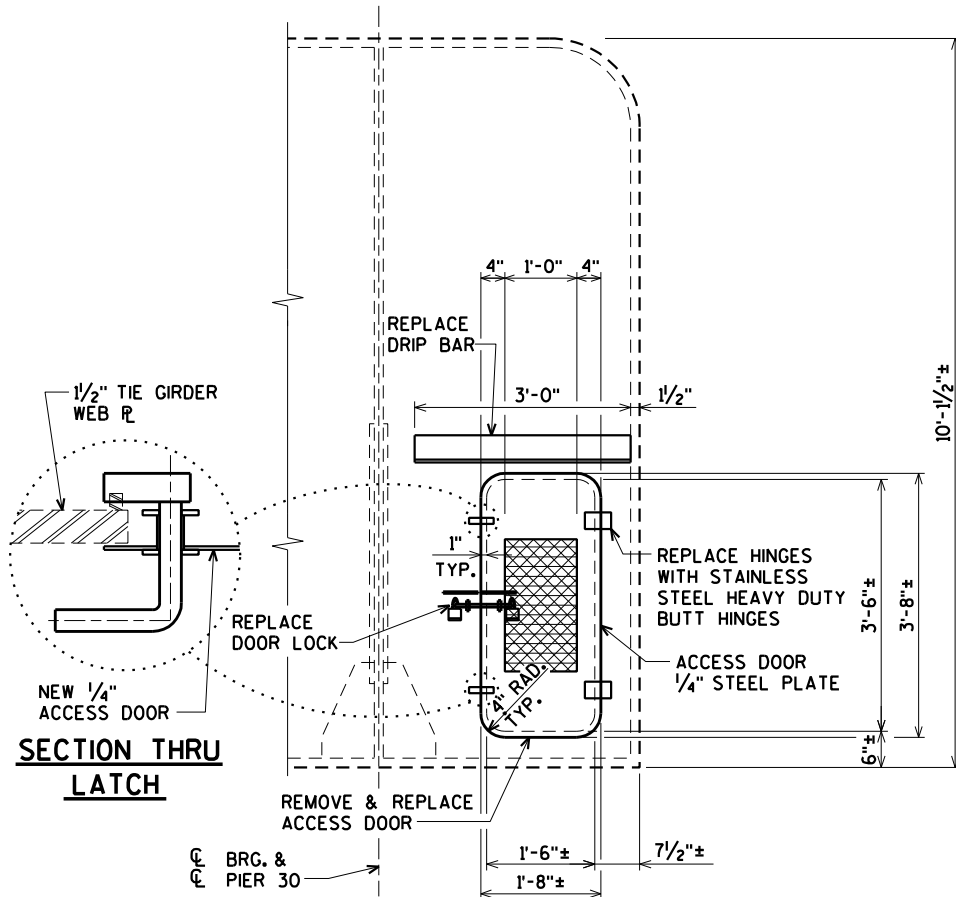
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>PIPE RAILING</b>			SHEET 22 OF 99

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
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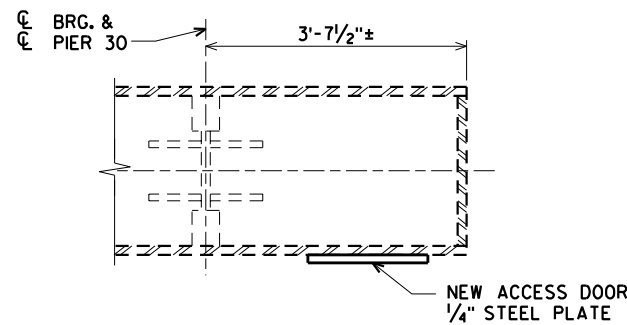
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**SECTION THRU LATCH**

**DOOR IN TIE GIRDER ELEVATION**

(PIER 30 NORTH TIE GIRDER SHOWN, PIER 30 SOUTH TIE GIRDER AND PIER 29 TIE GIRDERS SIMILAR) 4 REQUIRED



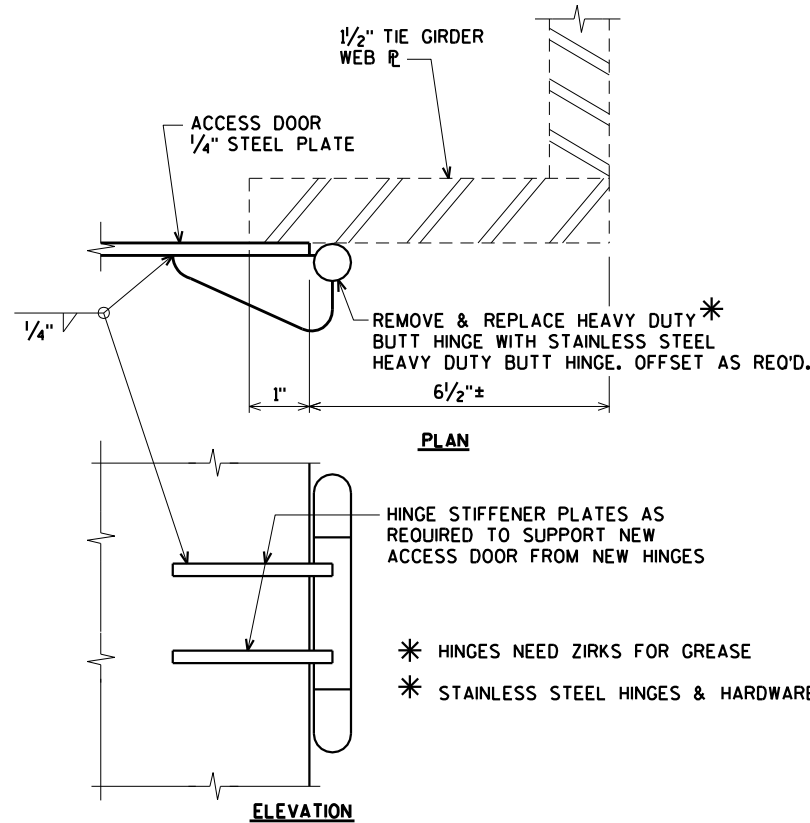
**DOOR IN TIE GIRDER PLAN**

(PIER 30 NORTH TIE GIRDER SHOWN, PIER 30 SOUTH TIE GIRDER AND PIER 29 TIE GIRDERS SIMILAR) 4 REQUIRED

**GENERAL NOTES**

BID ITEM SHALL BE "TIE GIRDER DOOR REPLACEMENT", WHICH INCLUDES ALL ITEMS SHOWN.

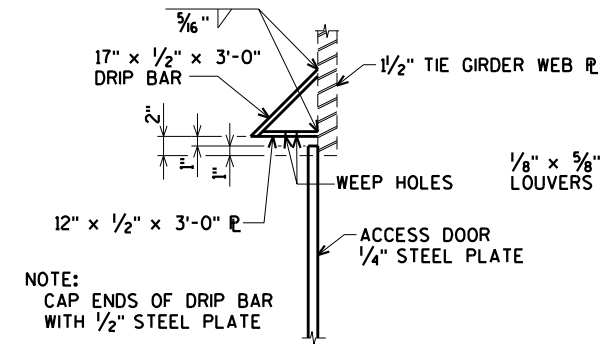
ALL WELDS MADE TO THE TIE GIRDER SHALL BE MADE BY A CERTIFIED WELDER.



**DOOR HINGE DETAIL**

INCIDENTAL TO THE BID ITEM "TIE GIRDER DOOR REPLACEMENT"

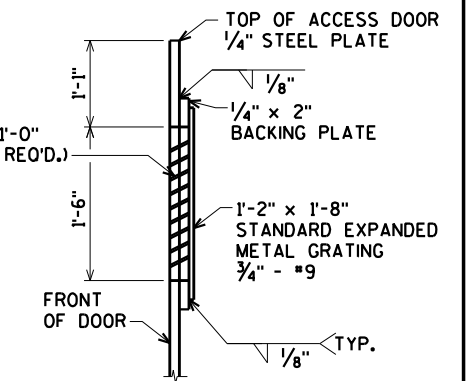
- \* HINGES NEED ZIRKS FOR GREASE
- \* STAINLESS STEEL HINGES & HARDWARE



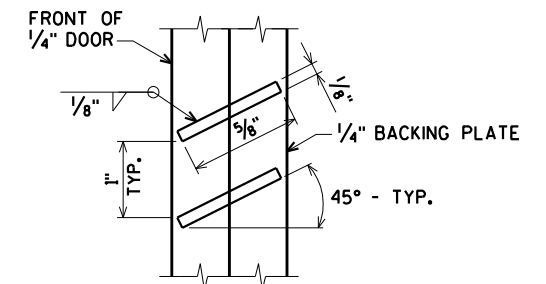
**SECTION THRU ACCESS DOOR AT DRIP BAR**

INCIDENTAL TO THE BID ITEM "TIE GIRDER DOOR REPLACEMENT"

NOTE: CAP ENDS OF DRIP BAR WITH 1/2" STEEL PLATE

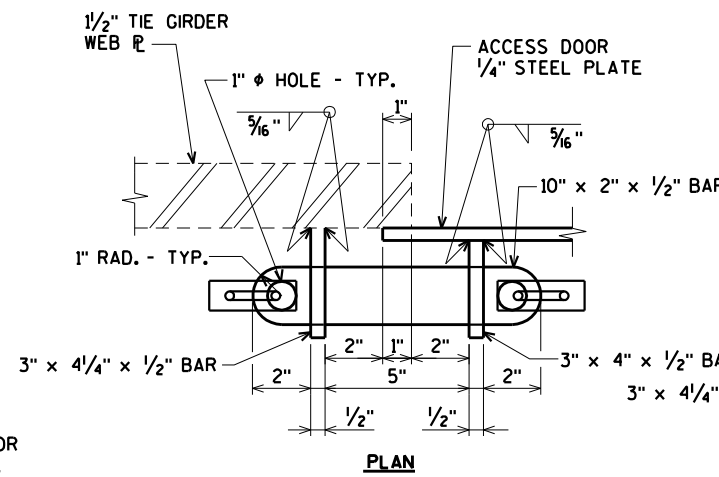


**SECTION THRU DOOR**

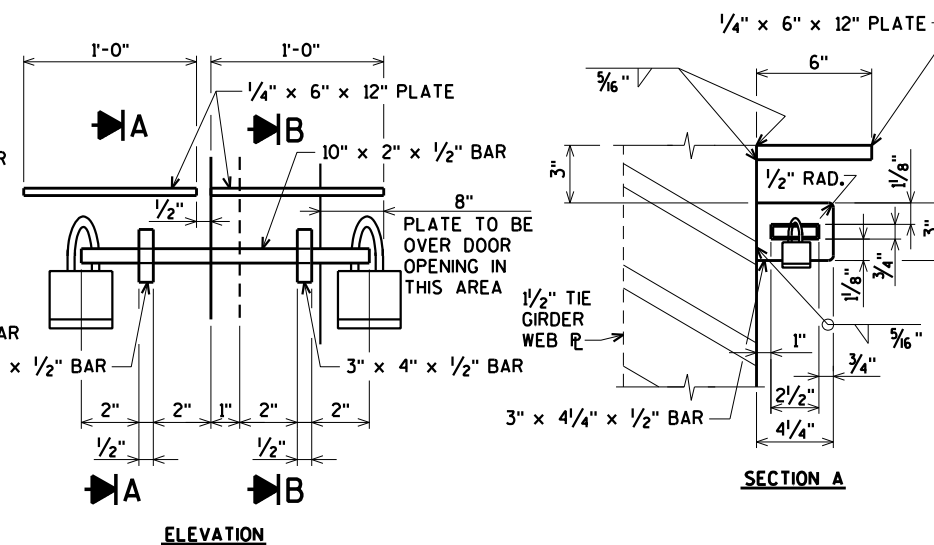


**LOUVER DETAIL**

12 LOUVERS REO'D. PER DOOR



**PLAN**

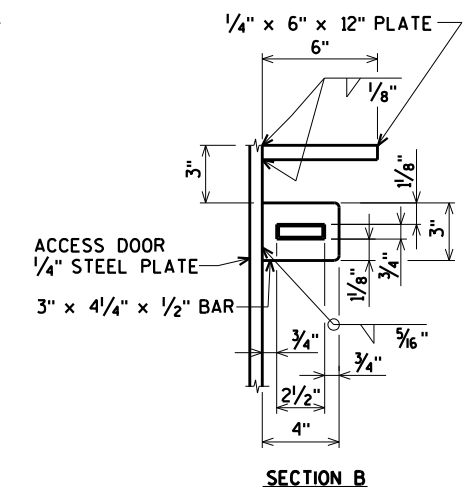


**ELEVATION**

**SECTION A**

**DOOR LOCK DETAILS**

INCIDENTAL TO THE BID ITEM "TIE GIRDER DOOR REPLACEMENT"



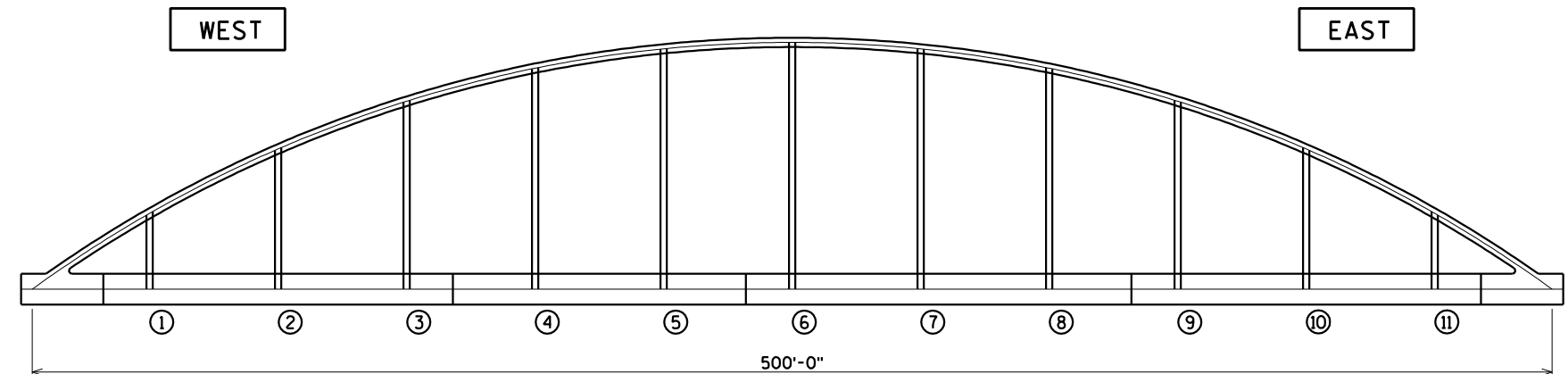
**SECTION B**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>NEW TIE GIRDER DOOR DETAILS</b>			SHEET 23 OF 99

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
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**SHIM THICKNESS - NORTH TRUSS**

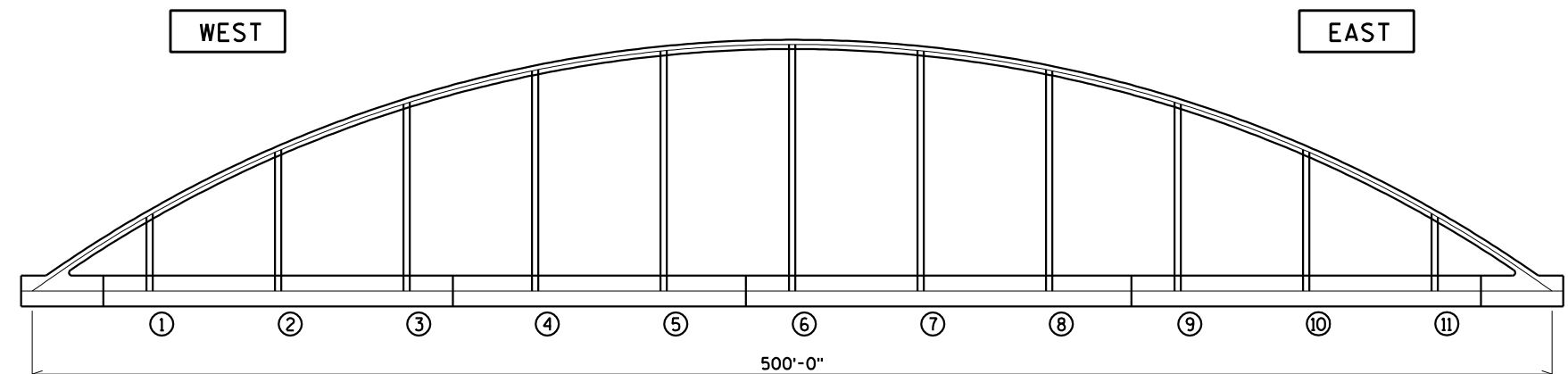
CABLE	LOCATION	EXISTING SHIM THICKNESS PER ORIGINAL SHOP DRAWINGS	EXISTING SHIM THICKNESS BASED ON FIELD MEASUREMENTS	SHIMS REQ'D. ★	MINIMUM TENSILE LOAD REQUIRED IN CABLE
1	WEST	1/8"	1 5/8"	1 @ 1", 1 @ 1/2", 1 @ 1/8"	73 KIPS
	EAST	1/8"	1 1/4"	1 @ 1", 2 @ 1/8"	73 KIPS
2	WEST	7/8"	1 1/2"	1 @ 3/4", 1 @ 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	1 5/16"	1/2"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	100 KIPS
5	WEST	1 5/16"	5/8"	1 @ 1/2", 2 @ 1/8", 1 @ 3/16"	102 KIPS
	EAST	1 3/16"	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	1/16"	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	1 5/16"	1 3/8"	1 @ 3/4", 1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	93 KIPS
11	WEST	1 1/16"	1 5/8"	1 @ 1 1/4", 3 @ 1/8", 1 @ 3/16"	73 KIPS
	EAST	1 3/16"	1 3/4"	1 @ 1 3/8", 3 @ 1/8", 1 @ 3/16"	73 KIPS



**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 @ 1/8", 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	1/16"	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	1 1/16"	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



**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

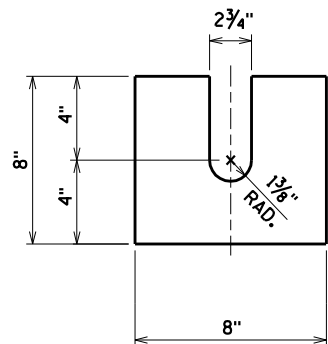
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>CABLE SHIM REPAIR DETAILS</b>			SHEET 24 OF 99

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

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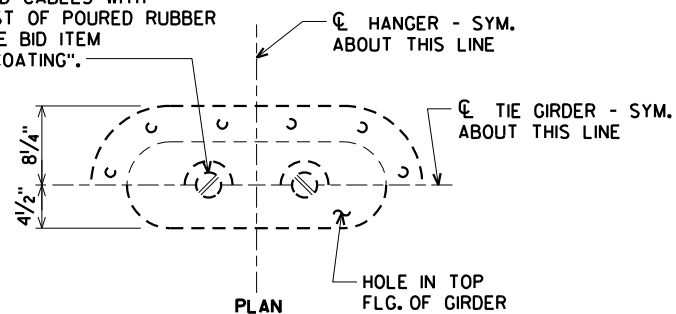


**CABLE SHIM DETAILS**

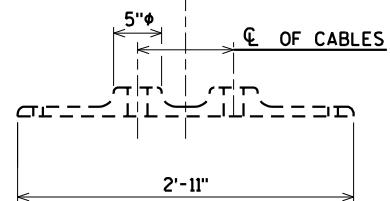
(NOTE THAT THICKNESS OF THE SHIMS IS SHOWN ON SHEET 24)

CABLE SHIMS SHALL BE STAINLESS STEEL.

2 5/8"  $\phi$  HOLES FOR 2 3/8"  $\phi$  CABLES. RESEAL JOINT AROUND CABLES WITH POURED RUBBER. COST OF POURED RUBBER IS INCIDENTAL TO THE BID ITEM "SUSPENDER CABLE COATING".



PLAN

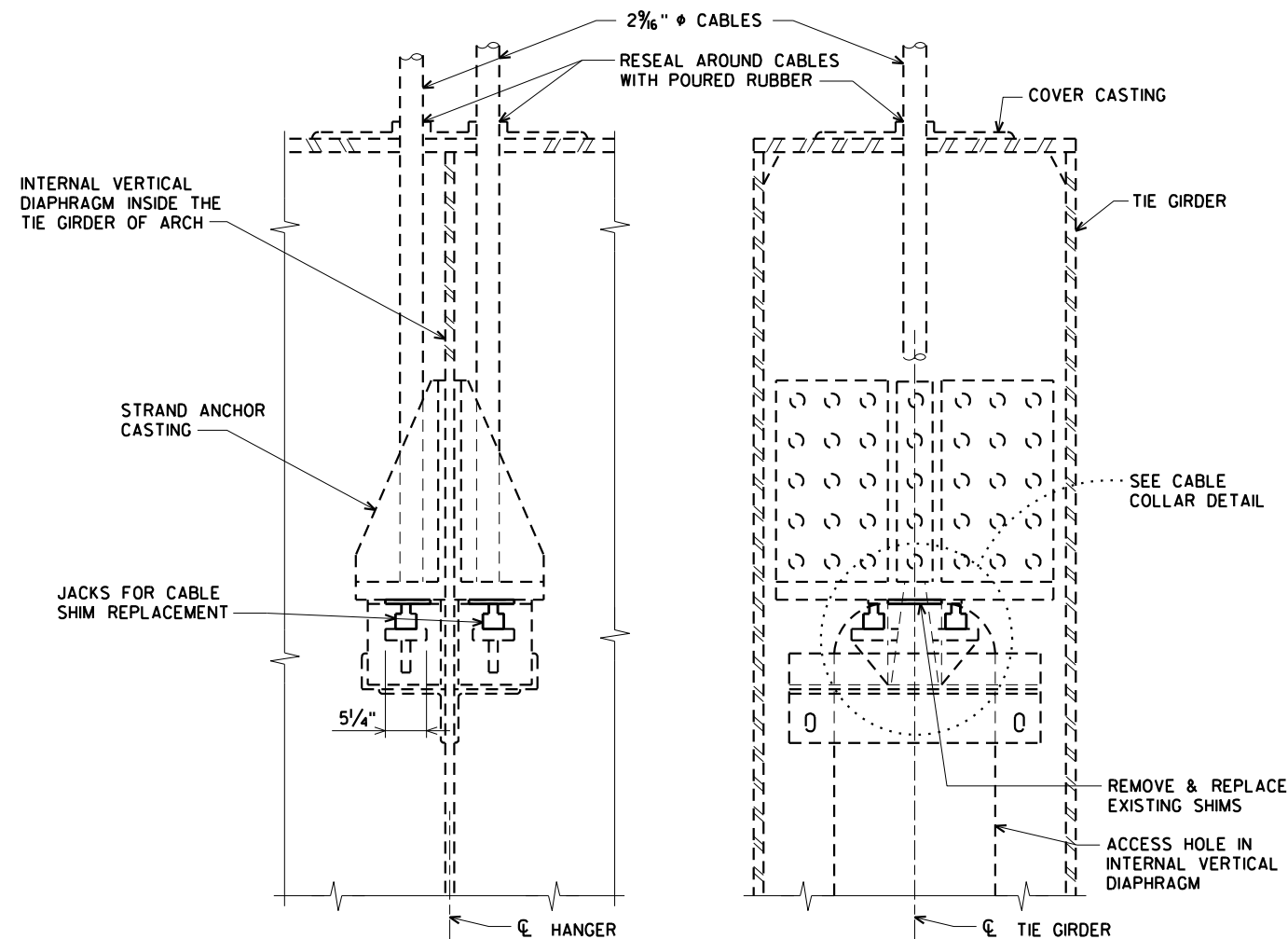


ELEVATION

**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 @  $\phi$  OF HANGERS**

**JACKING NOTES**

THE CONTRACTOR SHALL RECORD JACKING FORCES REQUIRED TO RELEASE THE CABLE COLLAR FROM THE SHIMS AND BOTTOM SUPPORT BRACKET.

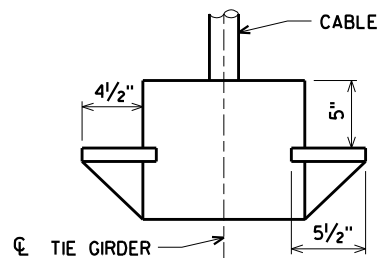
THE JACKING FORCE PER JACK USED IN 2010 WAS 5,200 psi. THIS PROVIDED A FORCE IN EACH CABLE OF 204.2 KIPS. (5,200 psi x 2 JACKS x 19.635 SQ. IN. = 204,204 LBS.)

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".

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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

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

**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:**

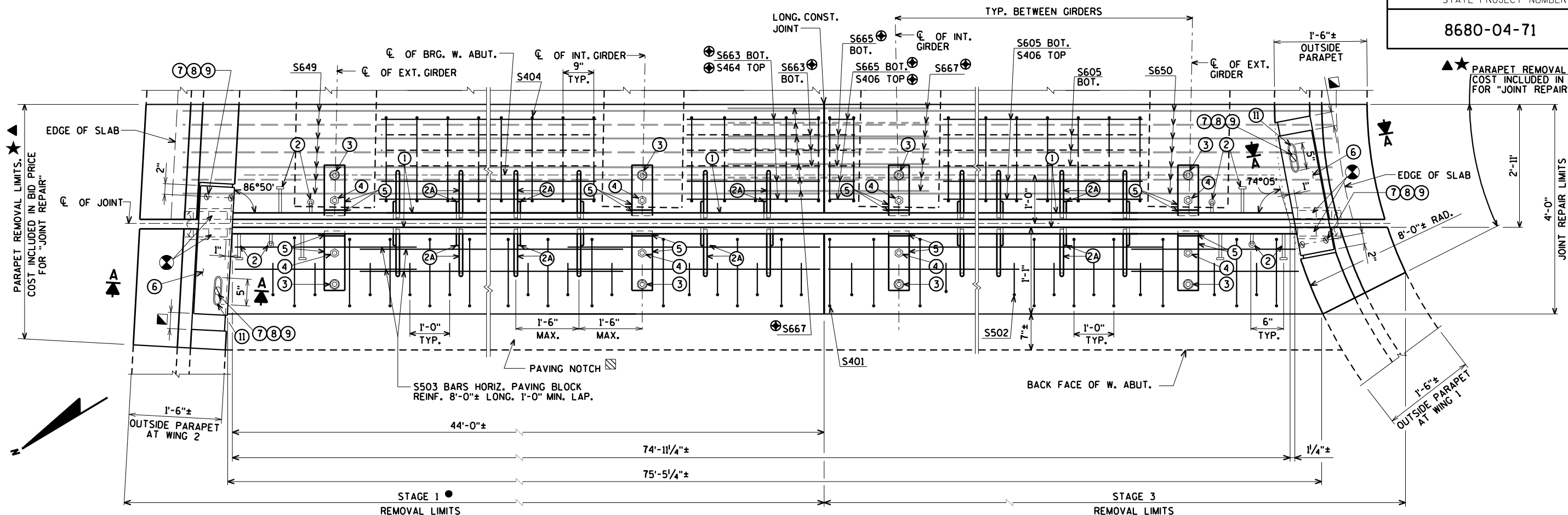
JOINT REPAIRS #4, #6, & #8 ARE AT THE ENDS OF APPROACH STRUCTURES. THE MNDOT WILL OVERLAY THESE STRUCTURES AT THE SAME TIME AS THIS PROJECT.

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 NEOPRENE 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			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>JOINT REPAIR SUMMARY</b>			SHEET 26 OF 99

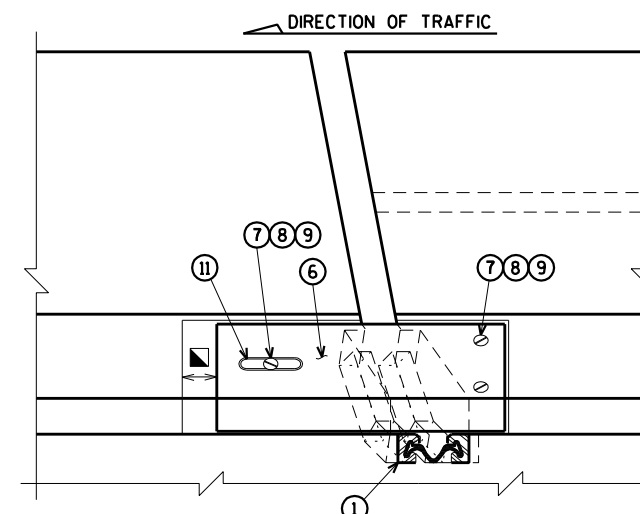
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
 3433 Oakwood Hills Parkway  
 Eau Claire, WI 54701  
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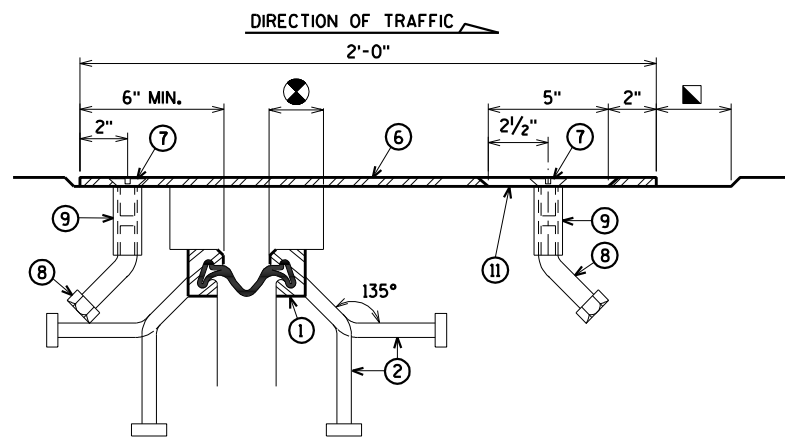
**PART PLAN AT JOINT 1**

- ★ 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'-0 1/2"± 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 NEOPRENE STRIP SEAL (4-INCH) IS INCIDENTAL TO THE BID ITEM "EXPANSION DEVICE B-16-38".
- ⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

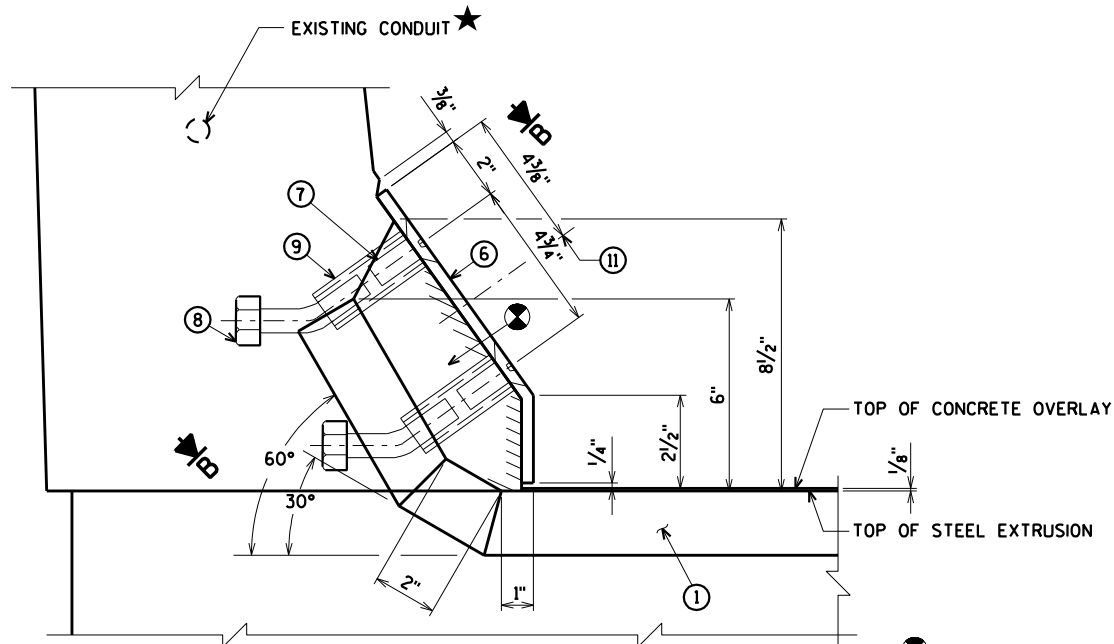
NOTE:  
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



**VIEW OF PARAPET PLATES FROM ROADWAY**  
PARAPET AT WING 2 SHOWN, WING 1 SIMILAR



**SECTION B**



**SECTION A**  
OUTSIDE PARAPET

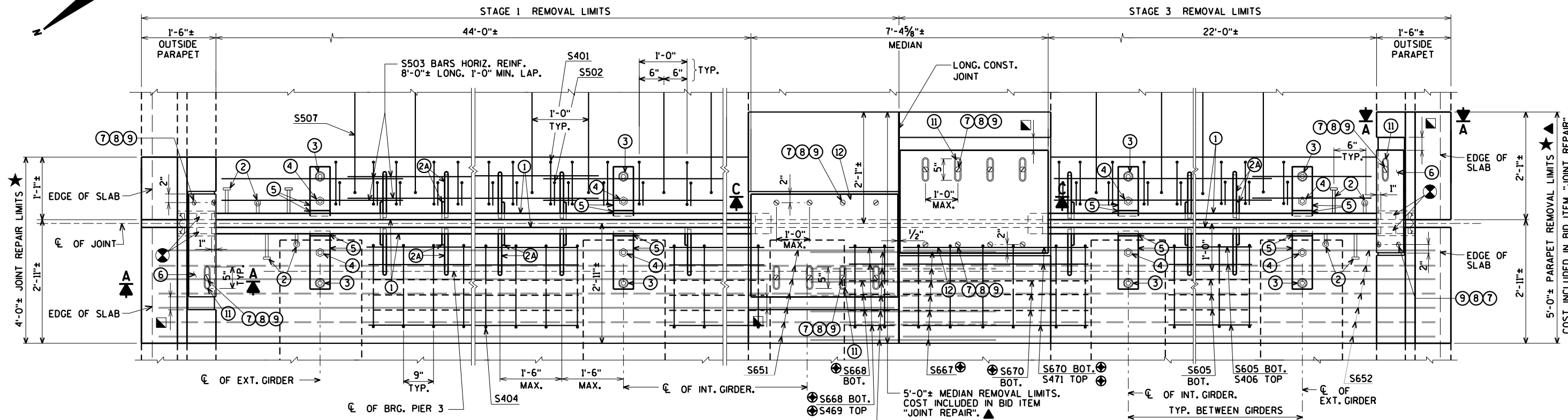
- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

WORK THIS SHEET WITH SHEET 28

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>STRIP SEAL EXPANSION JOINT 1 DETAILS</b>			SHEET 27 OF 99

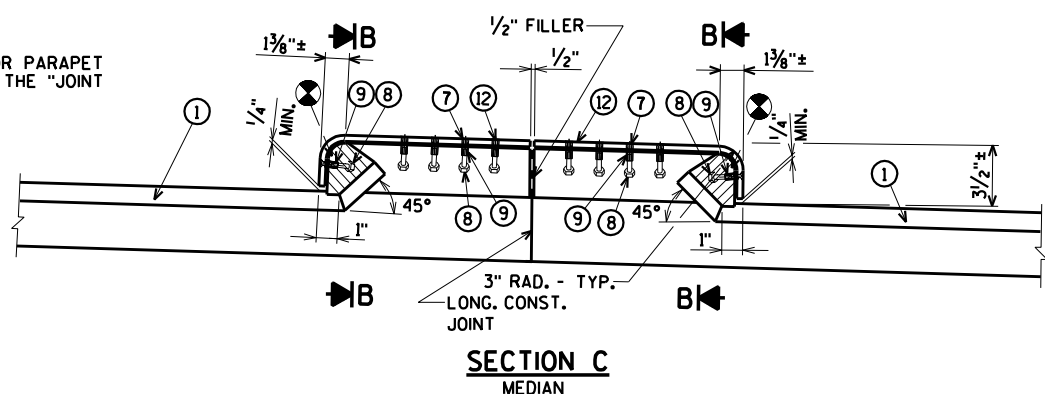
ORIGINAL PLANS PREPARED BY  
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3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
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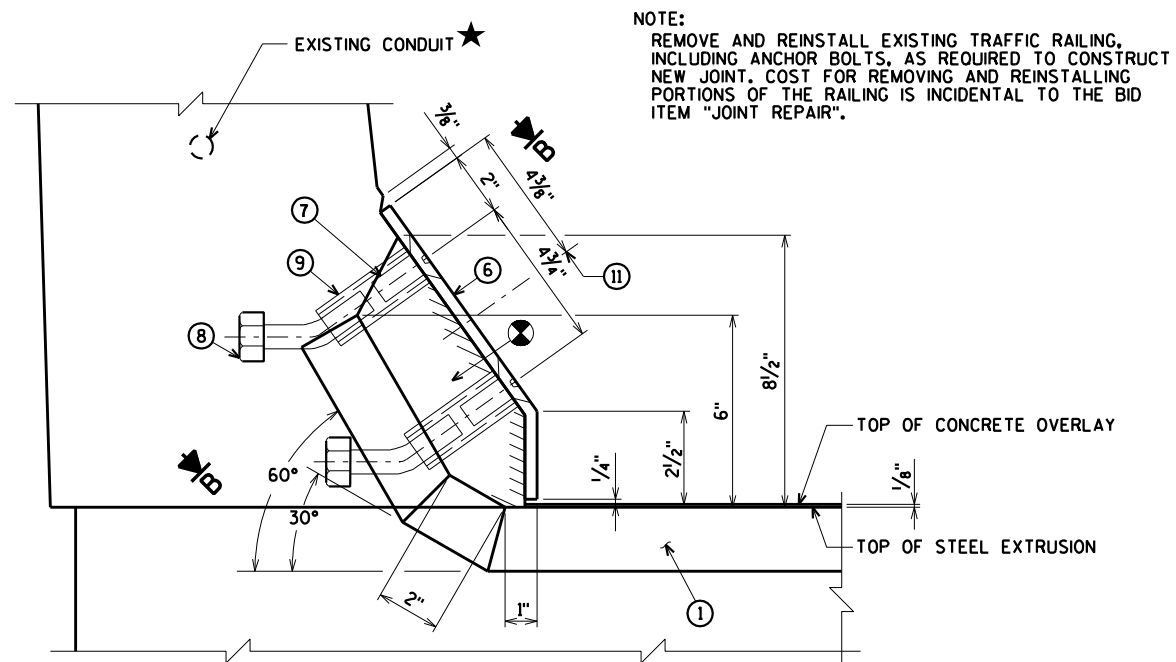


PART PLAN AT JOINT 2

- ★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.
- ▲ UTILIZE EXISTING VERTICAL BAR STEEL FOR PARAPET AND MEDIAN REMOVAL LIMITS OUTSIDE OF THE "JOINT REPAIR" LIMITS.
- ⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

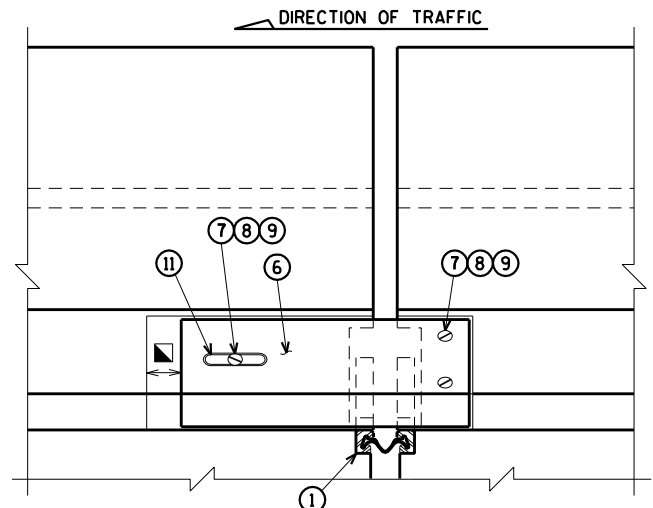


SECTION C  
MEDIAN

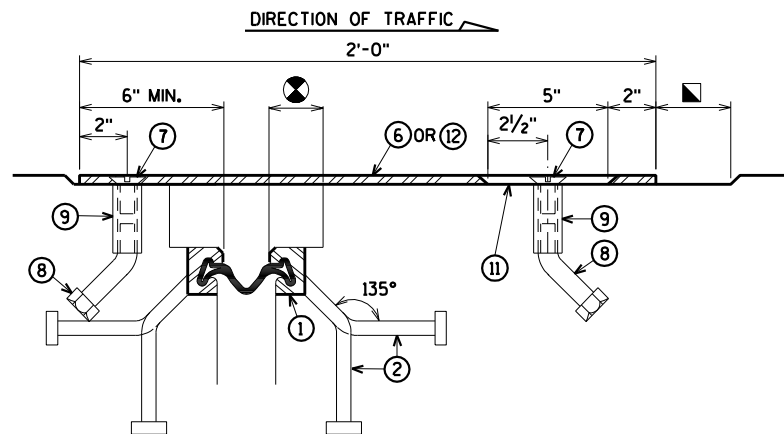


SECTION A  
OUTSIDE PARAPET

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".



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 30

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>STRIP SEAL EXPANSION JOINT 2 DETAILS</b>			SHEET 29 OF 99

ORIGINAL PLANS PREPARED BY  
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Eau Claire, WI 54701  
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ecpdf.plt 42-0825 EXPJT 2 ss.dgn

8

8

**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.

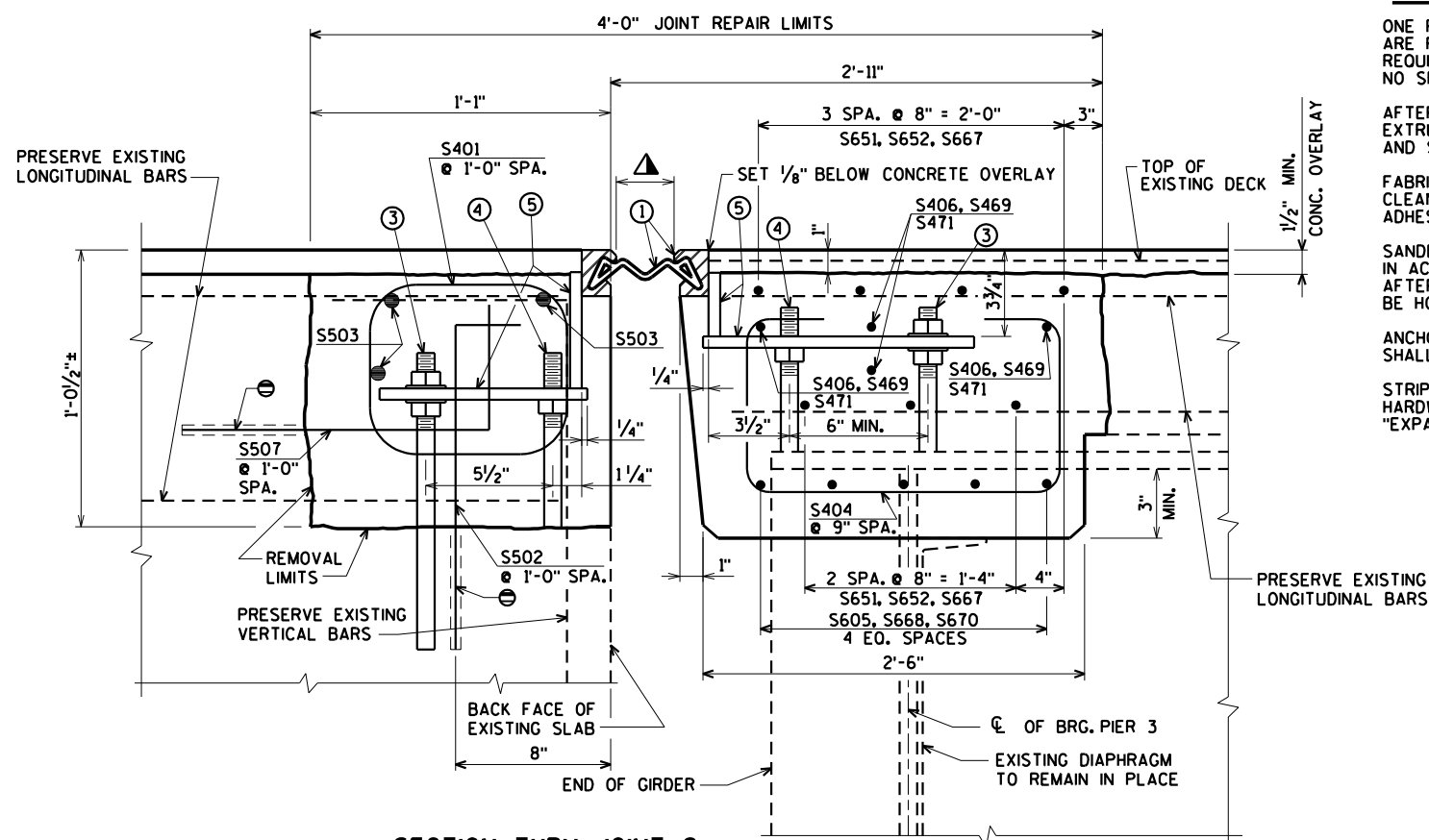
SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

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**

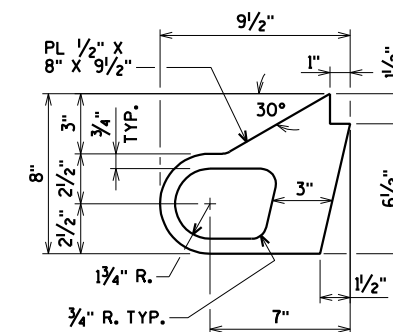
- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
- ② STUDS 5/8" φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A 1/2" THICK ANCHOR PLATE WITH 5/8" φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" 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.



**SECTION THRU JOINT 2**

DIMENSIONS ARE NORMAL TO C OF SUBSTRUCTURE UNIT

⊗ 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.



**ALTERNATE STRIP SEAL ANCHOR**

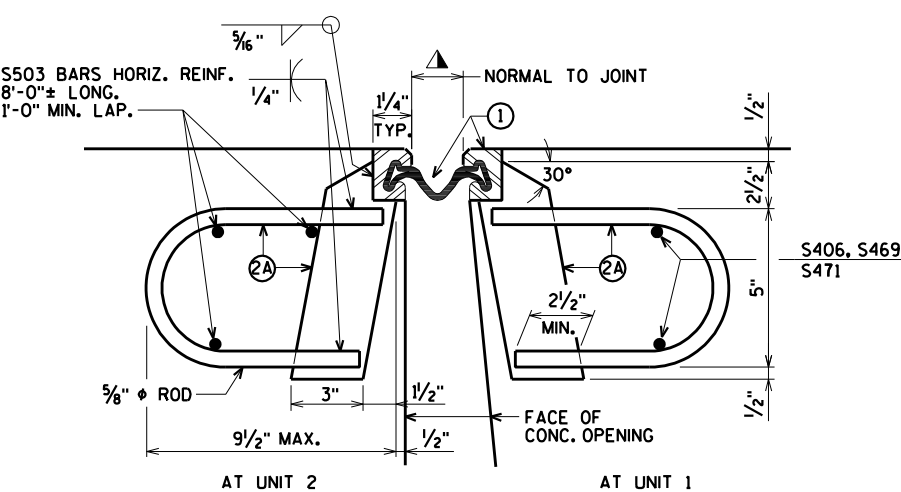
**TEMPERATURE TABLE**

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1/4"
75°	1/2"
65°	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 29

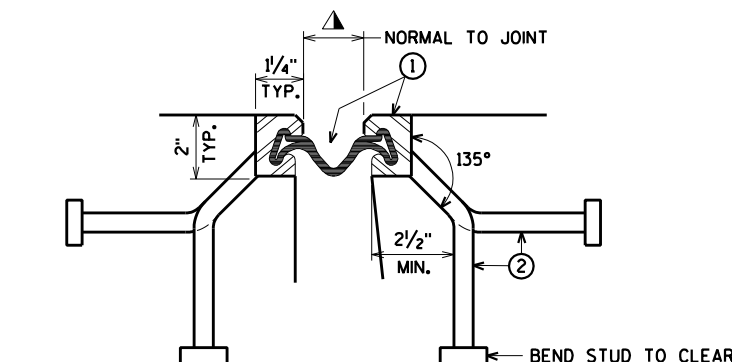
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>STRIP SEAL EXPANSION JOINT 2 DETAILS</b>			SHEET 30 OF 99



**SECTION THRU JOINT**

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

SYM. ABOUT C OF JOINT UNLESS OTHERWISE SHOWN OR NOTED

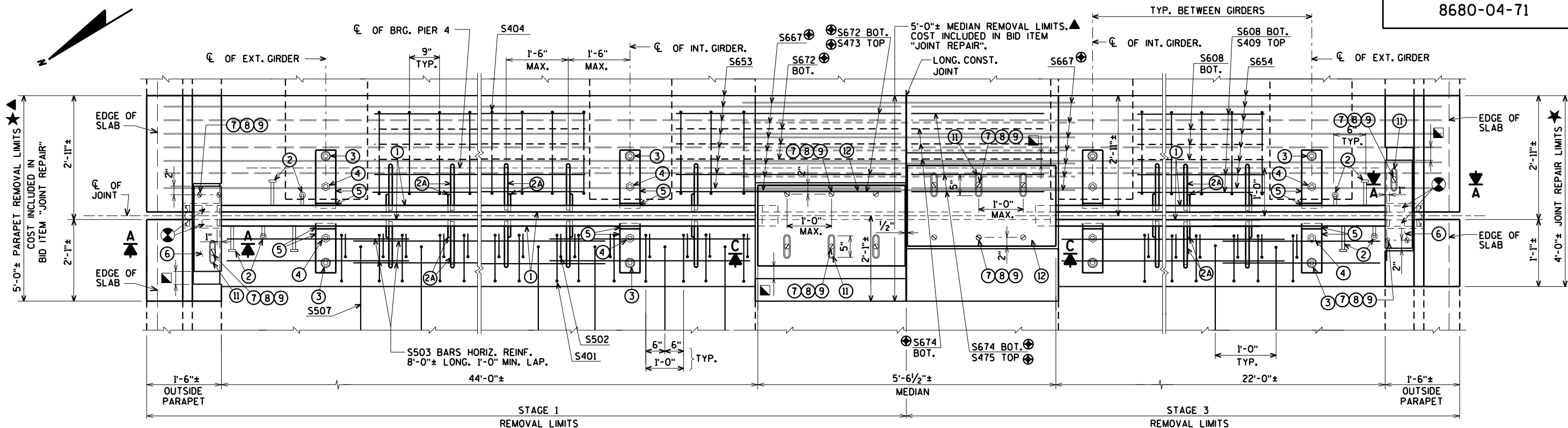


**SECTION THRU JOINT**

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS AND MEDIANS

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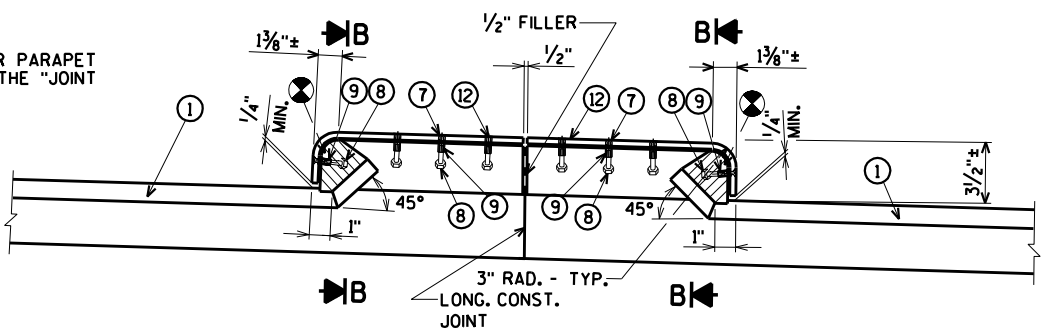




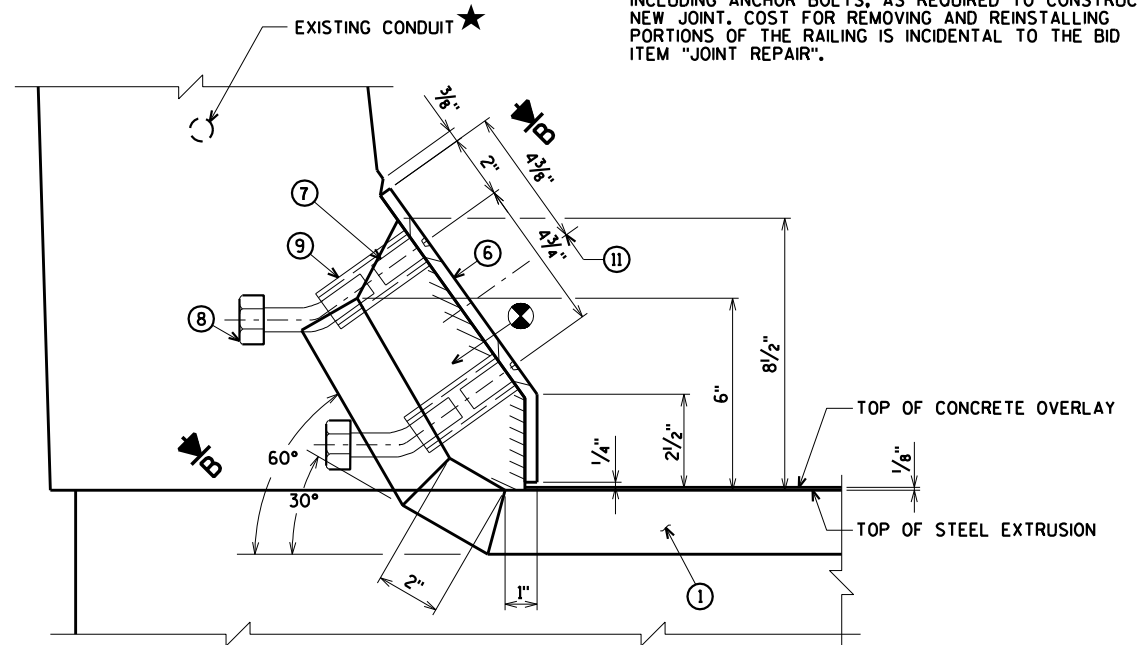
PART PLAN AT JOINT 3

- ★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.
- ▲ UTILIZE EXISTING VERTICAL BAR STEEL FOR PARAPET AND MEDIAN REMOVAL LIMITS OUTSIDE OF THE "JOINT REPAIR" LIMITS.
- ⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

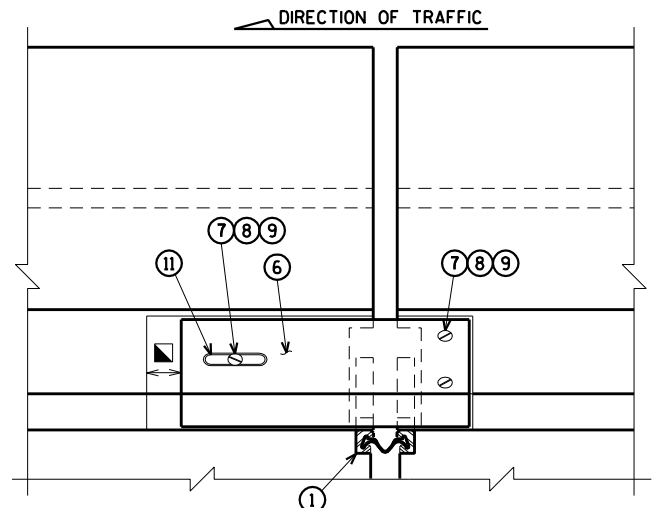
NOTE:  
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



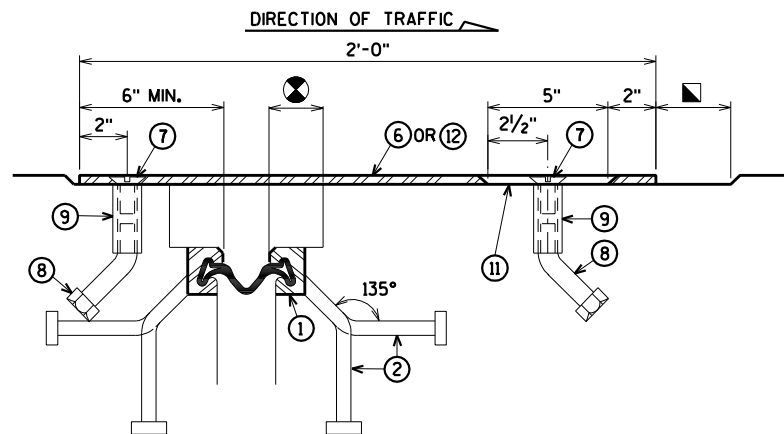
SECTION C  
MEDIAN



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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>STRIP SEAL EXPANSION JOINT 3 DETAILS</b>			SHEET 31 OF 99

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

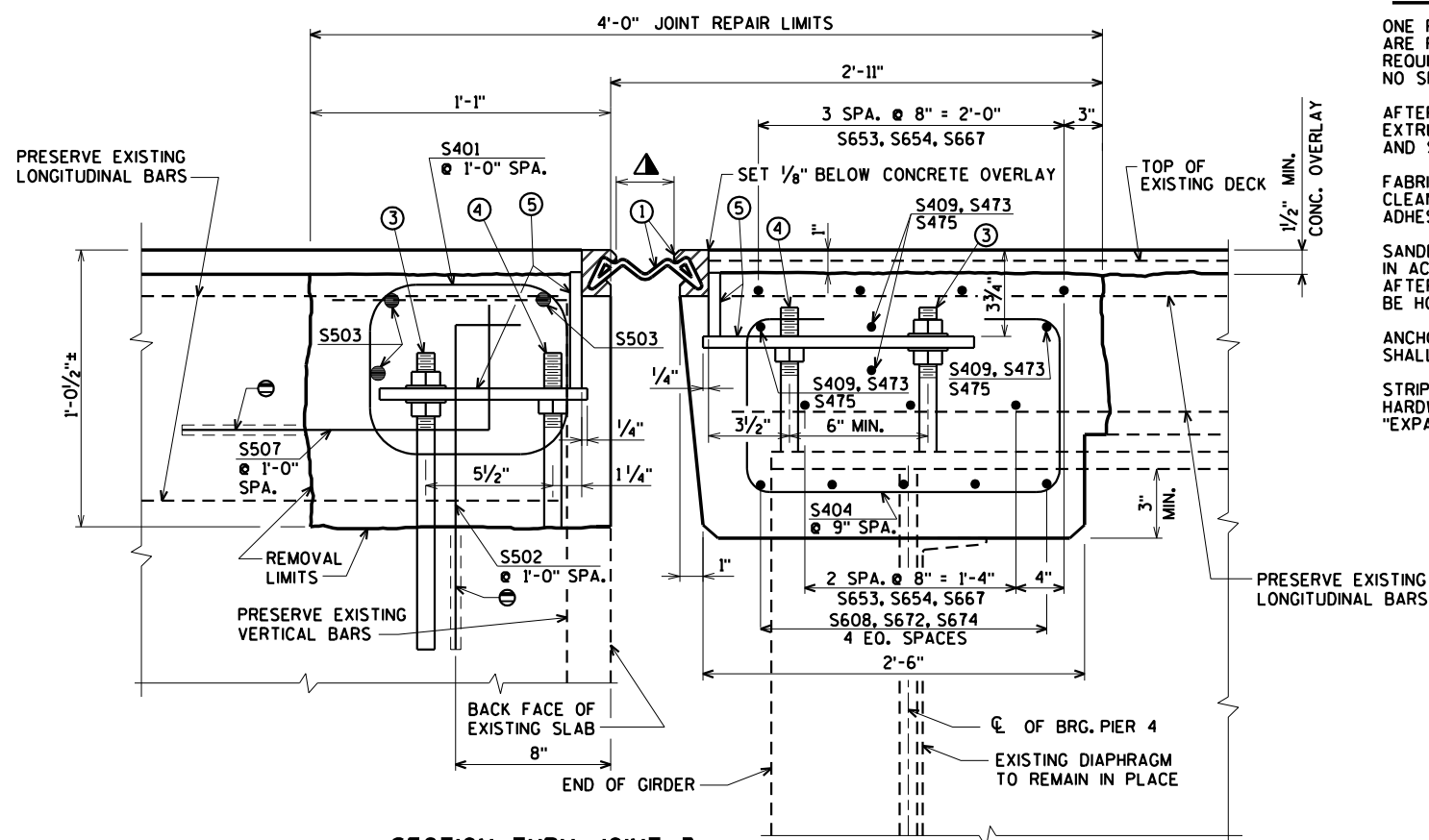
SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

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**

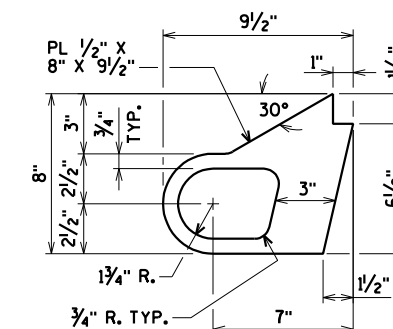
- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
- ② STUDS 5/8" φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A 1/2" THICK ANCHOR PLATE WITH 5/8" φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" 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.



**SECTION THRU JOINT 3**

DIMENSIONS ARE NORMAL TO CL OF SUBSTRUCTURE UNIT

⊗ 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.



**ALTERNATE STRIP SEAL ANCHOR**

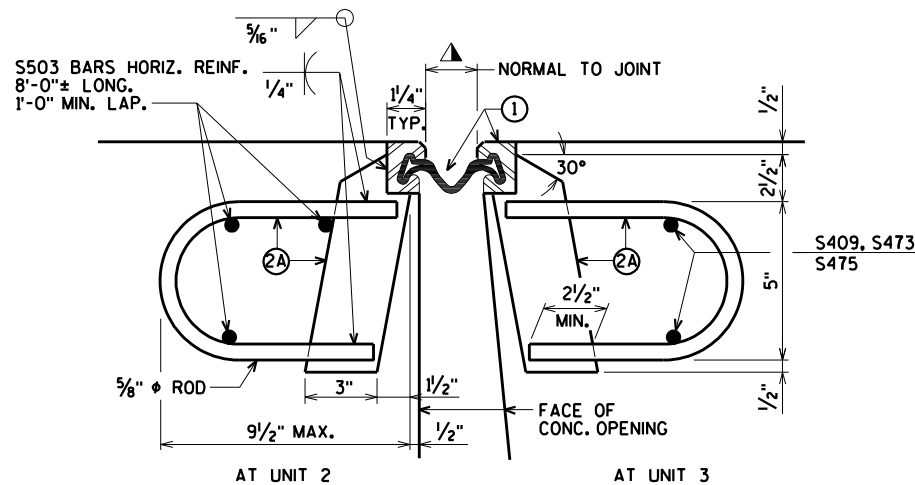
**TEMPERATURE TABLE**

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1/4"
75°	1/2"
65°	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

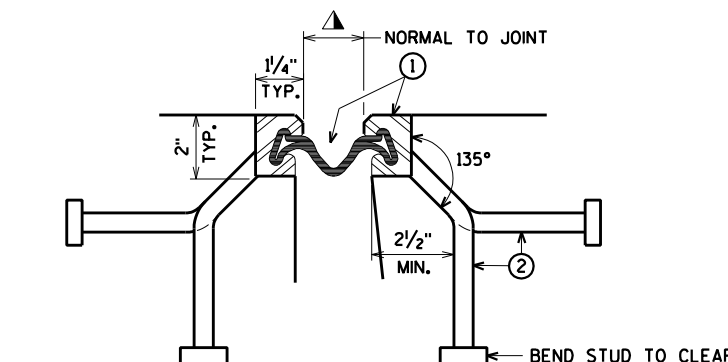
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>STRIP SEAL EXPANSION JOINT 3 DETAILS</b>			SHEET 32 OF 99



**SECTION THRU JOINT**

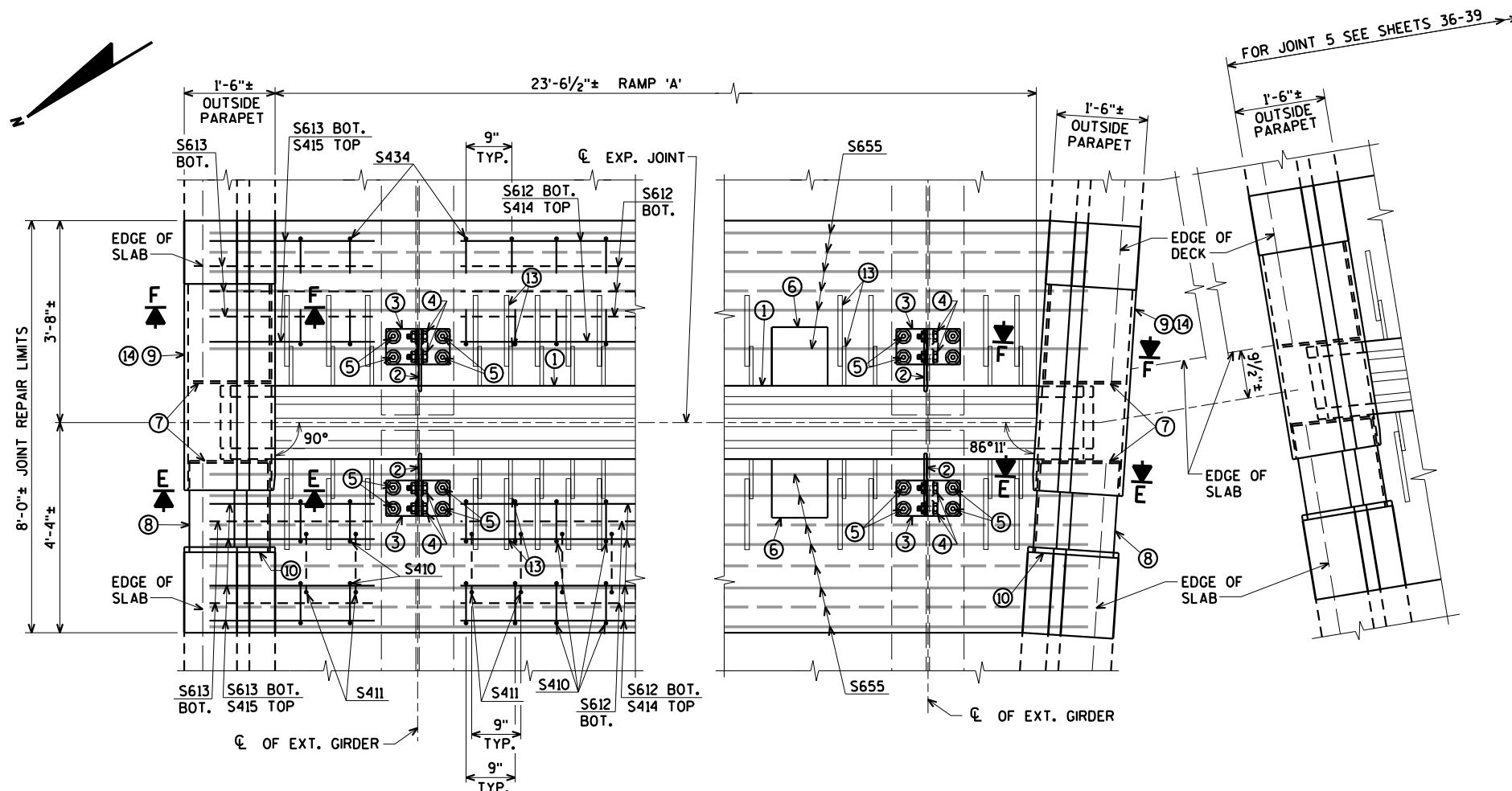
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

SYM. ABOUT CL JOINT UNLESS OTHERWISE SHOWN OR NOTED



**SECTION THRU JOINT**

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS AND MEDIANS



**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".

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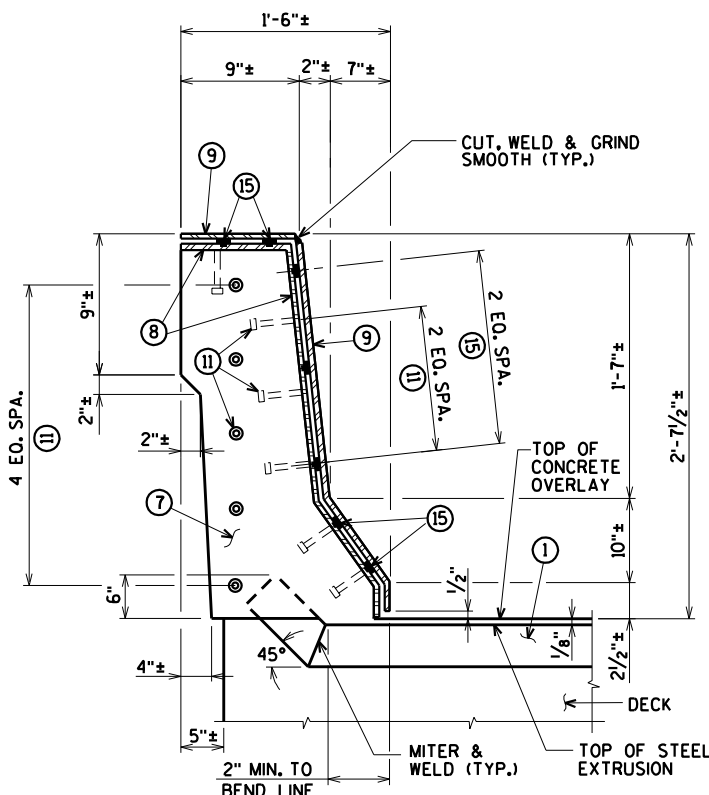
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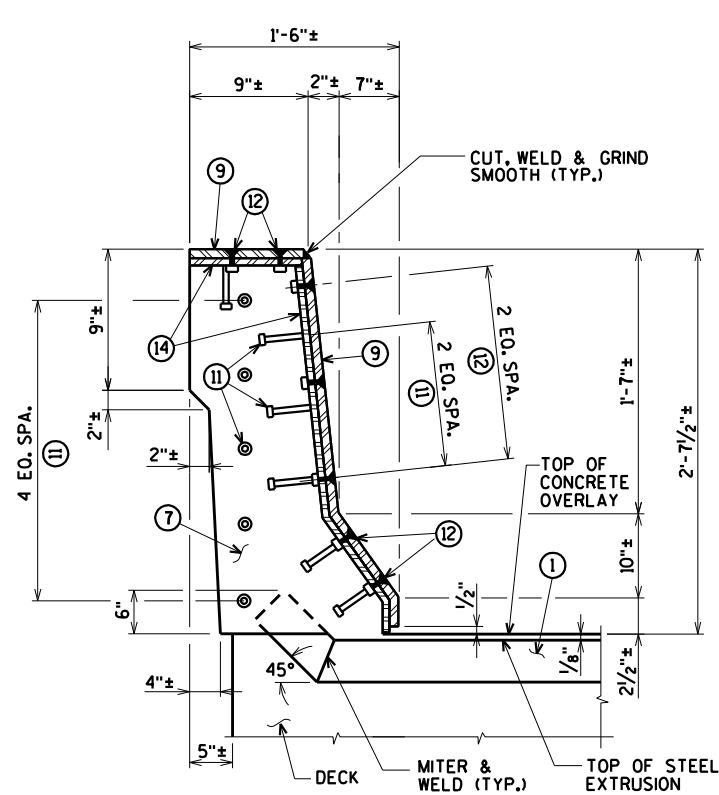
WORK THIS SHEET WITH SHEETS 34-35

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY	CLS	PLANS CK'D.	CBM
<b>MODULAR EXPANSION JOINT 4 DETAILS</b>			SHEET 33 OF 99

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES** 3433 Oakwood Hills Parkway  
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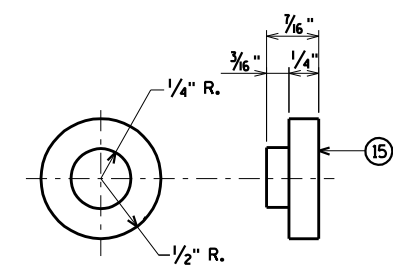


**SECTION E**



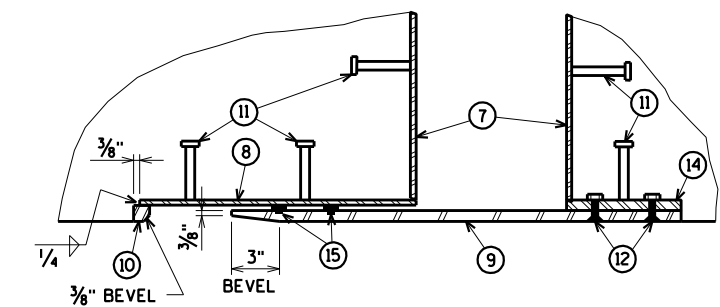
**SECTION F**

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".

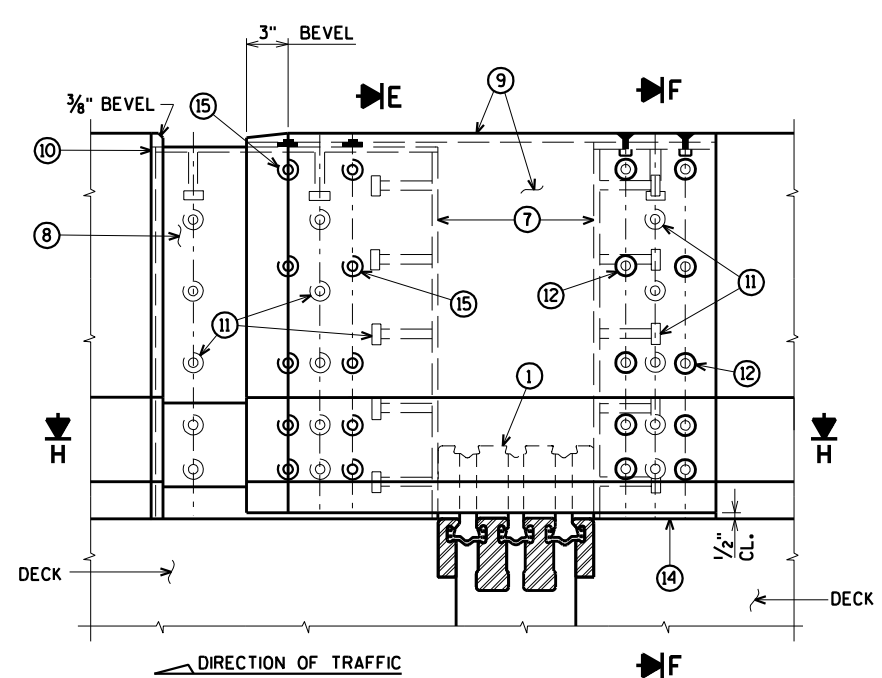


**ADIPRENE BUTTON DETAIL**

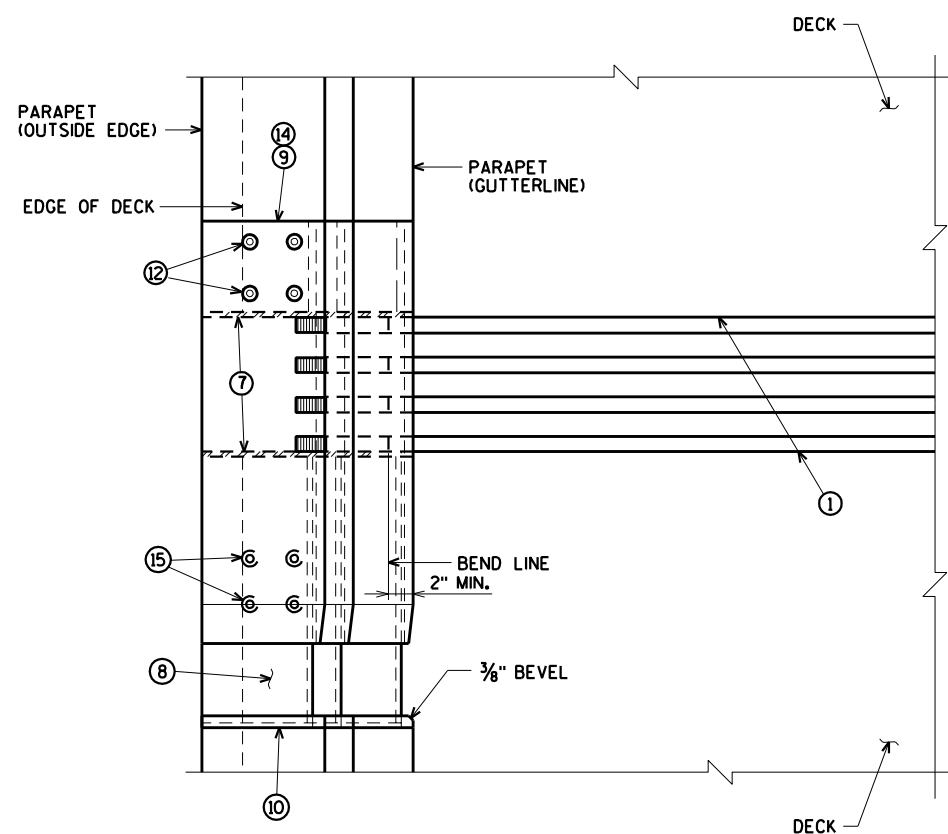
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 33



**SECTION H**



**ELEVATION OF OUTSIDE PARAPET**  
(NORTH PARAPET SHOWN, OTHER SIDE SIMILAR)



**PLAN OF OUTSIDE PARAPET**  
(NORTH PARAPET SHOWN, OTHER SIDE SIMILAR)

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42-0825 EXPJT 4 .dgn

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WORK THIS SHEET WITH SHEETS 33 & 35

NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

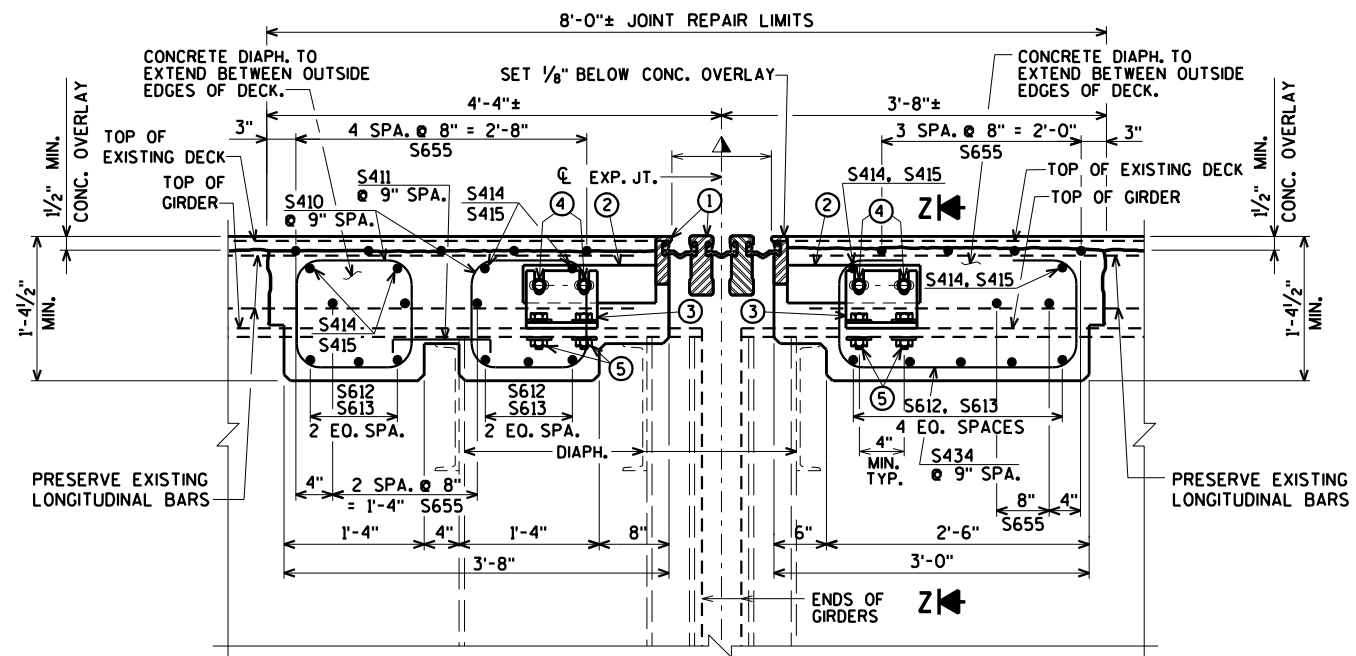
STRUCTURE B-16-38/69100

DRAWN BY CLS PLANS CK'D. CBM

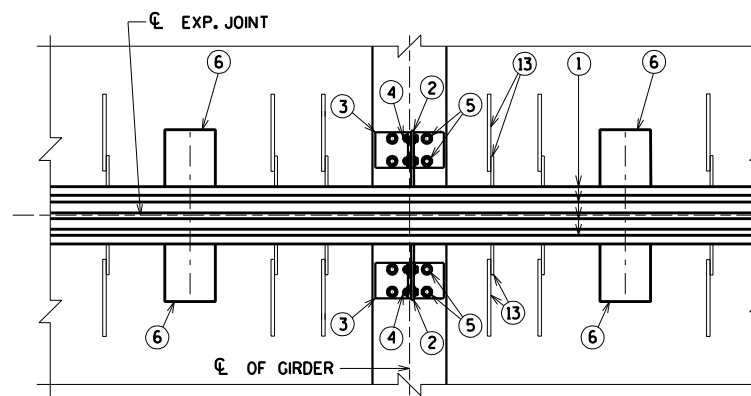
**EXPANSION  
JOINT 4 DETAILS  
OUTSIDE PARAPET**

SHEET 34 OF 99

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
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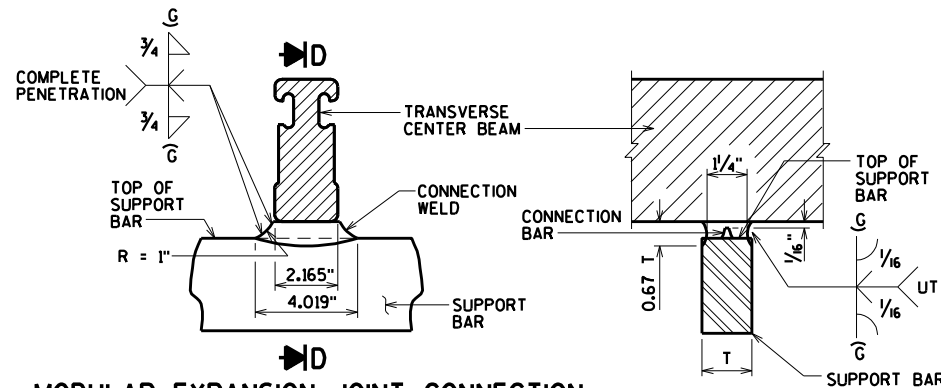
**SECTION THRU JOINT 4**  
NORMAL TO CL OF JOINT



**PART PLAN**

- 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" φ HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
  - ⑤ 3/4" φ 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 1/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.
  - ⑪ 3/4" φ x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.
  - ⑫ 3/4" φ 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 3/8" φ LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
  - ⑭ INSIDE PLATE. FABRICATE FROM 3/8" 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.



**MODULAR EXPANSION JOINT CONNECTION**  
**DETAIL AND WELD SPECIFICATION**

**SECTION D**

**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 PERMITTED 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.

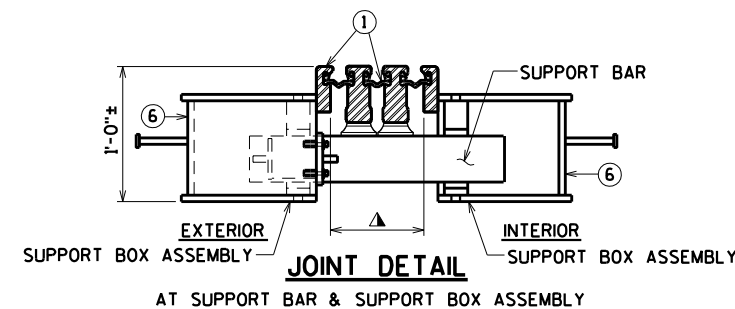
THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING 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.

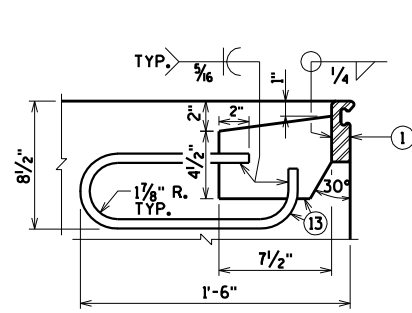
COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPAVED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.



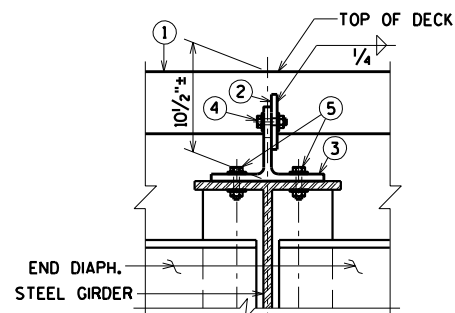
**JOINT DETAIL**

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



**ANCHORAGE DETAIL**

PLACE ADJACENT TO SUPPORT BOXES IN DECK & CONC. DIAPH.



**SECTION Z-Z**

**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

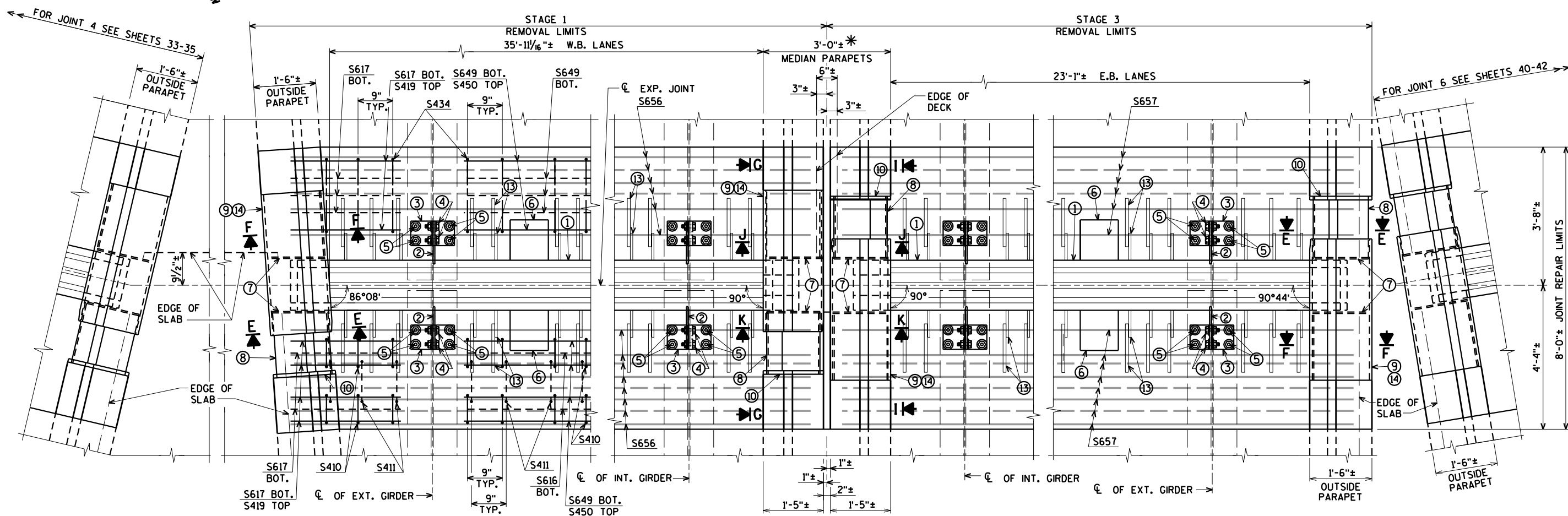
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MODULAR EXPANSION JOINT 4 DETAILS</b>			SHEET 35 OF 99

ORIGINAL PLANS PREPARED BY  
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Eau Claire, WI 54701  
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**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

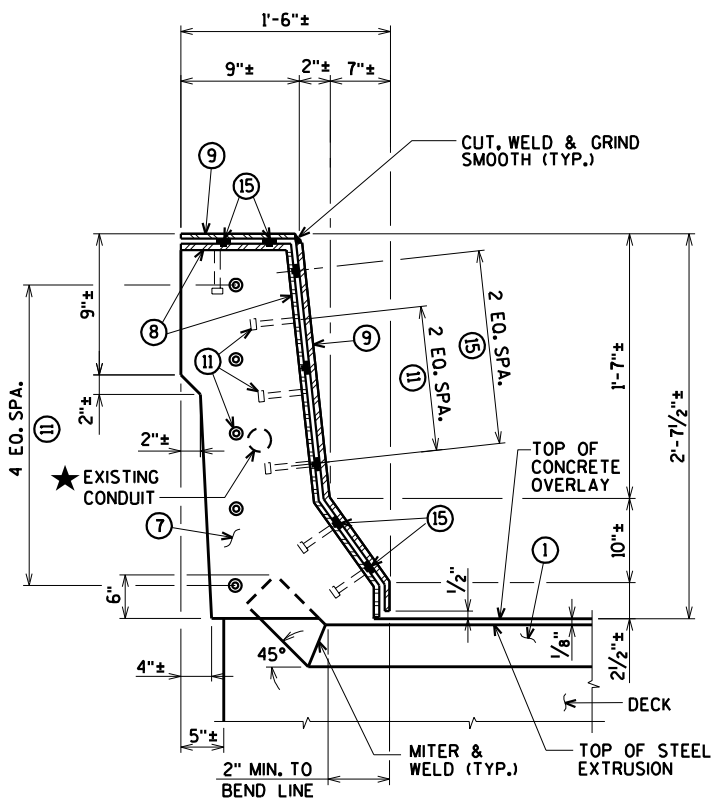
FOR SECTIONS 'G', 'I', 'J' AND 'K'  
SEE SHEET 38

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".

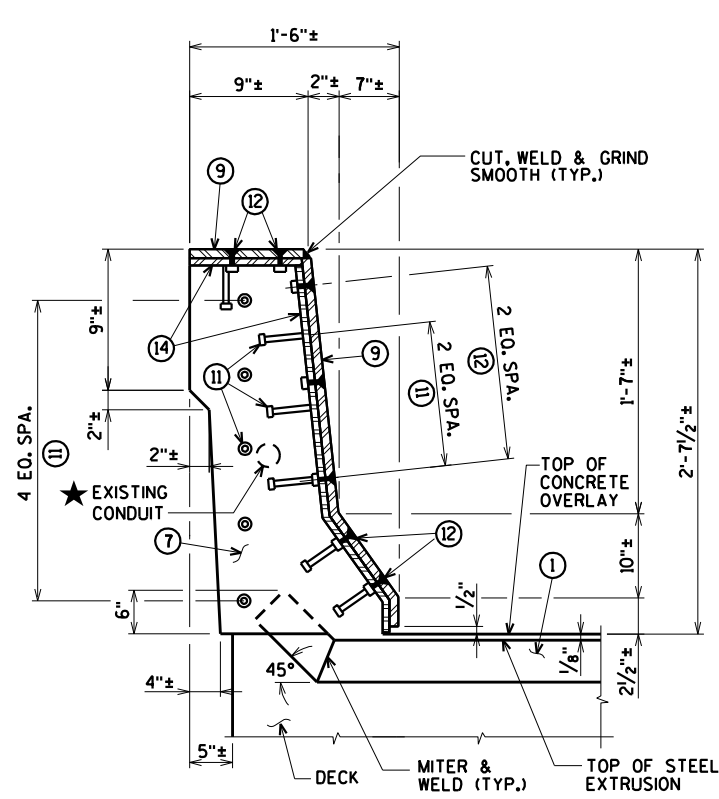
WORK THIS SHEET WITH SHEETS 37-39

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MODULAR EXPANSION JOINT 5 DETAILS</b>			SHEET 36 OF 99

ORIGINAL PLANS PREPARED BY  
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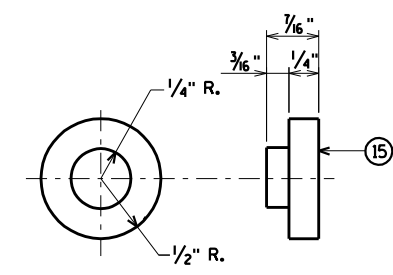
SECTION E



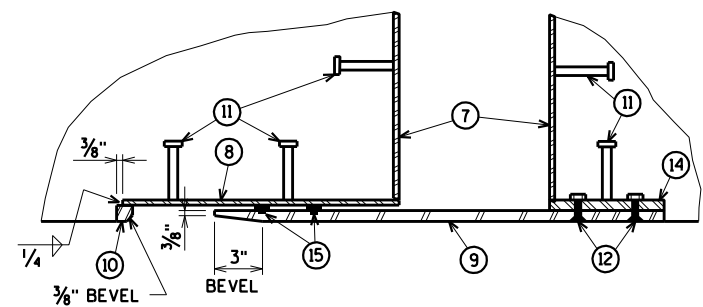
SECTION F

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.

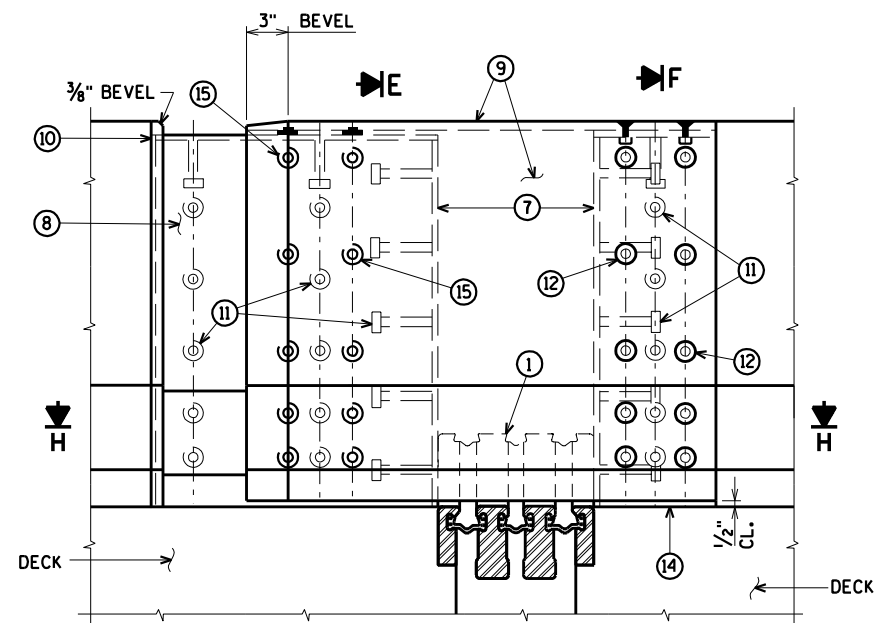


ADIPRENE BUTTON DETAIL

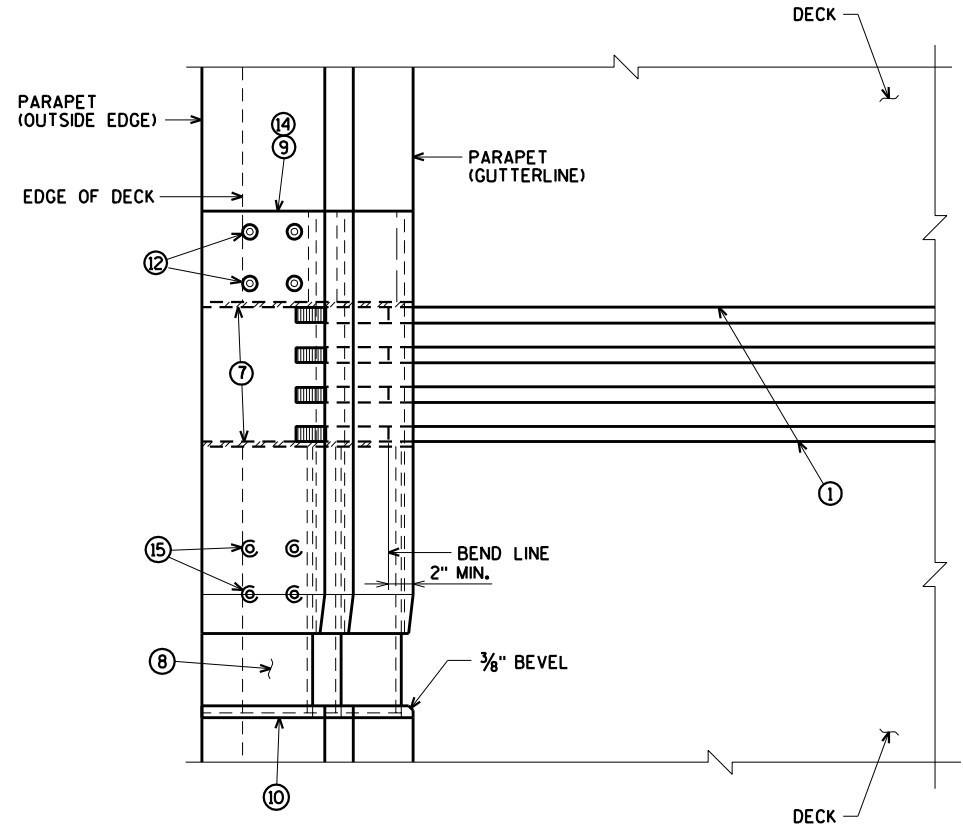


SECTION H

FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 36



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

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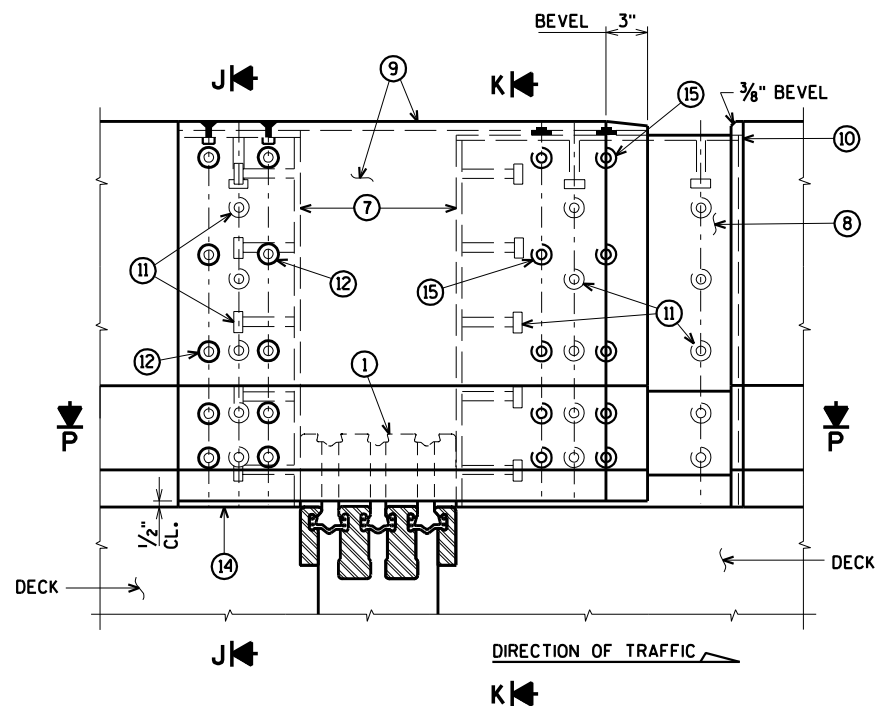
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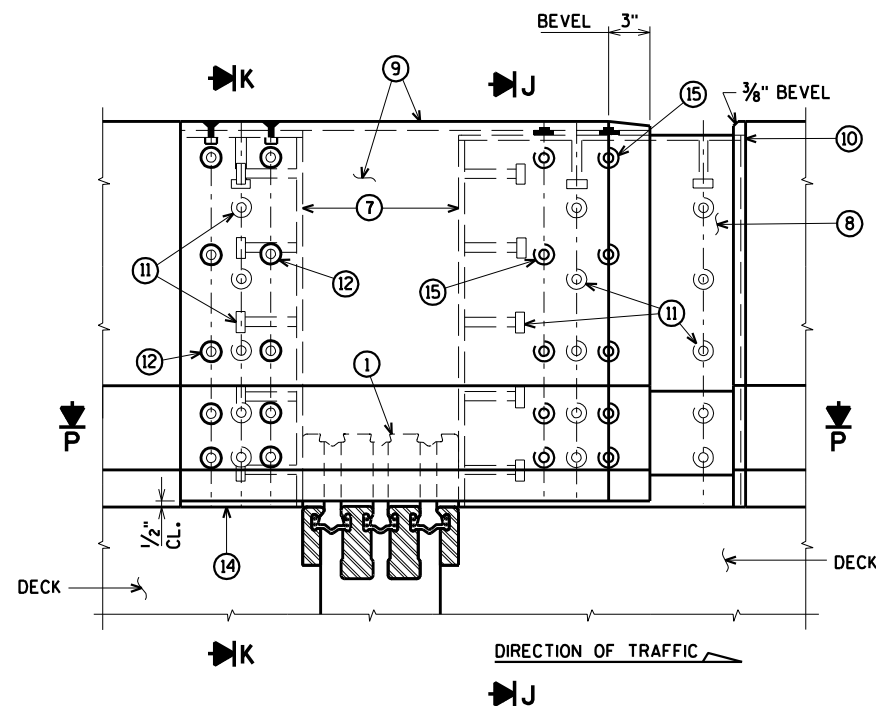
WORK THIS SHEET WITH SHEETS 36, 38-39

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

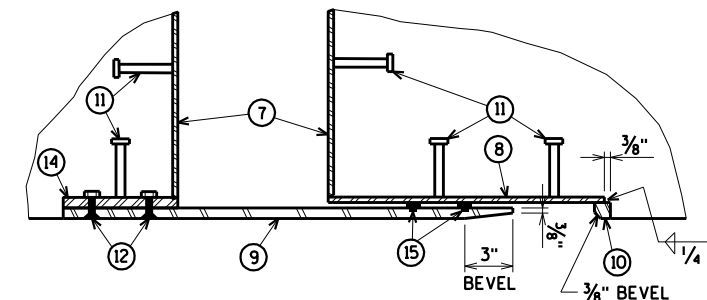
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
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Eau Claire, WI 54701  
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**ELEVATION OF MEDIAN PARAPET SECTION G**

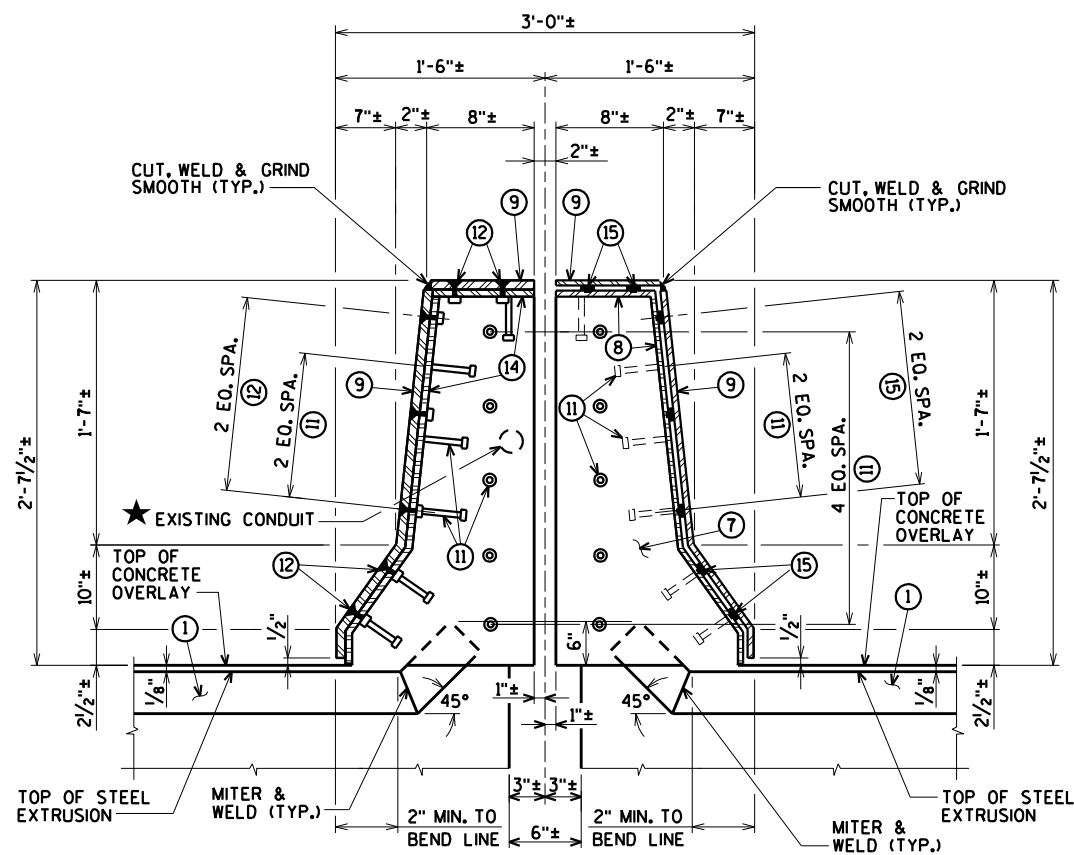


**ELEVATION OF MEDIAN PARAPET SECTION I**

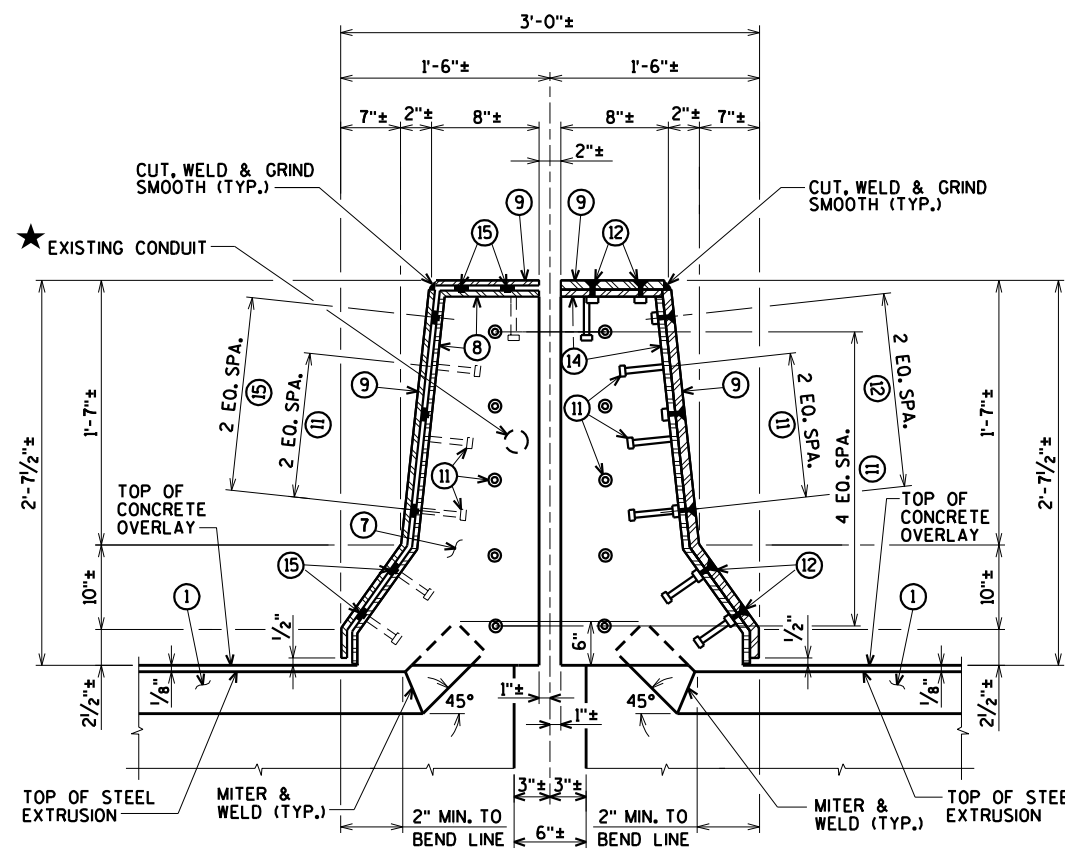


**SECTION P**

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.



**SECTION J**



**SECTION K**

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K' SEE SHEET 36

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42-0825 EXPJT 5.dgn

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WORK THIS SHEET WITH SHEETS 36-37, 39

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>EXPANSION JOINT 5 DETAILS MEDIAN PARAPETS</b>			SHEET 38 OF 99

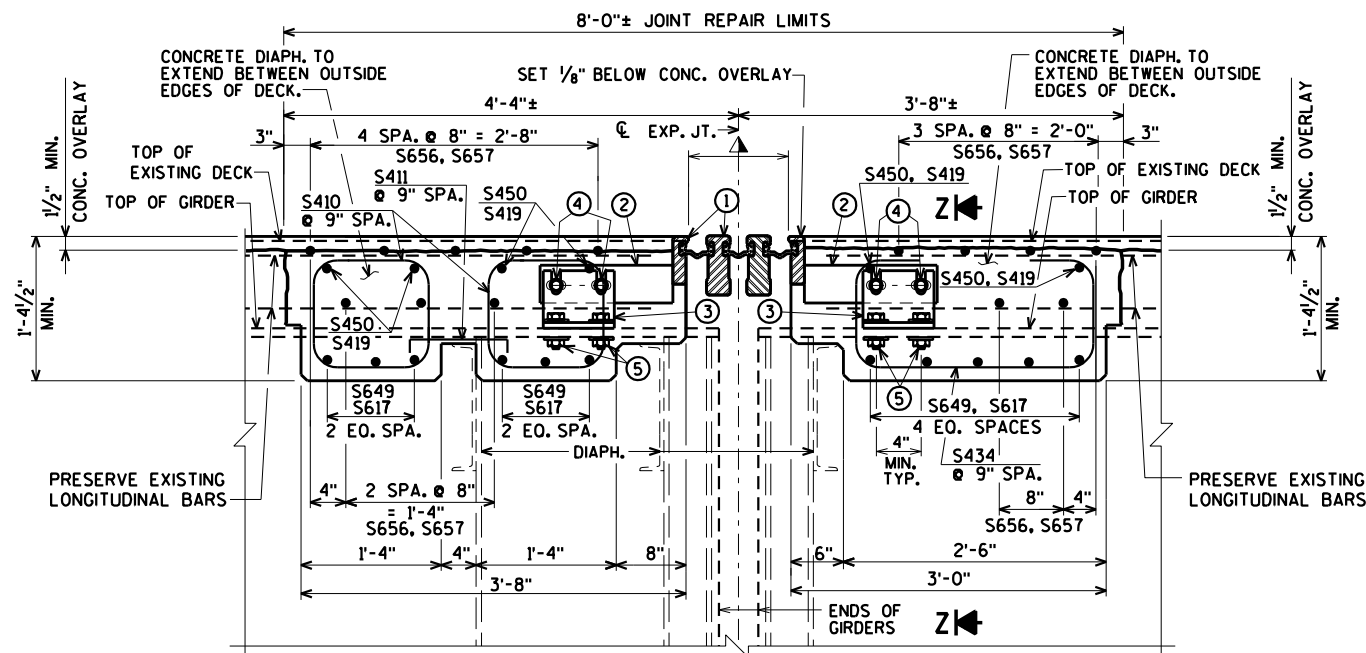
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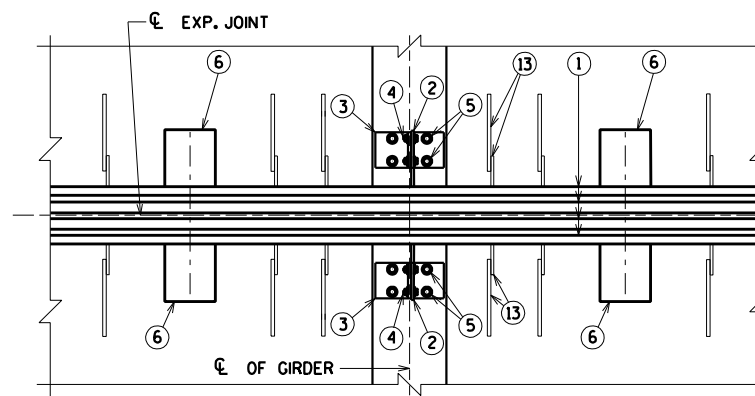
**LEGEND**

- 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" φ HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
- ⑤ 3/4" φ 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 1/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.
- ⑪ 3/4" φ x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.
- ⑫ 3/4" φ 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 3/8" φ LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
- ⑭ INSIDE PLATE. FABRICATE FROM 3/8" 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.



**SECTION THRU JOINT 5**  
NORMAL TO CL OF JOINT



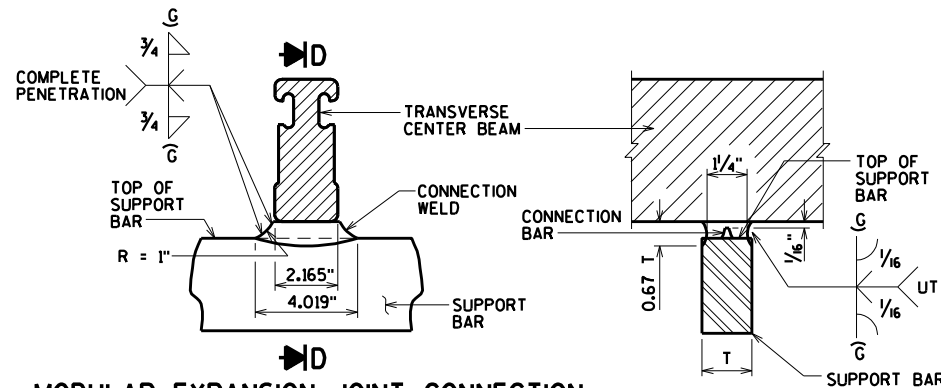
**PART PLAN**

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.

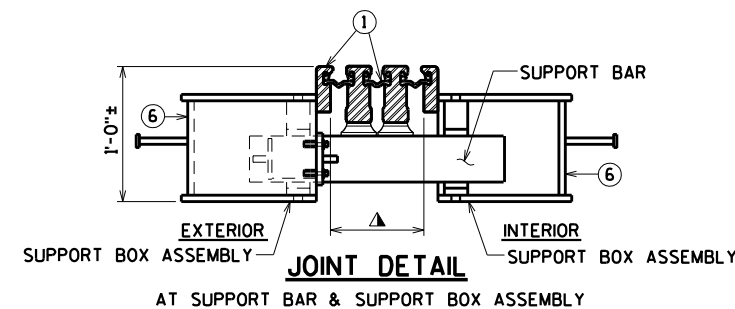
**GENERAL NOTES**

- ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED 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 RESPAVED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.



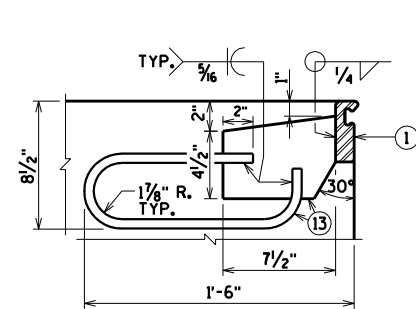
**MODULAR EXPANSION JOINT CONNECTION**  
DETAIL AND WELD SPECIFICATION

**SECTION D**



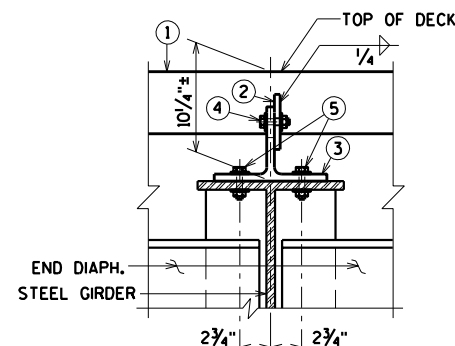
**JOINT DETAIL**

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



**ANCHORAGE DETAIL**

PLACE ADJACENT TO SUPPORT BOXES IN DECK & CONC. DIAPH.



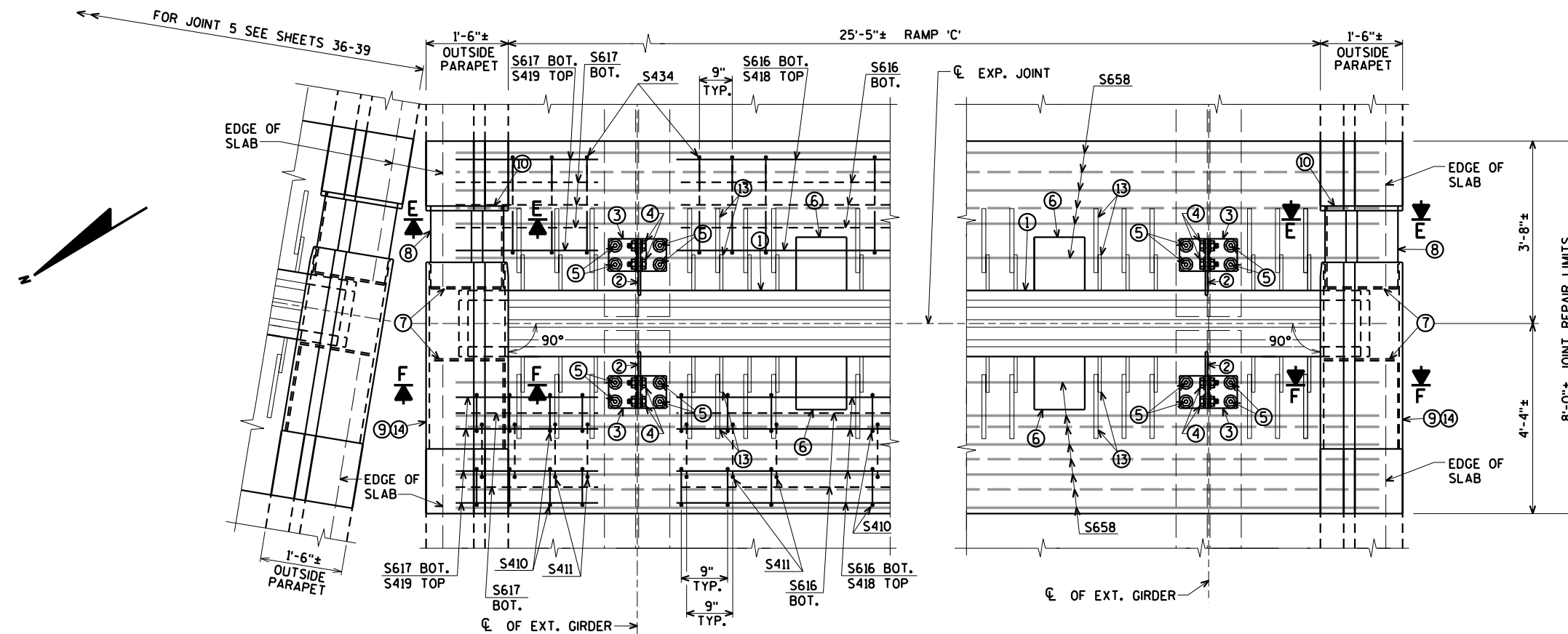
**SECTION Z-Z**

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 36-38

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MODULAR EXPANSION JOINT 5 DETAILS</b>			SHEET 39 OF 99

ORIGINAL PLANS PREPARED BY  
**AVRES ASSOCIATES**  
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Eau Claire, WI 54701  
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**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".

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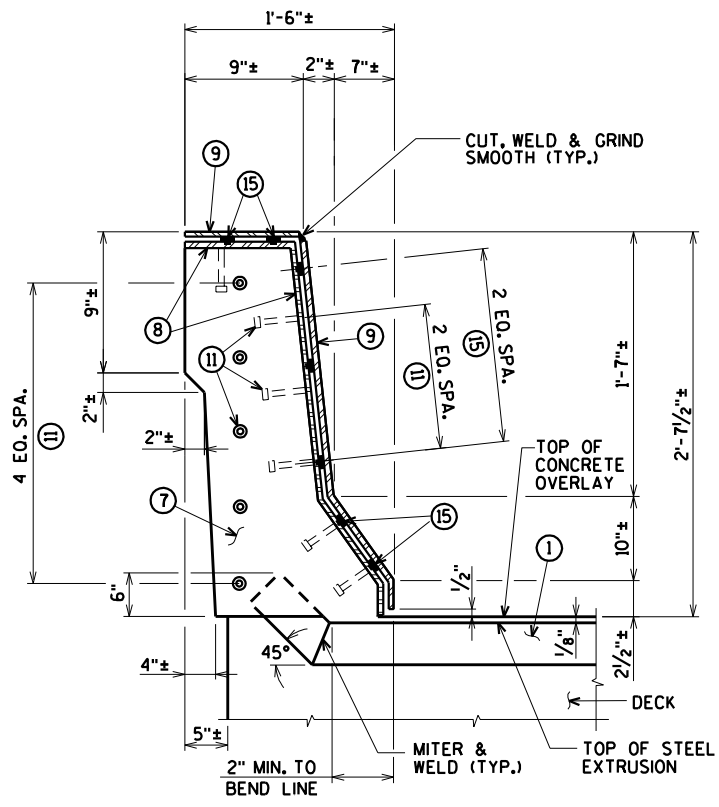
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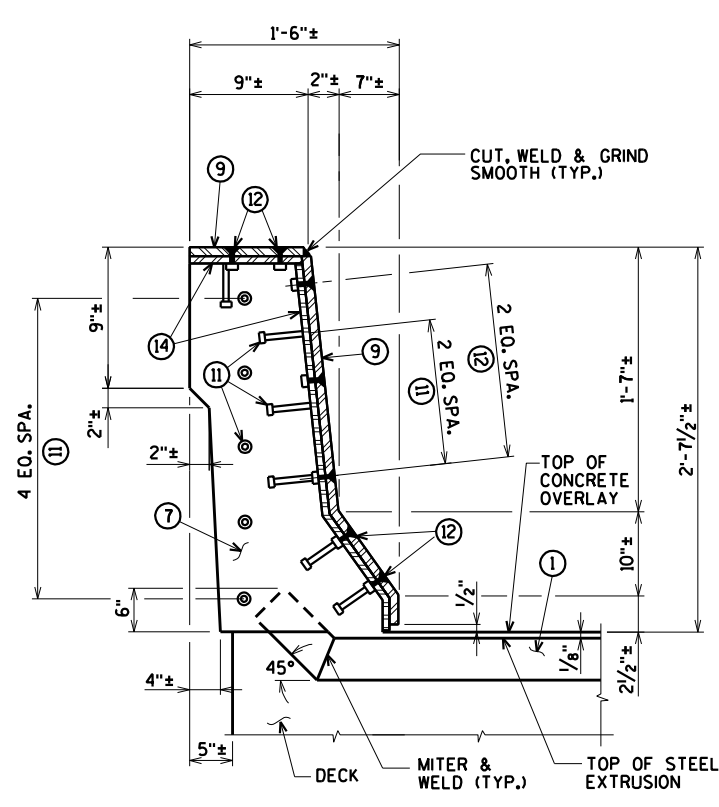
WORK THIS SHEET WITH SHEETS 41-42

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MODULAR EXPANSION JOINT 6 DETAILS</b>			SHEET 40 OF 99

ORIGINAL PLANS PREPARED BY  
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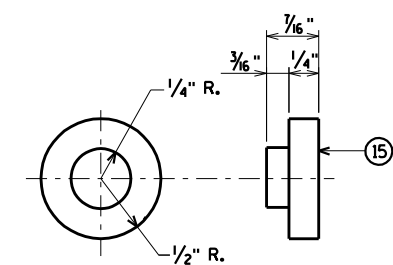


**SECTION E**



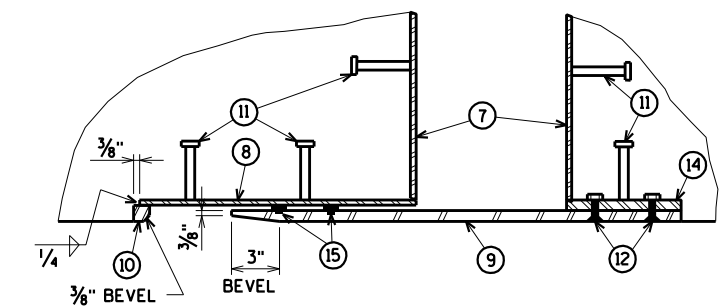
**SECTION F**

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".

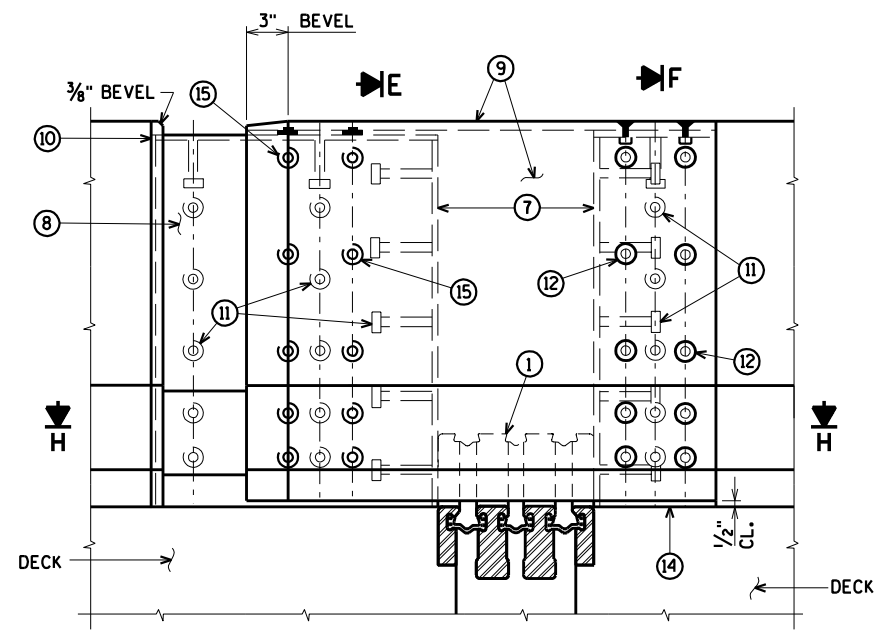


**ADIPRENE BUTTON DETAIL**

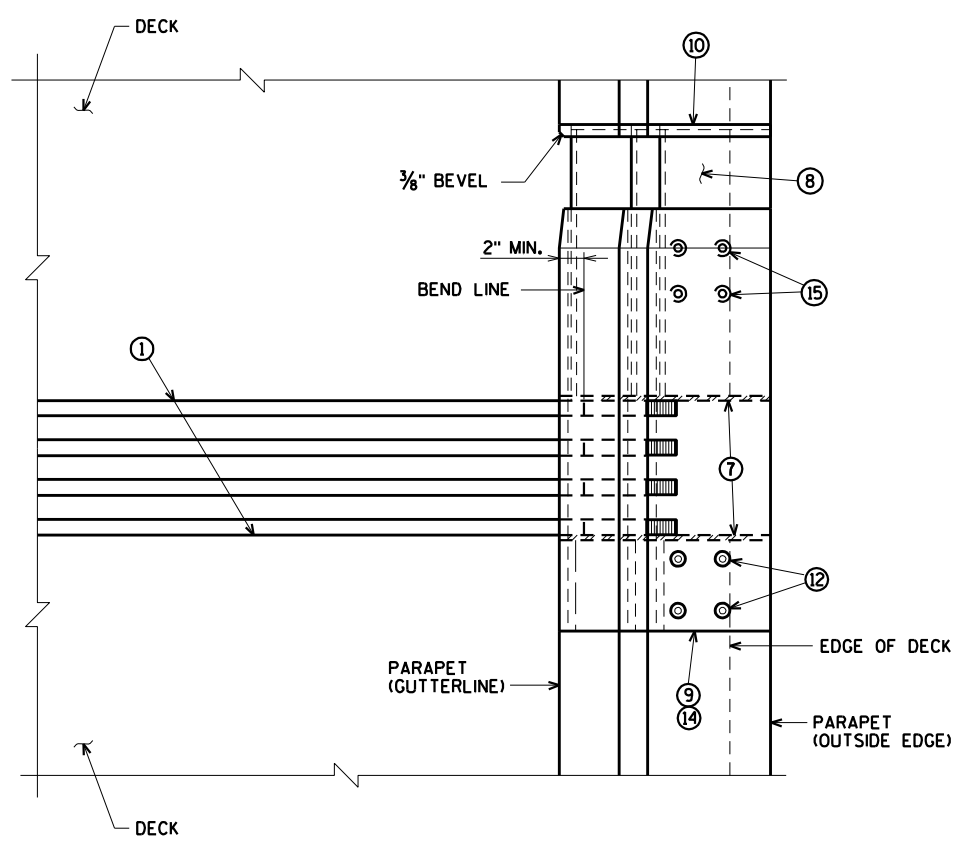
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 40



**SECTION H**



**ELEVATION OF OUTSIDE PARAPET**  
(SOUTH PARAPET SHOWN, OTHER SIDE SIMILAR)



**PLAN OF OUTSIDE PARAPET**  
(SOUTH PARAPET SHOWN, OTHER SIDE SIMILAR)

ecbdf.plt  
42-0825 EXPJT 6 .dgn

8

8

WORK THIS SHEET WITH SHEETS 40 & 42

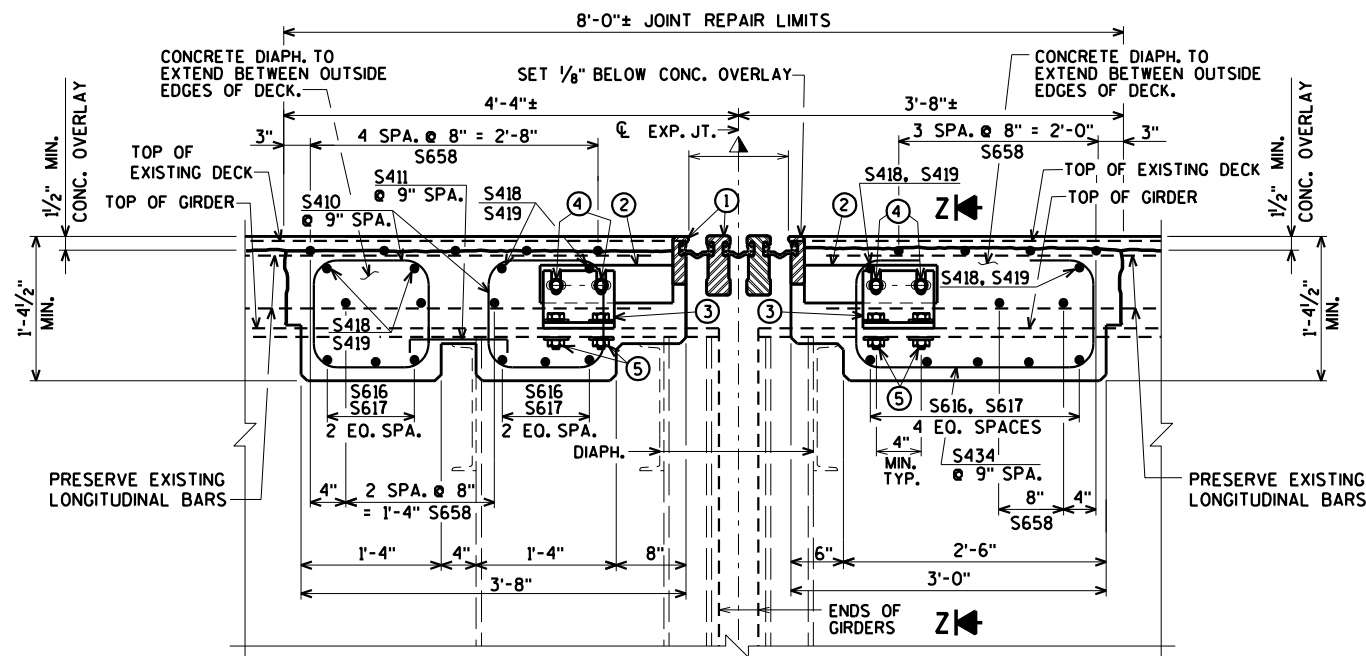
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>EXPANSION JOINT 6 DETAILS OUTSIDE PARAPET</b>			SHEET 41 OF 99

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Equi Claire, WI 54701  
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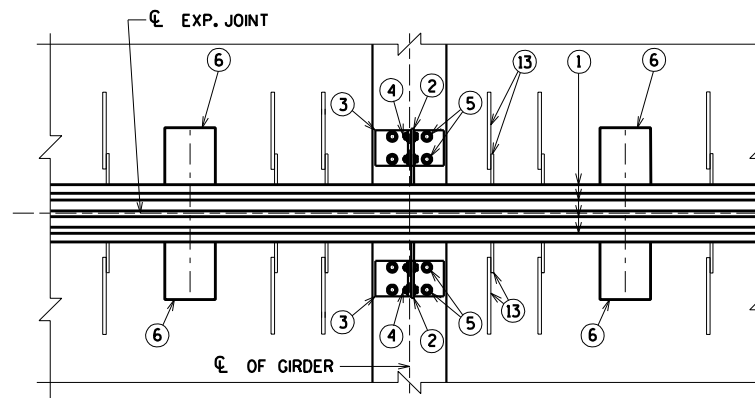
**LEGEND**

- 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"  $\phi$  HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
- ⑤ 3/4"  $\phi$  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 1/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.
- ⑪ 3/4"  $\phi$  x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.
- ⑫ 3/4"  $\phi$  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 3/8"  $\phi$  LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
- ⑭ INSIDE PLATE. FABRICATE FROM 3/8" 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.



**SECTION THRU JOINT 6**  
NORMAL TO  $\phi$  OF JOINT



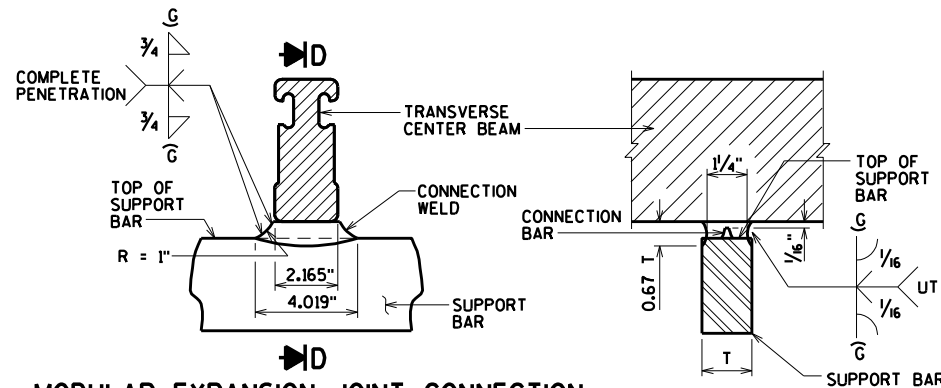
**PART PLAN**

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.

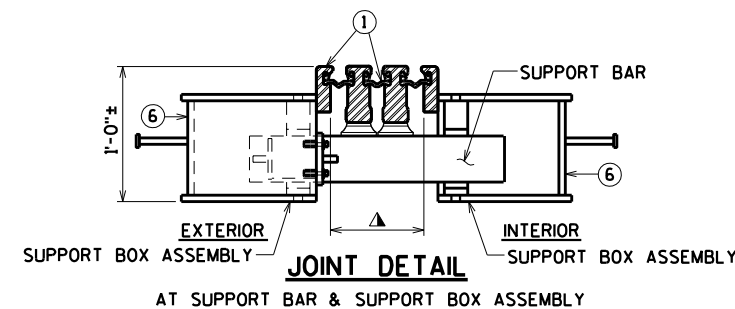
**GENERAL NOTES**

- ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED 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 RESPAVED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.



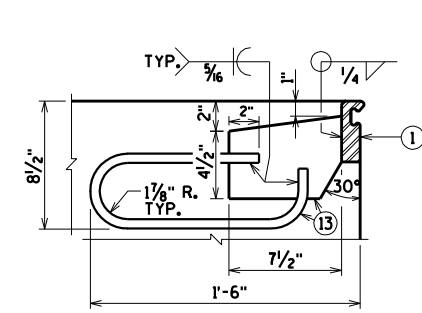
**MODULAR EXPANSION JOINT CONNECTION**  
DETAIL AND WELD SPECIFICATION

**SECTION D**



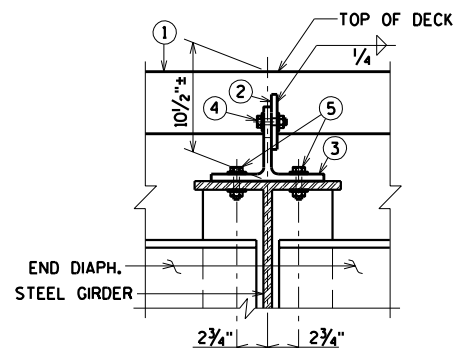
**JOINT DETAIL**

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



**ANCHORAGE DETAIL**

PLACE ADJACENT TO SUPPORT BOXES IN DECK & CONC. DIAPH.



**SECTION Z-Z**

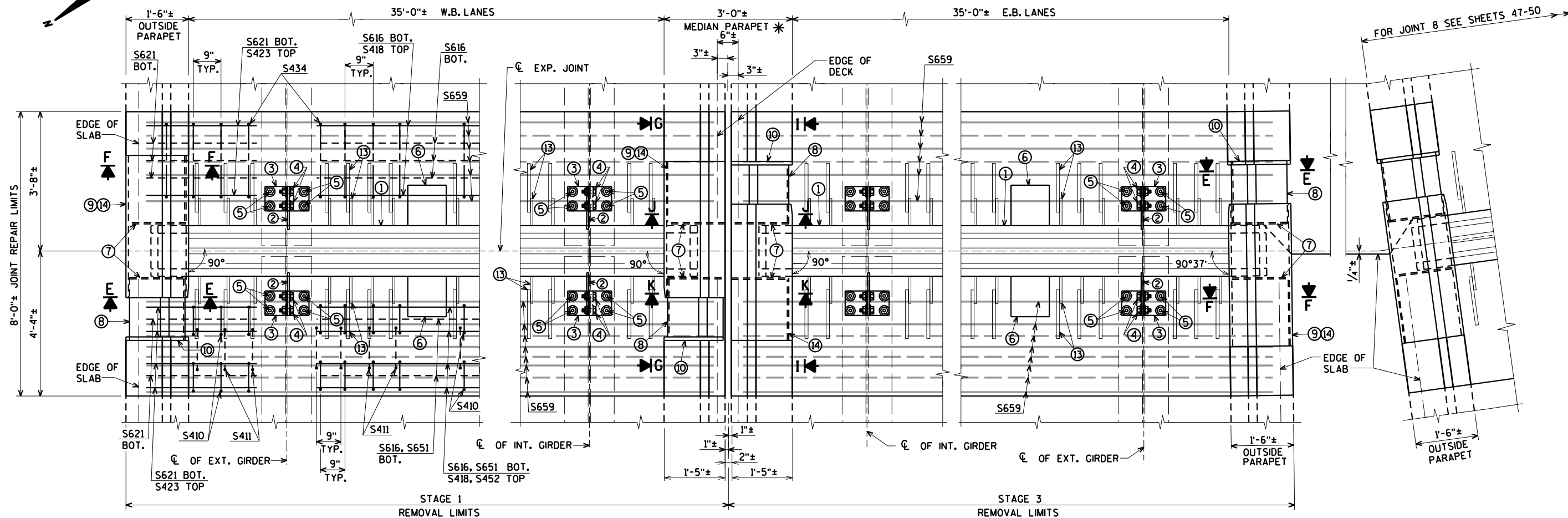
TEMP. TABLE	
TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:	
1.	1/2 IN. OF MOVEMENT PER 10° F
2.	MEDIAN TEMPERATURE OF 45° F
3.	TEMP. RANGE IN TABLE FROM (-5°F) TO (+95°F).
A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED 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

ORIGINAL PLANS PREPARED BY  
**AVRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
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ecp04f.plt 42-0825 EXPJT 6 .dgn



**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".

ecp04f.plt 42-0825 EXPJT 7.dgn

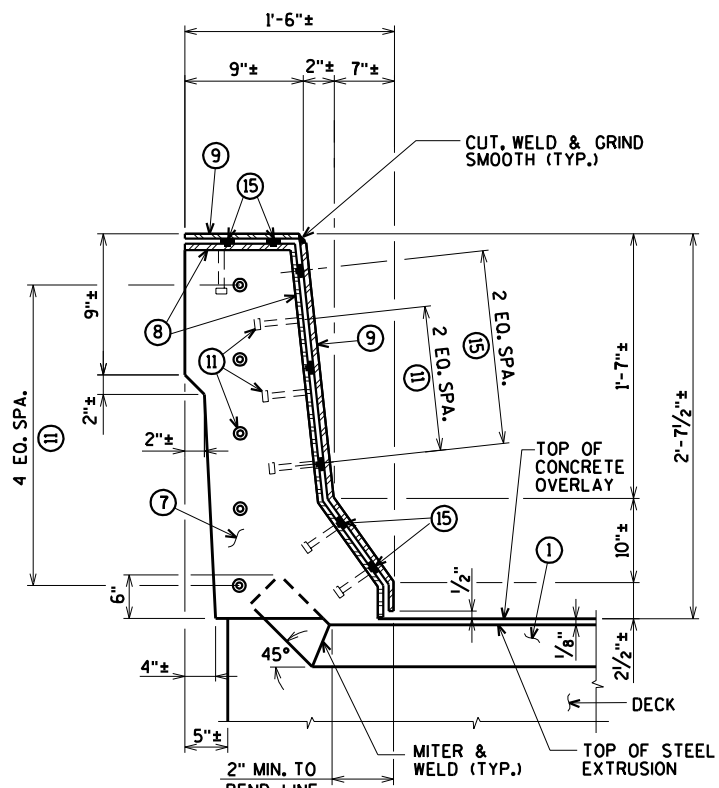
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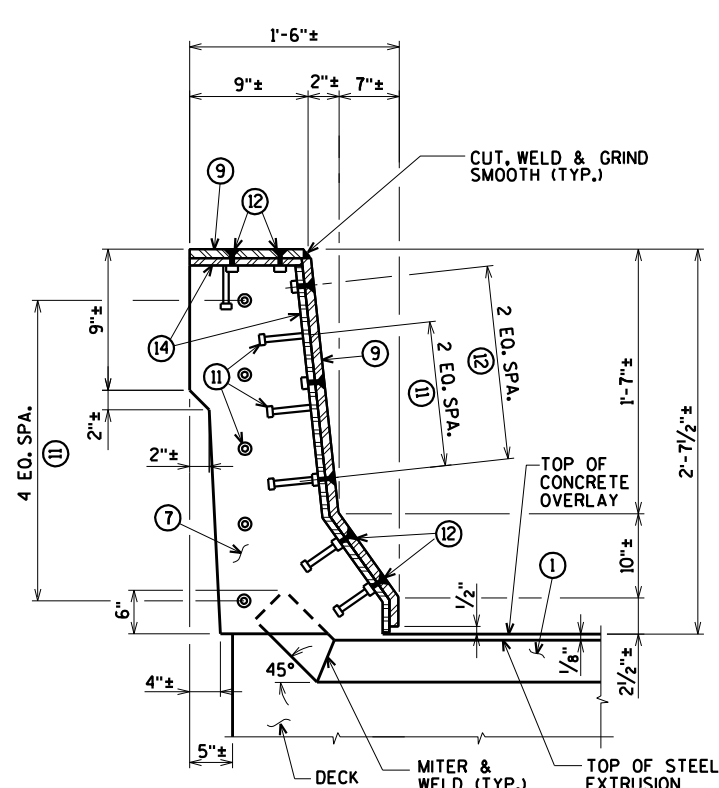
WORK THIS SHEET WITH SHEETS 44-46

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MODULAR EXPANSION JOINT 7 DETAILS</b>			SHEET 43 OF 99

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

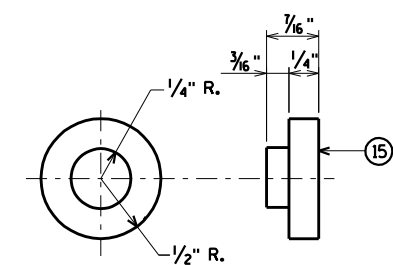


**SECTION E**



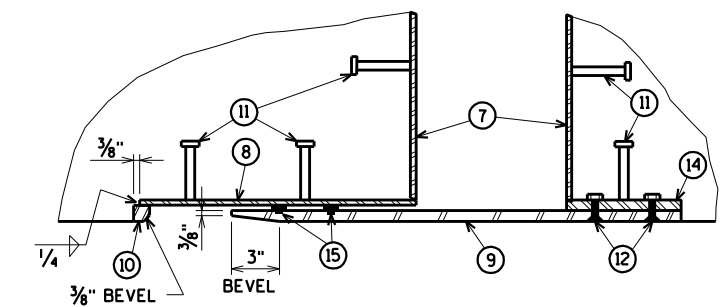
**SECTION F**

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".

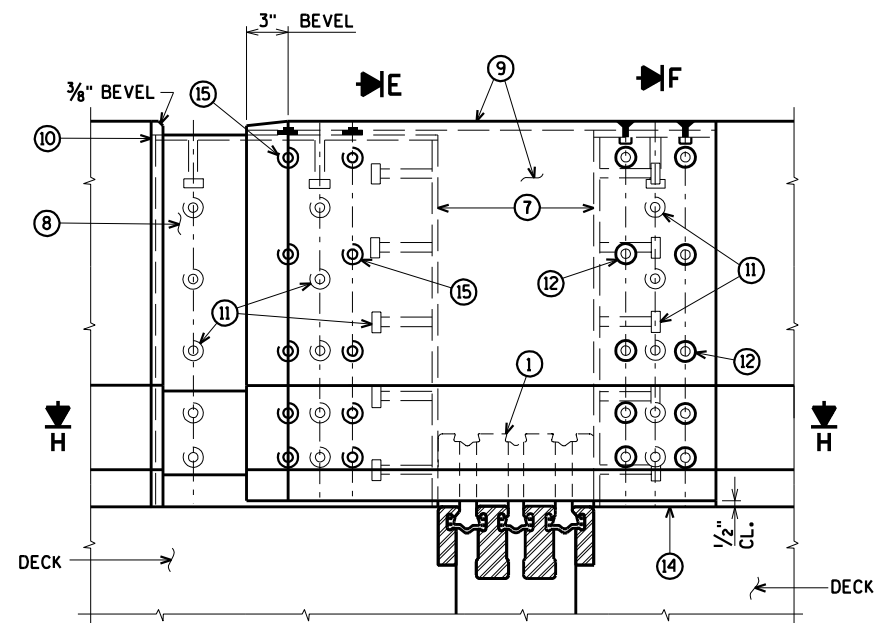


**ADIPRENE BUTTON DETAIL**

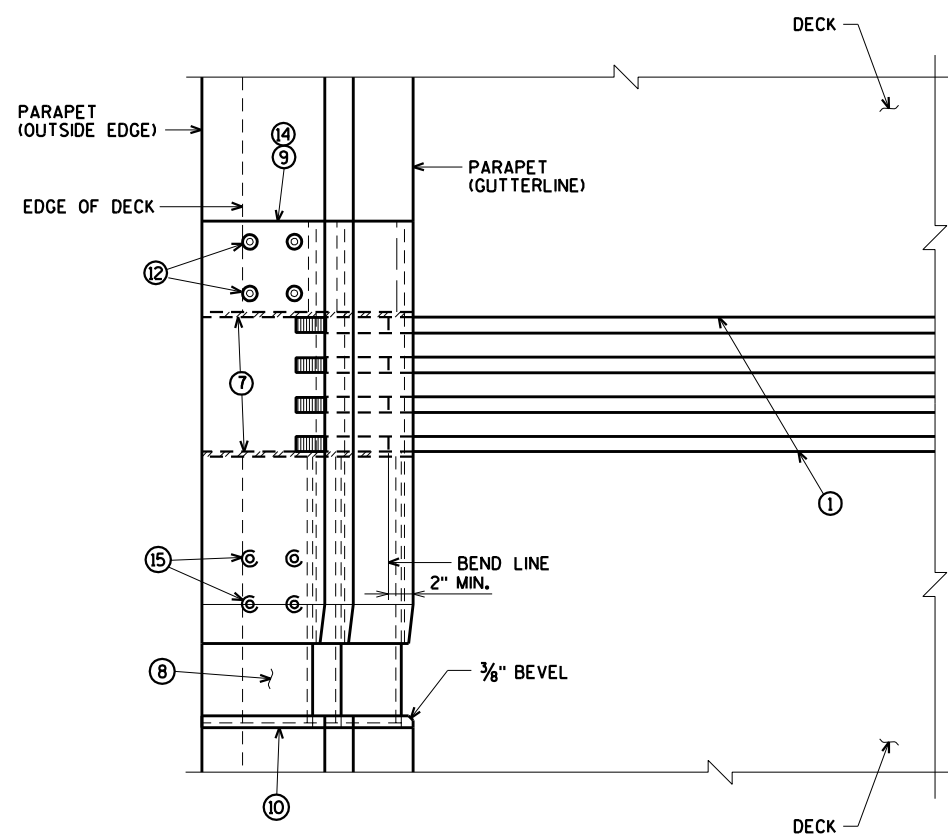
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 43



**SECTION H**



**ELEVATION OF OUTSIDE PARAPET**



**PLAN OF OUTSIDE PARAPET**

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42-0825 EXPJT 7.dgn

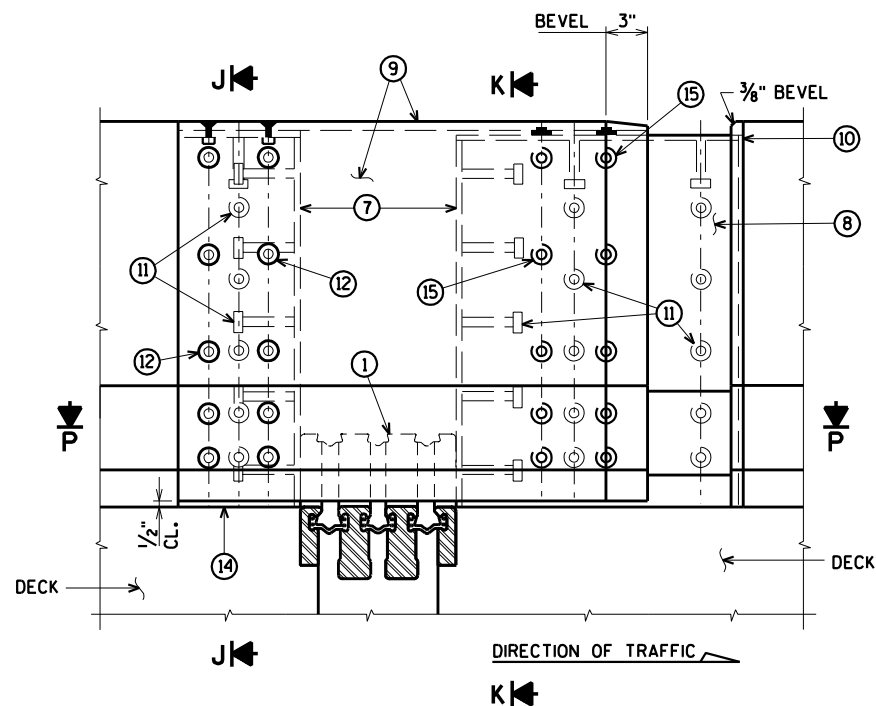
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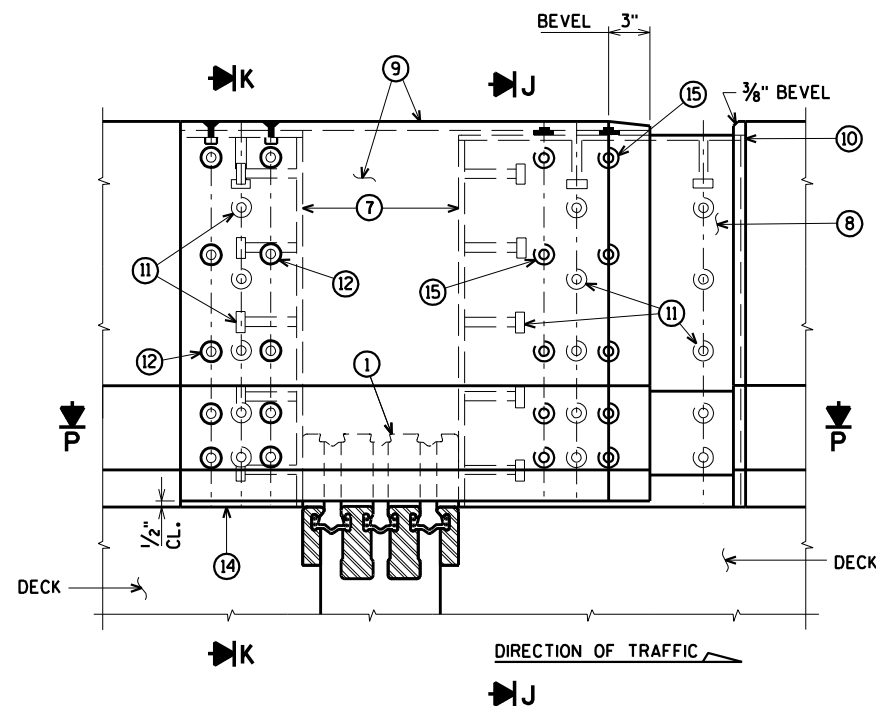
WORK THIS SHEET WITH SHEETS 43, 45-46

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>EXPANSION JOINT 7 DETAILS OUTSIDE PARAPET</b>			SHEET 44 OF 99

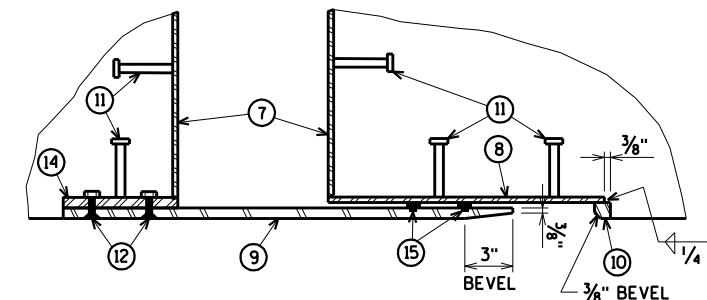
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com



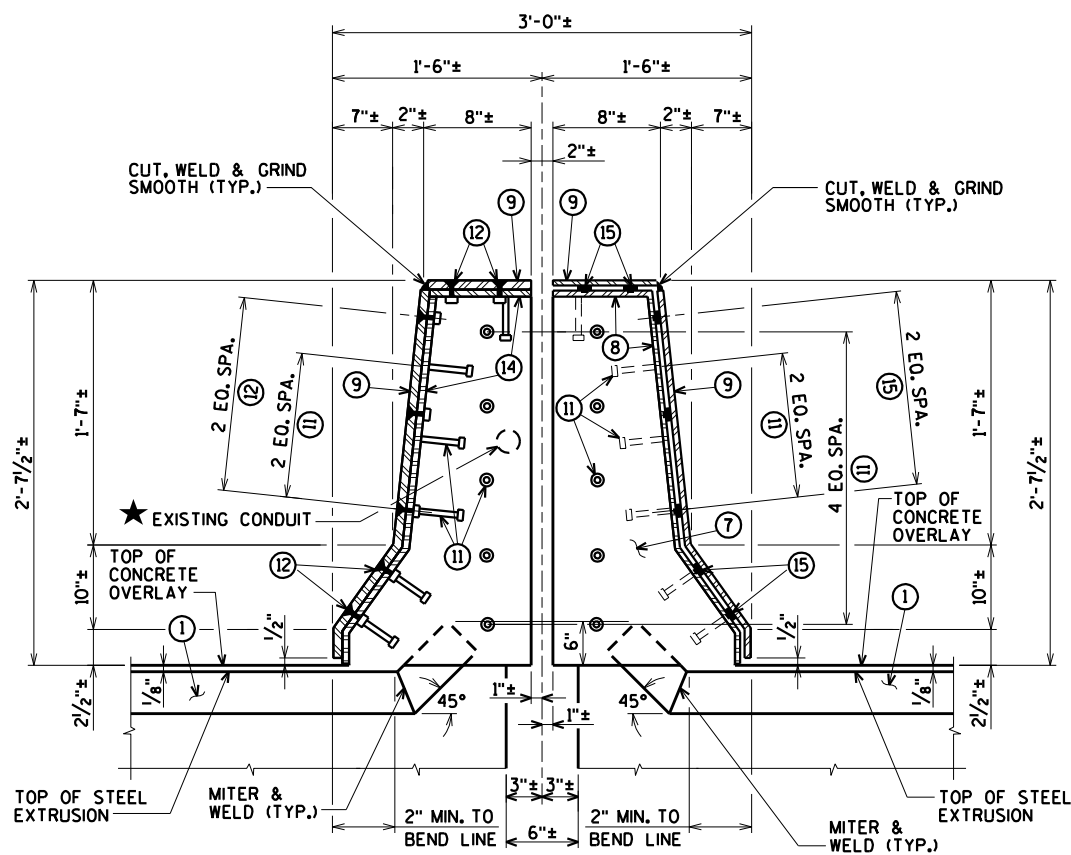
ELEVATION OF MEDIAN PARAPET SECTION G



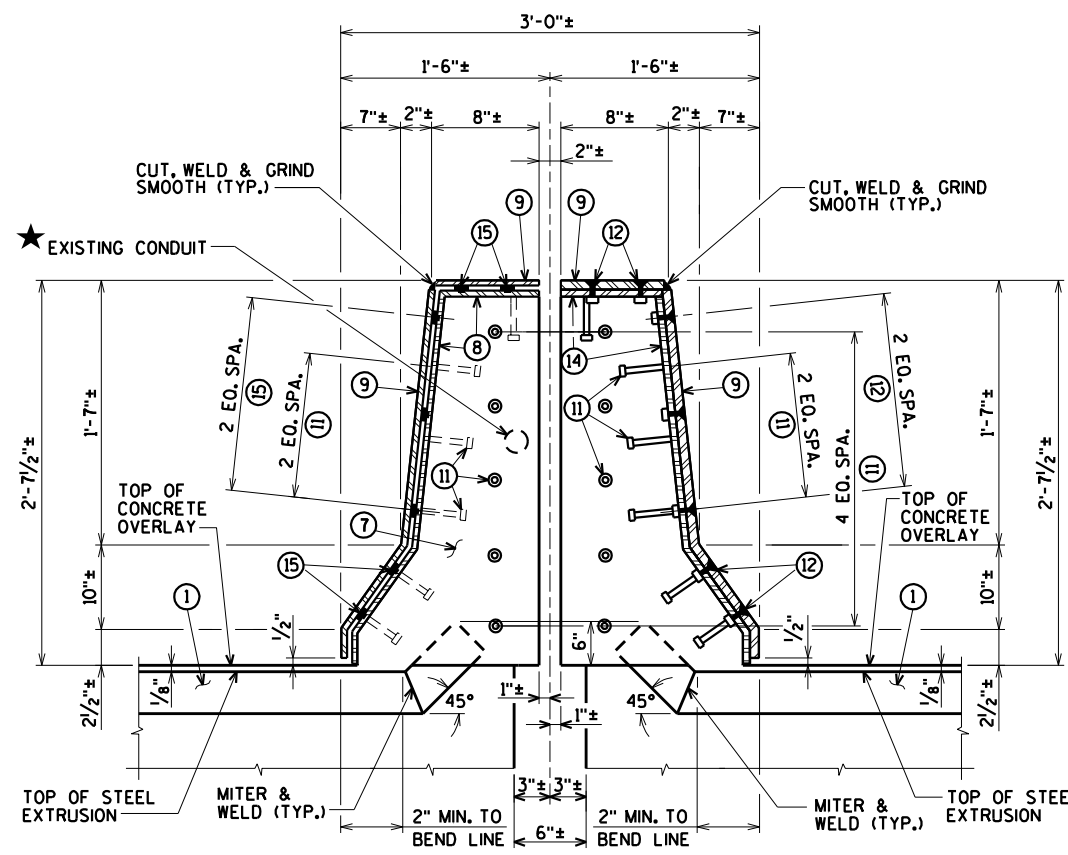
ELEVATION OF MEDIAN PARAPET SECTION I



SECTION P



SECTION J



SECTION K

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K' SEE SHEET 43

★ 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			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>EXPANSION JOINT 7 DETAILS MEDIAN PARAPET</b>			SHEET 45 OF 99

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
 3433 Oakwood Hills Parkway  
 Eau Claire, WI 54701  
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42-0825 EXPJT 7.dgn

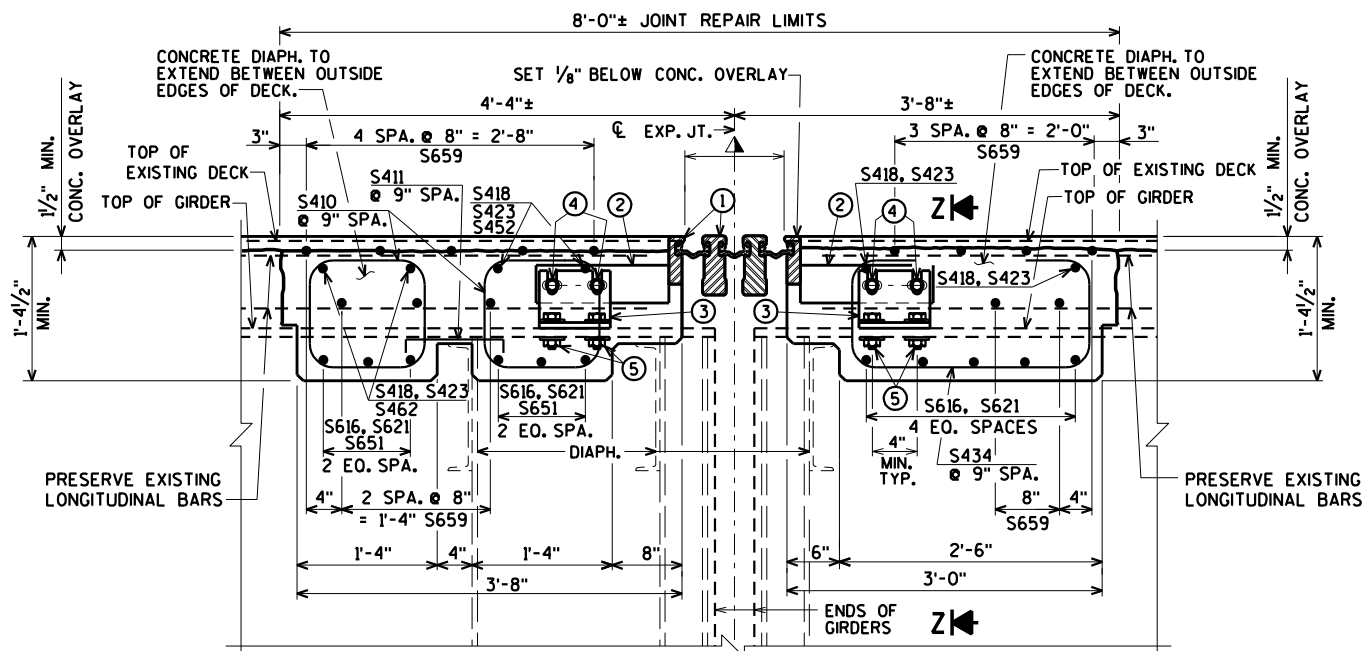
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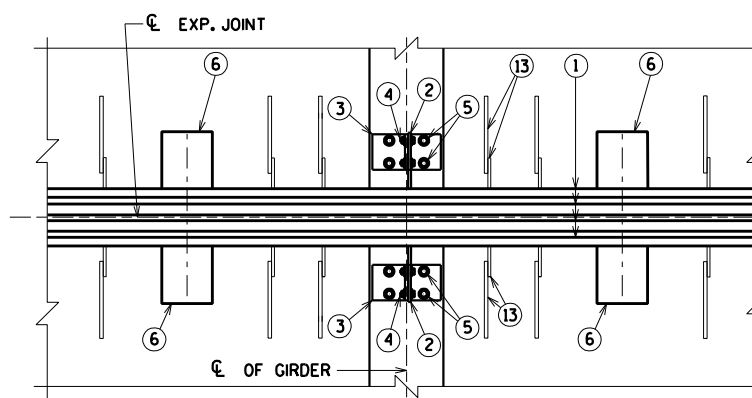
**LEGEND**

- 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"  $\phi$  HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
- ⑤ 3/4"  $\phi$  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 1/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.
- ⑪ 3/4"  $\phi$  x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.
- ⑫ 3/4"  $\phi$  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 3/8"  $\phi$  LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
- ⑭ INSIDE PLATE. FABRICATE FROM 3/8" 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.



**SECTION THRU JOINT 7**  
NORMAL TO CL OF JOINT



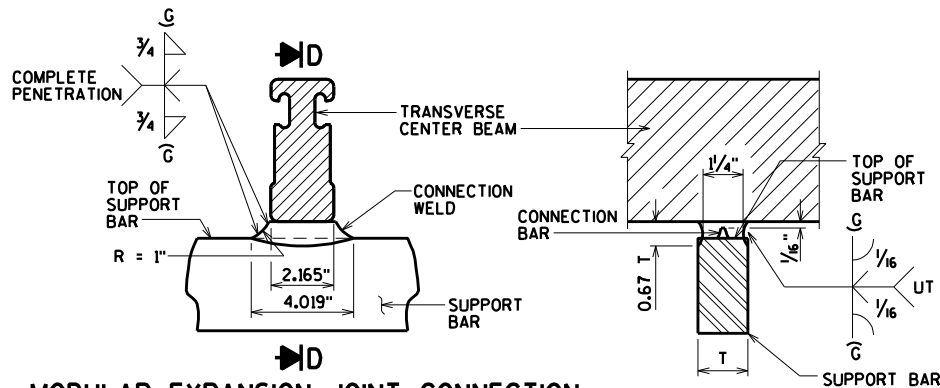
**PART PLAN**

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.

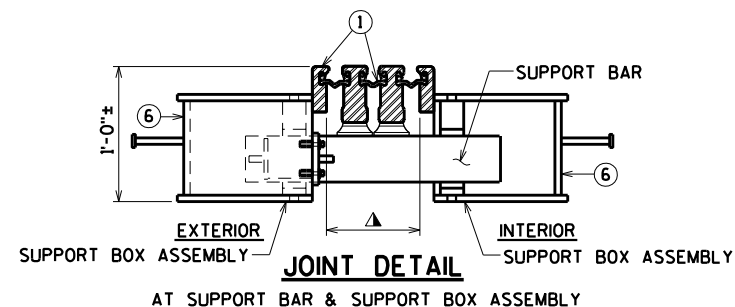
**GENERAL NOTES**

- ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED 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 RESPAVED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.



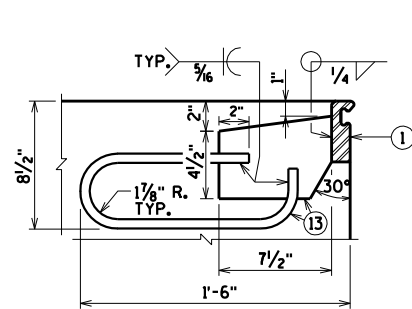
**MODULAR EXPANSION JOINT CONNECTION**  
DETAIL AND WELD SPECIFICATION

**SECTION D**



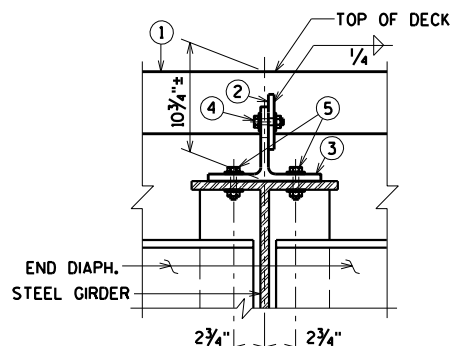
**JOINT DETAIL**

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



**ANCHORAGE DETAIL**

PLACE ADJACENT TO SUPPORT BOXES IN DECK & CONC. DIAPH.



**SECTION Z-Z**

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.	

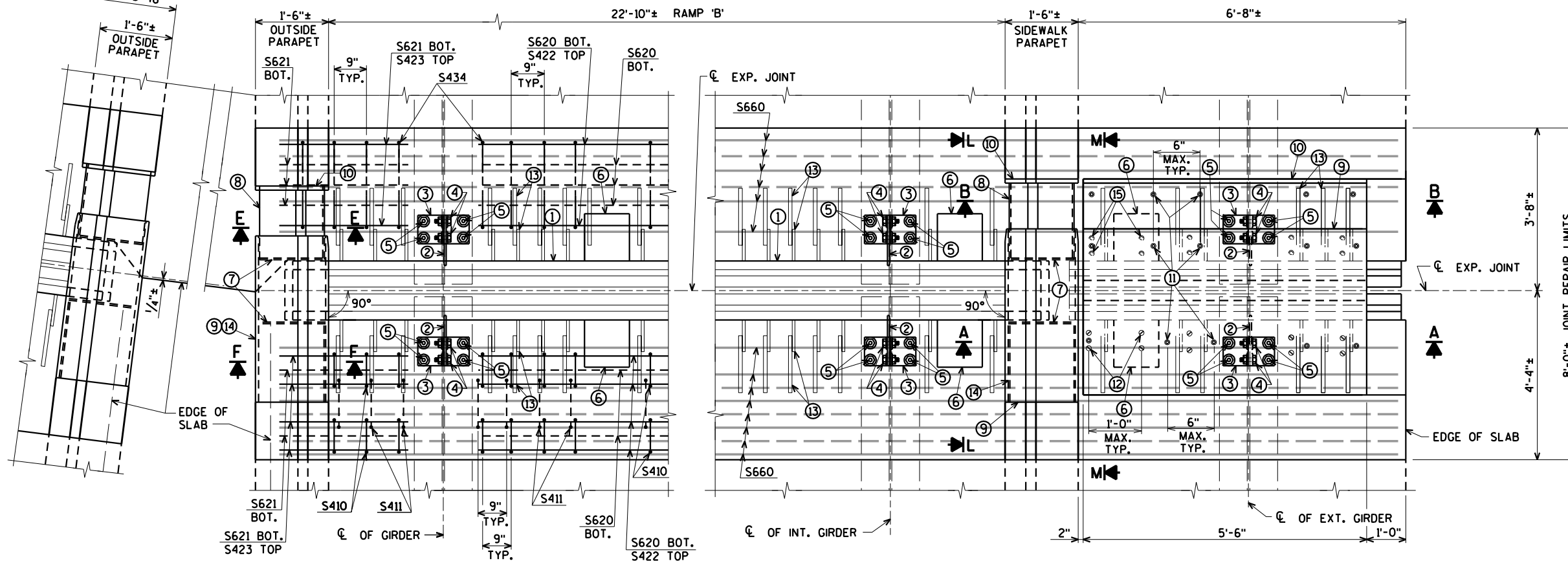
WORK THIS SHEET WITH SHEETS 43-45

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MODULAR EXPANSION JOINT 7 DETAILS</b>			SHEET 46 OF 99

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



FOR JOINT 7 SEE SHEETS 43-46

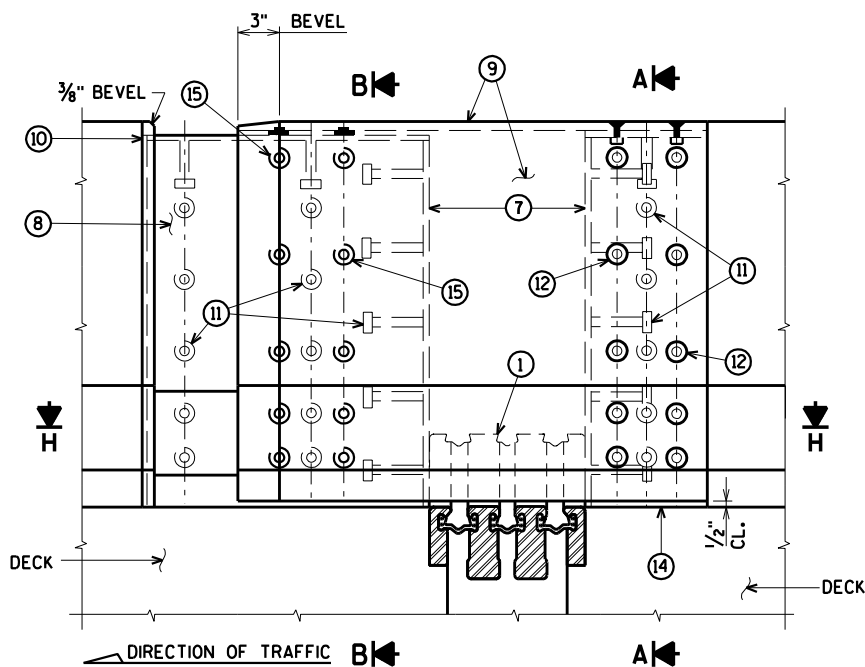


**PART PLAN AT JOINT 8**  
(STAGE 3)

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".

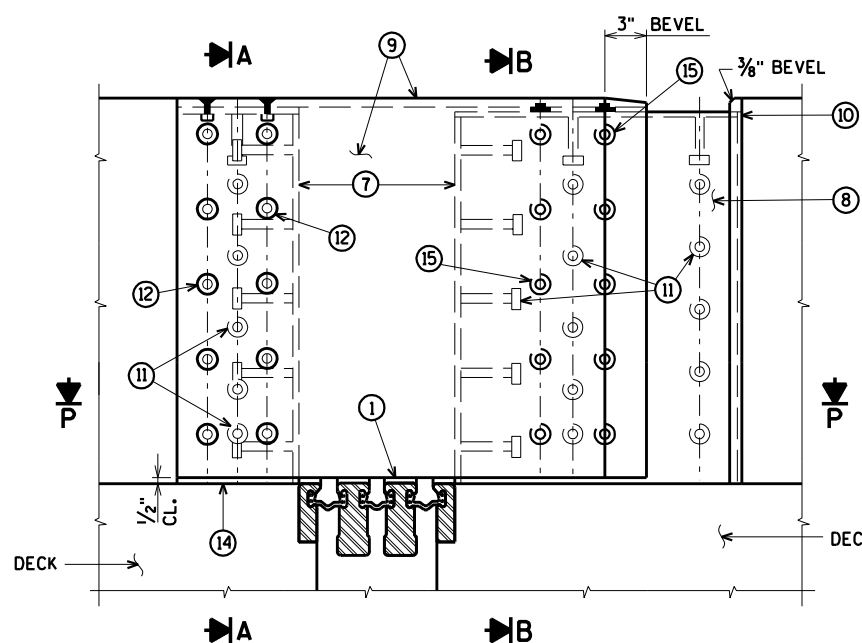
FOR SECTIONS 'A' AND 'B'  
SEE SHEET 49

FOR SECTIONS 'E' AND 'F'  
SEE SHEET 48

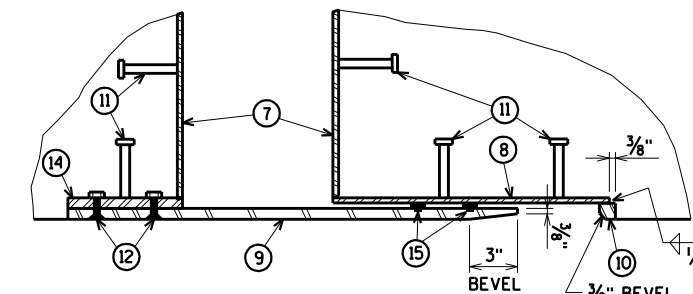


**ELEVATION OF SIDEWALK PARAPET**  
**SECTION L**

FOR SECTION 'H'  
SEE SHEET 48



**ELEVATION OF SIDEWALK PARAPET**  
**SECTION M**

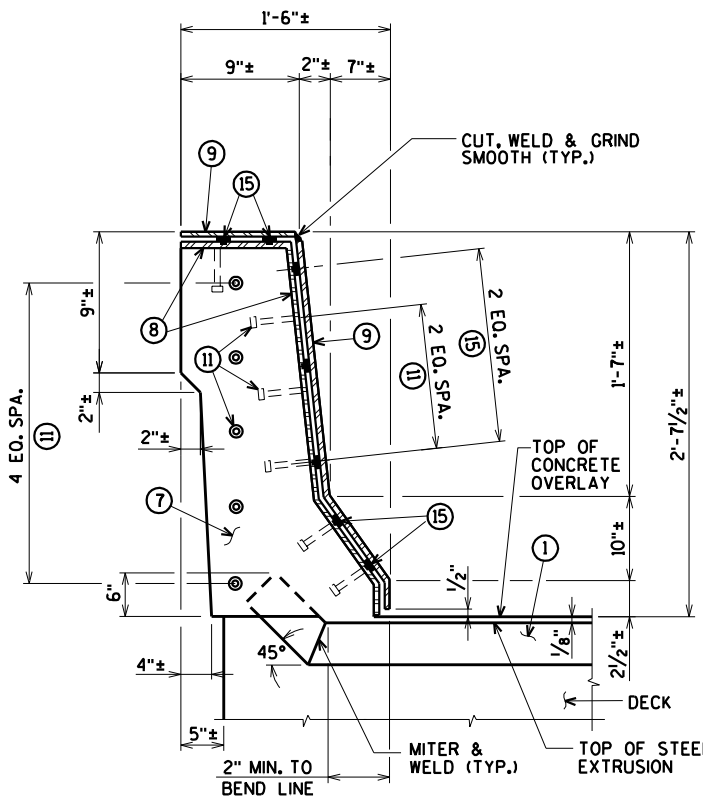


**SECTION P**

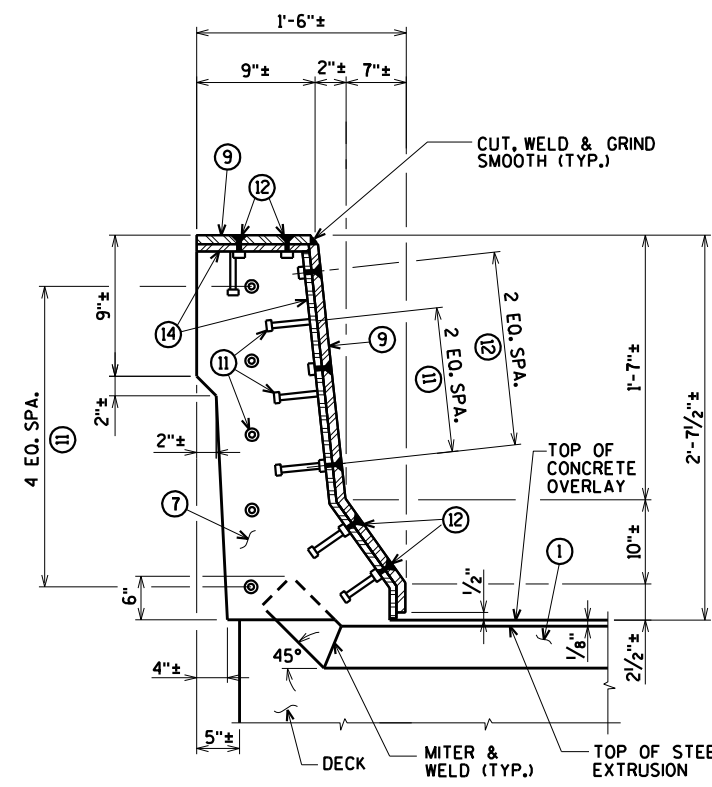
WORK THIS SHEET WITH SHEETS 48-50

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>MODULAR EXPANSION JOINT 8 DETAILS</b>			SHEET 47 OF 99

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

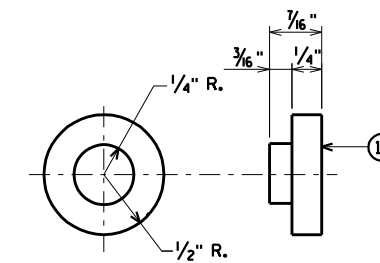


SECTION E



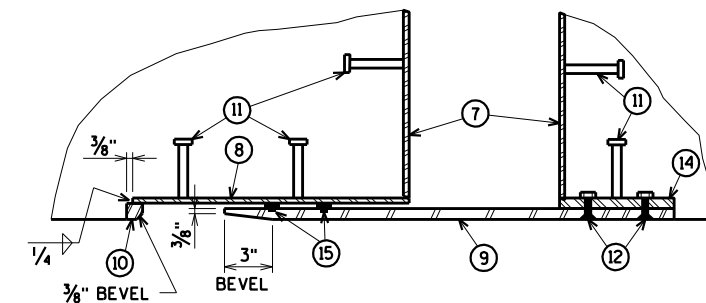
SECTION F

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".

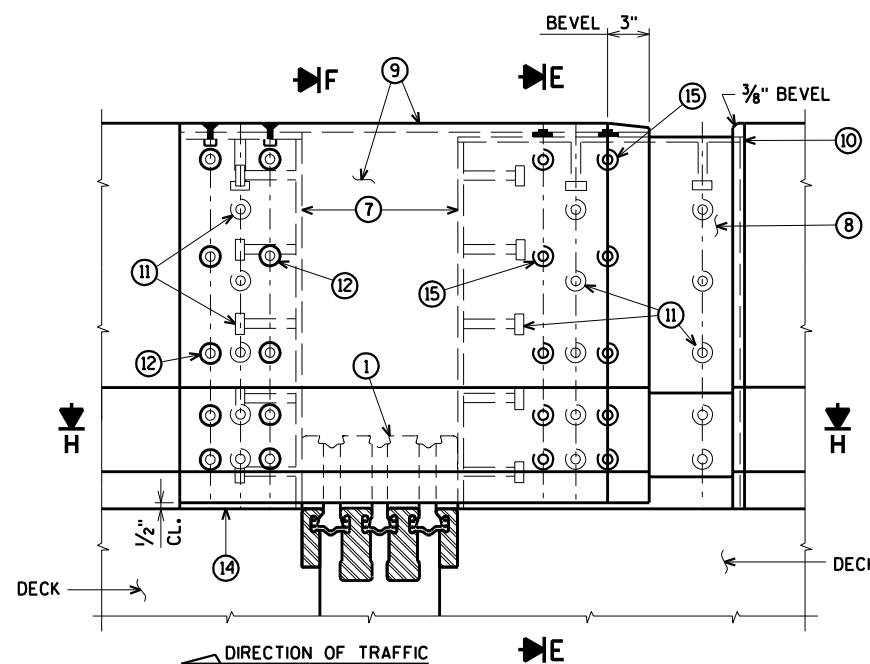


ADIPRENE BUTTON DETAIL

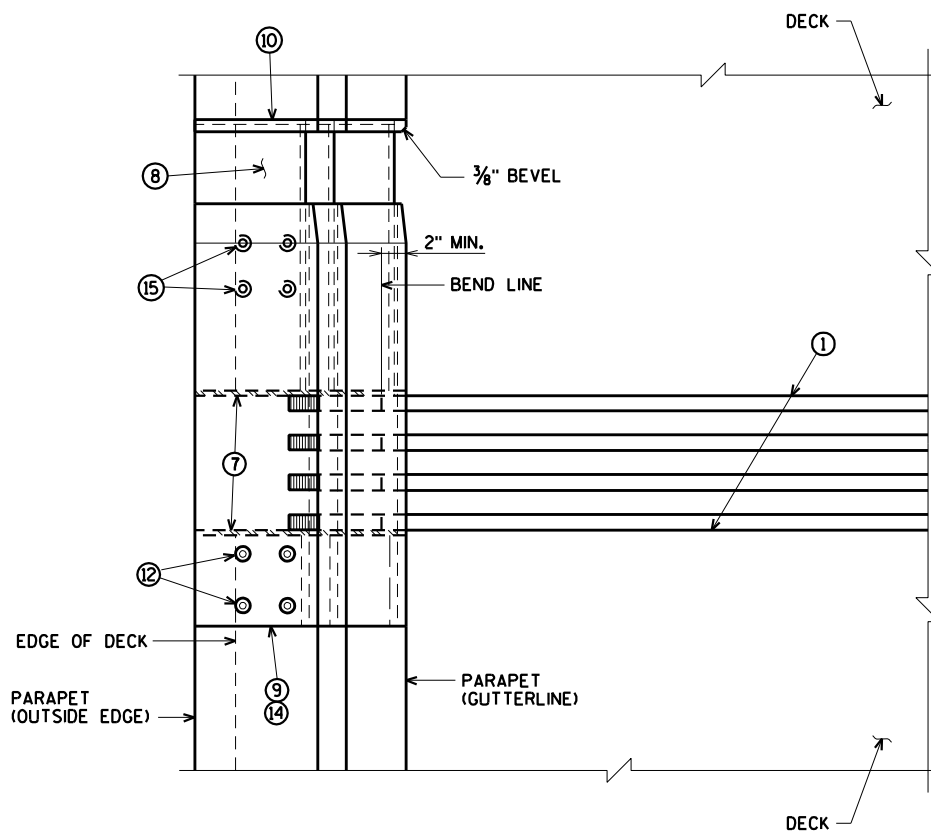
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 47



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

ecbdf.plt 42-0825 EXPJT 8 .dgn

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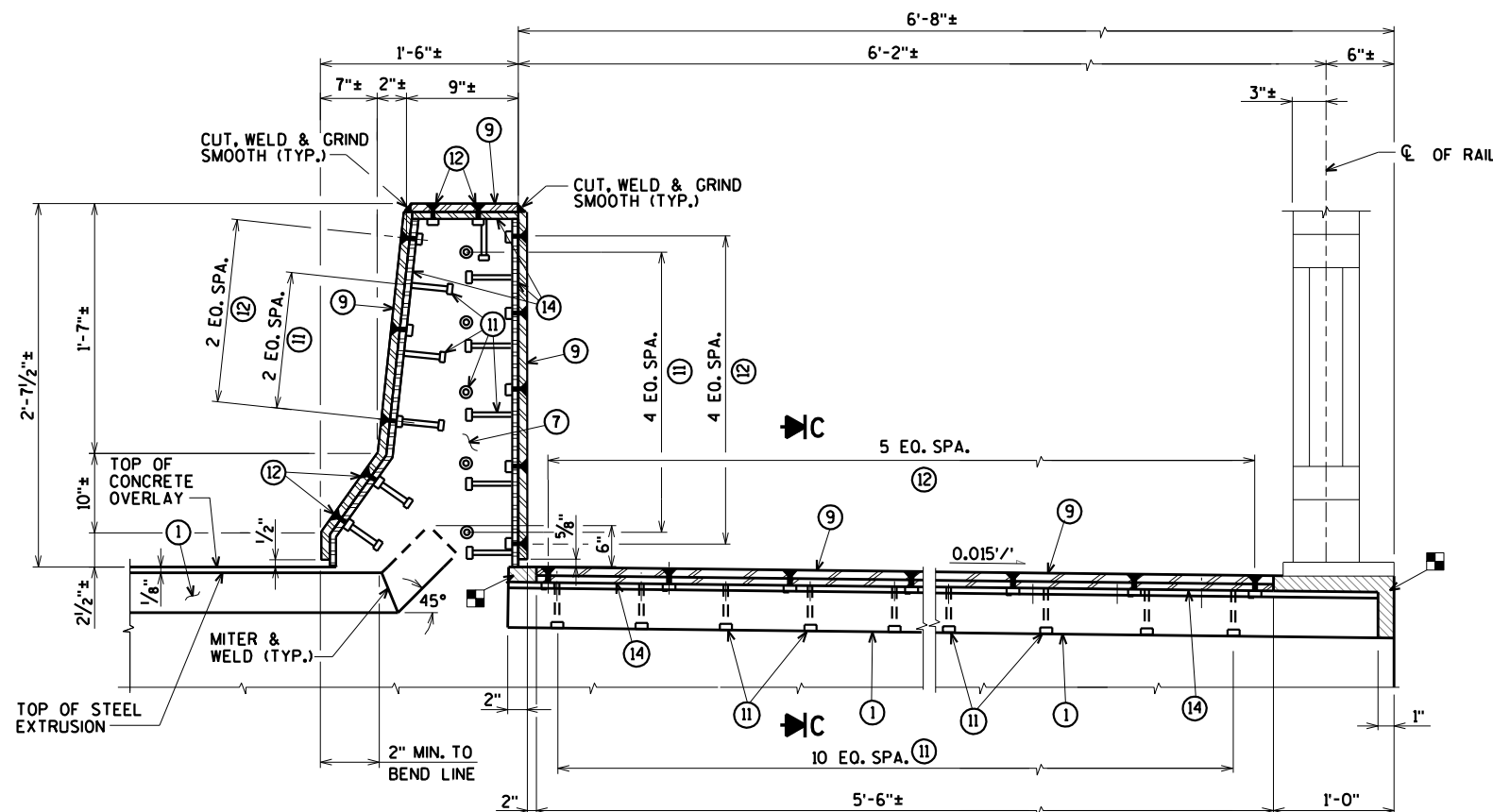
WORK THIS SHEET WITH SHEETS 47, 49-50

NO.	DATE	REVISION	BY

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-38/69100			
DRAWN BY	CLS	PLANS CK'D.	CBM
EXPANSION JOINT 8 DETAILS OUTSIDE PARAPET			SHEET 48 OF 99

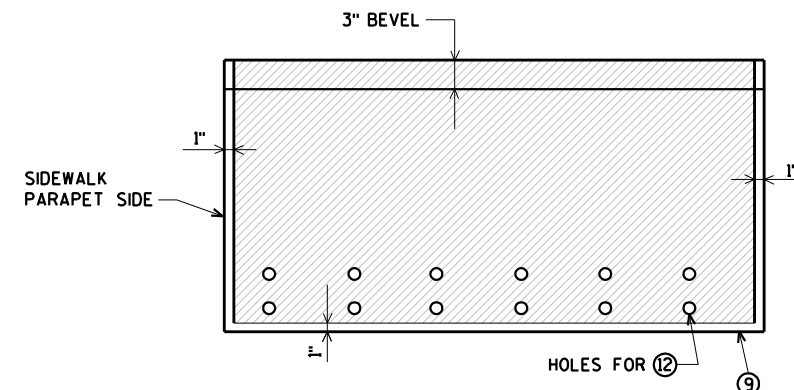
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

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 W/PARAPET  
SECTION A**

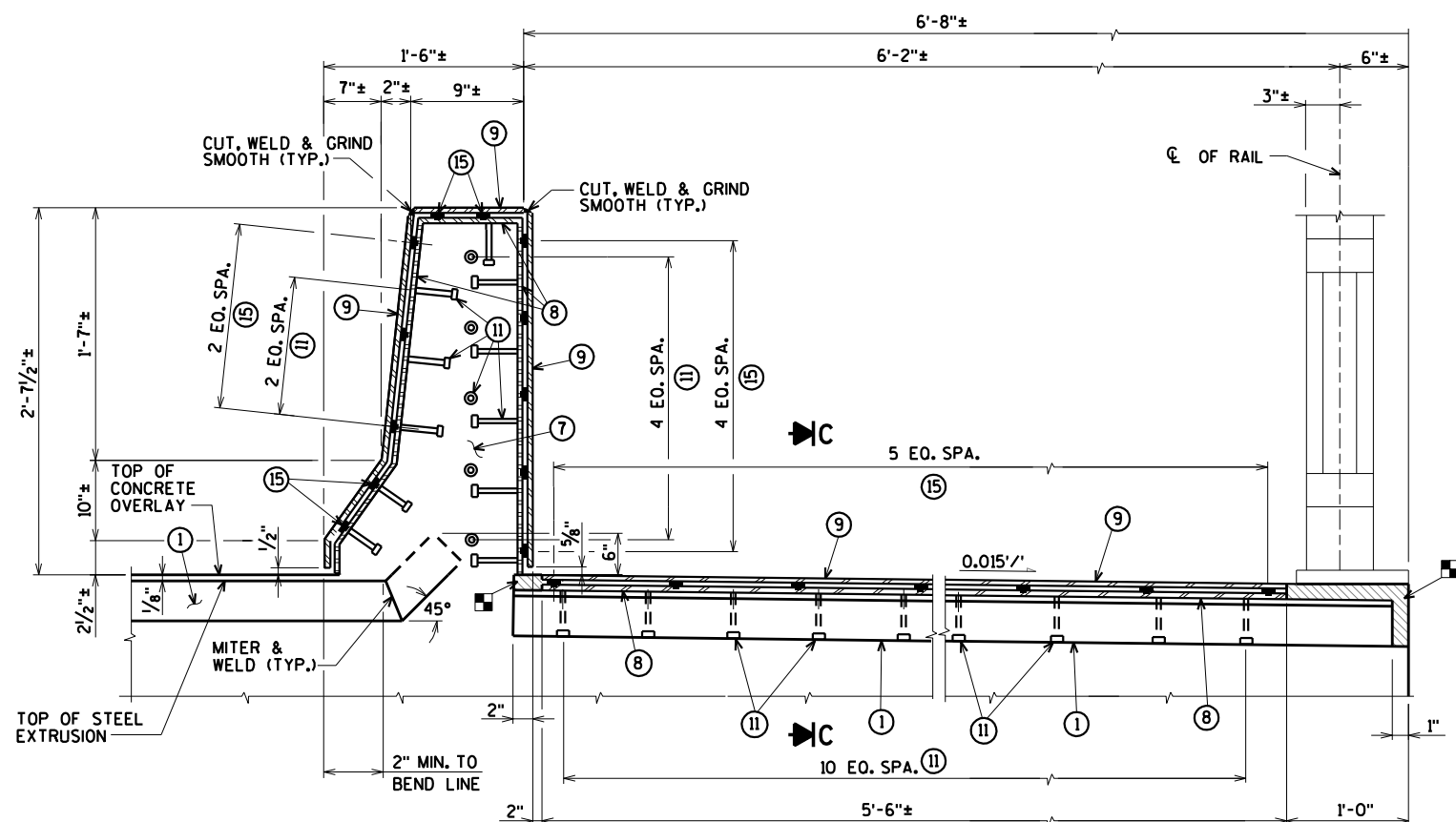
FOR LOCATIONS OF SECTIONS 'A' AND 'B'  
SEE SHEET 47



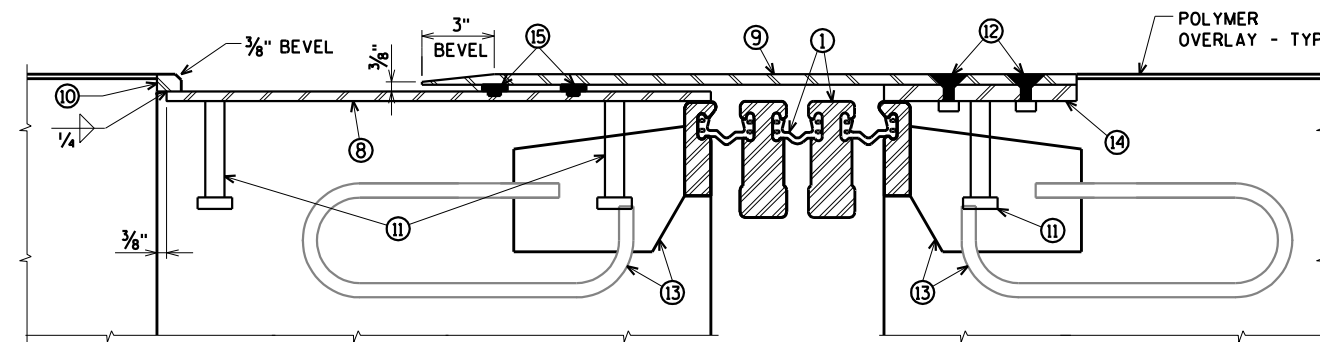
**PLAN OF SIDEWALK COVER PLATE  
WITH SLIP-RESISTANT SURFACE**

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.

WORK THIS SHEET WITH SHEETS 47-48, 50

NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

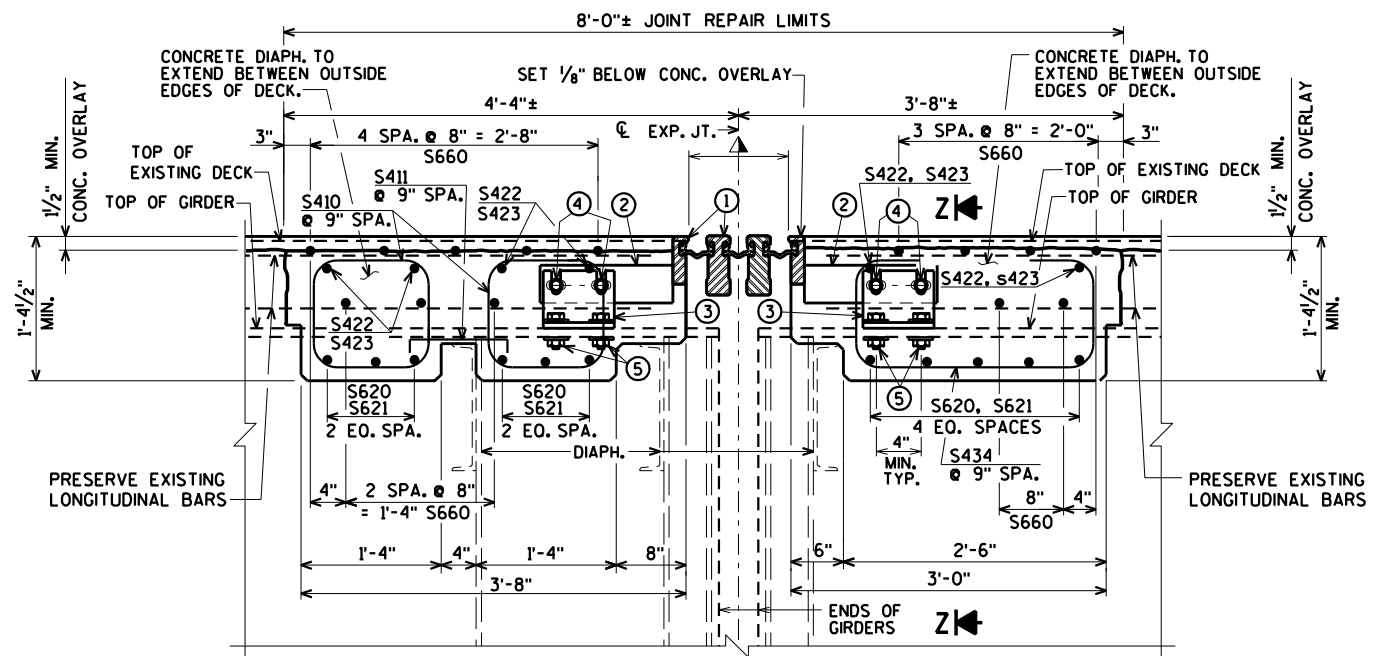
**STRUCTURE B-16-38/69100**

DRAWN BY CLS PLANS CK'D. CBM

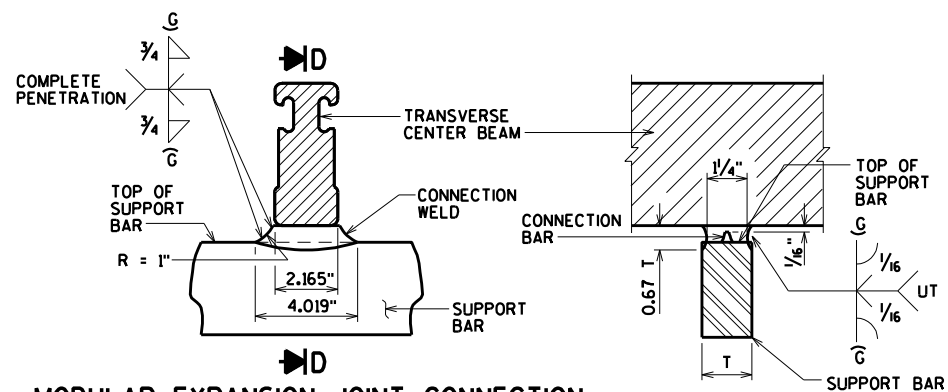
**EXPANSION  
JOINT 8 DETAILS  
SIDEWALK & PARAPET**

SHEET 49 OF 99

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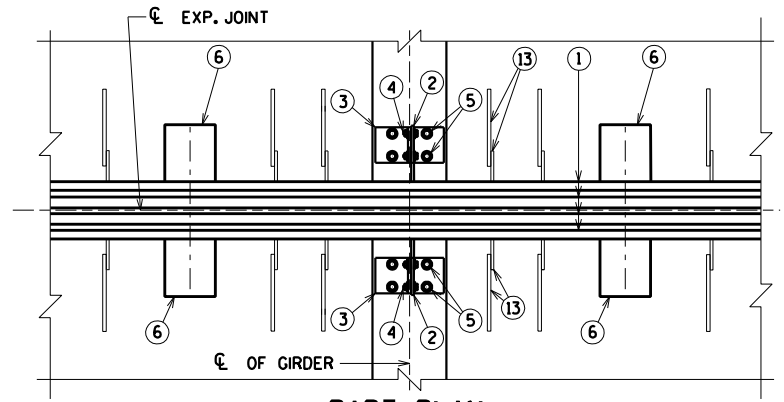


**SECTION THRU JOINT 8**  
NORMAL TO  $\phi$  OF JOINT



**MODULAR EXPANSION JOINT CONNECTION**  
**DETAIL AND WELD SPECIFICATION**

**SECTION D**



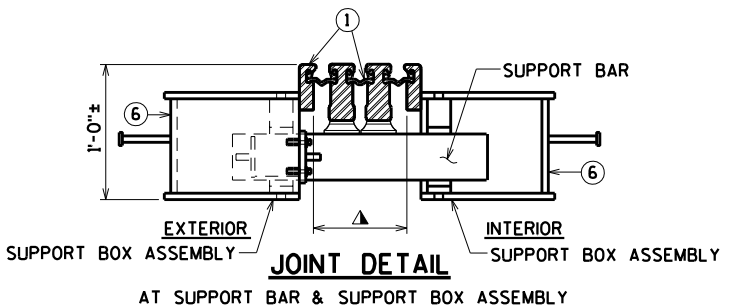
**PART PLAN**

**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.

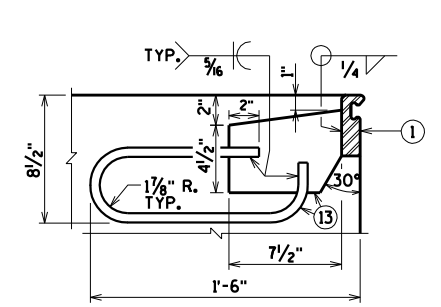
**GENERAL NOTES**

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED 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 RESPALED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.



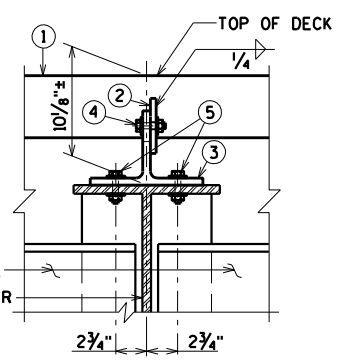
**JOINT DETAIL**

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



**ANCHORAGE DETAIL**

PLACE ADJACENT TO SUPPORT BOXES IN DECK & CONC. DIAPH.



**SECTION Z-Z**

- 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"  $\phi$  HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
  - ⑤ 3/4"  $\phi$  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 1/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.
  - ⑪ 3/4"  $\phi$  x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.
  - ⑫ 3/4"  $\phi$  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 3/8"  $\phi$  LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
  - ⑭ INSIDE PLATE. FABRICATE FROM 3/8" 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. 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 47-49

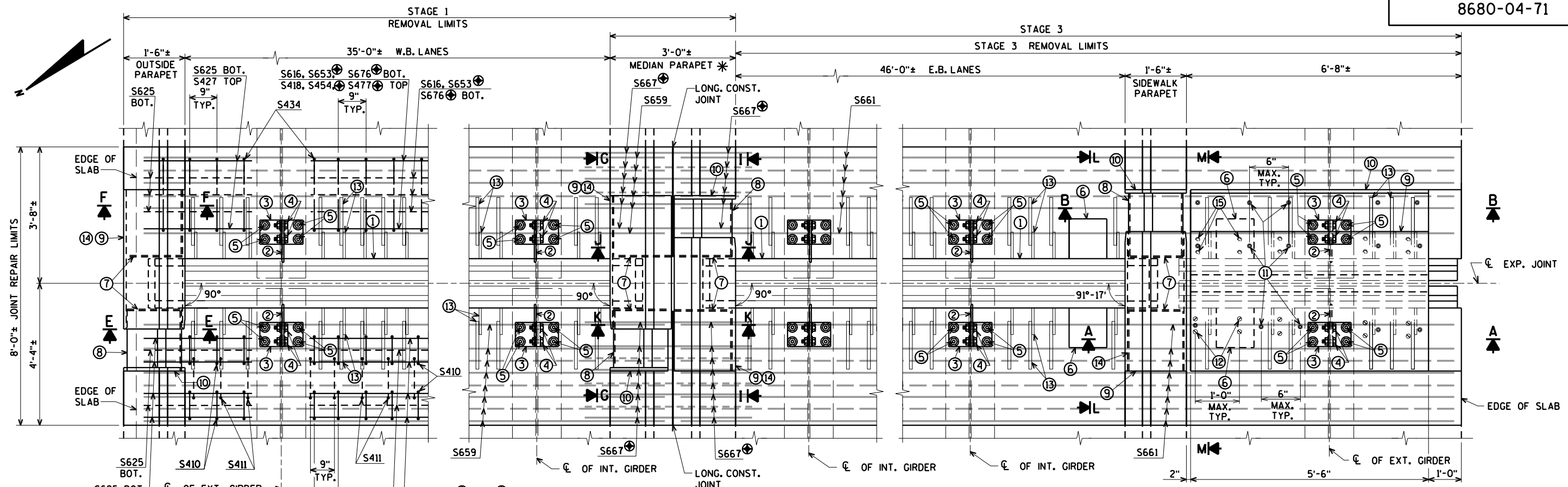
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MODULAR EXPANSION JOINT 8 DETAILS</b>			SHEET 50 OF 99

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

ecp.dcf.plt 42-0825 EXPJT 8 .dgn

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**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)

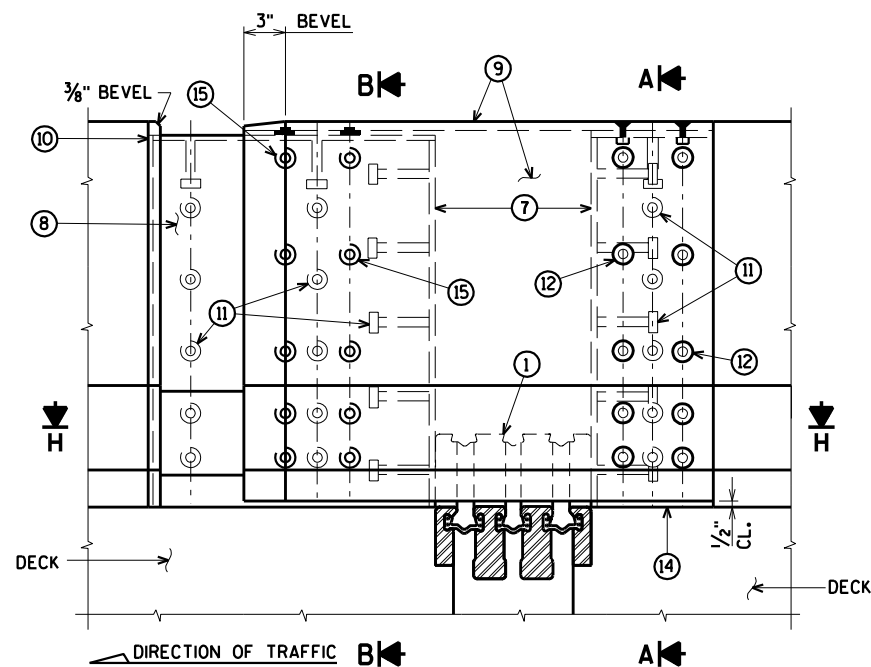
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

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

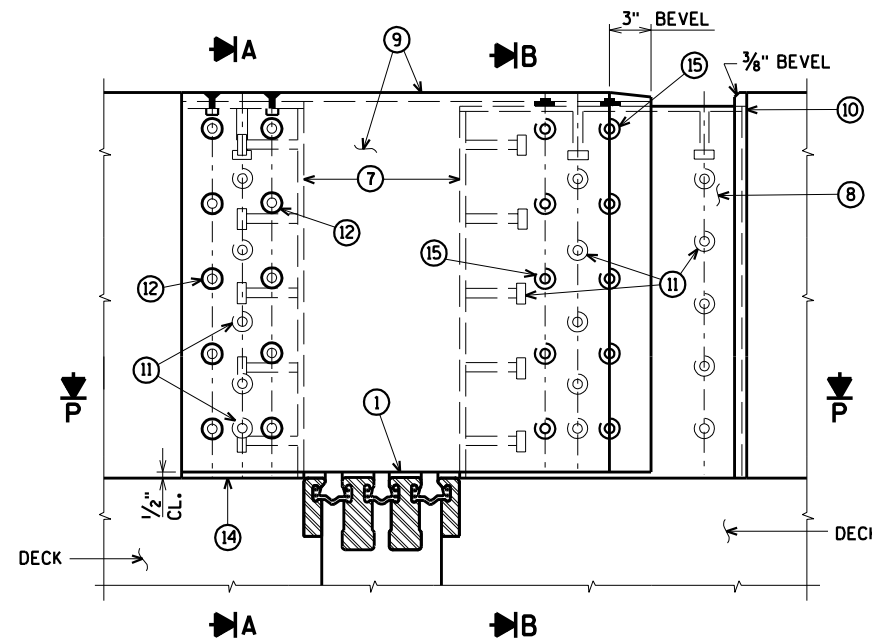
NOTE:  
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**ELEVATION OF SIDEWALK PARAPET SECTION L**

FOR SECTION 'H' SEE SHEET 52

FOR SECTION 'P' SEE SHEET 53

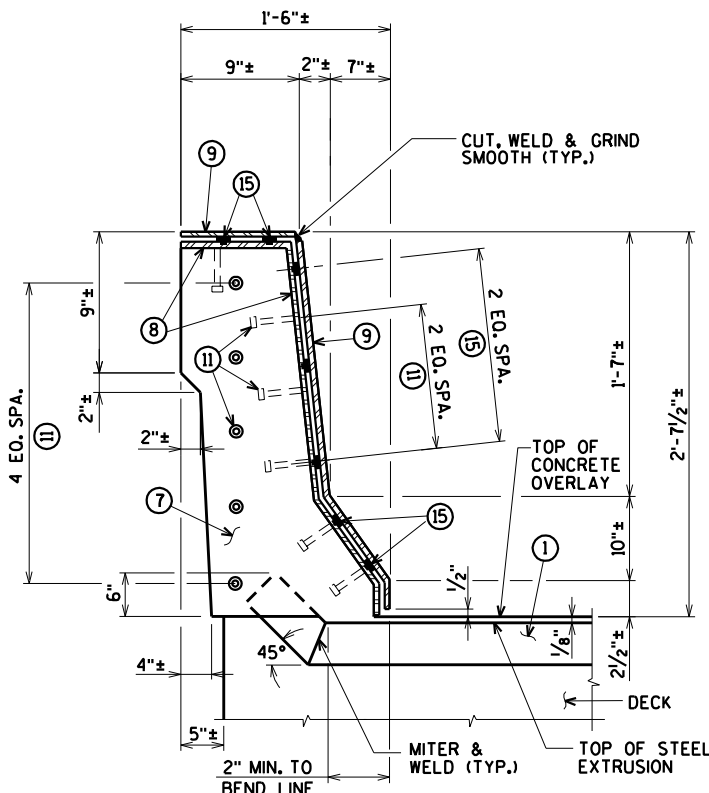


**ELEVATION OF SIDEWALK PARAPET SECTION M**

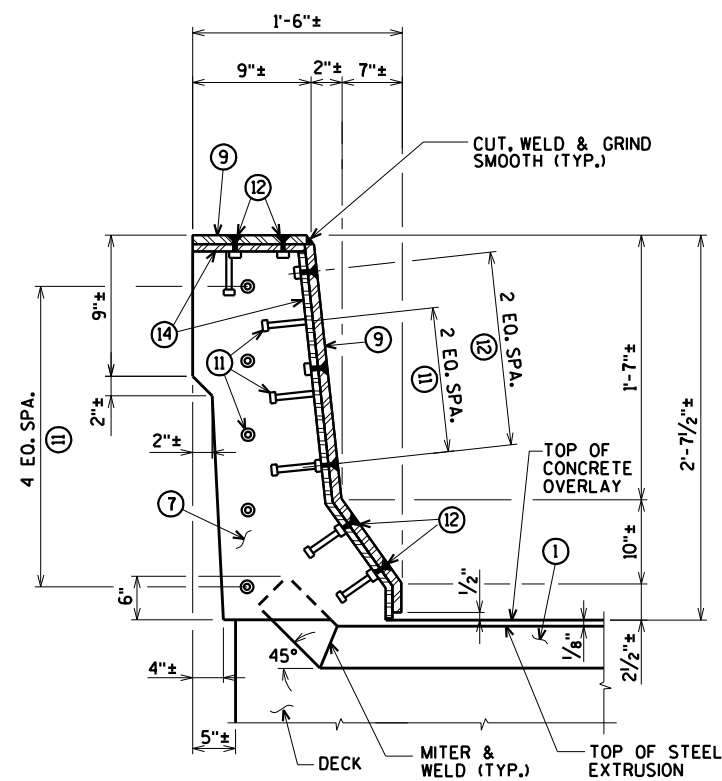
WORK THIS SHEET WITH SHEETS 52-55

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY	CLS	PLANS CK'D.	CBM
<b>MODULAR EXPANSION JOINT 9 DETAILS</b>			SHEET 51 OF 99

ORIGINAL PLANS PREPARED BY  
**AVRES ASSOCIATES**  
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Eau Claire, WI 54701  
www.AyresAssociates.com

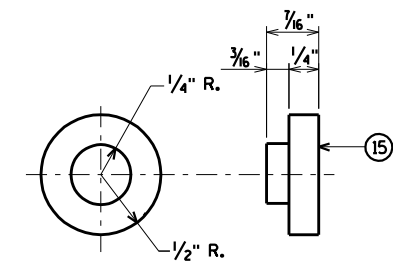


**SECTION E**



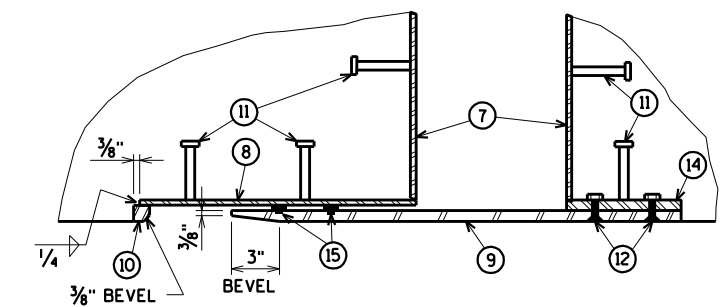
**SECTION F**

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".

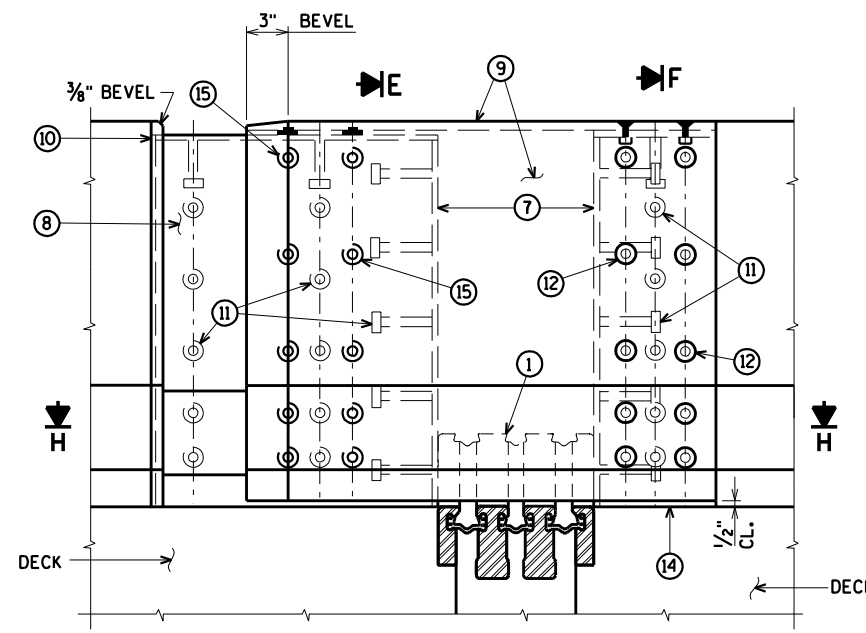


**ADIPRENE BUTTON DETAIL**

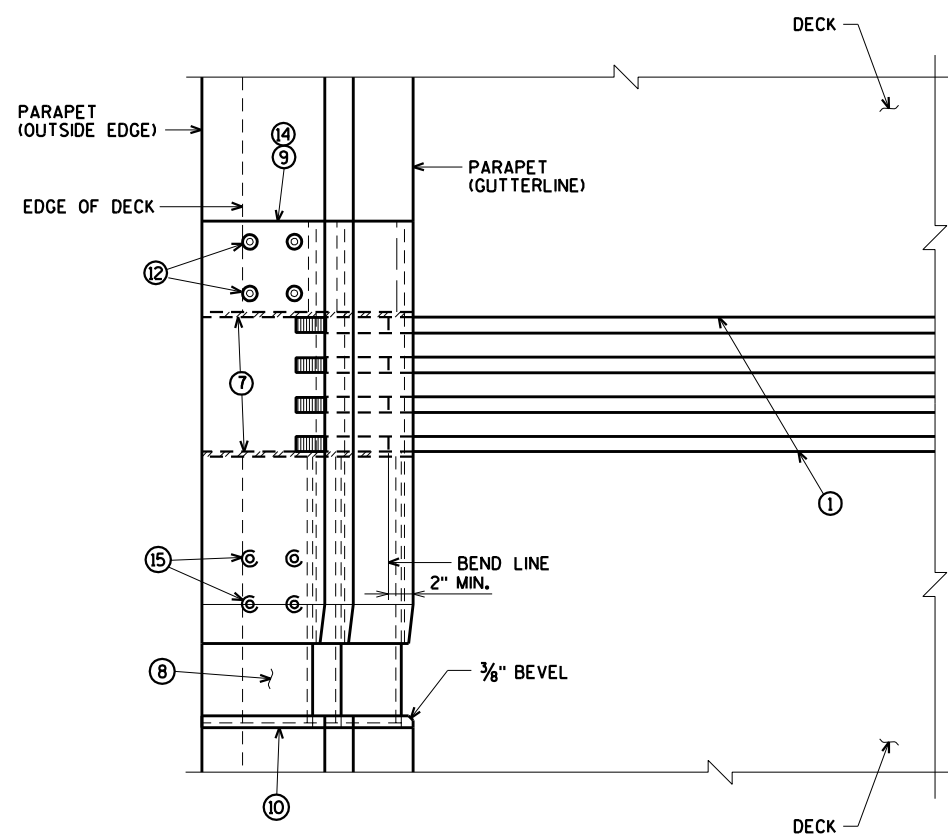
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 51



**SECTION H**



**ELEVATION OF OUTSIDE PARAPET**



**PLAN OF OUTSIDE PARAPET**

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42-0825 EXPJT 9.dgn

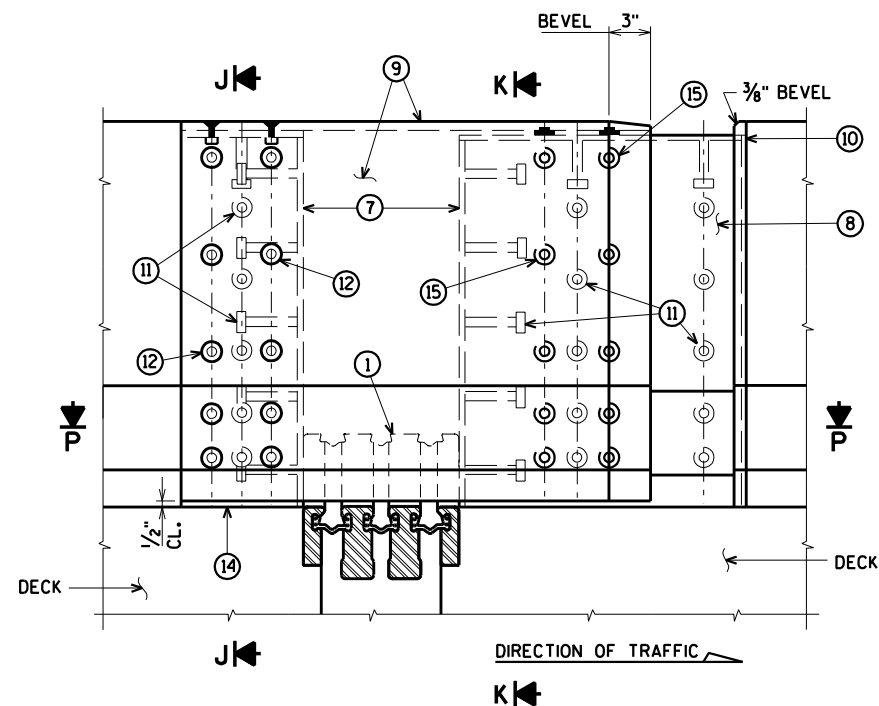
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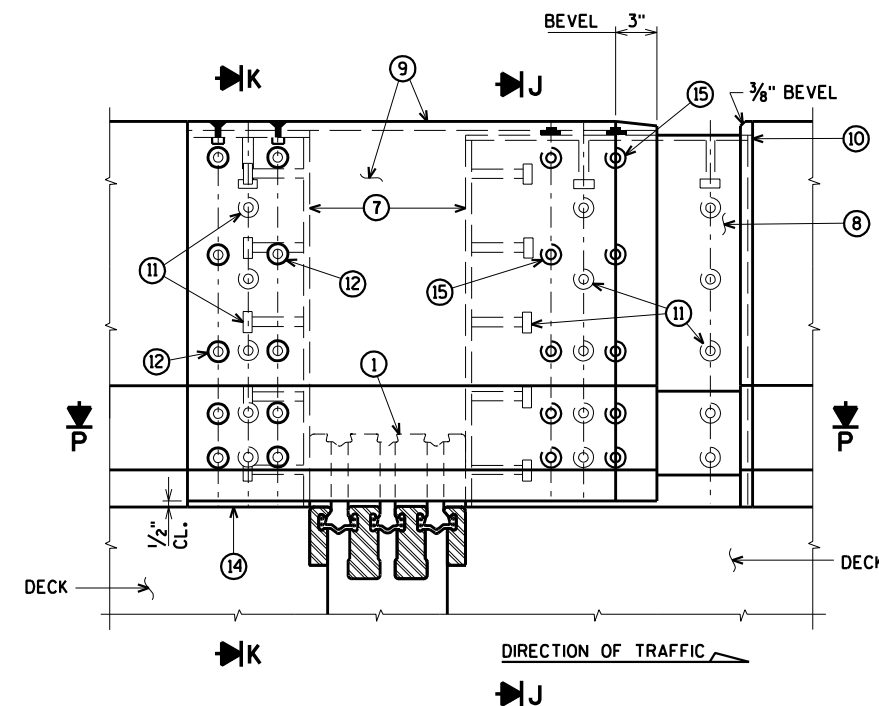
WORK THIS SHEET WITH SHEETS 51, 53-55

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>EXPANSION JOINT 9 DETAILS OUTSIDE PARAPET</b>			SHEET 52 OF 99

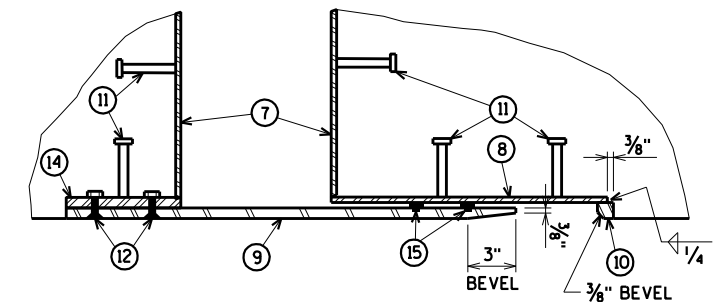
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com



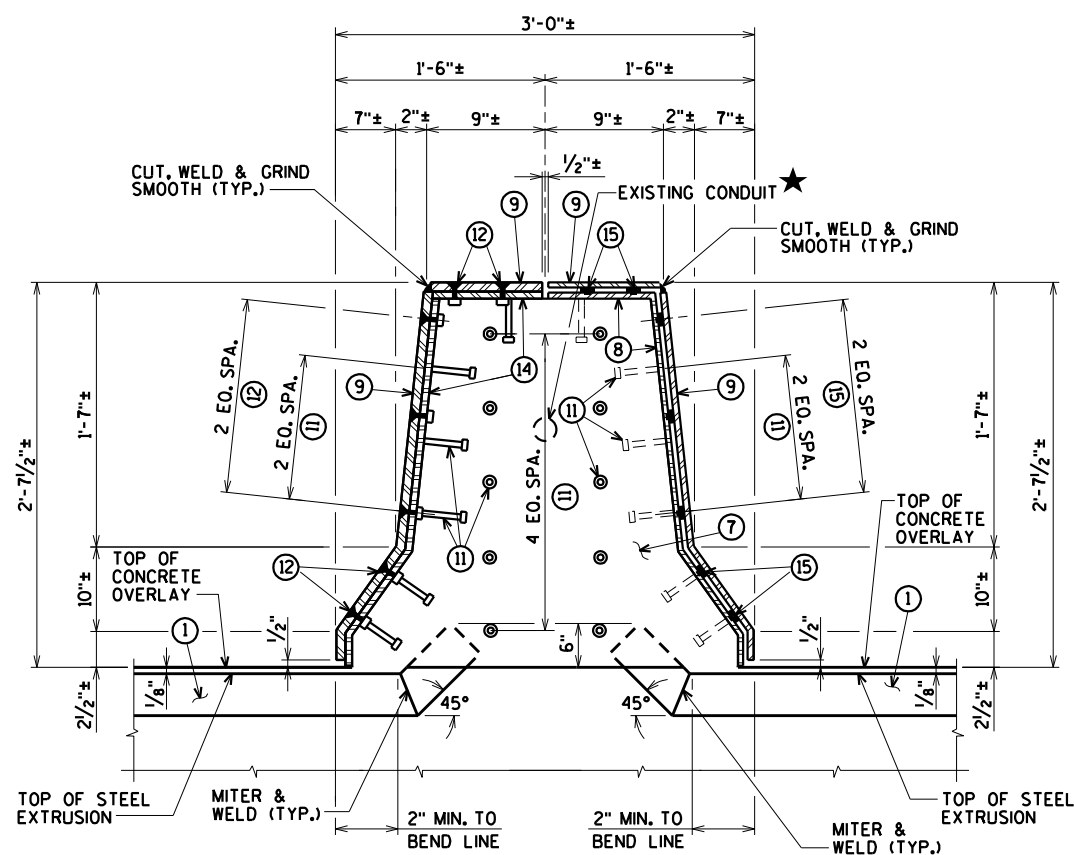
**ELEVATION OF MEDIAN PARAPET SECTION G**



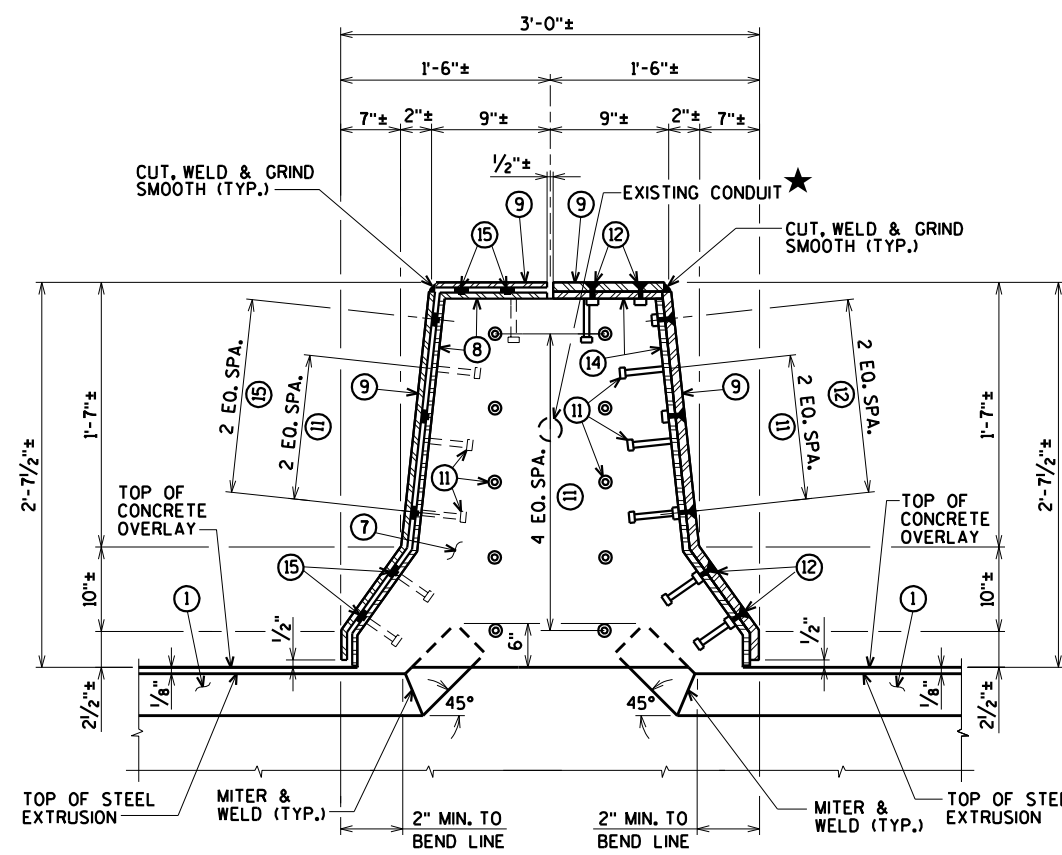
**ELEVATION OF MEDIAN PARAPET SECTION I**



**SECTION P**



**SECTION J**



**SECTION K**

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K' SEE SHEET 51

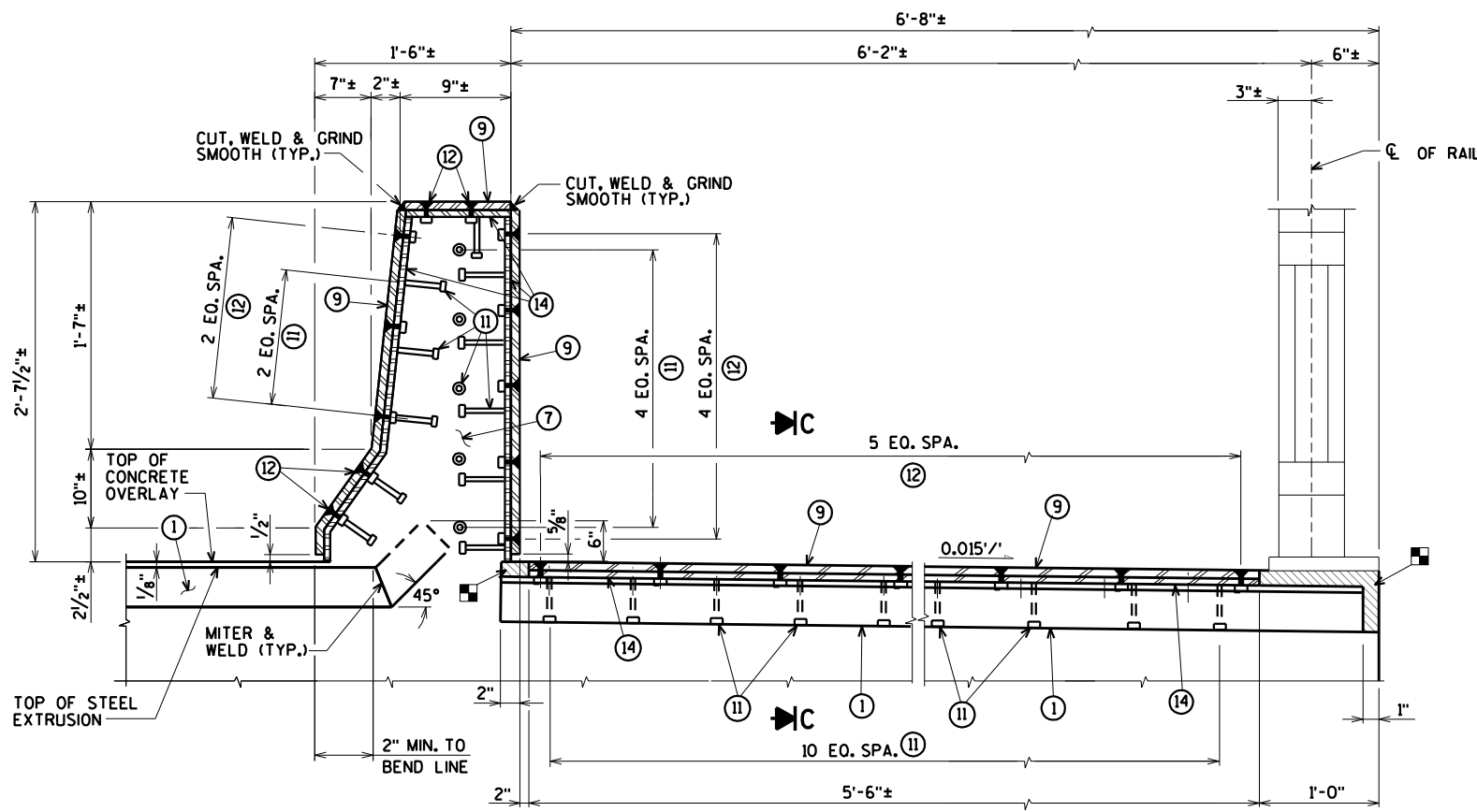
★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

WORK THIS SHEET WITH SHEETS 51-52, 54-55

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>EXPANSION JOINT 9 DETAILS MEDIAN PARAPET</b>			SHEET 53 OF 99

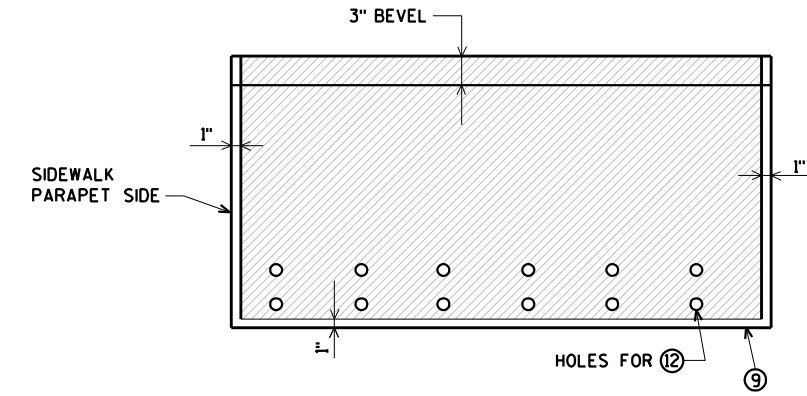
ORIGINAL PLANS PREPARED BY  
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Eau Claire, WI 54701  
www.AyresAssociates.com

NOTE:  
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**ELEVATION OF SIDEWALK W/PARAPET SECTION A**

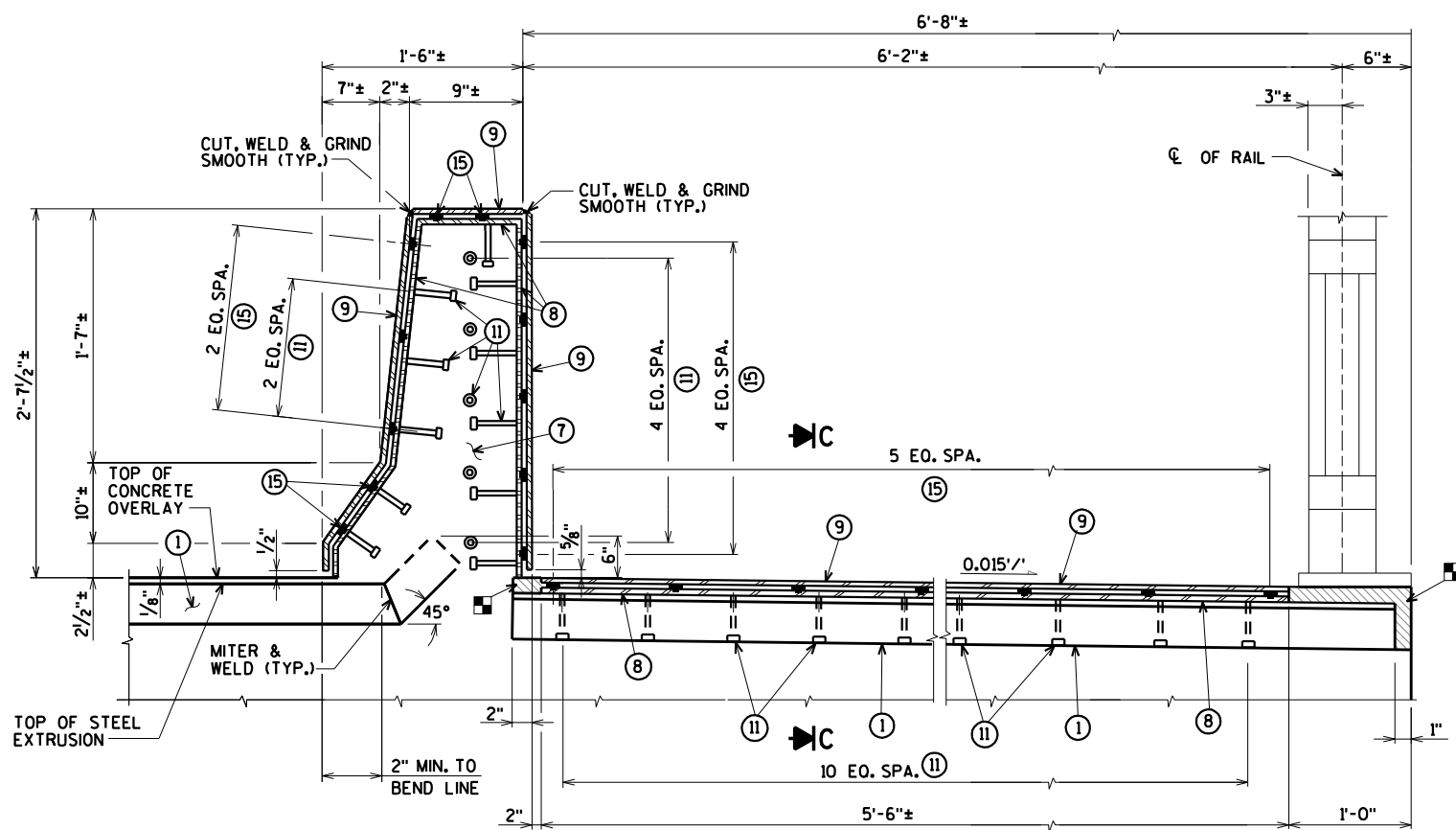
FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 51



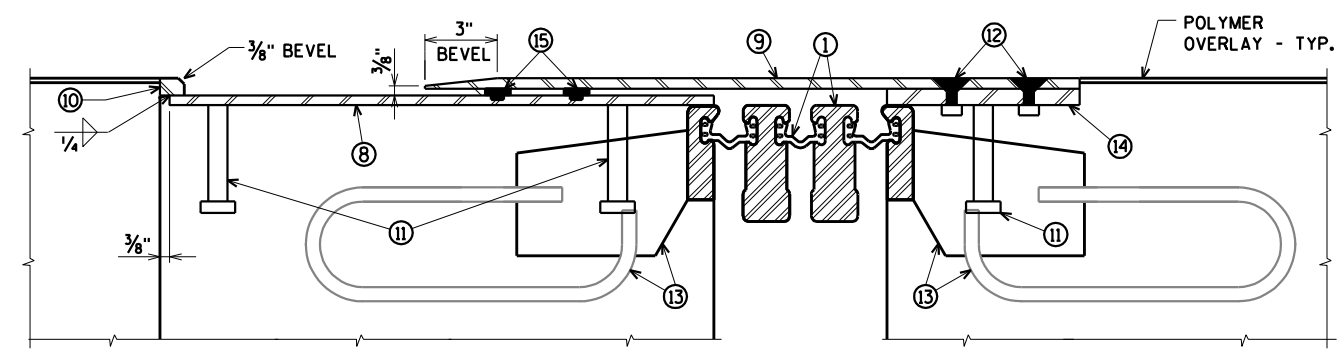
**PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE**

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.

WORK THIS SHEET WITH SHEETS 51-53, 55

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>EXPANSION JOINT 9 DETAILS SIDEWALK &amp; PARAPET</b>			SHEET 54 OF 99

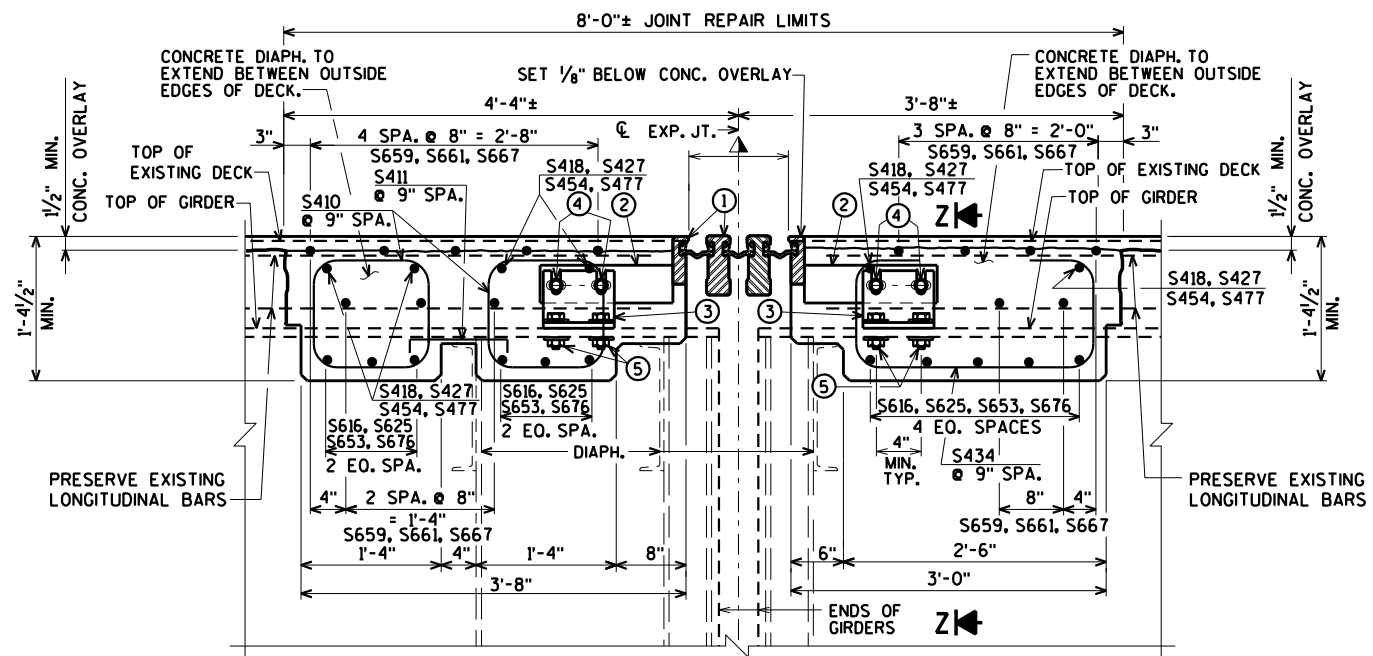
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 EXPJT 8-22 mod dt1.dgn

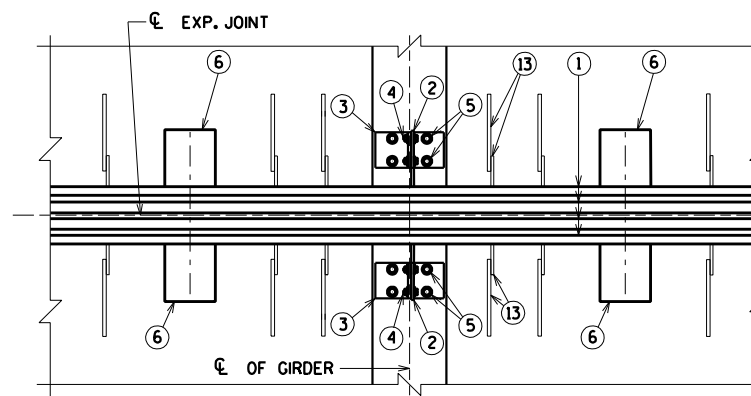
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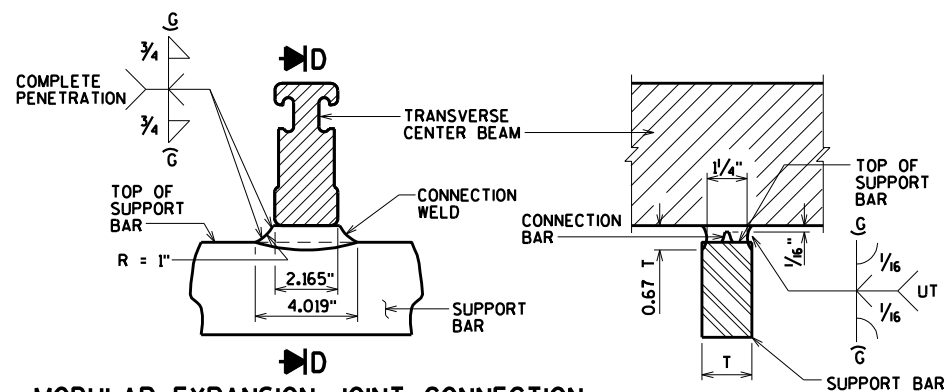
**SECTION THRU JOINT 9**  
NORMAL TO  $\phi$  OF JOINT



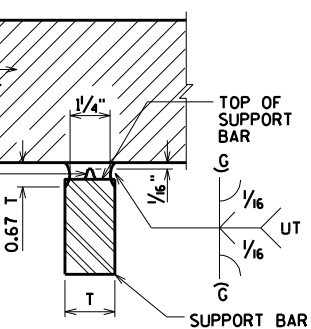
**PART PLAN**

- 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"  $\phi$  HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
  - ⑤ 3/4"  $\phi$  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 1/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.
  - ⑪ 3/4"  $\phi$  x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.
  - ⑫ 3/4"  $\phi$  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 3/8"  $\phi$  LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
  - ⑭ INSIDE PLATE. FABRICATE FROM 3/8" 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.



**MODULAR EXPANSION JOINT CONNECTION  
DETAIL AND WELD SPECIFICATION**



**SECTION D**

**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 PERMITTED 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.

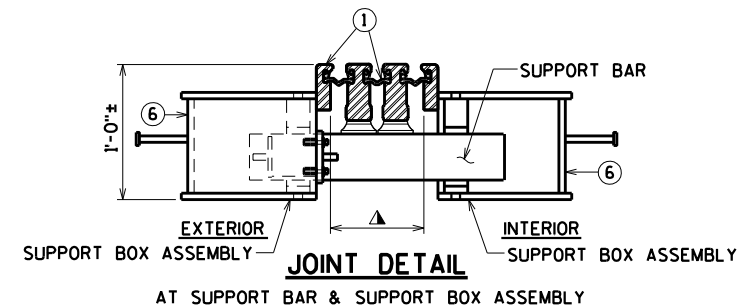
THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING 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.

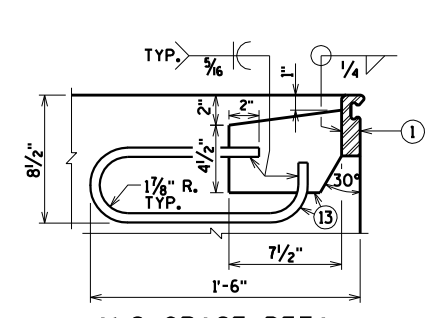
COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPAVED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.



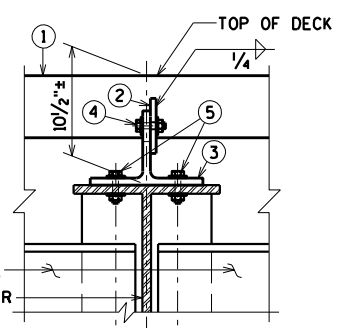
**JOINT DETAIL**

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



**ANCHORAGE DETAIL**

PLACE ADJACENT TO SUPPORT BOXES IN DECK & CONC. DIAPH.



**SECTION Z-Z**

**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 51-54

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MODULAR EXPANSION JOINT 9 DETAILS</b>			SHEET 55 OF 99

ORIGINAL PLANS PREPARED BY

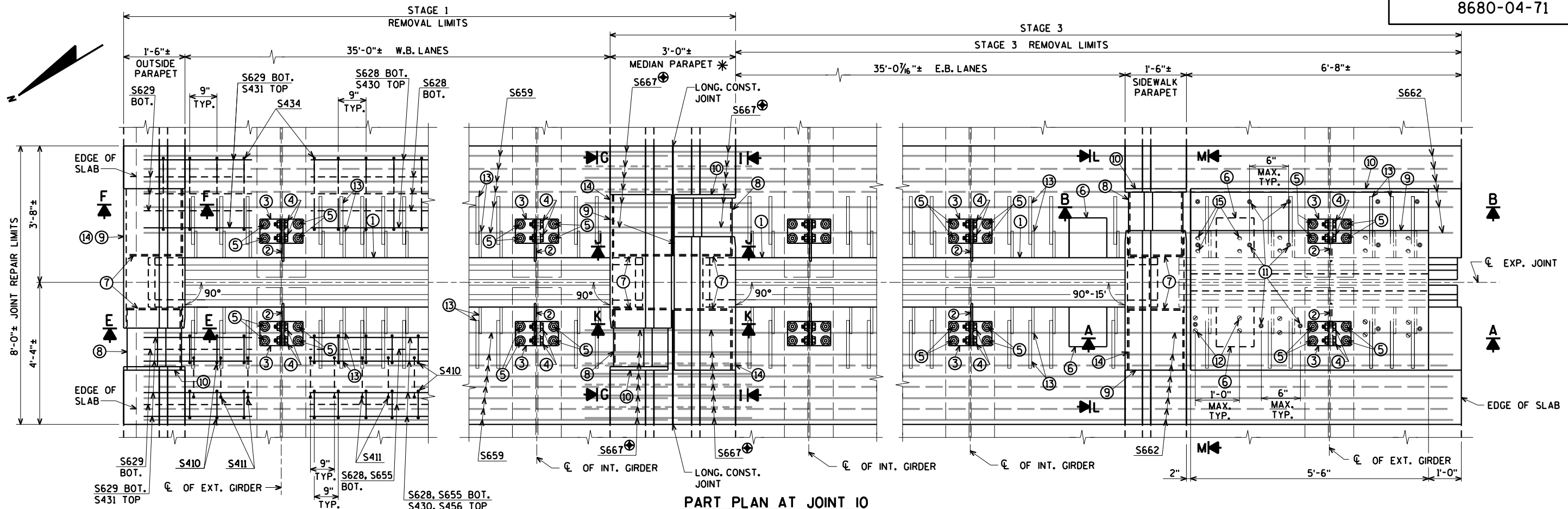
**AYRES ASSOCIATES**

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

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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)

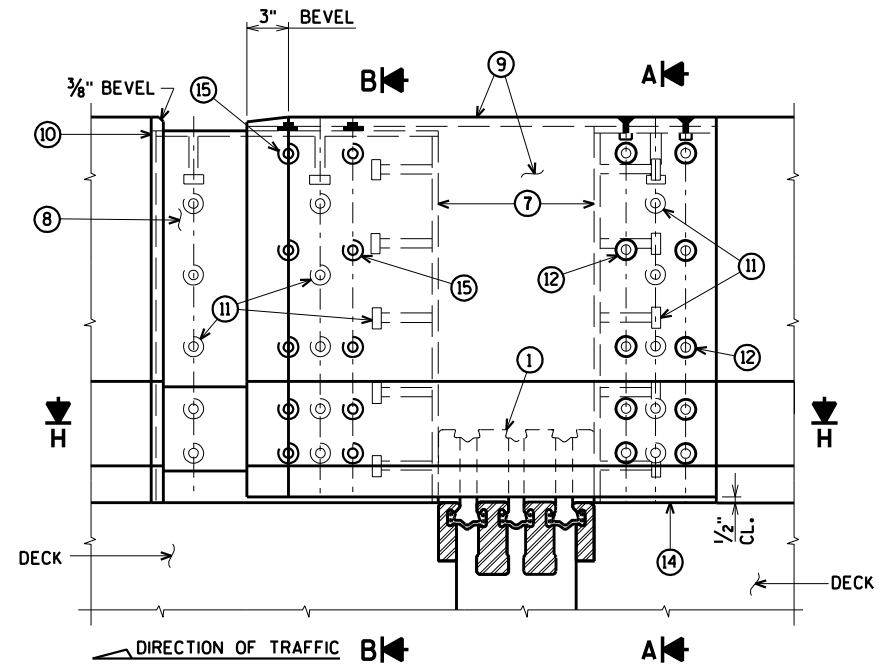
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

FOR SECTIONS 'A' AND 'B' SEE SHEET 59

FOR SECTIONS 'E' AND 'F' SEE SHEET 57

FOR SECTIONS 'C', 'I', 'J' AND 'K' SEE SHEET 58

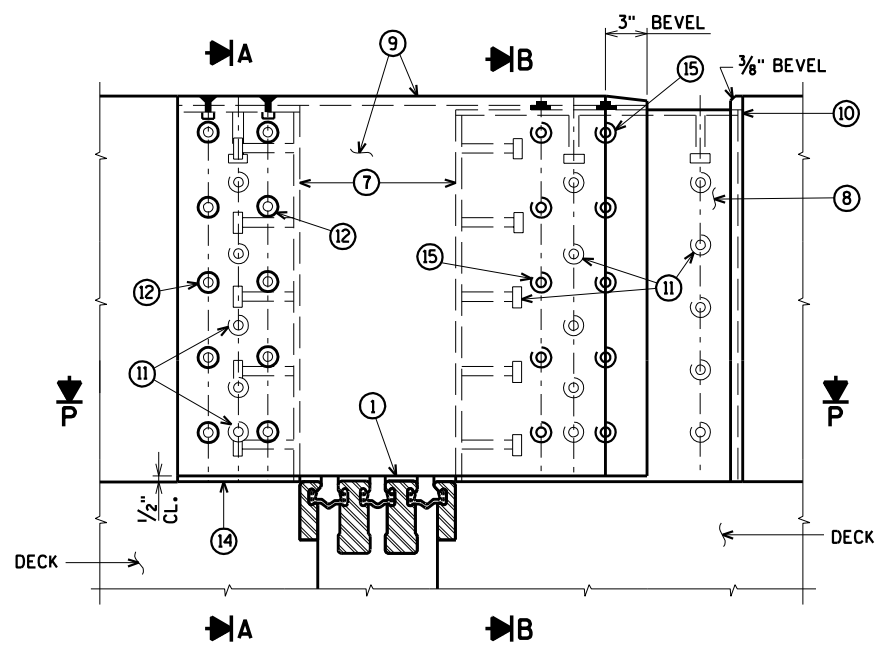
NOTE:  
 REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



**ELEVATION OF SIDEWALK PARAPET SECTION L**

FOR SECTION 'H' SEE SHEET 57

FOR SECTION 'P' SEE SHEET 58



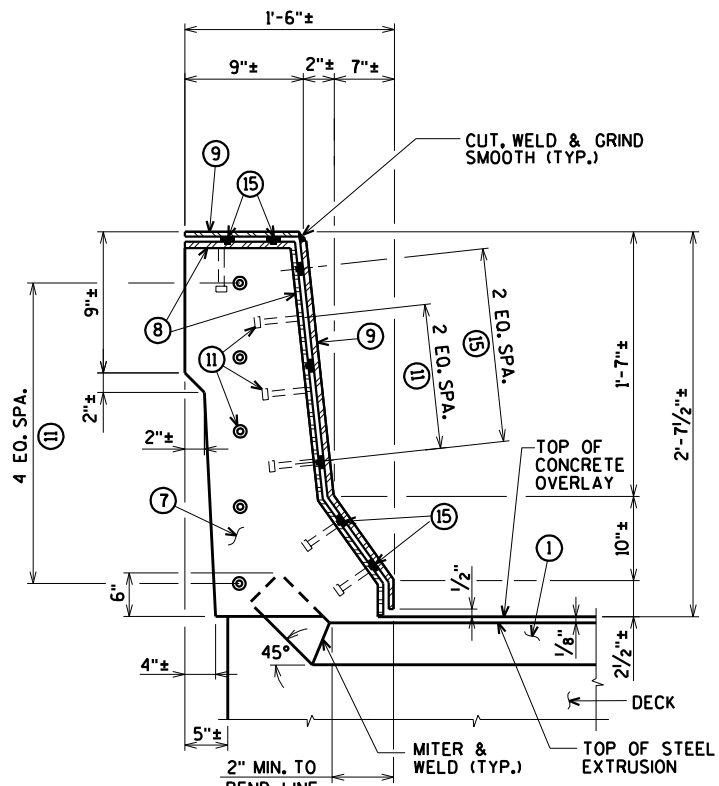
**ELEVATION OF SIDEWALK PARAPET SECTION M**

WORK THIS SHEET WITH SHEETS 57-60

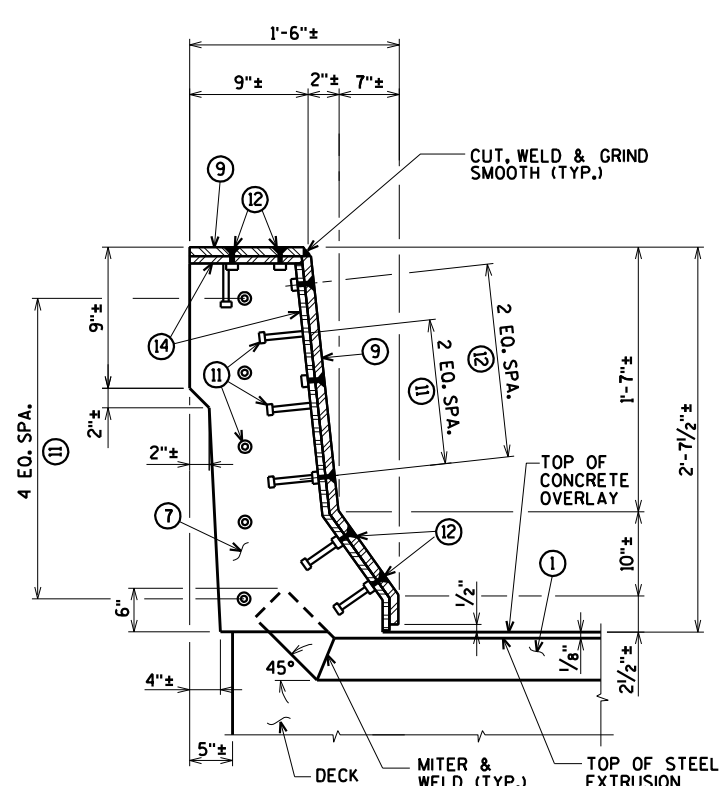
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>MODULAR EXPANSION</b>			SHEET 56 OF 99
<b>JOINT 10 DETAILS</b>			

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

ecp.dwg.plt 42-0825 EXPJT 10.dgn

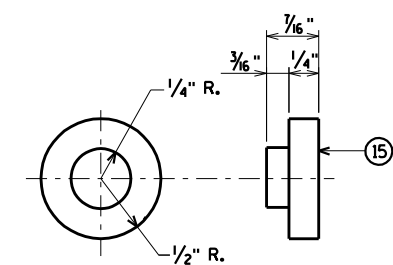


**SECTION E**



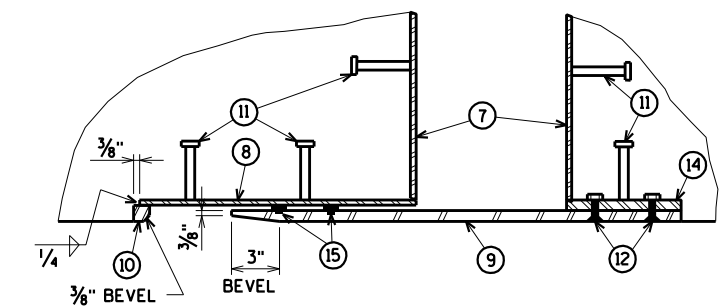
**SECTION F**

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".

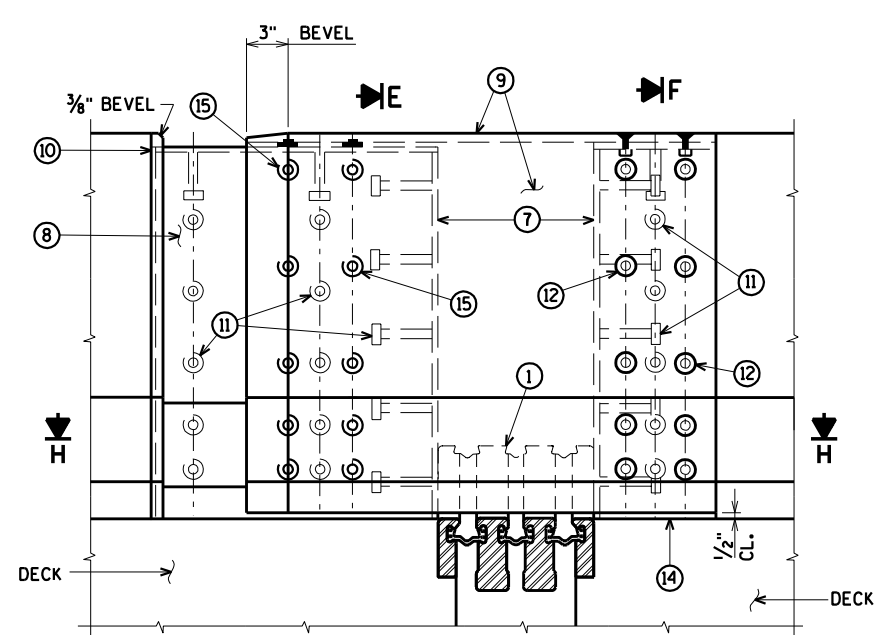


**ADIPRENE BUTTON DETAIL**

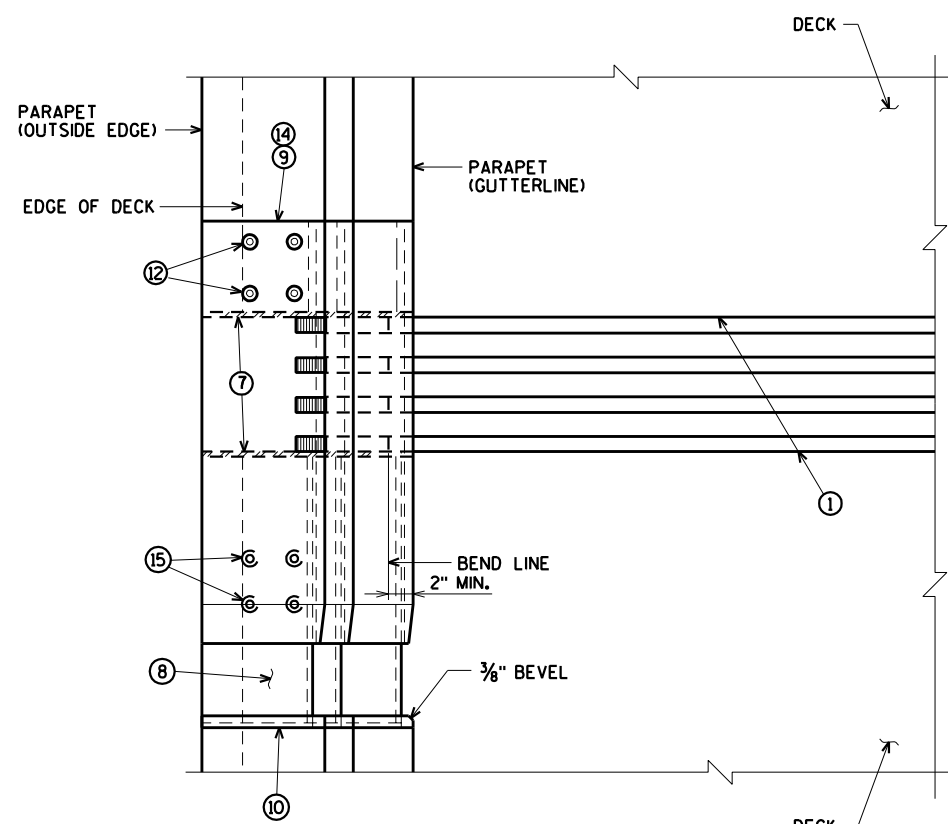
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 56



**SECTION H**



**ELEVATION OF OUTSIDE PARAPET**



**PLAN OF OUTSIDE PARAPET**

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42-0825 EXPJT 10.dgn

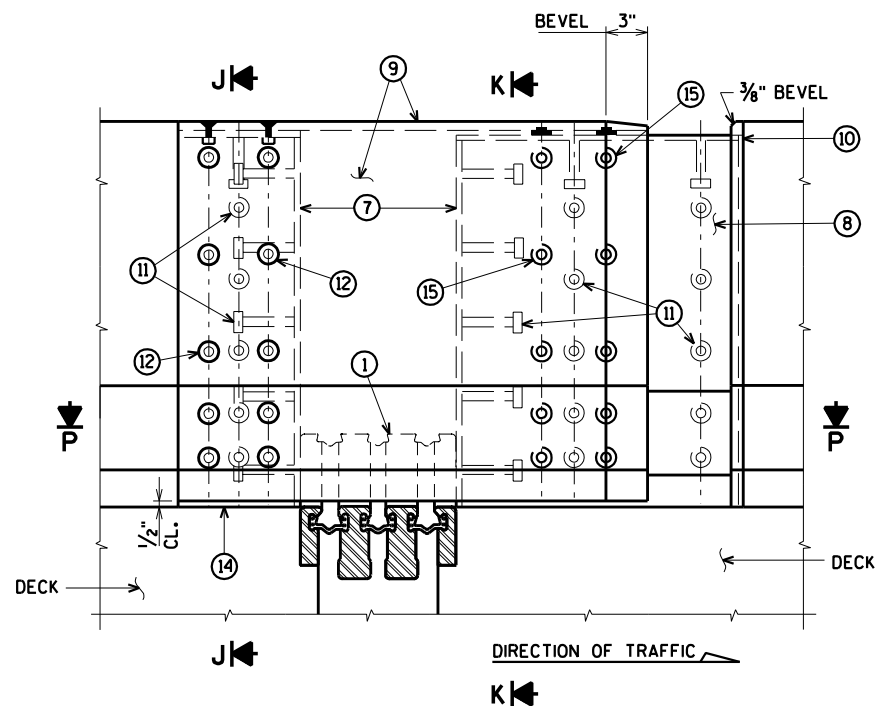
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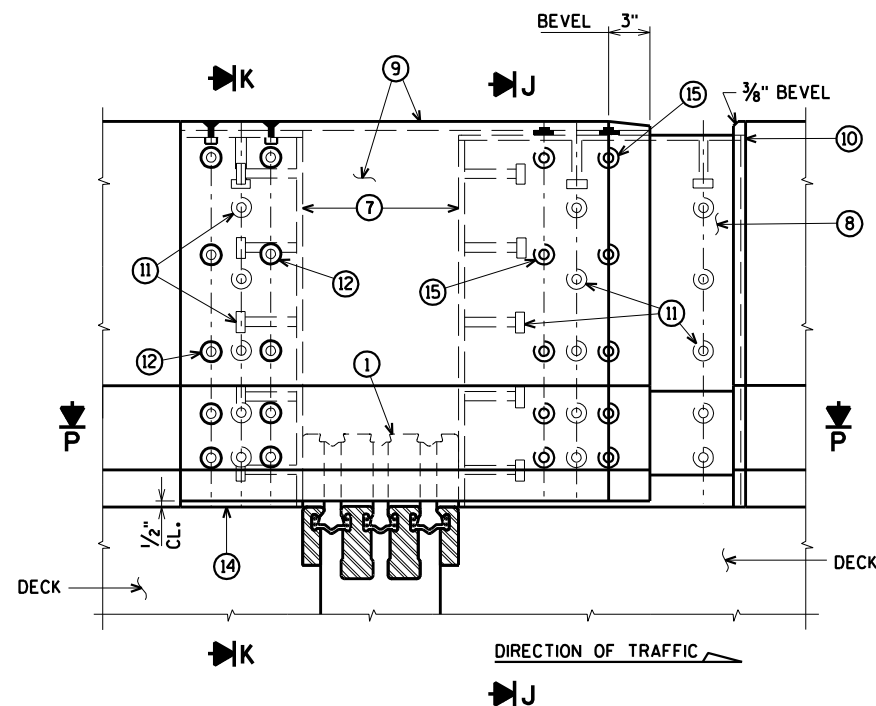
WORK THIS SHEET WITH SHEETS 56, 58-60

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>EXPANSION JOINT 10 DETAILS OUTSIDE PARAPET</b>			SHEET 57 OF 99

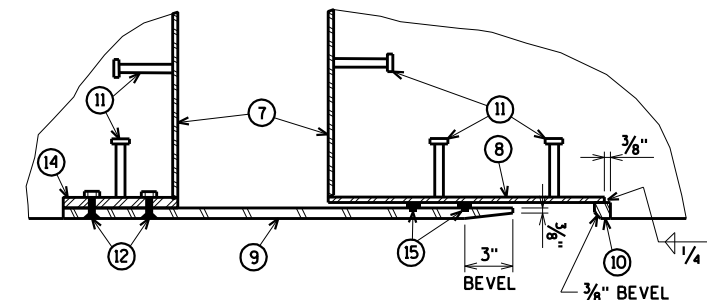
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com



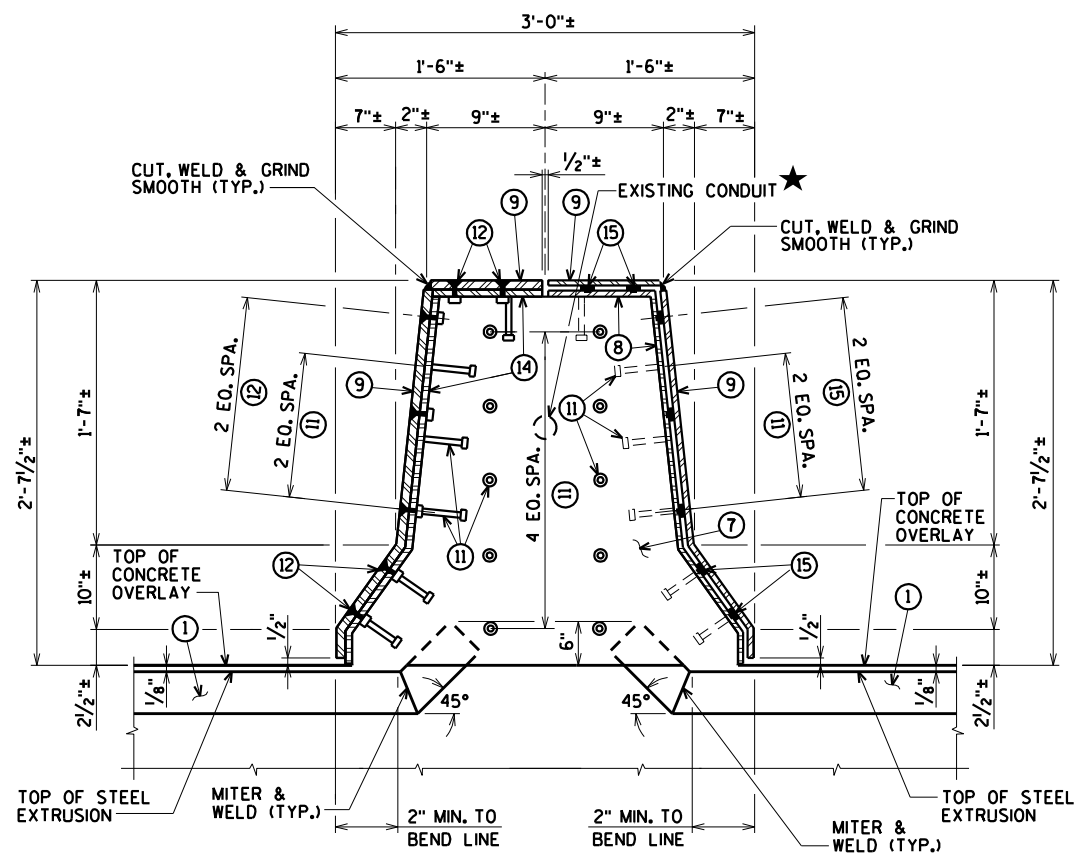
**ELEVATION OF MEDIAN PARAPET SECTION G**



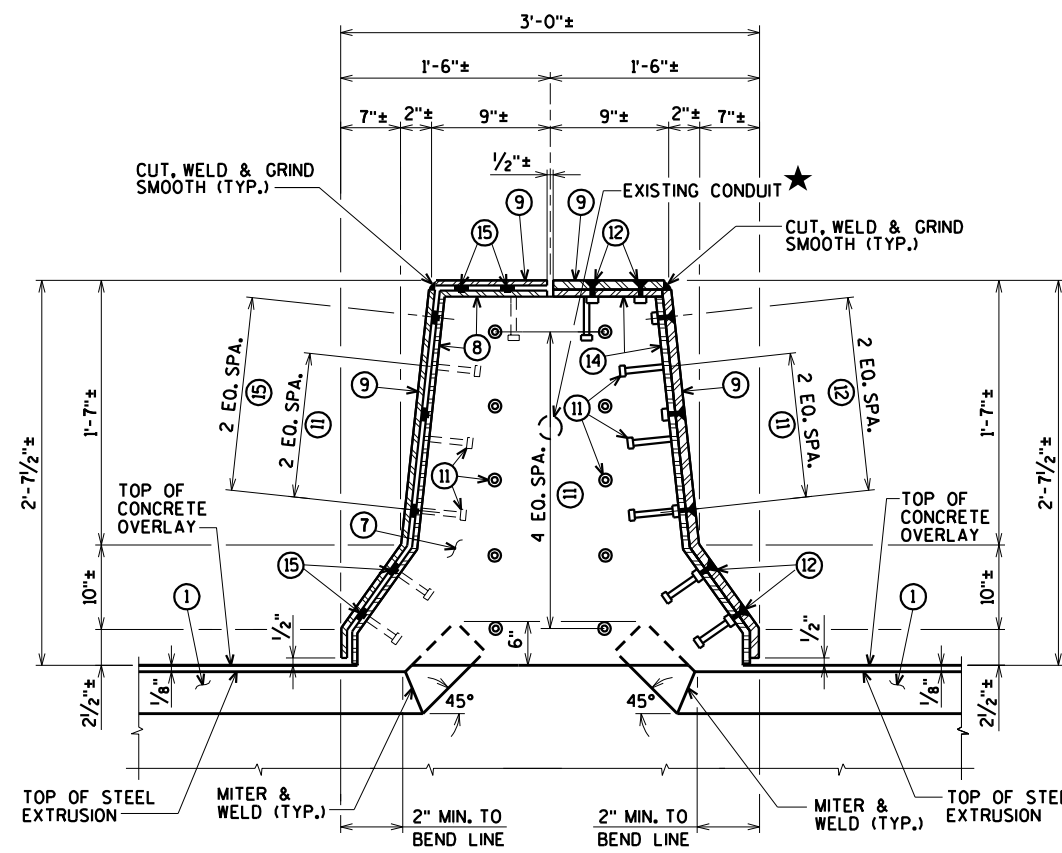
**ELEVATION OF MEDIAN PARAPET SECTION I**



**SECTION P**



**SECTION J**



**SECTION K**

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K' SEE SHEET 56

★ 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**

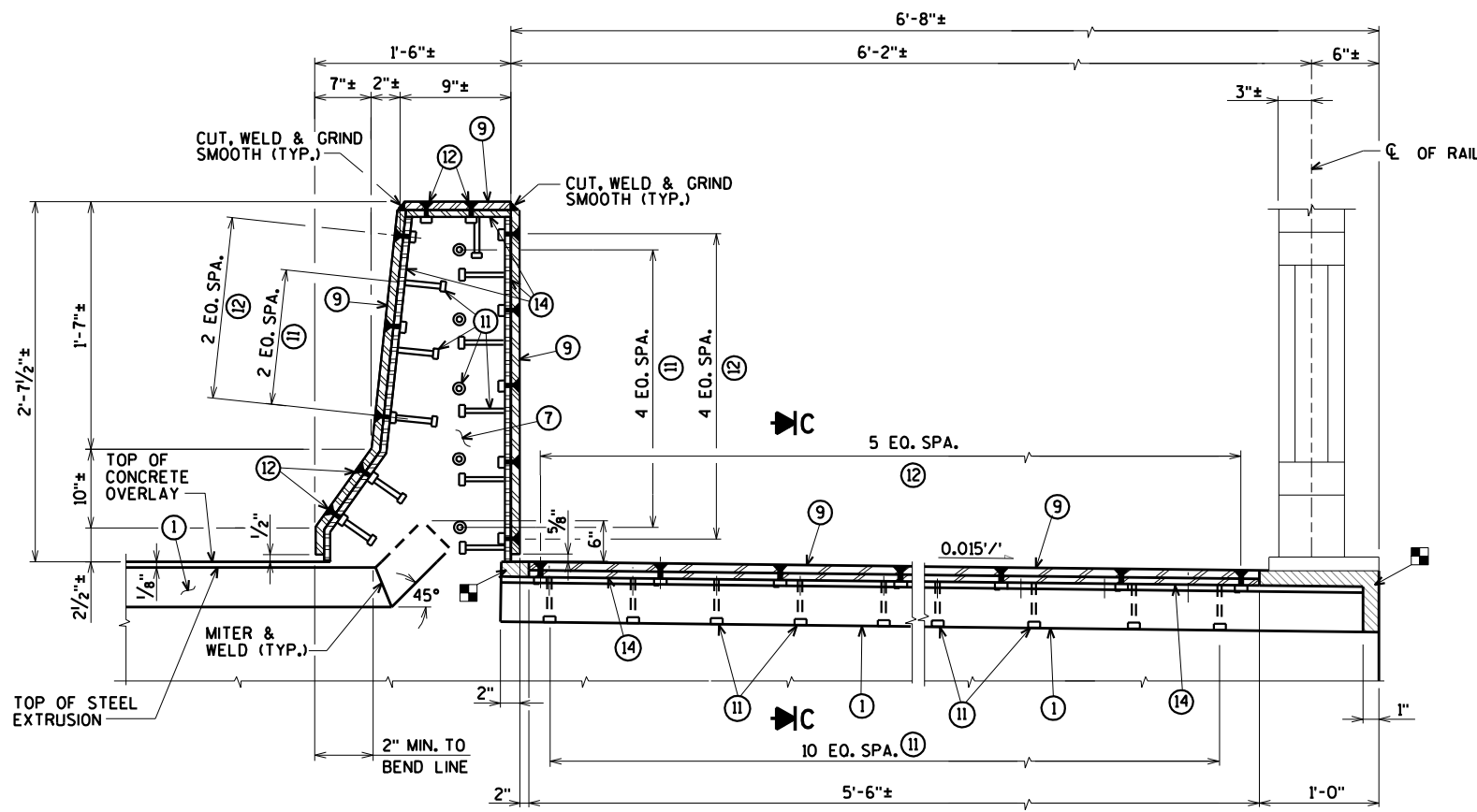
DRAWN BY CLS PLANS CK'D. CBM

**EXPANSION JOINT 10 DETAILS  
MEDIAN PARAPET**

SHEET 58 OF 99

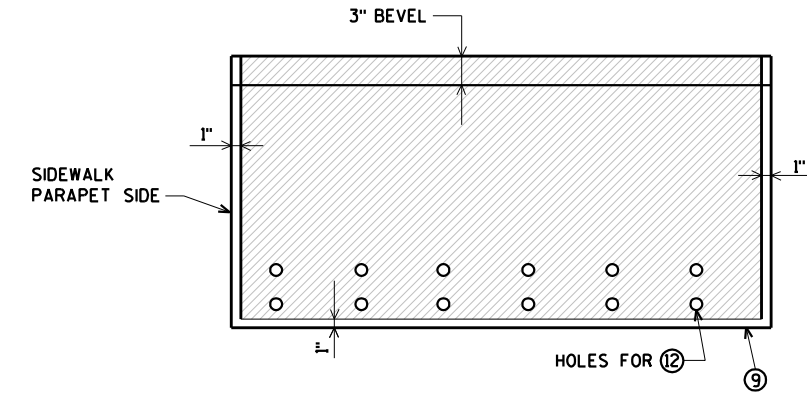
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

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 W/PARAPET SECTION A**

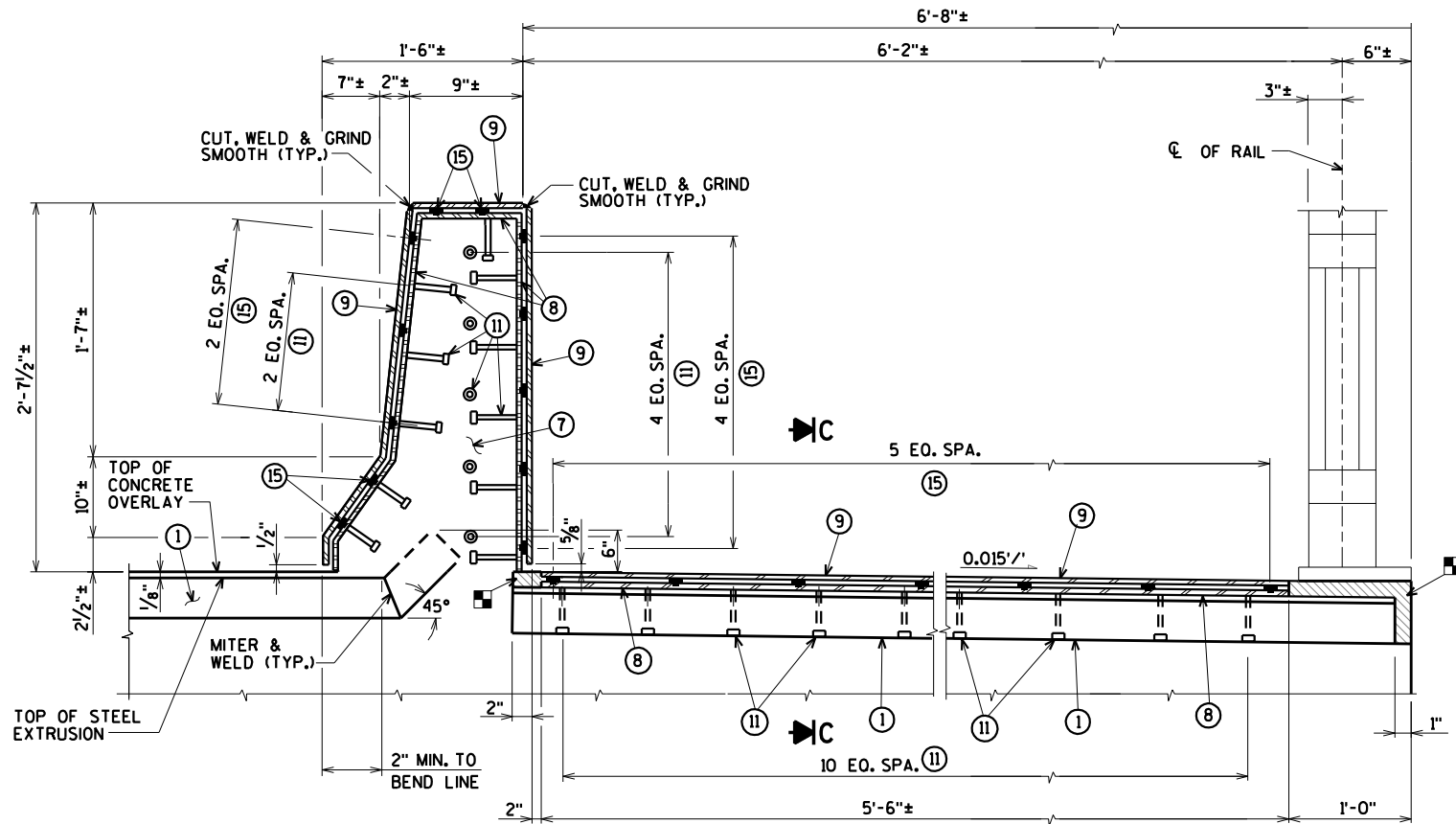
FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 56



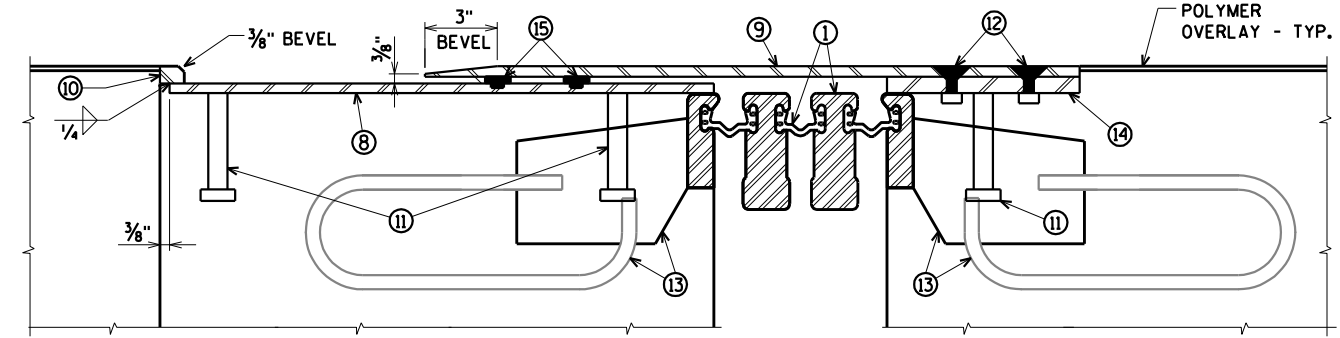
**PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE**

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.

WORK THIS SHEET WITH SHEETS 56-58, 60

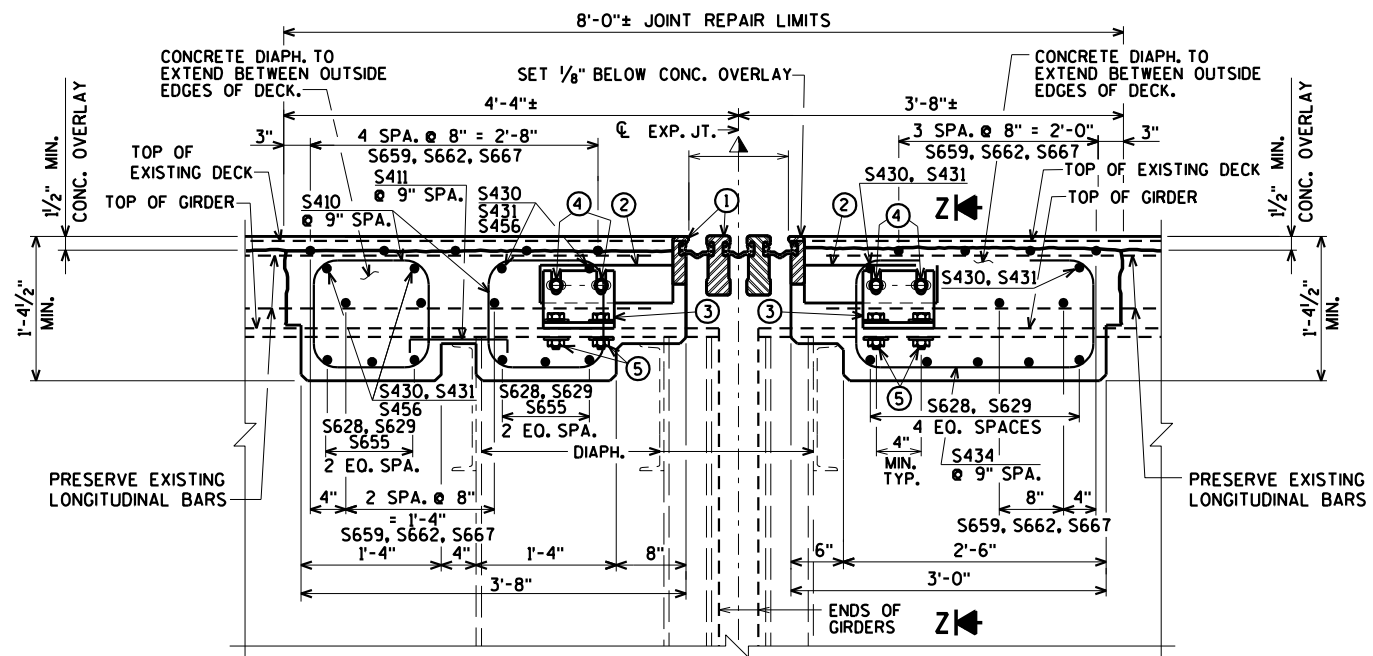
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>EXPANSION JOINT 10 DETAILS SIDEWALK &amp; PARAPET</b>			SHEET 59 OF 99

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
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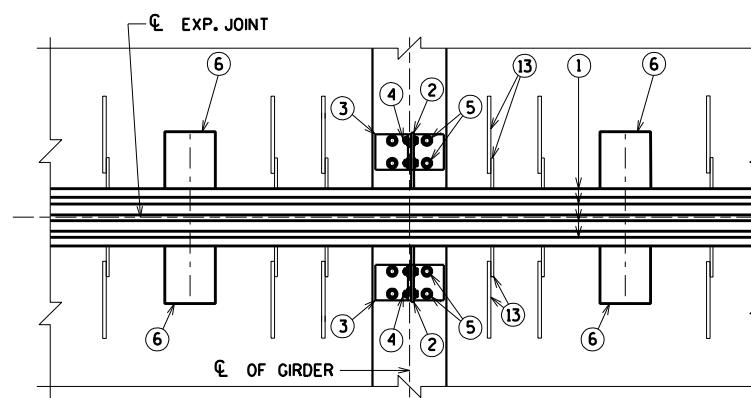
\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 EXPJT 8-22 mod dt1.dgn

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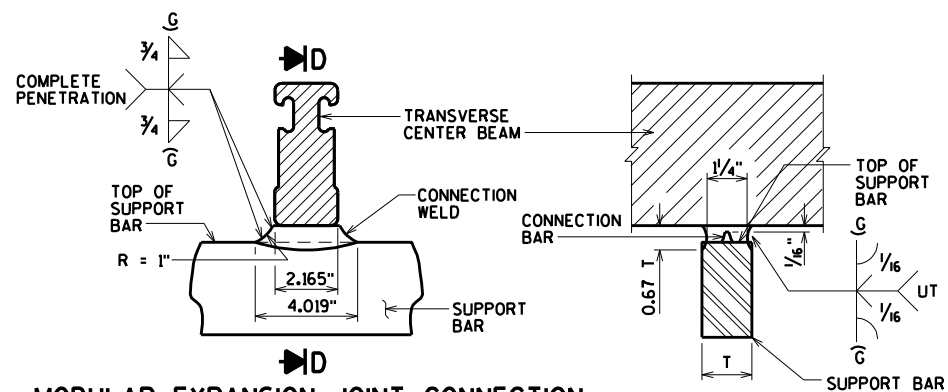
**SECTION THRU JOINT 10**  
NORMAL TO  $\phi$  OF JOINT



**PART PLAN**

- 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"  $\phi$  HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
  - ⑤ 3/4"  $\phi$  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 1/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.
  - ⑪ 3/4"  $\phi$  x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.
  - ⑫ 3/4"  $\phi$  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 3/8"  $\phi$  LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
  - ⑭ INSIDE PLATE. FABRICATE FROM 3/8" PLATE.
  - ⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

- $\Delta$  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.
- $\bullet$  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.



**MODULAR EXPANSION JOINT CONNECTION**  
**DETAIL AND WELD SPECIFICATION**

**SECTION D**

**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 PERMITTED 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.

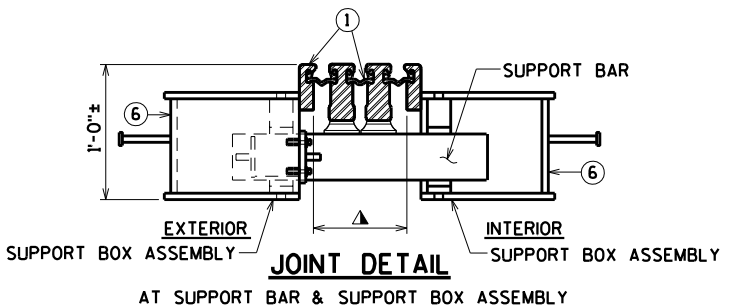
THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING 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.

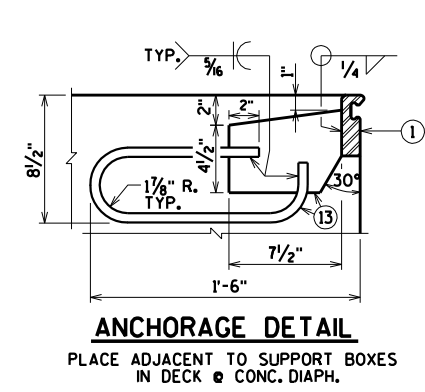
SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED.

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".

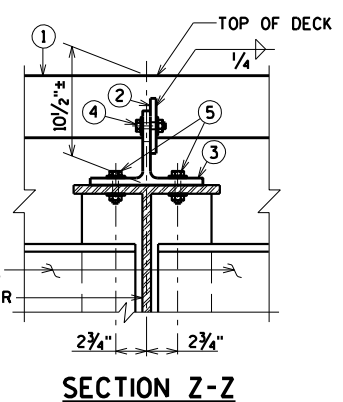
BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPAVED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.



**JOINT DETAIL**  
AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



**ANCHORAGE DETAIL**  
PLACE ADJACENT TO SUPPORT BOXES IN DECK & CONC. DIAPH.



**SECTION Z-Z**

**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 56-59

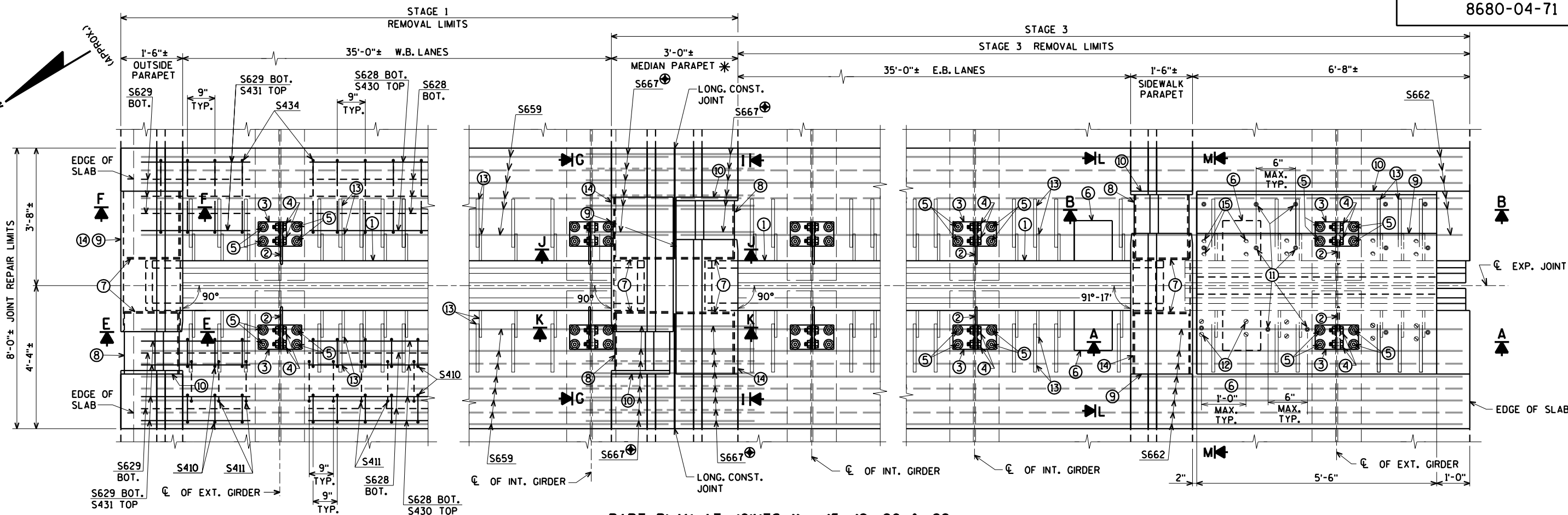
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MODULAR EXPANSION JOINT 10 DETAILS</b>			SHEET 60 OF 99

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

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**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)

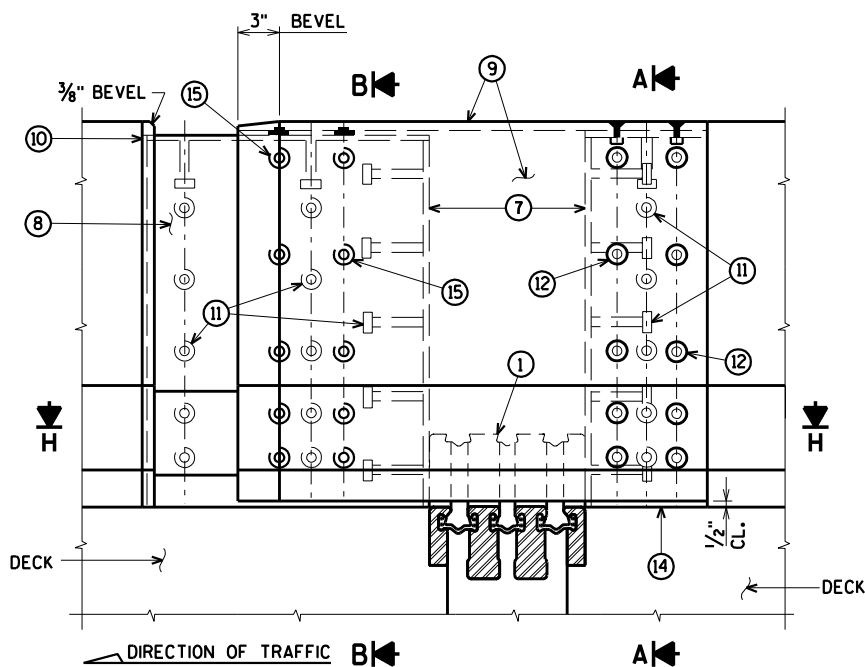
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

FOR SECTIONS 'A' AND 'B' SEE SHEET 64

FOR SECTIONS 'E' AND 'F' SEE SHEET 62

FOR SECTIONS 'C', 'I', 'J' AND 'K' SEE SHEET 63

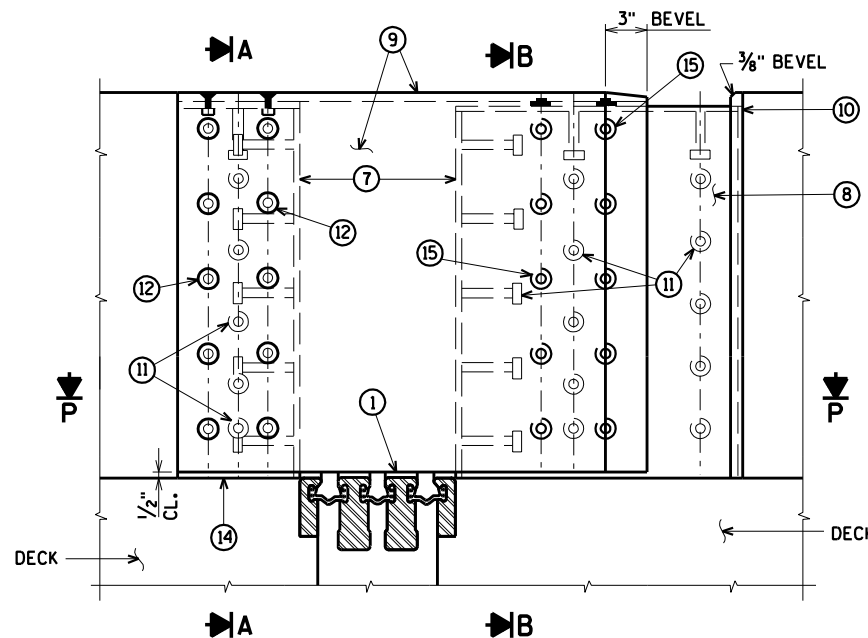
NOTE:  
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



**ELEVATION OF SIDEWALK PARAPET SECTION L**

FOR SECTION 'H' SEE SHEET 62

FOR SECTION 'P' SEE SHEET 63



**ELEVATION OF SIDEWALK PARAPET SECTION M**

ecp.dwg.plt 42-0825 EXP.JT 11-15, 19, 20, 22.dgn

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WORK THIS SHEET WITH SHEETS 62-65

NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

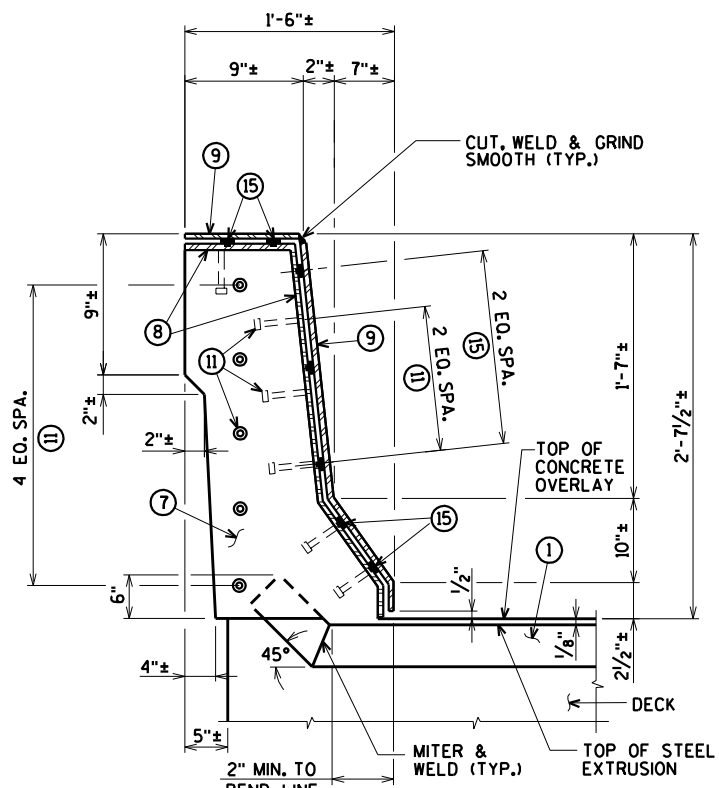
**STRUCTURE B-16-38/69100**

DRAWN BY CLS PLANS CK'D. CBM

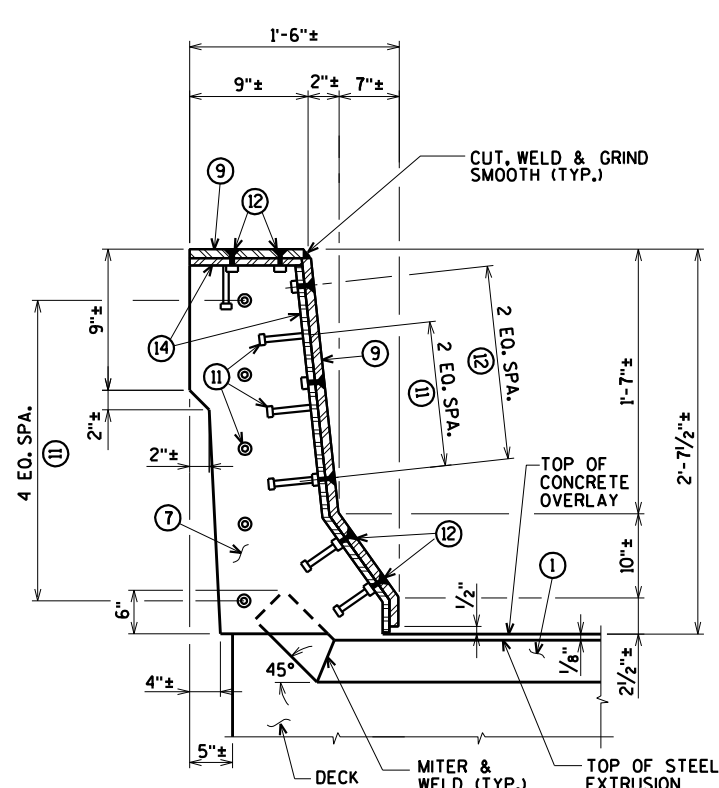
**MODULAR EXP. JOINTS 11-15, 19, 20 & 22 DETAILS**

SHEET 61 OF 99

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

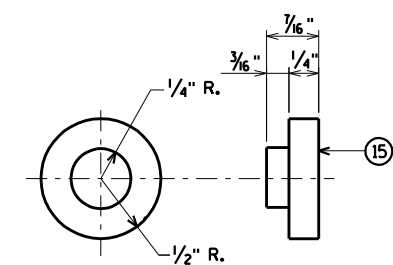


**SECTION E**



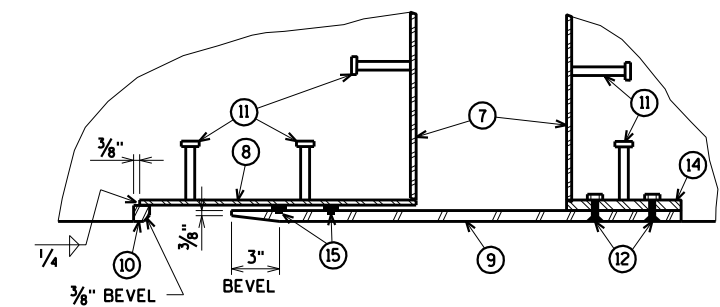
**SECTION F**

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".

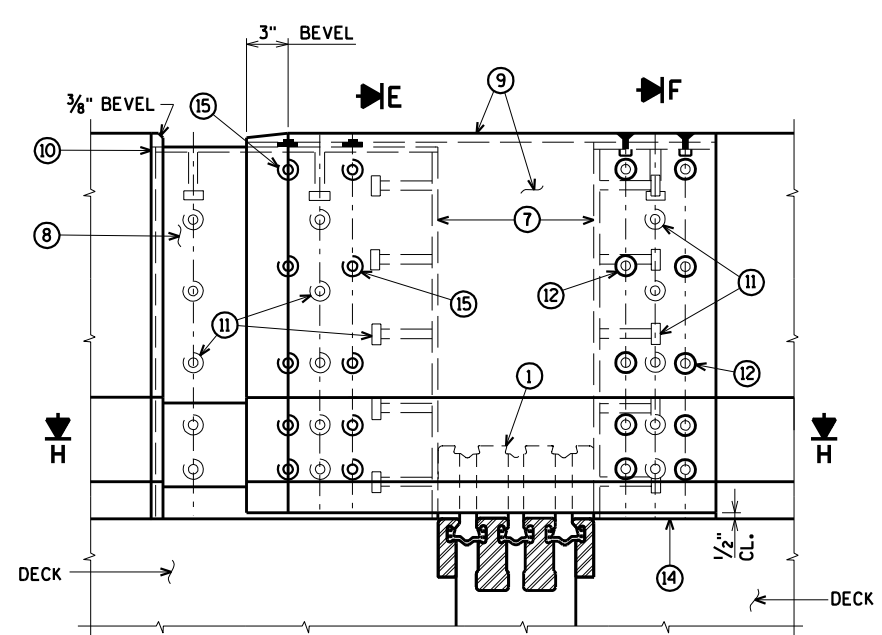


**ADIPRENE BUTTON DETAIL**

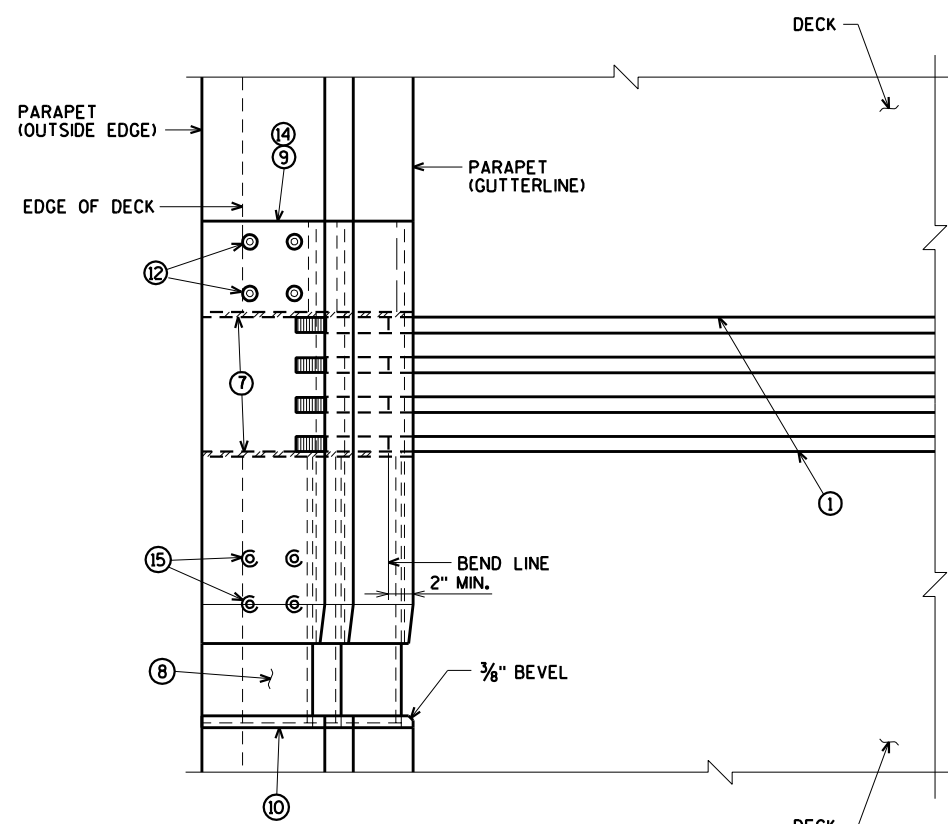
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 61



**SECTION H**



**ELEVATION OF OUTSIDE PARAPET**



**PLAN OF OUTSIDE PARAPET**

ecbdf.plt  
42-0825 EXP.JT 11-15, 19,20,22.dgn

8

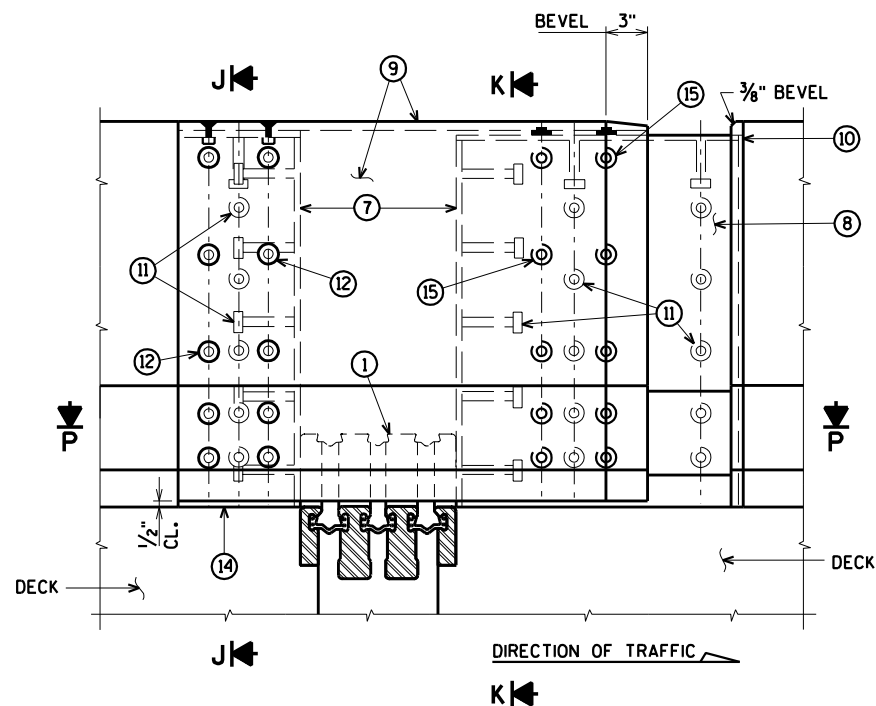
8

WORK THIS SHEET WITH SHEETS 61, 63-65

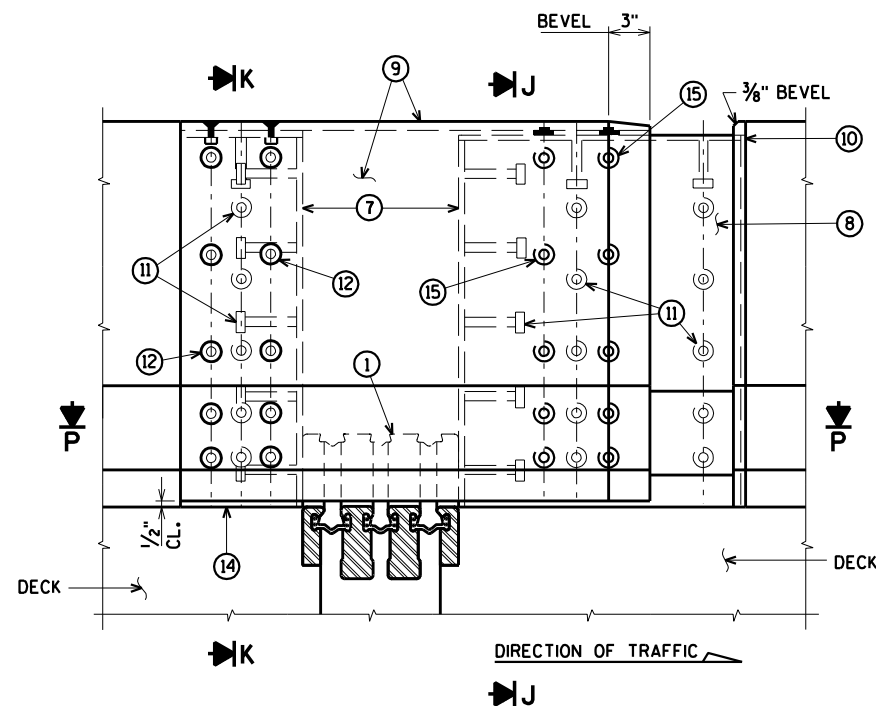
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>EXP. JOINTS 11-15, 19, 20 &amp; 22 OUTSIDE PARAPET</b>			SHEET 62 OF 99

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
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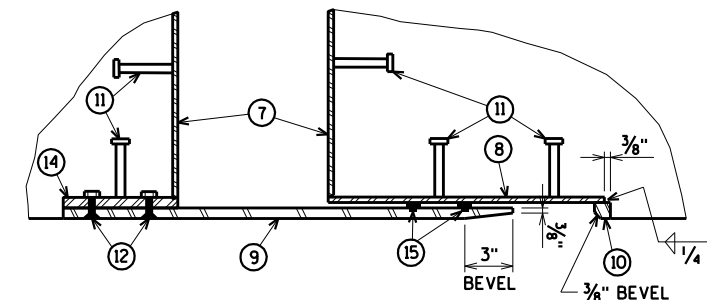




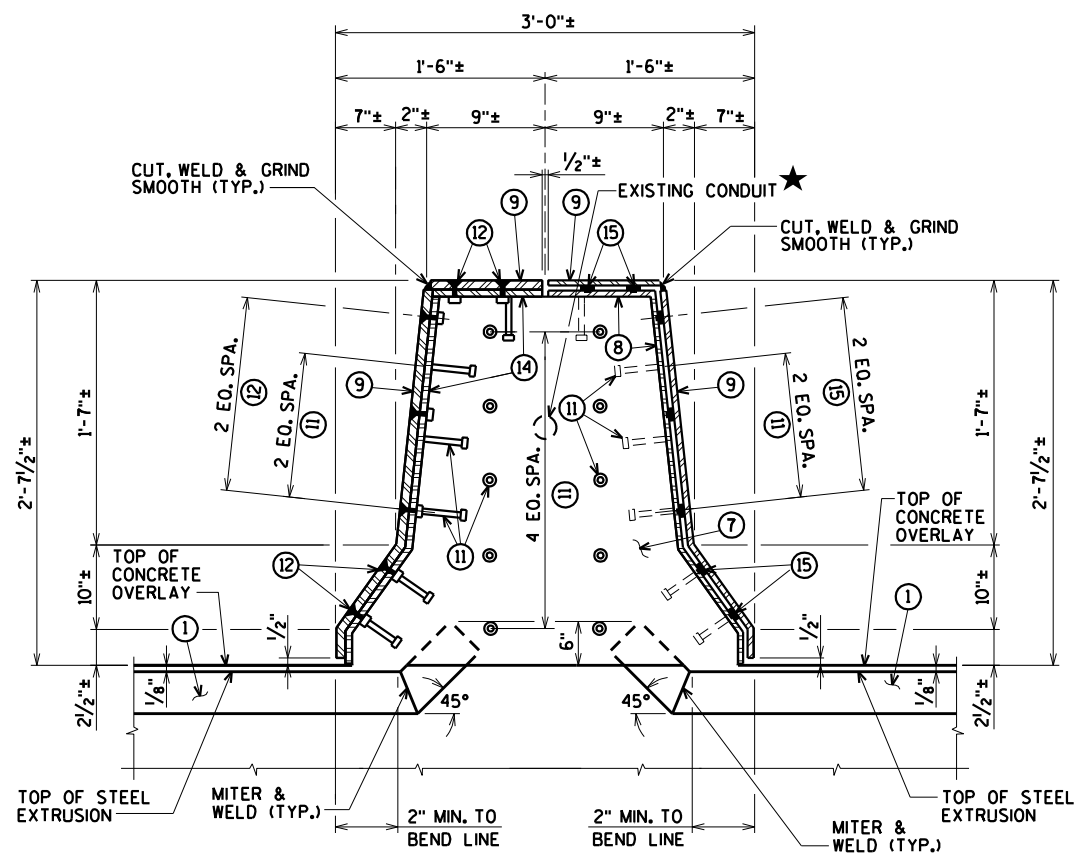
**ELEVATION OF MEDIAN PARAPET SECTION G**



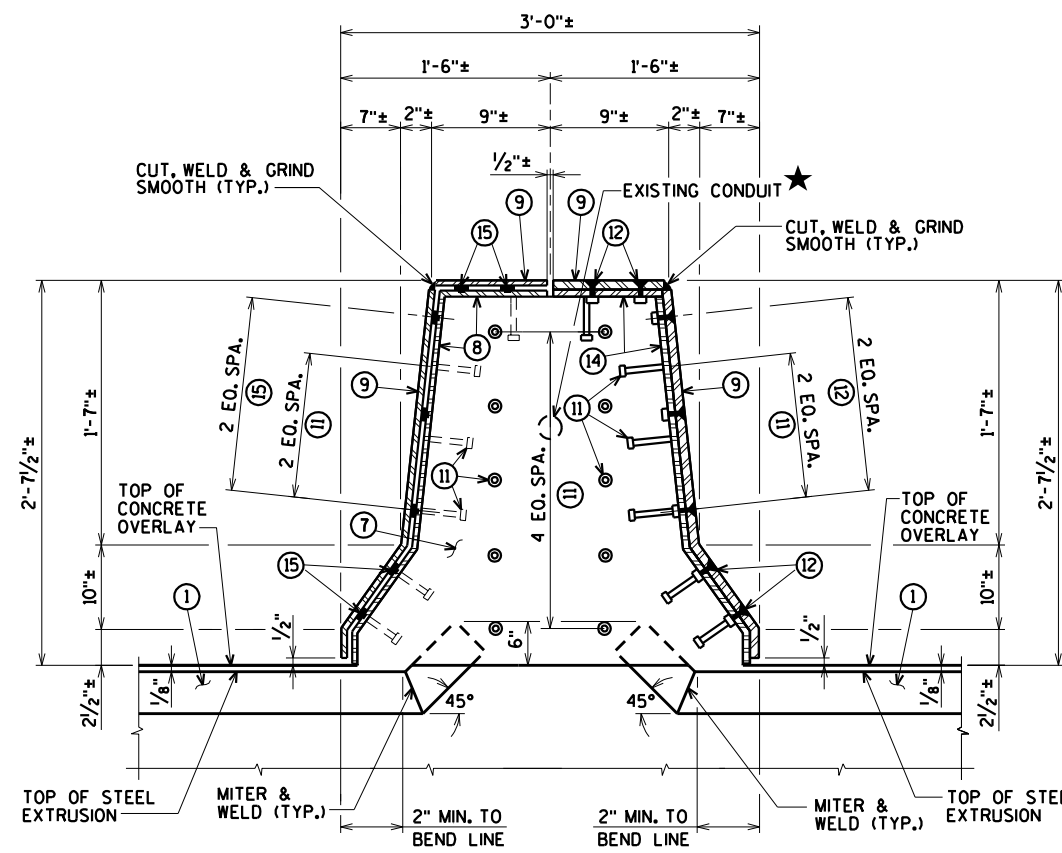
**ELEVATION OF MEDIAN PARAPET SECTION I**



**SECTION P**



**SECTION J**



**SECTION K**

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K' SEE SHEET 61

★ 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**

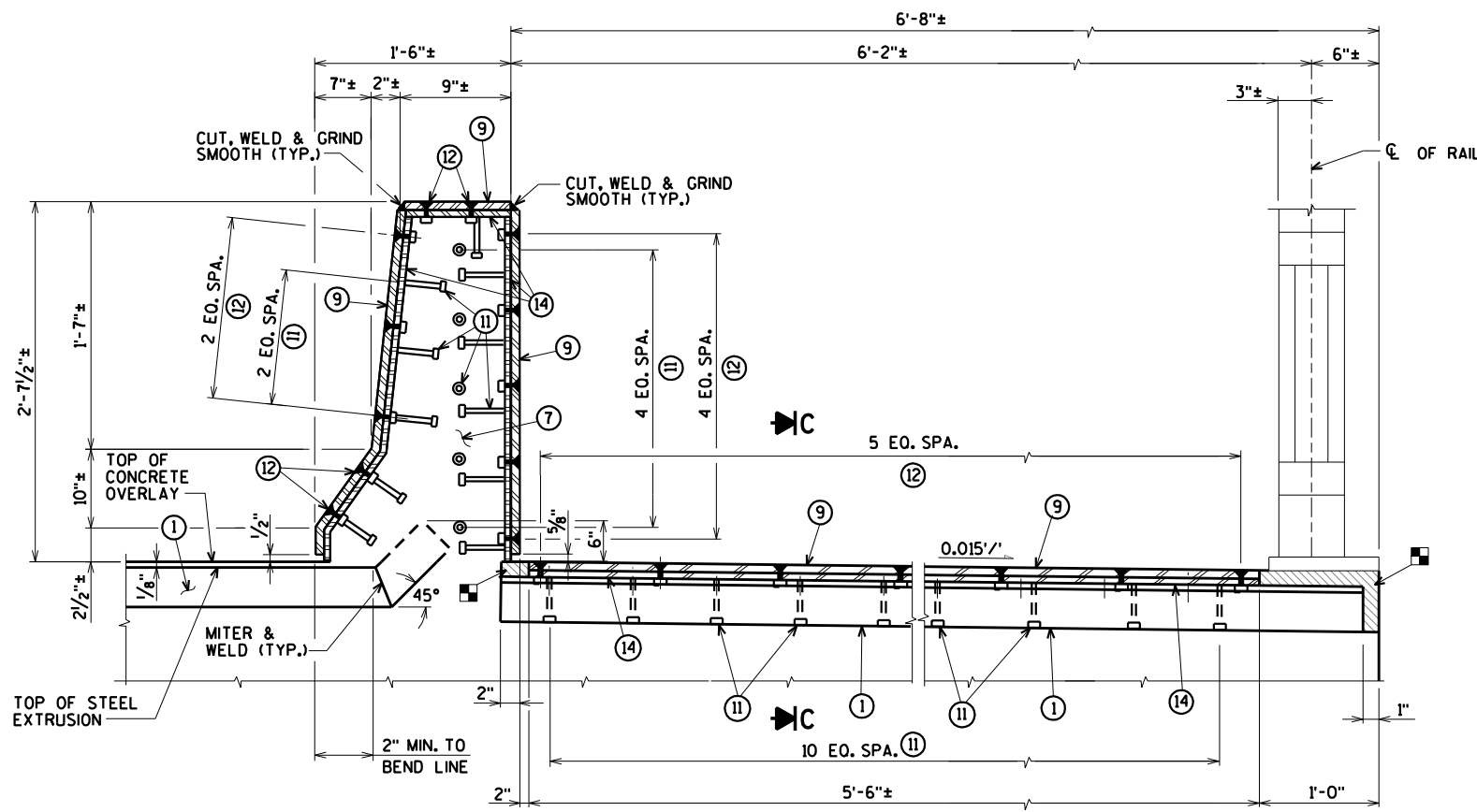
DRAWN BY CLS PLANS CK'D. CBM

**EXP. JOINTS  
11-15, 19, 20 & 22  
MEDIAN PARAPET**

SHEET 63 OF 99

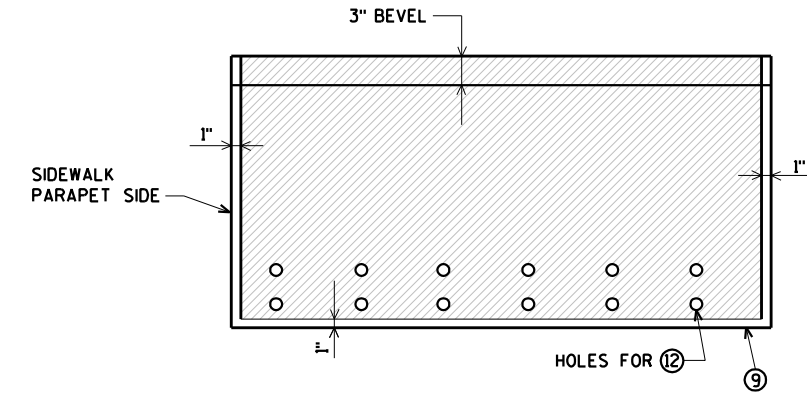
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

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 W/PARAPET  
SECTION A**

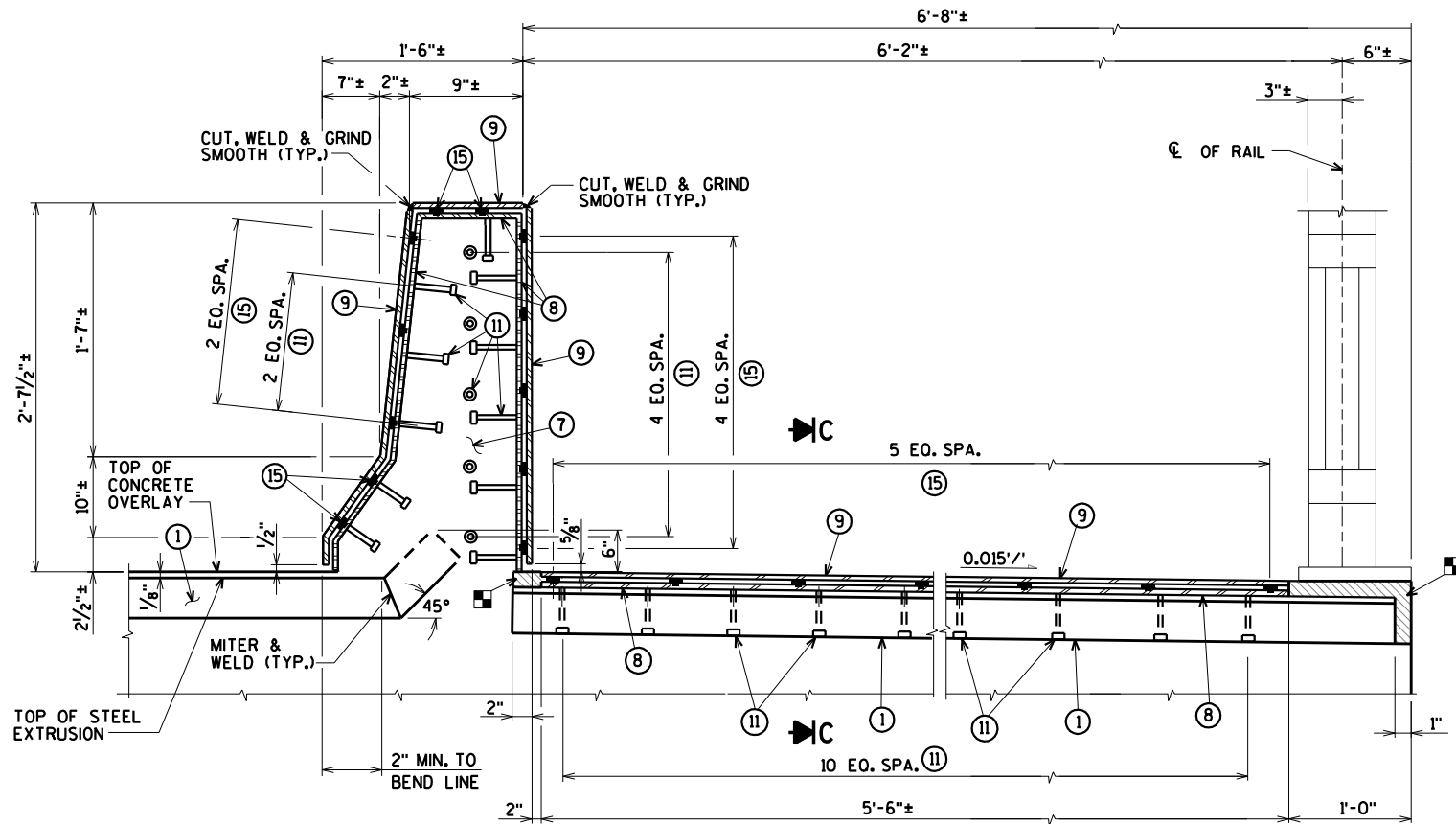
FOR LOCATIONS OF SECTIONS 'A' AND 'B'  
SEE SHEET 61



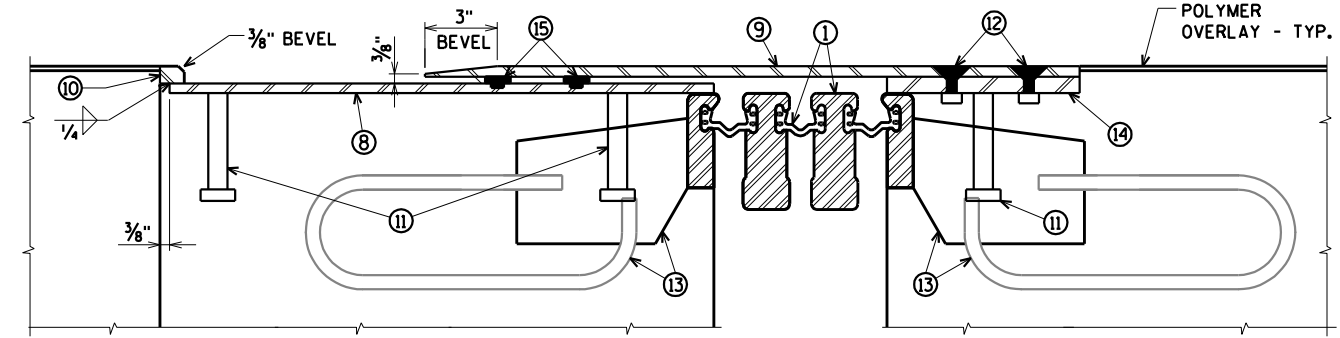
**PLAN OF SIDEWALK COVER PLATE  
WITH SLIP-RESISTANT SURFACE**

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.

WORK THIS SHEET WITH SHEETS 61-63, 65

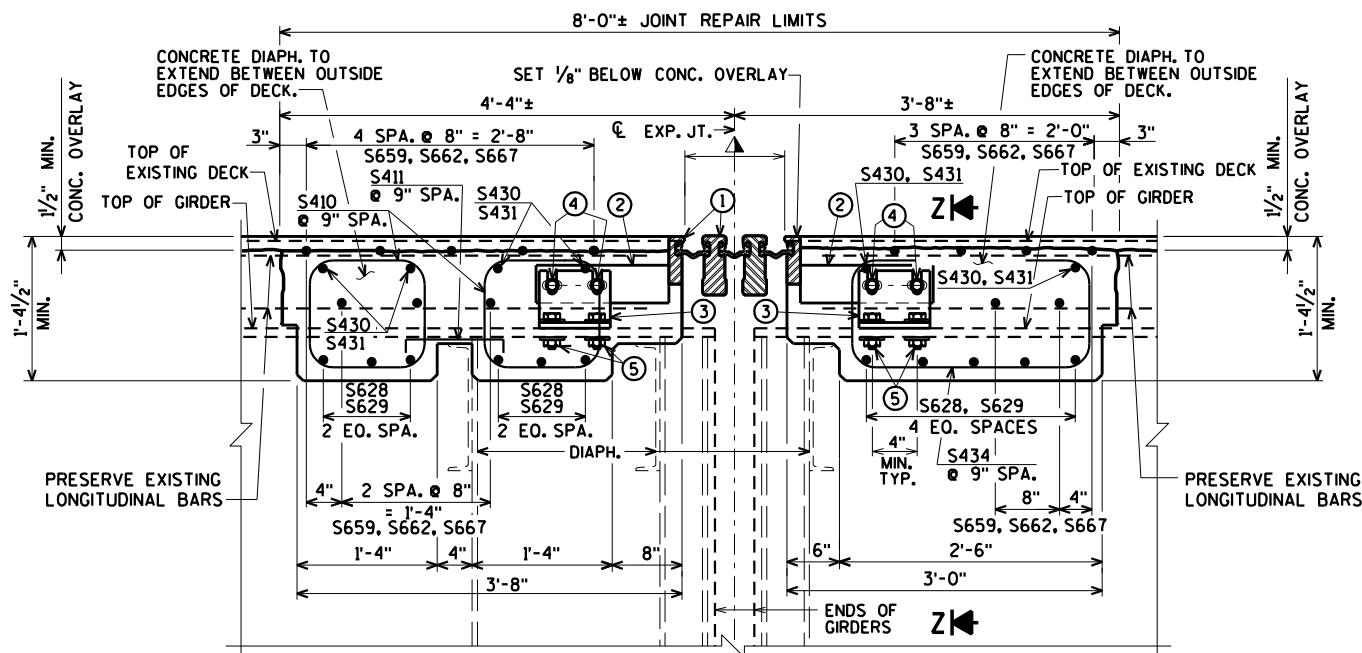
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>EXP. JOINTS 11-15, 19, 20 &amp; 22 SIDEWALK &amp; PARAPET</b>			SHEET 64 OF 99

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

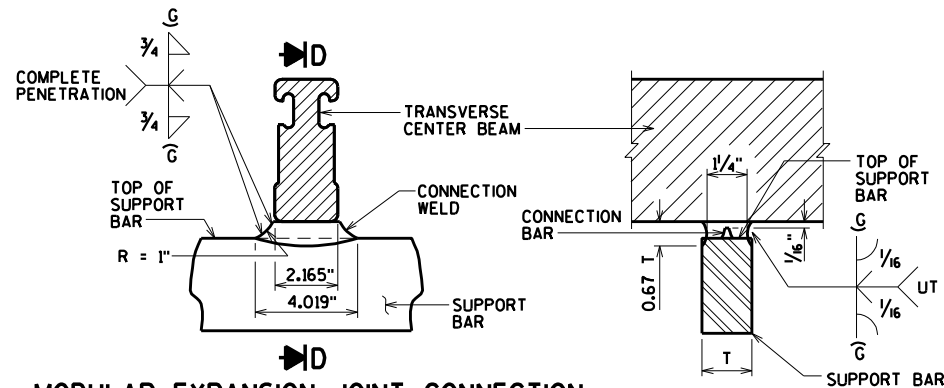
\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 EXPJT 8-22 mod dt1.dgn

8

8

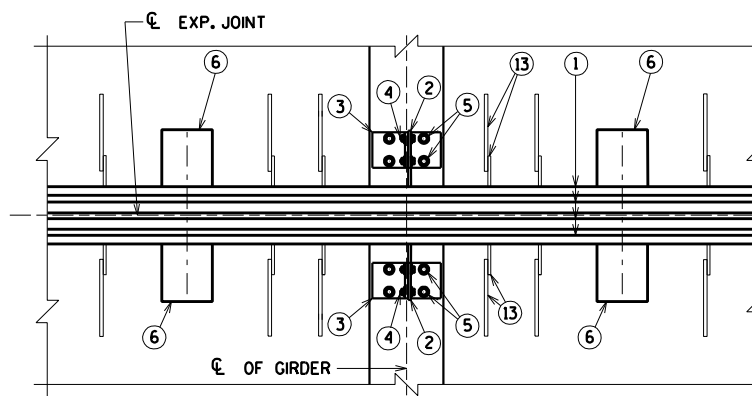


**SECTION THRU JOINTS 11 - 15, 19, 20, & 22**  
NORMAL TO  $\phi$  OF JOINT



**MODULAR EXPANSION JOINT CONNECTION  
DETAIL AND WELD SPECIFICATION**

**SECTION D**



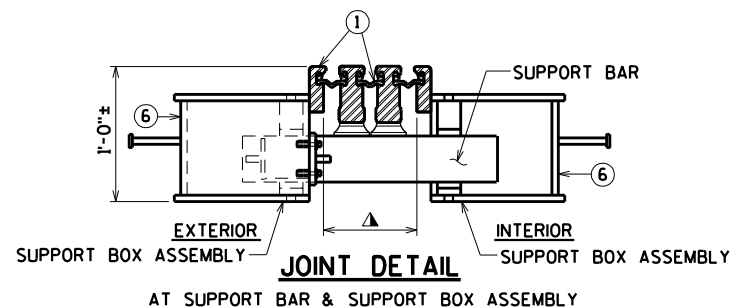
**PART PLAN**

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.

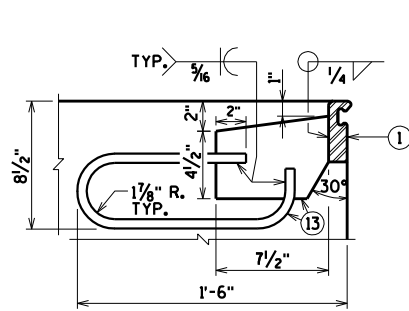
**GENERAL NOTES**

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED 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 RESPAEC AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.



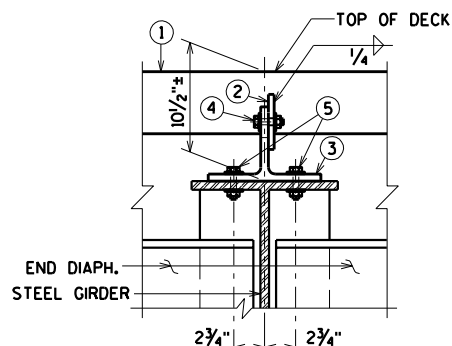
**JOINT DETAIL**

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



**ANCHORAGE DETAIL**

PLACE ADJACENT TO SUPPORT BOXES IN DECK & CONC. DIAPH.



**SECTION Z-Z**

**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"  $\phi$  HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
- ⑤ 3/4"  $\phi$  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 1/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.
- ⑪ 3/4"  $\phi$  x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.
- ⑫ 3/4"  $\phi$  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 3/8"  $\phi$  LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
- ⑭ INSIDE PLATE. FABRICATE FROM 3/8" 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:

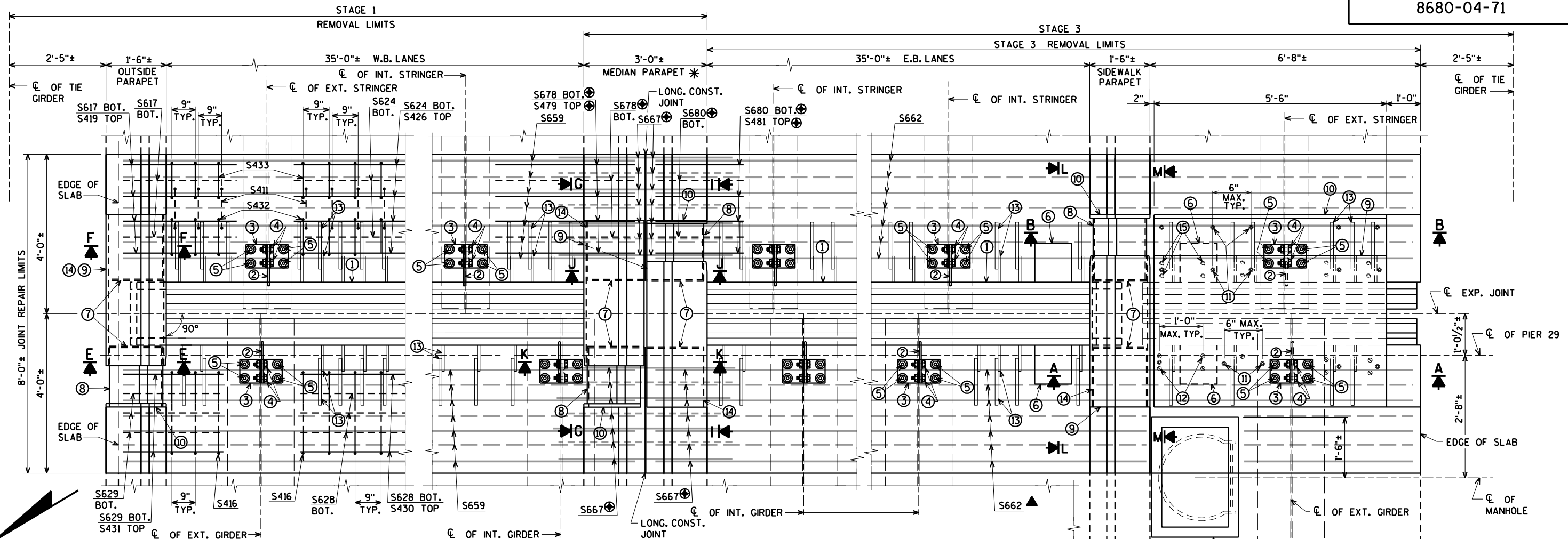
1. 1/2 IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 61-64

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MODULAR EXP. JOINTS 11-15, 19, 20 &amp; 22 DETAILS</b>			SHEET 65 OF 99

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



**PART PLAN AT JOINT 16**

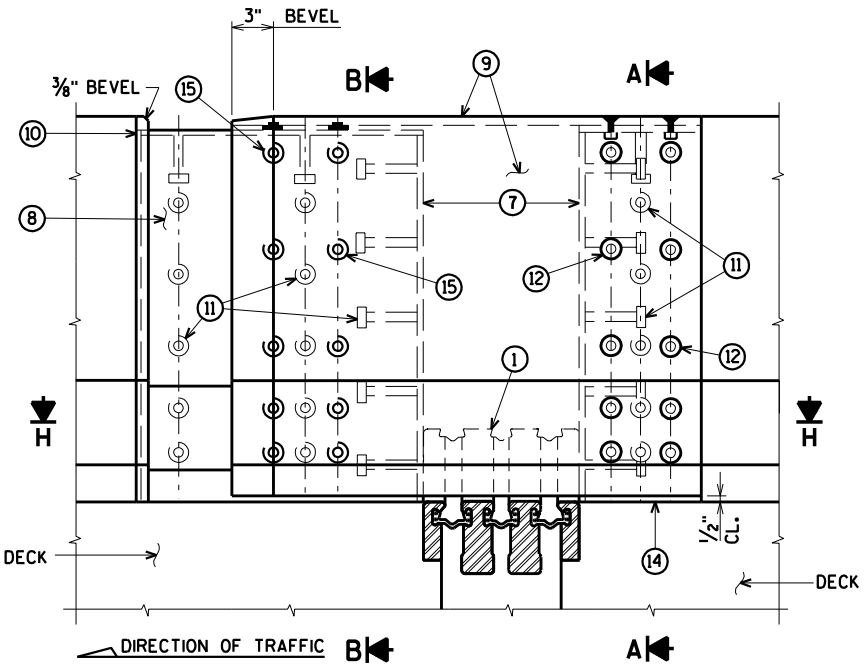
\* THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

REPLACE EXISTING 26" x 36" MANHOLE SEE SHEET 19 FOR DETAILS

- ▲ 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

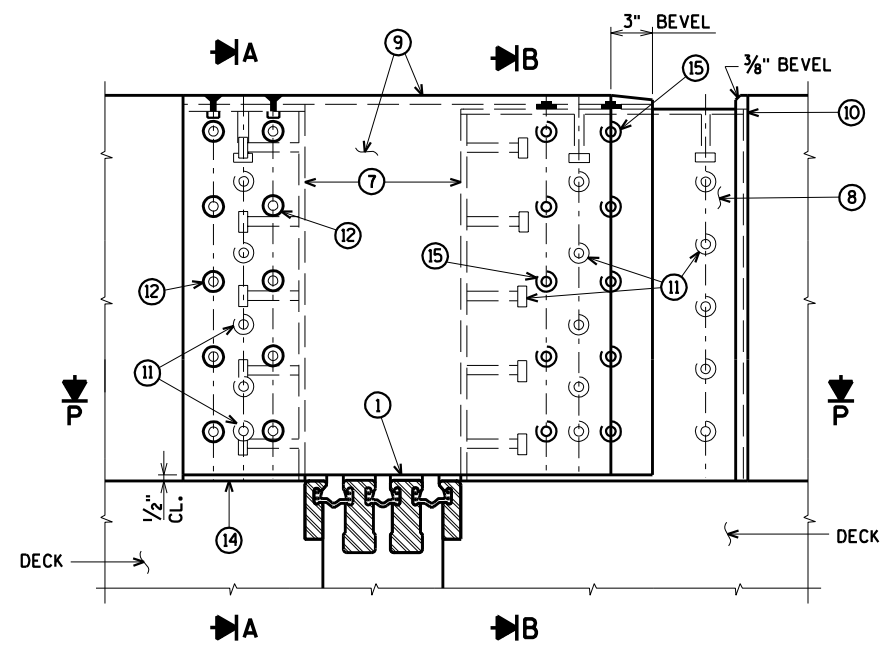
NOTE:  
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.



**ELEVATION OF SIDEWALK PARAPET SECTION L**

FOR SECTION 'H' SEE SHEET 67  
FOR SECTION 'P' SEE SHEET 68



**ELEVATION OF SIDEWALK PARAPET SECTION M**

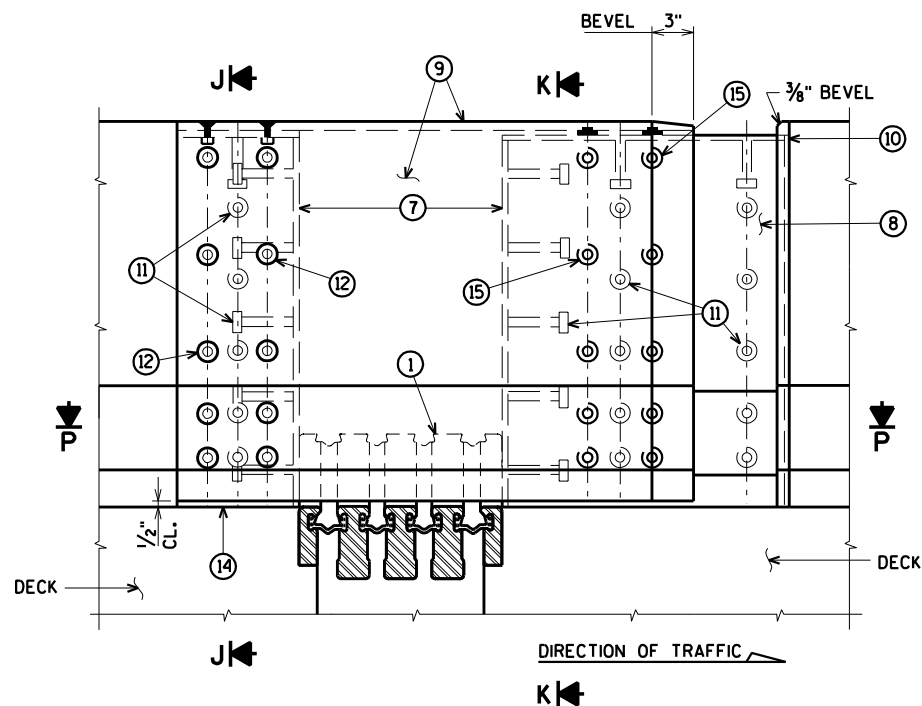
WORK THIS SHEET WITH SHEETS 67-70

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY	CLS	PLANS CK'D.	CBM
<b>MODULAR EXPANSION JOINT 16 DETAILS</b>			SHEET 66 OF 99

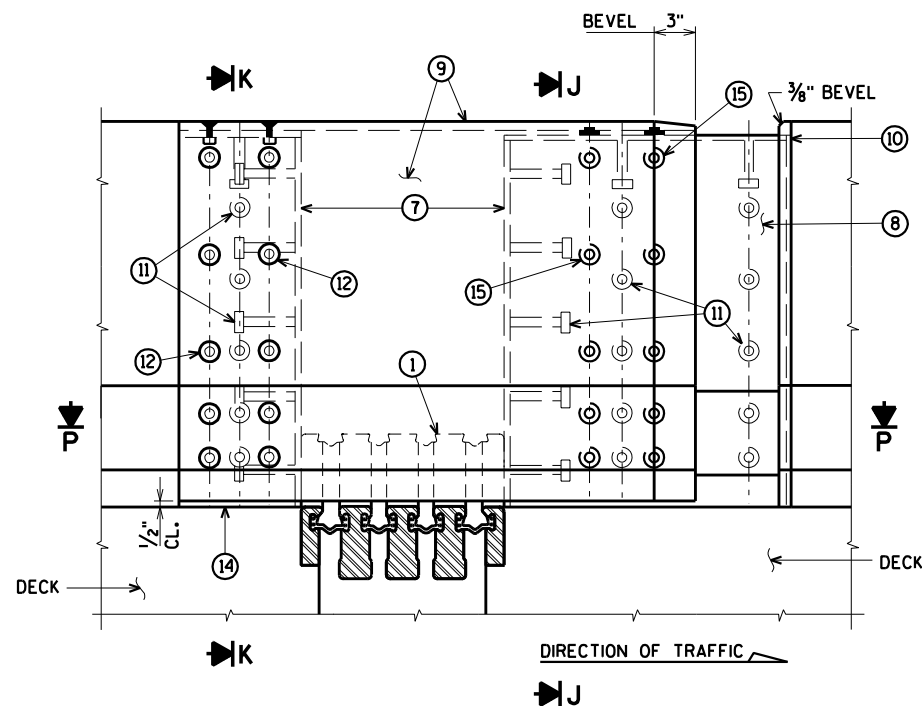
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
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ecpdcf.plt 42-0825 EXPJT 16.dgn

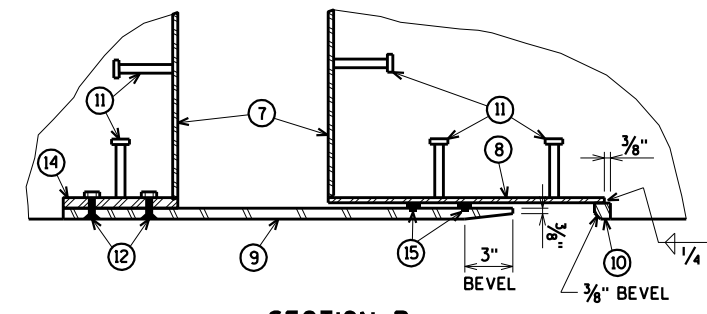




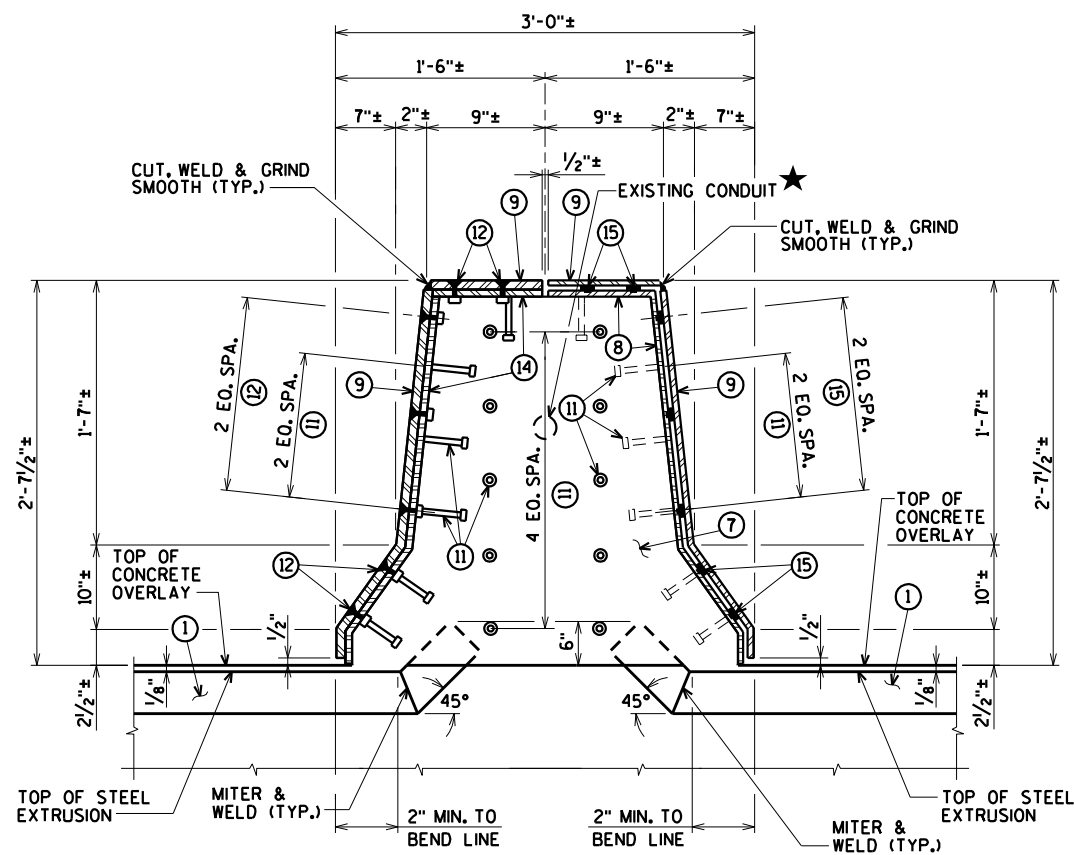
**ELEVATION OF MEDIAN PARAPET SECTION G**



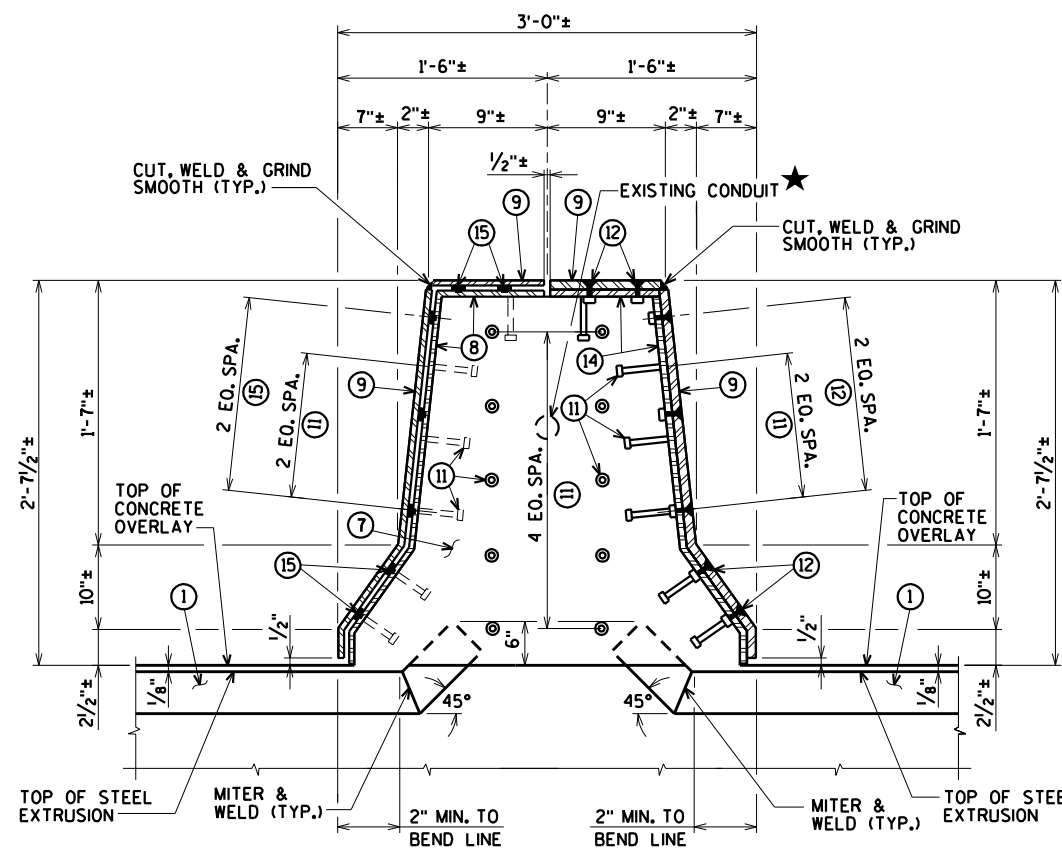
**ELEVATION OF MEDIAN PARAPET SECTION I**



**SECTION P**



**SECTION J**



**SECTION K**

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K' SEE SHEET 66

★ 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

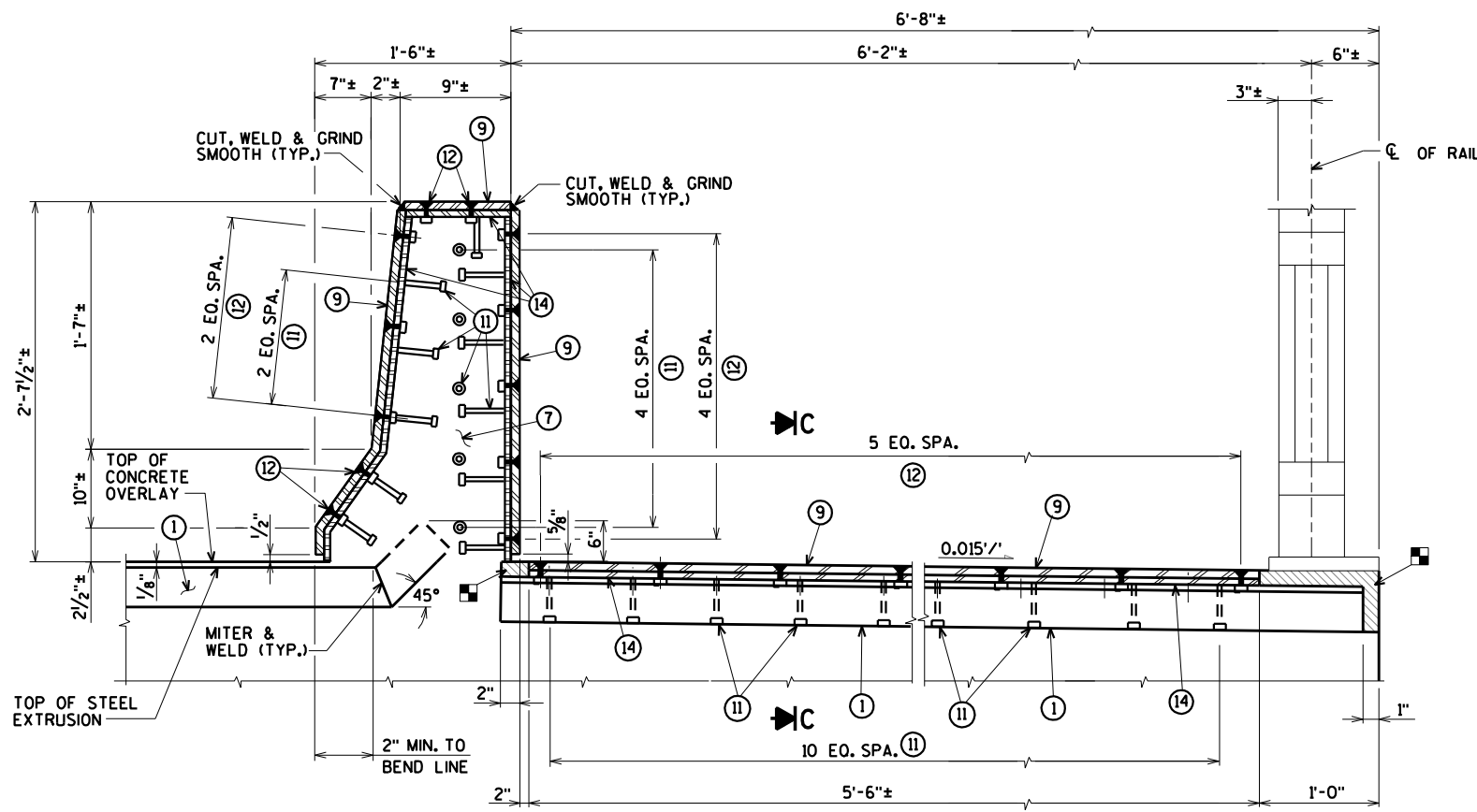
**STRUCTURE B-16-38/69100**

DRAWN BY CLS PLANS CK'D. CBM

**EXPANSION JOINT 16 DETAILS  
MEDIAN PARAPET**

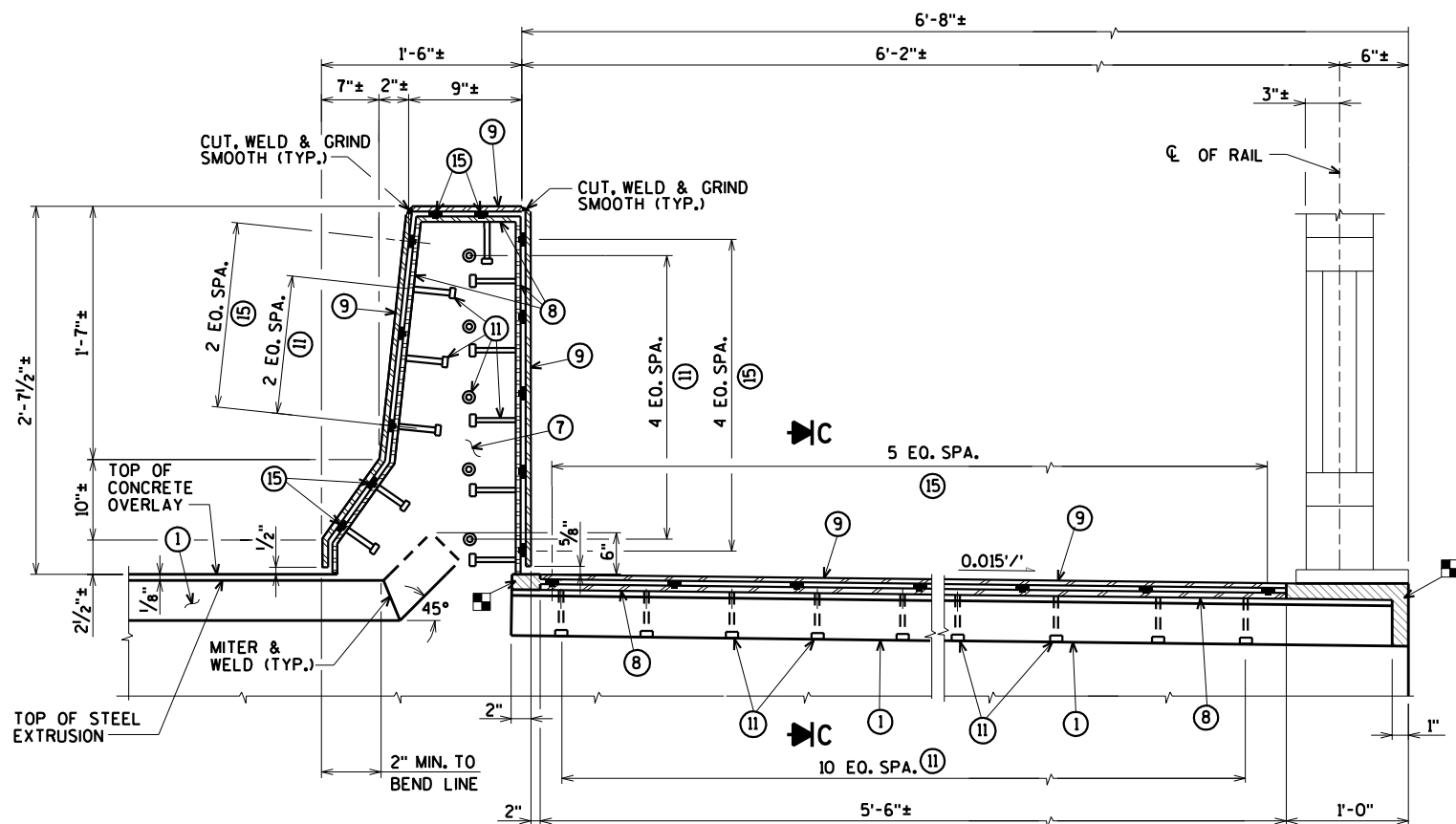
SHEET 68 OF 99

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



**ELEVATION OF SIDEWALK W/PARAPET  
SECTION A**

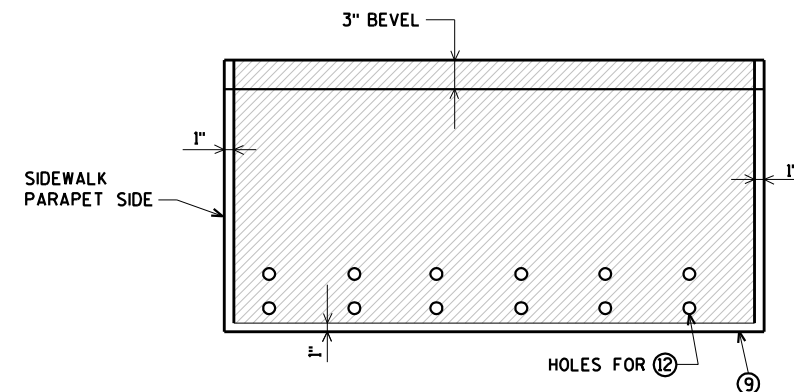
FOR LOCATIONS OF SECTIONS 'A' AND 'B'  
SEE SHEET 66



**ELEVATION OF SIDEWALK W/PARAPET  
SECTION B**

**NOTE:**

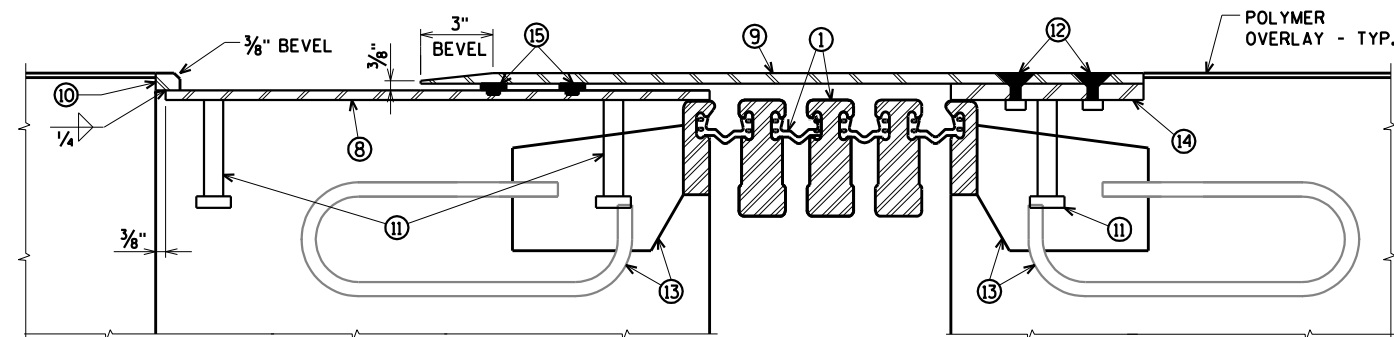
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



**PLAN OF SIDEWALK COVER PLATE  
WITH SLIP-RESISTANT SURFACE**

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.



**SECTION C**

■ 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			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
EXPANSION JOINT 16 DETAILS SIDEWALK & PARAPET			SHEET 69 OF 99

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

**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" φ HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
- ⑤ 3/4" φ 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 1/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.
- ⑪ 3/4" φ x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.
- ⑫ 3/4" φ 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 3/8" φ LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
- ⑭ INSIDE PLATE. FABRICATE FROM 3/8" PLATE.
- ⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

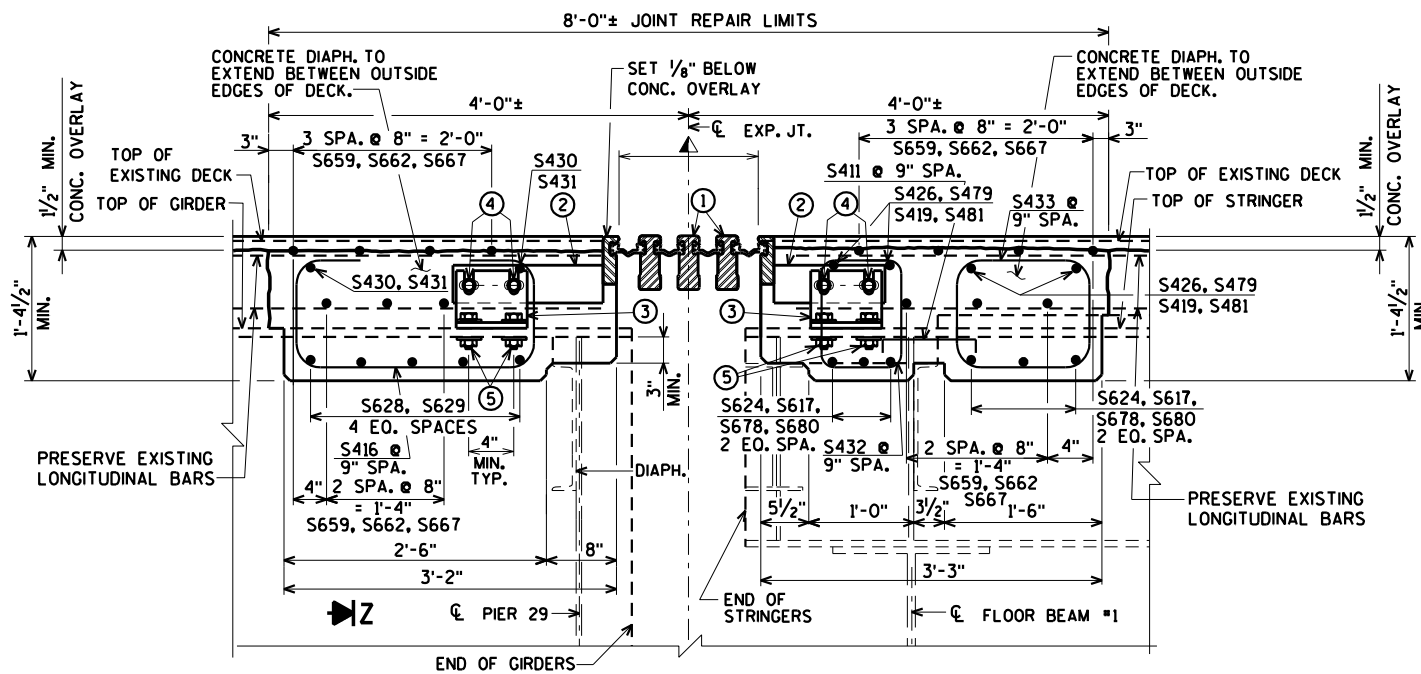
▲ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

● 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.

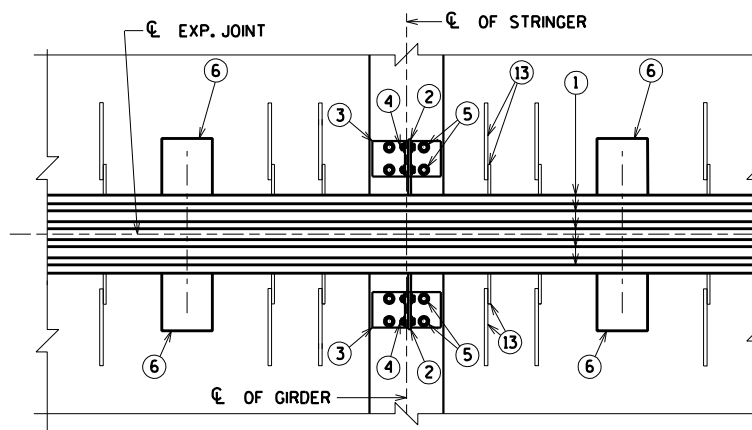
TEMP. TABLE	
TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:	
1.	5/8" IN. OF MOVEMENT PER 10° F
2.	MEDIAN TEMPERATURE OF 45° F
3.	TEMP. RANGE IN TABLE FROM (-5°F) TO (+95°F).
A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.	

WORK THIS SHEET WITH SHEETS 66-69

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MODULAR EXPANSION JOINT 16 DETAILS</b>			SHEET 70 OF 99



**SECTION THRU JOINT 16**  
NORMAL TO C/L OF JOINT



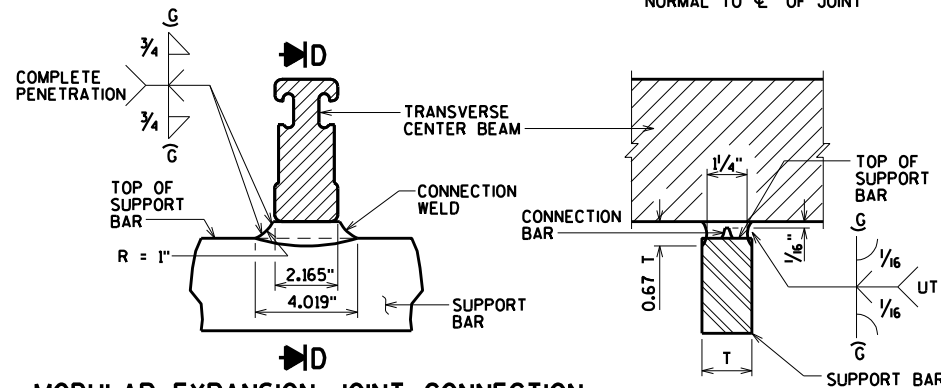
**PART PLAN**

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.

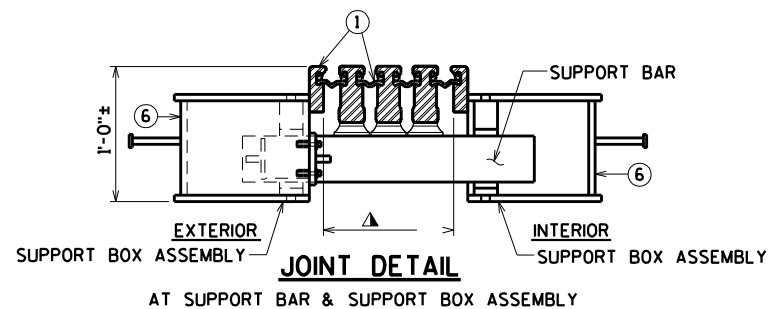
**GENERAL NOTES**

- ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED 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.



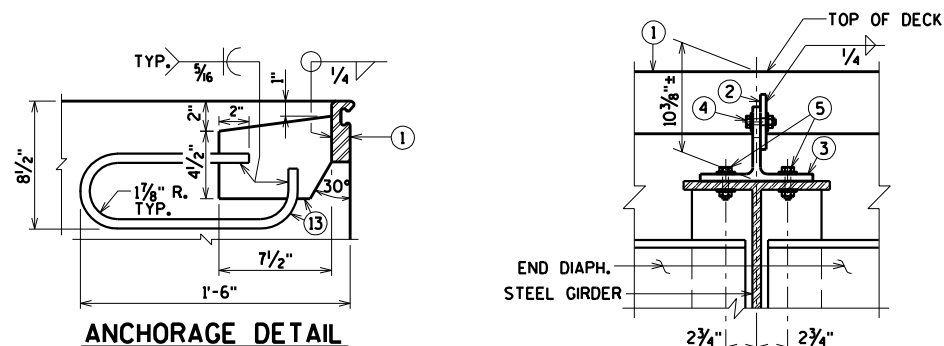
**MODULAR EXPANSION JOINT CONNECTION**  
DETAIL AND WELD SPECIFICATION

**SECTION D**



**JOINT DETAIL**

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



**ANCHORAGE DETAIL**

PLACE ADJACENT TO SUPPORT BOXES IN DECK & CONC. DIAPH.

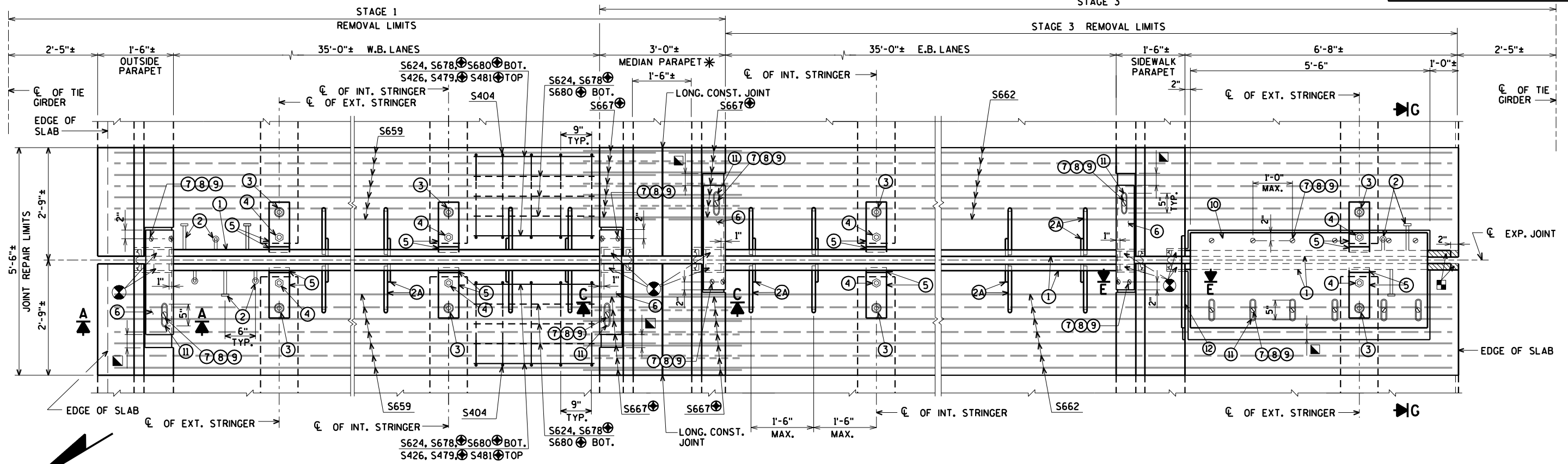
**SECTION Z-Z**

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8

8





**PART PLAN AT JOINT 17**

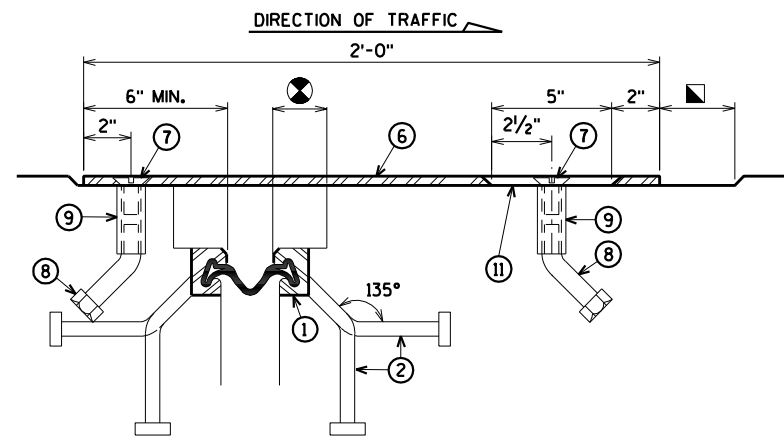
\* THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

FOR SECTION 'C' SEE SHEET 72

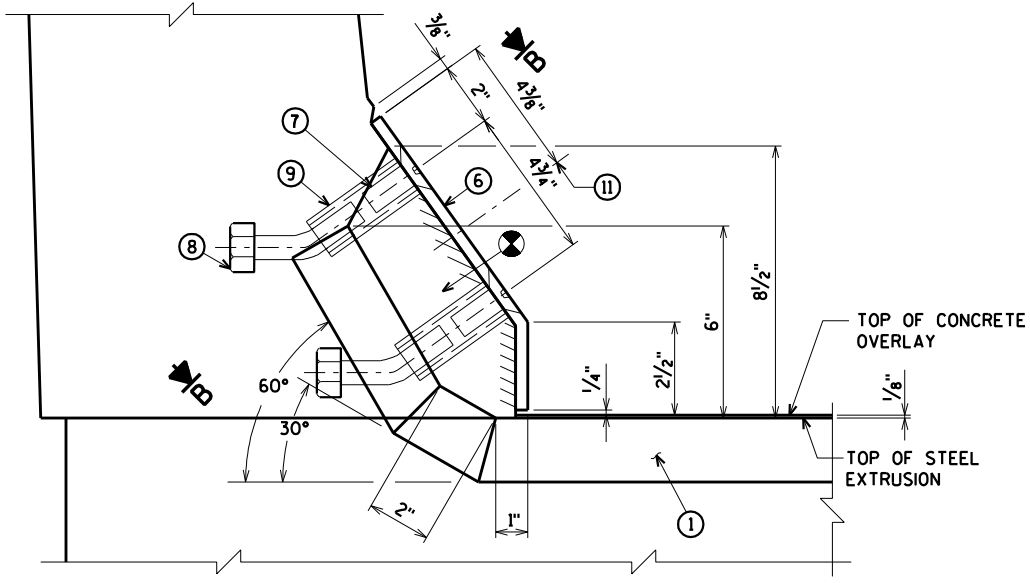
FOR SECTIONS 'E' AND 'G' SEE SHEET 73

**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".

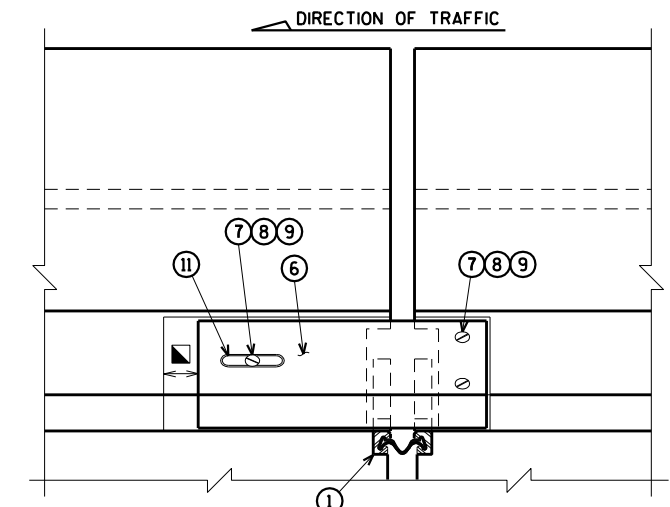
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.



**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 1/2".
- ▣ BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.

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**AYRES ASSOCIATES**  
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Eau Claire, WI 54701  
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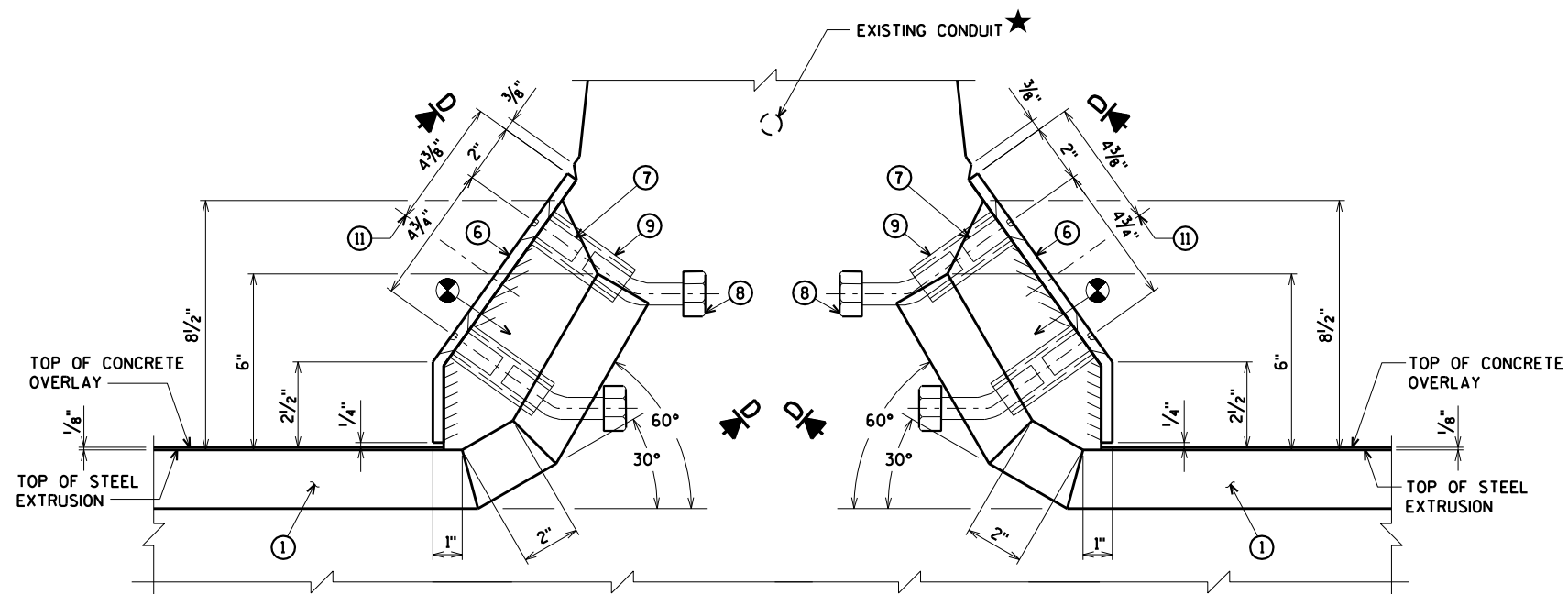
WORK THIS SHEET WITH SHEETS 72-74

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>STRIP SEAL EXPANSION JOINT 17 DETAILS</b>			SHEET 71 OF 99

ecpdf.plt 42-0825 EXPJT 17 ss.dgn

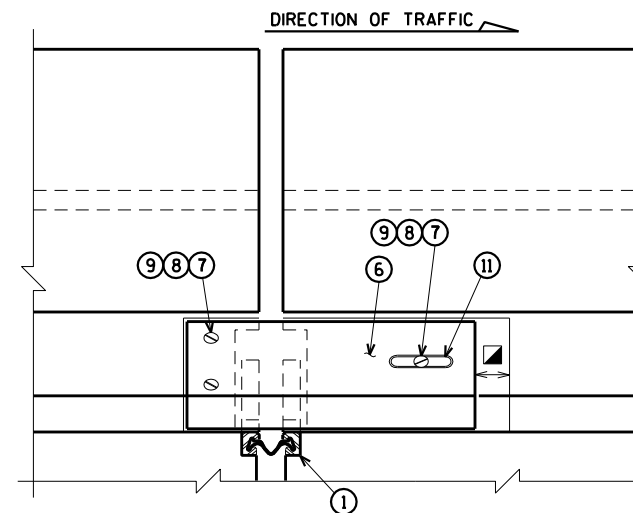
8

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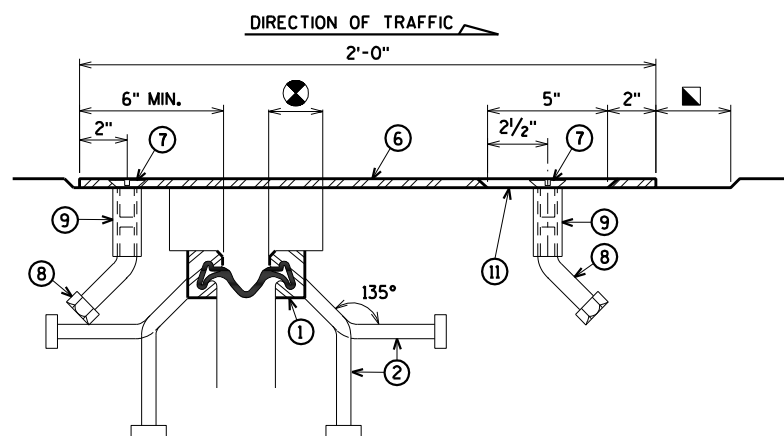


**SECTION C**  
MEDIAN PARAPET

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".

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8

WORK THIS SHEET WITH SHEETS 71, 73-74

NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

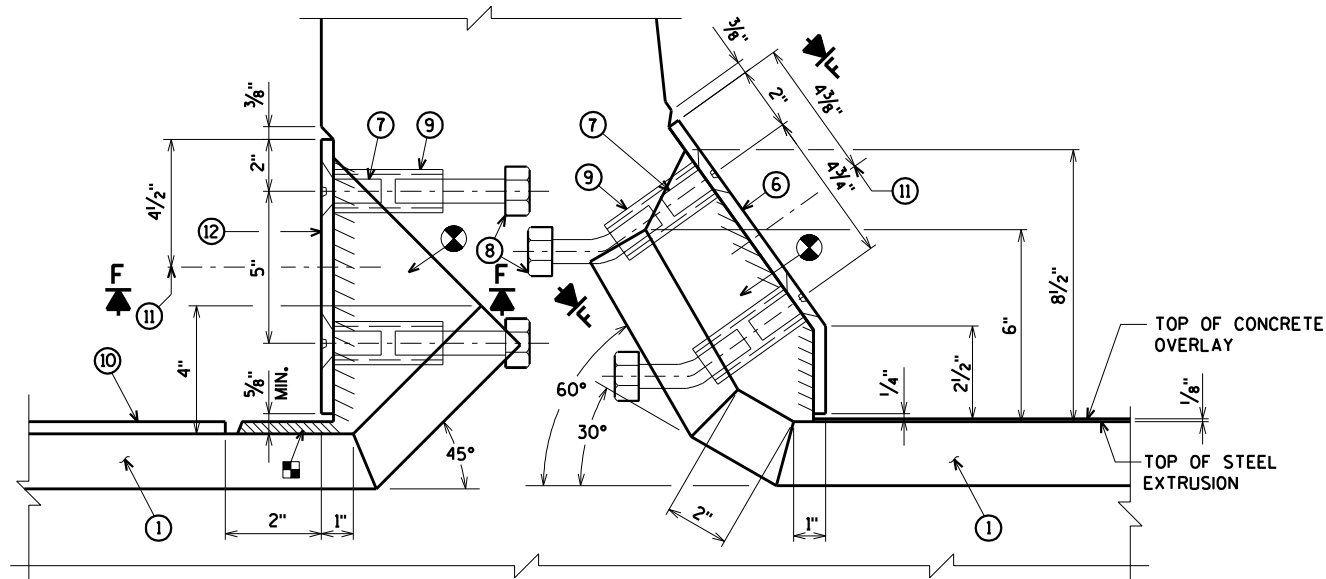
**STRUCTURE B-16-38/69100**

DRAWN BY	CLS	PLANS CK'D.	CBM
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**MEDIAN PARAPET  
COVER PLATE  
JOINT 17 DETAILS**

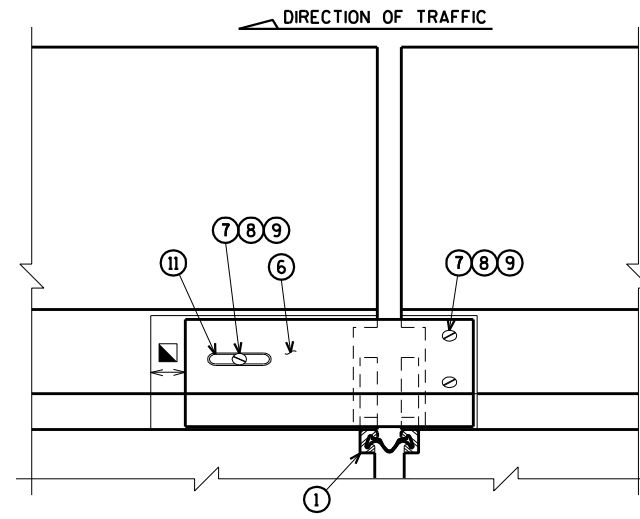
SHEET 72 OF 99

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3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
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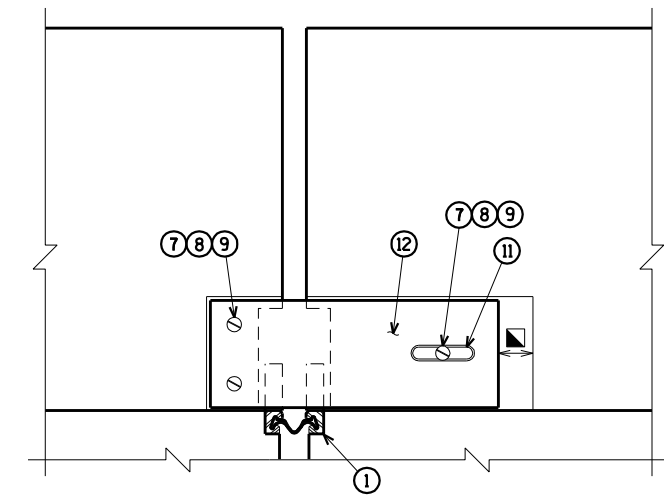


**SECTION E**  
SIDEWALK PARAPET

FOR LOCATION OF SECTIONS 'E' AND 'G'  
SEE SHEET 71

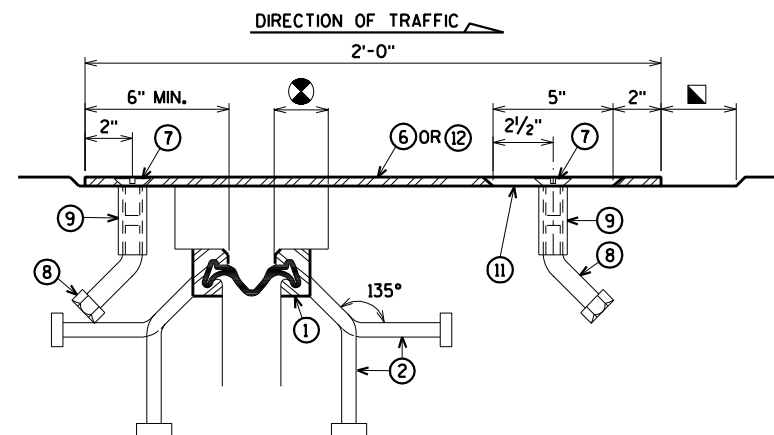


**VIEW OF PARAPET PLATES FROM ROADWAY**  
SIDEWALK PARAPET

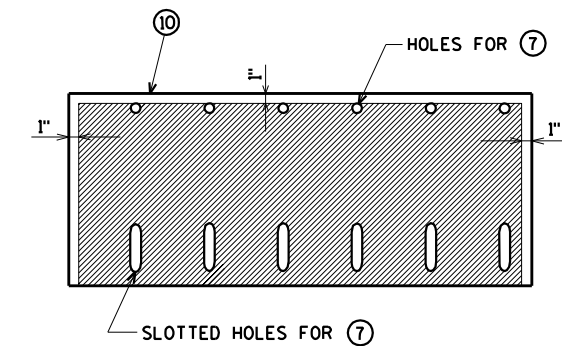


**VIEW OF PARAPET PLATES FROM SIDEWALK**  
SIDEWALK PARAPET

**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**

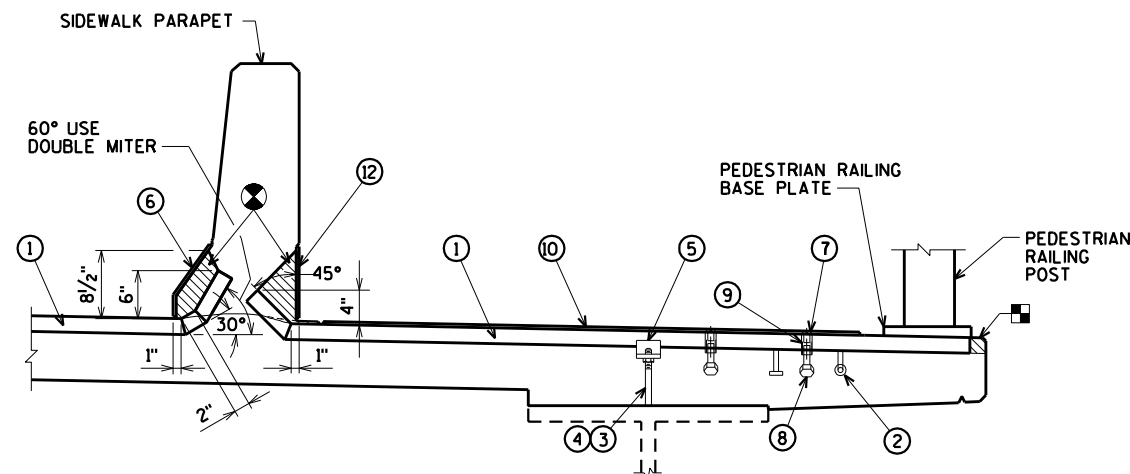


**PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE**

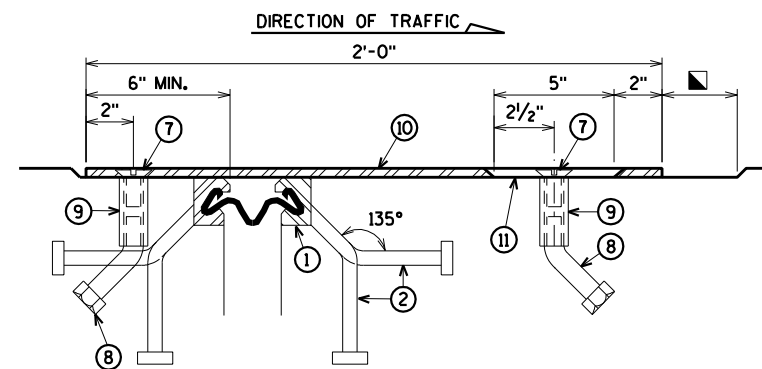
PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY.

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 1/2".
- BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.



**SECTION AT SIDEWALK**



**SECTION G**

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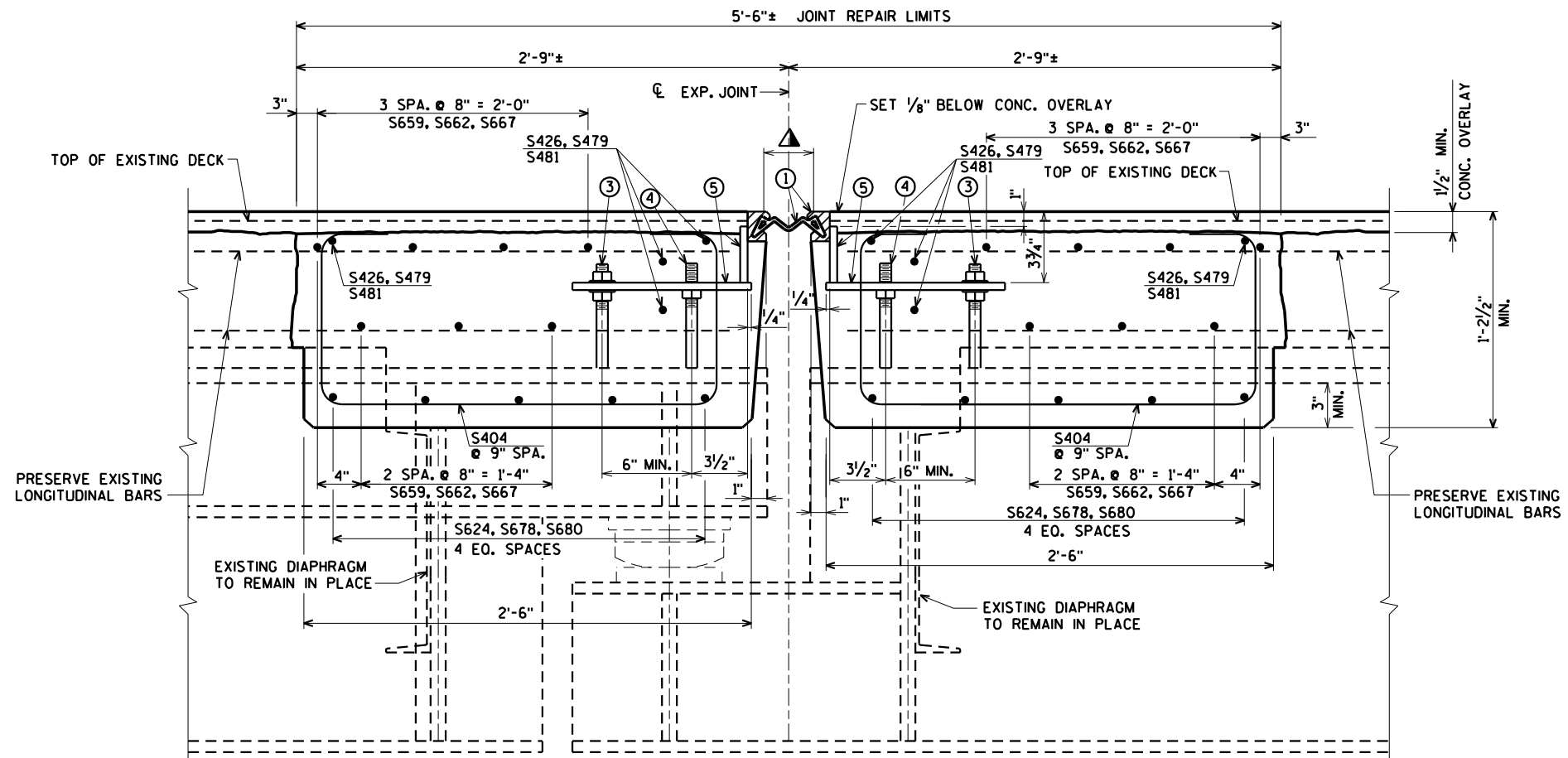
8

8

WORK THIS SHEET WITH SHEETS 71-72, 74

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>SIDEWALK PARAPET COVER PLATE</b>			SHEET 73 OF 99
<b>JOINT 17 DETAILS</b>			

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**SECTION THRU JOINT 17**  
DIMENSIONS ARE NORMAL TO  $\bar{C}$  OF JOINT

- LEGEND**
- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 2/4".
  - ② STUDS 5/8"  $\phi$  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"  $\phi$  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"  $\phi$  THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE.
  - ④ 3/4"  $\phi$  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"  $\phi$  HOLE FOR NO. 3 AND 1"  $\phi$  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"  $\phi$  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"  $\phi$  X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
  - ⑨ 3/4"  $\phi$  X 2 1/4" GALVANIZED THREADED COUPLING.
  - ⑩ SIDEWALK COVER PLATE 3/8" 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 3/8" 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.

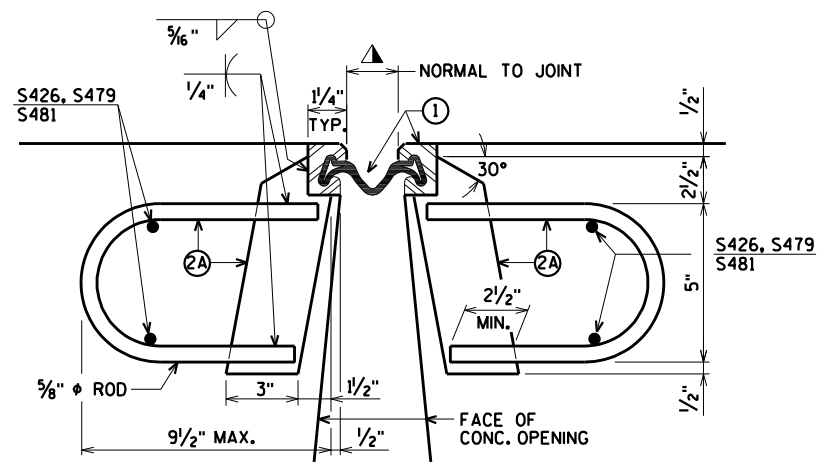
AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

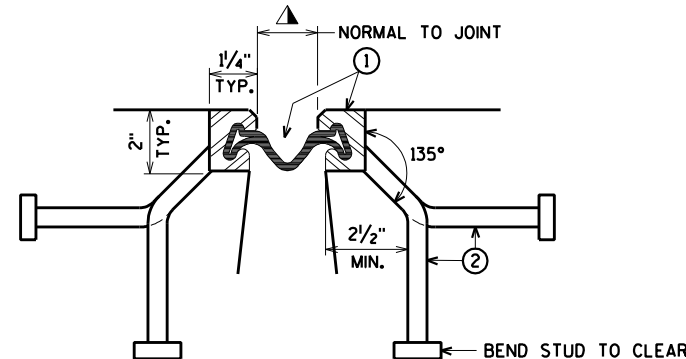
SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED 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".

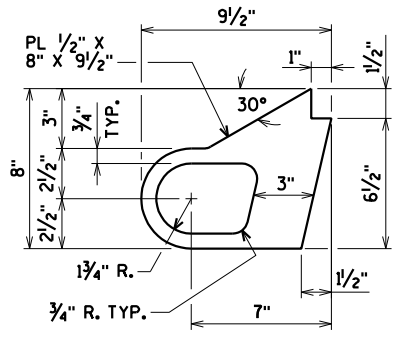


**SECTION THRU JOINT**  
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR STRINGERS



**SECTION THRU JOINT**  
EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS

SYM. ABOUT  $\bar{C}$  JOINT UNLESS OTHERWISE SHOWN OR NOTED



**ALTERNATE STRIP SEAL ANCHOR**

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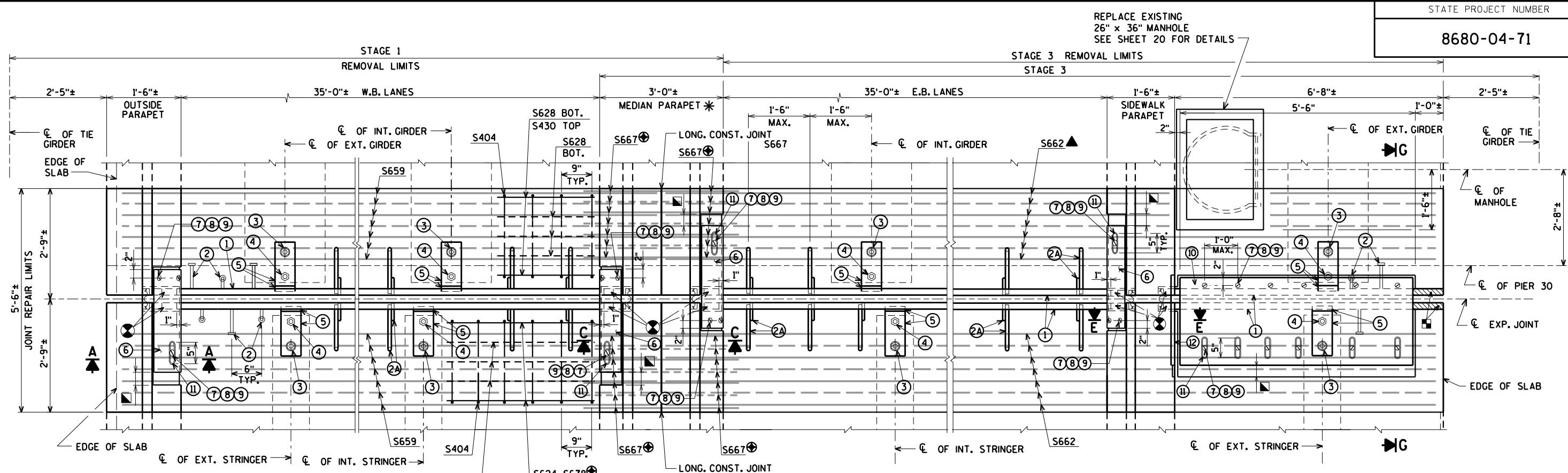
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WORK THIS SHEET WITH SHEETS 71-73

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>STRIP SEAL EXPANSION JOINT 17 DETAILS</b>			SHEET 74 OF 99

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

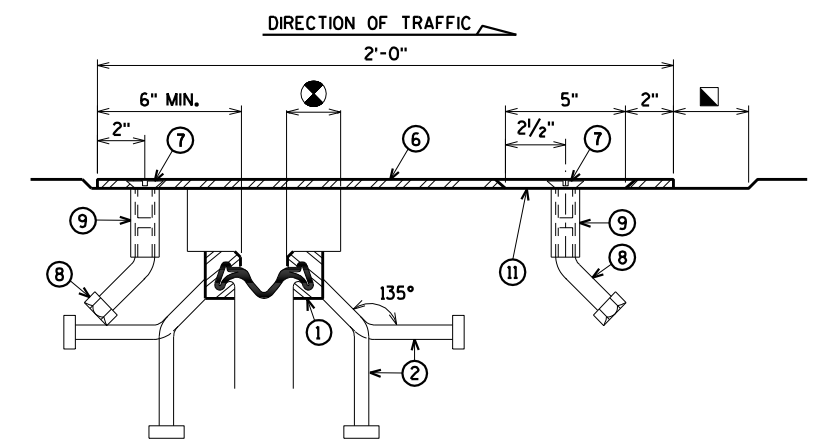
FOR SECTION 'C'  
SEE SHEET 76

FOR SECTIONS 'E' AND 'G'  
SEE SHEET 77

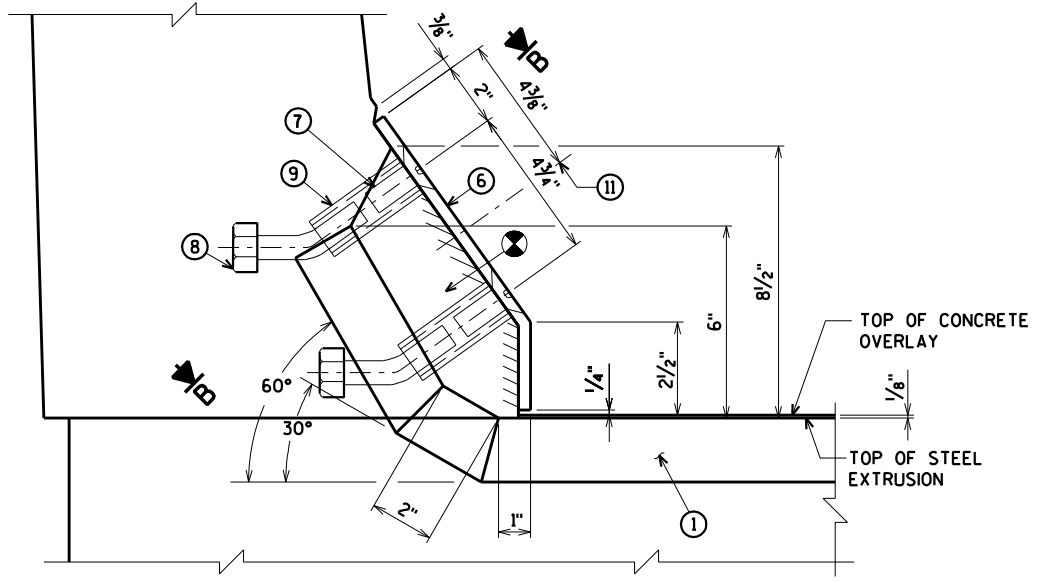
**NOTE:**  
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

▲ 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.

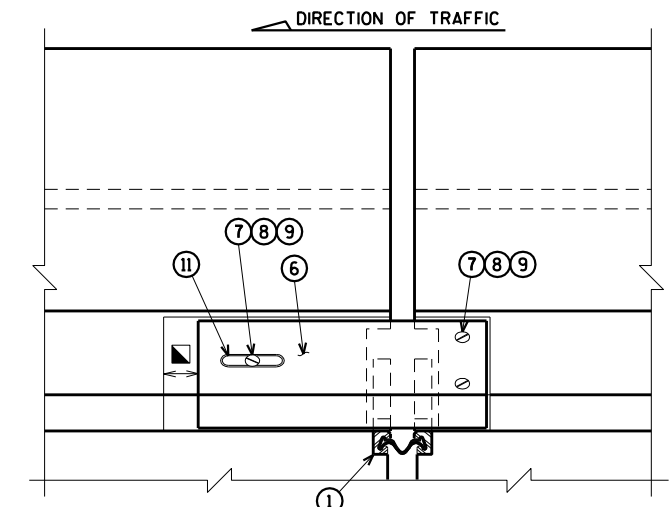


**SECTION B**



**SECTION A  
OUTSIDE PARAPET**

- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".
- BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.



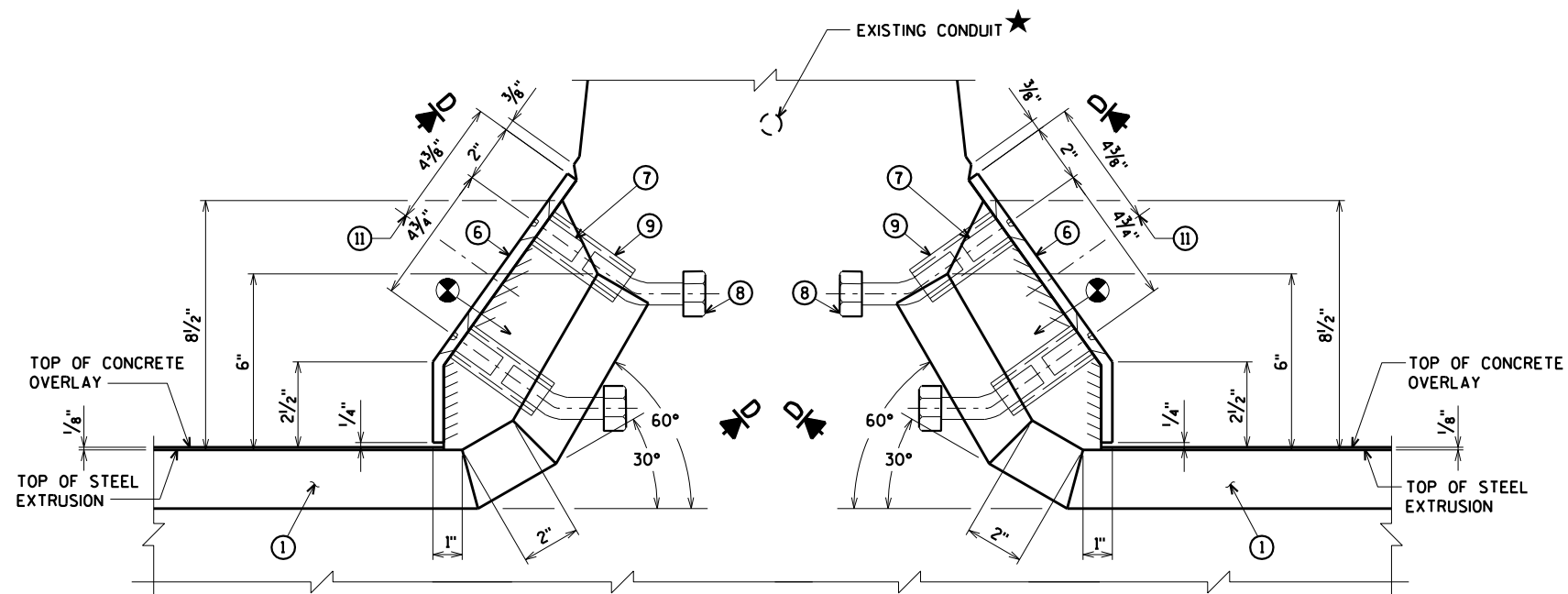
**VIEW OF PARAPET PLATES FROM ROADWAY  
OUTSIDE PARAPET**

WORK THIS SHEET WITH SHEETS 76-78

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>STRIP SEAL EXPANSION JOINT 18 DETAILS</b>			SHEET 75 OF 99

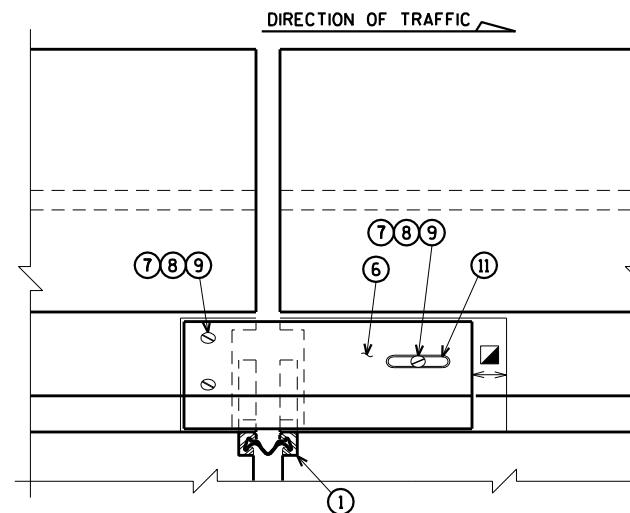
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
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Eau Claire, WI 54701  
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ecpdf.plt 42-0825 EXPJT 18 ss.dgn

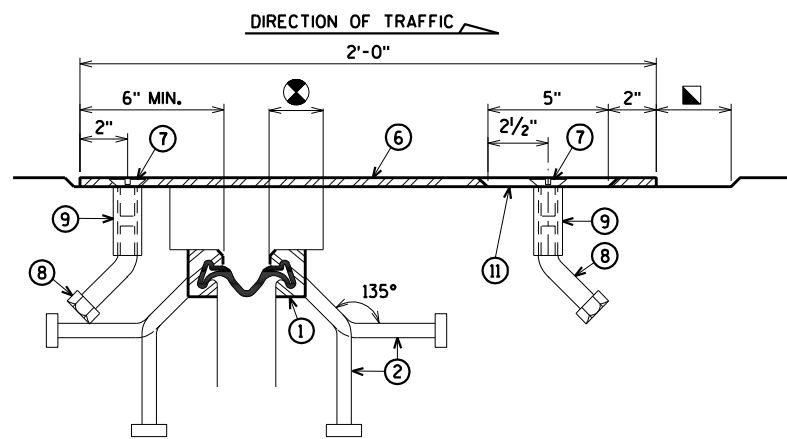


**SECTION C**  
MEDIAN PARAPET

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".

ecpdf.plt 42-0825 EXPJT 18 ss.dgn

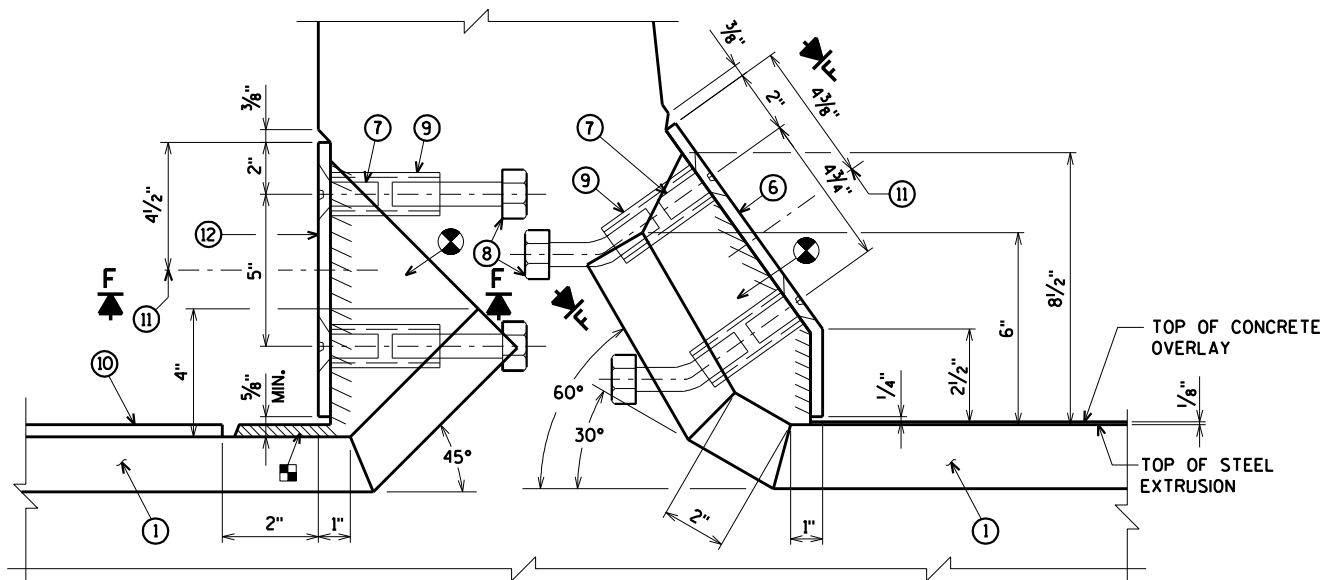
8

8

WORK THIS SHEET WITH SHEETS 75, 77-78

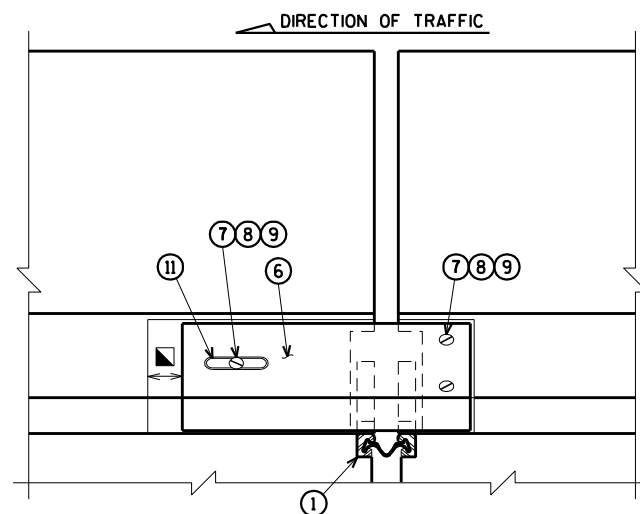
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MEDIAN PARAPET COVER PLATE JOINT 18 DETAILS</b>			SHEET 76 OF 99

ORIGINAL PLANS PREPARED BY  
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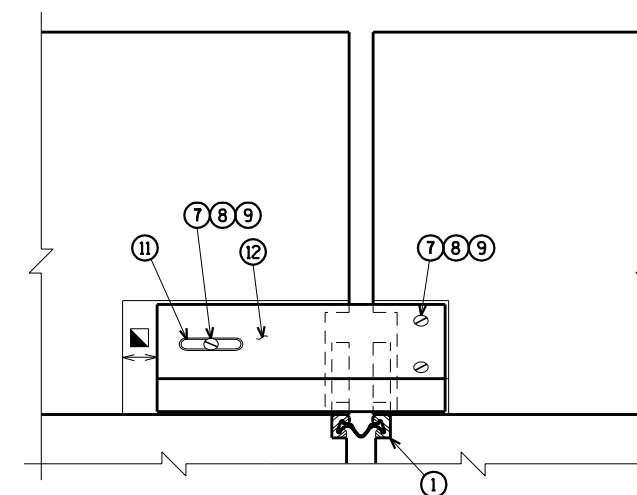


**SECTION E**  
SIDEWALK PARAPET

FOR LOCATION OF SECTIONS 'E' AND 'G'  
SEE SHEET 75

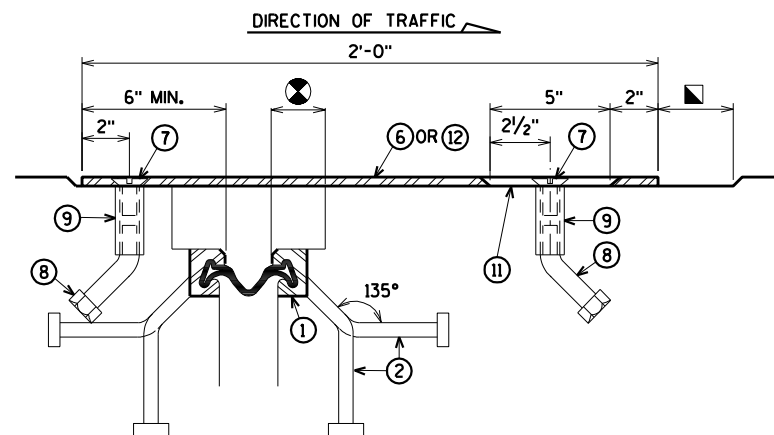


**VIEW OF PARAPET PLATES FROM ROADWAY**  
SIDEWALK PARAPET

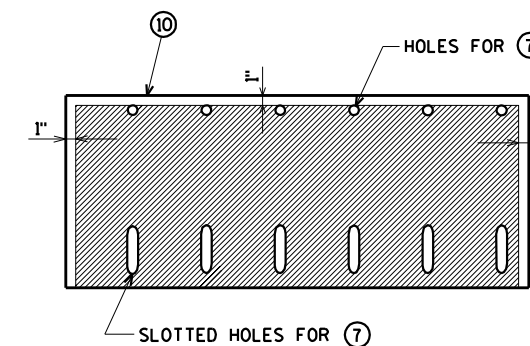


**VIEW OF PARAPET PLATES FROM SIDEWALK**  
SIDEWALK PARAPET

**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**

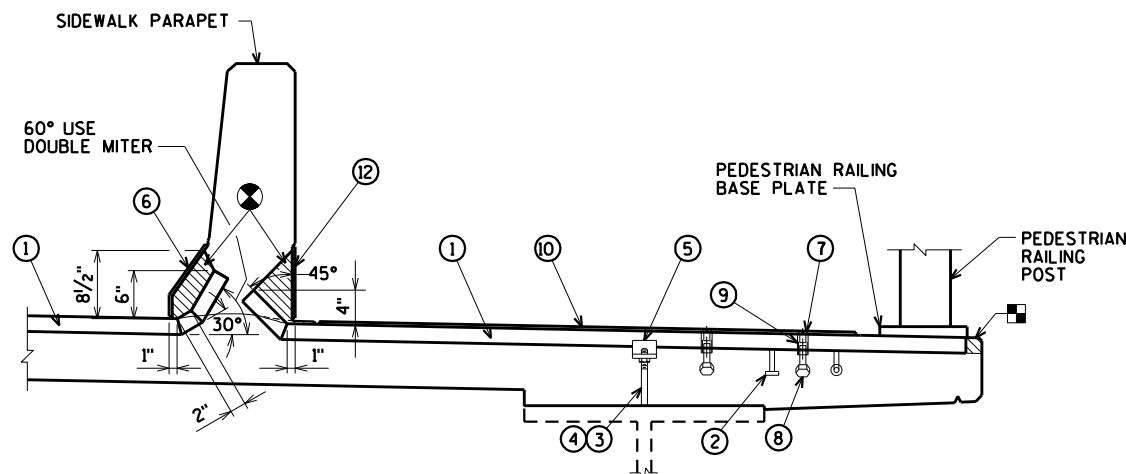
PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY.

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

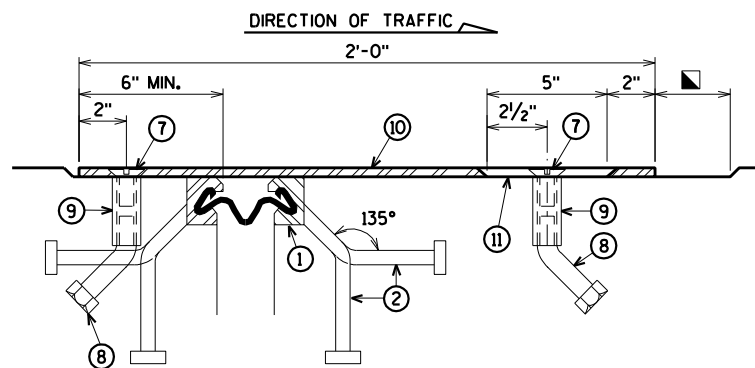
⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

■ BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.



**SECTION AT SIDEWALK**

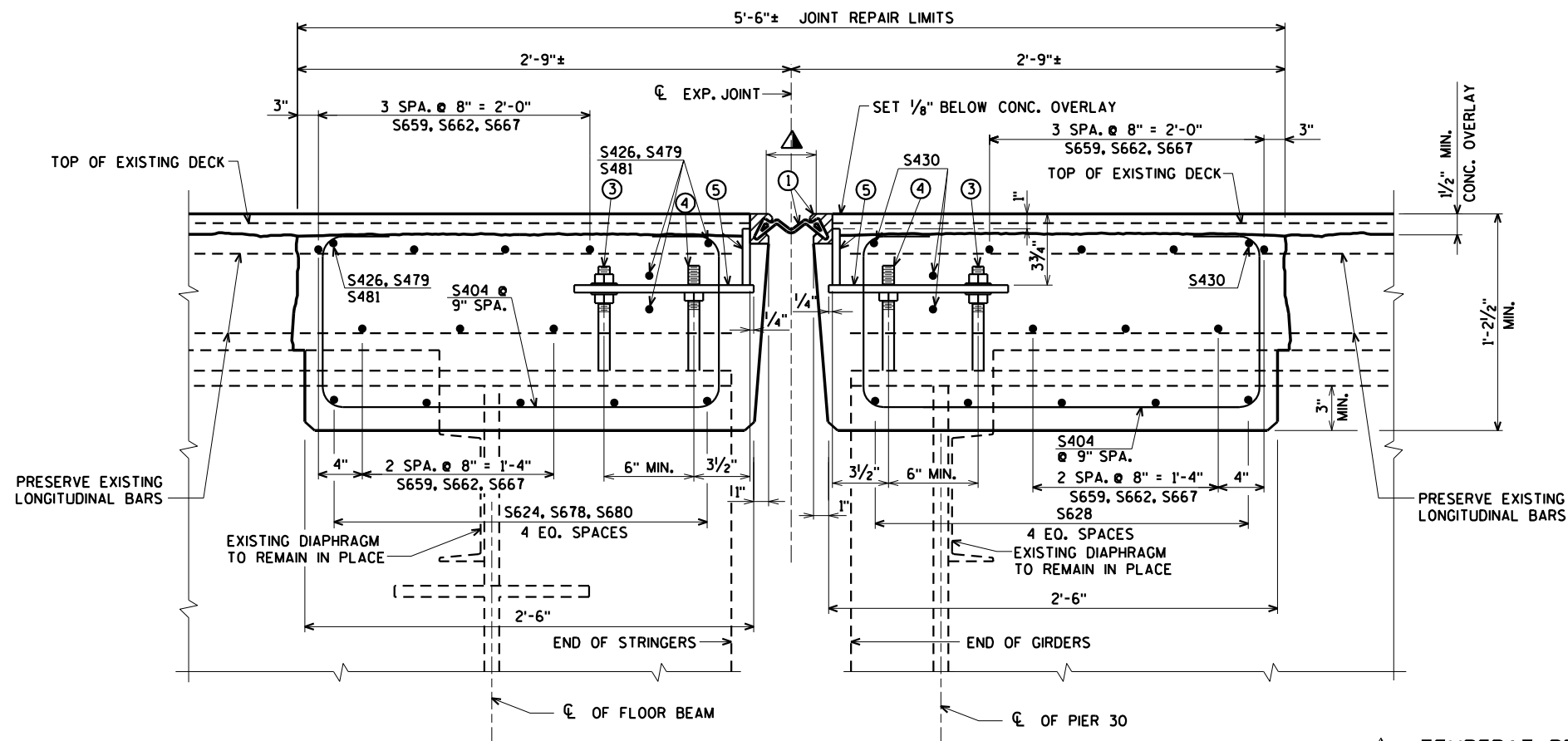


**SECTION G**

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

WORK THIS SHEET WITH SHEETS 75-76, 78

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY	CLS	PLANS CK'D.	CBM
<b>SIDEWALK PARAPET COVER PLATE JOINT 18 DETAILS</b>			SHEET 77 OF 99



**SECTION THRU JOINT 18**  
DIMENSIONS ARE NORMAL TO  $\phi$  OF JOINT

**LEGEND**

- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
- ② STUDS  $\frac{5}{8}$ "  $\phi$  X  $6\frac{3}{8}$ " LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A  $\frac{1}{2}$ " THICK ANCHOR PLATE WITH  $\frac{5}{8}$ "  $\phi$  ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③  $\frac{3}{4}$ "  $\phi$  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  $\frac{3}{4}$ "  $\phi$  THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" X  $\frac{1}{2}$ " 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  $\frac{1}{2}$ "  $\phi$  HOLE FOR NO. 3 AND 1"  $\phi$  HOLE FOR NO. 4.
- ⑥ GALVANIZED PLATE  $\frac{3}{8}$ " X  $10\frac{1}{2}$ " X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- ⑦  $\frac{3}{4}$ "  $\phi$  X  $\frac{1}{2}$ " STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS  $\frac{1}{8}$ " BELOW PLATE SURFACE.
- ⑧  $\frac{3}{4}$ "  $\phi$  X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨  $\frac{3}{4}$ "  $\phi$  X  $2\frac{1}{4}$ " GALVANIZED THREADED COUPLING.
- ⑩ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
- ⑪ SIDEWALK COVER PLATE  $\frac{3}{8}$ " X 2'-0" X LIMITS SHOWN WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.
- ⑫ GALVANIZED PLATE  $\frac{3}{8}$ " X 10" X 2'-0" LONG WITH HOLES FOR NO. 7.

**TEMPERATURE TABLE**

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1/4"
75°	1/2"
65°	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.

**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.

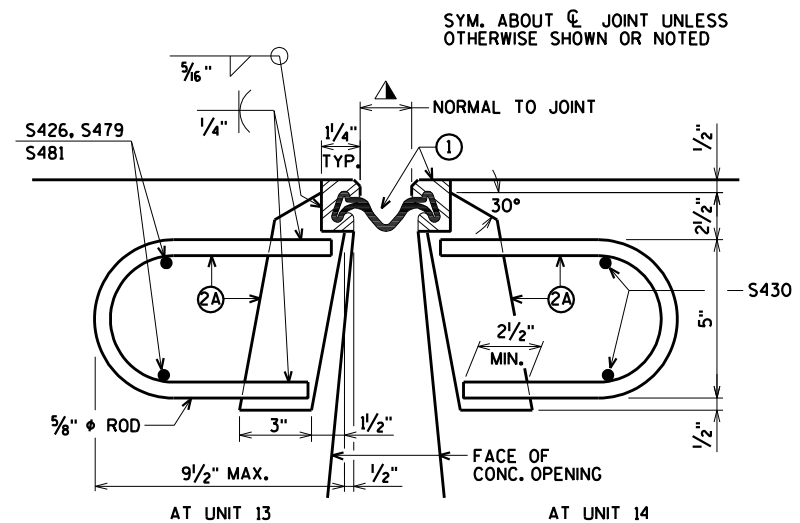
AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

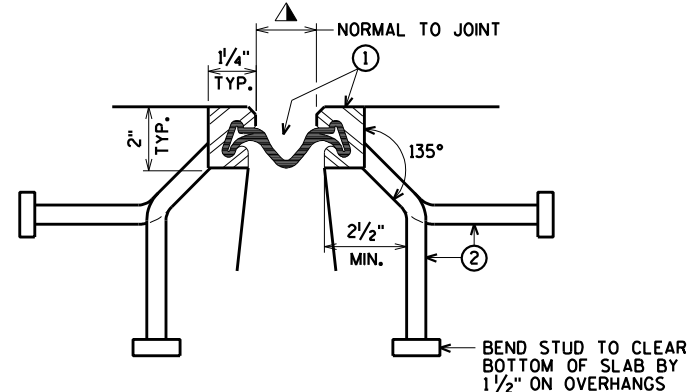
SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED 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.

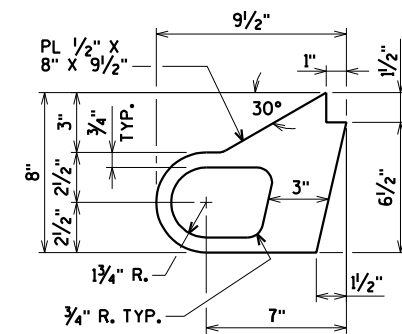
STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".



**SECTION THRU JOINT**  
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.



**SECTION THRU JOINT**  
EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS



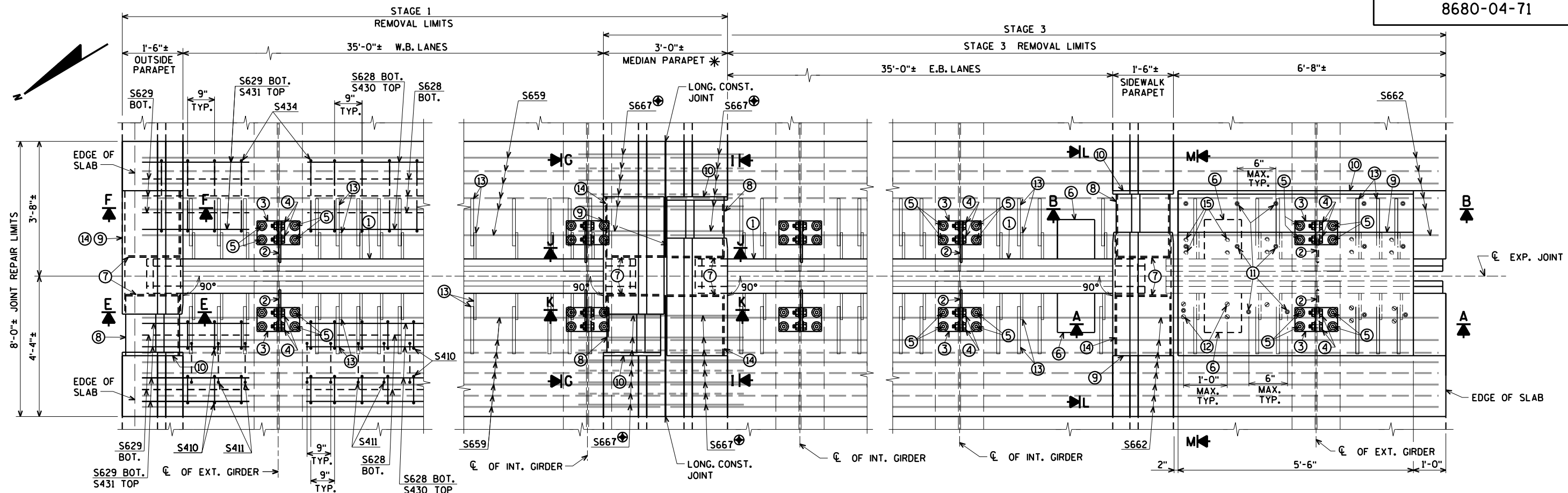
**ALTERNATE STRIP SEAL ANCHOR**

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

WORK THIS SHEET WITH SHEETS 75-77

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>STRIP SEAL EXPANSION JOINT 18 DETAILS</b>			SHEET 78 OF 99





**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)

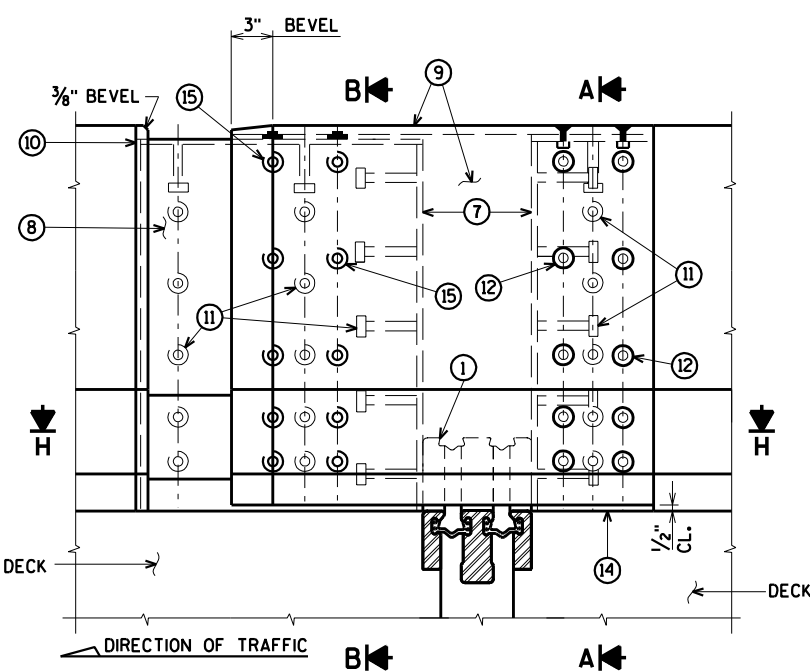
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

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

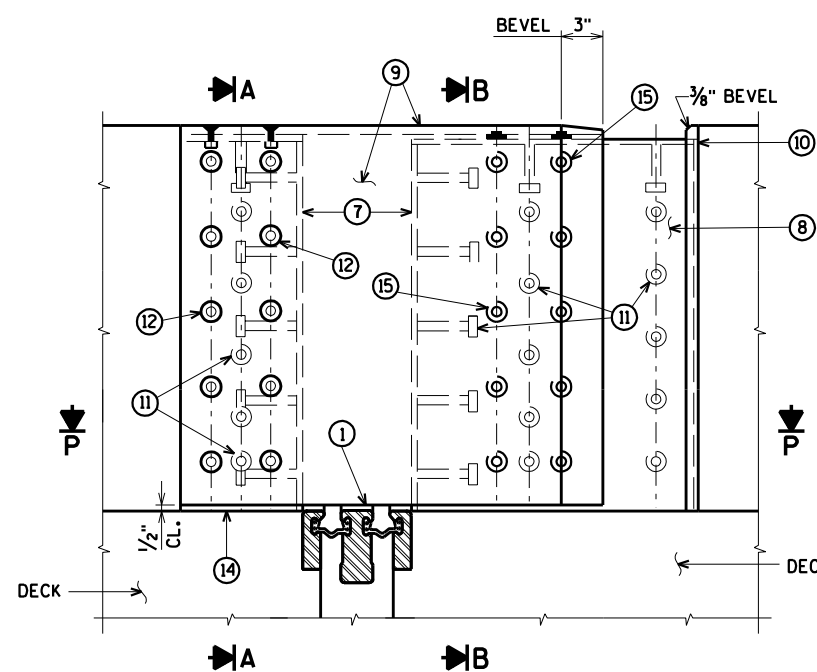
NOTE:  
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



**ELEVATION OF SIDEWALK PARAPET SECTION L**

FOR SECTION 'H' SEE SHEET 80

FOR SECTION 'P' SEE SHEET 81

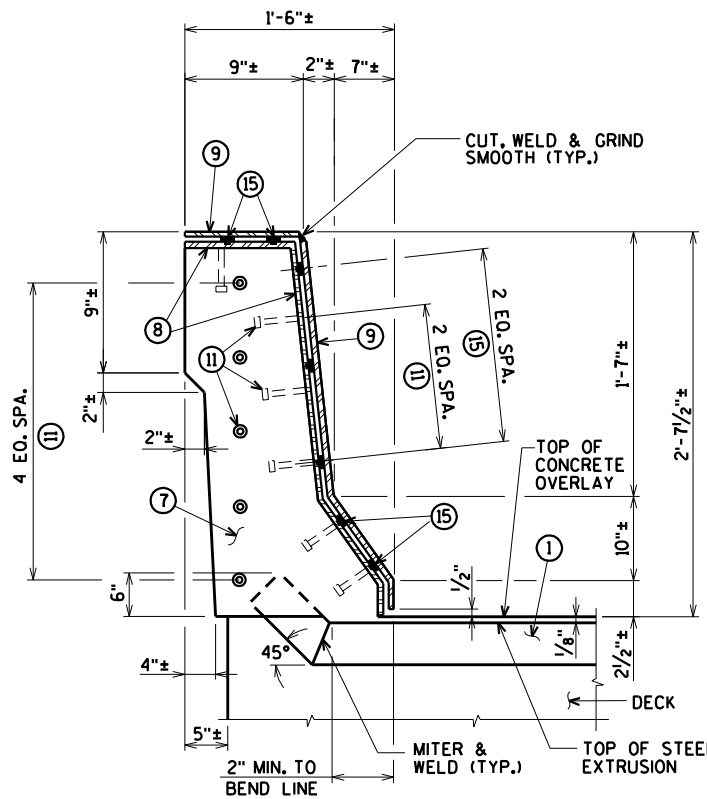


**ELEVATION OF SIDEWALK PARAPET SECTION M**

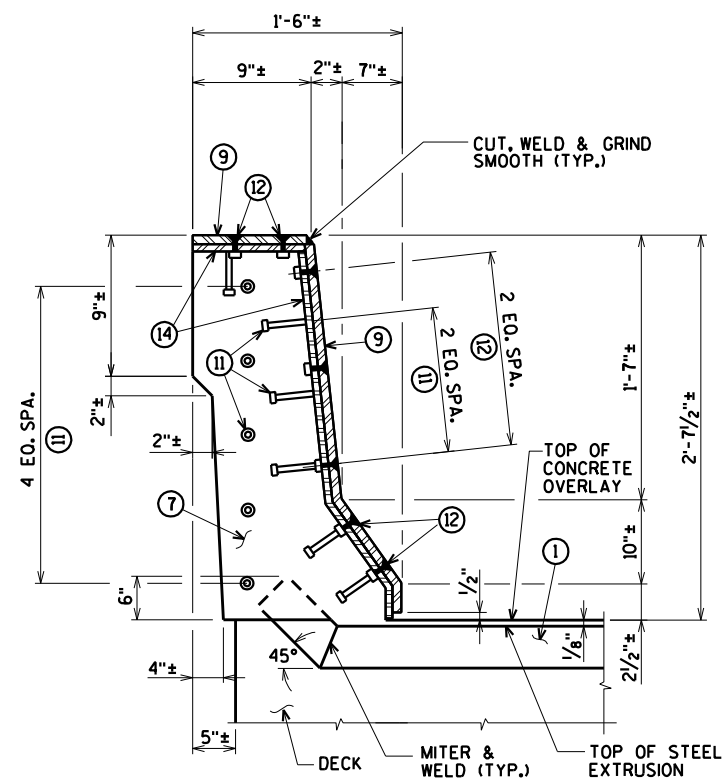
WORK THIS SHEET WITH SHEETS 80-83

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>MODULAR EXPANSION JOINTS 21 &amp; 23</b>			SHEET 79 OF 99
<b>DETAILS</b>			

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

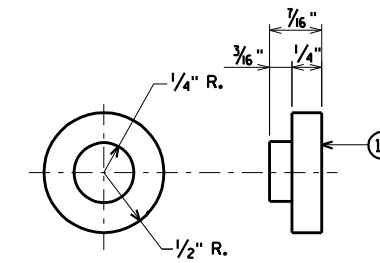


**SECTION E**



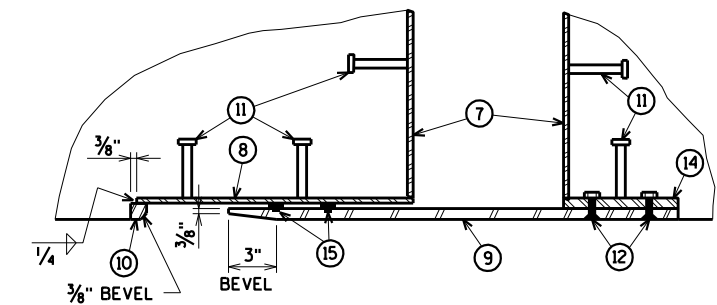
**SECTION F**

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".

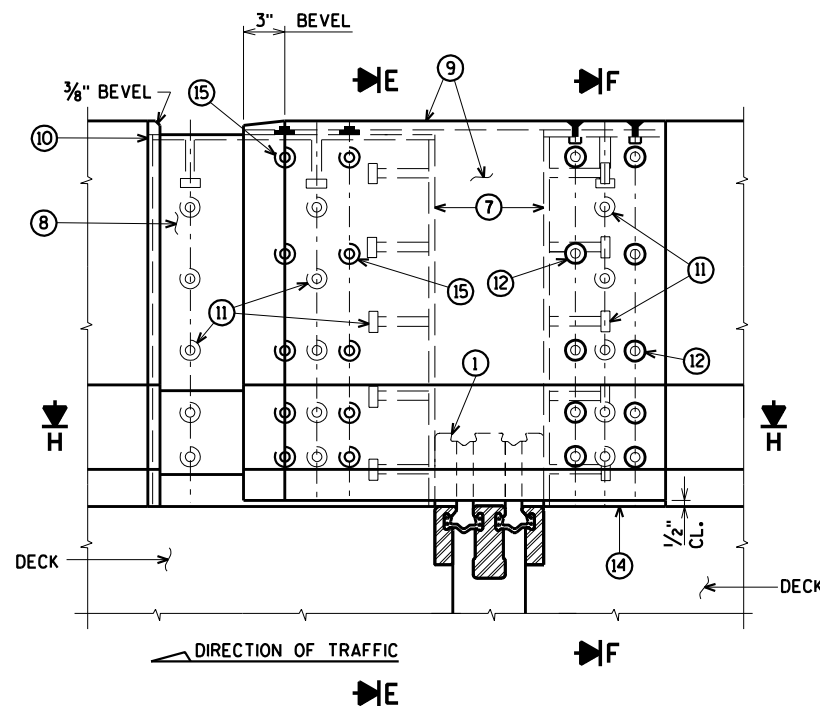


**ADIPRENE BUTTON DETAIL**

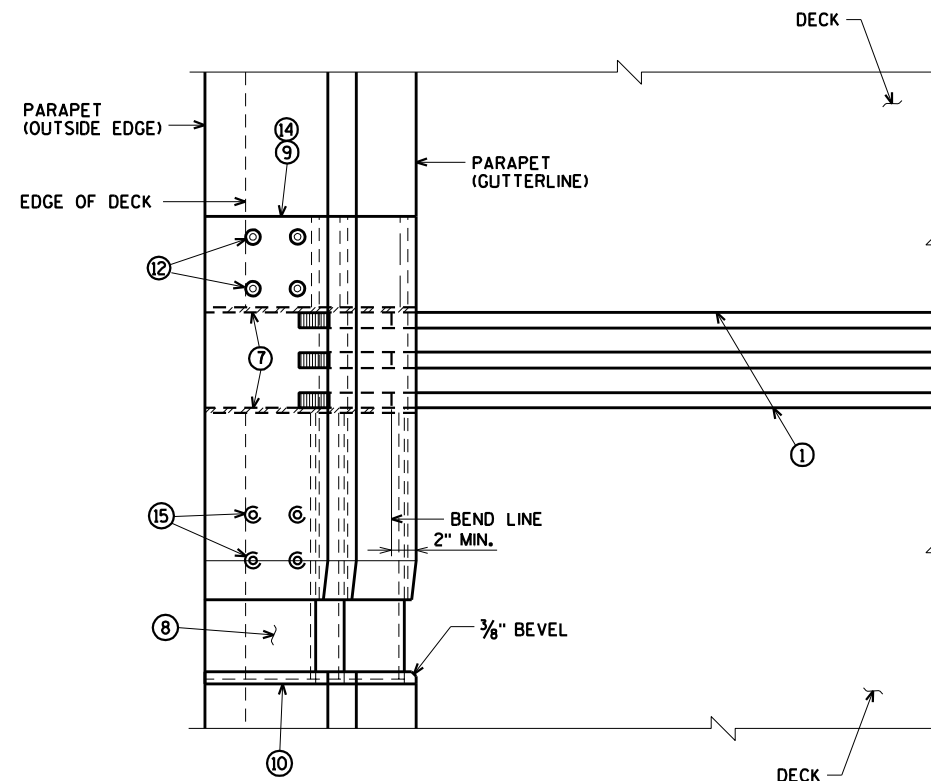
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 79



**SECTION H**



**ELEVATION OF OUTSIDE PARAPET**



**PLAN OF OUTSIDE PARAPET**

ecbdf.plt  
42-0825 EXP.JT 2123.dgn

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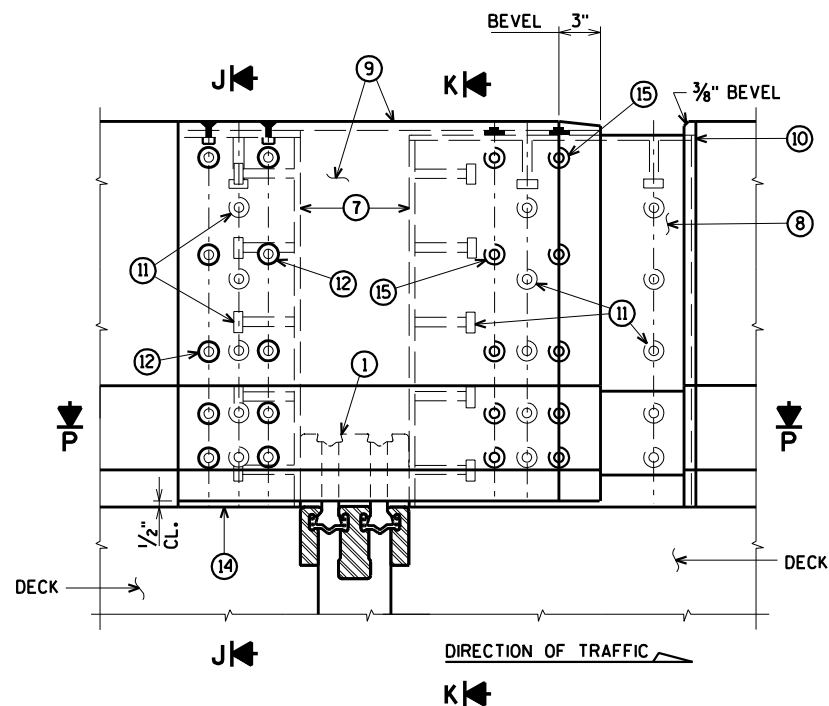
8

WORK THIS SHEET WITH SHEETS 79, 81-83

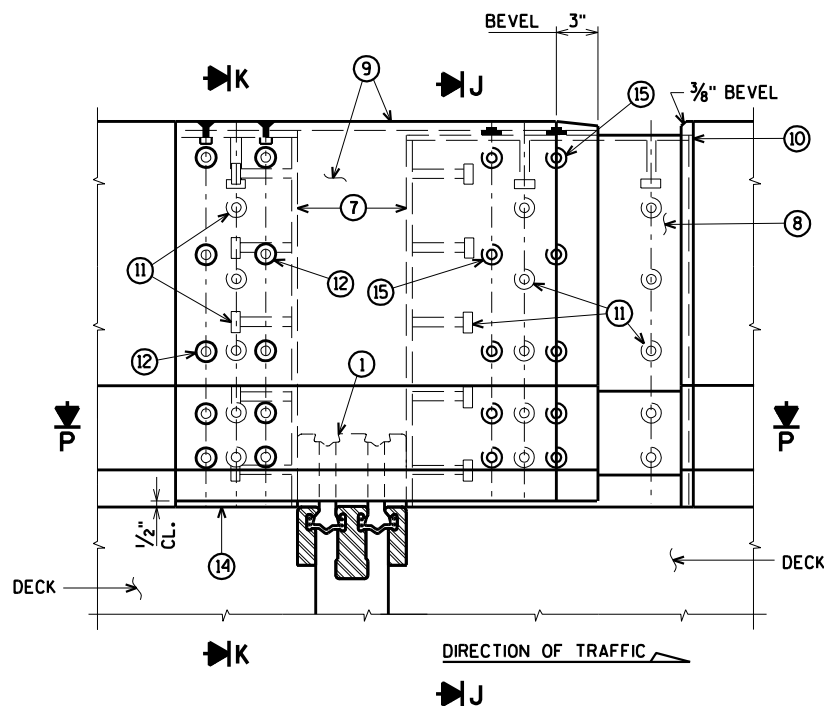
NO.	DATE	REVISION	BY

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

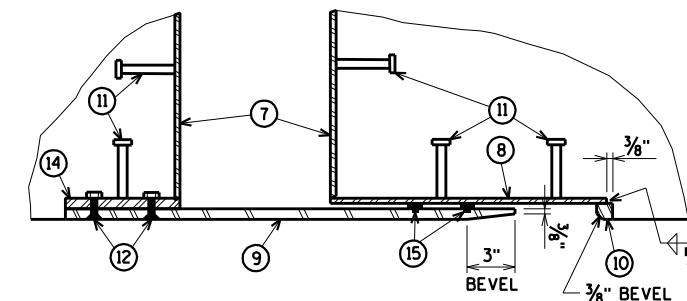
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com



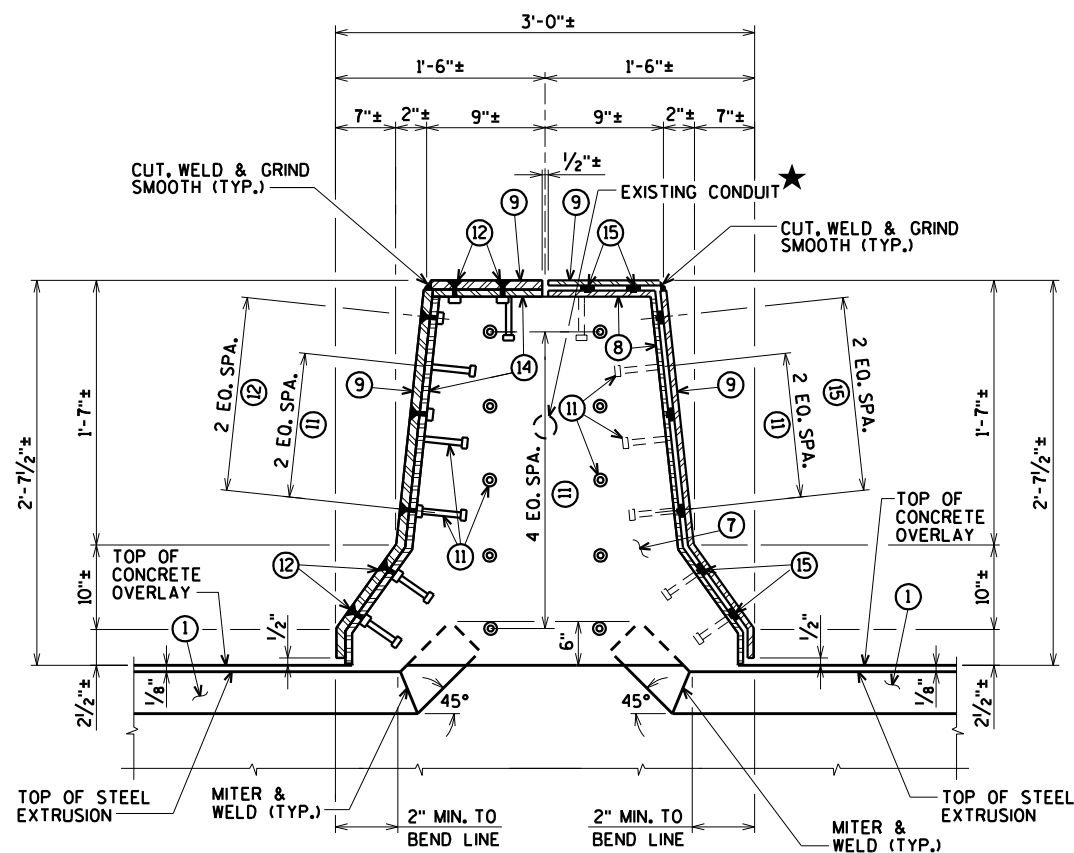
**ELEVATION OF MEDIAN PARAPET  
SECTION G**



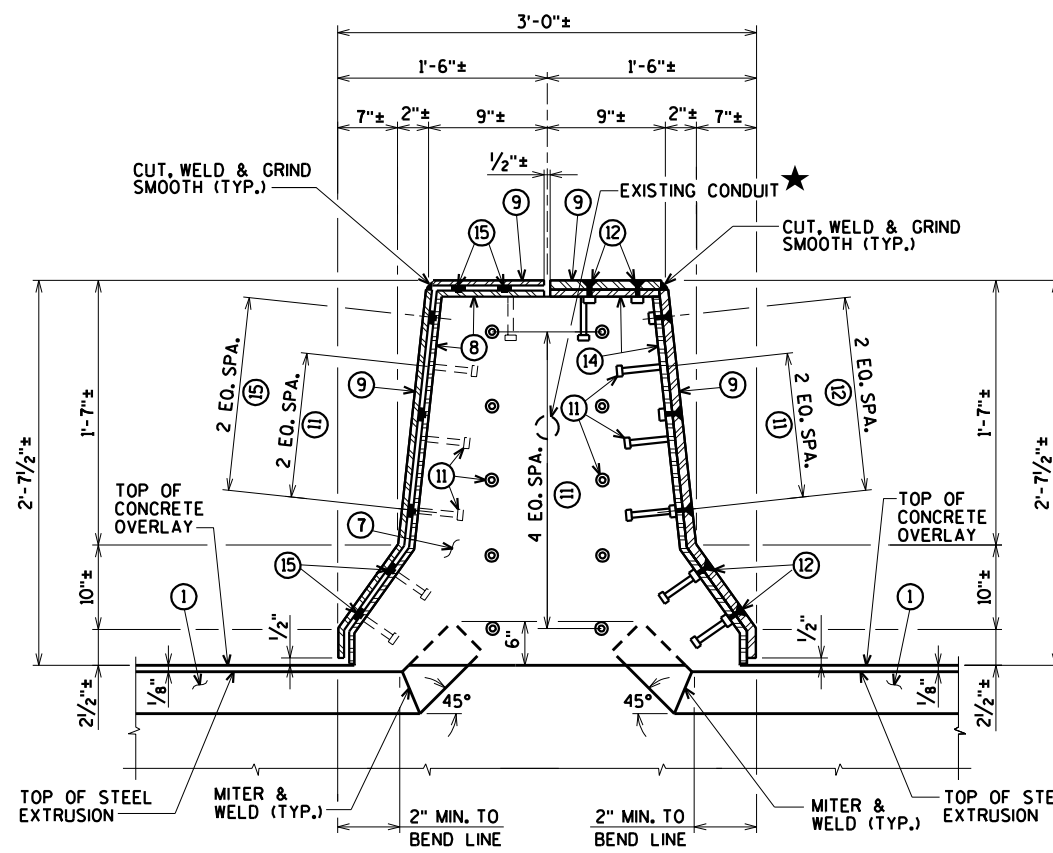
**ELEVATION OF MEDIAN PARAPET  
SECTION I**



**SECTION P**



**SECTION J**



**SECTION K**

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'  
SEE SHEET 79

★ WIRING IN PARAPETS NEEDS TO BE  
TEMPORARY CONNECTED DURING  
CONSTRUCTION. SEE LIGHTING PLANS.

WORK THIS SHEET WITH SHEETS 79-80, 82-83

NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**STRUCTURE B-16-38/69100**

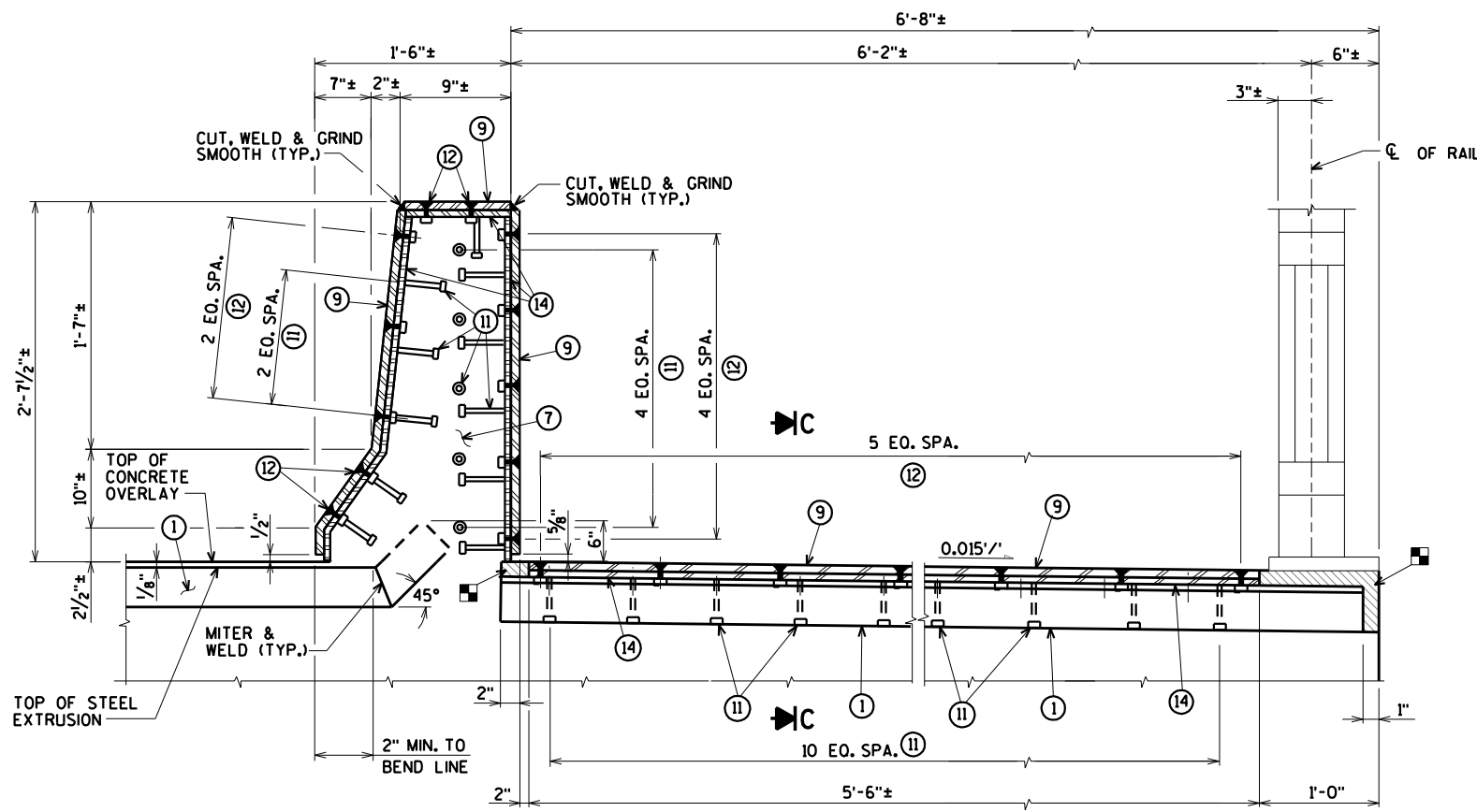
DRAWN BY CLS PLANS CK'D. CBM

**EXP. JOINTS  
21 & 23  
MEDIAN PARAPET**

SHEET 81 OF 99

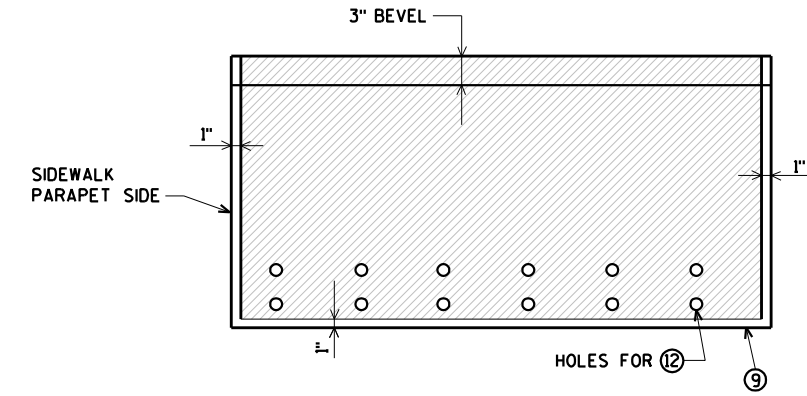
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

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 W/PARAPET  
SECTION A**

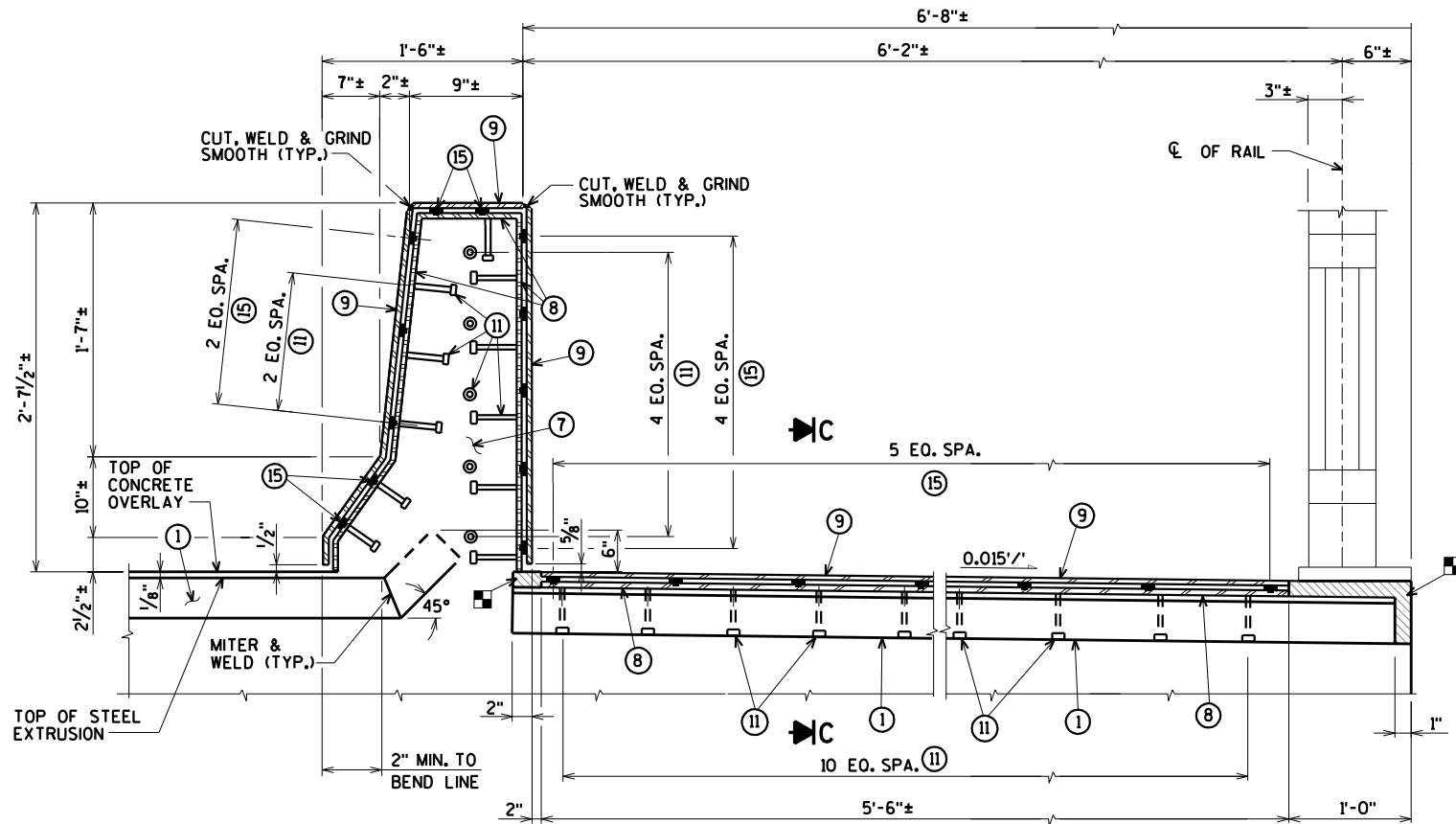
FOR LOCATIONS OF SECTIONS 'A' AND 'B'  
SEE SHEET 79



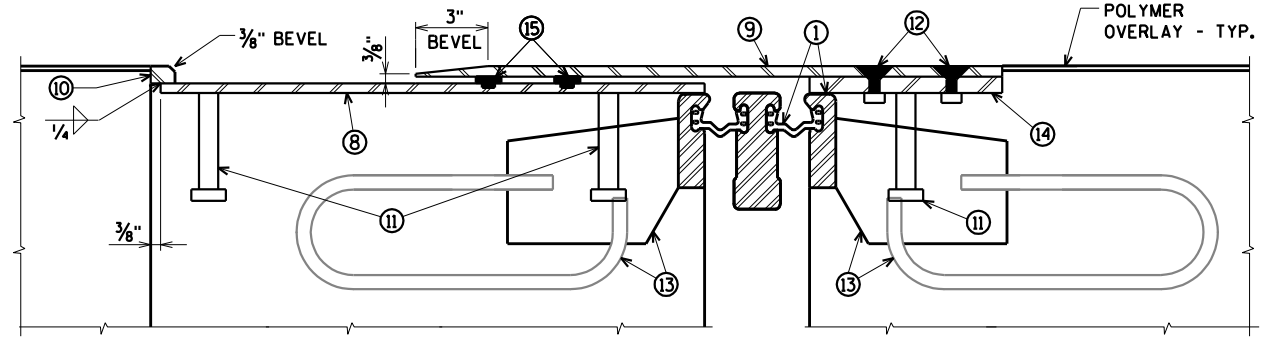
**PLAN OF SIDEWALK COVER PLATE  
WITH SLIP-RESISTANT SURFACE**

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.

WORK THIS SHEET WITH SHEETS 79-81, 83

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY	CLS	PLANS CK'D.	CBM
<b>EXP. JOINTS 21 &amp; 23 SIDEWALK &amp; PARAPET</b>			SHEET 82 OF 99

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

\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 EXPJT 8-22 mod dt1.dgn

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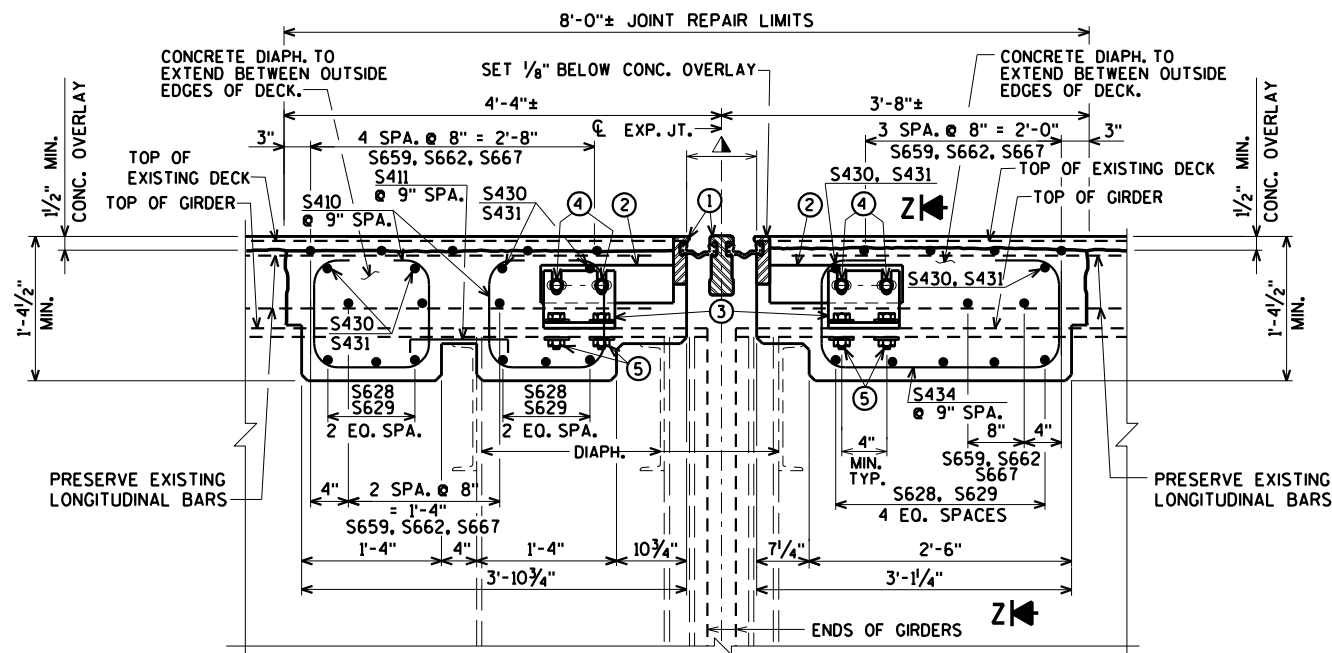
8

**LEGEND**

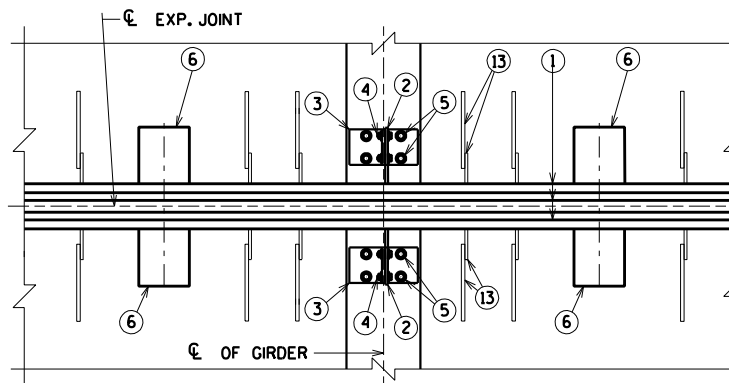
- ① MODULAR EXPANSION JOINT DEVICE, 2 CELLS.
- ② 1/2" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.
- ③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.
- ④ 3/4" φ HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
- ⑤ 3/4" φ 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 1/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.
- ⑪ 3/4" φ x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.
- ⑫ 3/4" φ 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 3/8" φ LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
- ⑭ INSIDE PLATE. FABRICATE FROM 3/8" 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.



**SECTION THRU JOINTS 21 & 23**  
NORMAL TO C OF JOINT



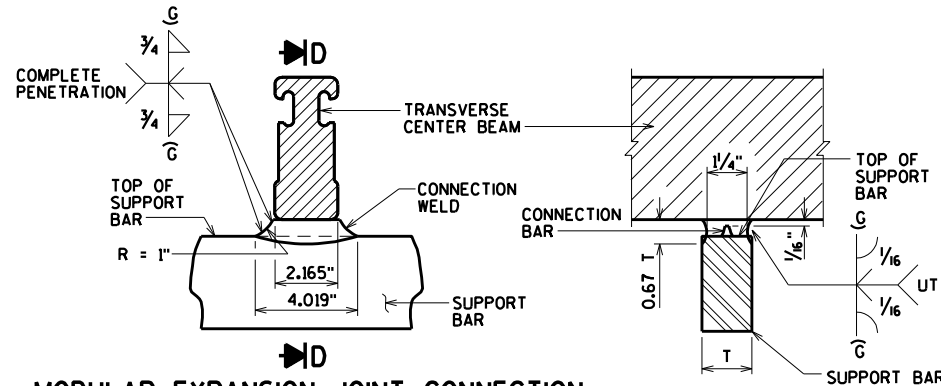
**PART PLAN**

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.

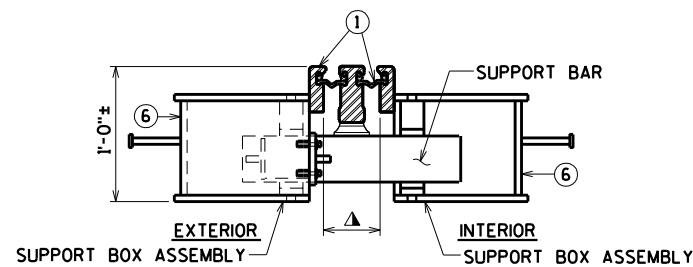
**GENERAL NOTES**

- ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED 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 RESPAVED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.



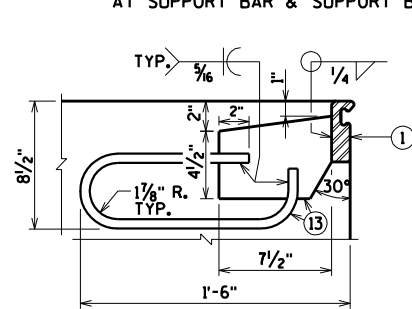
**MODULAR EXPANSION JOINT CONNECTION**  
**DETAIL AND WELD SPECIFICATION**

**SECTION D**



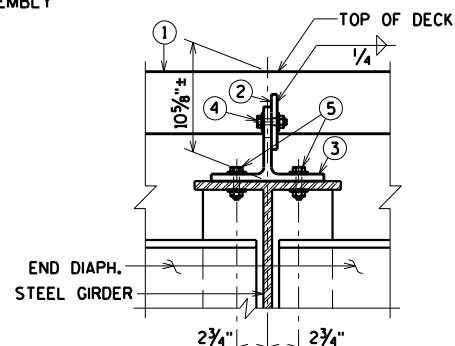
**JOINT DETAIL**

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



**ANCHORAGE DETAIL**

PLACE ADJACENT TO SUPPORT BOXES IN DECK & CONC. DIAPH.



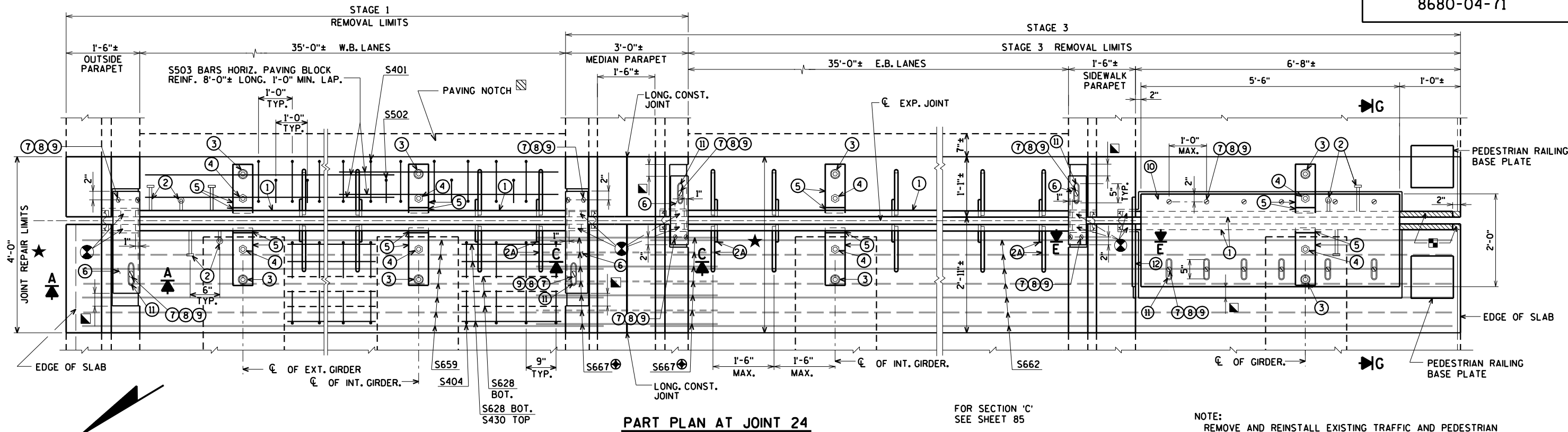
**SECTION Z-Z**

TEMP. TABLE	
TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:	
1.	3/8" 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.	

WORK THIS SHEET WITH SHEETS 79-82

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>MODULAR EXPANSION JOINTS 21 &amp; 23</b>			SHEET 83 OF 99
<b>DETAILS</b>			

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

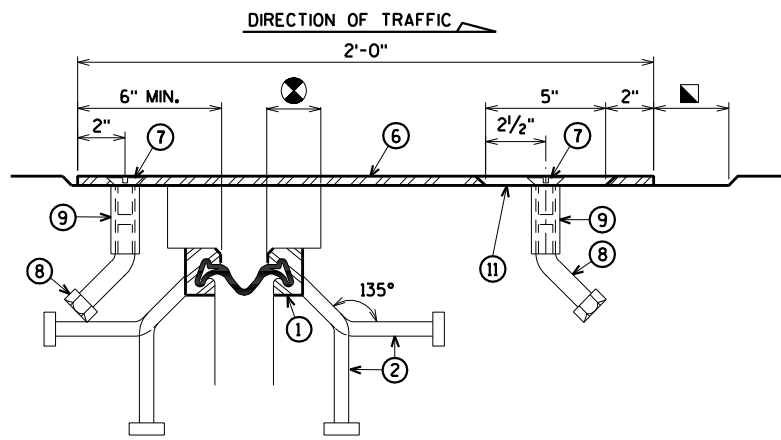
**NOTE:**

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".

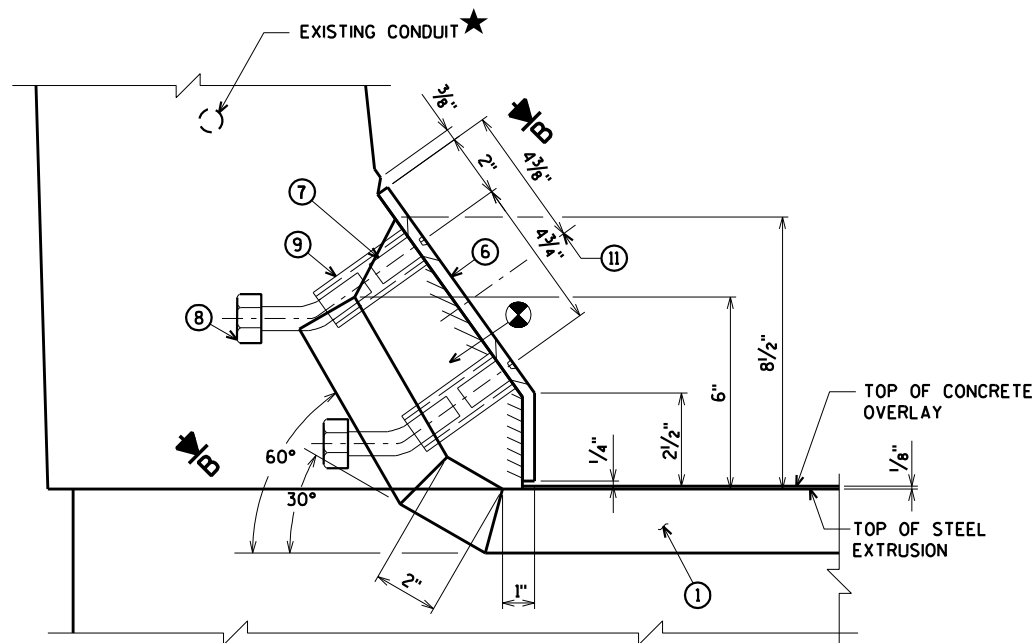
★ WIRING IN PARAPETS NEEDS TO BE TEMPORARILY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

▨ THE CONCRETE APPROACH SLAB WILL NEED TO BE 1'-0 1/2"± THICK AT THE PAVING NOTCH.

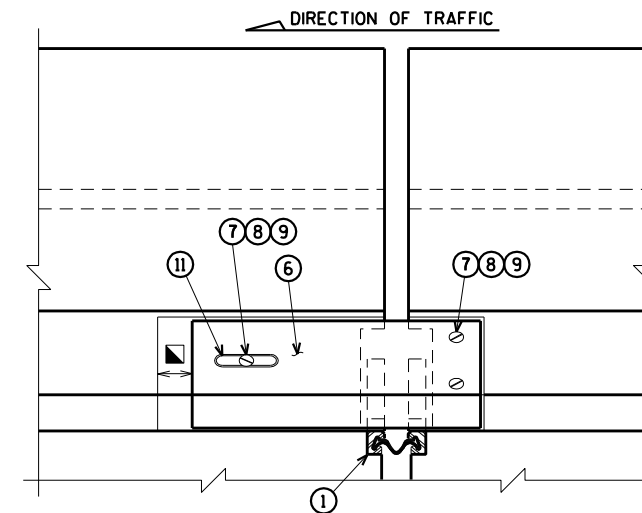
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.



**SECTION B**



**SECTION A**  
 OUTSIDE PARAPET



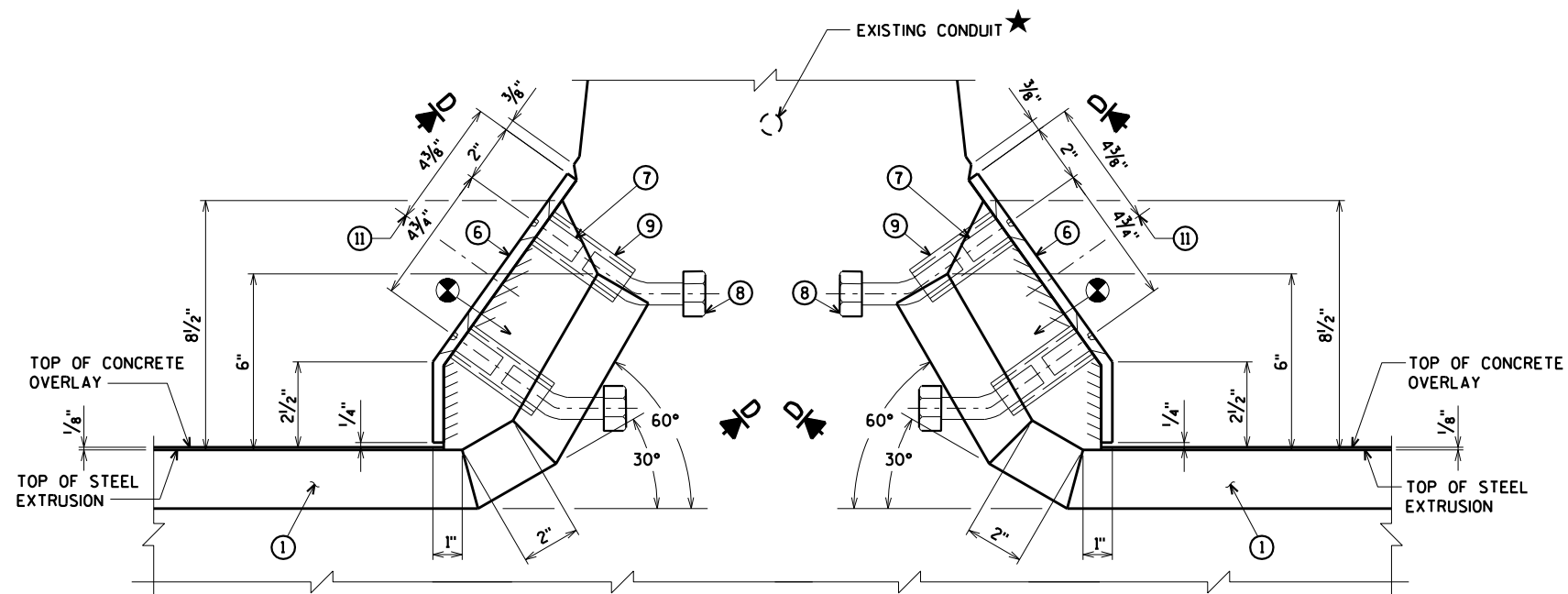
**VIEW OF PARAPET PLATES FROM ROADWAY**  
 OUTSIDE PARAPET

- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ▨ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".
- ▣ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

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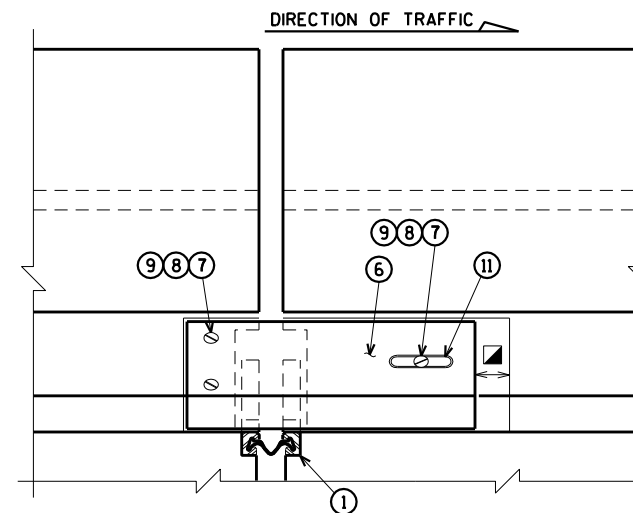
WORK THIS SHEET WITH SHEETS 85-87

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>STRIP SEAL EXPANSION JOINT 24 DETAILS</b>			SHEET 84 OF 99

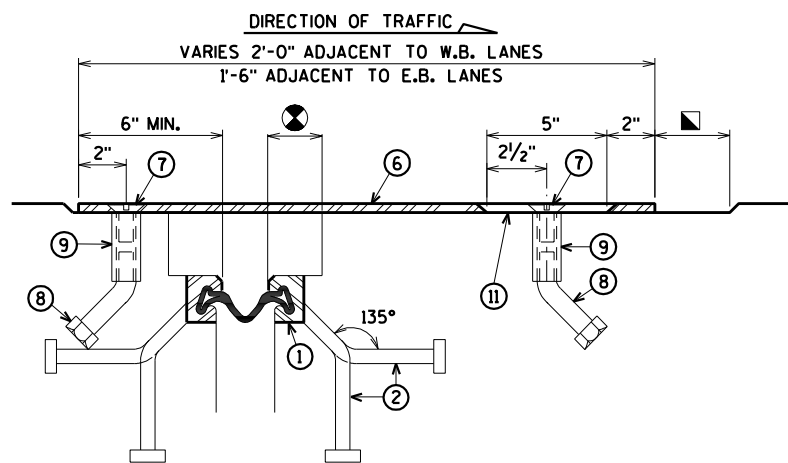


**SECTION C**  
MEDIAN PARAPET

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 1/2".

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WORK THIS SHEET WITH SHEETS 84, 86-87

NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

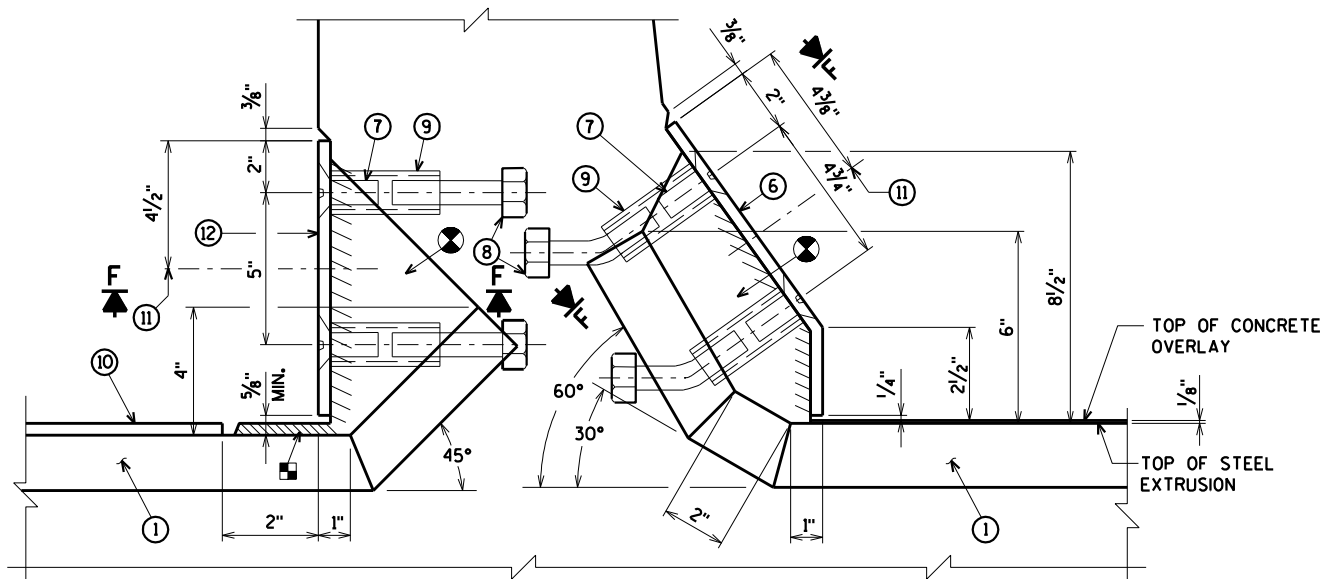
**STRUCTURE B-16-38/69100**

DRAWN BY	CLS	PLANS CK'D.	CBM
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**INSIDE PARAPET  
COVER PLATE  
JOINT 24 DETAILS**

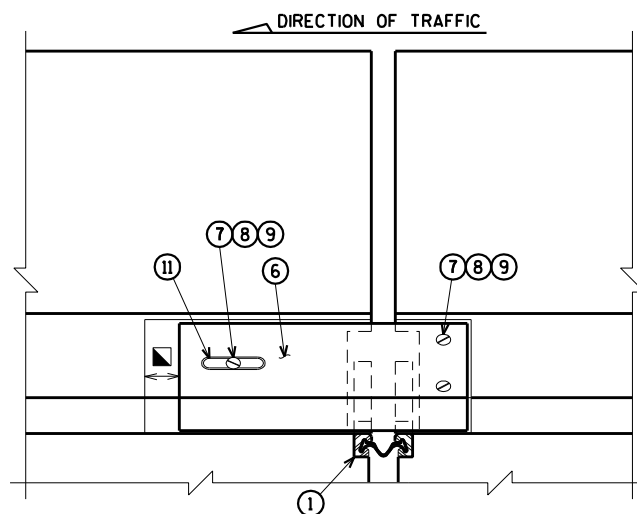
SHEET 85 OF 99

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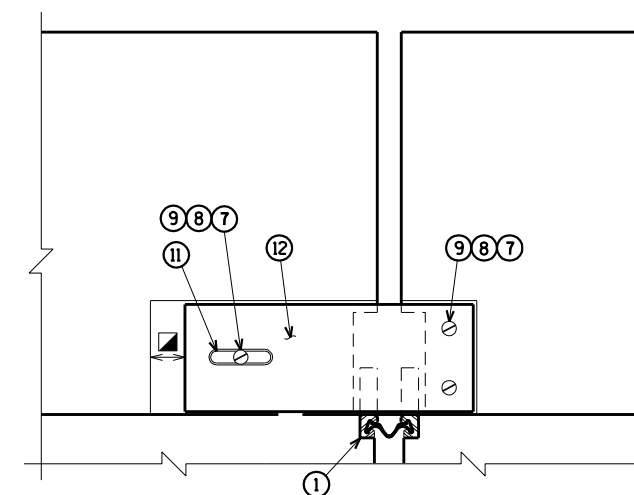


**SECTION E**  
SIDEWALK PARAPET

FOR LOCATION OF SECTIONS 'E' AND 'G'  
SEE SHEET 84

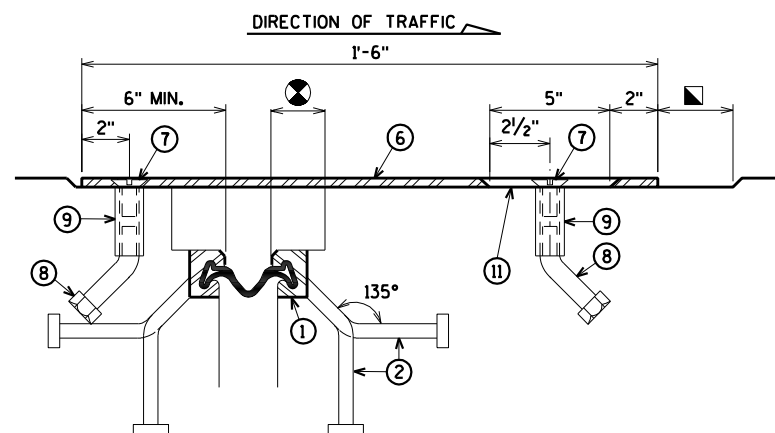


**VIEW OF PARAPET PLATES FROM ROADWAY**  
SIDEWALK PARAPET

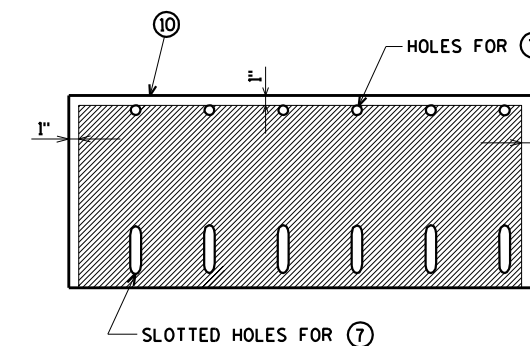


**VIEW OF PARAPET PLATES FROM SIDEWALK**  
SIDEWALK PARAPET

**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**

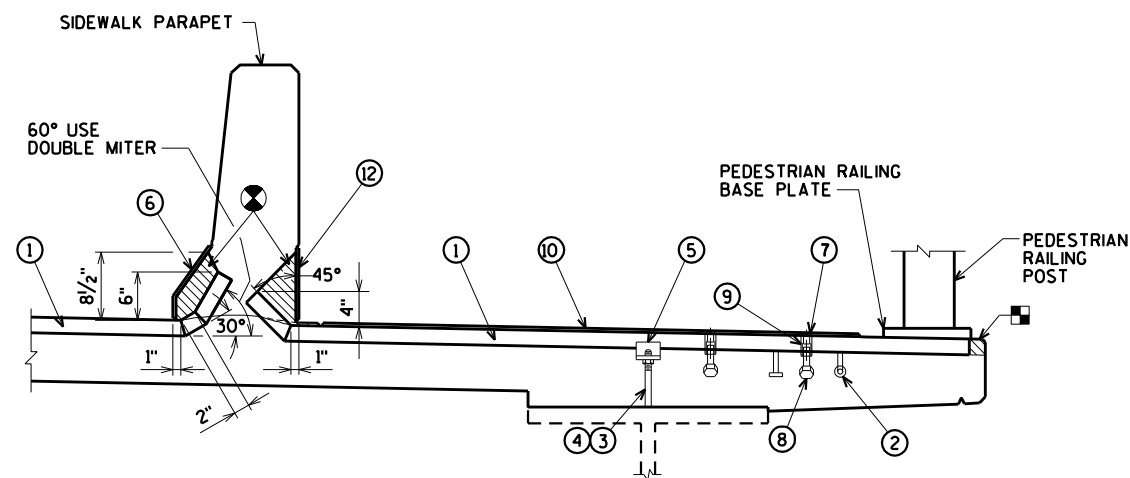


**PLAN OF SIDEWALK COVER PLATE**  
WITH SLIP-RESISTANT SURFACE

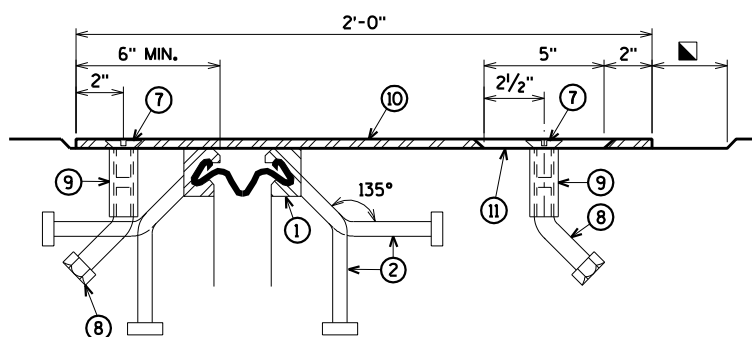
PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY.

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 1/2".
- BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.



**SECTION AT SIDEWALK**



**SECTION G**

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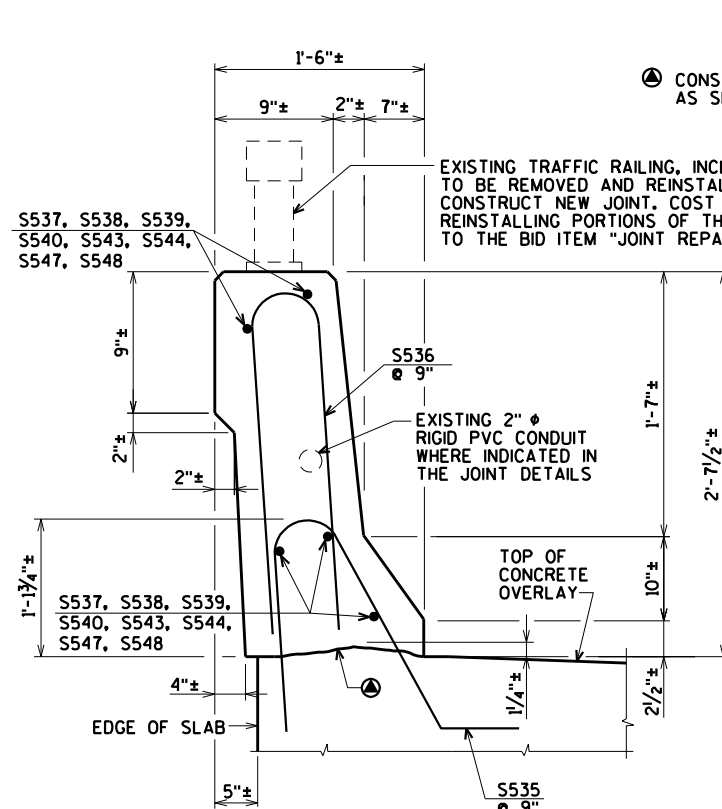
WORK THIS SHEET WITH SHEETS 84-85, 87

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>SIDEWALK PARAPET COVER PLATE</b>			SHEET 86 OF 99
<b>JOINT 24 DETAILS</b>			

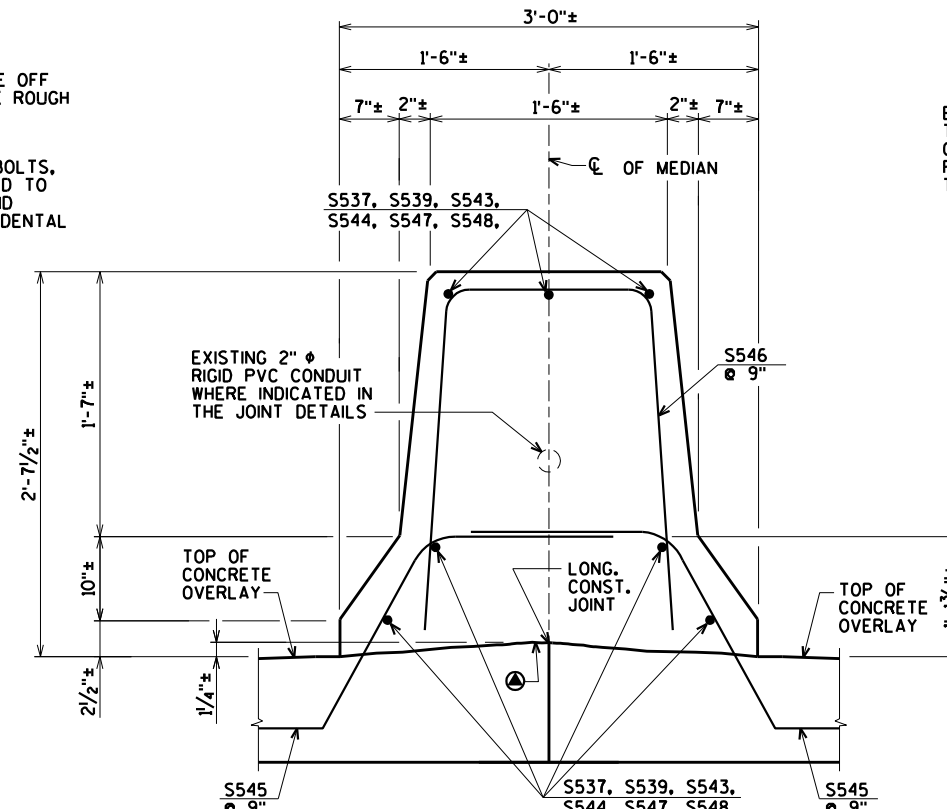
ORIGINAL PLANS PREPARED BY  
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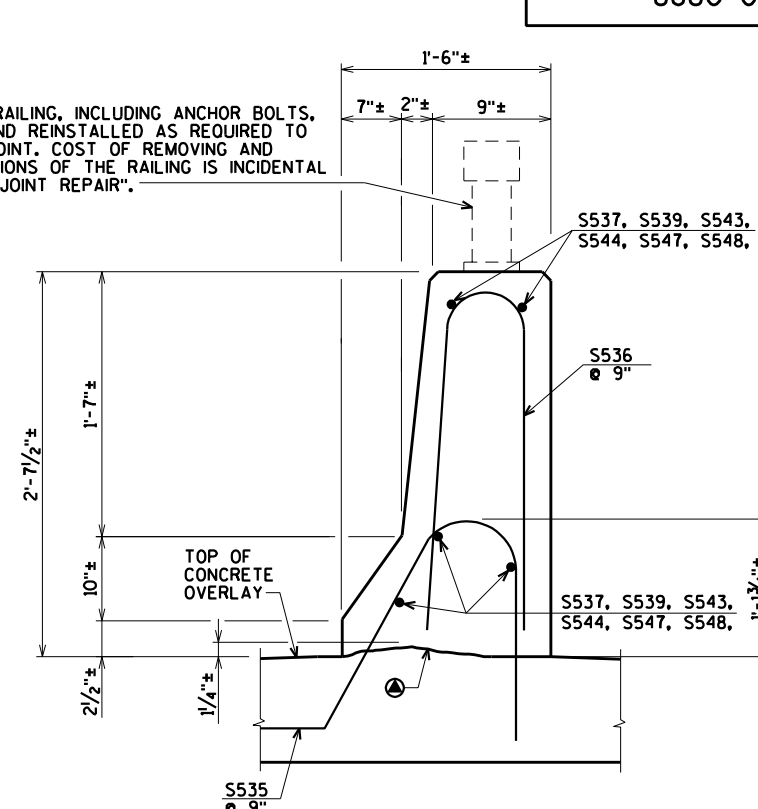




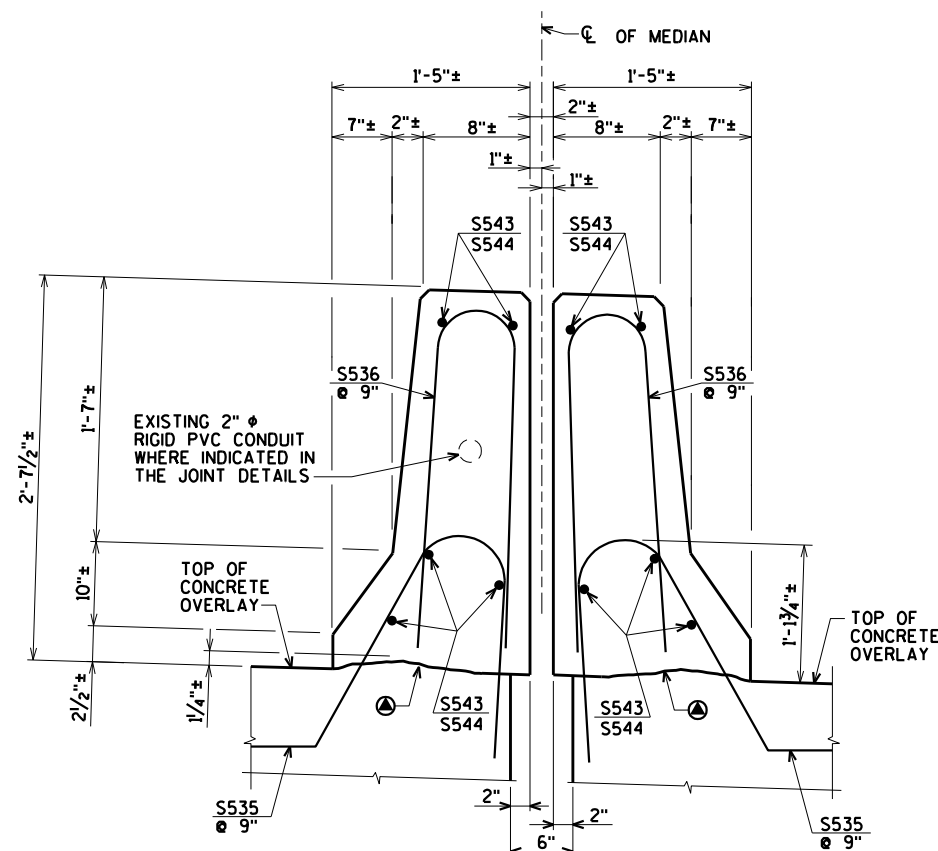
**TYPICAL OUTSIDE PARAPET**  
(JOINTS 1-24)



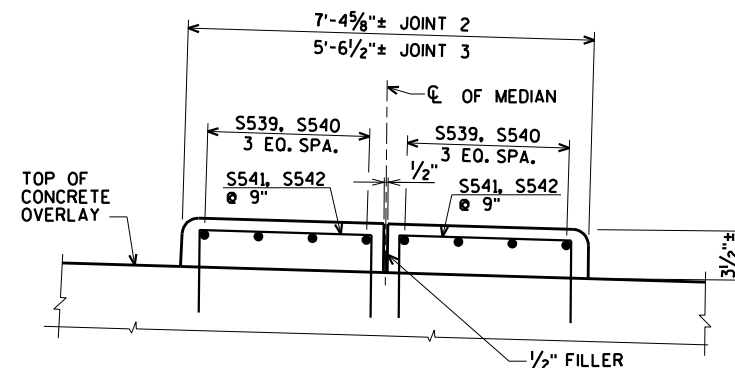
**TYPICAL MEDIAN PARAPET**  
(JOINTS 9-24)



**TYPICAL SIDEWALK PARAPET**  
(JOINTS 8-24)



**TYPICAL MEDIAN PARAPET**  
(JOINTS 5 & 7)



**TYPICAL MEDIAN**  
(JOINTS 2 & 3)

NOTE:  
SEAL ALL EXPOSED HORIZONTAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" 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			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>PARAPET &amp; MEDIAN REINFORCEMENT DETAILS</b>			SHEET 88 OF 99

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
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\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 EXPJT bill of bars.dgn

**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

DRAWN BY CLS PLANS CK'D. CBM

EXPANSION  
JOINTS 1 - 8  
BILL OF BARS

SHEET 89 OF 99

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

BILL OF BARS - JOINT 9

Table with columns: BAR NO., COATED BAR, NO. REQ'D., LENGTH, BENT BAR, BUNDLED BAR SERIES, LOCATION. Rows include S410 through S667 with various bar specifications and locations like DIAPH. VERT. UNIT 5 and TRANSVERSE TOP & BOT. STAGE 1.

BILL OF BARS - JOINT II

Table with columns: BAR NO., COATED BAR, NO. REQ'D., LENGTH, BENT BAR, BUNDLED BAR SERIES, LOCATION. Rows include S410 through S667 with various bar specifications and locations like DIAPH. VERT. UNIT 7 and TRANSVERSE TOP & BOT. LONG. JT.

BILL OF BARS - JOINT 13

Table with columns: BAR NO., COATED BAR, NO. REQ'D., LENGTH, BENT BAR, BUNDLED BAR SERIES, LOCATION. Rows include S410 through S667 with various bar specifications and locations like DIAPH. VERT. UNIT 9 and TRANSVERSE TOP & BOT. LONG. JT.

BILL OF BARS - JOINT 10

Table with columns: BAR NO., COATED BAR, NO. REQ'D., LENGTH, BENT BAR, BUNDLED BAR SERIES, LOCATION. Rows include S410 through S667 with various bar specifications and locations like DIAPH. VERT. UNIT 6 and TRANSVERSE TOP & BOT. LONG. JT.

BILL OF BARS - JOINT 12

Table with columns: BAR NO., COATED BAR, NO. REQ'D., LENGTH, BENT BAR, BUNDLED BAR SERIES, LOCATION. Rows include S410 through S667 with various bar specifications and locations like DIAPH. VERT. UNIT 8 and TRANSVERSE TOP & BOT. LONG. JT.

BILL OF BARS - JOINT 14

Table with columns: BAR NO., COATED BAR, NO. REQ'D., LENGTH, BENT BAR, BUNDLED BAR SERIES, LOCATION. Rows include S410 through S667 with various bar specifications and locations like DIAPH. VERT. UNIT 10 and 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

Revision table with columns: NO., DATE, REVISION, BY. Includes project title: STRUCTURE B-16-38/69100 and drawing information: EXPANSION JOINTS 9 - 14 BILL OF BARS, SHEET 90 OF 99.



## 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			
DRAWN BY	CLS	PLANS CK'D.	CBM
EXPANSION JOINTS 15 - 20 BILL OF BARS			SHEET 91 OF 99

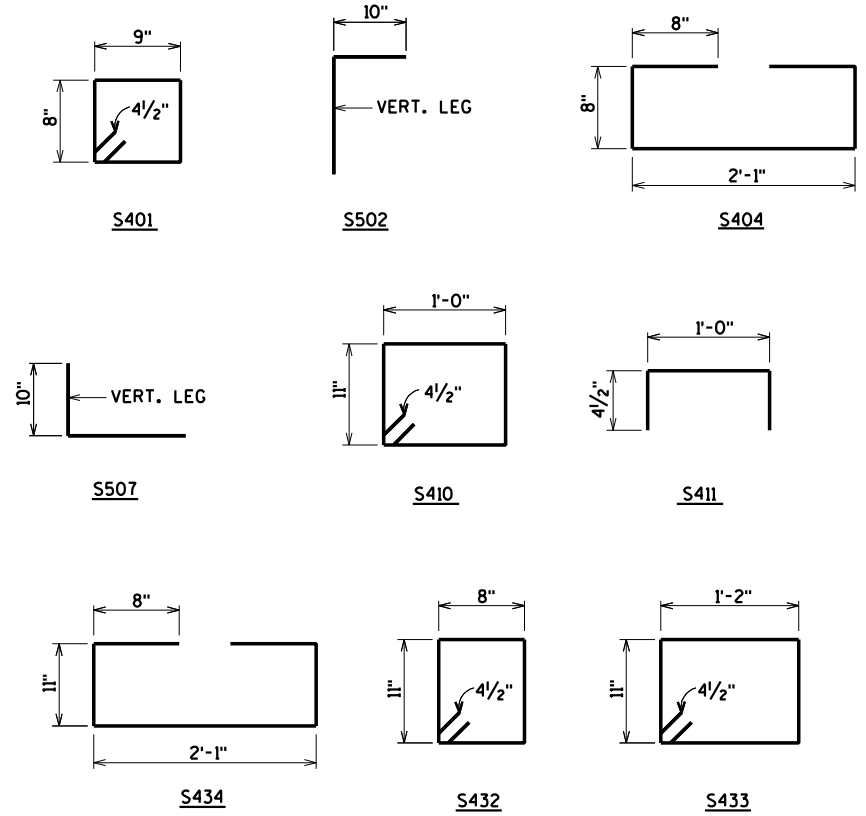
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
 3433 Oakwood Hills Parkway  
 Eau Claire, WI 54701  
 www.AyresAssociates.com

**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 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.

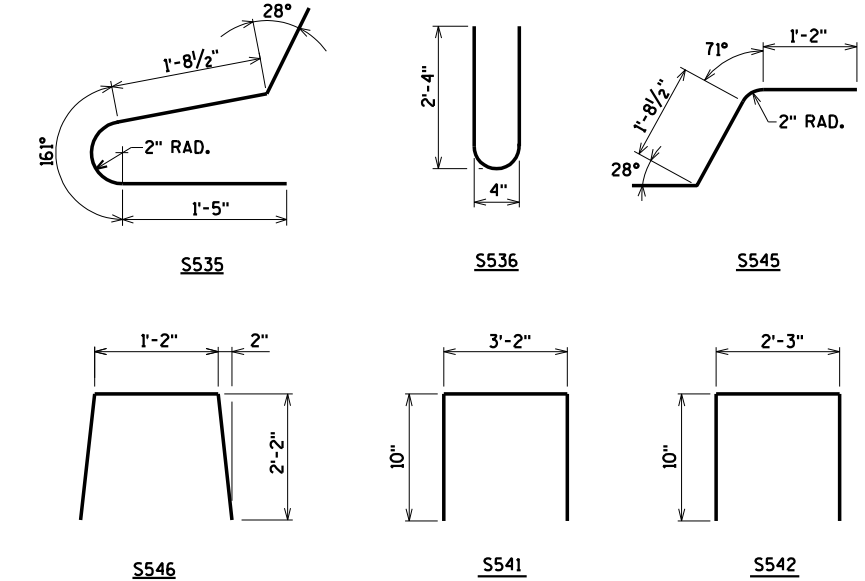


**BILL OF BARS - JOINT 22**

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 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.

\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 EXPJT bill of bars.dgn

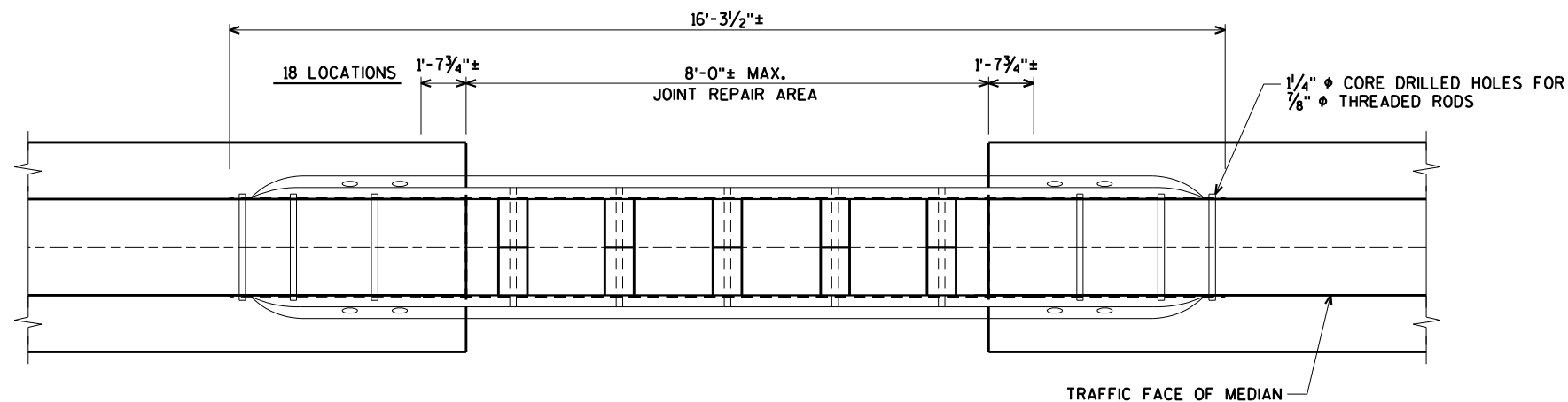
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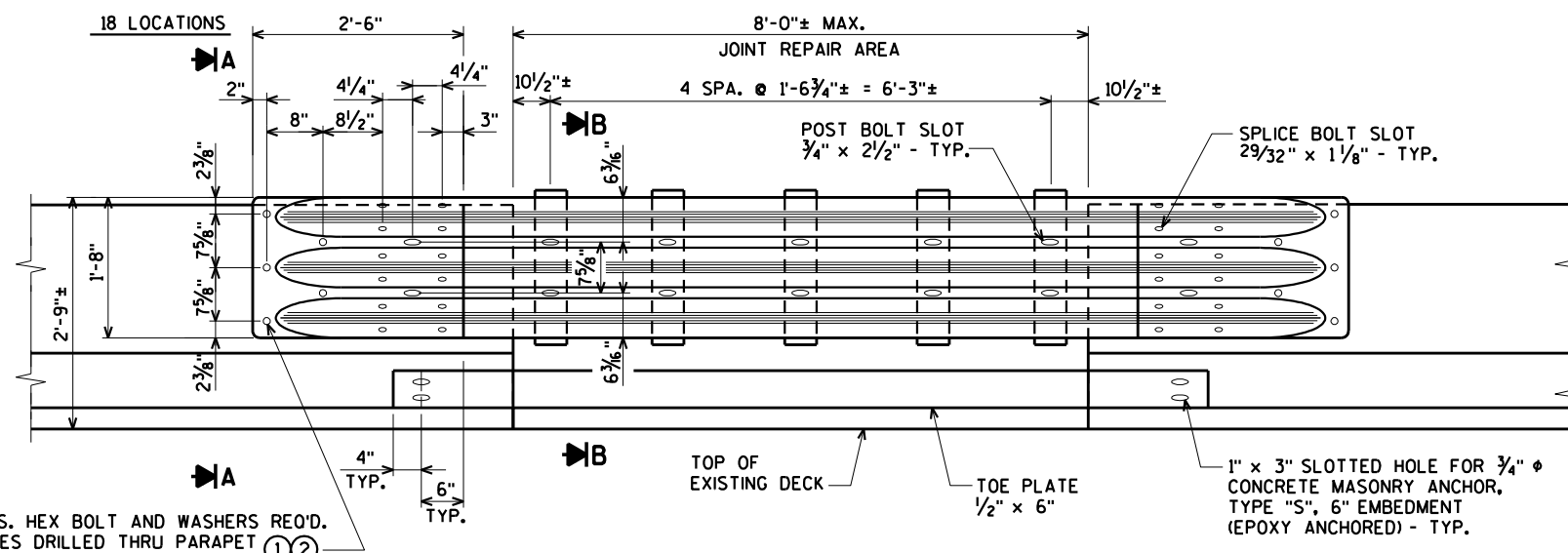
WORK THIS SHEET WITH SHEETS 89-91

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>EXPANSION JOINTS 21 - 24</b>			SHEET 92 OF 99
<b>BILL OF BARS</b>			

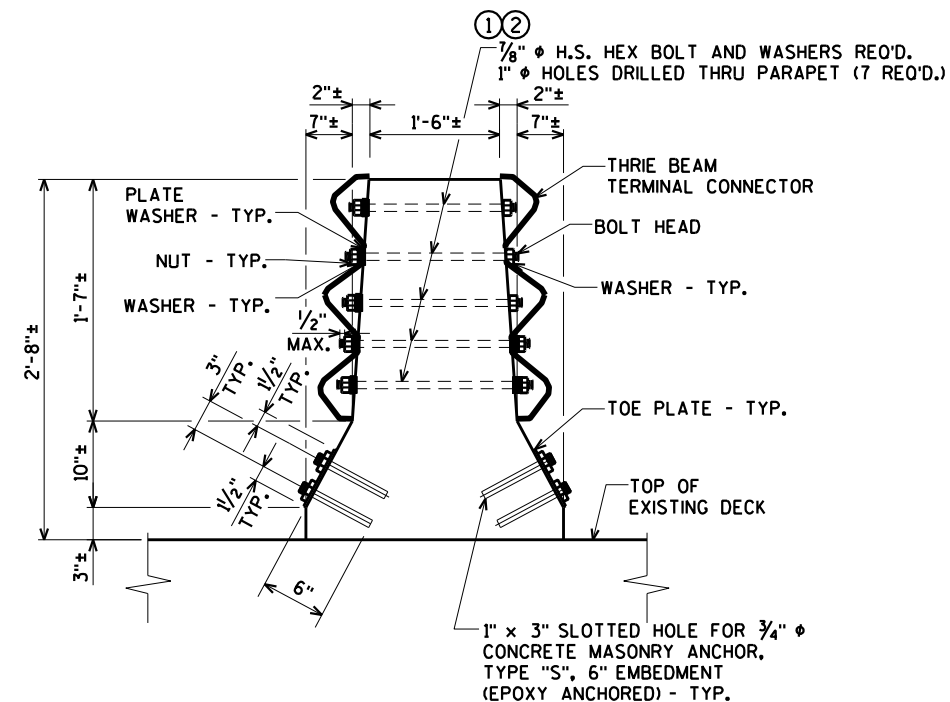
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
 3433 Oakwood Hills Parkway  
 Eau Claire, WI 54701  
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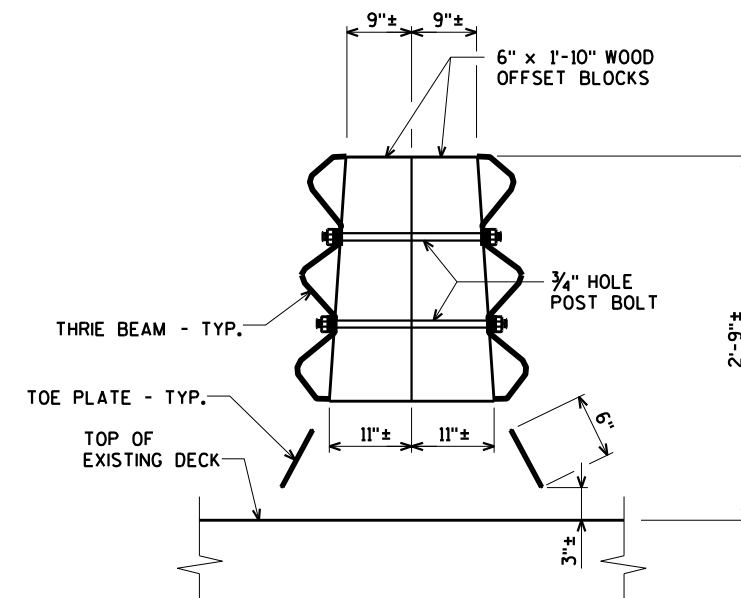
**PLAN VIEW TEMPORARY MEDIAN GUARDRAIL**  
REQUIRED AT JOINTS 5, 7, & 9 - 24



**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.

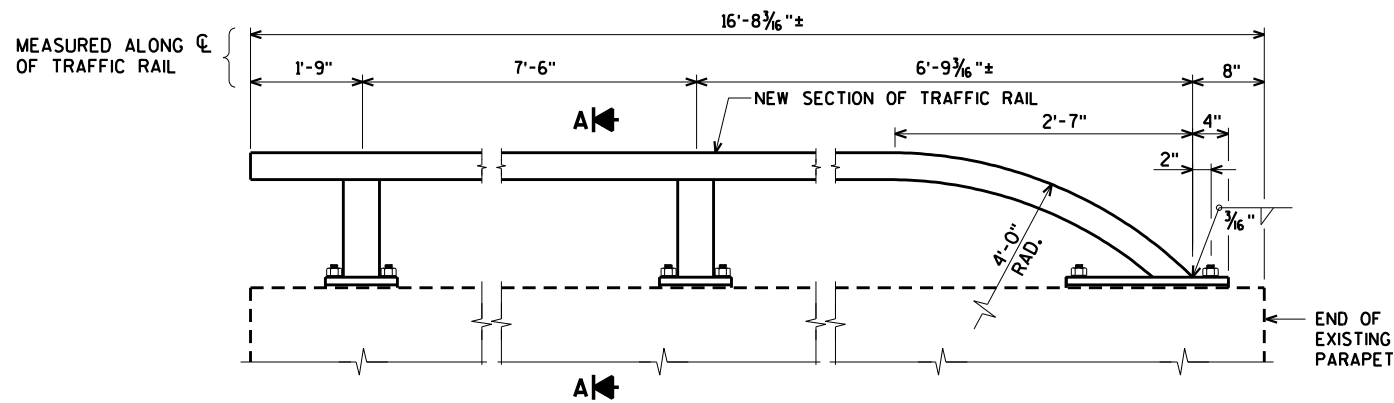
② BOLTS MAY BE A325 OR A449 BOLTS. LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM THERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. x 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

REMOVE THREADED RODS & GROUT HOLES AFTER JOINT REPLACEMENT WORK IS COMPLETED.

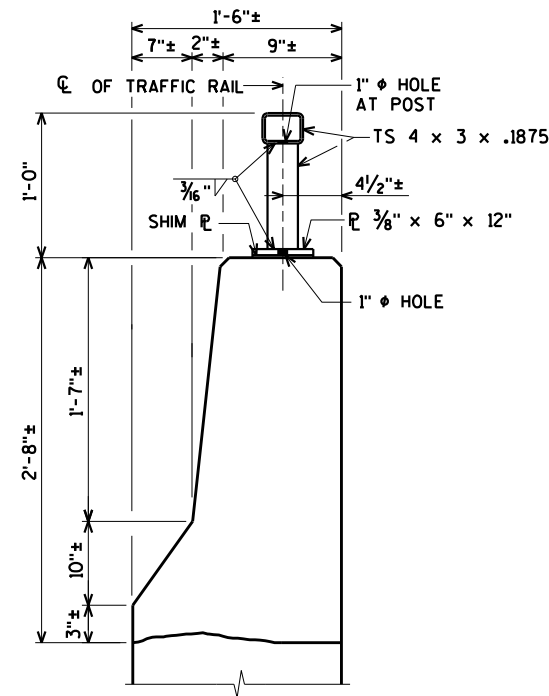
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>TEMPORARY MEDIAN GUARDRAIL</b>			SHEET 93 OF 99

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

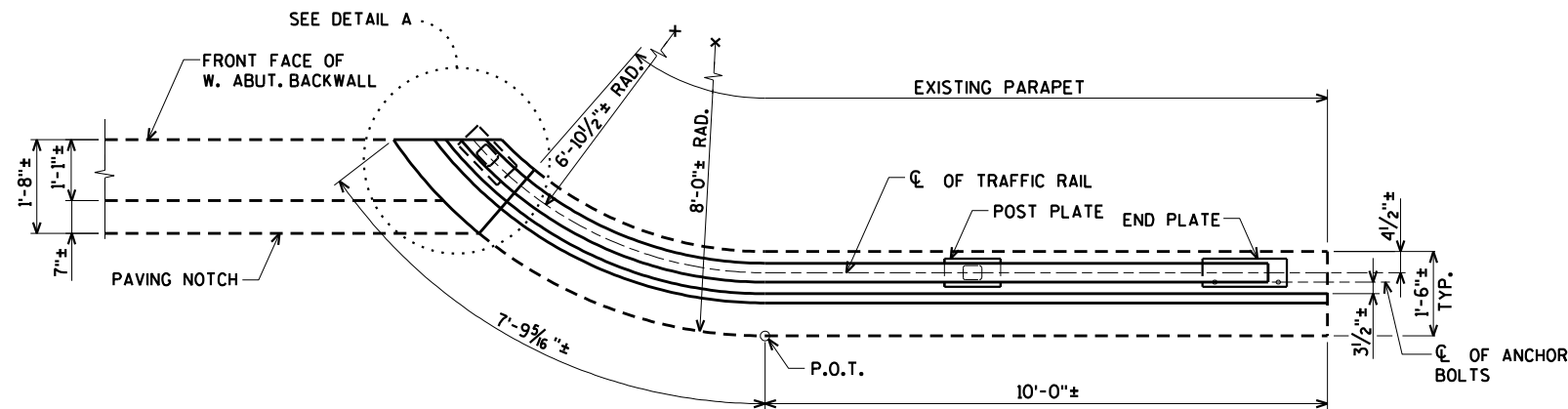
RAIL SHALL BE CURVED TO FIT THE STRUCTURE.

SHIMS SHALL BE USED UNDER POSTS AND UNDER END PLATES WHERE REQ'D. FOR ALIGNMENT.

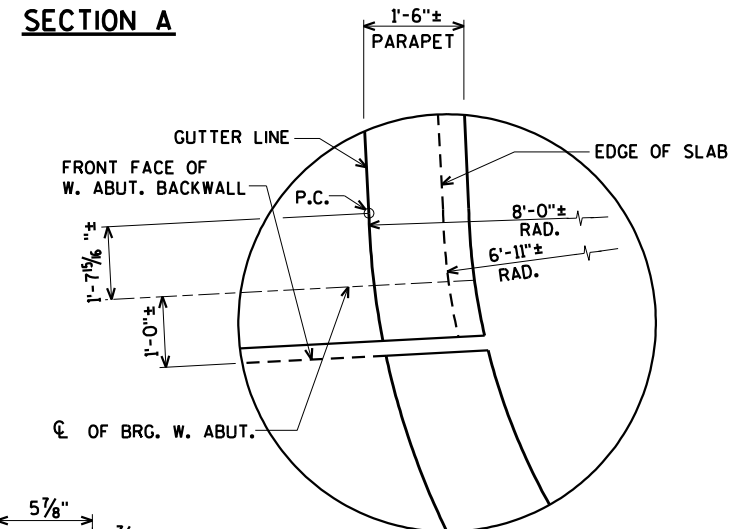
CAULK EXPOSED OPENINGS BETWEEN SHIMS.

FILL POST ANCHOR BOLT HOLES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

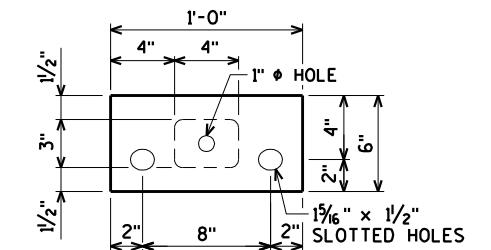
POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.



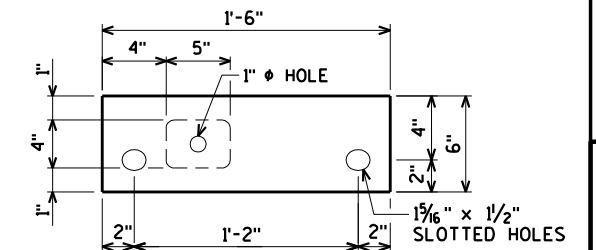
**PLAN OF TRAFFIC RAILING**  
WING 1 TRAFFIC RAILING REPAIR



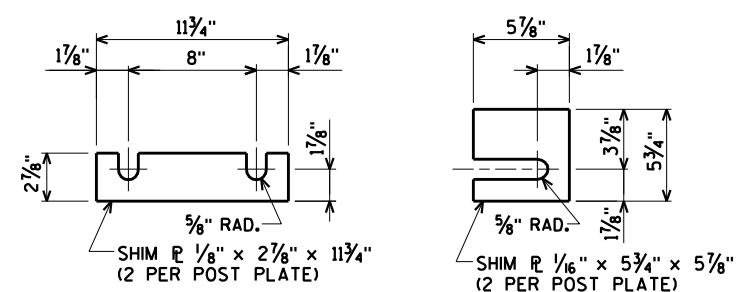
**DETAIL A**



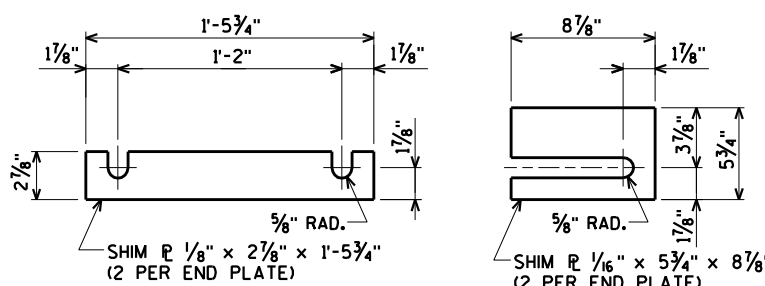
**POST PLATE**



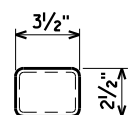
**END PLATE**



**POST SHIM DETAILS**

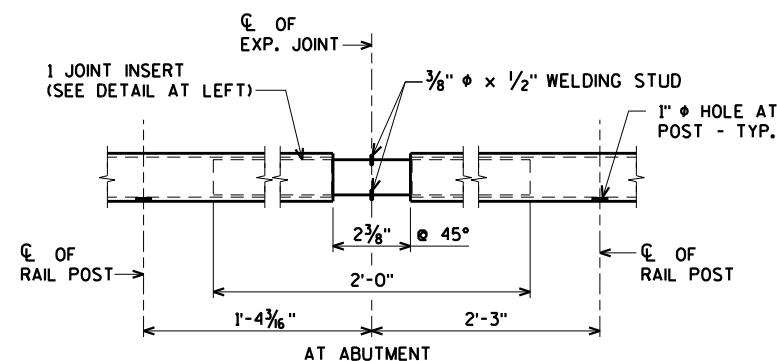


**END PLATE SHIM DETAILS**



**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

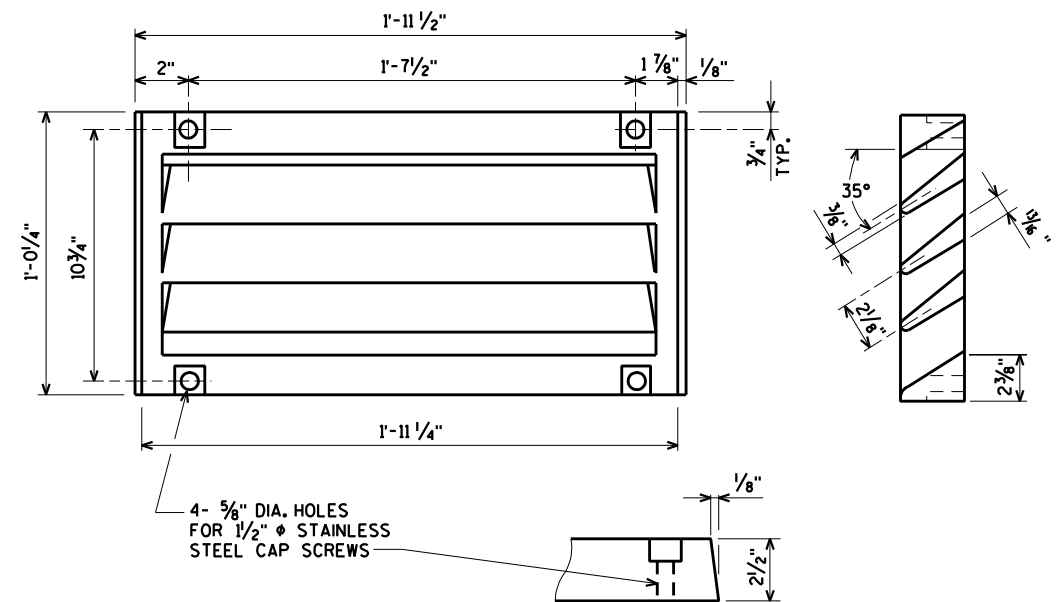
\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 railing.dgn

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CK'D. CBM
<b>TRAFFIC RAILING REPAIR DETAILS</b>			SHEET 94 OF 99



**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	FIBERGLASS DOWNSPOUTS	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
	14	STA. 37+47, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	6	4 FT.	11'-6"	GC	1	1	1
UNIT 6	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
	18	STA. 43+56, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	6	4 FT.	11'-6"	GC	1	1	1
UNIT 7	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



**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.

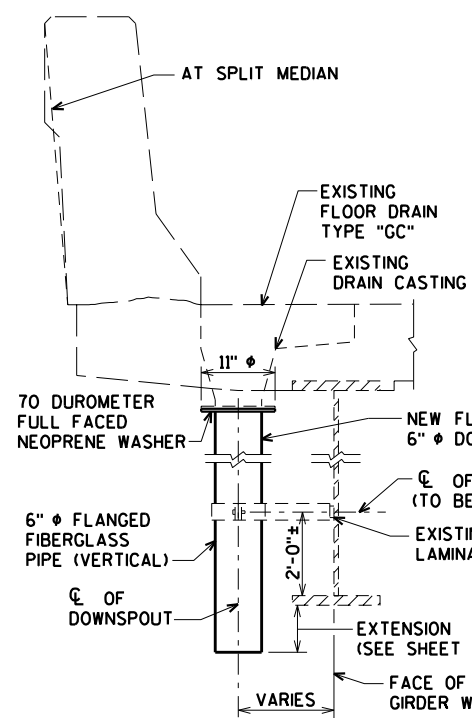
WORK THIS SHEET WITH SHEETS 96-97

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS/KAZ	PLANS CK'D. CBM
<b>FLOOR DRAIN SUMMARY</b>			SHEET 95 OF 99

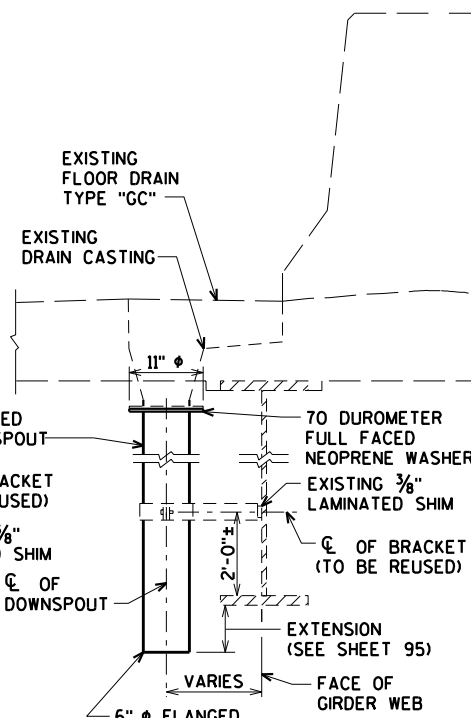
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
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\* FOR DETAILS, SEE SHEET 96

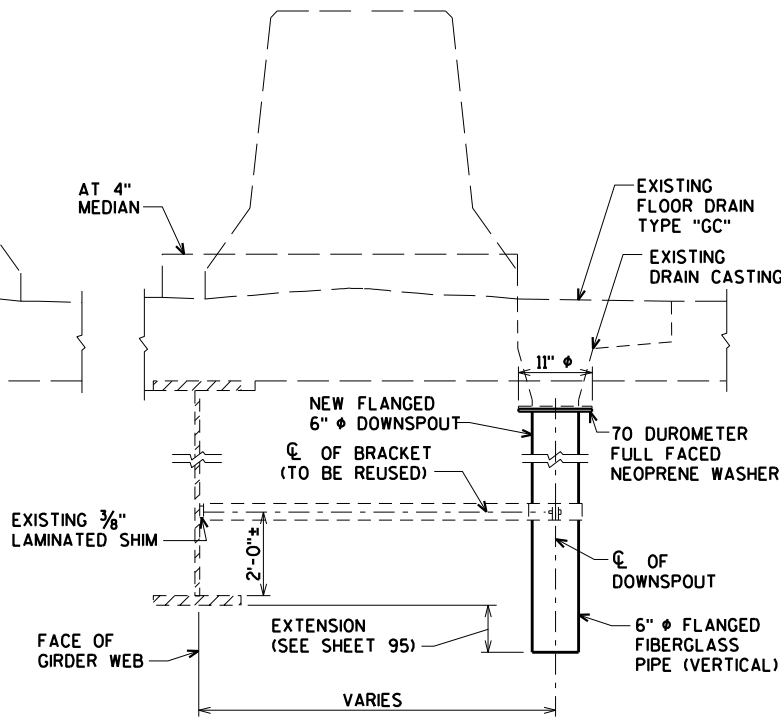
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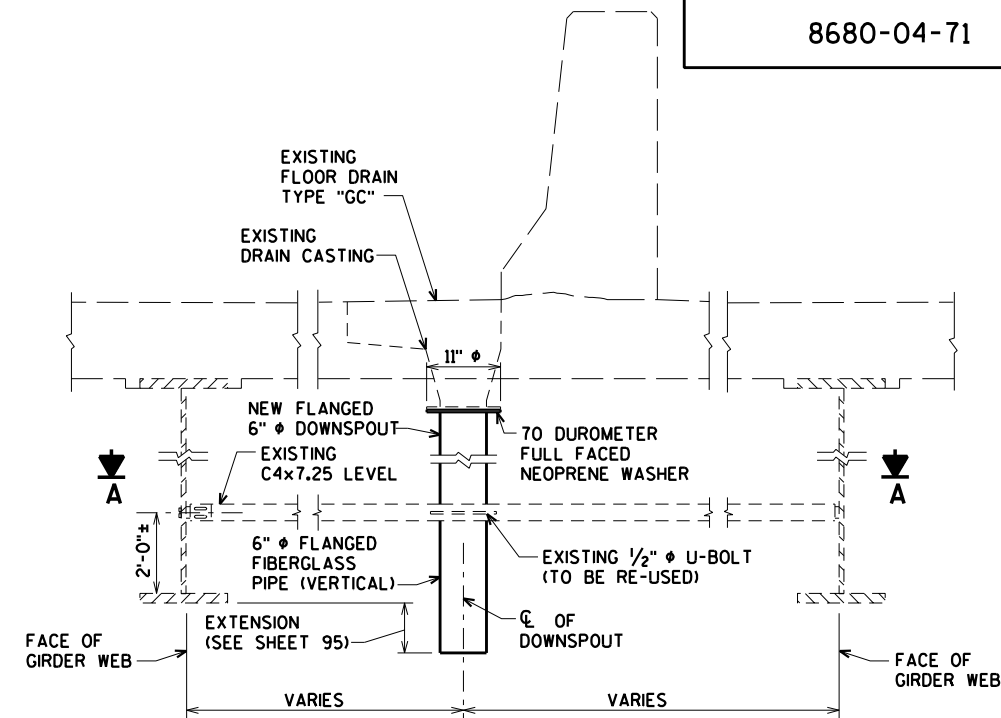
DETAIL 1



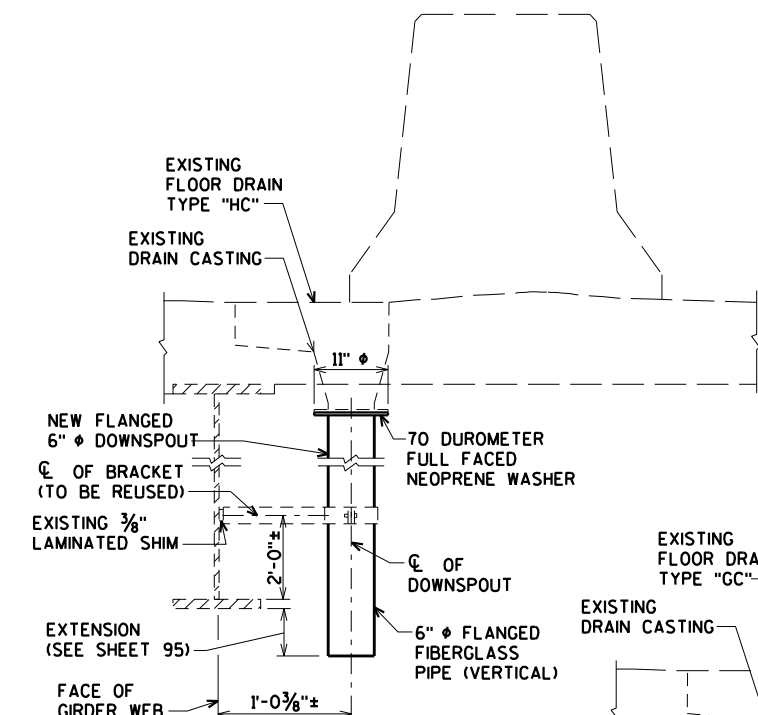
DETAIL 2



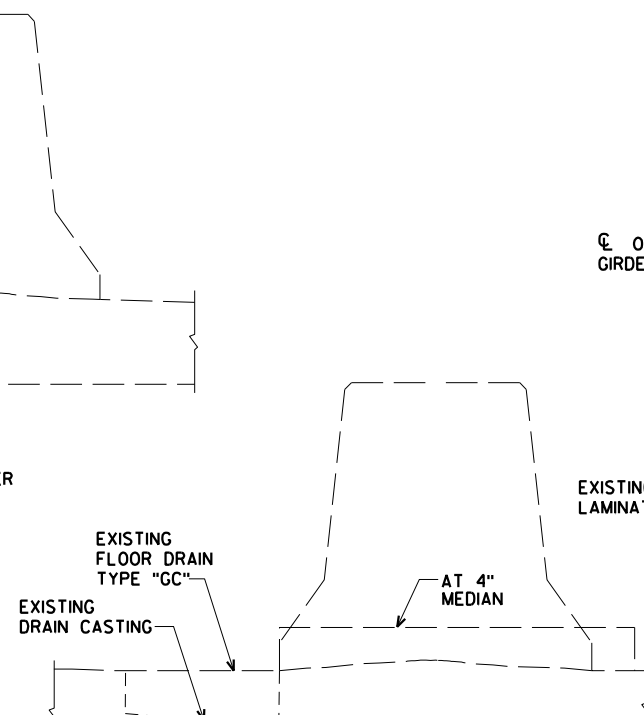
DETAIL 3



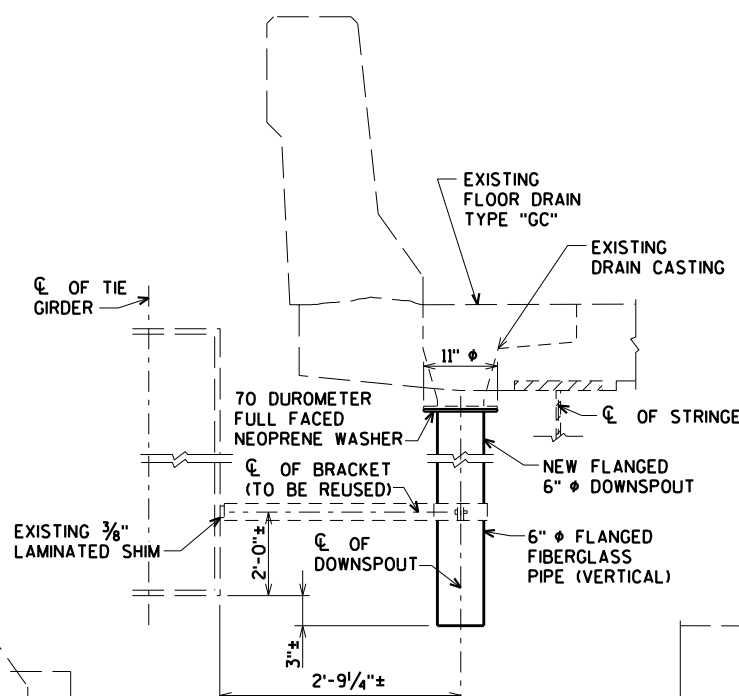
DETAIL 4



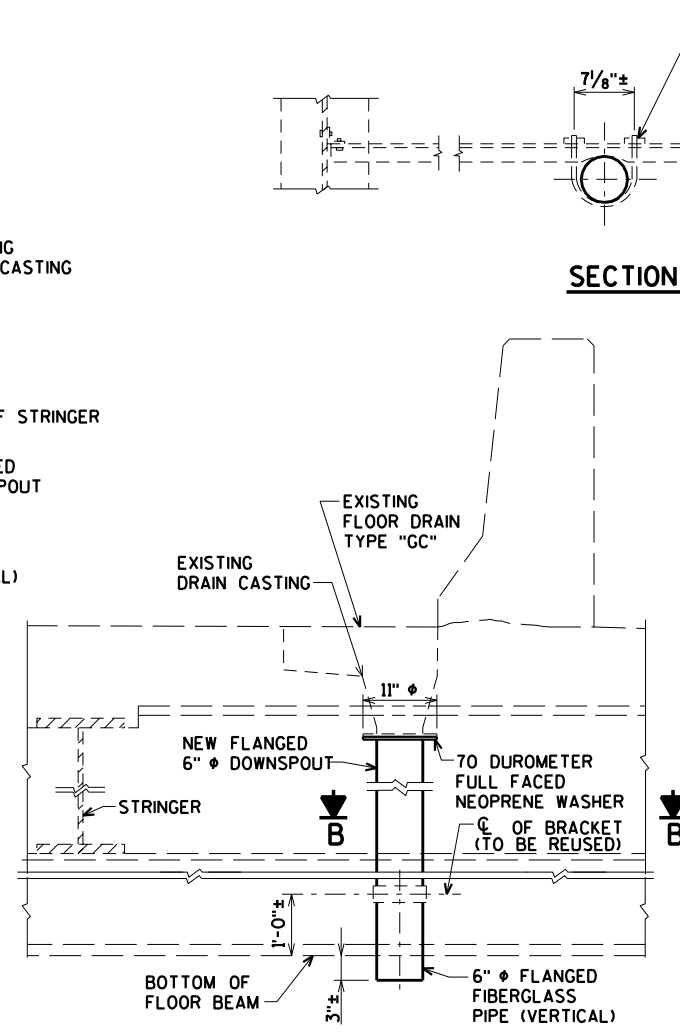
DETAIL 5



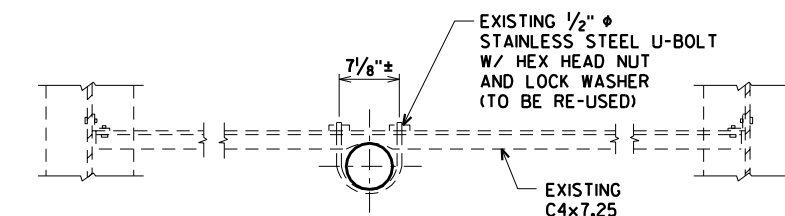
DETAIL 6



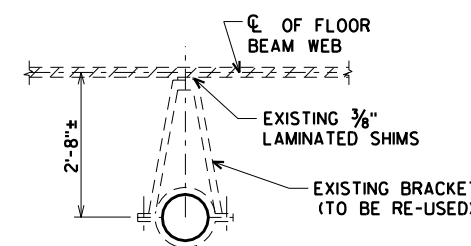
DETAIL 7



DETAIL 8



SECTION A



SECTION B

WORK THIS SHEET WITH SHEETS 95 & 97

NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

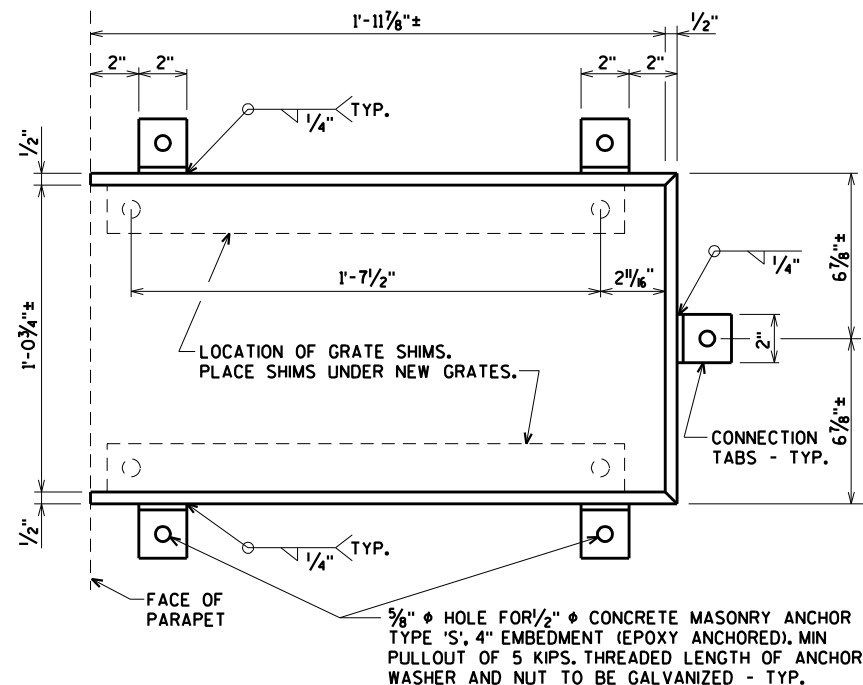
STRUCTURE B-16-38/69100

DRAWN BY KAZ PLANS CK'D. CBM

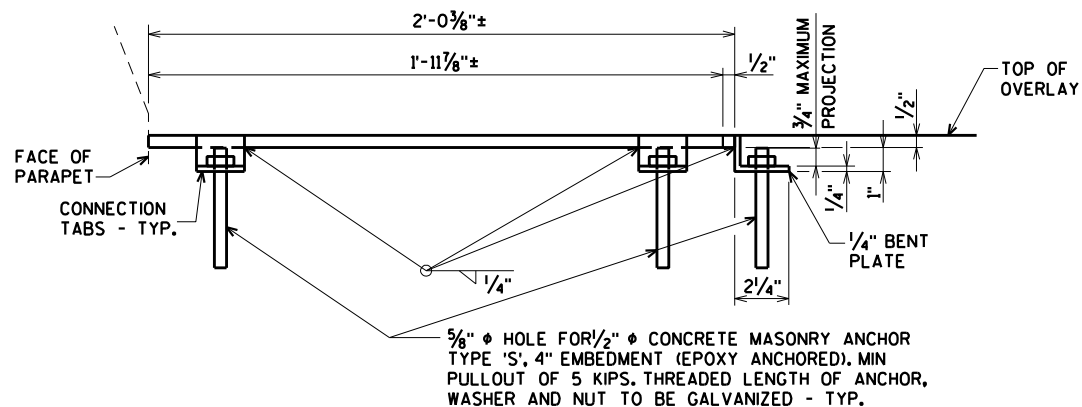
FLOOR DRAIN DETAILS SHEET 96 OF 99

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



ELEVATION

**ADJUSTING FLOOR DRAIN FRAME DETAILS**

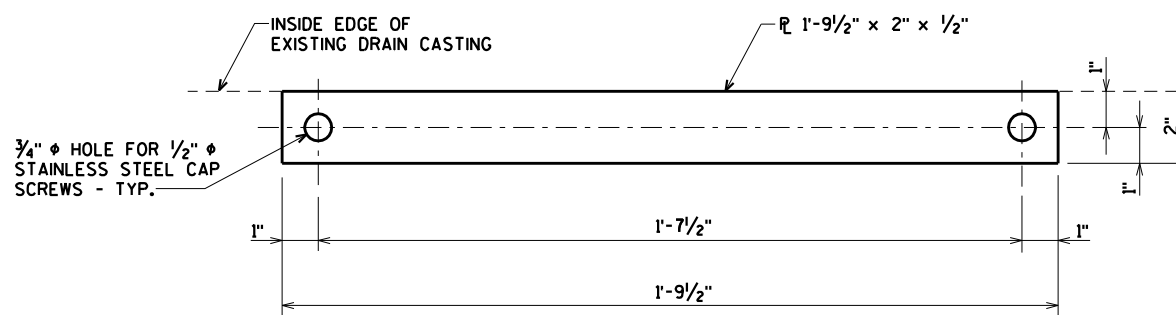
TYPICAL Ø DRAIN NUMBERS 1-14, 16, 18, 25, 27, 29, 31, 33, 46-47, 49, 51, & 53

**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.

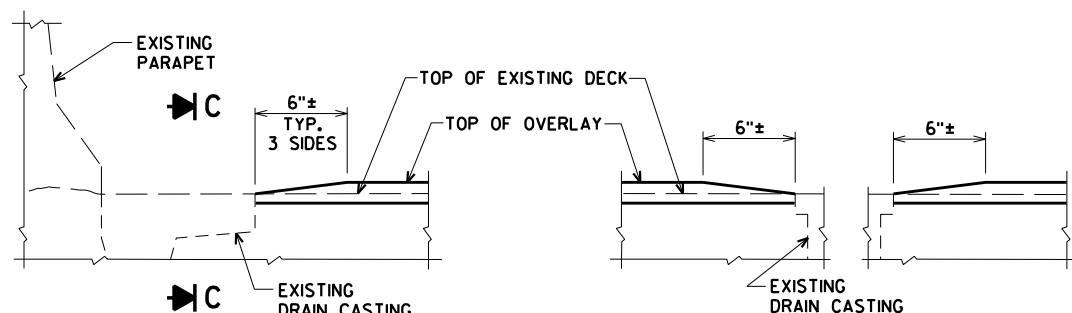
MAKE SURE FRAMES ARE FLUSH WITH THE TOP OF THE EXISTING DRAIN CASTINGS.



PLAN

**GRATE SHIM DETAILS**

2 REQUIRED PER GRATE WHERE DRAIN WILL BE RAISED.  
COST OF SHIMS INCLUDED IN THE BID ITEM "ADJUSTING FLOOR DRAINS".



SECTION THRU DRAIN

SECTION C

**SLOPE OVERLAY AROUND EXISTING DRAIN DETAIL**

TYPICAL Ø DRAIN NUMBERS 15, 17, 19-24, 26, 28, 30, 32, 34-45, 48, 50, 52, & 54

COST TO SLOPE OVERLAY AROUND THE EXISTING DRAINS INDICATED IS INCLUDED IN THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE#42-0825 DRAIN.dgn

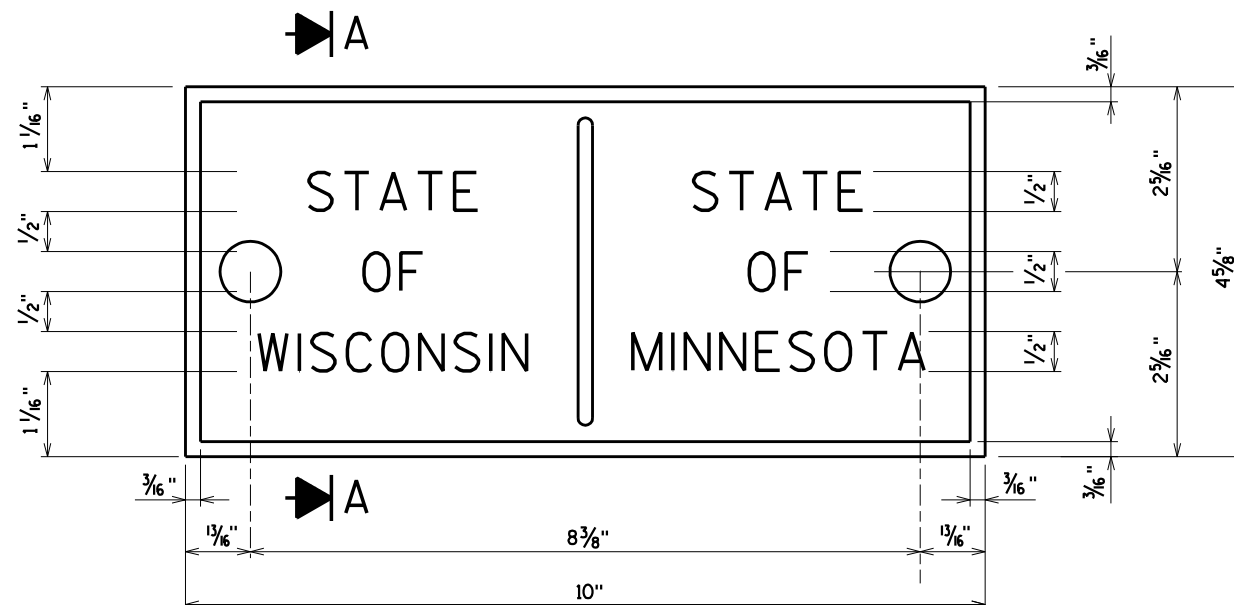
8

8

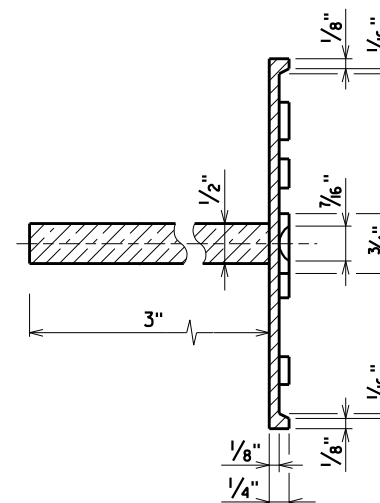
WORK THIS SHEET WITH SHEETS 95-96

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY KAZ		PLANS CK'D. CBM	
<b>FLOOR DRAIN DETAILS</b>			SHEET 97 OF 99

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



**STATE LINE REFERENCE PLATE DETAIL**  
(RIGHT SIDE PARAPET SHOWN, LEFT SIDE PARAPET OPPOSITE)



**SECTION A-A**

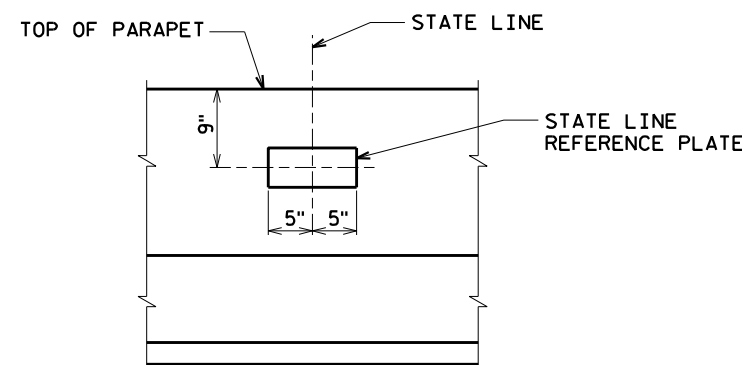
**GENERAL NOTES**

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".



**PART PLAN OF PARAPET**

\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE#42-0825 nameplate.dgn

8

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY		CLS	PLANS CKD. CBM
<b>STATE LINE REFERENCE PLATE</b>			SHEET 98 OF 99

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

**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.

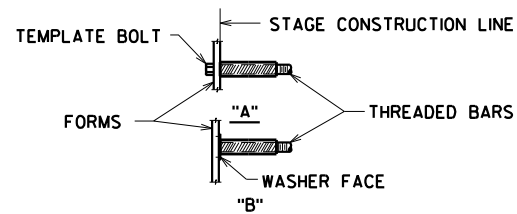
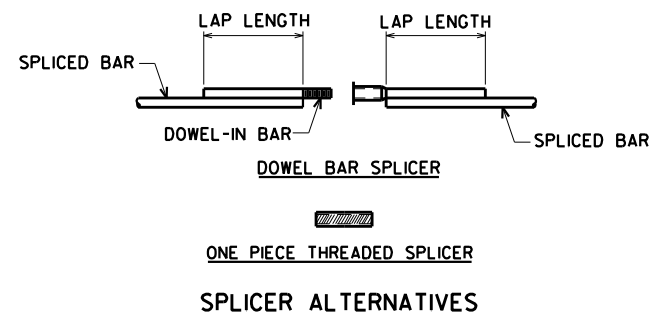
FOR DOWEL BAR SPLICERS, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE SPLICER BARS.

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  $f_y$  x AREA OF SPLICED REINFORCEMENT BAR.

WHERE  $f_y$  = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS



**INSTALLATION AND SETTING METHODS**

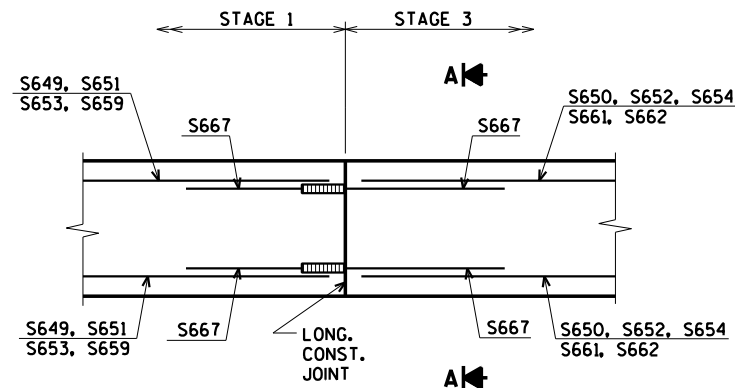
"A" SET SPLICER BY MEANS OF A TEMPLATE BOLT

"B" SET SPLICER BY NAILING TO WOOD FORMS OR CEMENTING TO STEEL FORMS.

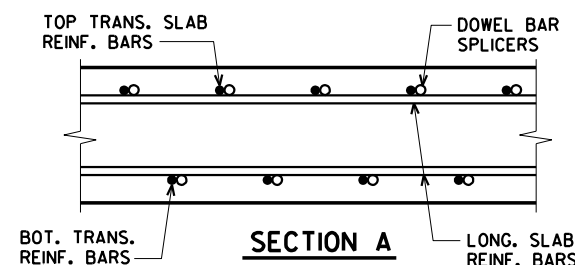
**DOWEL BAR SPLICER LAP LENGTHS**

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  $\frac{1}{2}$  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**



\$PRNAME\$ U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE#42-0825 couplers.dgn

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8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-38/69100</b>			
DRAWN BY	CLS	PLANS CK'D.	CBM
<b>BAR COUPLER DETAILS</b>			SHEET 99 OF 99

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

**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**

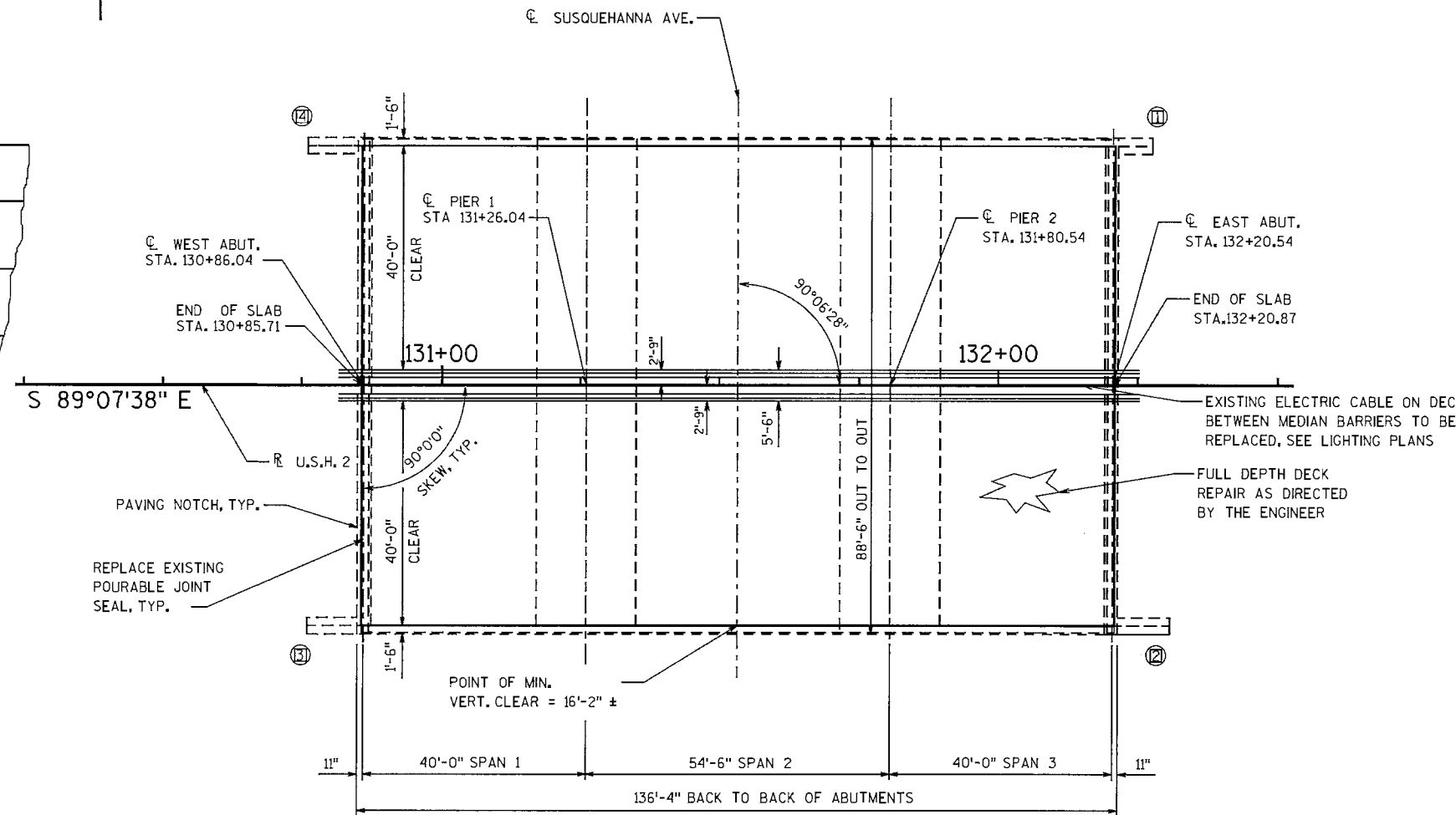
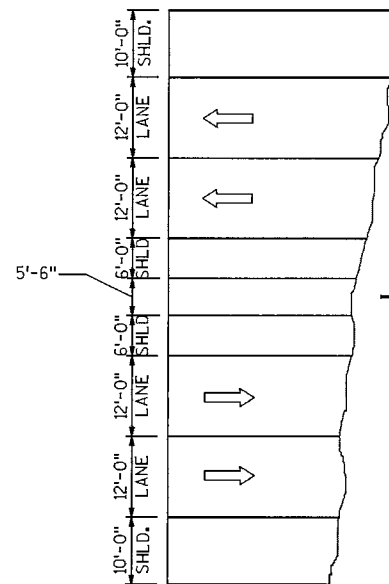
LIVE LOAD:  
 DESIGN LOADING = HS-20  
 INVENTORY RATING = HS-22  
 OPERATING RATING = HS-37  
 WIS. MAX. STD. PERMIT VEHICLE LOAD = 230 KIPS

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**

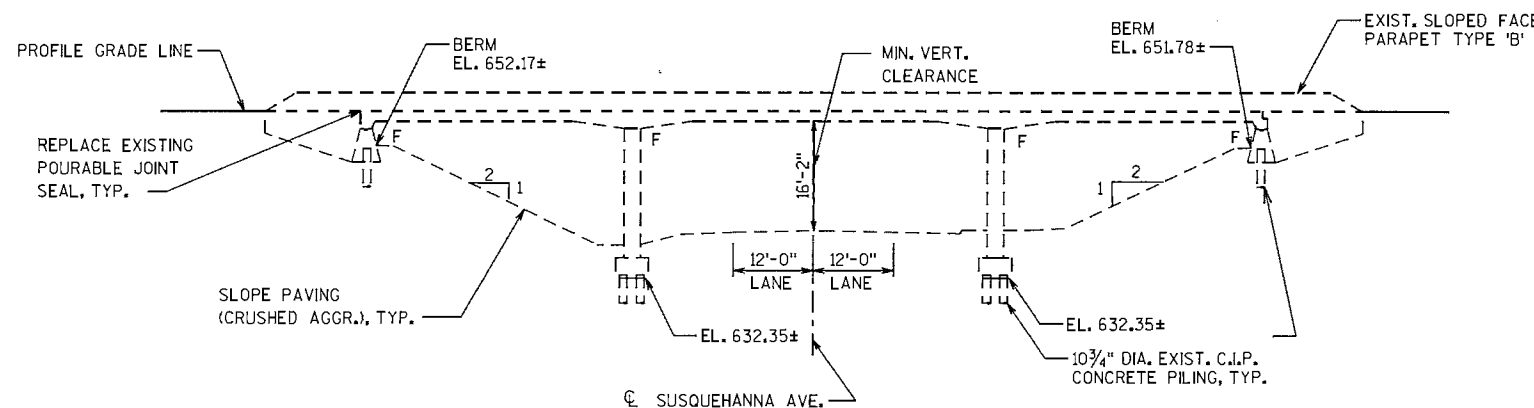
A.D.T. = 14,900 (2014)  
 = 17,700 (2034)

R.D.S. = 55 MPH  
 % TRUCKS = 16.5%



**PLAN**

(CONCRETE OVERLAY OF 3 SPAN HAUNCHED SLAB)



**ELEVATION**

(NORMAL TO SUSQUEHANNA AVE. LOOKING NORTH)

**LEGEND**

Ⓧ INDICATES WINGWALL NUMBER (FROM EXISTING PLANS)



**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

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* **08/19/13**  
 CHIEF STRUCTURES DESIGN ENGINEER DATE

**STRUCTURE B-16-49**

U.S.H. 2 OVER SUSQUEHANNA AVENUE

COUNTY DOUGLAS TOWN/CITY/VILLAGE SUPERIOR

DESIGN SPEC. REHABILITATION N/A

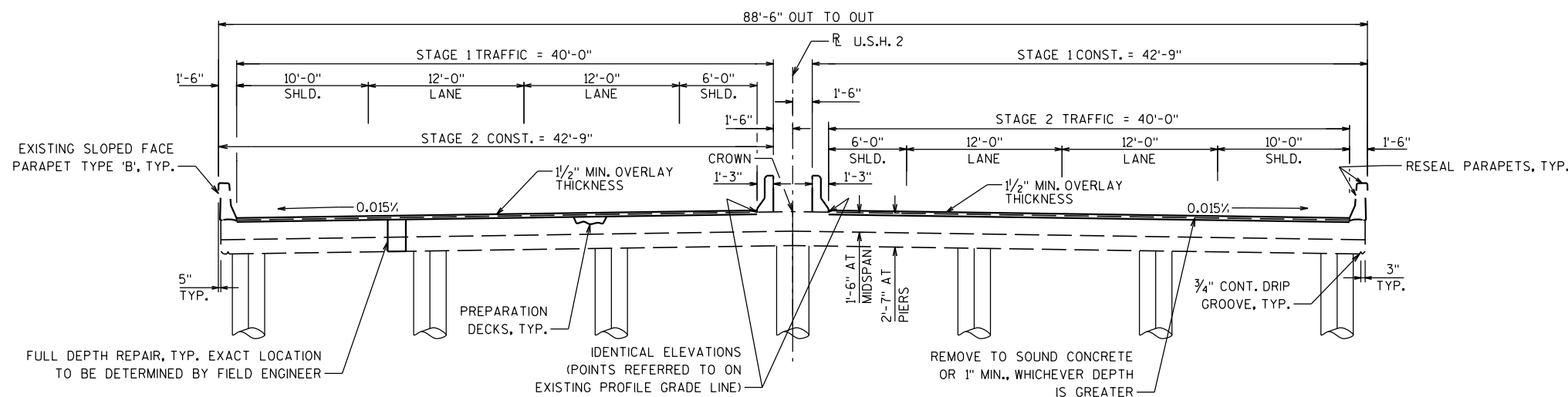
DESIGNED BY	DRJ	DESIGN CK'D.	MNM	DRAWN BY	DRJ	PLANS CK'D.	MNM

GENERAL PLAN

SHEET 1 OF 2

**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 1/2" 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 1/4" 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 WITH 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 INCIDENTAL 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.



**CROSS SECTION THRU ROADWAY**

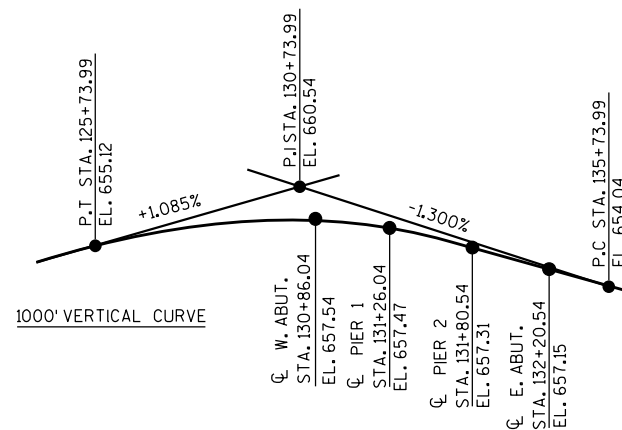
(LOOKING EAST)

NOTE: EXISTING CROSS SLOPE OF 0.015% WILL BE MAINTAINED.

**TOTAL ESTIMATED QUANTITIES**

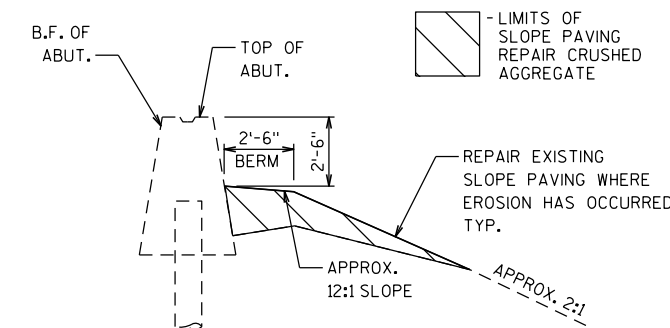
NO.	BID ITEMS	UNIT	TOTAL
203.0225.S.02	DEBRIS CONTAINMENT STRUCTURE (B-16-0049)	LS	1
502.3200	PROTECTIVE SURFACE TREATMENT	SY	1,215
509.0301	PREPARATION DECKS TYPE 1	SY	305
509.0302	PREPARATION DECKS TYPE 2	SY	75
509.0500	CLEANING DECKS	SY	1,215
* 509.1500	CONCRETE SURFACE REPAIR	SF	10
* 509.2000	FULL 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.

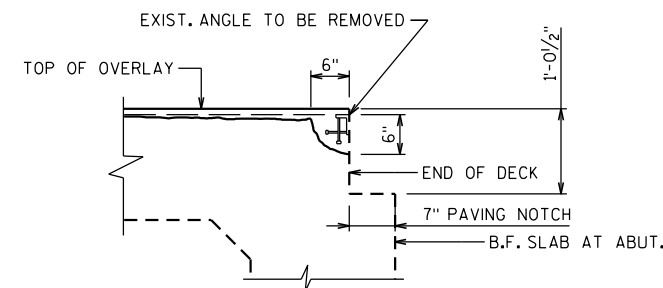


**EXISTING PROFILE GRADE LINE - U.S.H 2**

BASED ON ORIGINAL STRUCTURE PLANS



**SLOPE PAVING AT ABUTMENTS (TYP.)**



**SECTION AT END OF SLAB**

CONCRETE OVERLAY

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE</b>		<b>B-16-49</b>	
DRAWN BY DRJ		PLANS CK'D. MNM	
<b>CONCRETE OVERLAY DETAILS</b>			SHEET 2 OF 2

**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**

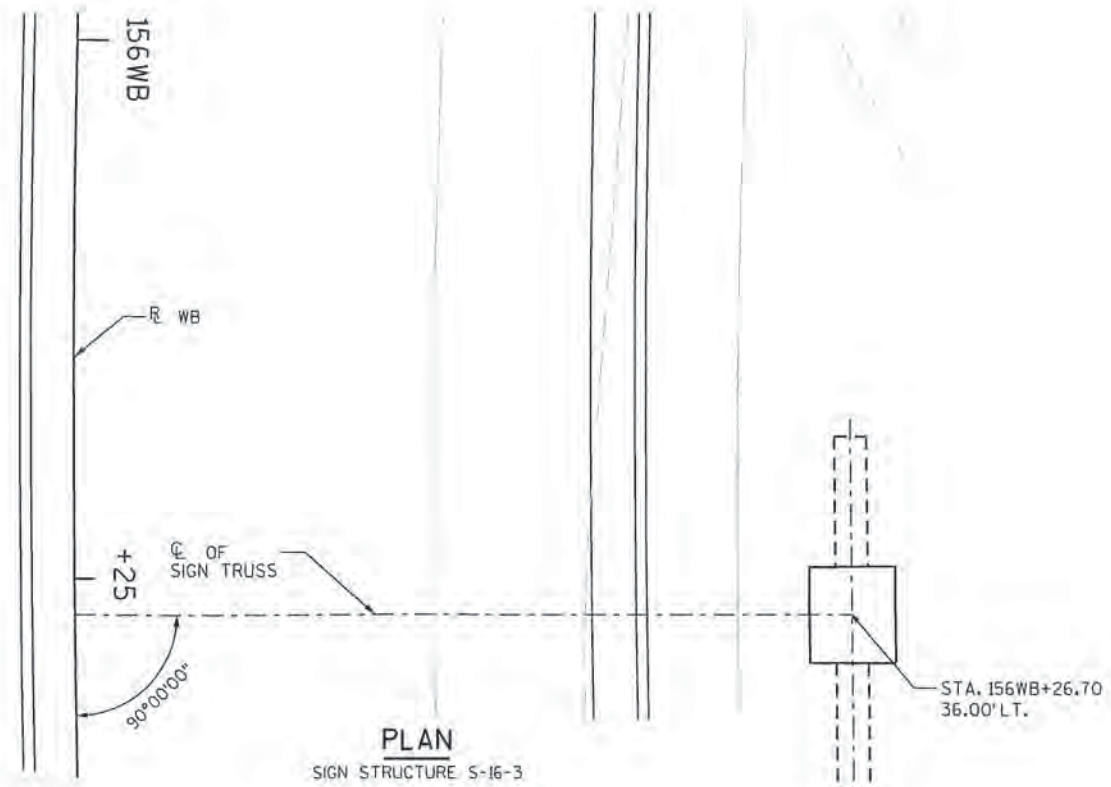
DESIGN SIGN AREA = 264 SF  
 MAX. SIGN DEPTH = 12 FT

DEAD LOAD - WT. OF SIGN AND SUPPORTING STRUCTURE.  
 ICE LOAD - 3 PSF TO 1FACE 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

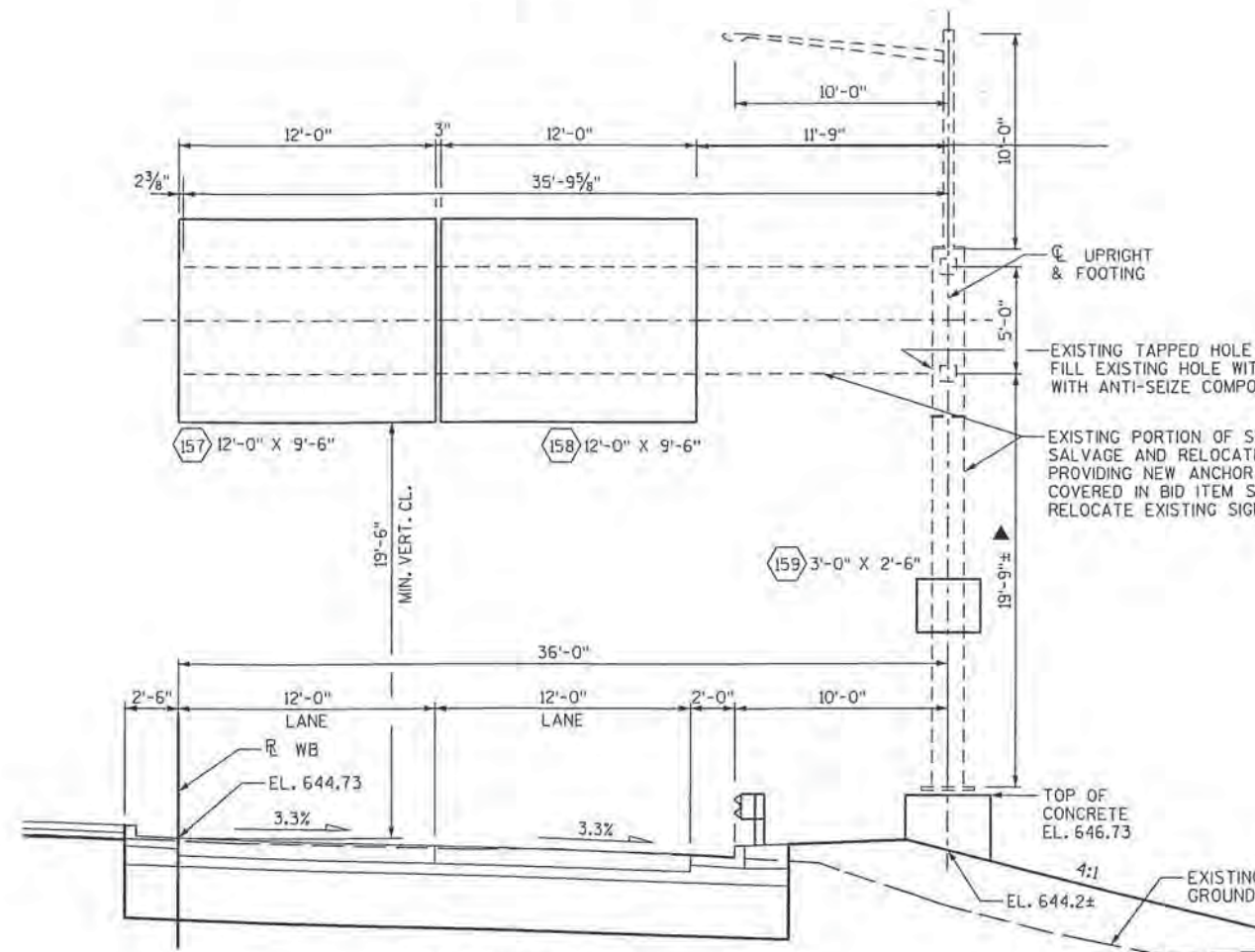
GROUP LOADS	% OF ALLOWABLE STRESS
1. DEAD	100
2. DEAD + WIND	133
3. DEAD + ICE + 1/2 (WIND*)	133

\* MIN. VALUE OF 25 PSF FOR GROUP 3.



**TOTAL ESTIMATED QUANTITIES**

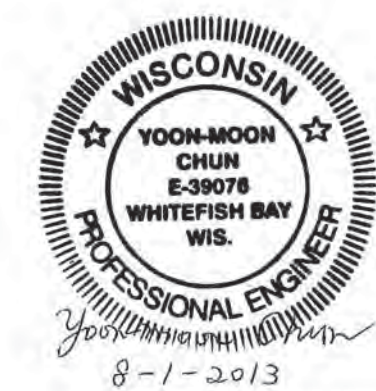
ITEM NO.	BID ITEMS	UNIT	TOTAL
636.0100	SIGN SUPPORTS CONCRETE MASONRY	CY	12
636.1000	SIGN SUPPORTS STEEL REINFORCEMENT HS	LB	1,580
SPV.0105.03	REMOVE AND RELOCATE EXISTING SIGN BRIDGE CANTILEVERED S-16-3	LS	1



**ELEVATION**

(LOOKING NORTHWEST AT FRONT FACE OF SIGNS)  
 STA. 156WB+26.70

○ SIGN NUMBER  
 ▲ BASED ON INSPECTION REPORT DATED 04-28-2009



STRUCTURES DESIGN CONTACTS  
 BRIDGE OFFICE:  
 WILLIAM DREHER, P.E. (608) 266-8489  
 CONSULTANT:  
 MAHMOUD MALAS, P.E. (262) 821-1171

**LIST OF DRAWINGS**

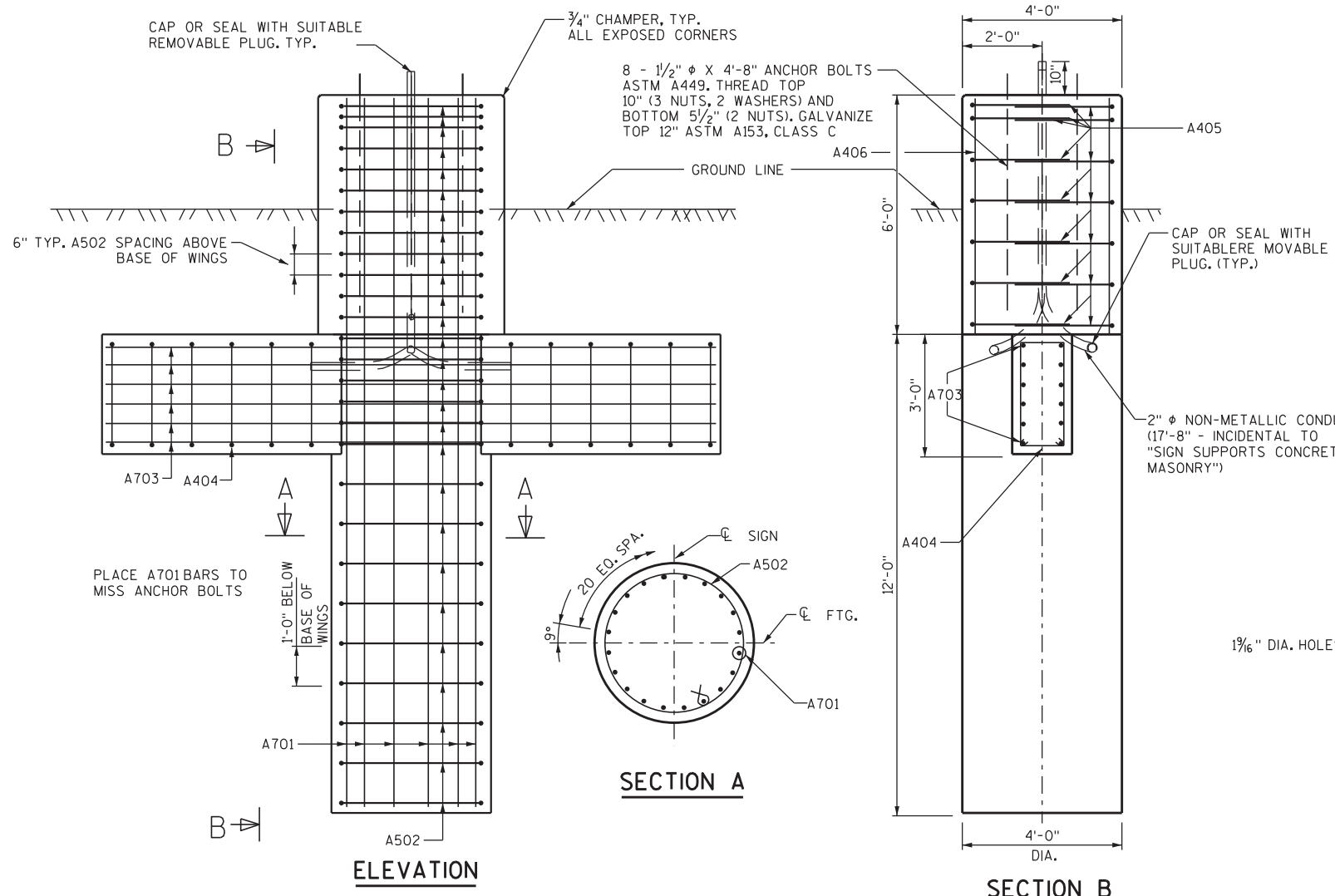
- GENERAL PLAN & ELEVATION
- CANTILEVER TRUSS FOOTING

NO.	DATE	REVISION	BY
<p><b>KSA K. Singh &amp; Associates, Inc.</b>                      Engineers, Scientists and Environmental Consultants</p> <p>STATE OF WISCONSIN                      DEPARTMENT OF TRANSPORTATION</p> <p>ACCEPTED <i>William C. Dreher</i> KAR. 10/09/13                      CHIEF STRUCTURES DESIGN ENGINEER DATE</p> <p><b>STRUCTURE S-16-3</b></p> <p>USH 2 WB</p> <p>COUNTY DOUGLAS TOWN/CITY/VILLAGE SUPERIOR</p> <p>DESIGN SPEC. AASHTO SIGN SPEC. LOAD 90 MPH                      3 SEC. SPEED</p> <p>DESIGNED BY NA DESIGN CRD. YC DRAWN BY NA PLANS CRD. YC</p> <p><b>GENERAL PLAN &amp; ELEVATION</b></p> <p>SHEET 1 OF 2</p>			

8

8



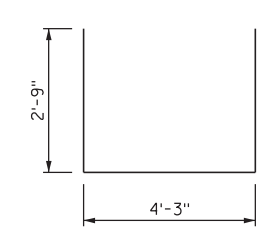
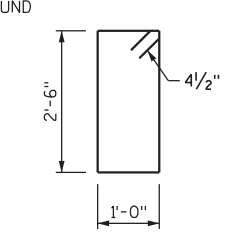
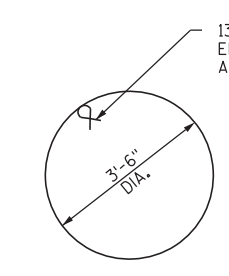
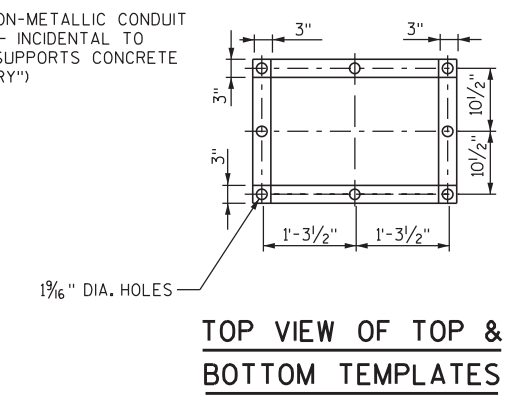


**BILL OF BARS**

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

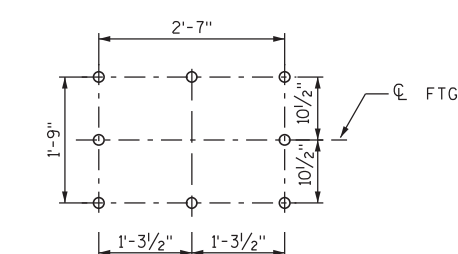


**TOP VIEW OF TOP & BOTTOM TEMPLATES**

**A502**

**A404**  
(STIRRUP)

**A405**



**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED. BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 3" CLEAR UNLESS DETAILED OTHERWISE.

**ALLOWABLE DESIGN STRESSES**

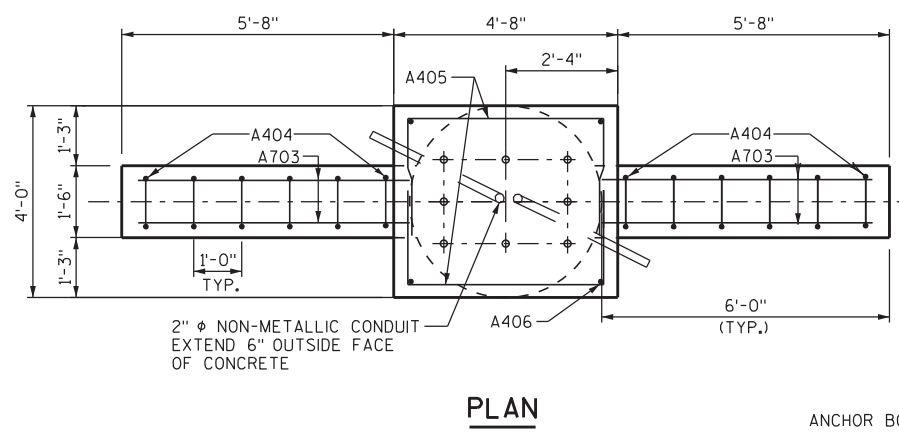
CONCRETE MASONRY	$f'c=3,500$ PSI
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	$f_y=60,000$ PSI
ANCHOR BOLTS (1 1/2" DIA.) ASTM A449	$f_y=81,000$ PSI

**FOUNDATION DATA**

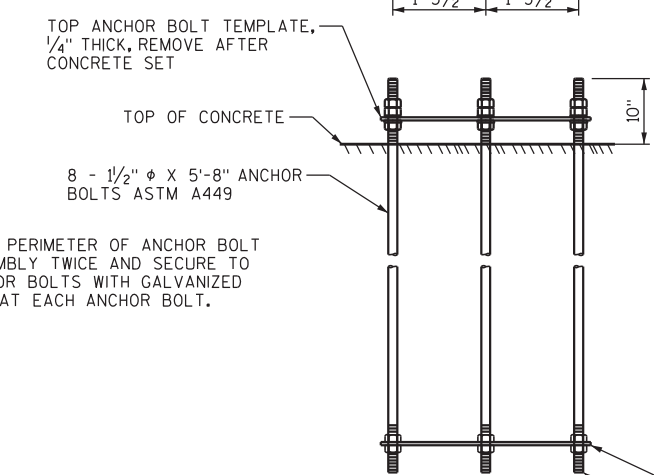
ALLOWABLE SOIL BEARING PRESSURE = 2.0T/SF

**TOTAL ESTIMATED QUANTITIES**

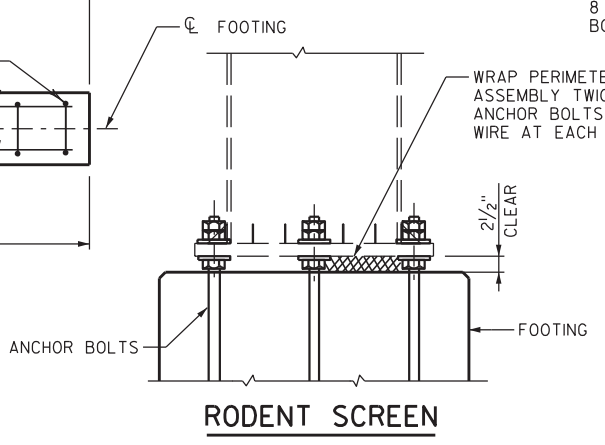
SIGN SUPPORTS CONCRETE MASONRY	12 CY	(1 FTG.)
SIGN SUPPORTS STEEL REINFORCEMENT HS	1580 LB	



**PLAN**



**ANCHOR BOLT DETAILS**



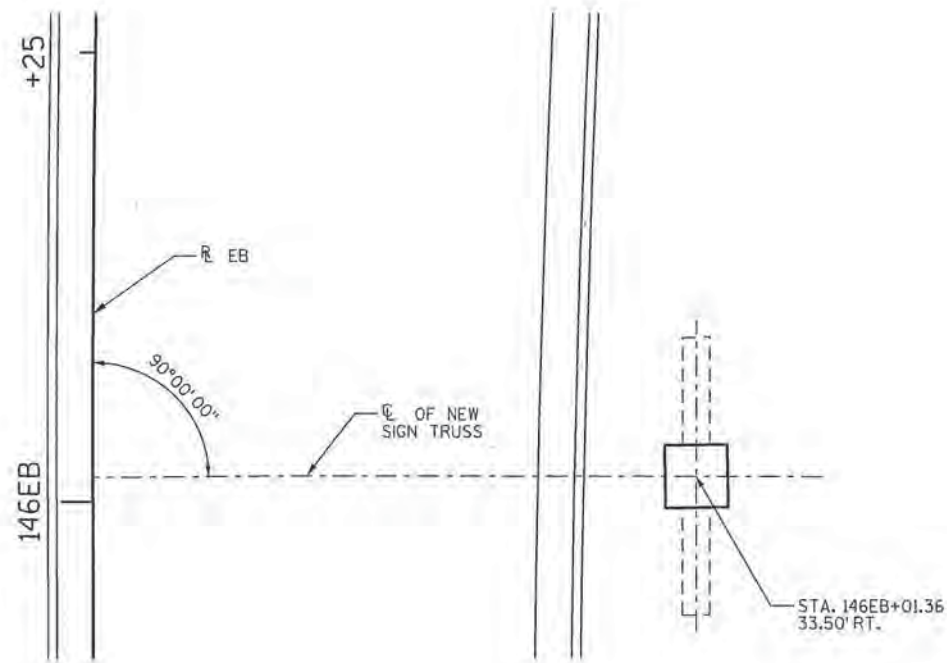
**RODENT SCREEN**

(ONLY REQ'D WHEN ELECTRICAL DEVICES ARE INSTALLED)

8

8

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



**PLAN**  
SIGN STRUCTURE S-16-13

**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 1FACE OF SIGN & AROUND SURFACE OF MEMBERS.  
WIND VELOCITY - 90 MPH (3-SECOND GUST SPEED) TO SIGN AREA & EXPOSED MEMBERS.

WIND COMPONENTS COMBINATION	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

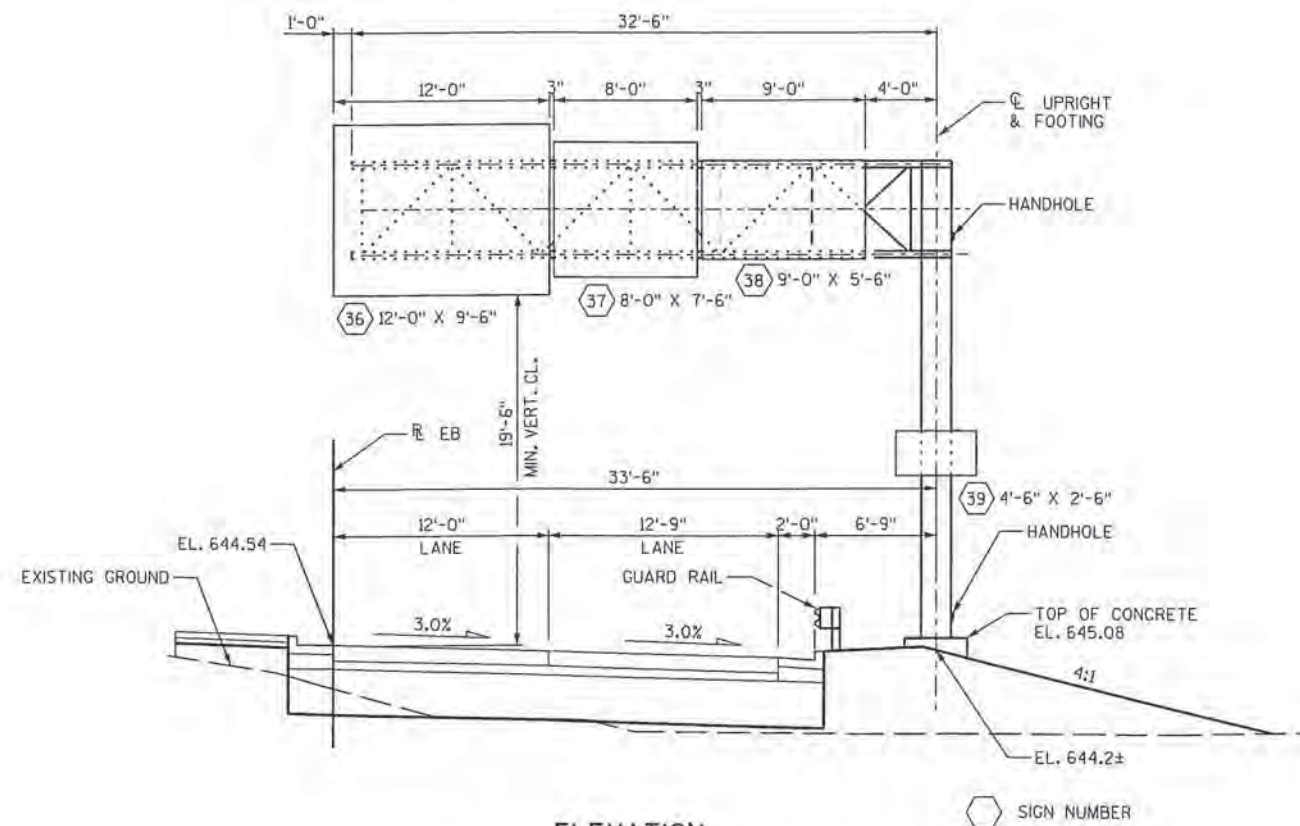
\* MIN. VALUE OF 25 PSF FOR GROUP 3.

**TOTAL ESTIMATED QUANTITIES**

ITEM NO.	BID ITEMS	UNIT	TOTAL
636.0100	SIGN SUPPORTS CONCRETE MASONRY	CY	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



**ELEVATION**  
(LOOKING SOUTHEAST AT FRONT FACE OF SIGNS)  
STA. 146EB+01.36



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. <i>Engineers, Scientists and Environmental Consultants</i>			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED <i>William C. Dreher</i>		DATE	10/09/13
STRUCTURE S-16-13			
LSH 2 EB			
COUNTY	DOUGLAS	TOWN/CITY/VILLAGE	SUPERIOR
DESIGN SPEC.	AASHTO SIGN SPEC.		LOAD 90 MPH 3 SEC. SPEED
DESIGNED BY	NA	DESIGN CK'D.	YC
DRAWN BY	NA	PLANS CK'D.	YC
GENERAL PLAN & ELEVATION			SHEET 1 OF 5

**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.

DESIGNED ACCORDING TO AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS"

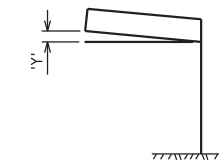
WIND VELOCITY = 90 MPH (3-SECOND GUST SPEED)

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 —  $f_y=42,000$  P.S.I.  
 STRUCTURAL ANGLES — A.S.T.M. A709 GRADE 36 —  $f_y=36,000$  P.S.I.  
 PLATES & BARS — A.S.T.M. A709 GRADE 36 —  $f_y=36,000$  P.S.I.  
 ANCHOR BOLTS — A.A.S.H.T.O. M314 —  $f_y=55,000$  P.S.I.  
 HIGH STRENGTH BOLTS — A325 —  $f_y=92,000$  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"

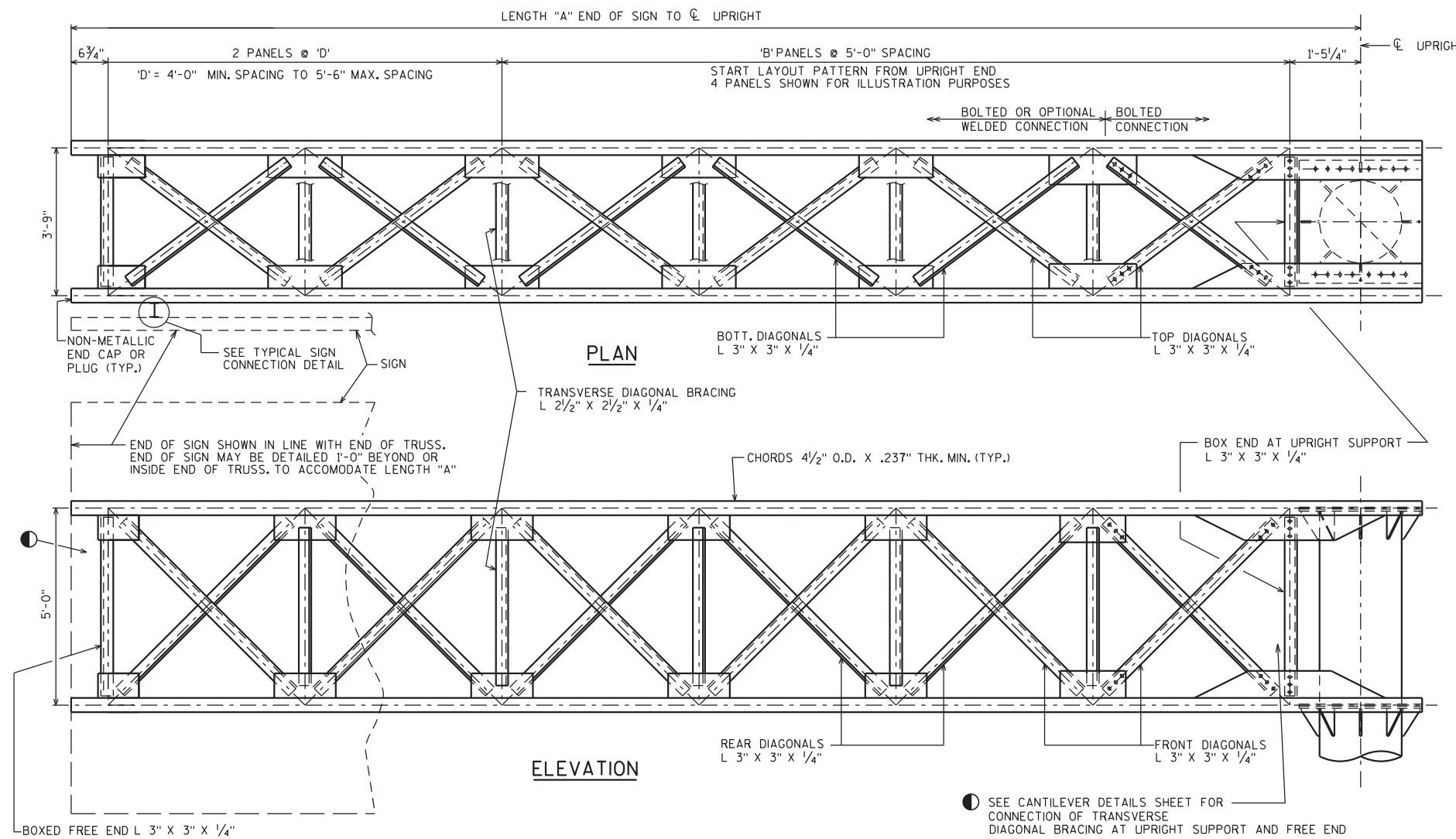


**CAMBER DIAGRAM**

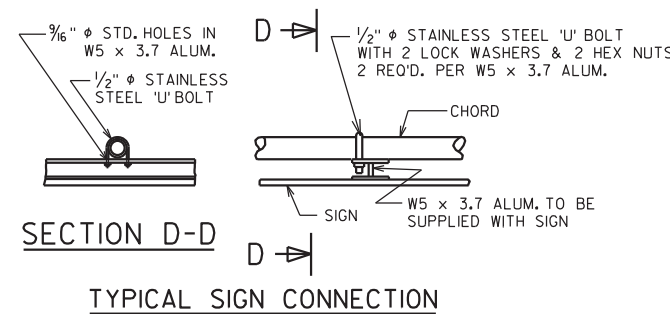
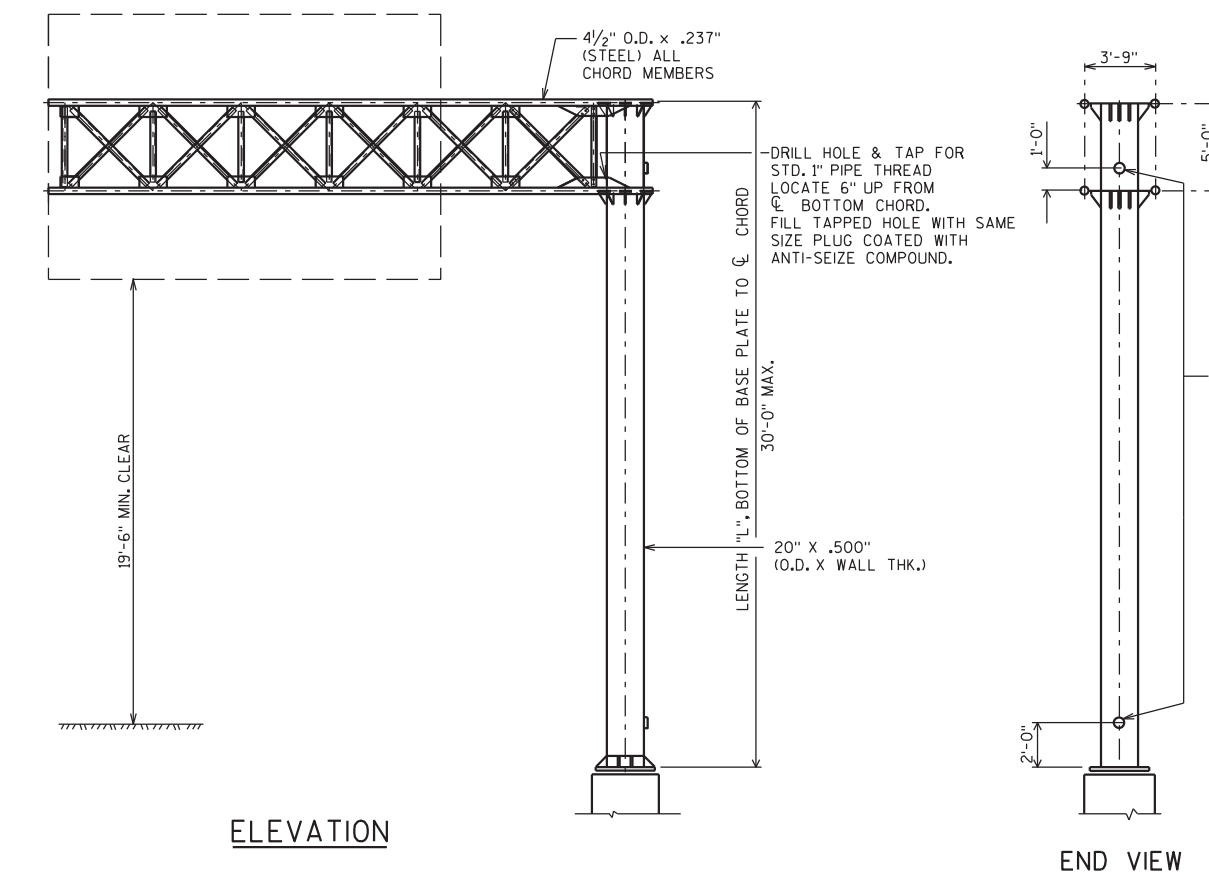
**DESIGNER NOTES**

		CAMBER VALUES				
		'Y' (IN.)				
L \ A	32	30	28	26	24	
30	4/8	3/2	2 7/8	2 3/8	1 7/8	
28	3 7/8	3 1/4	2 3/4	2 1/4	1 3/4	
26	3 5/8	3	2 1/2	2 1/8	1 3/4	
24	3 3/8	2 7/8	2 3/8	2	1 5/8	
22	3 1/8	2 5/8	2 1/4	1 7/8	1 1/2	

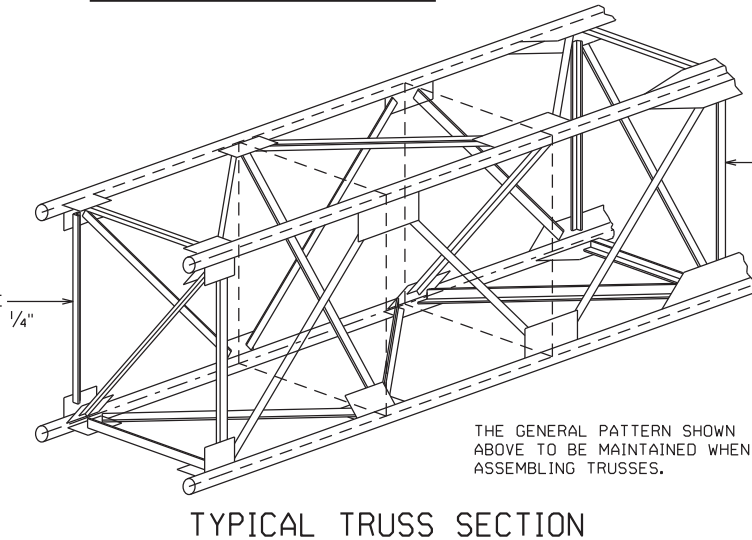
'A' & 'L' IN FT.  
 INTERPOLATE FOR VALUES NOT SHOWN  
 TABLES REFLECT CATWALK LOADING. FOR CAMBER VALUES WITHOUT CATWALK LOADING, MULTIPLY TABLE VALUES ABOVE AS FOLLOWS:  
 MULTIPLY 'Y' BY .72



SEE CANTILEVER DETAILS SHEET FOR CONNECTION OF TRANSVERSE DIAGONAL BRACING AT UPRIGHT SUPPORT AND FREE END



**TYPICAL SIGN CONNECTION**



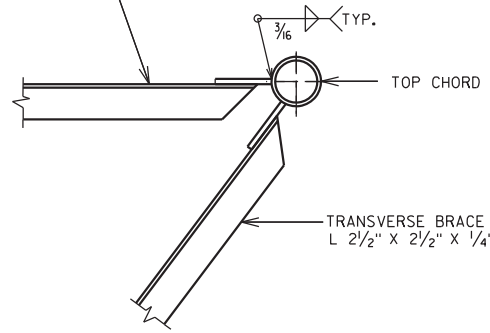
**TYPICAL TRUSS SECTION**

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

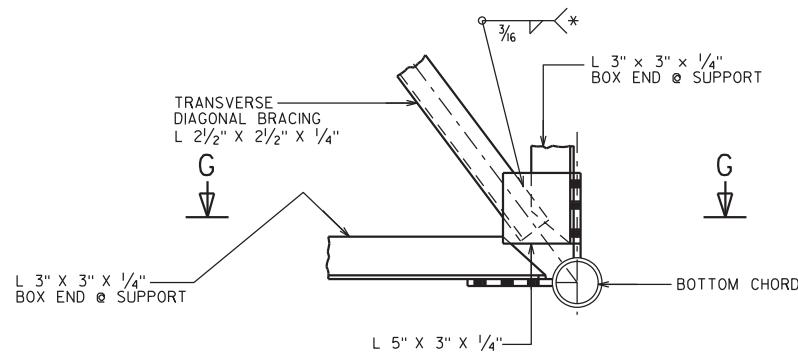
HORIZONTAL WEB  
L 3" X 3" X 1/4"

\* ANGLE  
L 2 1/2" X 2 1/2" X 1/4"  
L 3" X 3" X 1/4"

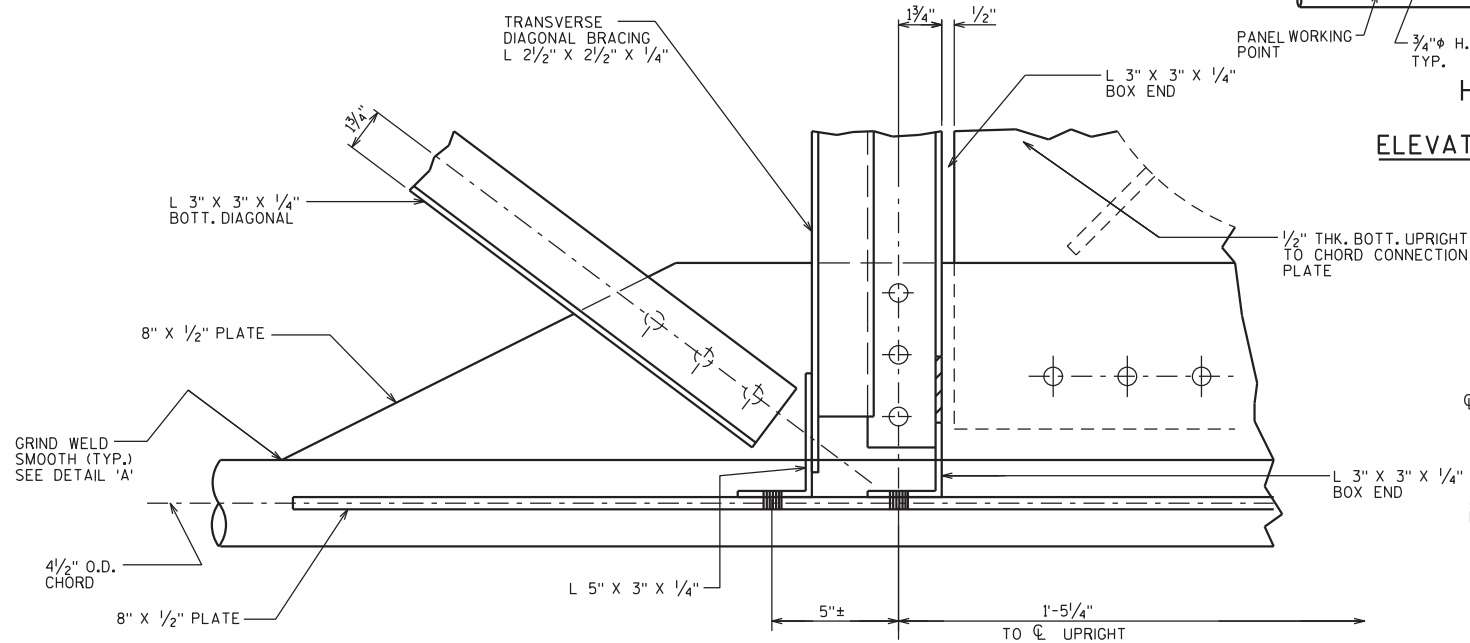
WELD LENGTH (MIN.)  
7"  
8"



SECTION B-B



SECTION H-H

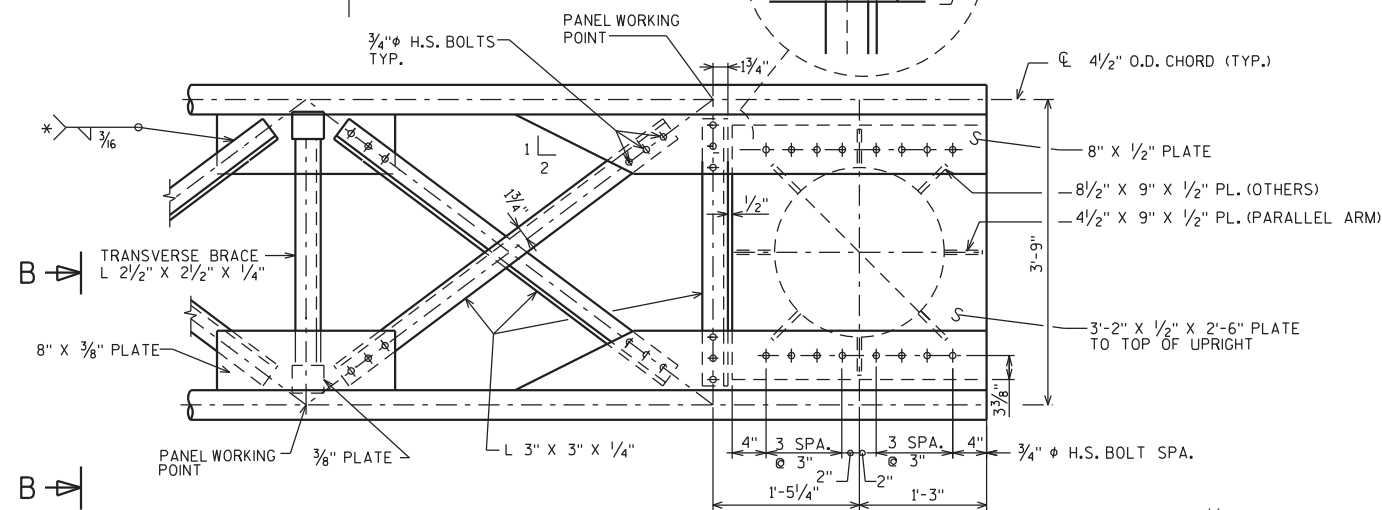


SECTION G-G

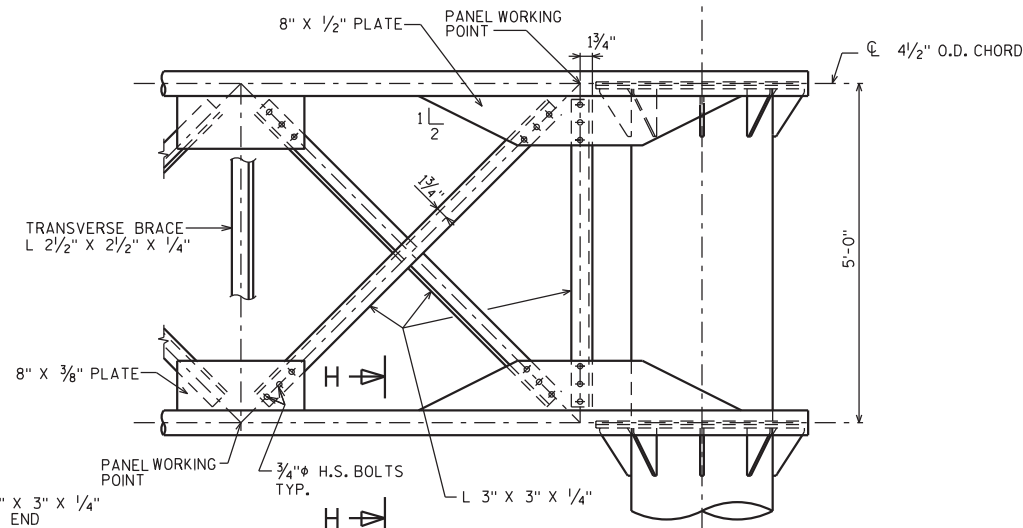
(LOOKING DOWN @ BOTT. HORIZ. PLANE @ FRONT CHORD)

BOLTED OR OPTIONAL WELDED CONNECTION

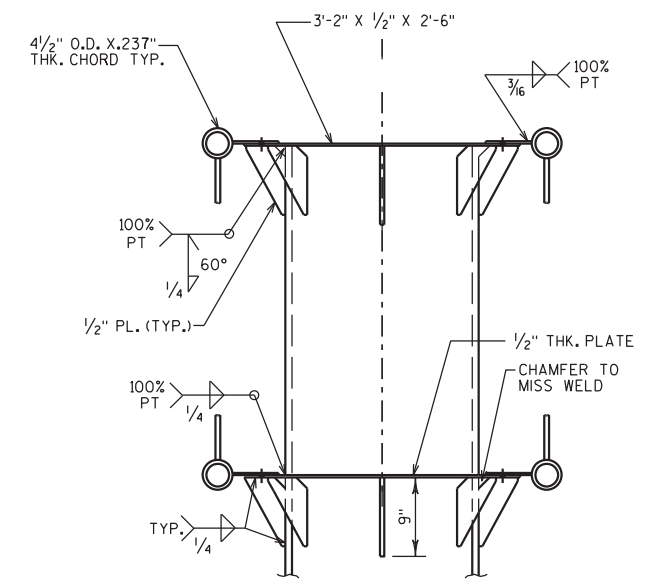
BOLTED CONNECTION



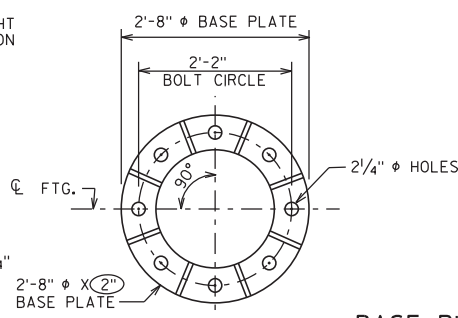
PLAN TRUSS TO UPRIGHT



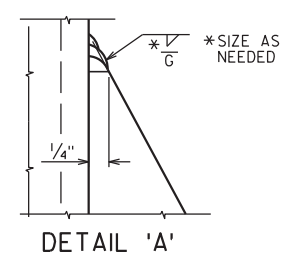
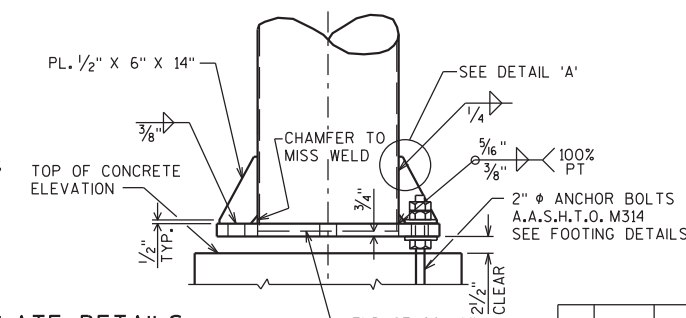
ELEVATION TRUSS TO UPRIGHT



END VIEW TRUSS TO UPRIGHT



BASE PLATE DETAILS



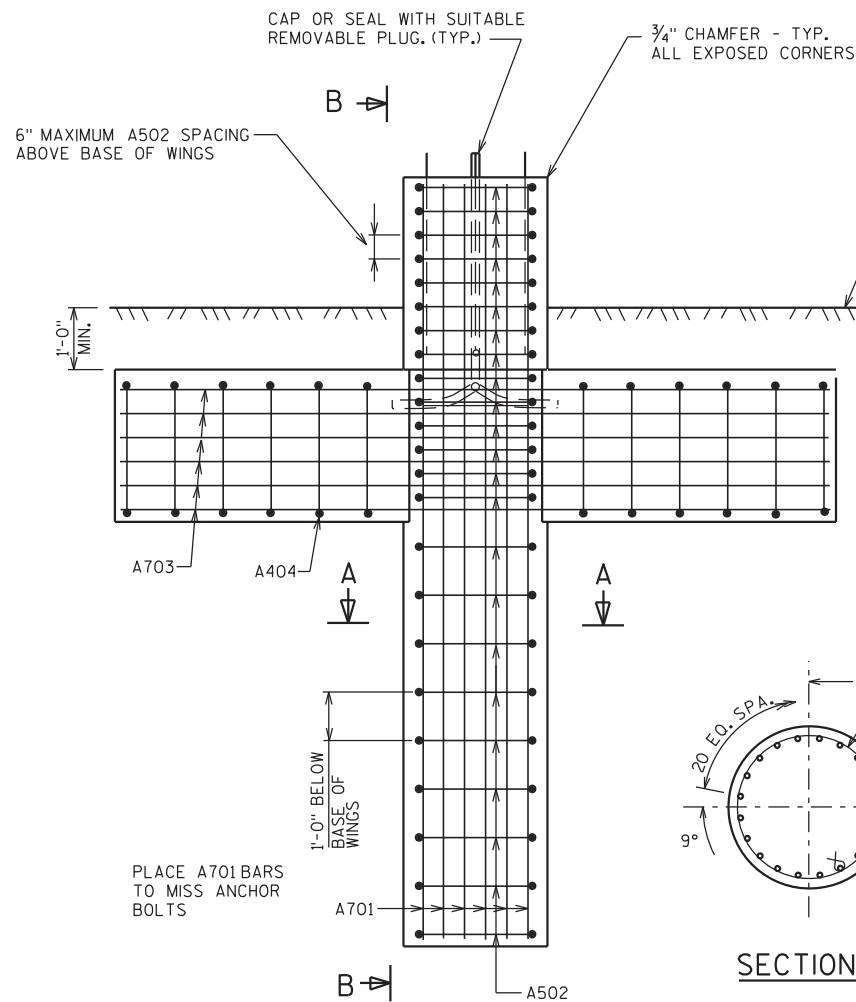
DETAIL 'A'

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

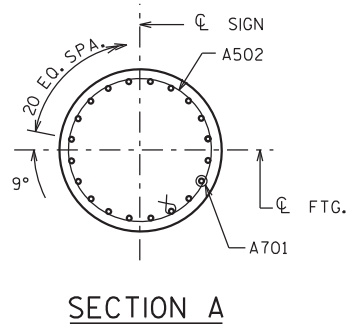
**BILL OF BARS**

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE. BAR DIMENSIONS ARE OUT TO OUT OF BAR. 1380 LB

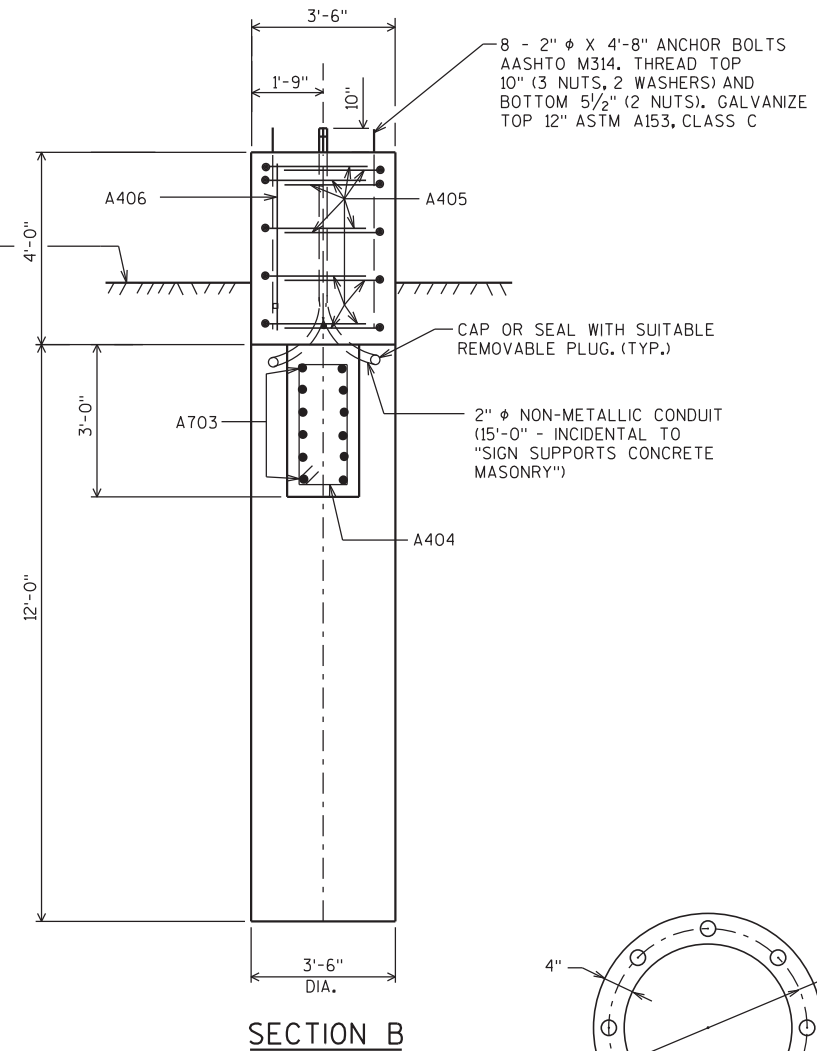
BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	CUT. DIAG.	BUN-DLE	LOCATION
A701		20	15'-6"				FOOTING - COLUMN/TOP
A502		23	10'-5"	X			FOOTING - COLUMN/TOP
A703		12	15'-0"				FOOTING - WINGS
A404		12	7'-6"	X			FOOTING - WINGS
A405		10	7'-11"	X			FOOTING - TOP
A406		4	3'-6"				FOOTING - TOP - COLUMNS



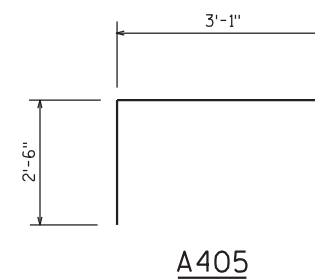
**ELEVATION**  
( 8 CY )



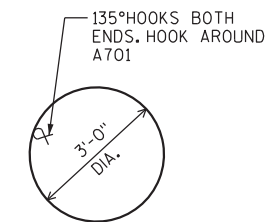
**SECTION A**



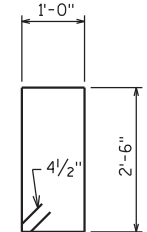
**SECTION B**



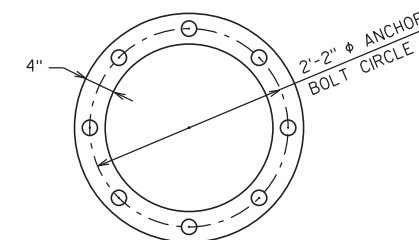
**A405**



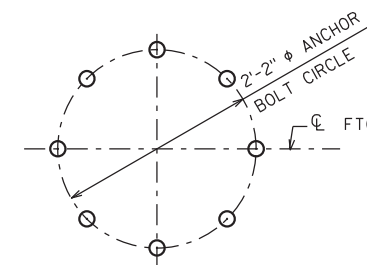
**A502**



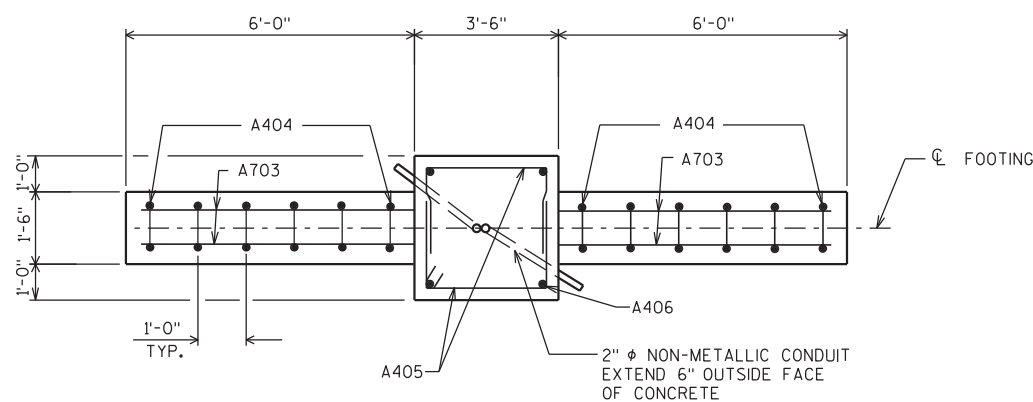
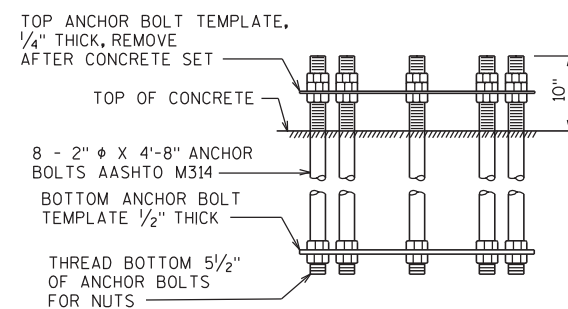
**A404**  
(STIRRUP)



**TOP VIEW OF TOP & BOTTOM TEMPLATES**



**ANCHOR BOLT DETAILS**



**PLAN**

**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  $f_y=60,000$  PSI  
 ANCHOR BOLTS AASHTO M314  $f_y=55,000$  PSI

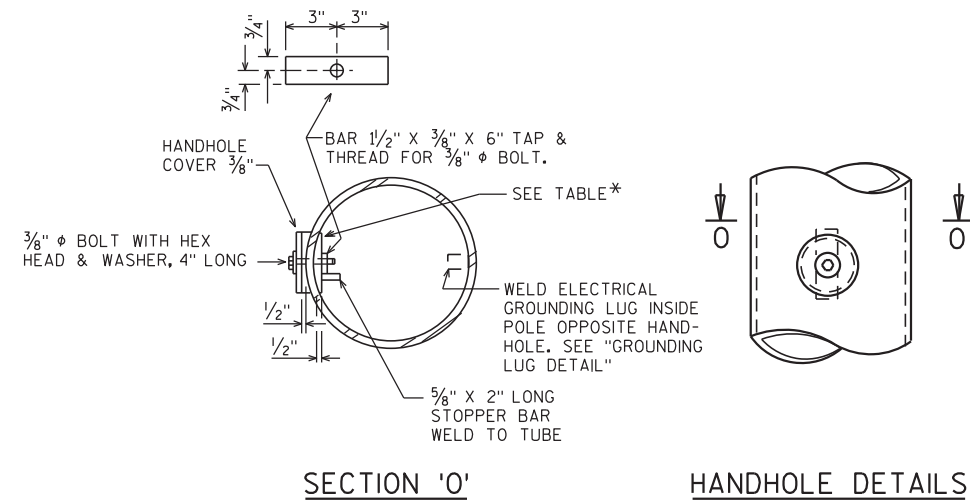
**FOUNDATION DATA**

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

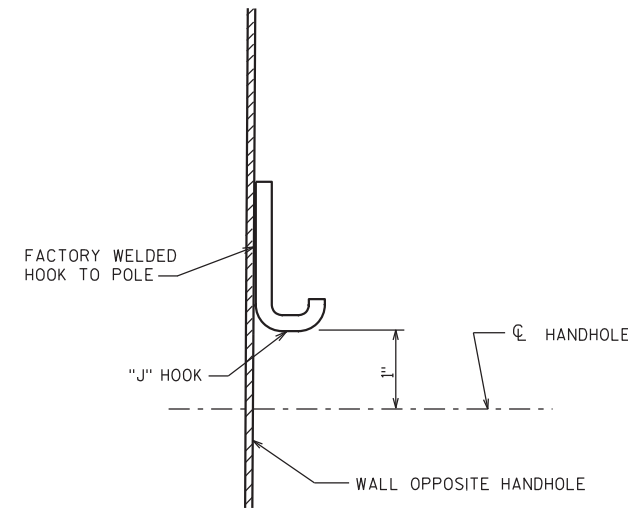
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE S-16-13</b>			
DRAWN BY NA		PLANS CK'D. YC	
<b>CANTILEVER TRUSS FOOTING</b>			SHEET 4 OF 5



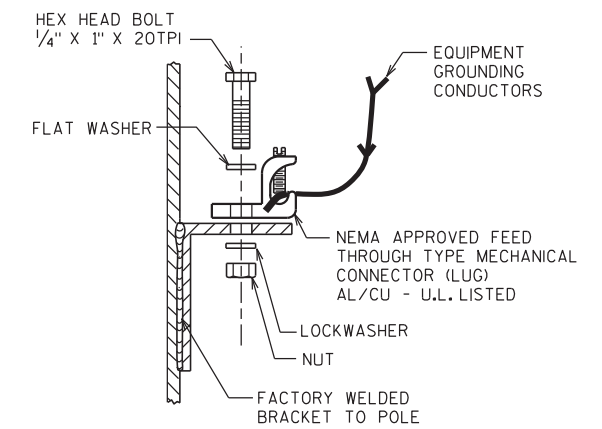
**HANDHOLE NOTES**

HANDHOLES SHALL BE LOCATED IN COLUMN AS DETAILED ON SHEET 3.

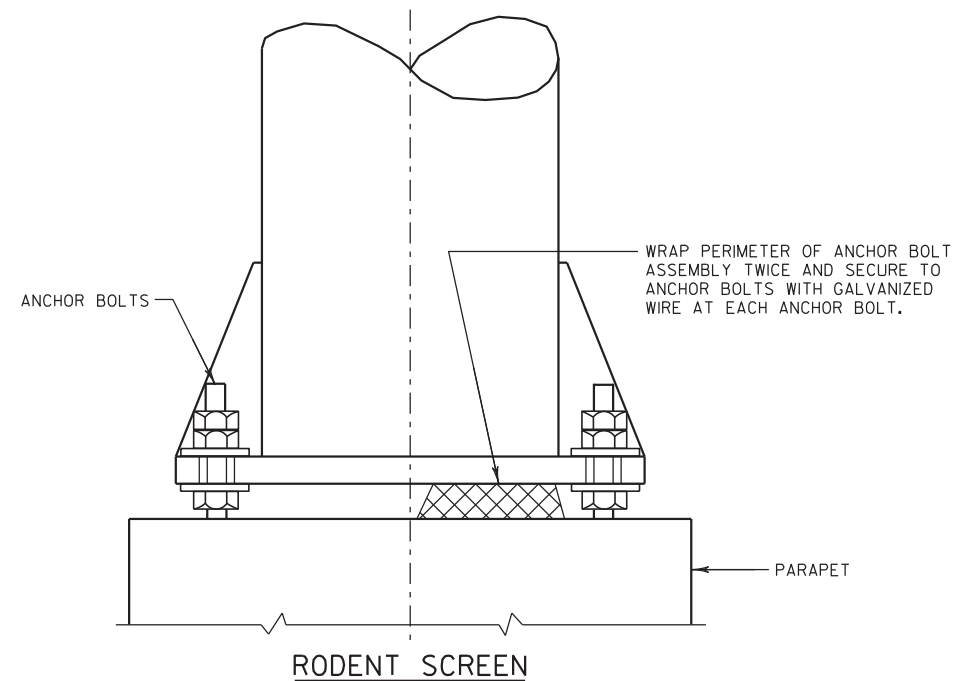
UPRIGHT DIAM. SIZE	HANDHOLE PIPE O.D. X MIN. THK.
UP TO AND INCLD. 16" X .375"	5.562" X .500"
GREATER THAN 16" X .375" TO AND INCLD. 24" X .562"	6.625" X .562"



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.



NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



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

**EARTHWORK DATA - USH 2 EASTBOUND - EB LINE**

STATION							MASS HAUL
	COMMON SF	MARSH SF	FILL SF	COMMON CY	MARSH CY	FILL CY	

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							MASS HAUL
	COMMON SF	MARSH SF	FILL SF	COMMON CY	MARSH CY	FILL CY	

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					MASS HAUL
	COMMON SF	FILL SF	COMMON CY	FILL CY	

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							MASS HAUL
	COMMON SF	MARSH SF	FILL SF	COMMON CY	MARSH CY	FILL CY	

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					MASS HAUL
	COMMON SF	FILL SF	COMMON CY	FILL CY	

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		FILL		MASS HAUL
	SF	SF	CY	CY	

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		FILL		MASS HAUL
	SF	SF	CY	CY	

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			FILL			MASS HAUL
	SF	MARSH SF	SF	CY	MARSH CY	CY	

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		FILL		MASS HAUL
	SF	SF	CY	CY	

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		FILL		MASS HAUL
	SF	SF	CY	CY	

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					MASS HAUL
	COMMON SF	FILL SF	COMMON CY	FILL CY	

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					MASS HAUL
	COMMON SF	FILL SF	COMMON CY	FILL CY	

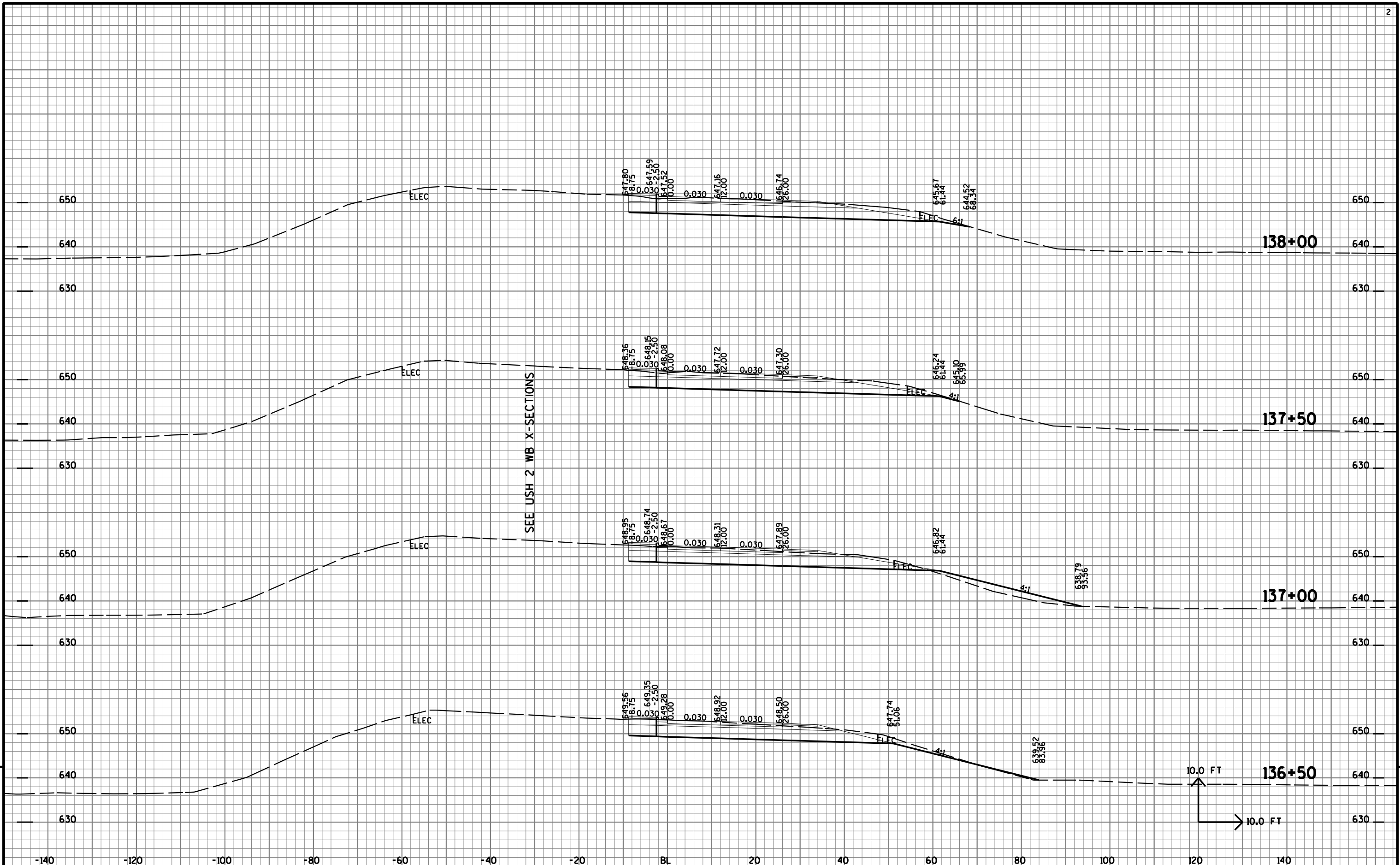
3+50.00	0.00	0.00	0.00	0.00	0.00
3+75.00	48.21	1.11	22.32	0.64	21.68
4+00.00	37.02	7.37	39.46	4.91	56.23
4+25.00	37.93	4.36	34.70	6.79	84.14
4+50.00	27.40	20.97	30.25	14.66	99.73

**EARTHWORK DATA - PATH CONNECTION - S LINE**

STATION					MASS HAUL
	COMMON SF	FILL SF	COMMON CY	FILL CY	

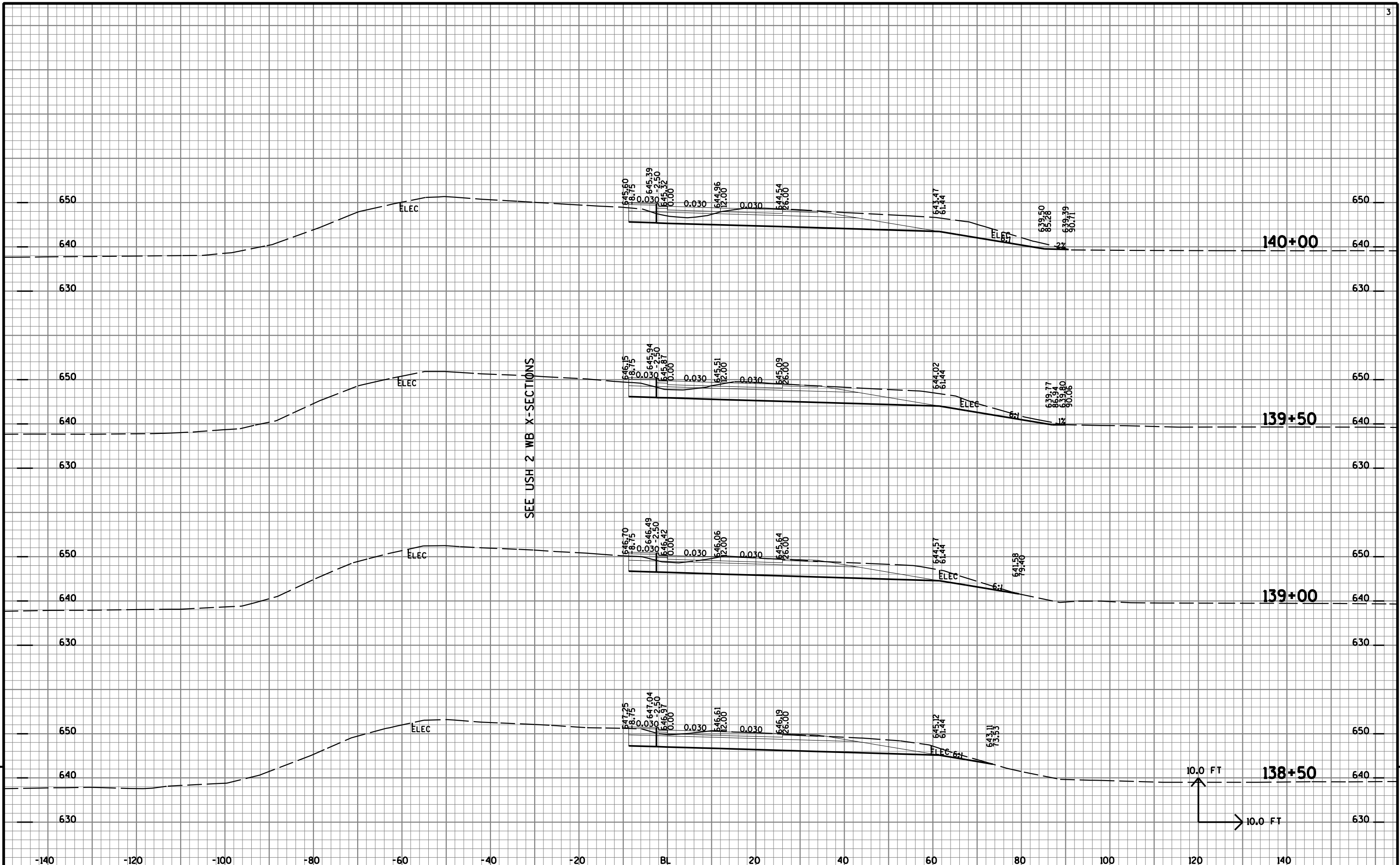
47+75.00	9.12	0.11	0.00	0.00	0.00
48+00.00	1.22	0.27	4.79	0.22	4.57
48+25.00	8.90	0.00	4.69	0.16	9.10
48+50.00	16.42	0.01	11.72	0.01	20.81
48+75.00	22.56	0.00	18.05	0.01	38.85
49+00.00	30.55	0.00	24.59	0.00	63.44
49+10.00	33.02	0.00	11.77	0.00	75.21
49+25.00	19.07	0.00	14.47	0.00	89.68
49+50.00	9.23	0.00	13.10	0.00	102.78





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PROJECT NO: 8680-04-74

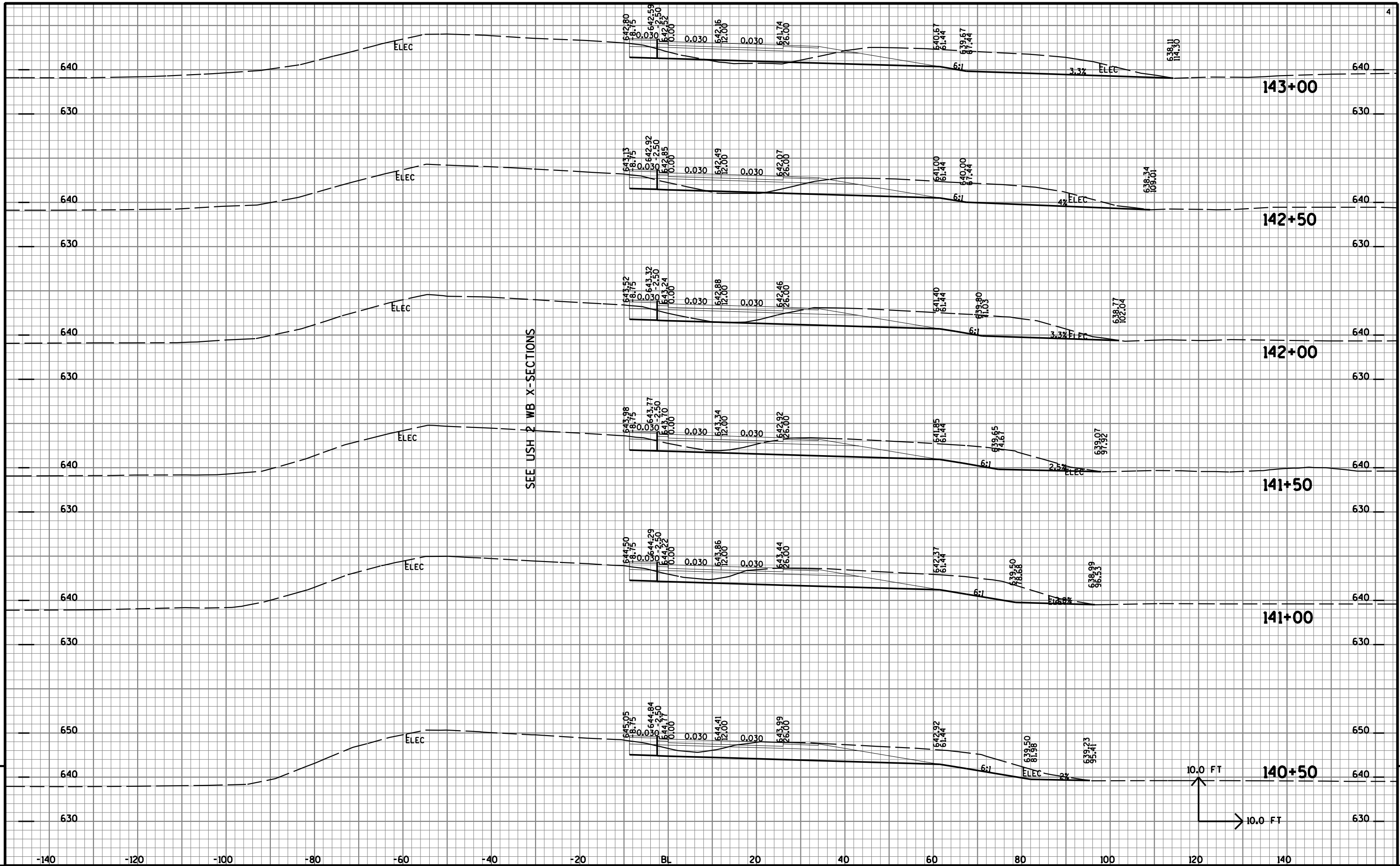
HWY: USH 2

COUNTY: DOUGLAS

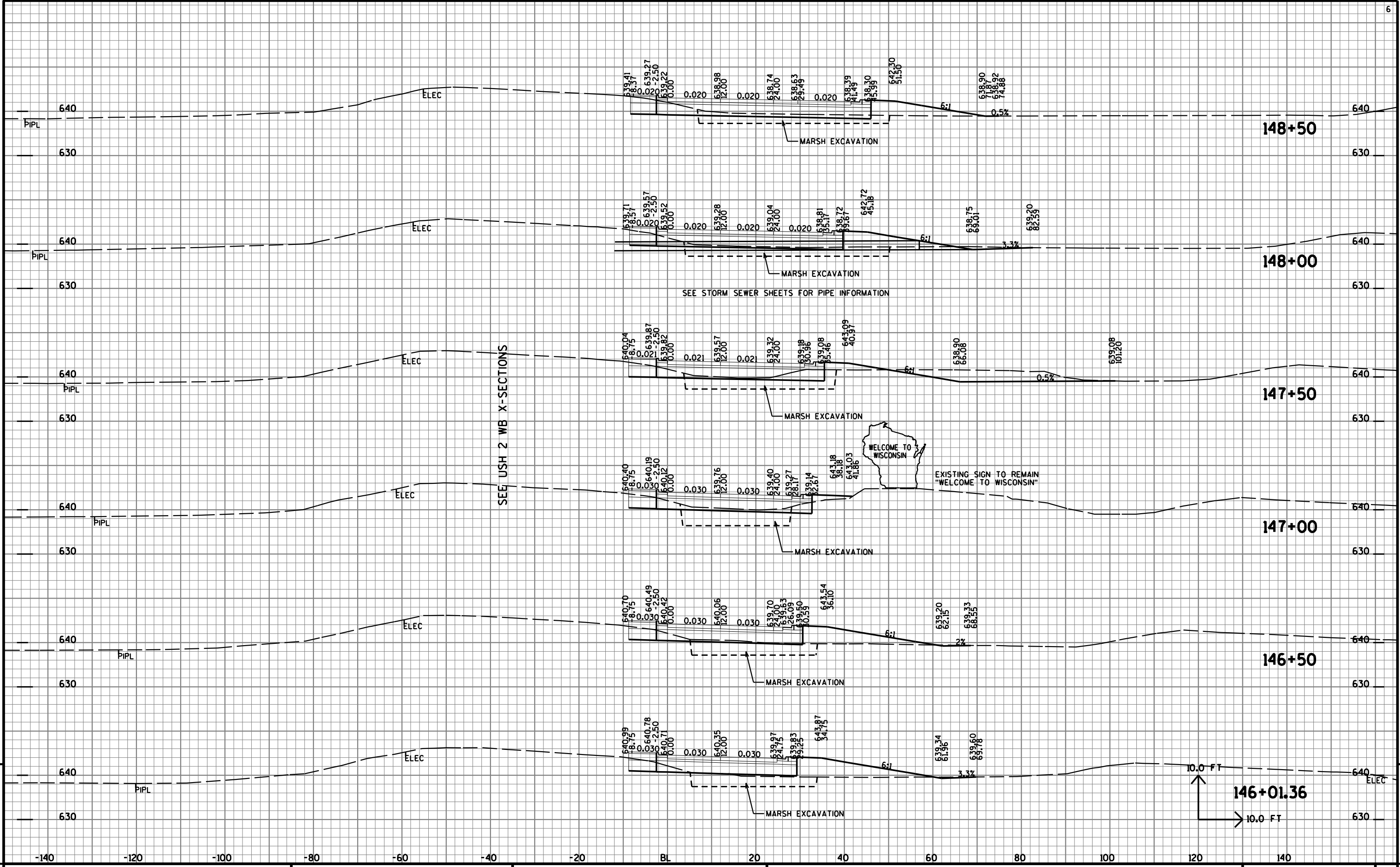
CROSS SECTIONS: USH 2 EASTBOUND (EB LINE)

SHEET NO:

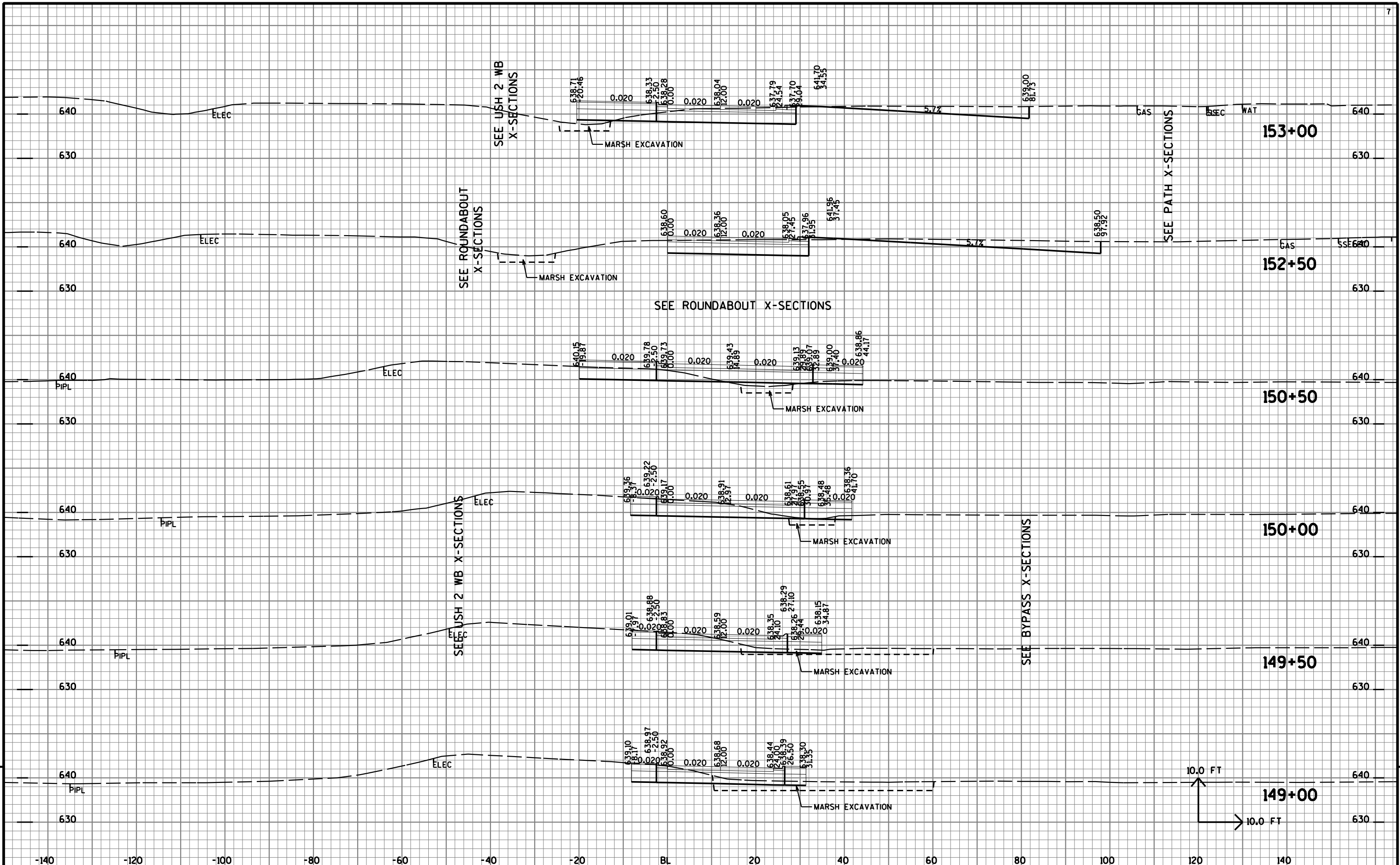
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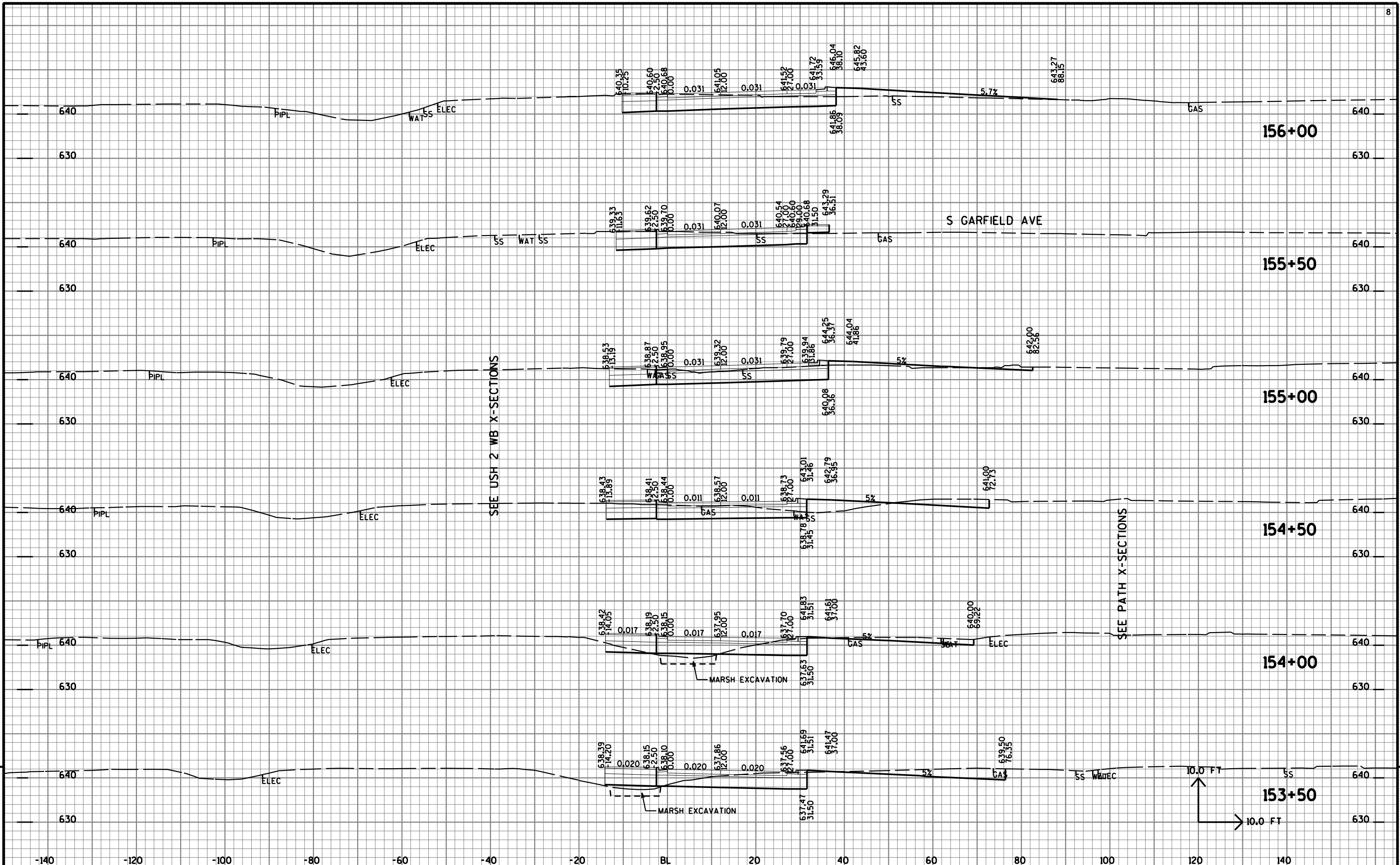




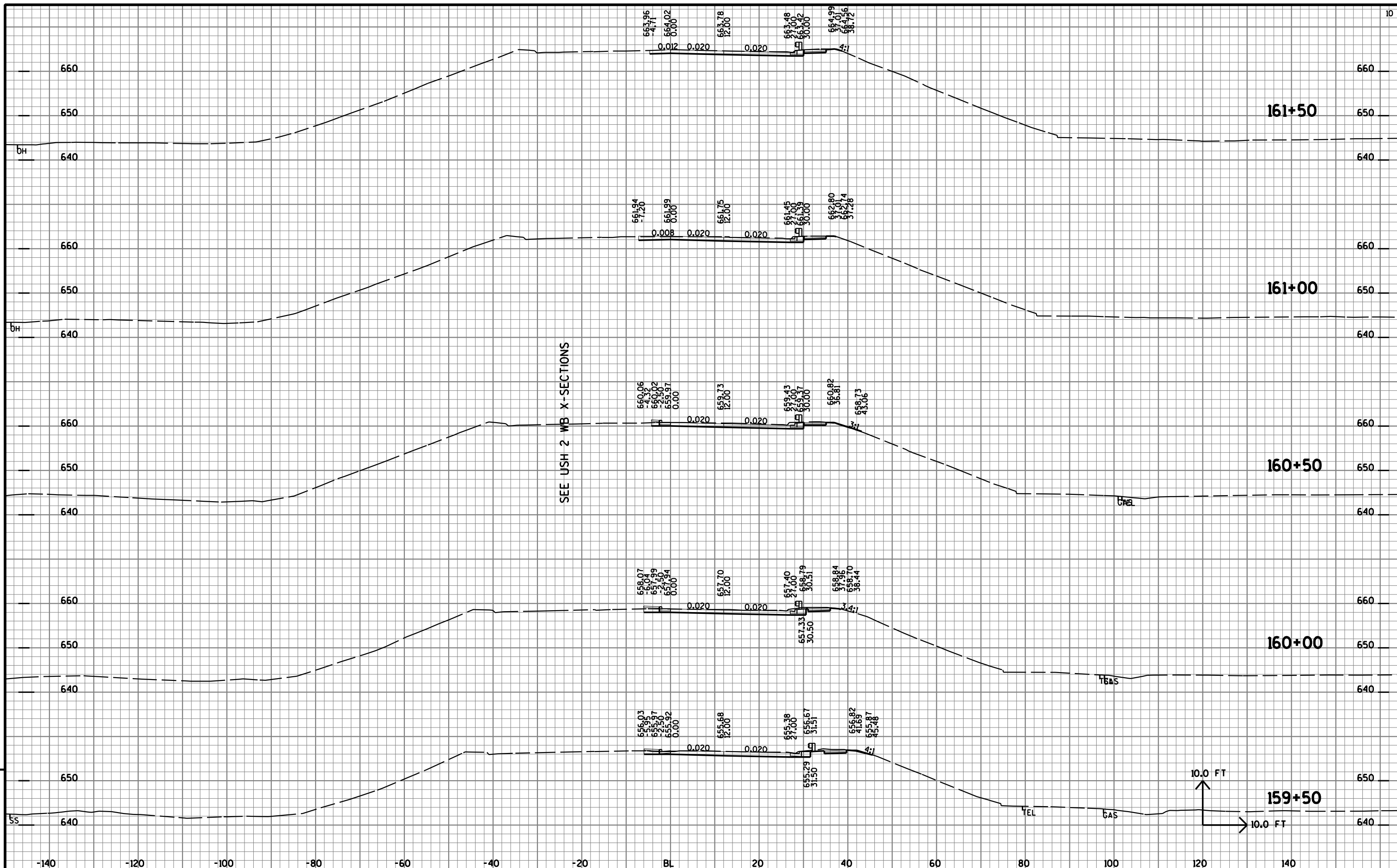
PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      CROSS SECTIONS: USH 2 EASTBOUND (EB LINE)      SHEET NO:      E

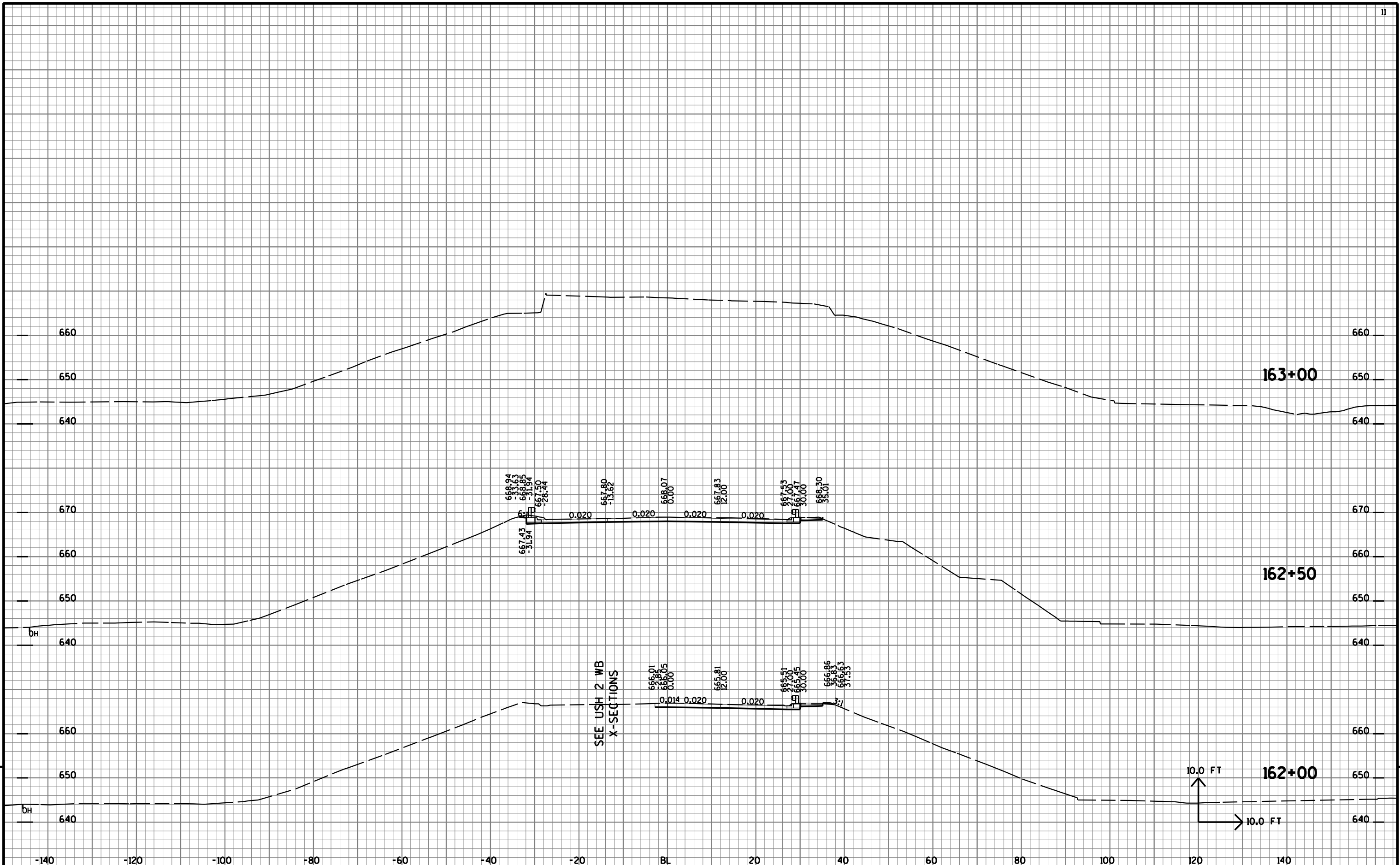






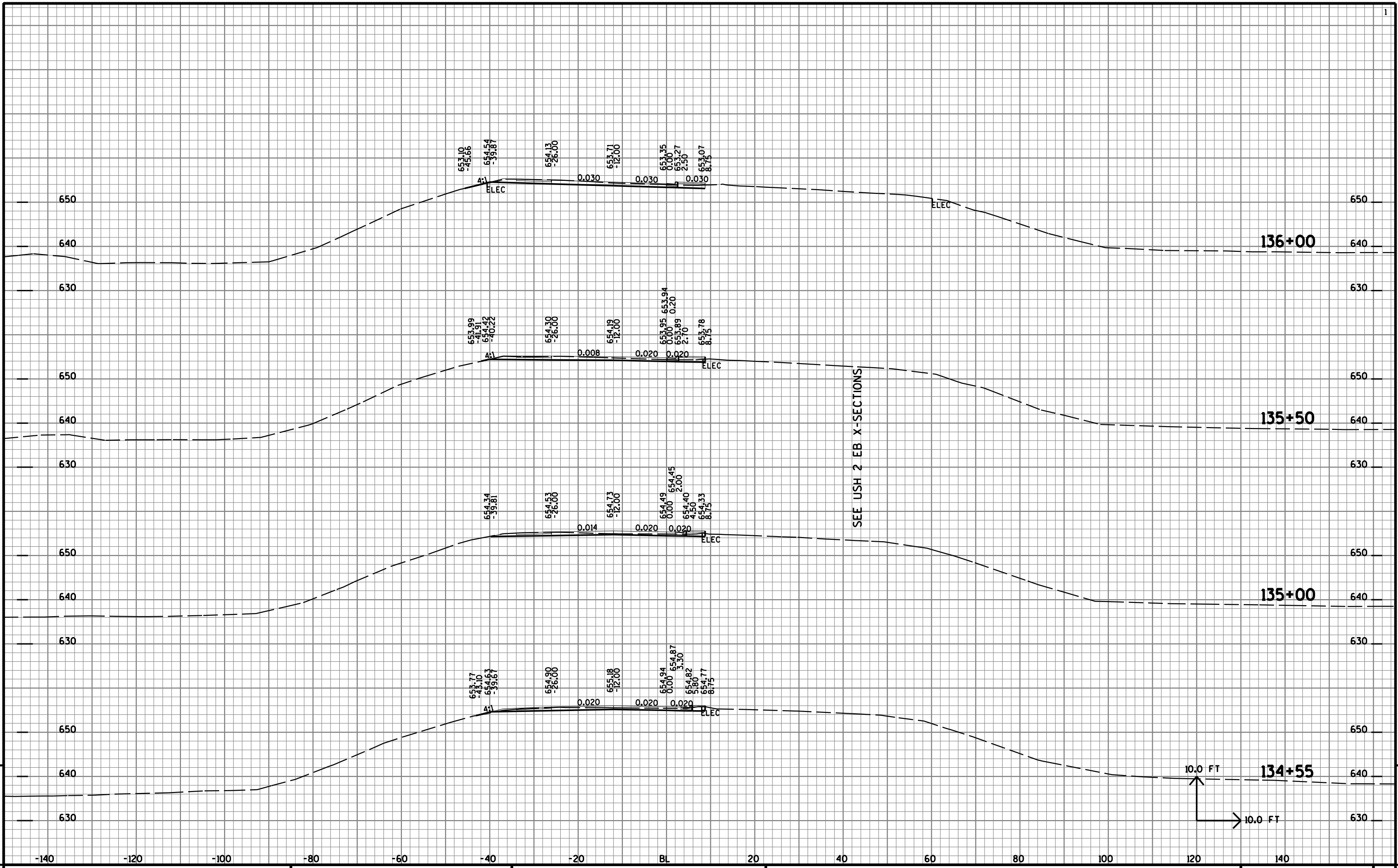




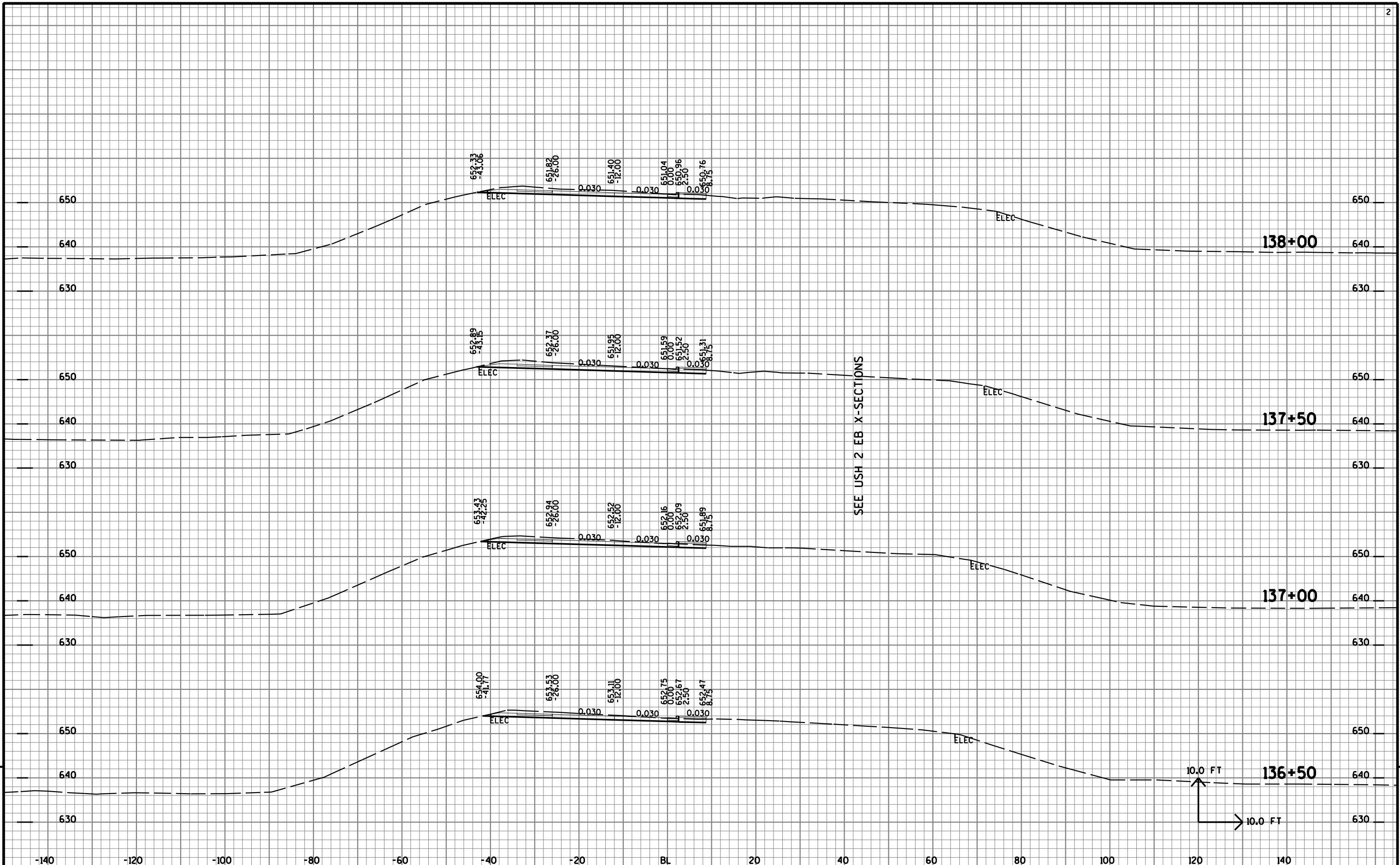


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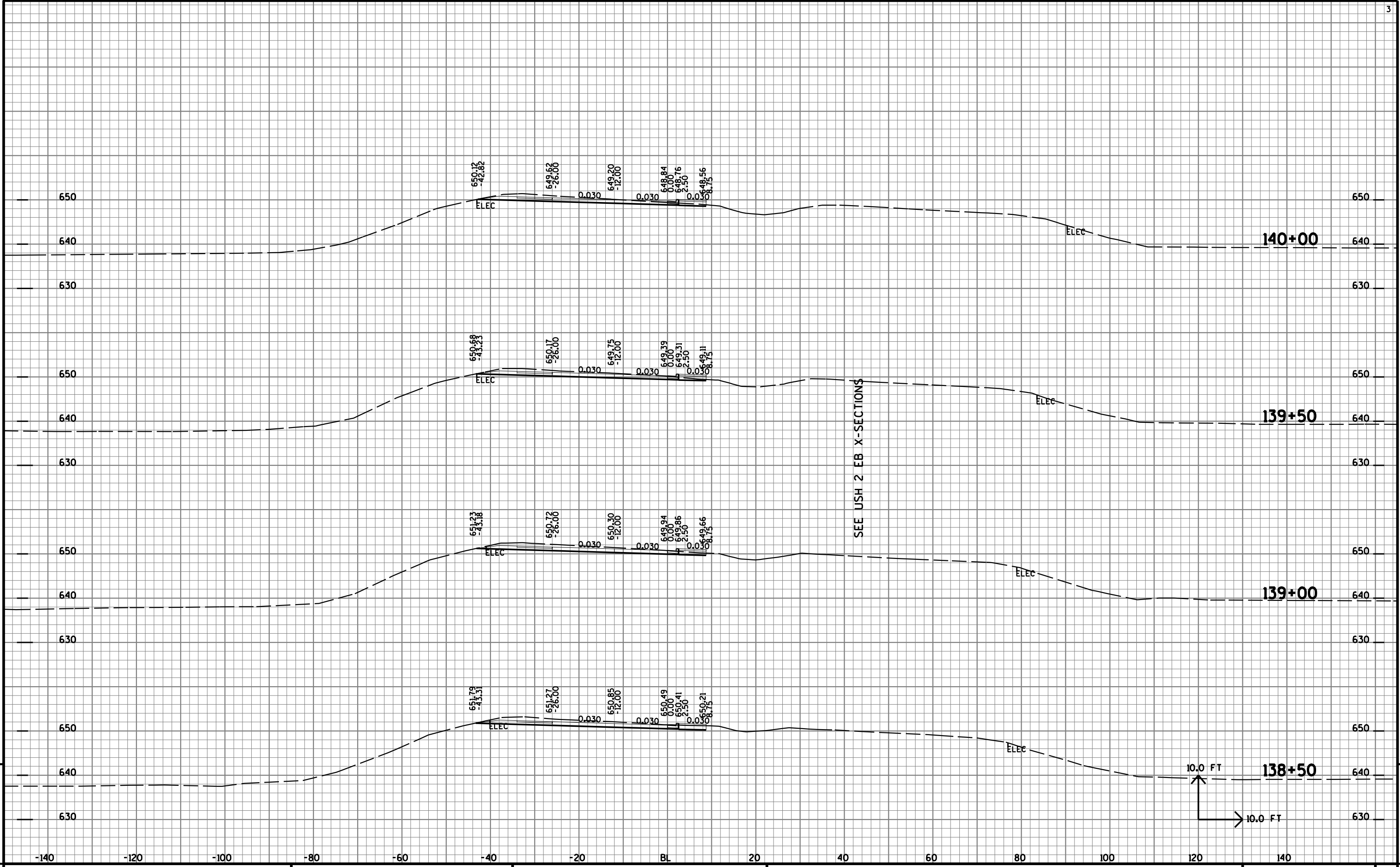


PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)      SHEET NO: 9

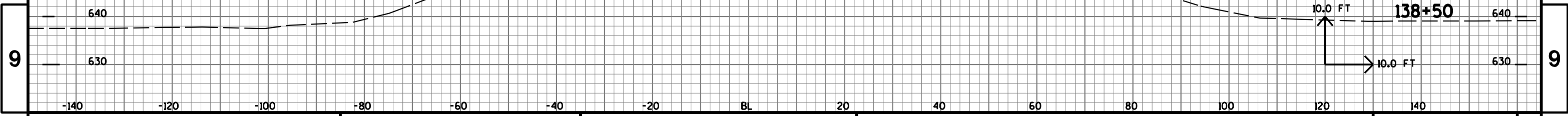


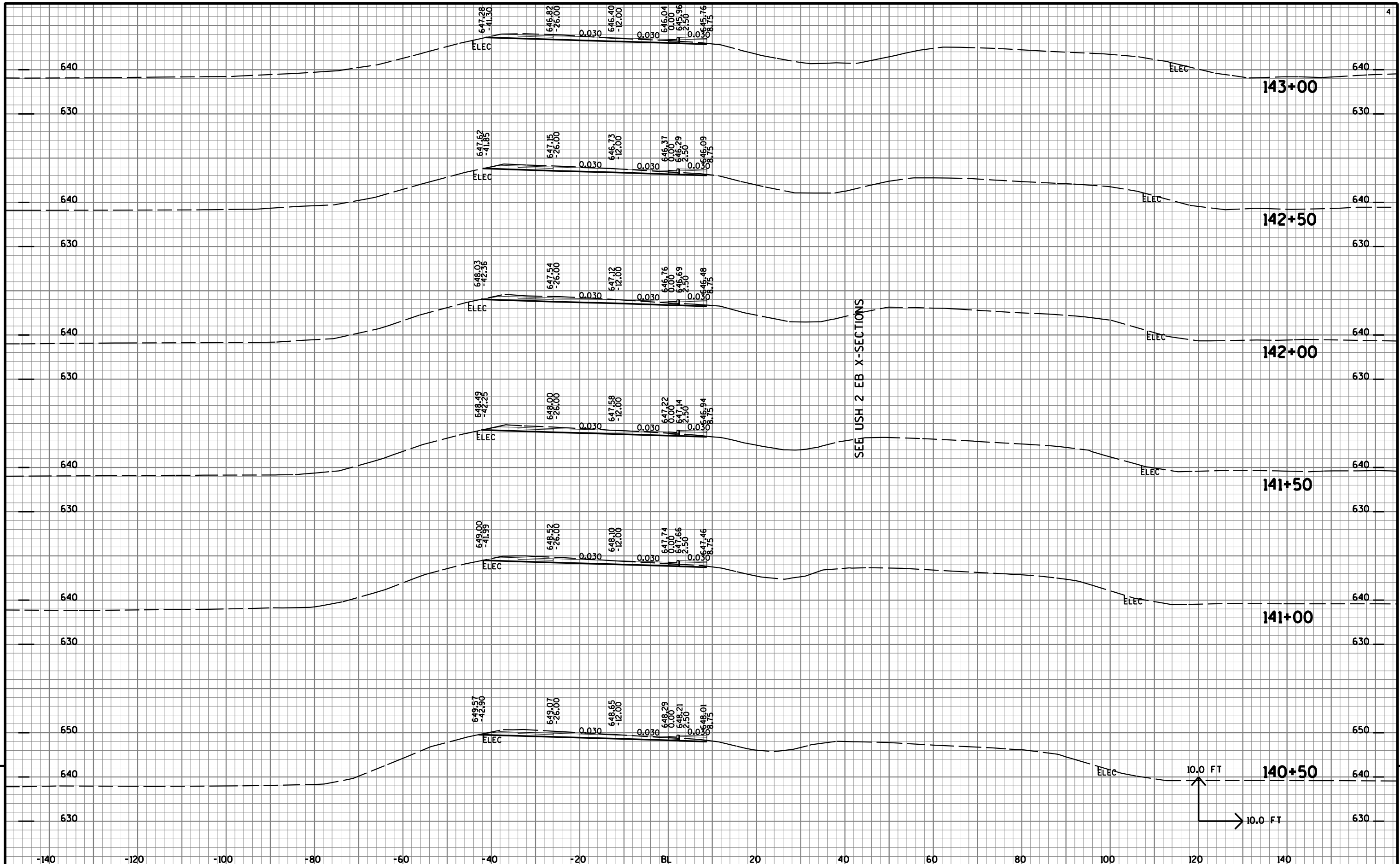
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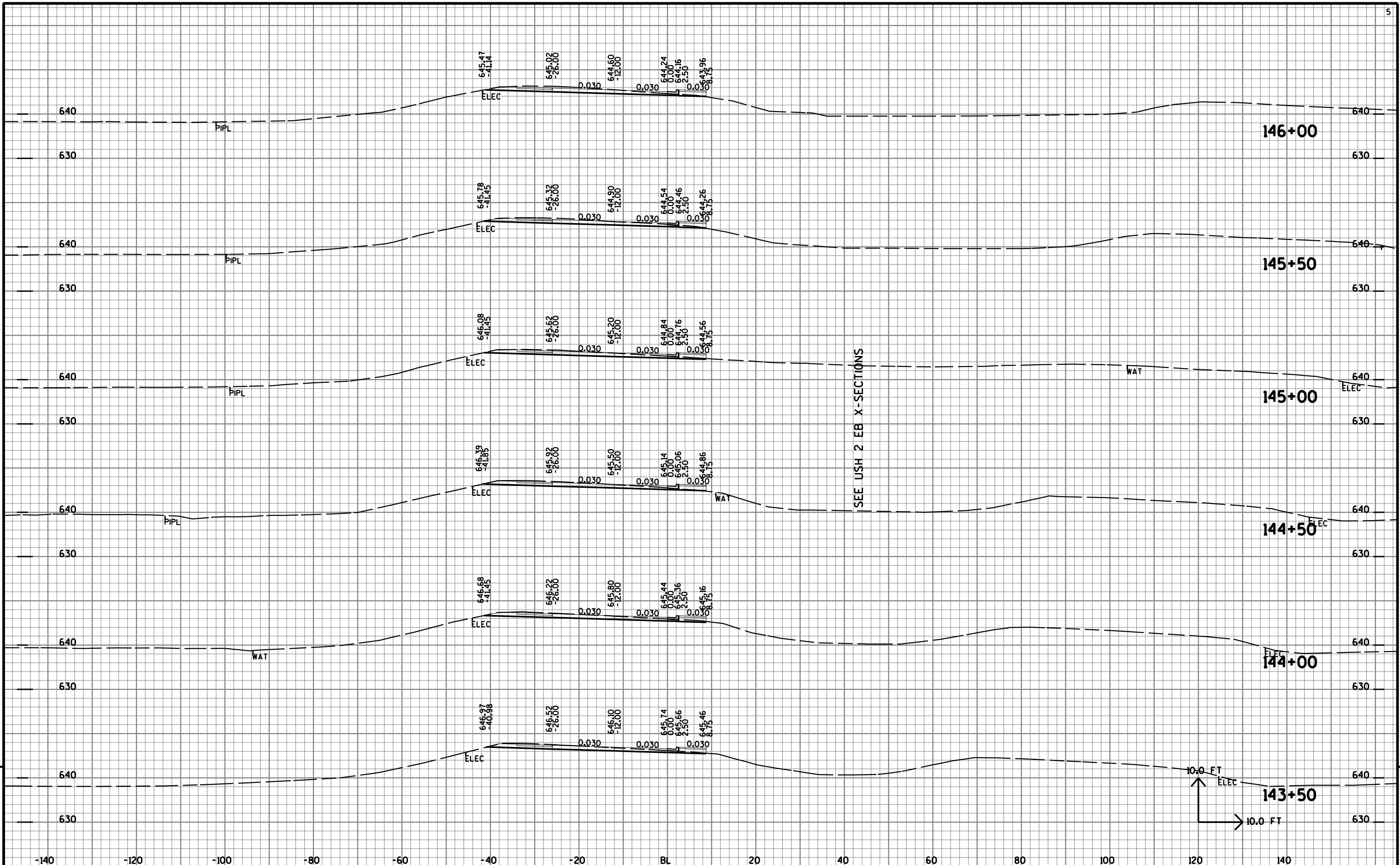


SEE USH 2 EB X-SECTIONS



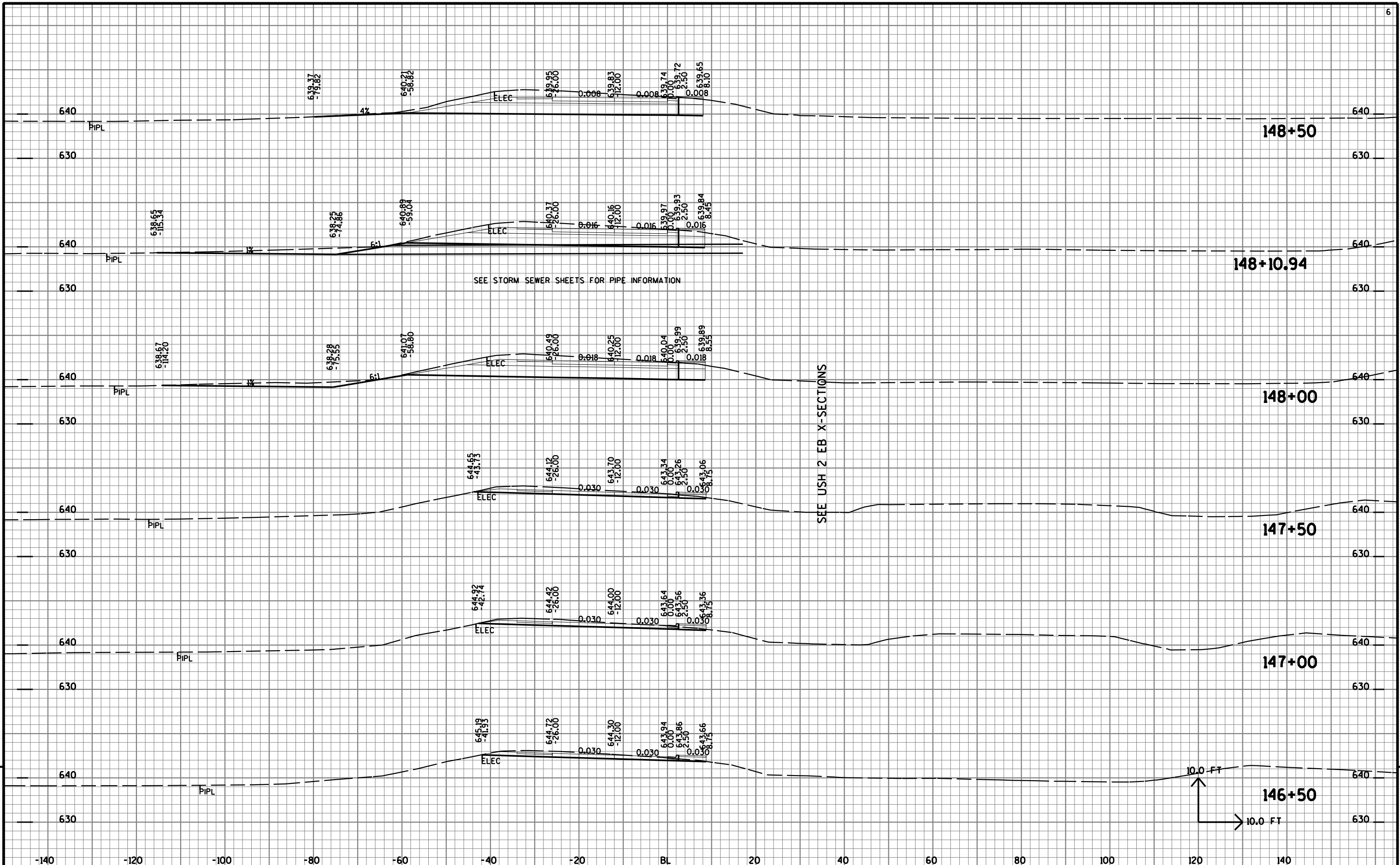






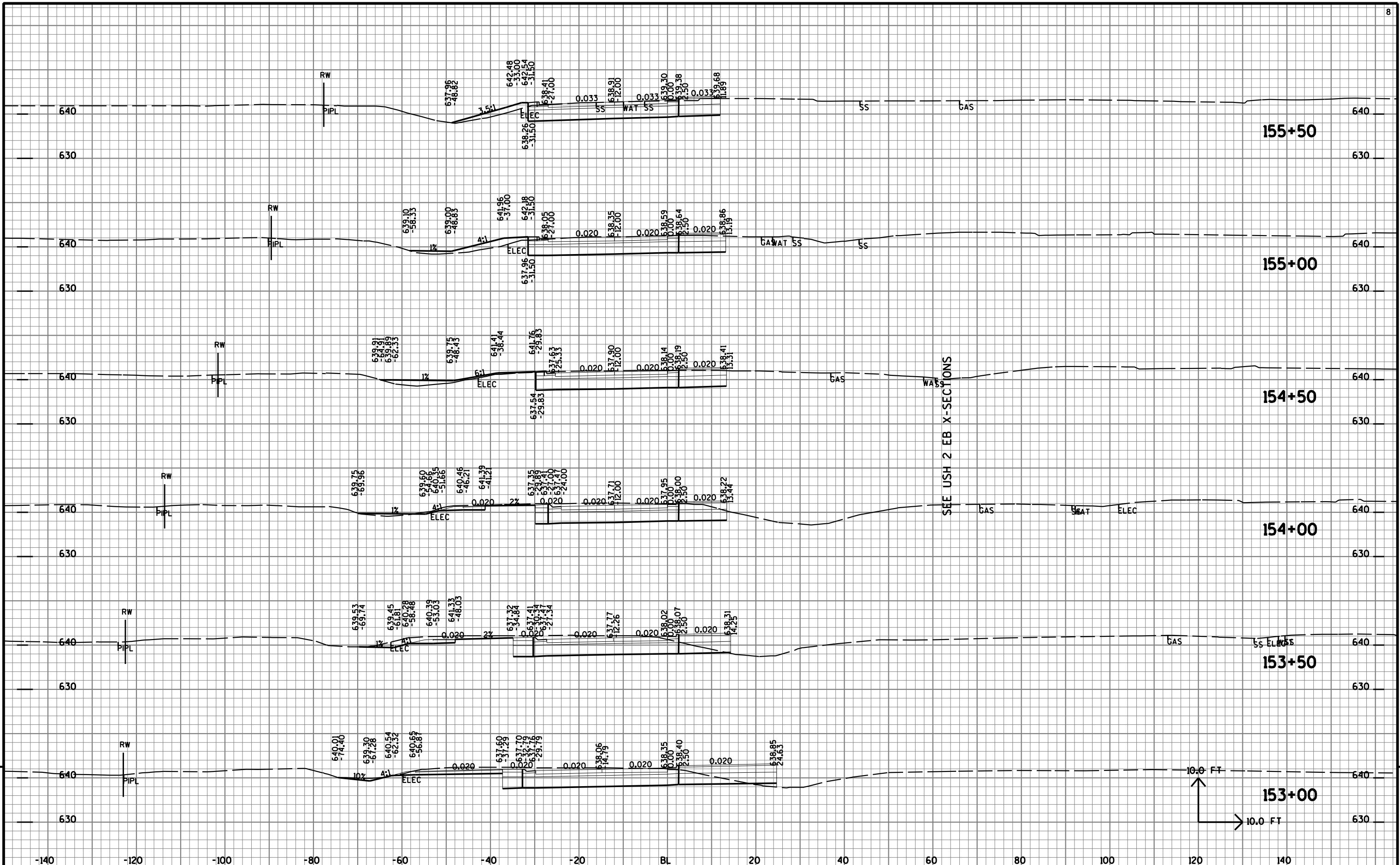
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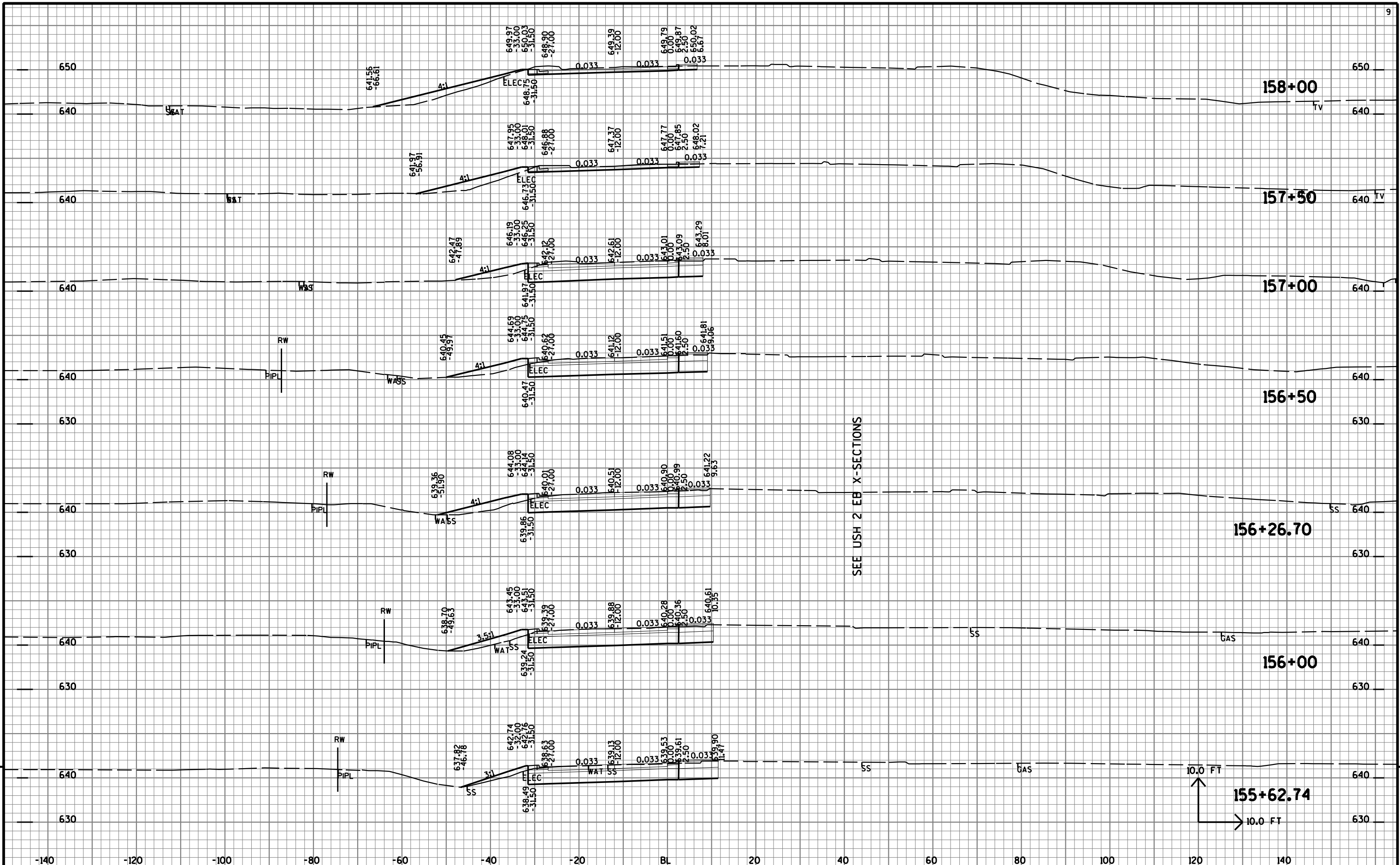


PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)      SHEET NO: 9

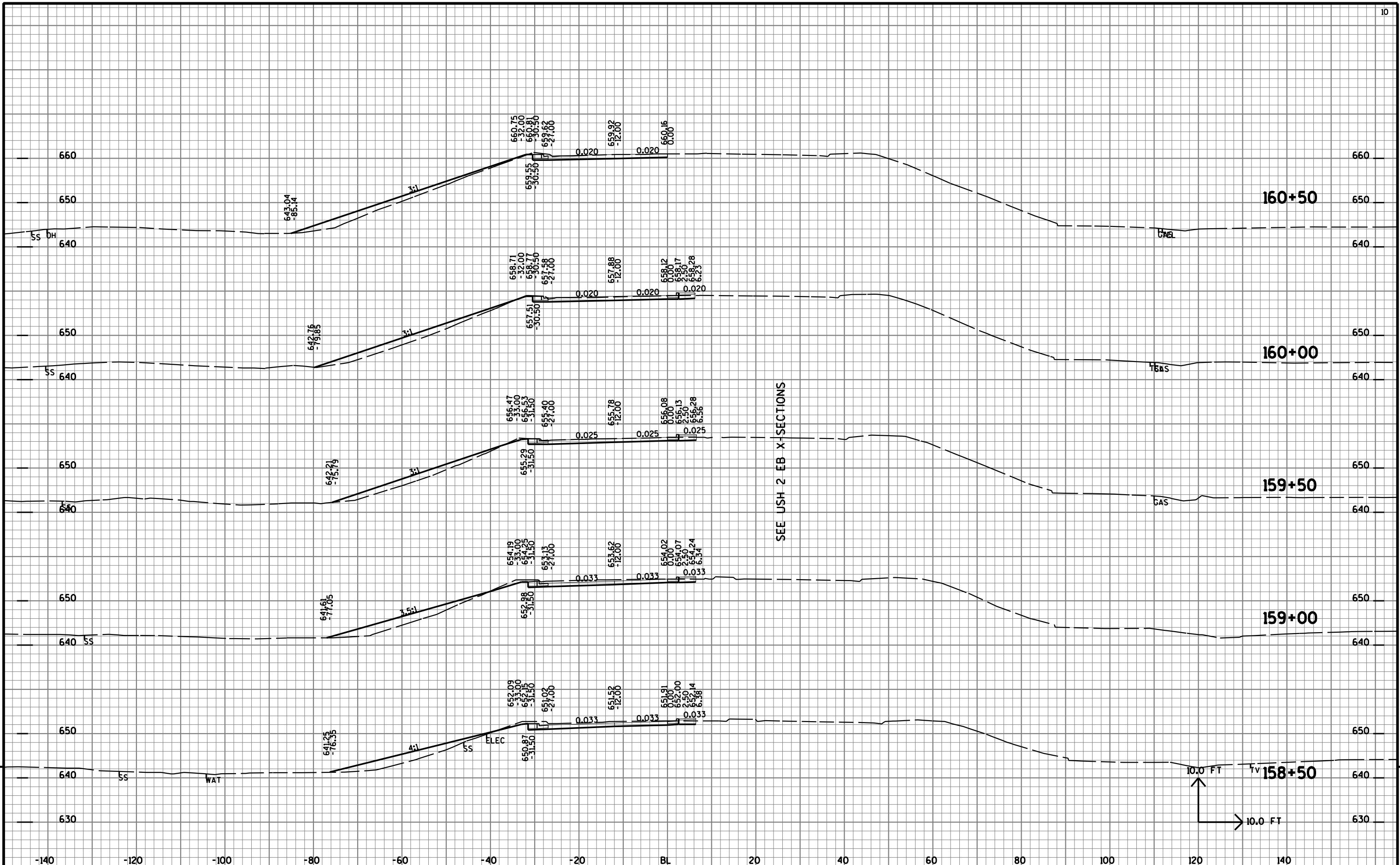


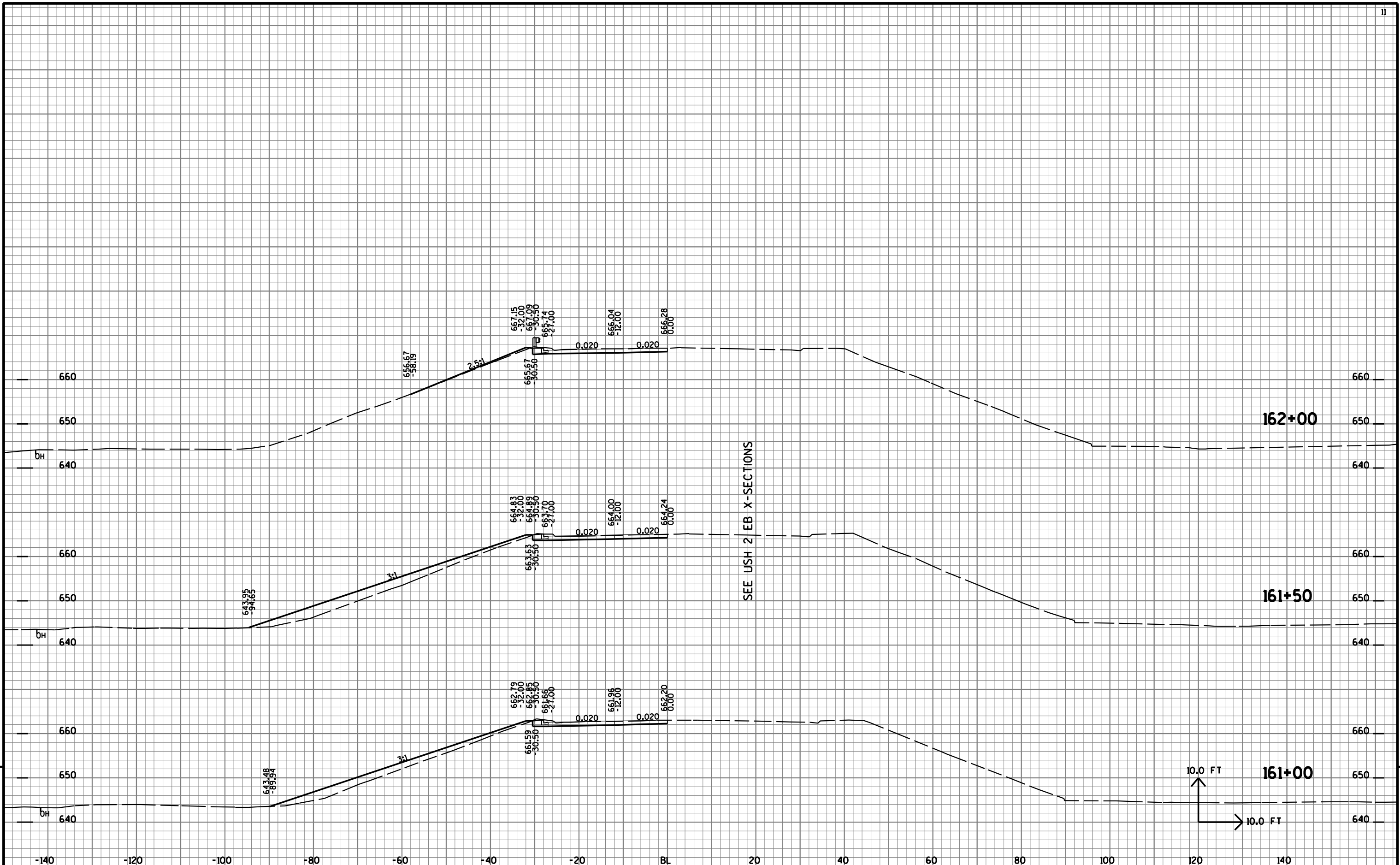


SEE USH 2 EB X-SECTIONS



SEE USH 2 EB X-SECTIONS

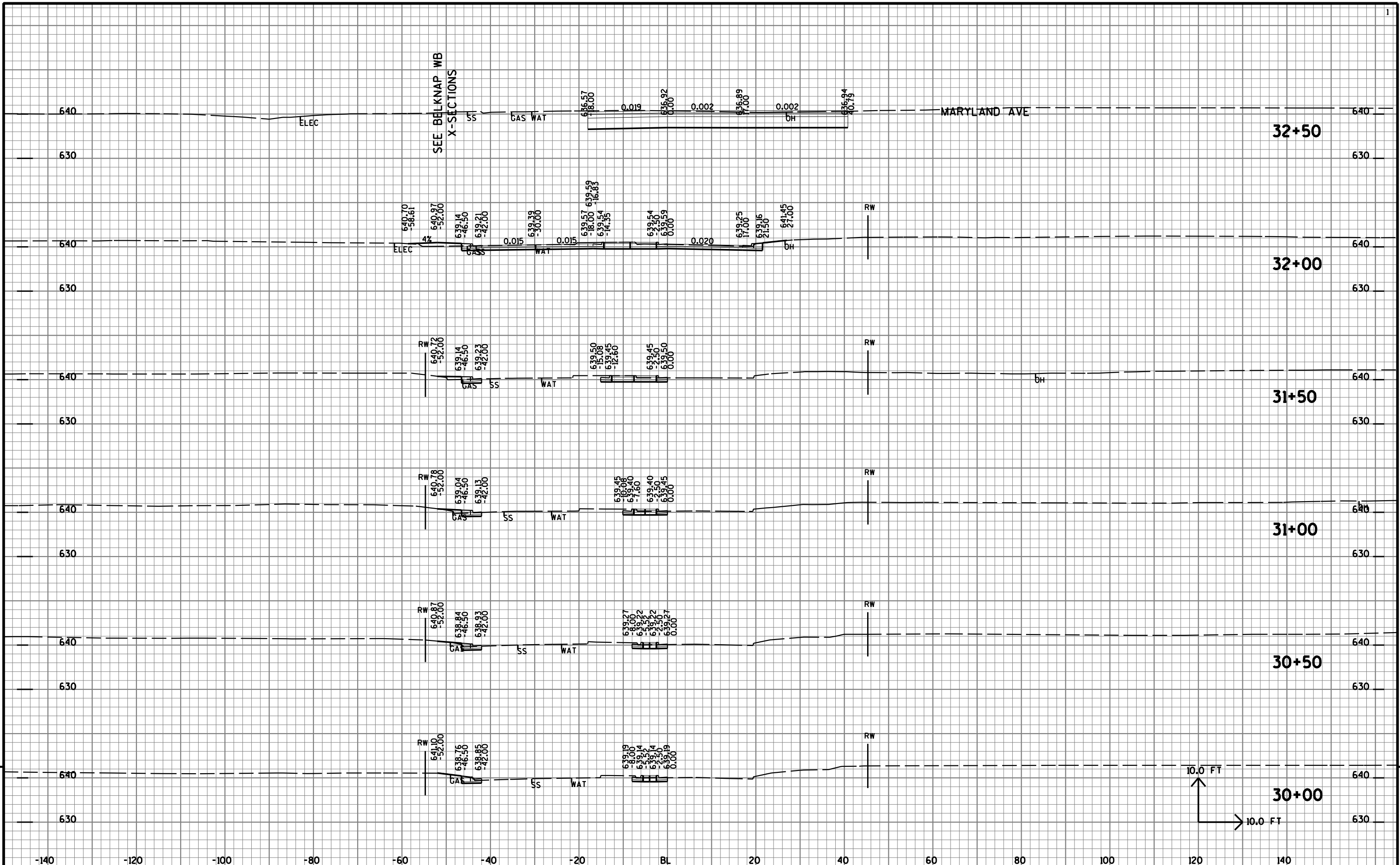




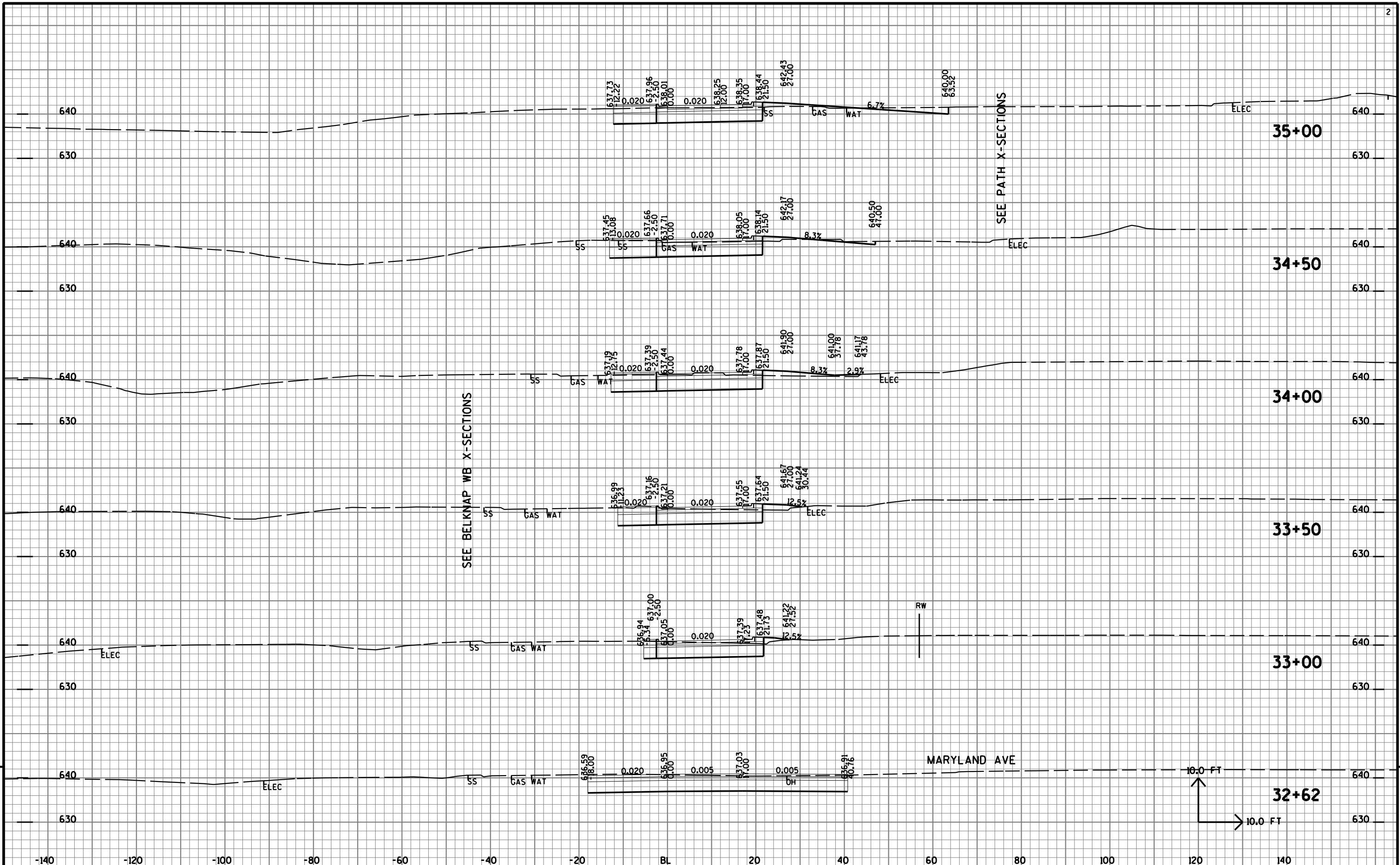
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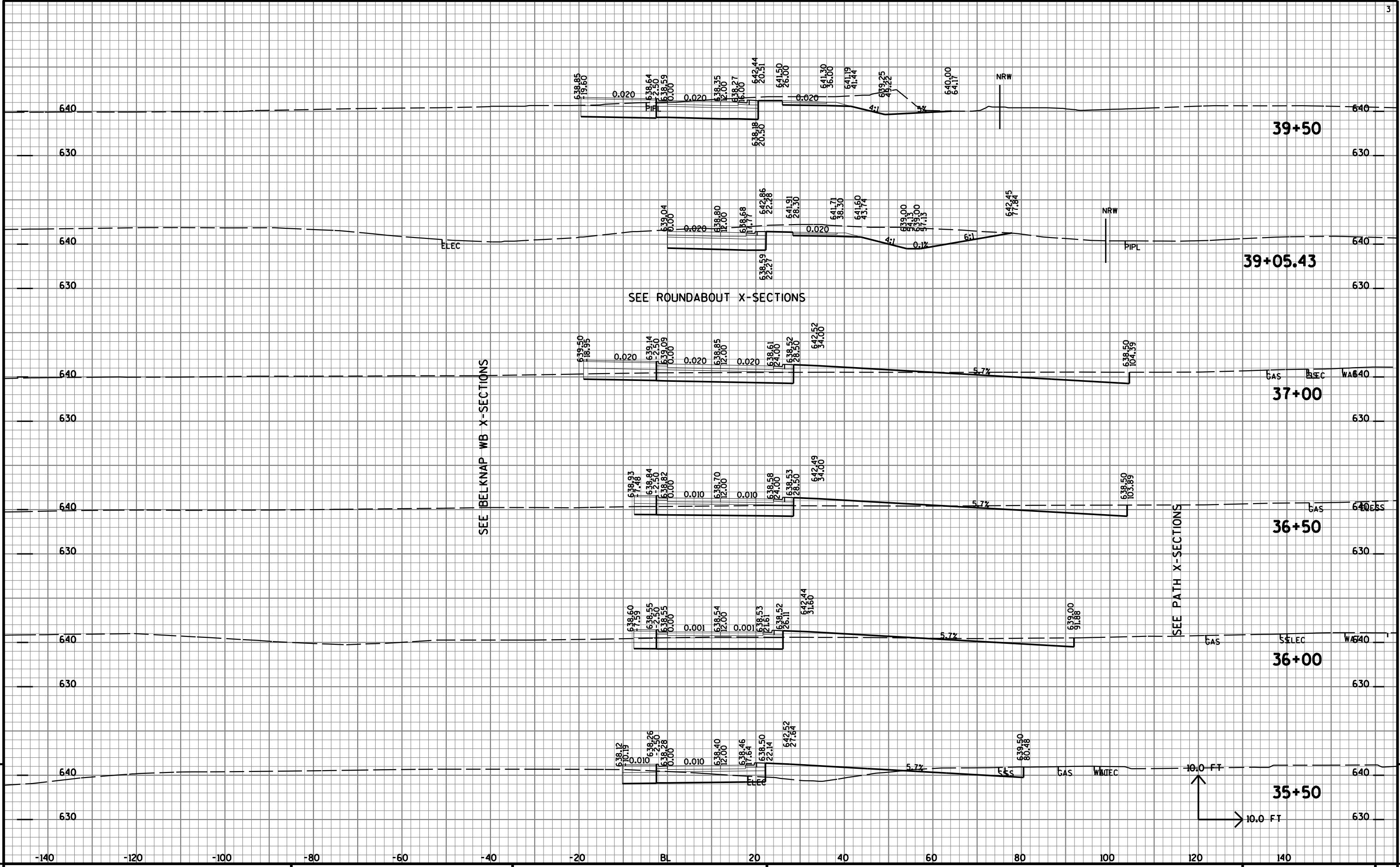
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PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: USH 2 WESTBOUND (WB LINE)	SHEET NO:	E
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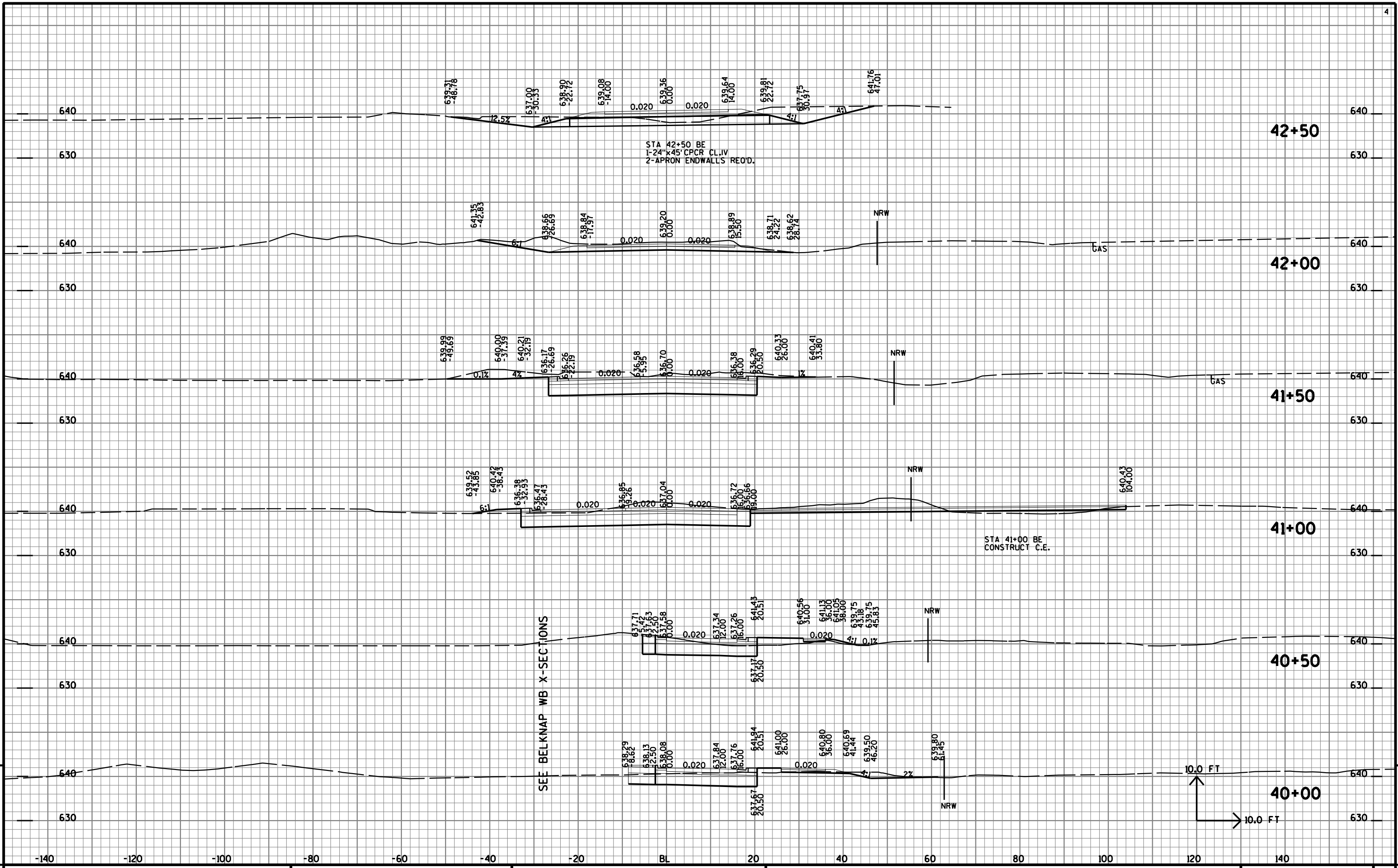


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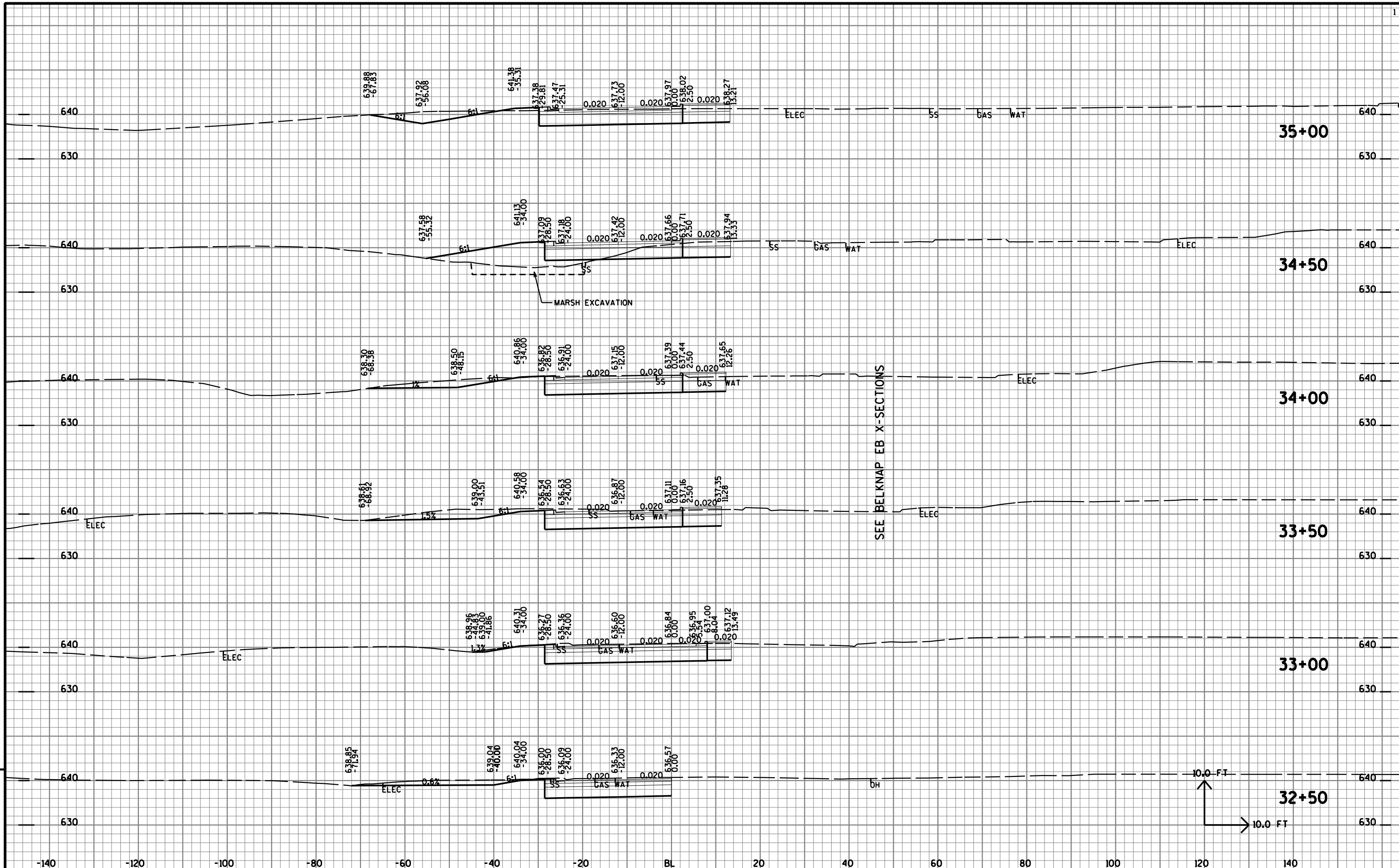
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FILE NAME : U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\RDWY\Plan\090203\_xsbe.DGN      PLOT DATE : 11/20/2013      PLOT BY : AYRES-EC      equ.shd\_util.tbl      PLOT SCALE : 1:2

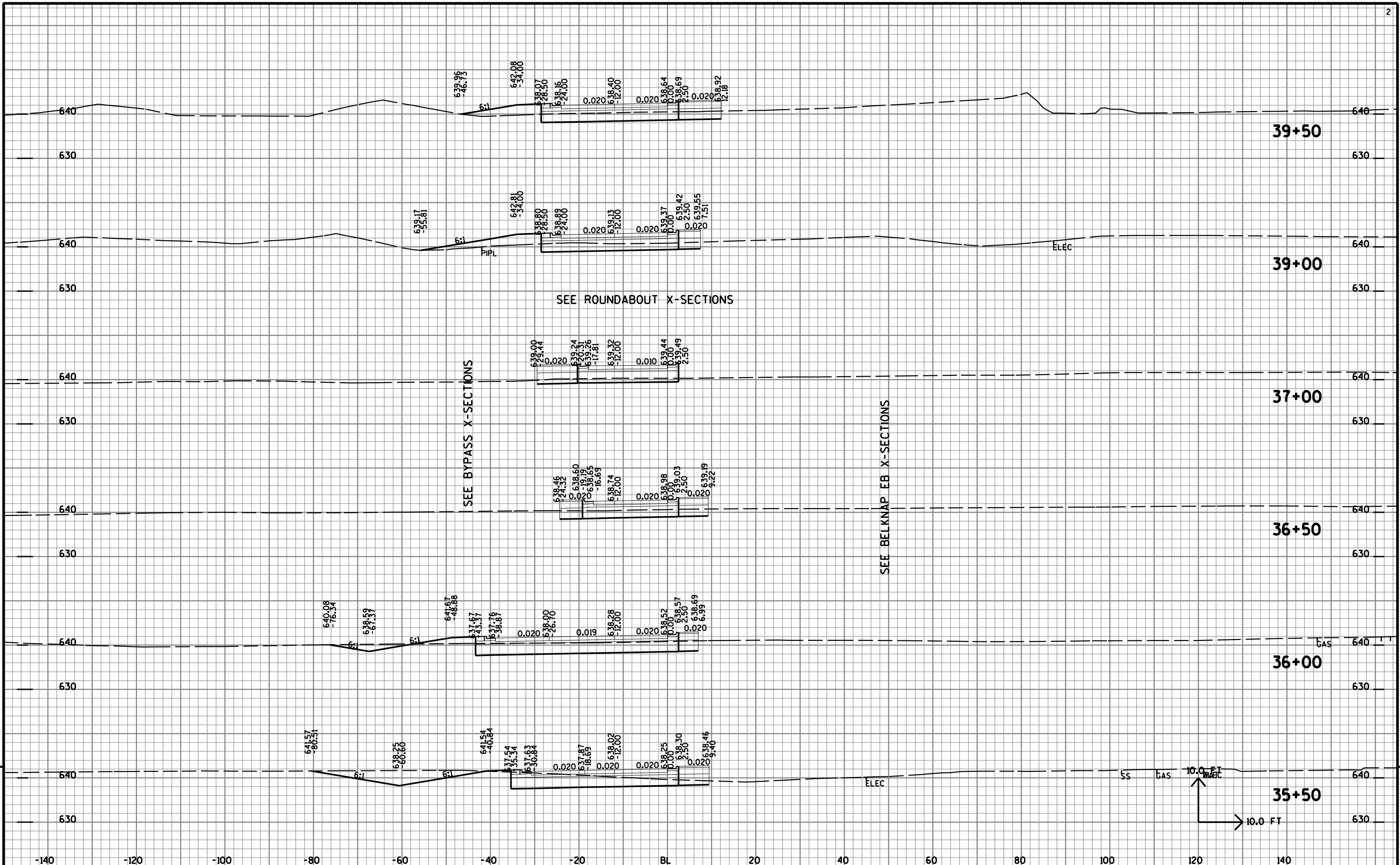


PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      CROSS SECTIONS: BELKNAP EASTBOUND / N GARFIELD AVE (BE LINE)      SHEET NO:      E





PROJECT NO: 8680-04-74	HWY: USH 2	COUNTY: DOUGLAS	CROSS SECTIONS: BELKNAP WESTBOUND/N GARFIELD AVE (BW LINE)	SHEET NO: E
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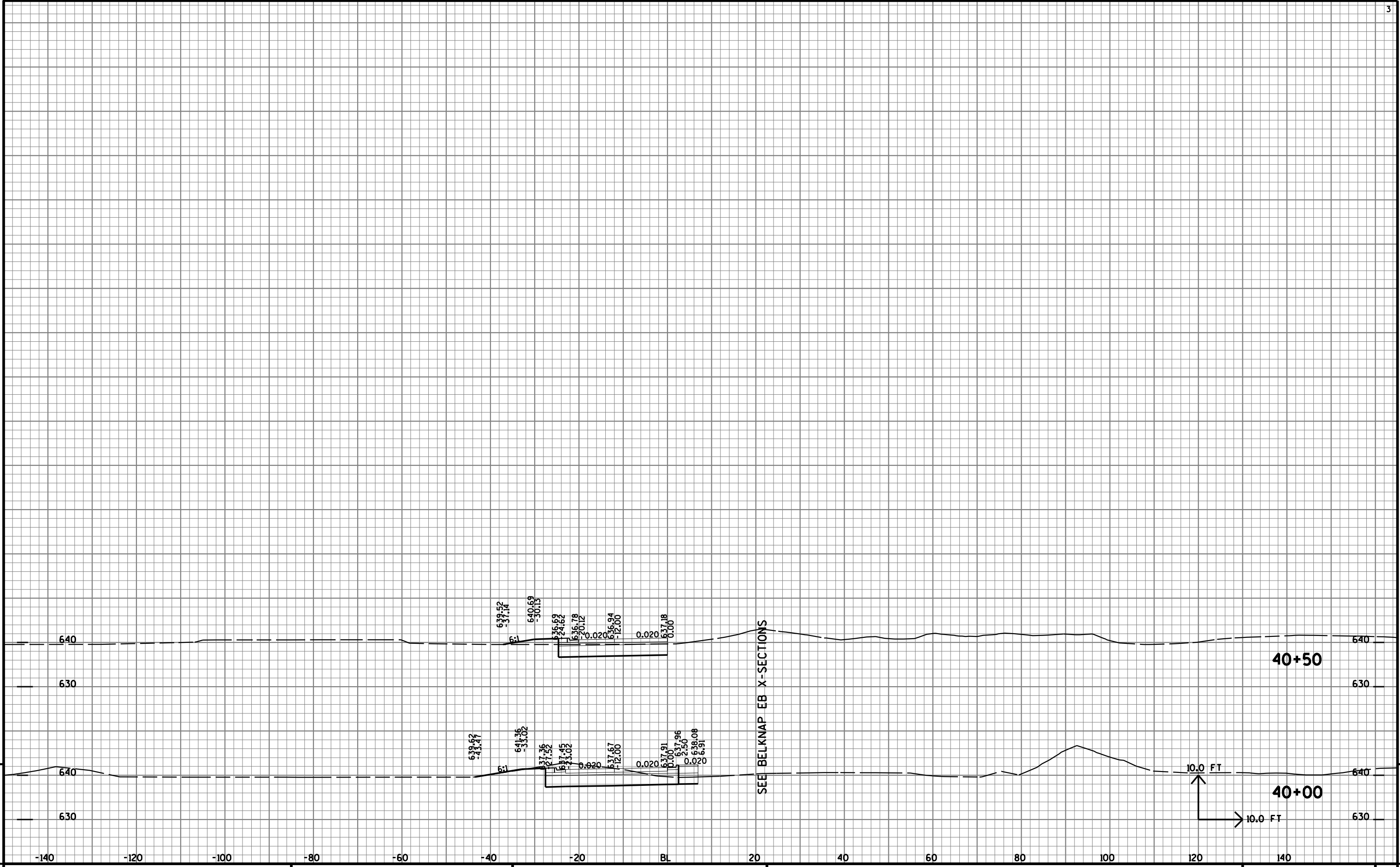


SEE ROUNDABOUT X-SECTIONS

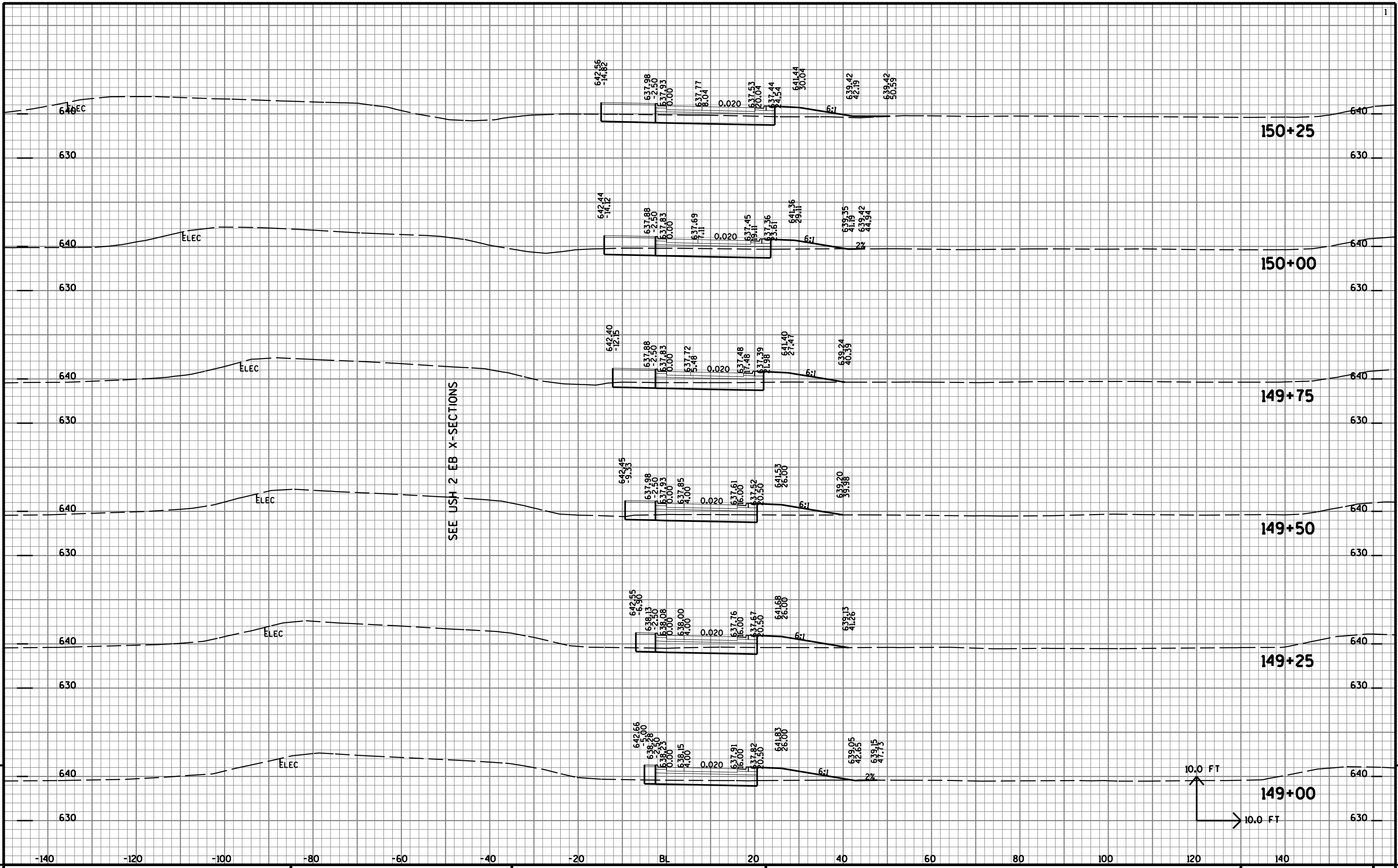
SEE BYPASS X-SECTIONS

SEE BELKNAP EB X-SECTIONS



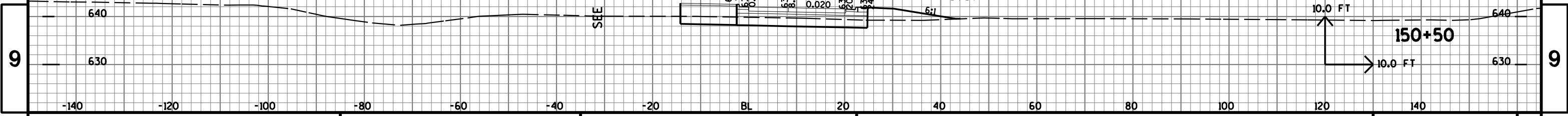
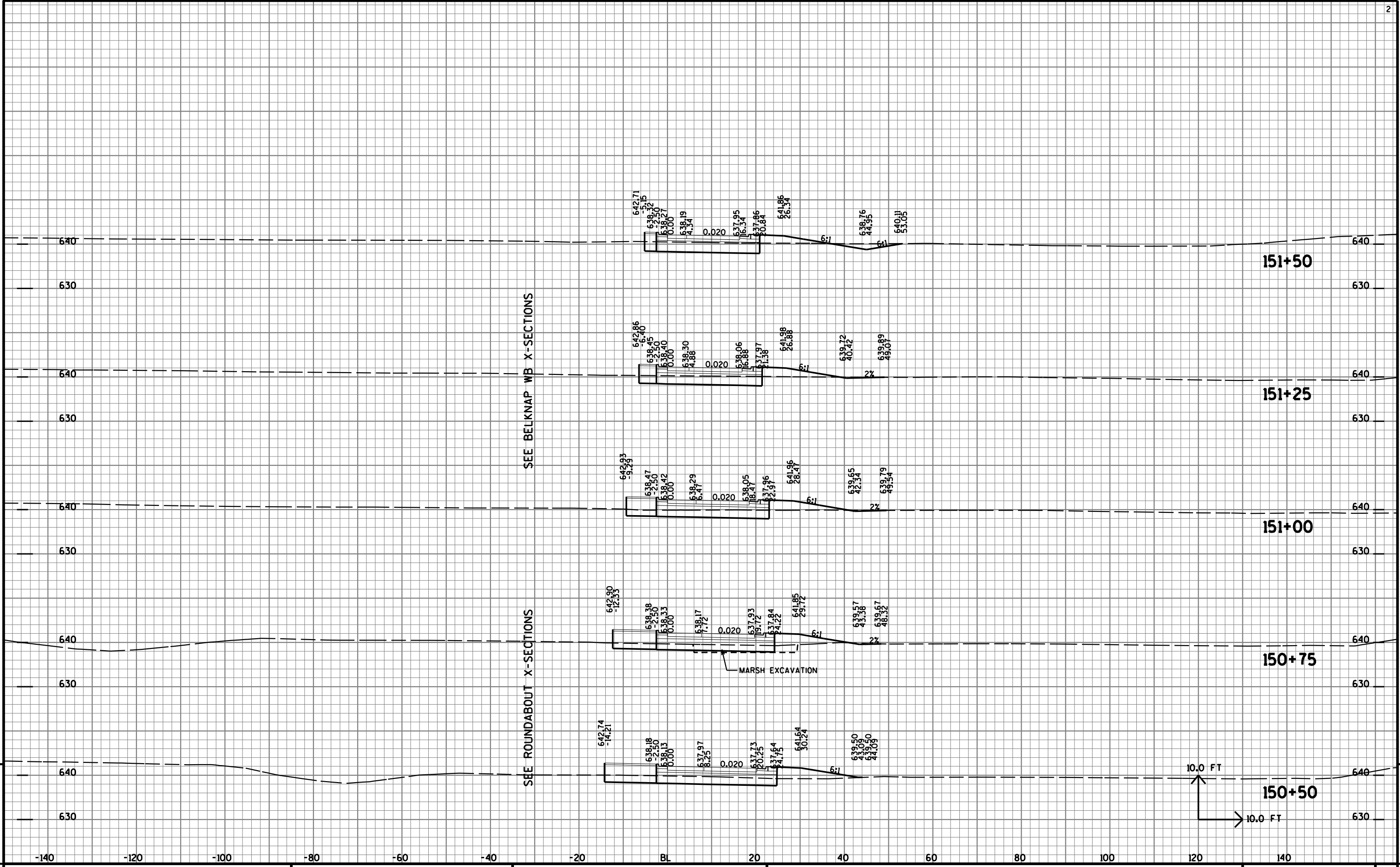


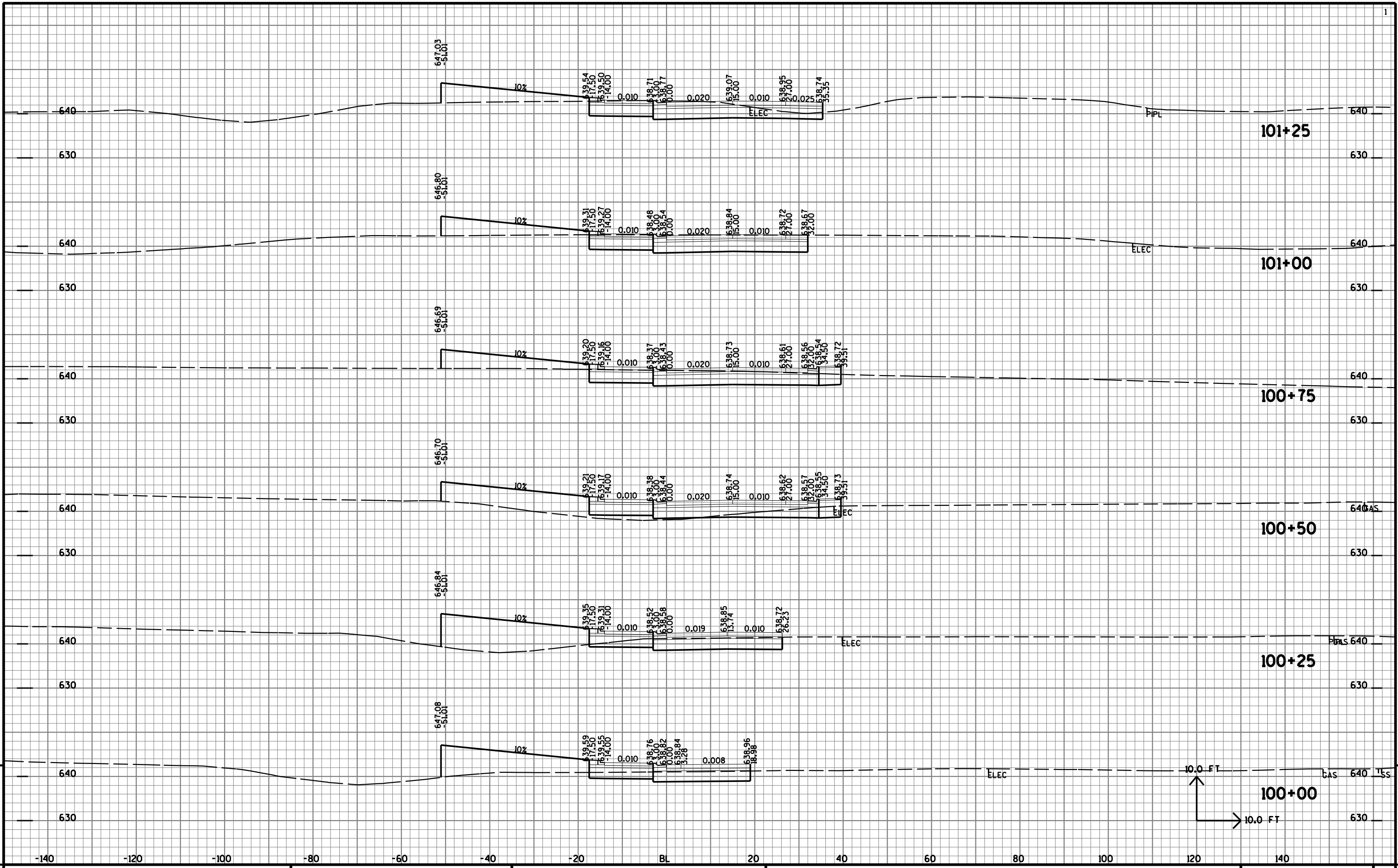
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PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      CROSS SECTIONS: BYPASS (B LINE)      SHEET NO: 9

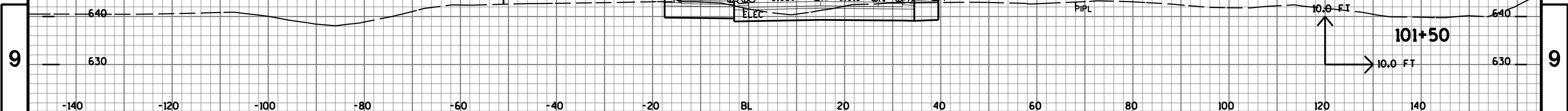
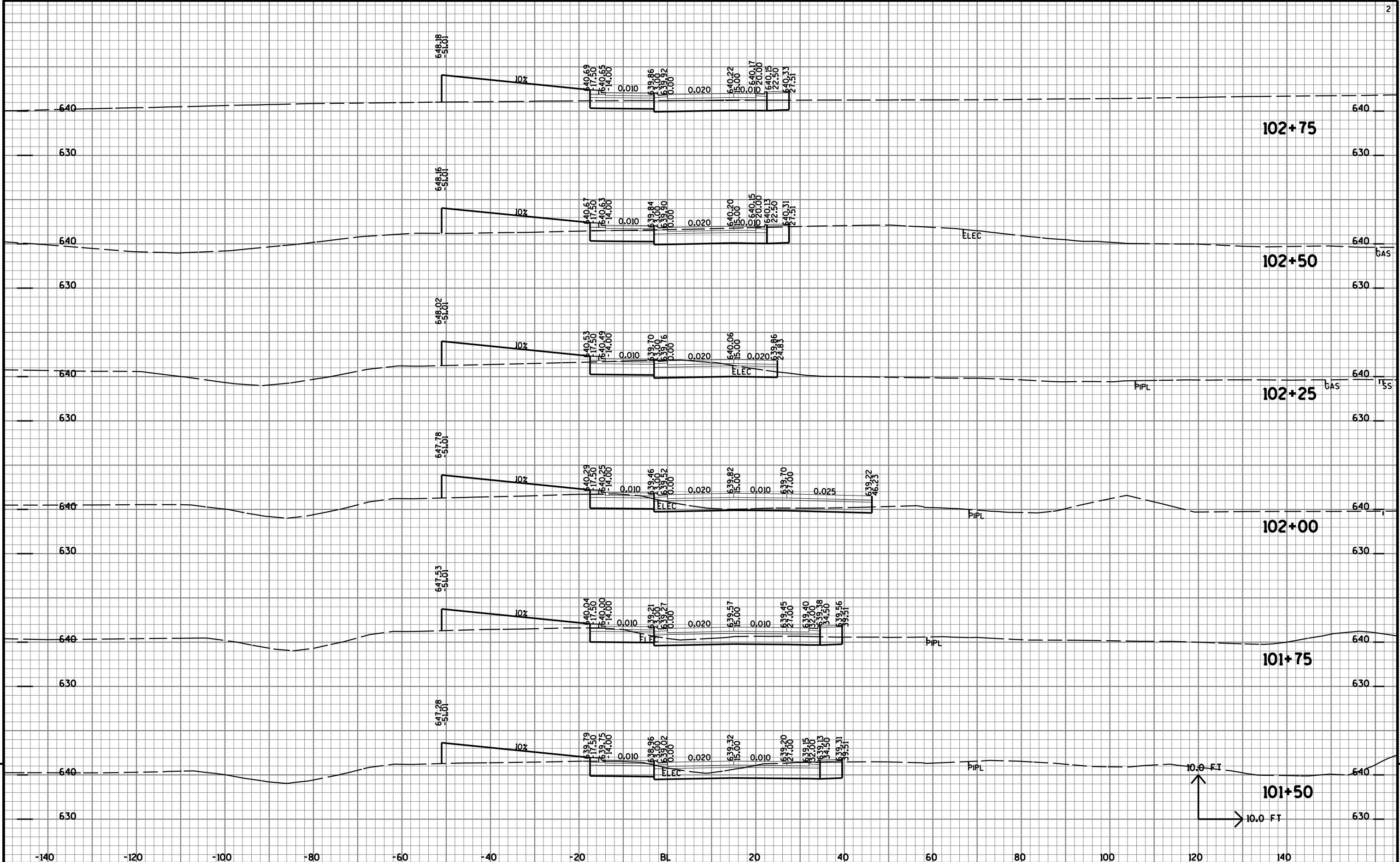


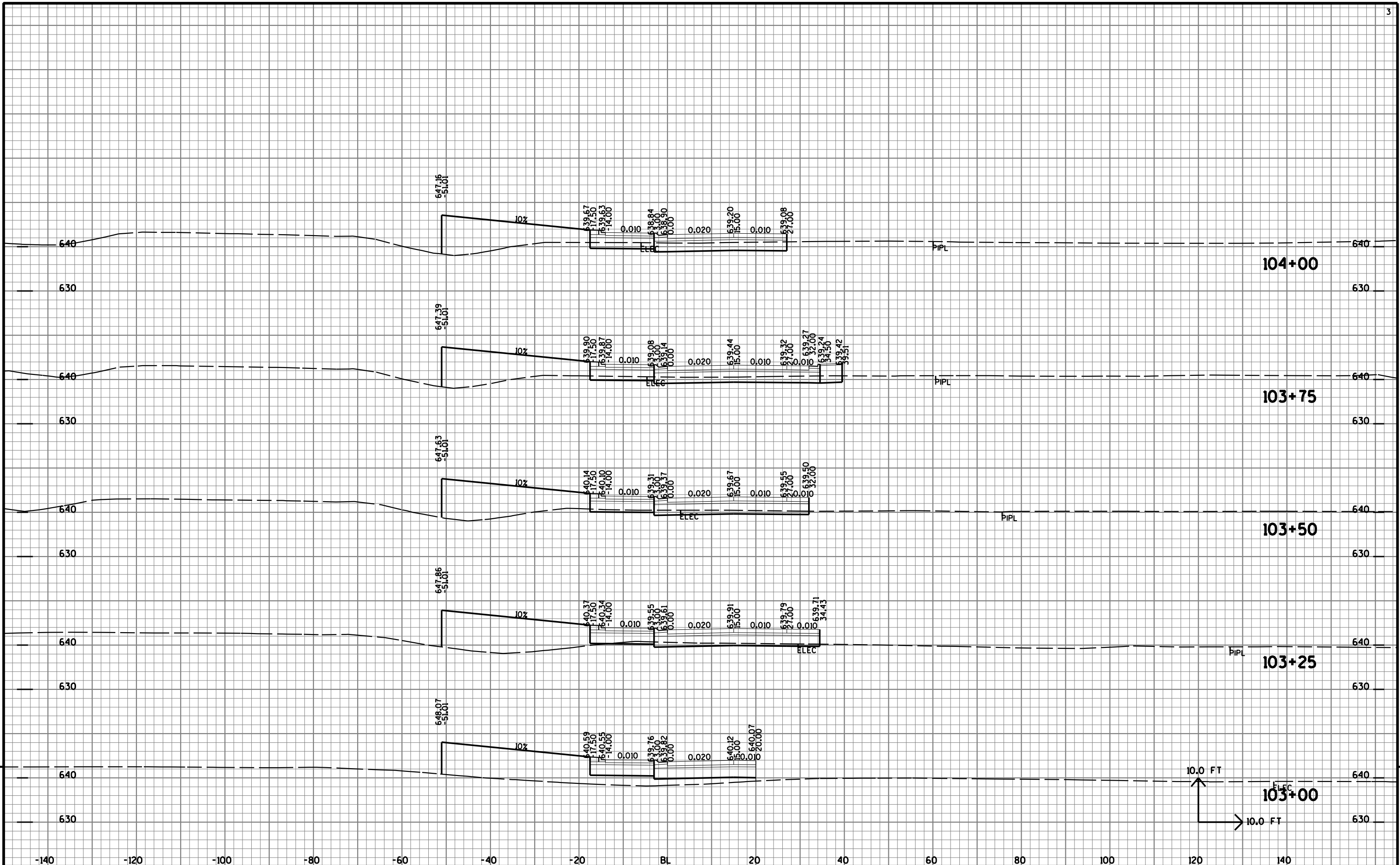




PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      CROSS SECTIONS: ROUNDABOUT CIRCLE (R LINE)      SHEET NO: 9

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9 9

10.0 FT

10.0 FT

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103+00

640

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120

100

80

60

40

20

BL

-20

-40

-60

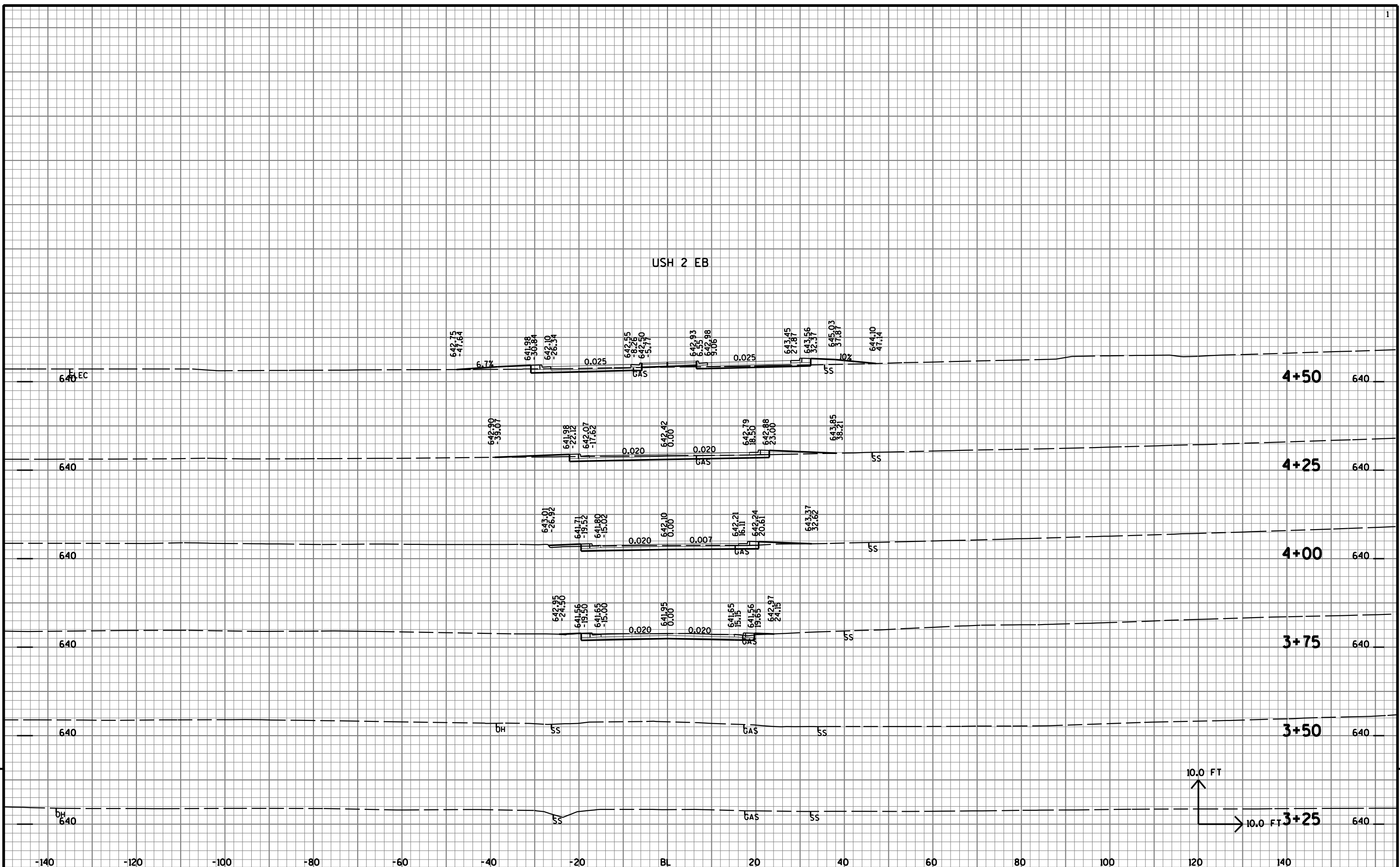
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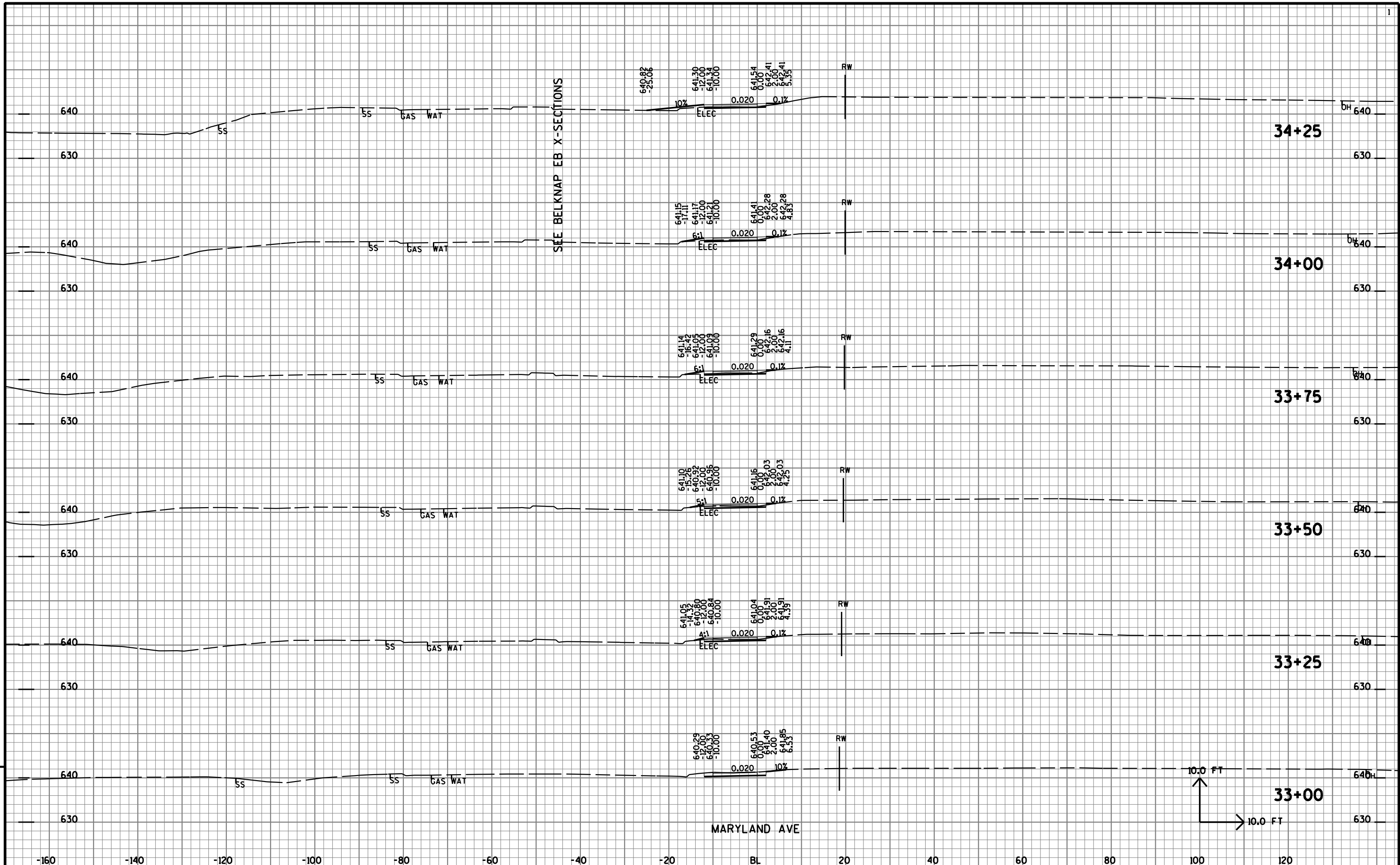


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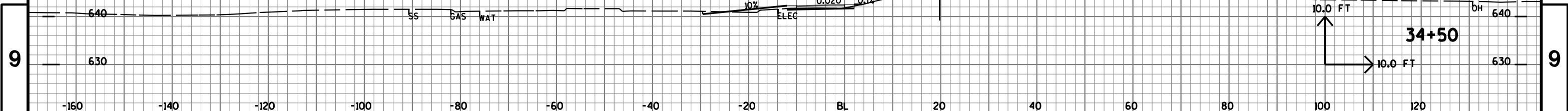
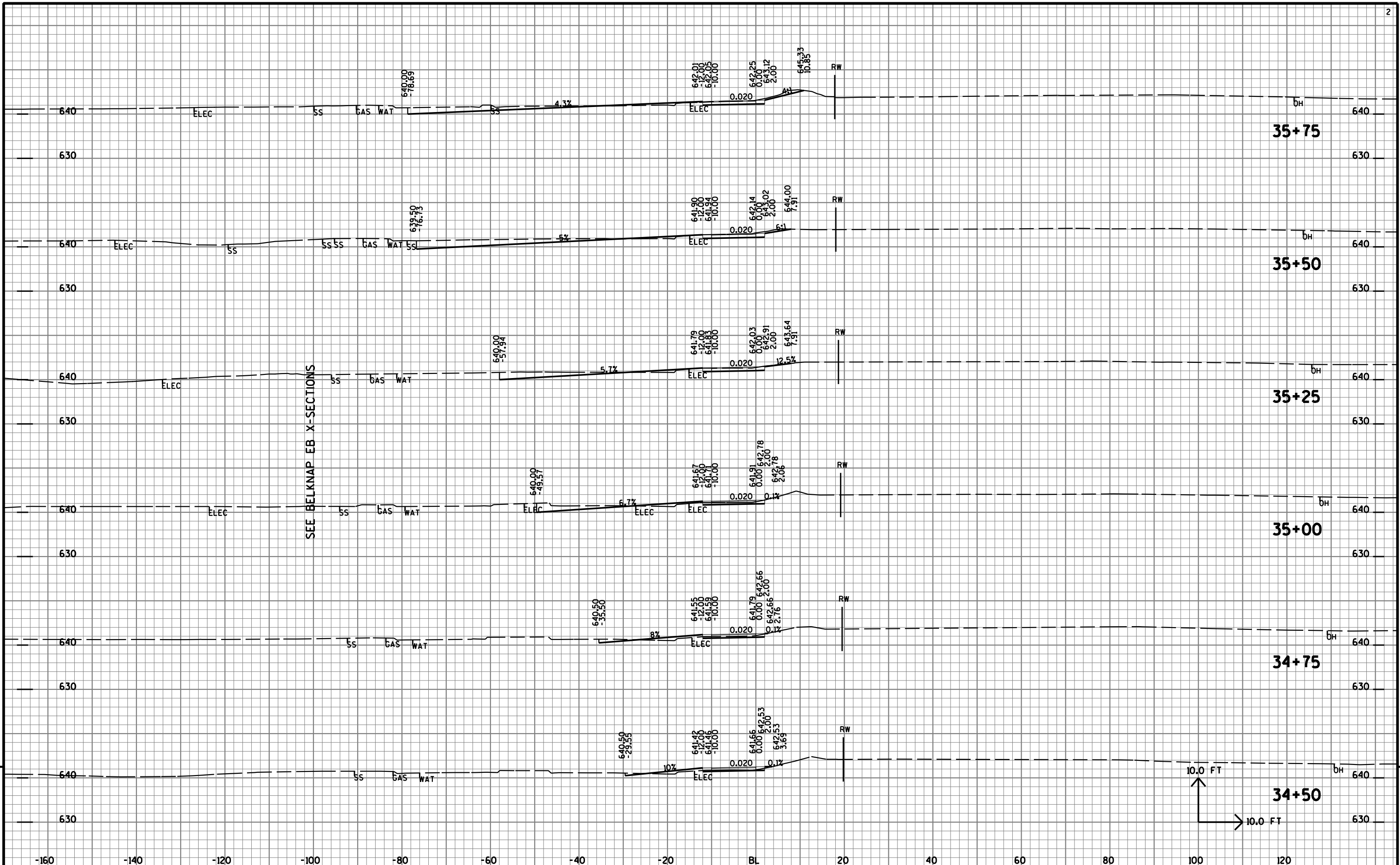
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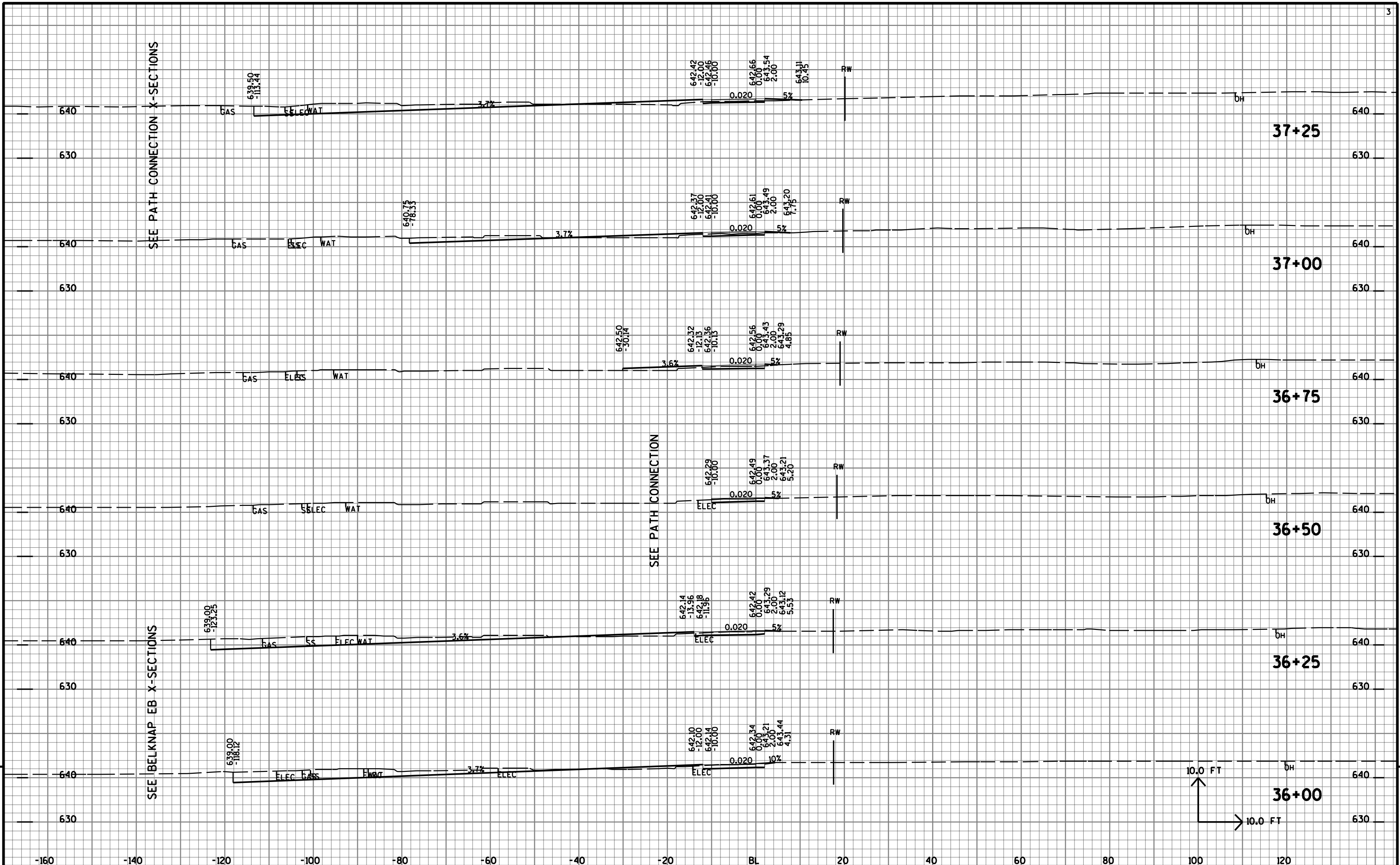
PROJECT NO: 8680-04-74 | HWY: USH 2 | COUNTY: DOUGLAS | CROSS SECTIONS: PATH (P LINE) | SHEET NO: | E



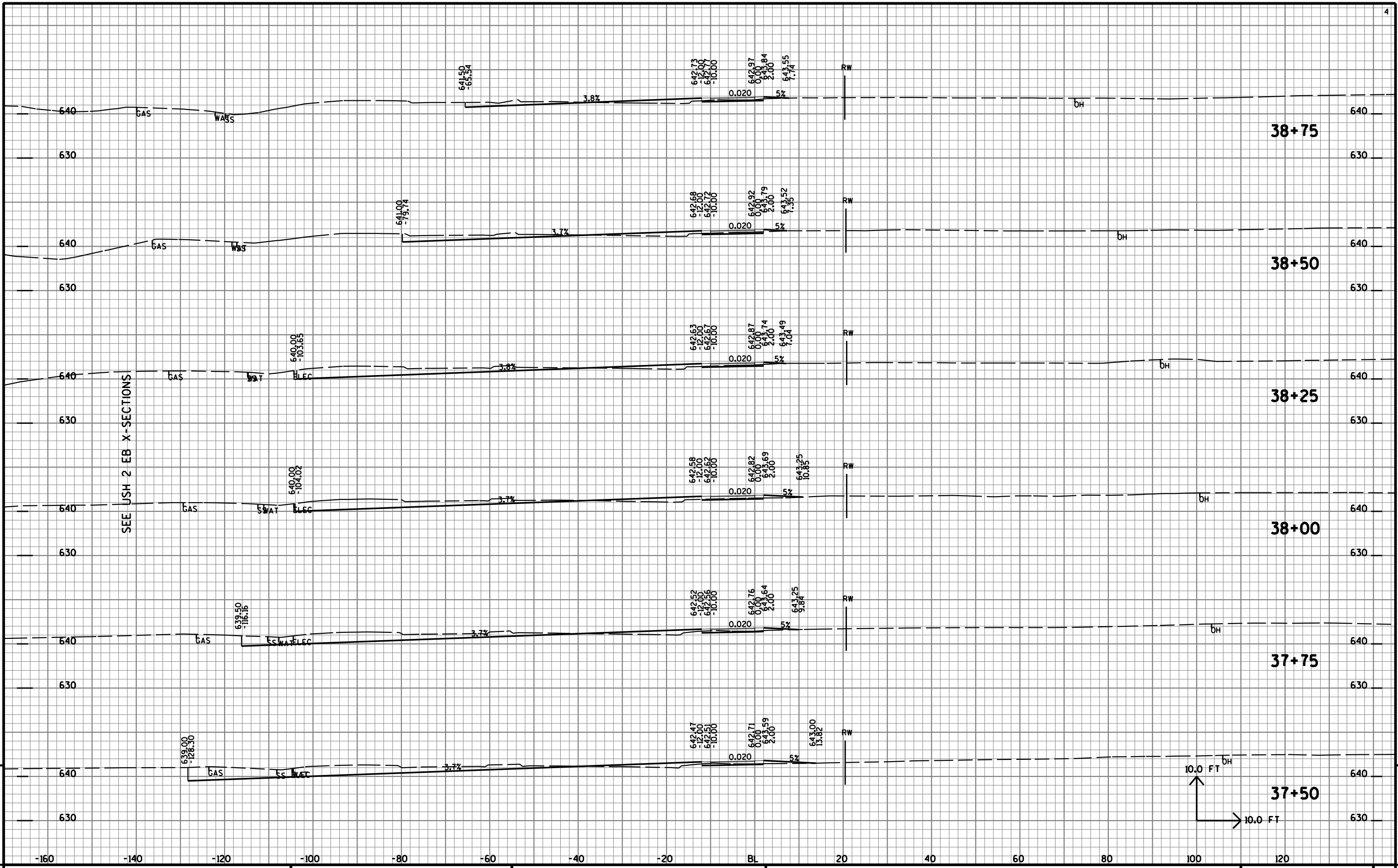
SEE PATH CONNECTION X-SECTIONS

SEE BELKNAP EB X-SECTIONS

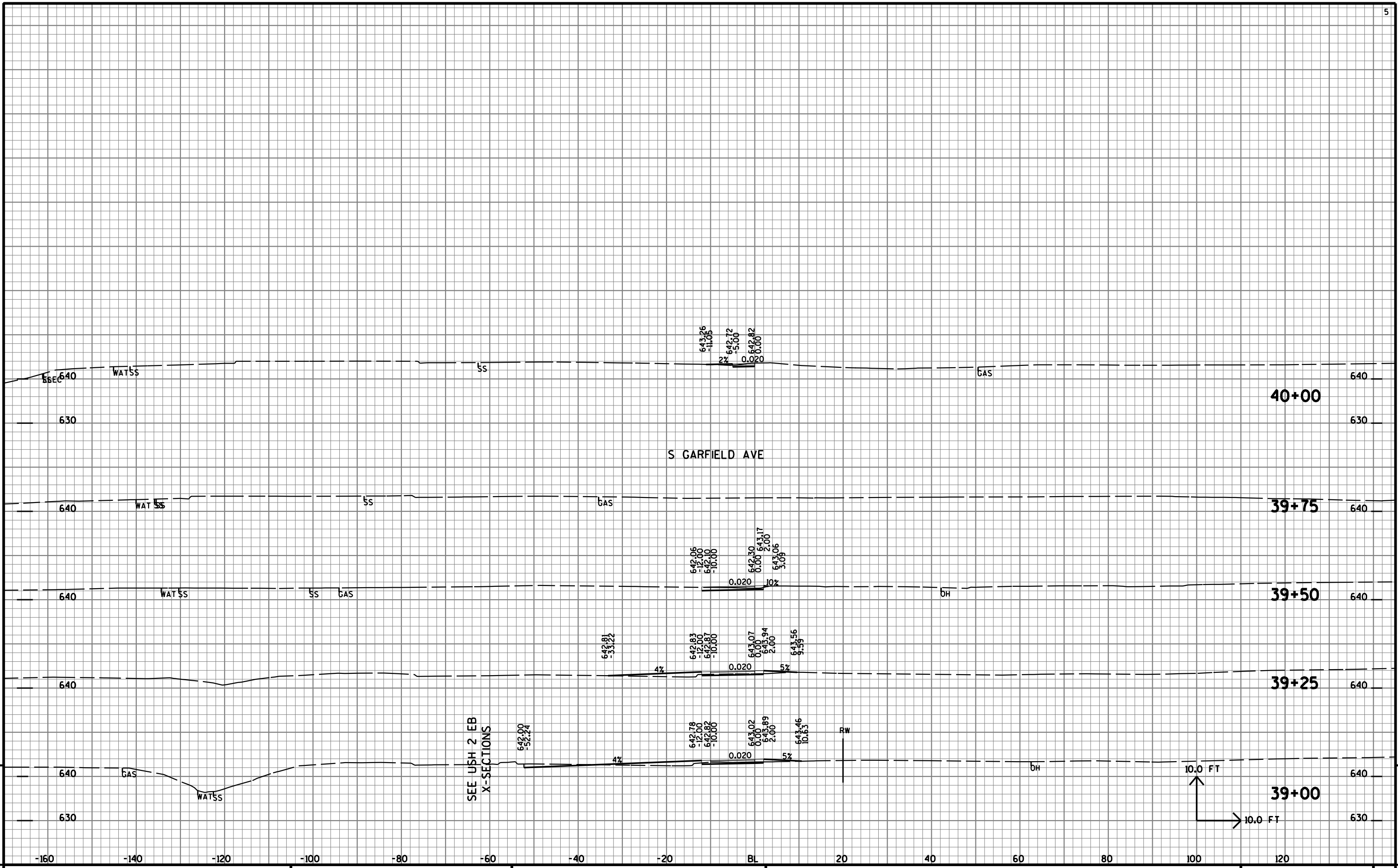
SEE PATH CONNECTION



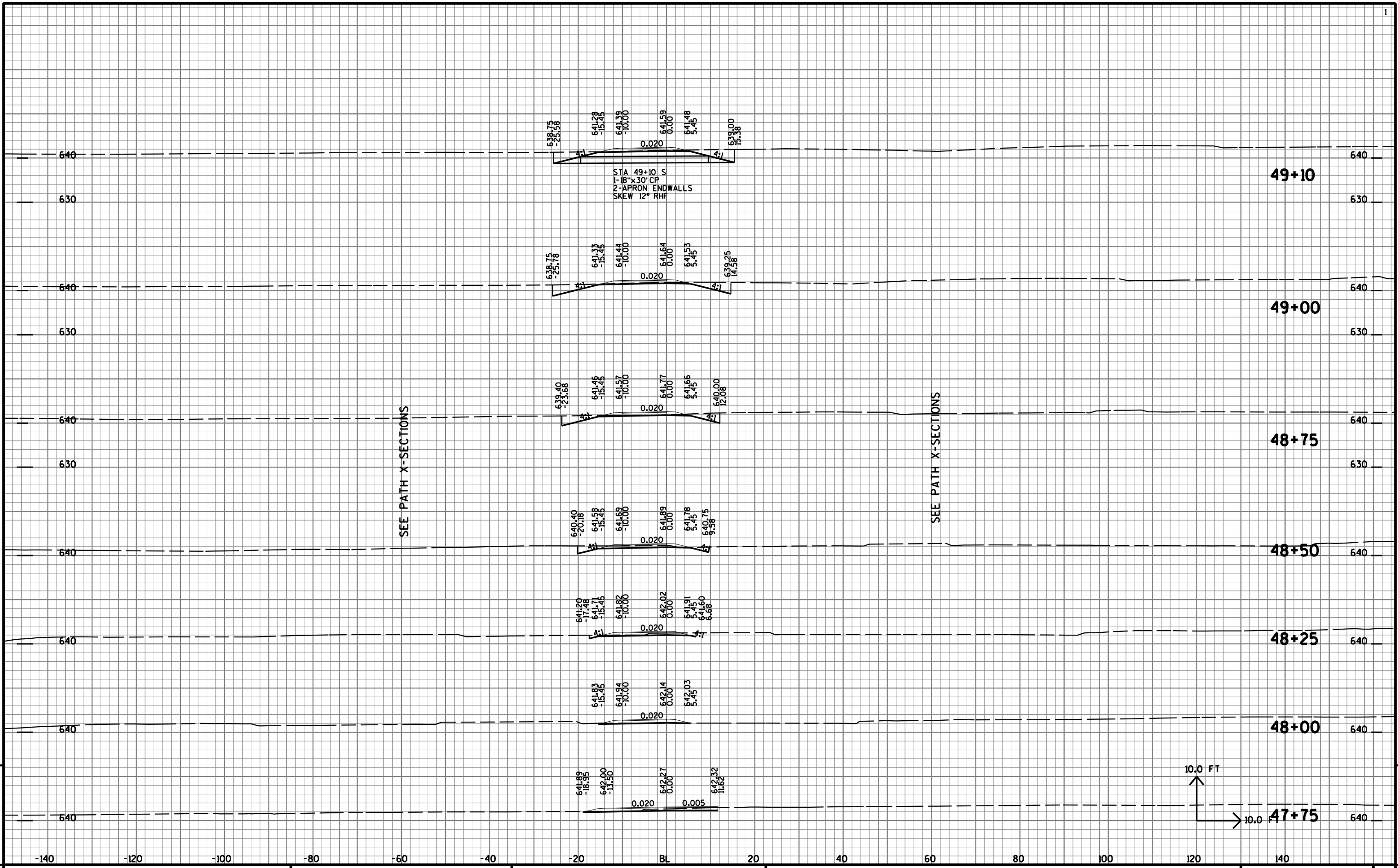




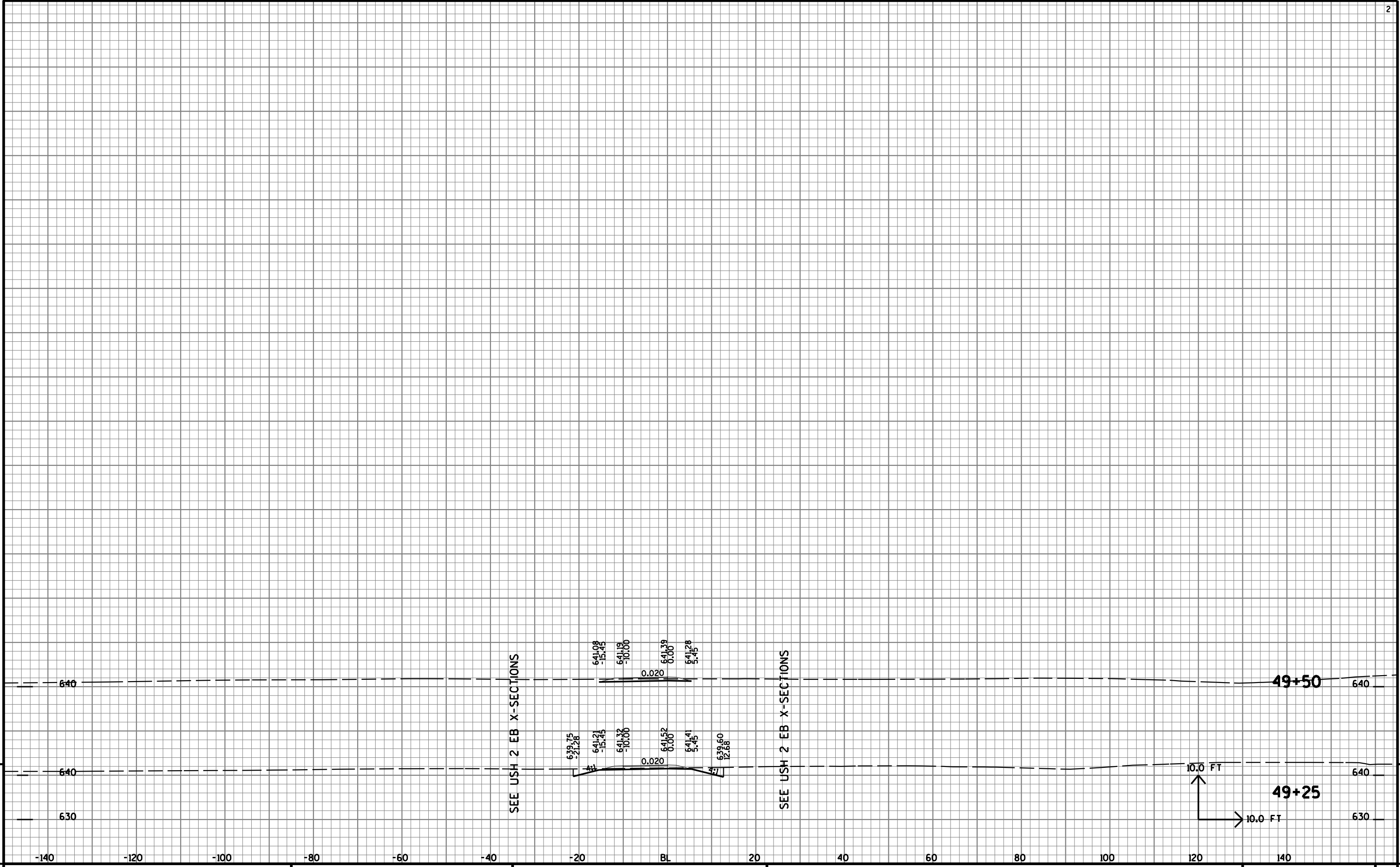
PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      CROSS SECTIONS: PATH (P LINE)      SHEET NO: 9



PROJECT NO: 8680-04-74 | HWY: USH 2 | COUNTY: DOUGLAS | CROSS SECTIONS: PATH (P LINE) | SHEET NO: | E



PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      CROSS SECTIONS: PATH CONNECTION (S LINE)      SHEET NO: 9



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PROJECT NO: 8680-04-74      HWY: USH 2      COUNTY: DOUGLAS      CROSS SECTIONS: PATH CONNECTION (S LINE)      SHEET NO:      E

# Notes



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