MAD JUNE 2017

PROJECT ID: 5300-01-83
WITH: N/A

COUNTY: DANE

ORDER OF SHEETS

TOTAL SHEETS = 158

DESIGN DESIGNATION USH 12/14

A.A.D.T. (2015)	=	54,000
A.A.D.T. (2034)	=	77,000
D.H.V. (2034)	=	6,930
D.D.	=	59/41
T.	=	8.0%
DESIGN SPEED	=	60 MPH
ESALS	=	-----

CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS
PROPERTY LINE (PL + 58.1)
LOT LINE
LIMITED HIGHWAY EASEMENT
EXISTING RIGHT OF WAY
PROPOSED OR NEW R/W LINE
PROPOSED JOINT LINE
SLOPE INTERCEPT
REFERENCE LINE
EXISTING CULVERT
PROPOSED CULVERT (Box or Pipe)
COMBUSTIBLE FLUIDS (CAUTION)
ELECTRIC CAUTION SYMBOL (CAUTION)
MARSH AREA
WOODED OR SHRUB AREA

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

SAUK CITY - MADISON

TERRACE AVE STRUCS B-13-228/B-13-14

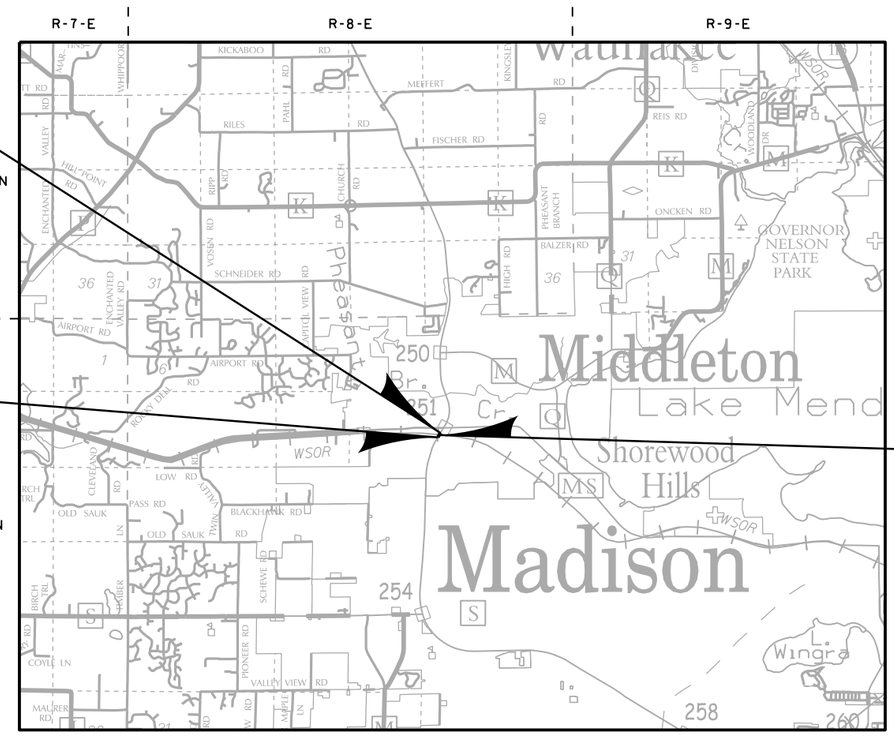
USH 12
DANE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5300-01-83	WISC 2017315	1

STATE PROJECT NUMBER
5300-01-83

BEGIN PROJECT 5300-01-83
STA. 145EB+20.25
X = 785,530.11
Y = 490,495.61

END PROJECT 5300-01-83
STA. 148EB+96.72



LAYOUT
SCALE 0 1.0 MI.

TOTAL NET LENGTH OF USH 12/14 CENTERLINE = 0.000 MI.

PROFILE

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

UTILITIES

COMMUNICATION OVERHEAD — C-OH
COMMUNICATION UNDERGROUND — C-UG
ELECTRIC OVERHEAD — OH
ELECTRIC UNDERGROUND — E
GAS — G
SANITARY SEWER — SAN
STORM SEWER — SS
WATER — W
UTILITY PEDESTAL
POWER POLE
TELEPHONE POLE

STRUCTURES

B-13-0014
B-13-0228

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD 88 (2012).

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), DANE COUNTY, NAD83 (2011).

ORIGINAL PLANS PREPARED BY

HNTB
10 WEST MIFFLIN ST
MADISON, WI 53703
(608) 259-0045

WISCONSIN PROFESSIONAL ENGINEER
NICHOLAS E. BENNETT
E-43352-6
MADISON, WI

2-1-17 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	KL ENGINEERING
Designer	HNTB
Project Manager	DAVID LAYTON
Regional Examiner	
Regional Supervisor	BRENDA SCHOENFELD
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: 1/25/2017 (Signature)

E

UTILITY CONTACTS

ATC MANAGEMENT, INC. - ELECTRICITY
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W234 N2000 RIDGEVIEW PARKWAY CT
PO BOX 47
WAUKESHA, WI 53187-0047
(262) 506-6814
TMARCINIAK@ATCLLC.COM

CENTURYLINK - COMMUNICATION LINE
MR. KYLE TOSTENSON
100 CENTURYLINK DR
MONROE, LA 71203
(318) 417-2768
KYLE .TOSTENSON@CENTURYLINK.COM

MADISON GAS & ELECTRIC - ELECTRICITY
MR. RICH PARKER
133 S. BLAIR ST.
MADISON, WI 53788
(608) 252-7379; (608) 444-9619 (CELL)
RPARKER@MGE.COM

MADISON GAS & ELECTRIC - GAS/PETROLEUM
MR. STEVE BEVERSDORF
133 S. BLAIR ST.
MADISON, WI 53788
(608) 252-1552; (608) 444-9620 (CELL)
SBEVERSDORF@MGE.COM

MERRIMAC COMMUNICATIONS LTD - COMMUNICATION LINE
MR. BRANDON SUCHLA
327 PALISADE ST
MERRIMAC, WI 53561
(608) 493-9470 EXT:204; (608) 370-1608 (CELL)
BRANDON.SUCHLA3@GMAIL.COM

METROPOLITAN UNIFIED FIBER NETWORK - COMMUNICATION LINE
MR. JOEL MIKULSKY
MC&E C/O MUFN
PO BOX 11064
GREEN BAY, WI 54307
(877) 870-6968 (EXT 701)
JMIKULSKY@MCAE.BIZ

MIDDLETON MUNICIPAL - STREET LIGHTING
MR. GARY HUTH
7426 HUBBARD AVE
MIDDLETON, WI 53562
(608) 821-8370
GHUTH@CI.MIDDLETON.WI.US

MIDDLETON MUNICIPAL WATER UTILITY - WATER
MR. DAVE SARBACKER
7426 HUBBARD AVE
MIDDLETON, WI 53562
(608) 821-8370; (608) 469-3330 (CELL)
DSARBACKER@CITYOFMIDDLETON.US

TDS TELECOM - COMMUNICATION LINE
MR. JERRY MYERS
525 JUNCTION RD
MADISON, WI 53717
(608) 664-4404
JERRY.MYERS@TDSTELECOM.COM

UW HOSPITALS AND CLINICS AUTHORITY - COMMUNICATION LINE
MR. SCOTT FELDMANN
7974 UW HEALTH COURT
MIDDLETON, WI 53562
(608) 821-1704; (608) 279-7182 (CELL)
SFELDMANN@UWHEALTH.ORG

WISCONSIN DEPT. OF TRANSPORTATION-COMMUNICATION LINE
MR. JEFF MADSON
433 W. ST. PAUL AVE.
SUITE 300
MILWAUKEE, WI 53203-3007
(414) 225-3723
JEFFREY.MADSON@DOT.WI.GOV

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

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3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711
(608) 275-3301
ERIC.HEGGELUND@WISCONSIN.GOV

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2101 WRIGHT STREET
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DAVID.LAYTON@DOT.WI.GOV

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ROGER SCHAALMA
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RSCHAALMA@WATCOCOMPANIES.COM

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10 W. MIFFLIN ST, SUITE 300
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(608) 294-5001
NBENNETT@HNTB.COM

ORDER OF SECTION 2 DETAIL SHEETS

GENERAL NOTES

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

THE ENGINEER SHALL ADJUST THE LOCATIONS OF BEAMGUARD POSTS UNDER THIS CONTRACT AS NECESSARY TO AVOID CONFLICT WITH THE EXISTING UTILITY FACILITIES.

PRIOR TO PLACEMENT OF MGS GUARDRAIL, THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED UNLESS SHOWN OTHERWISE.

ANY AREAS WHICH ARE DISTURBED BY ANY OPERATION OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS WILL BE RESTORED AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

REMOVING CONCRETE INCLUDES ANY MESH OR REINFORCEMENT THAT MAY BE PART OF THE PAVEMENT STRUCTURE. EXISTING PAVEMENT DEPTHS ARE BASED ON AS-BUILT DATA AND MAY VARY IN THE FIELD.

EXISTING LANE WIDTHS ARE BASED ON AS-BUILT DATA AND MAY VARY IN THE FIELD. VERIFY WIDTHS PRIOR TO SETTING TRAFFIC CONTROL TO ENSURE PROPER LANE WIDTHS ARE ACHIEVED.

BROKEN CONCRETE CONTAINING RE-BAR SHALL NOT BE USED AS RIPRAP.

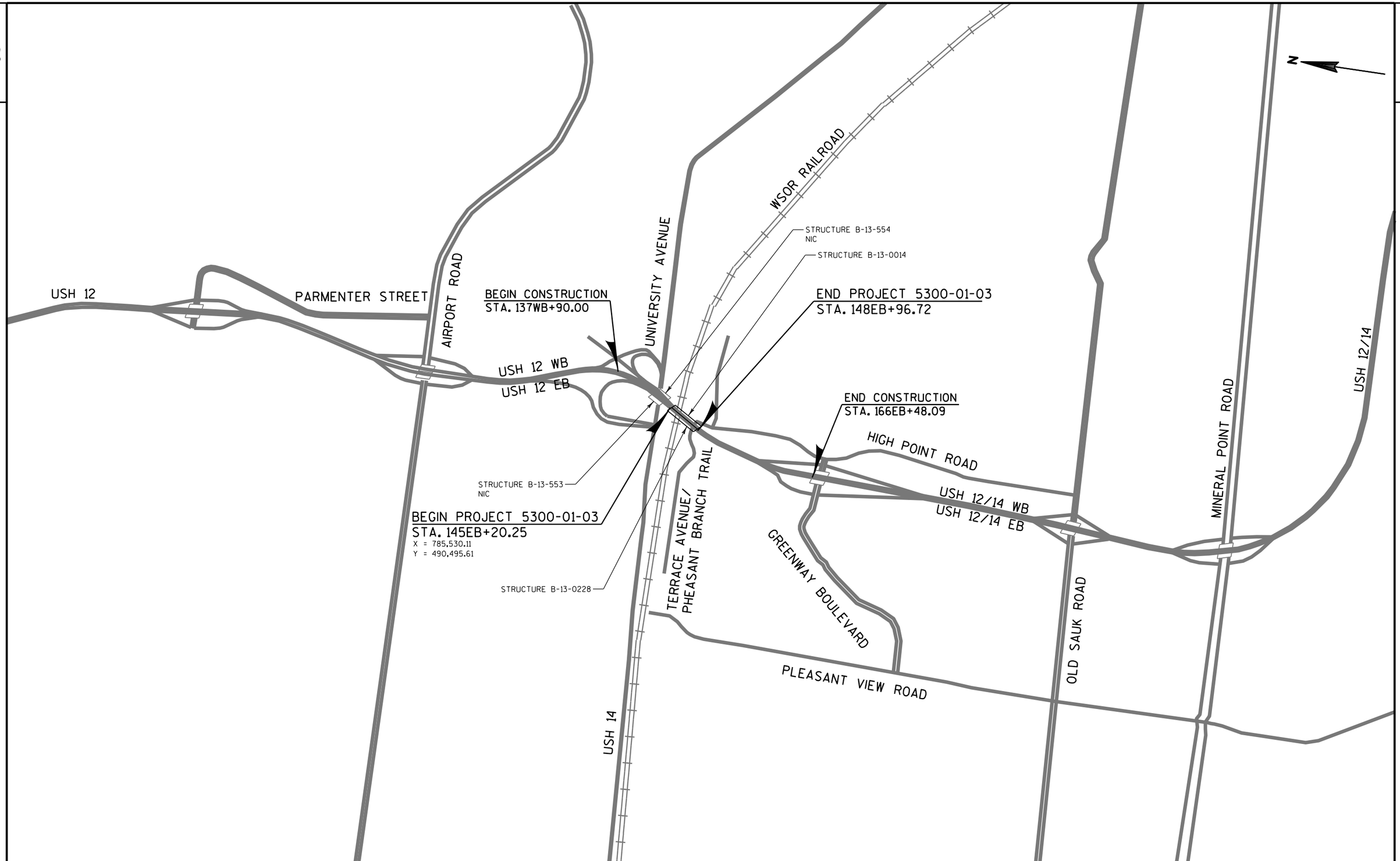
ANY DAMAGE TO PAVEMENT FROM CONTRACTOR STORAGE WITHIN THE WORKZONE SHALL BE FIXED OR REPLACED AT THE CONTRACTOR'S EXPENSE.

DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE TOPSOILED (SALVAGED), FERTILIZED, SEEDED, AND EMATTED AS DIRECTED BY THE ENGINEER.

ALIGNMENT IDENTIFIERS	
EB	USH 12/14 EB
WB	USH 12/14 WB

ABBREVIATIONS

AGG	AGGREGATE
BAD	BASE AGGREGATE DENSE
BM	BENCH MARK
C/L	CENTER OR CONSTRUCTION LINE
CONC	CONCRETE
CY	CUBIC YARD
D	DEGREE OF CURVE
Δ	DELTA
EAT	ENERGY ABSORBING TERMINAL
HMA	HOT MIX ASPHALT
L	LENGTH OF CURVE
LT	LEFT
MIN	MINIMUM
M/L	MATCHLINE
NB	NORTHBOUND
NC	NORMAL CROWN
NIC	NOT IN CONTRACT
PAVT	PAVEMENT
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENT
R	RADIUS OF CURVE
R/L	REFERENCE LINE
R/W	RIGHT OF WAY
RC	REVERSE CROWN
REQD	REQUIRED
RO	RUN OFF LENGTH
RT	RIGHT
SB	SOUTHBOUND
SDD	STANDARD DETAIL DRAWINGS
SE	SUPER ELEVATION
SF	SQUARE FOOT
STA	STATION
SY	SQUARE YARD
T	TANGENT LENGTH

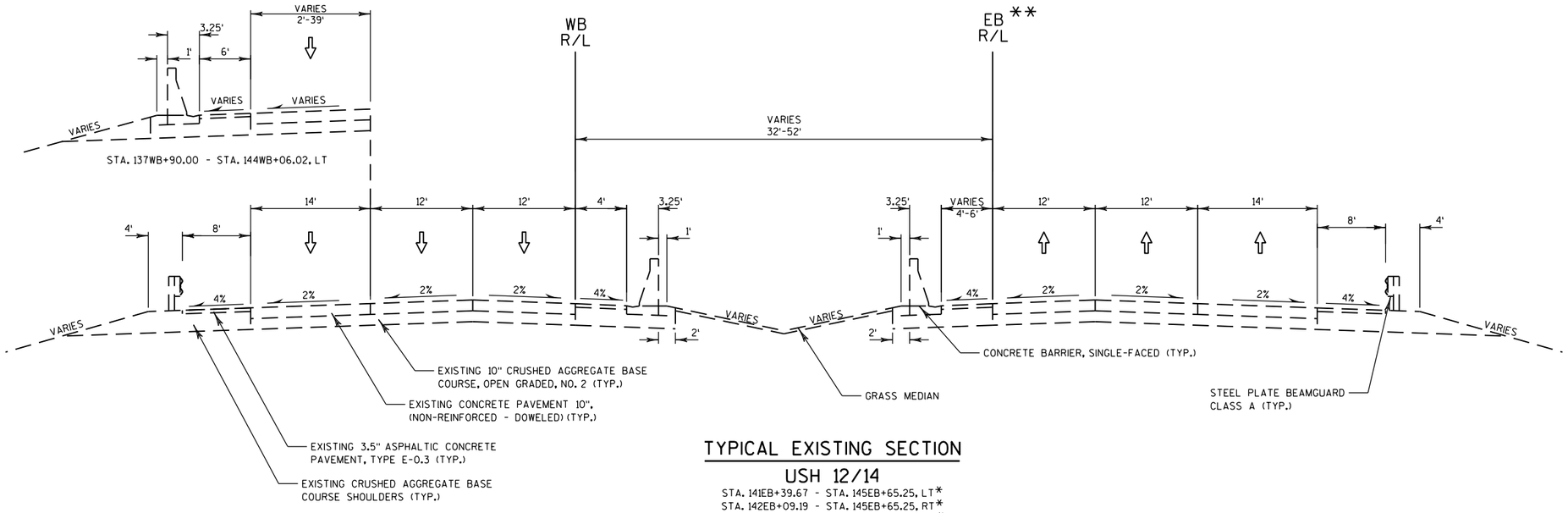


PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	PROJECT OVERVIEW	SHEET 4	E

FILE NAME : \\madw00\ingrproj\62247\t1\cds\020201_po.dgn PLOT DATE : 4/5/2017 PLOT BY : ctomsak PLOT NAME : PLOT SCALE : 2000:1

WISDOT/CADDS SHEET 42

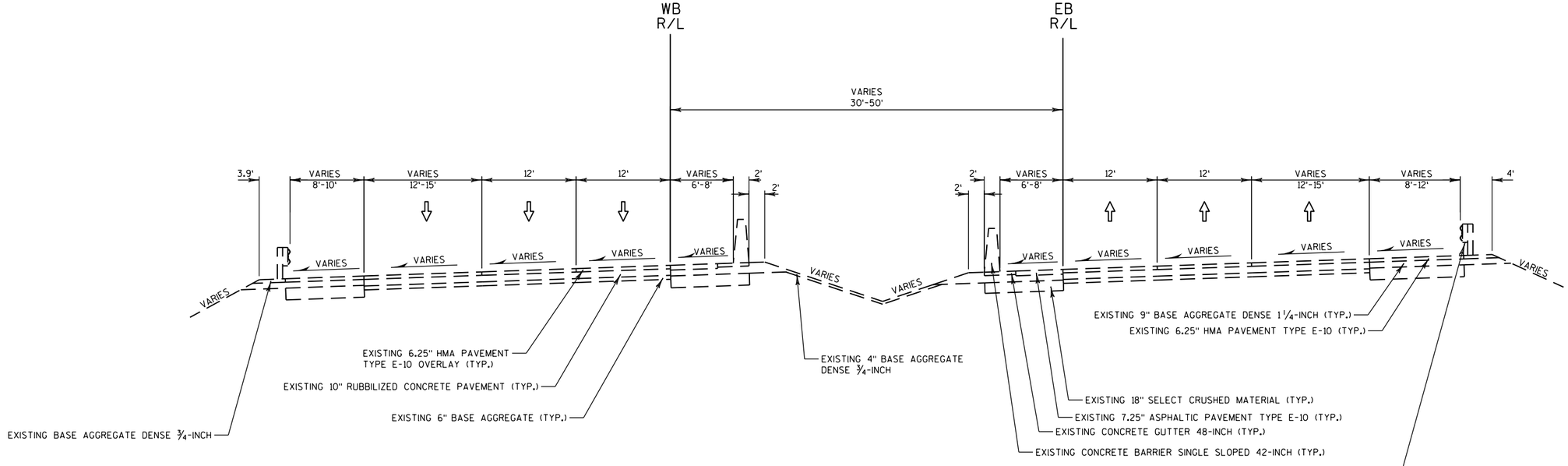
2



TYPICAL EXISTING SECTION

USH 12/14

STA. 141EB+39.67 - STA. 145EB+65.25, LT*
STA. 142EB+09.19 - STA. 145EB+65.25, RT*
STA. 137WB+90.00 - STA. 145WB+45.13, LT*
STA. 142WB+35.00 - STA. 145WB+45.13, RT*



TYPICAL EXISTING SECTION

USH 12/14

STA. 148EB+33.91 - STA. 166EB+48.09*
STA. 148WB+21.29 - STA. 166WB+26.22*

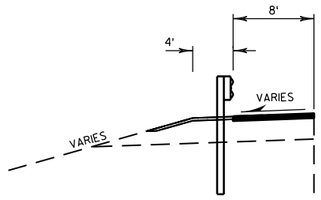
*STA. 145EB+65.25 - STA. 148EB+33.91
B-13-228 (SEE BRIDGE PLANS)

STA. 145WB+45.13 - STA. 148WB+21.29
B-13-14 (SEE BRIDGE PLANS)

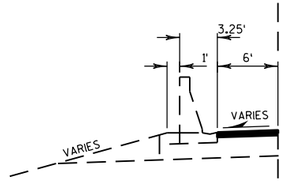
**EB R/L DOES NOT FOLLOW EDGE OF PAVEMENT, STA. 135EB+75 - STA. 145EB+65.25. ENSURE LANE WIDTHS ARE LAID OUT ACCURATELY TO MATCH EXISTING LANE WIDTHS.

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TYPICAL SECTIONS: EXISTING	SHEET 5	E

2



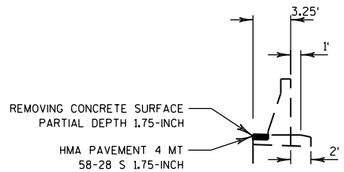
STA. 144WB+05.97 - STA. 144WB+81.94, LT



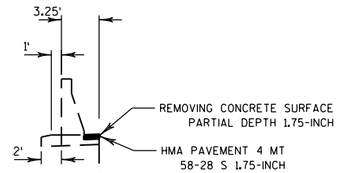
STA. 143WB+30.00 - STA. 144WB+05.97, LT

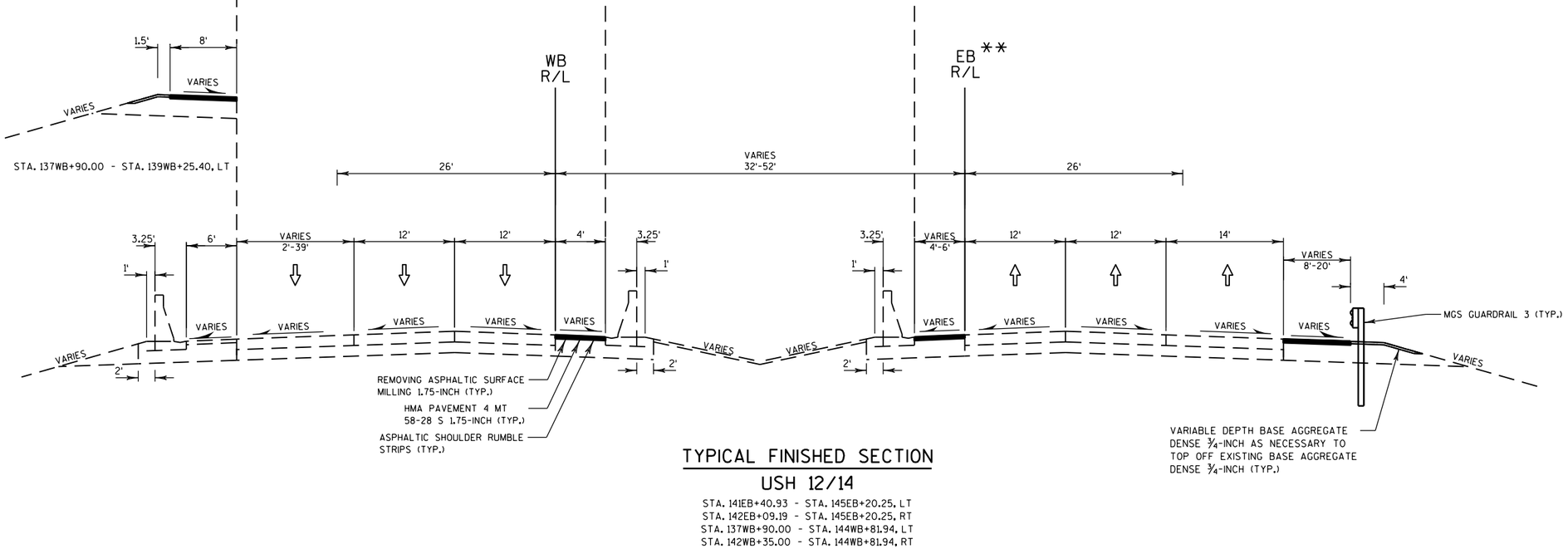
STA. 137WB+90.00 - STA. 139WB+25.40, LT

STA. 143WB+65.00 - STA. 144WB+81.94, RT



STA. 143EB+40.00 - STA. 145EB+20.25, LT





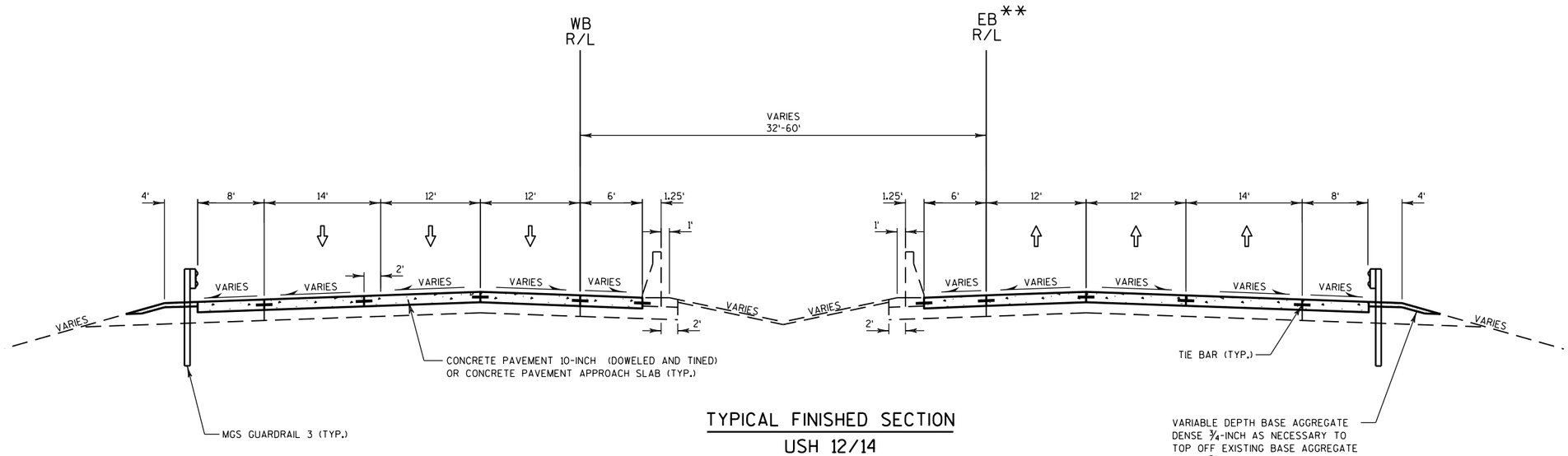
TYPICAL FINISHED SECTION

USH 12/14

STA. 141EB+40.93 - STA. 145EB+20.25, LT
STA. 142EB+09.19 - STA. 145EB+20.25, RT
STA. 137WB+90.00 - STA. 144WB+81.94, LT
STA. 142WB+35.00 - STA. 144WB+81.94, RT

**EB R/L DOES NOT FOLLOW EDGE OF PAVEMENT, STA. 135EB+75 - STA. 145EB+65.25. ENSURE LANE WIDTHS ARE LAID OUT ACCURATELY TO MATCH EXISTING LANE WIDTHS.

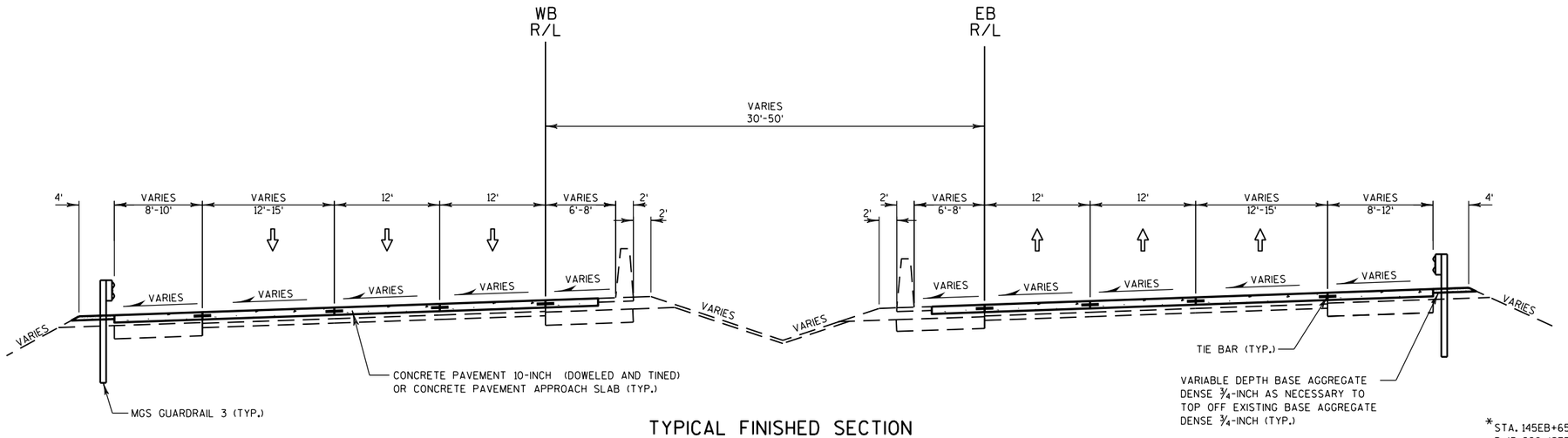
PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TYPICAL SECTIONS: USH 12/14	SHEET 6	E



TYPICAL FINISHED SECTION

USH 12/14

STA. 145EB+20.25 - STA. 145EB+65.25*
STA. 144WB+81.94 - STA. 145WB+45.13*



TYPICAL FINISHED SECTION

USH 12/14

STA. 148EB+33.91 - STA. 148EB+96.72*
STA. 148WB+21.29 - STA. 148WB+66.29*

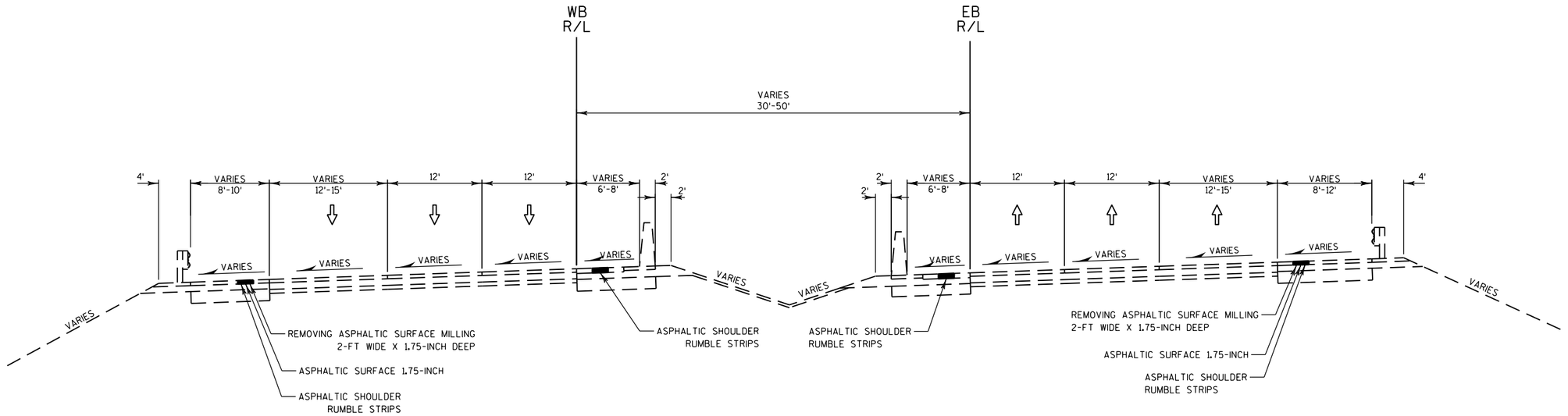
*STA. 145EB+65.25 - STA. 148EB+33.91
B-13-228 (SEE BRIDGE PLANS)

STA. 145WB+45.13 - STA. 148WB+21.29
B-13-14 (SEE BRIDGE PLANS)

**EB R/L DOES NOT FOLLOW EDGE OF PAVEMENT, STA. 135EB+75 - STA. 145EB+65.25. ENSURE LANE WIDTHS ARE LAID OUT ACCURATELY TO MATCH EXISTING LANE WIDTHS.

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TYPICAL SECTIONS: USH 12/14	SHEET 7	E

2



TYPICAL FINISHED SECTION

USH 12/14

STA. 148EB+96.72 - STA. 151EB+95.00, RT
STA. 148EB+96.72 - STA. 166EB+48.09, LT
STA. 148WB+66.29 - STA. 166WB+26.22, RT
STA. 148WB+66.29 - STA. 153WB+32.70, LT

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TYPICAL SECTIONS: USH 12/14	SHEET 8	E

2

*(PS) = 10" PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

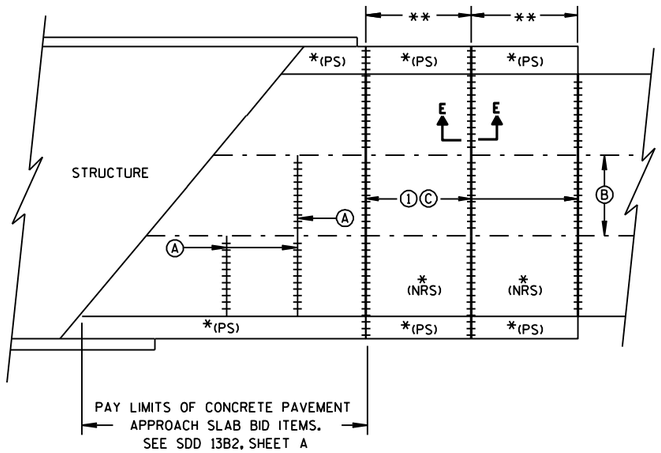
**STANDARD TRANSVERSE JOINT SPACING
(SEE SDD 13C4, SDD 13C11, & SDD 13C13)

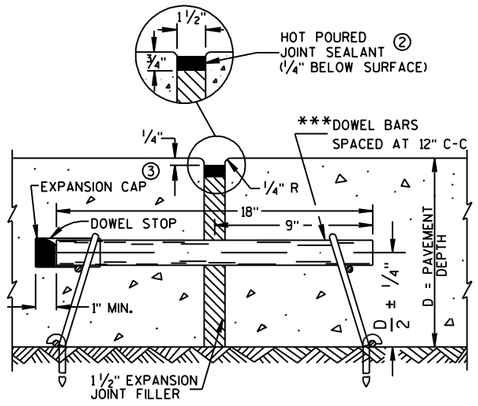
***STANDARD DOWEL BAR DIAMETER
(SEE SDD 13C11 & SDD 13C13)

Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄

Ⓑ STANDARD LONGITUDINAL JOINT AND TIE BARS.

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





SECTION E-E
EXPANSION JOINT

GENERAL NOTES

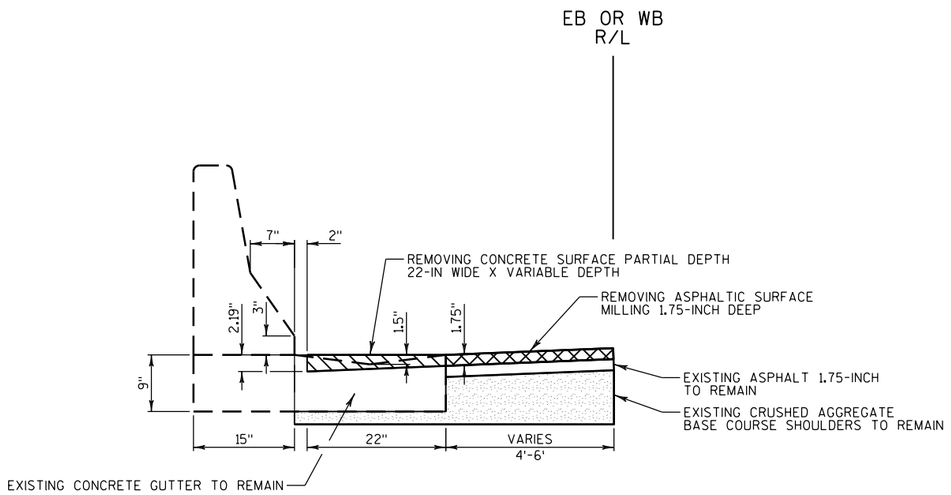
① DO NOT INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

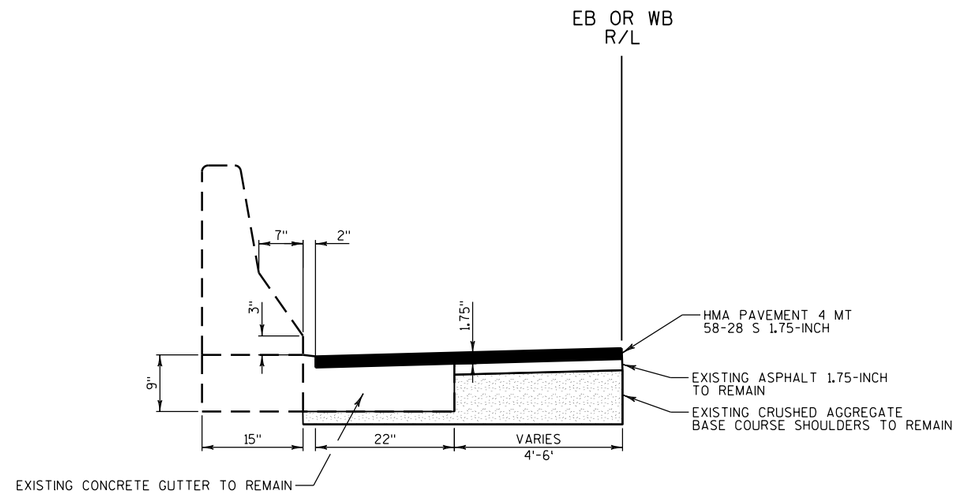
② USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.

③ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.

CONCRETE BRIDGE APPROACH

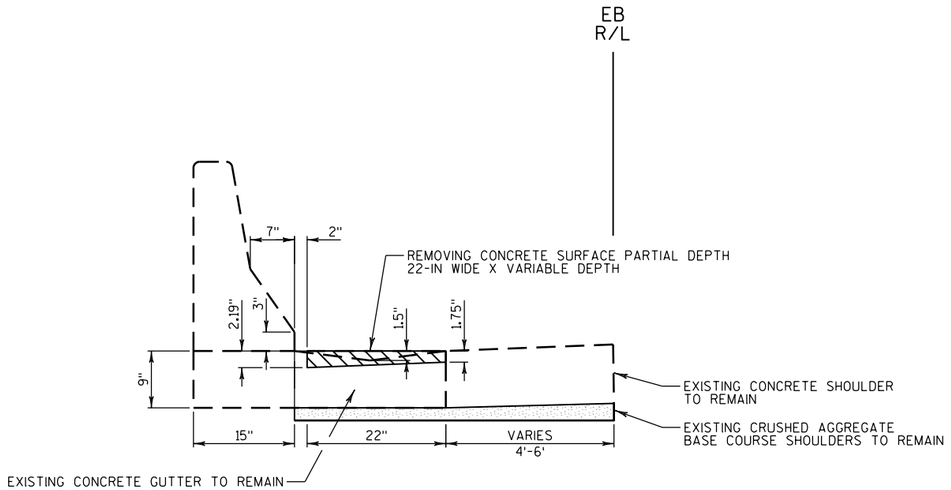
PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	CONSTRUCTION DETAILS	SHEET 9	E

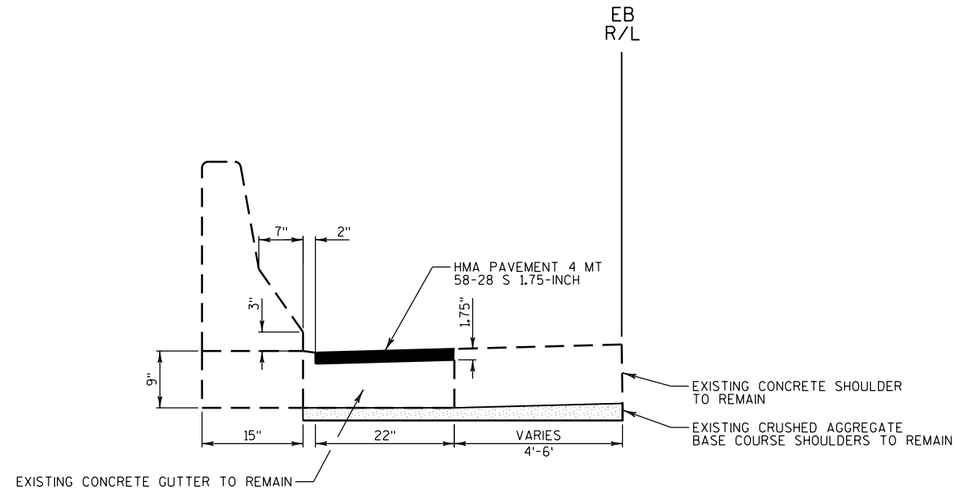




SHOULDER AND GUTTER MILLING AND ASPHALT OVERLAY AT MEDIAN CONCRETE BARRIER SINGLE FACED 32-INCH

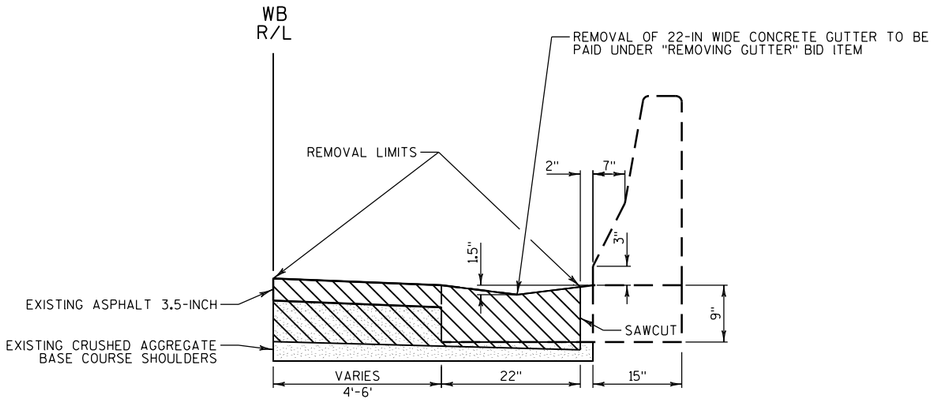
STA. 143EB+40.00 - STA. 145EB+32.18
STA. 143WB+65.00 - STA. 144WB+81.94

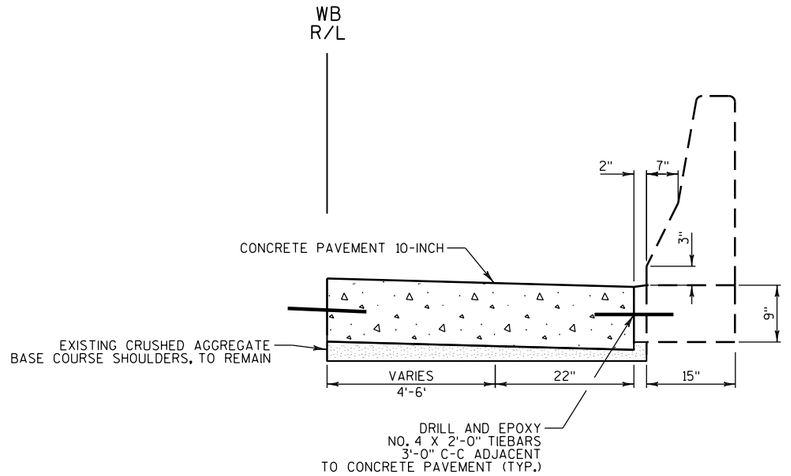




GUTTER MILLING AND ASPHALT OVERLAY AT MEDIAN CONCRETE BARRIER SINGLE FACED 32-INCH

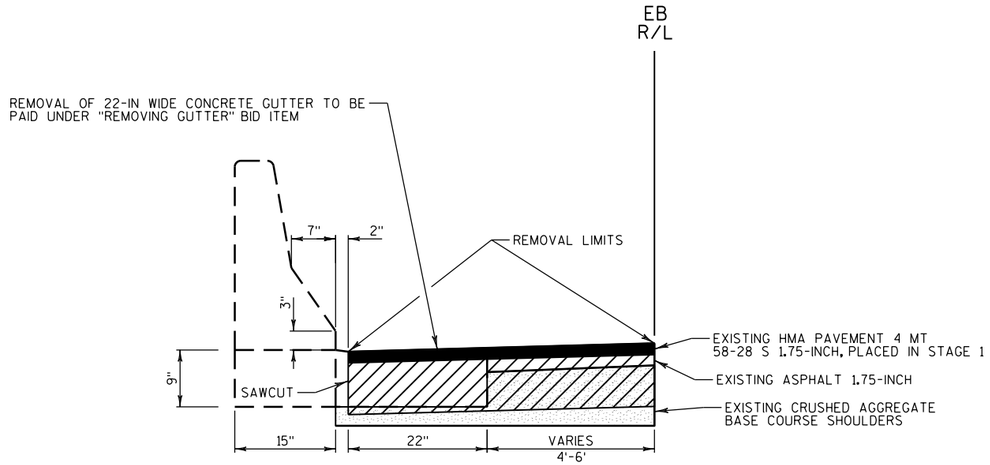
STA. 145EB+32.18 - STA. 145EB+50.91

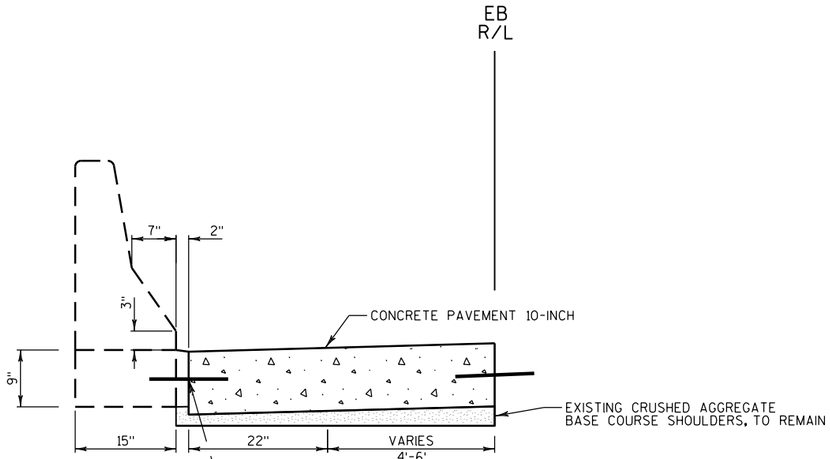




SHOULDER AND GUTTER REMOVAL AND CONCRETE PLACEMENT AT MEDIAN

STA. 144WB+81.94 - STA. 145WB+23.25





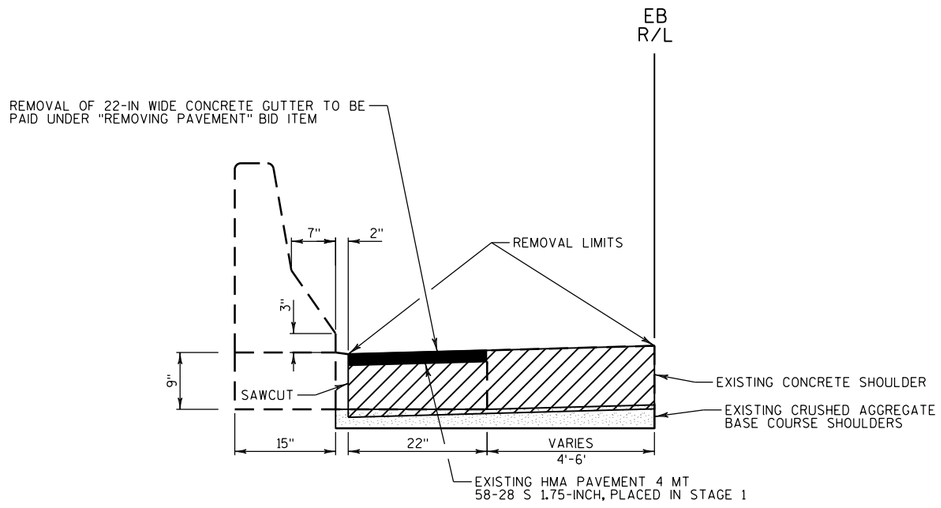
SHOULDER AND GUTTER REMOVAL AND CONCRETE PLACEMENT AT MEDIAN

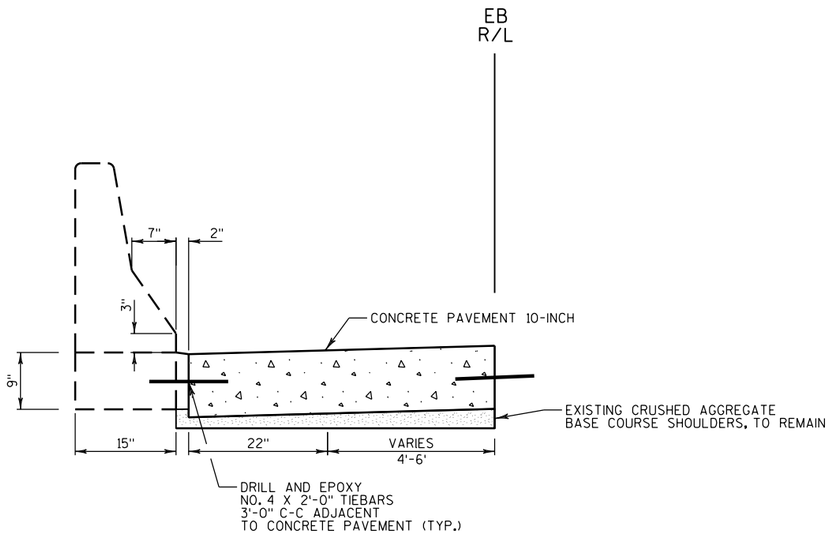
STA. 145EB+20.25 - STA. 145EB+32.18

NOTES

1) CONTRACTOR TO SAWCUT GUTTER AS CLOSE TO FACE OF BARRIER AS POSSIBLE, AS DIRECTED BY THE ENGINEER.

2



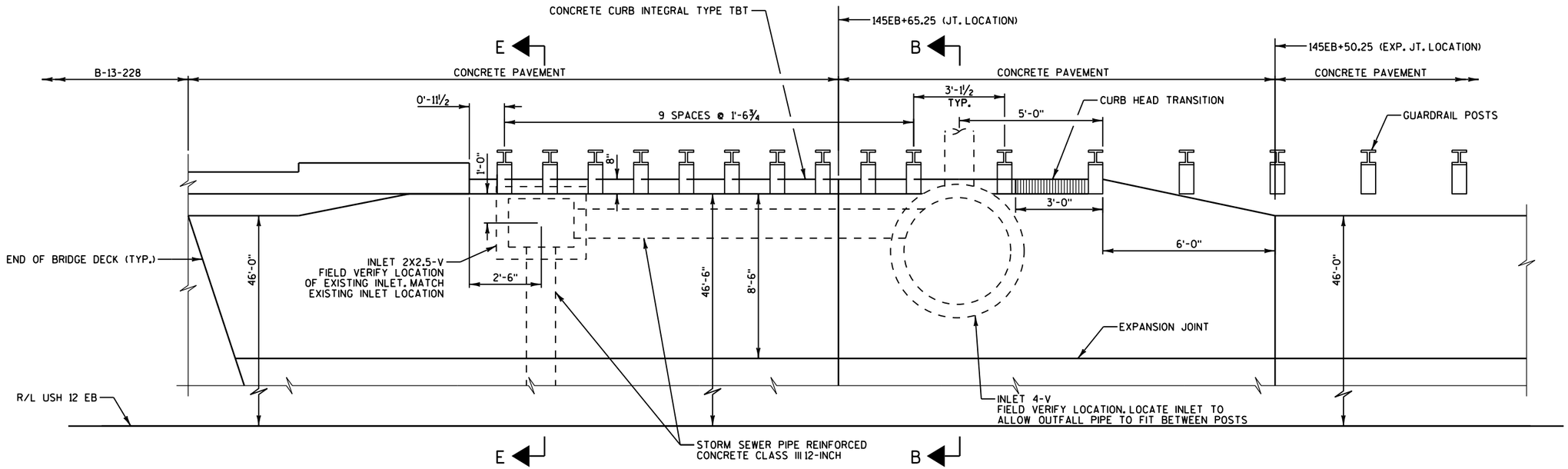


SHOULDER AND GUTTER REMOVAL AND CONCRETE PLACEMENT AT MEDIAN

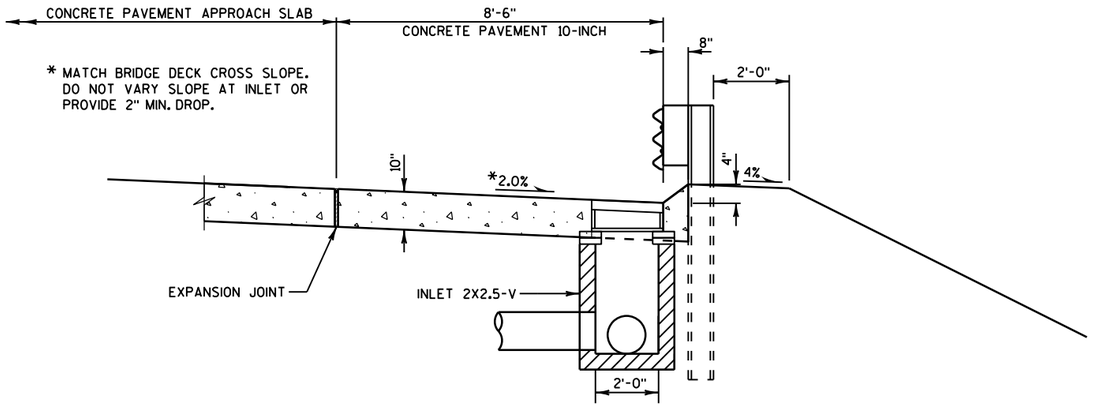
STA. 145EB+32.18 - STA. 145EB+50.91

NOTES

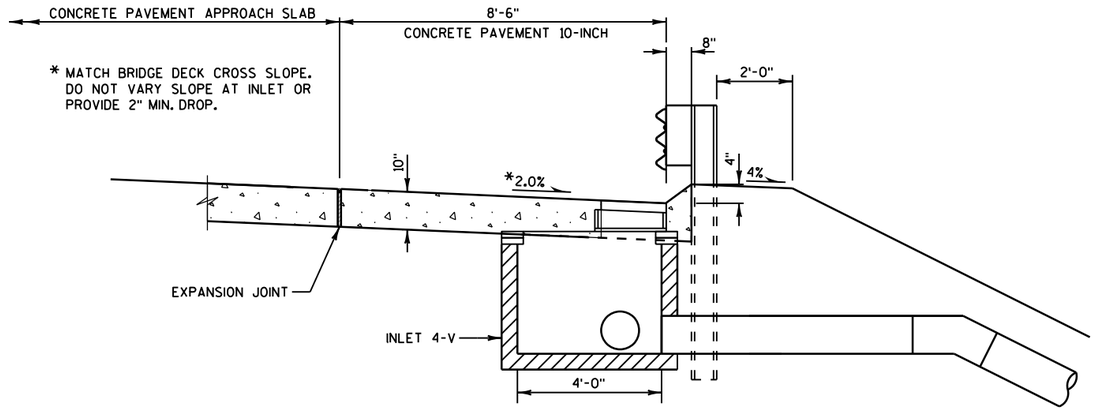
1) CONTRACTOR TO SAWCUT GUTTER AS CLOSE TO FACE OF BARRIER AS POSSIBLE, AS DIRECTED BY THE ENGINEER.



PLAN VIEW AT DROP INLET, USH 12 EB OUTSIDE SHOULDER WITH GUARDRAIL



SECTION E-E



SECTION B-B

GENERAL NOTES

① SEE S.D.D. "CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES" FOR ADDITIONAL NOTES AND DETAILS NOT SHOWN.

② INFORMATION SHOWN ON THIS SHEET SUPERSEDES STANDARD DETAIL DRAWING.

③ CONCRETE SHOWN ON THIS DETAIL TO BE PAID UNDER THE BID ITEMS "CONCRETE PAVEMENT 10-INCH" AND "CONCRETE CURB INTEGRAL TYPE TBT".

2

N

UNIVERSITY AVE

HIGH POINT RD

WB+90

WB+25.40

8'

WB+30

8'

10'

138WB

USH 12/14 WB

140WB

142WB

144WB

146WB

148WB

150WB

152WB

STA 147WB+97.21 - STA 153WB+32.70

R/L USH 12/14 WB

138EB

140EB

142EB

144EB

146EB

148EB

150EB

152EB

EB+40.93

6'

22"

5'

22"

R/L USH 12/14 EB

USH 12/14 EB

STA 143EB+40.00
BEGIN REMOVING CONCRETE SURFACE
PARTIAL DEPTH 22-IN WIDE

STA 145EB+50.91
END REMOVING CONCRETE SURFACE
PARTIAL DEPTH 22-IN WIDE

PHEASANT BRANCH TRAIL

TERRACE AVE

REMOVAL LEGEND

- REMOVING PAVEMENT
- REMOVING ASPHALTIC SURFACE MILLING 2 FT WIDE X 1.75-INCH DEEP TO REMOVE EXISTING RUMBLE STRIP
- REMOVING ASPHALTIC SURFACE MILLING 1.75" DEEP
- REMOVING ASPHALTIC SURFACE (QUANTITY PAID UNDER BID ITEM "EXCAVATION COMMON")
- REMOVING CONCRETE SURFACE PARTIAL DEPTH 22-IN WIDE X VARIABLE DEPTH
- REMOVING INLETS
- —RM— REMOVING STORM SEWER
- REMOVING GUARDRAIL
- XXXX SAWCUT
- REMOVING CONCRETE BARRIER
- REMOVING GUTTER

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	REMOVAL PLAN - STAGE 1	SHEET 14	E

FILE NAME : \\madw00\ingrproj\62247\t1\cds\021101_rm.dgn | PLOT DATE : 4/5/2017 | PLOT BY : ctomsak | PLOT NAME : | PLOT SCALE : 100:1

2

2

N

STA 144WB+81.94 - STA. 145WB+23.25
SAWCUT AND REMOVE 22-IN WIDE CONCRETE GUTTER. REMOVAL OF GUTTER TO BE PAID UNDER "REMOVING GUTTER" BID ITEM

STA 144WB+81.94
END REMOVING CONCRETE SURFACE PARTIAL DEPTH 22-IN WIDE. BEGIN 22-IN WIDE CONCRETE GUTTER REMOVAL

STA 143WB+35.00
BEGIN REMOVING CONCRETE SURFACE PARTIAL DEPTH 22-IN WIDE

UNIVERSITY AVE

HIGH POINT RD

138WB USH 12/14 WB 140WB 142WB 144WB 146WB 148WB 150WB 152WB

R/L USH 12/14 WB

4"

WB+35

22"

138EB 140EB 142EB 144EB 146EB 148EB 150EB 152EB

USH 12/14 EB

EB+09.19

20'

29 LF REMOVING STORM SEWER

81 LF REMOVING STORM SEWER

371 LF REMOVING GUARDRAIL

R/L USH 12/14 EB

STA 148EB+96.72 - STA 151EB+95.00

32 LF REMOVING GUARDRAIL

TERRACE AVE

PHEASANT BRANCH TRAIL

REMOVAL LEGEND

- REMOVING PAVEMENT
- REMOVING ASPHALTIC SURFACE MILLING 2 FT WIDE X 1.75-INCH DEEP TO REMOVE EXISTING RUMBLE STRIP
- REMOVING ASPHALTIC SURFACE MILLING 1.75" DEEP
- REMOVING ASPHALTIC SURFACE (QUANTITY PAID UNDER BID ITEM "EXCAVATION COMMON")
- REMOVING CONCRETE SURFACE PARTIAL DEPTH 22-IN WIDE X VARIABLE DEPTH
- REMOVING INLETS
- RM — REMOVING STORM SEWER
- REMOVING GUARDRAIL
- XXXX SAWCUT
- REMOVING CONCRETE BARRIER
- REMOVING GUTTER

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	REMOVAL PLAN - STAGE 2	SHEET 15	E

FILE NAME : \\madw00\ingrproj\62247\t1\cds\021102_rm.dgn PLOT DATE : 4/5/2017 PLOT BY : ctomsak PLOT NAME : PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

2

2

N

UNIVERSITY AVE

HIGH POINT RD

PHEASANT BRANCH TRAIL

TERRACE AVE

USH 12/14 WB

USH 12/14 EB

138WB 140WB 142WB 144WB 146WB 148WB 150WB 152WB

138EB 140EB 142EB 144EB 146EB 148EB 150EB 152EB

R/L USH 12/14 WB

R/L USH 12/14 EB

10 LF REMOVING CONCRETE BARRIER. SAWCUTS FOR REMOVING CONCRETE BARRIER TO BE PAID UNDER "SAWING CONCRETE" BID ITEM. SAWCUTS TO BE PAID VERTICALLY BY THE LF. DO NOT SAW THROUGH LONGITUDINAL REINFORCING STEEL. SPLICES OF LONGITUDINAL BARS SHALL BE MADE WITH BARS LAPPED AT LEAST 18-IN AND FIRMLY TIED OR FASTENED TOGETHER.

REMOVING INLET

STA 145EB+20.25 - STA 145EB+50.91
SAWCUT AND REMOVE 22-IN WIDE CONCRETE GUTTER.
REMOVAL OF GUTTER STA 145EB+20.25 - STA 145EB+32.18
TO BE PAID UNDER "REMOVING GUTTER" BID ITEM.
REMOVAL OF GUTTER STA 145EB+32.18 - STA 145EB+50.91
TO BE PAID UNDER "REMOVING PAVEMENT" BID ITEM.

81 LF REMOVING STORM SEWER

15 LF REMOVING STORM SEWER

REMOVING INLET

20 LF REMOVING CONCRETE BARRIER. SAWCUTS FOR REMOVING CONCRETE BARRIER TO BE PAID UNDER "SAWING CONCRETE" BID ITEM. SAWCUTS TO BE PAID VERTICALLY BY THE LF. DO NOT SAW THROUGH LONGITUDINAL REINFORCING STEEL. SPLICES OF LONGITUDINAL BARS SHALL BE MADE WITH BARS LAPPED AT LEAST 18-IN AND FIRMLY TIED OR FASTENED TOGETHER.

REMOVAL LEGEND

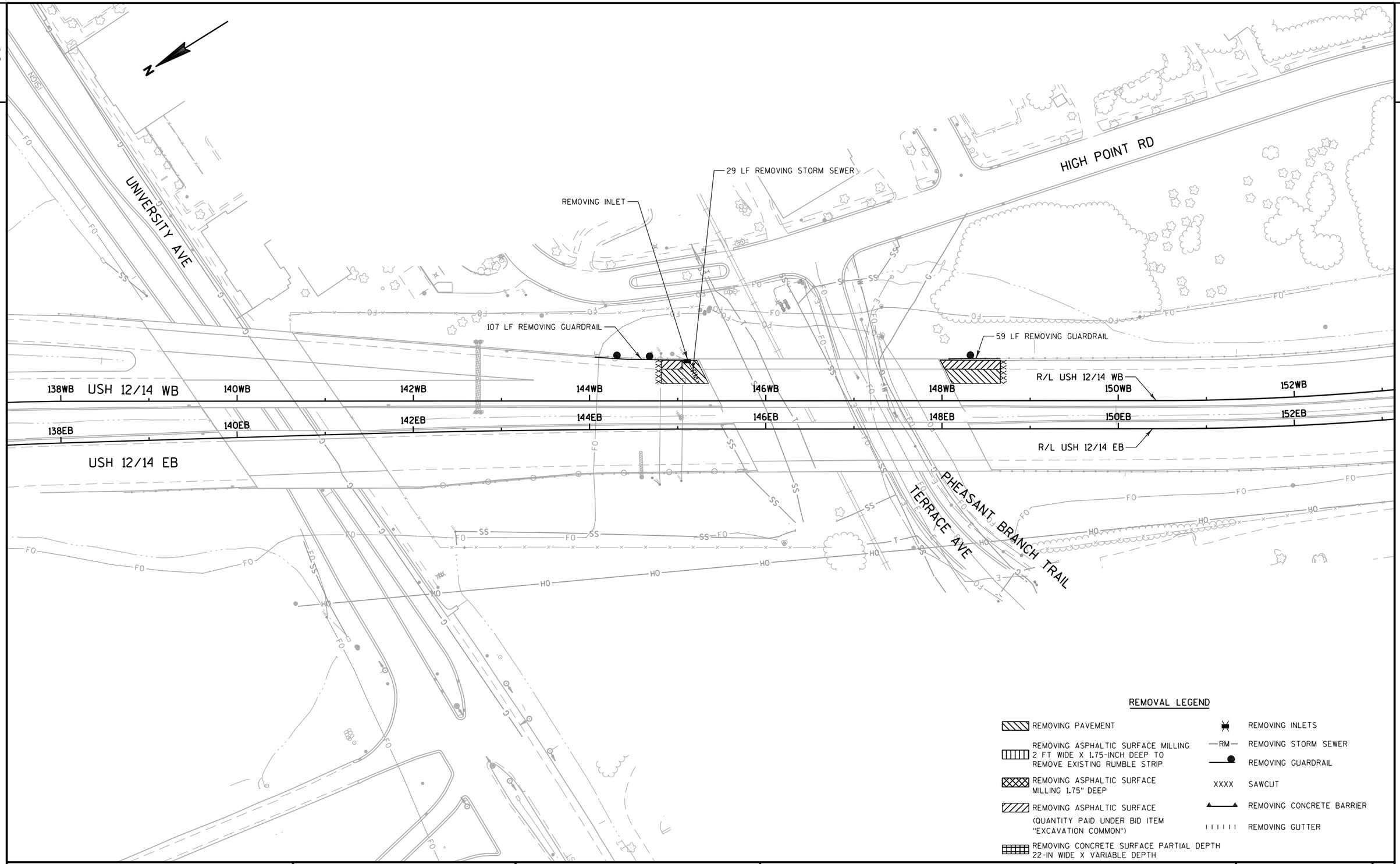
- REMOVING PAVEMENT
- REMOVING ASPHALTIC SURFACE MILLING 2 FT WIDE X 1.75-INCH DEEP TO REMOVE EXISTING RUMBLE STRIP
- REMOVING ASPHALTIC SURFACE MILLING 1.75" DEEP
- REMOVING ASPHALTIC SURFACE (QUANTITY PAID UNDER BID ITEM "EXCAVATION COMMON")
- REMOVING CONCRETE SURFACE PARTIAL DEPTH 22-IN WIDE X VARIABLE DEPTH
- REMOVING INLETS
- —RM— REMOVING STORM SEWER
- REMOVING GUARDRAIL
- XXXX SAWCUT
- REMOVING CONCRETE BARRIER
- REMOVING GUTTER

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	REMOVAL PLAN - STAGE 3	SHEET 16	E

FILE NAME : \\madw00\ingrproj\62247\t1\cds\021103_rm.dgn PLOT DATE : 4/5/2017 PLOT BY : ctomsak PLOT NAME : PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

2



PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	REMOVAL PLAN - STAGE 4	SHEET	E

FILE NAME : \\madw00\ingrproj\62247\t1\cds\021104_rm.dgn PLOT DATE : 4/5/2017 PLOT BY : ctomsak PLOT NAME : PLOT SCALE : 100:1

2

2

RUMBLE STRIP LOCATION TABLE

ASPHALTIC SHOULDER RUMBLE STRIPS	
STA. 137WB+90.00 - STA. 139WB+25.40, LT	STA. 141EB+40.93 - STA. 145EB+20.25, RT/LT
STA. 142WB+35.00 - STA. 144WB+81.94, RT	STA. 142EB+09.19 - STA. 145EB+20.25, RT
STA. 143WB+30.00 - STA. 144WB+81.94, LT	STA. 148EB+96.72 - STA. 166EB+48.09, LT
STA. 148WB+66.29 - STA. 153WB+32.70, LT	STA. 148EB+96.72 - STA. 151EB+95.00, RT
STA. 148WB+66.29 - STA. 166WB+26.22, RT	
CONCRETE SHOULDER RUMBLE STRIPS	
STA. 144WB+81.94 - STA. 144WB+96.94, LT	STA. 145EB+20.25 - STA. 145EB+35.25, LT
STA. 144WB+81.94 - STA. 145WB+26.94, RT	STA. 145EB+20.25 - STA. 145EB+50.25, RT
STA. 148WB+03.14 - STA. 148WB+66.29, LT	STA. 148EB+33.91 - STA. 148EB+96.72, LT
STA. 148WB+21.29 - STA. 148WB+66.29, RT	STA. 148EB+51.72 - STA. 148EB+96.72, RT

BEGIN CONSTRUCTION
STA. 137WB+90.00

AP01
WB+90.00
RS01
WB+25.40

CAUTION

MG&E UNDERGROUND GAS LINE

CENTURYLINK DISCONTINUED UNDERGROUND FIBER OPTIC

HIGH POINT RD

EXISTING STRUCTURE S-13-198 TO REMAIN

AP01
WB+30.00
RS01

USH 12/14 WB
WB+35.00
RS01

138WB 139WB 140WB 141WB 142WB 143WB

R/L USH 12/14 WB
R/L USH 12/14 EB

138EB 139EB 140EB 141EB 142EB 143EB

EB+40.93

DRILL NO. 4 CONTINUOUS BARS LONGITUDINALLY INTO EXISTING CONCRETE MEDIAN BARRIER TO A DEPTH OF 18-INCHES AT LOCATIONS SHOWN ON SDD 14B22. DRILLED BARS TO BE PAID UNDER THE "DRILLED TIE BARS" BID ITEM. SPLICE THE EXISTING LONGITUDINAL BARS AND THE DRILLED LONGITUDINAL BARS AND LAP AT LEAST 18-INCHES. FIRMLY TIE OR FASTEN BARS TOGETHER.

AP01
CB01
RS01
BG12
AP01
BG11
EB+09.19

USH 12/14 EB

MATCHLINE 143EB+50

SLOPE INTERCEPT (TYP.)

WISDOT UNDERGROUND FIBER OPTIC

WISDOT STORM SEWER

UNIVERSITY AVENUE

ATC OVERHEAD HIGH VOLTAGE TRANSMISSION LINE

CAUTION

PLAN DETAILS LEGEND

- (AP01) HMA PAVEMENT 4 MT 58-28 S 1.75-INCH
- (BG11) MGS THRIE BEAM TRANSITION
- (BG12) MGS GUARDRAIL 3
- (BG13) MGS GUARDRAIL 3 HS
- (BG14) MGS GUARDRAIL 3 OS
- (CB01) CONCRETE BARRIER SINGLE-FACED
- (SW01) SAWING ASPHALT
- (RS01) ASPHALTIC SHOULDER RUMBLE STRIPS SEE "RUMBLE STRIP LOCATION TABLE"

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	PLAN DETAILS	SHEET 18	E

FILE NAME : \\madw00\ingrproj\62247\t1\cds\021201_pd.dgn PLOT DATE : 4/5/2017 PLOT BY : ctomsak PLOT NAME : PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

RUMBLE STRIP LOCATION TABLE

ASPHALTIC SHOULDER RUMBLE STRIPS	
STA. 137WB+90.00 - STA. 139WB+25.40, LT	STA. 141EB+40.93 - STA. 145EB+20.25, RT/LT
STA. 142WB+35.00 - STA. 144WB+81.94, RT	STA. 142EB+09.19 - STA. 145EB+20.25, RT
STA. 143WB+30.00 - STA. 144WB+81.94, LT	STA. 148EB+96.72 - STA. 166EB+48.09, LT
STA. 148WB+66.29 - STA. 153WB+32.70, LT	STA. 148EB+96.72 - STA. 151EB+95.00, RT
STA. 148WB+66.29 - STA. 166WB+26.22, RT	

CONCRETE SHOULDER RUMBLE STRIPS	
STA. 144WB+81.94 - STA. 144WB+96.94, LT	STA. 145EB+20.25 - STA. 145EB+35.25, LT
STA. 144WB+81.94 - STA. 145WB+26.94, RT	STA. 145EB+20.25 - STA. 145EB+50.25, RT
STA. 148WB+03.14 - STA. 148WB+66.29, LT	STA. 148EB+33.91 - STA. 148EB+96.72, LT
STA. 148WB+21.29 - STA. 148WB+66.29, RT	STA. 148EB+51.72 - STA. 148EB+96.72, RT

HIGH POINT RD
WSOR RAILROAD
CITY OF MIDDLETON WATER LINE
CITY OF MIDDLETON STORM SEWER
TERRACE AVE
CENTURYLINK DISCONTINUED UNDERGROUND FIBER OPTIC
TDS UNDERGROUND TELEPHONE
MIDDLETON MUNICIPAL WATER UTILITY - STREET LIGHTING
UWHC UNDERGROUND FIBER OPTIC
MUFN UNDERGROUND FIBER OPTIC
WISDOT UNDERGROUND FIBER OPTIC
CAUTION
WB+11.94 (EXP. JT. LOCATION)
DISCONTINUED WISDOT ATR CONDUIT
WB+96.94 (EXP. JT. LOCATION)
WB+81.94 (EXP. JT. LOCATION)
ADJUST BEAMGUARD IN ORDER TO AVOID FIBER OPTIC LINE
ADJUST BEAMGUARD IN ORDER TO AVOID CONDUIT
EXISTING STRUCTURE B-13-14 SEE BRIDGE PLANS
DRILL NO. 4 CONTINUOUS BARS LONGITUDINALLY INTO EXISTING CONCRETE MEDIAN BARRIER TO A DEPTH OF 18-INCHES AT LOCATIONS SHOWN ON SDD 14B22. DRILLED BARS TO BE PAID UNDER THE "DRILLED TIE BARS" BID ITEM. SPLICE THE EXISTING LONGITUDINAL BARS AND THE DRILLED LONGITUDINAL BARS AND LAP AT LEAST 18-INCHES. FIRMLY TIE OR FASTEN BARS TOGETHER.
WB+26.94
WB+36.29 (EXP. JT. LOCATION)
WB+51.29 (EXP. JT. LOCATION)
WB+66.29 (EXP. JT. LOCATION)
WB+21.29
USH 12/14 WB
STAGE 4 CONST. 26.3'
STAGE 2/3 CONST. 25.7'
R/L USH 12/14 WB
144WB
145WB
146WB
147WB
148WB
149WB
MATCHLINE 143EB+50
R/L USH 12/14 EB
144EB
145EB
146EB
147EB
148EB
149EB
WISDOT COMMUNICATIONS
MIDDLETON MUNICIPAL WATER UTILITY - STREET LIGHTING
EB+65.25
BEGIN PROJECT STA. 145EB+20.25
END PROJECT STA. 148EB+96.72
STAGE 3/4 CONST. 26.0'
STAGE 2 CONST. 26.0'
USH 12/14 EB
EB+51.72
STA. 144EB+86 TO STA. 145EB+11
STA. 144EB+32 TO STA. 144EB+86
STA. 144EB+07 TO STA. 144EB+32
ENSURE 46" MINIMUM WIDTH FROM FACE OF GUARDRAIL TO SIGN POLE BASE
EXISTING STRUCTURE S-13-199 TO REMAIN
EB+20.25 (EXP. JT. LOCATION)
EB+35.25 (EXP. JT. LOCATION)
EB+50.25 (EXP. JT. LOCATION)
EB+96.72 (EXP. JT. LOCATION)
EB+81.72 (EXP. JT. LOCATION)
EB+66.72 (EXP. JT. LOCATION)
WISDOT COMMUNICATIONS/MERRIMAC COMMUNICATIONS UNDERGROUND FIBER OPTIC
EXISTING STRUCTURE B-13-228 SEE BRIDGE PLANS
ATC UNDERGROUND ELECTRIC LINE
MG&E UNDERGROUND ELECTRIC LINE
SLOPE INTERCEPT (TYP.)
WISDOT STORM SEWER
CITY OF MIDDLETON STORM SEWER
TDS UNDERGROUND TELEPHONE
CENTURYLINK DISCONTINUED UNDERGROUND FIBER OPTIC
ATC OVERHEAD HIGH VOLTAGE TRANSMISSION LINE
TDS UNDERGROUND FIBER OPTIC
PHEASANT BRANCH TRAIL
MG&E UNDERGROUND GAS LINE

PLAN DETAILS LEGEND

- CP10 — CONCRETE PAVEMENT 10-INCH, (DOWELED AND TINED)
- AP01 — HMA PAVEMENT 4 MT 58-28 S 1.75-INCH
- BG11 — MGS THRIE BEAM TRANSITION
- BG12 — MGS GUARDRAIL 3
- BG13 — MGS GUARDRAIL 3 HS
- BG14 — MGS GUARDRAIL 3 OS
- CB01 — CONCRETE BARRIER SINGLE-FACED
- CCI — CONCRETE CURB INTEGRAL TYPE TBT
- PV01 — CONCRETE PAVEMENT APPROACH SLAB
- SW01 — SAWING ASPHALT
- SW02 — SAWING CONCRETE
- RS01 — ASPHALTIC SHOULDER RUMBLE STRIPS SEE "RUMBLE STRIP LOCATION TABLE"
- RS02 — CONCRETE SHOULDER RUMBLE STRIPS SEE "RUMBLE STRIP LOCATION TABLE"

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	PLAN DETAILS	SHEET 19	E

2

2

HIGH POINT RD

TERRACE AVE

STRUCTURE B-13-14

R/L USH 12/14 WB

USH 12/14 WB

144WB 145WB 146WB 147WB 148WB 149WB

956.13 956.57 957.13
956.38 956.82 957.24
956.63 957.03 957.45
956.79 957.16 957.63
956.62 957.03 957.44
956.61 956.99 957.29

2.5% 2.1% 1.3% 1.4% 0.2%

962.92 963.01 963.14
963.07 963.20 963.33
963.19 963.33 963.46
963.37 963.50 963.63
963.26 963.39 963.52
963.12 963.31 963.44

1.9% 1.1% 1.4% 0.9% 1.4%

144EB 145EB 146EB 147EB 148EB 149EB

R/L USH 12/14 EB

USH 12/14 EB

956.52 956.86 957.29
956.68 957.02 957.36
956.86 957.23 957.50
956.60 957.02 957.27
956.33 956.72 956.99
956.15 956.50 956.82

1.4% 2.7% 2.0% 2.0% 2.2%

960.33 960.49 960.53
960.41 960.48 960.55
960.54 960.55 960.66
960.41 960.43 960.54
960.21 960.29 960.43
959.93 960.07 960.18

0.9% 1.0% 1.0% 2.4%

STRUCTURE B-13-228

WSOR RAILROAD

PHEASANT BRANCH TRAIL

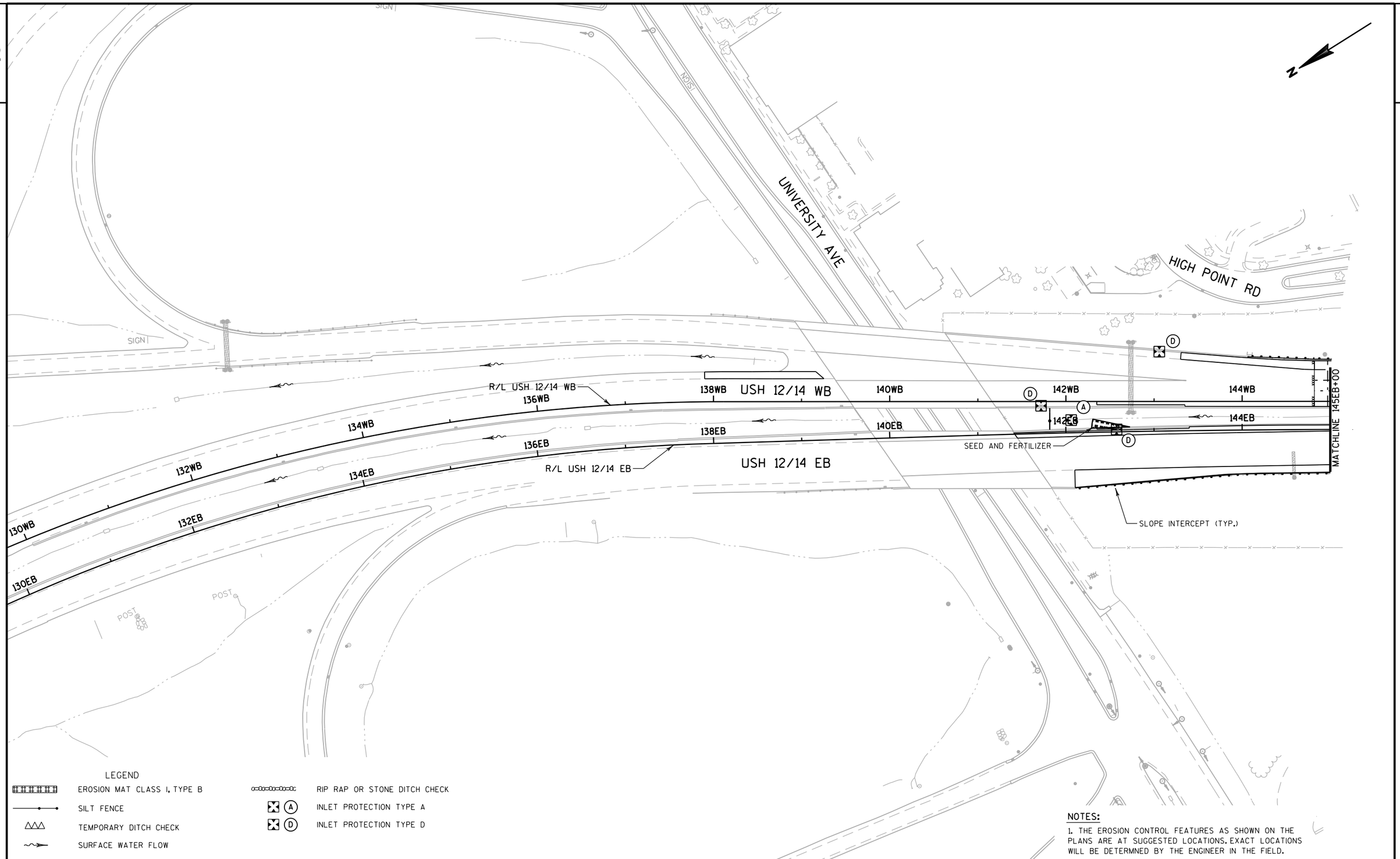
NOTES:

1. PAVING GRADES SHOWN ARE BASED ON PROPOSED PROFILES AND SURVEYED EXISTING PAVEMENT CROSS SLOPES.

2. CONTRACTOR TO SURVEY EXISTING ROADWAY AND SHOULDER ELEVATIONS BEFORE REMOVAL AT PROPOSED CONCRETE PAVEMENT AND APPROACH SLAB LOCATIONS. CONTRACTOR TO SURVEY BRIDGE DECK ELEVATIONS AFTER NEW DECK ELEVATIONS ARE ESTABLISHED. CONTRACTOR TO SET PROPOSED PAVEMENT CROSS SLOPES TO MATCH EXISTING PAVEMENT CROSS SLOPES. CONTRACTOR TO PROVIDE SURVEY DATA TO THE ENGINEER. THE ENGINEER WILL SET THE FINAL ROADWAY PROFILES BASED ON FIELD CONDITIONS. SURVEY OF EXISTING PAVEMENT AND PROPOSED BRIDGE DECKS IS INCIDENTAL TO "CONSTRUCTION STAKING CONCRETE PAVEMENT" BID ITEM.

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	PAVING GRADES	SHEET 20	E

2



LEGEND

- EROSION MAT CLASS I, TYPE B
- SILT FENCE
- TEMPORARY DITCH CHECK
- SURFACE WATER FLOW
- RIP RAP OR STONE DITCH CHECK
- (A) INLET PROTECTION TYPE A
- (D) INLET PROTECTION TYPE D

NOTES:

1. THE EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMNED BY THE ENGINEER IN THE FIELD.

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	EROSION CONTROL	SHEET	E

FILE NAME : \\madw00\ingrproj\62247\t1\cds\022001_ec.dgn PLOT DATE : 4/5/2017 PLOT BY : ctomsak PLOT NAME : PLOT SCALE : 100:1

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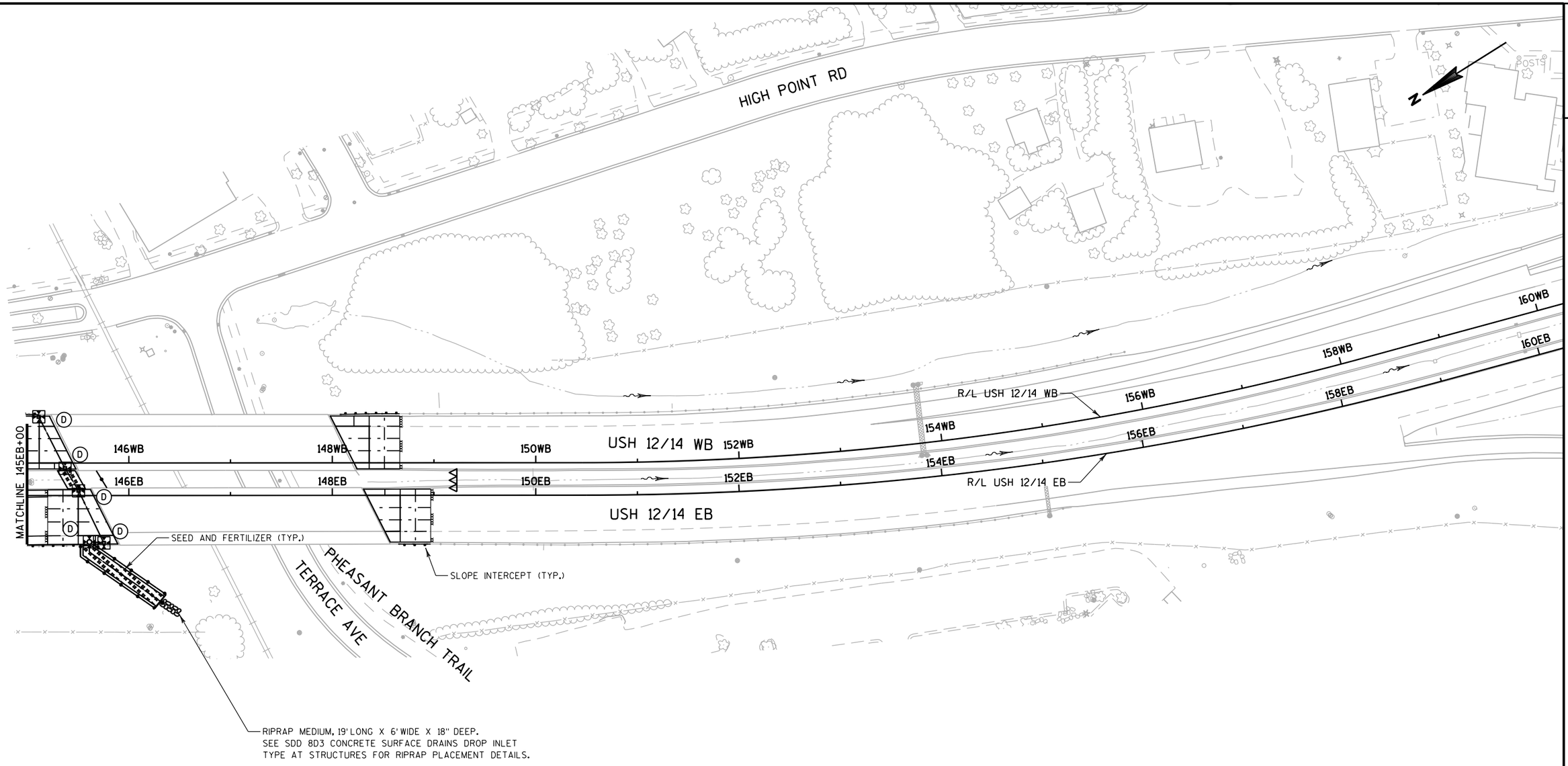


LEGEND

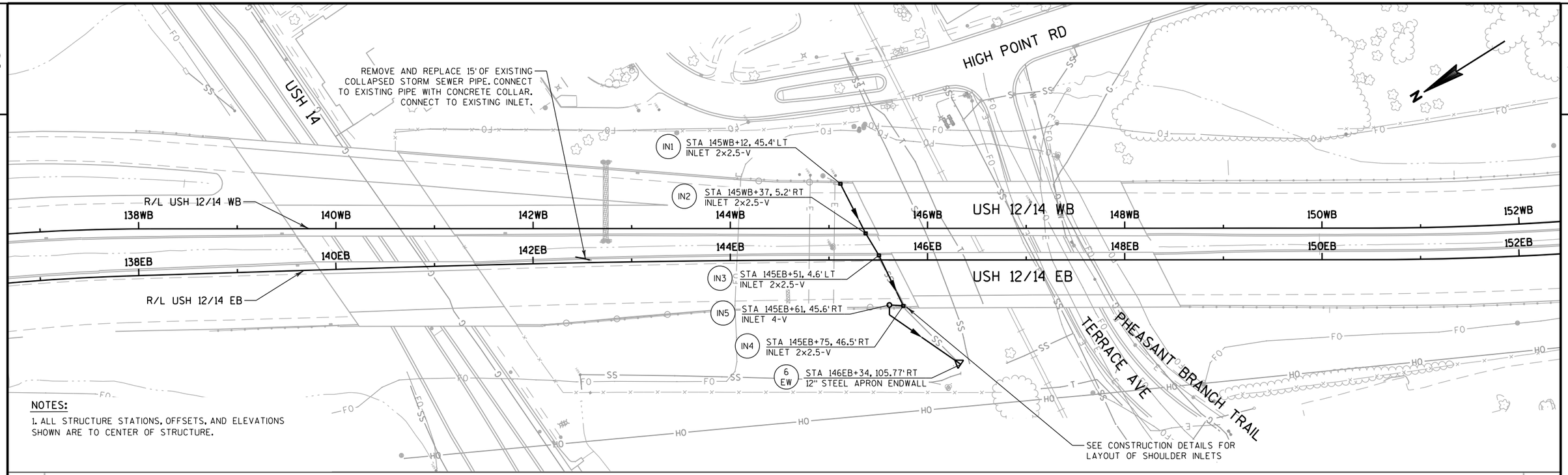
- EROSION MAT CLASS I, TYPE B
- SILT FENCE
- TEMPORARY DITCH CHECK
- SURFACE WATER FLOW
- RIP RAP OR STONE DITCH CHECK
- (A) INLET PROTECTION TYPE A
- (D) INLET PROTECTION TYPE D

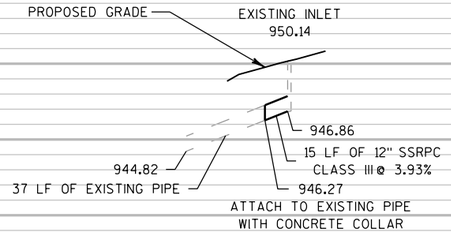
NOTES:

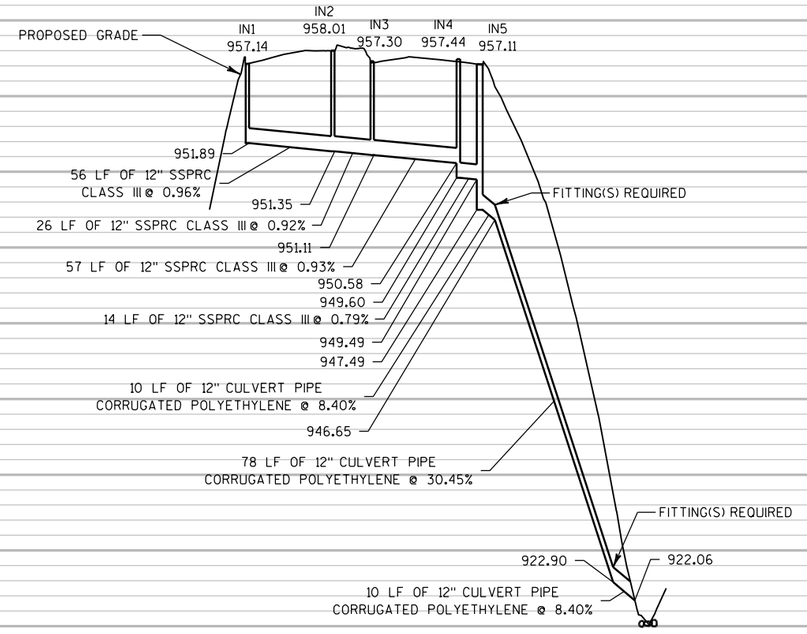
1. THE EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMNED BY THE ENGINEER IN THE FIELD.

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	EROSION CONTROL	SHEET 22	E

2



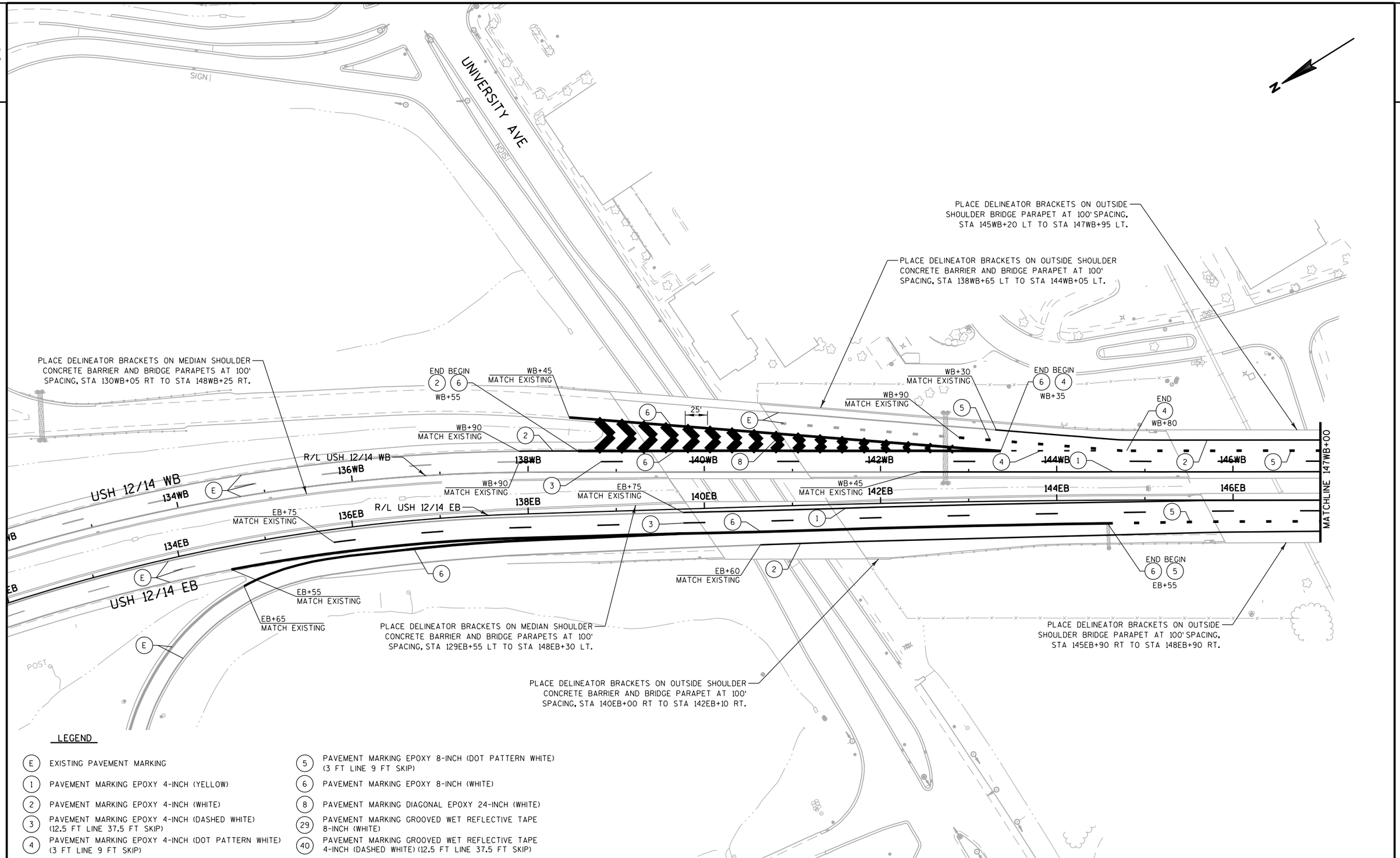




960 955 950 945 940 935 930 925 920 915

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	STORM SEWER	SHEET 23	E

2

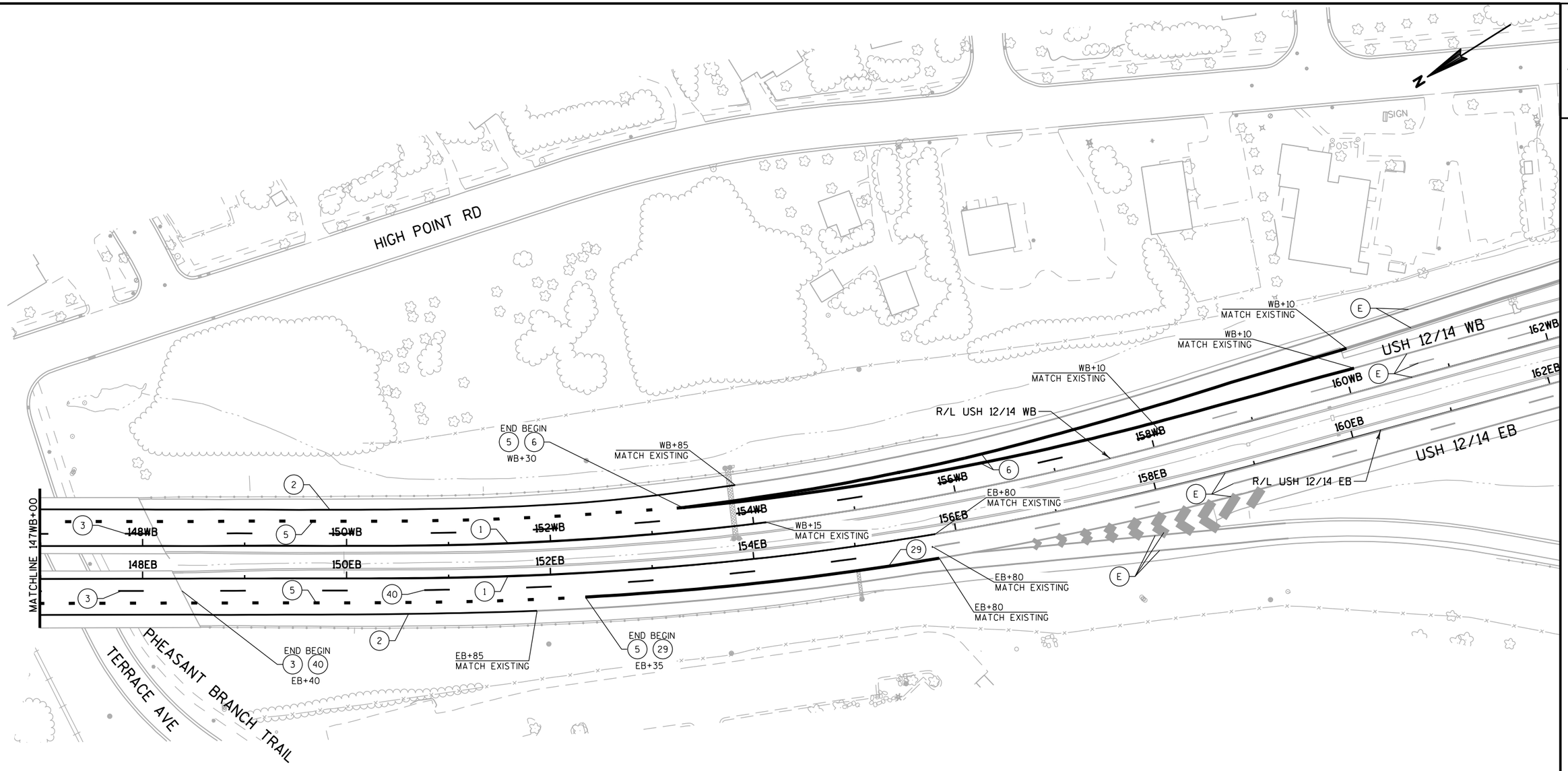


LEGEND

E	EXISTING PAVEMENT MARKING	5	PAVEMENT MARKING EPOXY 8-INCH (DOT PATTERN WHITE) (3 FT LINE 9 FT SKIP)
1	PAVEMENT MARKING EPOXY 4-INCH (YELLOW)	6	PAVEMENT MARKING EPOXY 8-INCH (WHITE)
2	PAVEMENT MARKING EPOXY 4-INCH (WHITE)	8	PAVEMENT MARKING DIAGONAL EPOXY 24-INCH (WHITE)
3	PAVEMENT MARKING EPOXY 4-INCH (DASHED WHITE) (12.5 FT LINE 37.5 FT SKIP)	29	PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 8-INCH (WHITE)
4	PAVEMENT MARKING EPOXY 4-INCH (DOT PATTERN WHITE) (3 FT LINE 9 FT SKIP)	40	PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 4-INCH (DASHED WHITE) (12.5 FT LINE 37.5 FT SKIP)

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	PAVEMENT MARKINGS	SHEET 24	E

2



LEGEND

(E)	EXISTING PAVEMENT MARKING	(5)	PAVEMENT MARKING EPOXY 8-INCH (DOT PATTERN WHITE) (3 FT LINE 9 FT SKIP)
(1)	PAVEMENT MARKING EPOXY 4-INCH (YELLOW)	(6)	PAVEMENT MARKING EPOXY 8-INCH (WHITE)
(2)	PAVEMENT MARKING EPOXY 4-INCH (WHITE)	(8)	PAVEMENT MARKING DIAGONAL EPOXY 24-INCH (WHITE)
(3)	PAVEMENT MARKING EPOXY 4-INCH (DASHED WHITE) (12.5 FT LINE 37.5 FT SKIP)	(29)	PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 8-INCH (WHITE)
(4)	PAVEMENT MARKING EPOXY 4-INCH (DOT PATTERN WHITE) (3 FT LINE 9 FT SKIP)	(40)	PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 4-INCH (DASHED WHITE) (12.5 FT LINE 37.5 FT SKIP)

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	PAVEMENT MARKINGS	SHEET 25	E

GENERAL NOTES FOR TRAFFIC CONTROL

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

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

3. FOR NIGHTTIME OPERATION, ALL DRUMS IN TAPERS SHALL HAVE A TYPE C STEADY BURN WARNING LIGHT.

4. ALL TYPE III BARRICADES SHALL BE 8' WIDE, UNLESS OTHERWISE NOTED, AND EQUIPPED WITH TWO TYPE A (LOW INTENSITY FLASHING) LIGHTS.

5. WORK AREAS SHOWN MAY NOT ILLUSTRATE ALL REMOVALS. SEE REMOVAL SHEETS FOR ADDITIONAL INFORMATION.

6. PAVEMENT MARKING THAT IS SHOWN SHADED ON TRAFFIC CONTROL PLANS ARE THERE FOR REFERENCE ONLY. PAVEMENT MARKING SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

7. ALL PAVEMENT MARKING STATIONING IN TRAFFIC CONTROL PLANS HAVE THE PREFIX OF THE ALIGNMENT THAT IT IS MEASURED OFF OF, IN THE STATION CALLOUT.

8. FOR ALL CONCRETE BARRIER TEMPORARY PRECAST, THERE WILL BE DELINEATORS ATTACHED PER STANDARD DETAIL DRAWING CONCRETE BARRIER TEMPORARY PRECAST 12'-6". PLACE REFLECTORS OF THE APPROPRIATE COLOR ON BOTH SIDES OF THE DELINEATOR.

9. SEE S.D.D. 15D12 "TRAFFIC CONTROL, LANE CLOSURE", S.D.D. 15D14 “TRAFFIC CONTROL, TWO LANE CLOSURE ON FREEWAY OR EXPRESSWAY, SHORT-TERM (LESS THAN 24 HOURS)” AND S.D.D. 15D27 "TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 M.P.H." FOR SHOULDER AND LANE CLOSURE DETAILS FOR STAGE 1 AND STAGE 5 CONSTRUCTION.

10. NUMBER, LOCATION, AND SPACING OF TRAFFIC CONTROL DEVICES AND SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

11. SIGNS IN CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE COVERED AS DIRECTED BY THE ENGINEER AND PAID FOR UNDER THE ITEM "TRAFFIC CONTROL COVERING SIGNS TYPE 1 OR TYPE 2."

12. EXISTING LANE WIDTHS ARE BASED ON AS-BUILT DATA AND MAY VARY IN THE FIELD. VERIFY WIDTHS PRIOR TO SETTING TRAFFIC CONTROL TO ENSURE PROPER LANE WIDTHS ARE ACHIEVED.

13. TURNING TRAFFIC CONTROL DEVICES WHEN NOT IN USE TO OBSCURE THE MESSAGE IS NOT ALLOWED.

14. TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

15. SHOULDERS MAY BE CLOSED IF REQUIRED BY WORK OPERATIONS, BUT THE RIGHT AND LEFT SHOULDER MAY NOT BE CLOSED IN THE SAME AREA AT THE SAME TIME. ALL SHOULDER CLOSURES MUST PROVIDE TRAFFIC CONTROL DEVICES PER THE “TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 M.P.H.” SDD.

STAGE 1

TRAFFIC
ALL WORK TO BE PERFORMED DURING NIGHTTIME SINGLE LANE CLOSURES (7PM – 6AM ALL NIGHTS). WORK IS NOT ALLOWED DURING DAYTIME HOURS (6AM – 7PM ALL DAYS). 2-LANES OF TRAFFIC IN EB DIRECTION ON EXISTING MIDDLE AND OUTSIDE LANE. 1-LANE OF TRAFFIC IN WB DIRECTION ON EXISTING INSIDE LANE. WB ON-RAMP AT GREENWAY BOULEVARD UNDER NIGHTTIME CLOSURE (7PM-6AM ALL NIGHTS) ONLY WHEN NECESSARY TO PERFORM USH 12 WB OUTSIDE SHOULDER WORK. NIGHTTIME CLOSURES ALLOWED ONLY FOR REMOVING EXISTING PAVEMENT MARKINGS, INSTALLING TEMPORARY PAVEMENT MARKINGS, REMOVING RUMBLE STRIPS, MILLING AND PAVING ASPHALT SHOULDERS, AND INSTALLING TRAFFIC CONTROL DEVICES FOR THE FOLLOWING STAGE, AS DIRECTED BY THE ENGINEER.

- SEE “TRAFFIC CONTROL PLAN: STAGE 1”

CONSTRUCTION AND WORK
1. MILL EXISTING EB INSIDE SHOULDER ASPHALT 1.75-INCH AND PAVE 1.75-INCH HMA PAVEMENT. REMOVE EB MEDIAN CONCRETE GUTTER PARTIAL DEPTH AND PAVE 1.75-INCH ASPHALT PAVEMENT. MILL EXISTING WB OUTSIDE SHOULDER ASPHALT 1.75-INCH AND PAVE 1.75-INCH HMA PAVEMENT. MILL EXISTING WB OUTSIDE SHOULDER ASPHALT RUMBLE STRIP 1.75-INCH AND REPLACE WITH 1.75-INCH HMA PAVEMENT (2-FT. WIDE).

STAGE 2

TRAFFIC
2-LANES OF TRAFFIC IN EB DIRECTION ON EXISTING MEDIAN SHOULDER AND MEDIAN LANE. 2-LANES OF TRAFFIC IN WB DIRECTION ON EXISTING OUTSIDE SHOULDER AND OUTSIDE LANE. EB ON-RAMP AT UNIVERSITY AVENUE, WB ON-RAMP AT GREENWAY BOULEVARD, AND TERRACE AVENUE ARE UNDER FULL CLOSURES. PHEASANT BRANCH TRAIL ADJACENT TO TERRACE AVENUE TO BE CLOSED AS NOTED IN THE SPECIAL PROVISIONS.

- SEE “TRAFFIC CONTROL PLAN: STAGE 2”

CONSTRUCTION AND WORK
1. PERFORM ALL STAGE 2 ROADWAY AND STRUCTURE WORK AS DETAILED IN THE PLANS INCLUDING CONCRETE REMOVAL AND REPLACEMENT, STORM SEWER AND INLET REMOVAL AND REPLACEMENT, BEAMGUARD REMOVAL AND REPLACEMENT, DECK REMOVAL AND REPLACEMENT, DECK OVERLAY, EXPANSION JOINT REPLACEMENT, AND WINGWALL REPLACEMENT.
2. MILL EXISTING EB OUTSIDE SHOULDER ASPHALT 1.75-INCH AND PAVE 1.75-INCH HMA PAVEMENT. MILL EXISTING EB OUTSIDE SHOULDER ASPHALT RUMBLE STRIP 1.75-INCH AND REPLACE WITH 1.75-INCH HMA PAVEMENT (2-FT. WIDE). MILL EXISTING WB INSIDE SHOULDER ASPHALT 1.75-INCH AND PAVE 1.75-INCH HMA PAVEMENT. REMOVE WB MEDIAN CONCRETE GUTTER PARTIAL DEPTH AND PAVE 1.75-INCH ASPHALT PAVEMENT.

STAGE 3

TRAFFIC
2-LANES OF TRAFFIC IN EB DIRECTION ON EXISTING OUTSIDE SHOULDER AND OUTSIDE LANE. 2-LANES OF TRAFFIC IN WB DIRECTION ON EXISTING OUTSIDE SHOULDER AND OUTSIDE LANE. EB ON-RAMP AT UNIVERSITY AVENUE, WB ON-RAMP AT GREENWAY BOULEVARD, AND TERRACE AVENUE ARE UNDER FULL CLOSURES. PHEASANT BRANCH TRAIL ADJACENT TO TERRACE AVENUE TO BE CLOSED AS NOTED IN THE SPECIAL PROVISIONS.

- SEE “TRAFFIC CONTROL PLAN: STAGE 3”.

CONSTRUCTION AND WORK
1. PERFORM ALL STAGE 3 ROADWAY AND STRUCTURE WORK AS DETAILED IN THE PLANS INCLUDING CONCRETE REMOVAL AND REPLACEMENT, CONCRETE BARRIER REMOVAL AND REPLACEMENT, STORM SEWER AND INLET REMOVAL AND REPLACEMENT, BEAMGUARD REMOVAL AND REPLACEMENT, DECK

STAGE 4

TRAFFIC
2-LANES OF TRAFFIC IN EB DIRECTION ON EXISTING OUTSIDE SHOULDER AND OUTSIDE LANE. 2-LANES OF TRAFFIC IN WB DIRECTION ON EXISTING MEDIAN SHOULDER AND MEDIAN LANE. EB ON-RAMP AT UNIVERSITY AVENUE, WB ON-RAMP AT GREENWAY BOULEVARD, AND TERRACE AVENUE ARE UNDER FULL CLOSURES. PHEASANT BRANCH TRAIL ADJACENT TO TERRACE AVENUE TO BE CLOSED AS NOTED IN THE SPECIAL PROVISIONS.

- SEE “TRAFFIC CONTROL PLAN: STAGE 4”.

CONSTRUCTION AND WORK
1. PERFORM ALL STAGE 4 ROADWAY AND STRUCTURE WORK AS DETAILED IN THE PLANS INCLUDING CONCRETE REMOVAL AND REPLACEMENT, CONCRETE BARRIER REMOVAL AND REPLACEMENT, STORM SEWER AND INLET REMOVAL AND REPLACEMENT, BEAMGUARD REMOVAL AND REPLACEMENT, DECK REMOVAL AND REPLACEMENT, DECK OVERLAY, AND EXPANSION JOINT REPLACEMENT.

STAGE 5

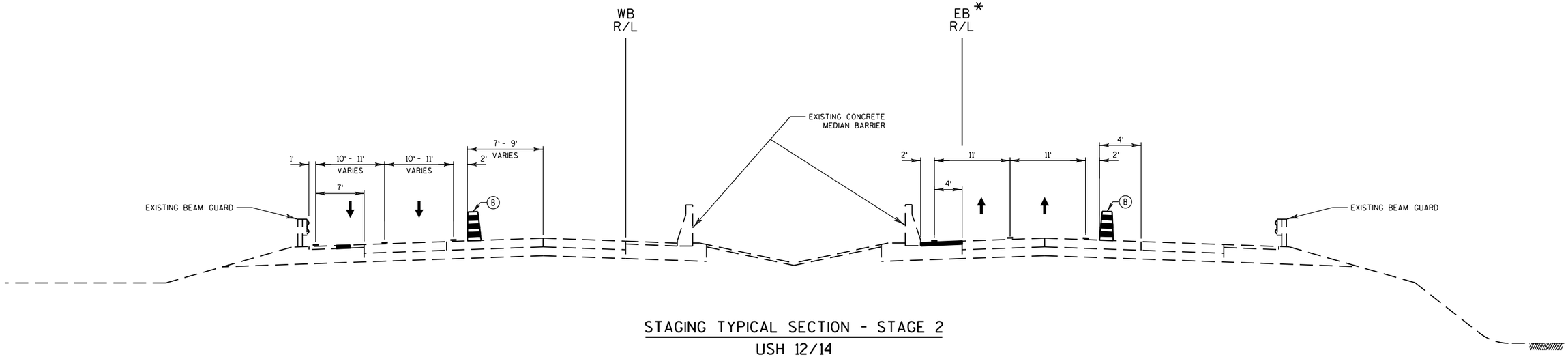
TRAFFIC
2-LANES OF TRAFFIC IN EB DIRECTION ON EXISTING MIDDLE AND OUTSIDE AUXILIARY LANE OR MIDDLE AND INSIDE LANE, DEPENDING ON WHICH SHOULDER IS UNDER CONSTRUCTION. 1-LANE OF TRAFFIC IN EB DIRECTION ON EXISTING OUTSIDE LANE SOUTH OF OFF-RAMP TO GREENWAY BOULEVARD. 2-LANES OF TRAFFIC IN WB DIRECTION ON EXISTING OUTSIDE SHOULDER AND OUTSIDE AUXILIARY LANE. 1-LANE OF TRAFFIC IN WB DIRECTION ON EXISTING OUTSIDE LANE SOUTH OF ON-RAMP FROM GREENWAY BOULEVARD. USH 12 EB ON-RAMP FROM UNIVERSITY AVENUE AND USH 12 WB ONRAMP FROM GREENWAY BOULEVARD MAY NOT BE CHANGED TO A YIELD CONDITION DURING NIGHTTIME MAINLINE SINGLE LANE CLOSURES. SINGLE LANE CLOSURE ONLY ALLOWED DURING NIGHT TIME WORK HOURS (7PM – 6AM ALL NIGHTS) FOR MILLING RUMBLE STRIPS AND INSTALLING PERMANENT PAVEMENT MARKINGS, AS DIRECTED BY THE ENGINEER.

- USE S.D.D. 15D12 “TRAFFIC CONTROL, LANE CLOSURE”
- USE S.D.D. 15D27 “TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED HIGHWAY, SPEEDS GREATER THAN 40 M.P.H.”

CONSTRUCTION AND WORK
1. REMOVE TEMPORARY PAVEMENT MARKINGS THE NIGHT TRAFFIC IS SWITCHED TO STAGE 5. PLACE PERMANENT PAVEMENT MARKING LANE LINES ON THE SAME NIGHT AS DIRECTED BY THE ENGINEER.
2. MILL EB MEDIAN AND OUTSIDE ASPHALT AND CONCRETE SHOULDER RUMBLE STRIPS. MILL WB MEDIAN ASPHALT AND CONCRETE SHOULDER RUMBLE STRIPS.
3. INSTALL PERMANENT PAVEMENT MARKING EDGELINES AS DIRECTED BY THE ENGINEER.
4. REMOVE FASTENING DEVICE FROM SECURED DROP INLET STRUCTURE COVERS.
5. APPLY PROTECTIVE SURFACE TREATMENT UNDER NIGHTTIME TWO-LANE CLOSURES. DATES FOR CONSTRUCTION TO BE APPROVED BY THE ENGINEER.

2

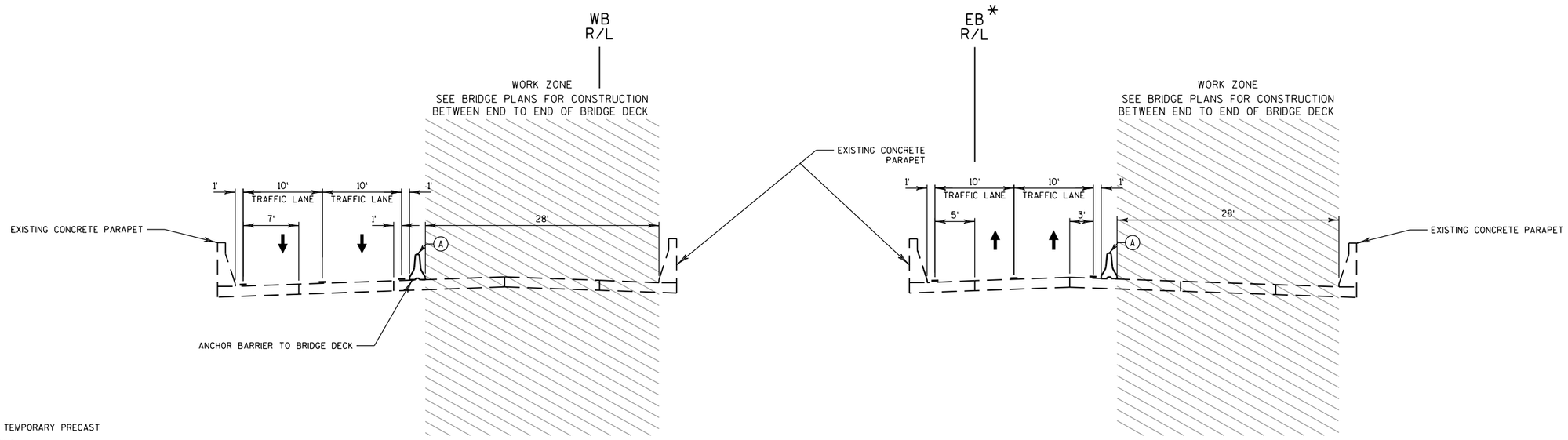
2



STAGING TYPICAL SECTION - STAGE 2

USH 12/14

STA. 141EB+25 - STA. 143EB+55
STA. 151WB+25 - STA. 152WB+35



LEGEND

- (A) CONCRETE BARRIER TEMPORARY PRECAST
- (B) DRUMS AT 50' SPACING
- ⬆ TRAFFIC FLOW

STAGING TYPICAL SECTION - STAGE 2

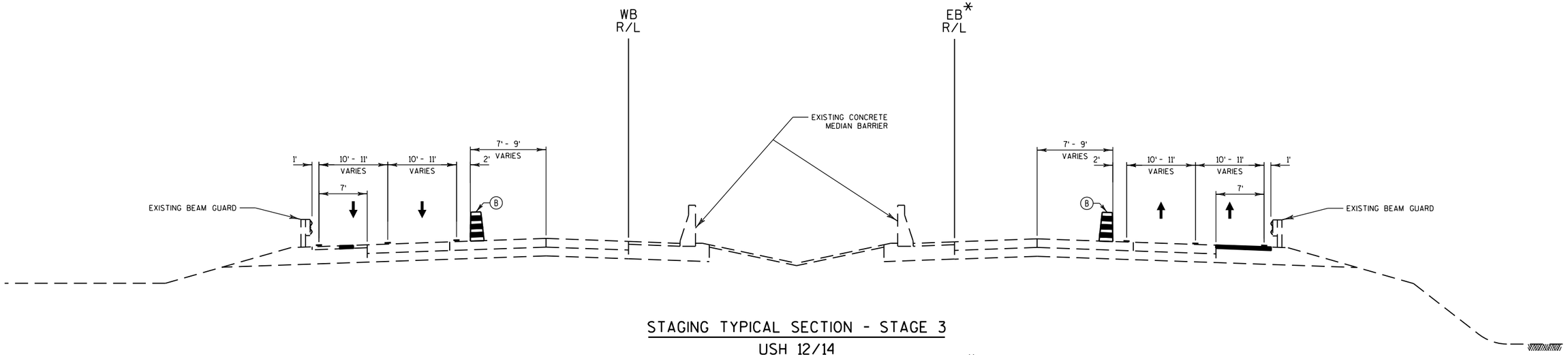
USH 12/14

STA. 145EB+20 - STA. 150EB+05
STA. 144WB+25 - STA. 151WB+25
LOOKING SOUTH

*EB R/L DOES NOT FOLLOW EDGE OF PAVEMENT, STA. 139EB+75 TO STA. 145EB+65.25. ENSURE LANE WIDTHS ARE LAID OUT ACCURATELY PER THE TRAFFIC CONTROL PLANS.

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TYPICAL SECTIONS: TRAFFIC CONTROL, STAGE 2	SHEET 27	E

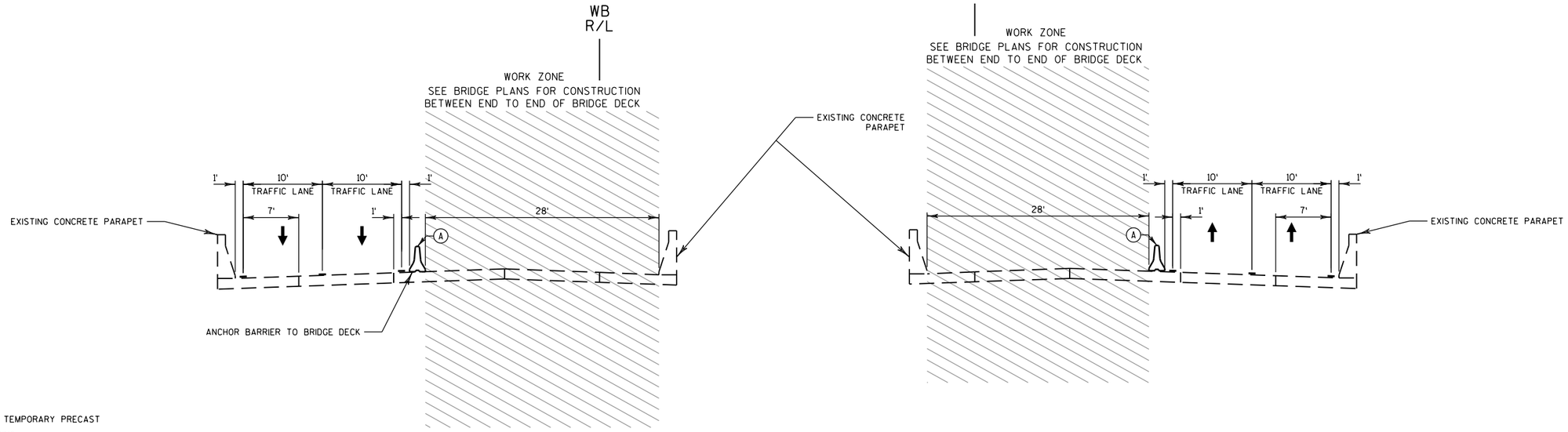
2



STAGING TYPICAL SECTION - STAGE 3

USH 12/14

STA. 141EB+55 - STA. 142EB+65
STA. 151WB+25 - STA. 152WB+35



LEGEND

- (A) CONCRETE BARRIER TEMPORARY PRECAST
- (B) DRUMS AT 50' SPACING
- ↑ TRAFFIC FLOW

STAGING TYPICAL SECTION - STAGE 3

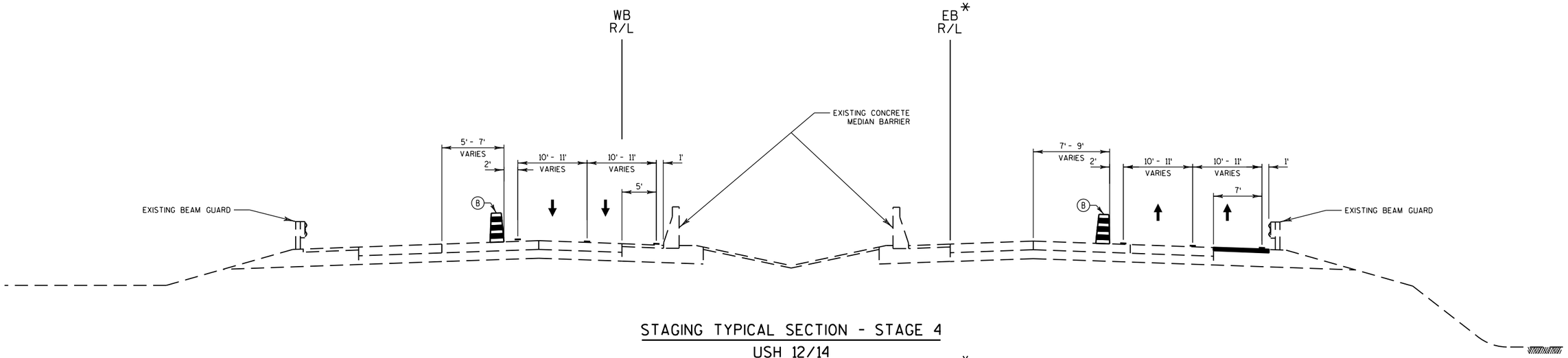
USH 12/14

STA. 142EB+65 - STA. 150EB+05
STA. 144WB+25 - STA. 151WB+25
LOOKING SOUTH

*EB R/L DOES NOT FOLLOW EDGE OF PAVEMENT, STA. 139EB+75 TO STA. 145EB+65.25. ENSURE LANE WIDTHS ARE LAID OUT ACCURATELY PER THE TRAFFIC CONTROL PLANS.

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TYPICAL SECTIONS: TRAFFIC CONTROL, STAGE 3	SHEET 28	E

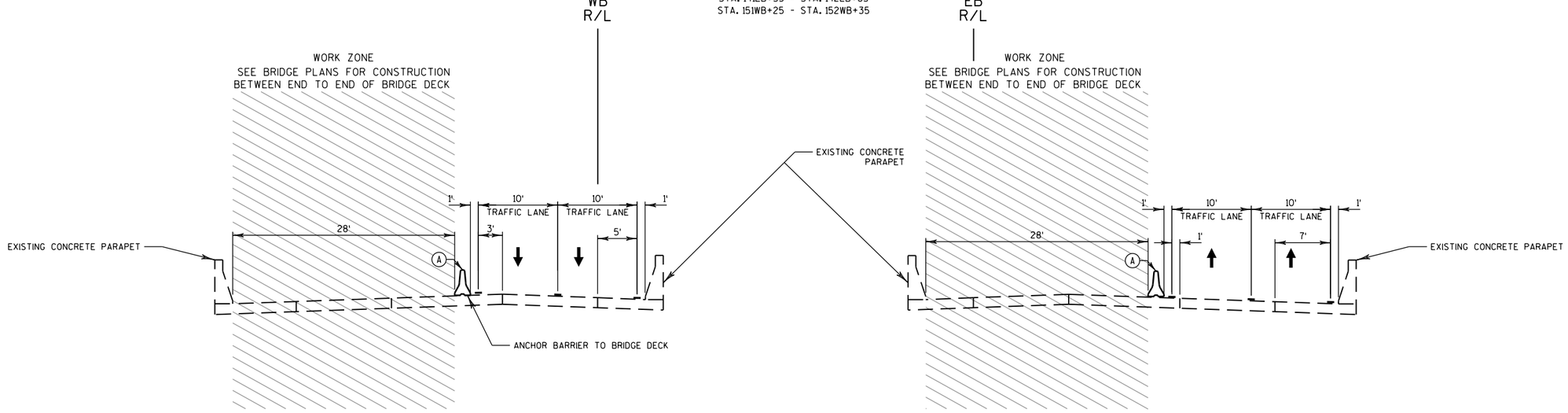
2



STAGING TYPICAL SECTION - STAGE 4

USH 12/14

STA. 141EB+55 - STA. 142EB+65
STA. 151WB+25 - STA. 152WB+35



LEGEND

- (A) CONCRETE BARRIER TEMPORARY PRECAST
- (B) DRUMS AT 50' SPACING
- ⬆ TRAFFIC FLOW

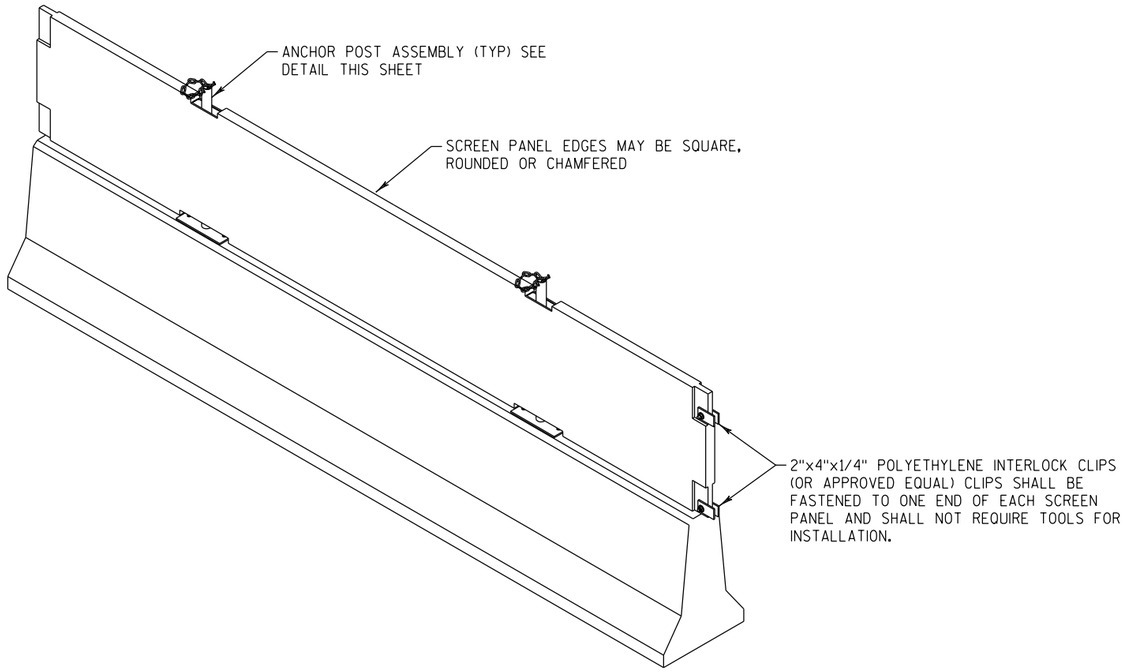
STAGING TYPICAL SECTION - STAGE 4

USH 12/14

STA. 142EB+65 - STA. 150EB+05
STA. 144WB+70 - STA. 151WB+25
LOOKING SOUTH

*EB R/L DOES NOT FOLLOW EDGE OF PAVEMENT, STA. 139EB+75 TO STA. 145EB+65.25. ENSURE LANE WIDTHS ARE LAID OUT ACCURATELY PER THE TRAFFIC CONTROL PLANS.

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TYPICAL SECTIONS: TRAFFIC CONTROL, STAGE 4	SHEET 29	E



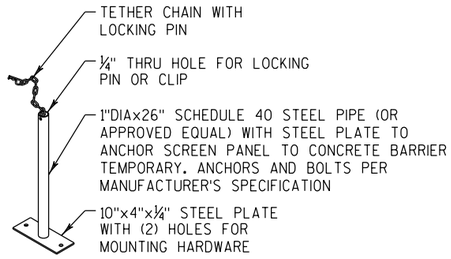
NOTE:

THE DESIGN OF THIS ITEM, WHICH INCLUDES ALL ASPECTS SHOWN, SHALL BE DESIGNED SO THAT THE SCREEN IS CAPABLE OF REMAINING IN PLACE FROM TRAFFIC GUSTS, WIND GUSTS, AND OTHER OUTDOOR ELEMENTS THAT MAY MOVE OR DISPLACE THE SCREEN.

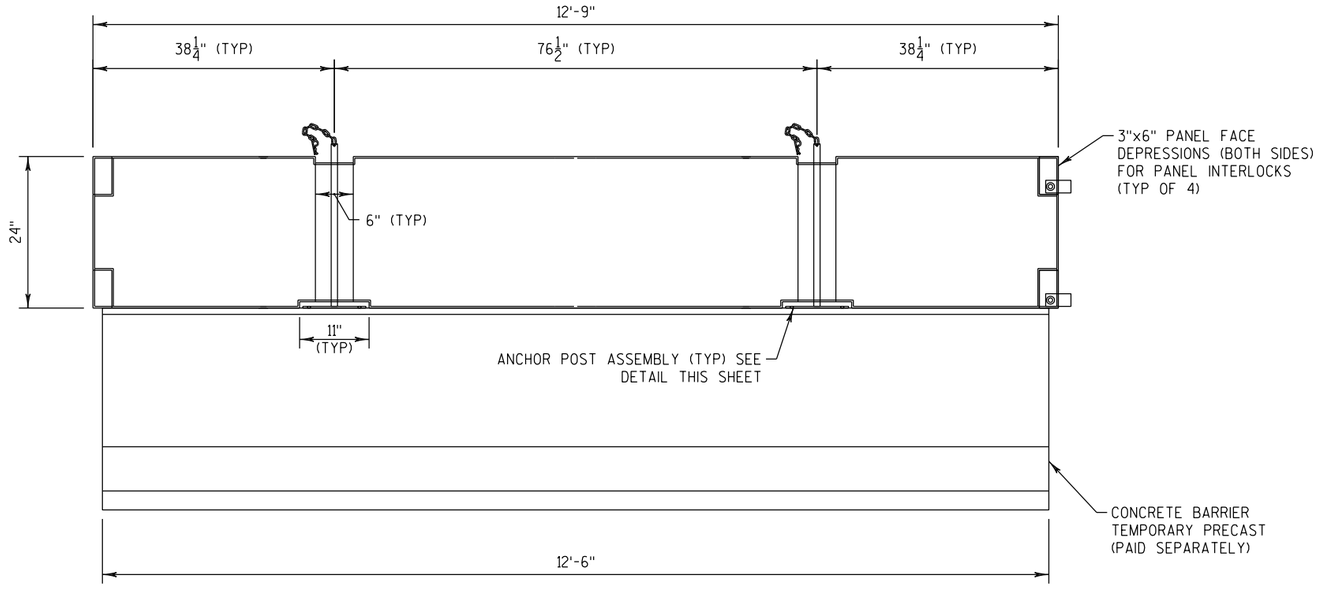
VENT HOLES THROUGH THE SCREEN PANEL ARE PERMITTED BUT NOT REQUIRED. IF VENT HOLES ARE USED, THE HOLES SHALL NOT EXCEED 3-INCHES IN DIAMETER AND SHALL BE LIMITED TO 24 OR LESS PER PANEL.

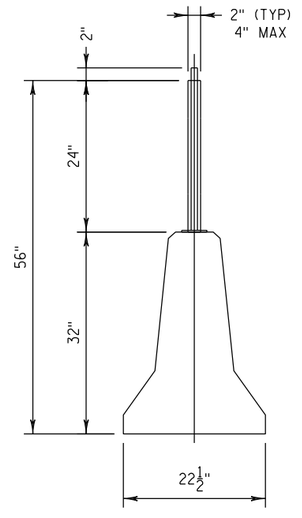
SCREEN PANELS SHALL HAVE A NON-REFLECTIVE MAT OR FLAT GRAY FINISH OR PAINTED SURFACE.

SHOP DRAWINGS WITH A FULL SIZE SAMPLE SHALL BE PROVIDED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.



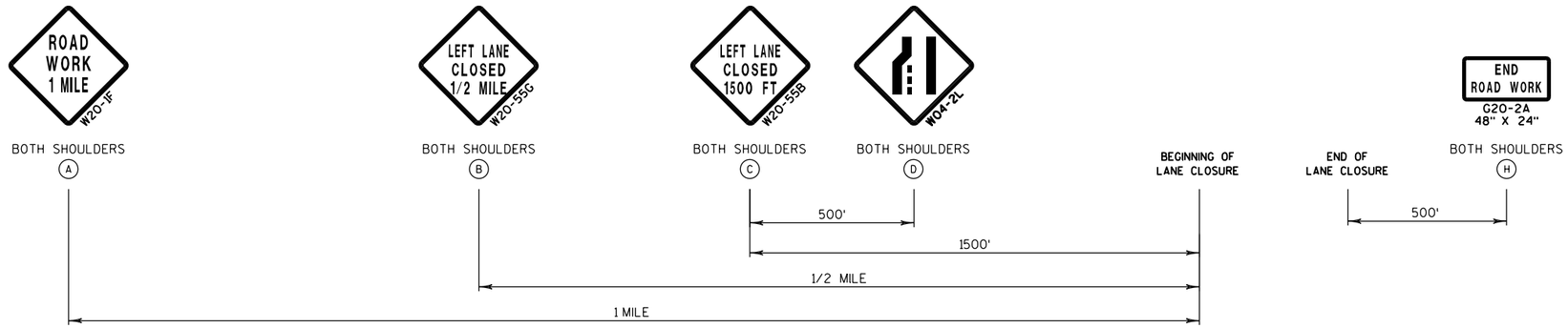
ANCHOR POST ASSEMBLY

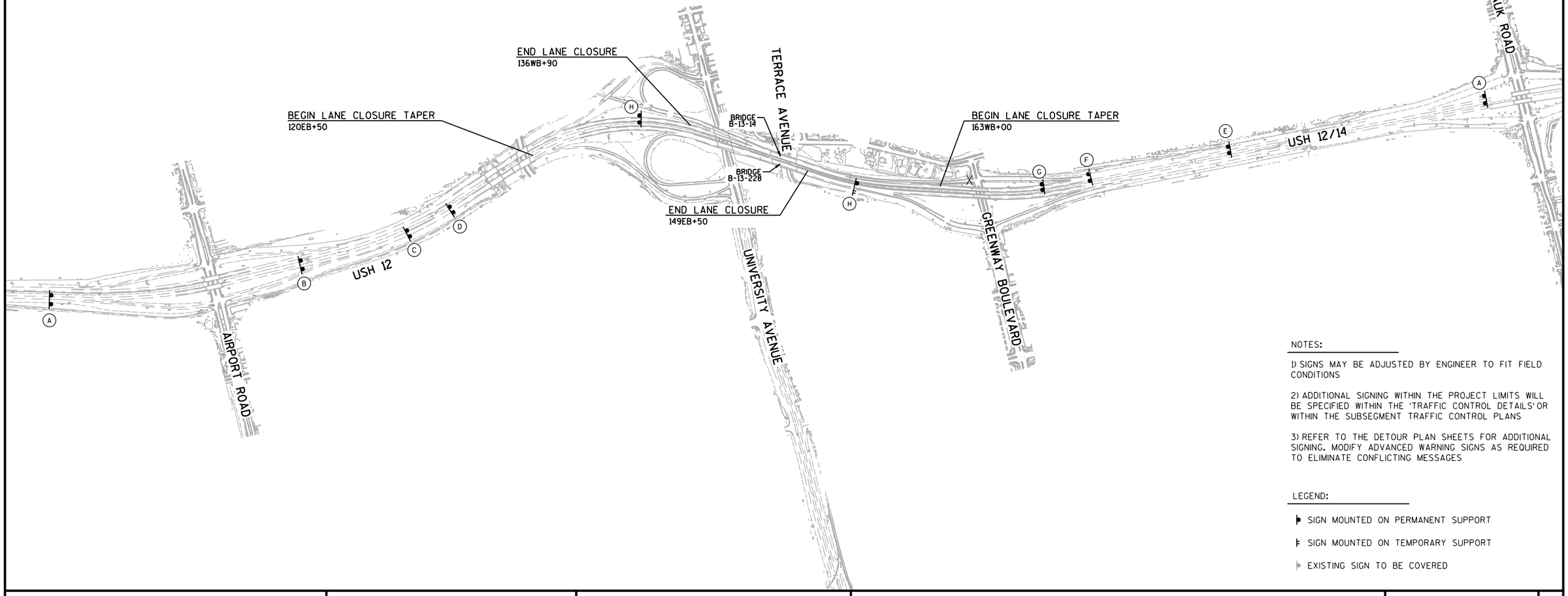




TRAFFIC CONTROL GAWK SCREEN

2





NOTES:

1) SIGNS MAY BE ADJUSTED BY ENGINEER TO FIT FIELD CONDITIONS

2) ADDITIONAL SIGNING WITHIN THE PROJECT LIMITS WILL BE SPECIFIED WITHIN THE 'TRAFFIC CONTROL DETAILS' OR WITHIN THE SUBSEGMENT TRAFFIC CONTROL PLANS

3) REFER TO THE DETOUR PLAN SHEETS FOR ADDITIONAL SIGNING. MODIFY ADVANCED WARNING SIGNS AS REQUIRED TO ELIMINATE CONFLICTING MESSAGES

LEGEND:

- SIGN MOUNTED ON PERMANENT SUPPORT
- SIGN MOUNTED ON TEMPORARY SUPPORT
- EXISTING SIGN TO BE COVERED

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL: STAGE 1 ADVANCED WARNING SIGNS	SHEET	E

FILE NAME : \\madw00\ingrproj\62247\t1\cds\025410_tc.dgn PLOT DATE : 4/5/2017 PLOT BY : ctomsak PLOT NAME : PLOT SCALE : 1000:1

WISDOT/CADDS SHEET 42

2

N

PLACE IN WB DIRECTION

TRUCKS USE LEFT LANE
R4-5L
48" X 60"
C

PLACE IN EB DIRECTION

TRUCKS USE RIGHT LANE
R4-5R
24" X 30"
B

ROAD WORK 1 MILE
W20-1F
BOTH SHOULDERS
A

ROAD WORK 1/2 MILE
W20-1
BOTH SHOULDERS
C

SPEED LIMIT 45
W03-5
BOTH SHOULDERS
D

ROAD WORK 1500 FT
W20-1B
BOTH SHOULDERS
E

SPEED LIMIT 45
R2-1
48" X 60"
BOTH SHOULDERS
F

BEGINNING OF LANE SHIFT

END ROAD WORK
G20-2A
48" X 24"
BOTH SHOULDERS
H

END OF LANE SHIFT

SPEED LIMIT 55
R2-1
48" X 60"
BOTH SHOULDERS
I

500'
500'
500'
1500'
1000'
1/2 MILE
1 MILE

BEGIN TRAFFIC SHIFT
139EB+75

END TRAFFIC SHIFT
138WB+00

COVER EXISTING SIGN
SPEED LIMIT 55

COVER EXISTING SIGN
W04-3R

MESSAGE BOARD USED 7 DAYS IN ADVANCE TO WARN DRIVERS OF THE RAMP CLOSURE

COVER EXISTING SIGN
SPEED LIMIT 55

TERRACE AVENUE

BRIDGE B-13-14

BRIDGE B-13-228

PCMS

PCMS

END TRAFFIC SHIFT
152EB+30

BEGIN TRAFFIC SHIFT
158WB+10

COVER EXISTING SIGN
W04-3R

MESSAGE BOARD USED 7 DAYS IN ADVANCE TO WARN DRIVERS OF THE RAMP CLOSURE

USH 12

USH 12/14

AIRPORT ROAD

UNIVERSITY AVENUE

GREENWAY BOULEVARD

NOTES:

1) SIGNS MAY BE ADJUSTED BY ENGINEER TO FIT FIELD CONDITIONS

2) ADDITIONAL SIGNING WITHIN THE PROJECT LIMITS WILL BE SPECIFIED WITHIN THE 'TRAFFIC CONTROL DETAILS' OR WITHIN THE SUBSEGMENT TRAFFIC CONTROL PLANS

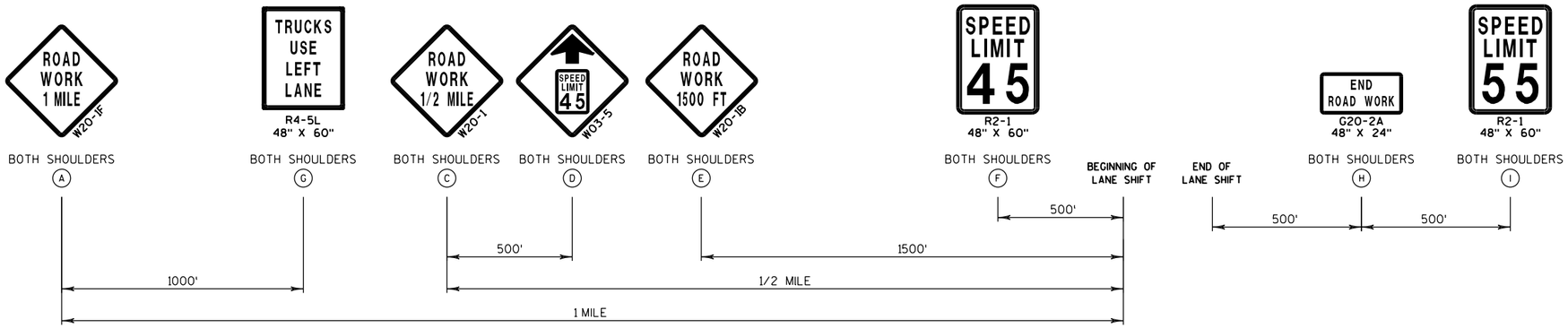
3) REFER TO THE DETOUR PLAN SHEETS FOR ADDITIONAL SIGNING. MODIFY ADVANCED WARNING SIGNS AS REQUIRED TO ELIMINATE CONFLICTING MESSAGES

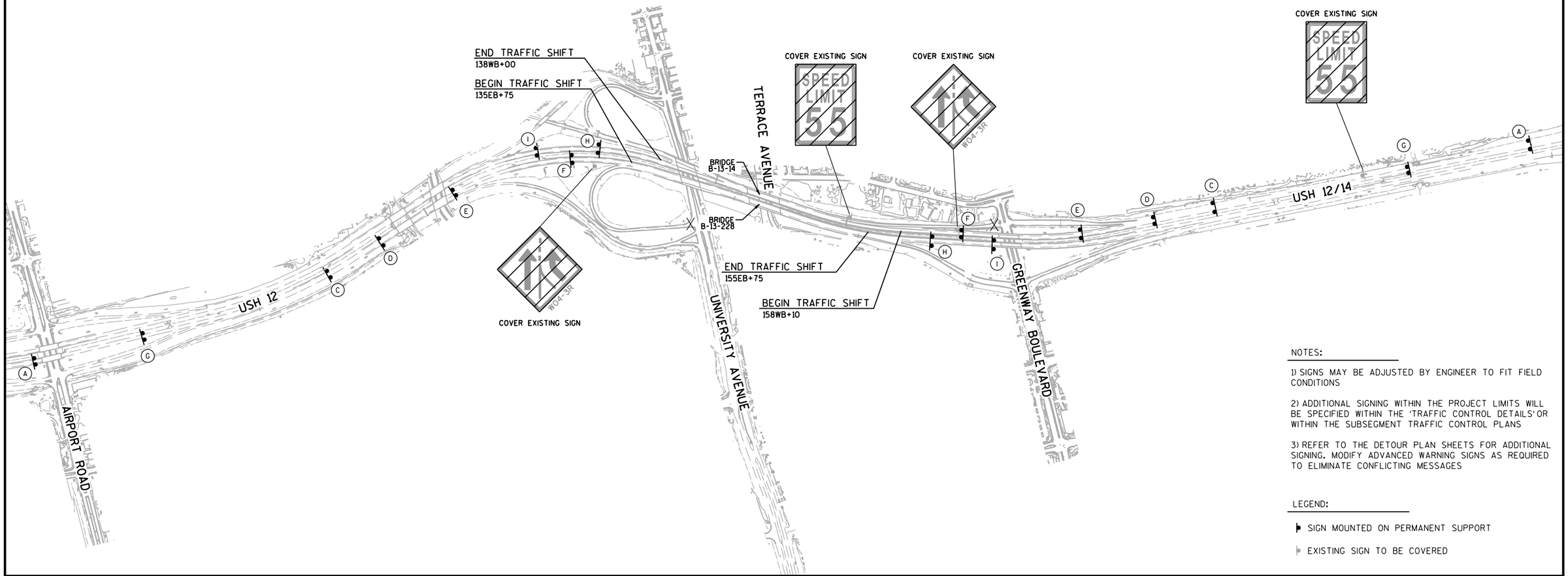
LEGEND:

- SIGN MOUNTED ON PERMANENT SUPPORT
- EXISTING SIGN TO BE COVERED
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL: STAGE 2 ADVANCED WARNING SIGNS	SHEET 32	E

2





NOTES:

1) SIGNS MAY BE ADJUSTED BY ENGINEER TO FIT FIELD CONDITIONS

2) ADDITIONAL SIGNING WITHIN THE PROJECT LIMITS WILL BE SPECIFIED WITHIN THE 'TRAFFIC CONTROL DETAILS' OR WITHIN THE SUBSEGMENT TRAFFIC CONTROL PLANS

3) REFER TO THE DETOUR PLAN SHEETS FOR ADDITIONAL SIGNING. MODIFY ADVANCED WARNING SIGNS AS REQUIRED TO ELIMINATE CONFLICTING MESSAGES

LEGEND:

- SIGN MOUNTED ON PERMANENT SUPPORT
- EXISTING SIGN TO BE COVERED

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL: STAGE 3 ADVANCED WARNING SIGNS	SHEET 33	E

2

PLACE IN EB DIRECTION

TRUCKS USE LEFT LANE
R4-5L
48" X 60"
C

PLACE IN WB DIRECTION

TRUCKS USE RIGHT LANE
R4-5R
24" X 30"
B

ROAD WORK 1 MILE
W20-1F
BOTH SHOULDERS
A

ROAD WORK 1/2 MILE
W20-1
BOTH SHOULDERS
C

SPEED LIMIT 45
W03-5
BOTH SHOULDERS
D

ROAD WORK 1500 FT
W20-1B
BOTH SHOULDERS
E

SPEED LIMIT 45
R2-1
48" X 60"
BOTH SHOULDERS
F

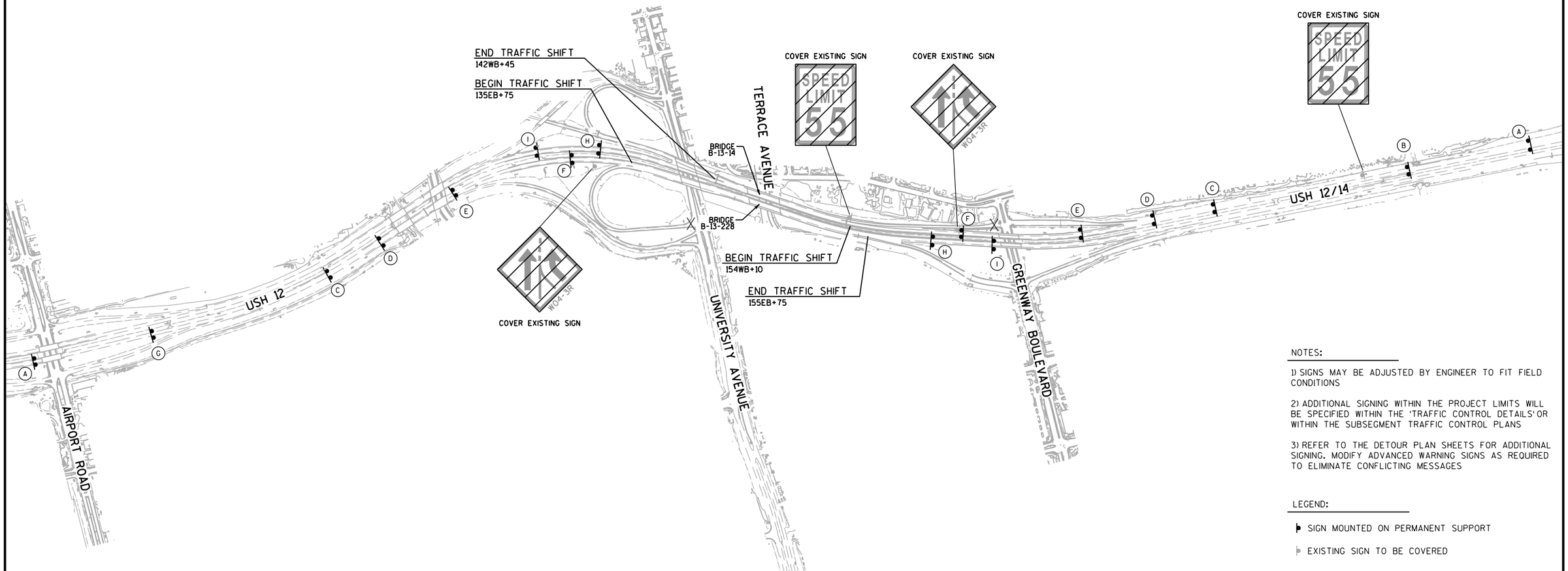
BEGINNING OF LANE SHIFT

END OF LANE SHIFT

END ROAD WORK
G20-2A
48" X 24"
BOTH SHOULDERS
H

SPEED LIMIT 55
R2-1
48" X 60"
BOTH SHOULDERS
I

1000'
500'
1500'
500'
500'
1/2 MILE
1 MILE



NOTES:

1) SIGNS MAY BE ADJUSTED BY ENGINEER TO FIT FIELD CONDITIONS

2) ADDITIONAL SIGNING WITHIN THE PROJECT LIMITS WILL BE SPECIFIED WITHIN THE 'TRAFFIC CONTROL DETAILS' OR WITHIN THE SUBSEGMENT TRAFFIC CONTROL PLANS

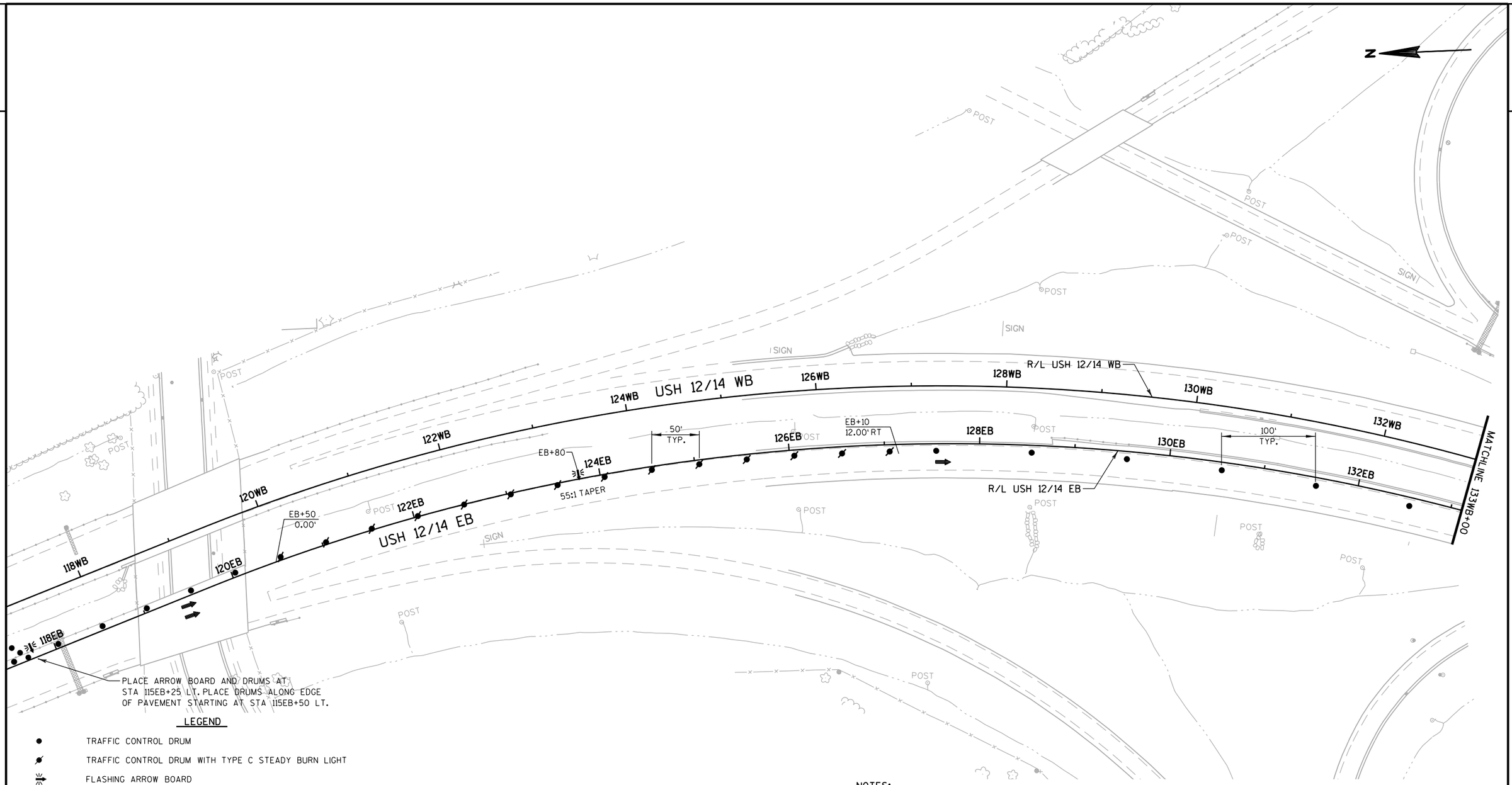
3) REFER TO THE DETOUR PLAN SHEETS FOR ADDITIONAL SIGNING. MODIFY ADVANCED WARNING SIGNS AS REQUIRED TO ELIMINATE CONFLICTING MESSAGES

LEGEND:

- SIGN MOUNTED ON PERMANENT SUPPORT
- EXISTING SIGN TO BE COVERED

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL: STAGE 4 ADVANCED WARNING SIGNS	SHEET 34	E

2



LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III WITH SIGN
- CONCRETE BARRIER TEMPORARY PRECAST WITH GAWK SCREEN
- WORK AREA THIS STAGE
- DIRECTION OF TRAFFIC
- CC — CRASH CUSHIONS TEMPORARY

NOTES:

1. CONTRACTOR IS TO REMOVE ALL CONFLICTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE FIELD ENGINEER PRIOR TO OPENING TRAFFIC LANES.

2. SEE S.D.D. "TRAFFIC CONTROL, LANE CLOSURE" AND S.D.D "TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE" FOR APPLICABLE DETAILS AND NOTES NOT SHOWN.

3. EXISTING LANE WIDTHS ARE BASED ON AS-BUILT DATA AND MAY VARY IN THE FIELD. VERIFY WIDTHS PRIOR TO SETTING TRAFFIC CONTROL TO ENSURE PROPER LANE WIDTHS ARE ACHIEVED.

TEMPORARY PAVEMENT MARKING LEGEND

(25) TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH (YELLOW)

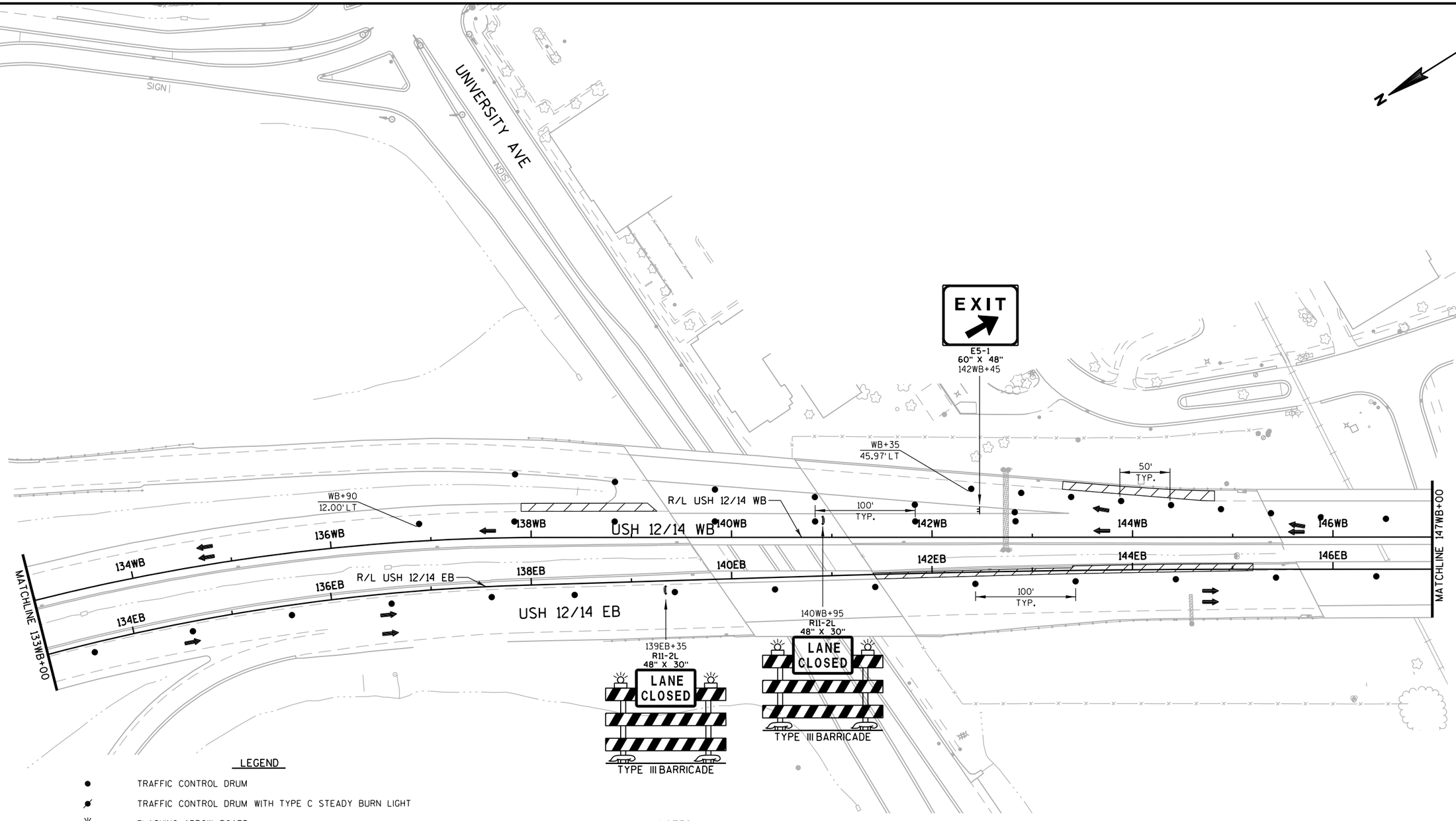
(26) TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH (WHITE)

(27) TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH (DASHED WHITE) (3 FT LINE 9 FT SKIP)

(28) TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 8-INCH (WHITE)

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL PLAN: STAGE 1	SHEET 35	E

2



LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III WITH SIGN
- CONCRETE BARRIER TEMPORARY PRECAST WITH GAWK SCREEN
- WORK AREA THIS STAGE
- DIRECTION OF TRAFFIC
- CC — CRASH CUSHIONS TEMPORARY

NOTES:

1. CONTRACTOR IS TO REMOVE ALL CONFLICTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE FIELD ENGINEER PRIOR TO OPENING TRAFFIC LANES.

2. SEE S.D.D. "TRAFFIC CONTROL, LANE CLOSURE" AND S.D.D "TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE" FOR APPLICABLE DETAILS AND NOTES NOT SHOWN.

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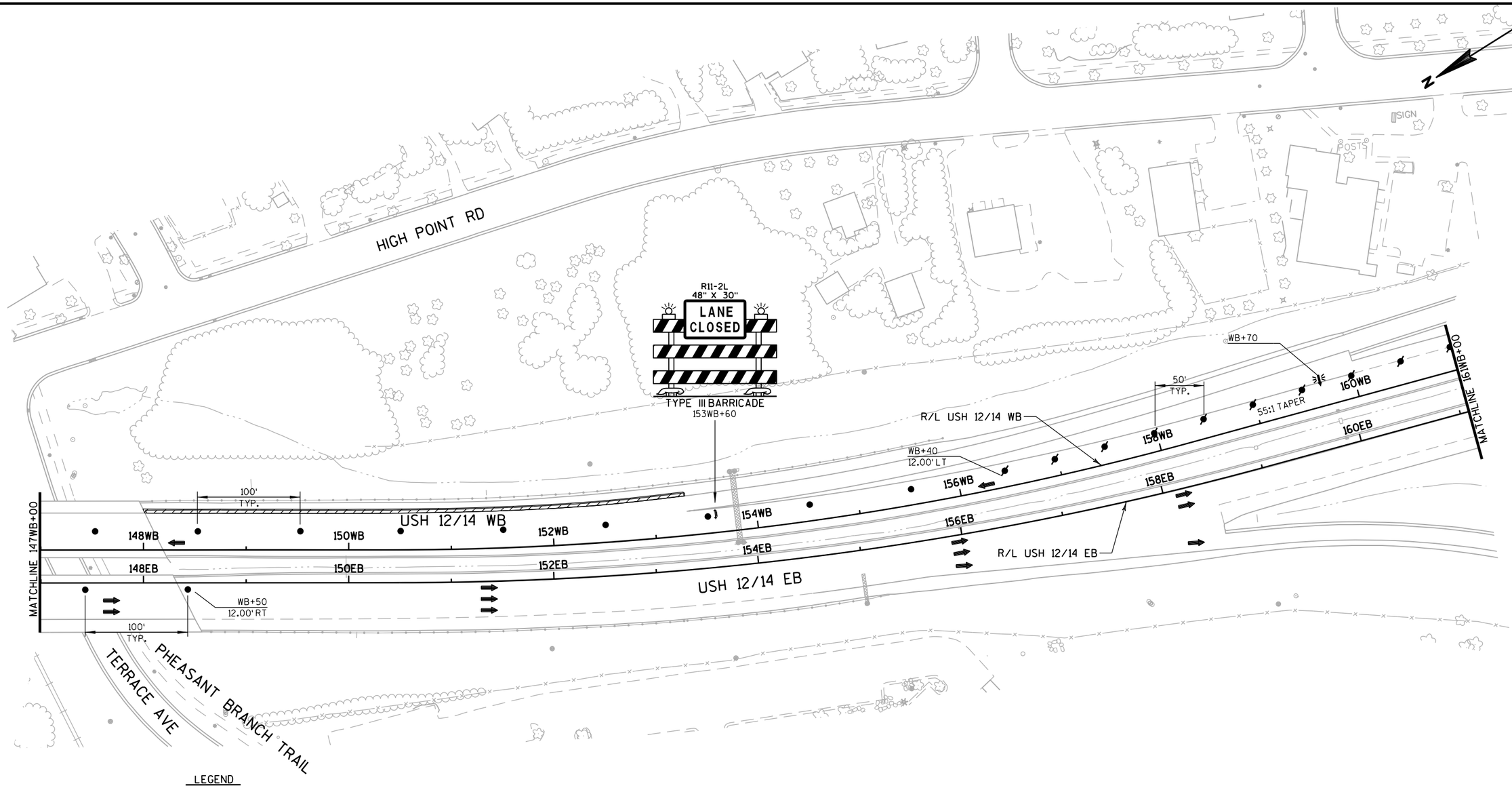
- (27) TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH (DASHED WHITE) (3 FT LINE 9 FT SKIP)
- (28) TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 8-INCH (WHITE)

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL PLAN: STAGE 1	SHEET 36	E

2



LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III WITH SIGN
- CONCRETE BARRIER TEMPORARY PRECAST WITH GAWK SCREEN
- WORK AREA THIS STAGE
- DIRECTION OF TRAFFIC
- CC — CRASH CUSHIONS TEMPORARY

NOTES:

1. CONTRACTOR IS TO REMOVE ALL CONFLICTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE FIELD ENGINEER PRIOR TO OPENING TRAFFIC LANES

2. SEE S.D.D. "TRAFFIC CONTROL, LANE CLOSURE" AND S.D.D "TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE" FOR APPLICABLE DETAILS AND NOTES NOT SHOWN.

3. EXISTING LANE WIDTHS ARE BASED ON AS-BUILT DATA AND MAY VARY IN THE FIELD. VERIFY WIDTHS PRIOR TO SETTING TRAFFIC CONTROL TO ENSURE PROPER LANE WIDTHS ARE ACHIEVED.

4. GREENWAY WB ON-RAMP TO BE CLOSED ONLY WHEN NECESSARY TO PERFORM USH 12 WB OUTSIDE SHOULDER WORK.

TEMPORARY PAVEMENT MARKING LEGEND

(25) TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH (YELLOW)

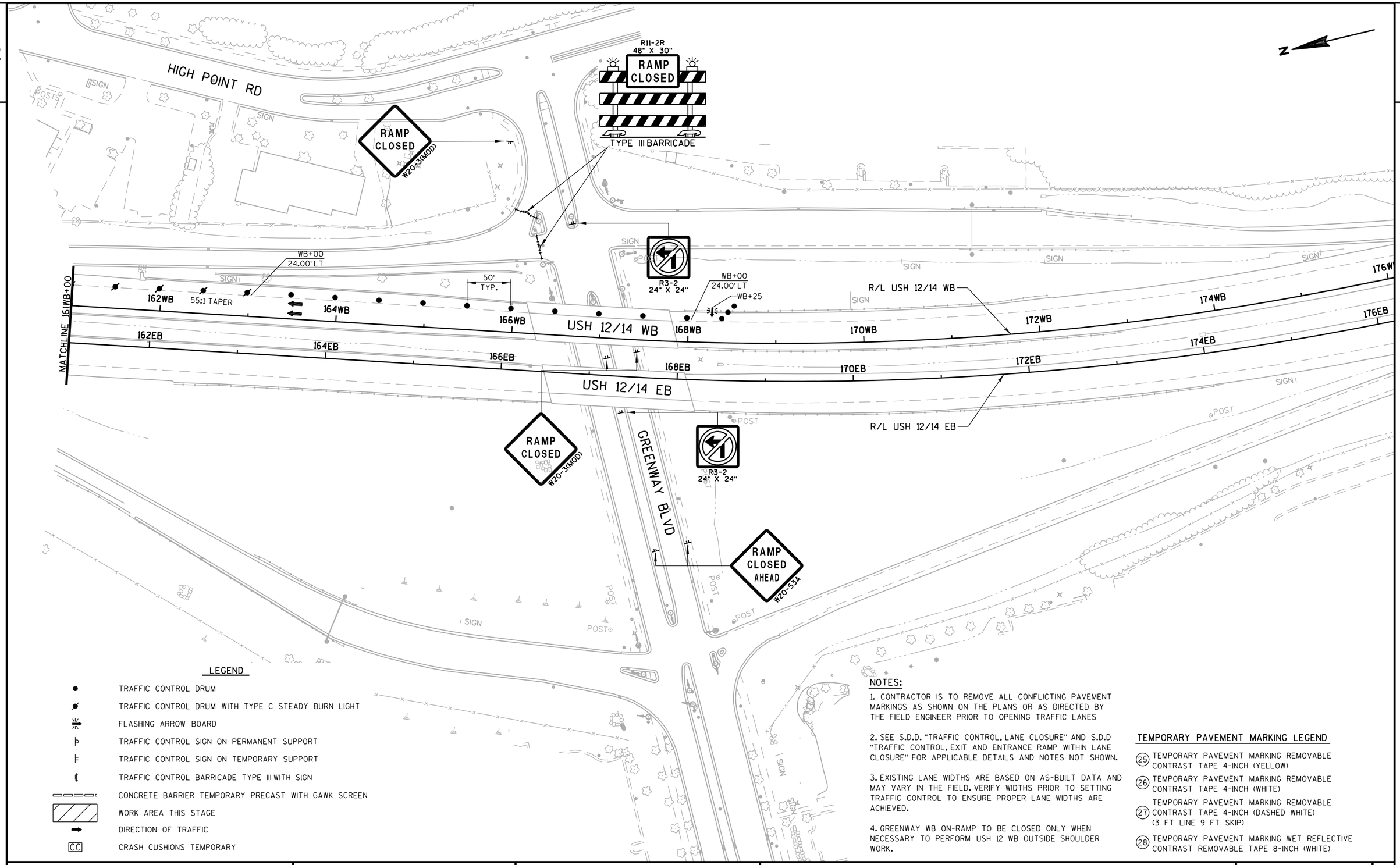
(26) TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH (WHITE)

(27) TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH (DASHED WHITE) (3 FT LINE 9 FT SKIP)

(28) TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 8-INCH (WHITE)

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL PLAN: STAGE 1	SHEET 37	E

2



LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III WITH SIGN
- CONCRETE BARRIER TEMPORARY PRECAST WITH GAWK SCREEN
- WORK AREA THIS STAGE
- DIRECTION OF TRAFFIC
- CC — CRASH CUSHIONS TEMPORARY

NOTES:

1. CONTRACTOR IS TO REMOVE ALL CONFLICTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE FIELD ENGINEER PRIOR TO OPENING TRAFFIC LANES

2. SEE S.D.D. "TRAFFIC CONTROL, LANE CLOSURE" AND S.D.D "TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE" FOR APPLICABLE DETAILS AND NOTES NOT SHOWN.

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4. GREENWAY WB ON-RAMP TO BE CLOSED ONLY WHEN NECESSARY TO PERFORM USH 12 WB OUTSIDE SHOULDER WORK.

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- (25) TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH (YELLOW)
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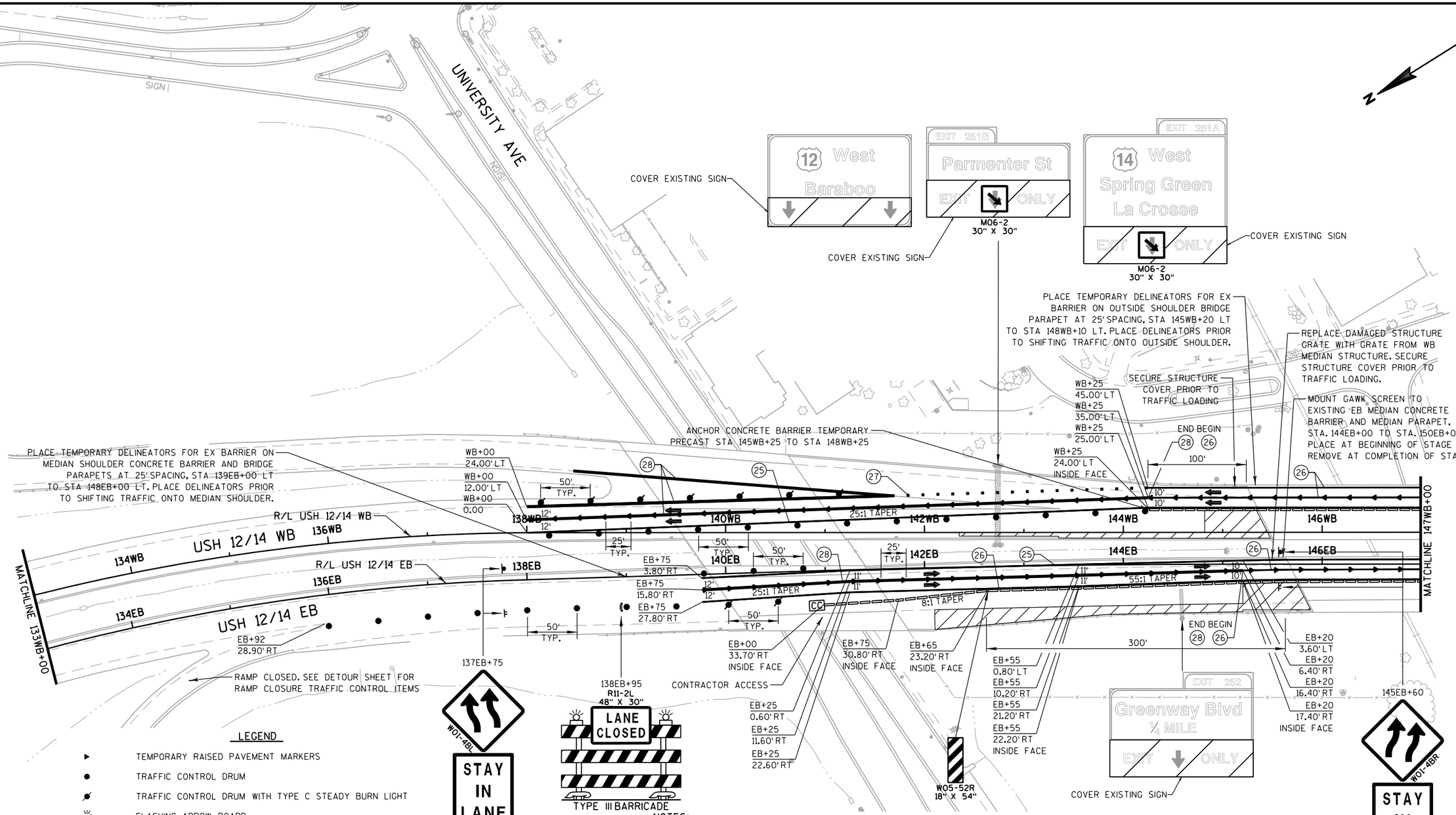
- (27) TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH (DASHED WHITE) (3 FT LINE 9 FT SKIP)
- (28) TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 8-INCH (WHITE)

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL PLAN: STAGE 1	SHEET 38	E

2



LEGEND

- TEMPORARY RAISED PAVEMENT MARKERS
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III WITH SIGN
- CONCRETE BARRIER TEMPORARY PRECAST WITH GAWK SCREEN
- WORK AREA THIS STAGE
- DIRECTION OF TRAFFIC
- CC — CRASH CUSHIONS TEMPORARY

NOTES:

1. CONTRACTOR IS TO REMOVE ALL CONFLICTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE FIELD ENGINEER PRIOR TO OPENING TRAFFIC LANES

2. SEE S.D.D. "TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER" FOR APPLICABLE DETAILS AND NOTES NOT SHOWN.

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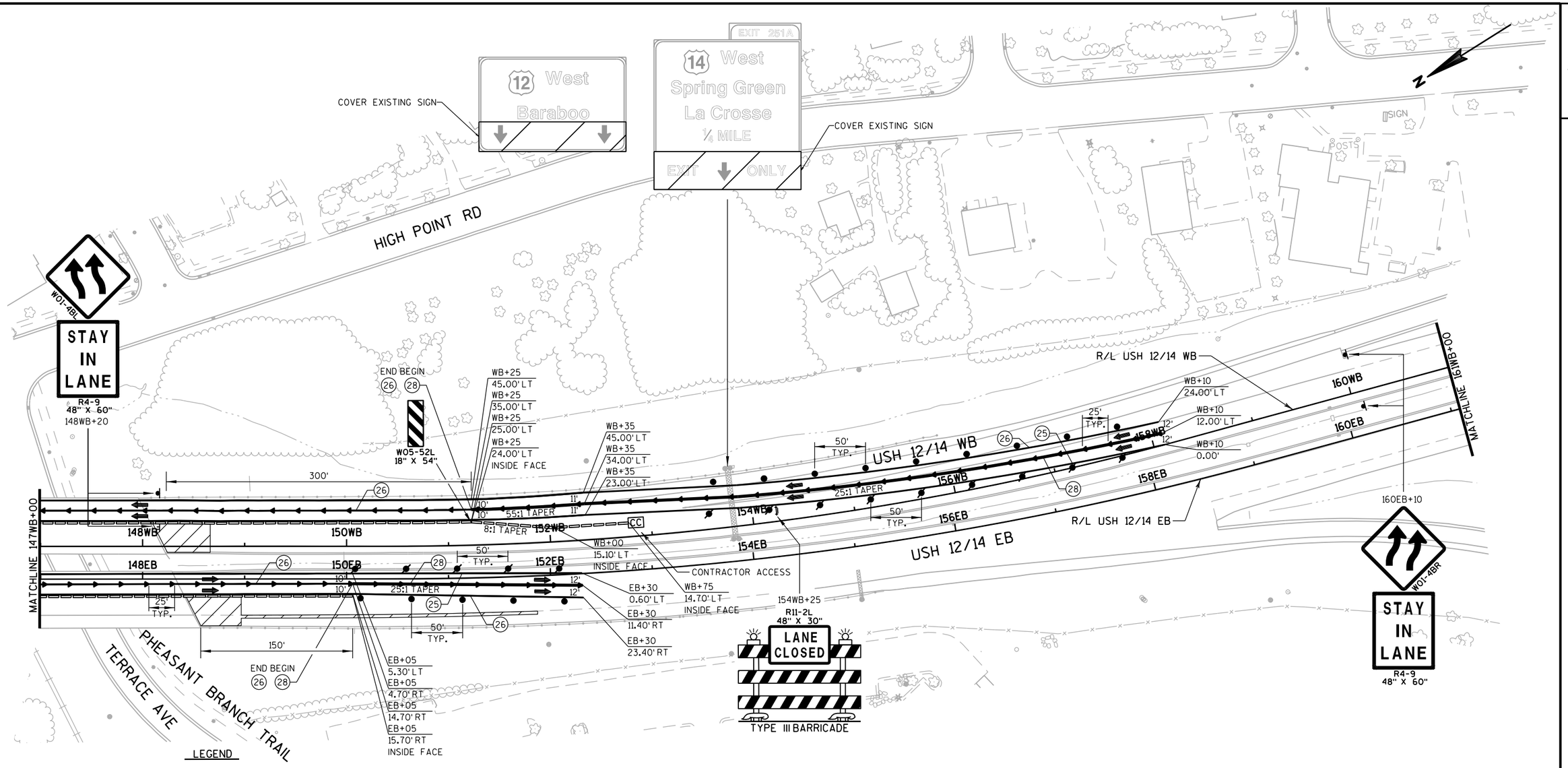
(28) TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 8-INCH (WHITE)

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL PLAN: STAGE 2	SHEET 39	E

2



LEGEND

- TEMPORARY RAISED PAVEMENT MARKERS
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III WITH SIGN
- CONCRETE BARRIER TEMPORARY PRECAST WITH GAWK SCREEN
- WORK AREA THIS STAGE
- DIRECTION OF TRAFFIC
- CC — CRASH CUSHIONS TEMPORARY

NOTES:

1. CONTRACTOR IS TO REMOVE ALL CONFLICTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE FIELD ENGINEER PRIOR TO OPENING TRAFFIC LANES
2. SEE S.D.D. "TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER" FOR APPLICABLE DETAILS AND NOTES NOT SHOWN.
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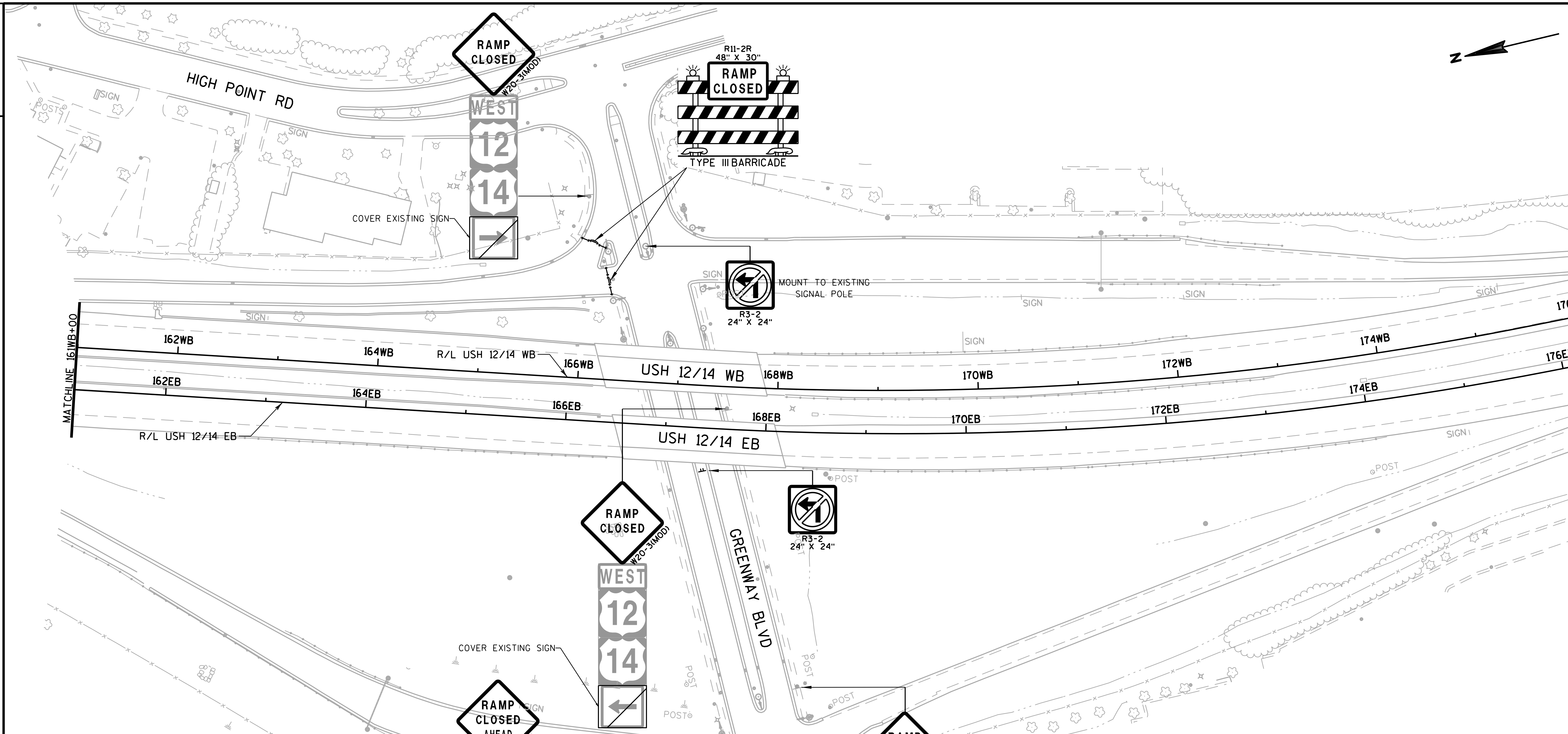
- (28) TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 8-INCH (WHITE)

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL PLAN: STAGE 2	SHEET 40	E



LEGEND

- TEMPORARY RAISED PAVEMENT MARKERS
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III WITH SIGN
- CONCRETE BARRIER TEMPORARY PRECAST WITH GAWK SCREEN
- WORK AREA THIS STAGE
- DIRECTION OF TRAFFIC
- CC CRASH CUSHIONS TEMPORARY

NOTES:

1. CONTRACTOR IS TO REMOVE ALL CONFLICTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE FIELD ENGINEER PRIOR TO OPENING TRAFFIC LANES

2. SEE S.D.D. "TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER" FOR APPLICABLE DETAILS AND NOTES NOT SHOWN.

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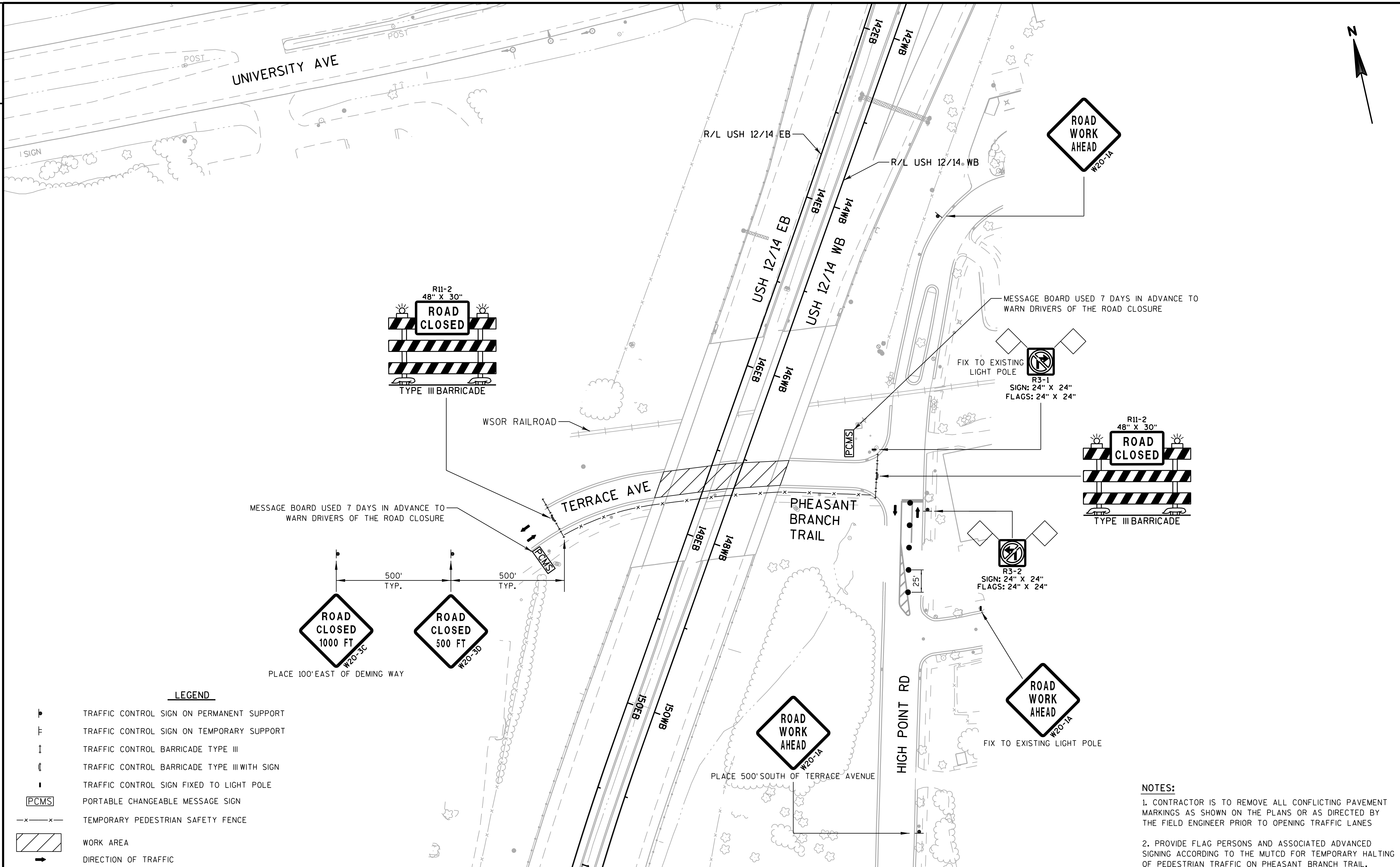
- (28) TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 8-INCH (WHITE)

PROJECT NO:5300-01-83	HWY:USH 12/14	COUNTY:DANE	TRAFFIC CONTROL PLAN: STAGE 2, 3 AND 4	SHEET 41	E



NOTES:

1. CONTRACTOR IS TO REMOVE ALL CONFLICTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE FIELD ENGINEER PRIOR TO OPENING TRAFFIC LANES

2. PROVIDE FLAG PERSONS AND ASSOCIATED ADVANCED SIGNING ACCORDING TO THE MUTCD FOR TEMPORARY HALTING OF PEDESTRIAN TRAFFIC ON PHEASANT BRANCH TRAIL.

PROJECT NO:5300-01-83	HWY:USH 12/14	COUNTY:DANE	TRAFFIC CONTROL PLAN: STAGE 2, 3 AND 4	SHEET 42	E

2

UNIVERSITY AVE

POST

POST

I SIGN

N

R/L USH 12/14 EB

R/L USH 12/14 WB

USH 12/14 EB

USH 12/14 WB

142EB

142WB

144EB

144WB

146EB

146WB

WSOR RAILROAD

TERRACE AVE

PHEASANT BRANCH TRAIL

148EB

148WB

150EB

150WB

HIGH POINT RD

PCMS

PCMS

PATH CLOSED AHEAD
W20-53A(MOD)

PLACE NEXT TO PATH IMMEDIATELY EAST OF DEMING WAY

MESSAGE BOARD USED 7 DAYS IN ADVANCE TO WARN PEDESTRIANS OF THE PATH CLOSURE

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

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

MESSAGE BOARD USED 7 DAYS IN ADVANCE TO WARN PEDESTRIANS OF THE PATH CLOSURE

LEGEND

- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III
- TRAFFIC CONTROL BARRICADE TYPE III WITH SIGN
- TRAFFIC CONTROL SIGN FIXED TO LIGHT POLE
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN
- TEMPORARY PEDESTRIAN SAFETY FENCE
- WORK AREA
- DIRECTION OF TRAFFIC

NOTES:

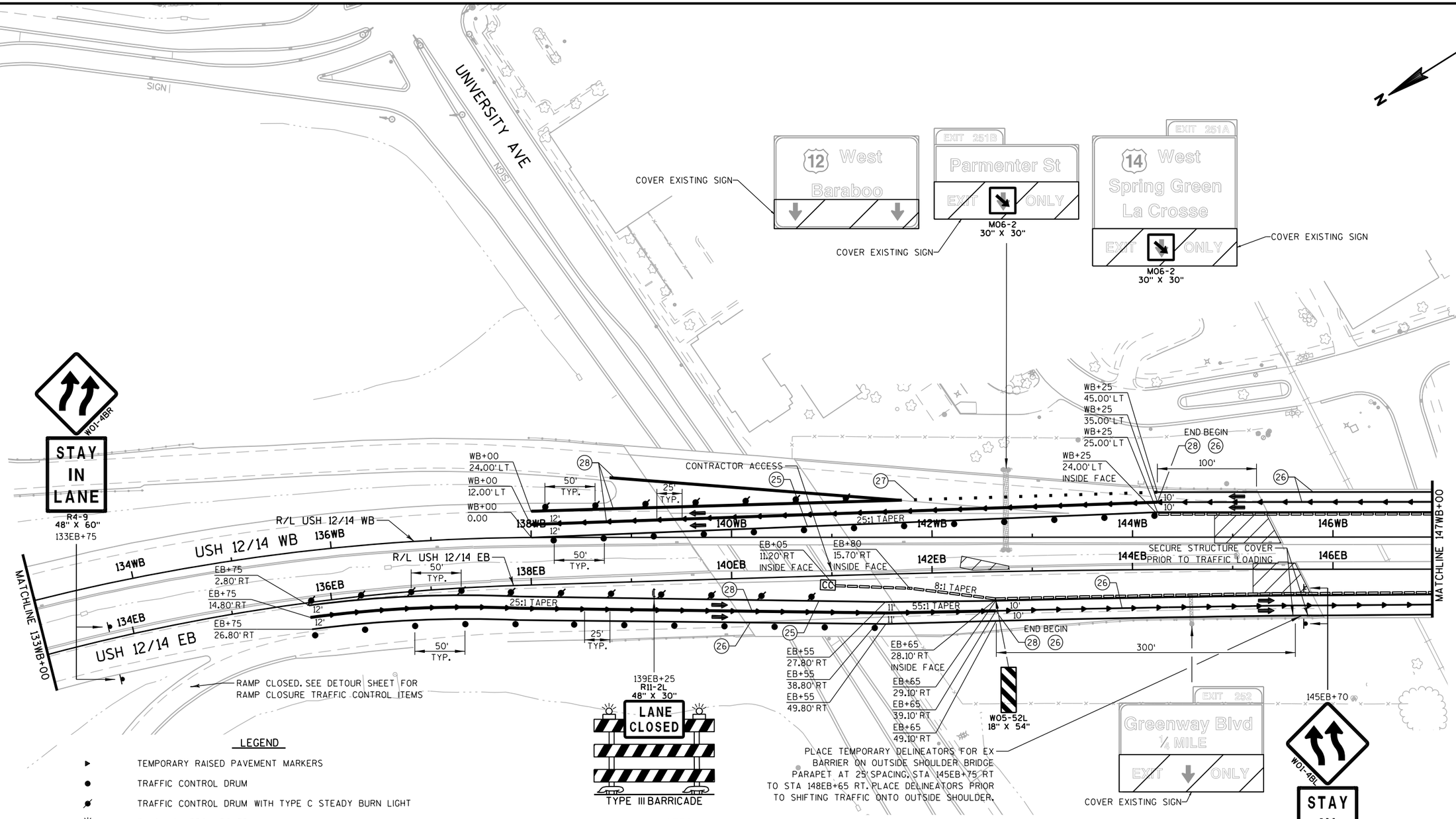
1. CONTRACTOR IS TO REMOVE ALL CONFLICTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE FIELD ENGINEER PRIOR TO OPENING TRAFFIC LANES

2. TRAFFIC CONTROL LAYOUT FOR TERRACE AVENUE CLOSURE SHOWN ELSEWHERE

2

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL PLAN: STAGE 2, 3 AND 4	SHEET 43	E

2



LEGEND

- TEMPORARY RAISED PAVEMENT MARKERS
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III WITH SIGN
- CONCRETE BARRIER TEMPORARY PRECAST WITH GAWK SCREEN
- WORK AREA THIS STAGE
- DIRECTION OF TRAFFIC
- CC — CRASH CUSHIONS TEMPORARY

NOTES:

1. CONTRACTOR IS TO REMOVE ALL CONFLICTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE FIELD ENGINEER PRIOR TO OPENING TRAFFIC LANES

2. SEE S.D.D. "TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER" FOR APPLICABLE DETAILS AND NOTES NOT SHOWN.

3. EXISTING LANE WIDTHS ARE BASED ON AS-BUILT DATA AND MAY VARY IN THE FIELD. VERIFY WIDTHS PRIOR TO SETTING TRAFFIC CONTROL TO ENSURE PROPER LANE WIDTHS ARE ACHIEVED.

TEMPORARY PAVEMENT MARKING LEGEND

(25) TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH (YELLOW)

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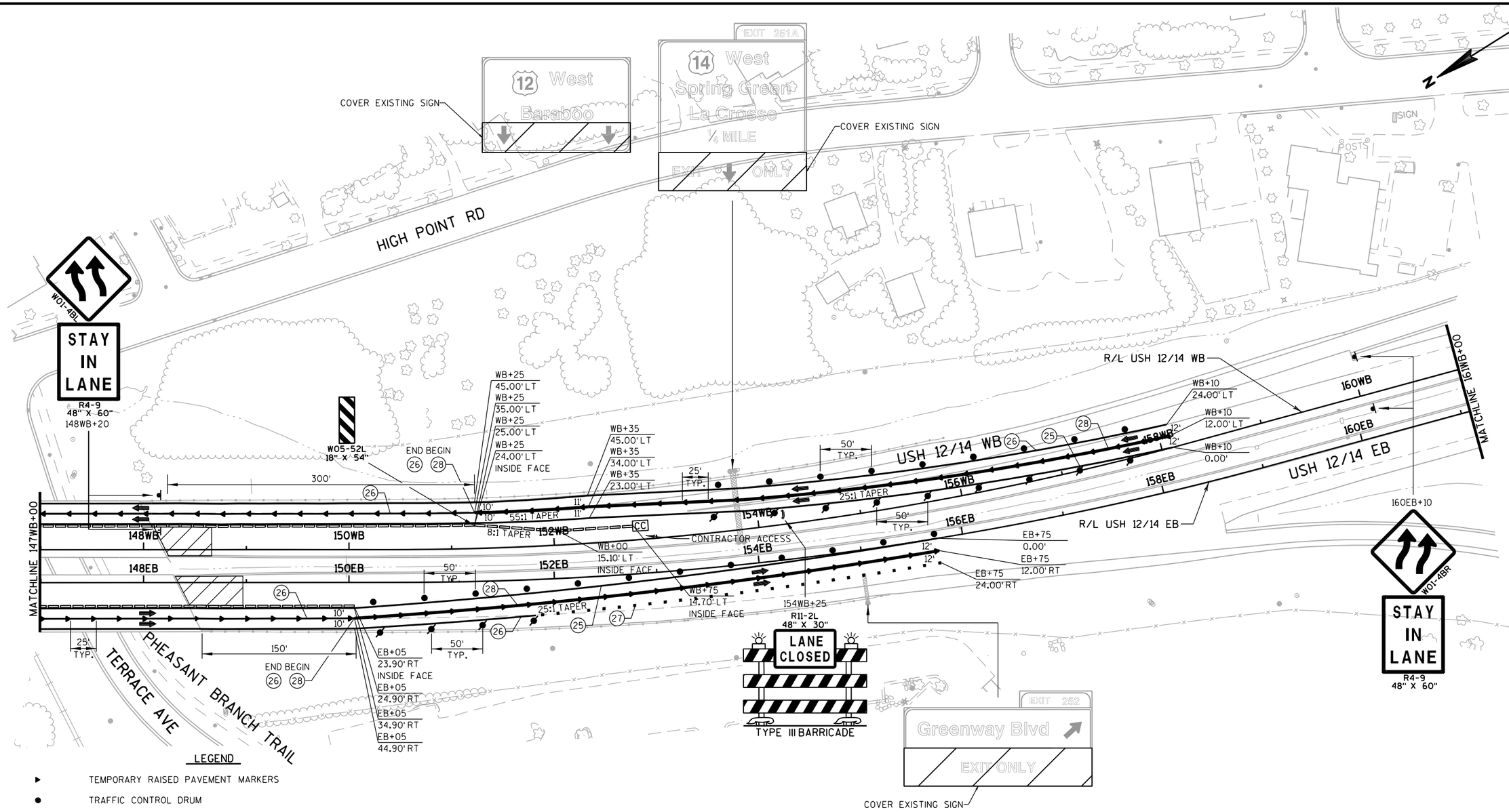
(27) TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH (DASHED WHITE) (3 FT LINE 9 FT SKIP)

(28) TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 8-INCH (WHITE)

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL PLANS: STAGE 3	SHEET 44	E

2



LEGEND

- TEMPORARY RAISED PAVEMENT MARKERS
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III WITH SIGN
- CONCRETE BARRIER TEMPORARY PRECAST WITH GAWK SCREEN
- WORK AREA THIS STAGE
- DIRECTION OF TRAFFIC
- CC — CRASH CUSHIONS TEMPORARY

NOTES:

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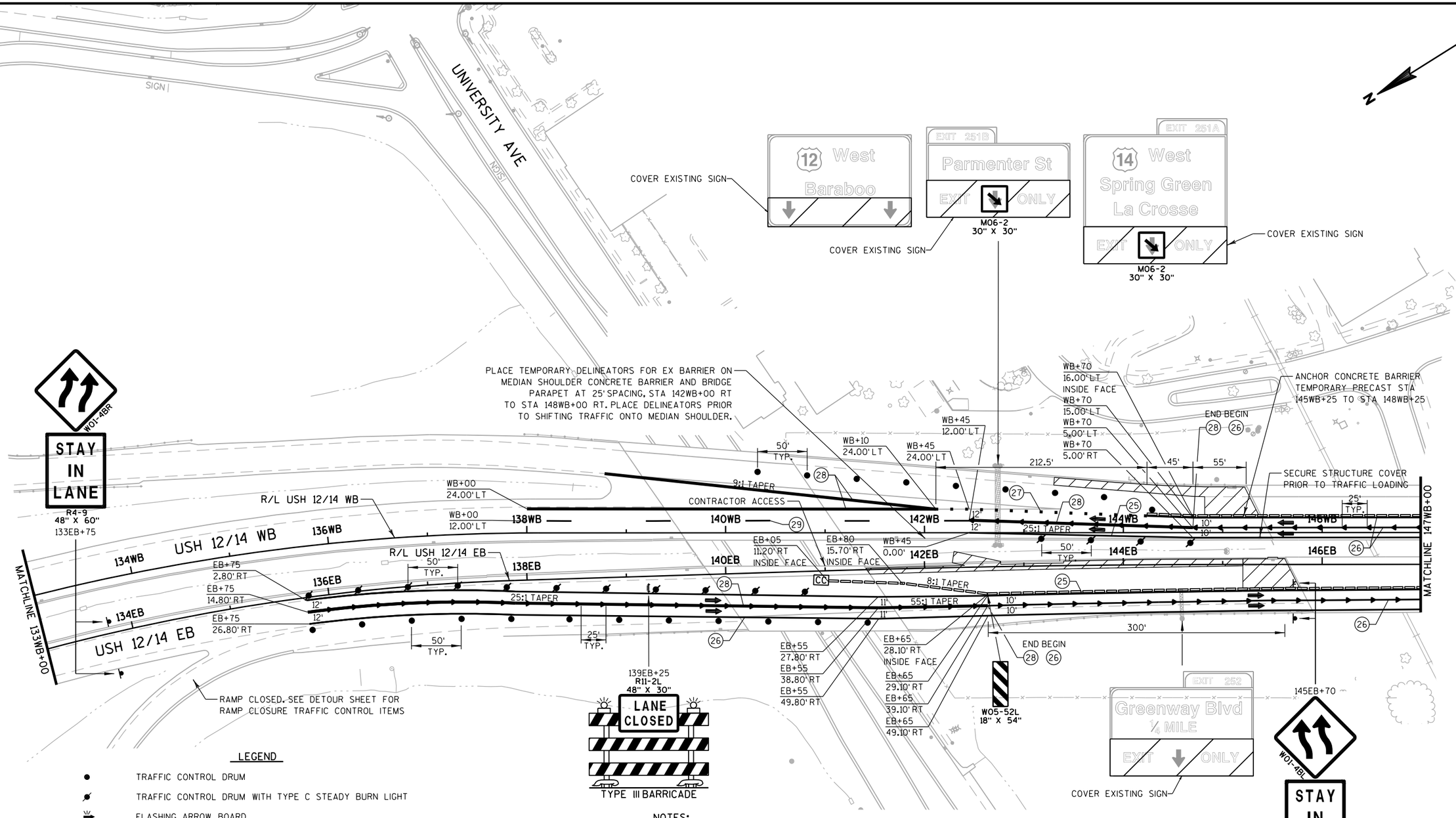
PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL PLANS: STAGE 3	SHEET 45	E

2



LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III WITH SIGN
- CONCRETE BARRIER TEMPORARY PRECAST WITH GAWK SCREEN
- WORK AREA THIS STAGE
- DIRECTION OF TRAFFIC
- CC — CRASH CUSHIONS TEMPORARY

NOTES:

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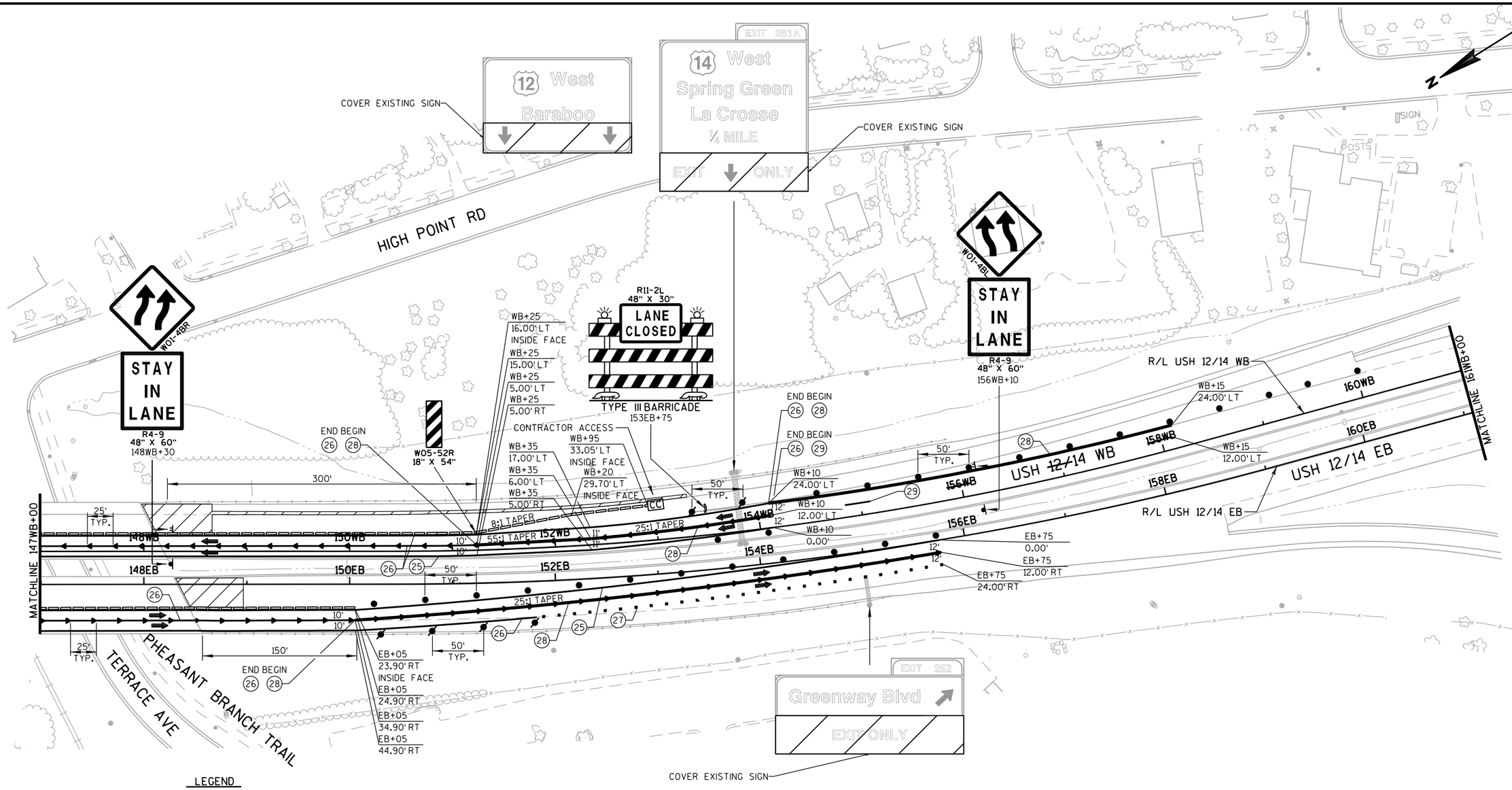
- (28) TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 8-INCH (WHITE)

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL PLANS: STAGE 4	SHEET 46	E

2



LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III WITH SIGN
- CONCRETE BARRIER TEMPORARY PRECAST WITH GAWK SCREEN
- WORK AREA THIS STAGE
- DIRECTION OF TRAFFIC
- CC — CRASH CUSHIONS TEMPORARY

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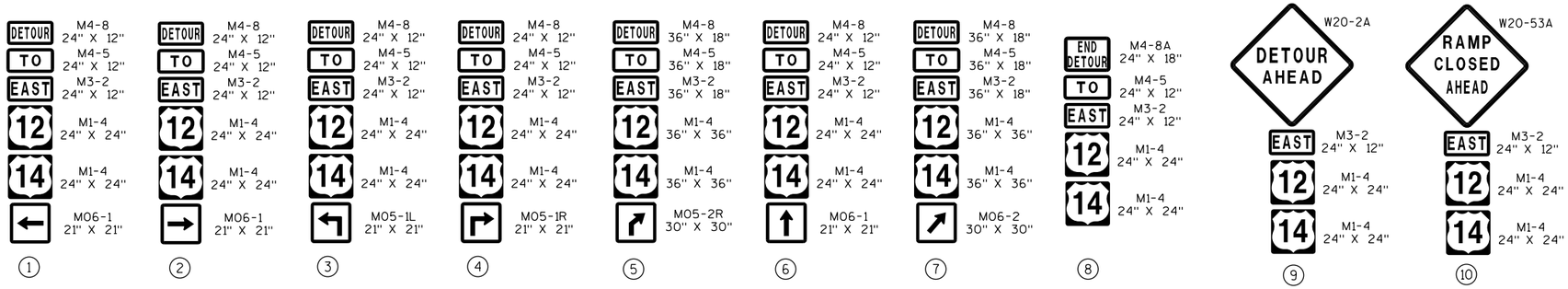
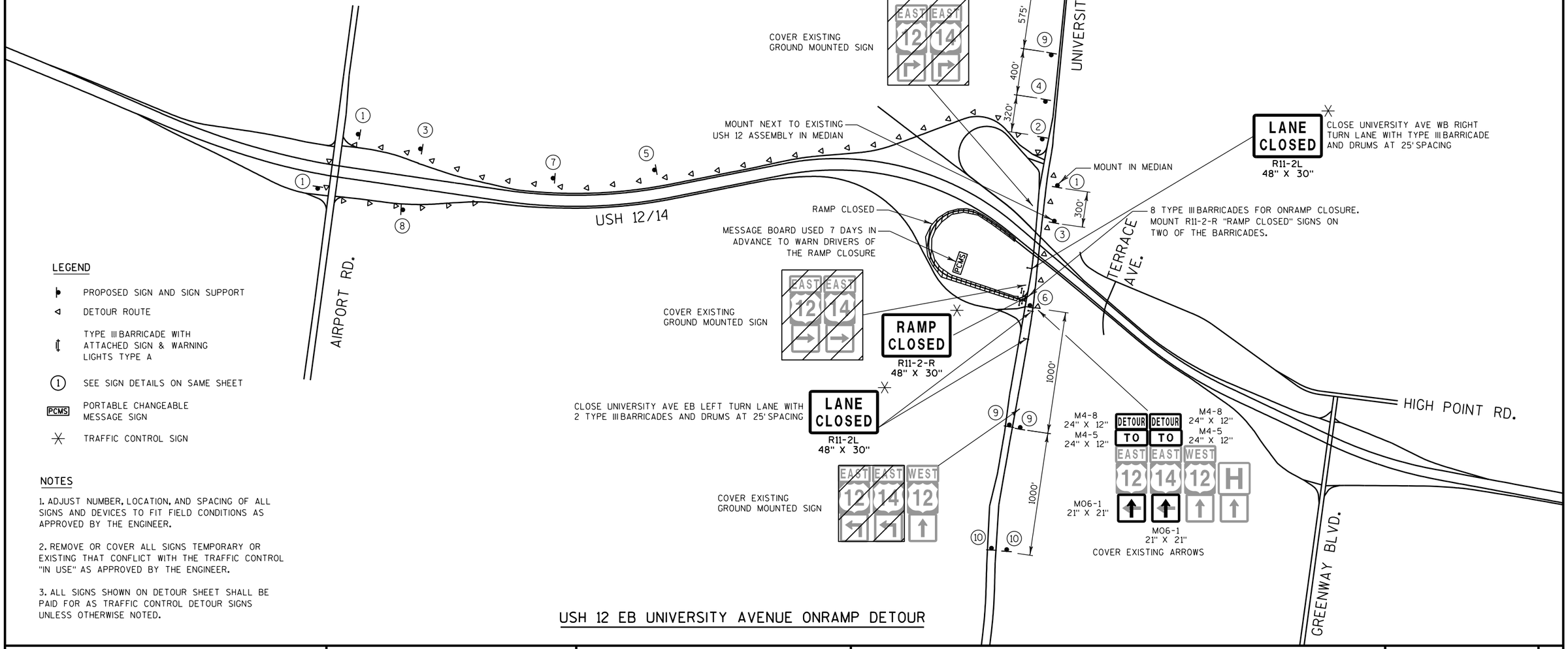
- (27) TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH (DASHED WHITE) (3 FT LINE 9 FT SKIP)
- (28) TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 8-INCH (WHITE)
- (29) TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 4-INCH (DASHED WHITE) (12.5 FT LINE 37.5 FT SKIP)

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL PLANS: STAGE 4	SHEET 47	E





LEGEND

- PROPOSED SIGN AND SIGN SUPPORT
- DETOUR ROUTE
- TYPE III BARRICADE WITH ATTACHED SIGN & WARNING LIGHTS TYPE A
- (1) SEE SIGN DETAILS ON SAME SHEET
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN
- TRAFFIC CONTROL SIGN

NOTES

1. ADJUST NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

2. REMOVE OR COVER ALL SIGNS TEMPORARY OR EXISTING THAT CONFLICT WITH THE TRAFFIC CONTROL "IN USE" AS APPROVED BY THE ENGINEER.

3. ALL SIGNS SHOWN ON DETOUR SHEET SHALL BE PAID FOR AS TRAFFIC CONTROL DETOUR SIGNS UNLESS OTHERWISE NOTED.

USH 12 EB UNIVERSITY AVENUE ONRAMP DETOUR

PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	TRAFFIC CONTROL: DETOUR PLAN	SHEET 48	E

POINT OF BEGINNING : EB
PI = 91EB+65.50
X = 785563.12
Y = 495607.20
AH = S 0°06'13.17" E

POINT OF BEGINNING : WB
PI = 114WB+00.73
X = 785954.29
Y = 493385.08
AH = S 19°34'07.88" E

CURVE : EB-1
PC = 119EB+70.95
X = 786070.62
Y = 492876.34
PI = 129EB+41.69
X = 786396.46
Y = 491961.92
PT = 137EB+87.82
X = 785905.95
Y = 491124.22

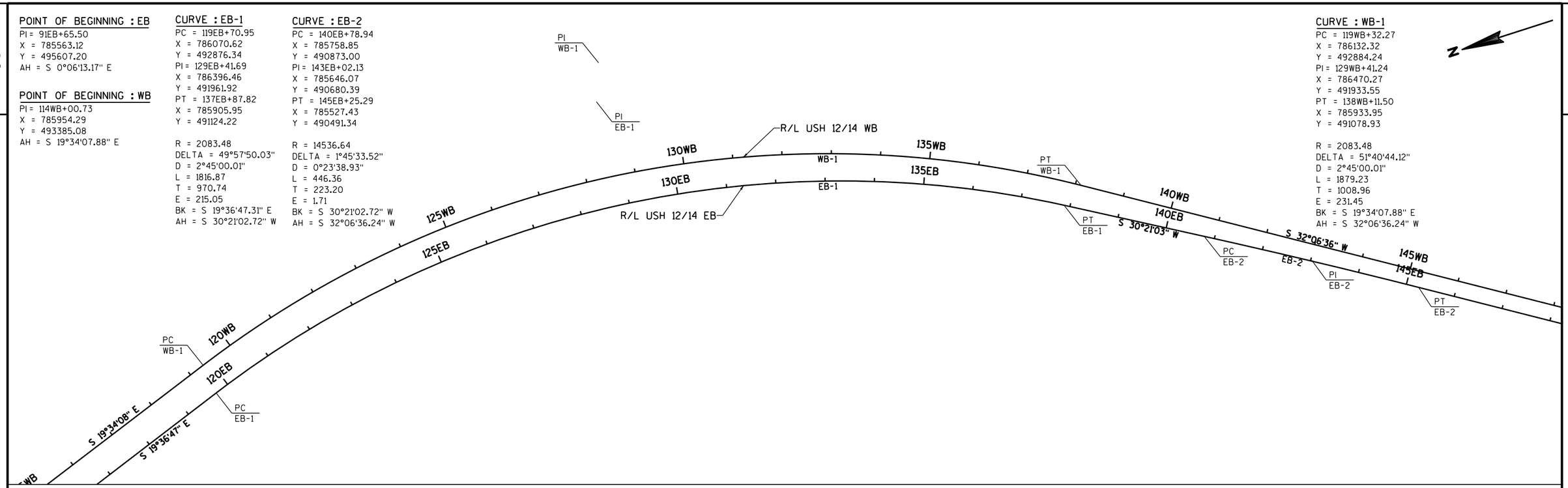
R = 2083.48
DELTA = 49°57'50.03"
D = 2°45'00.01"
L = 1816.87
T = 970.74
E = 215.05
BK = S 19°36'47.31" E
AH = S 30°21'02.72" W

CURVE : EB-2
PC = 140EB+78.94
X = 785758.85
Y = 490873.00
PI = 143EB+02.13
X = 785646.07
Y = 490680.39
PT = 145EB+25.29
X = 785527.43
Y = 490491.34

R = 14536.64
DELTA = 1°45'33.52"
D = 0°23'38.93"
L = 446.36
T = 223.20
E = 1.71
BK = S 30°21'02.72" W
AH = S 32°06'36.24" W

CURVE : WB-1
PC = 119WB+32.27
X = 786132.32
Y = 492884.24
PI = 129WB+41.24
X = 786470.27
Y = 491933.55
PT = 138WB+11.50
X = 785933.95
Y = 491078.93

R = 2083.48
DELTA = 51°40'44.12"
D = 2°45'00.01"
L = 1879.23
T = 1008.96
E = 231.45
BK = S 19°34'07.88" E
AH = S 32°06'36.24" W



CURVE : EB-3
PC = 150EB+49.85
X = 785248.61
Y = 490047.03
PI = 154EB+80.11
X = 785019.91
Y = 489682.59
PT = 159EB+05.30
X = 784894.87
Y = 489270.89

R = 3221.23
DELTA = 15°12'57.42"
D = 1°46'43.29"
L = 855.46
T = 430.26
E = 28.61
BK = S 32°06'36.24" W
AH = S 16°53'38.82" W

CURVE : EB-4
PC = 167EB+28.47
X = 784655.66
Y = 488483.26
PI = 171EB+66.87
X = 784528.25
Y = 488063.77
PT = 176EB+00.42
X = 784511.88
Y = 487625.68

R = 3386.39
DELTA = 14°45'10.88"
D = 1°41'31.00"
L = 871.96
T = 438.40
E = 28.26
BK = S 16°53'38.82" W
AH = S 2°08'27.94" W

CURVE : WB-2
PC = 150WB+45.85
X = 785277.84
Y = 490033.40
PI = 154WB+37.35
X = 785069.74
Y = 489701.79
PT = 158WB+24.23
X = 784956.00
Y = 489327.18

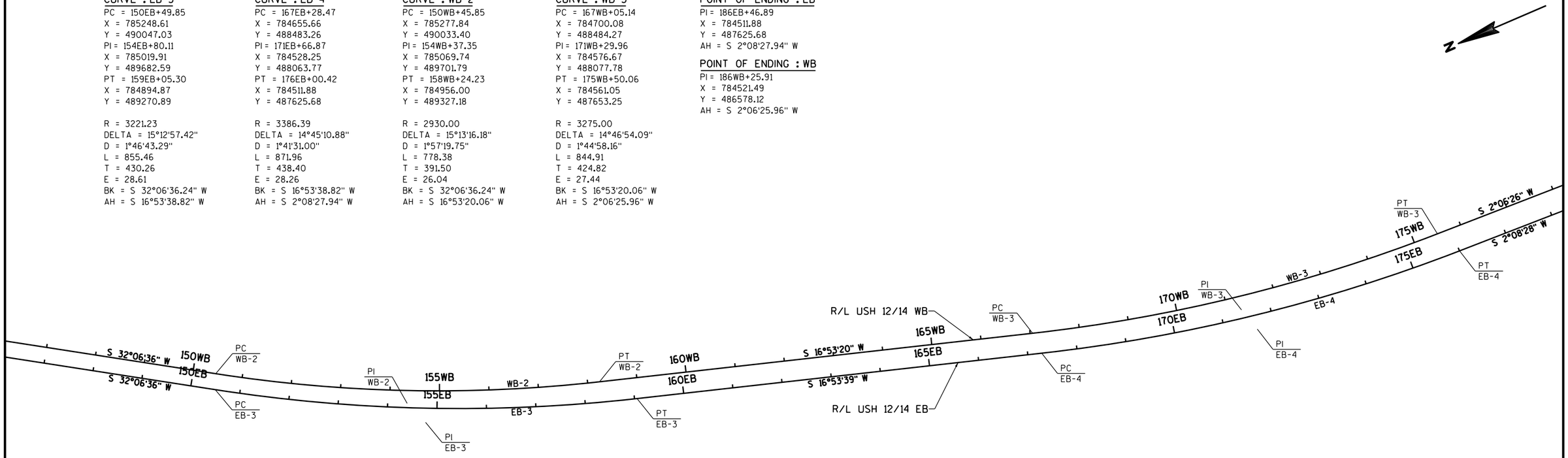
R = 2930.00
DELTA = 15°13'16.18"
D = 1°57'19.75"
L = 778.38
T = 391.50
E = 26.04
BK = S 32°06'36.24" W
AH = S 16°53'20.06" W

CURVE : WB-3
PC = 167WB+05.14
X = 784700.08
Y = 488484.27
PI = 171WB+29.96
X = 784576.67
Y = 488077.78
PT = 175WB+50.06
X = 784561.05
Y = 487653.25

R = 3275.00
DELTA = 14°46'54.09"
D = 1°44'58.16"
L = 844.91
T = 424.82
E = 27.44
BK = S 16°53'20.06" W
AH = S 2°06'25.96" W

POINT OF ENDING : EB
PI = 186EB+46.89
X = 784511.88
Y = 487625.68
AH = S 2°08'27.94" W

POINT OF ENDING : WB
PI = 186WB+25.91
X = 784521.49
Y = 486578.12
AH = S 2°06'25.96" W



PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	ALIGNMENT PLAN	SHEET 49	E

FILE NAME : \\madw00\ingrproj\62247\t1\cds\027201_ad.dgn
PLOT DATE : 4/5/2017
PLOT BY : ctomsak
PLOT NAME :
PLOT SCALE : 200:1

WISDOT/CADDS SHEET 42

5300-01-83

Line	Item	Item Description	Unit	Total	Qty
0010	203.0200	Removing Old Structure (station) 01. STA. 147WB+00	LS	1.000	1.000
0020	203.0200	Removing Old Structure (station) 02. STA. 147EB+00	LS	1.000	1.000
0030	203.0210.S	Abatement of Asbestos Containing Material (structure) 01. B-13-228	LS	1.000	1.000
0040	203.0225.S	Debris Containment (structure) 01. B-13-14	LS	1.000	1.000
0050	203.0225.S	Debris Containment (structure) 02. B-13-228	LS	1.000	1.000
0060	204.0100	Removing Pavement	SY	966.000	966.000
0070	204.0109.S	Removing Concrete Surface Partial Depth	SF	656.000	656.000
0080	204.0120	Removing Asphaltic Surface Milling	SY	1,225.000	1,225.000
0090	204.0140	Removing Gutter	LF	53.000	53.000
0100	204.0157	Removing Concrete Barrier	LF	40.000	40.000
0110	204.0165	Removing Guardrail	LF	570.000	570.000
0120	204.0220	Removing Inlets	EACH	4.000	4.000
0130	204.0245	Removing Storm Sewer (size) 01. 12-Inch	LF	15.000	15.000
0140	204.0245	Removing Storm Sewer (size) 02. 18-Inch	LF	223.000	223.000
0150	205.0100	Excavation Common	CY	100.000	100.000
0160	206.1000	Excavation for Structures Bridges (structure) 01. B-13-228	LS	1.000	1.000
0170	210.1500	Backfill Structure Type A	TON	20.000	20.000
0180	211.0200	Prepare Foundation for Concrete Pavement (project) 01. 5300-01-83	LS	1.000	1.000
0190	213.0100	Finishing Roadway (project) 01. 5300-01-83	EACH	1.000	1.000
0200	305.0110	Base Aggregate Dense 3/4-Inch	TON	25.000	25.000
0210	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	185.000	185.000
0220	415.0100	Concrete Pavement 10-Inch	SY	833.000	833.000
0230	415.0410	Concrete Pavement Approach Slab	SY	393.000	393.000
0240	416.0610	Drilled Tie Bars	EACH	139.000	139.000
0250	416.0620	Drilled Dowel Bars	EACH	134.000	134.000
0260	416.1110	Concrete Shoulder Rumble Strips	LF	329.000	329.000
0270	450.4000	HMA Cold Weather Paving	TON	125.000	125.000
0280	455.0605	Tack Coat	GAL	91.000	91.000
0290	460.2000	Incentive Density HMA Pavement	DOL	90.000	90.000
0300	460.6224	HMA Pavement 4 MT 58-28 S	TON	107.000	107.000
0310	465.0105	Asphaltic Surface	TON	18.000	18.000
0320	465.0400	Asphaltic Shoulder Rumble Strips	LF	5,596.000	5,596.000
0330	502.0100	Concrete Masonry Bridges	CY	474.000	474.000
0340	502.3100	Expansion Device (structure) 01. B-13-14	LS	1.000	1.000
0350	502.3100	Expansion Device (structure) 02. B-13-228	LS	1.000	1.000
0360	502.3200	Protective Surface Treatment	SY	3,145.000	3,145.000
0370	502.3210	Pigmented Surface Sealer	SY	463.000	463.000

5300-01-83

Line	Item	Item Description	Unit	Total	Qty
0380	502.4106	Adhesive Anchors 3/4-inch	EACH	18.000	18.000
0390	502.4204	Adhesive Anchors No. 4 Bar	EACH	4.000	4.000
0400	502.4205	Adhesive Anchors No. 5 Bar	EACH	278.000	278.000
0410	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	109,390.000	109,390.000
0420	505.0904	Bar Couplers No. 4	EACH	8.000	8.000
0430	505.0905	Bar Couplers No. 5	EACH	886.000	886.000
0440	505.0906	Bar Couplers No. 6	EACH	6.000	6.000
0450	506.6000	Bearing Assemblies Expansion (structure) 01. B-13-14	EACH	18.000	18.000
0460	506.6000	Bearing Assemblies Expansion (structure) 02. B-13-228	EACH	18.000	18.000
0470	506.7050.S	Removing Bearings (structure) 01. B-13-14	EACH	18.000	18.000
0480	506.7050.S	Removing Bearings (structure) 02. B-13-228	EACH	18.000	18.000
0490	509.0301	Preparation Decks Type 1	SY	15.000	15.000
0500	509.0302	Preparation Decks Type 2	SY	6.000	6.000
0510	509.0500	Cleaning Decks	SY	1,500.000	1,500.000
0520	509.1000	Joint Repair	SY	55.000	55.000
0530	509.2000	Full-Depth Deck Repair	SY	1.000	1.000
0540	509.2500	Concrete Masonry Overlay Decks	CY	101.000	101.000
0550	509.9050.S	Cleaning Parapets	LF	562.000	562.000
0560	514.0445	Floor Drains Type GC	EACH	2.000	2.000
0570	516.0500	Rubberized Membrane Waterproofing	SY	2.000	2.000
0580	517.0900.S	Preparation and Coating of Top Flanges (structure) 01. B-13-14	LS	1.000	1.000
0590	517.1800.S	Structure Repainting Recycled Abrasive (structure) 01. B-13-14	LS	1.000	1.000
0600	517.1800.S	Structure Repainting Recycled Abrasive (structure) 02. B-13-228	LS	1.000	1.000
0610	517.4000.S	Containment and Collection of Waste Materials (structure) 01. B-13-14	LS	1.000	1.000
0620	517.4000.S	Containment and Collection of Waste Materials (structure) 02. B-13-228	LS	1.000	1.000
0630	517.6001.S	Portable Decontamination Facility	EACH	2.000	2.000
0640	520.8000	Concrete Collars for Pipe	EACH	5.000	5.000
0650	521.1012	Apron Endwalls for Culvert Pipe Steel 12-Inch	EACH	1.000	1.000
0660	530.0112	Culvert Pipe Corrugated Polyethylene 12-Inch	LF	98.000	98.000
0670	603.0105	Concrete Barrier Single-Faced 32-Inch	LF	40.000	40.000
0680	603.8000	Concrete Barrier Temporary Precast Delivered	LF	1,788.000	1,788.000
0690	603.8125	Concrete Barrier Temporary Precast Installed	LF	3,564.000	3,564.000
0700	604.9010.S	Slope Paving Repair Crushed Aggregate	CY	66.000	66.000
0710	604.9015.S	Reseal Crushed Aggregate Slope Paving	SY	1,500.000	1,500.000
0720	606.0200	Riprap Medium	CY	7.000	7.000
0730	608.0312	Storm Sewer Pipe Reinforced Concrete Class III 12-	LF	168.000	168.000

5300-01-83

Line	Item	Item Description	Unit	Total	Qty
		Inch			
0740	611.0654	Inlet Covers Type V	EACH	5.000	5.000
0750	611.3004	Inlets 4-FT Diameter	EACH	1.000	1.000
0760	611.3225	Inlets 2x2.5-FT	EACH	4.000	4.000
0770	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	1.000	1.000
0780	614.0905	Crash Cushions Temporary	EACH	4.000	4.000
0790	614.2300	MGS Guardrail 3	LF	329.000	329.000
0800	614.2310	MGS Guardrail 3 HS	LF	50.000	50.000
0810	614.2320	MGS Guardrail 3 QS	LF	54.000	54.000
0820	614.2500	MGS Thrie Beam Transition	LF	137.000	137.000
0830	618.0100	Maintenance And Repair of Haul Roads (project) 01. 5300-01-83	EACH	1.000	1.000
0840	619.1000	Mobilization	EACH	1.000	1.000
0850	624.0100	Water	MGAL	5.000	5.000
0860	625.0500	Salvaged Topsoil	SY	203.000	203.000
0870	628.1504	Silt Fence	LF	272.000	272.000
0880	628.1520	Silt Fence Maintenance	LF	272.000	272.000
0890	628.1905	Mobilizations Erosion Control	EACH	7.000	7.000
0900	628.1910	Mobilizations Emergency Erosion Control	EACH	1.000	1.000
0910	628.2004	Erosion Mat Class I Type B	SY	201.000	201.000
0920	628.7005	Inlet Protection Type A	EACH	2.000	2.000
0930	628.7020	Inlet Protection Type D	EACH	13.000	13.000
0940	628.7504	Temporary Ditch Checks	LF	48.000	48.000
0950	628.7570	Rock Bags	EACH	20.000	20.000
0960	629.0210	Fertilizer Type B	CWT	0.850	0.850
0970	630.0130	Seeding Mixture No. 30	LB	6.000	6.000
0980	633.1000	Delineator Brackets	EACH	56.000	56.000
0990	633.5200	Markers Culvert End	EACH	1.000	1.000
1000	642.5201	Field Office Type C	EACH	1.000	1.000
1010	643.0100	Traffic Control (project) 01. 5300-01-83	EACH	1.000	1.000
1020	643.0300	Traffic Control Drums	DAY	10,948.000	10,948.000
1030	643.0420	Traffic Control Barricades Type III	DAY	2,989.000	2,989.000
1040	643.0705	Traffic Control Warning Lights Type A	DAY	5,978.000	5,978.000
1050	643.0715	Traffic Control Warning Lights Type C	DAY	2,559.000	2,559.000
1060	643.0800	Traffic Control Arrow Boards	DAY	44.000	44.000
1070	643.0900	Traffic Control Signs	DAY	8,344.000	8,344.000
1080	643.0910	Traffic Control Covering Signs Type I	EACH	8.000	8.000
1090	643.0920	Traffic Control Covering Signs Type II	EACH	36.000	36.000
1100	643.1050	Traffic Control Signs PCMS	DAY	86.000	86.000
1110	643.2000	Traffic Control Detour (project) 01. 5300-01-83	EACH	1.000	1.000

5300-01-83

Line	Item	Item Description	Unit	Total	Qty
1120	643.3000	Traffic Control Detour Signs	DAY	8,047.000	8,047.000
1130	644.1616.S	Temporary Pedestrian Safety Fence	LF	375.000	375.000
1140	645.0120	Geotextile Type HR	SY	15.000	15.000
1150	646.0106	Pavement Marking Epoxy 4-Inch	LF	5,867.000	5,867.000
1160	646.0126	Pavement Marking Epoxy 8-Inch	LF	4,276.000	4,276.000
1170	646.0600	Removing Pavement Markings	LF	2,169.000	2,169.000
1180	646.0690.S	Removing Pavement Markings Water Blasting	LF	8,798.000	8,798.000
1190	646.0881.S	Pavement Marking Grooved Wet Reflective Tape 4-Inch	LF	185.000	185.000
1200	646.0883.S	Pavement Marking Grooved Wet Reflective Tape 8-Inch	LF	349.000	349.000
1210	647.0746	Pavement Marking Diagonal Epoxy 24-Inch	LF	477.000	477.000
1220	649.0401	Temporary Pavement Marking Removable Contrast Tape 4-Inch	LF	14,871.000	14,871.000
1230	649.2100	Temporary Raised Pavement Markers Type I	EACH	269.000	269.000
1240	650.4000	Construction Staking Storm Sewer	EACH	5.000	5.000
1250	650.7000	Construction Staking Concrete Pavement	LF	435.000	435.000
1260	690.0150	Sawing Asphalt	LF	60.000	60.000
1270	690.0250	Sawing Concrete	LF	481.000	481.000
1280	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
1290	715.0502	Incentive Strength Concrete Structures	DOL	2,808.000	2,808.000
1300	801.0117	Railroad Flagging Reimbursment	DOL	15,000.000	15,000.000
1310	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	900.000	900.000
1320	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	775.000	775.000
1330	SPV.0060	Special 01. Securing Structure Covers	EACH	5.000	5.000
1340	SPV.0060	Special 02. Repositioning Traffic Control Devices for Mainline Closures	EACH	14.000	14.000
1350	SPV.0060	Special 03. Traffic Control Close-Open Freeway Entrance Ramp	EACH	5.000	5.000
1360	SPV.0060	Special 04. Bridge Deck Coring	EACH	3.000	3.000
1370	SPV.0060	Special 05. Temporary Delineators for Ex Barrier	EACH	88.000	88.000
1380	SPV.0090	Special 01. Temporary Pavement Marking Wet Reflective Contrast Removable Tape 8-Inch	LF	6,044.000	6,044.000
1390	SPV.0090	Special 02. Traffic Control Gawk Screen Furnished	LF	2,376.000	2,376.000
1400	SPV.0090	Special 03. Traffic Control Gawk Screen Installed	LF	4,174.000	4,174.000
1410	SPV.0090	Special 04. Concrete Curb Integral Type TBT	LF	36.000	36.000
1420	SPV.0105	Special 01. Vegetation Removal B-13-14	LS	1.000	1.000
1430	SPV.0105	Special 02. Vegetation Removal B-13-228	LS	1.000	1.000
1440	SPV.0165	Special 01. Removing Loose Concrete	SF	50.000	50.000

REMOVING STORM SEWER ITEMS

ROADWAY	STATION	OFFSET	204.0220 REMOVING INLETS EACH	204.0245 REMOVING STORM SEWER 12-INCH LF	204.0245 REMOVING STORM SEWER 18-INCH LF
STAGE 2					
EB	145EB+76	RT	1	--	113
STAGE 2 SUBTOTAL			1	--	113
STAGE 3					
EB	142EB+58	LT	--	15	--
EB	145EB+41	RT/LT	1	--	41
WB	145WB+37	RT/LT	1	--	40
STAGE 3 SUBTOTAL			2	15	81
STAGE 4					
WB	145WB+12	LT	1	--	29
STAGE 4 SUBTOTAL			1	--	29
PROJECT 5300-01-83 TOTAL			4	15	223

PREPARE FOUNDATION FOR CONCRETE PAVEMENT (PROJECT 5300-01-83)

ROADWAY	211.0200 PREPARE FOUNDATION FOR CONCRETE PAVEMENT 5300-01-83 LS
PROJECT 5300-01-83	1
PROJECT 5300-01-83 TOTAL	1

FINISHING ROADWAY (PROJECT 5300-01-83)

ROADWAY	213.0100 FINISHING ROADWAY 5300-01-83 EACH
PROJECT 5300-01-83	1
PROJECT 5300-01-83 TOTAL	1

MOBILIZATION

ROADWAY	619.1000 MOBILIZATION EACH
PROJECT 5300-01-83	1
PROJECT 5300-01-83 TOTAL	1

MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT 5300-01-83)

ROADWAY	618.0100 MAINTENANCE AND REPAIR OF HAUL ROADS 5300-01-83 EACH
PROJECT 5300-01-83	1
PROJECT 5300-01-83 TOTAL	1

EXCAVATION COMMON

ROADWAY	STATION			OFFSET	205.0100 EXCAVATION COMMON CY
STAGE 2					
EB	145EB+20	-	145EB+65	RT	11
EB	148EB+52	-	148EB+97	RT	13
WB	144WB+82	-	145WB+23	RT	8
WB	148WB+21	-	148WB+66	RT	6
STAGE 2 SUBTOTALS					38
STAGE 3					
EB	145EB+20	-	145EB+32	LT	6
EB	148EB+32	-	148EB+97	LT	9
STAGE 3 SUBTOTALS					15
STAGE 4					
WB	144WB+82	-	145WB+05	LT	7
WB	147WB+98	-	148WB+66	LT	20
STAGE 4 SUBTOTALS					27
UNDISTRIBUTED					20
PROJECT 5300-01-83 TOTALS					100

FIELD OFFICE TYPE C

ROADWAY	642.5201 FIELD OFFICE TYPE C 5300-01-83 EACH
PROJECT 5300-01-83	1
PROJECT 5300-01-83 TOTAL	1

BRIDGE DECK CORING

STRUCTURE	SPV.0060.04 BRIDGE DECK CORING EACH
B-13-14	3
PROJECT 5300-01-83 TOTAL	3

RAILROAD FLAGGING REIMBURSEMENT

ROADWAY	801.0177 RAILROAD FLAGGING REIMBURSEMENT DOL
PROJECT 5300-01-83	15,000
PROJECT 5300-01-83 TOTAL	15,000

BASE AGGREGATE DENSE

ROADWAY	STATION	OFFSET	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL	COMMENTS
STAGE 2						
EB	145EB+20 - 145EB+88	RT	--	5	--	1/2" OF BASE AGGREGATE TO ACCOUNT FOR PROFILE ADJUSTMENT.
EB	154EB+57 - 154EB+81	RT	--	17	--	10" OF BASE AGGREGATE FOR STORM SEWER REPLACEMENT.
EB	148EB+44 - 148EB+97	RT	--	18	--	
WB	144WB+82 - 145WB+48	RT	--	5	--	1/2" OF BASE AGGREGATE TO ACCOUNT FOR PROFILE ADJUSTMENT.
WB	145WB+20 - 145WB+43	LT	--	16	--	10" OF BASE AGGREGATE FOR STORM SEWER REPLACEMENT.
WB	148WB+11 - 148WB+66	RT/LT	--	18	--	
STAGE 2 SUBTOTAL			--	79	--	
STAGE 3						
EB	145EB+20 - 145EB+75	RT/LT	--	4	--	1/2" OF BASE AGGREGATE TO ACCOUNT FOR PROFILE ADJUSTMENT.
EB	145EB+46 - 145EB+67	RT/LT	--	15	--	10" OF BASE AGGREGATE FOR STORM SEWER REPLACEMENT.
EB	148EB+34 - 148EB+97	RT/LT	--	22	--	
STAGE 3 SUBTOTAL			--	41	--	
STAGE 4						
WB	144WB+82 - 145WB+35	LT	--	4	--	1/2" OF BASE AGGREGATE TO ACCOUNT FOR PROFILE ADJUSTMENT.
WB	145WB+06 - 145WB+30	LT	--	16	--	10" OF BASE AGGREGATE FOR STORM SEWER REPLACEMENT.
WB	147WB+98 - 148WB+66	LT	--	25	--	
STAGE 4 SUBTOTAL			--	45	--	
UNDISTRIBUTED	USH 12/14		25	20	5	
PROJECT 5300-01-83 TOTALS			25	185	5	

BEAMGUARD

ROADWAY	STATION	OFFSET	204.0165 REMOVING GUARDRAIL LF	614.2300 MGS GUARDRAIL 3 LF	614.2310 MGS GUARDRAIL 3 HS LF	614.2320 MGS GUARDRAIL 3 QS LF	614.2500 MGS THRIE BEAM TRANSITION LF
STAGE 2							
EB	142EB+09 - 145EB+81	RT	372	222	50	54	46
EB	148EB+65 - 148EB+97	RT	32	26	--	--	6
STAGE 2 SUBTOTAL			404	248	50	54	52
STAGE 4							
WB	144WB+05 - 145WB+12	LT	107	61	--	--	46
WB	148WB+07 - 148WB+66	LT	59	20	--	--	39
STAGE 4 SUBTOTAL			166	81	--	--	85
PROJECT 5300-01-83 TOTAL			570	329	50	54	137

CONCRETE CURB INTEGRAL TYPE TBT

ROADWAY	STATION	OFFSET	SPV.0090.04 CONCRETE CURB INTEGRAL TYPE TBT LF
STAGE 2			
EB	145EB+56 - 145EB+78	RT	22
STAGE 2 SUBTOTALS			22
STAGE 4			
WB	145WB+07 - 145WB+21	LT	14
STAGE 4 SUBTOTALS			14
UNDISTRIBUTED			--
PROJECT 5300-01-83 TOTALS			36

3

CONCRETE ITEMS

ROADWAY	STATION	OFFSET	204.0100 REMOVING PAVEMENT SY	204.0109.S REMOVING CONCRETE SURFACE PARTIAL DEPTH SF	204.0140 REMOVING GUTTER LF	204.0157 REMOVING CONCRETE BARRIER LF	415.0100 CONCRETE PAVEMENT 10-INCH SY	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY	416.0610 DRILLED TIE BARS* EACH	416.0620 DRILLED DOWEL BARS EACH	416.1110 CONCRETE SHOULDER RUMBLE STRIPS** LF	603.0105 CONCRETE BARRER SINGLE-FACED 32-INCH LF	690.0250 SAWING CONCRETE***' LF
STAGE 1													
EB	143EB+40 - 145EB+51	LT	--	387	--	--	--	--	--	--	--	--	--
STAGE 1 SUBTOTAL			--	387	--	--	--	--	--	--	--	--	--
STAGE 2													
EB	145EB+20 - 145EB+88	RT	150	--	--	--	125	65	--	17	--	--	75
EB	148EB+44 - 148EB+97	RT	84	--	--	--	99	32	--	13	--	--	68
WB	143WB+35 - 144WB+82	RT	--	269	--	--	--	--	--	--	--	--	--
WB	144WB+82 - 145WB+48	RT/LT	143	--	41	--	109	62	15	17	--	--	116
WB	148WB+11 - 148WB+66	RT/LT	110	--	--	--	85	43	--	16	--	--	74
STAGE 2 SUBTOTAL			487	269	41	--	418	202	15	63	--	--	333
STAGE 3													
EB	142EB+40 - 142EB+60	LT	--	--	--	20	--	--	4	--	--	20	7
EB	145EB+20 - 145EB+75	RT/LT	126	--	12	10	91	41	34	16	--	10	58
EB	148EB+34 - 148EB+97	RT/LT	134	--	--	--	97	62	19	17	--	--	20
WB	145WB+33 - 145WB+43	RT	--	--	--	10	--	--	4	--	--	10	7
STAGE 3 SUBTOTAL			260	--	12	40	188	103	61	33	--	40	92
STAGE 4													
EB	145EB+20 - 145EB+35	LT	--	--	--	--	--	--	--	--	15	--	--
EB	148EB+34 - 148EB+97	LT	--	--	--	--	--	--	--	--	63	--	--
WB	144WB+82 - 145WB+35	LT	112	--	--	--	101	35	19	14	15	--	16
WB	147WB+98 - 148WB+66	LT	107	--	--	--	126	53	19	14	63	--	16
STAGE 4 SUBTOTAL			219	--	--	--	227	88	38	28	156	--	33
STAGE 5													
EB	145EB+20 - 145EB+50	RT	--	--	--	--	--	--	--	--	30	--	--
EB	148EB+52 - 148EB+97	RT	--	--	--	--	--	--	--	--	45	--	--
WB	144WB+82 - 145WB+22	RT	--	--	--	--	--	--	--	--	45	--	--
WB	148WB+21 - 148WB+66	RT	--	--	--	--	--	--	--	--	45	--	--
STAGE 5 SUBTOTAL			--	--	--	--	--	--	--	--	165	--	--
UNDISTRIBUTED			--	--	--	--	--	--	25	10	8	--	23
PROJECT 5300-01-83 TOTAL			966	656	53	40	833	393	139	134	329	40	481

*DRILL 2 TIE BARS TO A DEPTH OF 18" AT EACH END OF CONCRETE BARRIER REPLACEMENT. SEE PLAN DETAILS FOR MORE INFORMATION.

**SEE PLAN DETAILS FOR EXACT LIMITS OF CONCRETE SHOULDER RUMBLE STRIPS

**THERE WILL BE A 3.5' VERTICAL SAWCUT AT EACH END OF THE CONCRETE BARRIER REMOVAL.

3

ASPHALT ITEMS

ROADWAY		STATION			OFFSET	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	450.4000 HMA COLD WEATHER PAVING TON	455.0605 TACK COAT GAL	460.6224 HMA PAVEMENT 4 MT 58-28 S TON	465.0105 ASPHALTIC SURFACE TON	465.0400 ASPHALTIC SHOULDER RUMBLE STRIP LF	690.0150 SAWING ASPHALT LF	COMMENTS
STAGE 1													
	EB	141EB+41	-	145EB+51	LT	252	28	21	28	--	--	--	MILL ASPHALT SHOULDER 1.75-INCH DEEP
	WB	137WB+90	-	139WB+26	LT	117	11	8	11	--	--	--	MILL ASPHALT SHOULDER 1.75-INCH DEEP
	WB	143WB+30	-	144WB+82	LT	141	14	10	14	--	--	--	MILL ASPHALT SHOULDER 1.75-INCH DEEP
	WB	147WB+97	-	153WB+33	LT	117	11	8	--	11	--	--	MILL RUMBLE STRIPS 2-FEET WIDE X 1.75-INCH DEEP
STAGE 1 SUBTOTAL						627	64	47	53	11	--	--	
STAGE 2													
	EB	142EB+09	-	145EB+20	RT	404	39	28	39	--	--	8	MILL ASPHALT SHOULDER 1.75-INCH DEEP
	EB	148EB+97	-	151EB+90	RT	65	6	5	--	6	--	10	MILL RUMBLE STRIPS 2-FEET WIDE X 1.75-INCH DEEP
	WB	142WB+35	-	144WB+82	RT	105	13	9	13	--	--	4	MILL ASPHALT SHOULDER 1.75-INCH DEEP
	WB	148WB+66	-	148WB+66	RT	--	--	--	--	--	--	4	
STAGE 2 SUBTOTAL						574	58	42	52	6	--	26	
STAGE 3													
	EB	145EB+20	-	145EB+20	LT	--	--	--	--	--	--	4	
	EB	148EB+97	-	148EB+97	LT	--	--	--	--	--	--	5	
STAGE 3 SUBTOTAL						--	--	--	--	--	--	9	
STAGE 4													
	EB	141EB+45	-	145EB+20	LT	--	--	--	--	--	375	--	
	WB	143WB+30	-	144WB+82	LT	--	--	--	--	--	152	10	
	WB	148WB+66	-	153WB+33	LT	--	--	--	--	--	462	10	
STAGE 4 SUBTOTAL						--	--	--	--	--	989	20	
STAGE 5													
	EB	142EB+09	-	145EB+20	RT	--	--	--	--	--	310	--	
	EB	148EB+97	-	151EB+90	RT	--	--	--	--	--	295	--	
	EB	148EB+97	-	166EB+48	LT	--	--	--	--	--	1,751	--	
	WB	137WB+90	-	139WB+24	LT	--	--	--	--	--	134	--	
	WB	142WB+35	-	144WB+82	RT	--	--	--	--	--	247	--	
	WB	148WB+66	-	166WB+26	RT	--	--	--	--	--	1,760	--	
STAGE 5 SUBTOTAL						--	--	--	--	--	4,497	--	
UNDISTRIBUTED						24	3	2	2	1	110	5	
PROJECT 5300-01-83 TOTAL						1,225	125	91	107	18	5,596	60	

STORM SEWER STRUCTURES

ROADWAY	STRUCTURE NUMBER	STATION	OFFSET	RIM	LOWEST INVERT	STRUCTURE DEPTH	611.0654 INLET COVER TYPE V EACH	611.3004 INLETS 4-FT DIAMETER EACH	611.3225 INLETS 2X2.5-FT EACH	SPV.0060.01 SECURING STRUCTURE COVERS EACH
STAGE 1										
USH 12/14 EB	EXISTING INLET	145EB+75	4.6' LT	--	--	--	--	--	--	1
USH 12/14 WB	EXISTING INLET	145WB+12	45.4' LT	--	--	--	--	--	--	1
STAGE 1 SUBTOTAL							--	--	--	2
STAGE 2										
USH 12/14 EB	IN5	145EB+61	45.6' RT	957.11	947.49	9.62	1	1	--	1
USH 12/14 EB	IN4	145EB+75	46.5' RT	957.44	949.60	7.84	1	--	1	1
STAGE 2 SUBTOTAL							2	1	1	2
STAGE 3										
USH 12/14 EB	IN3	145EB+51	4.6' LT	957.30	951.11	6.19	1	--	1	--
USH 12/14 WB	IN2	145WB+37	5.2' RT	958.01	951.35	6.66	1	--	1	1
STAGE 3 SUBTOTAL							2	--	2	1
STAGE 4										
USH 12/14 WB	IN1	145WB+12	45.4' LT	957.14	951.89	5.25	1	--	1	--
STAGE 4 SUBTOTAL							1	--	1	--
PROJECT 5300-01-83 TOTAL							5	1	4	5

CONSTRUCTION STAKING STORM SEWER

ROADWAY	STUCTURE NUMBER	STATION	OFFSET	650.4000 CONSTRUCTION STAKING STORM SEWER EACH
STAGE 2				
EB	IN5	145EB+61	45.6' RT	1
EB	IN4	145EB+75	46.5' RT	1
STAGE 2 SUBTOTALS				2
STAGE 3				
EB	IN3	145EB+51	4.6' LT	1
WB	IN2	145WB+37	5.2' RT	1
STAGE 3 SUBTOTALS				2
STAGE 4				
WB	IN1	145WB+12	45.4' LT	1
STAGE 4 SUBTOTALS				1
UNDISTRIBUTED				--
PROJECT 5300-01-83 TOTALS				5

STORM SEWER STRUCTURES

ROADWAY	FROM STR	TO STR	INVERT ELEV FT	DISCH ELEV FT	SLOPE	520.8000 CONCRETE COLLARS FOR PIPE EACH	521.1012 APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH EACH	530.0112 CULVERT PIPE CORRUGATED POLYETHYLENE 12-INCH LF	608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH LF	633.5200 MARKERS CULVERT END EACH
STAGE 2										
USH 12/14 EB	IN3	IN4	950.86	950.58	0.93%	1	--	--	30	--
USH 12/14 EB	IN4	IN5	949.60	949.49	0.79%	--	--	--	14	--
USH 12/14 EB	IN5	P6	947.49	946.65	8.40%	--	--	10	--	--
USH 12/14 EB	P6	P7	946.65	922.90	30.45%	--	--	78	--	--
USH 12/14 EB	P7	6EW	922.90	922.06	8.40%	--	1	10	--	1
STAGE 2 SUBTOTAL						1	1	98	44	1
STAGE 3										
USH 12/14 EB	EXISTING INLET	EXISTING PIPE	946.86	946.27	3.93%	1	--	--	15	--
MEDIAN	IN2	IN3	951.35	951.11	0.92%	--	--	--	26	--
USH 12/14 EB	IN3	IN4	951.11	950.86	0.93%	1	--	--	27	--
USH 12/14 WB	IN1	IN2	951.62	951.35	0.96%	1	--	--	28	--
STAGE 3 SUBTOTAL						3	--	--	96	--
STAGE 4 TOTAL										
USH 12/14 WB	IN1	IN2	951.89	951.62	0.96%	1	--	--	28	--
STAGE 4 SUBTOTAL						1	--	--	28	--
PROJECT 5300-01-83 TOTAL						5	1	98	168	1

CONCRETE BARRIER TEMPORARY PRECAST ITEMS

ROADWAY	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	SPV.0060.05 TEMPORARY DELINEATORS FOR EX BARRIER EACH	SPV.0090.02 TRAFFIC CONTROL GAWK SCREEN FURNISHED LF	SPV.0090.03 TRAFFIC CONTROL GAWK SCREEN INSTALLED* LF	COMMENTS
STAGE 2						
EB	913	913	37	1,513	1,513	ANCHOR BARRIER AT CRASH CUSHIONS PER STANDARD DETAIL.
WB	863	863	13	863	863	ANCHOR BARRIER STA 145WB+25 TO STA 148WB+25 AND AT CRASH CUSHIONS PER STANDARD DETAIL.
STAGE 2 SUBTOTAL	1,776	1,776	50	2,376	2,376	
STAGE 3						
EB	--	913	13	--	923	ANCHOR BARRIER AT CRASH CUSHIONS PER STANDARD DETAIL.
STAGE 3 SUBTOTAL	--	913	13	--	923	
STAGE 4						
WB	12	875	25	--	875	ANCHOR BARRIER STA 145WB+25 TO STA 148WB+25 AND AT CRASH CUSHIONS PER STANDARD DETAIL.
STAGE 4 SUBTOTAL	12	875	25	--	875	
UNDISTRIBUTED		--	--	--	--	
PROJECT 5300-01-83 T	1,788	3,564	88	2,376	4,174	

*RE-INSTALL 10' OF TRAFFIC CONTROL GAWK SCREEN AFTER CONCRETE BARRIER REPLACEMENT FROM 145EB+45 TO 145EB+55 IN STAGE 3.

LANDSCAPING

ROADWAY	STATION	TO	STATION	625.0500 SALVAGED TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB
STAGE 2						
USH 12/14 EB OUTSIDE PIPE OUTFALL	145EB+61	-	146EB+33	125	0.25	3
STAGE 2 SUBTOTAL				125	0.25	3
STAGE 3						
MEDIAN	142EB+29	-	142EB+72	24	0.25	1
MEDIAN	145EB+34	-	145EB+55	34	0.25	1
STAGE 3 SUBTOTAL				58	0.50	2
UNDISTRIBUTED				20	0.10	1
PROJECT 5300-01-83 TOTAL				203	0.85	6

CONSTRUCTION STAKING CONCRETE PAVEMENT

ROADWAY	STATION			OFFSET	650.7000 CONSTRUCTION STAKING CONCRETE PAVEMENT LF
STAGE 2					
EB	145EB+20	-	145EB+85	RT	65
EB	148EB+52	-	148EB+97	RT	45
WB	144WB+82	-	145WB+45	RT	63
WB	148WB+21	-	148WB+66	RT	45
STAGE 2 SUBTOTAL					218
STAGE 3					
EB	145EB+20	-	145EB+65	LT	45
EB	148EB+34	-	148EB+97	LT	64
STAGE 3 SUBTOTAL					109
STAGE 4					
WB	144WB+82	-	145WB+27	LT	45
WB	148WB+03	-	148WB+66	LT	63
STAGE 4 SUBTOTAL					108
UNDISTRIBUTED					--
PROJECT 5300-01-83 TOTALS					435

NOTE: CONSTRUCTION STAKING CONCRETE PAVEMENT QUANTITY IS COUNTED FOR EACH STAGE WITH CONCRETE PLACEMENT

EROSION CONTROL ITEMS

ROADWAY	STATION	TO	STATION	606.0200 RIPRAP MEDIUM CY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.2004 EROSION MAT CLASS I TYPE B SY	628.7005 INLET PROTECTION TYPE A EACH	628.7020 INLET PROTECTION TYPE D EACH	628.7504 TEMPORARY DITCH CHECKS LF	628.7570 ROCK BAGS EACH	645.0120 GEOTEXTILE TYPE HR SY
STAGE 1														
MEDIAN	141EB+82	-	--	--	25	25	--	--	--	--	--	--	--	--
MEDIAN	142EB+06	-	--	--	--	--	--	--	--	1	--	--	--	--
EB/SB INSIDE SHOULDER	142EB+58	-	--	--	--	--	--	--	--	--	1	--	--	--
EB/SB INSIDE SHOULDER	145EB+50	-	--	--	--	--	--	--	--	--	1	--	--	--
MEDIAN	145EB+68	-	--	--	20	20	--	--	--	--	--	--	--	--
EB/SB OUTSIDE SHOULDER	145EB+75	-	--	--	--	--	--	--	--	--	1	--	--	--
EB/SB OUTSIDE CULVERT DISCHARGE	146EB+37	-	--	--	202	202	--	--	--	--	--	--	--	--
MEDIAN	149EB+22	-	--	--	--	--	--	--	--	--	--	8	--	--
WB/NB INSIDE SHOULDER	141WB+71	-	--	--	--	--	--	--	--	--	1	--	--	--
WB/NB OUTSIDE SHOULDER	143WB+06	-	--	--	--	--	--	--	--	--	1	--	--	--
WB/NB OUTSIDE SHOULDER	145WB+12	-	--	--	--	--	--	--	--	--	1	--	--	--
WB/NB INSIDE SHOULDER	145WB+37	-	--	--	--	--	--	--	--	--	1	--	--	--
PROJECT 5300-01-83	--	-	--	--	--	--	1	1	--	--	--	--	--	--
STAGE 1 SUBTOTAL				--	247	247	1	1	--	1	7	8	--	--
STAGE 2														
EB/SB OUTSIDE SHOULDER	145EB+61	-	--	--	--	--	--	--	--	--	1	--	--	--
EB/SB OUTSIDE CULVERT DISCHARGE	145EB+61	-	146EB+33	6	--	--	--	--	125	--	--	--	--	13
EB/SB OUTSIDE SHOULDER	145EB+75	-	--	--	--	--	--	--	--	--	1	--	--	--
PROJECT 5300-01-83	--	-	--	--	--	--	1	--	--	--	--	--	--	--
STAGE 2 SUBTOTAL				6	--	--	1	--	125	--	2	--	--	13
STAGE 3														
MEDIAN	142EB+29	-	142EB+72	--	--	--	--	--	24	--	--	--	--	--
MEDIAN	145EB+34	-	145EB+54	--	--	--	--	--	34	--	--	--	--	--
EB/SB INSIDE SHOULDER	145EB+50	-	--	--	--	--	--	--	--	--	1	--	--	--
WB/NB INSIDE SHOULDER	145WB+37	-	--	--	--	--	--	--	--	--	1	--	--	--
PROJECT 5300-01-83	--	-	--	--	--	--	1	--	--	--	--	--	--	--
STAGE 3 SUBTOTAL				--	--	--	1	--	58	--	2	--	--	--
STAGE 4														
WB/NB OUTSIDE SHOULDER	145WB+12	-	--	--	--	--	--	--	--	--	1	--	--	--
PROJECT 5300-01-83	--	-	--	--	--	--	1	--	--	--	--	--	--	--
STAGE 4 SUBTOTAL				--	--	--	1	--	--	--	1	--	--	--
STAGE 5														
PROJECT 5300-01-83	--	-	--	--	--	--	1	--	--	--	--	--	--	--
STAGE 5 SUBTOTAL				--	--	--	1	--	--	--	--	--	--	--
UNDISTRIBUTED				1	25	25	2	--	18	1	1	40	20	2
PROJECT 5300-01-83 TOTAL				7	272	272	7	1	201	2	13	48	20	15

TRAFFIC CONTROL ITEMS

ROADWAY	DURATION DAYS	643.0100 TRAFFIC CONTROL 5300-01-83 EACH	643.0300 TRAFFIC CONTROL DRUMS EACH*	643.0300 DAYS	643.0420 TRAFFIC CONTROL BARRICADES TYPE III EACH*	643.0420 DAYS	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH*	643.0705 DAYS	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C EACH*	643.0715 DAYS	643.0800 TRAFFIC CONTROL ARROW BOARDS EACH*	643.0800 DAYS	643.0900 TRAFFIC CONTROL SIGNS EACH*	643.0900 DAYS	643.1050 TRAFFIC CONTROL SIGNS PCMS EACH*	643.1050 DAYS	643.2000 TRAFFIC CONTROL DETOUR 5300-01-83 EACH	643.3000 TRAFFIC CONTROL DETOUR SIGNS EACH*	643.3000 DAYS	644.1616.S TEMPORARY PEDESTRIAN SAFETY FENCE LF	SPV.0060.02 REPOSITIONING TRAFFIC CONTROL DEVICES FOR MAINLINE CLOSURE EACH	SPV.0060.03 TRAFFIC CONTROL CLOSE-OPEN FREEWAY FOR ENTRANCE RAMP EACH
STAGE 1 CONSTRUCTION																						
USH 12/14 EB	3	--	49	147	1	3	2	6	14	42	2	6	11	33	--	--	--	--	--	--	2	--
USH 12/14 WB	3	--	57	171	2	6	4	12	14	42	2	6	13	39	--	--	--	--	--	--	1	--
GREENWAY BLVD WB ONRAMP CLOSURE	7	--	--	--	6	12	12	24	--	--	--	--	9	18	1	7	--	--	--	--	--	2
UNIVERSITY AVE EB ONRAMP CLOSURE	7	--	--	--	--	--	--	--	--	--	--	--	--	--	1	7	--	--	--	--	--	--
TERRACE AVE	7	--	--	--	--	--	--	--	--	--	--	--	--	--	2	14	--	--	--	--	--	--
PHEASANT BRANCH TRAIL	7	--	--	--	--	--	--	--	--	--	--	--	--	--	2	14	--	--	--	--	--	--
STAGE 1 SUBTOTAL		--		318		21		42		84		12		90		42	--		--	--	3	2
STAGE 2 CONSTRUCTION																						
USH 12/14 EB	34	--	23	782	1	34	2	68	7	238	--	--	26	884	--	--	--	--	--	--	--	--
USH 12/14 WB	34	--	39	1,326	1	34	2	68	17	578	--	--	28	952	--	--	--	--	--	--	--	--
USH 12/14 NIGHTLY SINGLE LANE CLOSURES	3	--	57	171	2	6	4	12	14	42	2	6	10	30	--	--	--	--	--	--	3	--
GREENWAY BLVD WB ONRAMP CLOSURE	34	--	--	--	6	204	12	408	--	--	--	--	8	272	--	--	--	--	--	--	--	--
UNIVERSITY AVE EB ONRAMP CLOSURE	34	--	32	1,088	11	374	22	748	--	--	--	--	4	136	--	--	--	95	3,230	--	--	--
TERRACE AVE	34	--	5	170	10	340	20	680	--	--	--	--	13	442	--	--	--	--	--	--	--	--
PHEASANT BRANCH TRAIL	5	--	--	--	--	--	--	--	--	--	--	--	3	15	--	--	--	--	--	350	--	--
STAGE 2 SUBTOTAL		--		3,537		992		1,984		858		6		2,731		--	--		3,230	350	3	--
STAGE 3 CONSTRUCTION																						
USH 12/14 EB	16	--	39	624	1	16	2	32	15	240	--	--	26	416	--	--	--	--	--	--	--	--
USH 12/14 WB	16	--	39	624	1	16	2	32	17	272	--	--	28	448	--	--	--	--	--	--	--	--
USH 12/14 NIGHTLY SINGLE LANE CLOSURES	1	--	57	57	2	2	4	4	14	14	2	2	10	10	--	--	--	--	--	--	1	--
GREENWAY BLVD WB ONRAMP CLOSURE	16	--	--	--	6	96	12	192	--	--	--	--	8	128	--	--	--	--	--	--	--	--
UNIVERSITY AVE EB ONRAMP CLOSURE	16	--	32	512	11	176	22	352	--	--	--	--	4	64	--	--	--	95	1,520	--	--	--
TERRACE AVE	16	--	5	80	10	160	20	320	--	--	--	--	13	208	--	--	--	--	--	--	--	--
STAGE 3 SUBTOTAL		--		1,897		466		932		526		2		1,274		--	--		1,520	--	1	--
STAGE 4 CONSTRUCTION																						
USH 12/14 EB	27	--	39	1,053	1	27	2	54	15	405	--	--	26	702	--	--	--	--	--	--	--	--
USH 12/14 WB	50	--	28	1,400	1	50	2	100	6	300	--	--	28	1,400	--	--	--	--	--	--	--	--
USH 12/14 NIGHTLY SINGLE LANE CLOSURES	4	--	57	228	2	8	4	16	14	56	2	8	10	40	--	--	--	--	--	--	4	--
GREENWAY BLVD WB ONRAMP CLOSURE	50	--	--	--	6	300	12	600	--	--	--	--	8	400	--	--	--	--	--	--	--	--
UNIVERSITY AVE EB ONRAMP CLOSURE	27	--	32	864	11	297	22	594	--	--	--	--	4	108	--	--	--	95	2,565	--	--	--
TERRACE AVE	50	--	5	250	10	500	20	1,000	--	--	--	--	13	650	--	--	--	--	--	--	--	--
PHEASANT BRANCH TRAIL	5	--	--	--	--	--	--	--	--	--	--	--	3	15	2	14	--	--	--	--	--	--
STAGE 4 SUBTOTAL		--		3,795		1,182		2,364		761		8		3,315		14	--		2,565	--	4	--
STAGE 5 CONSTRUCTION																						
USH 12/14 EB	2	--	57	114	2	4	4	8	14	28	2	4	10	20	--	--	--	--	--	--	1	--
USH 12/14 WB	2	--	57	114	2	4	4	8	14	28	2	4	10	20	--	--	--	--	--	--	1	--
GREENWAY BLVD WB ONRAMP CLOSURE		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
UNIVERSITY AVE EB ONRAMP CLOSURE		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
STAGE 5 SUBTOTAL		--		228		8		16		56		8		40		--	--		--		2	2
UNDISTRIBUTED		1		1,173		320		640		274		8		894		30	1		732	25	1	1
PROJECT 5300-01-83 TOTAL		1		10,948		2,989		5,978		2,559		44		8,344		86	1		8,047	375	14	5

* PROVIDED FOR INFORMATION ONLY

CRASH CUSHION TEMPORARY ITEMS

ROADWAY	STATION	OFFSET	614.0905 CRASH CUSHIONS TEMPORARY EACH	BACK WIDTH FT	OBJECT MARKING PATTERN	CRASH TEST LEVEL	TRAFFIC DIRECTION	TRAFFIC LOCATION	CRASH CUSHION SHIELDS
STAGE 2									
EB	141EB+00	34' RT	1	4	OM-3R (WO5-58M)	TL-3	UNIDIRECTIONAL	L	BLUNT END OF TEMPORARY BARRIER
WB	152WB+75	15' LT	1	4	OM-3L (WO5-58L)	TL-3	UNIDIRECTIONAL	R	BLUNT END OF TEMPORARY BARRIER
STAGE 2 SUBTOTAL			2						
STAGE 3									
EB	141EB+05	11' RT	1	4	OM-3L (WO5-58L)	TL-3	UNIDIRECTIONAL	R	BLUNT END OF TEMPORARY BARRIER
STAGE 3 SUBTOTAL			1						
STAGE 4									
WB	152WB+95	33' LT	1	4	OM-3R (WO5-58M)	TL-3	UNIDIRECTIONAL	L	BLUNT END OF TEMPORARY BARRIER
STAGE 4 SUBTOTAL			1						
UNDISTRIBUTED			--						
PROJECT 5300-01-83 TOTAL			4						

TRAFFIC CONTROL COVERING SIGNS

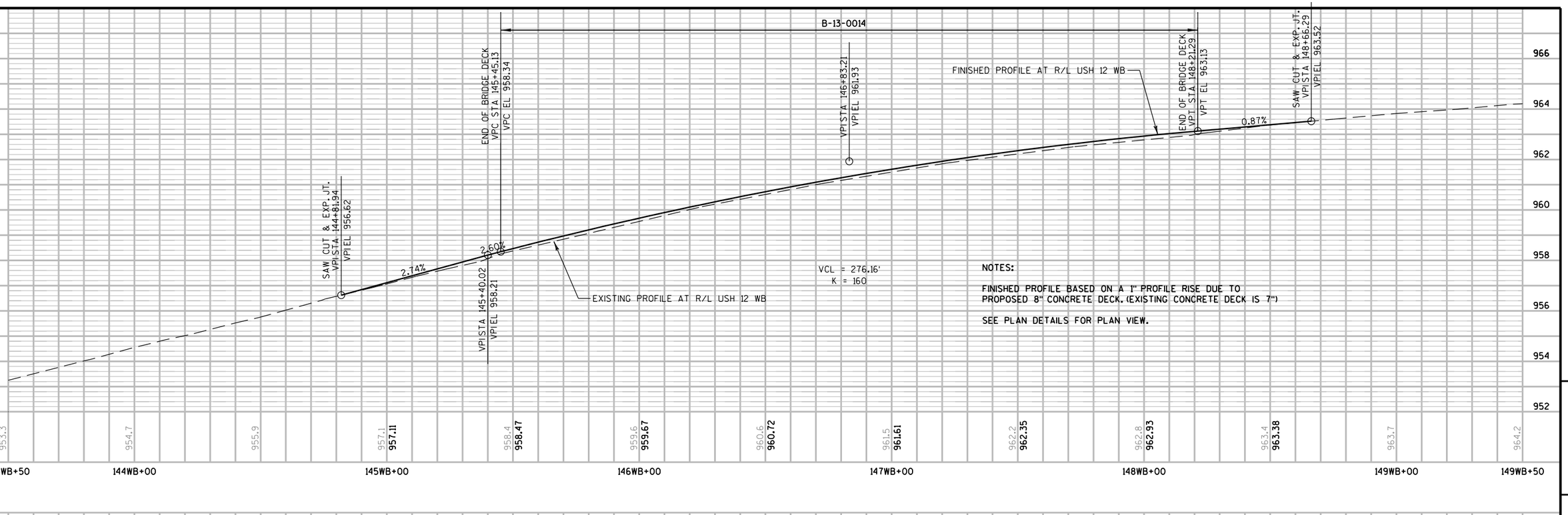
ROADWAY	643.0910 TRAFFIC CONTROL COVERING SIGNS TYPE I EACH	CYCLES	SIGNS	643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II EACH	CYCLES	SIGNS
STAGE 2 CONSTRUCTION						
USH 12/14 EB	1	1	1	1	1	1
USH 12/14 WB	5	1	5	3	1	3
GREENWAY BLVD WB ONRAMP CLOSURE	--	--	--	4	1	4
UNIVERSITY AVE EB ONRAMP CLOSURE	--	--	--	18	1	18
STAGE 2 SUBTOTAL	6			26		
STAGE 3 CONSTRUCTION						
USH 12/14 EB	1	1	1	--	--	--
STAGE 3 SUBTOTAL	1			--		--
UNDISTRIBUTED	1			10		
PROJECT 5300-01-83 TOTAL	8			36		

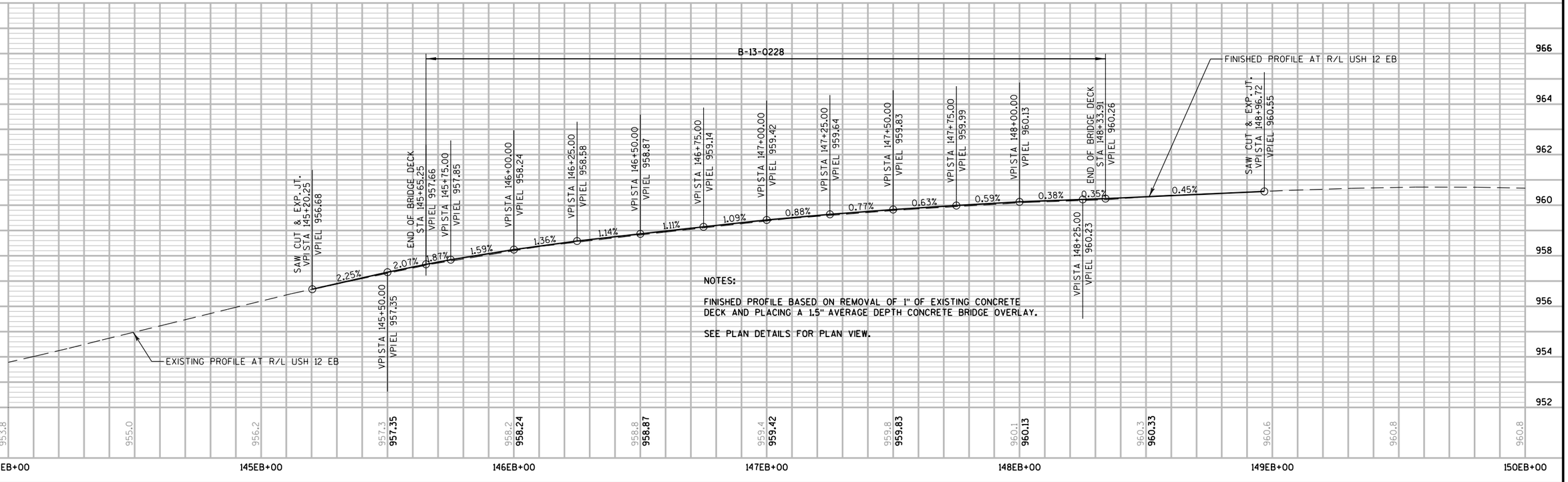
PAVEMENT MARKING ITEMS

LOCATION	STATION	TO	STATION	633.1000 DELINEATOR BRACKETS EACH	646.0106 PAVEMENT MARKING EPOXY 4-INCH YELLOW LF	646.0106 PAVEMENT MARKING EPOXY 4-INCH WHITE LF	646.0126 PAVEMENT MARKING EPOXY 8-INCH WHITE LF	646.0881.S PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 4-INCH WHITE LF	646.0883.S PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 8-INCH WHITE LF	647.0746 PAVEMENT MARKING DIAGONAL EPOXY 24-INCH WHITE LF
STAGE 5										
EB	129EB+55	-	148EB+30	27	--	--	--	--	--	--
EB	135EB+75	-	155EB+80	--	1,604	1,438	1,695	185	349	--
WB	130WB+05	-	148WB+25	29	--	--	--	--	--	--
WB	138WB+00	-	158WB+10	--	1,167	1,658	2,581	--	--	477
STAGE 5 SUBTOTAL				56	5,867		4,276	185	349	477
PROJECT 5300-01-83 TOTAL				56	5,867		4,276	185	349	477

TEMPORARY PAVEMENT MARKINGS AND REMOVALS

CATEGORY	STAGE	ROADWAY	646.0600 REMOVING PAVEMENT MARKINGS LF	646.0690.S REMOVING PAVEMENT MARKINGS WATER BLASTING LF	649.0401 TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH YELLOW LF	649.0401 TEMPORARY PAVEMENT MARKING REMOVABLE CONTRAST TAPE 4-INCH WHITE LF	649.2100 TEMPORARY RAISED PAVEMENT MARKERS TYPE I EACH	SPV.0090.01 TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 8-INCH YELLOW LF	SPV.0090.01 TEMPORARY PAVEMENT MARKING WET REFLECTIVE CONTRAST REMOVABLE TAPE 8-INCH WHITE LF	COMMENTS
1000	2	EB	98	1,471	1,255	1,742	51	--	770	
		WB	855	3,713	2,007	2,074	81	--	2,029	24" DIAGONAL MARKINGS ARE PAID AS THREE (3) - 8" WIDE REMOVALS.
STAGE 2 SUBTOTAL			953	5,184	7,078		132	2,799		
1000	3	EB	445	2,216	2,000	2,343	81	--	1,358	24" DIAGONAL MARKINGS ARE PAID AS THREE (3) - 8" WIDE REMOVALS.
STAGE 3 SUBTOTAL			445	2,216	4,343		81	1,358		
1000	4	WB	137	842	1,168	1,849	48	--	1,711	
STAGE 4 SUBTOTAL			137	842	3,017		48	1,711		
1000	5	EB	--	309	--	--	--	--	--	
		WB	588	--	--	--	--	--	--	
STAGE 5 SUBTOTAL			588	309	--		--	--		
UNDISTRIBUTED			46	247	433		8	176		
PROJECT 5300-01-83 TOTAL			2,169	8,798	14,871		269	6,044		



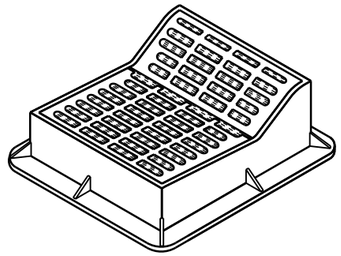


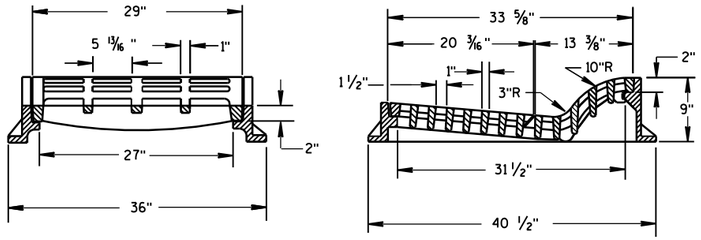
PROJECT NO: 5300-01-83	HWY: USH 12/14	COUNTY: DANE	PROFILE: USH 12 EB & WB	SHEET 65	E

Standard Detail Drawing List

08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08C06-02	INLETS 3-FT AND 4-FT DIAMETER
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D01-19	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D03-06	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
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
12A03-10	NAME PLATE (STRUCTURES)
13A03-06	CONCRETE PAVEMENT SHOULDERS
13A05-05A	SHOULDER RUMBLE STRIP, MILLING
13A05-05B	SHOULDER RUMBLE STRIP, MILLING
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
13C01-18	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C04-16	URBAN NON-DOWELED CONCRETE PAVEMENT
13C11-11A	RURAL DOWELED CONCRETE PAVEMENT
13C11-11B	RURAL DOWELED CONCRETE PAVEMENT
13C13-08	URBAN DOWELED CONCRETE PAVEMENT
13C18-04C	CONCRETE PAVEMENT JOINT TIES
14B07-14A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B22-06A	CONCRETE BARRIER, SINGLE-FACED (WITH ANCHORAGE)
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A02-09	DELINEATOR POST, DELINEATOR REFLECTOR AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C08-17A	LONGITUDINAL MARKING (MAINLINE)
15C31-02A	PAVEMENT MARKING (RAMPS AND GORES)
15C31-02C	PAVEMENT MARKING FOR PARALLEL ON-RAMP AND PARALLEL OFF-RAMP
15D03-04	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER
15D12-06A	TRAFFIC CONTROL, LANE CLOSURE
15D14-03	TRAFFIC CONTROL, TWO LANE CLOSURE ON FREEWAY OR EXPRESSWAY, SHORT-TERM (LESS THAN 24 HOURS)
15D15-02	TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH

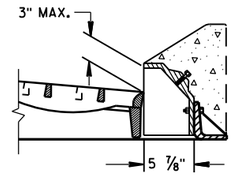
6





TYPE "F"

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



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

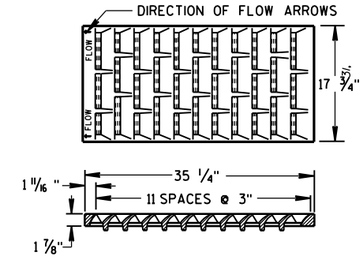
USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

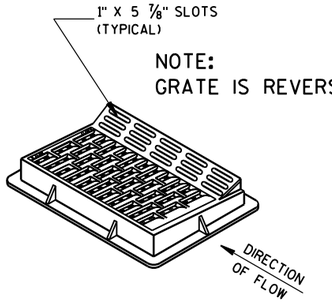
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

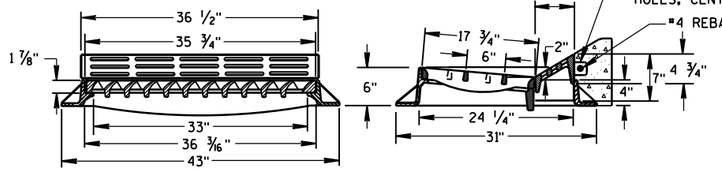
GENERAL NOTES

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

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



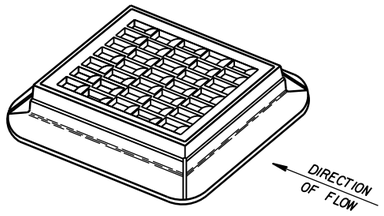


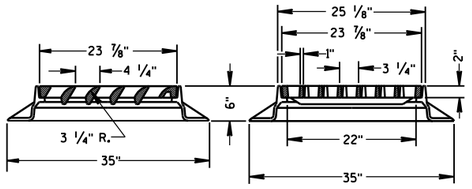


TYPE "HM"

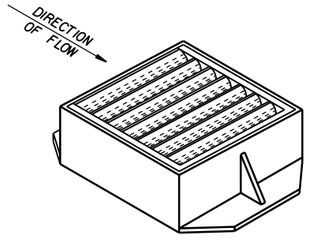
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

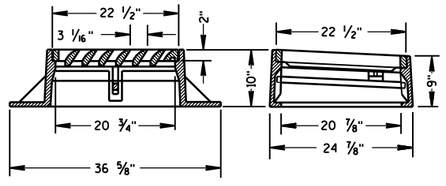
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE



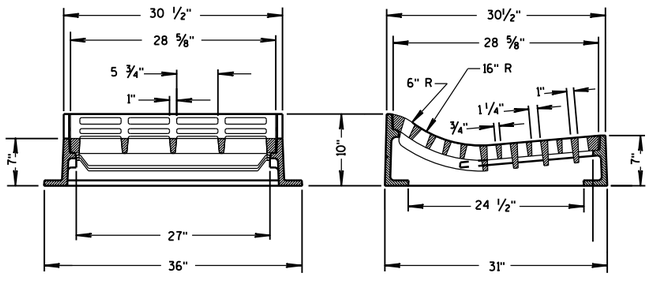


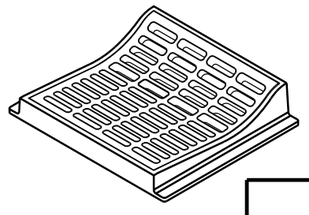
TYPE "S"





TYPE "V"





TYPE "T"

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

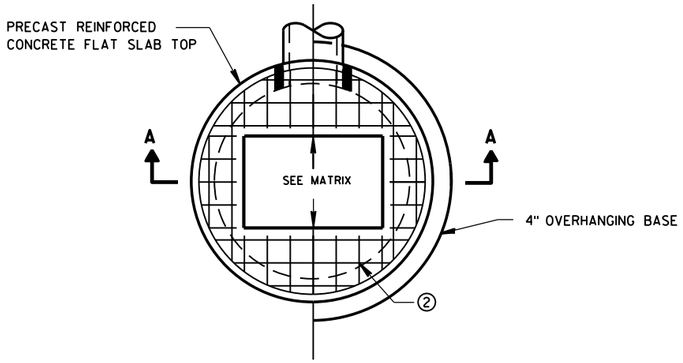
APPROVED
11/27/2013
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

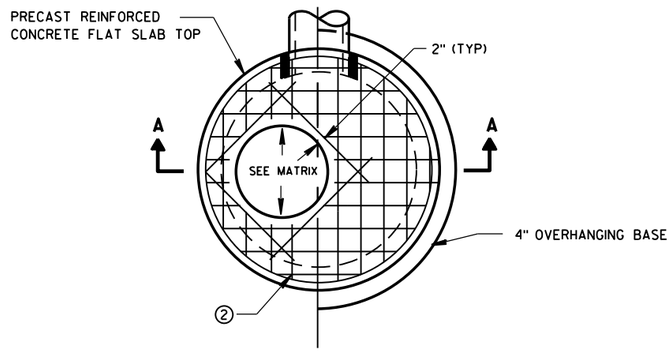
FHWA

6

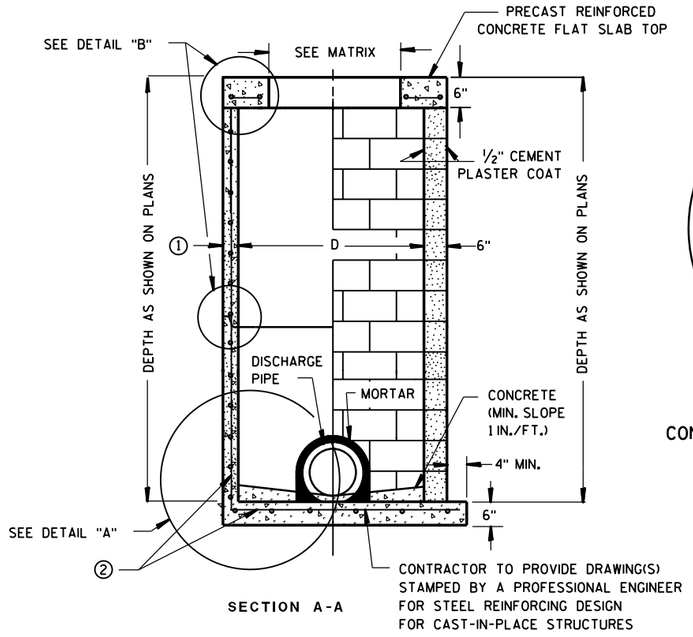
S.D.D. 8 A 5-19c



PLAN VIEW RECTANGULAR OPENING



PLAN VIEW CIRCULAR OPENING

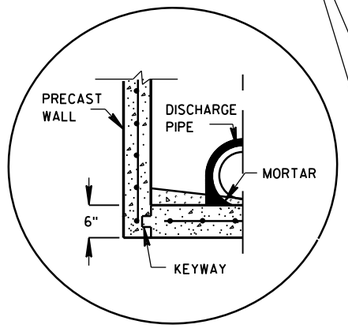


SECTION A-A

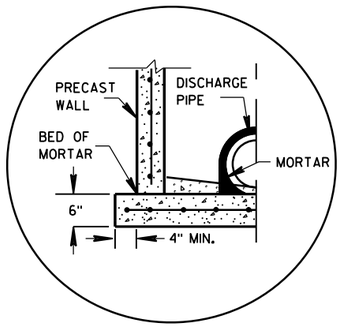
PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

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

CIRCULAR INLETS W/ FLAT TOP

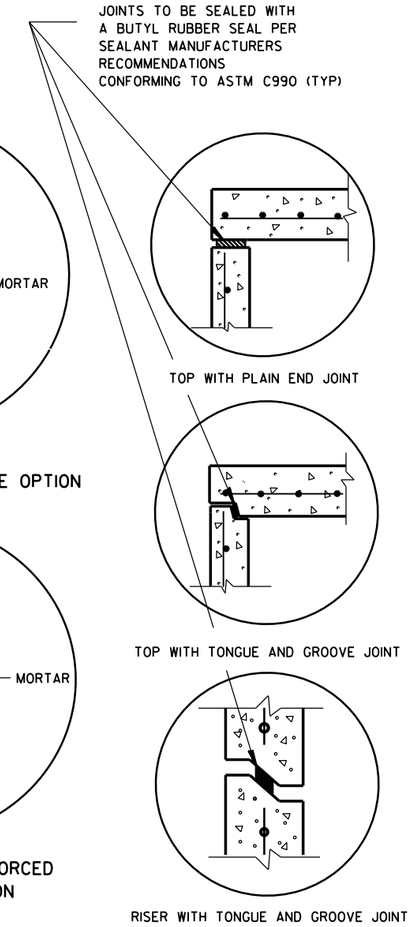


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



TOP WITH PLAIN END JOINT

TOP WITH TONGUE AND GROOVE JOINT

RISER WITH TONGUE AND GROOVE JOINT

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 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 FOUNDATION 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 SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

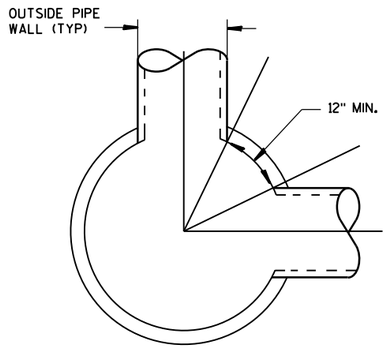
FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

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



DETAIL "C"

PIPE MATRIX

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

INLETS 3-FT AND 4-FT DIAMETER

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INLETS 3-FT AND 4-FT DIAMETER

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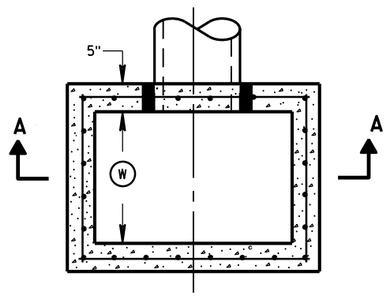
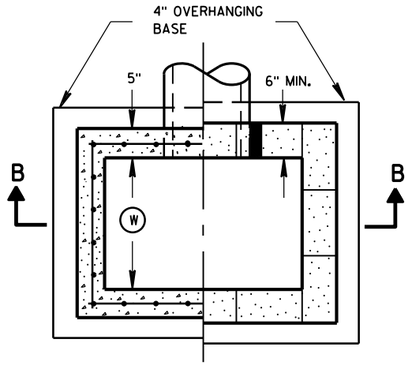
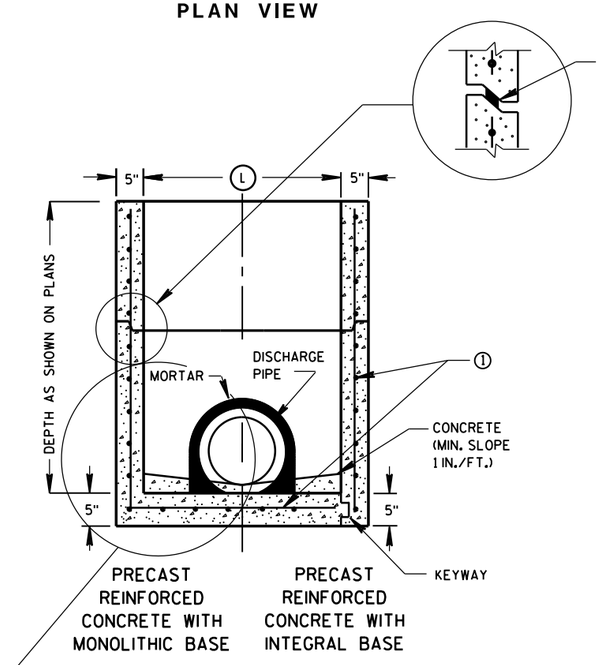


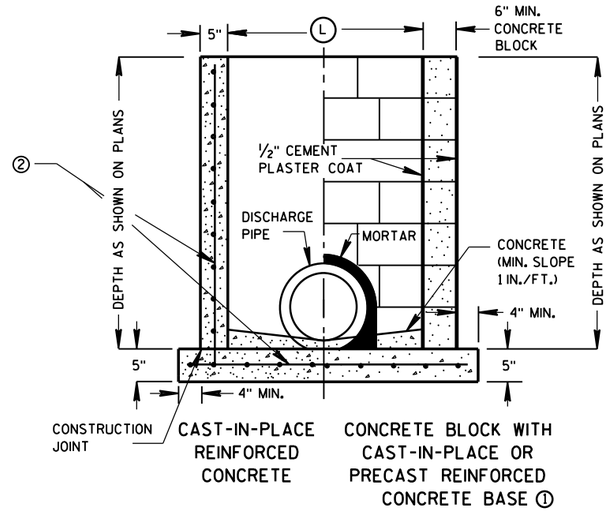
PLAN VIEW



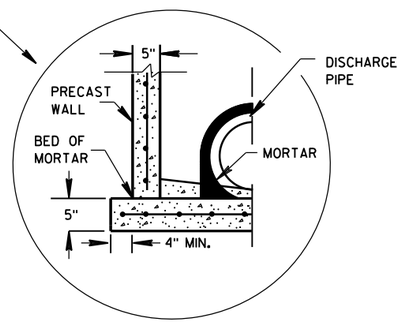
PLAN VIEW



SECTION A-A



SECTION B-B



SEPARATE 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 FOUNDATION 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 SEPARATE 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.

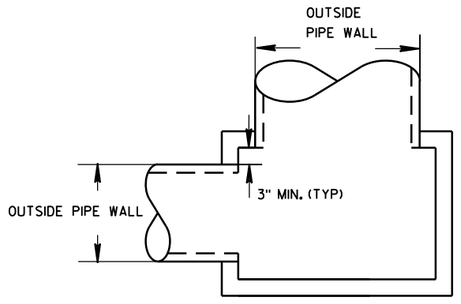
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

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

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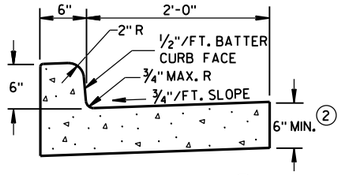
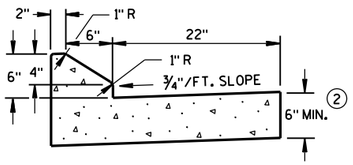
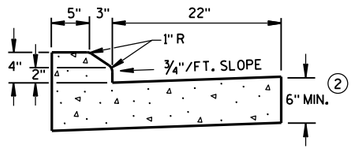
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT



TYPES A & D ①

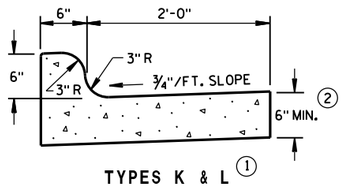


6" SLOPED CURB TYPES G & J ①

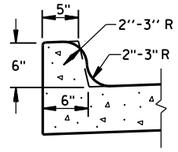


4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

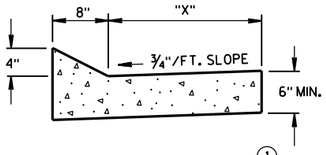


TYPES K & L ①



OPTIONAL CURB SHAPE FOR TYPES K & L ①

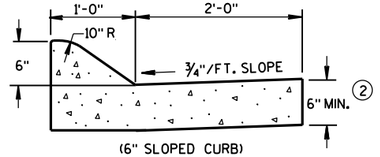
CONCRETE CURB & GUTTER 30"



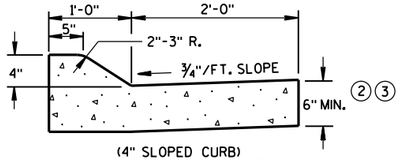
TYPES TBT & TBTT ①

CONCRETE CURB & GUTTER

TBT & TBTT	"X"
30"	22"
36"	28"

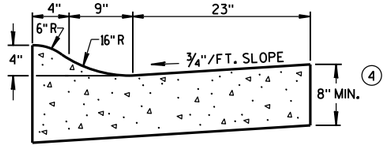


(6" SLOPED CURB)



(4" SLOPED CURB)

TYPES A & D ①



4" SLOPED CURB TYPES R & T ①⑤

CONCRETE CURB & GUTTER 36"

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, R AND TBTT.

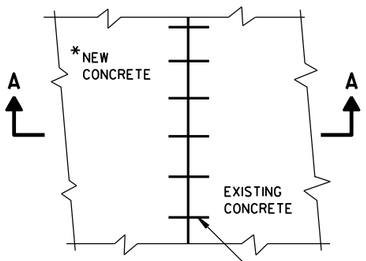
② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.

④ 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.

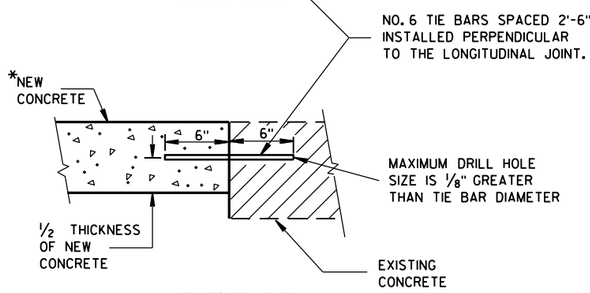
⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



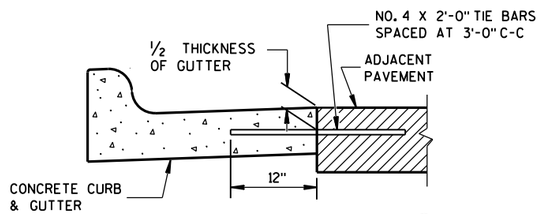
PLAN VIEW

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

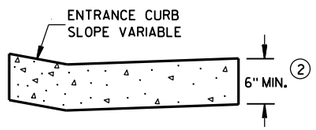


SECTION A-A

TIE BARS DRILLED INTO EXISTING PAVEMENT

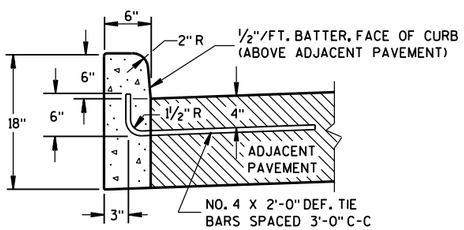


TYPICAL TIE BAR LOCATION ①

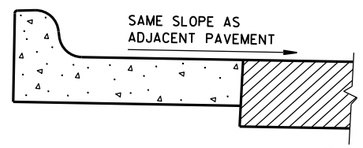


DRIVEWAY ENTRANCE CURB

(WHEN DIRECTED BY THE ENGINEER)

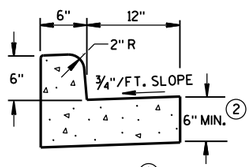


① TYPES A & D



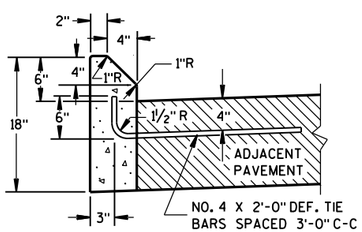
⑥ REVERSE SLOPE GUTTER

(TYPICAL FOR ALL CURB & GUTTER TYPES)



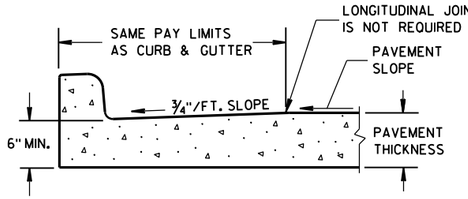
① TYPES A & D

CONCRETE CURB & GUTTER 18"

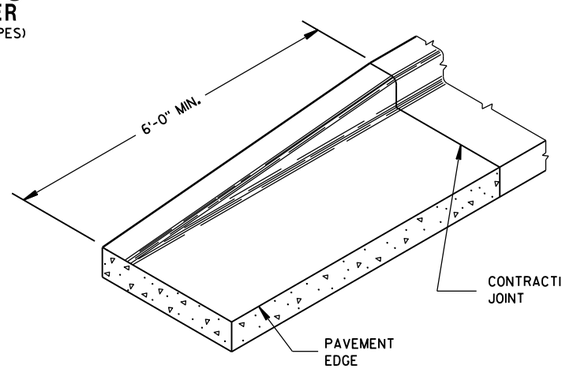


① TYPES G & J

CONCRETE CURB



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2016 — DATE

/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER

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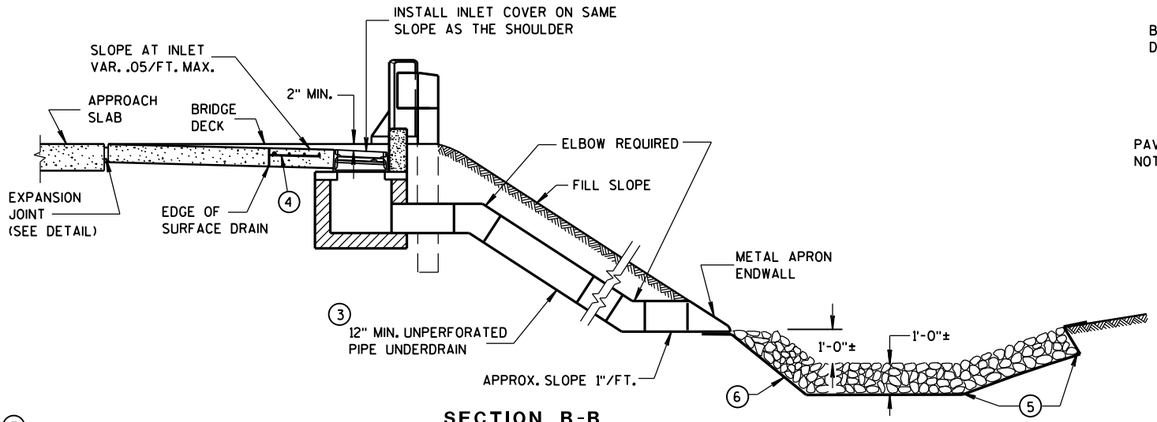
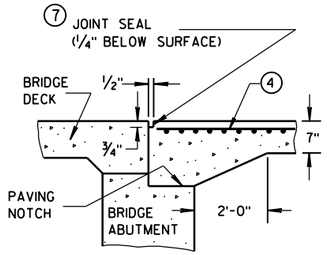
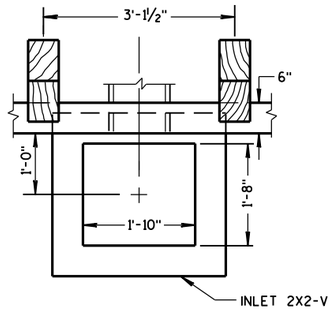


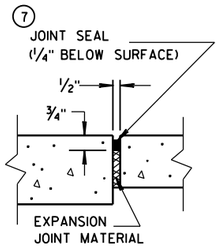
SECTION B-B



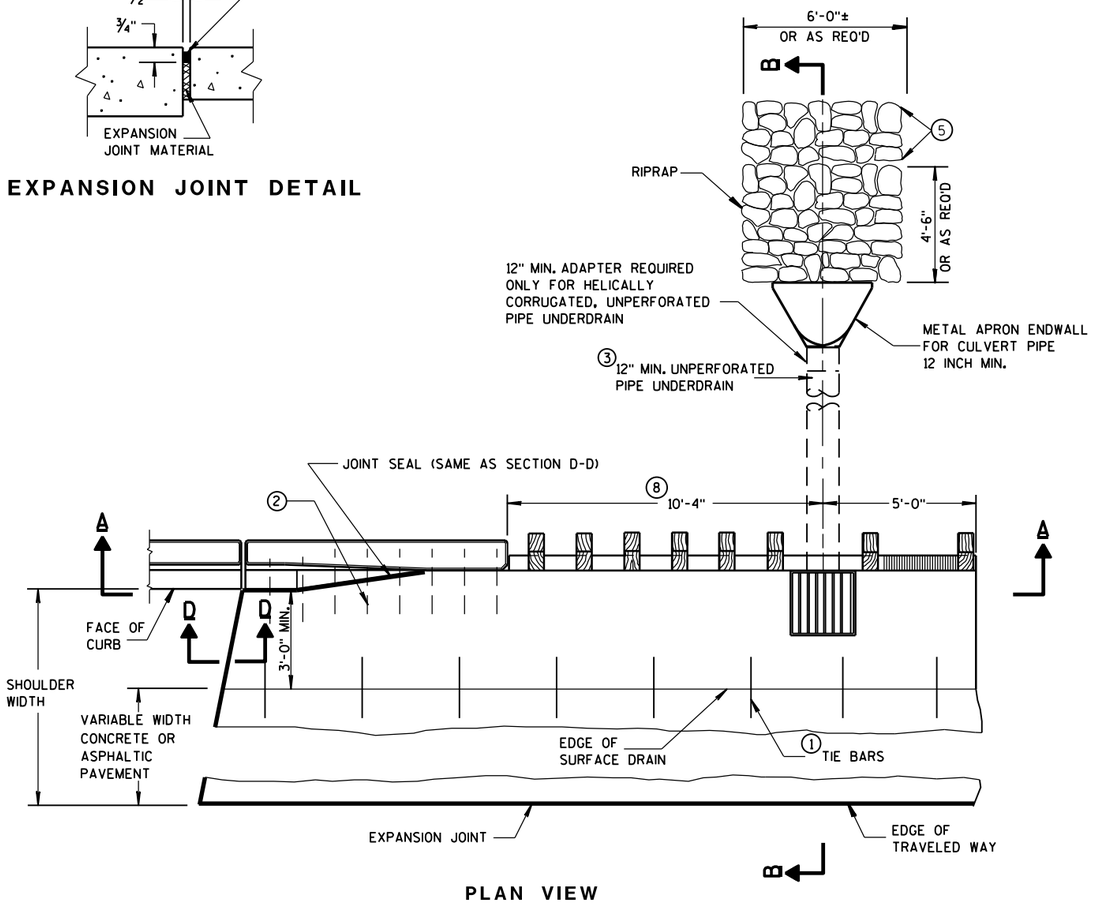
SECTION D-D



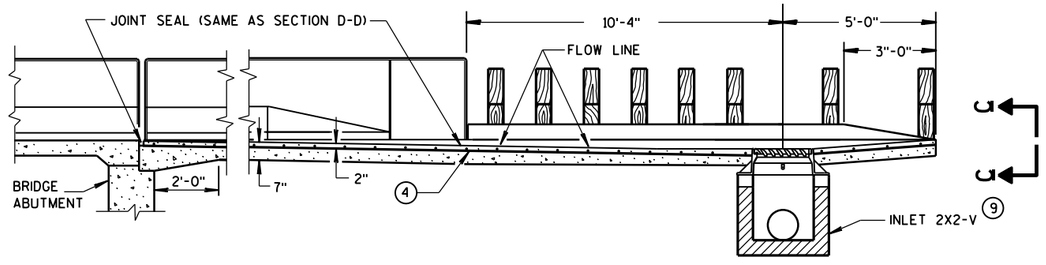
PLAN VIEW



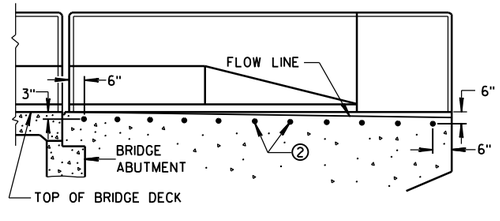
EXPANSION JOINT DETAIL



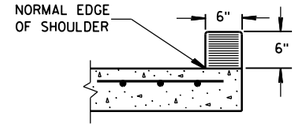
PLAN VIEW



SECTION A-A



LOCATION OF TIE BARS IN WINGWALL



SECTION C-C

GENERAL NOTES

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

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

(1) NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.

(2) NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.

(3) THE PIPE UNDERDRAIN MAY BE ANY ONE OF THE SIX MATERIALS LISTED IN THE STANDARD SPECIFICATIONS SECTION 612.2 EXCEPT DRAIN TILE.

(4) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

(5) LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.

(6) GEOTEXTILE FABRIC, TYPE 'R'

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

(8) THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".

(9) SEE CURRENT STANDARD DETAIL DRAWINGS 8A5 AND 8C7 FOR DETAILS.

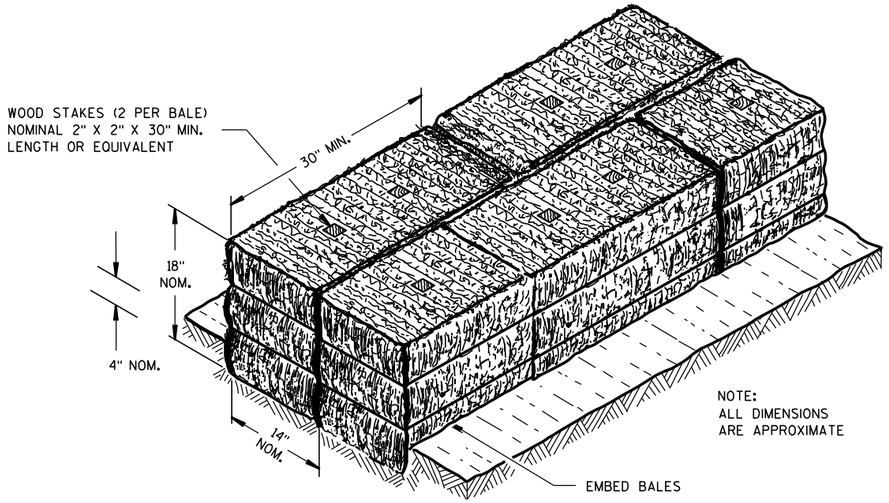
CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

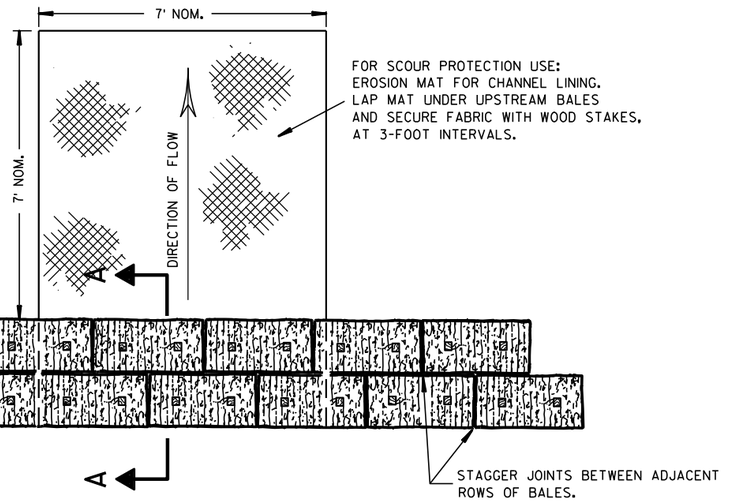
APPROVED
9/4/08 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA

6

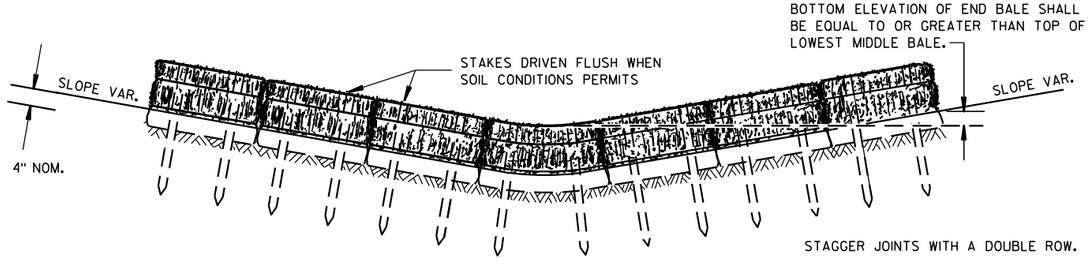
S.D.D. 8 D 3-6



SECTION A-A



PLAN VIEW



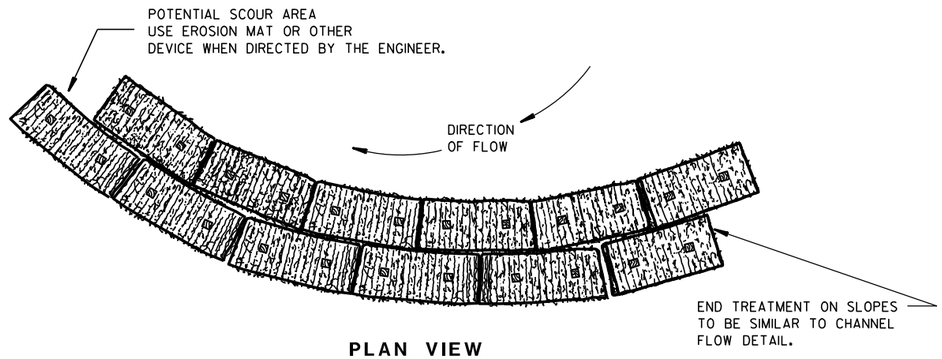
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

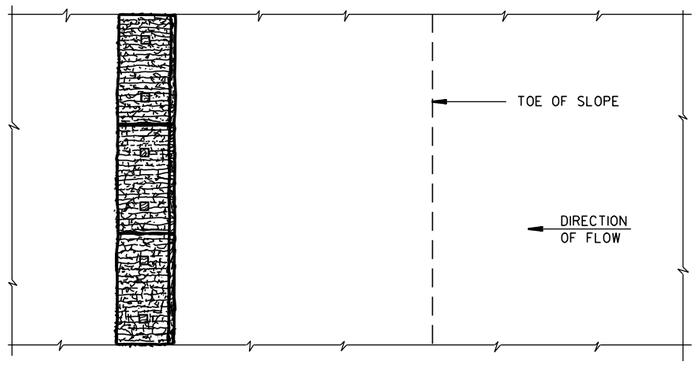
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

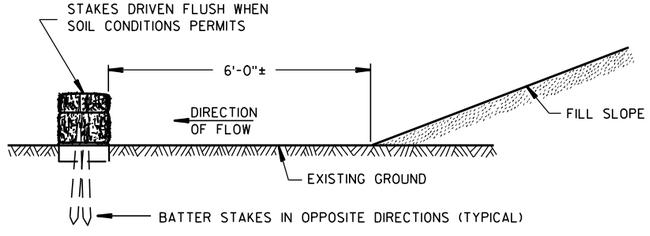


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

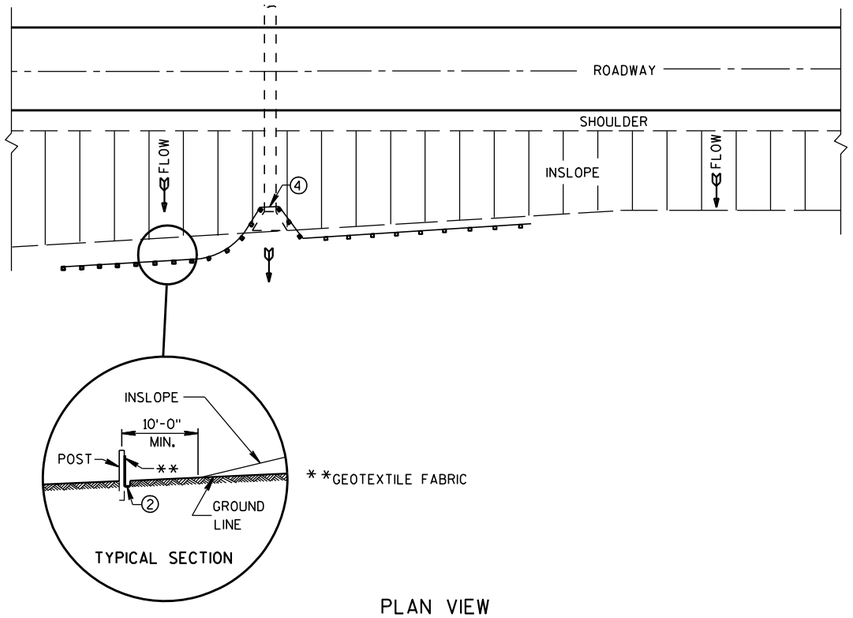
APPROVED

6/04/02 — DATE

/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

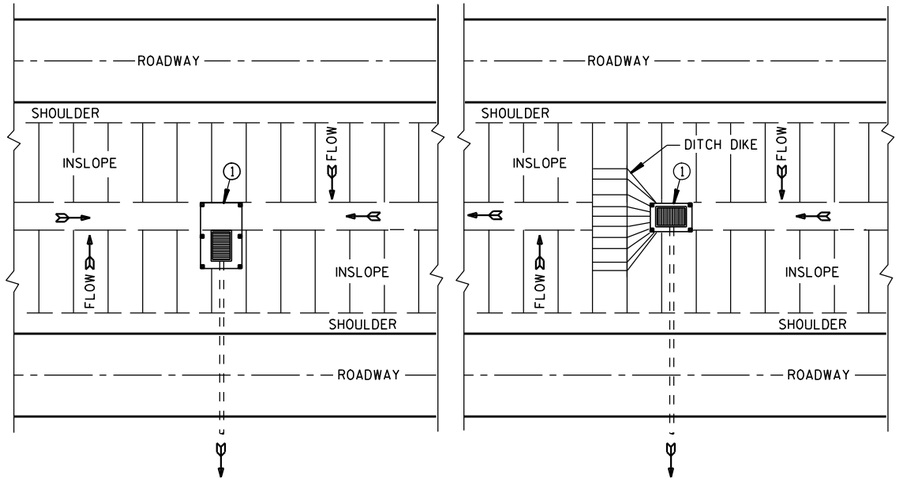
FHWA

6
S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



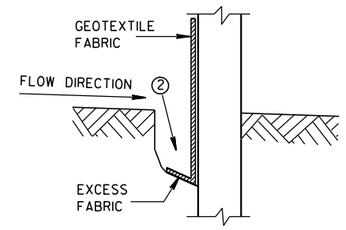
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

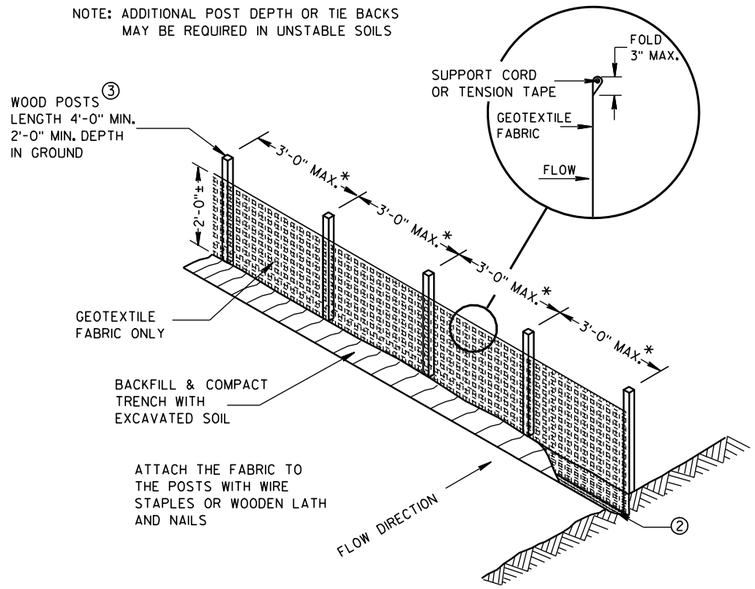
GENERAL NOTES

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

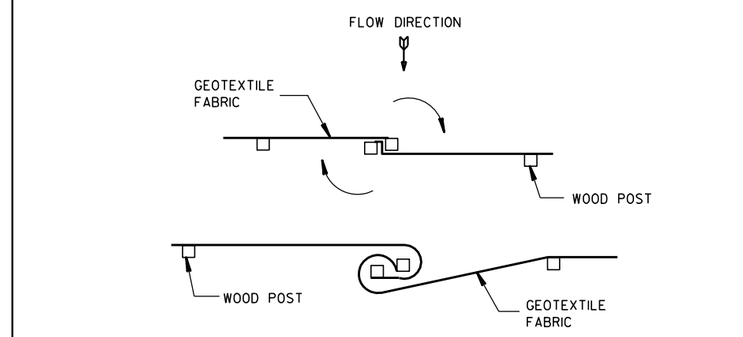
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



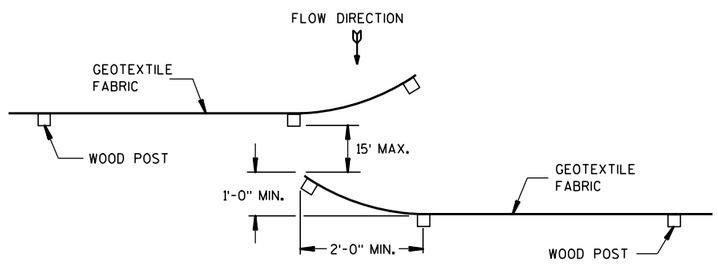
TRENCH DETAIL



SILT FENCE

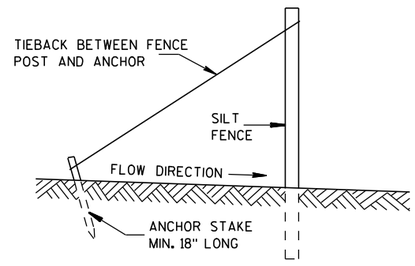


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

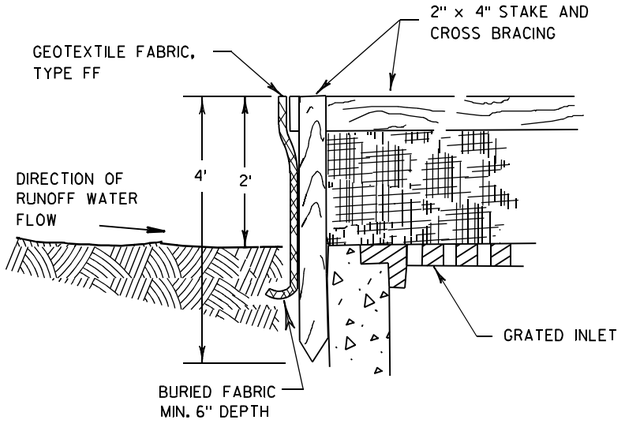
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

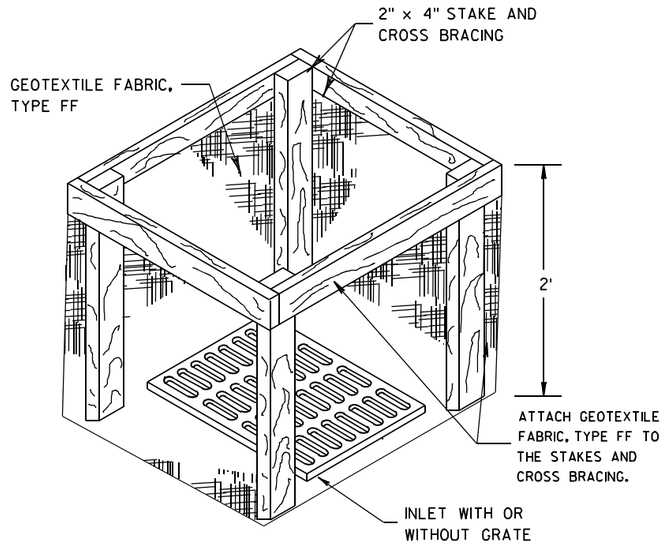
6

S.D.D. 8 E 9-6

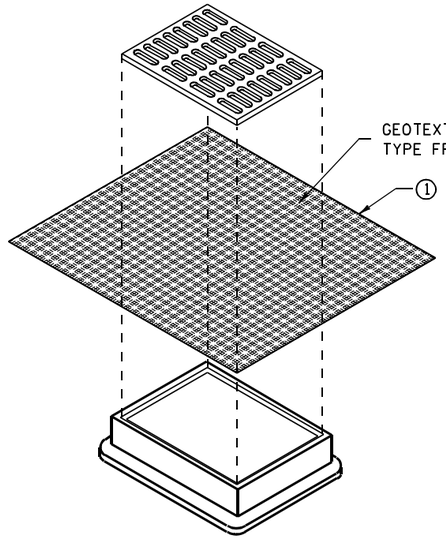
6

S.D.D. 8 E 9-6



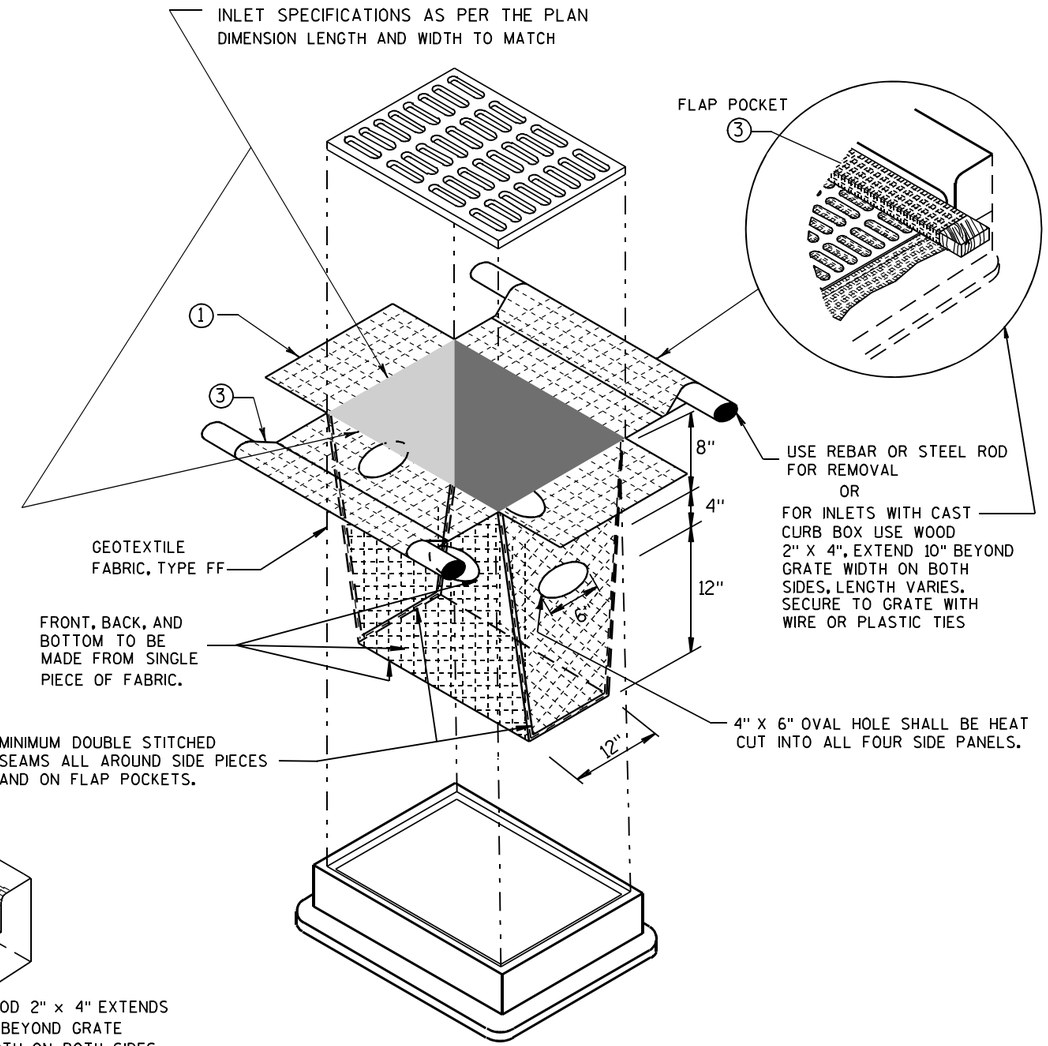


INLET PROTECTION, TYPE A



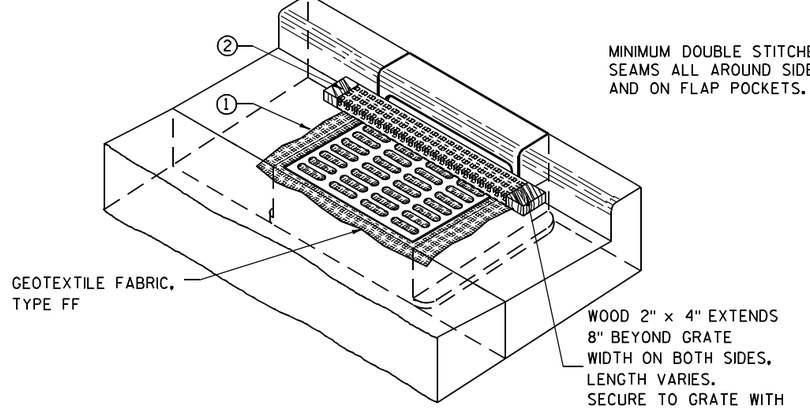
INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE D

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

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

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

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

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

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

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

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 8 E 10-2

METAL APRON ENDWALLS

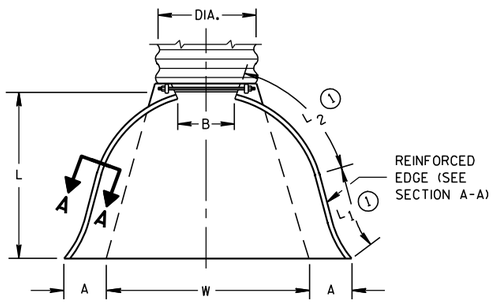
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

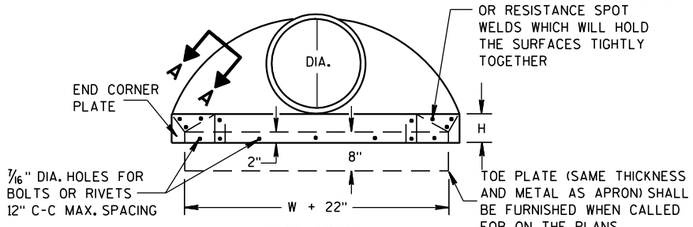
REINFORCED CONCRETE APRON ENDWALLS

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

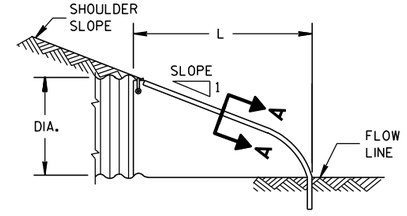
*MINIMUM
**MAXIMUM



PLAN VIEW

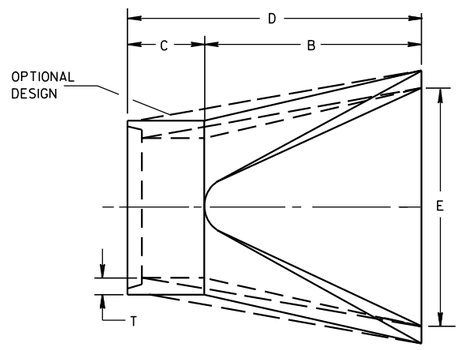


END VIEW

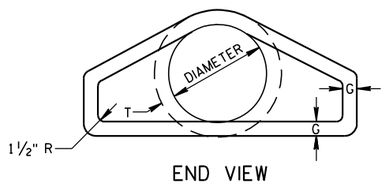


SIDE ELEVATION

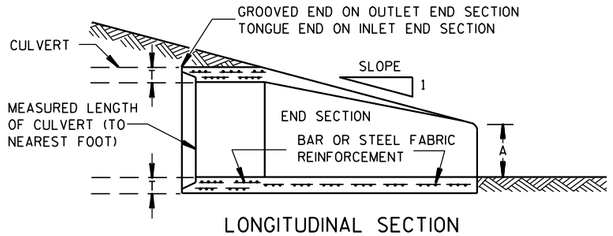
METAL ENDWALLS



PLAN

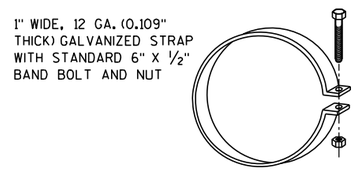


END VIEW



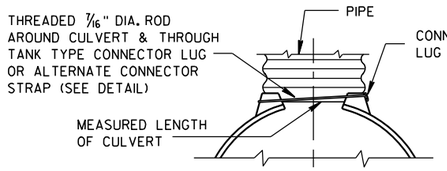
LONGITUDINAL SECTION

CONCRETE ENDWALLS

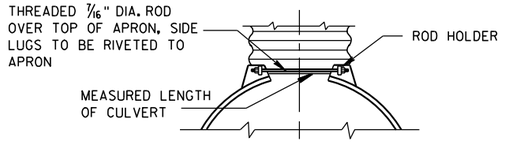


ALTERNATE FOR TYPE 1 CONNECTION

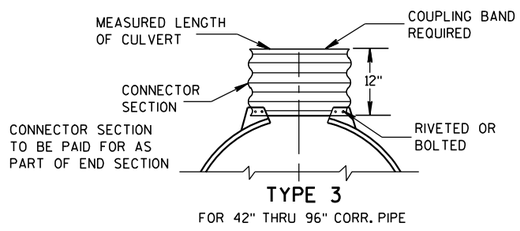
END SECTION CONNECTOR STRAP



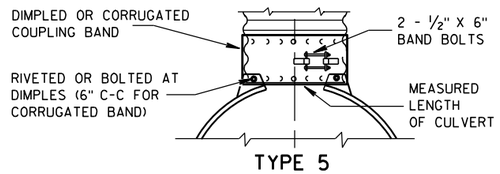
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

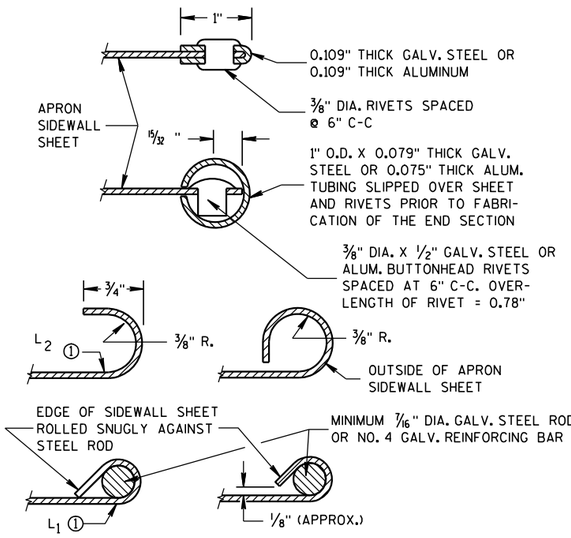
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

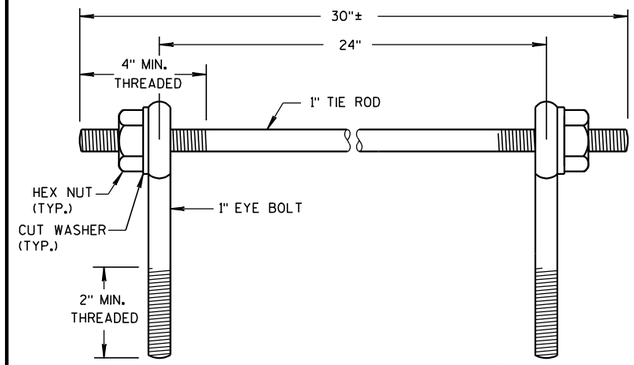
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

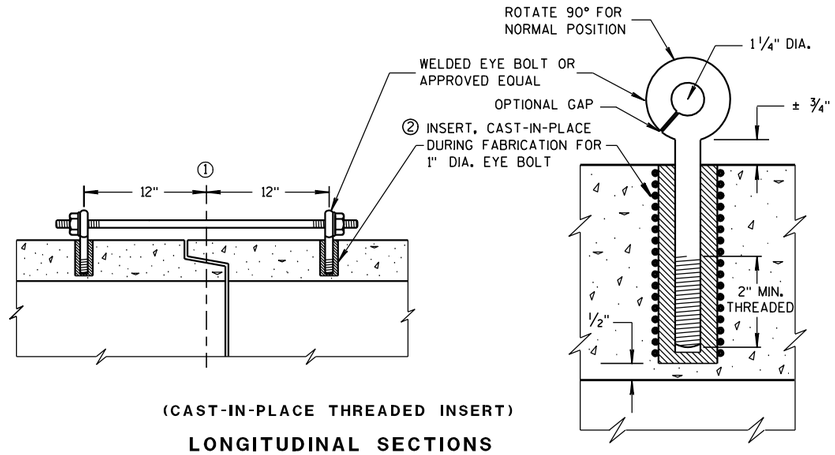
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 8 F 1-11



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

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

GENERAL NOTES

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

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

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

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

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

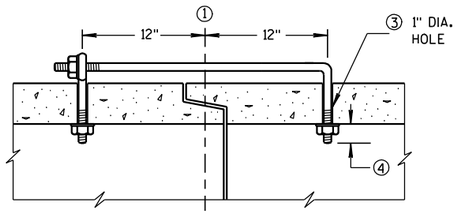
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

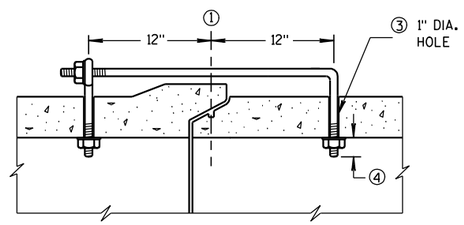
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

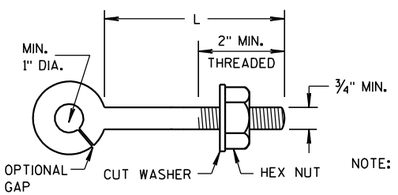


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

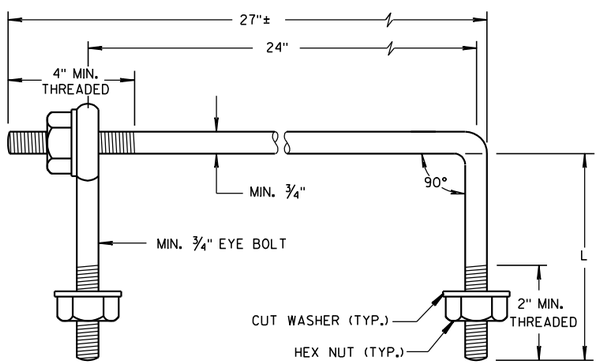
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

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



EYE BOLT AND TIE ROD

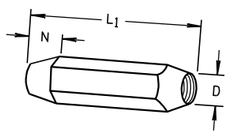
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

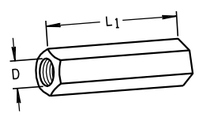
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES



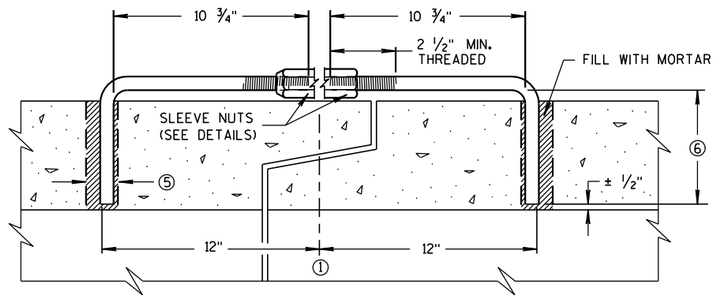
TAPERED



PLAIN

RIGHT AND LEFT THREADS

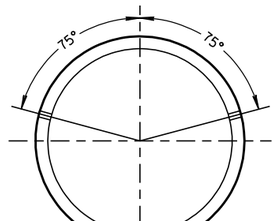
SLEEVE NUTS



LONGITUDINAL SECTION

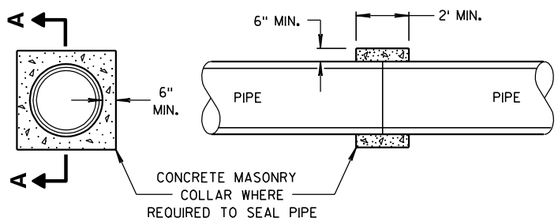
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



SECTION A-A

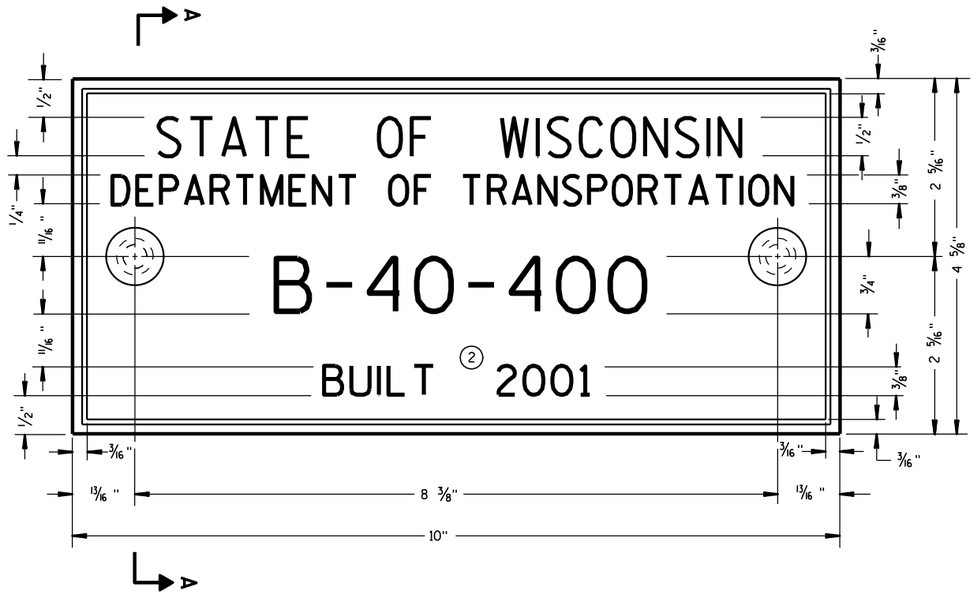
CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6 S.D.D. 8 F 4-7



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

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

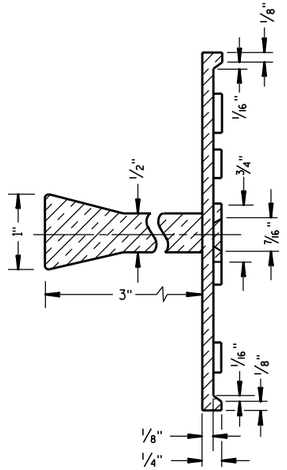
GENERAL NOTES

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

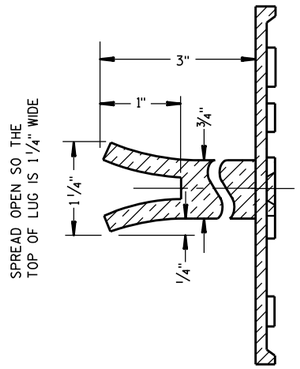
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

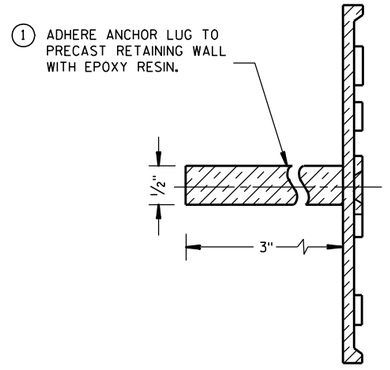
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOP 77 ENGINEER

FHWA

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S.D.D. 12 A 3-10

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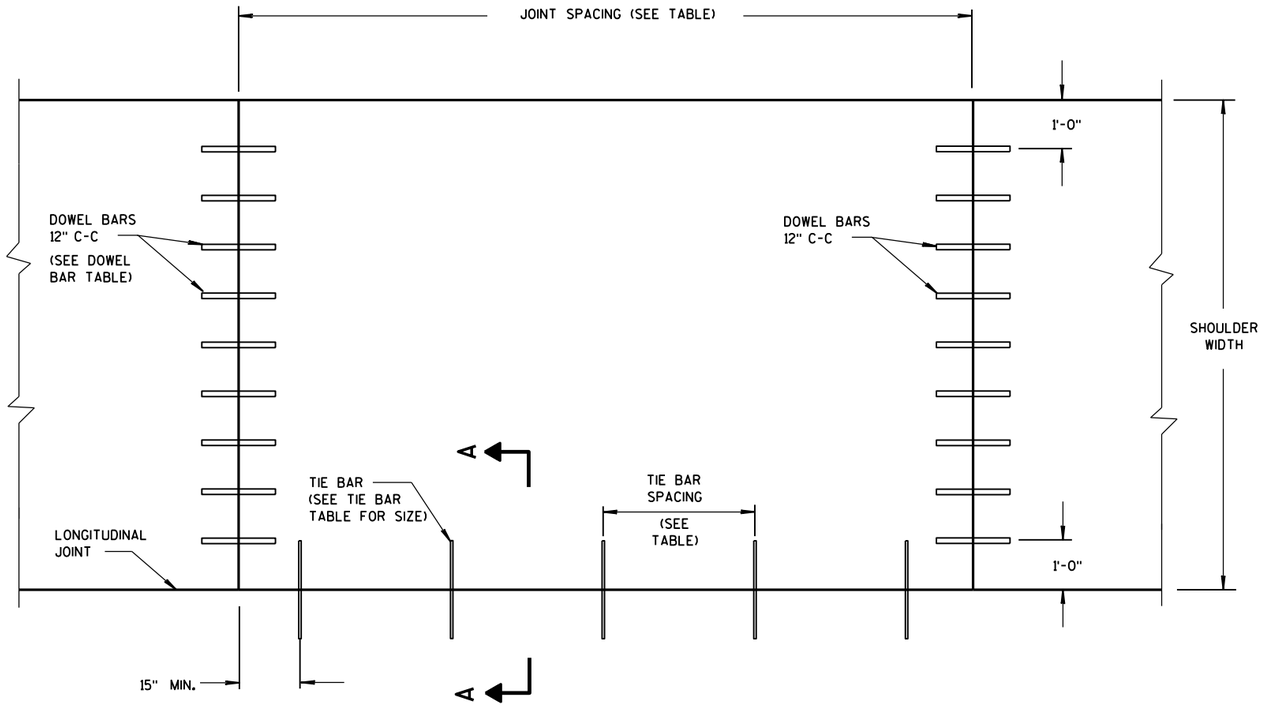
S.D.D. 12 A 3-10



PLAN VIEW

CONCRETE PAVEMENT SHOULDER

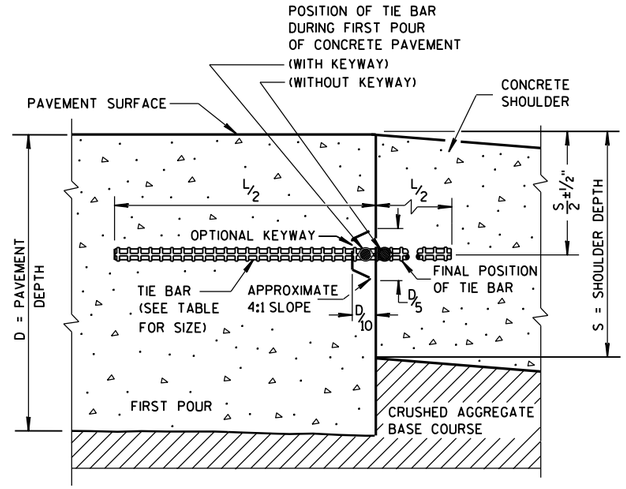
GENERAL NOTES

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

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 ½"	NO. 4	30"	36"
≥ 10 ½"	NO. 5	36"	36"
	NO. 4*	30"	24"**

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER***	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'

*** FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FOR THE AVERAGE THICKNESS OF THE CROSS SECTION.

CONCRETE PAVEMENT SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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S.D.D. 13 A 3-6

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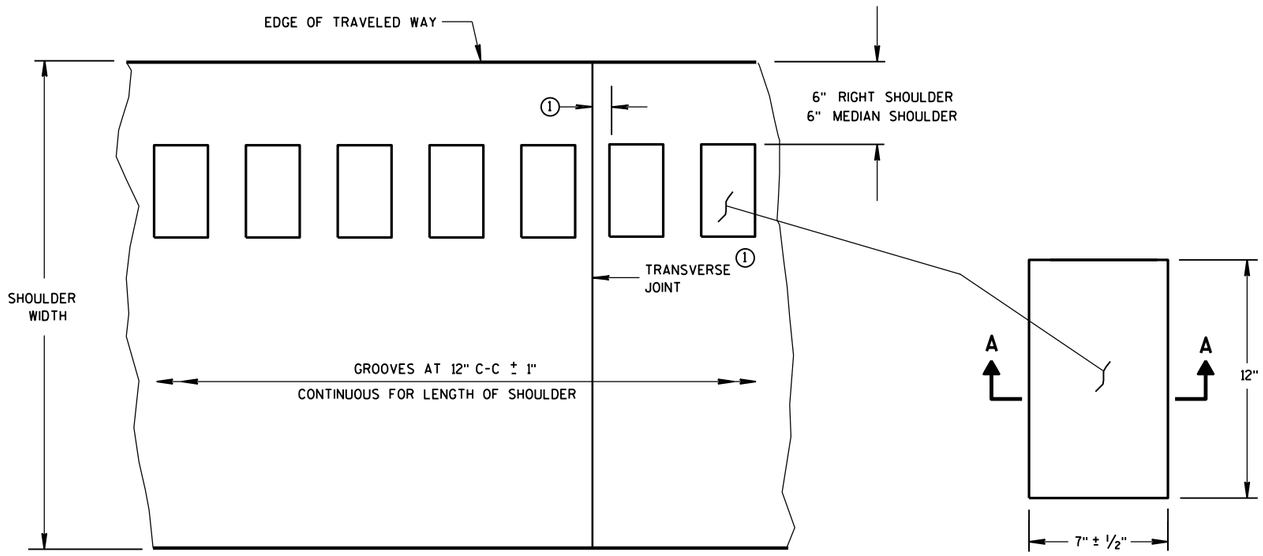
S.D.D. 13 A 3-6



PLAN VIEW
SHOULDER WITH GROOVES

PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

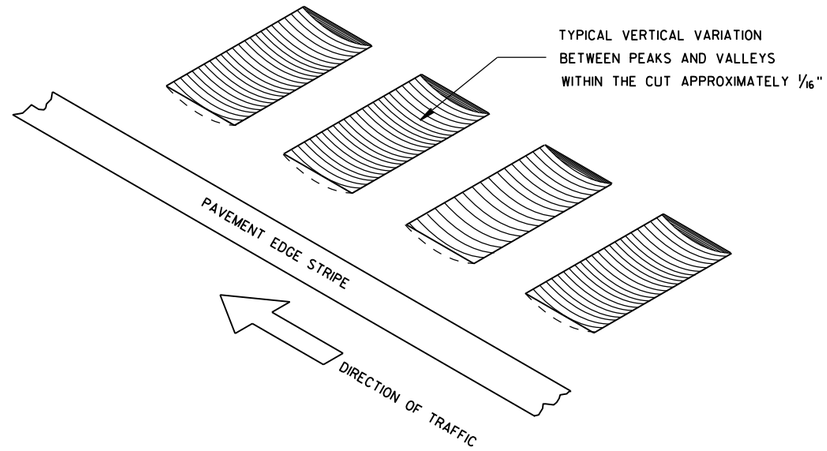
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

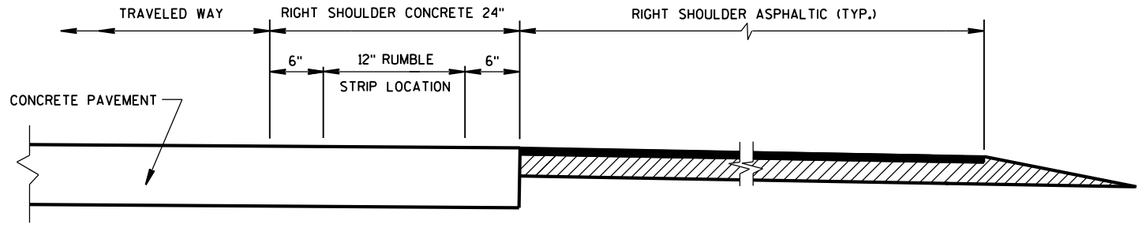
RUMBLE STRIPS ON EXPRESSWAYS

DO NOT INSTALL RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL DRIVEWAYS, PRIVATE DRIVEWAYS OR ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, BRIDGE DECKS, BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSING. THE ATTACHED STANDARD DETAIL DRAWING SHOWS THE LOCATION OF THE RUMBLE STRIPS AT INTERCHANGE AREAS.

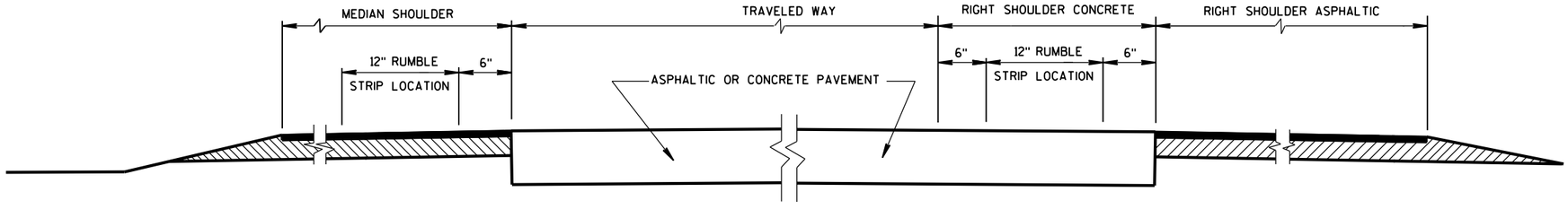
(1) CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6" AWAY FROM TRANSVERSE JOINTS.



ISOMETRIC



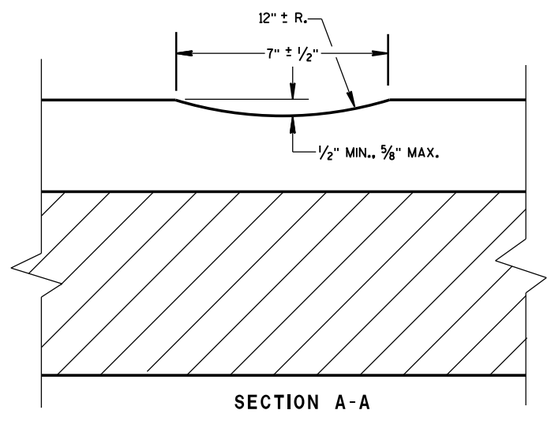
SECTION VIEW
CONCRETE PAVEMENT EXTENDS INTO RIGHT SHOULDER)



SECTION VIEW

TYPICAL LOCATIONS OF SHOULDER RUMBLE STRIPS IN RURAL DIVIDED HIGHWAYS

(ONE ROADWAY IS SHOWN)



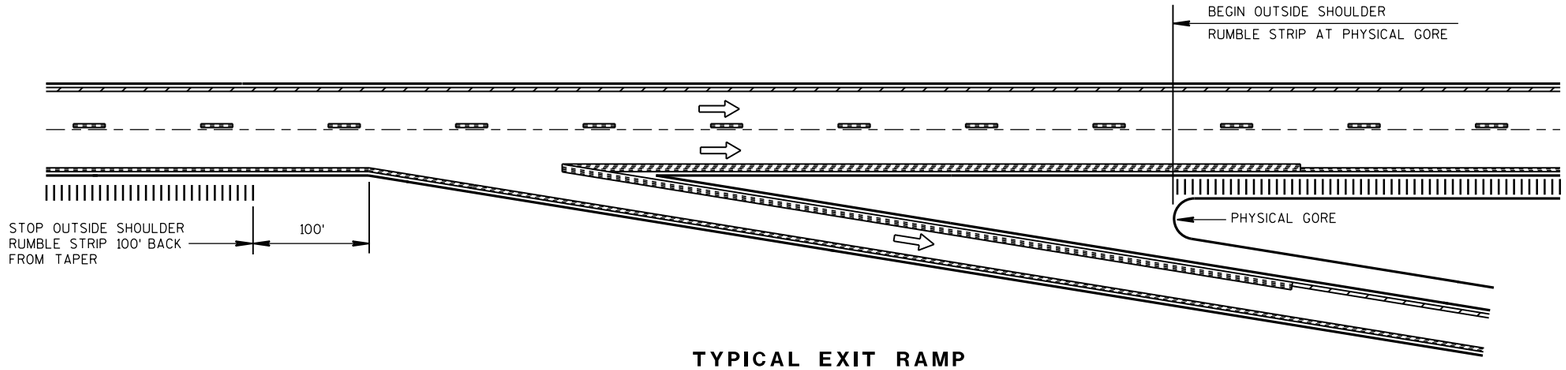
SECTION A-A

SHOULDER RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 13 A 5-5a



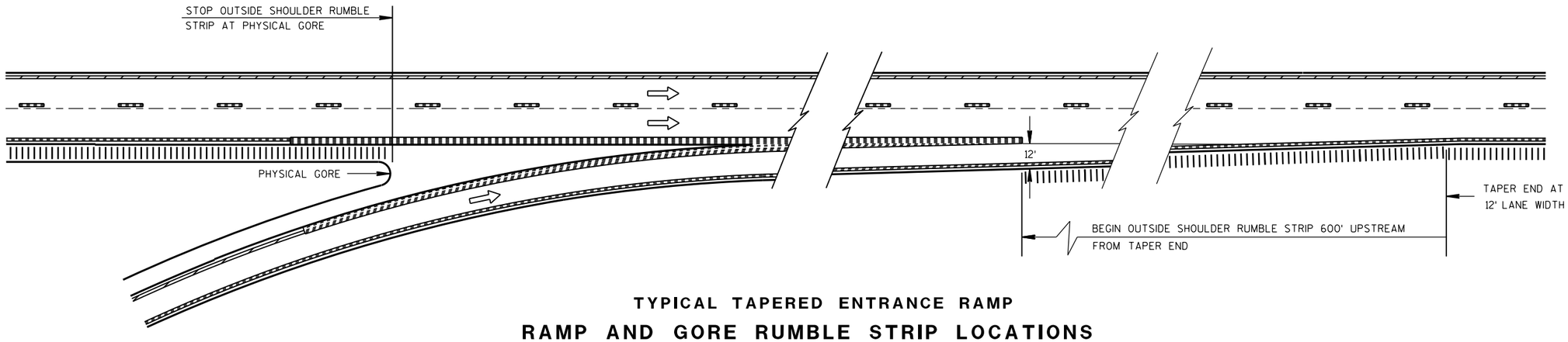
TYPICAL EXIT RAMP

NOTES:

NO RUMBLE STRIP ON EXIT, DIRECTIONAL, OR ENTRANCE RAMPS, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

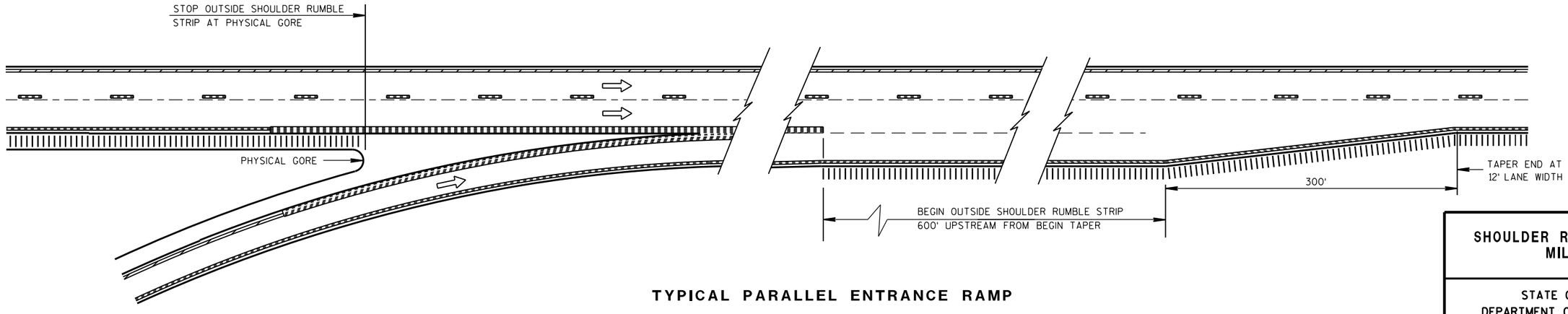
PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

NOTE:
ARROW SYMBOL (⇨)
SHOWS DIRECTION OF TRAVEL



TYPICAL TAPERED ENTRANCE RAMP

RAMP AND GORE RUMBLE STRIP LOCATIONS



TYPICAL PARALLEL ENTRANCE RAMP

RAMP AND GORE RUMBLE STRIP LOCATIONS

SHOULDER RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

12/17/2012
DATE

/S/ Jerry H. Zoga
ROADWAY STANDARDS ENGINEER

FHWA

6

S.D.D. 13 A 5-5b

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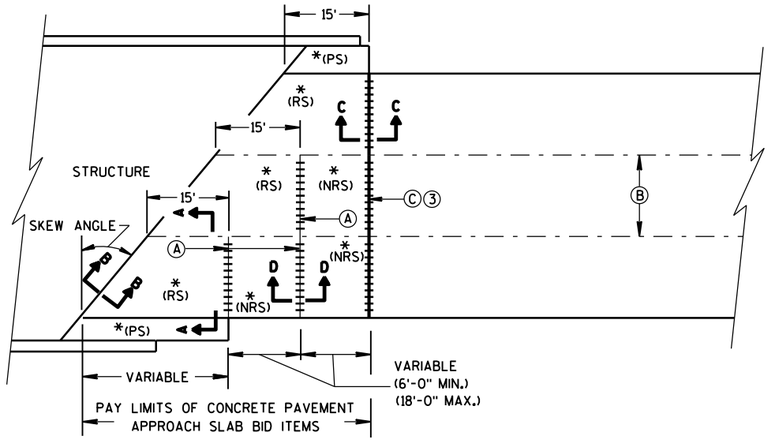
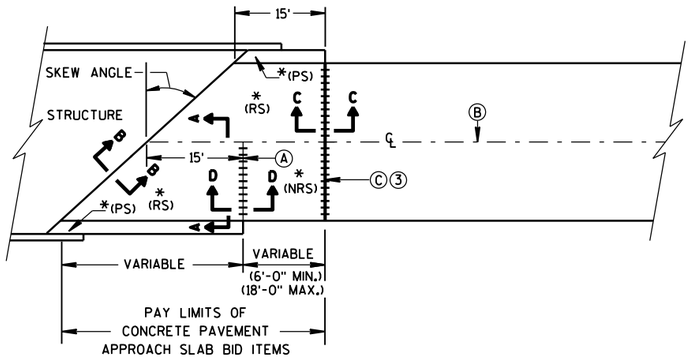
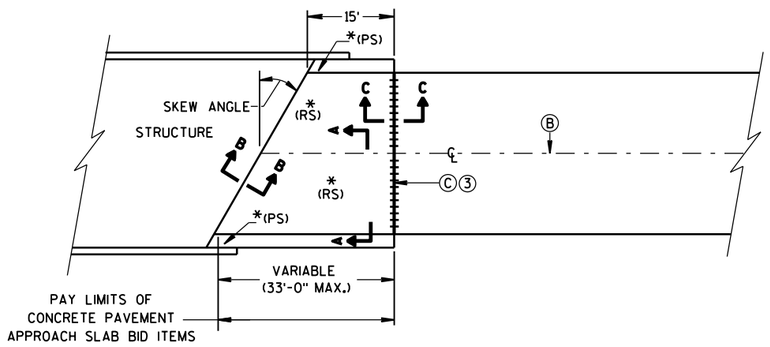
S.D.D. 13 A 5-5b



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >20°
(PAVEMENT WIDTH ≤30')



SKEWS ≤20°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

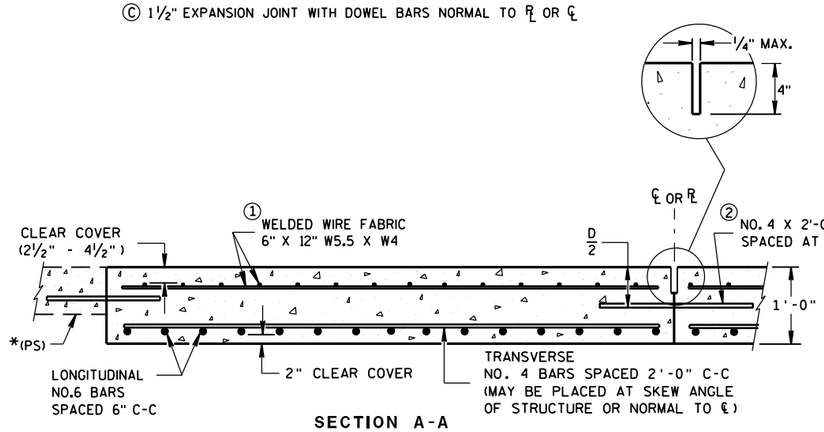
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

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

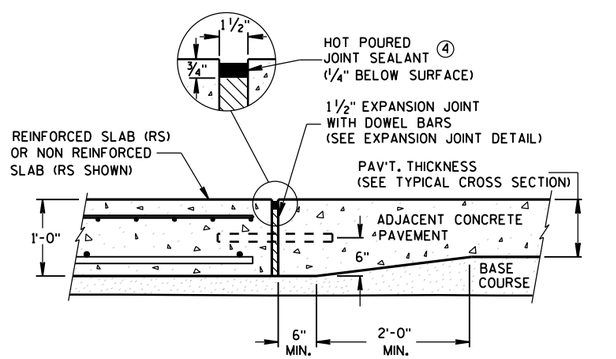
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄

Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.

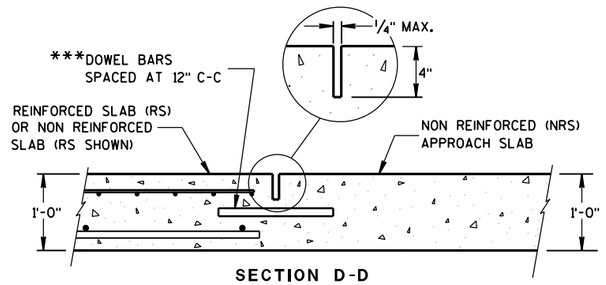
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

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

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

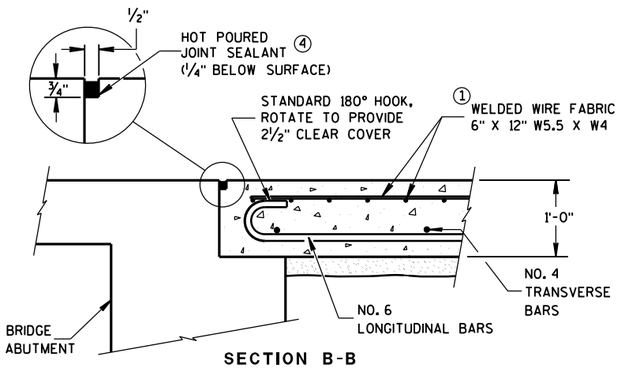
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

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

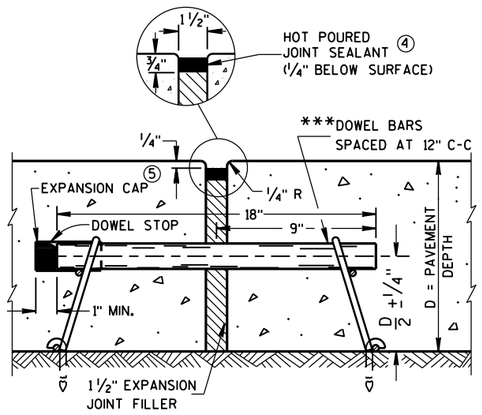
③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

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

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



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

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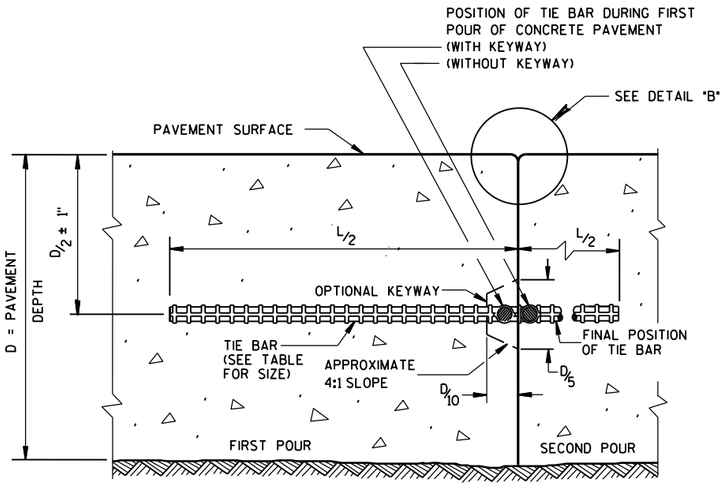
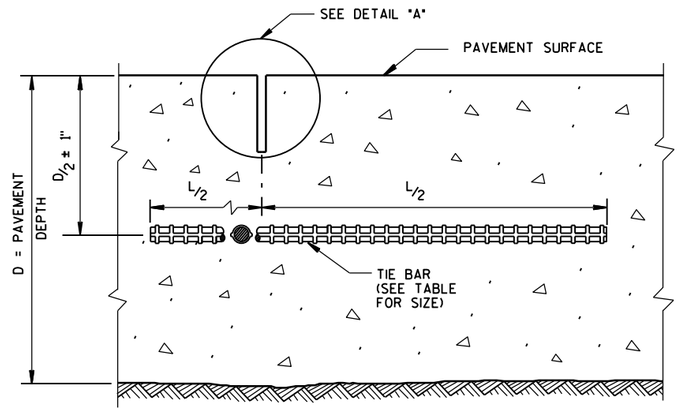
S.D.D. 13 B 2-8a



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.

(2) PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

PLAN VIEW

SECTION A-A

LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT

DETAIL "A"

DETAIL "B"

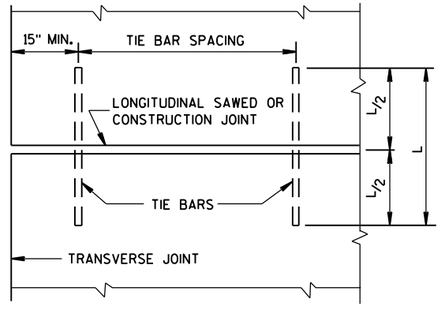
DETAIL "C"

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24"**

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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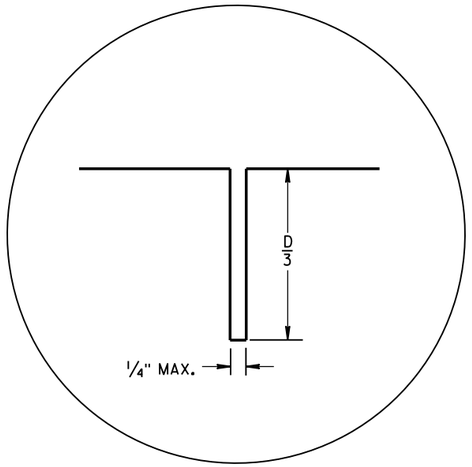
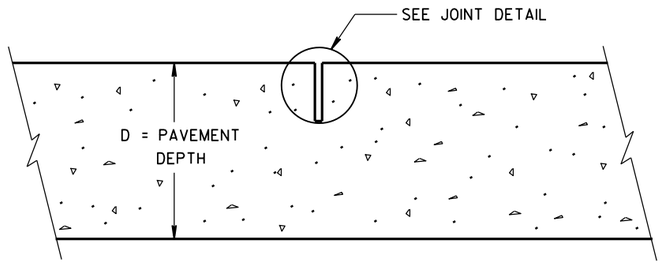
S.D.D. 13 C 1-18



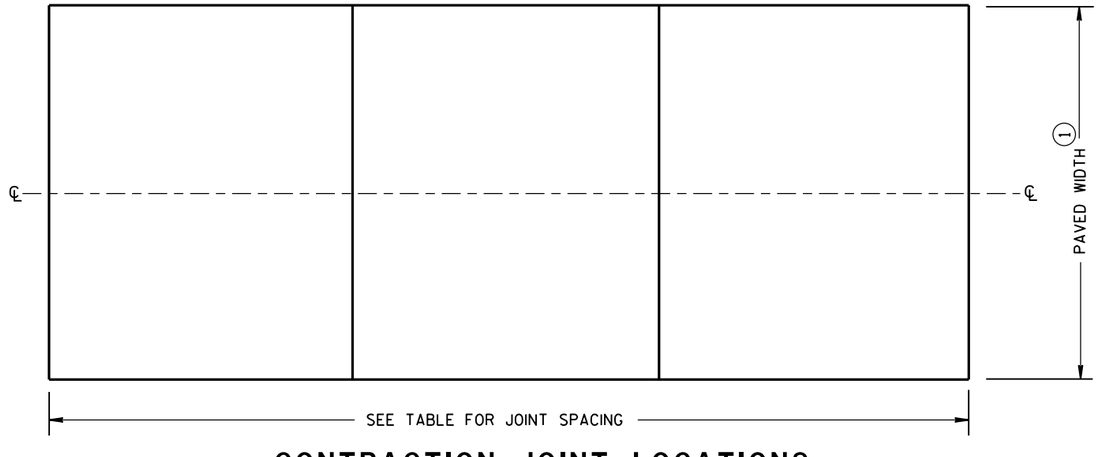
JOINT DETAIL



CONTRACTION JOINT

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'



CONTRACTION JOINT LOCATIONS

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE.

LOCATE AND ORIENT CONTRACTION JOINTS THROUGH INTERSECTIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

CONSTRUCTION JOINTS

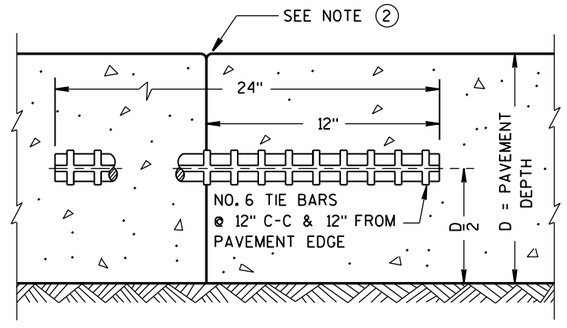
LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.

FORM OR SAW CONSTRUCTION JOINTS.

THE CONTRACTOR MAY INSERT TIE BARS THROUGH THE HEADER BOARD AFTER THE CONCRETE HAS BEEN PLACED.

(1) REFER TO TYPICAL CROSS SECTIONS FOR PAVED WIDTH AND LOCATION OF LONGITUDINAL JOINTS.

(2) PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.



TIED TRANSVERSE CONSTRUCTION JOINT

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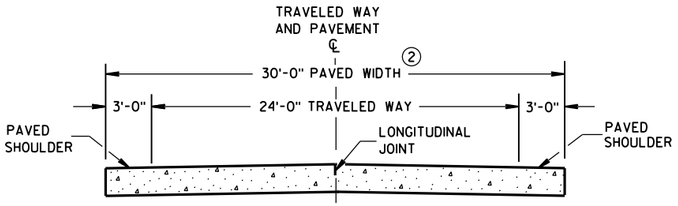
S.D.D. 13 C 4-16

URBAN NON-DOWELED CONCRETE PAVEMENT

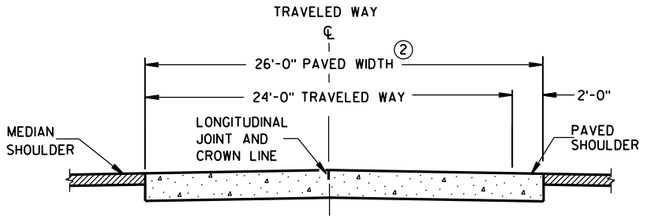
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-3-2013 DATE
/S/ Deb Bischoff
PAVEMENT POLICY & DE
IEER
FHWA

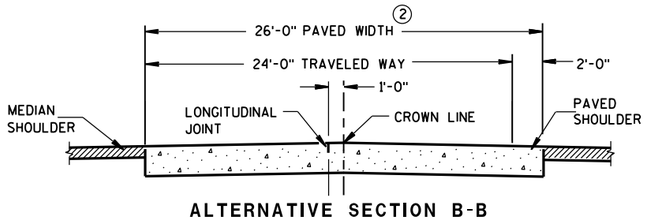


SECTION A-A ①

TWO-LANE TWO-WAY HIGHWAY



SECTION B-B



ALTERNATIVE SECTION B-B ①

DIVIDED HIGHWAY

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

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

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

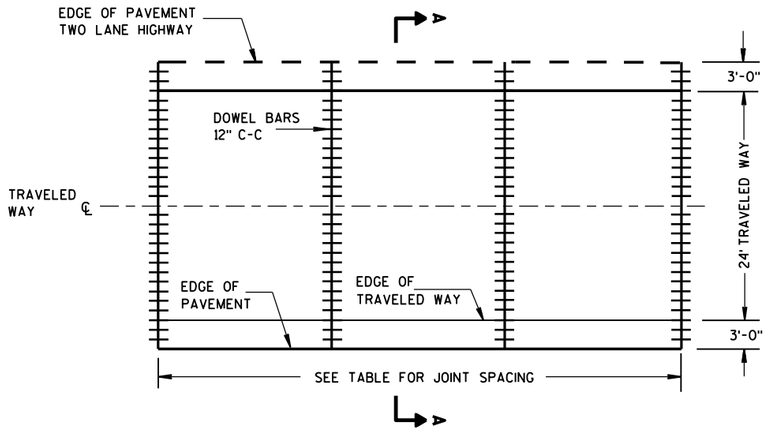
LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.

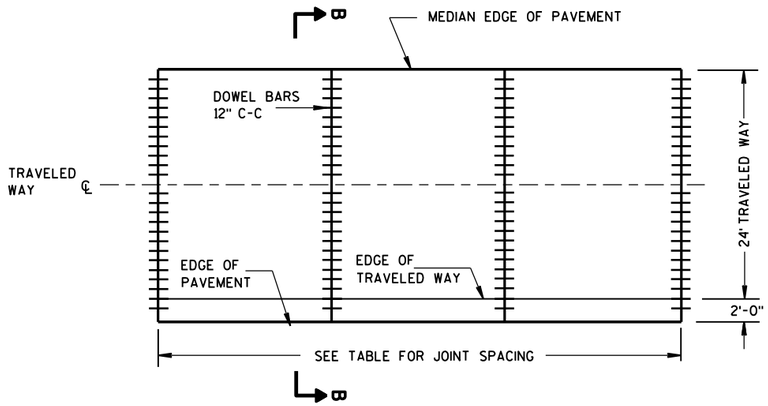
② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED PAVED SHOULDER AS CONCRETE PAVEMENT.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'



CONTRACTION JOINT LAYOUT
FOR TWO-LANE TWO-WAY HIGHWAY



CONTRACTION JOINT LAYOUT
FOR DIVIDED HIGHWAY

RURAL DOWELED
CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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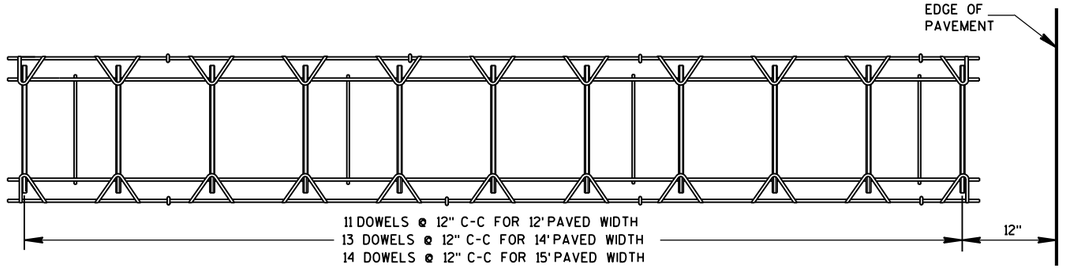
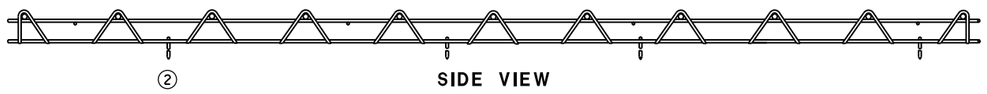


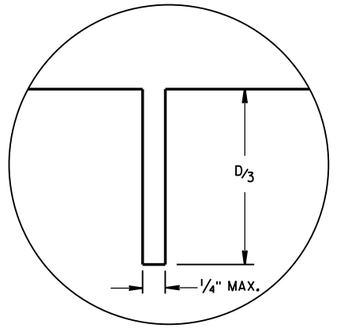
PLAN VIEW



SIDE VIEW

(NORMAL TO CENTERLINE)

CONTRACTION JOINT DOWEL ASSEMBLY ①



JOINT DETAIL

GENERAL NOTES

① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.

② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.

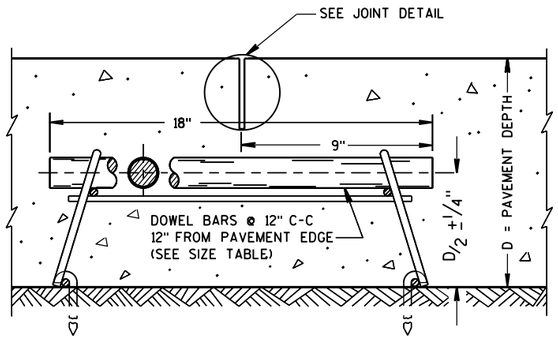
③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.

④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.

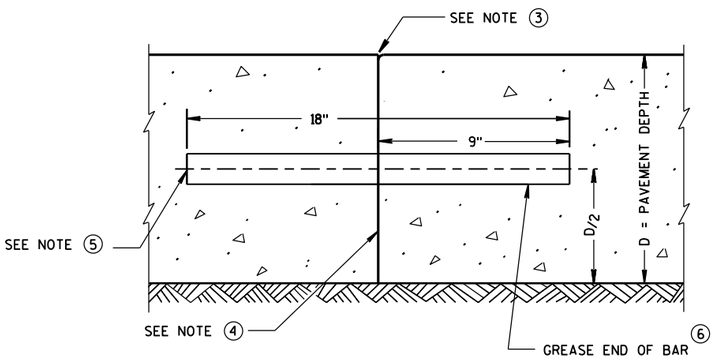
⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.

⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

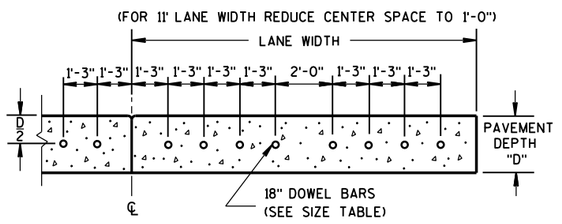
⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



DOWELED CONTRACTION JOINT



TRANSVERSE CONSTRUCTION JOINT



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦

RURAL DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/3/2013 — DATE

/S/ Deb Bischoff — PAVEMENT POLICY & DE ...NEER

FHWA

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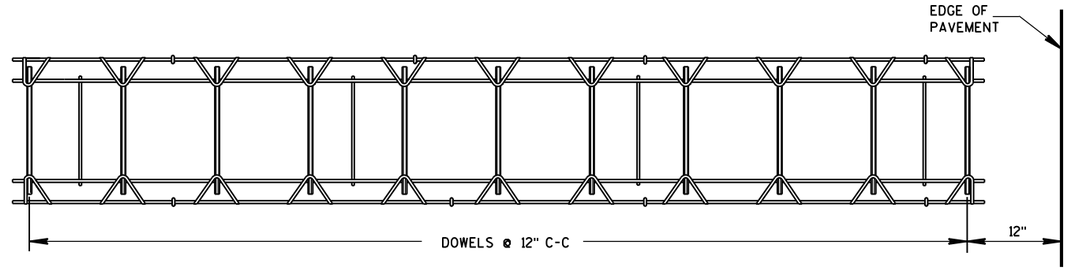
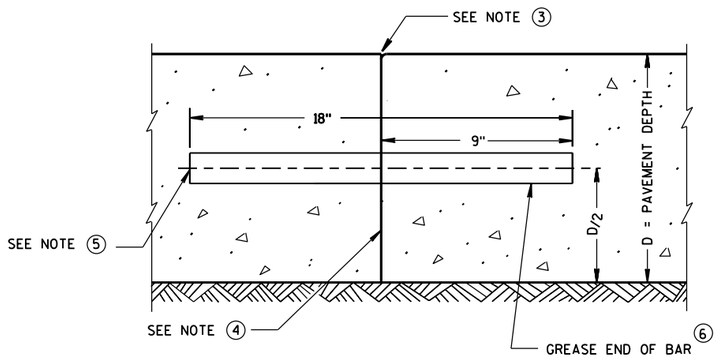


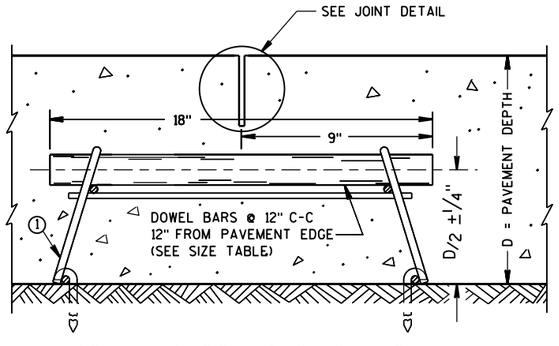
PLAN VIEW

SIDE VIEW

CONTRACTION JOINT DOWEL ASSEMBLY ①



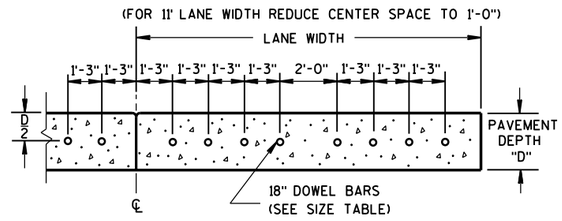
TRANSVERSE CONSTRUCTION JOINT



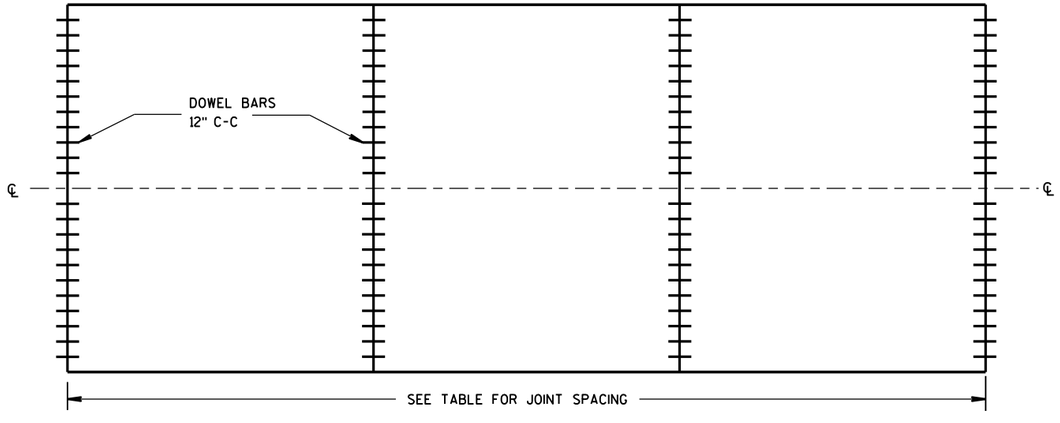
DOWELED CONTRACTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



CONTRACTION JOINT LOCATIONS

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

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

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE LONGITUDINAL JOINT AND THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

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

① **OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.**

② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.

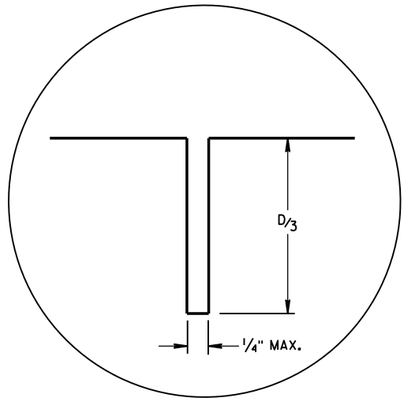
③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A ¼-INCH RADIUS AT FORMED JOINTS.

④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.

⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.

⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS ⅛-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



JOINT DETAIL

URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/3/2013 DATE
/S/ Deb Bischoff
PAVEMENT POLICY & DE ENGINEER
FHWA

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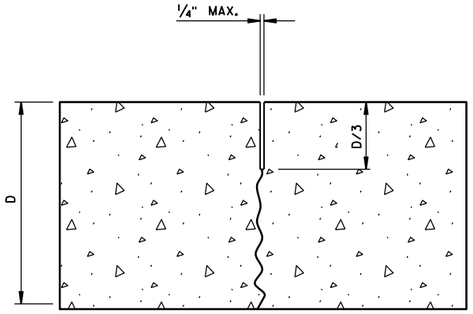
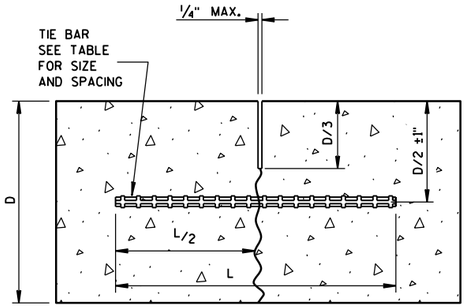
S.D.D. 13 C 13-8



UNDOWELED-TRANSVERSE



TIED LONGITUDINAL

TIE BAR TABLE

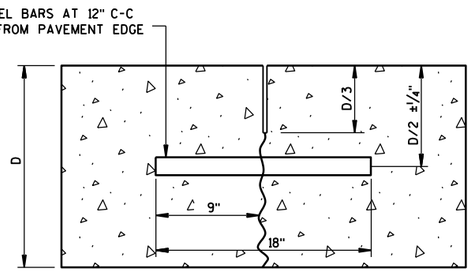
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24"**

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

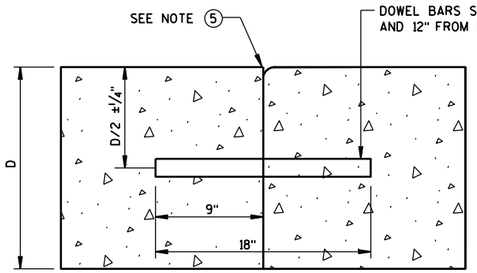
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
4. CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
5. IF JOINT IS FORMED, PROVIDE A 1/4-INCH RADIUS.
6. ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



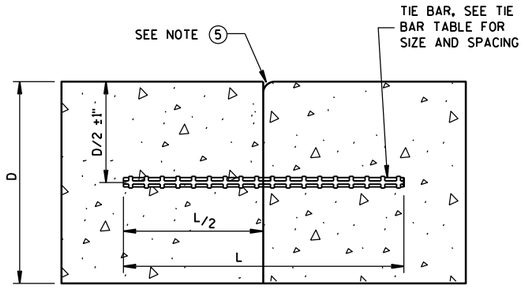
DOWELED-TRANSVERSE

CONTRACTION JOINTS

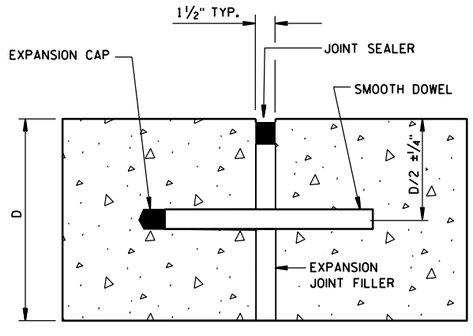
SEE NOTE (2)



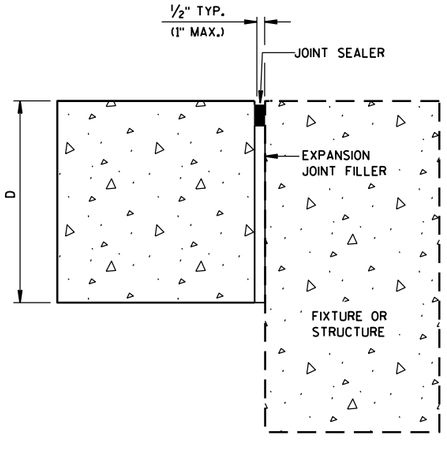
DOWELED TRANSVERSE (3)



TIED LONGITUDINAL

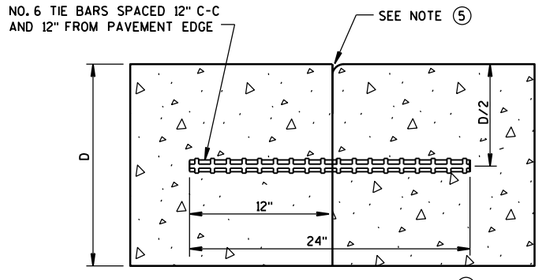


DOWELED-TRANSVERSE
SEE NOTE (1)

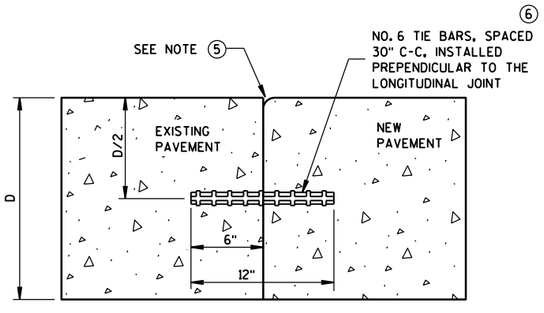


UNTIED-LONGITUDINAL

EXPANSION JOINTS



TIED TRANSVERSE (3)
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



TIED LONGITUDINAL TO EXISTING

CONSTRUCTION JOINTS

SEE NOTE (4)

CONCRETE PAVEMENT
JOINT TYPES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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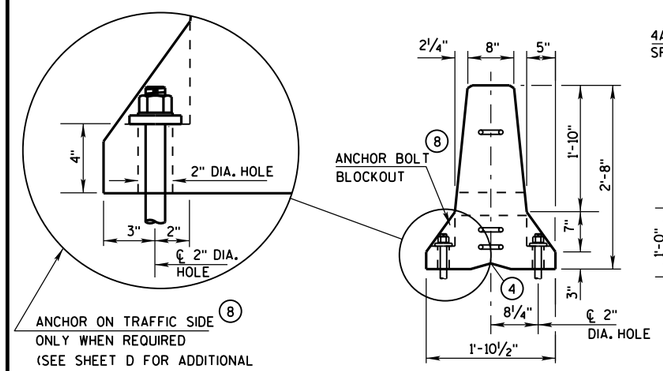
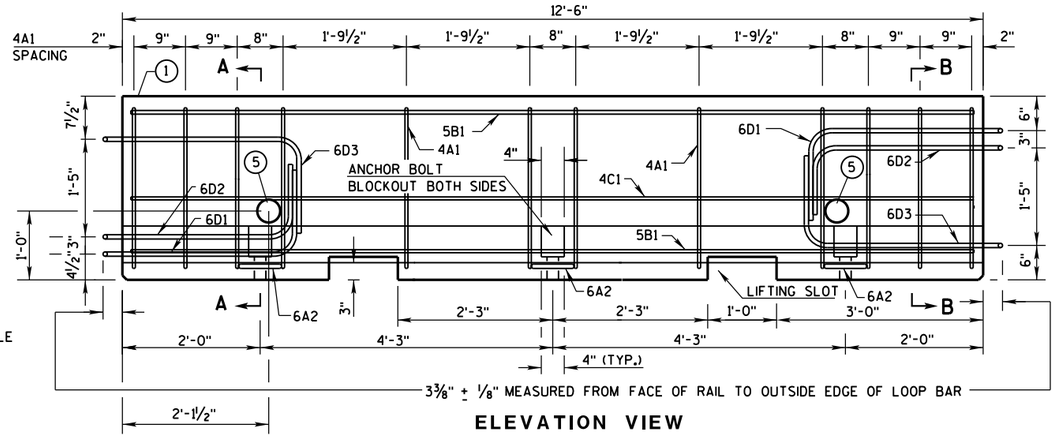
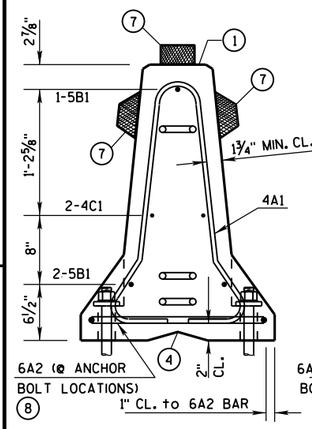
S.D.D. 13 C 18-4c



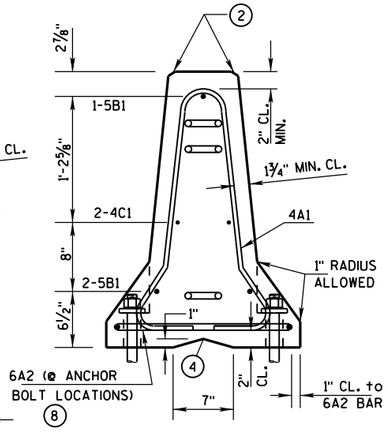
END VIEW



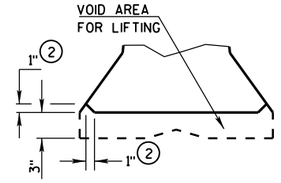
ELEVATION VIEW



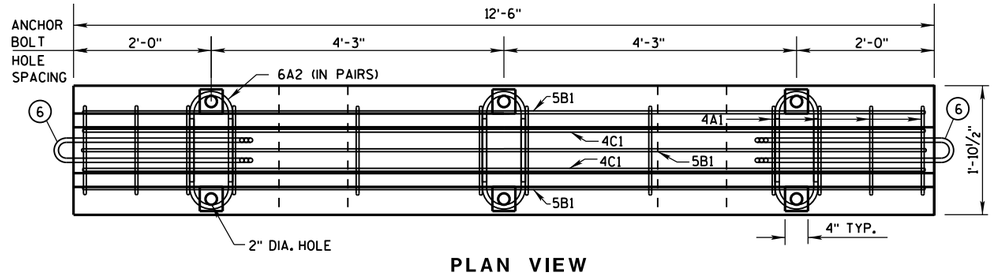
SECTION A-A
(STIRRUP PLACEMENT)



SECTION B-B
(STIRRUP PLACEMENT)

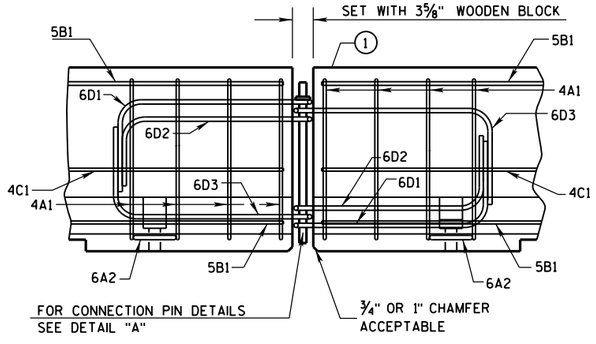


DETAIL "B"
LIFTING SLOT DETAIL

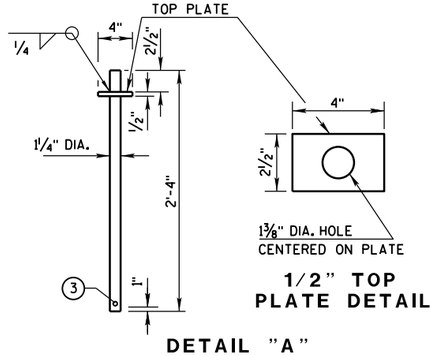


PLAN VIEW

DETAILS OF BARRIER SECTION

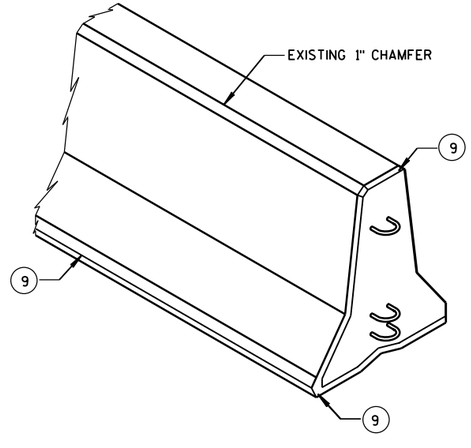


DETAILS OF BARRIER CONNECTION



1/2" TOP PLATE DETAIL

DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-14(a) THRU 14B7-14(h).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRCAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE ¾" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-½" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN ⅛" OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

(1) MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
- a. TYPE: WI CBTP
- b. MANUFACTURER
- c. DATE MANUFACTURED (MONTH AND YEAR)

(2) 1" CHAMFER TO PREVENT SPALLING.

(3) A ⅜" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..

(4) "V" NOTCH IS OPTIONAL.

(5) THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).

(6) NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

(7) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.

(8) SEE SHEET D FOR ANCHORING CRITERIA.

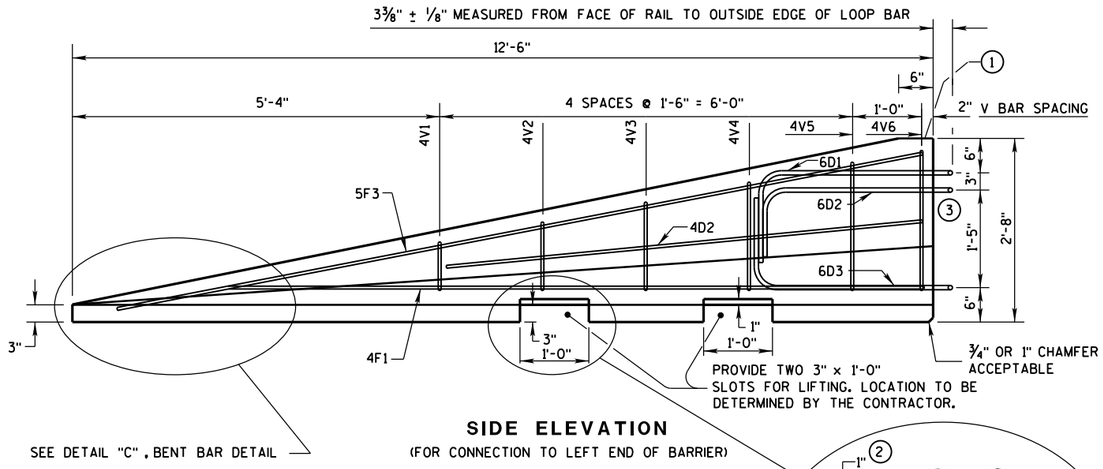
(9) 1" CHAMFER OPTIONAL.

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

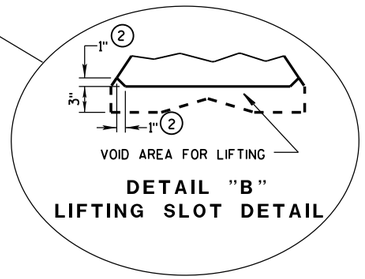
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

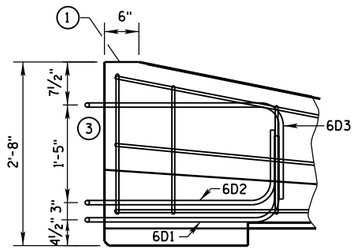
S.D.D. 14 B 7-14a



SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



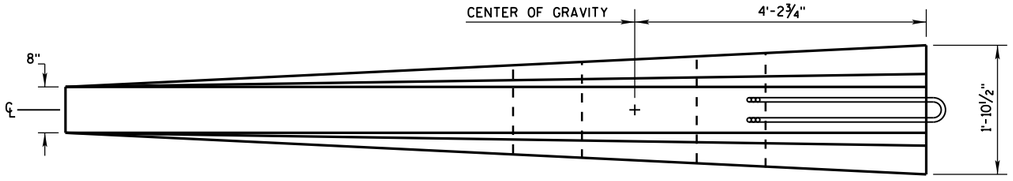
DETAIL "B"
LIFTING SLOT DETAIL



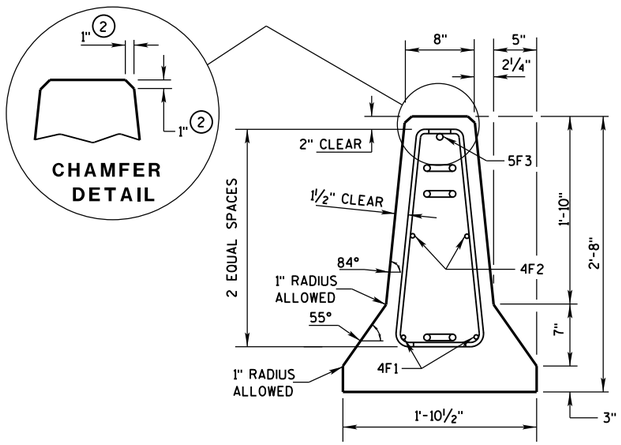
SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

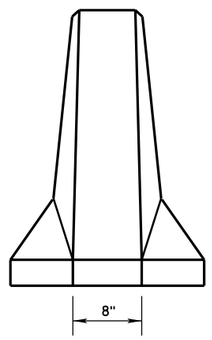
1. MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
   a. TYPE WICBTP
   b. MANUFACTURER
   c. DATE MANUFACTURED (MONTH AND YEAR)
2. 1" CHAMFER TO PREVENT SPALLING.
3. NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



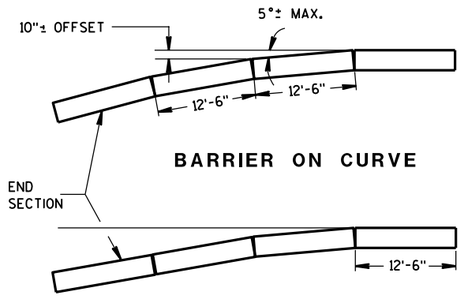
PLAN VIEW



END SECTION



FRONT ELEVATION



BARRIER ON CURVE

FLARE AT BARRIER END

POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

DETAILS OF BARRIER TAPER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

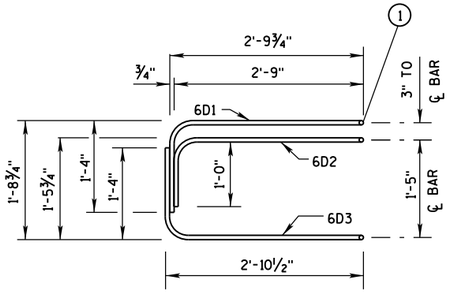
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6
S.D.D. 14 B 7-14b

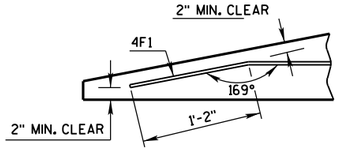
BARRIER TAPER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

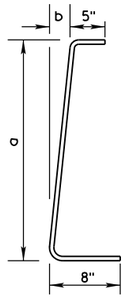
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



ELEVATION
LOOP BAR ASSEMBLY



DETAIL "C"
BENT BAR DETAIL



BAR	a	b
V1	10"	1"
V2	1'-1"	1¼"
V3	1'-5"	1⅝"
V4	1'-8"	1⅞"
V5	2'-0½"	2⅜"
V6	2'-3"	2¾"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

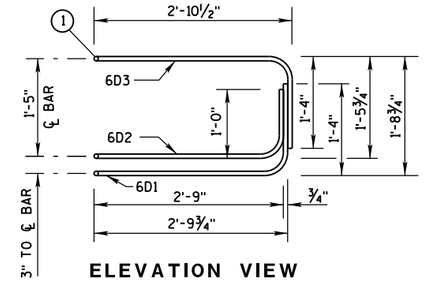
GENERAL NOTES

(1) NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

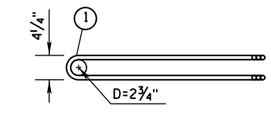
BARRIER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER SECTION)

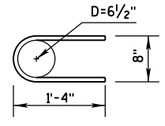
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



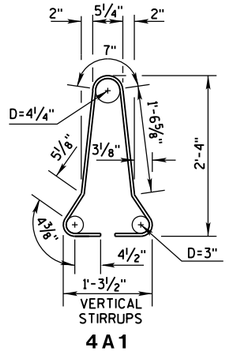
ELEVATION VIEW



PLAN VIEW
LOOP BAR ASSEMBLY
(MARKED END SHOWN, INVERT FOR OTHER END)



6A2



4A1

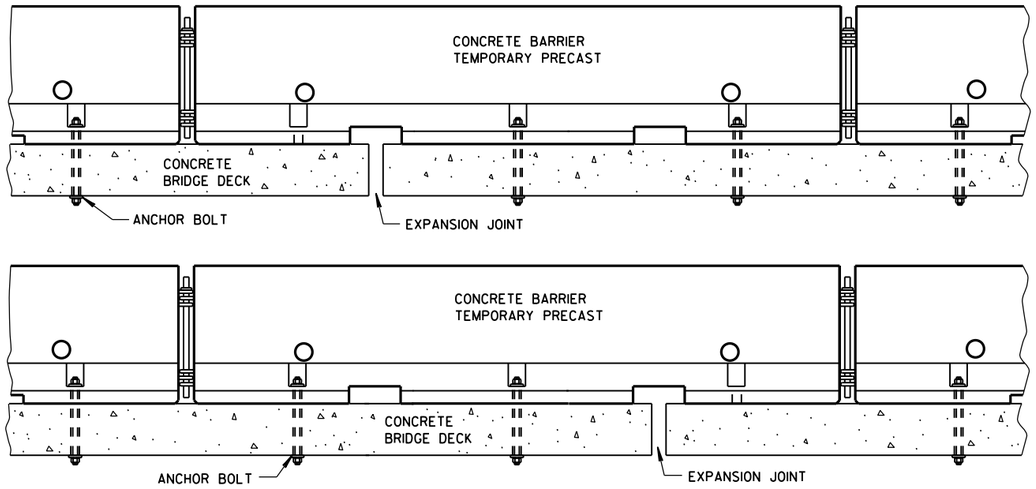
BARRIER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

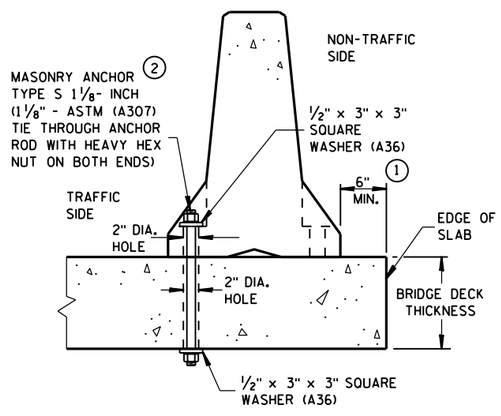
6

S.D.D. 14 B 7-14c



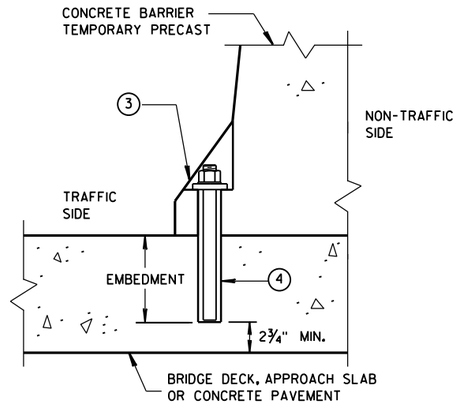
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOTUSE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE BONDED ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT ②

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

① CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 45 MPH OR GREATER, OR

THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 40 MPH OR LESS.

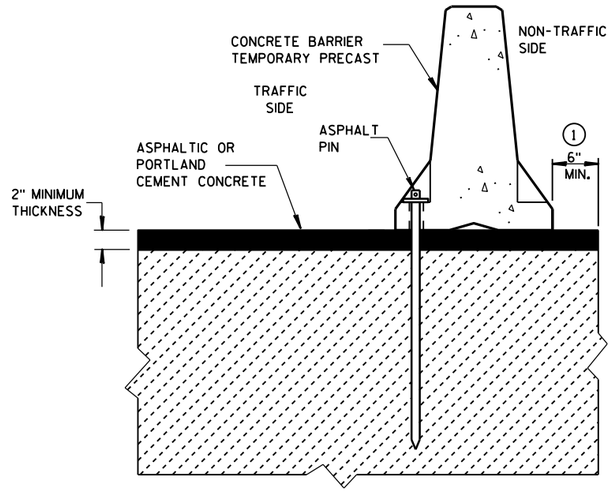
② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED ANCHOR BOLT INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE S 1⅛-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.

UPON REMOVAL OR RELOCATION OF THE BARRIER UNITS, REMOVE ALL ANCHOR BOLTS AND COMPLETELY FILL IN THE REMAINING HOLES IN CONCRETE BRIDGE DECKS, CONCRETE APPROACH SLABS AND CONCRETE PAVEMENTS THAT ARE TO REMAIN, WITH A NON-SHRINK COMMERICAL GROUT OR MATERIAL IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.

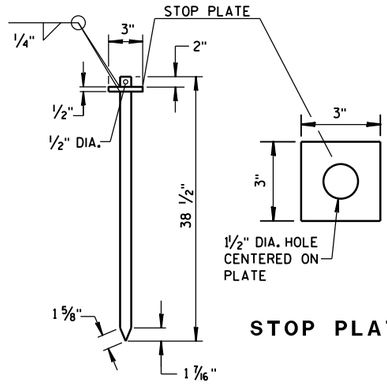
③ 1⅛" DIAMENTER A307 THREADED ROD, ½" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.

④ ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5¼" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.



STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

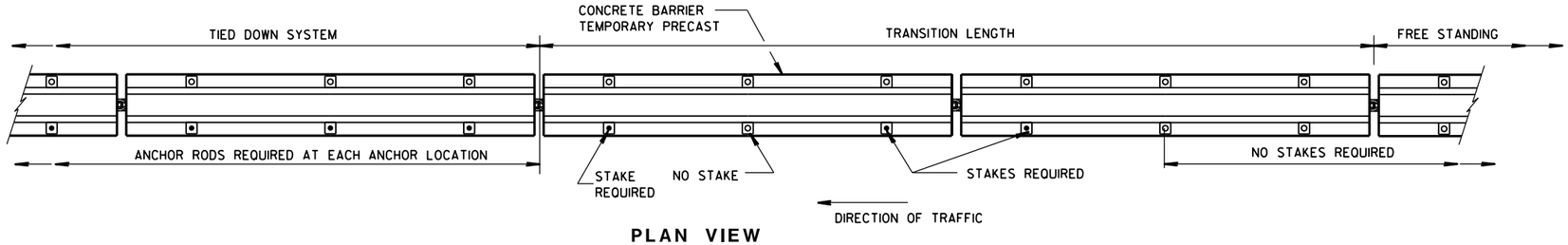
(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



STOP PLATE

ASPHALT PIN

(ASTM A36 STEEL)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

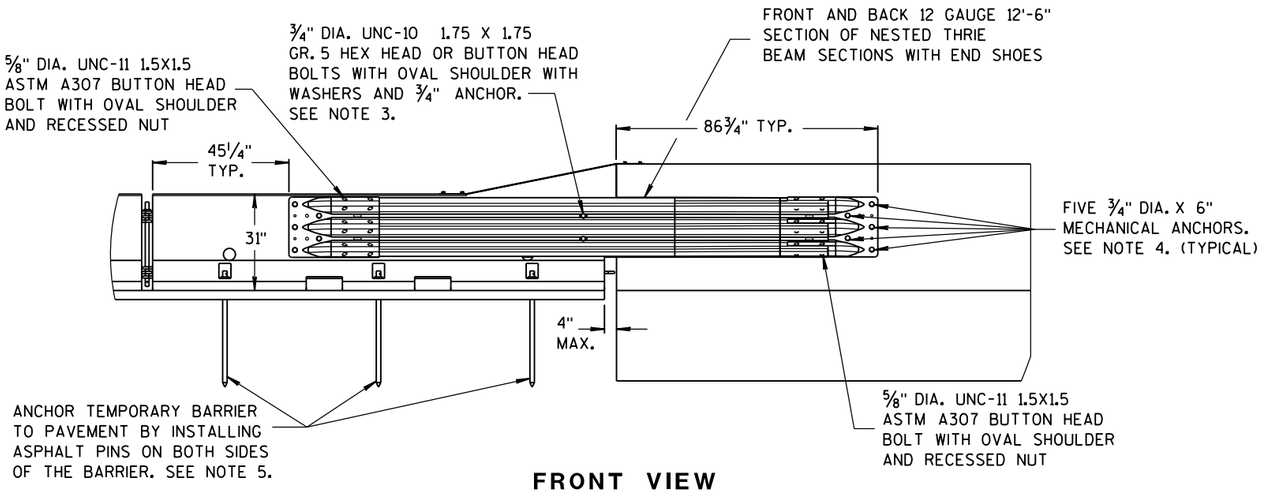
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

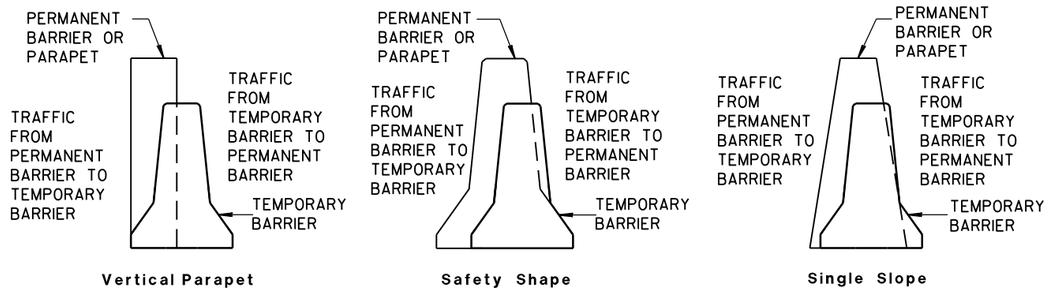
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 7-14d



FRONT VIEW

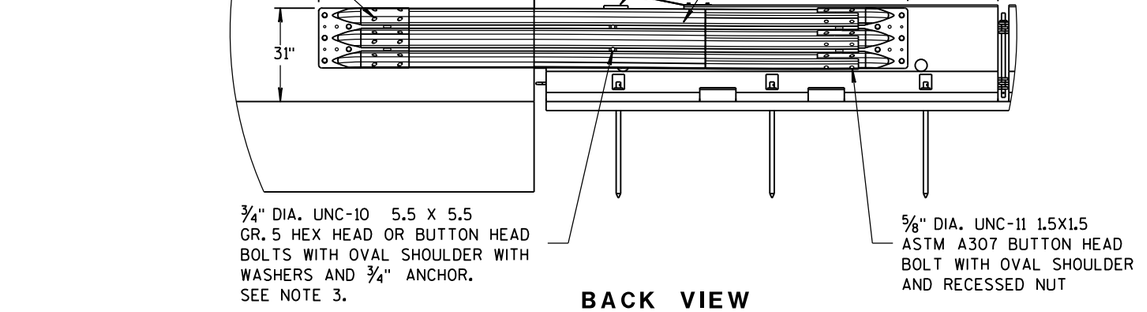


TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

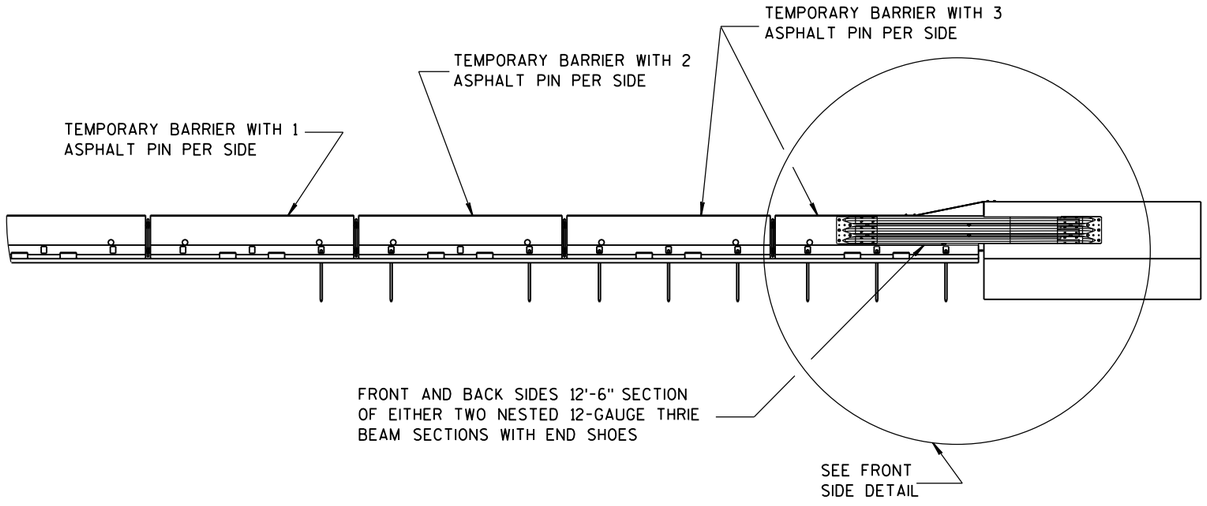
NOTES

NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.

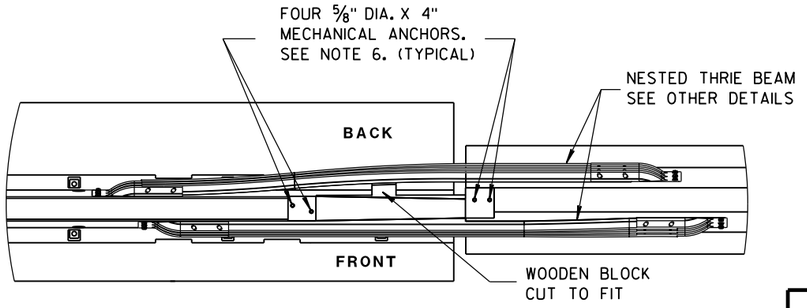
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW



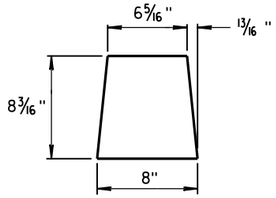
PLAN VIEW

BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

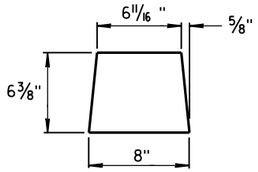
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

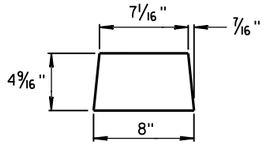
6
S.D.D. 14 B 7-14e



GUSSET 1



GUSSET 2



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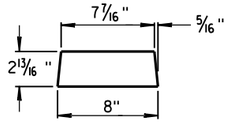
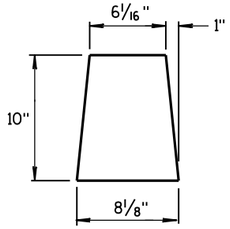
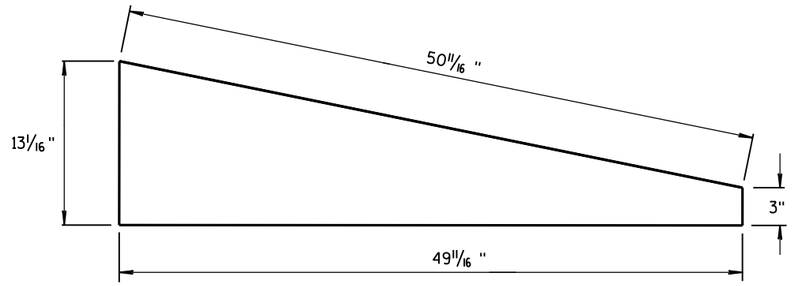


GUSSET 4

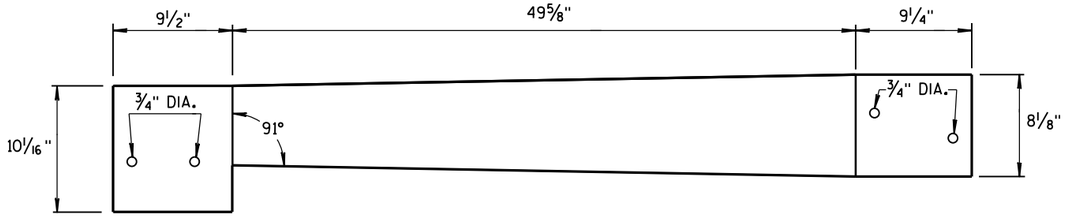
GUSSETS

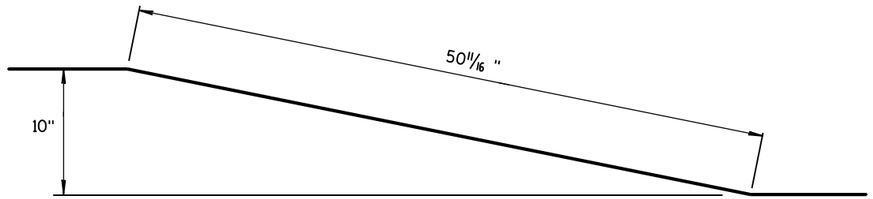


END PLATE



SIDE PLATE

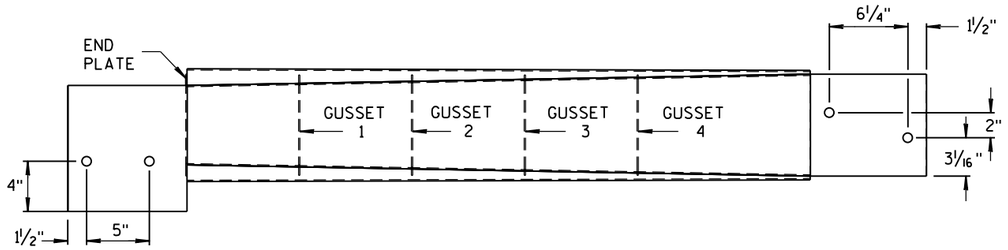


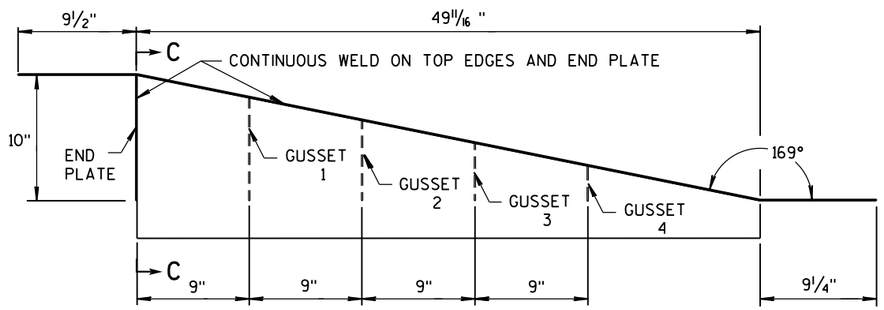


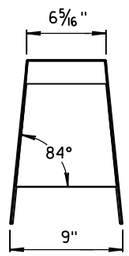
TOP PLATE

SIDE, TOP AND END PLATES FOR CAP FROM TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.







SECTION C-C

NOTES

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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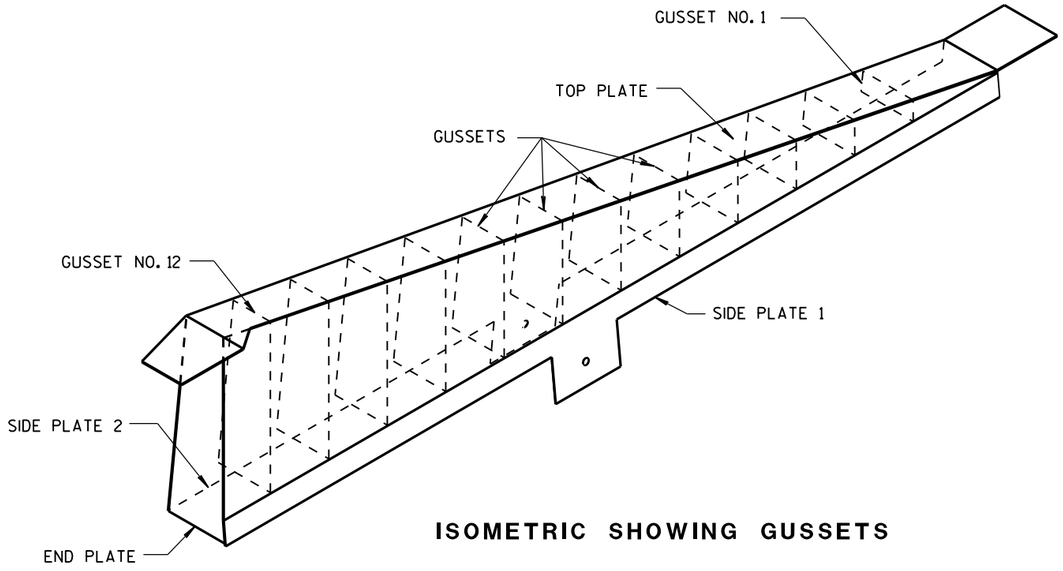
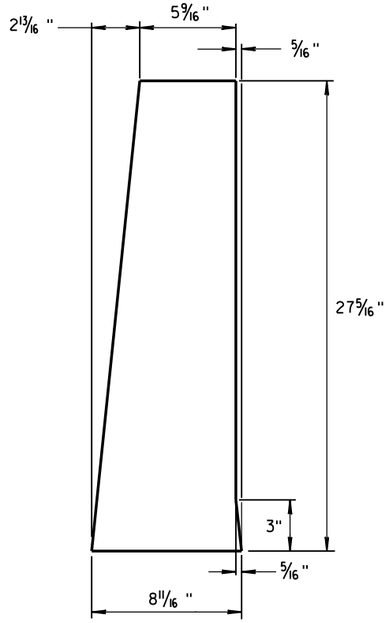
S.D.D. 14 B 7-14f

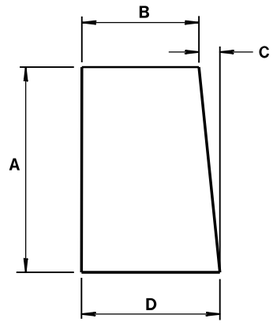


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



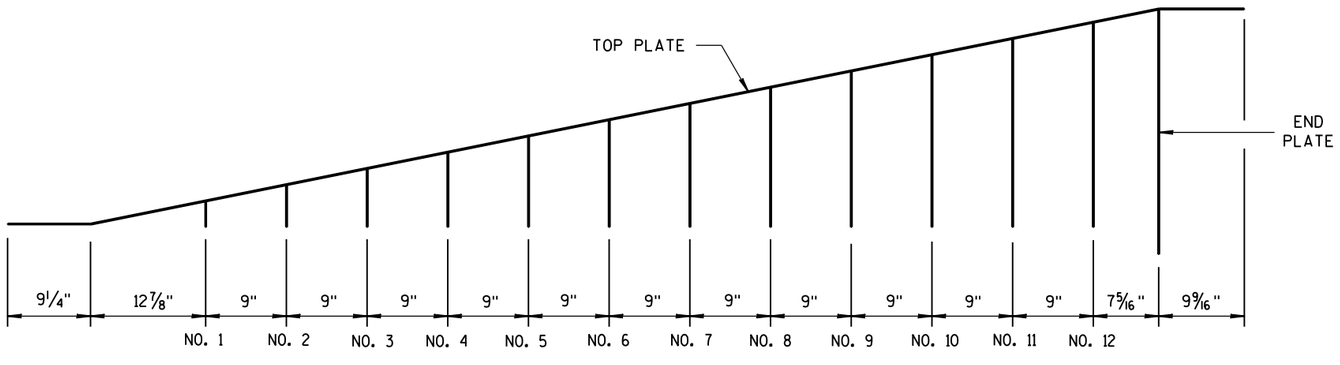
GUSSETS 1 - 12

ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 11/16 "	7 9/16 "	1/2"	8
3	6 1/2"	7 3/8"	11/16 "	8 1/16 "
4	8 5/16 "	7 3/16 "	7/8"	8 1/16 "
5	10 1/8"	7"	1 1/16 "	8 1/16 "
6	11 15/16 "	6 13/16 "	1 1/4"	8 1/16 "
7	13 3/4"	6 5/8"	1 7/16 "	8 1/16 "
8	15 9/16 "	6 7/16 "	1 9/16 "	8 1/16 "
9	17 3/8"	6 1/4"	1 13/16 "	8 1/16 "
10	19 3/16 "	6 1/16 "	1 15/16 "	8 1/16 "
11	21"	5 7/8"	2 3/16 "	8 1/16 "
12	22 13/16 "	5 11/16 "	2 5/16 "	8 1/16 "

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



GUSSET LOCATION

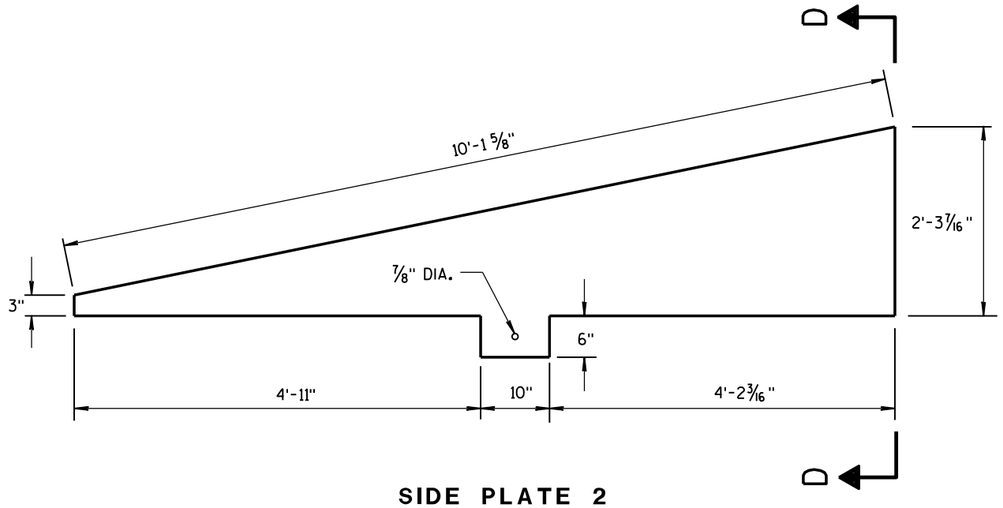
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

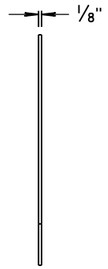
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

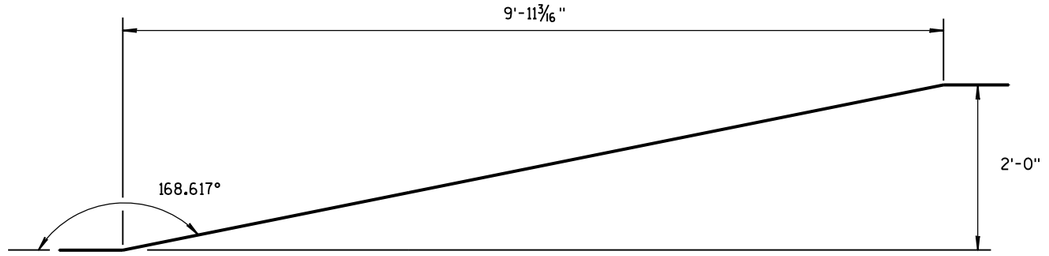
S.D.D. 14 B 7-14g



SIDE PLATE 2

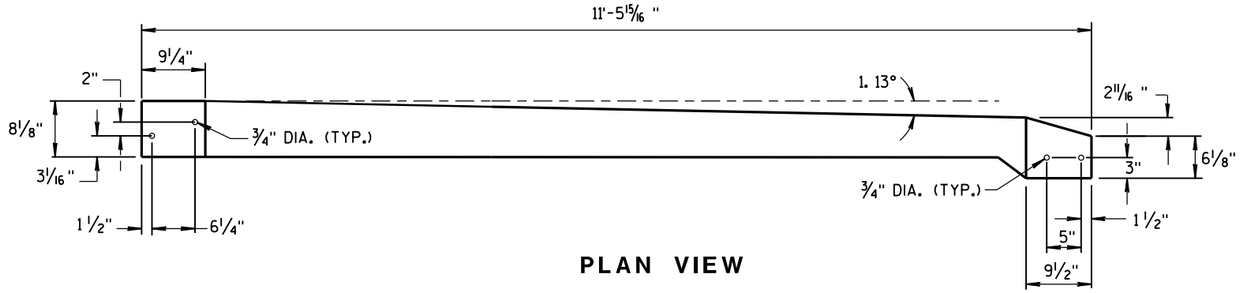


END VIEW



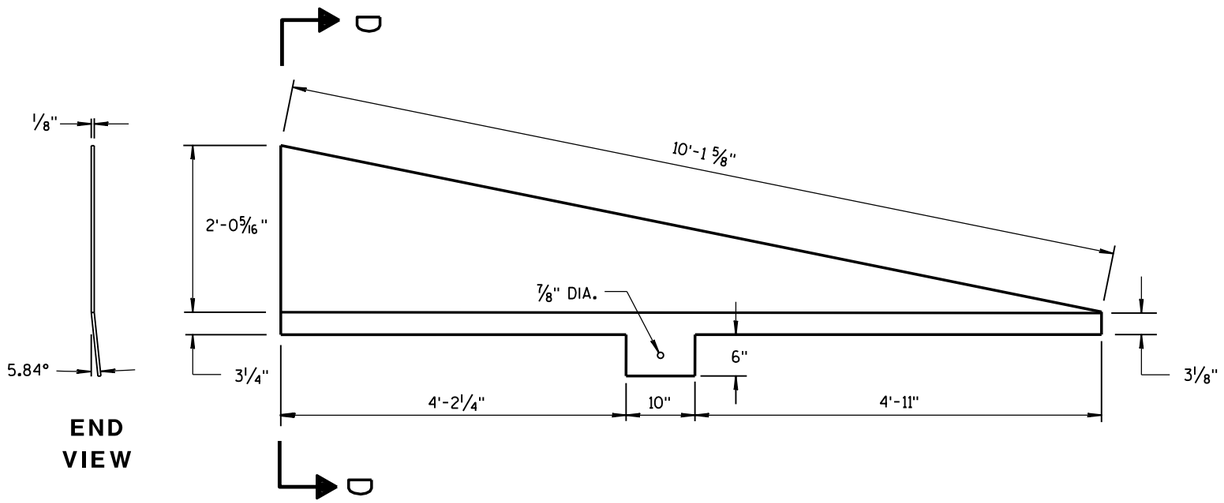
SIDE VIEW

TOP PLATE



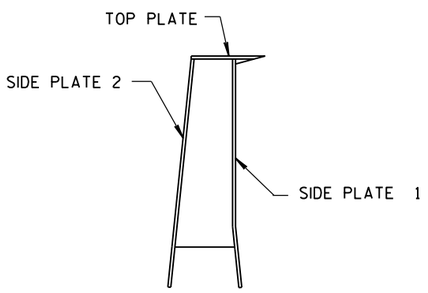
PLAN VIEW

TOP PLATE



END VIEW

SIDE PLATE 1



SECTION D-D

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 — DATE
/S/ Jerry H. Zoaa — ROADWAY STANDARD ENGINEER
FHWA

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S.D.D. 14 B 7-14h

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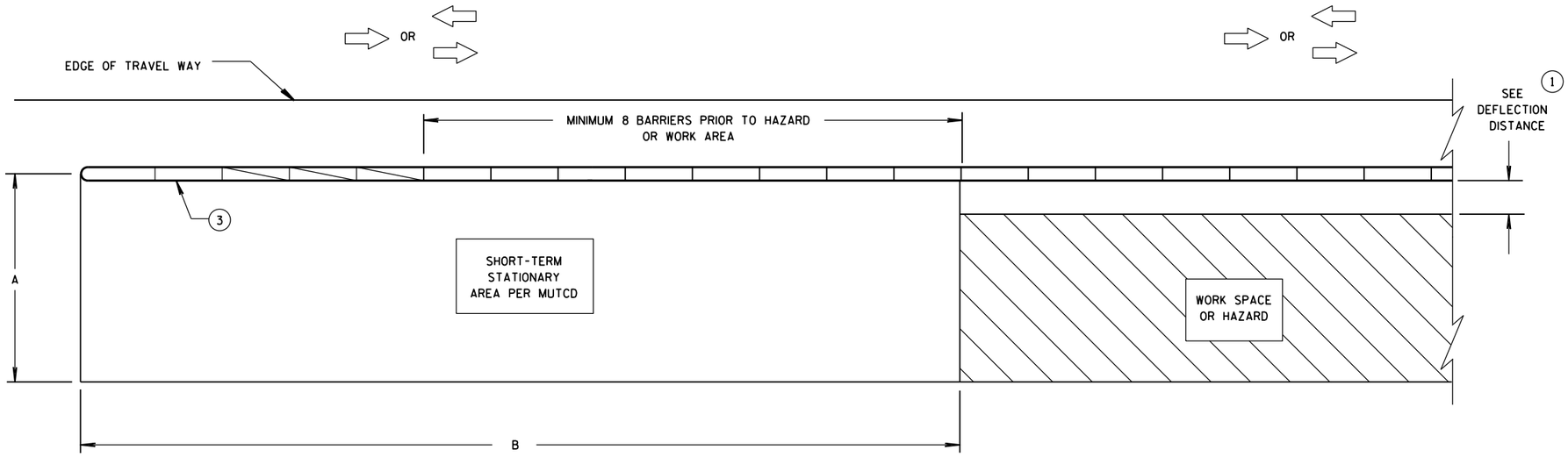
S.D.D. 14 B 7-14h



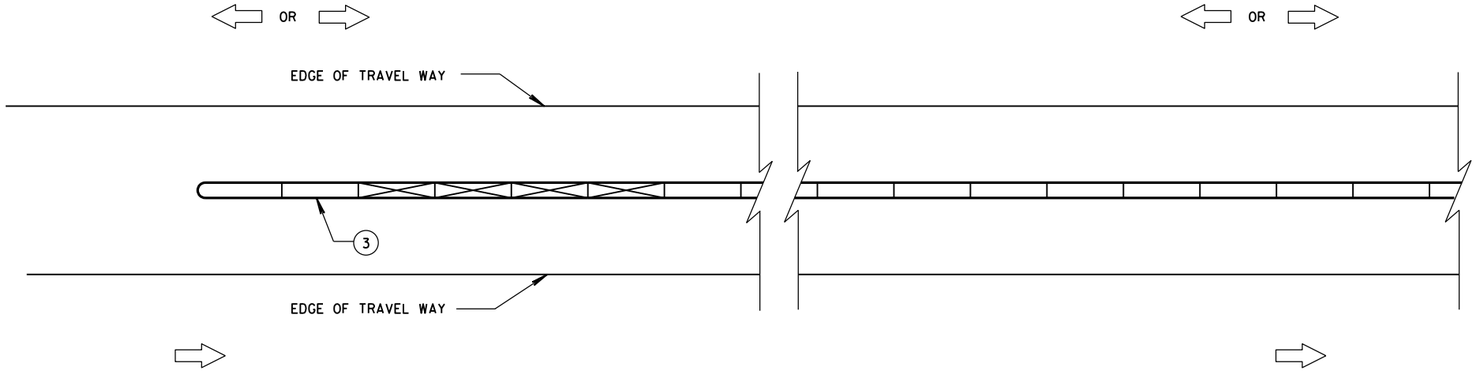
CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER

DIMENSION A TABLE (2)

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

DIMENSION B TABLE (2)

POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645



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.

(3) ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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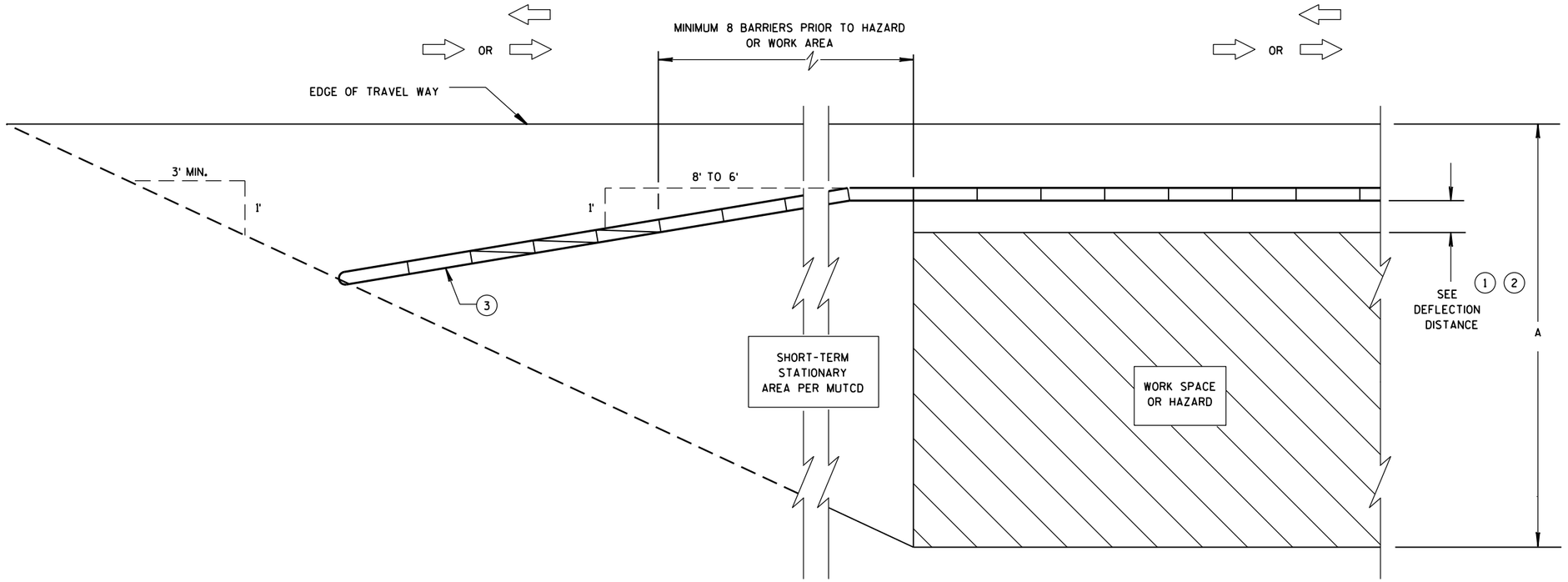
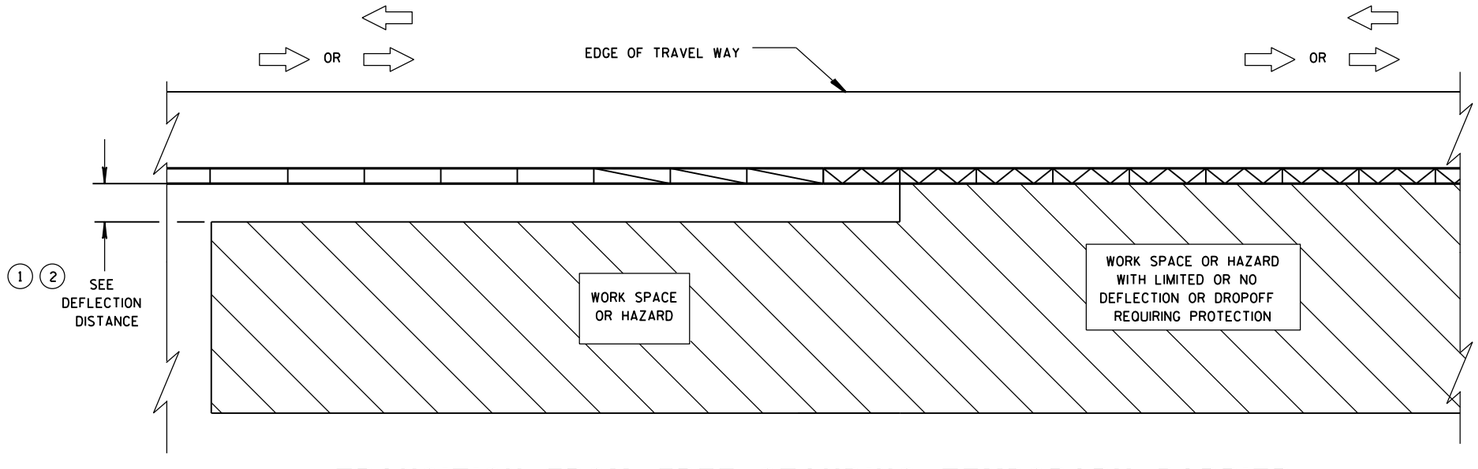
S.D.D. 14 B 8-2a



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



TRANSITION FROM FREE STANDING TEMPORARY BARRIER TO ANCHORED BARRIER

LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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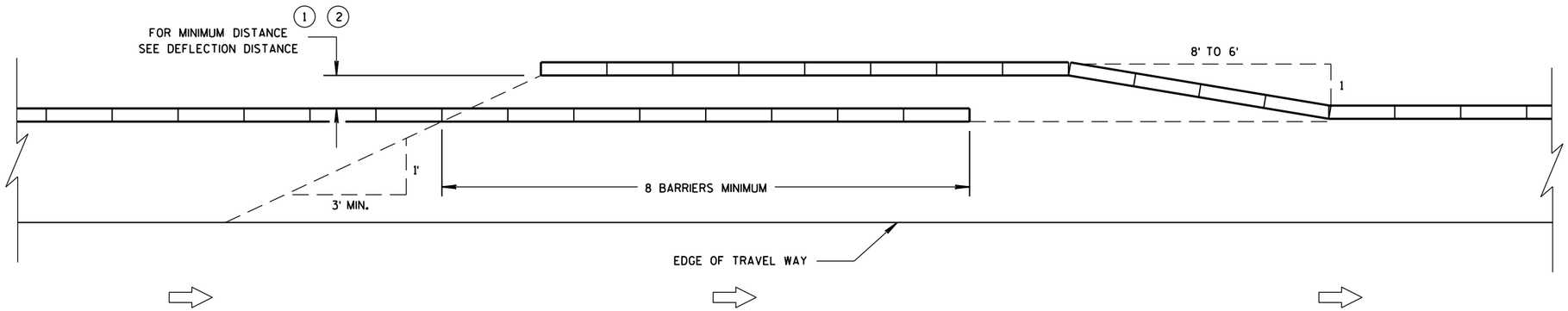
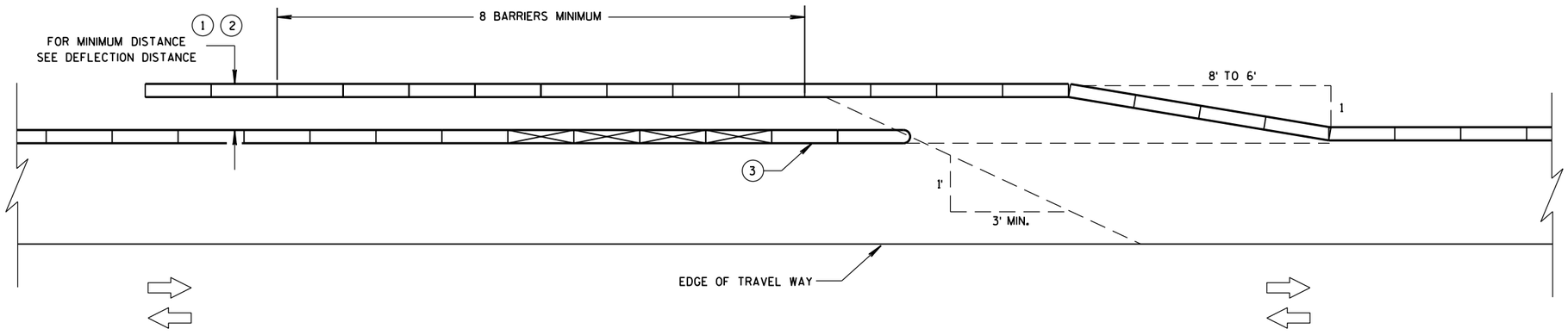
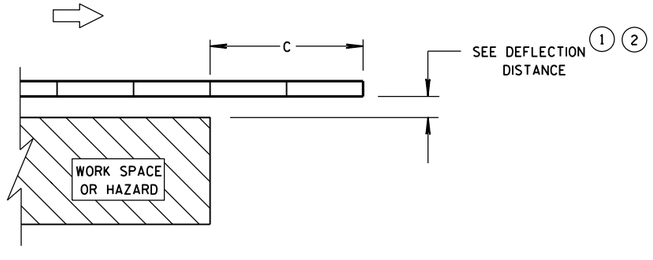
S.D.D. 14 B 8-2b



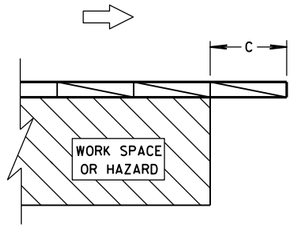
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



ENDING TEMPORARY BARRIER DOWNSTREAM - UNANCHORED



ENDING TEMPORARY BARRIER DOWNSTREAM - ANCHORED

LEGEND

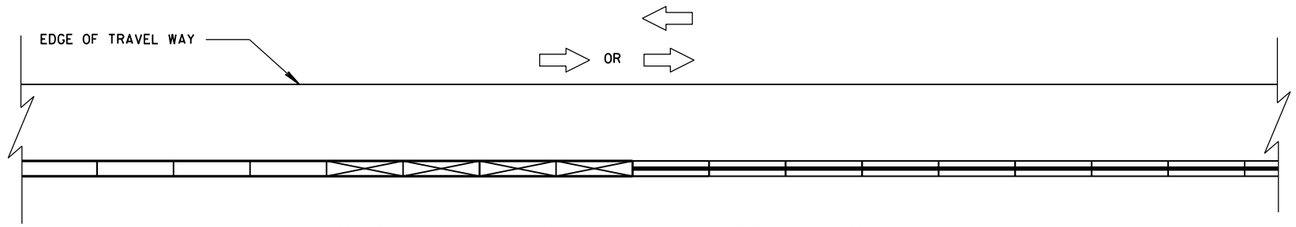
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

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

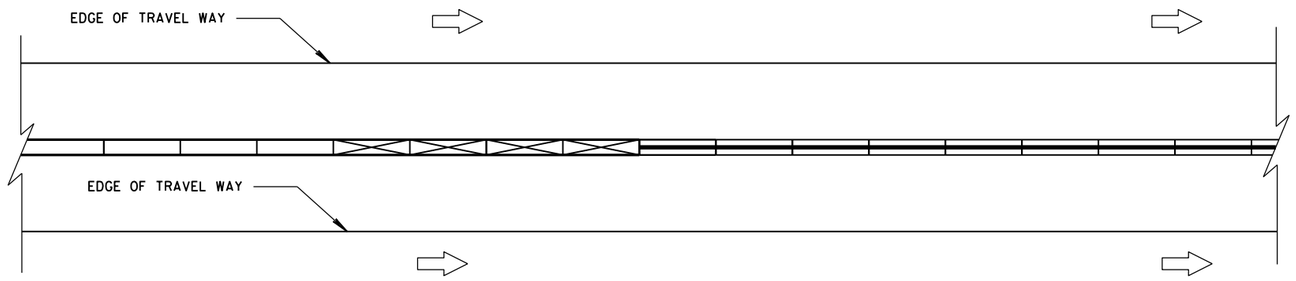
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 8-2c



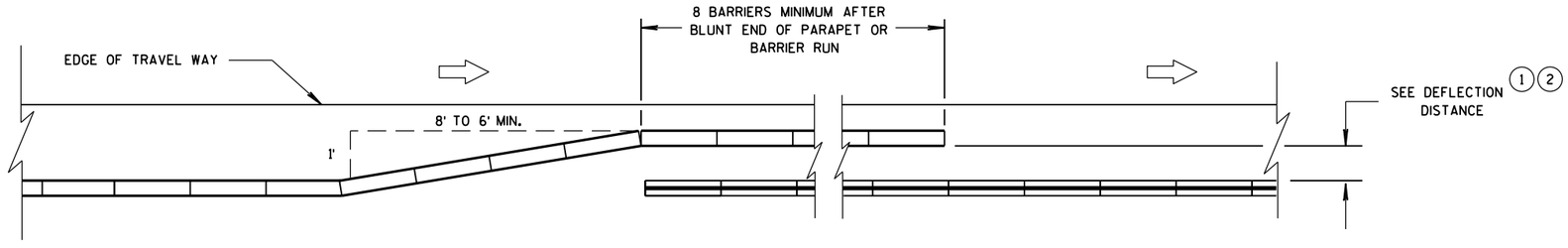
CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON ONE SIDE



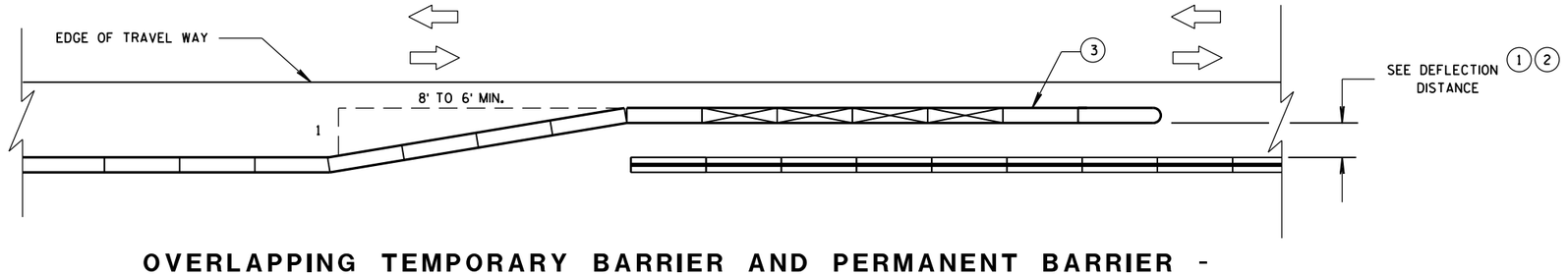
CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

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 TRANSPOI

6

S.D.D. 14 B 8-2d

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

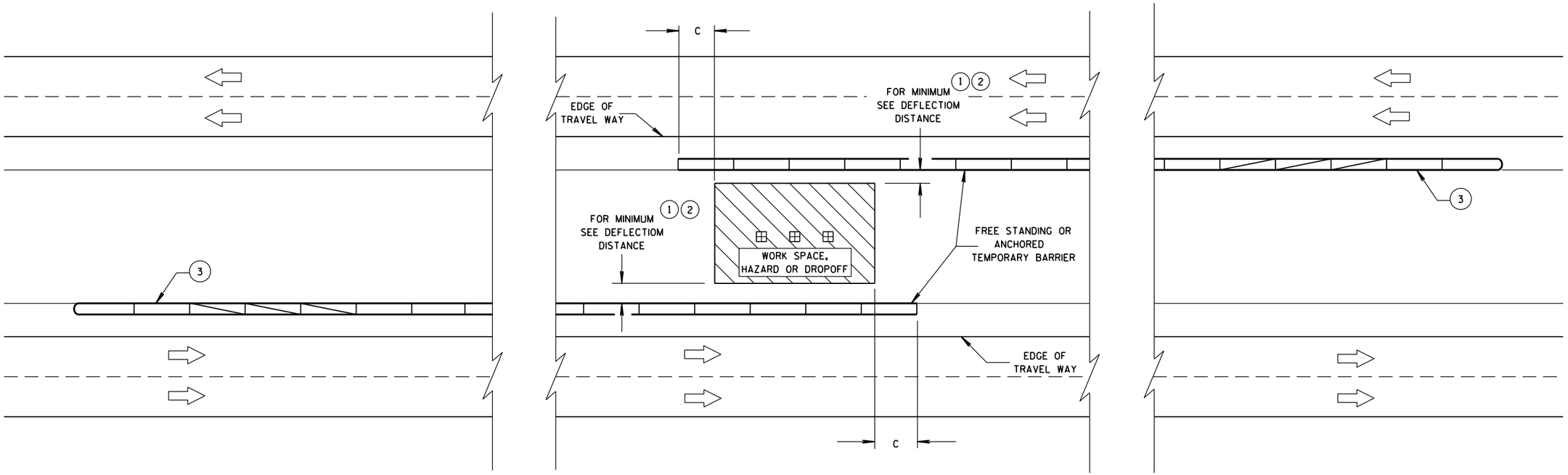
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET

FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE (2)

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINNER
FHWA

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S.D.D. 14 B 8-2e

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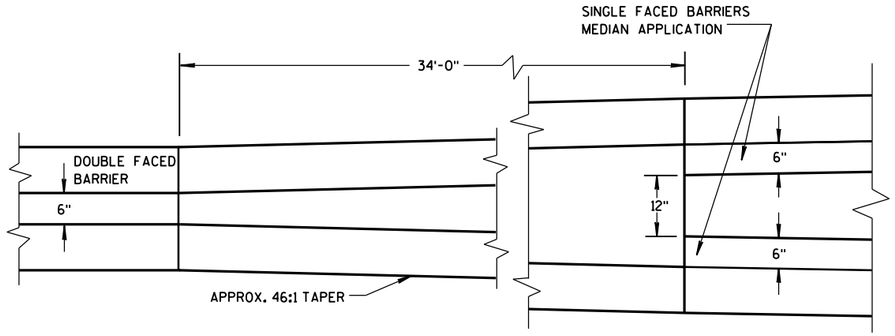
S.D.D. 14 B 8-2e



PLAN VIEW

TRANSITION DETAILS OF DOUBLE FACED TO SINGLE FACED CONCRETE MEDIAN BARRIER

(FOOTINGS ARE NOT SHOWN)

GENERAL NOTES

SPLICES OF LONGITUDINAL BARS SHALL BE MADE WITH BARS LAPPED AT LEAST 18-INCHES AND FIRMLY TIED OR FASTENED TOGETHER.

ALL BAR STEEL REINFORCEMENT SHALL CONFORM TO REQUIREMENTS OF AASHTO M31, GRADE 60.

(1) BARRIER SHALL BE INSTALLED ON A CONCRETE SHOULDER INSTEAD OF THE CONCRETE FOOTING WHEN SPECIFIED OR SHOWN ELSEWHERE IN CONTRACT.

(2) OPENINGS FOR DRAINAGE SHALL BE PLACED AT LOW POINTS OF VERTICAL CURVES OR WHERE DIRECTED BY THE ENGINEER.

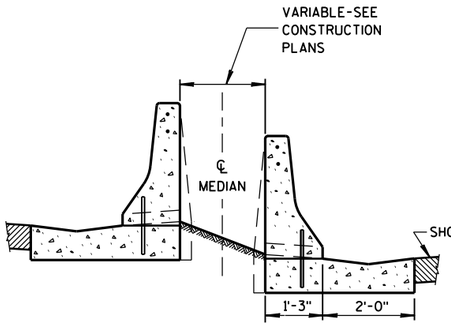
(3) 3/4-INCH BEVEL OR 1-INCH RADIUS (TYPICAL).

(4) NO. 4 BARS SHALL BE CONTINUED THROUGH CONSTRUCTION JOINTS.

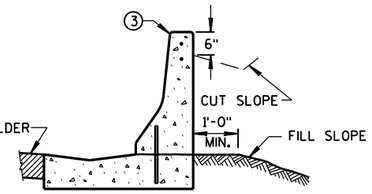
(5) EXPANSION JOINTS SHALL BE PLACED AT EXISTING EXPANSION JOINTS IN THE PAVEMENT AND AT STRUCTURES. SEE REINFORCEMENT AT BARRIER END DETAIL.

(6) SAWED CONTRACTION JOINTS SHALL BE PROVIDED ACROSS THE FULL WIDTH OF THE BARRIER FOOTING, AND IN FRONT, TOP AND BACK FACE OF THE BARRIER AT EXISTING PAVEMENT JOINTS AND AT UNIFORM INTERVALS BETWEEN WITH A MAXIMUM SPACING OF 25 FEET.

HIGH SIDE
CONCRETE BARRIER DETAIL

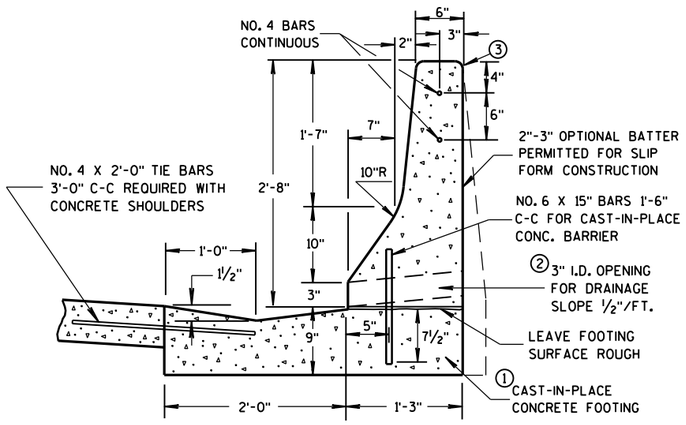


MEDIAN

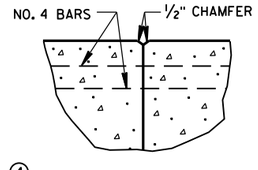


SHOULDER

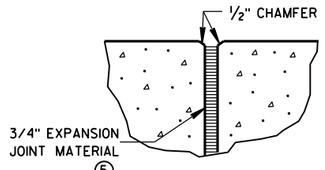
TYPICAL APPLICATIONS



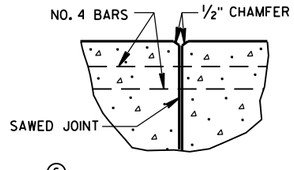
SECTION VIEW



4 CONSTRUCTION JOINT



5 EXPANSION JOINT



6 CONTRACTION JOINT

JOINT DETAILS

CONCRETE BARRIER,
SINGLE-FACED
(WITH ANCHORAGE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 22-6a

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.

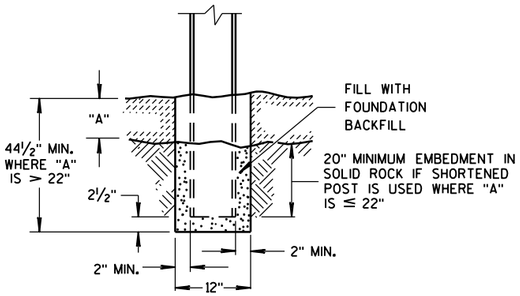
② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

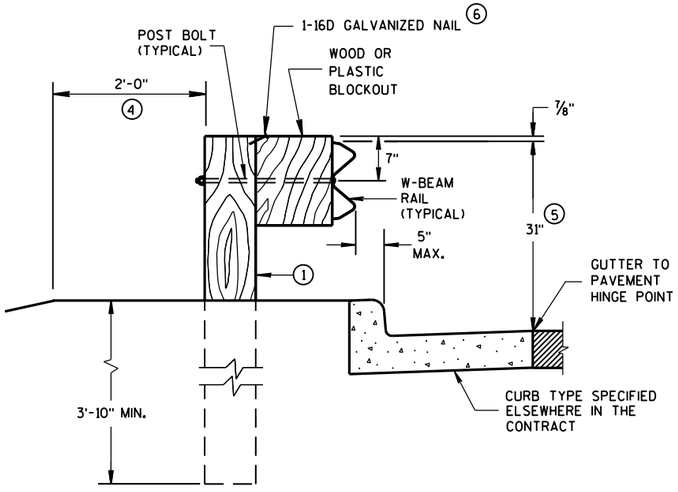
④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

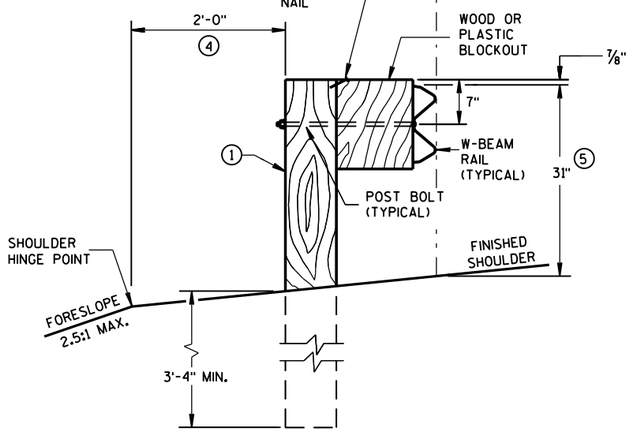
⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



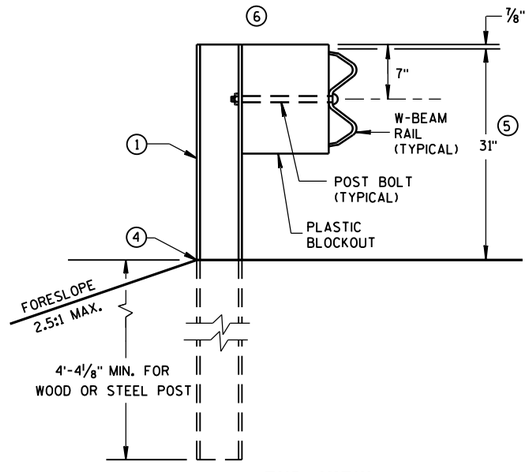
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ③



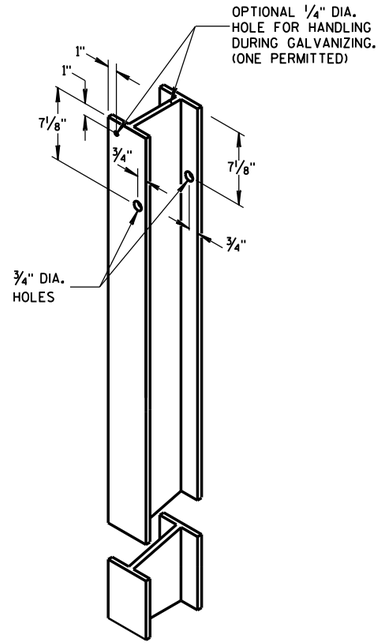
END VIEW
LOCATED ALONG A CURBED ROADWAY



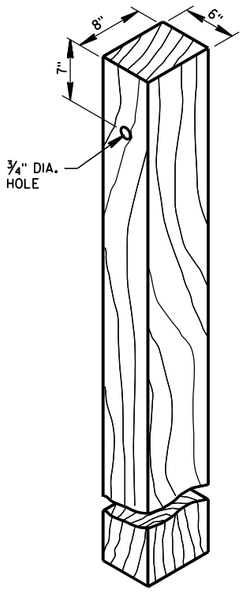
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



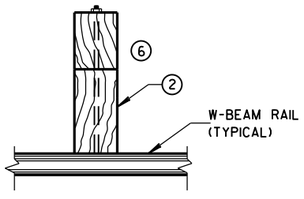
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



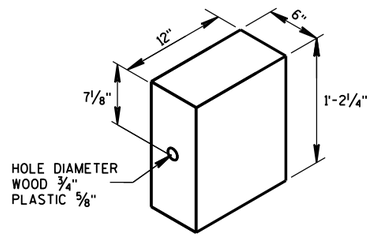
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



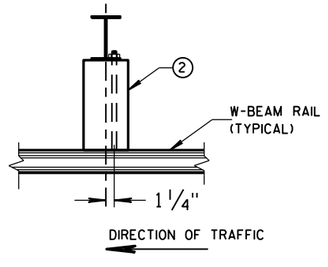
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②



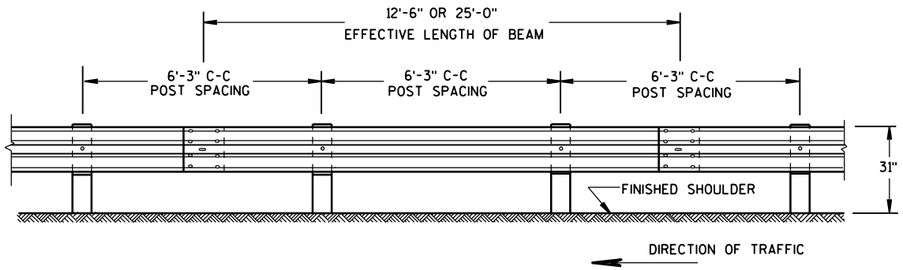
PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

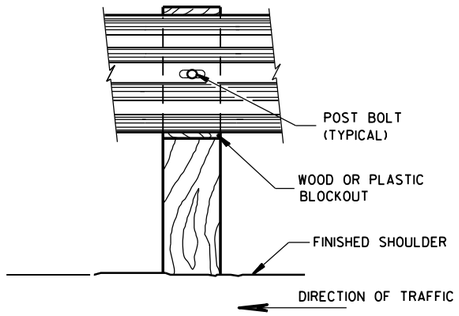
6

S.D.D. 14 B 42-4a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



FRONT VIEW AT WOOD POST

7. PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.

8. 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.

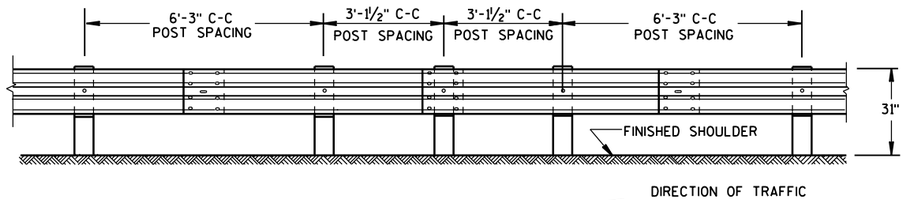
9. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

10. PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

11. 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

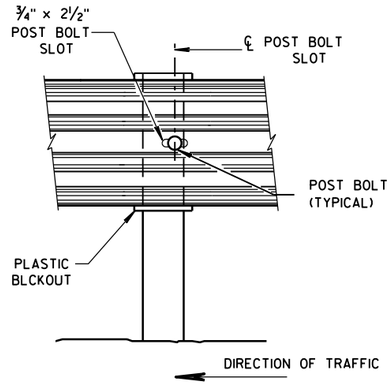
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

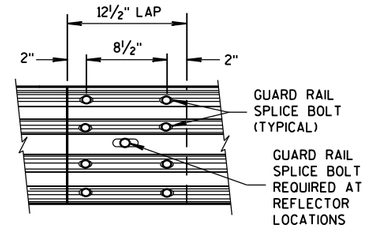


FRONT VIEW

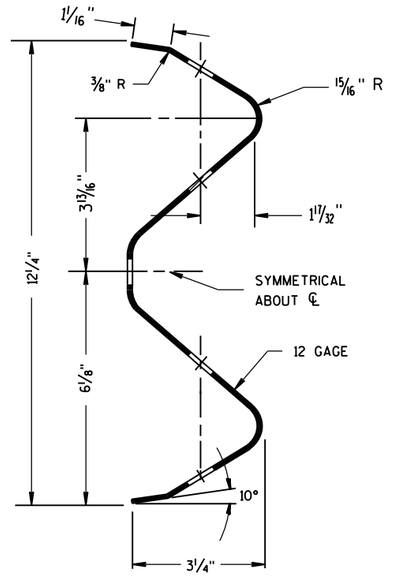
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



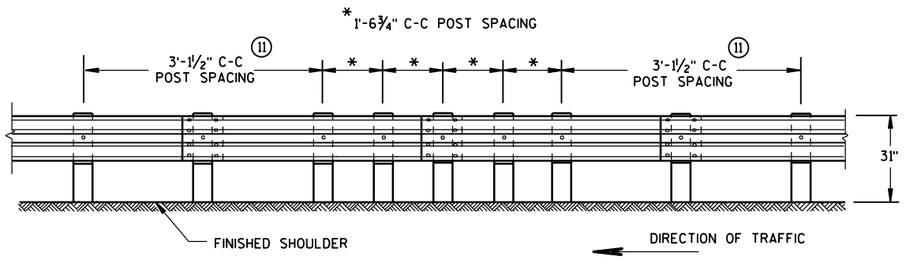
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE

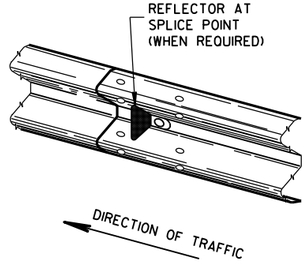


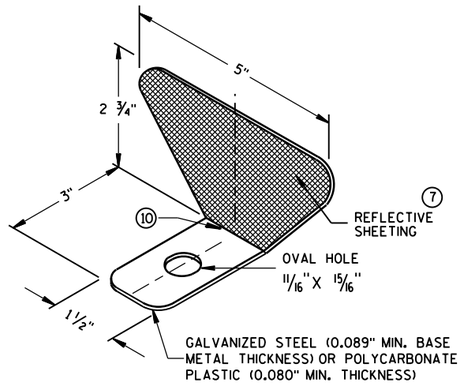
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





REFLECTOR SPACING (8)

	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	
TWO WAY TRAFFIC	< 200'	25' C-C	1 (9)	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2 (10)	

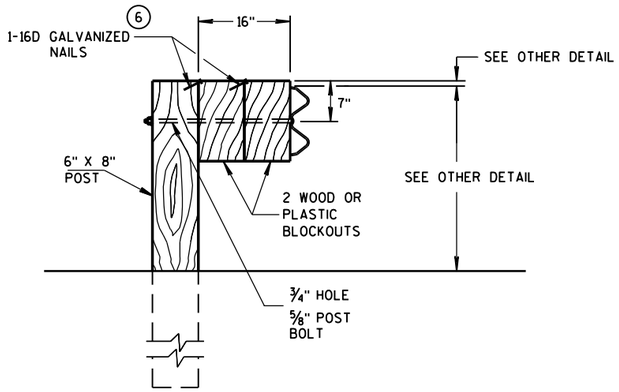
ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (7)

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

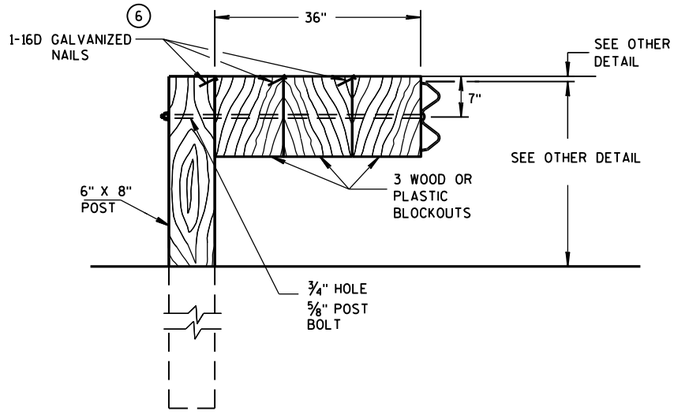
6

S.D.D. 14 B 42-4b



DETAIL FOR 16" BLOCKOUT DEPTH

IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

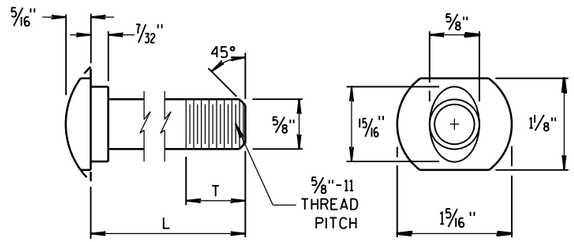


DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

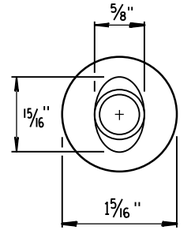
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

NOTE: 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 1/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

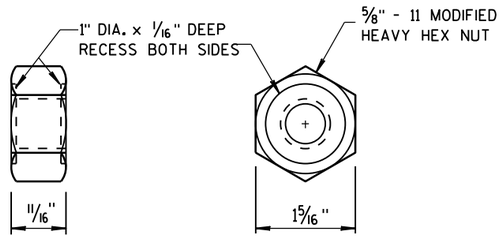


POST BOLT TABLE

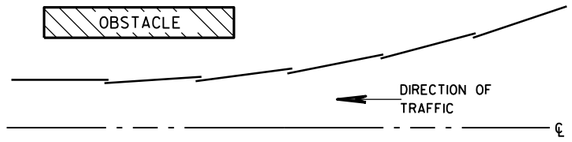
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

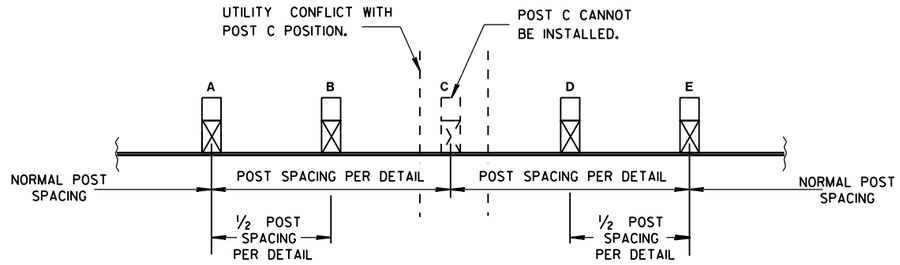


POST BOLT, SPLICE BOLT AND RECESS NUT

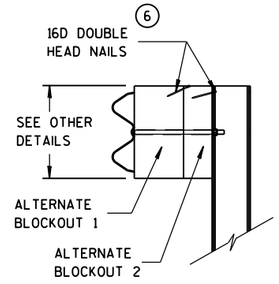


PLAN VIEW

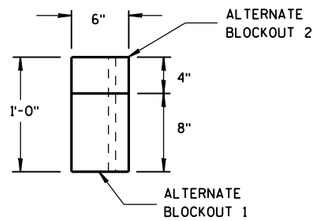
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

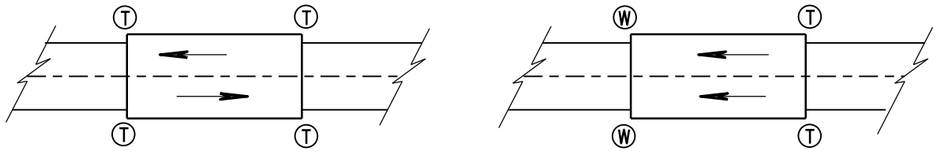
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 14 B 42-4c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

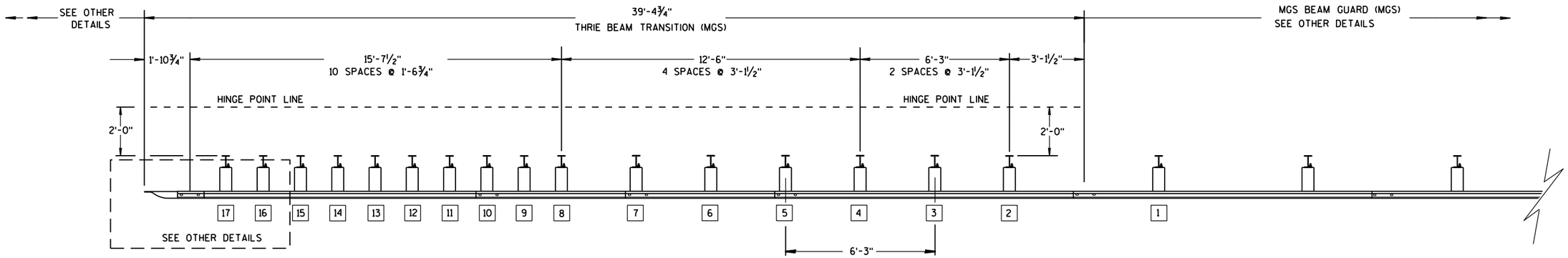
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

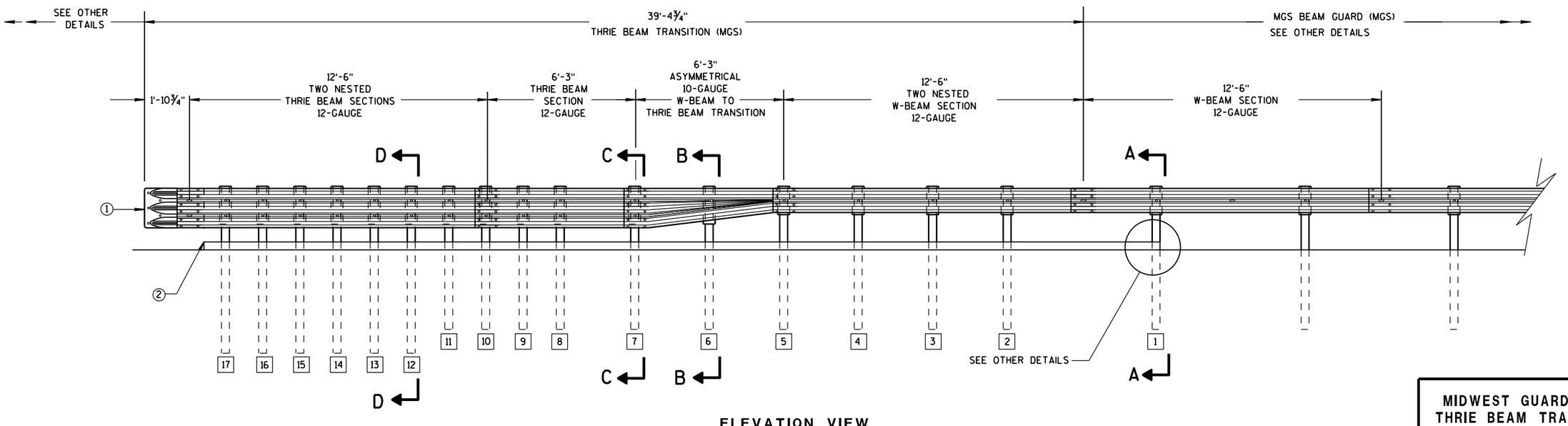
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 45-4a

6

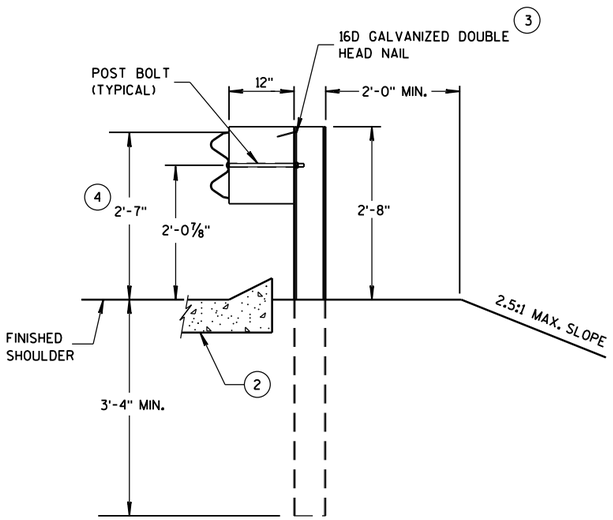
S.D.D. 14 B 45-4a

GENERAL NOTES

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE_FEATURE SEE PLAN FOR INFORMATION.

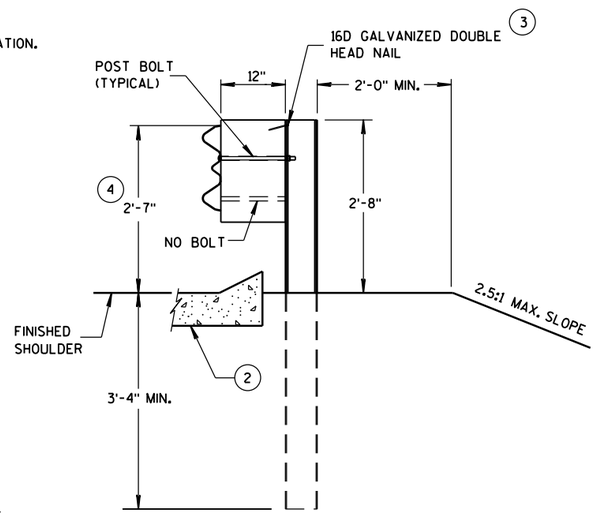
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



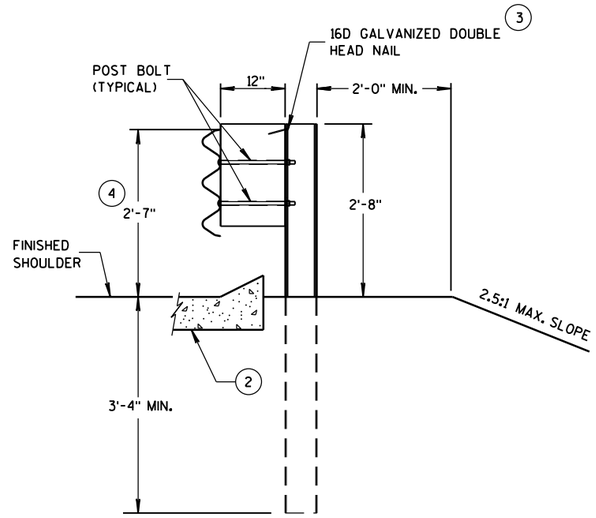
SECTION A-A

POSTS 1-5



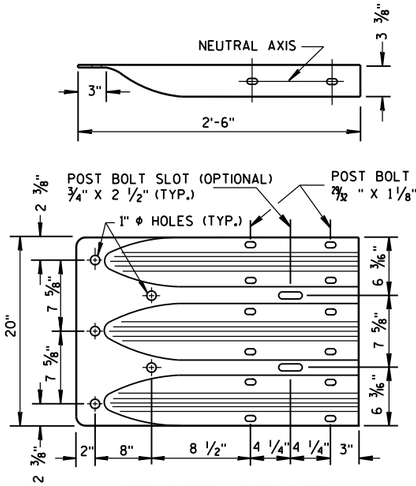
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

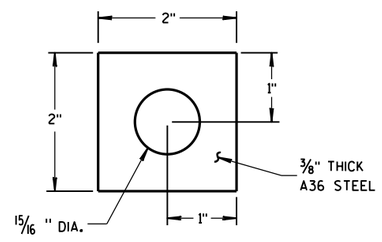
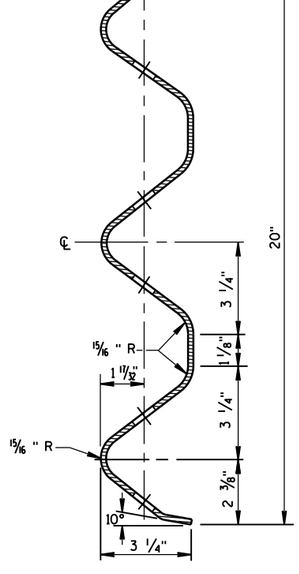
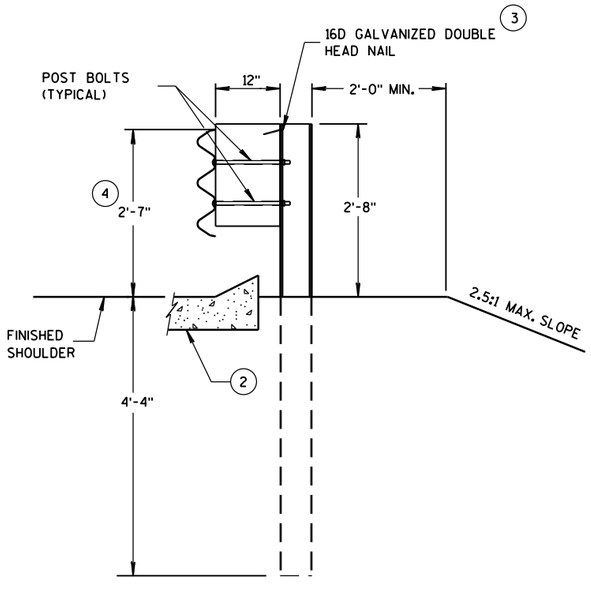


PLATE WASHER DETAIL

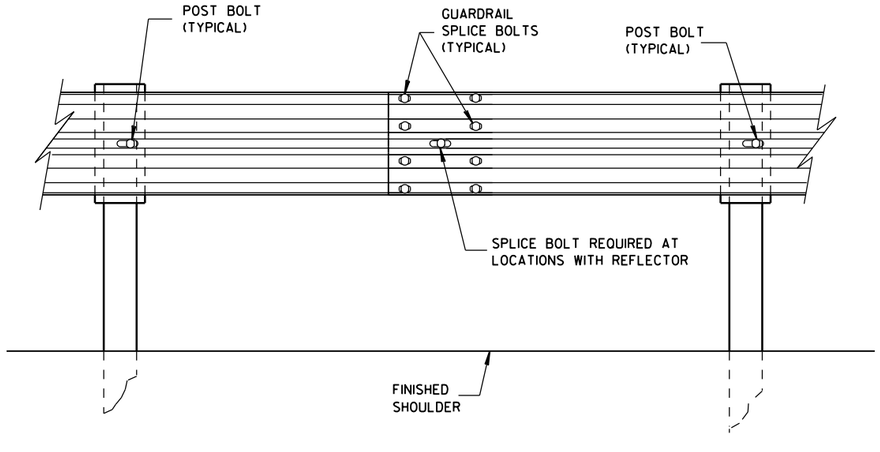


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



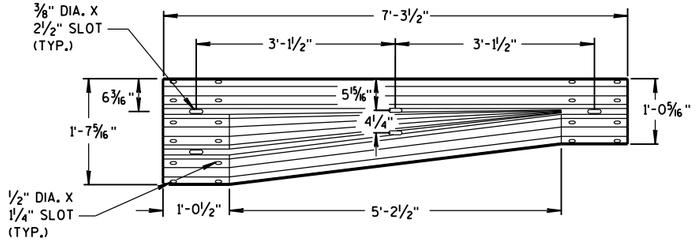
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

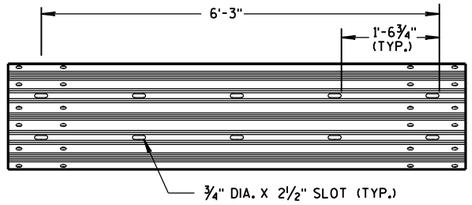
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

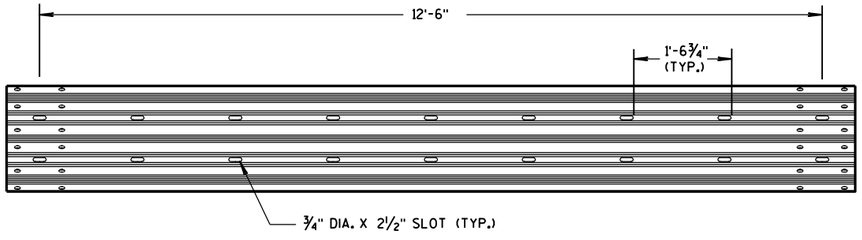
S.D.D. 14 B 45-4b



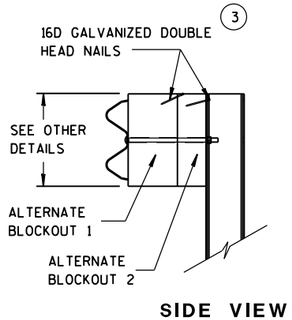
W-BEAM TO THRIE BEAM TRANSITION SECTION



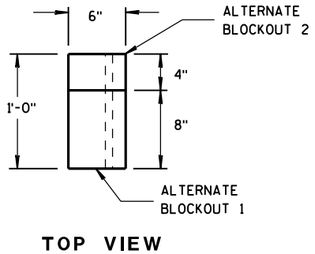
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

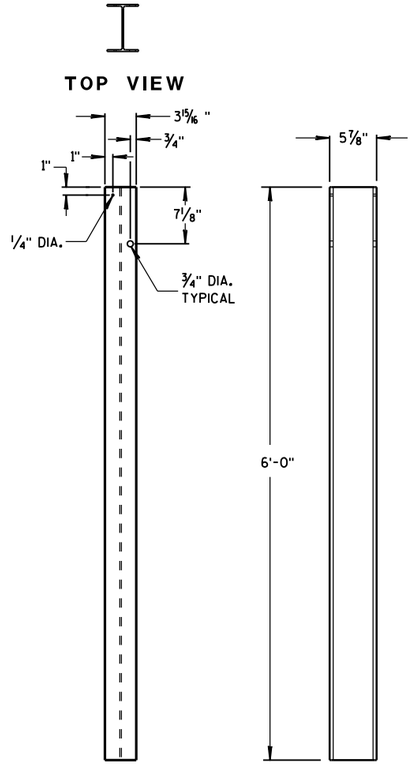


SIDE VIEW



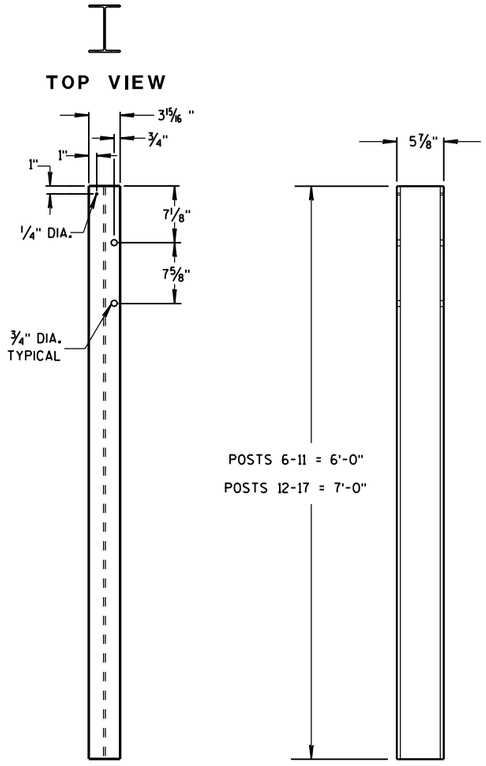
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



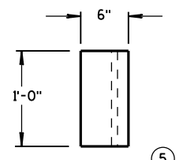
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

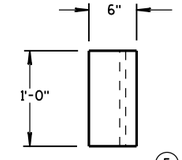


FRONT VIEW SIDE VIEW

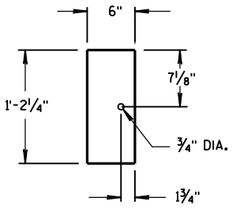
STEEL POSTS 6-17



TOP VIEW (5)

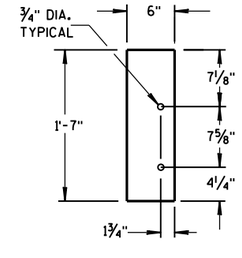


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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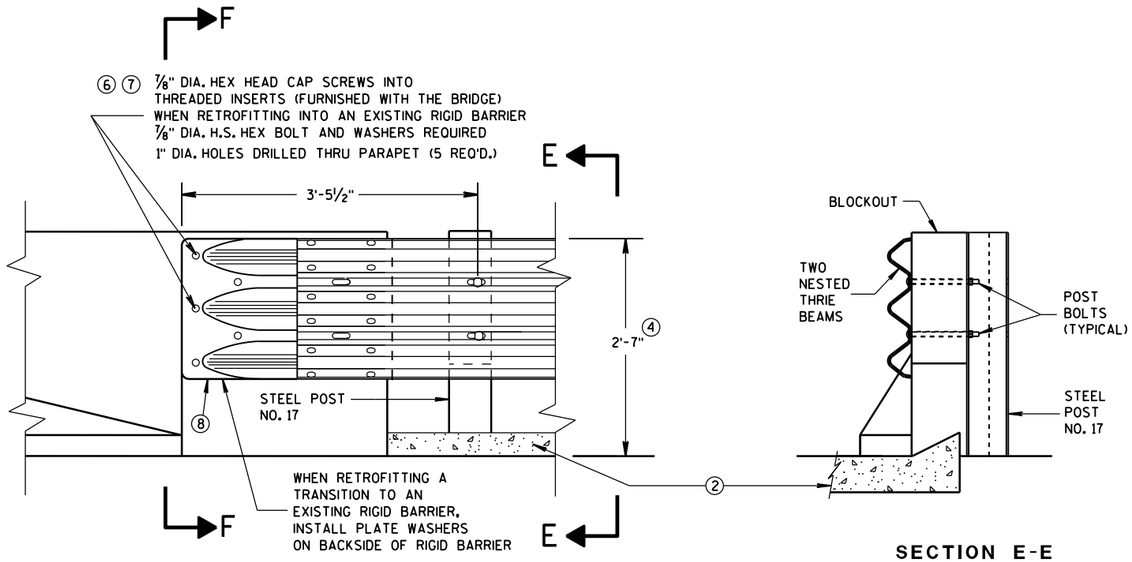


FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

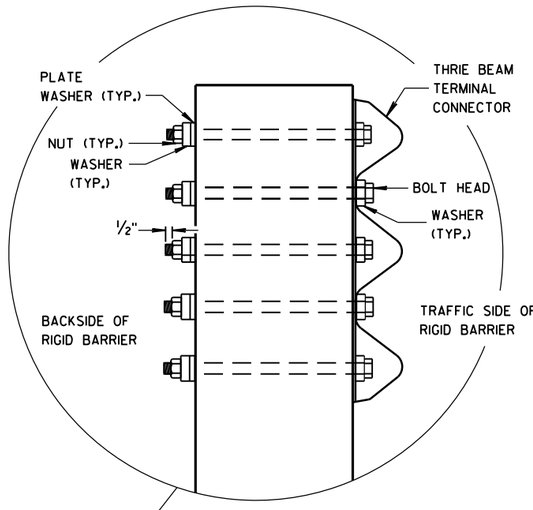
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

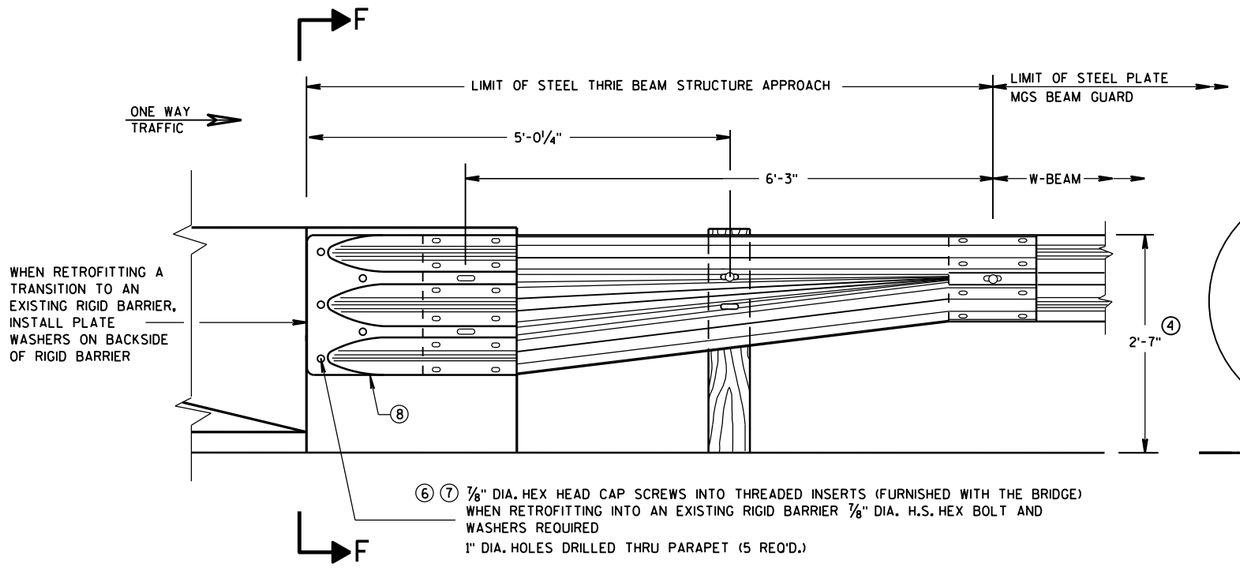
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

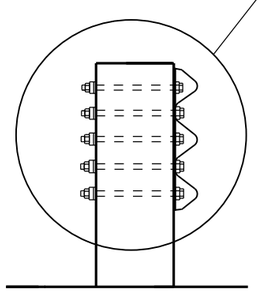
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. 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.

⑧ 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".

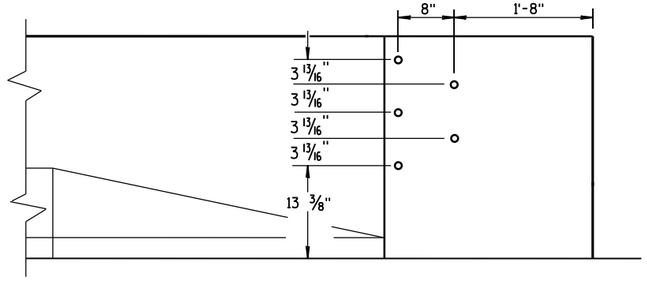




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
FHWA
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

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GENERAL NOTES

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

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

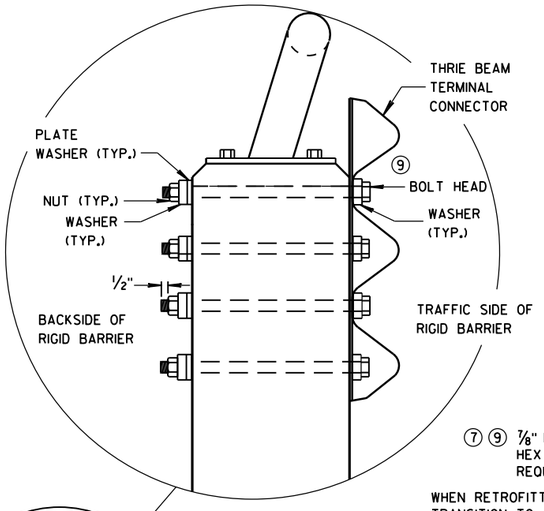
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

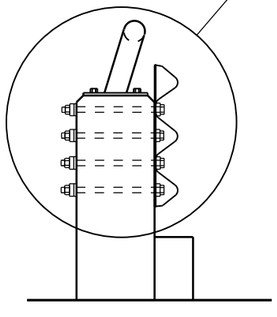
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(7) 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.

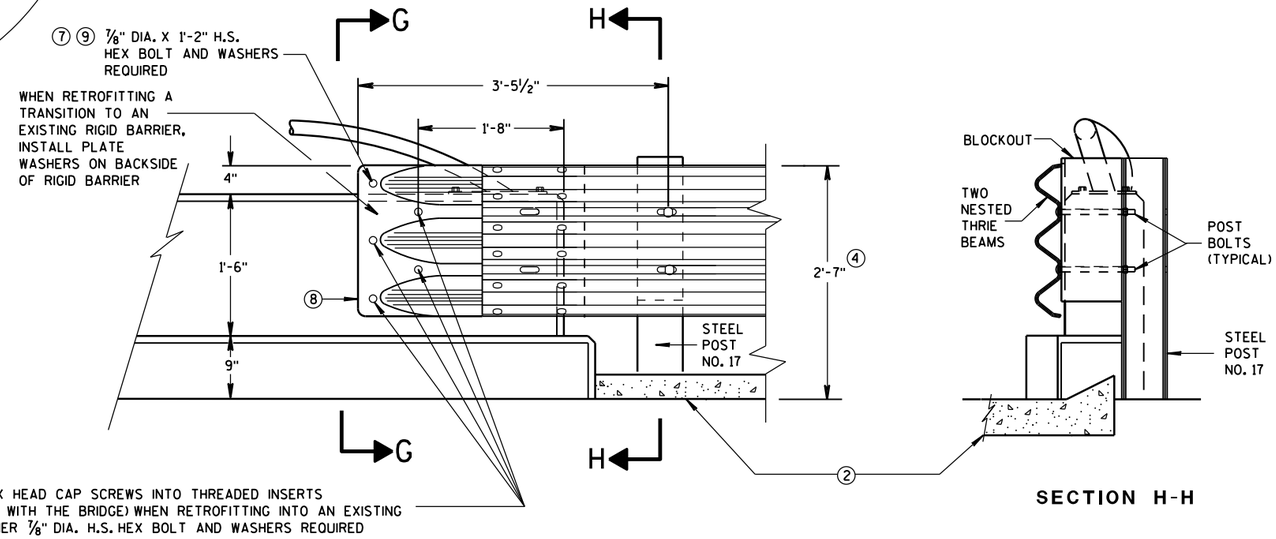
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(9) BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.





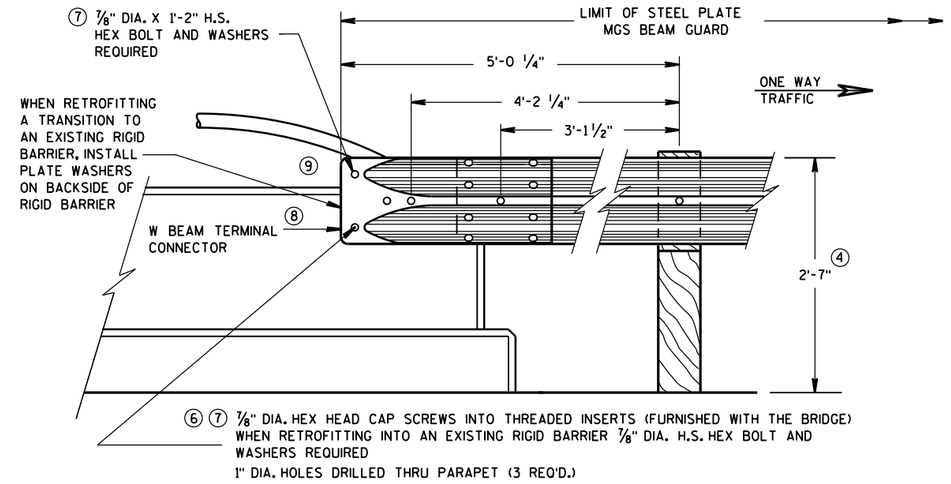
SECTION G-G



FRONT VIEW

SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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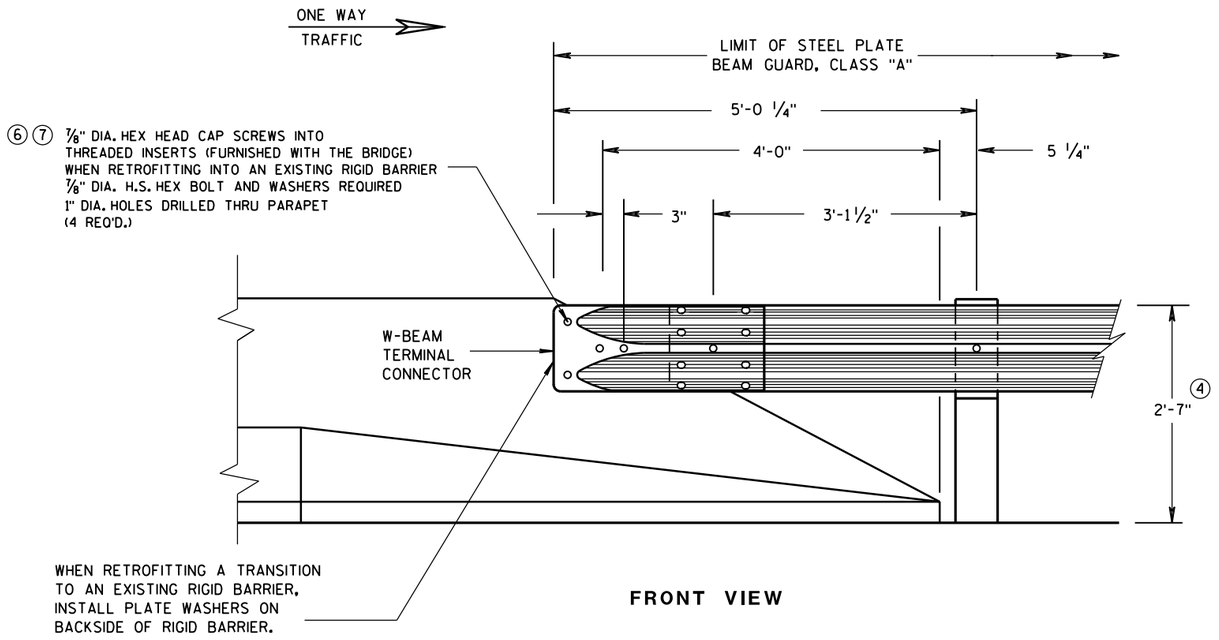


FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

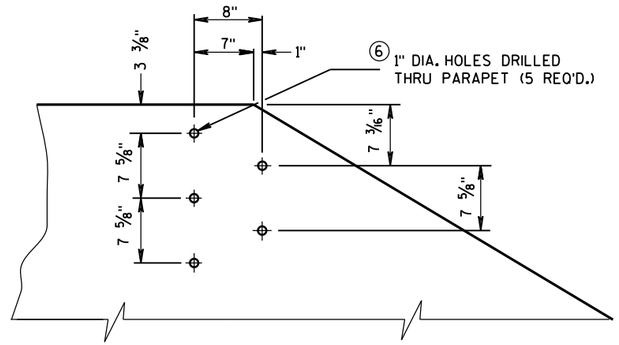
GENERAL NOTES

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

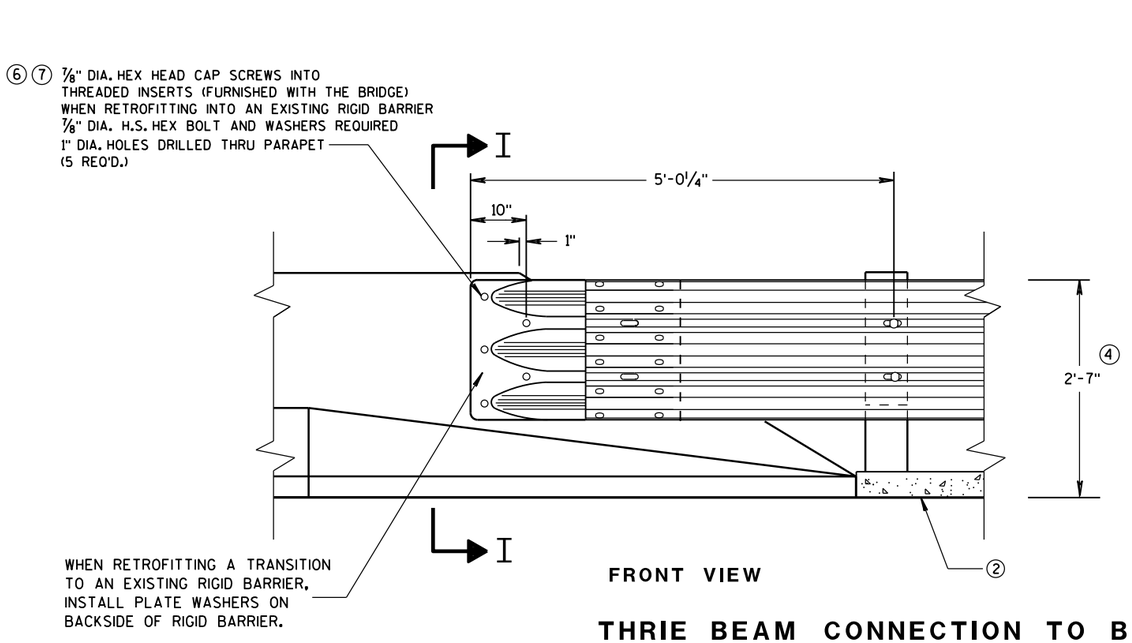
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

⑦ 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.

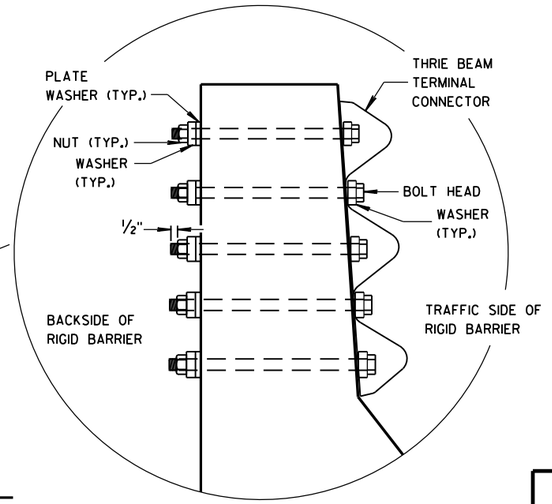


DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW

SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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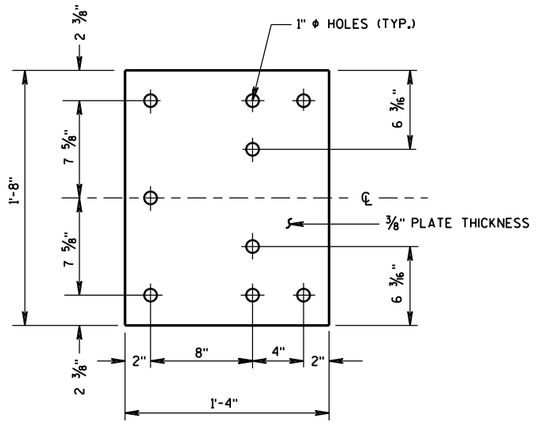
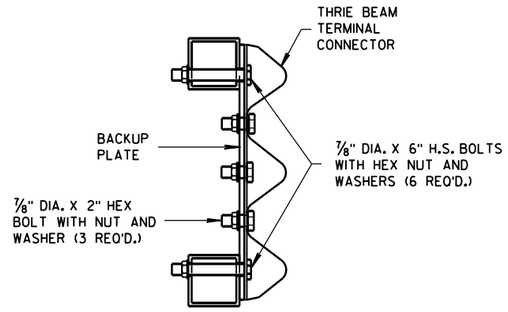
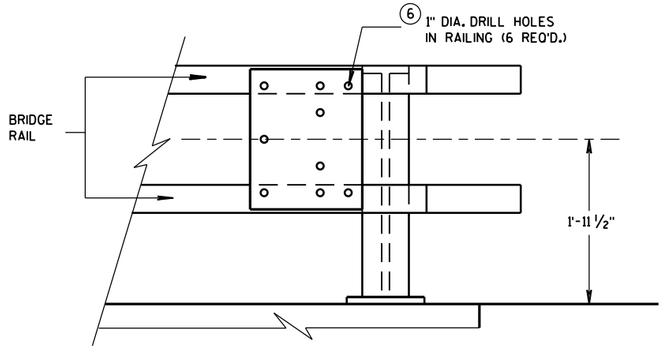


BACK-UP PLATE DETAIL



SECTION J-J

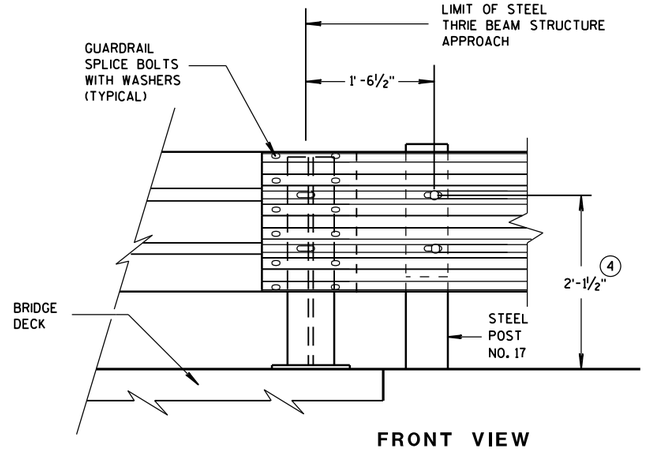


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

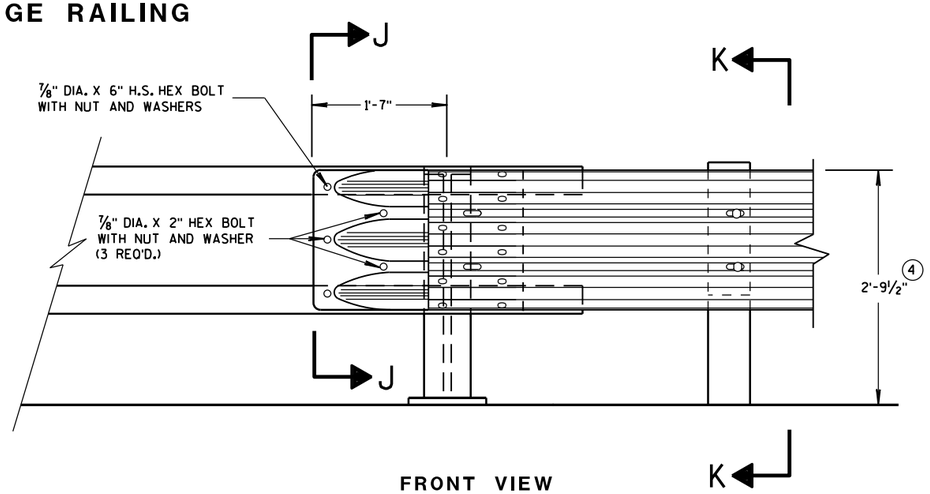
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

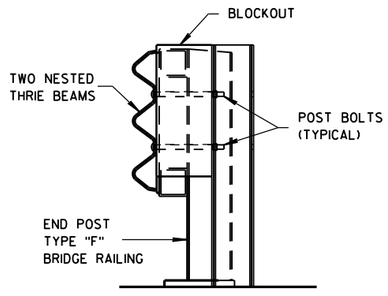


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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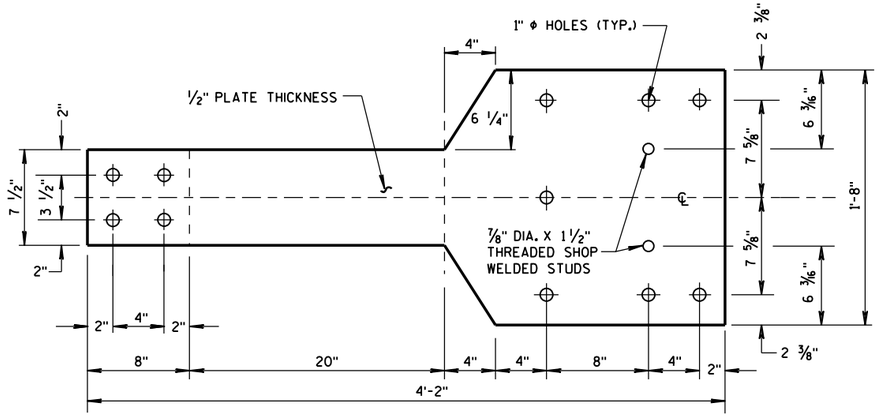
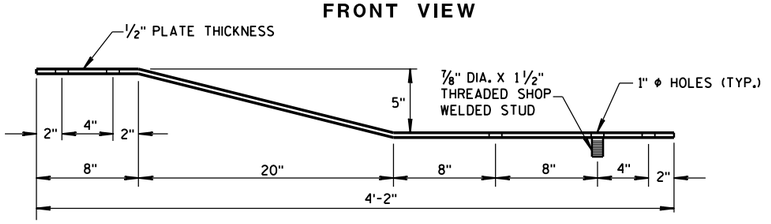
GENERAL NOTES

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

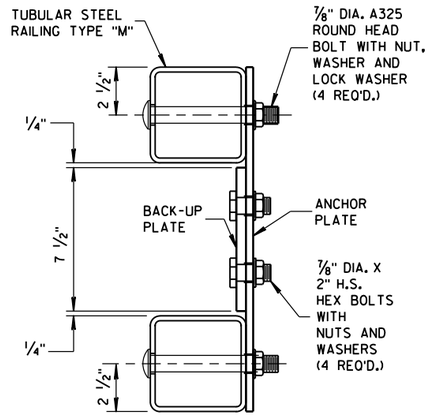


FRONT VIEW

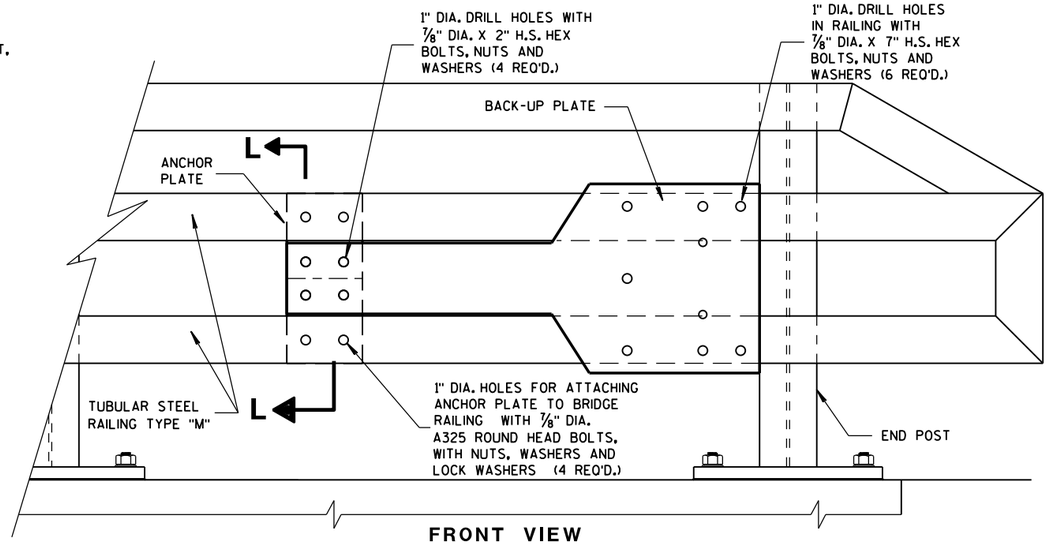


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"



SECTION L-L

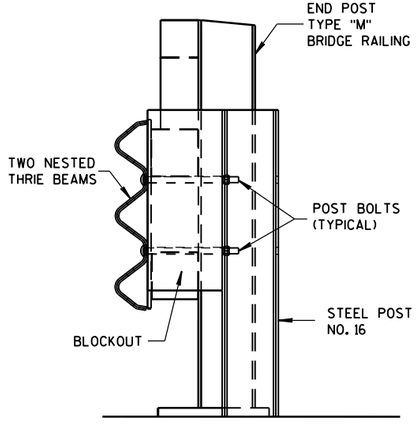


FRONT VIEW

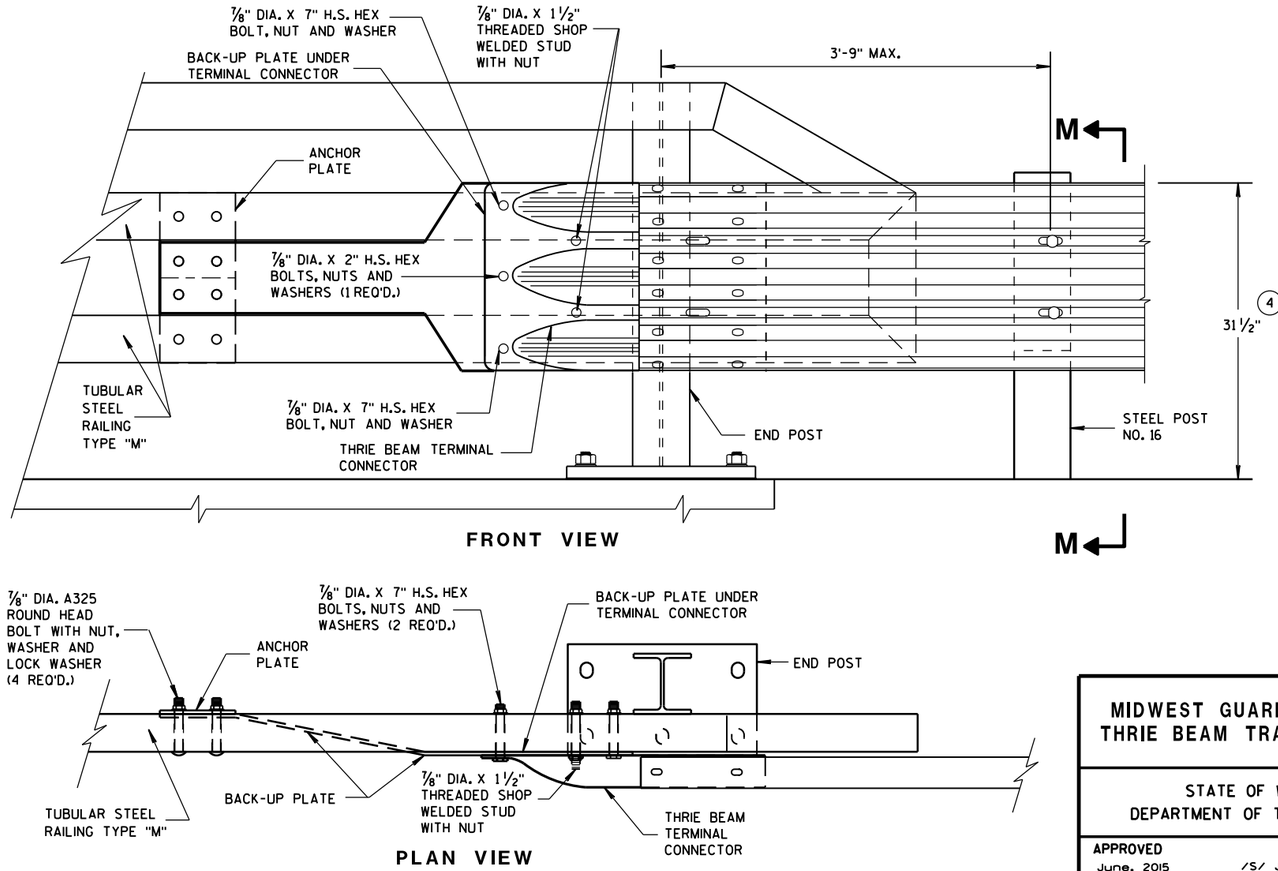
ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"

FRONT VIEW

ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW

PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
June, 2015	/S/ Jerry H. Zogg
DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

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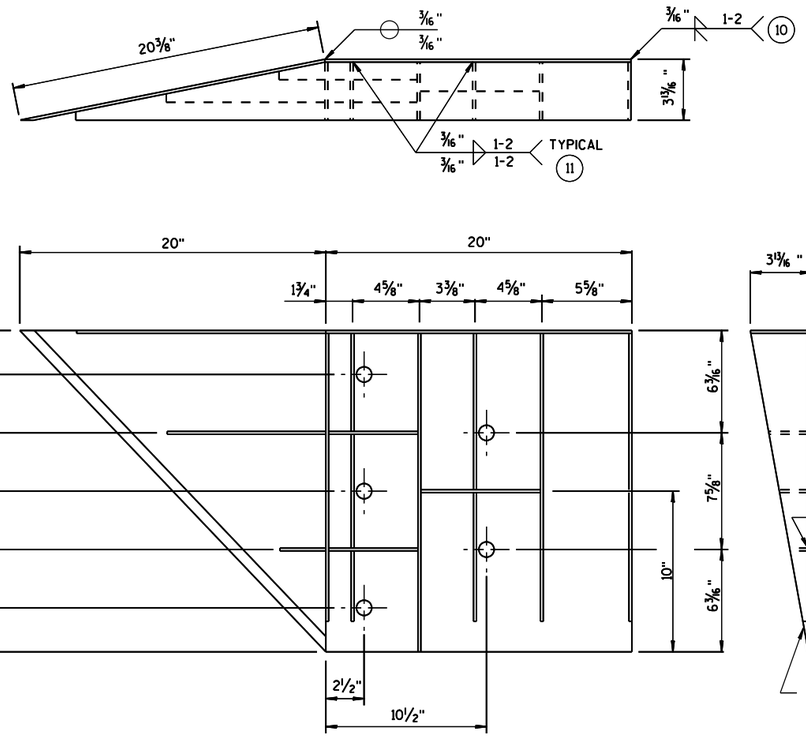

WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

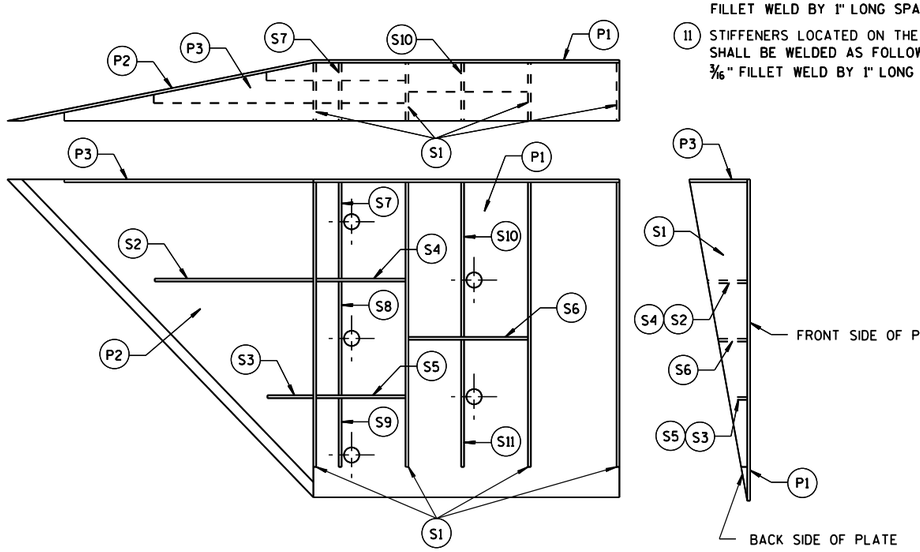

PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

(10) 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.

(11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 3/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 1/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
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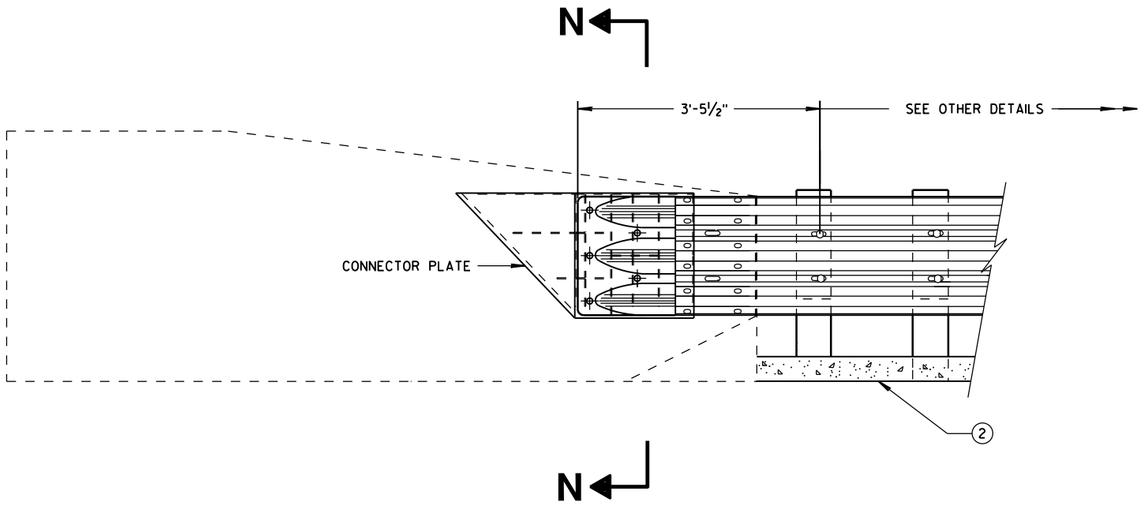
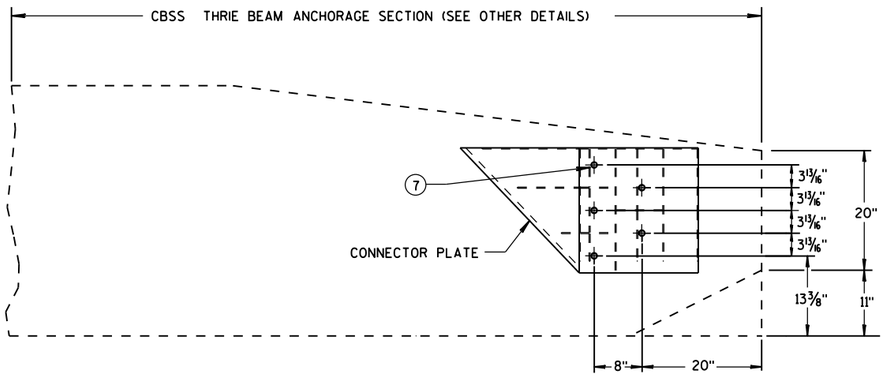


THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



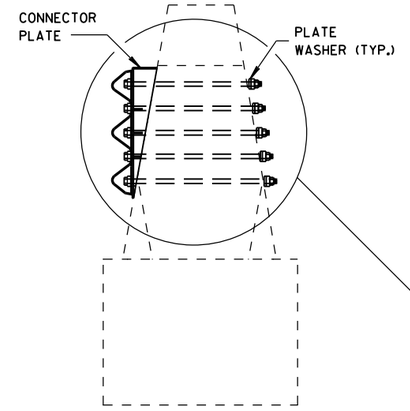
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

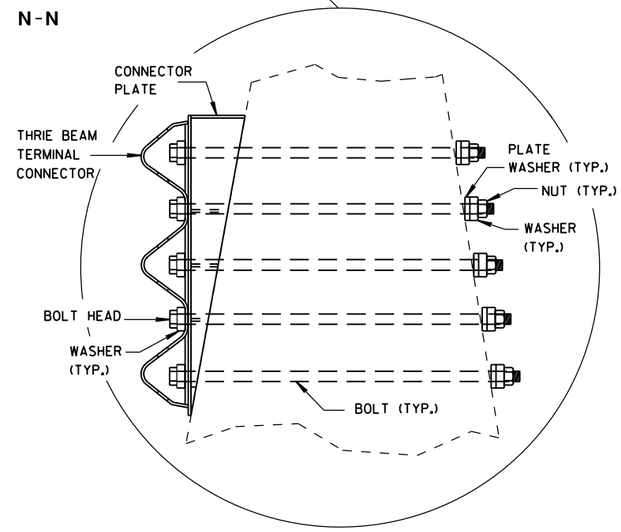
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

(7) 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



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

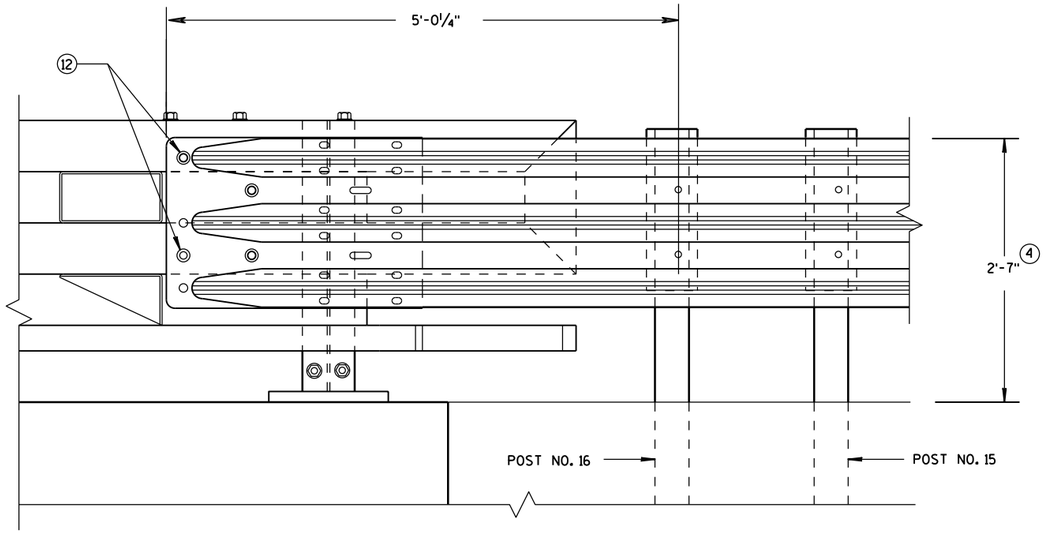
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zoga — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 14 B 45-4j

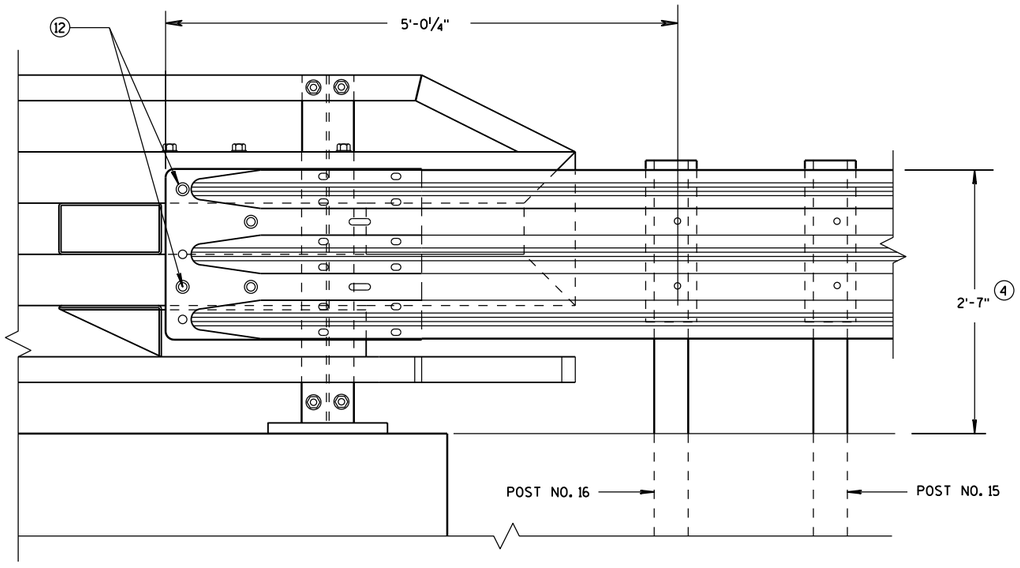
6

S.D.D. 14 B 45-4j



ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

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

(12) 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. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND ½-INCH BEYOND NUT.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS D ENGINEER

FHWA

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S.D.D. 14 B 45-4k

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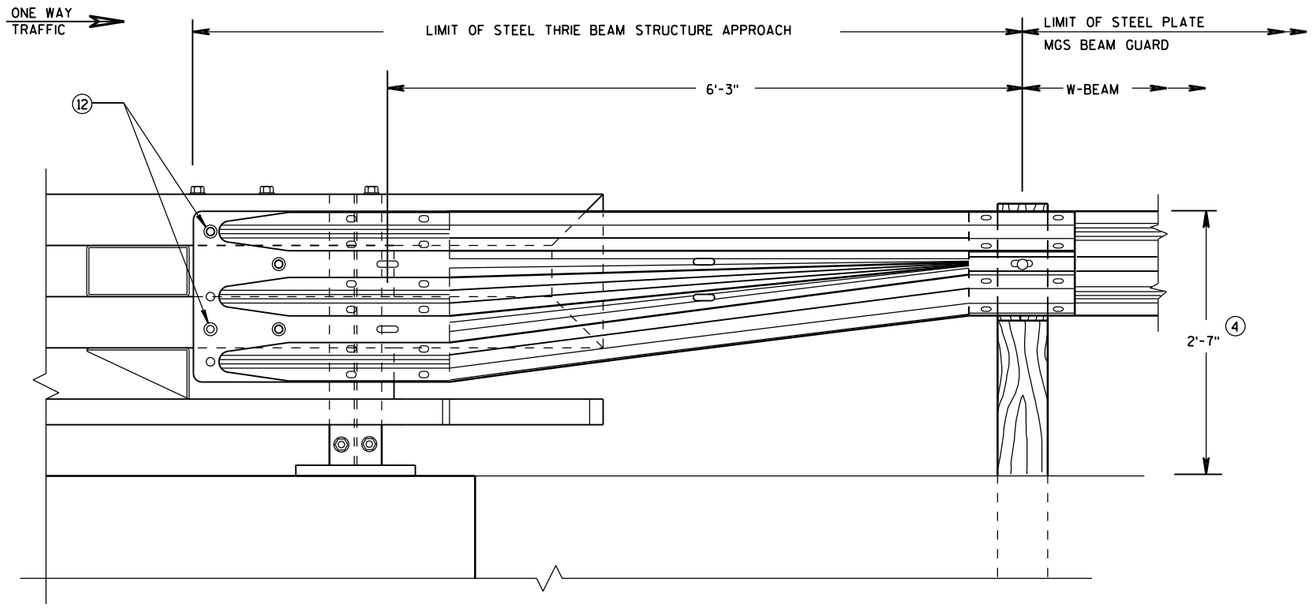
S.D.D. 14 B 45-4k



FRONT VIEW

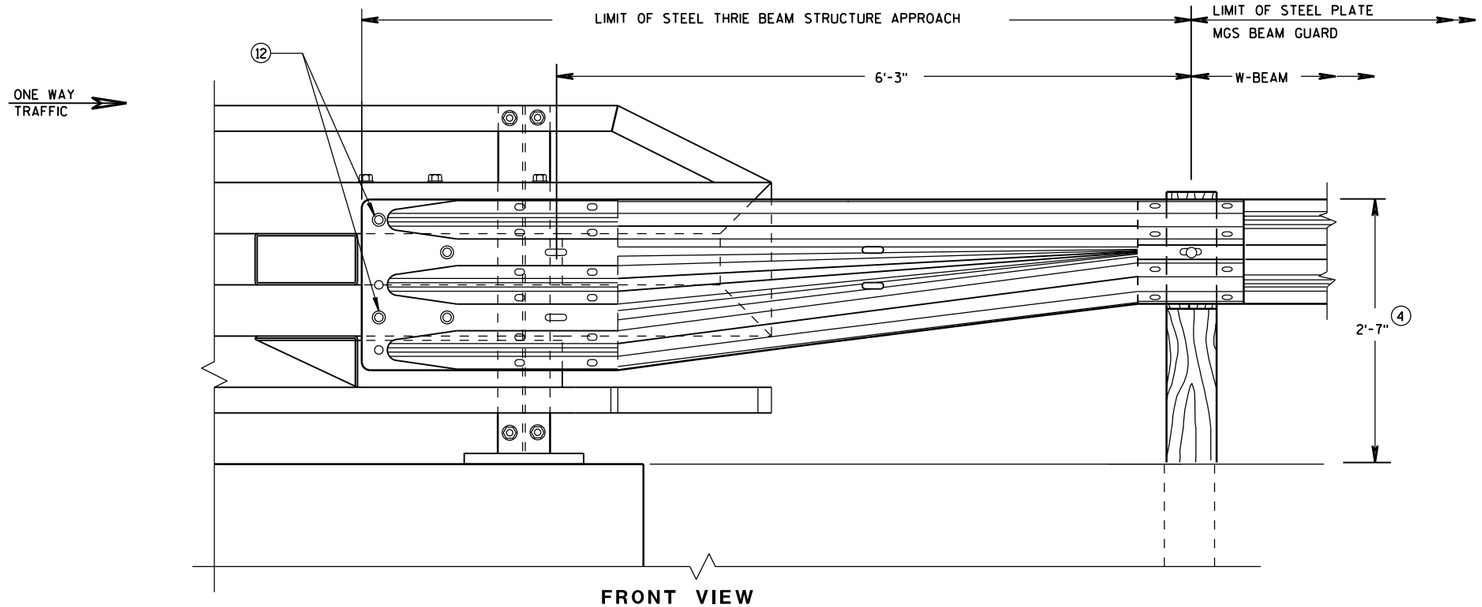
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

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

(12) 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. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND ½-INCH BEYOND NUT.



FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 14 B 45-4L

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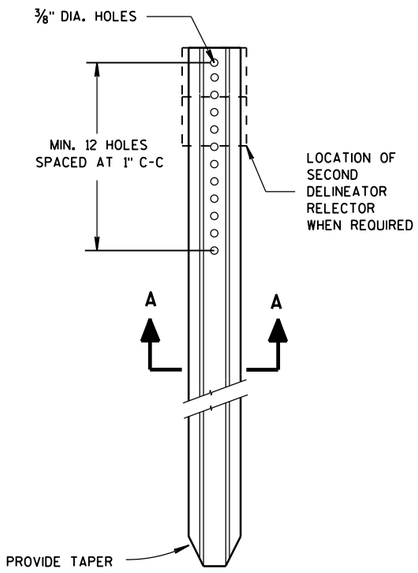
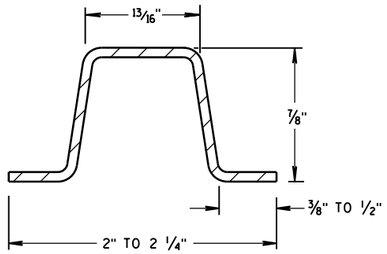
S.D.D. 14 B 45-4L

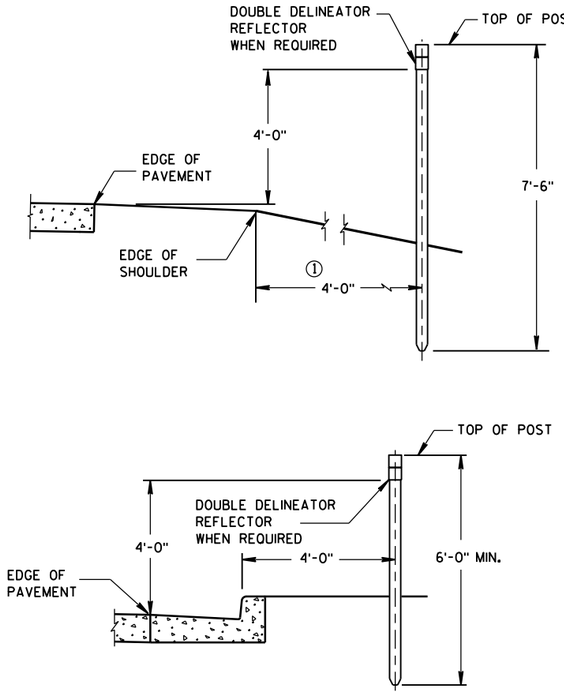


DELINEATOR POST



SECTION A-A

WEIGHT 1.12 LBS PER FT. ± 0.1 LB.

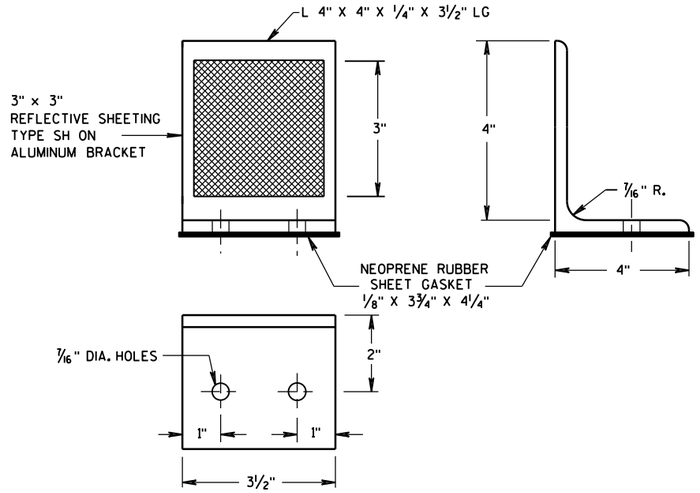


TYPICAL INSTALLATIONS OF DELINEATOR POSTS

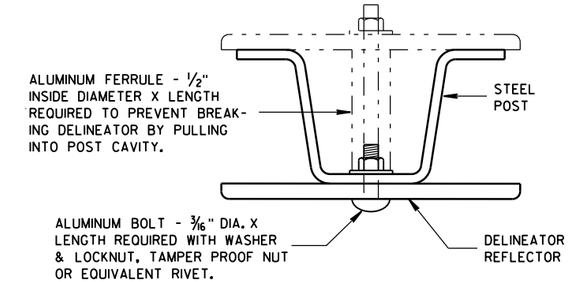
GENERAL NOTES

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

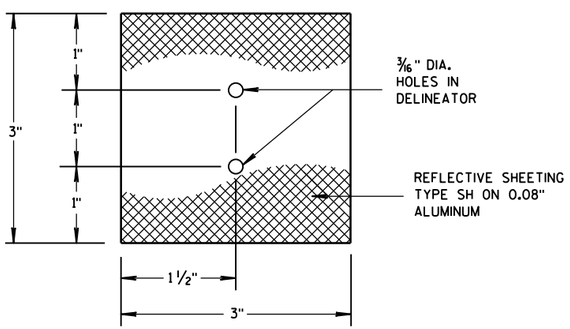
① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.



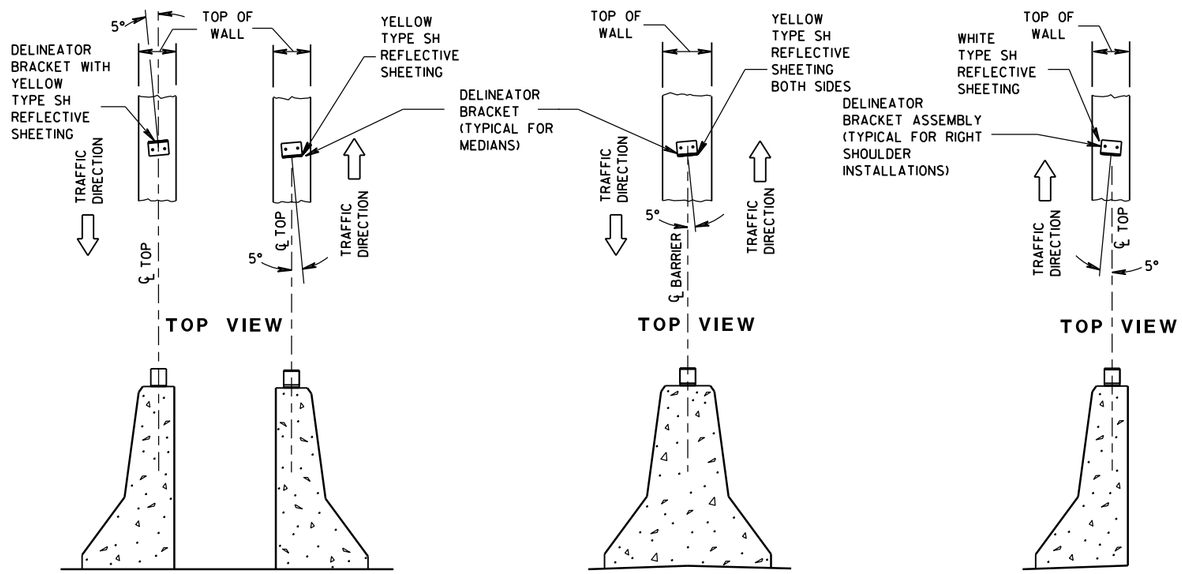
DELINEATOR BRACKET



MOUNTING DETAIL FOR DELINEATOR REFLECTOR

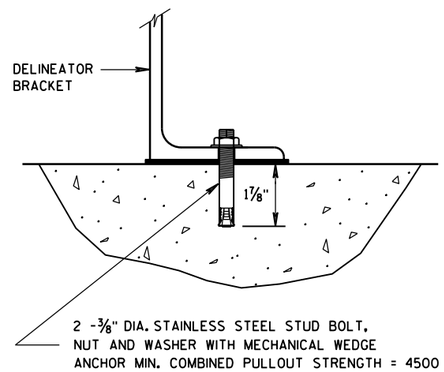


3"x 3" DELINEATOR REFLECTOR



DOUBLE BARRIERS IN MEDIAN | MEDIAN BARRIER | BARRIER LOCATED TO RT. OF TRAFFIC FLOW

LOCATION AND AIMING DETAILS FOR DELINEATOR BRACKETS MOUNTED ON CONCRETE BARRIERS



DELINEATOR BRACKET MOUNTING DETAIL

DELINEATOR POST, DELINEATOR REFLECTOR AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-18-16 DATE
/S/ Matthew R. Rauch
STATE SIGNING AND MAR[illegible] GINEER
FHWA

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S.D.D. 15 A 2-9

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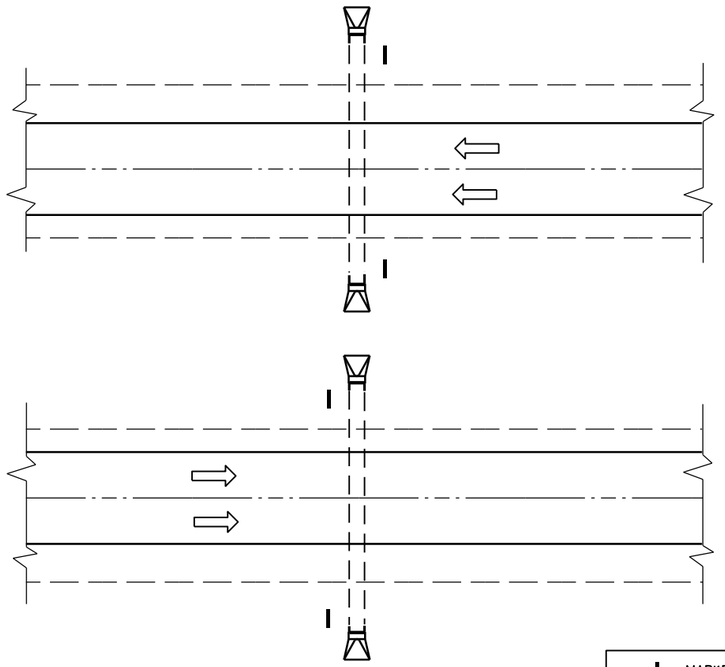
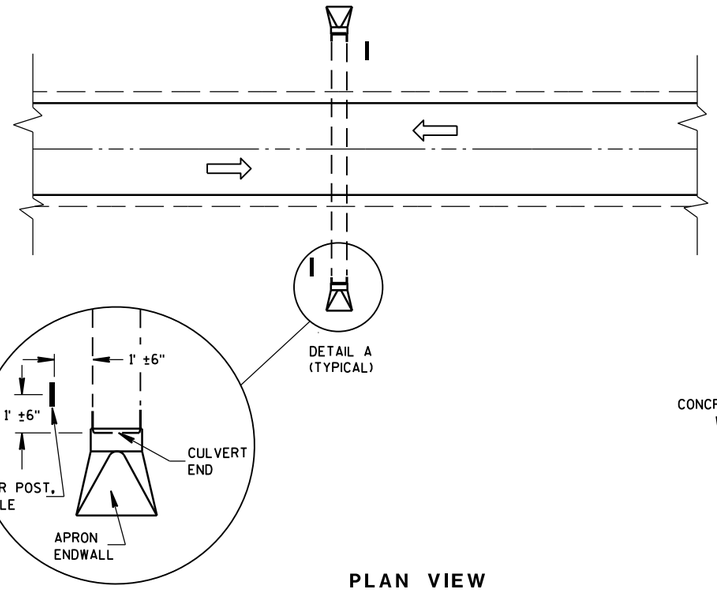
S.D.D. 15 A 2-9



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

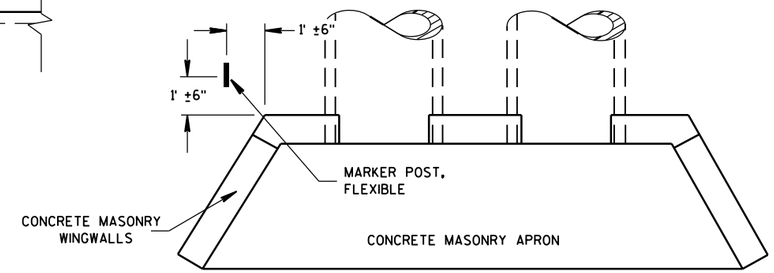
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

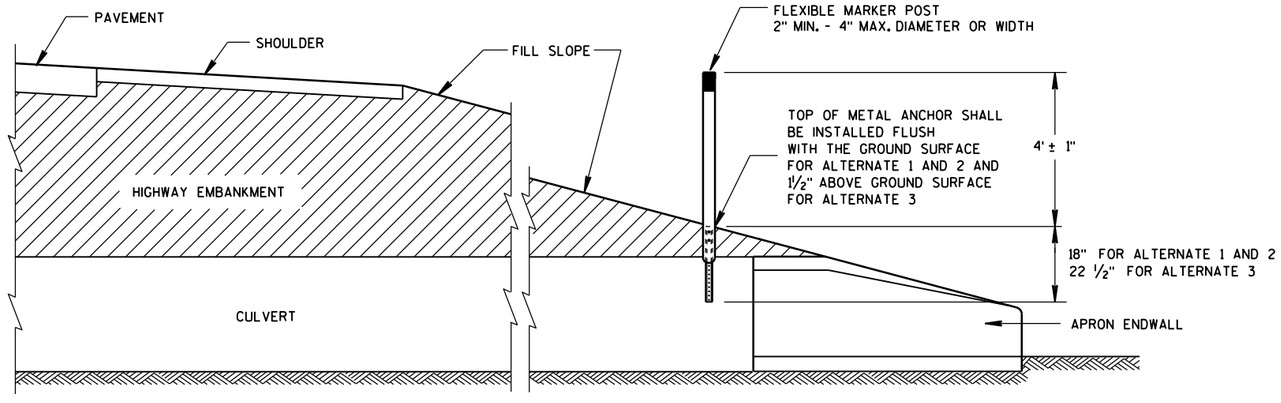
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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S.D.D. 15 A 3-2a

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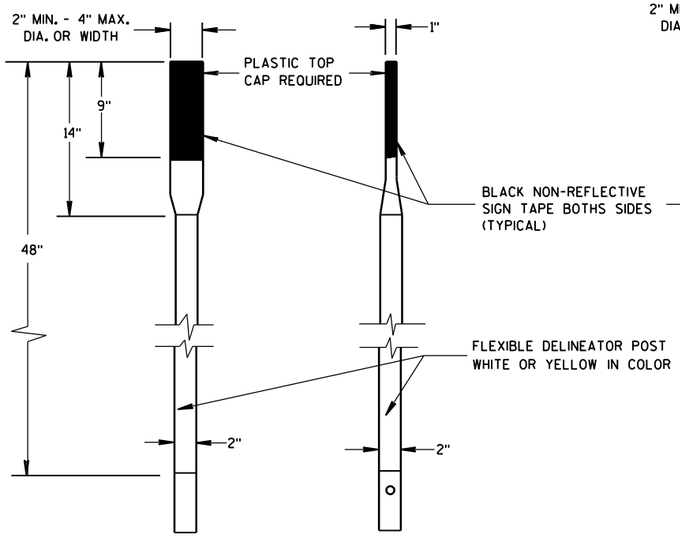
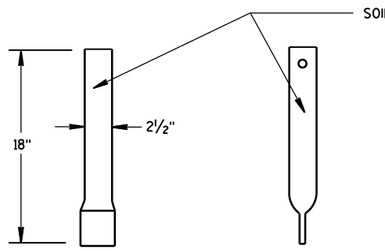
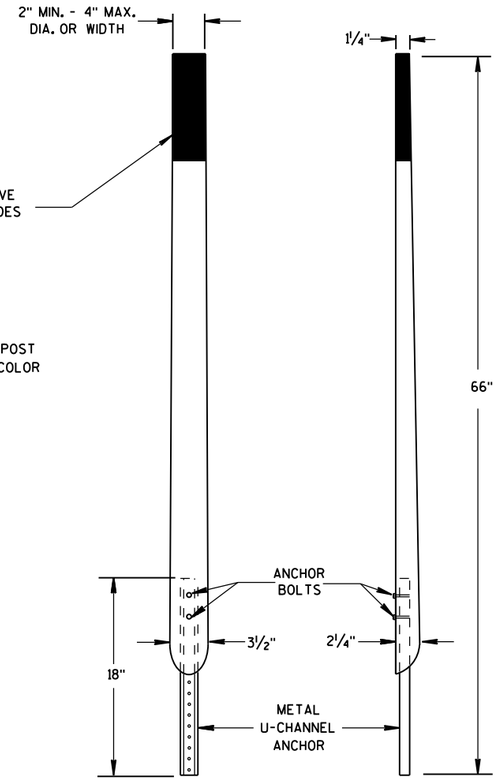
S.D.D. 15 A 3-2a





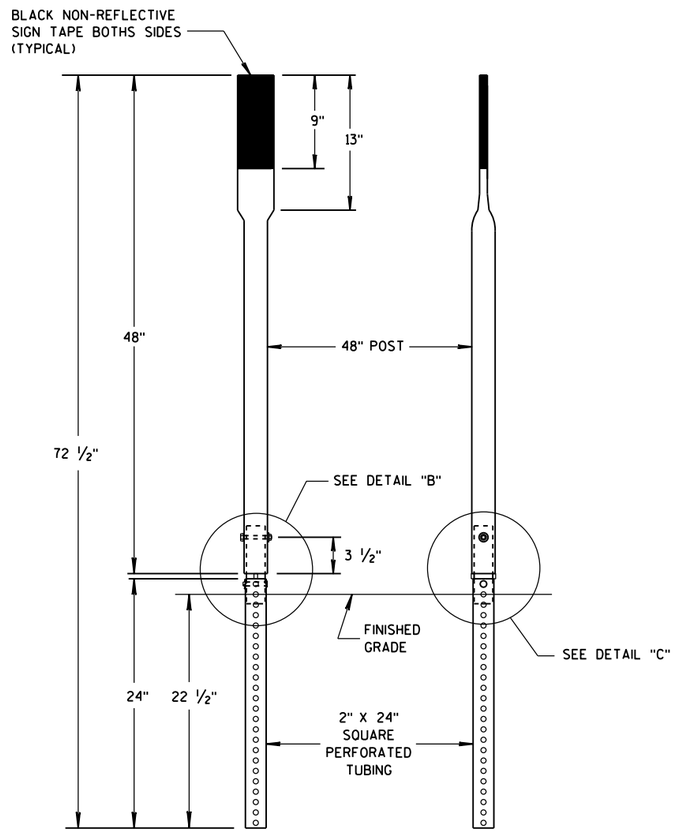
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

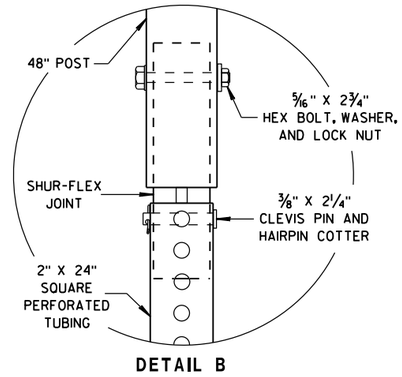
ALTERNATE 2



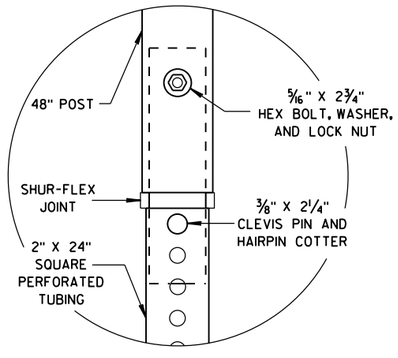
FRONT VIEW SIDE VIEW

ALTERNATE 3

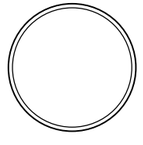
FLEXIBLE MARKER POSTS



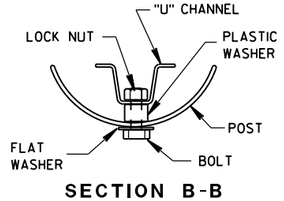
DETAIL B



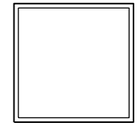
DETAIL C



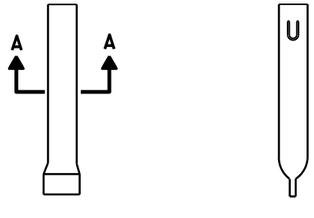
SECTION A-A



SECTION B-B

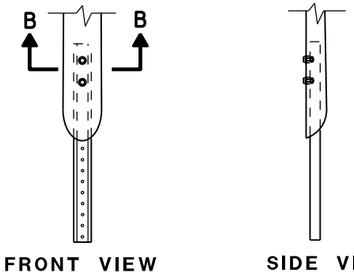


SECTION C-C



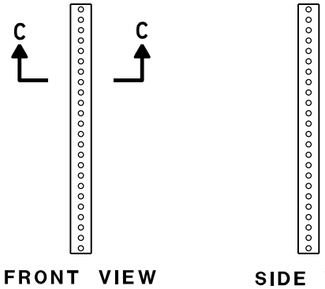
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

ALTERNATE 2



FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

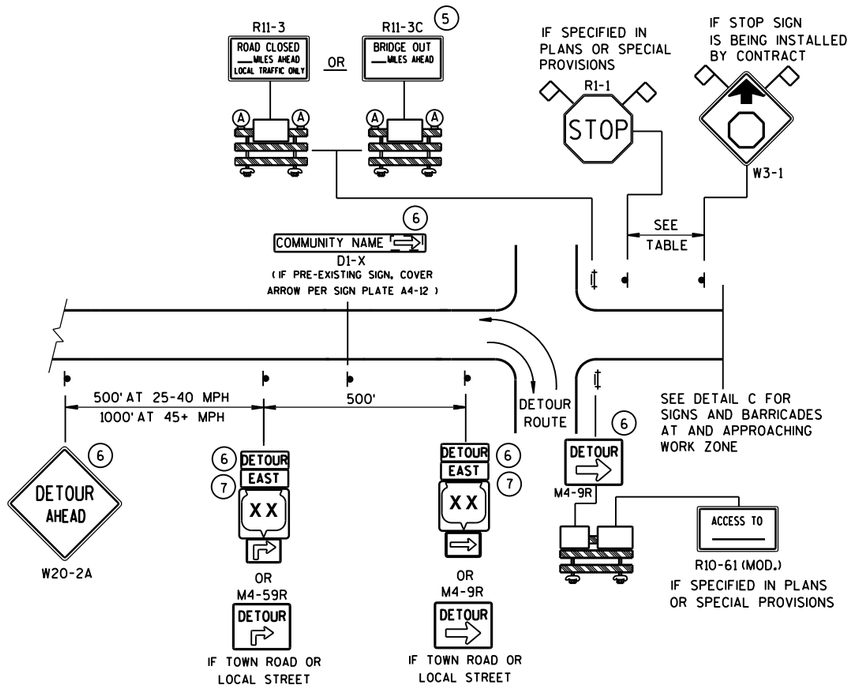
APPROVED
10/1/2012 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

S.D.D. 15 A 3-2b

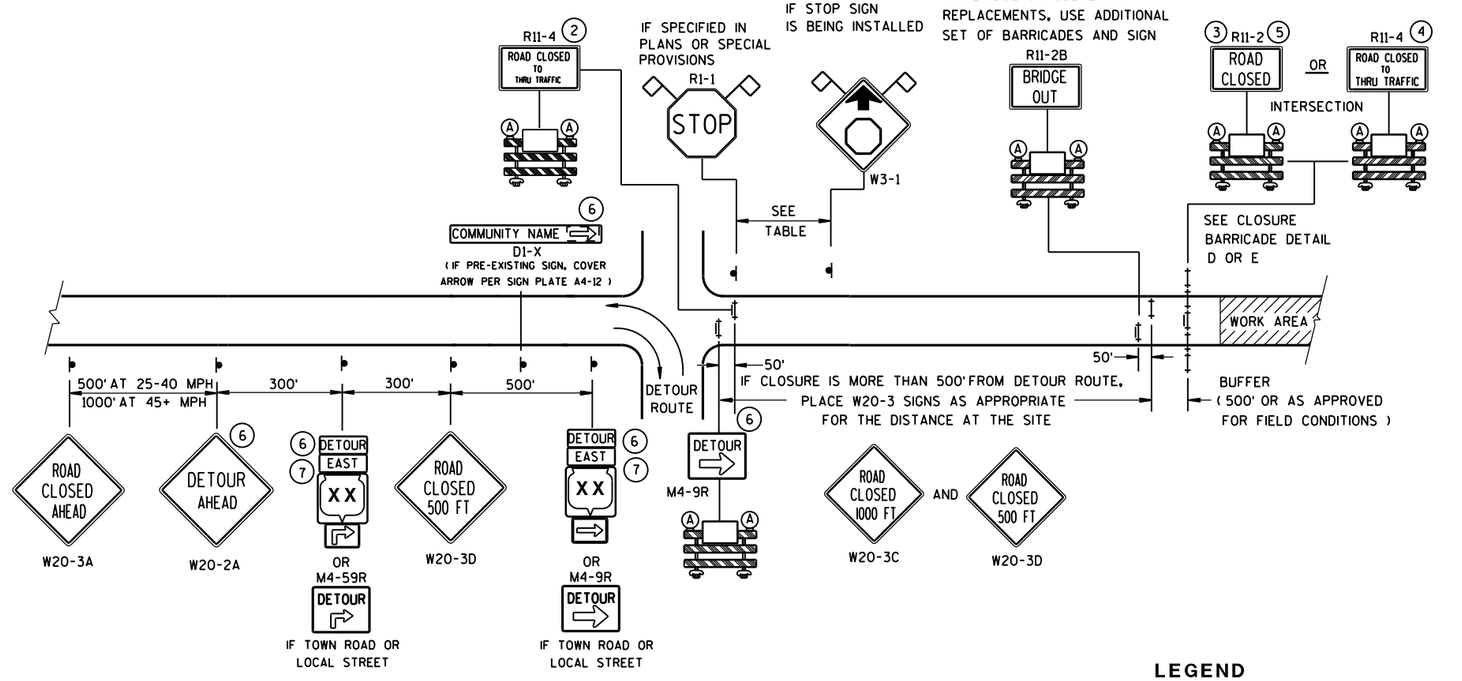
6

S.D.D. 15 A 3-2b



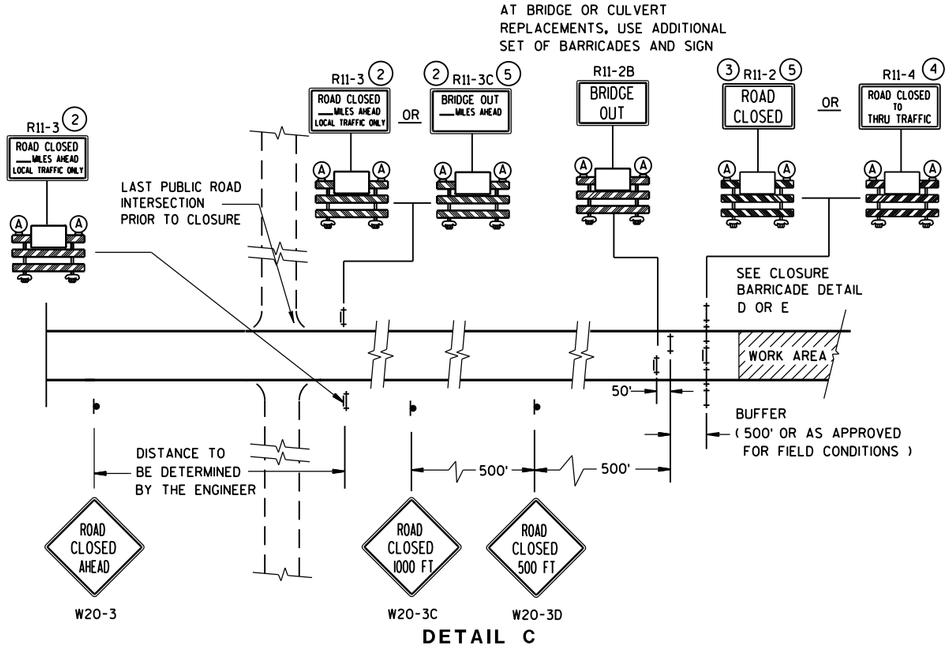
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

LEGEND

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

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

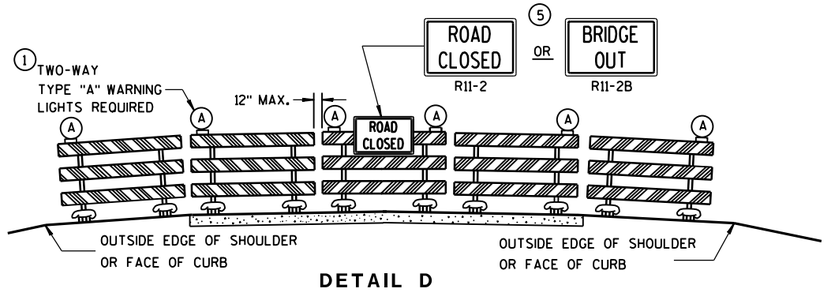
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

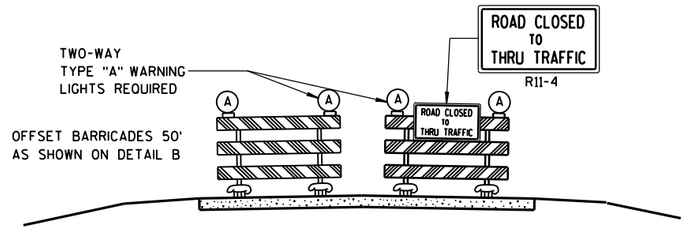
S.D.D. 15 C 2-6a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-SHEET "**a**" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO SAFETY ENGI — FHWA

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

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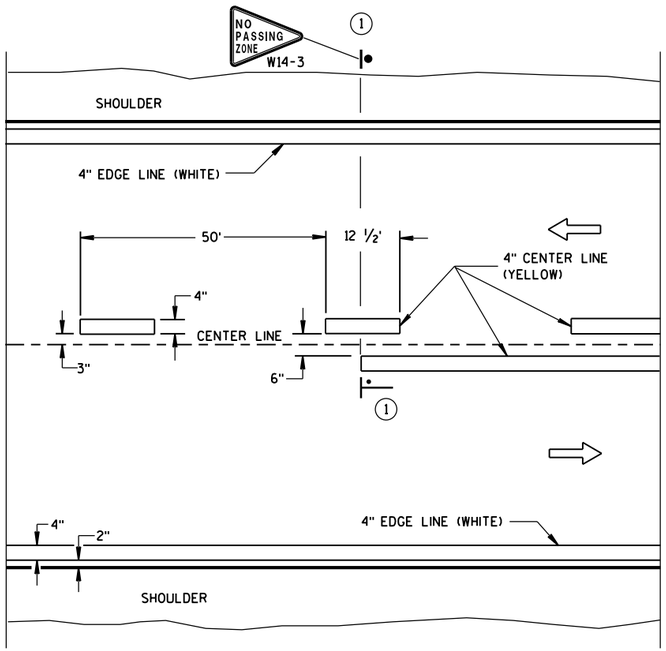
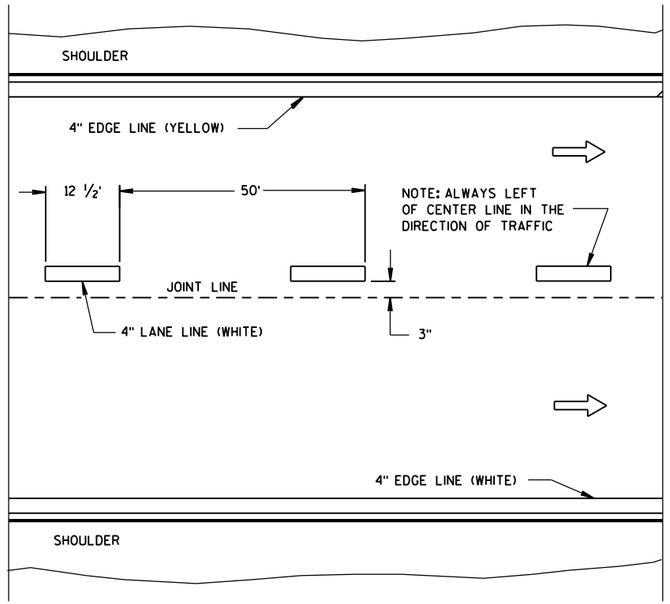
S.D.D. 15 C 2-6b



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

GENERAL NOTES

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

(1) NO PASSING ZONE W14-3 SIGN SHALL BE LOCATED WITHIN 50 FEET OF THE "T" MARKING.

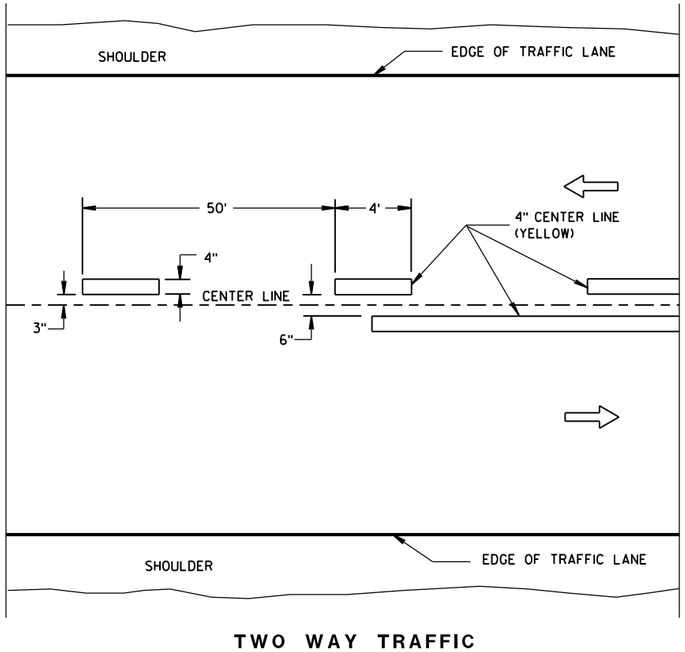
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

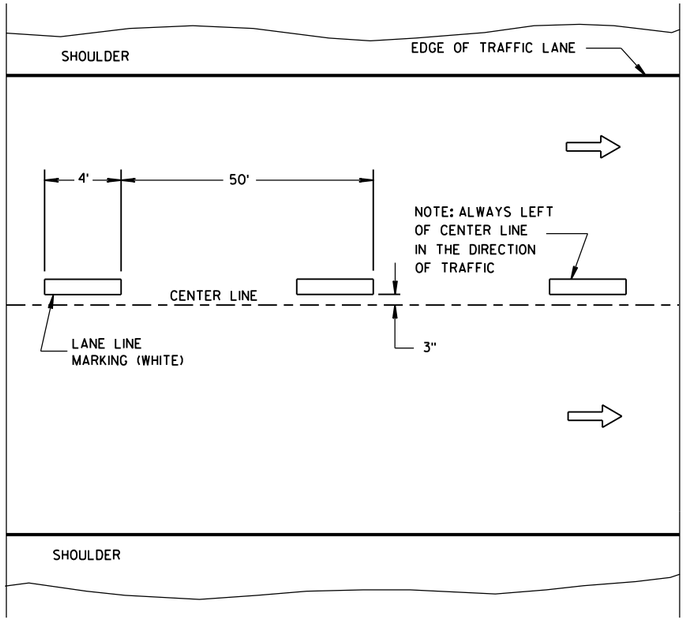
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
Sept., 2016	/S/ Matthew R. Rauch
DATE	STATE SIGNING AND MAR[illegible] 122 [illegible]INEER
FHWA	

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S.D.D. 15 C 8-17a

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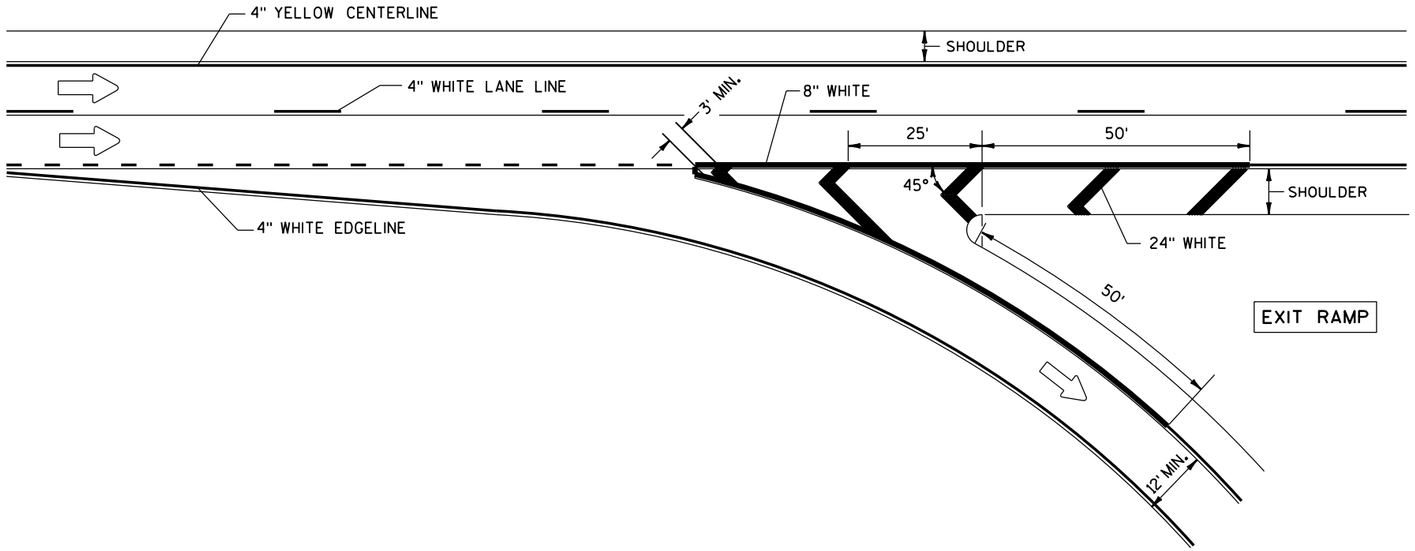
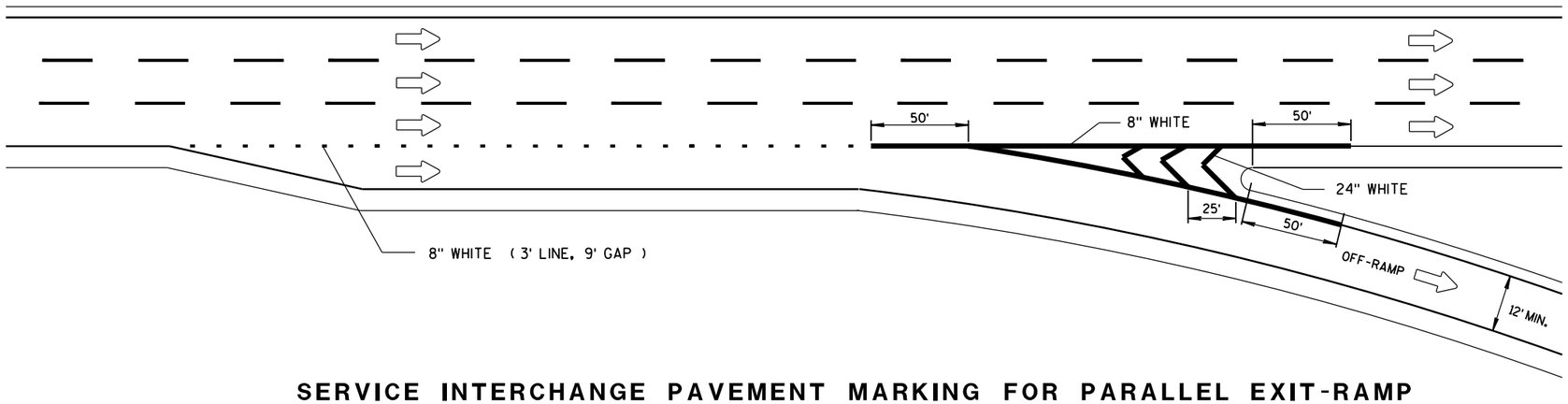
S.D.D. 15 C 8-17a



PAVEMENT MARKING FOR EXIT RAMP



SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL EXIT-RAMP

GENERAL NOTES

PLACE GROOVE 3 INCHES LEFT OF JOINT.

LEGEND

DIRECTION OF TRAVEL

6

S.D.D. 15 C 31-2a

PAVEMENT MARKING
(RAMPS AND GORES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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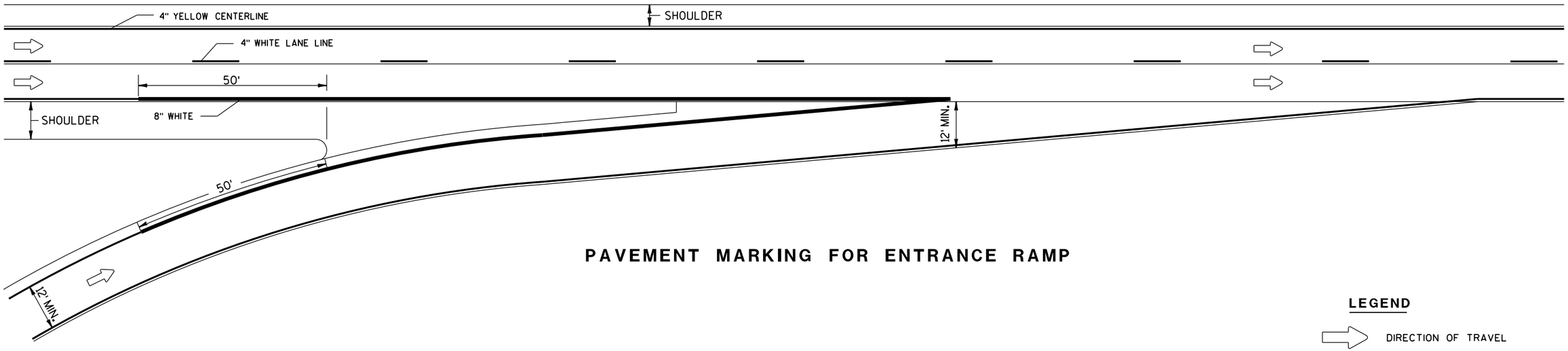
S.D.D. 15 C 31-2a

GENERAL NOTES

PLACE GROOVE 3 INCHES LEFT OF JOINT.

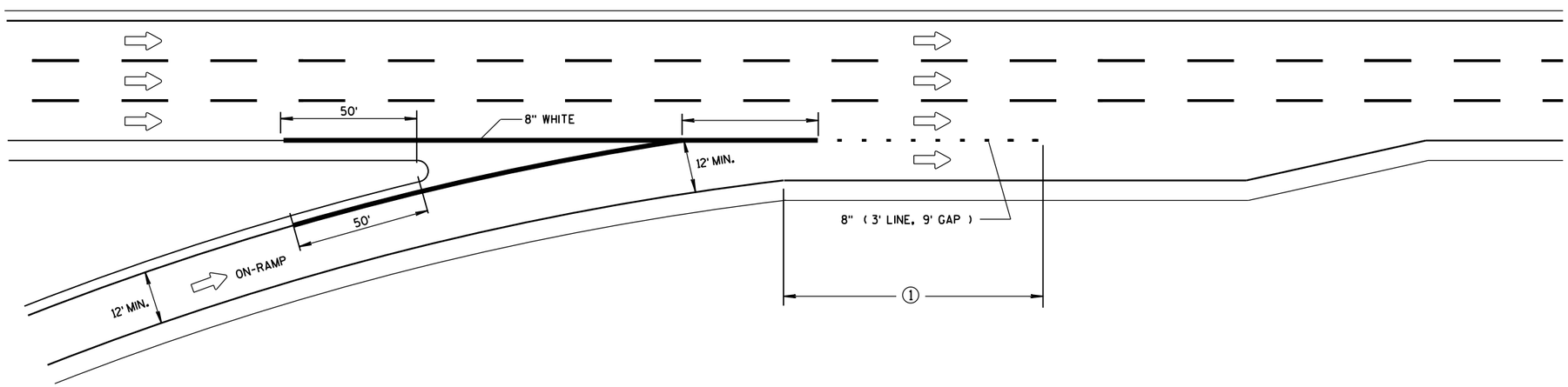
① ½ LENGTH OF FULL WIDTH ACCELERATION LANE.



PAVEMENT MARKING FOR ENTRANCE RAMP

LEGEND

DIRECTION OF TRAVEL



SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL ENTRANCE-RAMP

PAVEMENT MARKING FOR PARALLEL ON-RAMP AND PARALLEL OFF-RAMP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept., 2016
DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MAR 124 NEER

FHWA

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S.D.D. 15 C 31-2c

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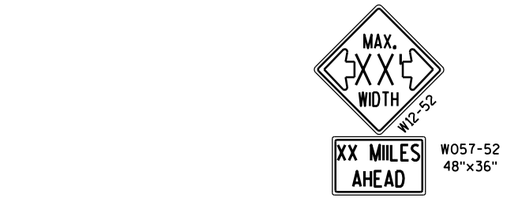
S.D.D. 15 C 31-2c

LEGEND

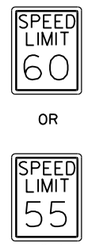
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- REMOVING PAVEMENT MARKING
- CONCRETE BARRIER TEMPORARY PRECAST
- DIRECTION OF TRAFFIC
- WORK AREA

L, TAPER LENGTH (MPH)							
SPEED (MPH)	W, LATERAL OFFSET (FT)						
	10	11	12	13	14	15	16
45	450	495	540	585	630	675	720
50	500	550	600	650	700	750	800
55	550	605	660	715	770	825	880
60	600	660	720	780	840	900	960
65	650	715	780	845	910	975	1040
70	700	770	840	910	980	1050	1120



INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1 FOOT LESS THAN AVAILABLE WIDTH (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET).

LOCATED 2600 FEET IN ADVANCE OF R2-1 SIGN AND 500 FEET BEYOND THE "ROAD WORK 1 MILE" SIGN.



R2-1
48"x60"
(BLACK AND WHITE)
LOCATED 500 FEET BEYOND W20-5G SIGN.

IF THE REGULATORY SPEED HAS BEEN REDUCED, A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES.

* INCLUDE RESUME SPEED LIMIT SIGN A MINIMUM OF 200 FEET (500 FEET DESIRABLE) AFTER END ROAD WORK SIGNS.

GENERAL NOTES

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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 DESIRABLE) CLEARANCE TO EXISTING SIGNS.

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 OR AS APPROVED BY THE ENGINEER.

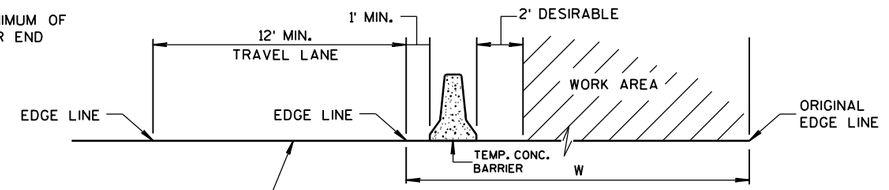
(1) CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUM TAPER.

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.

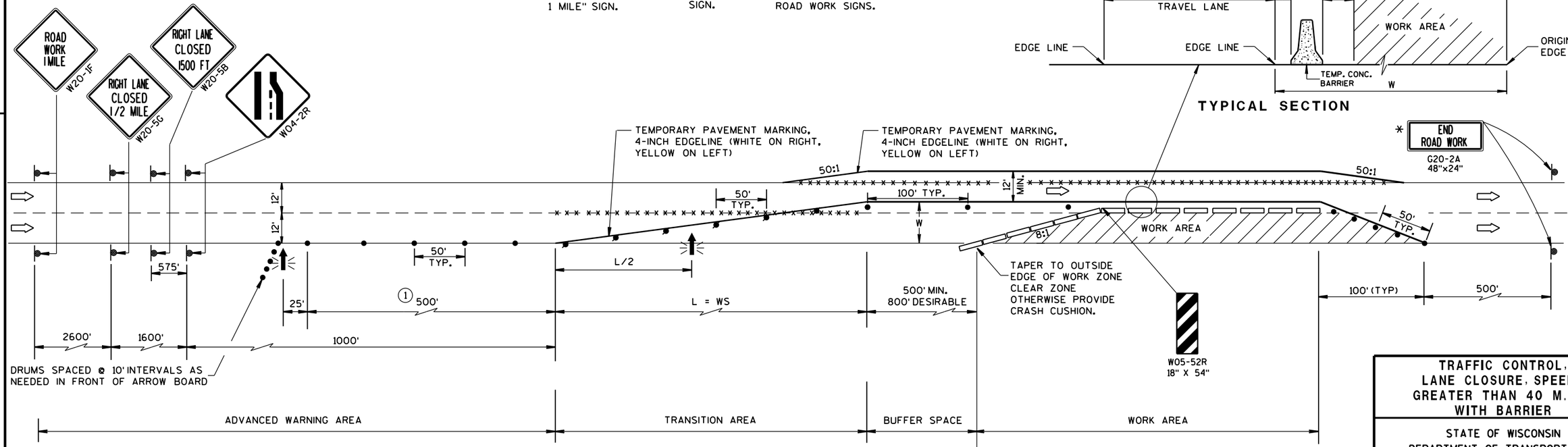
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. 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.



TYPICAL SECTION



TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZOI SAFETY ENGIN
FHWA

6

S.D.D. 15 D 3-4

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S.D.D. 15 D 3-4

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMENENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

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.

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.

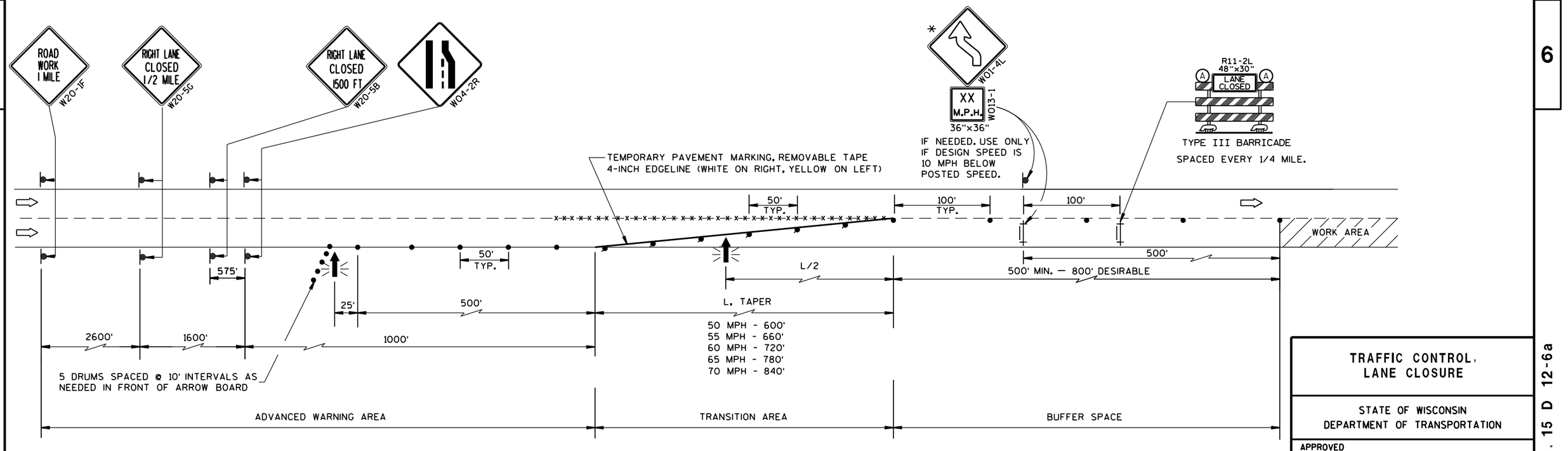
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

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.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* THE LEFT REVERSE CURVE SIGN (WO1-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



TRAFFIC CONTROL, LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2016 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE SAFETY ENGINEER
FHWA

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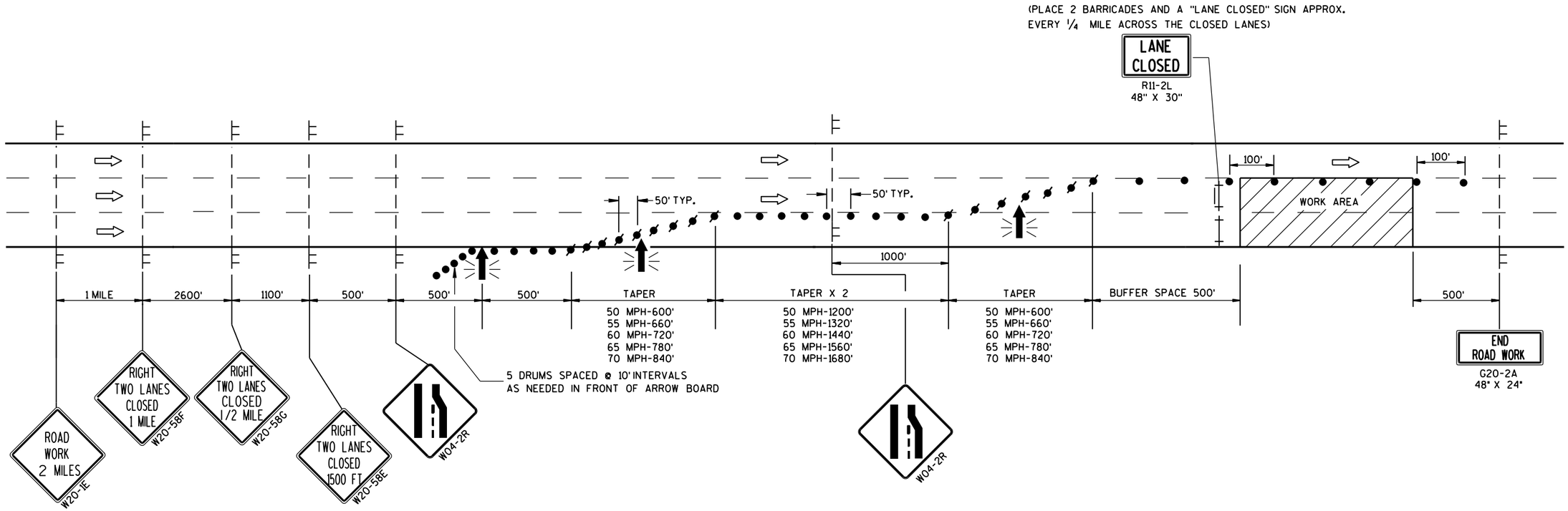
S.D.D. 15 D 12-6a



LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT TWO LANES. FOR CLOSING THE LEFT TWO LANES, REVERSE THE TRAFFIC CONTROL.

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 MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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

"WO" SIGNS ARE THE SAME AS "W" SIGNS 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.

W20-1E AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

WHEN A RAMP OR SIDE ROAD INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

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.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

TRAFFIC CONTROL, TWO LANE CLOSURE ON FREEWAY OR EXPRESSWAY, SHORT TERM (LESS THAN 24 HOURS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 14, 2015 — DATE
/S/ Peter Amakobe Atepe — STATEWIDE WORK ZONE TRAFFIC SAFETY ENGR
FHWA

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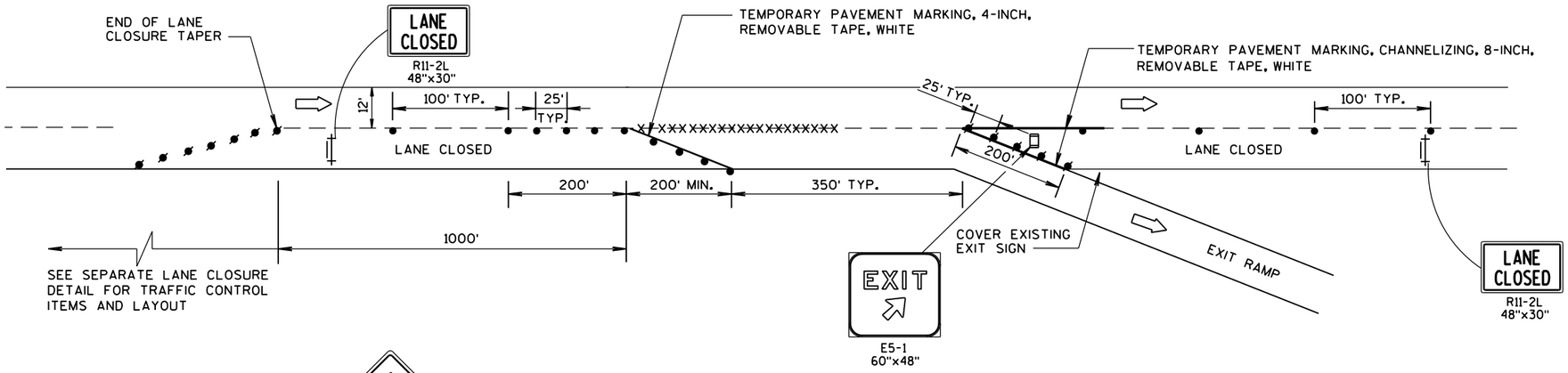
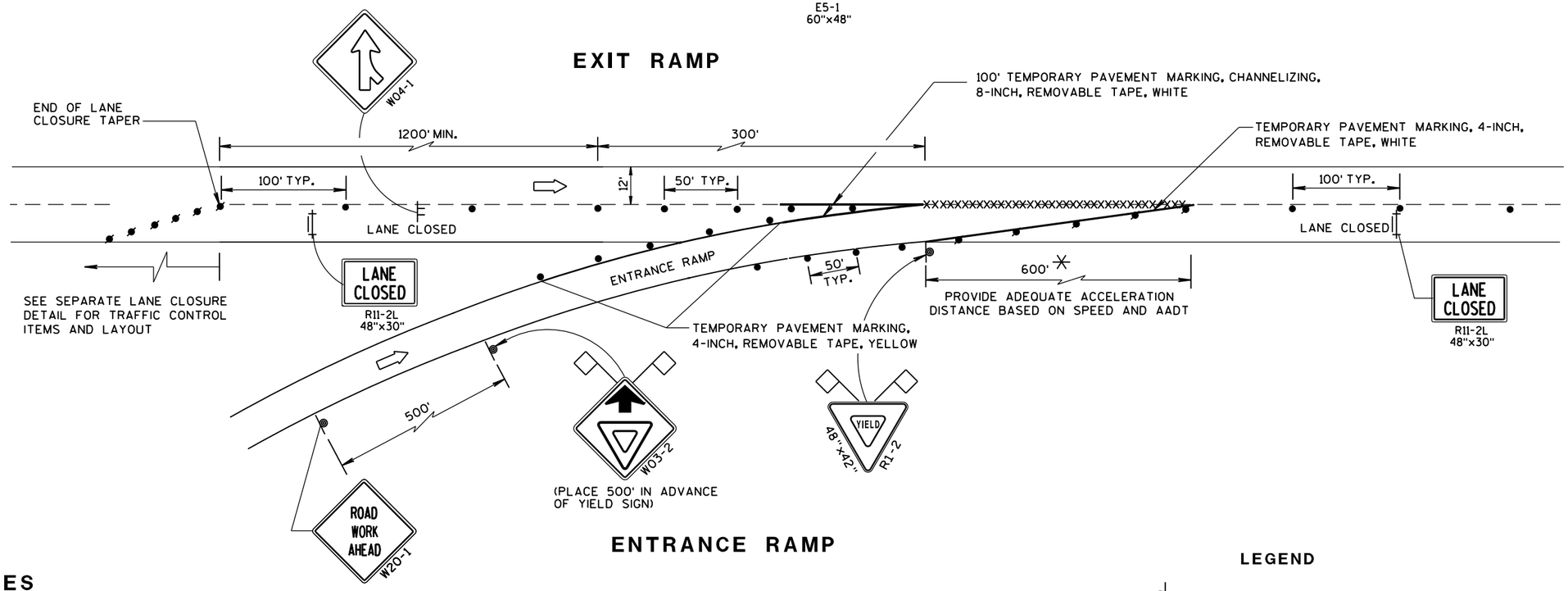


EXIT RAMP



ENTRANCE RAMP

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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 MINIMUM OF 200 FEET, (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

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.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

* LENGTH OF OPENING MAY BE REDUCED TO 150 FEET DURING STAGING OF WORK IN IMMEDIATE AREA OF RAMP TAPER.

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE WITH ATTACHED SIGN
- FLAGS, 16" x 16" MIN., (ORANGE)
- DIRECTION OF TRAFFIC

TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

S.D.D. 15 D 15-2

S.D.D. 15 D 15-2

LEGEND

- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- FLASHING ARROW BOARD
- WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

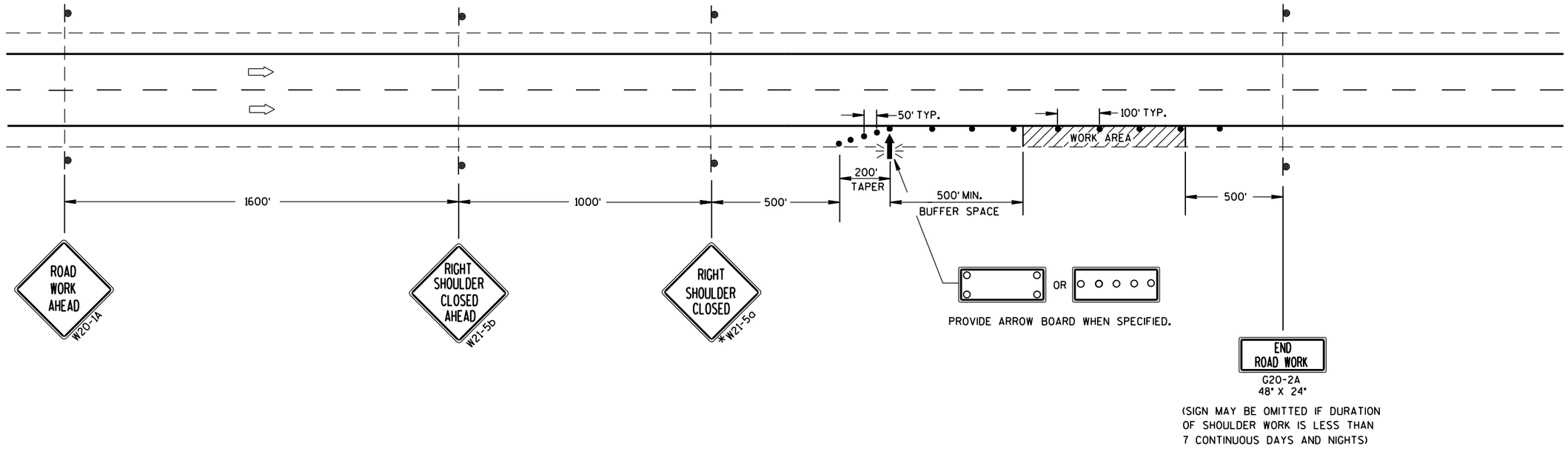
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2016 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO[illegible] SAFETY ENGI[illegible]

FHWA

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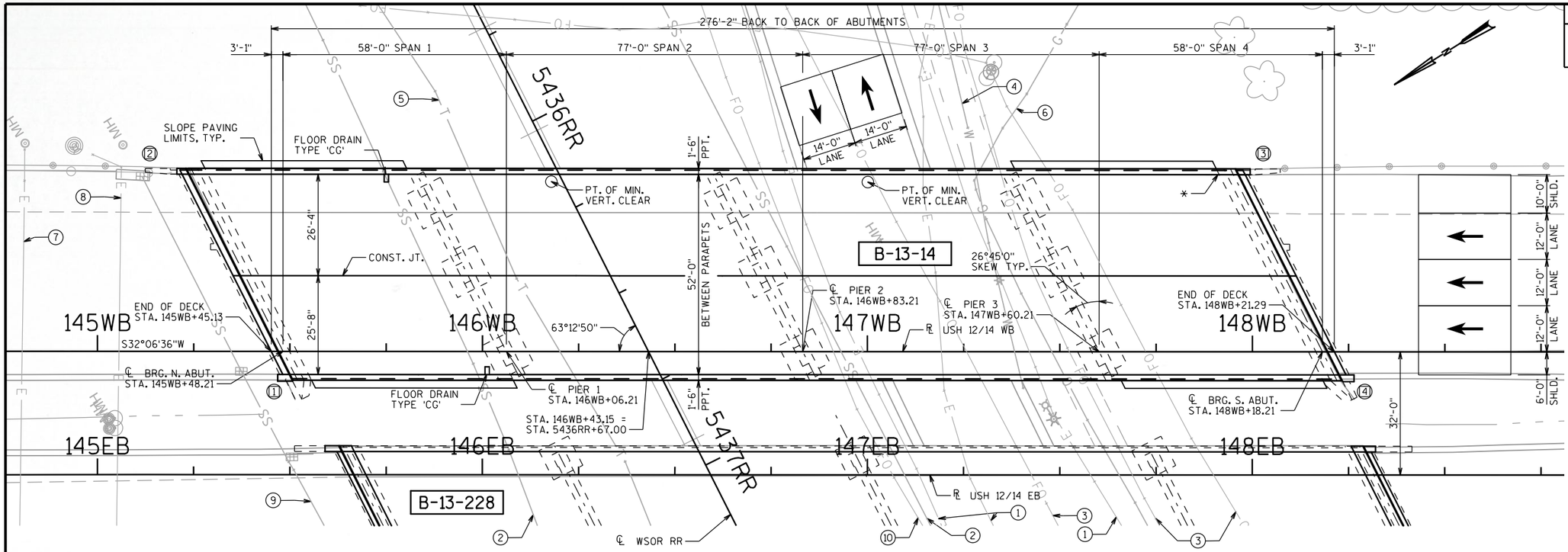
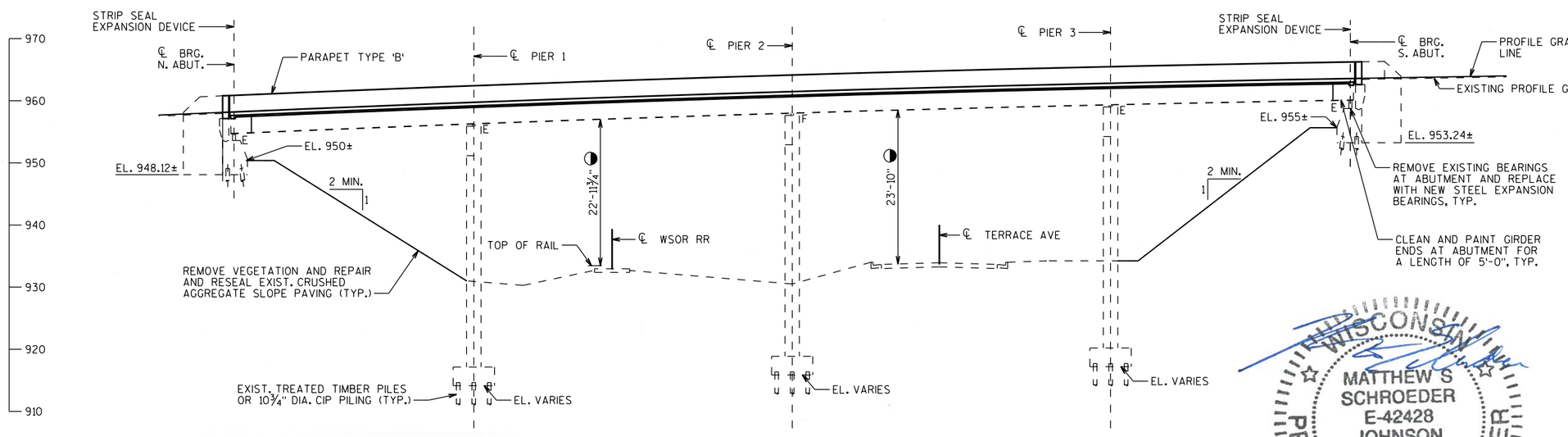
S.D.D. 15 D 27-3



PLAN

(DECK REPLACEMENT - EXISTING 4 SPAN W33 STEEL GIRDERS)



ELEVATION

LOOKING EAST

BENCH MARKS

NO.	STATION	OFFSET	DESCRIPTION	EL.
4	148WB+02.18	47.03' LT.	WISDOT DISK ON TOP OF PARAPET ON WING #3	965.26
5	145WB+24.36	47.55' LT.	CUT SQUARE ON TOP OF PARAPET, NE BRIDGE CORNER	960.10

STATE PROJECT NUMBER

5300-01-83

LIST OF DRAWINGS

UTILITY NOTES

UTILITIES TO REMAIN U.N.O.

1. EXISTING UNDERGROUND ELECTRIC
2. EXISTING STORM SEWER
3. EXISTING FIBER OPTIC LINE
4. EXISTING WATER LINE
5. EXISTING TELEPHONE LINE
6. EXISTING GAS LINE
7. EXISTING WISDOT COMMUNICATIONS
8. DISCONTINUED WISDOT ATR CONDUIT
9. STORM SEWER TO BE REPLACED
10. DISCONTINUED FIBER OPTIC LINE

LEGEND

- TRAFFIC DIRECTION
- LOCATION PER EXISTING PLANS AND MIN. CLEARANCE TAKEN FROM HSI SYSTEM 7/5/2016.
- NEW NAME PLATE LOCATION (INSIDE FACE)
- (X) WING NUMBER

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
WILLIAM DREHER (608) 266-8489
CONSULTANT:
MATT SCHROEDER (608) 294-5000

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY

HNTB
11414 W. PARK PLACE
MILWAUKEE, WI 53224
(414) 359-2300

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 02/14/17
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STATE OF WISCONSIN
MATTHEW S SCHROEDER
E-42428
JOHNSON CREEK
WI
2-1-17
PROFESSIONAL ENGINEER

STRUCTURE B-13-14

USH 12/14 WB OVER TERRACE AVE.

COUNTY	CITY
DANE	MIDDLETON

DESIGN SPEC. REHABILITATION N/A

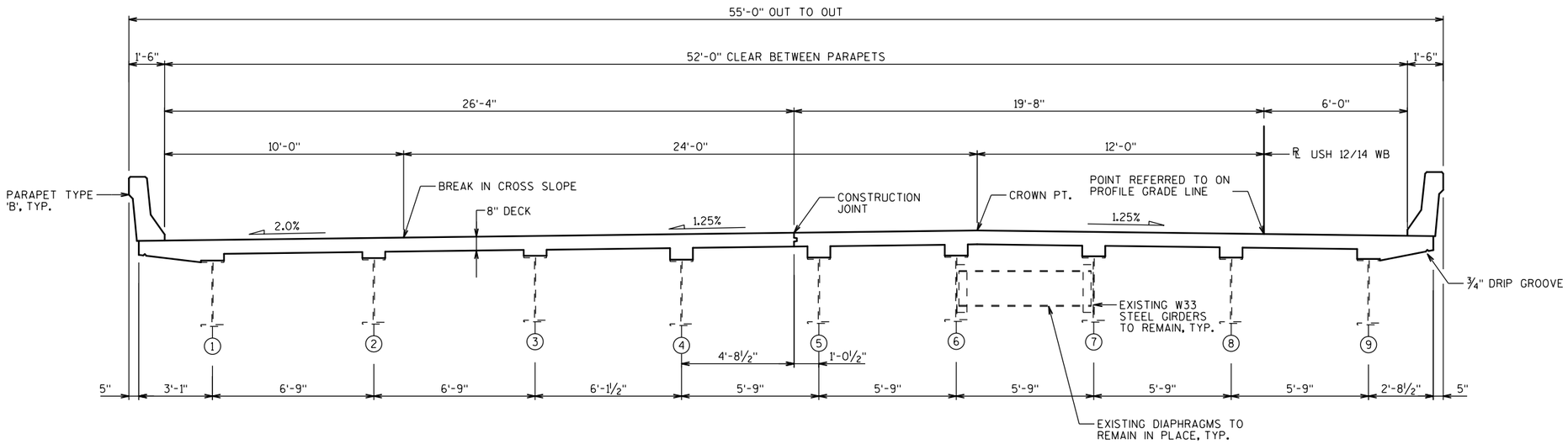
DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
HDA	MSS	EAJ/HDA	MSS

GENERAL PLAN & ELEVATION

SHEET 1 OF 16

FILE NAME : \\madw00\ingrproj\62247\b1\B-13-14\cds\B14_080101_gp.dgn
PLOT DATE : 1/31/2017 7:41:06 AM
PLOT BY : msschroeder
PLOT NAME : $FILE$
PLOT SCALE : 30:1

STATE PROJECT NUMBER
5300-01-83



TYPICAL SECTION

(LOOKING SOUTH)

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEM	UNIT	TOTAL
203.0200.01	REMOVING OLD STRUCTURE STA. 147WB+00	LS	1
203.0225.S.01	DEBRIS CONTAINMENT B-13-14	LS	1
502.0100	CONCRETE MASONRY BRIDGES	CY	468
502.3100.01	EXPANSION DEVICE B-13-14	LS	1
502.3200	PROTECTIVE SURFACE TREATMENT	SY	1,595
502.3210	PIGMENTED SURFACE SEALER	SY	230
502.4106	ADHESIVE ANCHORS 3/4-INCH	EACH	18
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	126
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	105,040
505.0904	BAR COUPLERS NO. 4	EACH	8
505.0905	BAR COUPLERS NO. 5	EACH	866
505.0906	BAR COUPLERS NO. 6	EACH	6
506.6000.01	BEARING ASSEMBLIES EXPANSION B-13-14	EACH	18
506.7050.S.01	REMOVING BEARINGS B-13-14	EACH	18
509.9050.S	CLEANING PARAPETS	LF	16
514.0445	FLOOR DRAINS TYPE GC	EACH	2
517.0900.S	PREPARATION AND COATING OF TOP FLANGES B-13-14	LS	1
517.1800.S.01	STRUCTURE REPAINTING RECYCLED ABRASIVE B-13-14	LS	1
517.4000.S.01	CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-13-14	LS	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1
604.9010.S	SLOPE PAVING REPAIR CRUSHED AGGREGATE	CY	33
604.9015.S	RESEAL CRUSHED AGGREGATE SLOPE PAVING	SY	750
SPV.0105.01	VEGETATION REMOVAL B-13-14	LS	1
SPV.0165.01	REMOVING LOOSE CONCRETE	SF	40
	NON-BID ITEMS		
	NAME PLATE	EACH	1

ALL ITEMS ARE CATEGORY 0030

8

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

DRAWN BY EAJ | PLANS CK'D. MSS

TYPICAL SECTION & QUANTITIES

SHEET 2 OF 16

FILE NAME : \\madw00\ingrproj\62247\b1\B-13-14\cds\B14_080102_ts.dgn
PLOT DATE : 1/31/2017 7:41:09 AM
PLOT BY : msschroeder
PLOT NAME : $FILE$
PLOT SCALE : 5.33333:1

STATE PROJECT NUMBER
5300-01-83

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED. ALL STATIONS AND ELEVATIONS ARE IN FEET.

THE EXISTING STRUCTURE IS A 4-SPAN STEEL DECK GIRDER BRIDGE WITH AN OVERALL WIDTH OF 55' AND A LENGTH OF 276'-2". THE EXISTING 7" DECK, PARAPETS, PAVING BLOCKS, AND EXPANSION DEVICES ARE TO BE REMOVED AND REPLACED.

ALL CONCRETE REMOVAL SHALL BE DEFINED WITH A 1-INCH DEEP SAW CUT.

APPLY "PROTECTIVE SURFACE TREATMENT" TO THE ENTIRE TOP SURFACE OF THE NEW DECK AND PAVING BLOCKS.

APPLY "PIGMENTED SURFACE SEALER" TO THE TOP AND INSIDE FACES OF NEW PARAPETS AND EXISTING WINGWALL PARAPETS. PERFORM "CLEANING PARAPETS" PRIOR TO APPLYING "PIGMENTED SURFACE SEALER" ON EXISITNG PARAPETS.

LOCATIONS OF THE FOLLOWING BID ITEMS SHALL BE DETERMINED IN THE FIELD BY THE PROJECT ENGINEER. QUANTITIES SHOWN FOR THESE ITEMS ARE APPROXIMATE.

- SLOPE PAVING REPAIR CRUSHED AGGREGATE

LOCATIONS FOR BID ITEM "REMOVING LOOSE CONCRETE" EXPECTED AT THE FOLLOWING LOCATIONS:

- NORTH ABUTMENT BEAM SEAT AND BACKWALL
- ALL PIER CAPS
- PIER 1 COLUMN
- NORTHWEST WINGWALL

REMOVALS AT OTHER AREAS AS DETERMINED IN THE FIELD BY THE PROJECT ENGINEER. QUANTITY SHOWN FOR THIS ITEM IS APPROXIMATE.

ANY EXCAVATION REQUIRED TO COMPLETE THE PAVING BLOCK AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY BRIDGES".

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

ALL REINFORCING BARS ARE ENGLISH. THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE. BAR DIMENSIONS ARE OUT TO OUT OF BAR.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

UNDER THE BID ITEM "ADHESIVE ANCHORS NO. 5 BAR", ANCHORED REINFORCING STEEL SHALL BE PAID FOR SEPARATELY AS PROVIDED IN SECTION 505 OF THE STANDARD SPECIFICATIONS FOR BAR STEEL REINFORCEMENT.

BEVEL EDGES OF EXPOSED CONCRETE ¾" MIN. OR MATCH EXISTING BEVELS UNLESS NOTED OTHERWISE.

THE HAUNCH CONCRETE QUANTITY IS BASED ON AN AVERAGE HAUNCH OF 1" AT GIRDERS 1-3 AND 6½" AT GIRDERS 4-9. THIS IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.

EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE, SHALL BE PAID FOR IN THE LUMP SUM PRICE BID AS "EXPANSION DEVICE B-13-14".

VARIATIONS TO THE NEW GRADE LINE OVER ¼" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.

REMOVE DESIGNATED MOVEABLE BEARING ASSEMBLIES AT THE ABUTMENTS UNDER BID ITEM "REMOVING BEARINGS B-13-14" AND REPLACE WITH STEEL EXPANSION BEARINGS.

CLEAN AND PAINT GIRDER ENDS AT EACH ABUTMENT FOR A LENGTH OF 5'-0" AT EACH GIRDER. COLOR TO MATCH EXISTING GIRDERS AND SHALL BE APPROVED BY THE ENGINEER.

REMOVE ALL VEGETATION FROM EXISTING CRUSHED AGGREGATE SLOPE PAVING PRIOR TO REPAIRING AND RESEALING THE SLOPE PAVING. THIS WORK INCLUDED IN BID ITEM "VEGETATION REMOVAL B-13-14".

ALL CRUSHED AGGREGATE SLOPE PAVING ASSOCIATED WITH THIS STRUCTURE TO BE RESEALED. LIMITS SHOWN ON "SLOPE PAVING CRUSHED AGGREGATE" SHEET.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICAITONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR OF 1949 AND SHALL BE CONSIDERED INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES".

TRAFFIC DATA

USH 12/14

A.D.T. = 54,000 (2015)
R.D.S. = 60 M.P.H.

TERRACE AVE.

A.D.T. = 1,500 (2009)
R.D.S. = 30 M.P.H.

DESIGN DATA

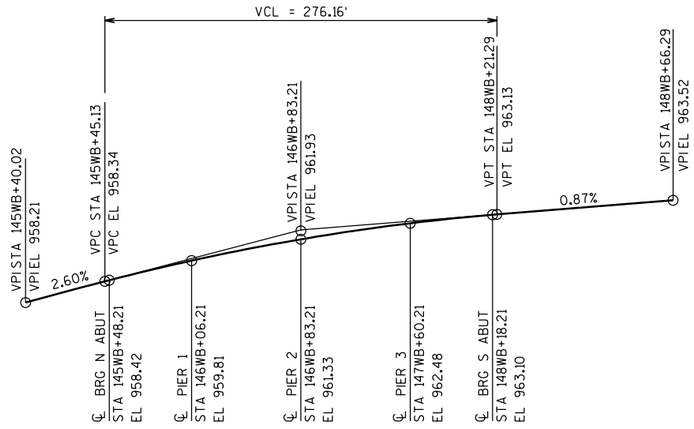
LIVE LOAD

DESIGN LOADING: HS20
INVENTORY RATING: HS20
OPERATING RATING: HS34
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 190 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES

CONCRETE MASONRY:
SUPERSTRUCTURE ..... f'c = 4,000 psi
BAR STEEL REINFORCEMENT..... fy = 60,000 psi



PROFILE GRADE LINE - ℄ USH 12/14 WB

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

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GENERAL NOTES & DESIGN DATA

SHEET 3 OF 16

FILE NAME : \\madw00\ingrproj\62247\b1\B-13-14\cds\B14_080103_gn.dgn
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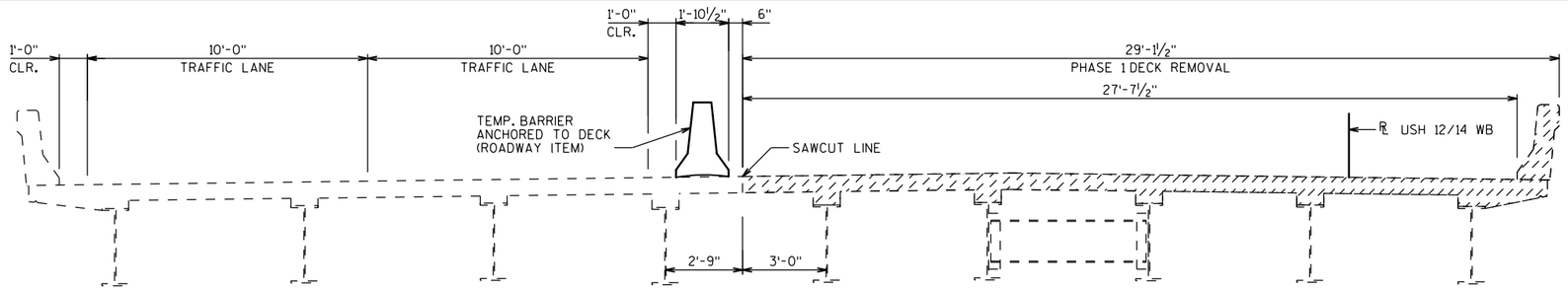
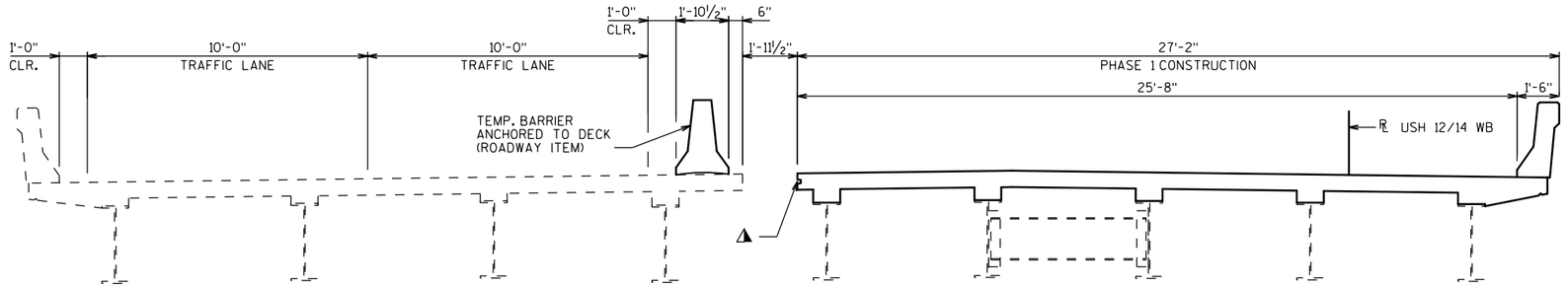
STATE PROJECT NUMBER
5300-01-83



PHASE 1 - REMOVAL

(LOOKING SOUTH)



PHASE 1 - NEW WORK

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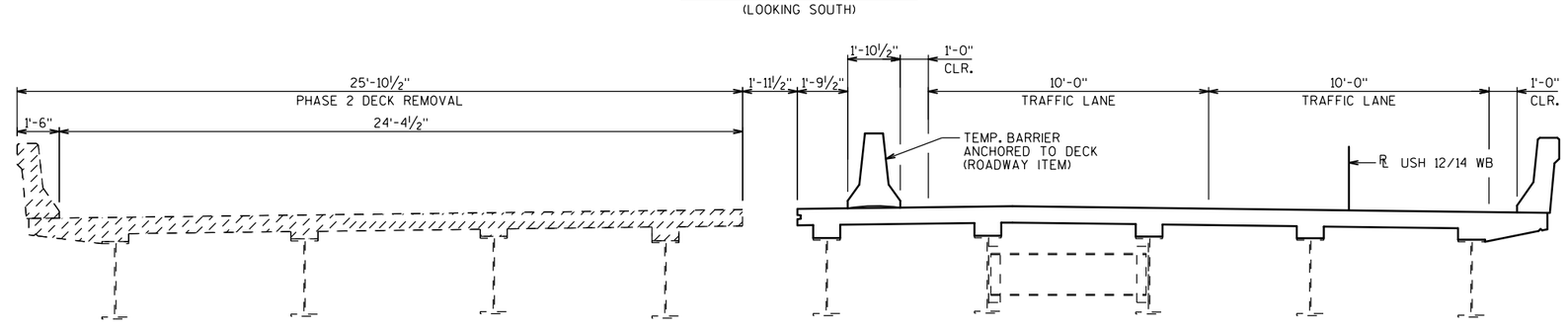

PHASE 2 - REMOVAL

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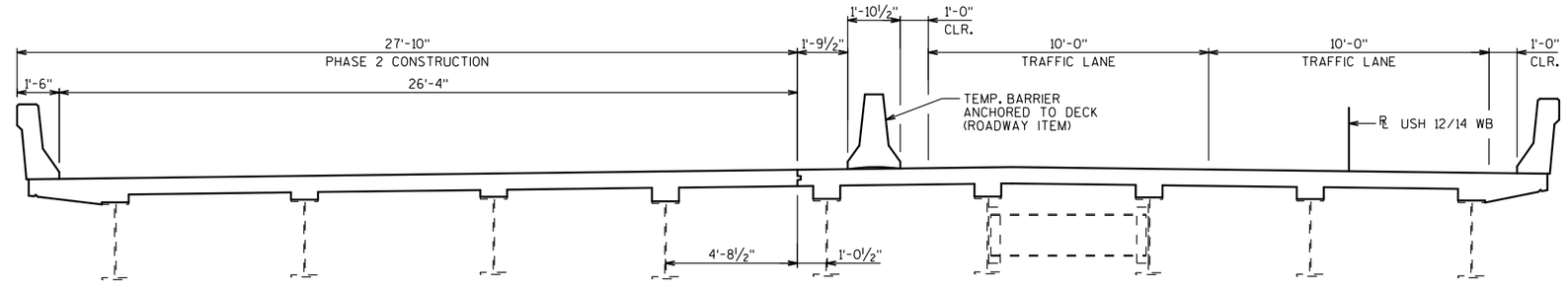

PHASE 2 - NEW WORK

(LOOKING SOUTH)

NOTES

PHASE NUMBERS FOR STRUCTURE WORK MAY NOT MATCH ROADWAY STAGING PLAN NUMBERING.

SEE ROADWAY PLANS FOR COMPLETE PROJECT STAGING DETAILS.

COMPLETE ALL ON-DECK STRUCTURE WORK IN PHASE 1 AND PHASE 2 EXCEPT FOR PROTECTIVE SURFACE TREATMENT, WHICH IS TO BE APPLIED DURING SHORT-TERM LANE CLOSURES. TIMING OF PROTECTIVE SURFACE TREATMENT APPLICATION AS PER THE STANDARD SPECIFICATIONS.

LEGEND

REMOVAL LIMITS

△ "BAR COUPLERS NO. 5" AT TRANSVERSE DECK BARS

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

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CONSTRUCTION STAGING

SHEET 4 OF 16

FILE NAME : \\madw00\ingrproj\62247\b1\B-13-14\cds\B14_080104_cs.dgn
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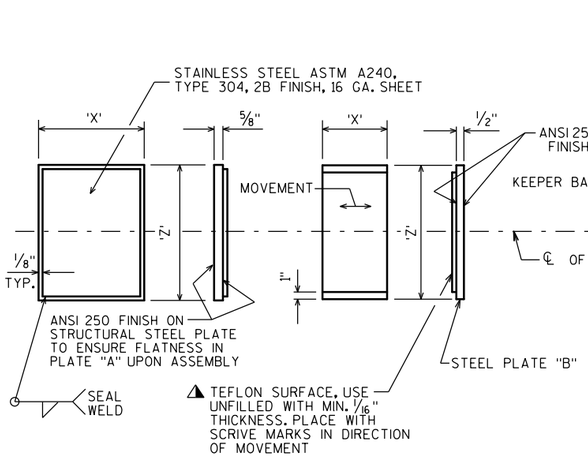
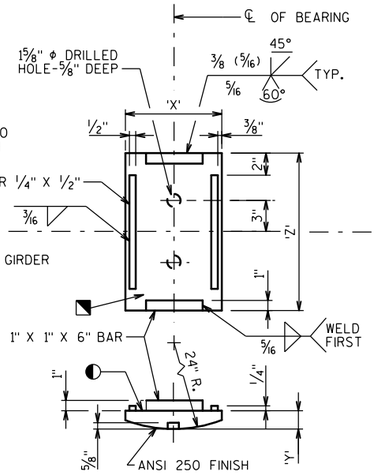
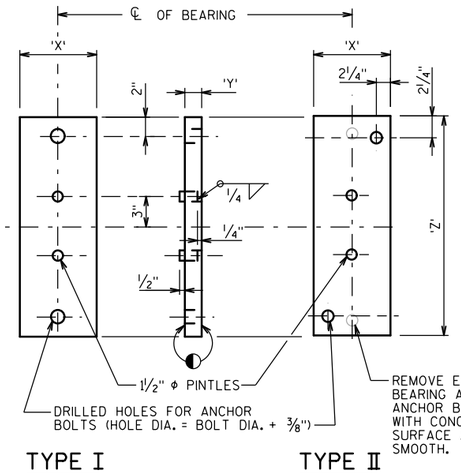


TOP PLATE "A"

TEFLON SURFACE ON PLATE "B"



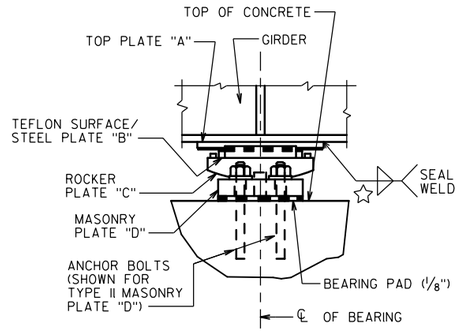
ROCKER PLATE "C"



TYPE I

TYPE II

MASONRY PLATE "D"

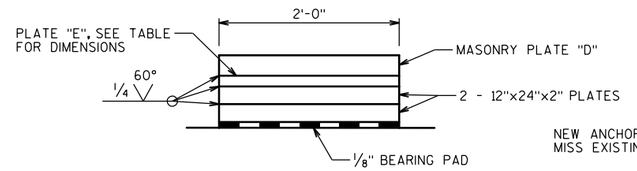


EXPANSION BEARING ASSEMBLY

EXPANSION BEARING

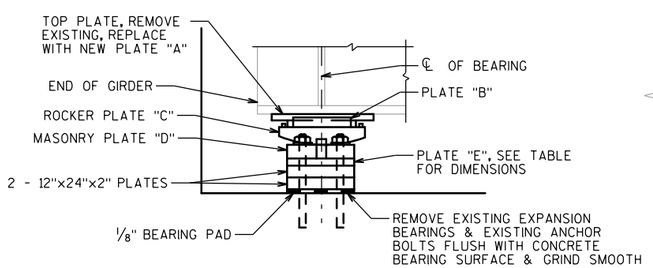
EXPANSION BEARING	PLATE "A"		PLATE "B"		PLATE "C"			PLATE "D"			PLATE "D" TYPE	ANCHOR BOLT SIZE	NO. OF BRG'S REQ'D.	LOCATION
	'X'	'Z'	'X'	'Z'	'X'	'Y'	'Z'	'X'	'Y'	'Z'				
	11"	1'-2"	7"	1'-2"	9"	1 5/16"	1'-4 1/4"	1'-0"	1 1/2"	2'-0"	II	(2) - 1 1/4"ϕ x 1'-5" LONG	18	BOTH ABUTMENTS

GIRDER	PLATE "E"	
	N. ABUT.	S. ABUT.
4	12"x24"x 15/16"	-----
5	12"x24"x 1 1/16"	-----
6	12"x24"x 1 1/16"	-----
7	12"x24"x 15/16"	12"x24"x 9/16"
8	12"x24"x 1 5/8"	12"x24"x 1/2"
9	12"x24"x 1 9/16"	-----



FRONT ELEVATION

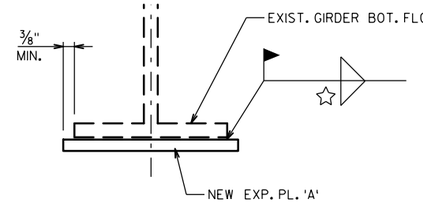
(SHOWING MASONRY PLATES ONLY)



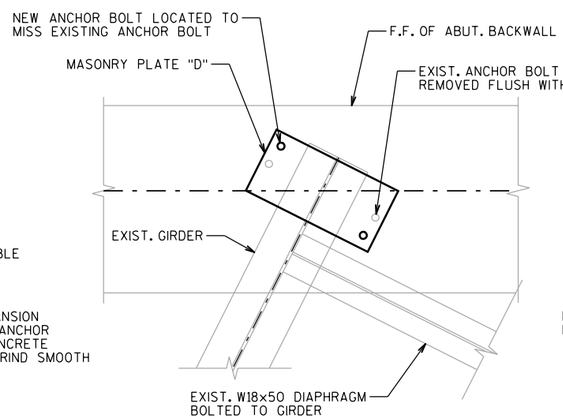
SIDE ELEVATION

EXPANSION BEARING STACKED PLATE DETAILS

ADDITIONAL PLATES REQUIRED AT GIRDERS 4 THRU 9 ONLY

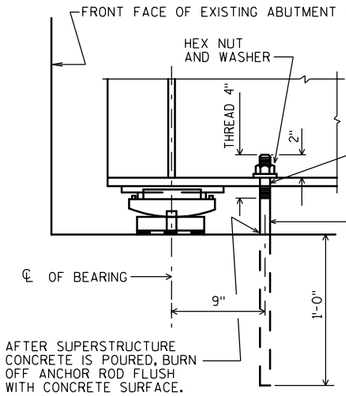


BEARING REPLACEMENT DETAILS



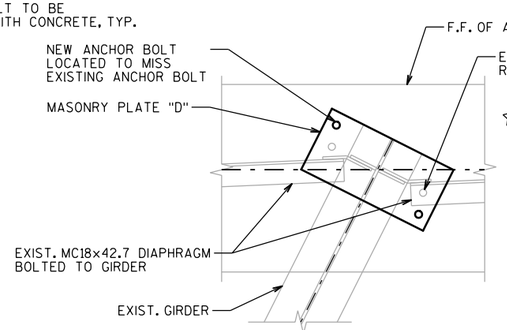
BEARING DETAILS

GIRDERS 4 THRU 9



TEMPORARY HOLD DOWN DEVICE

PLACE ONE ANCHOR ROD PER GIRDER AT ABUTMENT WHERE SLAB POUR TERMINATES. LOCATE 4" (NORMAL) OFF ℄ OF GIRDER. ANCHOR ROD, NUT, WASHER AND DRILLED HOLE IN GIRDER FLANGE SHALL BE PAID FOR AS "ADHESIVE ANCHORS 3/4-INCH". MINIMUM PULLOUT CAPACITY OF 27 KIPS.



BEARING DETAILS

GIRDERS 1 THRU 4

BEARING NOTES

ALL BEARINGS ARE SYMMETRICAL ABOUT ℄ OF GIRDER AND ℄ OF BEARING.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. BOLT LENGTH TO BE 1'-5 FOR 1 1/4" ϕ AND 1'-10 FOR 1 1/2" ϕ BOLTS. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + 2 1/4", ABOVE TOP OF CONCRETE.

CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, BUT EXCLUDING ANCHOR BOLTS, STAINLESS STEEL SHEET, TEFLON SURFACE, PINTLES, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.

STEEL PINTLES SHALL CONFORM TO ASTM A449 OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 36, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

PROVIDE 1/8" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-13-14", EACH.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

TOP PLATE "A" AND STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A". ROCKER PLATE "C" AND MASONRY PLATE "D" SHALL BE GALVANIZED. DO NOT PAINT STAINLESS STEEL OR TEFLON SURFACES.

AT INSTALLATION, ENSURE STAINLESS STEEL SLIDING FACE OF THE UPPER ELEMENT AND THE TFE SLIDING FACE OF THE LOWER ELEMENT HAVE THE SURFACE FINISH SPECIFIED AND ARE CLEAN AND FREE OF ALL DUST, MOISTURE, AND OTHER FOREIGN MATTER.

CONTRACTOR SHALL DRILL HOLES FOR THE BEARING ANCHORS WHEN THE EXISTING DECK IS REMOVED TO GAIN ACCESS BEHIND THE EXISTING DIAPHRAGMS.

PROVIDE 1/8" THICK SHIM PLATES BETWEEN BEARING PAD AND MASONRY PLATE 'D' AS NEEDED. PLATES SHALL HAVE 'X' AND 'Z' DIMENSIONS THAT MATCH MASONRY PLATE 'D'. IN LIEU OF USING SHIM PLATES, FABRICATOR MAY INCREASE THICKNESS OF TOP PLATE 'A' OR MASONRY PLATE 'D' BY THE SHIM PLATE THICKNESS.

◐ FINISH THESE SURFACES TO ANSI 250 IF 'Y' DIMENSION IS GREATER THAN 2".

◥ PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.

⚠ BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING FEDERAL SPECIFICATION MMM-A-134, FEP FILM OR EQUAL.

☆ TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	ǂ MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	△ 5/16"
OVER 1 1/2"	△ 3/8"

ǂ EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

△ MIN. PASS SIZE IS 5/16"

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

DRAWN BY MSS | PLANS CK'D. HDA

BEARING DETAILS

SHEET 5 OF 16

FILE NAME : \\madw00\ingrproj\62247\b1\B-13-14\cds\B14_080501_brg.dgn
PLOT DATE : 1/31/2017 7:41:20 AM PLOT BY : msschroeder PLOT NAME : $FILE$ PLOT SCALE : 0.166666:1

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363 EQUAL SPACES @ 9" MAX. = 272'-0", S402, S403 EAST PARAPET

20 SPACES @ 7½" = 12'-6" S517 BOTTOM | 413 SPACES @ 7½" = 258'-1½", S510 BOTTOM | 19 SPACES @ 7½" = 11'-10½" S518 BOTTOM

433 SPACES @ 7½" = 270'-7½", S419 PLACE W/TOP TRANSVERSE BARS

19 SPACES @ 7½" = 11'-10½" S513 TOP | 413 SPACES @ 7½" = 258'-1½", S510 TOP | 20 SPACES @ 7½" = 12'-6" S514 TOP

26°45' (TYP.)

FAN S419 BARS TO FIT

4 - S545 BARS AT FLOOR DRAIN, TYP. SEE "FLOOR DRAIN TYPE 'GC'" SHEET FOR PLACEMENT

℄ BRG. N. ABUT. | ℄ PIER 1 | ℄ PIER 2 | EDGE OF DECK | ℄ PIER 3 | ℄ BRG. S. ABUT.

1'-6" PARAPET

54'-2" EDGE TO EDGE OF DECK | 47'-1" | 27'-10" PHASE 2 | 26'-4" | 27'-2" PHASE 1 | 19'-8" | 7'-1" | 6'-0"

50'-0" | 19'-1" | 18'-7" | 20'-1" | 20'-1" | 18'-7" | 19'-1"

F.F. OF ABUT. BACKWALL | S513 TOP | S517 BOTTOM | END OF DECK | CONST. JT. | S511 TOP | S515 BOTTOM | ℄ USH 12/14 WB

S419, PLACE W/TOP TRANS. BARS | S405 | S404 | S606 | S510 TOP | S510 BOTTOM | S607 | S405 | S606 | S404 | S509 TOP | S509 BOTTOM | S419, PLACE W/TOP TRANS. BARS | S420, PLACE W/BOTTOM TRANS. BARS | S408 @ W. OVERHANG ONLY, TYP. | EDGE OF DECK | S440, TYP. | S408, TYP. | S441, S442, OR S443 | S403 | S402 IN PARAPET | 9" TYP.

1'-8" MIN. LAP, TYP. | 2'-11" MIN. LAP, TYP. | S501 IN PARAPET

F.F. ABUT. BACKWALL | TOP LONG. REINFORCEMENT | END OF DECK | S514 TOP | S518 BOTTOM | BOT. LONG. REINFORCEMENT | HAUNCH REINFORCEMENT | S512 TOP | S516 BOTTOM | FAN S419 AND S420 BARS TO FIT | SEE "SLOPED FACE PARAPET 'B'" SHEET FOR WING PARAPET REINF., TYP.

1'-6" PARAPET

19 SPACES @ 7½" = 11'-10½" S511 TOP | 413 SPACES @ 7½" = 258'-1½", S509 TOP | 19 SPACES @ 7½" = 11'-10½" S512 TOP

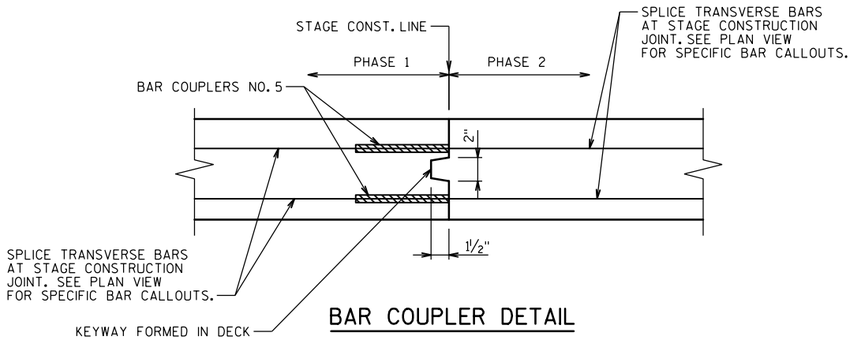
433 SPACES @ 7½" = 270'-7½", S419 PLACE W/TOP TRANSVERSE BARS

20 SPACES @ 7½" = 12'-6" S515 BOTTOM | 413 SPACES @ 7½" = 258'-1 ½", S509 BOTTOM | 19 SPACES @ 7½" = 11'-10½" S516 BOT

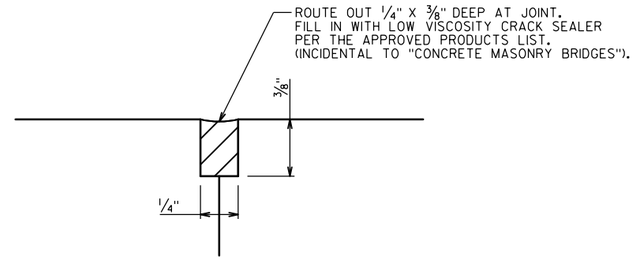
433 SPACES @ 7½" = 270'-7½", S420 PLACE W/BOTTOM TRANSVERSE BARS

363 EQUAL SPACES @ 9" MAX. = 272'-0", S402, S403 WEST PARAPET

SUPERSTRUCTURE PLAN



BAR COUPLER DETAIL



LONGITUDINAL CONSTRUCTION JOINT DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

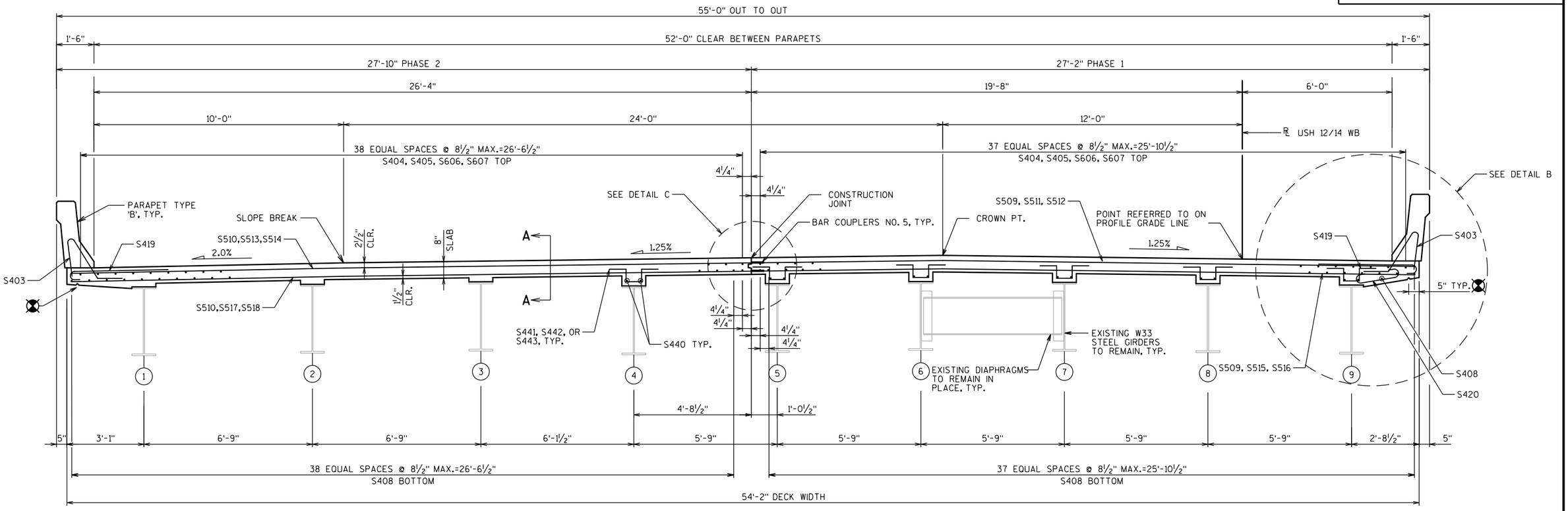
DRAWN BY HDA | PLANS CK'D. MSS

SUPERSTRUCTURE PLAN

SHEET 6 OF 16

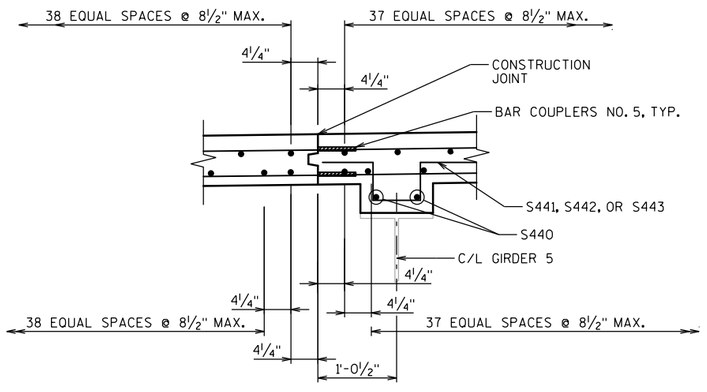
FILE NAME : \\madw00\ingrproj\62247\b1\B-13-14\cds\B14_080502_ss.dgn | PLOT DATE : 1/31/2017 7:41:24 AM | PLOT BY : msschroeder | PLOT NAME : $FILE$ | PLOT SCALE : 25:1

STATE PROJECT NUMBER
5300-01-83



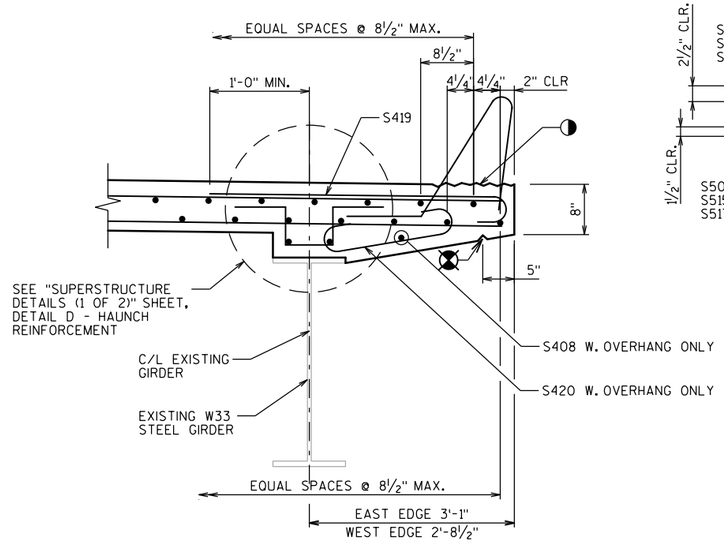
SUPERSTRUCTURE SECTION

(LOOKING SOUTH)



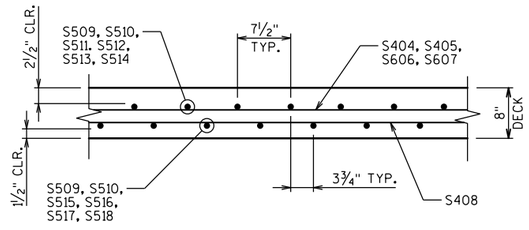
DETAIL C - AT CONSTRUCTION JOINT

(LOOKING SOUTH)



DETAIL B - AT EDGE OF DECK

PARAPET NOT SHOWN FOR CLARITY



SECTION A-A

LEGEND

- ¾" V-GROOVE. TERMINATE 2'-0" FROM FRONT FACE OF ABUTMENTS.
- STRIKE OFF AS SHOWN AND LEAVE ROUGH.
- (7) GIRDER NUMBER

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

DRAWN BY HDA | PLANS CK'D. MSS

SUPERSTRUCTURE CROSS SECTION

SHEET 7 OF 16

8

8

FILE NAME : \\madw00\ingrproj\62247\b1\B-13-14\cds\B14_080503_ss.dgn PLOT DATE : 1/31/2017 7:41:28 AM PLOT BY : msschroeder PLOT NAME : $FILE$ PLOT SCALE : 4:1

STATE PROJECT NUMBER
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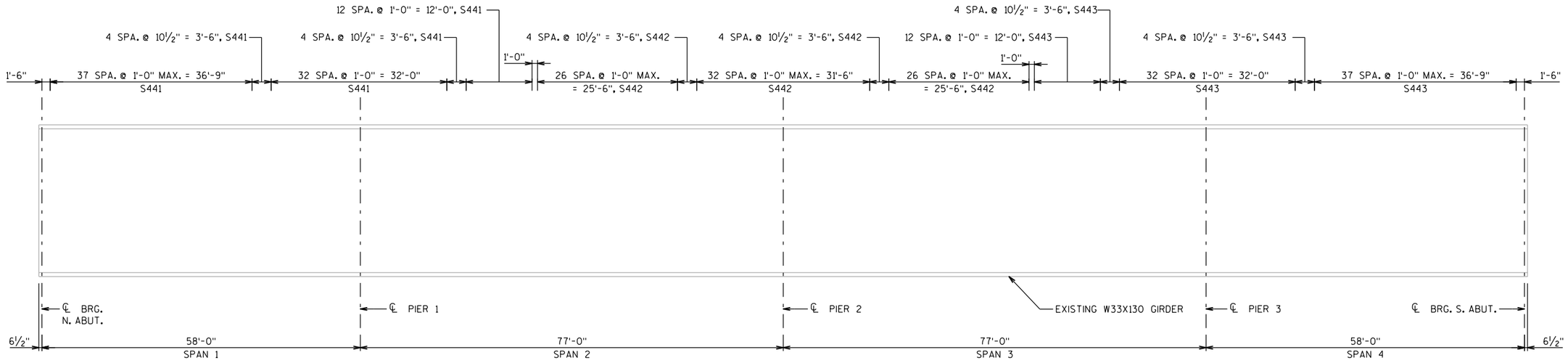
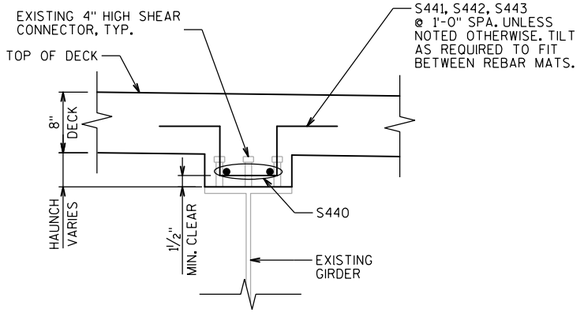


ELEVATION - HAT BAR LAYOUT
GIRDERS 4 - 9



DETAIL D - HAUNCH REINFORCEMENT
GIRDERS 4 - 9

NOTES

PLACE HAT BARS AT EXISTING SHEAR CONNECTORS WHEN SHEAR CONNECTOR SPACING IS LESS THAN OR EQUAL TO 12".

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

DRAWN BY HDA | PLANS CK'D. MSS

SUPERSTRUCTURE DETAILS (1 OF 2)

SHEET 8 OF 16

FILE NAME : \\madw00\ingrproj\62247\b1\B-13-14\cds\B14_080504_ss.dgn
PLOT DATE : 1/31/2017 7:41:34 AM PLOT BY : msschroeder PLOT NAME : $FILE$ PLOT SCALE : 20:1

STATE PROJECT NUMBER
5300-01-83

TOP OF DECK ELEVATIONS

LOCATION	℄ BRG. N. ABUT.	SPAN 1									℄ PIER 1	SPAN 2									℄ PIER 2
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
EAST EDGE OF DECK	957.46	957.61	957.76	957.91	958.06	958.21	958.35	958.50	958.64	958.78	958.92	959.10	959.28	959.45	959.62	959.78	959.94	960.10	960.26	960.41	960.55
TOE OF EAST PARAPET	957.47	957.62	957.77	957.92	958.07	958.22	958.37	958.51	958.65	958.79	958.93	959.11	959.29	959.46	959.63	959.79	959.96	960.11	960.27	960.42	960.56
GIRDER 1	957.54	957.69	957.84	957.99	958.14	958.29	958.43	958.58	958.72	958.86	959.00	959.18	959.35	959.52	959.69	959.86	960.02	960.17	960.33	960.48	960.62
GIRDER 2	957.76	957.91	958.06	958.21	958.36	958.51	958.65	958.80	958.94	959.07	959.21	959.39	959.56	959.73	959.90	960.06	960.22	960.38	960.53	960.68	960.82
SLOPE BREAK	957.80	957.95	958.10	958.25	958.40	958.55	958.69	958.84	958.98	959.11	959.25	959.43	959.60	959.77	959.94	960.10	960.26	960.41	960.57	960.71	960.86
GIRDER 3	957.94	958.09	958.24	958.39	958.54	958.69	958.83	958.97	959.11	959.25	959.38	959.56	959.73	959.90	960.07	960.23	960.38	960.54	960.69	960.83	960.98
GIRDER 4	958.10	958.25	958.40	958.55	958.70	958.84	958.98	959.12	959.26	959.40	959.53	959.71	959.88	960.04	960.21	960.37	960.52	960.68	960.82	960.97	961.11
CONST. JT.	958.22	958.37	958.52	958.67	958.81	958.96	959.10	959.24	959.38	959.51	959.64	959.82	959.99	960.15	960.32	960.47	960.63	960.78	960.93	961.07	961.21
GIRDER 5	958.25	958.40	958.55	958.70	958.84	958.98	959.13	959.26	959.40	959.54	959.67	959.84	960.01	960.18	960.34	960.50	960.65	960.80	960.95	961.09	961.23
GIRDER 6	958.39	958.54	958.69	958.84	958.98	959.13	959.27	959.41	959.54	959.68	959.81	959.98	960.15	960.31	960.47	960.63	960.78	960.93	961.08	961.22	961.36
CROWN	958.42	958.57	958.72	958.86	959.01	959.15	959.29	959.43	959.56	959.70	959.83	960.00	960.17	960.33	960.49	960.65	960.80	960.95	961.10	961.24	961.38
GIRDER 7	958.42	958.57	958.72	958.86	959.01	959.15	959.29	959.42	959.56	959.69	959.82	959.99	960.16	960.32	960.48	960.64	960.79	960.94	961.08	961.22	961.36
GIRDER 8	958.42	958.57	958.72	958.86	959.00	959.15	959.28	959.42	959.55	959.68	959.81	959.98	960.15	960.31	960.47	960.62	960.77	960.92	961.06	961.20	961.34
WB PGL	958.42	958.57	958.72	958.86	959.00	959.14	959.28	959.42	959.55	959.68	959.81	959.98	960.15	960.31	960.46	960.62	960.77	960.92	961.06	961.20	961.33
GIRDER 9	958.43	958.57	958.71	958.85	958.98	959.12	959.25	959.38	959.51	959.63	959.76	959.93	960.09	960.25	960.41	960.56	960.71	960.86	961.00	961.14	961.28
TOE OF WEST PARAPET	958.43	958.57	958.72	958.86	959.00	959.14	959.28	959.41	959.55	959.68	959.80	959.97	960.13	960.29	960.45	960.60	960.75	960.90	961.04	961.18	961.31
WEST EDGE OF DECK	958.44	958.59	958.73	958.88	959.02	959.15	959.29	959.43	959.56	959.69	959.82	959.98	960.15	960.31	960.46	960.61	960.76	960.91	961.05	961.18	961.32

TOP OF DECK ELEVATIONS, CONTINUED

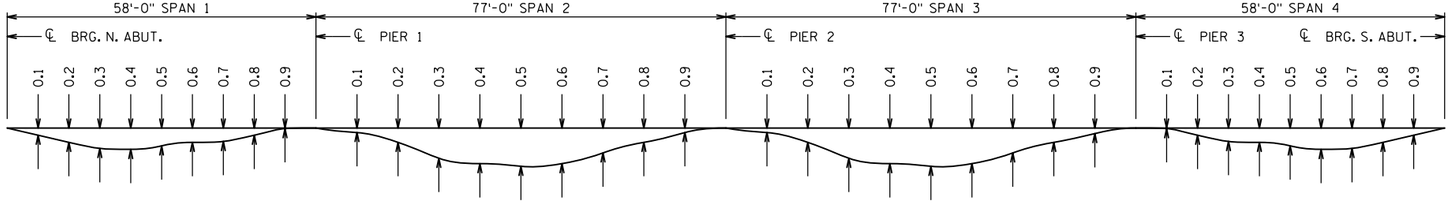
LOCATION	℄ PIER 2	SPAN 3									℄ PIER 3	SPAN 4									℄ BRG. S. ABUT.
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
EAST EDGE OF DECK	960.55	960.70	960.84	960.97	961.10	961.23	961.36	961.48	961.59	961.71	961.82	961.90	961.97	962.05	962.12	962.20	962.26	962.33	962.40	962.46	962.52
TOE OF EAST PARAPET	960.56	960.71	960.85	960.98	961.11	961.24	961.36	961.48	961.60	961.71	961.82	961.90	961.98	962.06	962.13	962.20	962.27	962.34	962.40	962.47	962.53
GIRDER 1	960.62	960.76	960.90	961.04	961.17	961.30	961.42	961.54	961.66	961.77	961.88	961.96	962.03	962.11	962.18	962.25	962.32	962.39	962.45	962.52	962.58
GIRDER 2	960.82	960.96	961.10	961.23	961.36	961.49	961.61	961.73	961.84	961.95	962.06	962.14	962.21	962.29	962.36	962.43	962.50	962.56	962.63	962.69	962.75
SLOPE BREAK	960.86	961.00	961.13	961.27	961.40	961.52	961.64	961.76	961.88	961.99	962.09	962.17	962.25	962.32	962.39	962.46	962.53	962.60	962.66	962.72	962.78
GIRDER 3	960.98	961.12	961.25	961.38	961.51	961.63	961.75	961.87	961.98	962.09	962.20	962.28	962.35	962.42	962.50	962.56	962.63	962.69	962.76	962.82	962.88
GIRDER 4	961.11	961.25	961.38	961.51	961.64	961.76	961.88	961.99	962.11	962.21	962.32	962.39	962.47	962.54	962.61	962.68	962.74	962.80	962.87	962.93	962.98
CONST. JT.	961.21	961.35	961.48	961.61	961.73	961.86	961.97	962.09	962.20	962.30	962.41	962.48	962.56	962.63	962.70	962.76	962.83	962.89	962.95	963.01	963.06
GIRDER 5	961.23	961.37	961.50	961.63	961.76	961.88	961.99	962.11	962.22	962.32	962.43	962.50	962.58	962.65	962.71	962.78	962.85	962.91	962.97	963.03	963.08
GIRDER 6	961.36	961.49	961.62	961.75	961.87	961.99	962.11	962.22	962.33	962.44	962.54	962.61	962.68	962.75	962.82	962.89	962.95	963.01	963.07	963.13	963.18
CROWN	961.38	961.51	961.64	961.77	961.89	962.01	962.13	962.24	962.35	962.45	962.55	962.63	962.70	962.77	962.84	962.90	962.96	963.03	963.08	963.14	963.20
GIRDER 7	961.36	961.49	961.62	961.75	961.87	961.99	962.10	962.21	962.32	962.42	962.52	962.60	962.67	962.74	962.80	962.87	962.93	962.99	963.05	963.10	963.16
GIRDER 8	961.34	961.47	961.60	961.72	961.84	961.96	962.07	962.18	962.29	962.39	962.49	962.56	962.63	962.70	962.76	962.83	962.89	962.95	963.00	963.06	963.11
WB PGL	961.33	961.46	961.59	961.72	961.84	961.95	962.07	962.17	962.28	962.38	962.48	962.55	962.62	962.69	962.75	962.82	962.88	962.94	962.99	963.05	963.10
GIRDER 9	961.28	961.41	961.54	961.66	961.78	961.90	962.01	962.12	962.23	962.33	962.43	962.50	962.57	962.63	962.70	962.76	962.82	962.88	962.94	962.99	963.05
TOE OF WEST PARAPET	961.31	961.44	961.57	961.69	961.81	961.92	962.03	962.14	962.25	962.35	962.44	962.51	962.58	962.65	962.71	962.77	962.83	962.89	962.95	963.00	963.05
WEST EDGE OF DECK	961.32	961.45	961.57	961.70	961.82	961.93	962.04	962.15	962.25	962.35	962.45	962.52	962.59	962.65	962.72	962.78	962.84	962.90	962.95	963.01	963.06

DEFLECTION TABLE

LOCATION	℄ BRG. N. ABUT.	SPAN 1									℄ PIER 1	SPAN 2									℄ PIER 2
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
ALL GIRDERS	0.0	0.1	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.0	0.0	0.1	0.2	0.4	0.5	0.5	0.5	0.4	0.2	0.1	0.0

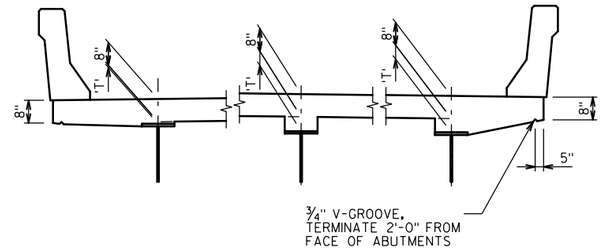
DEFLECTION TABLE, CONTINUED

LOCATION	℄ PIER 2	SPAN 3									℄ PIER 3	SPAN 4									℄ BRG. S. ABUT.
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
ALL GIRDERS	0.0	0.1	0.2	0.4	0.5	0.5	0.5	0.4	0.2	0.1	0.0	0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.0



DEFLECTION DIAGRAM

SEE TABLE FOR CONCRETE DEFLECTIONS AT TENTH POINTS



SLAB HAUNCH DETAILS

NOTES

'T' = HAUNCH HEIGHT AT CENTERLINE OF GIRDER

TO DETERMINE 'T':
ELEVATIONS OF THE TOP FLANGE SHALL BE TAKEN AT CENTERLINE OF BEARING AND AT TENTH POINTS OF SPAN.

TOP OF DECK ELEVATION AT FINAL GRADE
- TOP OF STEEL ELEVATION AFTER STEEL ERECTION
+ CONC. ONLY DEFLECTION: DOWNWARD DEFLECTION IS ADDED, UPWARD DEFLECTION IS SUBTRACTED

- SLAB THICKNESS

= 'T' VALUE FOR SETTING HAUNCH

NOTES

1. DEFLECTIONS GIVEN ARE IN INCHES
2. NEGATIVE DEFLECTION VALUE DENOTES UPWARD DEFLECTION
3. DEFLECTIONS INCLUDE WEIGHT OF CONCRETE SLAB, HAUNCHES AND PARAPETS ONLY
4. DEFLECTIONS ARE THEORETICAL AND MAY VARY IN FIELD
5. THE RATE OF PLACING CONCRETE SHALL EQUAL OR EXCEED ½ SPAN LENGTH PER HOUR BUT NEED NOT EXCEED 100 C.Y. PER HOUR

NO.	DATE	REVISION	BY

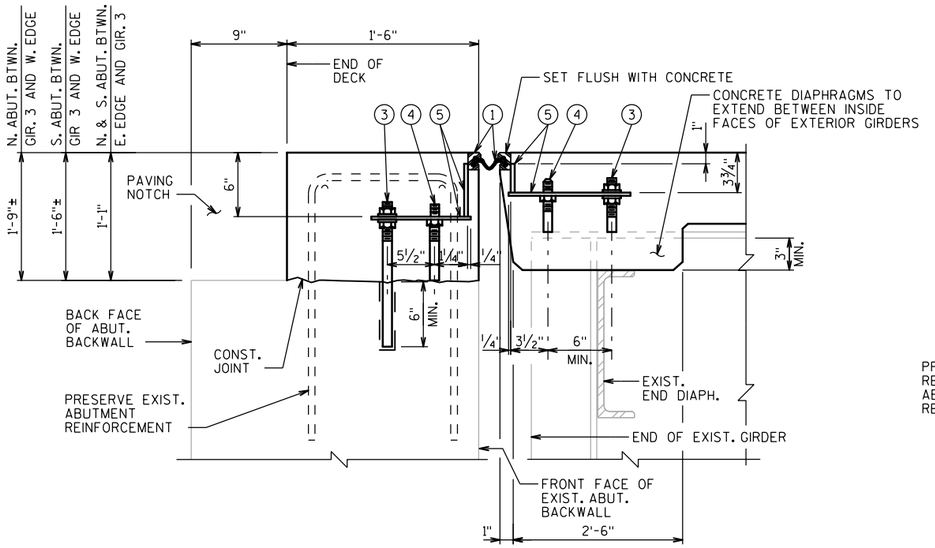
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

DRAWN BY MSS | PLANS CK'D. HDA

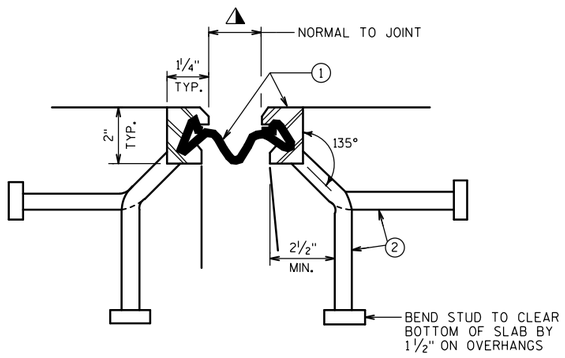
SUPERSTRUCTURE DETAILS (2 OF 2)

SHEET 9 OF 16



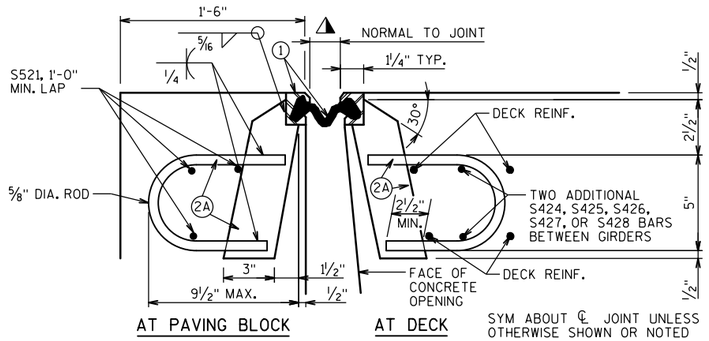
SECTION THRU JOINT AT ABUTMENT

NORMAL TO ℄ SUBSTRUCTURE
SECTION BETWEEN GIRDERS 1 AND 3 SHOWN,
SECTION BETWEEN GIRDERS 3 AND 9 SIMILAR



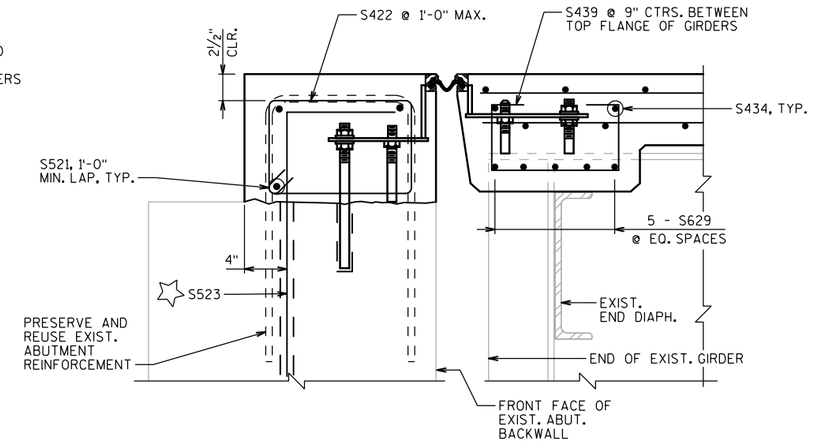
SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS



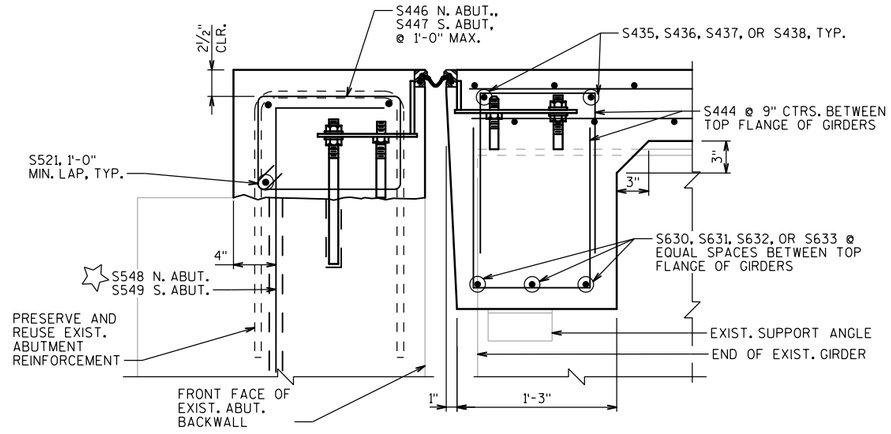
SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



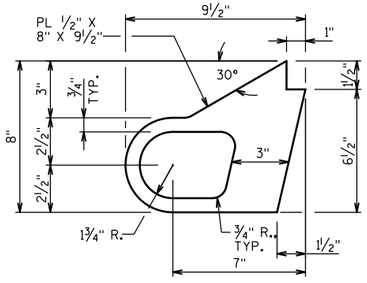
SECTION THRU JOINT AT ABUTMENT BETWEEN GIRDERS 1 AND 3

NORMAL TO ℄ SUBSTRUCTURE
(SHOWING REINFORCEMENT)



SECTION THRU JOINT AT ABUTMENT BETWEEN GIRDERS 3 AND 9

NORMAL TO ℄ SUBSTRUCTURE
(SHOWING REINFORCEMENT)



ALTERNATE STRIP SEAL ANCHOR

EXPANSION JOINT NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE 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-13-14".

LEGEND

① NEOPRENE STRIP SEAL (4 - INCH) & STEEL EXTRUSIONS.

② STUDS ⅝" DIA. x 6⅜" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.

2A ½" THICK ANCHOR PLATE WITH ⅝" DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.

③ ¾" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. FOR STEEL GIRDERS, WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.

④ ¾" DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.

⑤ FABRICATE SUPPORT FROM 3" x ½" BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.

⑥ GALVANIZED PLATE ⅜" x 1'-2" x 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.

⑦ ¾" DIA. x 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.

⑧ ¾" DIA. x 4" GALVANIZED HEX HEAD BOLT. BEND 45°.

⑨ ¾" DIA. x 2 ¼" GALVANIZED THREADED COUPLING.

⑩ 1" x 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

◭ SET JOINT OPENING AT 1¾"

☆ ADHESIVE ANCHORS NO. 5 BAR. EMBED A MINIMUM OF 1'-6" INTO CONCRETE. SPACE AT 1'-0" MAX. AND AVOID EXPANSION JOINT HARDWARE. TURN 10" LEG AS NECESSARY TO FIT. ANCHORS SHALL BE APPROVED FOR USE IN CRACKED CONCRETE.

EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS INDICATED BY ☆.

STATE PROJECT NUMBER
5300-01-83

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

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EXPANSION DEVICE

SHEET 10 OF 16

8

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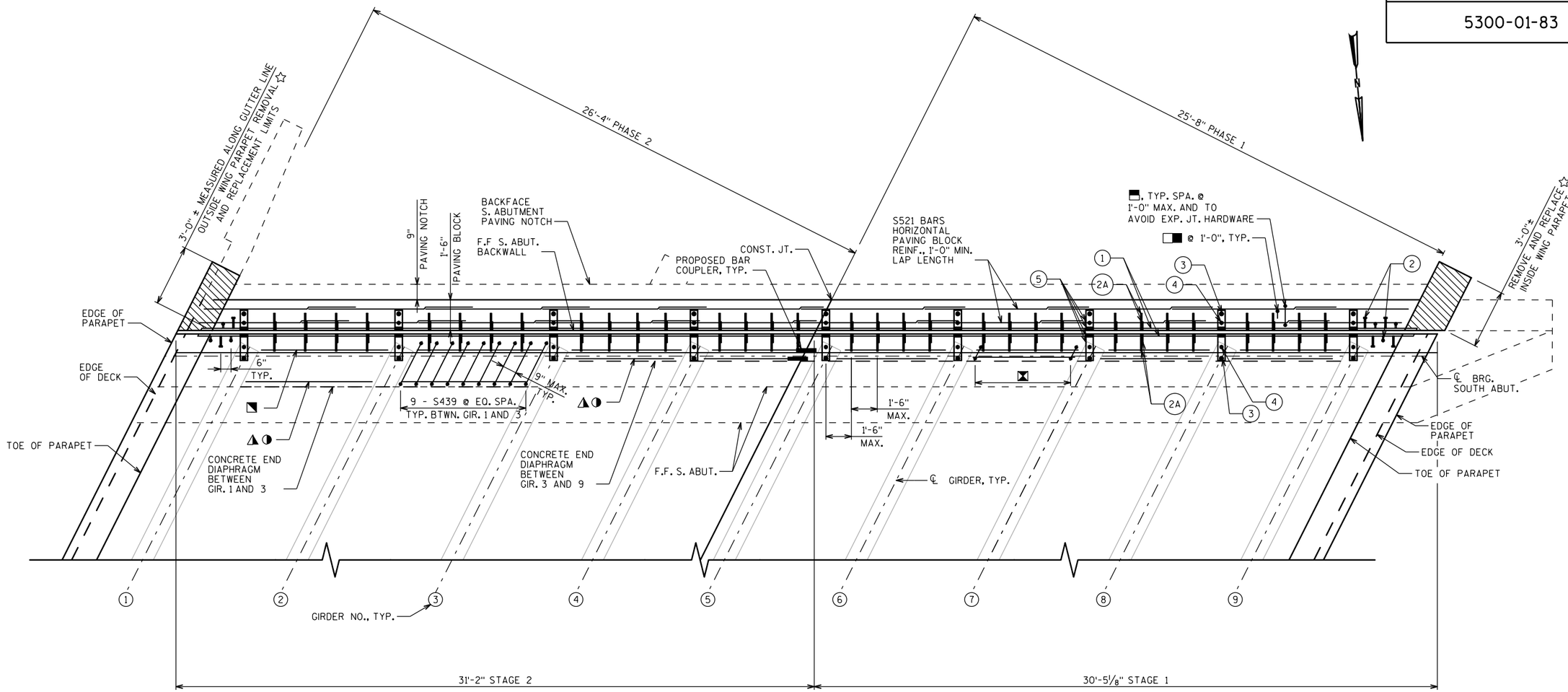
STATE PROJECT NUMBER
5300-01-83



PLAN B-13-14 ABUTMENT EXPANSION JOINT REPLACEMENT

SOUTH ABUTMENT SHOWN, NORTH ABUTMENT SIMILAR
(SEE "BILL OF BARS" SHEET FOR BILL OF BARS)

LEGEND

☆ PARAPET REINFORCEMENT NOT SHOWN ON THIS SHEET. REFER TO "SLOPED FACE PARAPET 'B'" SHEET FOR PARAPET REINFORCEMENT.

S444 STIRRUPS IN PAIRS BETWEEN GIRDERS AT EQUAL SPACES (9" MAX.), MEASURED PERPENDICULAR TO CENTERLINE GIRDERS
- 8 PAIRS BETWEEN GIRDERS 3 AND 4
- 7 PAIRS BETWEEN GIRDER 4 AND CONST. JT.
- 1 PAIR CENTERED BETWEEN CONST. JT. AND GIRDER 5
- 8 PAIRS EACH BETWEEN GIRDERS 5 AND 9

PAVING BLOCK STIRRUP SPACED @ 1'-0" MAX
- S422 N. AND S. ABUTS. BTWN. E. EDGE AND GIRDER 3
- S446 N. ABUT. BTWN. GIRDER 3 AND W. EDGE
- S447 S. ABUT. BTWN. GIRDER 3 AND W. EDGE

PAVING BLOCK DOWEL SPACED @ 1'-0" MAX
- S523 N. AND S. ABUTS. BTWN. E. EDGE AND GIRDER 3
- S548 N. ABUT. BTWN. GIRDER 3 AND W. EDGE
- S549 S. ABUT. BTWN. GIRDER 3 AND W. EDGE

2 - NO. 4 BARS BETWEEN GIRDERS
- S424 BETWEEN GIRDERS 1 AND 3
- S425 BETWEEN GIRDERS 3 AND 4
- S426 BETWEEN GIRDER 4 AND CONST. JT.
- S427 BETWEEN CONST. JT. AND GIRDER 5
- S428 BETWEEN GIRDERS 5 AND 9

NO. 6 BARS BETWEEN GIRDERS AT BOTTOM OF END DIAPHRAGMS
- 5 - S629 BETWEEN GIRDERS 1 AND 3
- 3 - S630 BETWEEN GIRDERS 3 AND 4
- 3 - S631 BETWEEN GIRDER 4 AND CONST. JT.
- 3 - S632 BETWEEN CONST. JT. AND GIRDER 5
- 3 - S633 BETWEEN GIRDERS 5 AND 9

2 - NO. 4 BARS BETWEEN GIRDERS AT TOP OF END DIAPHRAGMS
- S434 BETWEEN GIRDERS 1 AND 3
- S435 BETWEEN GIRDERS 3 AND 4
- S436 BETWEEN GIRDER 4 AND CONST. JT.
- S437 BETWEEN CONST. JT. AND GIRDER 5
- S438 BETWEEN GIRDERS 5 AND 9

NOTES

SEE "EXPANSION DEVICE" AND "COVER PLATE DETAILS" SHEETS FOR ADDITIONAL INFORMATION.

SEE "SUPERSTRUCTURE PLAN" SHEET FOR BAR COUPLER DETAIL.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

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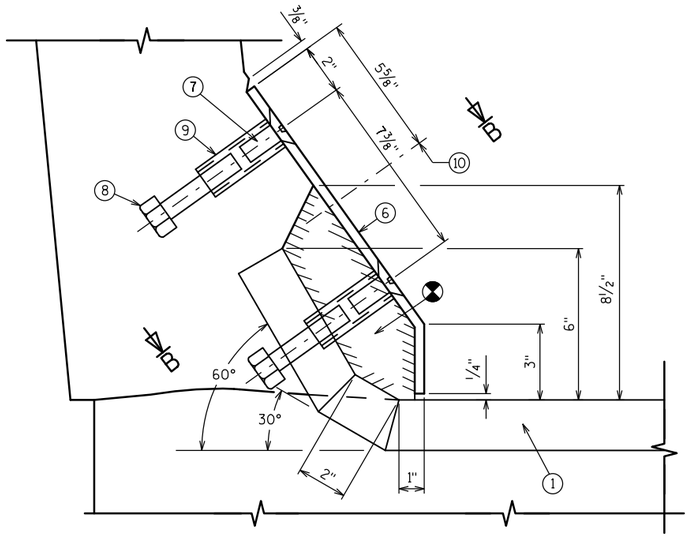
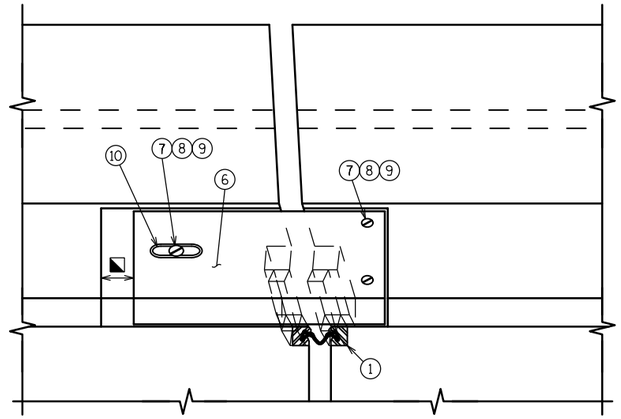
EXPANSION JOINT REINFORCEMENT

SHEET 11 OF 16

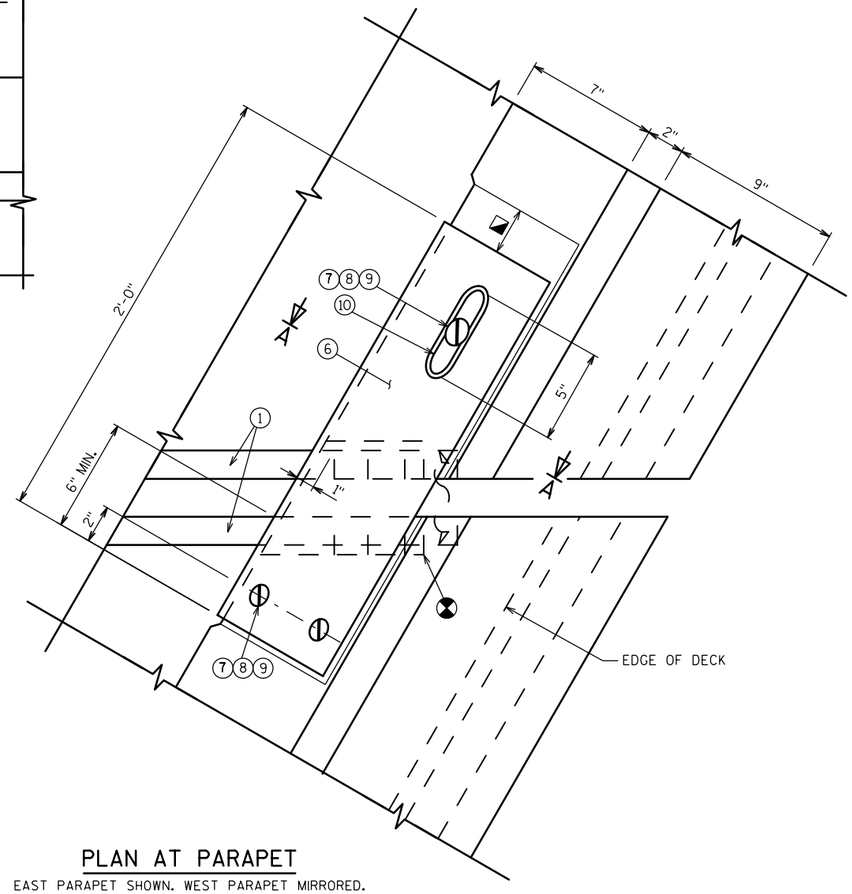
STATE PROJECT NUMBER
5300-01-83



SECTION A-A

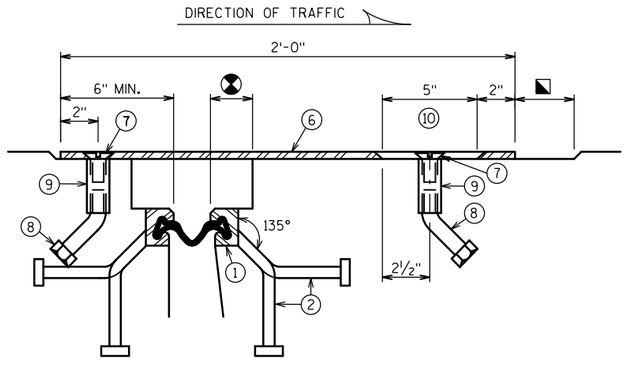


VIEW OF PARAPET PLATE FROM ROADWAY



PLAN AT PARAPET

EAST PARAPET SHOWN. WEST PARAPET MIRRORED.



SECTION B-B

LEGEND

- BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING
- JOINT OPENING DIM. ALONG SKEW PLUS 1/2"

NOTE

SEE "EXPANSION DEVICE" SHEET FOR ADDITIONAL INFORMATION.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
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STRUCTURE B-13-14

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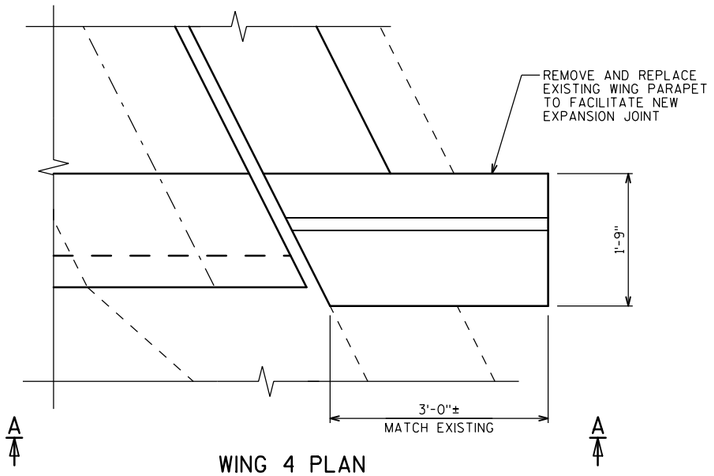
COVER PLATE DETAILS

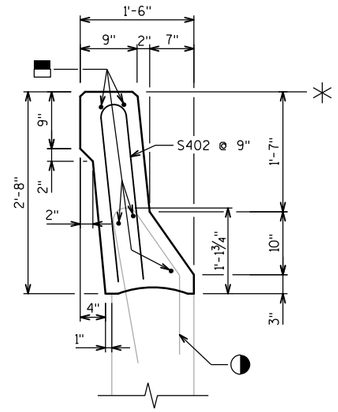
SHEET 12 OF 16

STATE PROJECT NUMBER
5300-01-83



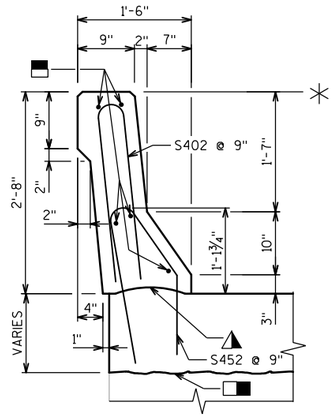
WING 4 PLAN

WING 1 SIMILAR



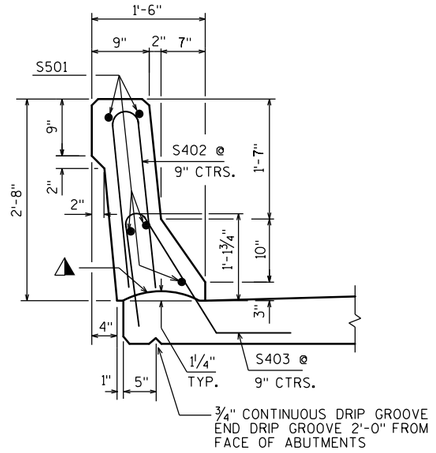
SECTION THRU REPLACEMENT PARAPET ON WINGWALL AT NEW EXPANSION DEVICE

(WINGS 2 AND 3)

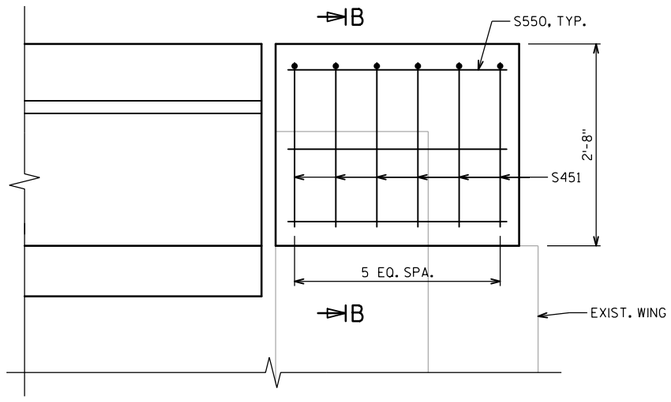


SECTION THRU REPLACEMENT PARAPET ON ABUTMENT AT NEW EXPANSION DEVICE

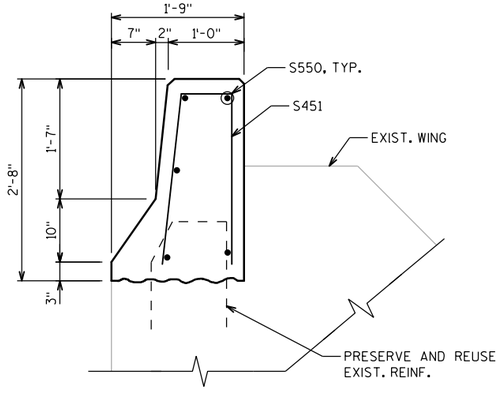
(WINGS 2 AND 3)



SECTION THRU PARAPET ON BRIDGE

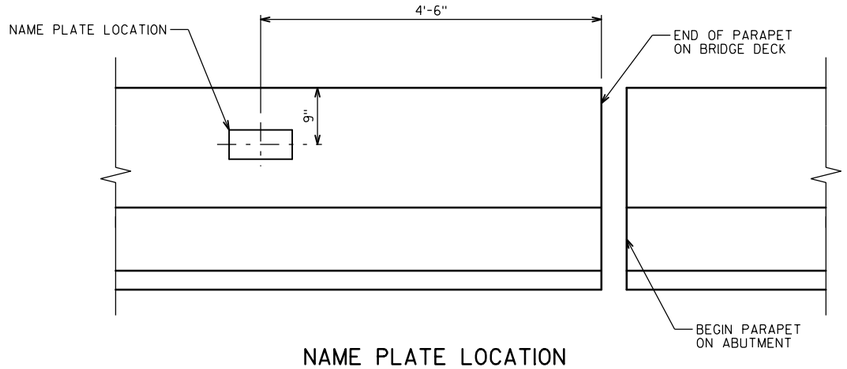


VIEW A-A



SECTION B

WINGS 1 AND 4



NAME PLATE LOCATION

INSIDE FACE OF EAST PARAPET AT SOUTH END

LEGEND

- CONST. JOINT, STRIKE OFF AS SHOWN
- CONST. JOINT LIMIT OF CONCRETE REMOVAL
- PRESERVE AND REUSE EXISTING LONGITUDINAL REINFORCEMENT
- MATCH TOP ELEVATION OF REPLACEMENT PARAPET TO TOP ELEVATION OF ADJACENT PARAPET
- PRESERVE AND REUSE EXISTING VERTICAL REINFORCEMENT AT SECTION OF PARAPET REMOVAL WHERE WINGWALL REMAINS.

NOTES

SEE "EXPANSION JOINT REINFORCEMENT" SHEET FOR ADDITIONAL INFORMATION.

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPET MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 2'-11". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 1" 'V' GROOVE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

DRAWN BY HDA | PLANS CK'D. MSS

SLOPED FACE PARAPET 'B'

SHEET 13 OF 16

8

8

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STATE PROJECT NUMBER

5300-01-83

BILL OF BARS

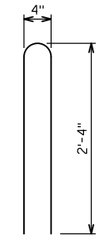
NOTE:
BAR DIMENSIONS ARE OUT TO OUT OF BAR.
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

	BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
	S501	X	50	56'-9"			PARAPET HORIZ.
	S402	X	738	4'-10"	X		PARAPET VERT.
	S403	X	728	4'-3"	X		PARAPET VERT.
	S404	X	154	41'-11"			DECK LONGIT. TOP SPANS 1 & 4
	S405	X	154	41'-8"			DECK LONGIT. TOP SPANS 2 & 3
	S606	X	154	37'-8"			DECK LONGIT. TOP PIERS 1 & 3
	S607	X	77	40'-2"			DECK LONGIT. TOP PIER 2
	S408	X	400	55'-10"			DECK LONGIT. BOTTOM & W. OVERHANG BOTTOM
◑	S509	X	828	26'-7"			DECK TRANS. TOP & BOTTOM PHASE 1
◑	S510	X	828	27'-3"			DECK TRANS. TOP & BOTTOM PHASE 2
◑ ◭	S511	X	20	14'-1"		X	DECK TRANS. TOP PHASE 1 NW CORNER
◭	S512	X	20	14'-0"		X	DECK TRANS. TOP PHASE 1 SW CORNER
◭	S513	X	20	14'-0"		X	DECK TRANS. TOP PHASE 2 NE CORNER
◑ ◭	S514	X	21	14'-1"		X	DECK TRANS. TOP PHASE 2 SE CORNER
◑ ◭	S515	X	21	14'-1"		X	DECK TRANS. BOTTOM PHASE 1 NW CORNER
◭	S516	X	20	13'-4"		X	DECK TRANS. BOTTOM PHASE 1 SW CORNER
◭	S517	X	21	14'-1"		X	DECK TRANS. BOTTOM PHASE 2 NE CORNER
◑ ◭	S518	X	20	14'-1"		X	DECK TRANS. BOTTOM PHASE 2 SE CORNER
	S419	X	868	4'-5"	X		DECK TRANS. TOP OVERHANGS
	S420	X	434	2'-9"	X		W. OVERHANG BOTTOM
	S521	X	60	7'-6"			PAVING BLOCK HORIZ.
	S422	X	46	4'-2"	X		PAVING BLOCK STIRRUP N. & S. ABUT. BTWN. E. EDGE & G3
☆	S523	X	46	3'-1"	X		PAVING BLOCK DOWEL N. & S. ABUT. BTWN. E. EDGE & G3
	S424	X	8	6'-6"			EXP. JOINT HORIZ. BETWEEN GIRDERS 1 & 3
	S425	X	4	5'-10"			EXP. JOINT HORIZ. BETWEEN GIRDERS 3 & 4
◑	S426	X	4	4'-9"			EXP. JOINT HORIZ. BETWEEN GIRDER 4 & CONST. JT.
◑	S427	X	4	0'-8"			EXP. JOINT HORIZ. BETWEEN CONST. JT. & GIRDER 5
	S428	X	16	5'-5"			EXP. JOINT HORIZ. BETWEEN GIRDERS 5 & 9
	S629	X	20	6'-5"			END DIAPHR. HORIZ. BETWEEN GIRDERS 1 & 3
	S630	X	6	6'-6"			END DIAPHR. HORIZ. BETWEEN GIRDERS 3 & 4
◑	S631	X	6	5'-1"			END DIAPHR. HORIZ. BETWEEN GIRDER 4 & CONST. JT.
◑	S632	X	6	1'-0"			END DIAPHR. HORIZ. BETWEEN CONST. JT. & GIRDER 5
	S633	X	24	6'-0"			END DIAPHR. HORIZ. BETWEEN GIRDERS 5 & 9
	S434	X	8	6'-5"			END DIAPHR. HORIZ. BETWEEN GIRDERS 1 & 3
	S435	X	4	5'-8"			END DIAPHR. HORIZ. BETWEEN GIRDERS 3 & 4
◑	S436	X	4	4'-8"			END DIAPHR. HORIZ. BETWEEN GIRDER 4 & CONST. JT.
◑	S437	X	4	0'-7"			END DIAPHR. HORIZ. BETWEEN CONST. JT. & GIRDER 5
	S438	X	16	5'-4"			END DIAPHR. HORIZ. BETWEEN GIRDERS 5 & 9
	S439	X	36	4'-0"	X		END DIAPHR. STIRRUP BETWEEN GIRDERS 1 & 3
	S440	X	84	40'-4"			HAUNCH LONGIT.
	S441	X	540	3'-5"	X		HAUNCH VERT.
	S442	X	558	3'-1"	X		HAUNCH VERT.
	S443	X	540	2'-9"	X		HAUNCH VERT.
	S444	X	192	4'-6"	X		END DIAPHR. STIRRUP BETWEEN GIRDERS 3 & 9
	S545	X	8	5'-0"			AT FLOOR DRAINS
	S446	X	40	5'-6"	X		PAVING BLOCK STIRRUP N. ABUT. BETWEEN G3 & W. EDGE
	S447	X	40	5'-0"	X		PAVING BLOCK STIRRUP S. ABUT. BETWEEN G3 & W. EDGE
☆	S548	X	40	3'-9"	X		PAVING BLOCK DOWEL N. ABUT. BETWEEN G3 & W. EDGE
☆	S549	X	40	3'-6"	X		PAVING BLOCK DOWEL S. ABUT. BETWEEN G3 & W. EDGE
	S550	X	10	2'-5"			WING 1 & 4 PARAPET HORIZ.
	S451	X	12	5'-0"	X		WING 1 & 4 PARAPET VERT.
	S452	X	6	4'-5"	X		WING 2 & 3 PARAPET VERT.

◭ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

◑ BAR LENGTH COMPUTED TO ℄ LONGIT. JOINT AND SHALL BE MODIFIED IF REQ'D. TO BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED.

☆ ADHESIVE ANCHORS NO. 5 BAR, EMBED 1'-6" INTO CONCRETE



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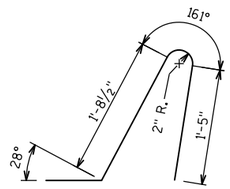

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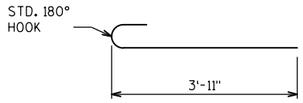

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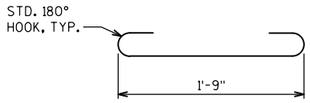

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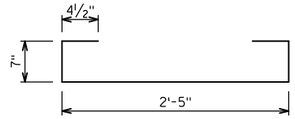

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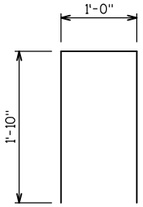

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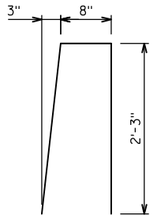

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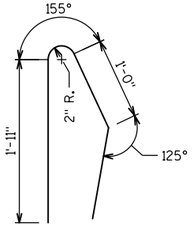

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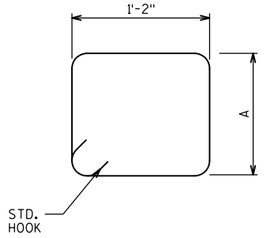
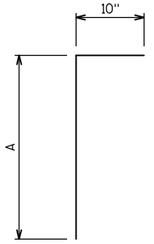


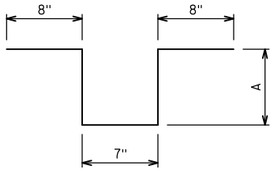
MARK	A
S422	8"
S446	1'-4"
S447	1'-1"

S422, S446, S447



MARK	A
S523	2'-4"
S548	3'-0"
S549	2'-9"

S523, S548, S549



MARK	A
S441	7"
S442	9"
S443	11"

S441, S442, S443

BAR SERIES TABLE

MARK	NO. REQ'D.	LENGTH
S511	1 SERIES OF 20	2'-4" TO 25'-10"
S512	1 SERIES OF 20	2'-2" TO 25'-10"
S513	1 SERIES OF 20	2'-2" TO 25'-10"
S514	1 SERIES OF 21	1'-8" TO 26'-6"
S515	1 SERIES OF 21	1'-8" TO 26'-6"
S516	1 SERIES OF 20	1'-6" TO 25'-2"
S517	1 SERIES OF 21	1'-8" TO 26'-6"
S518	1 SERIES OF 20	2'-4" TO 25'-10"

BUNDLE AND TAG EACH SERIES SEPARATELY.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

DRAWN BY HDA | PLANS CK'D. MSS

BILL OF BARS

SHEET 14 OF 16

8

8

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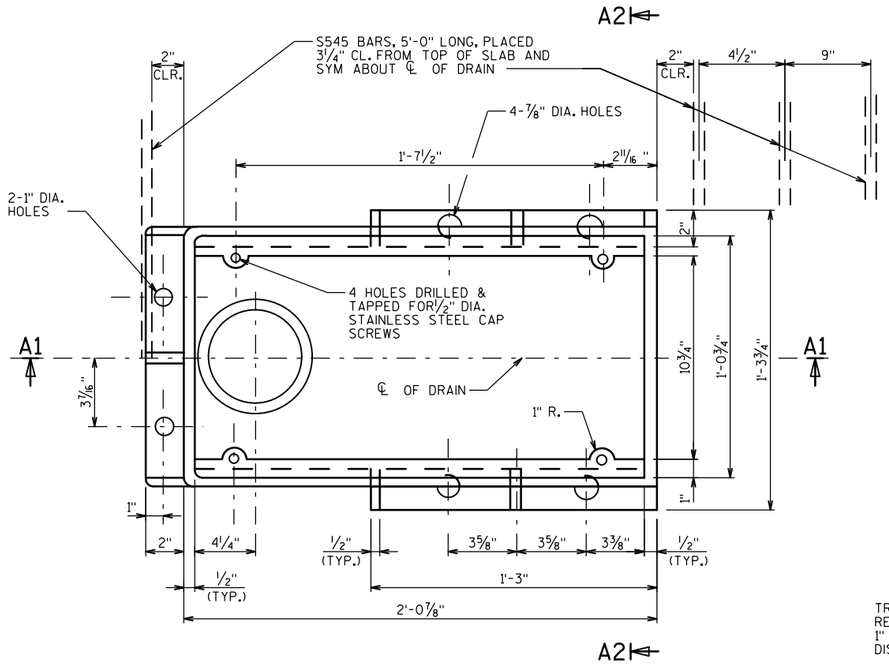
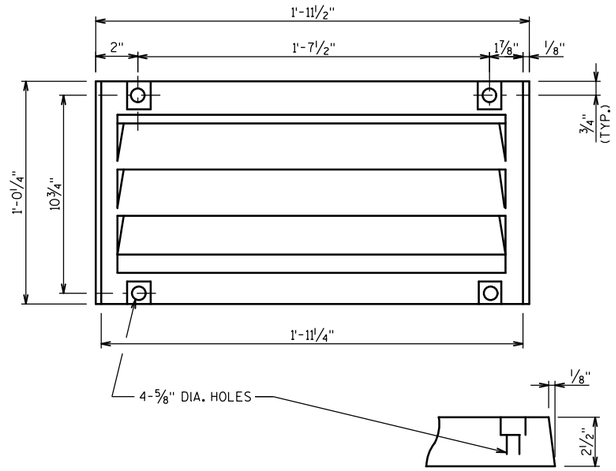
PLOT DATE : 1/31/2017 7:41:56 AM
PLOT BY : msschroeder
PLOT NAME : $FILE$
PLOT SCALE : 2:1

STATE PROJECT NUMBER
5300-01-83

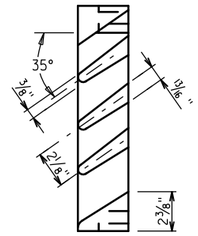


PLAN



GRATE CASTING DETAIL

ATTACH GRATE TO FRAME FOR SHIPMENT



NOTES

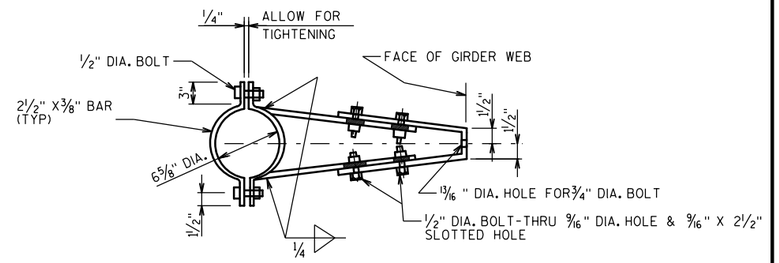
ALL MATERIAL FOR TYPE "GC" CASTING, EXCLUDING GRATE HOLD DOWN SCREWS, SHALL BE GRAY IRON CONFORMING TO ASTM A48, CLASS 30 (APPROXIMATE WEIGHT = 225 LB)

MATERIAL FOR BRACKETS SHALL CONFORM TO ASTM A36.

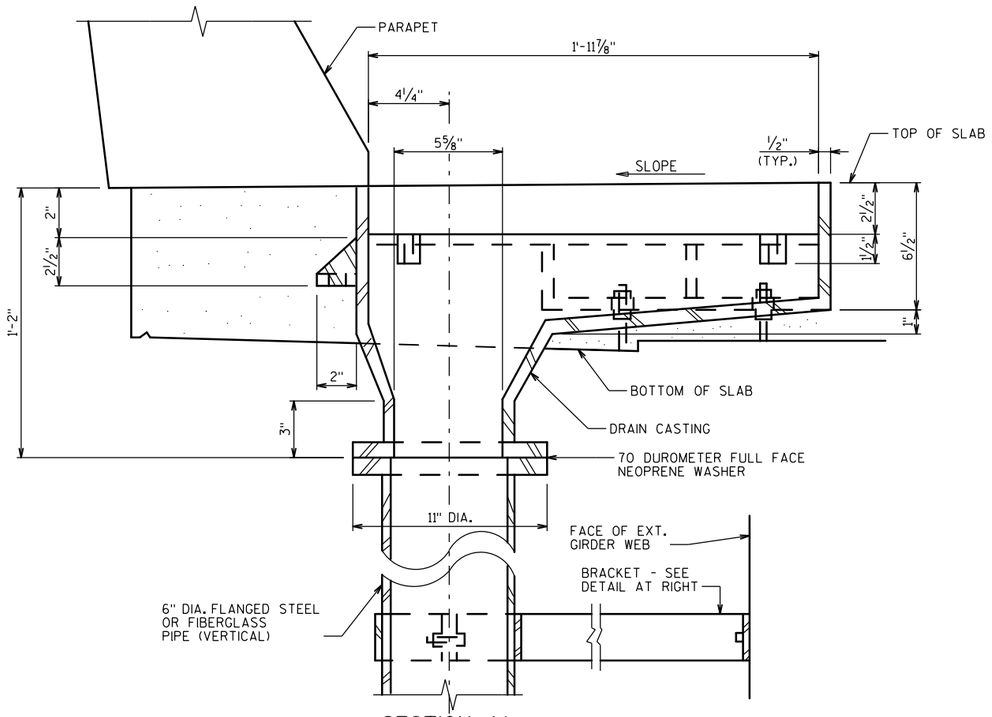
THE CONTRACTOR MAY PROPOSE AN ALTERNATE TYPE OF BRACKET. THE PROPOSED ALTERNATE DETAILS SHALL BE SUBMITTED AND SUBJECT TO THE APPROVAL OF THE ENGINEER.

FLANGED 6" DIA. DOWNSPOUTS SHALL BE EITHER STEEL OR REINFORCED THERMOSETTING RESIN PIPE CONFORMING TO SECTION 514 OF THE STANDARD SPECIFICATIONS.

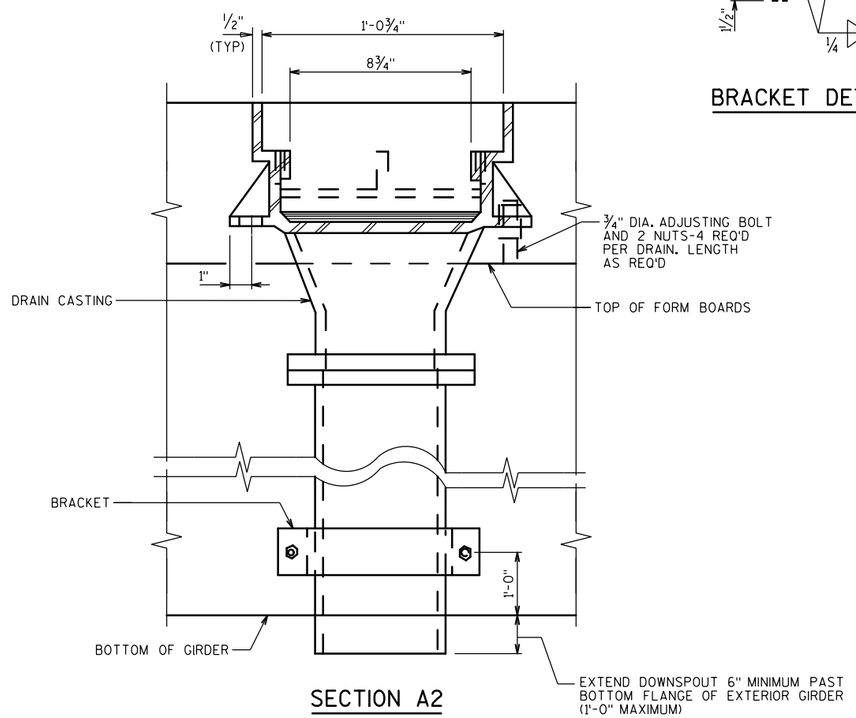
TRANS. AND LONGIT. SLAB BAR REINF. TO BE CUT A MAX. OF 1" CL. FROM DRAIN FRAME. DISPLACE BARS WHERE POSSIBLE.



BRACKET DETAIL



SECTION A1



SECTION A2

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

DRAWN BY	HDA	PLANS CK'D.	MSS

FLOOR DRAIN TYPE 'GC'

SHEET 15 OF 16

8

8

FILE NAME : \\madw00\ingrproj\62247\b1\B-13-14\cds\B14_080601_drn.dgn
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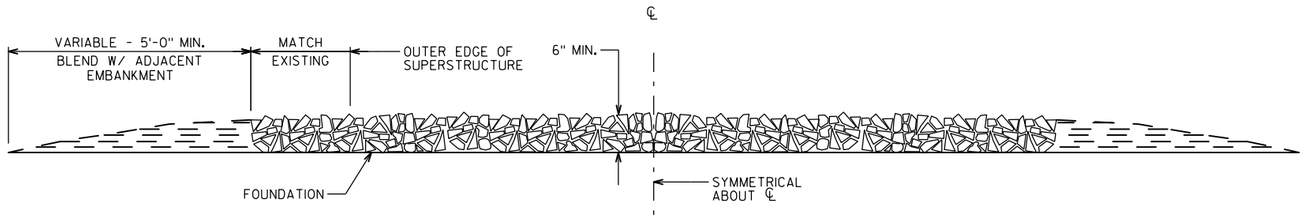
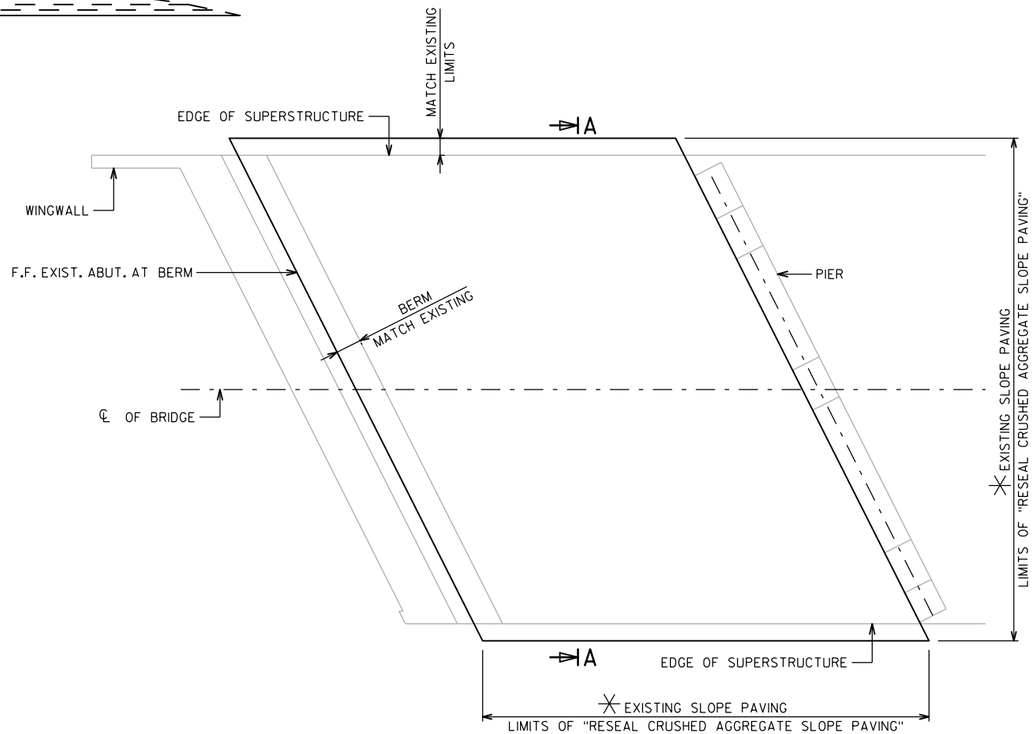
STATE PROJECT NUMBER
5300-01-83

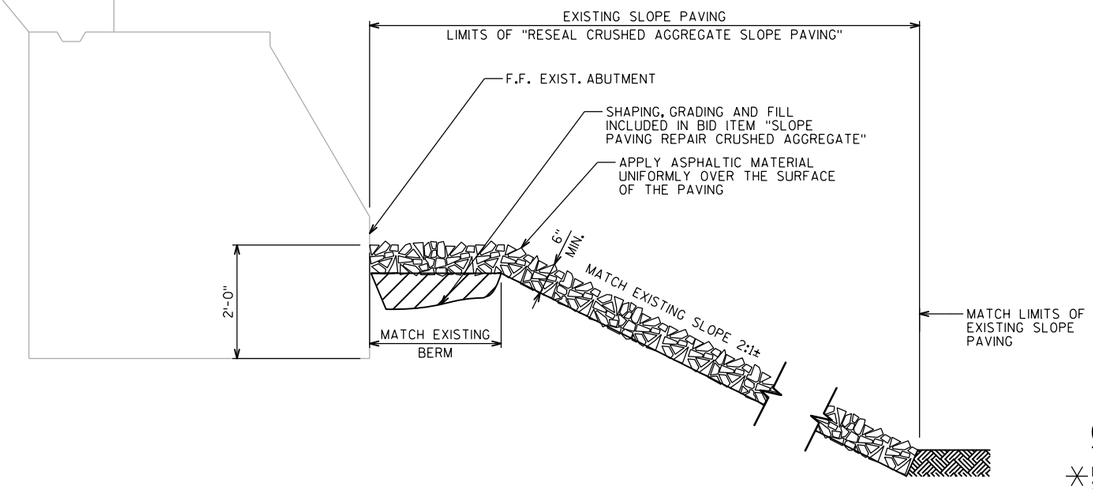


SECTION A-A



PLAN - SLOPE PAVING CRUSHED AGGREGATE

NORTH ABUTMENT SHOWN, SOUTH ABUTMENT SIMILAR



STANDARD CROSS SECTION

ROUND STONE WILL NOT BE ACCEPTED

GENERAL NOTES

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

WOOD FORMS MAY BE LEFT IN PLACE WHEN OF A QUALITY ACCEPTABLE TO THE ENGINEER.

ENTIRE LIMITS OF EXISTING SLOPE PAVING CRUSHED AGGREGATE SHOWN. ONLY EXISTING DETERIORATED AREAS TO BE REPAIRED. REPAIR LIMITS SHALL BE DETERMINED IN THE FIELD BY THE PROJECT ENGINEER.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-14

DRAWN BY	HDA	PLANS CK'D.	MSS

SLOPE PAVING CRUSHED AGGREGATE

SHEET 16 OF 16

8

8

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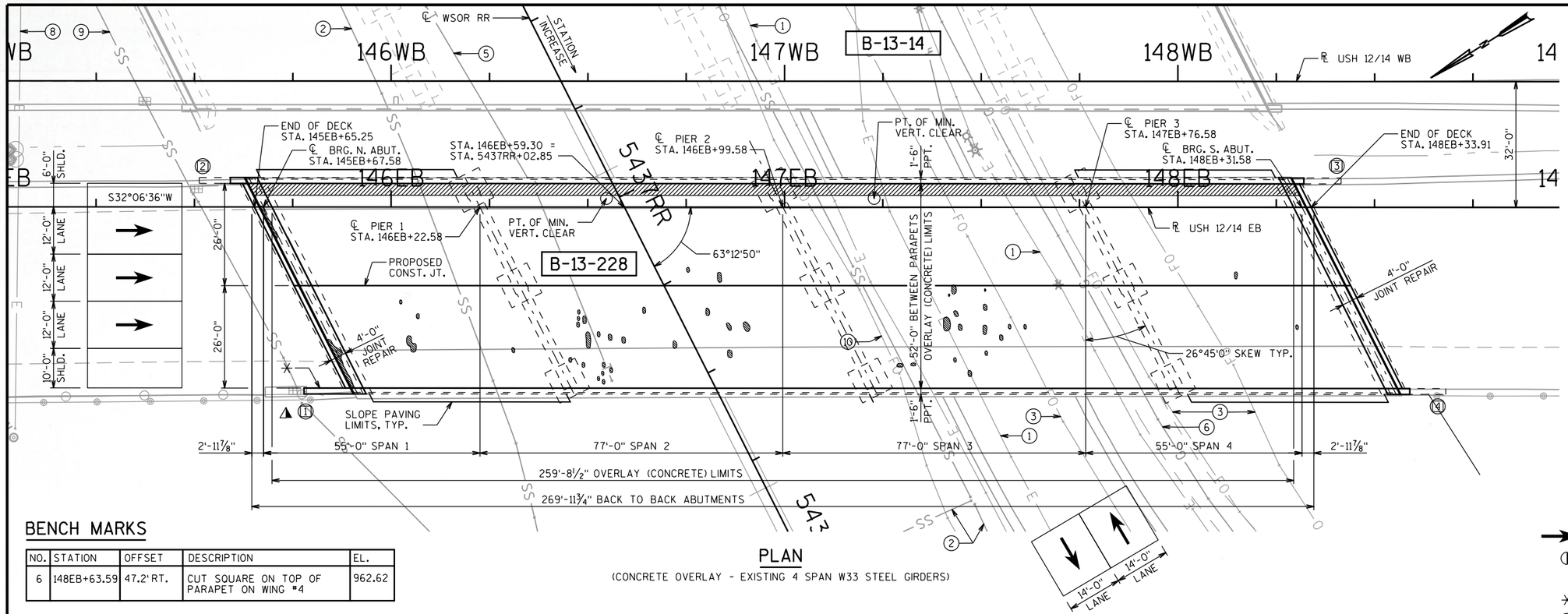
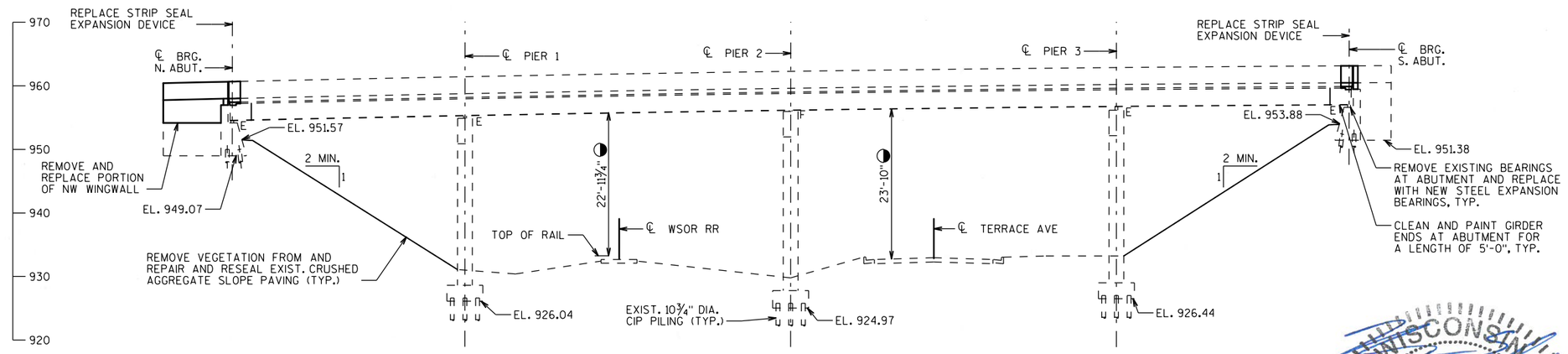


PLAN

(CONCRETE OVERLAY - EXISTING 4 SPAN W33 STEEL GIRDERS)

BENCH MARKS

NO.	STATION	OFFSET	DESCRIPTION	EL.
6	148EB+63.59	47.2' RT.	CUT SQUARE ON TOP OF PARAPET ON WING #4	962.62



ELEVATION

LOOKING EAST

TRAFFIC DATA

USH 12/14

A.D.T. = 54,000 (2015)
R.D.S. = 60 M.P.H.

TERRACE AVE.

A.D.T. = 1,500 (2009)
R.D.S. = 30 M.P.H.

DESIGN DATA

LIVE LOAD

DESIGN LOADING: HS20
INVENTORY RATING: HS21
OPERATING RATING: HS35
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

MATERIAL PROPERTIES

CONCRETE MASONRY:
SUPERSTRUCTURE ..... f'c = 4,000 psi
ALL OTHER ..... f'c = 3,500 psi
BAR STEEL REINFORCEMENT ..... fy = 60,000 psi

DECK INSPECTION RESULTS

(INFRARED INSPECTION DATE: 9/12/16)
FOR INFORMATION ONLY

FIELD OBSERVATIONS SUMMARY		S.N. B-13-228		LEGEND
ITEM	UNIT	QUANT.	%	DELAMINATION
TOTAL AREA	ft²	14040		SPALL
SHADE/DEBRIS	ft²	800		DEBOND
DELAMINATION	ft²	78	0.6	ASPHALT PATCH
SPALL	ft²	1	<0.1	CONCRETE PATCH
DEBOND	ft²	N/A	N/A	SHADE/DEBRIS
ASPHALT PATCH	ft²	0	0	
CONCRETE PATCH	ft²	0	0	

WISCONSIN
MATTHEW S SCHROEDER
E-42428
JOHNSON CREEK
WI
2-1-17
PROFESSIONAL ENGINEER

STATE PROJECT NUMBER
5300-01-83

LIST OF DRAWINGS

UTILITY NOTES

UTILITIES TO REMAIN U.N.O.

(1) EXISTING UNDERGROUND ELECTRIC
(2) EXISTING STORM SEWER
(3) EXISTING FIBER OPTIC LINE
(5) EXISTING TELEPHONE LINE
(6) EXISTING GAS LINE
(8) DISCONTINUED WISDOT ATR CONDUIT
(9) STORM SEWER TO BE REPLACED
(10) DISCONTINUED FIBER OPTIC LINE

LEGEND

- TRAFFIC DIRECTION
- LOCATION PER EXISTING PLANS AND MIN. CLEARANCE TAKEN FROM HSI SYSTEM 7/5/2016.
- REPLACE NAME PLATE (INSIDE FACE)
- (X) WING NUMBER
- LOCATION OF "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD"

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
WILLIAM DREHER (608) 266-8489
CONSULTANT:
MATT SCHROEDER (608) 294-5000

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY

HNTB
11414 W. PARK PLACE
MILWAUKEE, WI 53224
(414) 359-2300

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 02/14/17
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-13-228

USH 12/14 EB OVER TERRACE AVE.

COUNTY	CITY
DANE	MIDDLETON

DESIGN SPEC. REHABILITATION N/A

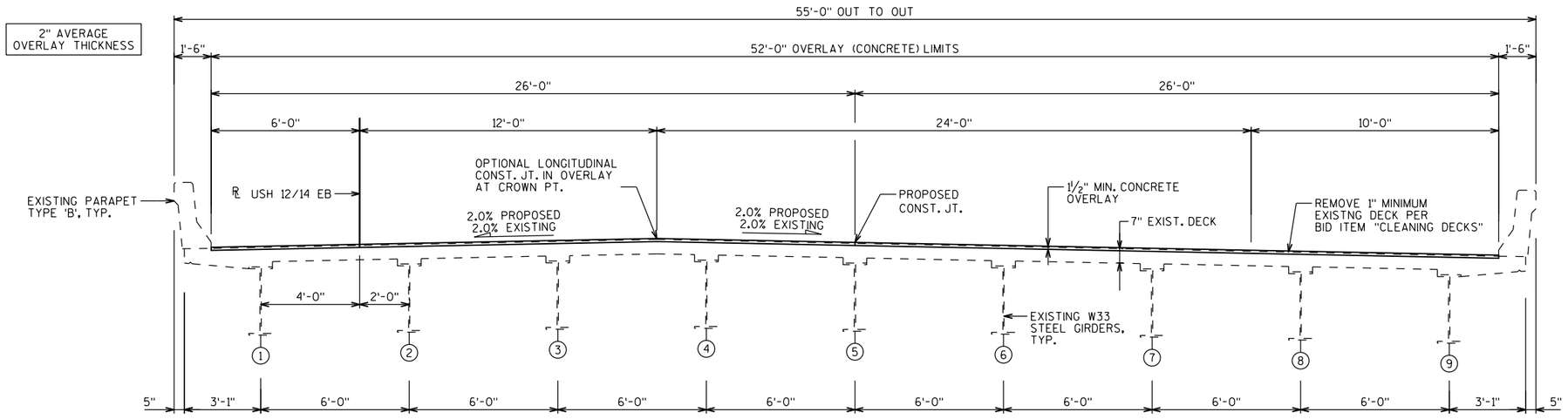
DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
EAJ	MSS	EAJ/HDA	MSS

GENERAL PLAN & ELEVATION

SHEET 1 OF 12

146

STATE PROJECT NUMBER
5300-01-83



TYPICAL SECTION

(LOOKING SOUTH)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED. ALL STATIONS AND ELEVATIONS ARE IN FEET.

BID ITEM "REMOVING OLD STRUCTURE STA. 147EB+00" INCLUDES PARTIAL REMOVAL OF THE NW WINGWALL AND CLIPPING THE CORNERS OF DESIGNATED STEEL GIRDER FLANGES AT THE ABUTMENTS.

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1-INCH DEEP SAW CUT.

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR JOINT REPAIRS AT THE ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

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

NEW CONCRETE AT PARAPETS AND WINGWALL REPLACEMENT PAID FOR AS "CONCRETE MASONRY BRIDGES".

NEW CONCRETE AT JOINT REPAIR PAID FOR AS "CONCRETE MASONRY OVERLAY DECKS".

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

LOCATIONS OF THE FOLLOWING BID ITEMS SHALL BE DETERMINED IN THE FIELD BY THE PROJECT ENGINEER. QUANTITIES SHOWN FOR THESE ITEMS ARE APPROXIMATE.

- SLOPE PAVING REPAIR CRUSHED AGGREGATE

LOCATIONS FOR BID ITEM "REMOVING LOOSE CONCRETE" EXPECTED AT THE FOLLOWING LOCATIONS:

- PIER 3, COLUMN 3
- NORTH ABUTMENT CONSTRUCTION JOINT
- NORTHEAST WINGWALL

REMOVALS AT OTHER AREAS AS DETERMINED IN THE FIELD BY THE PROJECT ENGINEER. QUANTITY SHOWN FOR THIS ITEM IS APPROXIMATE.

APPLY PROTECTIVE SURFACE TREATMENT TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY AND JOINT REPAIR AREAS

APPLY "PIGMENTED SURFACE SEALER" TO THE TOP AND INSIDE FACES OF NEW SECTIONS OF PARAPETS AND EXISTING PARAPETS, INCLUDING WINGWALL PARAPETS. PERFORM "CLEANING PARAPETS" PRIOR TO APPLYING "PIGMENTED SURFACE SEALER" ON EXISITNG PARAPETS.

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

ALL REINFORCING BARS ARE ENGLISH. THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE. BAR DIMENSIONS ARE OUT TO OUT OF BAR.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

UNDER THE BID ITEMS "ADHESIVE ANCHORS NO. 4 BAR" AND "ADHESIVE ANCHORS NO. 5 BAR", ANCHORED REINFORCING STEEL SHALL BE PAID FOR SEPARATELY AS PROVIDED IN SECTION 505 OF THE STANDARD SPECIFICATIONS FOR BAR STEEL REINFORCEMENT.

BEVEL EDGES OF EXPOSED CONCRETE ¾" MIN OR TO MATCH EXISTING BEVELS UNLESS NOTED OTHERWISE.

EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE, SHALL BE PAID FOR IN THE LUMP SUM PRICE BID AS "EXPANSION DEVICE B-13-228".

REMOVE DESIGNATED MOVEABLE BEARING ASSEMBLIES AT THE ABUTMENTS UNDER BID ITEM "REMOVING BEARINGS B-13-228" AND REPLACE WITH STEEL EXPANSION BEARINGS.

CLEAN AND PAINT GIRDER ENDS AT EACH ABUTMENT FOR A LENGTH OF 5'-0" AT EACH GIRDER. COLOR TO MATCH EXISTING GIRDERS AND SHALL BE APPROVED BY THE ENGINEER.

REMOVE ALL VEGETATION FROM EXISTING CRUSHED AGGREGATE SLOPE PAVING PRIOR TO REPAIRING AND RESEALING THE SLOPE PAVING. THIS WORK INCLUDED IN BID ITEM "VEGETATION REMOVAL B-13-228".

ALL CRUSHED AGGREGATE SLOPE PAVING ASSOCIATED WITH THIS STRUCTURE TO BE RESEALED. LIMITS SHOWN ON "SLOPE PAVING CRUSHED AGGREGATE" SHEET.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICAITONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR OF 1988 AND SHALL BE CONSIDERED INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES".

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEM	UNIT	TOTAL
203.0200.02	REMOVING OLD STRUCTURE STA. 147EB+00	LS	1
203.0210.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL STRUCTURE B-13-228	LS	1
203.0225.S.02	DEBRIS CONTAINMENT B-13-228	LS	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-13-228	LS	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	20
502.0100	CONCRETE MASONRY BRIDGES	CY	6
502.3100.02	EXPANSION DEVICE B-13-228	LS	1
502.3200	PROTECTIVE SURFACE TREATMENT	SY	1550
502.3210	PIGMENTED SURFACE SEALER	SY	233
502.4204	ADHESIVE ANCHORS NO. 4 BAR	EACH	4
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	152
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	4350
505.0905	BAR COUPLERS NO. 5	EACH	20
506.6000.02	BEARING ASSEMBLIES EXPANSION B-13-228	EACH	18
506.7050.S.02	REMOVING BEARINGS B-13-228	EACH	18
509.0301	PREPARATION DECKS TYPE 1	SY	15
509.0302	PREPARATION DECKS TYPE 2	SY	6
509.0500	CLEANING DECKS	SY	1500
509.1000	JOINT REPAIR	SY	55
509.2000	FULL-DEPTH DECK REPAIR	SY	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	101
509.9050.S	CLEANING PARAPETS	LF	546
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	2
517.1800.S.02	STRUCTURE REPAINTING RECYCLED ABRASIVE B-13-228	LS	1
517.4000.S.02	CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-13-228	LS	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1
604.9010.S	SLOPE PAVING REPAIR CRUSHED AGGREGATE	CY	33
604.9015.S	RESEAL CRUSHED AGGREGATE SLOPE PAVING	SY	750
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	1
SPV.0105.02	VEGETATION REMOVAL B-13-228	LS	1
SPV.0165.01	REMOVING LOOSE CONCRETE	SF	10
	NON-BID ITEMS		
	NAME PLATE	EACH	1

ALL ITEMS ARE CATEGORY 0020

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-228

DRAWN BY HDA | PLANS CK'D. MSS

TYPICAL SECTION, GENERAL NOTES & QUANTITIES

SHEET 2 OF 12

8

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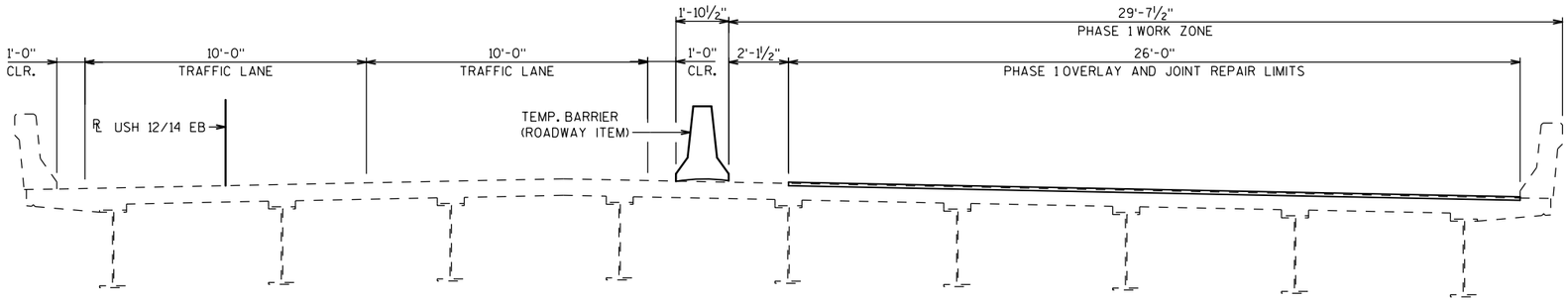
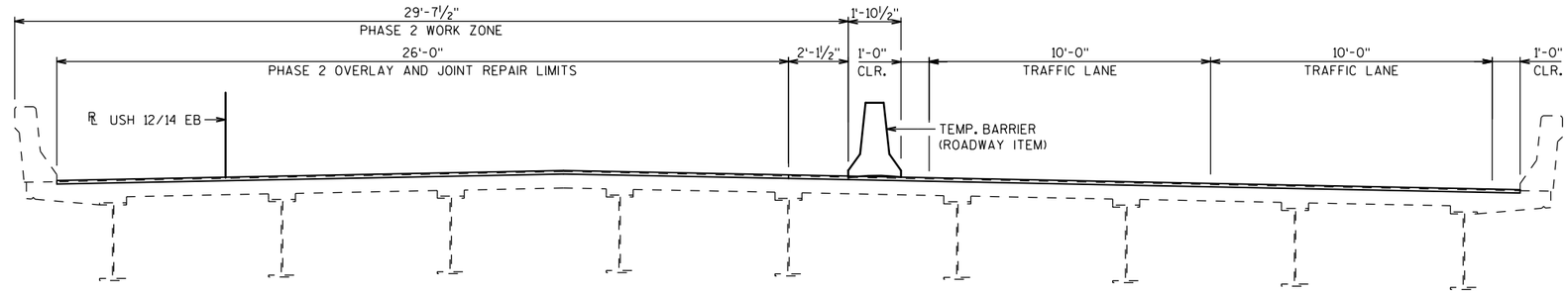


PHASE 1

(LOOKING SOUTH)



PHASE 2

(LOOKING SOUTH)

NOTES

PHASE NUMBERS FOR STRUCTURE WORK MAY NOT MATCH ROADWAY STAGING PLAN NUMBERING.

SEE ROADWAY PLANS FOR COMPLETE PROJECT STAGING DETAILS.

COMPLETE ALL ON-DECK STRUCTURE WORK IN PHASE 1 AND PHASE 2 EXCEPT FOR PROTECTIVE SURFACE TREATMENT, WHICH IS TO BE APPLIED DURING SHORT-TERM LANE CLOSURES. TIMING OF PROTECTIVE SURFACE TREATMENT APPLICATION AS PER THE STANDARD SPECIFICATIONS.

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-228

DRAWN BY HDA | PLANS CK'D. MSS

CONSTRUCTION STAGING

SHEET 3 OF 12

FILE NAME : J:\62247\b1\B-13-228\cds\B228_080103_cs.dgn PLOT DATE : 1/31/2017 8:05:18 AM PLOT BY : msschroeder PLOT NAME : $FILE$ PLOT SCALE : 5.33333:1

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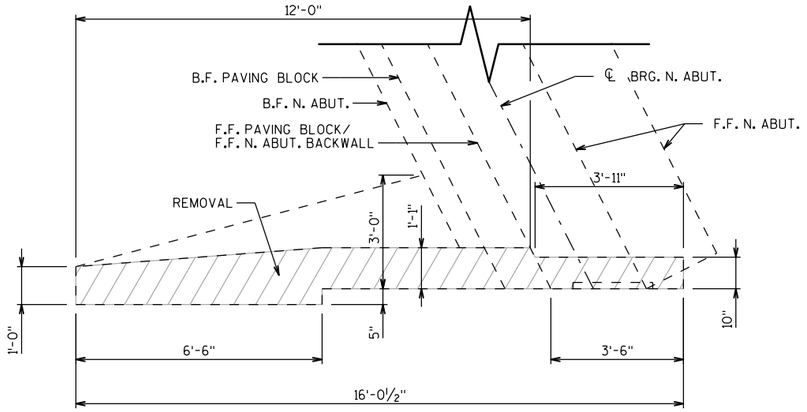
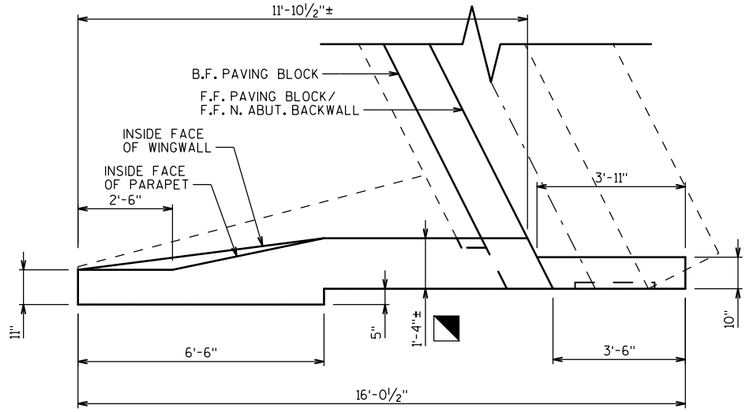
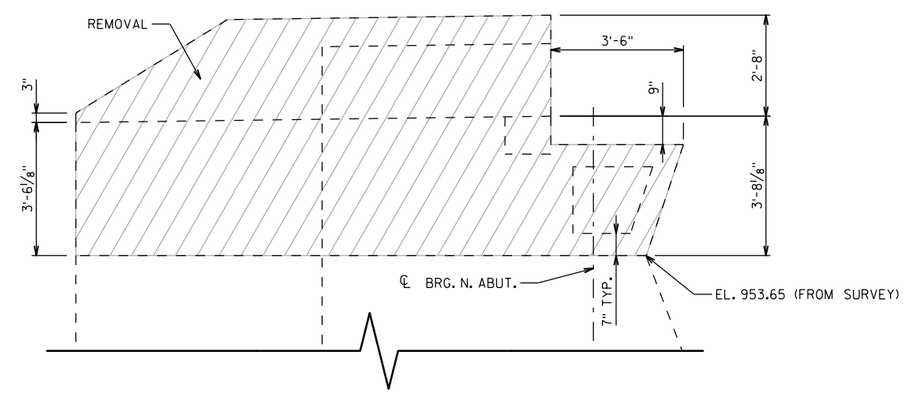


PLAN VIEW EXISTING WINGWALL 1



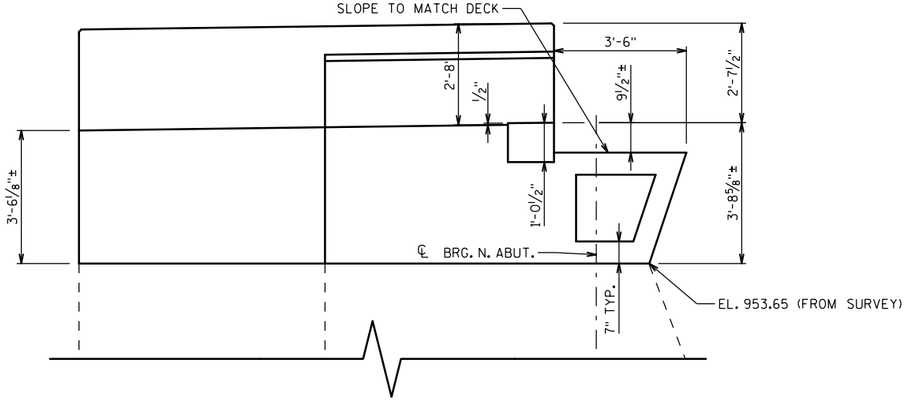
PLAN VIEW NEW WINGWALL 1

(BRIDGE DECK AND PARAPET ON BRIDGE NOT SHOWN FOR CLARITY)



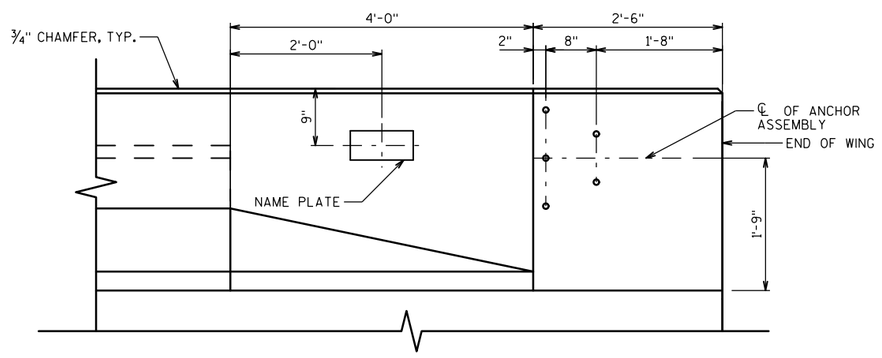
OUTSIDE ELEVATION VIEW EXISTING PARAPERT & WINGWALL 1

(LOOKING EAST)



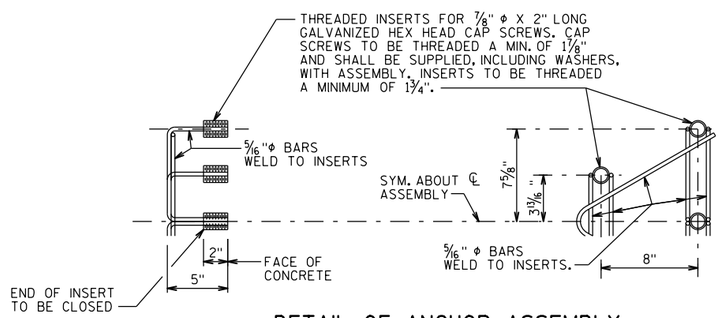
OUTSIDE ELEVATION VIEW NEW PARAPET & WINGWALL 1

(LOOKING EAST)



INSIDE ELEVATION

(LOOKING NORTHWEST)



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY BID ITEM SHALL BE "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

LEGEND

BRIDGE HAS MOVED TRANSVERSELY APPROXIMATELY 3". PARAPET ON BRIDGE NOT ALIGNED WITH PARAPET ON WING 1. MATCH INSIDE FACES OF THE ADJACENT PARAPET SECTIONS AT THIS LOCATION.

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-228

DRAWN BY EAJ | PLANS CK'D. MSS

WINGWALL 1 REPLACEMENT DETAILS

SHEET 4 OF 12

FILE NAME : J:\62247\b1\B-13-228\cds\B228_080301_wng.dgn
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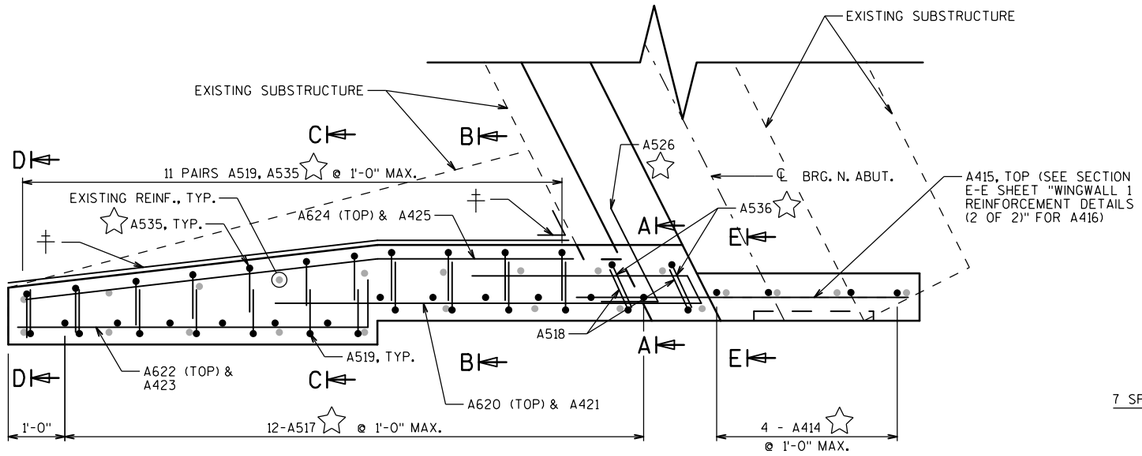
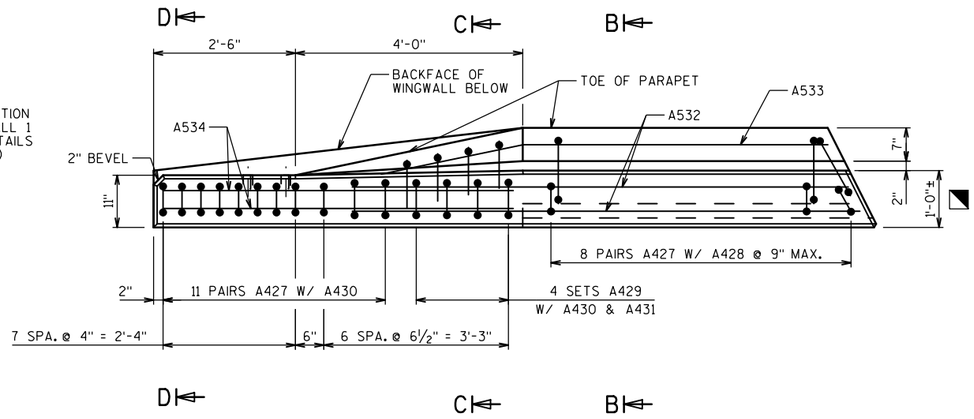
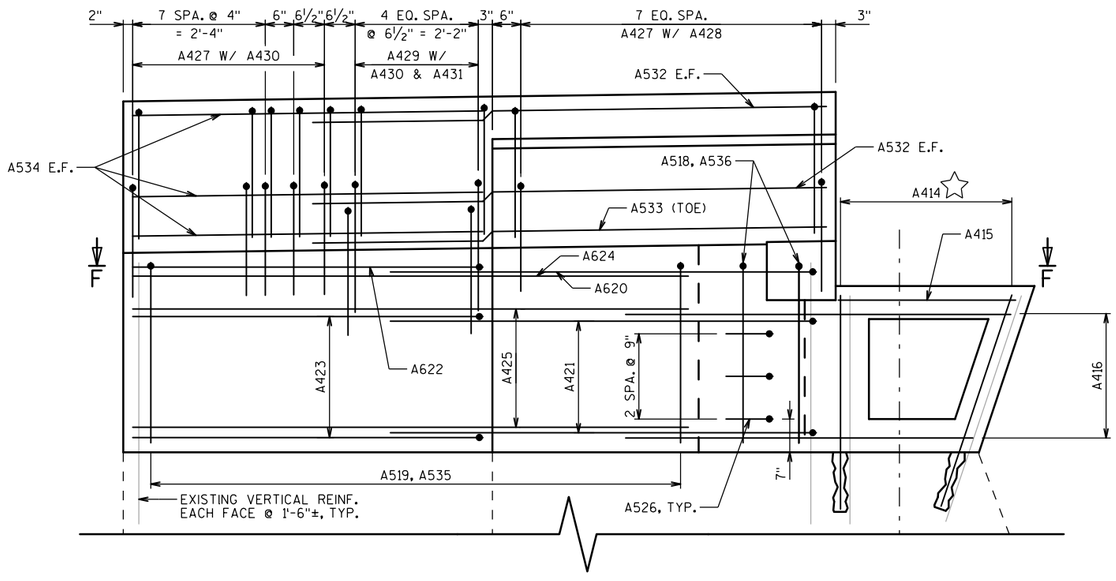


SECTION F-F



PLAN VIEW TOP OF PARAPET ON WINGWALL



ELEVATION VIEW NEW WINGWALL 1

A517 BARS NOT SHOWN FOR CLARITY
(LOOKING EAST)

NOTES

PRESERVE AND REUSE EXISTING VERTICAL REINFORCEMENT IN WINGWALL. NOT SHOWN IN ALL DETAILS THIS SHEET FOR CLARITY.

REFER TO SHEETS "WINGWALL 1 REPLACEMENT DETAILS", "WINGWALL 1 REINFORCEMENT DETAILS (2 OF 2)" AND "BILL OF BARS" FOR ADDITIONAL DETAILS AND REINFORCEMENT.

IF NEEDED TURN 10" LEG OF A517, A519, A535 OR A536 BARS AS NECESSARY TO FIT AND AVOID OTHER REINFORCEMENT.

LEGEND

☆ ADHESIVE ANCHORS NO. 4 OR NO. 5 BARS. EMBED NO. 4 ANCHORS 10" INTO CONCRETE. EMBED NO. 5 ANCHORS 1'-0½" INTO CONCRETE. SPACE AS SHOWN. ANCHORS SHALL BE APPROVED FOR USE IN CRACKED CONCRETE.

℄ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BACK FACE OF NORTH ABUTMENT TO NORTH END OF WINGWALL, AND ALONG VERTICAL FACE BETWEEN BACK FACE OF WINGWALL AND BACK FACE OF BACKWALL.

◥ BRIDGE HAS MOVED TRANSVERSELY APPROXIMATELY 3". PARAPET ON BRIDGE NOT ALIGNED WITH PARAPET ON WING 1. MATCH INSIDE FACES OF THE ADJACENT PARAPET SECTIONS AT THIS LOCATION.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-228

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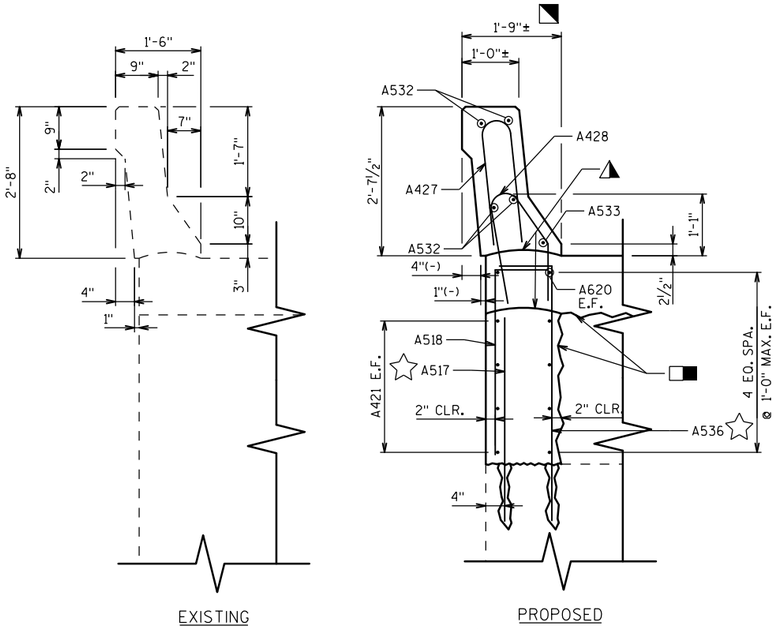
WINGWALL 1 REINFORCEMENT DETAILS (1 OF 2)

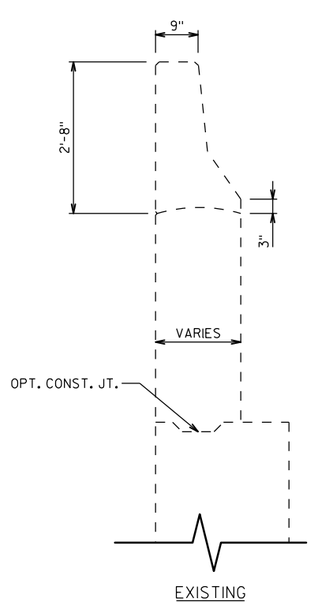
SHEET 5 OF 12

STATE PROJECT NUMBER
5300-01-83



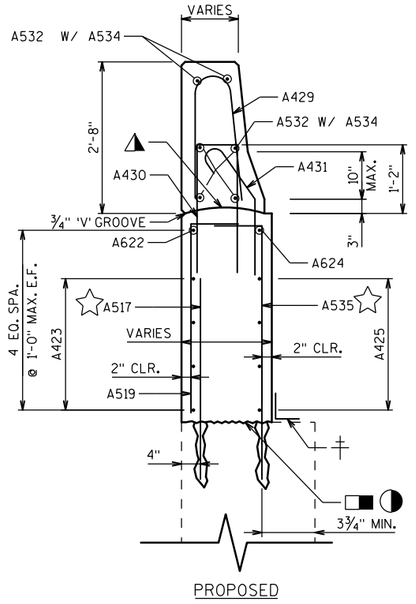
SECTION A-A ✳

PROPOSED REINF. IN PAVING BLOCK AND EXISTING VERTICAL REINF. TO BE PRESERVED AND REUSED - NOT SHOWN FOR CLARITY.
REFER TO EXPANSION JOINT SHEETS FOR ADDITIONAL PAVING BLCOK REINF.
(MATCH EXISTING PARAPET DIMENSIONS UNLESS SHOWN OTHERWISE)



SECTION C-C

EXISTING VERTICAL WINGWALL REINFORCEMENT TO BE PRESERVED AND REUSED - NOT SHOWN FOR CLARITY



NOTES

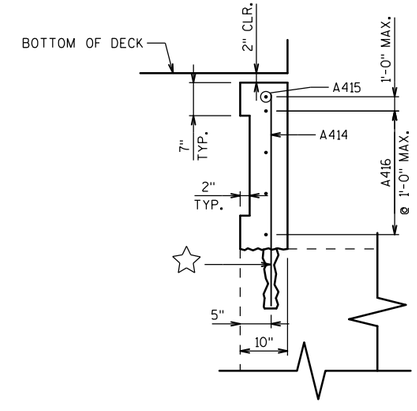
PRESERVE AND REUSE EXISTING VERTICAL REINFORCEMENT IN WINGWALL. NOT SHOWN IN SECTION DETAILS THIS SHEET FOR CLARITY.

REFER TO SHEETS "WINGWALL 1 REPLACEMENT DETAILS", "WINGWALL 1 REINFORCEMENT DETAILS (1 OF 2)" AND "BILL OF BARS" FOR ADDITIONAL DETAILS AND REINFORCEMENT.

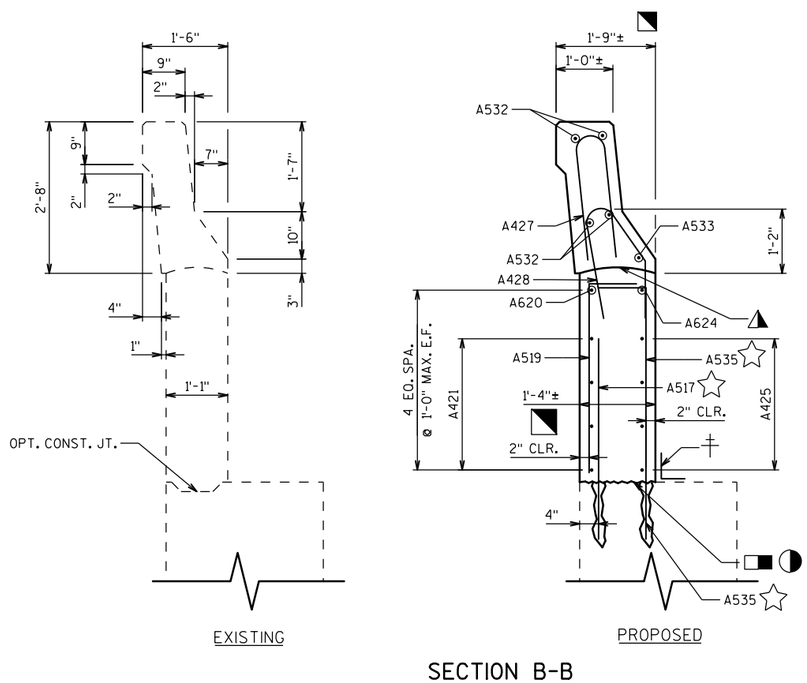
IF NEEDED TURN 10" LEG OF A517, A519, A535 OR A536 BARS AS NECESSARY TO FIT AND AVOID OTHER REINFORCEMENT.

LEGEND

- ☆ ADHESIVE ANCHORS NO. 4 OR NO. 5 BARS. EMBED NO. 4 ANCHORS 10" INTO CONCRETE. EMBED NO. 5 ANCHORS 1'-0½" INTO CONCRETE. SPACE AS SHOWN. ANCHORS SHALL BE APPROVED FOR USE IN CRACKED CONCRETE.
- ◭ CONSTRUCTION JOINT LOCATION. STRIKE OFF AND LEAVE ROUGH.
- ▭■ LIMIT OF CONCRETE REMOVAL.
- ◑ REMOVE TO EXISTING CONST. JT. OR LIMITS SHOWN IN DETAIL "OUTSIDE ELEVATION VIEW EXISTING PARAPET & WINGWALL 1" ON SHEET "WINGWALL 1 REPLACEMENT DETAILS".
- ✳ MATCH TOP ELEVATION OF REPLACEMENT PARAPET TO TOP ELEVATION OF ADJACENT PARAPET.
- ‡ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BACK FACE OF NORTH ABUTMENT TO NORTH END OF WINGWALL, AND ALONG VERTICAL FACE BETWEEN BACK FACE OF WINGWALL AND BACK FACE OF BACKWALL.
- ◥ BRIDGE HAS MOVED TRANSVERSELY APPROXIMATELY 3". PARAPET ON BRIDGE NOT ALIGNED WITH PARAPET ON WING 1. MATCH INSIDE FACES OF THE ADJACENT PARAPET SECTIONS AT THIS LOCATION.

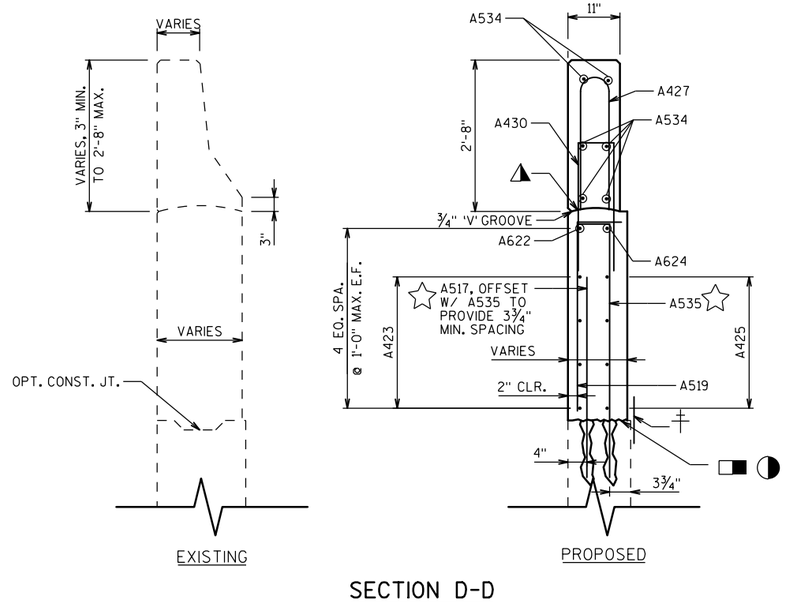


SECTION E-E



SECTION B-B

EXISTING VERTICAL WINGWALL REINFORCEMENT TO BE PRESERVED AND REUSED - NOT SHOWN FOR CLARITY
(MATCH EXISTING PARAPET DIMENSIONS UNLESS SHOWN OTHERWISE)



SECTION D-D

EXISTING VERTICAL WINGWALL REINFORCEMENT TO BE PRESERVED AND REUSED - NOT SHOWN FOR CLARITY

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-228

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WINGWALL 1 REINFORCEMENT DETAILS (2 OF 2)

SHEET 6 OF 12

8

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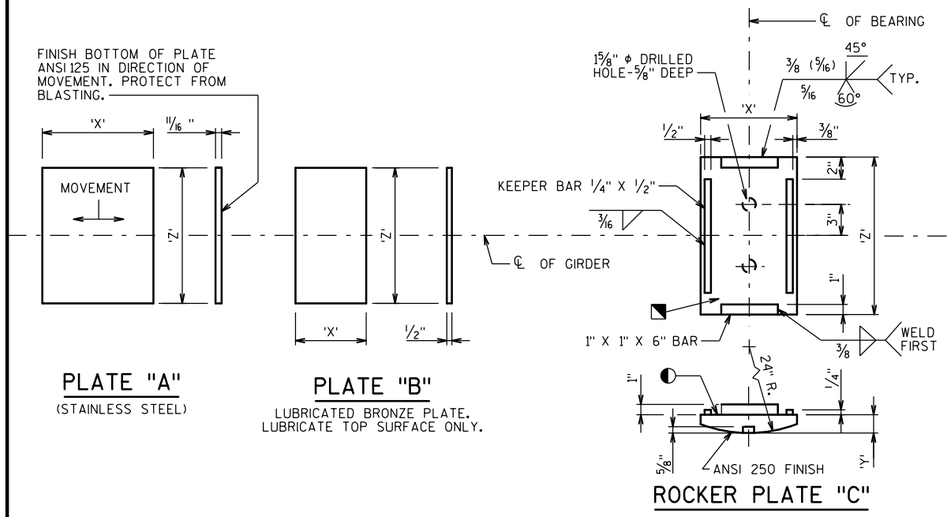
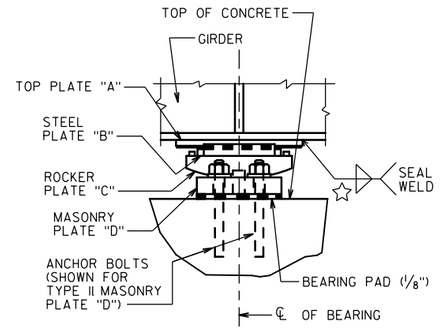
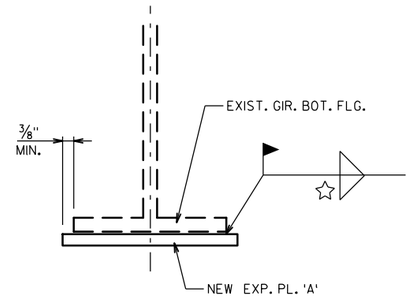




EXPANSION BEARING ASSEMBLY

EXPANSION BEARING

EXPANSION BEARING	PLATE "A"		PLATE "B"		PLATE "C"			PLATE "D"			PLATE "D" TYPE	ANCHOR BOLT SIZE	NO. OF BRG'S REQ'D.	LOCATION
	'X'	'Z'	'X'	'Z'	'X'	'Y'	'Z'	'X'	'Y'	'Z'				
	9"	1'-0 1/4"	5"	1'-0 1/4"	7"	1 1/16"	1'-2 1/2"	10"	1 1/2"	1'-10"	II	(2) - 1 1/4"ϕ x 1'-5" LONG	18	BOTH ABUTMENTS



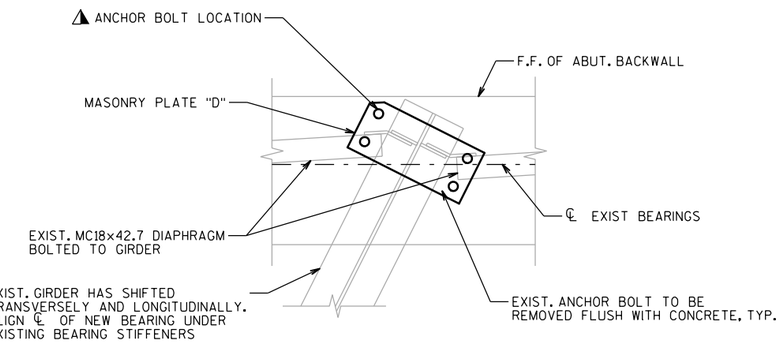
BEARING REPLACEMENT DETAILS

☆ TABLE OF FILLET WELD SIZES

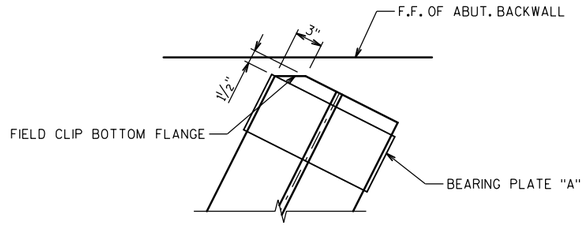
MATERIAL THICKNESS OF THICKER PART JOINED.	‡ MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	△ 5/16"
OVER 1 1/2" TO 2 1/4"	△ 3/8"
OVER 2 1/4" TO 6"	△ 1/2"

‡ EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

△ MIN. PASS SIZE IS 5/16"



BEARING DETAILS



BOTTOM FLANGE CLIP DETAIL

CLIP GIRDERS 7 THRU 9 AT S. ABUT.
CLIP ALL GIRDERS AT N. ABUT.

BEARING NOTES

ALL BEARINGS ARE SYMMETRICAL ABOUT ℄ OF GIRDER AND ℄ OF BEARING EXCEPT MASONRY PLATE "D" AS SHOWN.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. BOLT LENGTH TO BE 1'-5 FOR 1 1/4" ϕ AND 1'-10 FOR 1 1/2" ϕ BOLTS. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + 2 1/4", ABOVE TOP OF CONCRETE.

CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, BUT EXCLUDING ANCHOR BOLTS, PINTLES, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.

STEEL PINTLES SHALL CONFORM TO ASTM A449 OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 36, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

PROVIDE 1/8" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-13-228", EACH.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

TOP PLATE "A" AND STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A". ROCKER PLATE "C" AND MASONRY PLATE "D" SHALL BE GALVANIZED.

CONTRACTOR SHALL DRILL HOLES FOR THE BEARING ANCHORS WHEN THE PORTION OF THE DECK IS REMOVED DURING JOINT REPLACEMENT TO GAIN ACCESS BEHIND THE EXISTING DIAPHRAGMS.

EXISTING GIRDERS HAVE SHIFTED TRANSVERSELY SEVERAL INCHES AND DO NOT ALIGN WITH EXISTING BEARINGS. CONTRACTOR TO PLACE THE ℄ OF THE NEW BEARINGS UNDER THE BEARING STIFFENERS.

PROVIDE 1/8" THICK SHIM PLATES BETWEEN BEARING PAD AND MASONRY PLATE 'D' AS NEEDED. PLATES SHALL HAVE 'X' AND 'Z' DIMENSIONS THAT MATCH MASONRY PLATE 'D', INCLUDING THE CLIPPED CORNER. IN LIEU OF USING SHIM PLATES, FABRICATOR MAY INCREASE THICKNESS OF TOP PLATE 'A' OR MASONRY PLATE 'D' BY THE SHIM PLATE THICKNESS.

◐ FINISH THESE SURFACES TO ANSI 250 IF 'Y' DIMENSION IS GREATER THAN 2".

◥ PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.

⚠ PLACE A MINIMUM OF 2 ANCHOR BOLTS THROUGH MASONRY PLATE "D". ONE ANCHOR BOLT SHOULD BE PLACED ON EACH SIDE OF THE GIRDER. LOCATE TO MISS EXISTING ANCHOR BOLTS. FILL UNUSED HOLES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. FILLING HOLES WITH JOINT SEALER INCIDENTAL TO "BEARING ASSEMBLIES EXPANSION B-13-228".

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-228

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BEARING DETAILS

SHEET 7 OF 12

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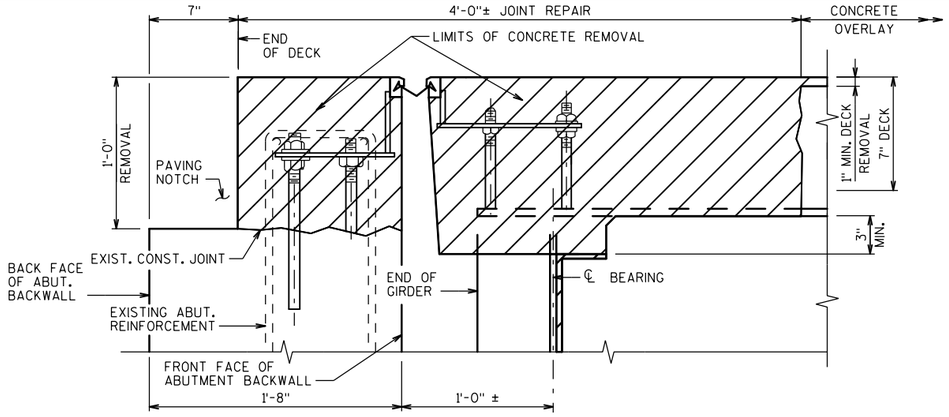
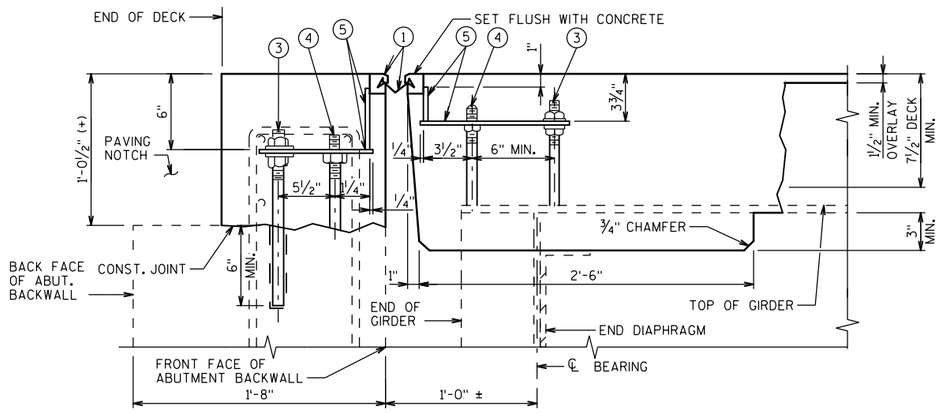


TYP. ABUTMENT BACKWALL DECK

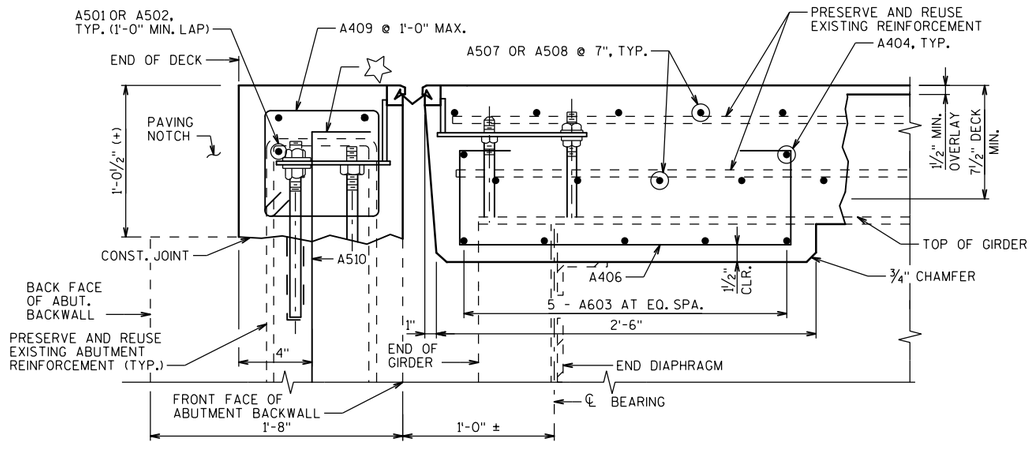
EXISTING SECTION AT ABUTMENT

NORMAL TO ℄ SUBSTRUCTURE



PROPOSED SECTION AT ABUTMENTS (EXPANSION DEVICE COMPONENTS)

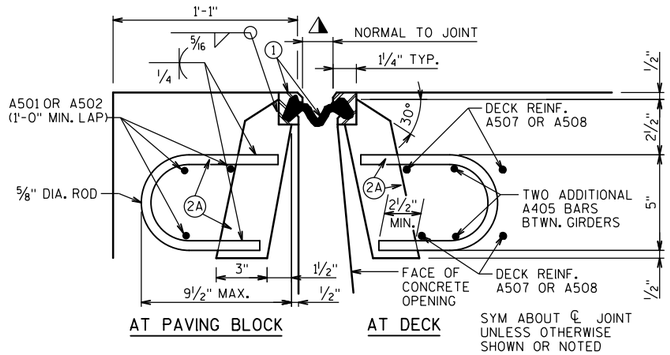
NORMAL TO ℄ SUBSTRUCTURE



TYP. ABUTMENT BACKWALL DECK

PROPOSED SECTION AT ABUTMENTS (REINFORCEMENT DETAILS)

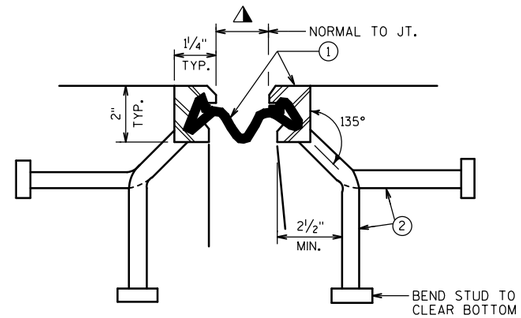
NORMAL TO ℄ SUBSTRUCTURE



AT PAVING BLOCK AT DECK

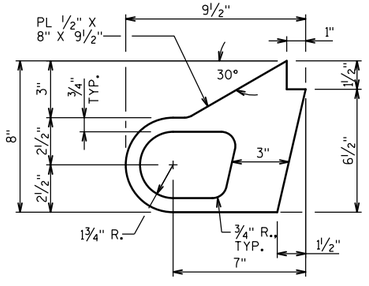
SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS



ALTERNATE STRIP SEAL ANCHOR

EXPANSION JOINT NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE 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-13-228".

LEGEND

(1) NEOPRENE STRIP SEAL (4 - INCH) & STEEL EXTRUSIONS.

(2) STUDS ⅝" DIA. x 6⅜" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.

(2A) ½" THICK ANCHOR PLATE WITH ⅝" DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.

(3) ¾" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. FOR STEEL GIRDERS WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.

(4) ¾" DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.

(5) FABRICATE SUPPORT FROM 3" x ½" BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.

(6) GALVANIZED PLATE ⅜" x 1'-2" x 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.

(7) ¾" DIA. x 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTISEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.

(8) ¾" DIA. x 4" GALVANIZED HEX HEAD BOLT. BEND 45°.

(9) ¾" DIA. x 2¼" GALVANIZED THREADED COUPLING.

(11) 1" x 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

◭ SET JOINT OPENING AT 1¾".

☆ ADHESIVE ANCHORS NO. 5 BAR. EMBED A MINIMUM OF 1'-6" INTO CONCRETE. SPACE AT 1'-0" MAX. AND AVOID EXPANSION JOINT HARDWARE. TURN 10" LEG AS NECESSARY TO FIT. ANCHORS SHALL BE APPROVED FOR USE IN CRACKED CONCRETE.

EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS INDICATED BY ☆.

STATE PROJECT NUMBER
5300-01-83

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-228

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EXPANSION DEVICE

SHEET 8 OF 12

8

8

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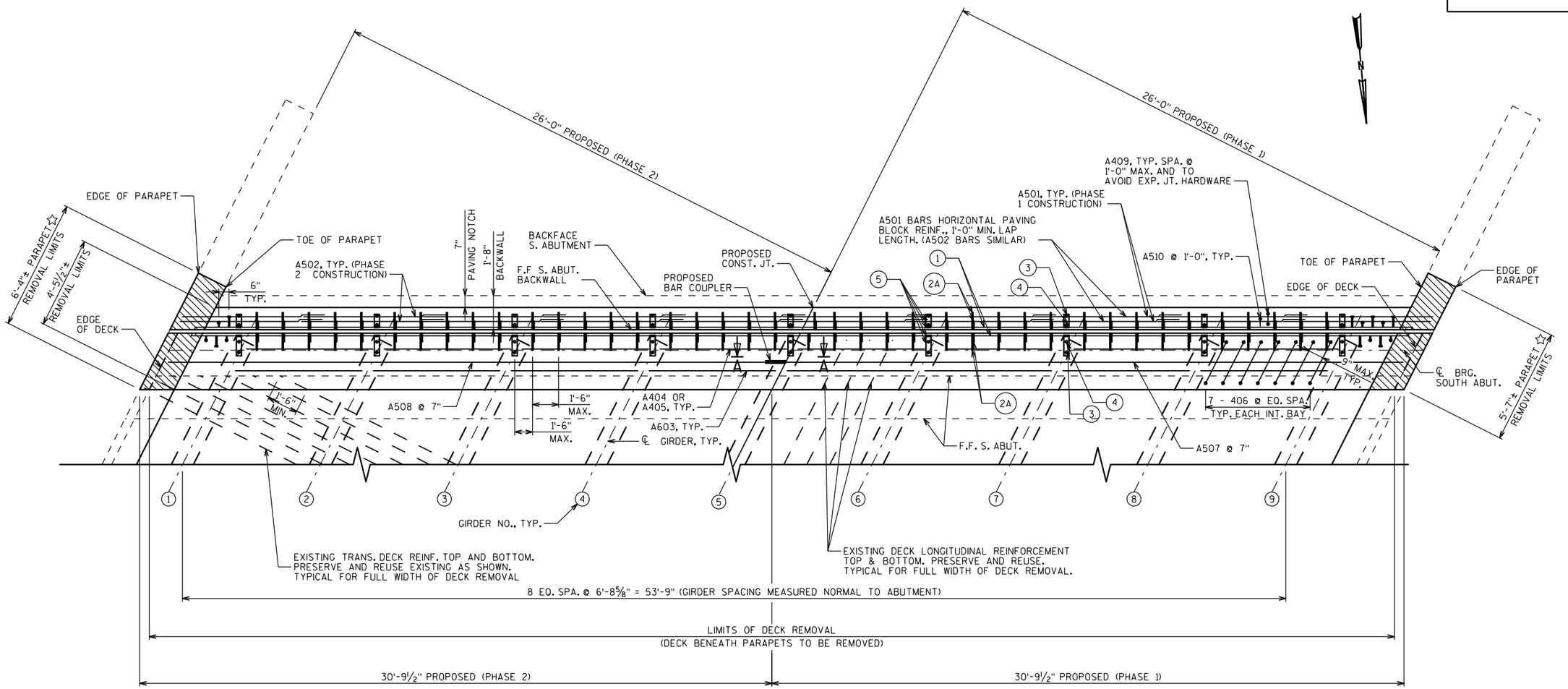
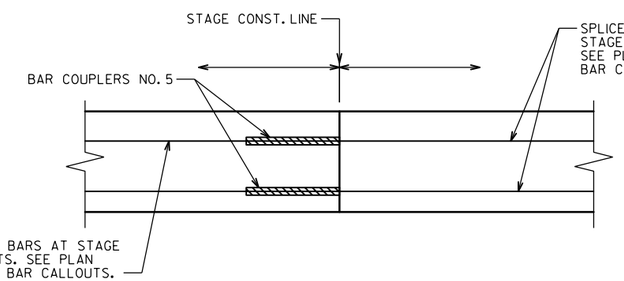


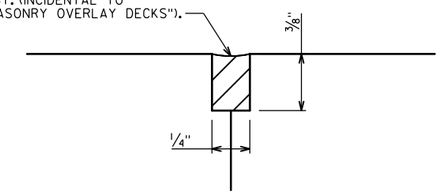
PLAN B-13-228 ABUTMENT EXPANSION JOINT REPLACEMENT

SOUTH ABUTMENT SHOWN, NORTH ABUTMENT SIMILAR
(SEE "BILL OF BARS" SHEET FOR BILL OF BARS)



SECTION A-A

ROUTE OUT ¼" X ⅜" DEEP AT JOINT. FILL IN WITH LOW VISCOSITY CRACK SEALER PER THE APPROVED PRODUCTS LIST. (INCIDENTAL TO "CONCRETE MASONRY OVERLAY DECKS").



LONGITUDINAL CONSTRUCTION JOINT DETAIL

NOTES

AT THE PARAPETS, BID ITEM "JOINT REPAIR" SHALL BE MEASURED FROM OUTSIDE FACE OF PARAPET TO OUTSIDE FACE OF PARAPET AND INCLUDES PARAPET REMOVAL AS SHOWN BY HATCHED SECTIONS ON THIS SHEET.

SEE "EXPANSION DEVICE" AND "EXPANSION JOINT DETAILS" SHEETS FOR ADDITIONAL INFORMATION.

PARAPET REINFORCEMENT NOT SHOWN ON THIS SHEET. REFER TO "BILL OF BARS" AND "EXPANSION JOINT DETAILS" SHEETS FOR PARAPET REINFORCEMENT.

LEGEND

☆ PARAPET REMOVAL DIMENSIONS SHOWN ARE FOR SOUTH ABUTMENT PARAPETS. NORTH ABUTMENT EAST PARAPET REMOVAL LIMITS SIMILAR TO SOUTH ABUTMENT WEST PARAPET. NORTH ABUTMENT WEST WINGWALL AND PARAPET TO BE REPLACED. SEE WINGWALL 1 SHEETS FOR ADDITIONAL INFORMATION.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-228

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EXPANSION JOINT REINFORCEMENT

SHEET 9 OF 12

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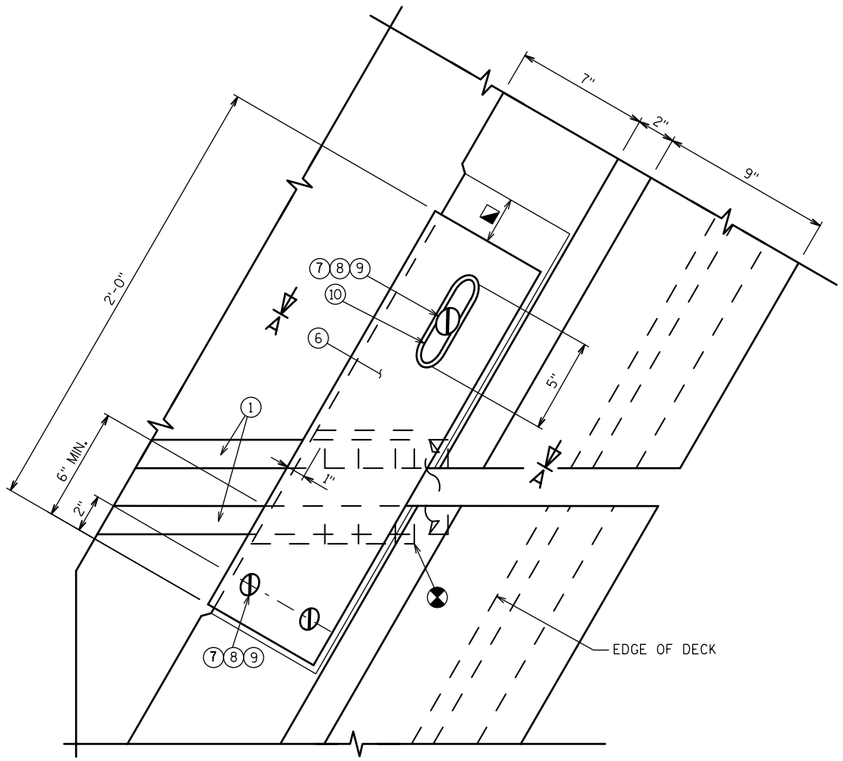
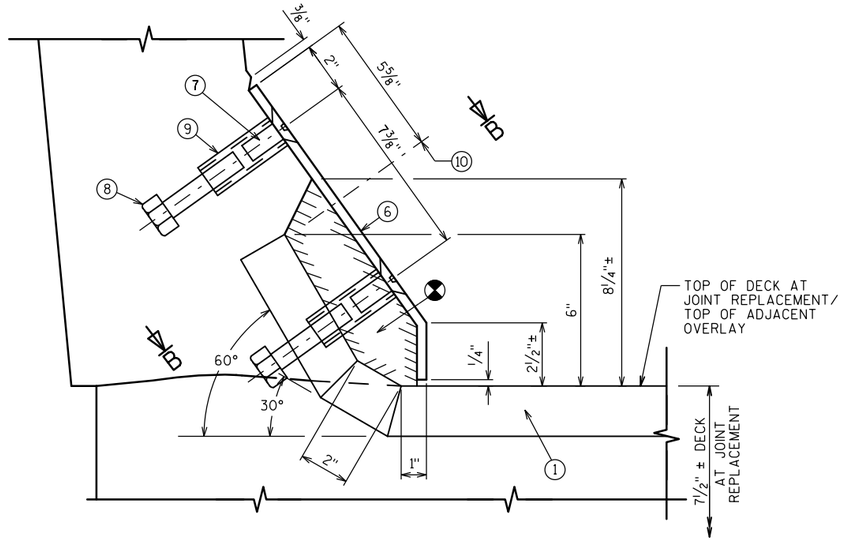
STATE PROJECT NUMBER
5300-01-83

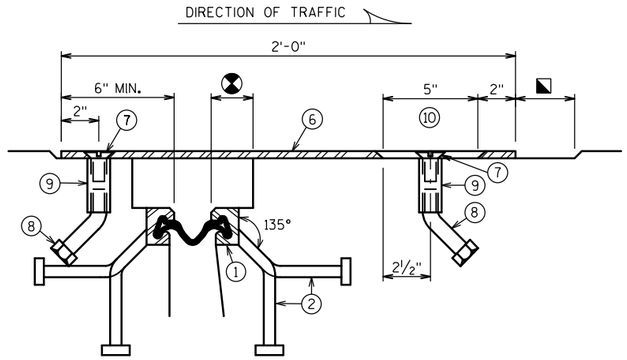


PLAN AT PARAPET

WEST PARAPET SHOWN. EAST PARAPET MIRRORED.



SECTION A-A



SECTION B-B

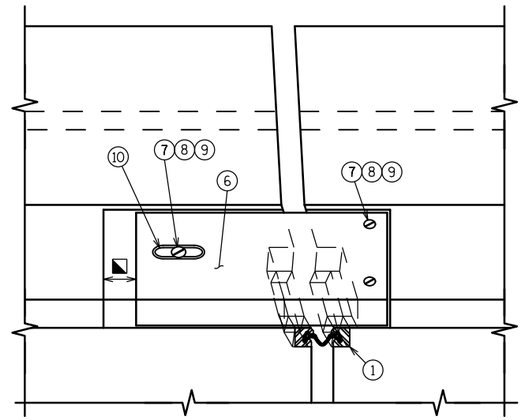
LEGEND

- BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING
- JOINT OPENING DIM. ALONG SKEW PLUS 1/2"
- EXISTING CONST. JOINT (NEW CONSTRUCTION JOINT SAME LOCATION. STRIKE OFF AND LEAVE ROUGH).
- CONST. JOINT LIMIT OF CONCRETE REMOVAL
- PRESERVE AND REUSE EXISTING LONGITUDINAL REINFORCEMENT
- MATCH TOP ELEVATION OF REPLACEMENT PARAPET TO TOP ELEVATION OF EXISTING PARAPET
- PRESERVE AND REUSE EXISTING VERTICAL REINFORCEMENT AT 1'-0" SECTION OF PARAPET REMOVAL WHERE WINGWALL REMAINS.
- DIMENSION TO VARY AT NORTHEAST CORNER OF BRIDGE. PARAPET ON BRIDGE NOT ALIGNED WITH PARAPET ON WING 2. MATCH THE INSIDE FACES OF THE ADJACENT PARAPET SECTIONS AT THIS LOCATION AND TAPER THE LOCATION OF THE INSIDE FACE OF THE PARAPET AS NEEDED IN EFFORT TO MATCH THE PARAPET AT BOTH ENDS OF THE REPAIR. START THE TAPER BEYOND THE COVER PLATE LIMITS. DIMENSIONS SHOWN ARE MINIMUM.

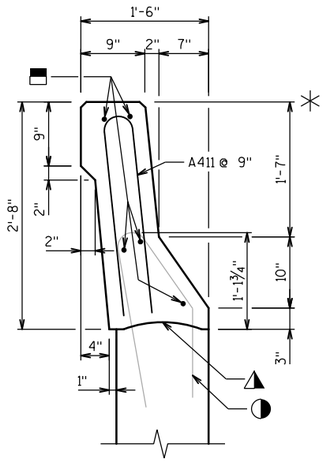
NOTES

SEE EXPANSION JOINT SHEETS FOR ADDITIONAL INFORMATION.

FOR PARAPET DETAILS AT WINGWALL 1, REFER TO WINGWALL 1 SHEETS.

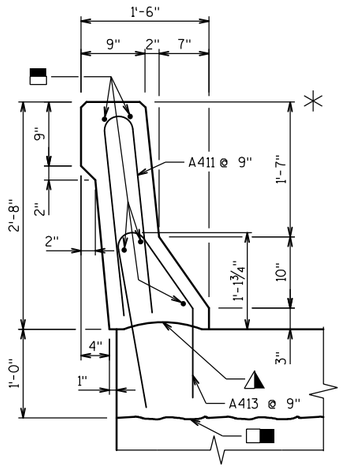


VIEW OF PARAPET PLATE FROM ROADWAY



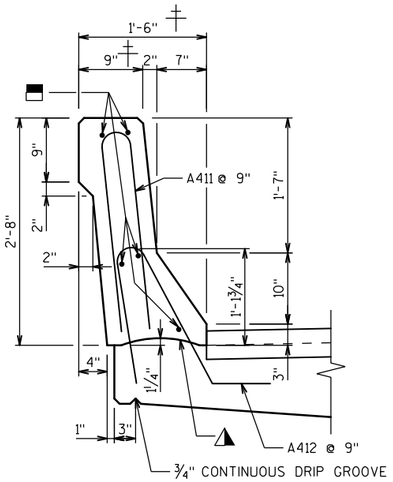
SECTION THRU PARAPET ON WINGWALL AT JOINT REPAIR

(WINGS 2, 3 & 4)



SECTION THRU PARAPET ON ABUTMENT AT JOINT REPAIR

(WINGS 2, 3 & 4)



SECTION THRU PARAPET ON BRIDGE AT JOINT REPAIR *

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-228

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EXPANSION JOINT DETAILS

SHEET 10 OF 12

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FILE NAME : J:\62247\b1\B-13-228\cds\B228_080504_exp.dgn PLOT DATE : 1/31/2017 8:05:42 AM PLOT BY : msschroeder PLOT NAME : $FILE$ PLOT SCALE : 0.333333:1

STATE PROJECT NUMBER
5300-01-83

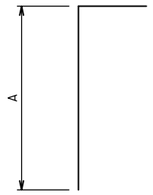
BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
A501	X	30	7'-3"			PAVING BLOCK - HORIZONTAL (PHASE 1)
A502	X	30	7'-0"			PAVING BLOCK - HORIZONTAL (PHASE 2)
A603	X	80	6'-2"			DIAPHRAGM - HORIZ. BETWEEN GIRDERS
A404	X	32	6'-2"			DIAPHRAGM - HORIZ. BETWEEN GIRDERS
A405	X	32	6'-2"			DECK - HORIZ. BETWEEN GIRDERS
A406	X	112	3'-11"	X		DIAPHRAGM - STIRRUPS BETWEEN GIRDERS
◑ A507	X	20	30'-1"			DECK TRANSVERSE (PHASE 1)
◑ A508	X	20	30'-1"			DECK TRANSVERSE (PHASE 2)
A409	X	124	3'-2"	X		PAVING BLOCK - STIRRUP
☆ A510	X	124	3'-0"	X		PAVING BLOCK - ANCHOR
A411	X	27	4'-10"	X		PARAPET - VERTICAL
A412	X	12	4'-3"	X		PARAPET - VERTICAL
A413	X	6	4'-7"	X		PARAPET - VERTICAL
☆ A414	X	4	3'-7"			CLOSURE WALL VERTICAL ANCHORS
A415	X	1	2'-11"			CLOSURE WALL HORIZ. TOP
A416	X	4	5'-6"			CLOSURE WALL HORIZ.
☆ A517	X	12	3'-8"			WINGWALL VERTICAL ANCHORS
A518	X	2	3'-11"	X		WINGWALL VERTICAL STIRRUPS
A519	X	11	3'-9"	X		WINGWALL VERTICAL
A620	X	1	15'-0"	X		WINGWALL HORIZ. TOP
A421	X	4	12'-10"	X		WINGWALL HORIZ.
A622	X	1	6'-11"	X		WINGWALL HORIZ. TOP F.F.
A423	X	4	6'-8"	X		WINGWALL HORIZ. TOP
A624	X	1	9'-8"	X		WINGWALL HORIZ. TOP B.F.
A425	X	4	9'-8"	X		WINGWALL HORIZ. TOP
☆ A526	X	3	2'-10"	X		WINGWALL TO BACKWALL ANCHOR
A427	X	19	5'-3"	X		PARAPET - VERTICAL
A428	X	8	5'-1"	X		PARAPET - VERTICAL
A429	X	4	5'-6"	X		PARAPET - VERTICAL
A430	X	11	4'-9"	X		PARAPET - VERTICAL
A431	X	4	3'-1"	X		PARAPET - VERTICAL
A532	X	4	9'-1"			PARAPET - HORIZ.
A533	X	1	7'-10"	X		PARAPET - HORIZ. TOE
☆ A534	X	6	6'-1"			PARAPET - HORIZ.
☆ A535	X	11	5'-0"	X		WINGWALL VERTICAL B.F. DOWEL
☆ A536	X	2	4'-11"	X		WINGWALL VERTICAL STIRRUP DOWEL

NOTE:
BAR DIMENSIONS ARE OUT TO OUT OF BAR.
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

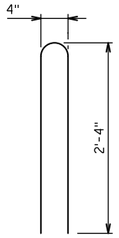
☆ ADHESIVE ANCHORS, NO. 4 OR NO. 5 BARS.

◑ BAR LENGTH COMPUTED TO ℄ LONGIT. JOINT AND SHALL BE MODIFIED IF REQUIRED TO BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED.

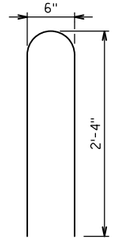


MARK	A
A510	2'-3"
A518	3'-3"
A519	3'-1"
A622	6'-1"
A423	6'-1"
A526	2'-2"
A535	4'-4"
A536	4'-3"

A510, A518, A519, A622, A423, A526, A535, A536



A411



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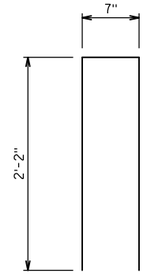

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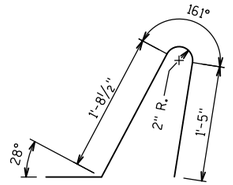
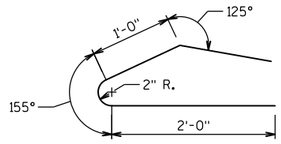


A412



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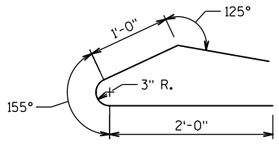
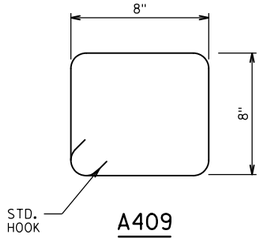


A428



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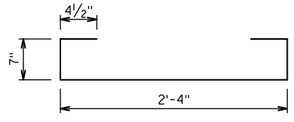

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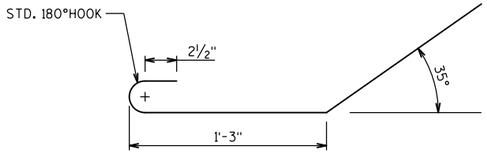

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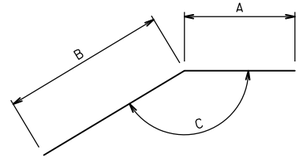
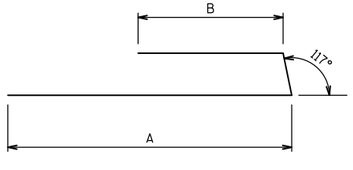


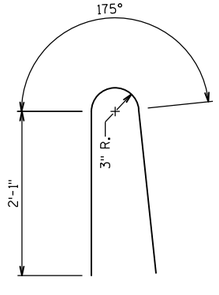
MARK	A	B	C
A624	3'-5"	6'-3"	173°
A425	3'-5"	6'-3"	173°
A533	5'-4"	2'-6"	168°

A624, A425, A533



MARK	A	B
A620	9'-6"	5'-4"
A421	8'-4"	4'-2"

A620, A421



A429

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-228

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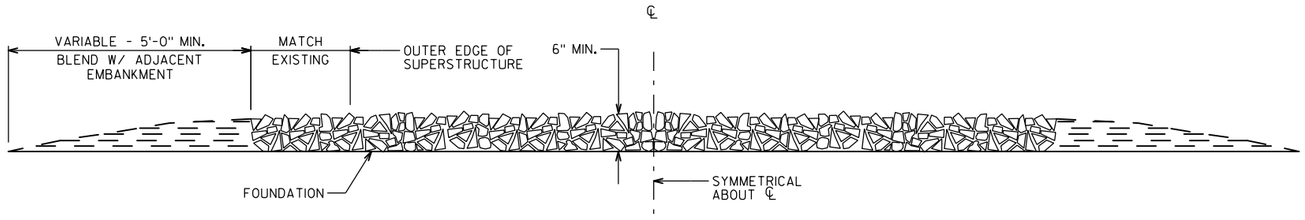
BILL OF BARS

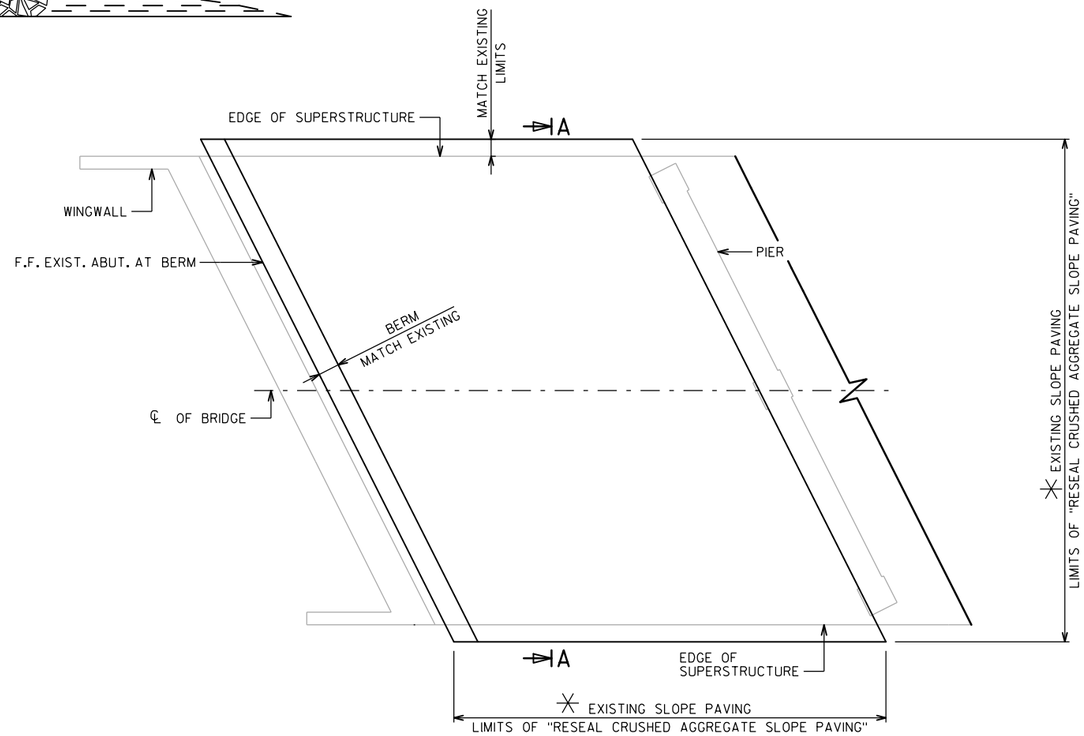
SHEET 11 OF 12

FILE NAME : J:\62247\b1\B-13-228\cds\B228_080505_bill.dgn PLOT DATE : 1/31/2017 8:05:45 AM PLOT BY : msschroeder PLOT NAME : $FILE$ PLOT SCALE : 4:1

STATE PROJECT NUMBER
5300-01-83

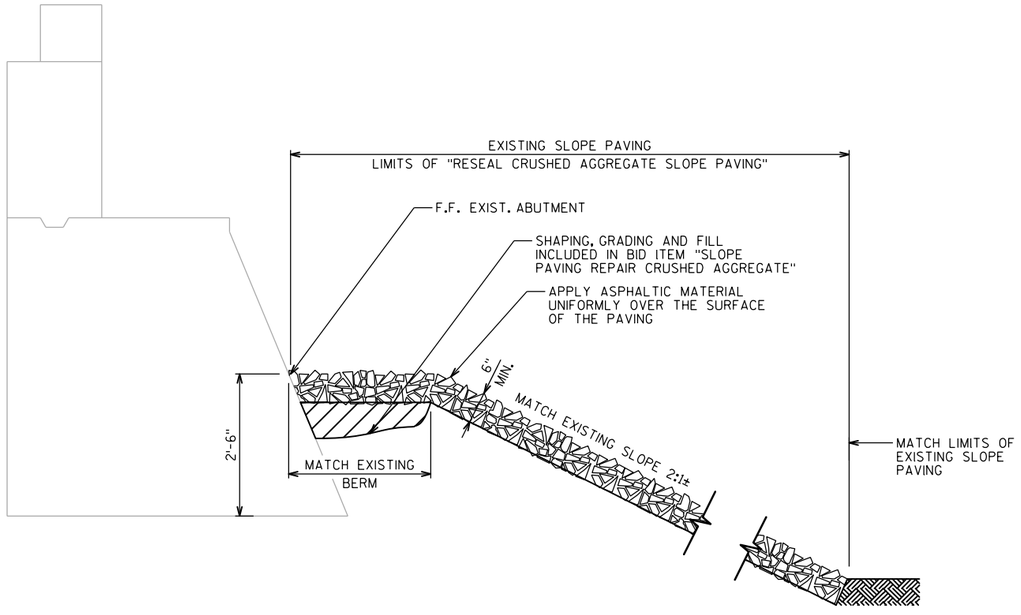


SECTION A-A



PLAN - SLOPE PAVING CRUSHED AGGREGATE

NORTH ABUTMENT SHOWN, SOUTH ABUTMENT SIMILAR



STANDARD CROSS SECTION

ROUND STONE WILL NOT BE ACCEPTED

GENERAL NOTES

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

WOOD FORMS MAY BE LEFT IN PLACE WHEN OF A QUALITY ACCEPTABLE TO THE ENGINEER.

✳ ENTIRE LIMITS OF EXISTING SLOPE PAVING CRUSHED AGGREGATE SHOWN. ONLY EXISTING DETERIORATED AREAS TO BE REPAIRED. REPAIR LIMITS SHALL BE DETERMINED IN THE FIELD BY THE PROJECT ENGINEER.

NO.	DATE	REVISION	BY

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STRUCTURE B-13-228

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SLOPE PAVING CRUSHED AGGREGATE

SHEET 12 OF 12

FILE NAME : J:\62247\b1\B-13-228\cds\B228_080601_slpv.dgn PLOT DATE : 1/31/2017 8:05:48 AM PLOT BY : msschroeder PLOT NAME : $FILE$ PLOT SCALE : 2.66667:1

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