

WKE

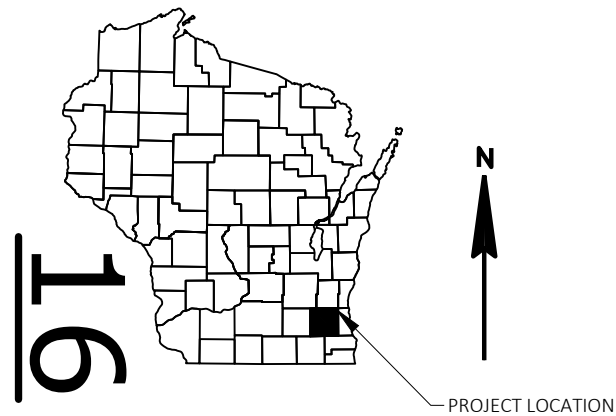
PROJECT ID: 2720-09-70
WITH: N/A

COUNTY: WAUKESHA

FEBRUARY 2022
ORDER OF SHEETS

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

TOTAL SHEETS = 116



DESIGN DESIGNATION

A.A.D.T. (2022)	=	5,500
A.A.D.T. (2042)	=	8,600
D.H.V.	=	1,030
D.D.	=	44/56
T.	=	5%
DESIGN SPEED	=	35 MPH
ESALS	=	410,000

CONVENTIONAL SYMBOLS

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

PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

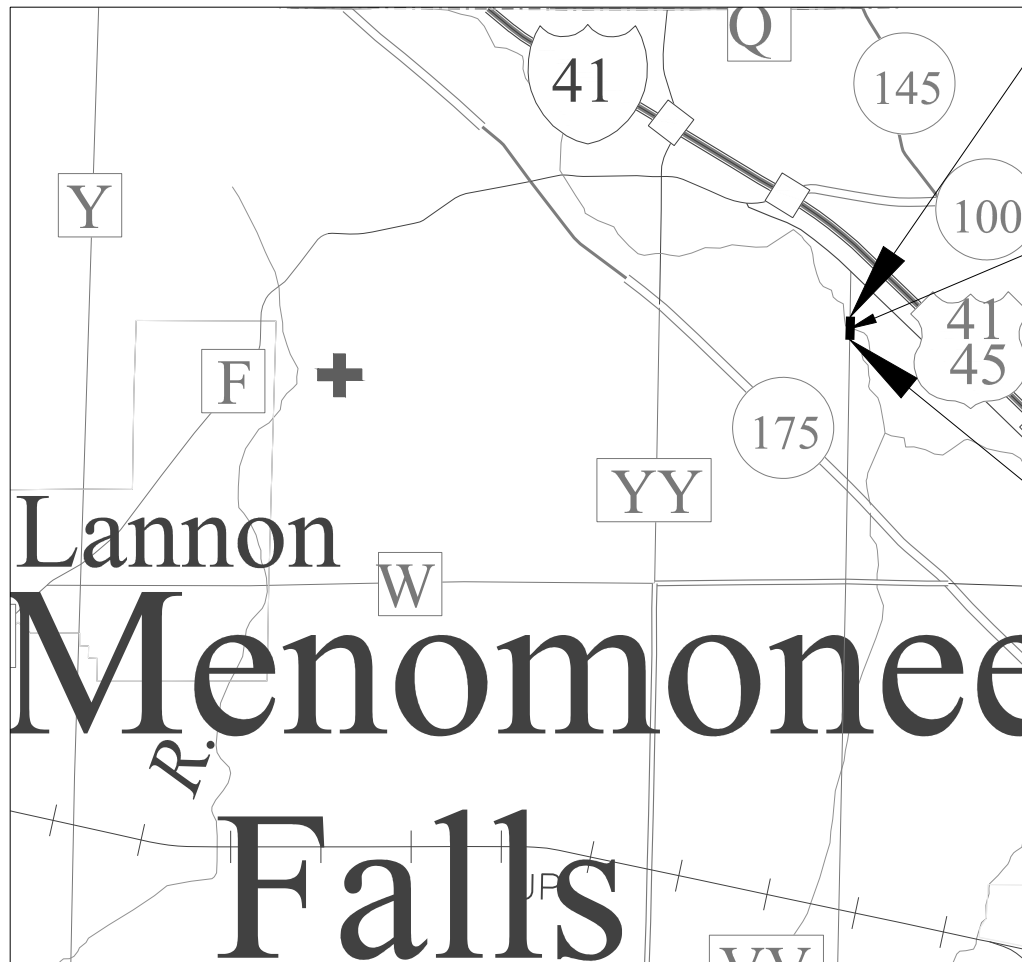
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

LILLY ROAD BRIDGE OVER MENOMONEE RIVER LOCAL STREET WAUKESHA COUNTY

STATE PROJECT NUMBER
2720-09-70

R-20-E

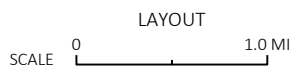


END PROJECT 2720-09-70
STA 13+50

STRUCTURE B-67-385

BEGIN PROJECT 2720-09-70
STA 11+50
Y = 431,399.158
X = 2,511,399.614

T-8-N



TOTAL NET LENGTH OF CENTERLINE = 0.038 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE BASED ON THE WISCONSIN STATE PLANE COORDINATE SYSTEM GRID, SOUTH ZONE (NAD-27), IN U.S. SURVEY FEET. VALUES ARE GROUND COORDINATES, GROUND BEARINGS AND GROUND DISTANCES.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2720-09-70	WISC 2022201	1

ACCEPTED FOR
VILLAGE OF MENOMONEE FALLS

Date: 10/21/21
DIRECTOR OF ENGINEERING AND DEVELOPMENT

ORIGINAL PLANS PREPARED BY

DATE: 10/13/2021

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AYRES
Designer	AYRES
Project Manager	KATHY KRAMER
Regional Examiner	WISDOT SE REGION
Regional Supervisor	JEFF BOHEN

APPROVED FOR THE DEPARTMENT

DATE: 10-21-21
Kathleen Kramer (Signature)

E

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.

NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

MAINTAIN ACCESS TO ALL BUSINESSES AND OTHER PROPERTIES ADJACENT TO THE PROJECT AT ALL TIMES.

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT MEETS AN EXISTING PAVED SURFACE. SAWCUTS SHALL BE NEATLY DELINEATED THROUGH THE ASPHALT WITHOUT DAMAGING EXISTING PAVEMENT TO REMAIN. SAWCUT LOCATIONS SHOWN ON THE PLAN ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER IN THE FIELD.

PRIOR TO ORDERING DRAINAGE PIPES AND STRUCTURES, THE CONTRACTOR SHALL VERIFY RELATED DRAINAGE INFORMATION IN THE PLANS WITH THE ENGINEER.

NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER. CLEARING AND GRUBBING LIMITS TO BE MARKED BY THE ENGINEER.

RE-TOPSOIL GRADED AREAS, AS DESIGNATED BY THE ENGINEER, IMMEDIATELY AFTER GRADING IS COMPLETED IN THOSE AREAS. SEED, FERTILIZE, AND EROSION MAT OR MULCH TOP-SOILED AREAS, AS DESIGNATED BY THE ENGINEER, WITHIN FIVE (5) CALENDAR DAYS AFTER PLACEMENT OF TOPSOIL. IF GRADED OR STOCKPILED AREAS ARE LEFT EXPOSED FOR MORE THAN SEVEN (7) CALENDAR DAYS, SEED THOSE AREAS WITH TEMPORARY SEED AND MULCH/EROSION MAT WITHIN 24 HOURS.

DO NOT PUMP WATER FROM THE CONSTRUCTION SITE TO A STORM WATER CONVEYANCE WITHOUT THE WATER FIRST PASSING THROUGH A SEDIMENT TRAP OR FILTER BAG IN ACCORDANCE WITH CONSTRUCTION DETAIL "TEMPORARY SETTLING BASIN WITH SEDIMENT BAG."

CONTRACTOR MUST CONTACT THE PROJECT ENGINEER AND THE SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION, AT LEAST TWO WEEKS PRIOR TO WORK NEAR ANY PUBLIC SURVEY MONUMENT.

ALL SIGN LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

PROPERTY LINES AS SHOWN ARE APPROXIMATE.

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

ELEVATIONS SHOWN ON THE ROADWAY CROSS SECTIONS ARE SUBGRADE ELEVATIONS.

A FILL EXPANSION FACTOR OF 15% WAS USED IN THE EARTHWORK COMPUTATIONS.

THE FOLLOWING CONVERSION FACTORS WERE USED TO ESTIMATE QUANTITIES FOR BASE AGGREGATE DENSE:
 - 3/4-INCH = 2.1 TONS/CY
 - 1 1/4-INCH = 2.0 TONS/CY

A CONVERSION FACTOR OF 1.8 TONS/CY IS USED TO ESTIMATE QUANTITIES OF BREAKER RUN.

A CONVERSION FACTOR OF 115 LBS/IN/SY IS USED TO ESTIMATE QUANTITIES FOR HMA PAVEMENT.

SECTION 2 ORDER OF SHEETS

- GENERAL NOTES
- CONTACT LIST
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN DETAILS
- CURB GRADES AND CURB RAMP DETAILS
- EROSION CONTROL AND STORM SEWER
- SIGNING AND MARKING
- DETOUR PLAN

ASPHALT LAYERS AND GRADATIONS

TOTAL PAVEMENT DEPTH	LAYER	LAYER DEPTH	HMA PAVEMENT ITEM
5 1/4"	UPPER	2"	4 LT 58-28 S
	LOWER	3 1/4"	3 LT 58-28 S

ABBREVIATIONS

A.D.T.	AVERAGE DAILY TRAFFIC	EAT	ENERGY ABSORBING TERMINAL	PRC	POINT OF REVERSE CURVATURE
A.A.D.T.	AVERAGE ANNUAL DAILY TRAFFIC	EBS	EXCAVATION BELOW SUBGRADE	PVD	PAVED
ABUT	ABUTMENT	EL	ELEVATION	R	RADIUS
AC	ACRE	ESALS	EQUIVALENT SINGLE AXEL LOAD	RDWY	ROADWAY
AGG	AGGREGATE	EW / AEW	APRON ENDWALL	REQ'D	REQUIRED
AH	AHEAD	EXC	EXCAVATION	RES	RESIDENCE OR RESIDENTIAL
ASPH	ASPHALTIC	EXIST	EXISTING	RHF	RIGHT HAND FORWARD
AVG	AVERAGE	FERT	FERTILIZE	R/W	RIGHT OF WAY
BK	BACK	FE	FIELD ENTRANCE	R	RIVER
BM	BENCH MARK	FL	FLOW LINE	R/L	REFERENCE LINE
BOC	BACK OF CURB	FO	FIBER OPTIC	SAN	SANITARY SEWER
CB	CATCH BASIN	HE	HELICAL ELLIPTICAL	SF	SQUARE FEET
CE	COMMERCIAL ENTRANCE	HYD	HYDRANT	SDD	STANDARD DETAIL DRAWINGS
CL OR C/L	CENTERLINE	ID	INSIDE DIAMETER	SHLD	SHOULDER
C&G	CURB AND GUTTER	IN / INL	INLET	SS	STORM SEWER
CONC	CONCRETE	INV	INVERT	SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
CP	CONTROL POINT	L	LENGTH OF CURVE	STA	STATION
CPRC	CULVERT PIPE REINFORCED CONCRETE	LF	LINEAR FEET	STH	STATE HIGHWAY
CPCS	CULVERT PIPE CORRUGATED STEEL	LHF	LEFT-HAND FORWARD	T	TANGENT
CTH	COUNTY HIGHWAY	LS	LUMP SUM	T/TN	TOWN
CWT	HUNDREDWEIGHT	MH	MANHOLE	TYP	TYPICAL
CY	CUBIC YARD	NC	NORMAL CROWN	VAR	VARIABLE
D	DEGREE OF CURVE	PAVT	PAVEMENT	VC	VERTICAL CURVE
D.D	DIRECTIONAL DISTRIBUTION	PCC	POINT OF COMPOUND CURVE	X	EAST GRID COORDINATE
D.H.V	DESIGN HOURLY VOLUME	PC	POINT OF CURVATURE	Y	NORTH GRID COORDINATE
DISCH	DISCHARGE	PE	PRIVATE ENTRANCE	YD	YARD
DWY	DRIVEWAY	PI	POINT OF INTERSECTION		

PROJECT CONTACTS

DNR LIASION

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
DNR SERVICE CENTER
MR. CRAIG WEBSTER
141 NW BARSTOW, ROOM 180
WAUKESHA, WI 53188
TELEPHONE: (262) 574-2141
CRAIG.WEBSTER@WISCONSIN.GOV

DESIGN PROJECT MANAGER

AYRES ASSOCIATES
MR. PHILIP BAIN JR.
20975 SWENSON DRIVE SUITE 200
WAUKESHA, WI 53188
TELEPHONE: (262) 522-4940
BAINP@AYRESASSOCIATES.COM

SOUTHEASTERN WISCONSIN REIGONAL PLANNING COMMISSION

MR. ROB MERRY
W239 N1812 ROCKWOOD DRIVE
P.O. BOX 1607
WAUKESHA, WI 53187-1607
TELEPHONE: (262) 953-4289
RMERRY@SEWRPC.ORG

VILLAGE OF MENOMONEE FALLS

MR. JON BRETL
W156 N8480 PILGRIM ROAD
MENOMONEE FALLS, WI 53051
TELEPHONE: (262) 532-4414
JBRETL@MENOMONEE-FALLS.ORG

UTILITY CONTACTS LIST

AT&T WISCONSIN

MR. DEAN HERRO
435 S. 95TH STREET
MILWAUKEE, WI 53214
TELEPHONE: (262) 226-9639
DH2572@ATT.COM

SPECTRUM

MR. BEAU ABUYA
1320 N. MARTIN LUTHER KING JR. DRIVE
MILWAUKEE, WI 53212
TELEPHONE: (414) 758-9241
BEAU.ABUYA@CHARTER.COM

VILLAGE OF MENOMONEE FALLS - WATER & SANITARY SEWER

MR. TOM DIMOFF
W156 N8480 PILGRIM ROAD
MENOMONEE FALLS, WI 53051
TELEPHONE: (262) 523-4807
MOBILE: (262) 229-0852
TDIMOFF@MENOMONEE-FALLS.ORG

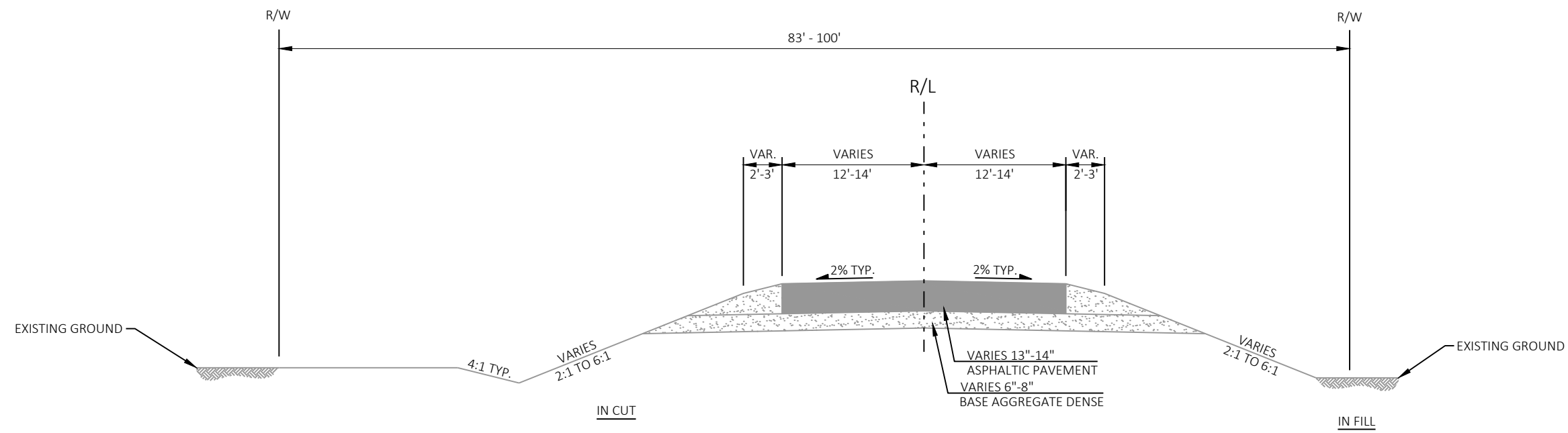
WE ENERGIES - ELECTRIC

MR. MIKE HUEBNER
315 WILLIAM STREET
WATERTOWN, WI 53094
TELEPHONE: (920) 262-6888
MOBILE: (920) 858-5469
MICHAEL.HUEBNER@WE-ENERGIES.COM

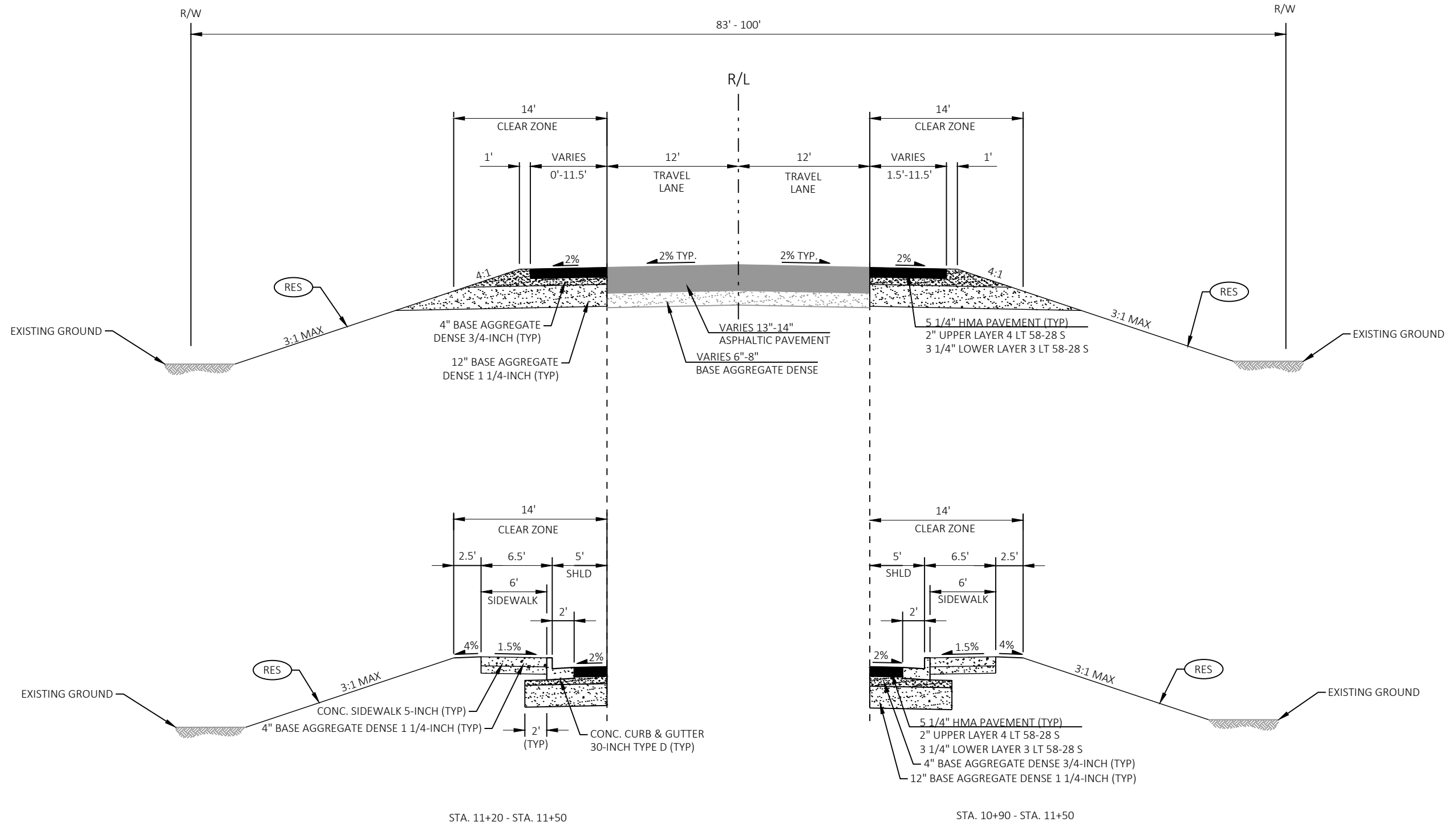
WE ENERGIES - GAS

MR. JACOB SPENCER
S13 W33800 STH 18
DELAFIELD, WI 53018
TELEPHONE: (262) 968-7009
MOBILE: (414) 507-2021
JACOB.SPENCER@WE-ENERGIES.COM





EXISTING TYPICAL SECTION
 STA 10+30 - BRIDGE
 BRIDGE - STA 14+07

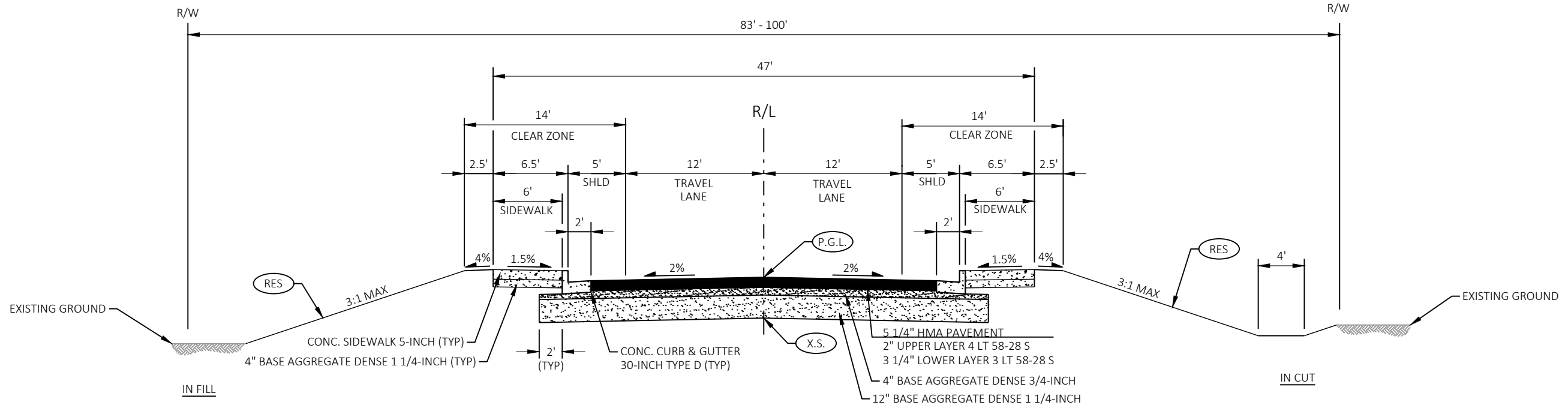


FINISHED TYPICAL SECTION

STA 10+30 - STA 11+50
STA 13+50 - STA 14+07

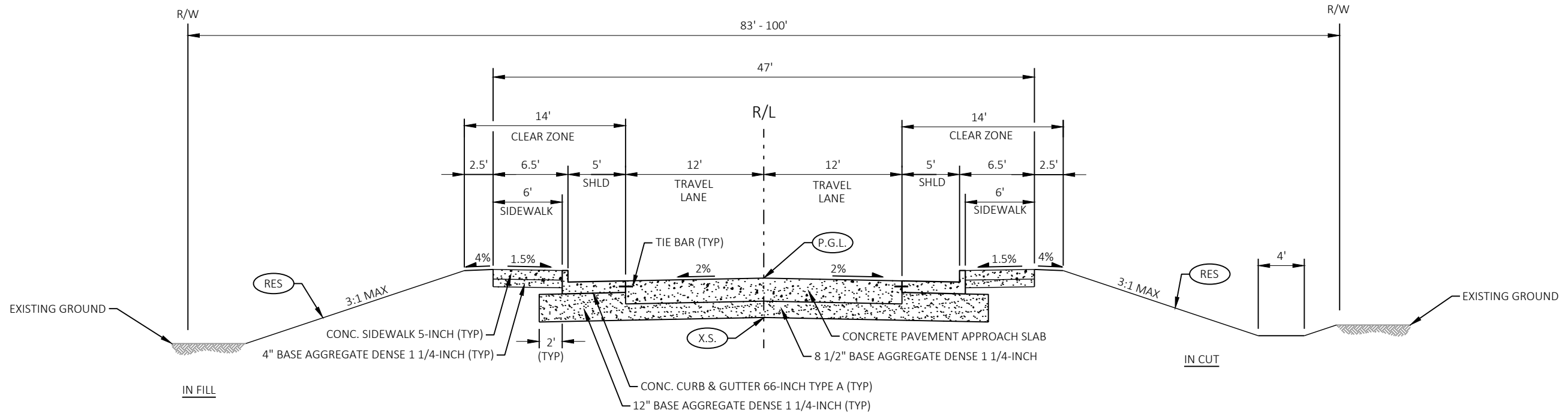
LEGEND

- (X.S.) POINT REFERRED TO ON CROSS SECTION
- (P.G.L.) POINT REFERRED TO ON PROFILE
- (RES) RESTORATION
(SEE EROSION CONTROL SHEET FOR ADDITIONAL INFO)



FINISHED TYPICAL SECTION

STA 11+50 - STA 11+69
STA 12+61 - STA. 13+50

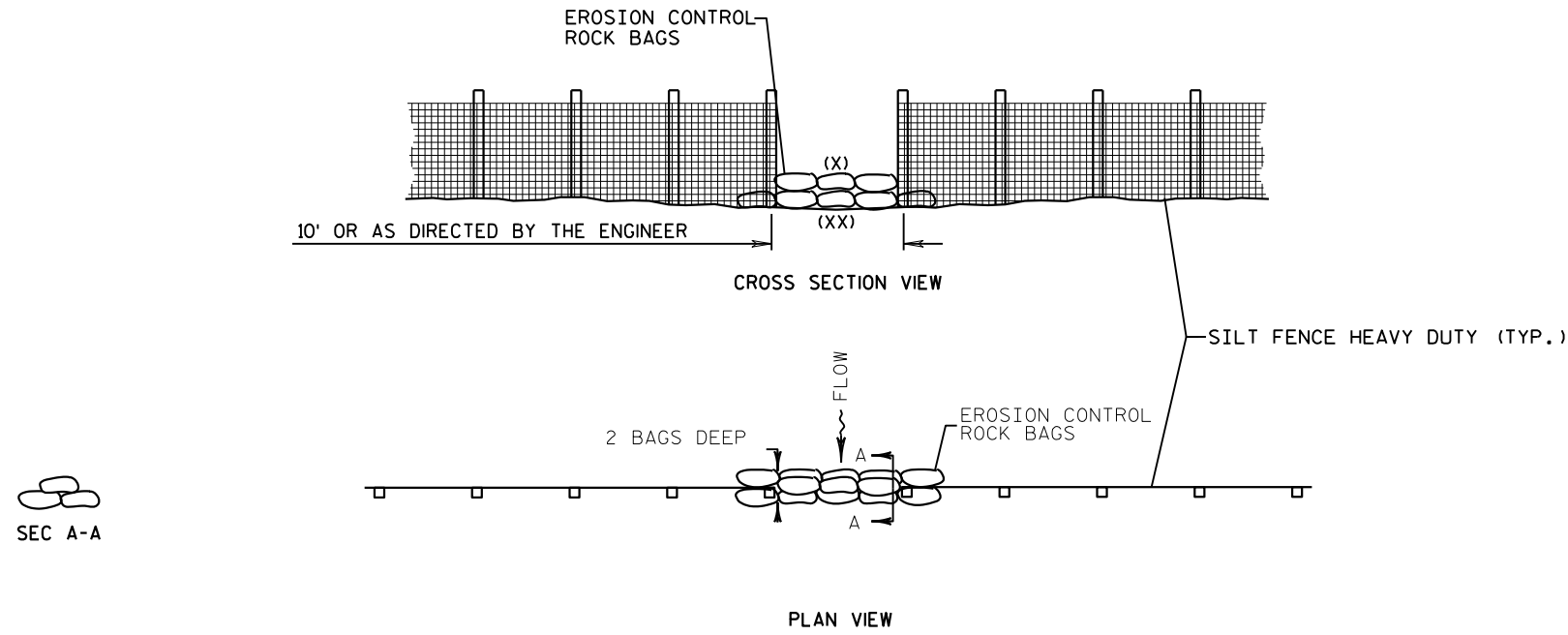


FINISHED TYPICAL SECTION

STA 11+69 - BRIDGE
BRIDGE - STA. 12+61

LEGEND

- (X.S.) POINT REFERRED TO ON CROSS SECTION
- (P.G.L.) POINT REFERRED TO ON PROFILE
- (RES) RESTORATION
(SEE EROSION CONTROL SHEET FOR ADDITIONAL INFO)



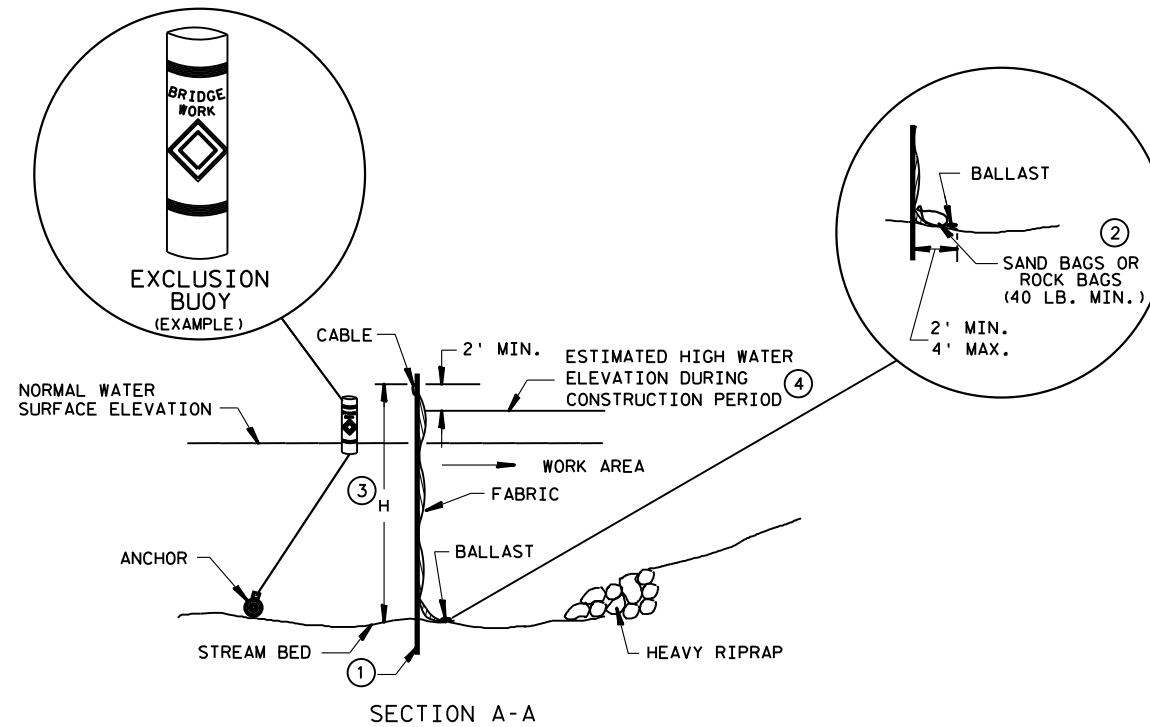
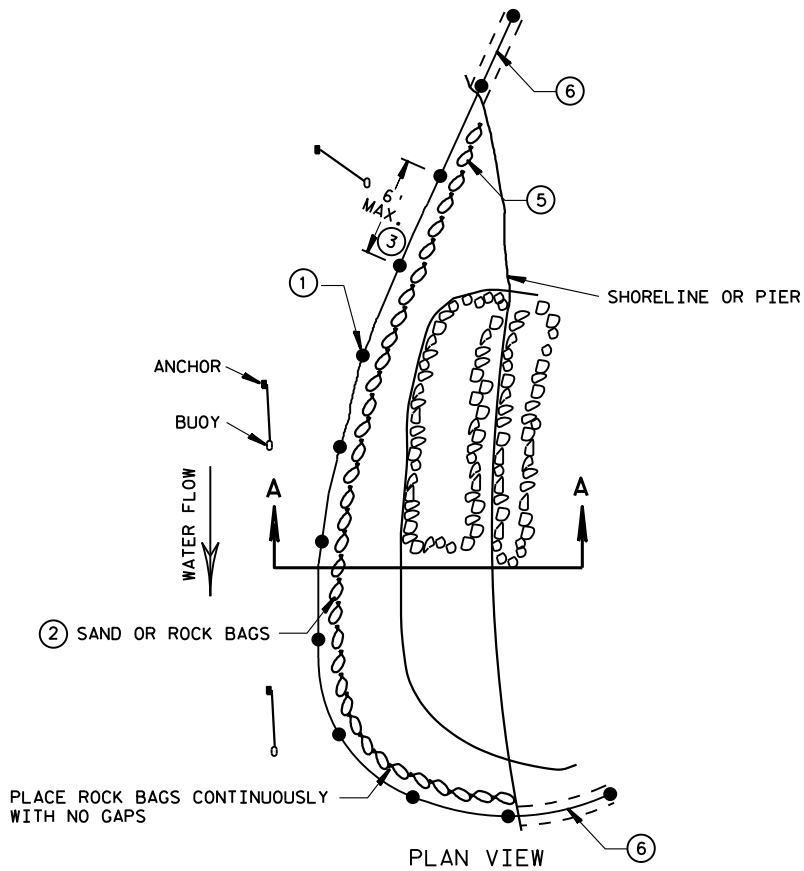
NOTES:

(X) OPENING TO BE PLACED AT LOW POINTS AS DIRECTED BY ENGINEER.

(XX) OPENING IN SILT FENCE HEAVY DUTY NOT TO BE PLACED WITHIN 25' OF THE END OF THE SILT FENCE UNLESS DIRECTED BY THE ENGINEER.

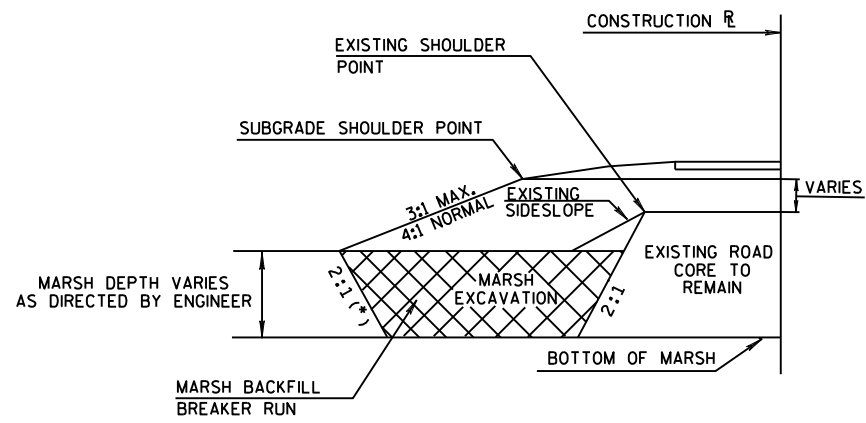
EROSION CONTROL ROCK BAG
OPENING IN SILT FENCE HEAVY DUTY

LOCATIONS TO BE DETERMINED
IN FIELD BY ENGINEER



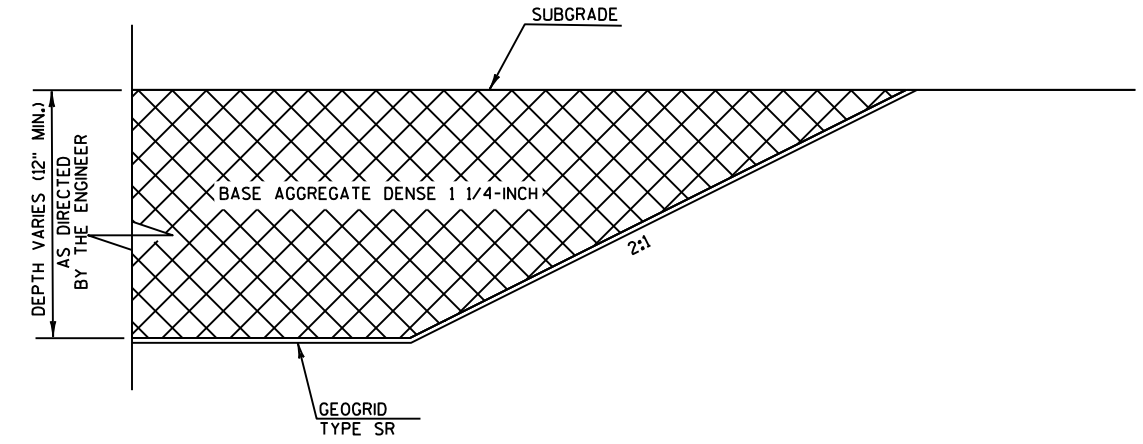
NOTES:

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SAND BAGS OR ROCK BAGS (40 LB. MIN.) TO BE PLACED TOE TO TOE WITH NO GAPS ALONG TURBIDITY BARRIER INSTALLED IN WATER. INCIDENTAL TO BID ITEM TURBIDITY BARRIER.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ ELEVATION VALUE TO BE ESTABLISHED BY THE CONTRACTOR BASED ON THE TIME OF YEAR AND DURATION OF THE ACTIVITY.
- ⑤ CONCRETE BARRIER TO BE USED IN PLACE OF SAND OR ROCK BAGS IN ADVERSE FIELD CONDITIONS. TEMPORARY CONCRETE BARRIER IS INCIDENTAL TO THE TURBIDITY BARRIER ITEM.
- ⑥ EXTEND BARRIER 5 FT. MINIMUM BEYOND SHORELINE. TRENCH OR CUT BARRIER INTO SHORELINE TO SECURELY ANCHOR. EXTENDING BARRIER AND TRENCHING/CUTTING IS INCIDENTAL TO THE TURBIDITY BARRIER ITEM.

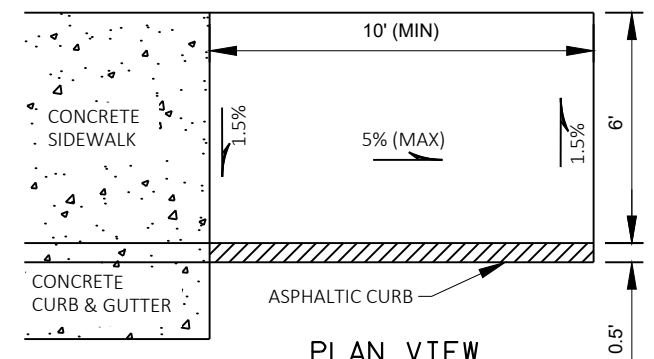


(*) A FLATTER SLOPE MAY BE NECESSARY FOR STABILITY IN WET MARSHES AS DIRECTED BY THE ENGINEER.

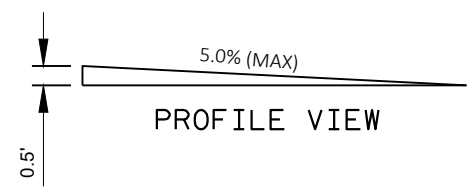
TYPICAL SECTION-MARSH EXCAVATION
LOCATIONS TO BE DETERMINED IN FIELD BY ENGINEER



DETAIL FOR BACKFILL IN EBS AREAS
LOCATIONS TO BE DETERMINED IN FIELD BY ENGINEER



PLAN VIEW

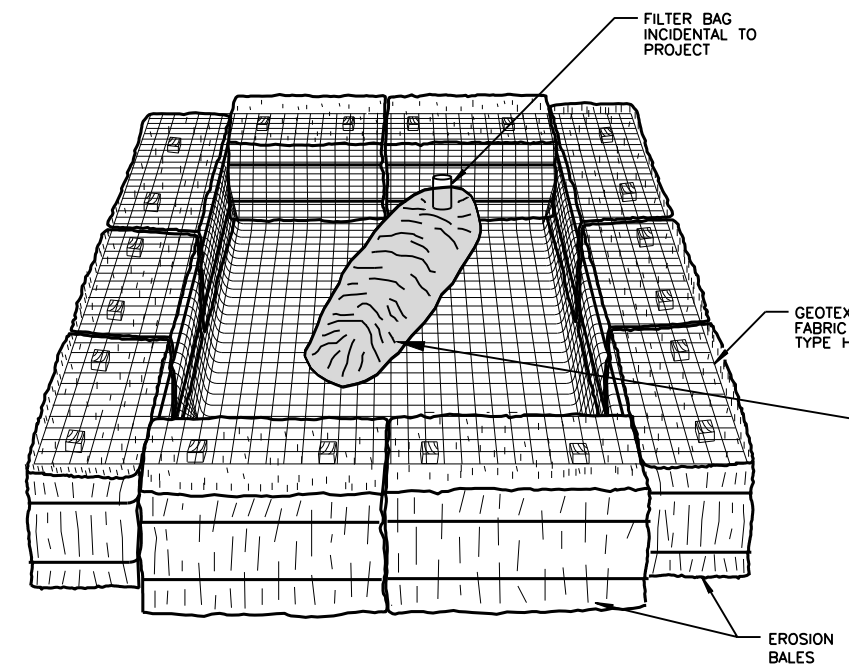


PROFILE VIEW

ASPHALT RAMP DETAIL
STA 10+80 TO STA 10+90 RT
STA 13+40 TO STA 13+50 LT
STA 13+40 TO STA 13+50 RT

- NOTES:
- 1) RAMP PAID BY THE TON UNDER ASPHALTIC SURFACE.
 - 2) ASPHALTIC CURB PAID BY THE LINEAR FOOT.
 - 3) 5" ASPHALTIC SURFACE OVER 4" BASE AGGREGATE DENSE 1 1/4-INCH

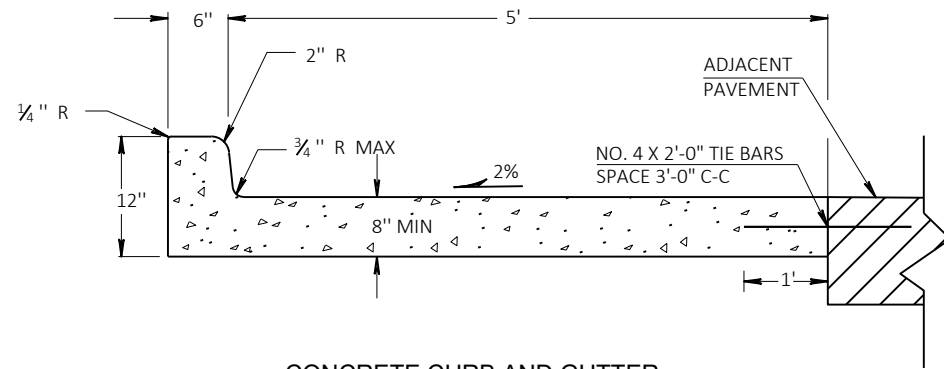
(SIZE TO BE DETERMINED BY THE CONTRACTOR IN THE FIELD AS INDICATED BELOW:)



STORAGE VOLUME (C.F.) = 16 X GPM (PUMP RATE)
EXAMPLE:
CONTRACTOR INDICATES PUMP CAPABLE OF 50 GPM
HEIGHT OF BALES = 1.5 FT.
SOLUTION:
SV (C.F.) = 16 X 50
SV = 800 C.F.
 $\frac{800 \text{ C.F.}}{1.5 \text{ FT.}} = 533 \text{ S.F.}$
USE A 20 FT. X 27 FT. BASIN

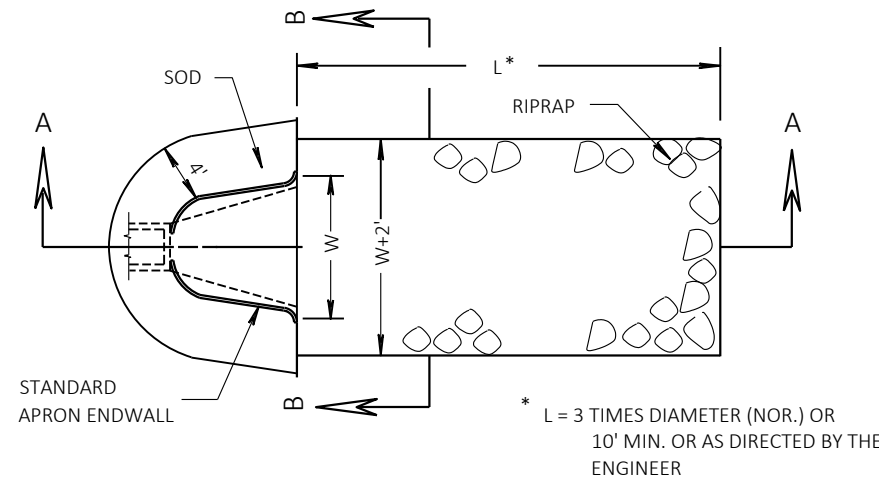
CONTRACTOR TO PROVIDE A SEDIMENT BAG OR APPROVED EQUAL TO BE PLACED INSIDE OF BASIN. THE COST OF ALL WORK AND MATERIALS TO CONSTRUCT THE SETTLING BASIN WILL BE PAID UNDER CONTRACT BID ITEMS EROSION BALES (EACH) AND GEOTEXTILE FABRIC TYPE HR (SY). SEDIMENT BAG AND DEWATERING IS INCIDENTAL TO THE BID ITEMS THE WORK IS ASSOCIATED WITH.

TEMPORARY SETTLING BASIN WITH SEDIMENT BAG



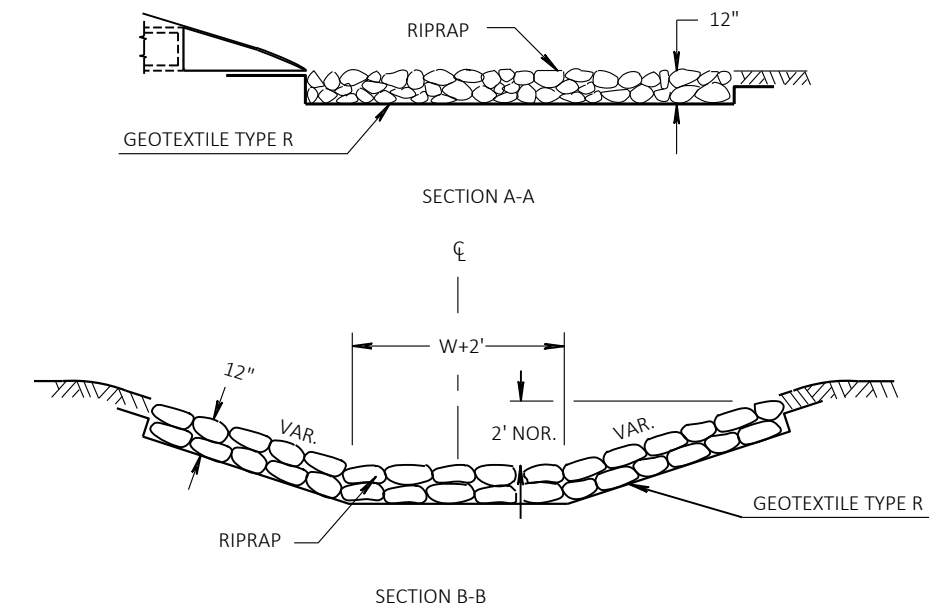
CONCRETE CURB AND GUTTER
66 INCH TYPE A

- NOTES:
- 1) TIE BARS REQUIRED FOR TYPE A.
 - 2) TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.



* L = 3 TIMES DIAMETER (NOR.) OR 10' MIN. OR AS DIRECTED BY THE ENGINEER

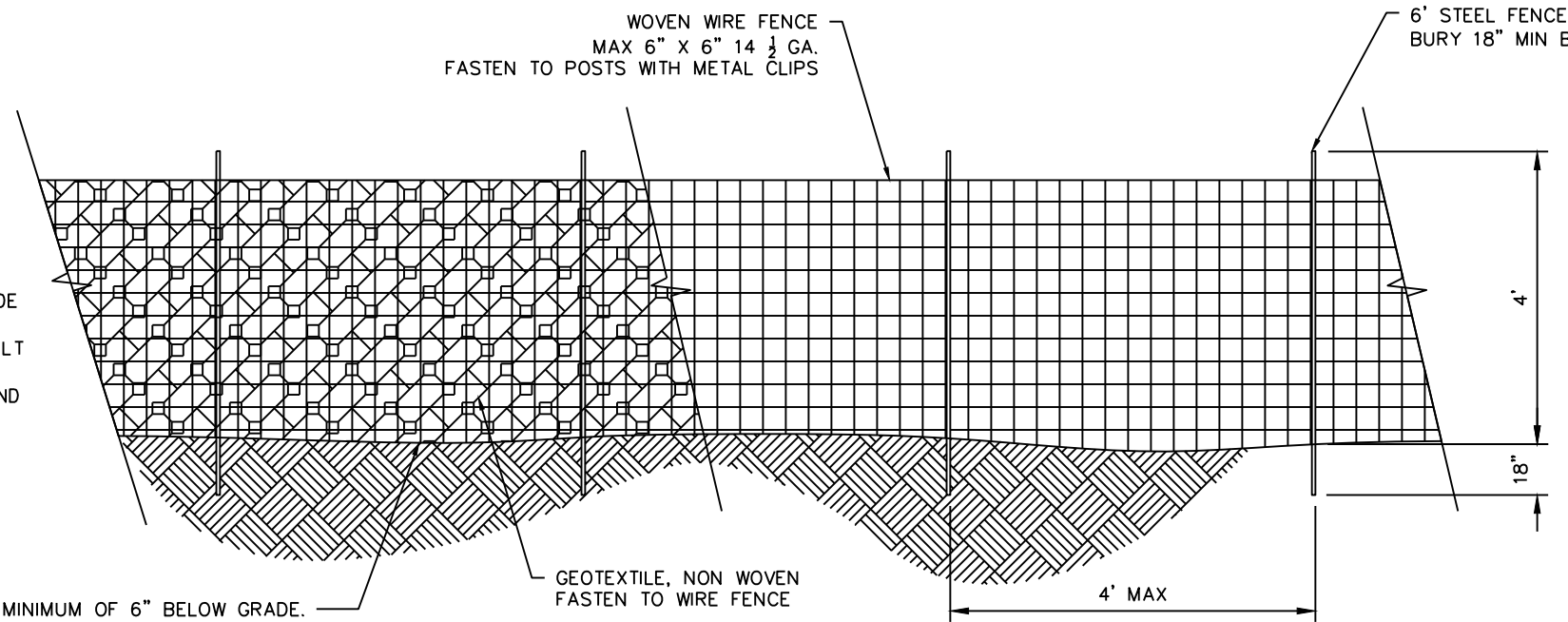
SOD, RIPRAP AND GEOTEXTILE DETAIL
AT APRON ENDWALLS



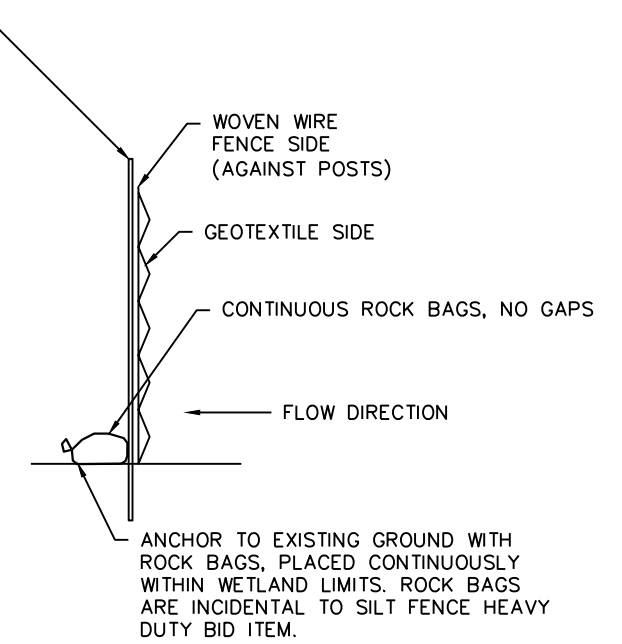
NOTES:

- 1) SEE SDD "SILT FENCE" FOR TRENCH, ANCHOR, AND BACKFILL DETAILS.
- 2) FASTEN GEOTEXTILE TO THE ROADWAY SIDE OF THE FENCE.
- 3) THROUGH WETLAND AREAS ANCHOR THE SILT FENCE HEAVY DUTY TO THE EXISTING GROUND WITH ROCK BAGS LAID END TO END WITH NO GAPS. ANCHORING IS INCIDENTAL TO SILT FENCE HEAVY DUTY.
- 4) ANCHOR MATERIAL INCIDENTAL TO HEAVY DUTY SILT FENCE.

ANCHOR GEOTEXTILE A MINIMUM OF 6" BELOW GRADE. TRENCH, ANCHOR AND BACKFILL SIMILAR TO REGULAR SILT FENCE INSTALLATION (OUTSIDE OF WETLAND LIMITS).



SILT FENCE HEAVY DUTY DETAIL

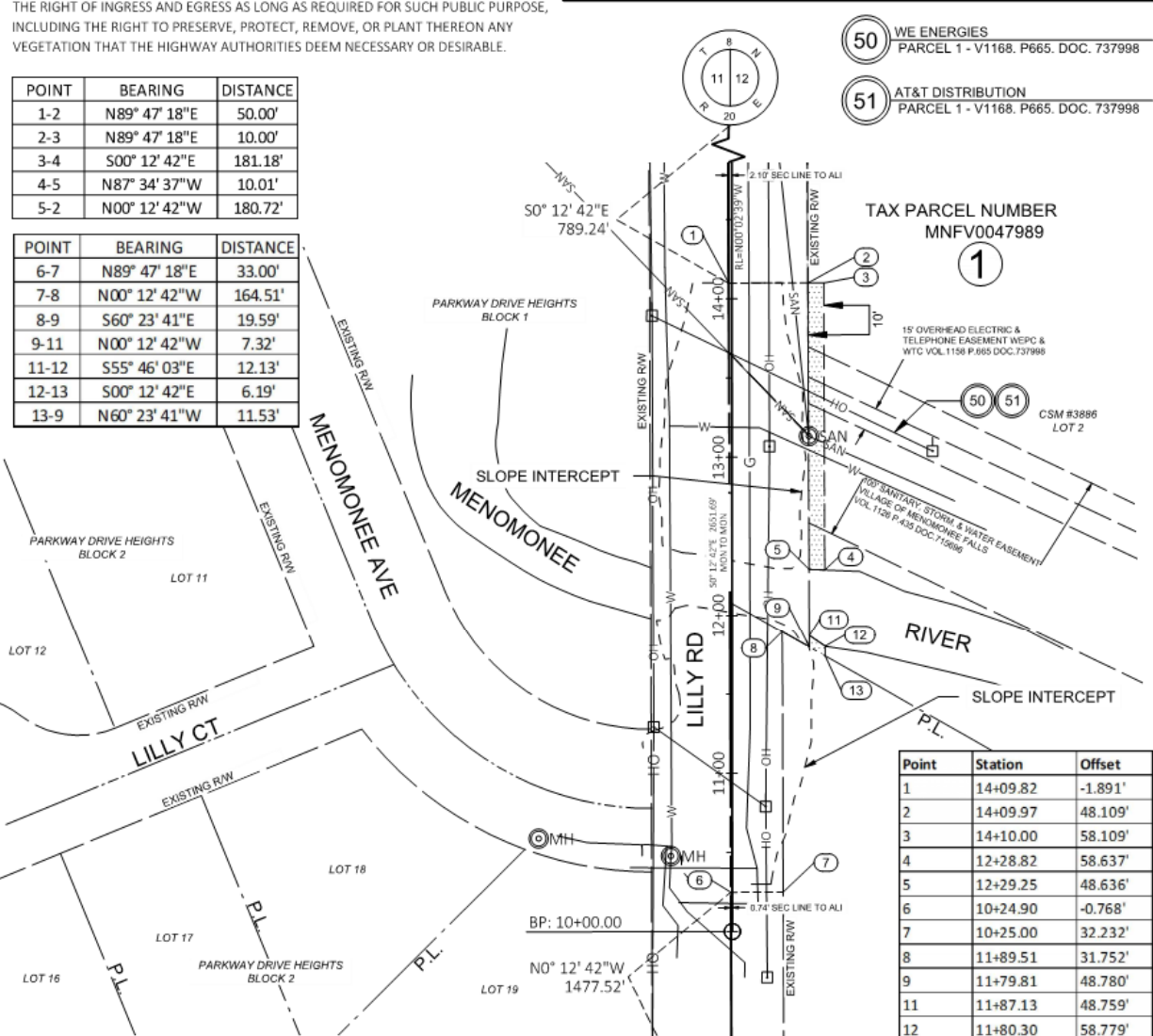


THROUGH WETLANDS

R/W PROJECT NUMBER: 2720-09-00 SHEET NUMBER: 1

TLE ACQUISITION EXHIBIT
 MENOMONEE FALLS
 MENOMONEE RIVER BRIDGE B-67-261 WAUKESHA COUNTY

PART OF LOT 2 CSM 3886, LOCATED IN THE NORTHWEST 1/4 OF THE
 SOUTHWEST 1/4 OF SECTION 12, T8N, R20E, VILLAGE OF MENOMONEE FALLS,
 WAUKESHA COUNTY, WISCONSIN



POINT	BEARING	DISTANCE
1-2	N89° 47' 18"E	50.00'
2-3	N89° 47' 18"E	10.00'
3-4	S00° 12' 42"E	181.18'
4-5	N87° 34' 37"W	10.01'
5-2	N00° 12' 42"W	180.72'

POINT	BEARING	DISTANCE
6-7	N89° 47' 18"E	33.00'
7-8	N00° 12' 42"W	164.51'
8-9	S60° 23' 41"E	19.59'
9-11	N00° 12' 42"W	7.32'
11-12	S55° 46' 03"E	12.13'
12-13	S00° 12' 42"E	6.19'
13-9	N60° 23' 41"W	11.53'

Point	Station	Offset
1	14+09.82	-1.891'
2	14+09.97	48.109'
3	14+10.00	58.109'
4	12+28.82	58.637'
5	12+29.25	48.636'
6	10+24.90	-0.768'
7	10+25.00	32.232'
8	11+89.51	31.752'
9	11+79.81	48.780'
11	11+87.13	48.759'
12	11+80.30	58.779'
13	11+74.11	58.797'

SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	PLE S.F.	TLE S.F.
1	LISA & DEREK DELLWO	TLE	0	1878

UTILITY INTERESTS REQUIRED

UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED
50	WE ENERGIES	RELEASE OF RIGHTS
51	AT&T DISTRIBUTION	RELEASE OF RIGHTS

THIS MAP IS APPROVED FOR VILLAGE OF MENOMONEE FALLS HIGHWAY DEPARTMENT

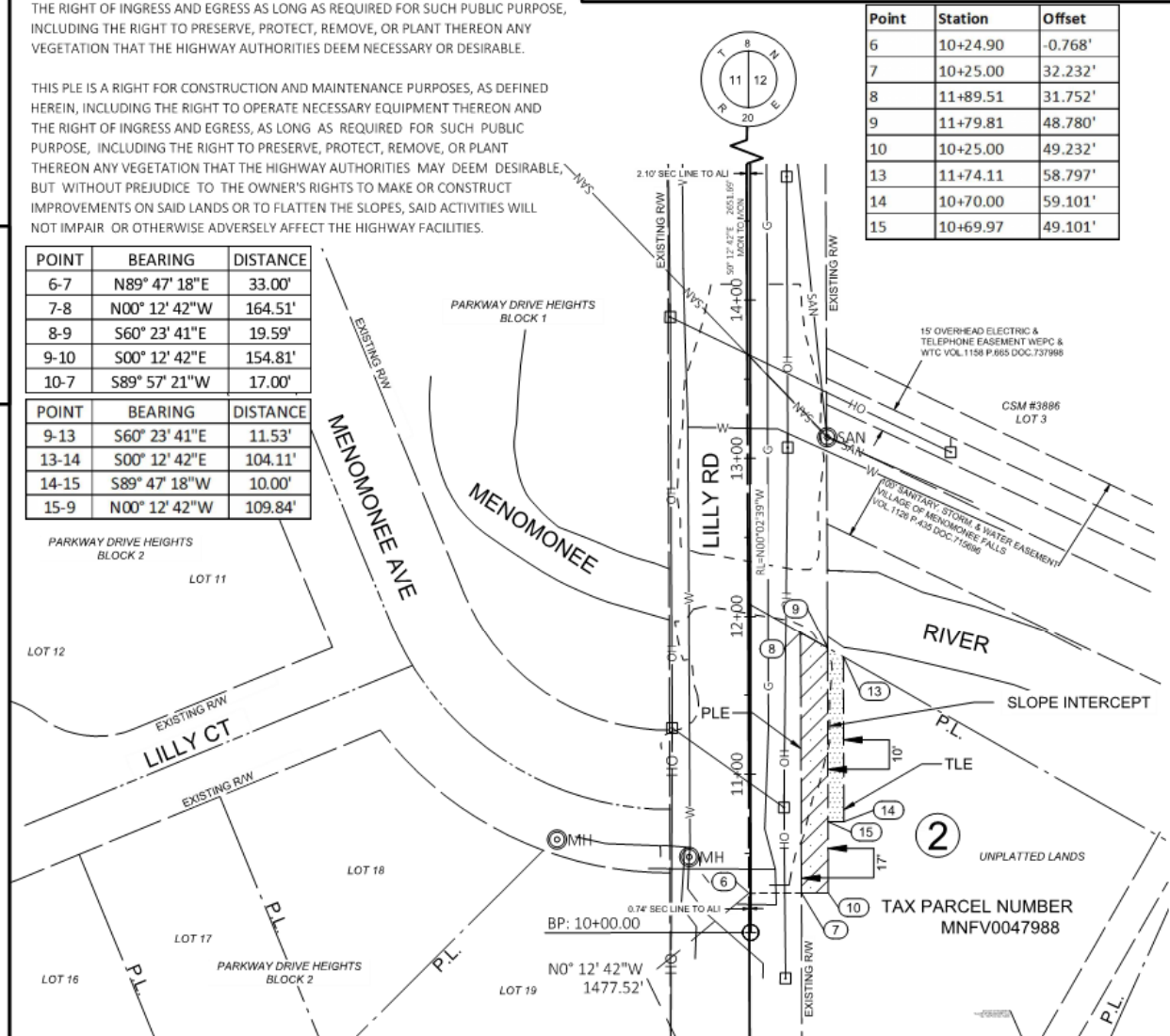
SIGNATURE: *Mark Fitzgerald* DATE: 6/8/21
 PRINT NAME: Mark Fitzgerald

FILE NAME: TIF EXHIBIT PARCEL 1.DWG PLOT DATE: 3/16/2021 2:27 PM R/W PROJECT: 2720-09-00

R/W PROJECT NUMBER: 2720-09-00 SHEET NUMBER: 1

PLE & TLE ACQUISITION EXHIBIT
 MENOMONEE FALLS
 MENOMONEE RIVER BRIDGE B-67-261 WAUKESHA COUNTY

PART OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 12, T8N,
 R20E, VILLAGE OF MENOMONEE FALLS, WAUKESHA COUNTY, WISCONSIN



POINT	BEARING	DISTANCE
6-7	N89° 47' 18"E	33.00'
7-8	N00° 12' 42"W	164.51'
8-9	S60° 23' 41"E	19.59'
9-10	S00° 12' 42"E	154.81'
10-7	S89° 57' 21"W	17.00'

POINT	BEARING	DISTANCE
9-13	S60° 23' 41"E	11.53'
13-14	S00° 12' 42"E	104.11'
14-15	S89° 47' 18"W	10.00'
15-9	N00° 12' 42"W	109.84'

Point	Station	Offset
6	10+24.90	-0.768'
7	10+25.00	32.232'
8	11+89.51	31.752'
9	11+79.81	48.780'
10	10+25.00	49.232'
13	11+74.11	58.797'
14	10+70.00	59.101'
15	10+69.97	49.101'

Point	Station	Offset
1	14+09.82	-1.891'
2	14+09.97	48.109'
3	14+10.00	58.109'
4	12+28.82	58.637'
5	12+29.25	48.636'
6	10+24.90	-0.768'
7	10+25.00	32.232'
8	11+89.51	31.752'
9	11+79.81	48.780'
11	11+87.13	48.759'
12	11+80.30	58.779'
13	11+74.11	58.797'

SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	PLE S.F.	TLE S.F.
2	DONALD & VALERIE FERNANDO	PLE/TLE	2714	1070

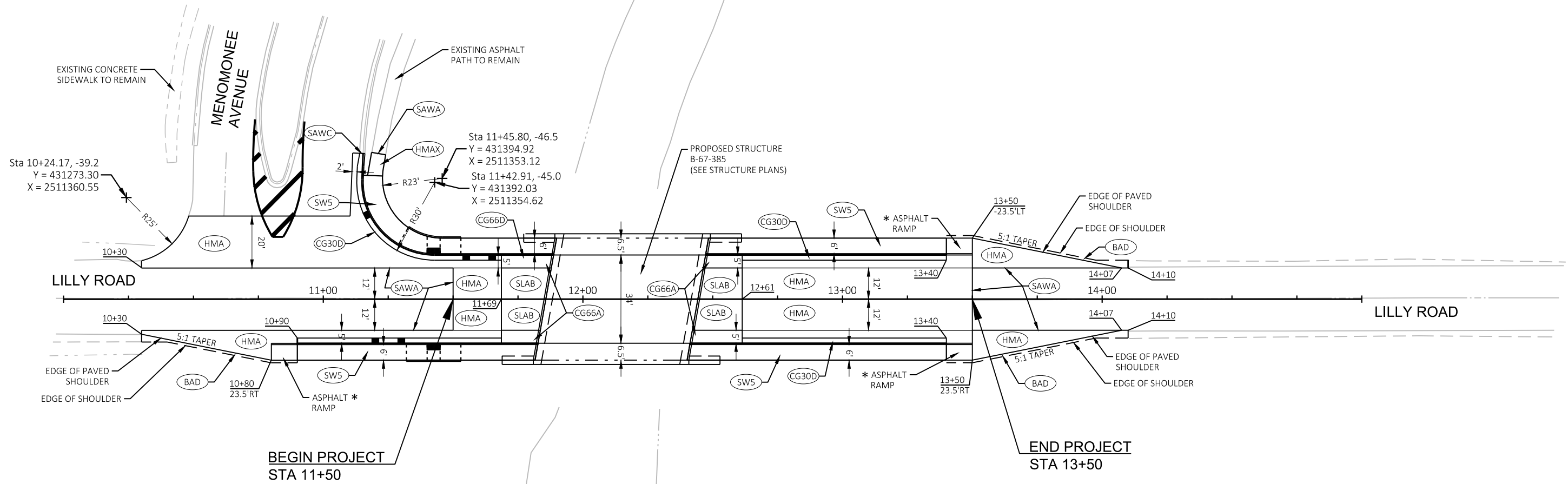
UTILITY INTERESTS REQUIRED

UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED
N/A	N/A	N/A

THIS MAP IS APPROVED FOR VILLAGE OF MENOMONEE FALLS HIGHWAY DEPARTMENT

SIGNATURE: *Mark Fitzgerald* DATE: 6/8/21
 PRINT NAME: Mark Fitzgerald

FILE NAME: TIF EXHIBIT PARCEL 2.DWG PLOT DATE: 3/16/2021 2:23 PM R/W PROJECT: 2720-09-00



NOTES:

* SEE CONSTRUCTION DETAILS FOR ADDITIONAL INFORMATION

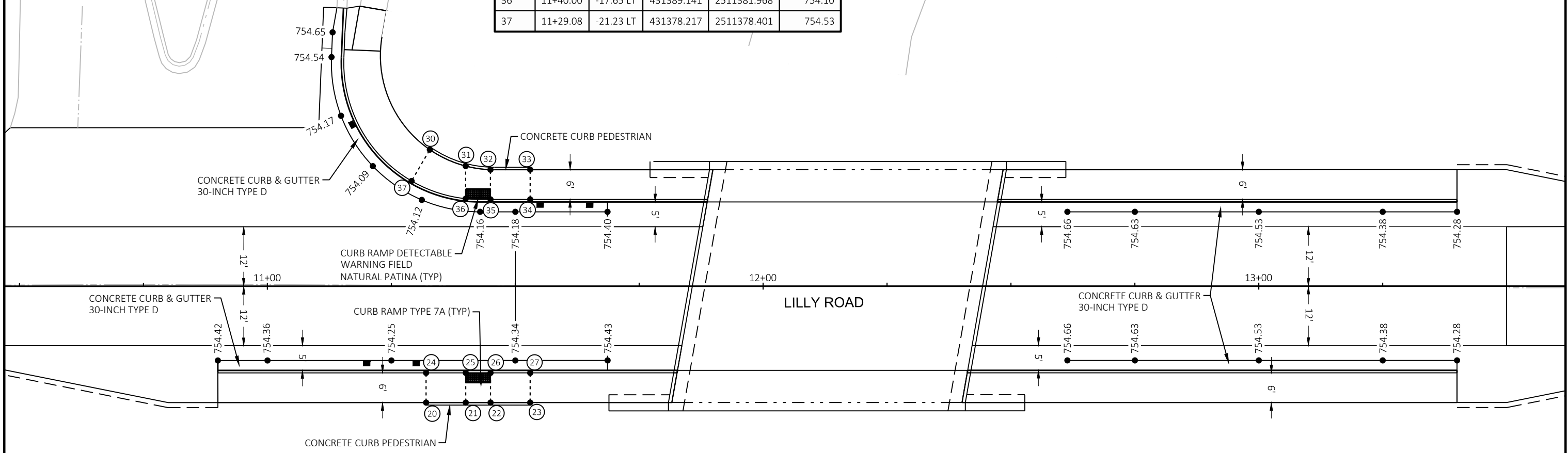
LEGEND

CG30D	CONCRETE CURB & GUTTER 30-INCH TYPE D
CG66A	CONCRETE CURB & GUTTER 66-INCH TYPE A
SW5	CONCRETE SIDEWALK 5-INCH
BAD	5.25-INCH BASE AGGREGATE DENSE 3/4-INCH
HMA	5.25-INCH HMA PAVEMENT
HMAX	5-INCH ASPHALTIC SURFACE OVER 4-INCH BASE AGGREGATE DENSE 3/4-INCH
SAWA	SAWING ASPHALT
SAWC	SAWING CONCRETE
SLAB	CONCRETE PAVEMENT APPROACH SLAB (SEE S.D.D.)
■	DETECTABLE WARNING FIELD

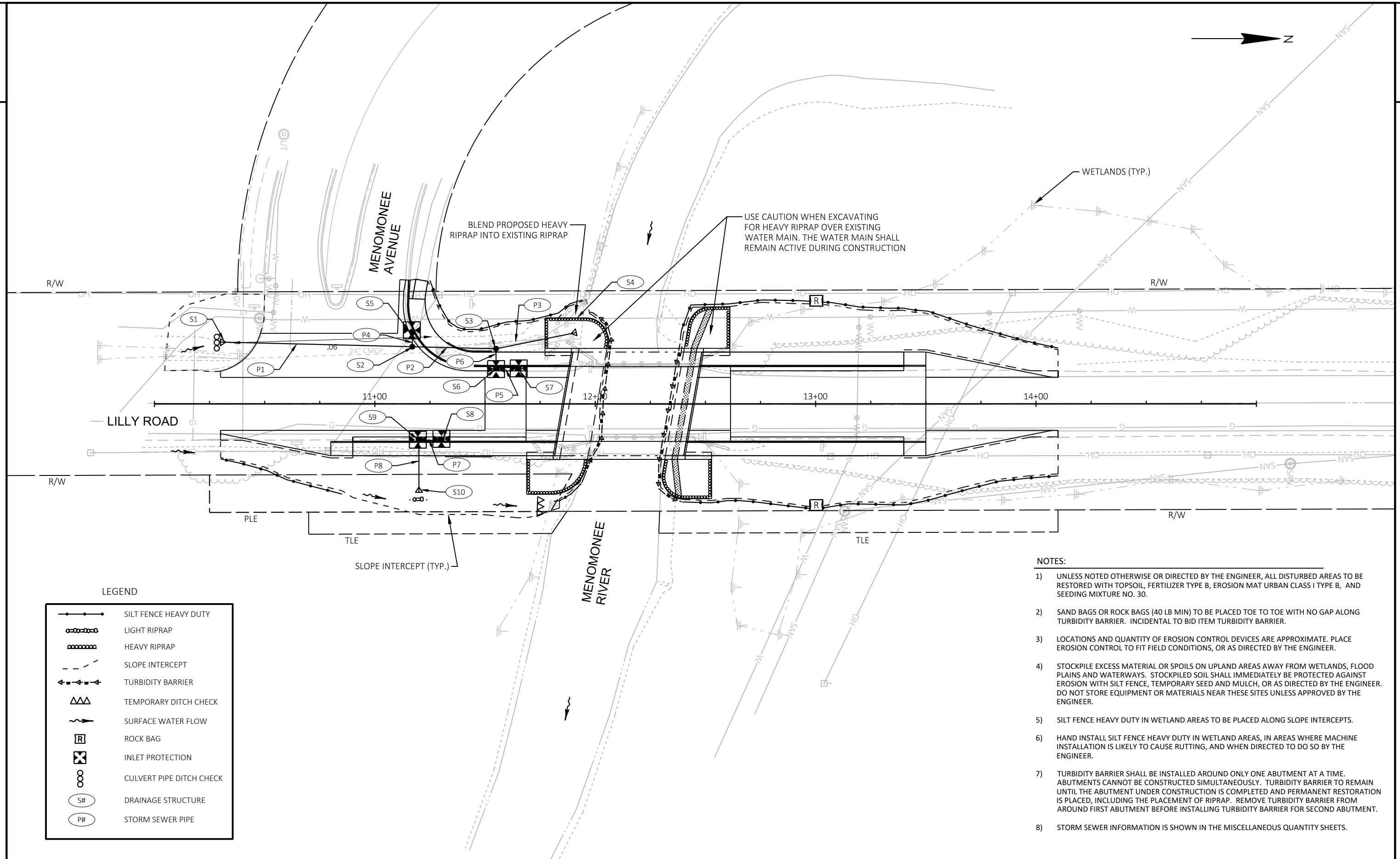
MENOMONEE AVENUE



STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
30	11+32.76	-27.56 LT	431381.892	2511372.072	754.64
31	11+40.00	-24.24 LT	431389.136	2511375.378	754.20
32	11+45.00	-23.51 LT	431394.136	2511376.104	754.20
33	11+53.00	-23.51 LT	431402.136	2511376.098	754.72
34	11+53.00	-17.50 LT	431402.141	2511382.112	754.63
35	11+45.00	-17.50 LT	431394.141	2511382.118	754.11
36	11+40.00	-17.65 LT	431389.141	2511381.968	754.10
37	11+29.08	-21.23 LT	431378.217	2511378.401	754.53



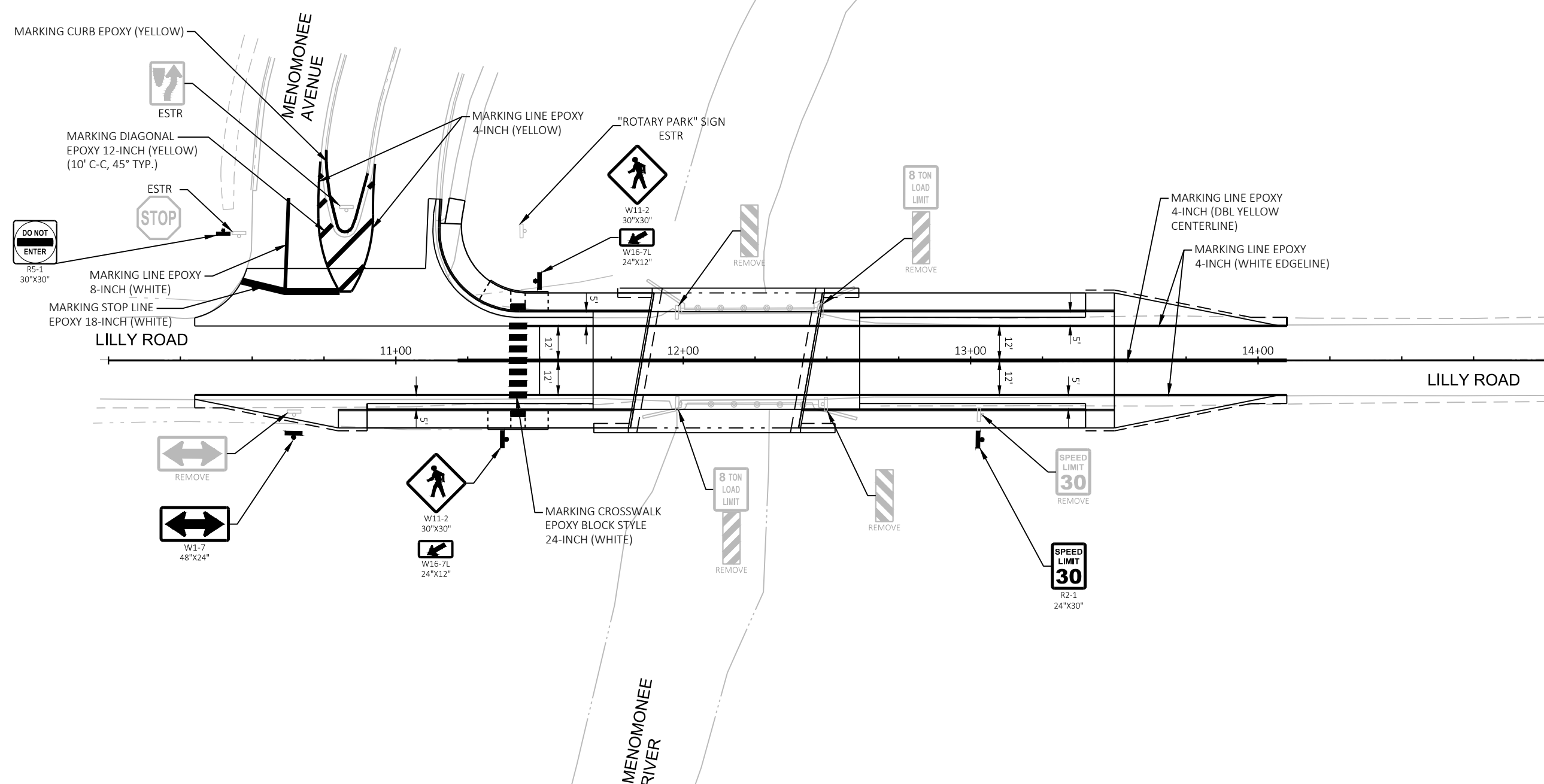
STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
20	11+32.00	23.50 RT	431381.173	2511423.128	754.78
21	11+40.00	23.50 RT	431389.173	2511423.122	754.34
22	11+45.00	23.50 RT	431394.173	2511423.118	754.36
23	11+53.00	23.50 RT	431402.173	2511423.112	754.86
24	11+32.00	17.50 RT	431381.168	2511417.128	754.70
25	11+40.00	17.50 RT	431389.168	2511417.122	754.25
26	11+45.00	17.50 RT	431394.168	2511417.117	754.27
27	11+53.00	17.50 RT	431402.168	2511417.112	754.78



LEGEND

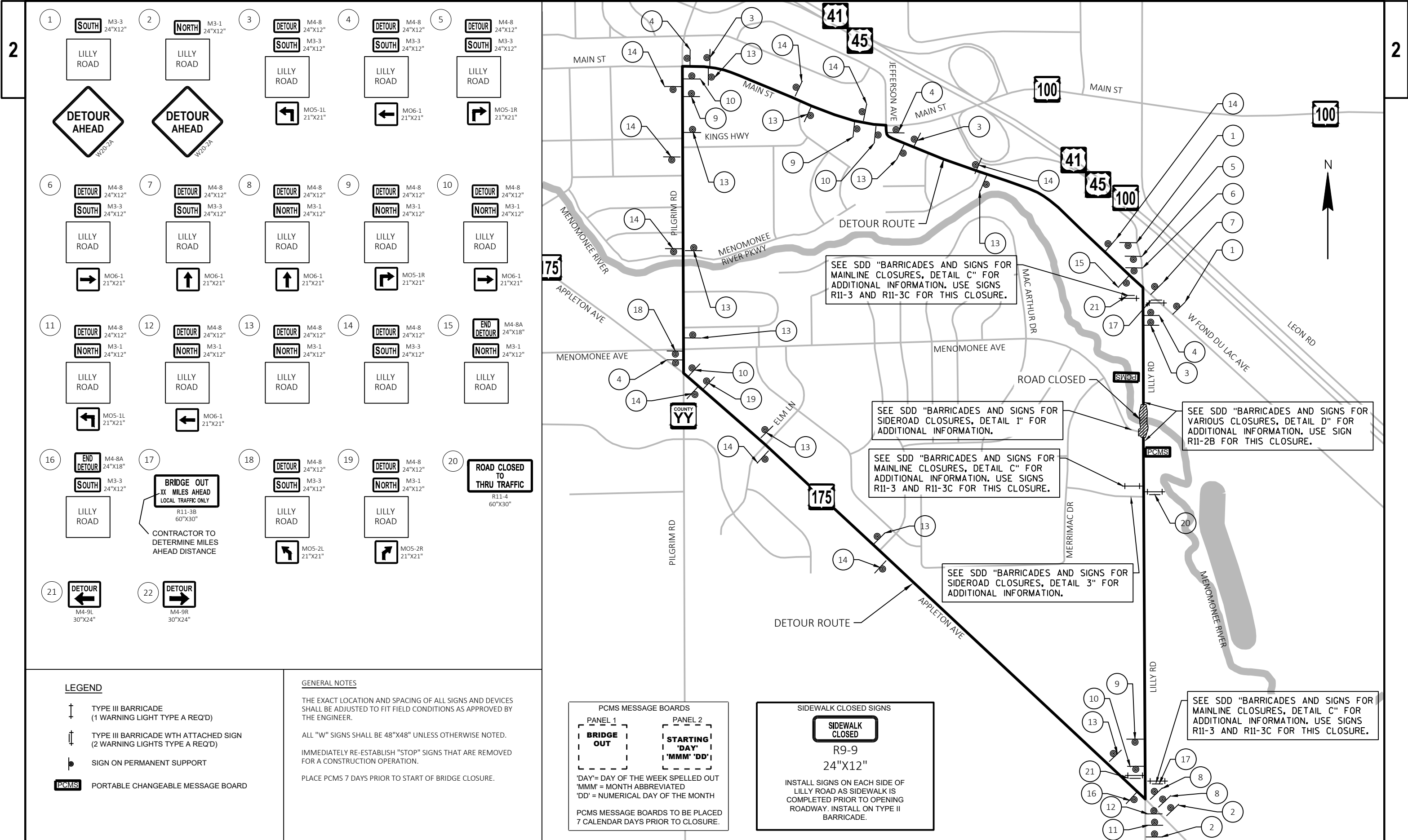
	SILT FENCE HEAVY DUTY
	LIGHT RIPRAP
	HEAVY RIPRAP
	SLOPE INTERCEPT
	TURBIDITY BARRIER
	TEMPORARY DITCH CHECK
	SURFACE WATER FLOW
	ROCK BAG
	INLET PROTECTION
	CULVERT PIPE DITCH CHECK
	DRAINAGE STRUCTURE
	STORM SEWER PIPE

- NOTES:**
- UNLESS NOTED OTHERWISE OR DIRECTED BY THE ENGINEER, ALL DISTURBED AREAS TO BE RESTORED WITH TOPSOIL, FERTILIZER TYPE B, EROSION MAT URBAN CLASS I TYPE B, AND SEEDING MIXTURE NO. 30.
 - SAND BAGS OR ROCK BAGS (40 LB MIN) TO BE PLACED TOE TO TOE WITH NO GAP ALONG TURBIDITY BARRIER. INCIDENTAL TO BID ITEM TURBIDITY BARRIER.
 - LOCATIONS AND QUANTITY OF EROSION CONTROL DEVICES ARE APPROXIMATE. PLACE EROSION CONTROL TO FIT FIELD CONDITIONS, OR AS DIRECTED BY THE ENGINEER.
 - STOCKPILE EXCESS MATERIAL OR SPOILS ON UPLAND AREAS AWAY FROM WETLANDS, FLOOD PLAINS AND WATERWAYS. STOCKPILED SOIL SHALL IMMEDIATELY BE PROTECTED AGAINST EROSION WITH SILT FENCE, TEMPORARY SEED AND MULCH, OR AS DIRECTED BY THE ENGINEER. DO NOT STORE EQUIPMENT OR MATERIALS NEAR THESE SITES UNLESS APPROVED BY THE ENGINEER.
 - SILT FENCE HEAVY DUTY IN WETLAND AREAS TO BE PLACED ALONG SLOPE INTERCEPTS.
 - HAND INSTALL SILT FENCE HEAVY DUTY IN WETLAND AREAS, IN AREAS WHERE MACHINE INSTALLATION IS LIKELY TO CAUSE RUTTING, AND WHEN DIRECTED TO DO SO BY THE ENGINEER.
 - TURBIDITY BARRIER SHALL BE INSTALLED AROUND ONLY ONE ABUTMENT AT A TIME. ABUTMENTS CANNOT BE CONSTRUCTED SIMULTANEOUSLY. TURBIDITY BARRIER TO REMAIN UNTIL THE ABUTMENT UNDER CONSTRUCTION IS COMPLETED AND PERMANENT RESTORATION IS PLACED, INCLUDING THE PLACEMENT OF RIPRAP. REMOVE TURBIDITY BARRIER FROM AROUND FIRST ABUTMENT BEFORE INSTALLING TURBIDITY BARRIER FOR SECOND ABUTMENT.
 - STORM SEWER INFORMATION IS SHOWN IN THE MISCELLANEOUS QUANTITY SHEETS.



LEGEND

	EXISTING SIGN
	PROPOSED SIGN
	EXISTING SIGN TO REMAIN



- 1 SOUTH M3-3 24"x12"
LILLY ROAD
DETOUR AHEAD W20-2A
- 2 NORTH M3-1 24"x12"
LILLY ROAD
DETOUR AHEAD W20-2A
- 3 DETOUR M4-8 24"x12"
SOUTH M3-3 24"x12"
LILLY ROAD
M05-1L 21"x21"
- 4 DETOUR M4-8 24"x12"
SOUTH M3-3 24"x12"
LILLY ROAD
M06-1 21"x21"
- 5 DETOUR M4-8 24"x12"
SOUTH M3-3 24"x12"
LILLY ROAD
M05-1R 21"x21"
- 6 DETOUR M4-8 24"x12"
SOUTH M3-3 24"x12"
LILLY ROAD
M06-1 21"x21"
- 7 DETOUR M4-8 24"x12"
SOUTH M3-3 24"x12"
LILLY ROAD
M06-1 21"x21"
- 8 DETOUR M4-8 24"x12"
NORTH M3-1 24"x12"
LILLY ROAD
M06-1 21"x21"
- 9 DETOUR M4-8 24"x12"
NORTH M3-1 24"x12"
LILLY ROAD
M05-1R 21"x21"
- 10 DETOUR M4-8 24"x12"
NORTH M3-1 24"x12"
LILLY ROAD
M06-1 21"x21"
- 11 DETOUR M4-8 24"x12"
NORTH M3-1 24"x12"
LILLY ROAD
M05-1L 21"x21"
- 12 DETOUR M4-8 24"x12"
NORTH M3-1 24"x12"
LILLY ROAD
M06-1 21"x21"
- 13 DETOUR M4-8 24"x12"
NORTH M3-1 24"x12"
LILLY ROAD
M06-1 21"x21"
- 14 DETOUR M4-8 24"x12"
SOUTH M3-3 24"x12"
LILLY ROAD
M05-1R 21"x21"
- 15 END DETOUR M4-8A 24"x18"
NORTH M3-1 24"x12"
LILLY ROAD
M06-1 21"x21"
- 16 END DETOUR M4-8A 24"x18"
SOUTH M3-3 24"x12"
LILLY ROAD
M05-1L 21"x21"
- 17 BRIDGE OUT XX MILES AHEAD LOCAL TRAFFIC ONLY R11-3B 60"x30"
CONTRACTOR TO DETERMINE MILES AHEAD DISTANCE
- 18 DETOUR M4-8 24"x12"
SOUTH M3-3 24"x12"
LILLY ROAD
M05-2L 21"x21"
- 19 DETOUR M4-8 24"x12"
NORTH M3-1 24"x12"
LILLY ROAD
M05-2R 21"x21"
- 20 ROAD CLOSED TO THRU TRAFFIC R11-4 60"x30"
- 21 DETOUR M4-9L 30"x24"
LILLY ROAD
- 22 DETOUR M4-9R 30"x24"
LILLY ROAD

LEGEND	
	TYPE III BARRICADE (1 WARNING LIGHT TYPE A REQ'D)
	TYPE III BARRICADE WITH ATTACHED SIGN (2 WARNING LIGHTS TYPE A REQ'D)
	SIGN ON PERMANENT SUPPORT
	PORTABLE CHANGEABLE MESSAGE BOARD

GENERAL NOTES

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

ALL "W" SIGNS SHALL BE 48"x48" UNLESS OTHERWISE NOTED.

IMMEDIATELY RE-ESTABLISH "STOP" SIGNS THAT ARE REMOVED FOR A CONSTRUCTION OPERATION.

PLACE PCMS 7 DAYS PRIOR TO START OF BRIDGE CLOSURE.

PCMS MESSAGE BOARDS

PANEL 1 BRIDGE OUT	PANEL 2 STARTING 'DAY' 'MMM' 'DD'
-----------------------	--------------------------------------

'DAY' = DAY OF THE WEEK SPELLED OUT
'MMM' = MONTH ABBREVIATED
'DD' = NUMERICAL DAY OF THE MONTH

PCMS MESSAGE BOARDS TO BE PLACED 7 CALENDAR DAYS PRIOR TO CLOSURE.

SIDEWALK CLOSED SIGNS

SIDEWALK CLOSED
R9-9
24"x12"

INSTALL SIGNS ON EACH SIDE OF LILLY ROAD AS SIDEWALK IS COMPLETED PRIOR TO OPENING ROADWAY. INSTALL ON TYPE II BARRICADE.

SEE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES, DETAIL C" FOR ADDITIONAL INFORMATION. USE SIGNS R11-3 AND R11-3C FOR THIS CLOSURE.

Estimate Of Quantities

2720-09-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	5.000	5.000
0004	201.0205	Grubbing	STA	5.000	5.000
0006	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0008	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. B-67-0261	EACH	1.000	1.000
0010	204.0150	Removing Curb & Gutter	LF	6.000	6.000
0012	204.0280	Sealing Pipes	EACH	4.000	4.000
0014	205.0100	Excavation Common	CY	612.000	612.000
0016	205.0400	Excavation Marsh	CY	150.000	150.000
0018	206.1000	Excavation for Structures Bridges (structure) 01. B-67-0385	LS	1.000	1.000
0020	208.0100	Borrow	CY	1,001.000	1,001.000
0022	210.1500	Backfill Structure Type A	TON	480.000	480.000
0024	213.0100	Finishing Roadway (project) 01. 2720-09-70	EACH	1.000	1.000
0026	305.0110	Base Aggregate Dense 3/4-Inch	TON	250.000	250.000
0028	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,062.000	1,062.000
0030	311.0110	Breaker Run	TON	405.000	405.000
0032	415.0410	Concrete Pavement Approach Slab	SY	92.000	92.000
0034	450.4000	HMA Cold Weather Paving	TON	218.000	218.000
0036	455.0605	Tack Coat	GAL	35.000	35.000
0038	460.2000	Incentive Density HMA Pavement	DOL	140.000	140.000
0040	460.5223	HMA Pavement 3 LT 58-28 S	TON	133.000	133.000
0042	460.5224	HMA Pavement 4 LT 58-28 S	TON	85.000	85.000
0044	465.0105	Asphaltic Surface	TON	11.000	11.000
0046	465.0310	Asphaltic Curb	LF	30.000	30.000
0048	502.0100	Concrete Masonry Bridges	CY	229.000	229.000
0050	502.3200	Protective Surface Treatment	SY	365.000	365.000
0052	503.0128	Prestressed Girder Type I 28-Inch	LF	456.000	456.000
0054	505.0400	Bar Steel Reinforcement HS Structures	LB	5,840.000	5,840.000
0056	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	26,490.000	26,490.000
0058	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	16.000	16.000
0060	506.4000	Steel Diaphragms (structure) 01. B-67-0385	EACH	7.000	7.000
0062	513.7084	Railing Steel Type NY4	LF	181.400	181.400
0064	516.0500	Rubberized Membrane Waterproofing	SY	26.000	26.000
0066	521.1524	Apron Endwalls for Culvert Pipe Sloped Side Drains Steel 24-Inch 6 to 1	EACH	1.000	1.000
0068	522.1015	Apron Endwalls for Culvert Pipe Reinforced Concrete 15-Inch	EACH	1.000	1.000
0070	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	1.000	1.000
0072	550.0500	Pile Points	EACH	22.000	22.000
0074	550.2104	Piling CIP Concrete 10 3/4 X 0.25-Inch	LF	1,375.000	1,375.000
0076	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	318.000	318.000
0078	601.0600	Concrete Curb Pedestrian	LF	42.000	42.000
0080	602.0410	Concrete Sidewalk 5-Inch	SF	2,275.000	2,275.000
0082	602.0515	Curb Ramp Detectable Warning Field Natural Patina	SF	20.000	20.000
0084	606.0100	Riprap Light	CY	5.000	5.000
0086	606.0300	Riprap Heavy	CY	240.000	240.000
0088	608.0315	Storm Sewer Pipe Reinforced Concrete Class III 15-Inch	LF	26.000	26.000
0090	608.0324	Storm Sewer Pipe Reinforced Concrete Class III 24-Inch	LF	31.000	31.000
0092	608.0412	Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch	LF	20.000	20.000
0094	608.0415	Storm Sewer Pipe Reinforced Concrete Class IV 15-Inch	LF	6.500	6.500
0096	608.0424	Storm Sewer Pipe Reinforced Concrete Class IV 24-Inch	LF	118.000	118.000
0098	611.0530	Manhole Covers Type J	EACH	2.000	2.000

Estimate Of Quantities

2720-09-70

Line	Item	Item Description	Unit	Total	Qty
0100	611.0624	Inlet Covers Type H	EACH	2.000	2.000
0102	611.0639	Inlet Covers Type H-S	EACH	3.000	3.000
0104	611.1004	Catch Basins 4-FT Diameter	EACH	1.000	1.000
0106	611.1230	Catch Basins 2x3-FT	EACH	4.000	4.000
0108	611.2005	Manholes 5-FT Diameter	EACH	2.000	2.000
0110	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	180.000	180.000
0112	612.0902.S	Insulation Board Polystyrene (inch) 01. 2-INCH	SY	24.000	24.000
0114	618.0100	Maintenance And Repair of Haul Roads (project) 01. 2720-09-70	EACH	1.000	1.000
0116	619.1000	Mobilization	EACH	1.000	1.000
0118	624.0100	Water	MGAL	24.000	24.000
0120	625.0100	Topsoil	SY	1,898.000	1,898.000
0122	627.0200	Mulching	SY	500.000	500.000
0124	628.1104	Erosion Bales	EACH	50.000	50.000
0126	628.1504	Silt Fence	LF	200.000	200.000
0128	628.1520	Silt Fence Maintenance	LF	200.000	200.000
0130	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0132	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000
0134	628.2008	Erosion Mat Urban Class I Type B	SY	1,898.000	1,898.000
0136	628.6005	Turbidity Barriers	SY	300.000	300.000
0138	628.7005	Inlet Protection Type A	EACH	9.000	9.000
0140	628.7015	Inlet Protection Type C	EACH	5.000	5.000
0142	628.7020	Inlet Protection Type D	EACH	7.000	7.000
0144	628.7504	Temporary Ditch Checks	LF	16.000	16.000
0146	628.7555	Culvert Pipe Checks	EACH	4.000	4.000
0148	628.7560	Tracking Pads	EACH	2.000	2.000
0150	628.7570	Rock Bags	EACH	75.000	75.000
0152	629.0210	Fertilizer Type B	CWT	1.200	1.200
0154	630.0130	Seeding Mixture No. 30	LB	53.000	53.000
0156	630.0200	Seeding Temporary	LB	53.000	53.000
0158	630.0300	Seeding Borrow Pit	LB	15.000	15.000
0160	630.0500	Seed Water	MGAL	43.000	43.000
0162	633.5200	Markers Culvert End	EACH	3.000	3.000
0164	634.0814	Posts Tubular Steel 2x2-Inch X 14-FT	EACH	4.000	4.000
0166	634.0816	Posts Tubular Steel 2x2-Inch X 16-FT	EACH	2.000	2.000
0168	637.2210	Signs Type II Reflective H	SF	11.250	11.250
0170	637.2230	Signs Type II Reflective F	SF	24.500	24.500
0172	638.2602	Removing Signs Type II	EACH	6.000	6.000
0174	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0176	642.5001	Field Office Type B	EACH	1.000	1.000
0178	643.0300	Traffic Control Drums	DAY	1,220.000	1,220.000
0180	643.0410	Traffic Control Barricades Type II	DAY	641.000	641.000
0182	643.0420	Traffic Control Barricades Type III	DAY	3,222.000	3,222.000
0184	643.0705	Traffic Control Warning Lights Type A	DAY	4,968.000	4,968.000
0186	643.0900	Traffic Control Signs	DAY	21,608.000	21,608.000
0188	643.1000	Traffic Control Signs Fixed Message	SF	171.500	171.500
0190	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0192	643.5000	Traffic Control	EACH	1.000	1.000
0194	645.0111	Geotextile Type DF Schedule A	SY	160.000	160.000
0196	645.0120	Geotextile Type HR	SY	535.000	535.000

Estimate Of Quantities

2720-09-70

Line	Item	Item Description	Unit	Total	Qty
0198	645.0130	Geotextile Type R	SY	28.000	28.000
0200	645.0220	Geogrid Type SR	SY	330.000	330.000
0202	646.1020	Marking Line Epoxy 4-Inch	LF	1,317.000	1,317.000
0204	646.3020	Marking Line Epoxy 8-Inch	LF	33.000	33.000
0206	646.6120	Marking Stop Line Epoxy 18-Inch	LF	35.000	35.000
0208	646.7120	Marking Diagonal Epoxy 12-Inch	LF	50.000	50.000
0210	646.7520	Marking Crosswalk Epoxy Block Style 24-Inch	LF	42.000	42.000
0212	646.8120	Marking Curb Epoxy	LF	54.000	54.000
0214	650.4000	Construction Staking Storm Sewer	EACH	10.000	10.000
0216	650.4500	Construction Staking Subgrade	LF	326.000	326.000
0218	650.5000	Construction Staking Base	LF	288.000	288.000
0220	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	318.000	318.000
0222	650.6500	Construction Staking Structure Layout (structure) 01. B-67-0385	LS	1.000	1.000
0224	650.7000	Construction Staking Concrete Pavement	LF	38.000	38.000
0226	650.9000	Construction Staking Curb Ramps	EACH	2.000	2.000
0228	650.9910	Construction Staking Supplemental Control (project) 01. 2720-09-70	LS	1.000	1.000
0230	650.9920	Construction Staking Slope Stakes	LF	326.000	326.000
0232	690.0150	Sawing Asphalt	LF	503.000	503.000
0234	690.0250	Sawing Concrete	LF	2.000	2.000
0236	715.0502	Incentive Strength Concrete Structures	DOL	1,374.000	1,374.000
0238	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0240	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 12+20	EACH	1.000	1.000
0242	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	600.000	600.000
0244	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	1,600.000	1,600.000
0246	SPV.0060	Special 01. Utility Line Opening (ULO)	EACH	4.000	4.000
0248	SPV.0090	Special 01. Concrete Curb & Gutter 66-inch Type A	LF	68.000	68.000
0250	SPV.0090	Special 02. Silt Fence Heavy Duty	LF	645.000	645.000
0252	SPV.0195	Special 01. Selected Crushed Material for Travel Corridor	TON	4.000	4.000

DIVISION	FROM/TO STATION	205.0100 EXCAVATION COMMON (1)		SALVAGED/UNUSABLE PAVEMENT MATERIAL (4)	205.0400 EXCAVATION MARSH (5)	EXPANDED MARSH BACKFILL (6) FACTOR 1.50	UNEXPANDED FILL	EXPANDED FILL FACTOR 1.15	WASTE (7)	208.0100 BORROW (8)	305.0120* BASE AGGREGATE DENSE 1 1/4-INCH (3)	311.0110 BREAKER RUN (6)	645.0220 GEOGRID TYPE SR (9)	COMMENT
		CUT (2) CY	EBS EXCAVATION (3) CY											
LILLY RD UNDISTRIBUTED	10+30/14+10 -	512 0	0 100	185 0	0 150	0 225	870 0	1,001 0	512 250	1,001 0	0 200	0 405	0 330	SEE NOTES SEE NOTES
DIVISION 1 SUBTOTAL		512	100	185	150	225	870	1,001	762	1,001	200	405	330	
GRAND TOTAL		512	100	185	150	225	870	1,001	762	1,001	200	405	330	-
TOTAL COMMON EXC		612												

- NOTES:
- (1) EXCAVATION COMMON IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS.
 - (2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
 - (3) EBS EXCAVATION LOCATIONS TO BE DETERMINED BY THE ENGINEER IN THE FIELD. BACKFILL WITH BASE AGGREGATE DENSE 1 1/4-INCH (ESTIMATED AT 2.0 TONS/CY). SEE CONSTRUCTION DETAIL.
 - (4) SALVAGED/UNUSABLE PAVEMENT MATERIAL. SEE EARTHWORK COMPUTATIONS.
 - (5) EXCAVATION MARSH LOCATIONS TO BE DETERMINED BY THE ENGINEER IN THE FIELD.
 - (6) EXPANDED MARSH BACKFILL TO BE BACKFILLED WITH BREAKER RUN (ESTIMATED AT 1.8 TONS/CY). SEE CONSTRUCTION DETAIL.
 - (7) WASTE = EXCAVATION COMMON + EXCAVATION MARSH. FOR GENERAL INFORMATION ONLY.
 - (8) BORROW MATERIAL ESTIMATED FOR ALL EXPANDED FILL. CUT MATERIAL MAY BE USED AS DETERMINED BY THE ENGINEER IN THE FIELD.
 - (9) GEOGRID TYPE SR TO BE PLACED ON EXPOSED GRADE WHERE EXCAVATED BELOW SUBGRADE (EBS) AS DIRECTED BY THE ENGINEER IN THE FIELD. SEE CONSTRUCTION DETAIL.

*ADDITIONAL QUANTITIES ELSEWHERE.

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

CLEARING & GRUBBING

STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
10+00	-	15+00	LILLY ROAD	5	5
TOTAL 0010				5	5

REMOVING SMALL PIPE CULVERTS

STATION	TO	STATION	LOCATION	SIZE/MATERIAL	203.0100 REMOVING SMALL PIPE CULVERTS EACH
10+36	-	11+26	LT	24"x90' CMCP	1
TOTAL 0010					1

REMOVING CURB & GUTTER

STATION	LOCATION	204.0150 REMOVING CURB & GUTTER LF
11+15	MENOMONEE AVE	6
TOTAL 0010		6

SEALING PIPES

LOCATION	204.0280 SEALING PIPES EACH	REMARKS
UNDISTRIBUTED	4	SEALING WE ENERGIES GAS EXISTING MAII
TOTAL 0010		4

FINISHING ROADWAY (2720-09-70)

LOCATION	213.0100.01 FINISHING ROADWAY (PROJECT) (01. 2720-09- 70) EACH	
2720-09-70	1	
TOTAL 0010		1

BASE AGGREGATE DENSE

STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4- INCH TON	* 305.0120 BASE AGGREGATE DENSE 1 1/4- INCH TON
10+30	-	11+69	LILLY ROAD	110	310
12+61	-	14+10	LILLY ROAD	140	390
11+69	-	11+86	APPROACH SLAB	---	50
12+44	-	12+61	APPROACH SLAB	---	50
10+90	-	11+86	SIDEWALK, LT/RT	---	30
12+44	-	13+40	SIDEWALK, LT/RT	---	30
			PATH CONNECTION	---	2
TOTAL 0010				250	862

* QUANTITIES SHOWN ELSEWHERE IN THE PLAN.

CONCRETE PAVEMENT APPROACH SLAB

STATION	TO	STATION	LOCATION	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY
11+69	-	11+86	LILLY ROAD	46
12+44	-	12+61	LILLY ROAD	46
TOTAL 0010				92

HMA PAVEMENT ITEMS

STATION	TO	STATION	LOCATION	450.4000 HMA COLD WEATHER PAVING TON	455.0605 TACK COAT GAL	460.5223 HMA PAVEMENT 3 LT 58-28 S TON	460.5224 HMA PAVEMENT 4 LT 58-28 S TON	465.0105 ASPHALTIC SURFACE TON	465.0310 ASPHALTIC CURB LF
10+30	-	11+50	RT	20	3	12	8	---	---
10+30	-	11+50	LT	62	10	38	24	---	---
11+50	-	11+69		20	3	12	8	---	---
12+61	-	13+50		92	15	57	35	---	---
13+50	-	14+10	RT	12	2	7	5	---	---
13+50	-	14+10	LT	12	2	7	5	---	---
			MENOMONEE AVE, PATH	---	---	---	---	2	---
10+80	-	10+90	RAMP, RT	---	---	---	---	3	10
13+40	-	13+50	RAMP, LT	---	---	---	---	3	10
13+40	-	13+50	RAMP, RT	---	---	---	---	3	10
TOTAL 0010				218	35	133	85	11	30

3

3

STORM SEWER STRUCTURES

STR	STA	OFFSET	RIM/ GRATE ELEV	INVERT ELEV	STRUCTURE DEPTH FT	521.1524		522.1015		522.1024	611.0530	611.0624	611.0639	611.1004	611.1230	611.2005	633.5200	Comments	
						Apron Endwalls for Culvert Pipe Sloped	Side Drains Steel 24-Inch 6 to 1 EACH	Apron Endwalls for Culvert Pipe Reinforced Concrete 15-Inch EACH	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch EACH	Manhole Covers Type J EACH	Inlet Covers Type H EACH	Inlet Covers Type H-S EACH	Catch Basins 4-FT Diameter EACH	Catch Basins 2x3-FT EACH	Manholes 5-FT Diameter EACH	Markers Culvert End EACH			
1	10+30.0	28.05'	LT	N/A	751.00	N/A	1	-	-	-	-	-	-	-	-	-	-	1	MATCH PIPE SLOPE OF 3.0%; CONCRETE PIPE ADAPTOR REQ'D
2	11+17.0	25.93'	LT	754.10	748.39	5.71	-	-	-	1	-	-	-	-	-	1	-	-	
3	11+55.0	25.0'	LT	754.69	747.73	6.96	-	-	-	1	-	-	-	-	-	1	-	-	
4	11+91.5	32.45'	LT	N/A	747.00	N/A	-	-	1	-	-	-	-	-	-	-	-	1	MATCH PIPE SLOPE OF 2.00%
5	11+17.8	32.61'	LT	753.98	749.27	4.71	-	-	-	-	-	1	1	-	-	-	-	-	
6	11+55.0	17.0'	LT	754.16	748.65	5.51	-	-	-	-	-	1	-	1	-	-	-	-	
7	11+65.0	17.0'	LT	754.27	749.10	5.17	-	-	-	-	1	-	-	1	-	-	-	-	
8	11+30.0	17.0'	RT	754.19	749.27	4.92	-	-	-	-	1	-	-	1	-	-	-	-	
9	11+20.0	17.0'	RT	754.16	748.82	5.34	-	-	-	-	-	1	-	1	-	-	-	-	
10	11+20.0	40.1'	RT	N/A	748.35	N/A	-	1	-	-	-	-	-	-	-	-	-	1	MATCH PIPE SLOPE OF 2.0%
TOTAL 0010							1	1	1	2	2	3	1	4	2	3			

NOTES:

- 1) INLET STATIONS AND OFFSETS ARE TO FACE OF CURB
- 2) INLET GRATE ELEVATIONS ARE TO FLOWLINE AT FACE OF CURB
- 3) MANHOLE STATIONS AND OFFSETS ARE TO CENTER OF STRUCTURE
- 4) APRON ENDWALL STATIONS, OFFSETS, AND ELEVATIONS ARE TO TIP OF AEW
- 5) INLET AND MANHOLE COVER ADJUSTMENT IS ESTIMATED AT 0.50'
- 6) STRUCTURE DEPTH OF CATCH BASINS DO NOT INCLUDE 2' SUMP

STORM SEWER PIPES

PIPE #	FROM STR	TO STR	INVERT ELEV	DISCH ELEV	SLOPE %	608.0412		608.0315		608.0415		608.0324		608.0424	
						Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch LF	Storm Sewer Pipe Reinforced Concrete Class III 15-Inch LF	Storm Sewer Pipe Reinforced Concrete Class IV 15-Inch LF	Storm Sewer Pipe Reinforced Concrete Class III 24-Inch LF	Storm Sewer Pipe Reinforced Concrete Class IV 24-Inch LF					
P1	1	2	750.79	748.39	3.00	-	-	-	-	-	-	-	-	80	
P2	2	3	748.39	747.73	1.75	-	-	-	-	-	-	-	-	38	
P3	3	4	747.73	747.12	2.00	-	-	-	-	-	-	31	-	-	
P4	5	2	749.27	749.14	2.00	-	-	6.5	-	-	-	-	-	-	
P5	7	6	749.10	748.90	2.00	10	-	-	-	-	-	-	-	-	
P6	6	3	748.65	748.48	2.00	-	8.5	-	-	-	-	-	-	-	
P7	8	9	749.27	749.07	2.00	10	-	-	-	-	-	-	-	-	
P8	9	10	748.82	748.47	2.00	-	17.5	-	-	-	-	-	-	-	
TOTAL 0010						20	26	6.5	31	118					

NOTES:

- 1) ELEVATIONS ARE TO CENTER OF INLET/MANHOLE OR CONNECTION TO APRON ENDWALLS
- 2) PIPE LENGTHS ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE OR CONNECTION OF APRON ENDWALL

INSULATION BOARD POLYSTYRENE (2-INCH)

CATEGORY	STATION	TO	STATION	LOCATION	612.0902.S.01 INSULATION BOARD POLYSTYRENE (INCH) (01 - 2-INCH)	
					SY	
0030	11+95	-	12+05	LT	12	
0030	12+44	-	15+54	LT	12	
TOTAL 0030					24	

CONCRETE CURB & GUTTER AND CONCRETE SIDEWALK

STATION	TO	STATION	LOCATION	601.0411 CONCRETE CURB & GUTTER 30-INCH TYPE D LF	601.0600 CONCRETE CURB PEDESTRIAN LF	602.0410 CONCRETE SIDEWALK 5-INCH SF	SPV.0090.01 SPECIAL (01. CONCRETE CURB & GUTTER 66-INCH TYPE A) LF
10+90	-	11+83	RT	79	---	553	14
11+15	-	11+89	LT	81	---	573	20
11+32	-	11+53	RT	---	21	---	---
11+33	-	11+53	LT	---	21	---	---
12+41	-	13+40	RT	79	---	596	20
12+47	-	13+40	LT	79	---	553	14
TOTAL 0010				318	42	2,275	68

CURB RAMP DETECTABLE WARNING FIELD NATURAL PATINA

STATION	LOCATION	602.0515 CURB RAMP DETECTABLE WARNING FIELD NATURAL SF
11+42.5	RT	10
11+42.5	LT	10
TOTAL 0010		20

RIPRAP LIGHT & GEOTEXTILE TYPE R

STATION	LOCATION	606.0100 RIPRAP LIGHT CY	645.0130 GEOTEXTILE TYPE R SY
11+20	RT	2	10
11+93	LT	2	12
UNDISTRIBUTED		1	6
TOTAL 0010		5	28

**MAINTENANCE AND REPAIR OF
HAUL ROADS (2720-09-70)**

CATEGORY	PROJECT	618.0100.01 MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) (01.2720-09-70) EACH
0030	2720-09-70	1
TOTAL 0030		1

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

MOBILIZATION

PROJECT	619.1000 MOBILIZATION EACH
2720-09-70	1
TOTAL 0010	1

WATER

LOCATION	624.0100 WATER MGAL
COMPACTION	16
DUST CONTROL	8
TOTAL 0010	24

SILT FENCE & SILT FENCE HEAVY DUTY

STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	SPV.0090.02 SPECIAL (02. SILT FENCE HEAVY DUTY) LF
10+30	-	10+85	RT	---	---	58
11+25	-	11+95	LT	---	---	85
11+75	-	11+95	RT	---	---	16
12+38	-	14+10	RT/LT	---	---	360
UNDISTRIBUTED				200	200	126
TOTAL 0010				200	200	645

**MOBILIZATIONS EROSION CONTROL &
MOBILIZATIONS EMERGENCY EROSION CONTROL**

PROJECT	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
2720-09-70	5	5
TOTAL 0010	5	5

FINISHING ITEMS

STATION	TO	STATION	LOCATION	625.0100 TOPSOIL SY	627.0200 MULCHING SY	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	630.0200 SEEDING TEMPORARY LB	630.0300 SEEDING BORROW PIT LB	630.0500 SEED WATER MGAL
10+30	-	11+86	LT/RT	714	---	714	0.45	20	20	---	16
12+44	-	14+10	LT/RT	804	---	804	0.51	22	22	---	18
BORROW PIT				---	---	---	---	---	---	15	---
UNDISTRIBUTED				380	500	380	0.24	11	11	---	9
TOTAL 0010				1,898	500	1,898	1.20	53	53	15	43

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

TURBIDITY BARRIERS

LOCATION	628.6005 TURBIDITY BARRIERS SY
LILLY ROAD	241
UNDISTRIBUTED	59
TOTAL 0010	300

ROCK BAGS

STATION	LOCATION	628.7570 ROCK BAGS EACH
13+00	LT	30
13+00	RT	30
UNDISTRIBUTED		15
TOTAL 0010		75

TEMPORARY SETTLING BASIN

LOCATION	628.1104 EROSION BALES EACH	* 645.0120 GEOTEXTILE TYPE HR SY
UNDISTRIBUTED	50	100
TOTAL 0010	50	100

* QUANTITIES SHOWN ELSEWHERE IN THE PLAN.

INLET PROTECTION

STATION	LOCATION	628.7005 INLET PROTECTION EACH	628.7015 INLET PROTECTION EACH	628.7020 INLET PROTECTION EACH
11+17	LT	1	---	---
11+18	LT	1	---	1
11+20	RT	1	---	1
11+30	RT	1	---	1
11+55	LT	1	---	1
11+55	LT	1	---	1
11+65	LT	1	---	1
UNDISTRIBUTED		2	5	2
TOTAL 0010		9	5	7

SIGNS

APPROX. STATION	SIGN CODE	SIGN SIZE WxH (INCHES)	634.0814 POSTS TUBULAR STEEL 2X2- INCH X 14-FT EACH	634.0816 POSTS TUBULAR STEEL 2X2- INCH X 16-FT EACH	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	REMARKS
10+64	W1-7	48x24	2	---	---	8.00	1	1	
11+38	W11-2	30x30	---	1	---	6.25	---	---	
	W16-7L	24x12	---	---	---	2.00	---	---	SHARES POST
11+49	W11-2	30x30	---	1	---	6.25	---	---	
	W16-7L	24x12	---	---	---	2.00	---	---	SHARES POST
11+99	---	---	---	---	---	---	1	1	
11+99	---	---	---	---	---	---	1	1	
12+48	---	---	---	---	---	---	1	1	
12+49	---	---	---	---	---	---	1	1	
13+03	R2-1	24x30	1	---	5.00	---	1	1	"30"
	R5-1	30x30	1	---	6.25	---	---	---	
TOTAL 0010			4	2	11.25	24.50	6	6	

TEMPORARY DITCH CHECKS

STATION	LOCATION	628.7504 TEMPORARY DITCH CHECKS LF
11+75	RT	13
UNDISTRIBUTED		3
TOTAL 0010		16

FIELD OFFICE TYPE B

PROJECT	642.5001 FIELD OFFICE TYPE B EACH
2720-09-70	1
TOTAL 0010	1

TRAFFIC CONTROL

STAGE	DAYS	643.0300 TRAFFIC CONTROL DRUMS DAY	643.0410 TRAFFIC CONTROL BARRICADES TYPE II DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	643.0900 TRAFFIC CONTROL SIGNS DAY	643.1050 TRAFFIC CONTROL SIGNS PCMS DAY
DETOUR	122	---	---	732	1,342	17,446	14
TRAFFIC CONTROL	122	---	488	2,196	3,172	2,196	---
UNDISTRIBUTED		1,220	153	294	454	1,966	---
TOTAL 0010		1,220	641	3,222	4,968	21,608	14

CULVERT PIPE CHECKS

STATION	LOCATION	628.7555 CULVERT PIPE CHECKS EACH
10+30	LT	3
UNDISTRIBUTED		1
TOTAL 0010		4

TRACKING PADS

LOCATION	628.7560 TRACKING PADS EACH
SOUTH OF STRUCTURE	1
NORTH OF STRUCTURE	1
TOTAL 0010	2

TRAFFIC CONTROL SIGNS FIXED MESSAGE

DESCRIPTION	SIZE IN X IN	NUMBER OF SIGNS REQUIRED	643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGE SF
LILLY ROAD	21 X 24	49	171.5
TOTAL 0010			171.5

TRAFFIC CONTROL

PROJECT	643.5000 TRAFFIC CONTROL EACH
2720-09-70	1
TOTAL 0010	1

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MARKING LINE ITEMS

STATION TO STATION	DESCRIPTION/COLOR	646.1020 MARKING LINE EPOXY 4-INCH LF	646.3020 MARKING LINE EPOXY 8-INCH LF	646.6120 MARKING STOP LINE EPOXY 18- INCH LF	646.7120 MARKING DIAGONAL EPOXY 12-INCH LF	646.7520 MARKING CROSSWALK EPOXY BLOCK STYLE 24-INCH LF	646.8120 MARKING CURB EPOXY LF
10+30 - 14+10	EDGE LINE, LT&RT/WHITE	644	---	---	---	---	---
11+21 - 14+10	CENTERLINE/DOUBLE YELLOW	576	---	---	---	---	---
MENOMONEE AVE	CHANNELIZING & STOP BAR/WHITE	---	33	35	---	---	---
	PAINTED ISLAND & DIAGONAL/YELLOW	97	---	---	50	---	54
11+42.5	CROSSWALK/WHITE	---	---	---	---	42	---
TOTAL 0010		1,317	33	35	50	42	54

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

CONSTRUCTION STAKING
SUPPLEMENTAL CONTROL (2720-09-70)

PROJECT	650.9910.01 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 2720-09-70) LS
2720-09-70	1
TOTAL 0010	1

CONSTRUCTION STAKING

STATION TO STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.7000 CONSTRUCTION STAKING CONCRETE PAVEMENT LF	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
10+30 - 11+88	LILLY ROAD	158	139	19	158
12+42 - 14+10	LILLY ROAD	168	149	19	168
TOTAL 0010		326	288	38	326

SAWING

STATION TO STATION	LOCATION	690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF
10+30 - 11+50	LILLY ROAD	269	---
10+48 - 11+14	MENOMONEE AVE	90	2
13+50 - 14+08	LILLY ROAD	139	---
11+21	PATH	5	---
TOTAL 0010		503	2

CONSTRUCTION STAKING STORM SEWER

STRUCTURE	STATION	LOCATION	650.4000 CONSTRUCTION STAKING STORM SEWER EACH
1	10+30	LT	1
2	11+17	LT	1
3	11+55	LT	1
4	11+91.5	LT	1
5	11+17.8	LT	1
6	11+55	LT	1
7	11+65	LT	1
8	11+30	RT	1
9	11+20	RT	1
10	11+20	RT	1
TOTAL 0010			10

CONSTRUCTION STAKING CURB GUTTER
AND CURB & GUTTER

STATION TO STATION	LOCATION	650.5500 CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF
10+90 - 11+69	RT	79
11+15 - 11+69	LT	81
12+61 - 13+40	RT	79
12+61 - 13+40	LT	79
TOTAL 0010		318

INSTALLING AND MAINTAINING
BIRD DETERRENT SYSTEM

CATEGORY	LOCATION	999.2000.S.01 INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM STA 12+20 EACH
0010	STA 12+20	1
TOTAL 0020		1

CONSTRUCTION STAKING
STRUCTURE LAYOUT (B-67-385)

CATEGORY	STRUCTURE	650.6500.01 CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (01. B-67-385) LS
0020	B-67-385	1
TOTAL 0020		1

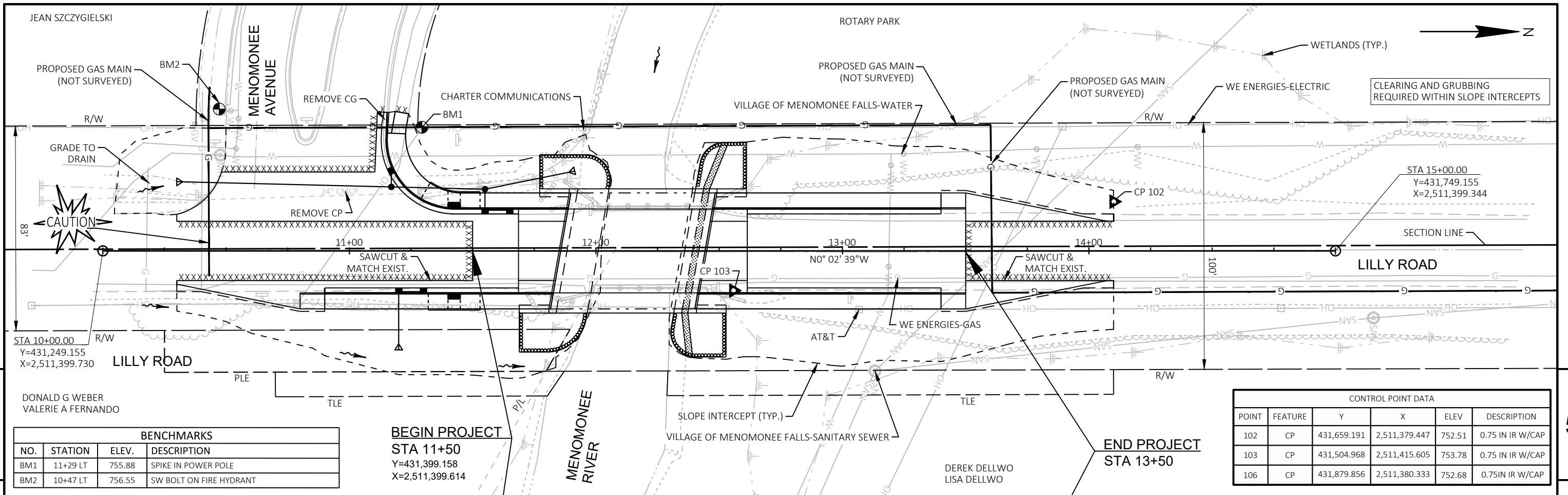
CONSTRUCTION STAKING CURB RAMPS

STATION	LOCATION	650.9000 CONSTRUCTION STAKING CURB RAMPS EACH
11+42.5	RT	1
11+42.5	LT	1
TOTAL 0010		2

UTILITY LINE OPENING ULO

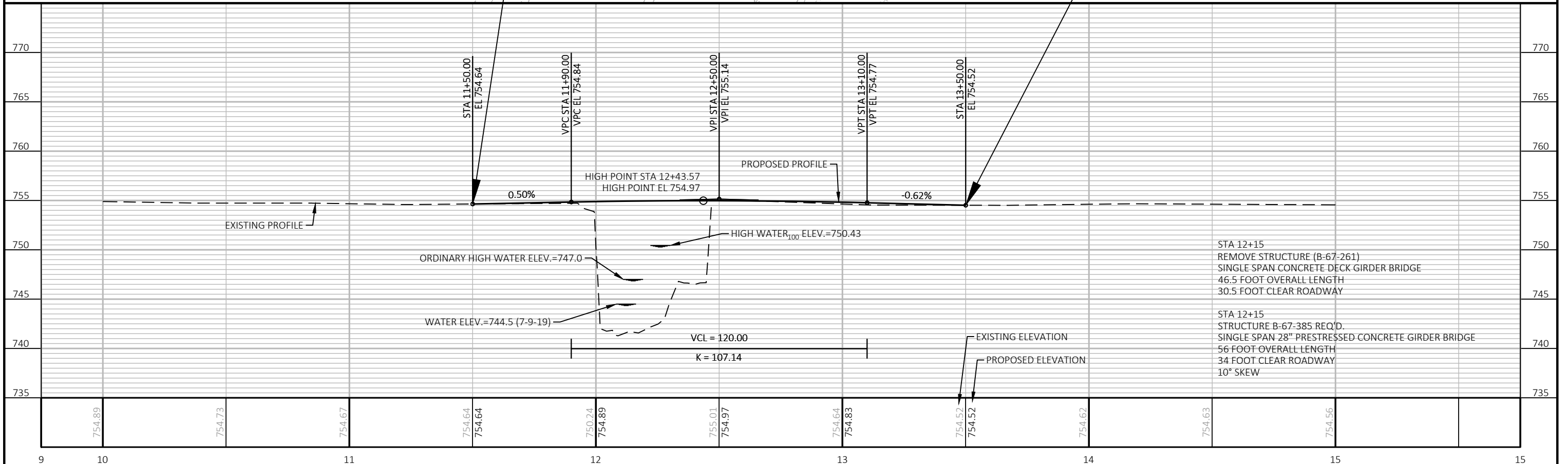
CATEGORY	LOCATION	SPV.0060.01 SPECIAL (01. UTILITY LINE OPENING ULO) EACH
0030	PROJECT	4
TOTAL 0030		4

NOTE: LOCATION DETERMINED BY ENGINEER TO LOCATE THE EXISTING WATER MAIN



BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
BM1	11+29 LT	755.88	SPIE IN POWER POLE
BM2	10+47 LT	756.55	SW BOLT ON FIRE HYDRANT

CONTROL POINT DATA					
POINT	FEATURE	Y	X	ELEV	DESCRIPTION
102	CP	431,659.191	2,511,379.447	752.51	0.75 IN IR W/CAP
103	CP	431,504.968	2,511,415.605	753.78	0.75 IN IR W/CAP
106	CP	431,879.856	2,511,380.333	752.68	0.75 IN IR W/CAP

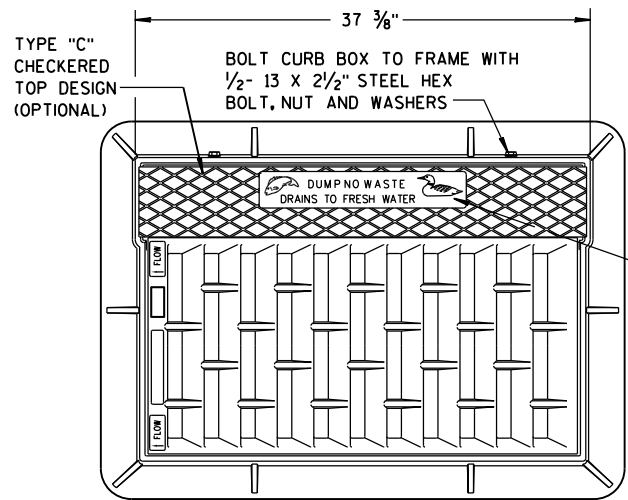


PROJECT NO: 2720-09-70	HWY: LILLY ROAD	COUNTY: WAUKESHA	PLAN AND PROFILE: LILLY ROAD	SHEET	E
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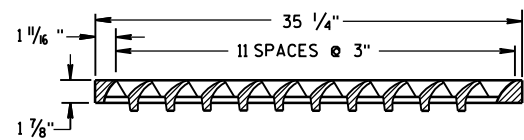
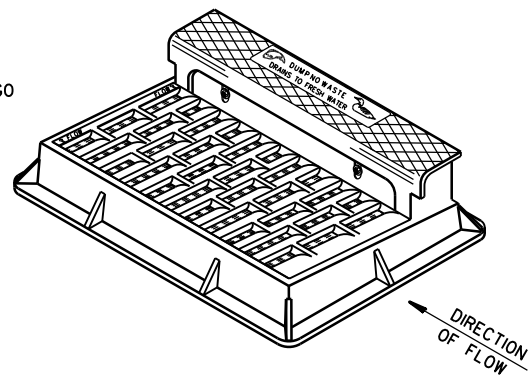
Standard Detail Drawing List

08A05-19A	INLET COVERS TYPE A, H, A-S, H-S & Z
08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08A08-02	CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER
08A09-02	CATCH BASINS 2X3-FT AND 2.5X3-FT
08B09-02	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08D01-22A	CONCRETE CURB & GUTTER
08D01-22B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D05-20A	CURB RAMPS TYPES 1 AND 1-A
08D05-20B	CURB RAMPS TYPES 2 AND 3
08D05-20C	CURB RAMPS TYPES 4A AND 4A1
08D05-20D	CURB RAMPS TYPE 4B AND 4B1
08D05-20E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D05-20F	CURB RAMPS RADIAL DETECTABLE WARNING FIELD APPLICATIONS
08D05-20G	CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E14-01	TRACKING PAD
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F07-05	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS
12A03-10	NAME PLATE (STRUCTURES)
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13C19-03	HMA LONGITUDINAL JOINTS
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C18-05B	MEDIAN ISLAND MARKING MEDIAN ISLAND NOSE
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING

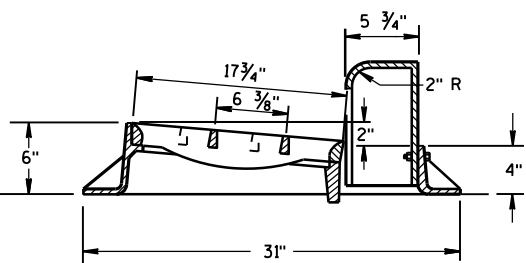
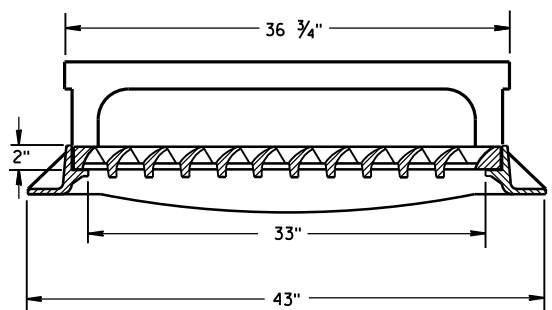
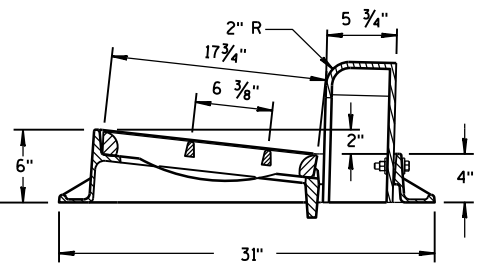
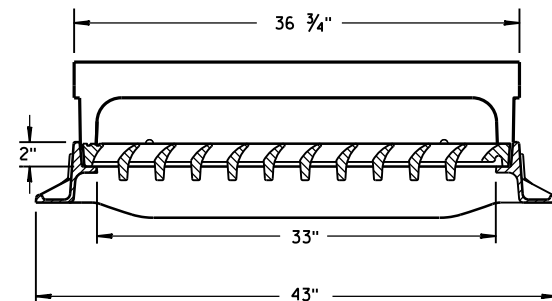
Standard Detail Drawing List



**NOTE:
GRATE IS REVERSIBLE.**

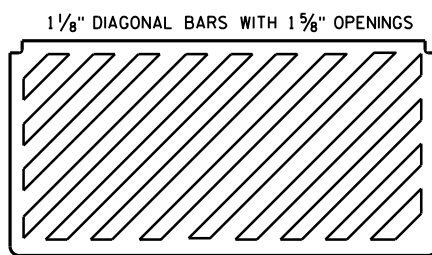


NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

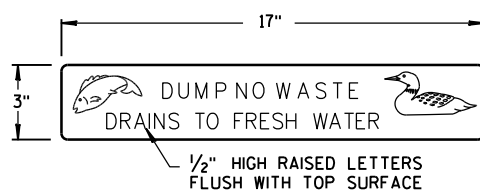


TYPE "H"

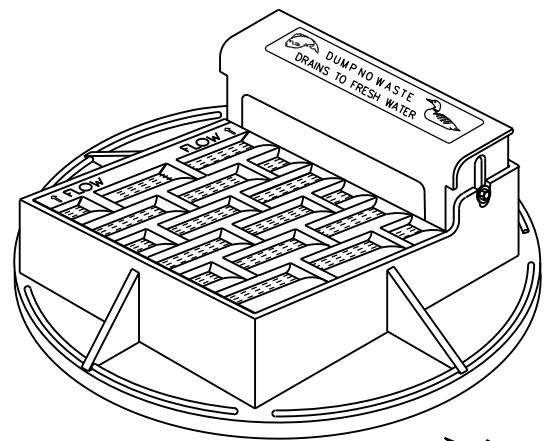
NOTE: EITHER CASTING IS ACCEPTABLE



**SPECIAL GRATE FOR
TYPE "H" COVER**
(MEASURES 35 1/4" X 17 3/4" X 2")
(NOTED AS TYPE H-S ON DRAINAGE TABLE)

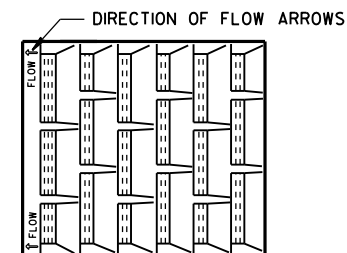


LOGO DETAIL

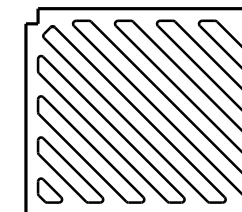


NOTE: CURB BOX ADJUSTABLE 4" TO 9"

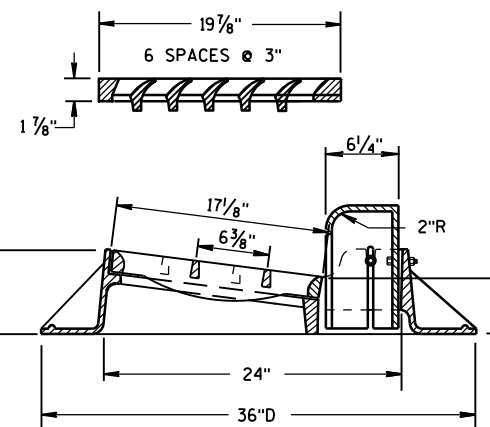
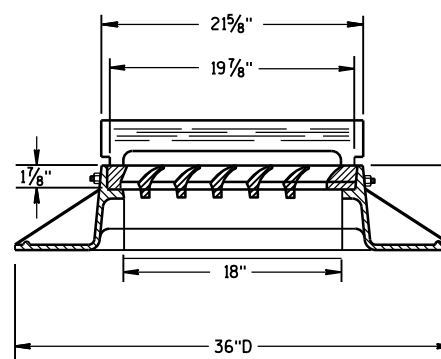
**NOTE:
GRATE IS REVERSIBLE.**



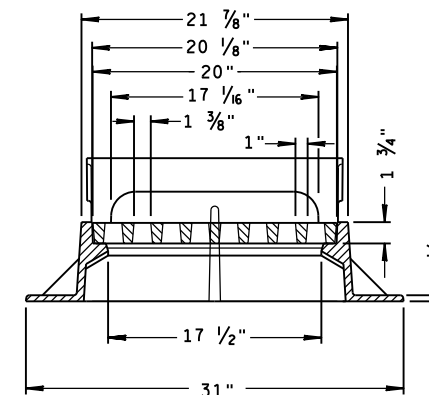
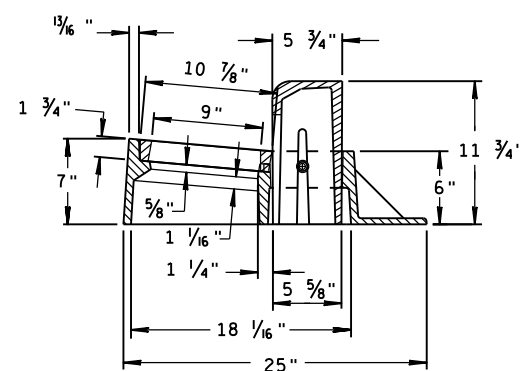
**1" DIAGONAL BARS
WITH 1 1/2" OPENINGS**



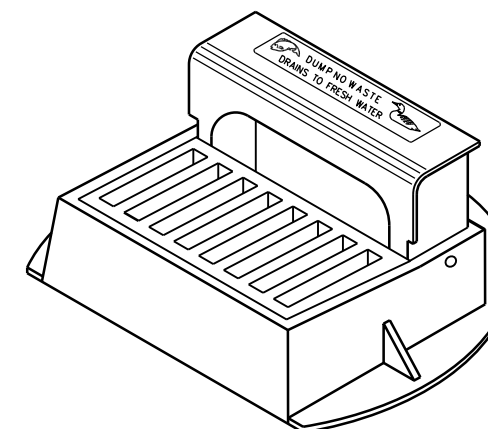
**SPECIAL GRATE FOR
TYPE "A" COVER**
(MEASURES 19 3/4" X 17" X 1 1/8")
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



TYPE "A"



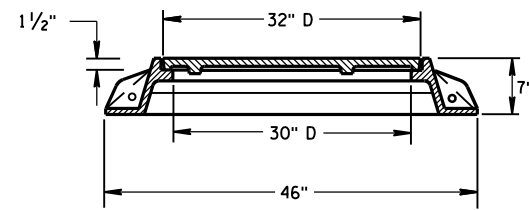
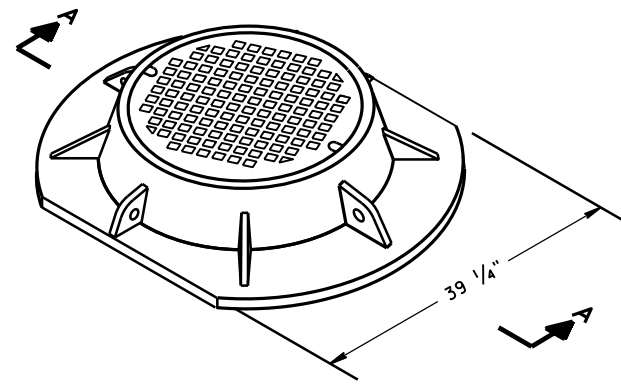
TYPE "Z"



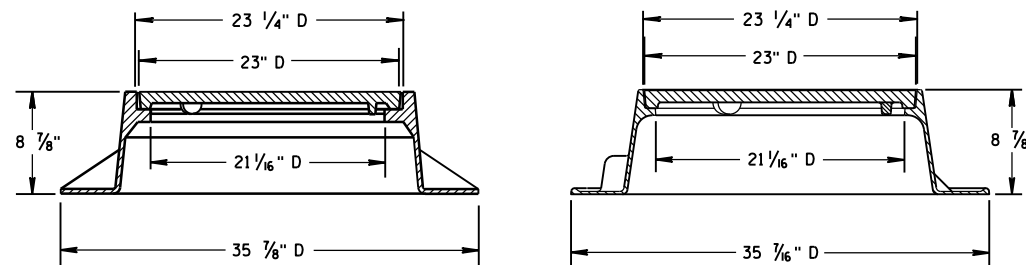
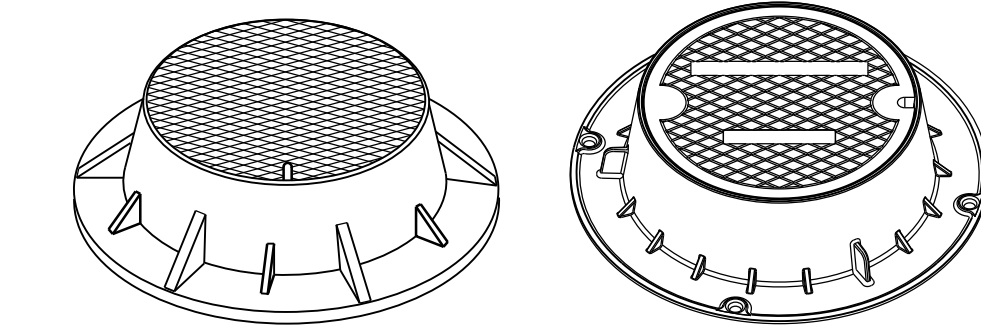
**INLET COVERS
TYPE A, H, A-S, H-S & Z**

**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**

APPROVED
11-27-13
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



SECTION A-A
TYPE "K"



TYPE "J"

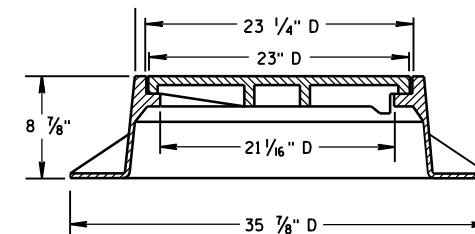
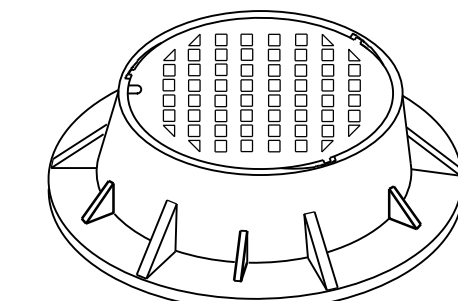
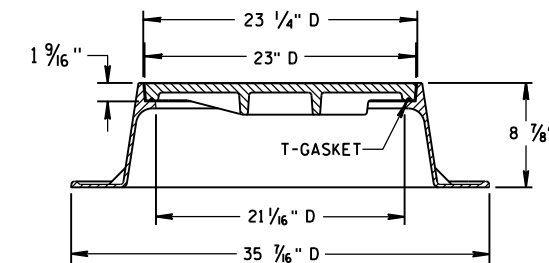
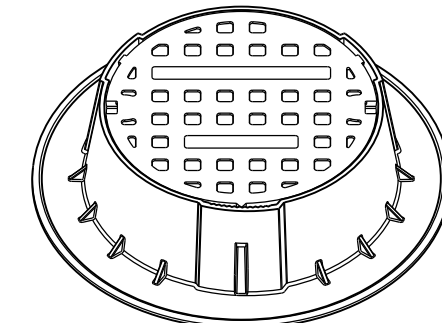
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

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

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



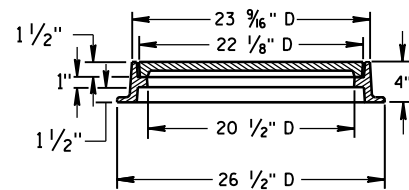
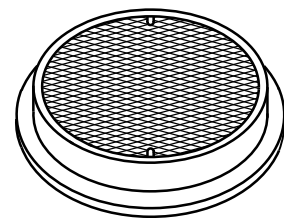
TYPE "J" SPECIAL

TYPE "B" NON-ROCKING SELF-SEAL LID

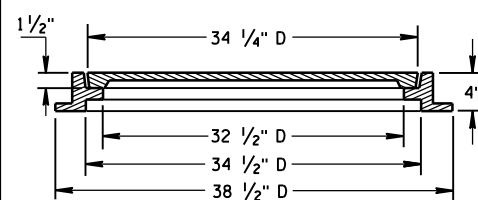
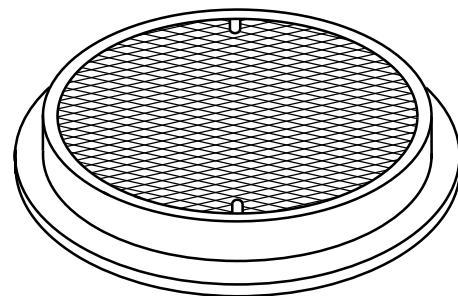
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

NOTE: EITHER CASTING IS ACCEPTABLE

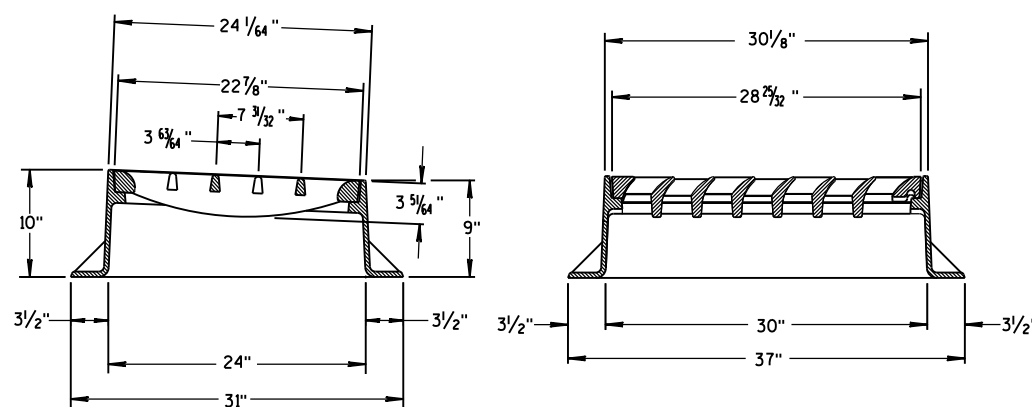
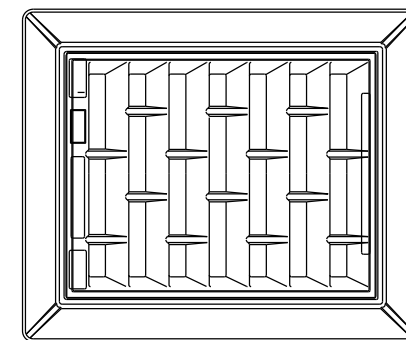
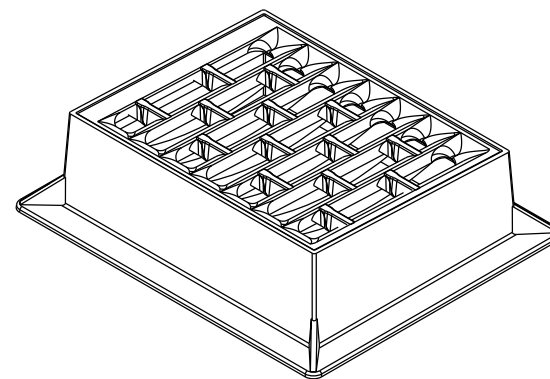
6



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

6

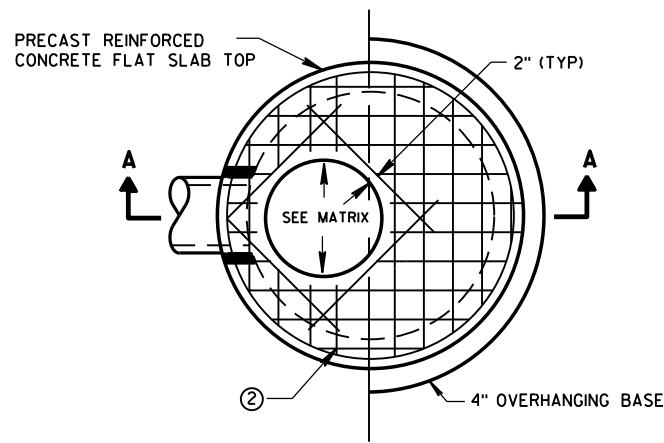
S.D.D. 8 A 5-19d

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

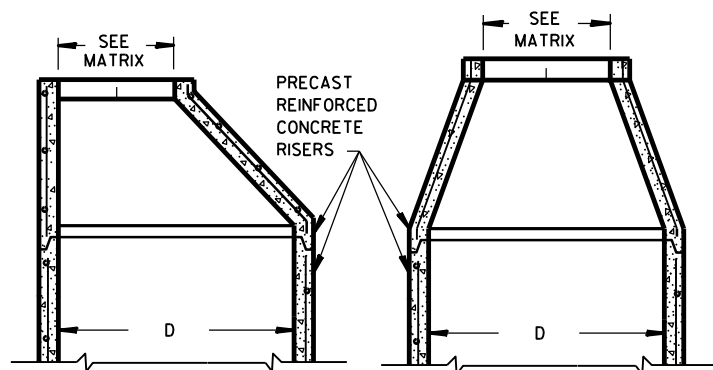
INLET COVER TYPE BW
MANHOLE COVERS, TYPE K,
J, J-S, L & M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/27/2013 DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

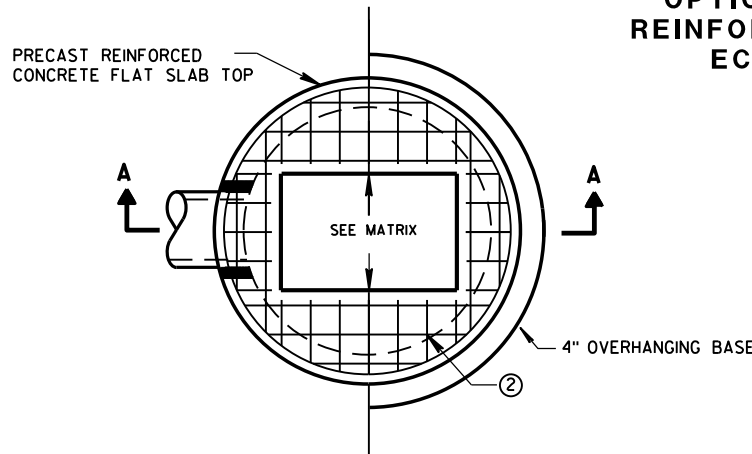


PLAN VIEW CIRCULAR OPENING

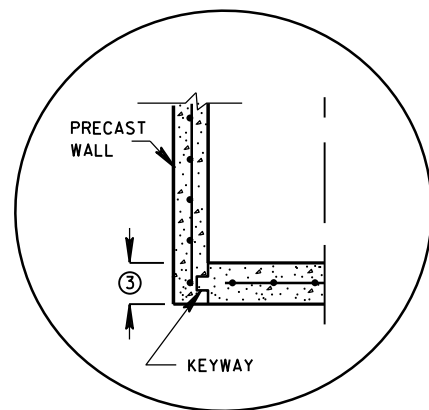


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

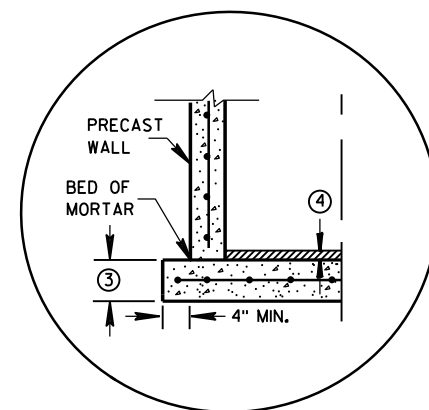
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



PLAN VIEW RECTANGULAR OPENING



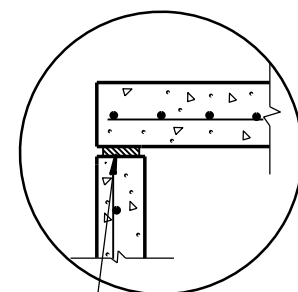
PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



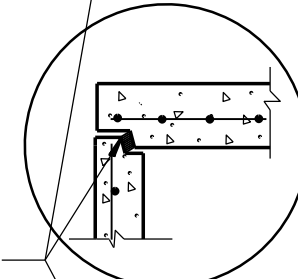
SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"

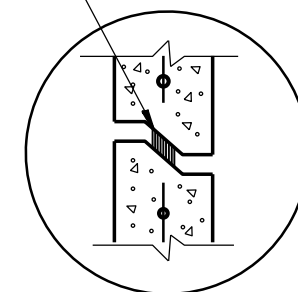
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



TOP WITH PLAIN END JOINT

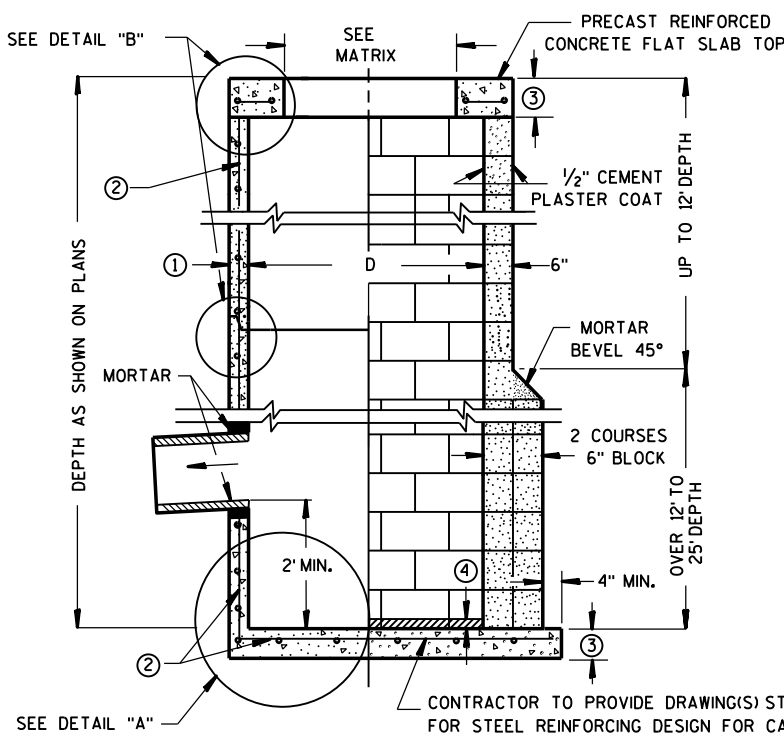


TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

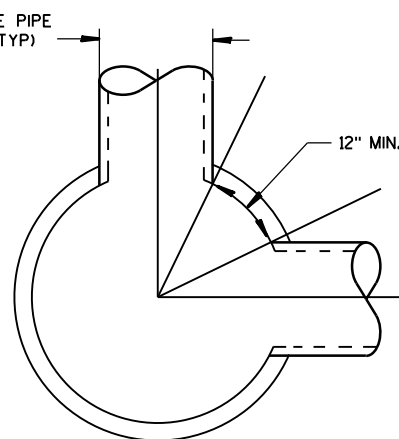
DETAIL "B"



SECTION A-A

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

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



DETAIL "C"

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS. UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST CATCH BASIN UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH; 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2 INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN 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 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT AND 7 INCHES FOR 6-FT DIAMETER PRECAST CATCH BASINS.
- ② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".
- ④ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2" SUMP MEASURED FROM TOP OF KEY.

CATCH BASIN COVER OPENING MATRIX

CATCH BASIN SIZE	INLET COVER TYPE OPENING SIZE (FT)	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
3-FT	2X2	X	X					X		X		
	2 DIA.				X					X		X
4-FT- 6-FT	2X2.5			X				X	X	X	X	
	2 DIA.				X							X
	2X3						X					
	2.5X3					X						

PIPE MATRIX

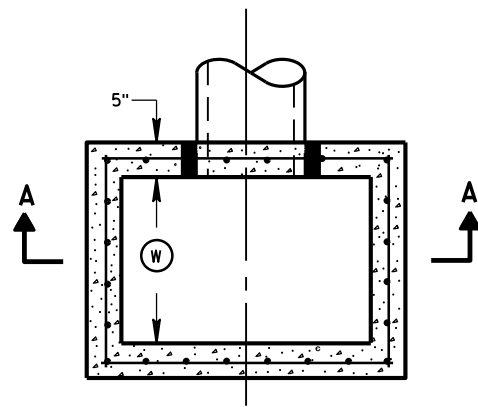
CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	30

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

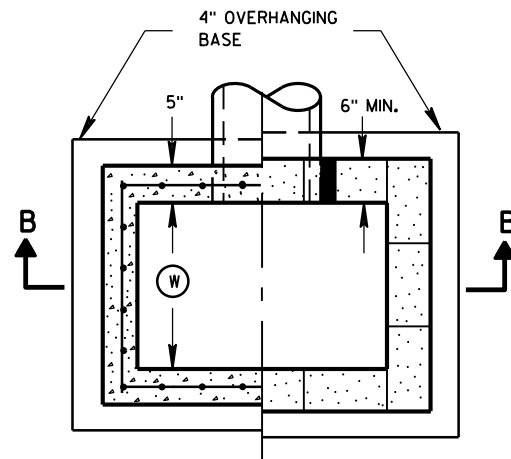
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sep 1, 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

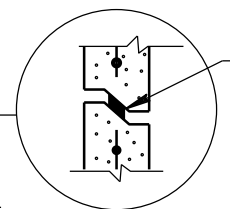
CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER



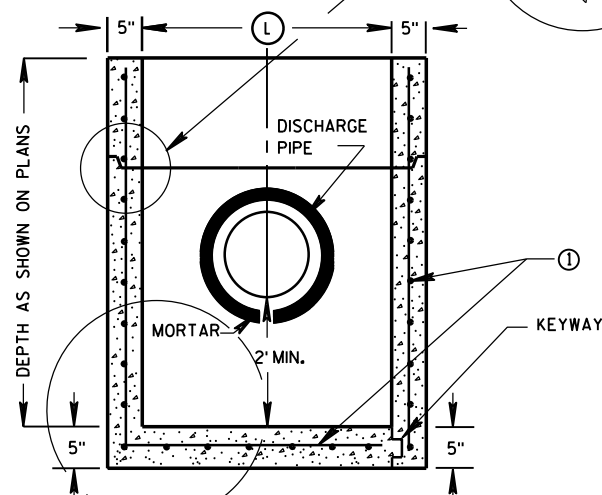
PLAN VIEW



PLAN VIEW

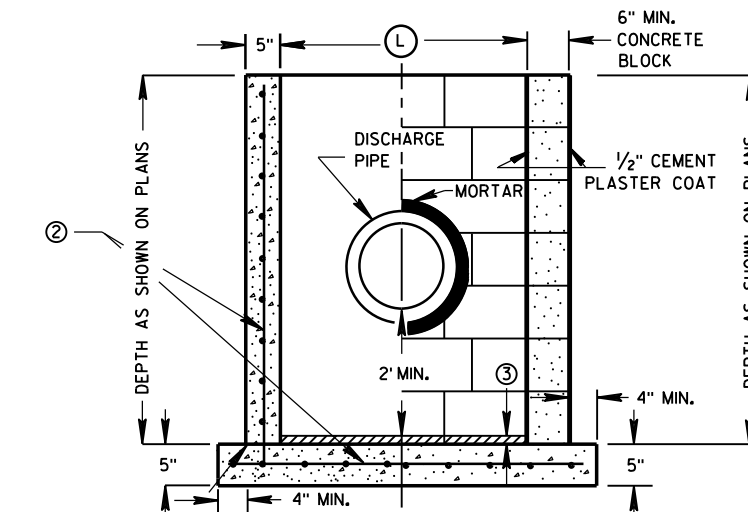


RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



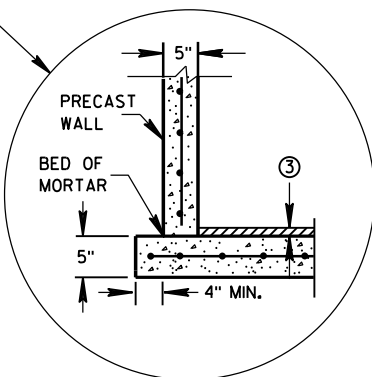
PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

SECTION A-A



CAST-IN-PLACE REINFORCED CONCRETE CONCRETE BLOCK ON CAST-IN-PLACE WITH PRECAST REINFORCED CONCRETE BASE ①

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 CATCH BASIN UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST CATCH BASIN UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF 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" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

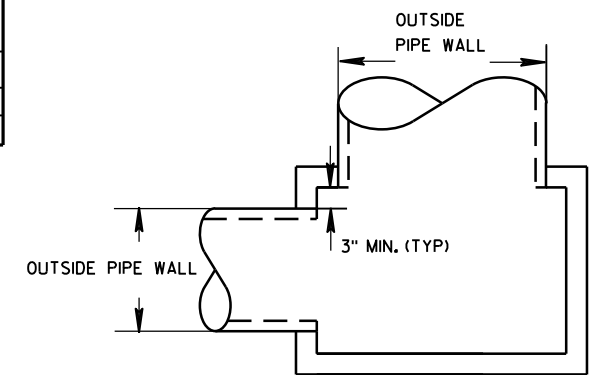
- ① FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.
- ③ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2" SUMP MEASURED FROM TOP OF KEY.

CATCH BASIN COVER MATRIX

CATCH BASIN SIZE	INLET COVER TYPE		F	ALL H'S
	WIDTH (W) (FT)	LENGTH (L) (FT)		
2X3-FT	2	3		X
2.5X3-FT	2.5	3	X	

PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	WIDTH (IN)	LENGTH (IN)
2X3-FT	12	24
2.5X3-FT	18	24



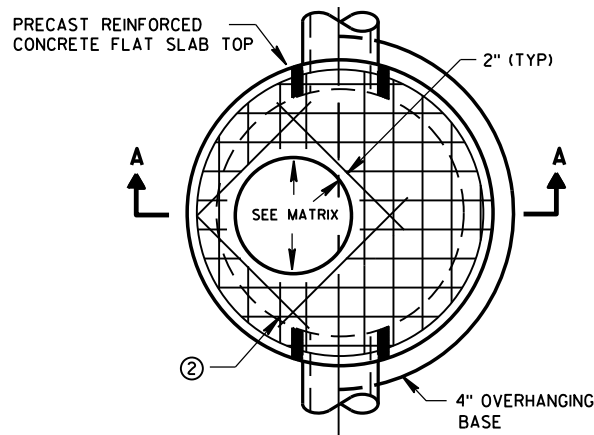
DETAIL "A"

CATCH BASINS 2X3-FT AND 2.5X3-FT

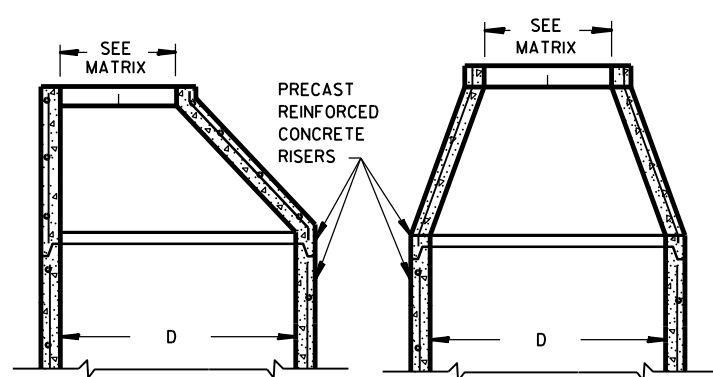
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED
 Sep 2016 /S/ Rodney Taylor
 DATE ROADWAY STANDARDS DEVELOPMENT
 FHWA UNIT SUPERVISOR

CATCH BASINS 2X3-FT AND 2.5X3-FT

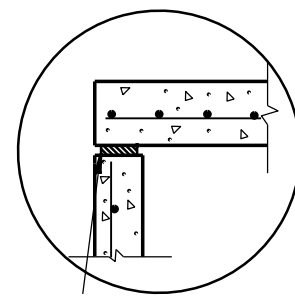


PLAN VIEW CIRCULAR OPENING

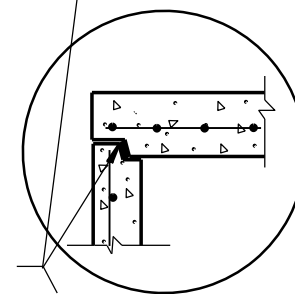


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

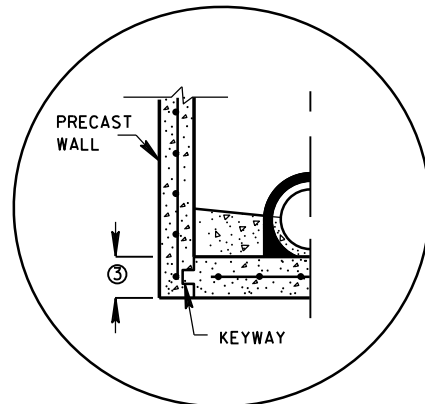
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



TOP WITH PLAIN END JOINT

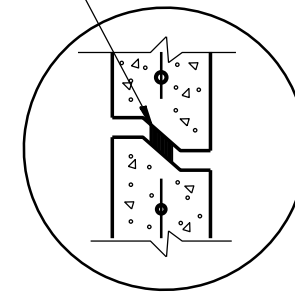


TOP WITH TONGUE AND GROOVE JOINT



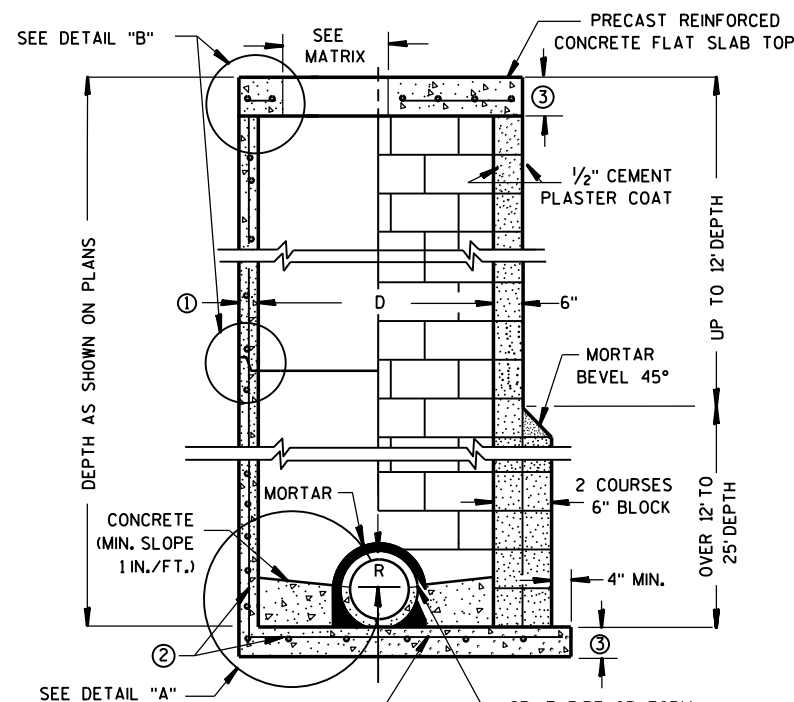
PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

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



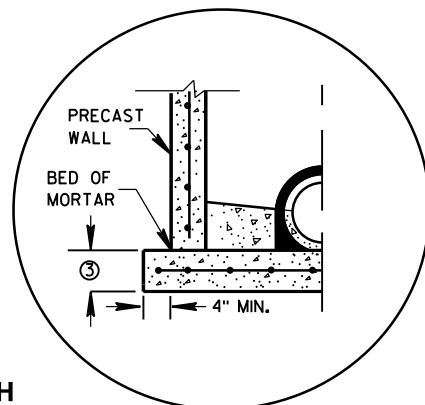
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"



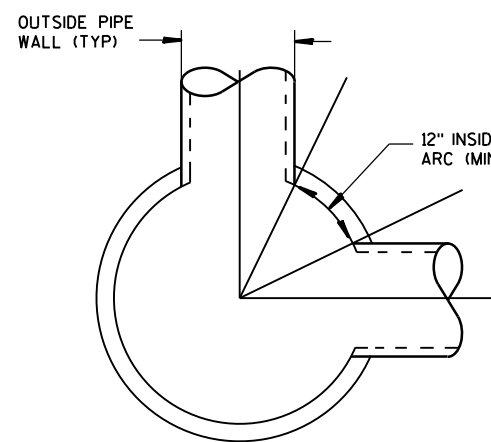
CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES

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



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS. UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH; 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED. CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN 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 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.

② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
OPENING SIZE (FT)					
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

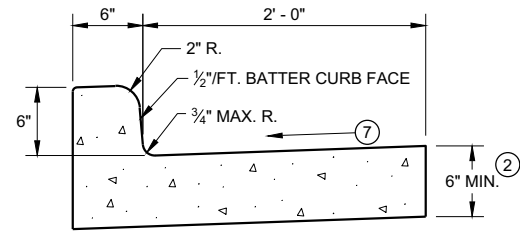
MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

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

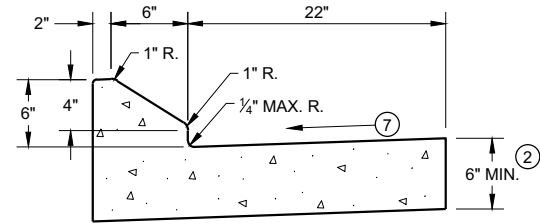
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED
 Sept., 2016 /S/ Rodney Taylor
 DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
 FHWA

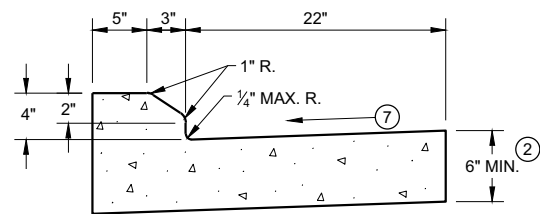
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER



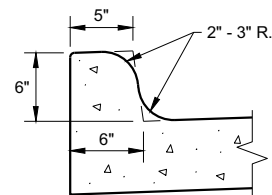
TYPES A¹ & D



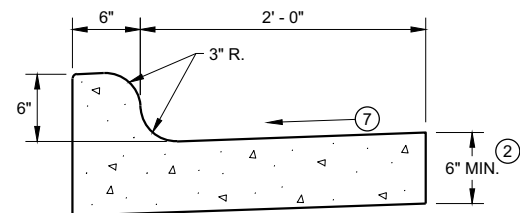
6" SLOPED CURB TYPES G¹ & J



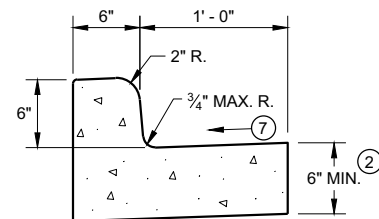
4" SLOPED CURB TYPES G¹ & J



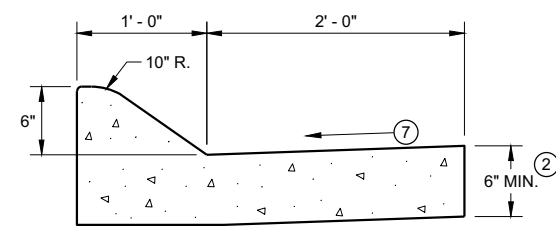
TYPES K¹ & L
(OPTIONAL CURB SHAPE)



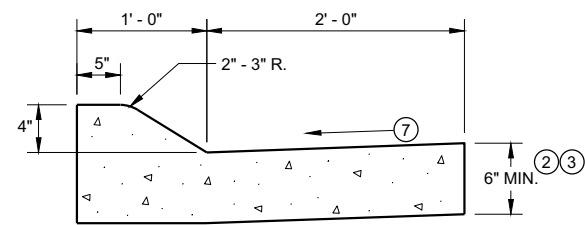
TYPES K¹ & L
CONCRETE CURB AND GUTTER 30"



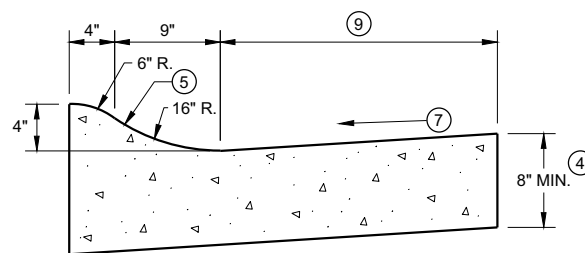
TYPES A¹ & D
CONCRETE CURB AND GUTTER 18"



6" SLOPED CURB TYPES A¹ & D

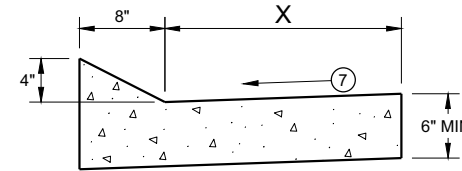


4" SLOPED CURB TYPES A¹ & D
CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R¹ & T

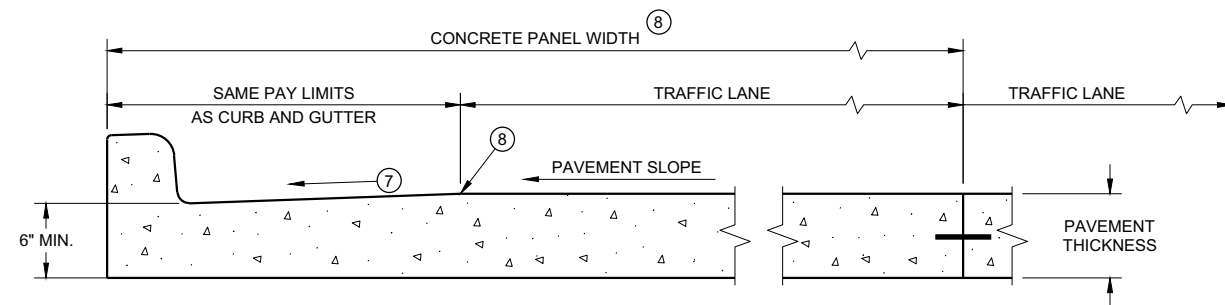
TBT & TBTT	X
30"	22"
36"	28"



TYPES TBT & TBTT¹
CONCRETE CURB AND GUTTER

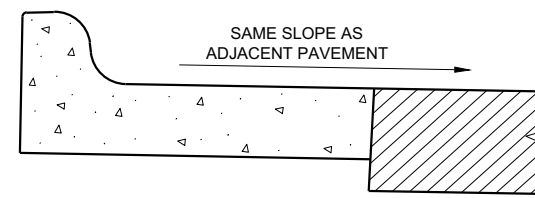
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'



PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER⁶
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

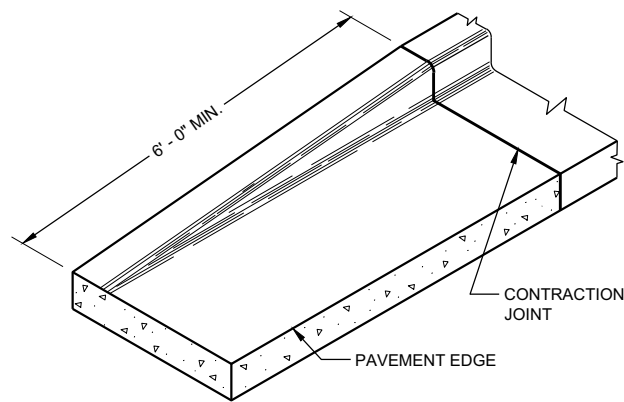
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

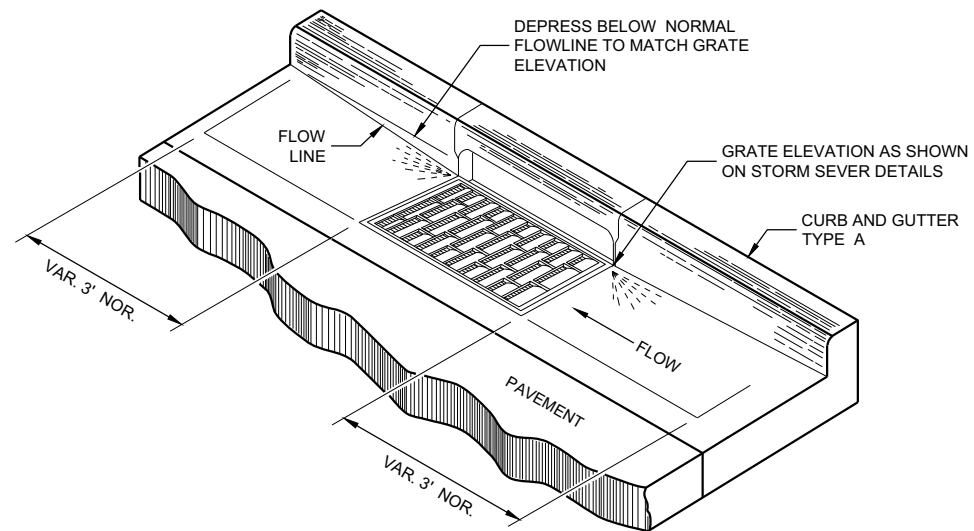
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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 GUTTERS 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 UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES 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.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES



END SECTION CURB AND GUTTER



DETAIL OF CURB AND GUTTER AT INLETS
(TYPICAL H INLET COVER SHOWN)

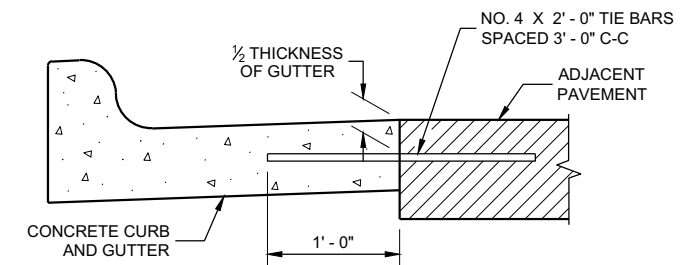
GENERAL NOTES

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

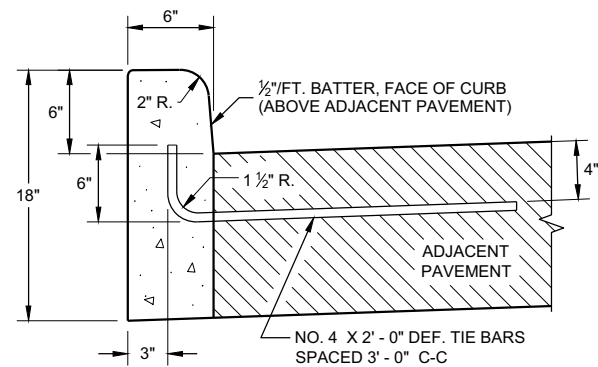
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

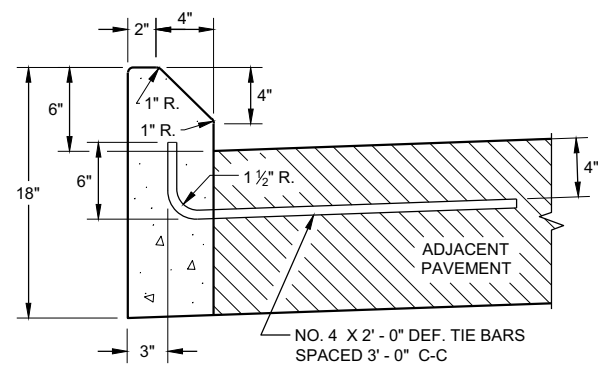
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.



TYPICAL TIE BAR LOCATION ①

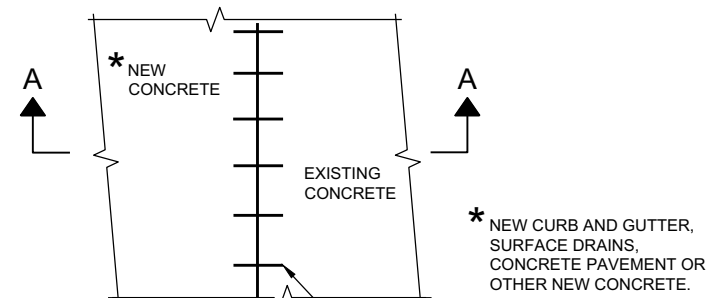


TYPES A ① & D

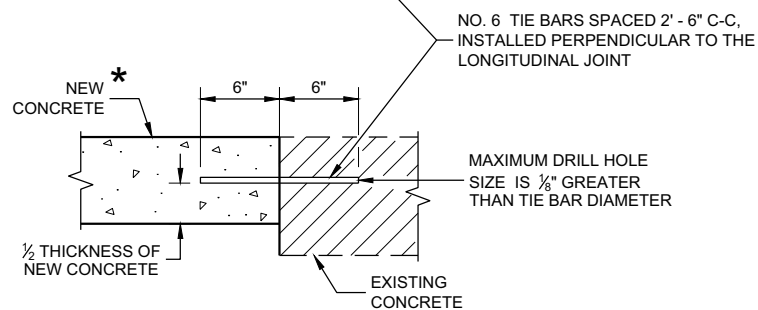


TYPES G ① & J

CONCRETE CURB

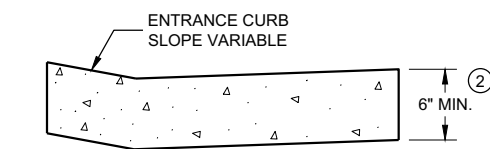


PLAN VIEW



SECTION A - A

TIE BARS DRILLED INTO EXISTING PAVEMENT



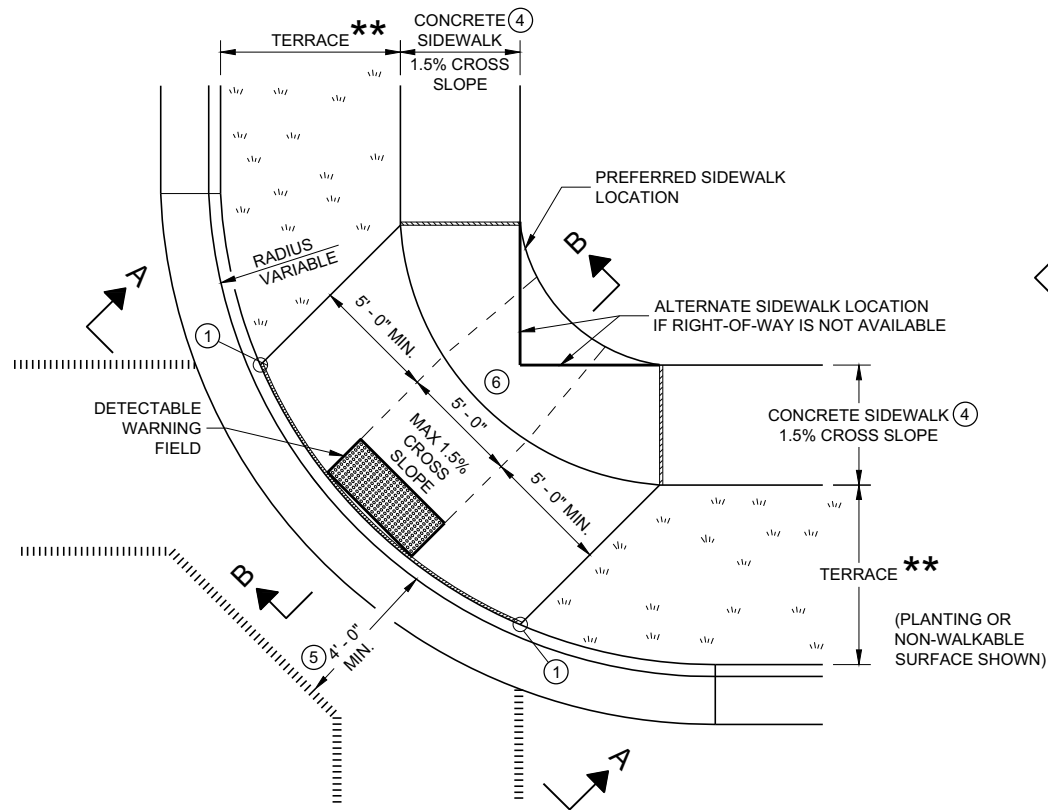
DRIVEWAY ENTRANCE CURB ⑨
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

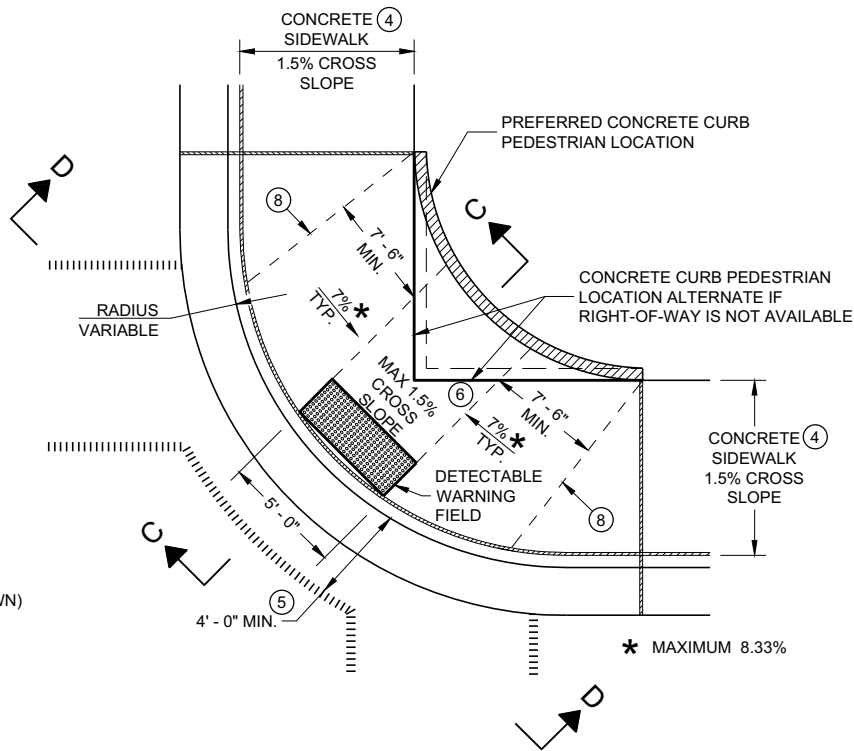
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

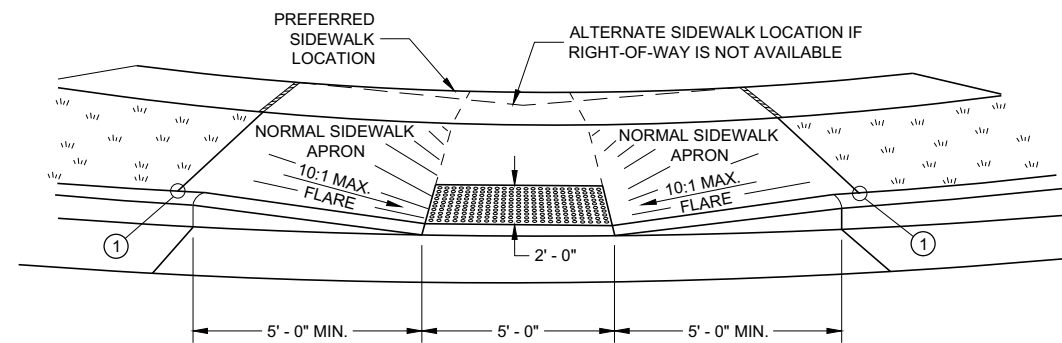
FHWA



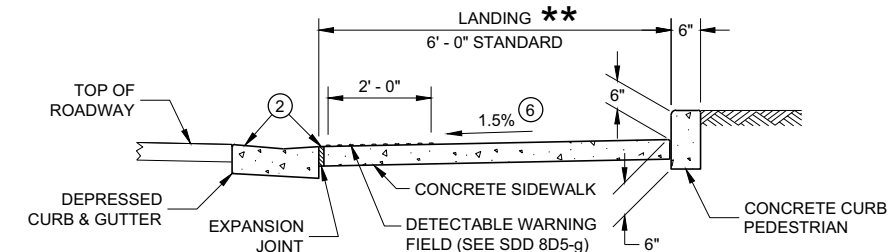
**PLAN VIEW
CURB RAMP TYPE 1
(CENTER OF CORNER RADIUS)**



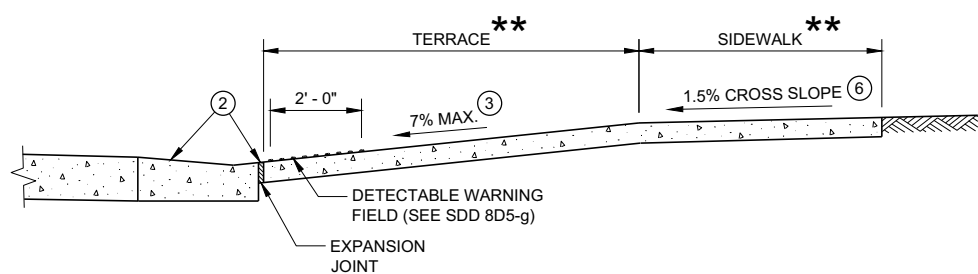
**PLAN VIEW
CURB RAMP TYPE 1 - A
(NO TERRACE)**



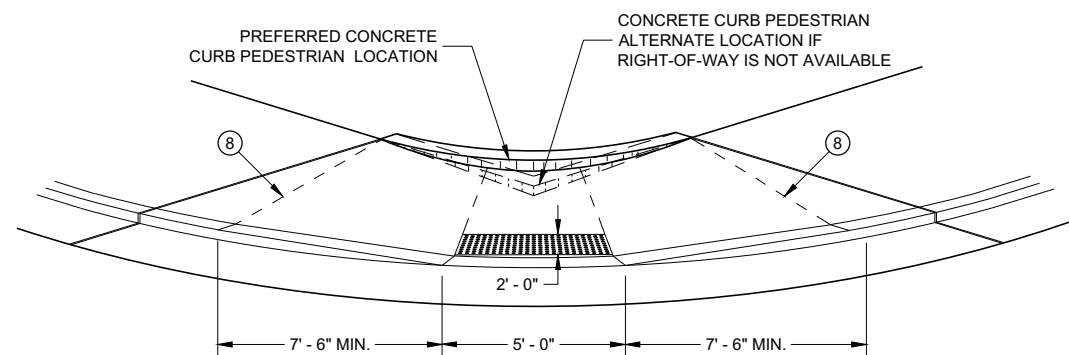
VIEW A - A FOR TYPE 1



SECTION C - C FOR TYPE 1 - A



SECTION B - B FOR TYPE 1



VIEW D - D FOR TYPE 1 - A

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
 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.

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.
 TYPE 1 CURB RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAR FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD"

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

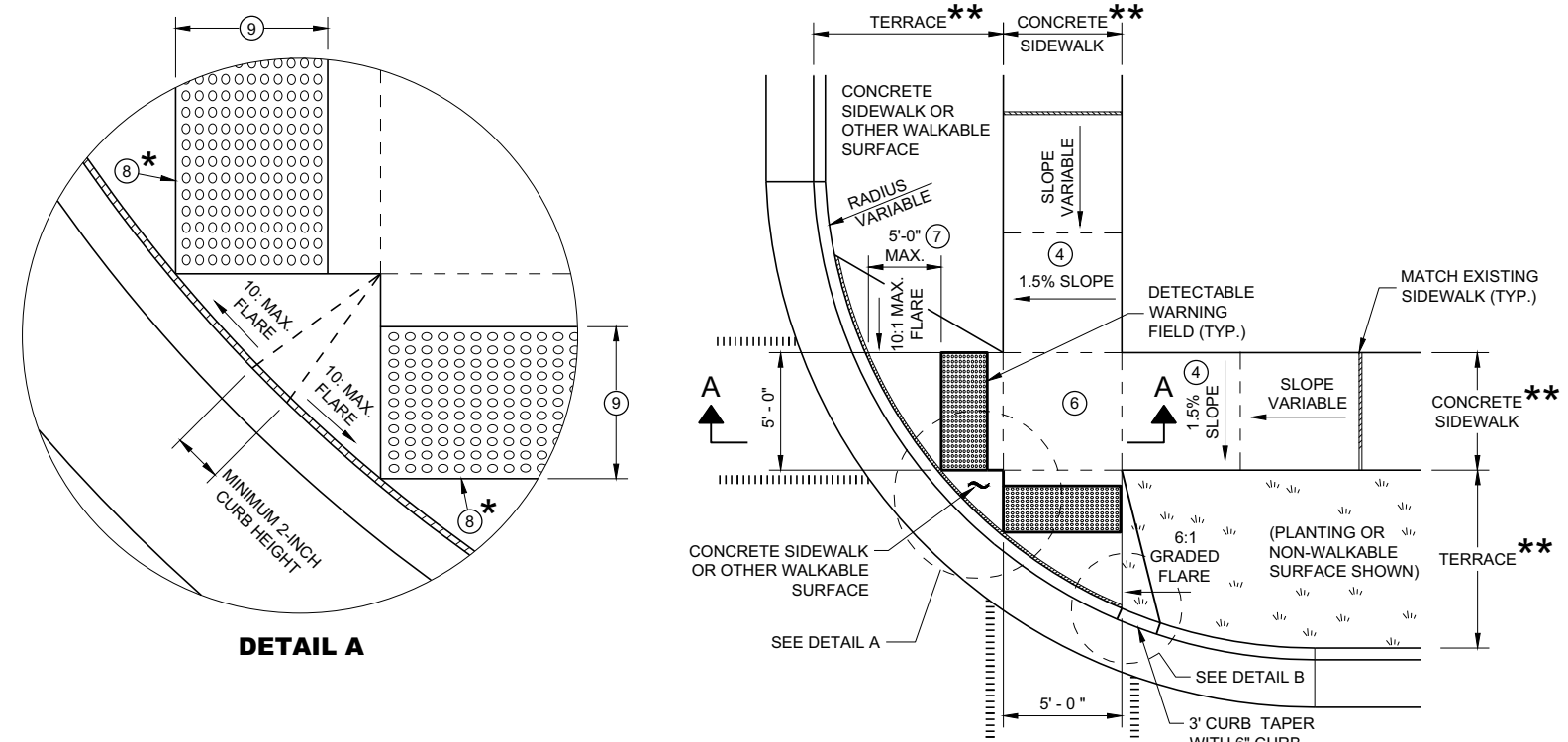
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB. POINT LOCATION MAY BE ADJUSTED TO ALIGN WITH BEGINNING OF FULL-HEIGHT CURB IF THIS DISTANCE IS SHORT.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ MAXIMUM 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑤ PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

LEGEND

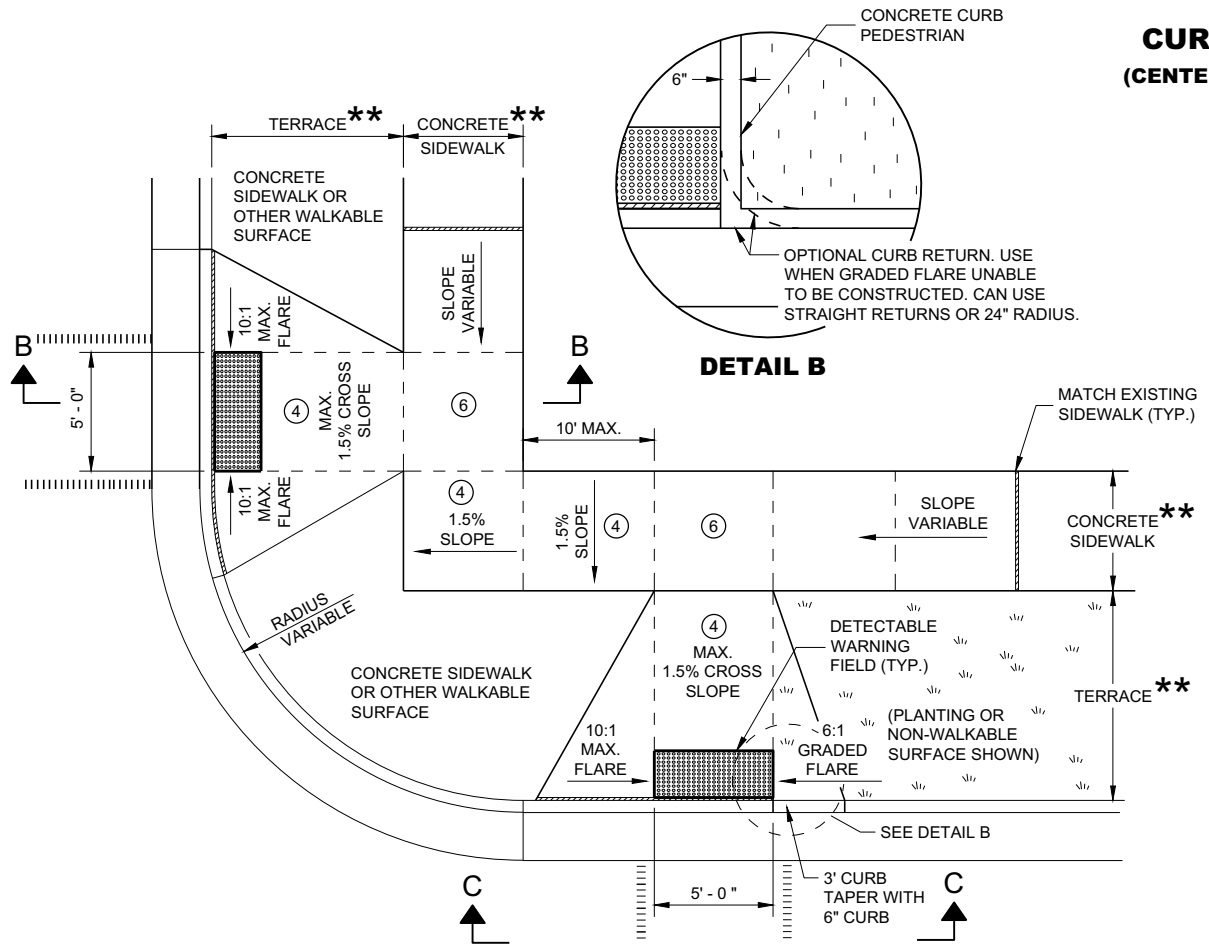
- 1/2" EXPANSION JOINT SIDEWALK
- - - - - CONTRACTION JOINT FIELD LOCATED
- ||||||| PAVEMENT MARKING CROSSWALK (WHITE)

**CURB RAMPS
TYPE 1 AND 1-A**

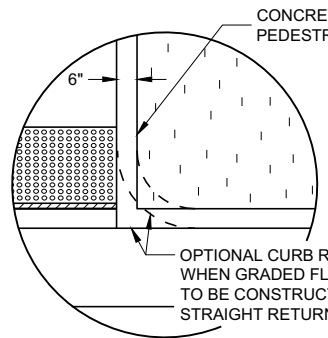
STATE OF WISCONSIN
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PLAN VIEW CURB RAMP TYPE 2 (CENTER OF CORNER RADIUS)



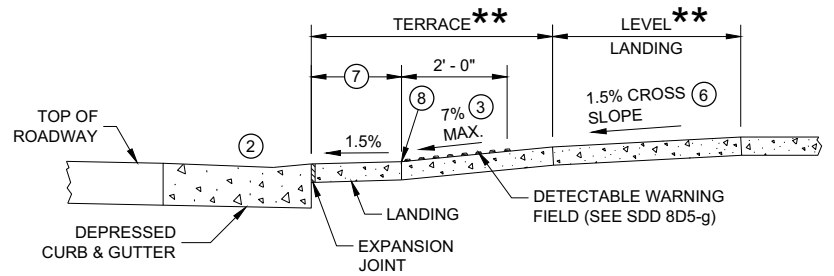
PLAN VIEW CURB RAMP TYPE 3 (OUTSIDE OF CROSSWALK AREA)



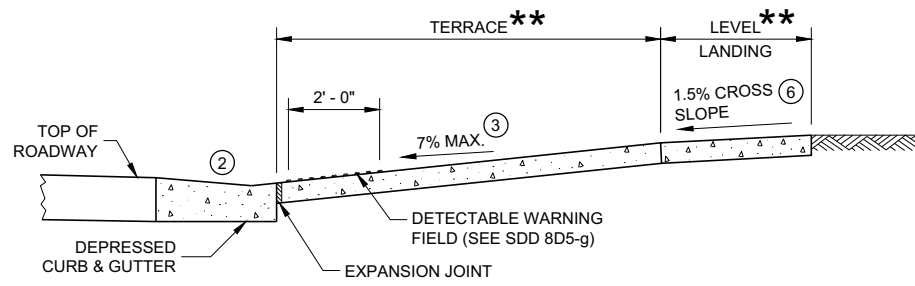
DETAIL B

GENERAL NOTES

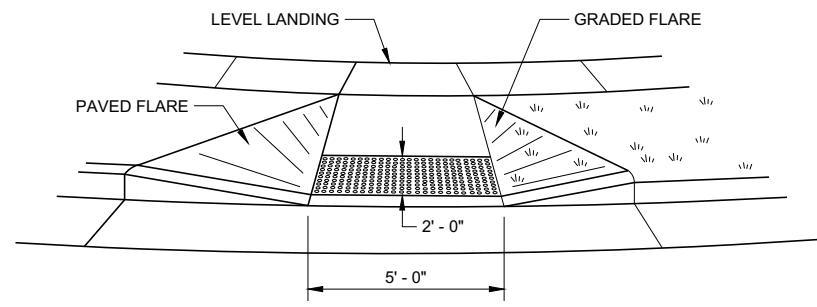
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE (2.67% OR LESS) AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET X 5 FEET.
- ⑦ WHEN GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑨ WHEN DISTANCE IS LESS THAN 6' - 0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. CONSTRUCT 2-INCH MINIMUM CURB HEIGHT BETWEEN 10:1 FLARES.



SECTION A - A FOR TYPE 2



SECTION B - B FOR TYPE 3



VIEW C - C FOR TYPE 3

* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK

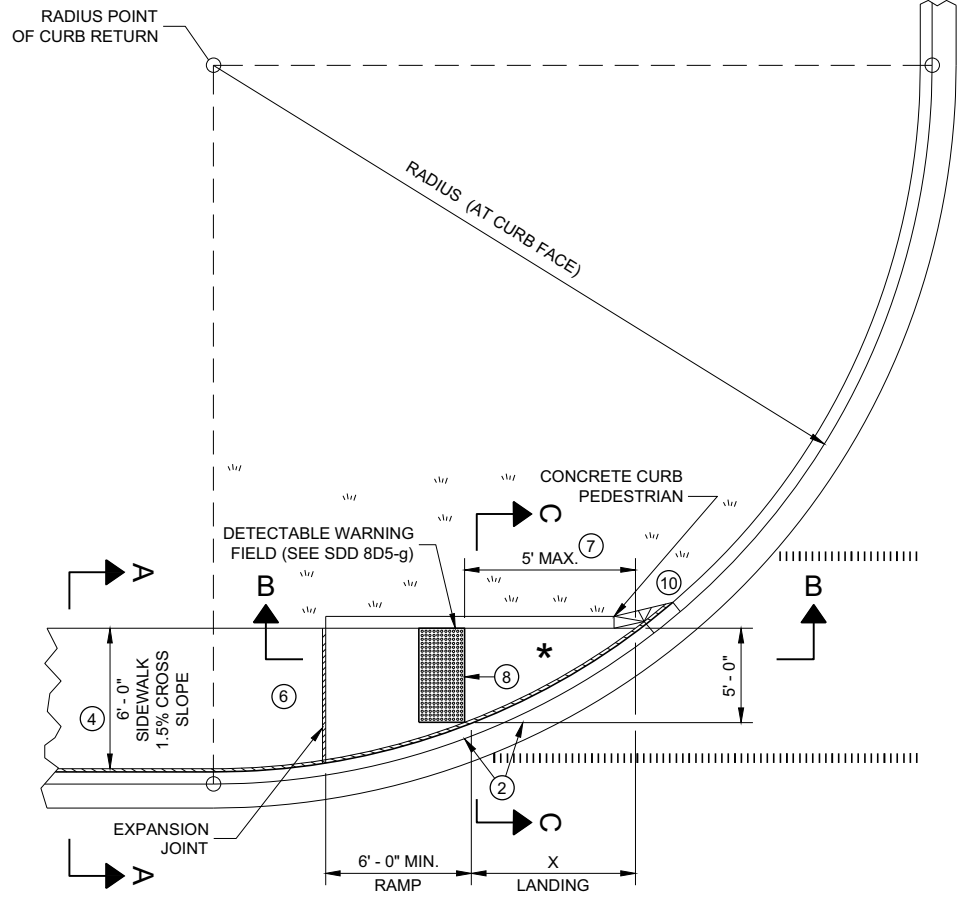
** WIDTH SHOWN ELSEWHERE IN THE PLANS

LEGEND

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

CURB RAMPS TYPE 2 AND 3

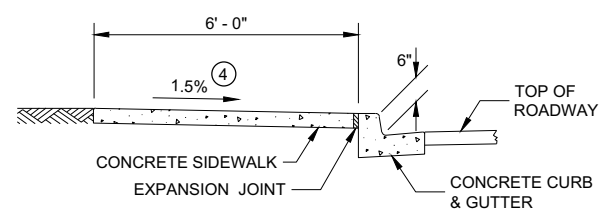
STATE OF WISCONSIN
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PLAN VIEW CURB RAMP TYPE 4A

RADIUS (AT CURB FACE)	X
10 FEET	4' - 7"
15 FEET	6' - 5 1/2"

INTERMEDIATE RADII CAN BE INTERPOLATED



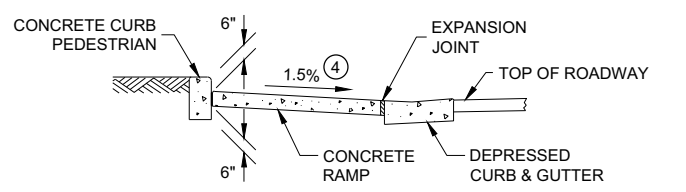
SECTION A - A FOR TYPE 4A

GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- 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.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑦ WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑩ INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.

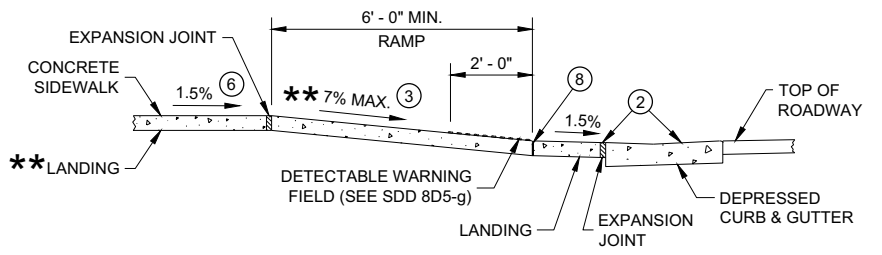
LEGEND

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



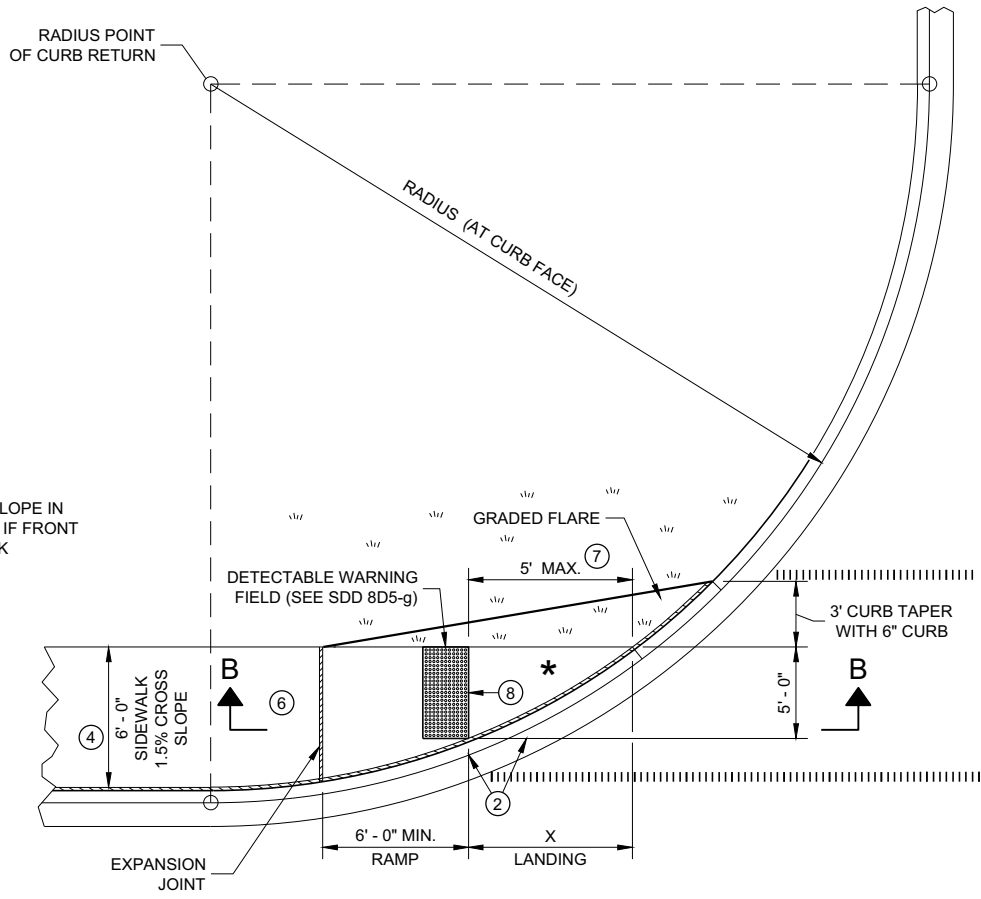
SECTION C - C FOR TYPE 4A

* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IF FRONT OF GRADE BREAK

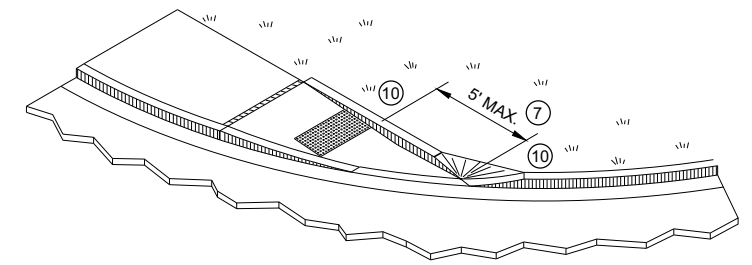


SECTION B - B FOR TYPE 4A AND TYPE 4A1

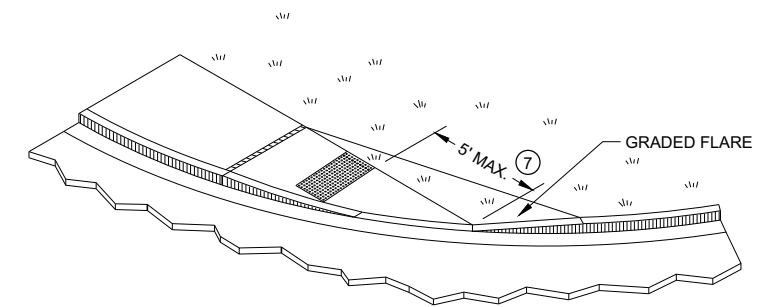
** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED



PLAN VIEW CURB RAMP TYPE 4A1



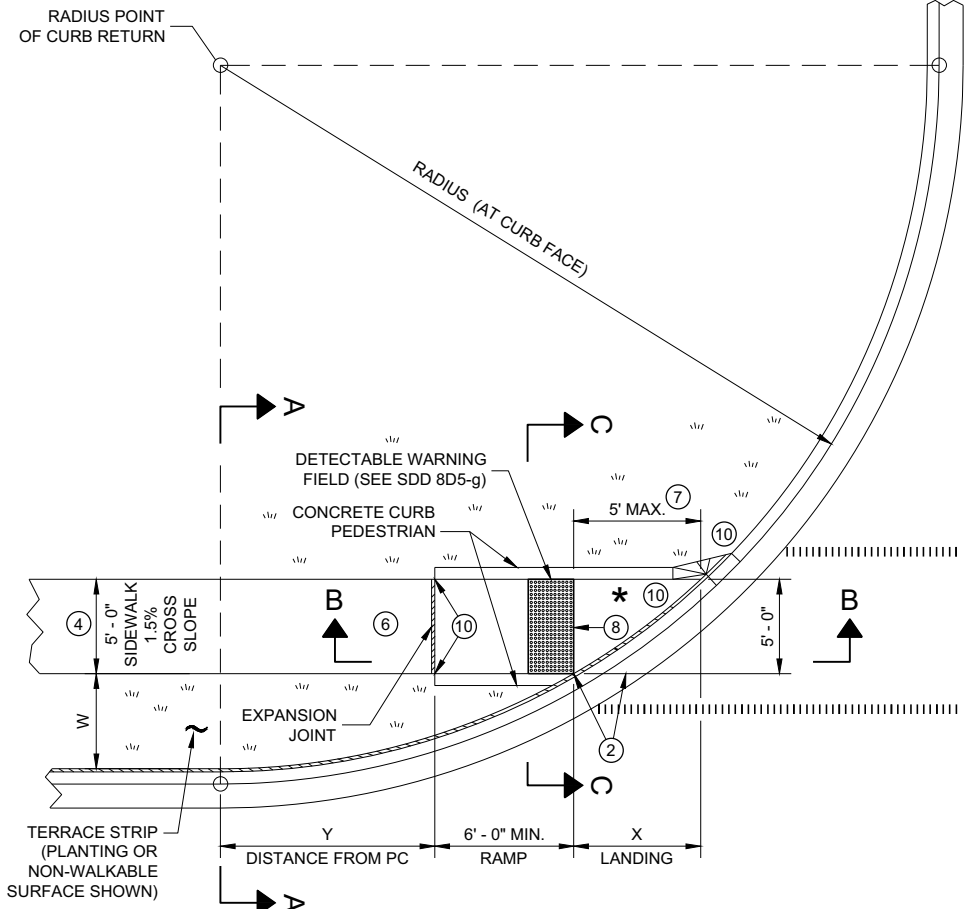
ISOMETRIC VIEW FOR TYPE 4A



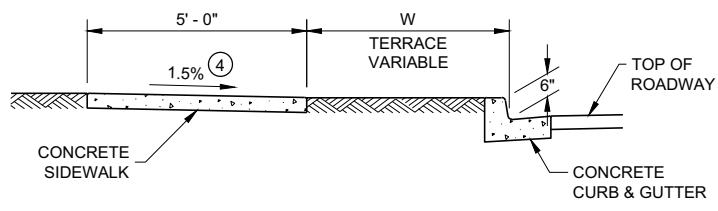
ISOMETRIC VIEW FOR TYPE 4A1

**CURB RAMPS
TYPE 4A AND 4A1**

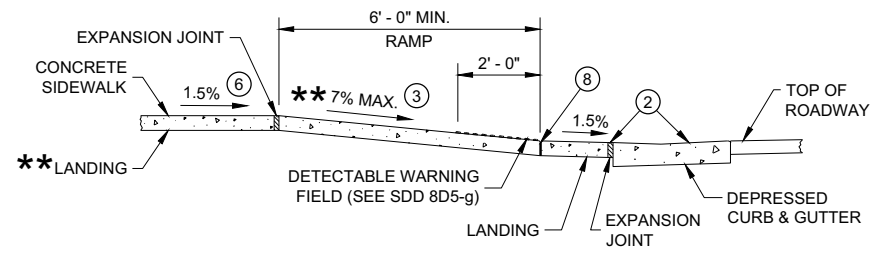
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**PLAN VIEW
CURB RAMP TYPE 4B**



SECTION A - A FOR TYPE 4B



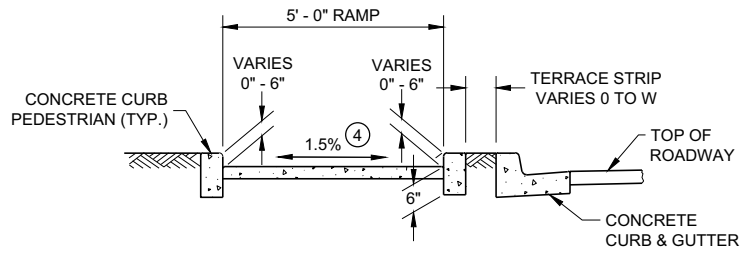
**SECTION B - B FOR
TYPE 4B AND TYPE 4B1**

** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

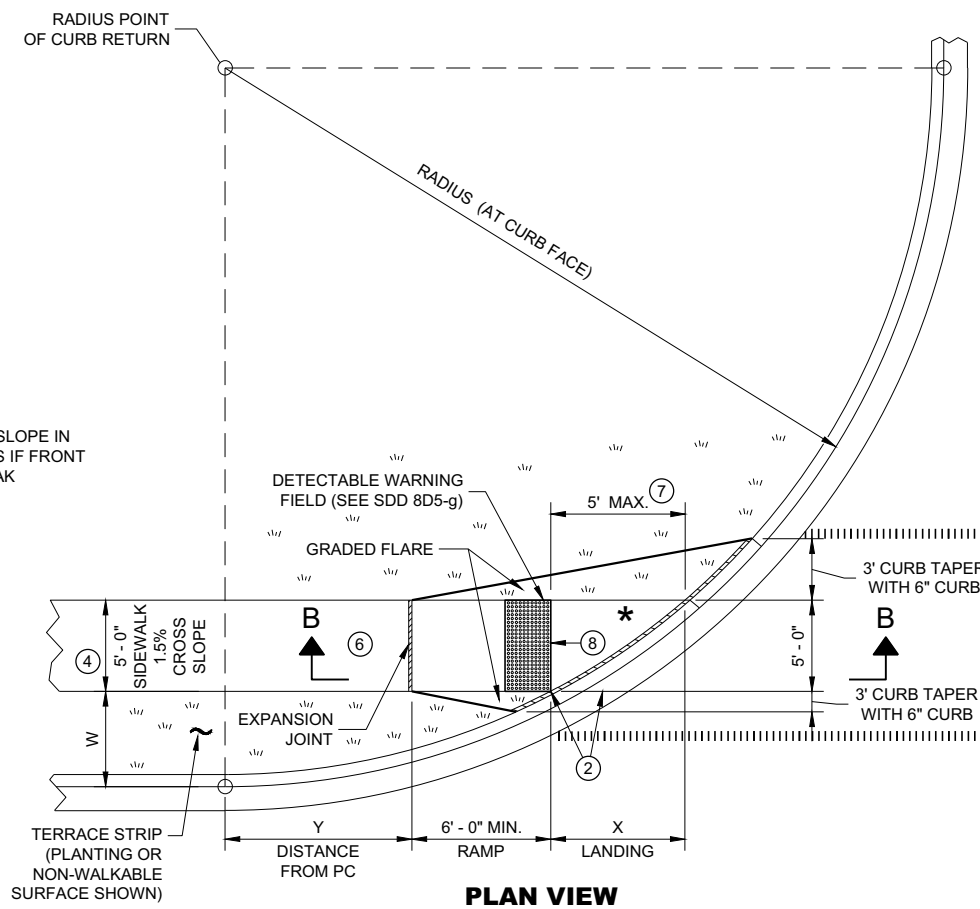
* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IF FRONT OF GRADE BREAK

RADIUS (AT CURB FACE)	W = 3' - 0"		W = 4' - 0"		W = 5' - 0"		W = 6' - 0"		W = 7' - 0"		W = 8' - 0"		W = 9' - 0"		W = 10' - 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
10 FEET	2' - 10 1/4"	0' - 5"	2' - 1"	1' - 4 1/2"	1' - 5"	2' - 1"	0' - 10"	2' - 7 1/2"	0' - 3 1/4"	3' - 0 1/4"						
15 FEET	4' - 6 3/4"	2' - 1 3/4"	3' - 9"	3' - 5 3/4"	3' - 1 1/4"	4' - 6"	2' - 6 3/4"	5' - 4 1/2"	2' - 1"	6' - 1"	1' - 8"	6' - 8 1/2"	1' - 3 1/4"	7' - 2 1/2"	0' - 10 3/4"	7' - 7 1/4"
20 FEET	5' - 9 3/4"	3' - 6 1/2"	4' - 11 1/2"	5' - 1 3/4"	4' - 3 1/4"	6' - 5 1/2"	3' - 8 3/4"	7' - 7"	3' - 3"	8' - 6 1/2"	2' - 10"	9' - 4 1/2"	2' - 5 1/2"	10' - 1 1/4"	2' - 1 1/4"	10' - 9"
30 FEET			6' - 9 1/4"	7' - 11 1/4"	6' - 0 1/4"	9' - 8"	5' - 5"	11' - 1 3/4"	4' - 10 3/4"	12' - 5 3/4"	4' - 5 1/2"	13' - 7 3/4"	4' - 0 3/4"	14' - 8 1/2"	3' - 8 1/2"	15' - 8 1/4"
40 FEET									6' - 1 3/4"	15' - 8 1/2"	5' - 8"	17' - 2"	5' - 3"	18' - 5 3/4"	4' - 10 3/4"	19' - 8 1/4"
50 FEET															5' - 10 1/4"	23' - 2"

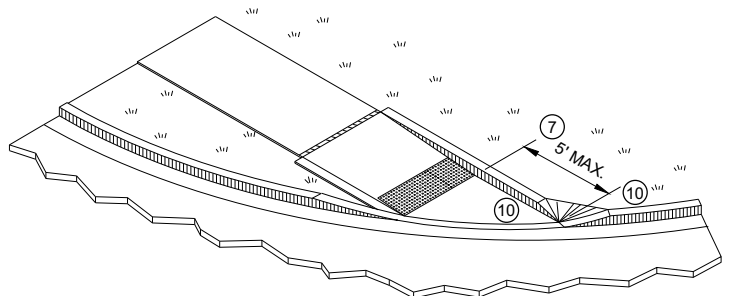
INTERMEDIATE RADII CAN BE INTERPOLATED
DIMENSION "Y" IS CALCULATED BASED ON 6'-0" RAMP LENGTH
DIMENSION "X" IS CALCULATED BASED ON 5'-0" SIDEWALK WIDTH



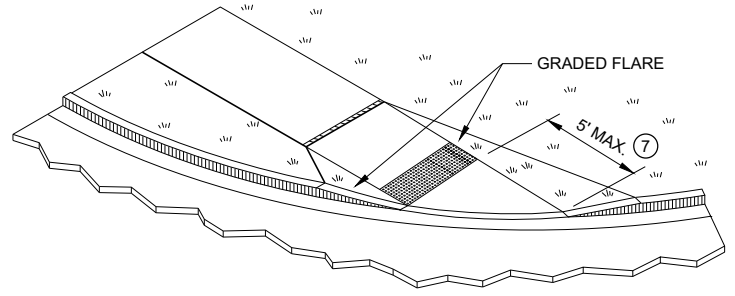
SECTION C - C FOR TYPE 4B



**PLAN VIEW
CURB RAMP TYPE 4B1**



ISOMETRIC VIEW FOR TYPE 4B



ISOMETRIC VIEW FOR TYPE 4B1

LEGEND

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

GENERAL NOTES

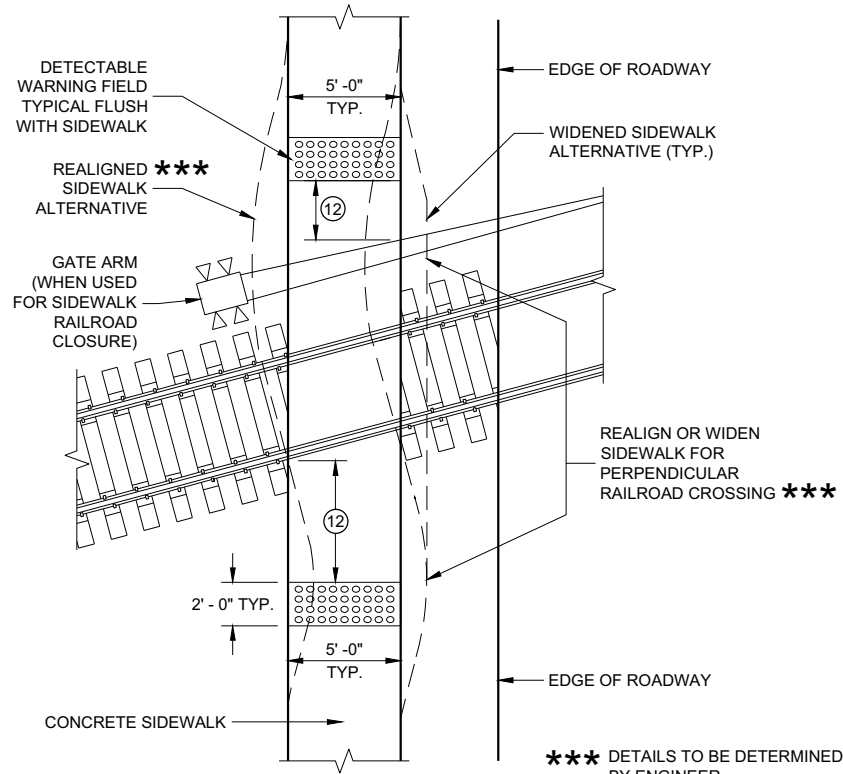
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- 2 GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/2 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- 3 AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- 4 ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- 6 PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- 7 WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- 8 PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- 10 INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.

SDD08D05 - 20d

SDD08D05 - 20d

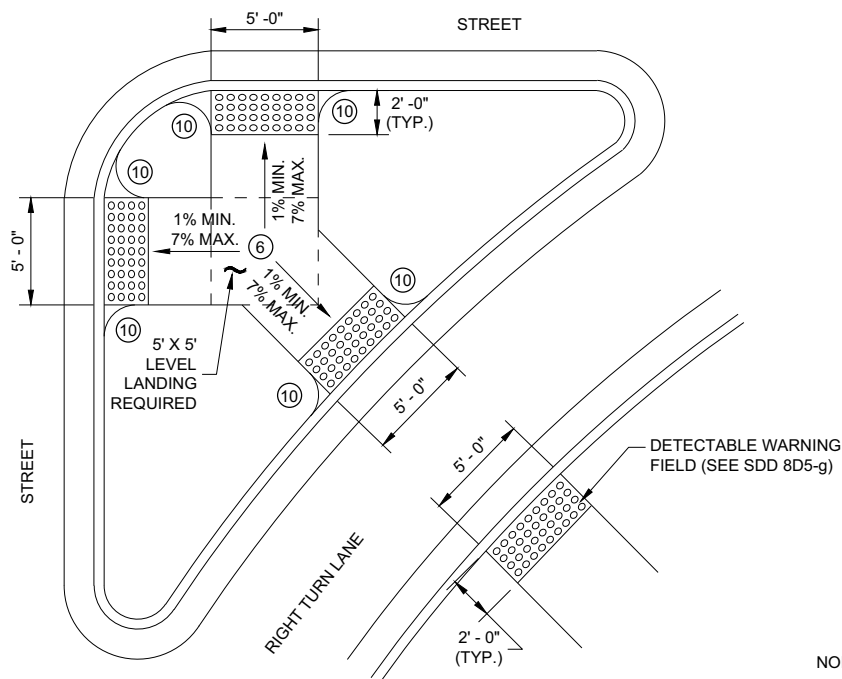
**CURB RAMPS
TYPE 4B AND 4B1**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CURB RAMP TYPE 8

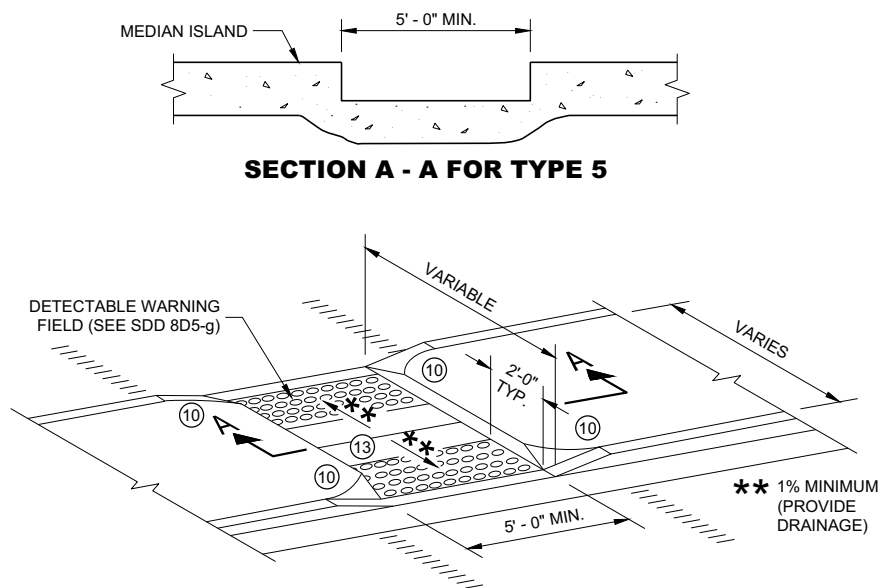
DETECTABLE WARNINGS AT RAILROAD CROSSING



CURB RAMP TYPE 6

DETECTABLE WARNING AT ISLANDS

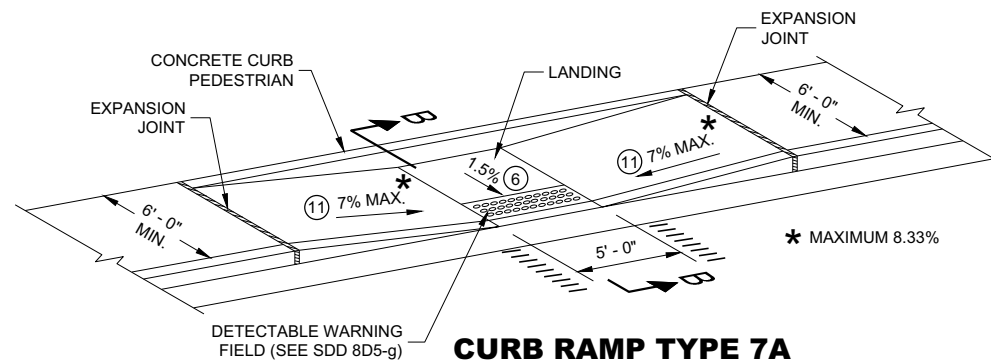
REFER TO GENERAL NOTES (2) AND (3) FOR ALL ISLAND CURB RAMPS



SECTION A - A FOR TYPE 5

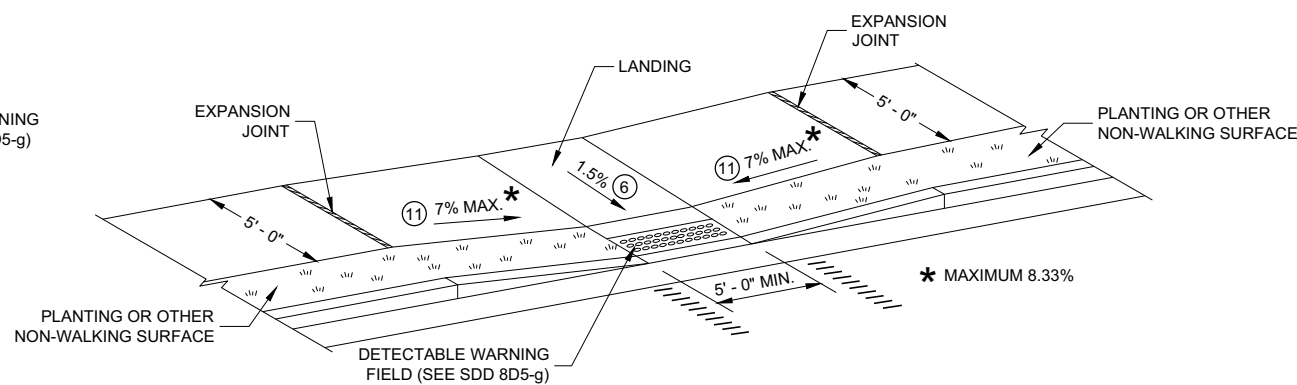
CURB RAMP TYPE 5

**MEDIAN ISLAND
NON-ELEVATED PEDESTRIAN CROSSING**



CURB RAMP TYPE 7A

MID BLOCK CROSSING



CURB RAMP TYPE 7B

MID BLOCK CROSSING

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

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

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.

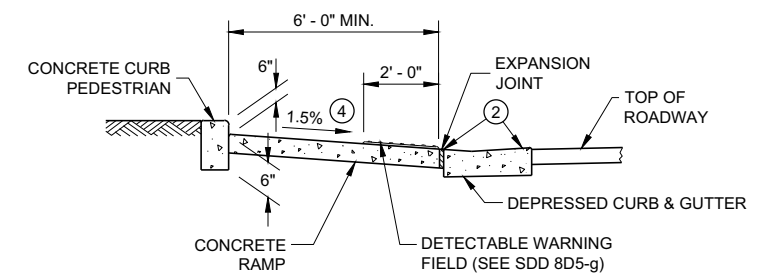
SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- (2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- (3) AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- (4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- (6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- (10) INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.
- (11) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.
- (12) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ±0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.
- (13) DO NOT INSTALL DETECTABLE WARNING FIELDS AT THE EDGES OF STREET-LEVEL PEDESTRIAN REFUGE ISLANDS IF A MINIMUM 2 FOOT CONCRETE SURFACE WITHOUT DETECTABLE WARNINGS (MEASURED IN THE DIRECTION OF PEDESTRIAN TRAVEL) CANNOT BE ACHIEVED.

LEGEND

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

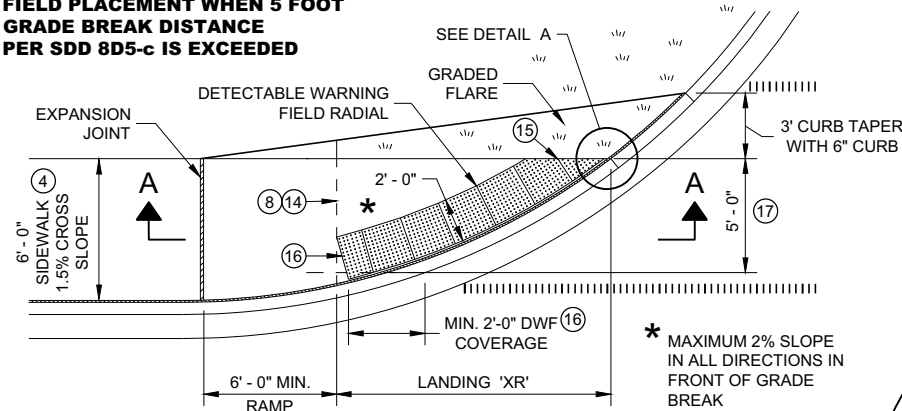


SECTION B - B FOR TYPE 7A

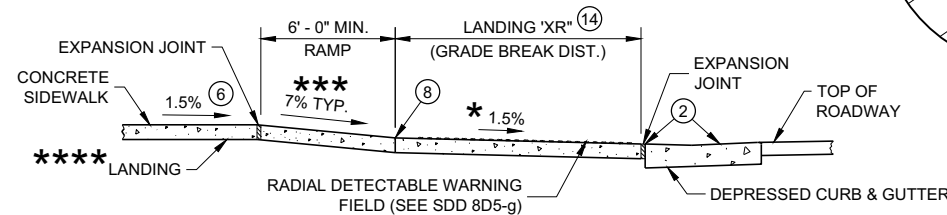
**CURB RAMPS
TYPE 5, 6, 7A, 7B & 8**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-c IS EXCEEDED



PLAN VIEW CURB RAMP TYPE 4A1 (GRADE BREAK DISTANCE GREATER THAN 5 FEET)

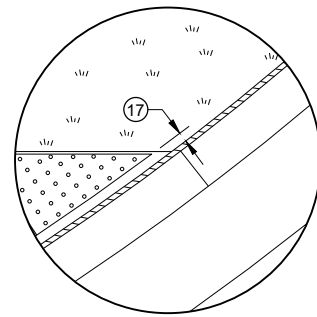


SECTION A - A FOR TYPE 4A1

**** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

*** MAXIMUM 8.33%

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

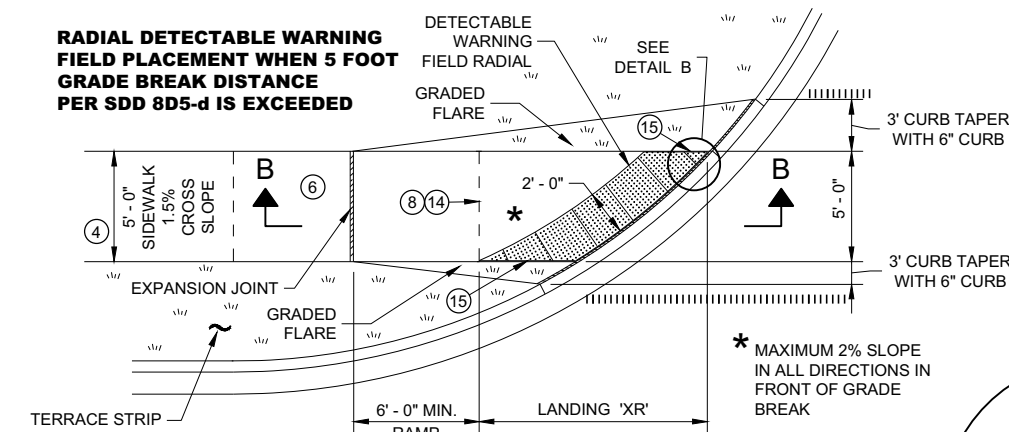


DETAIL A

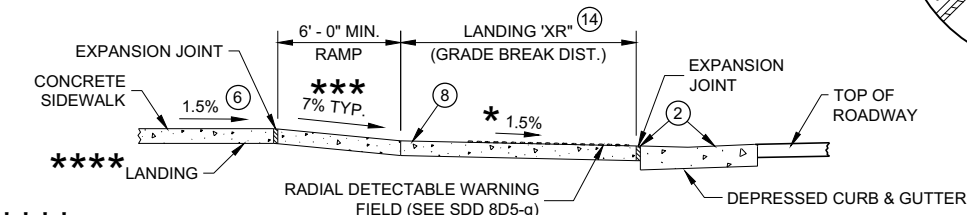
GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- 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.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- APPLY RADIAL DETECTABLE WARNING PLACEMENT SIMILARLY FOR TYPE 4A AND 4A1 CURB RAMPS AND SIMILARLY FOR TYPE 4B AND 4B1 CURB RAMPS. TYPE 4A AND 4B RAMPS ARE NOT SHOWN.
- REFER TO SDD 8D5-g FOR ADDITIONAL RADIAL PLATE REQUIREMENTS.
- FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FILED ARE PROHIBITED.
- DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.
- 2 GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- 3 AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- 4 ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- 6 PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET BY 5 FEET.
- 8 PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- 14 CONSULT ENGINEER IF GRADE BREAK LOCATION (END OF LANDING DIMENSION "XR") REQUIRES FIELD ADJUSTMENT WHEN ESTABLISHING FINAL RADIAL DETECTABLE WARNING FIELD LOCATION.
- 15 FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/8" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.
- 16 USE 1' X 2" RECTANGULAR END PLATE AT END OF TYPE 4A1 RAMP AND PROVIDE MINIMUM 2' - 0" DETECTABLE WARNING FIELD COVERAGE (IN DIRECTION OF PEDESTRIAN TRAVEL) ALONG THE ENTIRE CURB RAMP WIDTH.
- 17 A MAXIMUM 3 INCH CONCRETE BORDER WITH IS ALLOWABLE IN FROM OF RADIAL DETECTABLE WARNING FIELD FOR CONSTRUCTABILITY PURPOSES. CONCRETE BORDER WIDTH MAY VARY UP TO 1 INCH.

RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-d IS EXCEEDED



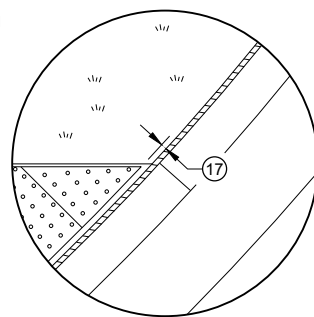
PLAN VIEW CURB RAMP TYPE 4B1 (GRADE BREAK DISTANCE GREATER THAN 5 FEET)



SECTION B - B FOR TYPE 4B1

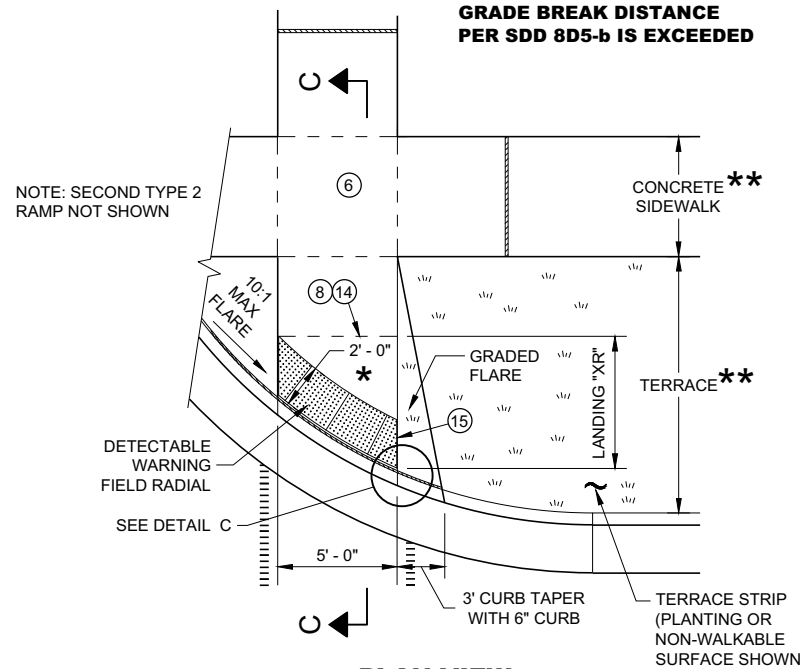
**** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

*** MAXIMUM 8.33%



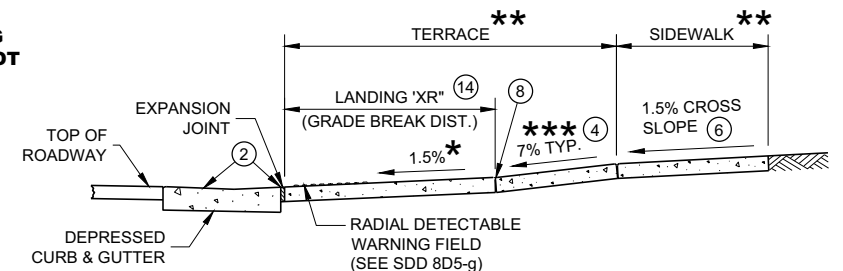
DETAIL B

RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-b IS EXCEEDED



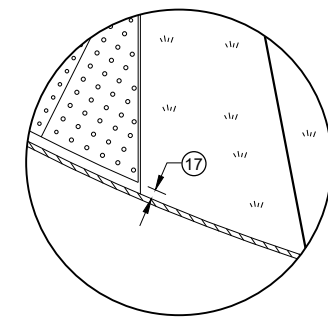
PLAN VIEW CURB RAMP TYPE 2 (GRADE BREAK DISTANCE GREATER THAN 5 FEET) (ON LINE WITH SIDEWALK)

NOTE: SECOND TYPE 2 RAMP NOT SHOWN



SECTION C - C FOR TYPE 2

- * MAXIMUM 2% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK
- ** WIDTH SHOWN ELSEWHERE IN THE PLANS
- *** MAXIMUM 8.33%



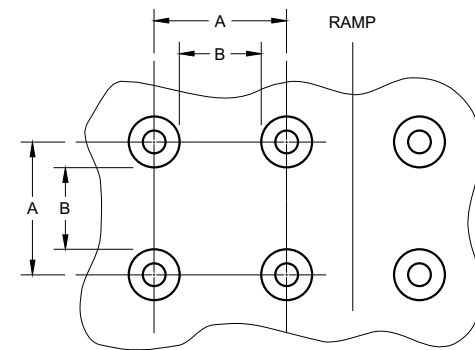
DETAIL C

CURB RAMPS RADIAL DETECTABLE WARNING FIELD APPLICATIONS

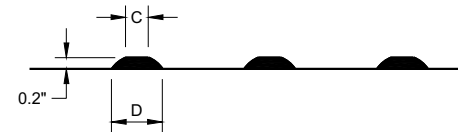
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

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

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

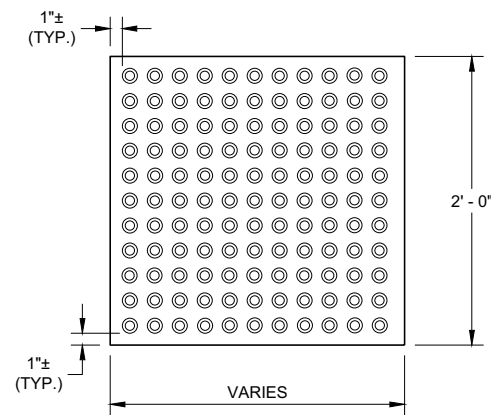


PLAN VIEW

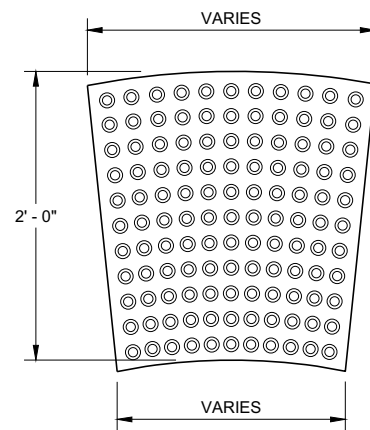


ELEVATION VIEW

**TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL**

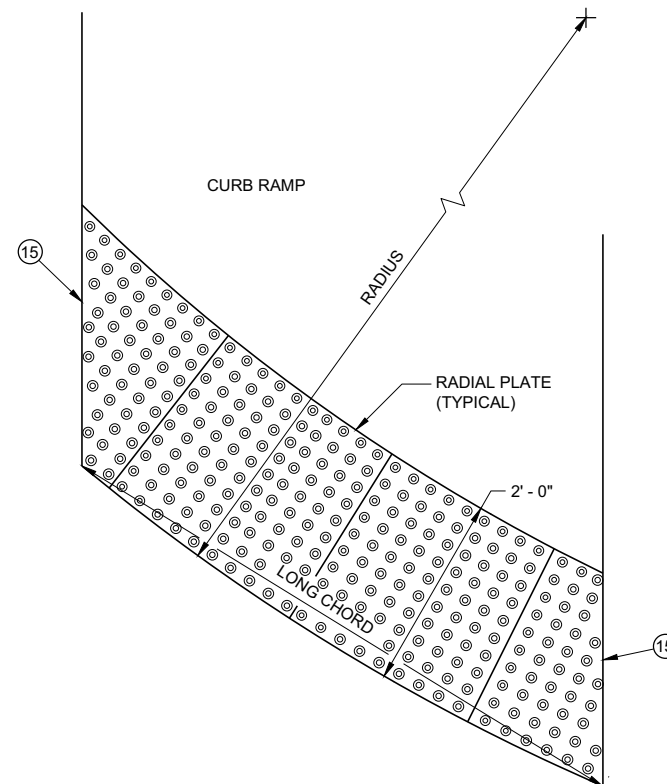


RECTANGULAR
PLATES

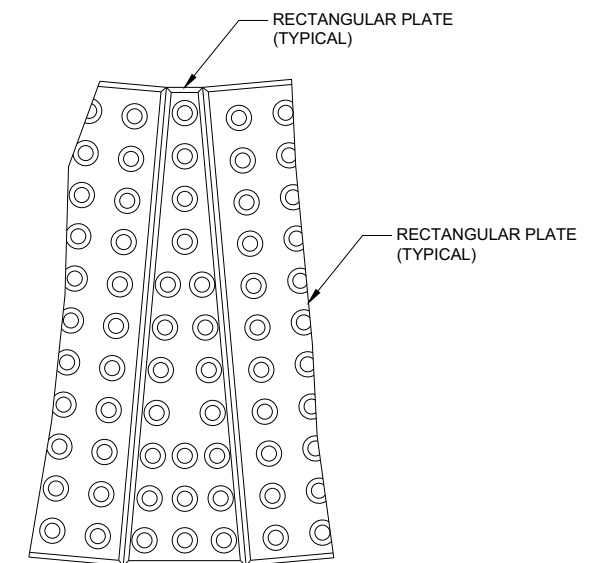


RADIAL
PLATES

PLAN VIEW
DETECTABLE WARNING FIELDS (TYPICAL)



PLAN VIEW
RADIAL DETECTABLE
WARNING FIELD ATTRIBUTES



PLAN VIEW
RADIAL WEDGE PLATE
CONNECTION DETAIL

GENERAL NOTES

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AT A CURB RAMP SHALL BE FROM THE SAME MANUFACTURER.

PLACE ALL DETECTABLE WARNING FIELD SYSTEMS IN ACCORDANCE TO THE MANUFACTURER'S RECOMMENDATION.

FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FIELD ARE PROHIBITED.

DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.

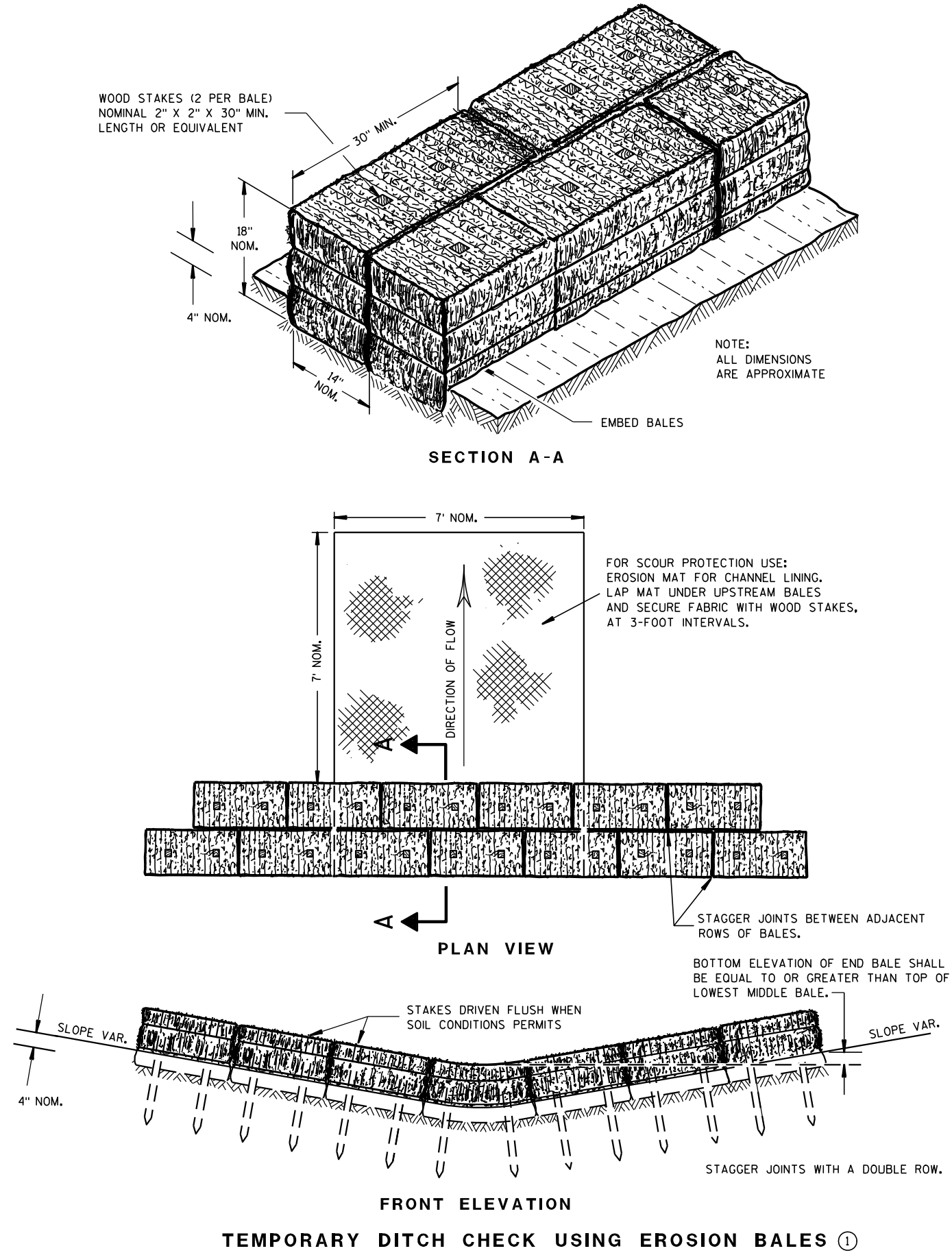
FOR RADIAL DETECTABLE WARNING FIELD APPLICATIONS WHERE STANDARD RADIAL PLATES ARE NOT AVAILABLE AT AN INTERSECTION CURB RADIUS, A COMBINATION OF SQUARE OR RECTANGULAR PLATES AND RADIAL PLATES MAY BE USED TO FORM RADIAL CONFIGURATION. RADIAL WEDGE PLATES IN COMBINATION WITH SQUARE PLATES ARE ALSO ACCEPTABLE. FOLLOW MANUFACTURER'S RECOMMENDATIONS.

REFER TO CONTRACT AND STANDARD SPECIFICATIONS FOR FIELD CUTTING REQUIREMENTS.

DO NOT EMBED IN CONCRETE ANY FIELD-CUT PLATES WITH CUT EDGES SHORTER THAN 6 INCHES. CONSULT WITH MANUFACTURER FOR RE-DRILLING AND ANCHORING REQUIREMENTS OF FIELD-CUT PLATES.

15 FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/8" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.

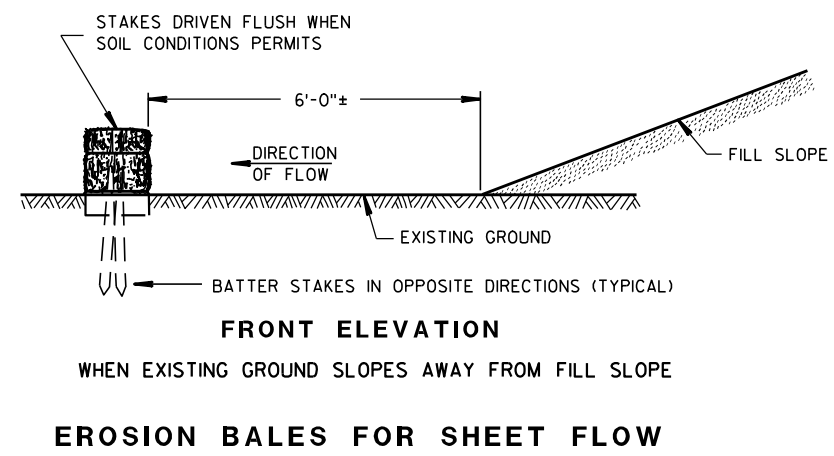
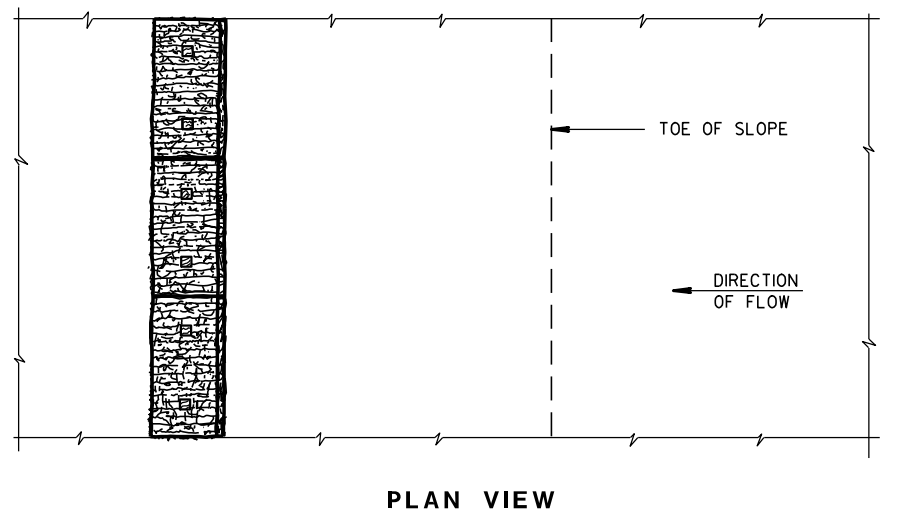
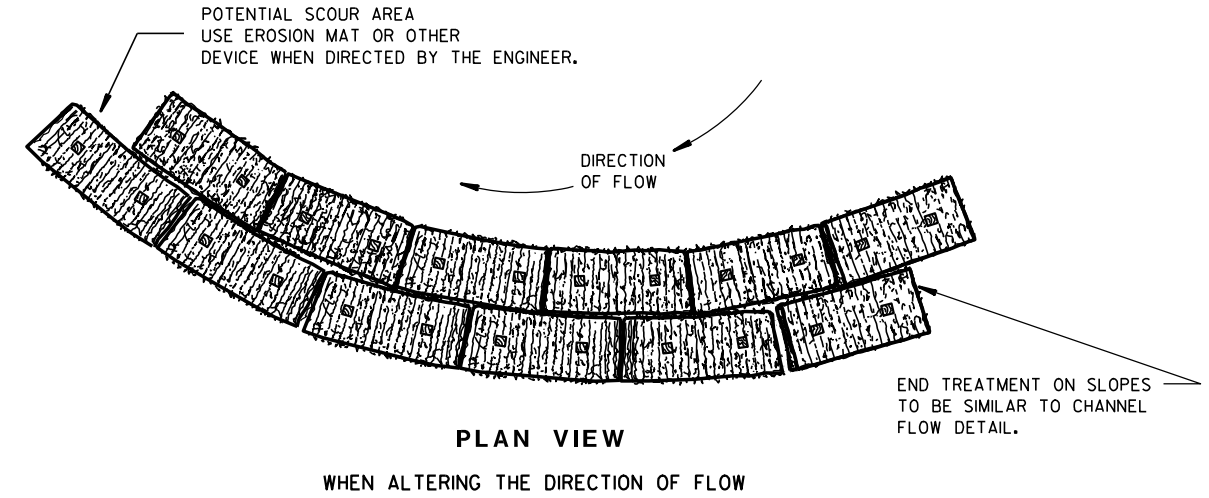
CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	



GENERAL NOTES

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

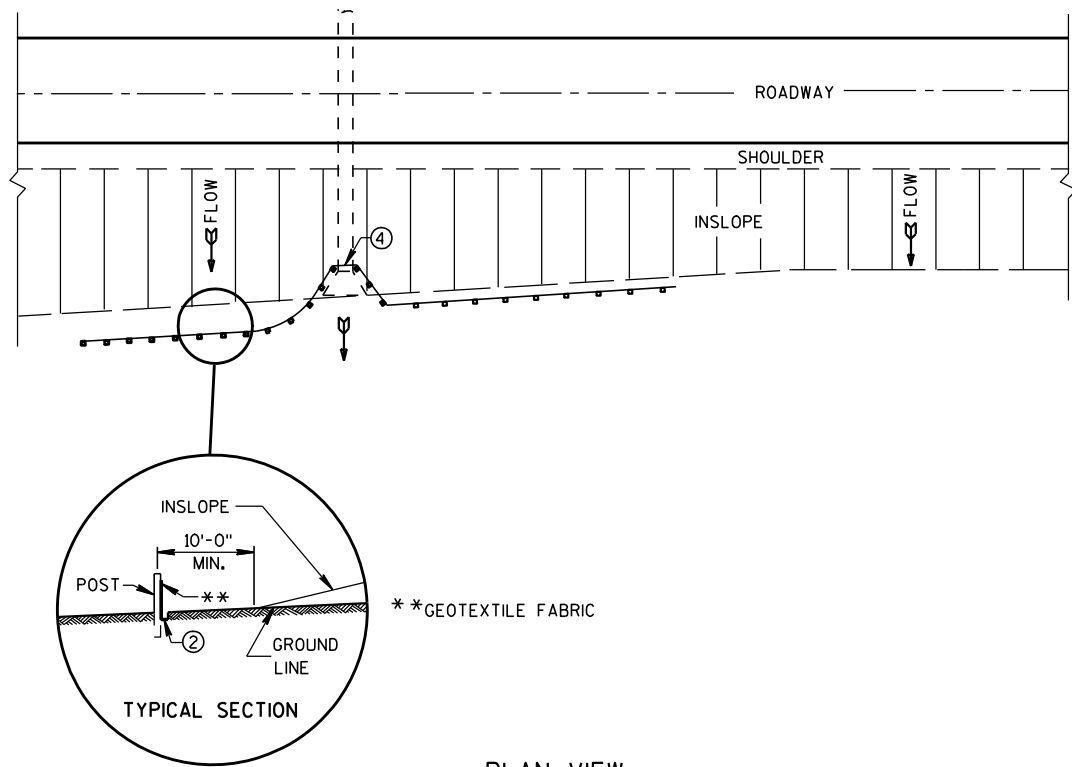
- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.



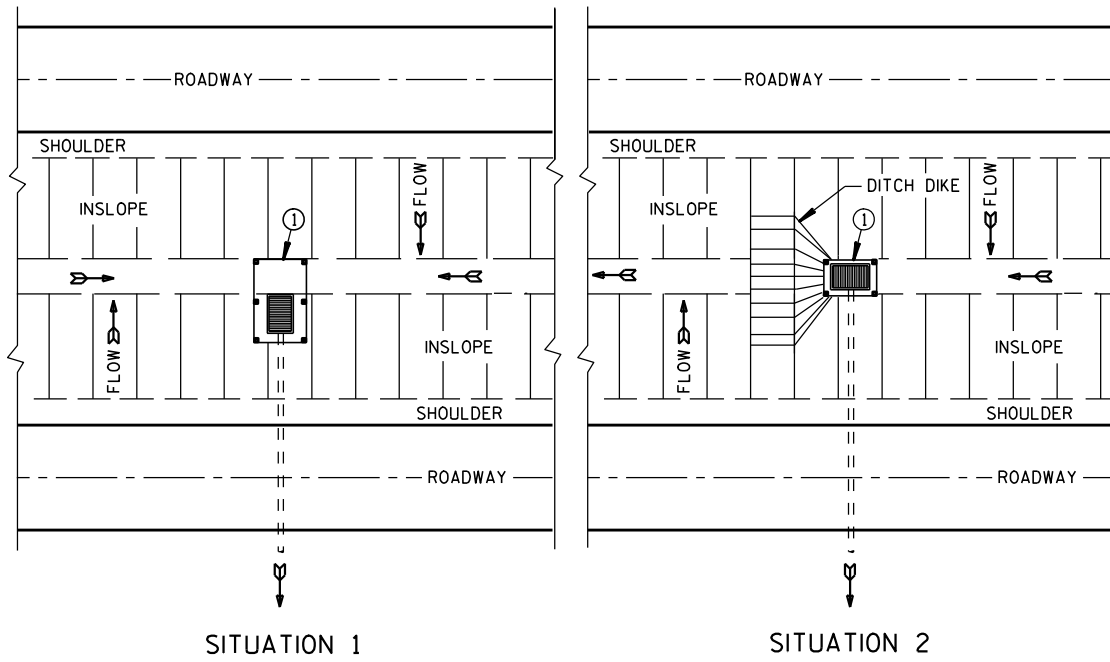
**TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

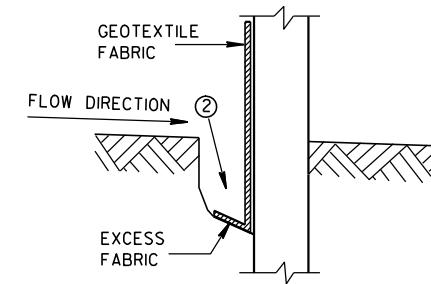


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

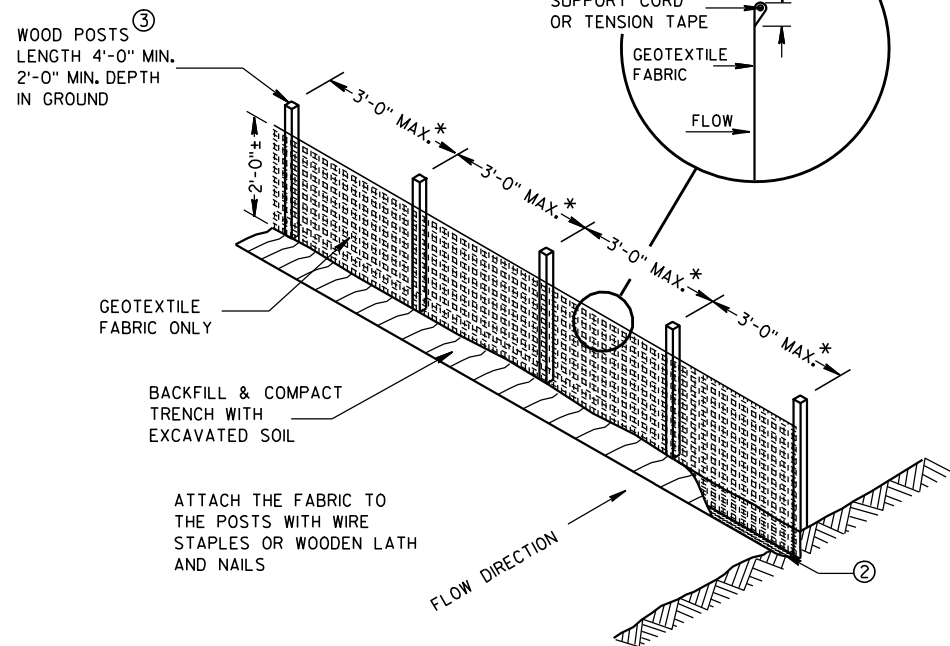
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



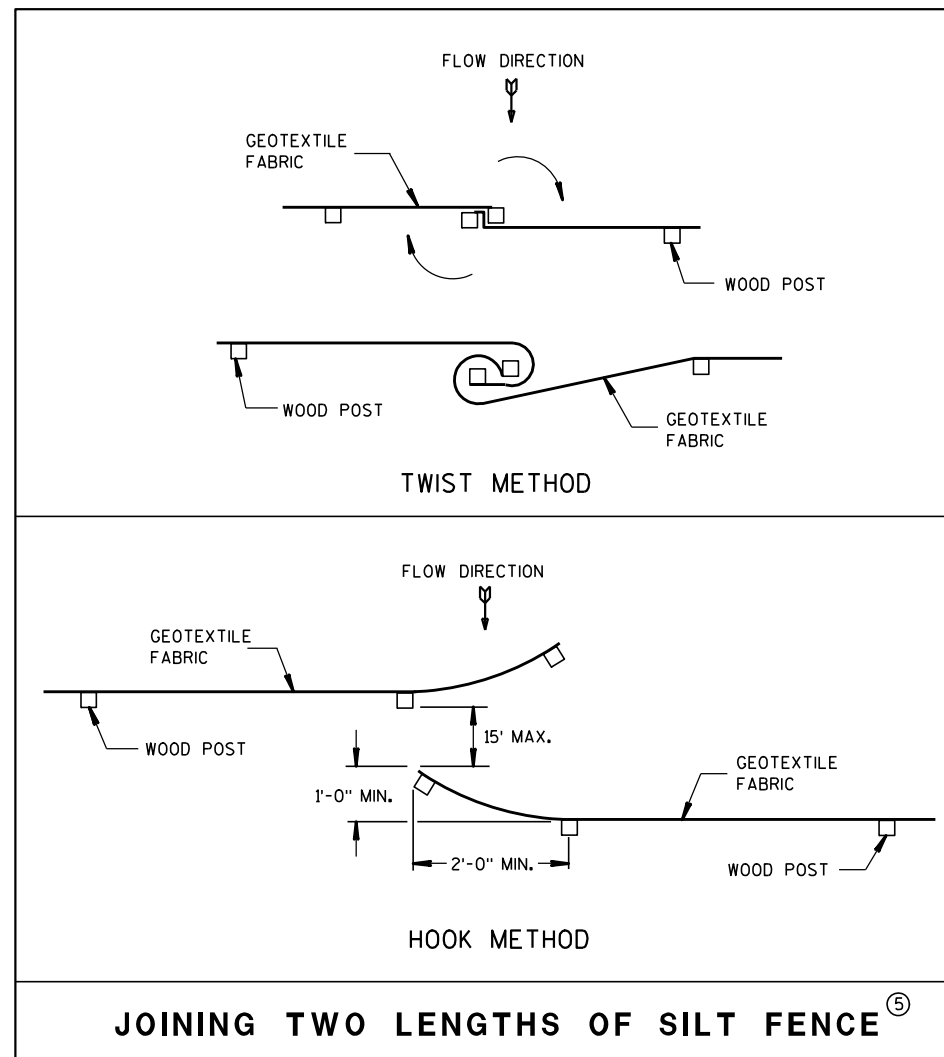
TRENCH DETAIL

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

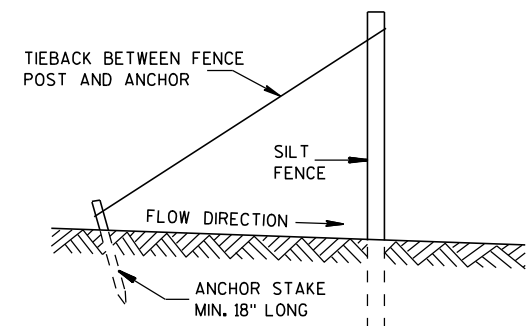


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤

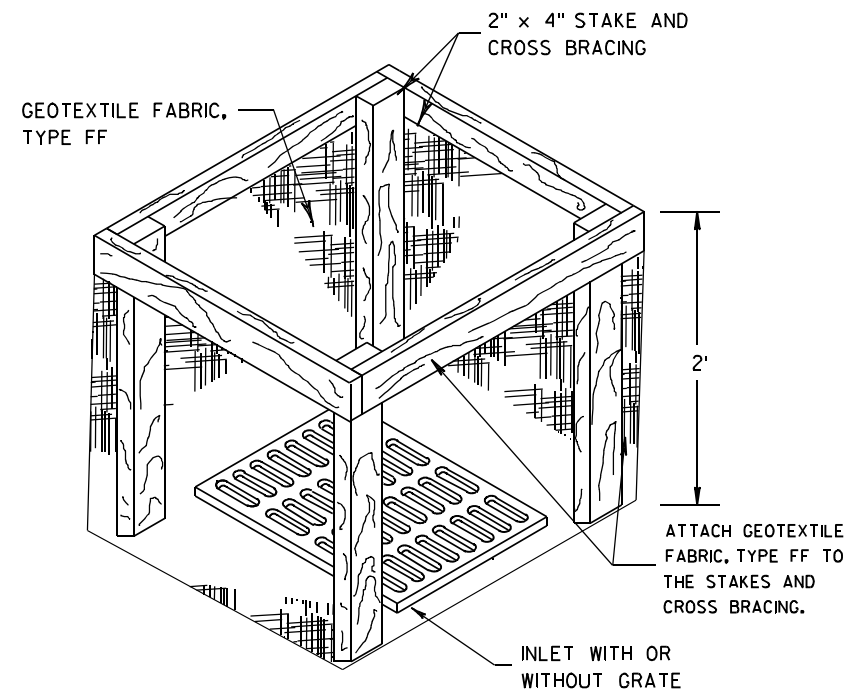
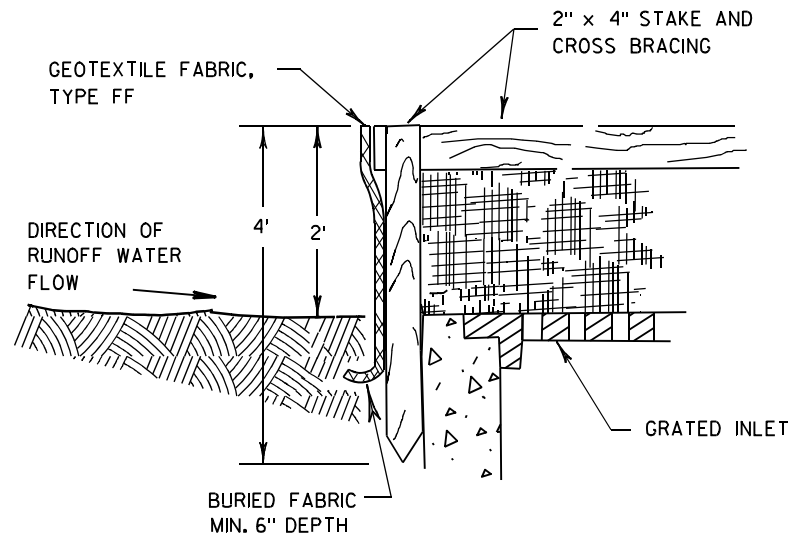


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



INLET PROTECTION, TYPE A

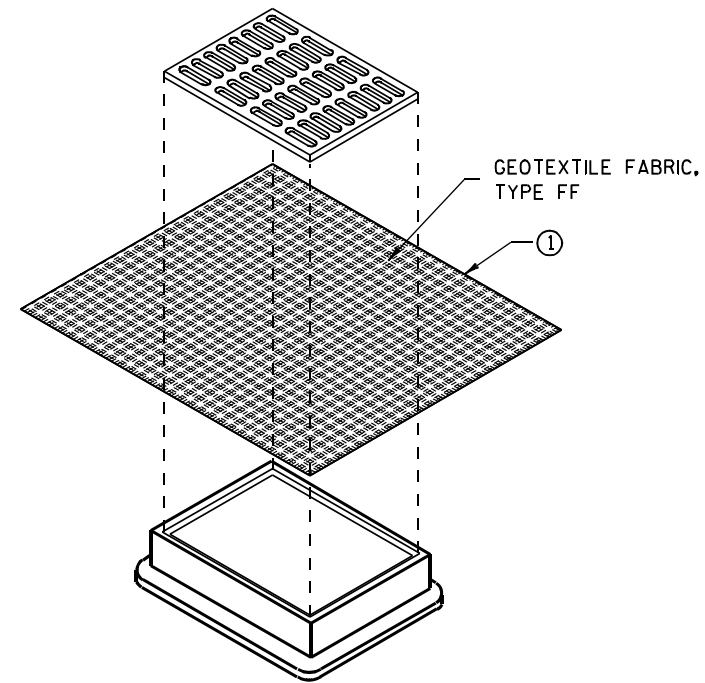
GENERAL NOTES

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

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

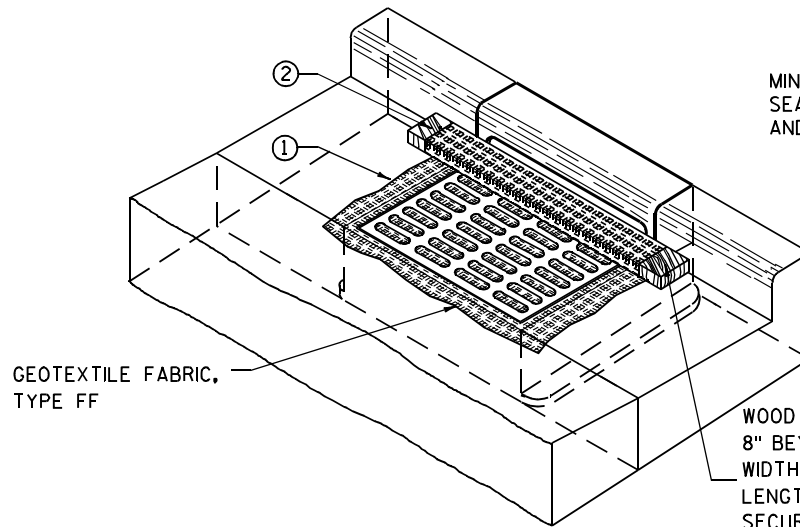
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

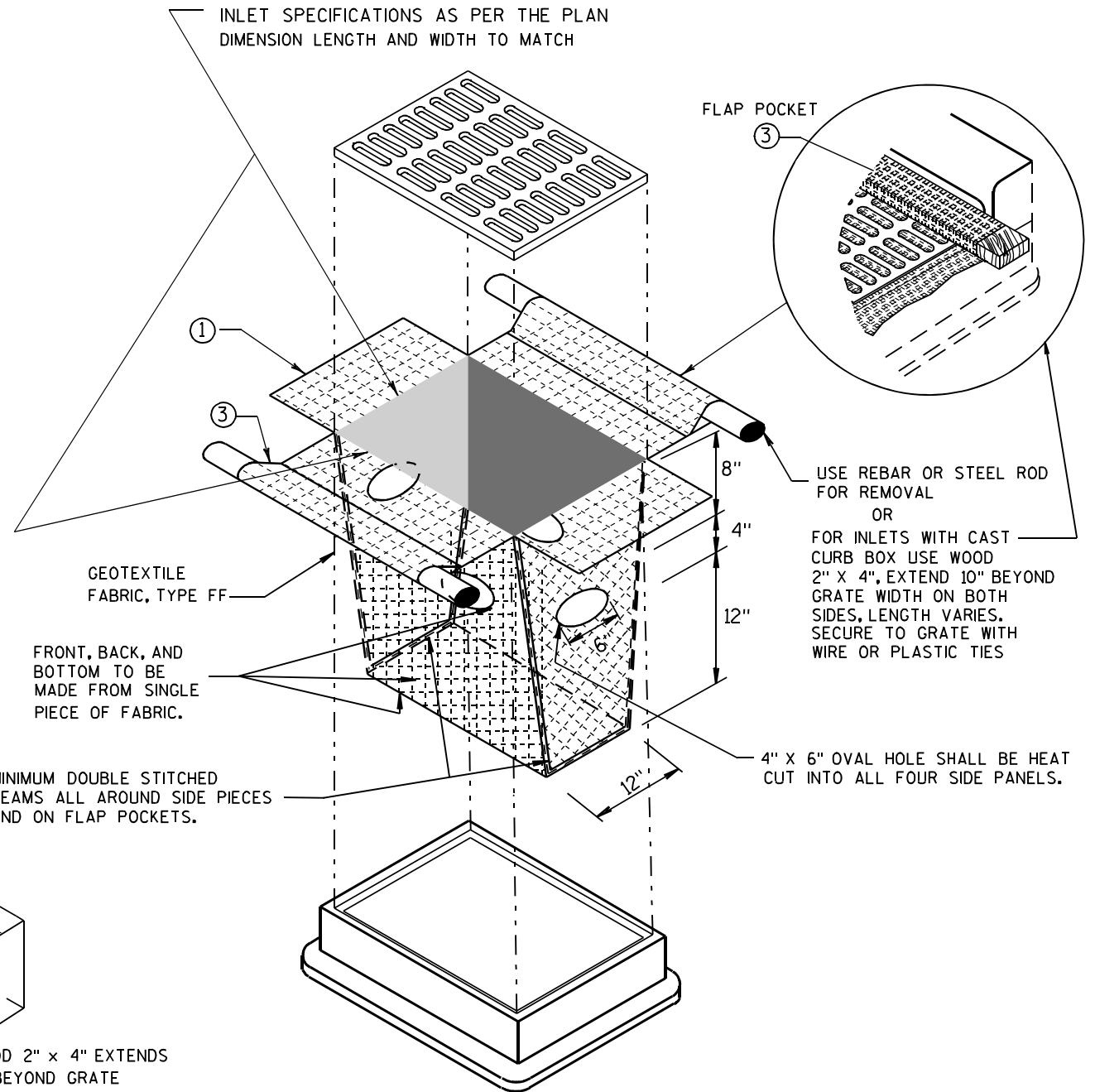
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



INLET PROTECTION, TYPE D

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

INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/s/ Beth Conestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

GENERAL NOTES

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

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

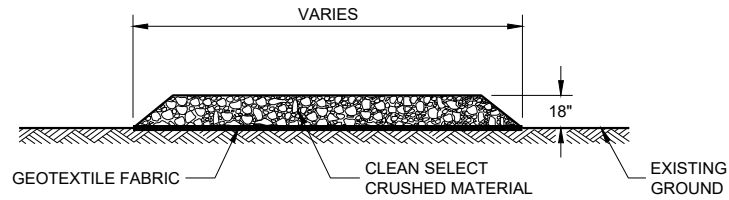
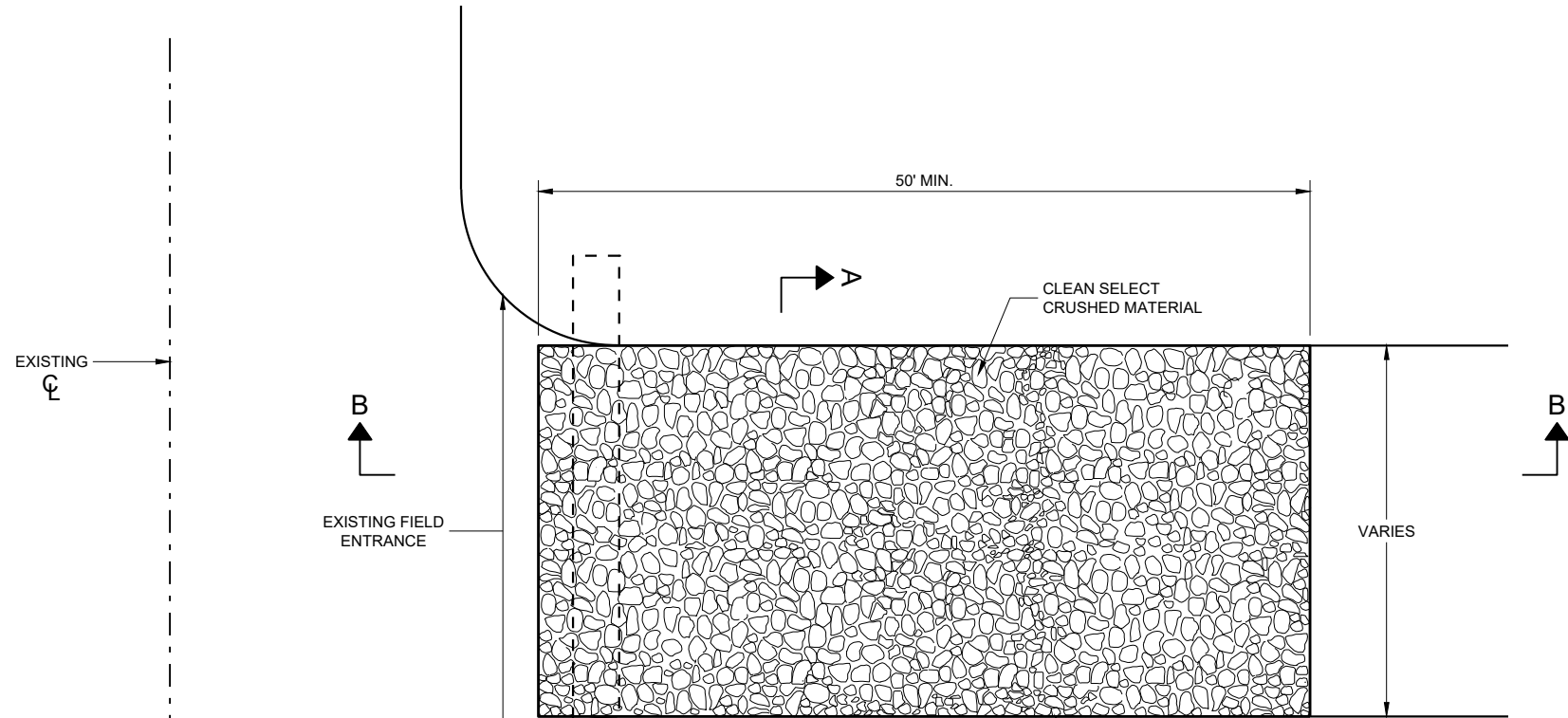
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

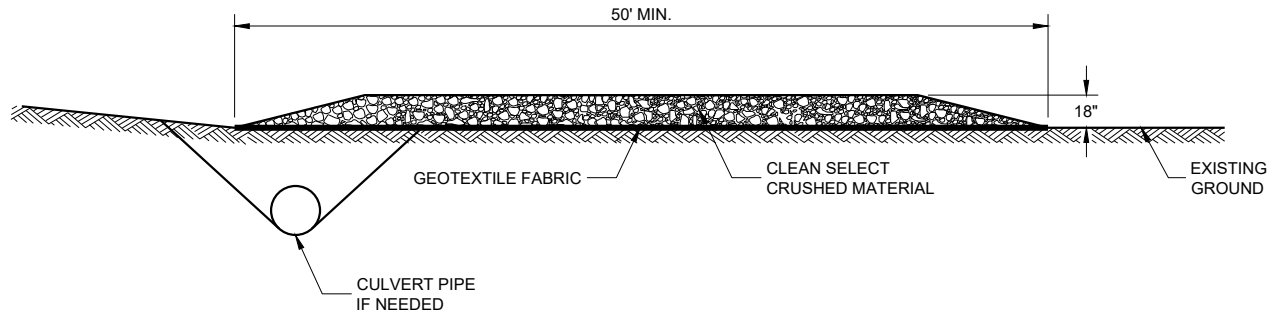
SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



SECTION A - A



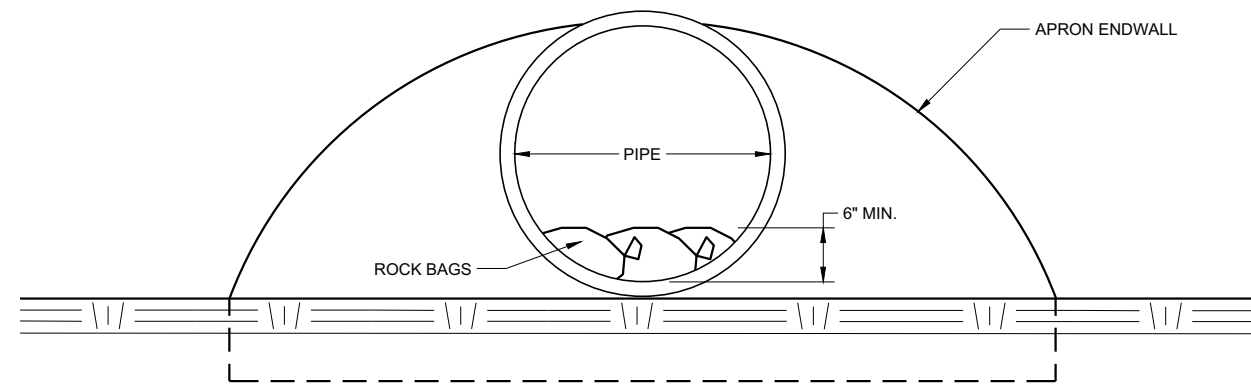
SECTION B - B

TRACKING PAD

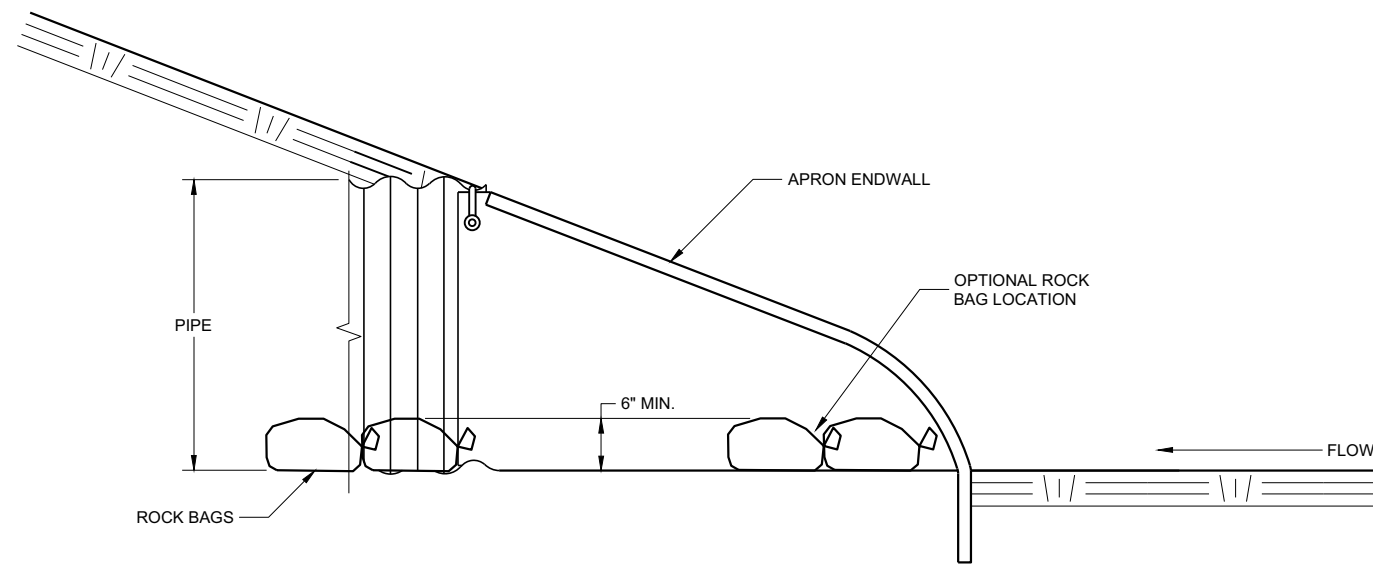
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/24/2011 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA



END VIEW



SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Daniel Schave
DATE EROSION CONTROL ENGINEER

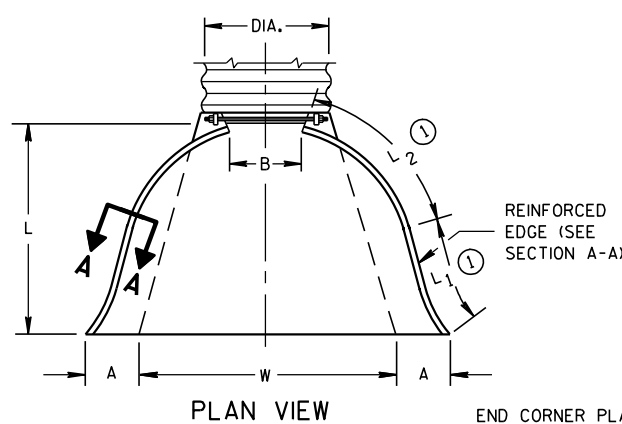
FHWA

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

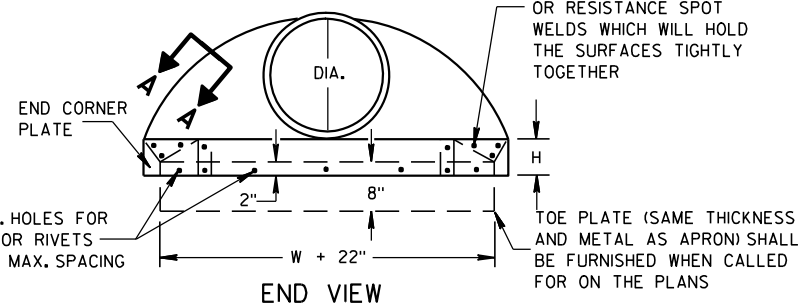
* EXCEPT CENTER PANEL SEE GENERAL NOTES

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

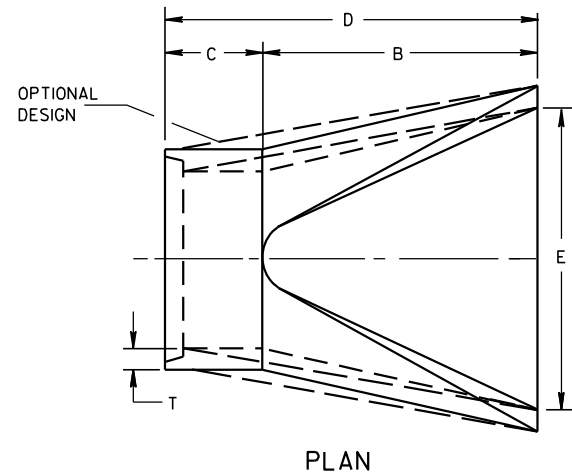
* MINIMUM
** MAXIMUM



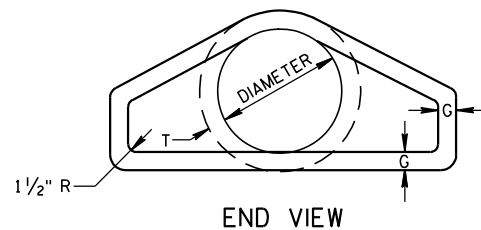
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



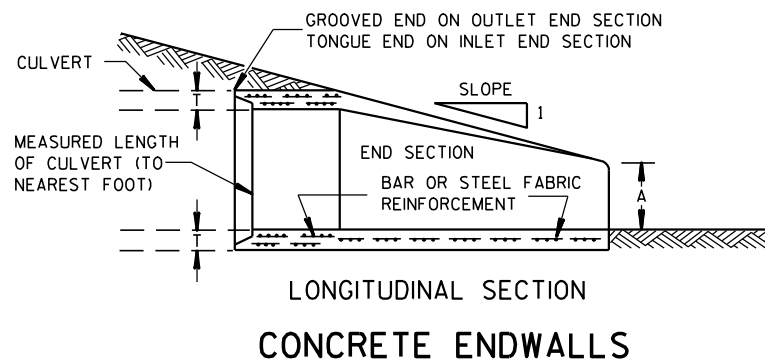
SIDE ELEVATION
METAL ENDWALLS



PLAN

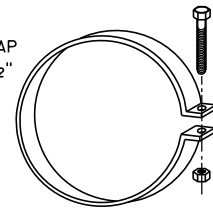


END VIEW

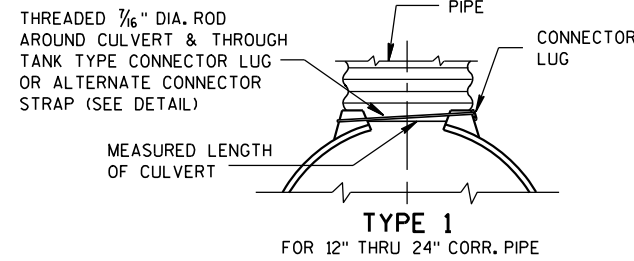


LONGITUDINAL SECTION
CONCRETE ENDWALLS

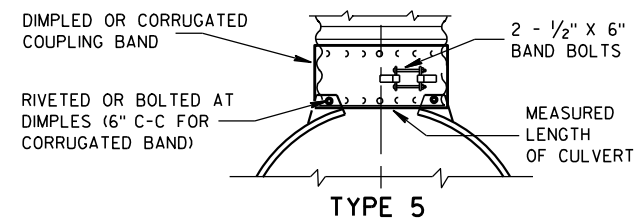
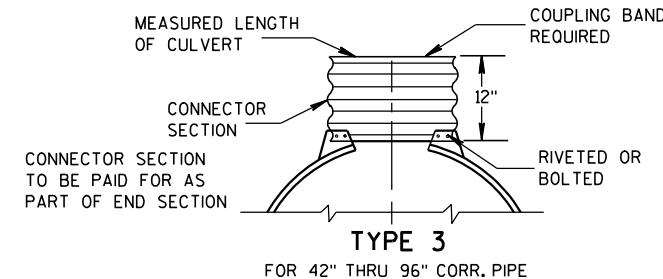
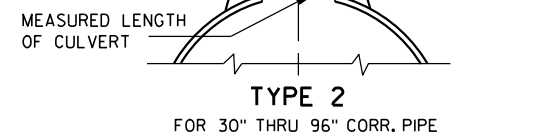
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



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



ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

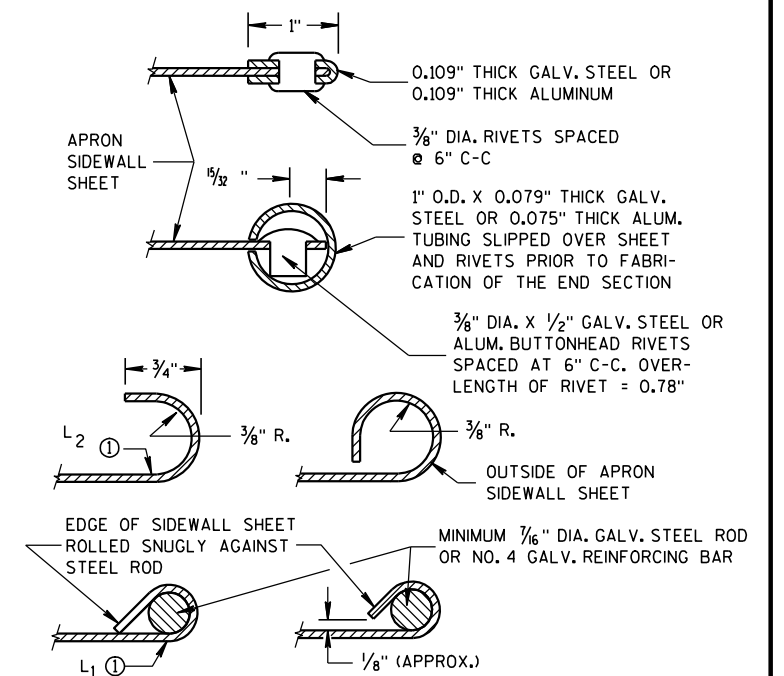
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

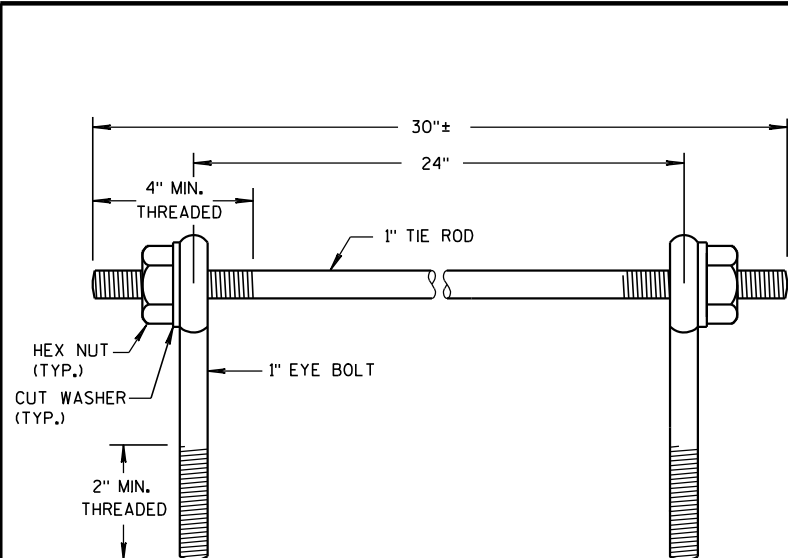
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR
CULVERT PIPE

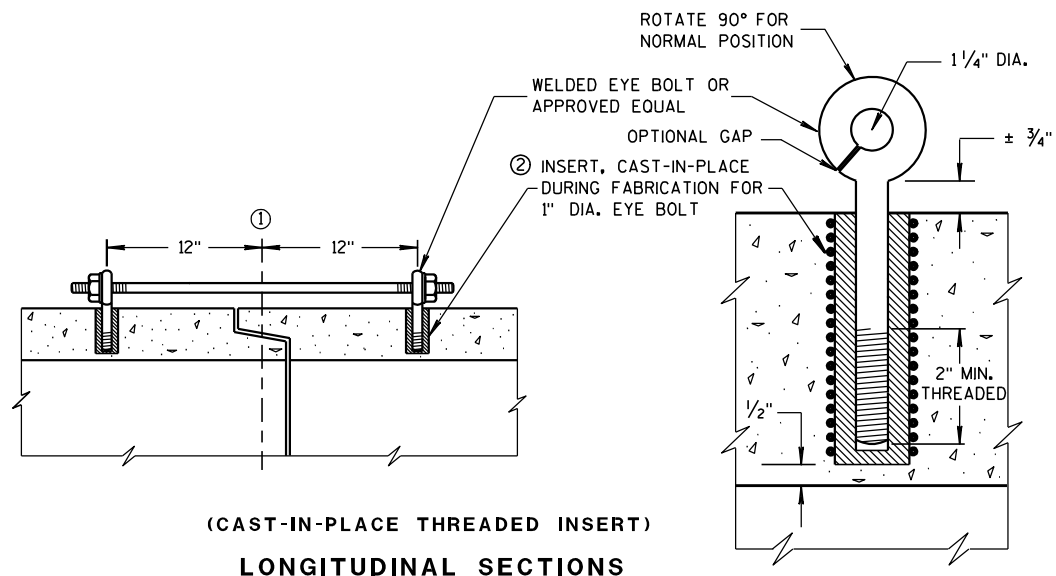
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



EYE BOLTS AND TIE ROD

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



(CAST-IN-PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

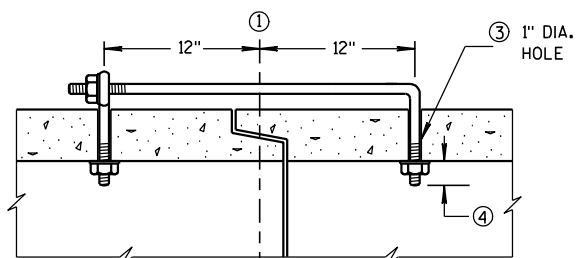
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

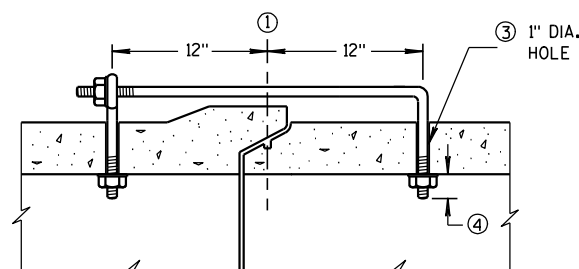
DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

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

- ① ϕ 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 ϕ 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

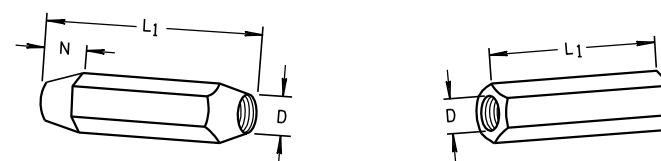
EYE BOLT DIMENSION TABLE

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"	

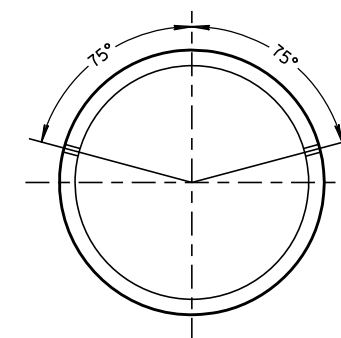
ADJUSTABLE TIE ROD TABLE

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 1/6

DIMENSIONS SHOWN ARE IN INCHES

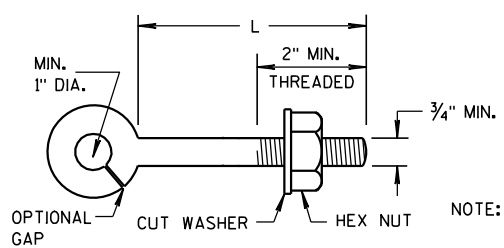


TAPERED PLAIN
RIGHT AND LEFT THREADS
SLEEVE NUTS



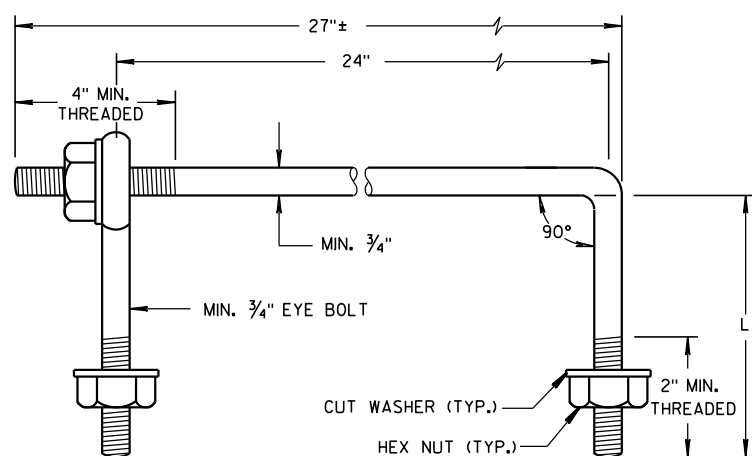
PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



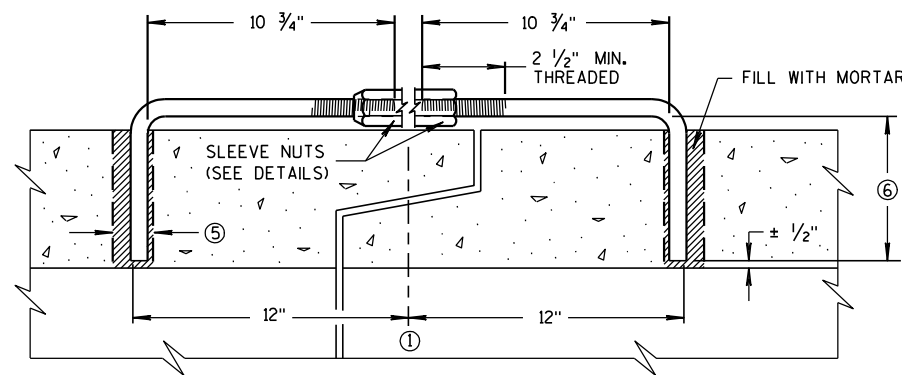
EYE BOLT

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



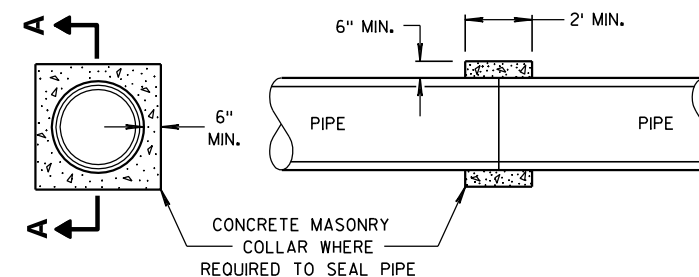
EYE BOLT AND TIE ROD

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



LONGITUDINAL SECTION

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



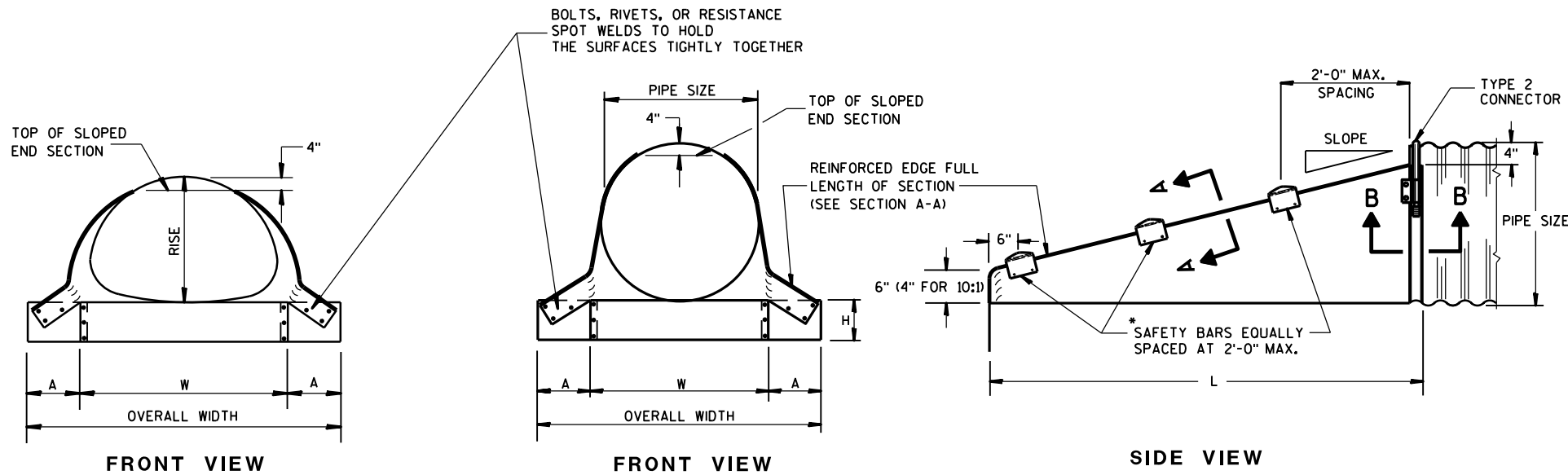
SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



GENERAL NOTES

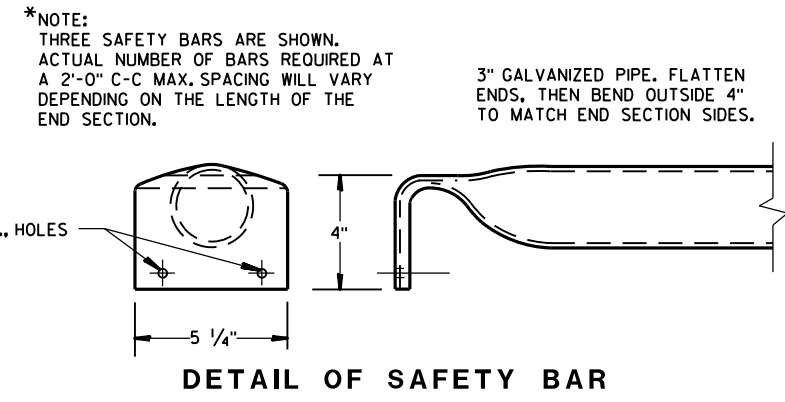
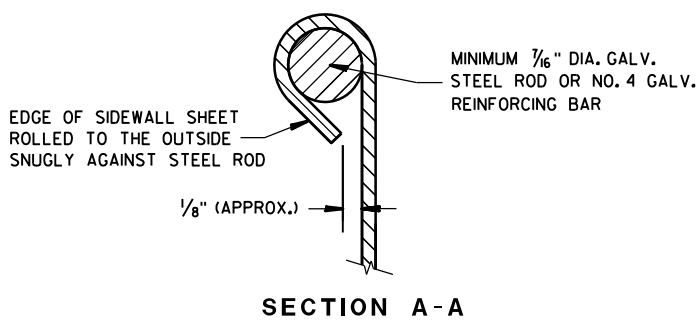
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

SLOPED END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SECTION 521 FOR STEEL APRON ENDWALLS.

SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

STEEL APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS

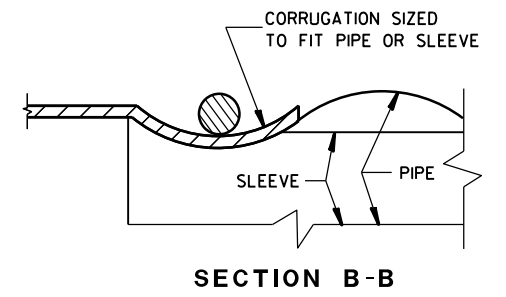
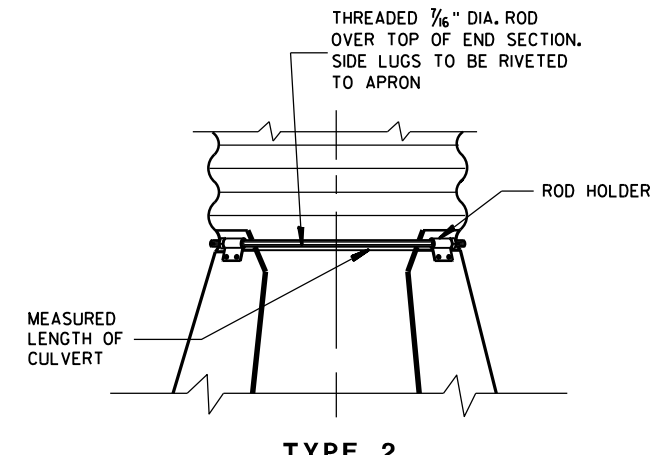
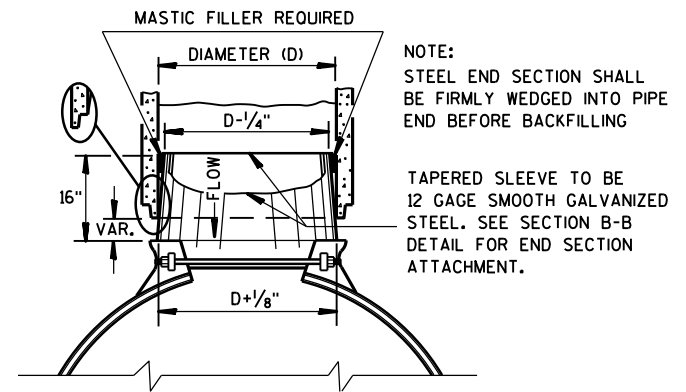
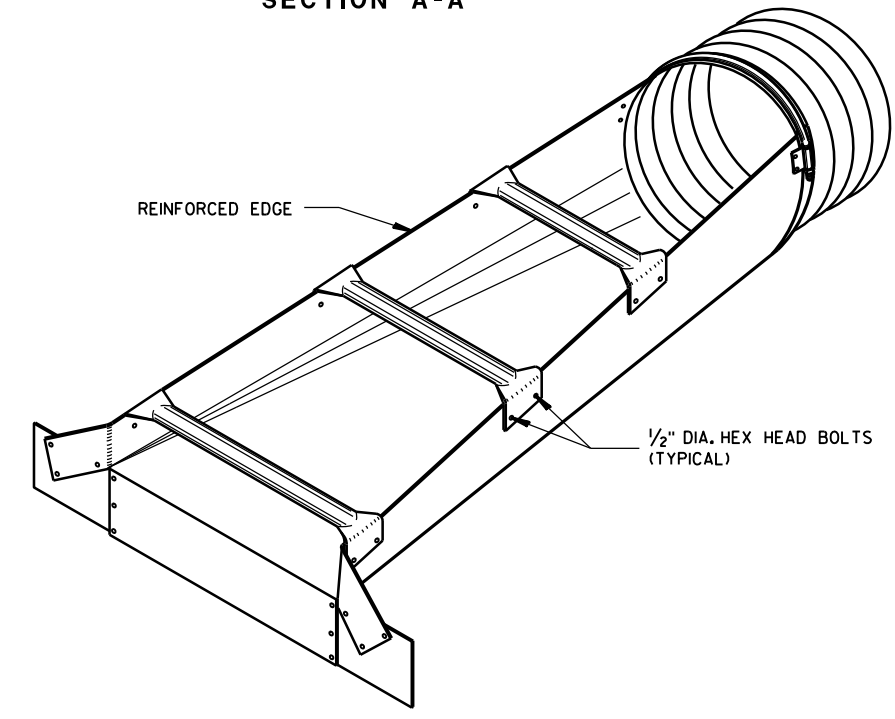
PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS					
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	8	6	27	43	4:1	44	6:1	66	10:1	130
24	.064	8	6	30	46	4:1	56	6:1	84	10:1	160
30	.109	12	9	36	60	4:1	80	6:1	120	10:1	220
36	.109	12	9	42	66	4:1	104	6:1	156	10:1	280
42	.109	16	12	48	80	4:1	128	6:1	192	—	—
48	.109	16	12	54	86	4:1	152	6:1	228	—	—
54	.109	16	12	60	92	4:1	176	6:1	264	—	—
60	.109	16	12	66	98	4:1	200	6:1	300	—	—



STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS

EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches) ①	DIMENSIONS (Inches)				L DIMENSIONS					
	SPAN	RISE		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	17	13	.064 *	7	6	30	44	4:1	19	6:1	30	10:1 ②	70
18	21	15	.064 *	8	6	27	43	4:1	20	6:1	30	10:1	70
21	24	18	.064 *	8	6	30	46	4:1	32	6:1	48	10:1	100
24	28	20	.064 *	8	6	34	50	4:1	40	6:1	60	10:1	120
30	35	24	.079 *	12	9	41	65	4:1	56	6:1	84	10:1	160
36	42	29	.109 *	12	9	48	72	4:1	76	6:1	114	10:1	210
42	49	33	.109	16	12	55	87	4:1	92	6:1	138	—	—
48	57	38	.109	16	12	63	95	4:1	112	6:1	168	—	—
54	64	43	.109	16	12	70	102	4:1	132	6:1	198	—	—

① * MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".
 ② ACTUAL SLOPE GREATER THAN 10:1.

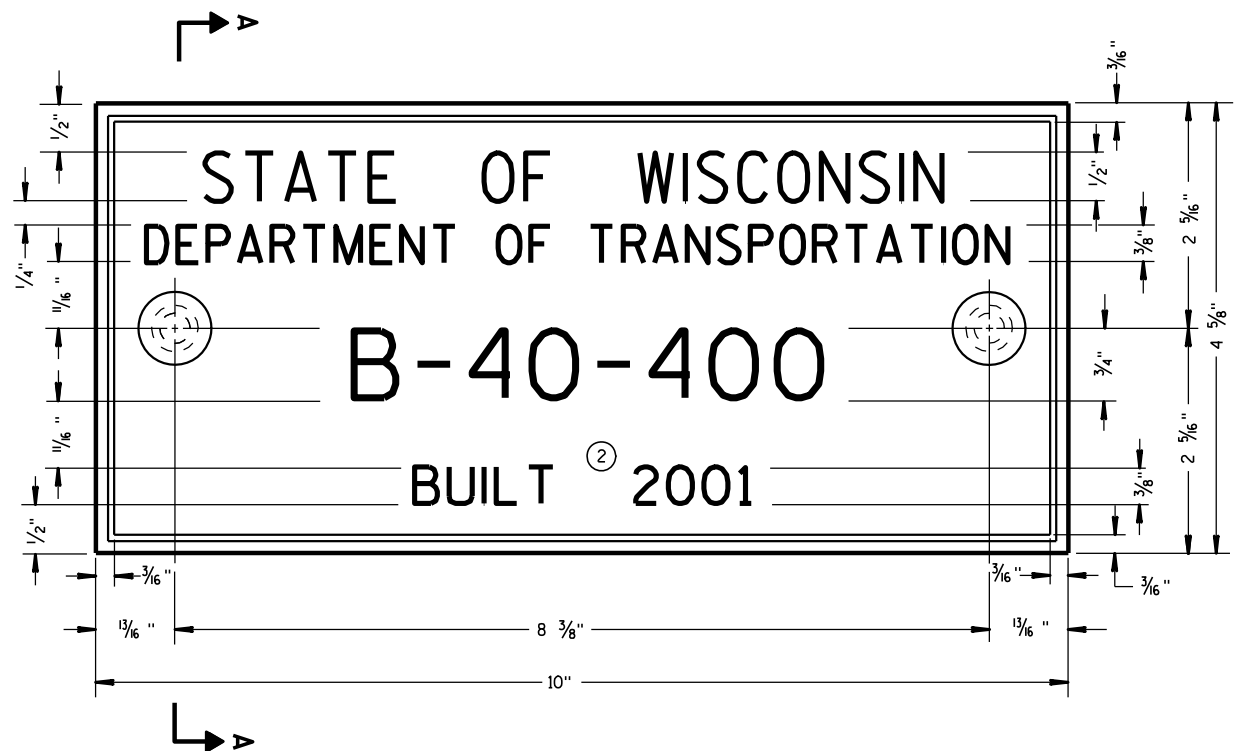


STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 9/14/2012 /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



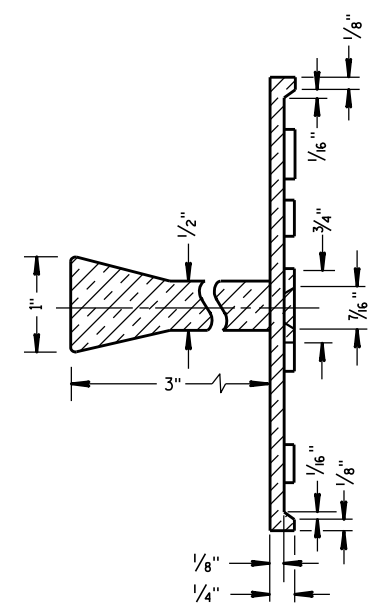
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

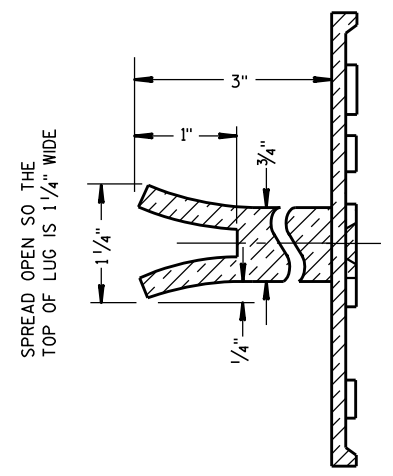
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG

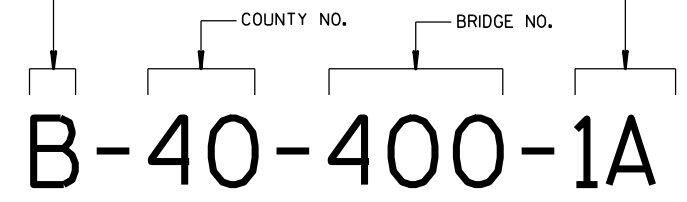
6

6

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

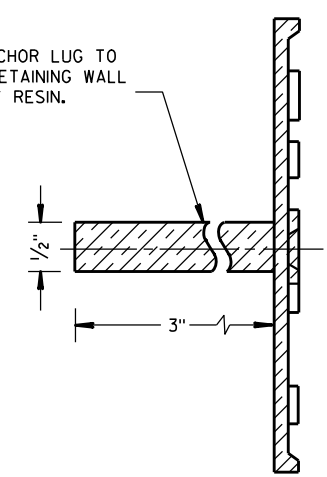
B = BRIDGE
C = CULVERT
R = RETAINING WALL

UNIT NO. FOR MULTIPLE
UNIT BRIDGE



**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

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

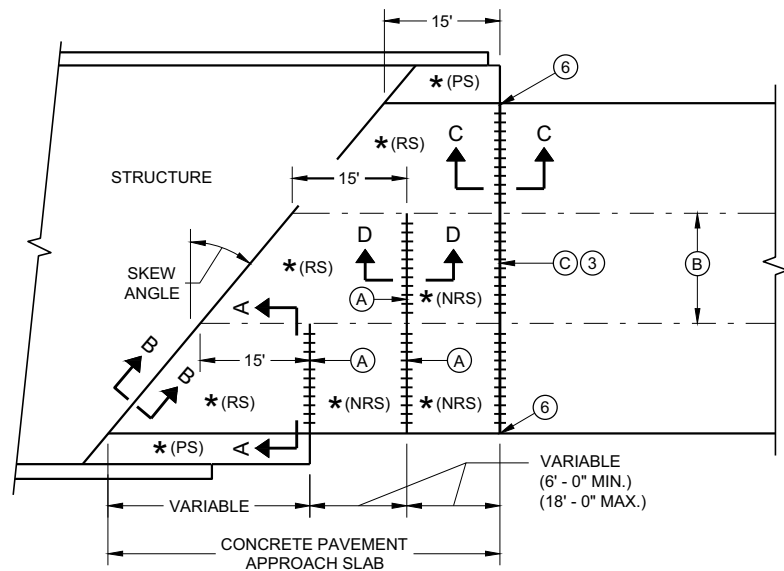


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

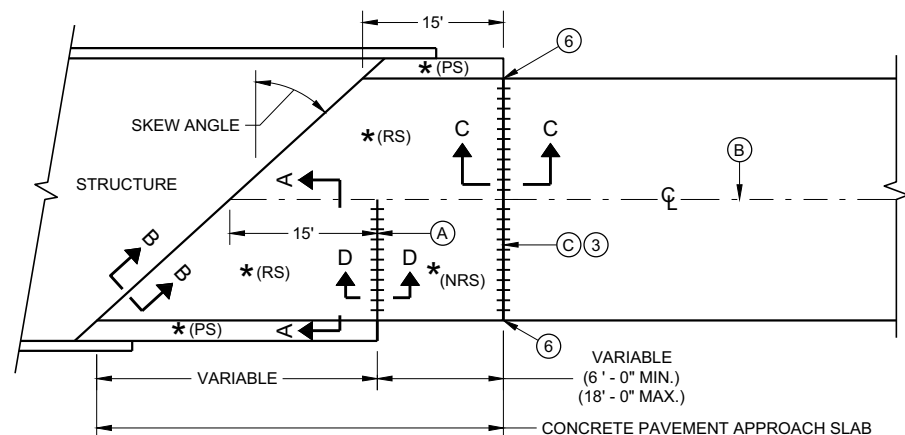
S.D.D. 12 A 3-10

S.D.D. 12 A 3-10

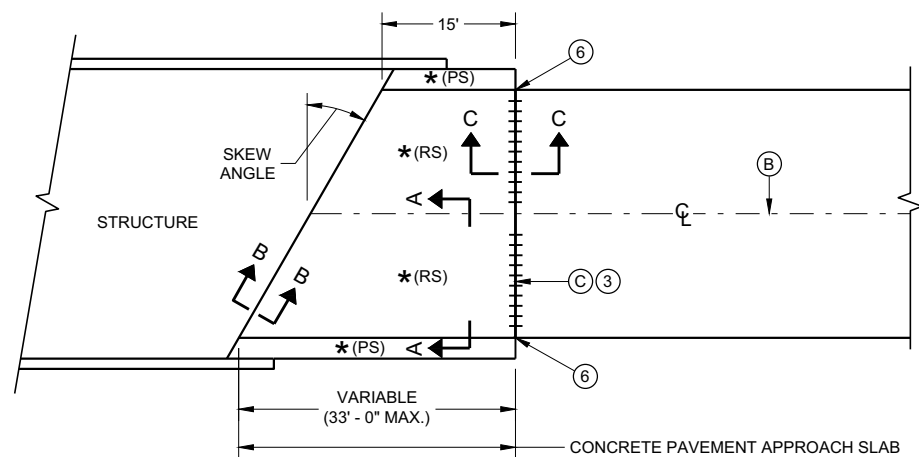
NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 3/26/10	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	



**SKewed Approach
(Pavement more than two lanes)**

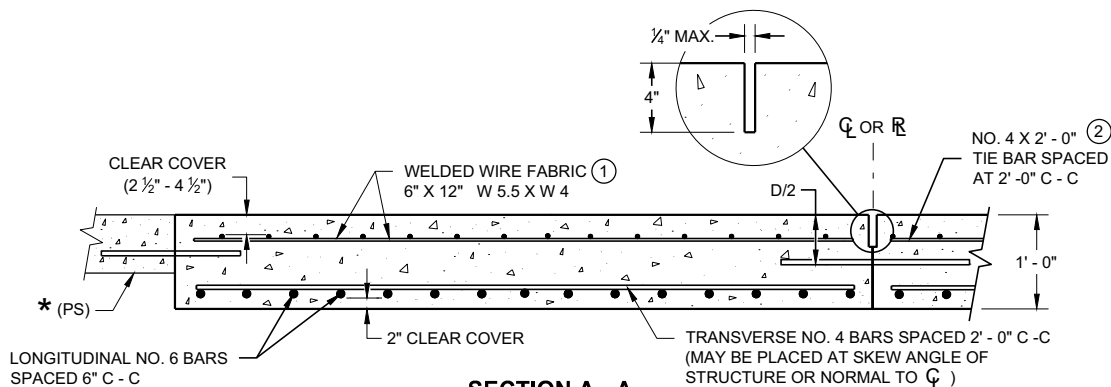


**Skews > 20°
(Pavement width ≤ 30')**

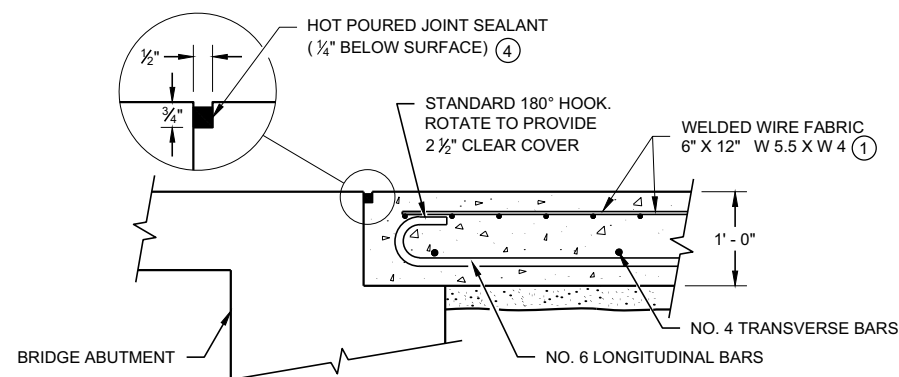


**Skews ≤ 20°
(Pavement width ≤ 30')**
Approach Slab and Adjacent Pavement

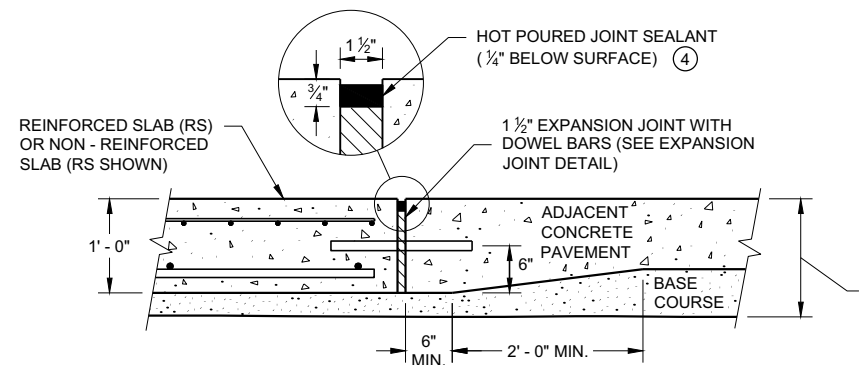
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



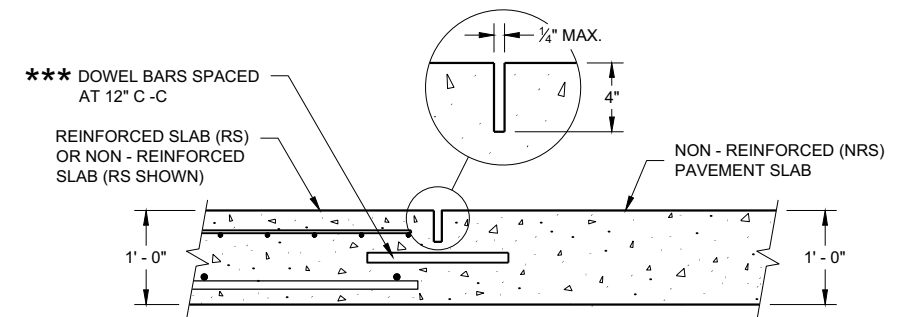
**SECTION B - B
BEND DETAIL
BOTTOM REINFORCEMENT**



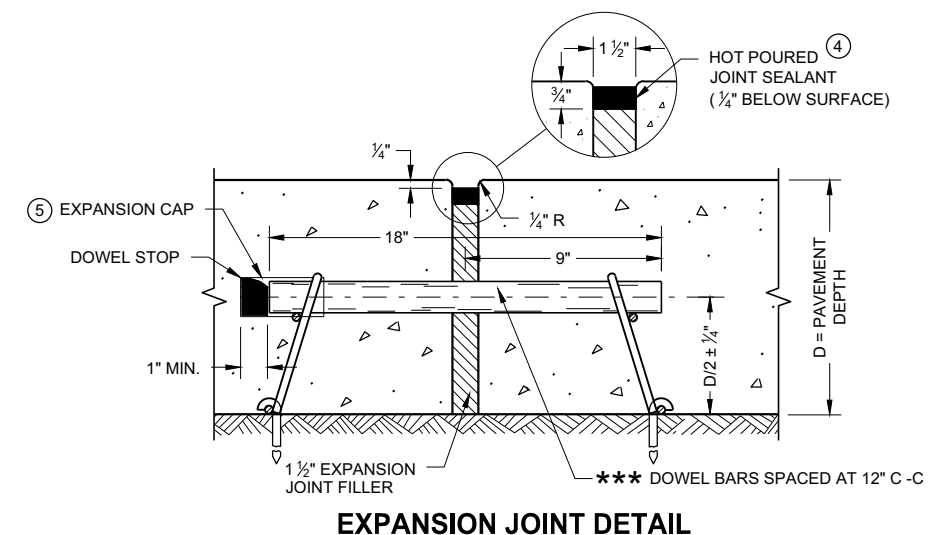
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

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 THE 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 CONFORMING TO STANDARD SPECIFICATION 415.2.6.
 - 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.
 - ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
 - (A) STANDARD CONTRACTION JOINT NORMAL TO \bar{C} OR \bar{R} .
 - (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
 - (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO \bar{C} OR \bar{R} .



**SECTION D - D
CONTRACTION JOINT**



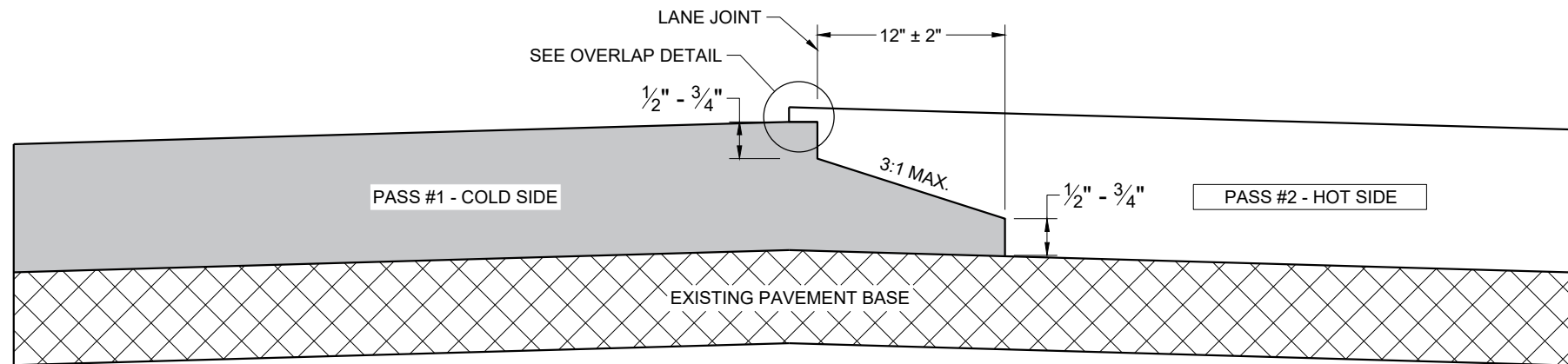
EXPANSION JOINT DETAIL

**CONCRETE PAVEMENT
APPROACH SLAB**

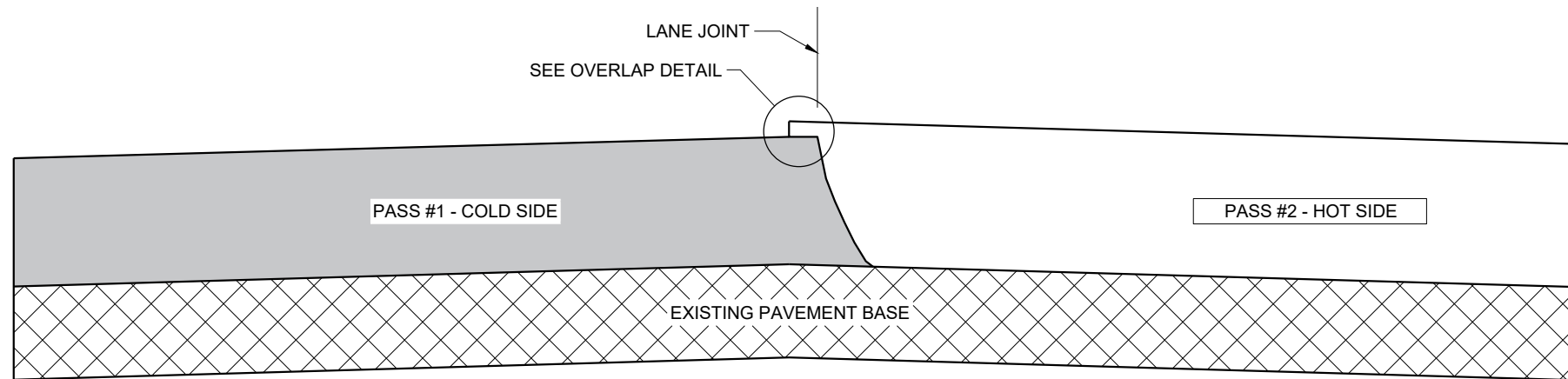
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE DATE PAVEMENT SUPERVISOR

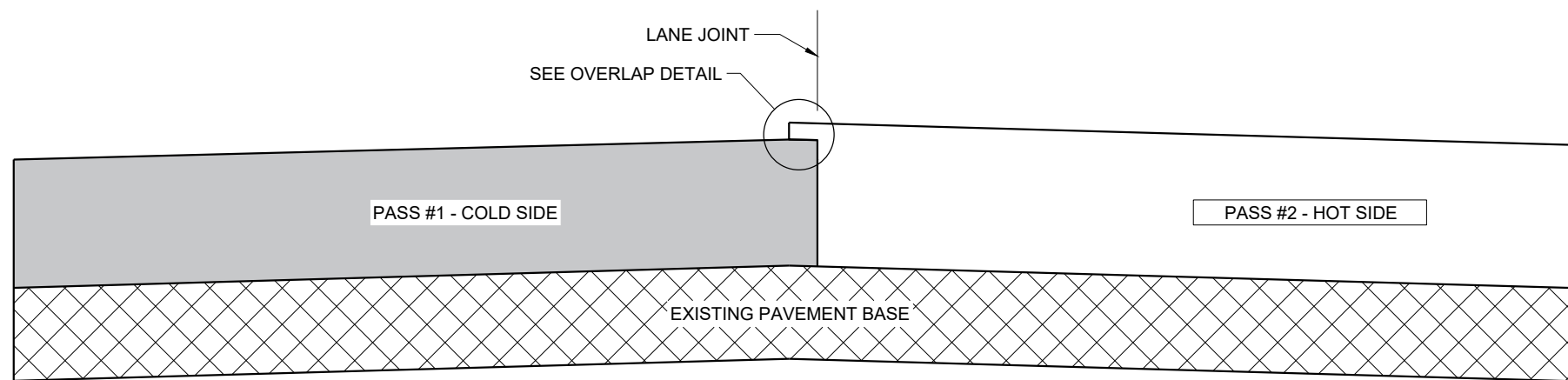
FHWA



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)**

GENERAL NOTES

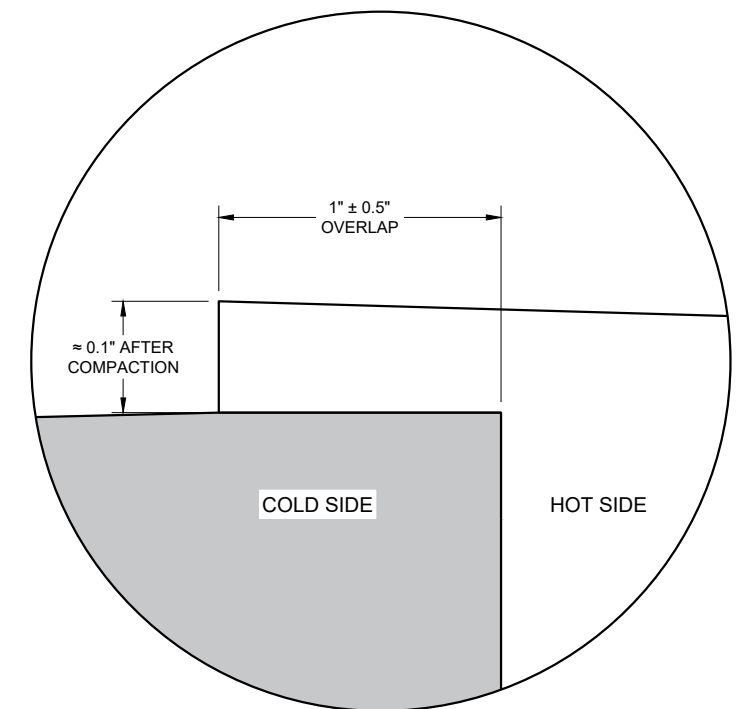
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY $1" \pm 0.5"$ AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



OVERLAP DETAIL (TYPICAL)

6

6

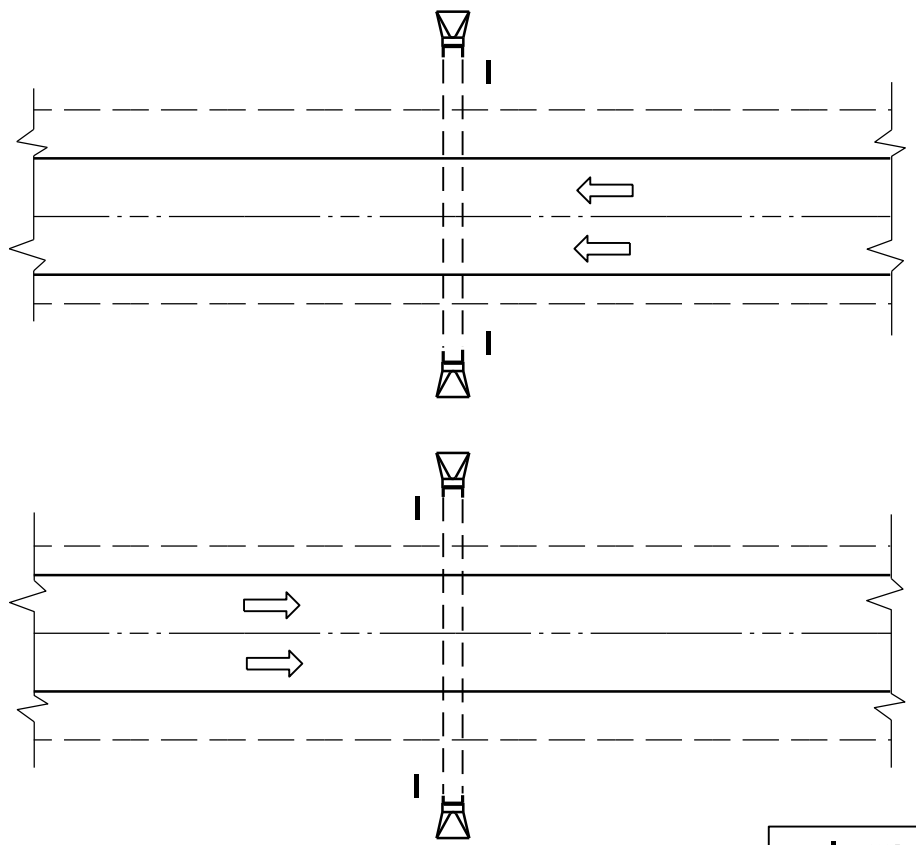
SDD 13C19 - 03

SDD 13C19 - 03

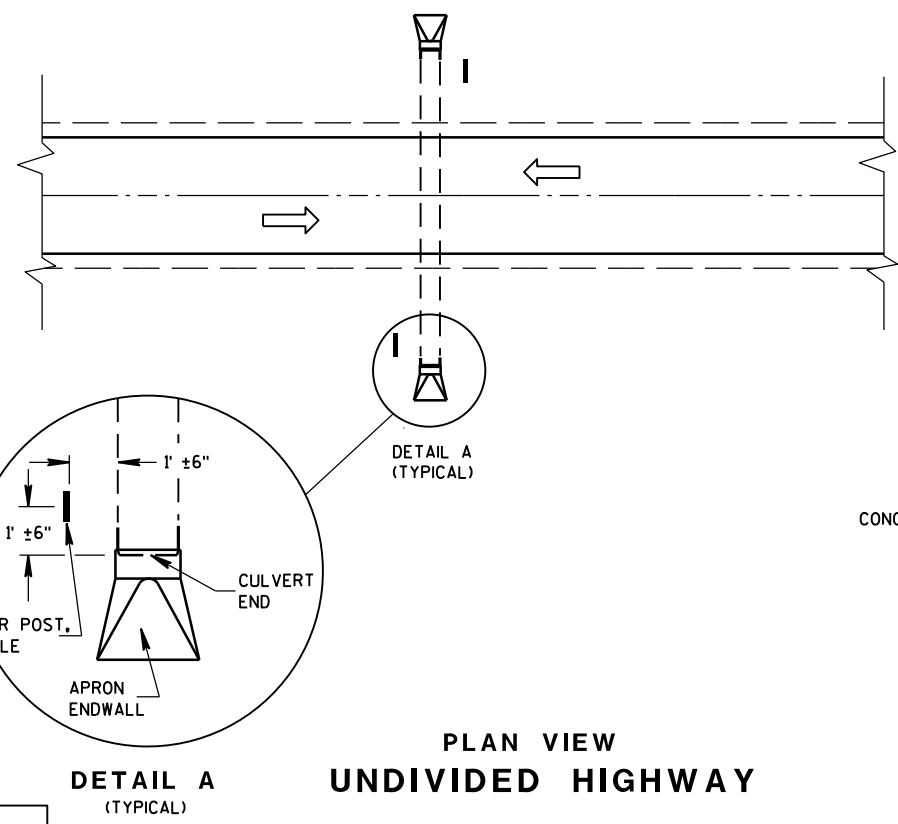
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

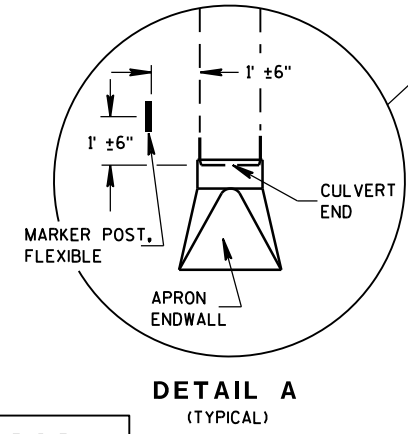
APPROVED
November 2020 DATE /S/ Steven Hefel
HMA PAVEMENT ENGINEER
FHWA



PLAN VIEW
DIVIDED HIGHWAY



PLAN VIEW
UNDIVIDED HIGHWAY

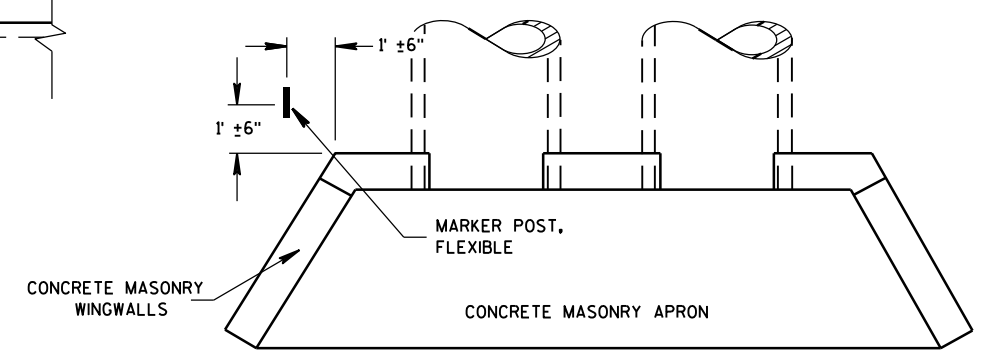


MARKER POST, FLEXIBLE
DIRECTION OF TRAFFIC FLOW

FLEXIBLE MARKER POST LOCATION

GENERAL NOTES

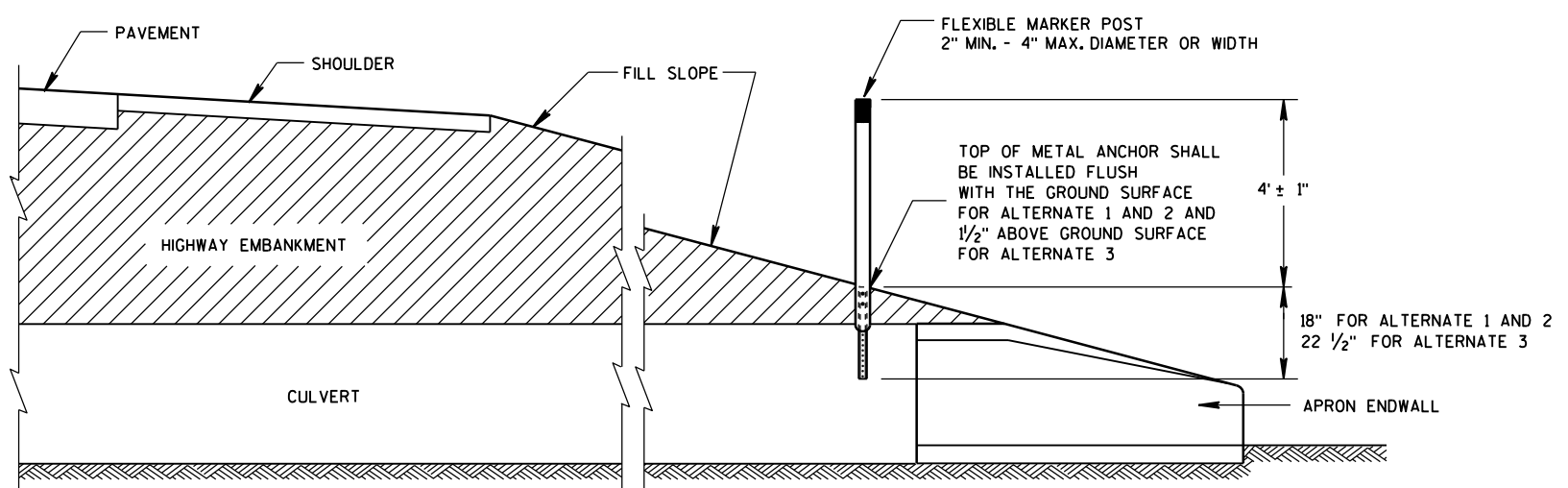
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH

6

6

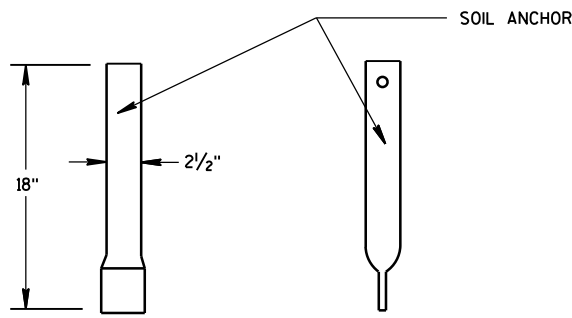
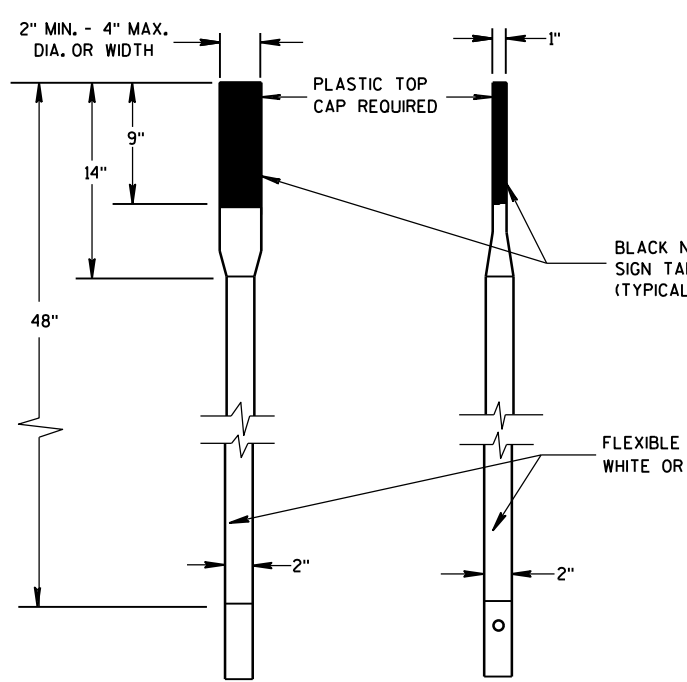


CROSS SECTION
FLEXIBLE MARKER POST

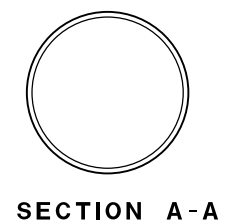
FLEXIBLE MARKER POST
FOR CULVERT END
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

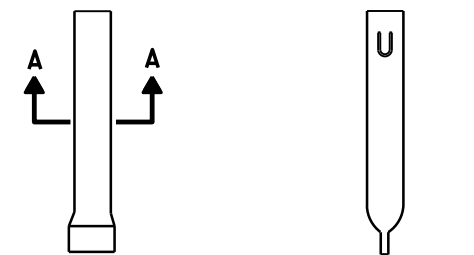
S.D.D. 15 A 3-2a



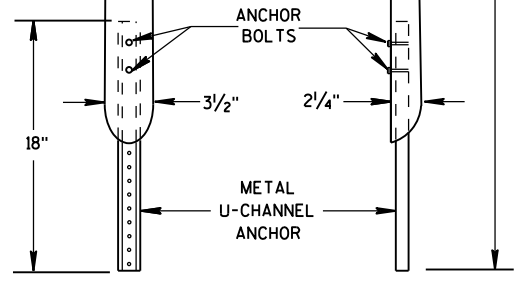
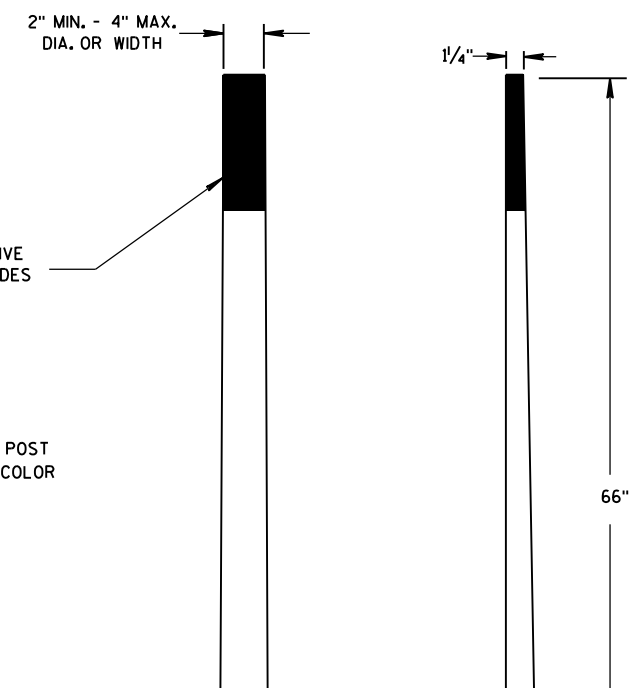
FRONT VIEW SIDE VIEW
ALTERNATE 1



SECTION A-A

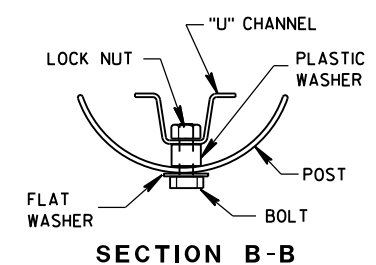


FRONT VIEW SIDE VIEW
ALTERNATE 1

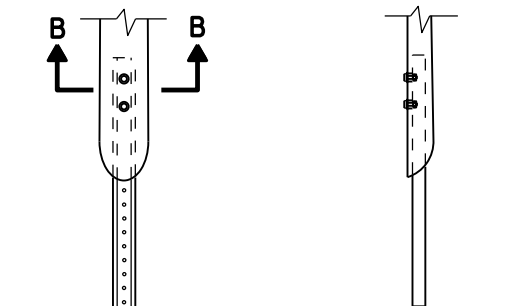


FRONT VIEW SIDE VIEW
ALTERNATE 2

FLEXIBLE MARKER POSTS

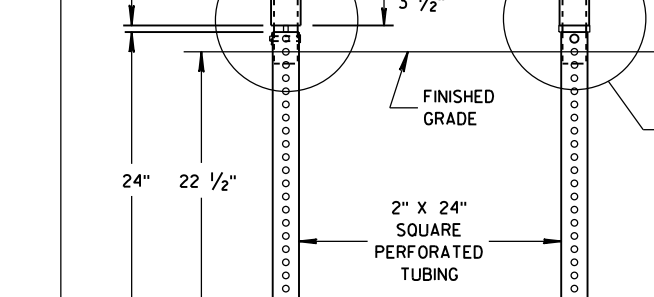
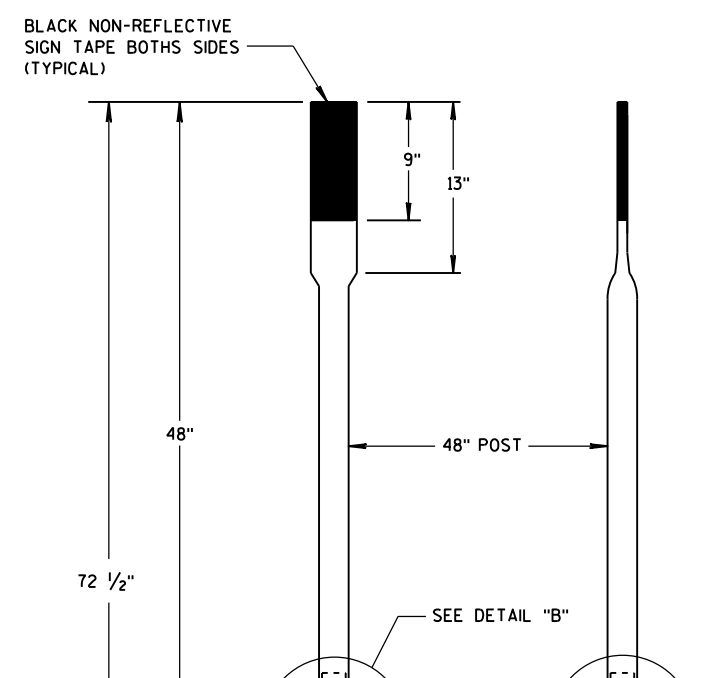


SECTION B-B

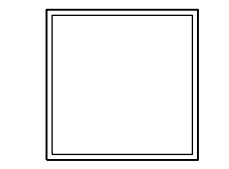


FRONT VIEW SIDE VIEW
ALTERNATE 2

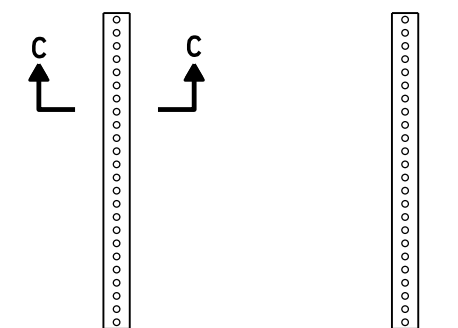
FLEXIBLE MARKER POST ANCHORS



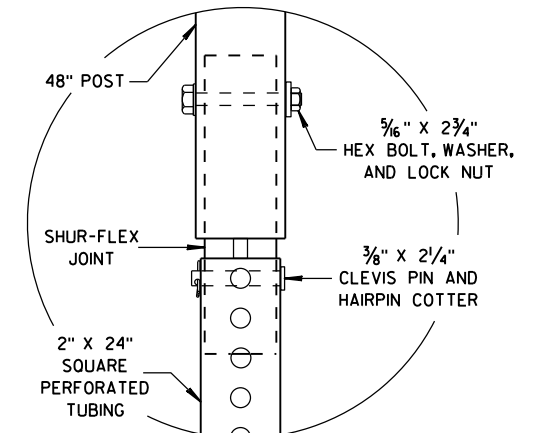
FRONT VIEW SIDE VIEW
ALTERNATE 3



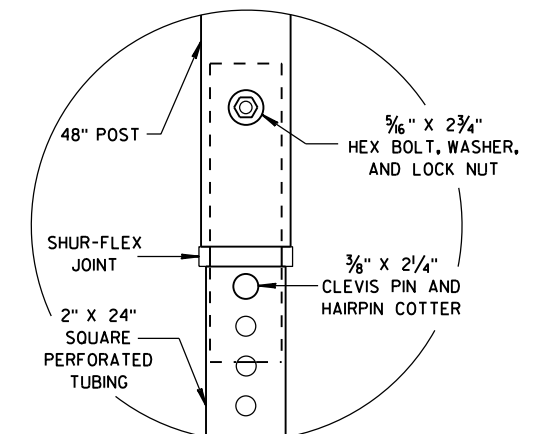
SECTION C-C



FRONT VIEW SIDE VIEW
ALTERNATE 3



DETAIL B

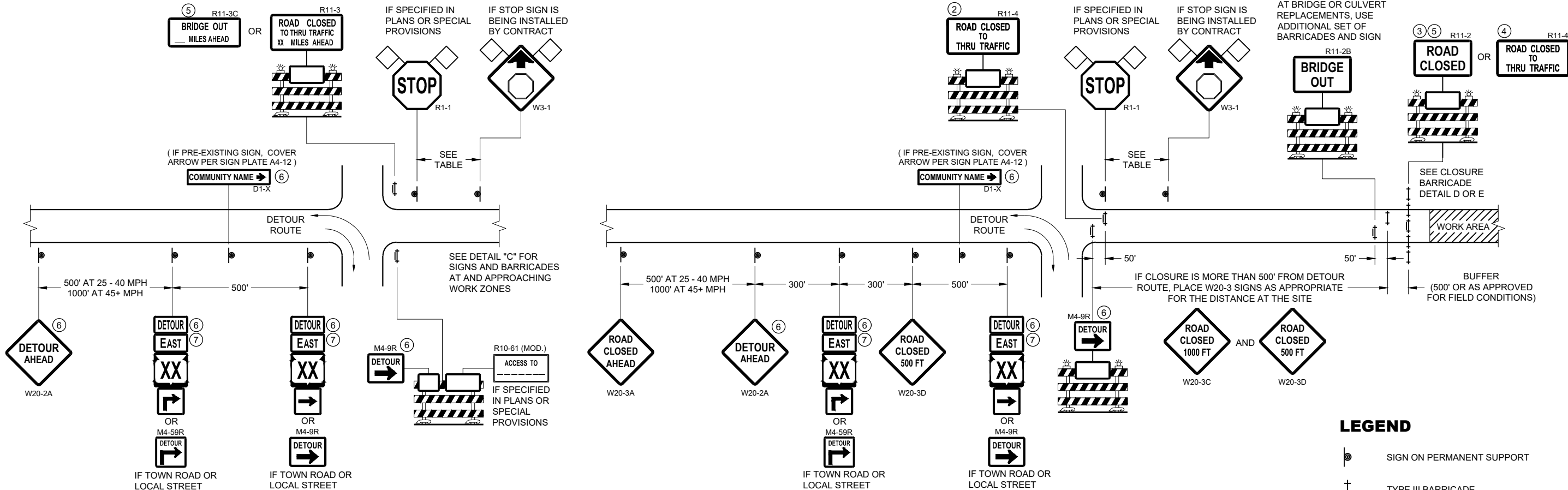


DETAIL C

FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



**DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

**DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR**

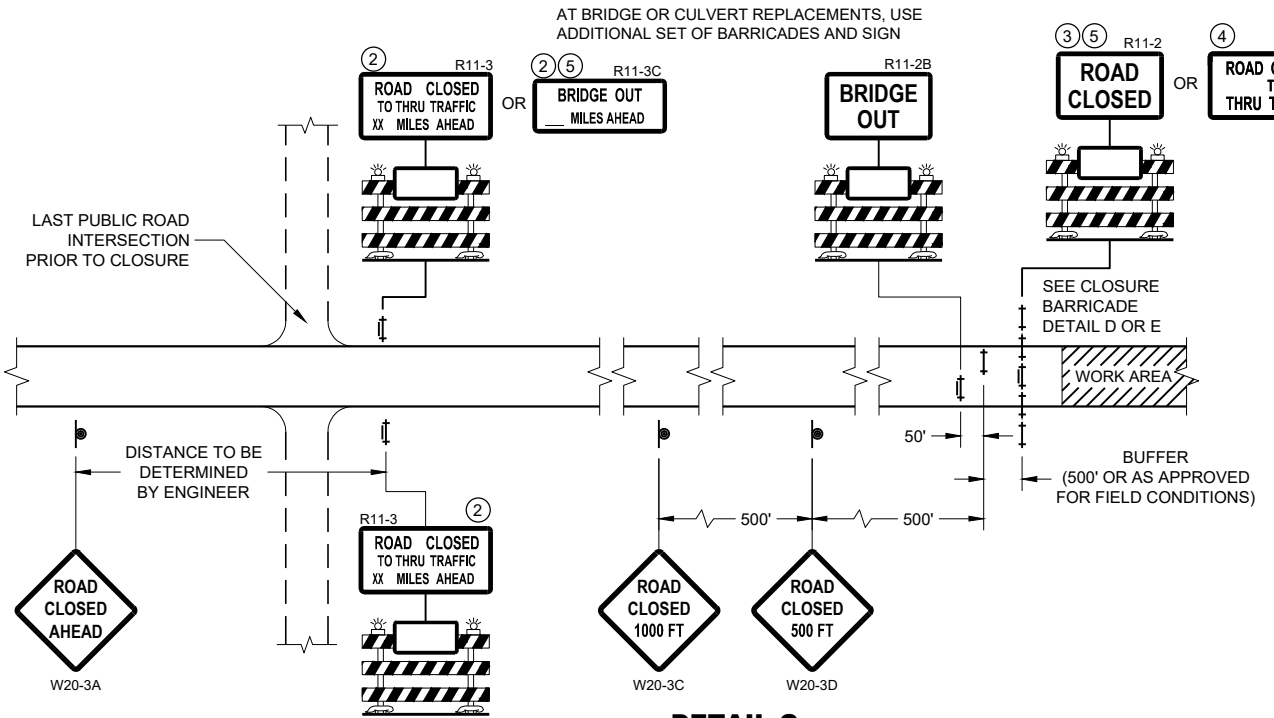
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

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

- M4 - 8
- M3 - X
- M1 - 4 OR M1 - 6 OR M1 - 5A
- M05 - 1 OR M06 - 1



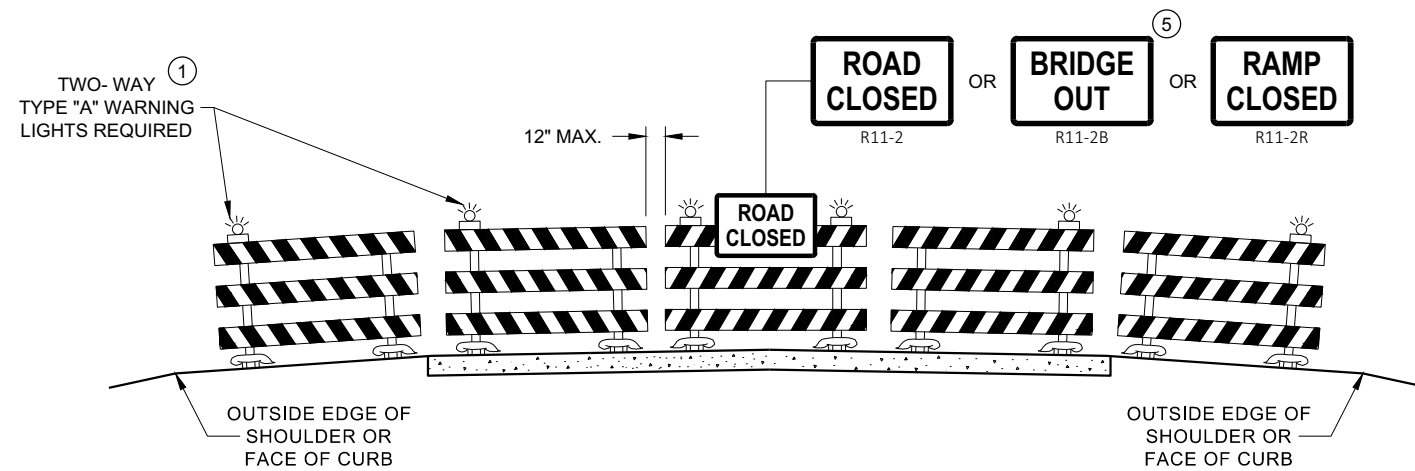
**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

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

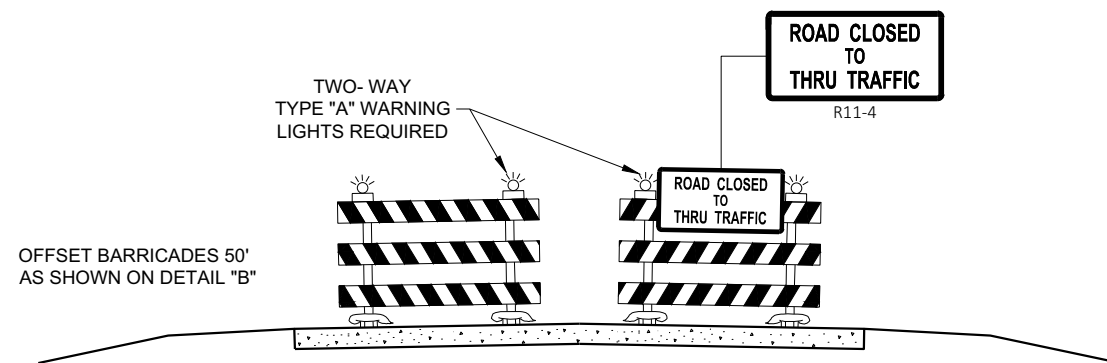
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE DATE WORK ZONE ENGINEER
FHWA



**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 THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL 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 SHALL, 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" (36" X 18" 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)
- MO5 - 1 AND MO6 - 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"

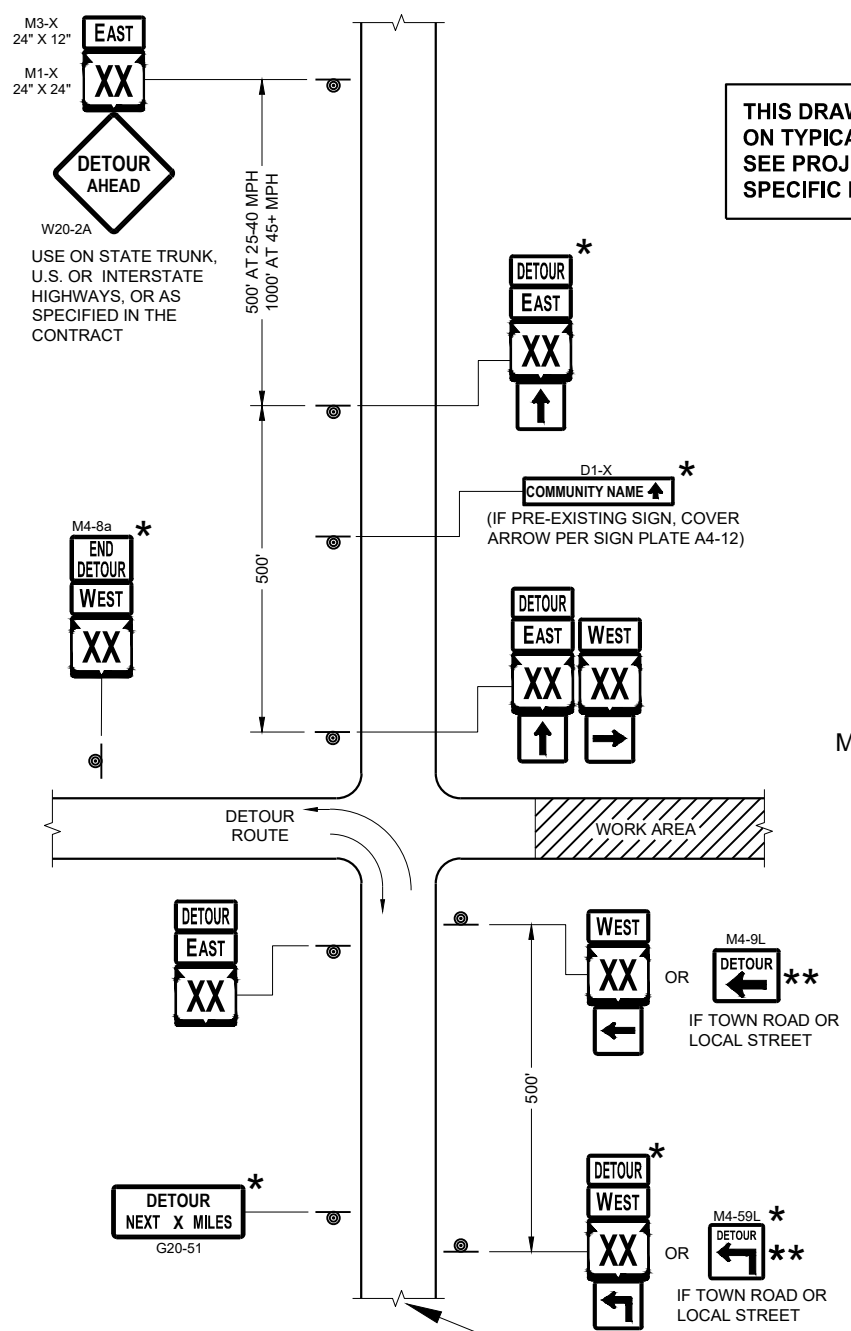
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN 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 ROAD 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
VARIOUS CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1
- M06 - 1

GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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

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

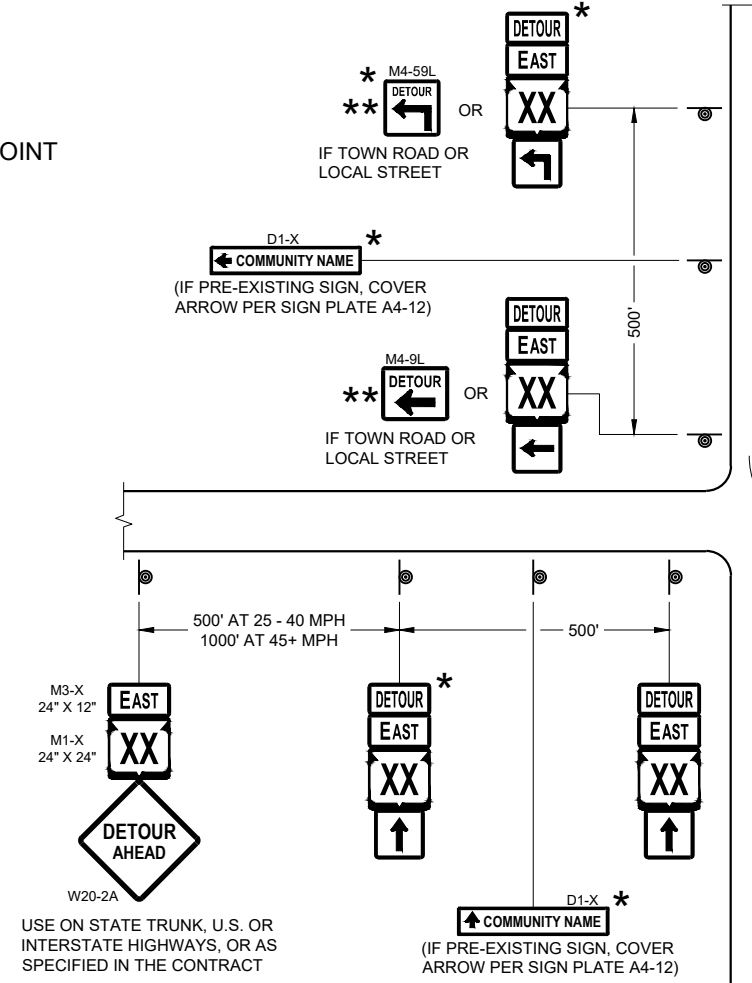
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

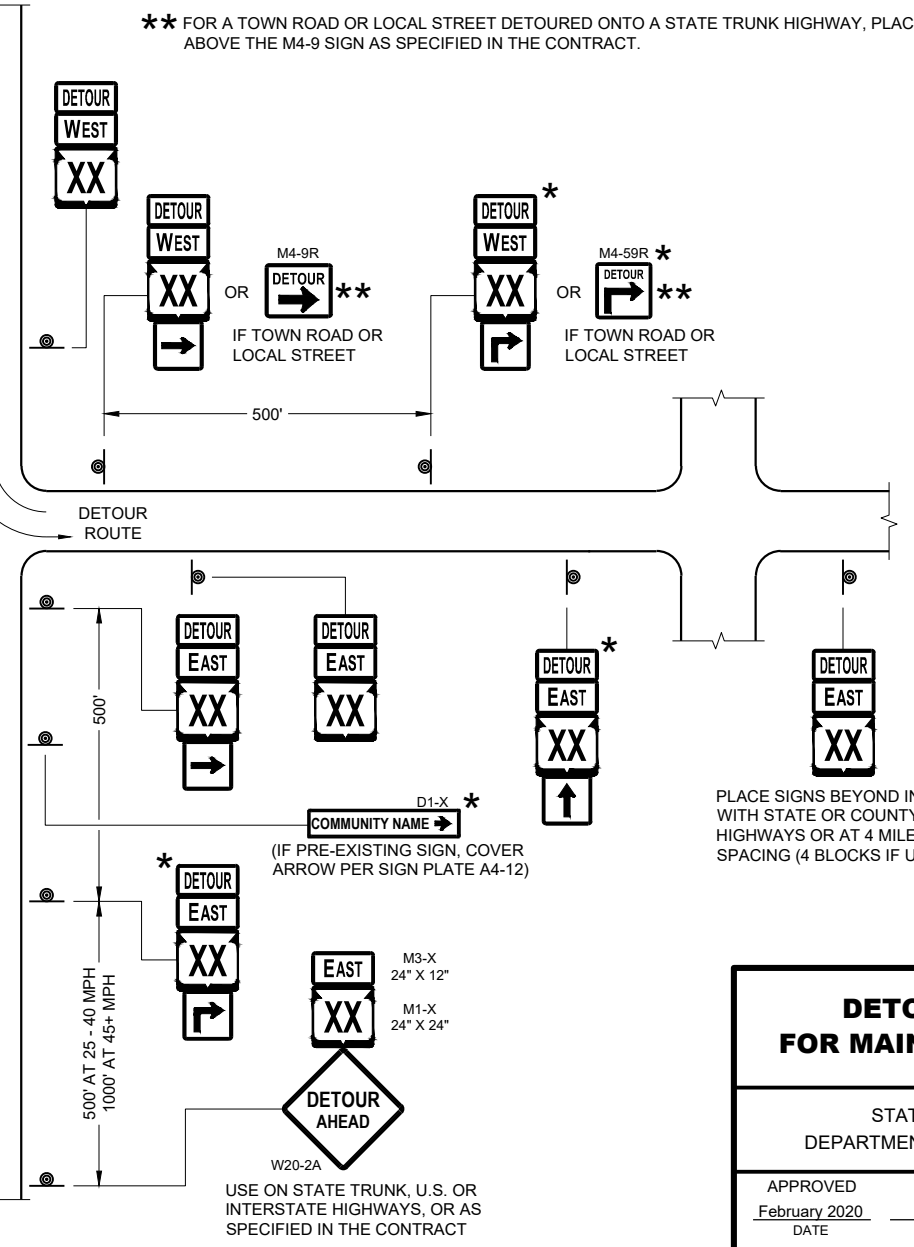
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

MATCH POINT



**DETAIL F
DETOUR SIGNING**



**DETOUR SIGNING
FOR MAINLINE CLOSURES**

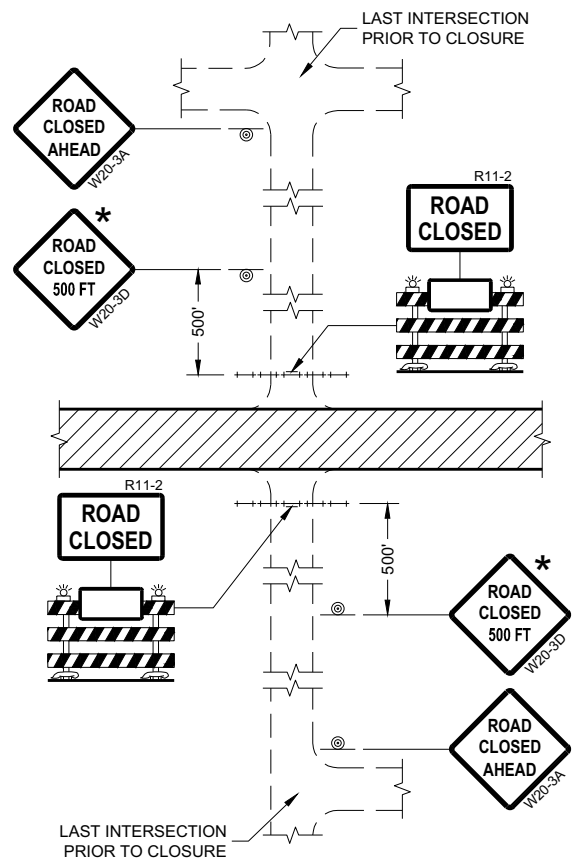
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

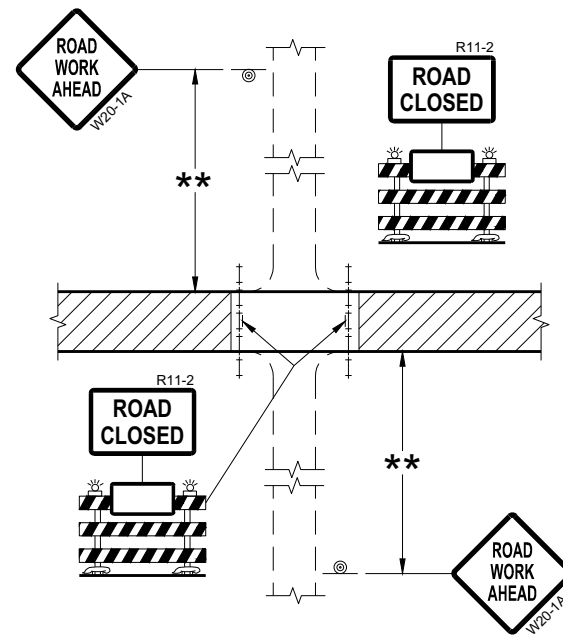
FHWA

SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

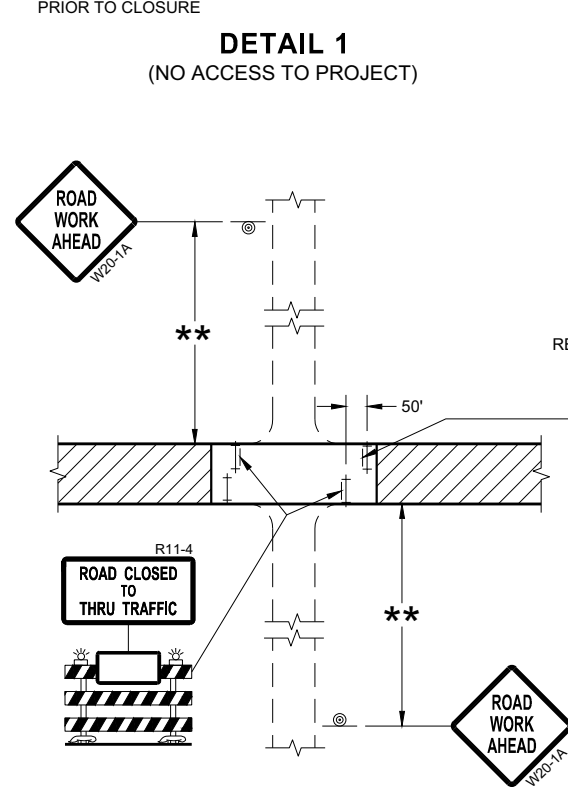
PLACE SIGNS BEYOND INTERSECTIONS WITH STATE OR COUNTY TRUNK HIGHWAYS OR AT 4 MILE MAXIMUM SPACING (4 BLOCKS IF URBAN AREA)



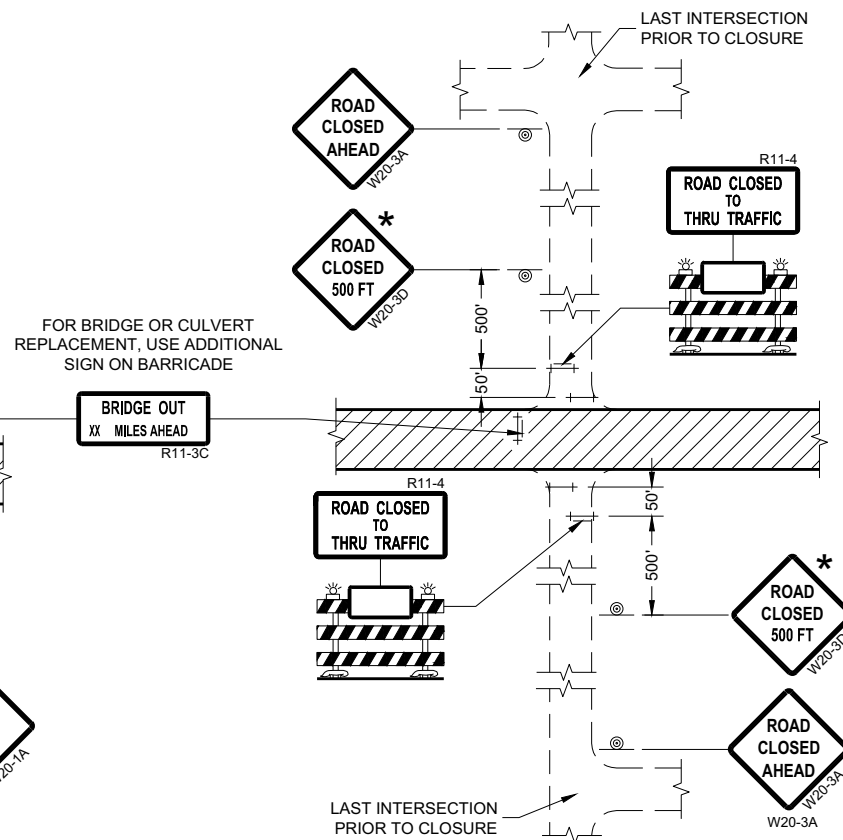
DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO ACCESS TO PROJECT)



DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED.
CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)



DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

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

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

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE (500 FEET DESIRABLE) TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

* OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.

** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

**BARRICADES AND SIGNS
FOR
SIDEROAD CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

GENERAL NOTES

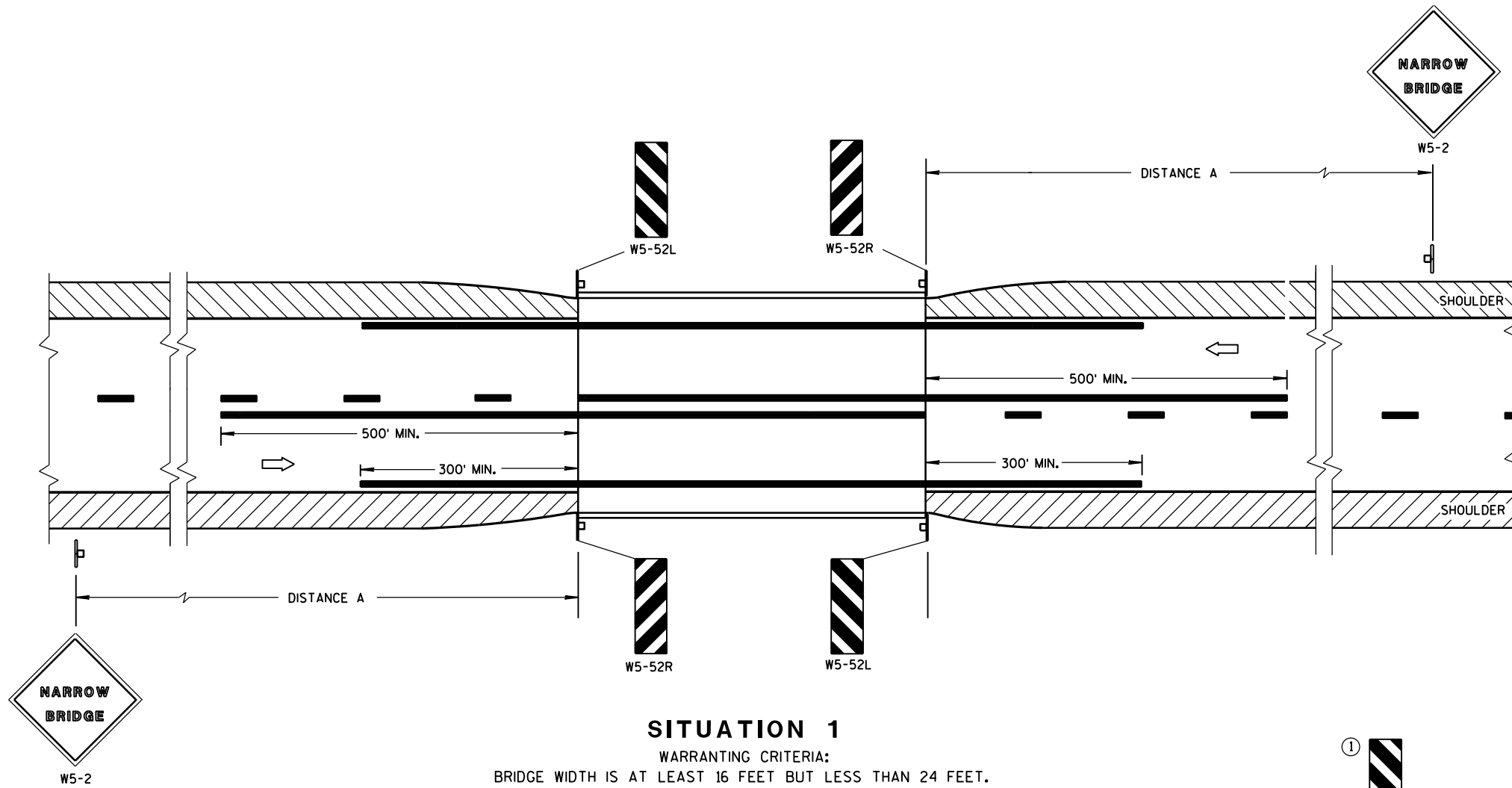
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

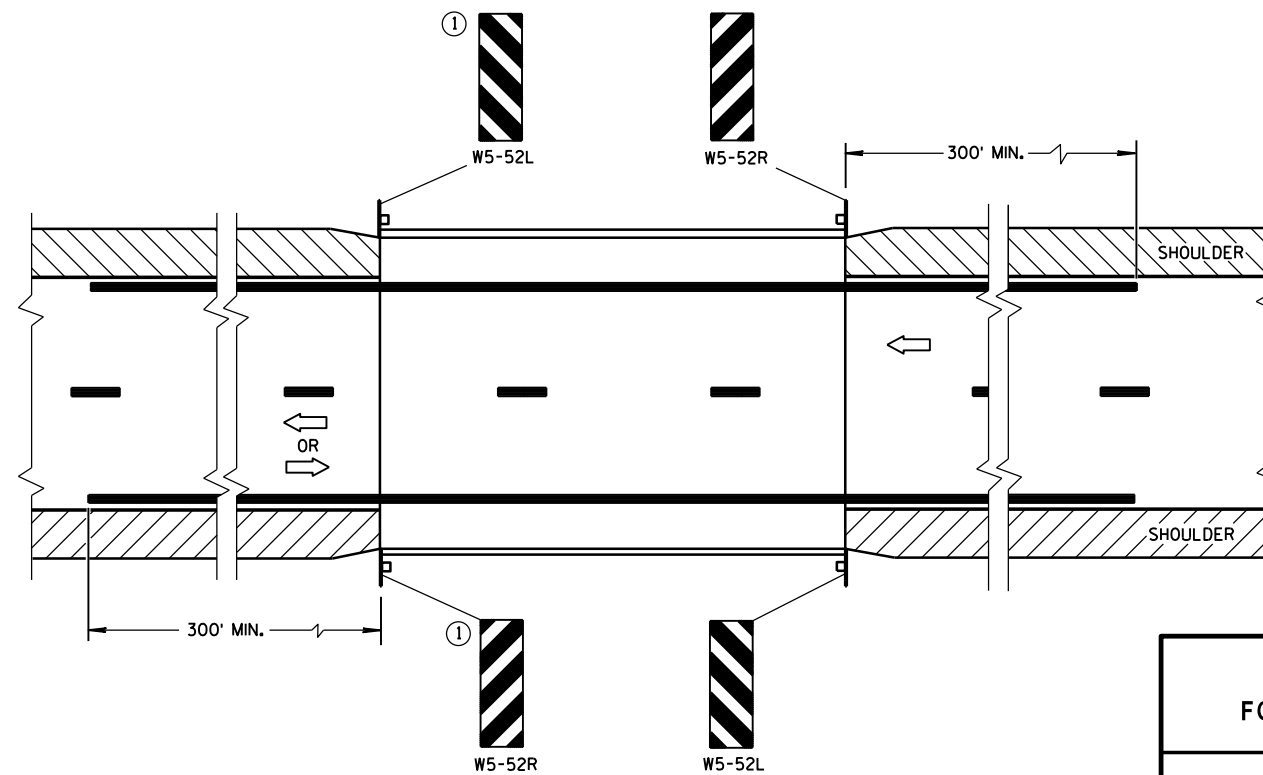
① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



SITUATION 1

WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



SITUATION 2

WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

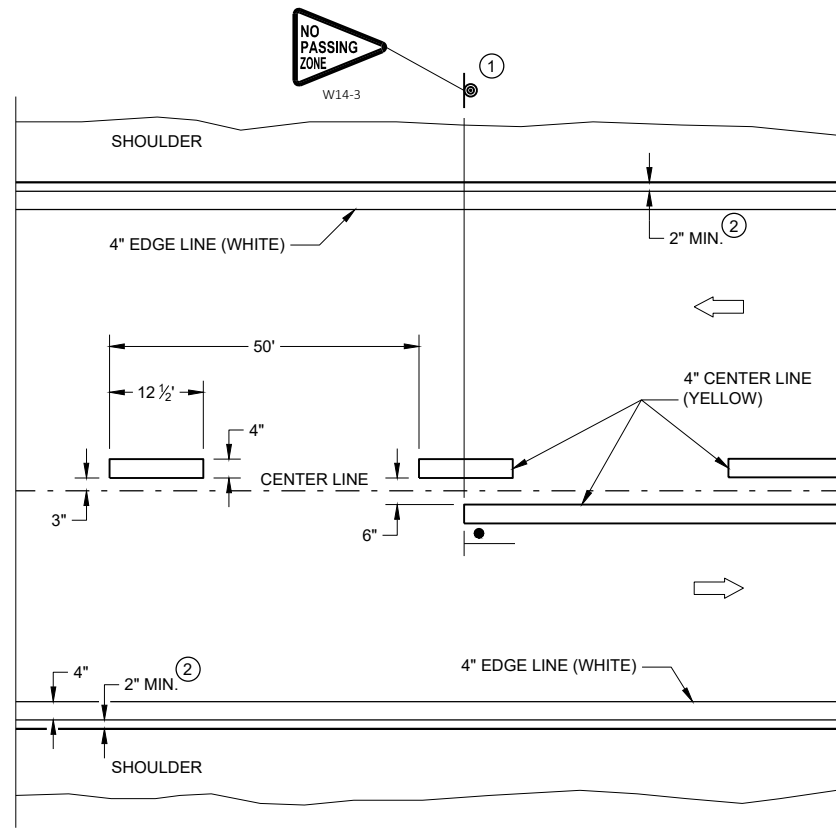
DISTANCE TABLE

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

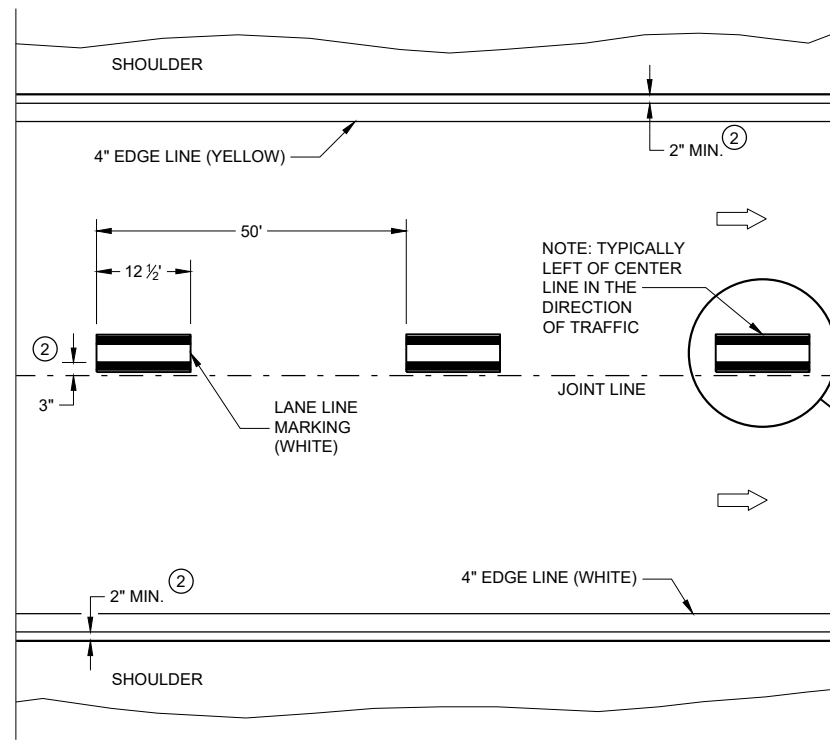
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

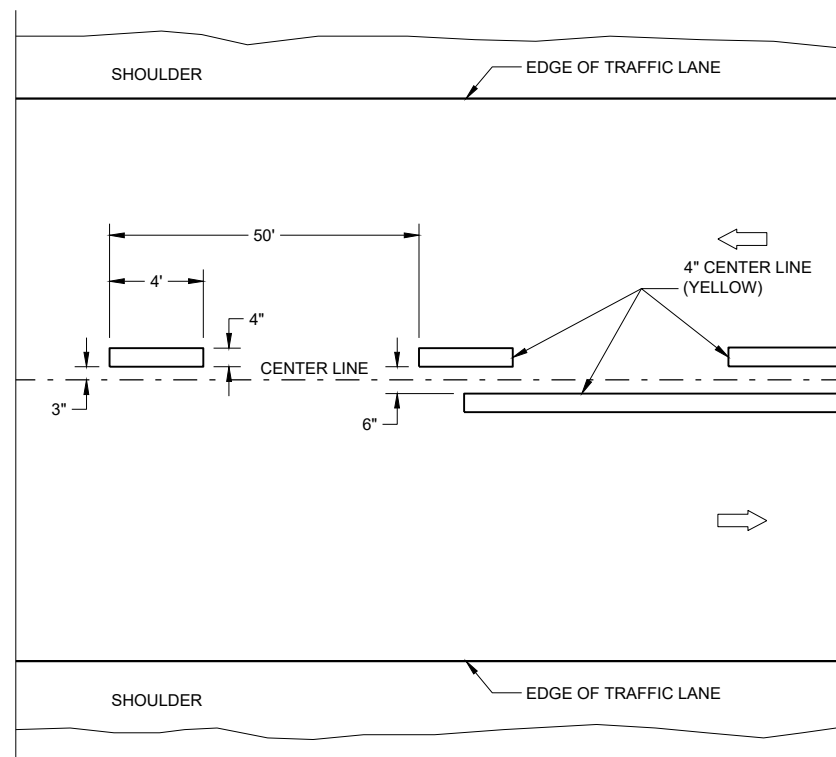


TWO WAY TRAFFIC

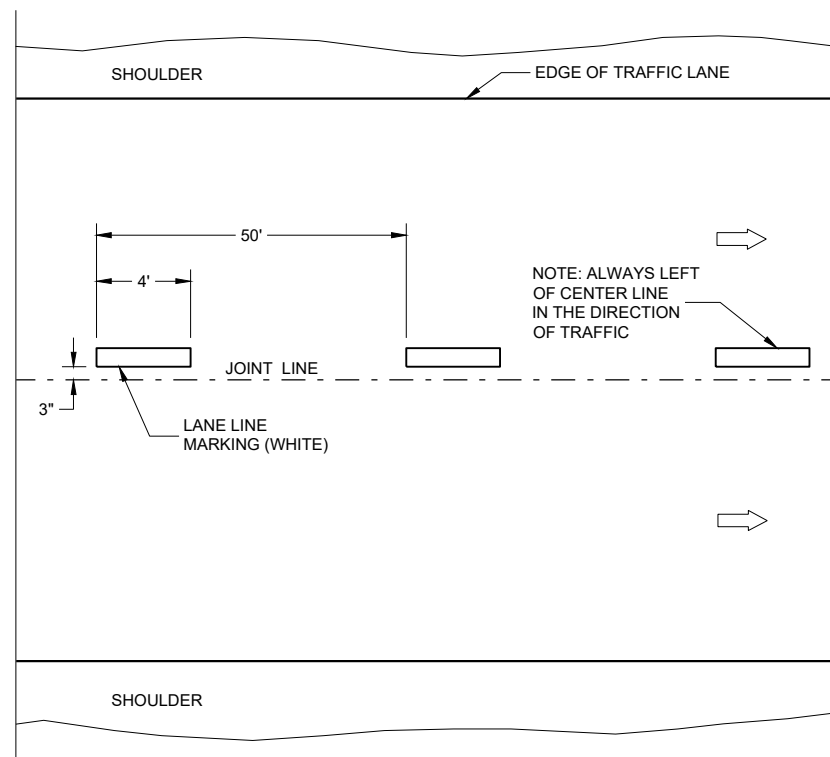


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

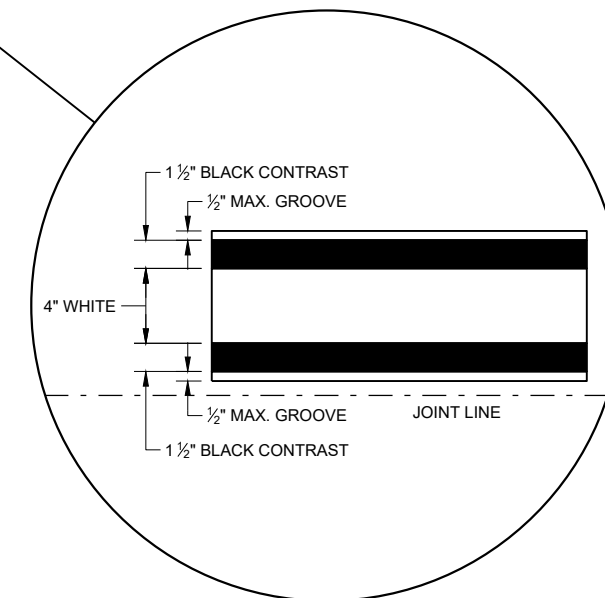
GENERAL NOTES

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

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

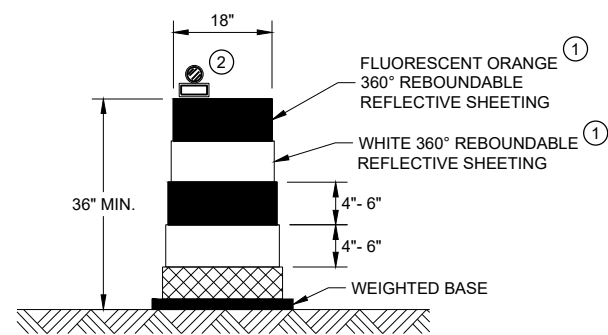
- |— "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC



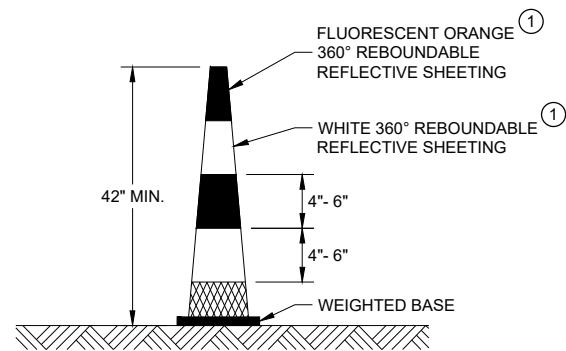
**LONGITUDINAL MARKING
(MAINLINE)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Matthew Rauch
DATE STATEWIDE SIGNING AND MARKING
ENGINEER

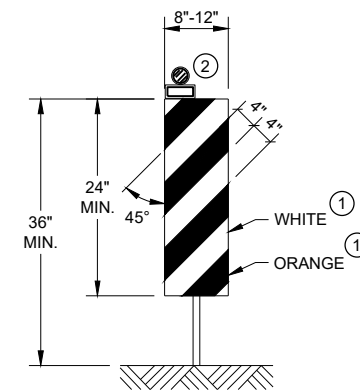


DRUM



42" CONE

DO NOT USE IN TAPERS
 1/2 SPACING OF DRUMS

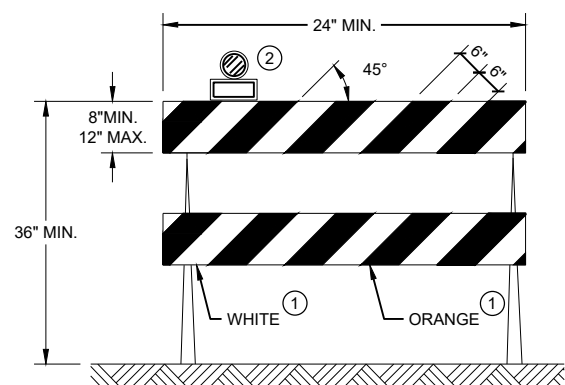


VERTICAL PANEL

THE STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.

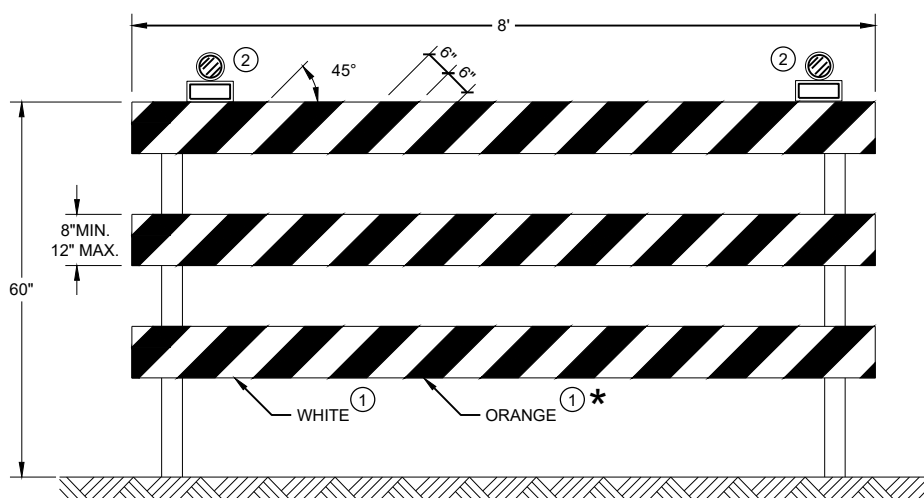
GENERAL NOTES

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.








TYPE III BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  TEMPORARY PORTABLE RUMBLE STRIP ARRAY
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

GENERAL NOTES

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

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

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

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

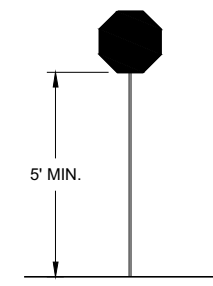
WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

- FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.
- ① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
 - ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FOR THE APPROVED PRODUCTS LIST.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.
- DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.



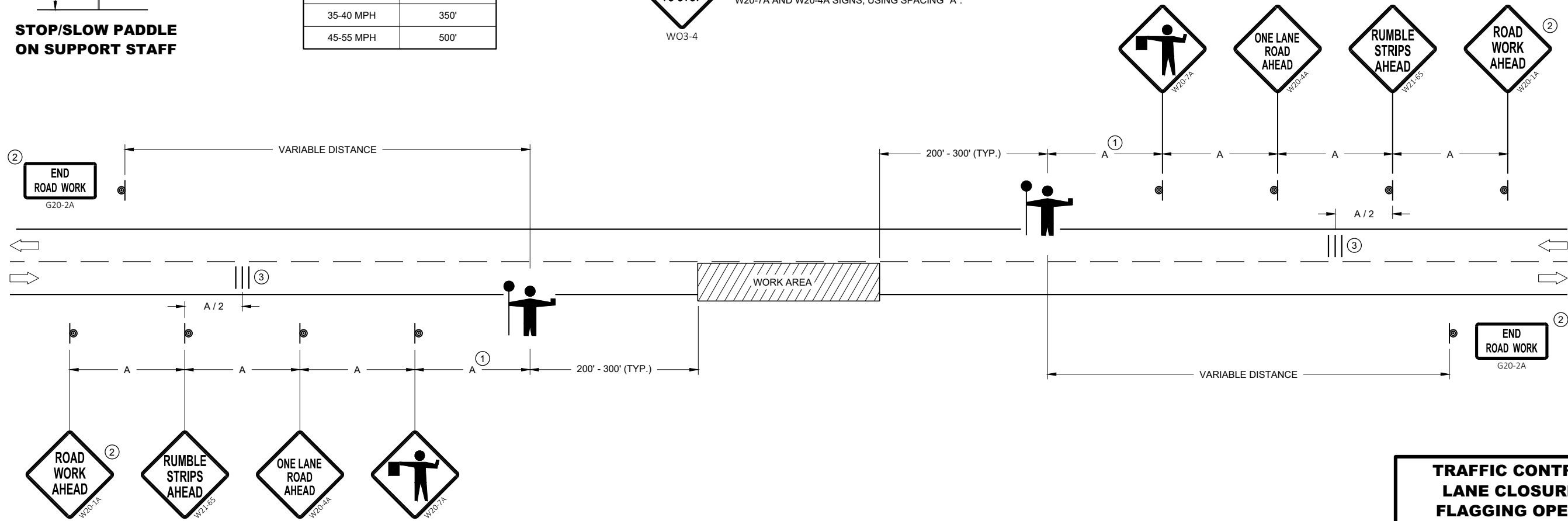
STOP/SLOW PADDLE ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



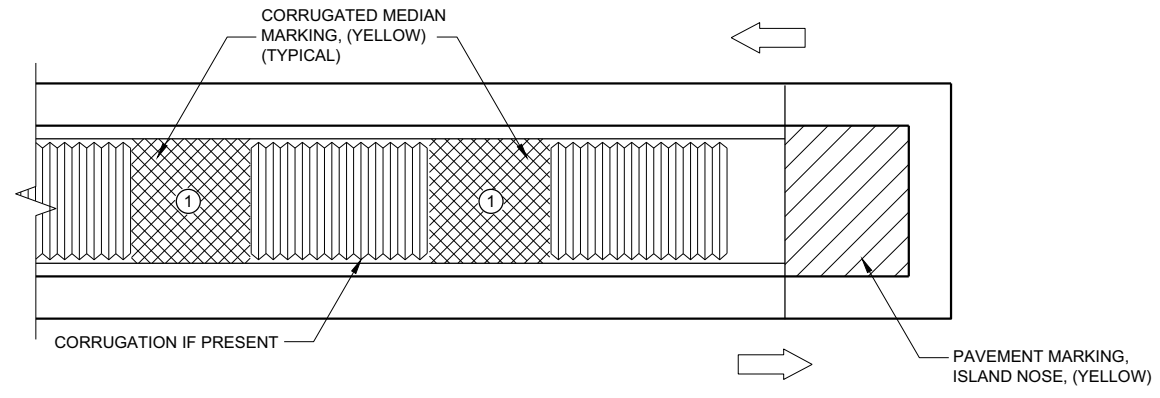
TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

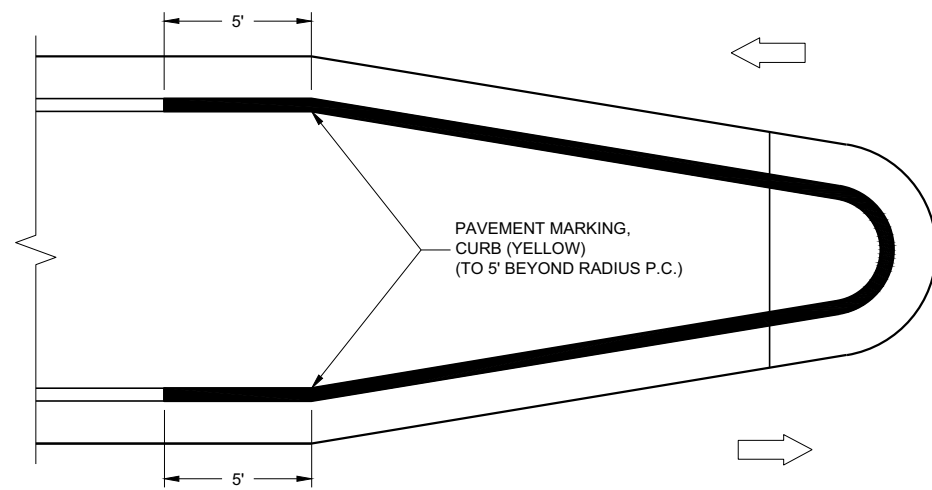
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE May 2019 /S/ Andrew Heidtke
WORK ZONE ENGINEER

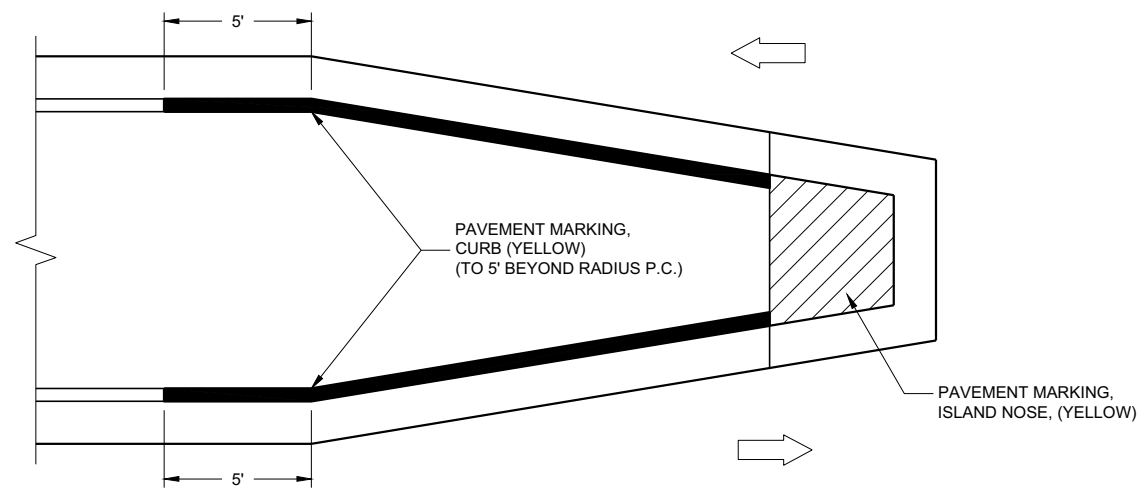
FHWA



MEDIAN ISLAND WITH SQUARE BLUNT NOSE



MEDIAN ISLAND WITH ROUND BLUNT NOSE







MEDIAN ISLAND WITH SLOPED NOSE

TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS

GENERAL NOTES

WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION, YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.

-  ISLAND NOSE MARKING
-  CURB MARKING
-  CORRUGATED MEDIAN MARKING
-  DIRECTION OF TRAVEL

6

6

SDD 15C18 - 05b

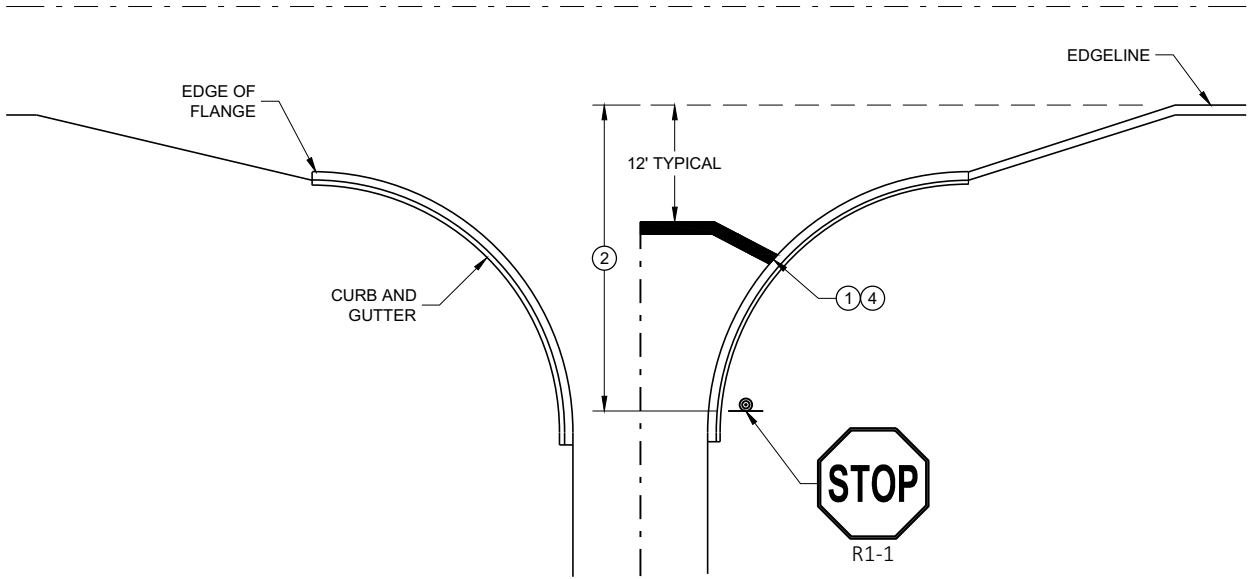
SDD 15C18 - 05b

PAVEMENT MARKINGS, MEDIAN ISLAND NOSE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2021 DATE	/S/ Matthew R. Rauch STATE SIGNING AND MARKING ENGINEER
<small>FHWA</small>	

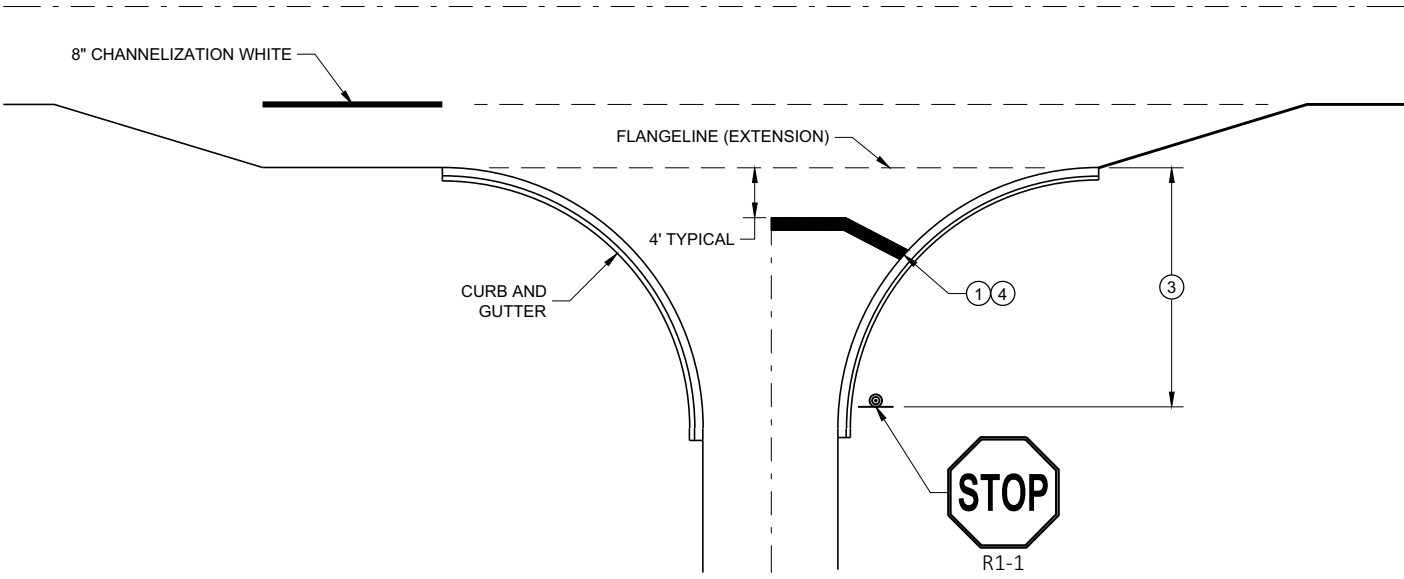
GENERAL NOTES

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

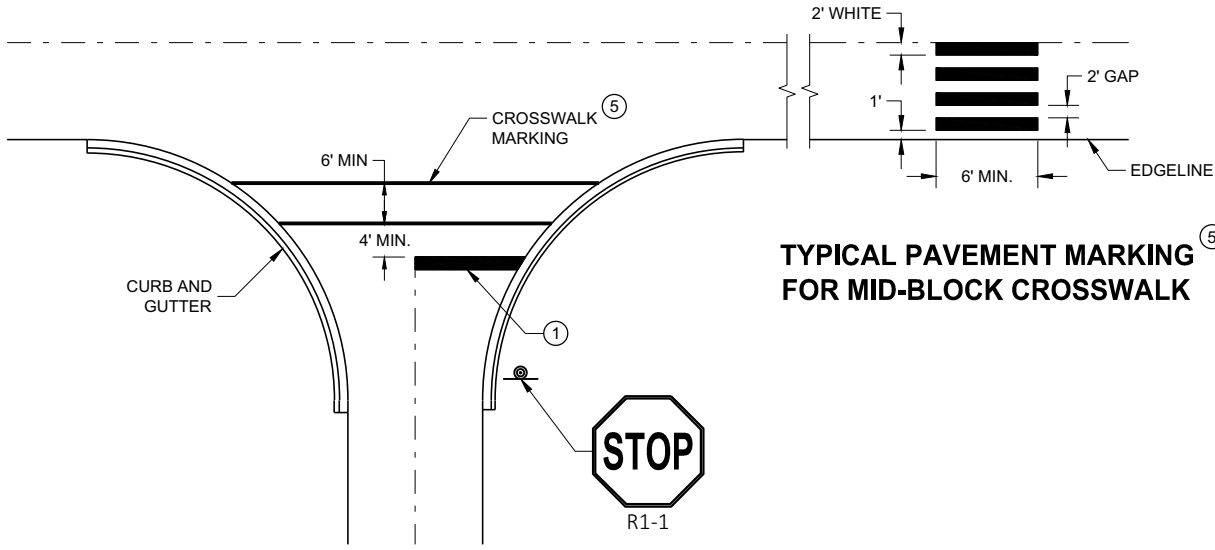
- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION.
- ④ MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- ⑤ LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES INSTEAD.



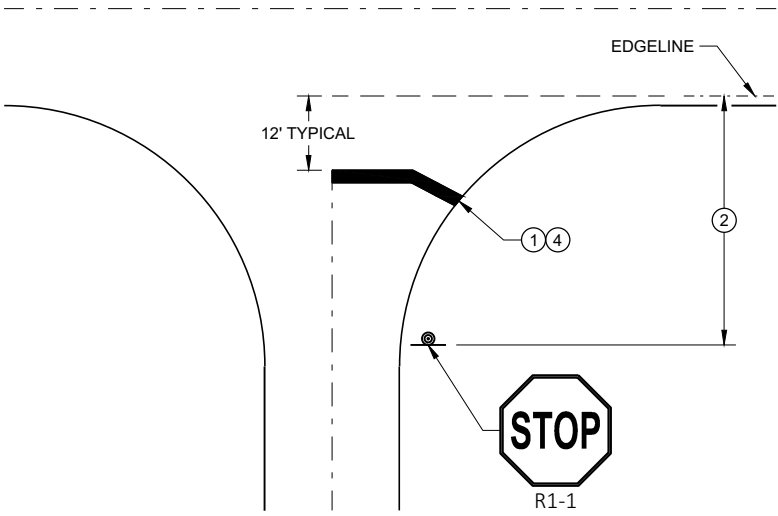
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

TYPICAL PAVEMENT MARKING FOR MID-BLOCK CROSSWALK

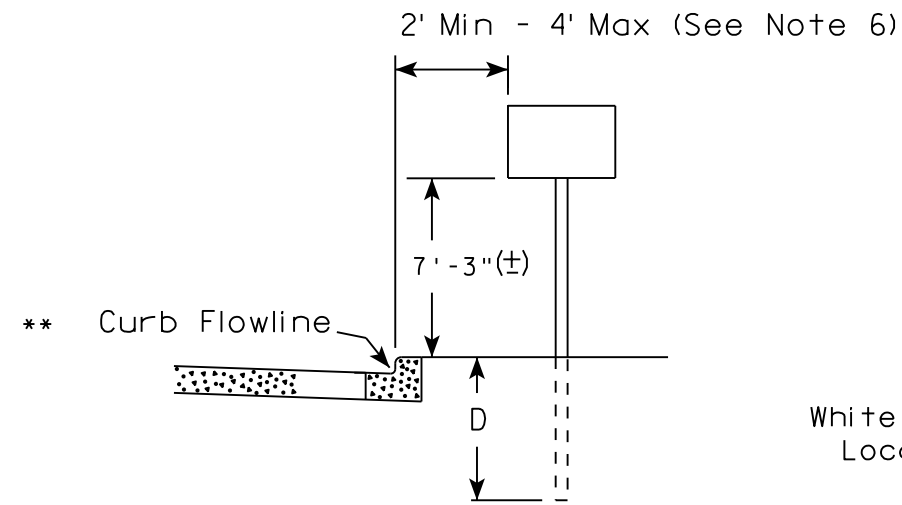
STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

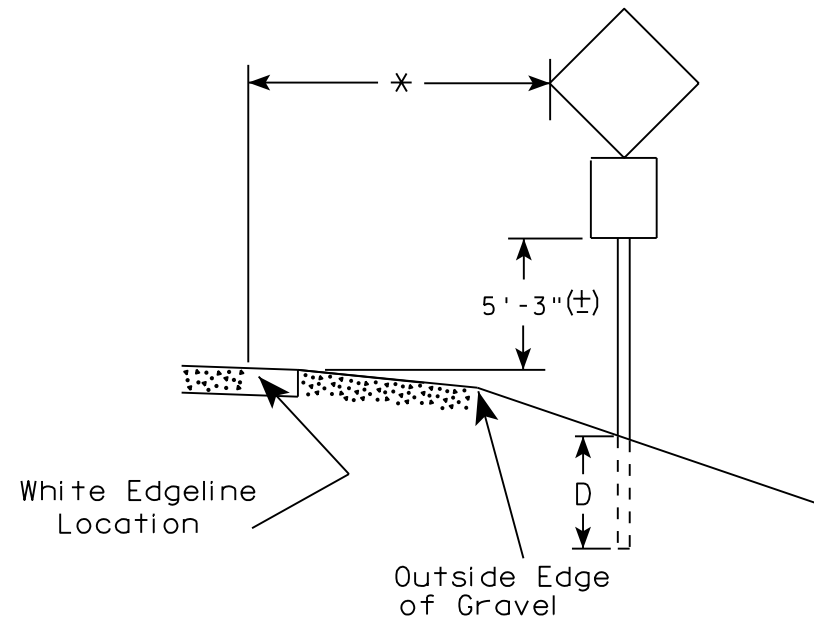
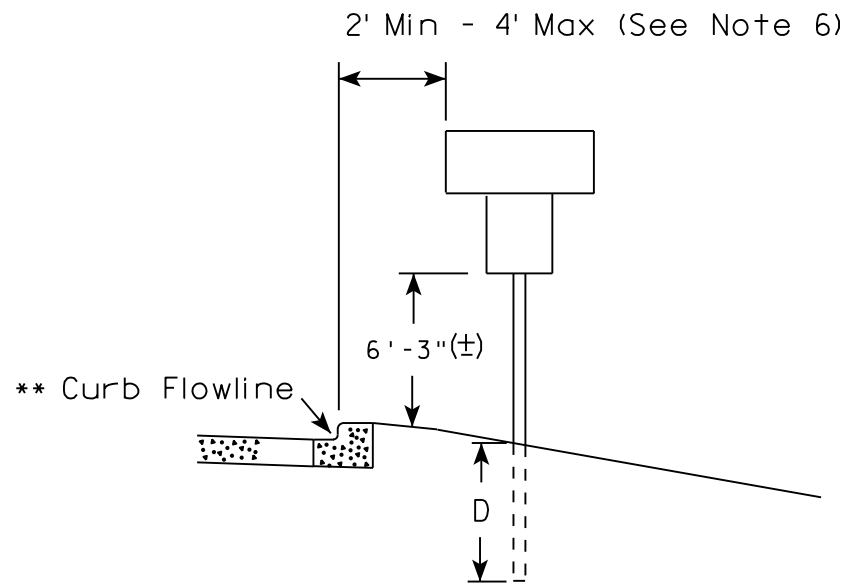
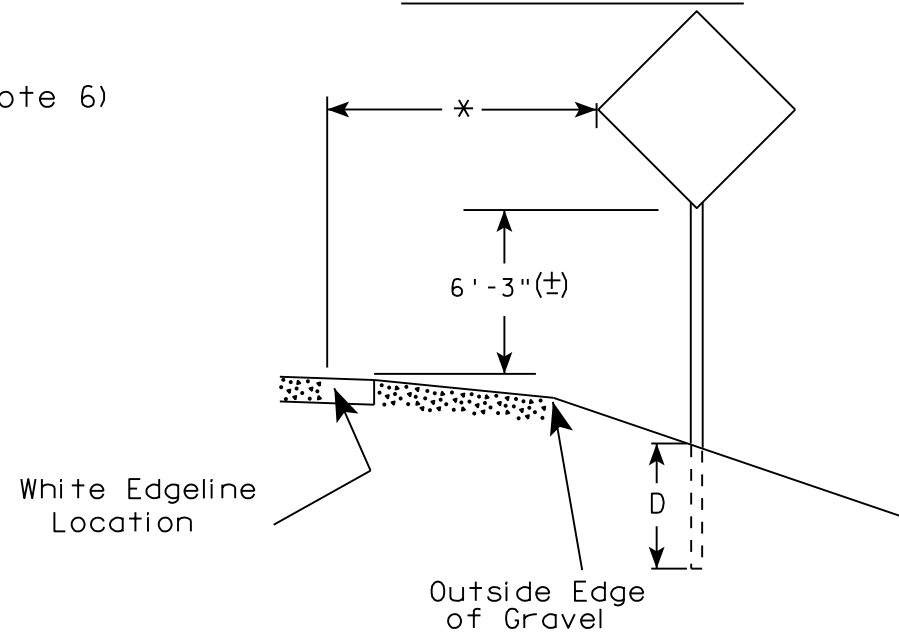
APPROVED
November 2019 /S/ Matthew Rauch
DATE STATE SIGNING AND MARKING ENGINEER

FHWA

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

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

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

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

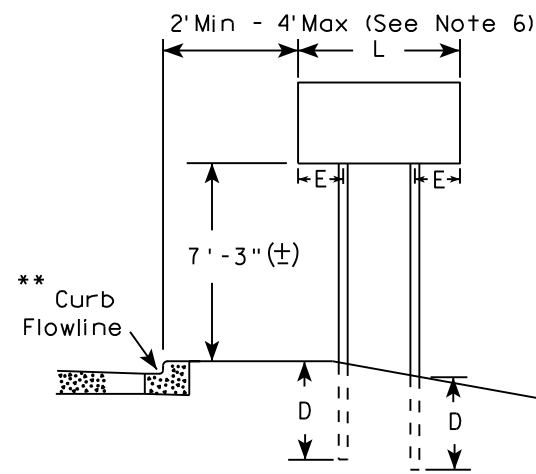
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-3.21

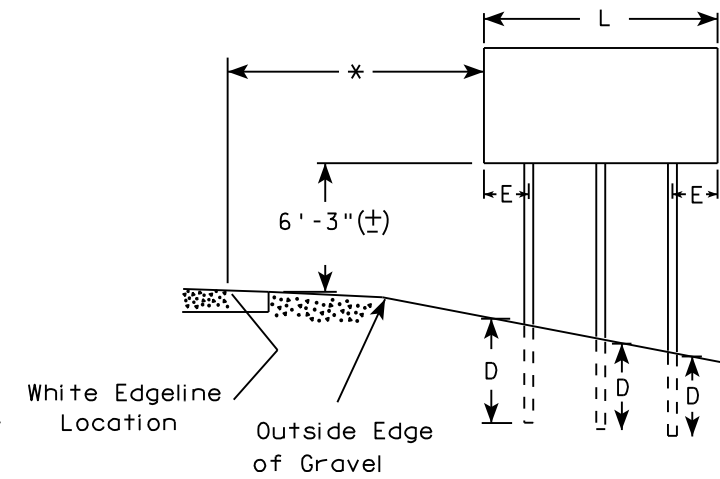
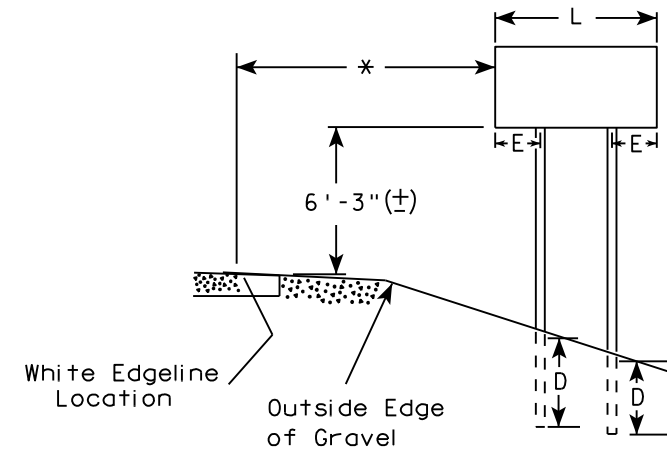
GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

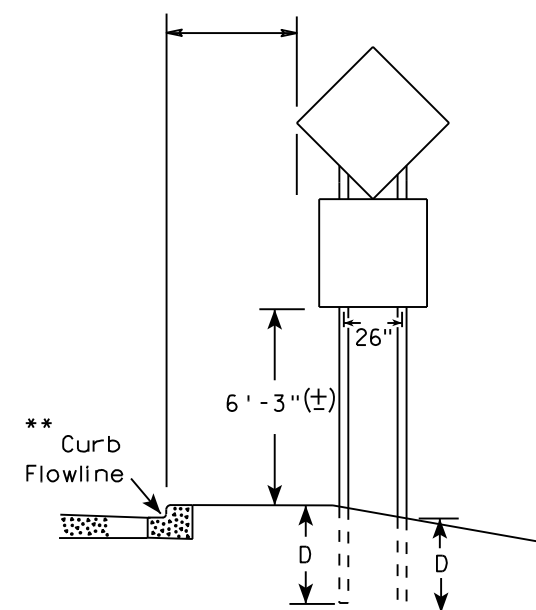
URBAN AREA



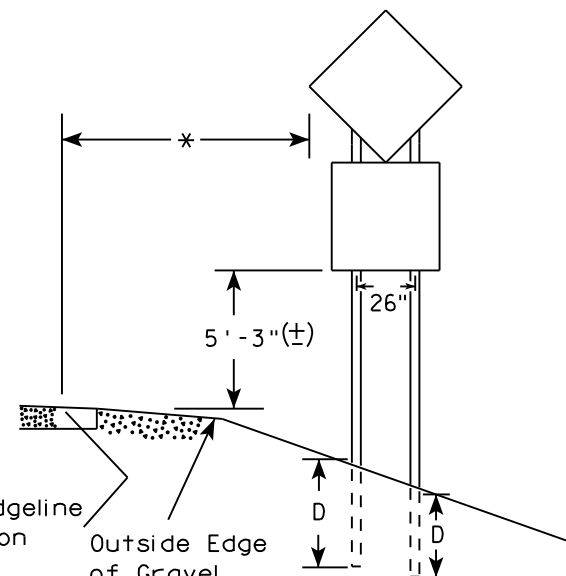
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

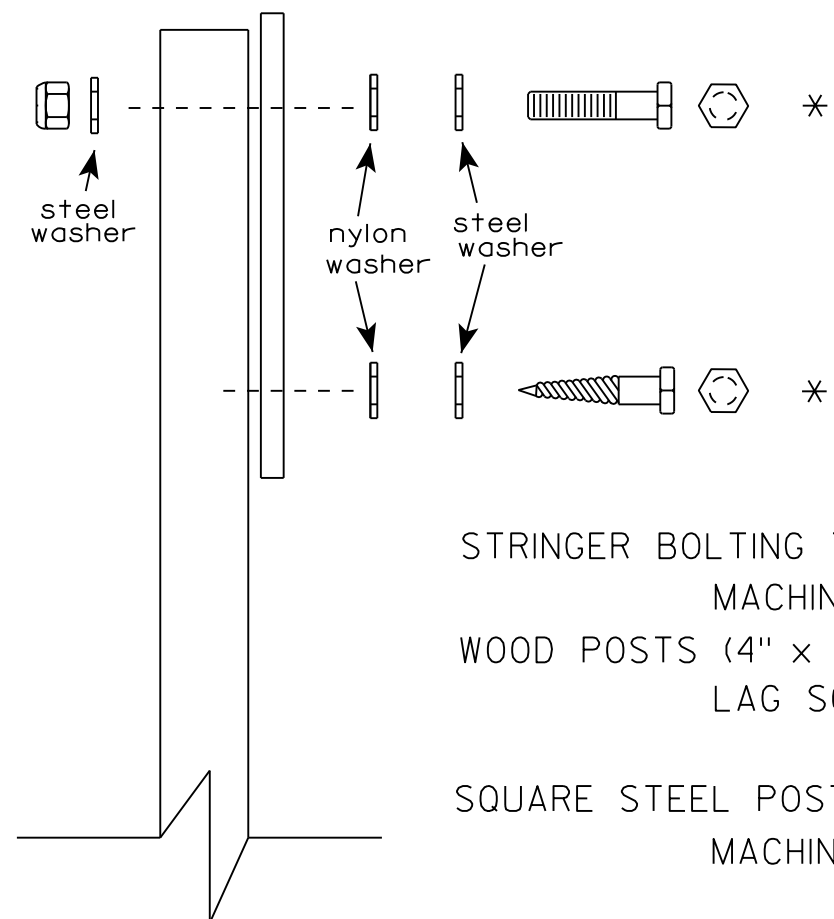
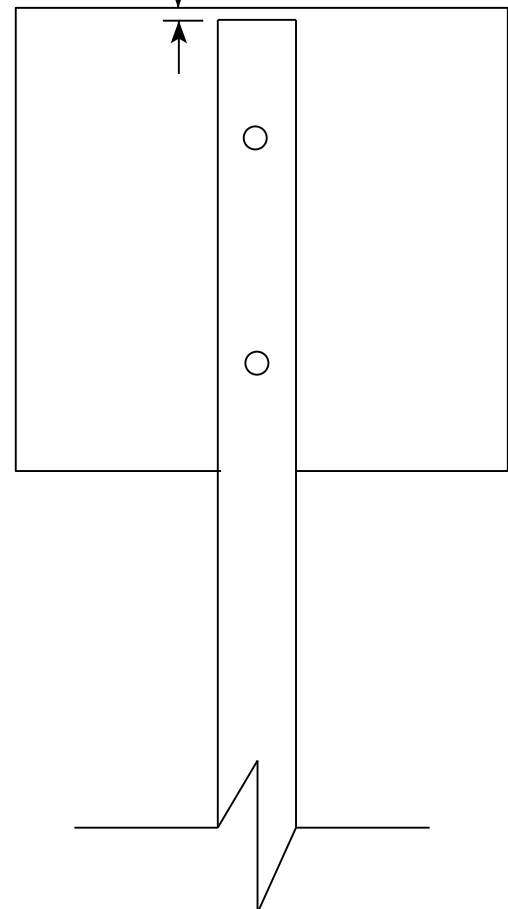
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15

1"± 1/2"

SIGN SHALL BE MOUNTED TO PROJECT ABOVE THE TOP OF THE POST



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

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

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

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)

MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON

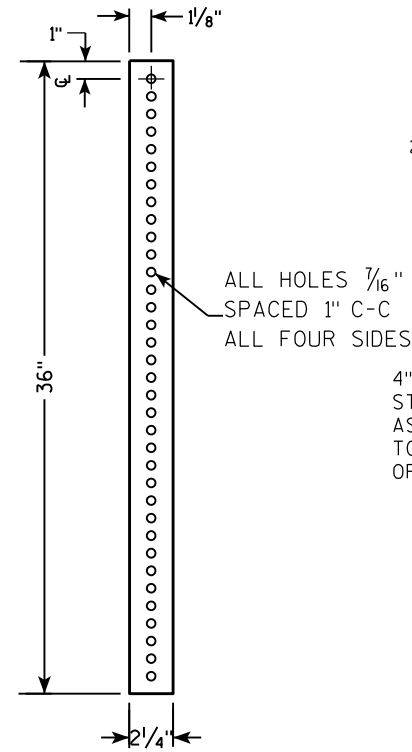
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

7

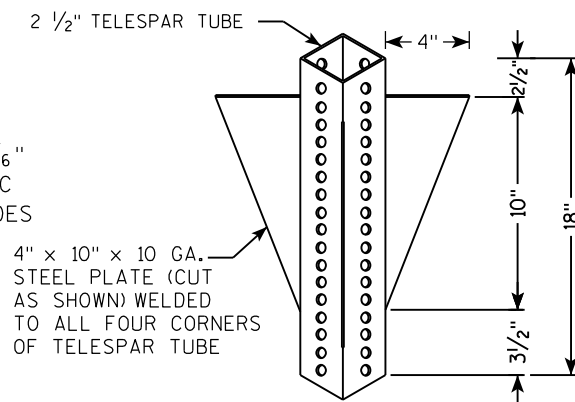
ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 8/11/16	PLATE NO. A4-8.8

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

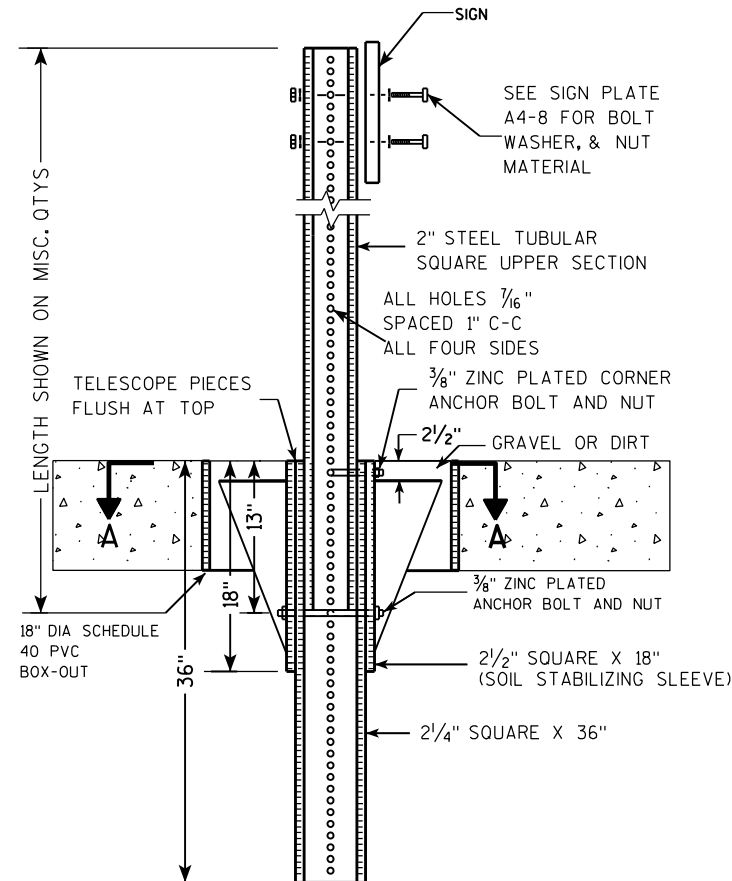
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



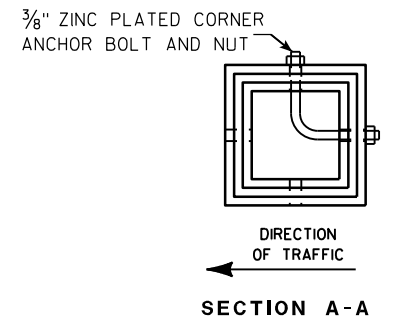
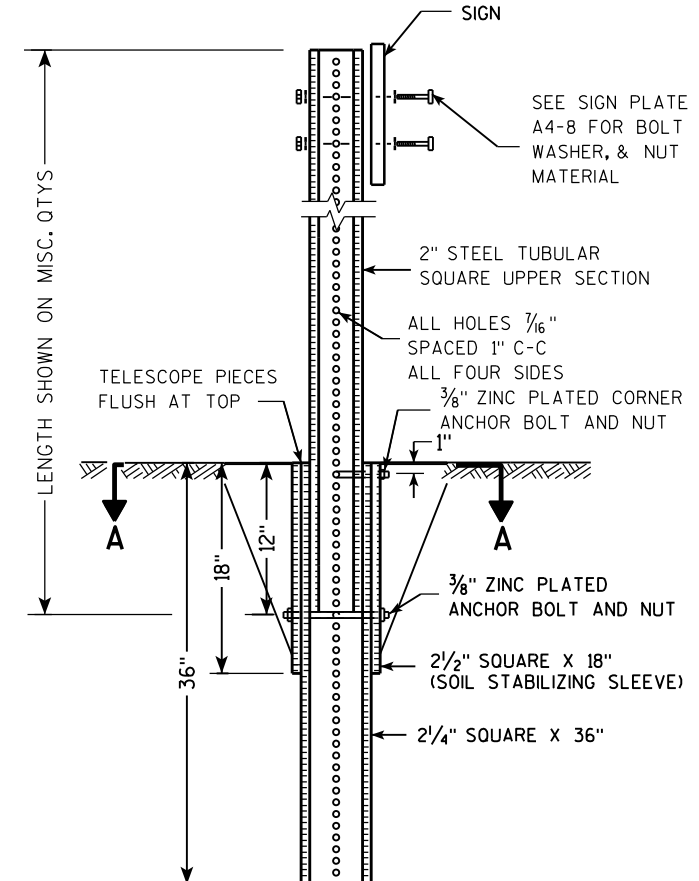
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



**DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)**



**DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)**



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

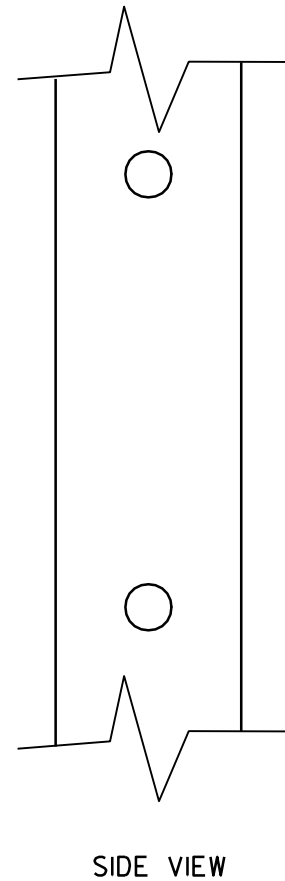
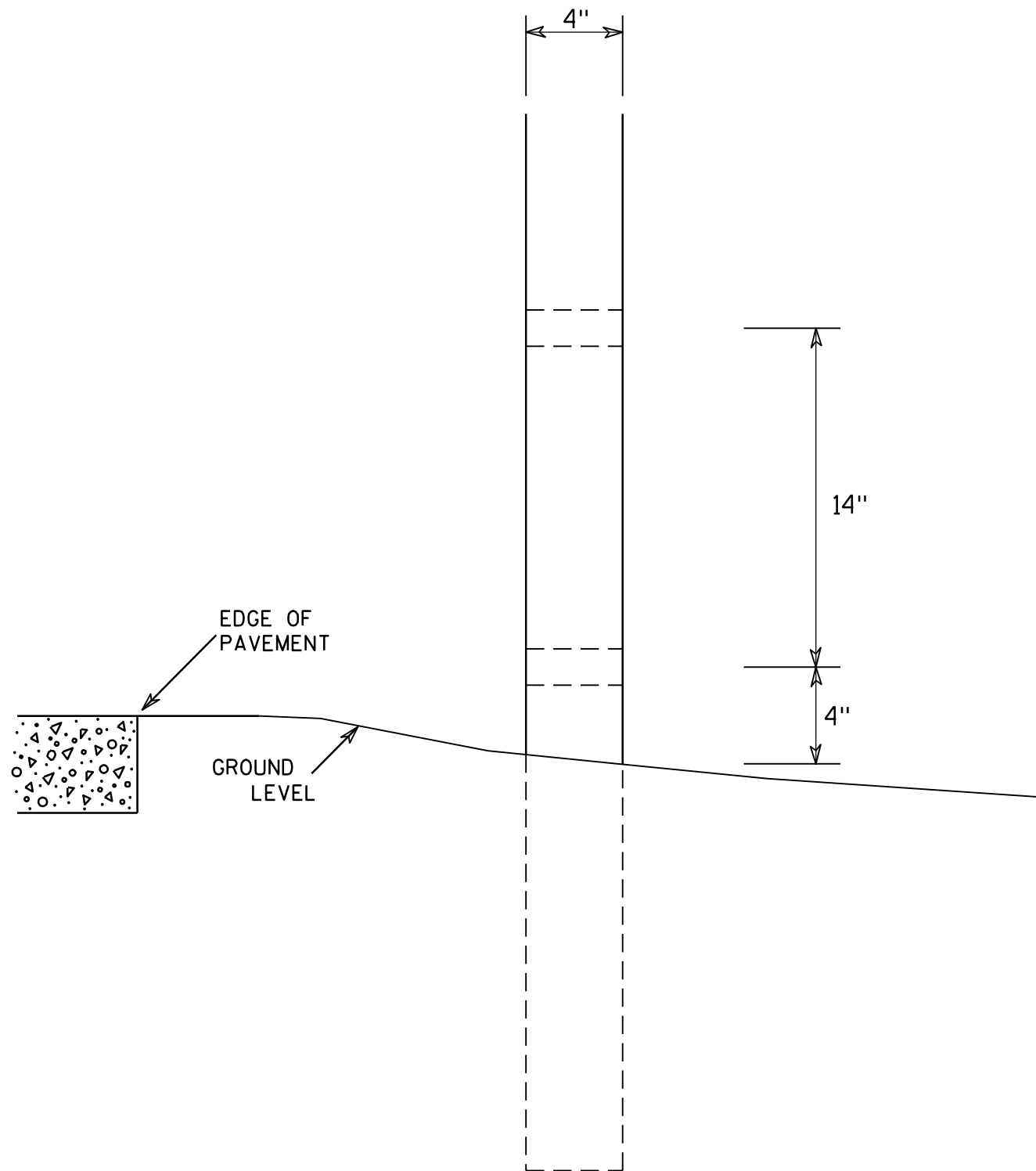
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

**TUBULAR STEEL
SIGN POST
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9



GENERAL NOTES

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

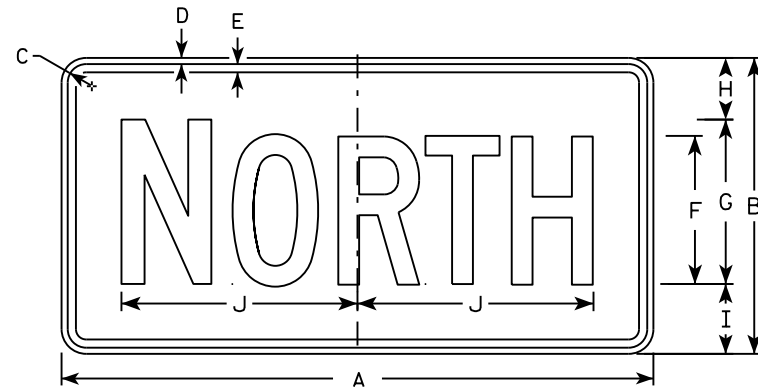
7

7

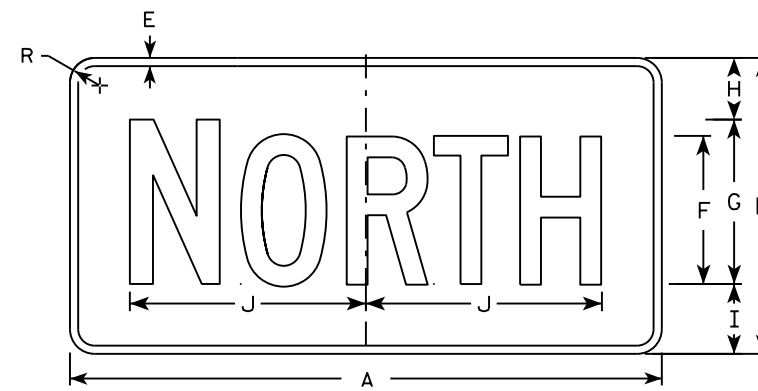
4 X 6 WOOD POST MODIFICATIONS	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>

NOTES

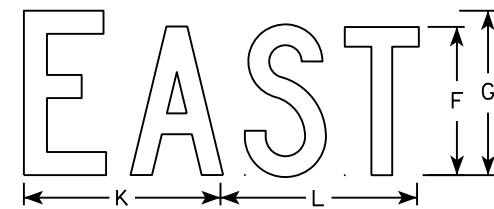
- All Signs Type II - Type H
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 thru M3-4 Background - White
 Message - Black
 MB3-1 thru MB3-4 Background - Blue
 Message - White
 MK3-1 thru MK3-4 Background - Green
 Message - White
 MM3-1 thru MM3-4 Background - White
 Message - Green
 MN3-1 thru MN3-4 Background - Brown
 Message - White
 MP3-1 thru MP3-4 Background - White
 Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.



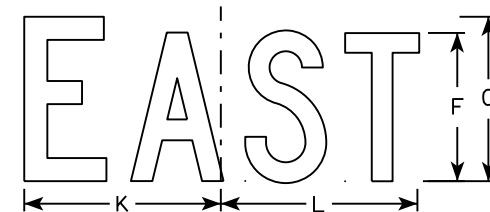
M3-1
MM3-1
MP3-1



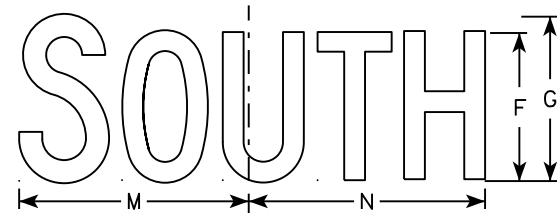
MB3-1
MK3-1
MN3-1



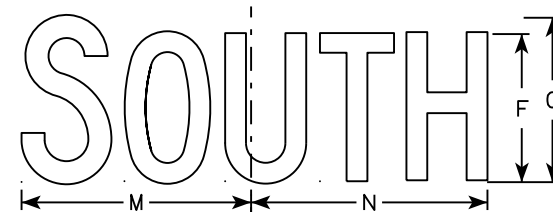
M3-2
MM3-2
MP3-2



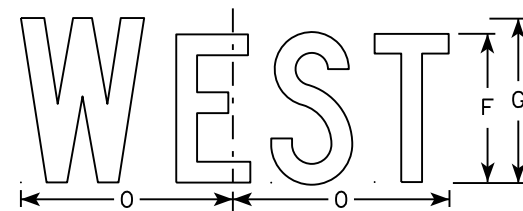
MB3-2
MK3-2
MN3-2



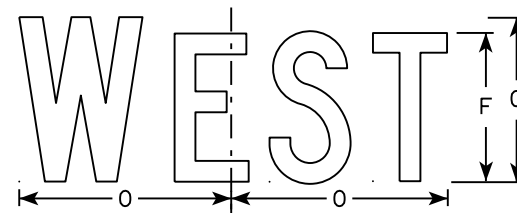
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thru M3-4
SERIES

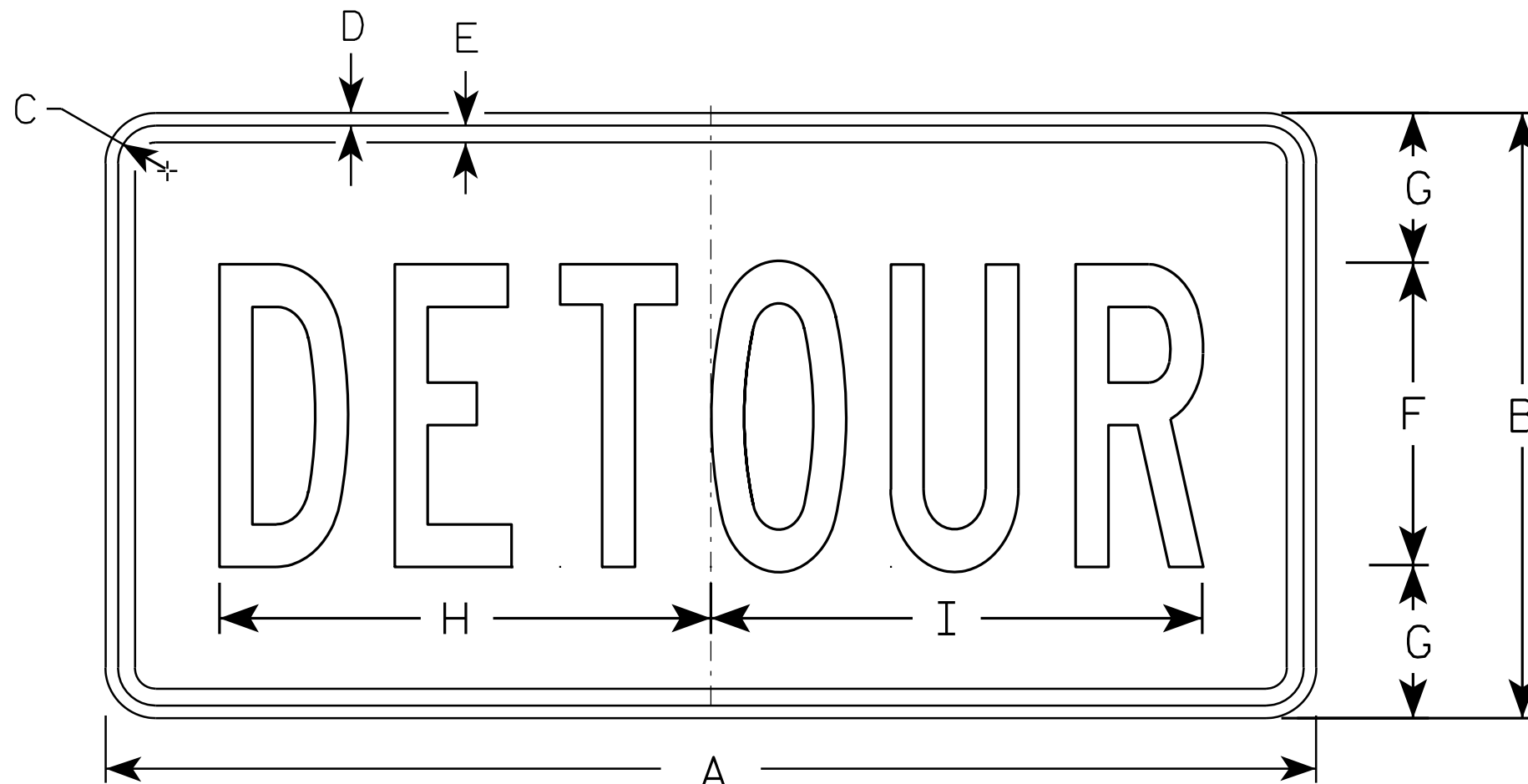
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M3-1.14

NOTES

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



M4-8

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

STANDARD SIGN
M4-8

WISCONSIN DEPT OF TRANSPORTATION

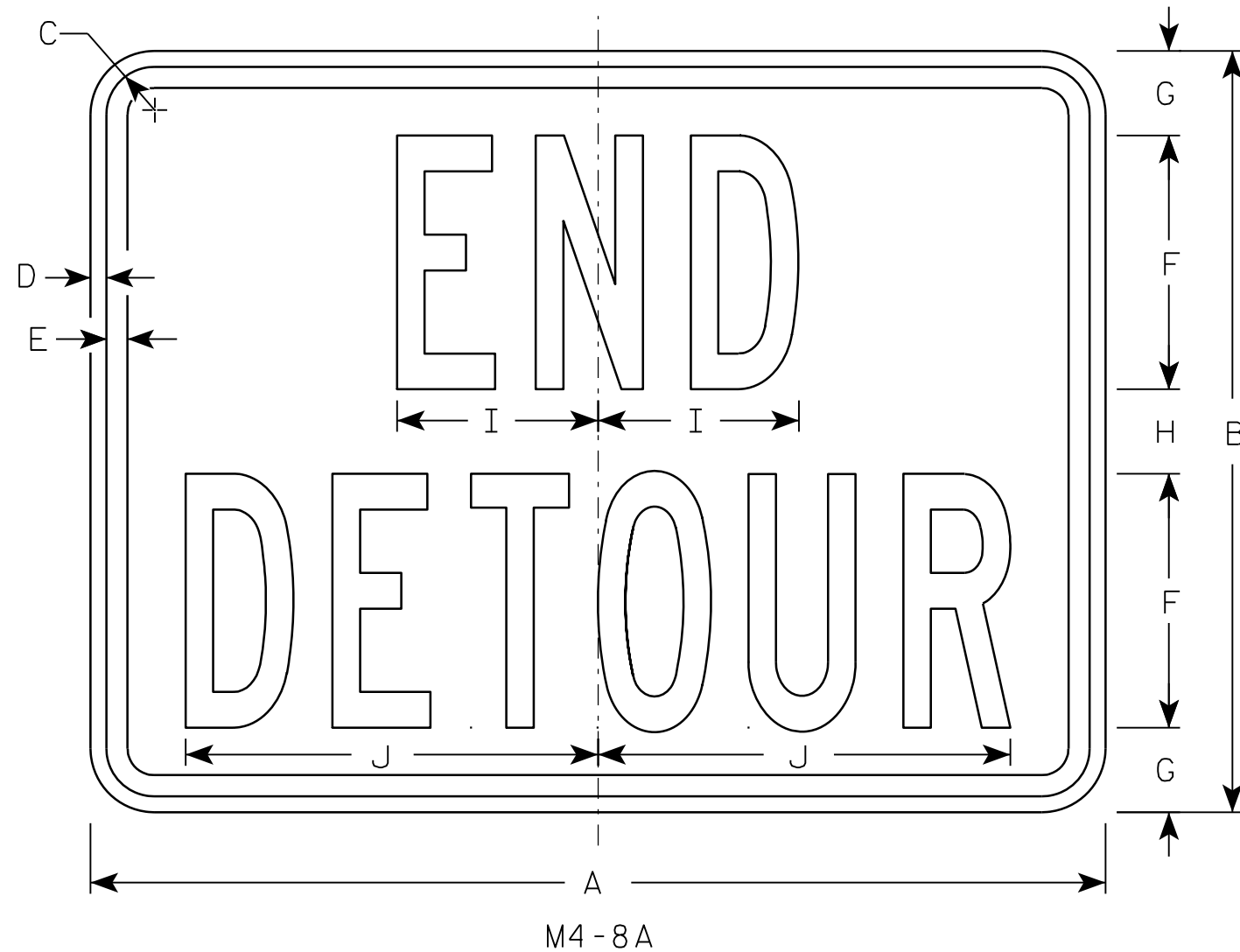
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-8.2

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

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



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

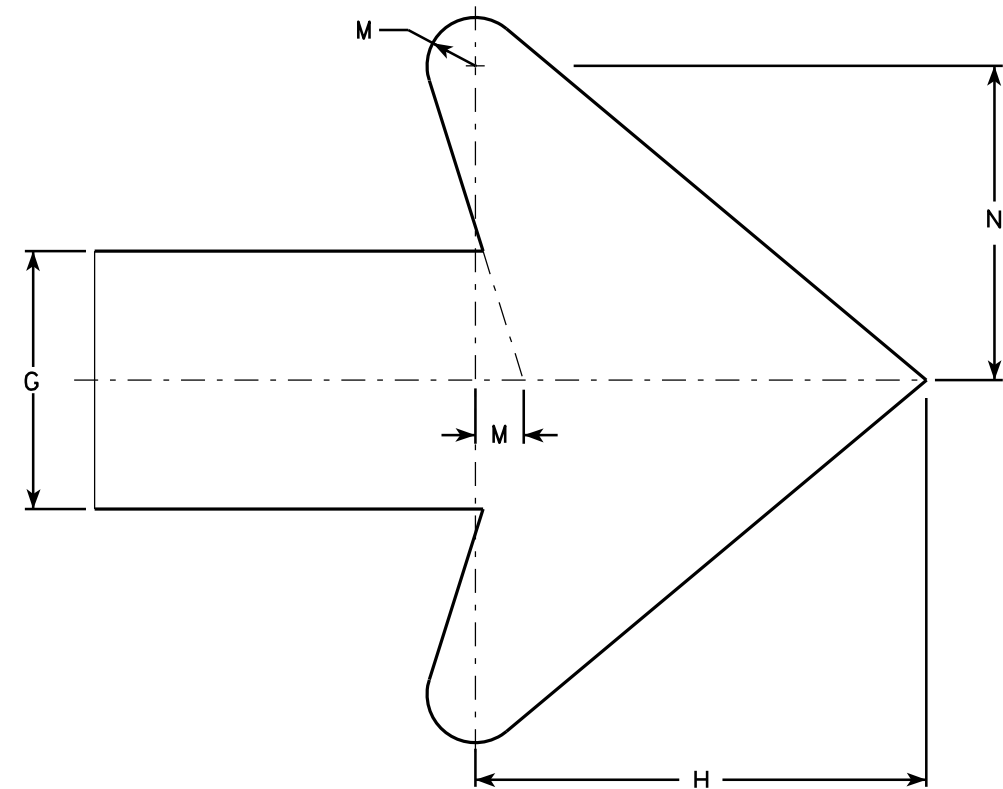
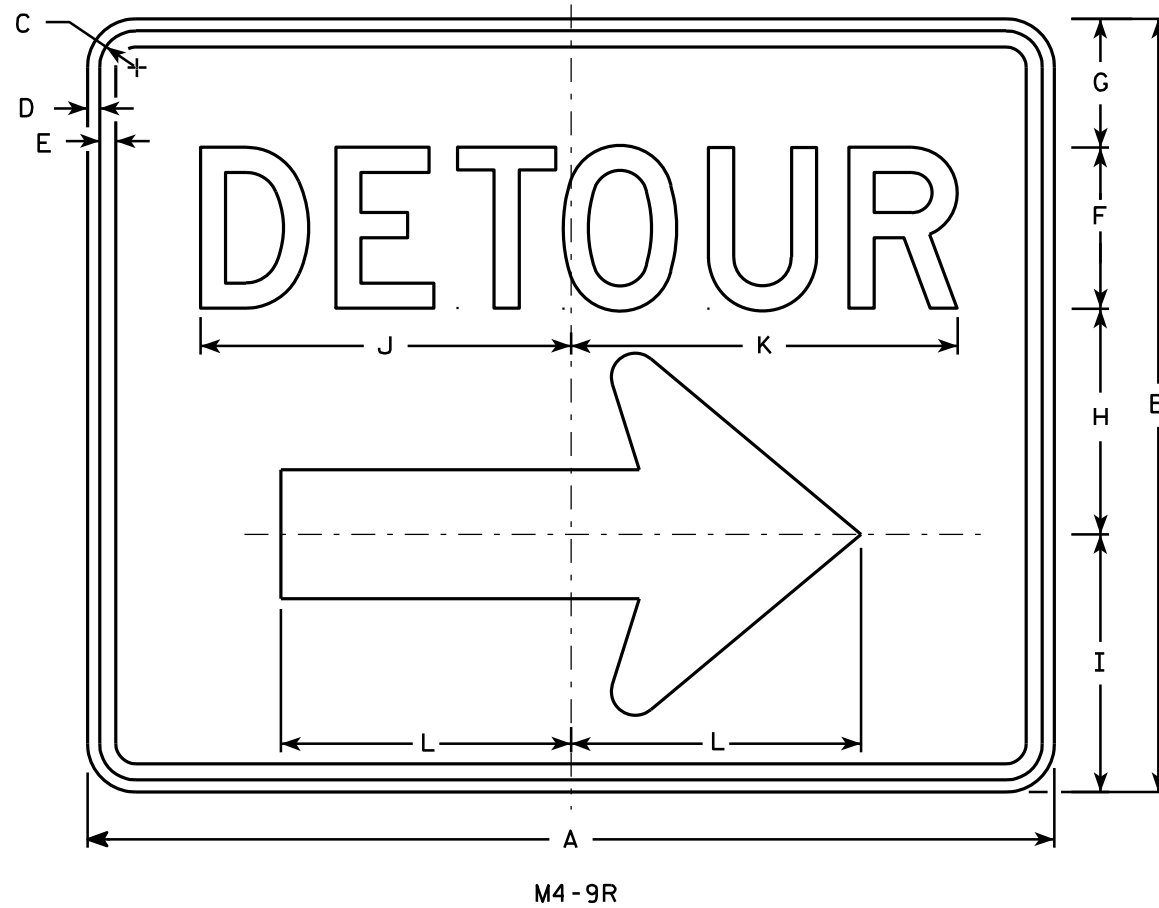
APPROVED *Matthew R Rauch*
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-8A.2

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M4-9L is the same as M4-9R except the arrow is reversed.



Arrow Detail

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 3/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0
5	48	36	1 3/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0

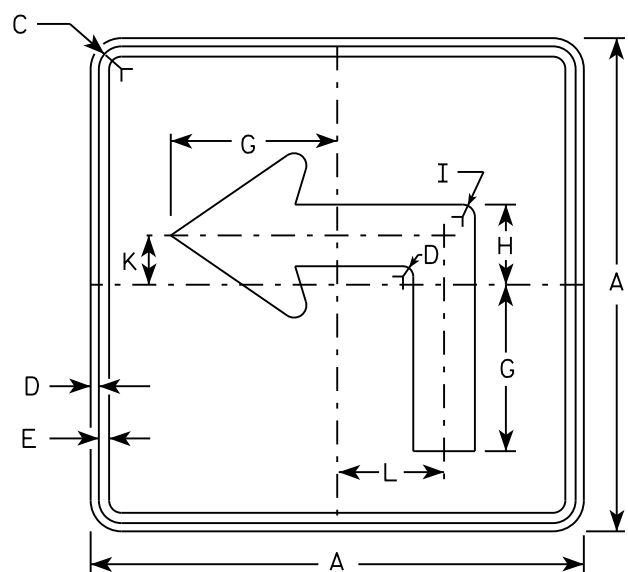
STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

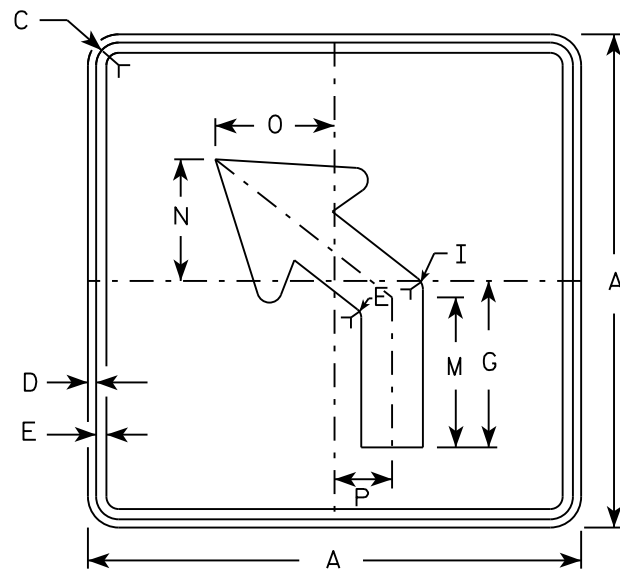
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-9R.4

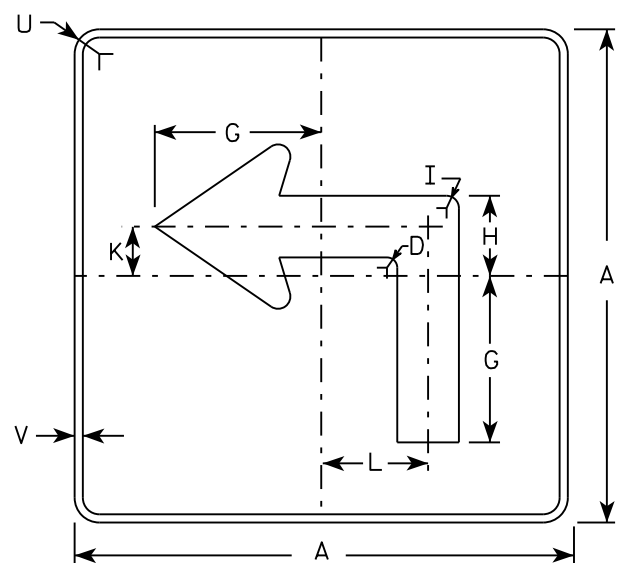
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



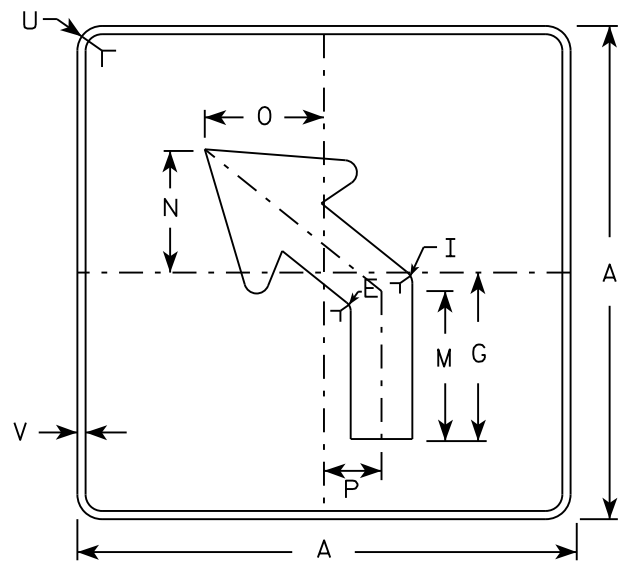
M5-1L
MM5-1L
M05-1L
MP5-1L



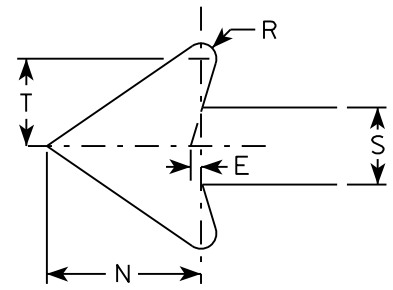
M5-2L
MM5-2L
M05-2L
MP5-2L



MB5-1L
MK5-1L
MN5-1L
MR5-1L



MB5-2L
MK5-2L
MN5-2L
MR5-2L



NOTES

- Signs are Type II - Type H reflective except as shown
- Color:
 - Background - See note 4
 - Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M5-1 and M5-2 Background - White
Message - Black
 - MB5-1 and MB5-2 Background - Blue
Message - White
 - MK5-1 and MK5-2 Background - Green
Message - White
 - MM5-1 and MM5-2 Background - White
Message - Green
 - MN5-1 and MN5-2 Background - Brown
Message - White
 - M05-1 and M05-2 Background - Orange - Type F Reflective
Message - Black
 - MP5-1 and MP5-2 Background - White - Type H Reflective
Message - Blue
 - MR5-1 and MR5-2 Background - Brown
Message - Yellow
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

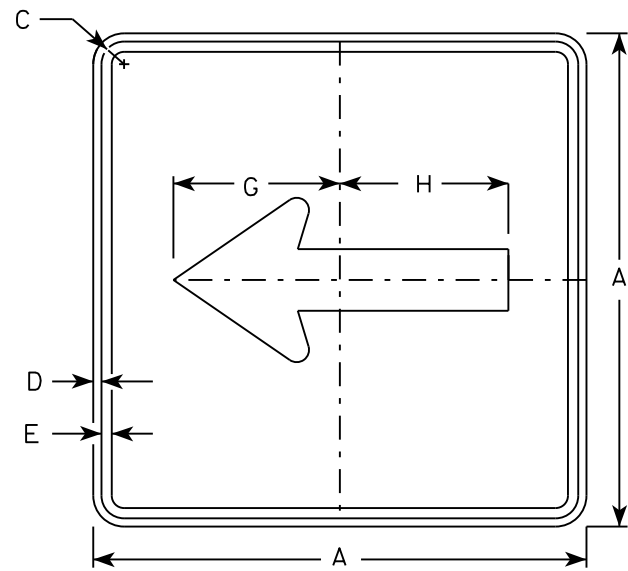
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25

STANDARD SIGN
M5-1 & M5-2

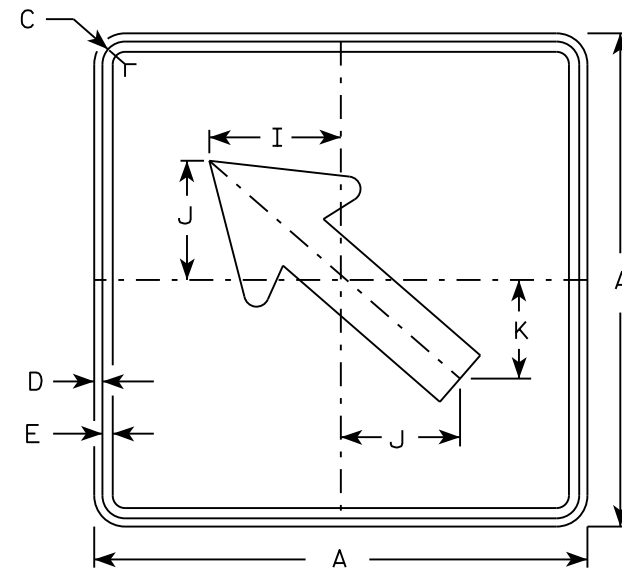
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

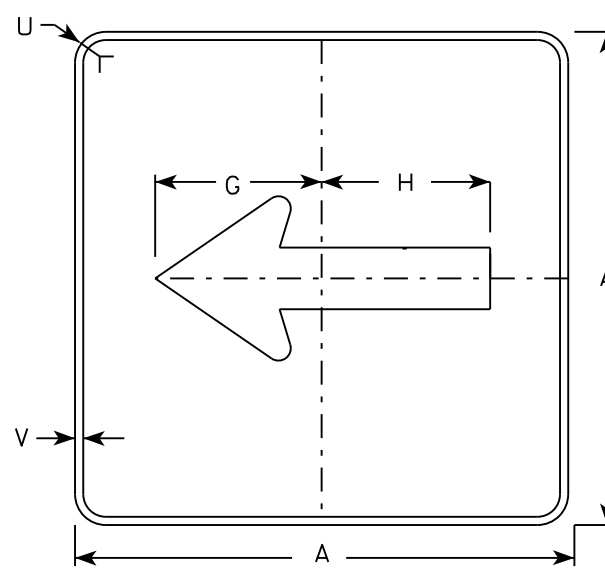
DATE 10/15/15 PLATE NO. M5-1.13



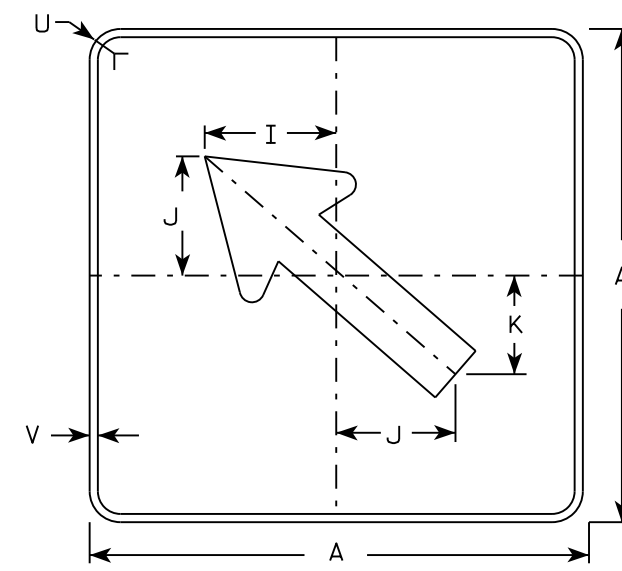
M6-1
MM6-1
M06-1
MP6-1



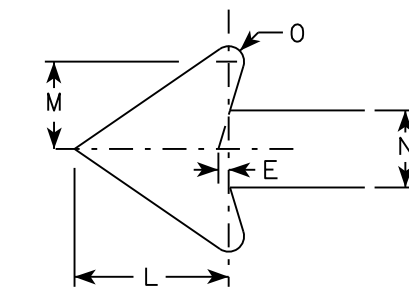
M6-2
MM6-2
M06-2
MP6-2



MB6-1
MK6-1
MN6-1
MR6-1



MB6-2
MK6-2
MN6-2
MR6-2



NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow

7

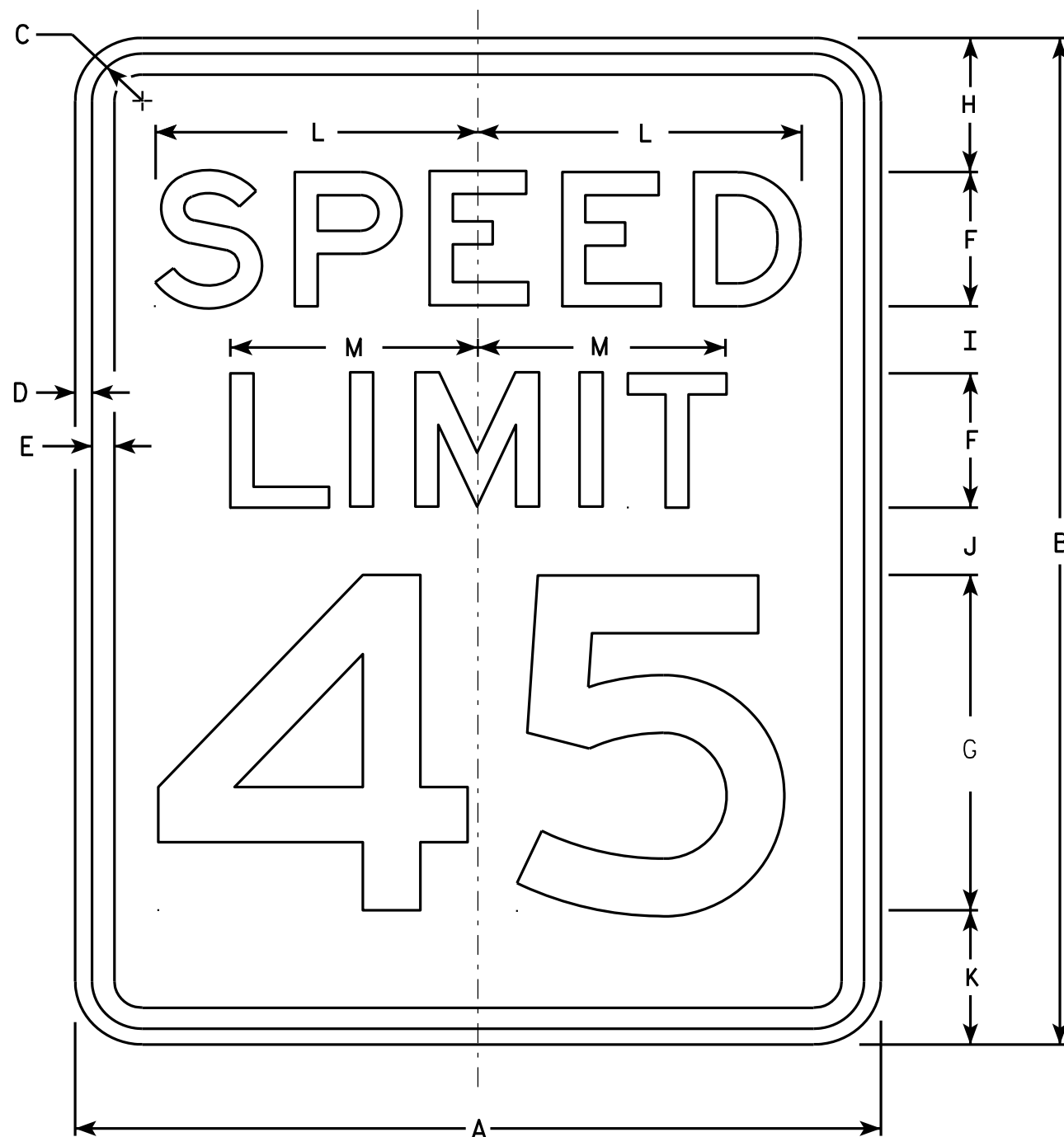
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

STANDARD SIGN
M6-1 & M6-2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-1.15



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

STANDARD SIGN
R2-1

WISCONSIN DEPT OF TRANSPORTATION

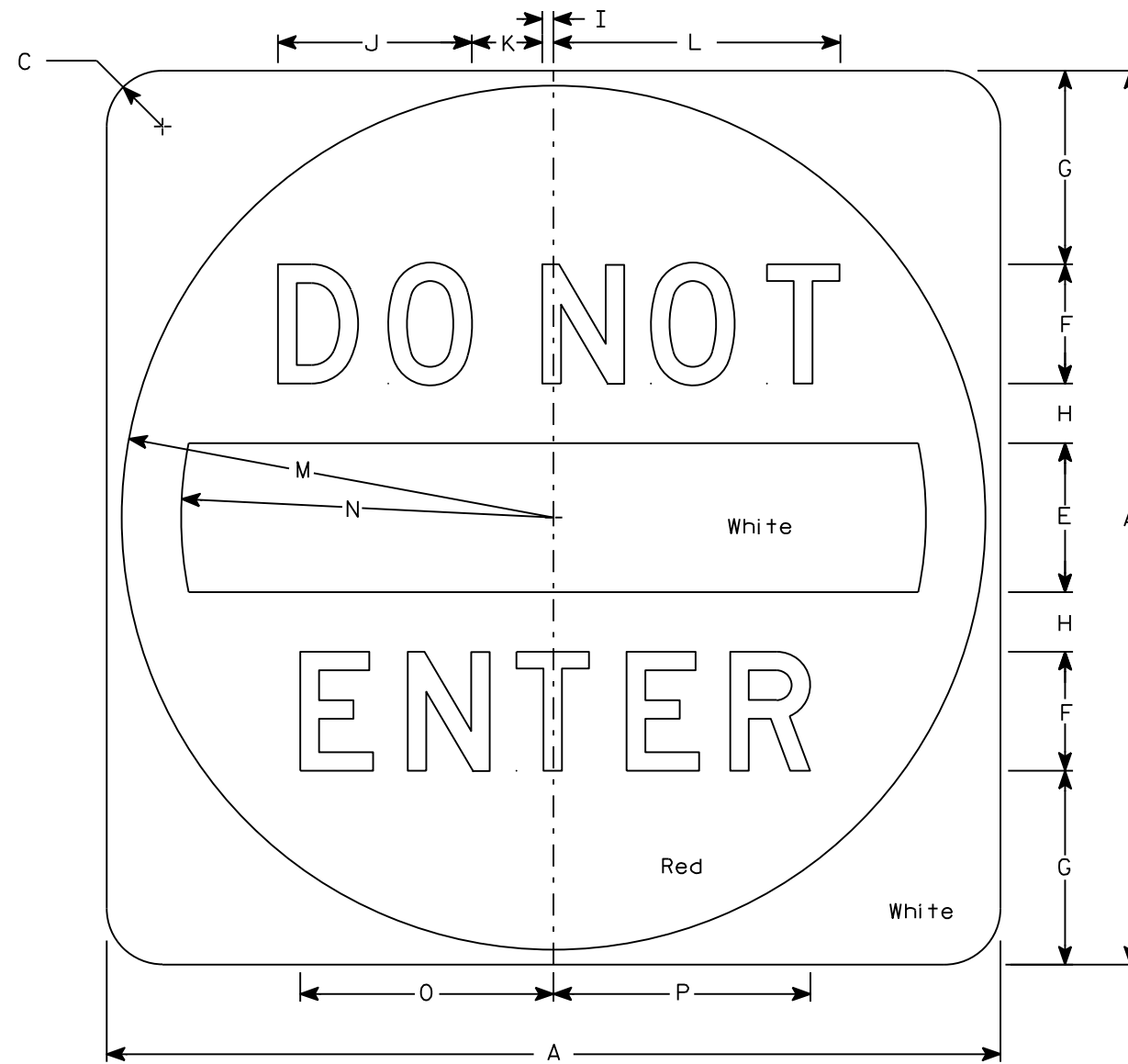
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - See detail
Message - White
3. Message Series - D



R5-1

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7/8		5	4	6 1/2	2	3/8	6 1/2	2 3/8	9 5/8	14 1/2	12 1/2	8 1/2	8 5/8											6.25
2M	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
3	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
4	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
5	48		3		8	6	11	3	5/8	9 3/4	3 5/8	14 1/2	23 1/2	20	12 3/4	12 7/8											16.0

STANDARD SIGN
R5-1

WISCONSIN DEPT OF TRANSPORTATION

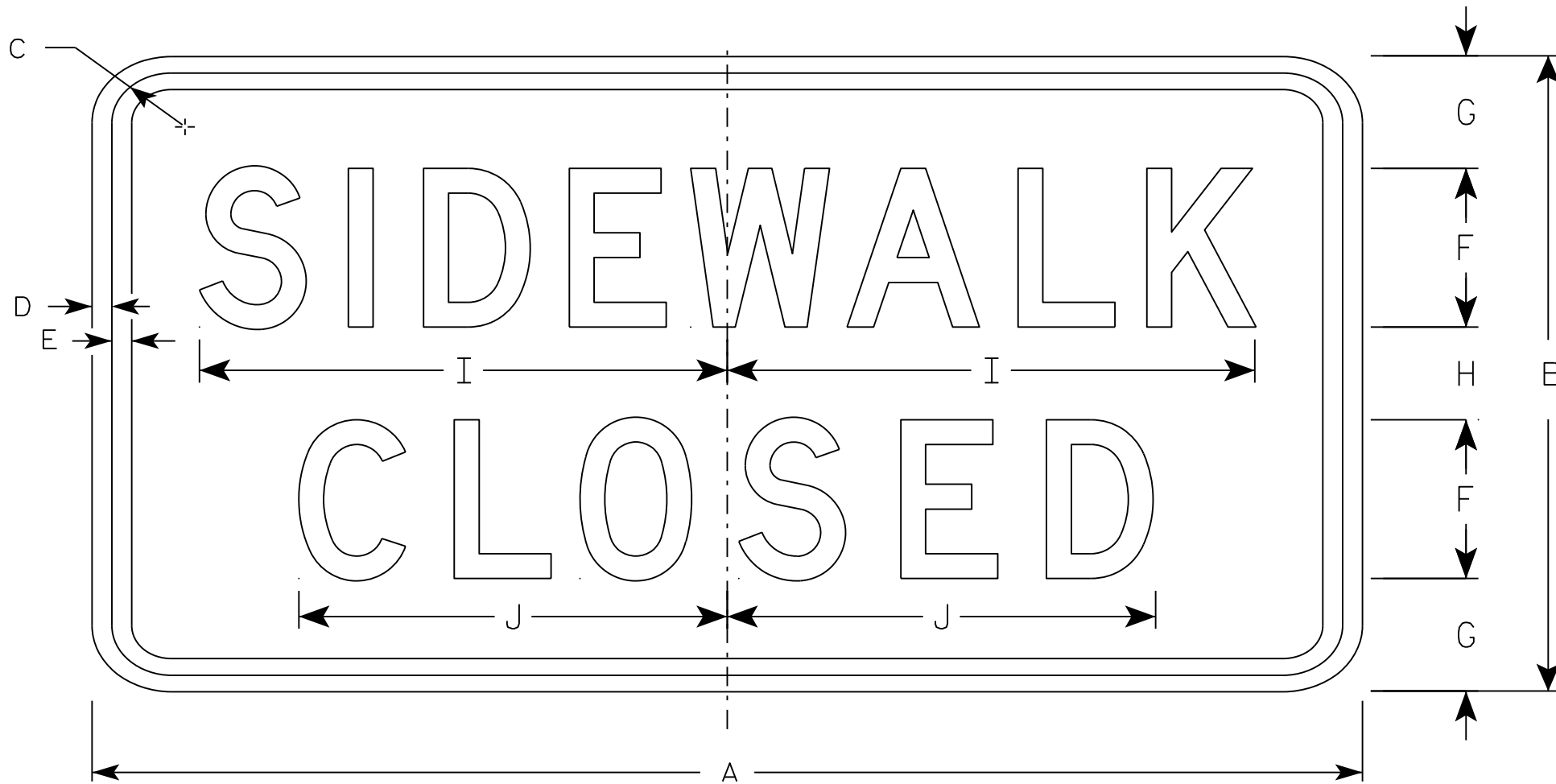
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/15/18 PLATE NO. R5-1.16

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Use Size 2 for Sidewalks. Use Size 3 for Paths and Trails.



R9-9

7

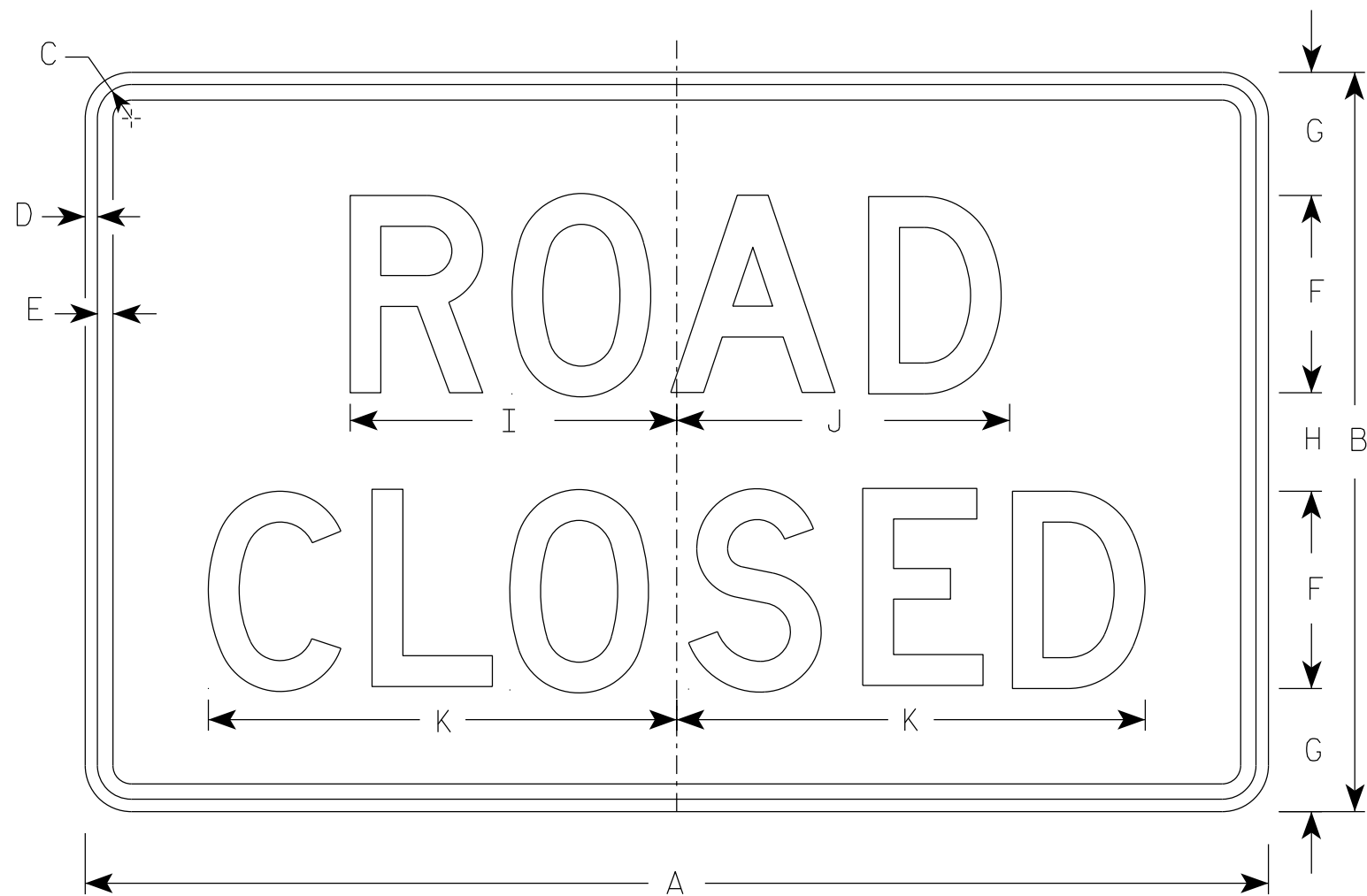
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 3/4	1/2	1/2	3	2 1/8	1 3/4	10	8 1/8																	2.0
2M	24	12	1 3/4	1/2	1/2	3	2 1/8	1 3/4	10	8 1/8																	2.0
3	30	18	1 3/4	1/2	1/2	4	3 1/2	3	12 1/2	10 1/4																	3.75
4																											
5																											

STANDARD SIGN
R9-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

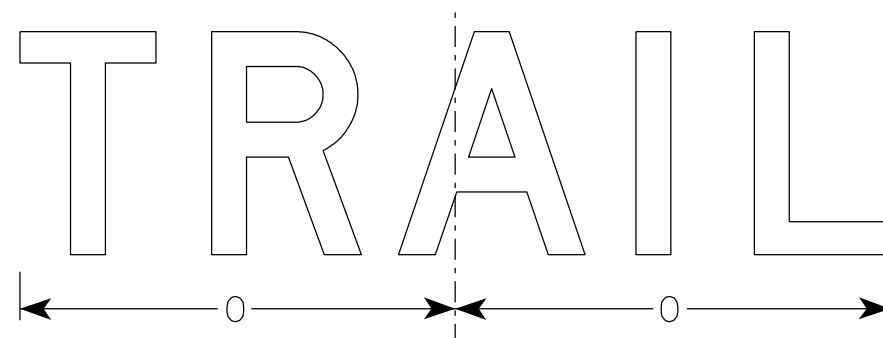
DATE 8/11/16 PLATE NO. R9-9.6



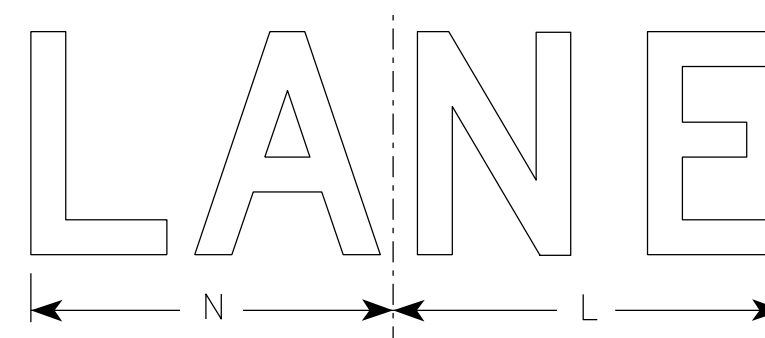
R11-2



R11-2R



R11-2T



R11-2L

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the message as required.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0

STANDARD SIGN
R11-2

WISCONSIN DEPT OF TRANSPORTATION

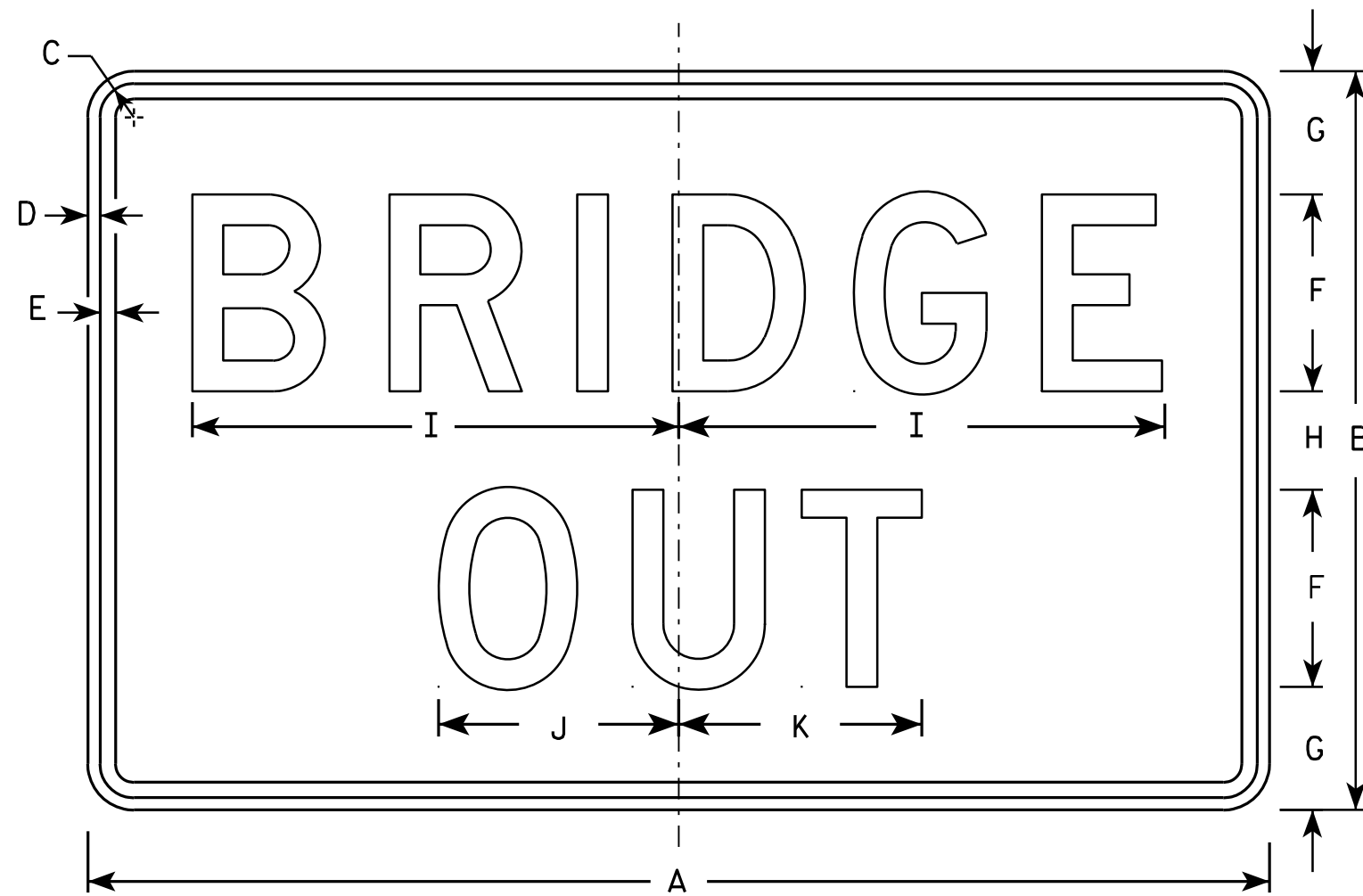
APPROVED *Matthew R Rauch*
For State Traffic Engineer

DATE 3/29/2021 PLATE NO. R11-2.11

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

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



R11-2B

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

STANDARD SIGN
R11-2B

WISCONSIN DEPT OF TRANSPORTATION

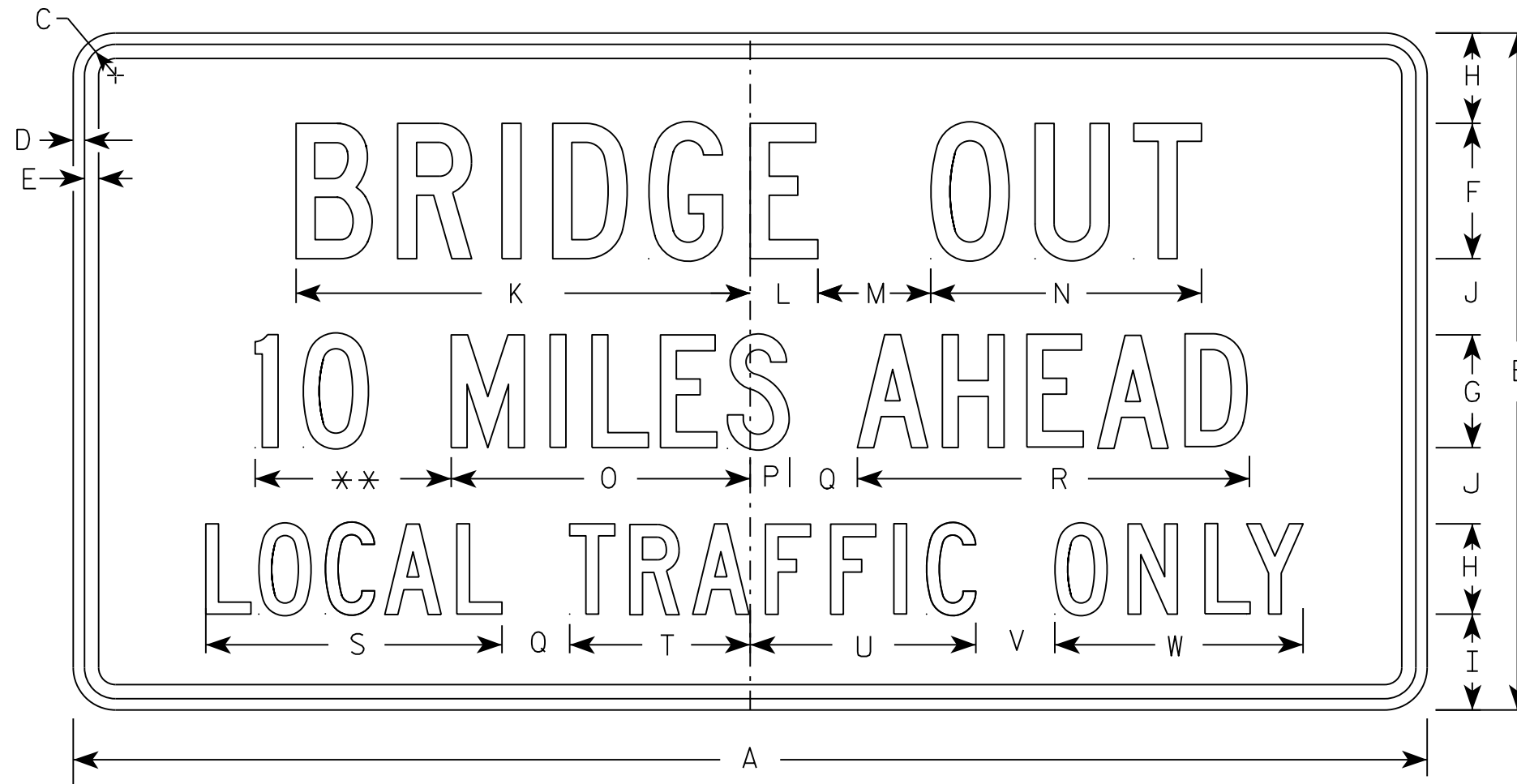
APPROVED *Matthew R. Raub*
For State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2B.2

PROJECT NO: _____ SHEET NO: _____ E

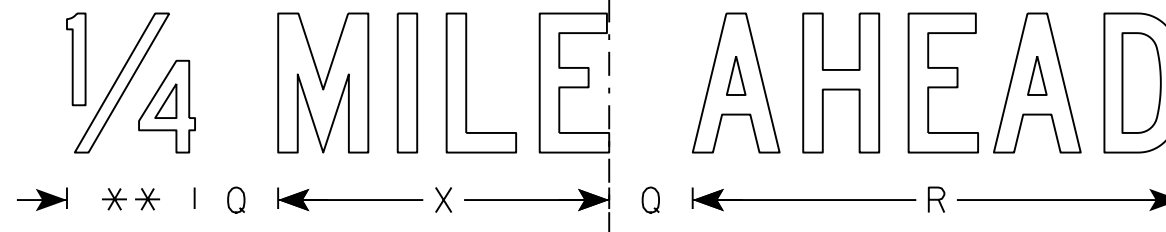
NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



** See Note 5

R11-3B



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 3/8	1/2	5/8	4	3	2 1/2	2	2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4	8 3/8	4 3/4	6 1/2	2	6 3/4	7 1/8		4.5	
2S	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11	11 7/8		12.5	
2M	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11	11 7/8		12.5	
3																											
4																											
5																											

STANDARD SIGN
R11-3B

WISCONSIN DEPT OF TRANSPORTATION

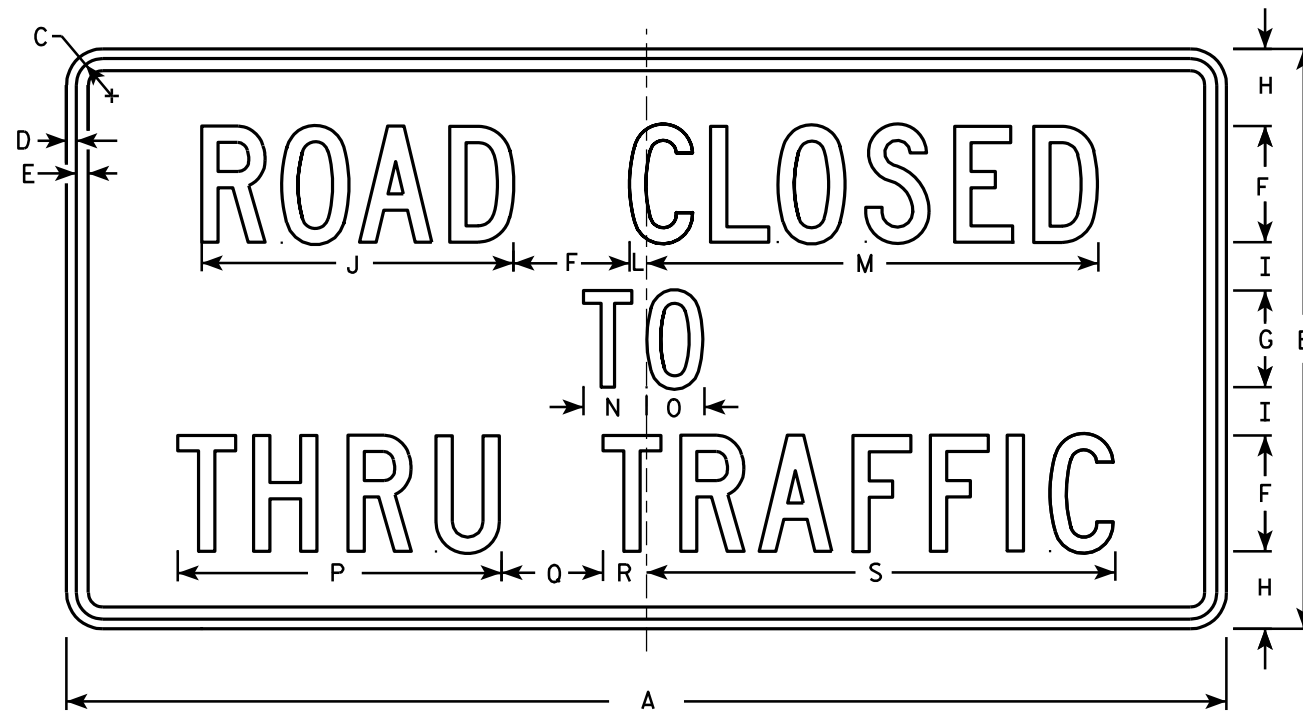
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/21/17 PLATE NO. R11-3B.3

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

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



R11-4

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	60	30	1 3/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
3																											
4																											
5																											

STANDARD SIGN
R11 - 4

WISCONSIN DEPT OF TRANSPORTATION

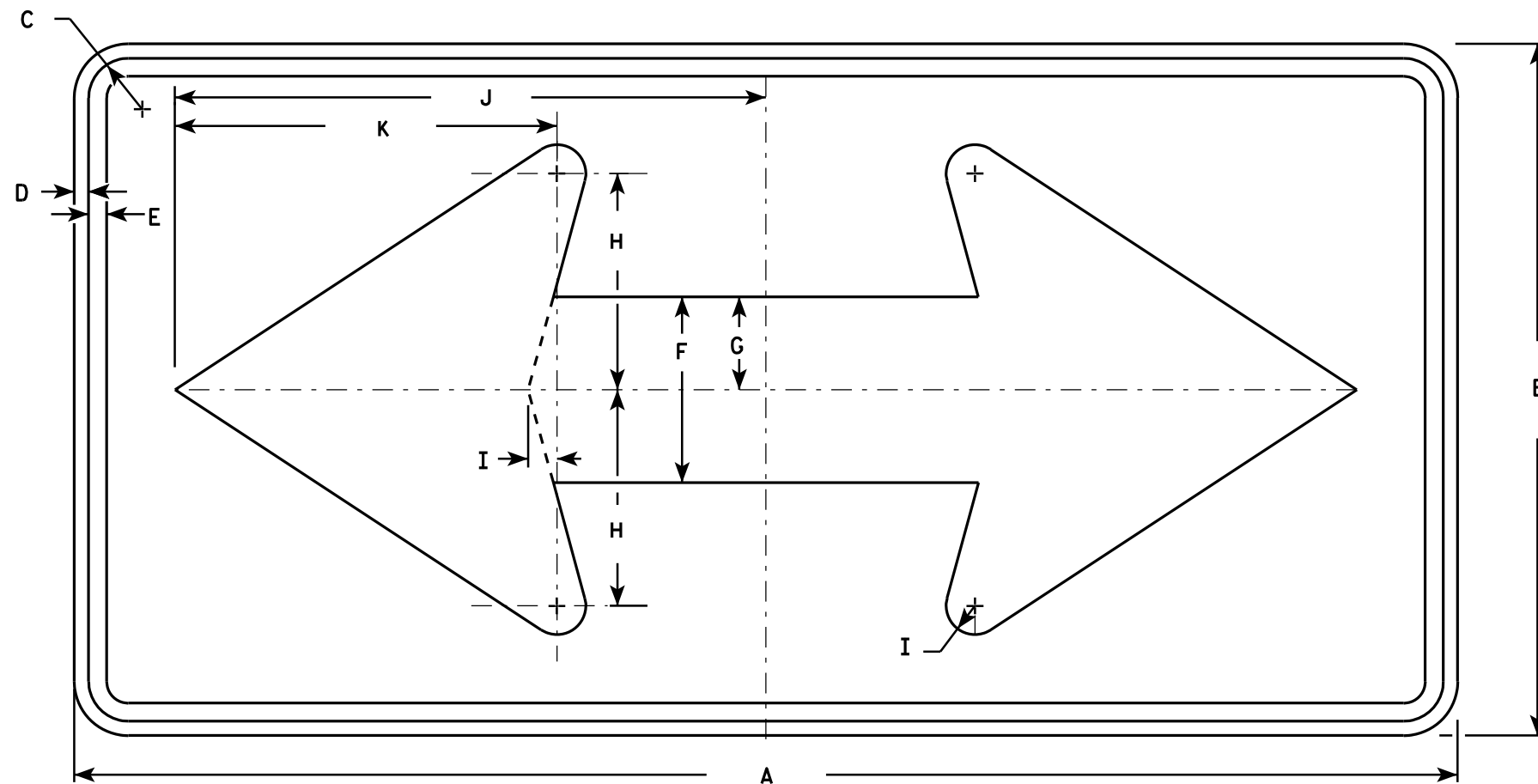
APPROVED *Matthew R. Raush*
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-4.3

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E

NOTES

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



W1-7

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/8	3/8	1/2	5	2 1/2	5 3/4	3/4	15 5/8	10 1/8																4.5
2S	48	24	1 3/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
2M	48	24	1 3/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
3	60	30	1 3/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
4	60	30	1 3/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
5	96	48	2 1/4	3/4	1	13	6 1/2	15	2	41	26 1/2																32.0

STANDARD SIGN
W1-7

WISCONSIN DEPT OF TRANSPORTATION

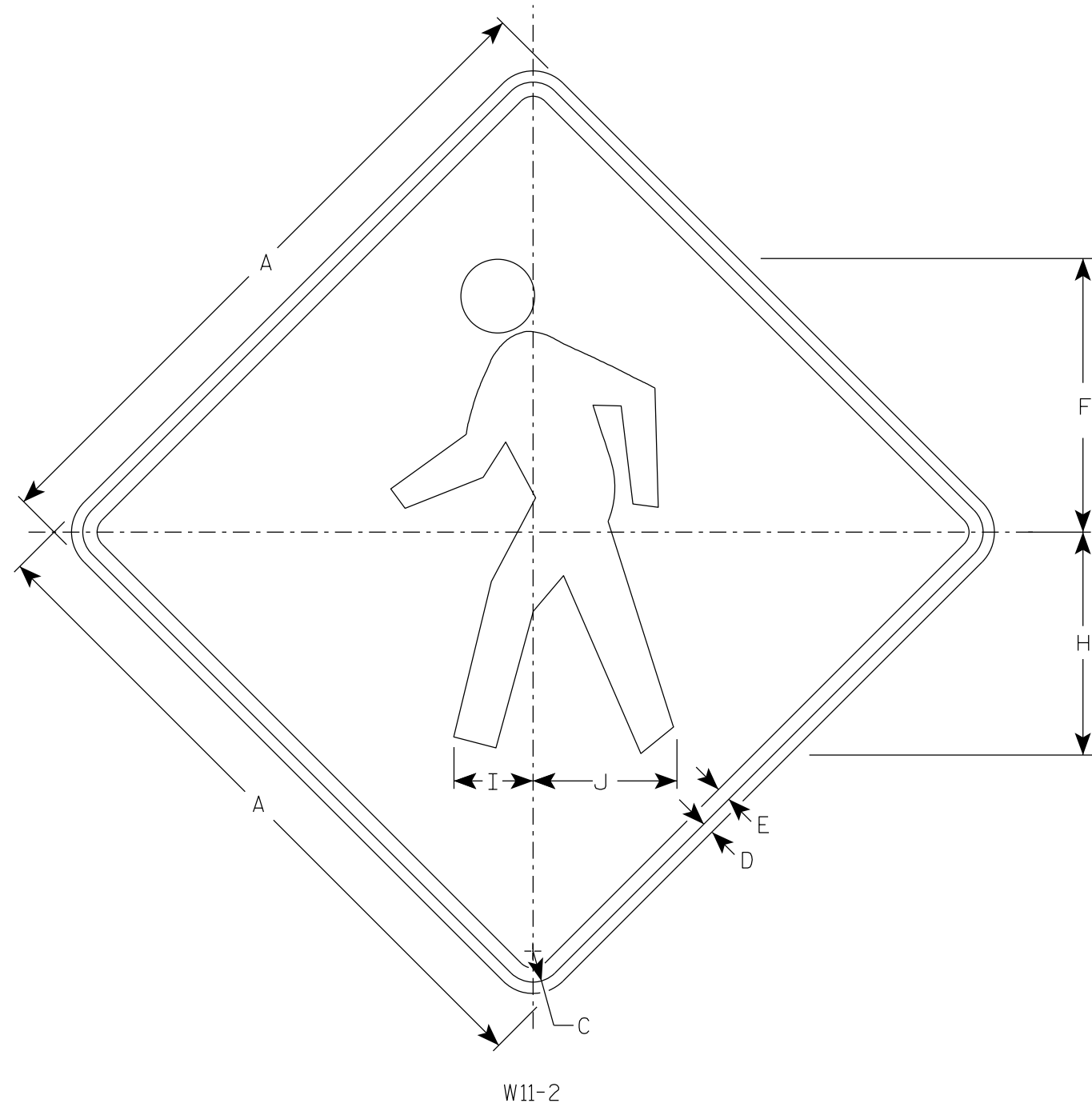
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-7.7

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black



W11-2

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	9 3/4		7 7/8	2 7/8	5 1/8																	4.0
2S	30		1 3/8	1/2	5/8	12 1/8		9 7/8	3 1/2	6 3/8																	6.25
2M	36		1 5/8	5/8	3/4	14 1/2		11 7/8	4 1/4	7 5/8																	9.0
3	36		1 5/8	5/8	3/4	14 1/2		11 7/8	4 1/4	7 5/8																	9.0
4	48		2 1/4	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
5																											

STANDARD SIGN
W11-2

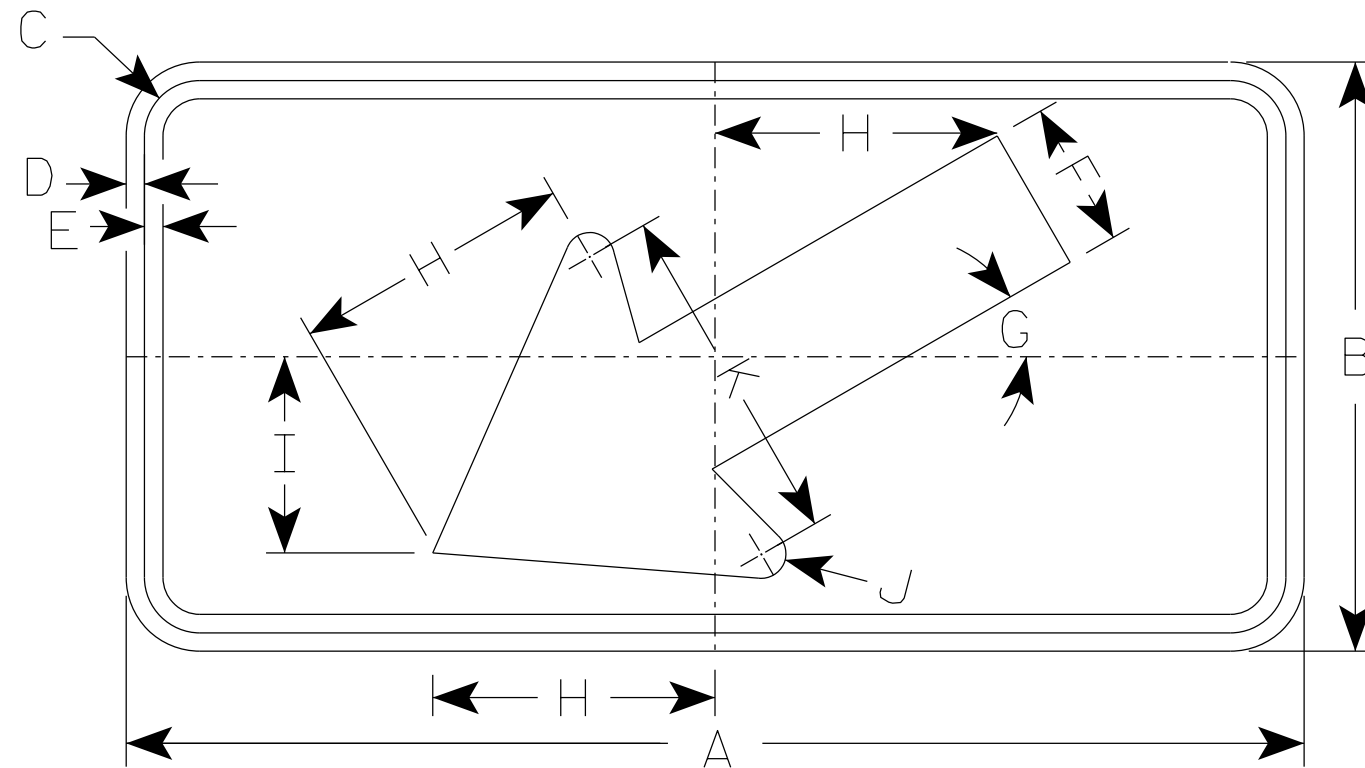
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
for State Traffic Engineer

DATE 4/8/2020 PLATE NO. W11-2.8

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black
3. W16-7R is the same as W16-7L
except the arrow is reversed along
the vertical centerline.



W16-7L

- * For 36" x 36" Warning Signs, use 30" x 18" W16-7L signs.
- * For 48" x 48" Warning Signs, use 48" x 24" W16-7L signs.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 1/8	3/8	3/8	3	30°	5 3/4	4	1/2	7																2.0
* 2M	30	18	1 1/8	3/8	1/2	4 1/2	30°	8 1/2	6	5/8	10 1/4																3.75
* 3	30	18	1 1/8	3/8	1/2	4 1/2	30°	8 1/2	6	5/8	10 1/4																3.75
* 4	48	24	1 3/8	1/2	5/8	6	30°	11 1/2	8	1	14																8.0
5																											

STANDARD SIGN
W16-7

WISCONSIN DEPT OF TRANSPORTATION

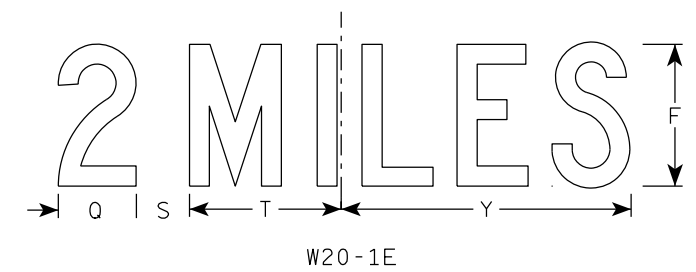
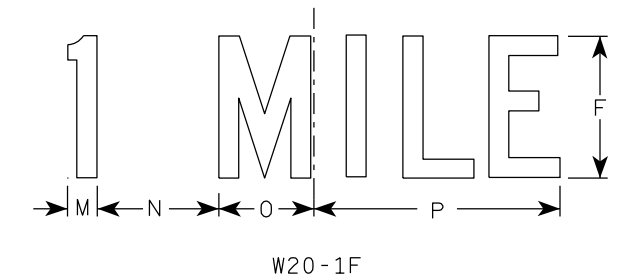
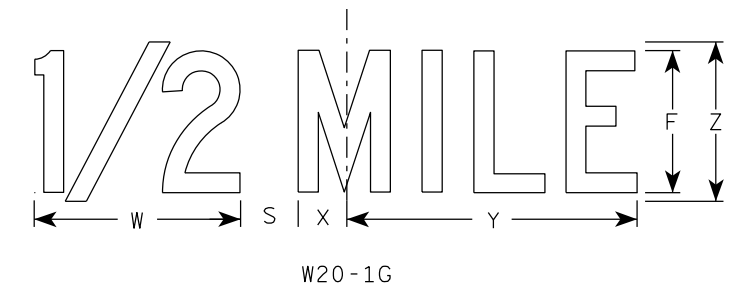
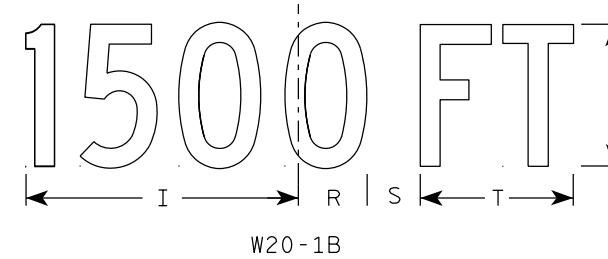
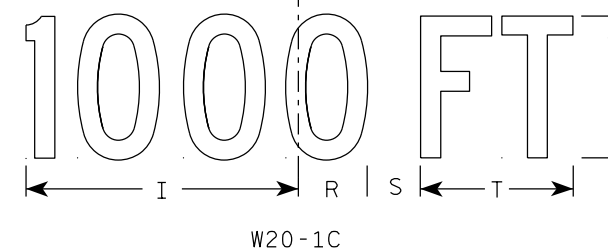
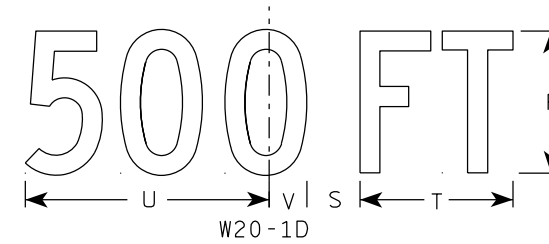
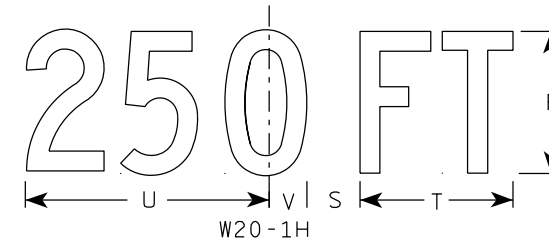
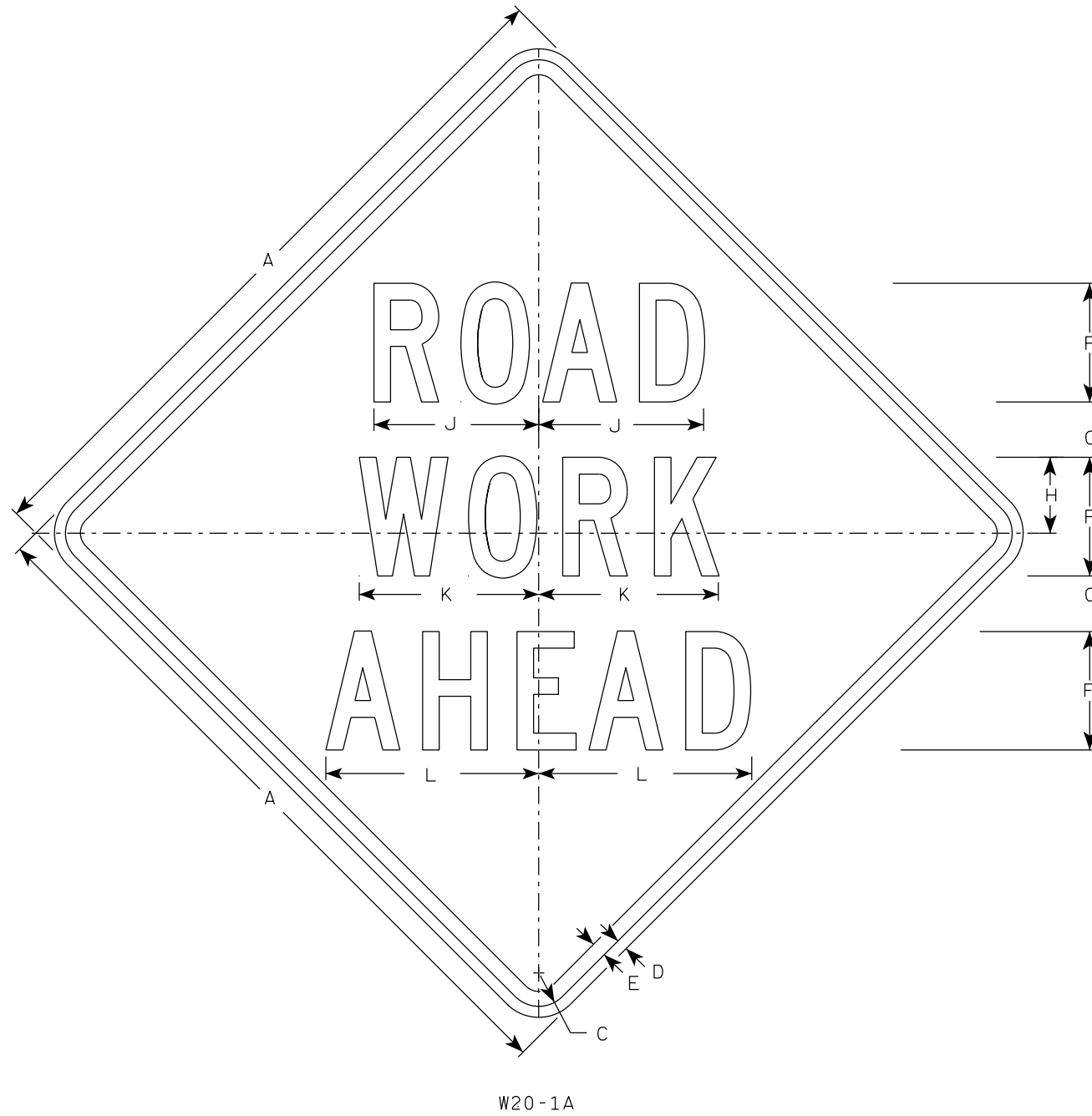
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/16/2021 PLATE NO. W16-7.8

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



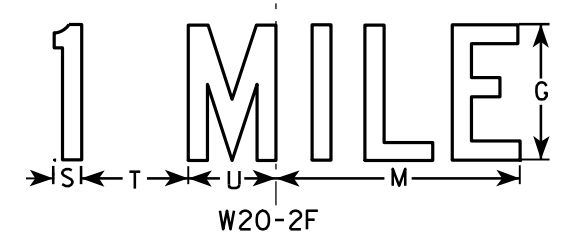
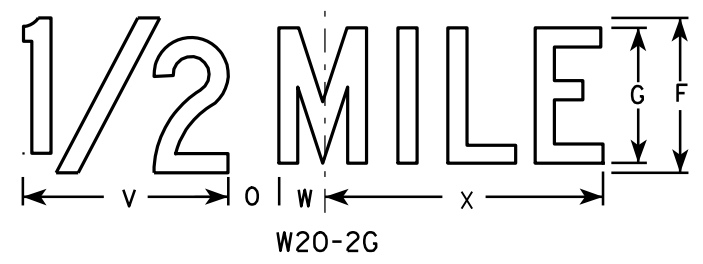
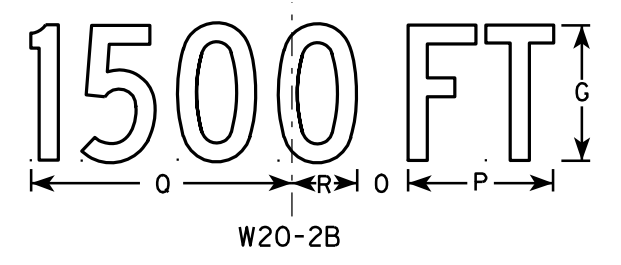
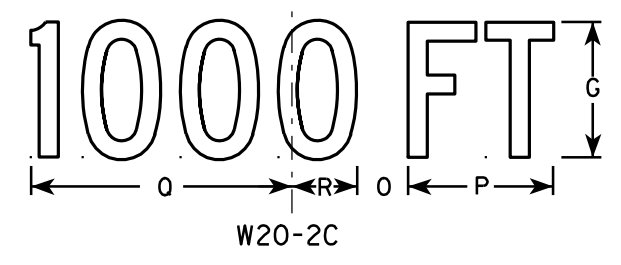
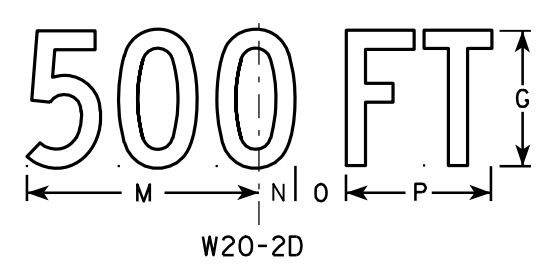
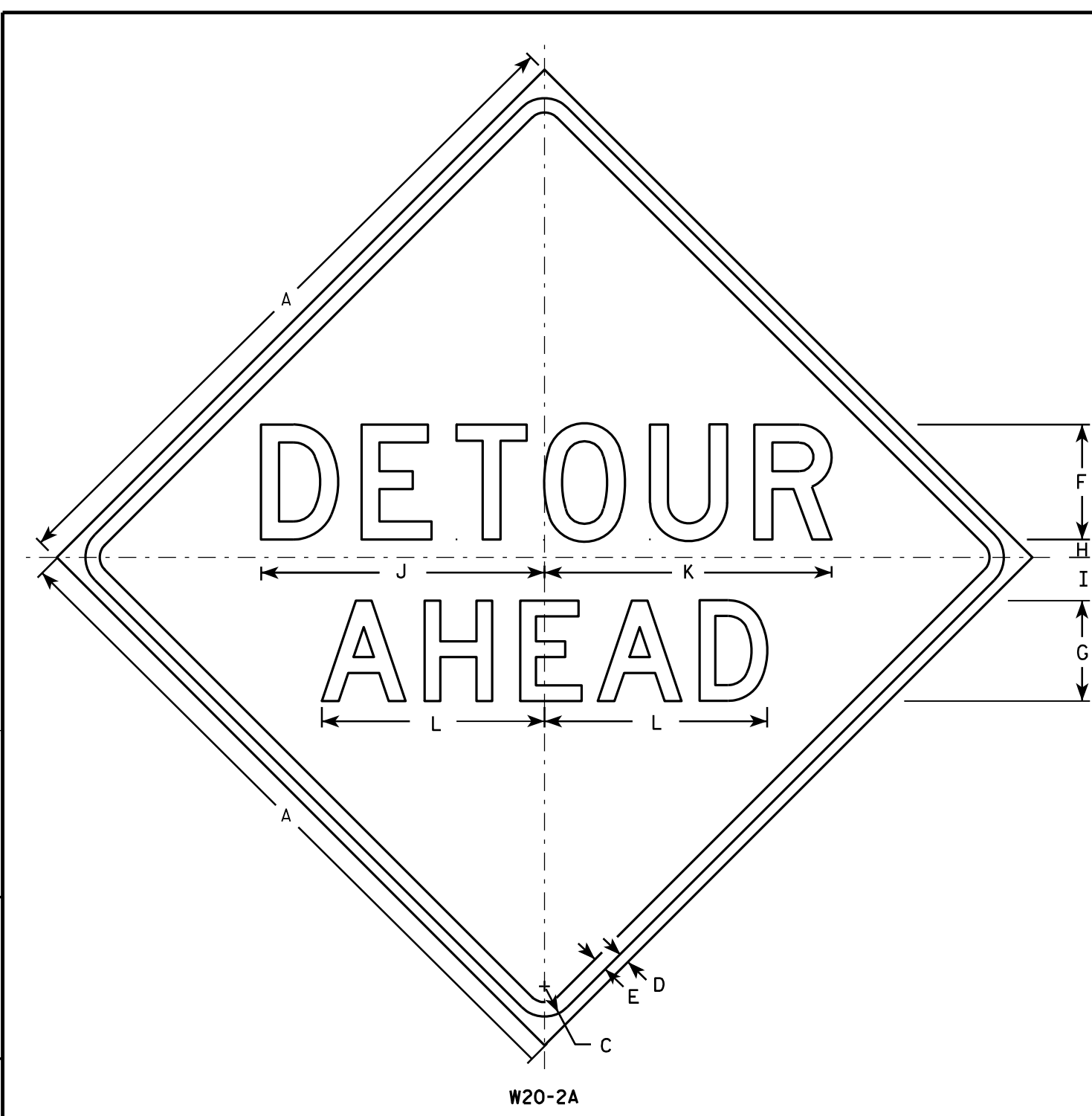
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, E, F, G & H

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/25/2020 PLATE NO. W20-1.11



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

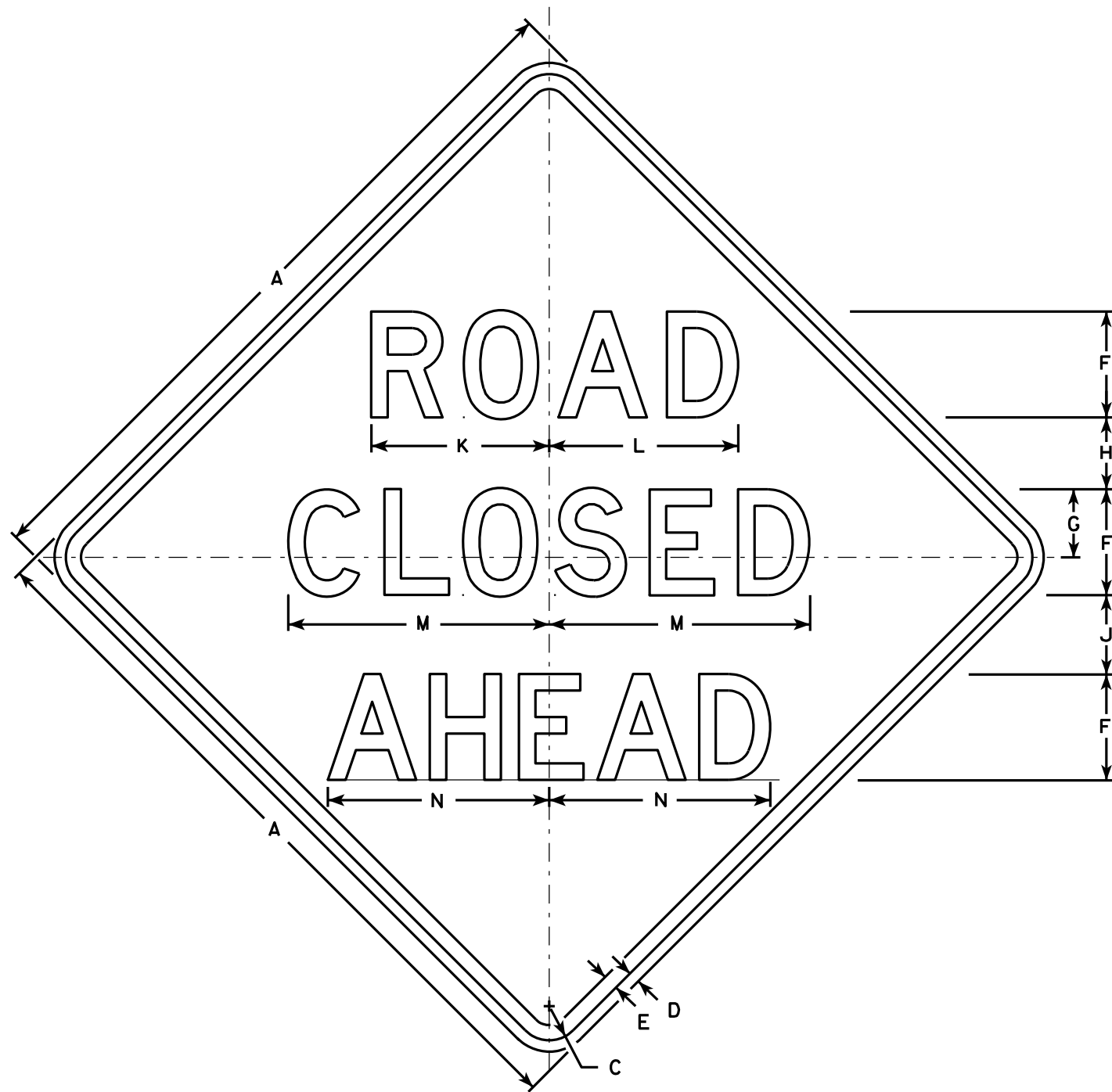
STANDARD SIGN
W20-2A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

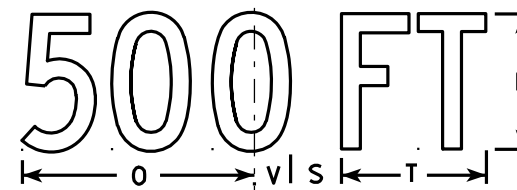
APPROVED *Matthew R. Raub*
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

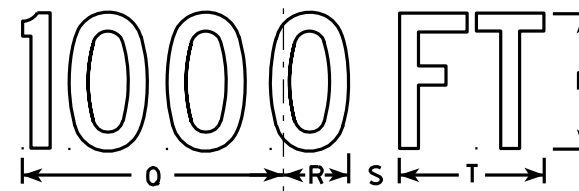
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



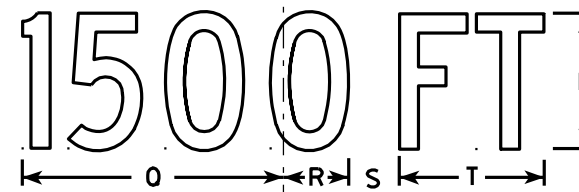
W20-3A



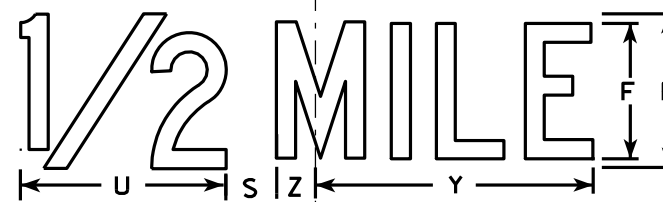
W20-3D



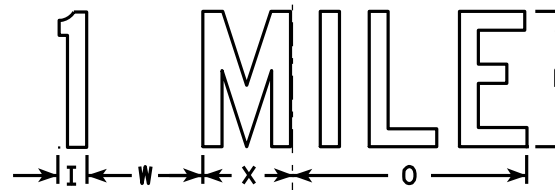
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.
Line 3 is Series D for AHEAD and Series C for all other distances.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-3.7

GENERAL NOTES

- 1) FIXED MESSAGE SIGNS - TYPE II TYPE F REFLECTIVE
- 2) COLOR
BACKGROUND - ORANGE
MESSAGE - BLACK
- 3) MESSAGE SERIES - C



1.125" RADIUS, 0.500" BORDER, 0.375" INDENT

7

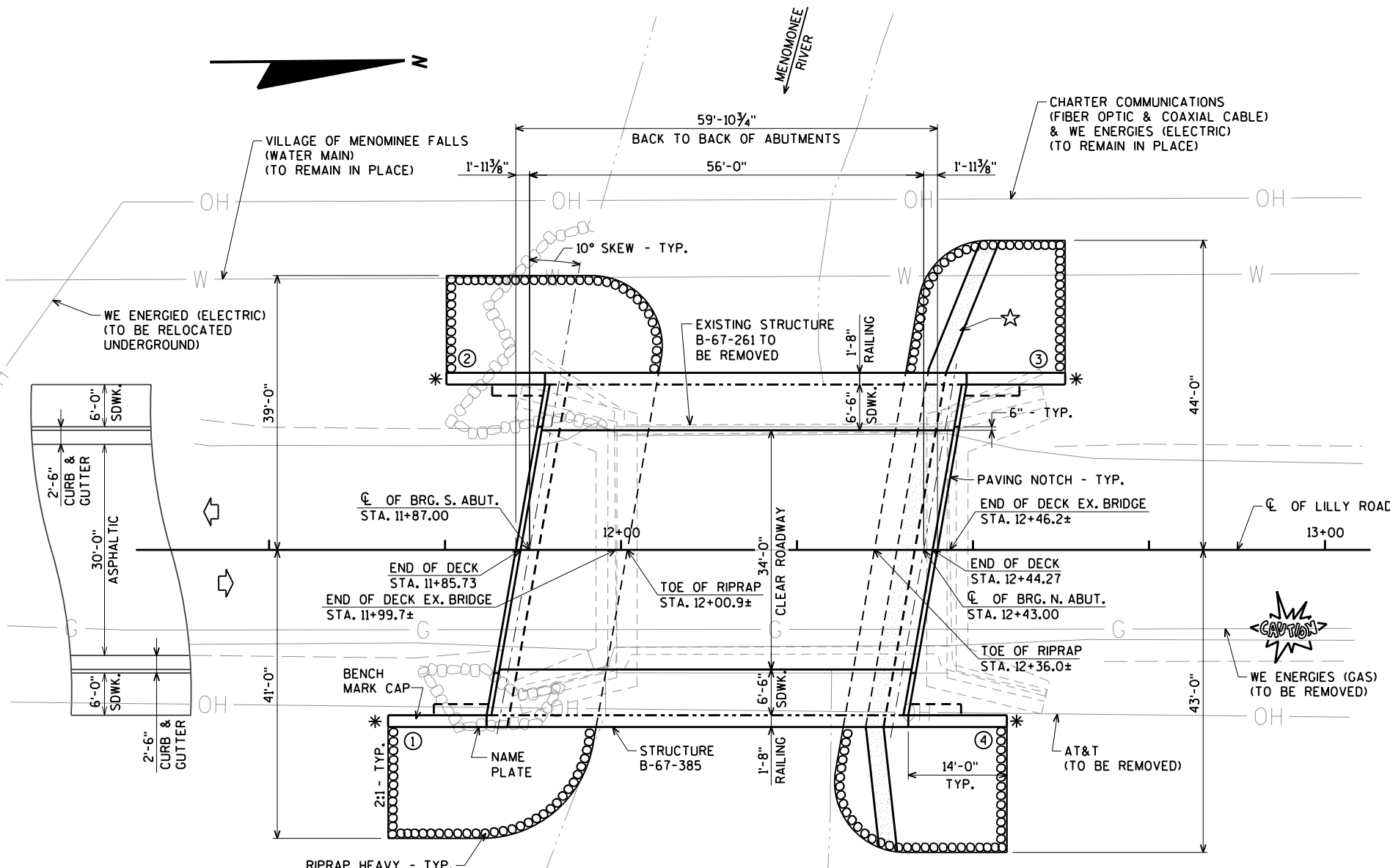
7

DIVISION 1 - LILLY RD

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)	
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.15
						NOTE 1	NOTE 2	NOTE 3	NOTE 1	
10+30	1030.00	0.00	15.56	5.24	0.39	0	0	0	0	0
10+50	1050.00	20.00	46.92	24.43	1.92	23	11	1	23	1
10+80	1080.00	30.00	45.83	24.40	19.93	52	27	12	75	15
11+00	1100.00	20.00	46.17	24.37	48.47	34	18	25	109	44
11+20	1120.00	20.00	60.68	17.26	51.34	40	15	37	149	86
11+50	1150.00	30.00	25.05	4.74	91.19	48	12	79	197	177
BEGIN PROJECT										
11+50	1150.00	0.00	67.69	31.76	91.19	0	0	0	197	177
11+69	1169.00	19.00	67.69	31.76	147.93	48	0	84	245	274
11+77	1177.00	8.00	67.69	32.17	91.89	20	0	36	265	315
11+83	1183.00	6.00	55.66	32.17	0.00	14	7	10	279	327
STRUCTURE B-67-385										
12+50	1250.00	0.00	61.75	32.84	43.51	0	0	0	279	327
12+61	1261.00	11.00	61.75	32.84	204.85	25	0	51	304	385
12+75	1275.00	14.00	51.25	28.83	172.24	29	16	98	333	498
13+00	1300.00	25.00	48.68	28.38	153.46	46	26	151	379	672
13+25	1325.00	25.00	51.20	28.05	119.25	46	26	126	425	817
13+50	1350.00	25.00	51.20	27.90	119.25	47	26	110	472	943
END PROJECT										
13+50	1350.00	0.00	20.47	0.71	48.94	0	0	0	472	943
14+00	1400.00	50.00	16.23	0.75	4.38	34	1	49	506	999
14+10	1410.00	10.00	16.00	0.74	3.29	6	0	1	512	1,001
TOTALS						512	185	870		

NOTES:

- 1 - CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL.
- 2 - THIS DOES NOT SHOW UP IN CROSS SECTIONS.
- 3 - DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME.



DESIGN DATA

LIVE LOAD:
 DESIGN LOADING: HL-93
 INVENTORY RATING FACTOR: 1.29
 OPERATING RATING FACTOR: 1.83
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

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

MATERIAL PROPERTIES:

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

28" PRESTRESSED GIRDER
 CONCRETE MASONRY $f'_c = 8,000$ p.s.i.
 STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF $= 270,000$ p.s.i.

HYDRAULIC DATA:

100 YEAR FREQUENCY
 $Q_{100} = 1,503$ c.f.s.
 $VEL. = 5.69$ f.p.s.
 $HW_{100} = EL. 750.73$

2 YEAR FREQUENCY
 $Q_2 = 480$ c.f.s.
 $VEL. = 3.7$ f.p.s.
 $HW_2 = EL. 747.4$

WATERWAY AREA = 264 sq. ft.
 DRAINAGE AREA = 40.8 sq. mi.
 ROADWAY OVERTOPPING = N/A
 SCOUR CRITICAL CODE = 8
 DATUM = NAVD88 (2012)

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON 10 3/4" DIA. x 0.25" CIP CONCRETE PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS ± PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 65'-0" AT SOUTH ABUTMENT AND 60'-0" AT NORTH ABUTMENT.

* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

TRAFFIC DATA:

A.A.D.T. = 5,500 (2022)
 A.A.D.T. = 8,600 (2042)
 R.D.S. = 35 M.P.H.

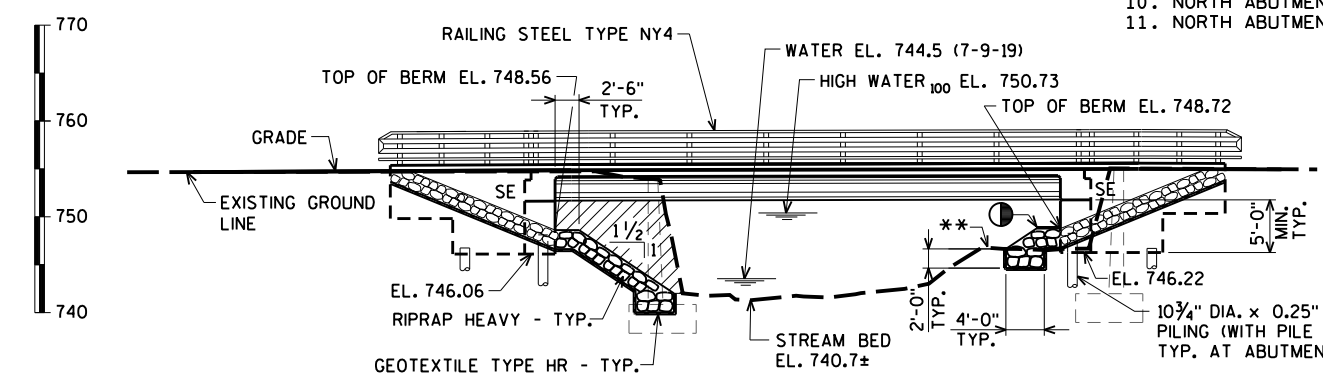
LIST OF DRAWINGS

1. GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES AND NOTES
3. STRUCTURE DETAILS
4. SUBSURFACE EXPLORATION
5. SOUTH ABUTMENT
6. SOUTH ABUTMENT PILE LAYOUT
7. SOUTH ABUTMENT WING 1 DETAILS
8. SOUTH ABUTMENT WING 2 DETAILS
9. SOUTH ABUTMENT DETAILS AND BILL OF BARS
10. NORTH ABUTMENT
11. NORTH ABUTMENT PILE LAYOUT
12. NORTH ABUTMENT WING 3 DETAILS
13. NORTH ABUTMENT WING 4 DETAILS
14. NORTH ABUTMENT DETAILS AND BILL OF BARS
15. STEEL DIAPHRAGM
16. 28" PRESTRESSED GIRDER DETAILS
17. SUPERSTRUCTURE
18. SUPERSTRUCTURE PLAN
19. SUPERSTRUCTURE DETAILS
20. RAILING STEEL TYPE NY4
21. END POST DETAILS FOR RAILING STEEL TYPE NY4

FOR TYPICAL SECTION, AND GENERAL NOTES SEE SHEET 2

PLAN
 SINGLE SPAN 28" PRESTRESSED CONCRETE GIRDER BRIDGE

- * ATTACHMENT FOR THRIE BEAM TYPE GUARDRAIL.
- DENOTES WING NUMBER.
- TRAVEL CORRIDOR. SEE DETAIL ON SHEET 3.



ELEVATION
 (NORMAL TO CL OF RIVER)

REMOVE EXISTING SUBSTRUCTURE FOOTINGS AS NEEDED. ANY VOIDED SPACE IN STREAM BED TO BE REPLACED WITH RIPRAP HEAVY. COST CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE" ITEM. TYPICAL AT ALL SUBSTRUCTURES.

**MINIMIZE IMPACTS TO FLOOD PLAIN MUD FLAT.



11/01/2021

BRIDGE OFFICE CONTACT:
 AARON BONK
 (608)-261-0261

CONSULTANT CONTACT:
 ARLEN BEAUDETTE
 (715)-834-3161

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
AVRES 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	<i>[Signature]</i>	SDR	11/15/21
CHIEF STRUCTURES DESIGN ENGINEER			DATE
STRUCTURE B-67-385			
LILLY ROAD OVER THE MEMONONEE RIVER			
COUNTY	WAUKESHA	TOWN/CITY/VILLAGE	MEMONONEE FALLS
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	JLB	DESIGN CK'D.	ZSS
DRAWN BY	CJM/CLP	PLANS CK'D.	AEB
GENERAL PLAN			SHEET 1 OF 21

11/1/2021
 PENTABLE:Breau_shd_util.tbl

DATE: _____
 CHECKED BY: _____
 BACK CHECKED BY: _____
 CORRECTED BY: _____

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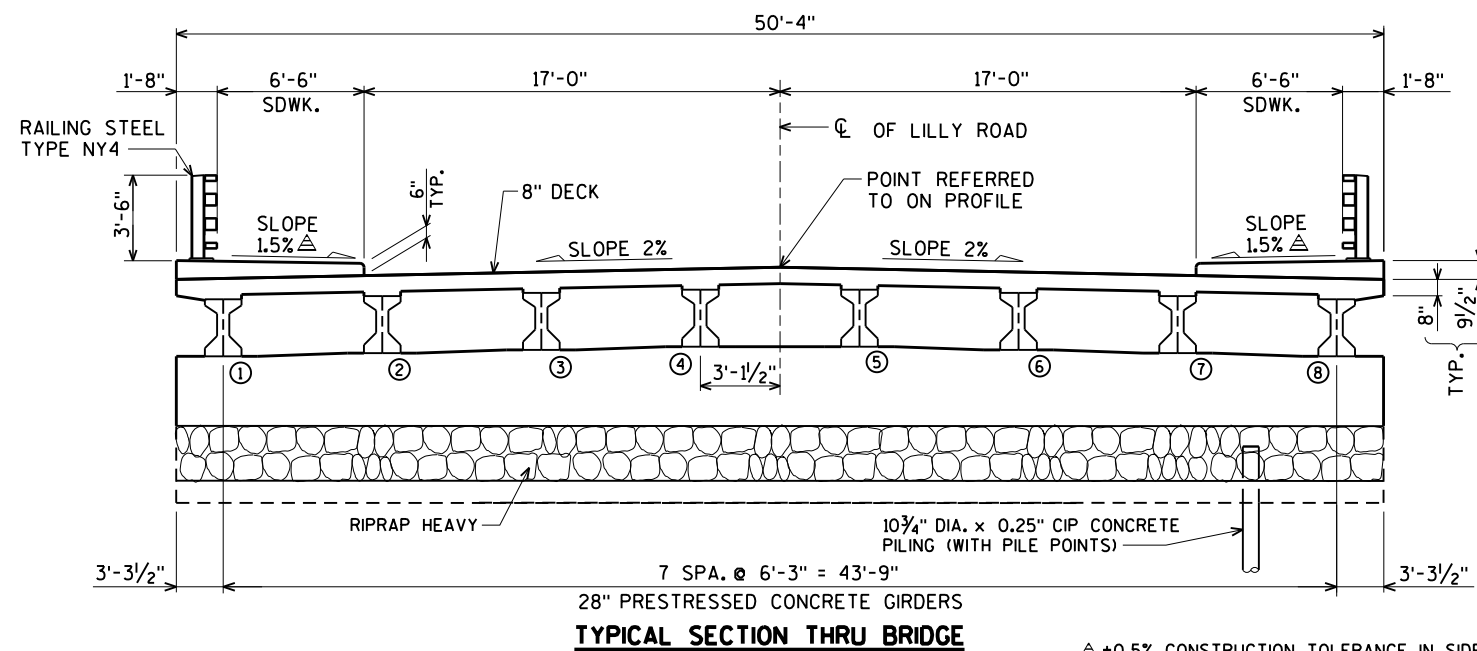
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TOTAL ESTIMATED QUANTITIES

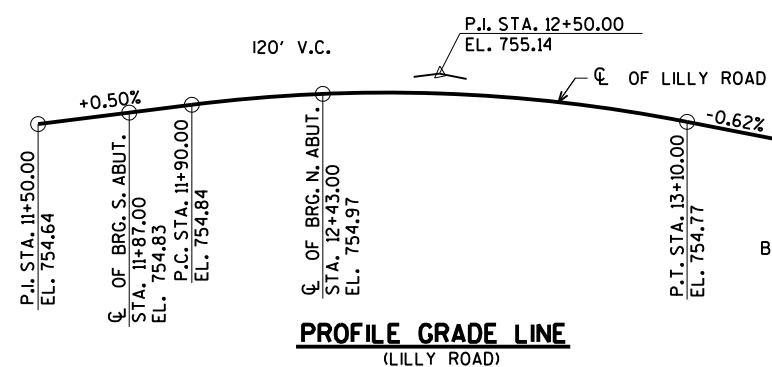
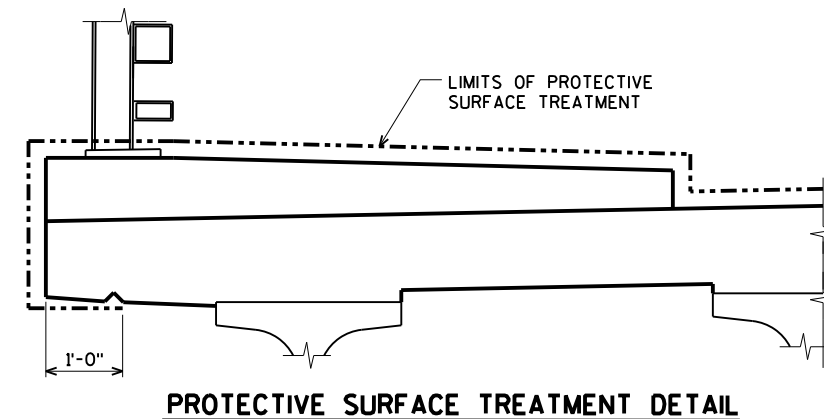
BID ITEM NUMBER	BID ITEMS	UNIT	S. ABUT.	N. ABUT.	SUPER.	TOTAL
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-67-261	EACH	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-67-385	LS	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	240	240	-----	480
502.0100	CONCRETE MASONRY BRIDGES	CY	48.1	48.0	132.7	229
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	365	365
503.0128	PRESTRESSED GIRDER TYPE I 28-INCH	LF	-----	-----	456	456
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,920	2,920	-----	5,840
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2,010	2,010	22,470	26,490
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	8	8	-----	16
506.4000	STEEL DIAPHRAGMS B-67-385	EACH	-----	-----	7	7
513.7084	RAILING STEEL TYPE NY4	LF	30.8	30.8	119.8	181.4
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	13	13	-----	26
550.0500	PILE POINTS	EACH	11	11	-----	22
550.2104	PILING CIP CONCRETE 10 3/4" X 0.25-INCH	LF	715	660	-----	1,375
606.0300	RIPRAP HEAVY	CY	130	110	-----	240
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	90	90	-----	180
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	80	80	-----	160
645.0120	GEOTEXTILE TYPE HR	SY	230	205	-----	435
SPV.0195.01	SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR	TON	-----	4	-----	4
NON-BID ITEMS						
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
 BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.
 THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE. JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.
 THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.
 ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.
 THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-67-385" SHALL BE THE EXISTING GROUNDLINE.
 THE EXISTING STRUCTURE, B-67-261, TO BE REMOVED, IS A SINGLE SPAN CONCRETE DECK GIRDER BRIDGE, 48.0 FOOT LONG WITH A 30.0 FOOT CLEAR ROADWAY WIDTH.
 AT THE BACK FACE OF ABUTMENT, ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.
 EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.
 THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEET, WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.
 PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE TOP OF DECK, FACE OF CURB, TOP OF SIDEWALK, AND AS SHOWN IN DETAIL ON THIS SHEET.
 BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS NOTED OTHERWISE.
 THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATIONS FOR STRUCTURES.
 EXISTING SUBSTRUCTURE LOCATIONS ARE BASED ON SURVEY AND ASBUILTS. REMOVE EXISTING SUBSTRUCTURES AS NEEDED TO BUILD NEW SUBSTRUCTURES. COST OF REMOVAL IS CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE" BID ITEM.
 AT ABUTMENTS, CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.



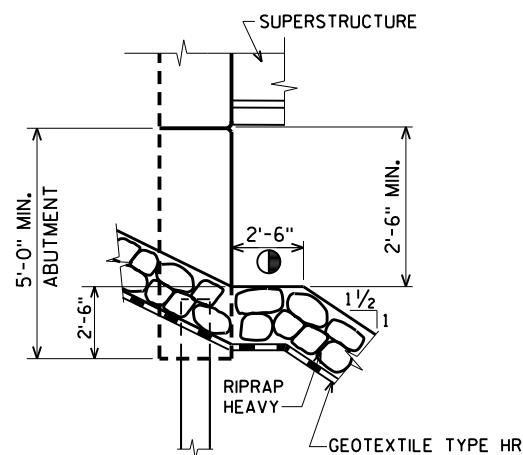
±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



BENCH MARK:
 SPIKE IN SE SIDE POWER POLE
 STA. 11+29, 50' LT.
 EL. 755.88

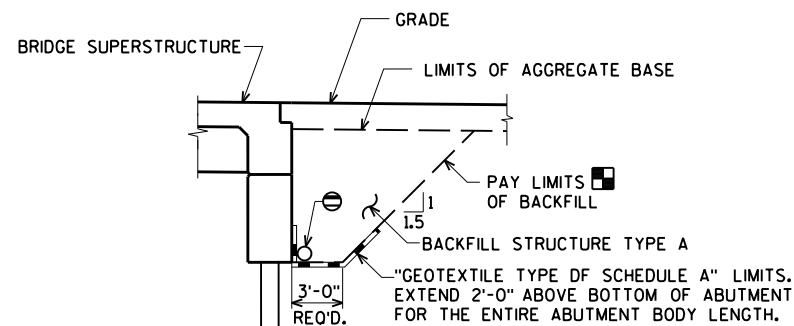
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY: CLP		PLANS CK'D: JCK	
TYPICAL SECTION, QUANTITIES AND NOTES			SHEET 2 OF 21

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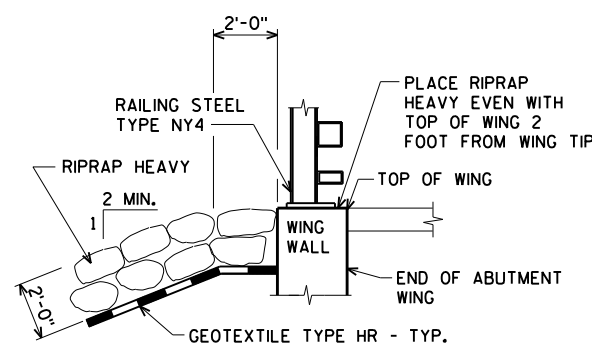
TRAVEL CORRIDOR DETAIL

● FILL VOIDS WITH SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR AFTER RIPRAP IS PLACED.

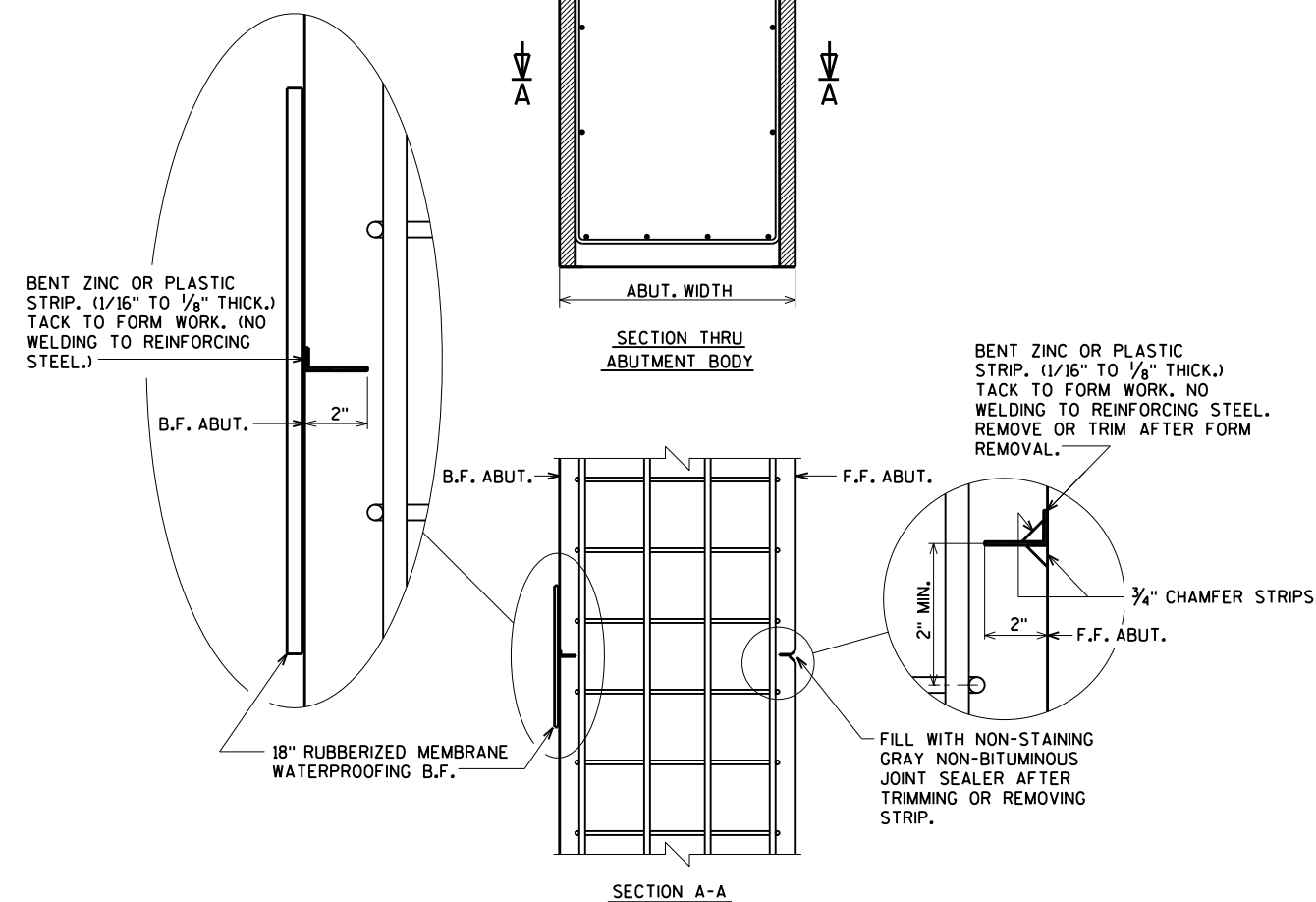


BACKFILL STRUCTURE LIMITS

- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- ⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 9.



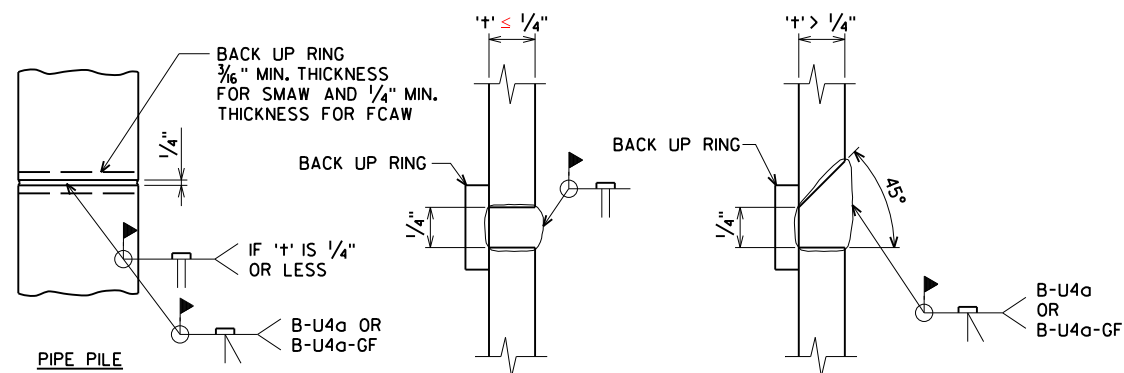
TYPICAL FILL SECTION AT WING TIPS



ALTERNATE CONSTRUCTION JOINT AT ABUTMENT

NOTES

- PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.
- VERTICAL CONSTRUCTION JOINT KEYWAY IS NOT REQUIRED WHEN USING ALTERNATE CONSTRUCTION JOINT.
- CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.
- USE A JOINT TOOL TO CONSTRUCT A CONTRACTION JOINT APPROXIMATELY 1/2" DEEP.



PILE SPLICE DETAIL

CAST-IN-PLACE PILE SHELL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

CIP PILE WELD DETAIL

11/1/2021 PENTABLE:BRoad-shd_util.tbl

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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY CLP		PLANS CK'D. JCK	
STRUCTURE DETAILS			SHEET 3 OF 21

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	2/10/2020	431503.885	2511391.540
2	2/7/2020	431440.373	2511391.576

BORINGS COMPLETED BY: ECS MIDWEST, LLC
 REPORT COMPLETED BY: ECS MIDWEST, LLC
 ALL COORDINATES REFERENCED TO WCCS WAUKASHA COUNTY

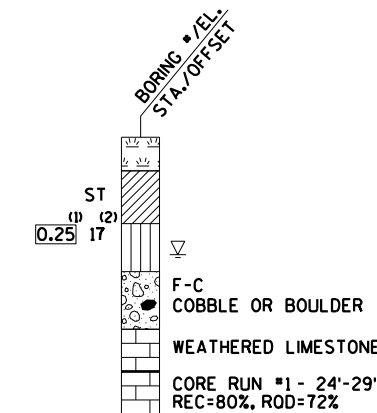
STATE PROJECT NUMBER

2720-09-70

MATERIAL SYMBOLS

	ASPHALT		TOPSOIL		PEAT
	CONCRETE		FILL		GRAVEL
	SAND		CLAY		SILT
	BOULDERS OR COBBLES		LIMESTONE		BEDROCK (UNKNOWN)
	SHALE		SANDSTONE		IGNEOUS/META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

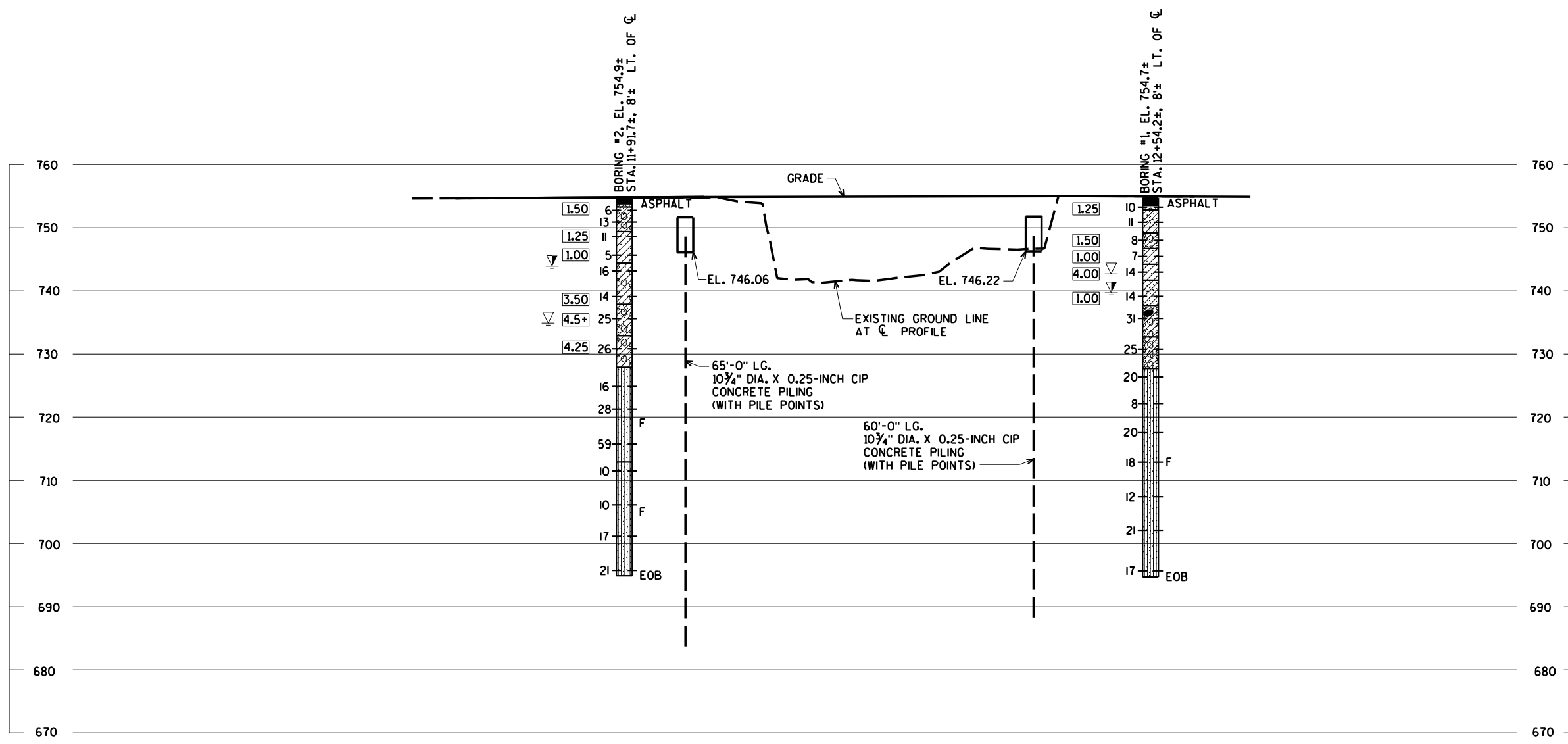
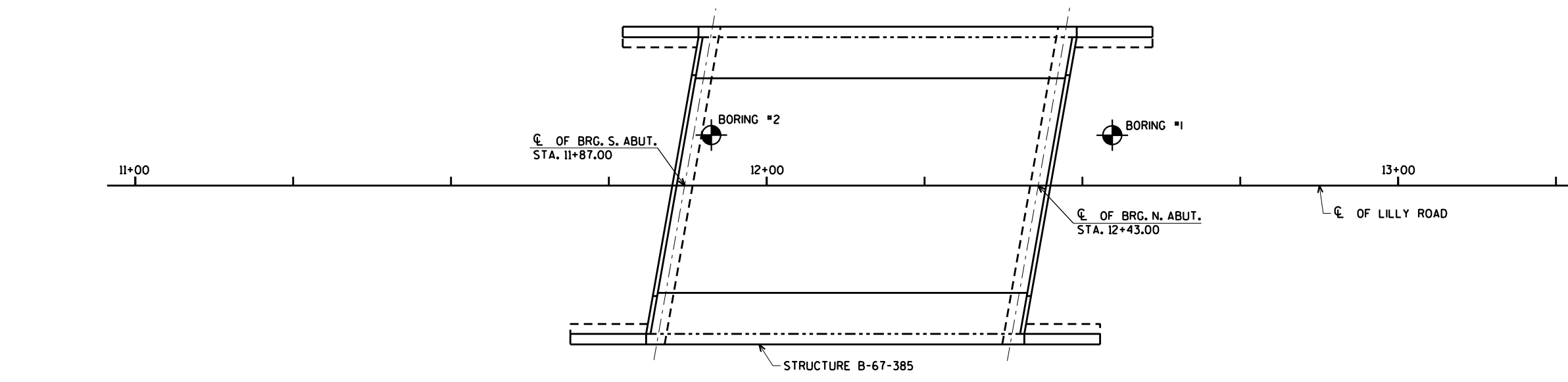
- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.



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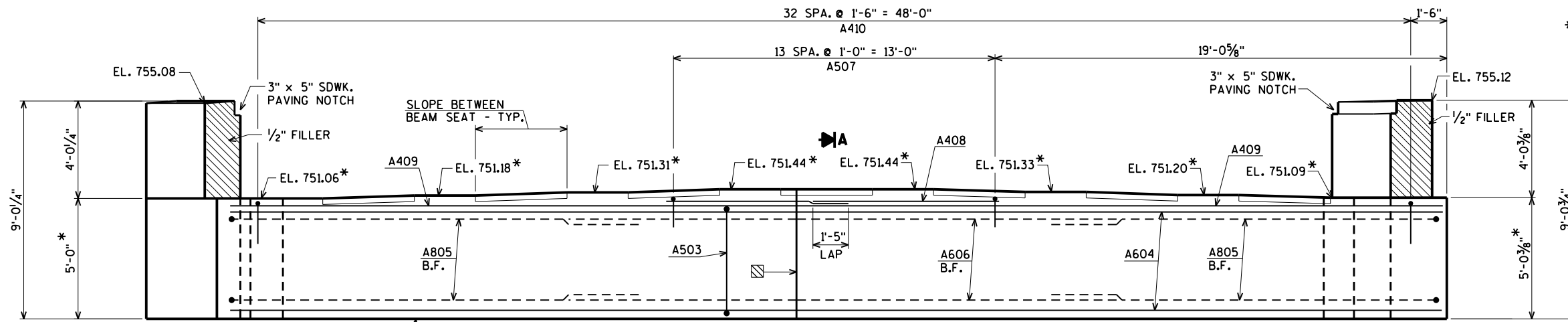
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY		CJM	PLANS CKD. JCK
SUBSURFACE EXPLORATION			SHEET 4 OF 21

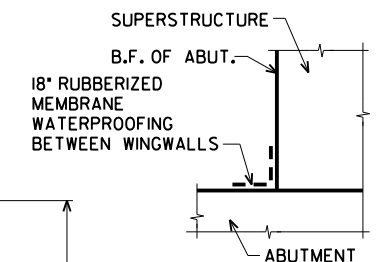
NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)

* ELEVATIONS AND DIMENSIONS TAKEN AT CL OF BRG. & PILES S. ABUT.

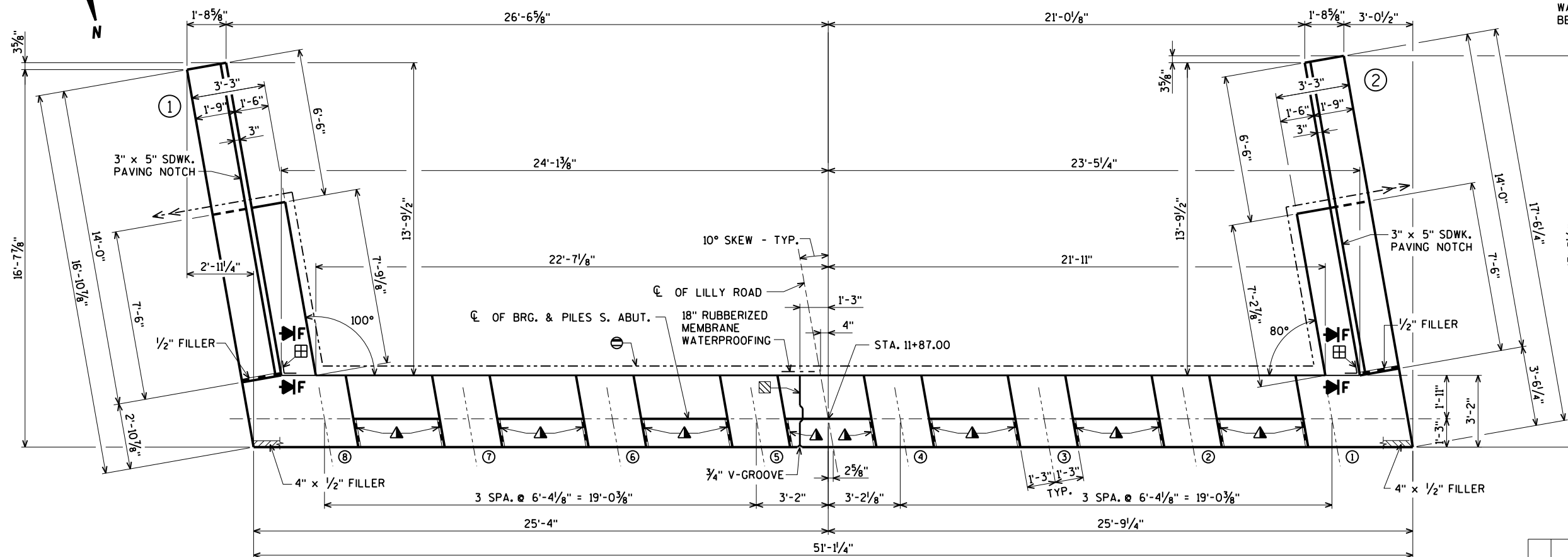


ELEVATION
(LOOKING SOUTH)

FOR SECTION A SEE SHEET 9.



SECTION F



PLAN

⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 9. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

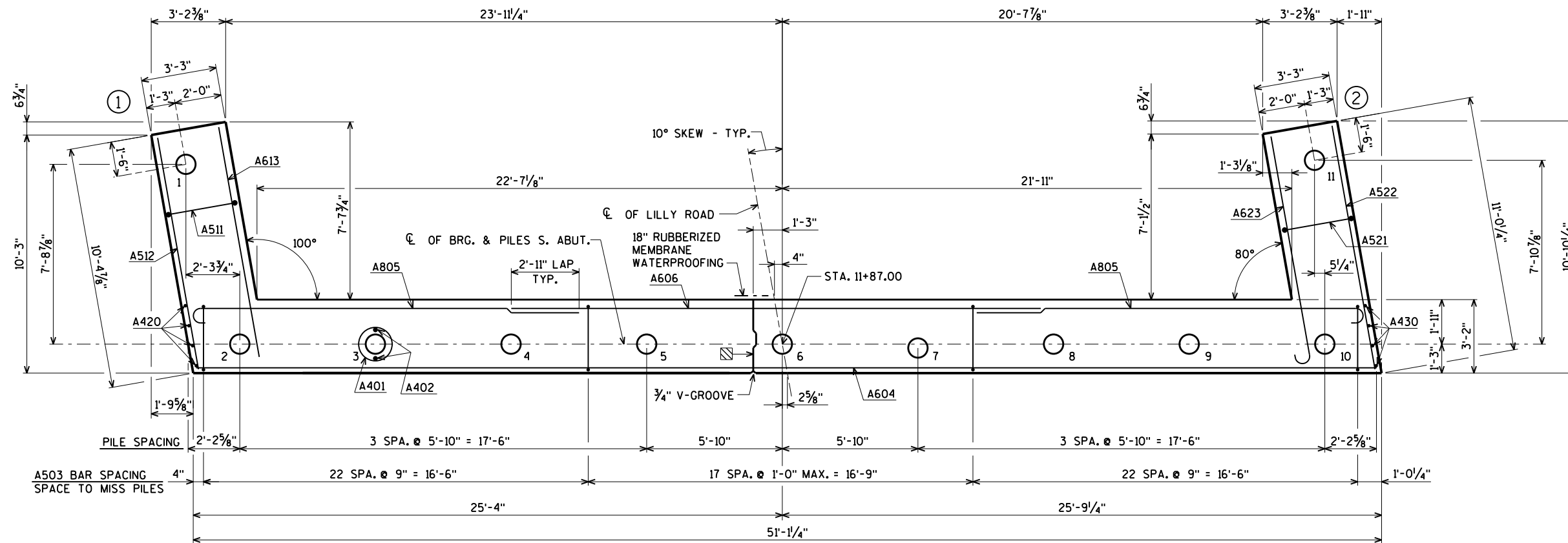
⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING FROM BRIDGE SEAT TO TOP OF WING.

▲ 3/4" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

▨ VERT. CONST. JT. - KEYWAY FORMED BY A BEVELED 2" x 8". BEVEL EXPOSED EDGES 3/4". FOR ALTERNATE CONST. JT. DETAILS SEE SHEET 3. SEAL JOINT AT BACK FACE WITH 18" RUBBERIZED MEMBRANE WATERPROOFING.

ORIGINAL PLANS PREPARED BY
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STRUCTURE B-67-385			
DRAWN BY		CLP	PLANS CK'D. JCK
SOUTH ABUTMENT			SHEET 5 OF 21



PILE LAYOUT

VERT. CONST. JT. - KEYWAY FORMED BY A BEVELED 2" x 8", BEVEL EXPOSED EDGES 3/4". FOR ALTERNATE CONST. JT. DETAILS SEE SHEET 3. SEAL JOINT AT BACK FACE WITH 18" RUBBERIZED MEMBRANE WATERPROOFING.

FOR PILE SPLICE DETAIL SEE SHEET 3.

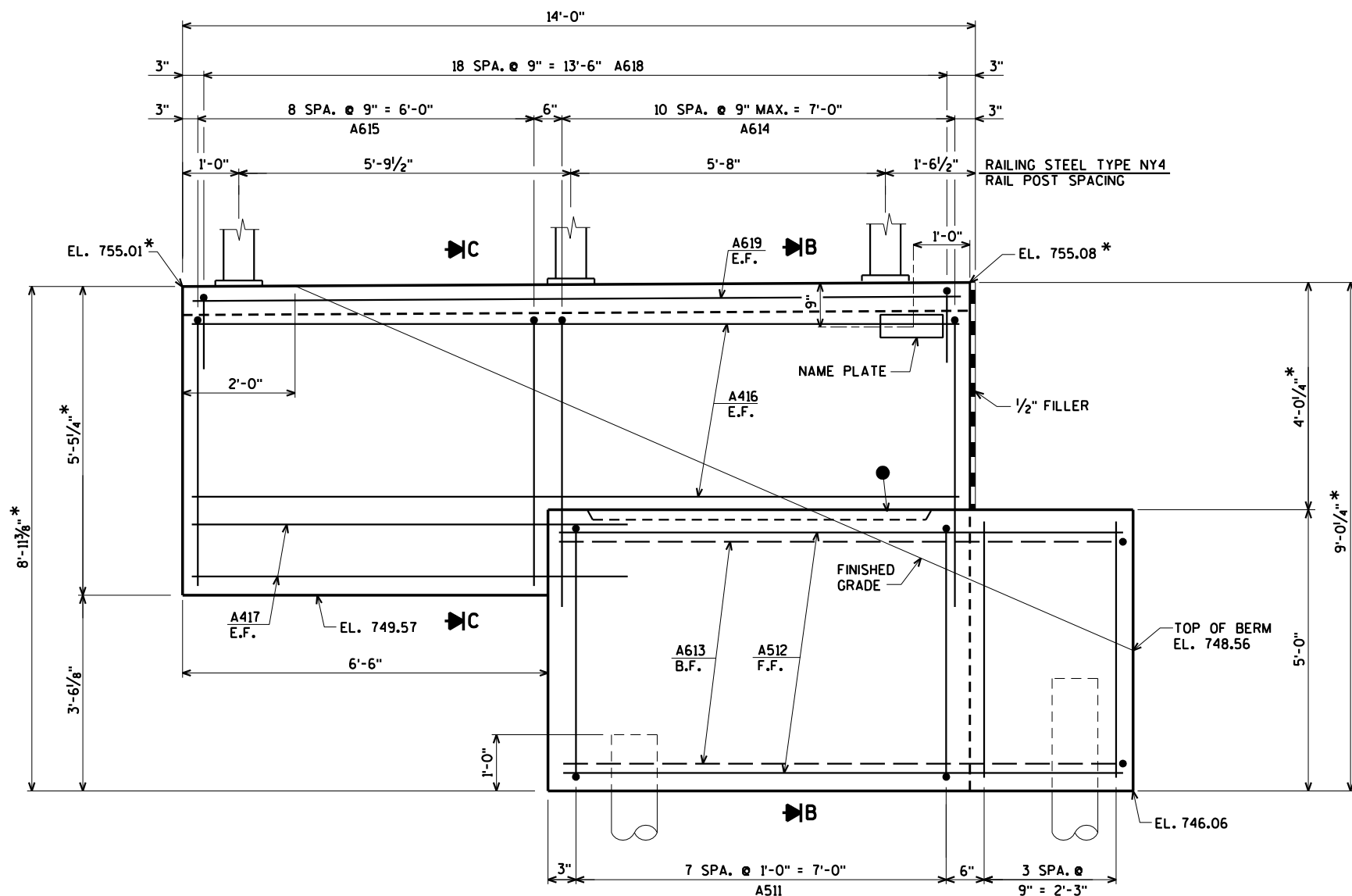
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY		CLP	PLANS CK'D. JCK
SOUTH ABUTMENT PILE LAYOUT			SHEET 6 OF 21

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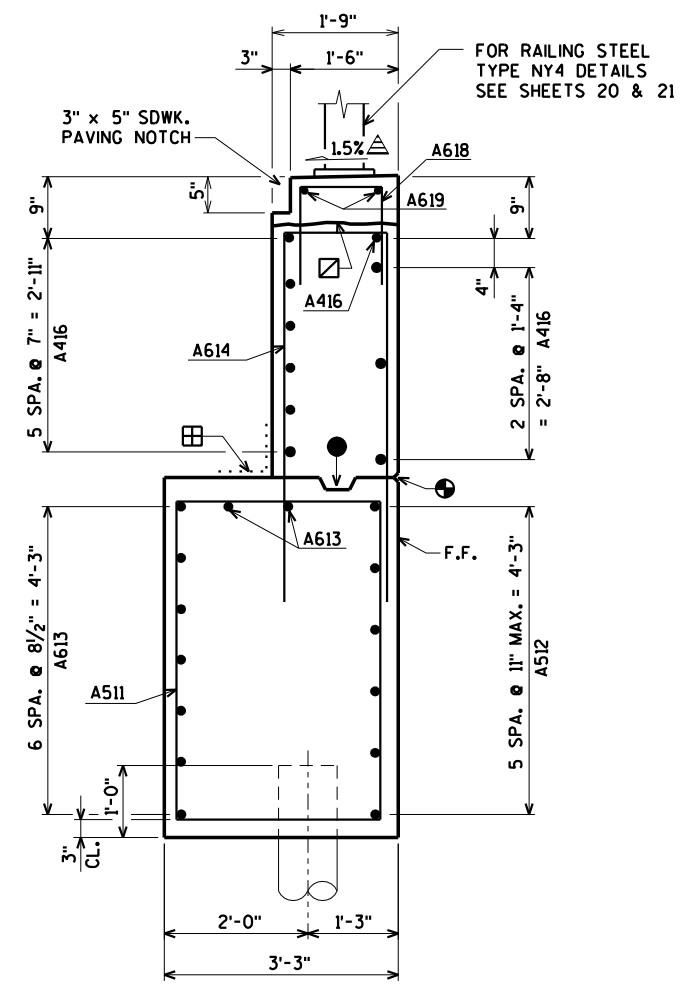
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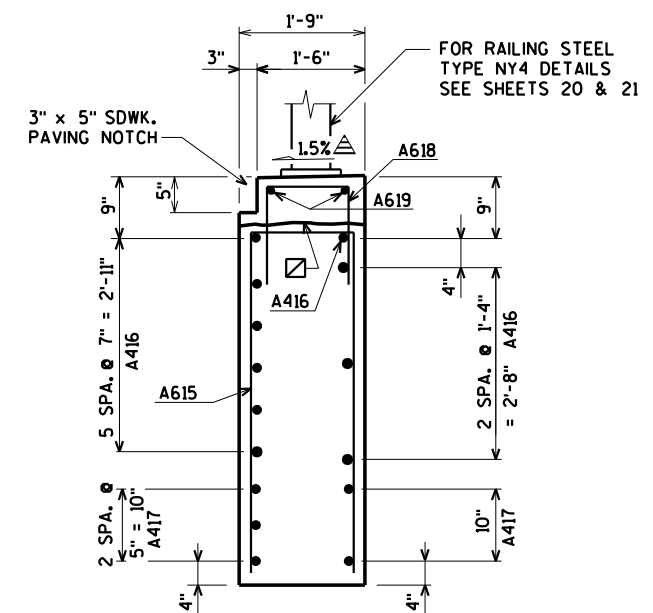
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ELEVATION - WING 1



SECTION B



SECTION C

- △ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
 - ☑ CONSTRUCTION JOINT. LEAVE ROUGH, POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE. UTILIZE RUBBERIZED MEMBRANE WATERPROOFING (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES").
 - ⊕ 3/4" V GROOVE ON FRONT FACE OF WINGWALL.
 - OPTIONAL CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.
 - ⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- * ELEVATIONS AND DIMENSIONS SHOWN ARE AT FRONT FACE OF WINGWALL.

FOR PILE SPLICE DETAIL SEE SHEET 3.

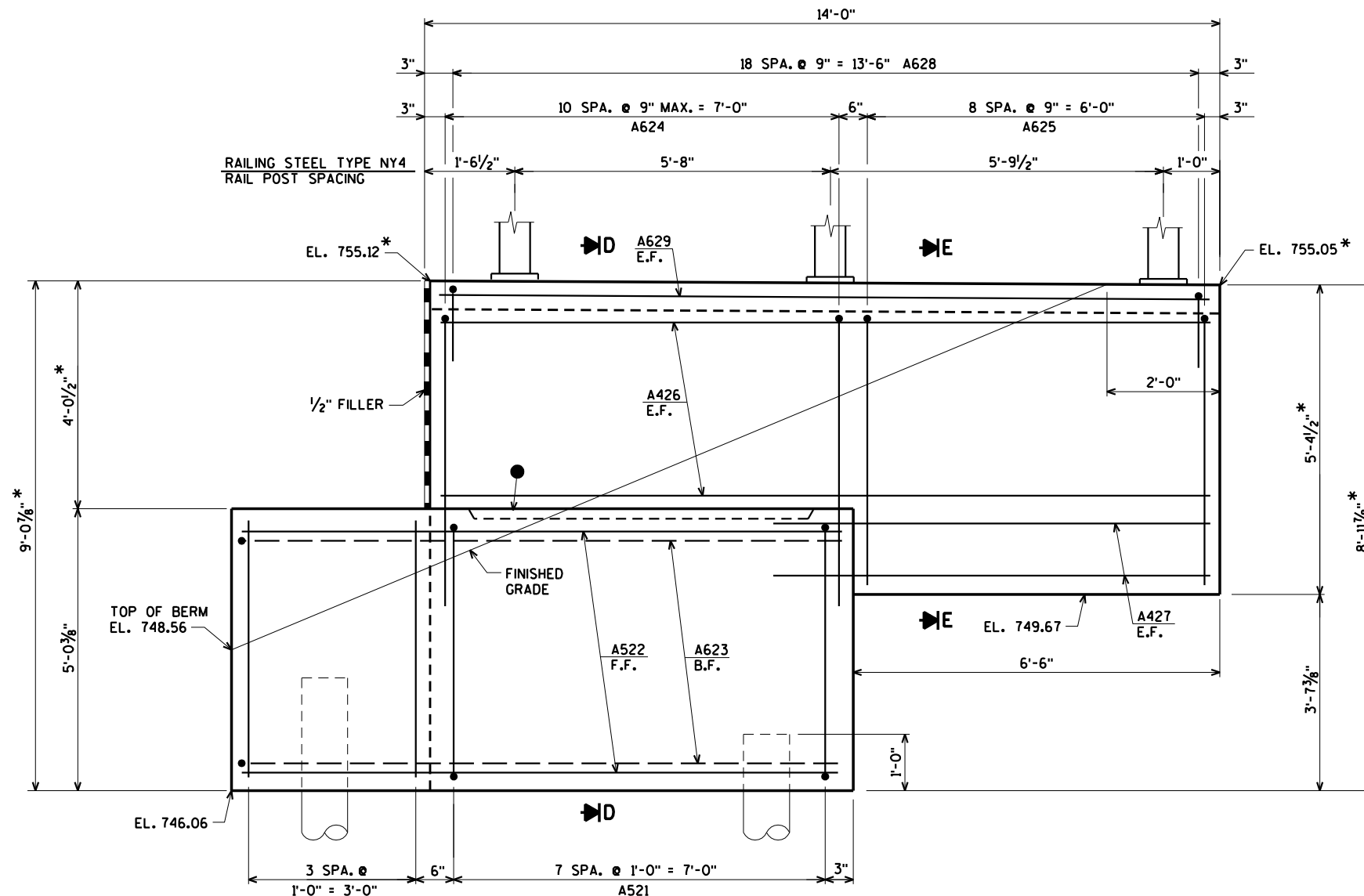
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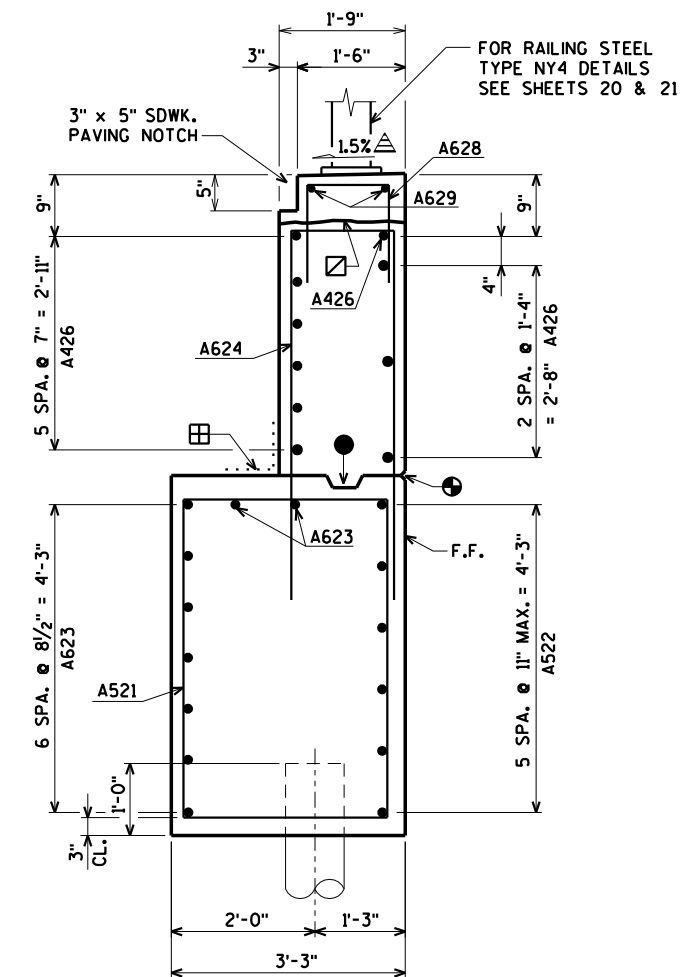
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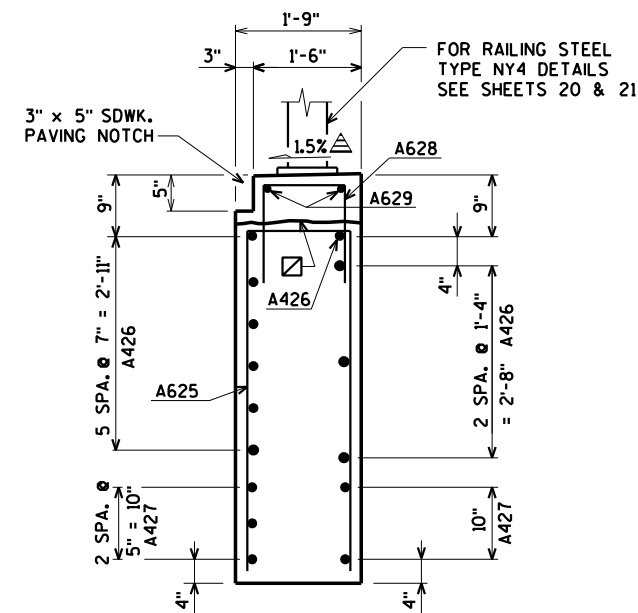
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY CLP		PLANS CK'D. JCK	
SOUTH ABUTMENT WING 1 DETAILS			SHEET 7 OF 21



ELEVATION - WING 2



SECTION D



SECTION E

△ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

☐ CONSTRUCTION JOINT. LEAVE ROUGH, POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE. UTILIZE RUBBERIZED MEMBRANE WATERPROOFING (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES").

⊕ 3/4" V GROOVE ON FRONT FACE OF WINGWALL.

● OPTIONAL CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

* ELEVATIONS AND DIMENSIONS SHOWN ARE AT FRONT FACE OF WINGWALL.

FOR PILE SPLICE DETAIL SEE SHEET 3.

8/17/2021
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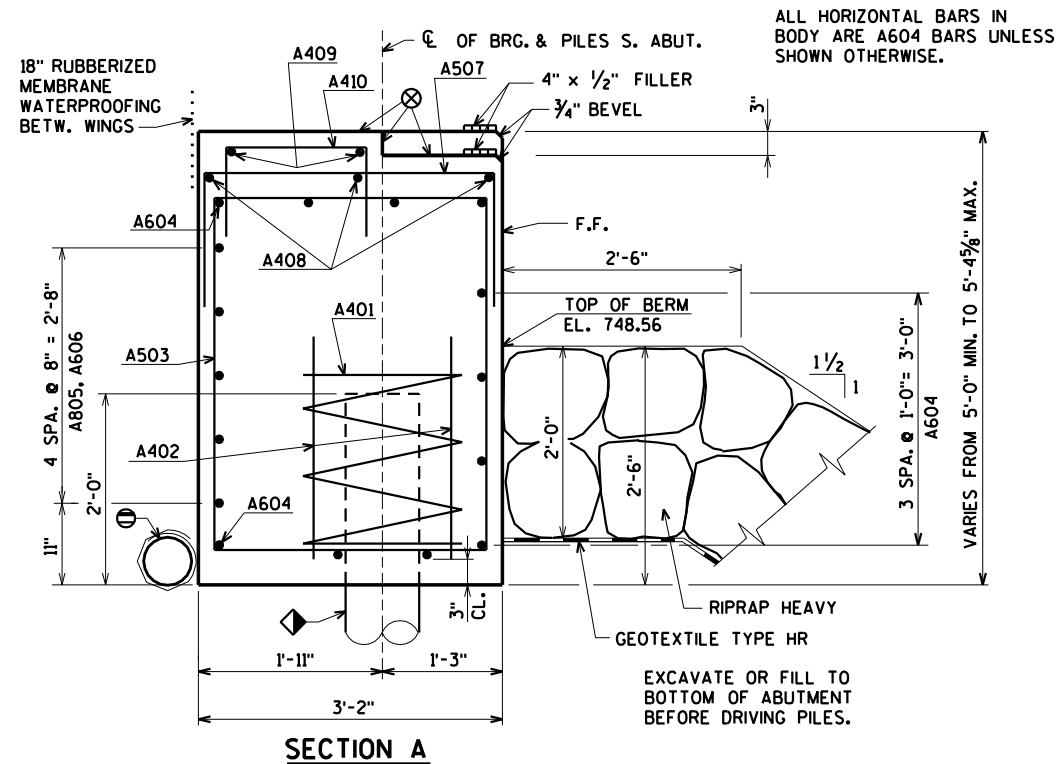
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY CLP		PLANS CK'D. JCK	
SOUTH ABUTMENT WING 2 DETAILS			SHEET 8 OF 21

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BILL OF BARS

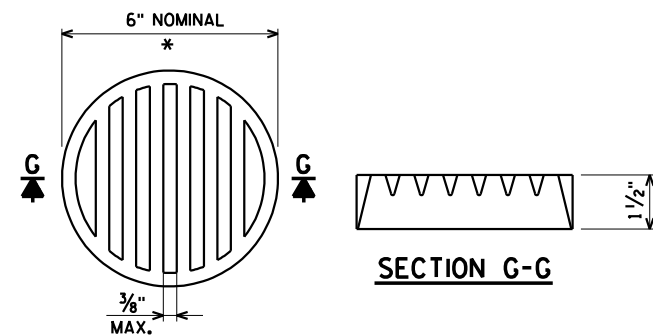
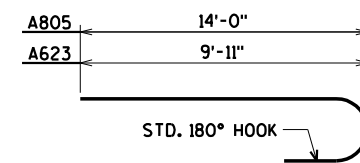
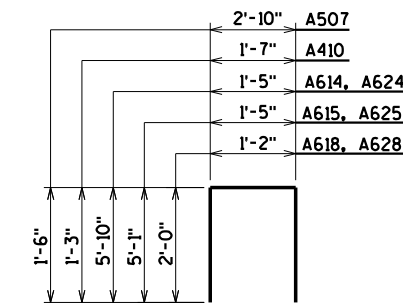
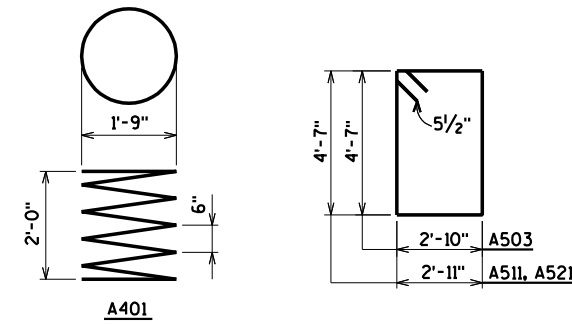
BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	2,010# COATED 2,920# UNCOATED	
								LOCATION
A401		9	28-0	X				BODY @ PILES
A402		18	2-3					BODY @ PILES
A503		62	15-6	X				BODY VERT.
A604		11	50-9					BODY HORIZ.
A805		10	14-11	X				BODY HORIZ. B.F. @ WINGS 1 & 2
A606		5	28-7					BODY HORIZ. B.F. BTWN. WINGS 1 & 2
A507		14	5-7	X				BODY VERT. TOP
A408		3	14-4					BODY HORIZ. TOP
A409		4	26-2					BODY HORIZ. TOP
A410		33	3-11	X				BODY VERT. TOP
A511	X	8	15-8	X				WING 1 VERT.
A512	X	6	10-1					WING 1 HORIZ. F.F.
A613	X	9	9-9					WING 1 HORIZ.
A614	X	11	12-9	X				WING 1 VERT.
A615	X	9	11-3	X				WING 1 VERT.
A416	X	10	13-7					WING 1 HORIZ. E.F.
A417	X	5	7-9					WING 1 HORIZ. E.F.
A618	X	19	4-10	X				WING 1 VERT. TOP
A619	X	2	13-7					WING 1 HORIZ. TOP E.F.
A420	X	4	4-7					BODY VERT. END @ WING 1
A521	X	8	15-8	X				WING 2 VERT.
A522	X	6	10-7					WING 2 HORIZ. F.F.
A623	X	9	10-7	X				WING 2 HORIZ.
A624	X	11	12-9	X				WING 2 VERT.
A625	X	9	11-3	X				WING 2 VERT.
A426	X	10	13-7					WING 2 HORIZ. E.F.
A427	X	5	7-9					WING 2 HORIZ. E.F.
A628	X	19	4-10	X				WING 2 VERT. TOP
A629	X	2	13-7					WING 2 HORIZ. TOP E.F.
A430	X	4	4-7					BODY VERT. END @ WING 2

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



ABUTMENT TO BE SUPPORTED ON 10 3/4" DIA. X 0.25" CIP CONCRETE PILING (WITH PILE POINTS) DRIVEN TO A REQ'D. DRIVING RESISTANCE OF 130 TONS PER PILE. ESTIMATED LENGTH 65'-0".

ALL HORIZONTAL BARS IN BODY ARE A604 BARS UNLESS SHOWN OTHERWISE.



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

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

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER, A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

RODENT SHIELD DETAIL

FOR LOCATION OF SECTION A SEE SHEET 5.

⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING FILLER AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON THIS SHEET. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

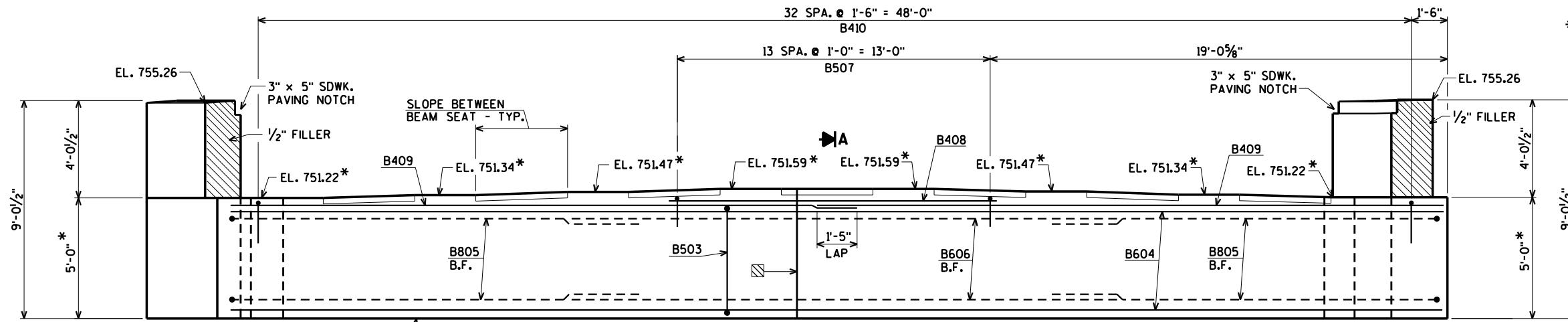
FOR PILE SPLICE DETAIL SEE SHEET 3.

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY CLP		PLANS CK'D. JCK	
SOUTH ABUTMENT DETAILS AND BILL OF BARS			SHEET 9 OF 21

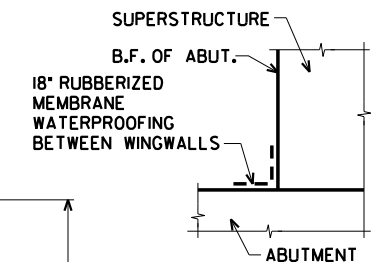
NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)

* ELEVATIONS AND DIMENSIONS TAKEN AT CL OF BRG. & PILES N. ABUT.

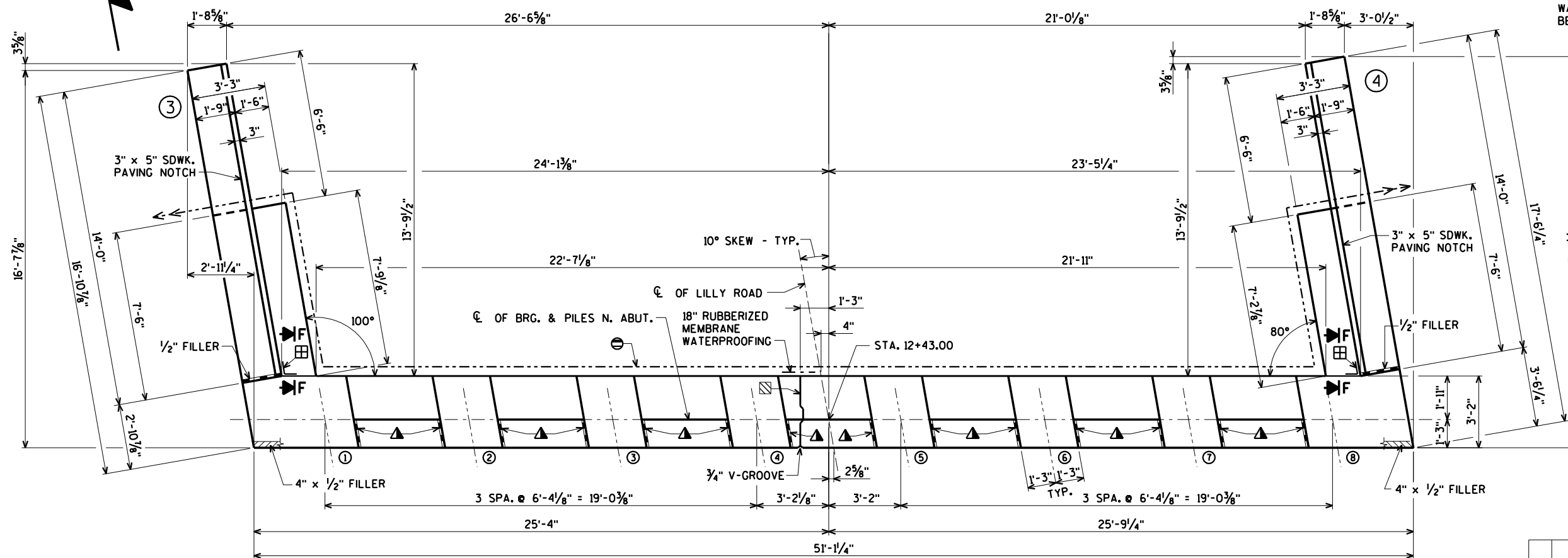


ELEVATION
(LOOKING NORTH)

FOR SECTION A SEE SHEET 14.



SECTION F



PLAN

⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 9. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

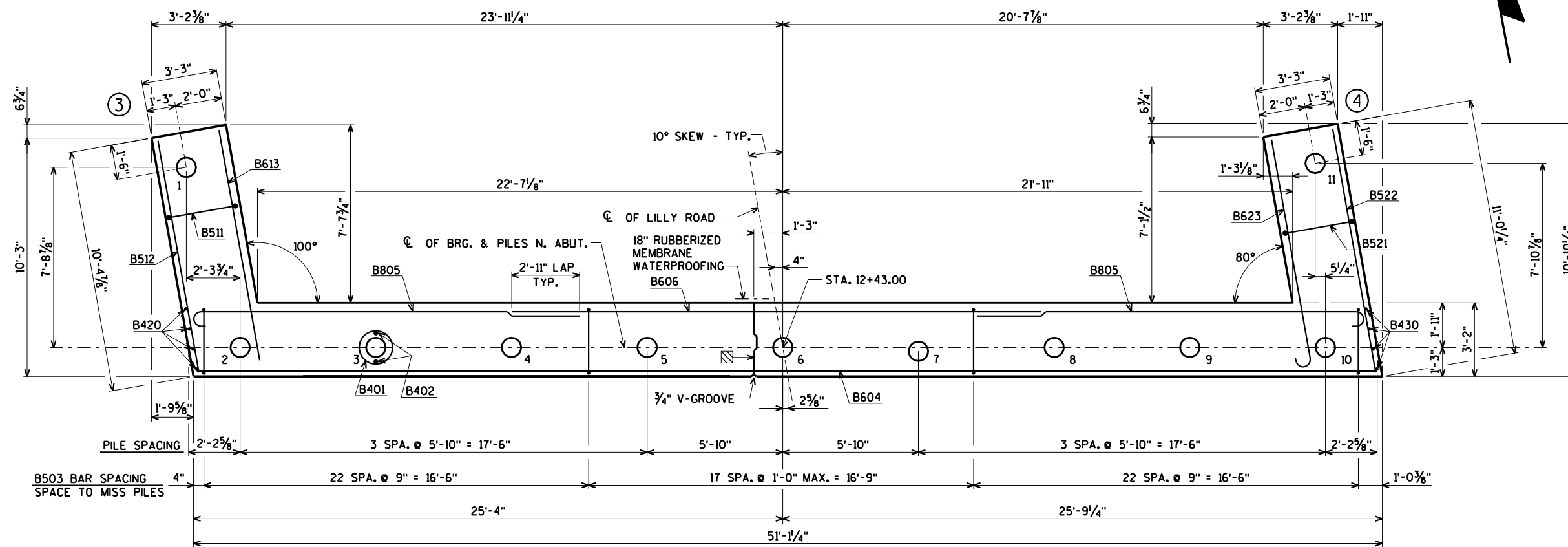
⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING FROM BRIDGE SEAT TO TOP OF WING.

▲ 3/4" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

⊞ VERT. CONST. JT. - KEYWAY FORMED BY A BEVELED 2" x 8". BEVEL EXPOSED EDGES 3/4". FOR ALTERNATE CONST. JT. DETAILS SEE SHEET 3. SEAL JOINT AT BACK FACE WITH 18" RUBBERIZED MEMBRANE WATERPROOFING.

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY CLP		PLANS CK'D. JCK	
NORTH ABUTMENT			SHEET 10 OF 21



PILE LAYOUT

VERT. CONST. JT. - KEYWAY FORMED BY A BEVELED 2" x 8", BEVEL EXPOSED EDGES 3/4". FOR ALTERNATE CONST. JT. DETAILS SEE SHEET 3. SEAL JOINT AT BACK FACE WITH 18" RUBBERIZED MEMBRANE WATERPROOFING.

FOR PILE SPLICE DETAIL SEE SHEET 3.

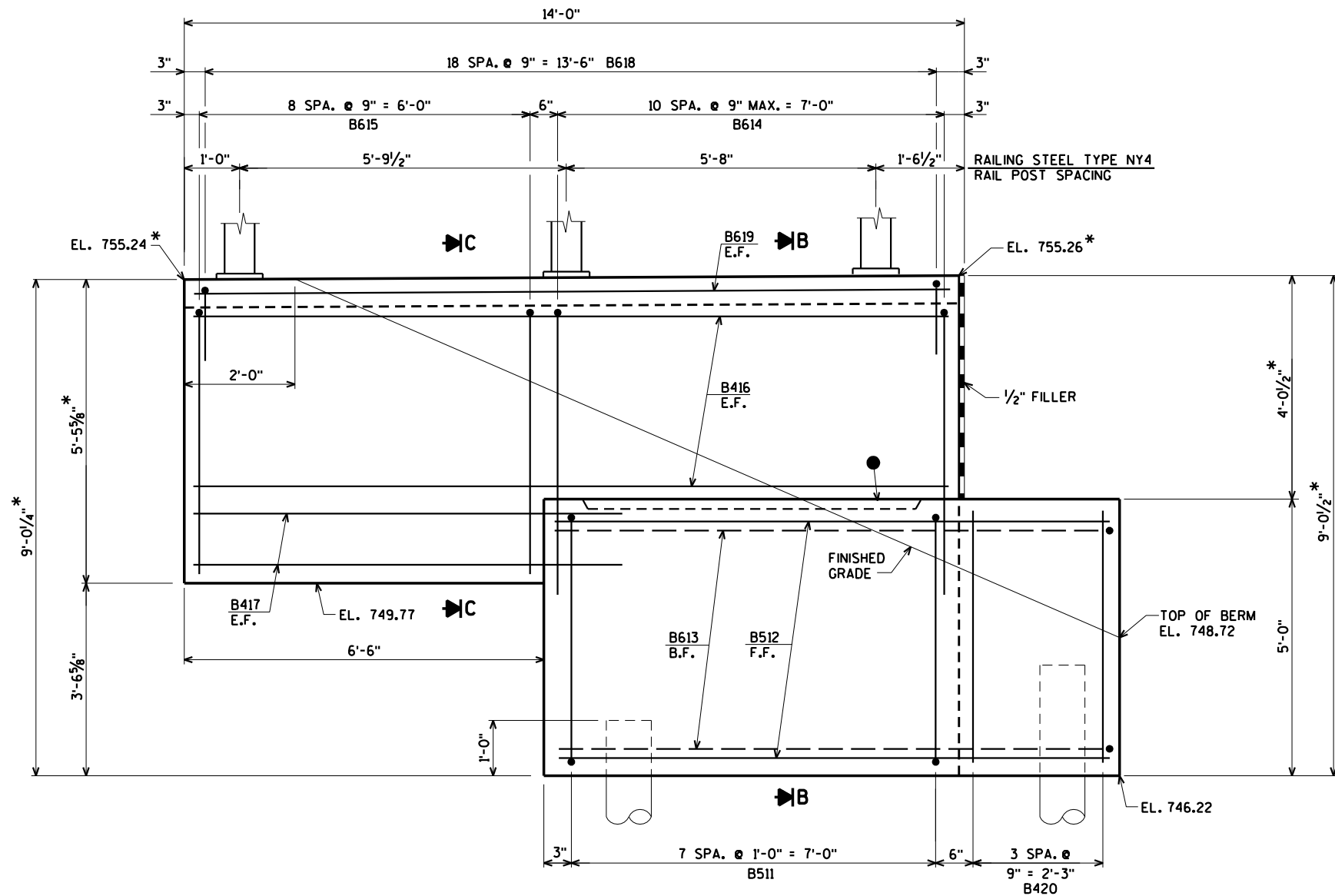
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY	CLP	PLANS CK'D.	JCK
NORTH ABUTMENT PILE LAYOUT			SHEET 11 OF 21

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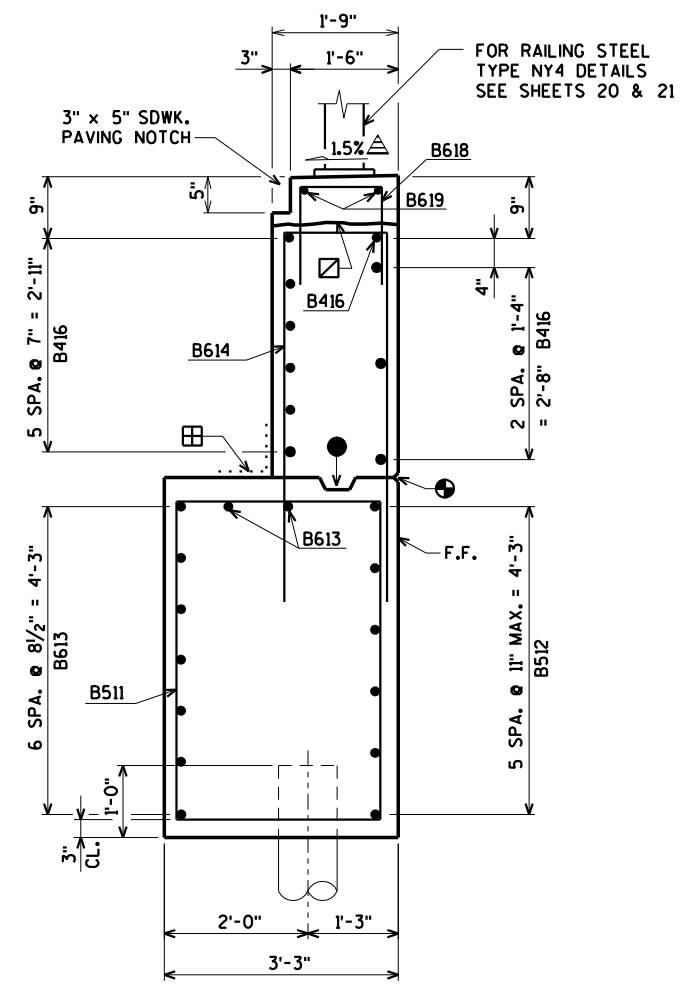
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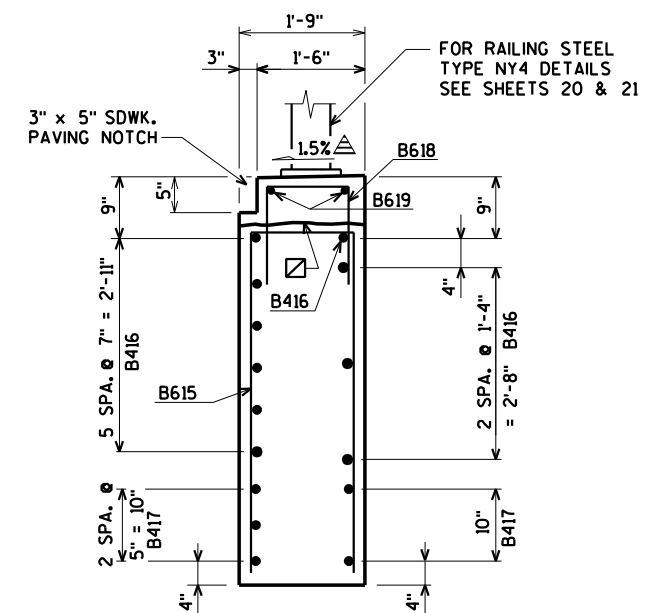
8



ELEVATION - WING 3



SECTION B



SECTION C

- △ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
 - ☑ CONSTRUCTION JOINT. LEAVE ROUGH, POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE. UTILIZE RUBBERIZED MEMBRANE WATERPROOFING (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES").
 - ⊕ 3/4" V GROOVE ON FRONT FACE OF WINGWALL.
 - OPTIONAL CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.
 - ⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- * ELEVATIONS AND DIMENSIONS SHOWN ARE AT FRONT FACE OF WINGWALL.

FOR PILE SPLICE DETAIL SEE SHEET 3.

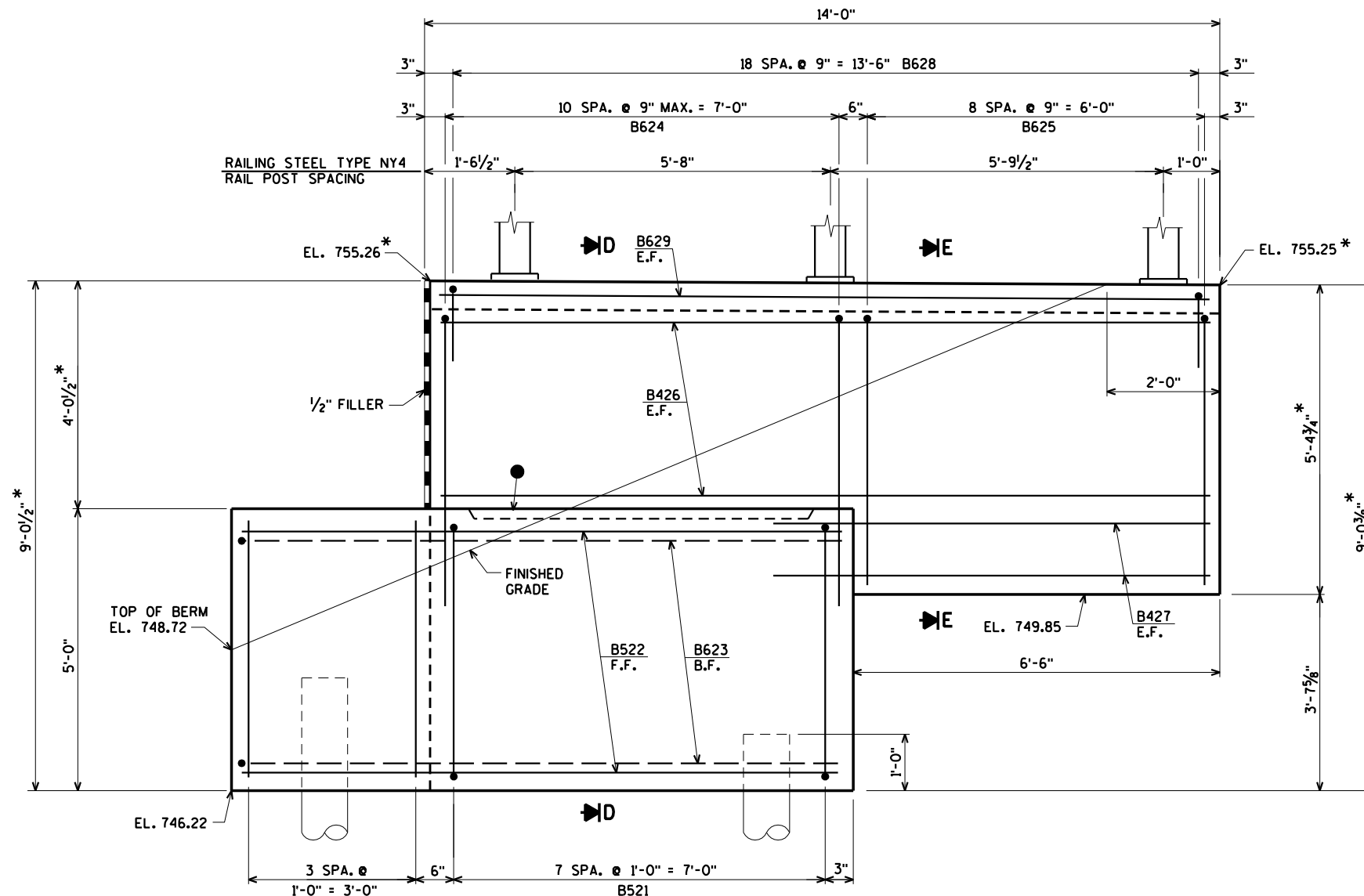
8/17/2021
PENTABLE:BRRedu_shd_util.tbl

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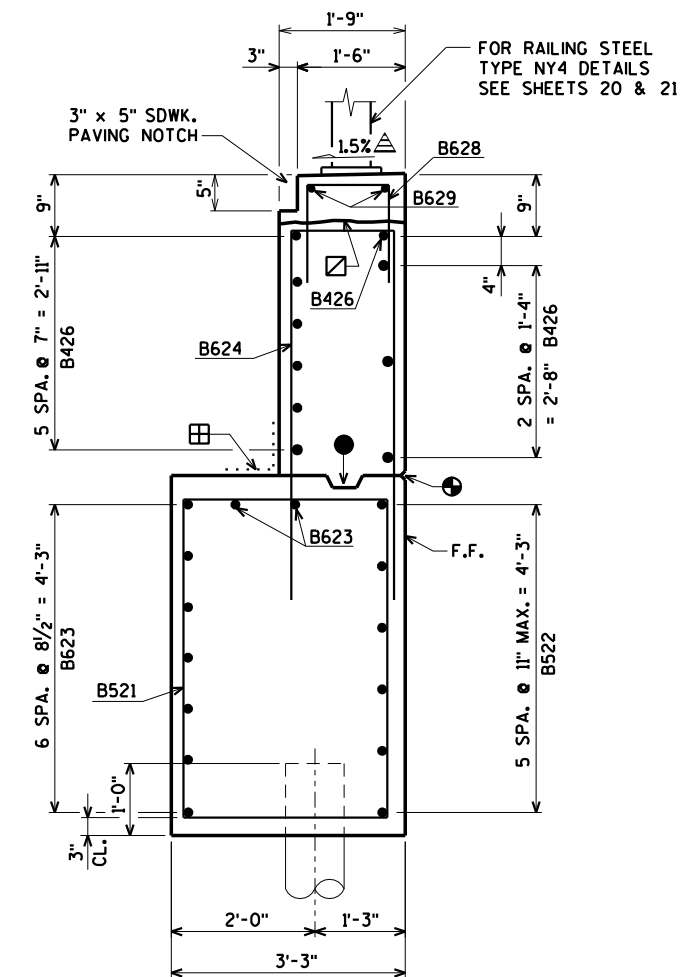
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STRUCTURE B-67-385			
DRAWN BY CLP		PLANS CK'D. JCK	
NORTH ABUTMENT WING 3 DETAILS			SHEET 12 OF 21

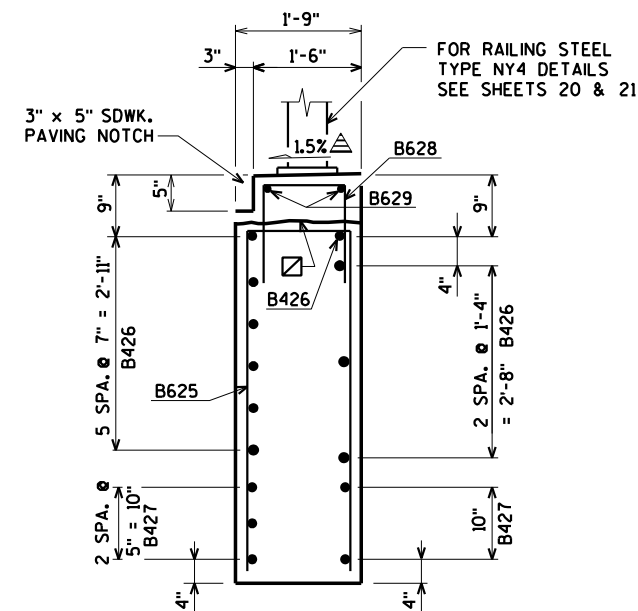
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ELEVATION - WING 4



SECTION D



SECTION E

△ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

☑ CONSTRUCTION JOINT. LEAVE ROUGH, POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE. UTILIZE RUBBERIZED MEMBRANE WATERPROOFING (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES").

⊕ 3/4" V GROOVE ON FRONT FACE OF WINGWALL.

● OPTIONAL CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

* ELEVATIONS AND DIMENSIONS SHOWN ARE AT FRONT FACE OF WINGWALL.

FOR PILE SPLICE DETAIL SEE SHEET 3.

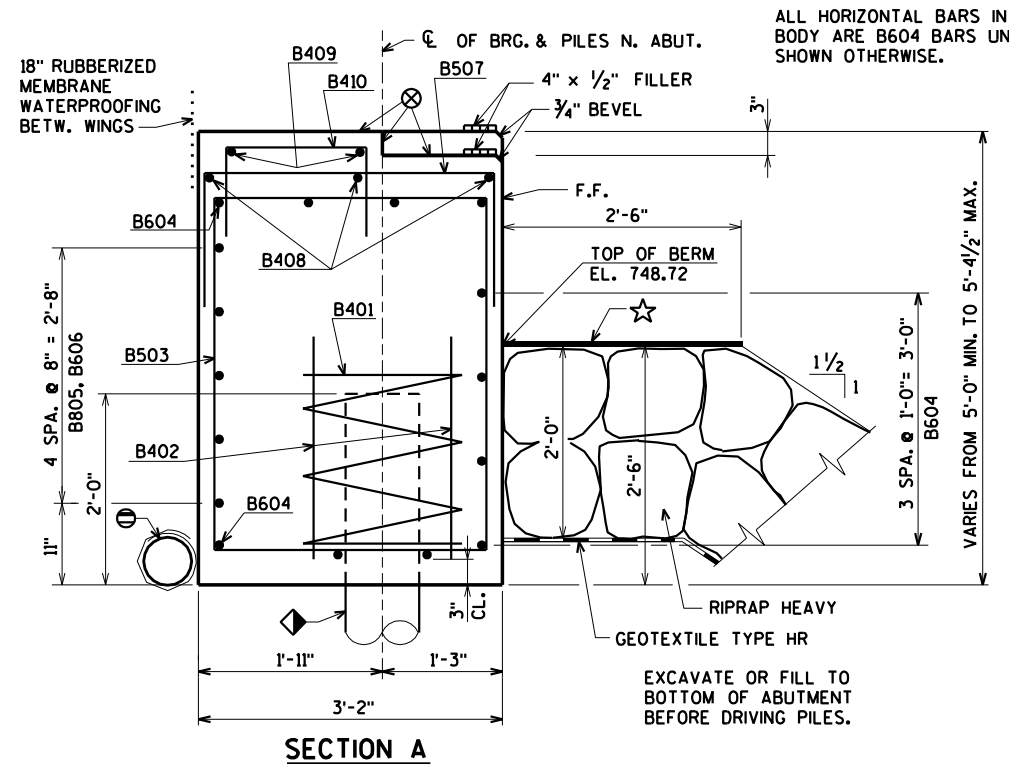
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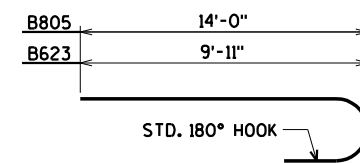
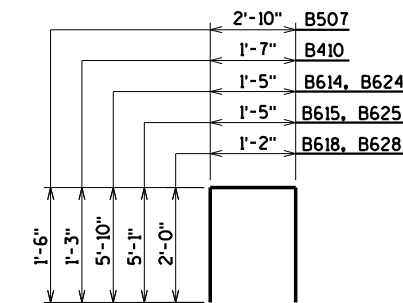
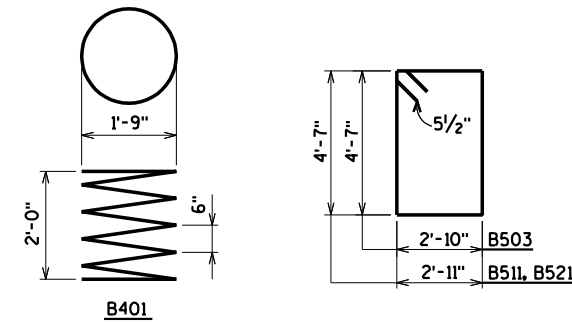
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
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NORTH ABUTMENT WING 4 DETAILS			SHEET 13 OF 21

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SECTION A
 ◆ ABUTMENT TO BE SUPPORTED ON 10 3/4" DIA. X 0.25" CIP CONCRETE PILING (WITH PILE POINTS) DRIVEN TO A REQ'D. DRIVING RESISTANCE OF 130 TONS PER PILE. ESTIMATED LENGTH 60'-0".

ALL HORIZONTAL BARS IN BODY ARE B604 BARS UNLESS SHOWN OTHERWISE.



BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	2.010" COATED 2.920" UNCOATED	
								LOCATION
B401		9	28-0	X				BODY @ PILES
B402		18	2-3					BODY @ PILES
B503		62	15-6	X				BODY VERT.
B604		11	50-9					BODY HORIZ.
B805		10	14-11	X				BODY HORIZ. B.F. @ WINGS 3 & 4
B606		5	28-7					BODY HORIZ. B.F. BTWN. WINGS 3 & 4
B507		14	5-7	X				BODY VERT. TOP
B408		3	14-4					BODY HORIZ. TOP
B409		4	26-2					BODY HORIZ. TOP
B410		33	3-11	X				BODY VERT. TOP
B511	X	8	15-8	X				WING 3 VERT.
B512	X	6	10-1					WING 3 HORIZ. F.F.
B613	X	9	9-9					WING 3 HORIZ.
B614	X	11	12-9	X				WING 3 VERT.
B615	X	9	11-3	X				WING 3 VERT.
B416	X	10	13-7					WING 3 HORIZ. E.F.
B417	X	5	7-9					WING 3 HORIZ. E.F.
B618	X	19	4-10	X				WING 3 VERT. TOP
B619	X	2	13-7					WING 3 HORIZ. TOP E.F.
B420	X	4	4-7					BODY VERT. END @ WING 3
B521	X	8	15-8	X				WING 4 VERT.
B522	X	6	10-7					WING 4 HORIZ. F.F.
B623	X	9	10-7	X				WING 4 HORIZ.
B624	X	11	12-9	X				WING 4 VERT.
B625	X	9	11-3	X				WING 4 VERT.
B426	X	10	13-7					WING 4 HORIZ. E.F.
B427	X	5	7-9					WING 4 HORIZ. E.F.
B628	X	19	4-10	X				WING 4 VERT. TOP
B629	X	2	13-7					WING 4 HORIZ. TOP E.F.
B430	X	4	4-7					BODY VERT. END @ WING 4

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

FOR LOCATION OF SECTION A SEE SHEET 10.

- ★ ECO-PASSAGE. SEE DETAIL ON SHEET 3.
- ⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING FILLER AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- ⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 9. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

FOR PILE SPLICE DETAIL SEE SHEET 3.

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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY		CLP	PLANS CK'D. JCK
NORTH ABUTMENT DETAILS AND BILL OF BARS			SHEET 14 OF 21

NOTES

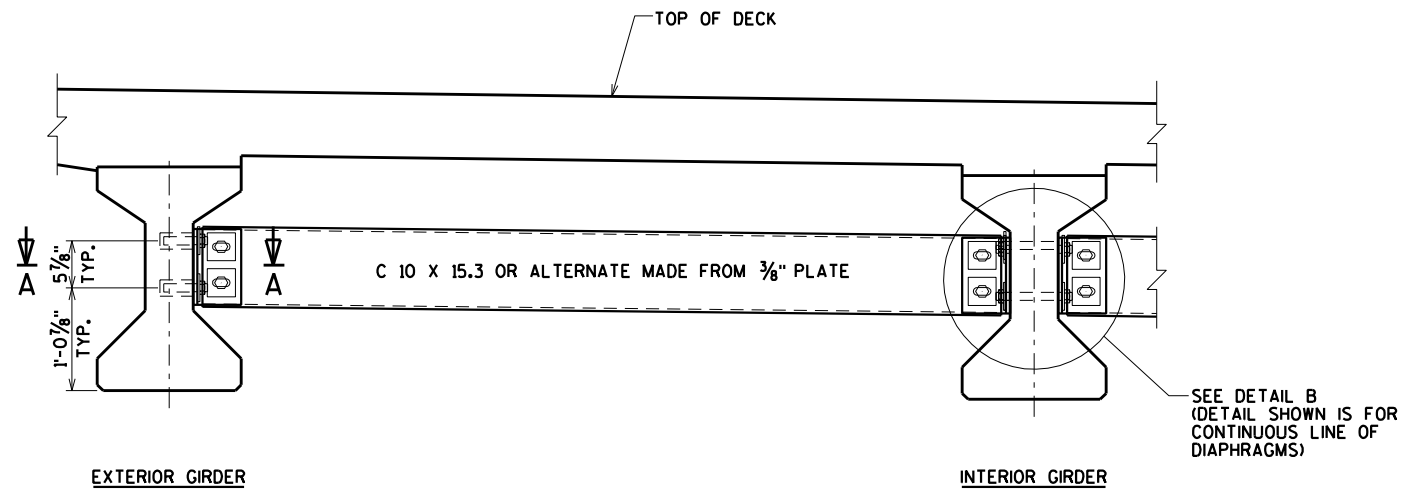
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-67-385", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

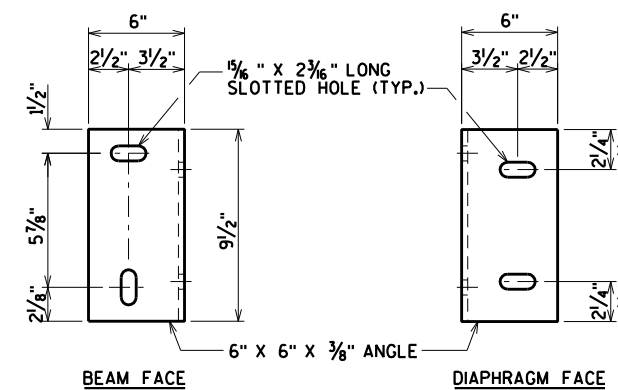
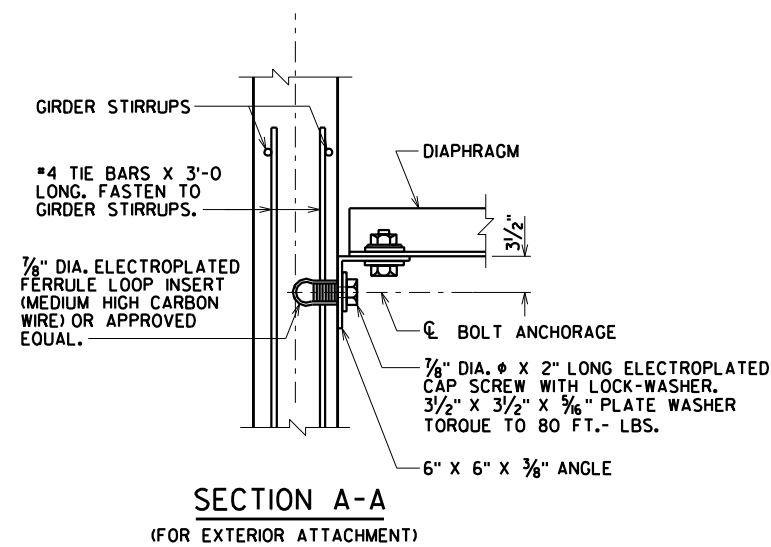
ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

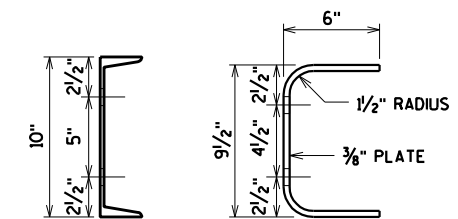


PART TRANSVERSE SECTION AT DIAPHRAGM

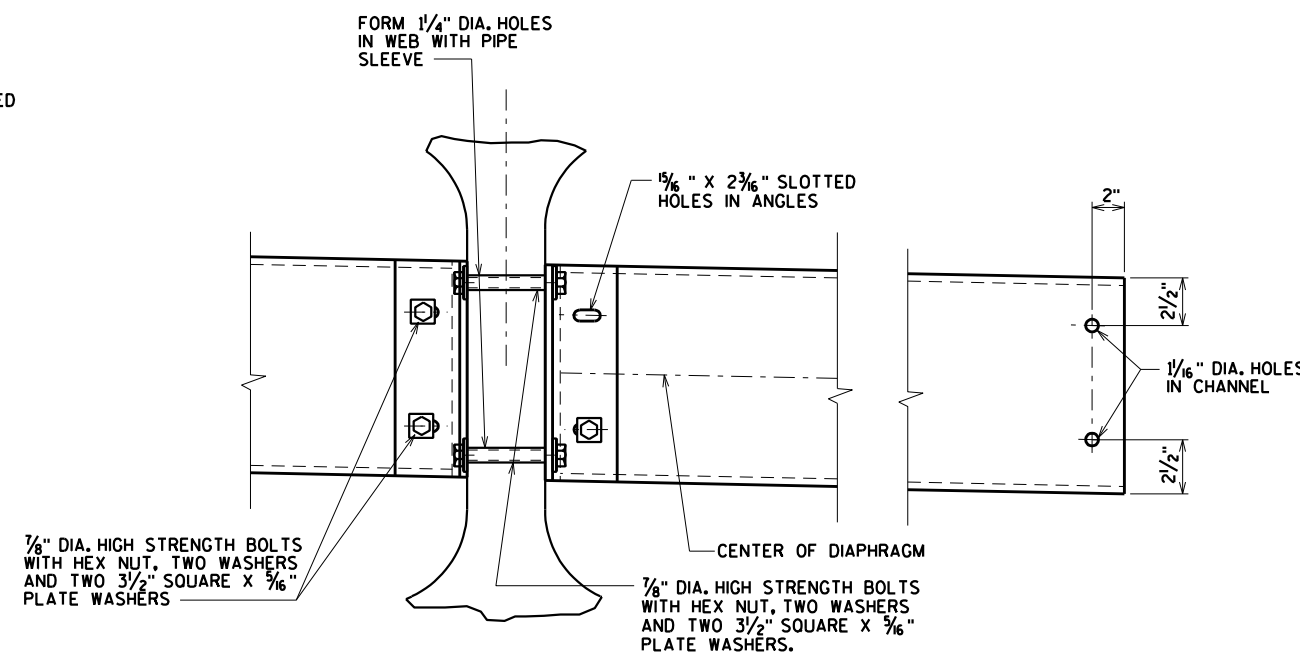


DIAPHRAGM SUPPORT

* 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM



SECTION THRU DIAPHRAGM



DETAIL B

(FOR CONTINUOUS LINE OF DIAPHRAGMS)

\$PRNAME\$ I:\42\45-0483.00 - Waukesha Co. Lilly Road over the Menomonee River Structures\Final\450483 DIA.dgn

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY	CLP	PLANS CK'D.	JCK
STEEL DIAPHRAGM			SHEET 15 OF 21

ORIGINAL PLANS PREPARED BY
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NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH, AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.3 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

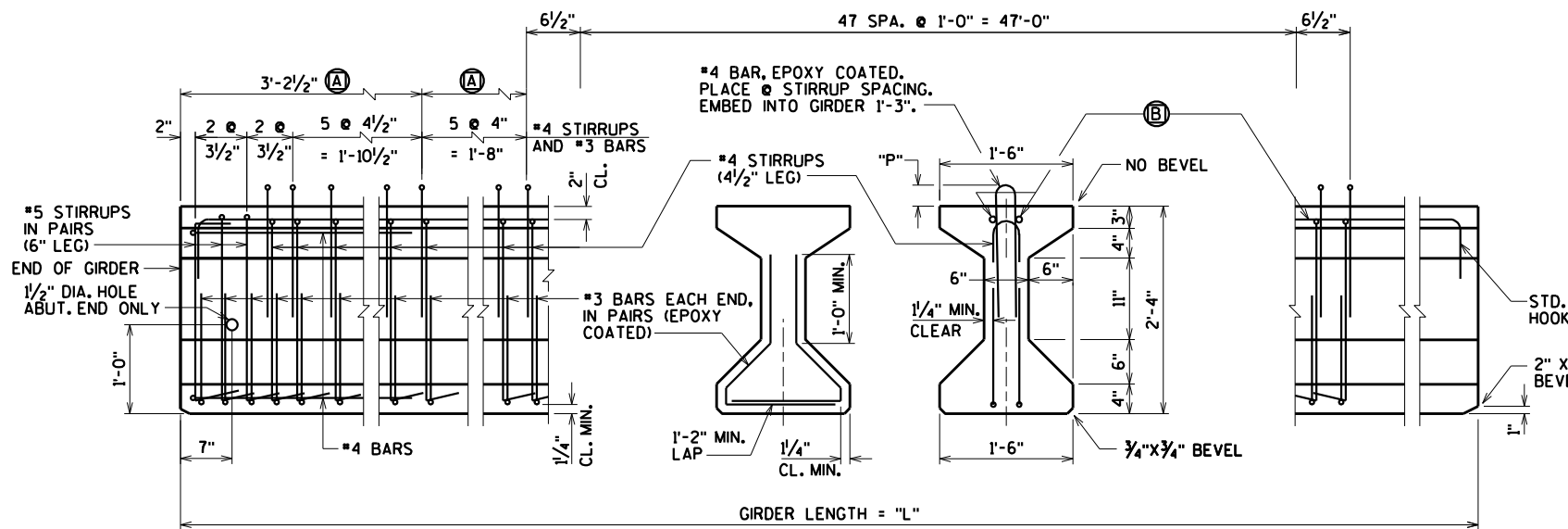
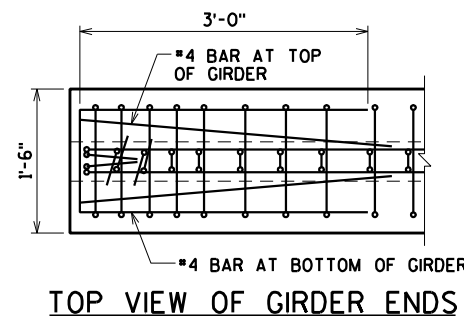
SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.

PRESTRESSING STRANDS SHALL BE 0.6" DIA. - 7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

BEND EACH END OF #4 STIRRUPS 4 1/2" AND #5 STIRRUPS 6".

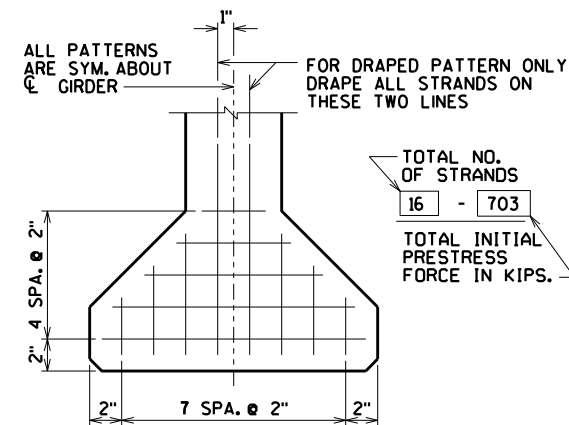
FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.



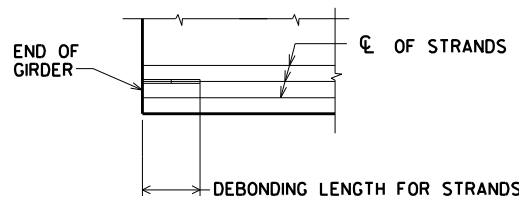
SIDE VIEW & TYPICAL SECTION IN SPAN

Ⓐ DETAIL TYP. AT EACH END

Ⓑ 2 #6 BARS, FULL LENGTH, MIN. LAP = 2'-11", STD. HOOK AT ENDS

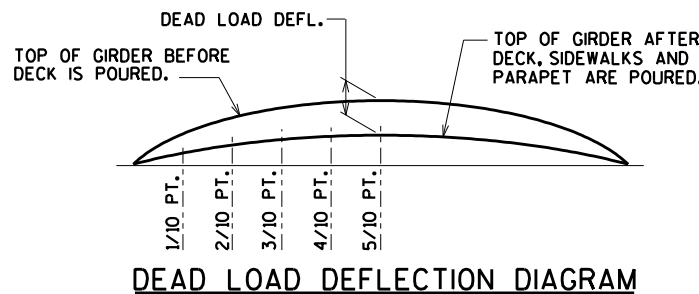


TYP. STRAND PATTERN



BOND BREAKER DETAIL

SHOWING LENGTHS OF DEBONDING FROM END OF GIRDER.

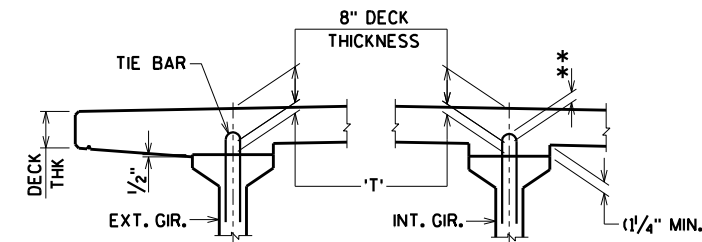


DEAD LOAD DEFLECTION DIAGRAM

* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.) *
1	2.5

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS. THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.



DECK HAUNCH DETAIL

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR, ** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT CL OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

- TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- DECK THICKNESS
- = HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 2 1/2" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

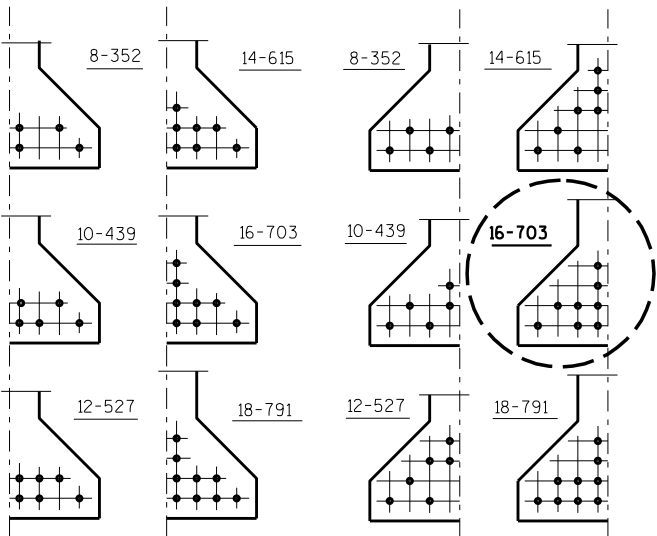
SYM.	HEIGHT	NO. OF STRANDS	DEBOND LENGTH
□	4"	2	1'
△	2"	2	14.5'

DEBONDING DETAIL

▲ INDICATES STRAND TO BE DEBONDED. SEE "BOND BREAKER DETAIL"

* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)										CONC. STRGTH. f'c (p.s.i.)	"P" 1ST 1/3 OF GIRDER	"P" MID 1/3 OF GIRDER	"P" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN (IN.)				UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	10/10						TOTAL NO. OF STRANDS	f'ci (P.S.I.) *				
1	1 & 8	57'-0"	0.3	0.6	0.8	1.0	1.0	1.0	0.8	0.6	0.3	8000	7"	6"	7"	0.60					16	6500	
1	2-7	57'-0"	0.3	0.5	0.7	0.9	0.9	0.9	0.7	0.5	0.3	8000	7"	6"	7"	0.60							



DRAPED PATTERN

0.6" DIA. STRANDS

UNDRAPED PATTERN

0.6" DIA. STRANDS

ORIGINAL PLANS PREPARED BY



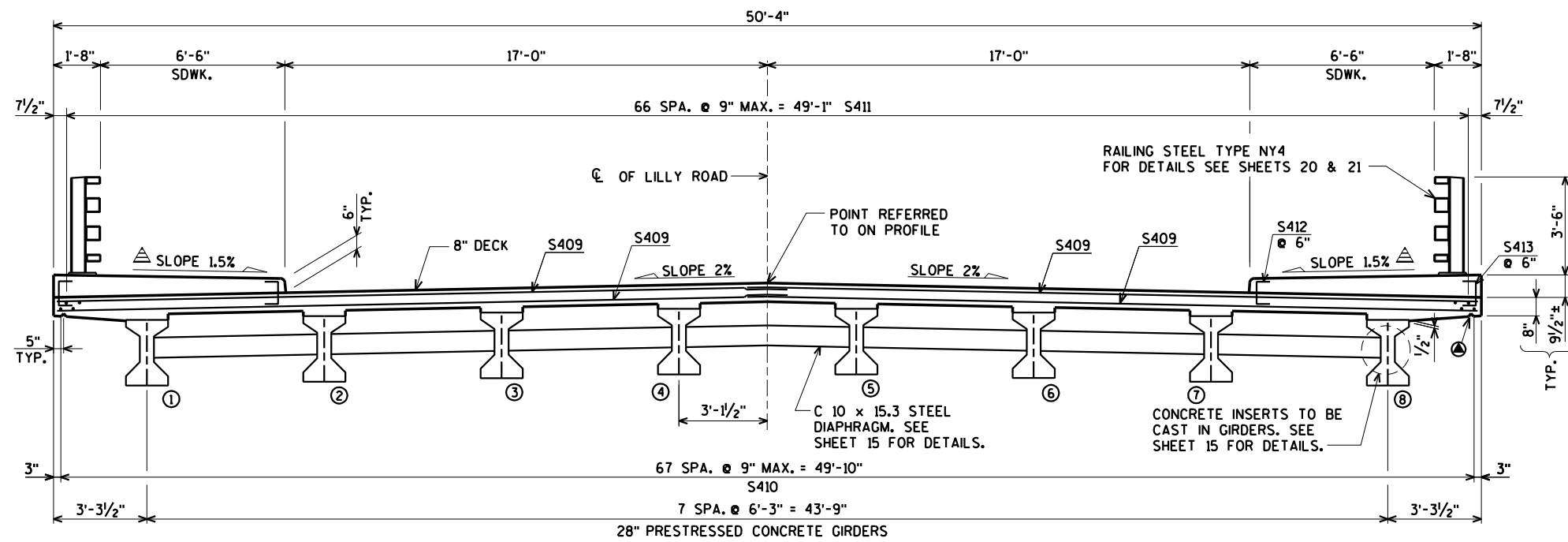
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY	CLP	PLANS CK'D.	JCK
28" PRESTRESSED GIRDER DETAILS			SHEET 16 OF 21

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLE	BAR SERIES	22,470* COATED	LOCATION
S401	X	70	3-3	X				DIAPH. @ ABUT. VERT. @ NOTCH
S402	X	28	3-5					DIAPH. @ ABUT. HORIZ. @ NOTCH
S503	X	114	9-11	X				DIAPH. @ ABUT. VERT.
S504	X	114	5-8	X				DIAPH. @ ABUT. VERT.
S605	X	10	50-9					DIAPH. @ ABUT. HORIZ.
S606	X	42	4-6					DIAPH. @ ABUT. HORIZ. BETW. GDRS.
S607	X	12	2-3					DIAPH. @ ABUT. HORIZ. @ EXT. GDRS.
S508	X	32	6-0					DIAPH. THRU GDRS.
S409	X	434	26-3					DECK TRANS. TOP & BOTTOM
S410	X	136	30-0					DECK LONG. BOT.
S411	X	134	30-0					DECK LONG. TOP
S412	X	236	2-6	X				DECK @ SDWK. @ CURB
S413	X	236	2-9	X				DECK @ SDWK. @ EDGE OF DECK
S514	X	352	8-5	X				SDWK. TRANS. TOP
S415	X	44	30-0					SDWK. LONG. TOP
S616	X	28	12-0	X				DECK @ RAIL POSTS
S617	X	56	6-0					DECK @ INT. RAIL POSTS
S618	X	16	6-0	X				DECK @ END RAIL POSTS
S619	X	8	12-0	X				DECK @ END RAIL POSTS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

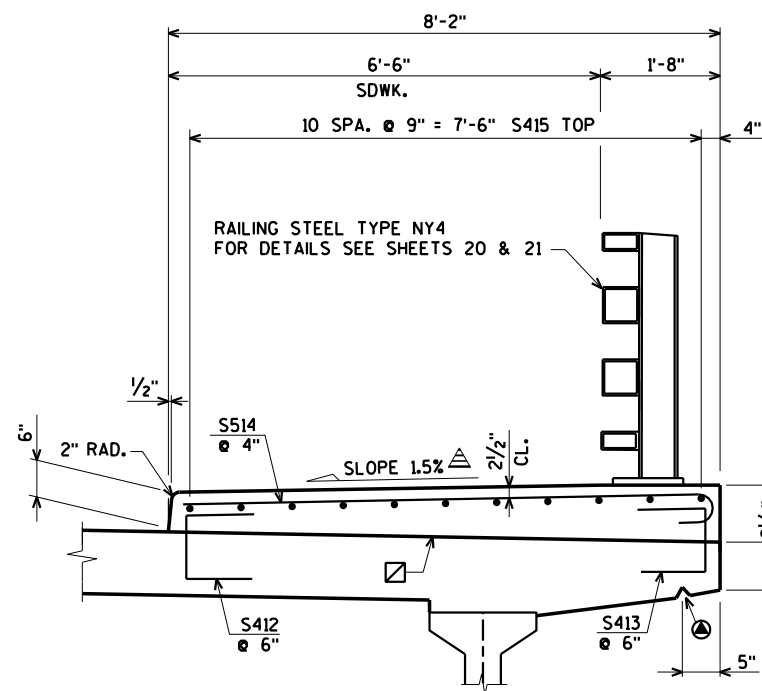
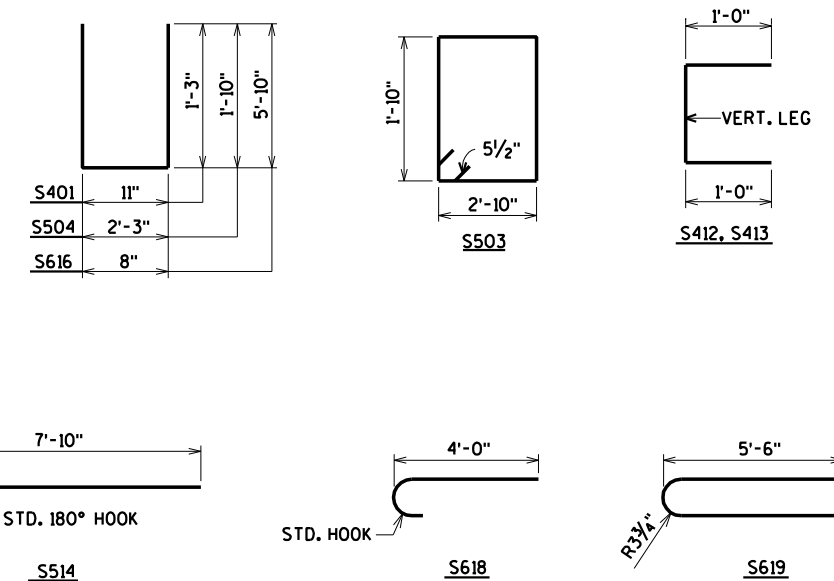


TYPICAL SECTION THRU BRIDGE

△ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

⊙ 3/4" V-GROOVE. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGMS - TYP.

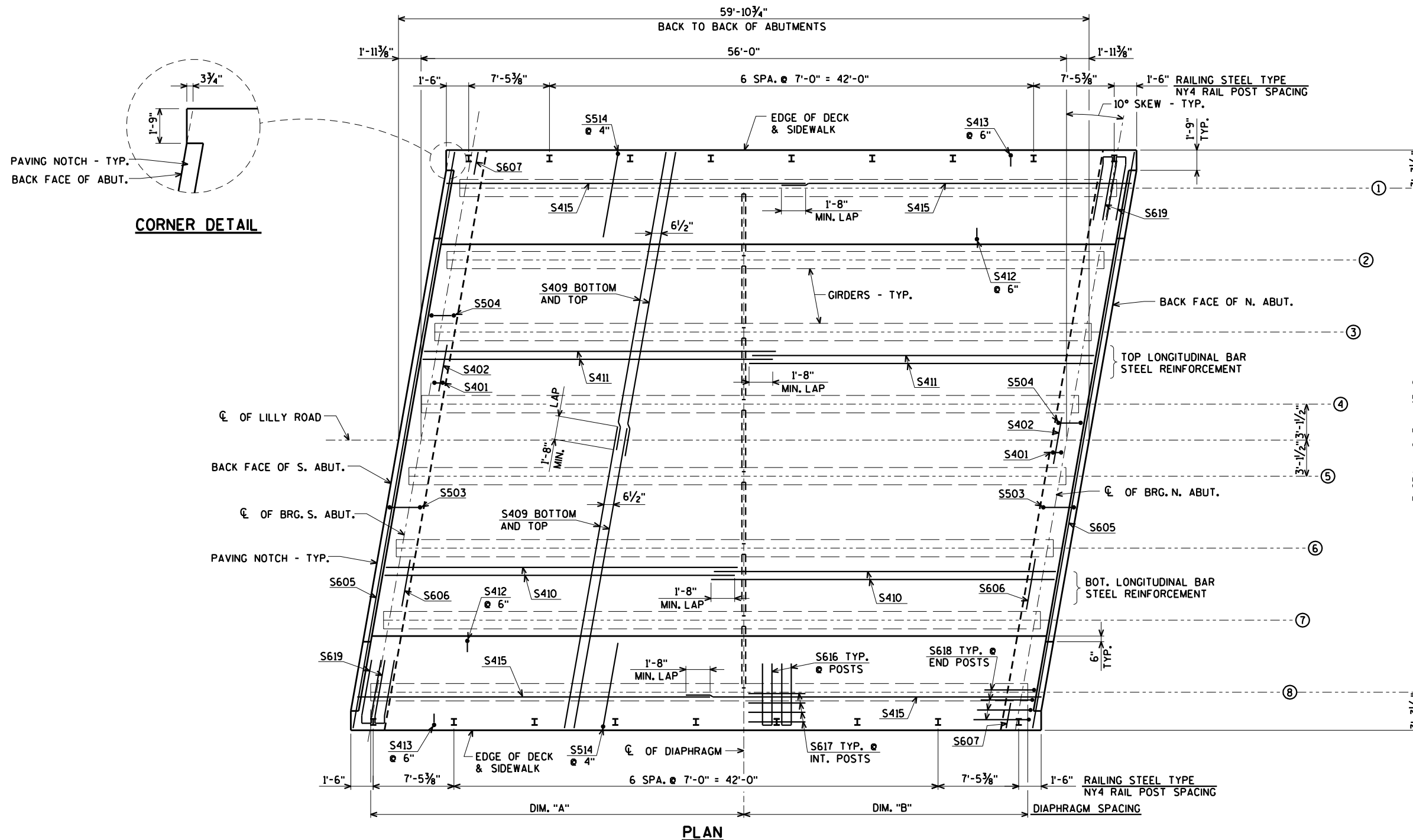
☒ CONST. JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH. FOR DECK POUR, MATCH BRIDGE X-SLOPE.



TYPICAL SECTION THRU SIDEWALK

NO.	DATE	REVISION	BY
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STRUCTURE B-67-385			
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SUPERSTRUCTURE			SHEET 17 OF 21

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TOP OF DECK ELEVATIONS

	CL BEARING S. ABUT.	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	CL BEARING N. ABUT.
W. EDGE OF DECK	754.34	754.37	754.39	754.41	754.43	754.44	754.46	754.46	754.47	754.47	754.47
GIRDER 1	754.40	754.43	754.45	754.47	754.49	754.51	754.52	754.53	754.53	754.54	754.54
GIRDER 2	754.52	754.54	754.57	754.59	754.61	754.63	754.64	754.65	754.66	754.66	754.66
GIRDER 3	754.65	754.67	754.70	754.72	754.74	754.75	754.77	754.78	754.78	754.79	754.79
GIRDER 4	754.76	754.79	754.82	754.84	754.86	754.88	754.89	754.90	754.91	754.91	754.91
CL OF LILLY ROAD	754.83	754.85	754.88	754.90	754.92	754.94	754.95	754.96	754.97	754.97	754.97
GIRDER 5	754.76	754.79	754.82	754.84	754.86	754.88	754.89	754.90	754.91	754.91	754.91
GIRDER 6	754.63	754.66	754.69	754.71	754.73	754.75	754.76	754.77	754.78	754.78	754.79
GIRDER 7	754.50	754.53	754.56	754.58	754.60	754.62	754.63	754.65	754.65	754.66	754.66
GIRDER 8	754.37	754.40	754.43	754.45	754.47	754.49	754.51	754.52	754.53	754.53	754.54
E. EDGE OF DECK	754.30	754.33	754.36	754.38	754.40	754.42	754.44	754.45	754.46	754.47	754.47

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

TABLE OF DIAPHRAGM DIMENSIONS

GIRDER	DIM. 'A'	DIM. 'B'
1	24'-7 3/4"	32'-4 1/4"
2	25'-9"	31'-3"
3	26'-10 1/8"	30'-1 1/8"
4	27'-11 3/8"	29'-0 5/8"
5	29'-0 5/8"	27'-11 3/8"
6	30'-1 1/8"	26'-10 1/8"
7	31'-3"	25'-9"
8	32'-4 1/4"	24'-7 3/4"

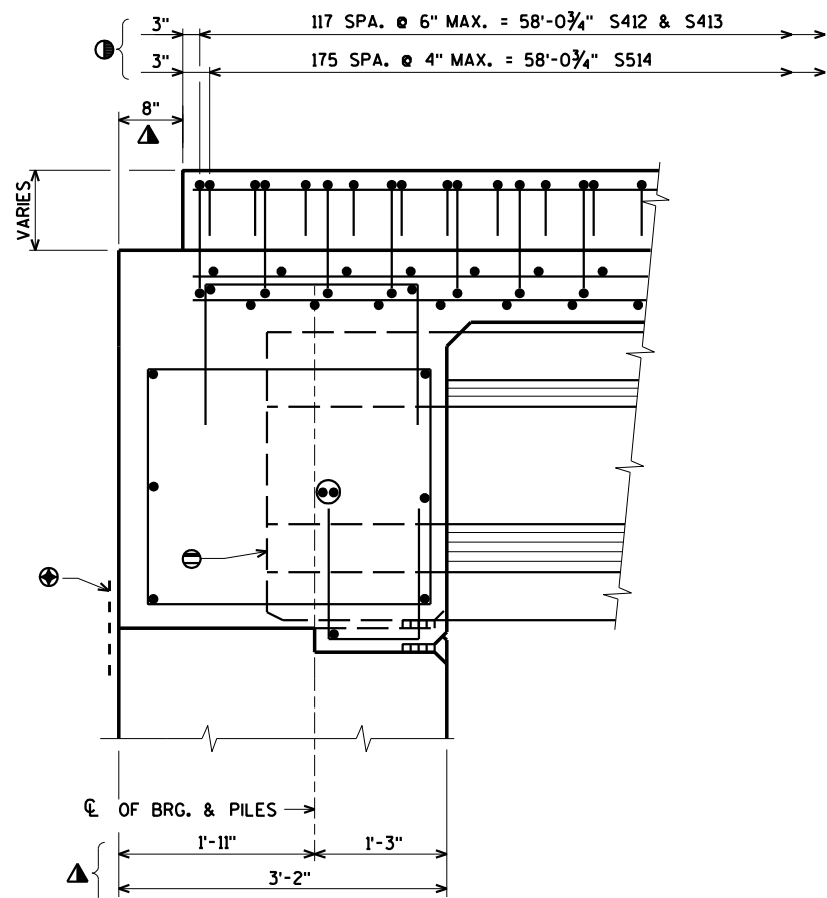
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY CLP		PLANS CK'D. JCK	
SUPERSTRUCTURE PLAN			SHEET 18 OF 21

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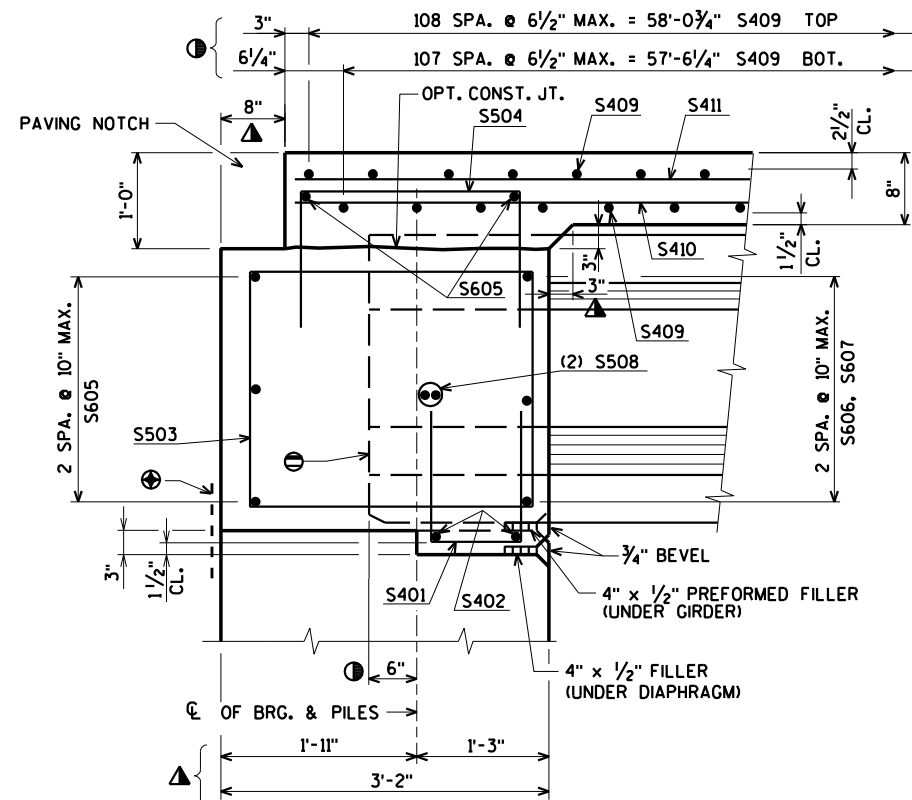
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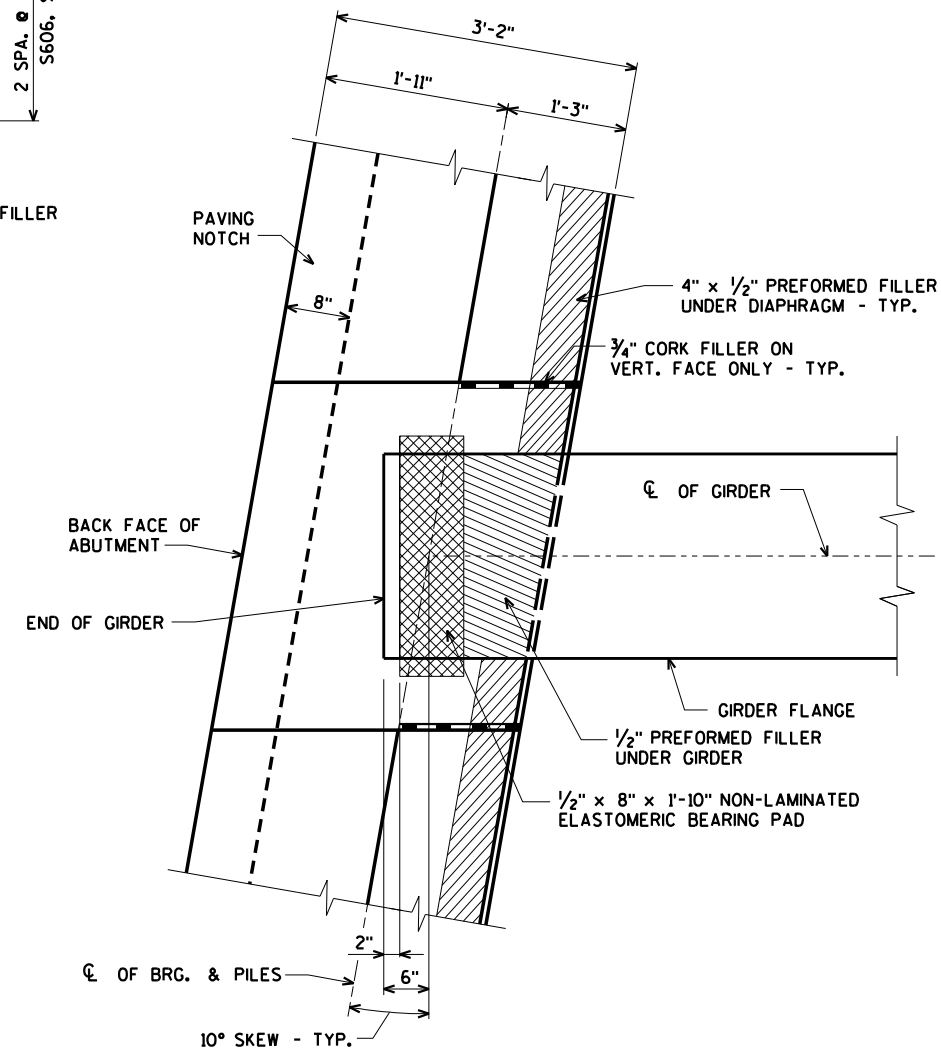
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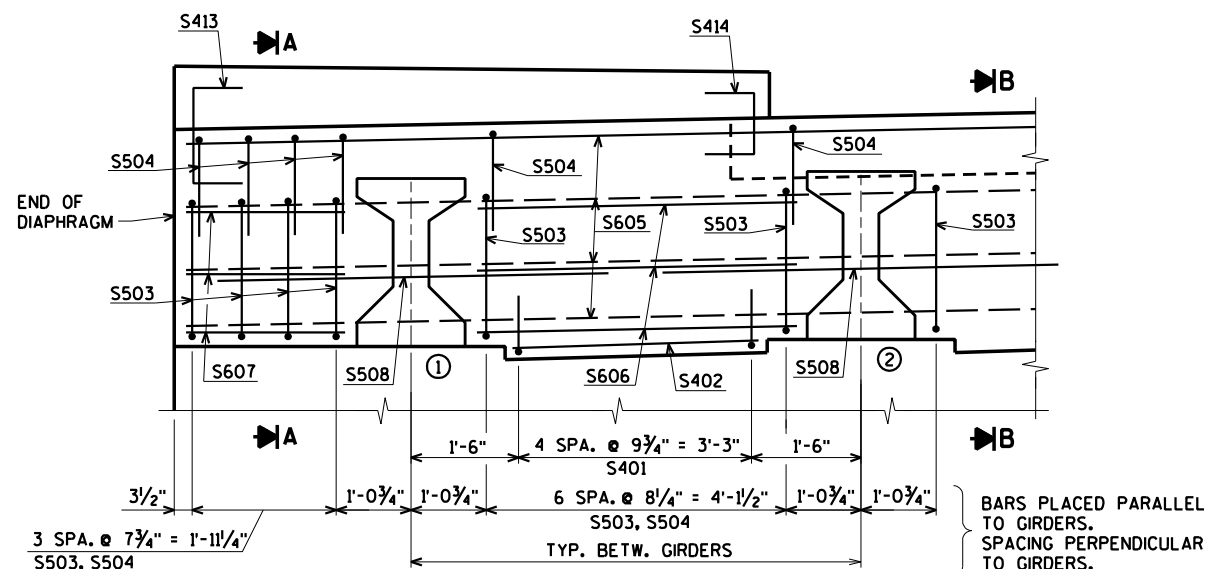
SECTION A-A



SECTION B-B



BEARING PAD DETAIL



PART TRANSVERSE SECTION AT ABUTMENT

DECK AND SIDEWALK REINFORCEMENT NOT SHOWN FOR CLARITY

⊗ 18" RUBBERIZED MEMBRANE WATERPROOFING

⊖ END OF GIRDER

⓪ DIMENSIONS MEASURED ALONG CL OF GIRDER.

⚠ DIMENSIONS MEASURED NORMAL TO CL OF SUBSTRUCTURE UNIT.

PLACE S508 BARS SYM. ABOUT CL OF GIRDERS. FIELD BEND BARS ALONG SKEW.

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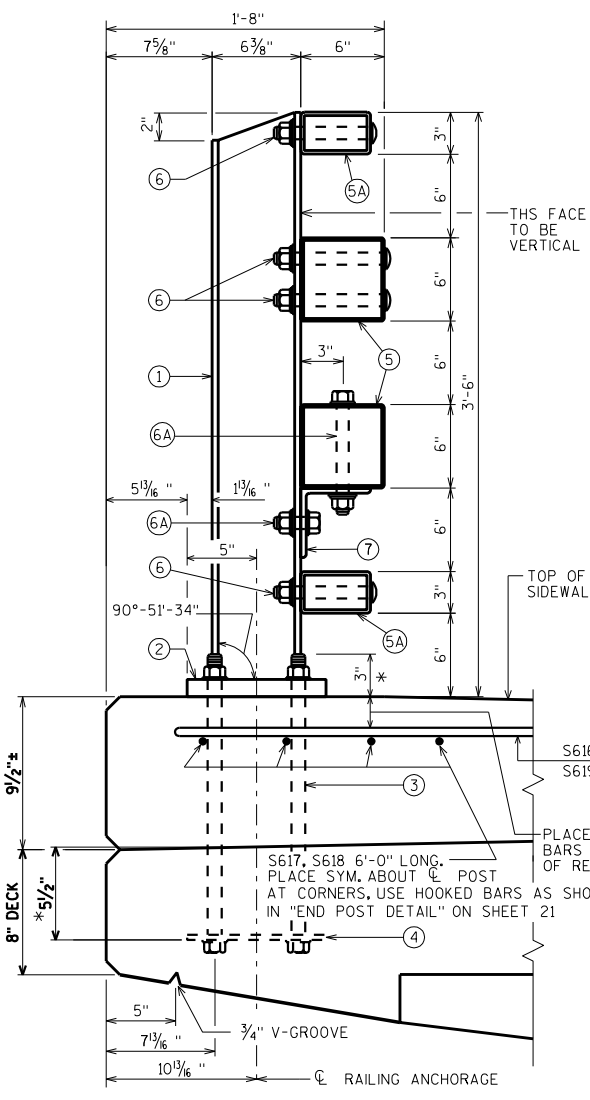
ORIGINAL PLANS PREPARED BY

AYRES

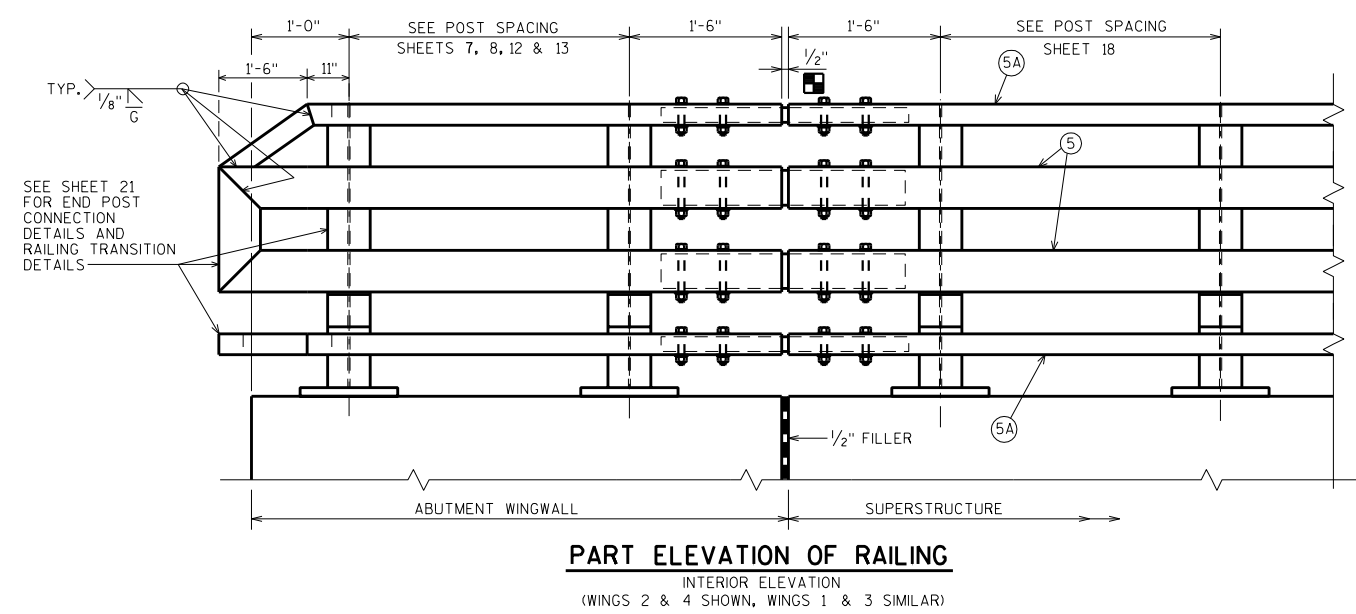
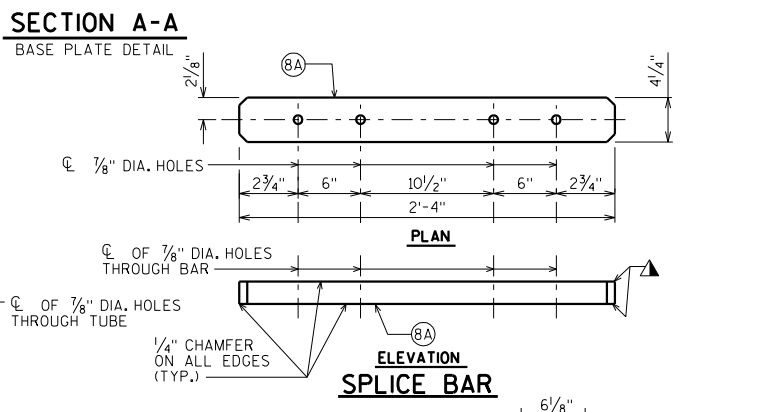
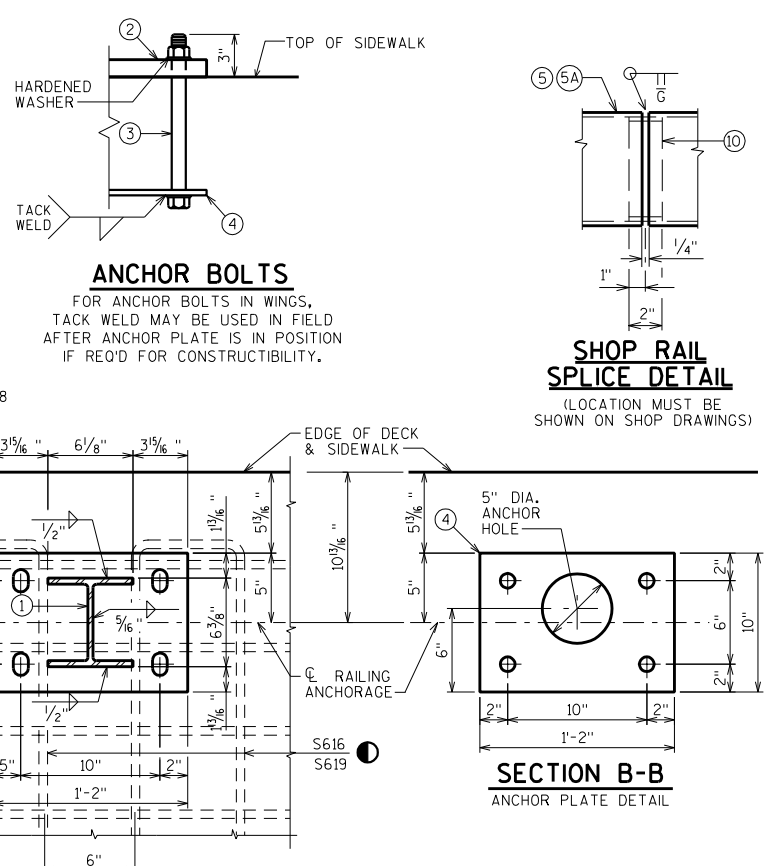
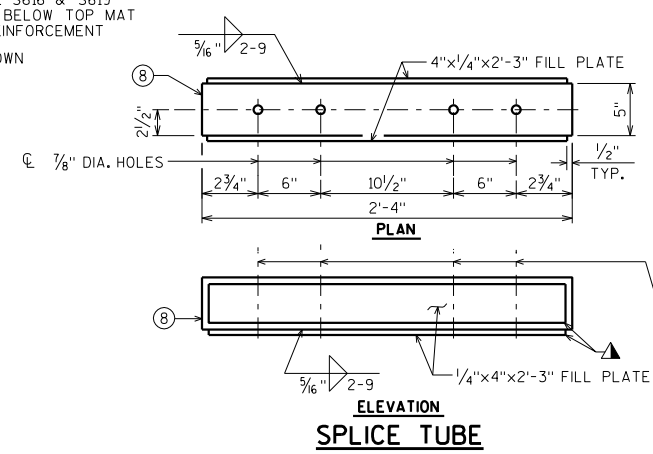
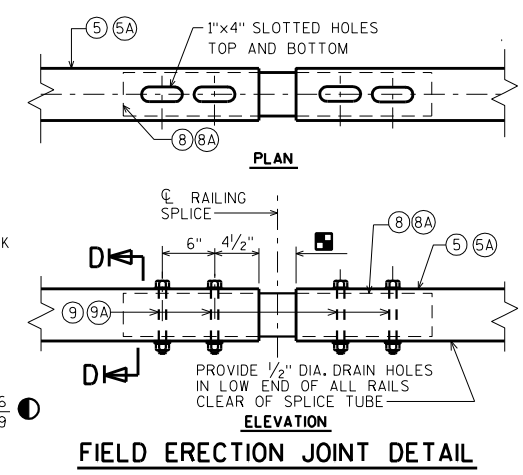
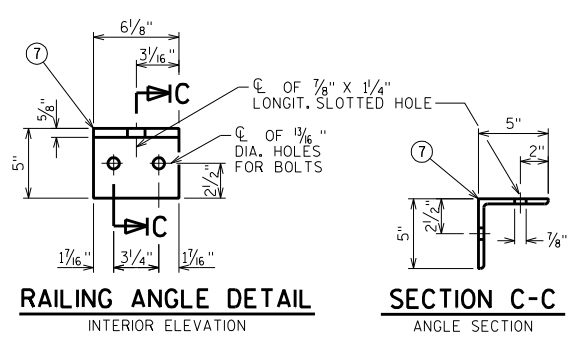
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STRUCTURE B-67-385			
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SUPERSTRUCTURE DETAILS			SHEET 19 OF 21

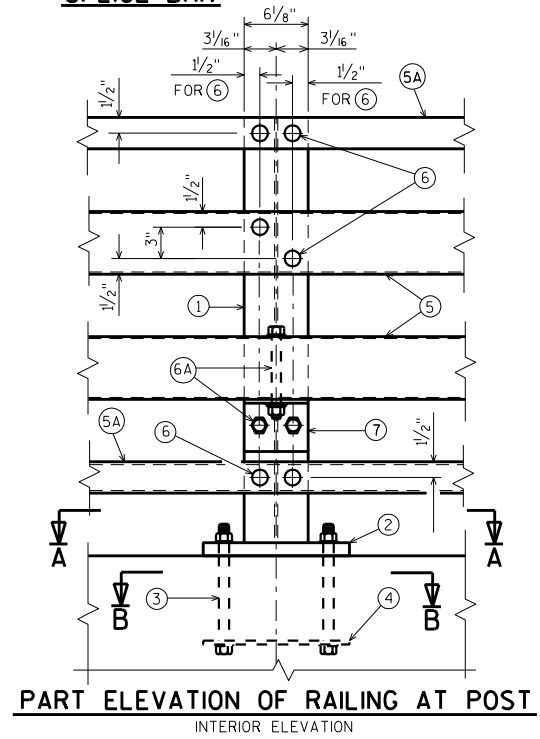
\$PRNAME\$ I:4245-0483.00 - Waukesha Co. Lilly Road over the Menomonee River Structures Find#450483 NY4 RAIL.DGN



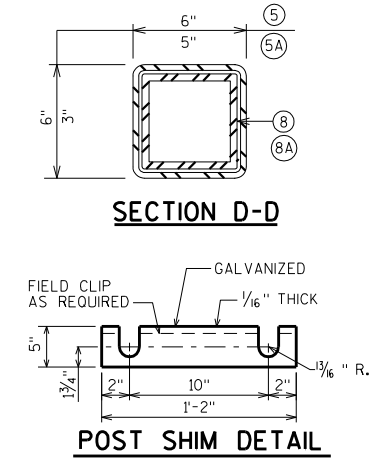
SECTION THRU RAILING ON SIDEWALK
*NORMAL TO BASE PLATE



PART ELEVATION OF RAILING
INTERIOR ELEVATION
(WINGS 2 & 4 SHOWN, WINGS 1 & 3 SIMILAR)



PART ELEVATION OF RAILING AT POST
INTERIOR ELEVATION



SECTION D-D

POST SHIM DETAIL

LEGEND

- ① W6 X 25 WITH 1/8" X 1 1/8" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT TOP TWO RAILS. USE 1" DIA. HOLES FOR BOLTS NO. 6 AT BOTTOM NO. 5A & FOR BOLT NO. 6A AT NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF SIDEWALK. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
 - ② PLATE 1/4" X 10" X 1'-2" WITH 1/8" X 1 1/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. USE 1" AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
 - ③ ASTM A449 - 1" DIA. ANCHOR BOLTS WITH HEAVY HEX NUT AND 2" O.D. HARDENED WASHER (ALL GALVANIZED). 4 REQUIRED PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1 1/2" LONG BOLT FOR CONCRETE DECKS. ON CONCRETE SLAB SUPERSTRUCTURES, USE 1 7/8" LONG BOLTS FOR SLAB THICKNESS > 16" AND 1 1/2" LONG FOR THICKNESS < 16". USE 1 7/8" LONG BOLT FOR CONCRETE SIDEWALKS. USE 1'-9" LONG IN ABUTMENT WINGS. (AN EQUIVALENT THREADED ROD WITH HEAVY HEX NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQUIRED FOR CONSTRUCTABILITY.)
 - ④ 3/8" X 10" X 1'-2" ANCHOR PLATE (GALVANIZED) WITH 1/8" DIA. HOLES FOR ANCHOR BOLTS NO. 3.
 - ⑤ TS 6 X 6 X 3/8" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 (FRONT & BACK) & 7/8" DIA. HOLES FOR BOLT NO. 6A (TOP & BOTTOM).
 - ⑤A TS 5 X 3 X 1/4" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6. IN TOP RAIL (FRONT & BACK). USE 1/8" X 1 1/8" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.
 - ⑥ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3/8" X 1 3/4" X 1 3/4" WASHER, AND SPRING LOCK WASHER (2 REQUIRED AT RAIL TO POST LOCATIONS SHOWN).
 - ⑥A 3/4" DIA. A325 BOLT WITH HEX NUT AND SPRING LOCK WASHER (1 REQUIRED AT RAIL TO ANGLE AND 2 REQUIRED AT ANGLE TO POST LOCATIONS SHOWN WITH 3/8" X 1 3/4" X 1 3/4" WASHER).
 - ⑦ L 5 X 5 X 5/8" STRUCTURAL ANGLE. ATTACH TO NO. 1 AND NO. 5 AS SHOWN.
 - ⑧ TS 5 X 5 X 5/8" X 2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.
 - ⑧A 4/4" X 2/8" X 2'-4" LONG SPLICE BAR. 1 PER RAIL. USED IN NO. 5A.
 - ⑨ 3/4" DIA. A325 FULLY THREADED BOLTS, 7/2" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5.
 - ⑨A 3/4" DIA. A325 FULLY THREADED BOLTS, 4/2" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5A.
 - ⑩ SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- ▣ 1/2" OPENING FOR A1 ABUTMENT.
▲ PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE RAILS, SPLICE TUBES AND FILL PLATES.
● TIE TO TOP MAT OF STEEL.

NOTES

- BID ITEM SHALL BE "RAILING STEEL TYPE NY4", WHICH INCLUDES ALL ITEMS SHOWN.
- RAILING SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
- POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
- ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS, ANGLES, SPLICE TUBES, SPLICE BARS AND STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.
- RAIL POST, BASE PLATES, SPLICE BAR, ANGLES AND SPLICE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED $F_y=50$ KSI. ANCHOR PLATES & SHIMS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
- THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
- FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
- STEEL SHIMS SHALL BE PROVIDED & USED UNDER PLATE NO. 2 WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.
- WORK THIS SHEET WITH "END POST DETAILS FOR RAILING STEEL TYPE NY4" SHEET.

ORIGINAL PLANS PREPARED BY
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY	CLP	PLANS CK'D.	JCK
RAILING STEEL TYPE NY4			SHEET 20 OF 21

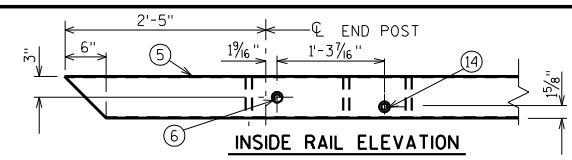
LEGEND

- ① W6 X 25 WITH 1/8" X 1 1/2" HORIZONTAL SLOTTED HOLES ON SIDE OF POST FOR BOLT NO. 6 AT NO. 5 & AT TOP RAIL NO. 5A. USE 1" DIA. HOLE FOR BOLT NO. 6 AT NO. 5A BOTTOM RAIL. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF SIDEWALK. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1/4" X 10" X 1-2". SEE SHEET "RAILING STEEL TYPE NY4" FOR MORE INFORMATION.
- ③ TS 6 X 6 X 3/8" STRUCTURAL TUBING. USE 7/8" DIA. HOLES IN TOP AND BOTTOM OF RAILS FOR BOLT NO. 13 AS SHOWN IN PLAN DETAILS. USE 1" DIA. HOLES IN FRONT AND BACK OF RAILS FOR BOLTS NO. 6 & NO. 14 AS SHOWN IN ELEVATION DETAILS.
- ④ TS 5 X 3 X 1/4" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR TOP RAIL NO. 5A (FRONT & BACK). USE 1/8" X 1 1/2" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.
- ⑤ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3/8" X 1 1/4" X 1 1/4" WASHER, AND SPRING LOCK WASHER (1 REQUIRED AT RAIL NO. 5 TO POST NO. 1 CONNECTION LOCATIONS SHOWN, 2 REQUIRED AT RAIL NO. 5A TO POST NO. 1 CONNECTION LOCATIONS SHOWN).
- ⑥ TS 6 X 6 X 3/8" STRUCTURAL TUBING. USE 1" DIA. HOLES IN FRONT AND BACK FOR BOLT NO. 14 & 7/8" DIA. HOLES IN TOP & BOTTOM FOR BOLT NO. 13.
- ⑦ L 6 X 6 X 1/2" STRUCTURAL ANGLE. USE 7/8" DIA. HOLES IN TOP FLANGE FOR BOLT NO. 13.
- ⑧ 3/4" DIA. A325 FULLY THREADED BOLTS, 2 WASHERS AND A HEAVY HEX NUT, ON EACH BOLT. NUT TO BE FINGER TIGHT. 3 BOLTS AT EACH END POST.
- ⑨ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT AND 3/8" X 2" X 2" WASHER FOR CONNECTION OF THRIE BEAM (4 REQUIRED)

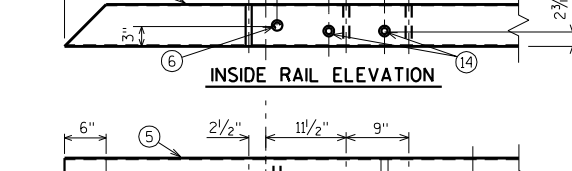
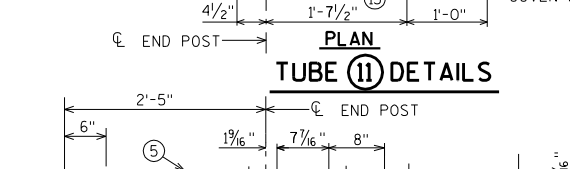
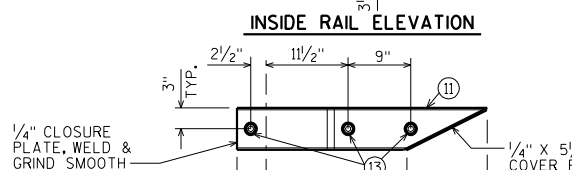
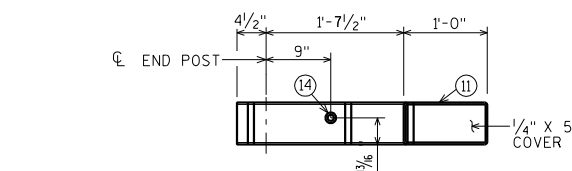
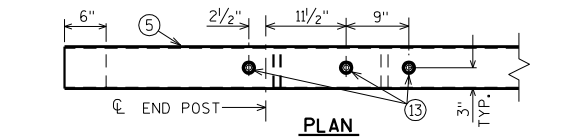
NOTES

STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED $f_y = 50$ KSI. STRUCTURAL ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50.

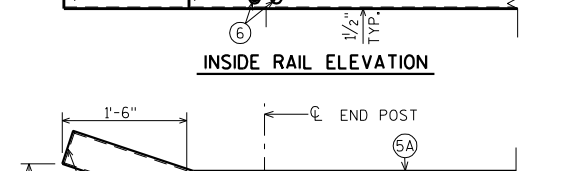
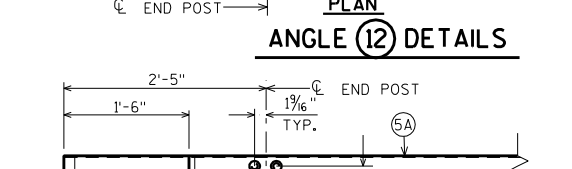
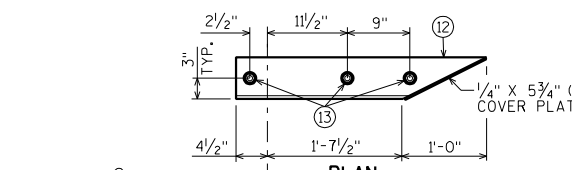
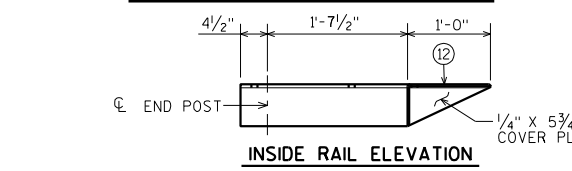
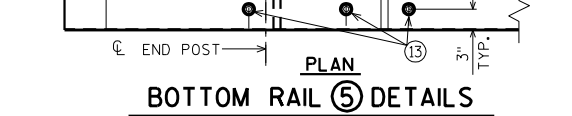
WORK THIS SHEET WITH "RAILING STEEL TYPE NY4" SHEET.



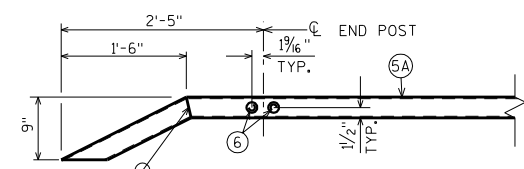
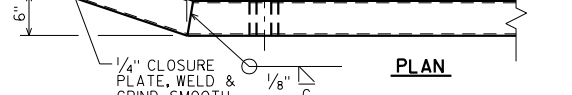
TOP RAIL ⑤ DETAILS



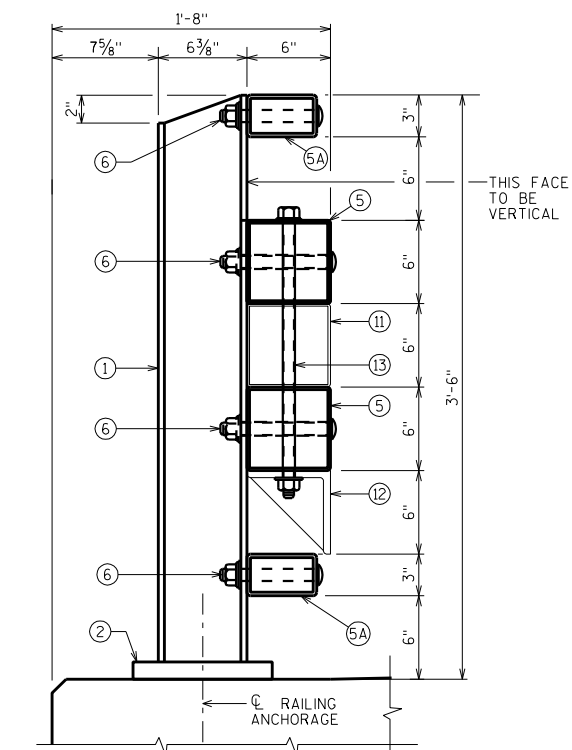
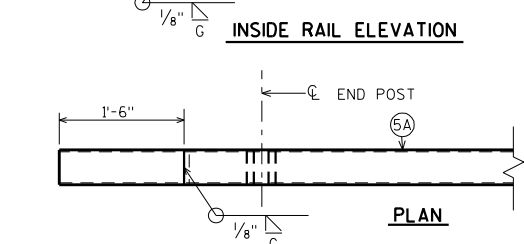
BOTTOM RAIL ⑤ DETAILS



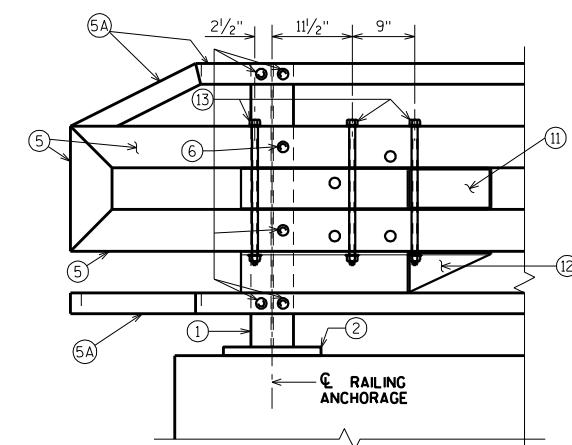
BOTTOM RAIL ⑤A DETAILS



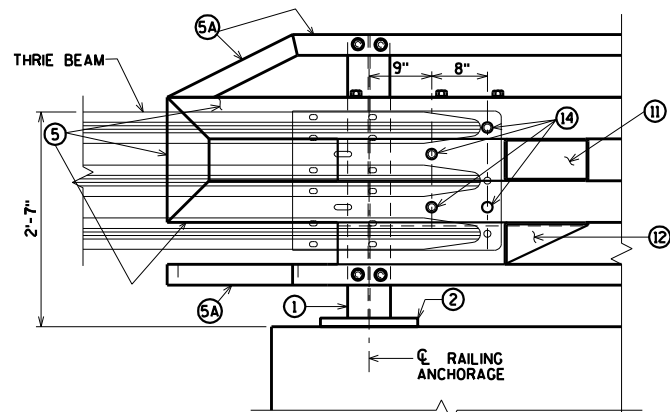
TOP RAIL ⑤A DETAILS



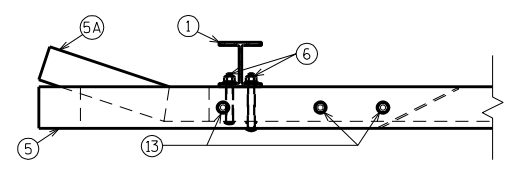
SECTION THRU RAILING END POST



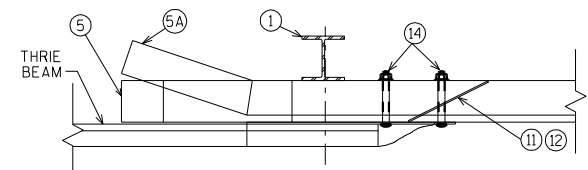
**ELEVATION DETAIL AT END POST
INTERIOR ELEVATION**



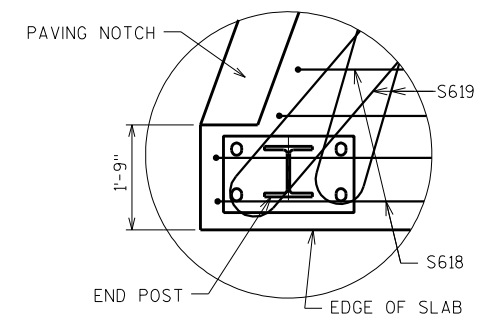
**ELEVATION OF DETAIL AT END POST
THRIE BEAM RAIL ATTACHMENT**



PLAN OF DETAIL AT END POST



**PLAN OF DETAIL AT END POST
THRIE BEAM RAIL ATTACHMENT**



END POST DETAIL

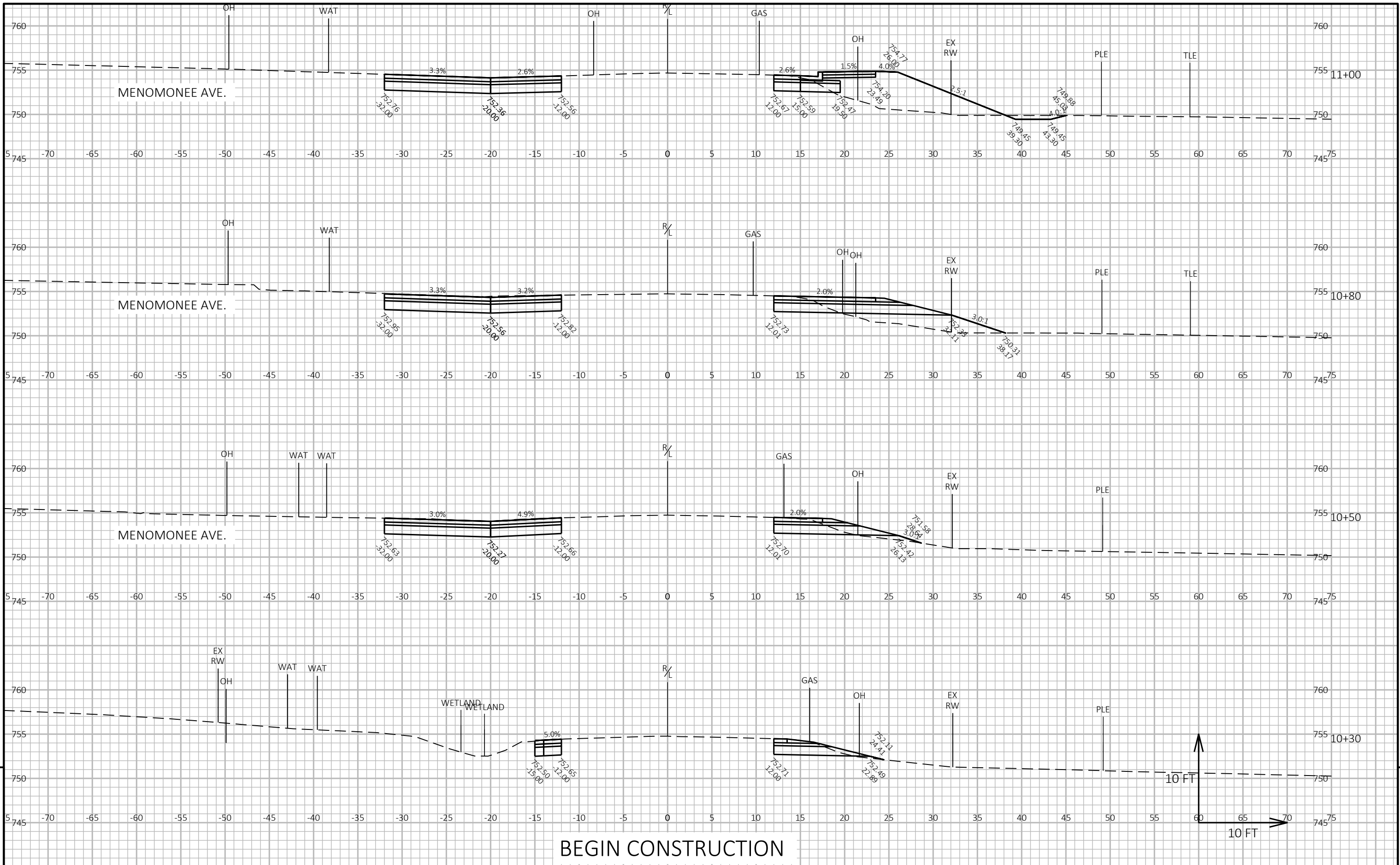
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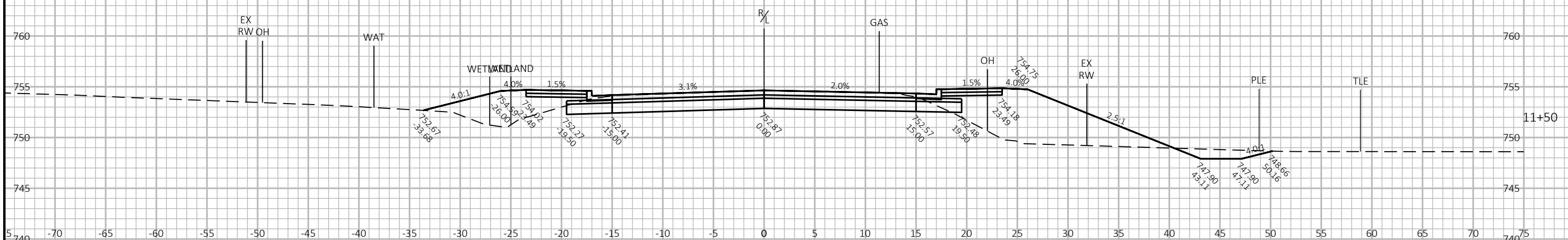
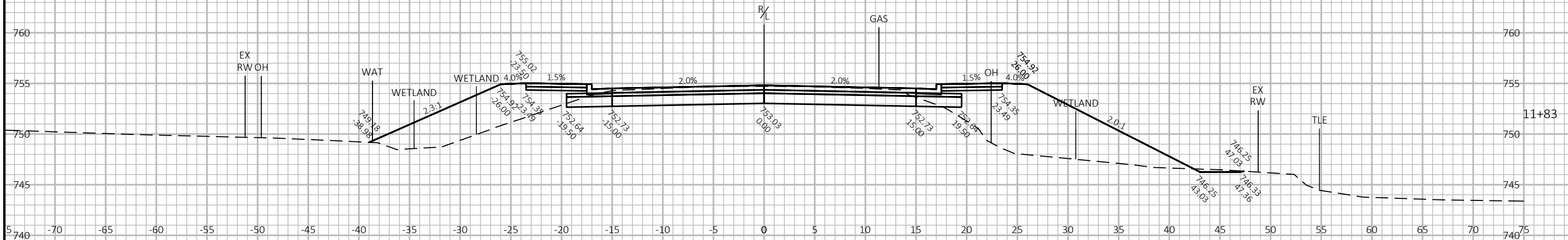
ORIGINAL PLANS PREPARED BY
AYRES 3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-385			
DRAWN BY		CLP	PLANS CK'D. JCK
END POST DETAILS FOR RAILING STEEL TYPE NY4			SHEET 21 OF 21

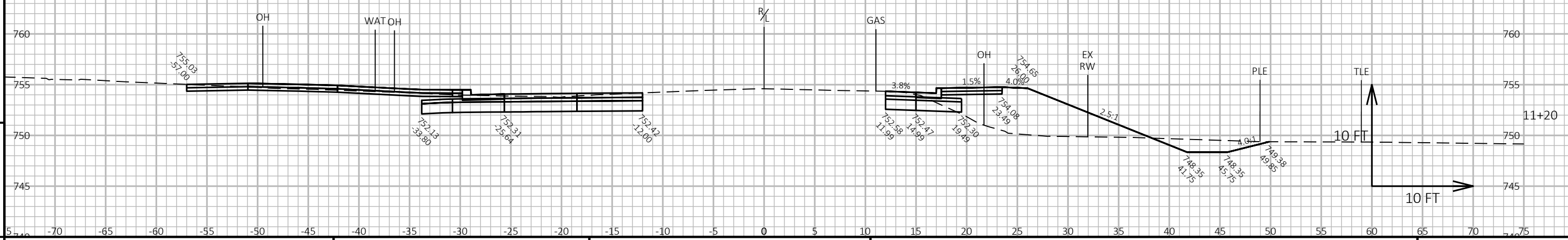


PROJECT NO: 2720-09-70	HWY: LILLY ROAD	COUNTY: WAUKESHA	CROSS SECTIONS: LILLY ROAD	SHEET E
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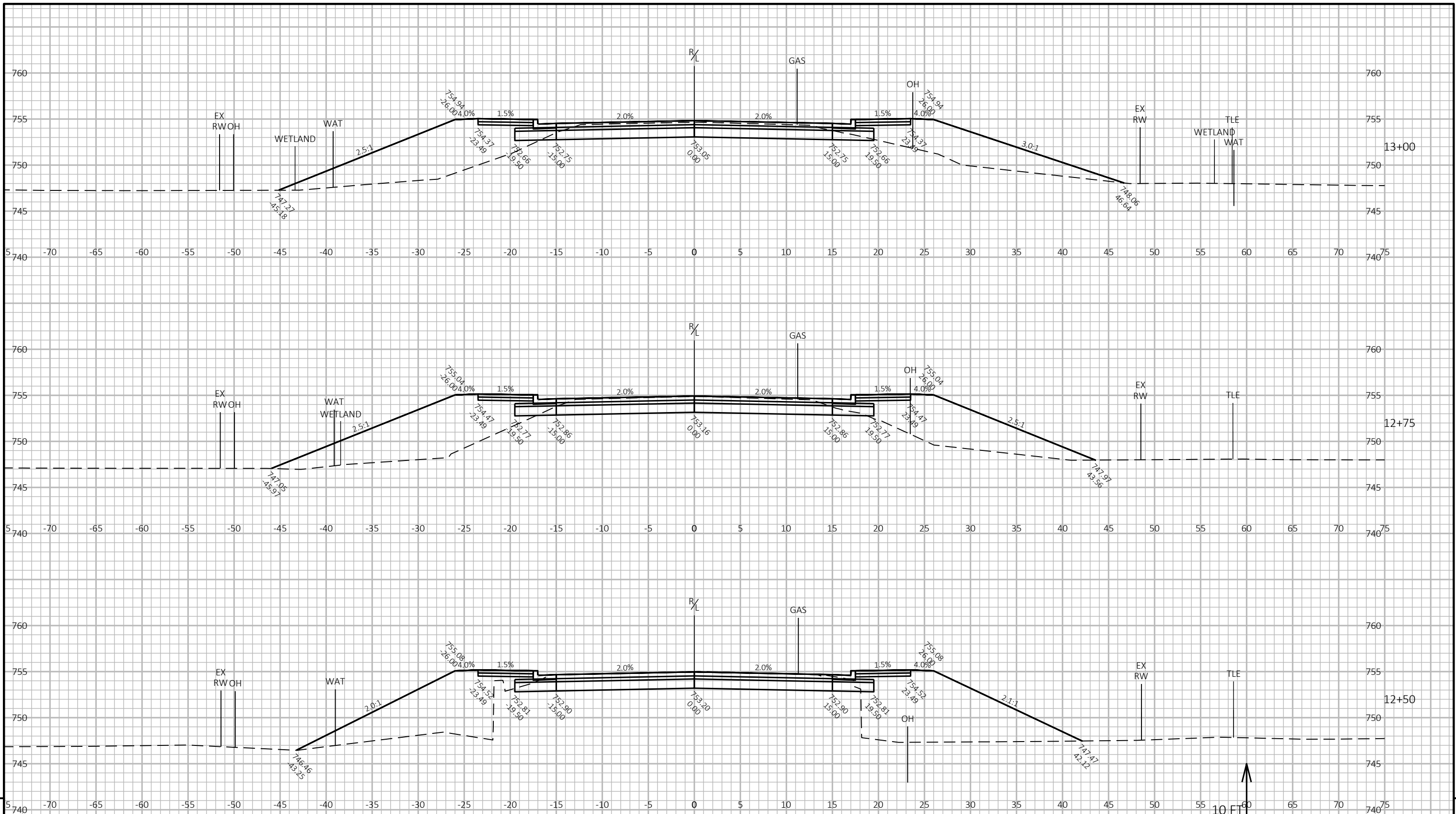
STRUCTURE B-67-385



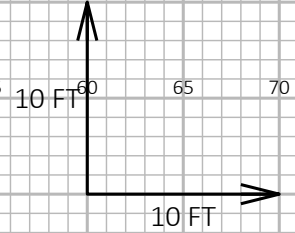
BEGIN PROJECT



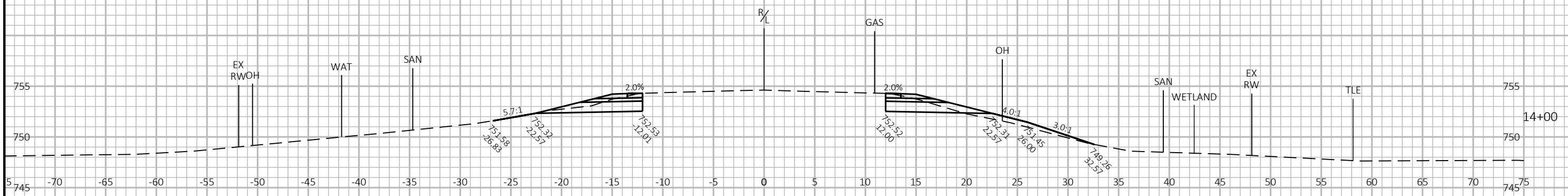
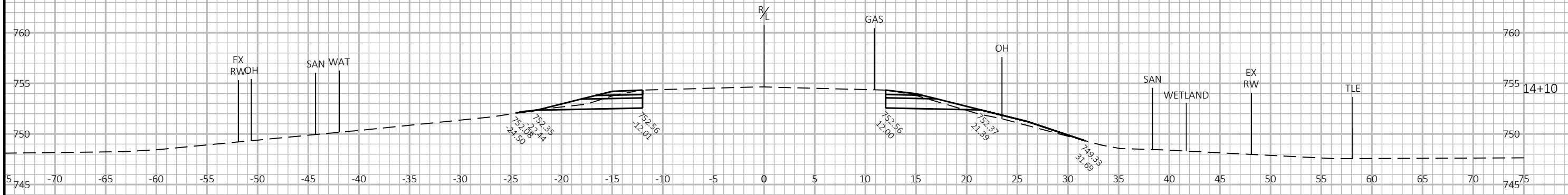
PROJECT NO: 2720-09-70	HWY: LILLY ROAD	COUNTY: WAUKESHA	CROSS SECTIONS: LILLY ROAD	SHEET	E
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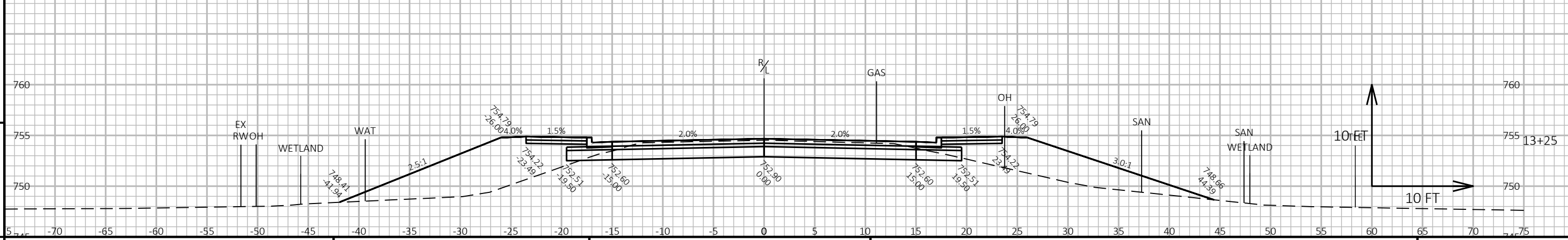
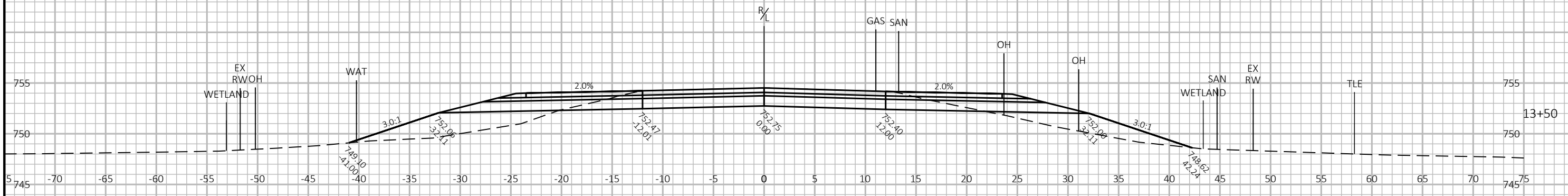
STRUCTURE B-67-385



END CONSTRUCTION



END PROJECT



PROJECT NO: 2720-09-70	HWY: LILLY ROAD	COUNTY: WAUKESHA	CROSS SECTIONS: LILLY ROAD	SHEET	9
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Notes



Wisconsin Department of Transportation

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