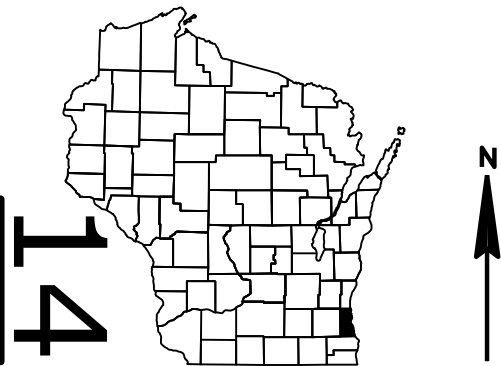


WKE
PROJECT ID: 2020-00-71
WITH: N/A
COUNTY: MILWAUKEE

DECEMBER 2025
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-Plot
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 = 136



DESIGN DESIGNATION

A.A.D.T.	2025	=	500 VPD
A.A.D.T.	2045	=	500 VPD
D.H.V.		=	N/A
D.D.		=	N/A
T.		=	N/A
DESIGN SPEED		=	30
ESALS		=	N/A

CONVENTIONAL SYMBOLS

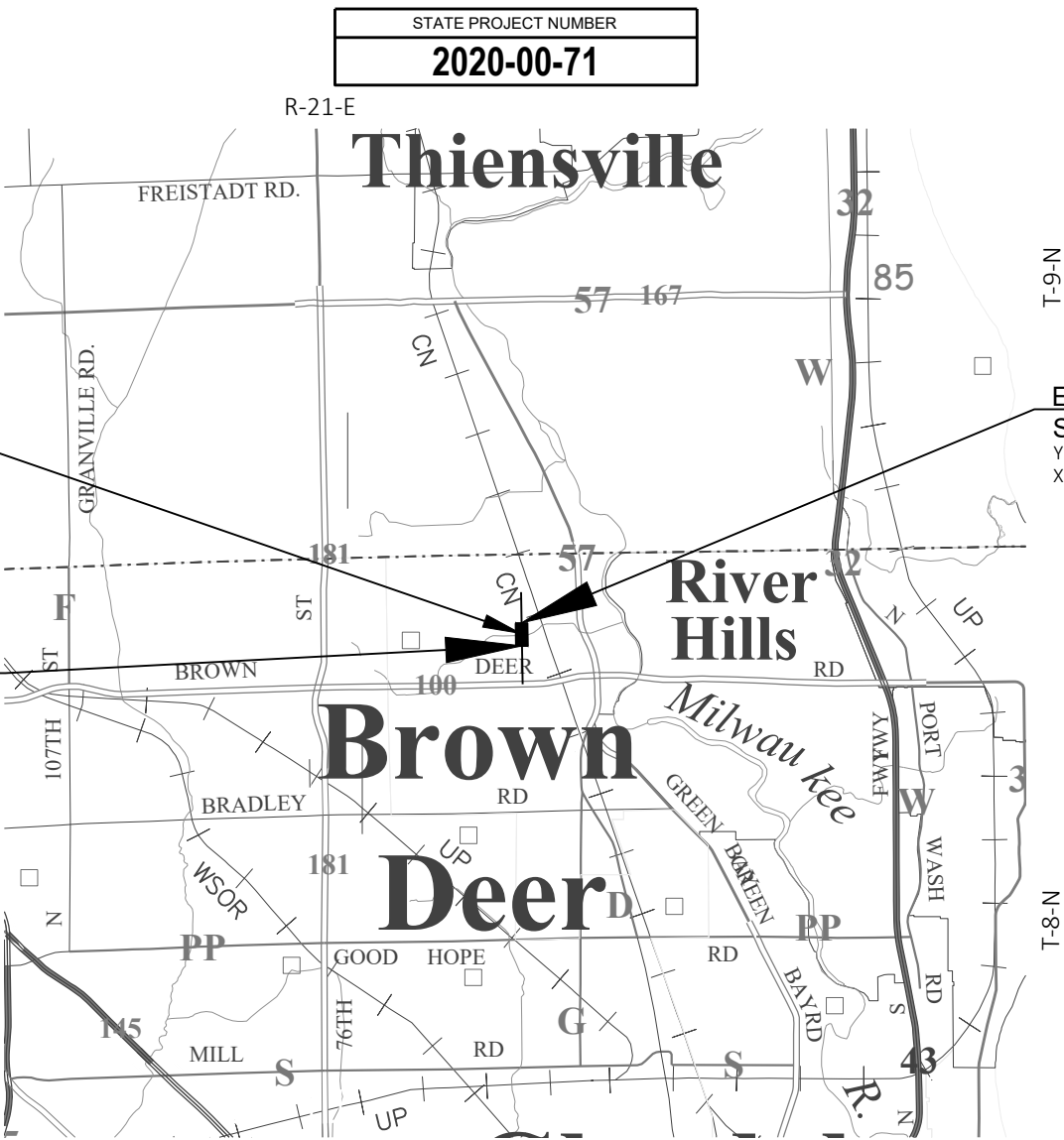
PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

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	

BEGIN PROJECT 2020-00-71
STA. 118+75.00
Y = 352,143.69
X = 588,663.78

REMOVE STRUCTURE P-40-0550
STRUCTURE B-40-1102

END PROJECT 2020-00-71
STA. 121+73.98
Y = 352,442.41
X = 588,675.31



LAYOUT
SCALE 0 1.5 MI
TOTAL NET LENGTH OF CENTERLINE = 0.057 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), MILWAUKEE COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

V BROWN DEER - N 51ST ST
BRIDGE OVER BEAVER CREEK P-40-0550
LOCAL STREET
MILWAUKEE COUNTY

STATE PROJECT NUMBER
2020-00-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2020-00-71	WISC 2025467	1

ACCEPTED FOR
VILLAGE of BROWN DEER
07/24/25 [Signature]
VILLAGE ENGINEER
(Date) (Signature & Title of Official)

ORIGINAL PLANS PREPARED BY
GRAEF 275 W. Wisconsin Avenue, Suite 300
Milwaukee, WI 53203

[Signature] 7/24/2025

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PREPARED BY
Surveyor GRAEF
Designer GRAEF
Project Manager MICHAEL BAIRD
Regional Examiner SE REGION LOCAL PROGRAM
Regional Supervisor AMY TAETSCH

APPROVED FOR THE DEPARTMENT
DATE: 7/25/2025 [Signature]
(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.

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

CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY OPERATIONS, OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.

HMA PAVEMENT WHERE INDICATED ON THE PLANS SHALL CONSIST OF LAYERS AS FOLLOWS, UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER:

4 3/4" DEPTH (RESIDENTIAL)	2" OF HMA PAVEMENT 4 LT 58-28 S AS THE UPPER LAYER 2 3/4" OF HMA PAVEMENT 3 LT 58-28 S AS THE LOWER LAYER
6 3/4" DEPTH (INDUSTRIAL PARK)	2" OF HMA PAVEMENT 4 LT 58-28 H AS THE UPPER LAYER 2 1/4" OF HMA PAVEMENT 3 LT 58-28 S AS THE LOWER LAYER 2 1/2" OF HMA PAVEMENT 3 LT 58-28 S AS THE LOWER LAYER

STATIONING, DISTANCES, AND OFFSETS FOR SIGNS AND TRAFFIC CONTROL DEVICES SHOWN IN THE PLANS ARE APPROXIMATE. TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIELD CONDITIONS AS DIRECTED BY THE ENGINEER. NO WORK MAY BEGIN UNTIL PROPER TRAFFIC CONTROL DEVICES ARE PLACED AND APPROVED BY THE ENGINEER.

SAWCUT LOCATIONS SHOWN ON THE PLAN ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER IN THE FIELD. THE LINE OF SUCH SAWCUTS SHALL BE NEATLY DELINEATED THROUGH THE ASPHALT WITHOUT ANY DAMAGE TO THE REMAINING PORTION OF THE EXISTING PAVEMENT.

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

EXCAVATION BELOW SUBGRADE (EBS) SHALL BE MEASURED AND PAID FOR AS EXCAVATION COMMON. THE EXACT LOCATION OF EBS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

PROPERTY LINES SHOWN ARE APPROXIMATE.

EROSION CONTROL ITEMS SHOWN ON THE PLAN ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS AND DIMENSIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

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

DO NOT USE FERTILIZER WITH 20 FEET OF WATERWAYS OR WETLAND AREAS

STOCKPILE EXCESS MATERIAL OR SPOILS ON UPLAND AREAS AWAY FROM WETLANDS, FLOOD PLAINS AND WATERWAYS. STOCKPILED SOIL SHALL BE IMMEDIATELY PROTECTED AGAINST EROSION WITH SILT FENCE, TEMPORARY SEED, MULCH/EROSION MAT, OR AS DIRECTED BY THE ENGINEER.

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 DETAIL."

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- REMOVAL PLAN
- PLAN DETAILS
- CURB RAMP DETAILS
- CONTOUR MAP & PROPOSED GRADES
- EROSION CONTROL
- STORM SEWER
- PERMANENT SIGNING & PAVEMENT MARKING
- TRAFFIC CONTROL
- DETOUR PLAN
- ALIGNMENT PLAN

STANDARD ABBREVIATIONS

AEW	APRON END WALL
AGG	AGGREGATE
BAD	BASE AGGREGATE DENSE
BM	BENCH MARK
C&G	CURB AND GUTTER
C/L	CENTER OR CONSTRUCTION LINE
CONC	CONCRETE
CP	CULVERT PIPE
CPCM	CULVERT PIPE CORRUGATED METAL
CPRC	CULVERT PIPE REINFORCED CONCRETE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
CSCP	CORRUGATED STEEL CULVERT PIPE
CSPA	CORRUGATED STEEL PIPE ARCH
CSD	CONCRETE SURFACE DRAIN
CY	CUBIC-YARD
D	DEGREE OF CURVE
DISCH	DELTA
FE	DISCHARGE
HERCP	FIELD ENTRANCE
HMA	HORIZONTAL ELLIPTICAL REINFORCED CONCRETE PIPE
INV	HOT MIX ASPHALT
L	INVERT
LHF	LENGTH OF CURVE
LT	LEFT HAND FORWARD
MIN	LEFT
M/L	MINIMUM
NB	MATCHLINE
NC	NORTHBOUND
NTS	NORMAL CROWN
PAVT	NOT TO SCALE
PB	PAVEMENT
PC	PULL BOX
PCC	POINT-OF-CURVE
PE	POINT OF COMPOUND CURVE
PI	PRIVATE ENTRANCE
PLE	POINT OF INTERSECTION
PT	PERMANENT LIMITED EASEMENT
PVC	POINT OF TANGENT
PVI	POINT OF VERTICAL CURVE
PVT	POINT OF VERTICAL INTERSECTION
R	POINT OF VERTICAL TANGENT
R/L	RADIUS OF CURVE
R/W	REFERENCE LINE
RAD	RIGHT OF WAY
RC	RADIUS
RCAEW	REVERSE CROWN
RCHES	APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE
RCPSS	REINFORCED CONCRETE HORIZONTAL ELLIPTICAL STORM SEWER
REQD	REINFORCED CONCRETE PIPE - STORM SEWER
RHF	REQUIRED
RO	RIGHT HAND FORWARD
RT	RUN OFF LENGTH
SALV	RIGHT
SB	SALVAGED
SDD	SIGNAL BASE
SE	STANDARD DETAIL DRAWING
SF	SUPER ELEVATION
STA	SQUARE FOOT
SY	STATION
T	SQUARE YARD
TC	TANGENT LENGTH
TLE	TOP OF CURB
	TEMPORARY LIMITED EASEMENT

WISDOT PROJECT MANAGER

MICHAEL BAIRD
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EMAIL: BOB.STEUCK@GRAEF-USA.COM

VILLAGE OF BROWN DEER

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EMAIL: MMAEDERER@BROWNDDEERWI.ORG

WISCONSIN DNR LIAISON

RYAN PAPPAS
DNR SOUTHEAST REGION HEADQUARTERS
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MILWAUKEE, WI 53233
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UTILITIES CONTACTS

MIDWEST FIBER NETWORKS - COMMUNICATIONS
CORY SCHMUKI
6070 NORTH FLINT ROAD
GLENDALE, WI 53209
PHONE: 414-459-3561 (OFFICE), 414-349-2764 (MOBILE)
EMAIL: CSCHMUKI@MIDWESTFIBERNETWORKS.COM

VILLAGE OF BROWN DEER - SEWER
MATTHEW MAEDERER
8950 N. ARBON DRIVE
BROWN DEER, WI 53223
PHONE: 414-371-3021
EMAIL: MMAEDERER@BROWNDDEERWI.ORG

UTILITIES CONTACTS

VILLAGE OF BROWN DEER - WATER
MIRANDA DURBIN
4800 W. GREEN BOOK DRIVE
BROWN DEER, WI 53223
PHONE: 262-374-1903 (MOBILE)
EMAIL: MIRANDA.DURBIN@CITYWATERUSA.COM

WE ENERGIES - ELECTRIC
ERIC KICKHAVER
500 S. 116TH STREET
WEST ALLIS, WI 53214
PHONE: 262-806-9197 (OFFICE), 262-606-4271 (MOBILE)
EMAIL: ERIC.KICKHAVER1@WE-ENERGIES.COM

WE ENERGIES - GAS
PAUL OSMANSKI
500 S. 116TH STREET
WEST ALLIS, WI 53214
PHONE: 414-944-5796 (OFFICE), 414-840-8521 (MOBILE)
EMAIL: PAUL.OSMANSKI@WE-ENERGIES.COM

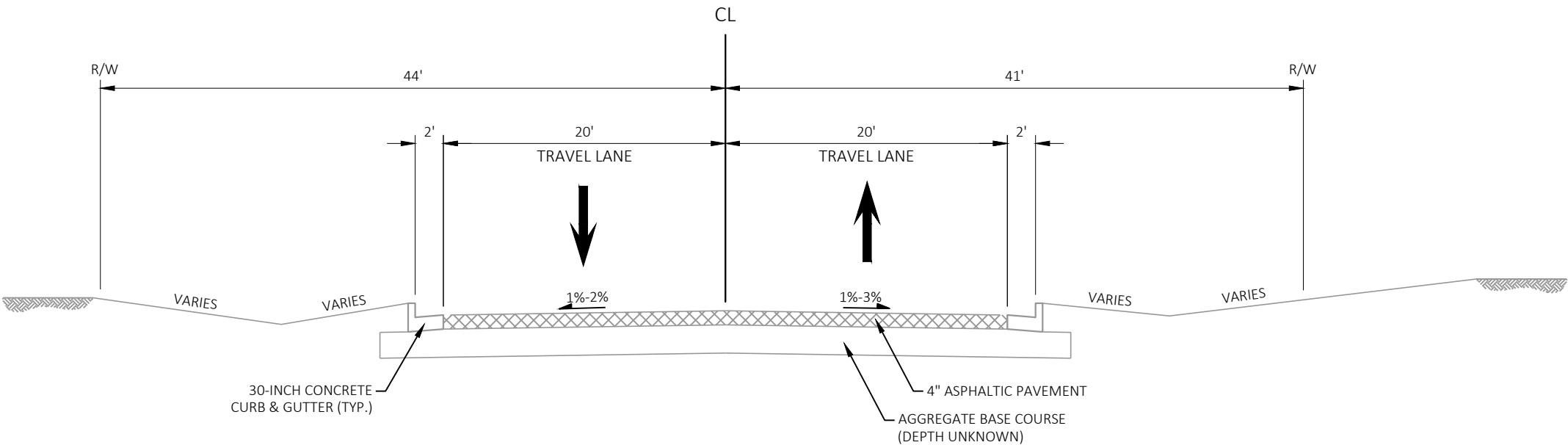
DIGGERS

HOTLINE

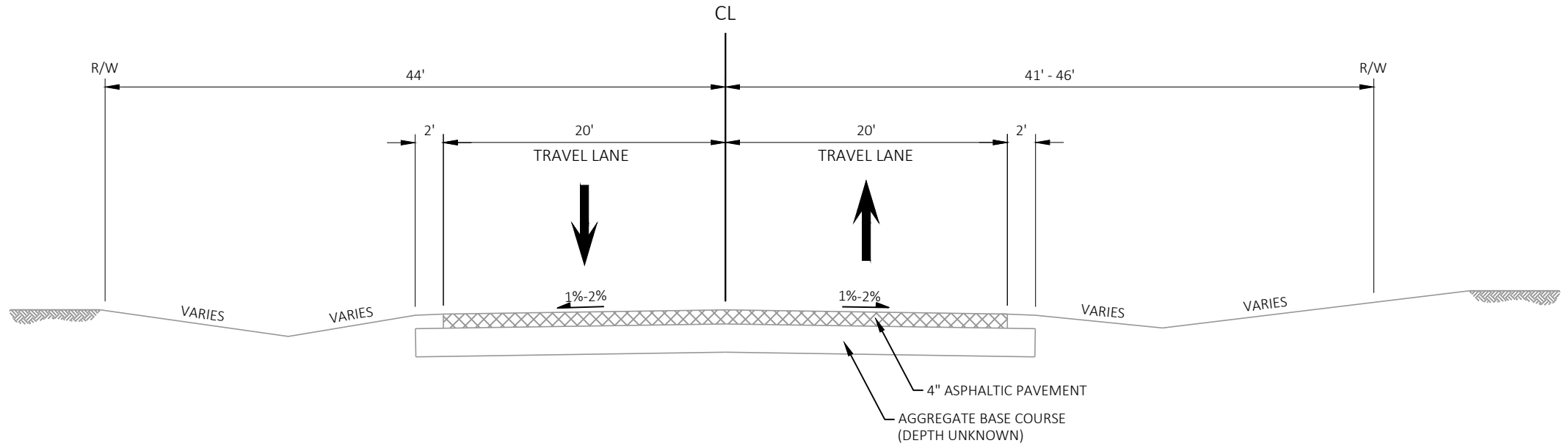
Dial 811

or (800)242-8511

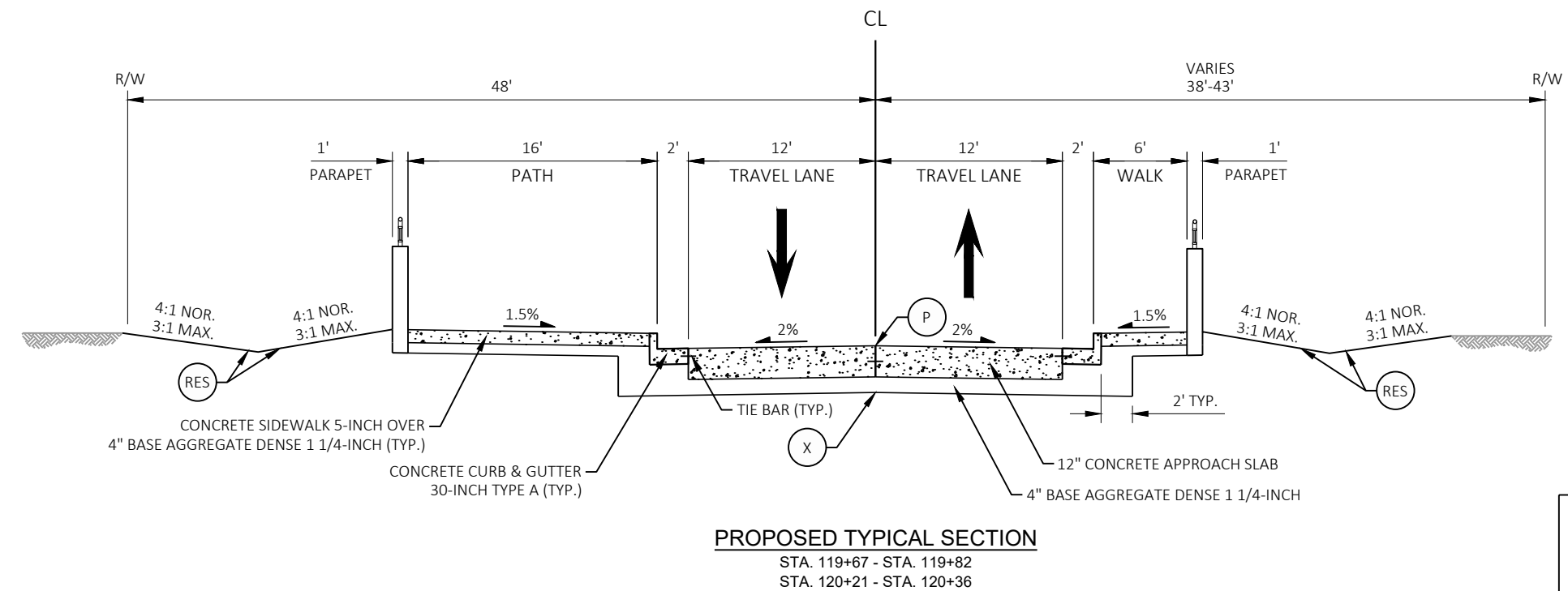
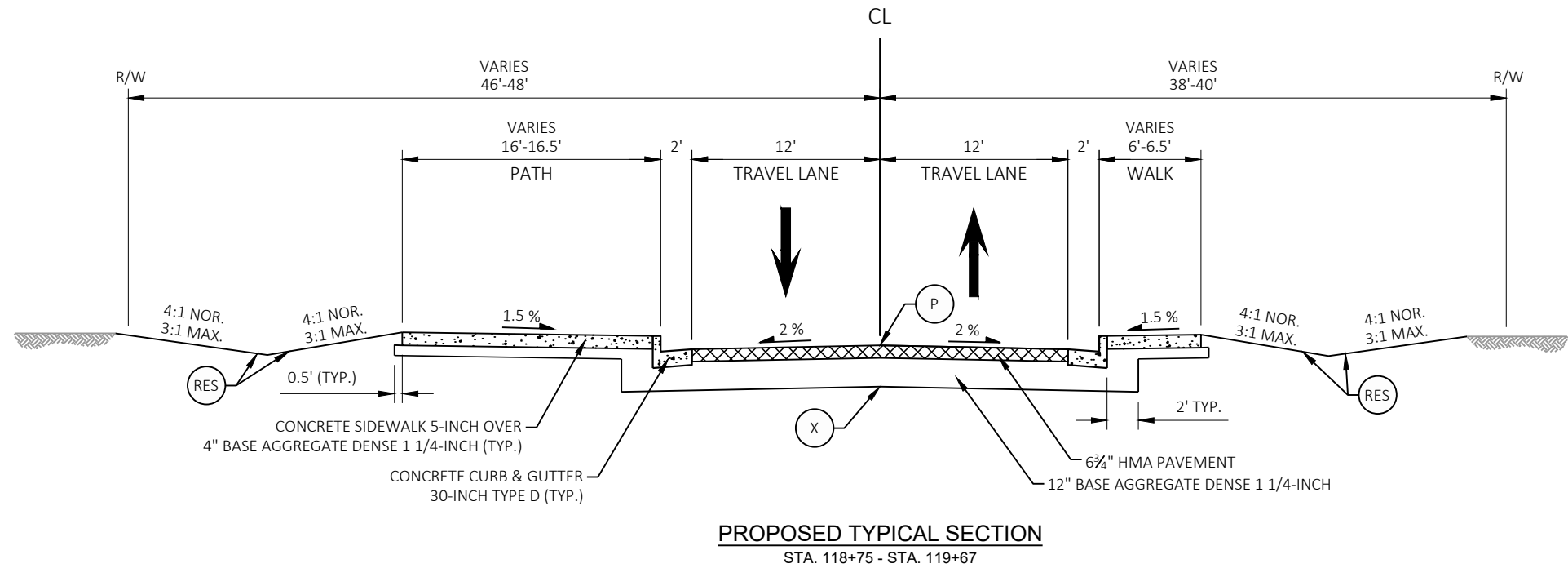
www.DiggersHotline.com



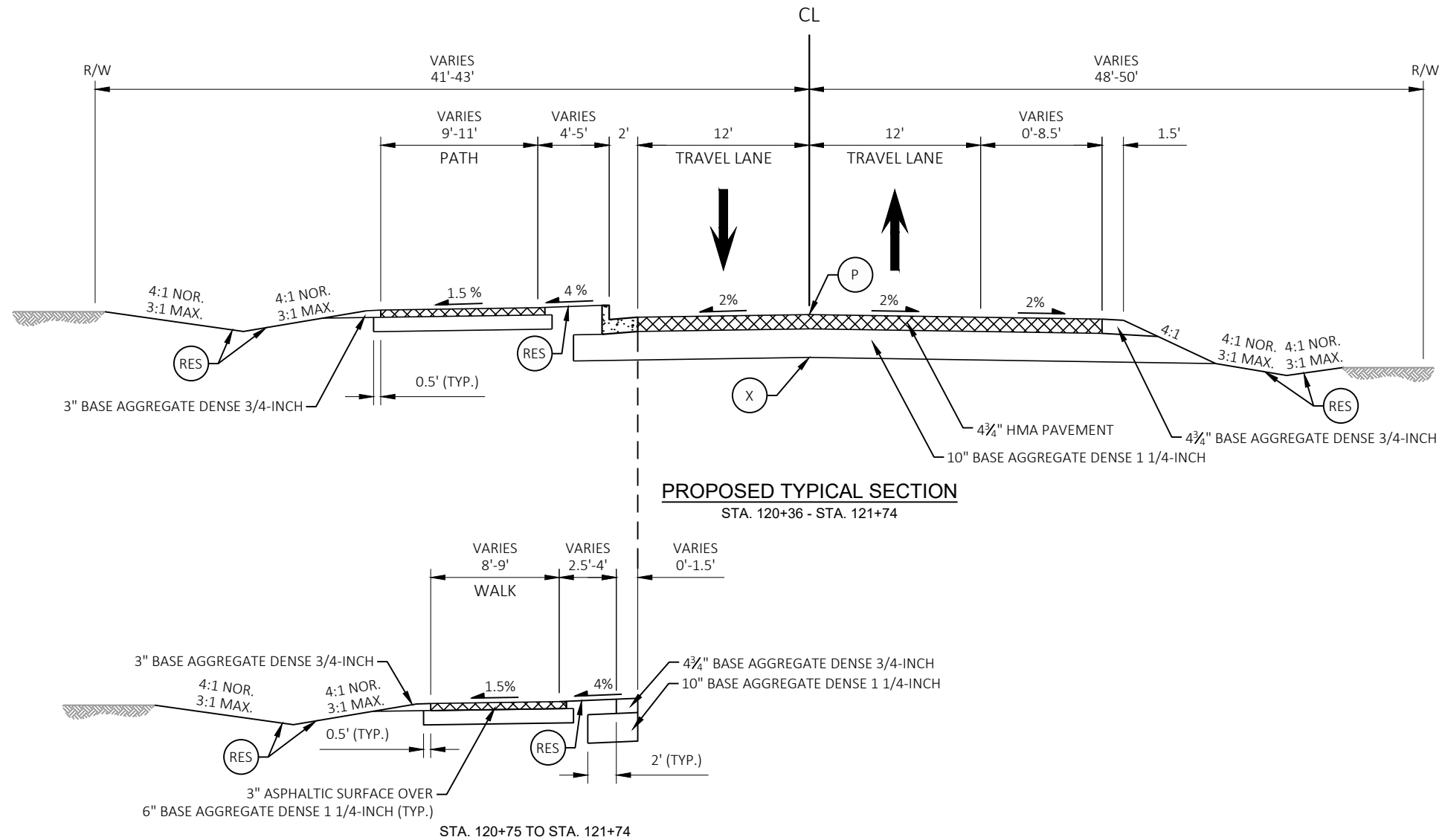
EXISTING TYPICAL SECTION
STA. 118+75 - STA. 119+58



EXISTING TYPICAL SECTION
STA. 119+58 - STA. 121+74

**LEGEND**

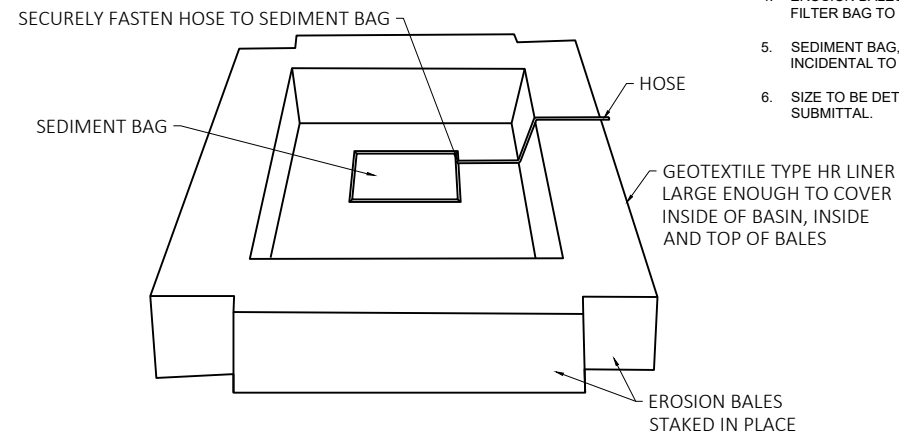
- (P) POINT REFERRED TO ON PROFILE
- (X) POINT REFERRED TO ON CROSS SECTIONS
- (RES) RESTORATION (SEE EROSION CONTROL SHEET FOR DETAILS)

**LEGEND**

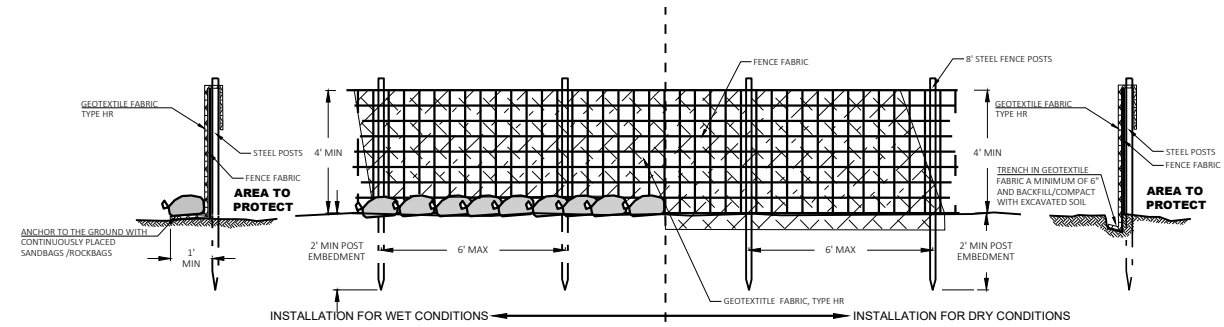
- (P) POINT REFERRED TO ON PROFILE
- (X) POINT REFERRED TO ON CROSS SECTIONS
- (RES) RESTORATION (SEE EROSION CONTROL SHEET FOR DETAILS)

NOTES

1. CONTRACTOR SHALL PUMP TURBID WATER FROM EXCAVATION TO SEDIMENT BAG PLACED INSIDE FABRIC LINED STAKED BALE ENCLOSURE PRIOR TO DISCHARGING TO DITCHES/INLETS/WETLANDS OR WATERWAYS.
2. SEDIMENT BAG TO BE PLACED IN AN UPLAND VEGETATED AREA OR EQUIVALENT LOCATION APPROVED BY THE ENGINEER.
3. BASIN TO BE KEPT LESS THAN 10% FULL OF SEDIMENT. GEOTEXTILE FABRIC AND SEDIMENTS TO BE DISPOSED BY THE CONTRACTOR OFF OF THE PROJECT SITE.
4. EROSION BALES AND GEOTEXTILE FABRIC TO BE PAID FOR SEPERATELY. FILTER BAG TO BE INCIDENTAL TO CONTRACT.
5. SEDIMENT BAG, BALES AND FABRIC TO BE REPLACED AS NECESSARY AND IS INCIDENTAL TO CONTRACT.
6. SIZE TO BE DETERMINED BY THE CONTRACTOR AS PART OF THE ECIP SUBMITTAL.



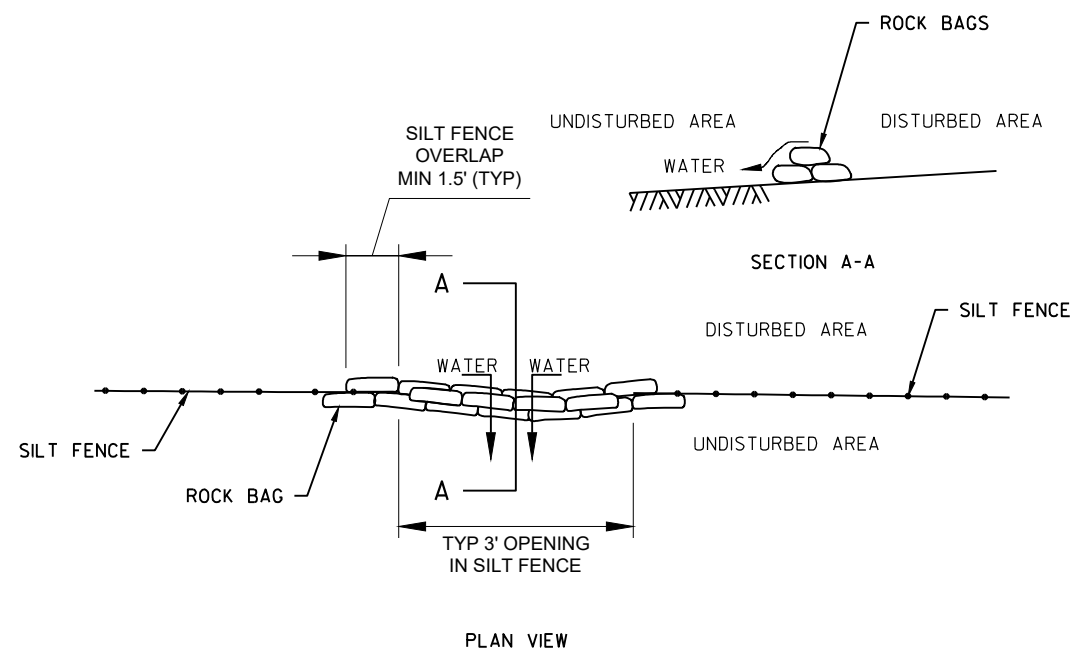
TEMPORARY SETTLING BASIN DETAIL



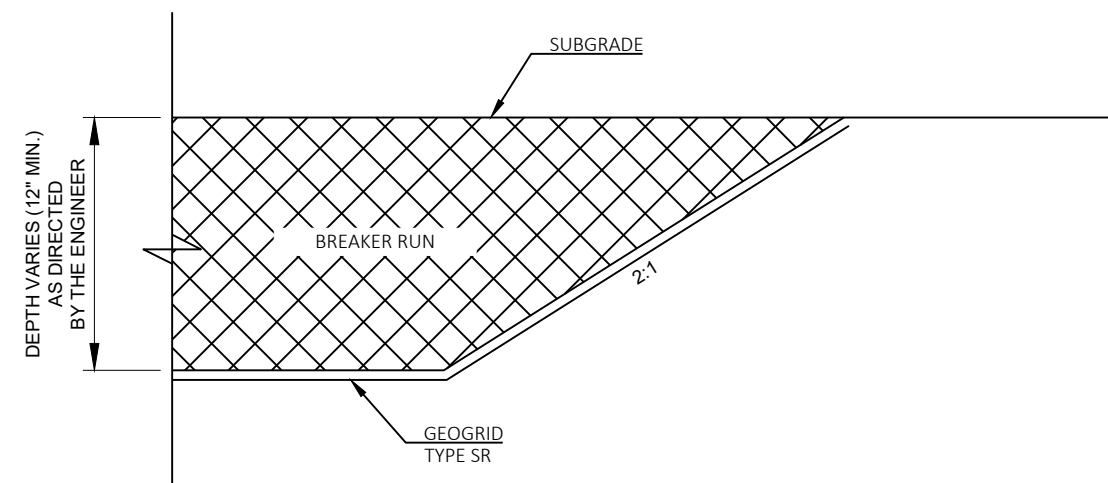
SILT FENCE HEAVY DUTY

GENERAL NOTES:

1. ATTACH FENCE FABRIC TO POSTS WITH A MINIMUM OF 3 TIES PER POST (TOP, MIDDLE, BOTTOM)
2. ATTACH GEOTEXTILE FABRIC TO FENCE FABRIC AND/OR POSTS AT A MAXIMUM SPACING OF EVERY 2 FEET ALONG THE TOP AND ADDITIONALLY AS NECESSARY TO PREVENT DISPLACEMENT BY WIND AND WAVE ACTIONS.

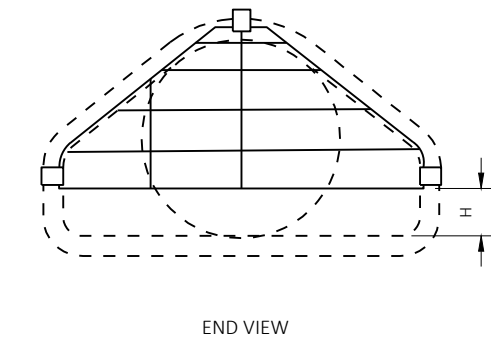
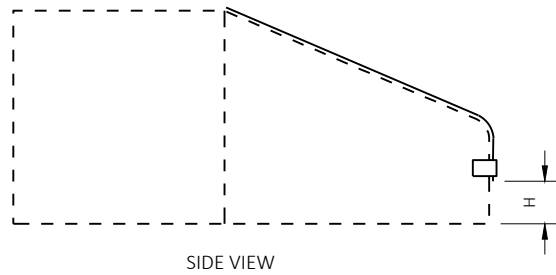
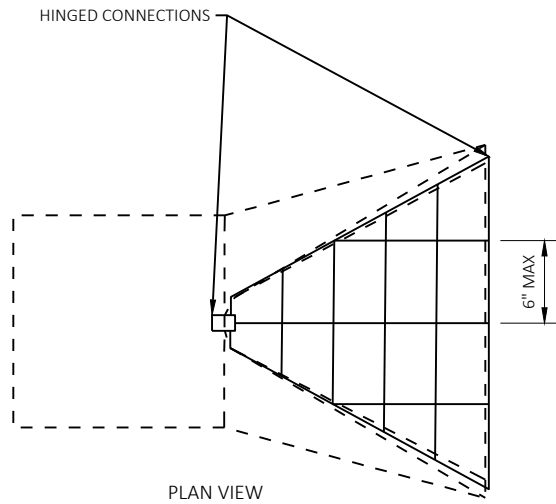


ROCK BAGS USED FOR SILT FENCE RELIEF POINT



DETAIL FOR BACKFILL IN EBS AREAS

LOCATIONS TO BE DETERMINED
IN FIELD BY ENGINEER



GRATE CLEARANCE HEIGHT

ROUND PIPE		ARCH PIPE	
PIPE SIZE	H	PIPE SIZE	H
12"	2 1/2"	22" - 29"	4"
15"	3"	36" - 44"	5"
18" - 24"	4"	51" - 65"	6"
27" - 36"	5"	73" - 85"	7"
42" - 54"	6"		
60" - 72"	7"		
78" - 90"	8"		

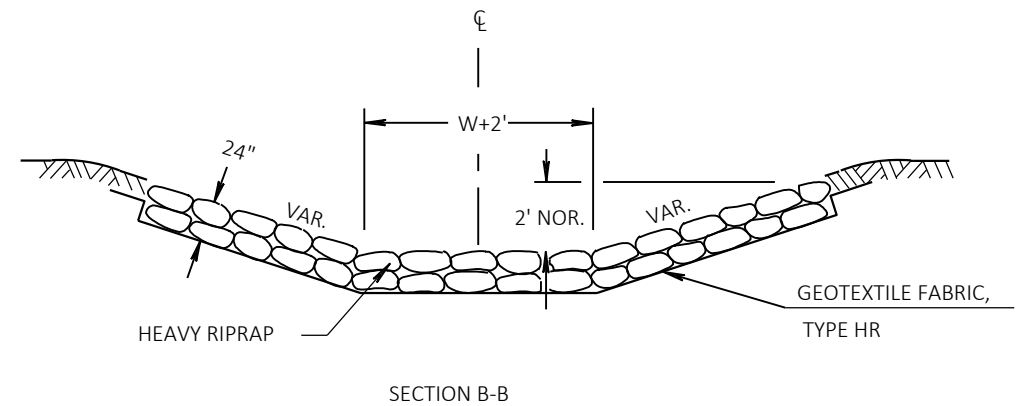
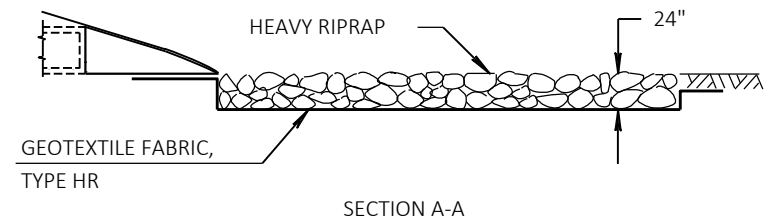
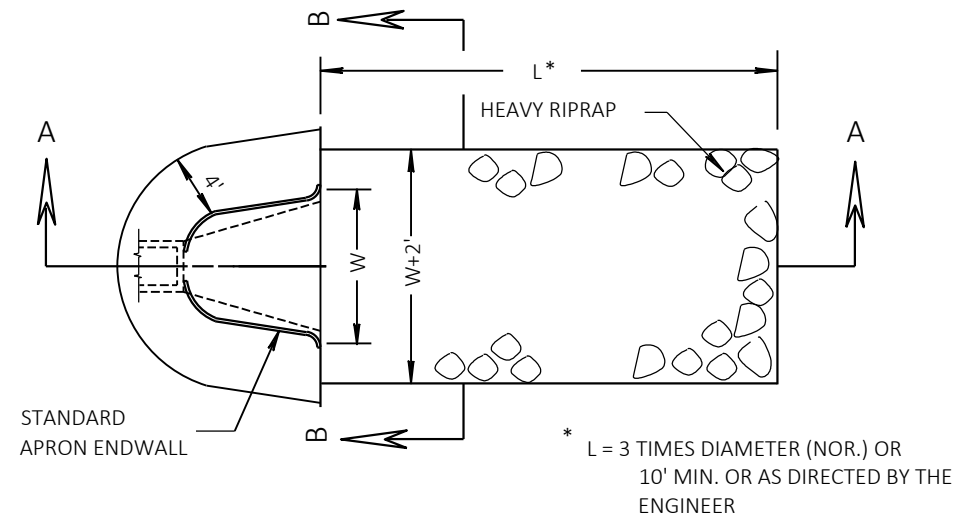
GRATE BAR SIZES
(STANDARD DESIGN)

	PIPE SIZE	HOLE DIAMETER REQUIRED	BOLT DIAMETER	BAR SIZE
ROUND PIPE	12" - 24"	3/4"	5/8"	5/8"
	27" - 48"	7/8"	3/4"	3/4"
	54" - 90"	1 1/8"	1"	1"
ARCH PIPE	22" - 29"	3/4"	5/8"	5/8"
	36" - 59"	7/8"	3/4"	3/4"
	65" - 85"	1 1/8"	1"	1"

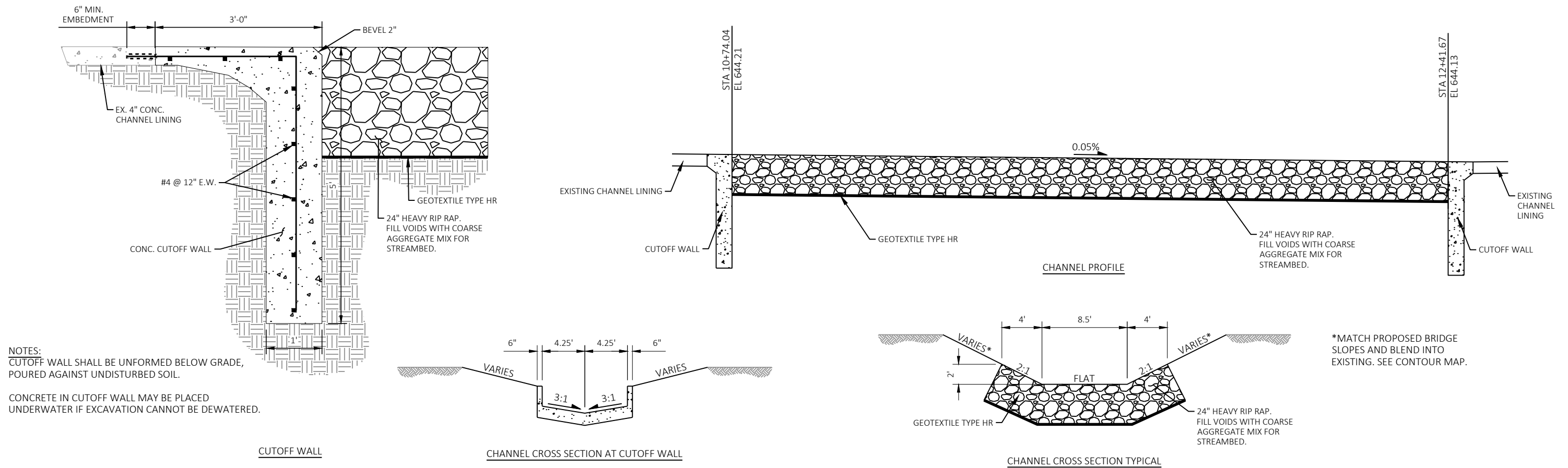
BOLT LENGTH = PIPE WALL THICKNESS + 2 1/2"

PIPE GRATE DETAIL
N.T.S.

- NOTE:
- SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION
 - PIPE GRATE CLEARANCE HEIGHT AND BAR SIZES FOR PIPE SHAPES AND SIZES NOT LISTED SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.



HEAVY RIPRAP AND GEOTEXTILE FABRIC DETAIL
AT APRON ENDWALLS



CHANNEL RESTORATION AND CUTOFF WALL DETAIL

Technical drawing of a mechanical part, likely a bracket or support, showing dimensions and section lines. The drawing includes the following dimensions and features:

- Overall width: 17"
- Overall height: 5"
- Distance between vertical supports: 7'-3"
- Distance from the right edge to the center of the circular hole: 6'-4 1/2"
- Minimum distance from the right edge to the center of the circular hole: 3" MIN.
- Minimum distance from the bottom edge to the center of the circular hole: 3" MIN.
- Minimum distance from the bottom edge to the center of the circular hole: 2' MIN.

The drawing shows a cross-section of the part, with a central rectangular area and two circular holes. The part is supported by two vertical supports. The section lines indicate the material is a different type than the surrounding structure.

Technical drawing of a manhole structure, showing a top view and a side elevation view.

Top View Dimensions:

- Overall width: 17'
- Overall depth: 9'
- Inner rectangular opening width: 9'
- Inner rectangular opening depth: 6'-6"
- Distance from left wall to inner opening: 4'
- Distance from right wall to inner opening: 4'
- Distance from front wall to inner opening: 6'-6"
- Distance from back wall to inner opening: 6'-6"
- Radius of the circular manhole opening: 5'

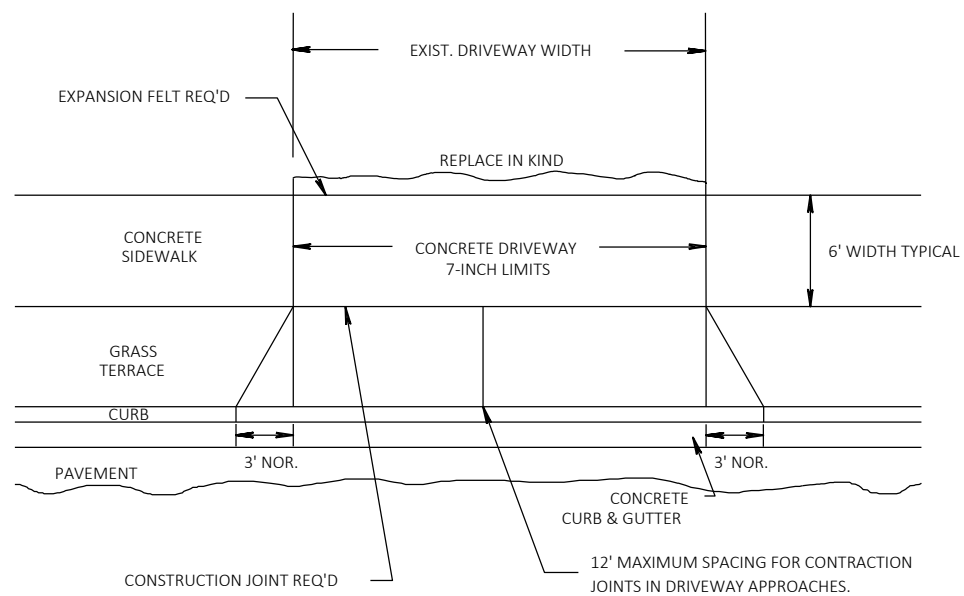
Side Elevation View Dimensions:

- Overall height: 10'
- Height of the manhole opening: 6'-6"
- Height of the riser: 3'-6"
- Height of the manhole structure above the ground: 2'-6"

Labels:

- MANHOLE STEP
- 2'-6" RISER
- 3'-6" RISER

MANHOLES 17x5-FT
STA. 120+71, 34.7' LT



PAVEMENT

CONCRETE DRIVEWAY 7-INCH

CONCRETE DRIVEWAY 7-INCH

APRON SLOPE $G_1=1.5\%$

SIDEWALK SLOPE. $0.015'/\text{FT.}$

DRIVEWAY SLOPE (G_2) 7% DESIRABLE MAX, 10% MAX

EXPANSION FELT REQ'D

EXPANSION FELT REQ'D IF ABUTTING CONCRETE DRIVEWAY

① ②

VARIABLE

①—CONCRETE DRIVEWAY 7-INCH OVER 6" BASE AGG. DENSE 1 1/4-INCH

②—4" ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES OVER 4" BASE AGG. DENSE 1 1/4-INCH BASE

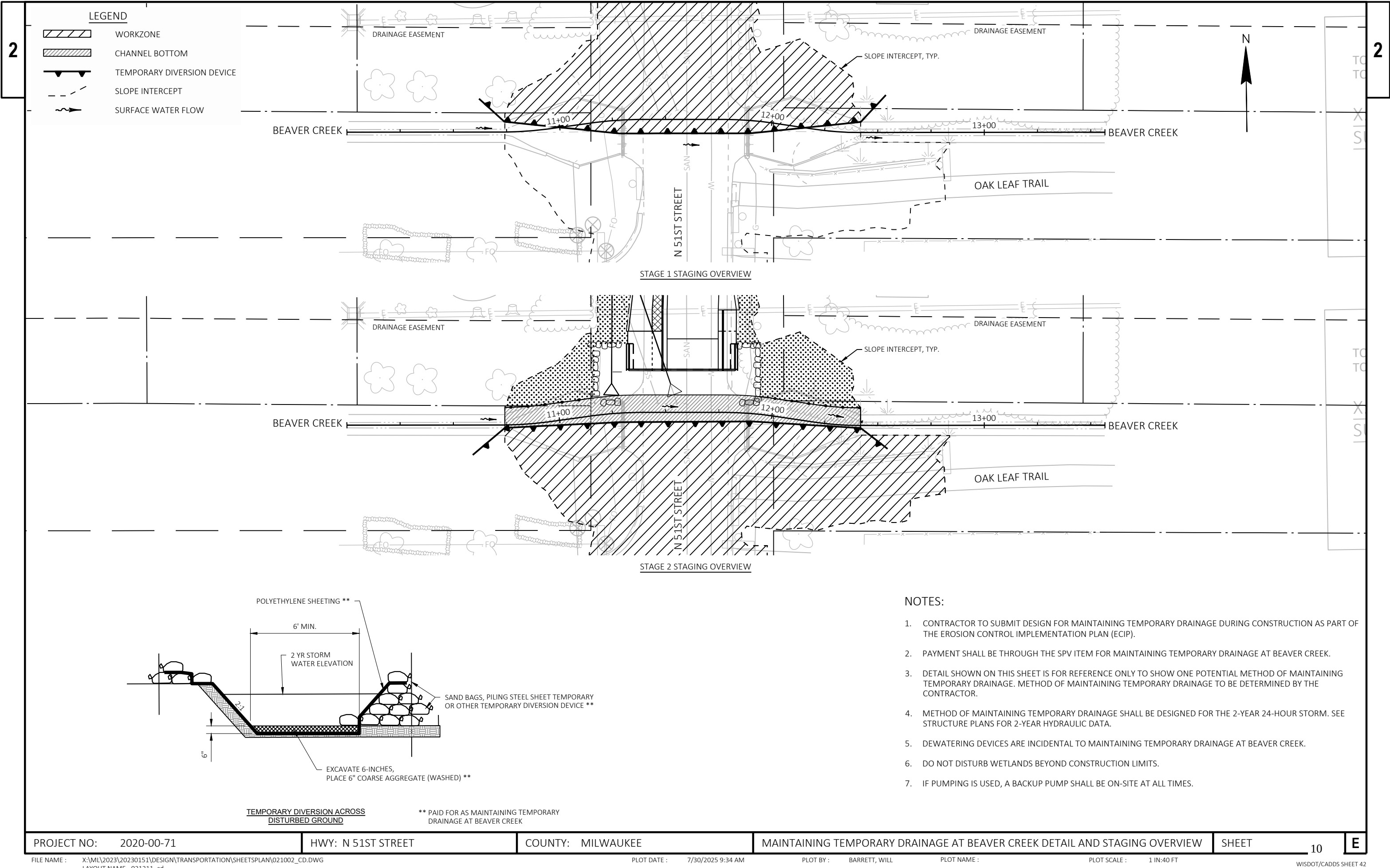
** = 6" BASE AGG. DENSE 1 1/4-INCH REQUIRED UNDER CONCRETE DRIVEWAY

TYPICAL SIDEWALK SECTION

NOTE: ALGEBRAIC DIFFERENCE BETWEEN TANGENT GRADES G_1 & G_2 TO NOT EXCEED 15%

DEPRESS SIDEWALK PROFILE IF DRIVEWAY APRON EXCEEDS MAX SLOPE

WISDOT/CADDS SHEET 42



PROJECT NO: 2020-00-71

HWY: N 51ST STREET

COUNTY: MILWAUKEE

MAINTAINING TEMPORARY DRAINAGE AT BEAVER CREEK DETAIL AND STAGING OVERVIEW

SHEET

10

E

FILE NAME : X:\ML\2023\20230151\DESIGN\TRANSPORTATION\SHEETSPLAN\021002_CD.DWG

LAYOUT NAME - 021211_cd

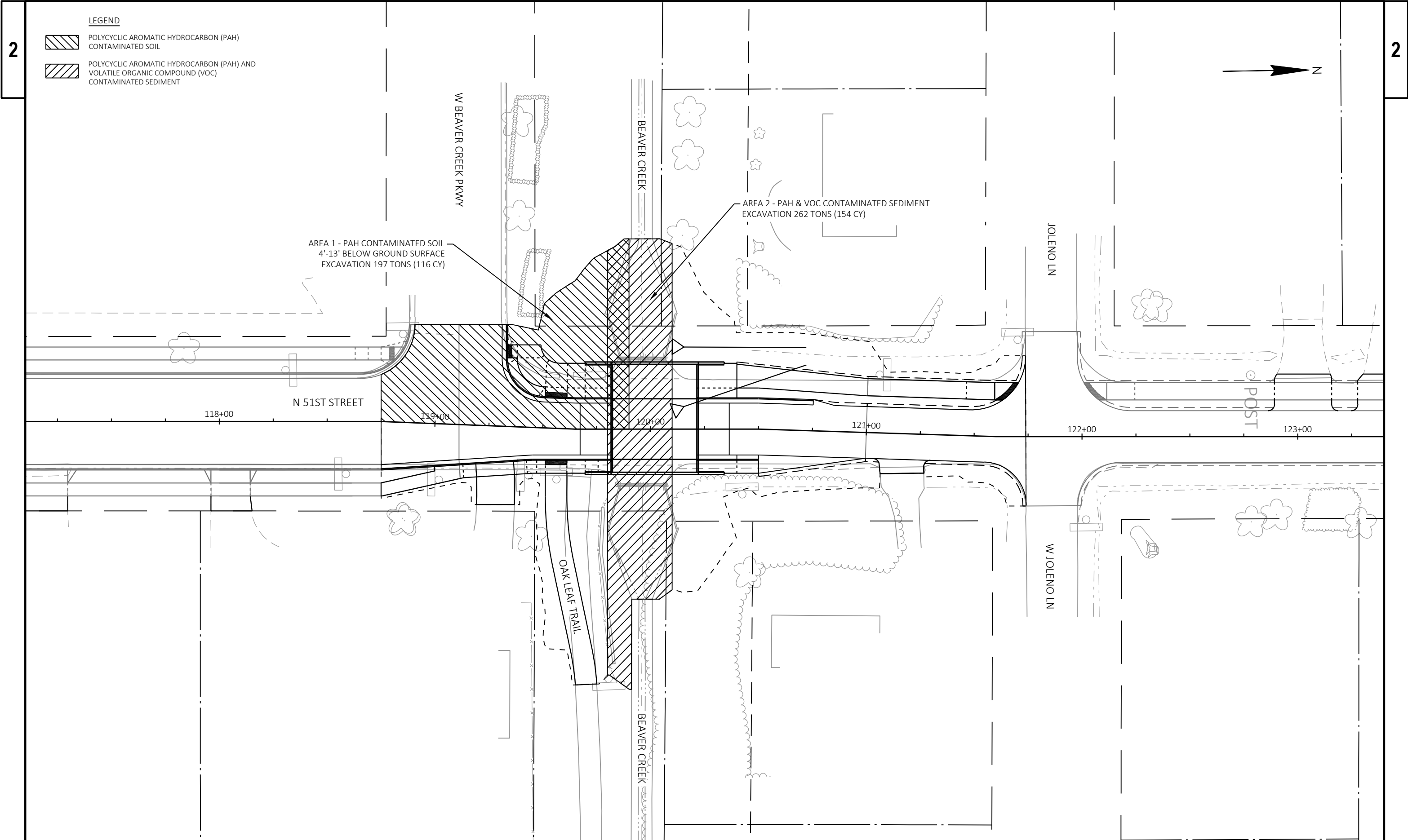
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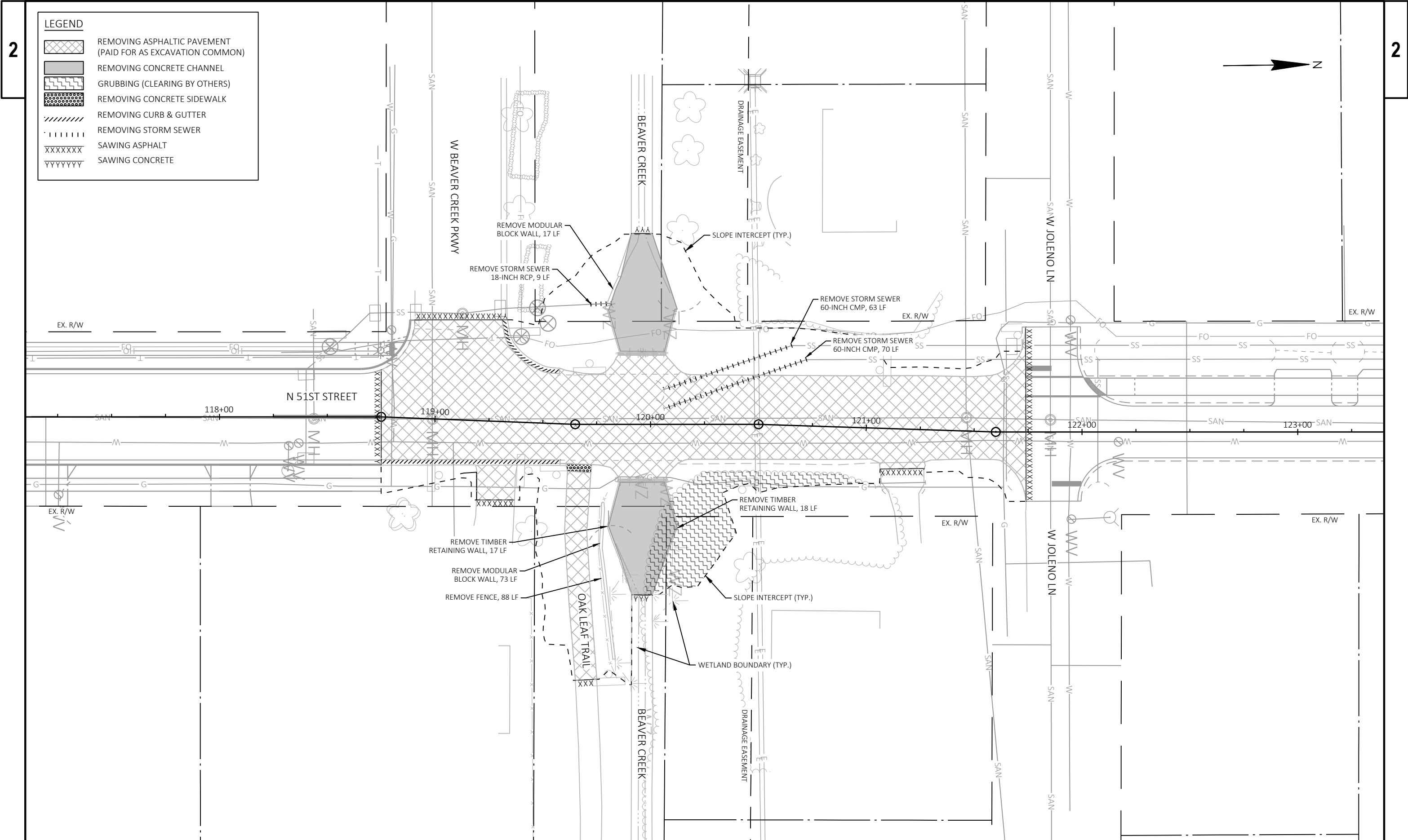
PLOT BY : BARRETT, WILL

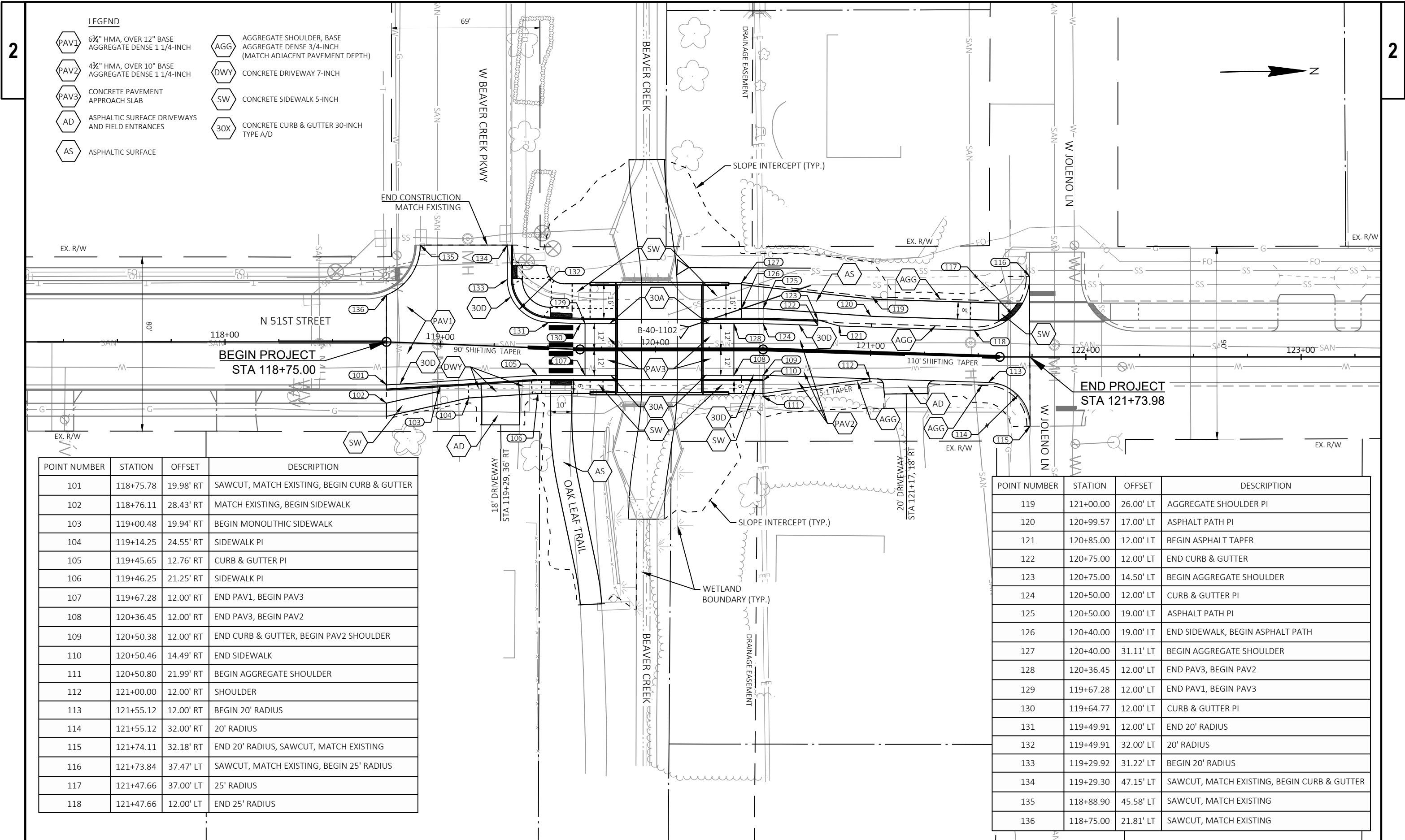
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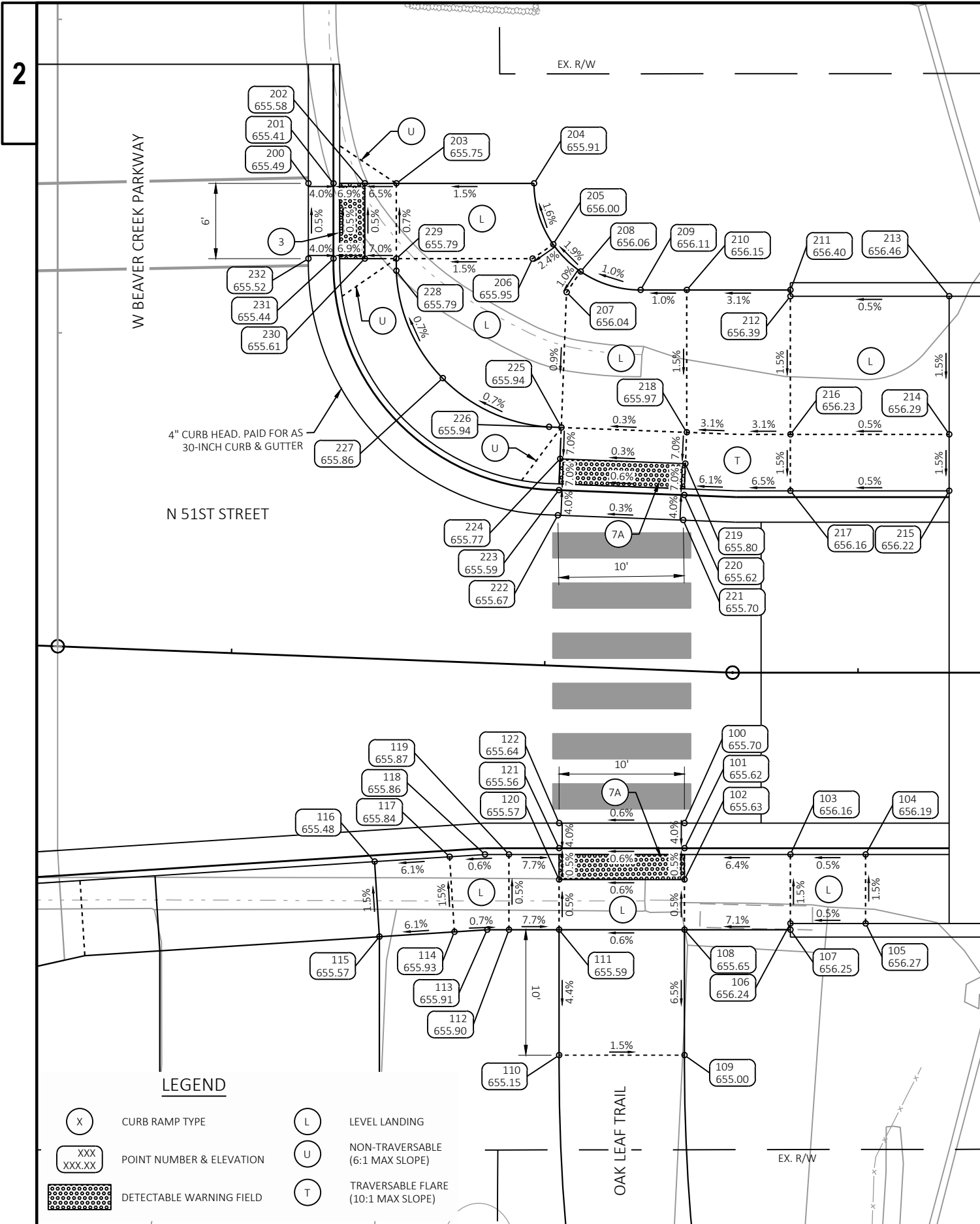
PLOT SCALE : 1 IN:40 FT

WISDOT/CADDs SHEET 42



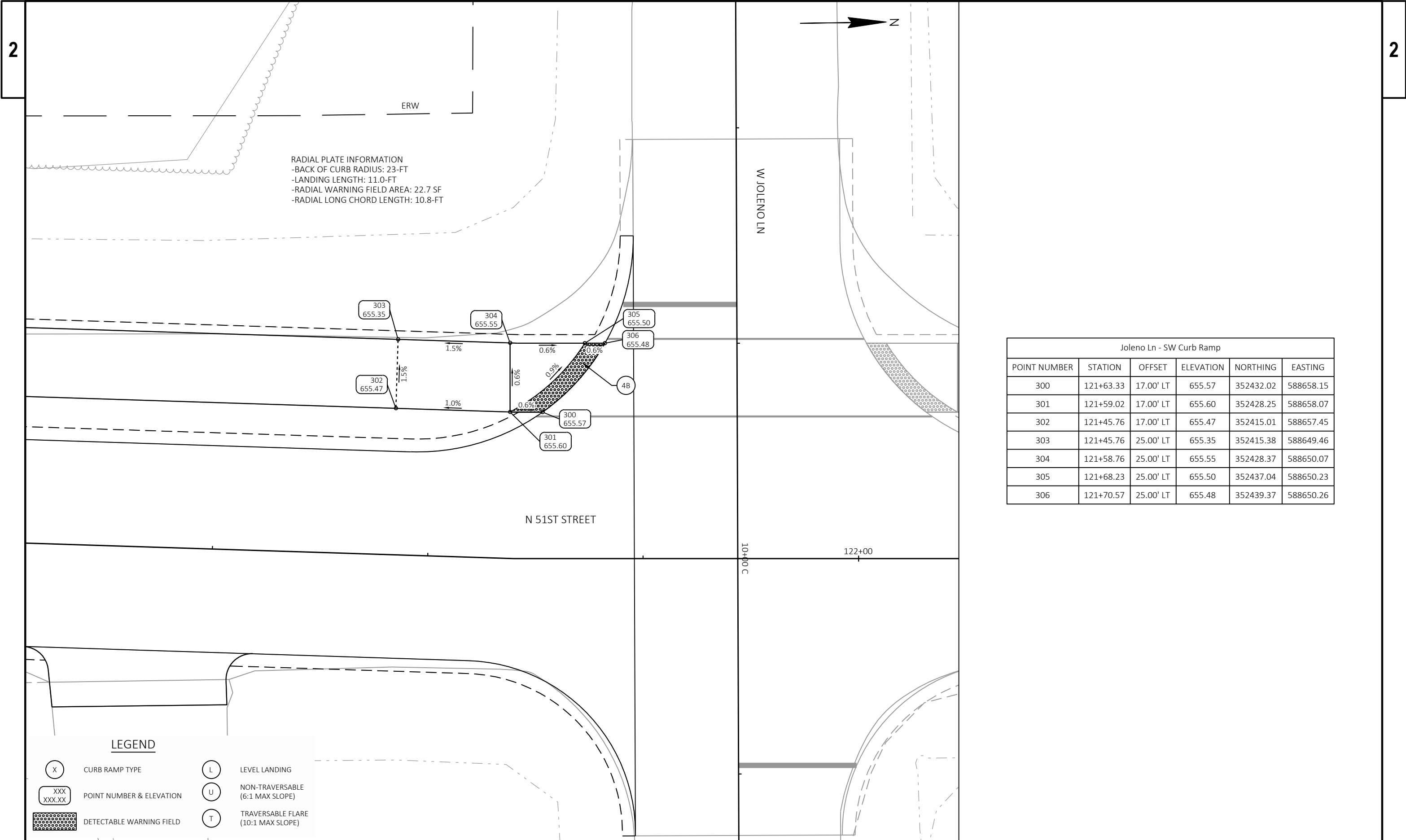






Beaver Creek Parkway - NW Curb Ramp					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
200	119+29.67	37.65' LT	655.49	352200.32	588629.14
201	119+31.67	37.73' LT	655.41	352202.32	588629.17
202	119+34.17	37.83' LT	655.58	352204.82	588629.20
203	119+36.68	37.93' LT	655.75	352207.33	588629.24
204	119+47.66	38.35' LT	655.91	352218.32	588629.41
205	119+49.37	33.56' LT	656.00	352219.77	588634.29
206	119+47.78	32.35' LT	655.95	352218.11	588635.41
207	119+50.59	29.78' LT	656.04	352220.78	588638.13
208	119+51.65	31.48' LT	656.06	352221.93	588636.49
209	119+56.48	30.19' LT	656.11	352226.69	588638.04
210	119+60.16	30.33' LT	656.15	352230.36	588638.09
211	119+69.61	30.50' LT	656.40	352238.63	588638.22
212	119+69.61	30.00' LT	656.39	352238.63	588638.72
213	119+82.28	30.00' LT	656.46	352251.29	588638.91
214	119+82.28	19.00' LT	656.29	352251.13	588649.91
215	119+82.28	14.50' LT	656.22	352251.06	588654.41
216	119+69.61	19.00' LT	656.23	352238.46	588649.72
217	119+69.61	14.50' LT	656.16	352238.39	588654.22
218	119+60.60	19.00' LT	655.97	352230.19	588649.43
219	119+60.59	16.50' LT	655.80	352230.05	588651.93
220	119+60.59	14.00' LT	655.62	352229.92	588654.43
221	119+60.59	12.00' LT	655.70	352229.81	588656.42
222	119+50.59	12.00' LT	655.67	352219.82	588655.88
223	119+50.59	14.00' LT	655.59	352219.93	588653.89
224	119+50.59	16.50' LT	655.77	352220.06	588651.39
225	119+50.59	19.00' LT	655.94	352220.20	588648.89
226	119+49.61	19.00' LT	655.94	352219.22	588648.84
227	119+40.98	22.55' LT	655.86	352210.79	588644.83
228	119+36.95	30.97' LT	655.79	352207.22	588636.20
229	119+36.91	31.93' LT	655.79	352207.24	588635.24
230	119+34.40	31.83' LT	655.61	352204.73	588635.20
231	119+31.90	31.74' LT	655.44	352202.23	588635.17
232	119+29.91	31.66' LT	655.52	352200.23	588635.14

Oak Leaf Trail - Curb Ramp					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
100	119+61.63	12.14' RT	655.70	352229.54	588680.58
101	119+61.71	14.14' RT	655.62	352229.51	588682.58
102	119+61.81	16.64' RT	655.63	352229.48	588685.08
103	119+69.61	14.50' RT	656.16	352237.95	588683.21
104	119+75.61	14.50' RT	656.19	352243.95	588683.30
105	119+75.61	20.00' RT	656.27	352243.87	588688.80
106	119+69.61	20.00' RT	656.24	352237.87	588688.71
107	119+69.61	20.50' RT	656.25	352237.86	588689.21
108	119+61.96	20.63' RT	655.65	352229.41	588689.08
109	119+62.35	30.63' RT	655.00	352229.26	588699.08
110	119+52.36	31.01' RT	655.15	352219.26	588698.93
111	119+51.97	21.02' RT	655.59	352219.42	588688.93
112	119+47.97	21.18' RT	655.90	352215.42	588688.87
113	119+46.25	21.25' RT	655.91	352213.69	588688.85
114	119+43.63	21.52' RT	655.93	352211.06	588688.97
115	119+37.67	22.13' RT	655.57	352205.07	588689.27
116	119+37.05	16.16' RT	655.48	352204.78	588683.27
117	119+43.02	15.55' RT	655.84	352210.77	588682.98
118	119+45.82	15.26' RT	655.86	352213.59	588682.84
119	119+47.74	15.18' RT	655.87	352215.51	588682.87
120	119+51.82	17.03' RT	655.57	352219.48	588684.93
121	119+51.72	14.53' RT	655.56	352219.51	588682.43
122	119+51.64	12.53' RT	655.64	352219.54	588680.43



RADIAL PLATE INFORMATION
-BACK OF CURB RADIUS: 23-FT
-LANDING LENGTH: 11.0-FT
-RADIAL WARNING FIELD AREA: 22.7 SF
-RADIAL LONG CHORD LENGTH: 10.8-FT

Joleno Ln - SW Curb Ramp					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
300	121+63.33	17.00' LT	655.57	352432.02	588658.15
301	121+59.02	17.00' LT	655.60	352428.25	588658.07
302	121+45.76	17.00' LT	655.47	352415.01	588657.45
303	121+45.76	25.00' LT	655.35	352415.38	588649.46
304	121+58.76	25.00' LT	655.55	352428.37	588650.07
305	121+68.23	25.00' LT	655.50	352437.04	588650.23
306	121+70.57	25.00' LT	655.48	352439.37	588650.26

LEGEND

X

CURB RAMP TYPE

XXX
XXX.XX

POINT NUMBER & ELEVATION

[Pattern]

DETECTABLE WARNING FIELD

L

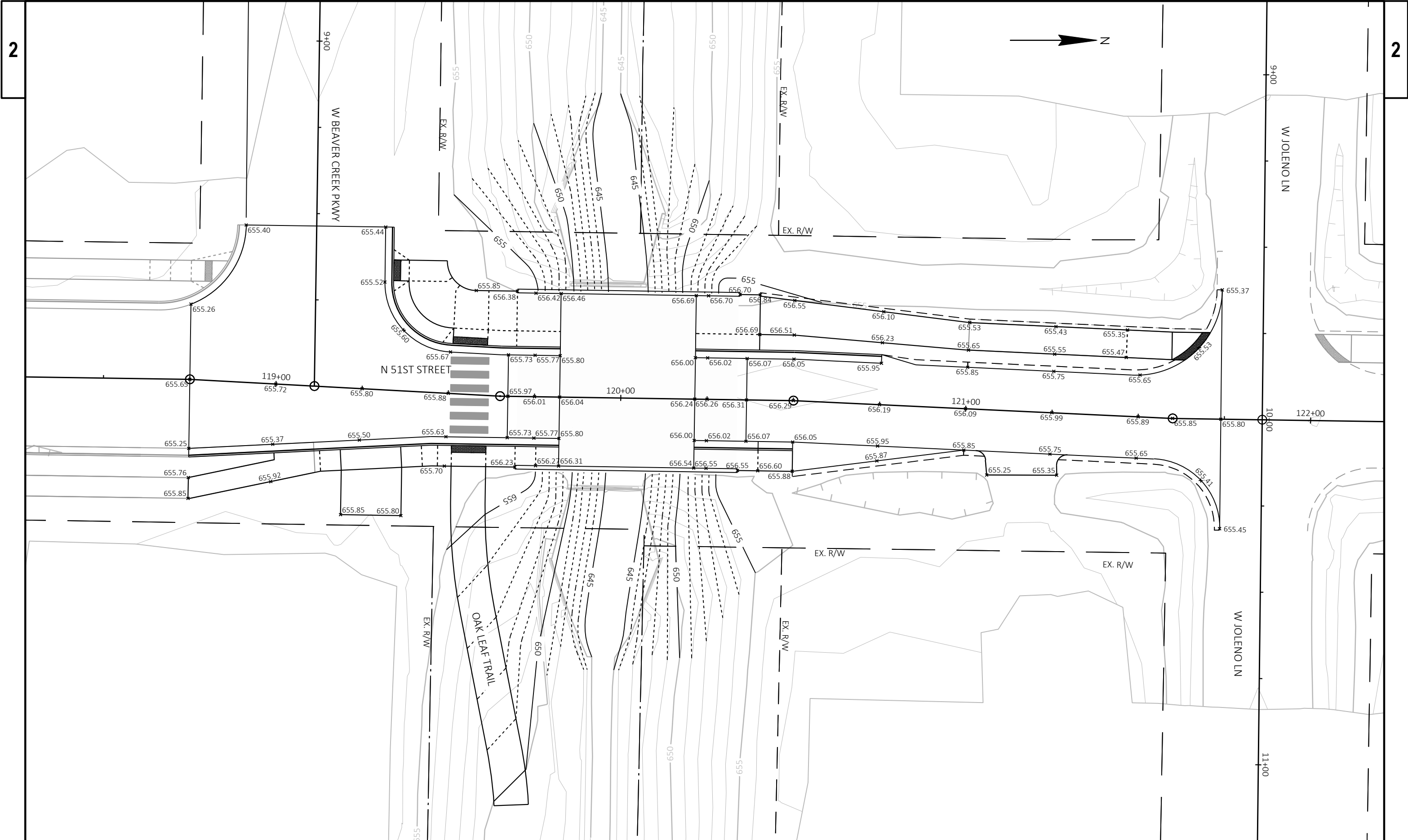
LEVEL LANDING

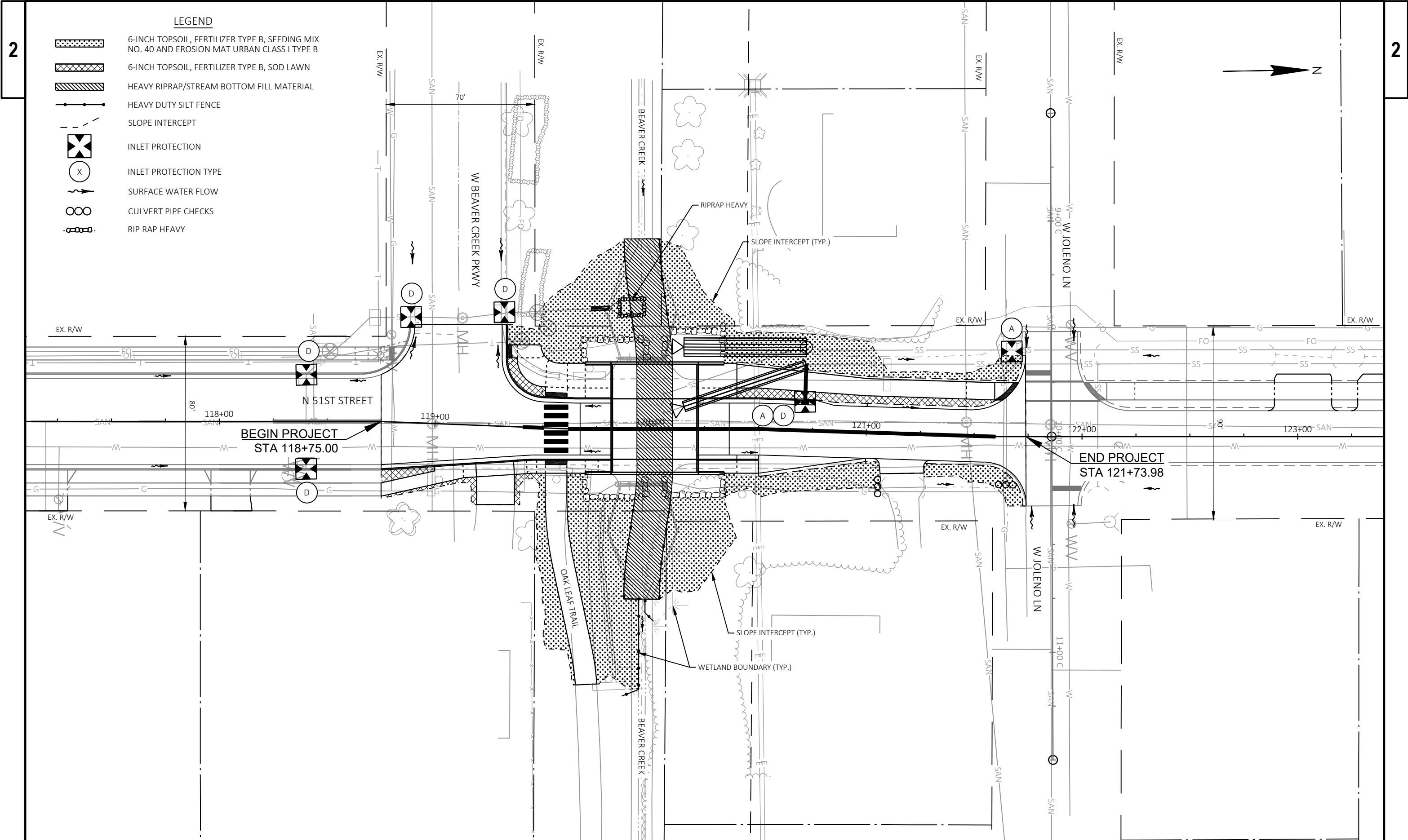
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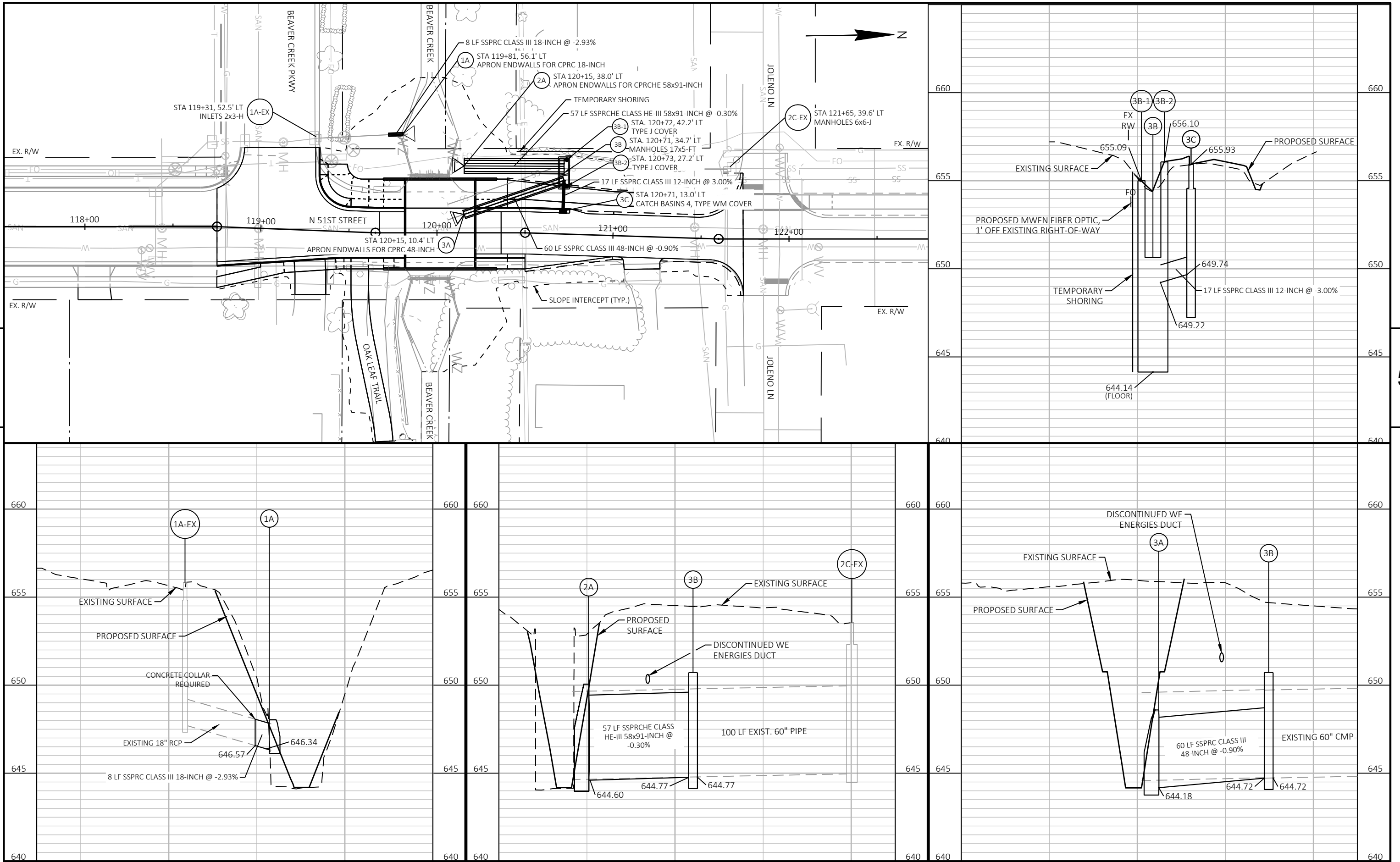
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(6:1 MAX SLOPE)

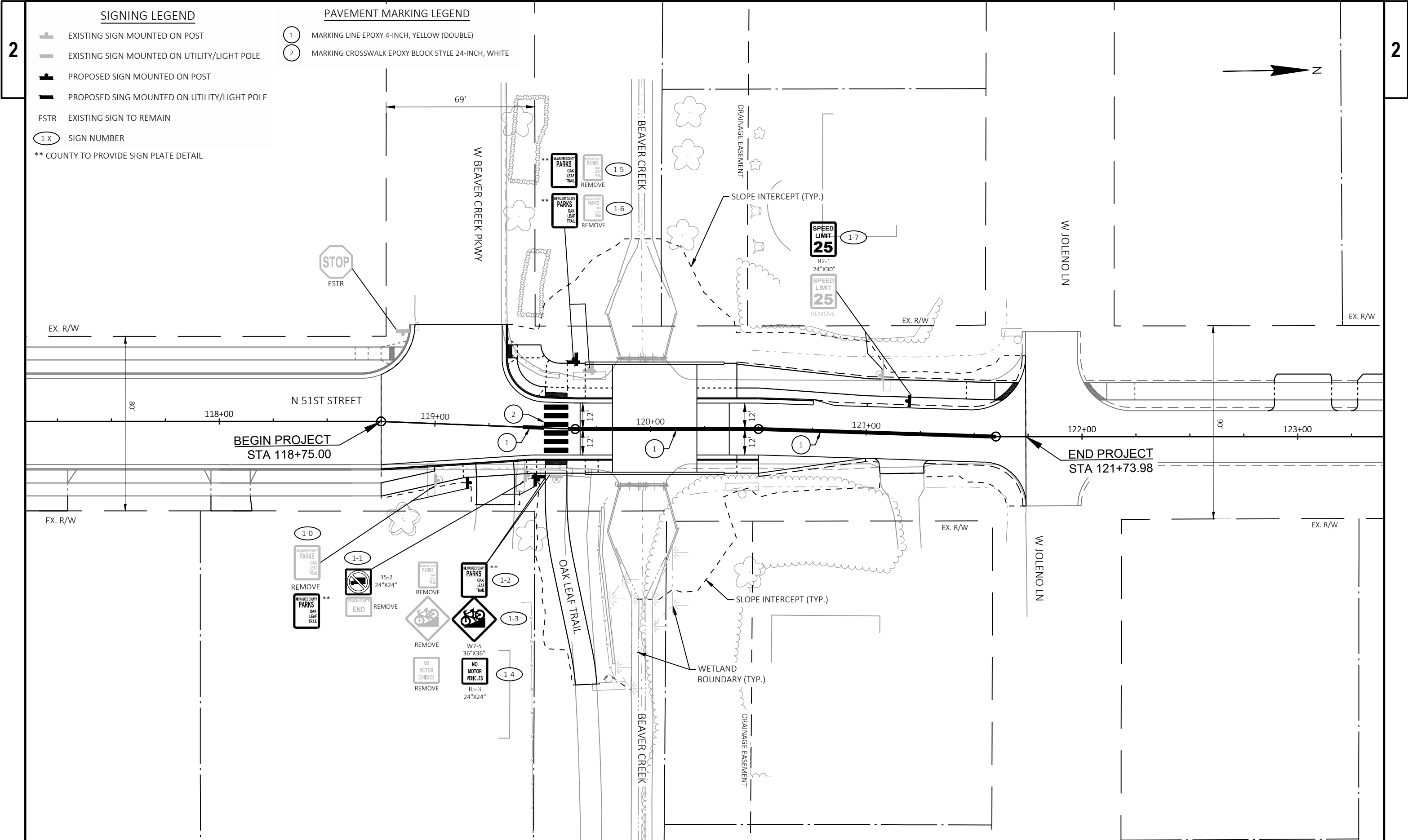
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TRAVERSABLE FLARE
(10:1 MAX SLOPE)







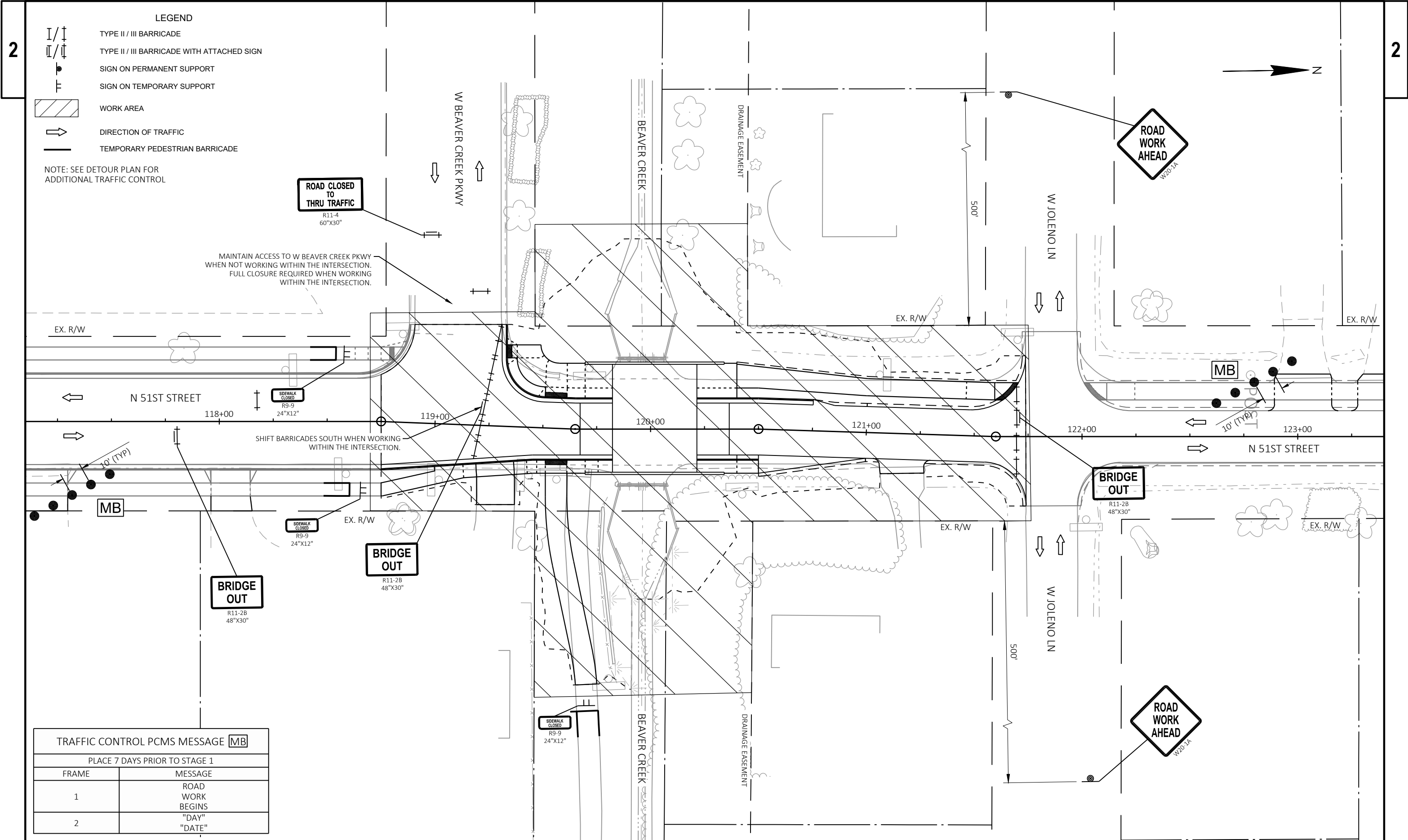


SIGNING LEGEND

- EXISTING SIGN MOUNTED ON POST
- EXISTING SIGN MOUNTED ON UTILITY/LIGHT POLE
- PROPOSED SIGN MOUNTED ON POST
- PROPOSED SING MOUNTED ON UTILITY/LIGHT POLE
- ESTR EXISTING SIGN TO REMAIN
- 1-X SIGN NUMBER
- ** COUNTY TO PROVIDE SIGN PLATE DETAIL

PAVEMENT MARKING LEGEND

- 1 MARKING LINE EPOXY 4-INCH, YELLOW (DOUBLE)
- 2 MARKING CROSSWALK EPOXY BLOCK STYLE 24-INCH, WHITE



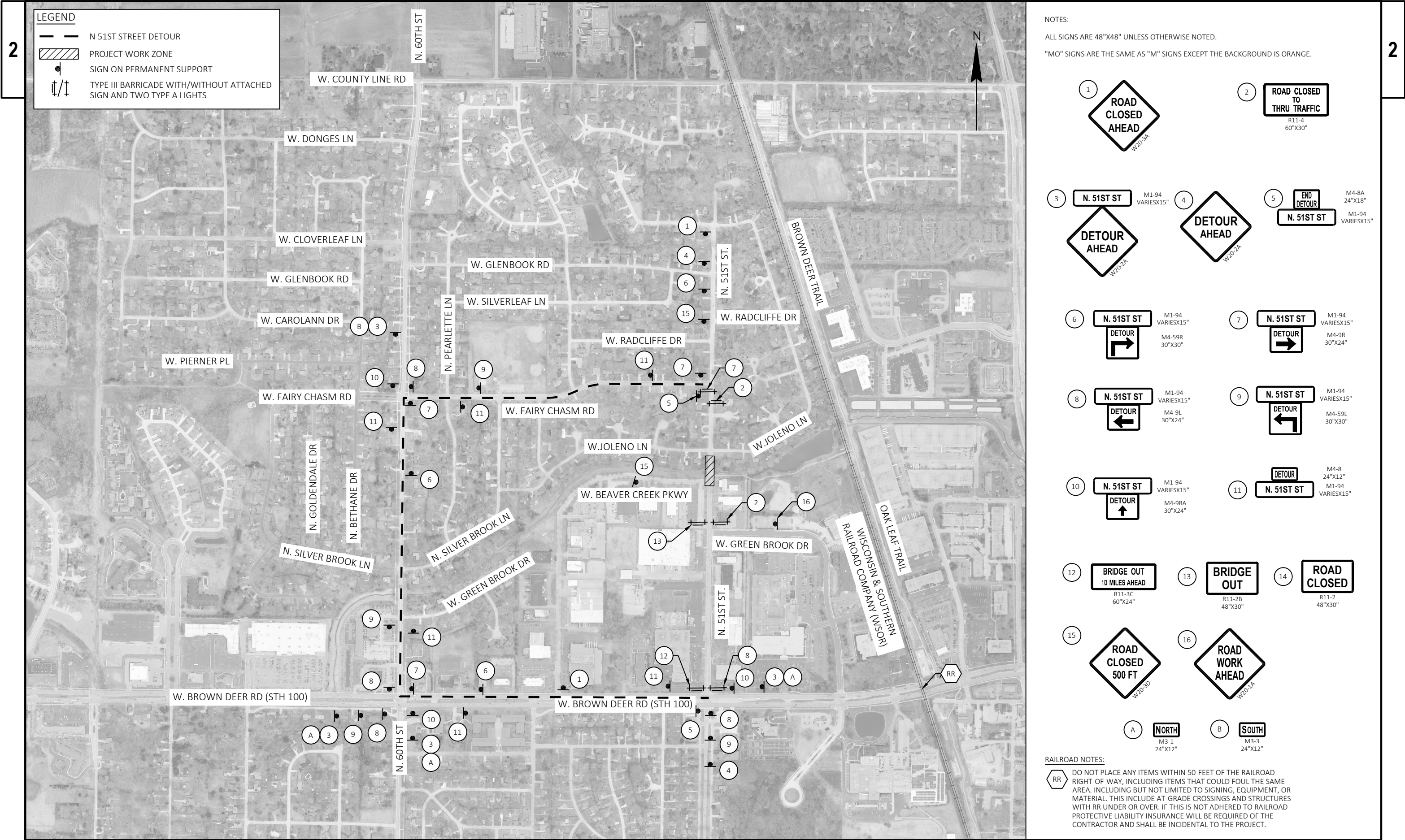
- LEGEND**
- TYPE II / III BARRICADE
 - TYPE II / III BARRICADE WITH ATTACHED SIGN
 - SIGN ON PERMANENT SUPPORT
 - SIGN ON TEMPORARY SUPPORT
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - TEMPORARY PEDESTRIAN BARRICADE

NOTE: SEE DETOUR PLAN FOR
ADDITIONAL TRAFFIC CONTROL

MAINTAIN ACCESS TO W BEAVER CREEK PKWY
WHEN NOT WORKING WITHIN THE INTERSECTION.
FULL CLOSURE REQUIRED WHEN WORKING
WITHIN THE INTERSECTION.

SHIFT BARRICADES SOUTH WHEN WORKING
WITHIN THE INTERSECTION.

TRAFFIC CONTROL PCMS MESSAGE MB	
PLACE 7 DAYS PRIOR TO STAGE 1	
FRAME	MESSAGE
1	ROAD WORK BEGINS
2	"DAY" "DATE"



LEGEND

OAK LEAF TRAIL

OAK LEAF TRAIL BICYCLE DETOUR

OAK LEAF TRAIL PEDESTRIAN DETOUR

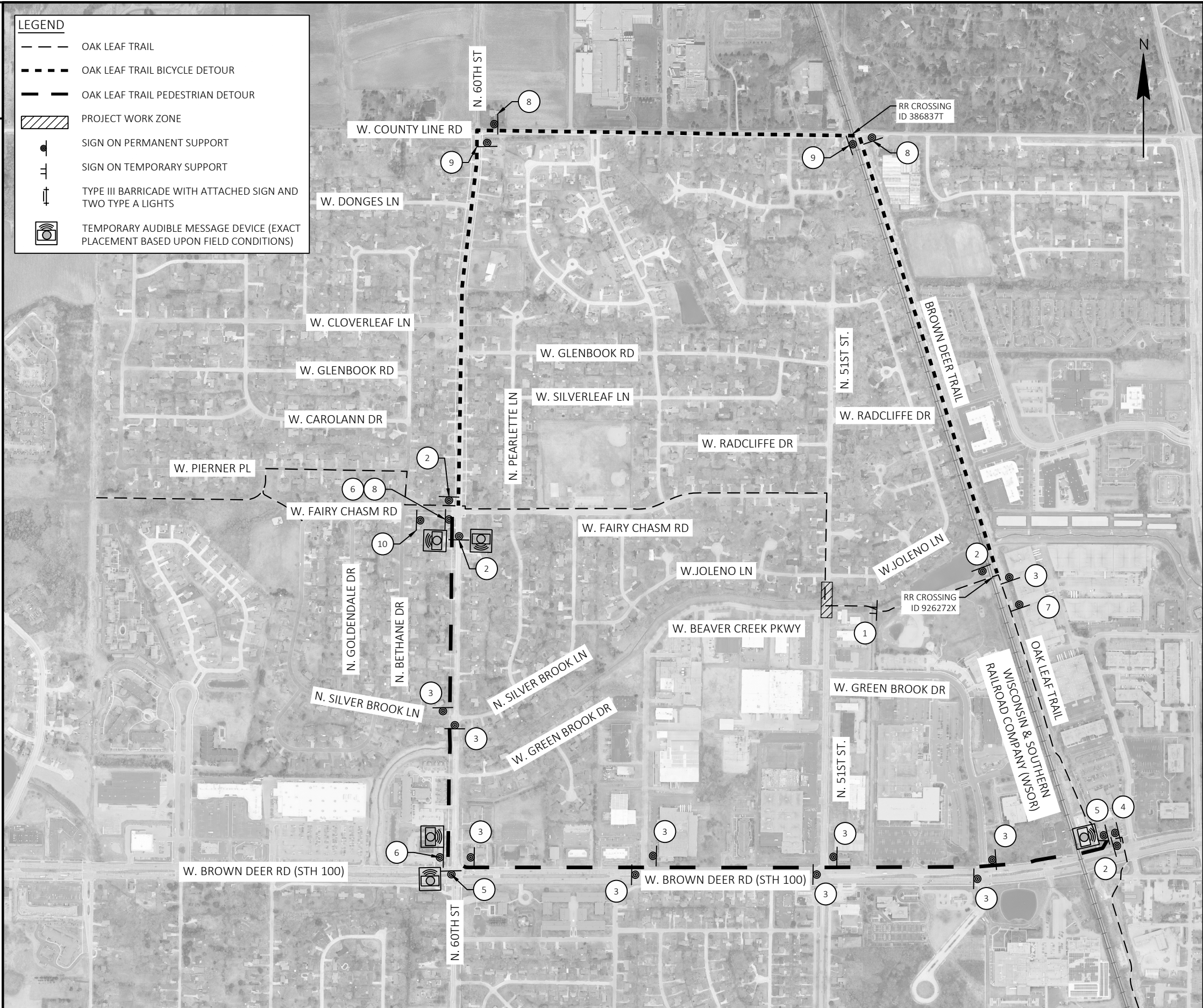
PROJECT WORK ZONE

SIGN ON PERMANENT SUPPORT

SIGN ON TEMPORARY SUPPORT

TYPE III BARRICADE WITH ATTACHED SIGN AND TWO TYPE A LIGHTS

TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)



NOTES:

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

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

1

TRAIL CLOSED

R11-2T
48"X30"

2

END TRAIL DETOUR

G20-2 MOD.
48"X24"

3

DETOUR

M4-9RA
30"X24"

4

DETOUR AHEAD

M4-9BA
30"X24"

5

DETOUR

M4-9BL
30"X24"

6

DETOUR

M4-9BR
30"X24"

7

DETOUR AHEAD

M4-9CA
30"X24"

8

DETOUR

M4-9CL
30"X24"

9

DETOUR

M4-9CR
30"X24"

10

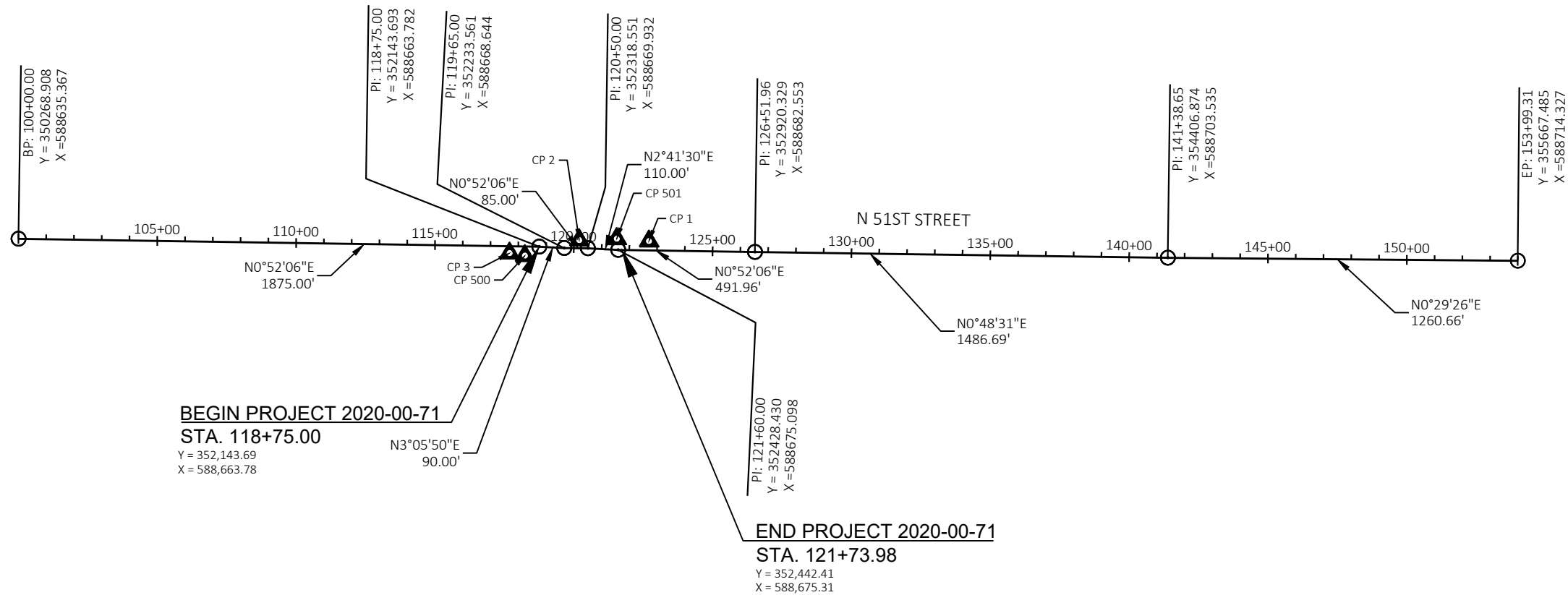
DETOUR AHEAD

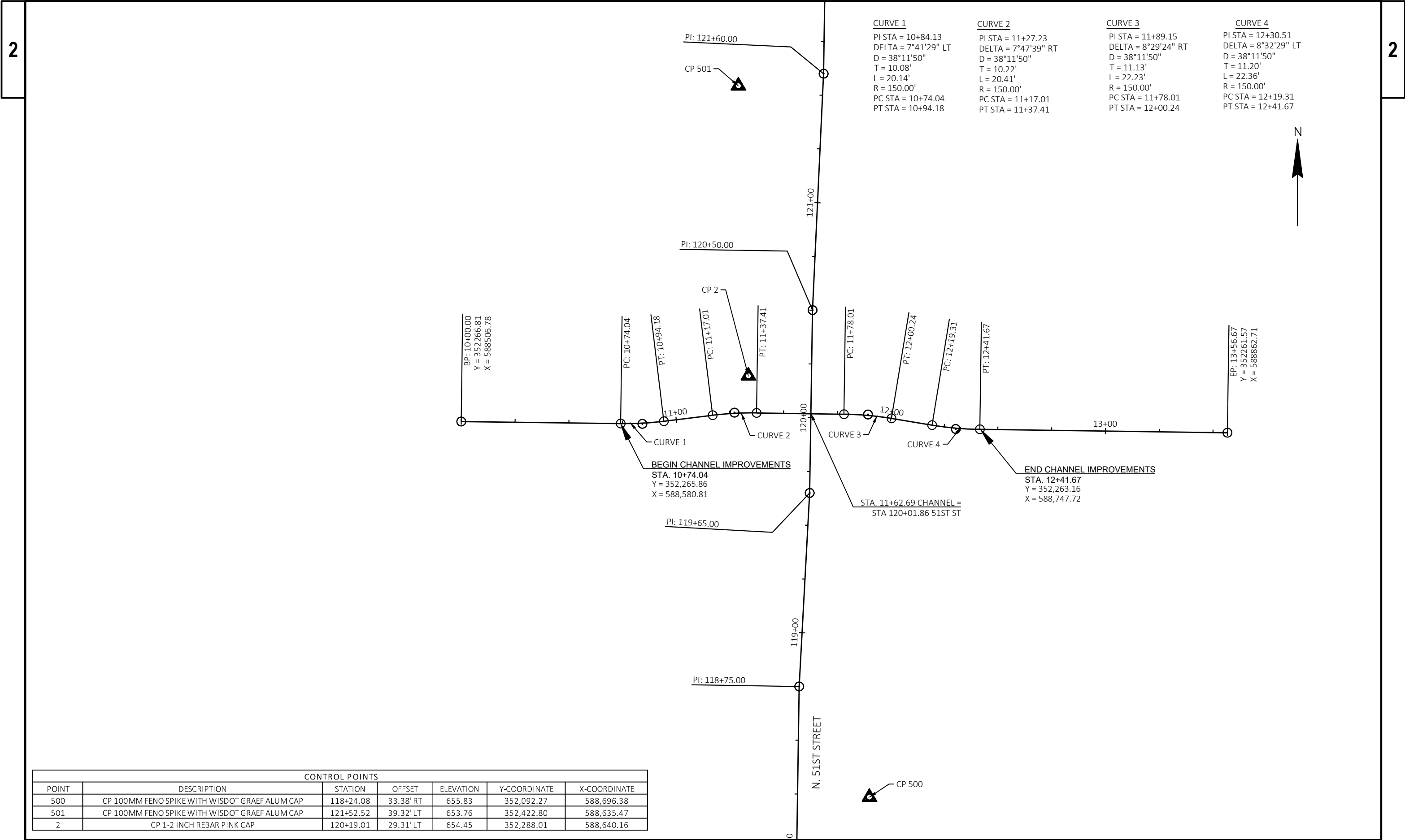
M4-9AA
30"X24"

RAILROAD NOTES:

RAILROAD PROTECTIVE LIABILITY INSURANCE REQUIRED AT SPECIFIED CROSSINGS. SEE SPECIAL PROVISION "RAILROAD INSURANCE AND COORDINATION - WISCONSIN AND SOUTHERN RAILROAD COMPANY" FOR ADDITIONAL INFORMATION.

CONTROL POINTS						
POINT	DESCRIPTION	STATION	OFFSET	ELEVATION	Y-COORDINATE	X-COORDINATE
500	CP 100MM FENO SPIKE WITH WISDOT GRAEF ALUM CAP	118+24.08	33.38' RT	655.83	352,092.27	588,696.38
501	CP 100MM FENO SPIKE WITH WISDOT GRAEF ALUM CAP	121+52.52	39.32' LT	653.76	352,422.80	588,635.47
1	CP 1-2 INCH REBAR PINK CAP	122+70.34	32.83' LT	654.56	352,539.26	588,643.95
2	CP 1-2 INCH REBAR PINK CAP	120+19.01	29.31' LT	654.45	352,288.01	588,640.16
3	CP 1-2 INCH REBAR PINK CAP	117+68.53	25.03' RT	656.07	352,036.86	588,687.20



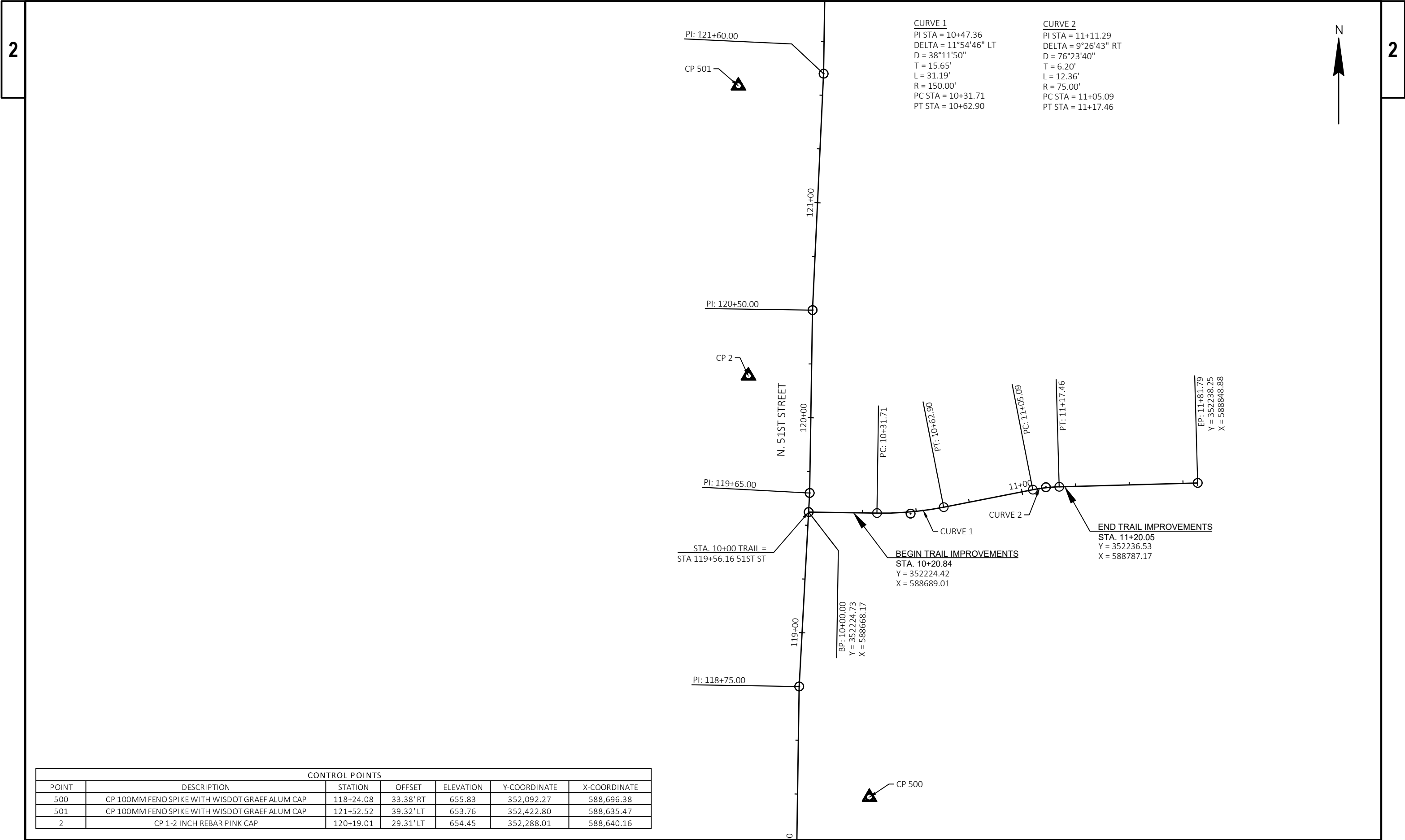


CURVE 1
PI STA = 10+84.13
DELTA = 7°41'29" LT
D = 38°11'50"
T = 10.08'
L = 20.14'
R = 150.00'
PC STA = 10+74.04
PT STA = 10+94.18

CURVE 2
PI STA = 11+27.23
DELTA = 7°47'39" RT
D = 38°11'50"
T = 10.22'
L = 20.41'
R = 150.00'
PC STA = 11+17.01
PT STA = 11+37.41

CURVE 3
PI STA = 11+89.15
DELTA = 8°29'24" RT
D = 38°11'50"
T = 11.13'
L = 22.23'
R = 150.00'
PC STA = 11+78.01
PT STA = 12+00.24

CURVE 4
PI STA = 12+30.51
DELTA = 8°32'29" LT
D = 38°11'50"
T = 11.20'
L = 22.36'
R = 150.00'
PC STA = 12+19.31
PT STA = 12+41.67



CONTROL POINTS						
POINT	DESCRIPTION	STATION	OFFSET	ELEVATION	Y-COORDINATE	X-COORDINATE
500	CP 100MM FENO SPIKE WITH WISDOT GRAEF ALUM CAP	118+24.08	33.38' RT	655.83	352,092.27	588,696.38
501	CP 100MM FENO SPIKE WITH WISDOT GRAEF ALUM CAP	121+52.52	39.32' LT	653.76	352,422.80	588,635.47
2	CP 1-2 INCH REBAR PINK CAP	120+19.01	29.31' LT	654.45	352,288.01	588,640.16

Estimate Of Quantities

2020-00-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0210	Grubbing	SY	223.000	223.000
0004	203.0211.S	Abatement of Asbestos Containing Material (structure) 01. P-40-0550	EACH	1.000	1.000
0006	203.0250	Removing Structure Over Waterway Remove Debris (structure) 01. P-40-0550	EACH	1.000	1.000
0008	204.0150	Removing Curb & Gutter	LF	120.000	120.000
0010	204.0155	Removing Concrete Sidewalk	SY	5.000	5.000
0012	204.0170	Removing Fence	LF	88.000	88.000
0014	204.0245	Removing Storm Sewer (size) 01. 18-Inch	LF	9.000	9.000
0016	204.0245	Removing Storm Sewer (size) 02. 60-Inch	LF	133.000	133.000
0018	204.9090.S	Removing (item description) 01. Modular Block Wall	LF	90.000	90.000
0020	204.9090.S	Removing (item description) 02. Timber Retaining Wall	LF	35.000	35.000
0022	204.9180.S	Removing (item description) 01. Concrete Channel	SY	265.000	265.000
0024	205.0100	Excavation Common	CY	1,007.000	1,007.000
0026	205.0400	Excavation Marsh	CY	40.000	40.000
0028	206.1001	Excavation for Structures Bridges (structure) 01. B-40-1102	EACH	1.000	1.000
0030	210.1500	Backfill Structure Type A	TON	406.000	406.000
0032	213.0100	Finishing Roadway (project) 01. 2020-00-71	EACH	1.000	1.000
0034	305.0110	Base Aggregate Dense 3/4-Inch	TON	17.000	17.000
0036	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	823.000	823.000
0038	311.0110	Breaker Run	TON	24.000	24.000
0040	415.0410	Concrete Pavement Approach Slab	SY	80.000	80.000
0042	416.0610	Drilled Tie Bars	EACH	4.000	4.000
0044	455.0605	Tack Coat	GAL	82.000	82.000
0046	460.2000	Incentive Density HMA Pavement	DOL	100.000	100.000
0048	460.5223	HMA Pavement 3 LT 58-28 S	TON	195.000	195.000
0050	460.5224	HMA Pavement 4 LT 58-28 S	TON	48.000	48.000
0052	460.5424	HMA Pavement 4 LT 58-28 H	TON	54.000	54.000
0054	465.0105	Asphaltic Surface	TON	39.000	39.000
0056	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	10.000	10.000
0058	502.0100	Concrete Masonry Bridges	CY	255.000	255.000
0060	502.3200	Protective Surface Treatment	SY	239.000	239.000
0062	502.3210	Pigmented Surface Sealer	SY	54.000	54.000
0064	505.0400	Bar Steel Reinforcement HS Structures	LB	6,440.000	6,440.000
0066	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	36,720.000	36,720.000
0068	511.1100	Temporary Shoring	SF	415.000	415.000
0070	513.7011	Railing Steel Type C2	LF	127.000	127.000
0072	516.0500	Rubberized Membrane Waterproofing	SY	28.000	28.000
0074	520.8000	Concrete Collars for Pipe	EACH	1.000	1.000
0076	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	1.000	1.000
0078	522.1048	Apron Endwalls for Culvert Pipe Reinforced Concrete 48-Inch	EACH	1.000	1.000
0080	522.2658	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 58x91-Inch	EACH	1.000	1.000
0082	550.0010	Pre-Boring Unconsolidated Materials	LF	82.000	82.000
0084	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	440.000	440.000
0086	601.0409	Concrete Curb & Gutter 30-Inch Type A	LF	60.000	60.000
0088	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	205.000	205.000
0090	602.0410	Concrete Sidewalk 5-Inch	SF	1,727.000	1,727.000
0092	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	75.000	75.000
0094	602.0815	Concrete Driveway 7-Inch	SY	20.000	20.000
0096	606.0300	Riprap Heavy	CY	476.000	476.000
0098	608.0312	Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	LF	17.000	17.000

Estimate Of Quantities

2020-00-71

Line	Item	Item Description	Unit	Total	Qty
0100	608.0318	Storm Sewer Pipe Reinforced Concrete Class III 18-Inch	LF	8.000	8.000
0102	608.0348	Storm Sewer Pipe Reinforced Concrete Class III 48-Inch	LF	60.000	60.000
0104	608.2358	Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 58x91-Inch	LF	57.000	57.000
0106	611.0530	Manhole Covers Type J	EACH	2.000	2.000
0108	611.0660	Inlet Covers Type WM	EACH	1.000	1.000
0110	611.1004	Catch Basins 4-FT Diameter	EACH	1.000	1.000
0112	611.9850.S	Pipe Grates (size) 01. 48-Inch	EACH	1.000	1.000
0114	611.9850.S	Pipe Grates (size) 02. 58x91-Inch	EACH	1.000	1.000
0116	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	176.000	176.000
0118	612.0902.S	Insulation Board Polystyrene (inch) 01. 2-Inch	SY	8.000	8.000
0120	616.0700.S	Fence Safety	LF	100.000	100.000
0122	619.1000	Mobilization	EACH	1.000	1.000
0124	624.0100	Water	MGAL	9.000	9.000
0126	625.0100	Topsoil	SY	1,344.000	1,344.000
0128	627.0200	Mulching	SY	1,295.000	1,295.000
0130	628.1104	Erosion Bales	EACH	80.000	80.000
0132	628.1530.S	Silt Fence Heavy Duty	LF	323.000	323.000
0134	628.1535.S	Silt Fence Heavy Duty Maintenance	LF	323.000	323.000
0136	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0138	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0140	628.2008	Erosion Mat Urban Class I Type B	SY	1,244.000	1,244.000
0142	628.7005	Inlet Protection Type A	EACH	1.000	1.000
0144	628.7020	Inlet Protection Type D	EACH	4.000	4.000
0146	628.7555	Culvert Pipe Checks	EACH	2.000	2.000
0148	628.7570	Rock Bags	EACH	24.000	24.000
0150	629.0210	Fertilizer Type B	CWT	0.800	0.800
0152	630.0140	Seeding Mixture No. 40	LB	49.000	49.000
0154	630.0200	Seeding Temporary	LB	35.000	35.000
0156	630.0500	Seed Water	MGAL	30.000	30.000
0158	631.0300	Sod Water	MGAL	1.100	1.100
0160	631.1000	Sod Lawn	SY	100.000	100.000
0162	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	4.000	4.000
0164	637.2210	Signs Type II Reflective H	SF	19.000	19.000
0166	637.2230	Signs Type II Reflective F	SF	9.000	9.000
0168	638.2602	Removing Signs Type II	EACH	8.000	8.000
0170	638.3000	Removing Small Sign Supports	EACH	5.000	5.000
0172	642.5001	Field Office Type B	EACH	1.000	1.000
0174	643.0420	Traffic Control Barricades Type III	DAY	2,184.000	2,184.000
0176	643.0705	Traffic Control Warning Lights Type A	DAY	4,368.000	4,368.000
0178	643.0900	Traffic Control Signs	DAY	11,752.000	11,752.000
0180	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0182	643.5000	Traffic Control	EACH	1.000	1.000
0184	644.1810	Temporary Pedestrian Barricade	LF	37.000	37.000
0186	644.1900.S	Temporary Audible Message Devices	DAY	520.000	520.000
0188	645.0111	Geotextile Type DF Schedule A	SY	146.000	146.000
0190	645.0120	Geotextile Type HR	SY	1,157.000	1,157.000
0192	645.0220	Geogrid Type SR	SY	40.000	40.000
0194	646.1020	Marking Line Epoxy 4-Inch	LF	416.000	416.000
0196	646.7520	Marking Crosswalk Epoxy Block Style 24-Inch	LF	66.000	66.000

Estimate Of Quantities

2020-00-71					
Line	Item	Item Description	Unit	Total	Qty
0198	650.4000	Construction Staking Storm Sewer	EACH	5.000	5.000
0200	650.4500	Construction Staking Subgrade	LF	260.000	260.000
0202	650.5000	Construction Staking Base	LF	230.000	230.000
0204	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	265.000	265.000
0206	650.6501	Construction Staking Structure Layout (structure) 01. B-40-1102	EACH	1.000	1.000
0208	650.7000	Construction Staking Concrete Pavement	LF	30.000	30.000
0210	650.9000	Construction Staking Curb Ramps	EACH	3.000	3.000
0212	650.9500	Construction Staking Sidewalk (project) 01. 2020-00-71	EACH	1.000	1.000
0214	650.9911	Construction Staking Supplemental Control (project) 01. 2020-00-71	EACH	1.000	1.000
0216	650.9920	Construction Staking Slope Stakes	LF	260.000	260.000
0218	690.0150	Sawing Asphalt	LF	199.000	199.000
0220	690.0250	Sawing Concrete	LF	25.000	25.000
0222	715.0502	Incentive Strength Concrete Structures	DOL	1,530.000	1,530.000
0224	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0226	999.1501.S	Crack and Damage Survey	EACH	3.000	3.000
0228	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	400.000	400.000
0230	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	900.000	900.000
0232	SPV.0035	Special 01. Concrete Masonry Cut-Off Walls	CY	4.000	4.000
0234	SPV.0060	Special 01. Utility Line Opening (ULO)	EACH	10.000	10.000
0236	SPV.0060	Special 02. Round Steel Post System	EACH	1.000	1.000
0238	SPV.0060	Special 03. Manholes 17X5-FT	EACH	1.000	1.000
0240	SPV.0060	Special 04. Maintaining Temporary Drainage at Beaver Creek	EACH	1.000	1.000
0242	SPV.0195	Special 01. Coarse Aggregate Mix for Stream Bed	TON	157.000	157.000
0244	SPV.0195	Special 02. Excavation, Hauling, and Disposal of PAH Contaminated Soil	TON	197.000	197.000
0246	SPV.0195	Special 03. Excavation, Hauling, and Disposal of PAH and VOC Contaminated Sediment	TON	262.000	262.000

3

GRUBBING	
201.0210 GRUBBING	
STATION TO STATION	SY
N 51ST STREET	
118+75 - BEAVER CREEK	-
BEAVER CREEK - 121+73.98	223
TOTALS	223

REMOVING CURB & GUTTER

204.0150 REMOVING CURB & GUTTER	
STATION TO STATION	LF
CATEGORY 0010 N 51ST STREET	
118+75 - BEAVER CREEK	84
BEAVER CREEK - 121+73.98	-
CATEGORY 0010 SUBTOTAL	84
CATEGORY 0030 N 51ST STREET	
118+75 - BEAVER CREEK	36
BEAVER CREEK - 121+73.98	-
CATEGORY 0030 SUBTOTAL	36
TOTALS	120

REMOVING CONCRETE SIDEWALK

204.0155 REMOVING CONCRETE SIDEWALK	
STATION TO STATION	SY
N 51ST STREET	
118+75 - BEAVER CREEK	5
BEAVER CREEK - 121+73.98	-
TOTALS	5

3

REMOVING FENCE	
204.0170 REMOVING FENCE	
STATION TO STATION	LF
N 51ST STREET	
118+75 - BEAVER CREEK	88
BEAVER CREEK - 121+73.98	-
TOTALS	88

REMOVING STORM SEWER		
204.0245.01 18-INCH 204.0245.02 60-INCH		
STATION TO STATION	LF	LF
N 51ST STREET		
118+75 - BEAVER CREEK	9	-
BEAVER CREEK - 121+73.98	-	133
TOTALS	9	133

MISCELLANEOUS REMOVALS

204.9090.S.01 REMOVING MODULAR BLOCK WALL		204.9090.S.02 REMOVING TIMBER RETAINING WALL		204.9180.S.01 REMOVING CONCRETE CHANNEL	
STATION TO STATION	LF	LF		SY	
N 51ST STREET					
118+75 - BEAVER CREEK	90	17		-	
BEAVER CREEK - 121+73.98	-	18		-	
BEAVER CREEK	-	-		265	
TOTALS	90	35		265	

ALL ITEMS ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)		SALVAGED/UNUSABLE PAVEMENT MATERIAL	AVAILABLE MATERIAL (4)	205.0400 EXCAVATION MARSH (5)	EXPANDED MARSH BACKFILL (6)	EXPANDED EBS BACKFILL (7)	UNEXPANDED FILL	EXPANDED FILL (8)	MASS ORDINATE +/- (9)	WASTE	311.0110 BREAKER RUN	645.0220	COMMENT	
			CUT (2)	EBS EXCAVATION (3)				FACTOR 1.50	FACTOR 1.30		GEOGRID TYPE SR						
CATEGORY 0010																	
			CY	CY	CY	CY	CY	CY	CY	CY	CY	CY	CY	TON	SY		
N 51ST STREET	119+11.10/121+00.00		385	0	102	283	0	0	0	47	56	227	227	0	0	TO BE DETERMINED BY ENGINEER IN FIELD.	
OAK LEAF TRAIL	10+20.84/11+20.05		28	0	10	18	0	0	0	3	4	14	14	0	0		
CHANNEL	10+74.04/12+41.67		309	0	0	309	40	60	0	84	101	148	148	0	0		
UNDISTRIBUTED			0	10	0	0	0	0	13	0	0	0	0	24	40		
CATEGORY 0010 SUBTOTAL			722	10	112	610	40	60	13	134	161	389	389	24	40		
CATEGORY 0030																	
N 51ST STREET	118+75.00/119+11.10		137	0	35	102	0	0	0	0	0	102	102	0	0		
N 51ST STREET	121+00.00/121+73.98		138	0	43	95	0	0	0	0	0	95	95	0	0		
CATEGORY 0030 SUBTOTAL			275	0	78	197	0	0	0	0	0	197	197	0	0		
GRAND TOTAL			997	10	190	807	40	60	13	134	161	586	586	24	40		
TOTAL COMMON EXC			1,007														

NOTES:
(1) EXCAVATION COMMON IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS.
(2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
(3) EBS EXCAVATION TO BE BACKFILLED WITH BREAKER RUN.
(4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL
(5) EXCAVATION MARSH - TO BE BACKFILLED WITH AVAILABLE MATERIAL FROM COMMON EXCAVATION.
(6) EXPANDED MARSH BACKFILL - THIS IS TO BE FILLED WITH AVAILABLE MATERIAL FROM COMMON EXCAVATION.
(7) EXPANDED EBS BACKFILL - THIS IS TO BE FILLED WITH BREAKER RUN.
(8) EXPANDED FILL = UNEXPANDED FILL * FILL FACTOR
(9) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

ALL ITEMS ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

FINISHING ROADWAY

213.0100 FINISHING ROADWAY EACH	
PROJECT	
ID 2020-00-71	1
TOTALS	1

BASE AGGREGATE DENSE 3/4-INCH

305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	
CATEGORY 0010	N 51ST STREET
118+75 - BEAVER CREEK	-
BEAVER CREEK - 121+73.98	7
CATEGORY 0010 SUBTOTAL	7
CATEGORY 0030	N 51ST STREET
118+75 - BEAVER CREEK	-
BEAVER CREEK - 121+73.98	10
CATEGORY 0030 SUBTOTAL	10
TOTALS	17

BASE AGGREGATE DENSE 1 1/4-INCH

305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	
CATEGORY 0010	N 51ST STREET
118+75 - BEAVER CREEK	288
BEAVER CREEK - 121+73.98	190
CATEGORY 0010 SUBTOTAL	478
CATEGORY 0030	N 51ST STREET
118+75 - BEAVER CREEK	170
BEAVER CREEK - 121+73.98	175
CATEGORY 0030 SUBTOTAL	345
TOTALS	823

CONCRETE PAVEMENT APPROACH SLAB

415.0410 CONCRETE PAVEMENT APPROACH SLAB SY	
N 51ST STREET	
118+75 - BEAVER CREEK	40
BEAVER CREEK - 121+73.98	40
TOTALS	80

DRILLED TIE BARS

416.0610 DRILLED TIE BARS EACH	
CATEGORY 0010	N 51ST STREET
118+75 - BEAVER CREEK	2
BEAVER CREEK - 121+73.98	-
CATEGORY 0010 SUBTOTAL	2
CATEGORY 0030	N 51ST STREET
118+75 - BEAVER CREEK	2
BEAVER CREEK - 121+73.98	-
CATEGORY 0030 SUBTOTAL	2
TOTALS	4

ALL ITEMS ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

HMA PAVEMENT

		460.5223	460.5224	460.5424	465.0120	465.0105	455.0605
		3 LT 58-28 S	4 LT 58-28 S	4 LT 58-28 H	DRIVEWAYS AND FIELD ENTRANCES	ASPHALTIC SURFACE	TACK COAT
STATION TO STATION		TON	TON	TON	TON	TON	GAL
CATEGORY 0010	N 51ST STREET						
	118+75 - BEAVER CREEK	67	-	28	6	19	30
	BEAVER CREEK - 121+73.98	31	22	-	-	11	12
CATEGORY 0010 SUBTOTAL		98	22	28	6	30	42
CATEGORY 0030	N 51ST STREET						
	118+75 - BEAVER CREEK	62	-	26	-	-	27
	BEAVER CREEK - 121+73.98	35	26	-	4	9	13
CATEGORY 0030 SUBTOTAL		97	26	26	4	9	40
TOTALS		195	48	54	10	39	82

TEMPOARARY SHORING

		511.1100
		TEMPOARARY SHORING
STATION TO STATION		SF
N 51ST STREET		
	118+75 - BEAVER CREEK	-
	BEAVER CREEK - 121+73.98	415
TOTALS		415

STORM SEWER STRUCTURES

				522.1018	522.1048	522.2658	611.0530	611.0660	611.1004	611.9850.S.01	611.9850.S.02	SPV.0060.03			
				APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 48-INCH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 58X91-INCH	MANHOLE COVERS	INLET COVERS	CATCH BASINS	PIPE GRATES	PIPE GRATES	MANHOLES 17X5-FT	RIM**	INVERT***	DEPTH****
STRUCTURE	STATION	OFFSET*	LOCATION	EACH	EACH	EACH	TYPE J	TYPE WM	4-FT DIAMETER	48-INCH	58X91-INCH	EACH	ELEVATION	ELEVATION	FT
1A	119+80.56	56.08' LT	ALI-N 51STST	1	-	-	-	-	-	-	-	-	-	646.34	-
2A	120+15.45	38.05' LT	ALI-N 51STST	-	-	1	-	-	-	-	1	-	-	644.60	-
3A	120+15.40	10.42' LT	ALI-N 51STST	-	1	-	-	-	-	1	-	-	-	644.18	-
3B	120+71.09	34.69' LT	ALI-N 51STST	-	-	-	-	-	-	-	-	1	-	644.14	-
3B-1	120+72.39	42.23' LT	ALI-N 51STST	-	-	-	1	-	-	-	-	-	655.09	644.14	9.70
3B-2	120+72.80	27.23' LT	ALI-N 51STST	-	-	-	1	-	-	-	-	-	656.10	644.14	10.71
3C	120+71.20	13.00' LT	ALI-N 51STST	-	-	-	-	1	1	-	-	-	655.93	647.74	6.83
TOTALS				1	1	1	2	1	1	1	1	1			

REMARKS:

*STATIONS AND OFFSETS ARE TO CENTER OF STRUCTURE.

**RIM ELEV IS AT THE INLET COVER FLANGE LOCATION OR CENTER OF CASTING FOR MANHOLES.

***FOR STRUCTURES WITH SUMPS, THE INVERT ELEVATION IS THE ELEVATION OF THE SUMP. FOR STRUCTURES WITHOUT SUMPS, THE INVERT ELEVATION IS THE ELEVATION OF THE LOWEST PIPE FLOW LINE.

THE INVERT ELEVATION SHOWN FOR STRUCTURE 3B, 3B-1, AND 3B-2 IS THE FLOOR ELEVATION OF THE STRUCTURE.

****DEPTH = RIM ELEV - INVERT ELEV - COVER HEIGHT - 6-INCH ADJUSTMENT RING HEIGHT.

ALL ITEMS ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

3

STORM SEWER PIPES												
			520.8000	608.0312	608.0318	608.0348	608.2358					
			CONCRETE COLLARS	STORM SEWER PIPE REINFORCED	STORM SEWER PIPE REINFORCED	STORM SEWER PIPE REINFORCED	STORM SEWER PIPE REINFORCED CONCRETE					
			FOR PIPE	CONCRETE CLASS III 12-INCH	CONCRETE CLASS III 18-INCH	CONCRETE CLASS III 48-INCH	HORIZONTAL ELLIPTICAL C LASS HE-III 58X91-INCH	JOINT TIES*	INLET	DISCHARGE	SLOPE	
FROM	-	TO	LOCATION	EACH	LF	LF	LF	LF	REQ'D	ELEVATION	ELEVATION	FT/FT
1A	-	EXISTING PIPE	ALI-N 51ST ST	1	-	8	-	-	X	646.57	646.34	-0.0293
3A	-	3B	ALI-N 51ST ST	-	-	-	60	-	X	644.72	644.18	-0.0090
3B	-	3C	ALI-N 51ST ST	-	17	-	-	-	-	649.74	649.22	-0.0300
2A	-	3B	ALI-N 51ST ST	-	-	-	-	57	X	644.77	644.60	-0.0030
TOTALS				1	17	8	60	57				

*NON-BID ITEM: FOR INFORMATION ONLY

3

CONCRETE CURB & GUTTER

		601.0409	601.0411
		30-INCH TYPE A	30-INCH TYPE D
STATION TO STATION		LF	LF
CATEGORY 0010	N 51ST STREET		
	118+75 - BEAVER CREEK	30	116
	BEAVER CREEK - 121+73.98	30	53
	CATEGORY 0010 SUBTOTAL	60	169
CATEGORY 0030	N 51ST STREET		
	118+75 - BEAVER CREEK	-	36
	BEAVER CREEK - 121+73.98	-	-
	CATEGORY 0030 SUBTOTAL	0	36
	TOTALS	60	205

CONCRETE SIDEWALK

		602.0410
		5-INCH
STATION TO STATION		SF
CATEGORY 0010	N 51ST STREET	
	118+75 - BEAVER CREEK	971
	BEAVER CREEK - 121+73.98	456
	CATEGORY 0010 SUBTOTAL	1,427
CATEGORY 0030	N 51ST STREET	
	118+75 - BEAVER CREEK	237
	BEAVER CREEK - 121+73.98	63
	CATEGORY 0030 SUBTOTAL	300
	TOTALS	1,727

CURB RAMP DETECTABLE WARNING FIELD YELLOW

		602.0505
		CURB RAMP
		DETECTABLE
		WARNING FIELD
		YELLOW
STATION TO STATION		SF
CATEGORY 0010	N 51ST STREET	
	118+75 - BEAVER CREEK	52
	BEAVER CREEK - 121+73.98	-
	CATEGORY 0010 SUBTOTAL	52
CATEGORY 0030	N 51ST STREET	
	118+75 - BEAVER CREEK	-
	BEAVER CREEK - 121+73.98	23
	CATEGORY 0030 SUBTOTAL	23
	TOTALS	75

CONCRETE DRIVEWAY

		602.0815
		7-INCH
STATION TO STATION		SY
N 51ST STREET		
	118+75 - BEAVER CREEK	20
	BEAVER CREEK - 121+73.98	-
	TOTALS	20

RIPRAP

		606.0300 *	645.0120 *
		RIPRAP HEAVY	GEOTEXTILE TYPE HR
STATION TO STATION		CY	SY
N 51ST STREET			
	118+75 - BEAVER CREEK	3	4
	BEAVER CREEK - 121+73.98	-	-
	TOTALS	3	4

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ALL ITEMS ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

3

FENCE SAFETY		
616.0700.S		
FENCE SAFETY		
STATION TO STATION		
LF		
N 51ST STREET		
UNDISTRIBUTED		100
TOTALS		100

MOBILIZATION		
619.1000		
MOBILIZATION		
PROJECT		
EACH		
ID 2020-00-71		
TOTALS		1

WATER		
624.0100		
WATER		
STATION TO STATION		
MGAL		
CATEGORY 0010 N 51ST STREET		
118+75 - BEAVER CREEK		3
BEAVER CREEK - 121+73.98		2
CATEGORY 0010 SUBTOTAL		5
CATEGORY 0030 N 51ST STREET		
118+75 - BEAVER CREEK		2
BEAVER CREEK - 121+73.98		2
CATEGORY 0030 SUBTOTAL		4
TOTALS		9

3

TOPSOIL		
625.0100		
TOPSOIL		
STATION TO STATION		
SY		
CATEGORY 0010 N 51ST STREET		
118+75 - BEAVER CREEK		513
BEAVER CREEK - 121+73.98		431
UNDISTRIBUTED		236
CATEGORY 0010 SUBTOTAL		1,180
CATEGORY 0030 N 51ST STREET		
118+75 - BEAVER CREEK		17
BEAVER CREEK - 121+73.98		114
UNDISTRIBUTED		33
CATEGORY 0030 SUBTOTAL		164
TOTALS		1,344

MULCHING & SEEDING				
627.0200 630.0140 630.0200 630.0500				
MULCHING SEEDING MIXTURE SEEDING SEED WATER				
NO. 40 TEMPORARY				
STATION TO STATION				
SY		LB	LB	MGAL
CATEGORY 0010 N 51ST STREET				
118+75 - BEAVER CREEK		513	22	14
BEAVER CREEK - 121+73.98		431	19	10
UNDISTRIBUTED		236	4	5
CATEGORY 0010 SUBTOTAL		1,180	45	27
CATEGORY 0030 N 51ST STREET				
118+75 - BEAVER CREEK		-	-	-
BEAVER CREEK - 121+73.98		92	4	2
UNDISTRIBUTED		23	1	1
CATEGORY 0030 SUBTOTAL		115	4	3
TOTALS		1,295	49	30

TEMPORARY SETTLING BASINS		
628.1104 645.0120 *		
EROSION BALES GEOTEXTILE TYPE HR		
STATION TO STATION		
EACH		SY
N 51ST STREET		
UNDISTRIBUTED		80
TOTALS		176
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE		

SILT FENCE		
628.1530.S 628.1535.S		
SILT FENCE HEAVY DUTY SILT FENCE HEAVY DUTY MAINTENANCE		
STATION TO STATION		
LF		LF
N 51ST STREET		
118+75 - BEAVER CREEK		150
BEAVER CREEK - 121+73.98		108
UNDISTRIBUTED		65
TOTALS		323

EROSION CONTROL MOBILIZATIONS		
628.1905 628.1910		
MOBILIZATIONS MOBILIZATIONS		
EROSION CONTROL EROSION CONTROL		
PROJECT		
EACH		EACH
ID 2020-00-71		
TOTALS		1
		2

ALL ITEMS ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

3

EROSION MATTING

628.2008 EROSION MAT URBAN CLASS I TYPE B	
STATION TO STATION	SY
CATEGORY 0010N 51ST STREET	
118+75 - BEAVER CREEK	488
BEAVER CREEK - 121+73.98	415
UNDISTRIBUTED	226
CATEGORY 0010 SUBTOTAL	1,129
CATEGORY 0030N 51ST STREET	
118+75 - BEAVER CREEK	-
BEAVER CREEK - 121+73.98	92
UNDISTRIBUTED	23
CATEGORY 0030 SUBTOTAL	115
TOTALS	1,244

ROCK BAGS

628.7570 ROCK BAGS	
STATION TO STATION	EACH
N 51ST STREET	
UNDISTRIBUTED	24
TOTALS	24

INLET PROTECTION

628.7005 INLET PROTECTION TYPE A		628.7020 INLET PROTECTION TYPE D
STATION TO STATION	EACH	EACH
N 51ST STREET		
118+75 - BEAVER CREEK	-	4
BEAVER CREEK - 121+73.98	1	-
TOTALS	1	4

DITCH CHECKS

628.7555 CULVERT PIPE CHECKS	
STATION TO STATION	EACH
N 51ST STREET	
118+75 - BEAVER CREEK	-
BEAVER CREEK - 121+73.98	2
TOTALS	2

3

SOD

629.0210 FERTILIZER TYPE B		631.0300 SOD WATER	631.1000 SOD LAWN
STATION TO STATION	CWT	MGAL	SY
CATEGORY 0010N 51ST STREET			
118+75 - BEAVER CREEK	0.3	0.3	25
BEAVER CREEK - 121+73.98	0.3	0.2	16
UNDISTRIBUTED	0.1	0.1	10
CATEGORY 0010 SUBTOTAL	0.7	0.6	52
CATEGORY 0030N 51ST STREET			
118+75 - BEAVER CREEK	0.0	0.2	17
BEAVER CREEK - 121+73.98	0.1	0.2	22
UNDISTRIBUTED	0.0	0.1	10
CATEGORY 0030 SUBTOTAL	0.1	0.5	48
TOTALS	0.8	1.1	100

TYPE II PERMANENT SIGNING

SIGN NO.	SIGN CODE & SIZE	SIGN TYPE	SIGN MESSAGE	TYPE II SIGN SIZE			637.2210	637.2230	638.2602	638.3000	634.0618	SPV.0060	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION
				W [IN.]	x x	H [IN.]	SIGNS TYPE II REFLC	SIGNS TYPE II REFLC	REMOVING SIGNS TYPE II	REMOVING SMALL SIGN SUPPORTS	POSTS WOOD 4"X6"X18'	02. ROUND STEEL POST SYSTEM		
							H [SF]	F [SF]	[EA]	[EA]	[EA]	[EA]		
1-0	--	--	Milw. Co. Parks OLT - Right Arrow	12	x	18	1.50	--	1	1	1	--	--	--
1-1	R5-2	II	--	24	x	24	4.00	--	1	1	--	1	--	--
1-2	--	II	Milw. Co. Parks OLT - Ahead Arrow	12	x	18	1.50	--	1	1	1	--	--	Sign Plate to be provided by Milw. Co. Parks
1-3	W7-5	II	--	36	x	36	--	9.00	1	--	--	--	1-2	--
1-4	R5-3	II	--	24	x	24	4.00	--	1	--	--	--	1-2	--
1-5	--	II	Milw. Co. Parks OLT - Left Arrow	12	x	18	1.50	--	1	1	1	--	--	Sign Plate to be provided by Milw. Co. Parks
1-6	--	II	Milw. Co. Parks OLT - Right Arrow	12	x	18	1.50	--	1	--	--	--	1-5	Sign Plate to be provided by Milw. Co. Parks
1-7	R2-1	II	25	24	x	30	5.00	--	1	1	1	--	--	--
							19.00	9.00	8	5	4	1		

ALL ITEMS ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

PROJECT NO: 2020-00-71

HWY: N 51ST STREET

COUNTY: MILWAUKEE

MISCELLANEOUS QUANTITIES

SHEET: 35

E

FILE NAME : _____

PLOT DATE : _____

PLOT BY : _____

PLOT NAME : _____

PLOT SCALE : 1:1

3

FIELD FACILITIES OFFICE SPACE	
642.5001 FIELD OFFICE TYPE B	
PROJECT	EACH
ID 2020-00-71	1
TOTALS	1

TRAFFIC CONTROL									
		643.0420 TRAFFIC CONTROL BARRICADES TYPE III		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		643.0900 TRAFFIC CONTROL SIGNS		643.1050 TRAFFIC CONTROL SIGNS PCMS	
STAGE	DURATION DAYS	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY
N 51ST STREET									
STAGE 1	104	15	1,560	30	3,120	9	936	2	14
DETOUR: N 51ST STREET	104	6	624	12	1,248	77	8,008	-	-
DETOUR: OAK LEAF TRAIL	104	-	-	-	-	27	2,808	-	-
TOTALS		21	2,184	42	4,368	113	11,752	2	14

3

TRAFFIC CONTROL	
643.5000 TRAFFIC CONTROL	
STAGE	EACH
PROJECT	
ID 2020-00-71	1
TOTALS	1

TEMPORARY PEDESTRIAN FACILITIES	
644.1810 BARRICADE	
STAGE	LF
N 51ST STREET	
STAGE 1	37
TOTALS	37

TEMPORARY AUDIBLE MESSAGE DEVICES		
644.1900.S TEMPORARY AUDIBLE MESSAGE DEVICES		
STATION TO STATION	EACH	DAY
N 51ST STREET		
DETOUR: OAK LEAF TRAIL	5	520
TOTALS	5	520

MARKING LINE			
		646.1020 EPOXY 4-INCH (YELLOW)	646.7520 CROSSWALK EPOXY BLOCK STYLE 24-INCH
STATION TO STATION		LF	LF
CATEGORY 0010	N 51ST STREET		
	118+75 - BEAVER CREEK	100	66
	BEAVER CREEK - 121+73.98	196	-
	CATEGORY 0010 SUBTOTAL	296	66
CATEGORY 0030	N 51ST STREET		
	118+75 - BEAVER CREEK	-	-
	BEAVER CREEK - 121+73.98	120	-
	CATEGORY 0030 SUBTOTAL	120	0
	TOTALS	416	66

CONSTRUCTION STAKING

ITEM	DESCRIPTION	UNIT	CATEGORY 0010	CATEGORY 0030	TOTAL
650.4000	CONSTRUCTION STAKING STORM SEWER	EACH	5	0	5
650.4500	CONSTRUCTION STAKING SUBGRADE	LF	150	110	260
650.5000	CONSTRUCTION STAKING BASE	LF	120	110	230
650.5500	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	LF	229	36	265
650.6501	CONSTRUCTION STAKING STRUCTURE LAYOUT (B-40-1102)	EACH	1	0	1
650.7000	CONSTRUCTION STAKING CONCRETE PAVEMENT	LF	30	0	30
650.9000	CONSTRUCTION STAKING CURB RAMPS	EACH	3	0	3
650.9500	CONSTRUCTION STAKING SIDEWALK (ID 2020-00-71)	EACH	1	0	1
650.9911	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (ID 2020-00-71)	EACH	1	0	1
650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	150	110	260

ALL ITEMS ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

3

SAWING

STATION TO STATION		690.0150 ASPHALT	690.0250 CONCRETE
		LF	LF
CATEGORY 0010	N 51ST STREET		
	118+75 - BEAVER CREEK	47	22
	BEAVER CREEK - 121+73.98	-	-
	CATEGORY 0010 SUBTOTAL	47	22
CATEGORY 0030	N 51ST STREET		
	118+75 - BEAVER CREEK	62	3
	BEAVER CREEK - 121+73.98	90	-
	CATEGORY 0030 SUBTOTAL	152	3
	TOTALS	199	25

STREAM BED

		606.0300 *	645.0120 *	SPV.0035.01 CONCRETE MASONRY CUT-OFF WALLS	SPV.0195.01 COARSE AGGREGATE MIX FOR STREAM BED
		RIPRAP HEAVY	GEOTEXTILE TYPE HR		
STATION TO STATION		CY	SY	CY	TON
N 51ST STREET					
	BEAVER CREEK	230	448	4	157
	TOTALS	230	448	4	157

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

3

UTILITY LINE OPENING (ULO)

STATION TO STATION		SPV.0060.01 UTILITY LINE OPENING (ULO) EACH
N 51ST STREET		
	UNDISTRIBUTED	10
	TOTALS	10

MAINTAINING TEMPORARY DRAINAGE AT BEAVER CREEK

PROJECT		SPV.0060.04 MAINTAINING TEMPORARY DRAINAGE AT BEAVER CREEK EACH
N 51ST STREET		
	ID 2020-00-71	1
	TOTALS	1

INSULATION BOARD POLYSTYRENE

STATION TO STATION		CATEGORY 0030 612.0902.S.01 INSULATION BOARD POLYSTYRENE 2-INCH SY
N 51ST STREET		
	UNDISTRIBUTED	8
	TOTALS	8

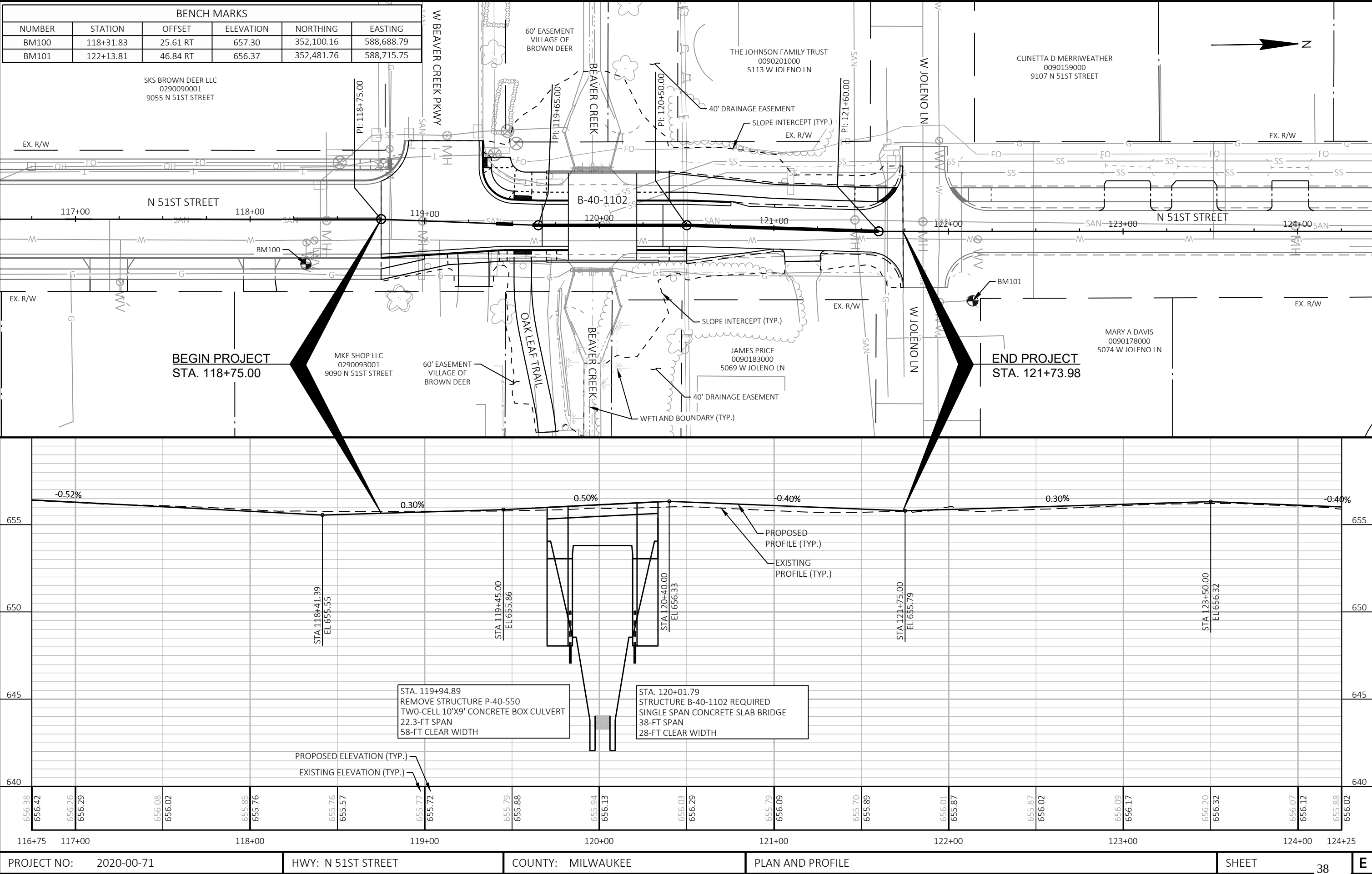
EXCAVATION, HAULING, AND DISPOSAL OF PAH CONTAMINATED SOIL

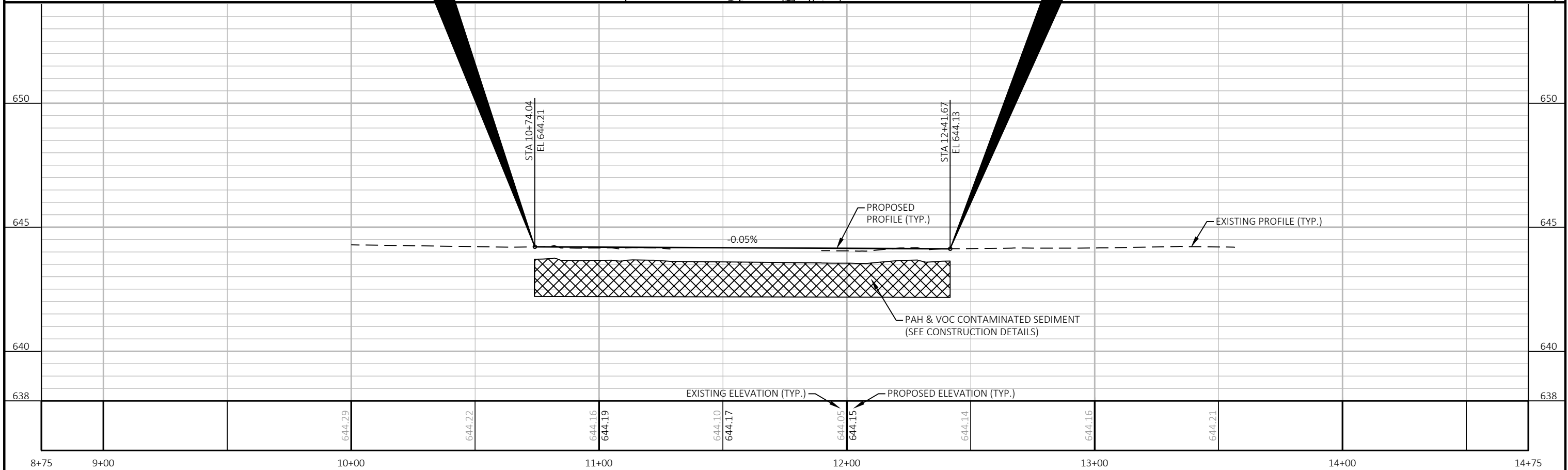
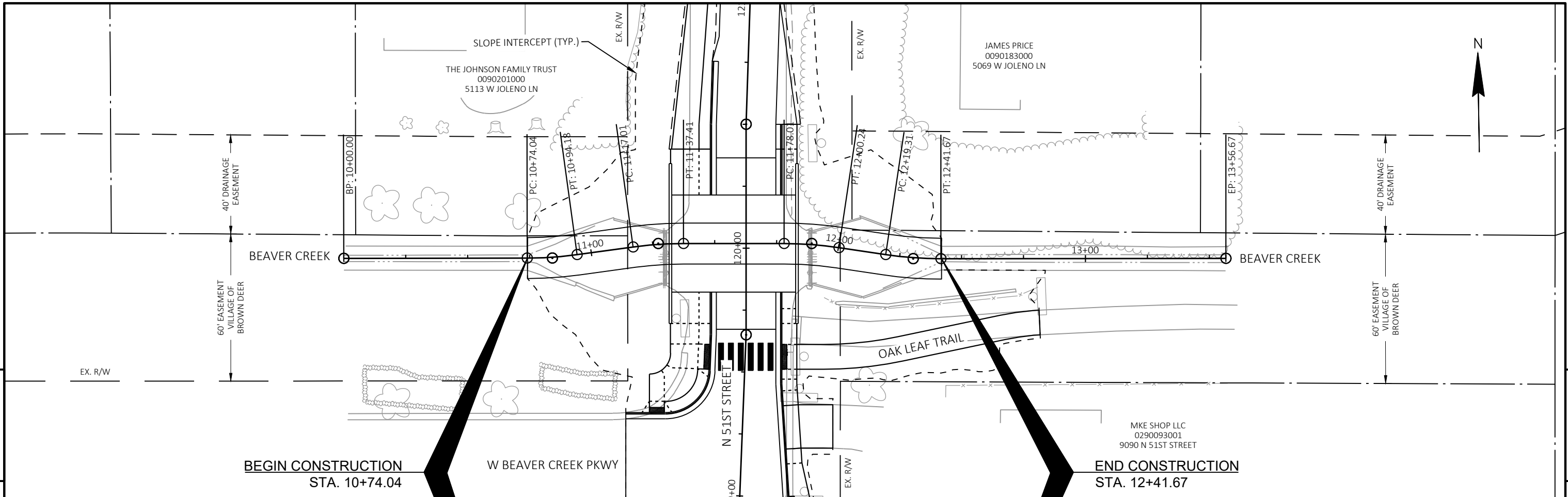
STATION TO STATION		SPV.0195.02 EXCAVATION, HAULING, AND DISPOSAL OF PAH CONTAMINATED SOIL TON
N 51ST STREET		
	118+75 - 119+90	197
	TOTALS	197

EXCAVATION, HAULING, AND DISPOSAL OF PAH AND VOC CONTAMINATED SEDIMENT

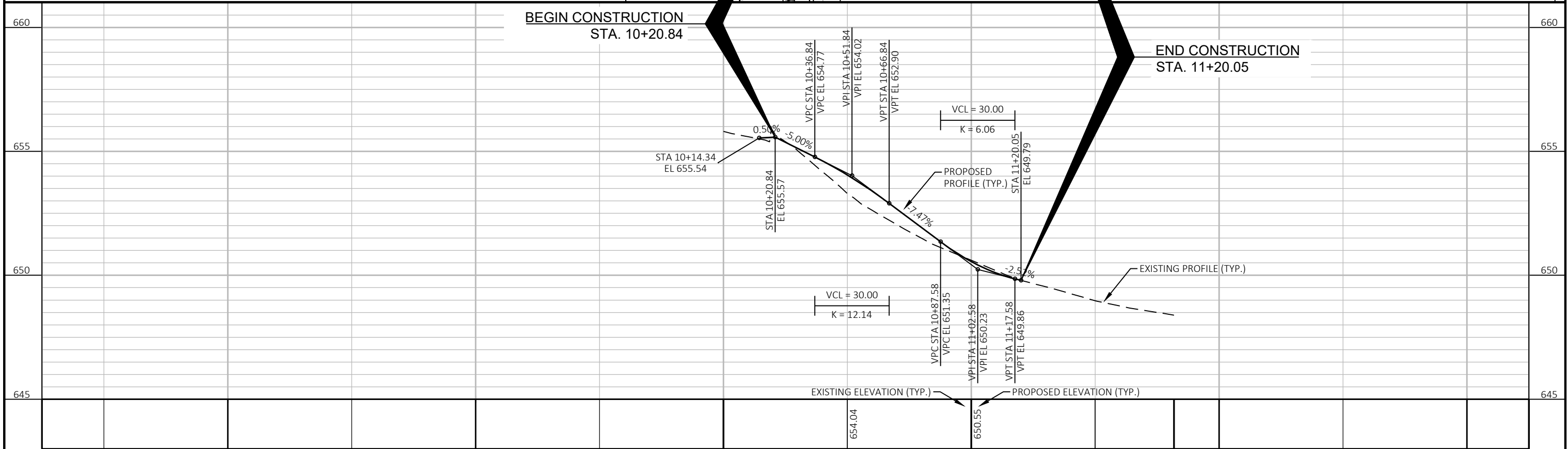
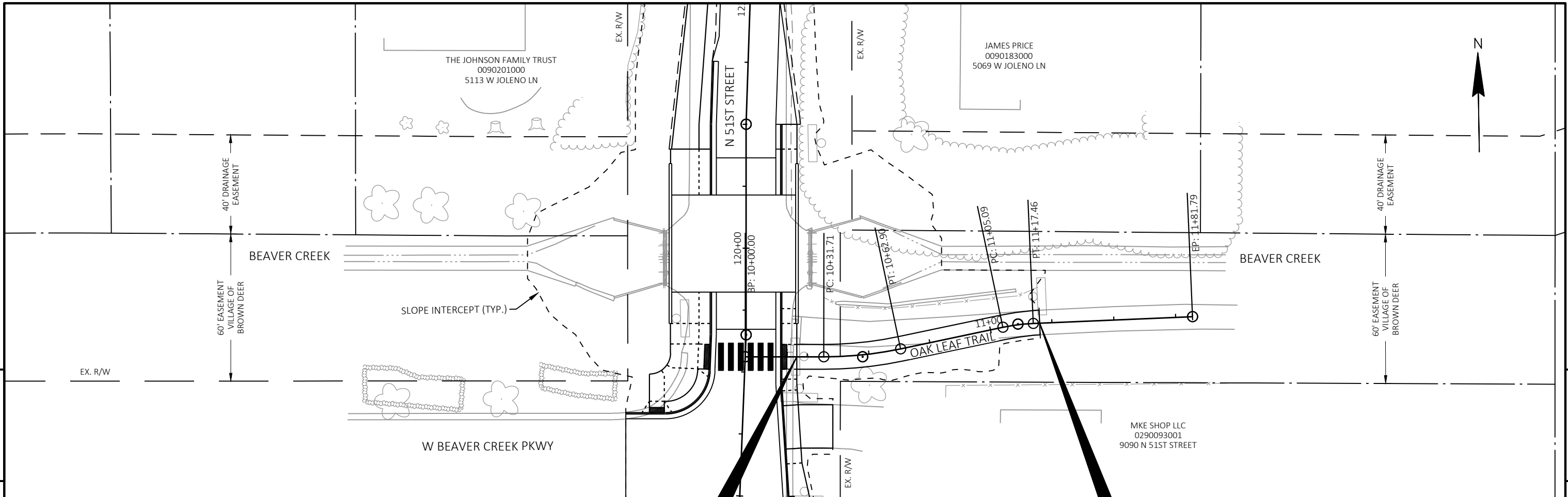
STATION TO STATION		SPV.0195.03 EXCAVATION, HAULING, AND DISPOSAL OF PAH AND VOC CONTAMINATED SEDIMENT TON
N 51ST STREET		
	119+80 - 120+10	262
	TOTALS	262

ALL ITEMS ARE CATEGORY 0010
UNLESS OTHERWISE NOTED



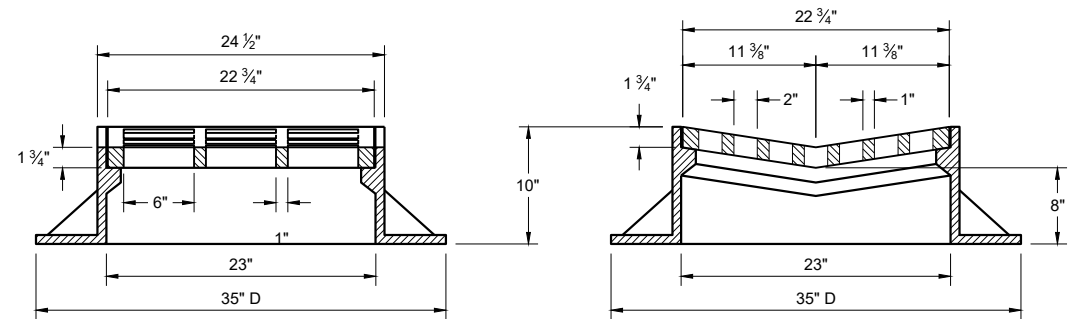


PROJECT NO: 2020-00-71	HWY: N 51ST STREET	COUNTY: MILWAUKEE	PLAN AND PROFILE: CHANNEL	SHEET	39	E
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Standard Detail Drawing List

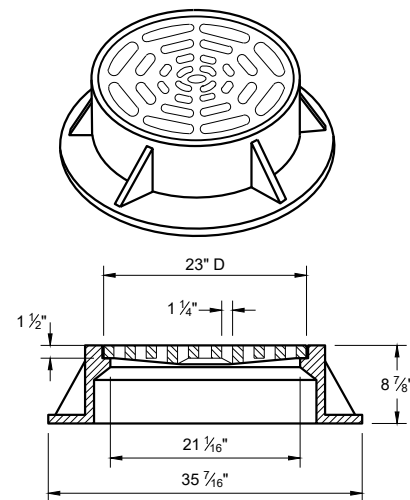
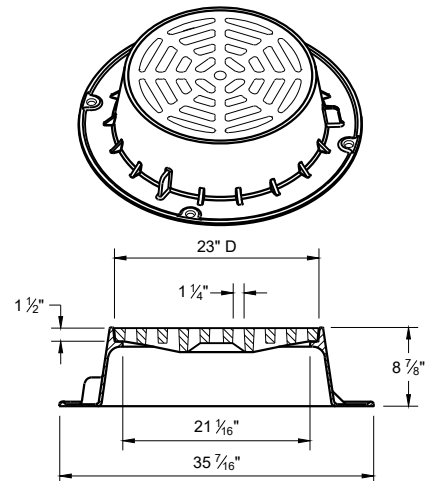
08A05-22B	INLET COVERS TYPE B, B-A, C, MS, MS-A, DW & WM
08A05-22E	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08A08-03	CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D05-22A	CURB RAMPS TYPES 1 AND 1-A
08D05-22B	CURB RAMPS TYPES 2 AND 3
08D05-22C	CURB RAMPS TYPES 4A AND 4A1
08D05-22D	CURB RAMPS TYPE 4B AND 4B1
08D05-22E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D05-22F	CURB RAMPS RADIAL DETECTABLE WARNING FIELD APPLICATIONS
08D05-22G	CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES
08D18-05	DRIVEWAY AND SIDEWALK RAMPS TYPES X & Y
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10	NAME PLATE (STRUCTURES)
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13C19-03	HMA LONGITUDINAL JOINTS
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C05-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C33-05	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D30-11A	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11B	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11C	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11D	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11E	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11F	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11G	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11H	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11I	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11J	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11K	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11L	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION



TYPE "B"

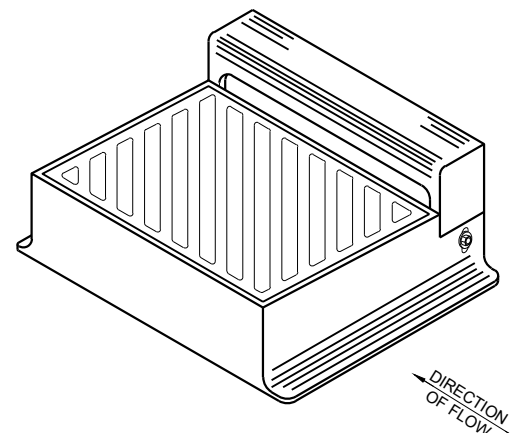
**ALTERNATIVE GRATE FOR
TYPE "B" COVER**

USE WHERE PEDESTRIAN OF BICYCLE TRAFFIC IS POSSIBLE
NOTED AS TYPE B - A ON THE DRAINAGE TABLE

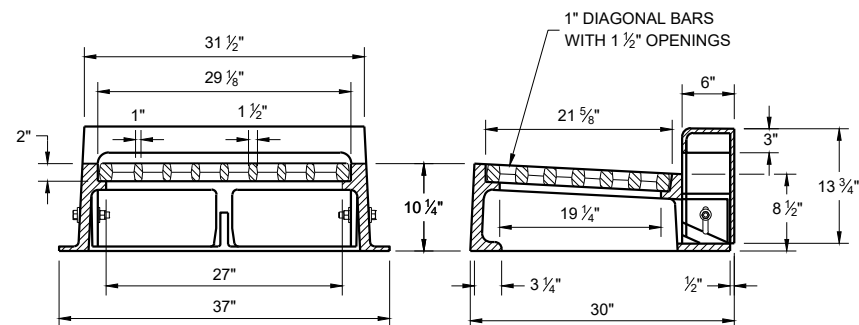


TYPE "C"

NOTE: EITHER CASTING IS ACCEPTABLE



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



TYPE "WM"

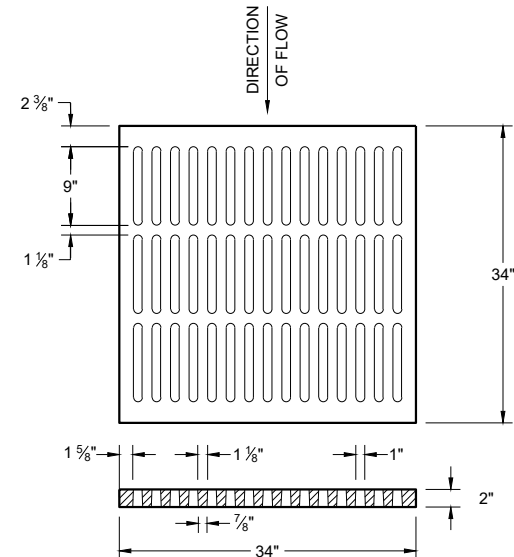
NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

GENERAL NOTES

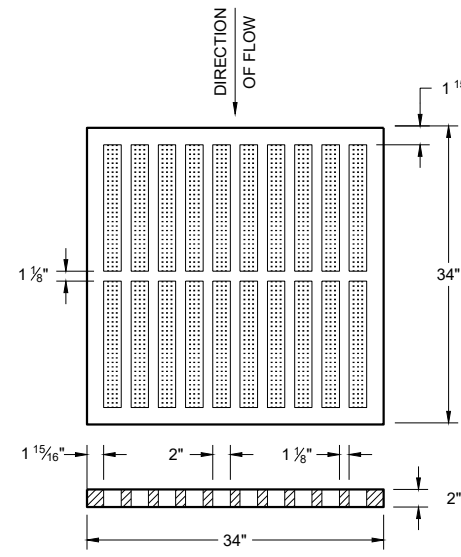
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

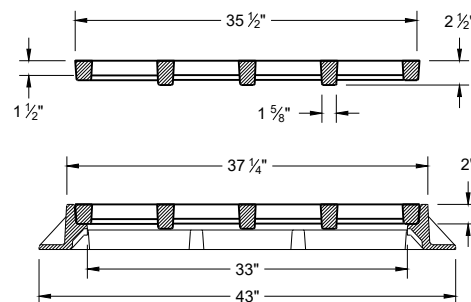
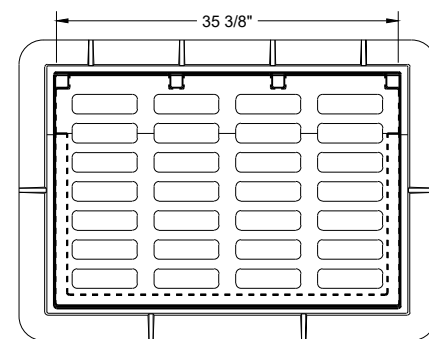
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



ALTERNATIVE TYPE "MS"
USE WHERE PEDESTRIAN OF BICYCLE
TRAFFIC IS PERMITTED
**NOTED AS TYPE MS-A ON THE
DRAINAGE TABLE**

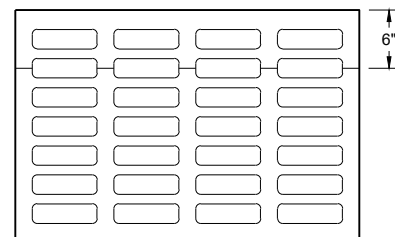
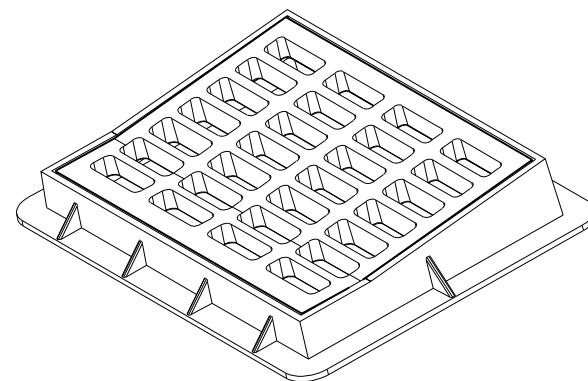


TYPE "MS"
USE ON FREEWAYS AND EXPRESSWAYS
**NOTED AS TYPE MS ON THE
DRAINAGE TABLE**



TYPE "DW"

NOTES: FOR USE IN A SUMP CONDITION. THIS OPTION IS
ONLY TO BE USED IF NO OTHER INLETS ARE APPLICABLE.



**INLET COVERS
TYPES B, B-A, C,
MS, MS-A ,DW AND WM**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

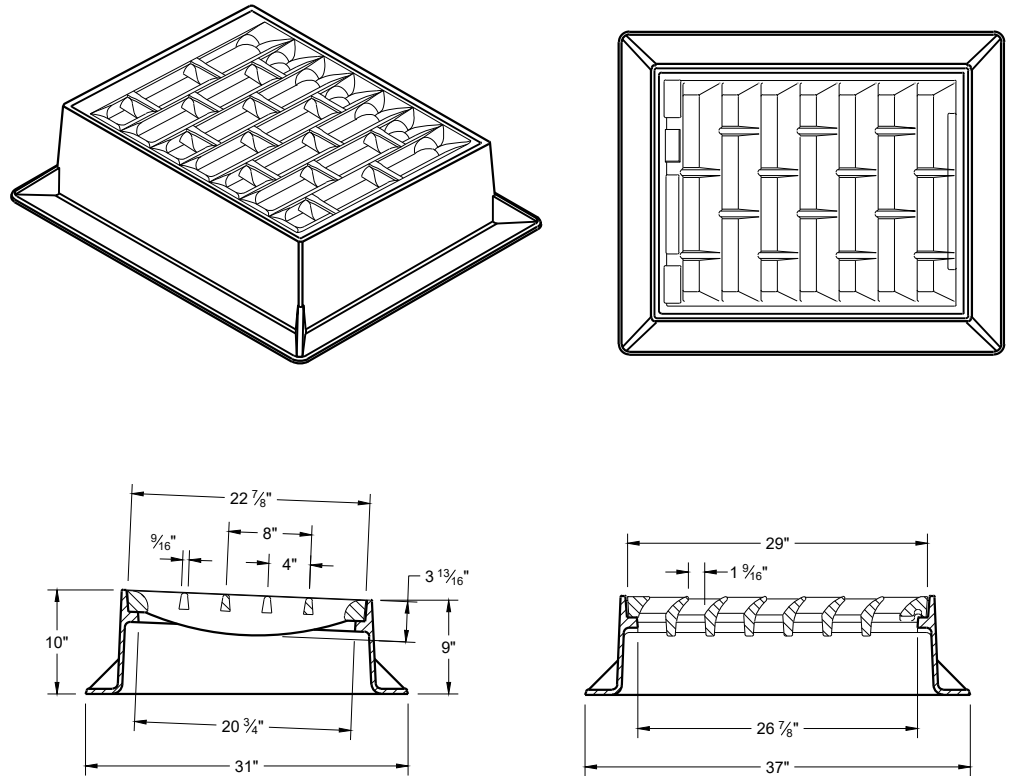
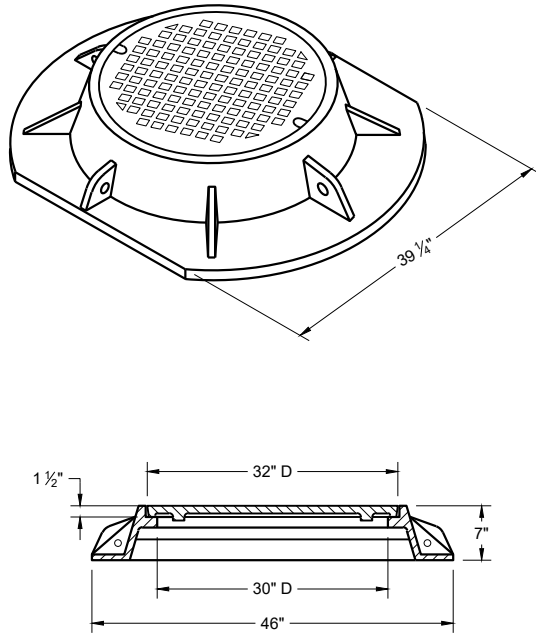
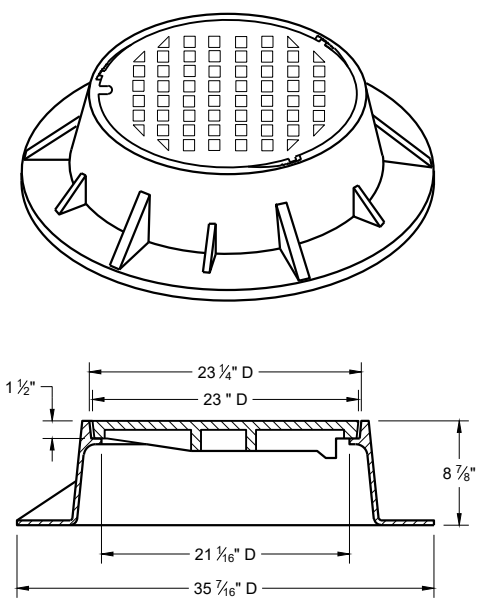
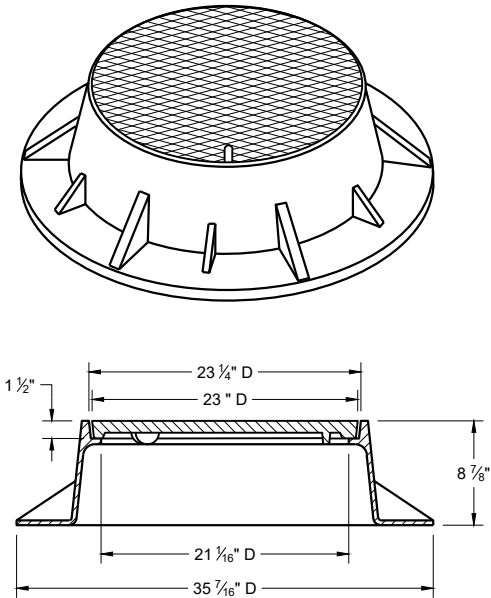
APPROVED
February 2025 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

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.

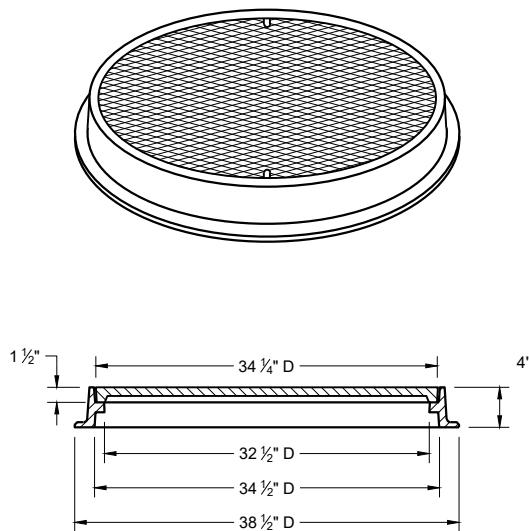
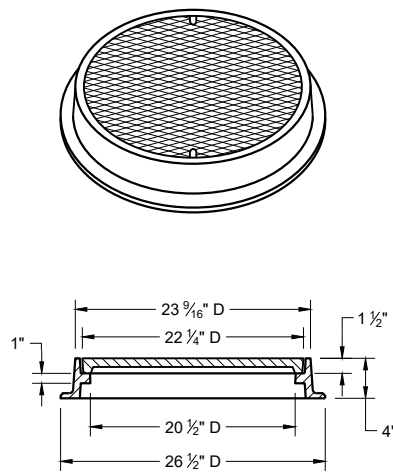
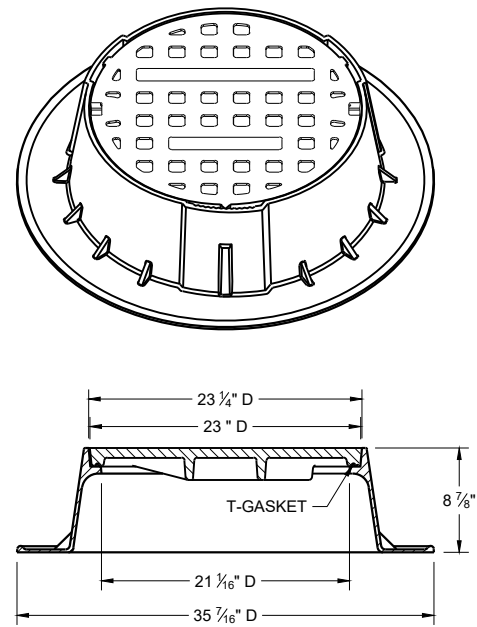
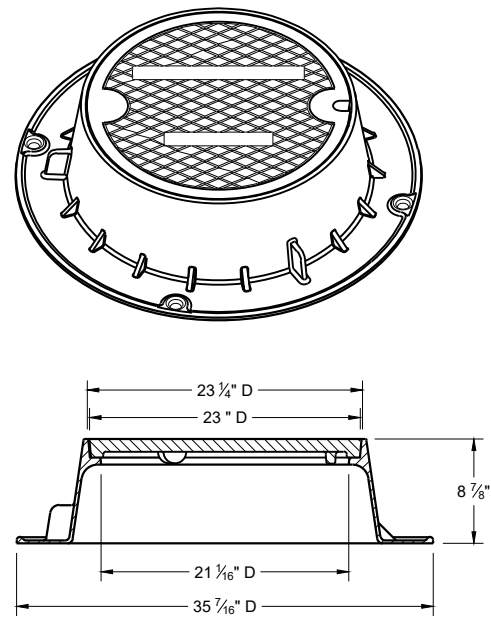
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



TYPE "K"

INLET COVER TYPE "BW"



TYPE "J"

TYPE "J" SPECIAL

TYPE "L"

TYPE "M"

NOTE: EITHER CASTING IS ACCEPTABLE

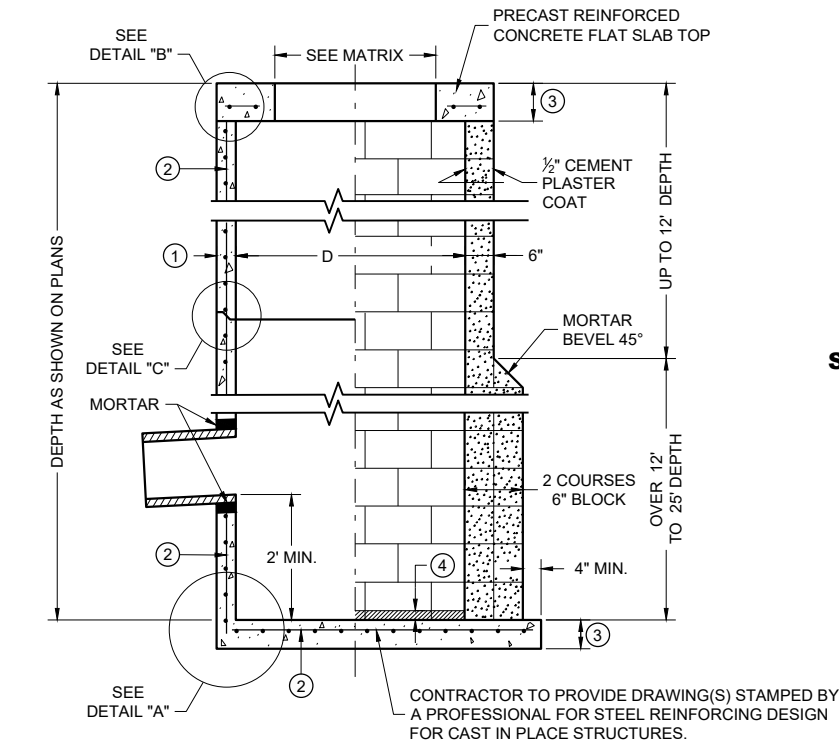
TYPE "B" NON-ROCKING SELF-SEAL LID
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

NOTE: EITHER CASTING IS ACCEPTABLE

INLET COVERS TYPES BW
MANHOLE COVERS TYPES K,
J, J-S, L, AND M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

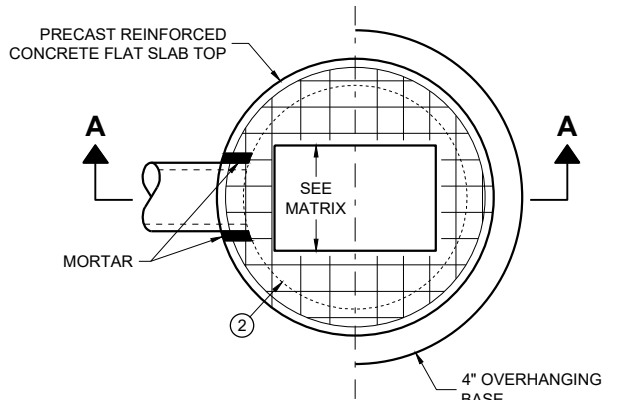
APPROVED
February 2025 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



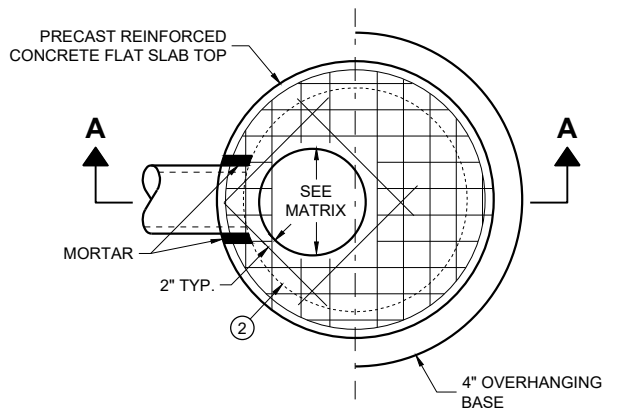
PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

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

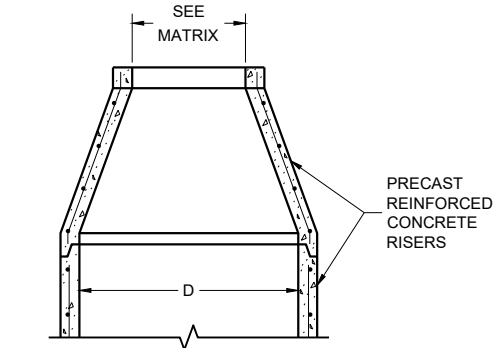
SECTION A - A



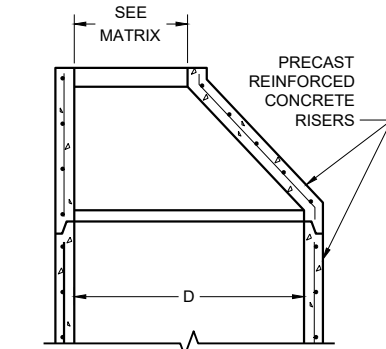
PLAN VIEW RECTANGULAR OPENING



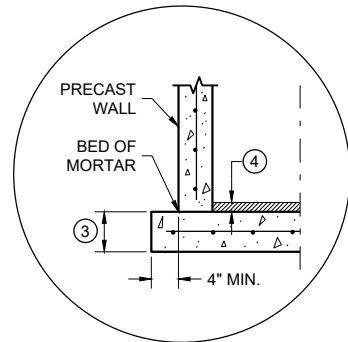
PLAN VIEW CIRCULAR OPENING



OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

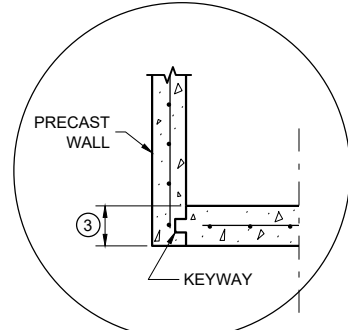


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP



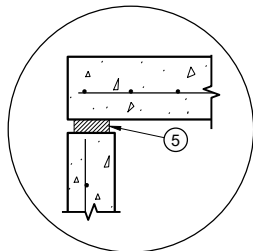
SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"

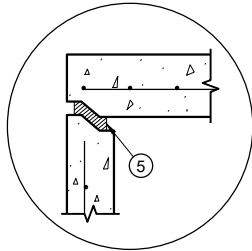


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

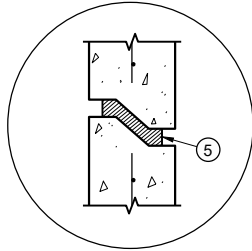
DETAIL "B"



TOP WITH PLAIN END JOINT

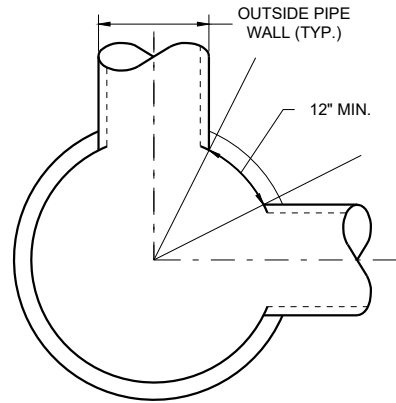


TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "C"



MINIMUM HORIZONTAL PIPE SEPARATION

DETAIL "D"

COVER MATRIX

CATCH BASIN SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V V-B	VV-B	WM	Z
	OPENING SIZE (FT.)												
3-FT	2 X 2	X	X					X		X			
	2 DIA.				X								X
4-FT TO 6-FT	2 X 2	X	X					X		X			
	2 X 2.5			X				X	X	X		X	
	2 DIA.				X								X
	2 X 3					X							
	2.5 X 3					X							
	2 X 3.5*										X*		

* REQUIRES 5-FT DIAMETER OR LARGER STRUCTURE

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

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. CONCENTRIC CONE TOPS SHALL BE USE 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.

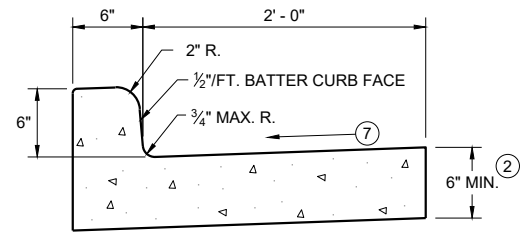
FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "D".

- 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 AND REINFORCED CONCRETE BASES 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.
- ⑤ JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 OR RUBBER GASKETS CONFROMING TO ASTM C443.

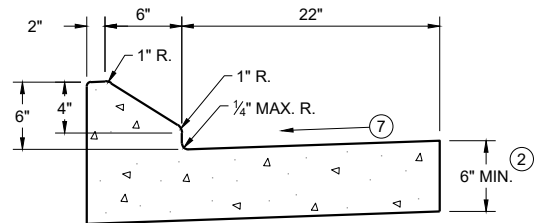
**CATCH BASINS, 3-FT.
4-FT., 5 FT., AND
6-FT. DIAMETER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

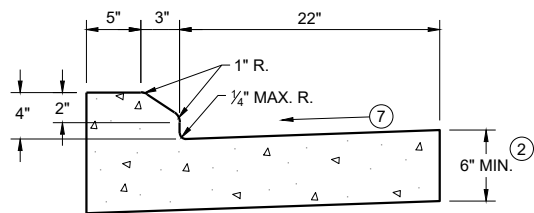
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



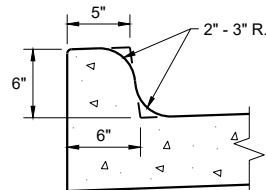
TYPES A^① & D



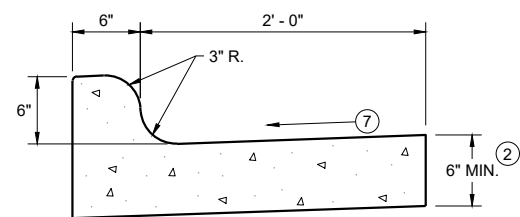
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

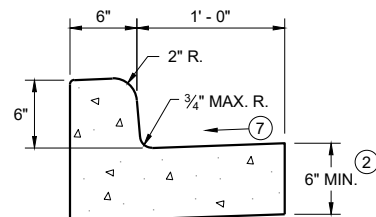


TYPES K^① & L
(OPTIONAL CURB SHAPE)



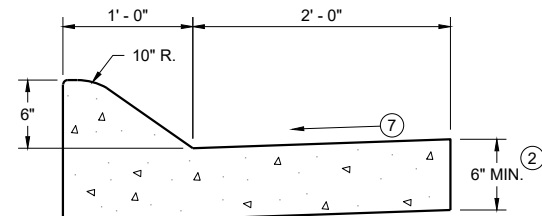
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

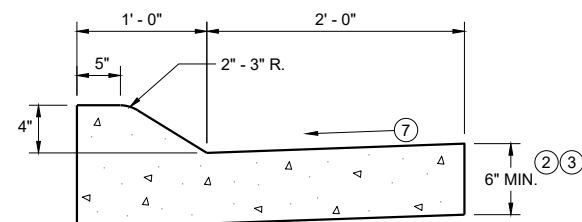


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

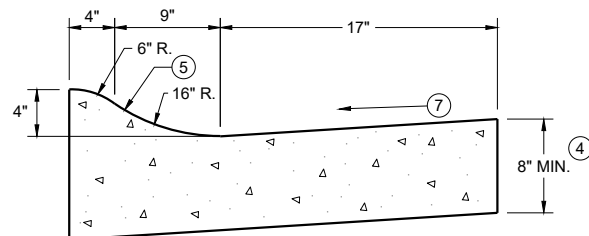


6" SLOPED CURB TYPES A^① & D



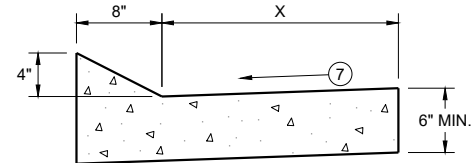
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T
CONCRETE CURB AND GUTTER 30"

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

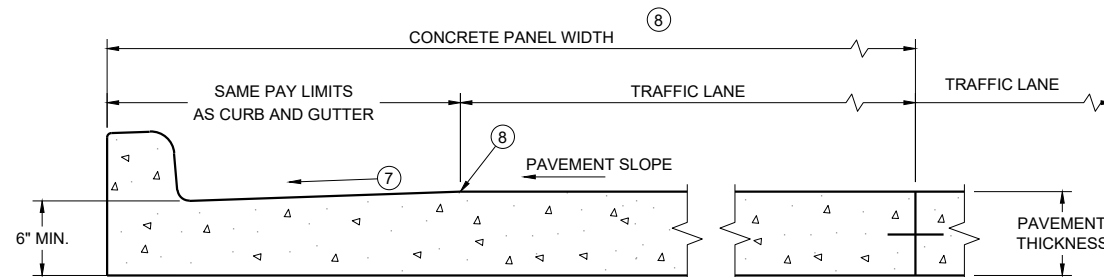


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

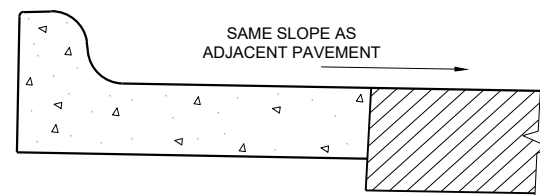
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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

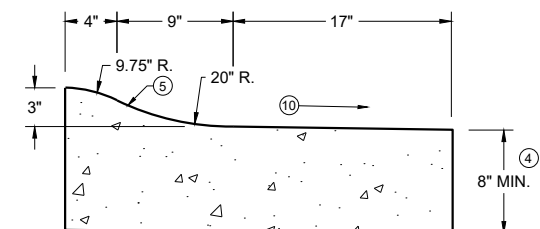


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER^⑥
(TYPICAL FOR ALL CURB & GUTTER TYPES)



3" SLOPED CURB TYPES R^① & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

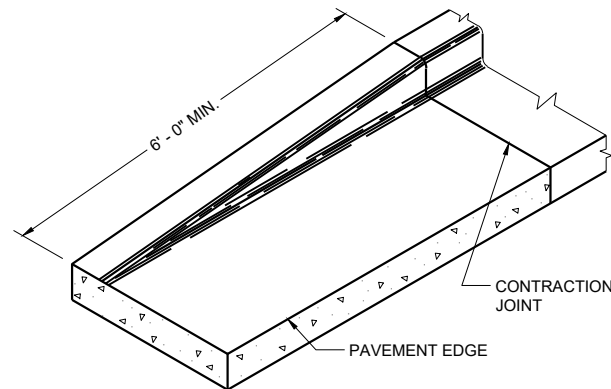
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

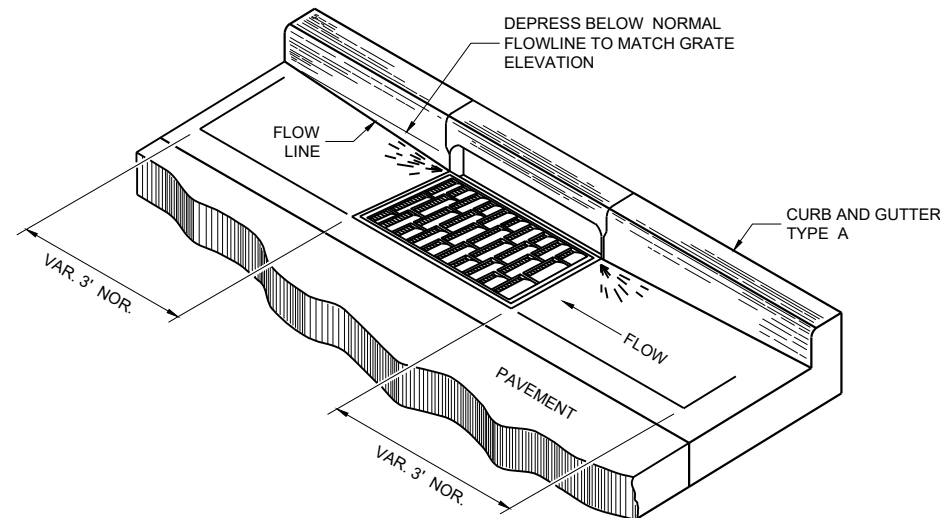
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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 SLOPE TO BE REVERSE SLOPE MATCHING THE SLOPE OF THE PAVEMENT AND THE CIRCULATORY ROADWAY

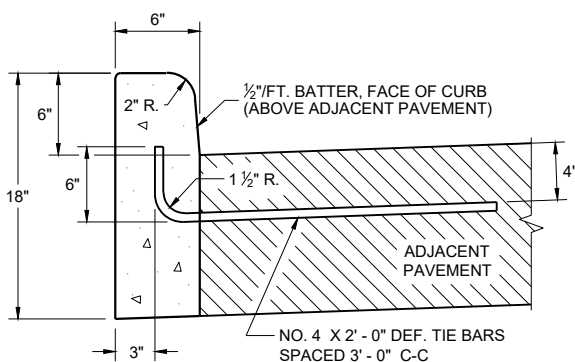


END SECTION CURB AND GUTTER

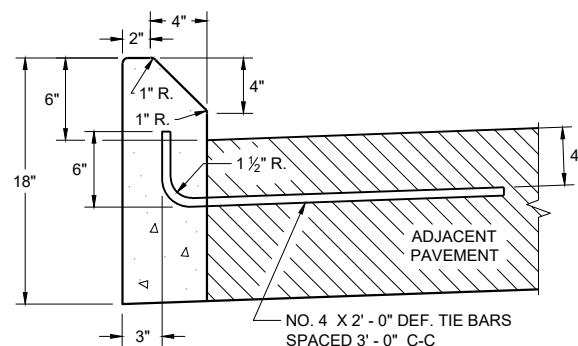


DETAIL OF CURB AND GUTTER AT INLETS

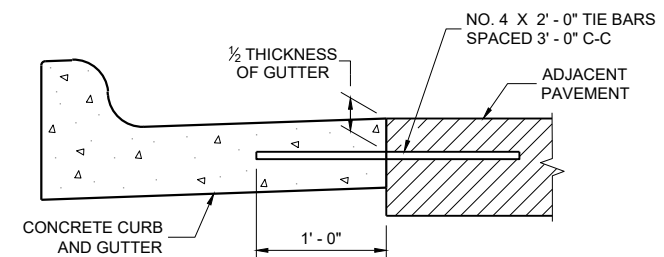
(TYPICAL H INLET COVER SHOWN)



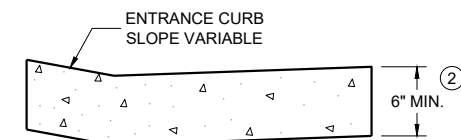
TYPES A ^① & D



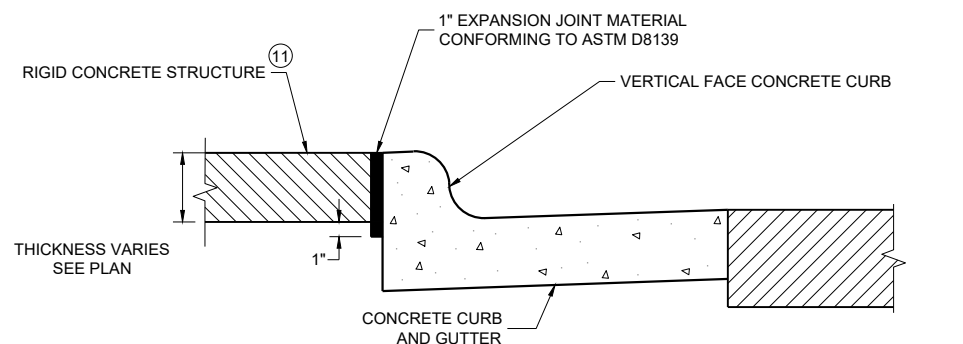
**TYPES G ^① & J
CONCRETE CURB**



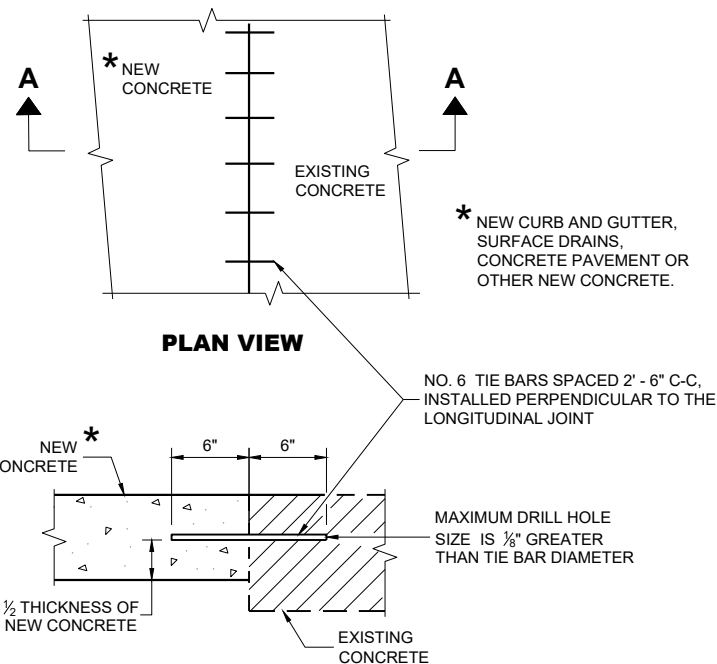
TYPICAL TIE BAR LOCATION ^①



**DRIVEWAY ENTRANCE CURB ^⑩
(WHEN DIRECTED BY THE ENGINEER)**



EXPANSION JOINT DETAIL FOR VERTICAL CURB ABUTTING A RIGID STRUCTURE ^⑪



**SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT**

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.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.
- ⑪ PLACE 1" THICK EXPANSION JOINT MATERIAL BETWEEN VERTICAL FACE CURB TYPES EXTENDING FROM THE TOP OF CURB TO 1 INCH BELOW THE ADJOINING CONCRETE SURFACE. RIGID CONCRETE STRUCTURES INCLUDE RAISED CONCRETE MEDIANS, CONCRETE SAFETY ISLANDS, SPLITTER ISLANDS, OR LOCATIONS IDENTIFIED ON THE PLANS.

6

SDD 08D01-24b

6

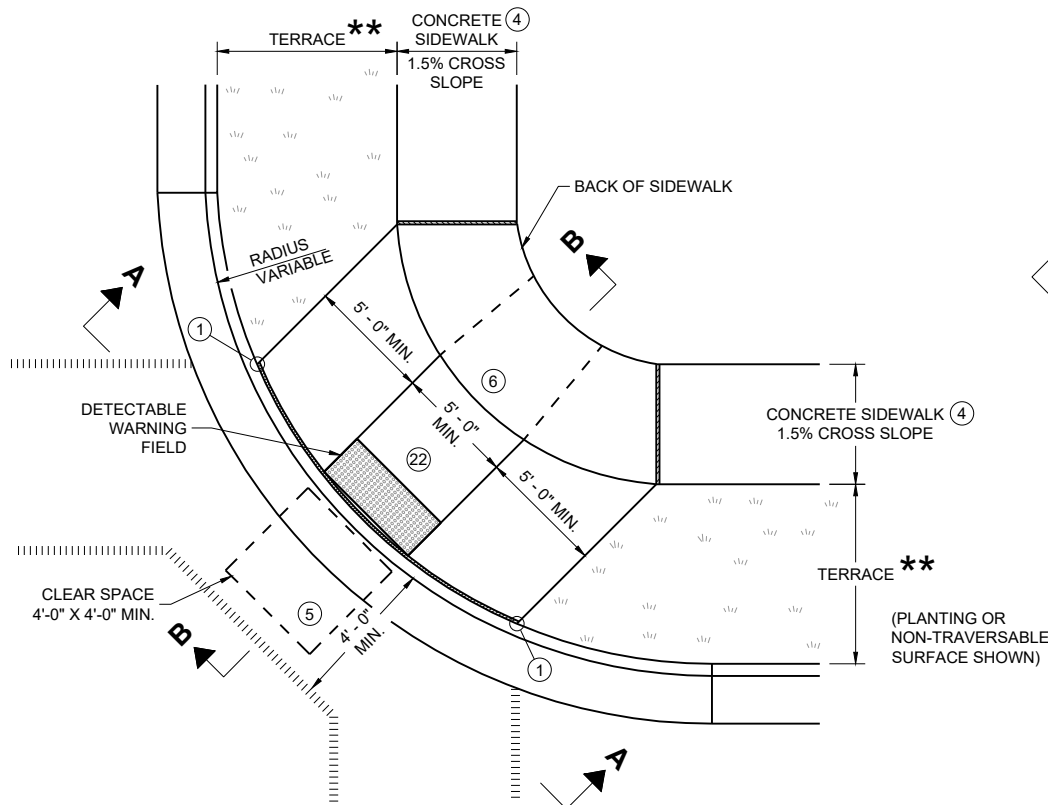
SDD 08D01-24b

**CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS**

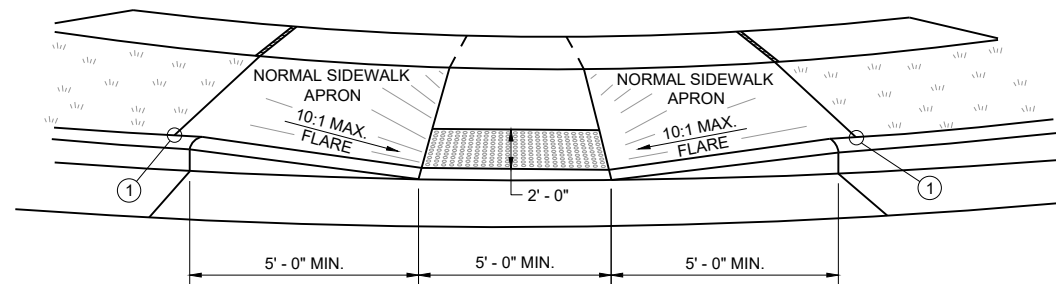
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

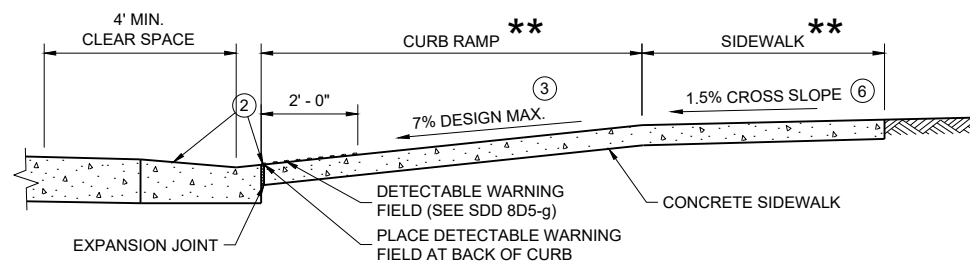
FHWA



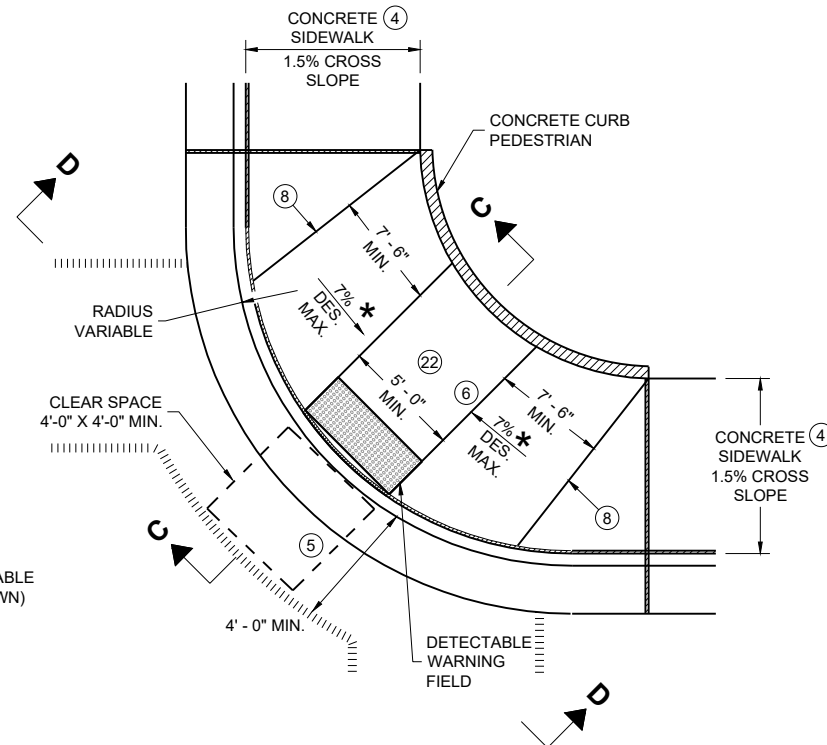
PLAN VIEW
CURB RAMP TYPE 1
(CENTER OF CORNER RADIUS)



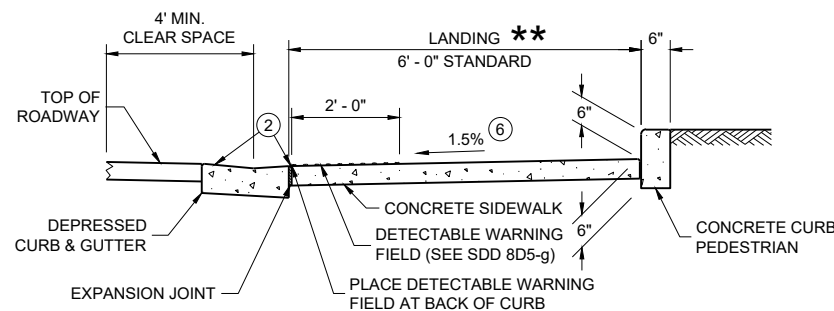
VIEW A - A FOR TYPE 1



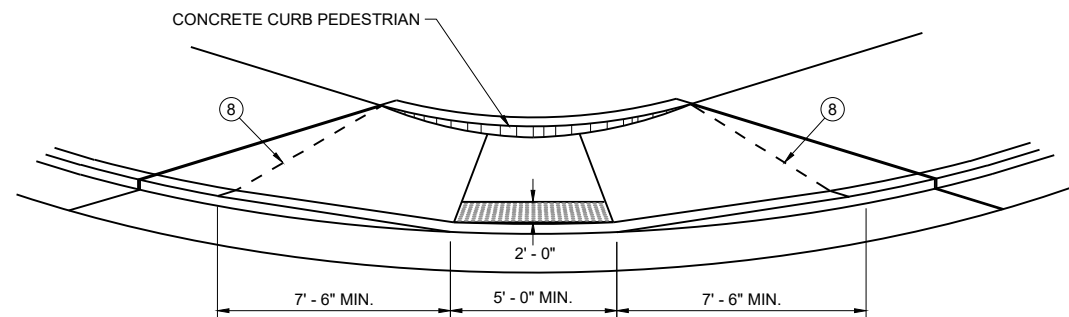
SECTION B - B FOR TYPE 1



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



SECTION C - C FOR TYPE 1 - A



VIEW D - D FOR TYPE 1 - A

GENERAL NOTES

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

TYPE 1 CURB RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF CURB 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 CURB 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 COUNTER SLOPE AND THE CURB RAMP SLOPE IS DESIRABLY 11% OR LESS AND SHALL NOT EXCEED 13.3%. TYPICAL GUTTER COUNTER SLOPE IS 4% BUT MAY BE MODIFIED TO FIT FIELD CONDITIONS. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5%, DESIRABLY 7% OR LESS, AND SHALL NOT EXCEED A MAXIMUM OF 8.3%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ MAXIMUM 8.3% CURB RAMP SLOPE IS ALLOWABLE WITH GUTTER COUNTER SLOPE OF 5% MAXIMUM AND A 13.3% MAXIMUM GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑤ PROVIDE A CLEAR SPACE IN THE STREET AND GUTTER AREA. WHEN THE GUTTER CROSS SLOPE EXCEEDS 2.1%, CONSTRUCT THE CLEAR SPACE IN THE STREET AREA AND THE 4 FOOT WIDTH IS MEASURED FROM THE FLANGE LINE. FOR RECONSTRUCTION AND MODERNIZATION PROJECTS THE CLEAR SPACE SLOPE PARALLEL TO THE CURBLINE SHOULD BE 2.1% MAX FOR CROSSINGS THAT ARE STOP AND YIELD CONTROLLED, AND 5% MAX FOR THOSE THAT ARE SIGNAL CONTROLLED. FOR PERPETUATION AND REHABILITATION PROJECTS THE SLOPE OF THE CLEAR SPACE PARALLEL TO THE CURBLINE WILL MATCH THE ROADWAY LONGITUDINAL SLOPE. THE SLOPE OF THE CLEAR SPACE PERPENDICULAR TO THE CURBLINE WILL MATCH THE ROADWAY CROSS SLOPE BUT SHOULD NOT EXCEED 5% UNLESS THE ROADWAY IS SUPERELEVATED (WHEN SUPERELEVATED THE ROADWAY CROSS SLOPE SHOULD MATCH THE SUPERELEVATION).
- ⑥ PROVIDE A 5 FOOT BY 5 FOOT LANDING. SLOPE PERPENDICULAR TO CURB SHALL BE 2.1% MAXIMUM. SLOPE PARALLEL TO CURB SHALL MATCH THE CURB AND GUTTER LONGITUDINAL SLOPE.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑪ A MAXIMUM 2-INCH CONCRETE BORDER IS PERMITTED ALONG ALL SIDES OF THE DETECTABLE WARNING FIELD SURFACE.
- ⑫ THE ENTIRE RAMP SHALL BE A PLANAR SURFACE. DO NOT WARP THE RUNNING SLOPE OR CROSS SLOPE OF THE RAMP. WARPING OF THE SIDEWALK CROSS SLOPE SHALL TAKE PLACE BETWEEN THE LANDING AND MATCH POINT.

LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- * MAXIMUM 8.3%
- ** WIDTH SHOWN ELSEWHERE IN THE PLANS

CURB RAMPS TYPE 1 AND 1-A

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



LEGEND

- | | |
|---|--|
|  | 1/2" EXPANSION JOINT SIDEWALK |
|  | CONTRACTION JOINT SIDEWALK |
|  | PAVEMENT MARKING CROSSWALK (WHITE) |
|  | MAXIMUM 2.1% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK |
|  | WIDTH SHOWN ELSEWHERE IN THE PLANS |
|  | CONSTRUCT 6" WEDGE TO AVOID CONCRETE BREAKAGE |

CURB RAMPS TYPE 2 AND 3

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

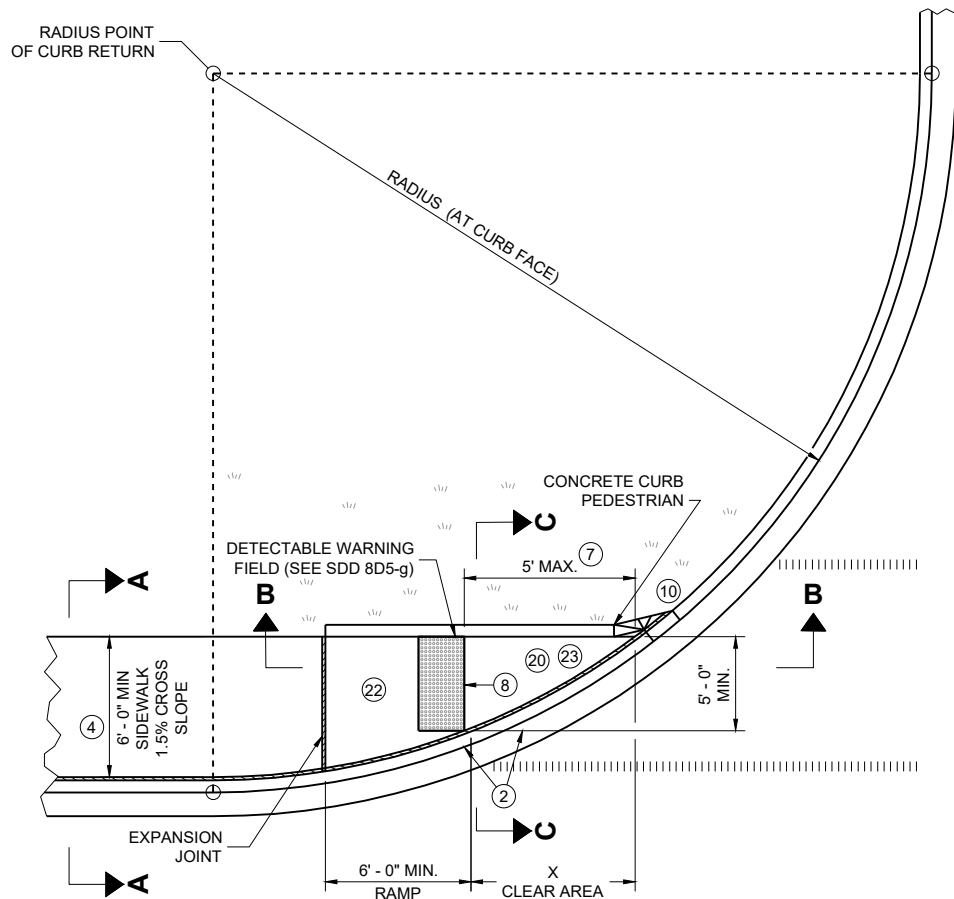
48

6

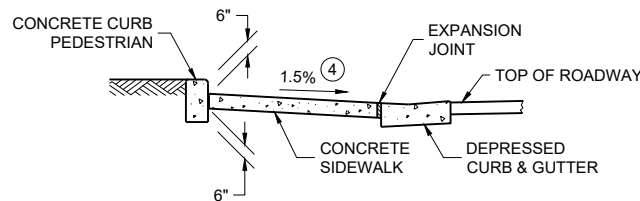
SDD 08D05-22b

6

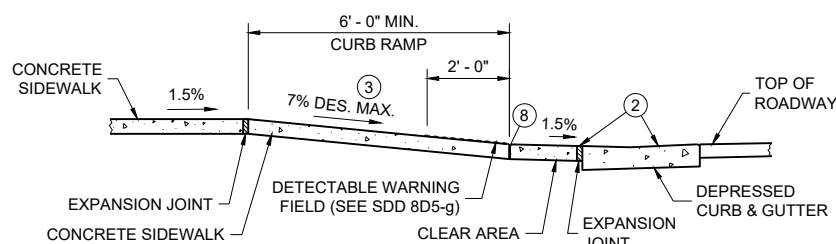
SDD 08D05-22b



PLAN VIEW
CURB RAMP TYPE 4A



SECTION C - C FOR TYPE 4A

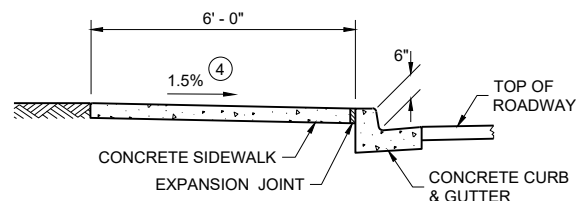


SECTION B - B FOR
TYPE 4A AND TYPE 4A1

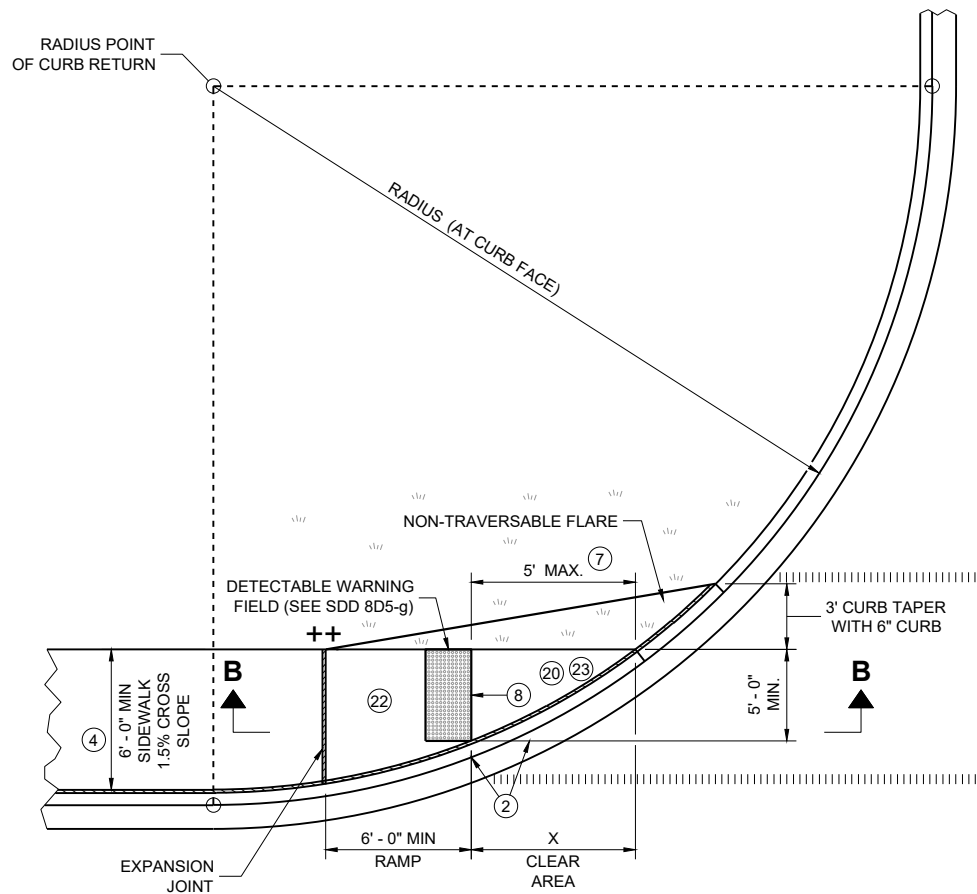
- LEGEND**
- 1/2" EXPANSION JOINT SIDEWALK
 - CONTRACTION JOINT SIDEWALK
 - PAVEMENT MARKING CROSSWALK (WHITE)
 - ++ CONSTRUCT 6" WEDGE TO AVOID CONCRETE BREAKAGE

RADIUS (AT CURB FACE)	X
10 FEET	4' - 7"

INTERMEDIATE RADII CAN BE INTERPOLATED



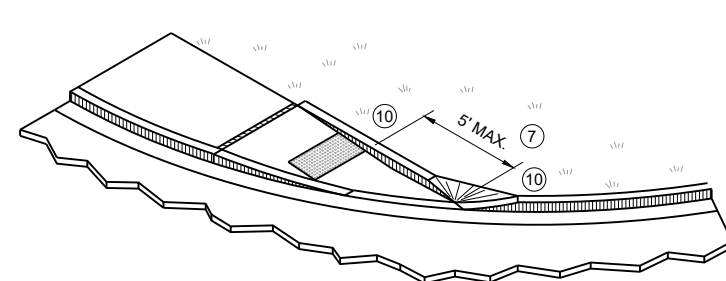
SECTION A - A FOR TYPE 4A



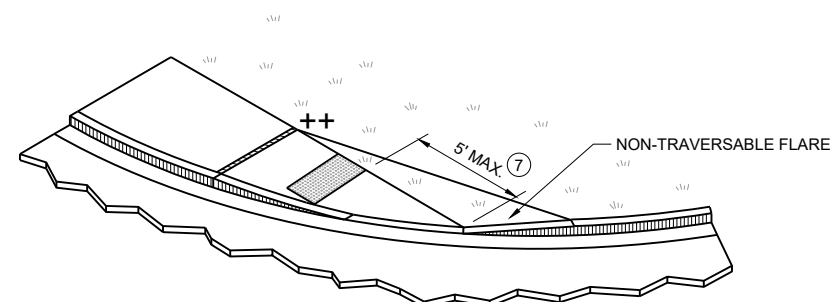
PLAN VIEW
CURB RAMP TYPE 4A1

GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF CURB 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.
- GRADE CHANGE BETWEEN GUTTER COUNTER SLOPE AND THE CURB RAMP SLOPE IS DESIRABLY 11% OR LESS AND SHALL NOT EXCEED 13.3%. TYPICAL GUTTER COUNTER SLOPE IS 4% BUT MAY BE MODIFIED TO FIT FIELD CONDITIONS. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5%, DESIRABLY 7% OR LESS, AND SHALL NOT EXCEED A MAXIMUM OF 8.3%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- MAXIMUM 8.3% CURB RAMP SLOPE IS ALLOWABLE WITH GUTTER COUNTER SLOPE OF 5% MAXIMUM AND A 13.3% MAXIMUM GRADE CHANGE.
- ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.
- A MAXIMUM 2-INCH CONCRETE BORDER IS PERMITTED ALONG ALL SIDES OF THE DETECTABLE WARNING FIELD SURFACE.
- MAXIMUM 1.5% DESIGN MAXIMUM AND 2.1% PROWAG MAXIMUM RUNNING SLOPE ON CLEAR AREA. CROSS SLOPE OF CLEAR AREA SHALL MATCH THE CROSS SLOPE OF THE ADJACENT CROSSWALK.
- THE ENTIRE RAMP SHALL BE A PLANAR SURFACE. DO NOT WARP THE RUNNING SLOPE OR CROSS SLOPE OF THE RAMP. WARPING OF THE SIDEWALK CROSS SLOPE SHALL TAKE PLACE BETWEEN THE LANDING AND MATCH POINT.
- THE CLEAR AREA BETWEEN THE BOTTOM OF RAMP AND BACK OF CURB SHALL BE SLOPED SO THAT WATER DRAINS OUT OF ONE SIDE OR BOTH SIDES OF THE CURB OPENING.



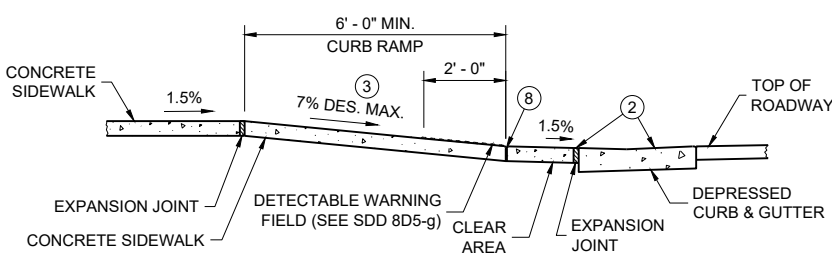
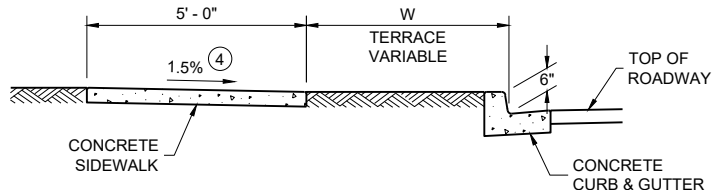
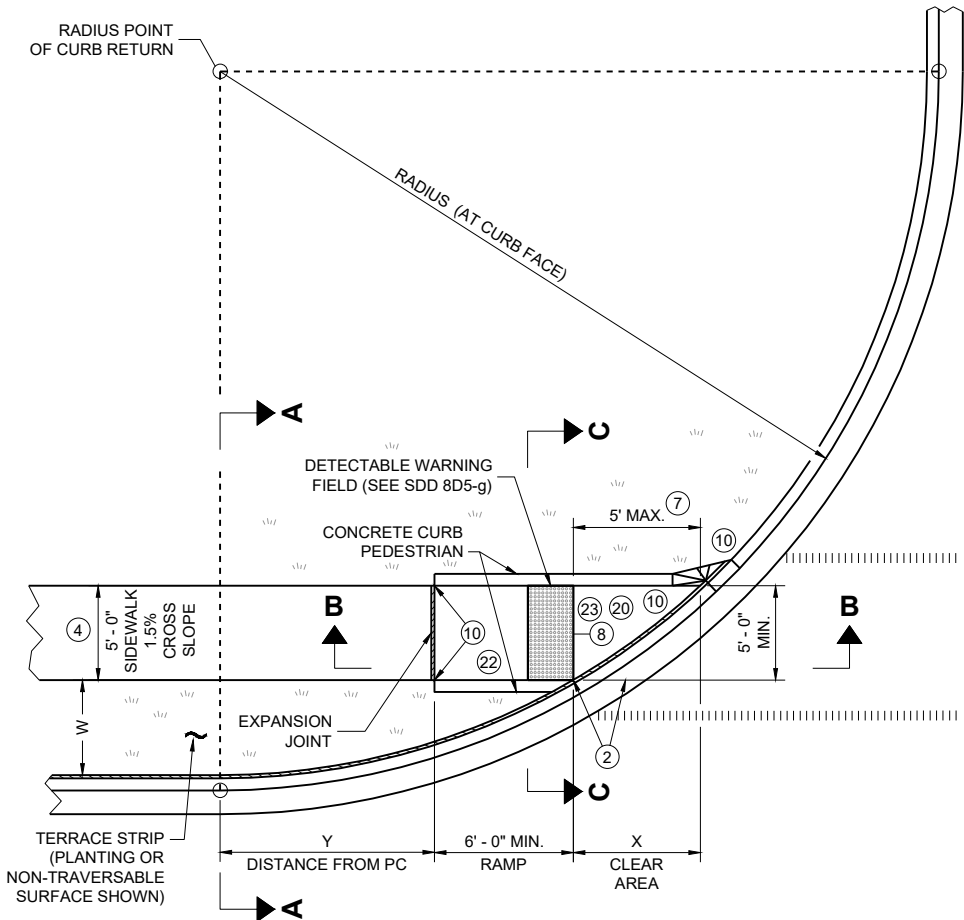
ISOMETRIC VIEW FOR TYPE 4A



ISOMETRIC VIEW FOR TYPE 4A1

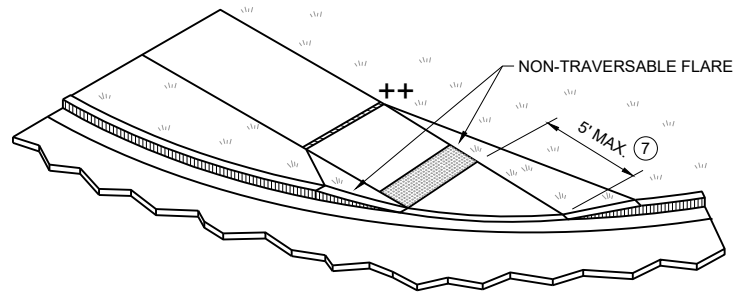
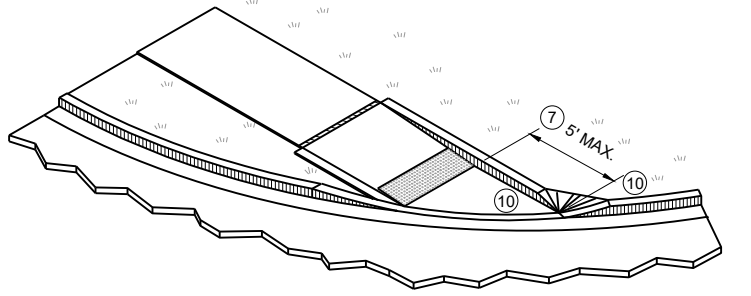
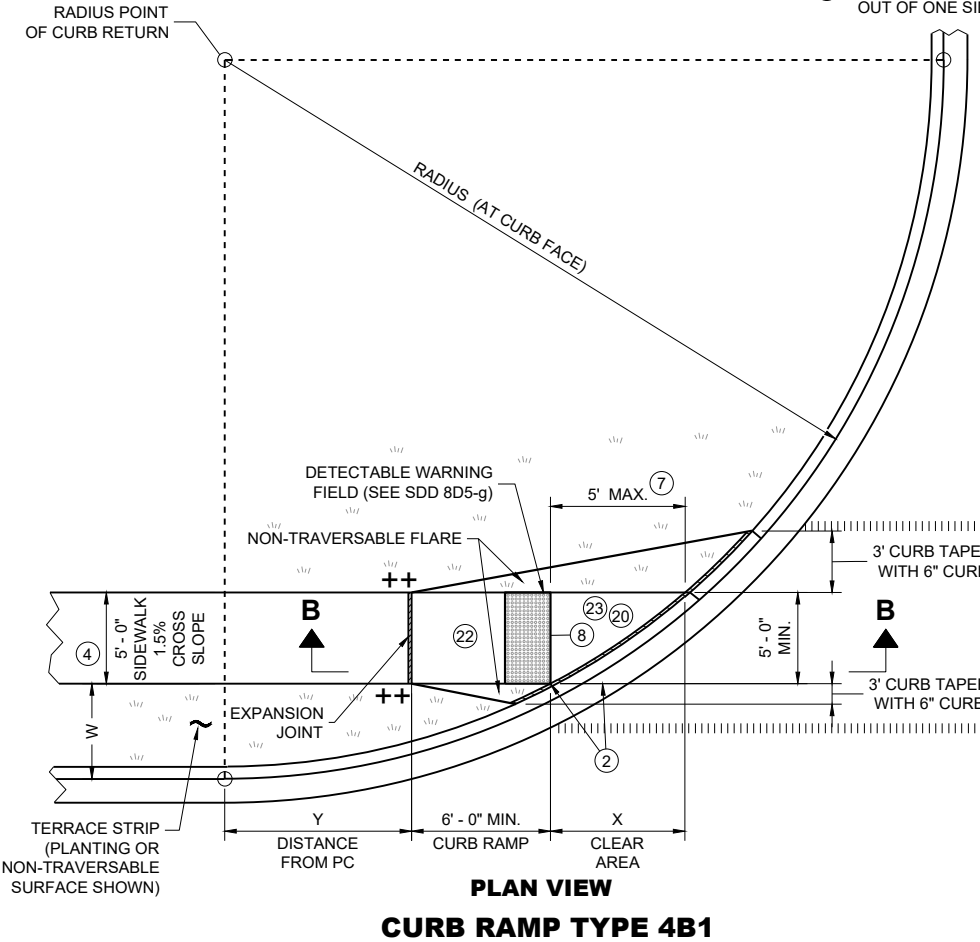
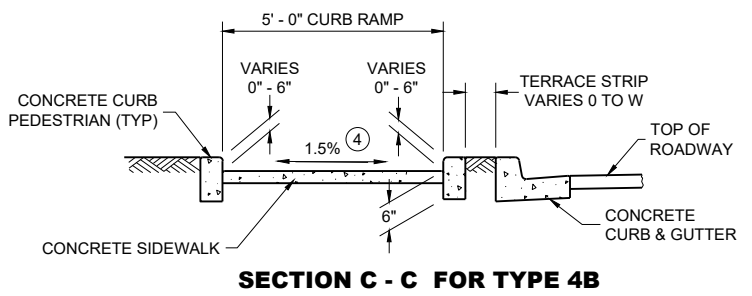
**CURB RAMPS
TYPE 4A AND 4A1**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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			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									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															4' - 10 3/4"	19' - 8 1/4"

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



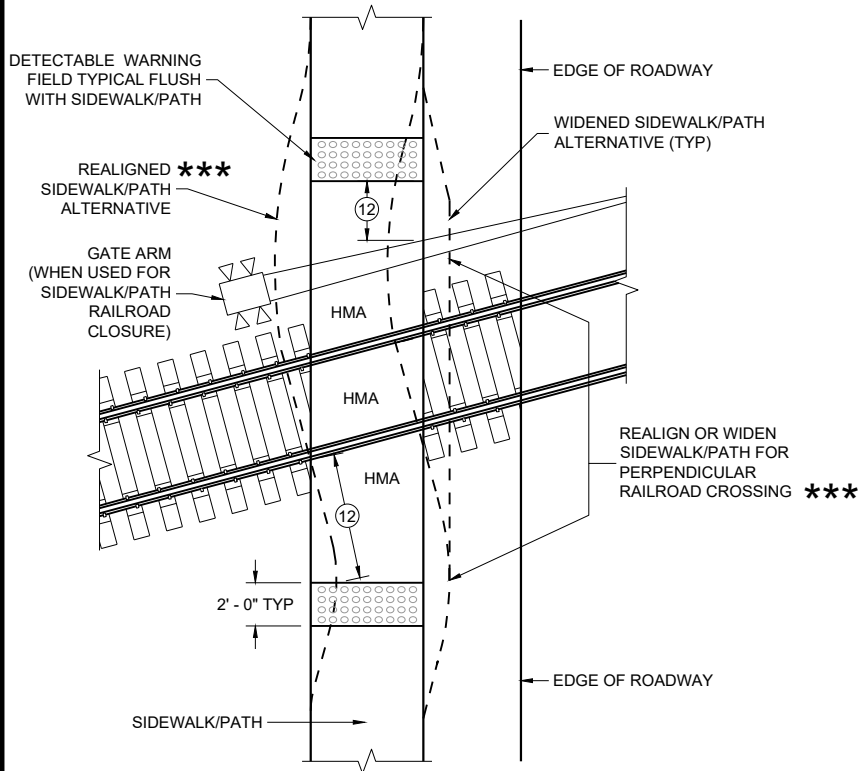
- LEGEND**
- 1/2" EXPANSION JOINT SIDEWALK
 - CONTRACTION JOINT SIDEWALK
 - PAVEMENT MARKING CROSSWALK (WHITE)
 - * MAXIMUM 2.1% SLOPE IN ALL DIRECTIONS IF FRONT OF GRADE BREAK
 - ++ CONSTRUCT 6" WEDGE TO AVOID CONCRETE BREAKAGE

GENERAL NOTES

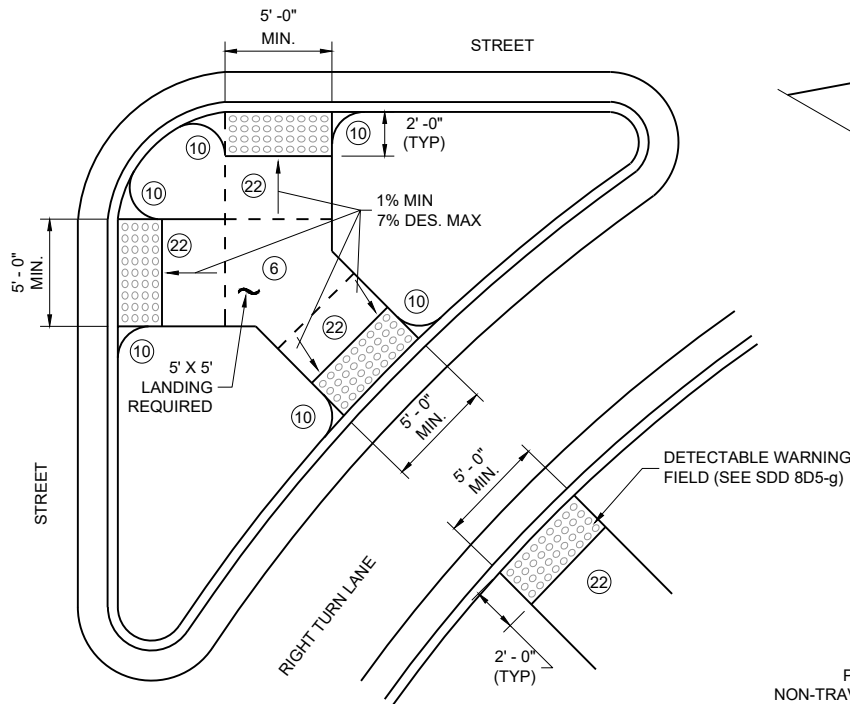
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF CURB RAMP ACCESS AREAS.
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- GRADE CHANGE BETWEEN GUTTER COUNTER SLOPE AND THE CURB RAMP SLOPE IS DESIRABLY 11% OR LESS AND SHALL NOT EXCEED 13.3%. TYPICAL GUTTER COUNTER SLOPE IS 4% BUT MAY BE MODIFIED TO FIT FIELD CONDITIONS. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5%, DESIRABLY 7% OR LESS, AND SHALL NOT EXCEED A MAXIMUM OF 8.3%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- MAXIMUM 8.3% CURB RAMP SLOPE IS ALLOWABLE WITH GUTTER COUNTER SLOPE OF 5% MAXIMUM AND A 13.3% MAXIMUM GRADE CHANGE.
- ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.
- A MAXIMUM 2-INCH CONCRETE BORDER IS PERMITTED ALONG ALL SIDES OF THE DETECTABLE WARNING FIELD SURFACE.
- MAXIMUM 1.5% DESIGN MAXIMUM AND 2.1% PROWAG MAXIMUM RUNNING SLOPE ON CLEAR AREA. CROSS SLOPE OF CLEAR AREA SHALL MATCH THE CROSS SLOPE OF THE ADJACENT CROSSWALK.
- THE ENTIRE RAMP SHALL BE A PLANAR SURFACE. DO NOT WARP THE RUNNING SLOPE OR CROSS SLOPE OF THE RAMP. WARPING OF THE SIDEWALK CROSS SLOPE SHALL TAKE PLACE BETWEEN THE LANDING AND MATCH POINT.
- THE CLEAR AREA BETWEEN THE BOTTOM OF RAMP AND BACK OF CURB SHALL BE SLOPED SO THAT WATER DRAINS OUT OF ONE SIDE OR BOTH SIDES OF THE CURB OPENING.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

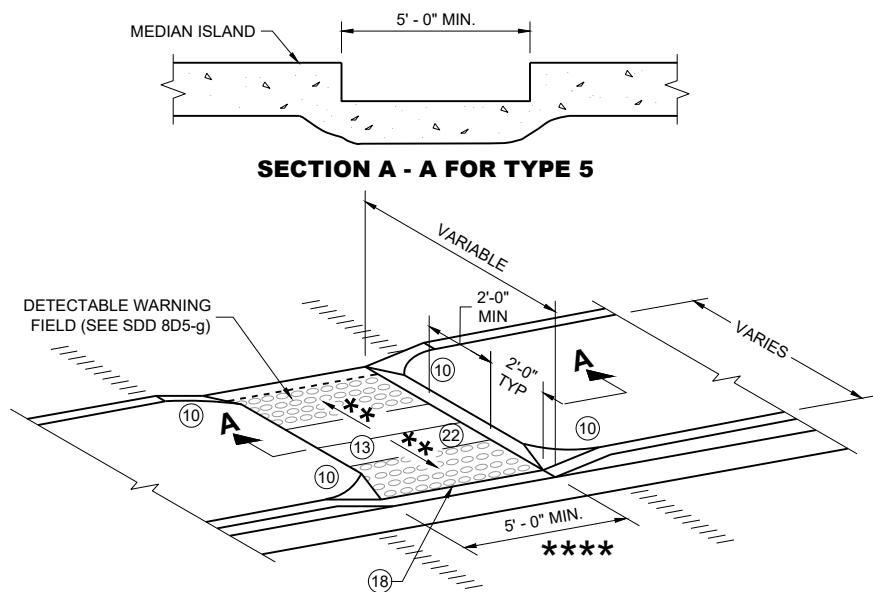


CURB RAMP TYPE 8
DETECTABLE WARNINGS
FOR SIDEWALKS OR SHARED USE PATHS
AT RAILROAD CROSSINGS

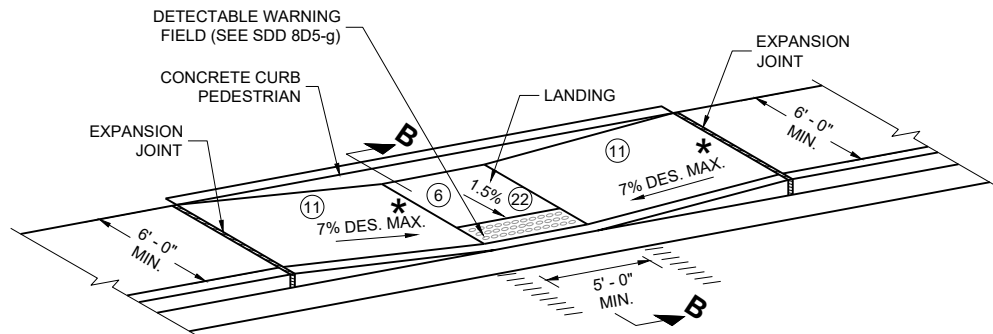


CURB RAMP TYPE 6
DETECTABLE WARNING AT ISLANDS

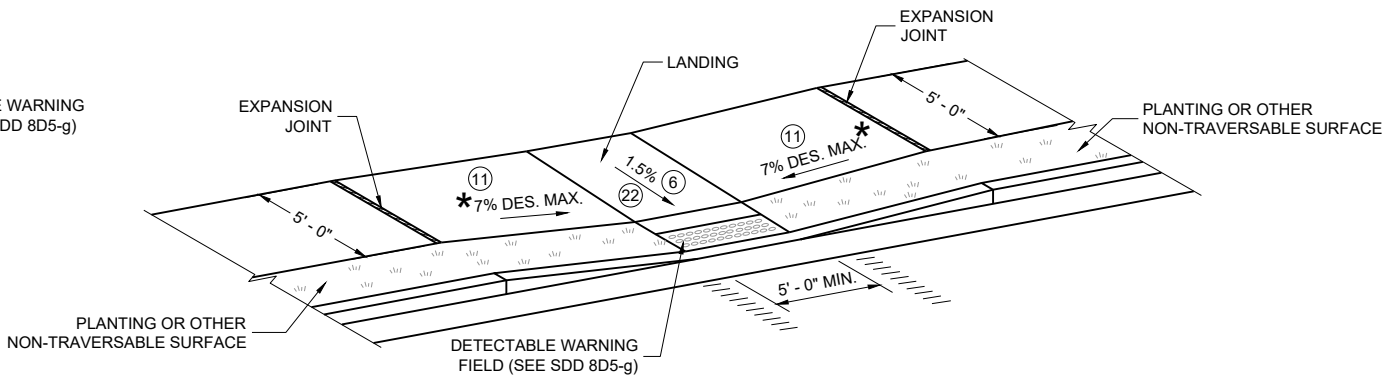
REFER TO GENERAL NOTES (2) AND (3)
FOR ALL ISLAND CURB RAMPS



CURB RAMP TYPE 5
MEDIAN ISLAND
NON-ELEVATED PEDESTRIAN CROSSING



CURB RAMP TYPE 7A
FOR INTERSECTIONS AND
MID BLOCK CROSSINGS



CURB RAMP TYPE 7B
FOR INTERSECTIONS AND
MID BLOCK CROSSINGS

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF CURB 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.

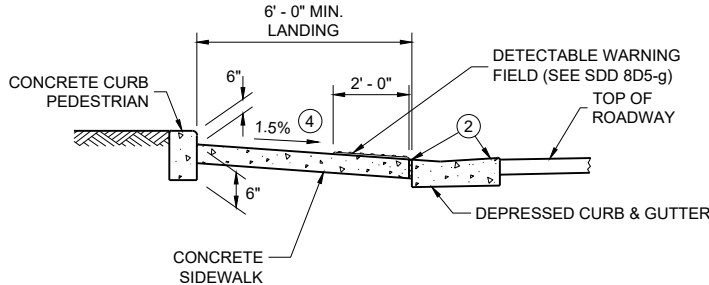
SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1%.

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

- (2) GRADE CHANGE BETWEEN GUTTER COUNTER SLOPE AND THE CURB RAMP SLOPE IS DESIRABLY 11% OR LESS AND SHALL NOT EXCEED 13.3%. TYPICAL GUTTER COUNTER SLOPE IS 4% BUT MAY BE MODIFIED TO FIT FIELD CONDITIONS. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5%, DESIRABLY 7% OR LESS, AND SHALL NOT EXCEED A MAXIMUM OF 8.3%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- (3) MAXIMUM 8.3% CURB RAMP SLOPE IS ALLOWABLE WITH GUTTER COUNTER SLOPE OF 5% MAXIMUM AND A 13.3% MAXIMUM GRADE CHANGE.
- (4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- (6) PROVIDE A 5 FOOT BY 5 FOOT LANDING. SLOPE PERPENDICULAR TO CURB SHALL BE 2.1% MAXIMUM. SLOPE PARALLEL TO CURB SHALL MATCH THE CURB AND GUTTER LONGITUDINAL SLOPE.
- (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/PATH. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD TRACK IS 15 FEET MAXIMUM AND 12 FEET MINIMUM, 15 FEET TYPICAL FROM THE NEAREST RAIL.
- (13) DO NOT INSTALL DETECTABLE WARNING FIELDS AT THE EDGES OF STEET-LEVEL PEDESTRIAN REFUGE ISLANDS IF A MINIMUM 2 FOOT CONCRETE SURFACE WITHOUT DETECTABLE WARNINGS (MEASURED IN THE DIRECTION OF PEDESTRIAN TRAVEL) CANNOT BE ACHIEVED.
- (17) A MAXIMUM 2-INCH CONCRETE BORDER IS PERMITTED ALONG ALL SIDES OF THE DETECTABLE WARNING FIELD SURFACE.
- (18) WHEN THE DISTANCE BETWEEN THE BACK OF CURBS IS LESS THAN 6 FEET BUT THE FACE OF CURB TO FACE OF CURB DISTANCE IS 6 FEET OR GREATER THEN THE DETECTABLE WARNING FIELDS MAY BE MOVED SO THAT THE EDGE OF THE WARNING FIELD IS PLACED AT THE GUTTER FLOWLINE. MAINTAIN A MINIMUM OF TWO FEET BETWEEN DETECTABLE WARNING FIELD PANELS.
- (22) THE ENTIRE RAMP SHALL BE A PLANAR SURFACE. DO NOT WARP THE RUNNING SLOPE OR CROSS SLOPE OF THE RAMP. WARPING OF THE SIDEWALK CROSS SLOPE SHALL TAKE PLACE BETWEEN THE LANDING AND MATCH POINT.

LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- MAXIMUM 8.3%
- 1% MINIMUM (PROVIDE DRAINAGE)
- DETAILS TO BE DETERMINED BY ENGINEER
- FOR SHARED USE PATHS, WIDTH MUST BE AS WIDE AS THE CROSSWALK

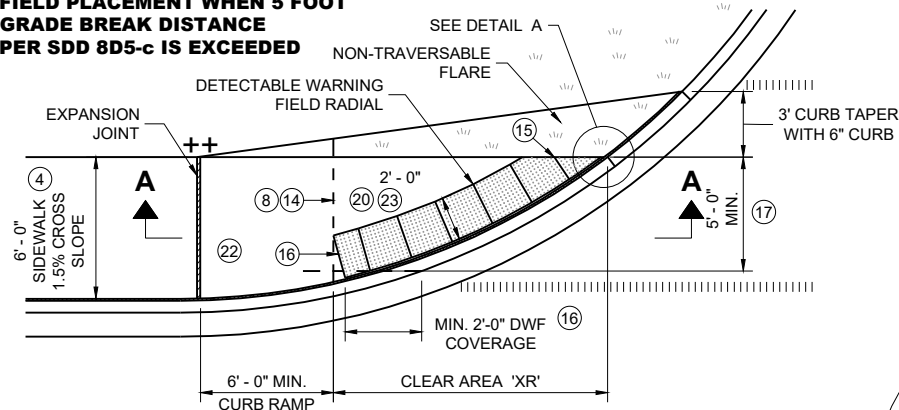


SECTION B - B FOR TYPE 7A

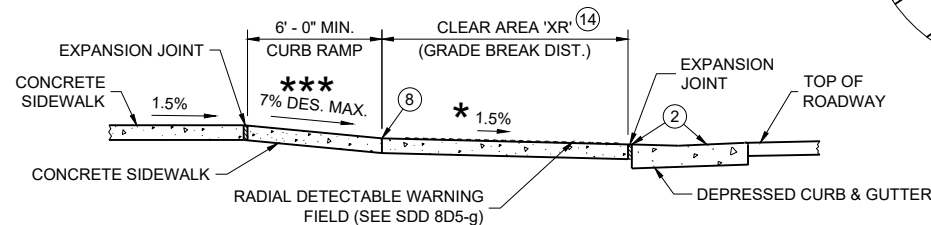
CURB RAMPS
TYPE 5, 6, 7A, 7B & 8

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

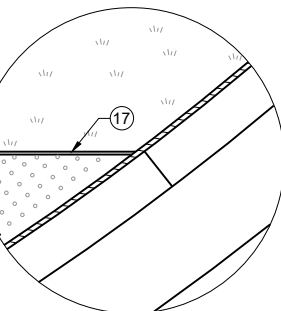
**RADIAL DETECTABLE WARNING
FIELD PLACEMENT WHEN 5 FOOT
GRADE BREAK DISTANCE
PER SDD 8D5-c IS EXCEEDED**



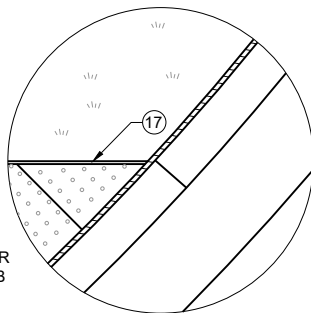
**PLAN VIEW
CURB RAMP TYPE 4A1
(GRADE BREAK DISTANCE GREATER THAN 5 FEET)**



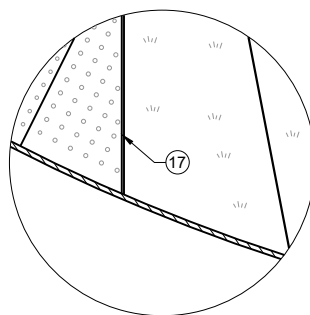
SECTION A - A FOR TYPE 4A1



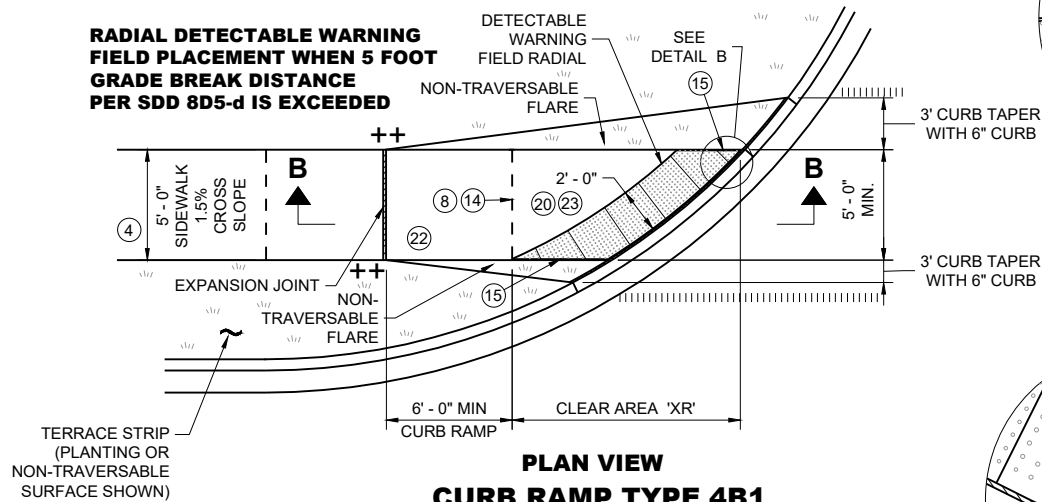
DETAIL A



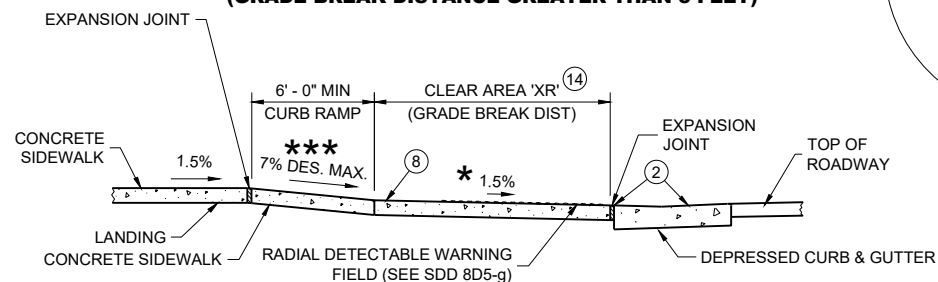
DETAIL B



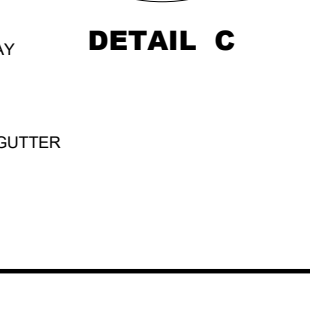
DETAIL C



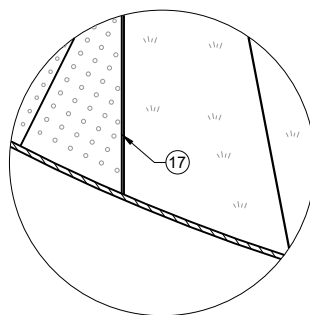
**PLAN VIEW
CURB RAMP TYPE 4B1
(GRADE BREAK DISTANCE GREATER THAN 5 FEET)**



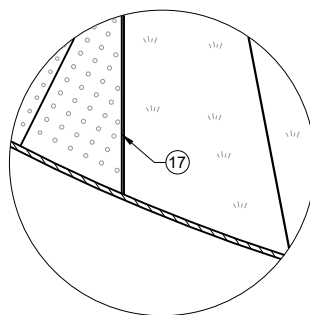
SECTION B - B FOR TYPE 4B1



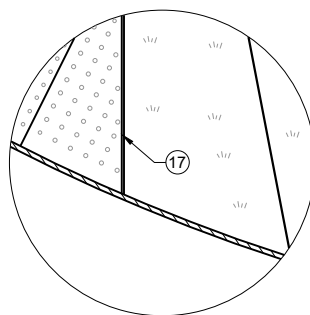
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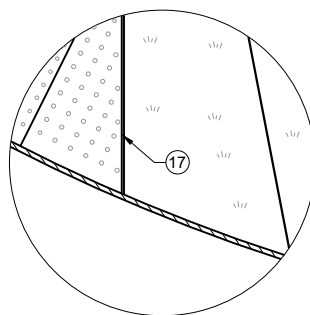
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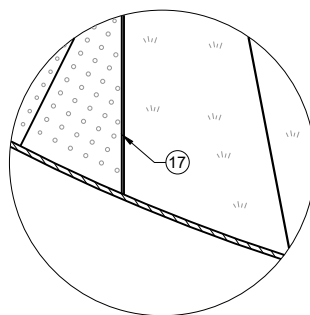
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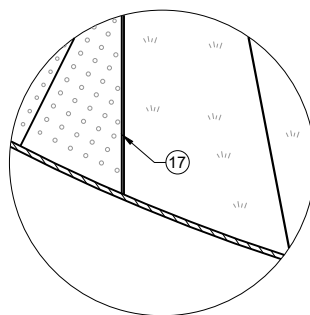
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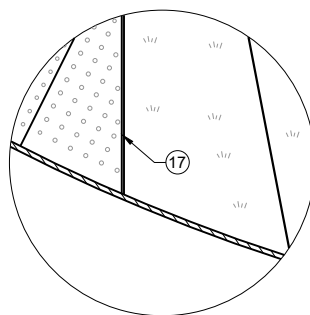
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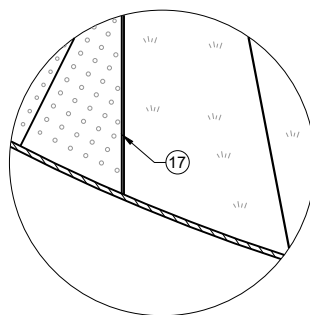
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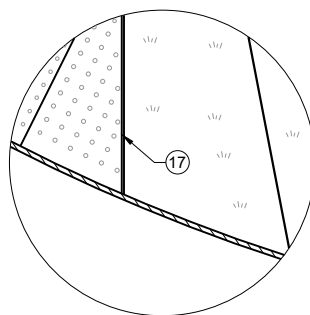
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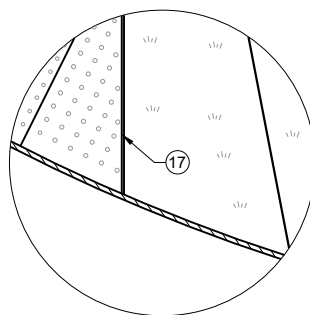
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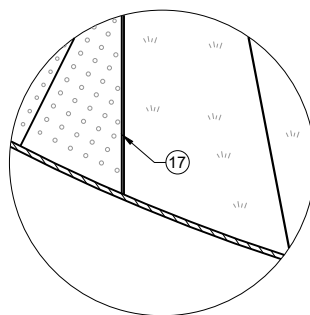
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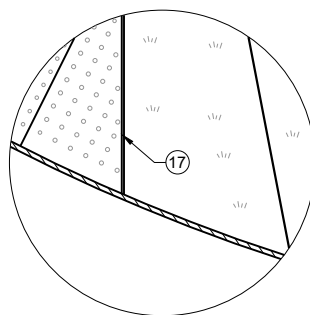
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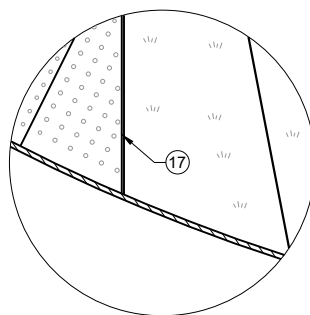
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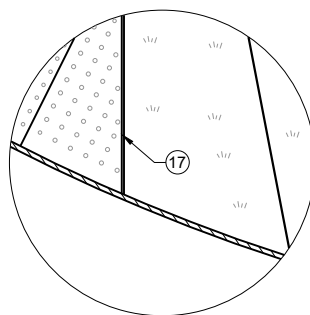
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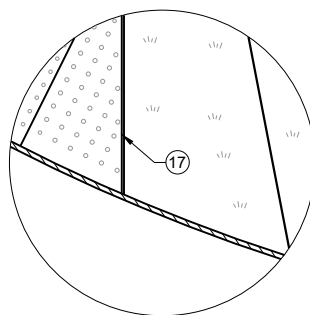
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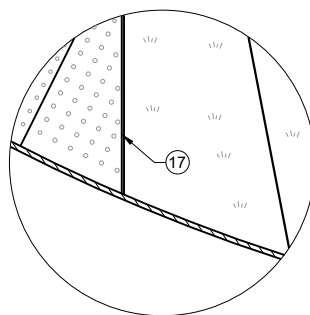
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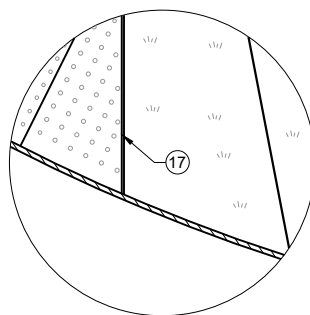
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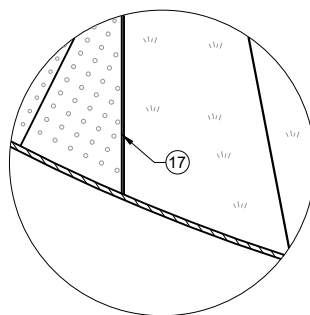
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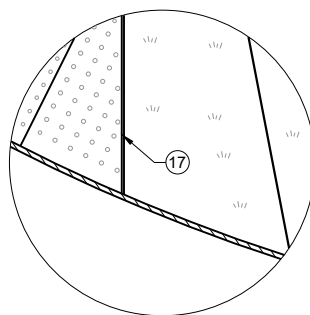
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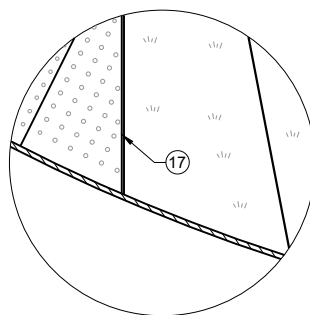
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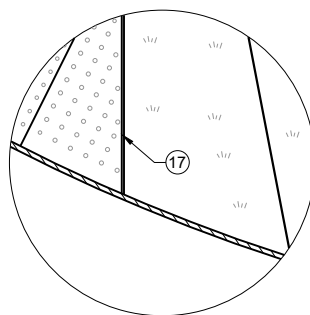
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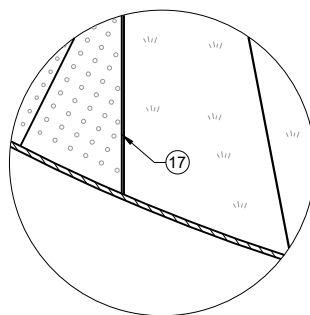
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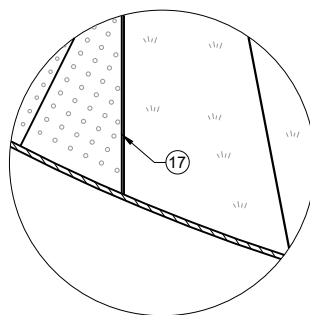
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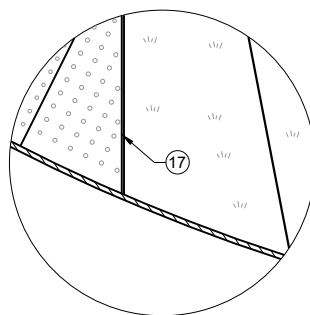
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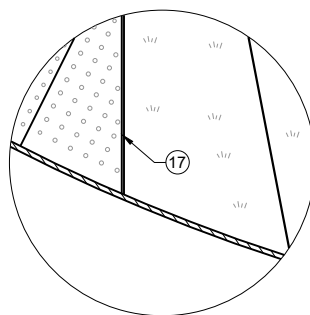
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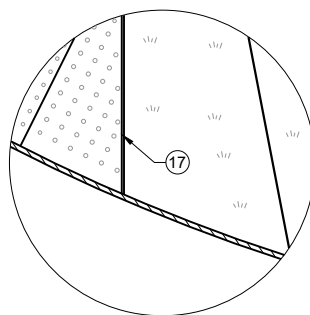
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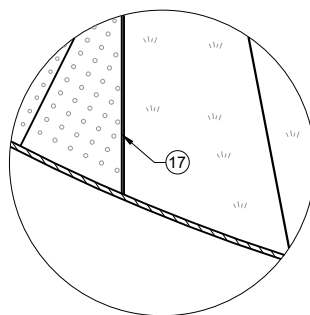
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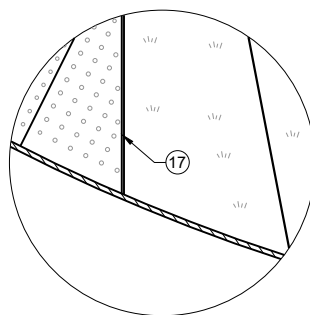
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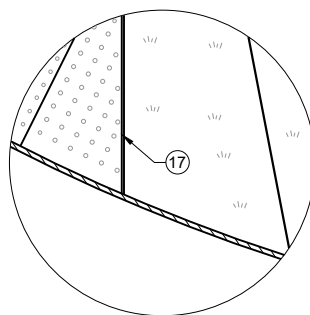
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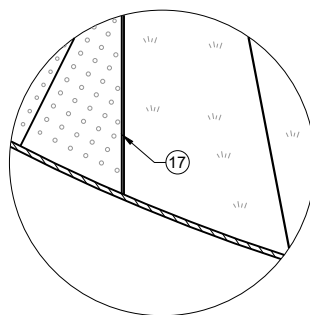
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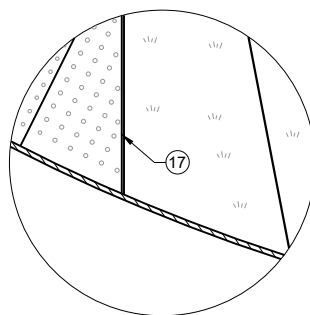
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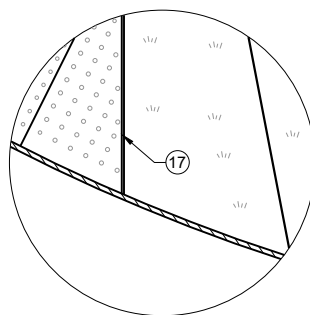
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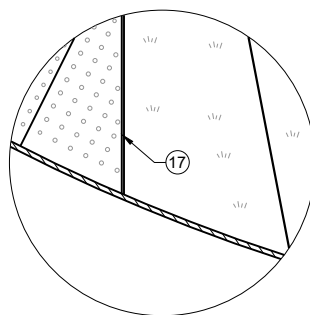
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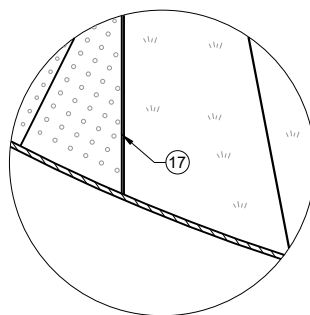
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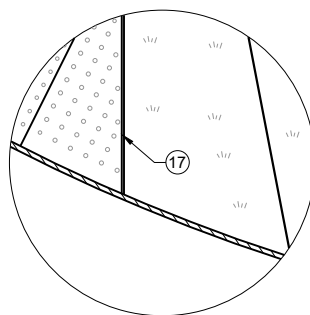
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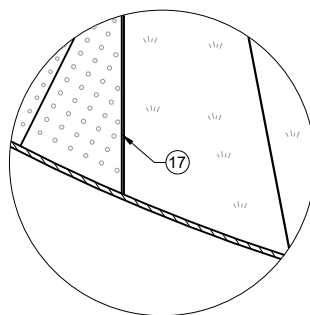
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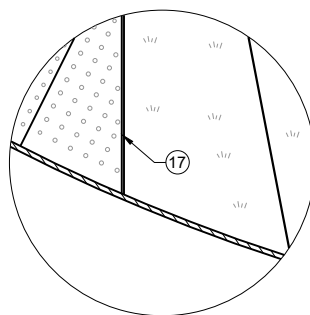
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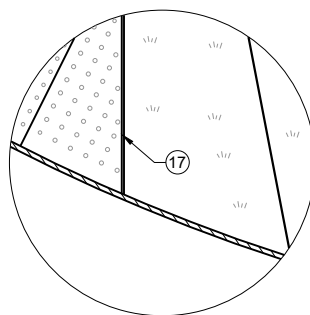
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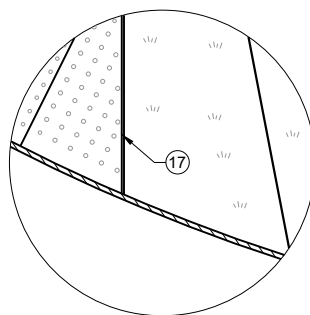
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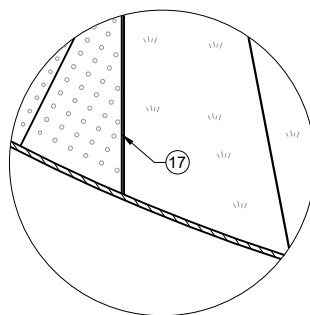
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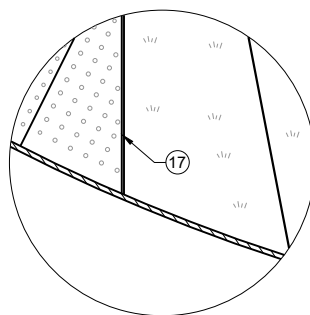
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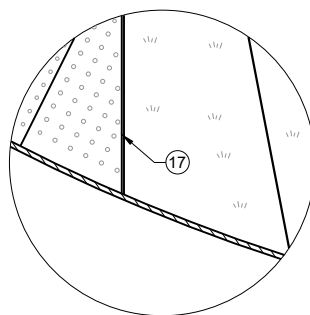
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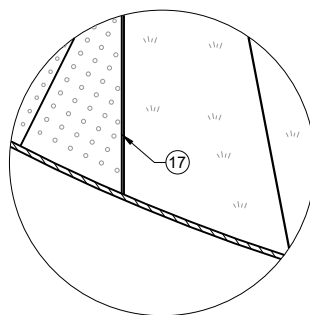
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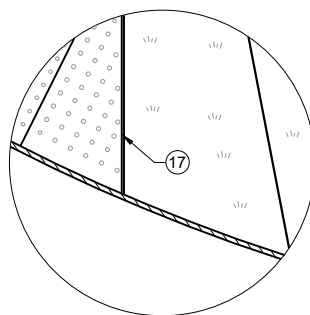
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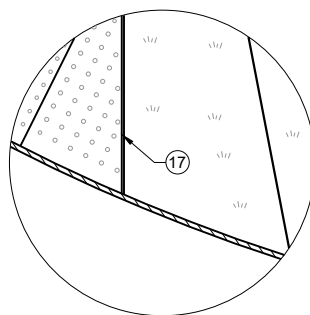
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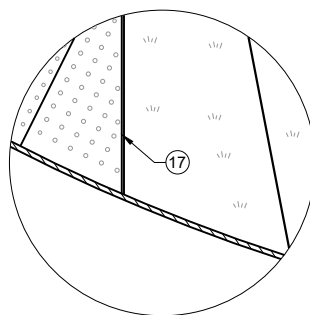
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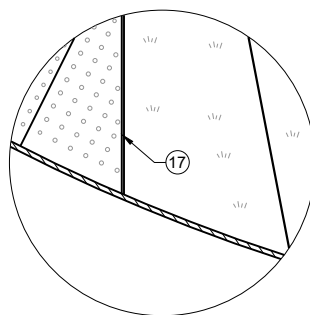
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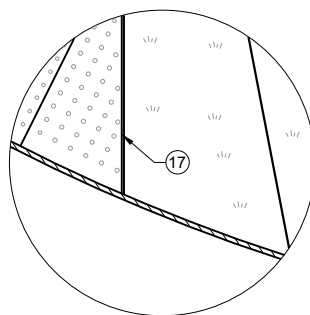
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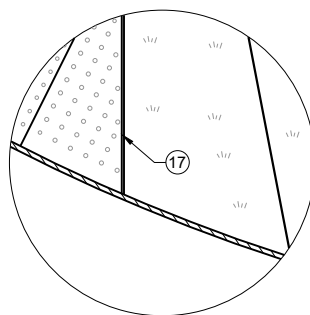
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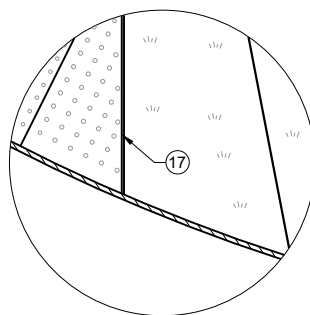
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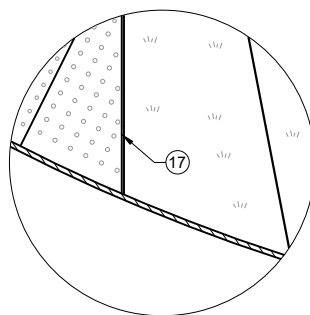
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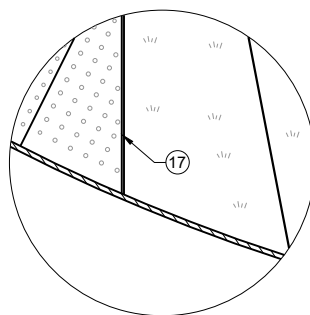
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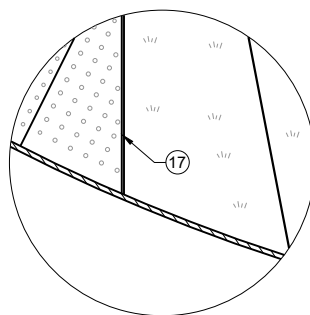
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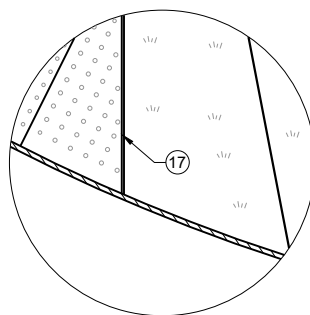
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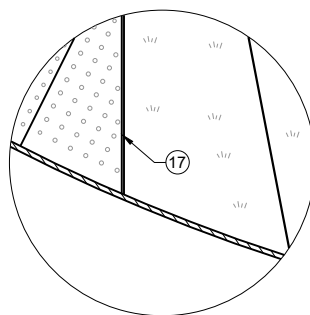
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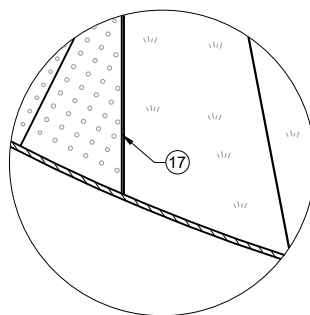
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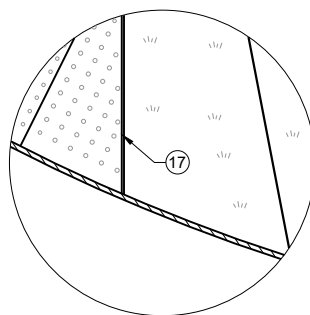
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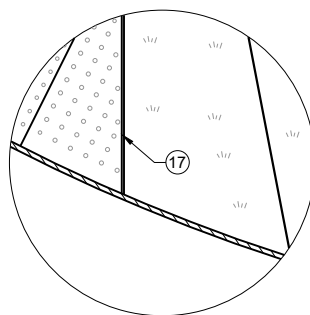
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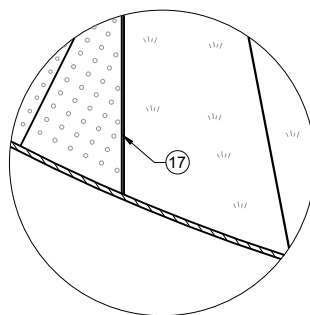
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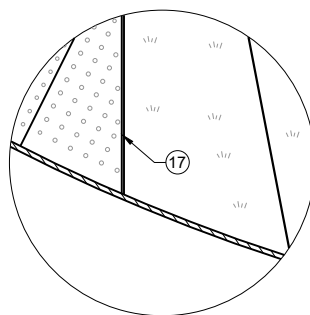
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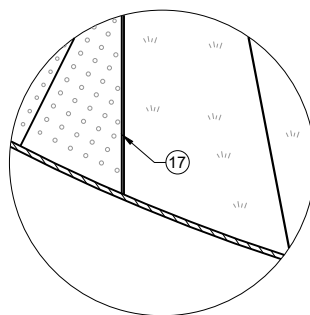
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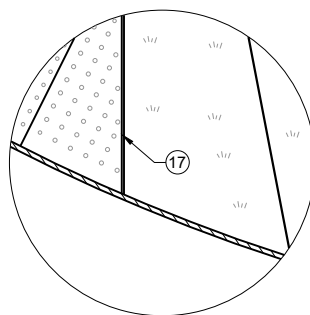
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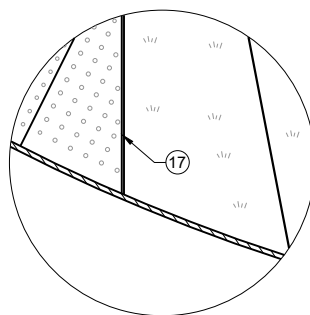
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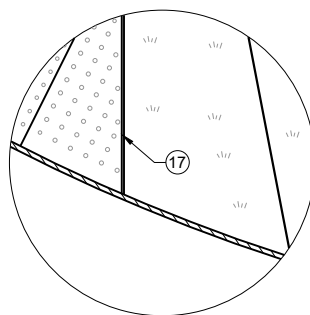
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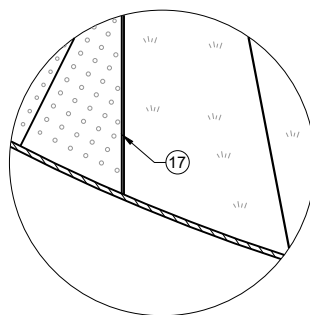
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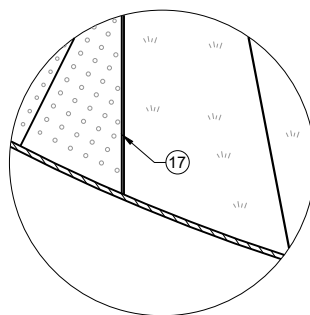
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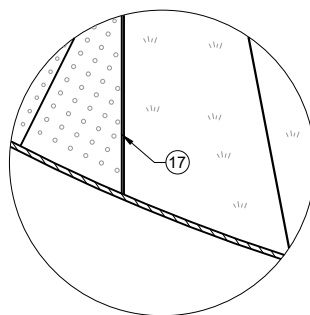
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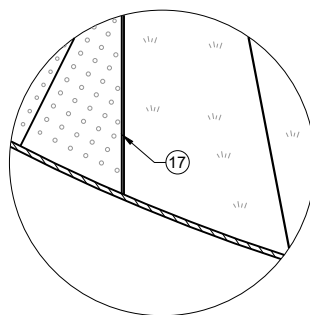
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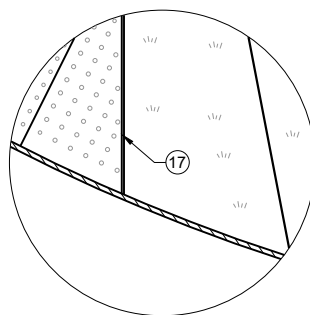
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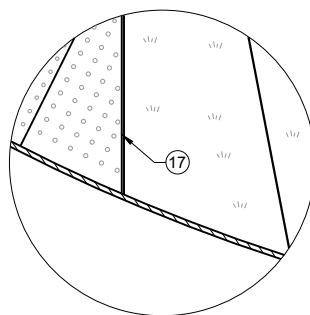
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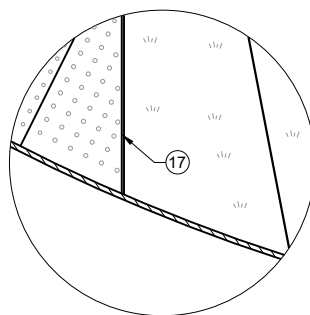
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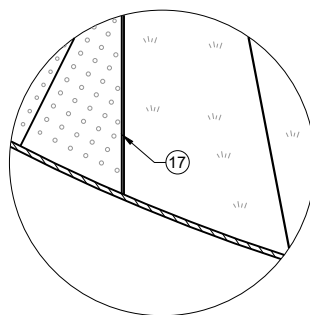
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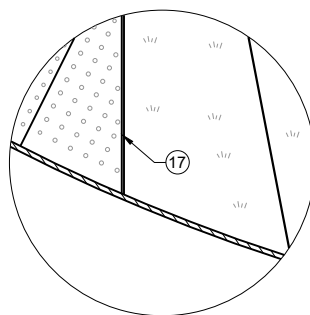
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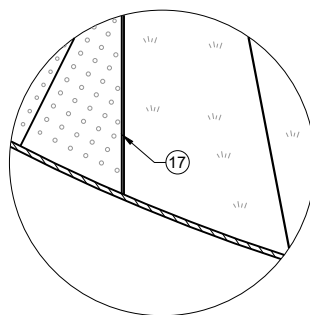
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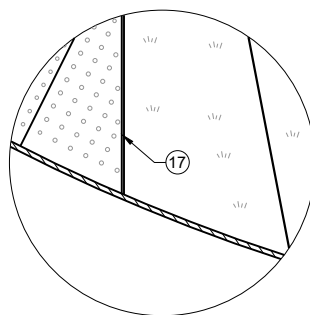
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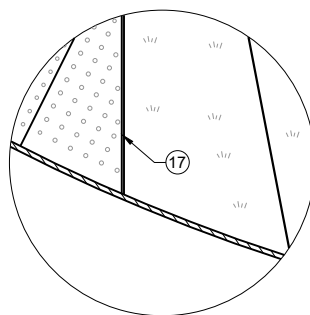
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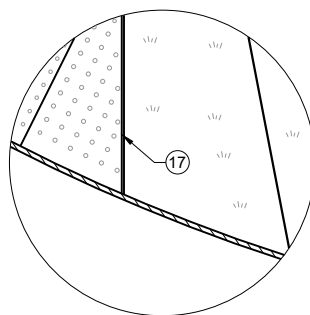
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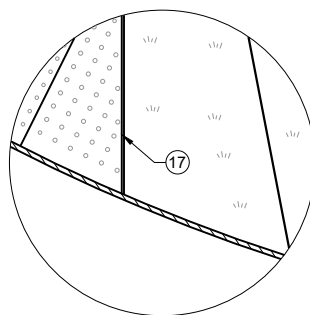
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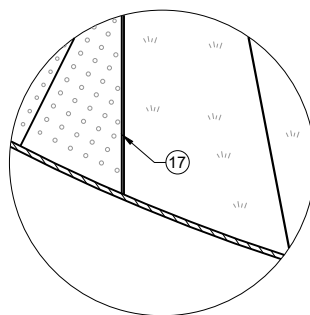
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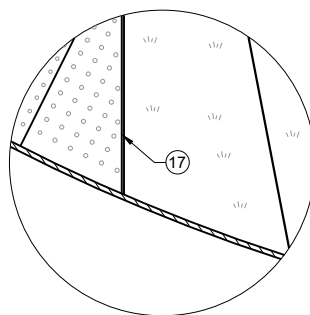
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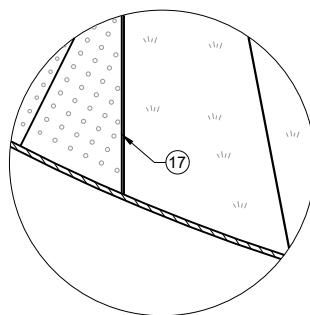
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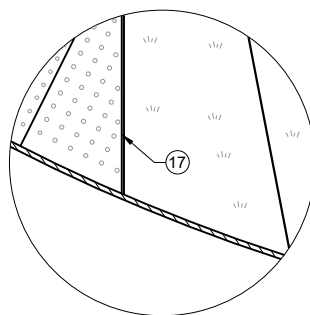
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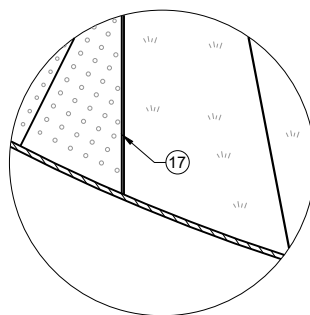
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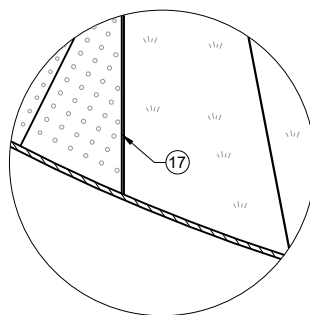
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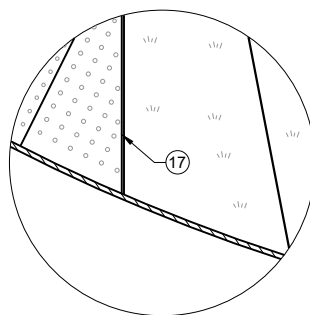
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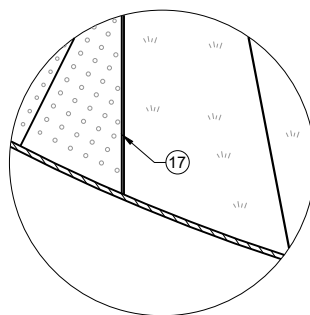
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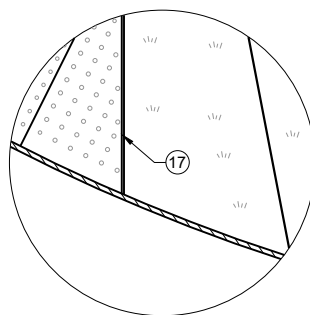
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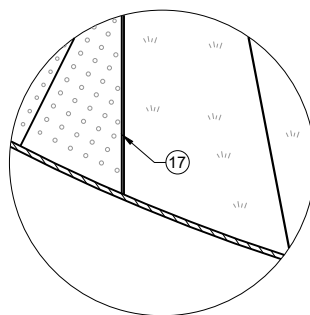
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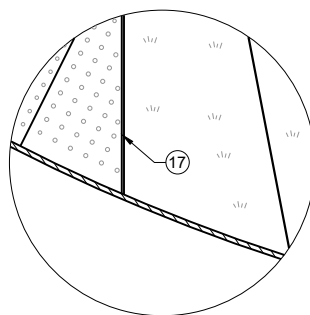
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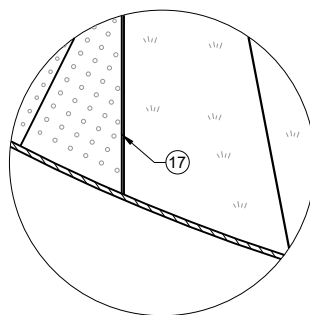
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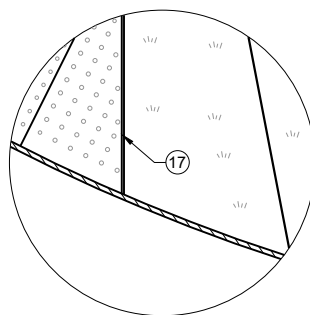
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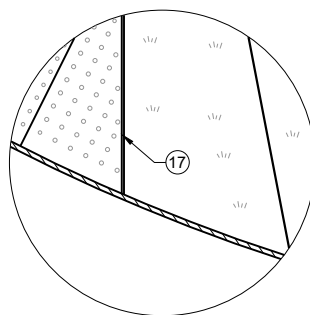
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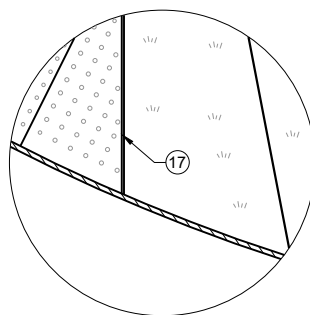
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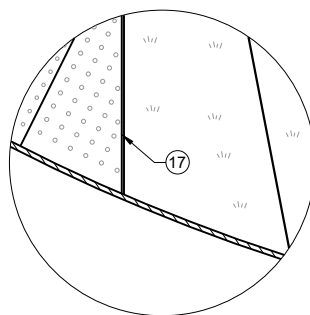
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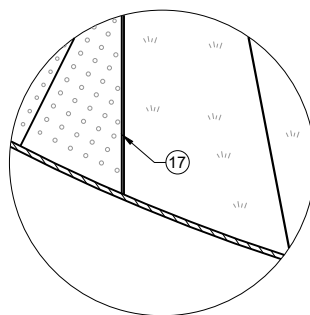
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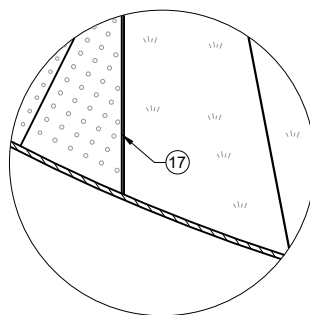
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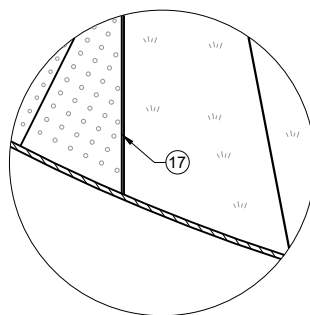
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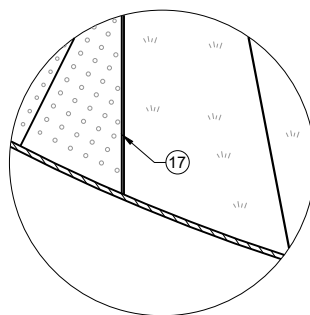
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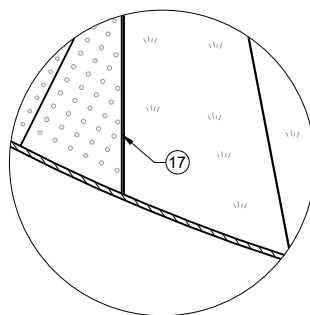
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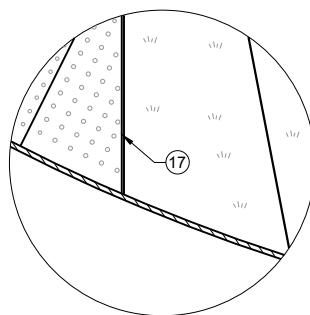
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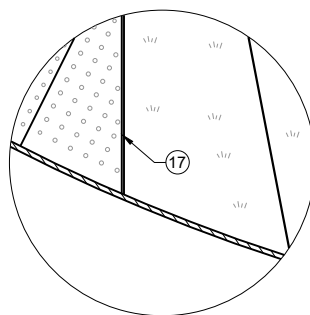
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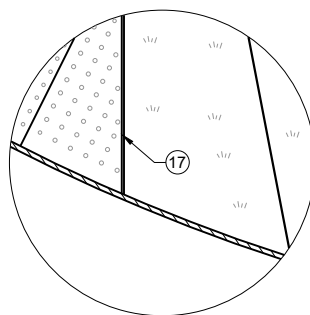
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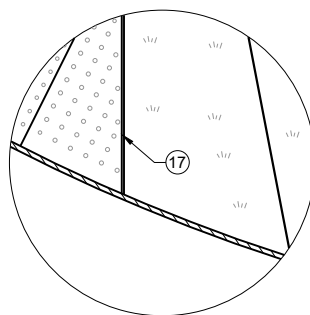
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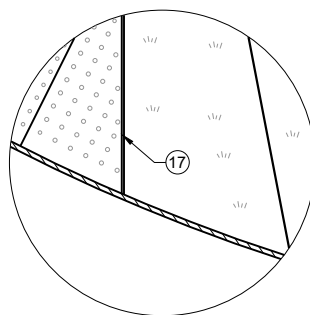
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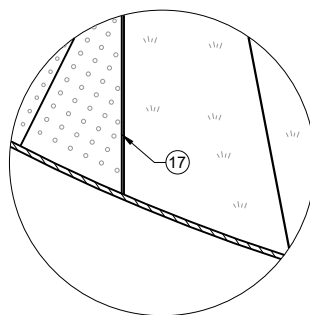
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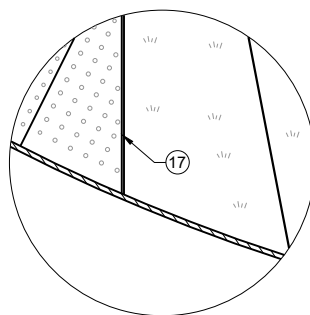
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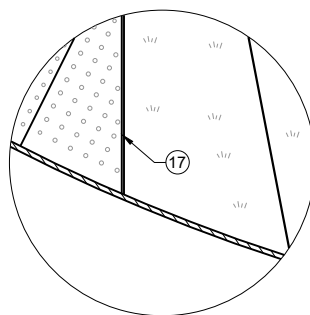
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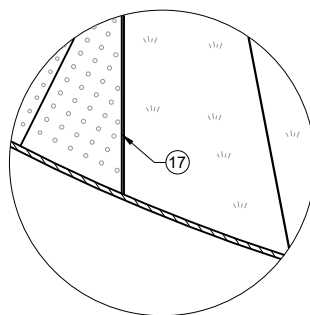
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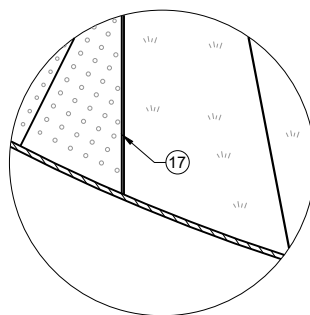
DETAIL C



DETAIL C

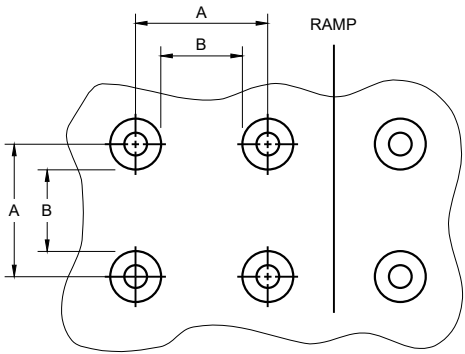


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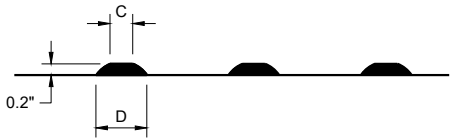


	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

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

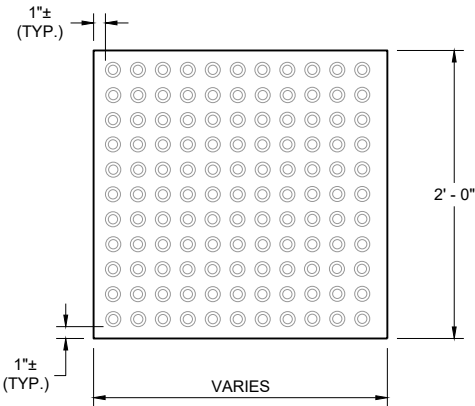


PLAN VIEW

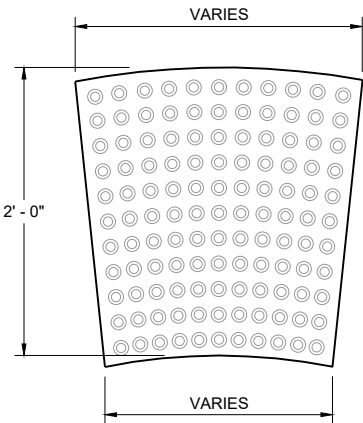


ELEVATION VIEW

TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL

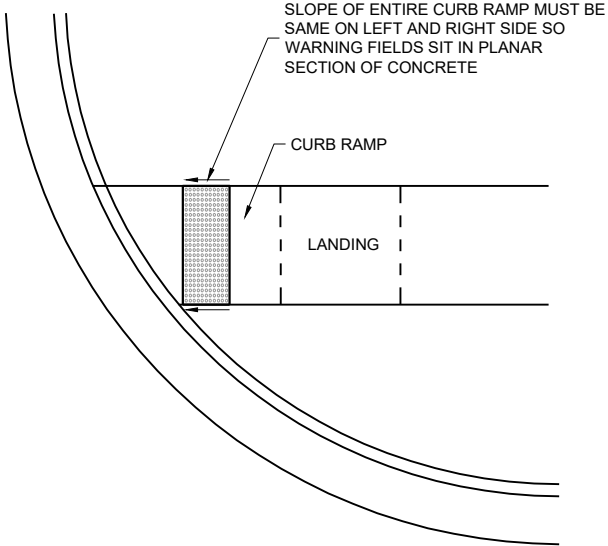


RECTANGULAR
PLATES

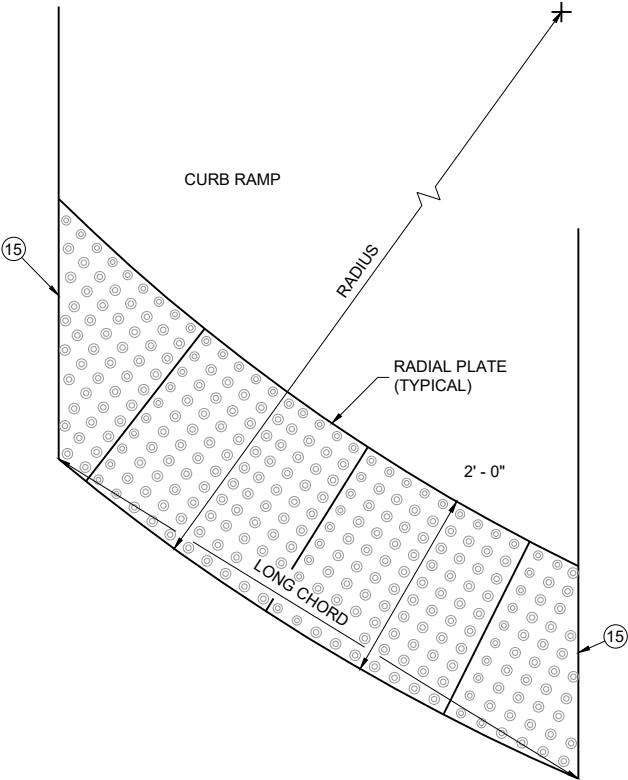


RADIAL
PLATES

PLAN VIEW
DETECTABLE WARNING FIELDS (TYPICAL)



DETECTABLE WARNING FIELD
PLANAR INSTALLATION



PLAN VIEW
RADIAL DETECTABLE
WARNING FIELD ATTRIBUTES

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.

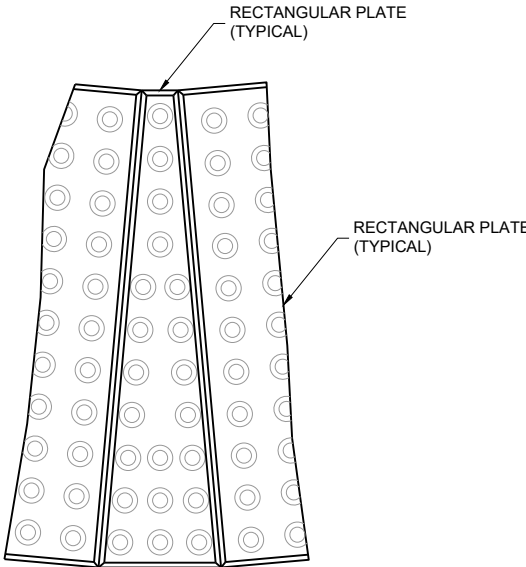
DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.

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.



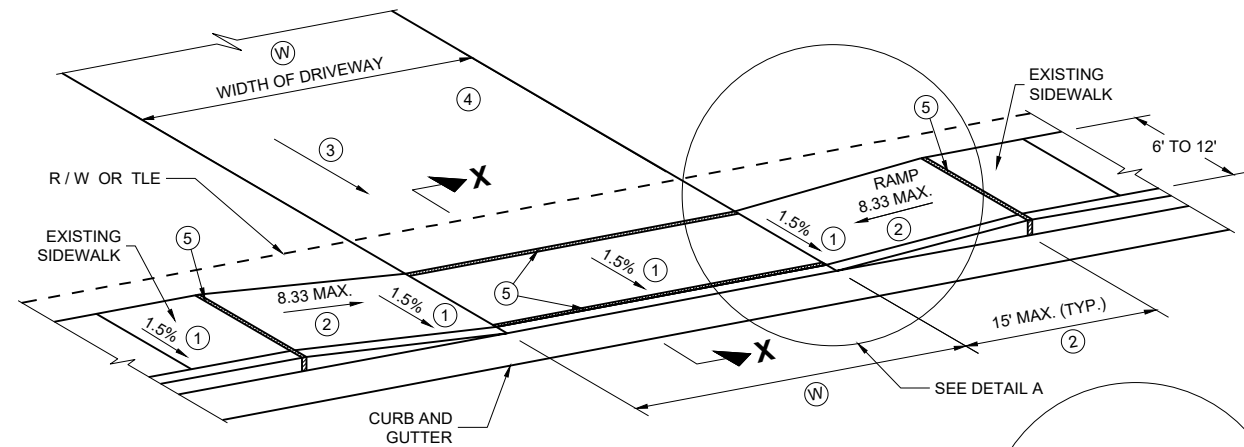
PLAN VIEW
RADIAL WEDGE PLATE
CONNECTION DETAIL

CURB RAMPS
RECTANGULAR AND RADIAL
DETECTABLE WARNING PLATES

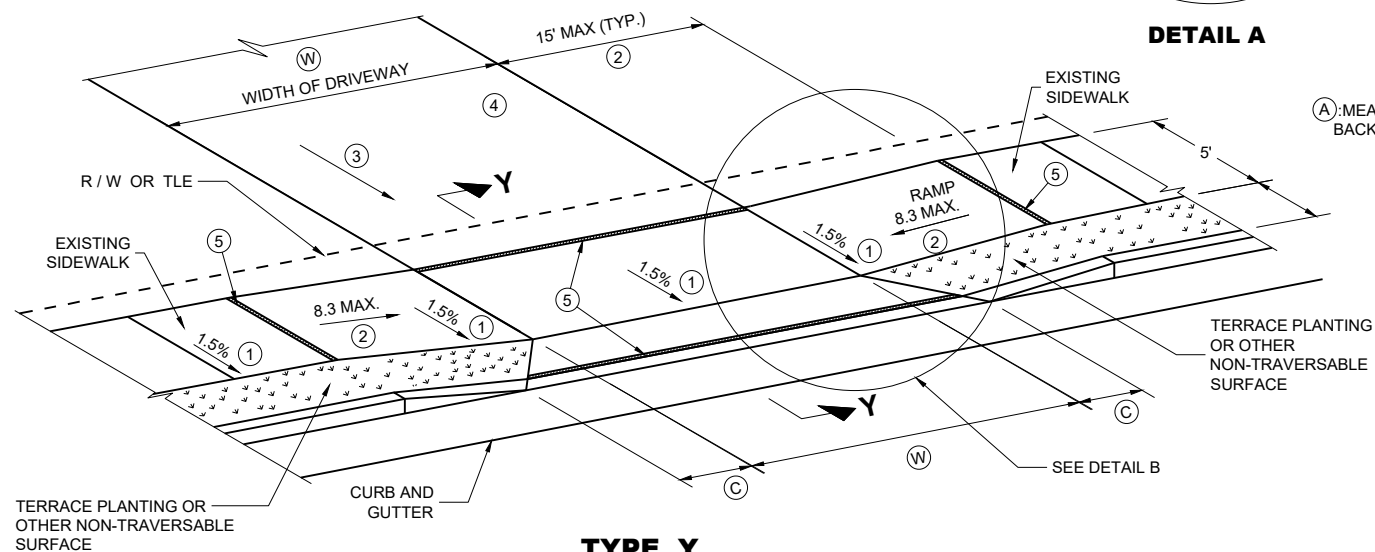
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Rodney Taylor
DATE <position>

FHWA



TYPE X
SIDEWALK ABUTS CURB AND GUTTER
TERRACE VARIES 0 TO 3 FEET



TYPE Y
SIDEWALK WITH NARROWER TERRACE
TERRACE VARIES 4 TO 6 FEET

GENERAL NOTES

PROVIDE CONSTRUCTION JOINTS ALONG THE CENTER OF THE CONCRETE FOR DRIVEWAYS UNDER 20 FEET IN WIDTH AND AT THE THIRD POINTS OVER 20 FEET IN WIDTH.

(W) IS SHOWN ON PLAN AND PROFILE SHEETS.

OFFSETS, ELEVATIONS, AND PERCENT GRADE ARE SHOWN ON THE CROSS SECTIONS.

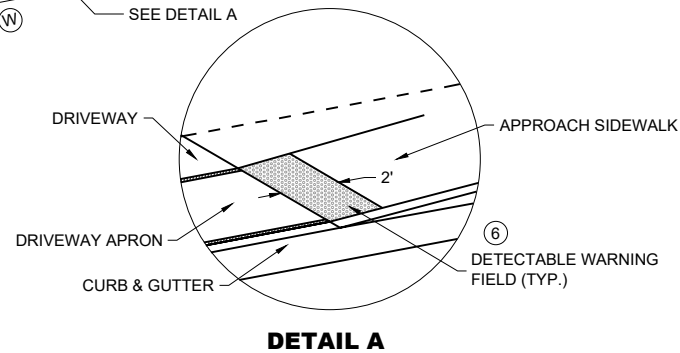
- ① CONSTRUCTION TOLERANCE OF 0.5%± FOR SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1%.
- ② THE SIDEWALK RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAXIMUM LENGTH, THE RUNNING SLOPE OF THE SIDEWALK SHALL BE AS FLAT AS FEASIBLE AND NOT EXCEED THE LONGITUDINAL GRADE OF THE ROADWAY. SLOPE SIDEWALK RAMP TOWARD APRON AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.

- ③ **DRIVEWAY SLOPES: DESIRABLE MAXIMUM**
10.5% UP AWAY FROM SIDEWALK (SAG)
8.5% DOWN AWAY FROM SIDEWALK (CREST)
ABSOLUTE MAXIMUM 15% FOR BOTH CREST AND SAG

- ④ **DRIVEWAY TYPES**
 - * 6-INCH CONCRETE DRIVEWAY PAVEMENT OVER 6-INCH BASE AGGREGATE
 - * 2-INCH TO 3-INCH ASPHALTIC SURFACE OVER 6-INCH BASE AGGREGATE
 - * 6-INCH BASE AGGREGATE (MAY BE INCREASED FOR CLAY SUBGRADES.)

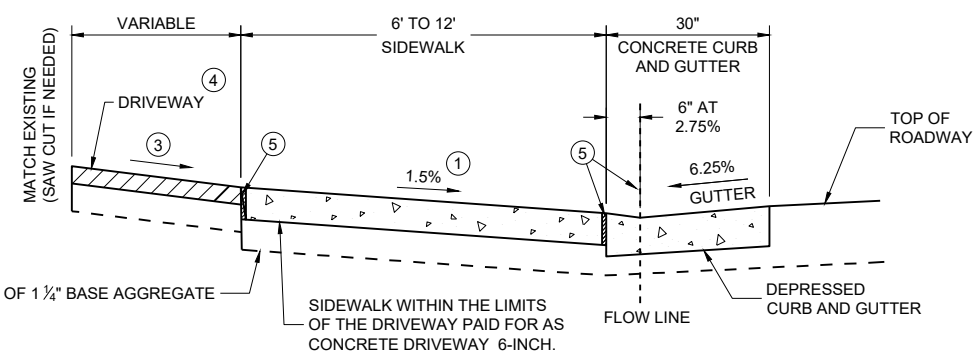
- ⑤ 1/2" EXPANSION JOINT FILLER

- ⑥ DETECTABLE WARNING FIELDS ARE REQUIRED WHEN A PEDESTRIAN CIRCULATION ROUTE CROSSES A DRIVEWAY THAT IS TRAFFIC SIGNAL, STOP, OR YIELD SIGN CONTROLLED. DETECTABLE WARNING FIELDS TO BE 2 FT DEEP AND EXTEND THE WIDTH OF THE PEDESTRIAN CIRCULATION ROUTE.

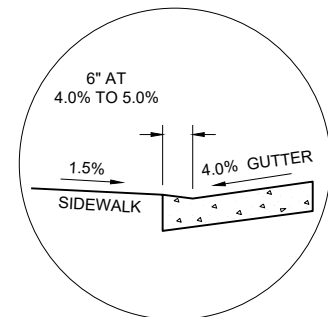


DETAIL A

(A): MEASURE FROM BACK OF CURB



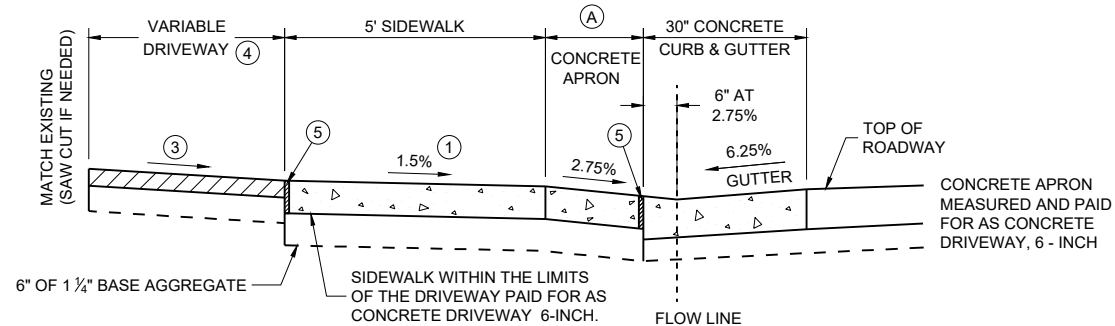
SECTION X - X



SECTION X - X
4% GUTTER SLOPE

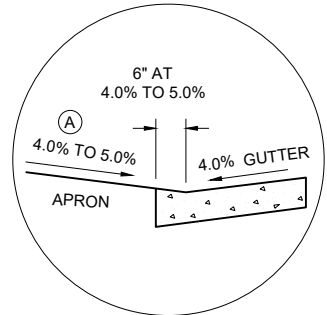
TABLE Y

(A) FEET	(C) FEET
3.5'	2.0'
4.5'	3.0'
5.5'	3.5'

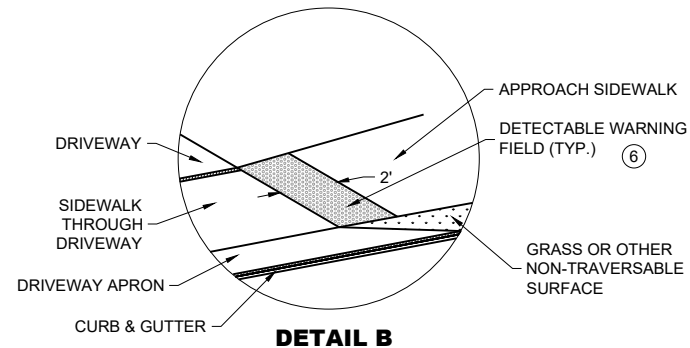


NOTE: SIDEWALK MAY BE DEPRESSED IN DRIVEWAY AREAS

SECTION Y - Y
DRIVEWAY DETAIL WITH CONCRETE
CURB AND GUTTER
(URBAN AND SUBURBAN)



SECTION Y - Y
4% GUTTER SLOPE



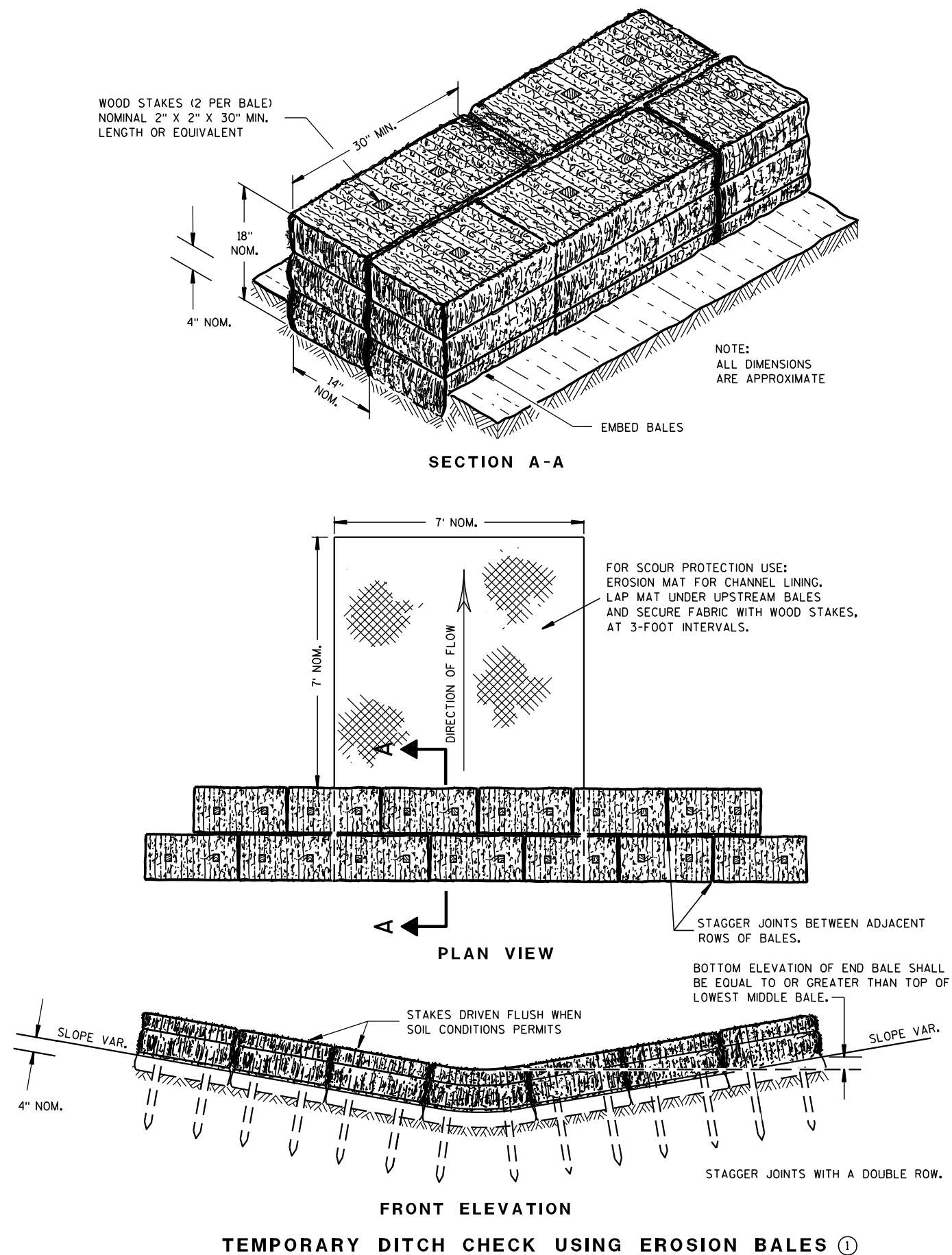
DETAIL B

DRIVEWAY AND SIDEWALK RAMPS TYPES X AND Y

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Rodney Taylor
DATE

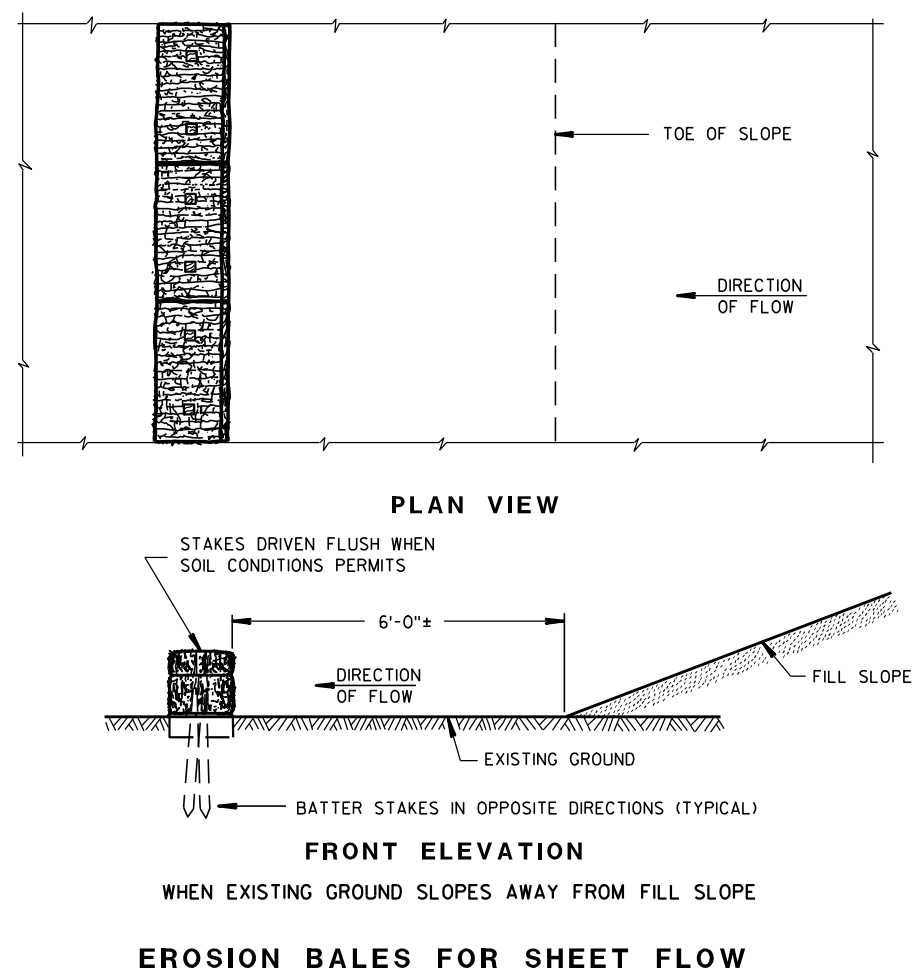
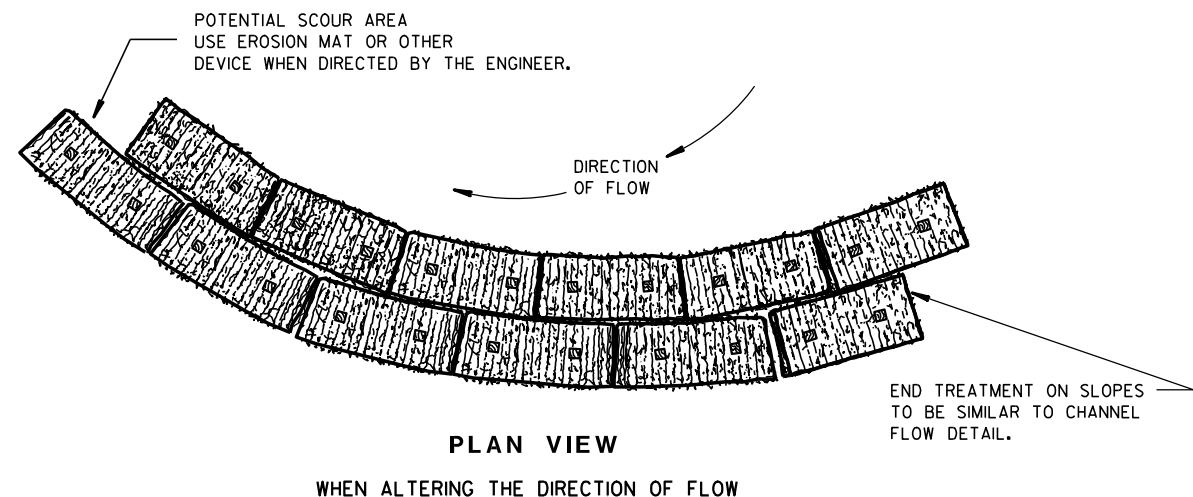
FHWA



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.

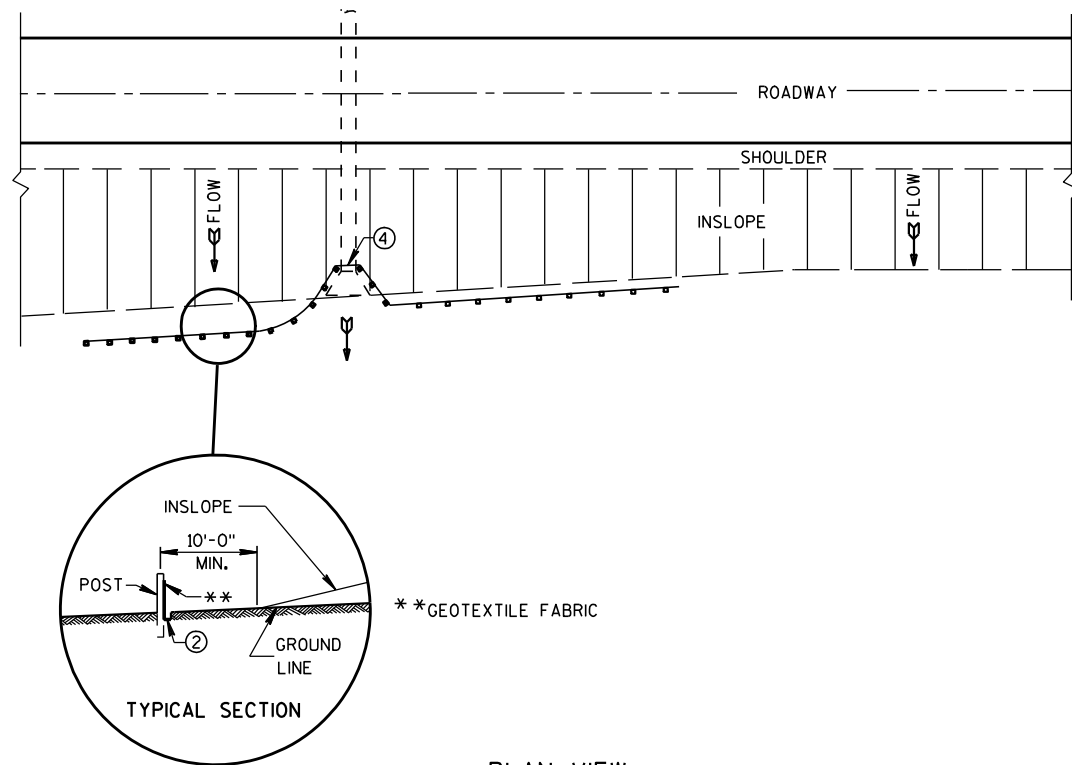
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

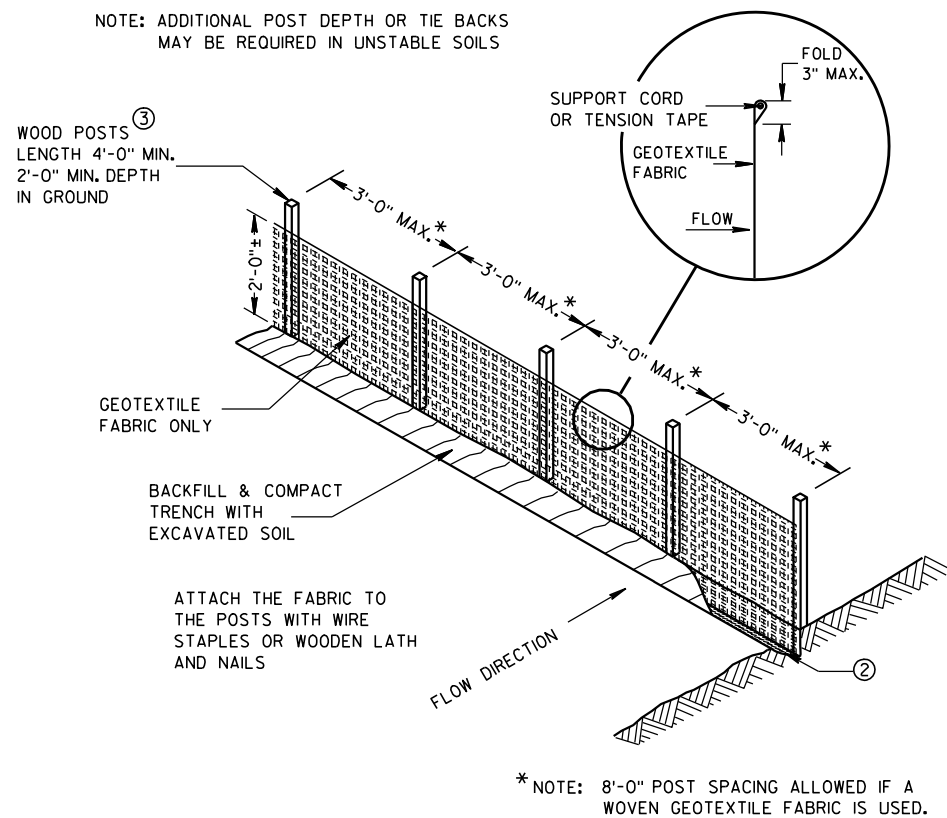
APPROVED

6/04/02
DATE/S/ Beth Connolly
CHIEF ROADWAY DEVELOPER 55 ENGINEER

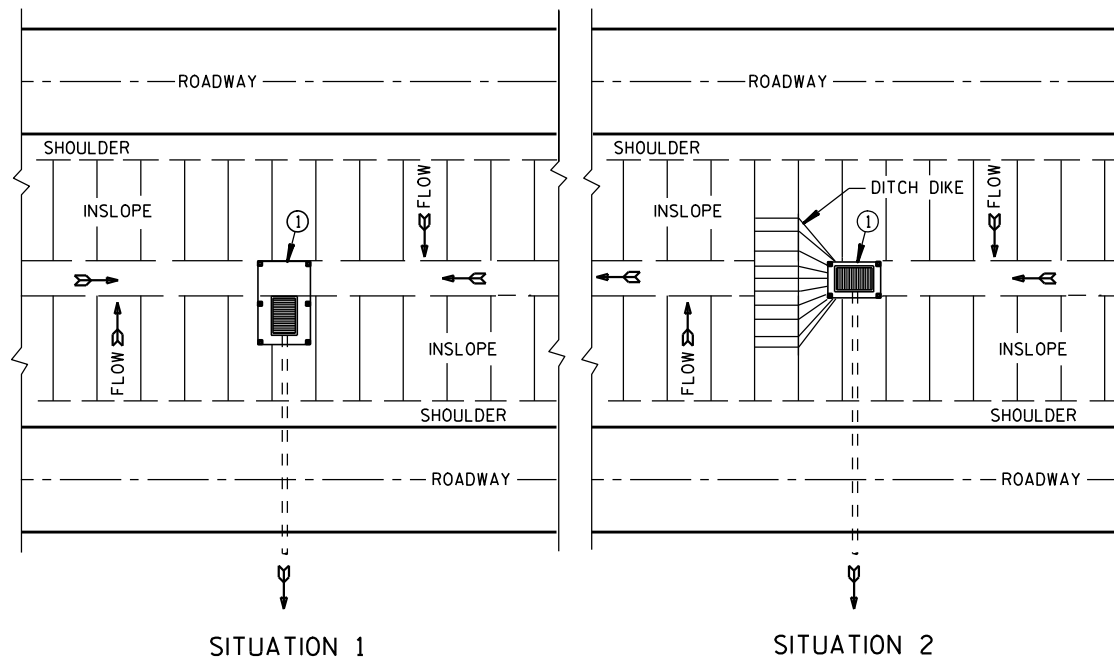
FHWA



TYPICAL APPLICATION OF SILT FENCE

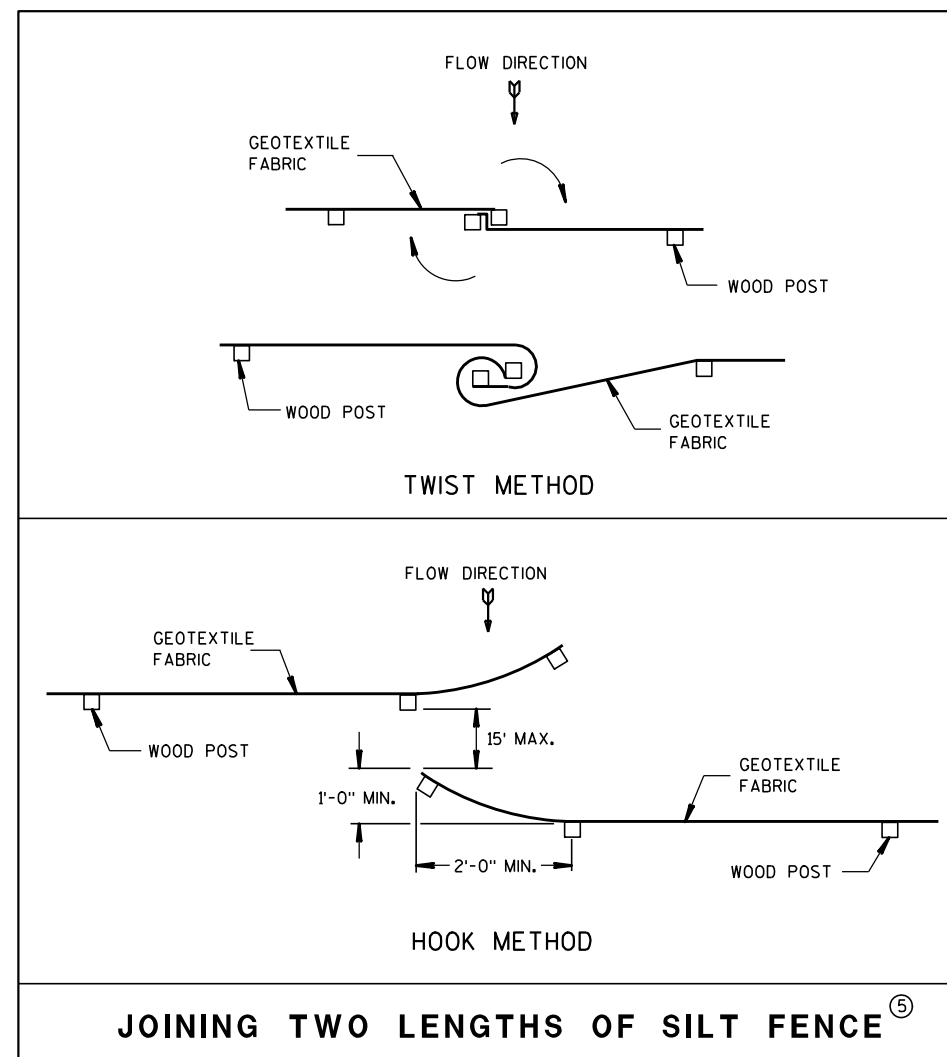


SILT FENCE



PLAN VIEW

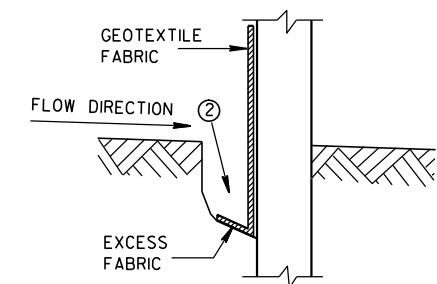
SILT FENCE AT MEDIAN SURFACE DRAINS



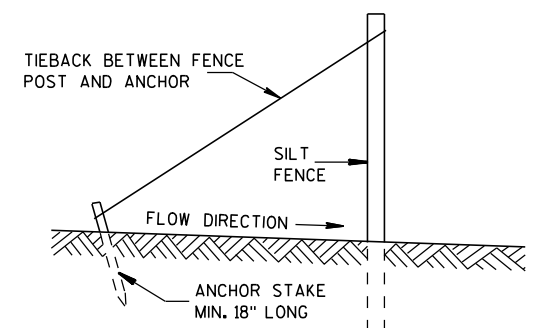
GENERAL NOTES

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

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 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



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

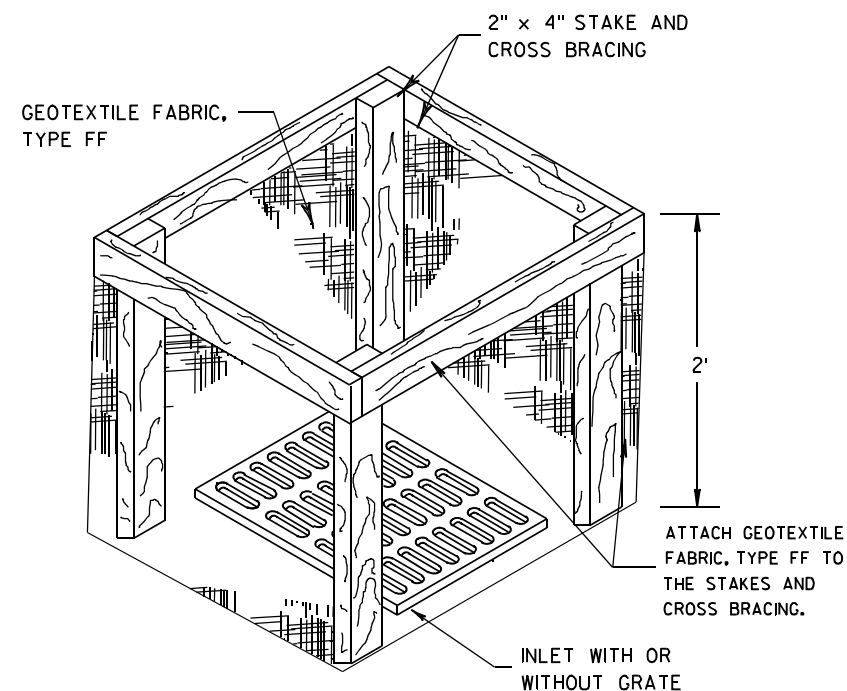
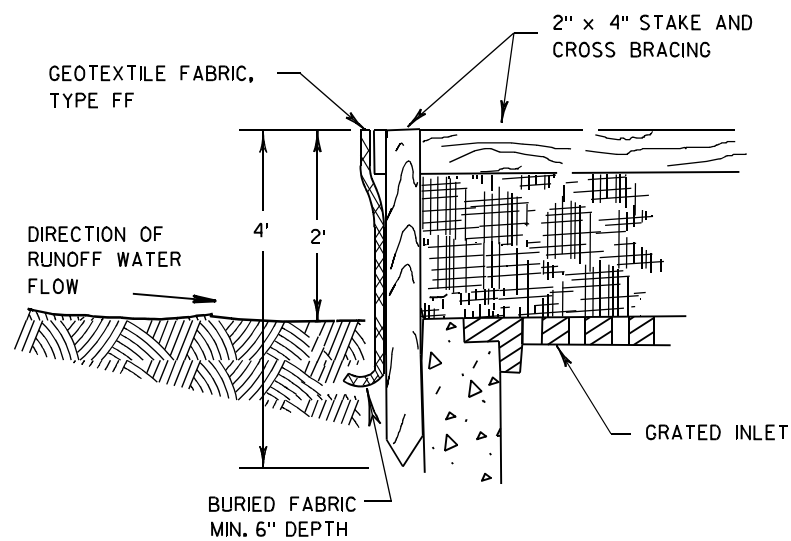
APPROVED

4-29-05
DATE

FHWA

/S/ Beth Conn
CHIEF ROADWAY DEVELOPER

ENGINEER



INLET PROTECTION, TYPE A

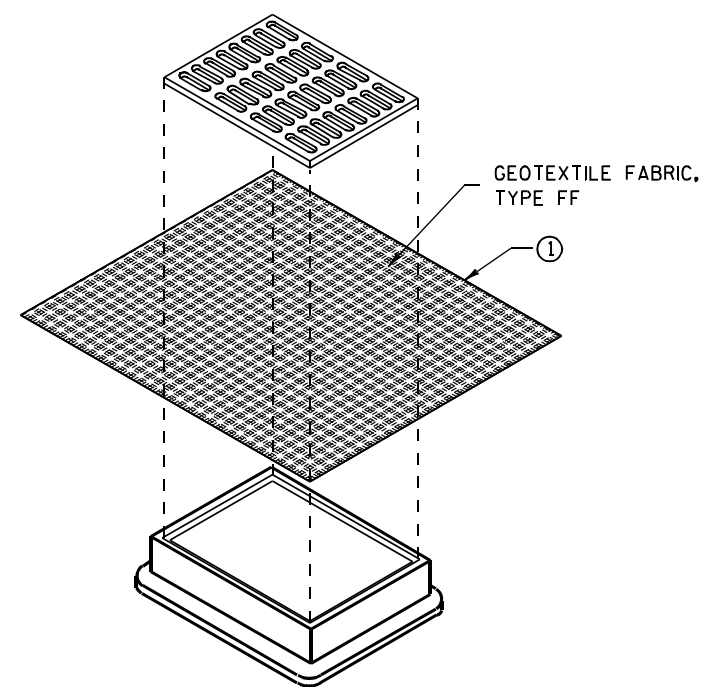
GENERAL NOTES

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

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

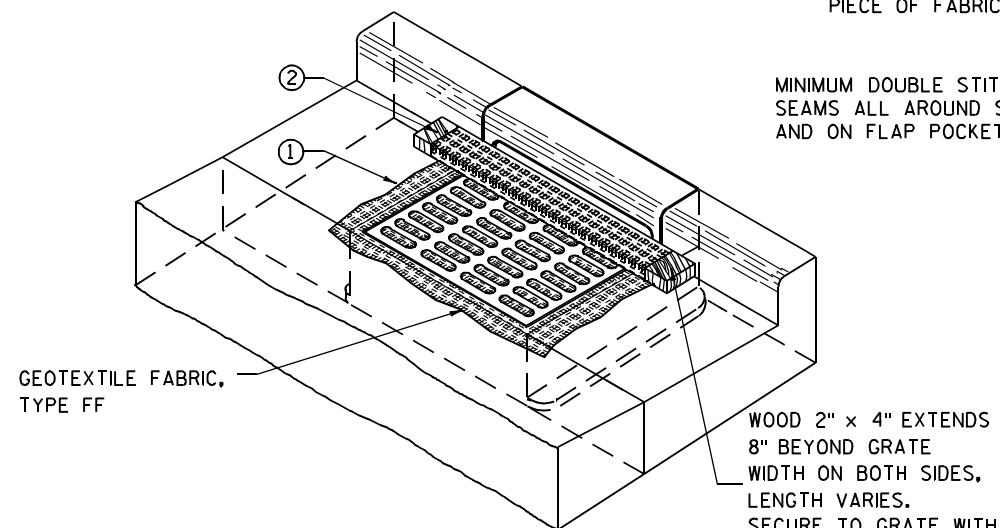
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

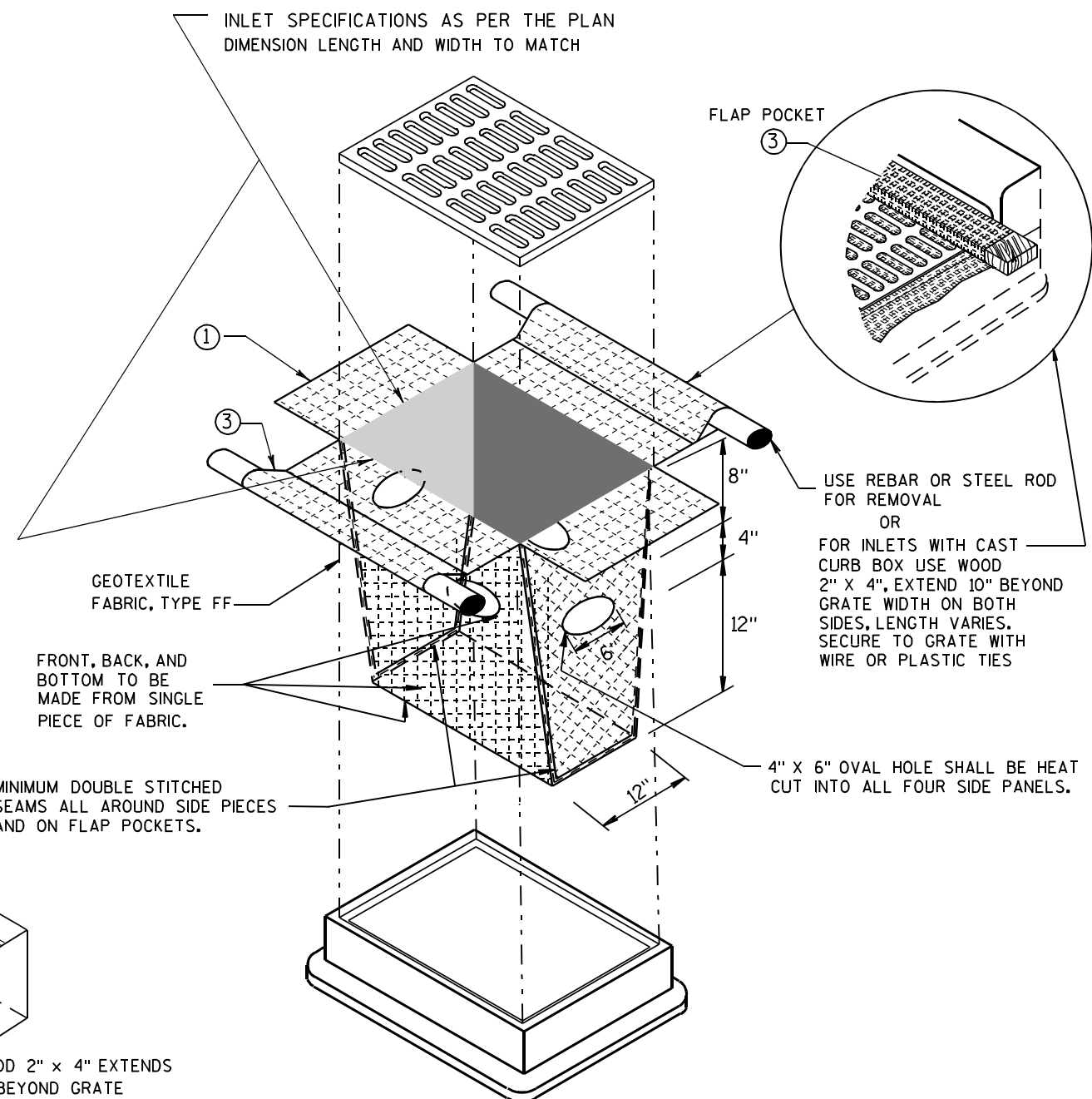
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

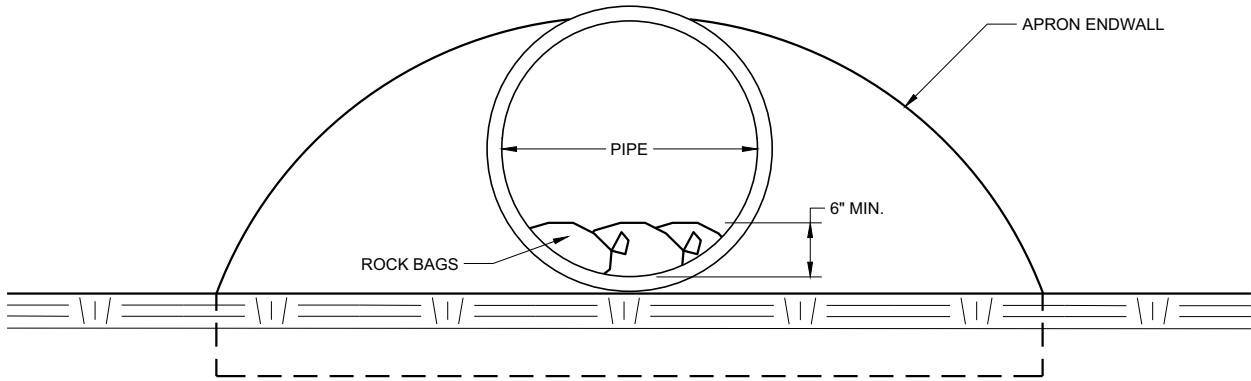
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE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



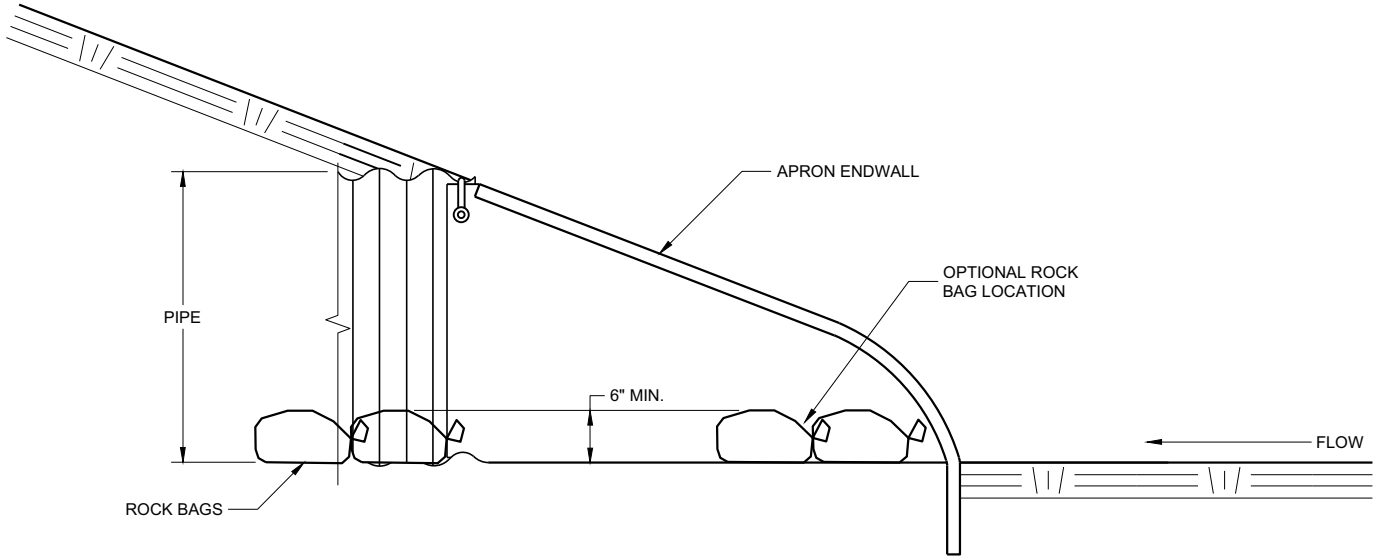
INLET PROTECTION, TYPE D

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

INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/S/ Beth Connolly 57 CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



END VIEW



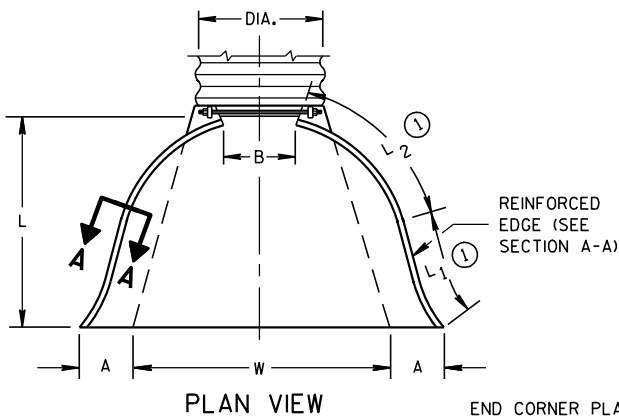
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

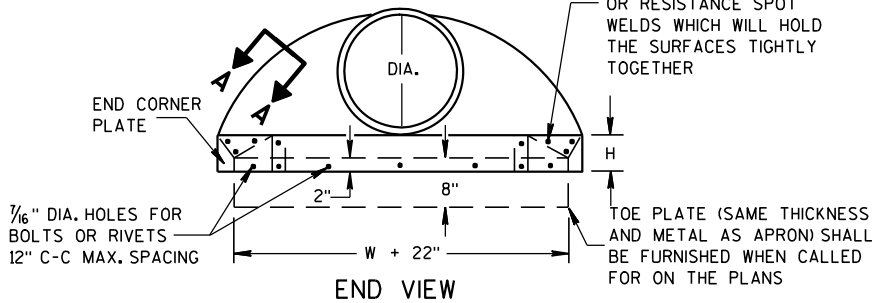
CULVERT PIPE CHECK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGI 58
FHWA	

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")	L ₁ ①	L ₂ ①			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.

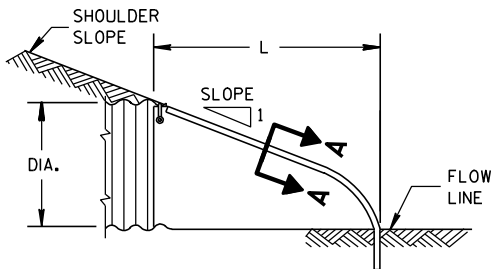
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



REINFORCED
EDGE (SEE
SECTION A-A)

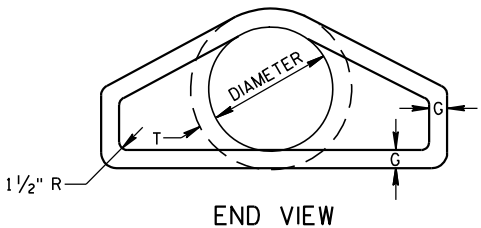
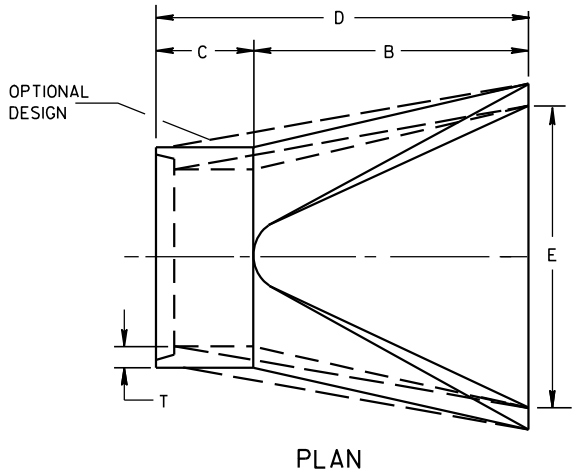


SIDE ELEVATION
METAL ENDWALLS

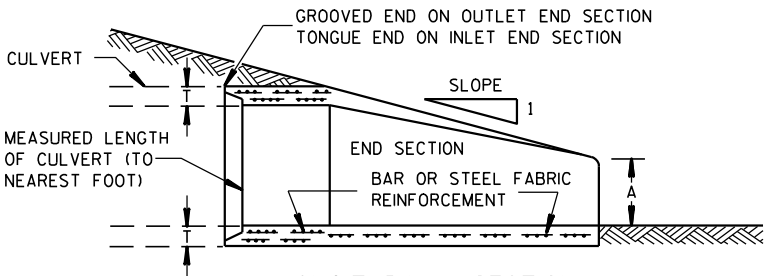


REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 ⁷ / ₈	72 ⁷ / ₈	24	2	3 to 1	
15	2 ¹ / ₄	6	27	46	73	30	2 ¹ / ₄	3 to 1	
18	2 ¹ / ₂	9	27	46	73	36	2 ¹ / ₂	3 to 1	
21	2 ³ / ₄	9	36	37 ¹ / ₂	73 ¹ / ₂	42	2 ³ / ₄	3 to 1	
24	3	9 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	

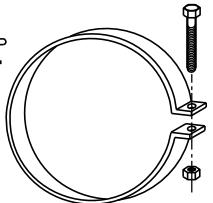
*MINIMUM
**MAXIMUM



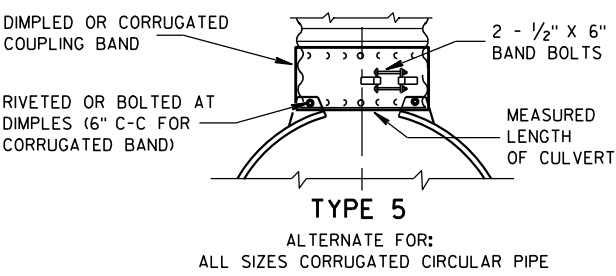
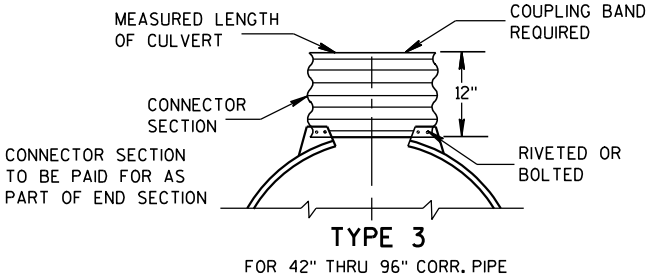
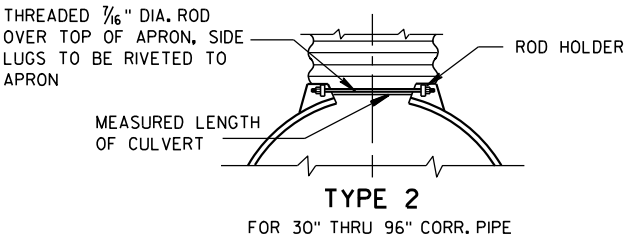
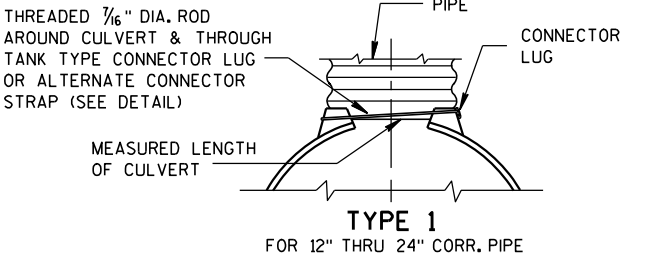
LONGITUDINAL SECTION
CONCRETE ENDWALLS



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



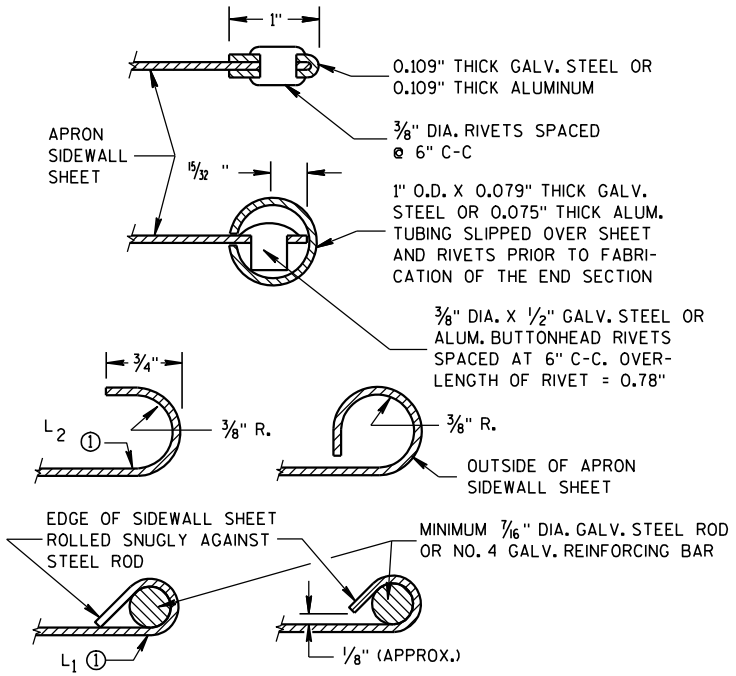
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

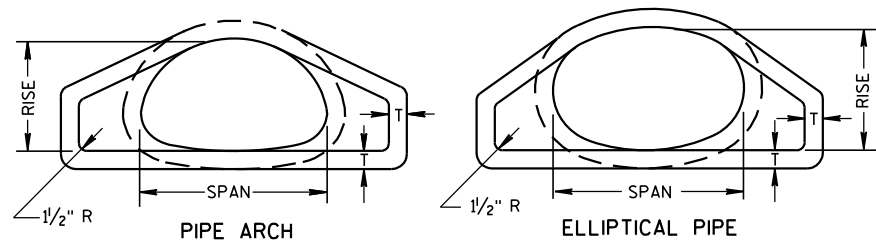
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL
THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH
OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

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

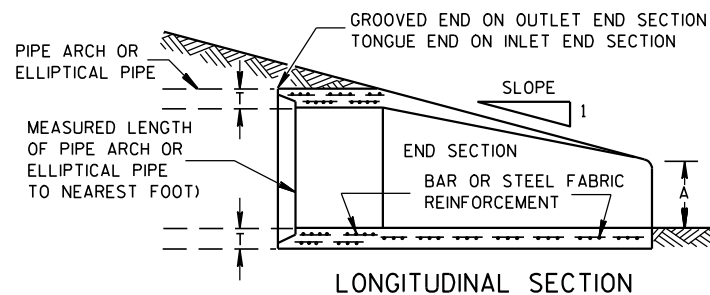
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT
TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT
TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR CULVERT PIPE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED	11/30/94	/S/ Rory L. Rhinehart	NEER
	DATE	CHIEF ROADWAY DEVELOP	59
FHWA			

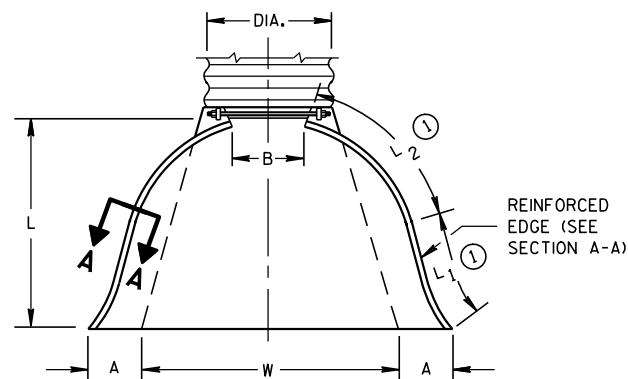


END VIEW



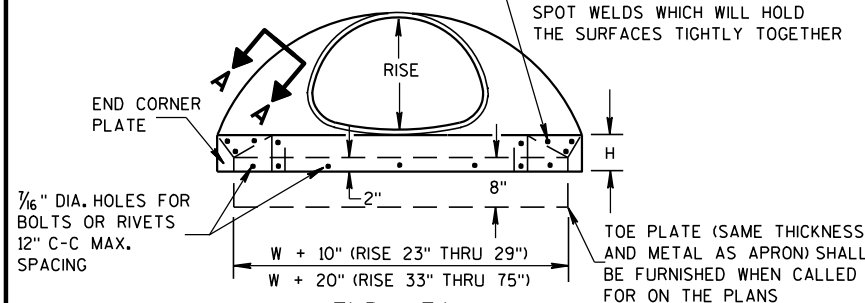
LONGITUDINAL SECTION

CONCRETE ENDWALLS

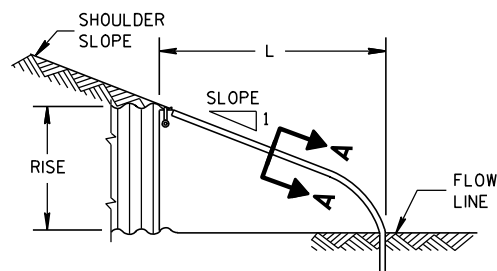
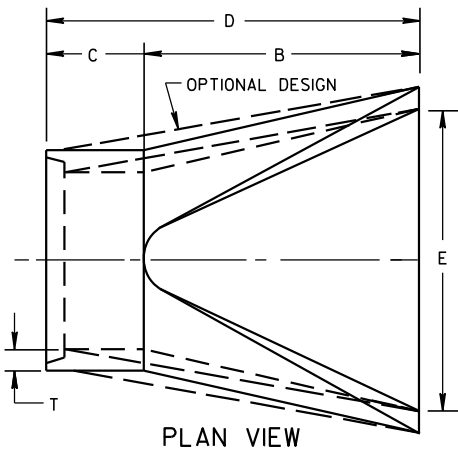


PLAN VIEW

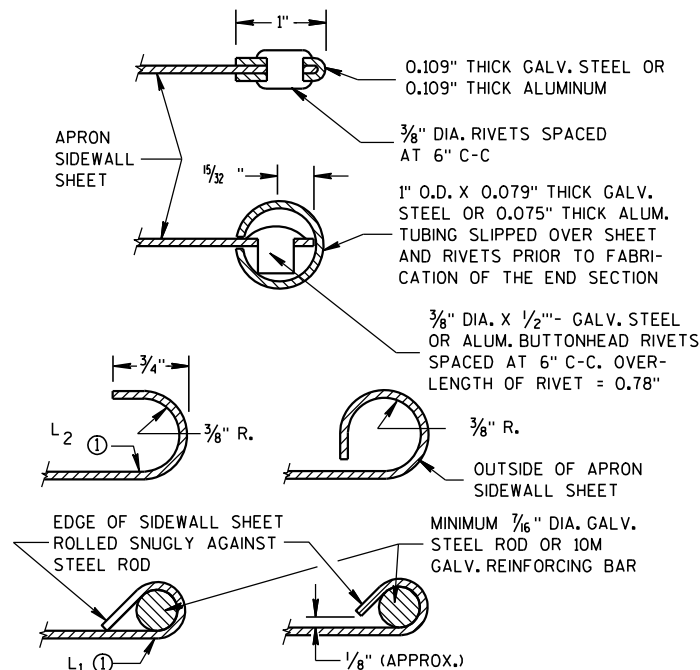
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW

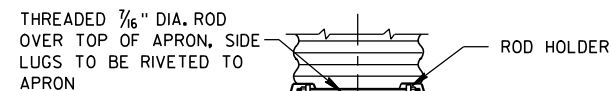


SECTION A-A

2- 2 2/3" X 1/2" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
15	17	13	.064	.060	7	9	6	19	14	16	30	2 1/2 to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19 3/8	36	2 1/2 to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21 3/4	42	2 1/2 to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27 1/2	48	2 1/2 to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37 5/8	60	2 1/2 to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45 3/8	75	2 1/2 to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54 3/4	85	2 1/2 to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2 1/2 to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72 3/4	102	2 1/4 to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82 1/4	114	2 1/4 to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

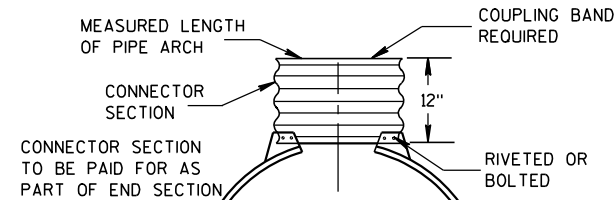
3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

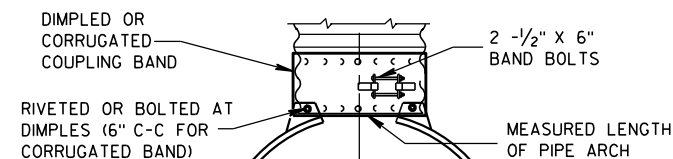
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:

ALL SIZES CORRUGATED PIPE ARCHES

NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

REINFORCED CONCRETE PIPE ARCH

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	**SPAN	**RISE	T	A	B	C	D	E	
24	29	18	3	8 1/2	39	33	72	48	3 to 1
30	36	22	3 1/2	9 1/2	50	46	96	60	3 to 1
36	44	27	4	11 1/8	60	36	96	72	3 to 1
42	51	31	4 1/2	15 1/16	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5 1/2	25 1/2	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28 1/2	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	**SPAN	**RISE	T	A	B	C	D	E	
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1
42	53	34	5	15 1/4	60	36	96	78	2 1/2 to 1
48	60	38	5 1/2	21	60	36	96	84	2 1/2 to 1
54	68	43	6	25 1/2	60	36	96	90	2 1/2 to 1
60	76	48	6 1/2	30	60	36	96	96	2 1/2 to 1

**NOMINAL SIZE

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH 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 ARCH 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 77" X 52" THROUGH 112" X 75" 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 ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPESTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/94

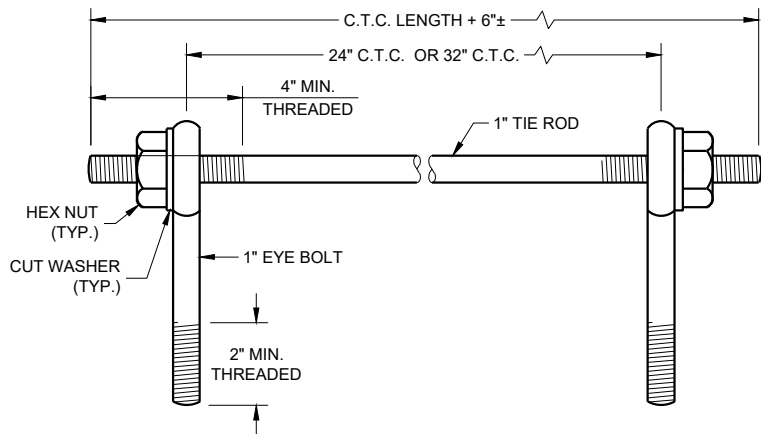
DATE

/S/ Rory L. Rhinehart

CHIEF ROADWAY DEVELOPER

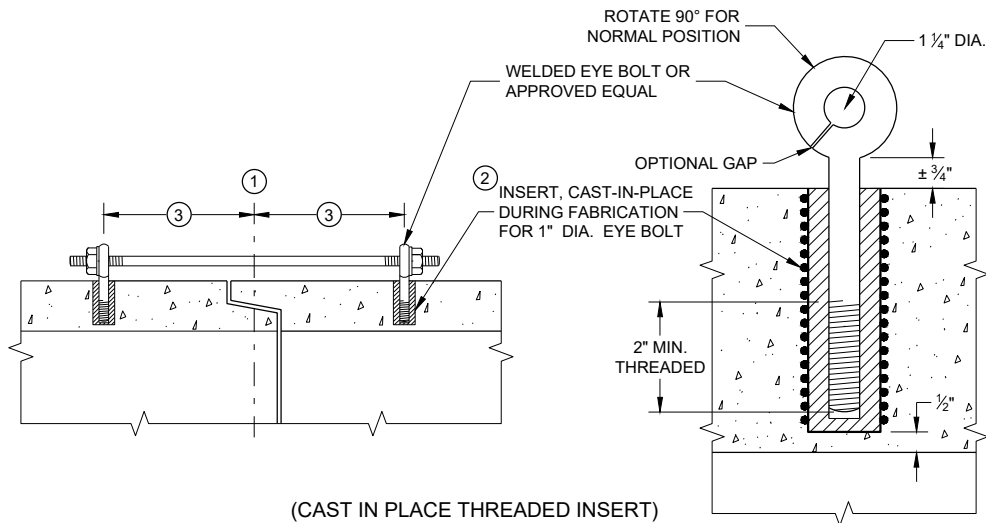
ENGINEER

FHWA



Eye Bolts and Tie Rod

Eye Bolt and Tie Rod Assembly (Alternate No. 1)



(Cast in Place Threaded Insert)

Longitudinal Sections

GENERAL NOTES

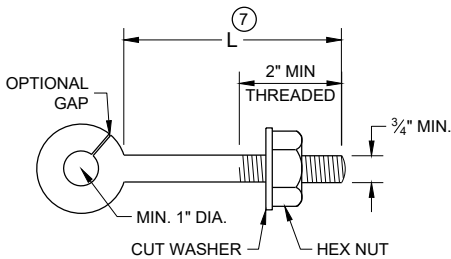
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.

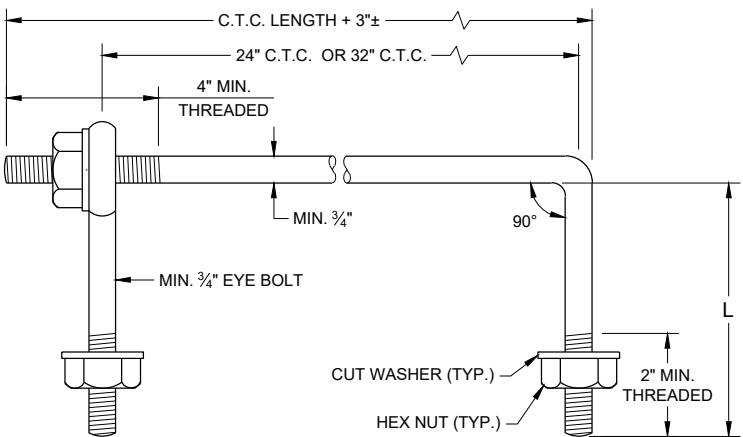
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 1 CENTER LINE 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 PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- 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.
- 7 EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

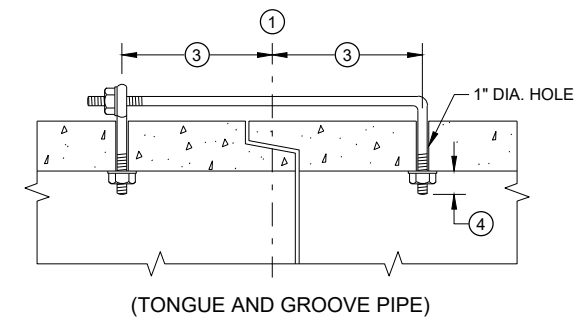


Eye Bolt

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



Eye Bolt and Tie Rod

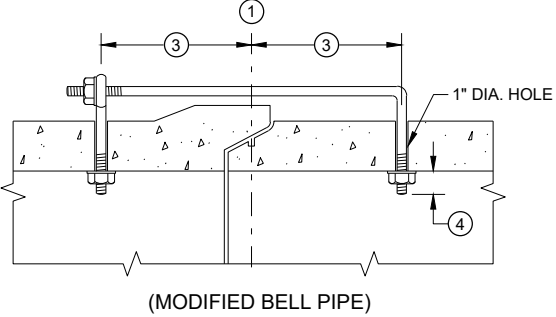


(Tongue and Groove Pipe)

Longitudinal Section

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

Eye Bolt and Tie Rod Assembly (Alternate No. 2)

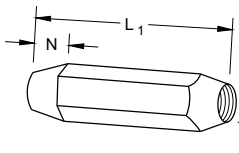


(Modified Bell Pipe)

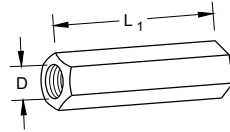
Adjustable Tie Rod Table

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 - 144	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES

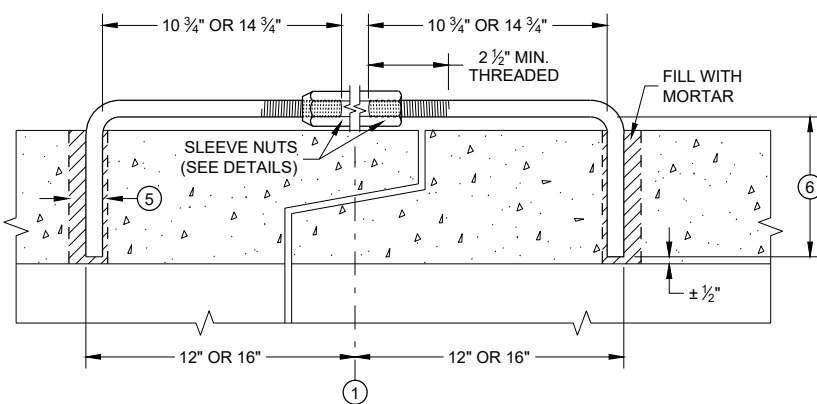


TAPERED



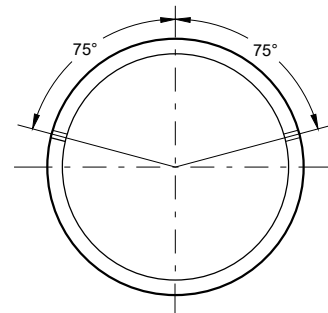
PLAIN

Right and Left Threads
Sleeve Nuts



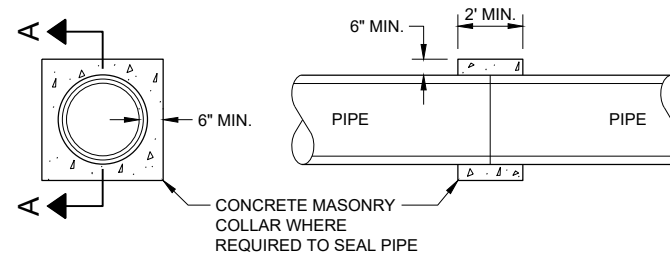
Longitudinal Section

Adjustable Tie Rod (Alternate No. 3)



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

Transverse Section



Section A - A

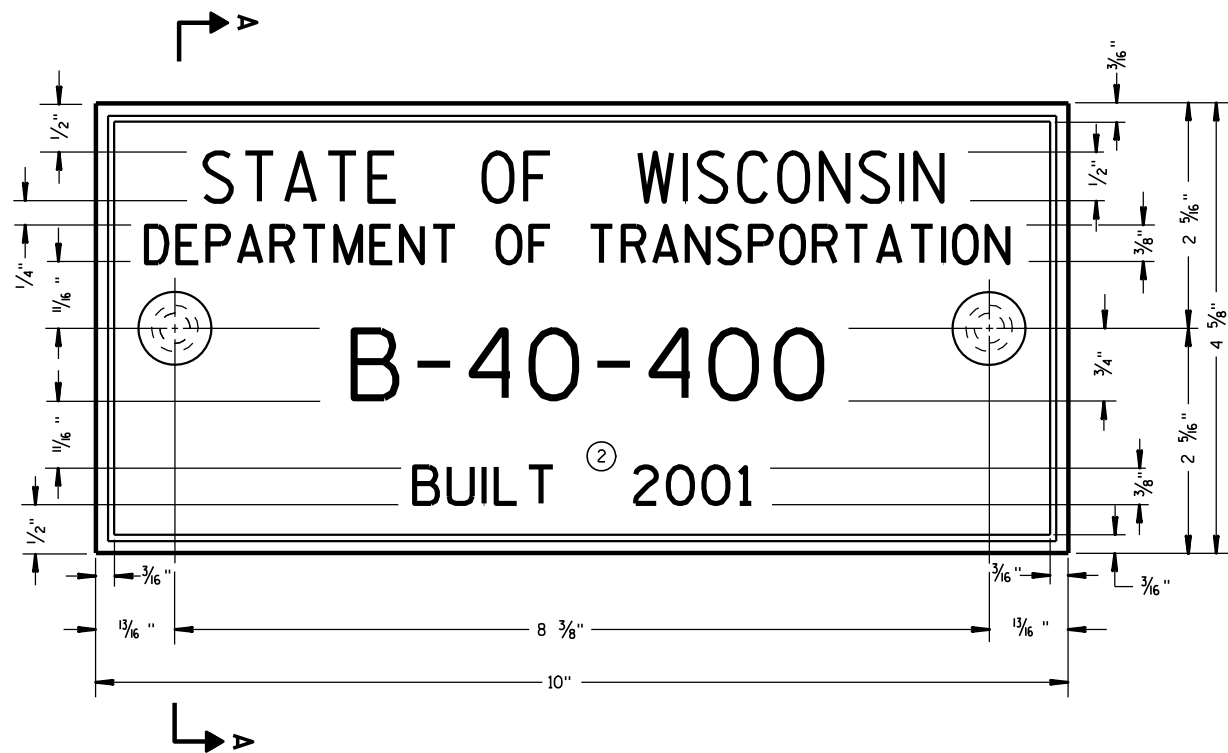
Concrete Collar Detail

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

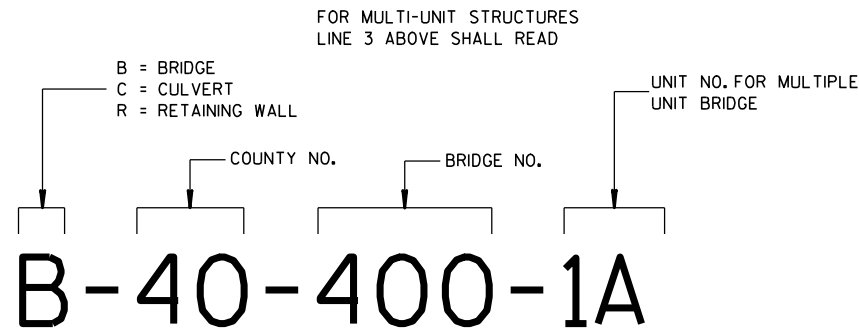
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER
61

FHWA



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



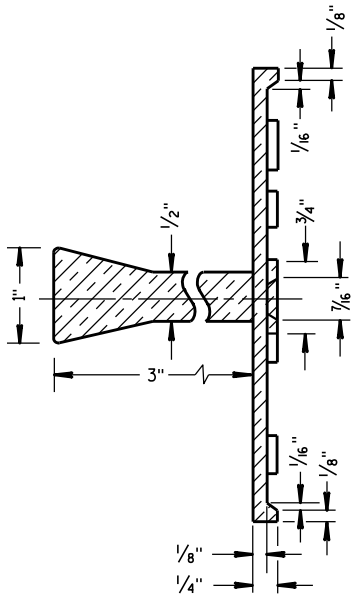
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

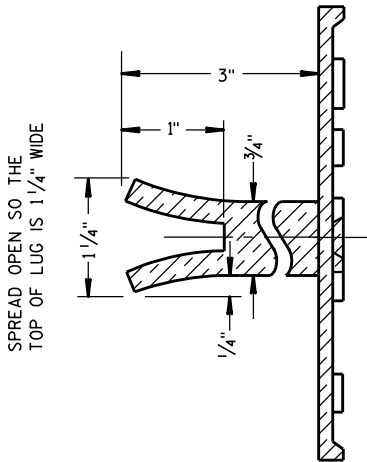
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

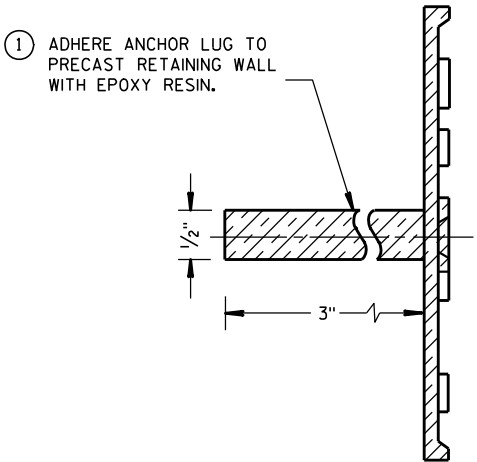
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A

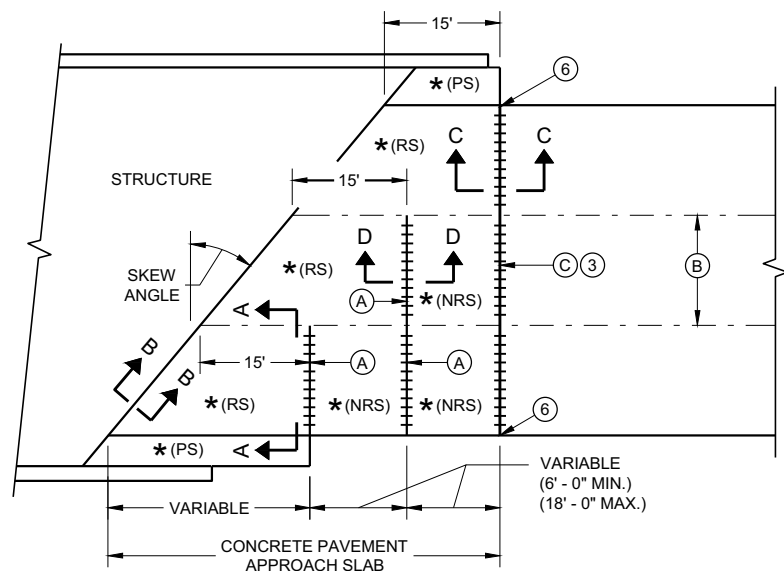


ALTERNATE LUG

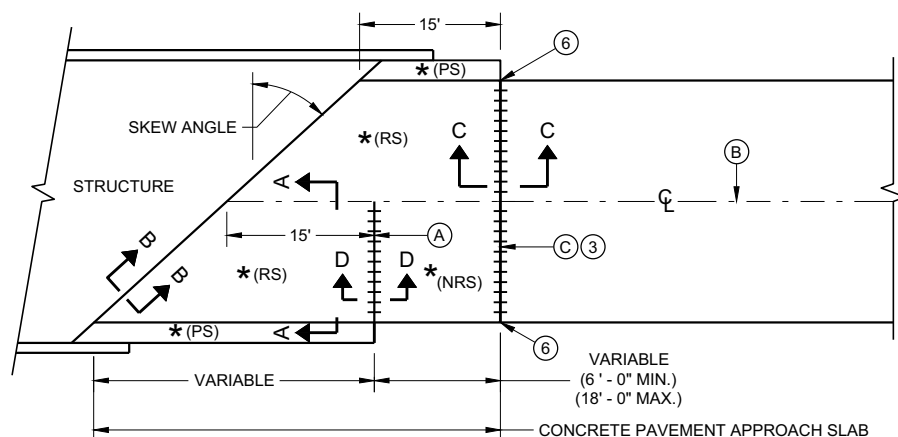


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

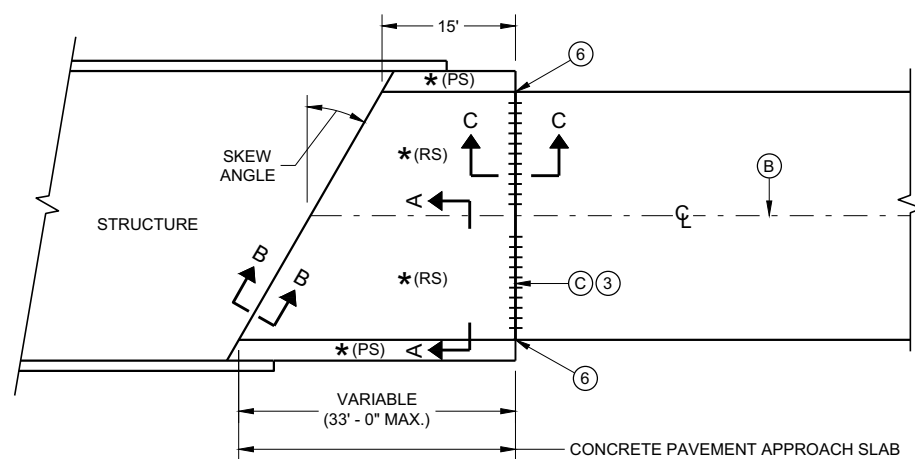
NAME PLATE (STRUCTURES)		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED DATE 3/26/10	CHIEF STRUCTURAL DEVELOPER /S/ Scot Beck 62	JEER
FHWA		



SKewed APPROACH
(PAVEMENT MORE THAN TWO LANES)



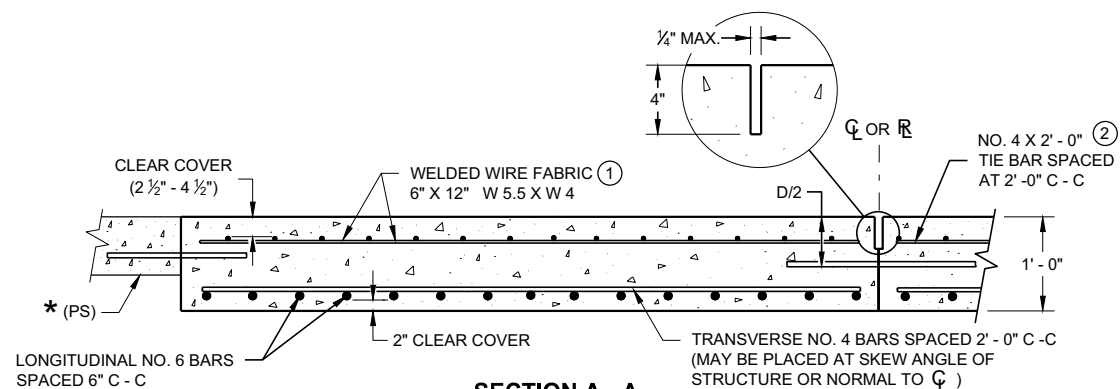
SKews > 20°
(PAVEMENT WIDTH ≤ 30')



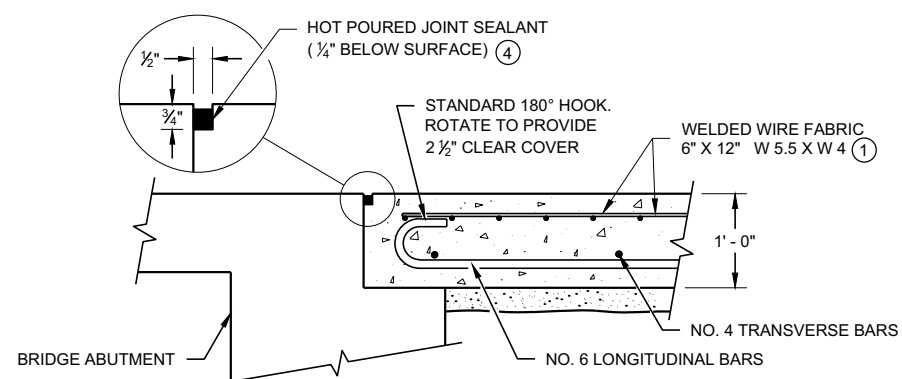
SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')

APPROACH SLAB AND ADJACENT PAVEMENT

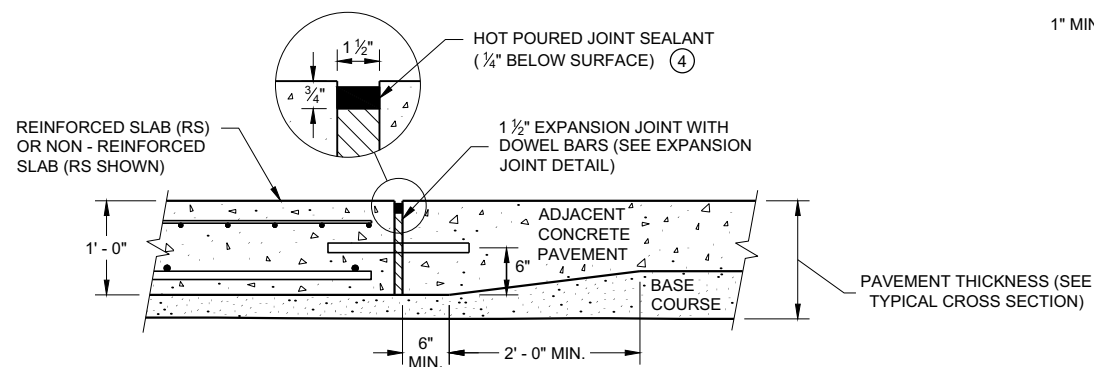
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



SECTION A - A
REINFORCEMENT POSITIONING DETAIL



SECTION B - B
BEND DETAIL
BOTTOM REINFORCEMENT



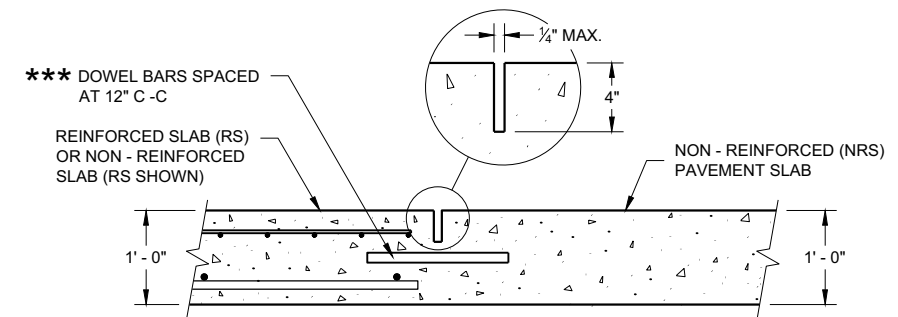
SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT

GENERAL NOTES

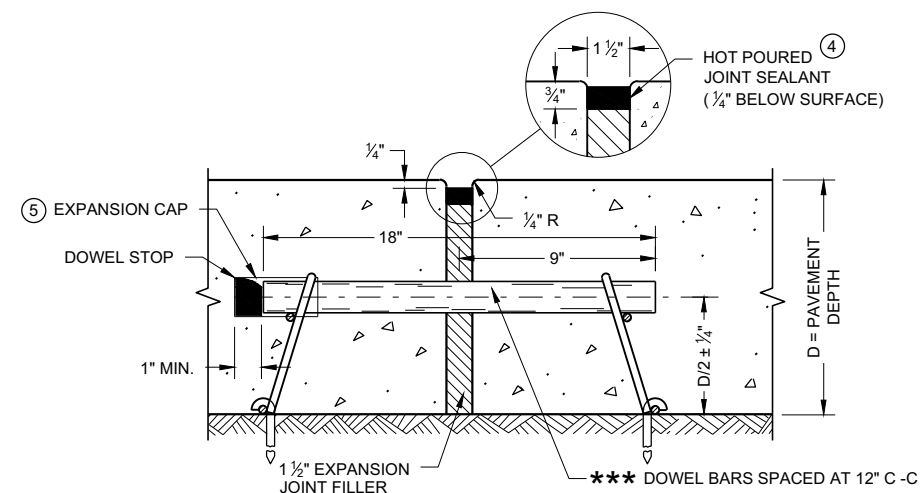
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

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 $\mathcal{C}$ OR $\mathcal{R}$.
- (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.



SECTION D - D
CONTRACTION JOINT



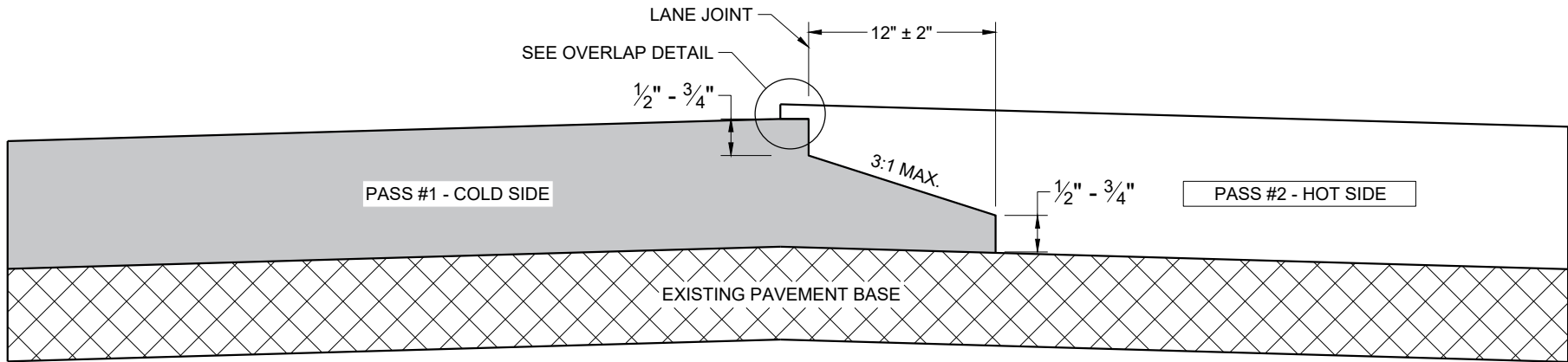
EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

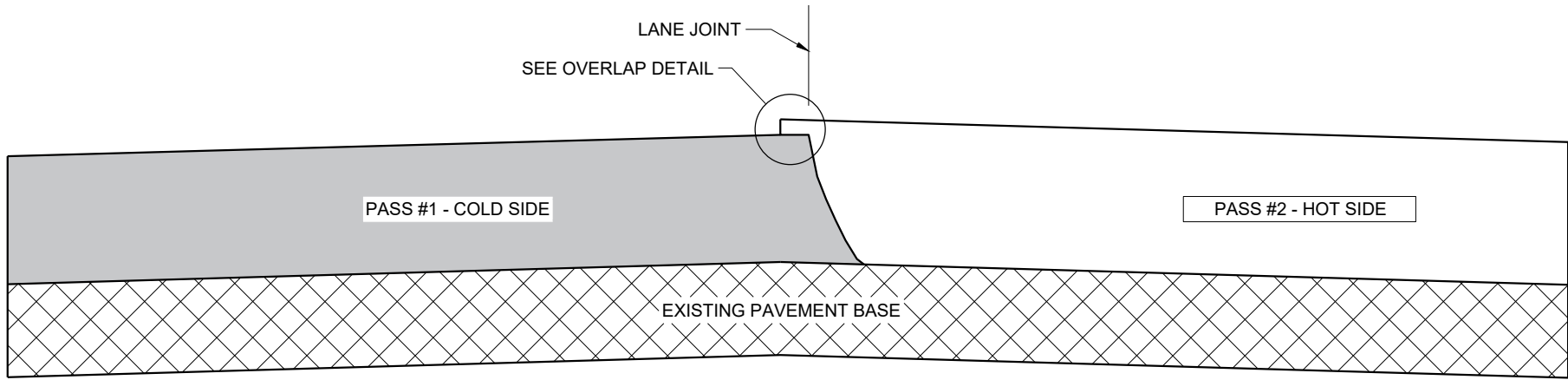
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR 63

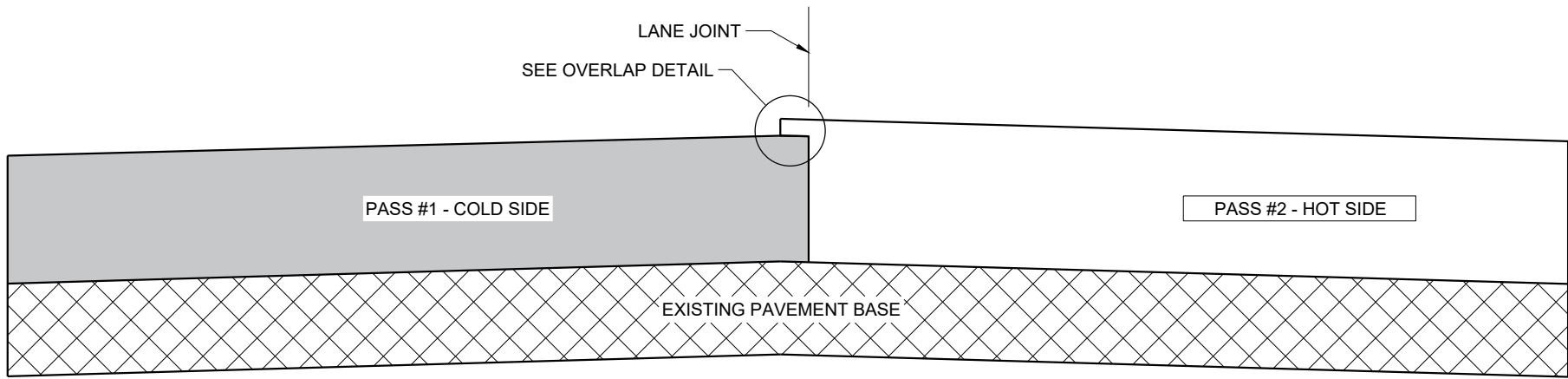
FHWA



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



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

GENERAL NOTES

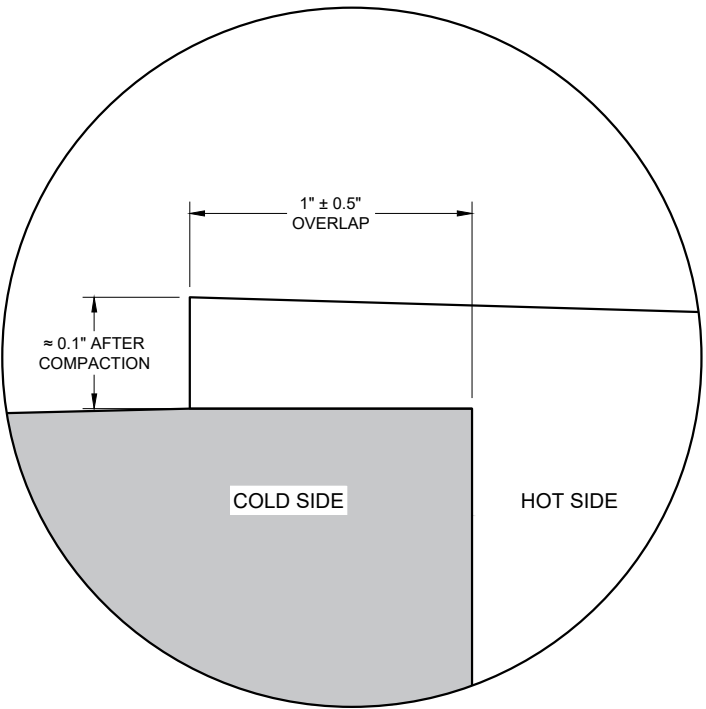
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY 1" ± 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.



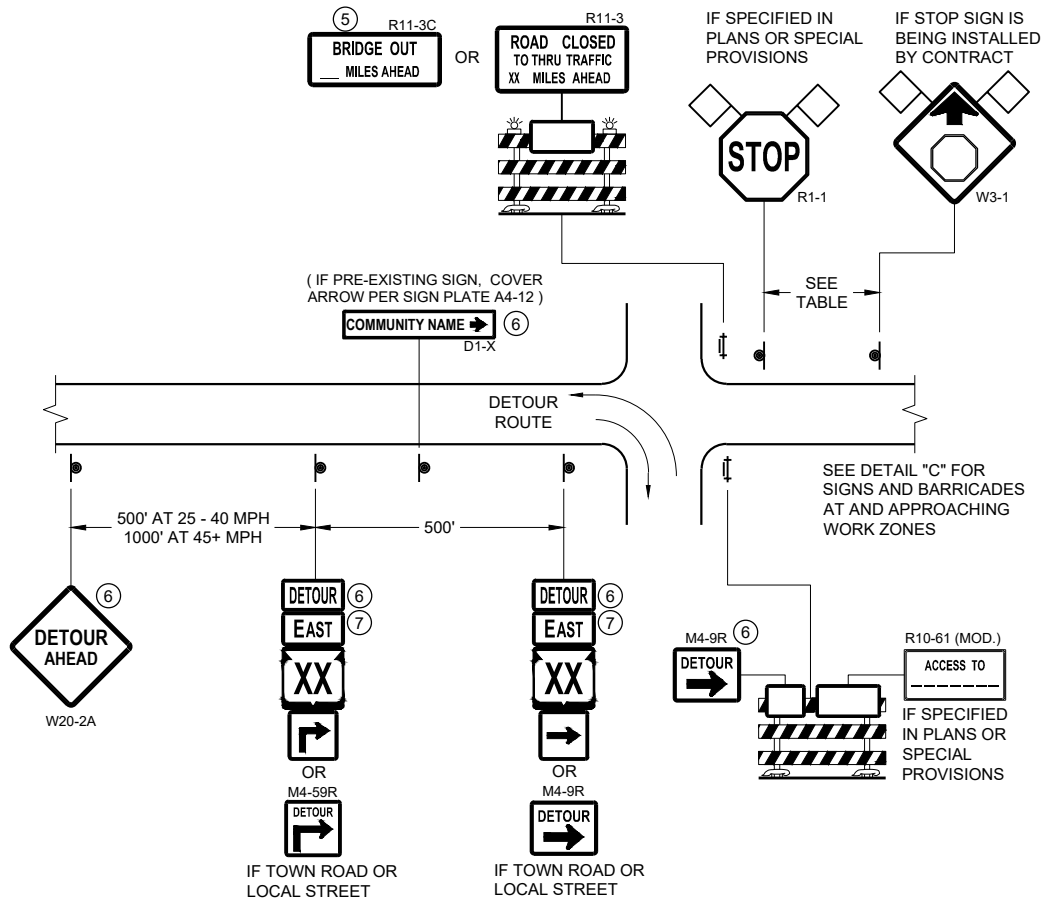
OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

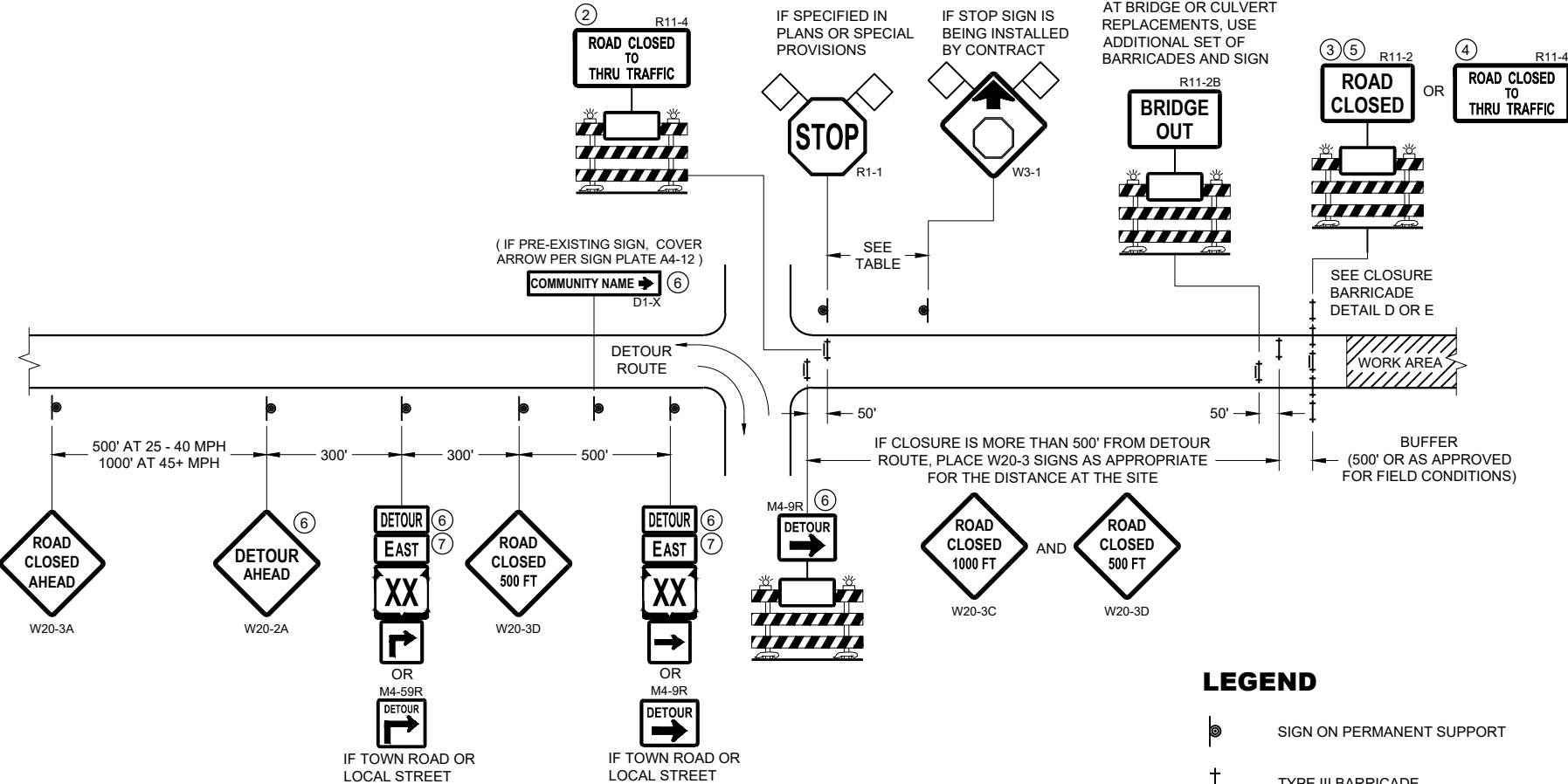
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 64

FHWA



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

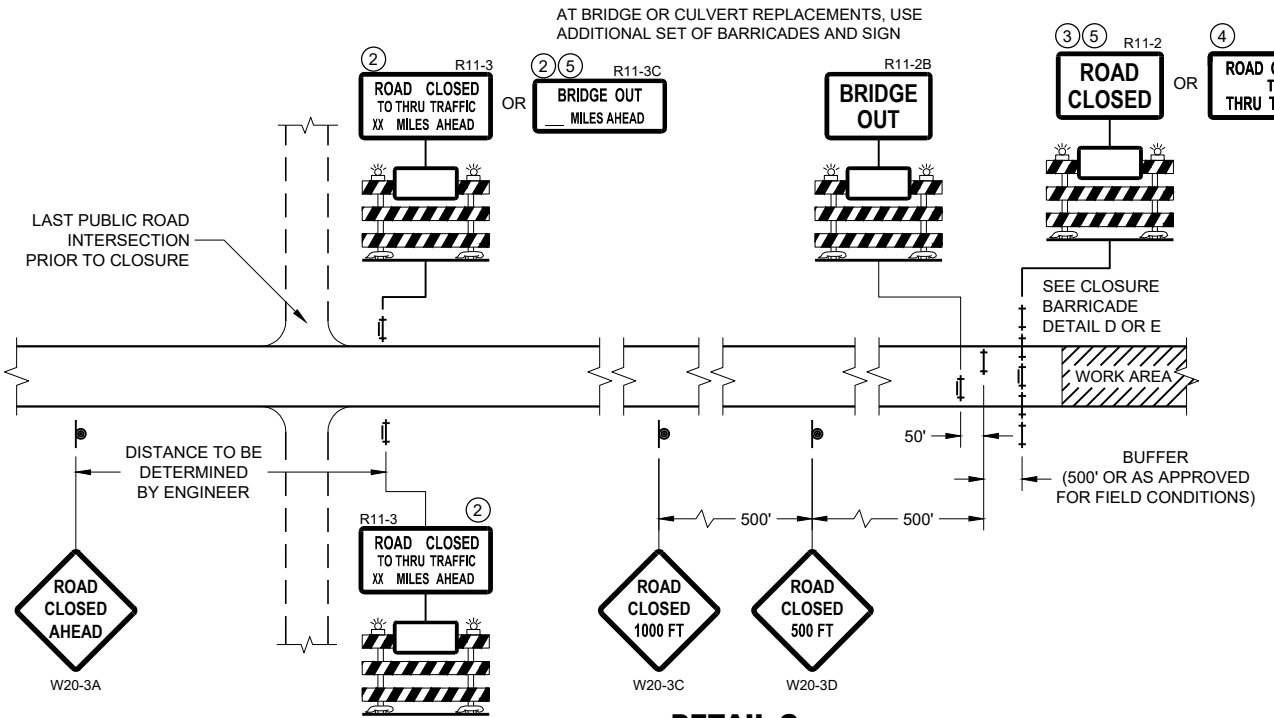
LEGEND

- 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)

DETOUR M4 - 8
EAST M3 - X
XX OR **XX** OR **COUNTY X**
M1 - 4 M1 - 6 M1 - 5A
DETOUR OR **DETOUR**
M05 - 1 M06 - 1

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

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



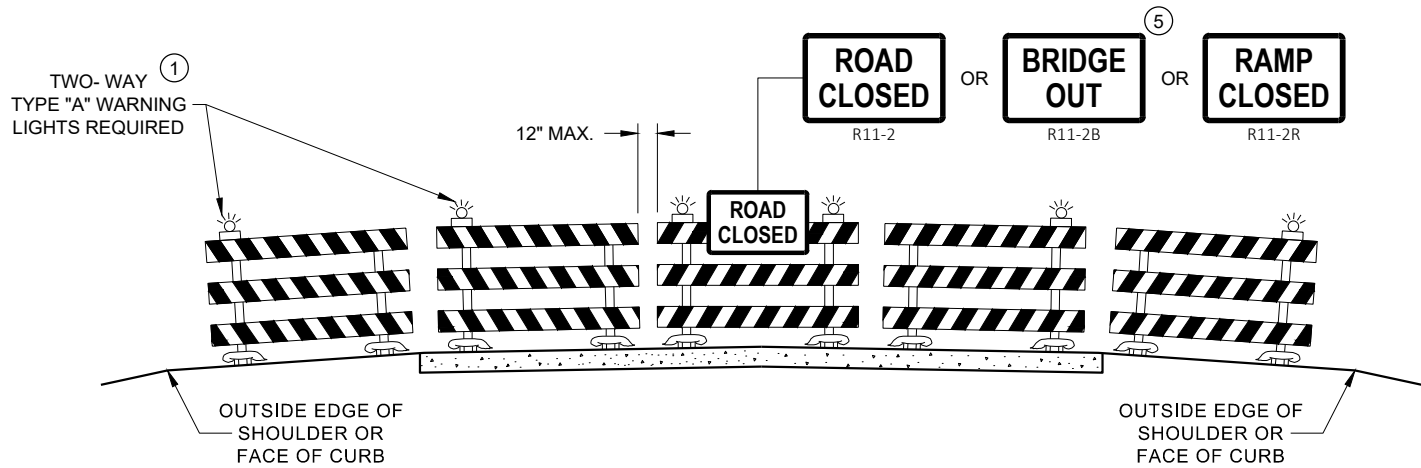
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

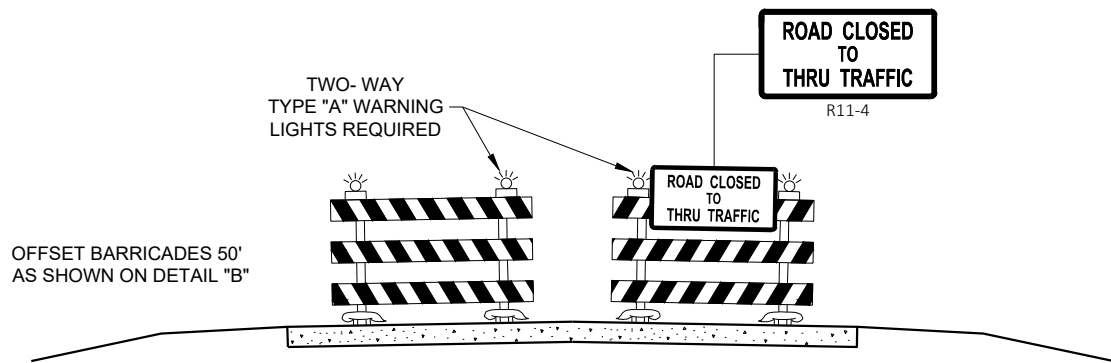
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 65

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"

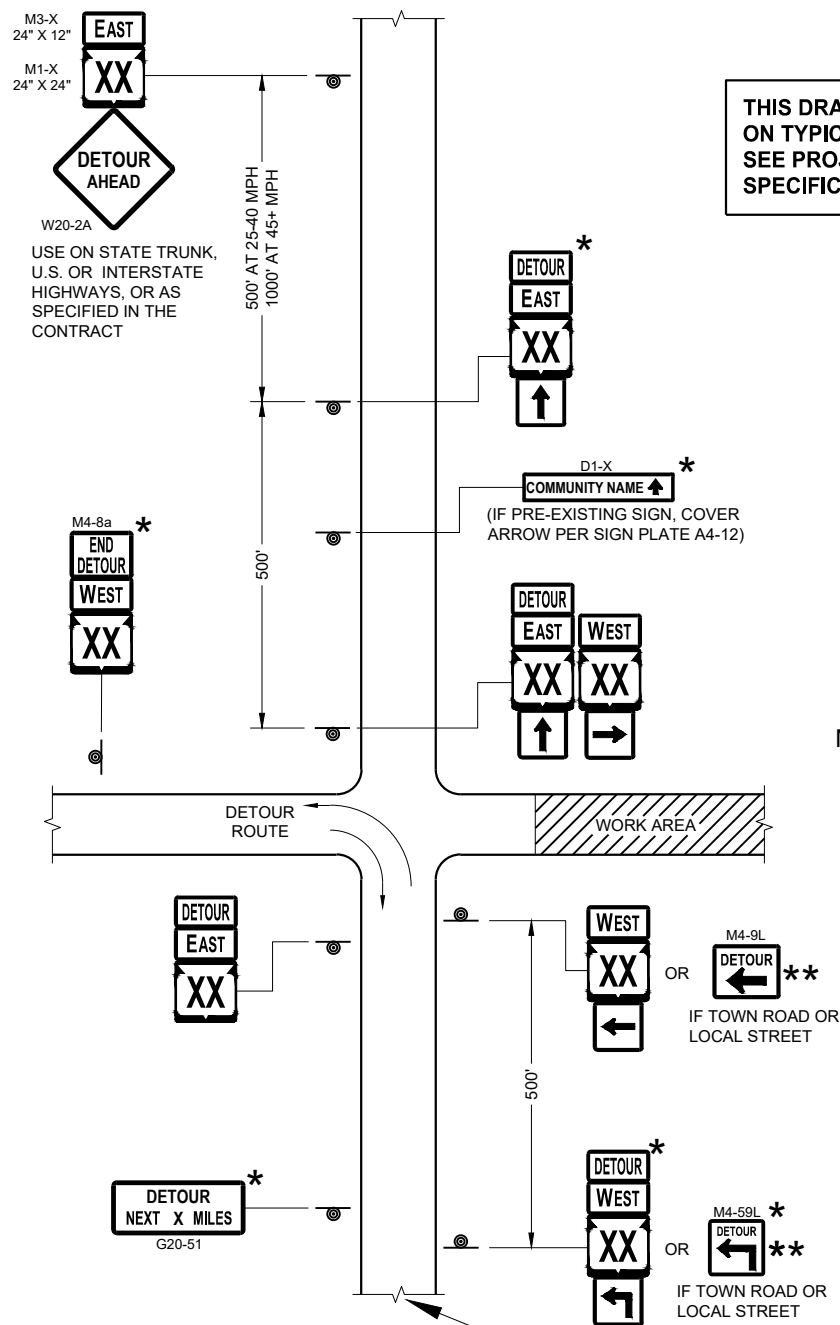
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS 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
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 66

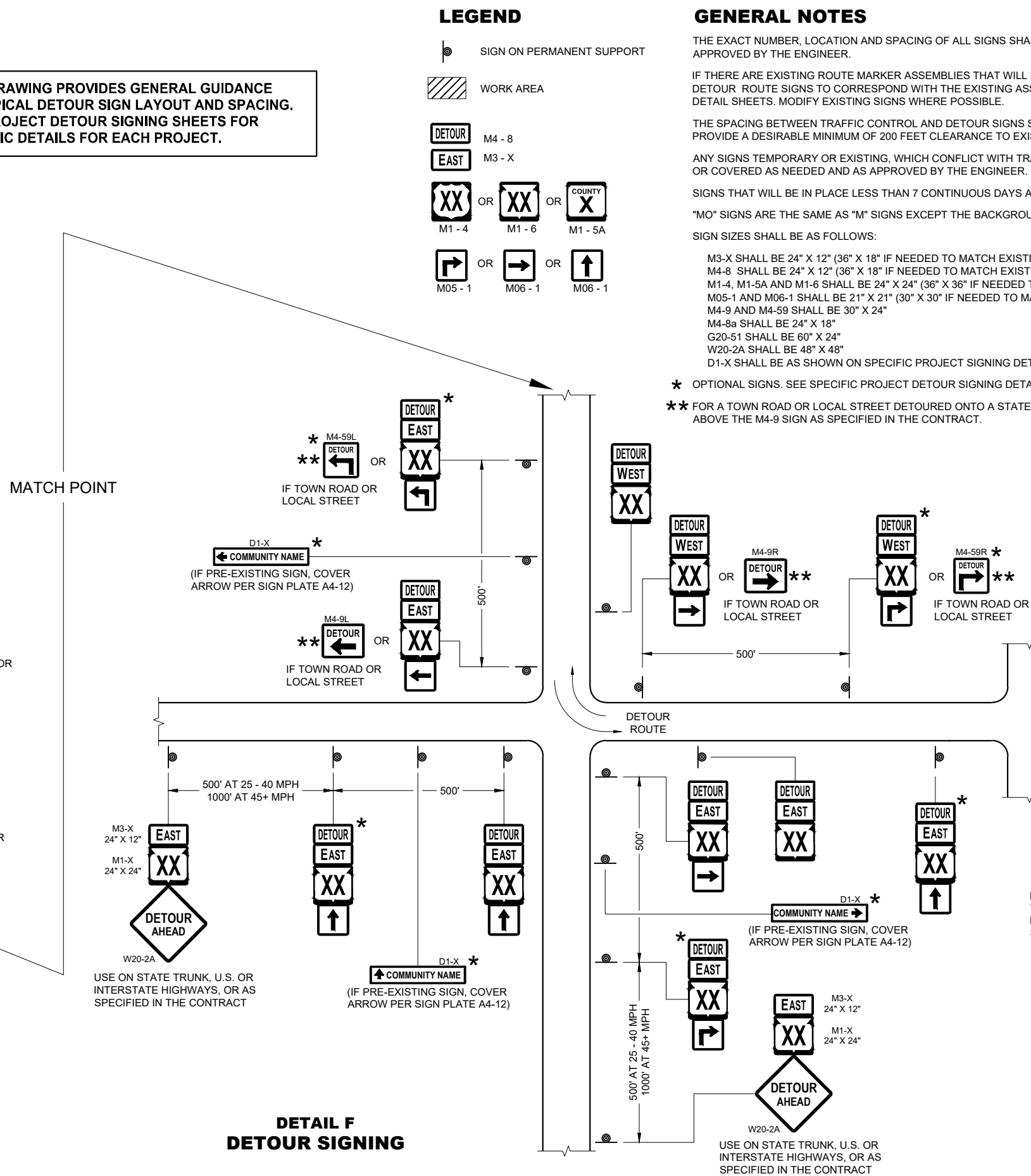
FHWA



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

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

SDD 15C02 - 09c



DETAIL F DETOUR SIGNING

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.**

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

DETOUR SIGNING FOR MAINLINE CLOSURES

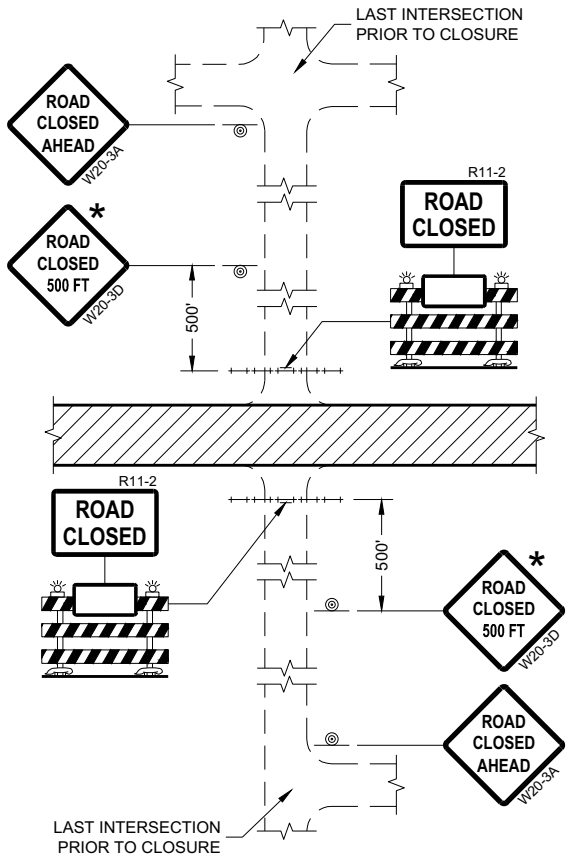
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

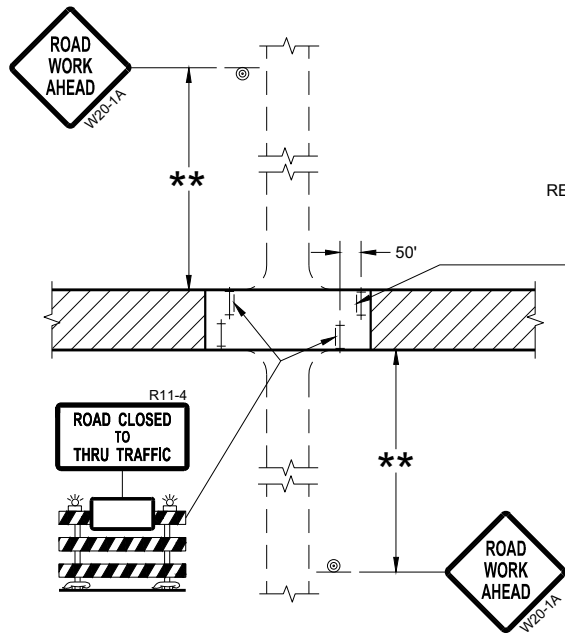
/S/ Andrew Heidtke
WORK ZONE ENGINEER 67

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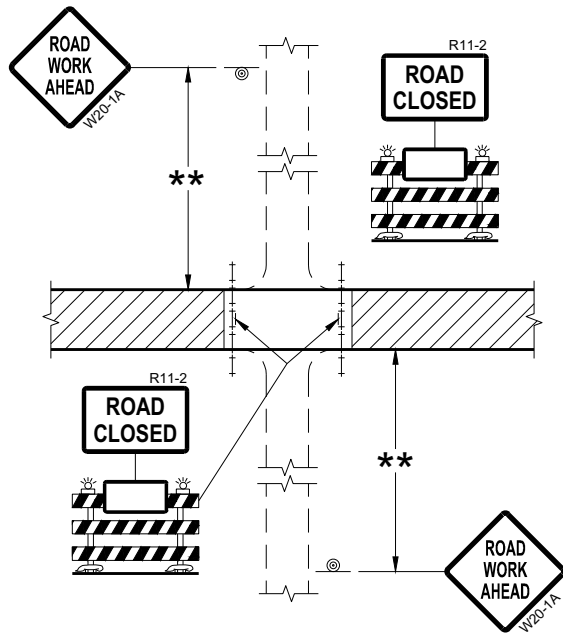
SDD15C02 - 09c



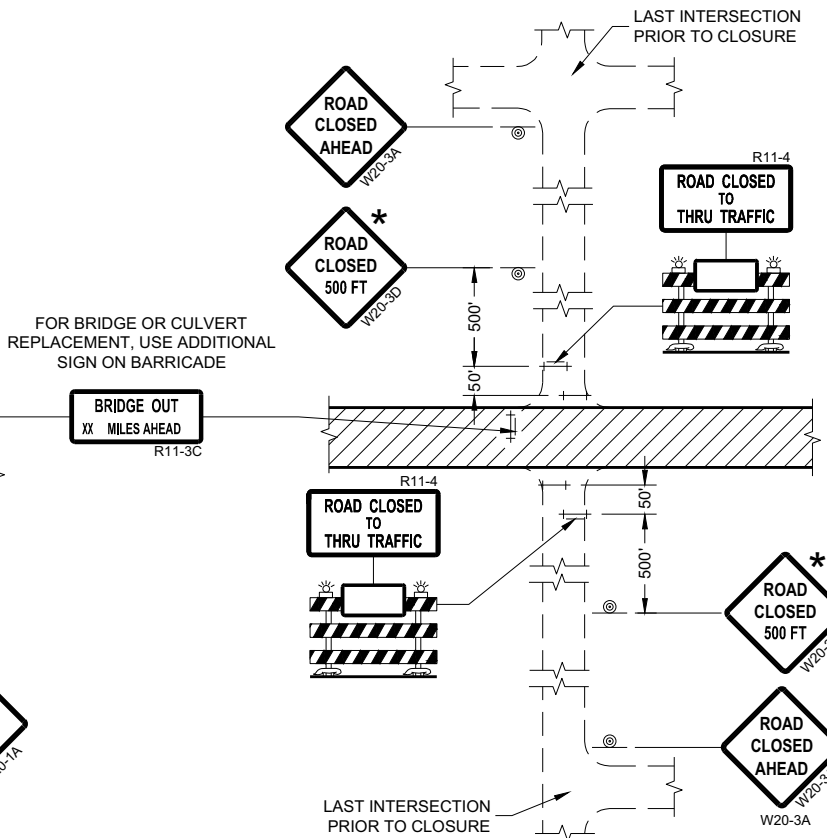
DETAIL 1
(NO ACCESS TO PROJECT)



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



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO 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 68

FHWA

GENERAL NOTES

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

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

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"X36" SIGNS MAY BE USED INSTEAD OF 48" X 48" SIGNS.

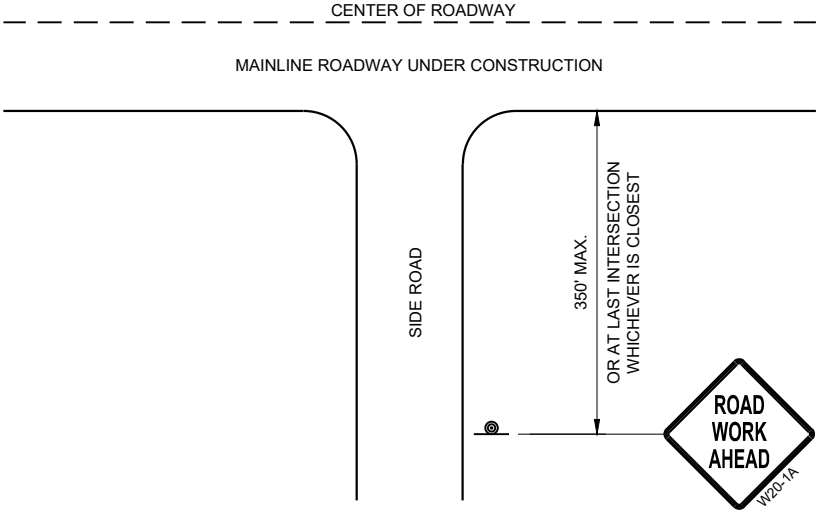
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

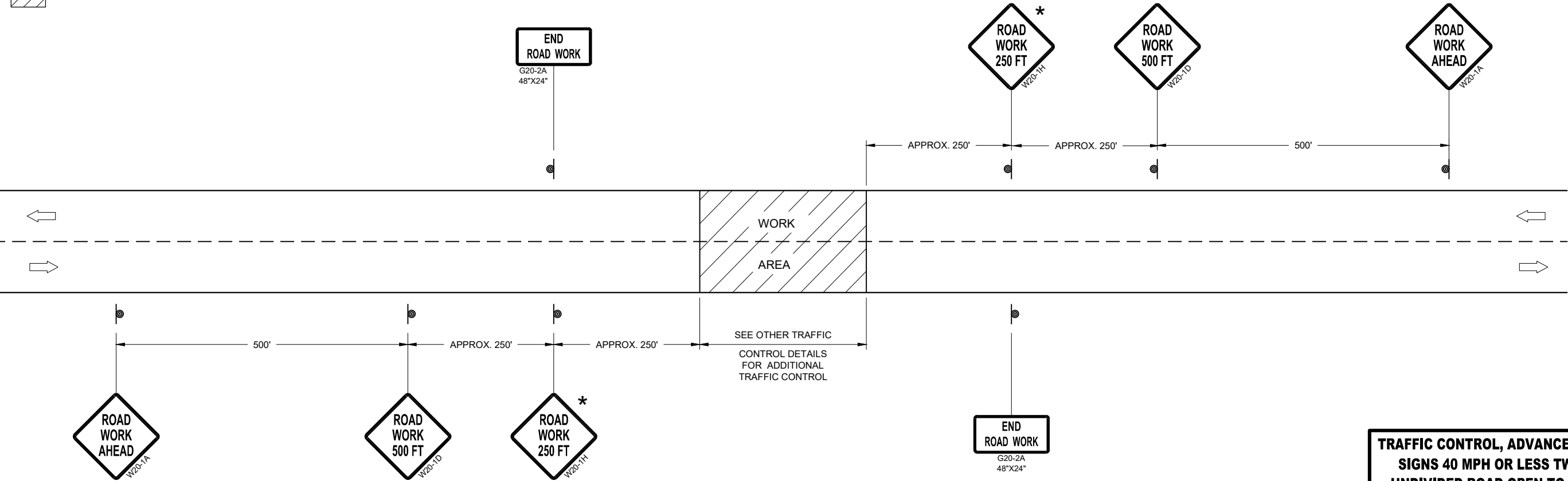
* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FEET" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL

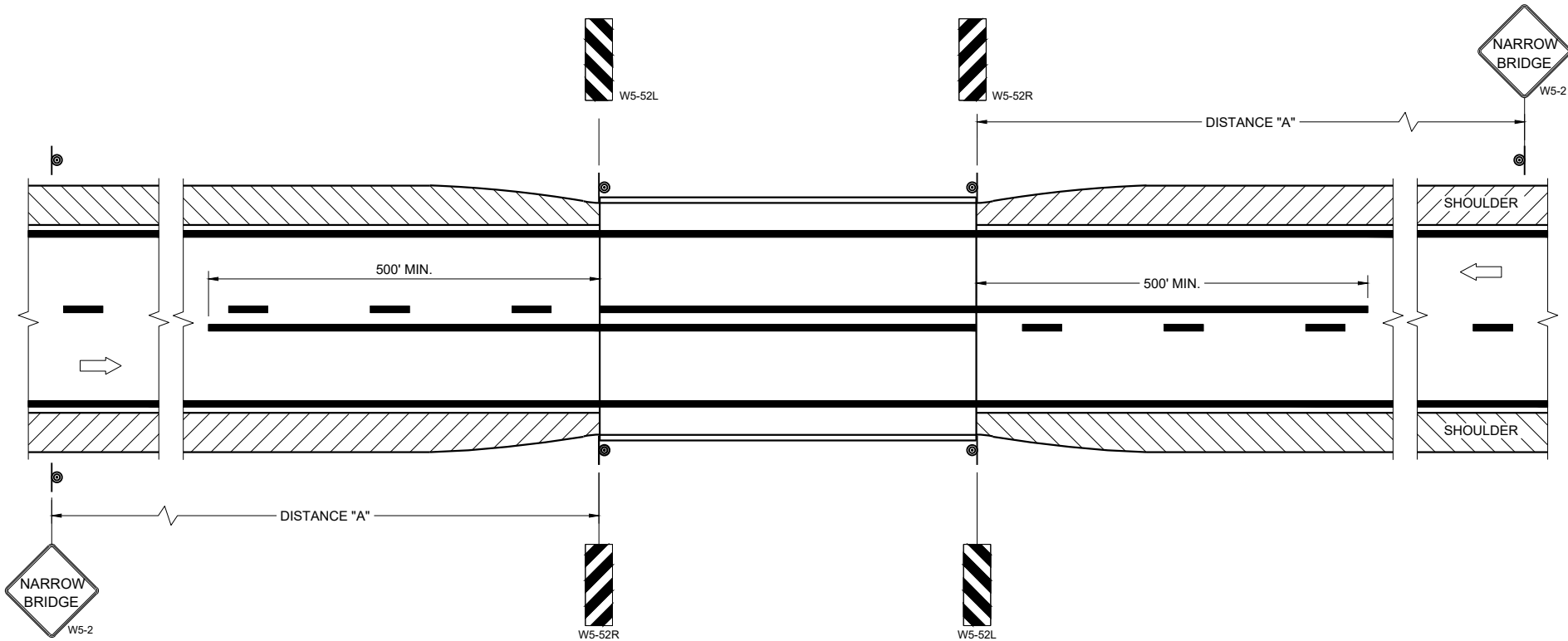


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40MPH OR LESS

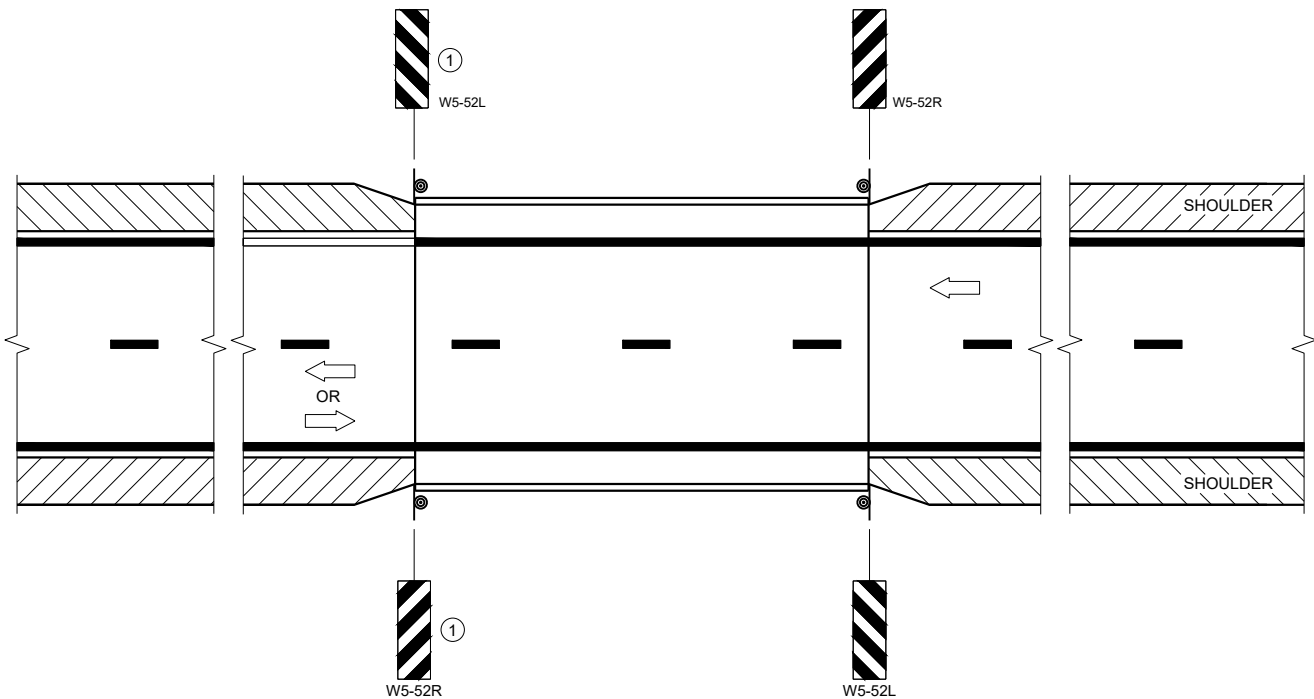
TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 40 MPH OR LESS TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 69
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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

GENERAL NOTES

- DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THE 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.
- ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.
- OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.
- ① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

- SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	700'

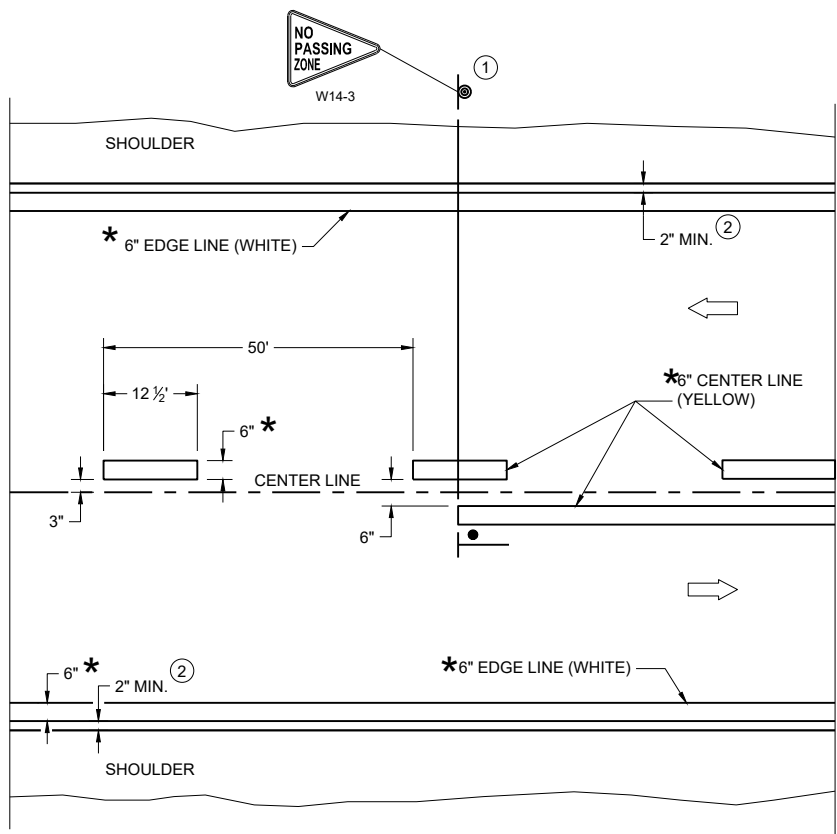
**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

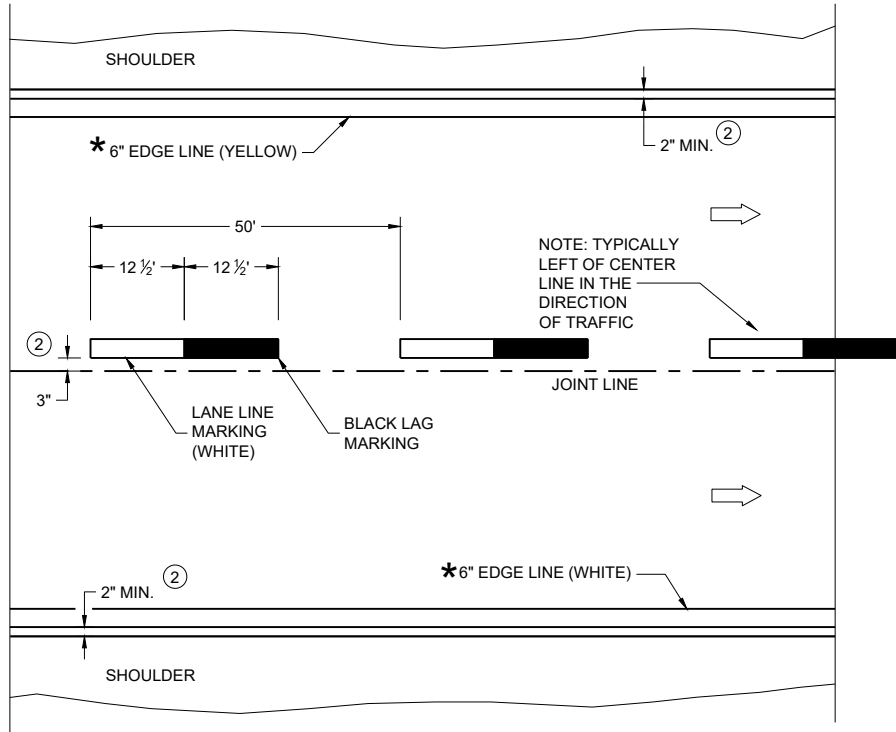
APPROVED
May 2023
DATE

/S/ Jeannie Silver
Statewide Pavement Marking Engineer

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

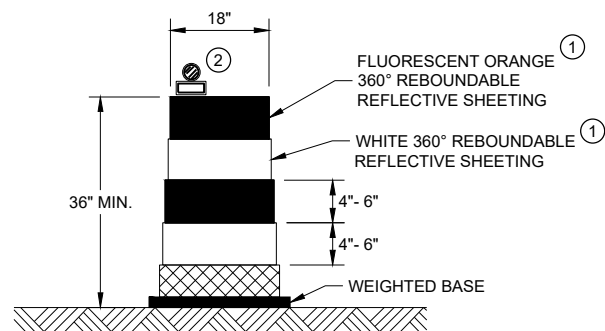
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- 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

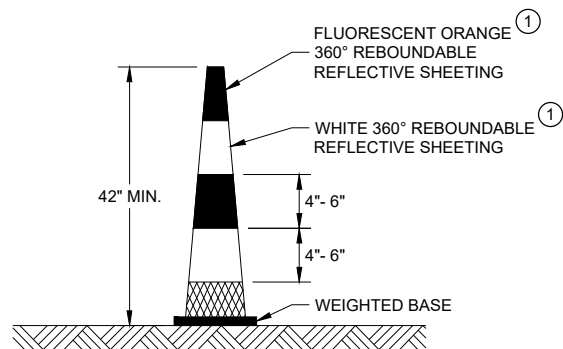
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

PERMANENT LONGITUDINAL PAVEMENT MARKINGS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer



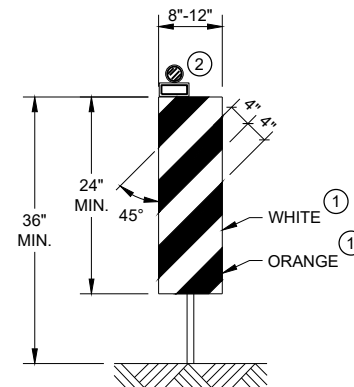
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



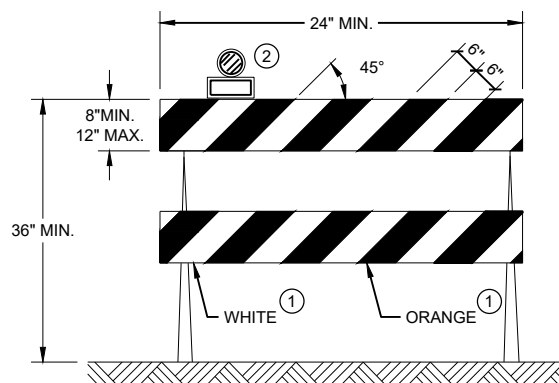
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS
BALLAST WIDTHS
RANGE FROM 14"-20"



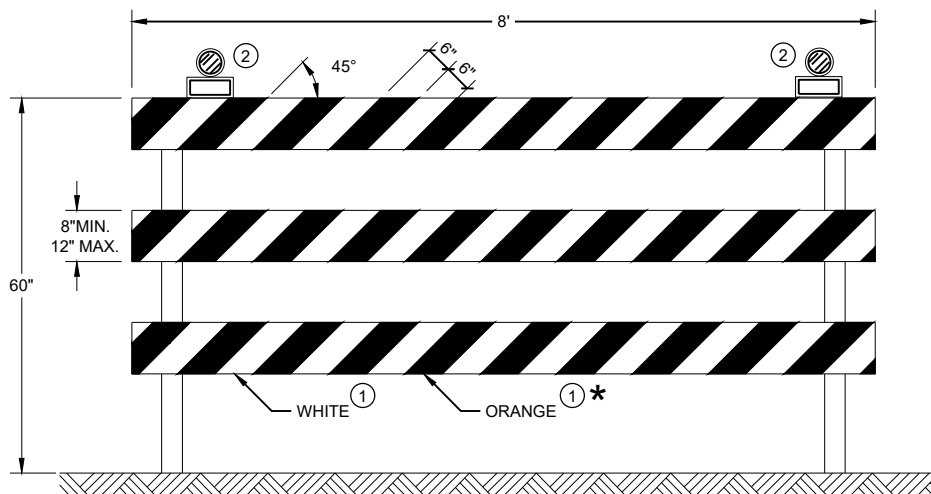
VERTICAL PANEL

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



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

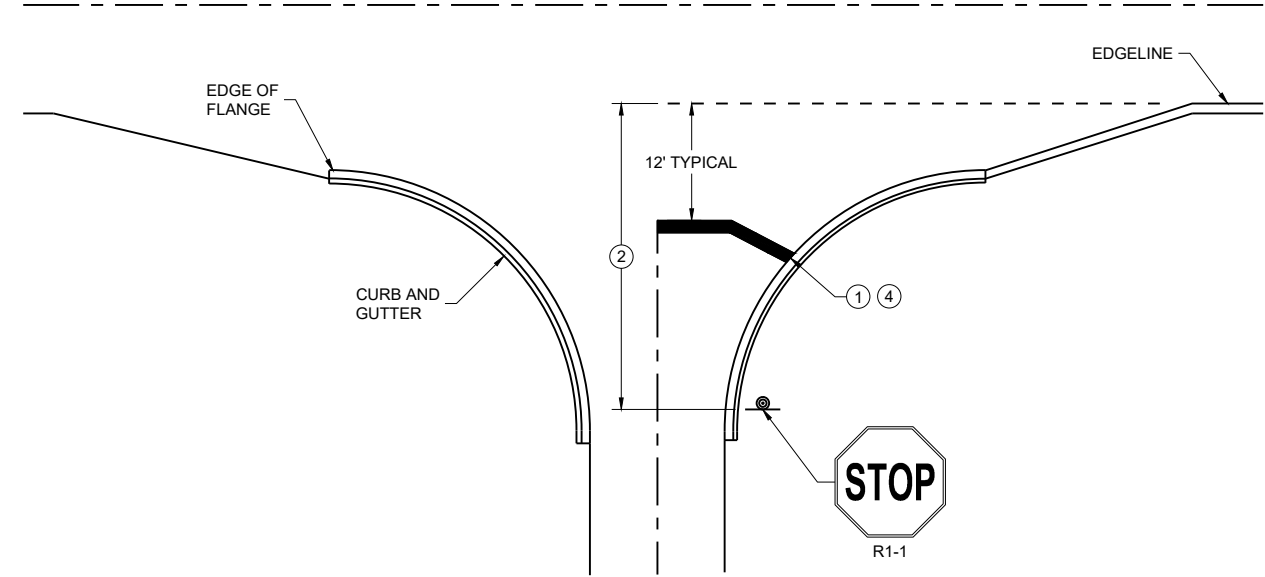
IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

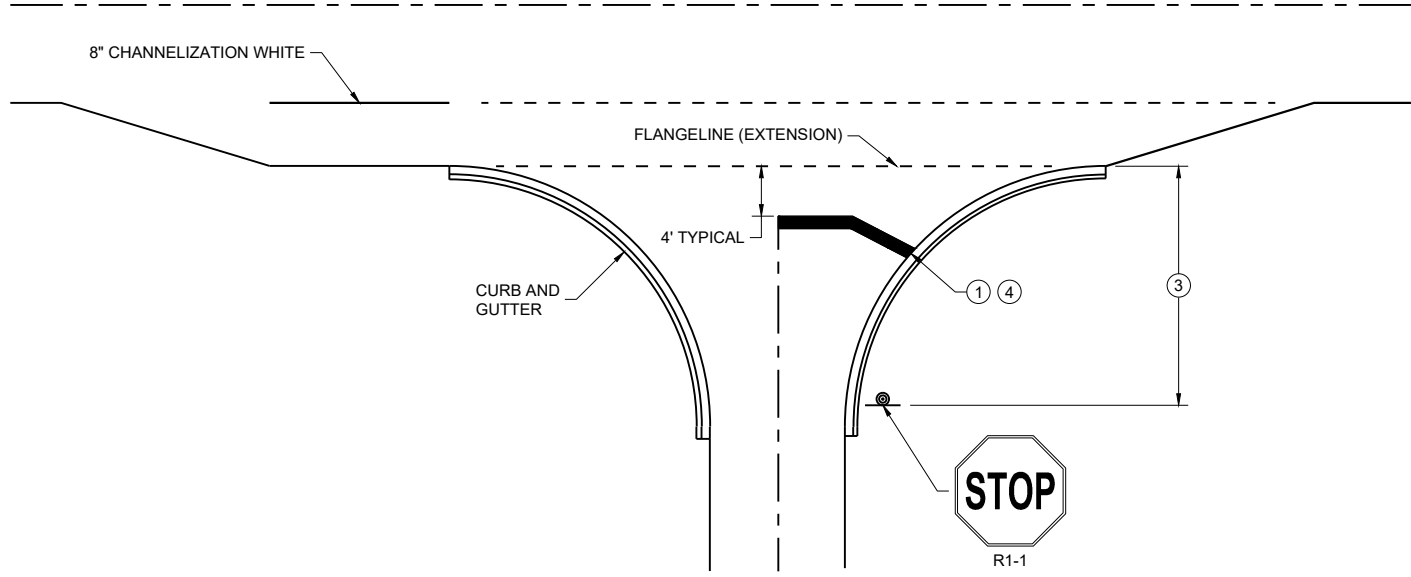
GENERAL NOTES

- 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.

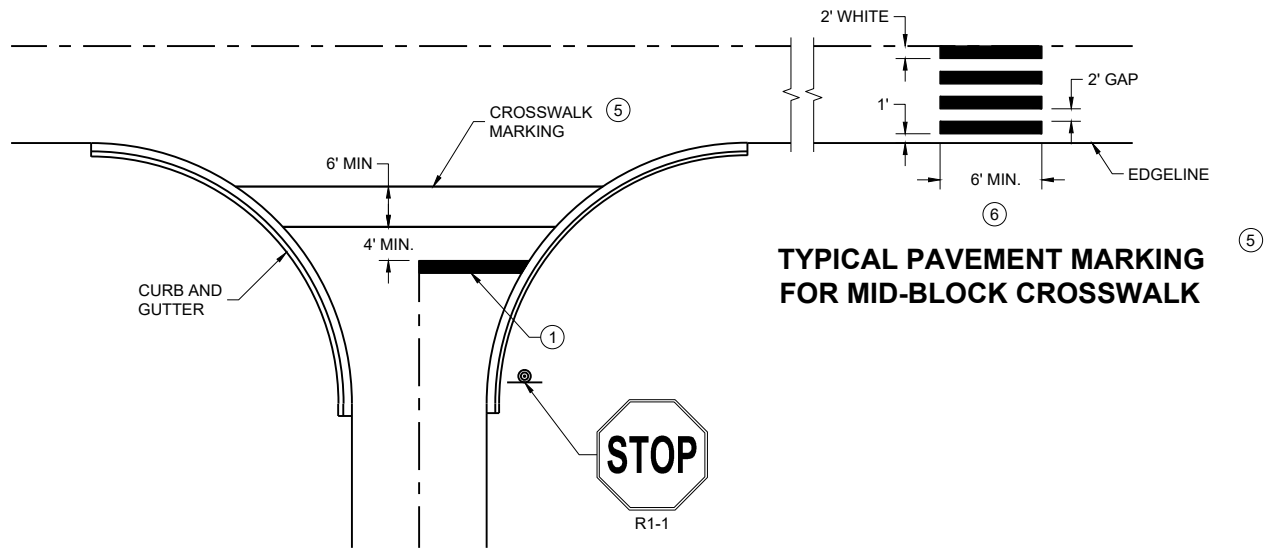
CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER 72
FHWA	



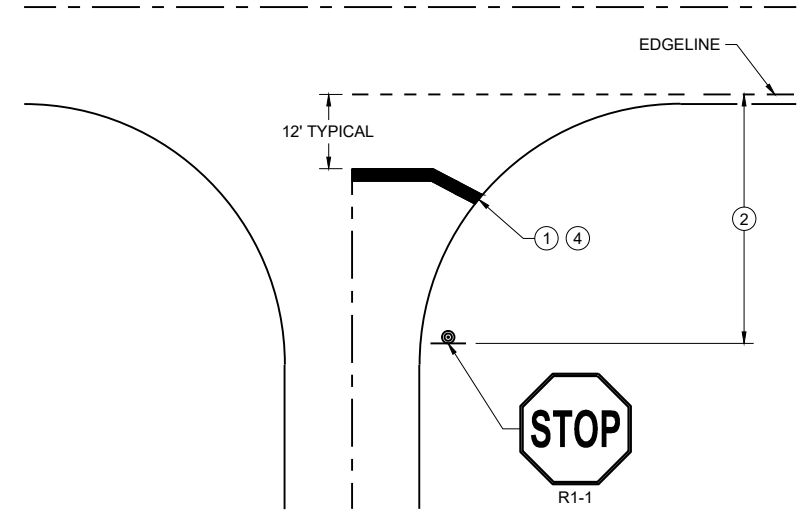
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDE ROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDE ROADS WITH CROSSWALK MARKING



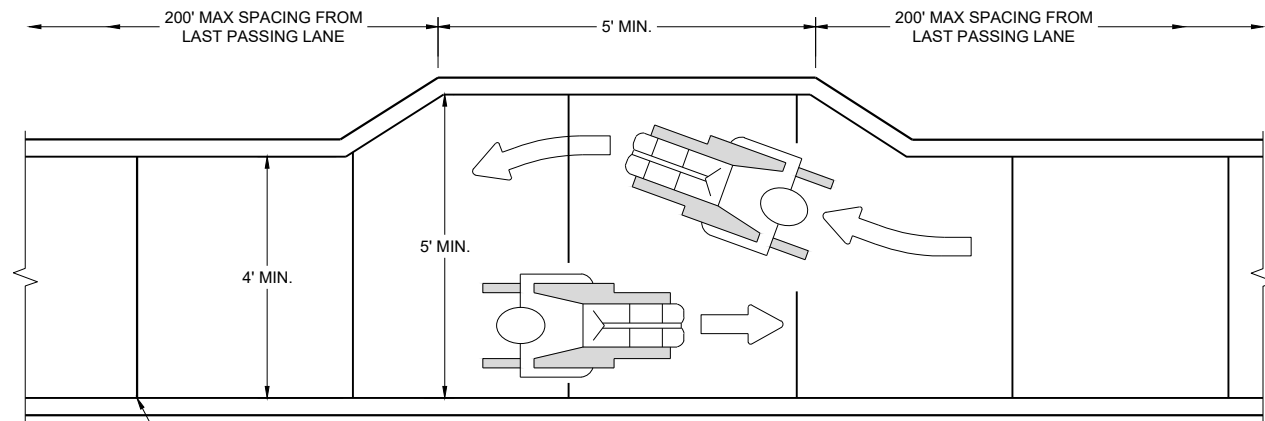
TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

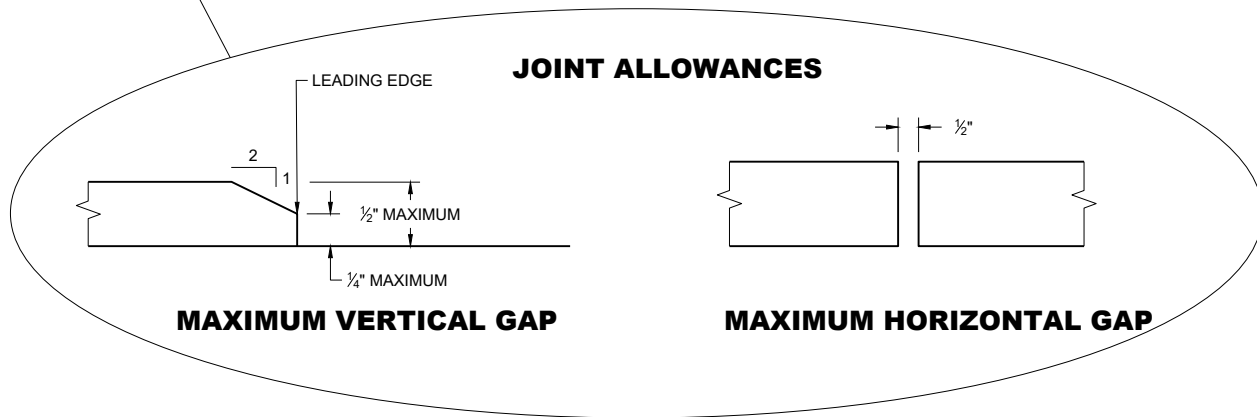
STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

- 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 FLANGE LINE 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.
- 6 POSTED SPEED LIMITS OF 40 MPH OR GREATER USE A MINIMUM WIDTH OF 8' FOR MIDBLOCK CROSSWALKS

STOP LINE AND CROSSWALK PAVEMENT MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2024 DATE	/S/ Matthew Rauch STATE SIGNING AND MARKING ENGINEER

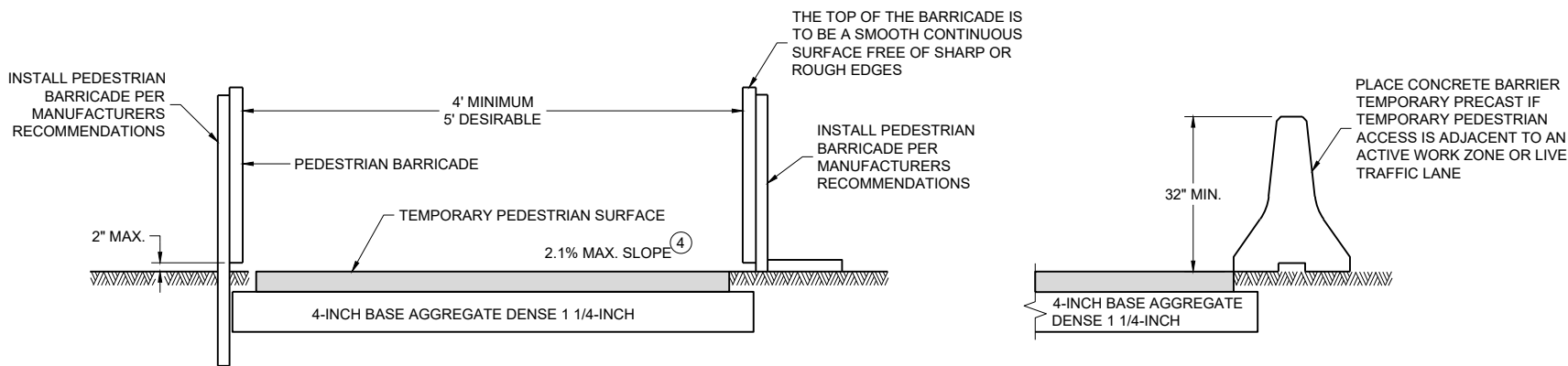


NARROW SIDEWALK PASSING DETAIL



MAXIMUM VERTICAL GAP

MAXIMUM HORIZONTAL GAP



TEMPORARY PEDESTRIAN ACCESS

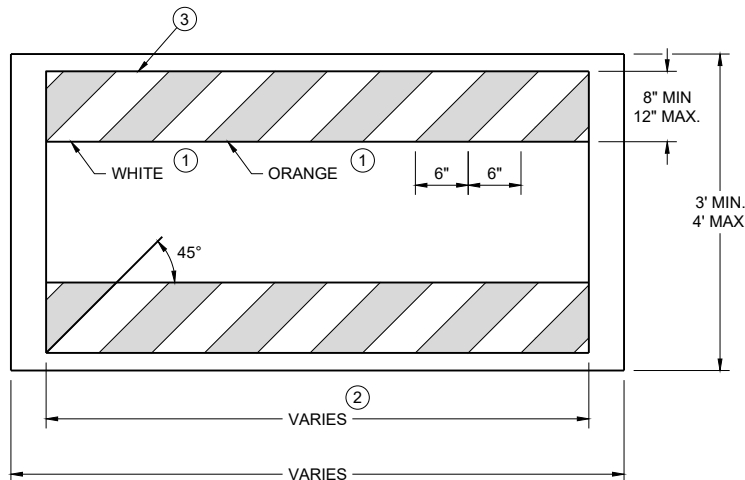
GENERAL NOTES

BARRICADE DEVICE SELECTED FROM APPROVED PRODUCT LIST

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② SHEETING REQUIRED ON MORE THAN 50% OF BARRICADE WIDTH.
- ③ PLACE SHEETING ON BOTH SIDES OF THE BARRICADE.

★ USE THIS DETAIL FOR SHEETING PLACEMENT REFERENCE.

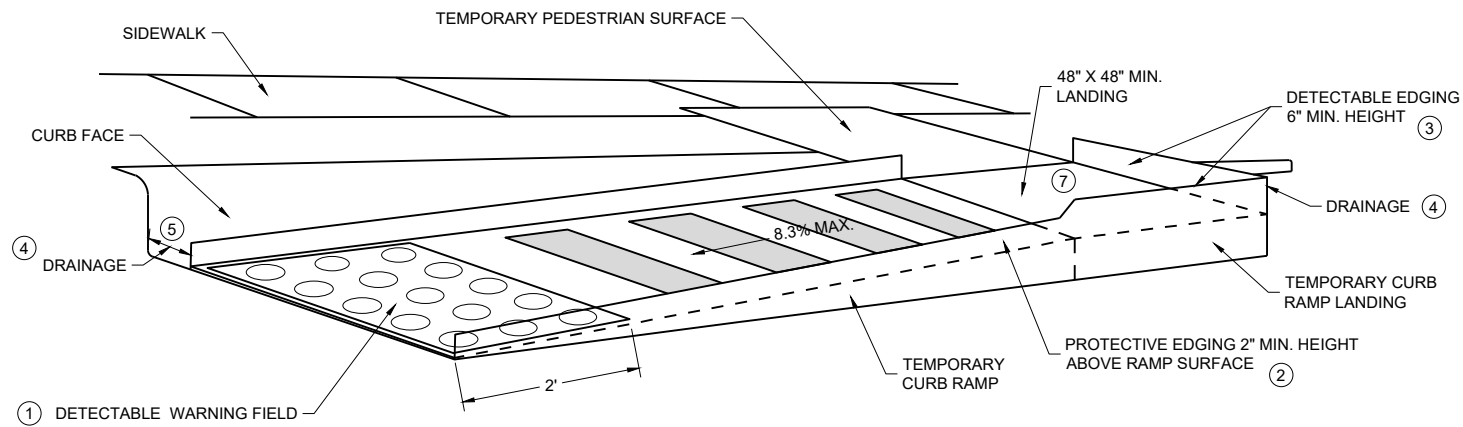
- ④ WHEN THE TEMPORARY PEDESTRIAN ACCESS ROUTE RUNS PARALLEL ON THE ROADWAY SURFACE, THE MAXIMUM CROSS SLOPE WILL MATCH THE EXISTING ROADWAY CROSS SLOPE.



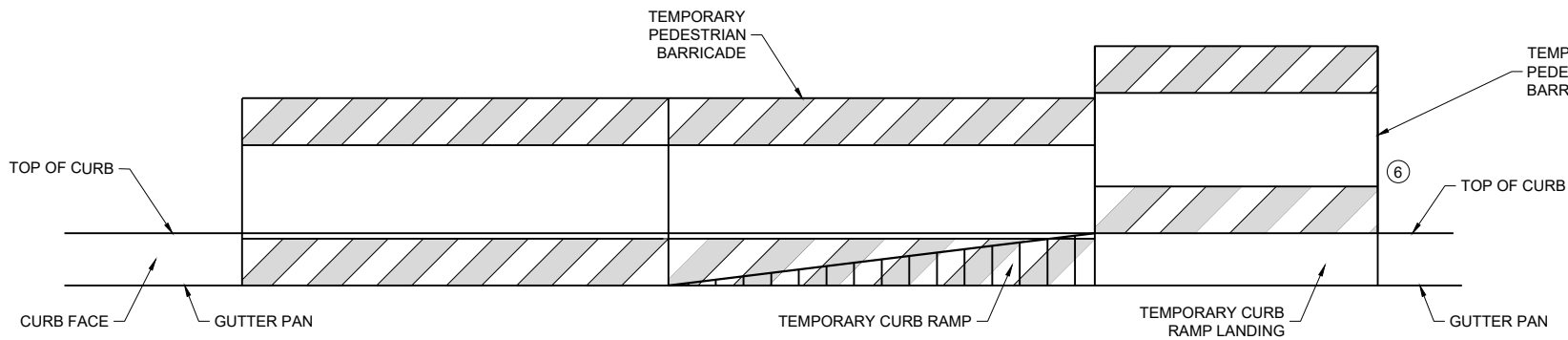
TEMPORARY PEDESTRIAN BARRICADE *

TRAFFIC CONTROL,
PEDESTRIAN
ACCOMMODATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

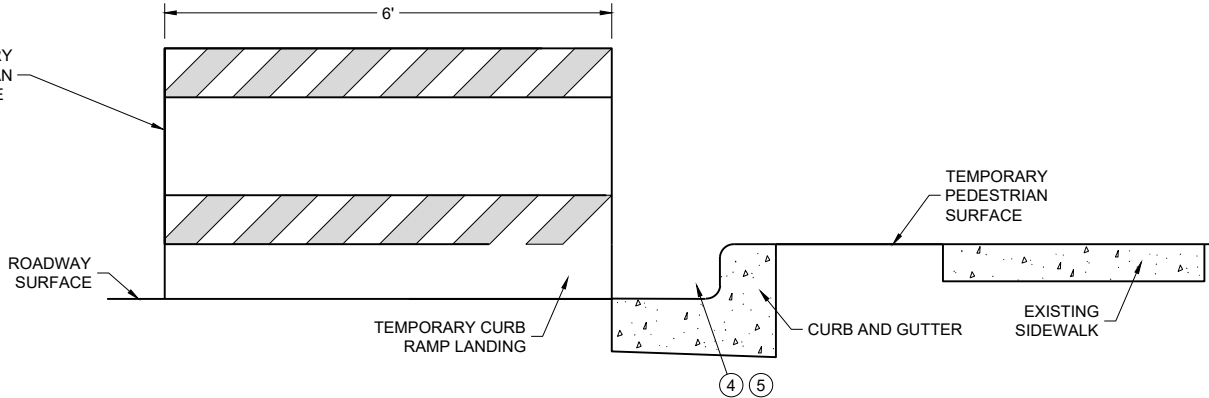


PERSPECTIVE VIEW



FRONT VIEW

TEMPORARY CURB RAMP PARALLEL TO CURB



SIDE VIEW

GENERAL NOTES

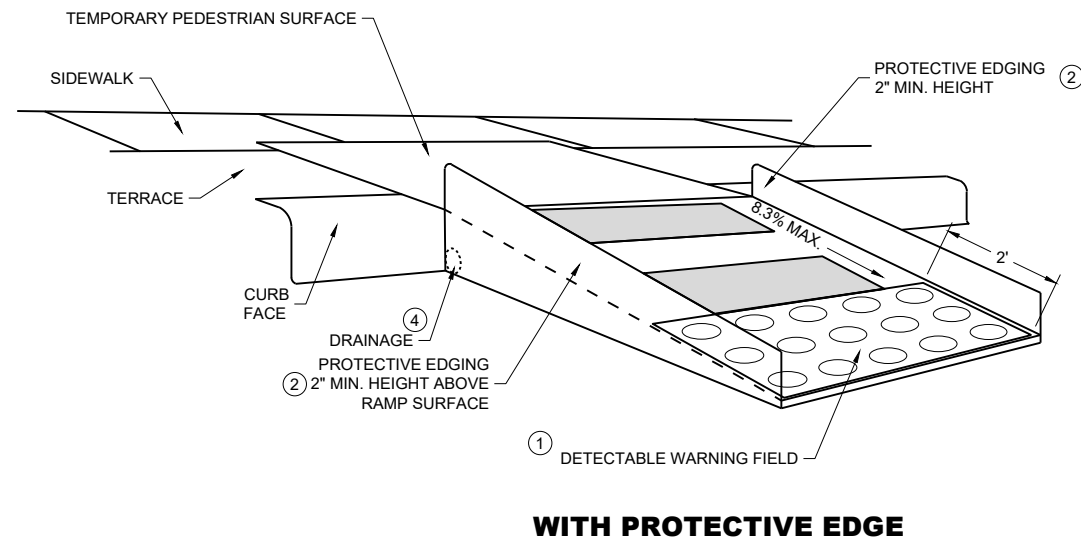
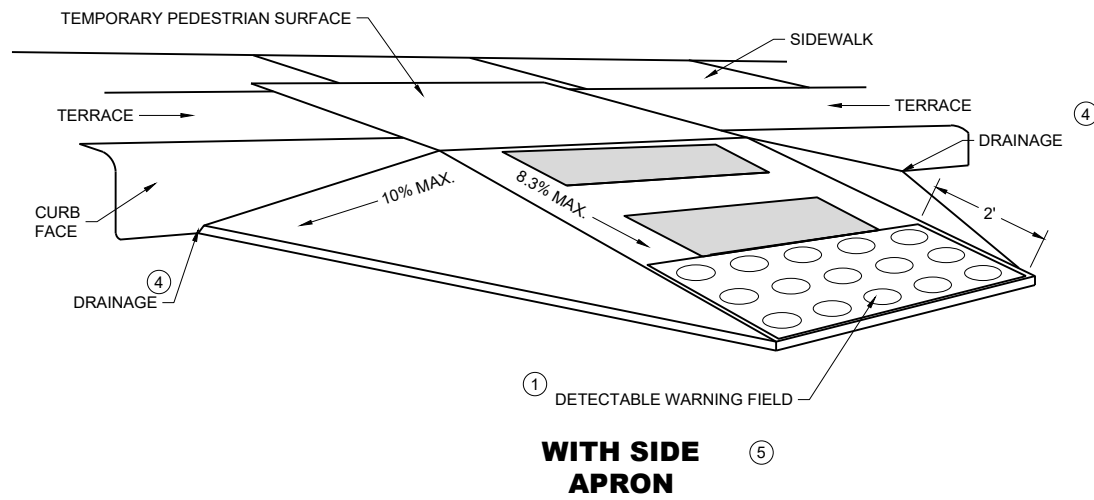
CURB RAMPS SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE.

CURB RAMPS AND LANDINGS SHALL HAVE A 1:48 (2.1%) MAX. CROSS-SLOPE.

CLEAR SPACE OF 48" X 48" SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP. LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.

CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES MAY BE VERTICAL UP TO 1/4" HIGH AND SHALL BE BEVELED AT 1:2 BETWEEN 1/4" AND 1/2".

- 1. INSTALL CONTRASTING TEMPORARY DETECTABLE WARNING FIELD AT PEDESTRIAN STREET CROSSINGS, AS SHOWN IN THE PLANS.
- 2. PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
- 3. DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- 4. DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.
- 5. ENSURE CURB RAMP IS OUT OF THE GUTTER PAN.
- 6. IF ONLY PART OF THE END PANEL OF TEMPORARY PEDESTRIAN BARRICADE PANEL IS NEEDED, EXTEND EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE PANEL HERE.
- 7. LANDING TO BE SLOPED A MAXIMUM OF 2.1% IN ALL DIRECTIONS OF PEDESTRIAN TRAVEL.



TEMPORARY CURB RAMP PERPENDICULAR TO CURB

GENERAL NOTES

CURB RAMPS SHALL BE 48" MINIMUM WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE.

ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.

CURB RAMPS AND LANDINGS SHALL HAVE A 1:48 (2.1%) MAX. CROSS-SLOPE.

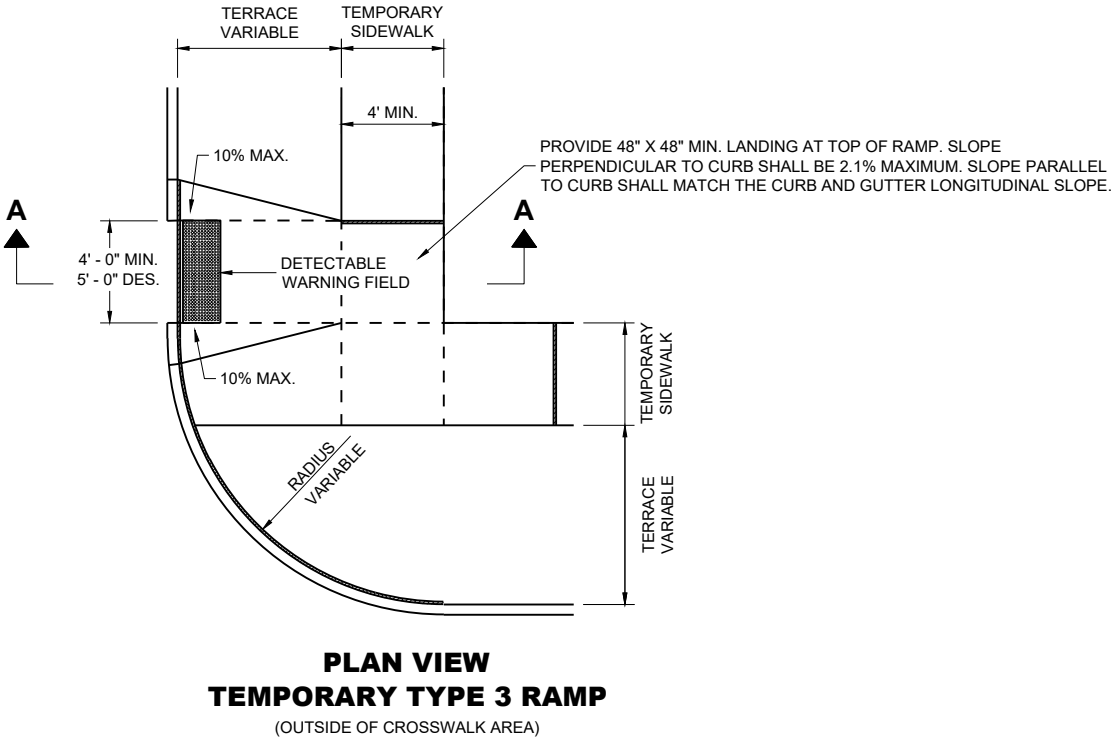
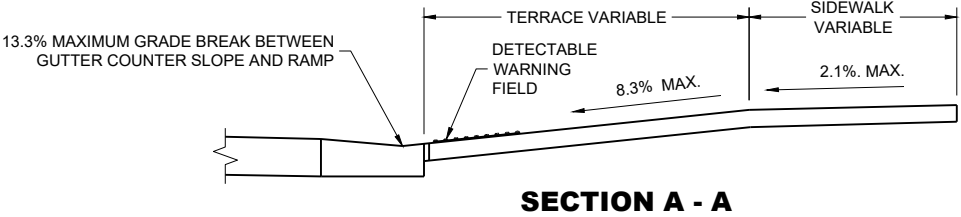
CLEAR SPACE OF 48" X 48" SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.

LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN ½" WIDTH.

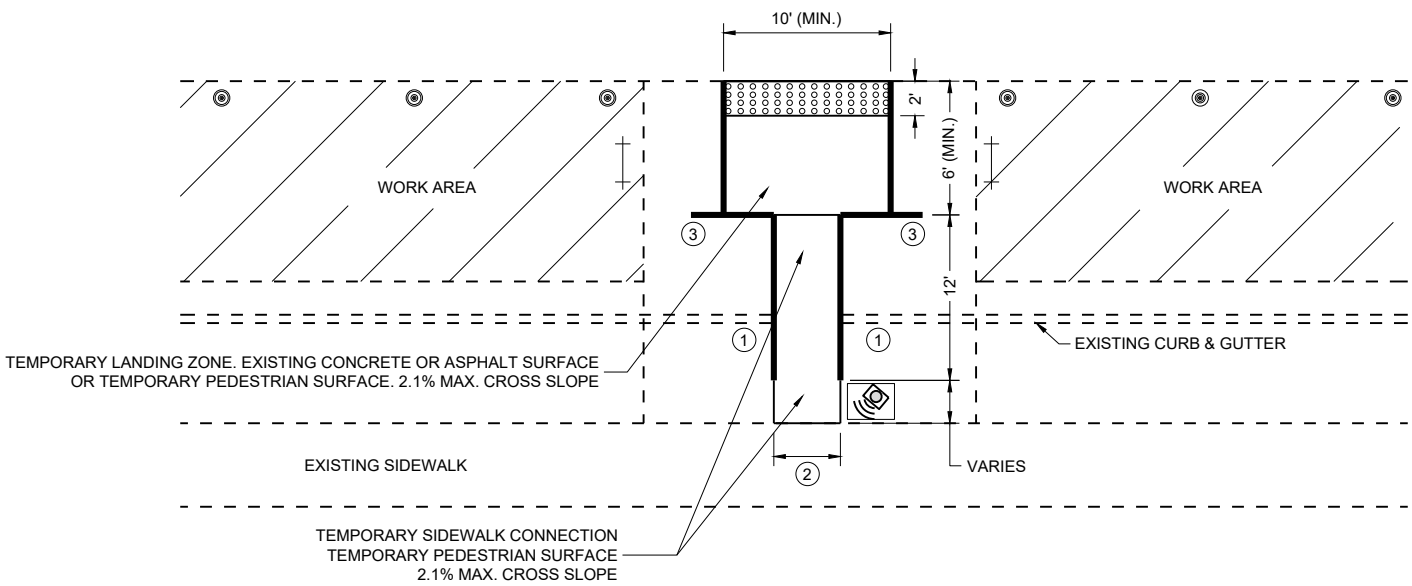
CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED ½". LATERAL EDGES MAY BE VERTICAL UP TO ¼" HIGH AND SHALL BE BEVELED AT 1:2 BETWEEN ¼" AND ½".

- ① INSTALL CONTRASTING TEMPORARY DETECTABLE WARNING FIELD AT PEDESTRIAN STREET CROSSINGS, AS SHOWN IN THE PLANS
- ② PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
- ③ DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- ④ DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.
- ⑤ CAN ONLY BE USED FOR RAMPS WITH 6" OR LESS OF VERTICAL CHANGE.

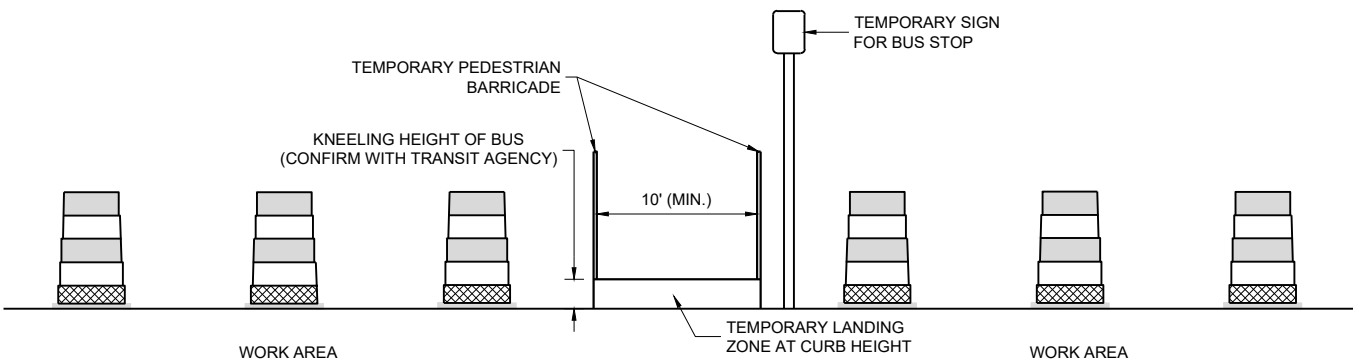
GENERAL NOTES



TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2025 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



PLAN VIEW



PROFILE VIEW
TEMPORARY BUS STOP PAD

GENERAL NOTES

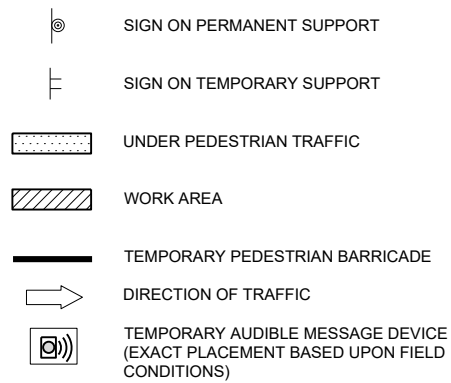
- TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.
- NOTIFY THE BUS COMPANY 7 DAYS IN ADVANCE OF THE BUS STOP RELOCATION.
- PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
- DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN ½" WIDTH.
- CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED ½". LATERAL EDGES MAY BE VERTICAL UP TO ¼" HIGH AND SHALL BE BEVELED AT 1:2 BETWEEN ¼" AND ½".
- CURB RAMPS AND LANDINGS SHALL HAVE A 1:48 (2.1%) MAX. CROSS-SLOPE.

- ① DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.
- ② 5' WIDE MIN. WITH TEMPORARY PEDESTRIAN BARRICADE, 10' WIDE MIN. WITHOUT TEMPORARY PEDESTRIAN BARRICADE.
- ③ PLACE EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE INTO THIS SPACE.

LEGEND

- ⊙ TRAFFIC CONTROL DRUM
- ⊢ TYPE III BARRICADE
- TEMPORARY PEDESTRIAN BARRICADE
- ⊞ TEMPORARY DETECTABLE WARNING FIELD
- ▨ WORK AREA
- ⊞ TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)

LEGEND



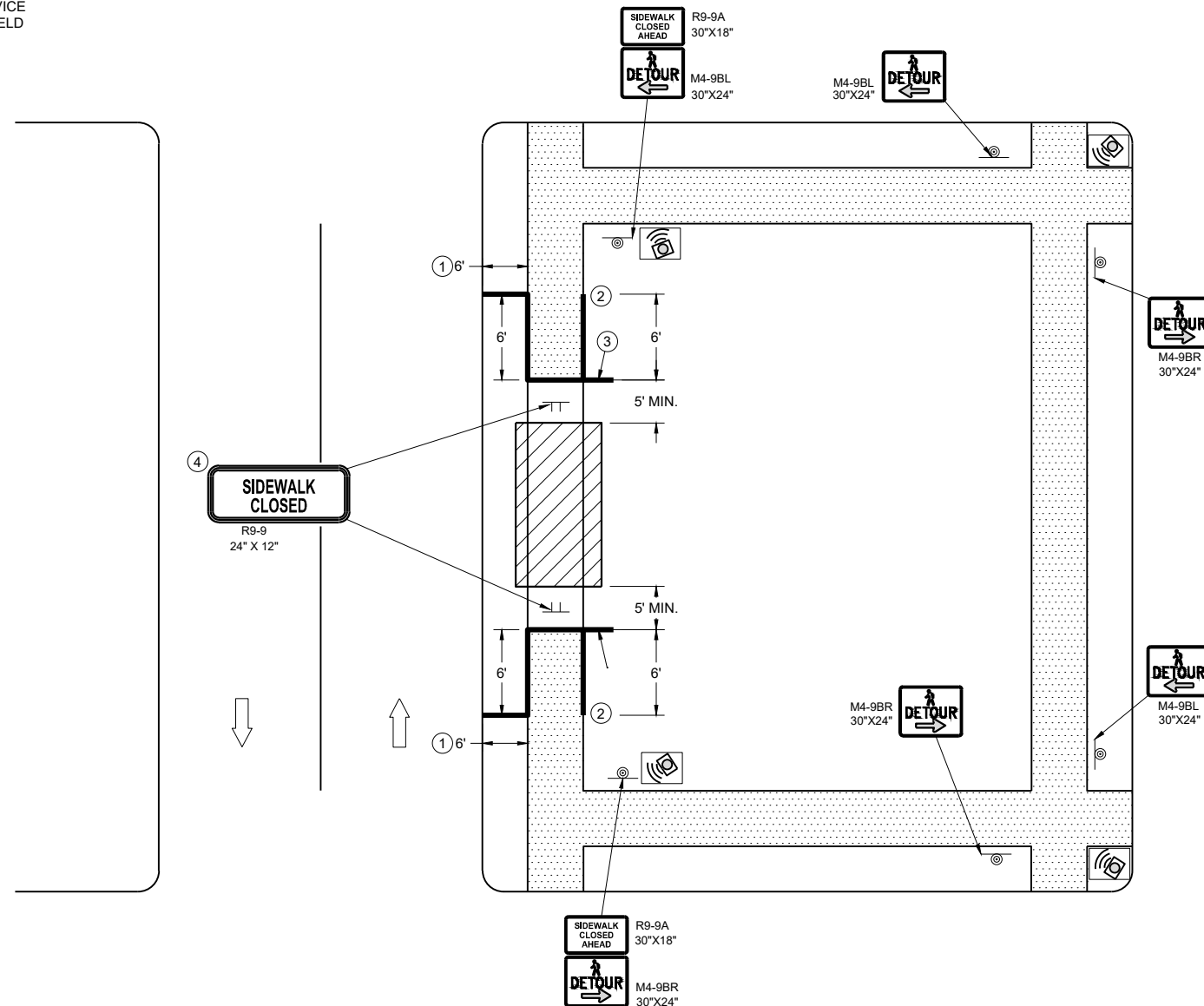
GENERAL NOTES

WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.

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

PLACE TEMPORARY PEDESTRIAN BARRICADE TO FIT FIELD CONDITIONS, AVOIDING CONFLICTS WITH DRIVEWAYS AND OTHER EXISTING FEATURES.

- ① IF TERRACE IS LESS THAN 6 FEET WIDE, OMIT TEMPORARY PEDESTRIAN BARRICADE FROM THE SIDEWALK TO THE CURB.
- ② PLACE BARRICADE CLOSURE SO THAT THE TEMPORARY PEDESTRIAN BARRICADE END IS AT THE LAST OPEN SIDEWALK ACCESS TO RESIDENCES OR BUSINESSES BEFORE THE SIDEWALK CLOSURE.
- ③ IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
- ④ MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.



SIDEWALK DETOUR, SIDEWALK ONLY ON ONE SIDE

**TRAFFIC CONTROL,
PEDESTRIAN ACCOMMODATION**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

- SIGN ON TEMPORARY SUPPORT
- WORK AREA
- UNDER PEDESTRIAN TRAFFIC
- TEMPORARY PEDESTRIAN SURFACE
- TEMPORARY PEDESTRIAN BARRICADE
- OPTIONAL TEMPORARY PEDESTRIAN BARRICADE
- DIRECTION OF TRAFFIC

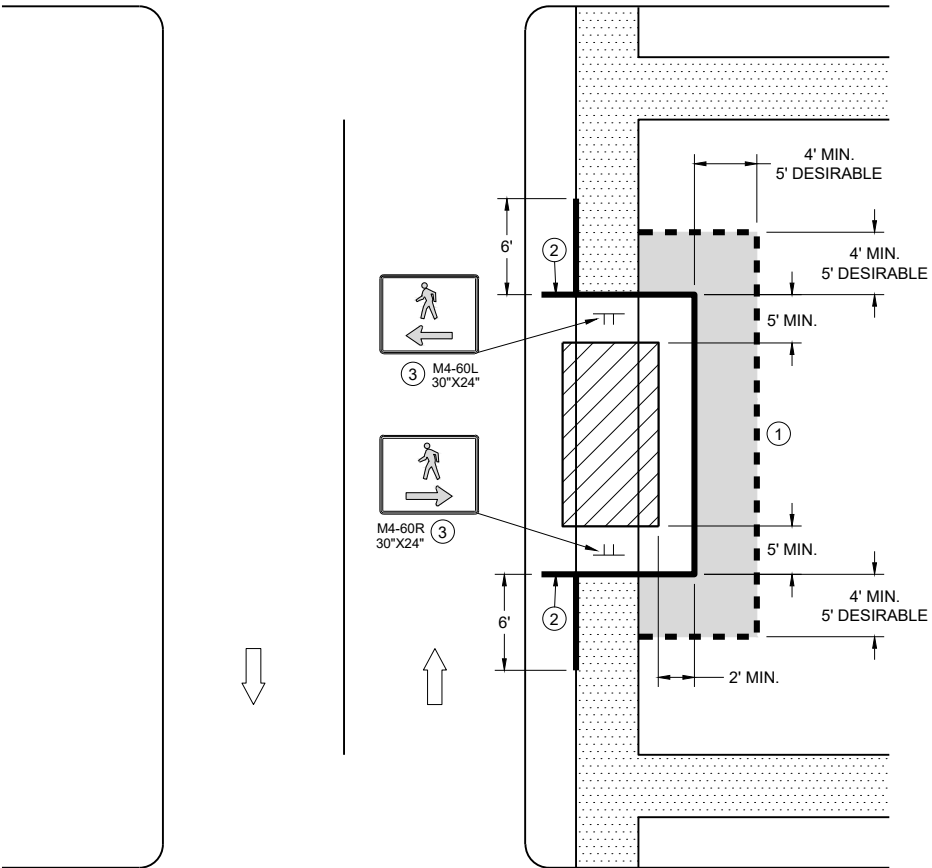
GENERAL NOTES

TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.

WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.

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

- 1 USE TEMPORARY PEDESTRIAN BARRICADE TO SEPARATE PEDESTRIANS FROM DROP OFFS OR FOR ADDITIONAL PEDESTRIAN CHANNELIZATION.
- 2 IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
- 3 MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.



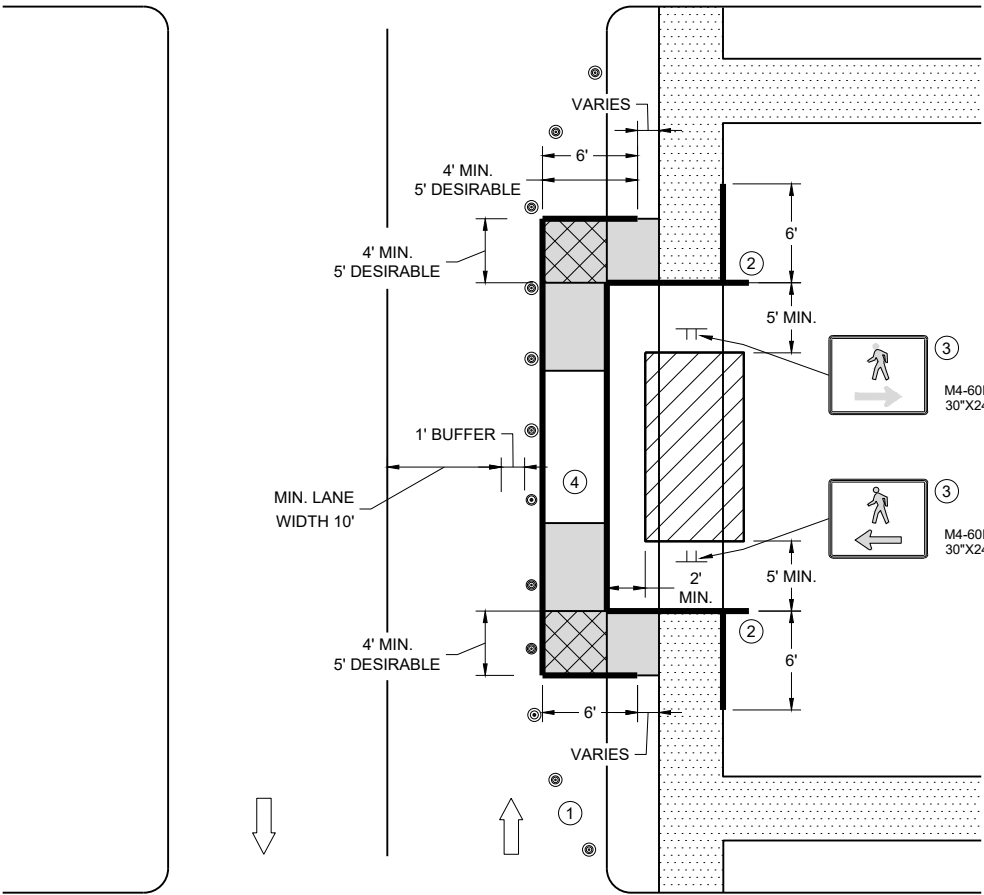
SIDEWALK BYPASS
SINGLE SIDE

LEGEND

- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- WORK AREA
- UNDER PEDESTRIAN TRAFFIC
- TEMPORARY CURB RAMP
- TEMPORARY PEDESTRIAN SURFACE "A"
- TEMPORARY PEDESTRIAN SURFACE "B"
- TEMPORARY PEDESTRIAN BARRICADE
- DIRECTION OF TRAFFIC

GENERAL NOTES

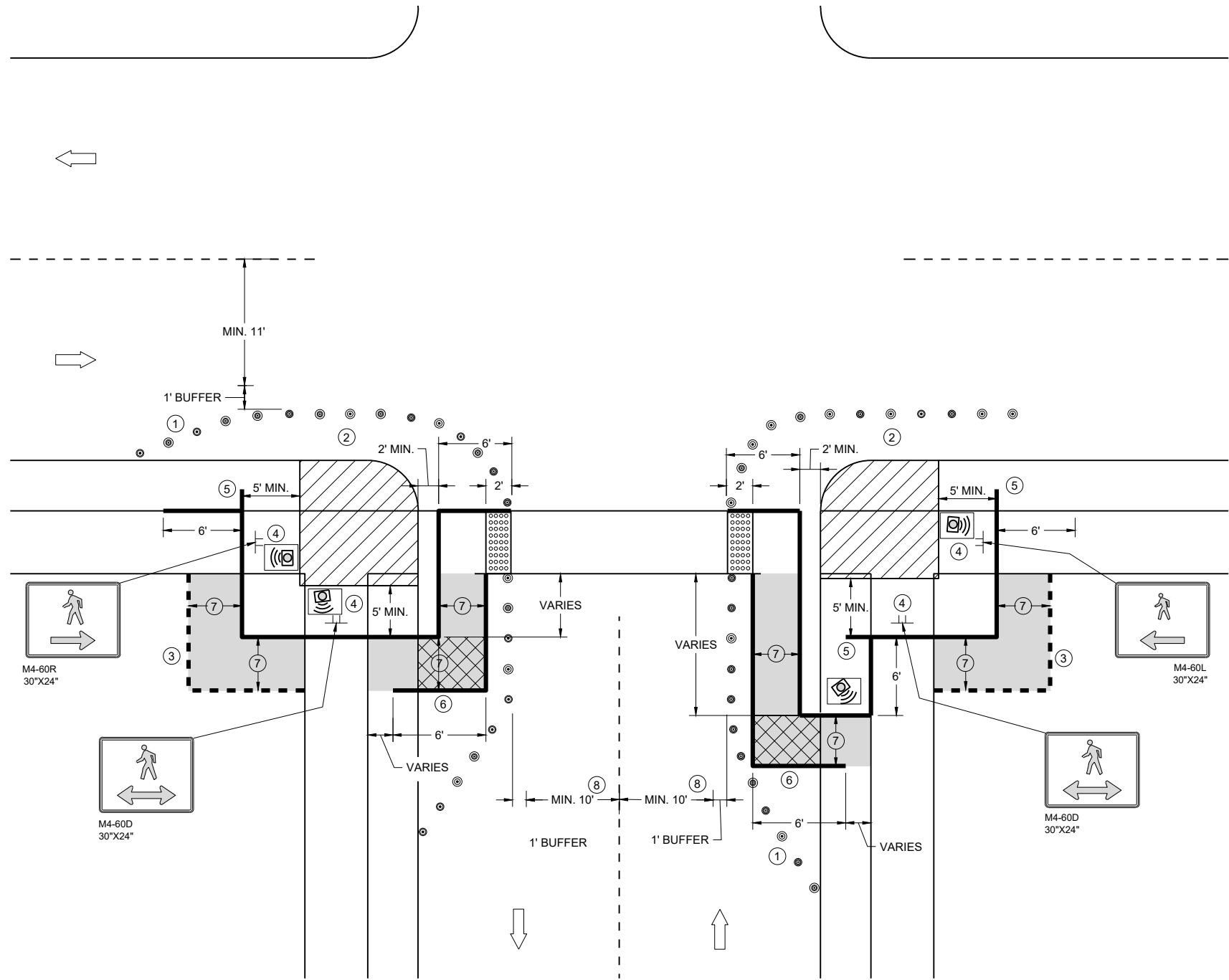
- TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.
- WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.
- SHOULDER OR LANE CLOSURE ADVANCE WARNING AND BUFFER SPACE REQUIRED.
 - PLACE EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE PANEL PAST THE SIDEWALK ON THE SIDE AWAY FROM THE ROAD.
 - MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.
 - USE EXISTING PAVEMENT SURFACE. IF EXISTING PAVEMENT SURFACE HAS BEEN REMOVED, USE A TEMPORARY PEDESTRIAN SURFACE. WHEN THE TEMPORARY PEDESTRIAN ACCESS ROUTE RUNS PARALLEL ON THE ROADWAY SURFACE, THE MAXIMUM CROSS SLOPE WILL MATCH THE EXISTING ROADWAY CROSS SLOPE.



SIDEWALK BYPASS, SINGLE SIDE

TRAFFIC CONTROL,
PEDESTRIAN ACCOMMODATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



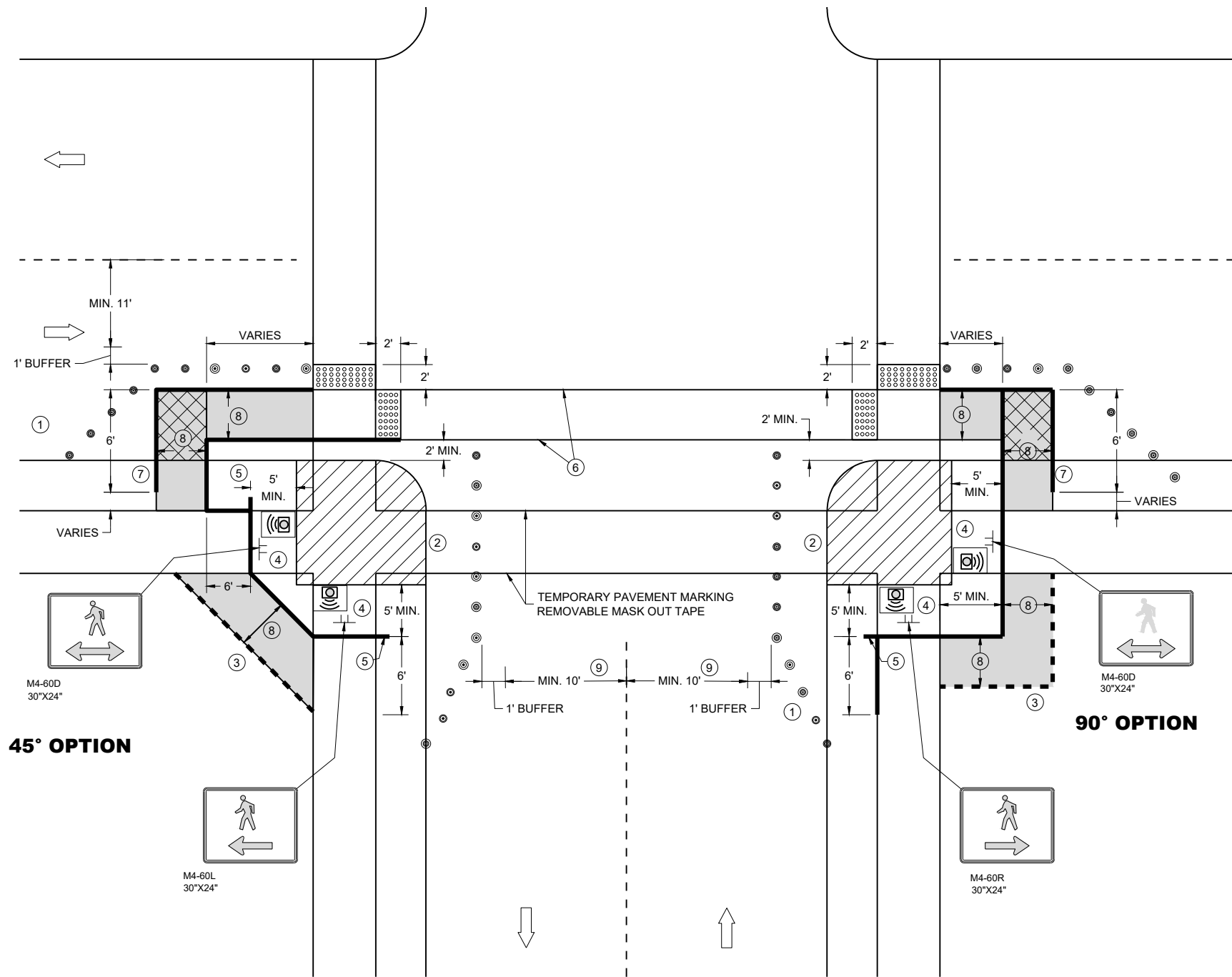
**CURB RAMP PEDESTRIAN TRAFFIC CONTROL
SIDEWALK ON SINGLE SIDE**

GENERAL NOTES

- IF PEDESTRIAN PUSH BUTTONS ARE PRESENT ON THE EXISTING FACILITY, ENSURE THEY ARE MAINTAINED/ACCESSIBLE FOR PEDESTRIAN USE THROUGHOUT THE TEMPORARY PEDESTRIAN ACCOMMODATIONS.
- TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG
- WHEN TEMPORARY PEDESTRIAN BARRICADE RUNS PARALLEL ALONG THE SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.
- WHEN THE TEMPORARY PEDESTRIAN ACCESS ROUTE RUNS PARALLEL ON THE ROADWAY SURFACE, THE MAXIMUM CROSS SLOPE WILL MATCH THE EXISTING ROADWAY CROSS SLOPE.
- 1 SHOULDERS OR LANE CLOSURE ADVANCE WARNING AND PROPER BUFFER SPACE REQUIRED.
 - 2 PROVIDE ADEQUATE SPACE FOR CONTRACTOR OPERATIONS
 - 3 USE TEMPORARY PEDESTRIAN BARRICADE TO SEPARATE PEDESTRIANS FROM DROP OFFS OR FOR ADDITIONAL PEDESTRIAN CHANNELIZATION.
 - 4 MOUNTING HEIGHT OF 5 FEET FROM SIDEWALK SURFACE TO BOTTOM OF SIGN.
 - 5 PLACE EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE PANEL IN THE SIDEWALK TERRACE.
 - 6 IF TEMPORARY PEDESTRIAN BARRICADE DOES NOT REACH THE FACE OF THE CURB, USE AN ADDITIONAL PANEL AND EXTEND INTO THE TERRACE.
 - 7 4 FEET MINIMUM, 5 FEET DESIRABLE
 - 8 IF MINIMUM LANE WIDTHS CAN'T BE ATTAINED, CURB RAMPS MAY NEED TO BE CONSTRUCTED AT SEPARATE TIMES.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- WORK AREA
- TEMPORARY CURB RAMP
- TEMPORARY PEDESTRIAN SURFACE "A"
- TEMPORARY PEDESTRIAN SURFACE "B"
- TEMPORARY DETECTABLE WARNING FIELD
- TEMPORARY PEDESTRIAN BARRICADE
- OPTIONAL TEMPORARY PEDESTRIAN BARRICADE
- DIRECTION OF TRAFFIC
- TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)



GENERAL NOTES

IF PEDESTRIAN PUSH BUTTONS ARE PRESENT ON THE EXISTING FACILITY, ENSURE THEY ARE MAINTAINED/ACCESSIBLE FOR PEDESTRIAN USE THROUGHOUT THE TEMPORARY PEDESTRIAN ACCOMMODATIONS.

TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG

WHEN TEMPORARY PEDESTRIAN BARRICADE RUNS PARALLEL ALONG THE SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.

WHEN THE TEMPORARY PEDESTRIAN ACCESS ROUTE RUNS PARALLEL ON THE ROADWAY SURFACE, THE MAXIMUM CROSS SLOPE WILL MATCH THE EXISTING ROADWAY CROSS SLOPE.

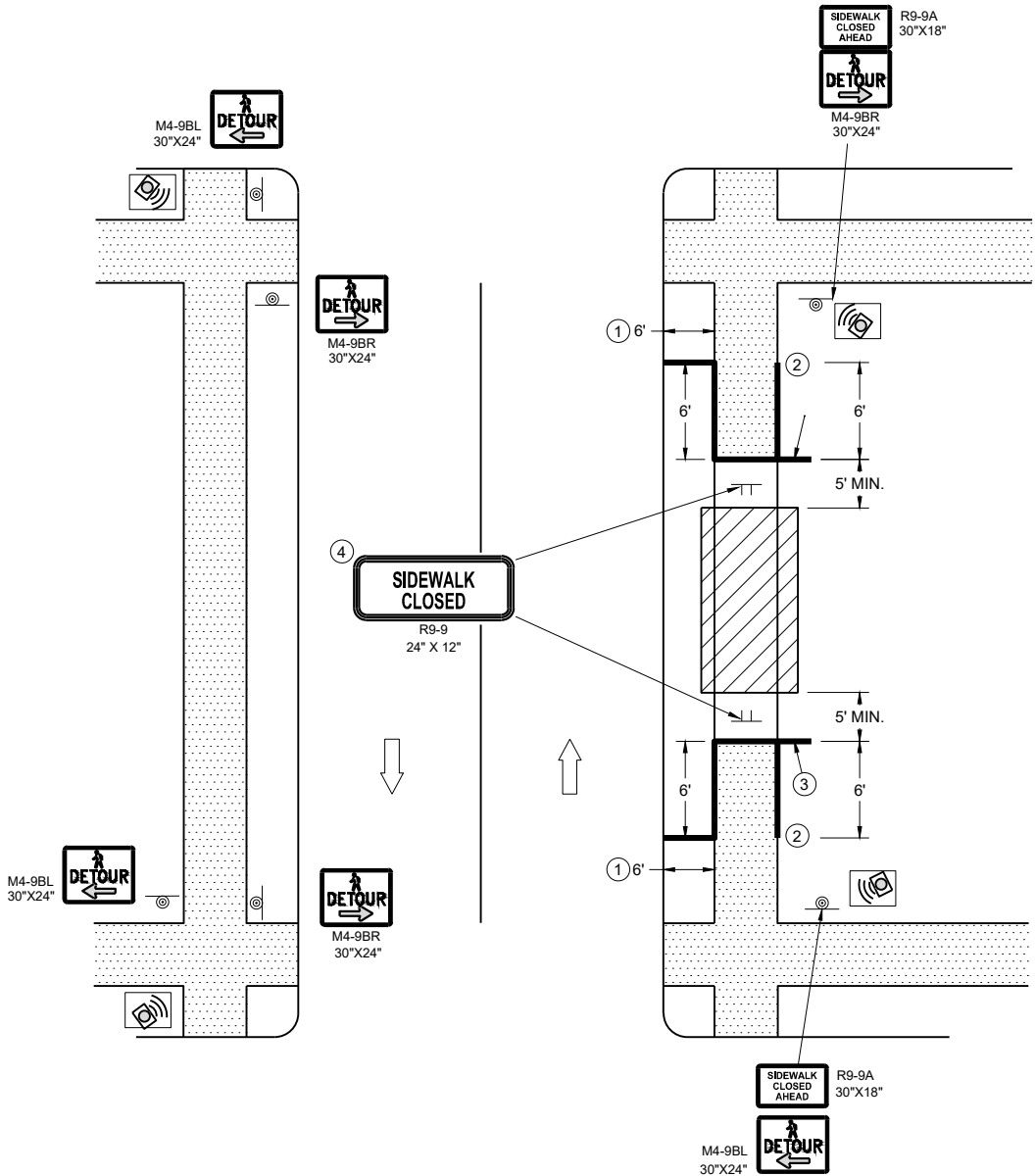
- ① SHOULDER OR LANE CLOSURE ADVANCE WARNING AND PROPER BUFFER SPACE REQUIRED.
- ② PROVIDE ADEQUATE SPACE FOR CONTRACTOR OPERATIONS
- ③ USE TEMPORARY PEDESTRIAN BARRICADE TO SEPARATE PEDESTRIANS FROM DROP OFFS OR FOR ADDITIONAL PEDESTRIAN CHANNELIZATION.
- ④ MOUNTING HEIGHT OF 5 FEET FROM SIDEWALK SURFACE TO BOTTOM OF SIGN.
- ⑤ PLACE EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE PANEL IN THE SIDEWALK TERRACE.
- ⑥ WHITE 6" TEMPORARY PAVEMENT MARKING
- ⑦ IF TEMPORARY PEDESTRIAN BARRICADE DOES NOT REACH THE FACE OF THE CURB, USE AN ADDITIONAL PANEL AND EXTEND INTO THE TERRACE.
- ⑧ 4 FEET MINIMUM, 5 FEET DESIRABLE
- ⑨ IF MINIMUM LANE WIDTHS CAN'T BE ATTAINED, CURB RAMPS MAY NEED TO BE CONSTRUCTED AT SEPARATE TIMES.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- WORK AREA
- TEMPORARY CURB RAMP
- TEMPORARY PEDESTRIAN SURFACE "A"
- TEMPORARY PEDESTRIAN SURFACE "B"
- TEMPORARY DETECTABLE WARNING FIELD
- TEMPORARY PEDESTRIAN BARRICADE
- OPTIONAL TEMPORARY PEDESTRIAN BARRICADE
- DIRECTION OF TRAFFIC
- TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)

LEGEND

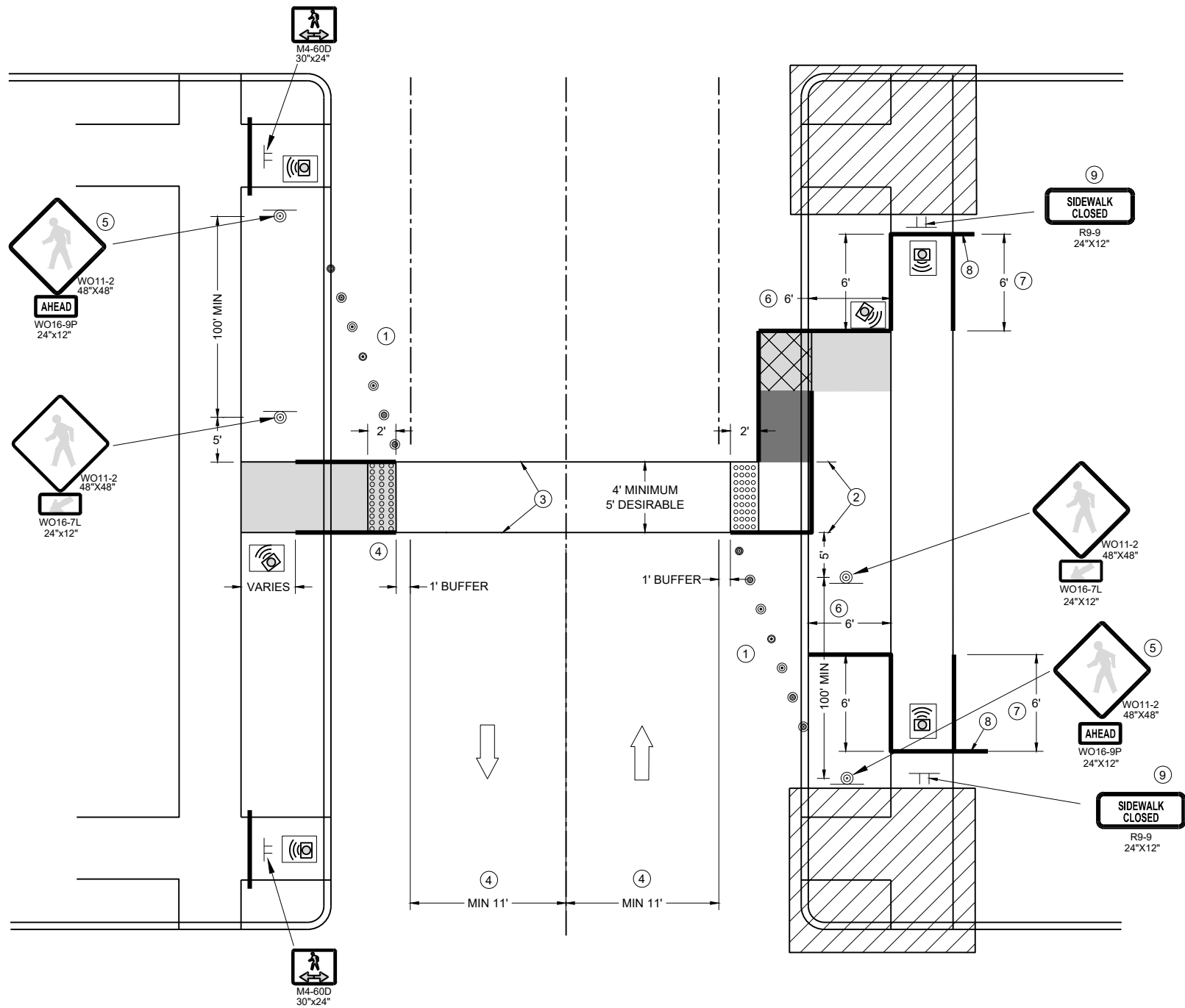
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- UNDER PEDESTRIAN TRAFFIC
- WORK AREA
- TEMPORARY PEDESTRIAN BARRICADE
- DIRECTION OF TRAFFIC
- TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)



SIDEWALK DETOUR, SIDEWALK ON BOTH SIDES

GENERAL NOTES

- WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.
- SIGNS THAT REMAIN IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- PLACE TEMPORARY PEDESTRIAN BARRICADE TO FIT FIELD CONDITIONS, AVOIDING CONFLICT WITH DRIVEWAYS AND OTHER EXISTING FEATURES.
- IF TERRACE IS LESS THAN 6 FEET WIDE, OMIT TEMPORARY PEDESTRIAN BARRICADE FROM THE SIDEWALK TO THE CURB.
 - PLACE BARRICADE CLOSURE SO THAT THE TEMPORARY PEDESTRIAN BARRICADE END IS AT THE LAST OPEN SIDEWALK ACCESS TO RESIDENCES OR BUSINESSES BEFORE THE SIDEWALK CLOSURE.
 - IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
 - MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.



TEMPORARY PEDESTRIAN CROSSING

GENERAL NOTES

TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.
SEE OTHER PEDESTRIAN ACCOMMODATION DETAILS FOR SIGNING AND DEVICES FOR DIFFERENT PEDESTRIAN FACILITIES CLOSURES.

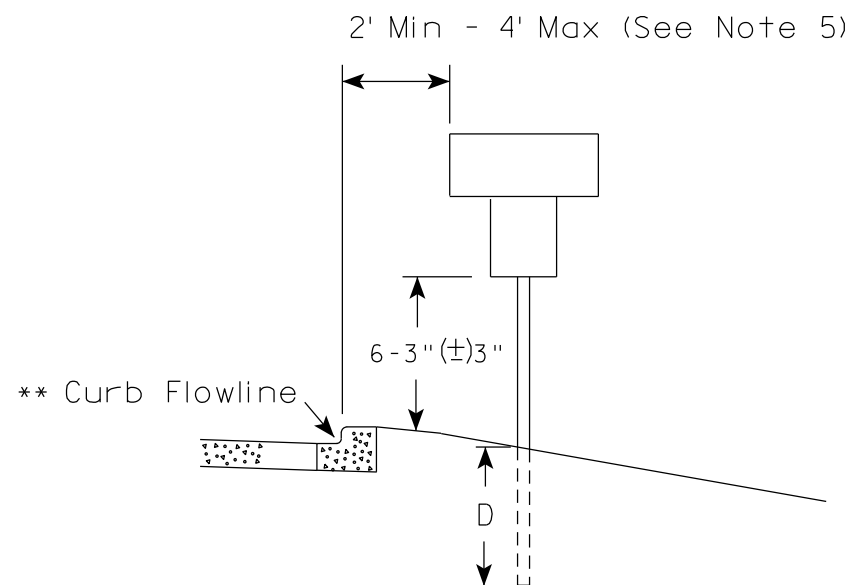
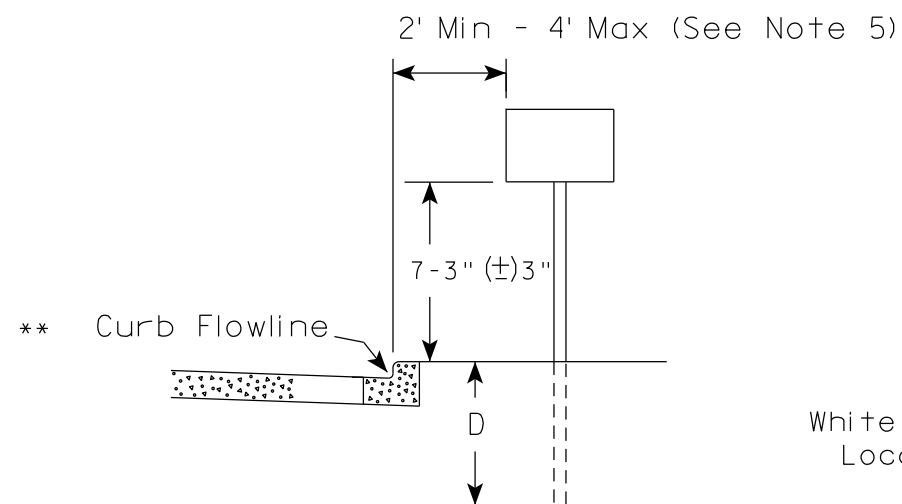
WHEN THE TEMPORARY PEDESTRIAN ACCESS ROUTE RUNS PARALLEL ON THE ROADWAY SURFACE, THE MAXIMUM CROSS SLOPE WILL MATCH THE EXISTING ROADWAY CROSS SLOPE.

- 1 SHOULDER OR LANE CLOSURE ADVANCED WARNING AND PROPER BUFFER SPACE REQUIRED.
- 2 4 FEET MINIMUM, 5 FEET DESIRABLE.
- 3 WHITE 6" TEMPORARY PAVEMENT MARKING.
- 4 IF MINIMUM LANE WIDTHS CAN'T BE ATTAINED, PERPENDICULAR CURB RAMP MAY NEED TO BE UTILIZED.
- 5 IF MINIMUM 100' SPACING FROM THE MID-BLOCK CROSSING CANNOT BE ATTAINED BEFORE THE INTERSECTION, REMOVE THIS SIGN ASSEMBLY.
- 6 IF TERRACE IS LESS THAN 6 FEET WIDE, OMIT TEMPORARY PEDESTRIAN BARRICADE FROM THE SIDEWALK TO THE CURB.
- 7 PLACE BARRICADE CLOSURE SO THAT THE TEMPORARY PEDESTRIAN BARRICADE END IS AT THE LAST OPEN SIDEWALK ACCESS TO RESIDENCES OR BUSINESSES BEFORE THE SIDEWALK CLOSURE.
- 8 IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF THE EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
- 9 MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF THE SIGN.

LEGEND

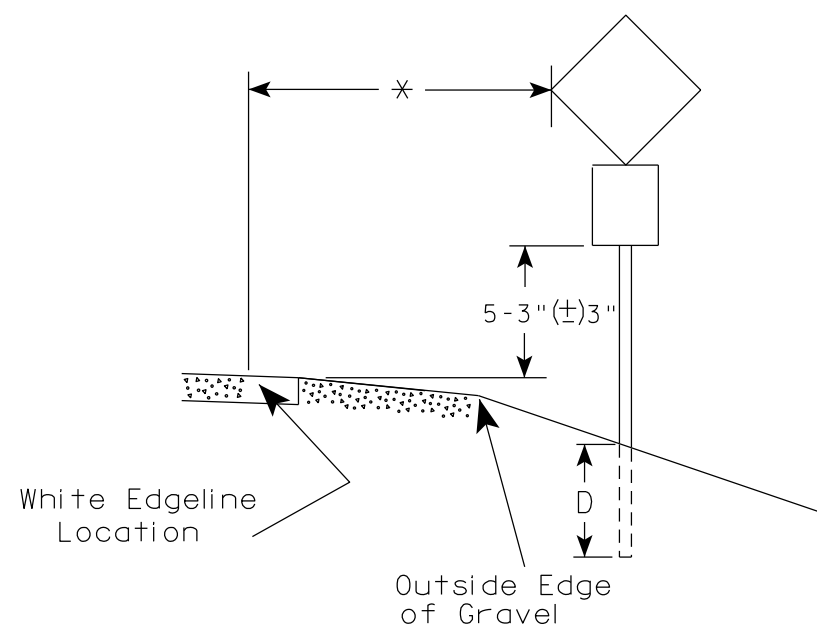
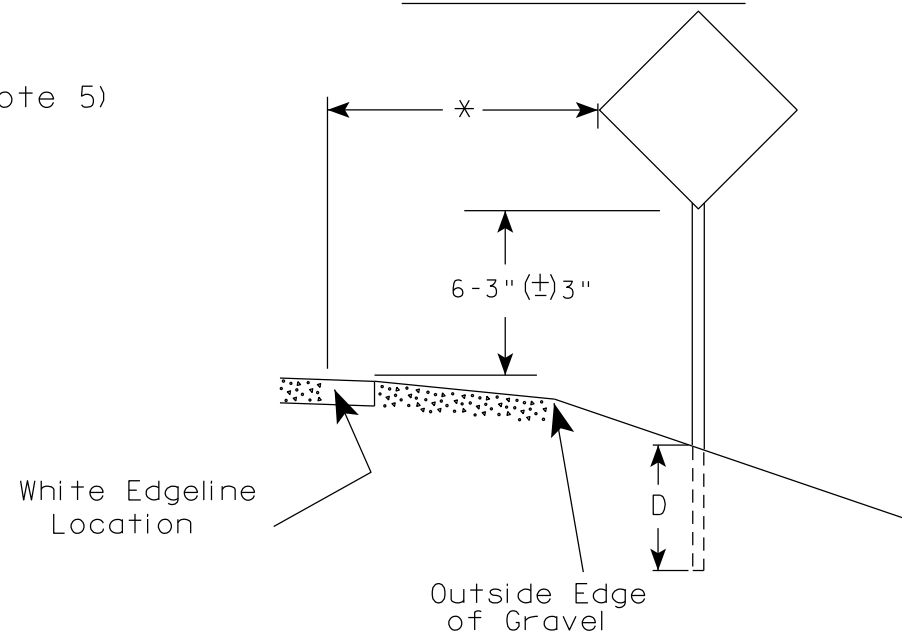
- TRAFFIC CONTROL DRUM
- SIGN ON TEMPORARY SUPPORT
- TEMPORARY CURB RAMP
- TEMPORARY DETECTABLE WARNING FIELD
- TEMPORARY PEDESTRIAN SURFACE "A"
- TEMPORARY PEDESTRIAN SURFACE "B"
- WORK AREA
- TEMPORARY PEDESTRIAN BARRICADE
- DIRECTION OF TRAFFIC
- TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)

URBAN AREA



✱✱ 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.

RURAL AREA (See Note 2)



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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

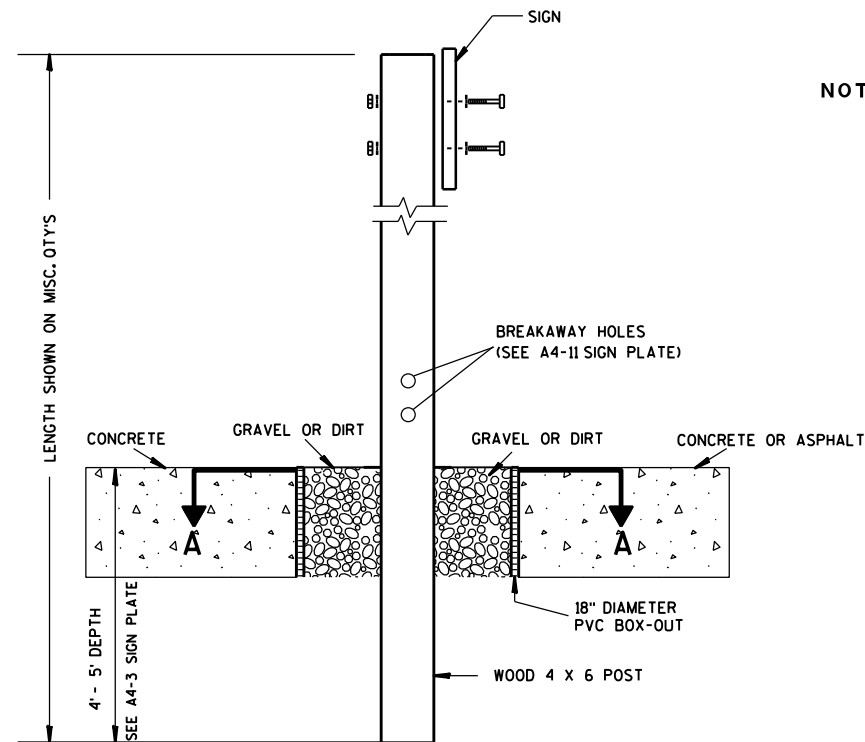
- Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
- If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (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" (±) 3".
- For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
- Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
- Offset distance shall be consistent with existing signs or consistent throughout length of project.
- Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the Engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

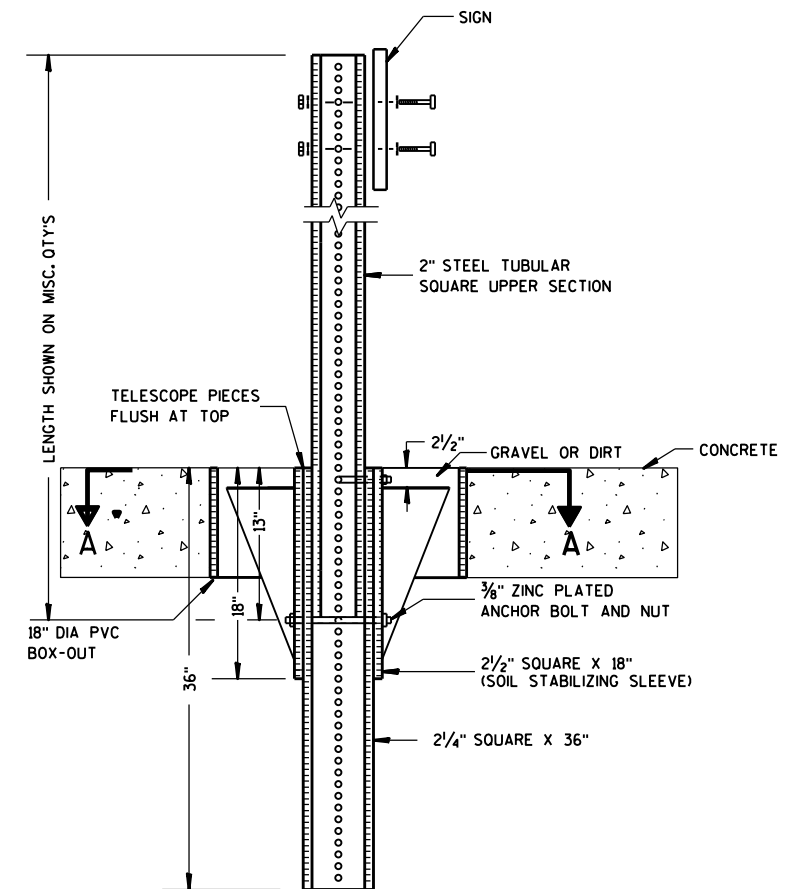
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

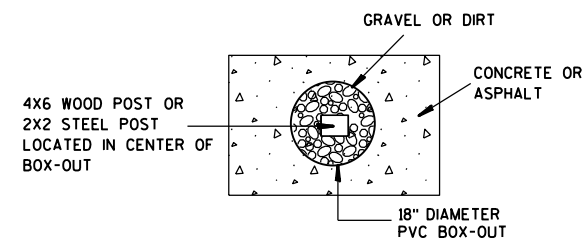
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 87 A4-3B.1

PROJECT NO:

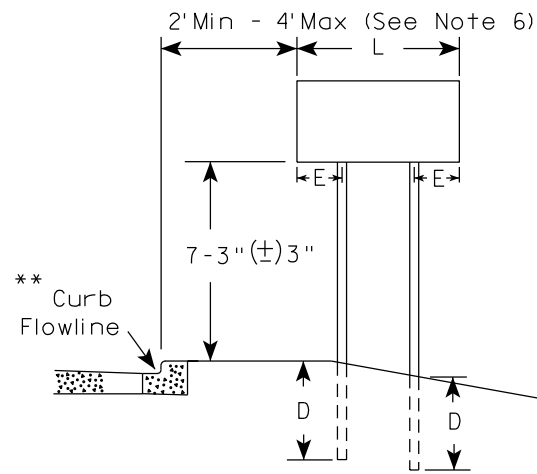
HWY:

COUNTY:

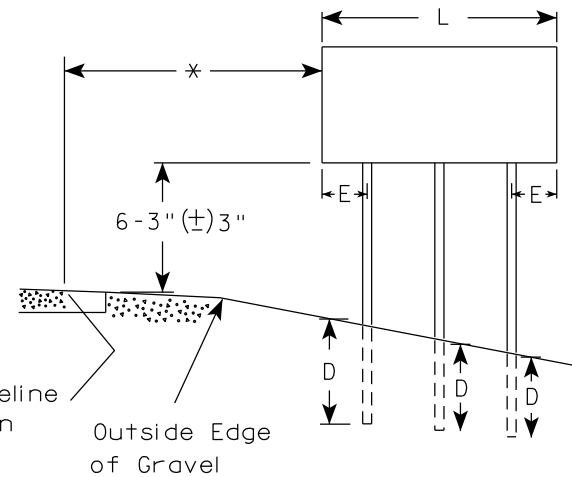
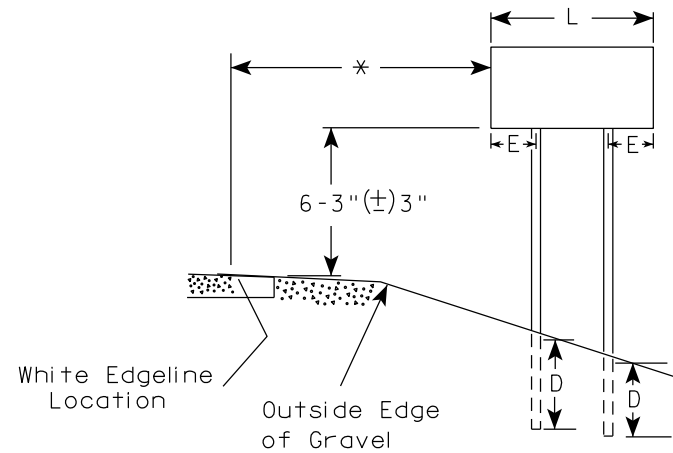
SHEET NO:

E

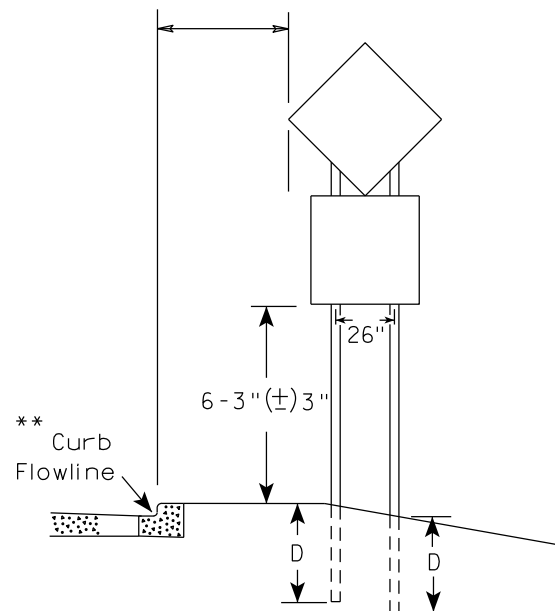
URBAN AREA



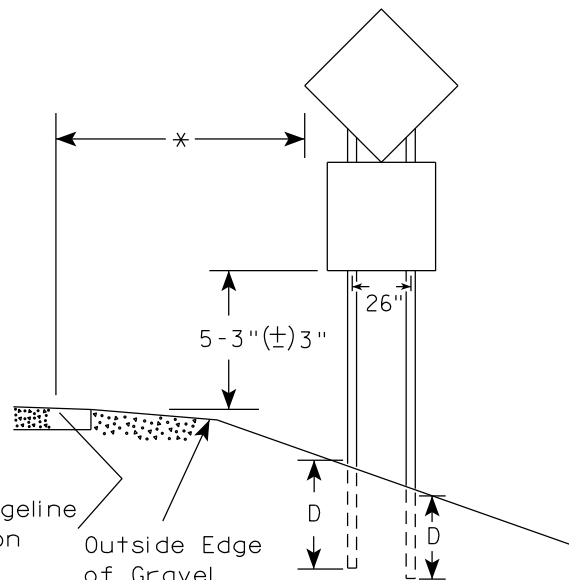
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 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" (±) 3" or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 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" (±) 3".

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

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

*** See A4-3 sign plate for signs 4' or less in width 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 12/6/23

PLATE NO. A4-4.16

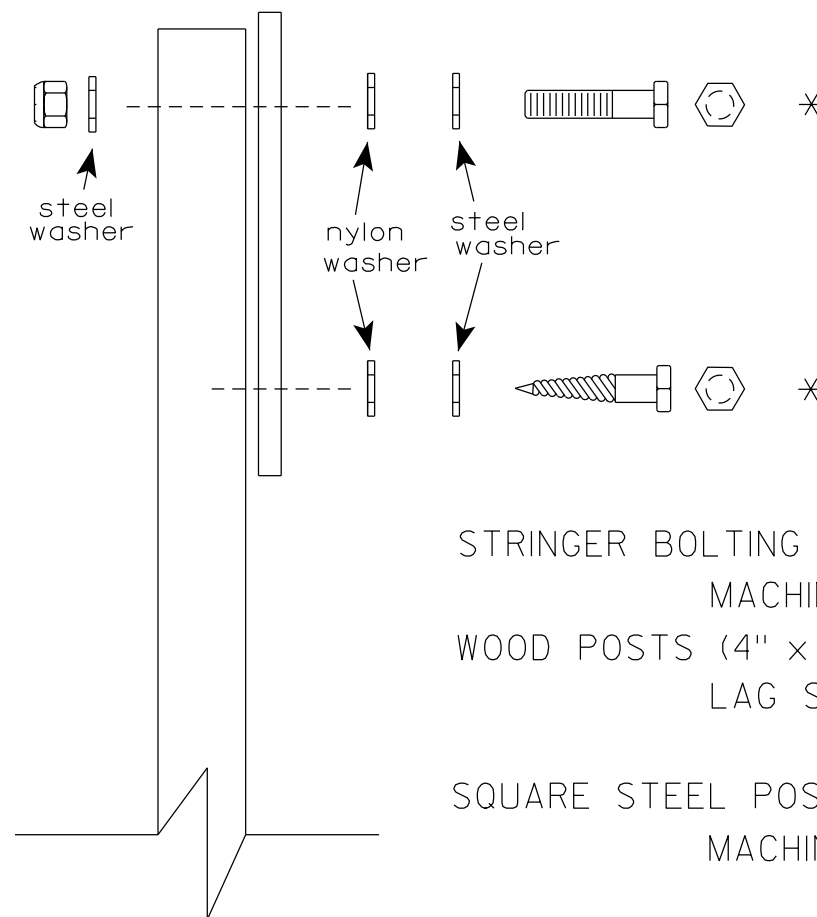
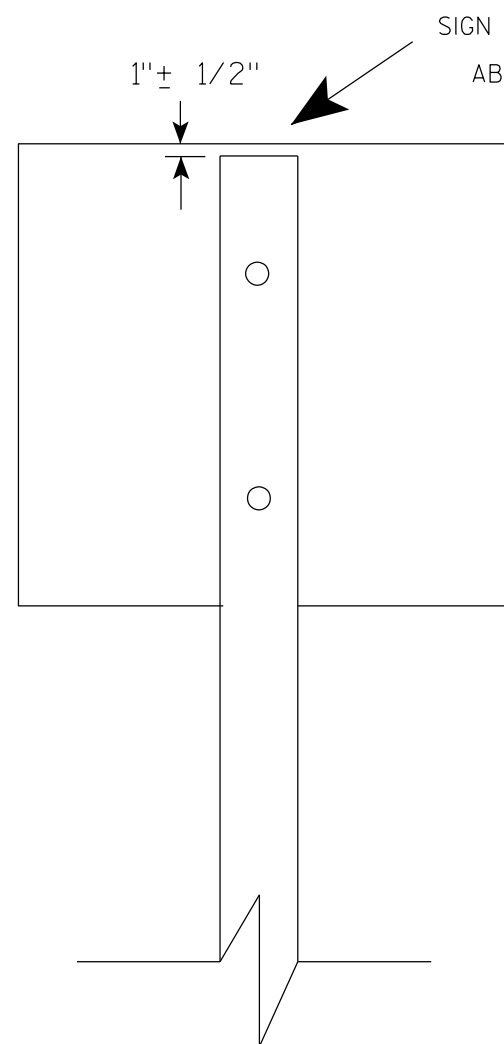
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 88

E



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

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

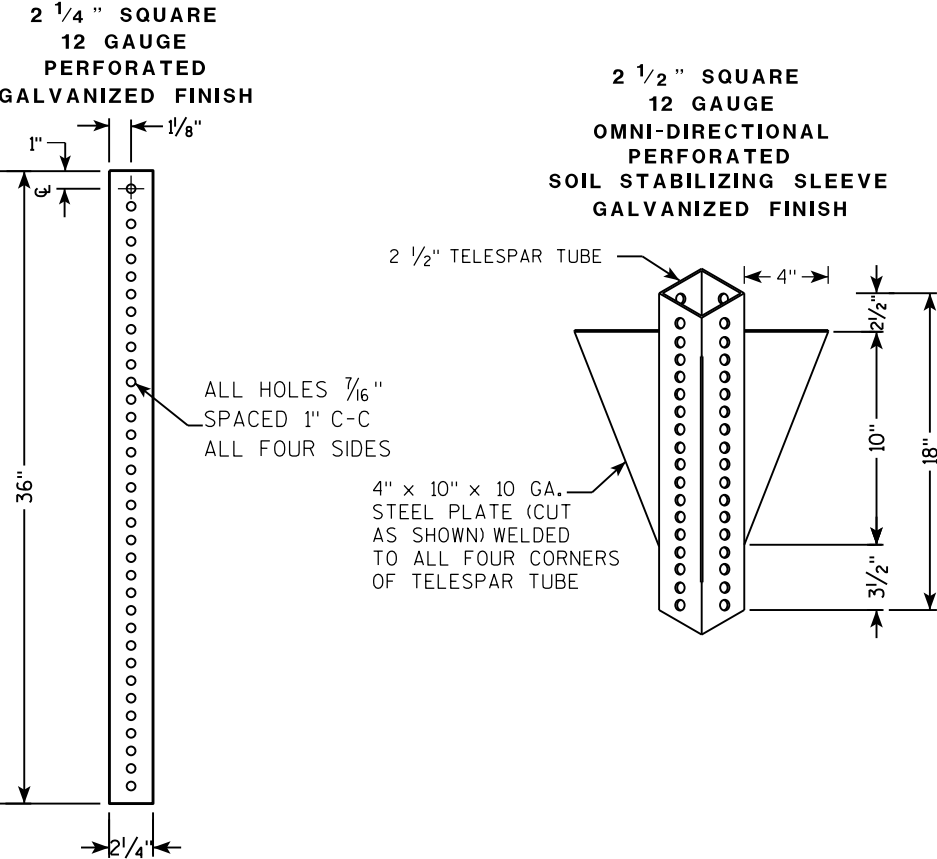
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (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 $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

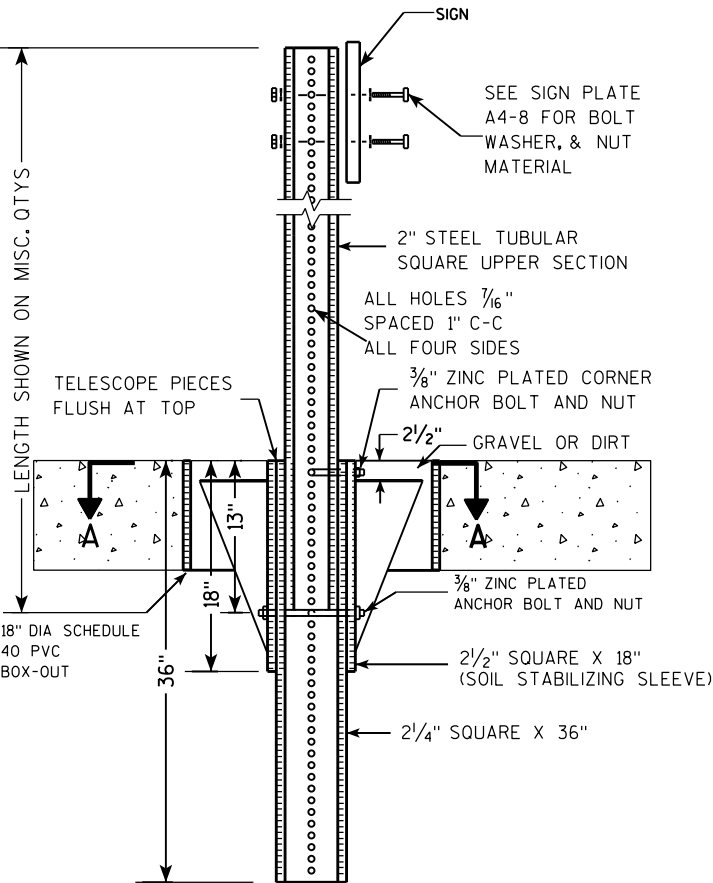
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

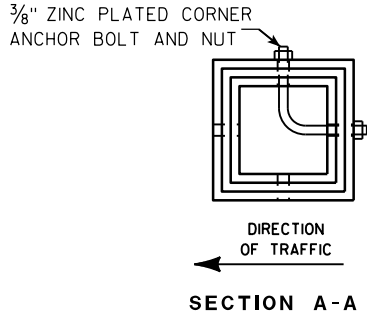
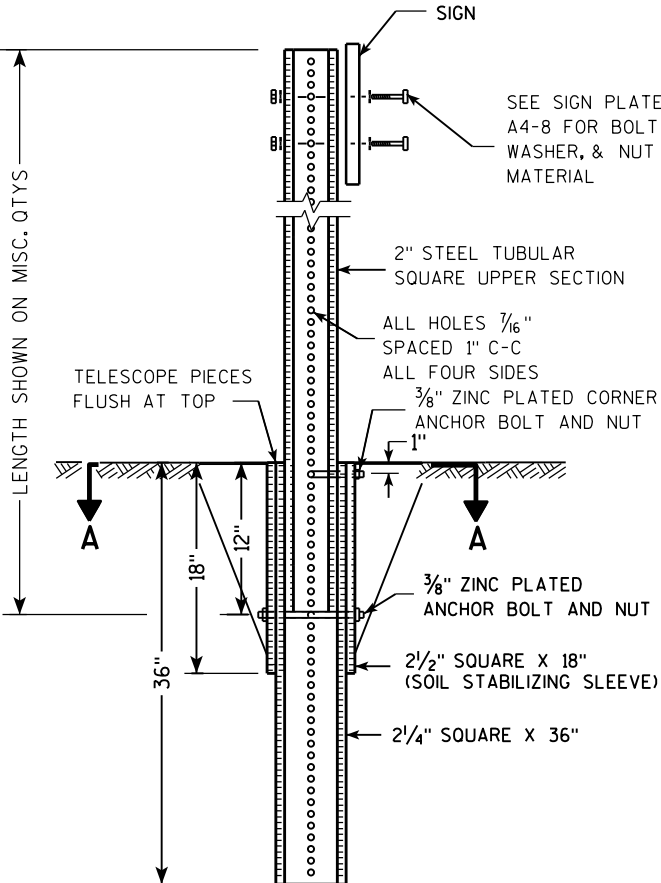
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



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).

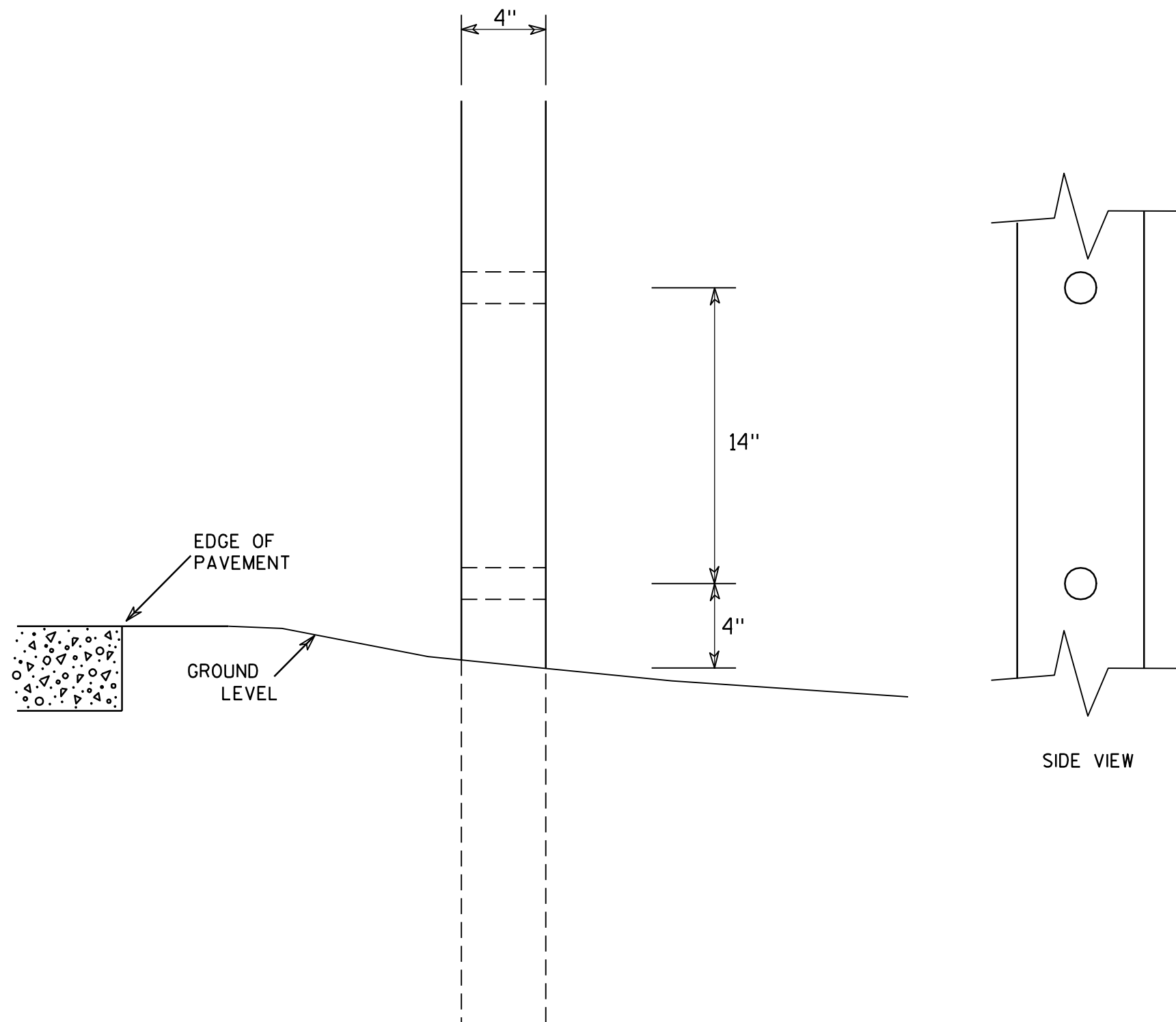
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLAT 90 14-9.9

7

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

**4 X 6 WOOD POST
MODIFICATIONS**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

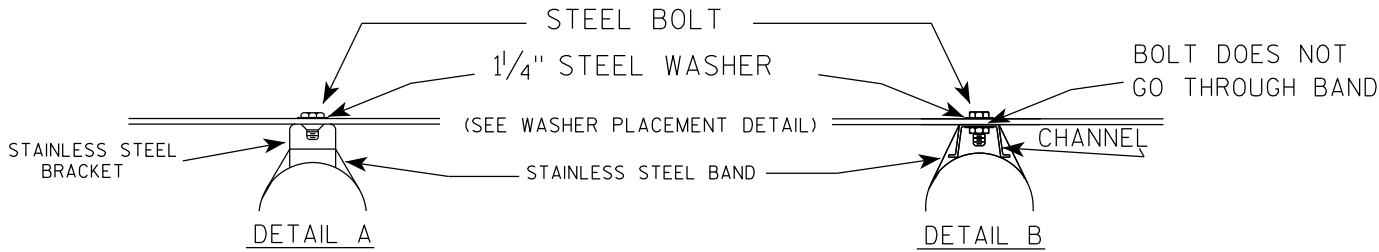
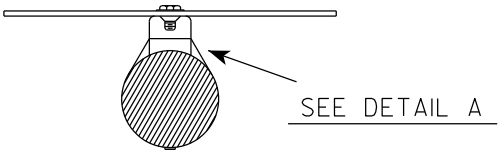
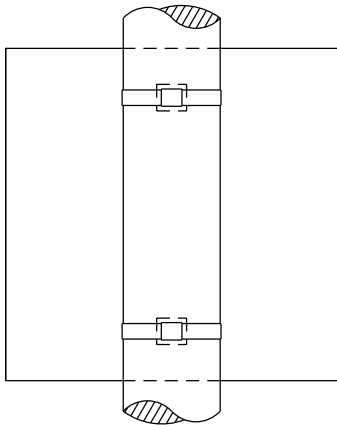
COUNTY:

SHEET NO: 91

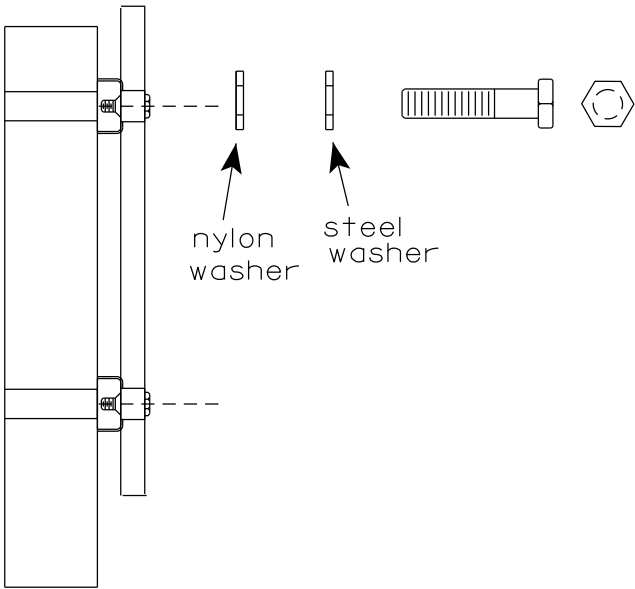
E

BANDING

SINGLE SIGN



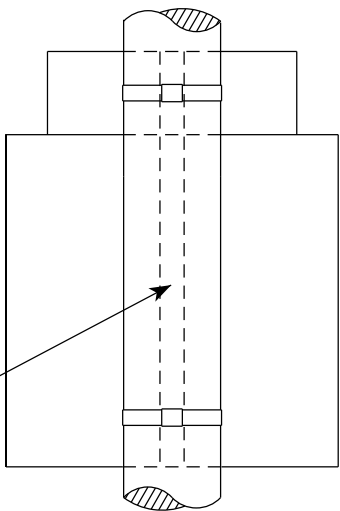
WASHER PLACEMENT



WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

"J" ASSEMBLY



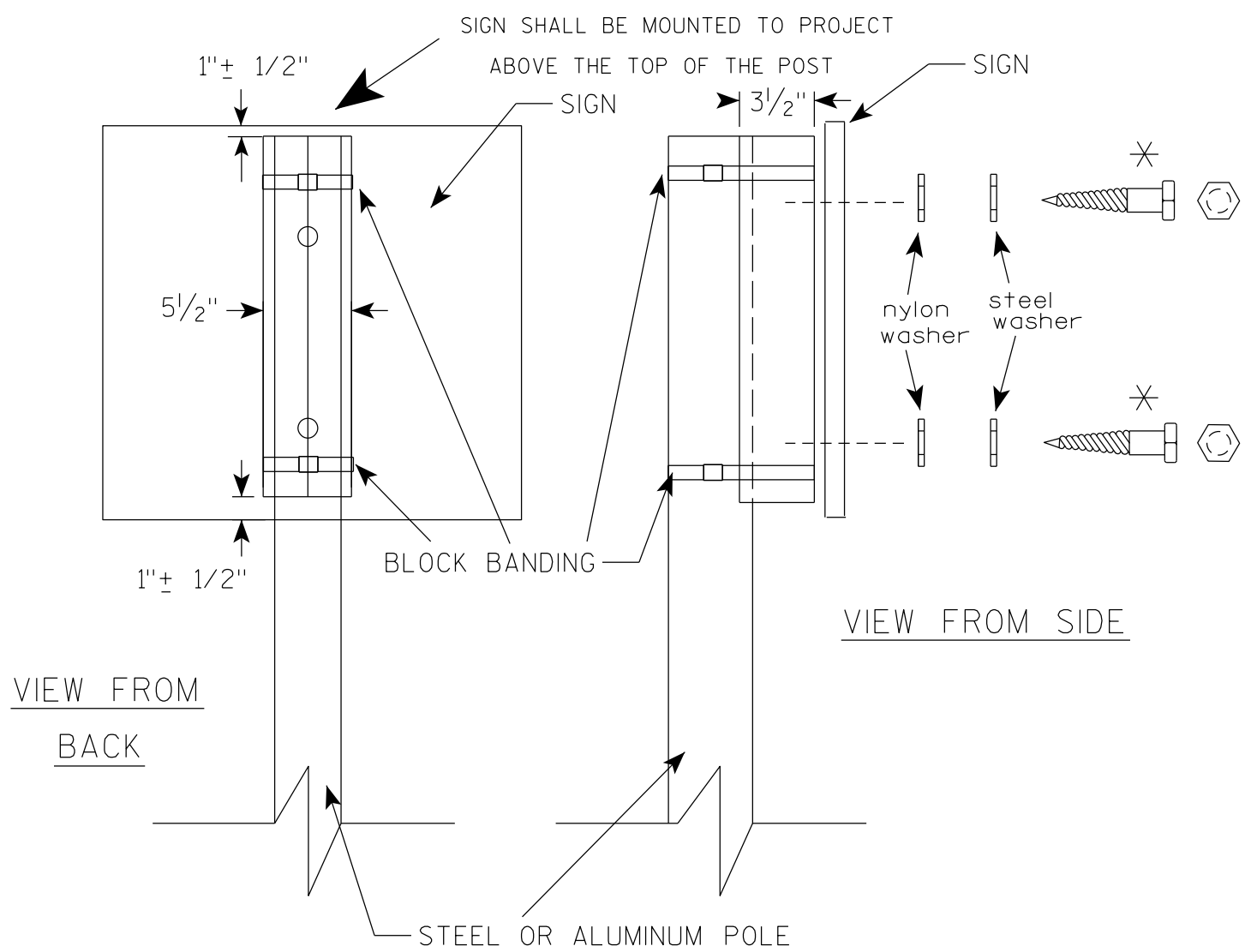
SEE DETAIL B

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
- a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

STANDARD SIGN
SIGN BANDING DETAILS

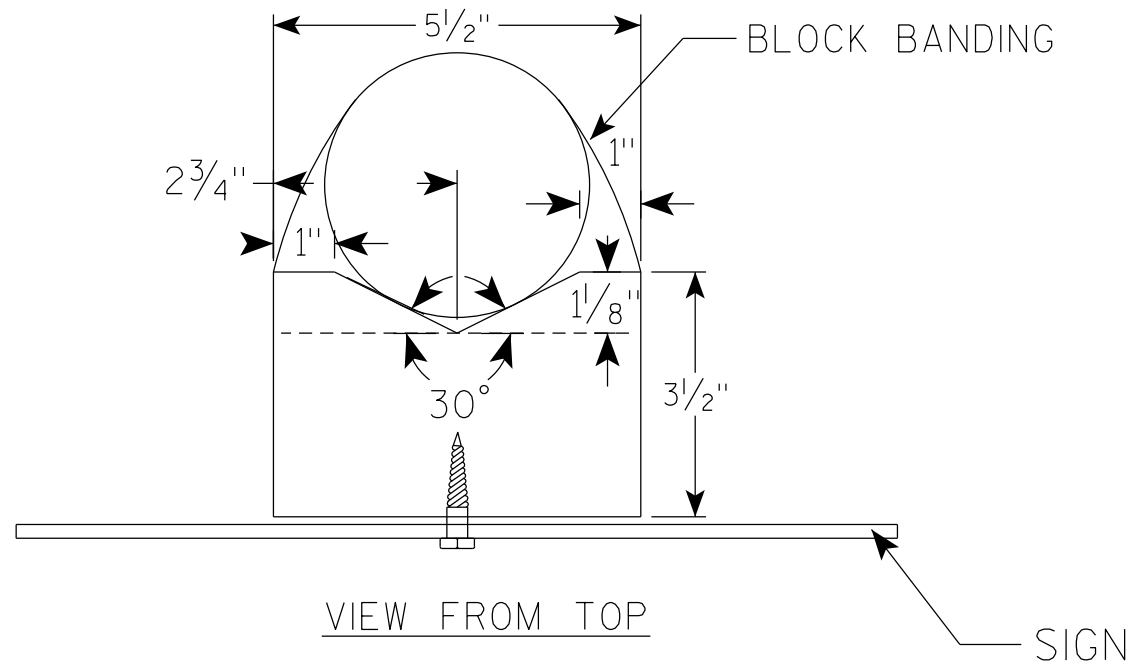
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 6/10/19 PLATE NO. A5-9.4



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO: 93

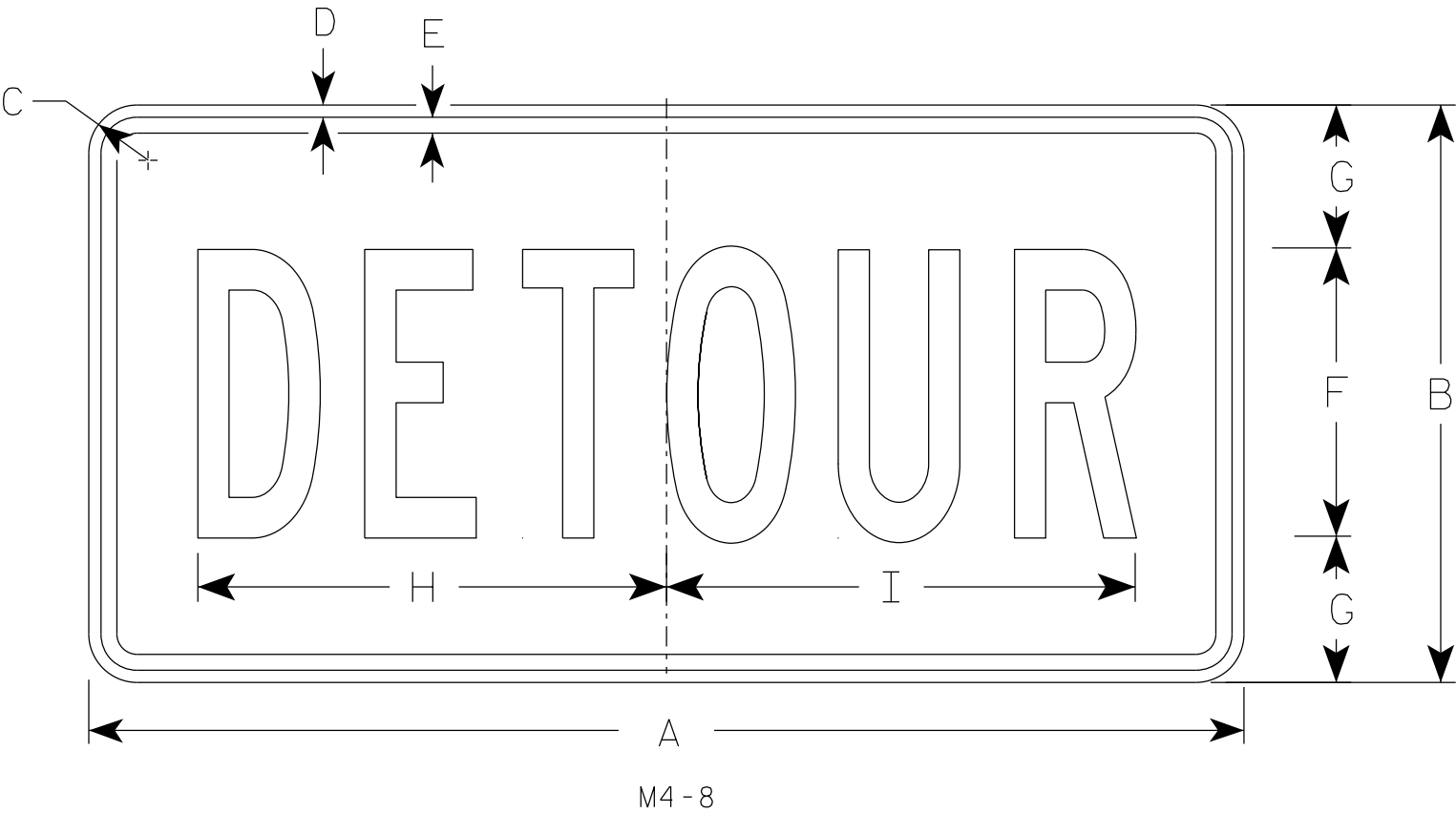
E

7

7

NOTES

- 1. Sign is Type II - Type F Reflective
- 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.



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 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
2M	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5

STANDARD SIGN

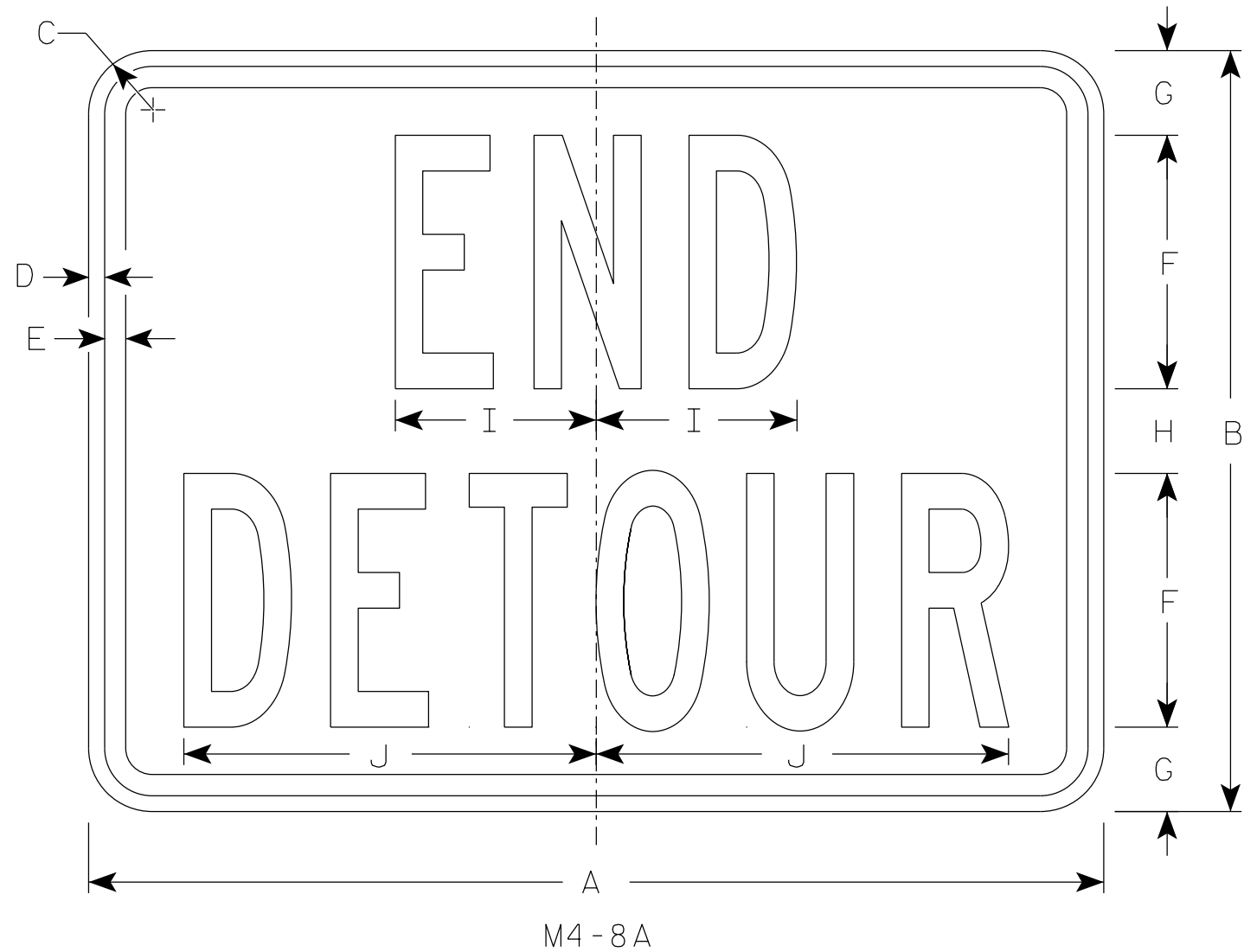
M4 - 8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8.4

7



NOTES

- 1. Sign is Type II - Type F Reflective
- 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

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 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
2M	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
5	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0

STANDARD SIGN

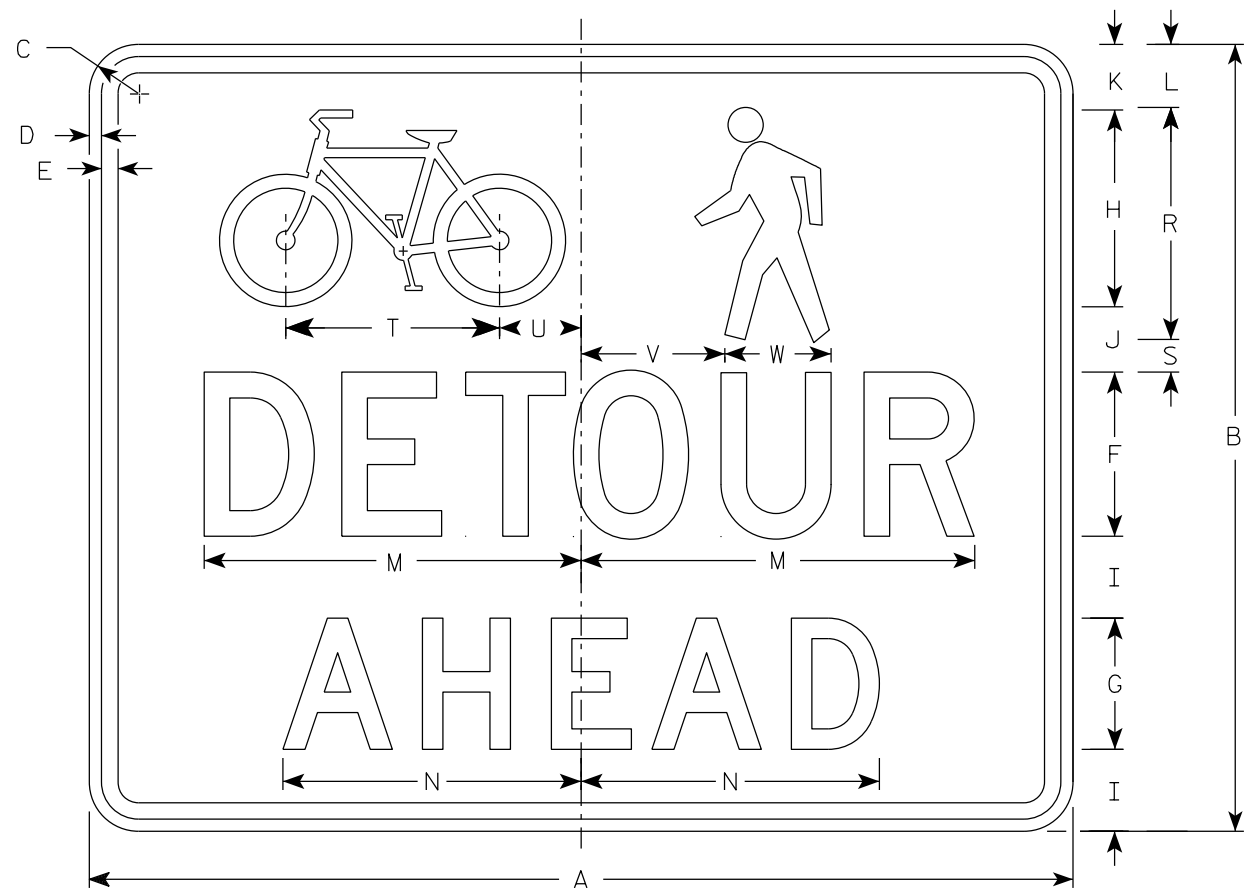
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8A.4

7



M4-9AA

NOTES

- 1. Sign is Type II - Type F Reflective
- 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.

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	24	1 1/2	3/8	1/2	5	4	6	2 1/2	2	2	1 7/8	11 3/4	9 1/8				7 1/8	1	6 1/2	2 1/2	4 3/8	3 1/4				5.00
2M	30	24	1 1/2	3/8	1/2	5	4	6	2 1/2	2	2	1 7/8	11 3/4	9 1/8				7 1/8	1	6 1/2	2 1/2	4 3/8	3 1/4				5.00
3																											
4																											
5																											

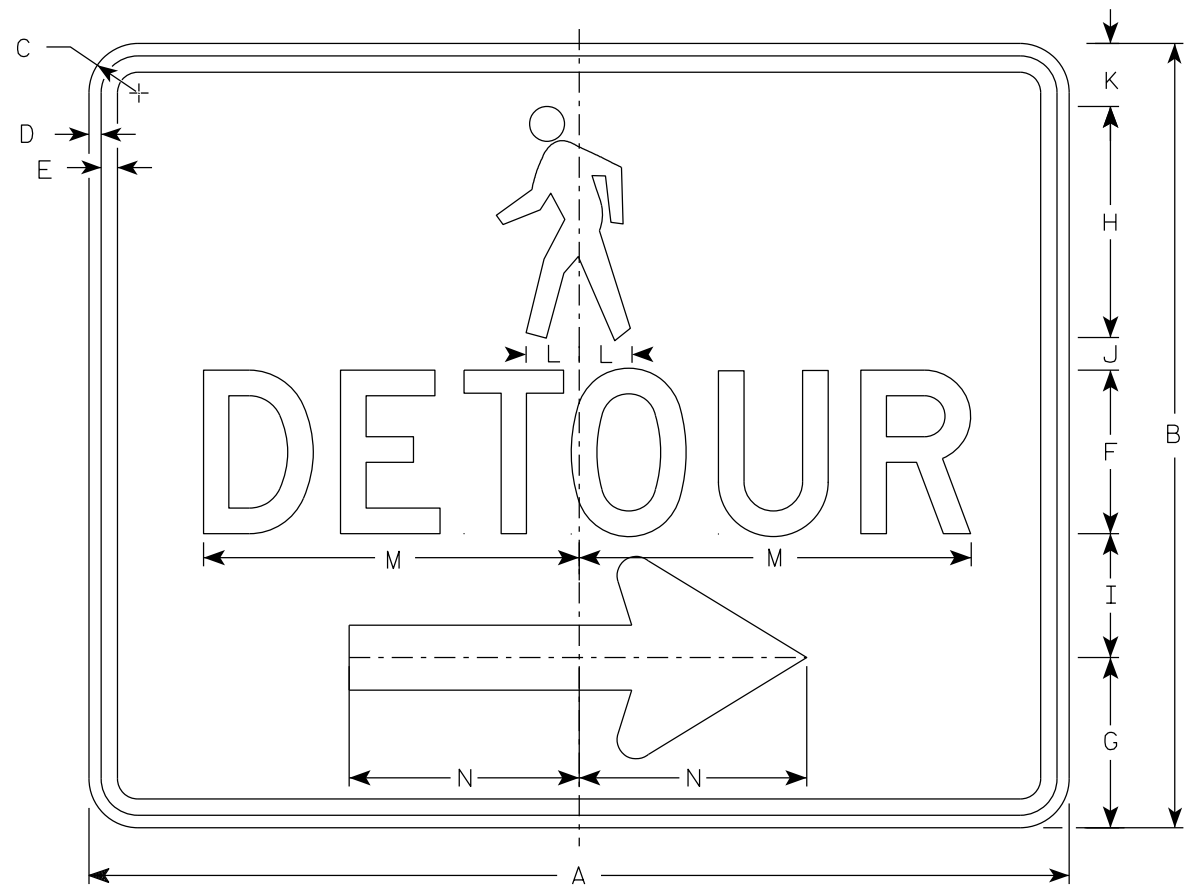
STANDARD SIGN
M4-9AA

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

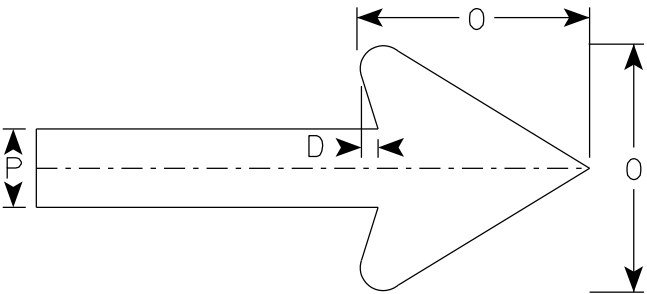
DATE 2/9/2023 PLATE NO. M4-9AA.3

7



M4-9BR

- NOTES
- 1. Sign is Type II-Type F Reflective
 - 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. M4-9BL is the same as M4-9BR except the arrow is reversed.



Arrow Detail

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	24	1 1/2	3/8	1/2	5	5 1/4	7 1/8	3 3/4	1	1 1/8	1 5/8	11 3/4	7	6	2											5.0
2M	30	24	1 1/2	3/8	1/2	5	5 1/4	7 1/8	3 3/4	1	1 1/8	1 5/8	11 3/4	7	6	2											5.0
3																											
4																											
5																											

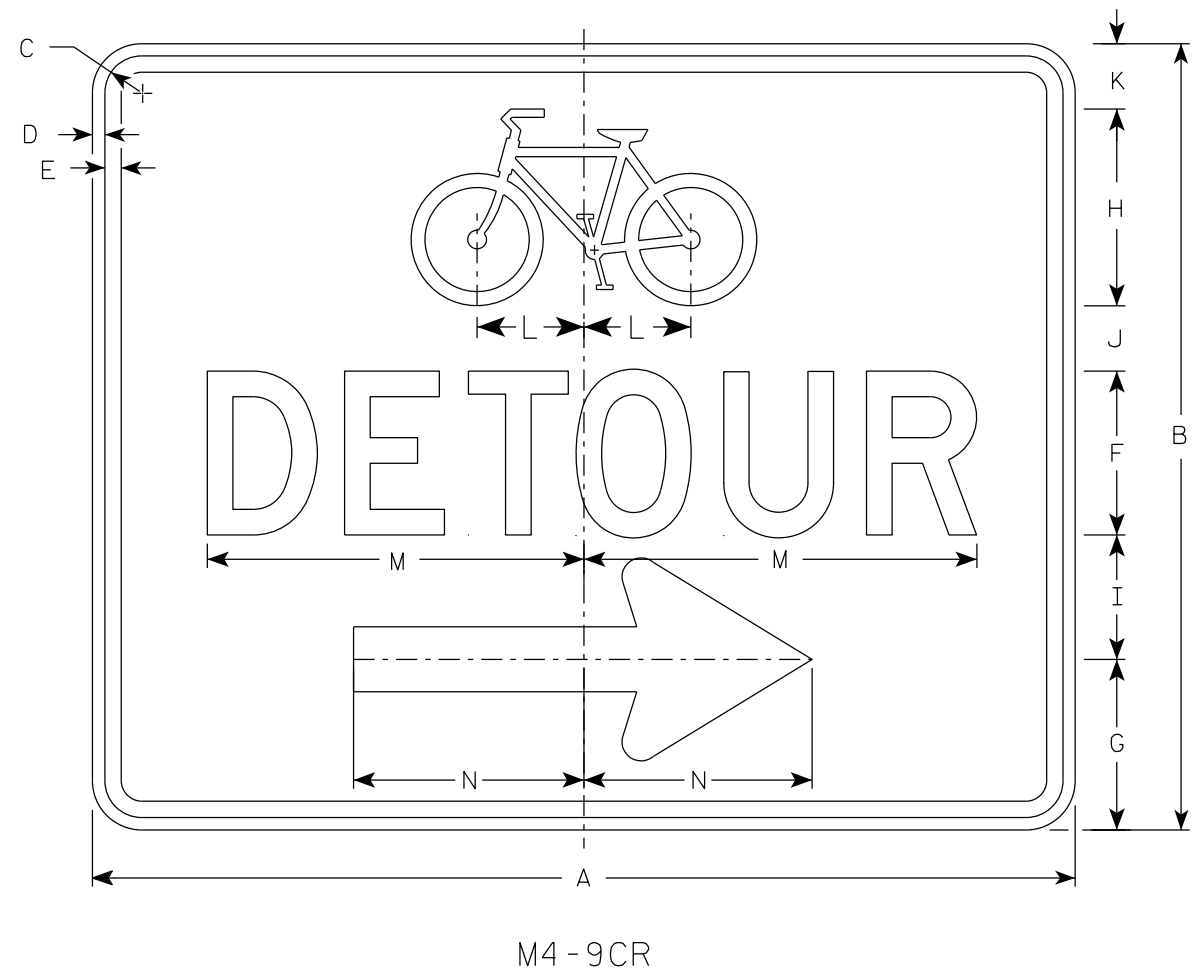
STANDARD SIGN
M4-9B L&R

WISCONSIN DEPT OF TRANSPORTATION

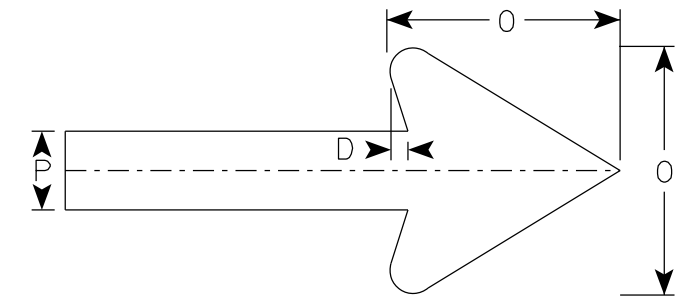
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-9B.4

7



- NOTES
- 1. Sign is Type II-Type F Reflective
 - 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. M4-9CL is the same as M4-9CR except the arrow is reversed.



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	24	1 1/8	3/8	1/2	5	5 1/4	6	3 3/4	2	2	3 1/4	11 3/4	7	6	2											5.00
2M	30	24	1 1/8	3/8	1/2	5	5 1/4	6	3 3/4	2	2	3 1/4	11 3/4	7	6	2											5.00
3																											
4																											
5																											

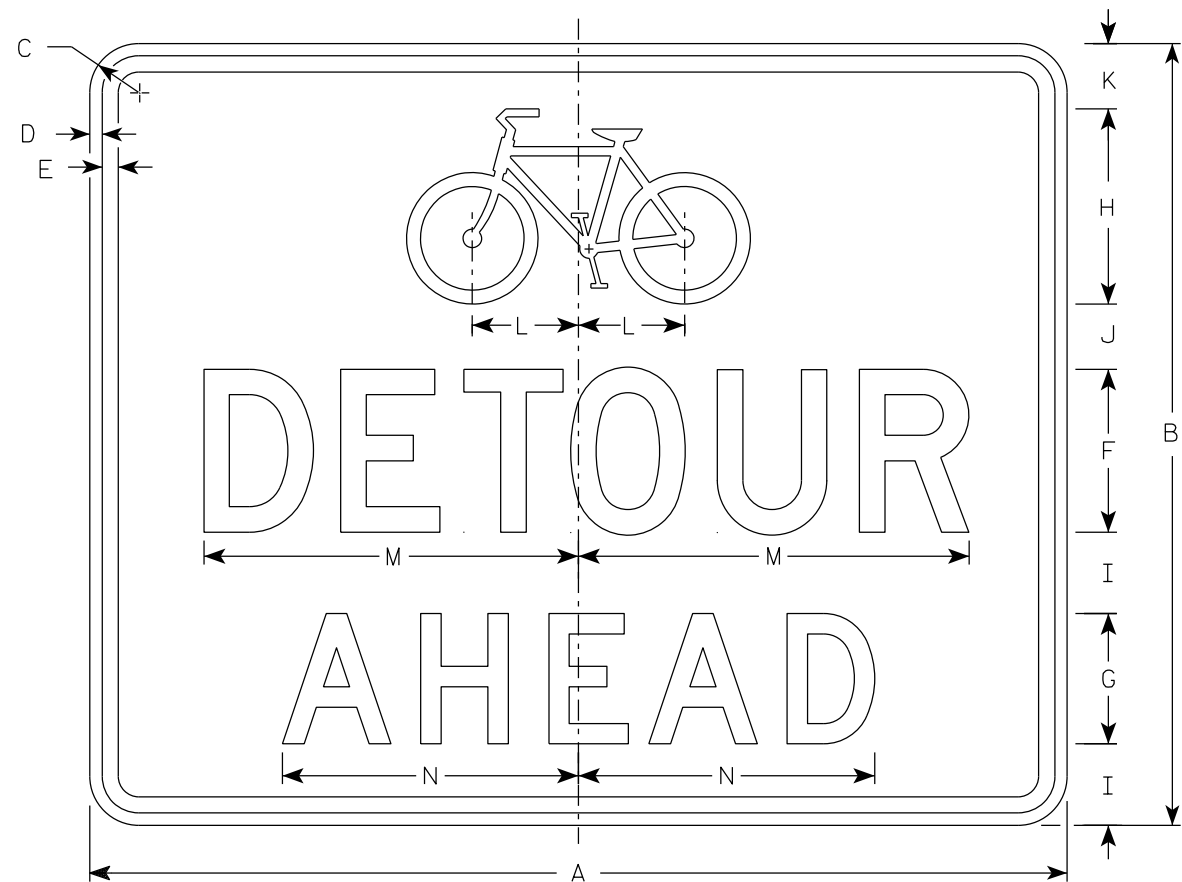
STANDARD SIGN
M4-9C L&R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/18/2023 PLATE NO. M4-9C.2

7



M4 - 9CA

NOTES

- 1. Sign is Type II - Type F Reflective
- 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.

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	24	1 1/2	3/8	1/2	5	4	6	2 1/2	2	2	3 1/4	11 3/4	9 1/8													5.0
2M	30	24	1 1/2	3/8	1/2	5	4	6	2 1/2	2	2	3 1/4	11 3/4	9 1/8													5.0
3																											
4																											
5																											

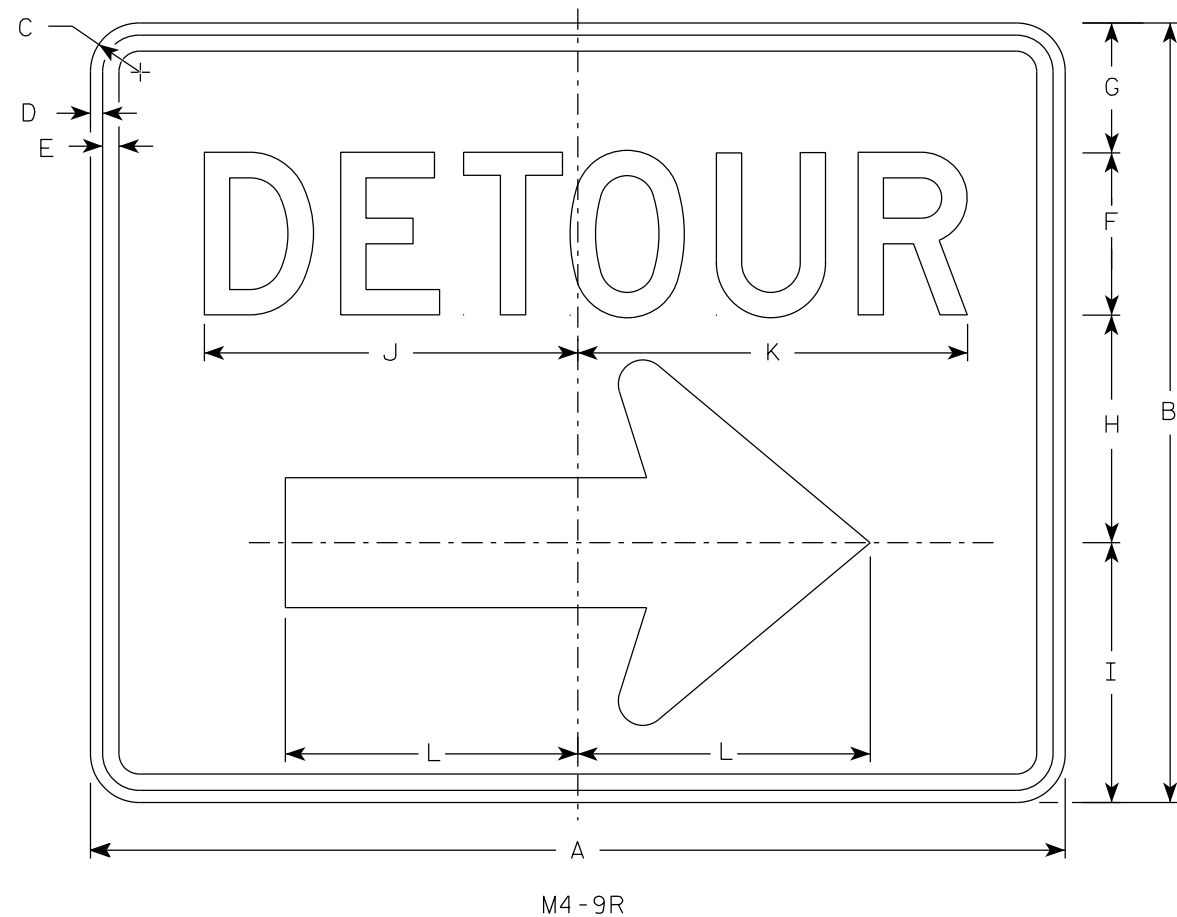
STANDARD SIGN

M4 - 9CA

WISCONSIN DEPT OF TRANSPORTATION

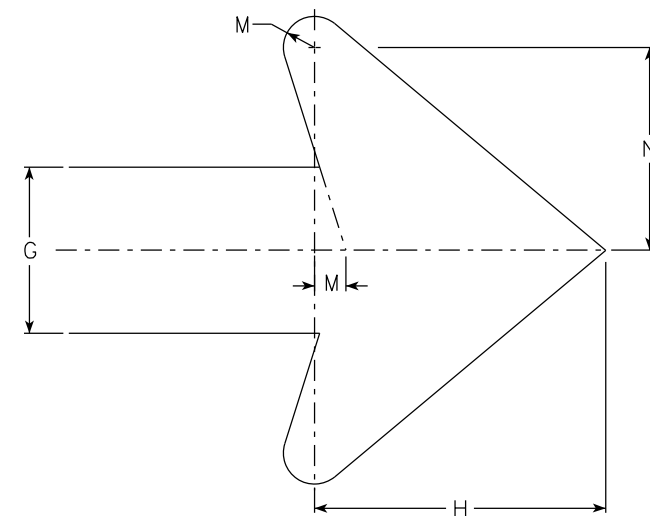
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-9CA.3



NOTES

1. Sign is Type II - Type F Reflective
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.
4. M4-9L is the same as M4-9R except the arrow is reversed.



Arrow Detail

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
2M	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 7/8	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 7/8	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 2/9/2023 PLATE NO. M4-9R.6

7

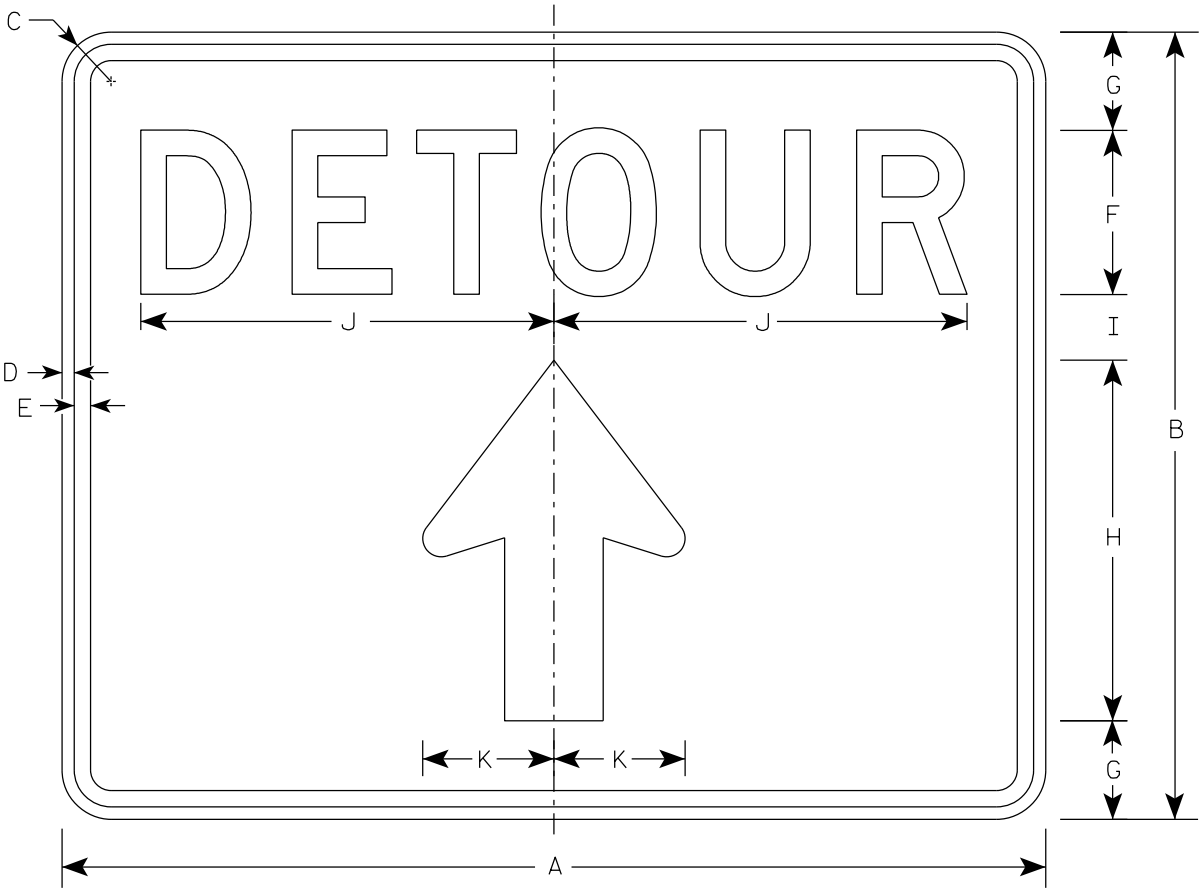
7

NOTES

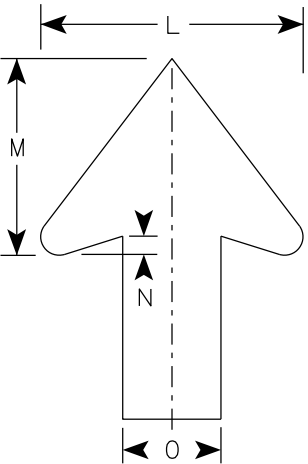
1. Sign is Type II-Type F Reflective
2. Color:

Background - Orange

Message - Black
3. Message Series - D



M4 - 9RA



Arrow Detail

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

STANDARD SIGN

M4-9RA

WISCONSIN DEPT OF TRANSPORTATION

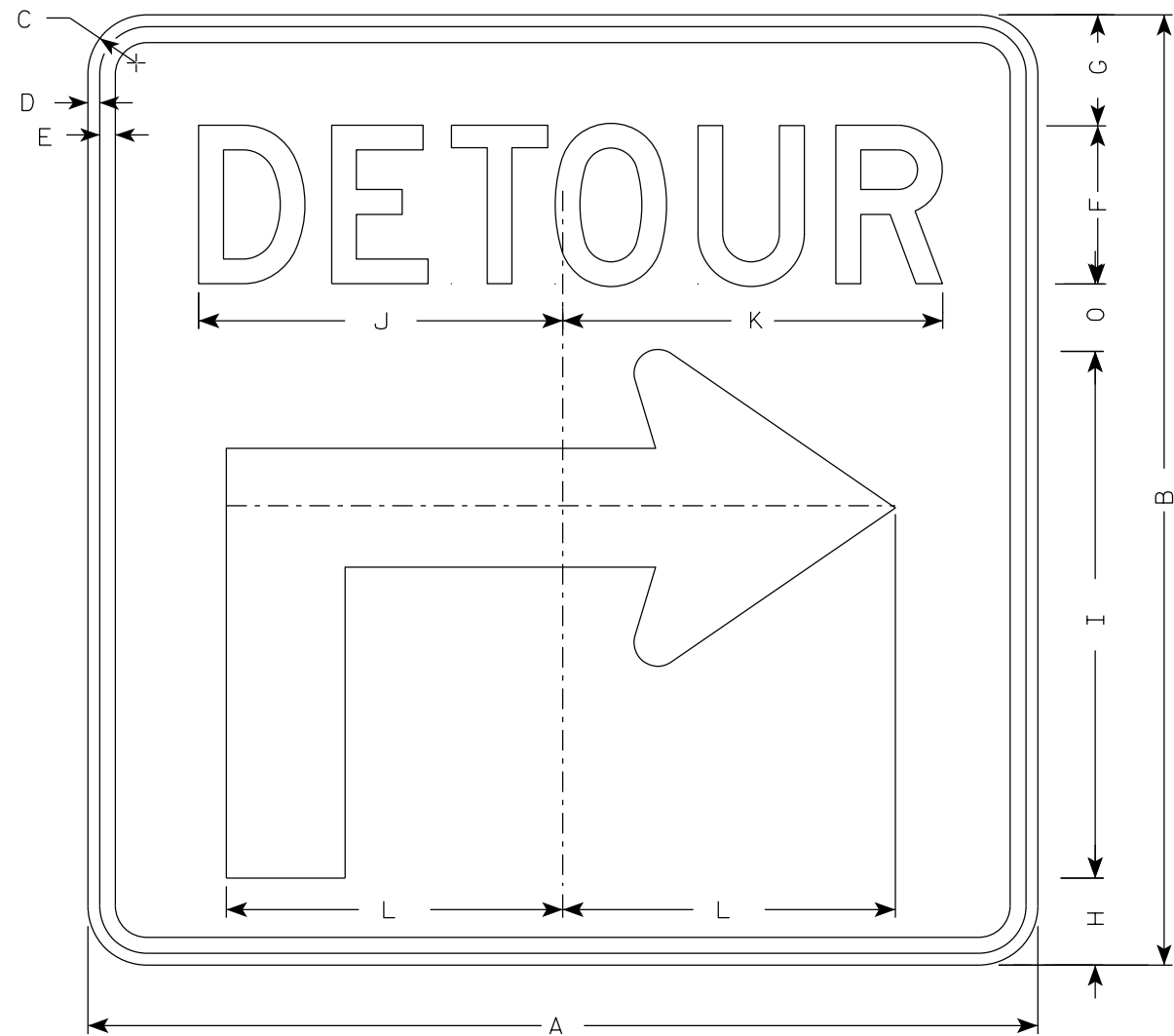
APPROVED *Matthew R. Rauch*

for State Traffic Engineer

DATE 2/9/2023

PLATE NO. M4-9RA.3

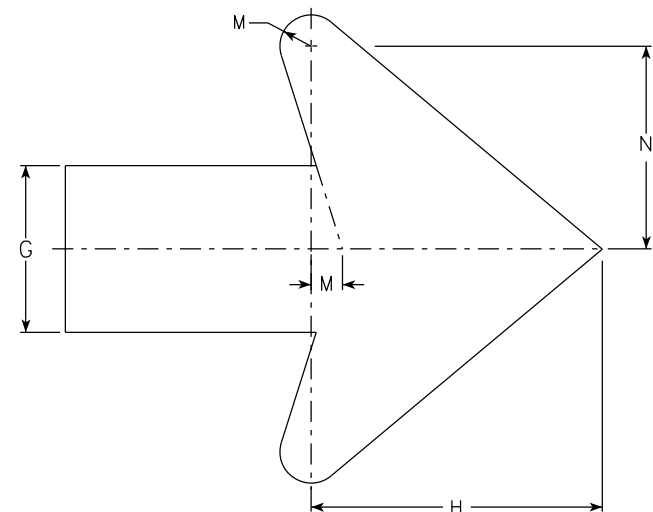
7



M4-59R

NOTES

1. Sign is Type II - Type F Reflective
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.
5. M4-59L is the same as M4-59R except the arrow is reversed.



Arrow Detail

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	30	1 7/8	3/8	1/2	5	3 1/2	2 3/4	16 5/8	11 1/2	12	10 1/2	3/4	4 7/8	2 1/8												6.25
2M	30	30	1 7/8	3/8	1/2	5	3 1/2	2 3/4	16 5/8	11 1/2	12	10 1/2	3/4	4 7/8	2 1/8												6.25
3	30	30	1 7/8	3/8	1/2	5	3 1/2	2 3/4	16 5/8	11 1/2	12	10 1/2	3/4	4 7/8	2 1/8												6.25
4	48	48	2 1/4	1/2	5/8	8	5 5/8	4 3/8	26 5/8	20 5/8	20 1/2	17	1 1/8	6 7/8	3 3/8												16.0
5	48	48	2 1/4	1/2	5/8	8	5 5/8	4 3/8	26 5/8	20 5/8	20 1/2	17	1 1/8	6 7/8	3 3/8												16.0

PROJECT NO:

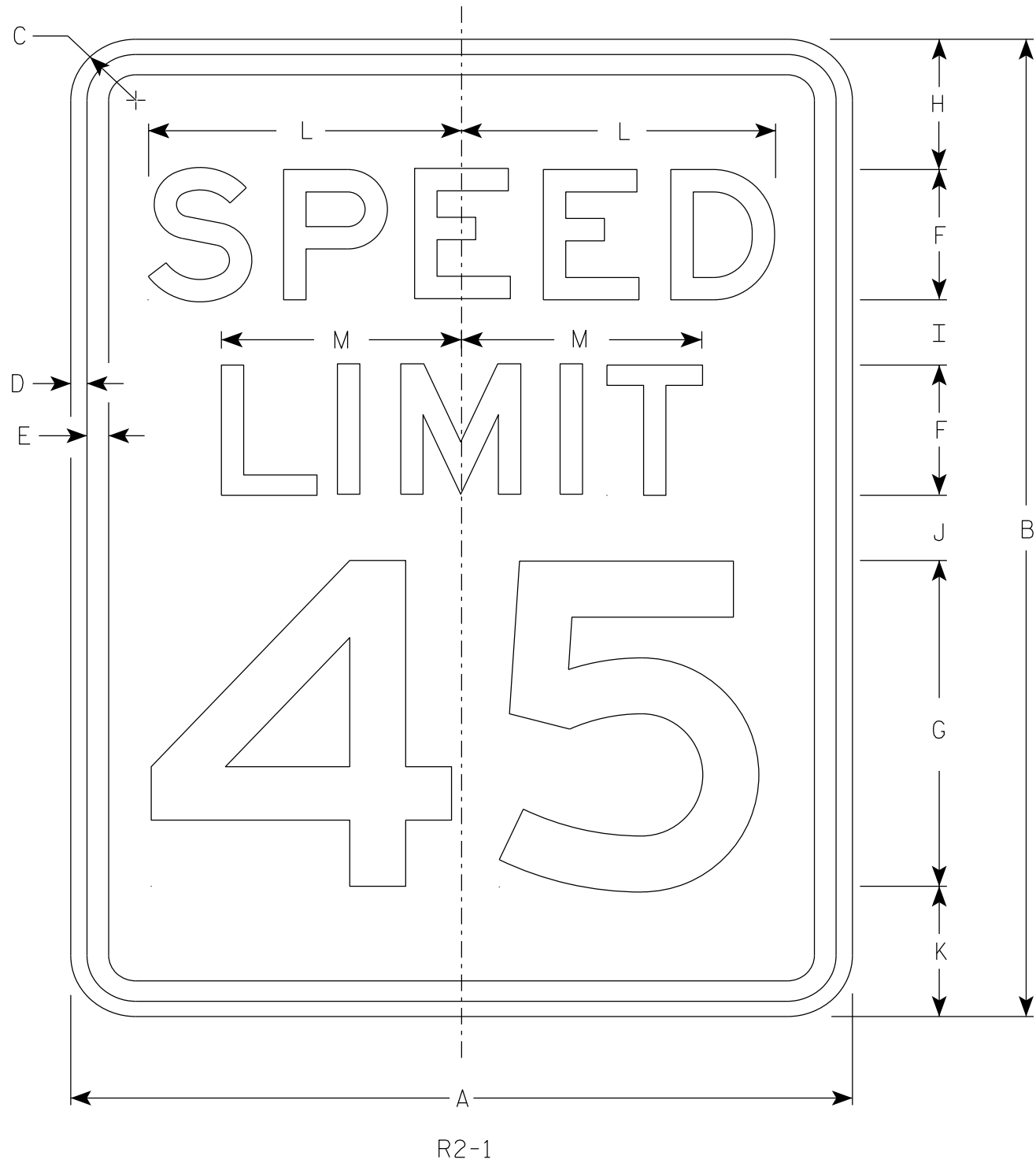
HWY:

COUNTY:

SHEET NO: 102

E

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - E
- 4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

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 1/2	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/2	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 7/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 7/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 7/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	3	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

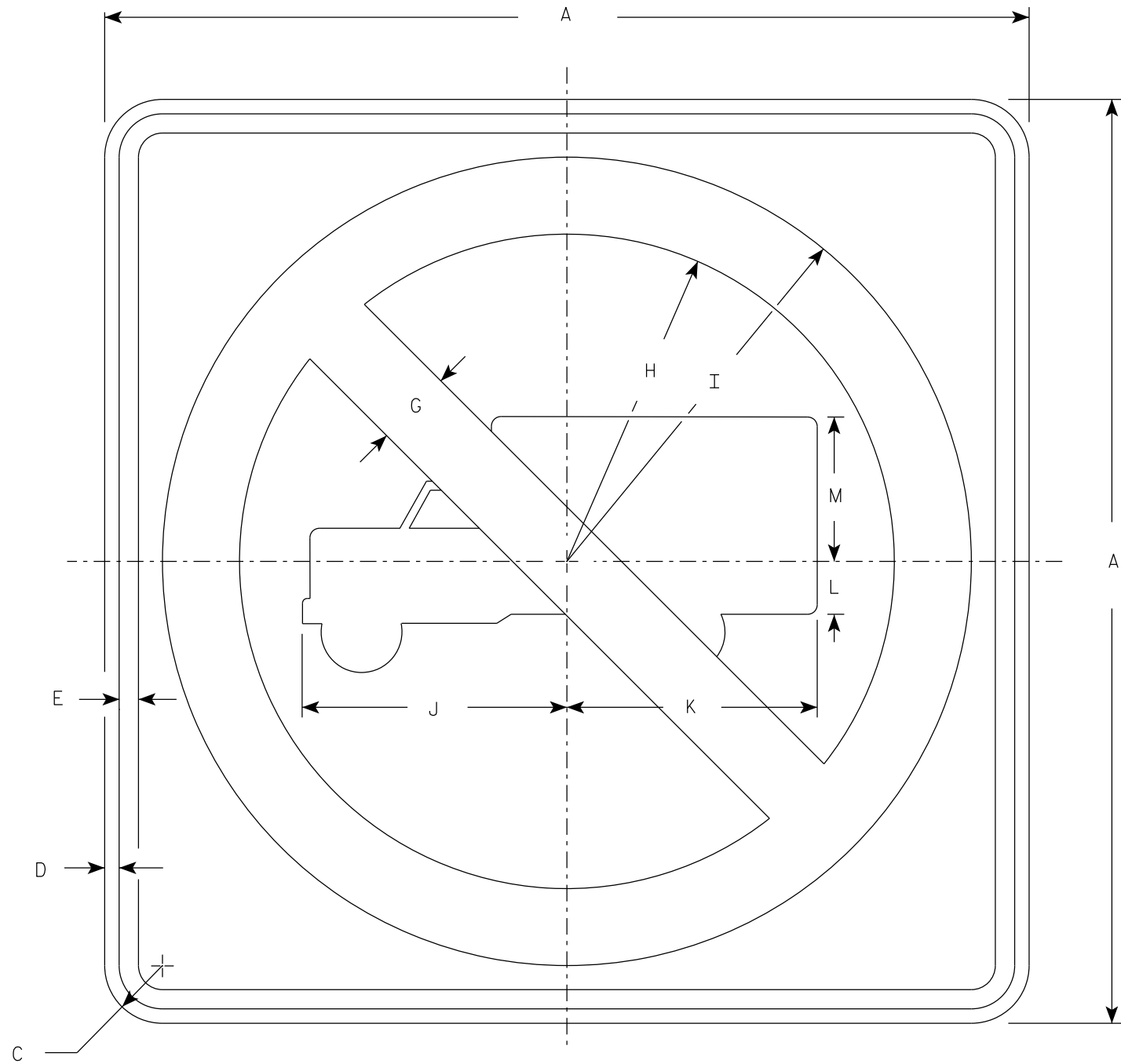
STANDARD SIGN
R2 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
for State Traffic Engineer

DATE 2/1/23 PLATE NO. R2-1.14

7



R5-2

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - See Note 3
3. Circle & Diagonal - Red
Truck Symbol & Border - Black

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		1 1/2	3/8	1/2		2	8 1/2	10 1/2	6 7/8	6 1/2	1 3/8	3 3/4														4.0
2M	24		1 1/2	3/8	1/2		2	8 1/2	10 1/2	6 7/8	6 1/2	1 3/8	3 3/4														4.0
3	30		1 7/8	1/2	5/8		2 1/2	10 5/8	13 1/8	8 1/2	8 1/8	1 5/8	4 3/4														6.25
4	36		2 1/4	5/8	3/4		3	12 3/4	15 3/4	10 1/4	9 3/4	2	5 3/4														9.0
5	48		2 1/4	3/4	1		4	17	21	13 5/8	13	2 5/8	7 5/8														16.0

PROJECT NO:

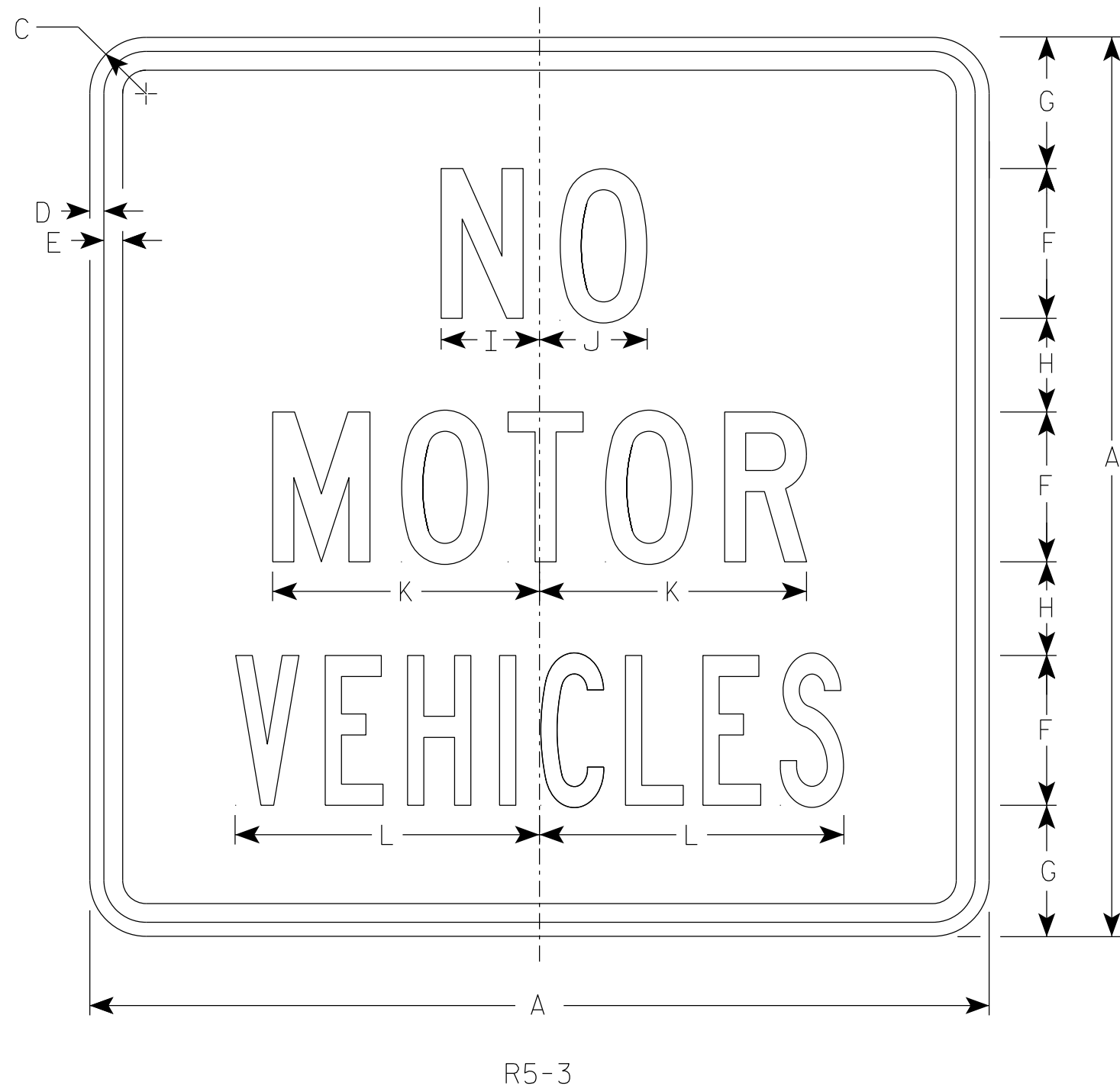
HWY:

COUNTY:

SHEET NO: 104

E

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - See Note 4
- 4. Lines 1 & 2 are Series C.
Line 3 is Series B.

7

R5-3

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24		1 1/2	3/8	1/2	4	3 1/2	2 1/2	2 5/8	2 7/8	7 1/8	8 1/8															4.0
2M	24		1 1/2	3/8	1/2	4	3 1/2	2 1/2	2 5/8	2 7/8	7 1/8	8 1/8															4.0
3																											
4																											
5																											

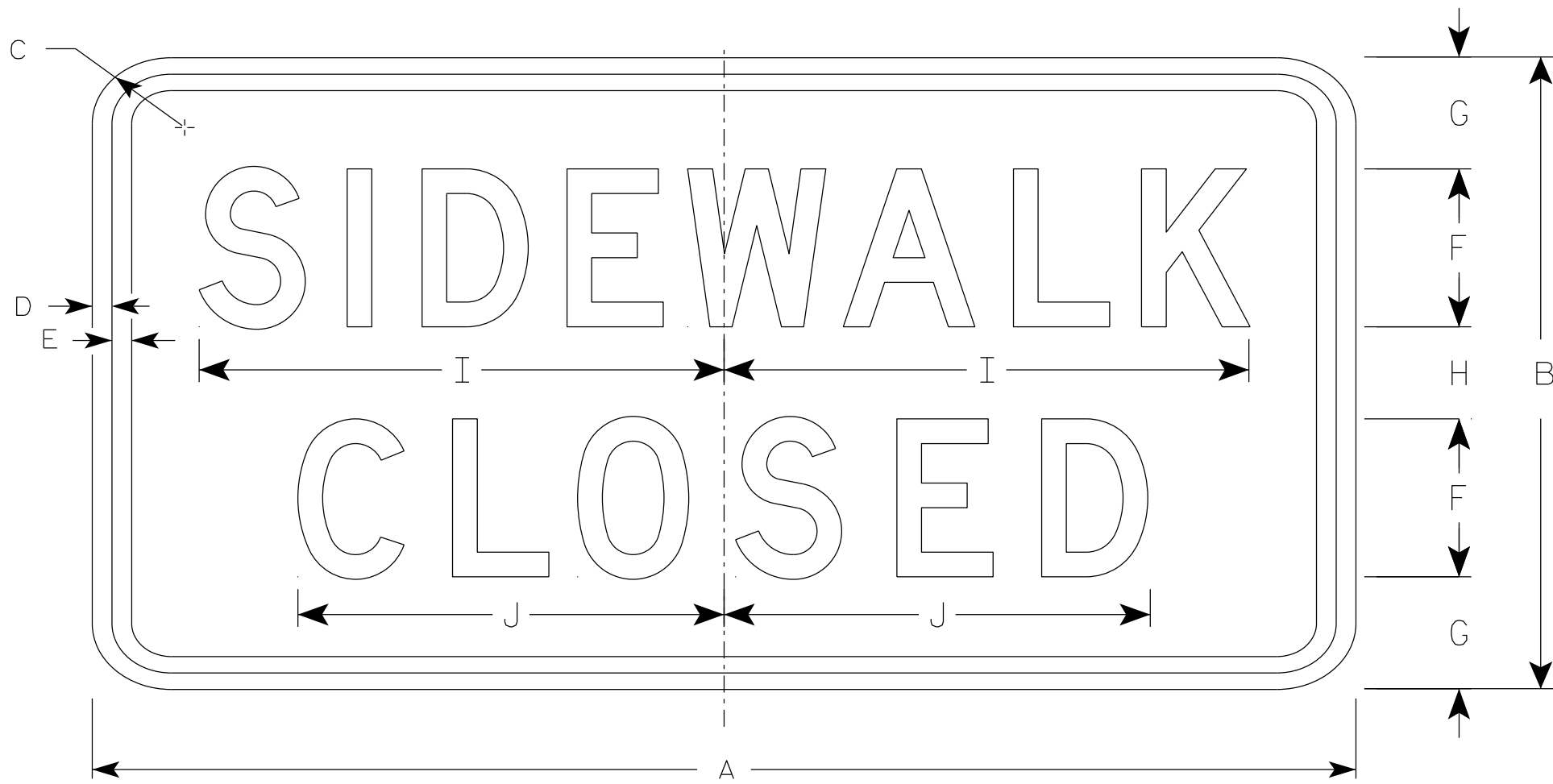
STANDARD SIGN
R5 - 3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/17/23 PLATE NO. R5-3.3

7



R9-9

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black
- 3. Message Series - C
- 4. Use Size 2 for Sidewalks. Use Size 3 for Paths and Trails.

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 1/2	1/2	1/2	3	2 1/8	1 3/4	10	8 1/8																	2.0
2M	24	12	1 1/2	1/2	1/2	3	2 1/8	1 3/4	10	8 1/8																	2.0
3	30	18	1 1/2	1/2	1/2	4	3 1/2	3	12 1/2	10 1/4																	3.75
4																											
5																											

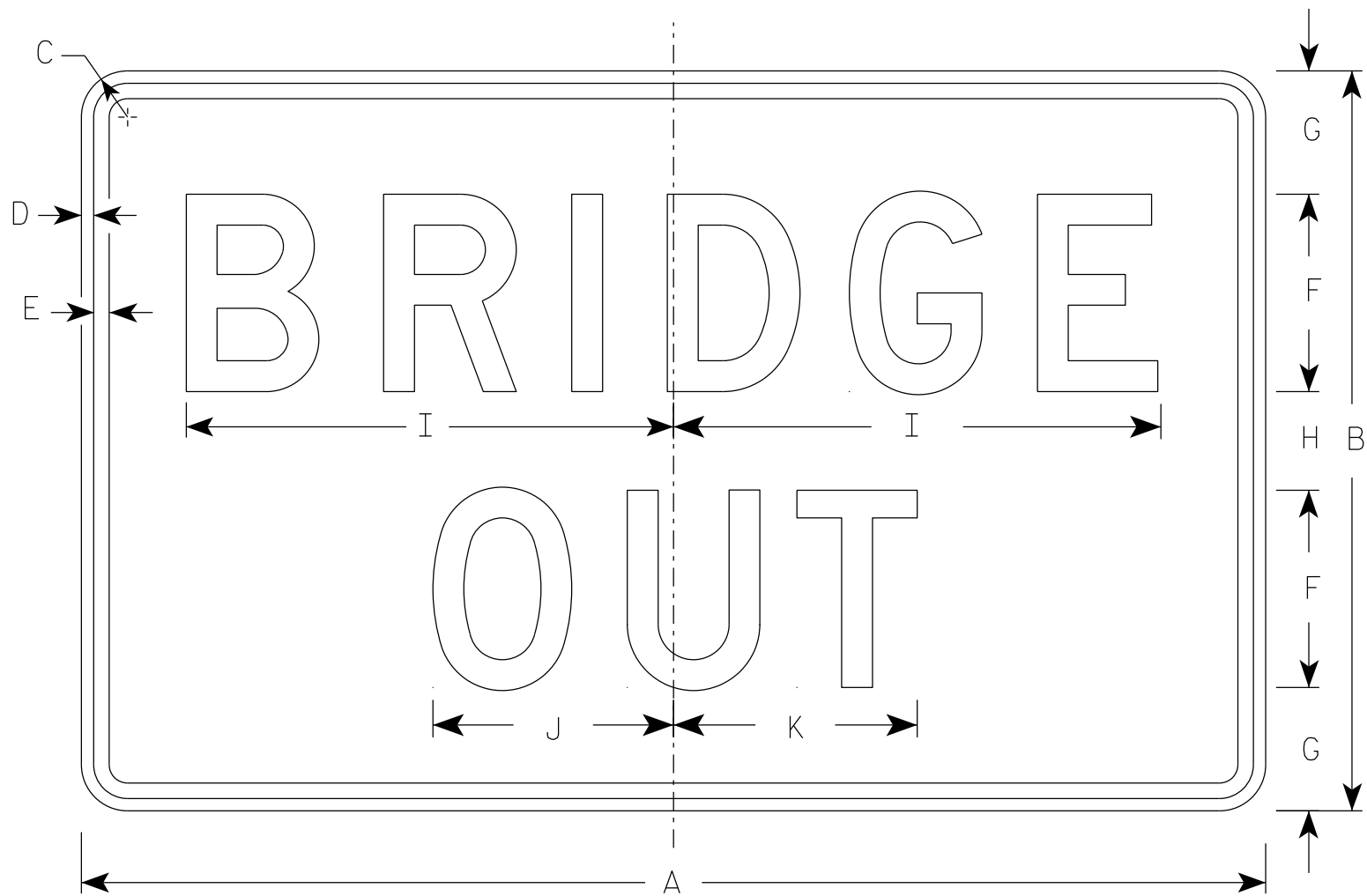
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 106

E



R11-2B

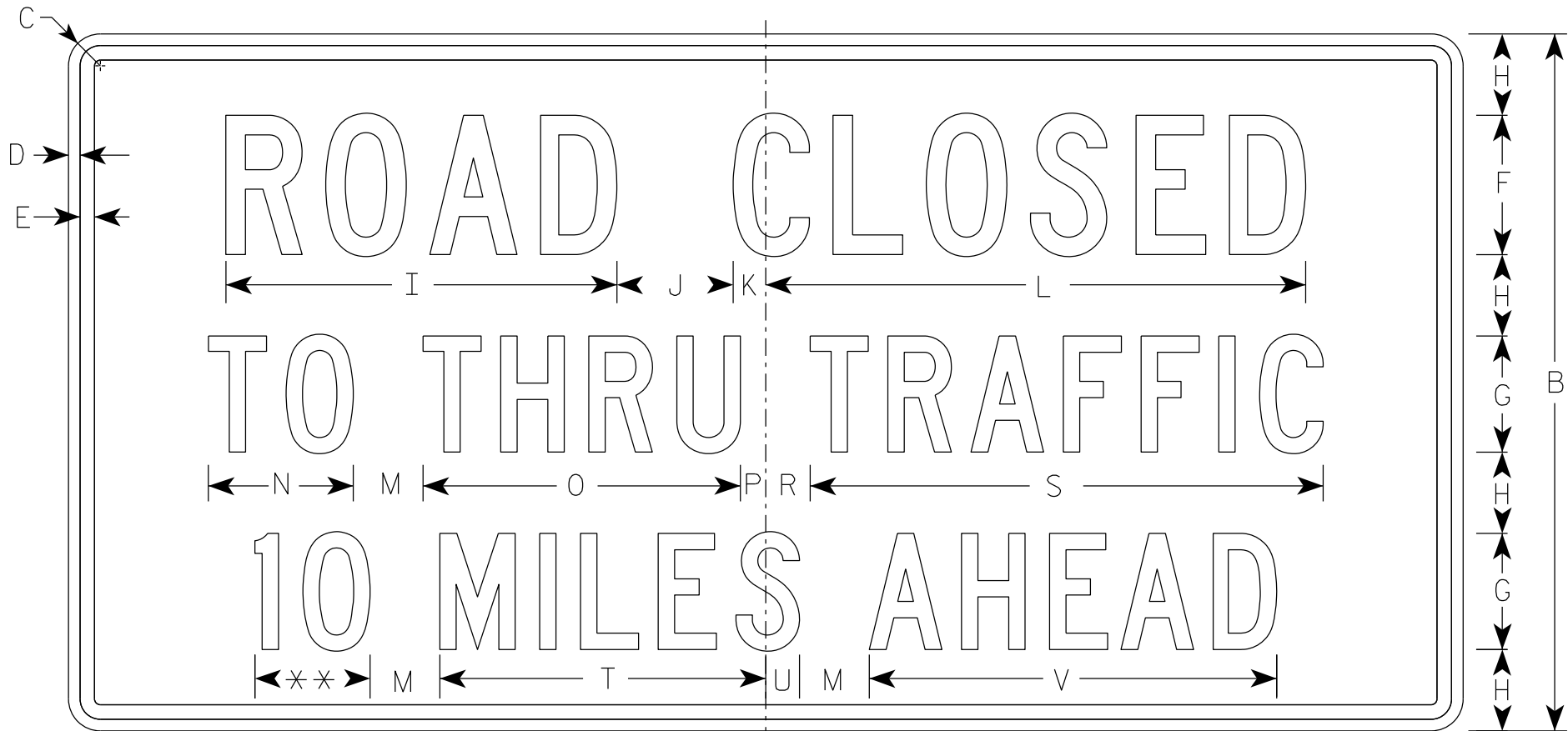
NOTES

- 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.

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 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

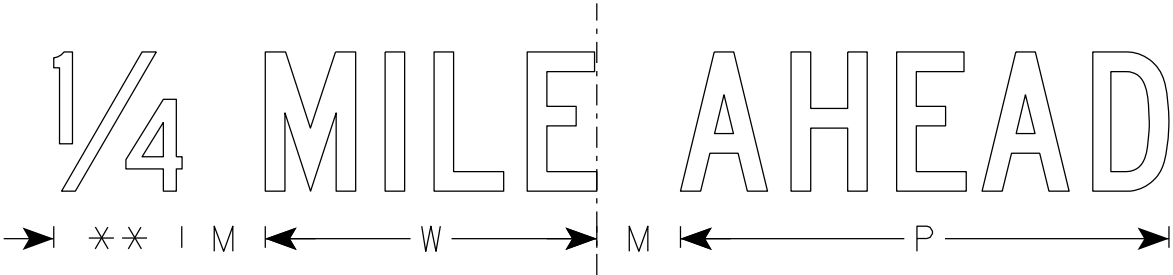
NOTES

- 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.



R11-3

** See Note 5



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 1/2	3/8	3/8	4	3	2	11 1/4	3	1 1/8	15 3/8	2	3 3/4	8 1/4	5/8		1 3/8	13 1/4	8 3/8	7/8	10 1/2	7 1/8				4.5
2S	60	30	1 7/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8				12.5
2M	60	30	1 7/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8				12.5
3																											
4																											
5																											

STANDARD SIGN
R11-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/5/24 PLATE NO. R11-3.10

PROJECT NO:

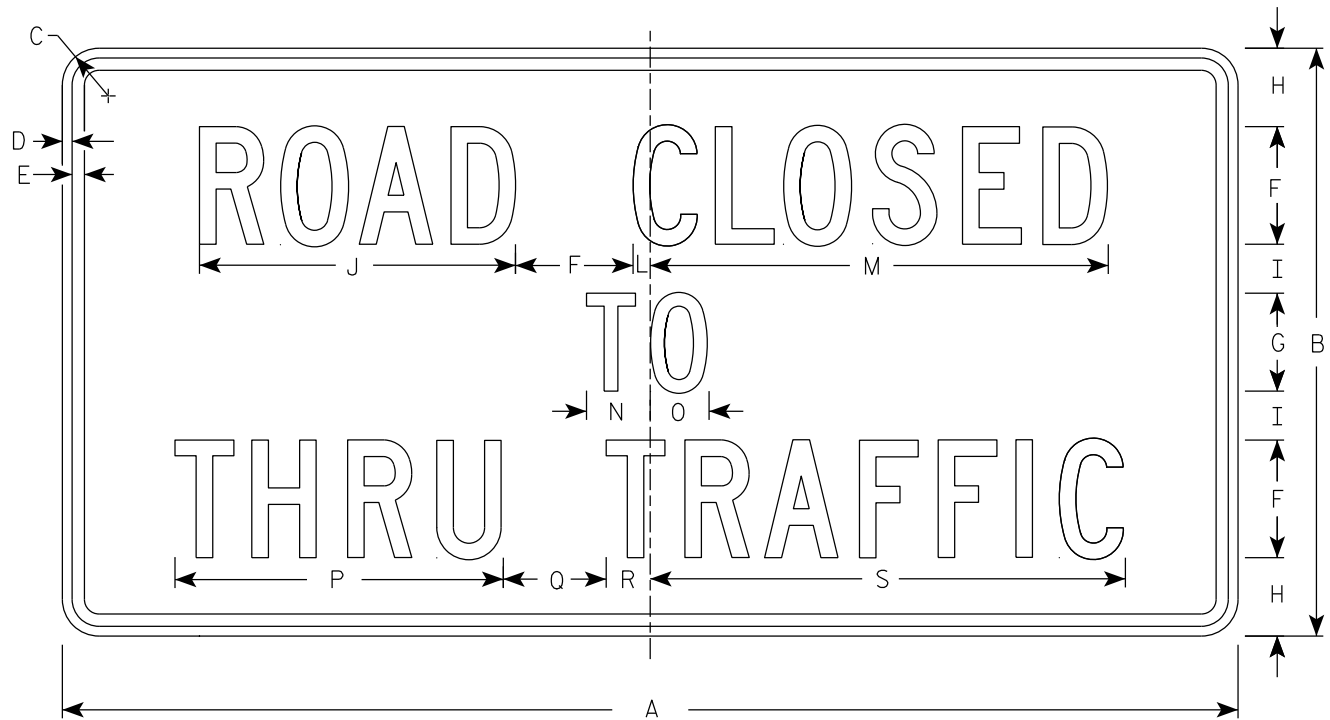
HWY:

COUNTY:

SHEET NO: 108

E

7



R11-4

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.

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 7/8	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 7/8	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																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 109

E

STANDARD SIGN

R11 - 4

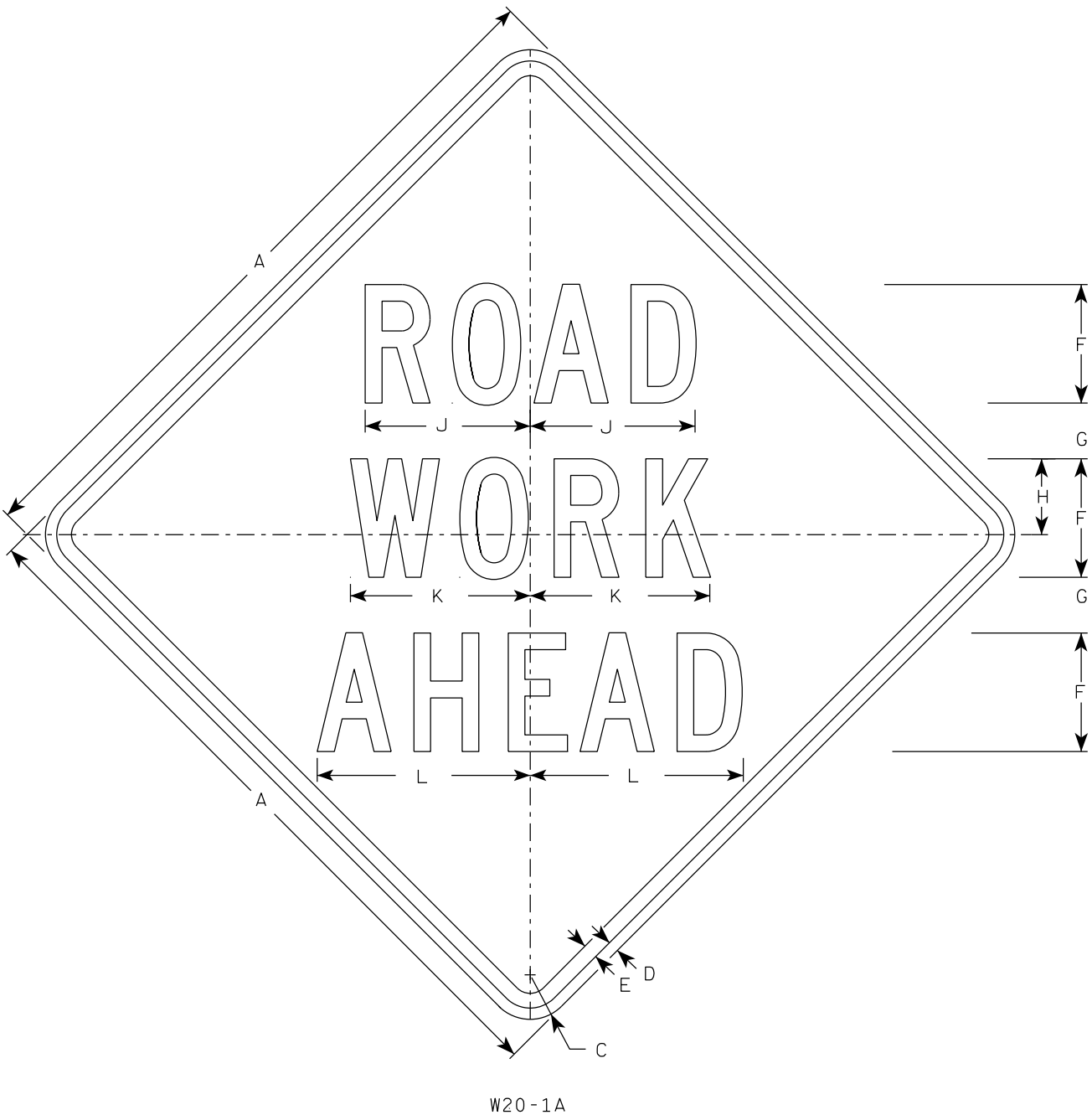
WISCONSIN DEPT OF TRANSPORTATION

APPROVED

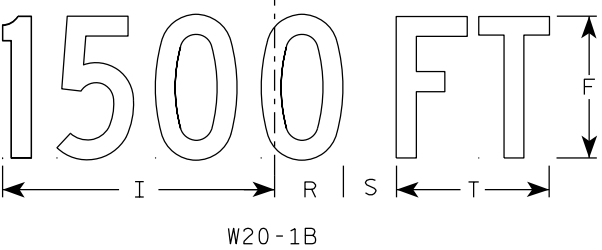
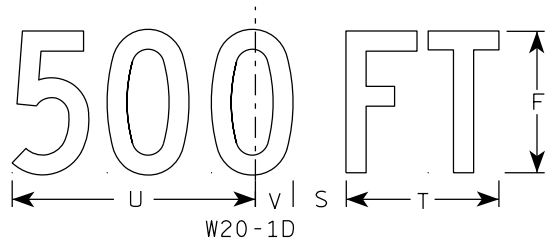
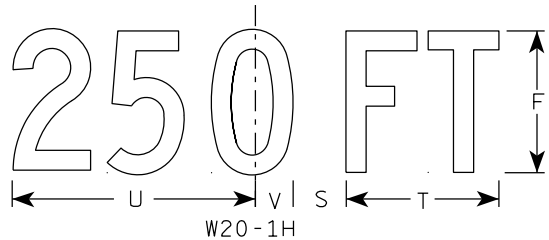
Matthew R. Rauch
for State Traffic Engineer

DATE 2/5/24

PLATE NO. R11-4.4

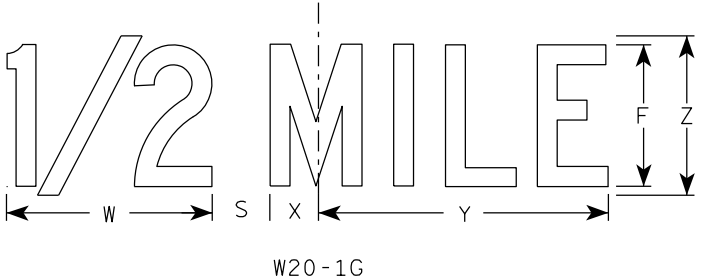


W20-1A

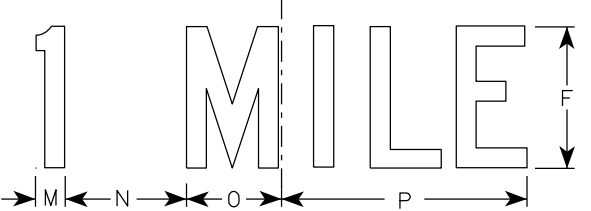


W20-1B

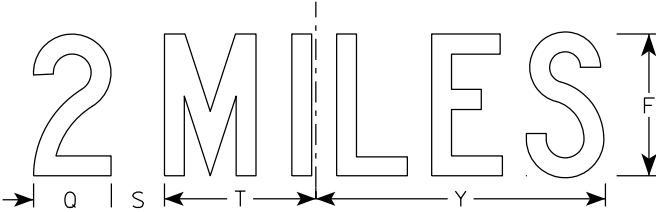
- NOTES
1. Sign is Type II - Type F Reflective
 2. Color:
Background - Orange
Message - Black
 3. Message Series - C
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W20-1G



W20-1F



W20-1E

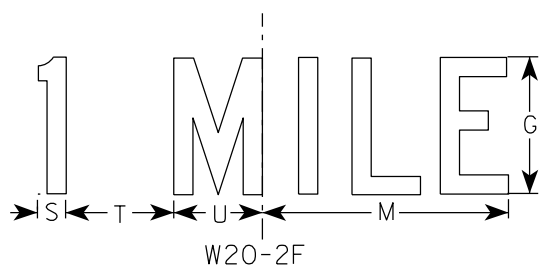
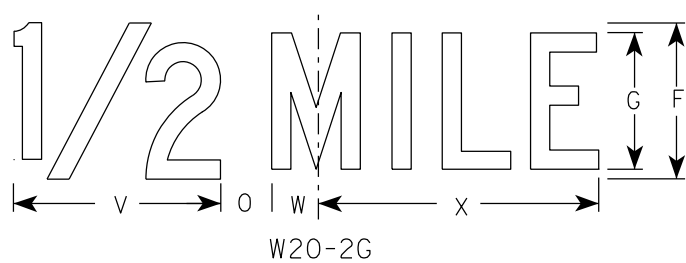
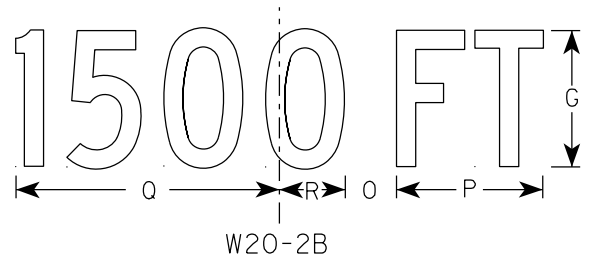
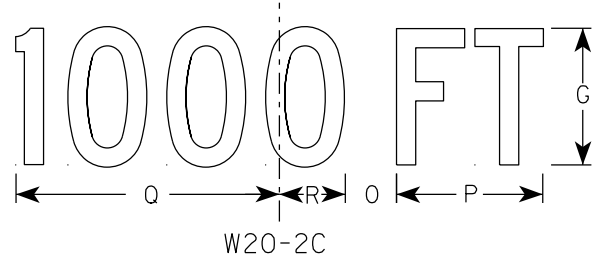
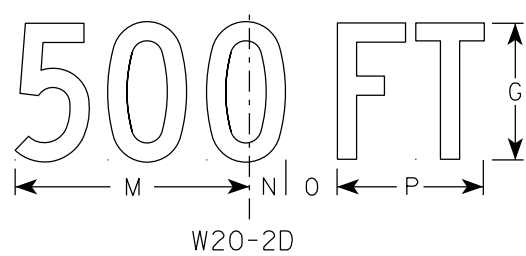
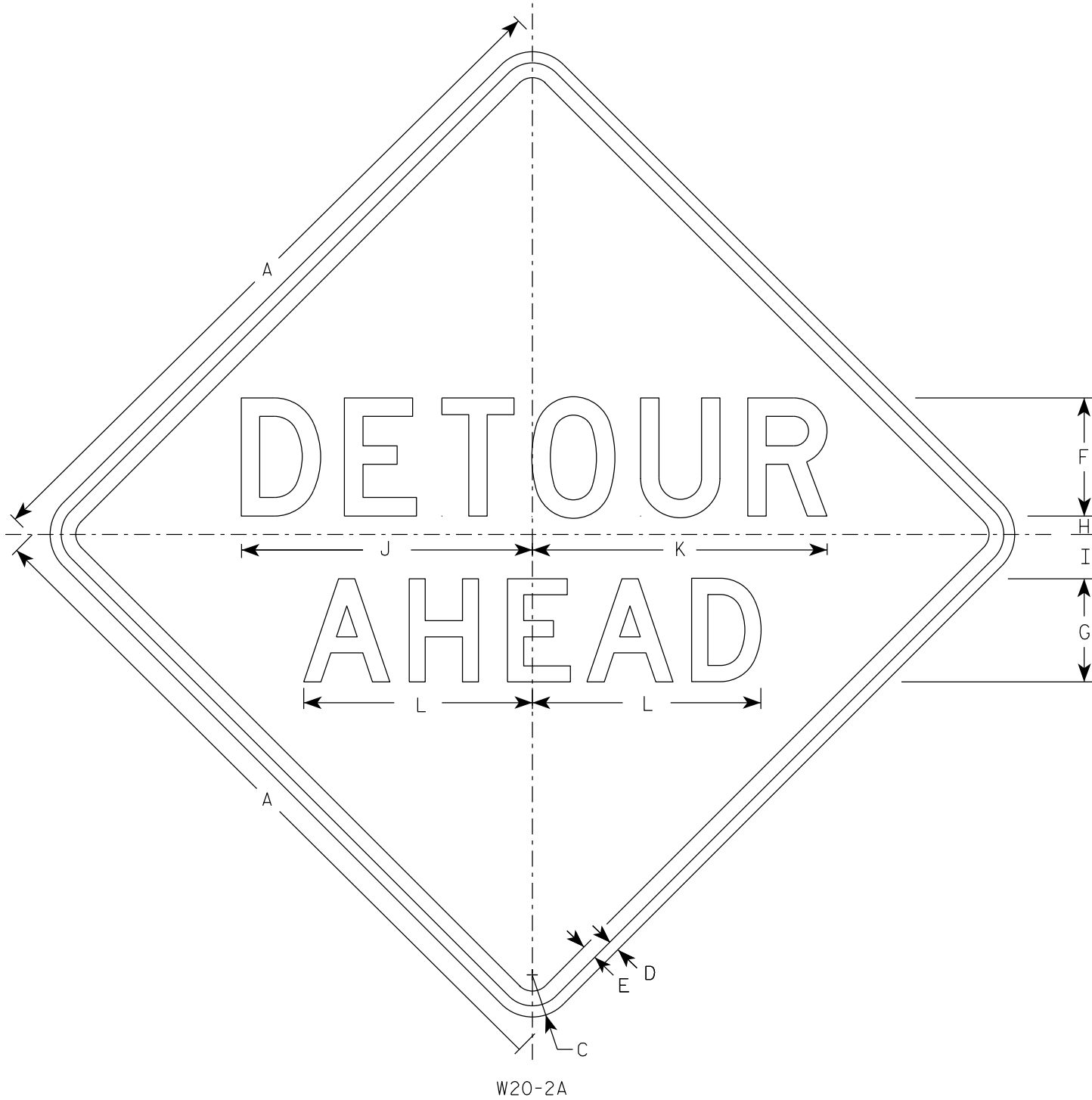
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		3	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		3	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		3	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		3	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 1/10/2024 PLATE NO. W20-1.12



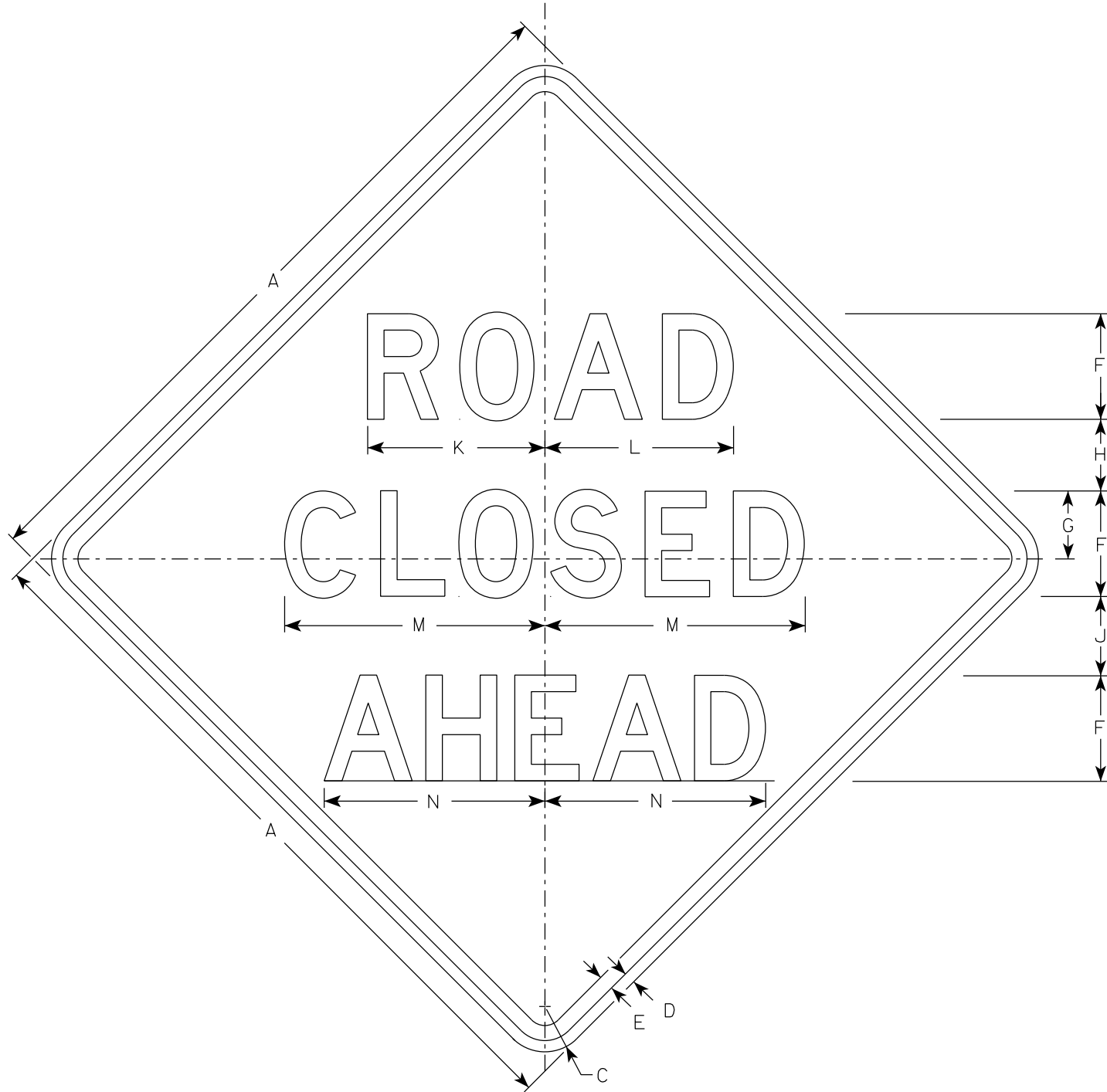
NOTES

- Sign is Type II - Type F Reflective
- Color:
Background - Orange
Message - Black
- Message Series - See note 5
- 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.
- Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

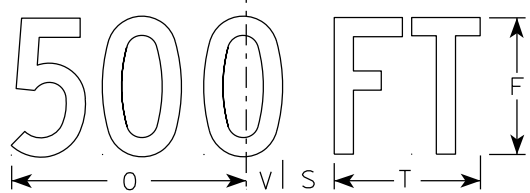
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	w	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		3	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		3	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		3	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		3	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	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 1/10/2024	PLATE NO. W20-2.7

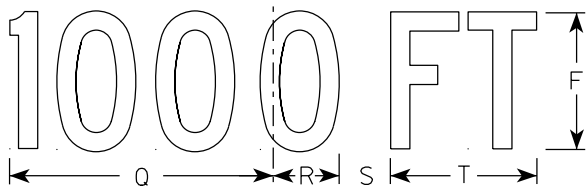
7



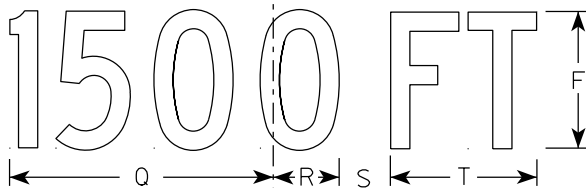
W20-3A



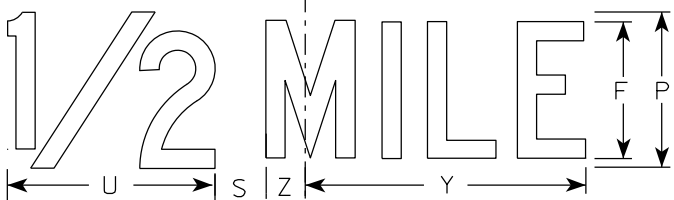
W20-3D



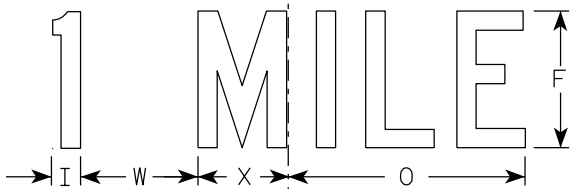
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

- 1. Sign is Type II - Type F Reflective
- 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

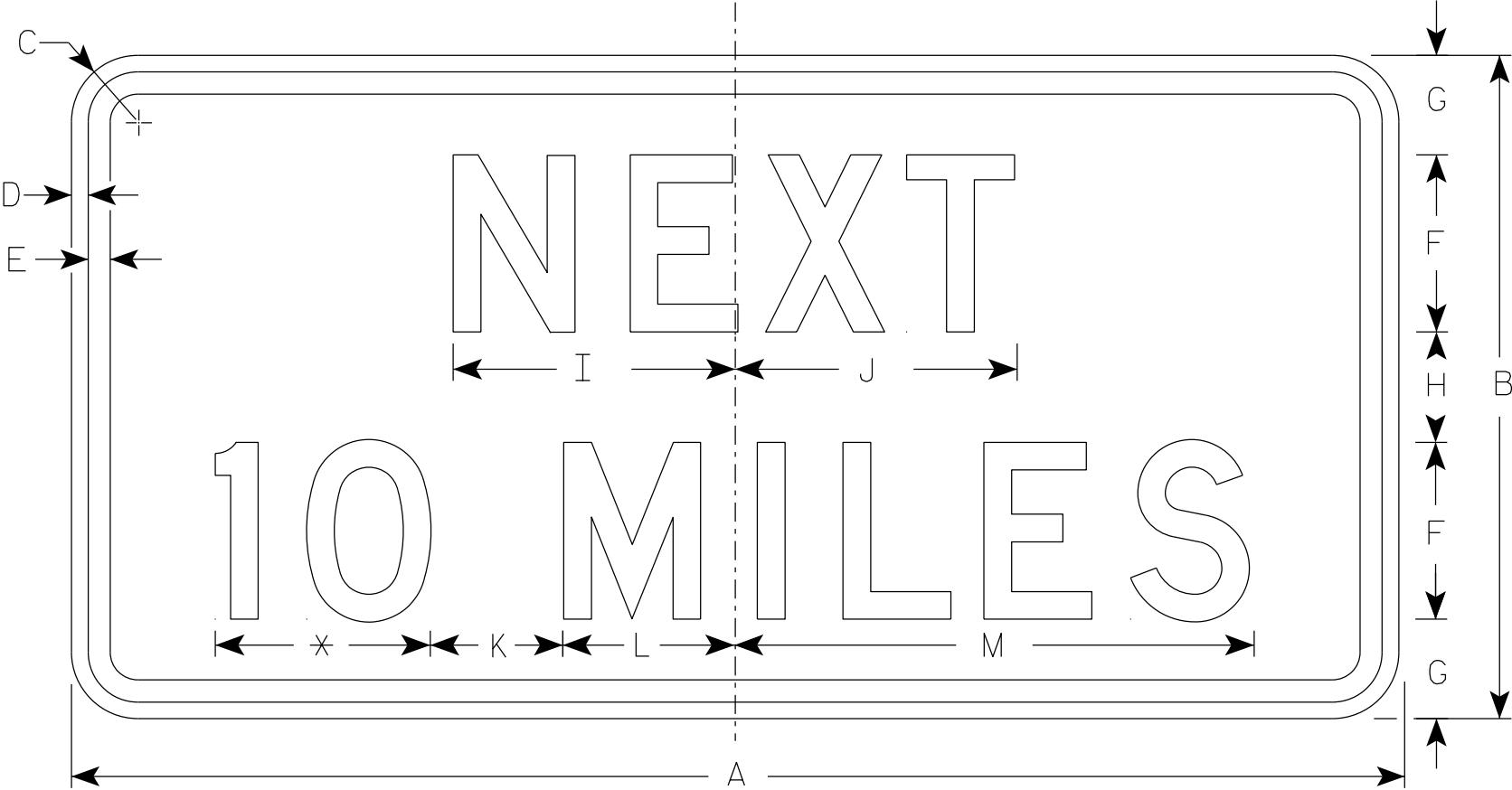
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		3	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		3	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		3	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		3	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 1/10/2024 PLATE NO. W20-3.8



W057-51

* See note 5

NOTES

- 1. Sign is Type II - Type F Reflective
- 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. Round distance to the nearest whole Mile and substitute appropriate numerals and optically adjust spacing to achieve proper balance.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/2	3/8	1/2	5	2 3/4	2 1/2	7 7/8	8	5	4 1/8	15 3/8														4.5
2S	48	24	1 7/8	1/2	5/8	6	4	4	10	10 1/8	6	5 5/8	19														8.0
2M	48	24	1 7/8	1/2	5/8	6	4	4	10	10 1/8	6	5 5/8	19														8.0
3	48	24	1 7/8	1/2	5/8	6	4	4	10	10 1/8	6	5 5/8	19														8.0
4	48	24	1 7/8	1/2	5/8	6	4	4	10	10 1/8	6	5 5/8	19														8.0
5	48	24	1 7/8	1/2	5/8	6	4	4	10	10 1/8	6	5 5/8	19														8.0

STANDARD SIGN
W057-51

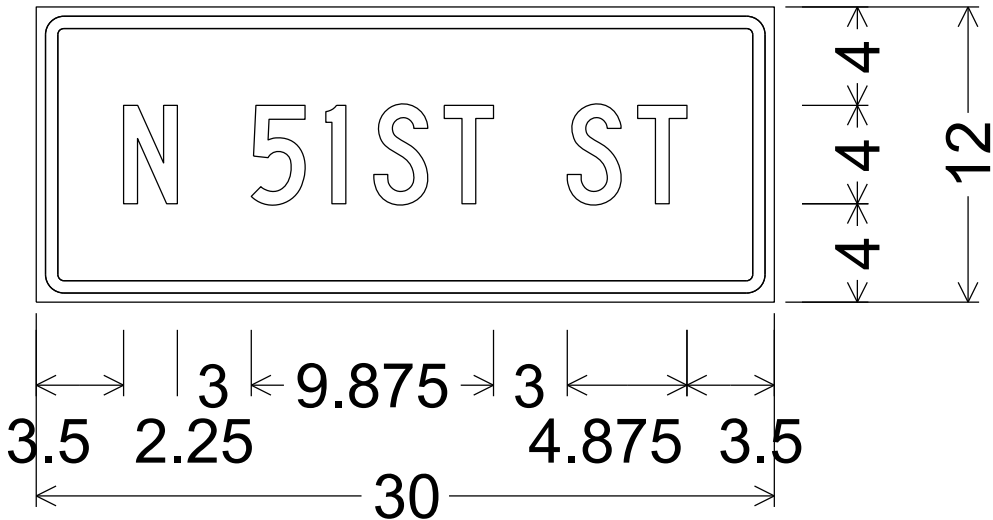
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/1/2024 PLATE NO. W057-51.4

NOTES

- 1. Fixed Message Sign 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

INDICATES WING NUMBER

STATE PROJECT NUMBER

2020-00-71

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING: RF = 1.15
OPERATING RATING: RF = 1.50
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE $f_c = 4,000$ PSI
ALL OTHER $f_c = 3,500$ PSI

BAR STEEL REINFORCEMENT
GRADE 60 $f_y = 60,000$ PSI

STEEL PILING
ASTM A572 $f_y = 50,000$ PSI

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP10x42 PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

ESTIMATED 30'-0" LONG AT SOUTH ABUTMENT.
ESTIMATED 25'-0" LONG 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 PILE CAPACITY.

TRAFFIC DATA

FEATURE ON:

ADT = 500 (2025)
ADT = 500 (2045)
R.D.S. = 30 MPH

HYDRAULIC DATA

100-YEAR FREQUENCY:

$Q_{100} = 1,459$ C.F.S.
 $V_{100} = 6.62$ F.P.S.
 $HW_{100} = EL. 655.05$
WATERWAY AREA = 220.3 SQ. FT.
DRAINAGE AREA = 2.72 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 8

2-YEAR FREQUENCY:

$Q_2 = 490$ C.F.S.
 $V_2 = 3.08$ F.P.S.
 $HW_2 = EL. 650.75$

STRUCTURE DESIGN CONTACTS:

CONSULTANT CONTACT: WYATT ROZMENOSKI (414) 266-9066
BOS CONTACT: AARON BONK (608) 261-0261

NO.	DATE	REVISION	BY
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Gräef

275 W. Wisconsin Avenue
Suite 300
Milwaukee, WI 53203
414/259-1500
414/259-0037 fax
www.graef-usa.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED *[Signature]* SDR 02/25/25
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-40-1102

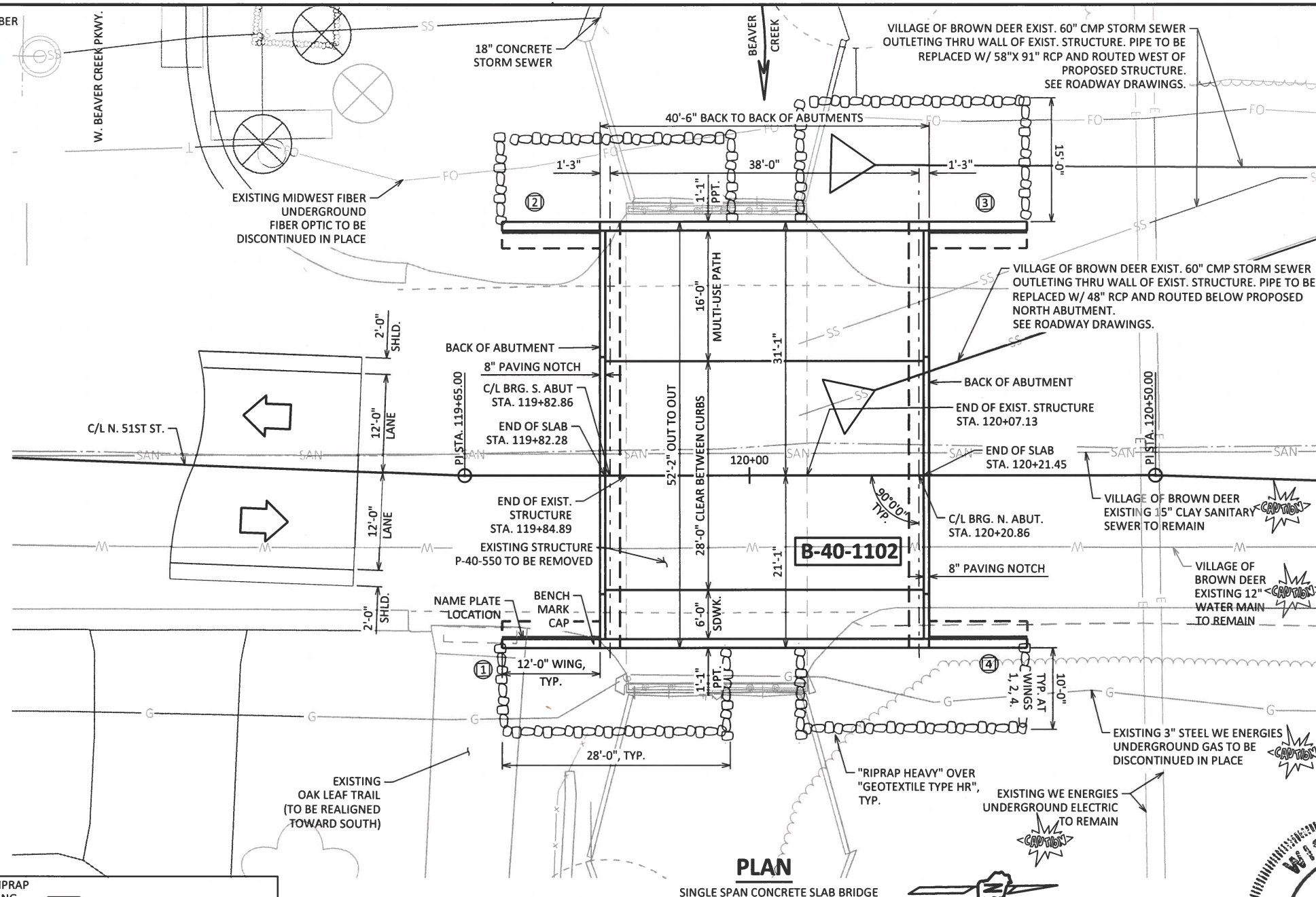
N. 51ST STREET OVER BEAVER CREEK

COUNTY MILWAUKEE VILLAGE BROWN DEER

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATION
DESIGNED BY JCG CK'D WAR DRAWN BY WAR CK'D KGW

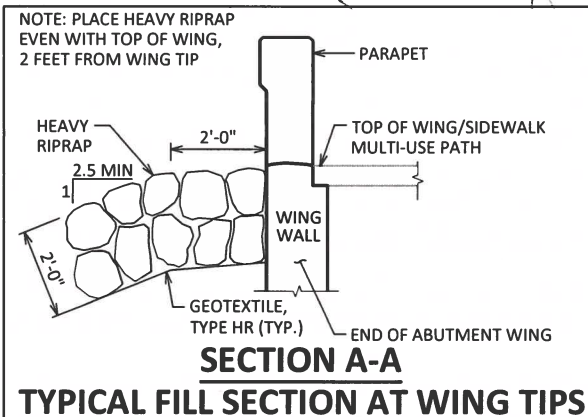
GENERAL PLAN
& ELEVATION

SHEET 115



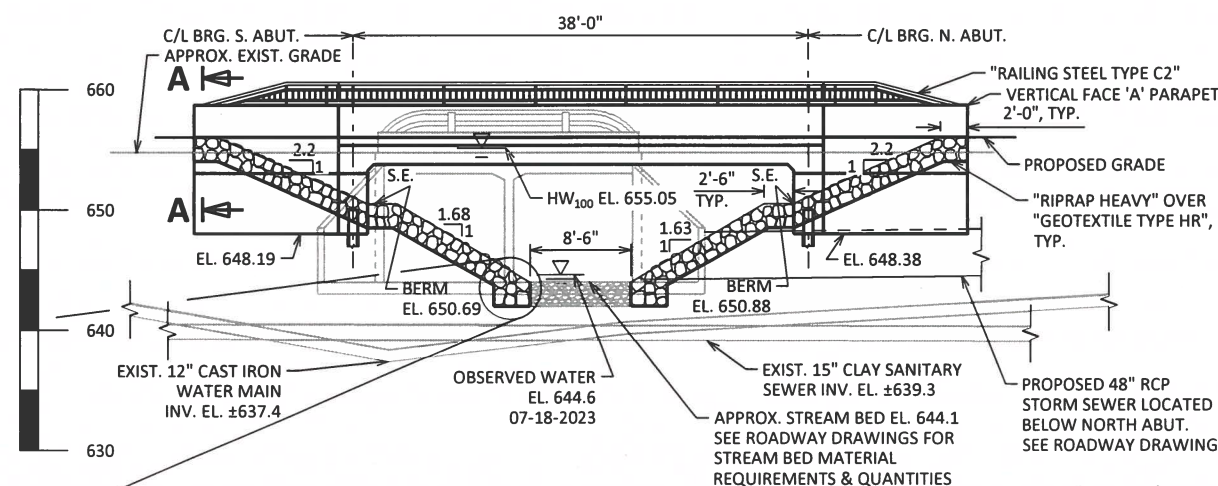
PLAN

SINGLE SPAN CONCRETE SLAB BRIDGE



SECTION A-A

TYPICAL FILL SECTION AT WING TIPS



ELEVATION

LOOKING WEST



LIST OF DRAWINGS:

- 1 GENERAL PLAN & ELEVATION
- 2 CROSS SECTION & GENERAL NOTES
- 3 SUBSURFACE EXPLORATION
- 4 SOUTH ABUTMENT
- 5 SOUTH ABUTMENT DETAILS
- 6 NORTH ABUTMENT
- 7 NORTH ABUTMENT DETAILS
- 8 ABUTMENT DETAILS
- 9 SUPERSTRUCTURE
- 10 SUPERSTRUCTURE DETAILS
- 11 COMBINATION RAILING TYPE "C2"
- 12 RAILING DETAILS

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCE TO THE NAVD (88) 2012 DATUM.

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

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

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-40-1102" AT ABUTMENTS.

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".

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 EXCAVATION FOR STRUCTURES.

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 QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.

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

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

AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

EXISTING STRUCTURE P-40-550 IS A 2-CELL REINFORCED CONCRETE BOX CULVERT, EACH CELL WITH DIMENSIONS 9'-0" HIGH BY 10'-0" WIDE AND A BARREL LENGTH OF 60'-0"±. OVERALL LENGTH, MEASURED FROM END OF APRON TO END OF APRON IS 100'-0"±. THE ENTIRE STRUCTURE IS TO BE REMOVED.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATIONS AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE.

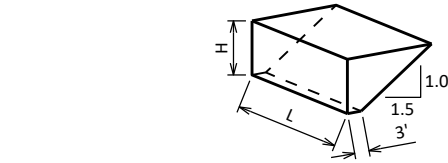
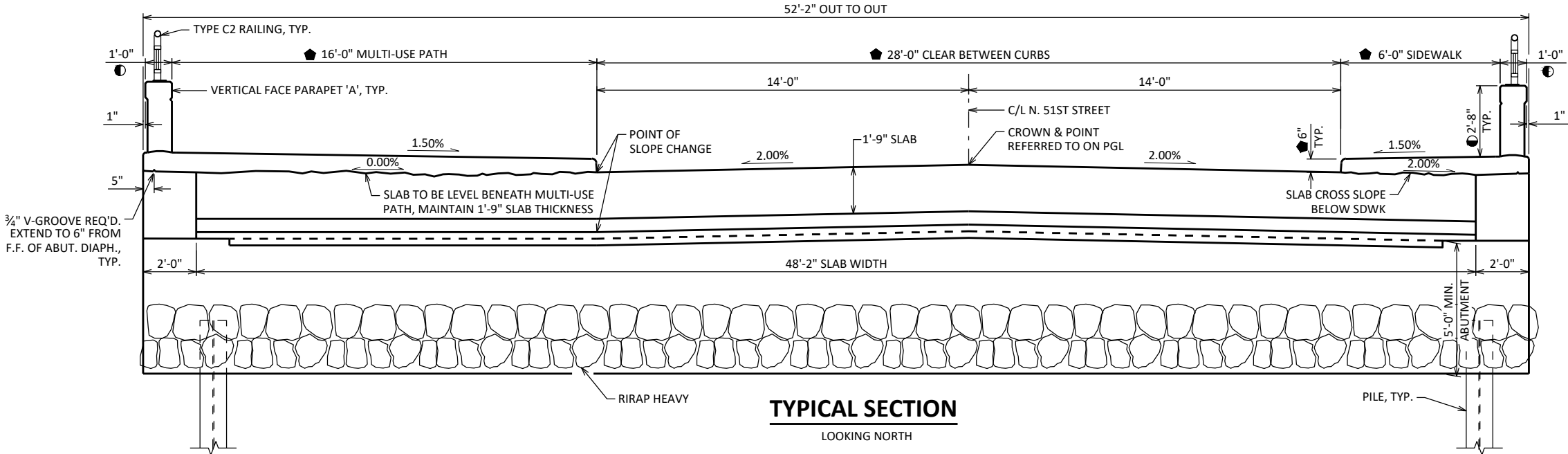
GASKETS UNDER METAL RAILING ON BRIDGE TESTED POSITIVE FOR ACM>1%. THIS MATERIAL IS TO BE REMOVED AND PAID UNDER THE BID ITEM "ABATEMENT OF ASBESTOS CONTAINING MATERIAL P-40-550".

SEE ROADWAY DRAWINGS FOR BID ITEMS, QUANTITIES & DETAILS ASSOCIATED WITH:

- PARTIAL REMOVAL/MODIFICATION OF EXISTING 60" STORM SEWER PIPES
- STREAM REALIGNMENT
- STREAM BED MATERIAL & CUT OFF WALLS
- STREAM/BANK RIPRAP AND GRADING LIMITS BEYOND BRIDGE

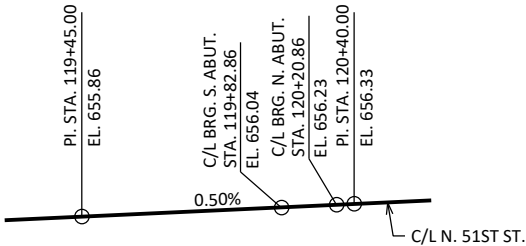
BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
BM100	118+31.83	BM 100 NE BOLT TOP FLANGE OF F. HYD. @ SE CORNER OF N 51ST ST AND W BEAVER CREEK PKWY	657.30
BM101	122+13.81	BM 101 LEFT NORTH TOP BOLT	656.37

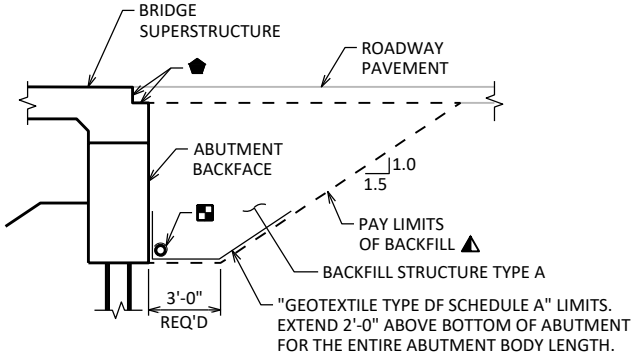


ABUTMENT BACKFILL DIAGRAM

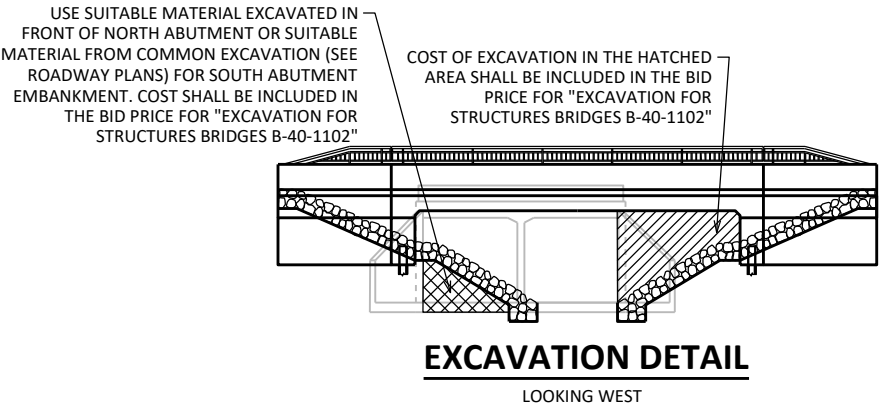
L = OUT TO OUT OF ABUTMENT BODY INCLUDING WINGS (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
 $V_{CF} = (L)(3.0')(H) + (L)(0.5')(1.5H)(H)$
 $V_{CY} = V_{CF}(EF)/27$
 $V_{TON} = V_{CY}(2.0)$



PROFILE GRADE LINE



TYPICAL SECTION THRU ABUTMENT



LEGEND

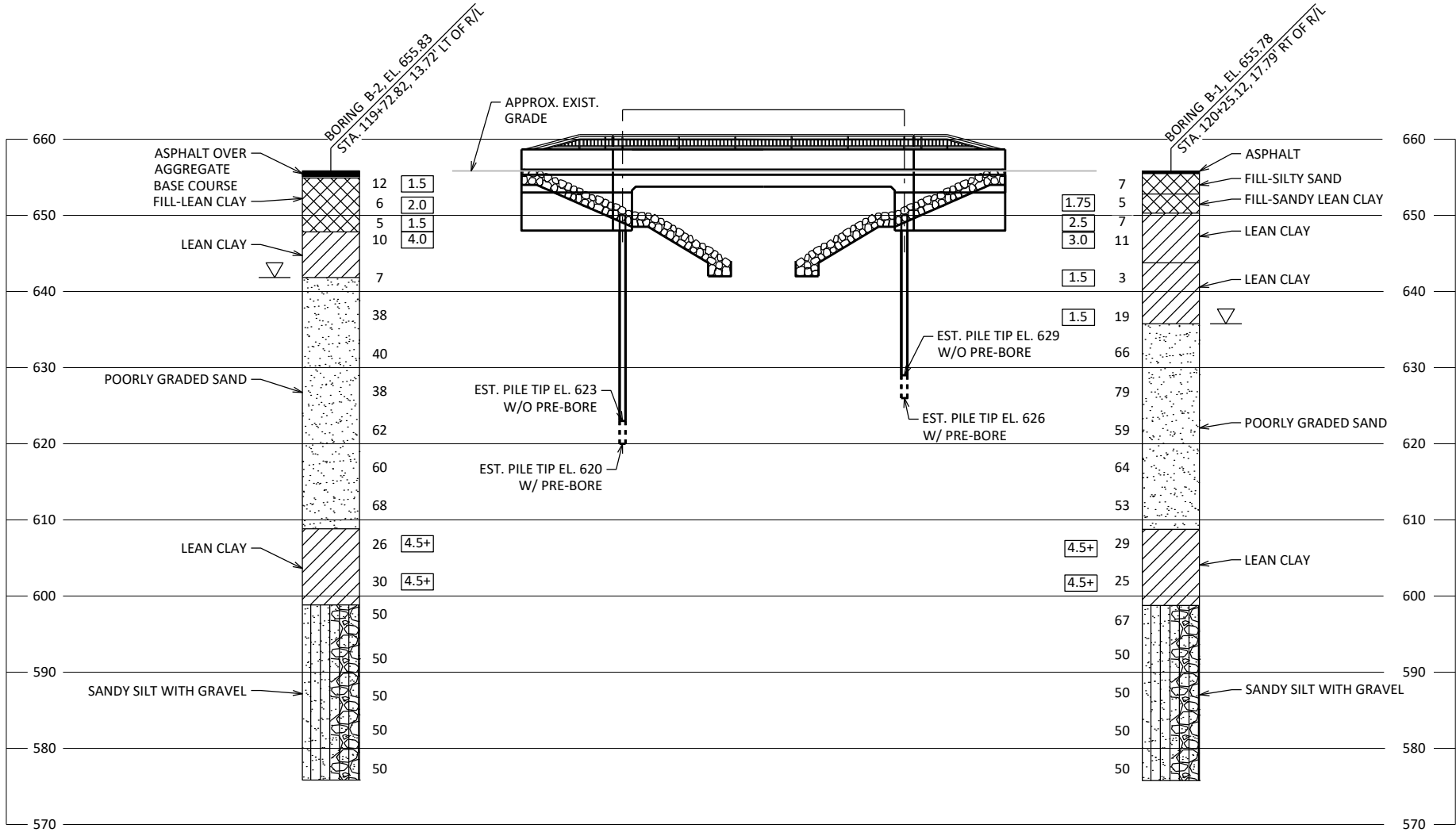
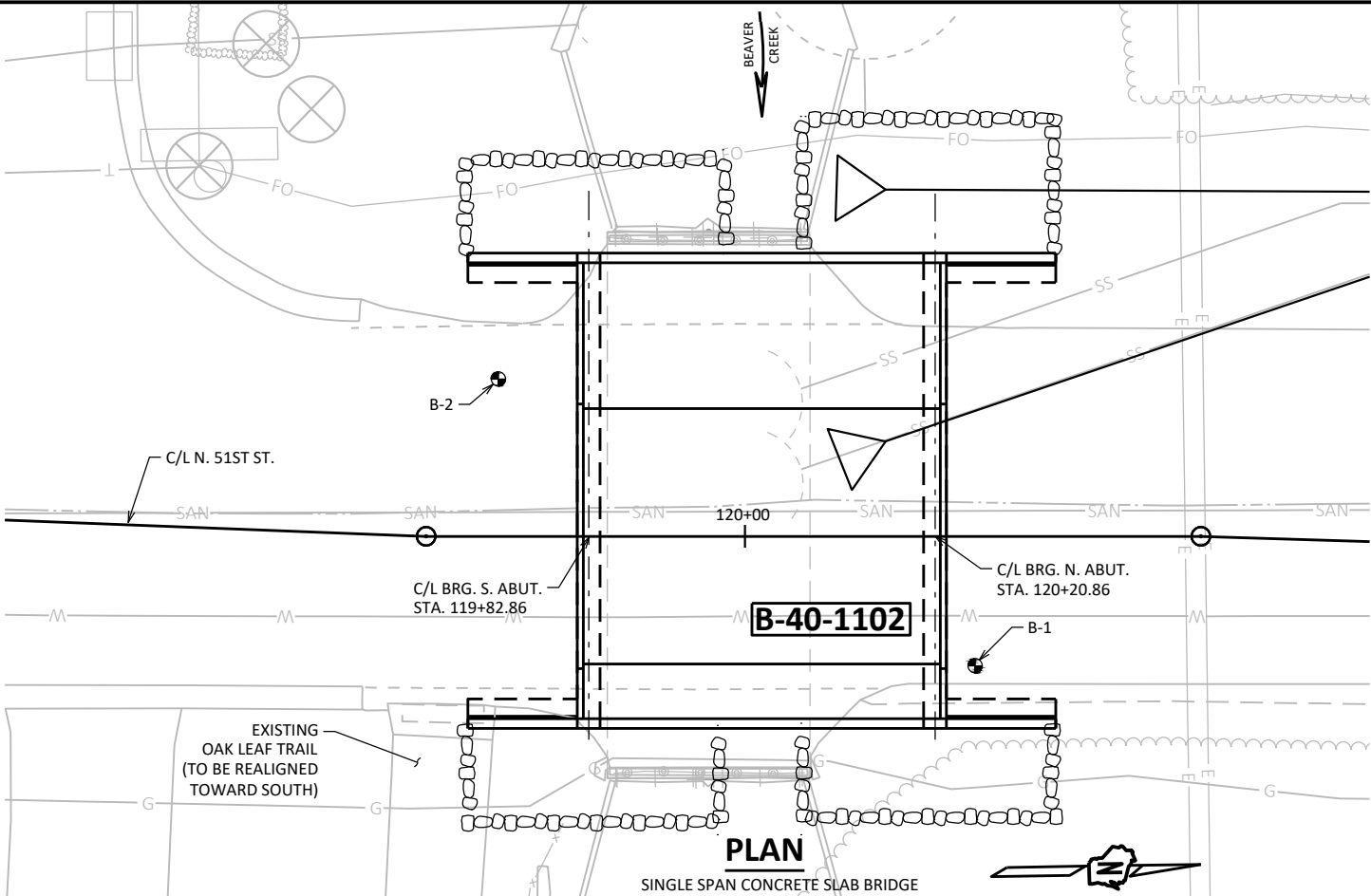
- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.
- PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO:
 - ENTIRE TOP OF SLAB
 - EXPOSED VERTICAL AND HORIZONTAL FACES OF SIDEWALK
 - VERTICAL & HORIZ. FACES OF PAVING NOTCH
- PIGMENTED SURFACE SEALER TO BE APPLIED TO FRONT FACE AND TOP OF THE PARAPETS INCLUDING PARAPETS ON WINGS.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER	S. ABUT.	N. ABUT.	TOTALS
203.0211.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL P-40-550	EACH	--	--	--	1
203.0250	REMOVING STRUCTURE OVER WATERWAY REMOVE DEBRIS P-40-550	EACH	--	--	--	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-40-1102	EACH	--	--	--	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	--	203	203	406
502.0100	CONCRETE MASONRY BRIDGES	CY	165.4	44.8	44.8	255
502.3200	PROTECTIVE SURFACE TREATMENT	SY	239	--	--	239
502.3210	PIGMENTED SURFACE SEALER	SY	34	10	10	54
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	--	3,220	3,220	6,440
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	32,100	2,310	2,310	36,720
513.7011	RAILING STEEL TYPE C2	LF	81	23	23	127
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	--	14	14	28
550.0010	PRE-BORING UNCONSOLIDATED MATERIALS	LF	--	44	38	82
550.1100	PIILING STEEL HP 10-INCH X 42 LB	LF	--	240	200	440
606.0300	RIPRAP HEAVY	CY	--	113	130	243
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	--	88	88	176
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	--	73	73	146
645.0120	GEOTEXTILE TYPE HR	SY	--	218	311	529
999.1501.S	CRACK AND DAMAGE SURVEY	EACH	--	--	--	3
	NON-BID ITEMS					
	FILLER	SIZE	---	---	---	½", ¾"
	NAME PLATE	EACH				1

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-1102			
		DRAWN BY	PLANS CK'D
		WAR	KGW
CROSS SECTION & GENERAL NOTES		SHEET 2 OF 12	
		116	

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-1	6-29-2023	352293.53	588683.85
B-2	6-29-2023	352241.71	588651.55
BORINGS COMPLETED BY: GEOCON			
REPORT COMPLETED BY: TERRACON			
ALL COORDINATES REFERENCED TO NAD 83 (2011) AND NAVD (88) 2012 COUNTY MILWAUKEE			



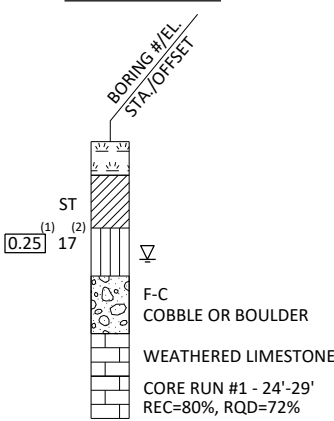
STATE PROJECT NUMBER

2020-00-71

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

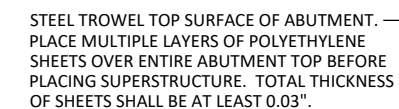
ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

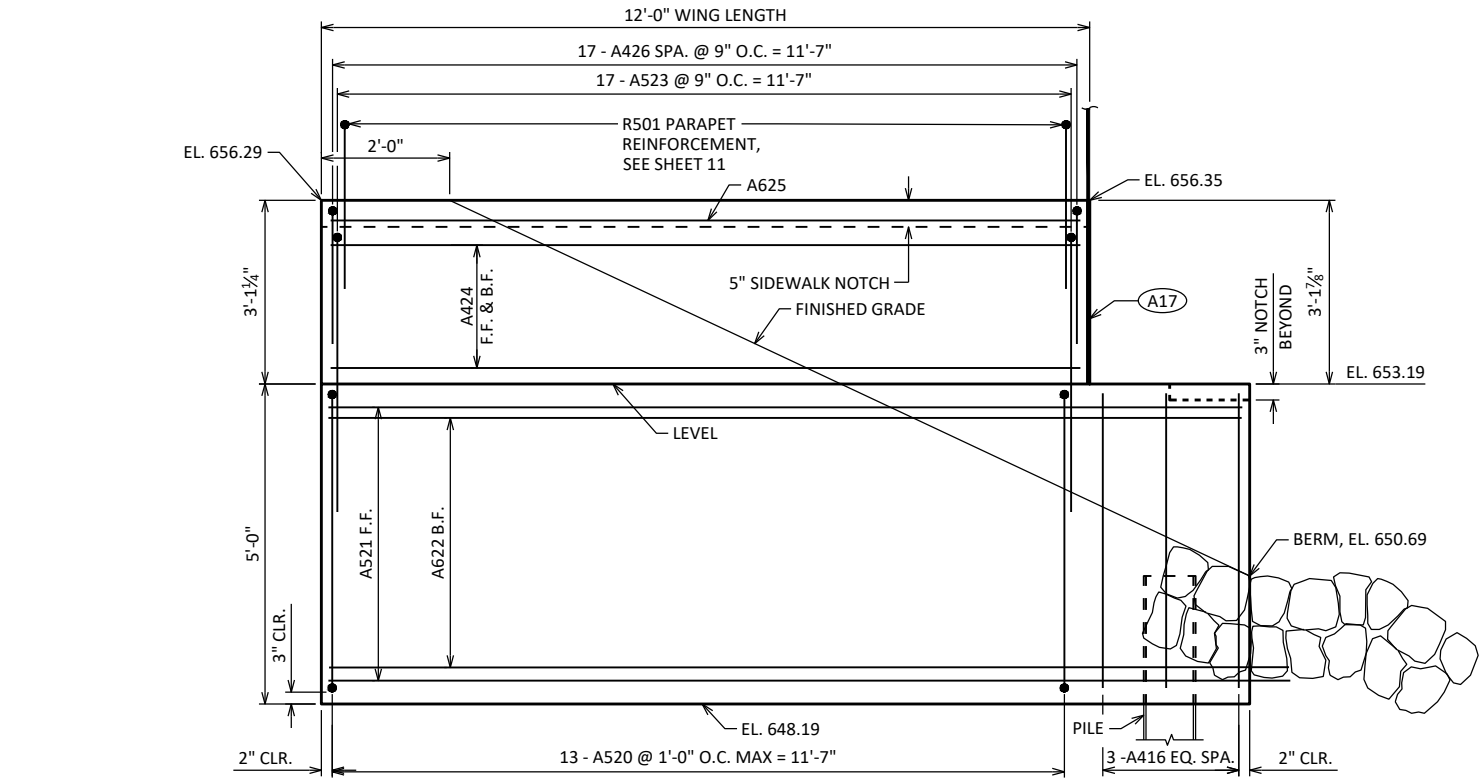
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT 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.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-1102			
DRAWN BY		WAR	PLANS CK'D KGW
SUBSURFACE EXPLORATION		SHEET 3 OF 12 117	

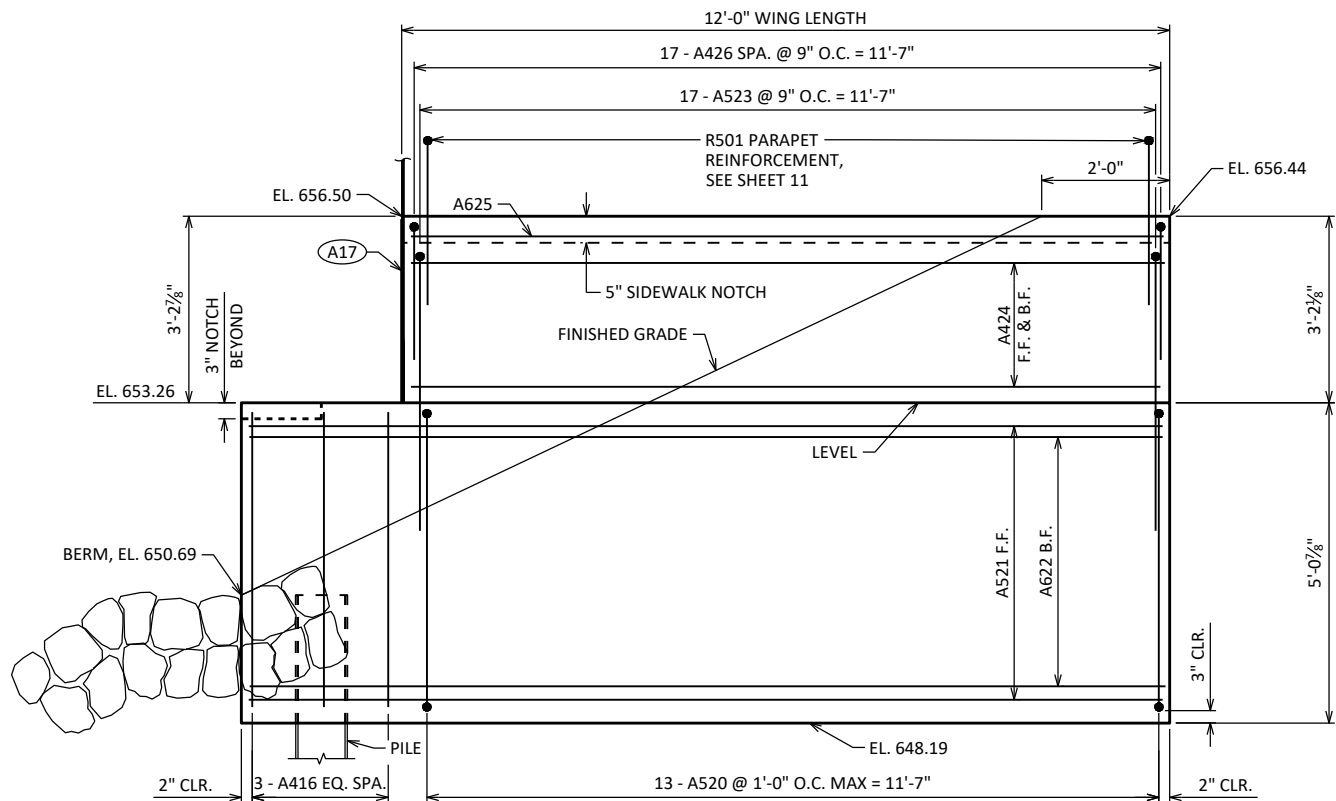


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-40-1102	
DRAWN BY		WAR	PLANS CK'D KGW
SOUTH ABUTMENT		SHEET 4 OF 12 118	

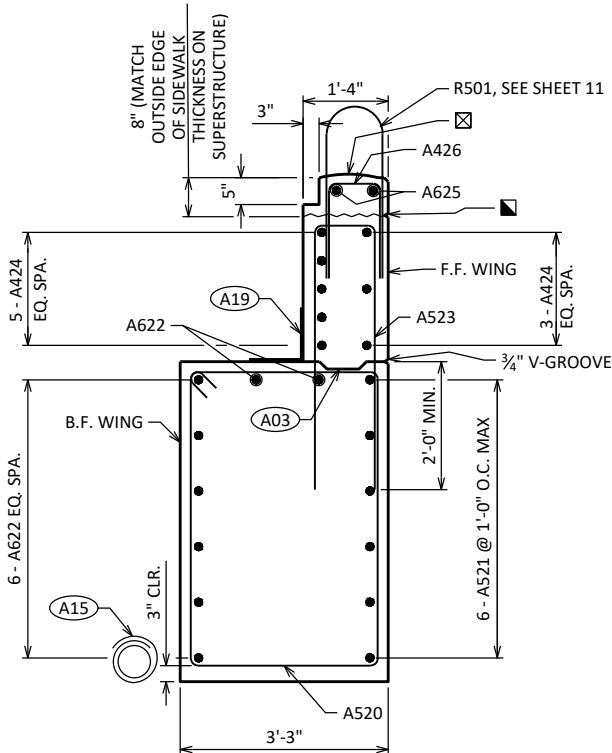
SCALE -



WING 1 ELEVATION
LOOKING AT F.F. WING



WING 2 ELEVATION
LOOKING AT F.F. WING

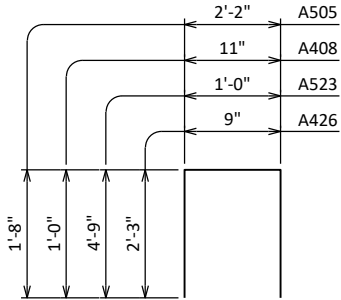


WING SECTION

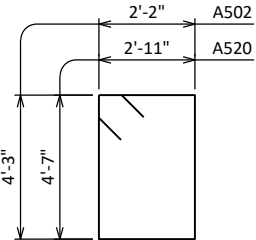
SOUTH ABUTMENT BILL OF BARS

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

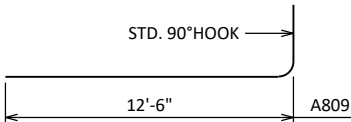
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A601		11	30'-10"			TOP, BOTTOM, & F.F. HORIZ. - WEST
A502		66	13'-6"	X		VERTICAL STIRRUPS
A603		7	21'-3"			B.F. HORIZ. - WEST
A404		4	6'-6"			TOP HORIZ. @ CROWN
A505		8	5'-3"	X		VERTICAL STIRRUP @ CROWN
A406		8	28'-0"	X		PILE SPIRAL
A407		16	2'-3"			PILE VERTICAL
A408		33	2'-9"	X		ABUTMENT SEAT TRANSVERSE
A809		14	13'-7"	X		B.F. HORIZ. AT WING
A610		11	24'-2"			TOP, BOTTOM, & F.F. HORIZ. - EAST
A611		7	14'-4"			B.F. HORIZ. - EAST
A414		2	30'-10"			HORIZ. TOP - WEST
A415		2	24'-2"			HORIZ. TOP - EAST
A416		6	4'-7"			ABUT. END VERTICAL
A520	X	26	15'-8"	X		LOWER WING STIRRUP
A521	X	12	14'-2"			LOWER WING F.F. HORIZ.
A622	X	16	14'-2"			LOWER WING B.F. HORIZ.
A523	X	34	10'-3"	X		UPPER WING VERTICAL
A424	X	16	11'-7"			UPPER WING HORIZ.
A625	X	4	11'-7"			UPPER WING TOP HORIZ.
A426	X	34	5'-1"	X		UPPER WING VERTICAL



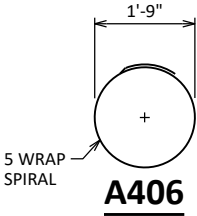
A505, A408,
A523, A426



A502, A520



A809

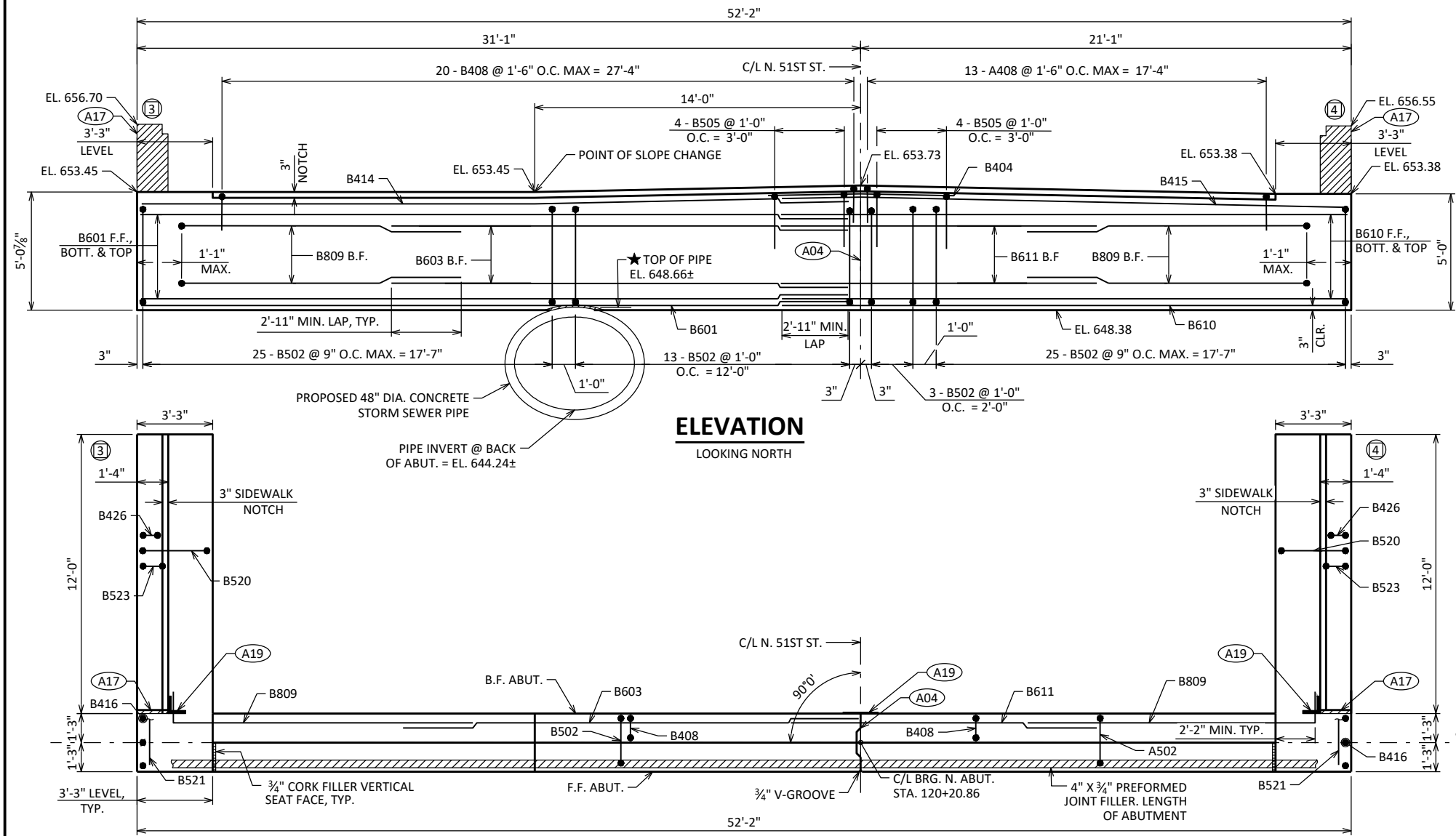


LEGEND

- A03 OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2" X 6". (18" RMW @ B.F. & 3/4" V-GROOVE @ F.F. IF JOINT IS USED).
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17 3/2" FILLER (INCLUDED IN WING LENGTH) TO EXTEND FROM BRIDGE SEAT TO TOP OF CONCRETE PARAPET. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 3/8" BELOW SURFACE OF CONCRETE).
- A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- OPTIONAL CONSTRUCTION JOINT, LEAVE ROUGH. POUR CONCRETE ABOVE THE JOINT AFTER SUPERSTRUCTURE SIDEWALK IS IN PLACE. IF JOINT IS USED, UTILIZE RUBBERIZED MEMBRANE WATERPROOFING (COST INCIDENTAL TO BID ITEM " CONCRETE MASONRY BRIDGE") AND PROVIDE 3/4" V-GROOVE AT JOINT ON F.F. OF WING.
- HORIZ. CONST. JOINT-STRIKE OFF AS SHOWN AND LEAVE ROUGH

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-1102			
DRAWN BY		WAR	PLANS CK'D KGW
SOUTH ABUTMENT DETAILS		SHEET 5 OF 12 119	

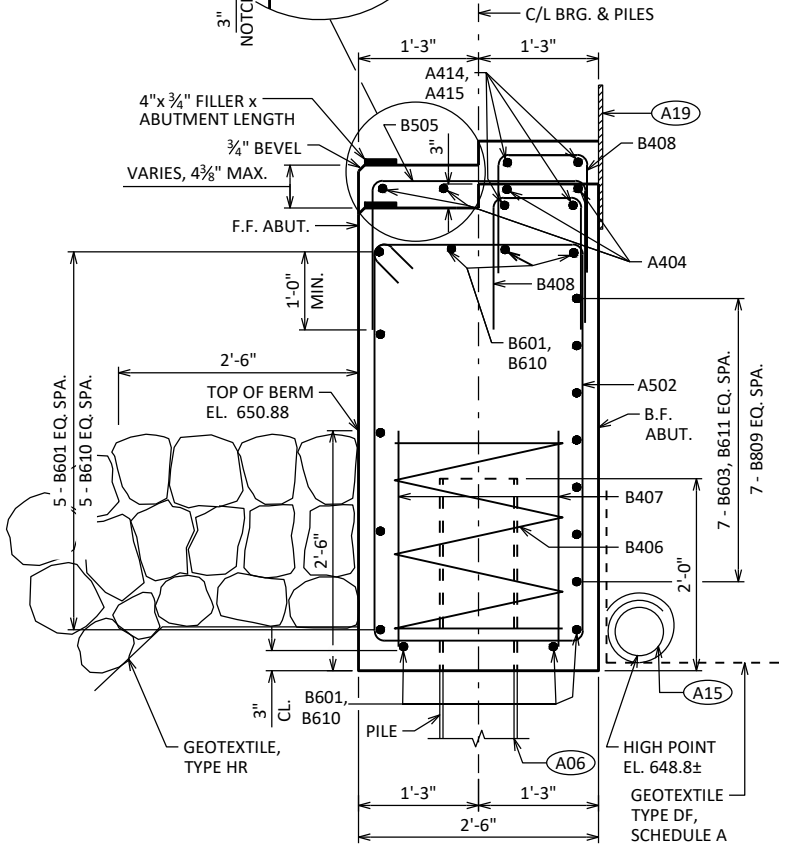
SCALE =



ELEVATION
LOOKING NORTH

PLAN

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



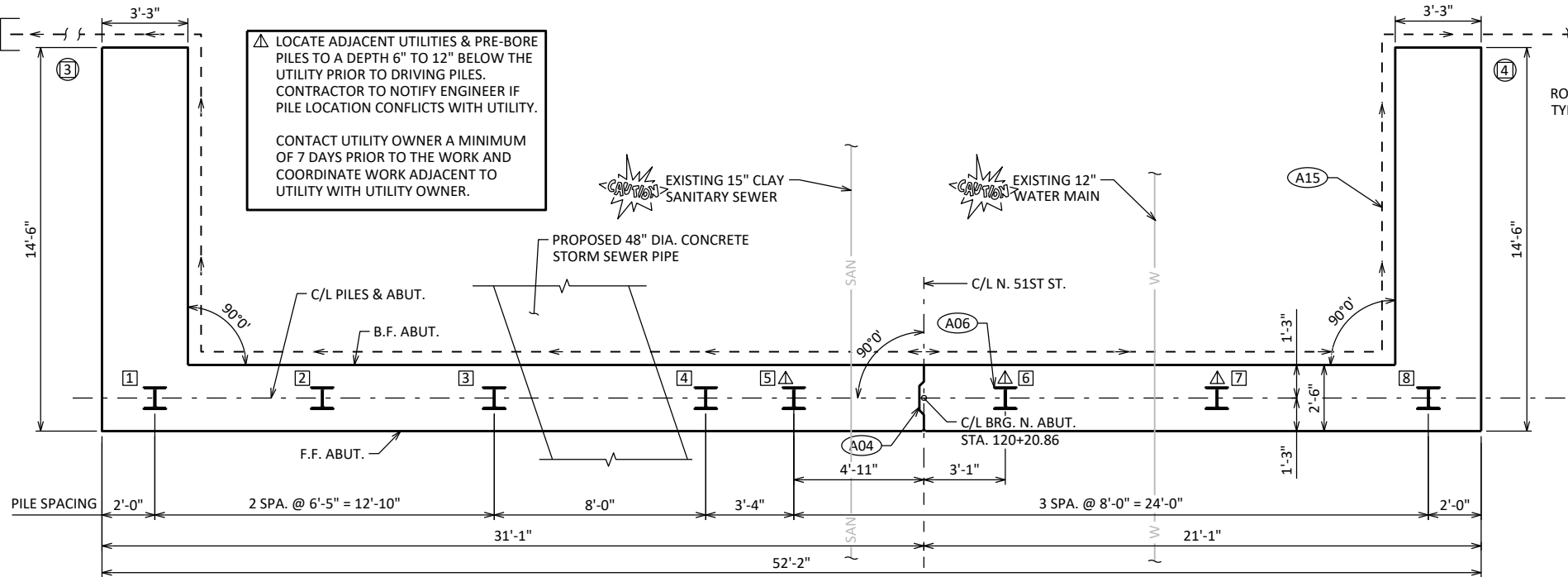
SECTION THRU BODY

NOTE

SEE SHEET 8 FOR PILE SPICE DETAILS

LEGEND

- A04 VERT. CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 8. 3/4" "V" GROOVE @ THE FRONT FACE AND 18" RMW @ BACKFACE. FOR OPTIONAL DETAILS SEE SHEET 8.
- A06 SUPPORT ABUTMENT ON HP 10 X 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. FILLER INCLUDED IN WING LENGTH. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 3/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- ★ PROVIDE 3/4" PREFORMED JOINT FILLER AROUND PIPE WITHIN WIDTH OF ABUTMENT. SPRING LONGITUDINAL REINFORCEMENT VERTICALLY AND ADJUST A502 SPACING AS REQUIRED TO MAINTAIN 2" MIN. CONCRETE CLEAR COVER TO FILLER ABOVE PIPE. MAXIMUM SPACING A502 NOT TO EXCEED 1'-0".
- # WING NUMBER
- # PILE NUMBER



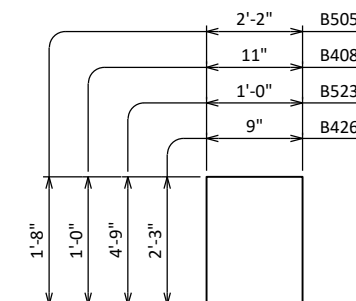
PILE PLAN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-1102			
DRAWN BY		WAR	PLANS CK'D KGW
NORTH ABUTMENT		SHEET 6 OF 12 120	

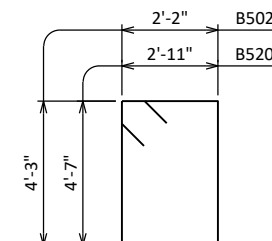
SCALE =

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

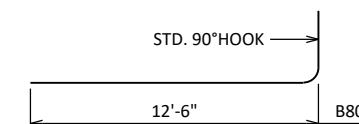
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B601		11	30'-10"			TOP, BOTTOM, & F.F. HORIZ. - WEST
B502		66	13'-6"	X		VERTICAL STIRRUPS
B603		7	21'-3"			B.F. HORIZ. - WEST
B404		4	6'-6"			TOP HORIZ. @ CROWN
B505		8	5'-3"	X		VERTICAL STIRRUP @ CROWN
B406		8	28'-0"	X		PILE SPIRAL
B407		16	2'-3"			PILE VERTICAL
B408		33	2'-9"	X		ABUTMENT SEAT TRANSVERSE
B809		14	13'-7"	X		B.F. HORIZ. AT WING
B610		11	24'-2"			TOP, BOTTOM, & F.F. HORIZ. - EAST
B611		7	14'-4"			B.F. HORIZ. - EAST
B414		2	30'-10"			HORIZ. TOP - WEST
B415		2	24'-2"			HORIZ. TOP - EAST
B416		6	4'-7"			ABUT. END VERTICAL
B520	X	26	15'-8"	X		LOWER WING STIRRUP
B521	X	12	14'-2"			LOWER WING F.F. HORIZ.
B622	X	16	14'-2"			LOWER WING B.F. HORIZ.
B523	X	34	10'-3"	X		UPPER WING VERTICAL
B424	X	16	11'-7"			UPPER WING HORIZ.
B625	X	4	11'-7"			UPPER WING TOP HORIZ.
B426	X	34	5'-1"	X		UPPER WING VERTICAL



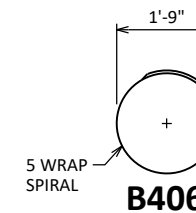
B505, B408,
B523, B426



B502, B520

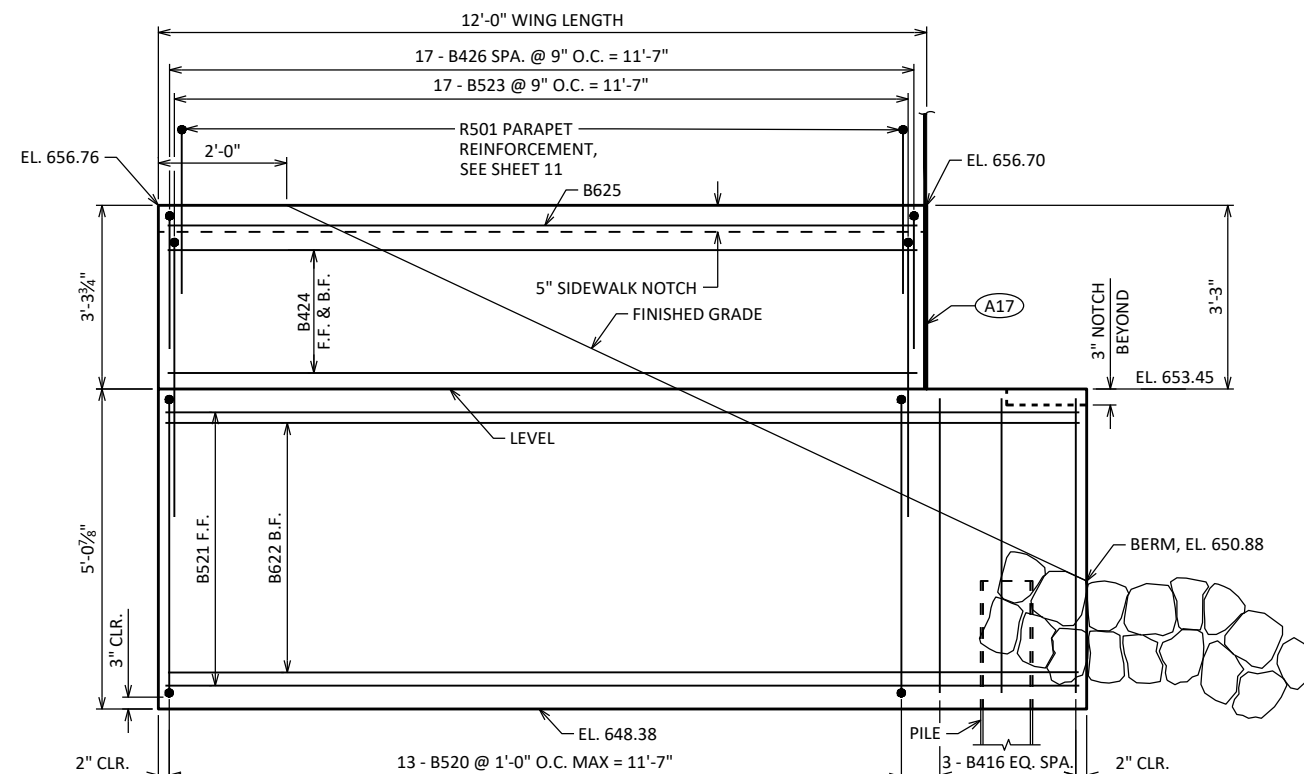


B809



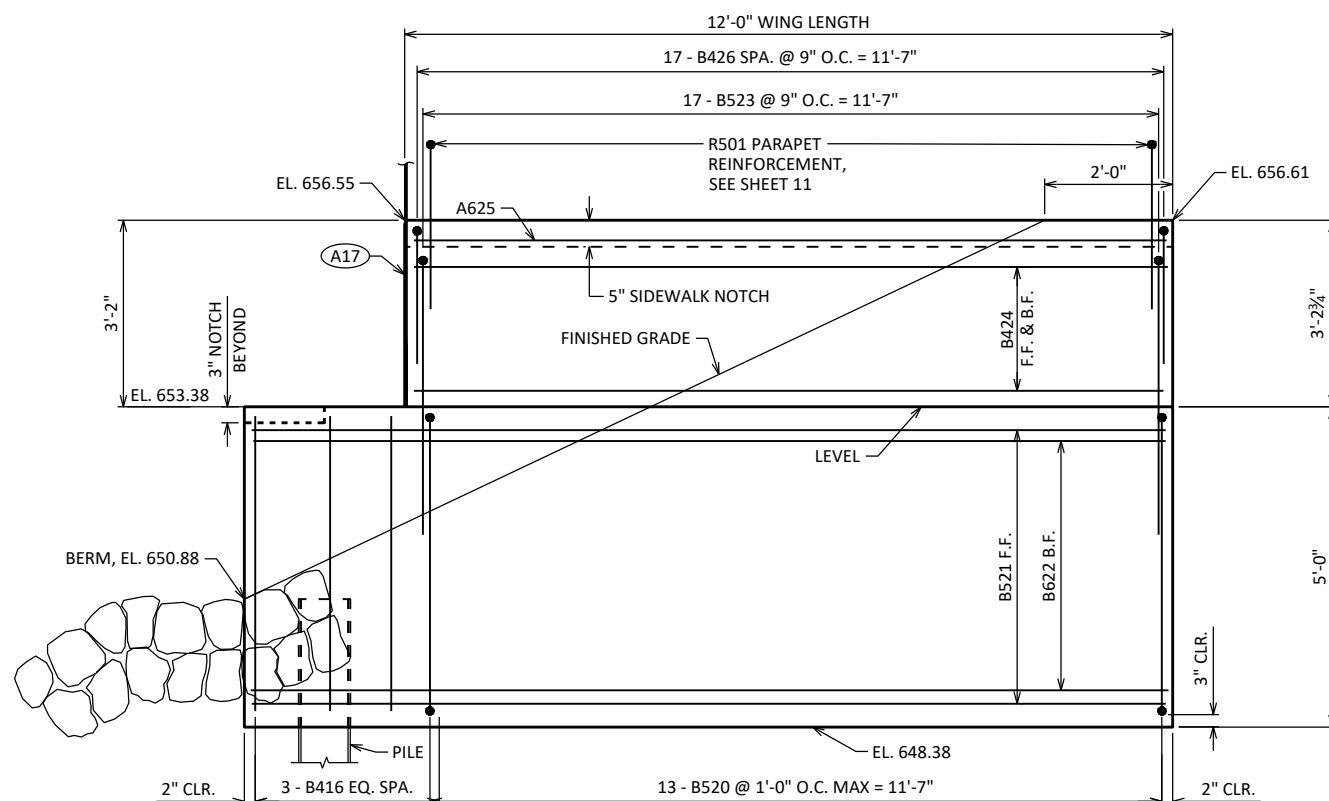
LEGEND

- A03** OPTIONAL CONSTRUCTION JOINT: KEYWAY FORMED BY BEVELED 2" X 6".
(18" RMW @ B.F. & $\frac{3}{4}$ " V-GROOVE @ F.F. IF JOINT IS USED).
- A15** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE.
RODENT SHIELD REQUIRED.
- A17** $\frac{1}{2}$ " FILLER (INCLUDED IN WING LENGTH) TO EXTEND FROM BRIDGE SEAT TO TOP OF
CONCRETE PARAPET. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH
NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD $\frac{3}{8}$ " BELOW
SURFACE OF CONCRETE).
- A19** 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS
AT BACKFACE.
- ☒ OPTIONAL CONSTRUCTION JOINT, LEAVE ROUGH. POUR CONCRETE ABOVE THE JOINT
AFTER SUPERSTRUCTURE SIDEWALK IS IN PLACE. IF JOINT IS USED, UTILIZE RUBBERIZED
MEMBRANE WATERPROOFING (COST INCIDENTAL TO BID ITEM " CONCRETE MASONRY
BRIDGE") AND PROVIDE $\frac{3}{4}$ " V-GROOVE AT JOINT ON F.F. OF WING.
- ☒ HORIZ. CONST. JOINT-STRIKE OFF AS SHOWN AND LEAVE ROUGH



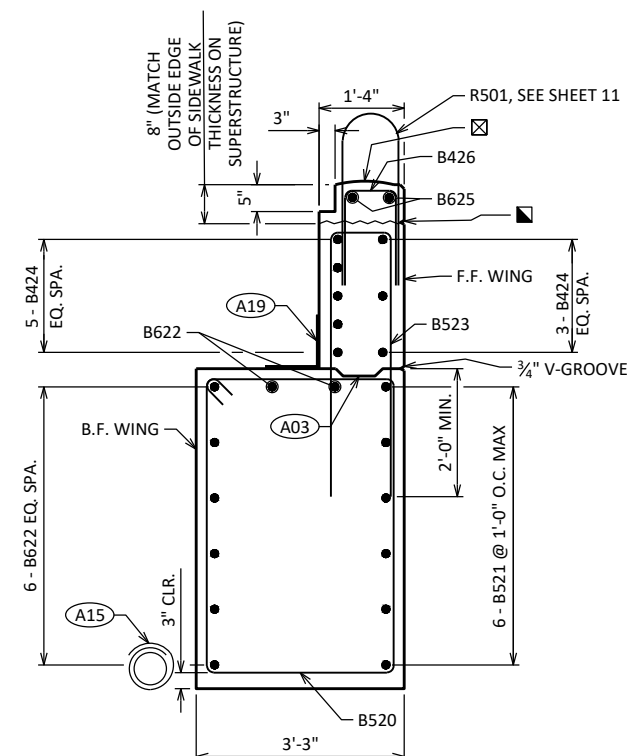
WING 3 ELEVATION

LOOKING AT F.F. WING



WING 4 ELEVATION

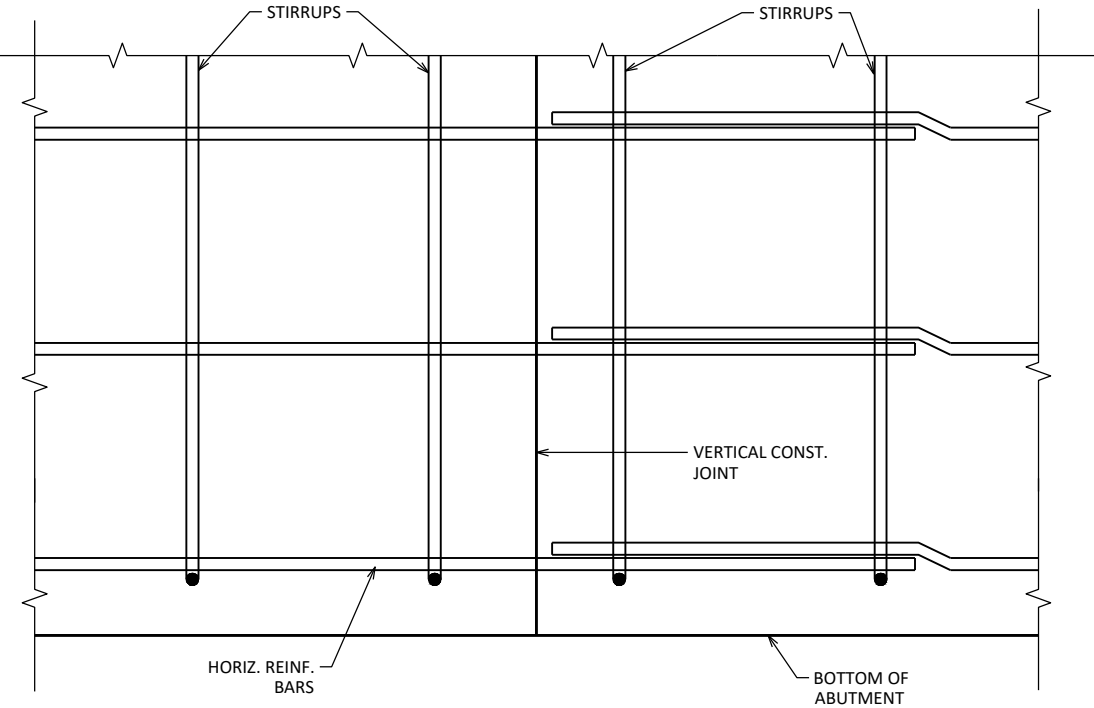
LOOKING AT F.F. WING



WING SECTION

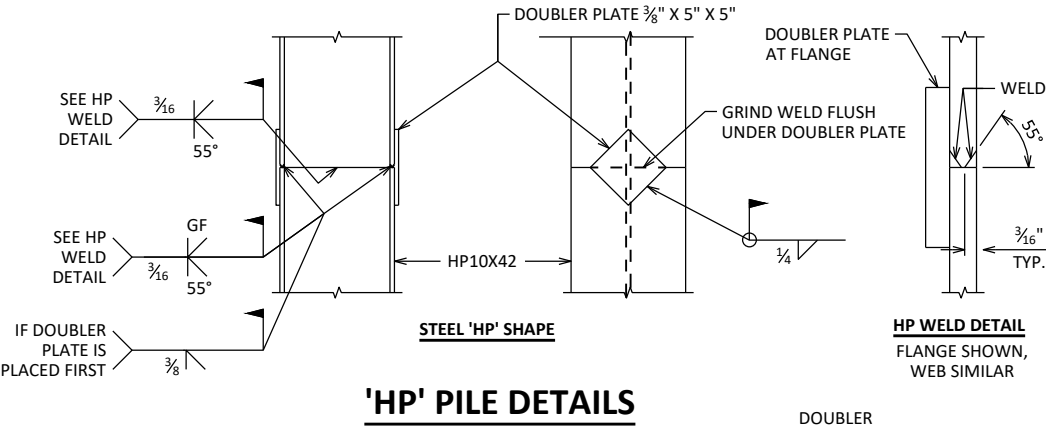
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-1102			
	DRAWN BY	WAR	PLANS CK'D KGW
NORTH ABUTMENT DETAILS		SHEET 7 OF 12 121	

SCALE -

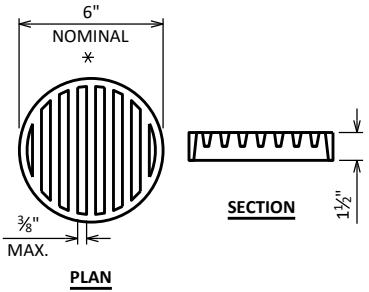


ABUTMENT CONSTRUCTION JOINT

REINFORCEMENT LAP NOT TO SCALE



'HP' PILE DETAILS



RODENT SHIELD DETAIL

* 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.

NOTES

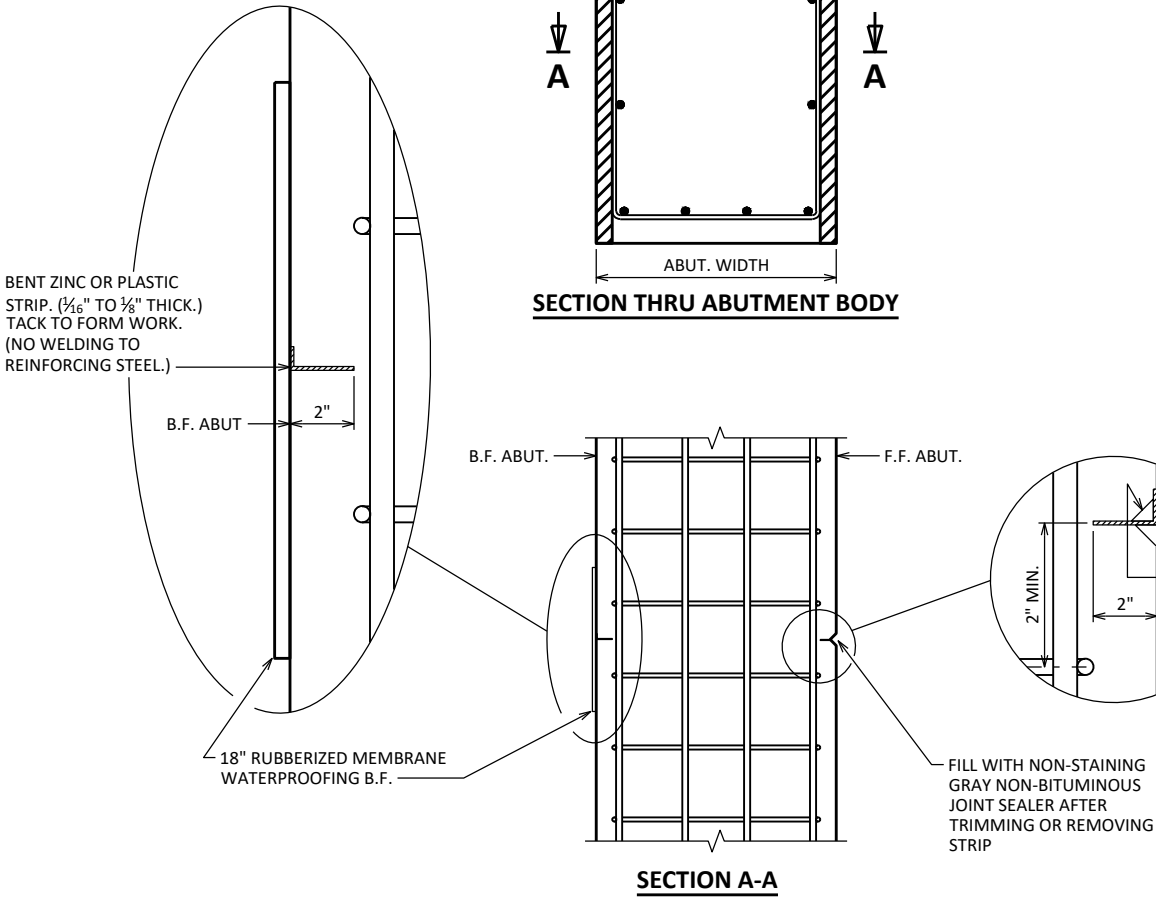
PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATIVE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

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.

SAW CUTTING JOINT IS NOT ALLOWED.

1. USE A JOINT TOOL TO CONSTRUCT A CONTRACTION JOINT APPROXIMATELY 1/2" DEEP.



SECTION A-A

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-1102			
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ABUTMENT DETAILS		SHEET 8 OF 12 122	

SCALE = NA

NOTES

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

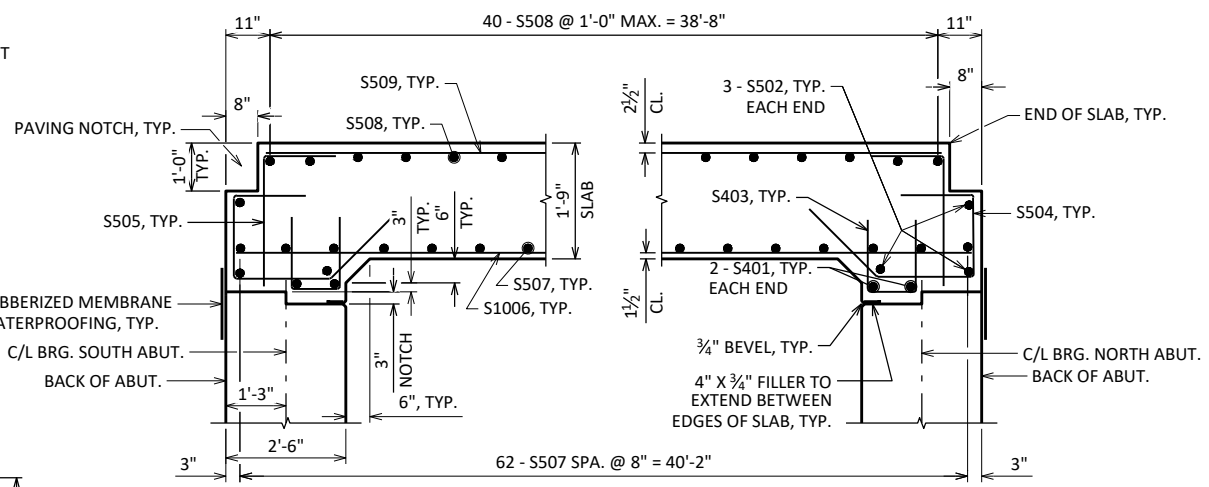
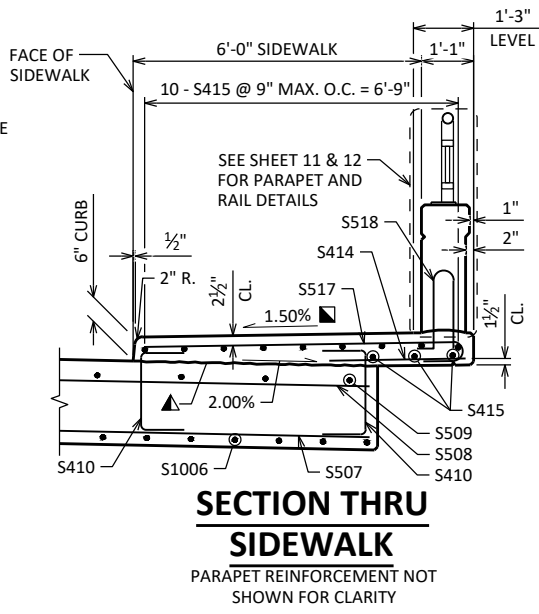
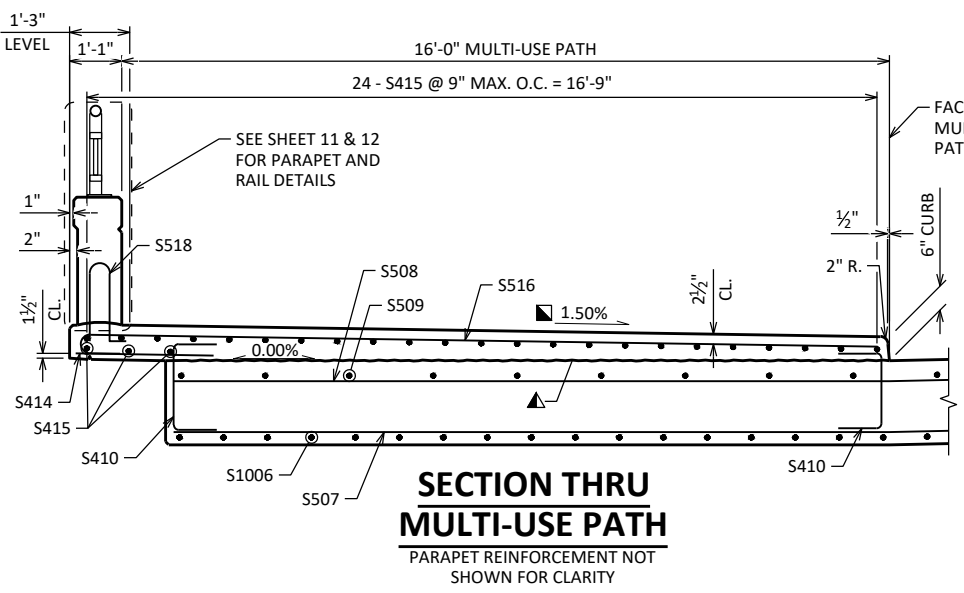
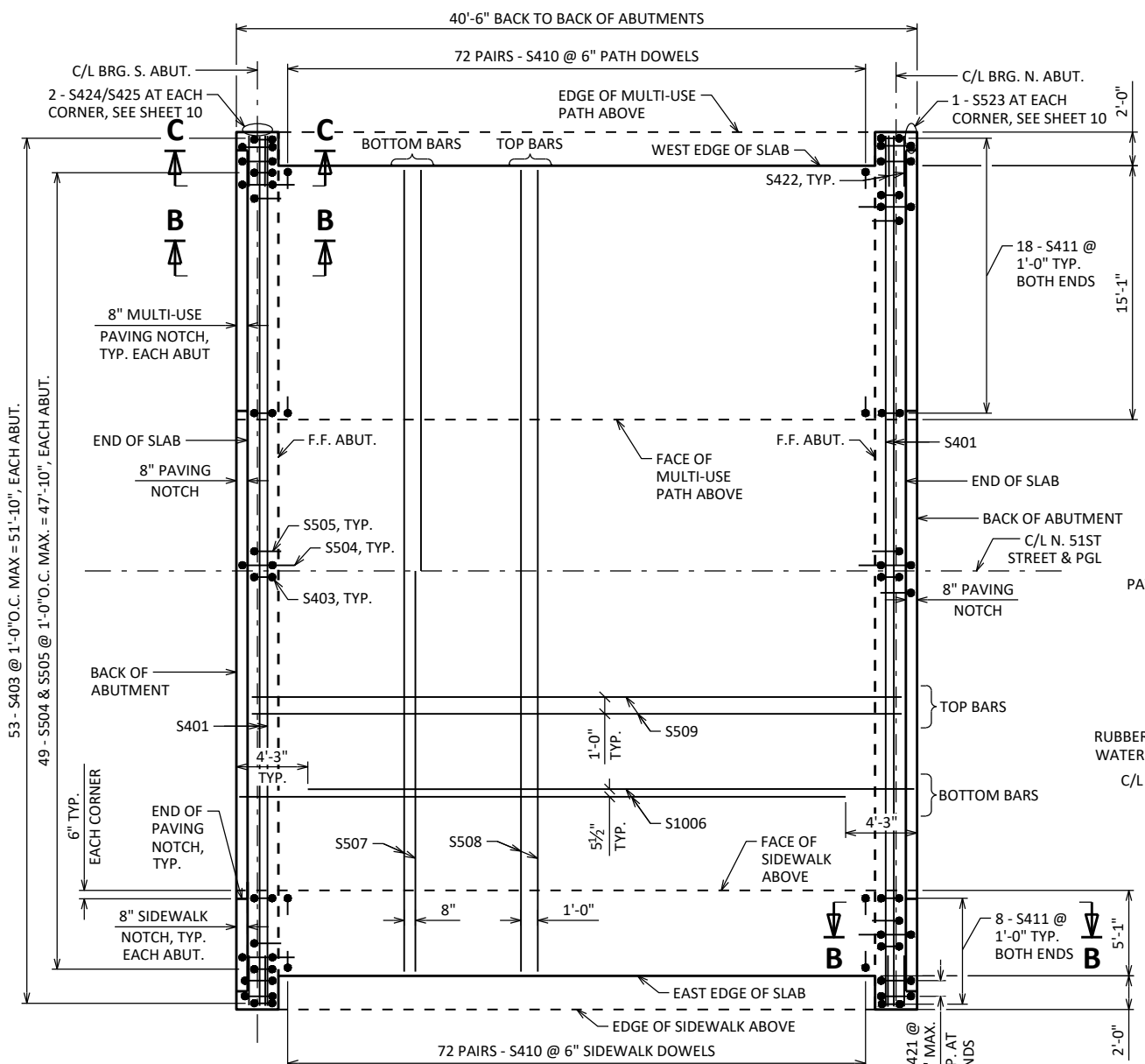
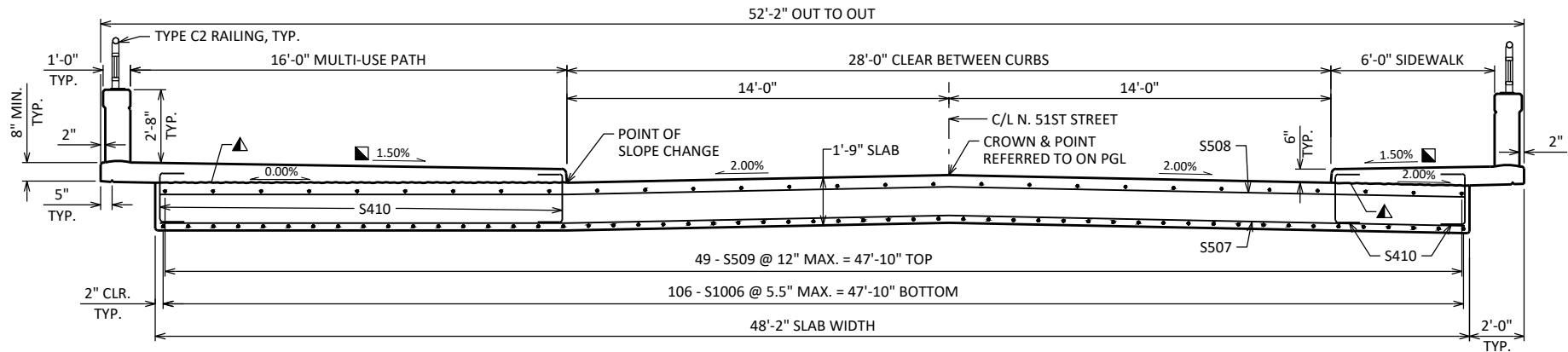
ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

PARAPETS, SIDEWALKS, AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFELCTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDED ALLOWANCE FOR FORM SETTLEMENT.

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L OF ABUTMENTS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR R/L. RECORD ELEVATIONS ON AS BUILT PLANS.

SEE SHEET 10 FOR SECTION B-B & C-C.



LEGEND

- ± 0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- CONST. JOINT-STRIKE OFF AS SHOWN AND LEAVE ROUGH.

NO.	DATE	REVISION	BY
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SUPERSTRUCTURE		SHEET 9 OF 12 123	

SCALE =

BILL OF BARS



PARAPETS AND SIDEWALKS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

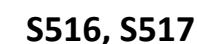
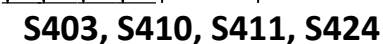
PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L OF ABUTMENTS AND AT $\frac{5}{10}$ PTS. TO VERIFY CAMBER. ELEVATIONS ALONG EDGE LINES, CROWN AND C/L. RECORD ELEVATIONS ON AS BUILT PLANS.

TOP OF SLAB ELEVATIONS

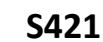
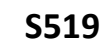
LOCATION	C/L BRG. S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L BRG. N. ABUT.
STATION	119+82.86	119+86.66	119+90.46	119+94.26	119+98.06	120+01.86	120+05.66	120+09.46	120+13.26	120+17.06	120+20.8
W. EDGE OF SLAB	655.76	655.78	655.80	655.82	655.84	655.86	655.88	655.90	655.92	655.94	655.95
W. GUTTER LINE	655.76	655.78	655.80	655.82	655.84	655.86	655.88	655.90	655.92	655.94	655.95
N. 51ST STREET CROWN AND C/L	656.04	656.06	656.08	656.10	656.12	656.14	656.16	656.18	656.20	656.22	656.23
E. GUTTER LINE	655.76	655.78	655.80	655.82	655.84	655.86	655.88	655.90	655.92	655.94	655.95
E. EDGE OF SLAB	655.66	655.68	655.70	655.72	655.74	655.76	655.78	655.80	655.82	655.83	655.85

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	4	51'-10"			END OF SLAB
S502	X	6	51'-10"			END OF SLAB
S403	X	106	3'-3"	X		END OF SLAB
S504	X	98	7'-5"	X		END OF SLAB
S505	X	98	2'-10"	X		END OF SLAB, TOP
S1006	X	106	36'-1"			LONGITUDINAL BOTTOM
S507	X	62	47'-10"			TRANSVERSE BOTTOM
S508	X	40	47'-10"			TRANSVERSE TOP
S509	X	49	38'-10"			LONGITUDINAL TOP
S410	X	288	3'-6"	X		PATH/SIDEWALK DOWELS IN SPAN
S411	X	52	4'-4"	X		PATH/SIDEWALK DOWELS AT ABUTMENT
S412	X	4	16'-8"			PATH TRANSVERSE AT ABUTMENTS
S413	X	4	6'-8"			SIDEWALK TRANSVERSE AT ABUTMENTS
S414	X	50	2'-10"			PATH/SIDEWALK OVERHANG TRANSVERSE BOTTOM
S415	X	40	38'-10"			PATH/SIDEWALK LONGITUDINAL
S516	X	118	17'-3"	X		PATH TRANSVERSE TOP
S517	X	118	7'-3"	X		SIDEWALK TRANSVERSE TOP
S518	X	98	4'-4"	X		PARAPET VERTICAL DOWELS
S519	X	102	4'-9"	X		PARAPET VERTICAL
S520	X	16	40'-2"			PARAPET LONGITUDINAL
S421	X	12	9'-0"	X		DIAPHRAGM BELOW SDWK OVERHANG VERT.
S422	X	24	3'-0"			DIAPHRAGM BELOW SDWK OVERHANG HORIZ.
S523	X	4	4'-3"	X		PARAPET DOWEL AT END OF SLAB
S424	X	8	3'-11"	X		DIAPHRAGM END HORIZ.
S425	X	8	2'-2"			DIAPHRAGM END VERT.

	TOP OF SLAB ELEVATION AT FINAL GRADE
LESS	SLAB THICKNESS
PLUS	CAMBER
PLUS	FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
EQUALS	TOP OF SLAB FALSEWORK ELEVATION



SUPERSTRUCTURE REBAR NOT SHOWN FOR CLARITY



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-40-1102	
		DRAWN BY	PLANS CK'D
		JCG	WA
SUPERSTRUCTURE DETAILS		SHEET 10 OF 12 124	



● WHEN ADHESIVE ANCHORS ARE USED, FIELD BEND AND/OR DISPLACE TO AVOID HITTING LONGITUDINAL BAR WHEN DRILLING FOR ADHESIVE ANCHORS.



LEGEND

- 1A PLATE $\frac{5}{8}$ " X 6" X 8" WITH $\frac{3}{4}$ " X $1\frac{1}{2}$ " SLOTTED HOLES.
- 1C PLATE $\frac{5}{8}$ " X 8" X 1'-1" WITH $\frac{3}{4}$ " X $1\frac{1}{2}$ " SLOTTED HOLES.
- 1D PLATE $\frac{5}{8}$ " X 8" X 1'-6" WITH $\frac{3}{4}$ " X $1\frac{1}{2}$ " SLOTTED HOLES.
- 2A $\frac{1}{4}$ " X 5" X 7" ANCHOR PLATE WITH $1\frac{1}{16}$ " DIA. HOLES FOR THR'D RODS NO. 3.
- 2C $\frac{1}{4}$ " X $2\frac{1}{2}$ " X $7\frac{1}{4}$ " ANCHOR PLATE WITH $1\frac{1}{16}$ " DIA. HOLES FOR THR'D RODS NO. 3.
- 3 $\frac{3}{8}$ " DIA. X 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. ALTERNATIVE ANCHORAGE: CONCRETE ADHESIVE ANCHORS $\frac{5}{8}$ -INCH. EMBED 7" IN CONCRETE FOR RAIL POSTS. EMBED 5" IN CONCRETE FOR END RAILS. ADHESIVE ANCHORS SHALL CONFORM TO SECTIONS 502.2.12 OF THE STANDARD SPECIFICATIONS.
- 4A STRUCTURAL TUBING 3" X $1\frac{1}{2}$ " X $\frac{3}{16}$ ". PLACE VERTICAL. WELD TO NO. 1 & 5.
- 5A STRUCTURAL TUBING 3" X $1\frac{1}{2}$ " X $\frac{3}{16}$ " RAILS. WELD TO NO. 1 & NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
- 5C STRUCTURAL TUBING 2 $\frac{1}{2}$ " DIA. (STANDARD SIZE) (2.875" O.D.). WELD TO NO. 1 & NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
- 6A BAR 1" X 1" PICKETS. WELD TO NO. 5. PLACE VERTICAL.
- 9A RECTANGULAR SLEEVE FABRICATED FROM $\frac{3}{16}$ " PLATES. PROVIDE "SLIDING FIT".
- 9B CIRCULAR SLEEVE FABRICATED FROM STRUCTURAL TUBING 2" DIA. (STANDARD SIZE) (2.375" O.D.)
- 10A RECTANGULAR SLEEVE FABRICATED FROM $\frac{3}{16}$ " PLATES. (1'-4" @ FIELD ERECTION JTS.) (1'-4" @ STRIP SEAL EXP. JTS.)
- 10B CIRCULAR SLEEVE FABRICATED FROM STRUCTURAL TUBING 2" DIA. (STANDARD SIZE) (2.375" O.D.) (1'-4" @ FIELD ERECTION JTS.) (1'-4" @ STRIP SEAL EXP. JTS.)

RAILING NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE C2", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

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 PLATES, BARS, AND RECTANGULAR SLEEVES SHALL CONFORM TO ASTM A709 GRADE 36. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

■ CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL JOINTS AND RECESSES IN CONCRETE PARAPET ARE TO BE VERTICAL

ALL MATERIAL (EXCEPT NO. 3) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED AMS STD. COLOR NO. 27038 (BLACK).

VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS

TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-1102			
DRAWN BY		JCG	PLANS CK'D WAR
RAILING DETAILS		SHEET 12 OF 12	
		126	

CATEGORY 0010 - N 51ST STREET											
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	EXPANDED FILL	MASS ORDNATE
						NOTE 1	NOTE 2	NOTE 3	NOTE 1	1.20	NOTE 4
119+11.10	11911.10	0.00	108.32	28.27	0.00	0	0	0	0	0	0
119+15.00	11915.00	3.90	109.29	25.00	0.00	16	4	0	16	0	12
119+20.00	11920.00	5.00	110.06	21.62	0.00	20	4	0	36	0	28
119+25.00	11925.00	5.00	120.00	21.63	0.00	21	4	0	57	0	45
119+30.00	11930.00	5.00	120.56	20.32	0.00	22	4	0	79	0	63
119+35.00	11935.00	5.00	87.88	16.75	0.00	19	3	0	98	0	79
119+40.00	11940.00	5.00	61.79	15.23	0.00	14	3	0	112	0	90
119+45.00	11945.00	5.00	55.47	14.26	0.00	11	3	0	123	0	98
119+50.00	11950.00	5.00	66.25	13.58	0.00	11	3	0	134	0	106
119+51.10	11951.10	1.10	67.51	13.50	0.00	3	1	0	137	0	108
119+56.00	11956.00	4.90	64.43	13.37	0.00	12	2	0	149	0	118
119+67.21	11967.21	11.21	51.47	14.12	5.78	24	6	1	173	1	135
120+36.38	12036.38	69.17	36.66	13.01	19.70	113	35	33	286	41	173
120+47.47	12047.47	11.09	35.97	13.00	11.79	15	5	6	301	48	176
120+68.00	12068.00	20.53	42.93	12.97	2.94	30	10	6	331	55	189
120+84.81	12084.81	16.81	47.25	12.95	0.01	28	8	1	359	56	208
121+00.00	12100.00	15.19	46.20	12.88	0.00	26	7	0	385	56	227

CATEGORY 0010 - OAK LEAF TRAIL											
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	EXPANDED FILL	MASS ORDNATE
						NOTE 1	NOTE 2	NOTE 3	NOTE 1	1.20	NOTE 4
10+20.84	1024.00	0.00	8.32	0.34	0.15	0	0	0	0	0	0
10+30.00	1030.00	6.00	7.23	0.46	0.26	2	0	0	2	0	2
10+40.00	1040.00	10.00	6.14	0.77	0.43	2	0	0	4	0	4
10+50.00	1050.00	10.00	4.35	1.32	1.54	2	0	0	6	0	6
10+60.00	1060.00	10.00	4.39	1.72	0.91	2	1	0	8	0	7
10+70.00	1070.00	10.00	4.14	2.30	0.33	2	1	0	10	0	8
10+80.00	1080.00	10.00	5.08	2.92	0.23	2	1	0	12	0	9
10+90.00	1090.00	10.00	11.86	4.27	4.69	3	1	1	15	1	10
11+00.00	1100.00	10.00	12.34	4.24	3.18	4	2	1	19	2	11
11+10.00	1110.00	10.00	11.62	4.18	1.27	4	2	1	23	4	11
11+20.05	1120.00	10.00	11.55	4.15	0.05	4	2	0	27	4	13

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - MASS ORDNATE	CUT - SALVAGED PAVT - (FILL * FILL FACTOR)

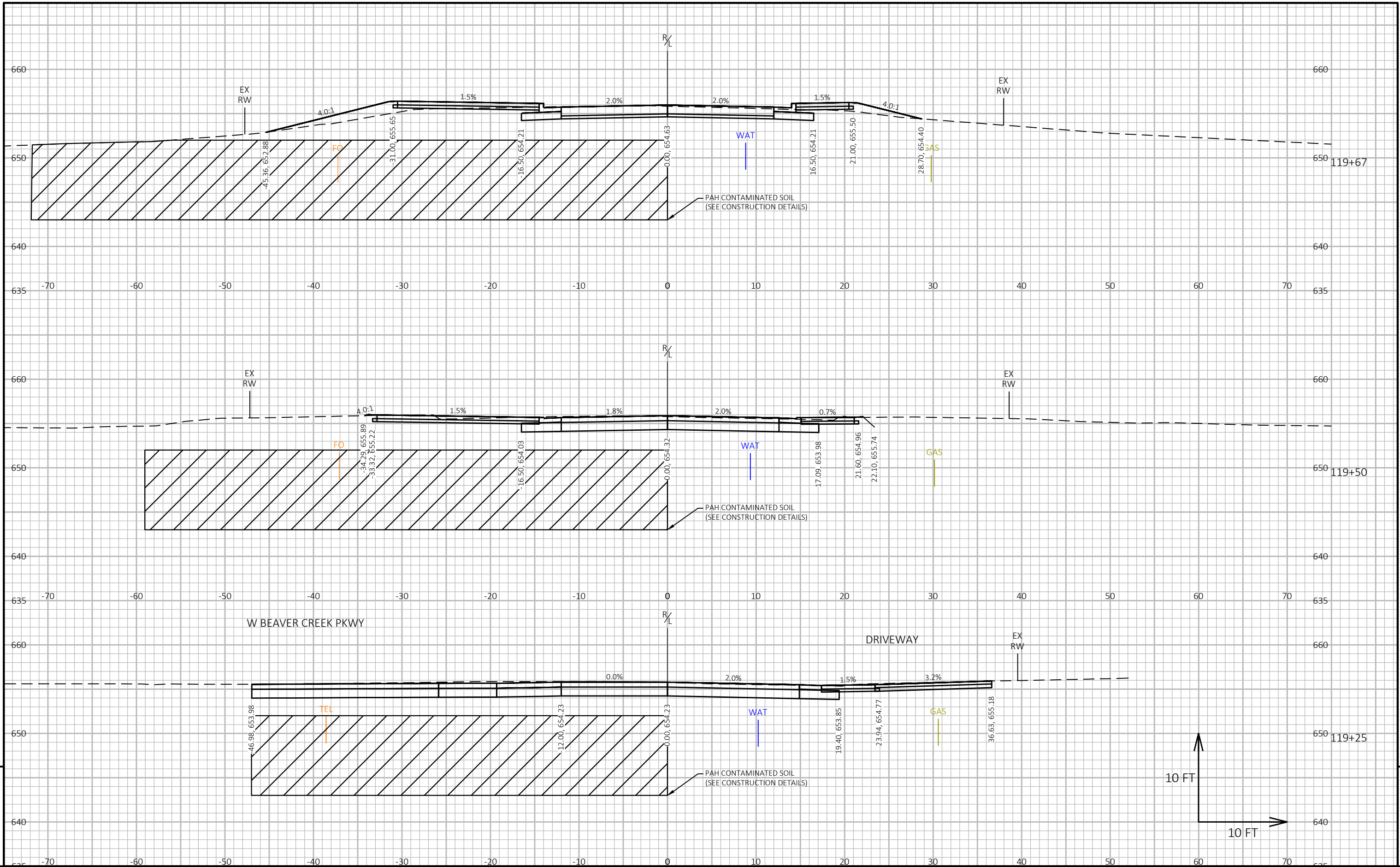
CATEGORY 0030 - N 51ST STREET

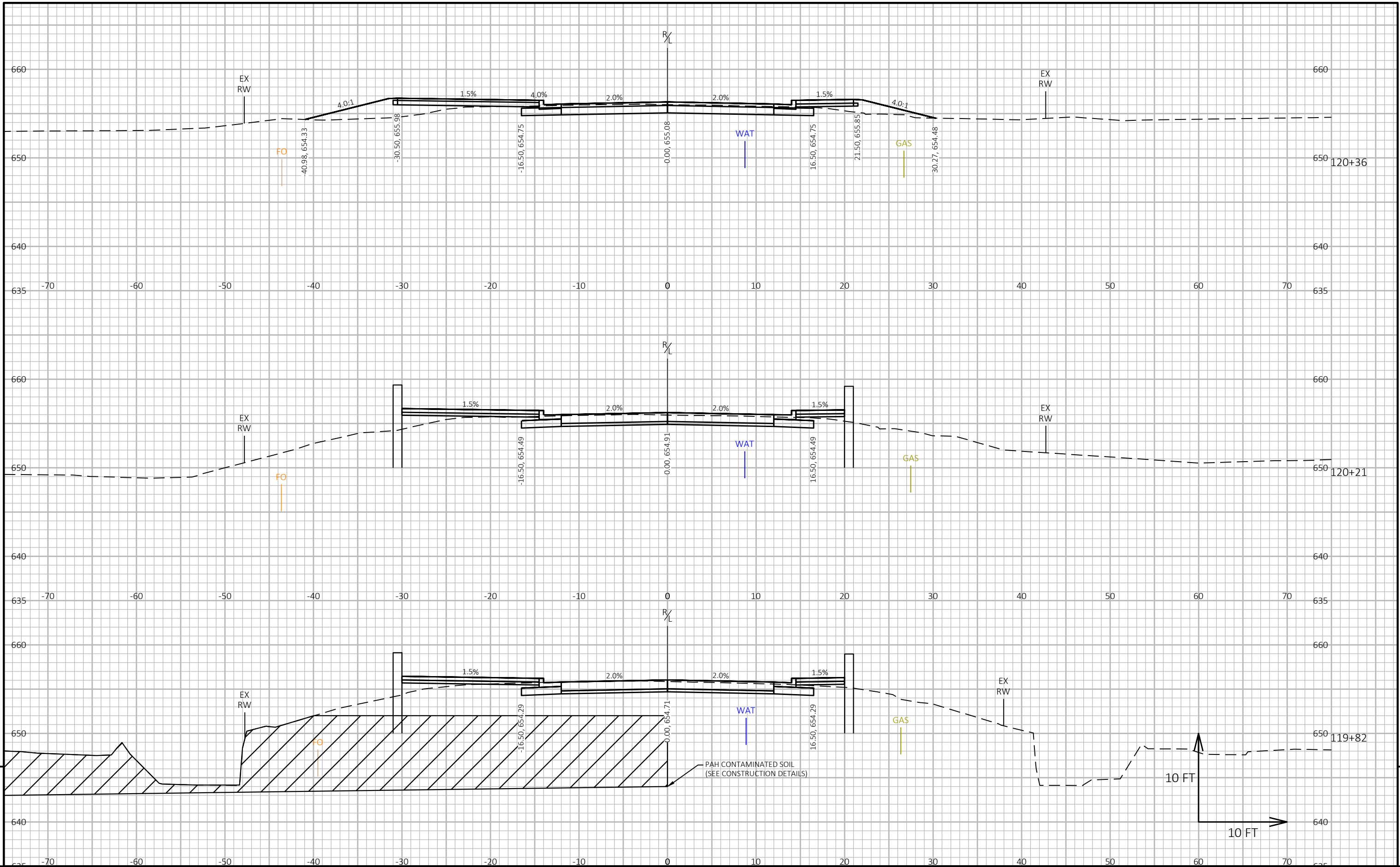
STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
118+75.00	11875.00	0.00	82.63	20.98	0.00	0	0	0	0	0	0
119+00.00	11900.00	25.00	113.46	28.32	0.08	91	23	0	91	0	68
119+11.10	11911.10	11.10	108.32	28.27	0.00	46	12	0	137	0	102

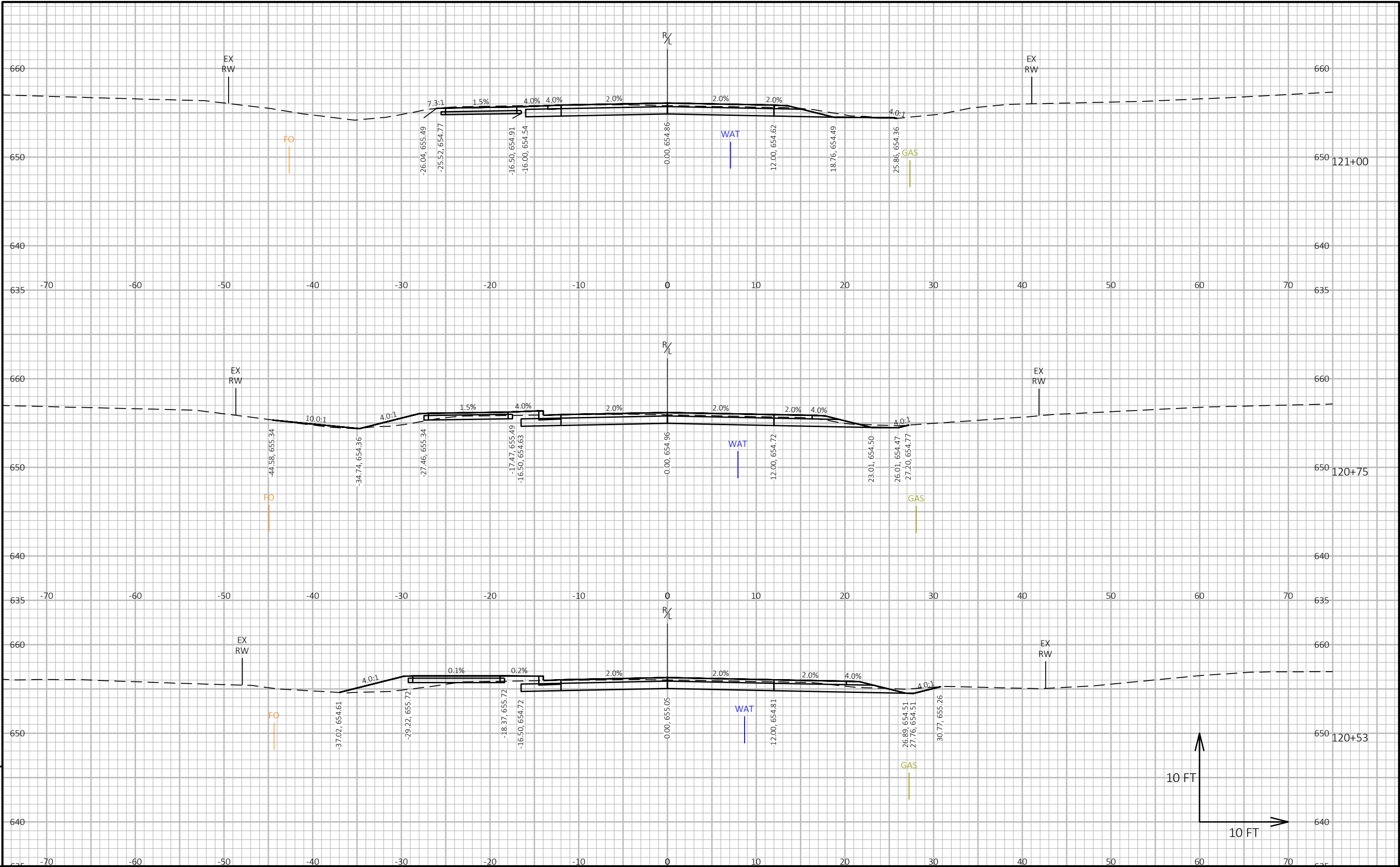
CATEGORY 0030 - N 51ST STREET

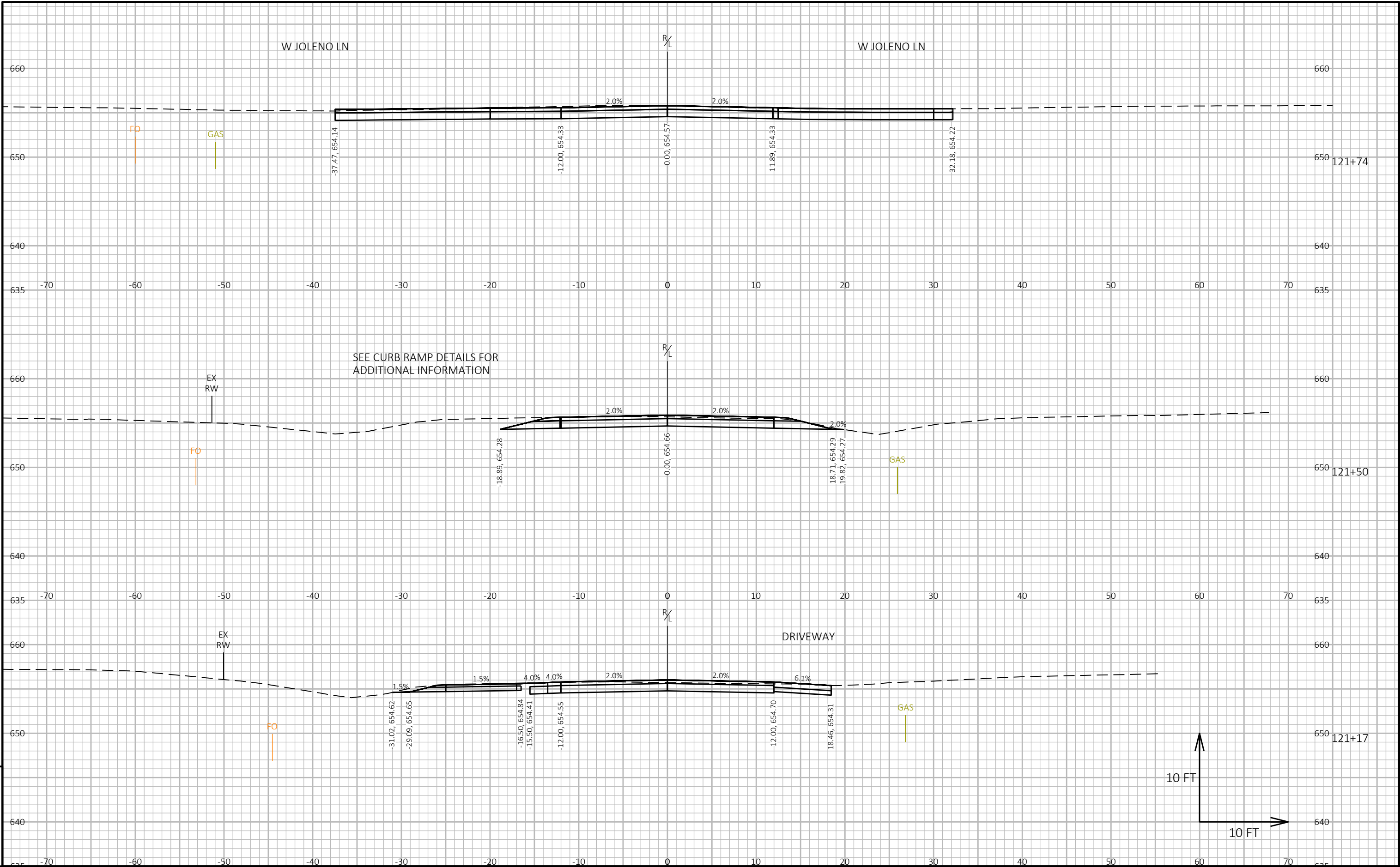
STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
121+00.00	12100.00	0.00	46.20	12.88	0.00	0	0	0	0	0	0
121+18.54	12118.54	18.54	45.65	14.37	0.00	32	9	0	32	0	23
121+50.00	12150.00	31.46	40.20	12.77	0.00	50	16	0	82	0	57
121+73.98	12173.98	23.98	85.31	26.92	0.00	56	18	0	138	0	95

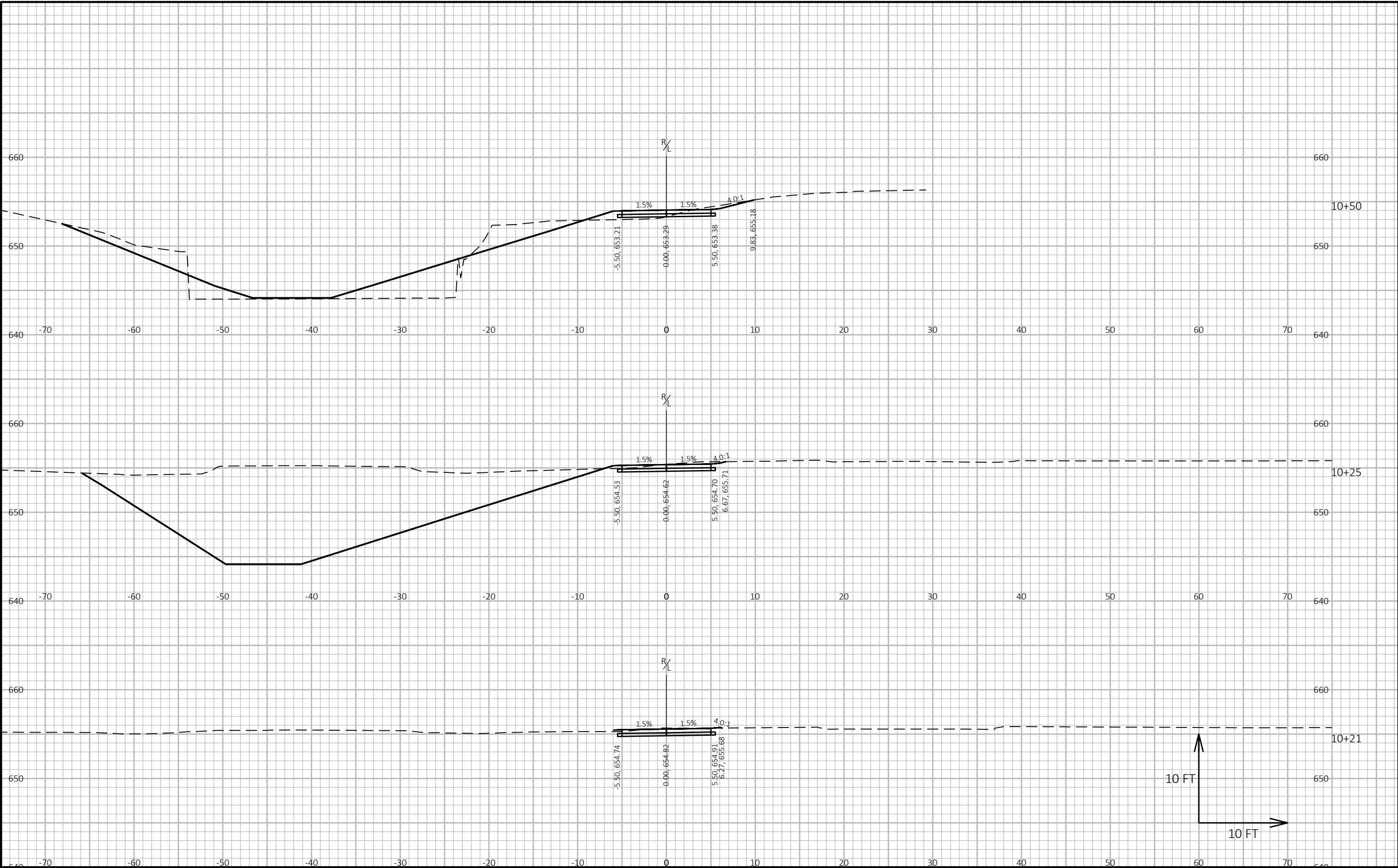
NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - MASS ORDINATE	CUT - SALVAGED PAVT - (FILL * FILL FACTOR)





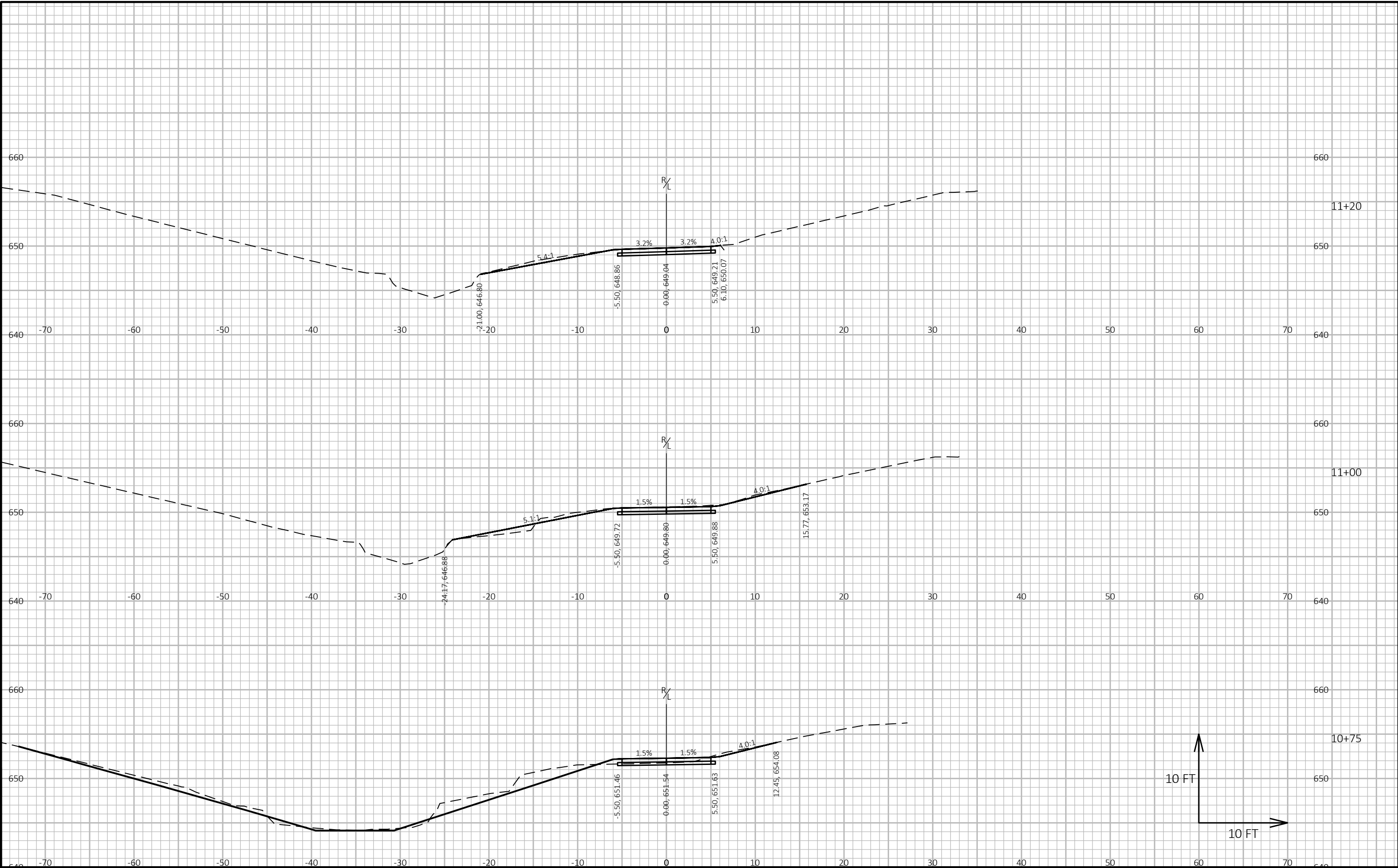


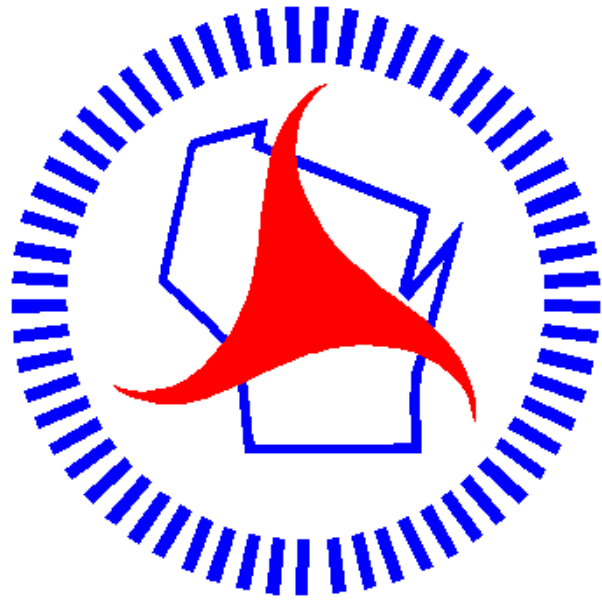




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