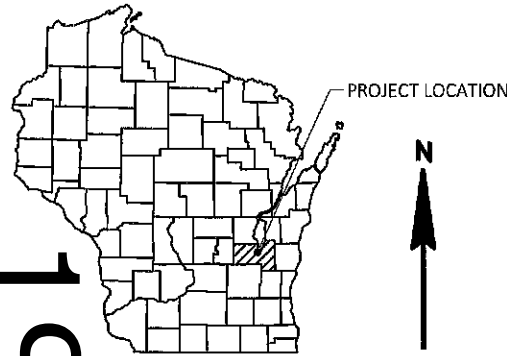


ORDER OF SHEETS

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

TOTAL SHEETS = 82



DESIGN DESIGNATION

A.A.D.T.	2023	=	3,400
A.A.D.T.	2043	=	4,100
D.H.V.		=	628
D.D.		=	59/41
T.		=	3.3%
DESIGN SPEED		=	25 MPH
ESALS		=	400,000

CONVENTIONAL SYMBOLS

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

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

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

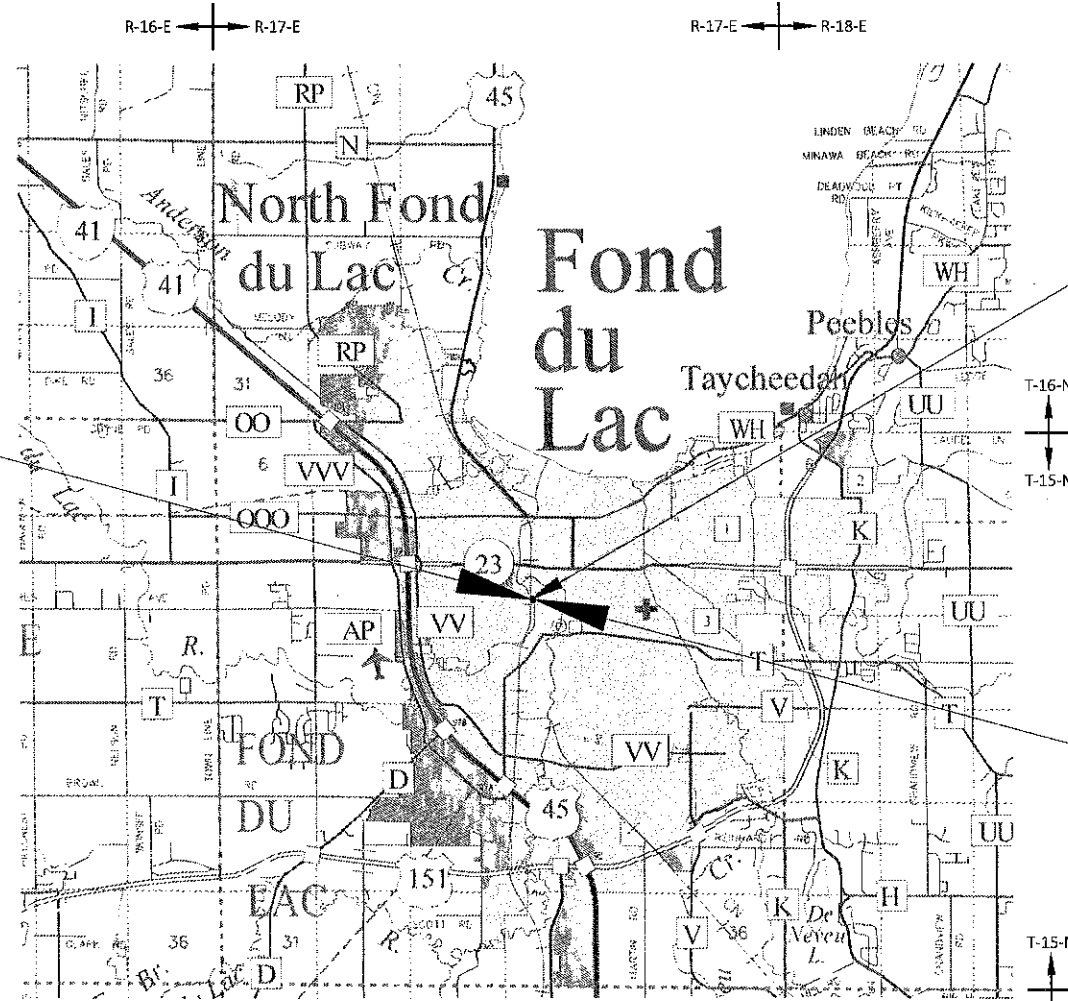
C FOND DU LAC, WEST DIVISION STREET

WEST BRANCH FOND DU LAC RIVER BRIDGE

LOCAL STREET

FOND DU LAC COUNTY

STATE PROJECT NUMBER
4986-12-71



BEGIN PROJECT
STA 9+39
Y = 388,112.72
X = 814,554.55

STRUCTURE B-20-0242

END PROJECT
STA 11+50

LAYOUT
SCALE 0 2.0 MI
TOTAL NET LENGTH OF CENTERLINE = 0.040 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), FOND DU LAC 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).

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4986-12-71		

ACCEPTED FOR
CITY OF FOND DU LAC
Date 10-31-22 *Champl*
(Signature)
City Engineer
(Title of Official)

ORIGINAL PLANS PREPARED BY
MSA
1702 Pankratz Street, Madison WI 53704
(608) 242-7779 www.msa-ps.com
© MSA Professional Services, Inc.



DATE: 10/31/2022
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor: MSA PROFESSIONAL SERVICES, INC.
Designer: MSA PROFESSIONAL SERVICES, INC.
Project Manager: JODI JAROSINSKI
Regional Examiner: REGIONAL EXAMINER
Regional Supervisor: BRIAN EDWARDS

APPROVED FOR THE DEPARTMENT
DATE: 10/31/2022 *Jodi Jarosinski*
(Signature)

E

STANDARD ABBREVIATIONS

AC	ACRE	F/L	FLOW LINE	SALV	SALVAGED
AGG	AGGREGATE	FT	FOOT	SAN	SANITARY SEWER
<	ANGLE	GN	GRID NORTH	SECT	SECTION
ASPH	ASPHALTIC	HR	HANDICAP RAMP	SHLDR	SHOULDER
AC	ASPHALT CEMENT	HT	HEIGHT	SW	SIDEWALK
ADT	AVERAGE DAILY TRAFFIC	CWT	HUNDREDWEIGHT	S	SOUTH
B & B	BALLED AND BURLAPPED	HYD	HYDRANT	SB	SOUTHBOUND
BM	BENCH MARK	IN DIA	INCH DIAMETER	SPECS	SPECIFICATIONS
CB	CATCH BASIN	INL	INLET	SQ	SQUARE
`OR C/L	CENTER LINE	ID	INSIDE DIAMETER	SF OR SQ FT	SQUARE FEET
C-C	CENTER TO CENTER	I	INTERSECTION ANGLE	SY	SQUARE YARD
CONC	CONCRETE	IE	INVERT ELEVATION	SSPRC	STORM SEWER
CO	COUNTY	IP	IRON PIPE OR PIN		PIPE REINFORCED CONCRETE
CTH	COUNTY TRUNK HIGHWAY	JCT	JUNCTION	STD	STANDARD
CY	CUBIC YARD	L	LENGTH OF CURVE	SDD	STANDARD DETAIL DRAWINGS
CULV	CULVERT	LF	LINEAR FOOT	STH	STATE TRUNK HIGHWAYS
CP	CULVERT PIPE	LC	LONG CHORD OF CURVE	STA	STATION
CPRC	CULVERT PIPE	LCB	LONG CHORD BEARING	SS	STORM SEWER
	REINFORCED CONCRETE	LS	LUMP SUM	T	TANGENT
C & G	CURB AND GUTTER	MH	MANHOLE	TEL	TELEPHONE
D	DEGREE OF CURVE	N	NORTH	TEMP	TEMPORARY
DHV	DESIGN HOUR VOLUME	Y	NORTH GRID COORDINATE	TLE	TEMPORARY LIMITED EASEMENT
DIA OR	DIAMETER	OE	OUTLET ELEVATION	T	TON
DIST	DISTRICT	OL	OUT LOT	TC	TOP OF CURB
DWY	DRIVEWAY	OD	OUTSIDE DIAMETER	TN	TOWN
E	EAST	OH	OVERHEAD LINES	TRANS	TRANSITION
X	EAST GRID COORDINATE	PAVT	PAVEMENT	T	TRUCKS (percent of)
EB	EASTBOUND	PLE	PERMANENT LIMITED EASEMENT	TYP	TYPICAL
ELEC	ELECTRIC	PC	POINT OF CURVATURE	UNCL	UNCLASSIFIED
EL OR ELEV	ELEVATION	PI	POINT OF INTERSECTION	USH	UNITED STATES HIGHWAY
EMB	EMBANKMENT	PT	POINT OF TANGENCY	VAR	VARIABLE
EW	ENDWALL	PCC	PORTLAND CEMENT CONCRETE	VERT	VERTICAL
ESALS	EQUIVALENT SINGLE	LB	POUND	VC	VERTICAL CURVE
	AXLE LOADS	PE	PRIVATE ENTRANCE	VOL	VOLUME
EXC	EXCAVATION	R OR RAD	RADIUS	WM	WATER MAIN
EBS	EXCAVATION BELOW	RR	RAILROAD	WV	WATER VALVE
	SUBGRADE	R	RANGE	W	WEST
EXIST	EXISTING	~ OR R/L	REFERENCE LINE	WB	WESTBOUND
EXP	EXPANSION	REQD	REQUIRED	YD	YARD
F-F	FACE TO FACE	RT	RIGHT		
FERT	FERTILIZER	R/W	RIGHT-OF-WAY		
FE	FIELD ENTRANCE	RD	ROAD		

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	2-6	6 & OVER	0-2	2-6	6 & OVER	
MEDIAN STRIP TURF	0.19	0.20	0.24	0.19	0.22	0.26	0.20	0.23	0.30	0.20	0.25 0.32	0.30 0.40
SIDE SLOPE TURF			0.25			0.27		0.28			0.30 0.38	
PAVEMENT:	0.40 - 0.60											
ASPHALT:	0.70 - 0.95											
CONCRETE:	0.80 - 0.95											
BRICK:	0.70 - 0.80											
DRIVES, WALKS:	0.75 - 0.85											
ROOFS:	0.75 - 0.95											
GRAVEL ROADS, SHOULDERS	0.40 - 0.60											

TOTAL PROJECT AREA = 0.28 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.28 ACRES

DESIGN CONTACT

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 1702 PANKRATZ STREET
 MADISON, WI 53704
 ATTN: JOSH SWENO, PE
 PHONE: (608) 355-8852
 EMAIL: JSWENO@MSA-PS.COM

DNR LIAISON

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
 JAY SCHIEFELBEIN
 DNR SERVICE CENTER
 2984 SHAWANO AVENUE
 GREEN BAY, WI 54313
 PHONE: (920) 360-3784
 EMAIL: JEREMIAH.SCHIEFELBEIN@WISCONSIN.GOV

UTILITIES

COMMUNICATIONS
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 GREEN BAY, WI 54302
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COMMUNICATIONS
 CHARTER COMMUNICATIONS - FIBER OPTIC
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COMMUNICATIONS
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COMMUNICATIONS
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GAS
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 CODY JACKSON
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SANITARY SEWER
 CITY OF FOND DU LAC
 THOMAS CONTO, P.E.
 160 SOUTH MACY STREET
 FOND DU LAC, WI 54935
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 EMAIL: TCONTO@FDL.WI.GOV

WATER MAIN
 CITY OF FOND DU LAC
 TRAVIS KLOETZKE
 109 N MACY STREET
 FOND DU LAC, WI 54935
 PHONE: (920) 322-3683
 EMAIL: TKLOETZKE@FDL.WI.GOV

* - NOT A MEMBER OF DIGGERS HOTLINE



SECTION 2 ORDER

GENERAL NOTES, ABBREVIATIONS & UTILITIES
 TYPICAL SECTIONS
 CONSTRUCTION DETAILS
 CURB RAMP & PAVING DETAIL PLAN
 EROSION CONTROL PLAN
 STORM SEWER PLAN
 PERMANENT SIGNING & PAVEMENT MARKING PLAN

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 AREA THAT ARE NOT SHOWN.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO DATUM NAVD 88 (2012). BENCHMARKS WERE LOCATED IN THE FIELD USING GPS TECHNOLOGY.

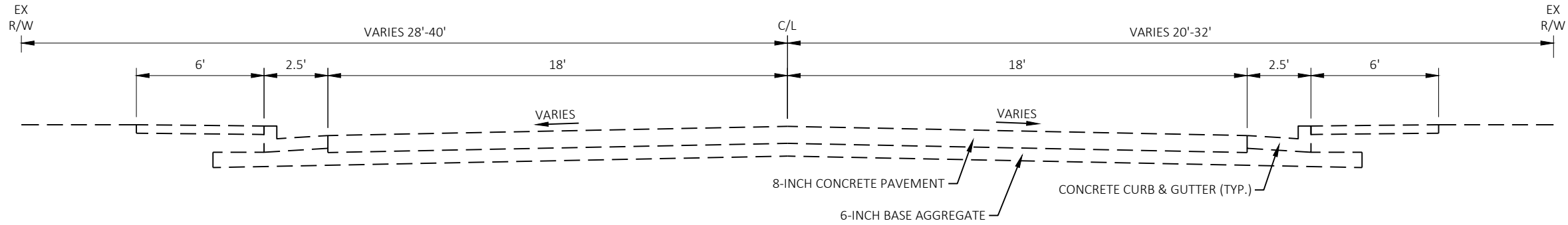
PROJECT BENCHMARKS AND CONTROL POINTS PROVIDED IN THESE PLANS SHALL BE USED FOR THE CONSTRUCTION OF THE BRIDGE AND APPROACHES. ADDITIONAL BENCHMARKS SHALL BE SET AT THE PROJECT SITE PRIOR TO THE BRIDGE REMOVAL.

ALL CURB & GUTTER RADII ARE MEASURED TO THE FLAG LINE.

CURB & GUTTER PLAN GRADES ARE AT THE FLAG LINE UNLESS OTHERWISE NOTED.

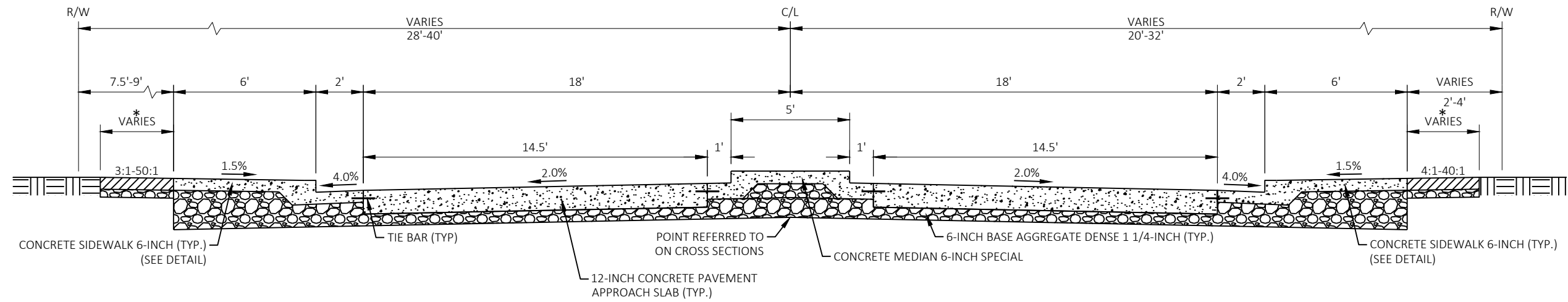
NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

REPLACE DISTURBED AREAS WITHIN THE RIGHT-OF-WAY AND TLE, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, WITH TOPSOIL OR FERTILIZE, SEED, AND STABILIZE WITH EROSION MAT AS SHOWN ON THE EROSION CONTROL SHEET AND AS DIRECTED BY THE ENGINEER.



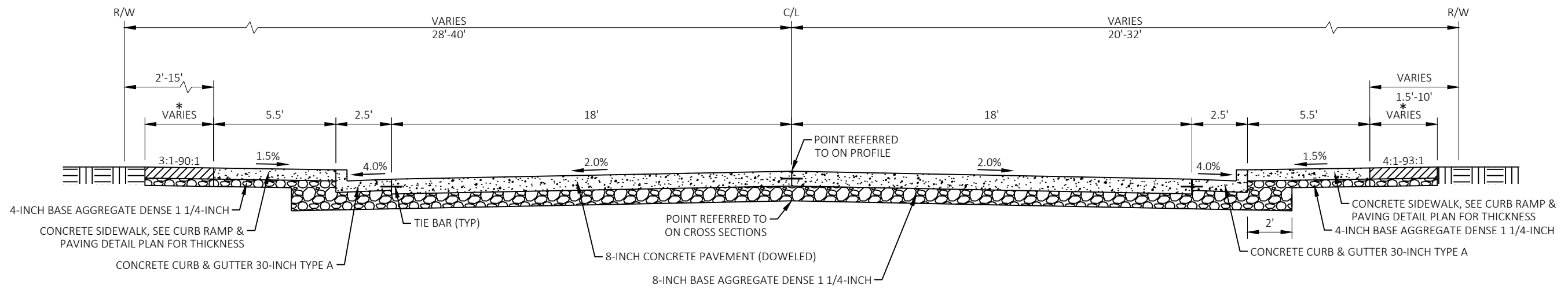
EXISTING DIVISION STREET TYPICAL SECTION

STA 9+49 - STA 9+59.5
STA 10+40.7 - STA 11+50



FINISHED DIVISION STREET TYPICAL SECTION

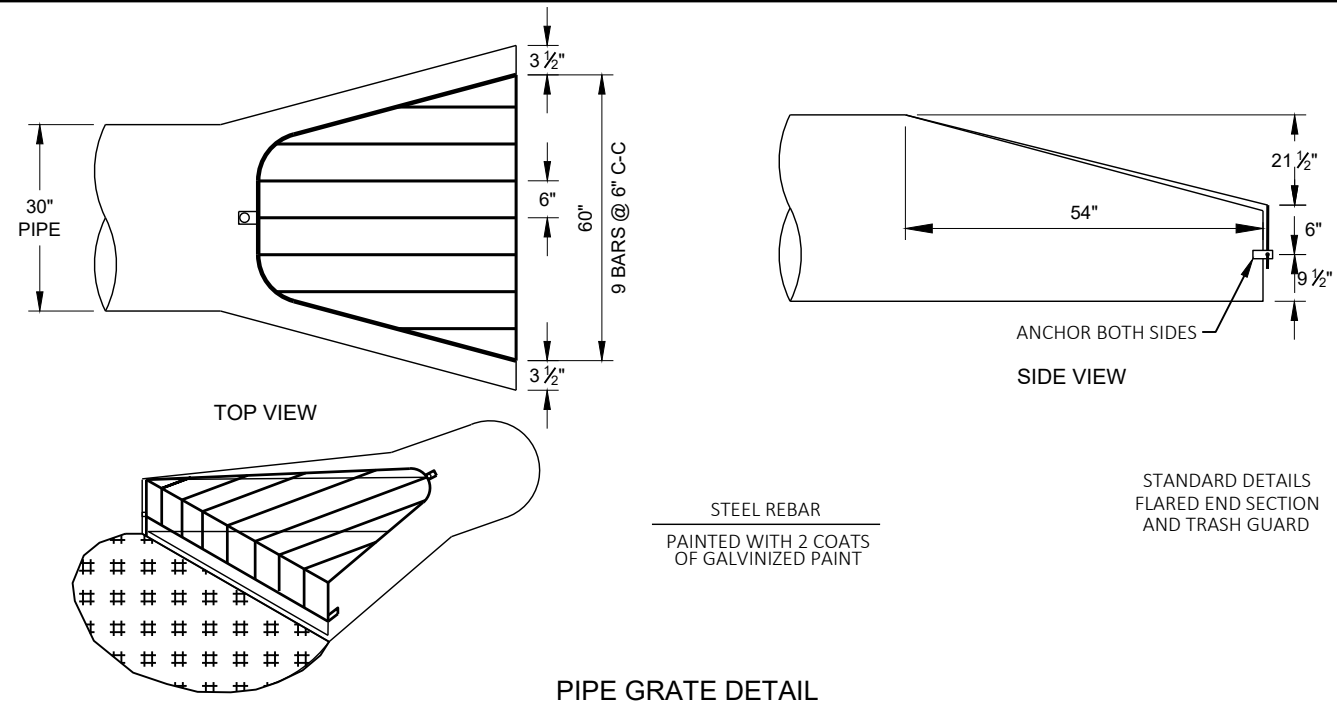
STA 9+49 - STA 9+63.39
STA 10+44.61 - STA 10+64.11 (NO MEDIAN)



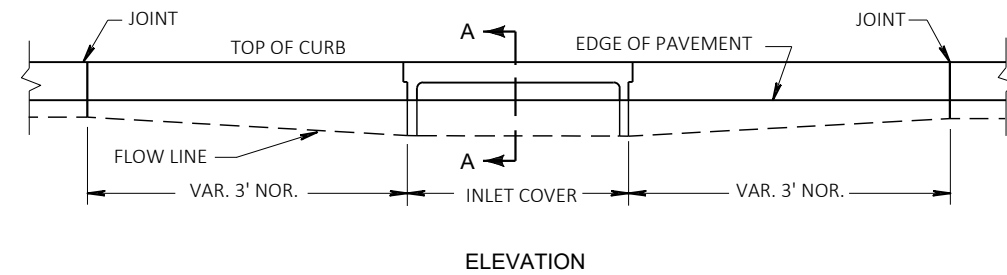
FINISHED DIVISION STREET TYPICAL SECTION

STA 9+39 - STA 9+49
STA 10+64.11 - STA 11+50

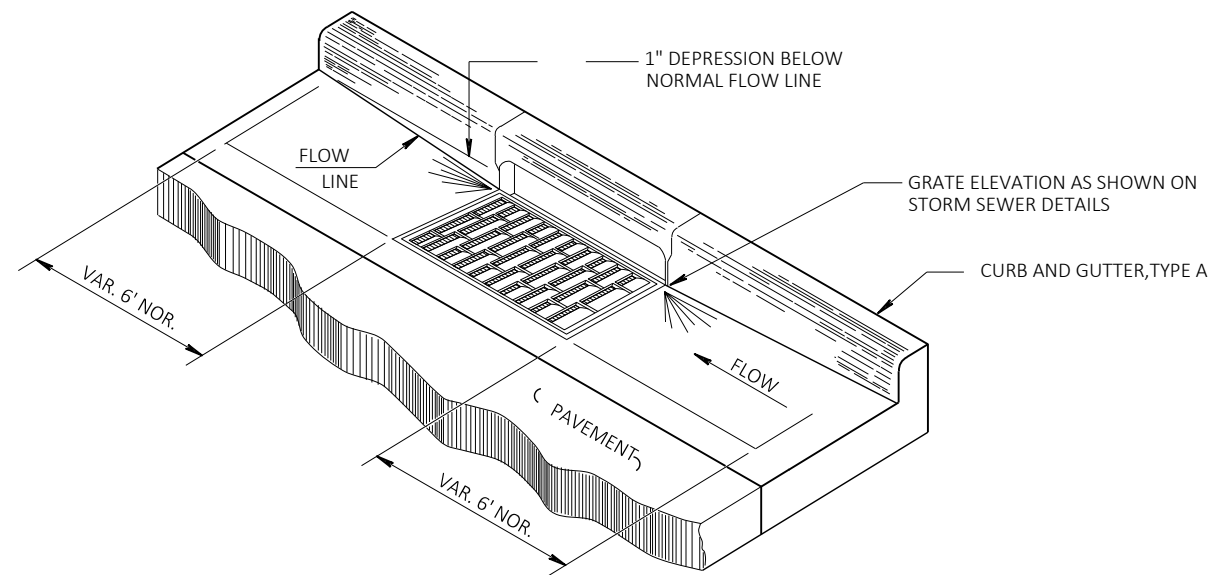
NOTES:
* SEE CURB RAMP & PAVING DETAIL FOR LIMITS AND MATERIAL



PIPE GRATE DETAIL

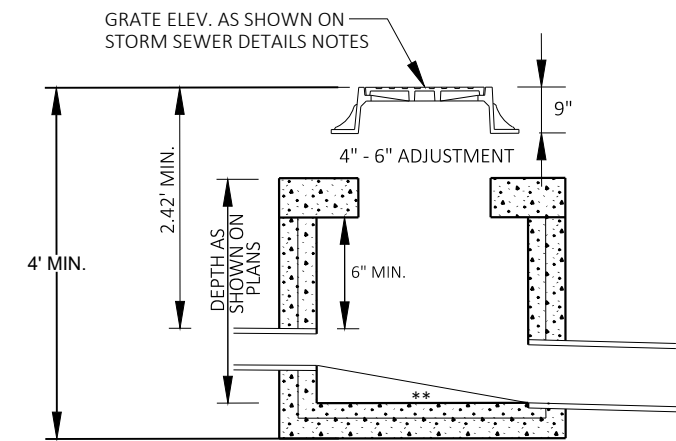


ELEVATION



DETAIL OF CURB AND GUTTER AT INLETS

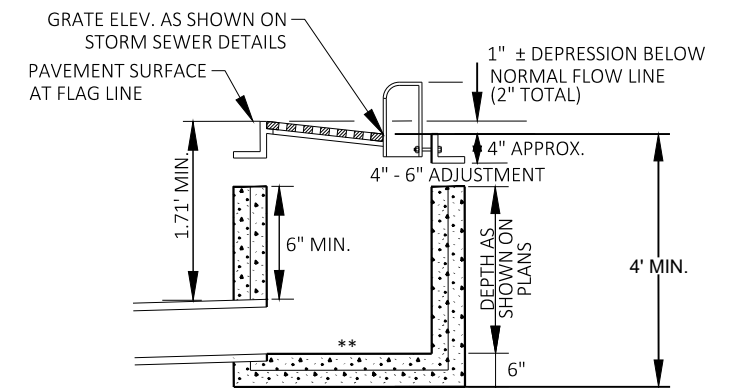
(TYPE 3-H INLET SHOWN)



DETAIL FOR COMPUTING MANHOLE ELEVATIONS

** FILL WITH CONCRETE IF BOTTOM OF STRUCTURE IS BELOW LOWEST INVERT.

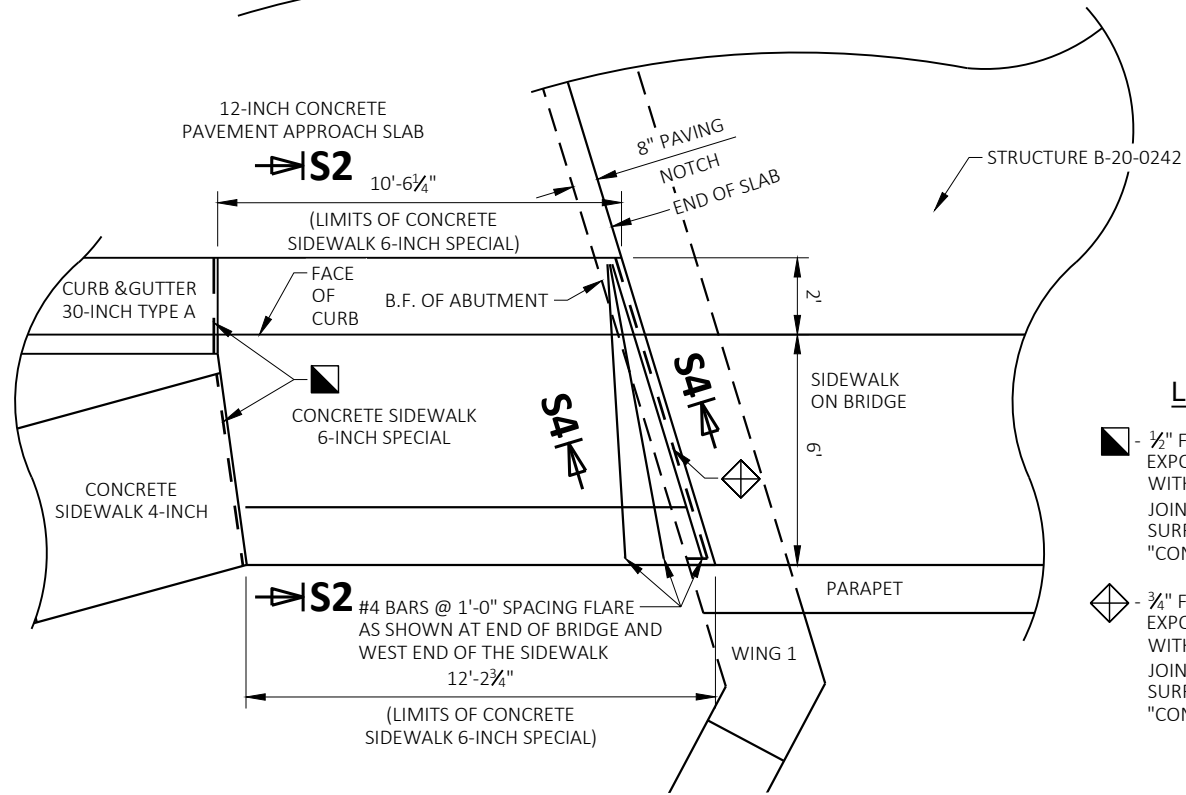
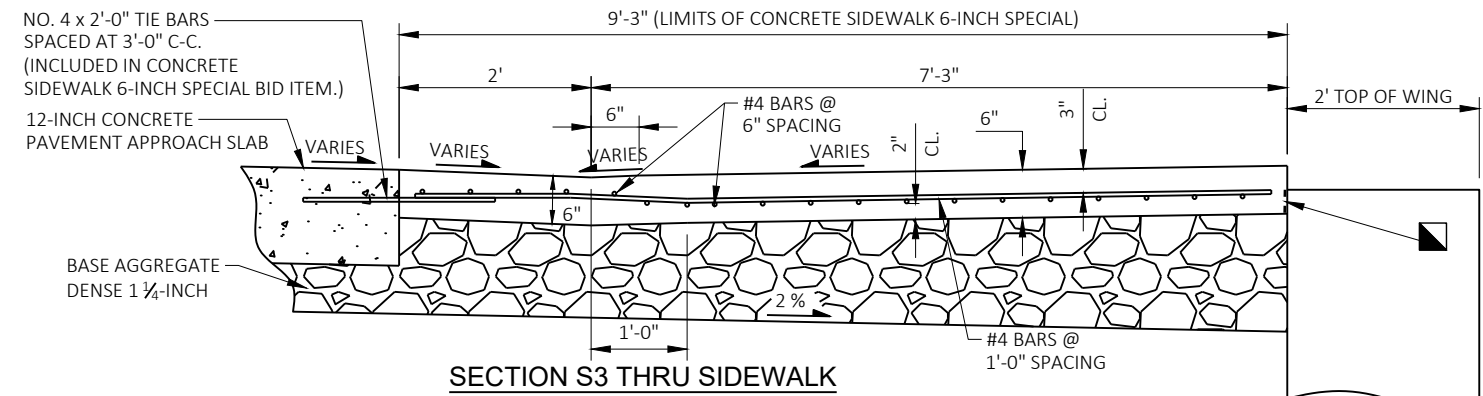
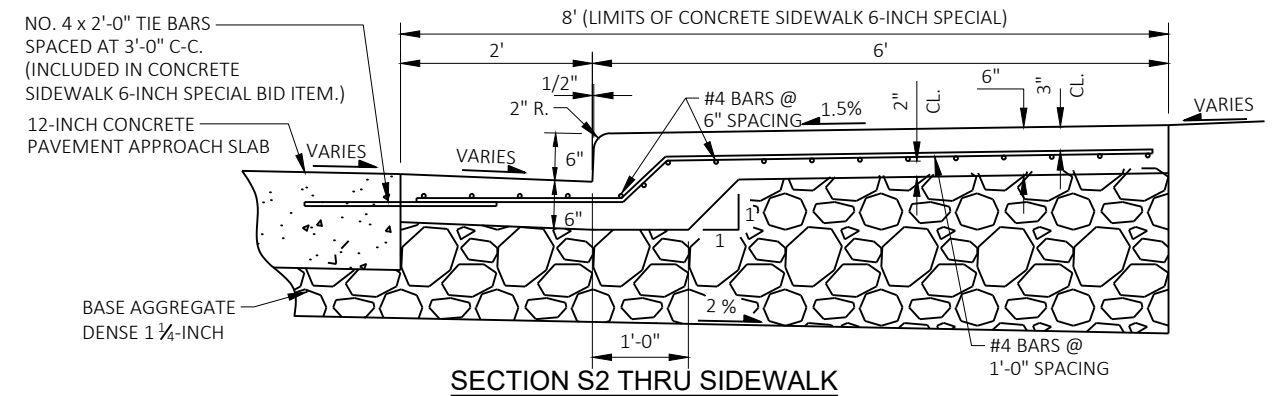
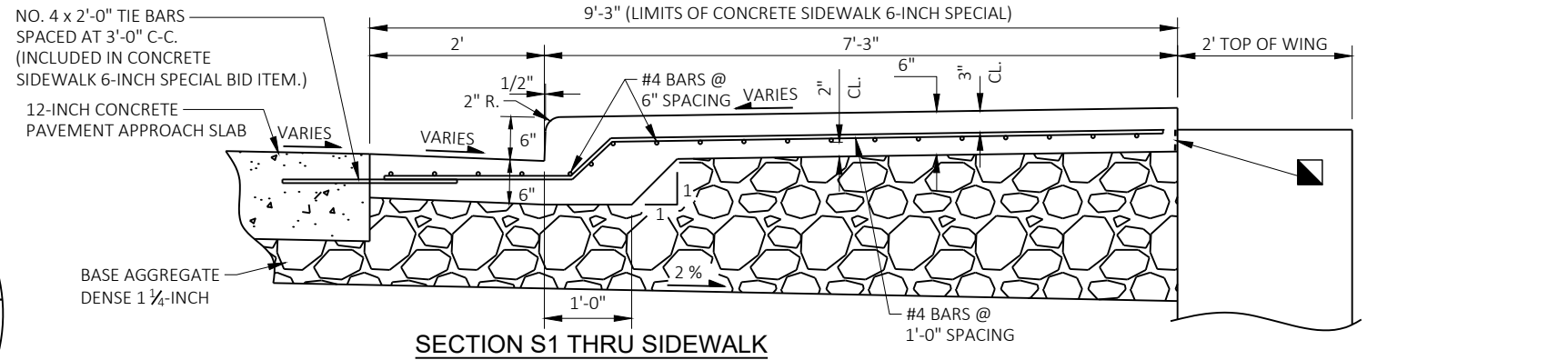
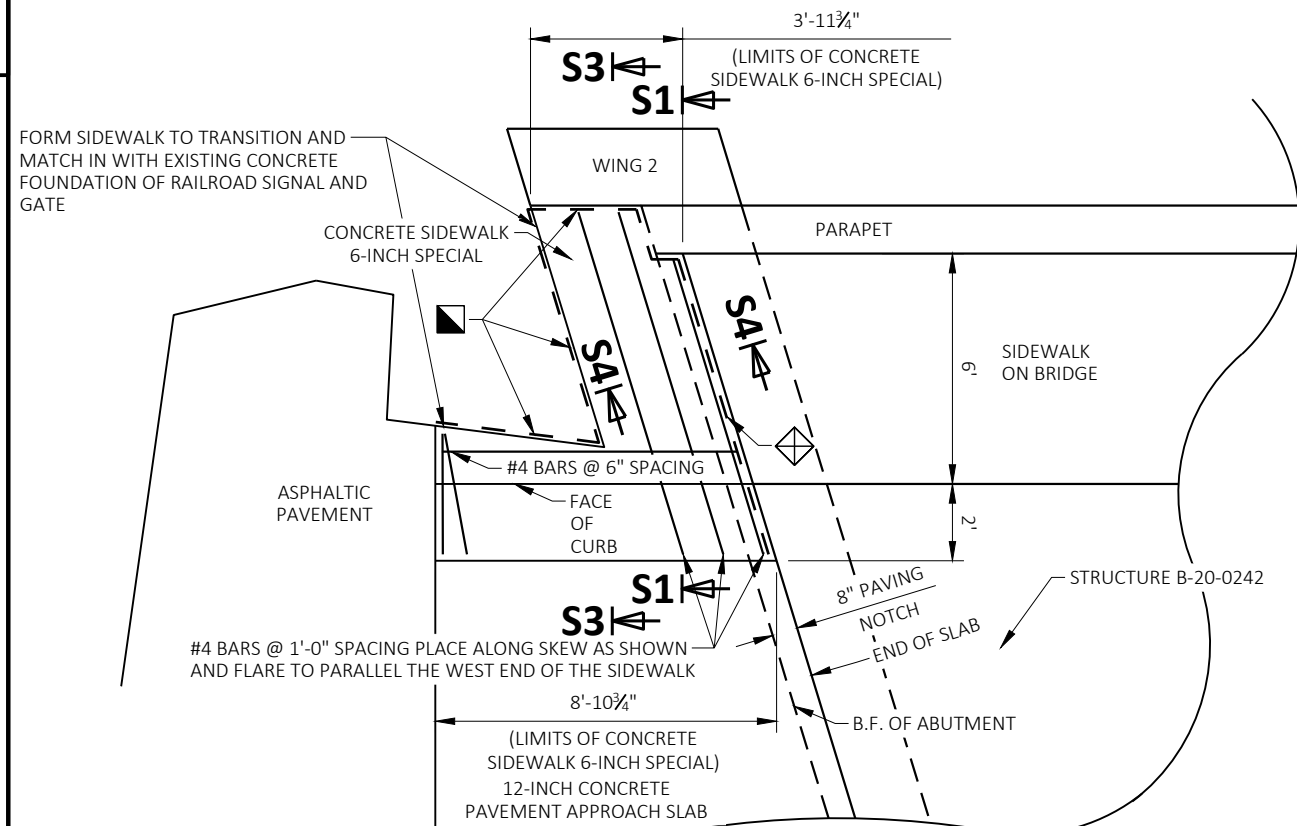
ADJUSTMENT RINGS SHALL BE HDPE ADJUSTING RINGS. CONCRETE ADJUSTMENT RINGS SHALL NOT BE ALLOWED.



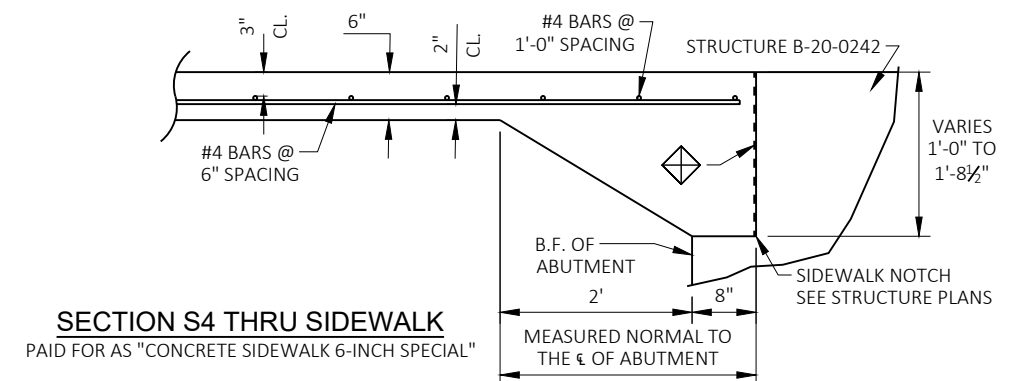
DETAIL FOR COMPUTING INLET ELEVATIONS

** FILL WITH CONCRETE IF BOTTOM OF STRUCTURE IS BELOW LOWEST INVERT.

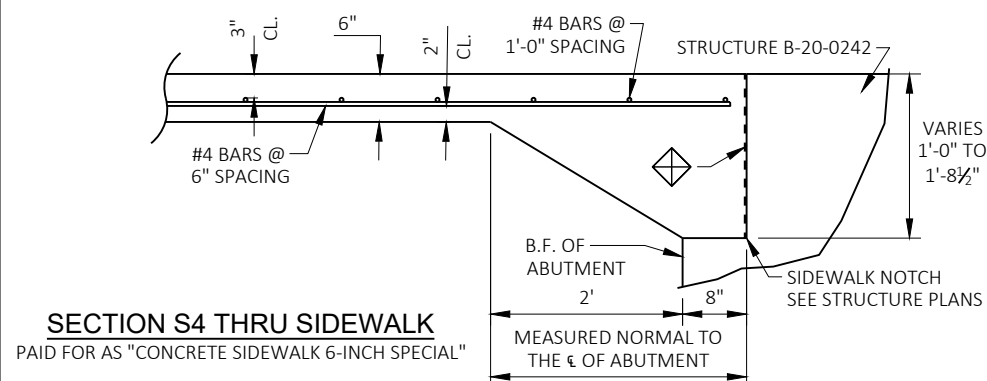
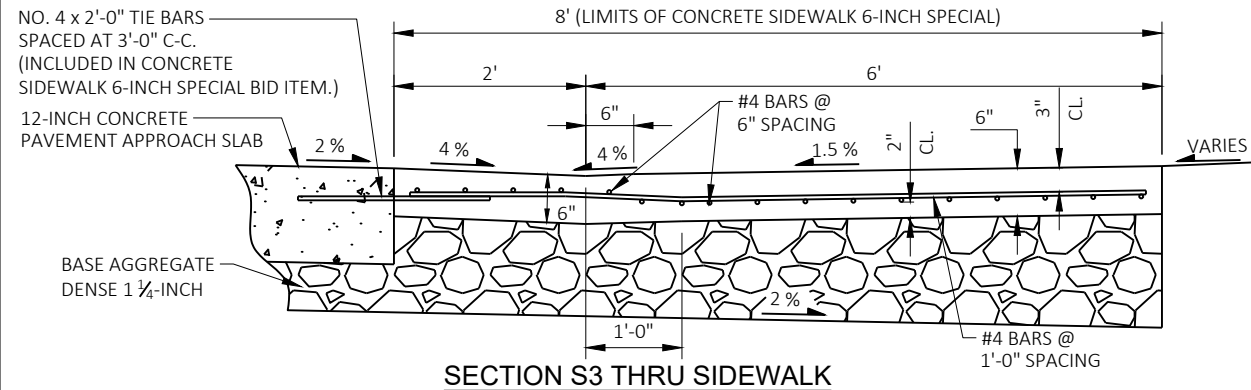
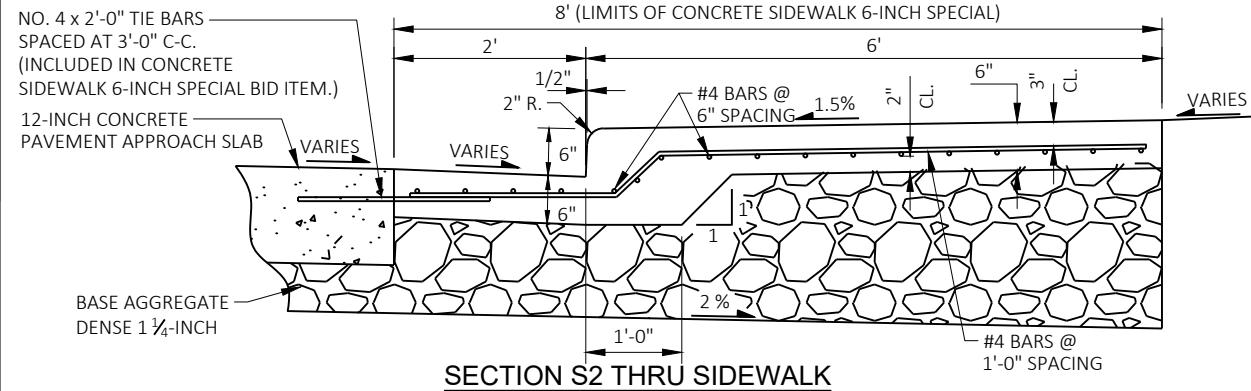
ADJUSTMENT RINGS SHALL BE HDPE ADJUSTING RINGS. CONCRETE ADJUSTMENT RINGS SHALL NOT BE ALLOWED.



- LEGEND**
- - 1/2" FILLER. EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER, (1" DEEP & HOLD 1/2" BELOW SURFACE OF CONCRETE), INCLUDED IN BID ITEM "CONCRETE SIDEWALK 6-INCH SPECIAL".
 - ◊ - 3/4" FILLER @ B.F. OF ABUTMENT. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER, (1" DEEP & HOLD 1/2" BELOW SURFACE OF CONCRETE), INCLUDED IN BID ITEM "CONCRETE SIDEWALK 6-INCH SPECIAL".



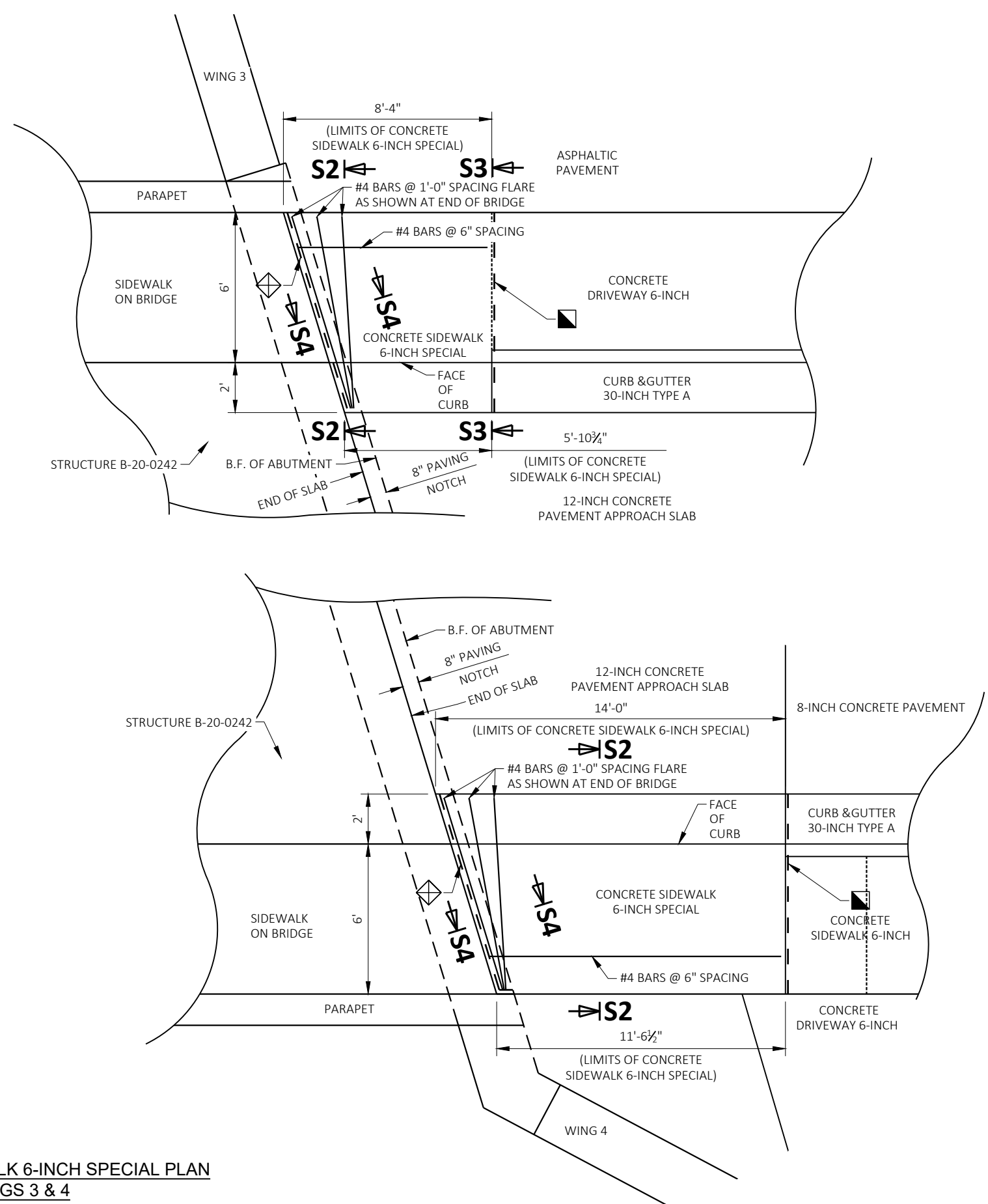
**CONCRETE SIDEWALK 6-INCH SPECIAL PLAN
WINGS 1 & 2**

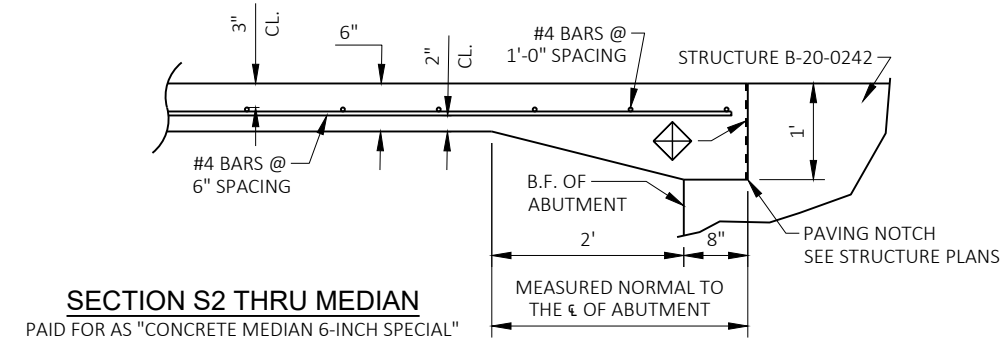
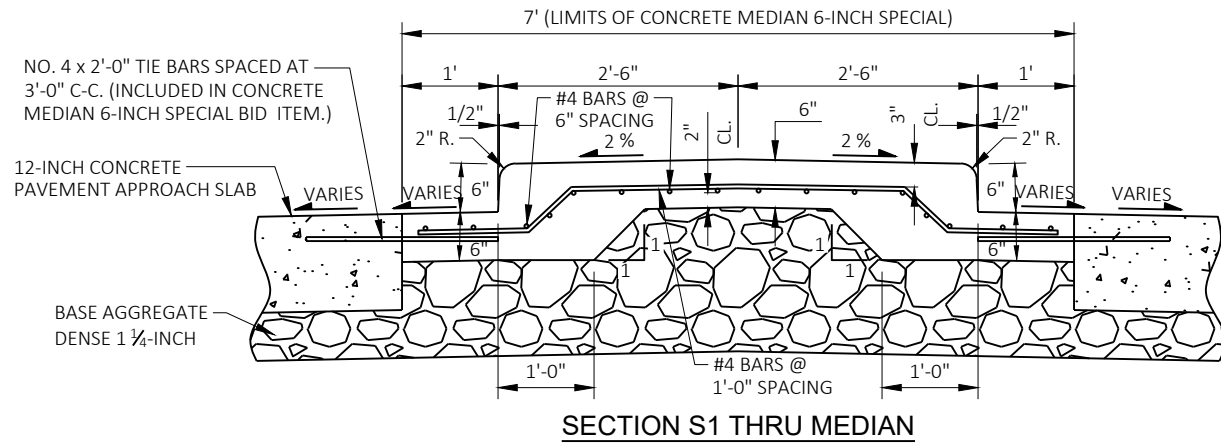


LEGEND

- - 1/2" FILLER. EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER, (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE), INCLUDED IN BID ITEM "CONCRETE SIDEWALK 6-INCH SPECIAL".
- ◆ - 3/4" FILLER @ B.F. OF ABUTMENT. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER, (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE), INCLUDED IN BID ITEM "CONCRETE SIDEWALK 6-INCH SPECIAL".

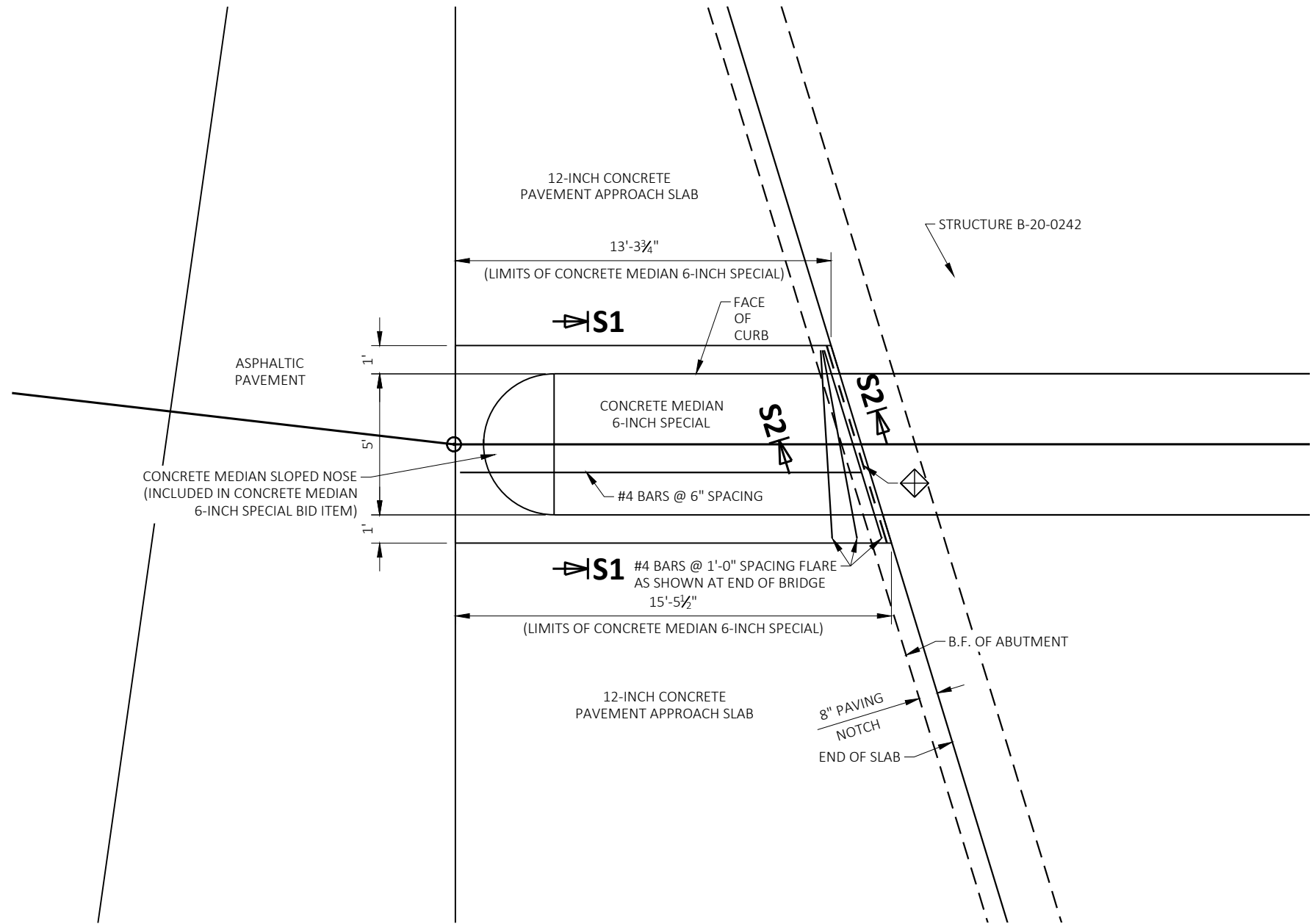
CONCRETE SIDEWALK 6-INCH SPECIAL PLAN WINGS 3 & 4

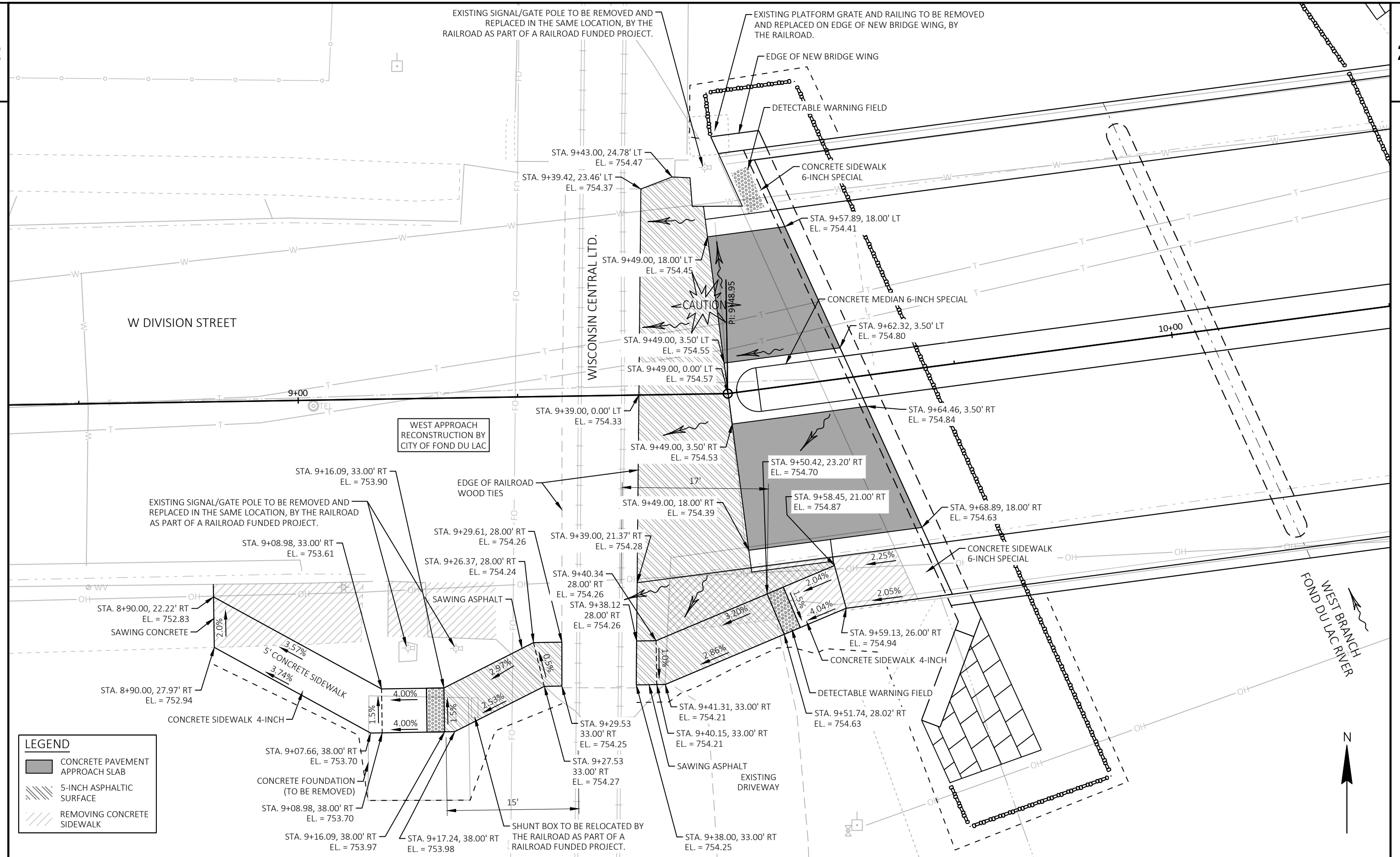




LEGEND

◊ - 3/4" FILLER @ B.F. OF ABUTMENT. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER, (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE), INCLUDED IN BID ITEM "CONCRETE MEDIAN 6-INCH SPECIAL".



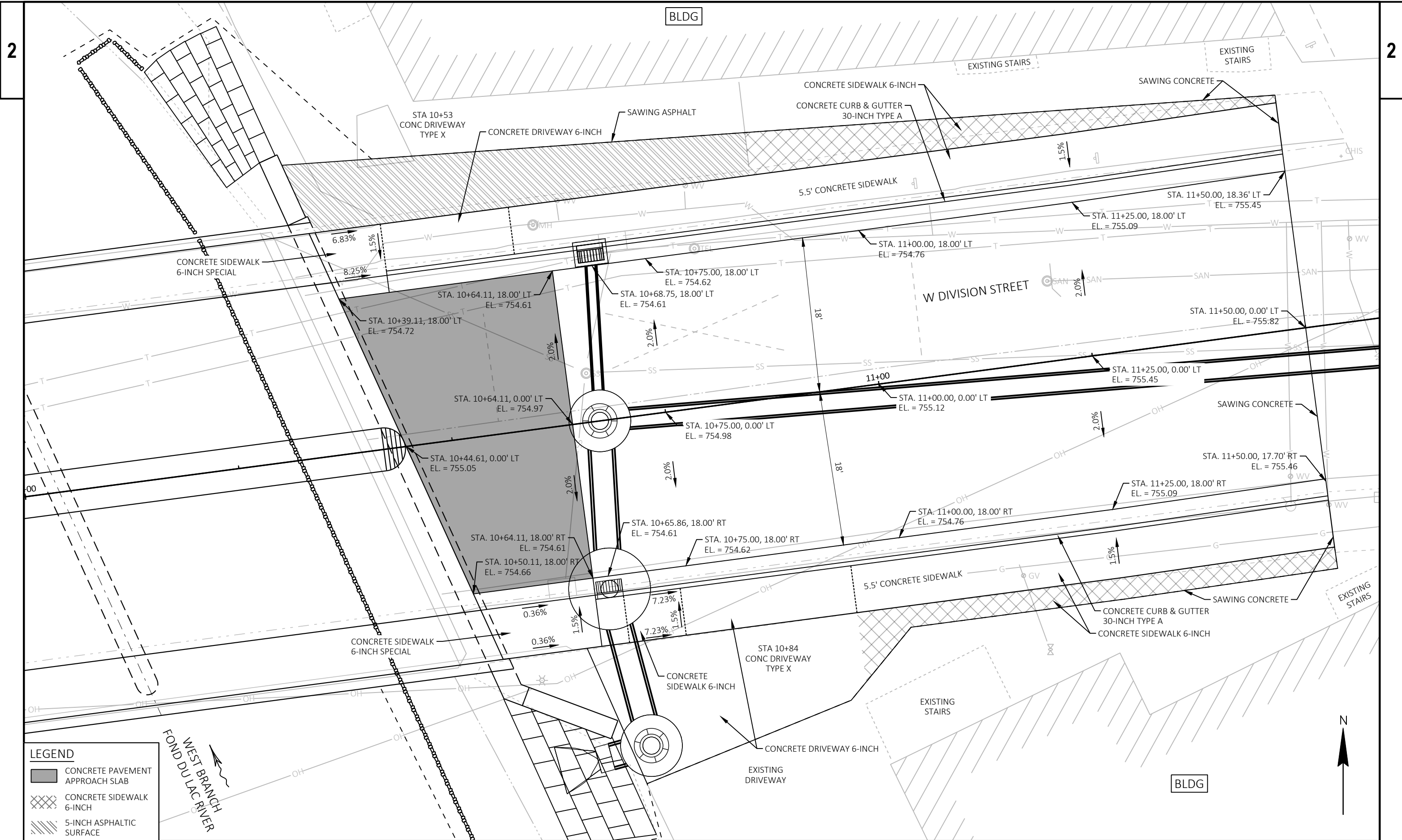


LEGEND

- CONCRETE PAVEMENT APPROACH SLAB
- 5-INCH ASPHALTIC SURFACE
- REMOVING CONCRETE SIDEWALK

PROJECT NO: 4986-12-71 HWY: LOCAL STREET COUNTY: FOND DU LAC CURB RAMP & PAVING DETAIL PLAN SHEET E

FILE NAME : P:\18005\18705\1878\01878055\CADD\SHEETS\PLAN\021201-PD.DWG PLOT DATE : 10/26/2022 9:05 AM PLOT BY : BRAD LEE PLOT NAME : PLOT SCALE : 1 IN:10 FT WISDOT/CADD SHEET 42



LEGEND

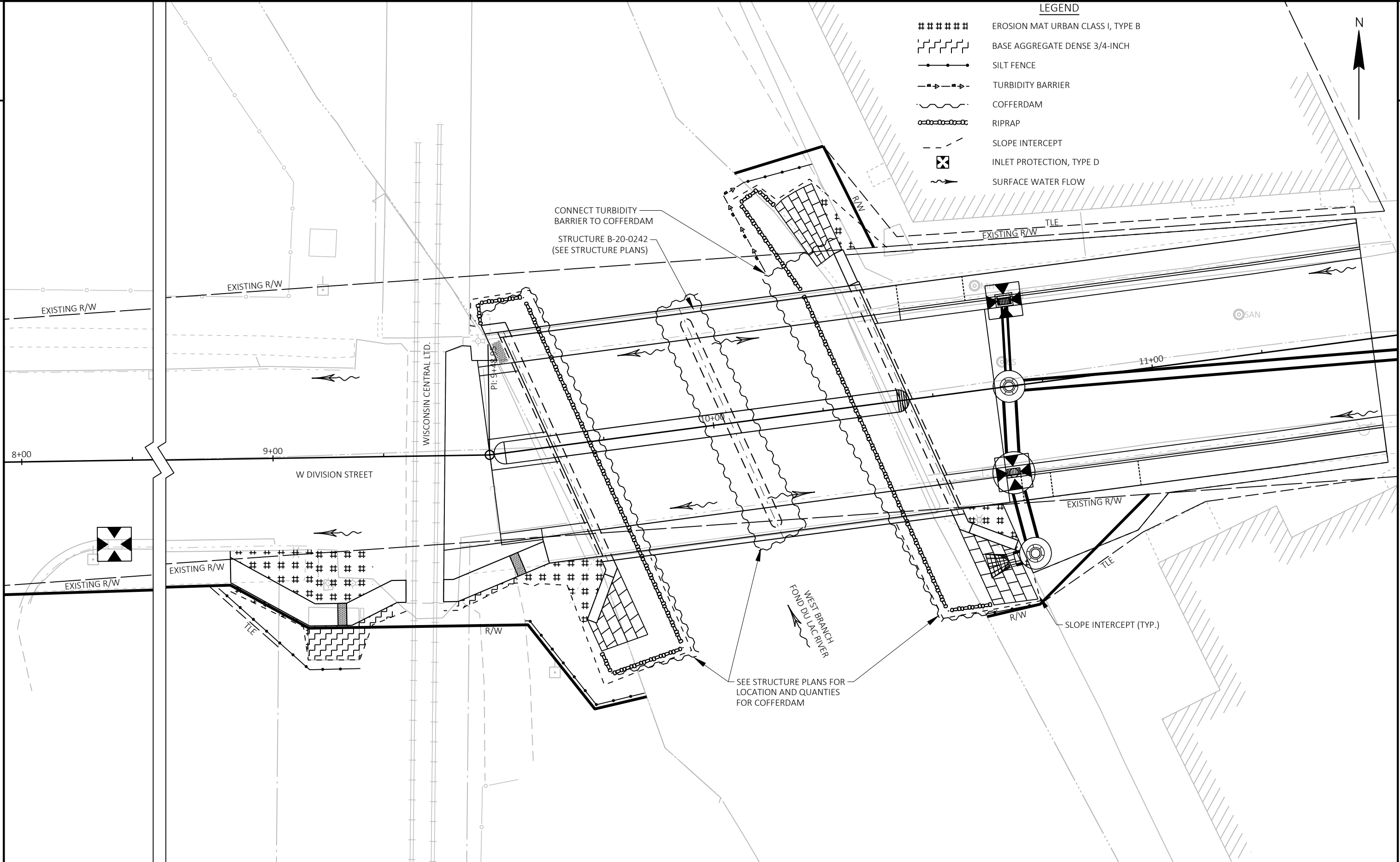
	CONCRETE PAVEMENT APPROACH SLAB
	CONCRETE SIDEWALK 6-INCH
	5-INCH ASPHALTIC SURFACE

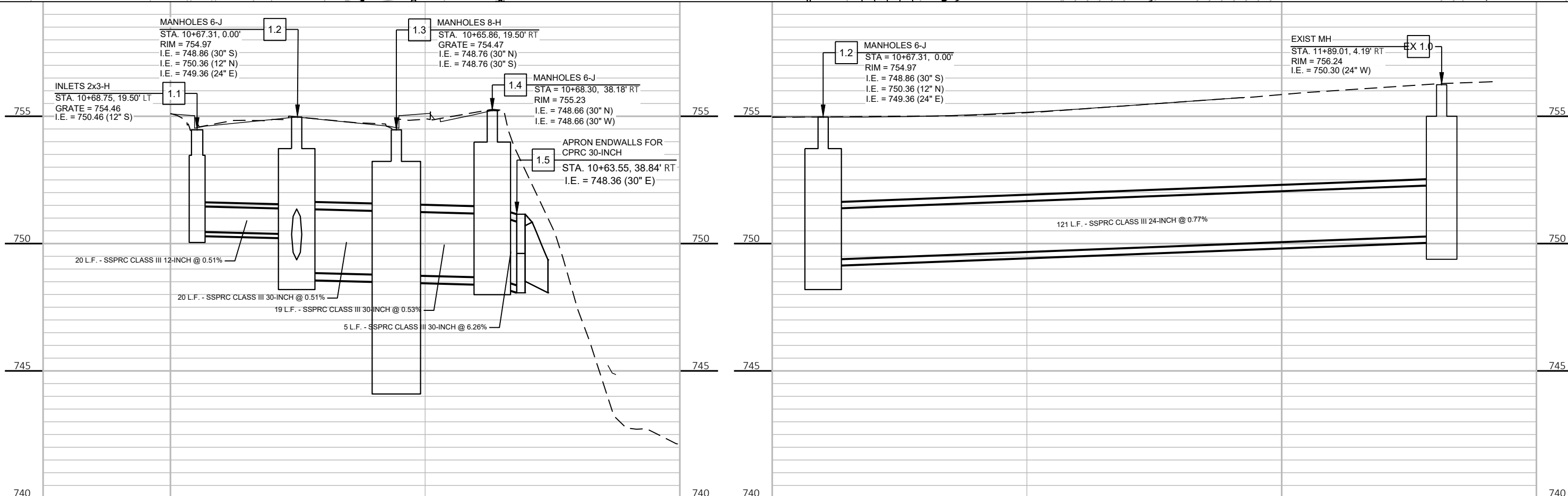
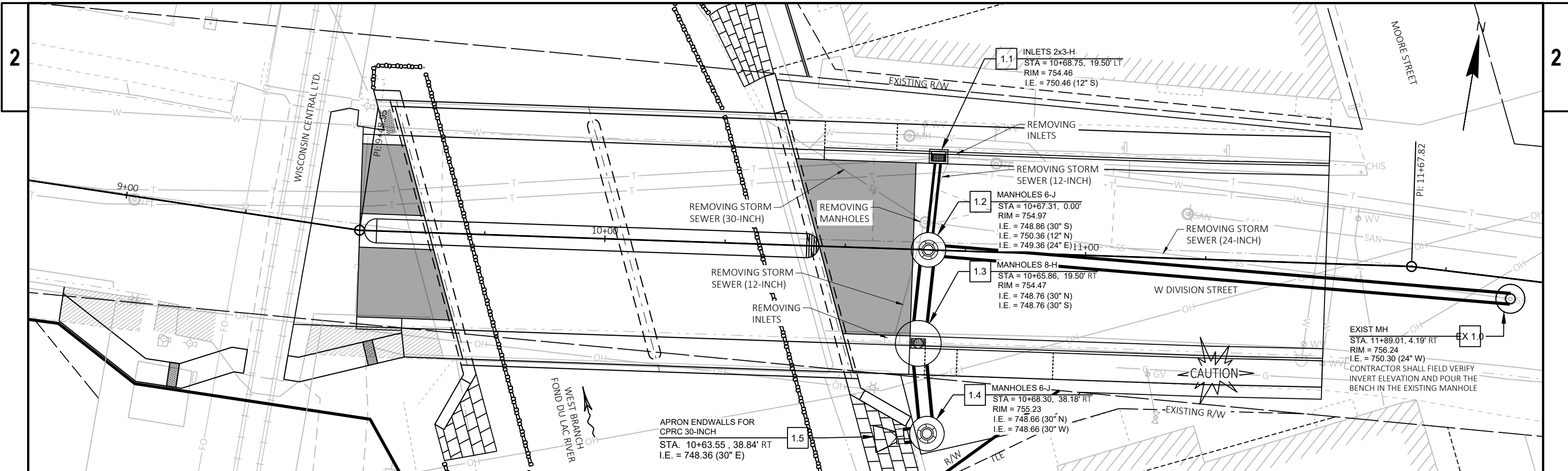
PROJECT NO: 4986-12-71 HWY: LOCAL STREET COUNTY: FOND DU LAC CURB RAMP & PAVING DETAIL PLAN SHEET **E**

FILE NAME: P:\18005\18705\1878\01878055\CADD\SHEETS\PLAN\021201-PD.DWG PLOT DATE: 10/26/2022 9:05 AM PLOT BY: BRAD LEE PLOT NAME: PLOT SCALE: 1 IN:10 FT WISDOT/CADD SHEET 42

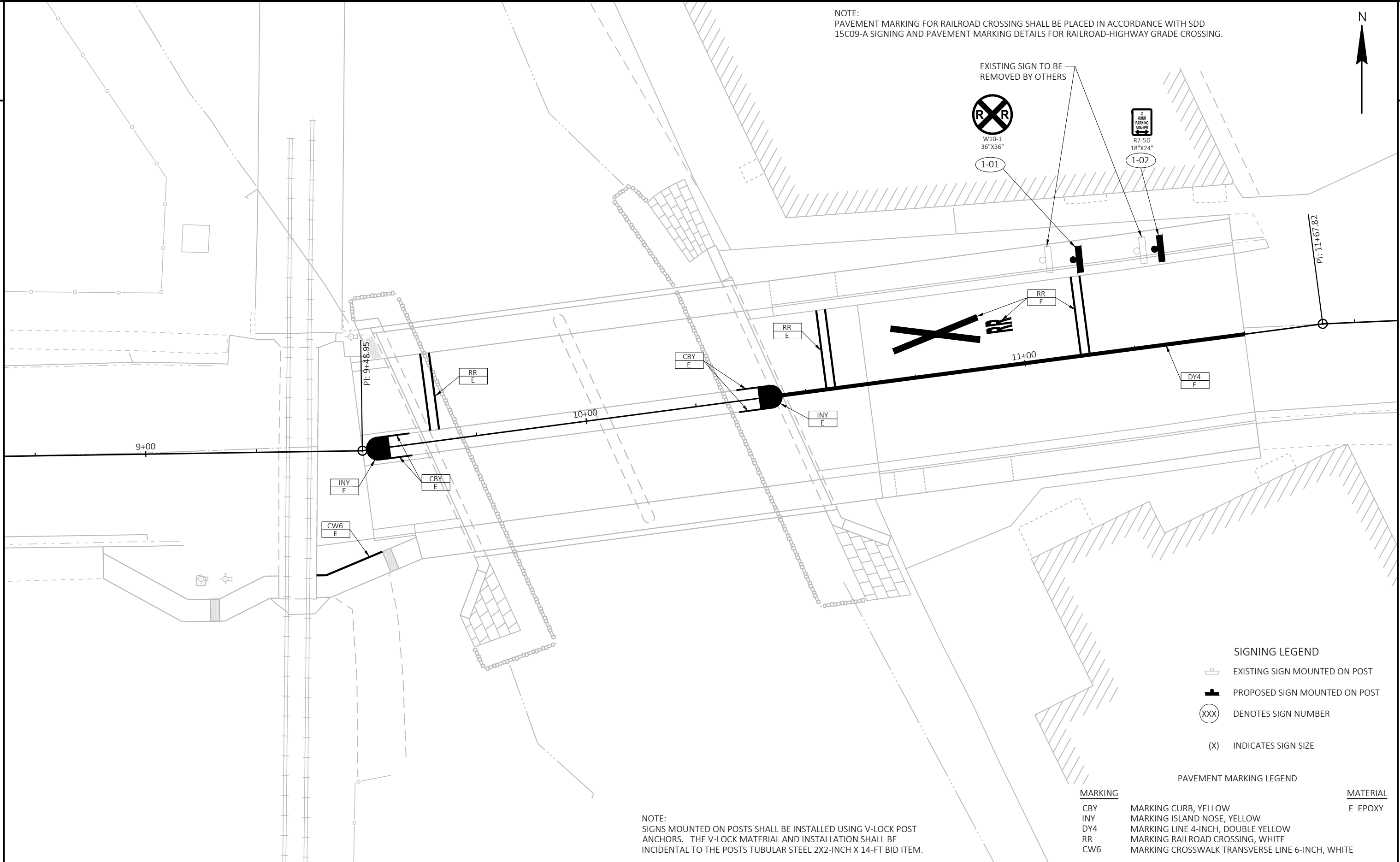
LEGEND

- ##### EROSION MAT URBAN CLASS I, TYPE B
- ▤▤▤▤▤▤ BASE AGGREGATE DENSE 3/4-INCH
- SILT FENCE
- ▶—▶—▶ TURBIDITY BARRIER
- ~ COFFERDAM
- RIPRAP
- - - SLOPE INTERCEPT
- ⊠ INLET PROTECTION, TYPE D
- ↗ SURFACE WATER FLOW





NOTE:
PAVEMENT MARKING FOR RAILROAD CROSSING SHALL BE PLACED IN ACCORDANCE WITH SDD
15C09-A SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD-HIGHWAY GRADE CROSSING.



NOTE:
SIGNS MOUNTED ON POSTS SHALL BE INSTALLED USING V-LOCK POST
ANCHORS. THE V-LOCK MATERIAL AND INSTALLATION SHALL BE
INCIDENTAL TO THE POSTS TUBULAR STEEL 2X2-INCH X 14-FT BID ITEM.

- SIGNING LEGEND**
- EXISTING SIGN MOUNTED ON POST
 - PROPOSED SIGN MOUNTED ON POST
 - DENOTES SIGN NUMBER
 - INDICATES SIGN SIZE

- PAVEMENT MARKING LEGEND**
- | MARKING | MATERIAL |
|---------|---|
| CBY | MARKING CURB, YELLOW
E EPOXY |
| INY | MARKING ISLAND NOSE, YELLOW |
| DY4 | MARKING LINE 4-INCH, DOUBLE YELLOW |
| RR | MARKING RAILROAD CROSSING, WHITE |
| CW6 | MARKING CROSSWALK TRANSVERSE LINE 6-INCH, WHITE |

Estimate Of Quantities

4986-12-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	2.000	2.000
0004	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. P-20-711	EACH	1.000	1.000
0006	204.0100	Removing Concrete Pavement	SY	582.000	582.000
0008	204.0150	Removing Curb & Gutter	LF	25.000	25.000
0010	204.0155	Removing Concrete Sidewalk	SY	187.000	187.000
0012	204.0210	Removing Manholes	EACH	1.000	1.000
0014	204.0220	Removing Inlets	EACH	2.000	2.000
0016	204.0245	Removing Storm Sewer (size) 01. 12-Inch	LF	36.000	36.000
0018	204.0245	Removing Storm Sewer (size) 02. 24-Inch	LF	120.000	120.000
0020	204.0245	Removing Storm Sewer (size) 03. 30-Inch	LF	40.000	40.000
0022	204.9180.S	Removing (item description) 01. Removing Concrete Foundation	SY	15.000	15.000
0024	205.0100	Excavation Common	CY	219.000	219.000
0026	206.1001	Excavation for Structures Bridges (structure) 01. B-20-242	EACH	1.000	1.000
0028	206.5001	Cofferdams (structure) 01. B-20-242	EACH	1.000	1.000
0030	209.0200.S	Backfill Controlled Low Strength	CY	33.000	33.000
0032	210.1500	Backfill Structure Type A	TON	535.000	535.000
0034	213.0100	Finishing Roadway (project) 01. 4986-12-71	EACH	1.000	1.000
0036	305.0110	Base Aggregate Dense 3/4-Inch	TON	6.000	6.000
0038	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	355.000	355.000
0040	311.0110	Breaker Run	TON	172.000	172.000
0042	415.0080	Concrete Pavement 8-Inch	SY	344.000	344.000
0044	415.0410	Concrete Pavement Approach Slab	SY	124.000	124.000
0046	416.0160	Concrete Driveway 6-Inch	SY	64.000	64.000
0048	416.0620	Drilled Dowel Bars	EACH	30.000	30.000
0050	465.0105	Asphaltic Surface	TON	52.000	52.000
0052	502.0100	Concrete Masonry Bridges	CY	508.000	508.000
0054	502.3200	Protective Surface Treatment	SY	535.000	535.000
0056	502.3210	Pigmented Surface Sealer	SY	73.000	73.000
0058	505.0400	Bar Steel Reinforcement HS Structures	LB	11,380.000	11,380.000
0060	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	62,960.000	62,960.000
0062	511.1200	Temporary Shoring (structure) 01. B-20-242	SF	1,970.000	1,970.000
0064	513.7031	Railing Steel Type C6	LF	162.000	162.000
0066	516.0500	Rubberized Membrane Waterproofing	SY	24.000	24.000
0068	517.1015.S	Concrete Staining Multi-Color (structure) 01. B-20-242	SF	525.000	525.000
0070	517.1050.S	Architectural Surface Treatment (structure) 01. B-20-242	SF	525.000	525.000
0072	520.8000	Concrete Collars for Pipe	EACH	1.000	1.000
0074	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	1.000	1.000
0076	550.0500	Pile Points	EACH	32.000	32.000
0078	550.2104	Piling CIP Concrete 10 3/4 X 0.25-Inch	LF	1,590.000	1,590.000
0080	601.0409	Concrete Curb & Gutter 30-Inch Type A	LF	201.000	201.000
0082	602.0405	Concrete Sidewalk 4-Inch	SF	184.000	184.000
0084	602.0415	Concrete Sidewalk 6-Inch	SF	1,199.000	1,199.000
0086	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	30.000	30.000
0088	606.0300	Riprap Heavy	CY	130.000	130.000
0090	608.0312	Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	LF	20.000	20.000
0092	608.0324	Storm Sewer Pipe Reinforced Concrete Class III 24-Inch	LF	121.000	121.000
0094	608.0330	Storm Sewer Pipe Reinforced Concrete Class III 30-Inch	LF	44.000	44.000
0096	611.0530	Manhole Covers Type J	EACH	2.000	2.000
0098	611.0624	Inlet Covers Type H	EACH	2.000	2.000

Estimate Of Quantities

4986-12-71

Line	Item	Item Description	Unit	Total	Qty
0100	611.2006	Manholes 6-FT Diameter	EACH	2.000	2.000
0102	611.2008	Manholes 8-FT Diameter	EACH	1.000	1.000
0104	611.3230	Inlets 2x3-FT	EACH	1.000	1.000
0106	611.8110	Adjusting Manhole Covers	EACH	1.000	1.000
0108	611.9850.S	Pipe Grates (size) 01. 30-Inch	EACH	1.000	1.000
0110	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	140.000	140.000
0112	618.0100	Maintenance And Repair of Haul Roads (project) 01. 4986-12-71	EACH	1.000	1.000
0114	619.1000	Mobilization	EACH	1.000	1.000
0116	624.0100	Water	MGAL	15.000	15.000
0118	625.0100	Topsoil	SY	64.000	64.000
0120	628.1504	Silt Fence	LF	110.000	110.000
0122	628.1520	Silt Fence Maintenance	LF	110.000	110.000
0124	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0126	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0128	628.2008	Erosion Mat Urban Class I Type B	SY	63.000	63.000
0130	628.6005	Turbidity Barriers	SY	30.000	30.000
0132	628.7020	Inlet Protection Type D	EACH	3.000	3.000
0134	629.0210	Fertilizer Type B	CWT	0.070	0.070
0136	630.0140	Seeding Mixture No. 40	LB	1.100	1.100
0138	630.0500	Seed Water	MGAL	1.500	1.500
0140	634.0814	Posts Tubular Steel 2x2-Inch X 14-FT	EACH	2.000	2.000
0142	637.2210	Signs Type II Reflective H	SF	3.000	3.000
0144	637.2230	Signs Type II Reflective F	SF	7.070	7.070
0146	642.5001	Field Office Type B	EACH	1.000	1.000
0148	643.0420	Traffic Control Barricades Type III	DAY	5,192.000	5,192.000
0150	643.0705	Traffic Control Warning Lights Type A	DAY	8,496.000	8,496.000
0152	643.0900	Traffic Control Signs	DAY	4,248.000	4,248.000
0154	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0156	643.5000	Traffic Control	EACH	1.000	1.000
0158	645.0111	Geotextile Type DF Schedule A	SY	151.000	151.000
0160	645.0120	Geotextile Type HR	SY	310.000	310.000
0162	646.1020	Marking Line Epoxy 4-Inch	LF	210.000	210.000
0164	646.5320	Marking Railroad Crossings Epoxy	EACH	1.000	1.000
0166	646.7420	Marking Crosswalk Epoxy Transverse Line 6-Inch	LF	16.000	16.000
0168	646.8120	Marking Curb Epoxy	LF	20.000	20.000
0170	646.8220	Marking Island Nose Epoxy	EACH	2.000	2.000
0172	650.4000	Construction Staking Storm Sewer	EACH	5.000	5.000
0174	650.4500	Construction Staking Subgrade	LF	129.000	129.000
0176	650.6501	Construction Staking Structure Layout (structure) 01. B-20-0242	EACH	1.000	1.000
0178	650.7000	Construction Staking Concrete Pavement	LF	120.000	120.000
0180	650.9500	Construction Staking Sidewalk (project) 01. 4986-12-71	EACH	1.000	1.000
0182	650.9911	Construction Staking Supplemental Control (project) 01. 4986-12-71	EACH	1.000	1.000
0184	650.9920	Construction Staking Slope Stakes	LF	129.000	129.000
0186	652.0125	Conduit Rigid Metallic 2-Inch	LF	10.000	10.000
0188	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	85.000	85.000
0190	690.0150	Sawing Asphalt	LF	70.000	70.000
0192	690.0250	Sawing Concrete	LF	211.000	211.000
0194	715.0502	Incentive Strength Concrete Structures	DOL	3,048.000	3,048.000
0196	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000

Estimate Of Quantities

4986-12-71

Line	Item	Item Description	Unit	Total	Qty
0198	801.0117	Railroad Flagging Reimbursement	DOL	50,000.000	50,000.000
0200	999.1501.S	Crack and Damage Survey	EACH	2.000	2.000
0202	SPV.0060	Special 01. Settlement Monitoring	EACH	1.000	1.000
0204	SPV.0060	Special 02. Vibration Monitoring	EACH	1.000	1.000
0206	SPV.0060	Special 03. Temporary Bracing Railroad	EACH	1.000	1.000
0208	SPV.0165	Special 01. Concrete Sidewalk 6-Inch Special	SF	298.000	298.000
0210	SPV.0165	Special 02. Concrete Median 6-Inch Special	SF	101.000	101.000
0212	SPV.0165	Special 03. Cut-Stone Boulders	SF	410.000	410.000
0214	SPV.0195	Special 01. Excavation, Hauling, and Disposal of PAH Contaminated Sediment	TON	163.000	163.000

GRUBBING

CATEGORY	STATION	TO	STATION	LOCATION	201.0205 GRUBBING STA
0010	9+50	-	10+50	LT & RT	2
TOTAL 0010					2

REMOVALS

CATEGORY	STATION	TO	STATION	LOCATION	204.0100 REMOVING CONCRETE PAVEMENT SY	204.0150 REMOVING CURB & GUTTER LF	204.0155 REMOVING CONCRETE SIDEWALK SY	204.0210 REMOVING MANHOLES EACH	204.0220 REMOVING INLETS EACH	204.0245.01 REMOVING STORM SEWER (SIZE) (01. 12- INCH) LF	204.0245.02 REMOVING STORM SEWER (SIZE) (02. 24- INCH) LF	204.0245.03 REMOVING STORM SEWER (SIZE) (03. 30- INCH) LF	204.9180.S.01 REMOVING (ITEM DESCRIPTION) (01. REMOVING CONCRETE FOUNDATION) SY
0010	8+90	-	9+22	RT	---	---	24	---	---	---	---	---	---
0010	9+07	-	9+19	RT	---	---	---	---	---	---	---	---	15
0010	9+42	-	9+68	RT	---	25	18	---	---	---	---	---	---
0010	10+33	-	11+50	LT & RT	447	---	---	---	---	---	---	---	---
0010	10+31	-	11+50	LT	47	---	72	---	---	---	---	---	---
0010	10+45	-	11+50	RT	88	---	73	---	---	---	---	---	---
0010	10+60	-		RT	---	---	---	---	1	---	---	---	---
0010	10+71	-		LT	---	---	---	---	1	---	---	---	---
0010	10+66	-		LT	---	---	---	1	---	---	---	---	---
0010	10+31	-	10+66	LT	---	---	---	---	---	---	---	40	---
0010	10+60	-	10+66	LT & RT	---	---	---	---	---	23	---	---	---
0010	10+66	-	10+72	LT	---	---	---	---	---	13	---	---	---
0010	10+66	-	11+89	LT & RT	---	---	---	---	---	---	120	---	---
TOTAL 0010					582	25	187	1	2	36	120	40	15

COMMON EXCAVATION

CATEGORY	STATION	TO	STATION	LOCATION	205.0100 EXCAVATION COMMON CY	SPV.0195.01 SPECIAL (01. EXCAVATION, HAULING, AND DISPOSAL OF PAH CONTAMINATED SEDIMENT) TON
0010	9+43	-	9+62	W DIVISION ST	45	---
0010	10+45	-	11+50	W DIVISION ST	174	---
TOTAL 0010					219	0
0030	9+62	-	10+45	W DIVISION ST	---	163
TOTAL 0030					0	163
PROJECT TOTAL					219	163

BASE AGGREGATE DENSE

CATEGORY	STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL
0010	9+09	-	9+26	RT	5	---	1
0010	9+41	-	9+51	RT	1	---	1
0010	8+90	-	9+30	SIDEWALK RT	---	5	1
0010	9+39	-	9+63	W DIVISION ST	---	49	2
0010	10+45	-	11+50	W DIVISION ST	---	301	10
TOTAL 0010					6	355	15

CONCRETE PAVEMENT

CATEGORY	STATION	TO	STATION	LOCATION	415.0080 CONCRETE PAVEMENT 8-INCH SY	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY	416.0620 DRILLED DOWEL BARS EACH
0010	9+49	-	9+68.89	LT & RT	---	46	---
0010	10+39.11	-	10+64.11	LT & RT	---	78	---
0010	10+64.11	-	11+50	LT & RT	344	---	---
0010	11+50	-		LT & RT	---	---	30
TOTAL 0010					344	124	30

CONCRETE DRIVEWAY

CATEGORY	STATION	TO	STATION	LOCATION	416.0160 CONCRETE DRIVEWAY 6-INCH SY
0010	10+45	-	10+60	LT	9
0010	10+74	-	10+94	RT	55
TOTAL 0010					64

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ASPHALTIC SURFACE

CATEGORY	STATION	TO	STATION	LOCATION	TON
					465.0105 ASPHALTIC SURFACE
0010	9+39	-	9+49	LT & RT	27
0010	9+16.09	-	9+29.61	RT	5
0010	9+38.12	-	9+50.42	RT	11
0010	10+34.57	-	10+88.32	LT	9
TOTAL 0010					52

CURB & GUTTER

CATEGORY	STATION	TO	STATION	LOCATION	LF
					601.0409 CONCRETE CURB & GUTTER 30- INCH TYPE A
0010	9+49	-	9+58.38	RT	10
0010	10+45	-	11+50	LT	105
0010	10+64.11	-	11+50	RT	86
TOTAL 0010					201

ADJUSTING MANHOLES

CATEGORY	STATION	LOCATION	EACH
			611.8110 ADJUSTING MANHOLE COVERS
0030	11+20.71	7.7' LT	1
TOTAL 0030			1

STORM SEWER STRUCTURES

CATEGORY	STRUCTURE NO.	STATION	LOCATION	GRATE/RIM ELEV.	TOP OF STRUCTURE ELEV.	INVERT ELEV.	STRUCTURE DEPTH	522.1030 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH EACH	611.0530 MANHOLE COVERS TYPE J EACH	611.0624 INLET COVERS TYPE H EACH	611.2006 MANHOLES 6-FT DIAMETER EACH	611.2008 MANHOLES 8-FT DIAMETER EACH	611.3230 INLETS 2X3-FT EACH	611.9850.S PIPE GRATES 30-INCH EACH	650.4000 CONSTRUCTION STAKING STORM SEWER EACH
0010	1.1	10+68.75	19.50' LT	754.46	753.63	750.46	3.17	---	---	1	---	---	1	---	1
0010	1.2	10+67.31	0.00' LT	754.97	753.72	748.86	4.86	---	1	---	1	---	---	---	1
0010	1.3	10+65.86	19.50' RT	754.47	753.64	744.76	8.88	---	---	1	---	1	---	---	1
0010	1.4	10+68.30	38.18' RT	755.23	753.98	748.66	5.32	---	1	---	1	---	---	---	1
0010	1.5	10+63.55	38.84' RT	---	---	748.36	---	1	---	---	---	---	---	1	1
TOTAL 0010								1	2	2	2	1	1	1	5

CONCRETE SIDEWALK

CATEGORY	STATION	TO	STATION	LOCATION	CONCRETE SIDEWALK 4-INCH SF	CONCRETE SIDEWALK 6-INCH SF	602.0405	602.0415	602.0505 CURB RAMP DETECTABLE WARNING FIELD YELLOW SF	SPV.0165.01 SPECIAL (01. CONCRETE SIDEWALK 6-INCH SPECIAL) SF	SPV.0165.02 SPECIAL (.02 CONCRETE MEDIAN 6-INCH SPECIAL) SF
0010	8+90	-	9+16.09	RT	144	---	---	---	---	---	---
0010	9+14.09	-	9+16.09	RT	---	---	---	10	---	---	---
0010	9+50.42	-	9+52.35	RT	---	---	---	10	---	---	---
0010	9+50.42	-	9+58.45	RT	40	---	---	---	---	---	---
0010	9+49	-	9+64.46	LT & RT	---	---	---	---	---	---	101
0010	9+46.52	-	9+57.89	LT	---	---	---	10	48	---	---
0010	9+58.38	-	9+71.34	RT	---	---	---	---	92	---	---
0010	10+36.66	-	10+45	LT	---	---	---	---	56	---	---
0010	10+50.11	-	10+64.11	RT	---	---	---	---	102	---	---
0010	10+60	-	11+50	LT	---	684	---	---	---	---	---
0010	10+64.11	-	11+50	RT	---	515	---	---	---	---	---
TOTAL 0010					184	1,199	30	298	101		

STORM SEWER PIPE

CATEGORY	STRUCTURE	TO	STRUCTURE	520.8000 CONCRETE COLLARS FOR PIPE EACH	608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH LF	608.0324 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 24-INCH LF	608.0330 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 30-INCH LF
0010	EX1.0	-	1.2	1	---	121	---
0010	1.1	-	1.2	---	20	---	---
0010	1.2	-	1.3	---	---	---	20
0010	1.3	-	1.4	---	---	---	19
0010	1.4	-	1.5	---	---	---	5
TOTAL 0010				1	20	121	44

NOTE: TIE ALL JOINTS BETWEEN STRUCTURES 1.4 AND 1.5, INCLUDING THE APRON ENDWALL.

3

RESTORATION ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	625.0100	629.0210	630.0140	630.0500
					TOPSOIL SY	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 40 LB	SEED WATER MGAL
0010	8+90	-	9+22	RT	35	0.03	0.6	0.8
0010	9+49	-	9+71	RT	17	0.02	0.3	0.4
0010	10+29	-	10+37	LT	4	0.01	0.1	0.1
0010	10+53	-	10+67	RT	8	0.01	0.1	0.2
TOTAL 0010					64	0.07	1.1	1.5

EROSION CONTROL MOBILIZATIONS

CATEGORY	LOCATION	628.1905	628.1910
		MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
0010	PROJECT 4986-12-71	5	2
TOTAL 0010		5	2

EROSION CONTROL

CATEGORY	STATION	TO	STATION	LOCATION	628.1504	628.1520	628.2008	628.6005	628.7020
					SILT FENCE LF	SILT FENCE MAINTENANCE LF	EROSION MAT URBAN CLASS I TYPE B SY	TURBIDITY BARRIERS SY	INLET PROTECTION TYPE D EACH
0010	8+20	-		RT	---	---	---	---	1
0010	8+87	-	9+19	RT	40	40	---	---	---
0010	8+90	-	9+22	RT	---	---	35	---	---
0010	9+52	-	9+77	RT	40	40	---	---	---
0010	9+49	-	9+71	RT	---	---	15	---	---
0010	10+10	-	10+30	LT	15	15	---	30	---
0010	10+29	-	10+37	LT	---	---	5	---	---
0010	10+54	-	10+68	RT	15	15	---	---	---
0010	10+53	-	10+67	RT	---	---	8	---	---
0010	10+66	-		RT	---	---	---	---	1
0010	10+69	-		LT	---	---	---	---	1
TOTAL 0010					110	110	63	30	3

PERMANENT SIGNING

CATEGORY	SIGN NO.	STATION	LOCATION	SIGN CODE	SIGN DESCRIPTION	SIZE (INCHES)		634.0814	637.2210	637.2230
						WIDTH	HEIGHT	POSTS TUBULAR STEEL 2X2-INCH X 14-FT EACH	SIGNS TYPE II REFLECTIVE H SF	SIGNS TYPE II REFLECTIVE F SF
0010	1-01	11+15	LT	W10-1	RAILROAD CROSSING	36	36	1	---	7.07
0010	1-02	11+33	LT	R7-5D	TWO HOUR PARKING	18	24	1	3	---
TOTAL 0010								2	3	7.07

TRAFFIC CONTROL ITEMS

CATEGORY	LOCATION	DAYS	643.0420		643.0705		643.0900		643.1050	
			TRAFFIC CONTROL BARRICADES TYPE III EACH	TRAFFIC CONTROL BARRICADES TYPE III DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH	TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	TRAFFIC CONTROL SIGNS EACH	TRAFFIC CONTROL SIGNS DAY	TRAFFIC CONTROL SIGNS PCMS EACH	TRAFFIC CONTROL SIGNS PCMS DAY
0010	W DIVISION ST & S BROOKE ST	236	2	472	4	944	3	708	---	---
0010	W DIVISION ST & S BROOKE ST	7	---	---	---	---	---	---	1	7
0010	W DIVISION ST & GOULD ST	236	2	472	4	944	3	708	---	---
0010	W DIVISION ST & GOULD ST	7	---	---	---	---	---	---	1	7
0010	BEGINNING OF PROJECT	236	7	1,652	10	2,360	4	944	---	---
0010	BEGINNING OF PROJECT SIDEWALK CLOSURE	236	2	472	4	944	2	472	---	---
0010	END OF PROJECT	236	7	1,652	10	2,360	4	944	---	---
0010	END OF PROJECT SIDEWALK CLOSURE	236	2	472	4	944	2	472	---	---
TOTAL 0010				5,192		8,496		4,248		14

PAVEMENT MARKING

CATEGORY	STATION	TO	STATION	LOCATION	646.1020	646.5320	646.7420	646.8120	646.8220
					MARKING LINE EPOXY 4-INCH LF	MARKING RAILROAD CROSSINGS EPOXY EACH	MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH LF	MARKING CURB EPOXY LF	MARKING ISLAND NOSE EPOXY EACH
0010	9+38	-	9+50	RT	---	---	16	---	---
0010	9+50	-	9+60	MEDIAN ISLAND	---	---	---	10	1
0010	10+35	-	10+45	MEDIAN ISLAND	---	---	---	10	1
0010	9+65	-	11+15	LT	---	1	---	---	---
0010	10+45	-	11+50	DOUBLE YELLOW CL	210	---	---	---	---
TOTAL 0010					210	1	16	20	2

CONSTRUCTION STAKING

SAWING

CATEGORY	STATION	TO	STATION	LOCATION	650.4500	650.6501.01	650.7000	650.9911.01	650.9920	650.9500.01	690.0150		690.0250				
					CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (01. B-20-0242) EACH	CONSTRUCTION STAKING CONCRETE PAVEMENT LF	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 4986-12-71) EACH	CONSTRUCTION STAKING SLOPE STAKES LF	CONSTRUCTION STAKING SIDEWALK (PROJECT) (01. 4986-12-71) EACH	CATEGORY	STATION	TO	STATION	LOCATION	SAWING ASPHALT LF	SAWING CONCRETE LF
0010	9+39	-	11+50	LT & RT	---	1	---	1	---	1	0010	8+90	-	RT	---	7	
0010	9+39	-	9+63	LT & RT	24	---	15	---	24	---	0010	9+22	-	9+30	RT	15	---
0010	10+45	-	11+50	LT & RT	105	---	105	---	105	---	0010	9+38	-	9+41	RT	4	---
TOTAL 0010					129	1	120	1	129	1	0010	10+37	-	11+50	LT	51	71
											0010	10+67	-	11+50	RT	---	97
											0010	11+50	-	LT & RT	---	---	36
											TOTAL 0010					70	211

R/W PROJECT NUMBER 4986-12-00	SHEET NUMBER 4.01	TOTAL SHEETS 2
CONSTRUCTION PROJECT NUMBER 4986-12-71		
PLAT OF RIGHT OF WAY REQUIRED FOR CITY OF FOND DU LAC, WEST DIVISION STREET W BRANCH FOND DU LAC RIVER BR B-20-0242		
LOCAL STREET	FOND DU LAC COUNTY	

CONVENTIONAL SYMBOLS

SECTION LINE		SECTION CORNER SYMBOL		R/W MONUMENT (TO BE SET)	
QUARTER LINE		SECTION CORNER MONUMENT		NON-MONUMENTED R/W POINT	
SIXTEENTH LINE		GEODETIC SURVEY MONUMENT		FOUND IRON PIN (1-INCH UNLESS NOTED)	
NEW REFERENCE LINE		SIXTEENTH CORNER MONUMENT		SIGN	
NEW R/W LINE		SIGN		OFF-PREMISE SIGN	
EXISTING R/W OR HE LINE		COMPENSABLE		NON-COMPENSABLE	
PROPERTY LINE		ELECTRIC POLE		TELEPHONE POLE	
LOT, TIE & OTHER MINOR LINES		PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)			
SLOPE INTERCEPT		ACCESS RESTRICTED BY ACQUISITION			
CORPORATE LIMITS		NO ACCESS (BY STATUTORY AUTHORITY)			
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC)		ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)			
NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)		NO ACCESS (NEW HIGHWAY)			
TEMPORARY LIMITED EASEMENT AREA		PARCEL NUMBER (25)		UTILITY NUMBER (40)	
EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)		PARALLEL OFFSETS			
TRANSMISSION STRUCTURES					
BUILDING TO BE REMOVED					
BRIDGE					
CULVERT					

CONVENTIONAL UTILITY SYMBOLS

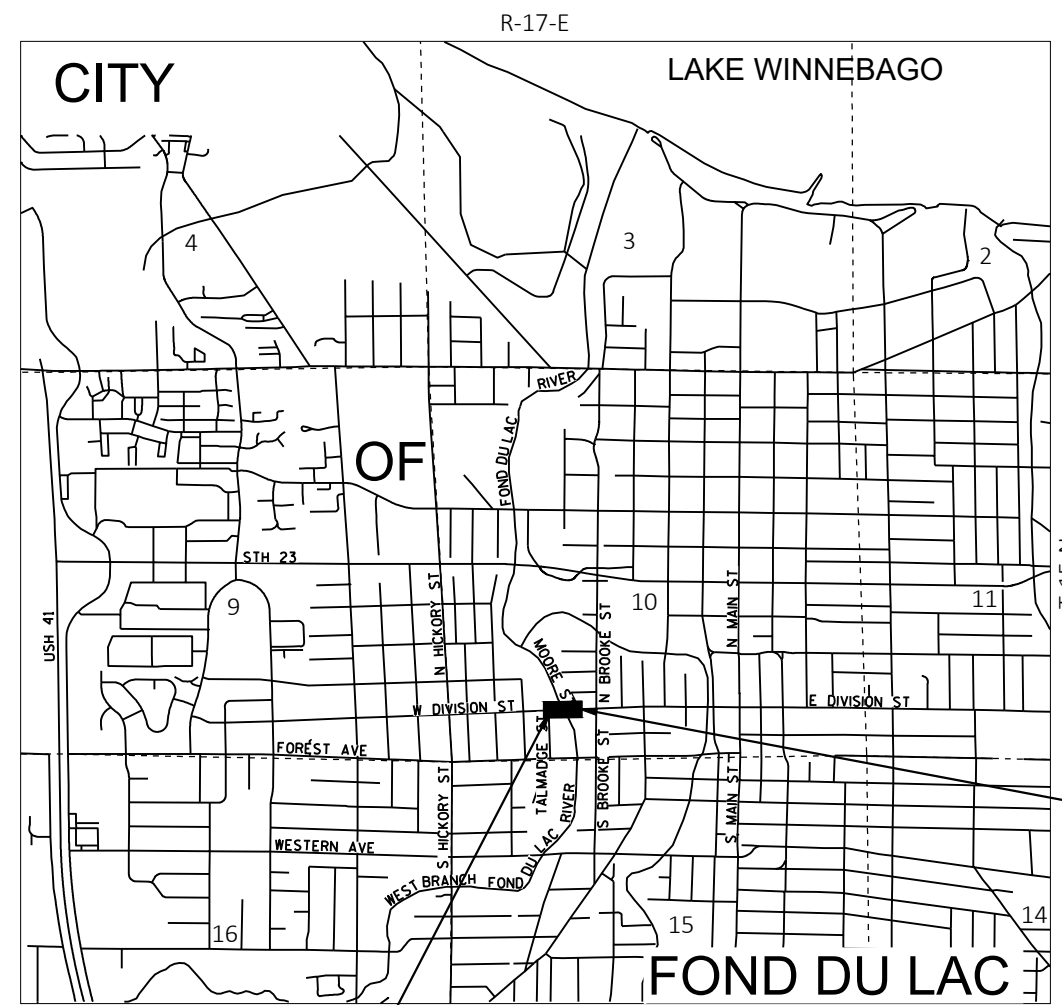
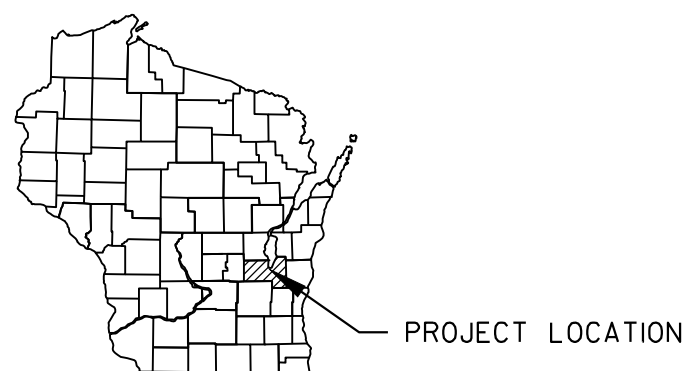
WATER	
GAS	
TELEPHONE	
OVERHEAD TRANSMISSION LINES	
ELECTRIC	
CABLE TELEVISION	
FIBER OPTIC	
SANITARY SEWER	
STORM SEWER	
ELECTRIC TOWER	

CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	POINT OF COMPOUND CURVE	PCC
ACRES	AC	POINT OF INTERSECTION	PI
AHEAD	AH	PROPERTY LINE	PL
ALUMINUM	ALUM	RECORDED AS (100')	(100')
AND OTHERS	ET AL	REEL / IMAGE	R/I
BACK	BK	REFERENCE LINE	R/L
BLOCK	BLK	REMAINING	REM
CENTERLINE	C/L	RESTRICTIVE DEVELOPMENT EASEMENT	RDE
CERTIFIED SURVEY MAP	CSM	RIGHT	RT
CONCRETE	CONC	RIGHT OF WAY	R/W
COUNTY	CO	SECTION	SEC
COUNTY TRUNK HIGHWAY	CTH	SEPTIC VENT	SEPV
DISTANCE	DIST	SQUARE FEET	SF
CORNER	COR	STATE TRUNK HIGHWAY	STH
DOCUMENT NUMBER	DOC	STATION	STA
EASEMENT	EASE	TELEPHONE PEDESTAL	TP
EXISTING	EX	TEMPORARY LIMITED EASEMENT	TLE
GAS VALVE	GV	TRANSPORTATION PROJECT PLAT	TPP
GRID NORTH	GN	UNITED STATES HIGHWAY	USH
HIGHWAY EASEMENT	HE	VOLUME	V
IDENTIFICATION	ID		
LAND CONTRACT	LC		
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY NUMBER	NGS		
OUTLOT	NO		
PAGE	OL		
POINT OF TANGENCY	P		
PERMANENT LIMITED EASEMENT	PT		
POINT OF BEGINNING	PLE		
POINT OF CURVATURE	POB		
	PC		

CURVE DATA ABBREVIATIONS

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ/DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB



BEGIN RELOCATION ORDER
 STA 7+92.26
 Y=386,110.397
 X=814,407.835
 1320.02 FEET EAST OF AND 697.10 FEET NORTH OF THE SOUTHWEST CORNER OF SECTION 10, T-15-N, R-17-E, CITY OF FOND DU LAC, FOND DU LAC COUNTY, WI

END RELOCATION ORDER
 STA 11+65.75
 Y=386,141.254
 X=814,779.433
 938.58 FEET WEST OF AND 644.74 FEET NORTH OF THE SOUTH QUARTER CORNER OF SECTION 10, T-15-N, R-17-E, CITY OF FOND DU LAC, FOND DU LAC COUNTY, WI

LAYOUT
 SCALE 0 1/2 MILE
 TOTAL NET LENGTH OF CENTERLINE = 0.071 MI

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), FOND DU LAC COUNTY, NAD83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 (TYPICALLY 3/4" X 24" REBAR) AND ARE PLACED PRIOR TO OR AT THE TIME OF LAND TITLE TRANSFER.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS" OF PUBLIC RECORD.

EXISTING HIGHWAY RIGHT-OF-WAY ESTABLISHED FROM DARLING MOORE & WALKERS SUBDIVISION OF TRACTS 41 & 43, DARLING, MOORE & DRURY'S ADDITION, SUBDIVISION OF TRACT 41 & 43, AND RECORDED PLATS OF SURVEY.

DIMENSIONS FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON, THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE. ALL (TLES) ON THIS PLAT EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

AN EASEMENT FOR HIGHWAY PURPOSES (HE), AS LONG AS SO USED, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE.

CAUTION:
 THIS PLAT IS FOR ILLUSTRATIVE PURPOSES ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES.

ACCEPTED FOR THE CITY OF FOND DU LAC
 DATE: 2/28/22
 Signature: [Signature]
 Print: Joe Moore

ORIGINAL PLAT PREPARED BY
MSA
 ENGINEERING | ARCHITECTURE | SURVEYING
 FUNDING | PLANNING | ENVIRONMENTAL
 1702 Pankratz Street, Madison, WI 53704
 (608) 242-7779 www.msa-ps.com
 © MSA Professional Services, Inc.

WISCONSIN LAND SURVEYOR
 BRADLEY L. TISDALE
 S-2824 WAUNAKEE WI
 DATE: 02/04/2022
 Signature: [Signature]
 (Professional Land Surveyor)

SCHEDULE OF LANDS & INTERESTS REQUIRED

OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE CITY.

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W SF REQUIRED			HE SF	TLE SF
			NEW	EXISTING	TOTAL		
1	COLE OIL COMPANY, INC., A WISCONSIN CORPORATION	FEE/TLE	482	--	482	--	79
2	WISCONSIN CENTRAL LTD.	HE	--	--	--	1146	--
3	ROBERT L. DIENER	FEE	905	--	905	--	--
4	3RDGEN DEVELOPMENT, LLC	FEE/TLE	736	--	736	--	211
5	REDEVELOPMENT AUTHORITY OF THE CITY OF FOND DU LAC	TLE	--	--	--	--	262

UTILITY INTERESTS REQUIRED

UTILITY NUMBER	OWNER(S)	PARCEL AFFECTED	INTEREST REQUIRED
80	ALLIANT ENERGY	2, 4	RELEASE OF RIGHTS
81	WINDSTREAM (NORLIGHT)	2, 4	RELEASE OF RIGHTS
82	CHARTER COMMUNICATIONS	2, 4	RELEASE OF RIGHTS
83	AT&T	3	RELEASE OF RIGHTS

EASEMENT TABLE

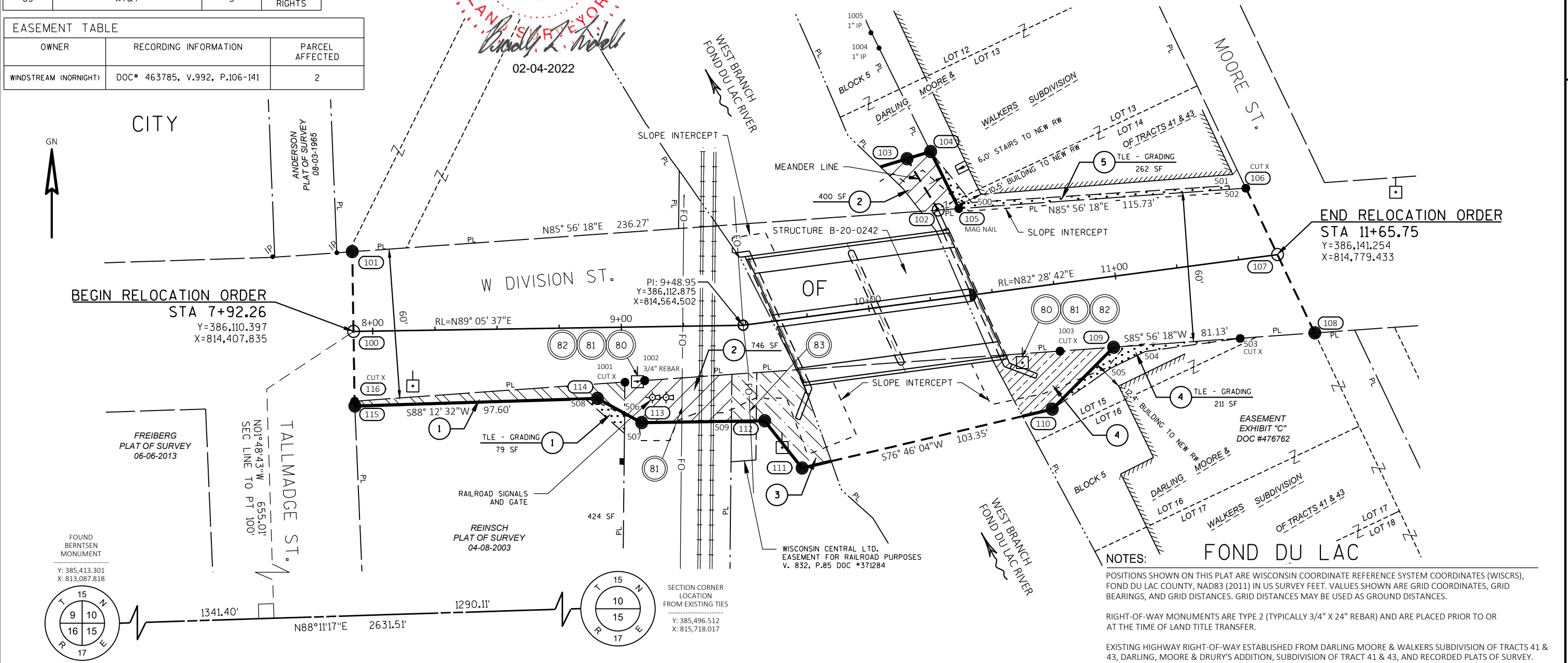
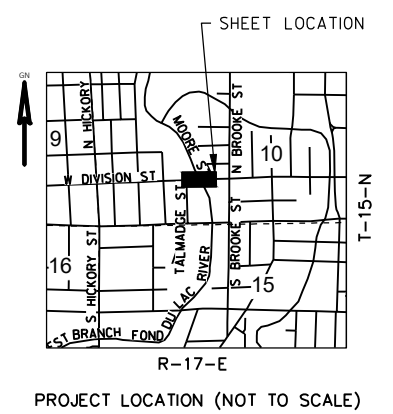
OWNER	RECORDING INFORMATION	PARCEL AFFECTED
WINDSTREAM (NORLIGHT)	DOC# 463785, V.992, P.106-141	2



RW POINT	STATION	OFFSET	TLE POINT	STATION	OFFSET
100	7+92.26	0.00'	500	10+46.62	-36.86'
101	7+92.26	-32.05'	501	11+50.00	-30.00'
102	10+32.84	-35.63'	502	11+50.00	-28.54'
103	10+23.08	-57.68'	503	11+46.57	31.36'
104	10+32.82	-59.32'	504	11+08.00	31.60'
105	10+41.12	-35.12'	505	10+93.00	36.60'
106	11+56.64	-28.14'	506	9+00.76	34.66'
107	11+65.75	0.00'	507	9+00.56	42.66'
108	11+79.30	32.30'	508	8+85.00	28.57'
109	10+95.50	28.27'			
110	10+67.84	49.72'			
111	9+65.00	60.00'			
112	9+52.50	39.17'			
113	9+07.52	38.50'			
114	8+89.91	28.49'			
115	7+92.33	30.00'			
116	7+92.26	28.04'			

LINE	DIRECTION	LENGTH
100-101	N00°54'23"W	32.05'
102-103	N31°24'07"W	24.12'
103-104	N72°56'23"E	9.88'
104-105	S26°27'38"E	25.58'
106-107	S25°27'10"E	29.58'
107-108	S25°27'10"E	34.86'
109-110	S44°41'45"W	35.00'
111-112	N38°29'19"W	24.29'
112-113	S89°05'37"W	49.47'
113-114	N6°17'43"W	20.26'
115-116	N02°56'09"W	1.95'
116-100	N00°54'23"W	28.04'

IP POINT	STATION	OFFSET
1001	9+01.12	22.14'
1002	9+09.00	21.55'
1003	10+74.04	26.93'

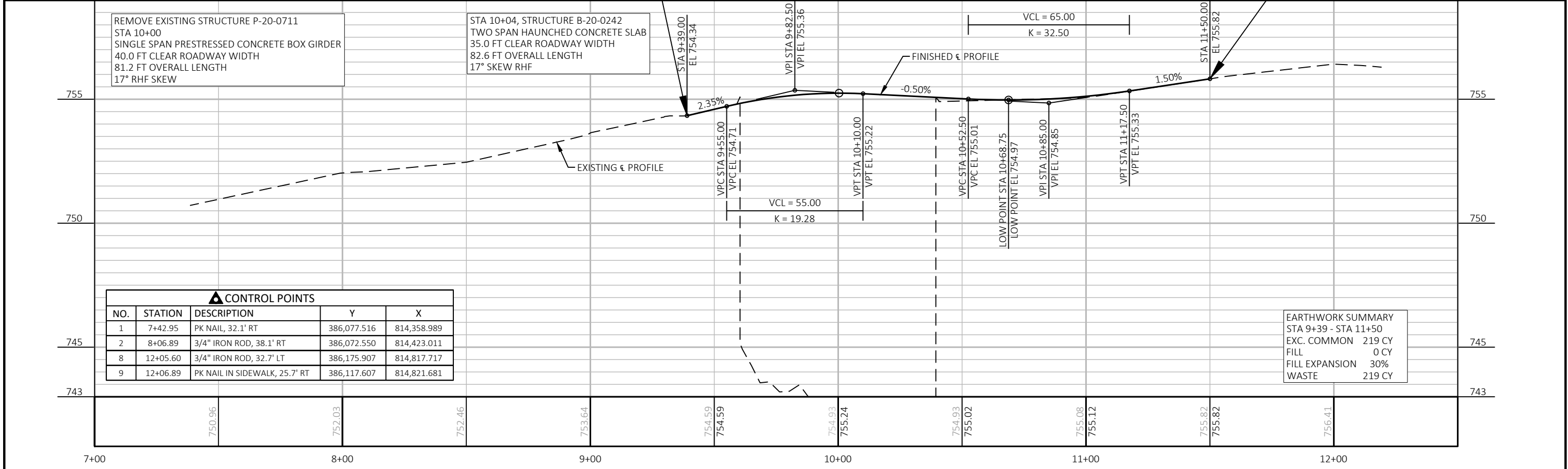
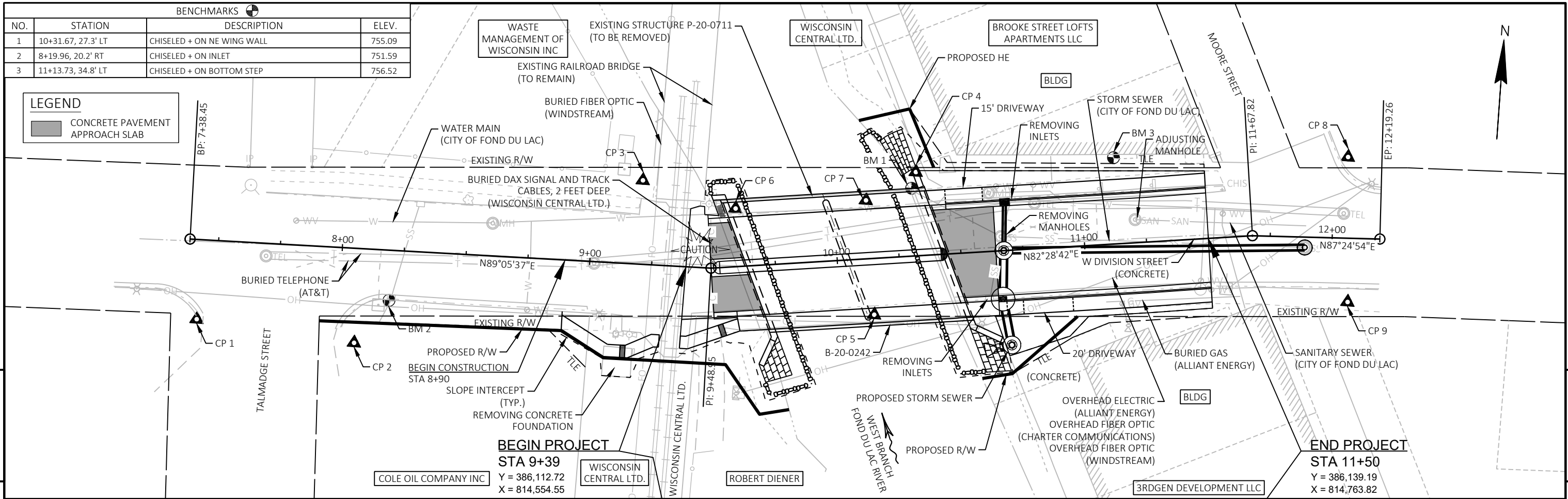


NOTES:
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REVISION DATE	DATE 02/04/2022	SCALE, FEET	HWY: W DIVISION RD (LOCAL ST)	STATE R/W PROJECT NUMBER	4986-12-00	PLAT SHEET	4.02
	GRID FACTOR		COUNTY: FOND DU LAC	CONSTRUCTION PROJECT NUMBER	4986-12-71	PS&E SHEET	

BENCHMARKS			
NO.	STATION	DESCRIPTION	ELEV.
1	10+31.67, 27.3' LT	CHISELED + ON NE WING WALL	755.09
2	8+19.96, 20.2' RT	CHISELED + ON INLET	751.59
3	11+13.73, 34.8' LT	CHISELED + ON BOTTOM STEP	756.52

LEGEND	
	CONCRETE PAVEMENT
	APPROACH SLAB



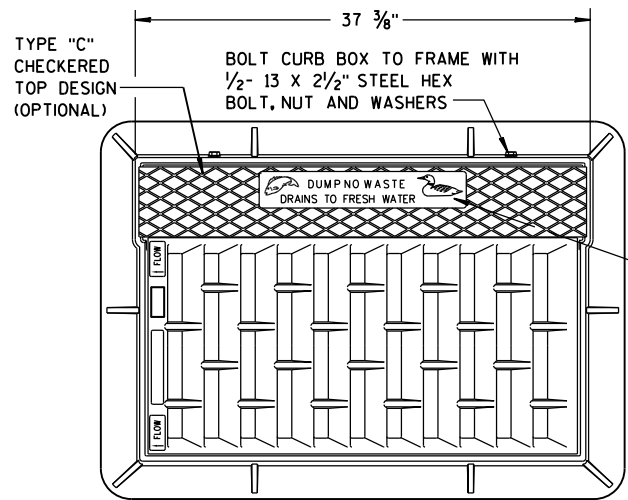
CONTROL POINTS				
NO.	STATION	DESCRIPTION	Y	X
1	7+42.95	PK NAIL, 32.1' RT	386,077.516	814,358.989
2	8+06.89	3/4" IRON ROD, 38.1' RT	386,072.550	814,423.011
8	12+05.60	3/4" IRON ROD, 32.7' LT	386,175.907	814,817.717
9	12+06.89	PK NAIL IN SIDEWALK, 25.7' RT	386,117.607	814,821.681

EARTHWORK SUMMARY	
STA 9+39 - STA 11+50	
EXC. COMMON	219 CY
FILL	0 CY
FILL EXPANSION	30%
WASTE	219 CY

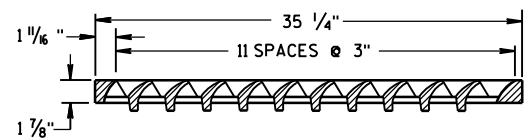
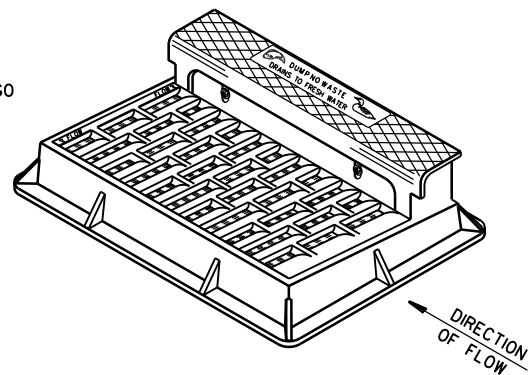
PROJECT NO: 4986-12-71 | HWY: LOCAL STREET | COUNTY: FOND DU LAC | PLAN AND PROFILE: W DIVISION STREET | SHEET: E

Standard Detail Drawing List

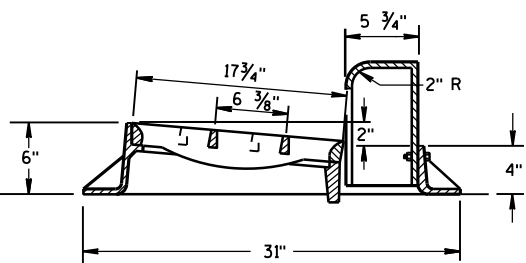
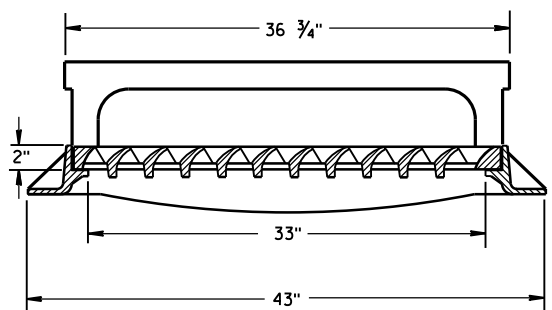
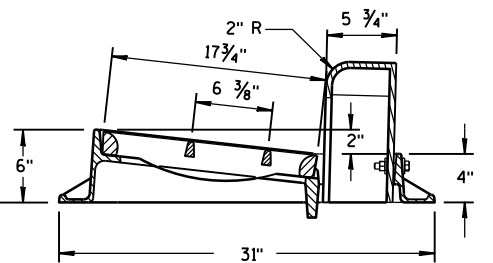
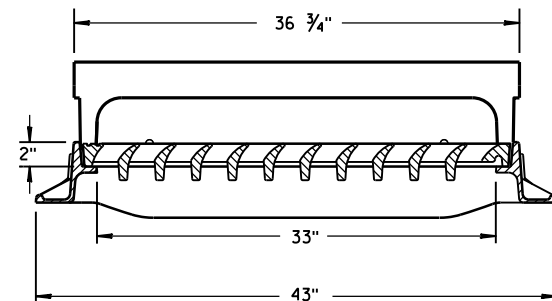
08A05-19A	INLET COVERS TYPE A, H, A-S, H-S & Z
08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-03	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT, 10-FT DIAMETER
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D01-22A	CONCRETE CURB & GUTTER
08D01-22B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D05-20A	CURB RAMPS TYPES 1 AND 1-A
08D05-20G	CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES
08D18-03	DRIVEWAY AND SIDEWALK RAMPS TYPES X & Y
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
11B02-02	CONCRETE MEDIAN NOSE
12A03-10	NAME PLATE (STRUCTURES)
13B01-10	PAVEMENT DETAILS FOR RAILROAD APPROACH
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C13-11	URBAN DOWELED CONCRETE PAVEMENT
13C18-07A	CONCRETE PAVEMENT JOINTING
13C18-07B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-07C	CONCRETE PAVEMENT JOINT TYPES
13C18-07D	CONCRETE PAVEMENT JOINT TYPES AT UTILITY FIXTURES
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C08-22A	LONGITUDINAL MARKING (MAINLINE)
15C09-12A	SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD-HIGHWAY GRADE CROSSINGS
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C18-07B	MEDIAN ISLAND MARKING MEDIAN ISLAND NOSE
15D30-07A	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION



**NOTE:
GRATE IS REVERSIBLE.**

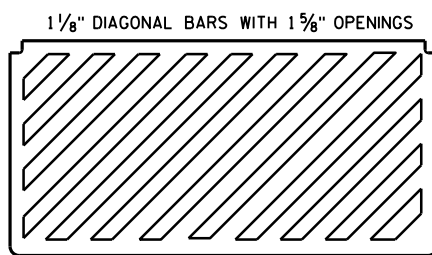


NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

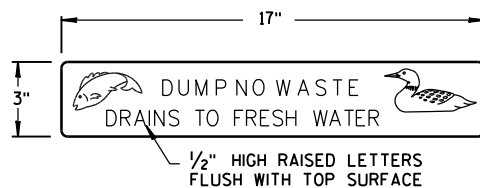


TYPE "H"

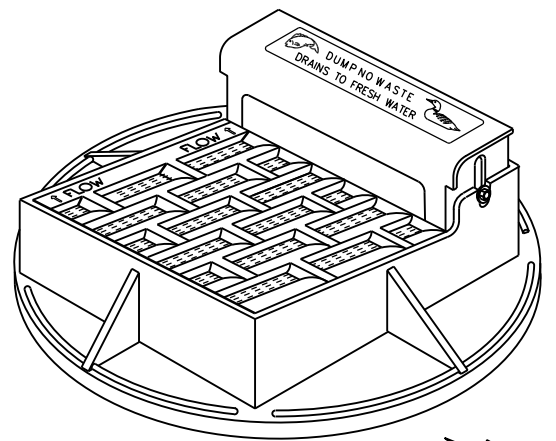
NOTE: EITHER CASTING IS ACCEPTABLE



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

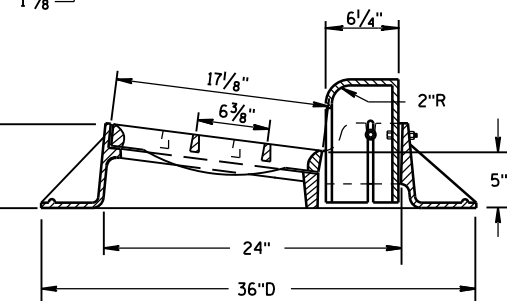
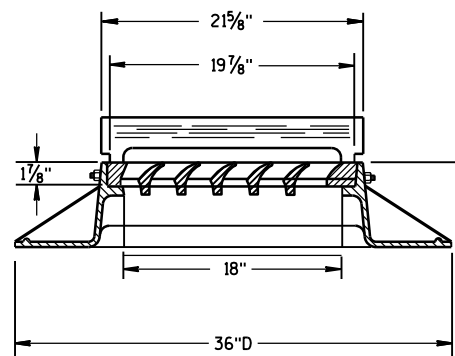
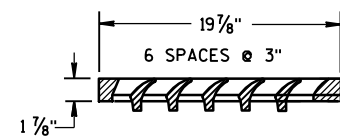
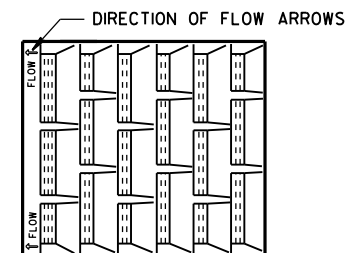


LOGO DETAIL

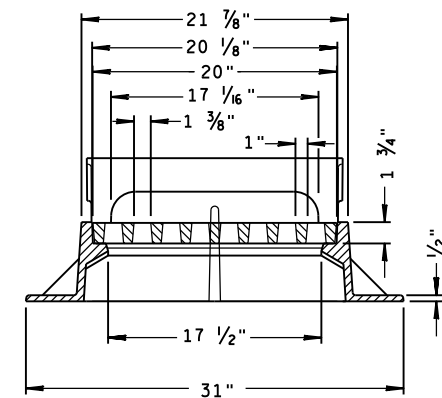
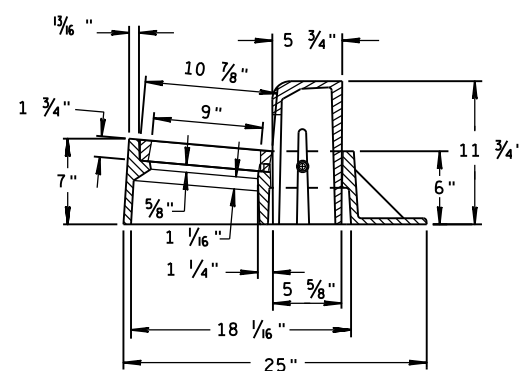


NOTE: CURB BOX ADJUSTABLE 4" TO 9"

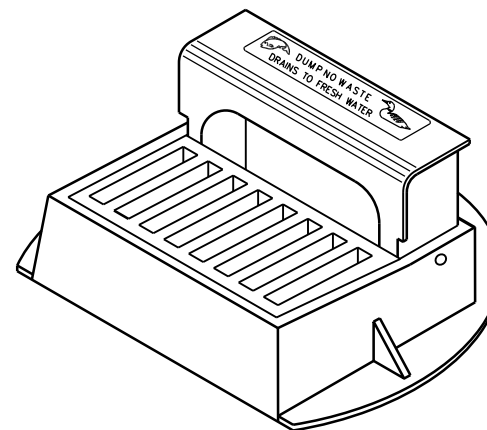
**NOTE:
GRATE IS REVERSIBLE.**



TYPE "A"



TYPE "Z"



GENERAL NOTES

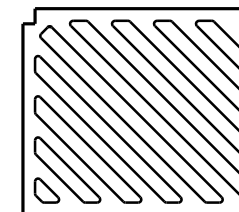
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.

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

1" DIAGONAL BARS
WITH 1 1/2" OPENINGS



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

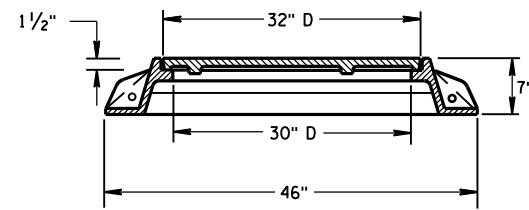
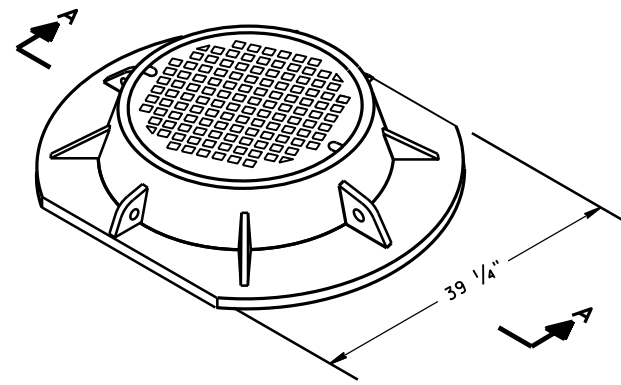
(MEASURES 19 3/4" X 17" X 1 1/8")
(NOTED AS TYPE A-S ON DRAINAGE TABLE)

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

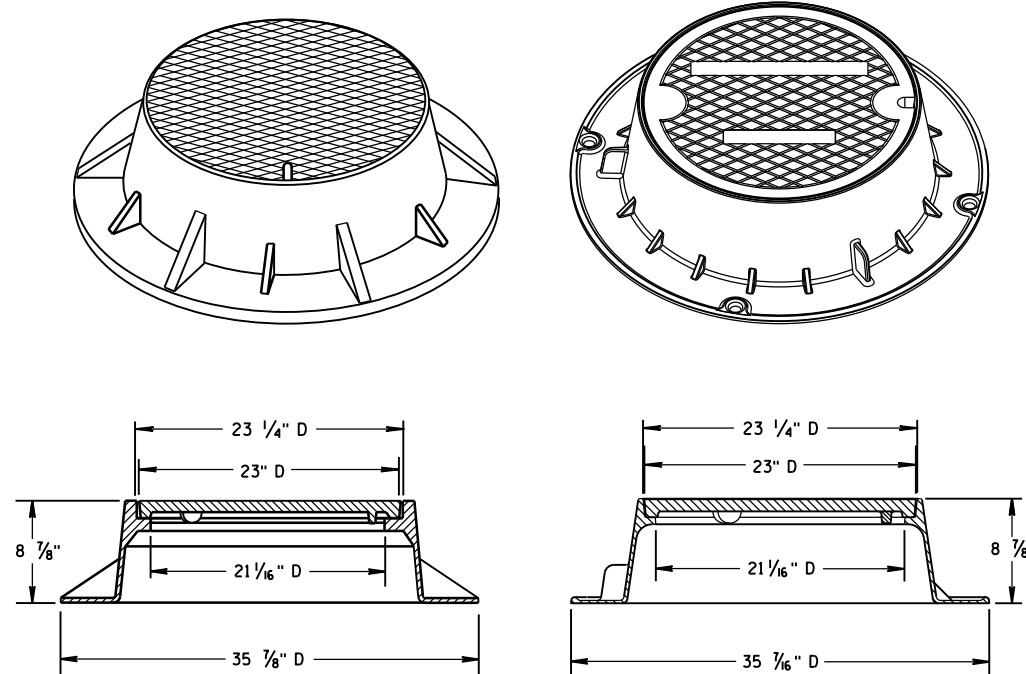
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11-27-13
DATE
FHWA

/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



SECTION A-A
TYPE "K"



TYPE "J"

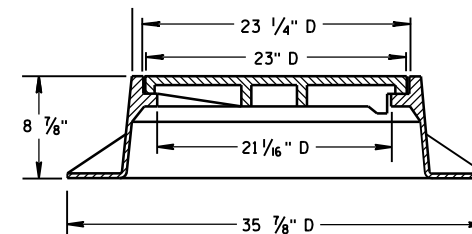
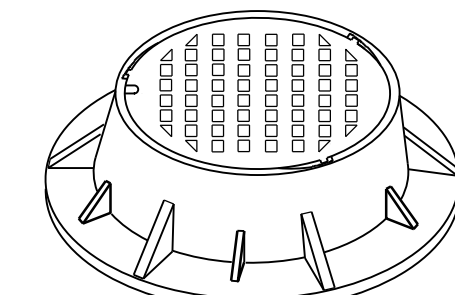
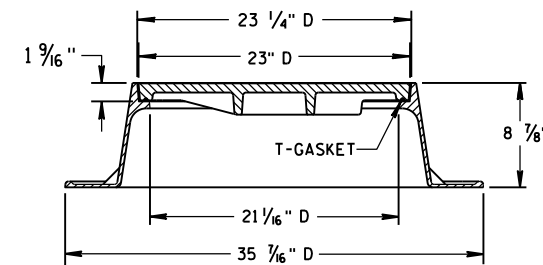
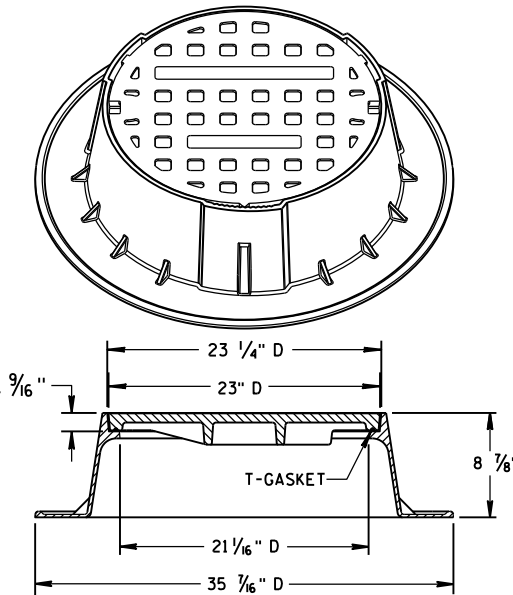
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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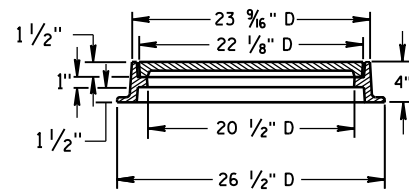
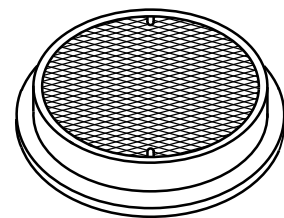
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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

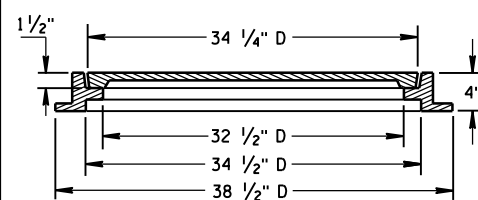
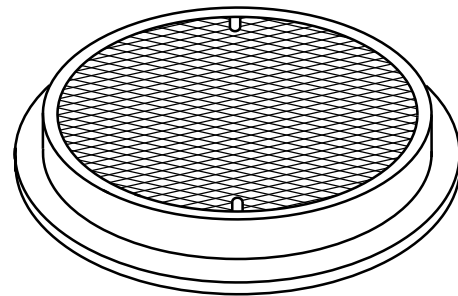


TYPE "J" SPECIAL
TYPE "B" NON-ROCKING SELF-SEAL LID
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)
NOTE: EITHER CASTING IS ACCEPTABLE

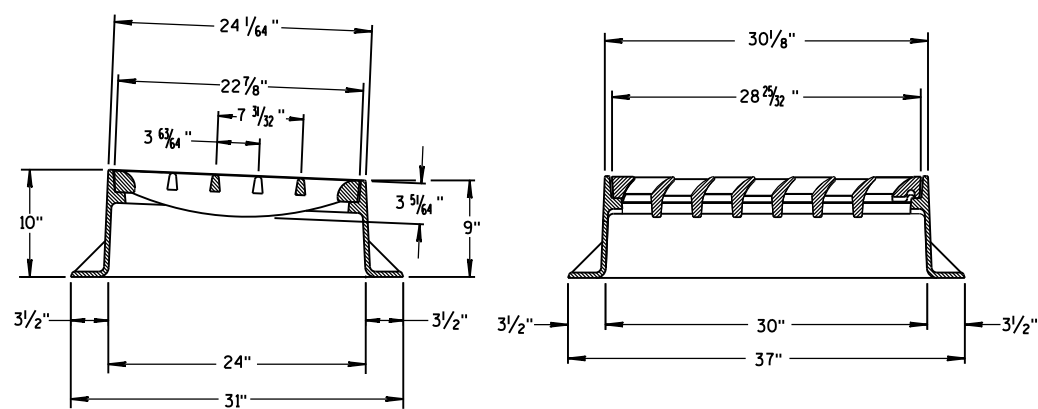
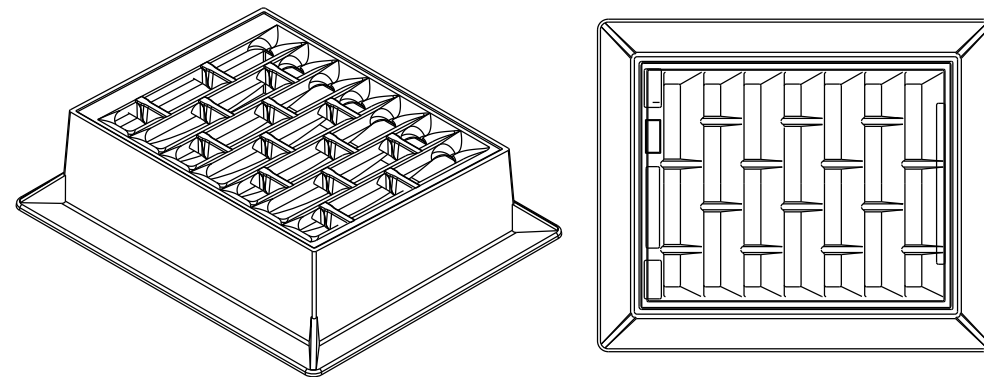
6



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

6

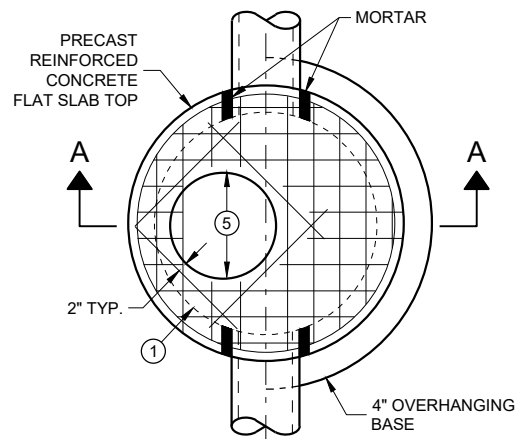
S.D.D. 8 A 5-19d

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

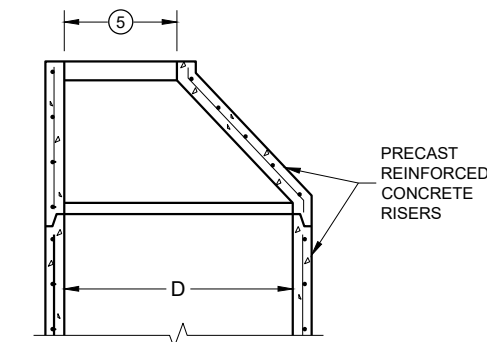
INLET COVER TYPE BW
MANHOLE COVERS, TYPE K,
J, J-S, L & M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

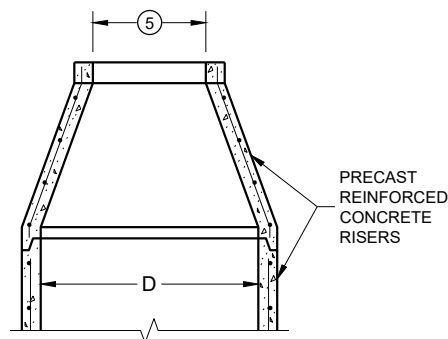
APPROVED
11/27/2013 DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



**PLAN VIEW
CIRCULAR OPENING**



**OPTIONAL PRECAST
REINFORCED CONCRETE
ECCENTRIC TOP**



**OPTIONAL PRECAST
REINFORCED CONCRETE
CONCENTRIC TOP**

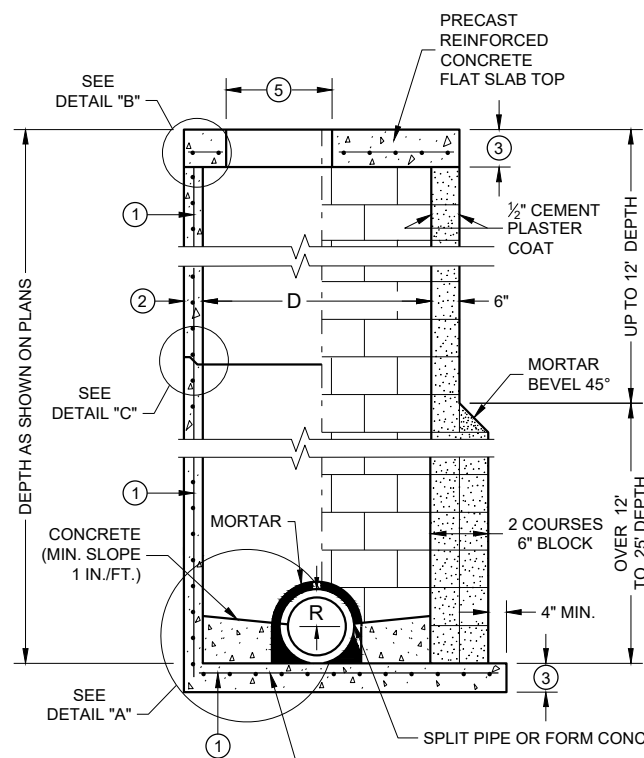
MANHOLE COVER OPENING MATRIX

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

PIPE MATRIX

MANHOLE SIZE (DIA.)	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES		MINIMUM WALL THICKNESS (IN)	MINIMUM PRECAST FLAT SLAB TOP AND BASE THICKNESS
	180° SEPARATION (IN)	90° SEPARATION (IN)		
3-FT	15	12	4	6
4-FT	24	18	4	6
5-FT	36	24	5	8
6-FT	42	36	6	8
7-FT	48	36/42*	7	8
8-FT	60	42	8	8
9-FT	66	54	9	10
10-FT	72	60	10	10

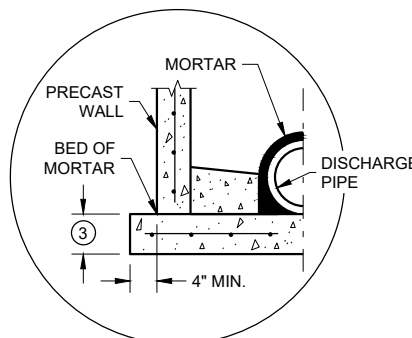
*A 36" PIPE AND A 42" PIPE CAN BE PLACED WITHIN 90 DEGREES. SEE MINIMUM HORIZONTAL PIPE SEPARATION DETAIL.



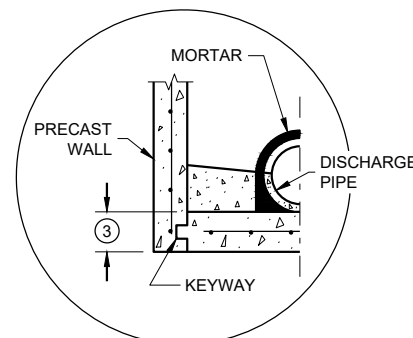
SECTION A - A

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST IN PLACE OR PRECAST REINFORCED CONCRETE BASE ①

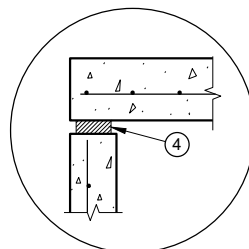


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

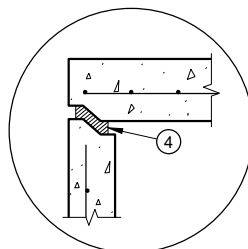


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

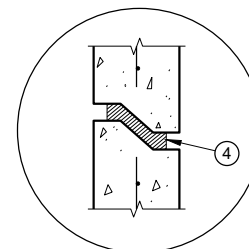
DETAIL "A"



TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

DETAIL "C"

GENERAL NOTES

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

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

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

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

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

PRECAST REINFORCED 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 USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

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

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

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

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

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

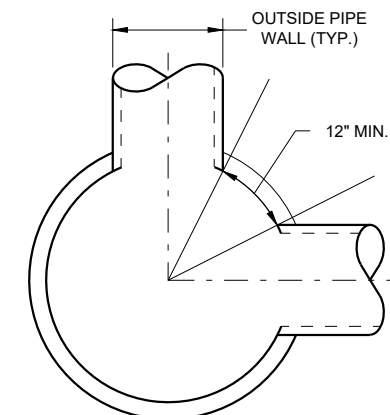
PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

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 FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ② SEE PIPE MATRIX TABLE FOR MINIMUM WALL THICKNESS FOR PRECAST MANHOLES
- ③ SEE PIPE MATRIX TABLE FOR MINIMUM THICKNESS OF PRECAST FLAT SLAB TOPS AND BASES.
- ④ JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP.).
- ⑤ SEE MANHOLE COVER OPENING MATRIX.

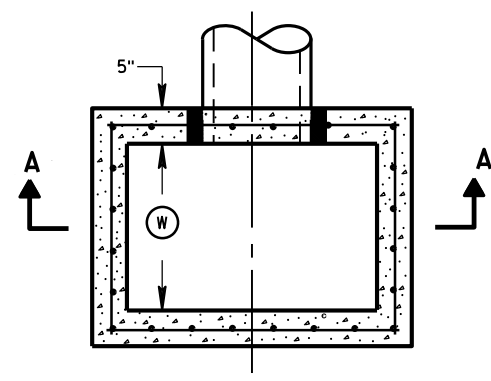


MINIMUM HORIZONTAL PIPE SEPARATION

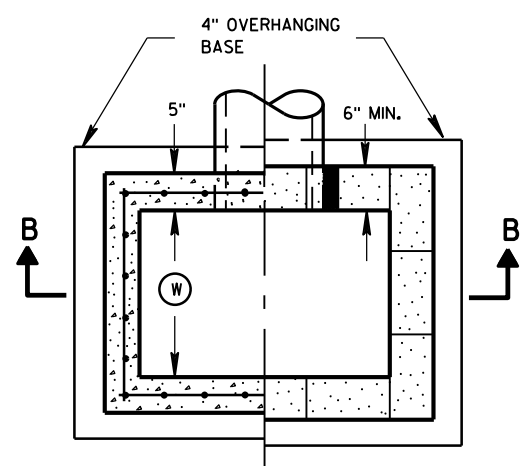
**MANHOLES, 3-FT, 4-FT
5-FT, 6-FT, 7-FT, 8-FT, 9-FT
AND 10-FT DIAMETER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

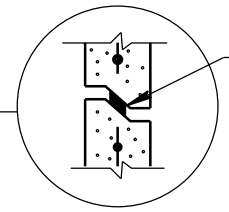
APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



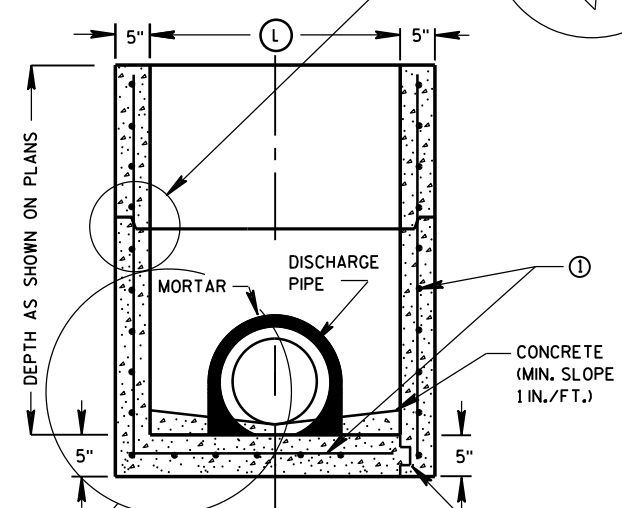
PLAN VIEW



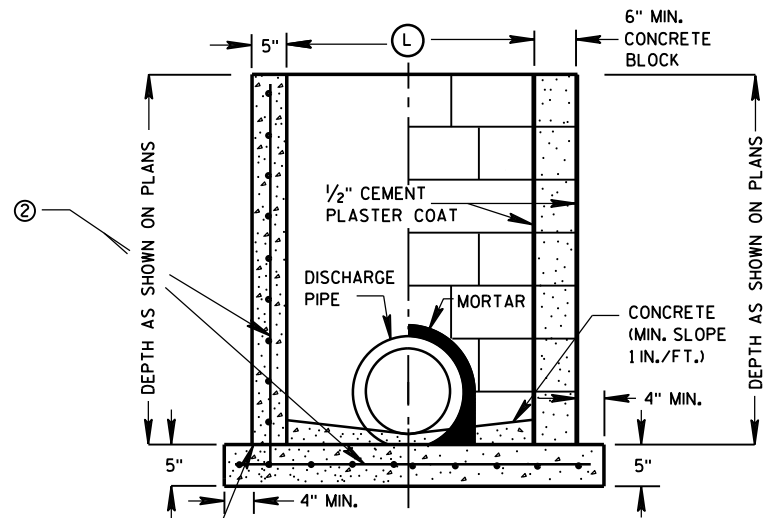
PLAN VIEW



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



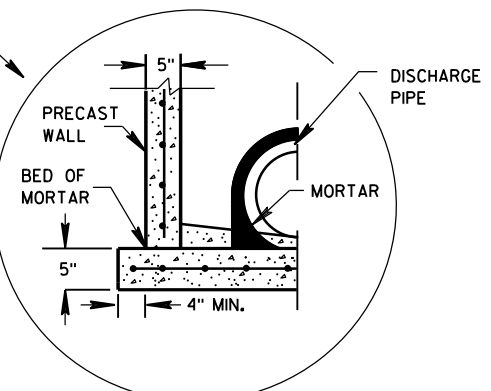
SECTION A-A



SECTION B-B

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

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



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

GENERAL NOTES

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

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

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

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

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

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

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

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

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

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

① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

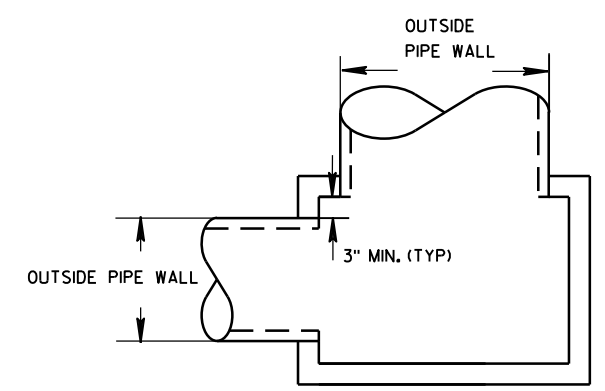
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE	INLET COVER TYPE		ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH (W) (FT)	LENGTH (L) (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24



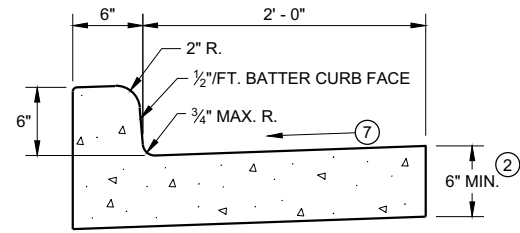
DETAIL "A"

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

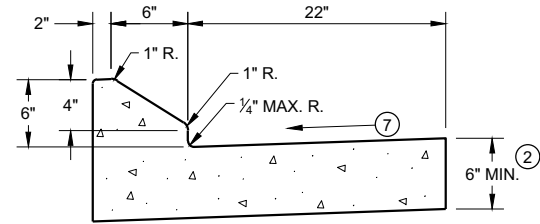
**INLETS 2X2-FT, 2X2.5-FT,
2X3-FT AND 2.5X3-FT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

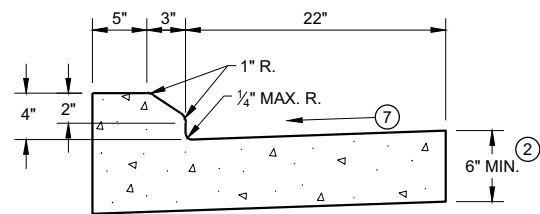
APPROVED
 Sep 1, 2016 /S/ Rodney Taylor
 DATE ROADWAY STANDARDS DEVELOPMENT
 FHWA UNIT SUPERVISOR



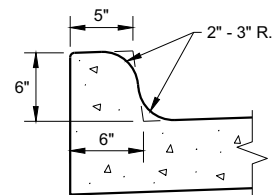
TYPES A^① & D



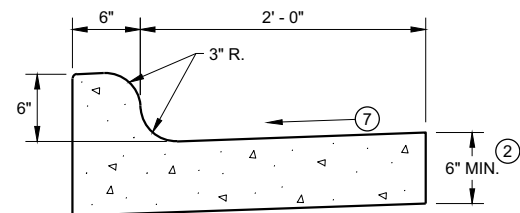
6" SLOPED CURB TYPES G^① & J



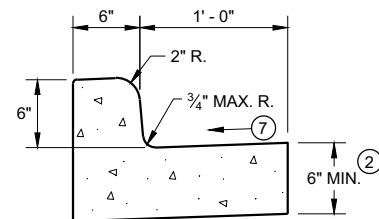
4" SLOPED CURB TYPES G^① & J



TYPES K^① & L
(OPTIONAL CURB SHAPE)

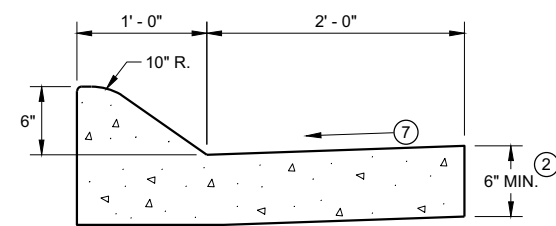


TYPES K^① & L
CONCRETE CURB AND GUTTER 30"

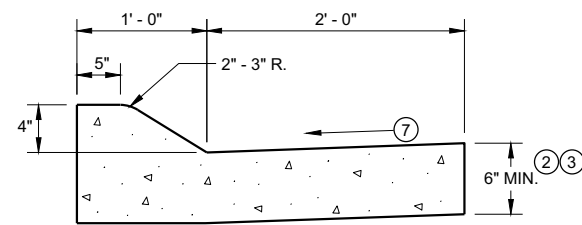


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

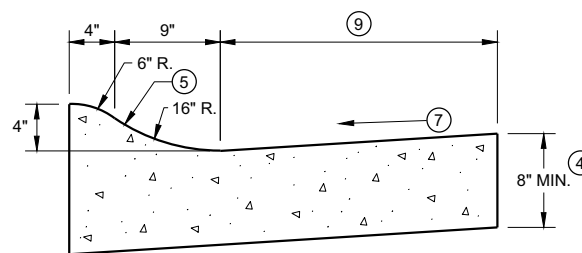


6" SLOPED CURB TYPES A^① & D



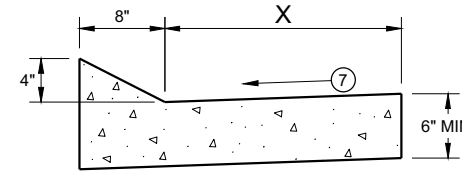
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

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

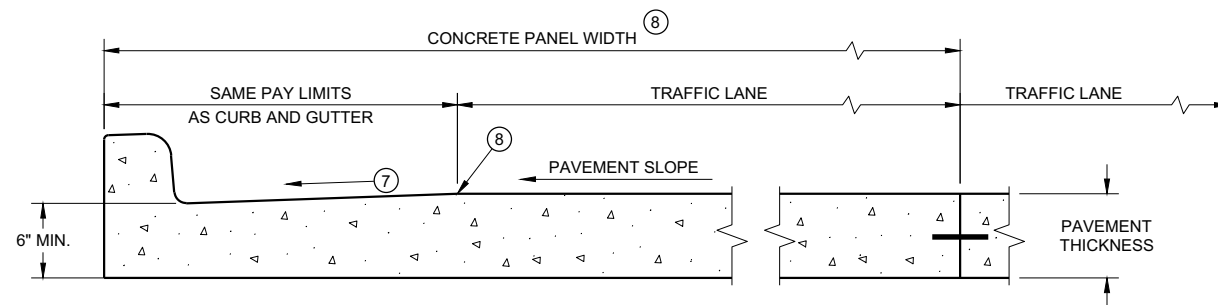


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

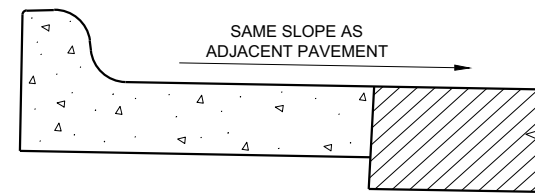
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

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)

GENERAL NOTES

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

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

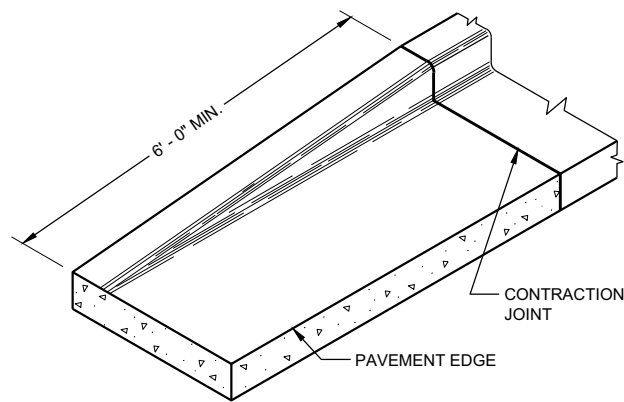
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

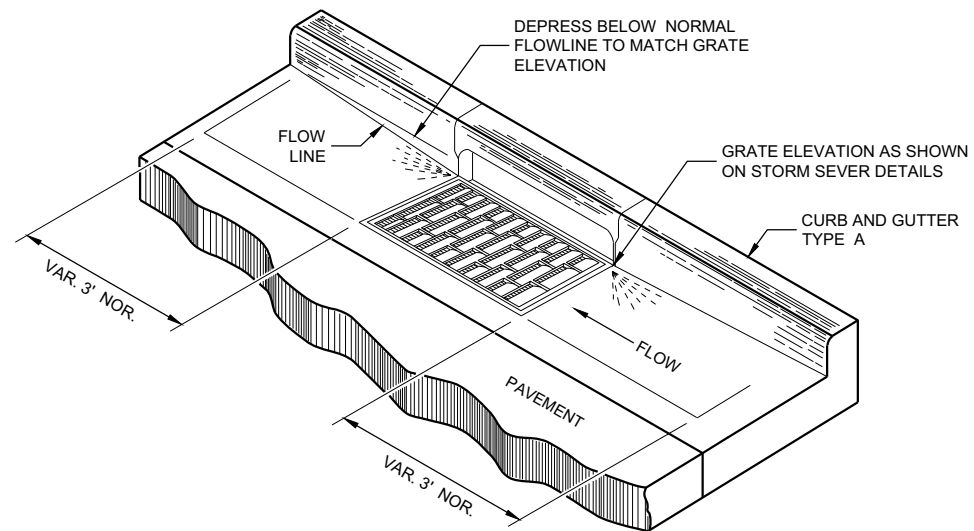
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES

6

6



END SECTION CURB AND GUTTER



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

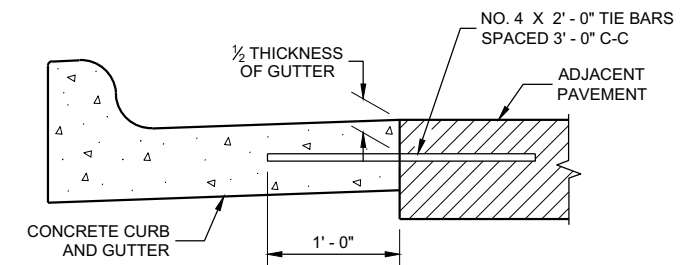
GENERAL NOTES

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

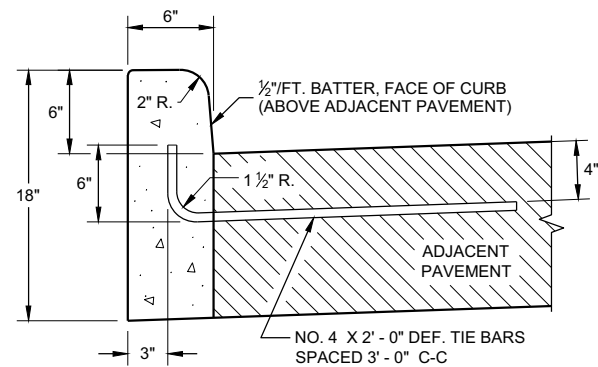
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

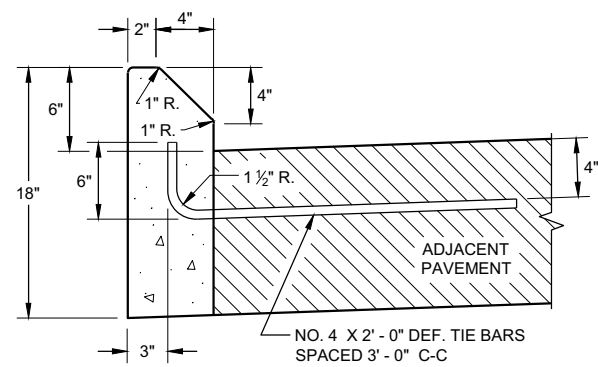
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL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



TYPICAL TIE BAR LOCATION ①

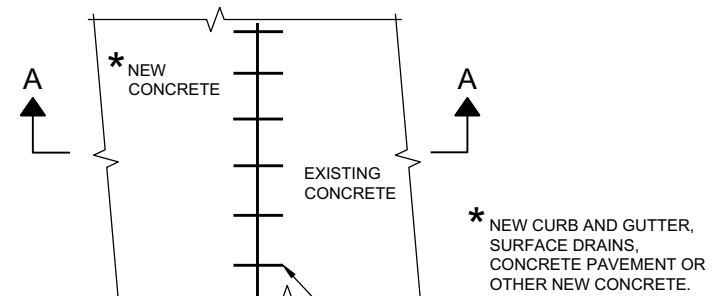


TYPES A ① & D

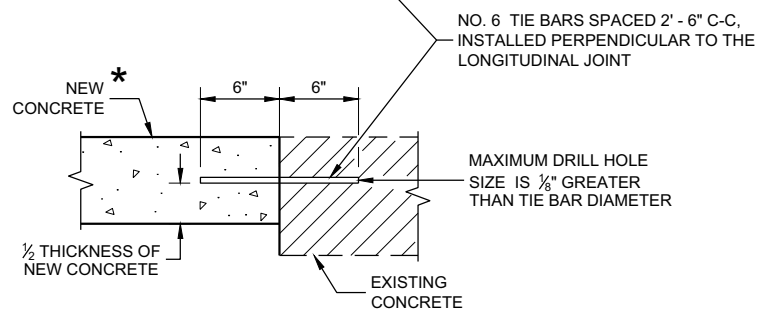


TYPES G ① & J

CONCRETE CURB

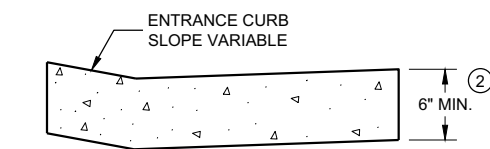


PLAN VIEW



SECTION A - A

TIE BARS DRILLED INTO EXISTING PAVEMENT



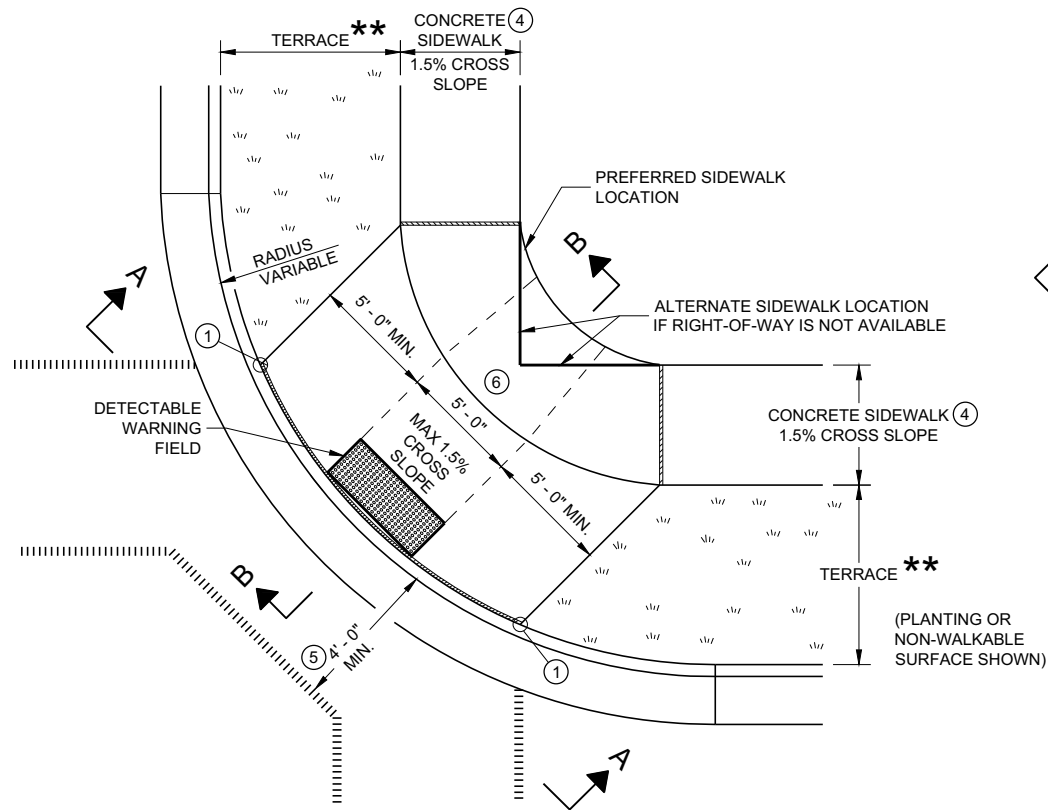
DRIVEWAY ENTRANCE CURB ⑨
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

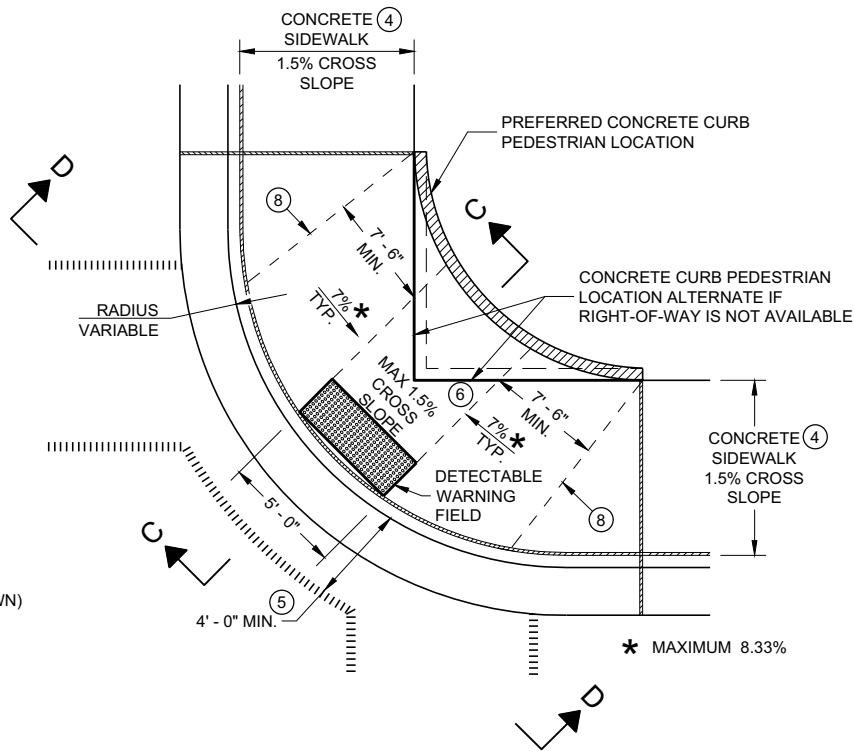
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



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



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

GENERAL NOTES

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

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

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 CURB RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

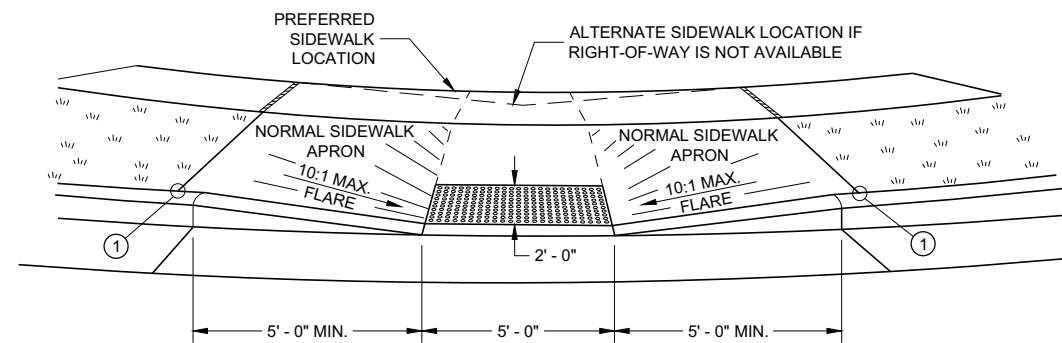
DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAR FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE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

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

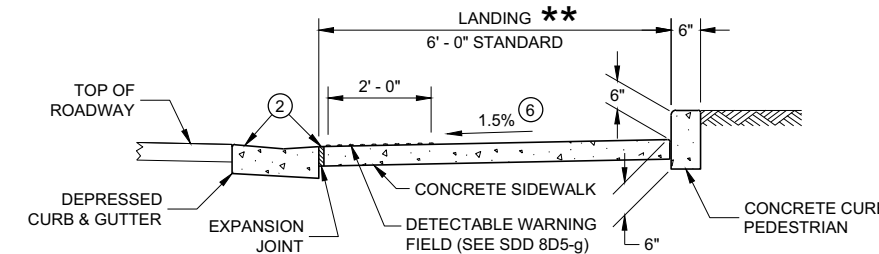
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

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

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



VIEW A - A FOR TYPE 1

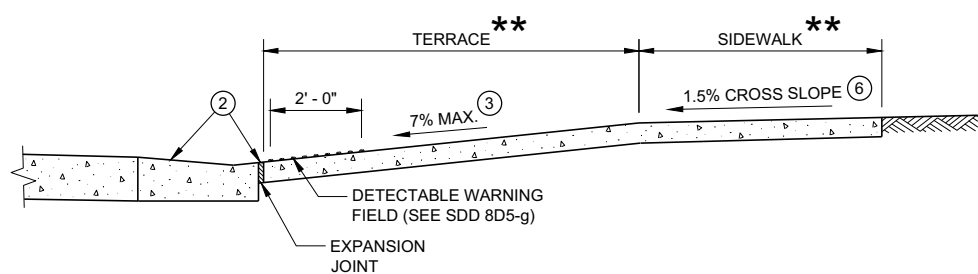


SECTION C - C FOR TYPE 1 - A

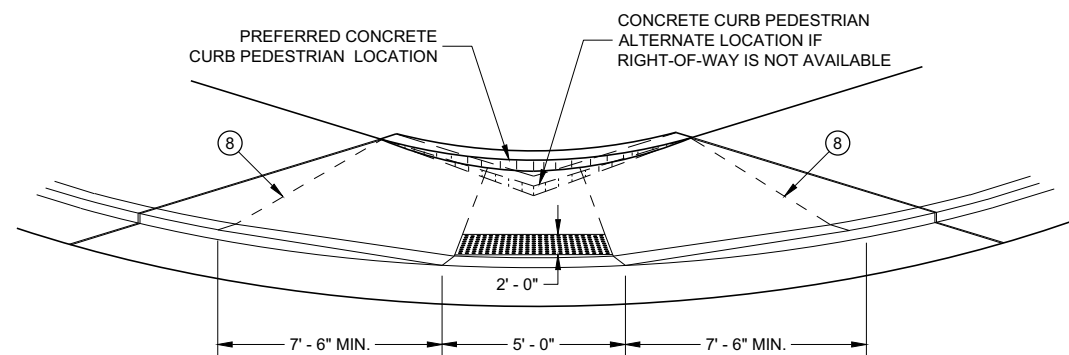
LEGEND

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

** WIDTH SHOWN ELSEWHERE IN THE PLANS



SECTION B - B FOR TYPE 1



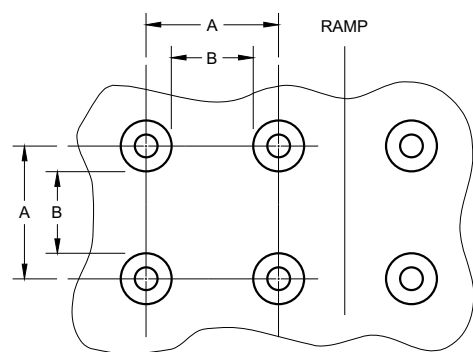
VIEW D - D FOR TYPE 1 - A

CURB RAMPS
TYPE 1 AND 1-A

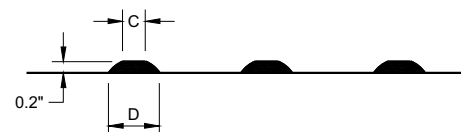
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

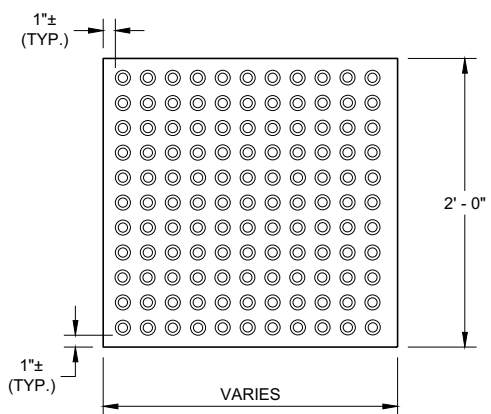


PLAN VIEW

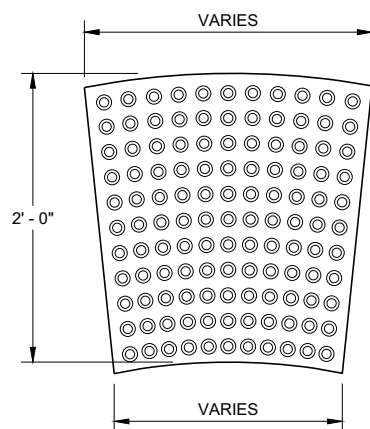


ELEVATION VIEW

**TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL**

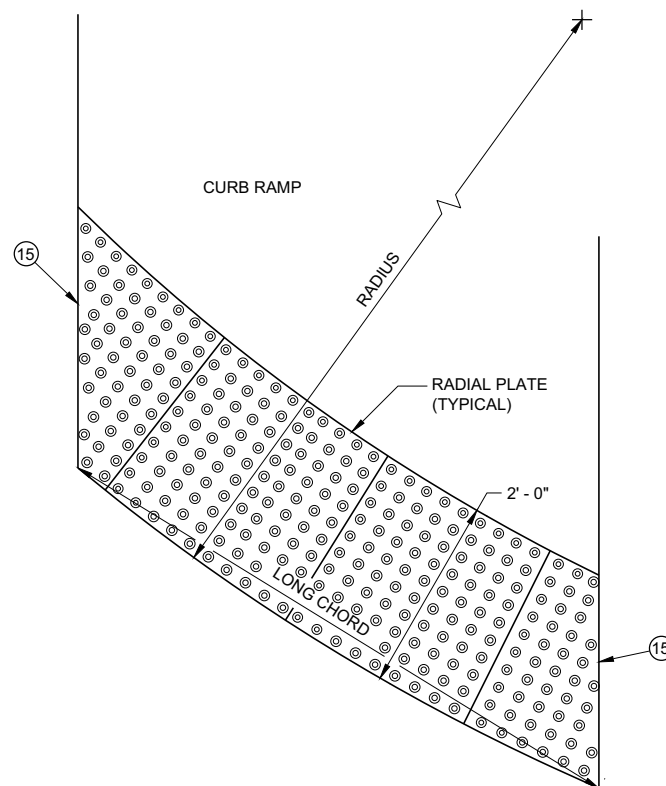


RECTANGULAR
PLATES

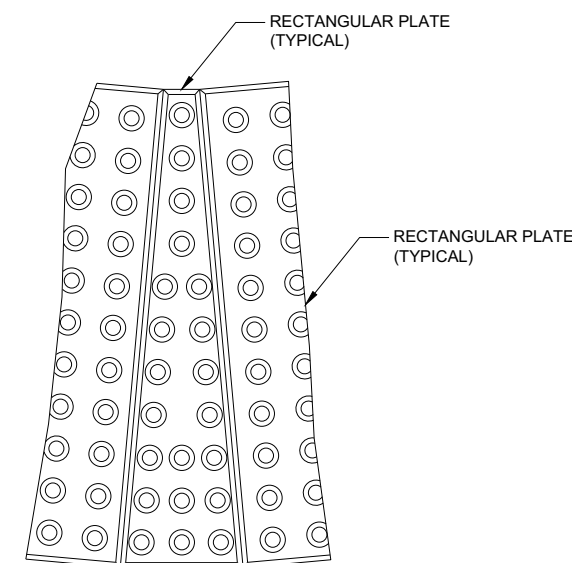


RADIAL
PLATES

PLAN VIEW
DETECTABLE WARNING FIELDS (TYPICAL)



PLAN VIEW
RADIAL DETECTABLE
WARNING FIELD ATTRIBUTES



PLAN VIEW
RADIAL WEDGE PLATE
CONNECTION DETAIL

GENERAL NOTES

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

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

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

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

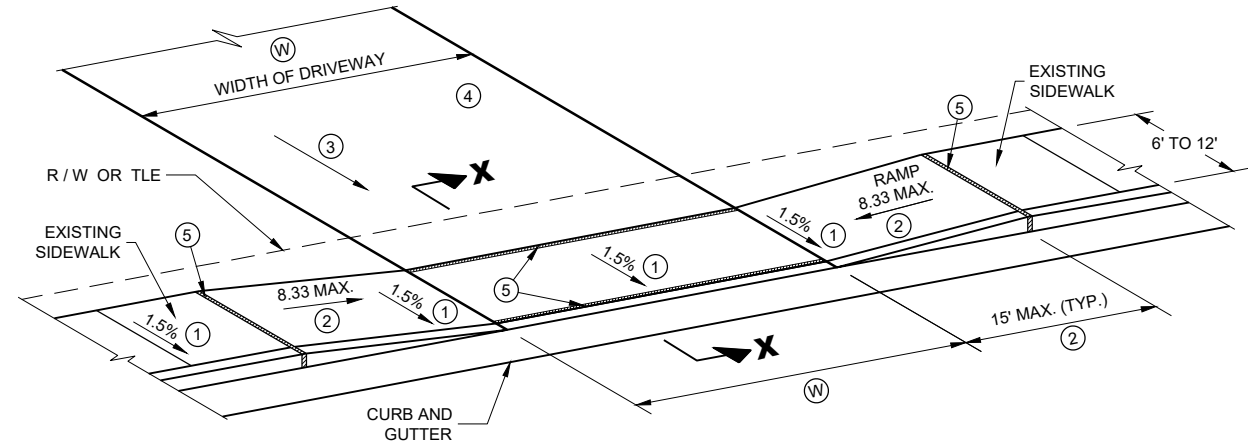
FOR RADIAL DETECTABLE WARNING FIELD APPLICATIONS WHERE STANDARD RADIAL PLATES ARE NOT AVAILABLE AT AN INTERSECTION CURB RADIUS, A COMBINATION OF SQUARE OR RECTANGULAR PLATES AND RADIAL PLATES MAY BE USED TO FORM RADIAL CONFIGURATION. RADIAL WEDGE PLATES IN COMBINATION WITH SQUARE PLATES ARE ALSO ACCEPTABLE.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

REFER TO CONTRACT AND STANDARD SPECIFICATIONS FOR FIELD CUTTING REQUIREMENTS.

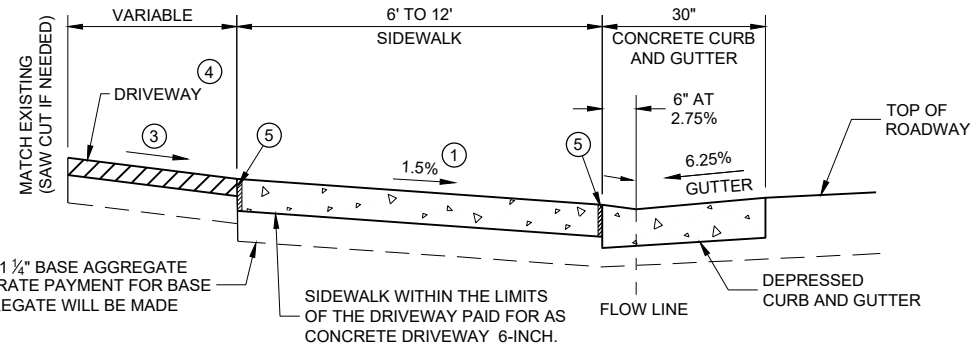
DO NOT EMBED IN CONCRETE ANY FIELD-CUT PLATES WITH CUT EDGES SHORTER THAN 6 INCHES. CONSULT WITH MANUFACTURER FOR RE-DRILLING AND ANCHORING REQUIREMENTS OF FIELD-CUT PLATES.

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

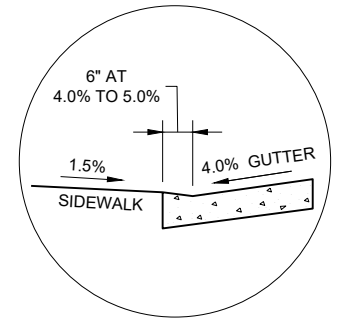
CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	



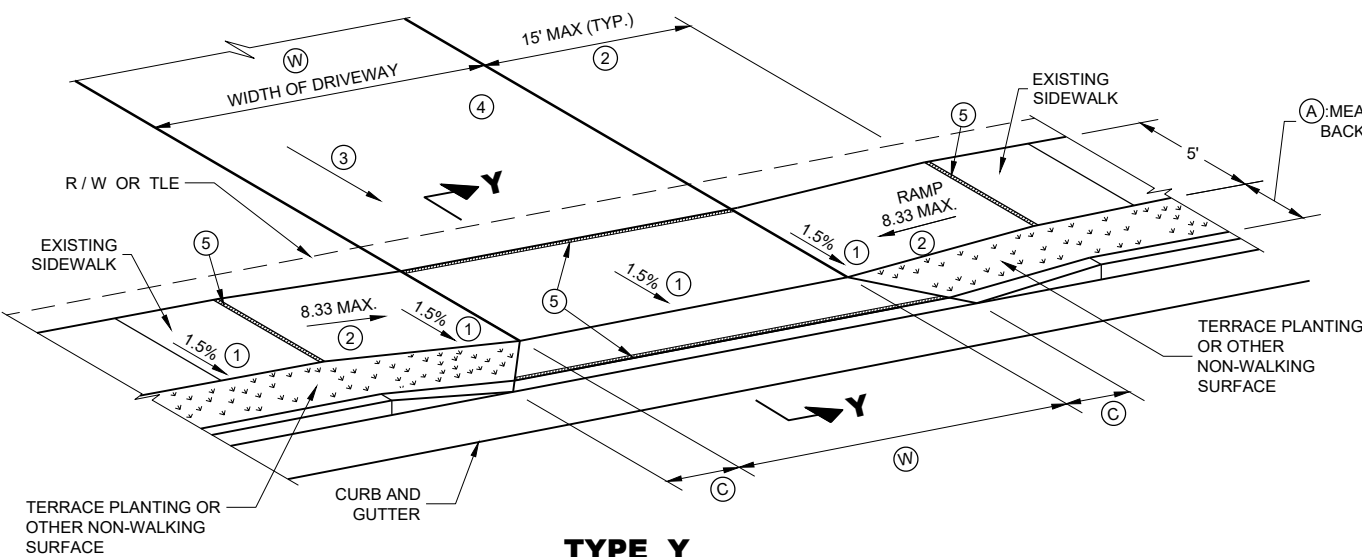
TYPE X
SIDWALK ABUTS CURB AND GUTTER
TERRACE VARIES 0 TO 3 FEET



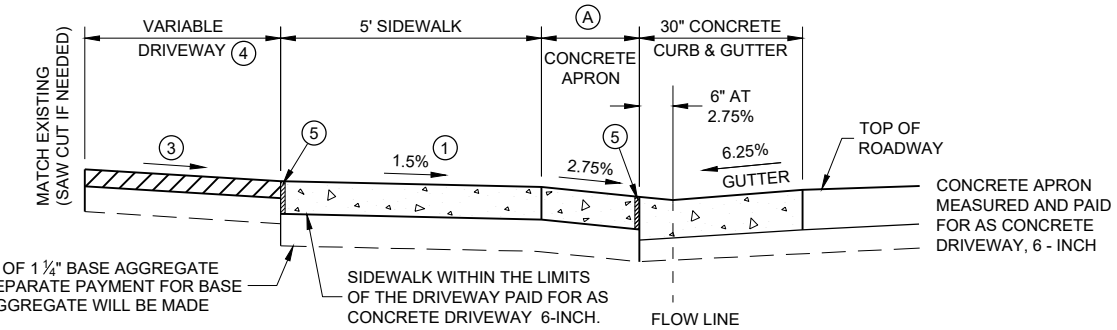
SECTION X - X



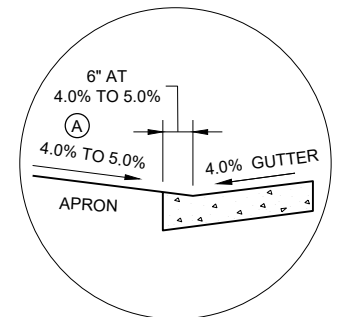
SECTION X - X
4% GUTTER SLOPE



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



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



SECTION Y - Y
4% GUTTER SLOPE

(W): 12' MIN. - 24' MAX. RESIDENTIAL AND NON-COMMERCIAL (PE & FE)
 16' MIN. - 35' MAX. COMMERCIAL (CE)

TABLE Y

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

(A): MEASURE FROM BACK OF CURB

6" OF 1 1/4" BASE AGGREGATE SEPARATE PAYMENT FOR BASE AGGREGATE WILL BE MADE

NOTE: SIDEWALK MAY BE DEPRESSED IN DRIVEWAY AREAS

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%.
- 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

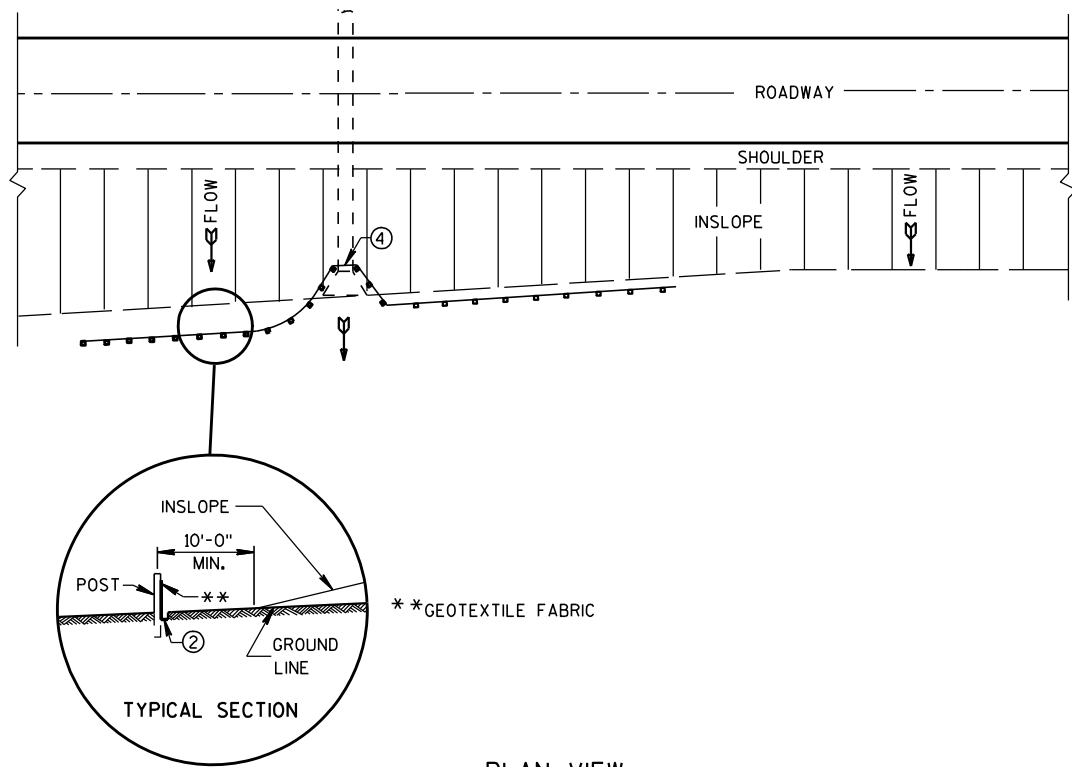
- ④ DRIVEWAY TYPES
 - 6-INCH CONCRETE DRIVEWAY PAVEMENT OVER 6-INCH BASE AGGREGATE
 - 2-INCH TO 3-INCH ASPHALTIC SURFACE OVER 6-INCH BASE AGGREGATE
 - 6-INCH BASE AGGREGATE (MAY BE INCREASED FOR CLAY SUBGRADES.)

- ⑤ 1/2" EXPANSION JOINT FILLER

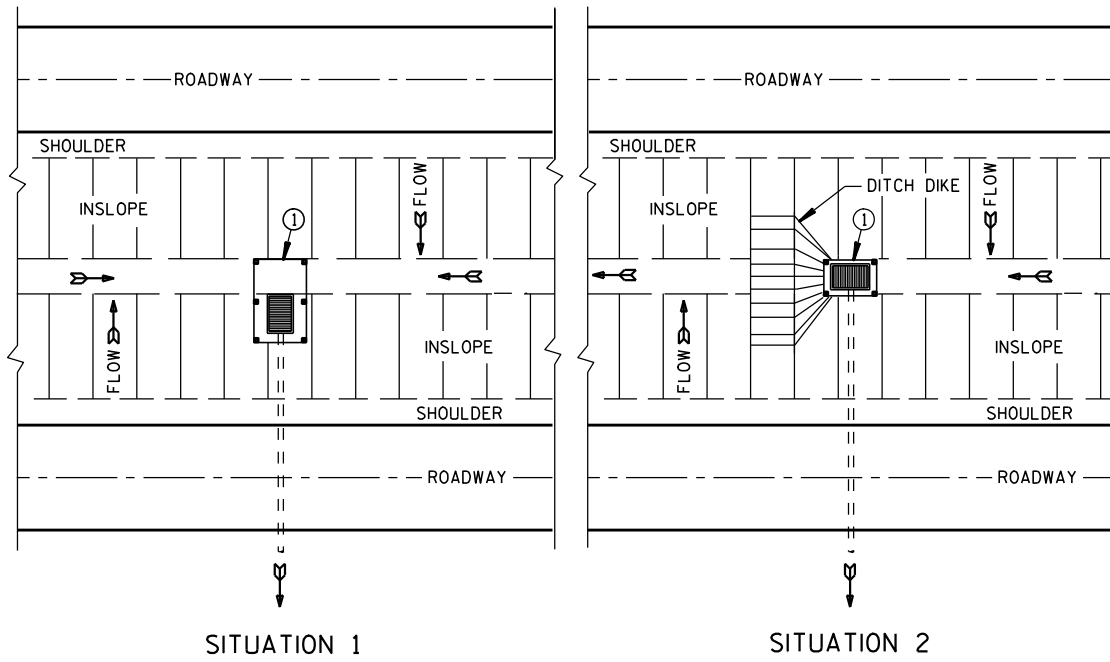
DRIVEWAY AND
SIDWALK RAMPS
TYPES X AND Y

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 February 2022 /S/ Rodney Taylor
 DATE ROADWAY STANDARDS DEVELOPMENT
 ENGINEER



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

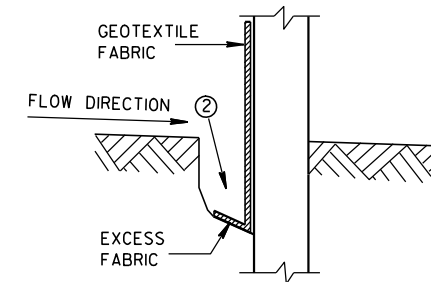


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

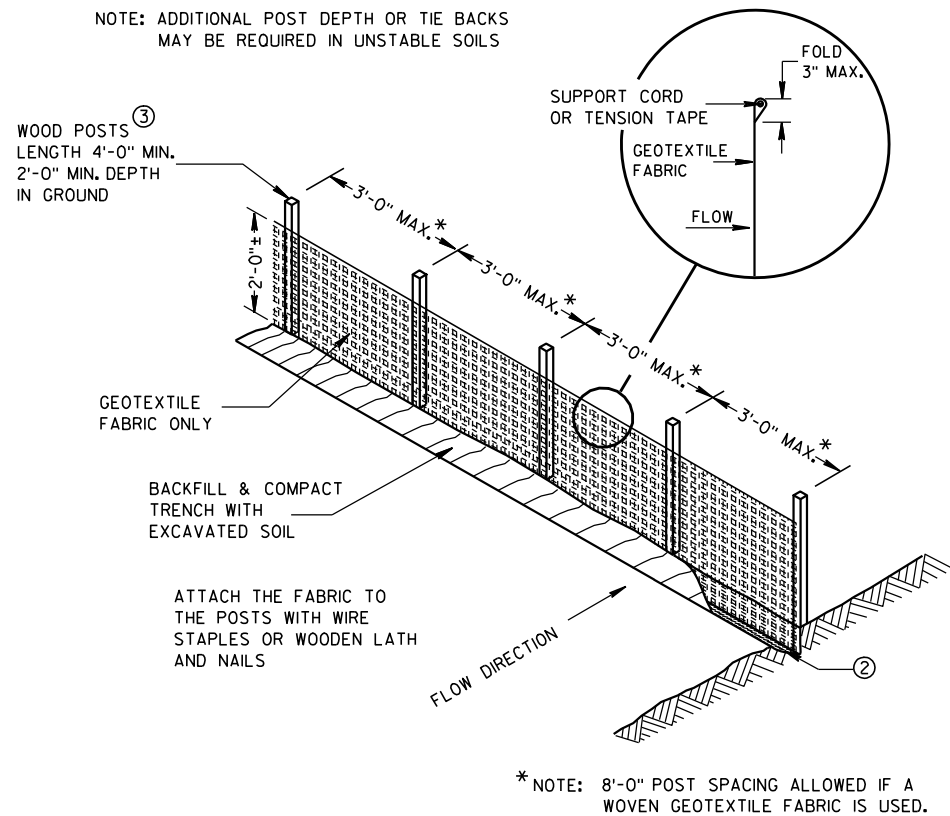
GENERAL NOTES

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

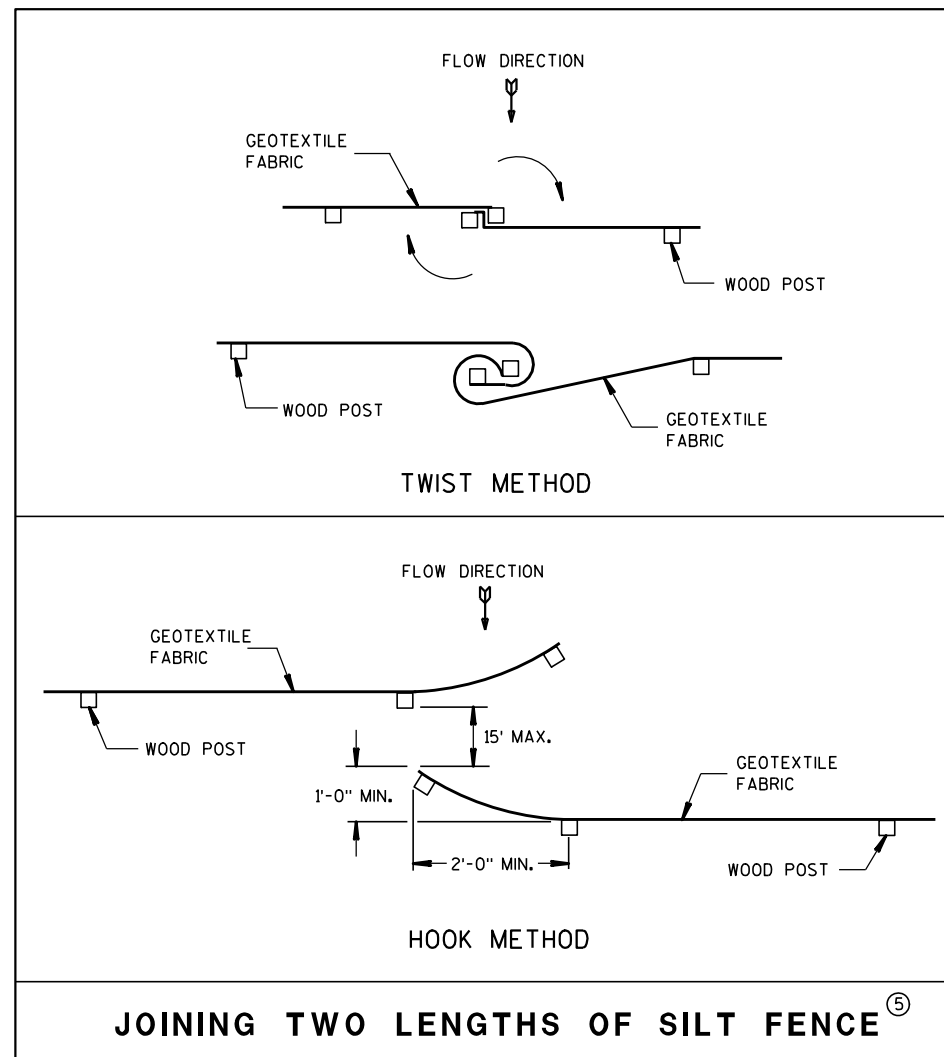
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS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



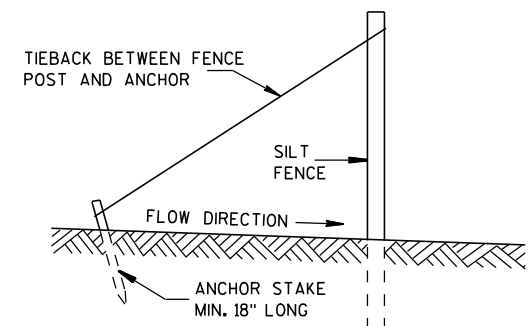
TRENCH DETAIL



SILT FENCE

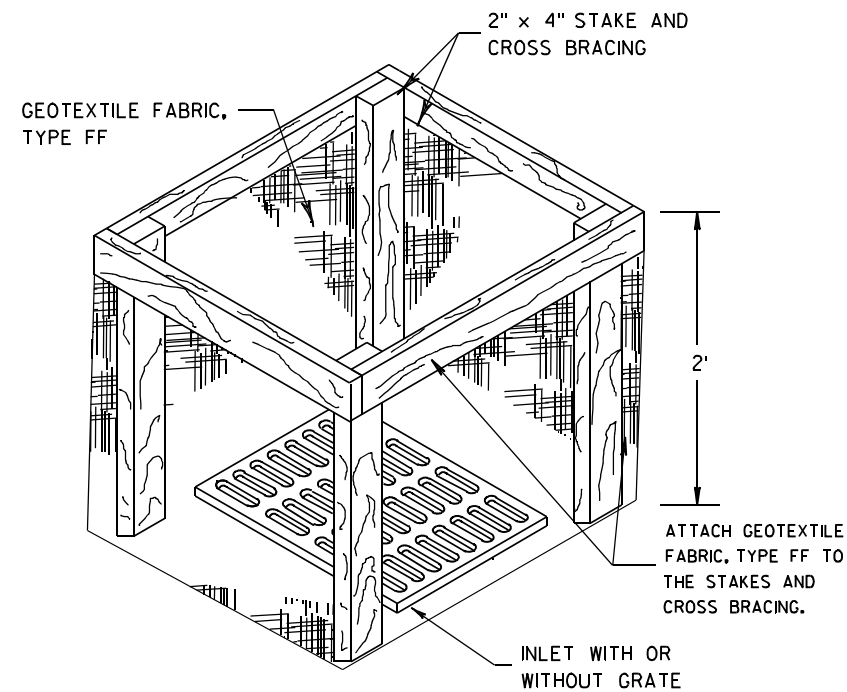
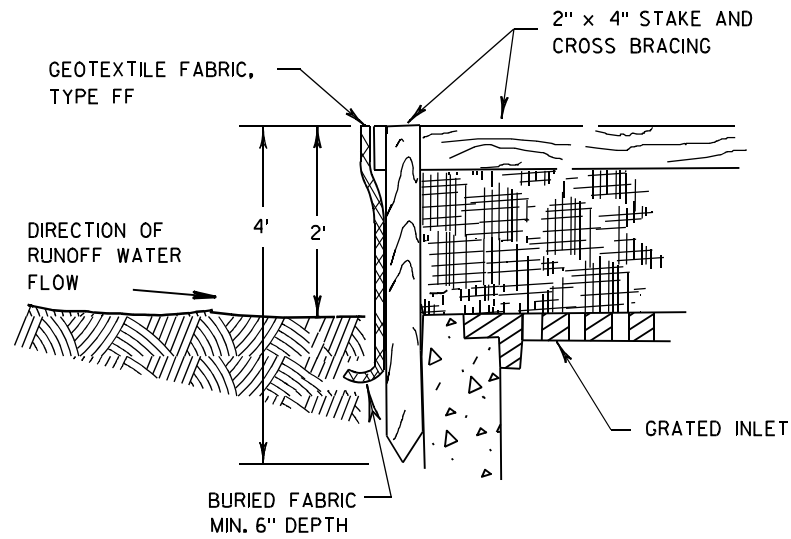


JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Canestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



INLET PROTECTION, TYPE A

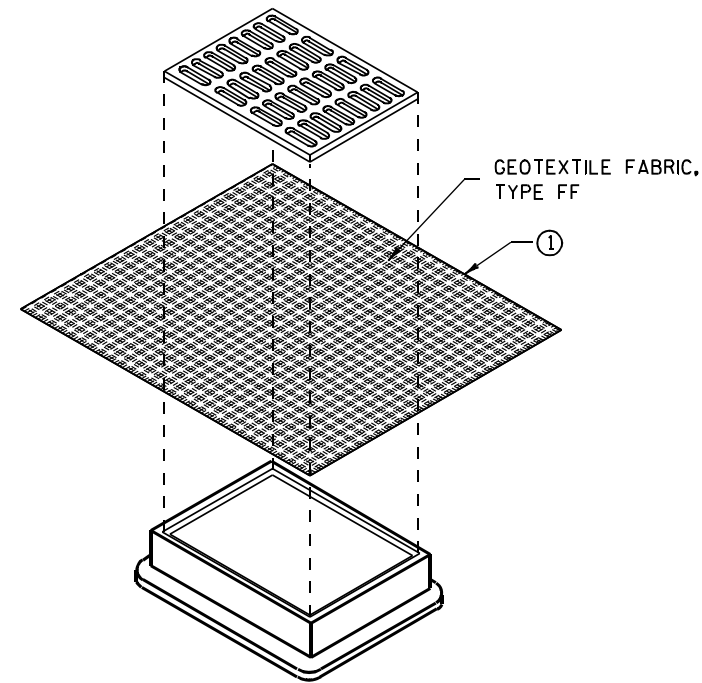
GENERAL NOTES

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

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

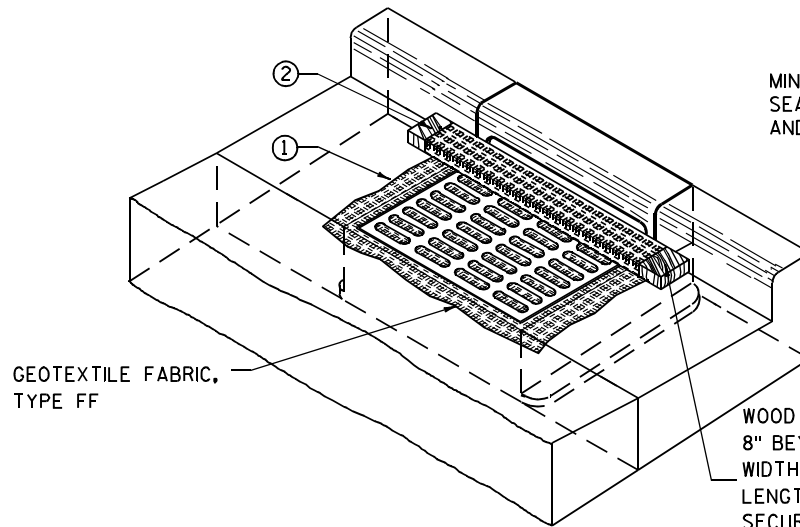
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

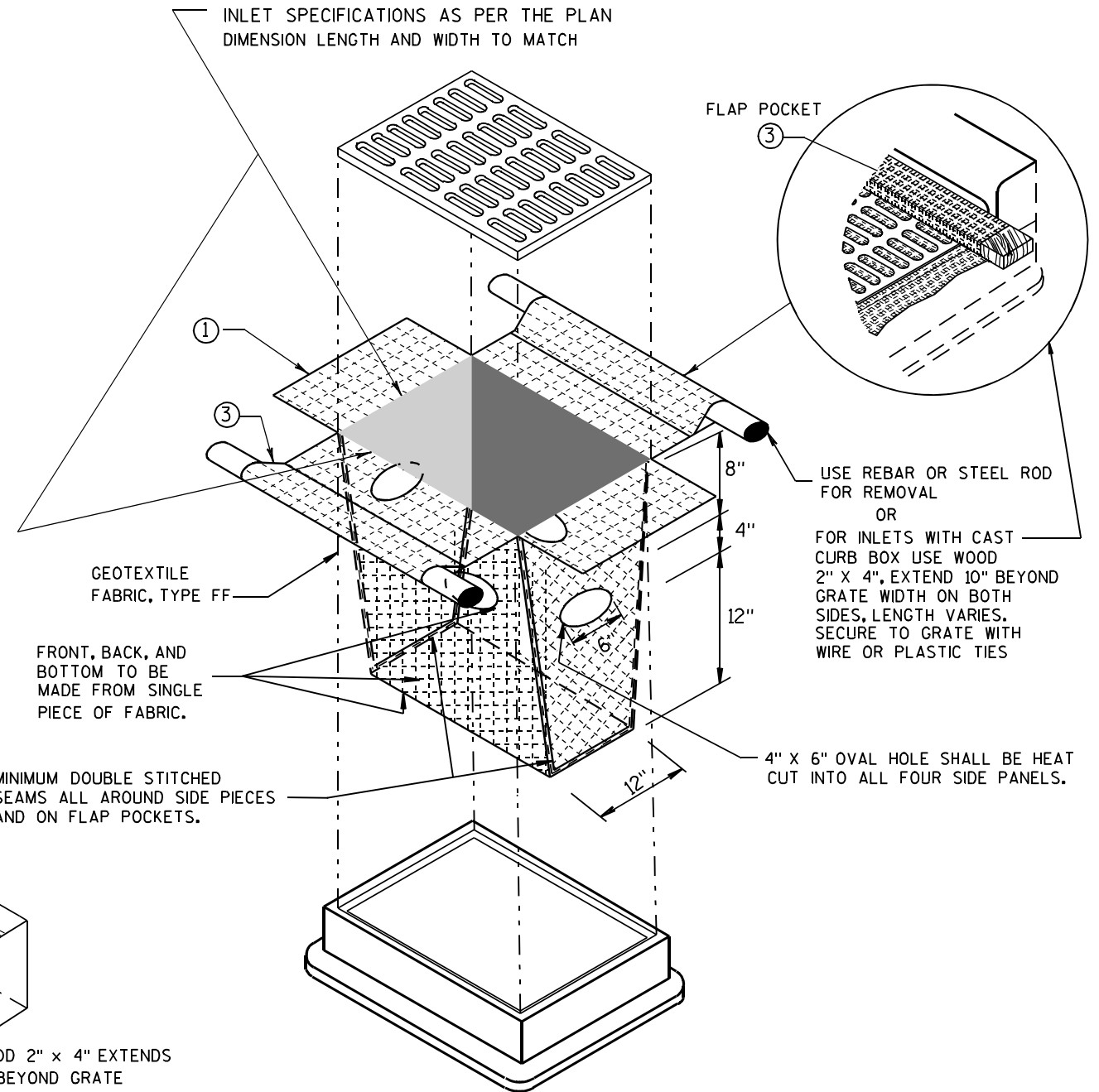
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



INLET PROTECTION, TYPE D

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

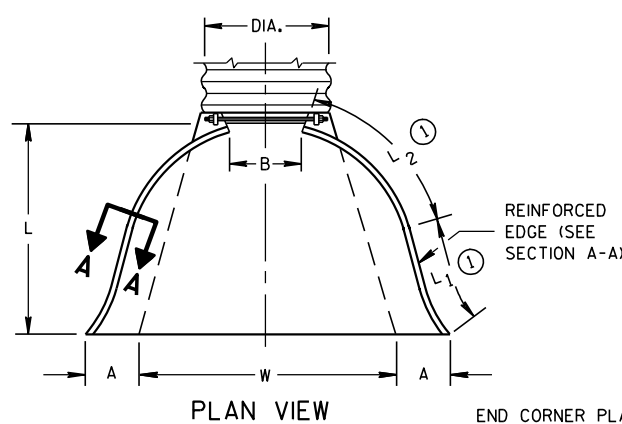
INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/s/ Beth Conestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

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

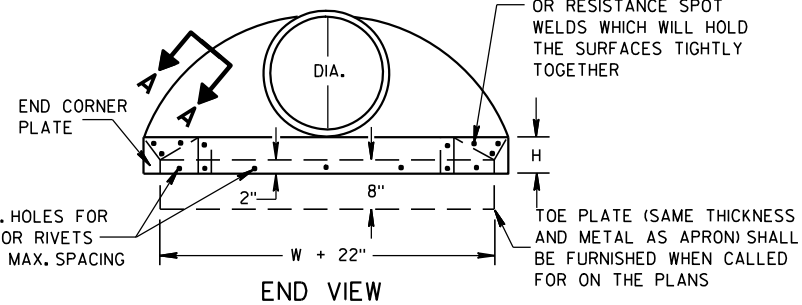
* EXCEPT CENTER PANEL SEE GENERAL NOTES

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

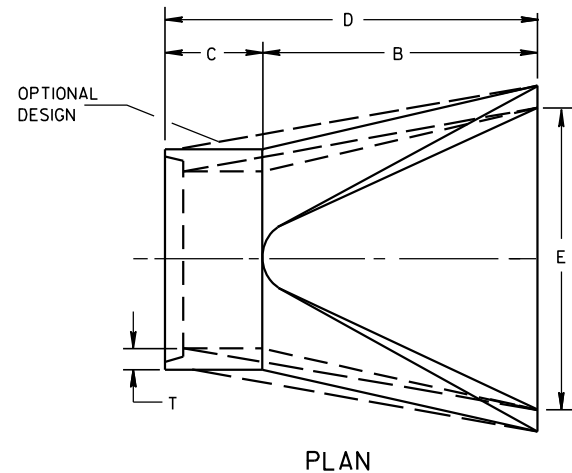
* MINIMUM
** MAXIMUM



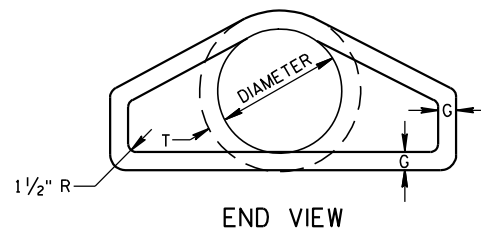
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



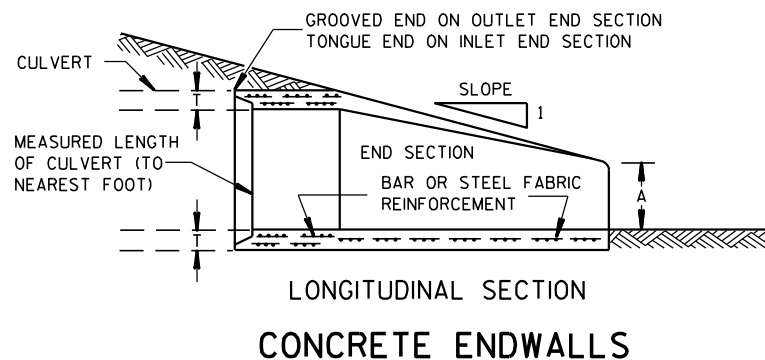
SIDE ELEVATION
METAL ENDWALLS



PLAN

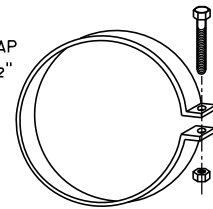


END VIEW

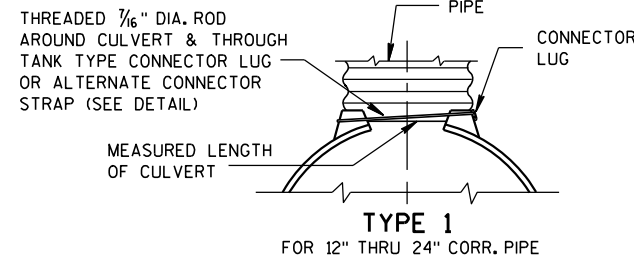


LONGITUDINAL SECTION
CONCRETE ENDWALLS

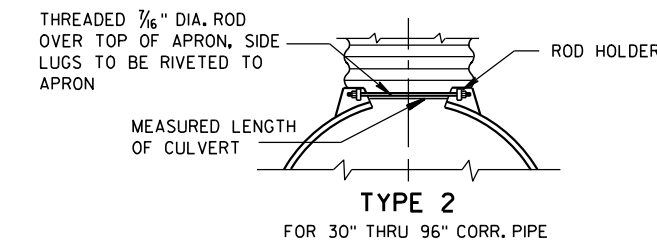
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



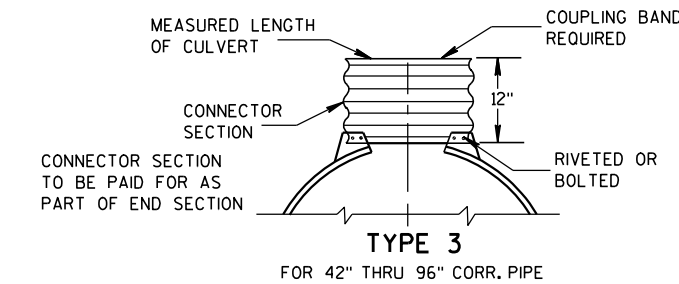
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



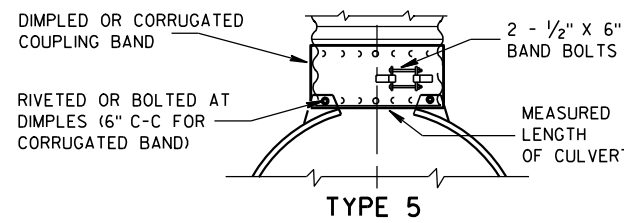
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

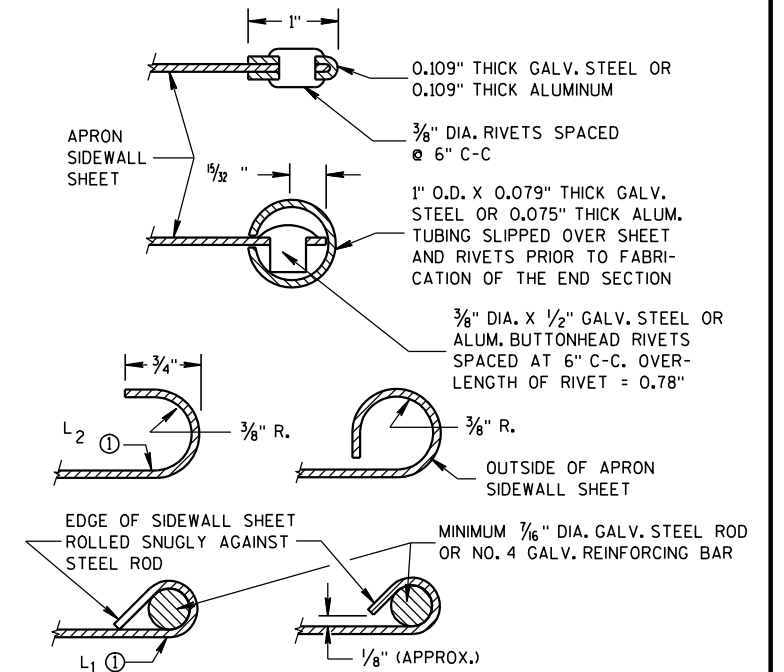
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

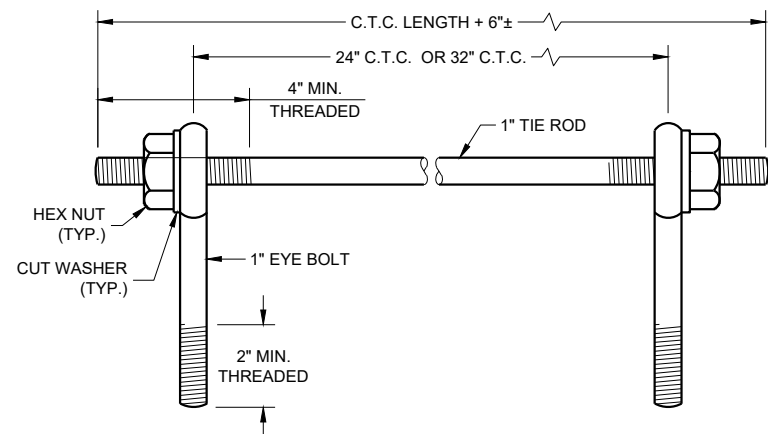
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR
CULVERT PIPE

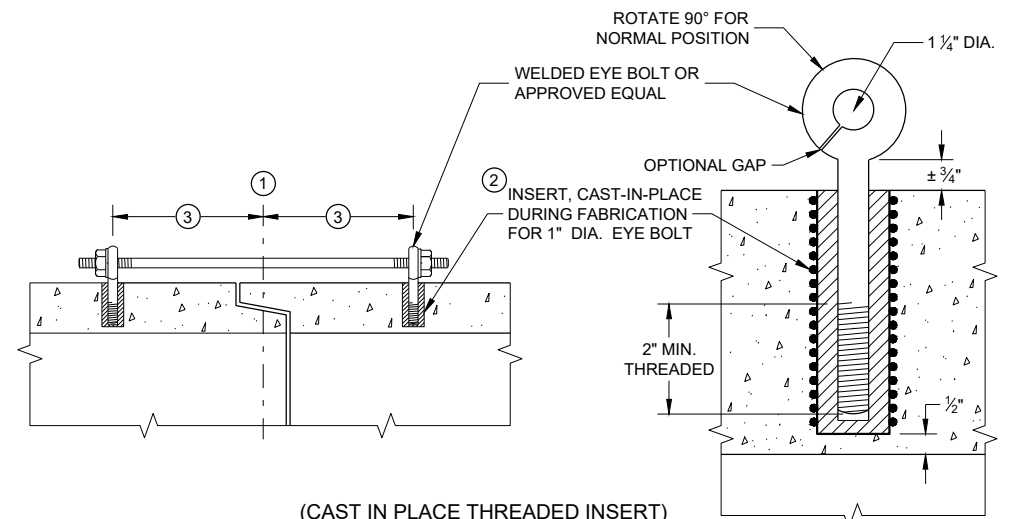
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

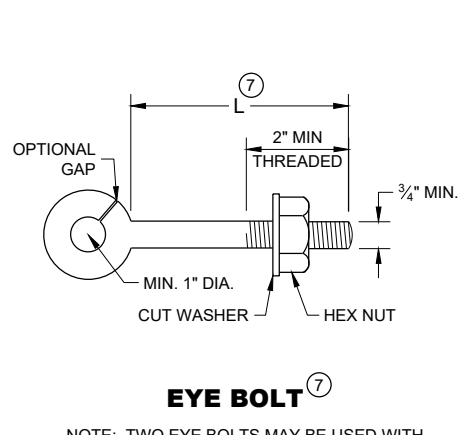
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

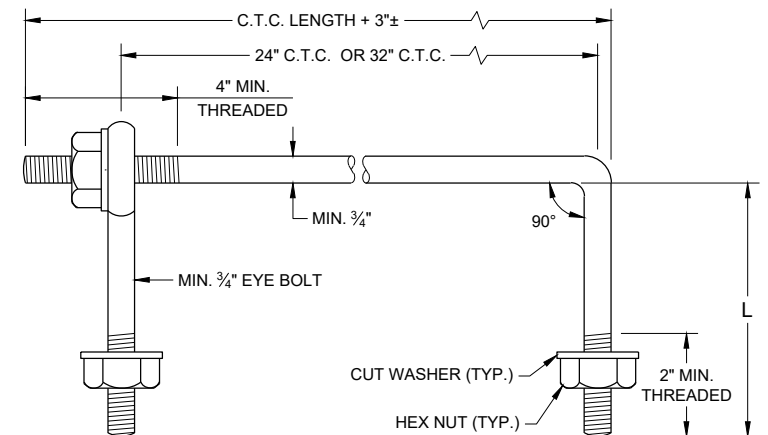
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- ① 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.

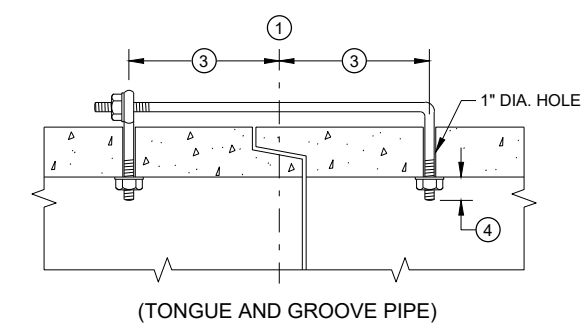


EYE BOLT ⑦

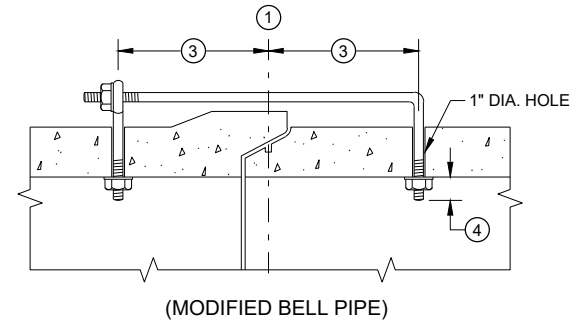
NOTE: TWO EYE BOLTS MAY BE USED WITH A 30\"/>



EYE BOLT AND TIE ROD



(TONGUE AND GROOVE PIPE)



(MODIFIED BELL PIPE)

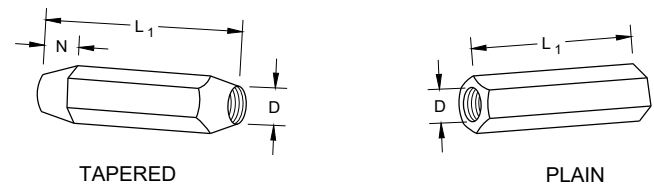
LONGITUDINAL SECTION
(JOINT TIES FOR 18\"/>

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

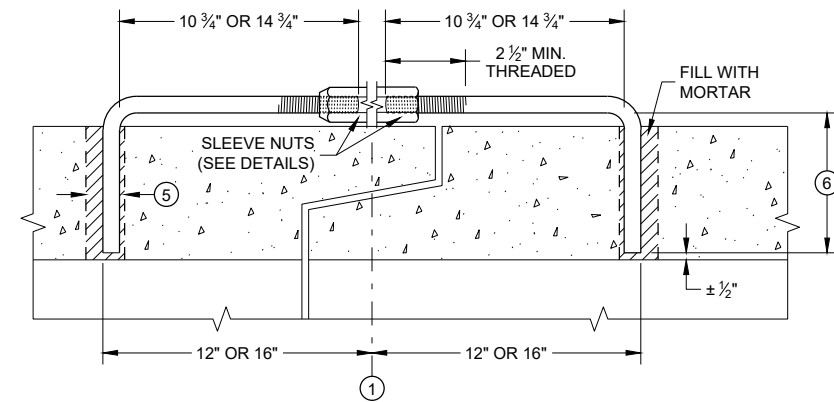
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12 - 60	5/8	5/8	5	1/2
66 - 84	3/4	3/4	5	1/2
90 - 144	1	1	7	1 1/16

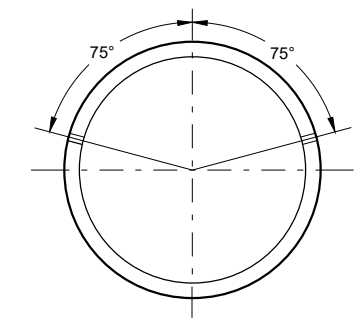
DIMENSIONS SHOWN ARE IN INCHES



RIGHT AND LEFT THREADS SLEEVE NUTS

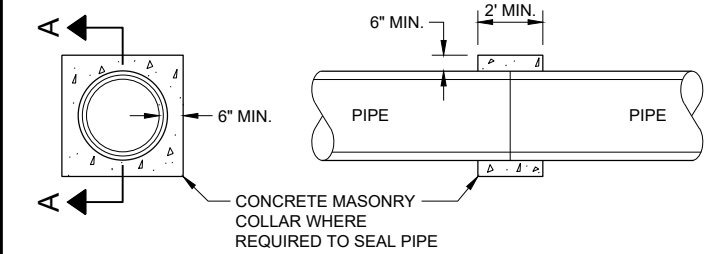


LONGITUDINAL SECTION
ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION

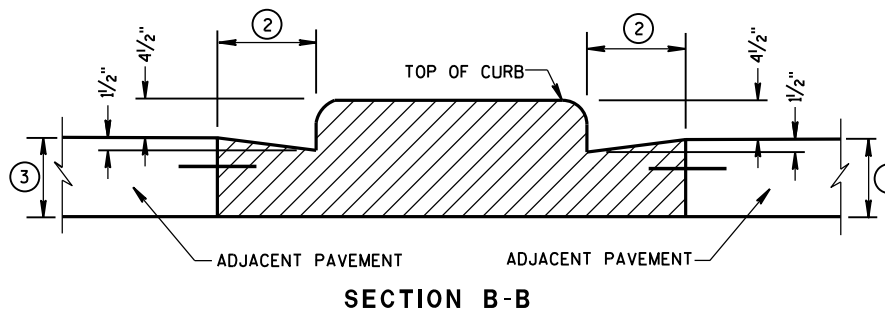
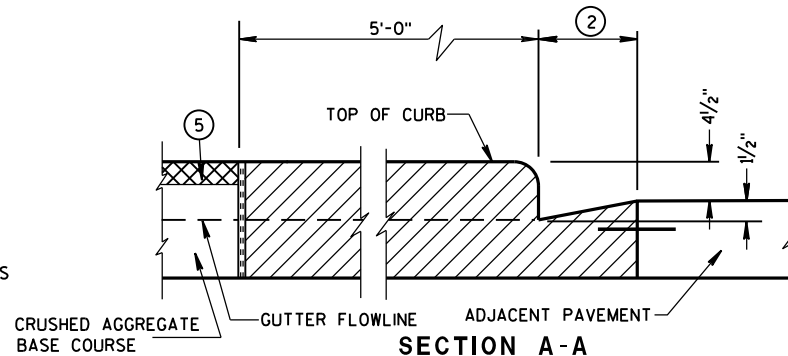
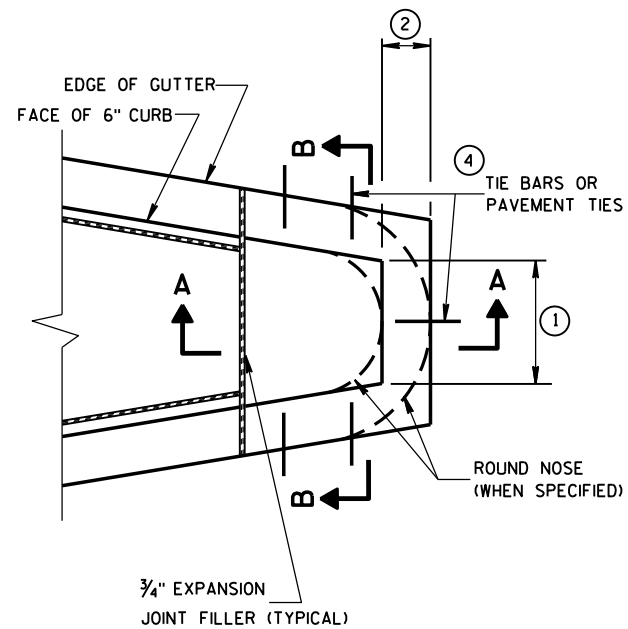
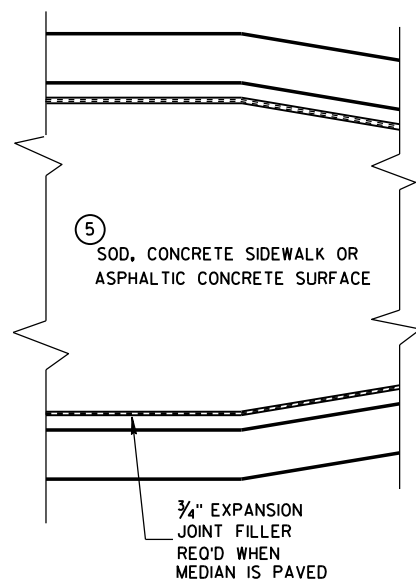


SECTION A - A
CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

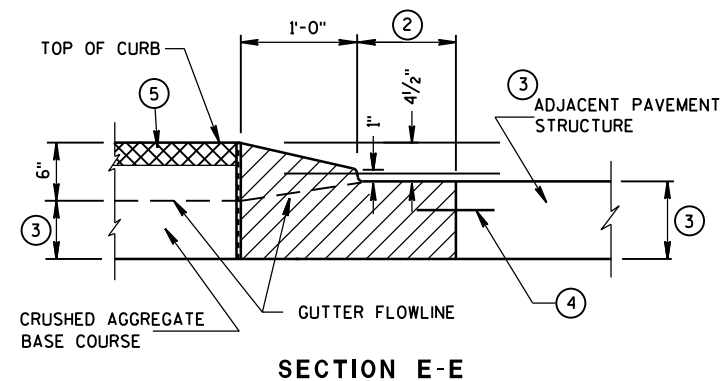
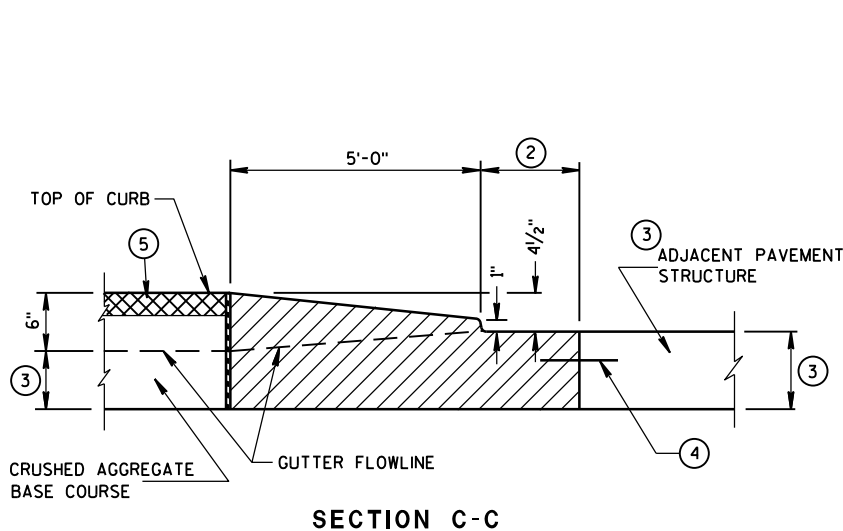
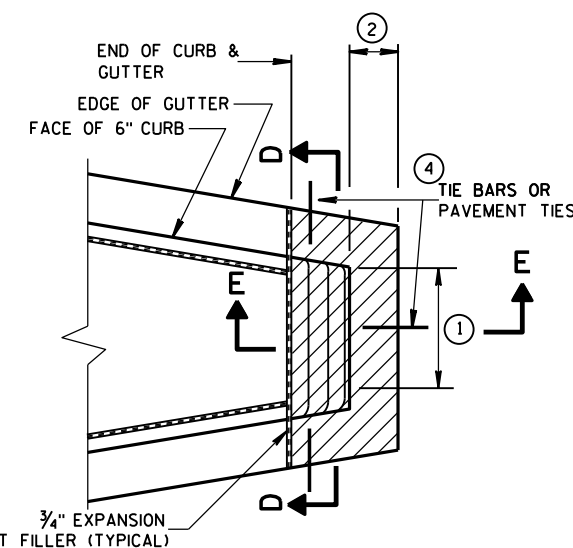


CONCRETE MEDIAN BLUNT NOSE DETAIL

GENERAL NOTES

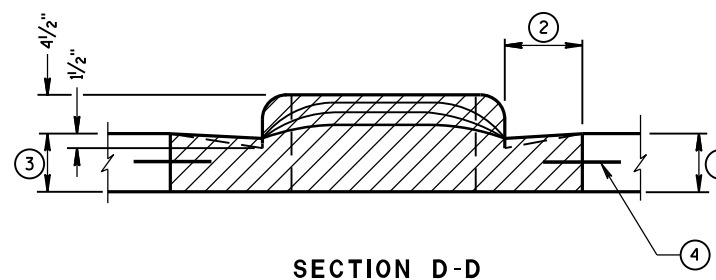
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).
- ② WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.
- ③ DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:
 - (1) NEW OR EXISTING CONCRETE PAVEMENT.
 - (2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.
 - (3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.
- ④ TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.
- PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.
- ⑤ SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.



CONCRETE MEDIAN SLOPED NOSE TYPE 2

CONCRETE MEDIAN SLOPED NOSE TYPE 1



SECTION D-D

CONCRETE MEDIAN NOSE

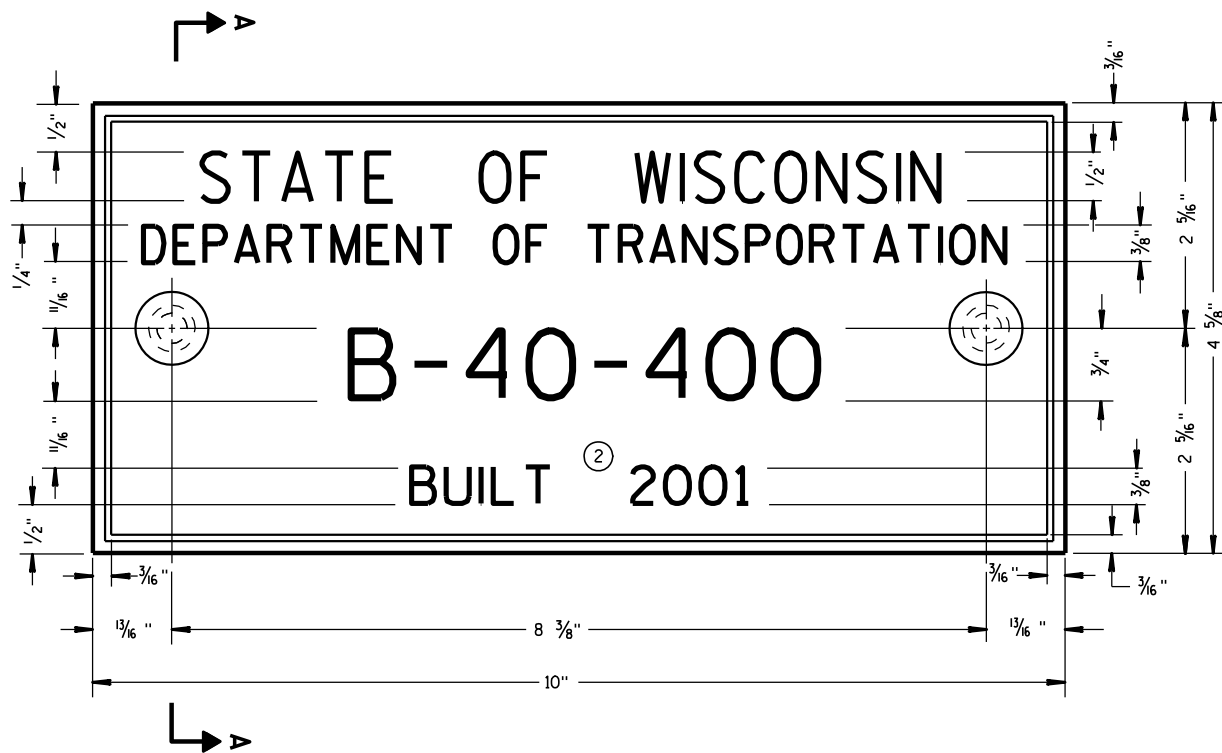
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/8/2006
DATE

FHWA

/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



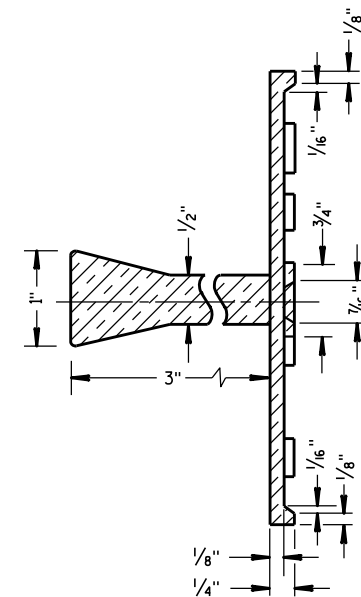
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

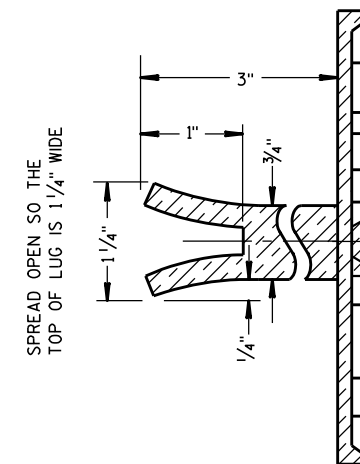
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

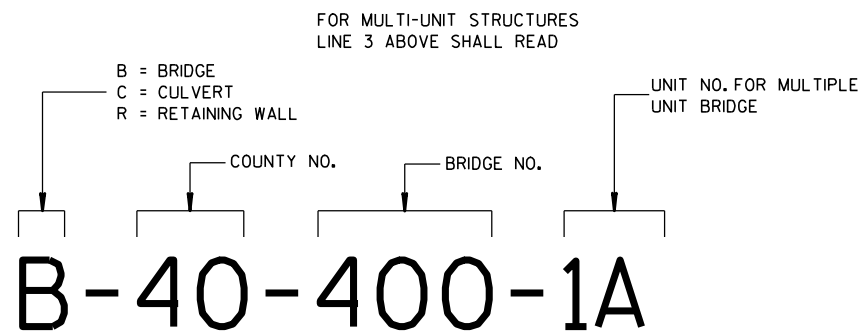
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A

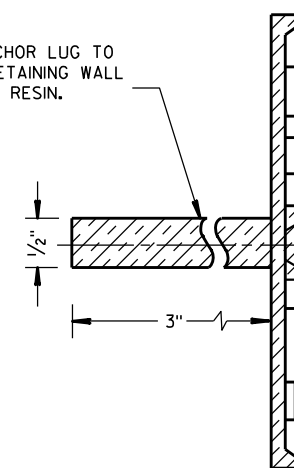


ALTERNATE LUG



**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

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

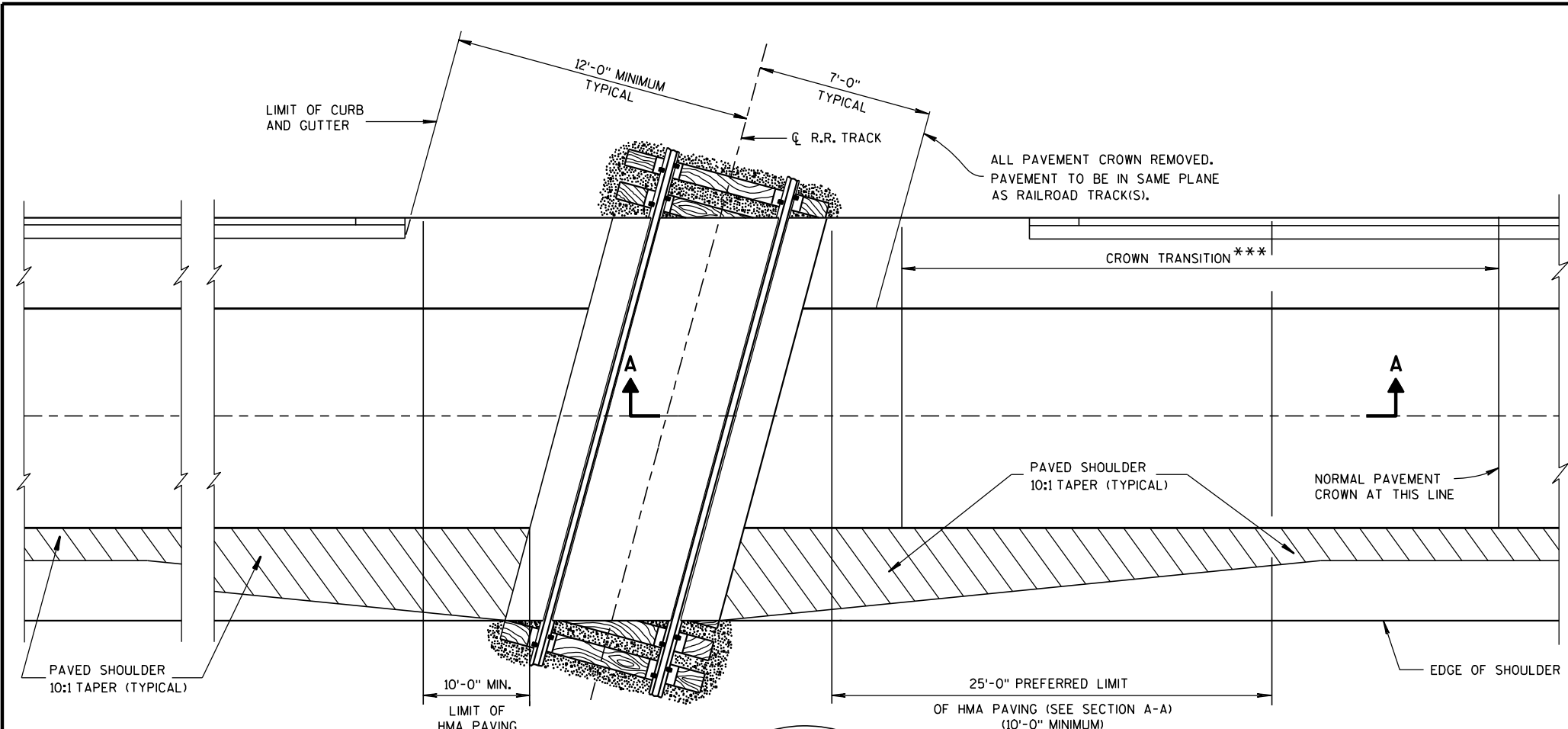


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 3/26/10 /S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA



GENERAL NOTES

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

TIMBER, CONCRETE OR RUBBER CROSSING SURFACE MATERIAL, RAILS, TIES, BALLAST, GEOTEXTILE FABRIC AND CROSSING DRAINAGE SYSTEM BY OTHERS UNLESS OTHERWISE PROVIDED.

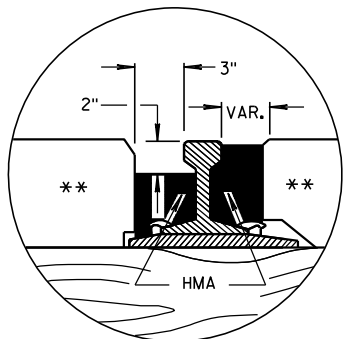
HMA PAVEMENT APPROACHES AND HMA PAVEMENT CROSSING SURFACES TO BE PLACED BY CONTRACTOR UNLESS OTHERWISE PROVIDED.

HMA FLANGEWAY AND FIELD FILLERS TO BE PLACED AND THOROUGHLY HAND COMPACTED BY THE CONTRACTOR WHEN NOT PROVIDED BY OTHERS. SEE DETAIL B. HMA FILLERS NOT REQUIRED WHEN RUBBER FILLERS ARE PROVIDED.

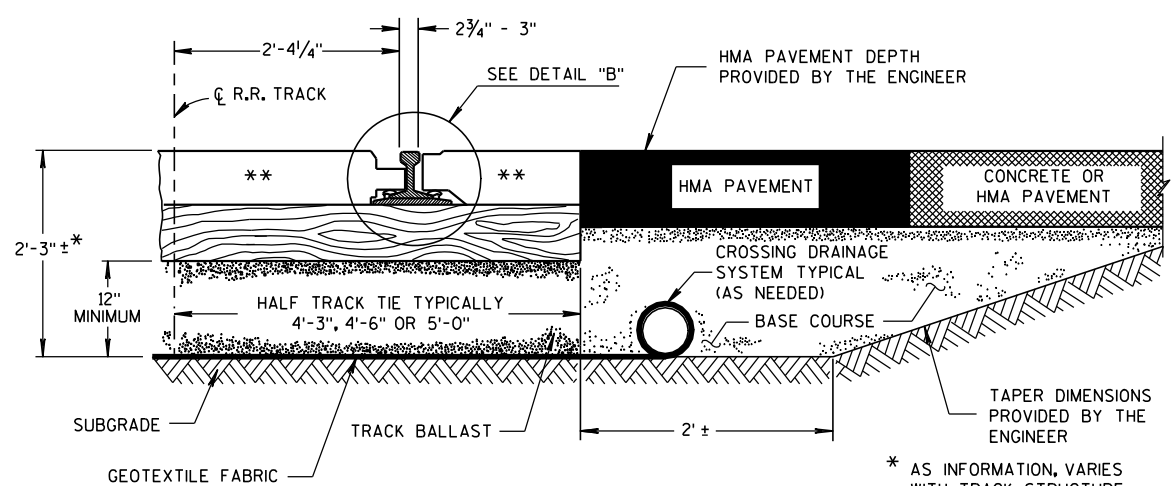
HMA PAVEMENT SHALL BE ROLLED PARALLEL TO THE TRACK.

** CROSSING SURFACE MAY BE TIMBER, RUBBER, CONCRETE, HMA PAVEMENT OR A COMBINATION OF SUCH MATERIALS.

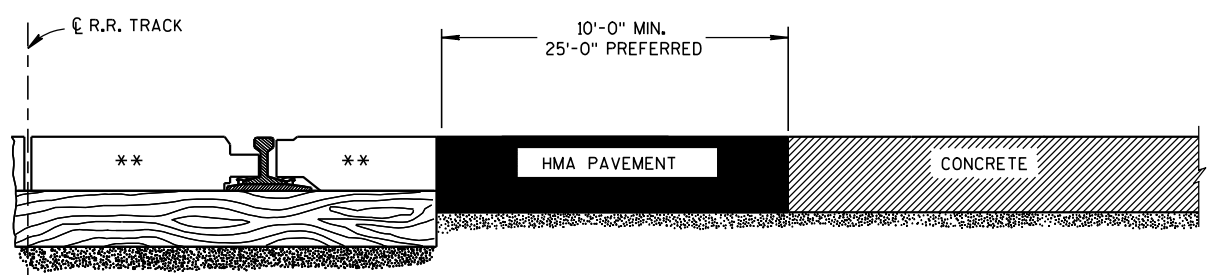
*** CROWN TRANSITION LENGTH SHOWN ELSEWHERE IN THE PLAN.



**DETAIL B
HMA FLANGEWAY
AND FIELD FILLERS**



TYPICAL HALF SECTION



**SECTION A-A
CONCRETE PAVEMENT APPROACH**



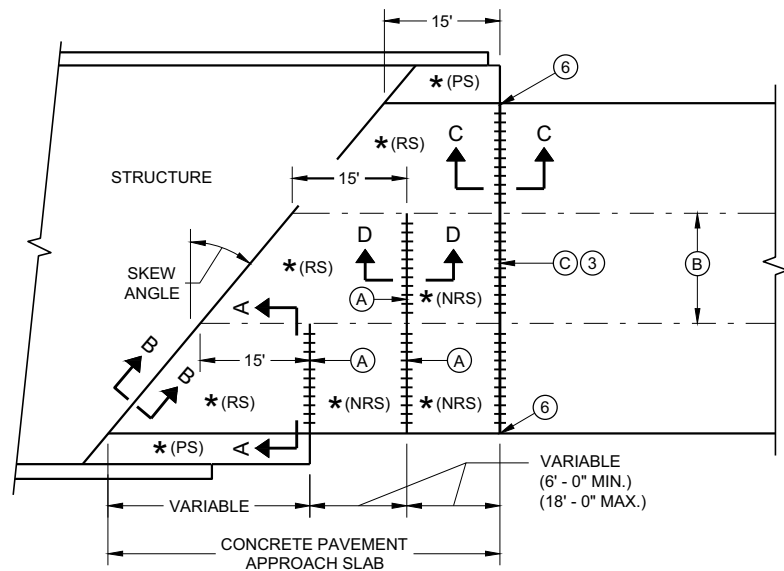
**SECTION A-A
HMA PAVEMENT APPROACH**

EXAMPLES OF PAVEMENT APPROACHES

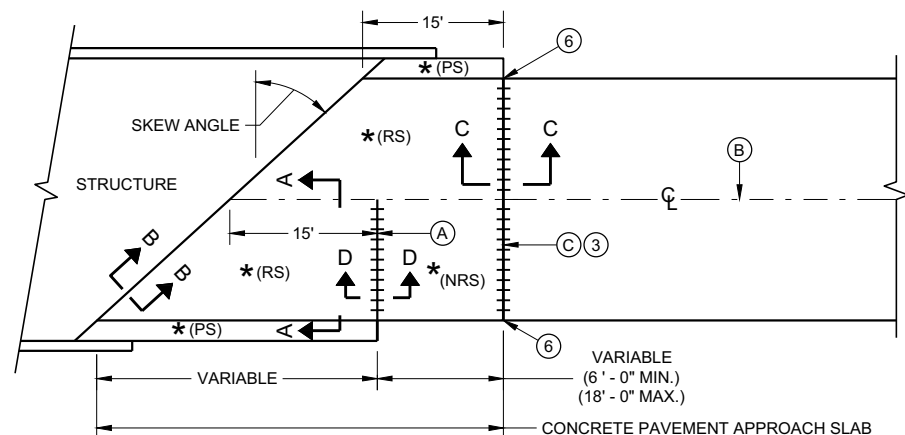
**PAVEMENT DETAILS
FOR RAILROAD APPROACH**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

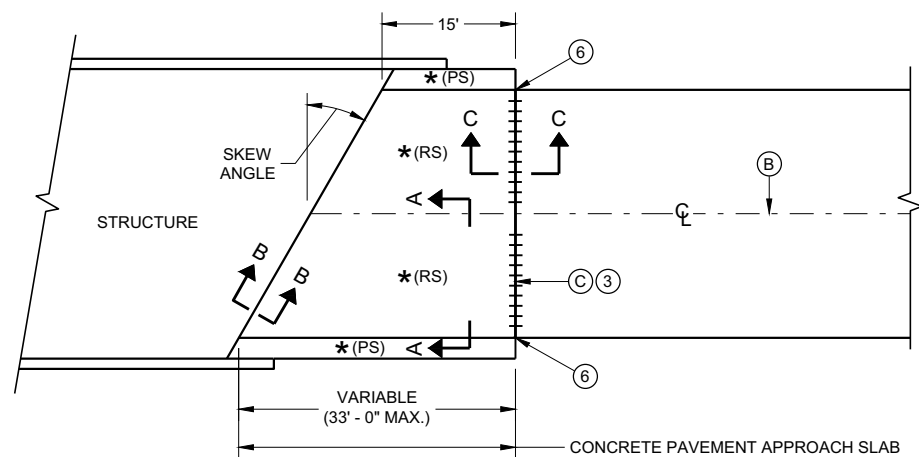
APPROVED
8-28-09 /S/ Ronald E. Adams
DATE CHIEF, RAILROADS & HARBORS SECTION
FHWA



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

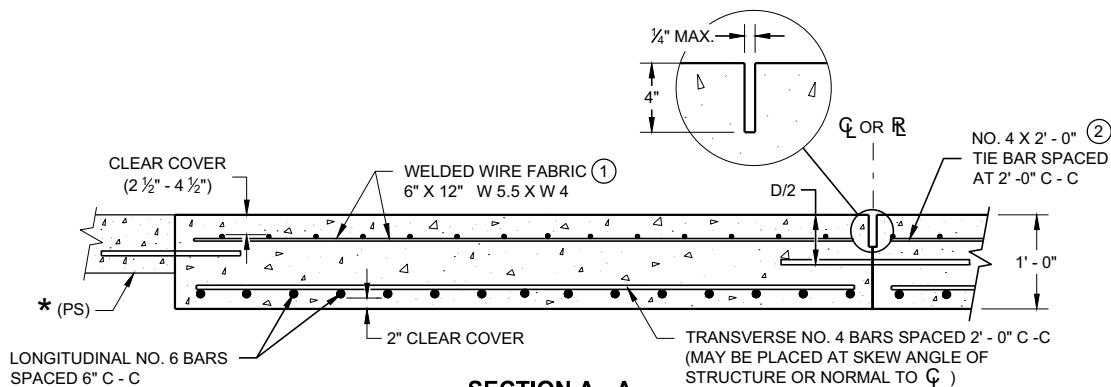


**Skews > 20°
(Pavement width ≤ 30')**

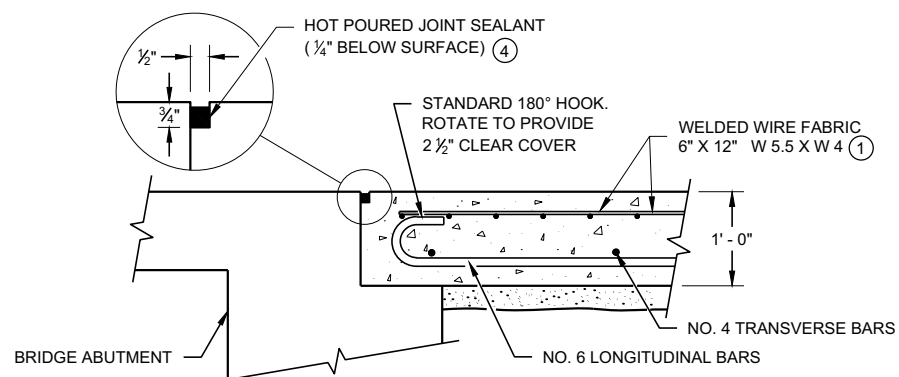


**Skews ≤ 20°
(Pavement width ≤ 30')**
Approach Slab and Adjacent Pavement

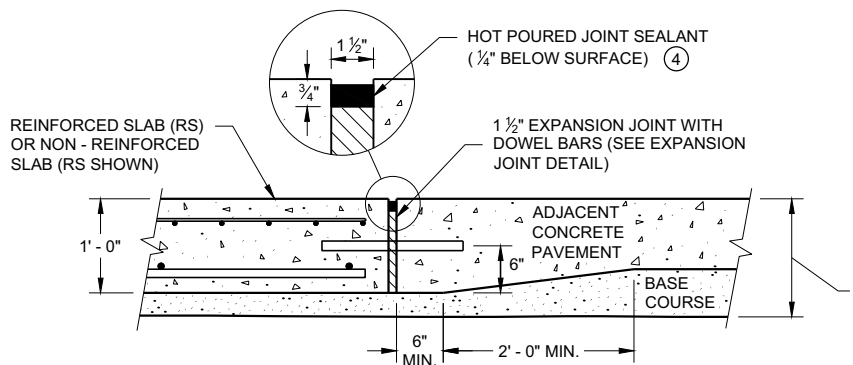
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



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



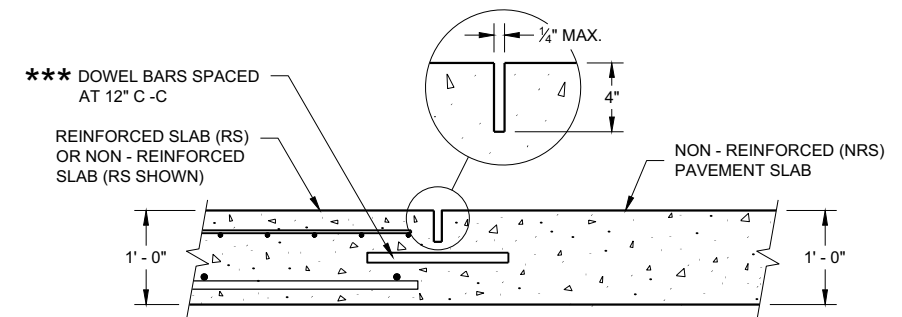
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

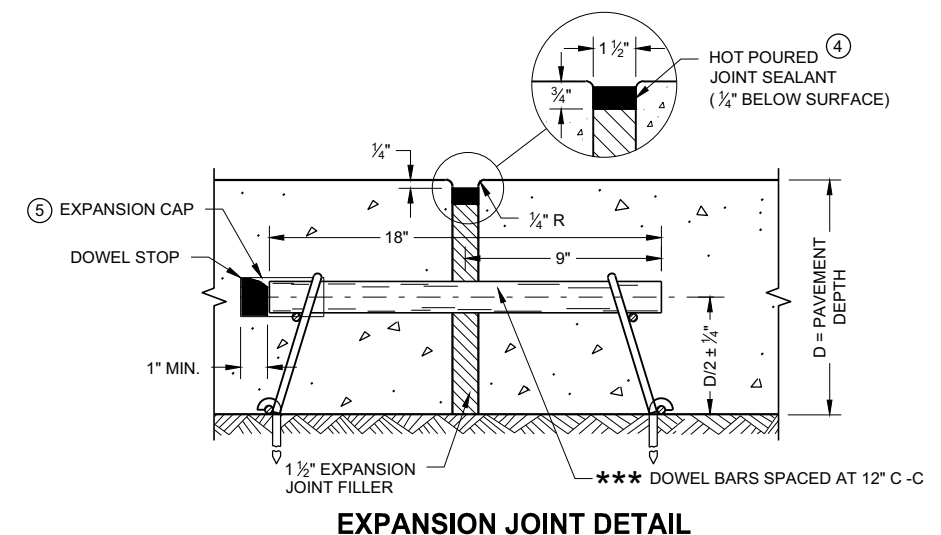
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
- ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- (A) STANDARD CONTRACTION JOINT NORMAL TO \bar{C} OR \bar{R} .
- (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO \bar{C} OR \bar{R} .



**SECTION D - D
CONTRACTION JOINT**



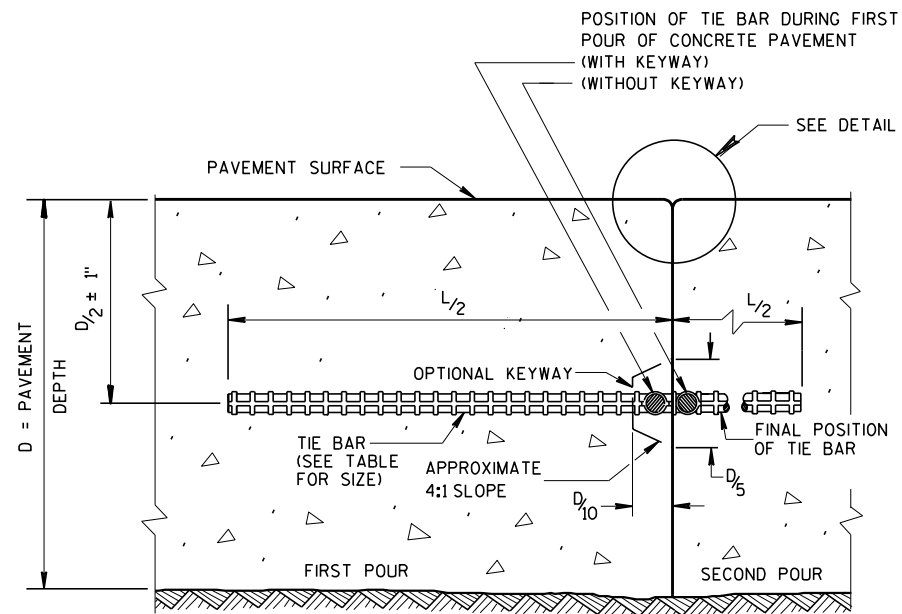
EXPANSION JOINT DETAIL

**CONCRETE PAVEMENT
APPROACH SLAB**

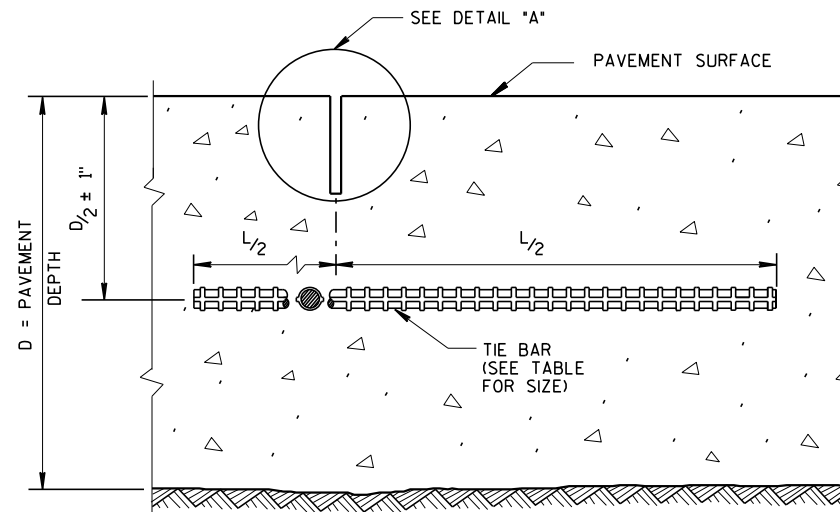
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



CONSTRUCTION JOINT



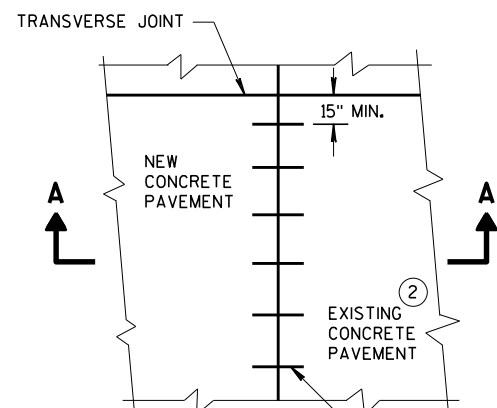
SAWED JOINT

GENERAL NOTES

CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

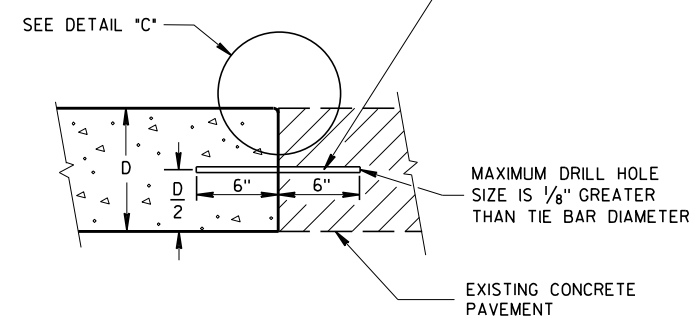
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

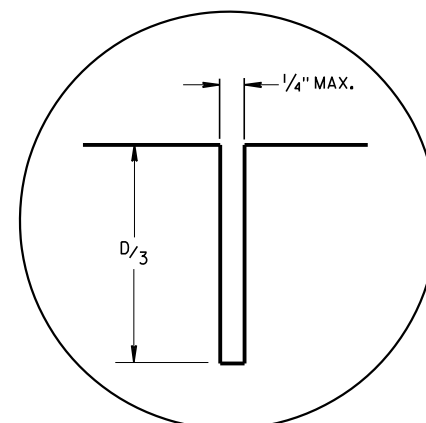


PLAN VIEW

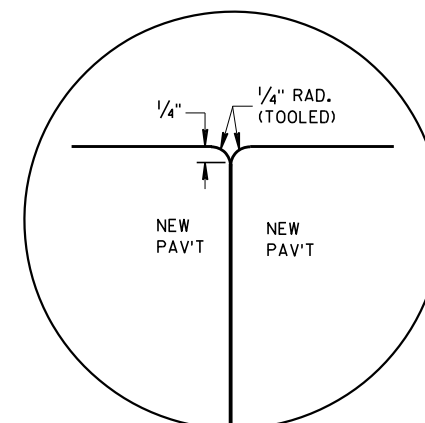
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



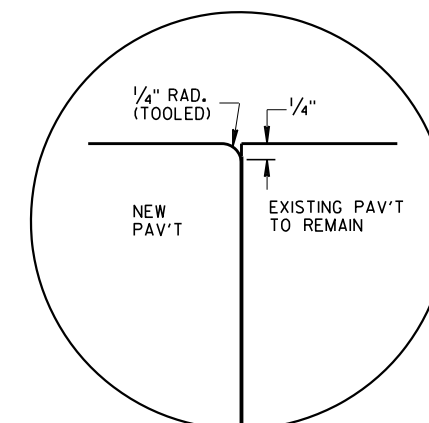
**SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT**



DETAIL "A"



DETAIL "B"



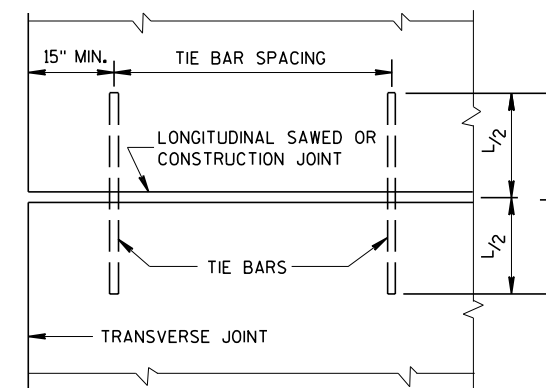
DETAIL "C"

TIE BAR TABLE

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

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

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

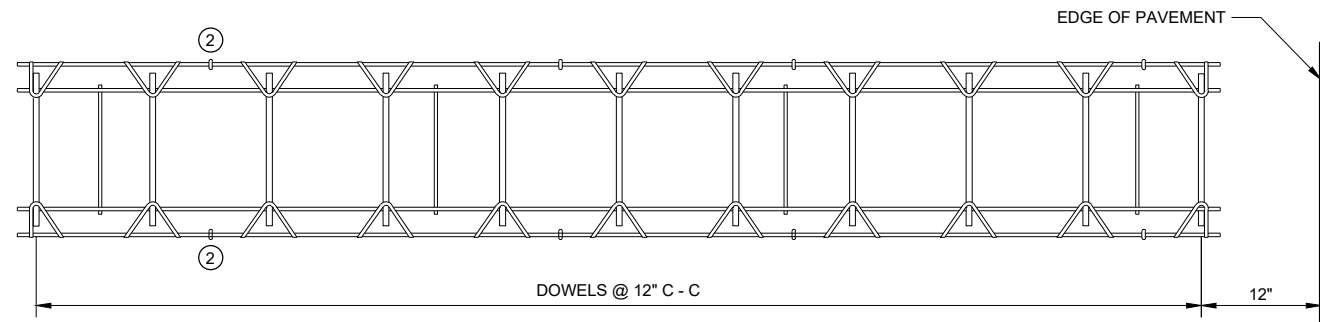


**PLAN VIEW
SHOWING LOCATION OF TIE BARS**

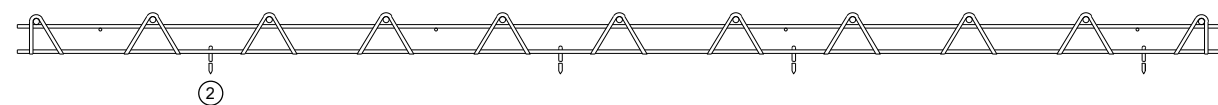
**CONCRETE PAVEMENT
LONGITUDINAL JOINTS AND TIES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

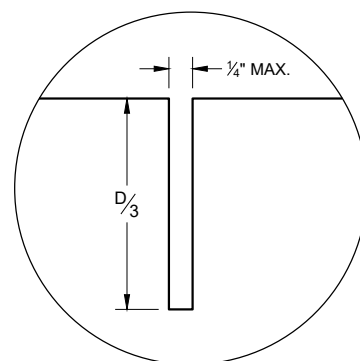


PLAN VIEW



SIDE VIEW

CONTRACTION JOINT DOWEL ASSEMBLY ①



JOINT DETAIL

GENERAL NOTES

CONTRACTION JOINTS

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

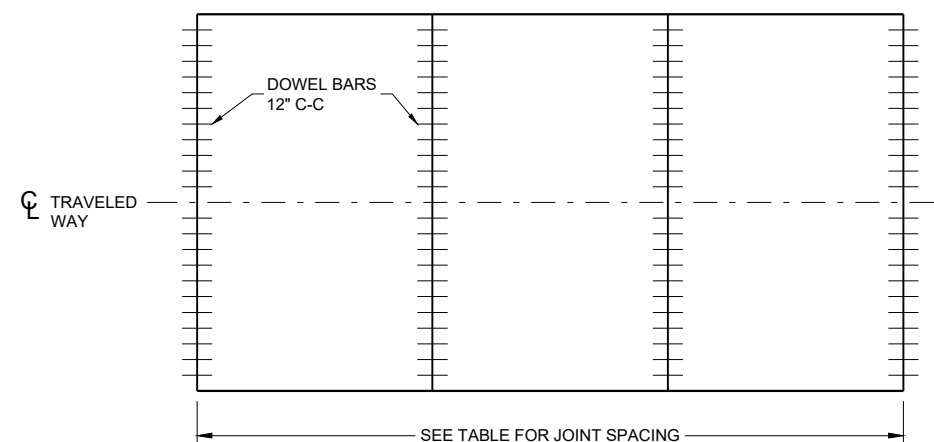
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

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

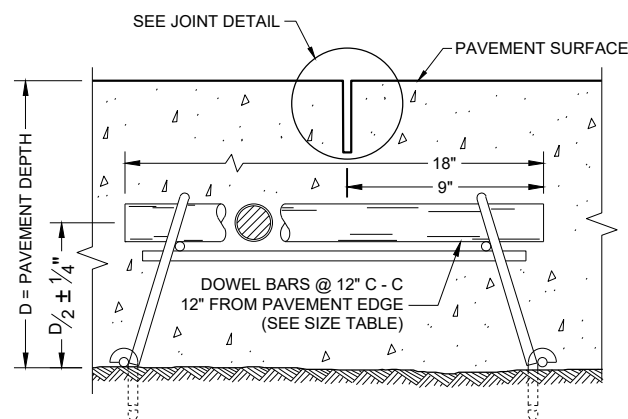
CONSTRUCTION JOINTS

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

- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTION CONTRACTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4" RADIUS AT FORMED JOINTS.
- ④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- ⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C - C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO THE "DRILLED DOWEL BAR CONSTRUCTION JOINT" DETAIL.
- ⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ⑦ ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8" GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



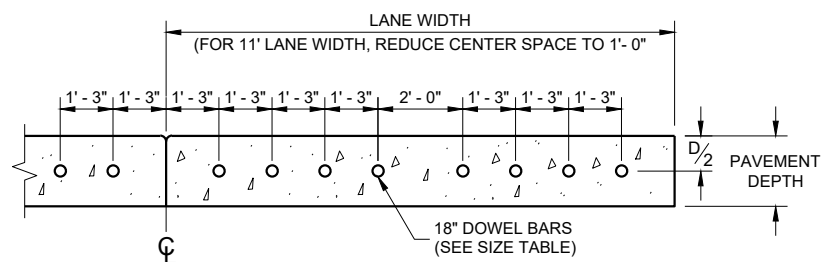
CONTRACTION JOINT LOCATIONS



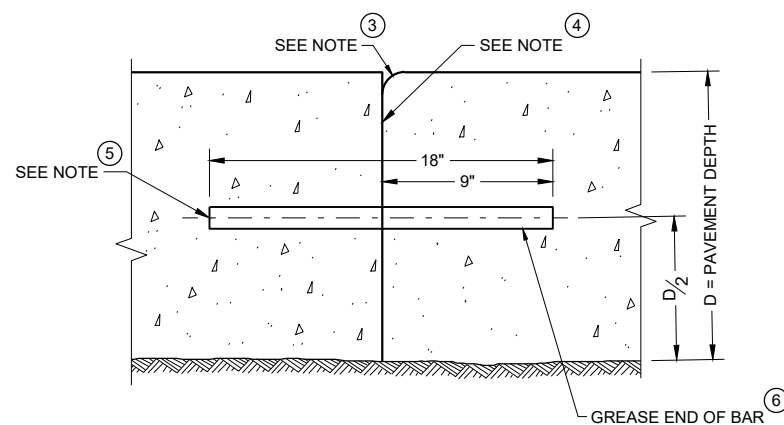
DOWELED CONTRACTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

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



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



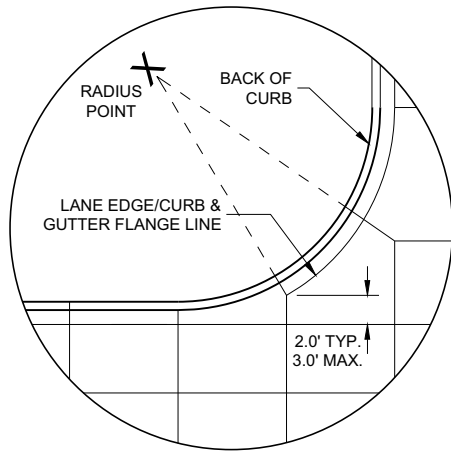
TRANSVERSE CONSTRUCTION JOINT

URBAN DOWELED CONCRETE PAVEMENT

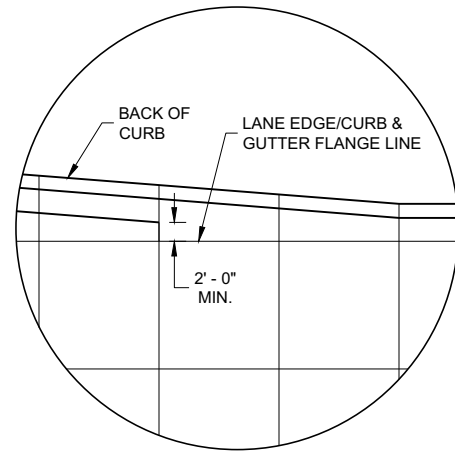
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR

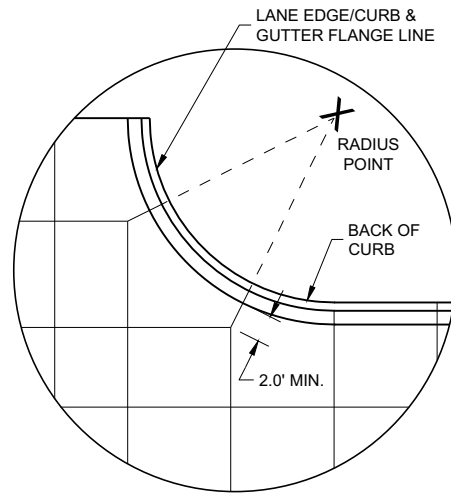
FHWA



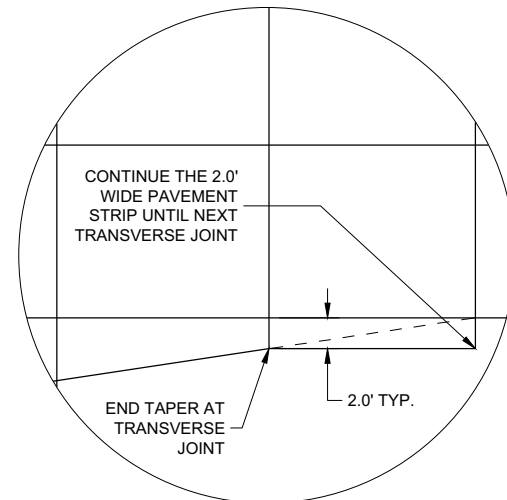
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

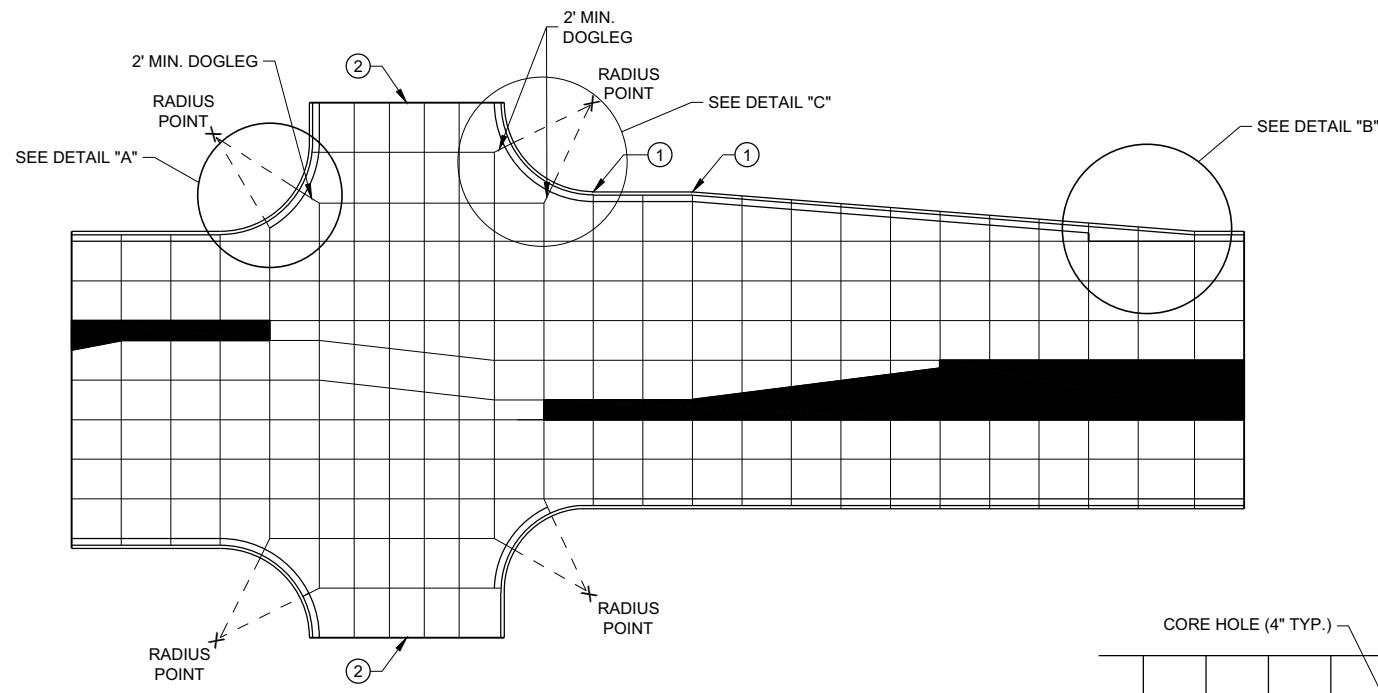
GENERAL NOTES

- THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.
- ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.
- CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.
- ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.
- AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.
- SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.
- AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

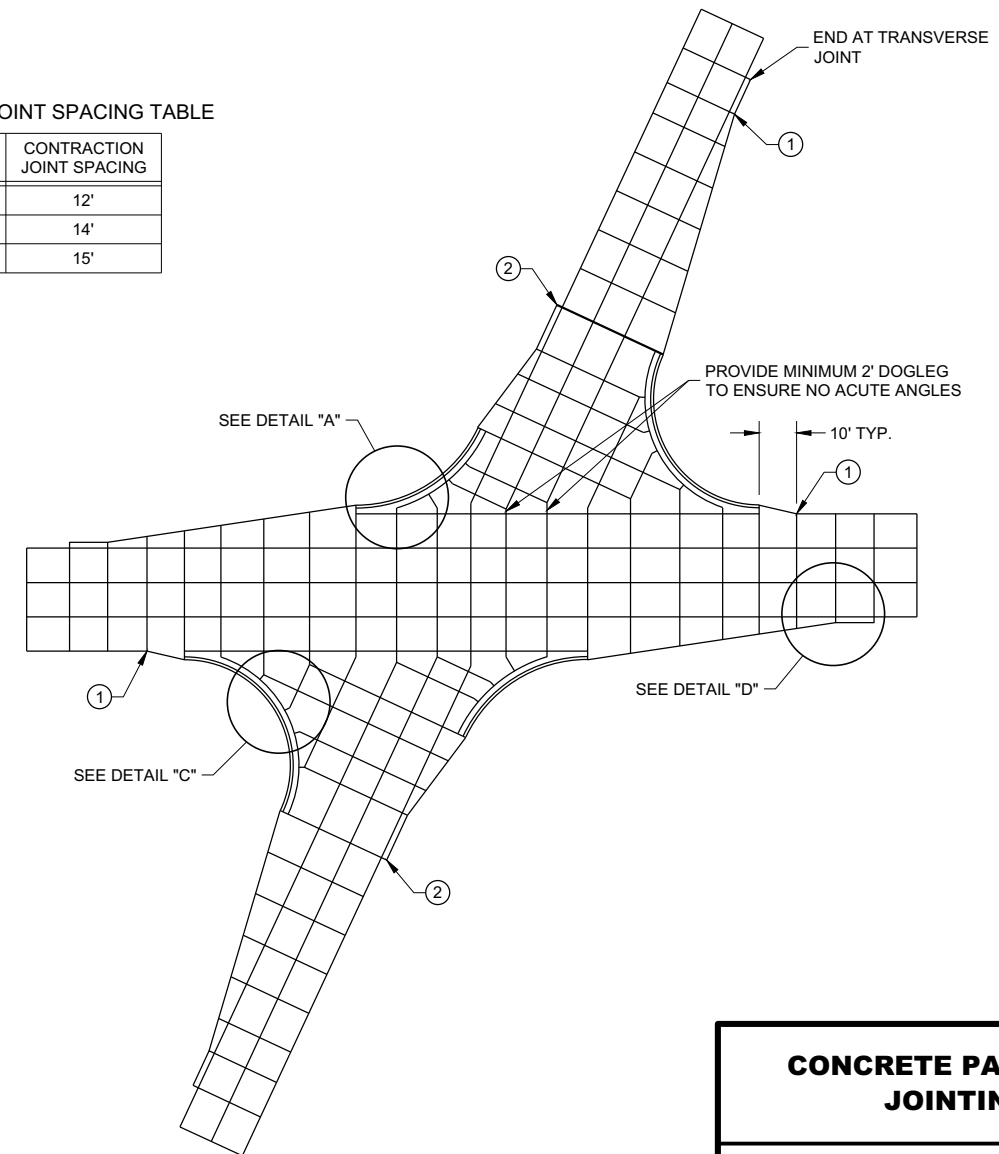
- ① PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
- ② CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
- ③ THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.

PAVEMENT DEPTH AND JOINT SPACING TABLE

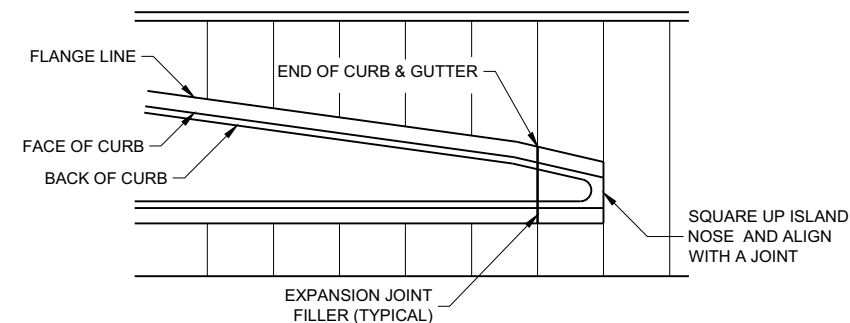
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



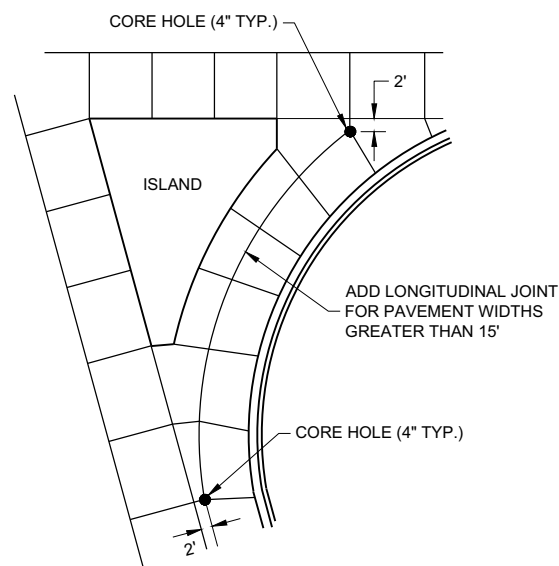
STANDARD INTERSECTION



SKEWED INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN

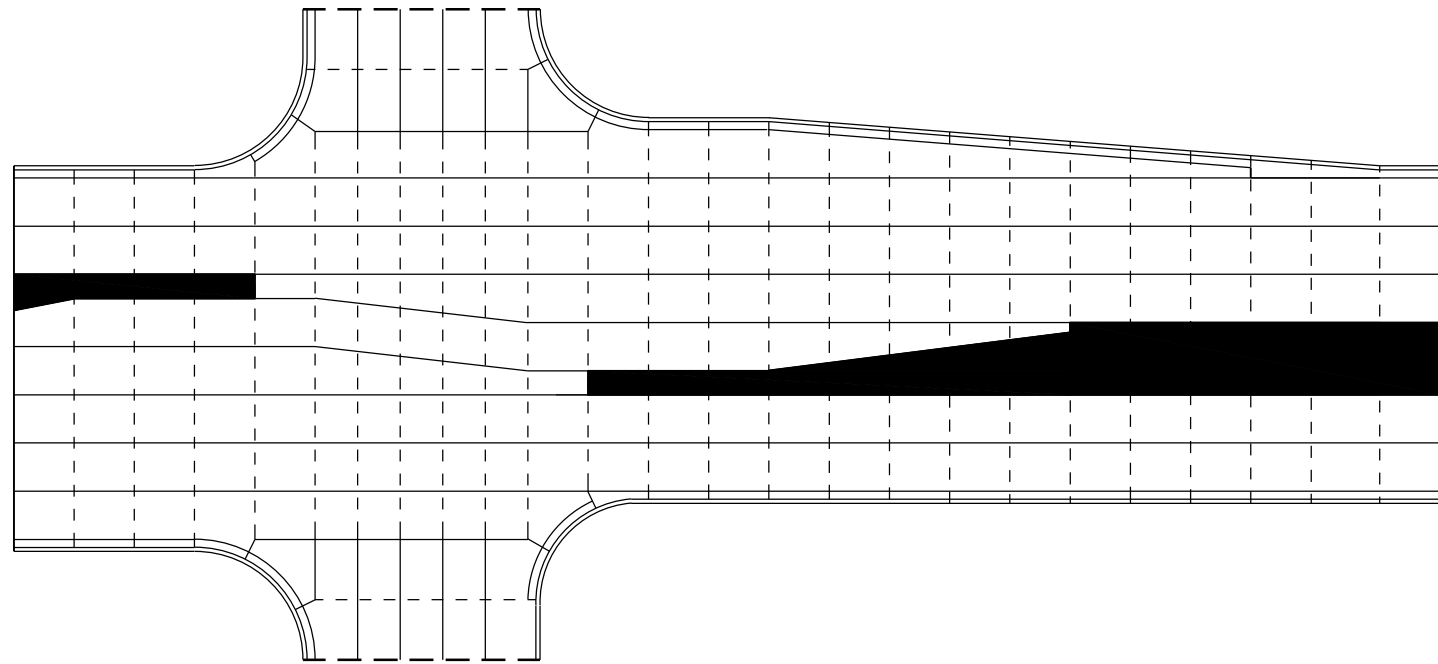
LEGEND

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

GENERAL NOTES

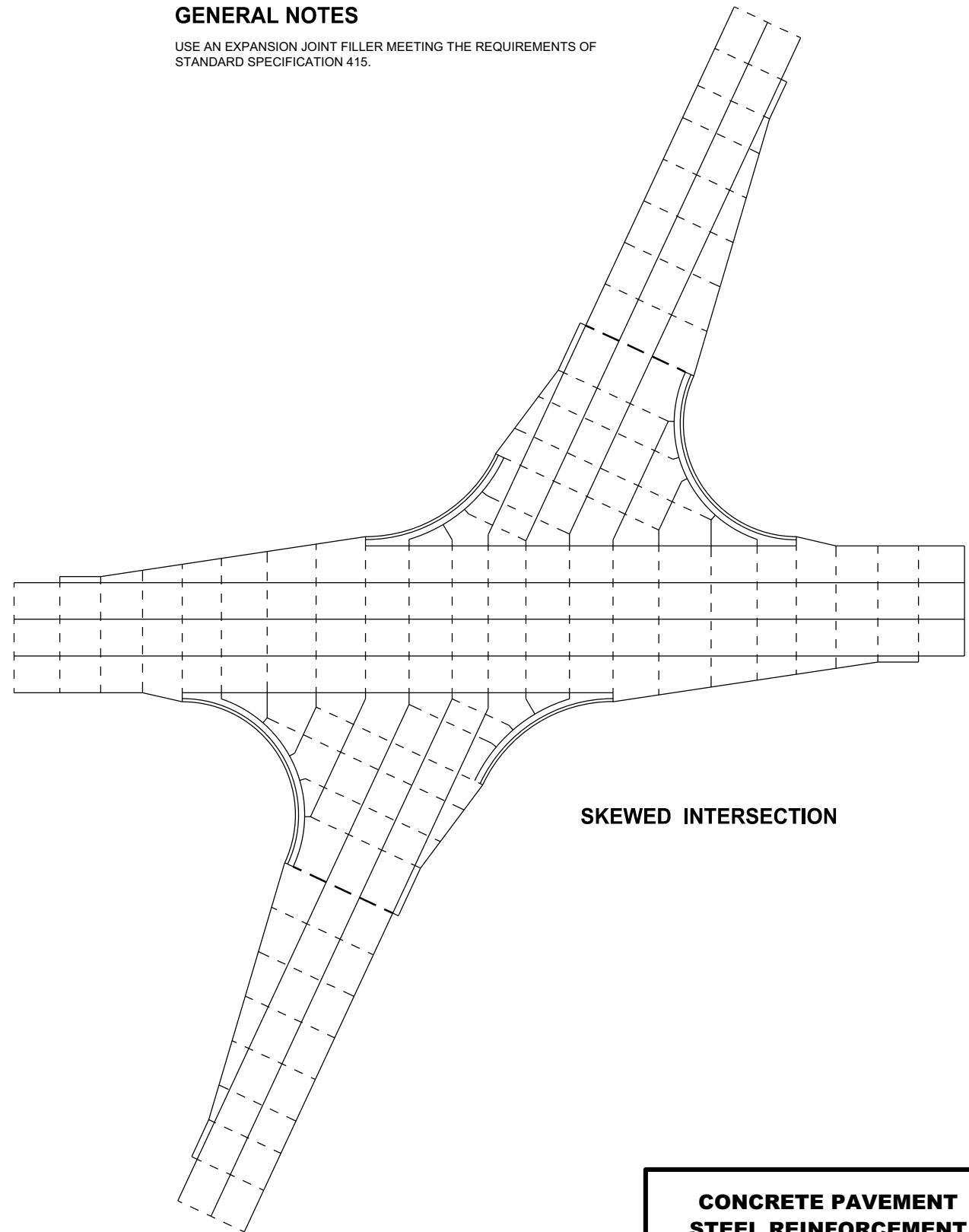
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.

6



STANDARD INTERSECTION

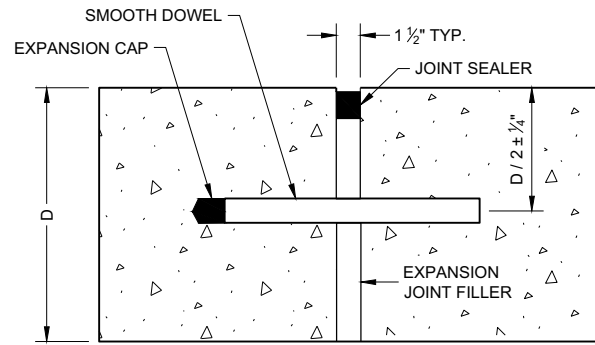
6



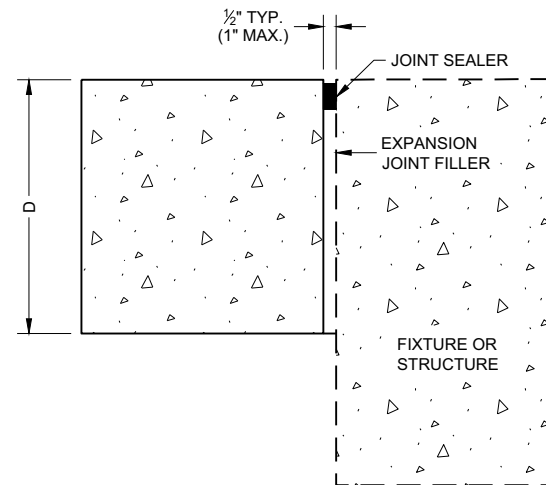
SKEWED INTERSECTION

**CONCRETE PAVEMENT
STEEL REINFORCEMENT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DOWELED TRANSVERSE ①



UNTIED - LONGITUDINAL

EXPANSION JOINTS

TIE BAR TABLE

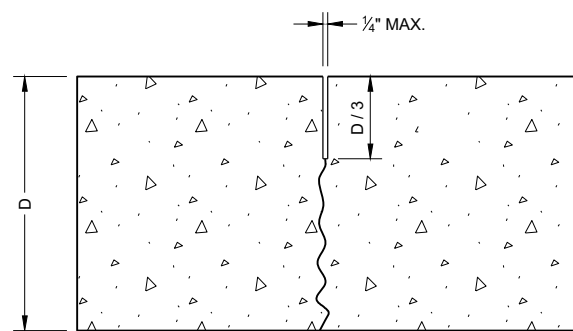
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24" **

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

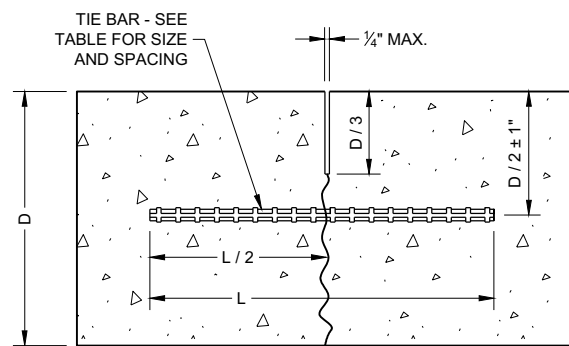
** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

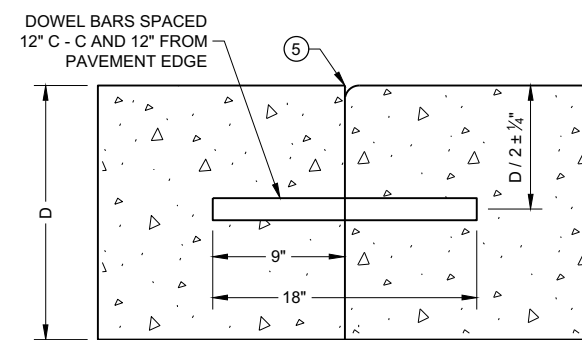
- ① USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
- ② SPACE CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C4, 13C11 OR 13C13.
- ③ LOCATE CONSTRUCTION JOINTS A MINIMUM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



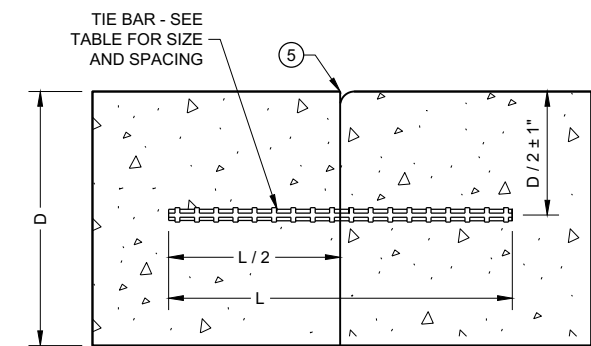
UNDOWELED TRANSVERSE



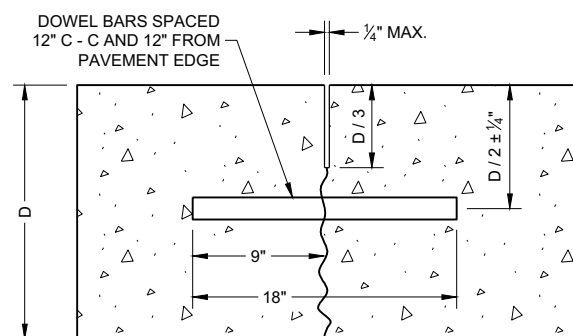
TIED LONGITUDINAL



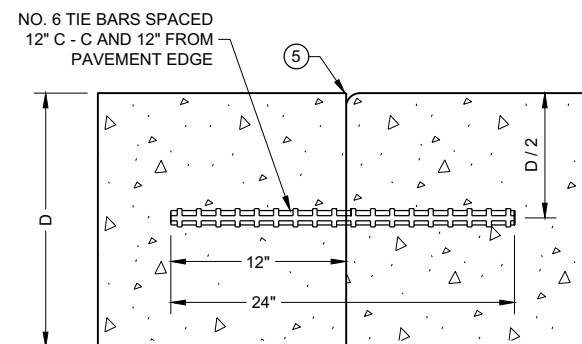
DOWELED TRANSVERSE ③



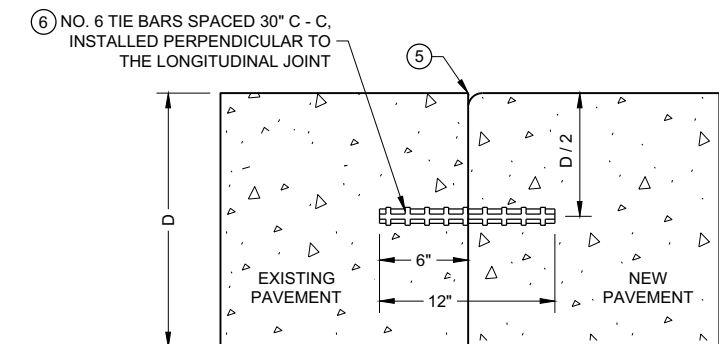
TIED LONGITUDINAL



DOWELED TRANSVERSE



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



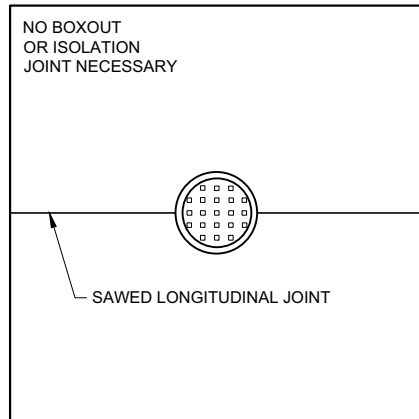
TIED LONGITUDINAL TO EXISTING

CONTRACTION JOINTS ②

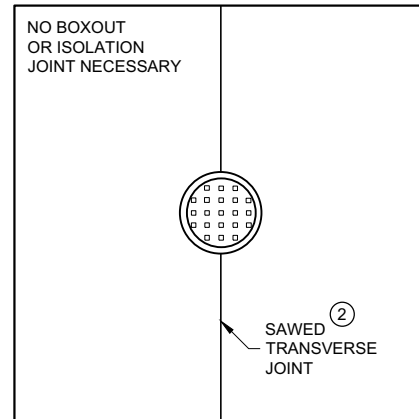
CONSTRUCTION JOINTS ④

CONCRETE PAVEMENT JOINT TYPES

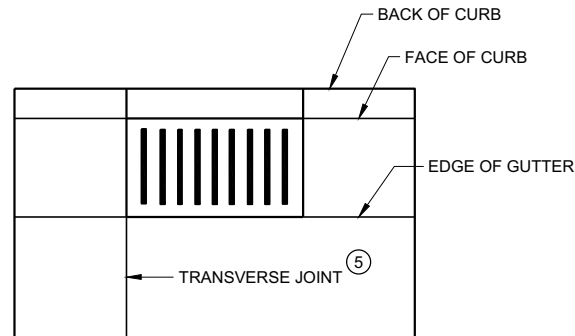
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



MANHOLE WITH LONGITUDINAL JOINT



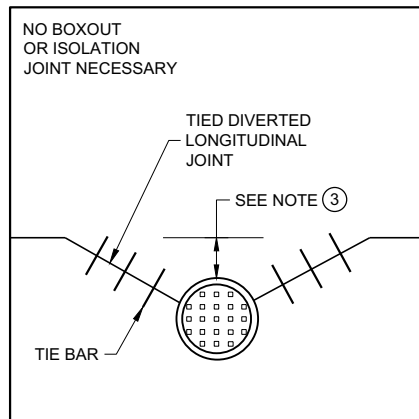
MANHOLE WITH TRANSVERSE JOINT



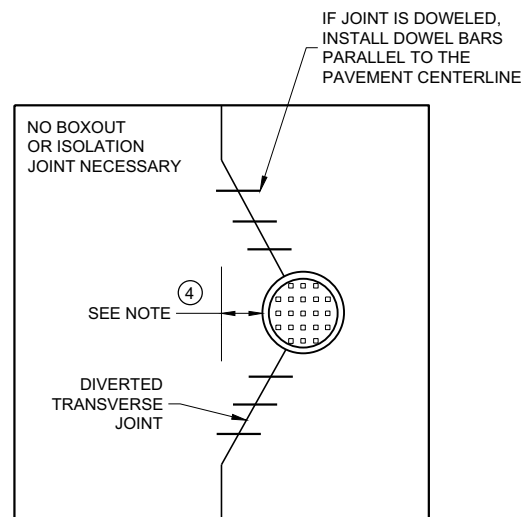
INLET WITH TRANSVERSE JOINT

GENERAL NOTES

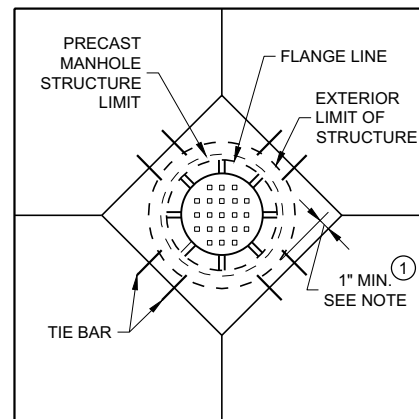
- ① USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1 FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
- ② ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
- ③ IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDINAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ④ IF THE DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS LESS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ⑤ ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.



MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT



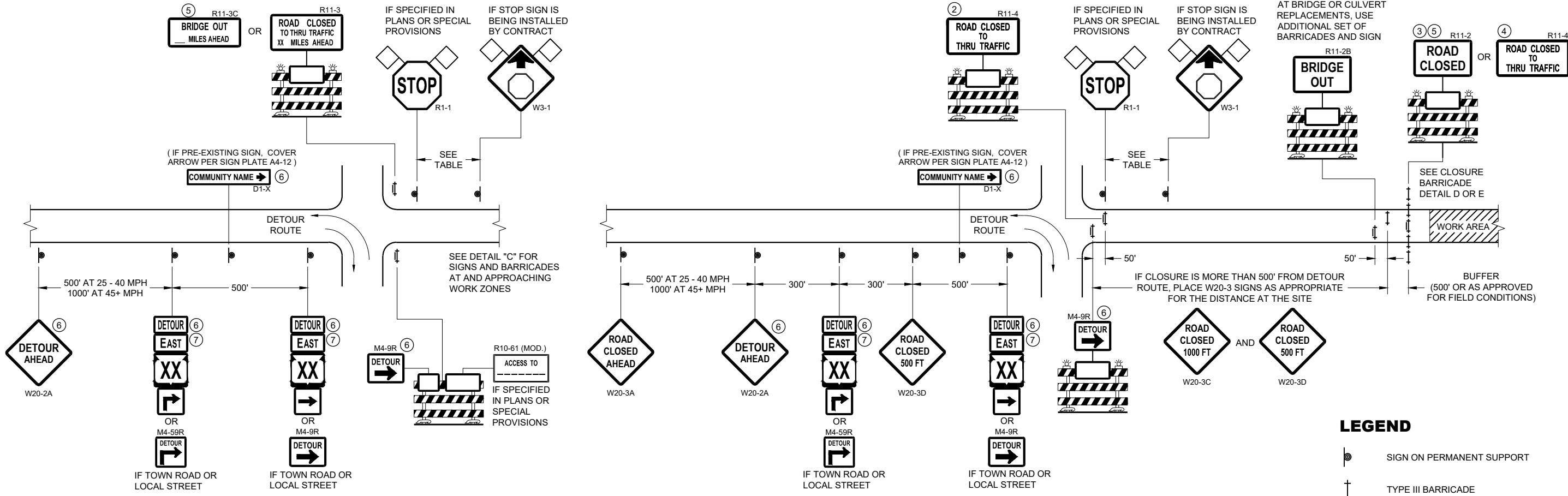
DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS

CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



**DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR**

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

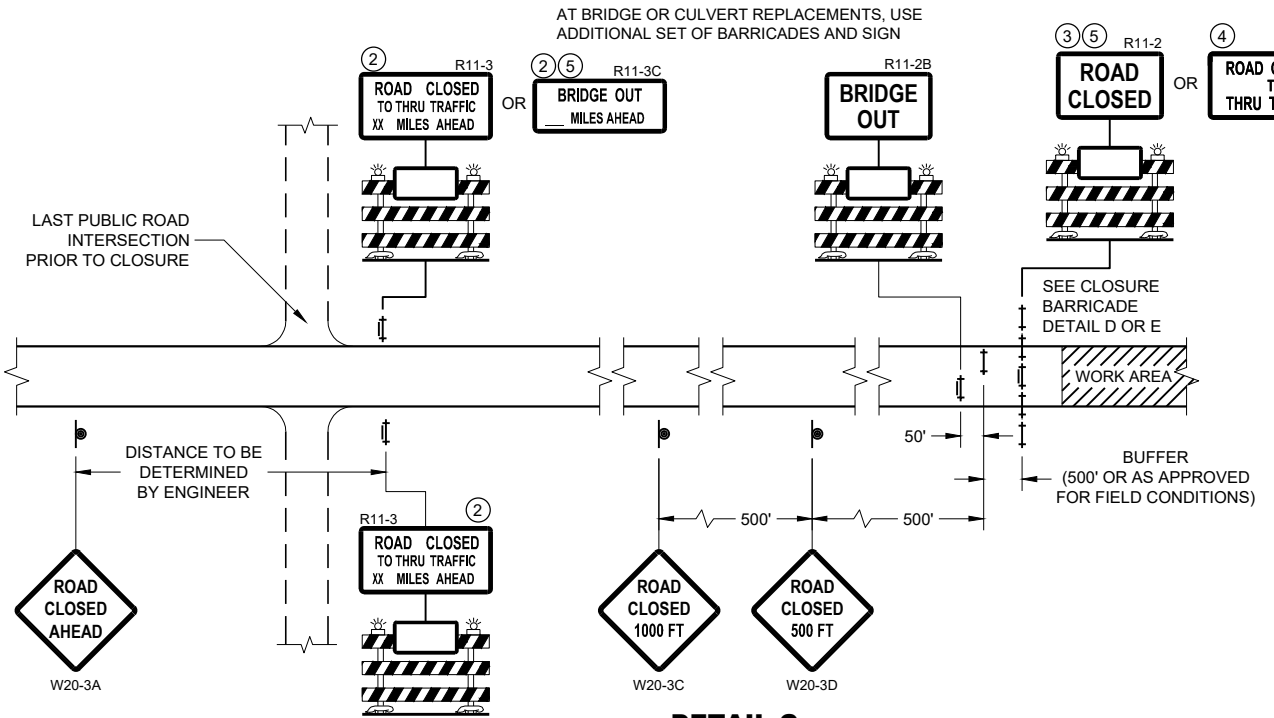
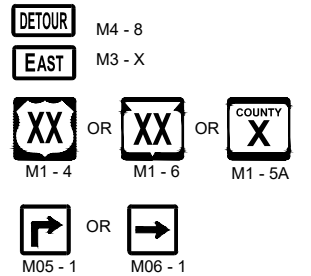
**DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR**

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

LEGEND

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

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



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

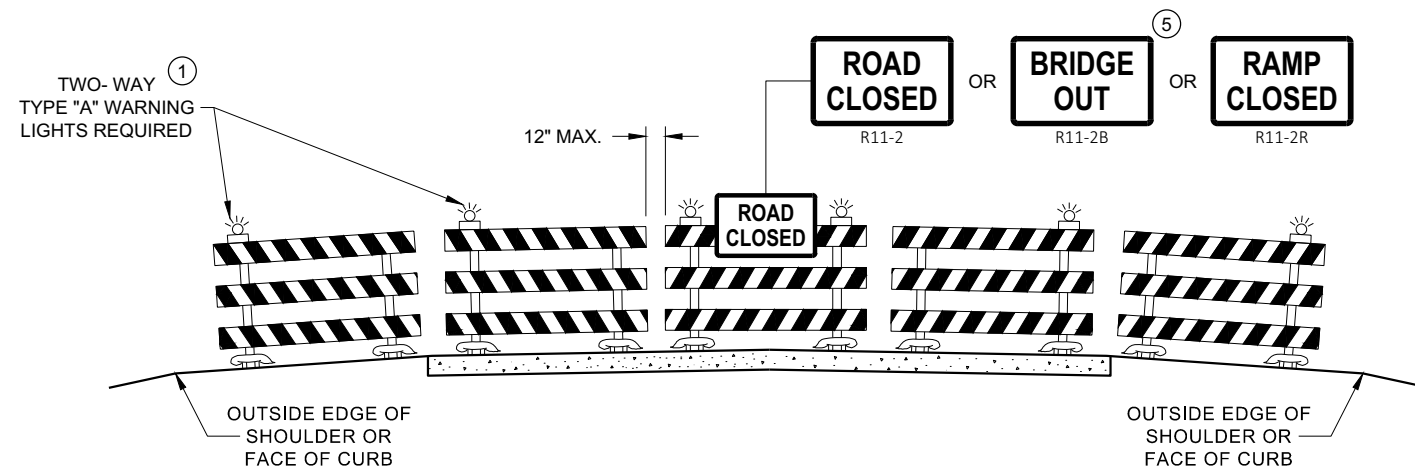
SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

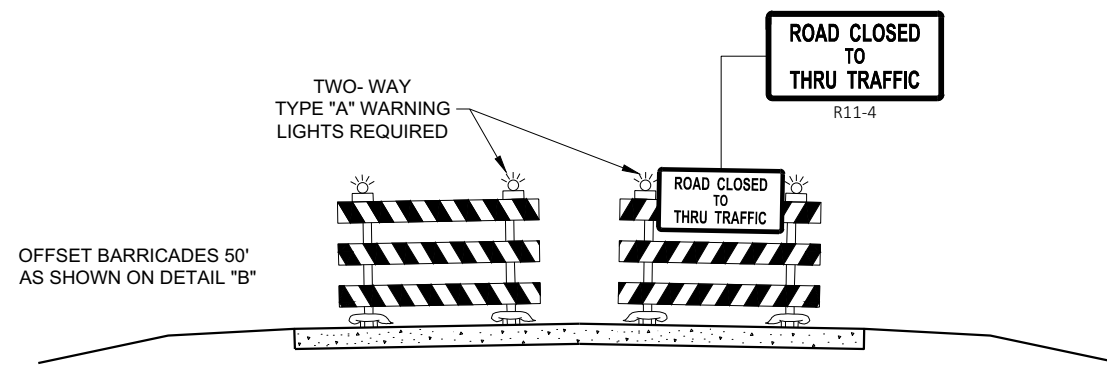
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



**DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW**



**DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

**BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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




FHWA

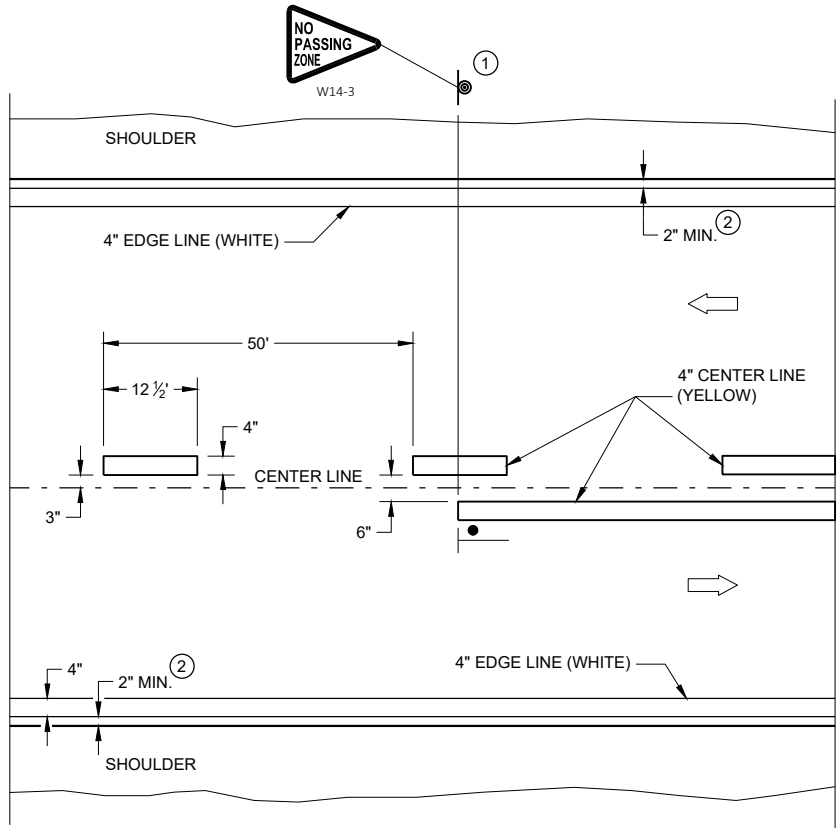
GENERAL NOTES

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

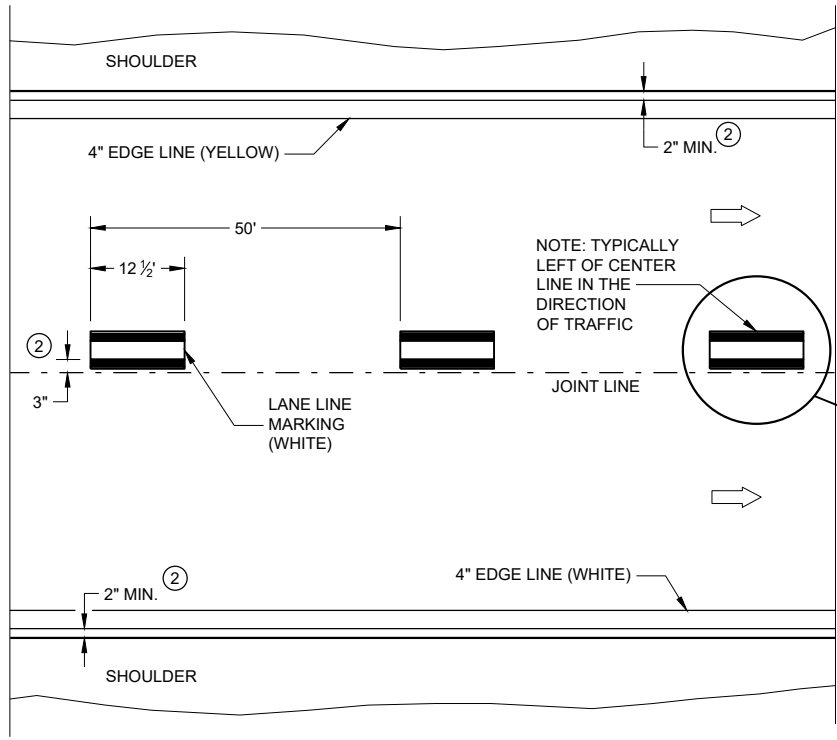
- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

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

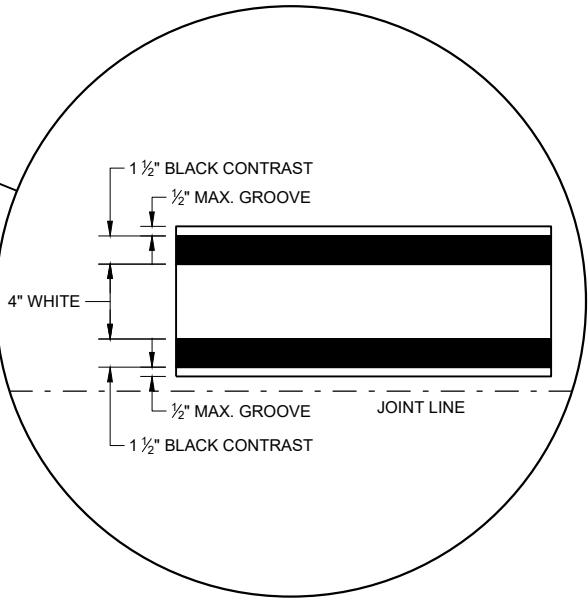


TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



6

6

SDD 15C08 - 22a

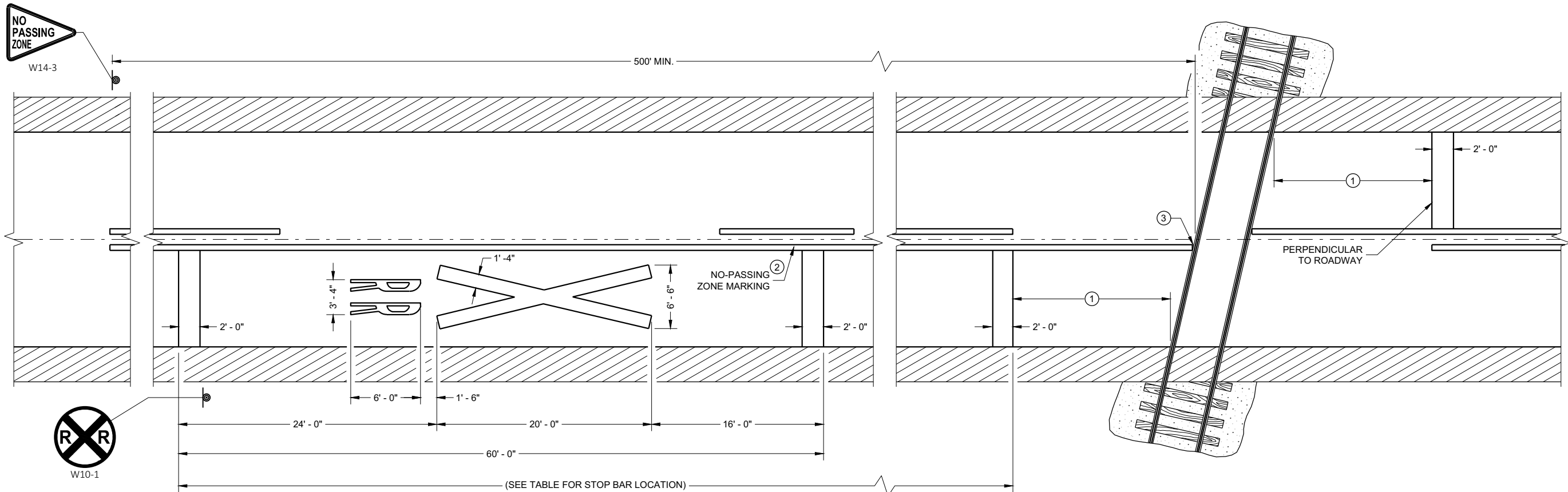
SDD 15C08 - 22a

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: May 2022 /S/ Jeannie Silver
STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



PAVEMENT MARKING

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

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.

ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.

CENTER OR LANE LINES AND NO-PASSING ZONE MARKINGS SHOWN ON THIS DRAWING ARE REQUIRED AND PAID FOR UNDER OTHER ITEMS IN THE CONTRACT.

TRACE EXISTING SYMBOL WHERE EXISTING SYMBOLS ARE PLACED.

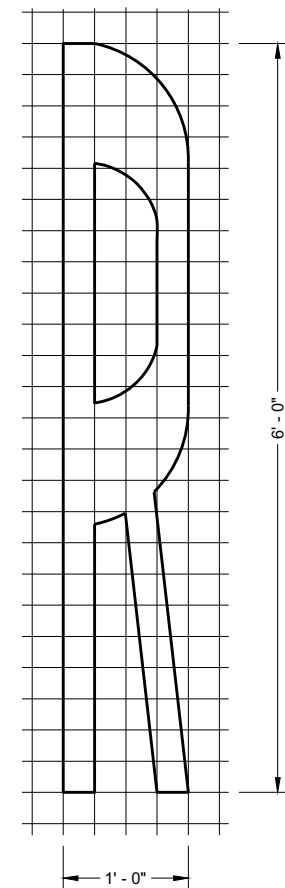
- ① MINIMUM 8' FROM ANY RAILROAD WARNING DEVICES (SIGNAL, GATES, ETC.) OR 25' FROM THE NEAREST RAIL, WHICHEVER DISTANCE IS GREATER.
- ② 500' MINIMUM. MARKING LIMITS MAY BE EXTENDED AS DIRECTED BY THE ENGINEER TO MEET ADJACENT NO-PASSING ZONE MARKINGS.
- ③ FOR MULTIPLE TRACK CROSSINGS, THE BARRIER LINE SHALL EXTEND TO THE NEAR RAIL OF THE FURTHEST TRACK IN THE DIRECTION OF HIGHWAY TRAVEL.

DISTANCE TABLE

TABLE BASED UPON 2C-4 WISCONSIN SUPPLEMENT OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

POSTED SPEED (M.P.H.)	DIMENSION RANGE (FEET)
25	150* - 250'
30	200* - 300'
35	250* - 450'
40	300* - 500'
45	400* - 650'
50	550* - 800'
55	750* - 1000'
60	1000* - 1250'
65	1000* - 1250'

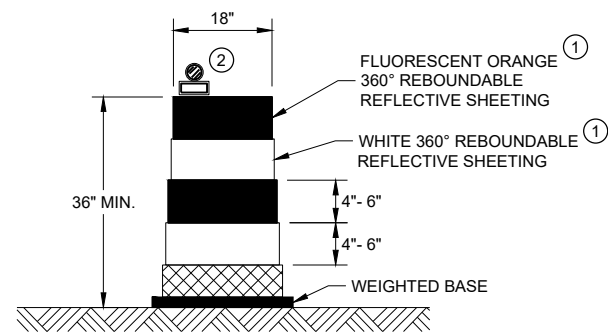
* THE MINIMUM DISTANCES IN THE TABLE ARE DESIRABLE AND SHOULD BE USED. THE DISTANCES MAY BE INCREASED UP TO THE MAXIMUM TO ALLOW FOR FIELD CONDITIONS SUCH AS THE CLOSED PROXIMITY OF DRIVEWAYS, BRIDGES, SIDE ROADS OR OTHER FEATURES THAT WOULD PROHIBIT THE MINIMUM DISTANCES FROM BEING USED.



SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD - HIGHWAY GRADE CROSSINGS

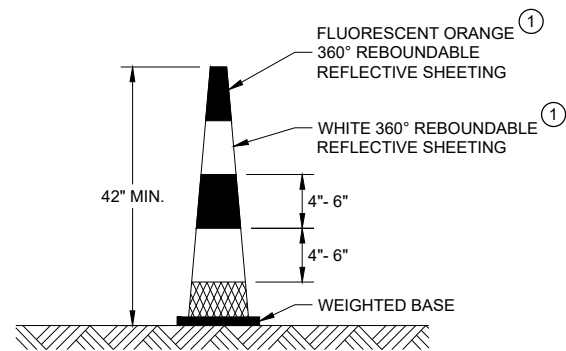
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER



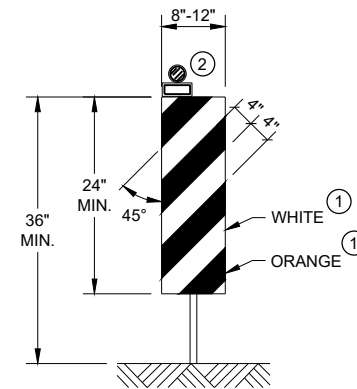
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS
BALLAST WIDTHS
RANGE FROM 14"-20"

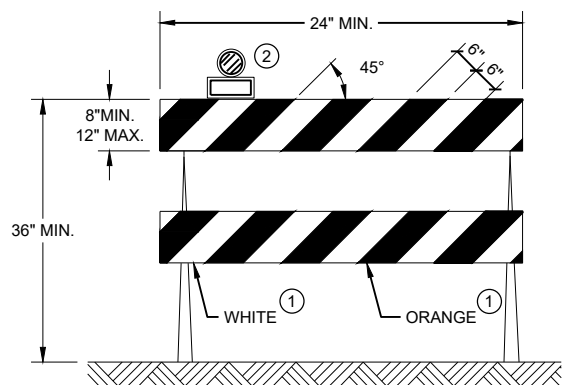


VERTICAL PANEL

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

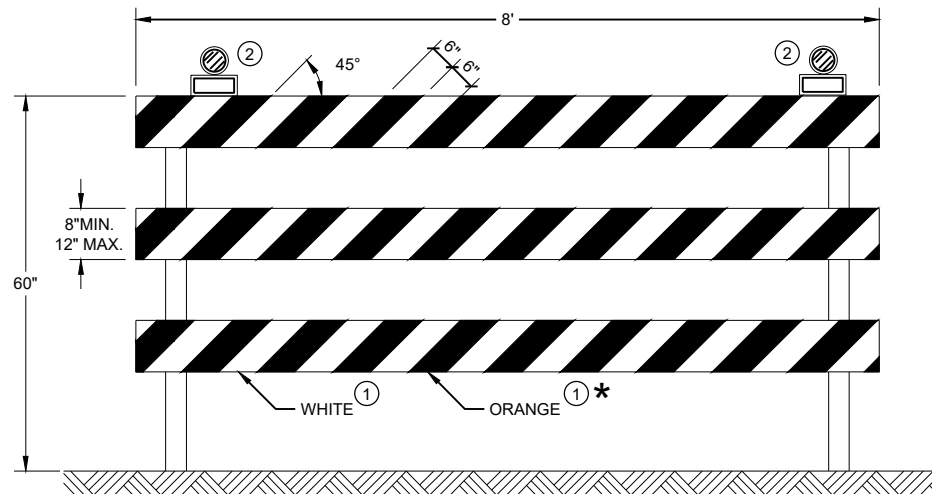
GENERAL NOTES

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



TYPE II BARRICADE

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

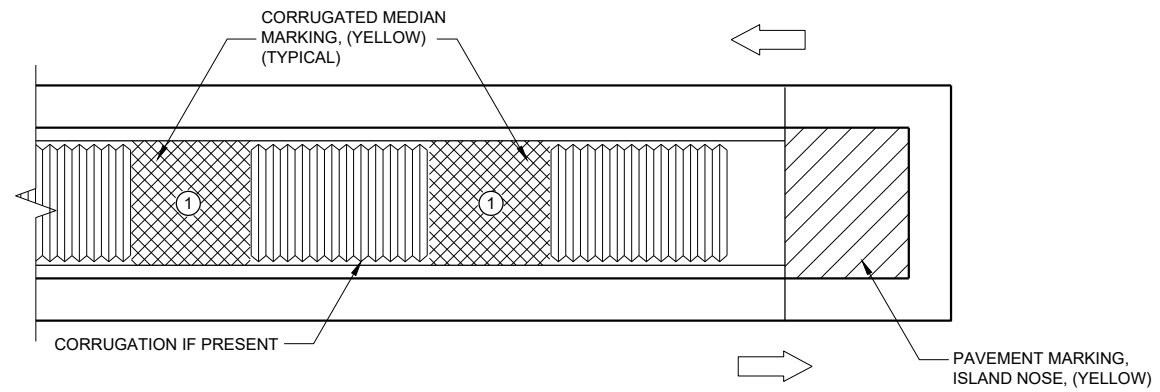


TYPE III BARRICADE

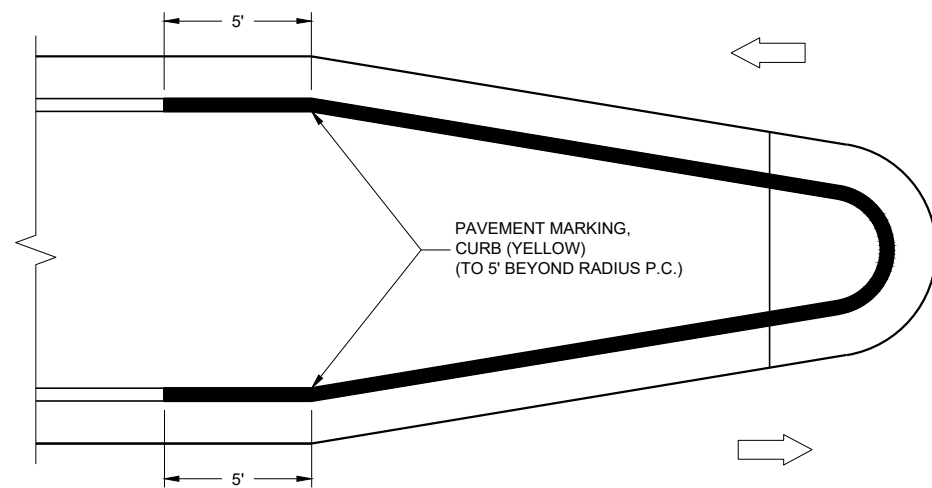
IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

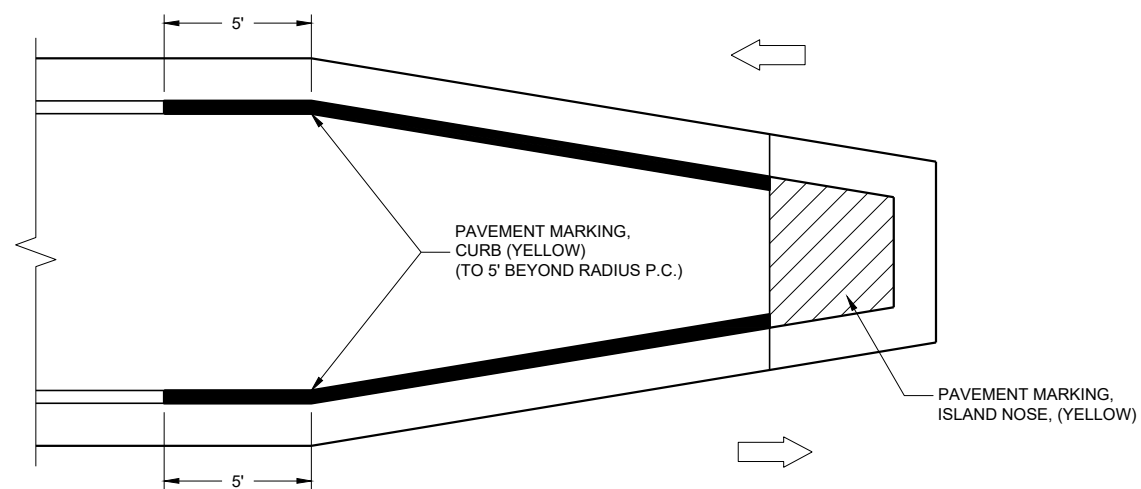
CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



MEDIAN ISLAND WITH SQUARE BLUNT NOSE



MEDIAN ISLAND WITH ROUND BLUNT NOSE



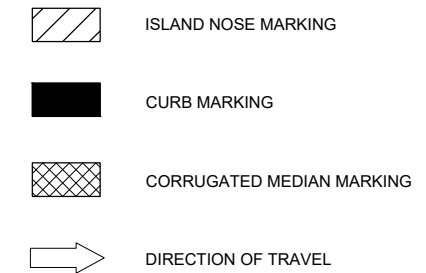
MEDIAN ISLAND WITH SLOPED NOSE

TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS

GENERAL NOTES

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

- ① APPLY PAVEMENT MARKING TO THE FLAT PORTION OF CORRUGATED MEDIAN.



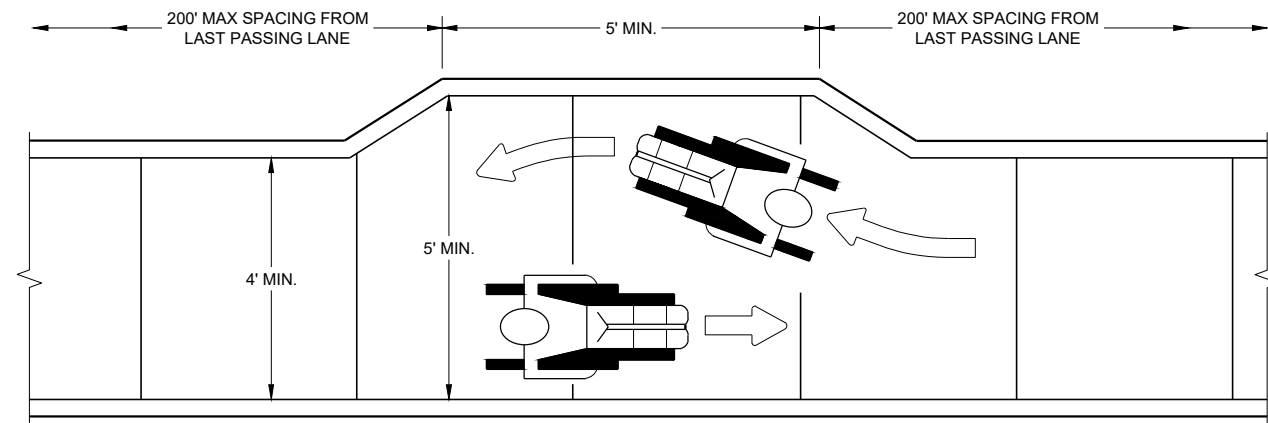
6

6

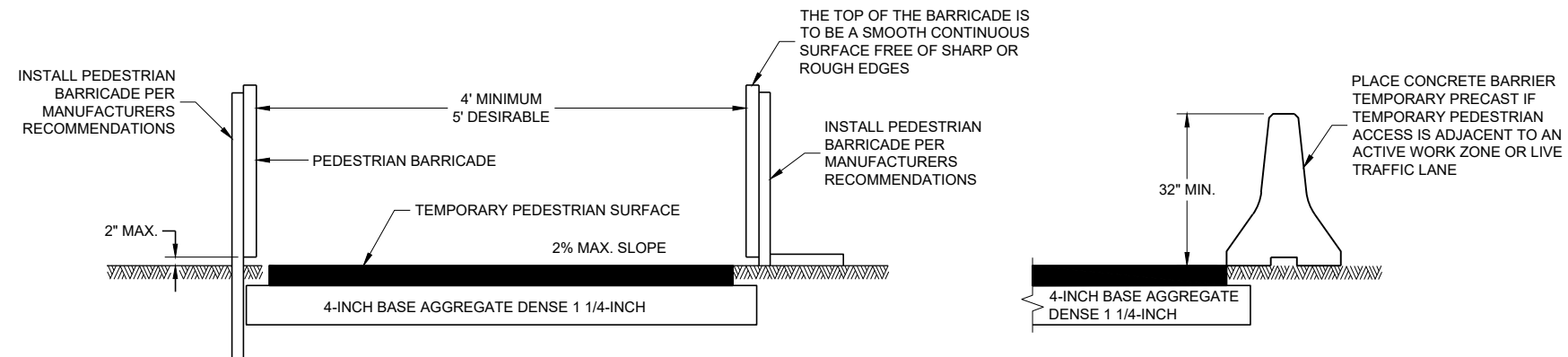
SDD 15C18 - 07b

SDD 15C18 - 07b

PAVEMENT MARKINGS, MEDIAN ISLAND NOSE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Jeannie Silver STATE SIGNING AND MARKING ENGINEER
FHWA	



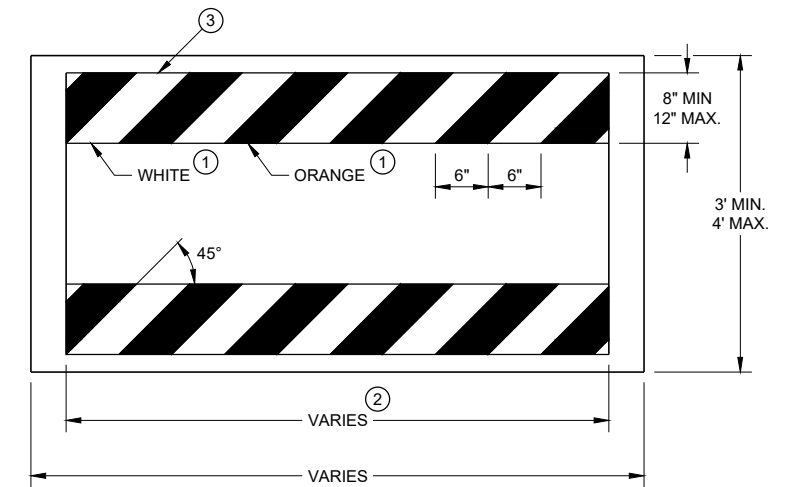
NARROW SIDEWALK PASSING DETAIL



TEMPORARY PEDESTRIAN ACCESS

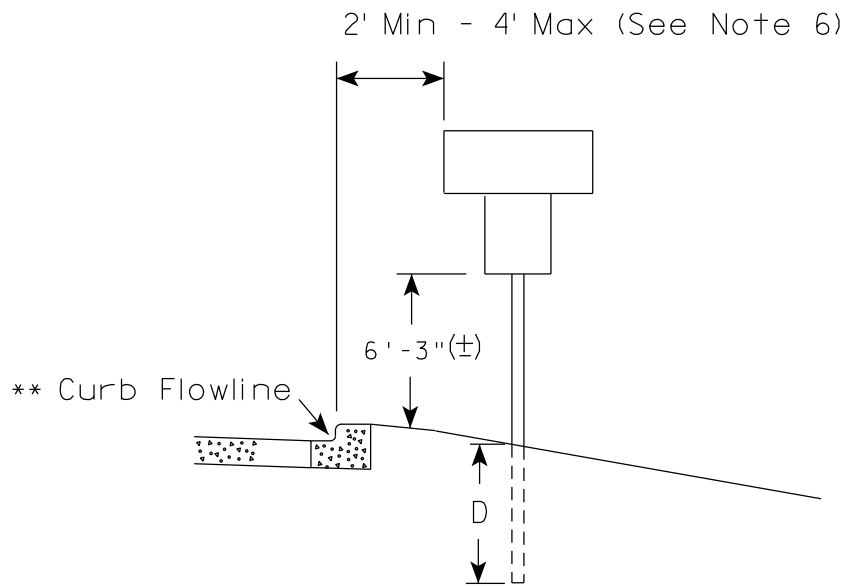
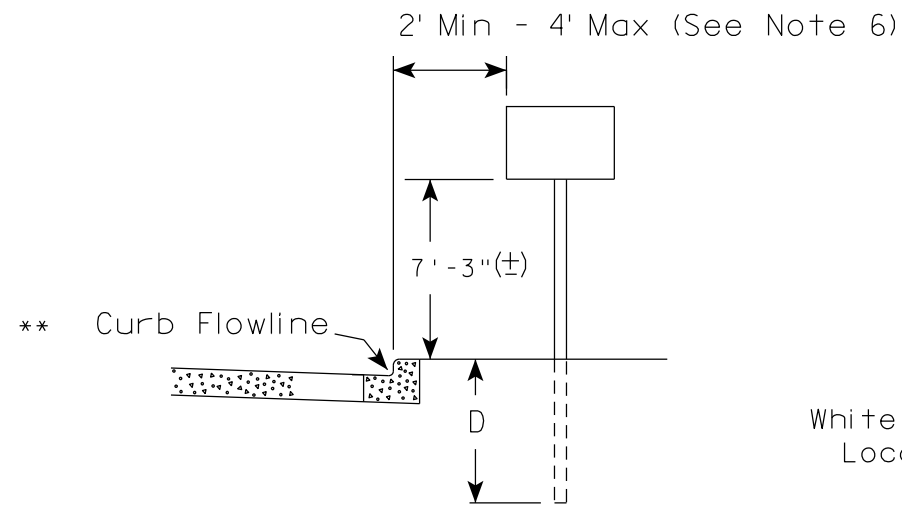
GENERAL NOTES

- 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.

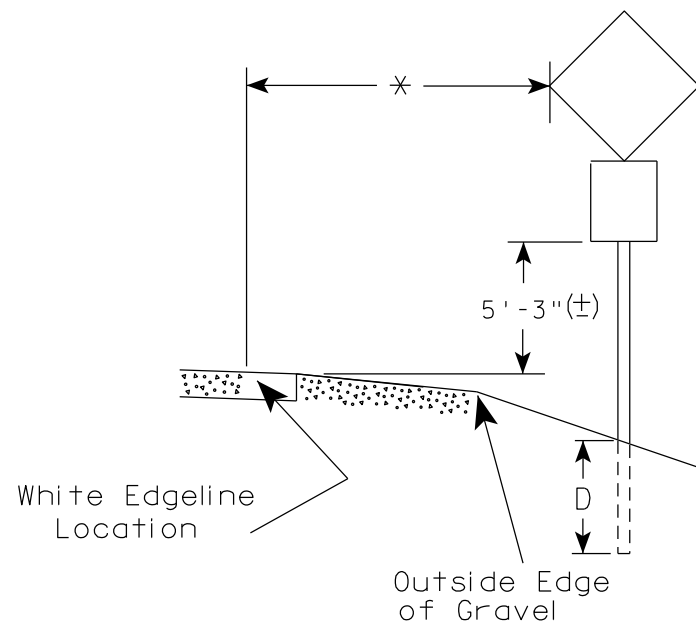
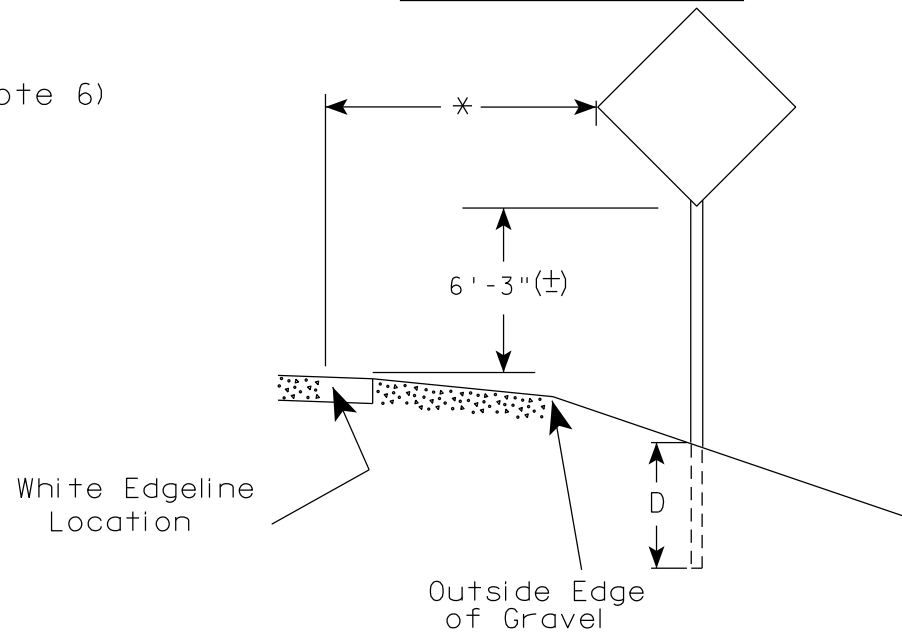


TEMPORARY PEDESTRIAN BARRICADE*

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

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

POST EMBEDMENT DEPTH

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

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

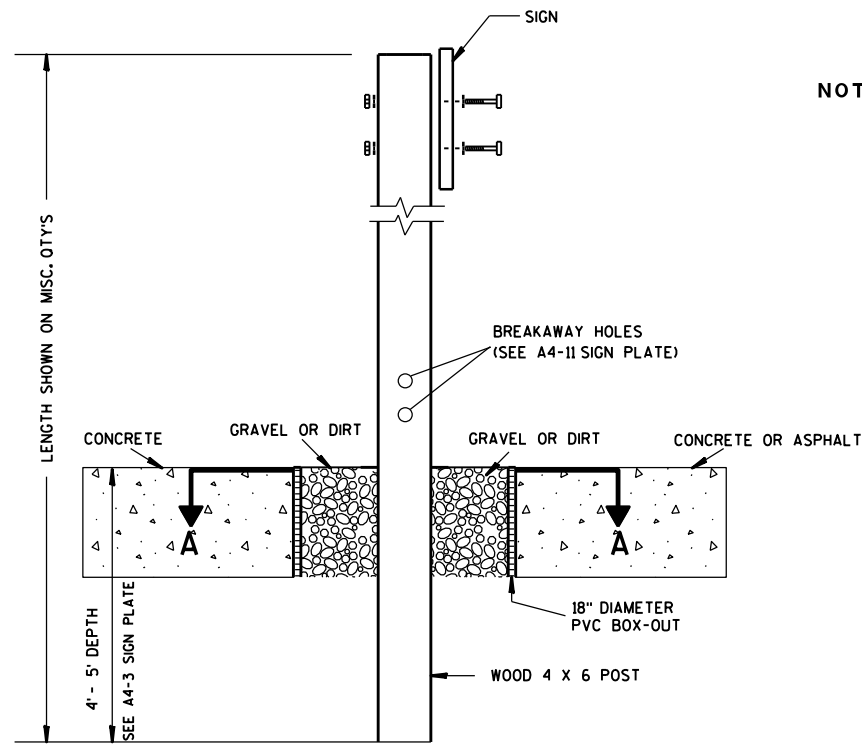
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

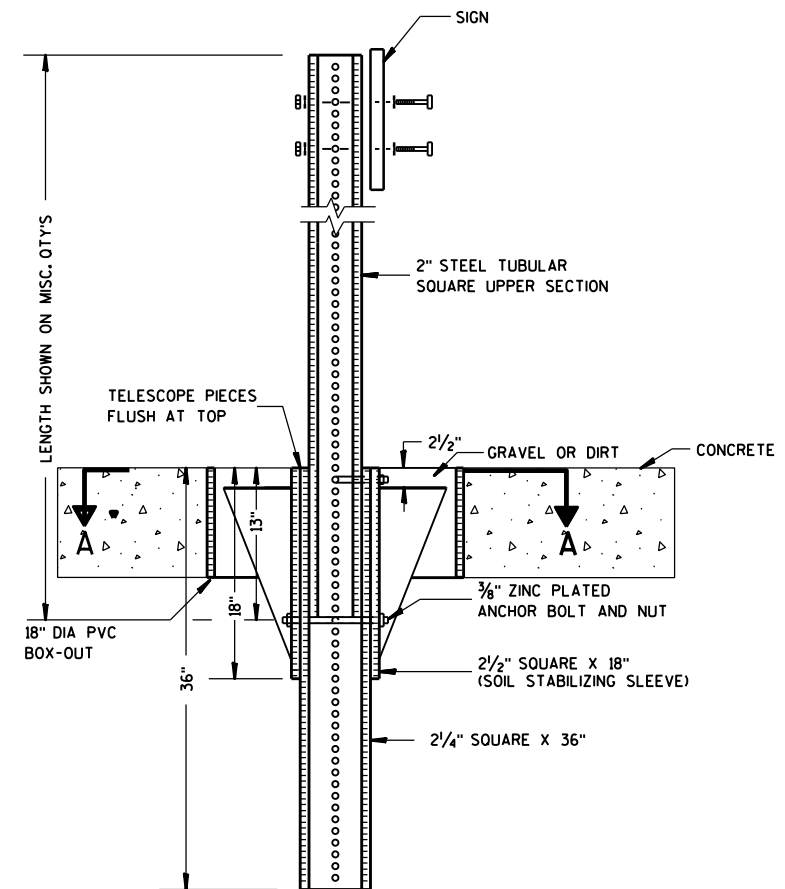
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

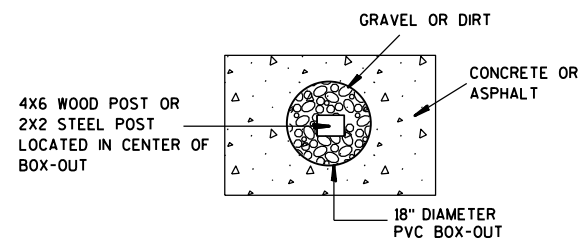
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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 PLATE NO. A4-3B.1

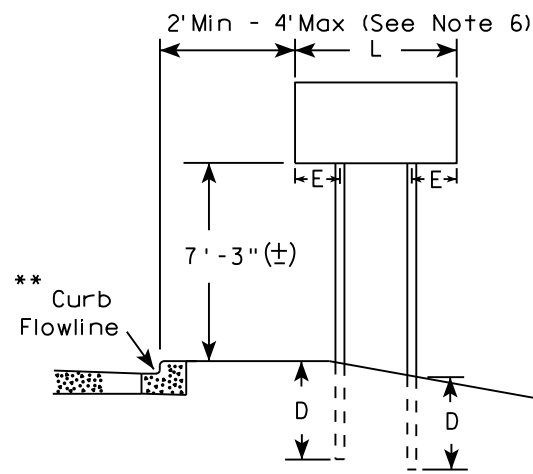
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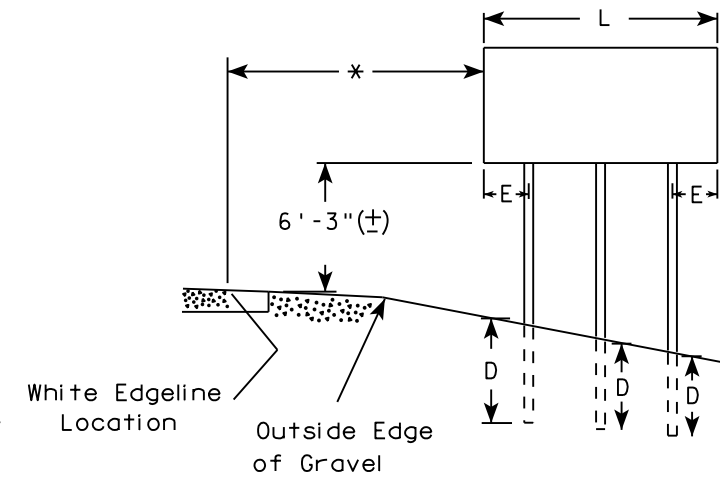
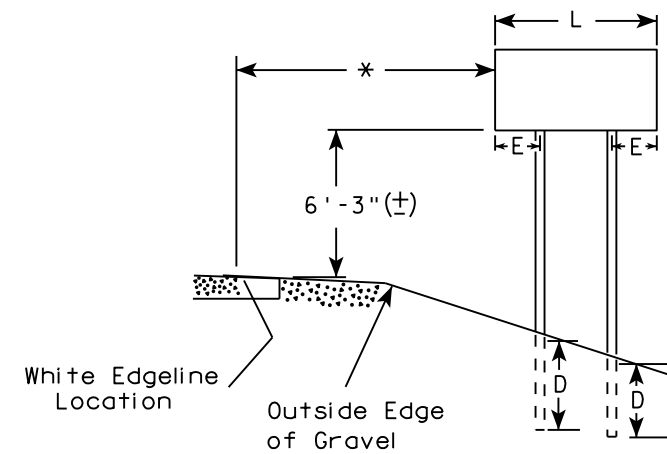
GENERAL NOTES

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

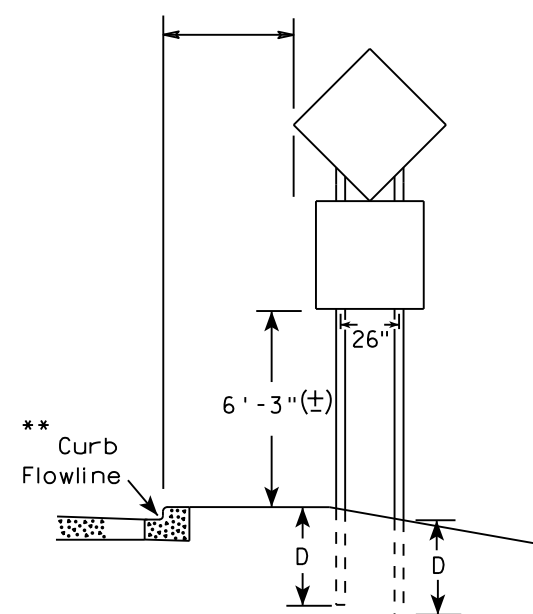
URBAN AREA



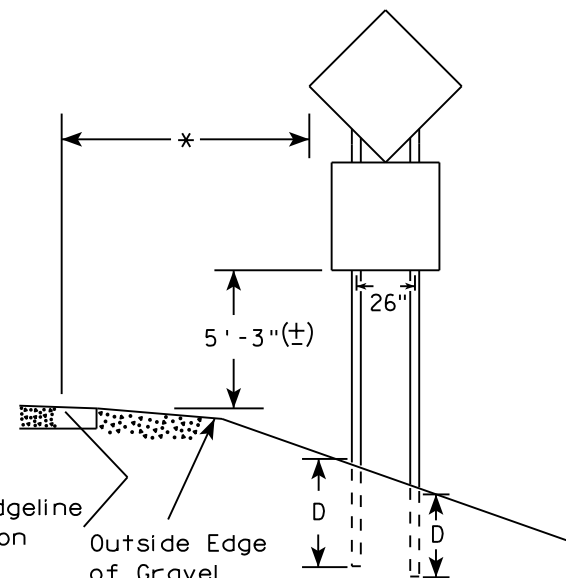
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

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

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

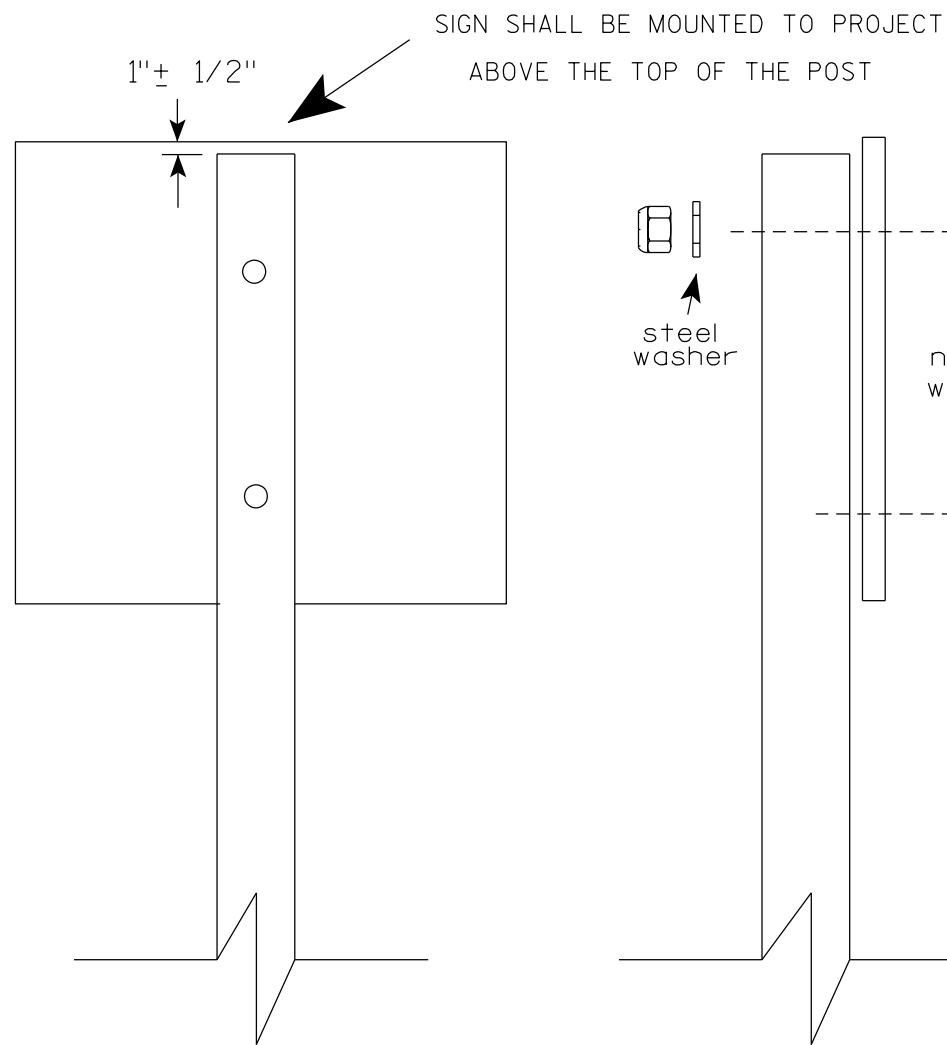
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION
 APPROVED *Matthew R. Rauch*
 For State Traffic Engineer
 DATE 8/21/17 PLATE NO. A4-4.15



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

- Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- 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.

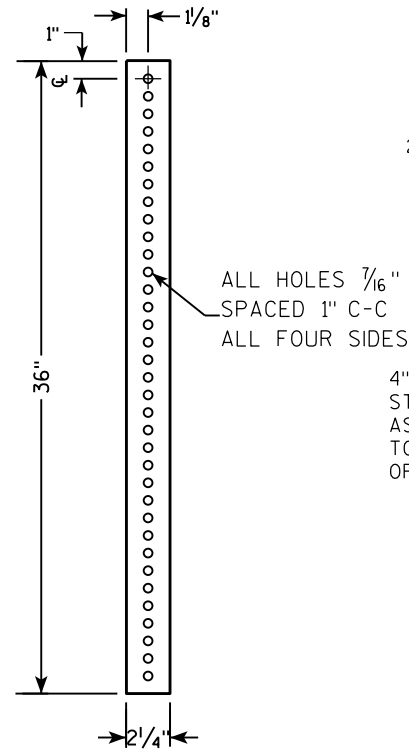
- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 - $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE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

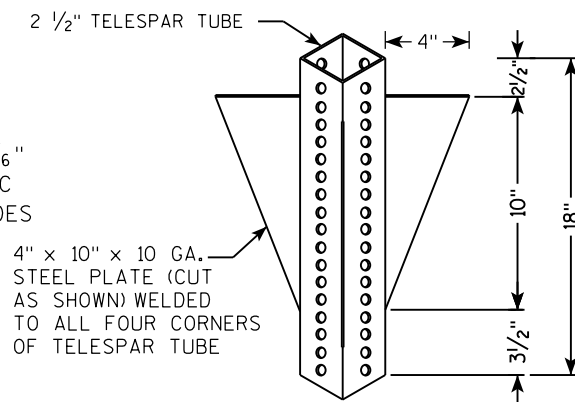
ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

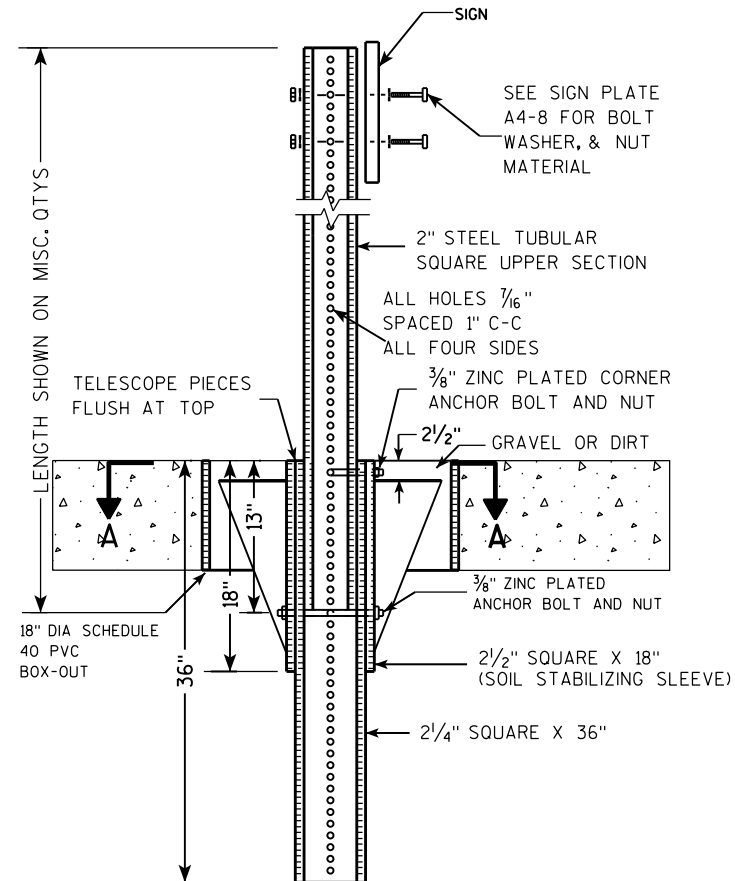
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



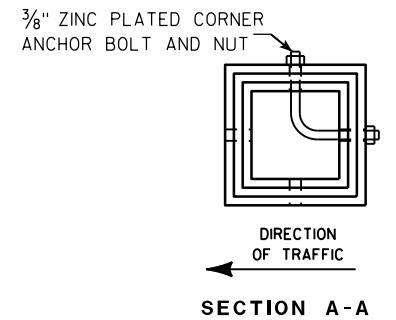
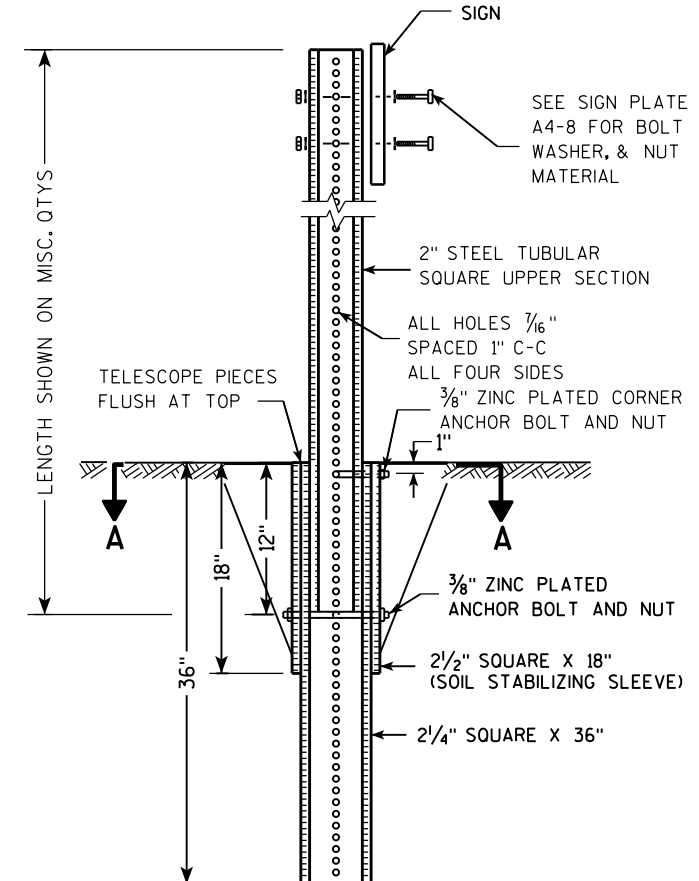
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



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



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



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

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

**TUBULAR STEEL
SIGN POST
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

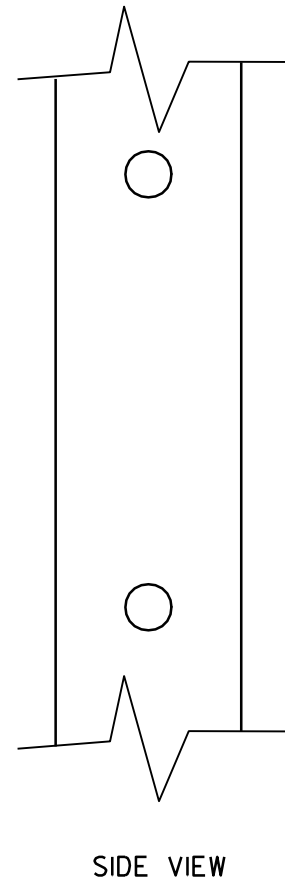
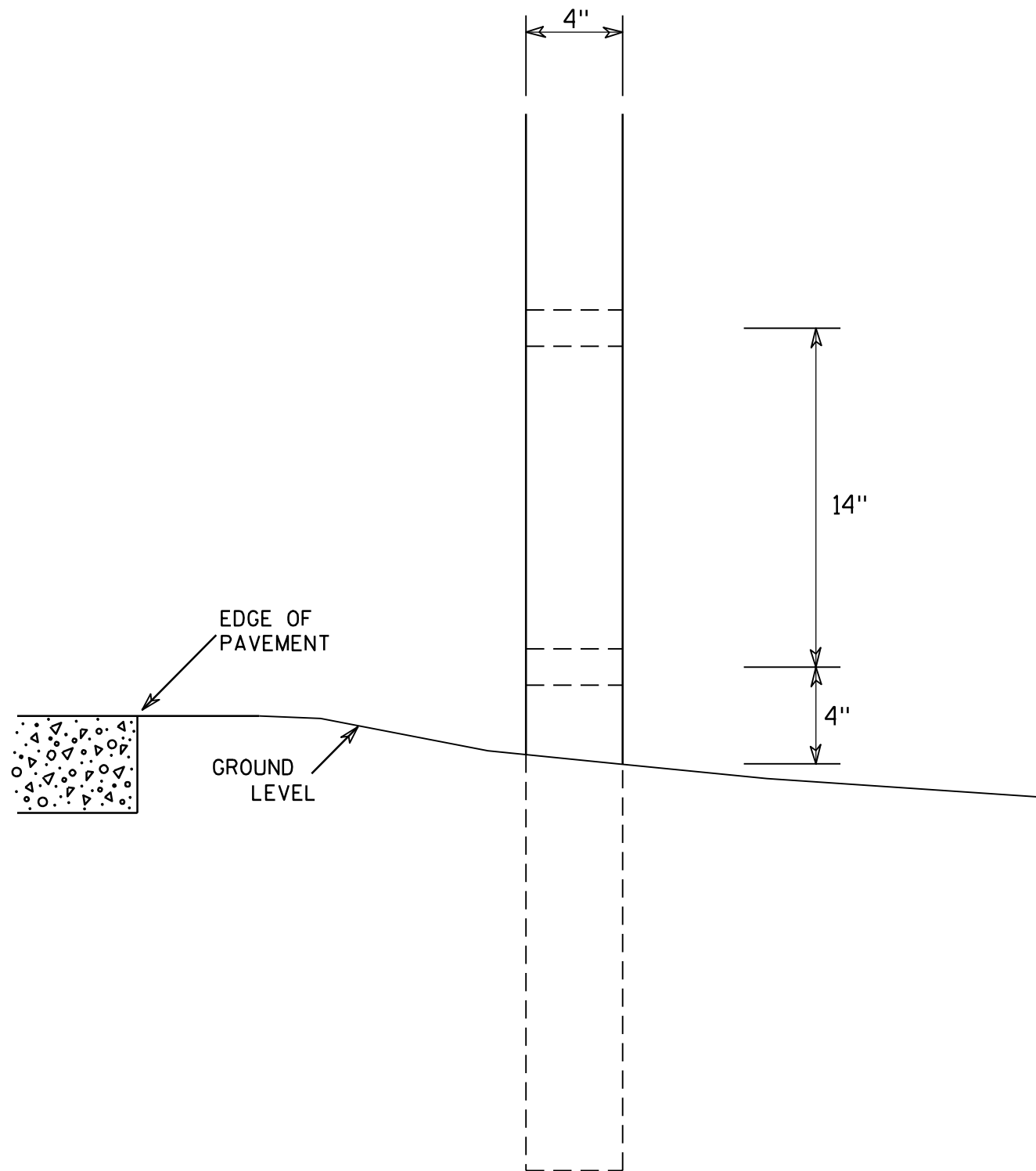
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



GENERAL NOTES

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

7

7

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

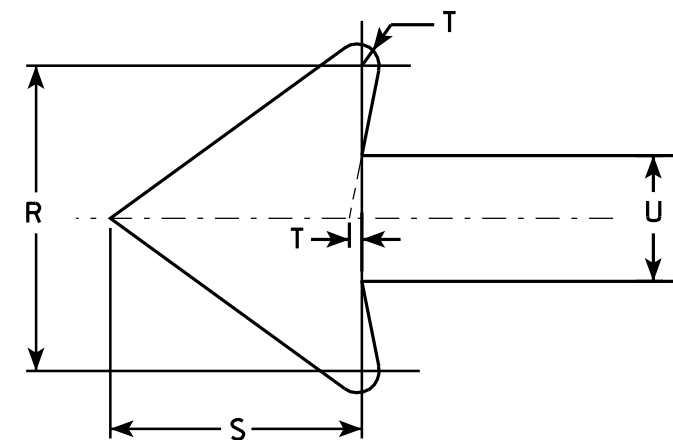


R7-5

* - See Note 5

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Green
3. Message Series - See Note 7
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 as required & adjust spacing to achieve proper balance.
6. R7-5D (double arrow)
R7-5L (left arrow)
R7-5R (right arrow)
7. Lines 1, 2 & 3 are series C Copy
Line 4 Series B Copy.



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	12	18	1 1/8	3/8	3/8	2	2	2 1/4	1 1/4	4	2 1/2	2 1/8	2	2 7/8	4 5/8	4 1/2	3 7/8	1 3/4	1 1/2	1/8	3/4					1.5	
2S	18	24	1 1/8	3/8	1/2	3	3	2 5/8	1 1/4	5 5/8	3 1/4	3 1/8	3 1/8	4 1/4	6 7/8	6 3/4	5 7/8	2 5/8	2 1/4	1/4	1 1/8					3.0	
2M	24	30	1 1/8	3/8	1/2	4	3	3	2	6	3 1/2	4 1/4	4 1/8	5 3/4	9 1/8	9 1/8	7 3/4	3 1/2	3	1/4	1 1/2					5.0	
3	24	30	1 1/8	3/8	1/2	4	3	3	2	6	3 1/2	4 1/4	4 1/8	5 3/4	9 1/8	9 1/8	7 3/4	3 1/2	3	1/4	1 1/2					5.0	
4																											
5																											

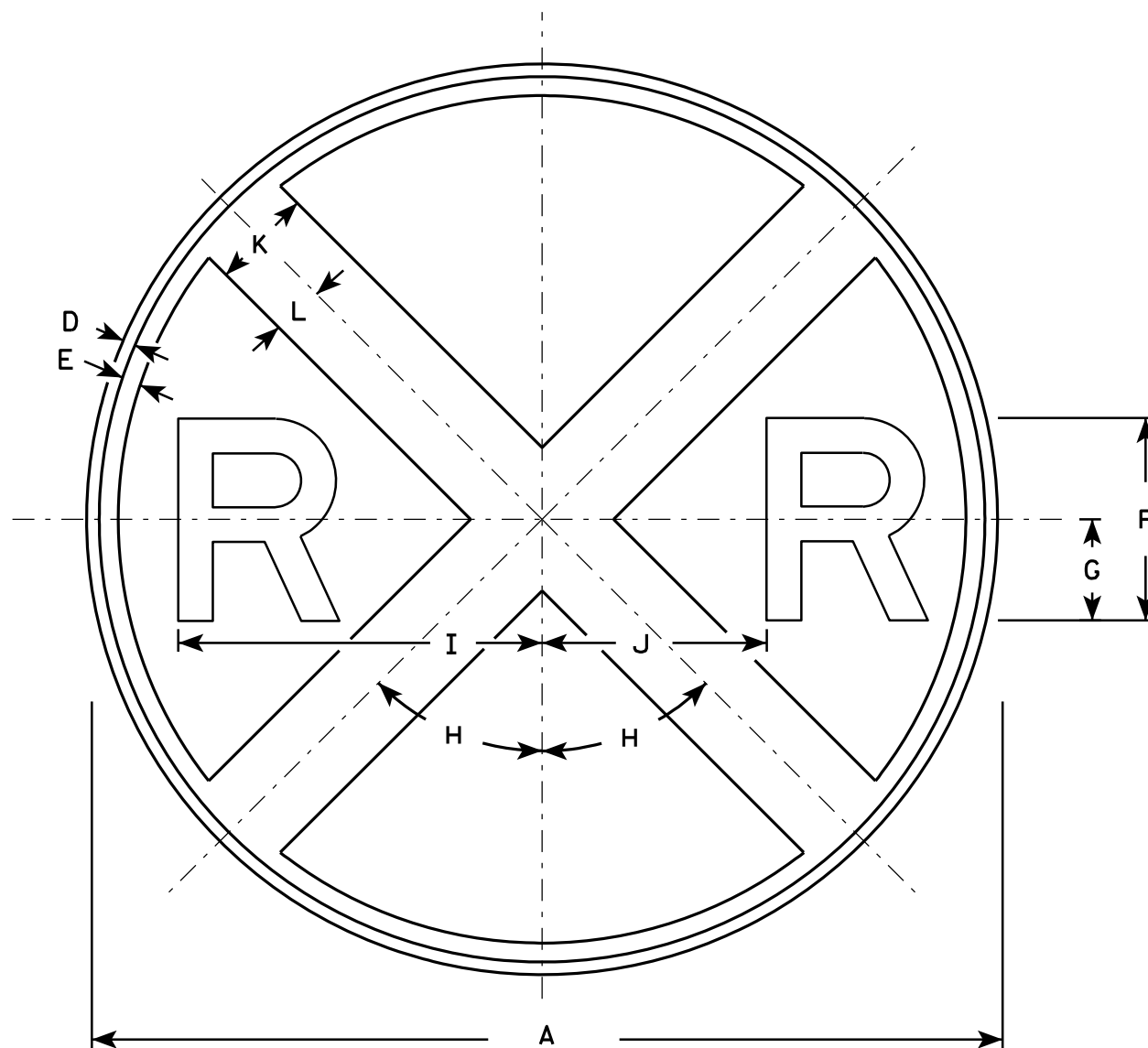
STANDARD SIGN
R7-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 03/31/2011 PLATE NO. R7-5.8

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



W10-1

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Message Series - E

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30			3/8	5/8	7	3 1/2	45°	12 3/8	7 1/8	3	1 1/2															4.91
2S	36			5/8	3/4	8	4	45°	14 3/8	8 5/8	4	2															7.07
2M	36			5/8	3/4	8	4	45°	14 3/8	8 5/8	4	2															7.07
3																											
4	48			3/4	1 1/4	10	5	45°	18 3/8	11 5/8	5	2 1/2															12.57
5																											

STANDARD SIGN
W10-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/13/13 PLATE NO. W10-1.8

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

DESIGN DATA

LIVE LOAD
 DESIGN LOADING : HL-93
 INVENTORY RATING FACTOR : 1.19
 OPERATING RATING FACTOR : 1.55
 WISCONSIN STD. PERMIT VEHICLE (WIS-SPV) = 250 KIPS
 STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

TRAFFIC DATA:
 A.A.D.T. (2023) = 3400
 A.A.D.T. (2043) = 4100
 R.D.S. = 25 MPH

MATERIAL PROPERTIES:
 CONCRETE MASONRY - SLAB, PARAPET, SIDEWALK & MEDIAN $f'_c = 4,000$ P.S.I.
 - ALL OTHER $f'_c = 3,500$ P.S.I.
 BAR STEEL REINFORCEMENT, GRADE 60 $f_y = 60,000$ P.S.I.
 CIP PILING $f_y = 45,000$ P.S.I.

FOUNDATION DATA:
 ABUTMENTS AND PIER TO BE SUPPORTED ON PILING CIP CONCRETE $10\frac{3}{4}$ X 0.25-INCH WITH PILE POINTS. DRIVE ABUTMENT PILES TO A REQUIRED DRIVING RESISTANCE OF 130 TONS * PER PILE AND PIER PILES TO A REQUIRED DRIVING RESISTANCE OF 125 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTHS ARE 50'-0" AT THE ABUTMENT BODIES, 45'-0" AT THE ABUTMENT WINGS AND 50'-0" AT THE PIER.

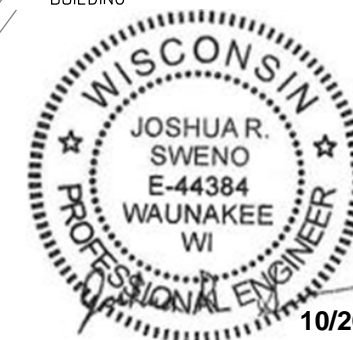
* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA:
 DRAINAGE AREA 87.5 SQ. MI.
 Q_{100} 2,400 C.F.S.
 VELOCITY 3.48 F.P.S.
 WATERWAY AREA 690 SQ. FT.
 HIGH WATER₁₀₀ ELEVATION 753.00
 ROADWAY OVERFLOW DESIGN FREQUENCY N/A
 SCOUR CRITICAL CODE 5
 Q_2 HIGH WATER ELEVATION (670 C.F.S.) 748.53
 VELOCITY₂ 1.78 F.P.S.

LIST OF DRAWINGS

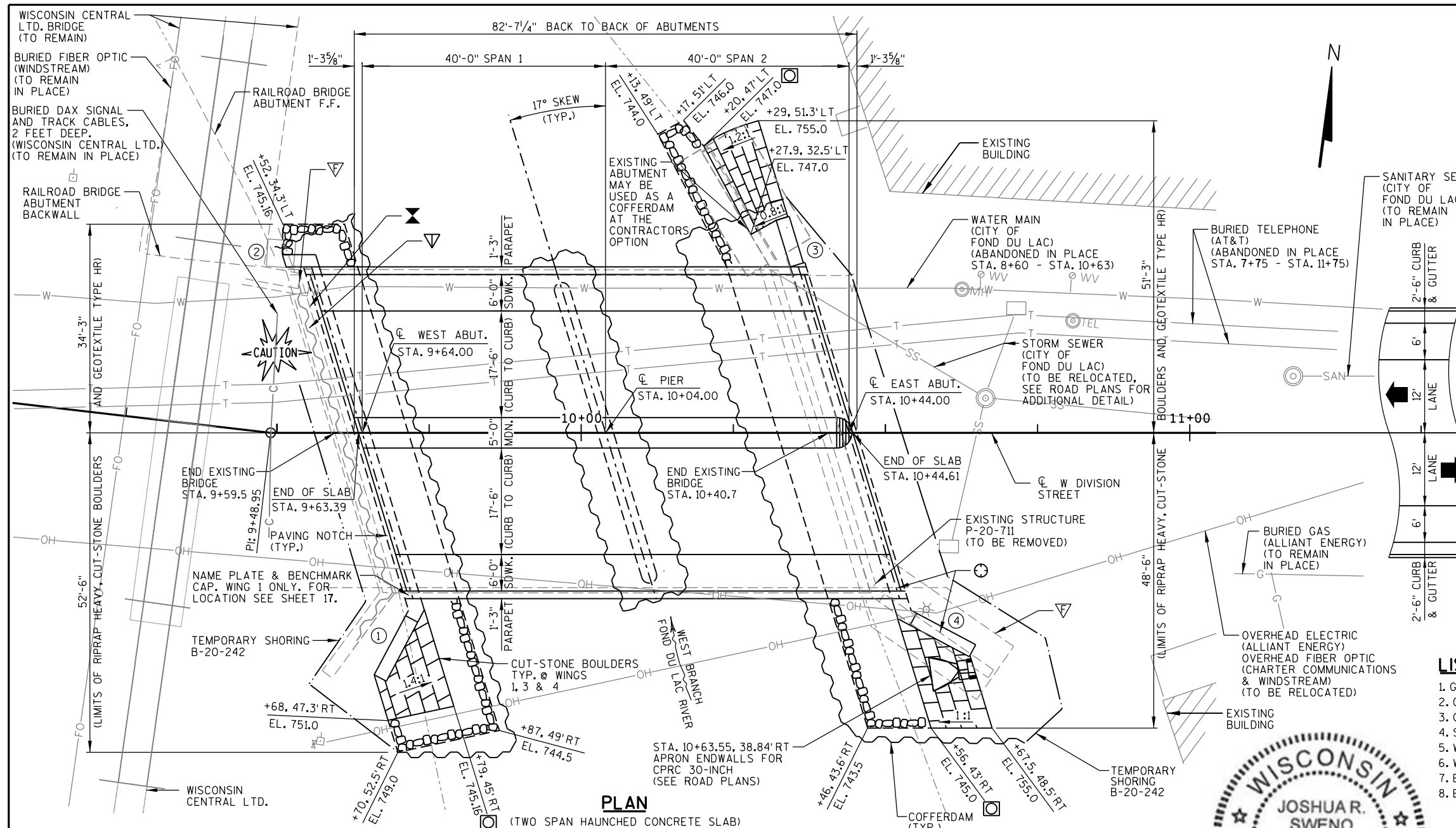
- | | |
|----------------------------|---|
| 1. GENERAL PLAN | 9. PIER |
| 2. CROSS SECTION & DETAILS | 10. PIER & CONSTRUCTION DETAILS |
| 3. QUANTITIES & NOTES | 11. SUPERSTRUCTURE |
| 4. SUBSURFACE EXPLORATION | 12. SUPERSTRUCTURE SECTIONS & DETAILS |
| 5. WEST ABUTMENT | 13. SUPERSTRUCTURE & SIDEWALK SECTIONS |
| 6. WEST ABUTMENT DETAILS | 14. PARAPET & RAILING |
| 7. EAST ABUTMENT | 15. RAILING STEEL TYPE C6 DETAILS |
| 8. EAST ABUTMENT DETAILS | 16. ELECTRICAL CONDUIT PLAN & DETAILS |
| | 17. AESTHETIC & CUT-STONE BOULDER DETAILS |

CONSULTANT DESIGN CONTACT: JOSHUA SWENO (608) 355-8852
 BRIDGE OFFICE CONTACT: AARON BONK (608) 261-0261

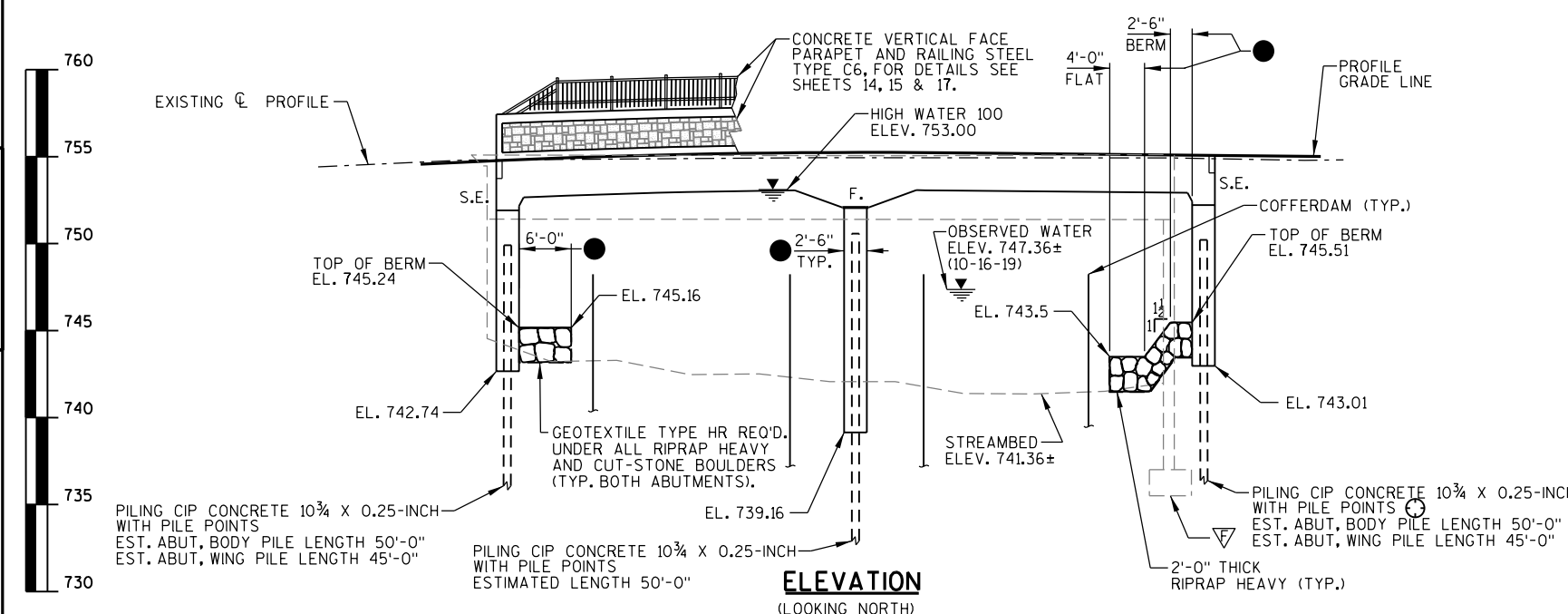


10/26/2022

- - INDICATES WING NUMBER
- ◻ - TOP OF LOWEST COURSE CUT-STONE BOULDERS.
- ▽ - TEMPORARY BRACING OF THE EXISTING WEST ABUTMENT TO BE PROVIDED BY THE CONTRACTOR. SEE "TEMPORARY BRACING RAILROAD" SPECIAL PROVISION FOR ADDITIONAL DETAILS.
- ⚡ - B-20-242 WEST ABUTMENT TO BE CONSTRUCTED IN FRONT OF EXISTING ABUTMENT. THE EXISTING WEST ABUTMENT SHALL NOT BE COMPLETELY REMOVED. ALL VOIDS BETWEEN THE NEW WEST ABUTMENT BACK FACE AND EXISTING WEST ABUTMENT FRONT FACE SHALL BE FILLED WITH BACKFILL CONTROLLED LOW STRENGTH. SEE THE GENERAL NOTES AND SPECIAL PROVISIONS FOR ADDITIONAL DETAILS.
- ⊕ - PREBORING THROUGH FOOTING CONFLICTS OR REMOVAL OF PORTIONS OF THE EXISTING EAST ABUTMENT SPREAD FOOTINGS IN CONFLICT WITH PROPOSED STRUCTURE IS INCLUDED IN BID ITEM "REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS P-20-711".
- ▽ - EXISTING ABUTMENT AND FOOTINGS SHOWN ARE BASED ON ORIGINAL PLANS FOR STRUCTURE P-20-711. ACTUAL FOOTINGS MAY VARY. FIELD VERIFY LOCATION OF EXISTING FOOTINGS BEFORE DRIVING PILES. ADJUST LOCATION OF NEW PILES UP TO 8'-0" MAXIMUM PILE SPACING TO AVOID EXISTING FOOTINGS. ADJUSTING LOCATION OF THE END PILES AND WING PILES IS NOT ALLOWED UNLESS APPROVED BY THE ENGINEER.
- - DIMENSIONS ARE NORMAL TO THE ϕ OF SUBSTRUCTURE UNITS.



PLAN
 (TWO SPAN HAUNCHED CONCRETE SLAB)



ELEVATION
 (LOOKING NORTH)

NO.	DATE	REVISION	BY

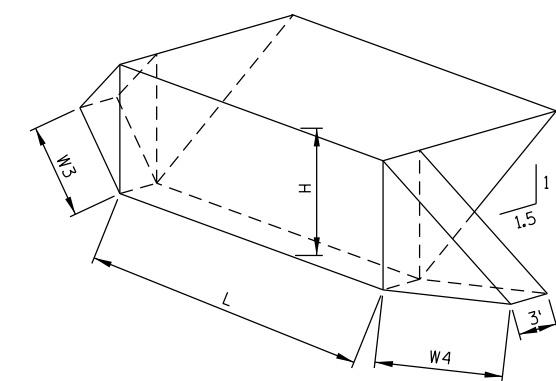
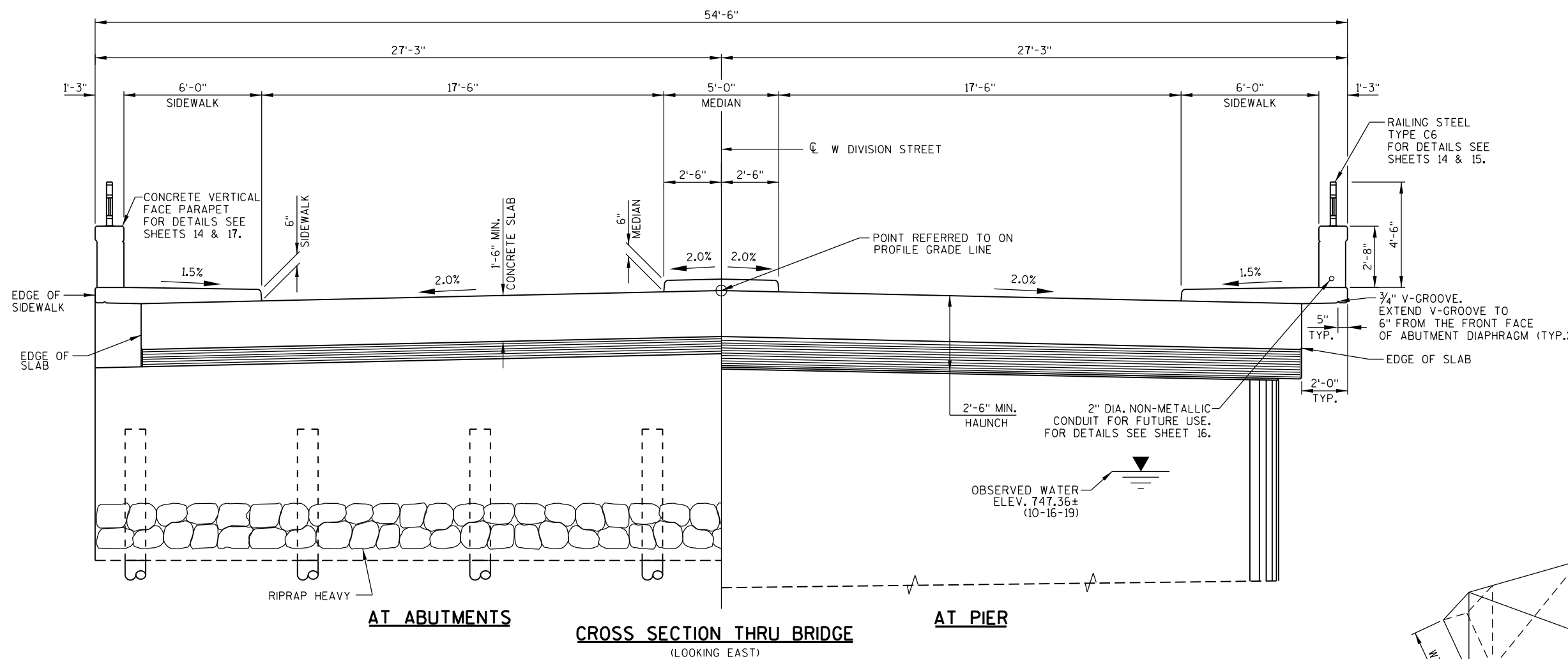
ENGINEERING | ARCHITECTURE | SURVEYING
 FUNDING | PLANNING | ENVIRONMENTAL
MSA
 1702 PANKRATZ STREET, MADISON WI 53704
 (608) 242-7779 www.msa-ps.com
 © MSA Professional Services, Inc.

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 ACCEPTED *[Signature]* SDR 11/14/22
 CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-20-242
 W DIVISION STREET OVER
 WEST BRANCH FOND DU LAC RIVER
 COUNTY FOND DU LAC TOWN/CITY/VILLAGE FOND DU LAC

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
 DESIGNED BY NJK DESIGN CK'D. JRS DRAWN BY RLR PLANS CK'D. JRS

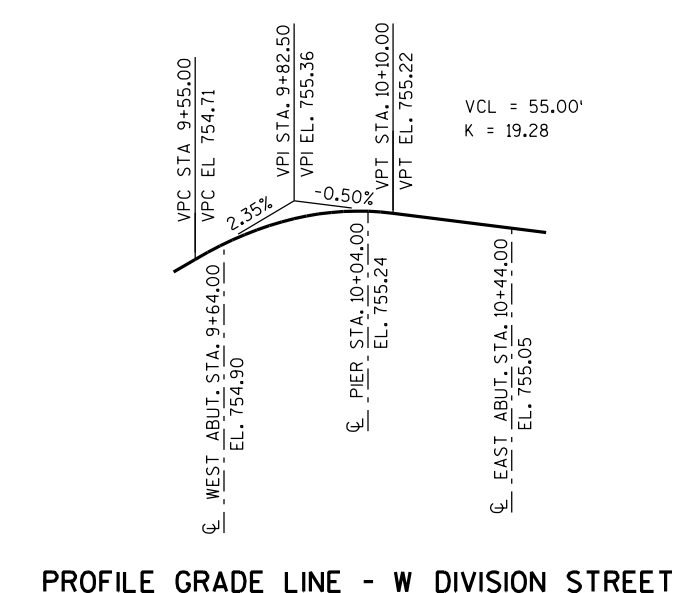
GENERAL PLAN SHEET 1 OF 17



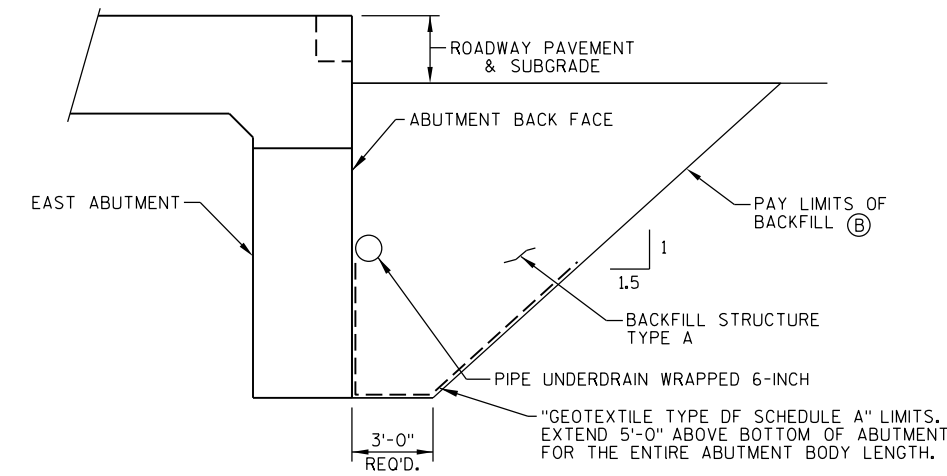
ABUTMENT BACKFILL DIAGRAM

L = OUT-TO-OUT OF ABUTMENT (FT)
 H = AVERAGE ABUTMENT FILL HEIGHT (FT)
 $W3$ = WING 3 LENGTH (FT)
 $W4$ = WING 4 LENGTH (FT)
 $V_{CF} = (L)(3.0)(H) + (L)(0.5)(1.5)(H) + (0.5)(H)(W3+W4)(3.0)$
 $V_{TON} = V_{CF} (2.0)/27$

NOTE: APPLIES TO THE EAST ABUTMENT AND WING 1



PROFILE GRADE LINE - W DIVISION STREET



EAST ABUTMENT STRUCTURE BACKFILL DETAIL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-20-242	
DRAWN BY		RLR	PLANS CK'D. JRS
CROSS SECTION & DETAILS			SHEET 2 OF 17

8

8

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY, CUT-STONE BOULDERS AND GEOTEXTILE TYPE HR TO THE LIMITS SHOWN ON SHEET 1, SHEET 17, AND ON THE ABUTMENT SHEETS OR AS DIRECTED BY THE ENGINEER.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES" FOR THE ABUTMENTS. THE EXISTING STREAMBED ELEVATION 741.36± SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES" FOR THE PIER.

EXCAVATIONS OF THE STREAMBED FOR THE PIER AND ABUTMENT CONSTRUCTION SHALL BE BACKFILLED WITH BREAKER RUN TO THE ELEVATION OF THE STREAMBED PRIOR TO REMOVING THE COFFERDAM SHEETING.

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

THIS STRUCTURE WILL REPLACE EXISTING BRIDGE P-20-711, A 53.0 FT. WIDE, 81.2 FT. LONG SINGLE SPAN PRESTRESSED CONCRETE BOX GIRDER BRIDGE ON FULL RETAINING ABUTMENTS. THE EXISTING WEST ABUTMENT CONSISTS OF A CONCRETE CAP ON DRIVEN SHEET PILING AND THE EXISTING EAST ABUTMENT CONSISTS OF CONCRETE FULL RETAINING SUPPORTED ON A SPREAD FOOTING.

THE EXISTING WEST ABUTMENT SHALL NOT BE COMPLETELY REMOVED. LIMITS OF REMOVAL AT THE WEST END OF THE BRIDGE SHALL BE TO THE BOTTOM OF THE PRESTRESSED BOX GIRDERS. THE SOUTHWEST WING SHALL BE REMOVED TO THE LIMITS NECESSARY TO CONSTRUCT WING 1.

ALL VOIDS BETWEEN THE NEW WEST ABUTMENT BACK FACE AND EXISTING WEST ABUTMENT FRONT FACE SHALL BE FILLED WITH BACKFILL CONTROLLED LOW STRENGTH.

FORMS ALONG THE BACK FACE OF THE NEW WEST ABUTMENT SHALL BE REMOVABLE. THE EXISTING WEST ABUTMENT SHALL NOT BE USED AS A FORM.

CONCRETE BOND BREAKER SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE EXISTING WEST ABUTMENT FRONT FACE BEFORE THE NEW WEST ABUTMENT IS POURED AND BACKFILL CONTROLLED LOW STRENGTH IS PLACED. CONCRETE BOND BREAKER QUANTITY REQUIRED SHALL BE INCIDENTAL TO THE CONCRETE MASONRY BID ITEM.

ⓑ- BACKFILL PAY LIMITS, BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

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, EXCEPT WHERE BACKFILL CONTROLLED LOW STRENGTH IS PLACED AT THE WEST ABUTMENT. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIAL REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 5'-0" ABOVE BOTTOM OF ABUTMENT.

DO NOT PLACE FILL ABOVE 3'-0" FROM THE BOTTOM OF ABUTMENT UNTIL THE SUPERSTRUCTURE IS IN PLACE.

ABUTMENTS AND PIER SHALL BE POURED UNDER DRY CONDITIONS.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE EXPOSED TOP OF SLAB, THE FACE AND TOP OF SIDEWALKS, THE FACE AND TOP OF MEDIAN, THE FACE AND TOP OF PAVING NOTCHES, THE TOP OF WINGS, THE EXTERIOR EXPOSED FACE OF WING 2, AND THE EXTERIOR EXPOSED FACE BLANK STRIPS ON WING 1, 3, AND 4.

PIGMENTED SURFACE SEALER SHALL BE APPLIED TO THE INSIDE FACES, THE TOP FACES, AND THE VERTICAL ENDS OF THE PARAPETS.

AS DETAILED ON SHEET 17, APPLY ARCHITECTURAL SURFACE TREATMENT AND CONCRETE STAINING MULTI-COLOR TO THE WINGS AND THE OUTSIDE FACE OF THE PARAPETS. SEE SPECIAL PROVISIONS FOR ADDITIONAL FORMLINER PATTERN AND CONCRETE STAINING DETAILS.

PARAPET, SIDEWALKS, AND MEDIAN ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO USGS NAVD 88 (2012 ADJUSTED). BENCHMARK REFERENCES AT THE PROJECT SITE WERE SET BY THE CONSULTANT USING GPS TECHNOLOGY.

TOTAL ESTIMATED QUANTITIES

⊖- CATEGORY 0030 BID ITEMS. ALL OTHER BID ITEMS ARE CATEGORY 0020.

ITEM NUMBER	BID ITEM	UNIT	WEST ABUT.	PIER	EAST ABUT.	SUPER	TOTAL
203.0260.01	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS P-20-711	EACH	-	-	-	-	1
206.1001.01	EXCAVATION FOR STRUCTURES BRIDGES B-20-242	EACH	-	-	-	-	1
206.5001.01	COFFERDAMS B-20-242	EACH	-	-	-	-	1
209.0200.5	BACKFILL CONTROLLED LOW STRENGTH	CY	33	-	-	-	33
210.1500	BACKFILL STRUCTURE TYPE A	TON	20	-	515	-	535
311.0110	BREAKER RUN	TON	25	122	25	-	172
502.0100	CONCRETE MASONRY BRIDGES	CY	67.9	59.7	72.4	308.3	508
502.3200	PROTECTIVE SURFACE TREATMENT	SY	15	-	10	510	535
502.3210	PIGMENTED SURFACE SEALER	SY	-	-	-	73	73
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	4230	3040	4140	-	11380
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1380	100	1580	59900	62960
511.1200.01	TEMPORARY SHORING B-20-242	SF	590	-	1380	-	1970
513.7031	RAILING STEEL TYPE C6	LF	-	-	-	162	162
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	12	-	12	-	24
517.1015.S.01	CONCRETE STAINING MULTI-COLOR B-20-242	SF	70	-	130	325	525
517.1050.S.01	ARCHITECTURAL SURFACE TREATMENT B-20-242	SF	70	-	130	325	525
550.0500	PILE POINTS	EACH	9	14	9	-	32
550.2104	PILING CIP CONCRETE 10 ³ / ₄ X 0.25-INCH	LF	445	700	445	-	1590
606.0300	RIPRAP HEAVY	CY	45	-	85	-	130
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	30	-	110	-	140
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	-	-	151	-	151
645.0120	GEOTEXTILE TYPE HR	SY	110	-	200	-	310
652.0125	CONDUIT RIGID METALLIC 2-INCH	LF	-	-	-	10	10
652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	LF	-	-	-	85	85
999.1501.S	CRACK AND DAMAGE SURVEY	EACH	-	-	-	-	2
SPV.0060.01	SETTLEMENT MONITORING	EACH	-	-	-	-	1
SPV.0060.02	VIBRATION MONITORING	EACH	-	-	-	-	1
SPV.0060.03	TEMPORARY BRACING RAILROAD	EACH	-	-	-	-	1
SPV.0165.03	CUT-STONE BOULDERS	SF	90	-	320	-	410
	NON-BID ITEMS						
	PREFORMED FILLER	SIZE					1/2", 3/4"
	CORK FILLER	SIZE					3/4"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-20-242			
DRAWN BY RLR		PLANS CK'D. JRS	
QUANTITIES & NOTES			SHEET 3 OF 17

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	2-19-2020	386,134.1	814,515.2
2	2-12-2020	386,116.6	814,669.0

BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.
 REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.
 ALL COORDINATES REFERENCED TO WCCS NAD 83(2011) FOND DU LAC COUNTY

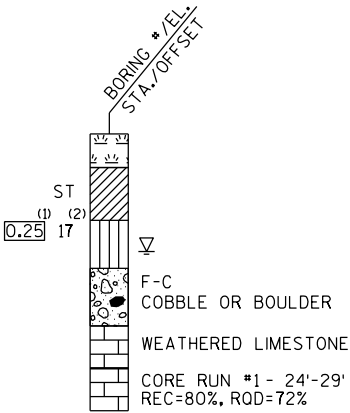
STATE PROJECT NUMBER

4986-12-71

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

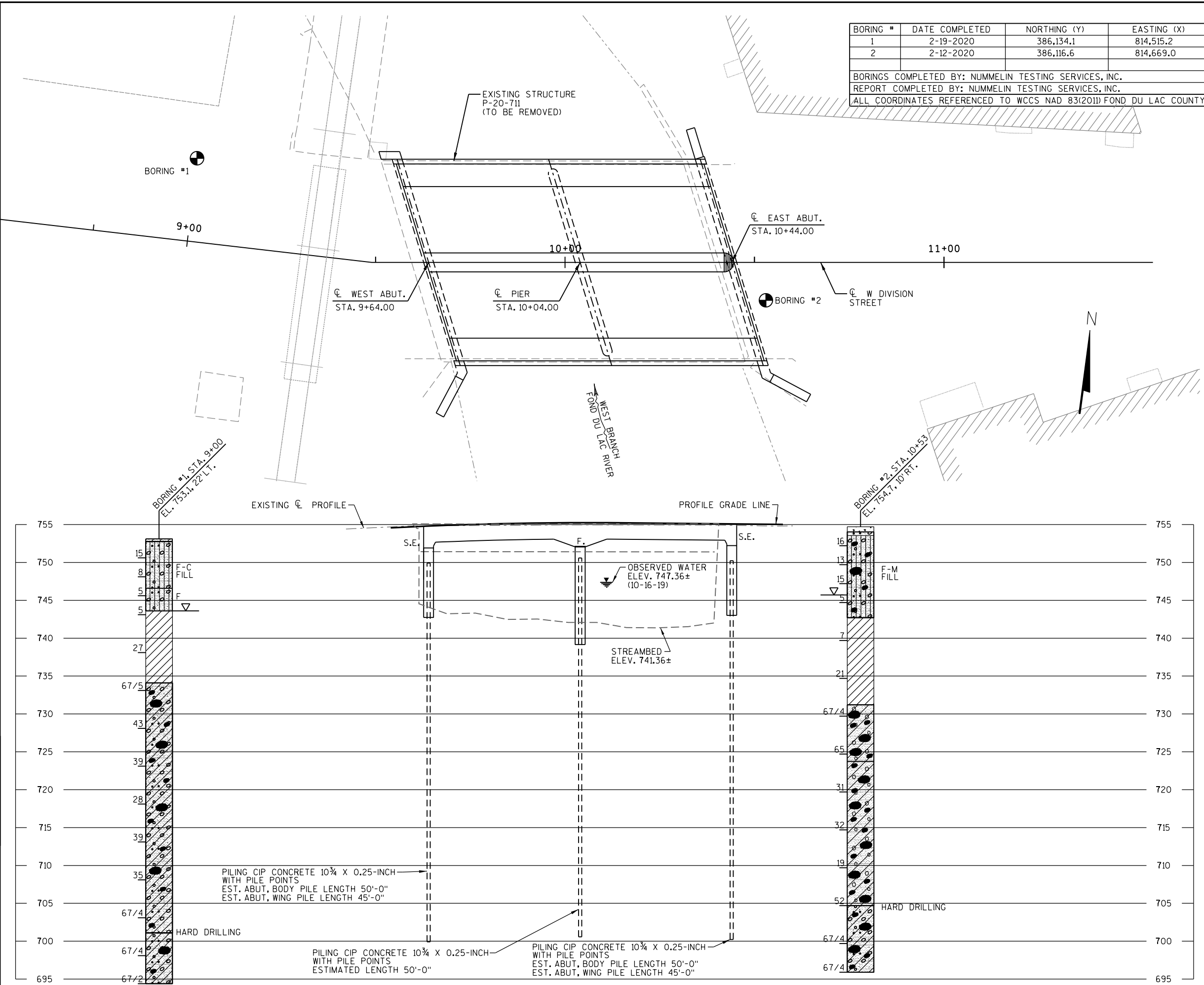
ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

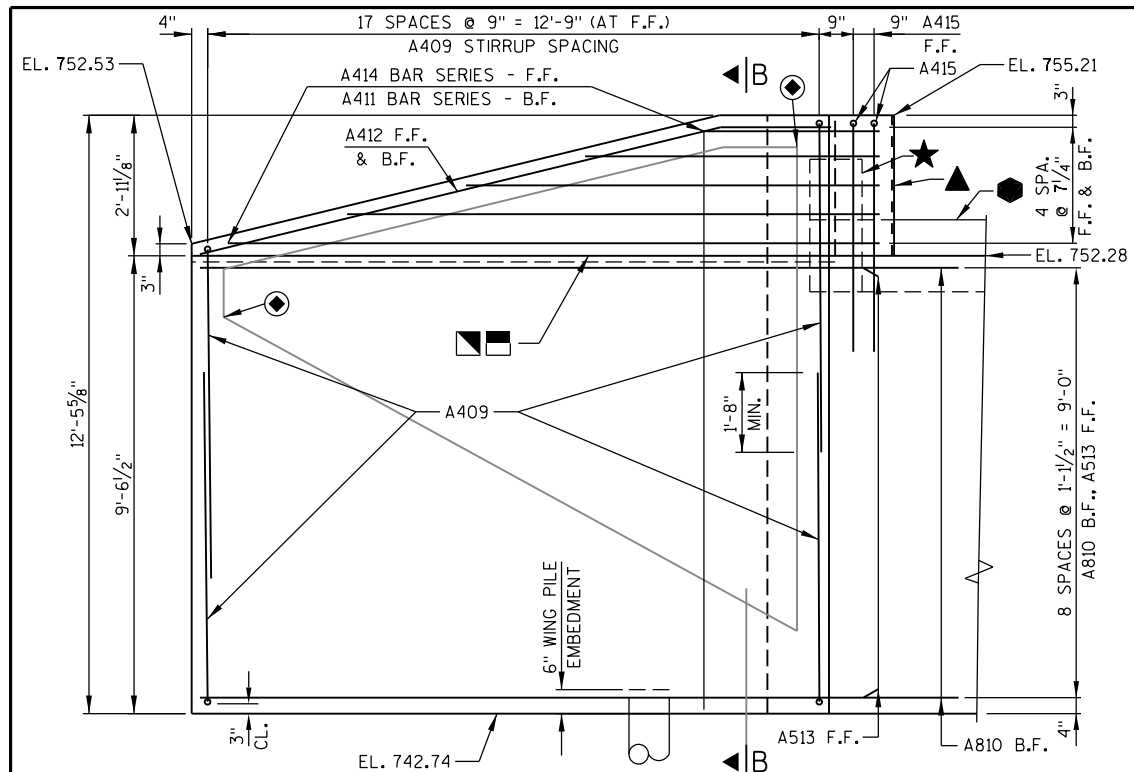
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT 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-20-242			
DRAWN BY		RLR	PLANS CK'D. JRS
SUBSURFACE EXPLORATION		SHEET 4 OF 17	

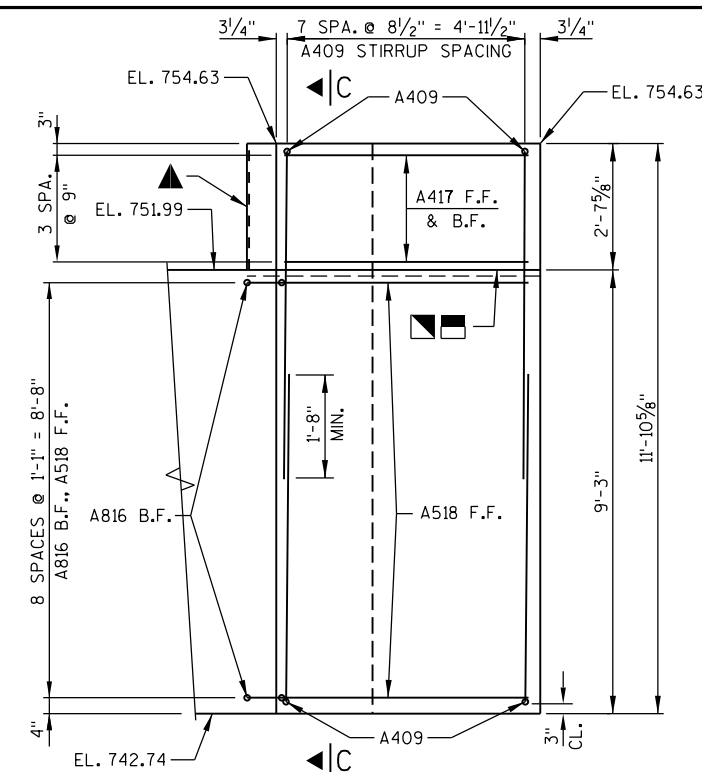


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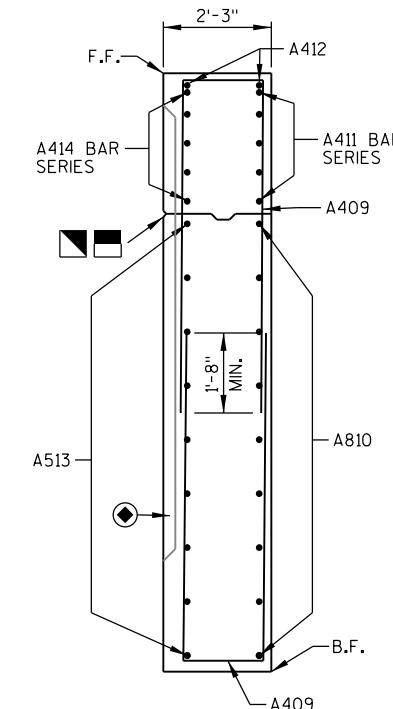


WING 1

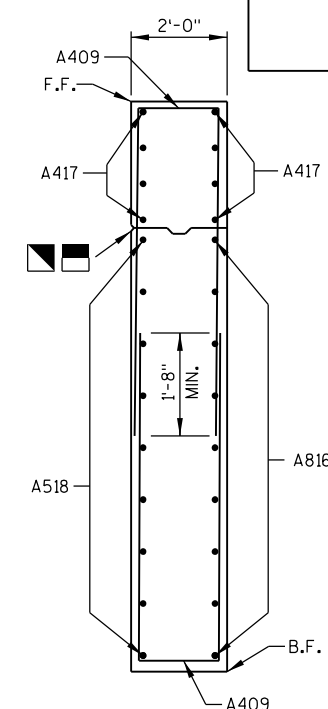


WING 2

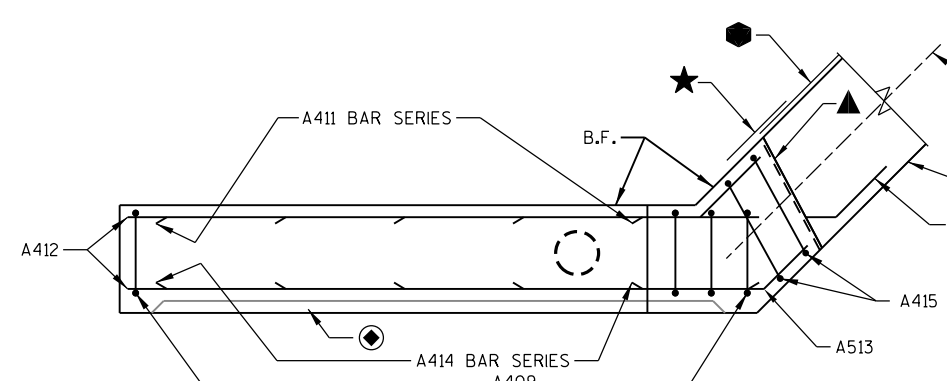
ELEVATION
(LOOKING AT F.F. OF WINGS)



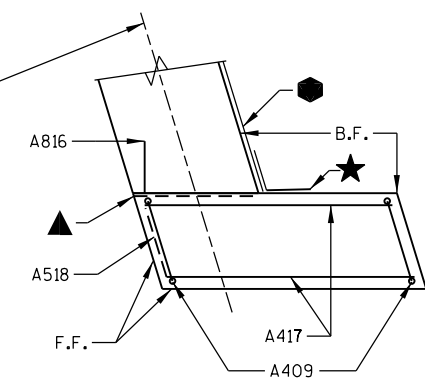
SECTION B-B
THRU WING 1



SECTION C-C
THRU WING 2



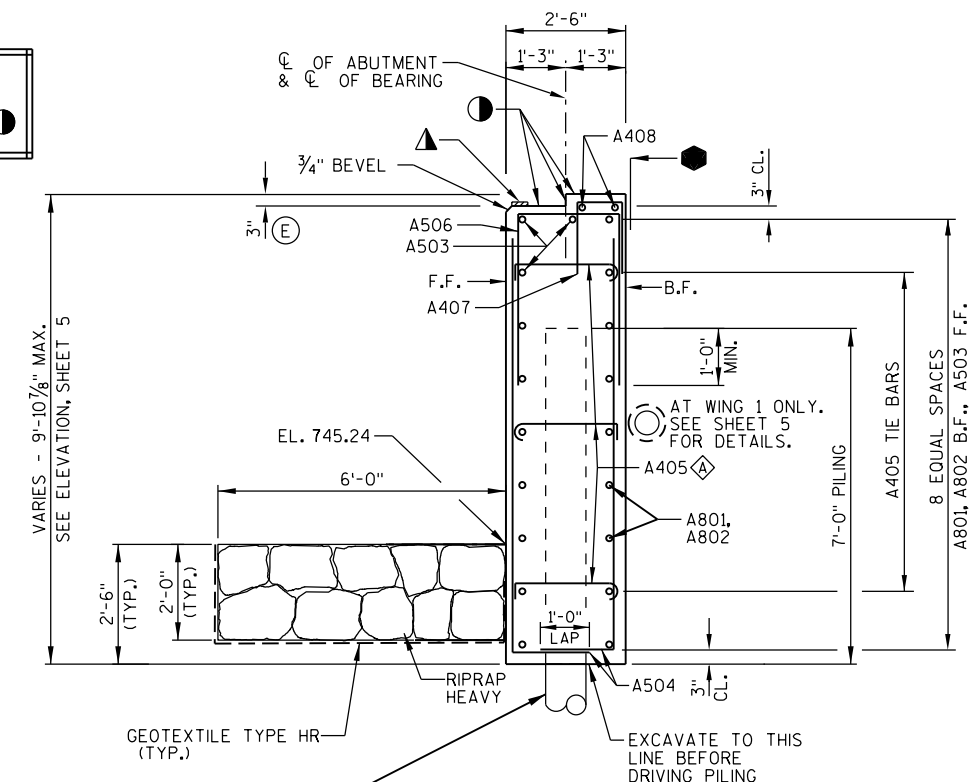
WING 1



WING 2

PLAN

SEE LEGEND ON SHEET 5 FOR DESCRIPTION OF



TYPICAL SECTION THRU ABUTMENT

PILING CIP CONCRETE 10 3/4 X 0.25-INCH WITH PILE POINTS. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED ABUT. BODY PILE LENGTHS ARE 50'-0", ESTIMATED ABUT. WING PILE LENGTHS ARE 45'-0". SEE SHEET 10 FOR PILE SPLICE DETAILS.

BILL OF BARS (WEST ABUT.)

UNCOATED 4230 LBS.
COATED 1380 LBS.

MARK	NUMBER REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
	COATED	UNCOATED			
A801	-	9	34'-7"	X	ABUTMENT BODY - B.F. @ WING 1 - HORIZ.
A802	-	9	36'-0"	X	ABUTMENT BODY - B.F. @ WING 2 - HORIZ.
A503	-	20	31'-8"		ABUTMENT BODY - F.F. - HORIZ.
A504	-	122	8'-3"	X	ABUTMENT BODY - F.F. & B.F. - VERT.
A405	-	45	3'-0"	X	ABUTMENT BODY - TIES - HORIZ.
A506	-	61	8'-11"	X	ABUTMENT BODY - TOP - VERT.
A407	-	37	3'-9"	X	ABUTMENT BODY - BACKWALL STIRRUP - VERT.
A408	-	4	28'-3"		ABUTMENT BODY - BACKWALL - HORIZ.
A409	52	-	15'-2"	X	WINGS - TOP & BOTTOM - VERT.
A810	9	-	16'-2"	X	WING 1 - BASE - B.F. - HORIZ.
A411	5	-	8'-1"	X	WING 1 - TOP - B.F. - HORIZ.
A412	2	-	13'-6"	X	WING 1 - TOP - F.F. & B.F. - HORIZ.
A513	9	-	14'-8"	X	WING 1 - BASE - F.F. - HORIZ.
A414	5	-	8'-11"	X	WING 1 - TOP - F.F. - HORIZ.
A415	2	-	11'-7"	X	WING 1 - TOP - VERT.
A816	9	-	6'-3"	X	WING 2 - BASE - B.F. - HORIZ.
A417	8	-	5'-2"		WING 2 - TOP - F.F. & B.F. - HORIZ.
A518	9	-	6'-6"	X	WING 2 - BASE - F.F. - HORIZ.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



MARK	C	D
A506	3'-6"	2'-2"
A407	1'-6"	11"
A409	6'-10"	1'-8"
A415	4'-9"	2'-3"

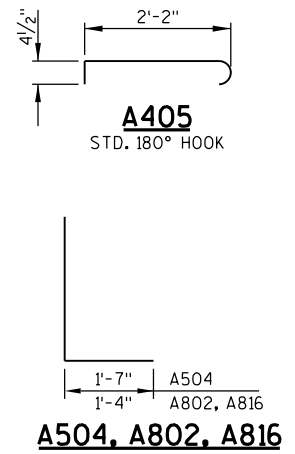
MARK	A	B
A801	1'-6"	45°
A810	1'-9"	45°
A411	2'-3"	14°
A414	1'-3"	45°
A518	1'-6"	73°

◇ - LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BENT BARS IF USED IN BAR SERIES TABLE SHALL BE BENT AFTER CUTTING.

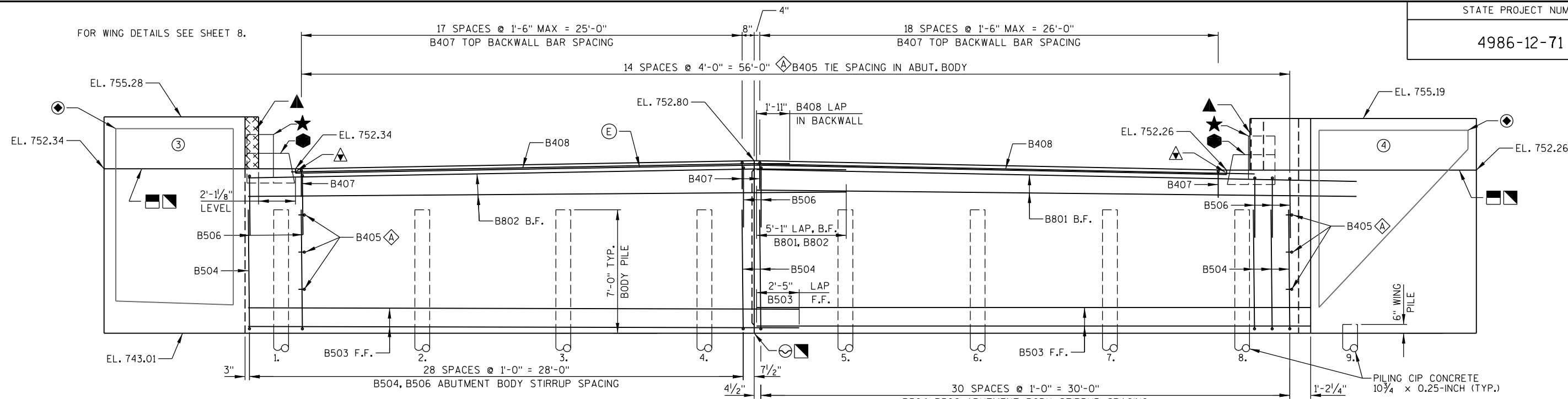
BAR MARK	NO. REQ'D.	LENGTH
A411	1 SERIES OF 5	3'-1" TO 13'-1"
A414	1 SERIES OF 5	4'-0" TO 13'-10"

BAR SERIES TABLE

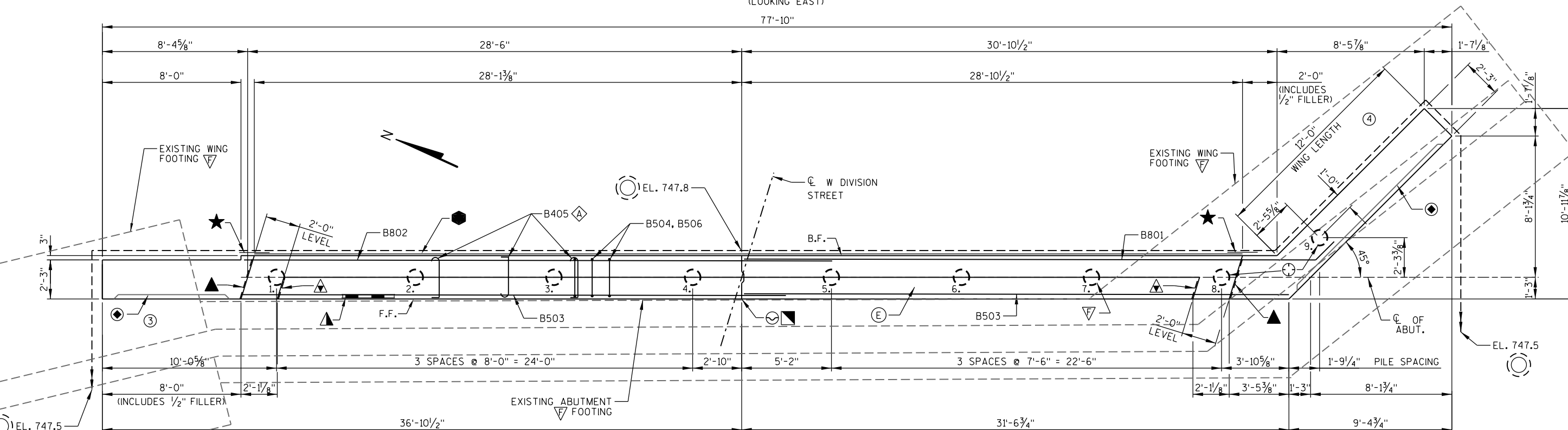


A504, A802, A816

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-20-242	
DRAWN BY		PLANS CK'D.	
RLR		JRS	
WEST ABUTMENT DETAILS			SHEET 6 OF 17



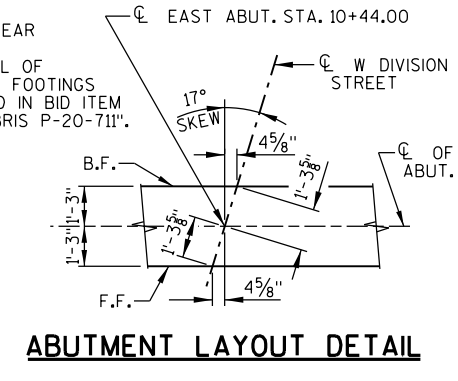
ELEVATION
(LOOKING EAST)
77'-10"



PLAN

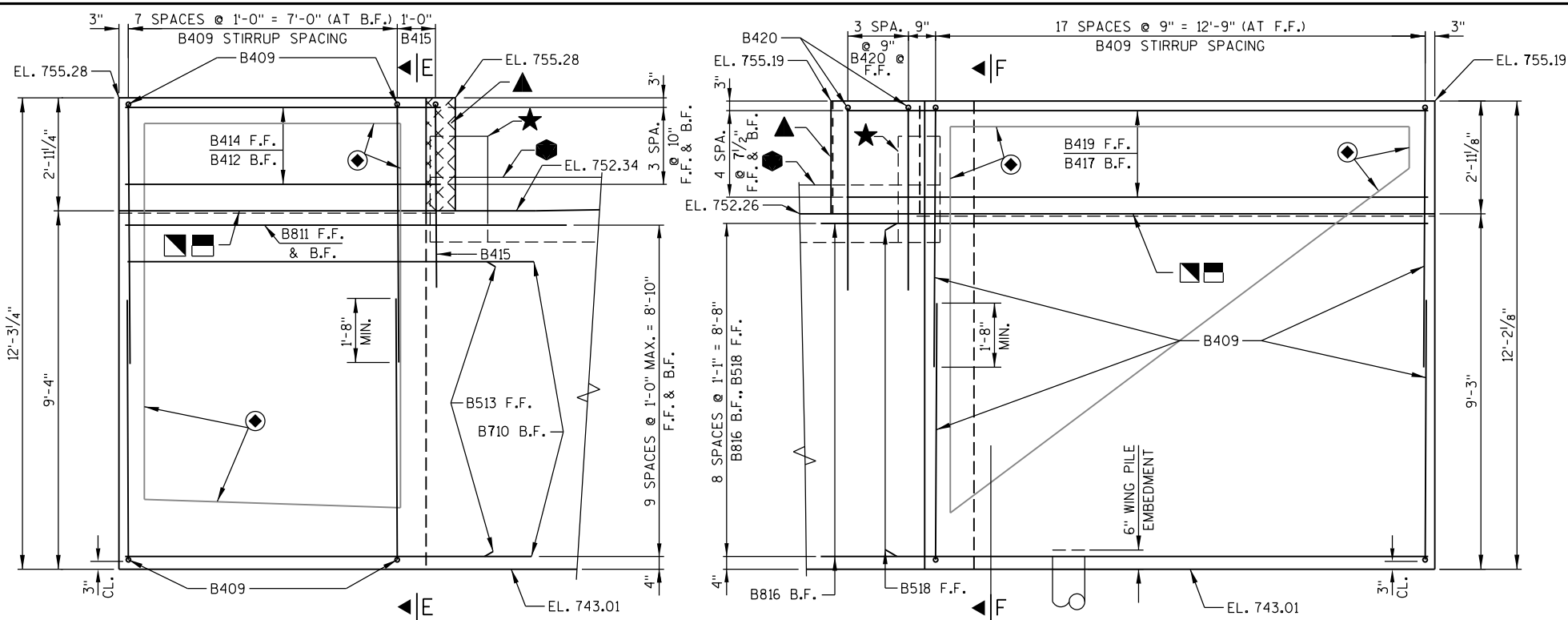
- LEGEND**
- STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03 INCHES.
 - ▲ 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZONTAL & VERTICAL SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE).
 - ★ VERTICAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM 9" BELOW BRIDGE SEAT TO PAVING NOTCH.
 - HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND ACROSS B.F. BETWEEN WINGS.
 - PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU GEOTEXTILE TYPE HR AT FACE OF CUT-STONE BOULDERS. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE. SEE DETAIL, SHEET 10.
 - FOR DETAILS AND LIMITS OF ARCHITECTURAL SURFACE TREATMENT (AST), SEE SHEET 17.
 - ▽ EXISTING ABUTMENT AND FOOTINGS SHOWN ARE BASED ON ORIGINAL PLANS FOR STRUCTURE P-20-711. ACTUAL FOOTINGS MAY VARY. FIELD VERIFY LOCATION OF EXISTING FOOTINGS BEFORE DRIVING PILES. ADJUST LOCATION OF NEW PILES UP TO 8'-0" MAXIMUM PILE SPACING TO AVOID EXISTING WING FOOTINGS. ADJUSTING LOCATION OF THE END PILES AND WING PILES IS NOT ALLOWED UNLESS APPROVED BY THE ENGINEER.
 - KEYED CONST. JOINT ON ABUT. BODY FORMED BY BEVELED 2 x 8. PLACE 1'-6" WIDE RUBBERIZED MEMBRANE WATERPROOFING ON B.F. AT JOINT. SEE SHEET 10 FOR ALTERNATE CONSTRUCTION JOINT.
 - ▽ 3/4" "V" GROOVE ON FRONT FACE OF KEYED CONSTRUCTION JOINT. (REQUIRED ONLY WHERE CONST. JOINT IS USED).
 - OPTIONAL KEYED CONST. JOINT ON WING FORMED BY BEVELED 2 x 6. IF JOINT IS USED, POUR CONCRETE ABOVE JOINT AFTER SLAB IS IN PLACE AND PLACE ● ON B.F. OF WING. COST OF ● PLACED ON WINGS INCLUDED IN BID ITEM "CONCRETE MASONRY BRIDGES".

- F.F. — FRONT FACE B.F. — BACK FACE CL. — CLEAR
- PREBORING THROUGH FOOTING CONFLICTS OR REMOVAL OF PORTIONS OF THE EXISTING EAST ABUTMENT SPREAD FOOTINGS IN CONFLICT WITH PROPOSED STRUCTURE IS INCLUDED IN BID ITEM "REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS P-20-711".
- ▲ 3/4" CORK FILLER (SIDE VERTICAL FACES ONLY).
- ◇ ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- ▲ 4" x 3/4" FILLER, EXTEND FULL LENGTH OF ABUTMENT BETWEEN EDGES OF SIDEWALK.
- SEMI-EXPANSION BEARING SEAT WITH STEP. CONSTRUCT 3" DEEPER THAN ABUTMENT BACKWALL.
- INDICATES WING NUMBER



ABUTMENT LAYOUT DETAIL

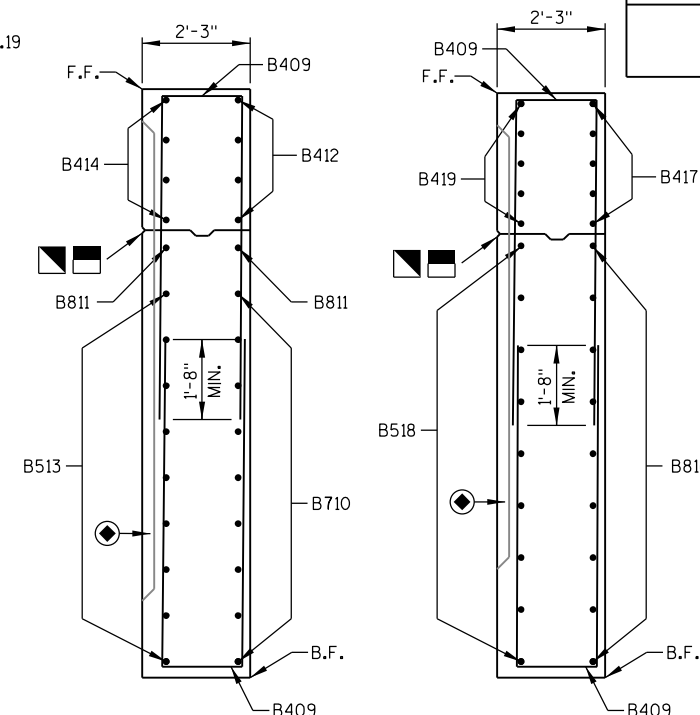
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-20-242	
DRAWN BY		RLR	PLANS CK'D. JRS
EAST ABUTMENT			SHEET 7 OF 17



WING 3 ELEVATION

WING 4 ELEVATION

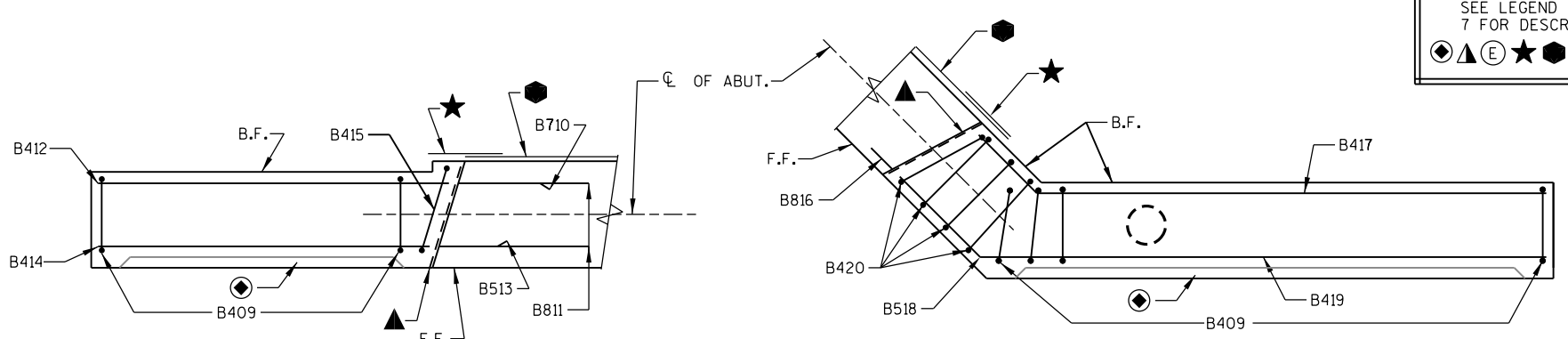
(LOOKING AT F.F. OF WINGS)



SECTION E-E THRU WING 3

SECTION F-F THRU WING 4

SEE LEGEND ON SHEET 7 FOR DESCRIPTION OF



WING 3 PLAN

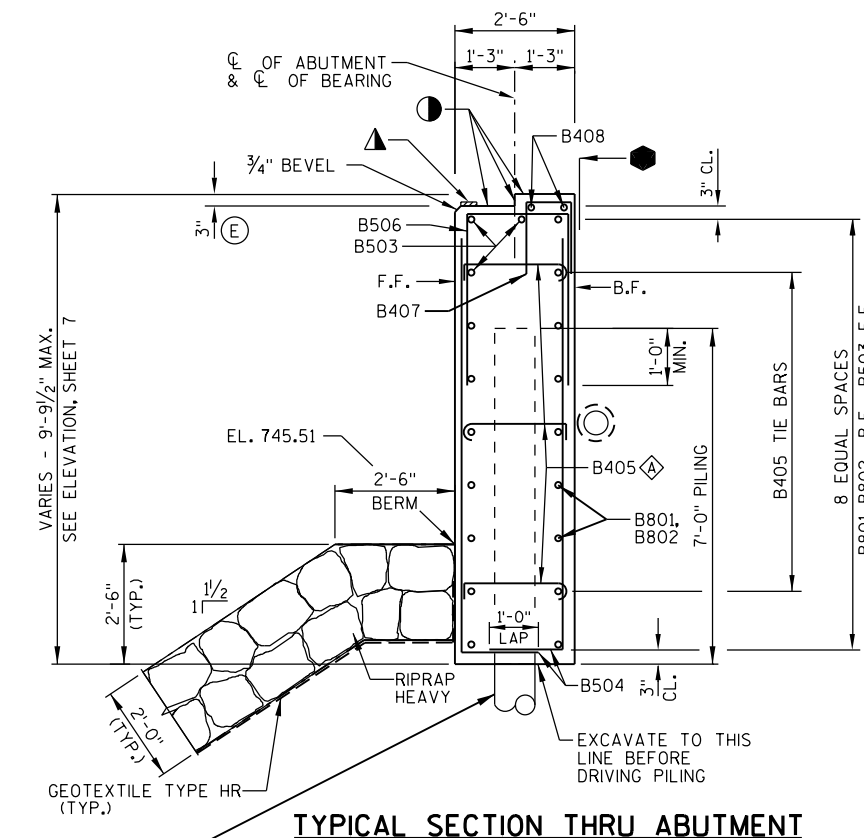
WING 4 PLAN

**UNCOATED 4140 LBS.
COATED 1580 LBS.**

BILL OF BARS (EAST ABUT.)

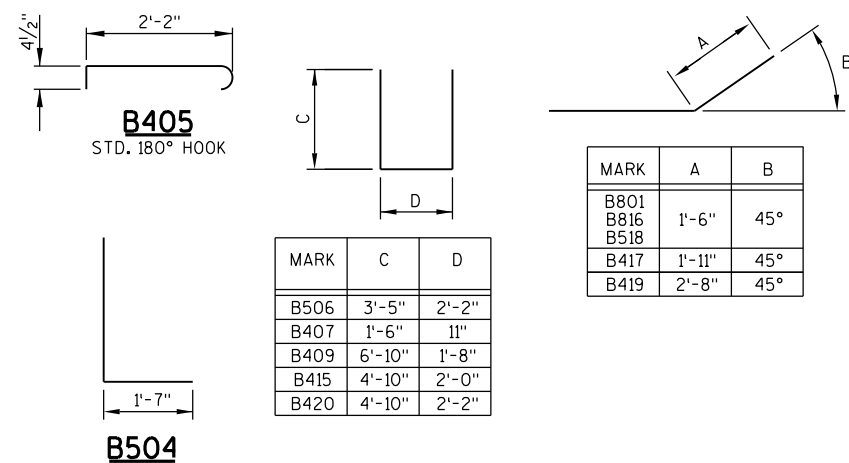
MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH	BENT	LOCATION
B801	-	9	34'-4"	X	ABUTMENT BODY - B.F. @ WING 4 - HORIZ.
B802	-	9	34'-0"		ABUTMENT BODY - B.F. @ WING 3 - HORIZ.
B503	-	20	31'-6"		ABUTMENT BODY - F.F. - HORIZ.
B504	-	120	8'-3"	X	ABUTMENT BODY - F.F. & B.F. - VERT.
B405	-	45	3'-0"	X	ABUTMENT BODY - TIES - HORIZ.
B506	-	60	8'-9"	X	ABUTMENT BODY - TOP - VERT.
B407	-	37	3'-9"	X	ABUTMENT BODY - BACKWALL STIRRUP - VERT.
B408	-	4	28'-3"		ABUTMENT BODY - BACKWALL - HORIZ.
B409	52	-	15'-2"	X	WINGS - TOP & BOTTOM - VERT.
B710	9	-	10'-7"		WING 3 - BASE - B.F. - HORIZ.
B811	2	-	11'-6"		WING 3 - BASE - F.F. & B.F. - TOP - HORIZ.
B412	4	-	8'-2"		WING 3 - TOP - B.F. - HORIZ.
B415	1	-	11'-6"	X	WING 3 - TOP - VERT.
B816	9	-	16'-2"	X	WING 4 - BASE - B.F. - HORIZ.
B417	5	-	13'-9"	X	WING 4 - TOP - B.F. - HORIZ.
B518	9	-	14'-8"	X	WING 4 - BASE - F.F. - HORIZ.
B419	5	-	15'-10"	X	WING 4 - TOP - F.F. - HORIZ.
B420	4	-	11'-8"	X	WING 4 - TOP - VERT.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

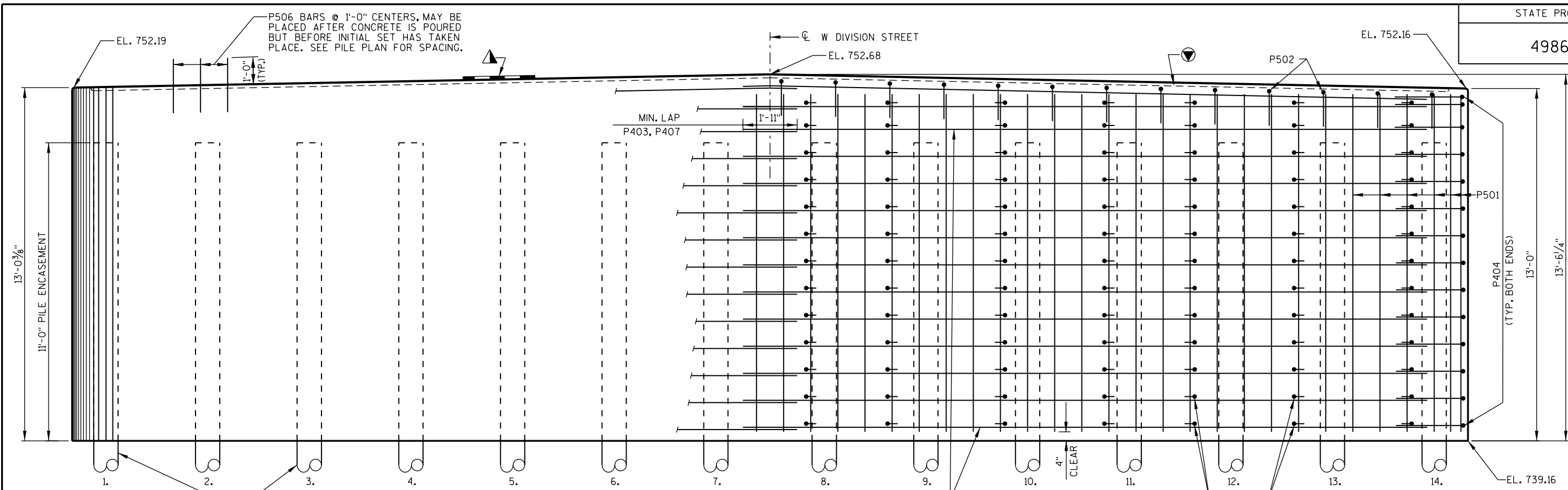


TYPICAL SECTION THRU ABUTMENT

PILING CIP CONCRETE 10 3/4 X 0.25-INCH WITH PILE POINTS. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED ABUT. BODY PILE LENGTHS ARE 50'-0", ESTIMATED ABUT. WING PILE LENGTHS ARE 45'-0". SEE SHEET 10 FOR PILE SPLICE DETAILS.

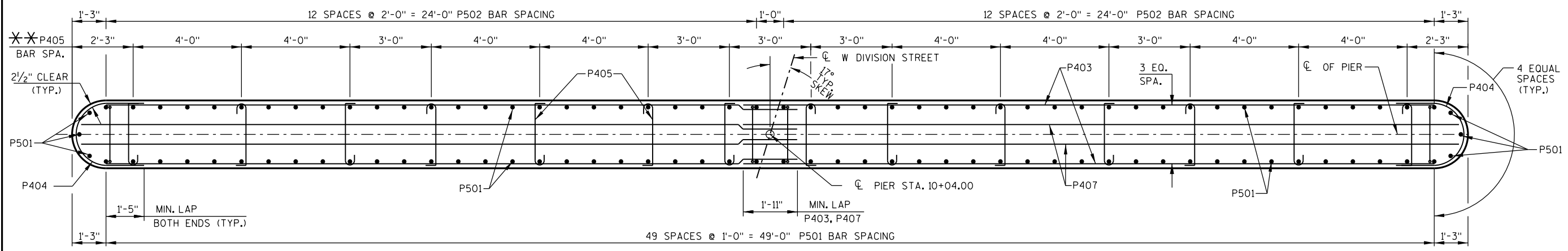


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-20-242	
DRAWN BY RLR		PLANS CK'D. JRS	
EAST ABUTMENT DETAILS			SHEET 8 OF 17

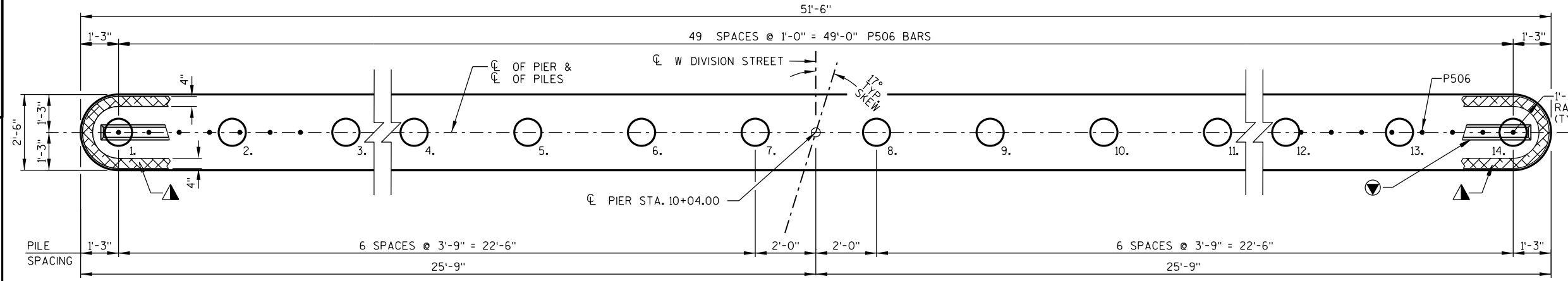
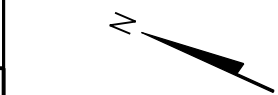


ELEVATION
(LOOKING EAST)

PILING CIP CONCRETE 10 3/4" X 0.25-INCH WITH PILE POINTS



PLAN



PILE PLAN

LEGEND

- ▲ - 4" x 3/4" FILLER, TYPICAL ALL AROUND TOP EDGES OF PIER.
- ▼ - 2" x 6" BEVELED KEYWAY.
- * * - ADJACENT TO EACH PILE ONE SIDE ONLY. ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

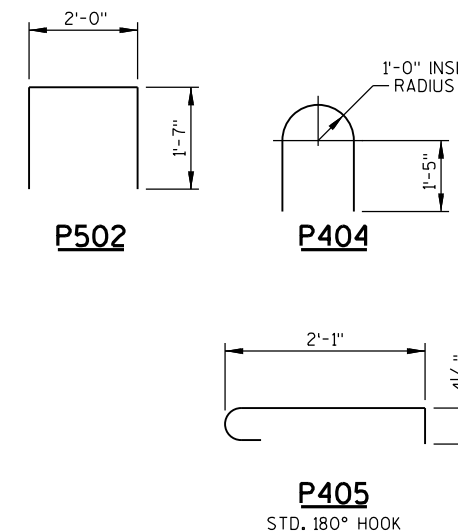
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-20-242			
DRAWN BY MAA		PLANS CK'D. JRS	
PIER			SHEET 9 OF 17

BILL OF BARS **COATED 100 LBS.**
PIER **UNCOATED 3040 LBS.**

MARK	NO. REQ'D.	LENGTH	BENT	LOCATION
P501	106	12'-6"		PIER - VERT.
P502	26	4'-11"	X	PIER - STIRRUPS - TOP - VERT.
P403	56	25'-6"		PIER - TOP & SIDES - HORIZ.
P404	28	6'-1"	X	PIER - AT ENDS - HORIZ.
P405	196	2'-11"	X	PIER - TIES - HORIZ.
P506	50	2'-0"		PIER - DOWELS @ TOP - VERT.
P407	4	26'-5"		PIER - TOP - HORIZ.

Ⓒ - THESE BARS SHALL BE EPOXY COATED.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR EXCEPT AS NOTED.



LEGEND

- ▲ - 4"x 3/4" FILLER, TYPICAL ALL AROUND TOP EDGES OF PIER.
- ▼ - 2"x 6" BEVELED KEYWAY.

ALTERNATE JOINT NOTES

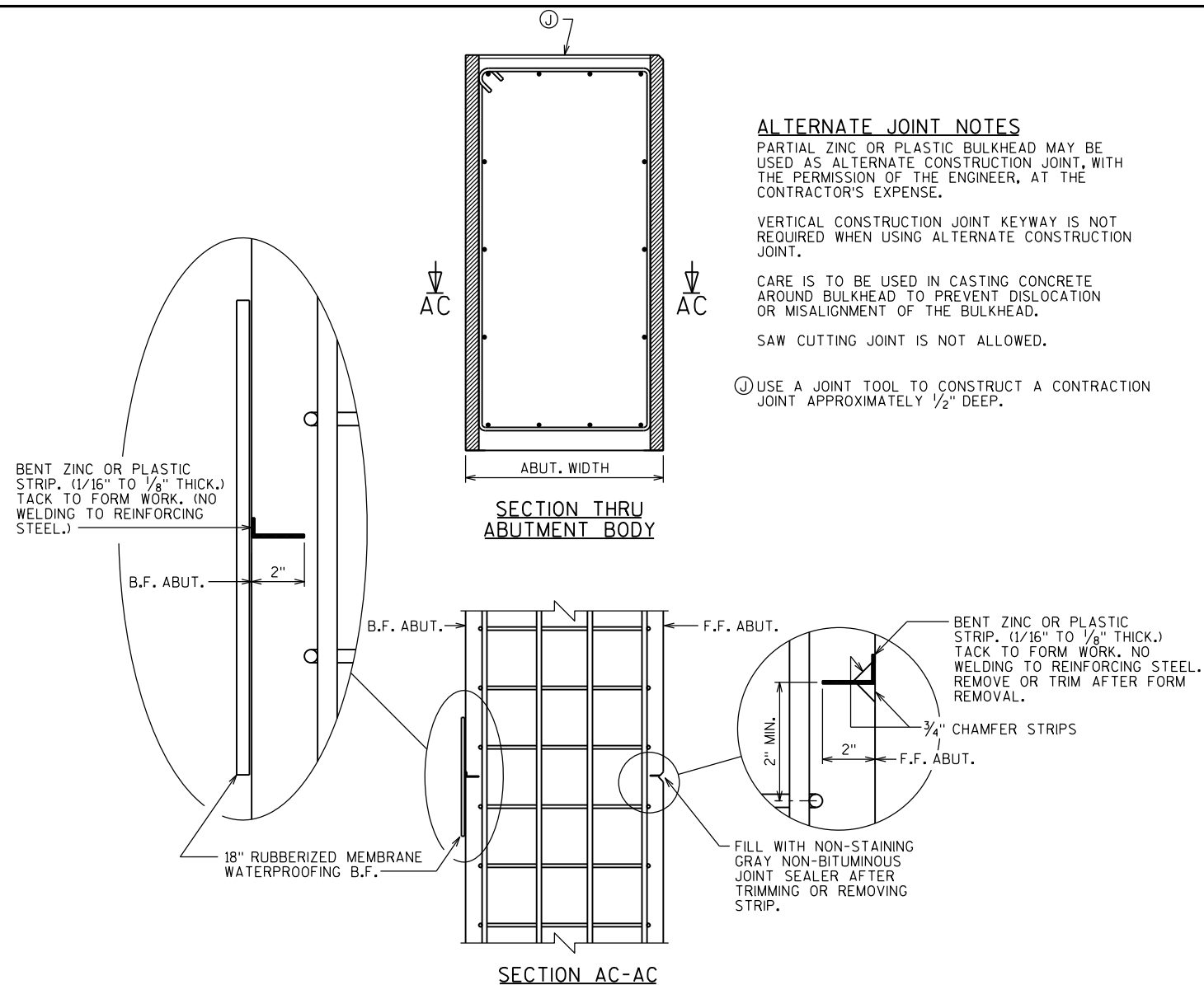
PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

VERTICAL CONSTRUCTION JOINT KEYWAY IS NOT REQUIRED WHEN USING ALTERNATE CONSTRUCTION JOINT.

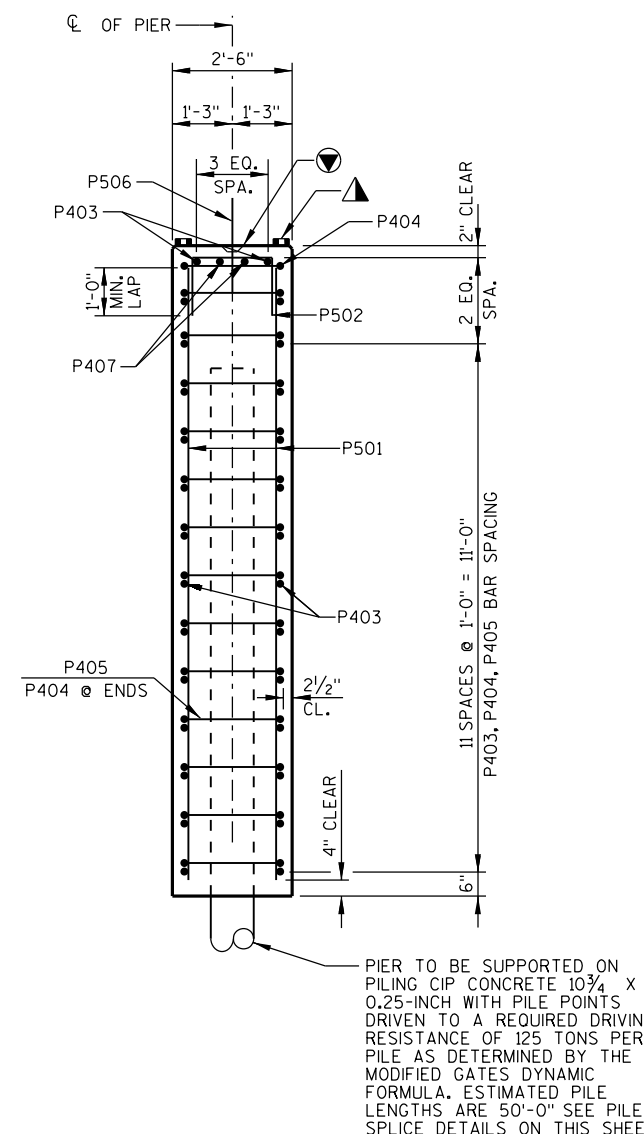
CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

SAW CUTTING JOINT IS NOT ALLOWED.

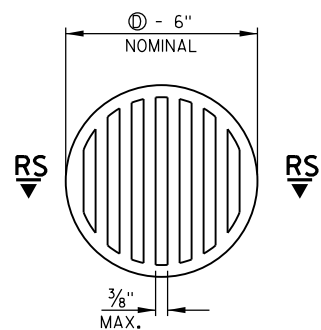
Ⓜ USE A JOINT TOOL TO CONSTRUCT A CONTRACTION JOINT APPROXIMATELY 1/2" DEEP.



ALTERNATE CONSTRUCTION JOINT AT ABUTMENT



TYPICAL SECTION THRU PIER



SECTION RS-RS

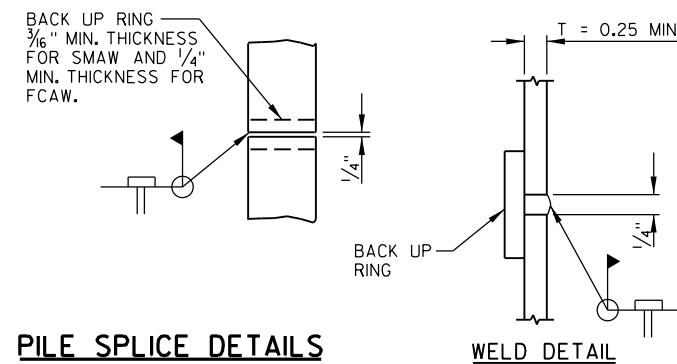
RODENT SHIELD

Ⓜ - DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

RODENT SHIELD NOTES:

ORIENT SHIELD SO SLOTS ARE VERTICAL.

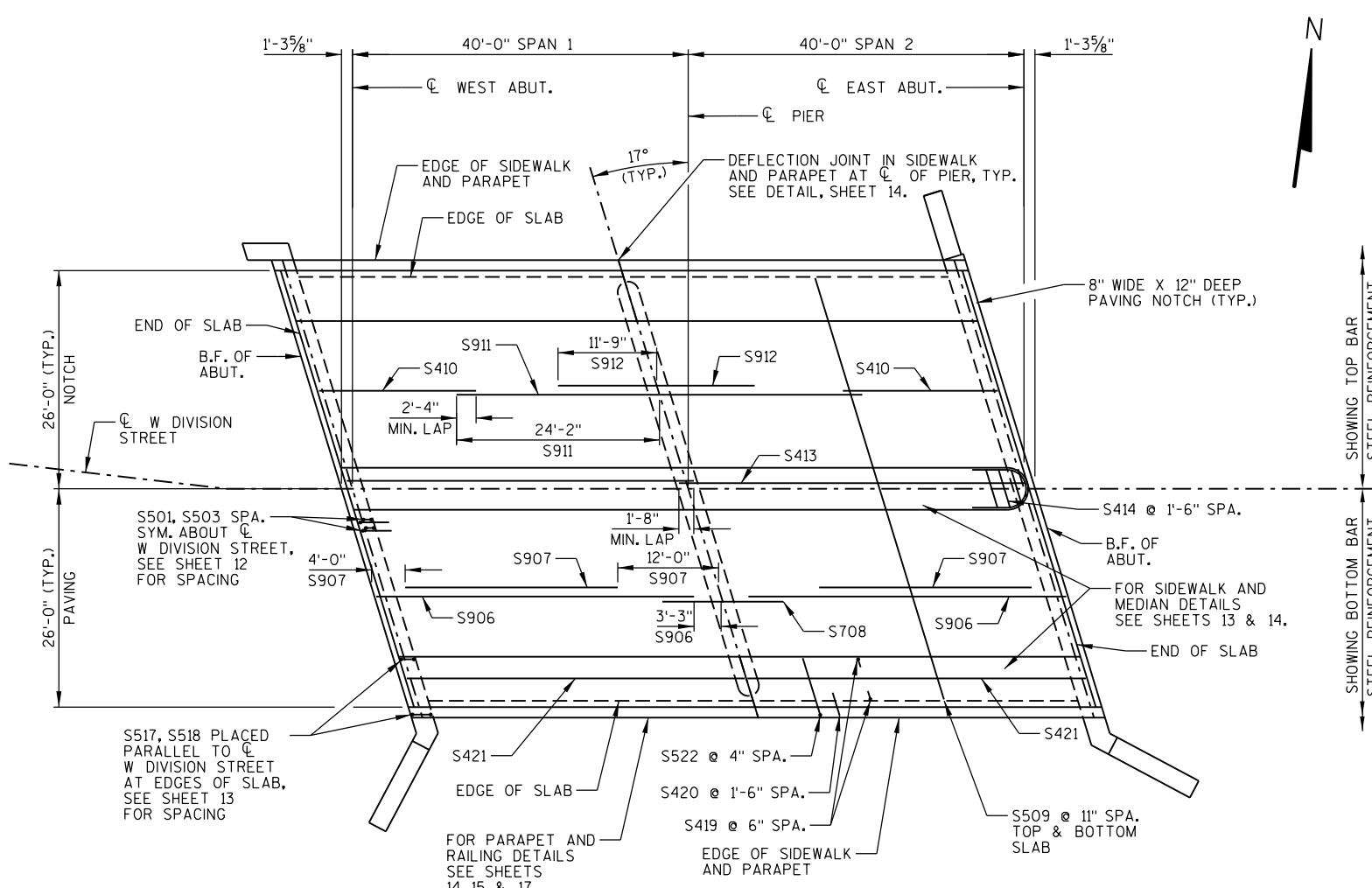
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO.10 x 1-INCH STAINLESS STEEL SHEET METAL SCREWS. THE RODENT SHIELD, PIPE COUPLING AND SCREWS, SHALL BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".



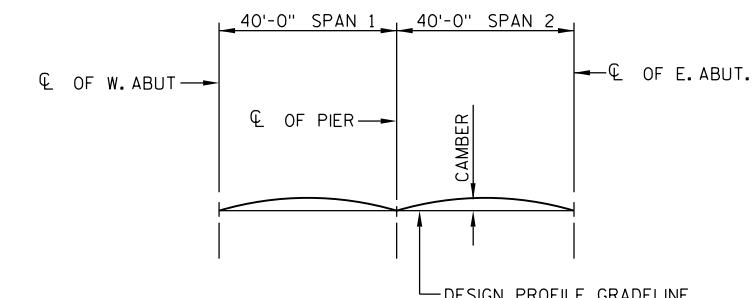
PILE SPLICE DETAILS

WELD DETAIL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-20-242	
DRAWN BY		PLANS CK'D.	
MAA		JRS	
PIER & CONSTRUCTION DETAILS			SHEET 10 OF 17



PLAN



CAMBER DIAGRAM

CAMBER SPANS AS SHOWN ABOVE AND IN THE TABLE OF VALUES TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. DEAD LOAD DEFLECTION APPROXIMATES 1/3 OF CAMBER VALUES SHOWN.

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE, FOLLOW THIS PROCEDURE:

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

NOTES

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR 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.

PLACE ALL TRANSVERSE BARS ON THE SKEW.

TOP OF SLAB ELEVATIONS AND CAMBER VALUES

◆ - EDGE OF SLAB ELEVATION IS THE TOP OF SLAB BENEATH SIDEWALK WITH 2% CROWN FULL WIDTH.

LOCATION	SPAN POINT	SOUTH SLAB EDGE	C/L W DIVISION STREET	NORTH SLAB EDGE	CAMBER VALUE (INCHES)
WEST ABUT.	1.0	754.53	754.90	754.24	0.0
	1.1	754.58	754.98	754.33	0.2
	1.2	754.63	755.04	754.40	0.4
	1.3	754.67	755.09	754.48	0.6
	1.4	754.70	755.14	754.54	0.6
	1.5	754.72	755.18	754.59	0.6
	1.6	754.74	755.21	754.64	0.4
	1.7	754.74	755.23	754.67	0.3
	1.8	754.74	755.24	754.70	0.1
	1.9	754.73	755.25	754.72	0.0
PIER 1	2.0	754.71	755.24	754.74	0.0
	2.1	754.69	755.23	754.74	0.0
	2.2	754.67	755.21	754.74	0.1
	2.3	754.65	755.19	754.73	0.3
	2.4	754.63	755.17	754.71	0.4
	2.5	754.61	755.15	754.69	0.6
	2.6	754.59	755.13	754.67	0.6
	2.7	754.57	755.11	754.65	0.6
	2.8	754.55	755.09	754.63	0.4
	2.9	754.53	755.07	754.61	0.2
EAST ABUT.	3.0	754.51	755.05	754.59	0.0

SURVEY TOP OF SLAB ELEVATIONS

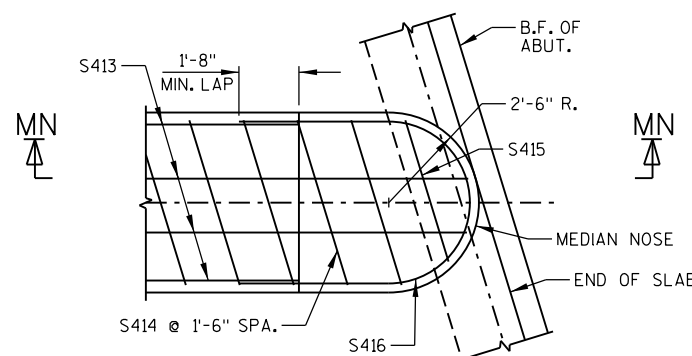
LOCATION	SOUTH SLAB EDGE	W DIVISION STREET	NORTH SLAB EDGE
W. ABUT.			
SPAN 1 - 5/10			
PIER			
SPAN 2 - 5/10			
E. ABUT.			

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L OF ABUTMENTS, THE C/L OF PIER, AND AT THE 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND C/L. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

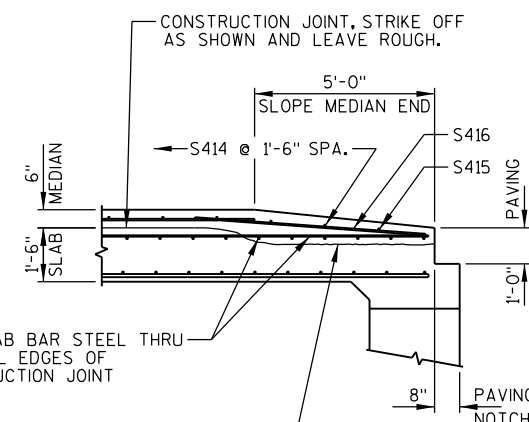
MEDIAN NOTES

SEAL PERIMETER JOINT AROUND MEDIAN NOSE WITH CRACK SEALER IN ACCORDANCE WITH THE STANDARD SPECIFICATION FOR CRACK SEALING ON NEW CONCRETE DECKS.

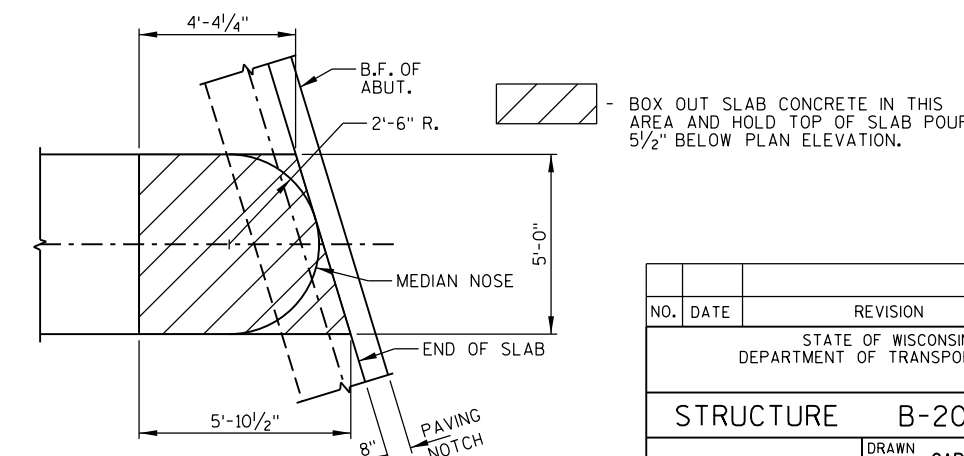
2 1/2" CLEARANCE TO TOP OF MEDIAN MAY BE REDUCED TO 1 1/2" AT LOW POINT IN MEDIAN NOSE.



PART MEDIAN PLAN



SECTION MN-MN THRU MEDIAN NOSE



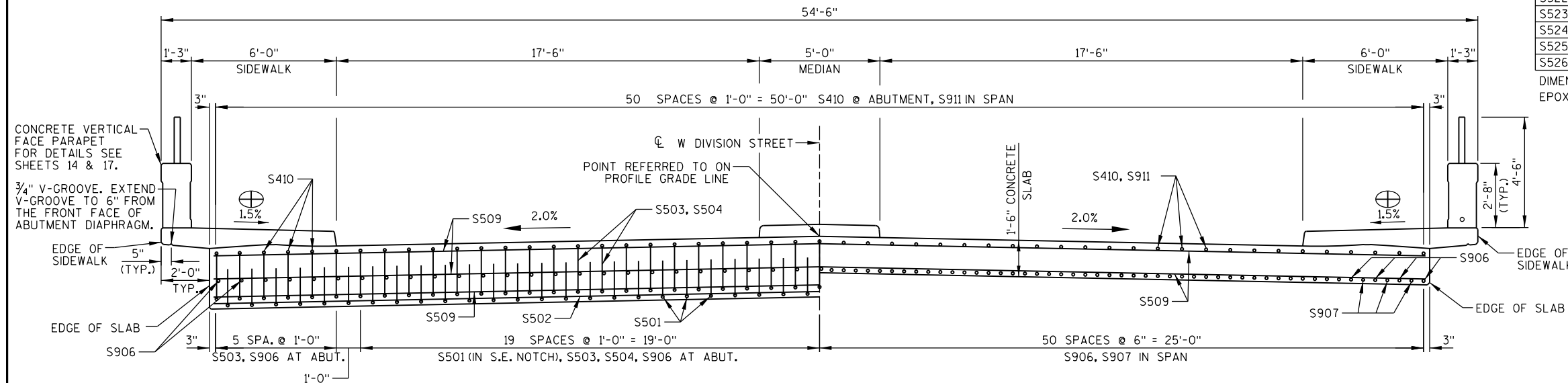
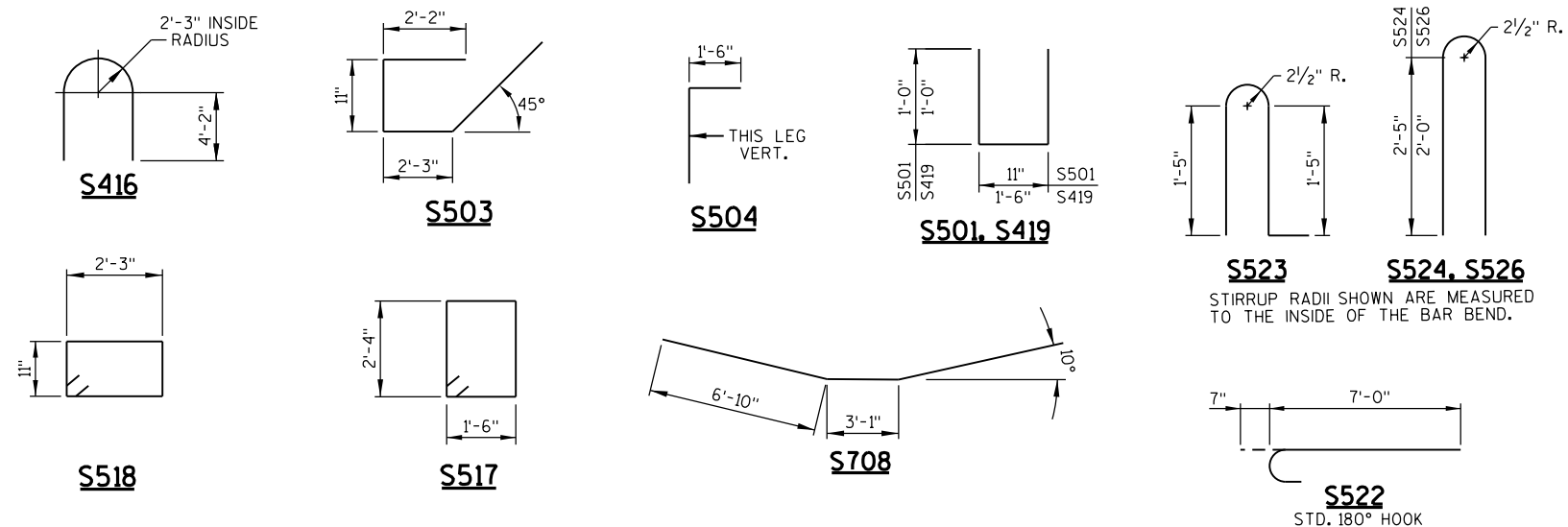
MEDIAN END CONC. BOX-OUT PLAN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-20-242	
DRAWN BY		PLANS CK'D.	
CAR		JRS	
SUPERSTRUCTURE			SHEET 11 OF 17

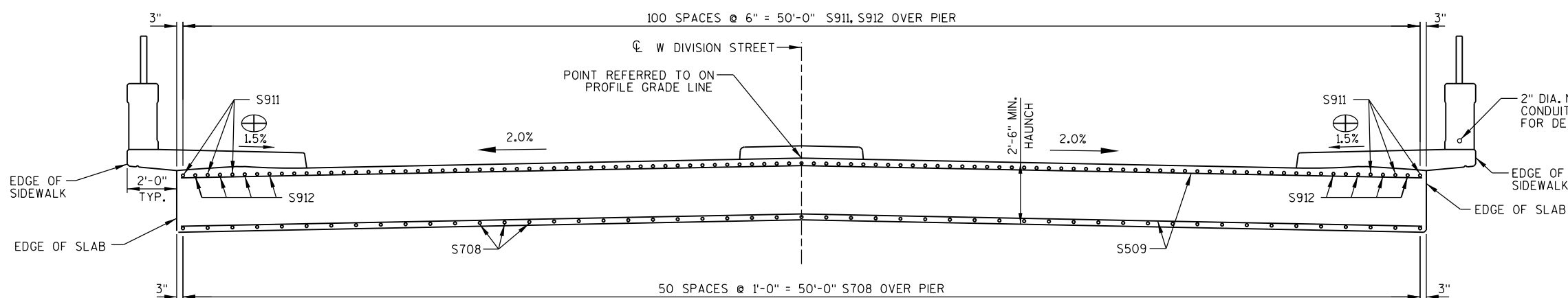
BILL OF BARS (COATED) 59,900 LBS.

MARK	NO. REQ'D.	LENGTH	BENT	LOCATION
S501	102	2'-8"	X	DIAPHRAGM @ ABUTS. - S.E. POCKET - VERT.
S502	4	52'-5"		DIAPHRAGM @ ABUTS. - S.E. POCKET - TRANS.
S503	102	6'-11"	X	DIAPHRAGM @ ABUTS. - VERT.
S504	88	3'-3"	X	DIAPHRAGM @ ABUTS. - VERT.
S505	28	5'-0"		DIAPHRAGM @ ABUTS. - TRANS.
S906	102	37'-11"		SLAB BOTTOM - LONGIT.
S907	100	25'-4"		SLAB BOTTOM - LONGIT.
S708	51	16'-9"	X	SLAB HAUNCH OVER PIER - LONGIT.
S509	179	52'-5"		SLAB TOP & BOTTOM - TRANS.
S410	102	18'-8"		SLAB TOP @ ABUTS. - LONGIT.
S911	51	48'-4"		SLAB TOP OVER PIER & IN SPANS - LONGIT.
S912	50	23'-6"		SLAB TOP OVER PIER - LONGIT.
S413	8	41'-4"		MEDIAN - LONGIT.
S414	53	4'-9"		MEDIAN - TRANS.
S415	1	4'-1"		MEDIAN - TRANS. - E. END
S416	1	15'-5"	X	MEDIAN - NOSE - E. END
S517	32	8'-4"	X	DIAPHRAGM @ ABUT. ENDS. - VERT.
S518	8	7'-0"	X	DIAPHRAGM @ ABUT. ENDS. - VERT.
S419	652	3'-4"	X	SLAB & INTO SIDEWALK - VERT.
S420	110	3'-0"		SIDEWALK BOTTOM - TRANS.
S421	52	40'-3"		SIDEWALK - LONGIT.
S522	486	7'-7"	X	SIDEWALK TOP - TRANS.
S523	216	4'-4"	X	PARAPET STIRRUP IN SPAN - VERT.
S524	20	5'-8"	X	PARAPET STIRRUP OVER ABUT. - VERT.
S525	32	40'-9"		PARAPET - LONGIT.
S526	236	4'-9"	X	PARAPET STIRRUP - TOP - VERT.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
EPOXY COAT ALL SUPERSTRUCTURE BAR STEEL REINFORCEMENT.



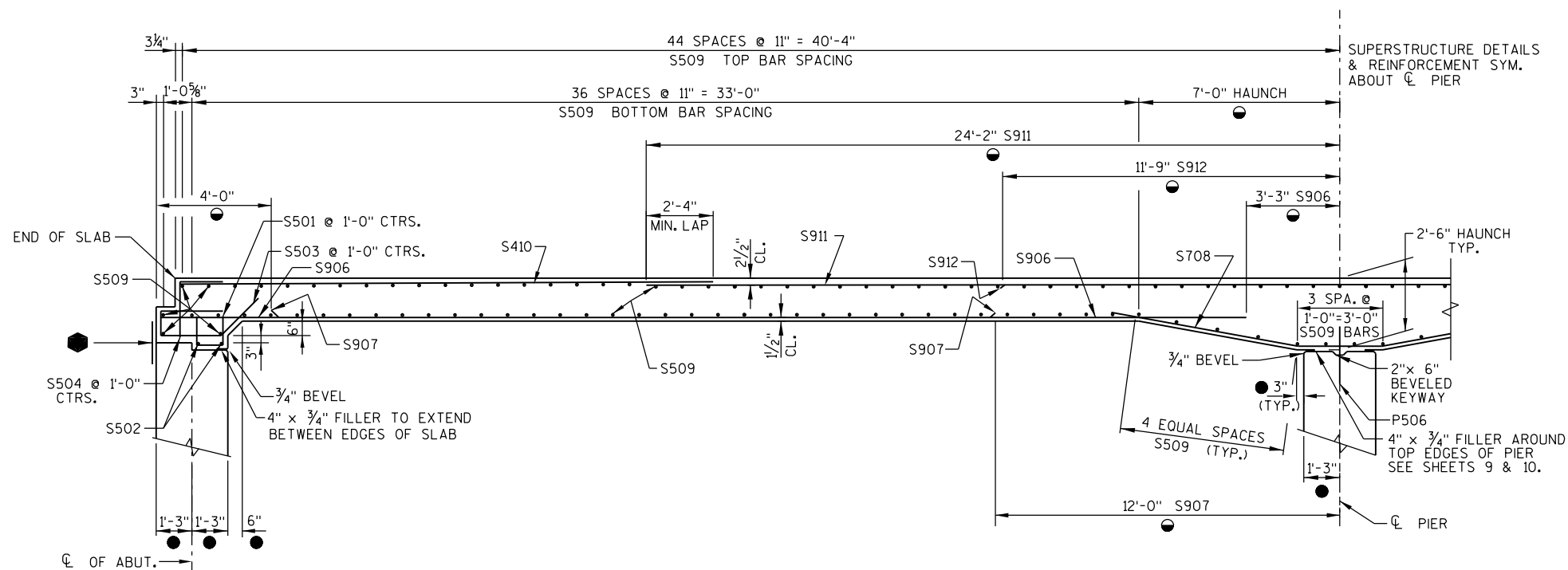
AT ABUTMENTS **IN SPAN**
CROSS SECTION THRU BRIDGE - IN SPAN & AT ABUTMENTS
(LOOKING EAST)



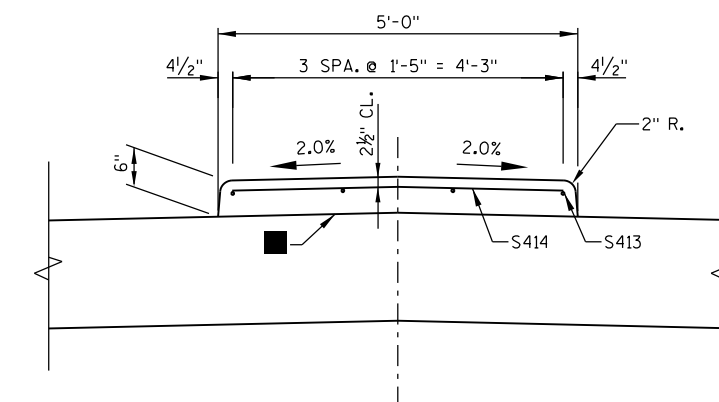
CROSS SECTION THRU BRIDGE AT PIER
(LOOKING EAST)

SEE LEGEND ON SHEET 13 FOR DESCRIPTION OF

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-20-242	
DRAWN BY		CAR	PLANS CK'D. JRS
SUPERSTRUCTURE SECTIONS & DETAILS			SHEET 12 OF 17

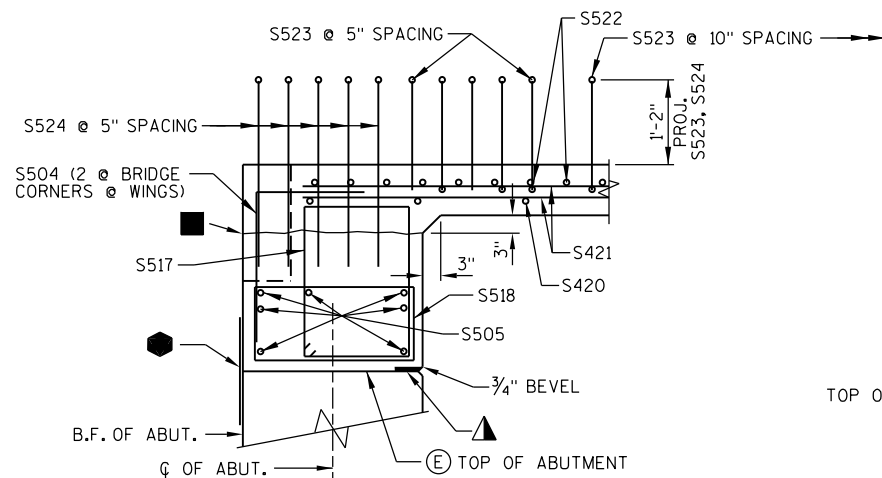


PART LONGITUDINAL SECTION

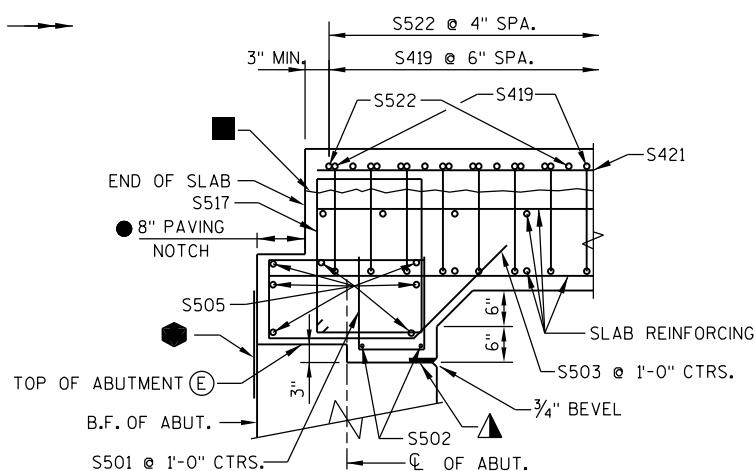


MEDIAN SECTION

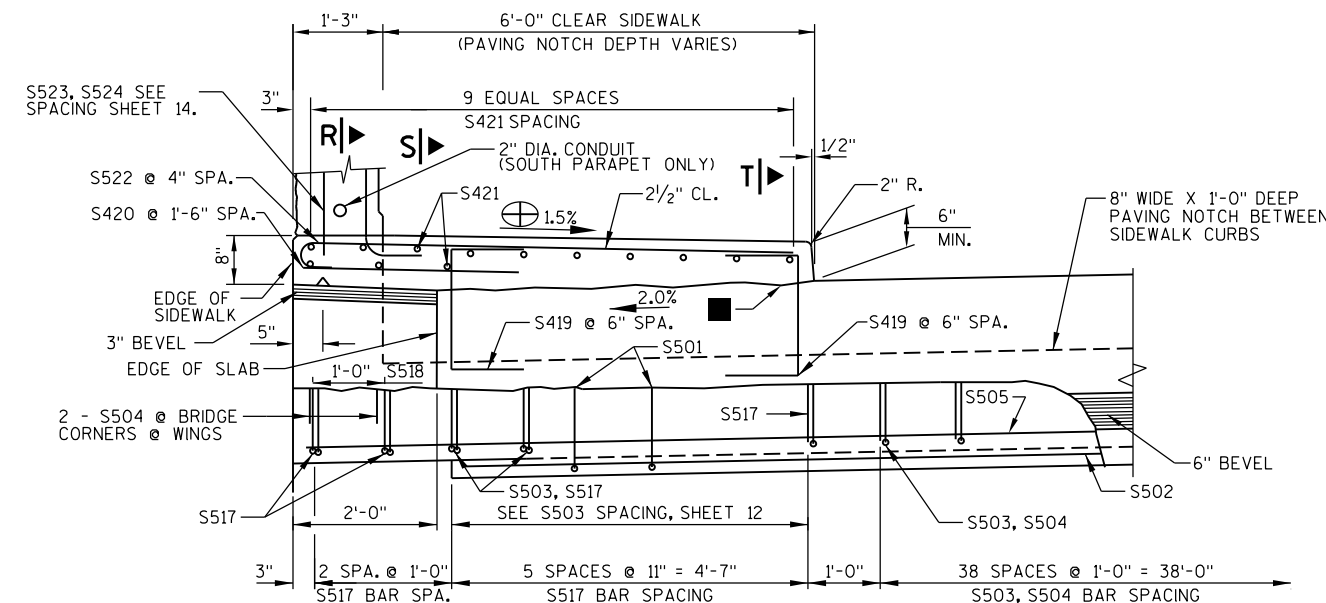
(SEE PART MEDIAN PLAN ON SHEET 11 FOR REINFORCEMENT LAYOUT)



SECTION R-R @ PARAPET

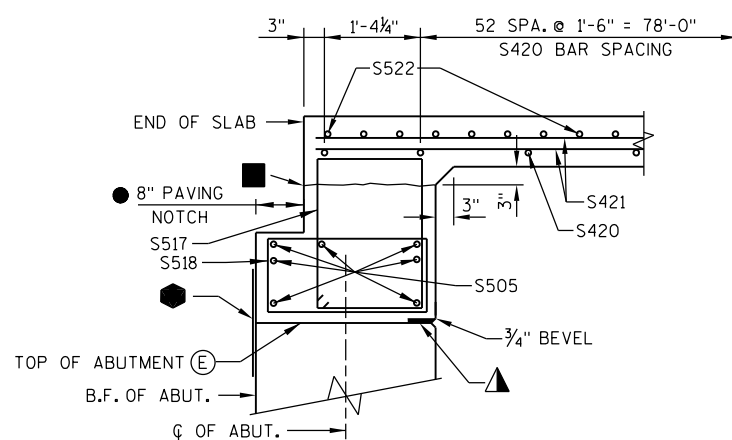


SECTION T-T THRU SIDEWALK & SLAB



R | S | T |

SECTION THRU EDGE OF SLAB AT ABUTMENT



SECTION S-S THRU SIDEWALK OVERHANG

LEGEND

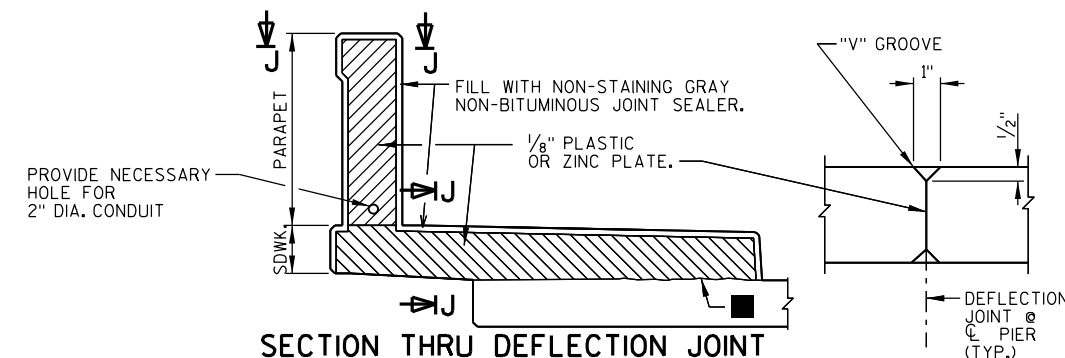
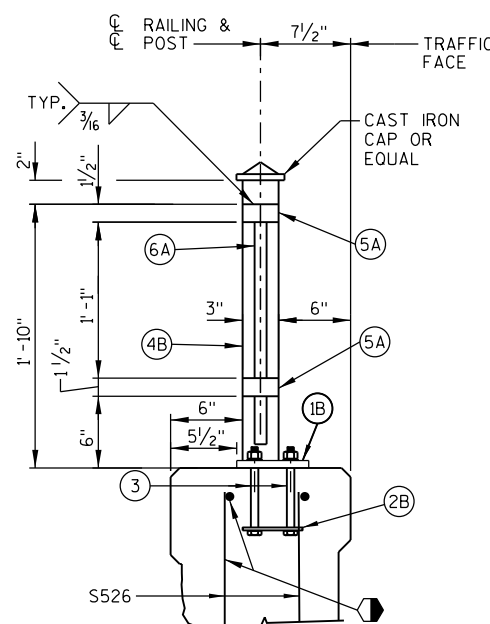
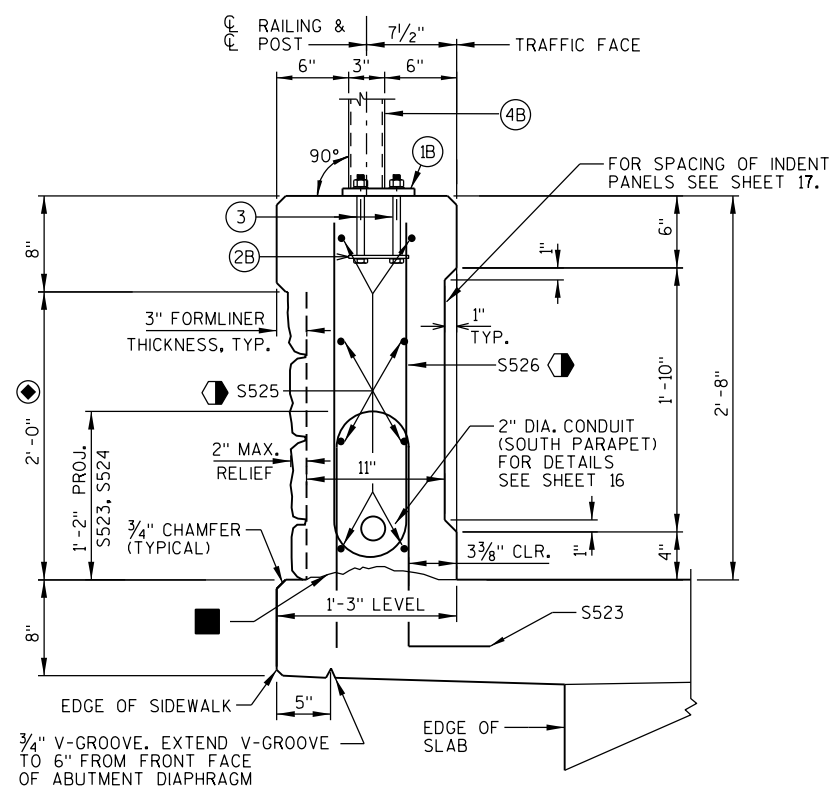
- ⊙ - ARCHITECTURAL SURFACE TREATMENT AND CONCRETE STAINING MULTI-COLOR. FOR LIMITS AND DETAILS SEE SHEET 17.
- - 18" RUBBERIZED MEMBRANE WATERPROOFING.
- - CONSTRUCTION JOINT STRIKE OFF AS SHOWN AND LEAVE ROUGH. DO NOT APPLY PROTECTIVE SURFACE TREATMENT TO THIS AREA.
- ▲ - 4" x 3/4" FILLER, EXTEND FULL LENGTH OF ABUTMENT.
- ⓔ - SEMI-EXPANSION BEARING WITH SEAT STEP. SEE ABUTMENT PLAN SHEETS 5 & 7 FOR DETAILS & LAYOUT.
- - DIMENSIONS ARE NORMAL TO THE CL OF SUBSTRUCTURE UNITS.
- - DIMENSIONS ARE PARALLEL TO THE CL OF W DIVISION STREET.
- ⊕ - ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

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SUPERSTRUCTURE & SIDEWALK SECTIONS			SHEET 13 OF 17



PART ELEVATION OF PARAPET

LOOKING AT TRAFFIC FACE
(INDENTED PANELS NOT SHOWN)



ADJUST LOCATION OF BARS TO ALLOW PLACEMENT OF ANCHOR ASSEMBLY FOR RAILING (WHEN REQUIRED). WHEN ADHESIVE ANCHORS ARE USED, FIELD BEND AND/OR DISPLACE TO AVOID HITTING LONGITUDINAL BAR WHEN DRILLING FOR ADHESIVE ANCHORS.

SEE SHEET 13 LEGEND FOR DESCRIPTION OF

■ ●

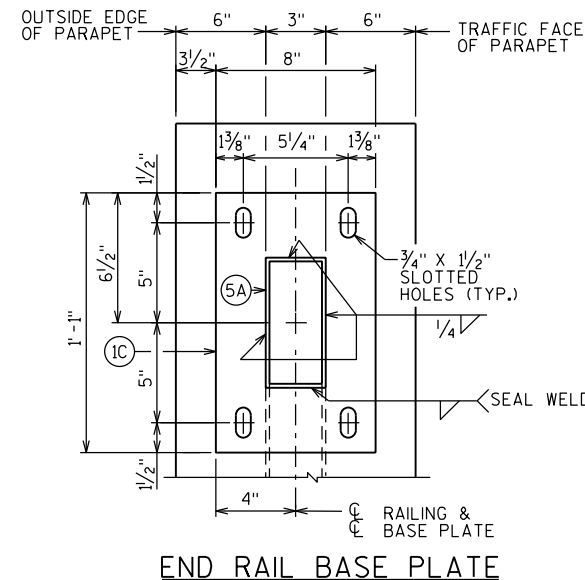
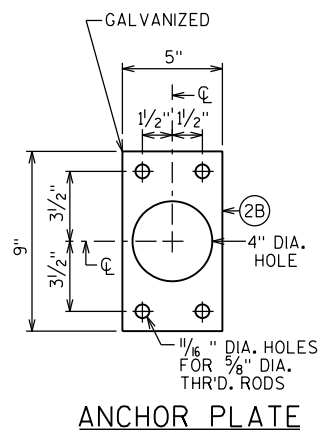
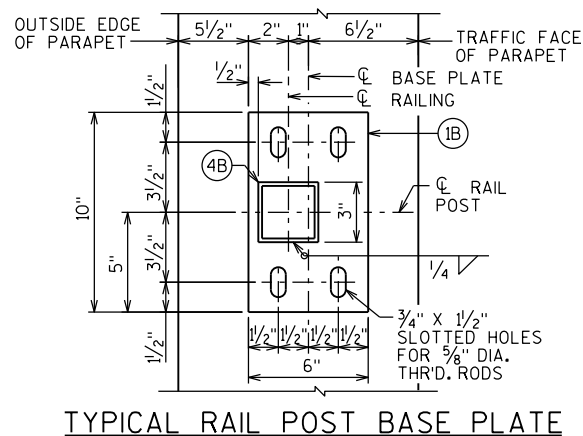
SEE SHEET 15 LEGEND FOR DESCRIPTION OF

1B 1C 2B 2C 3
4B 5A 6A 10A

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-20-242	
DRAWN BY		RLR	PLANS CK'D. JRS
PARAPET & RAILING			SHEET 14 OF 17

8

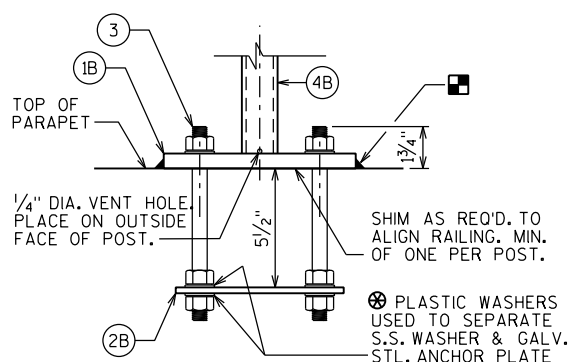
8



TYPICAL RAIL POST BASE PLATE

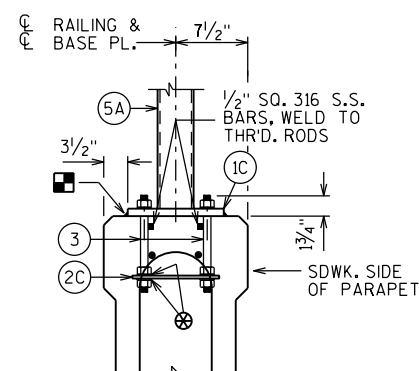
ANCHOR PLATE

END RAIL BASE PLATE



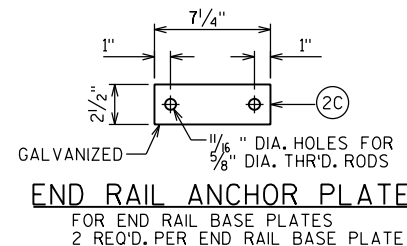
ANCHORAGE FOR RAIL POSTS

NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.



ANCHORAGE FOR END RAIL

NOTE: ANCHOR PLATES NOT REQ'D. WHEN ADHESIVE ANCHORS ARE USED.



END RAIL ANCHOR PLATE

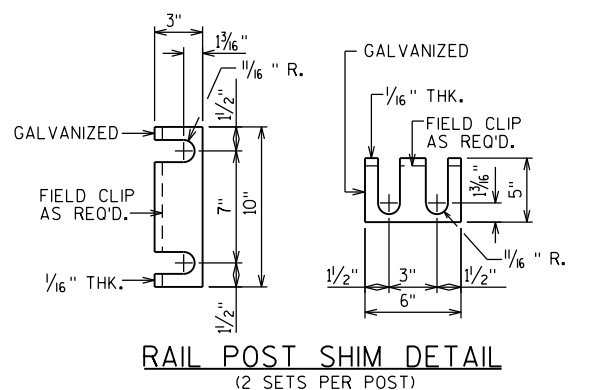
FOR END RAIL BASE PLATES
2 REQ'D. PER END RAIL BASE PLATE

LEGEND

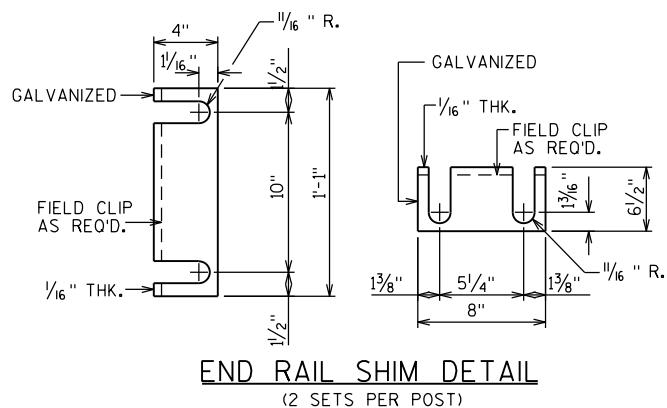
- (1B) PLATE 5/8" X 6" X 10" WITH 3/4" X 1 1/2" SLOTTED HOLES
- (1C) PLATE 5/8" X 8" X 1'-1" WITH 3/4" X 1 1/2" SLOTTED HOLES.
- (2B) 1/4" X 5" X 9" ANCHOR PLATE WITH 1/16" DIA. HOLES FOR THR'D. RODS NO. 3.
- (2C) 1/4" X 2 1/2" X 7 1/4" ANCHOR PLATE WITH 1/16" DIA. HOLES FOR THR'D. RODS NO. 3.
- (3) 5/8" 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 5/8"-INCH. EMBED 7" IN CONCRETE FOR RAIL POSTS. EMBED 5" IN CONCRETE FOR END RAILS. ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 AND 502.3.14 OF THE STANDARD SPECIFICATIONS.
- (4B) STRUCTURAL TUBING 3" X 3" X 3/16". PLACE VERTICAL. WELD TO NO.1 & 5.
- (5A) STRUCTURAL TUBING 3" X 1 1/2" X 3/16" RAILS. 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 3/16" PLATES. PROVIDE "SLIDING FIT".
- (10A) RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. (1'-4" @ FIELD ERECTION JTS.)

RAILING NOTES

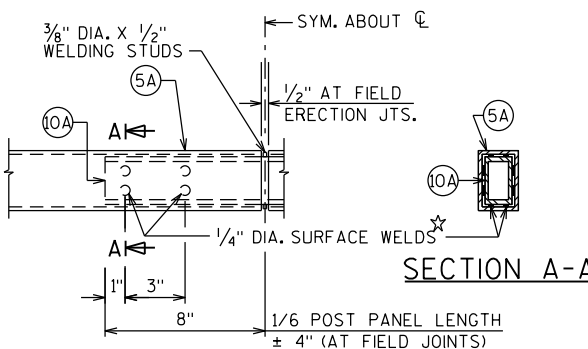
- BID ITEM SHALL BE "RAILING STEEL TYPE C6", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.
- POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.
- ALL PLATES, BARS, AND RECTANGULAR 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 FEDERAL 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.



RAIL POST SHIM DETAIL
(2 SETS PER POST)

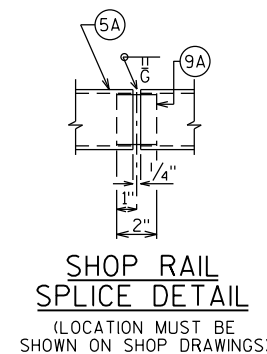


END RAIL SHIM DETAIL
(2 SETS PER POST)



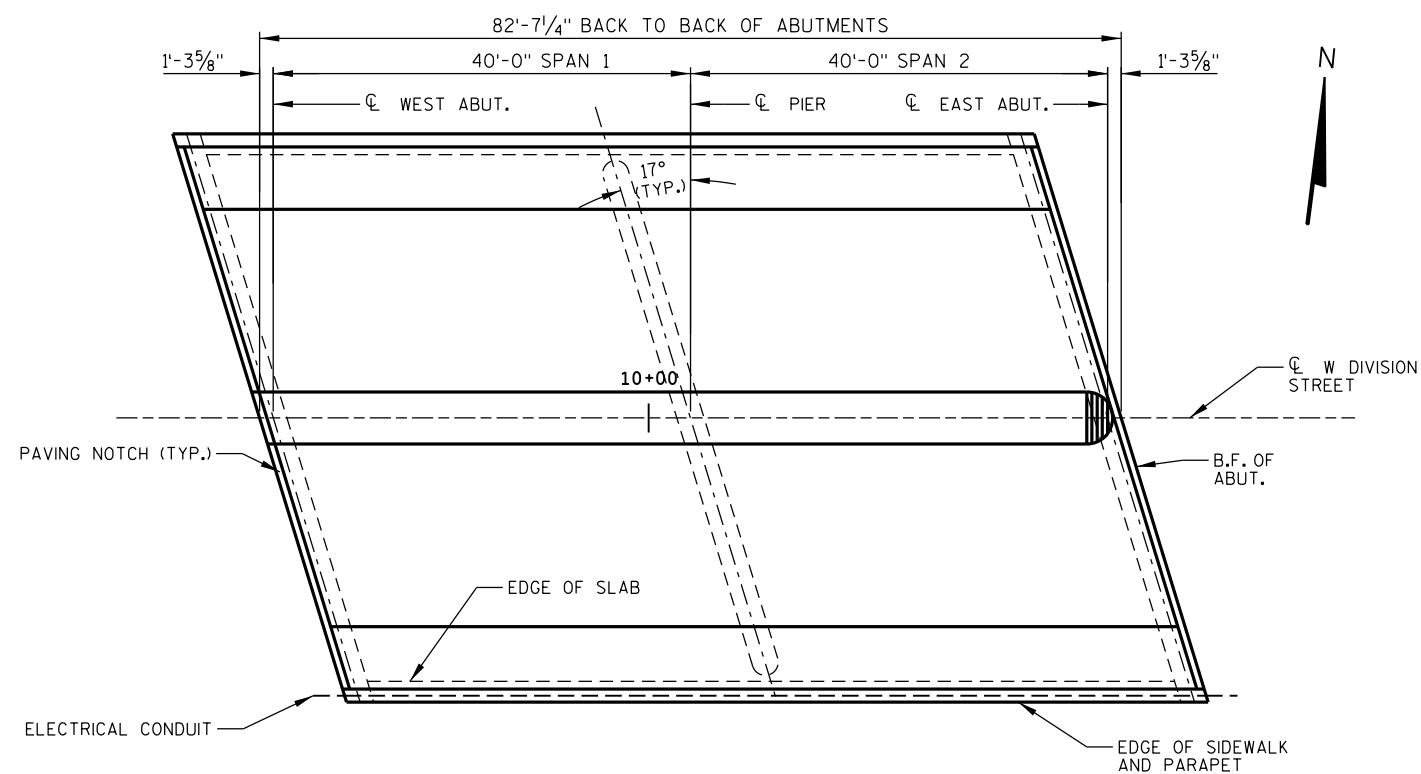
FIELD ERECTION JOINT DETAIL

☆ MIN. 5/8" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.



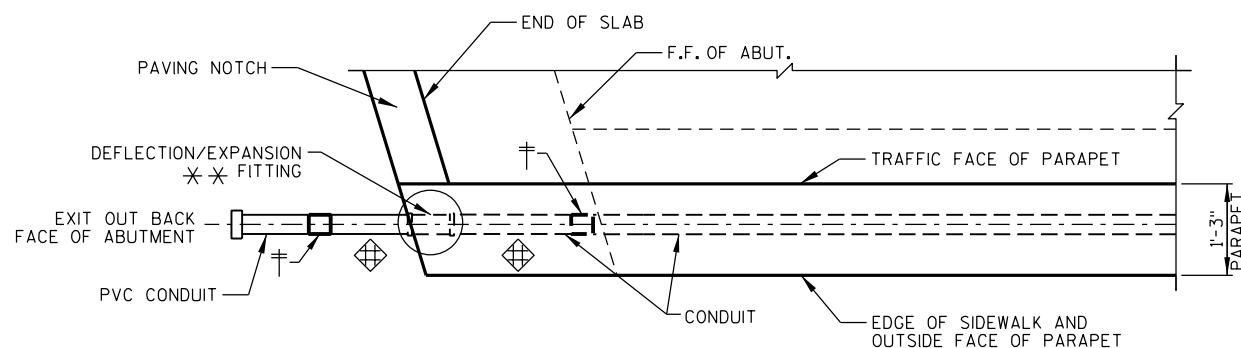
SHOP RAIL SPLICE DETAIL
(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)

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STRUCTURE		B-20-242	
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MAA		JRS	
RAILING STEEL TYPE C6 DETAILS			SHEET 15 OF 17

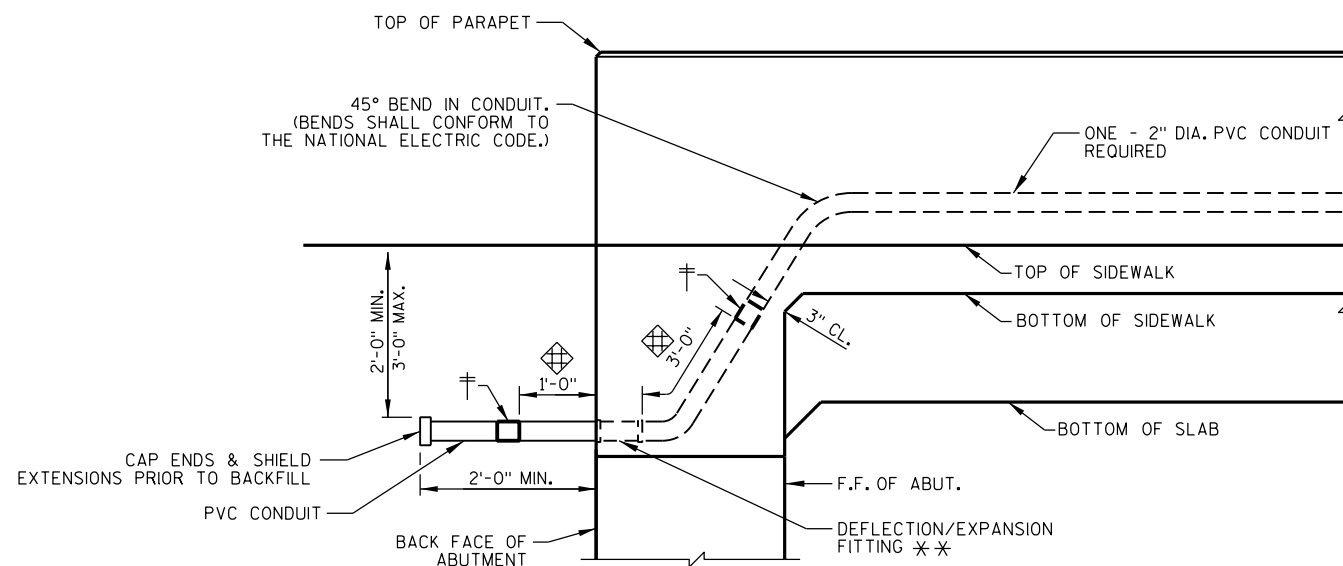


PLAN

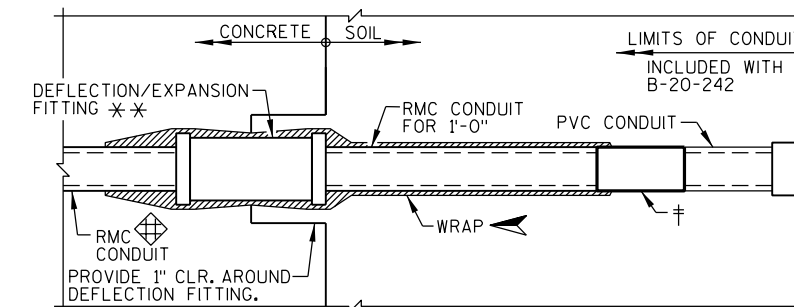
NOTE:
 WINGS AND TYPE C6 RAILING
 NOT SHOWN FOR CLARITY.



PLAN OF PARAPET AT END OF SLAB



OUTSIDE ELEVATION OF PARAPET AT END OF SLAB



DEFLECTION/EXPANSION FITTING

REQUIRED AT ALL LOCATIONS WHERE CONDUIT EXITS THE BRIDGE INTO SOIL

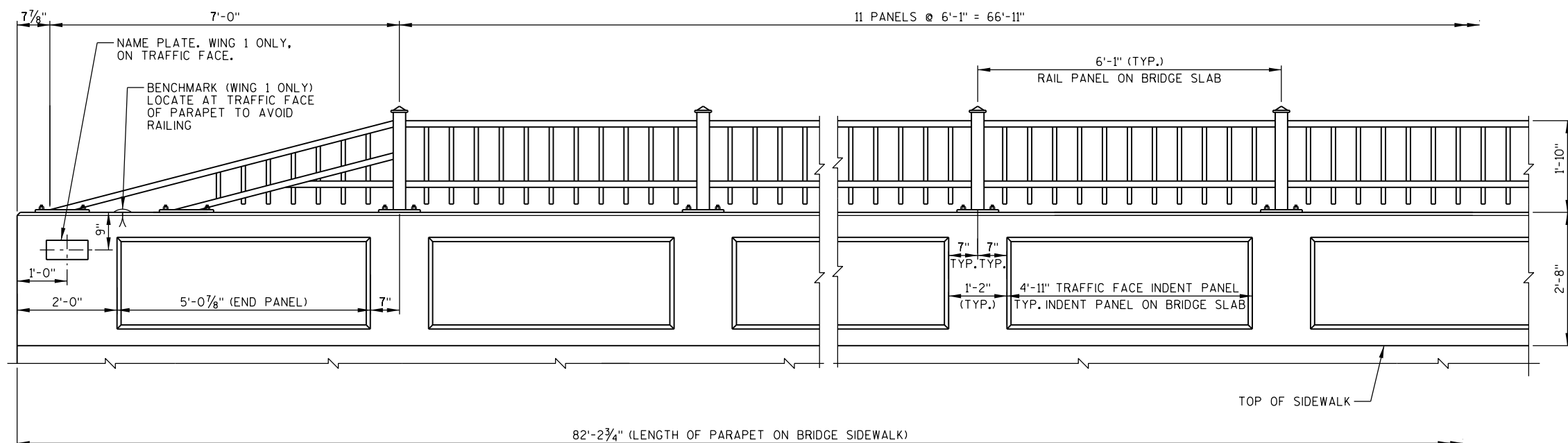
NOTES

- BID ITEMS SHALL BE:
 "CONDUIT RIGID METALLIC 2-INCH".
 "CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH"
- CONDUIT SHALL BE EMBEDDED 2" CLEAR.
- CONDUIT FITTINGS, CONDUIT BENDS, AND ADAPTER FITTINGS INCIDENTAL TO CONDUIT WORK.
- CONDUIT BENDS SHALL CONFORM TO THE NATIONAL ELECTRIC CODE.
- USE 2" DIA. RIGID NONMETALLIC CONDUIT (PVC) UNLESS NOTED OTHERWISE.
- BRIDGE CONTRACTOR TO PROVIDE A PULL WIRE IN ALL CONDUIT FOR FUTURE CABLE INSTALLATION BY OTHERS AS PROVIDED IN THE STANDARD SPECIFICATIONS OR SPECIAL PROVISIONS. PULL WIRE INCIDENTAL TO CONDUIT WORK.
- JUNCTION BOX REQUIREMENTS: NONE

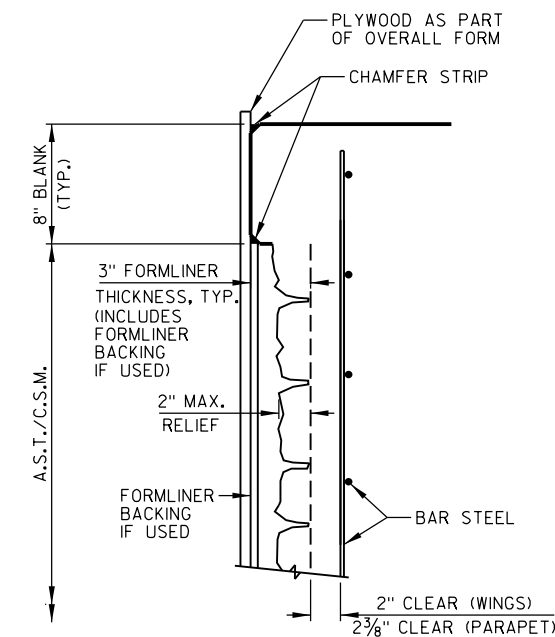
LEGEND

- ◆ USE RIGID METALLIC (RMC) CONDUIT AT FITTINGS WITH SAME SIZE DIAMETER AS CONNECTING PVC CONDUIT. PROVIDE RMC FOR 3'-0" MIN. ON STRUCTURE SIDE OF JOINT OPENING AND 1'-0" ON SOIL SIDE OF JOINT OPENING.
- † NONMETALLIC CONDUIT TO METALLIC CONDUIT ADAPTER FITTING (UL OR NRTL LISTED FOR ELECTRICAL USE SHALL BE USED). ADAPTER FITTING INCIDENTAL TO "CONDUIT RIGID METALLIC 2-INCH."
- ◀ SPONGE RUBBER WRAP TO BE AASHTO M153, TYPE 1 OR EQUIVALENT - 1/4" MINIMUM THICKNESS. PROVIDE WRAP FOR THE ENTIRE LENGTH OF THE FITTING OR AS SHOWN. SPONGE RUBBER WRAP INCIDENTAL TO "CONDUIT RIGID METALLIC 2-INCH".
- * * DEFLECTION/EXPANSION FITTING REQUIREMENTS:
 • UP TO 3/4" CONDUIT CONTRACTION OR EXPANSION AND UP TO 30 DEGREES OF ANGULAR MISALIGNMENT IN ANY DIRECTION WITH BONDING JUMPER

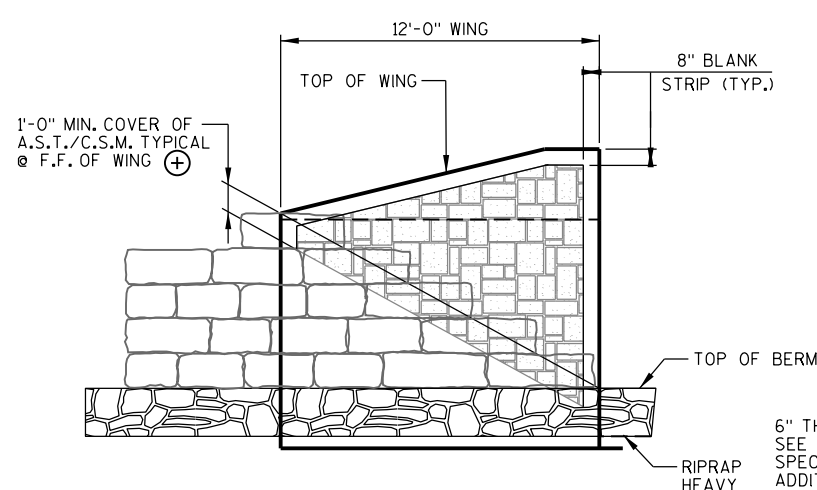
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-20-242	
DRAWN BY		PLANS CK'D.	
MAA		JRS	
ELECTRICAL CONDUIT PLAN & DETAILS			SHEET 16 OF 17



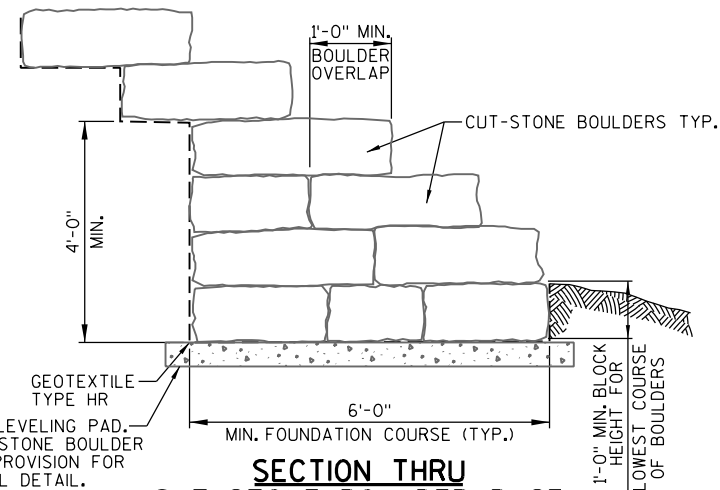
ELEVATION - TRAFFIC FACE OF PARAPET



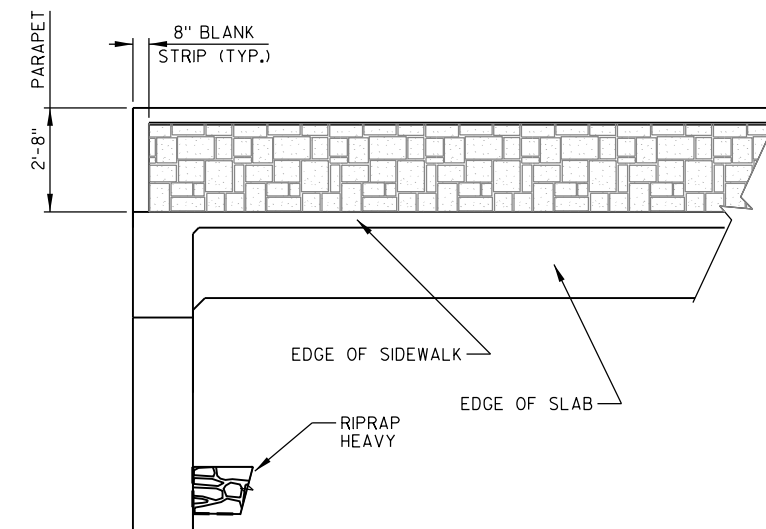
SECTION THRU FORMLINER



ELEVATION WING 1



SECTION THRU CUT-STONE BOULDER BASE



ELEVATION - OUTSIDE FACE OF BRIDGE

A.S.T./C.S.M. PAY LIMITS

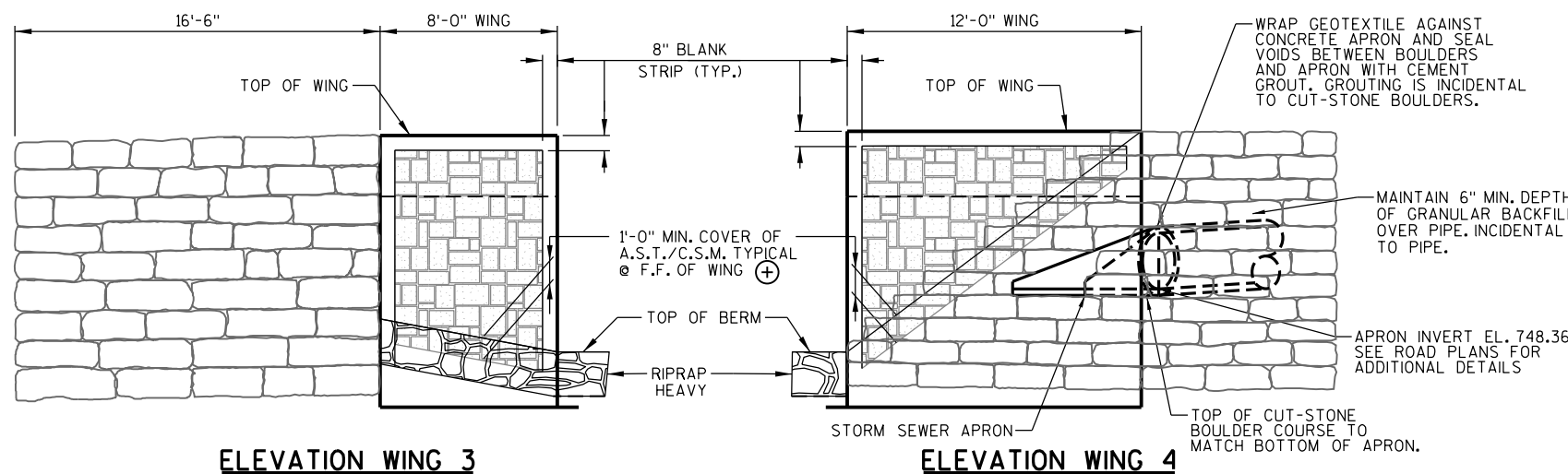
SEE SHEET 1 FOR RIPRAP HEAVY AND CUT-STONE BOULDER LAYOUT AT ABUTMENTS.

NOTES:

- A.S.T. LIMITS. PATTERN SHOWN FOR A.S.T. IS REPRESENTATIVE ONLY AND DOES NOT MATCH PATTERN TO BE UTILIZED. SEE SPECIAL PROVISION FOR ADDITIONAL DETAILS.
- A.S.T. PATTERN SHALL BE RUSTIC ASHLAR AND SHALL MATCH PATTERN USED FOR STRUCTURE B-20-231.
- C.S.M. SHALL BE APPLIED TO ALL A.S.T. SEE SPECIAL PROVISION FOR CONCRETE STAINING DETAILS.
- C.S.M. COLOR SHALL MATCH SCHEME USED FOR STRUCTURE B-20-231.
- THE FORMLINER PATTERN SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS.
- THE FORMLINER COURSING ON PARAPETS SHALL BE PARALLEL TO THE TOP OF THE PARAPET.
- THE FORMLINER COURSING ON WINGS SHALL BE LEVEL.

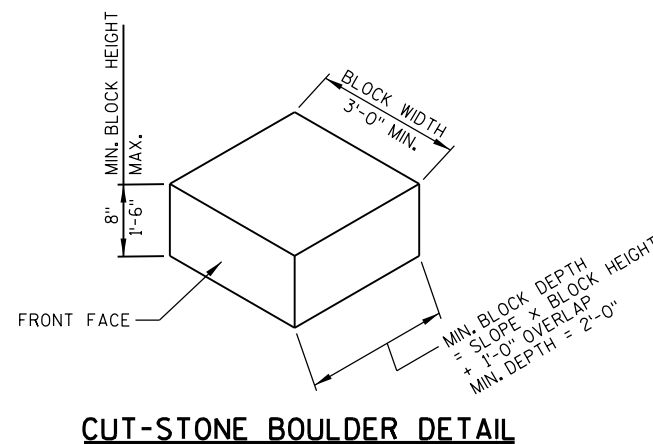
LEGEND

- A.S.T./C.S.M. - ARCHITECTURAL SURFACE TREATMENT/CONCRETE STAINING MULTI-COLOR.
- ⊕ - DO NOT PLACE FINAL RIPRAP HEAVY AND CUT-STONE BOULDERS WITHIN 1'-6" OF WING SURFACES TO BE STAINED UNTIL AFTER C.S.M. IS COMPLETE.



ELEVATION WING 3

ELEVATION WING 4



CUT-STONE BOULDER DETAIL

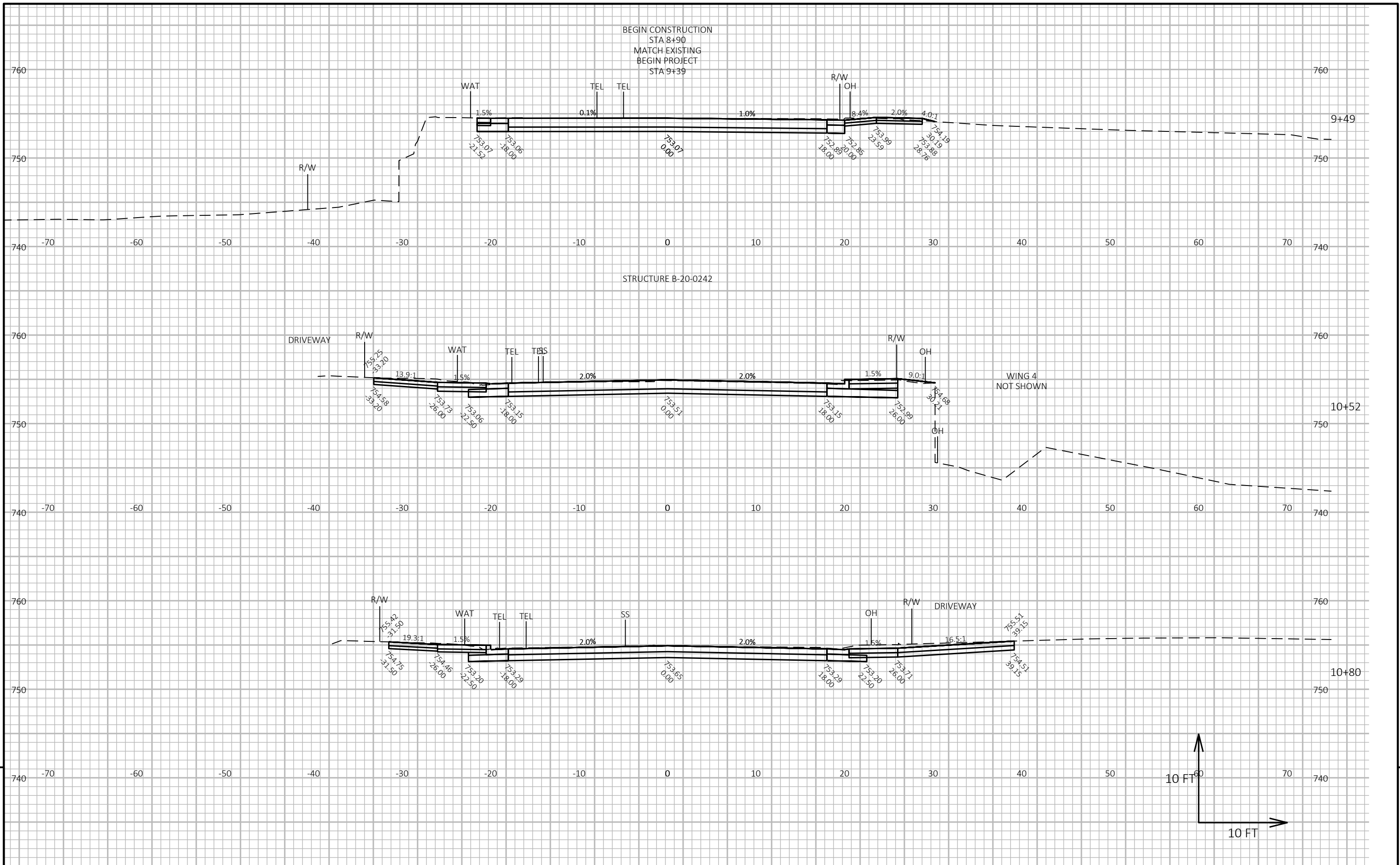
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-20-242	
DRAWN BY		PLANS CK'D.	
RLR		JRS	
AESTHETIC & CUT-STONE BOULDER DETAILS			SHEET 17 OF 17

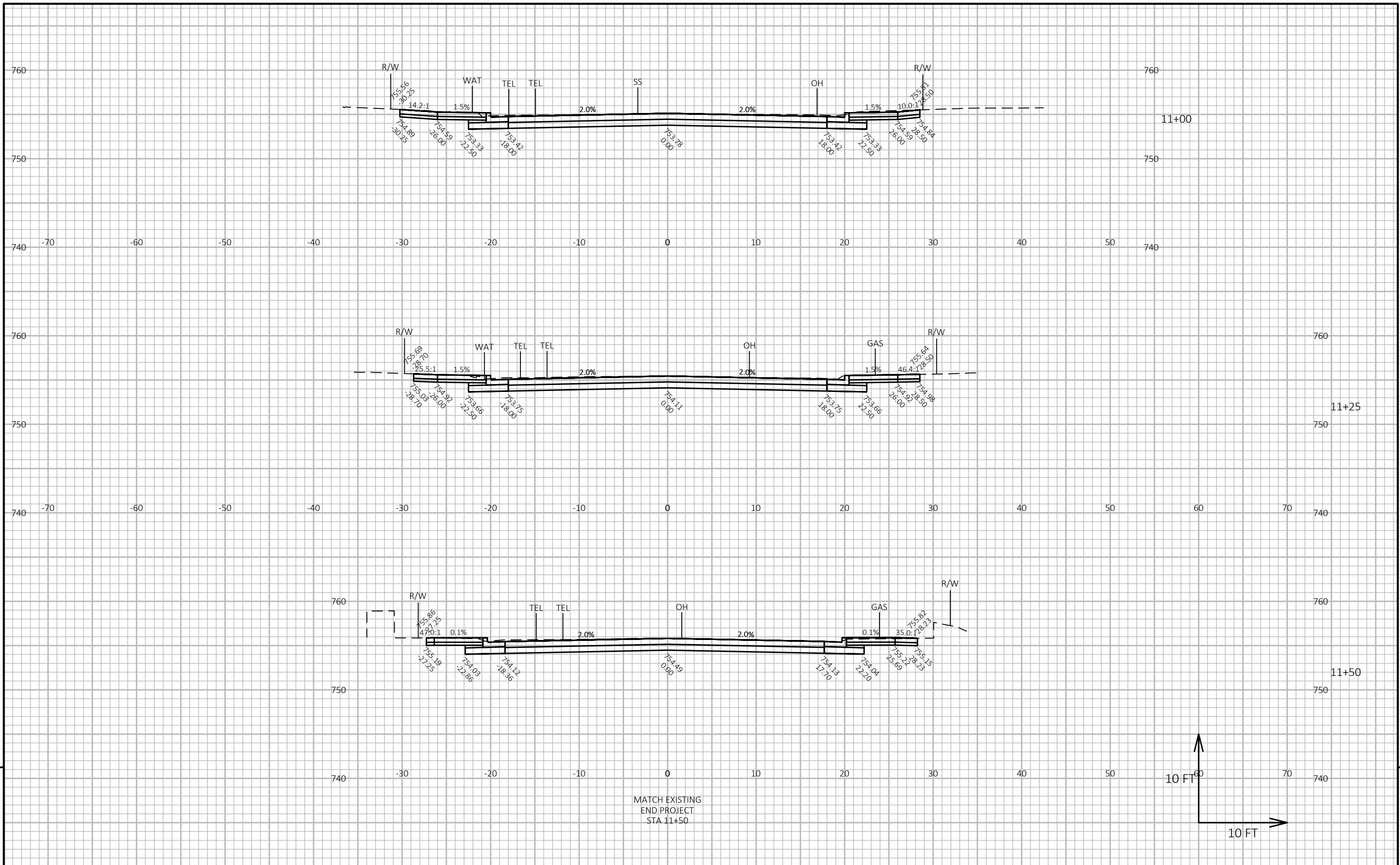
PROJECT I.D. 4986-12-71 EARTHWORK SUMMARY

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY	ADJUSTED WASTE CY
9+39.00	61	0	0	0	61	-61
9+62.69						
STRUCTURE B-20-0242						
10+45.31	21	0	0	0	21	-21
10+52.00	91	0	0	0	91	-91
10+80.00	63	0	0	0	63	-63
11+00.00	71	0	0	0	71	-71
11+25.00	68	0	0	0	68	-68
11+50.00						
SUBTOTALS						
WEST APPROACH	61	0	0	0	61	-61
EAST APPROACH	314	0	0	0	314	-314
REMOVING PAVEMENT W APPROACH (3)	-16					16
REMOVING PAVEMENT E APPROACH (3)	-140					140
TOTALS	219	0	0	0	375	-219
(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.						
(2) - FILL EXPANSION 30%						
(3) - EXISTING CONCRETE PAVEMENT BASED ON AVE THK OF 8" PER BORING LOG.						

9

9





PROJECT NO: 4986-12-71 HWY: LOCAL STREET COUNTY: FOND DU LAC CROSS SECTIONS: W DIVISION STREET SHEET E



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