

WKE

PROJECT ID:  
WIT: N/A

2719-00-71

COUNTY:

WAUKESHA

JANUARY 2025  
ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way 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 = 108



DESIGN DESIGNATION 2719-00-71

A.A.D.T.	2025	=	490
A.A.D.T.	2045	=	599
D.H.V.		=	75
D.D.		=	60/40
T.		=	5.0 %
DESIGN SPEED		=	40 MPH
ESALS		=	52,000

CONVENTIONAL SYMBOLS

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

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

ROCK	
LABEL	
36	
95	
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

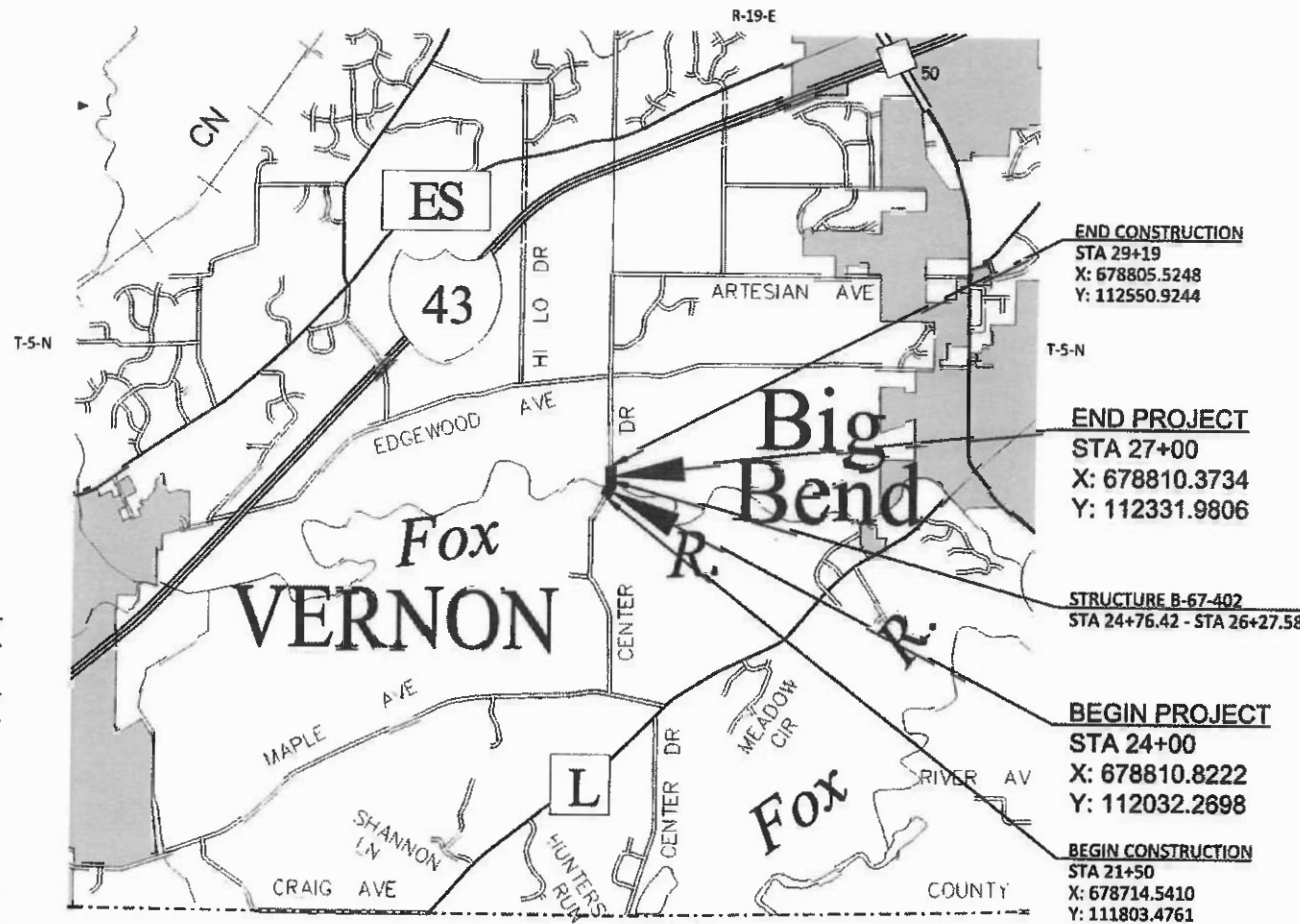
PLAN OF PROPOSED IMPROVEMENT

V VERNON - CENTER DRIVE

BRIDGE OVER FOX RIVER, P-67-0100

LOCAL STREET  
WAUKESHA COUNTY

STATE PROJECT NUMBER  
2719-00-71



LAYOUT  
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.056 MI

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

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT

2719-00-71

FEDERAL PROJECT

PROJECT

WISC 2025157

CONTRACT

1

ACCEPTED FOR  
VILLAGE OF VERNON

9/24/24 Karen J. Schick  
DATE VILLAGE PRESIDENT

**Foth**  
Foth Infrastructure & Environment, LLC  
3117 WEST TERRACE DRIVE, SUITE 401  
WAUKESHA, WI 53186  
920-242-2500

ORIGINAL PLANS PREPARED BY  
FOTH INFRASTRUCTURE & ENVIRONMENT, LLC



9/24/24  
DATE (Professional Engineer Signature)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	FOTH
Designer	FOTH
Project Manager	JOSEPH JELACIC
Regional Examiner	WISDOT SOUTHEAST REGION
Regional Supervisor	BRIAN BOOTHBY

APPROVED FOR THE DEPARTMENT

9/30/24 Joseph Jelacic  
DATE (Signature)

E

RUNOFF COEFFICIENT TABLE

LAND USE:	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS:	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIPTURF:	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPETURF:			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT:	.70 - .95											
CONCRETE:	.80 - .95											
BRICK:	.70 - .80											
DRIVES, WALKS:	.75 - .85											
ROOFS:	.75 - .95											
GRAVEL ROADS, SHOULDERS:	.40 - .60											

TOTAL PROJECT AREA = 1.15 ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.9 ACRES

STANDARD ABBREVIATIONS

AGG	AGGREGATE	LC	LONG CHORD OF CURVE
ASPH	ASPHALTIC	LS	LUMP SUM
AVG	AVERAGE	LT	LEFT
AADT	ANNUAL AVERAGE DAILY TRAFFIC	MH	MANHOLE
ADT	AVERAGE DAILY TRAFFIC	MOR	MID POINT OF RADIUS
BM	BENCH MARK	NC	NORMAL CROWN
CL OR C/L	CENTER LINE	NO	NUMBER
CONC	CONCRETE	OBLIT	OBLITERATE
CWT	HUNDREDWEIGHT	PAVT	PAVEMENT
CY	CUBIC YARD	PE	PRIVATE ENTRANCE
C & G	CURB AND GUTTER	PVRC	POINT OF VERTICAL REVERSE CURVE
D	DEGREE OF CURVE	QOR	QUARTER POINT OF RADIUS
DHV	DESIGN HOUR VOLUME	R	RADIUS
DG	DITCH GRADE	RT	RIGHT
DWY	DRIVE WAY	REF	REFLECTIVE
EOR	END POINT OF RADIUS	REQ'D	REQUIRED
EL	ELEVATION	R/W	RIGHT OF WAY
ENT	ENTRANCE	RDWY	ROADWAY
ESALS	EQUIVALENET SINGLE AXLE LOADS	R/L OR ~	REFERENCE LINE
EXIST	EXISTING	SF	SQUARE FEET
FC	FACE OF CURB	SY	SQUARE YARD
FF	FACE TO FACE	SDD	STANDARD DETAIL DRAWINGS
FL	FLOW LINE	STA	STATION
FO	FIBER OPTIC	SE	SUPERELEVATION RATE
GAL	GALLON	T	TOTAL PERCENT TRUCK TRAFFIC
HMA	HOT MELT ASPHALT	TC	TOP OF CROWN
HYD	HYDRANT	TYP	TYPICAL
IN	INCH	VAR	VARIABLE
INV	INVERT	VC	VERTICAL CURVE
L	LENGTH OF CURVE	X	EAST GRID COORDINATE
LBS	POUNDS	Y	NORTH GRID COORDINATE
LF	LINEAR FOOT	YD	YARD

ORDER OF SECTION 2 DETAIL SHEETS

GENERAL NOTES  
PROJECT OVERVIEW  
TYPICAL SECTIONS  
CONSTRUCTION DETAILS  
PLAN DETAILS  
EROSION CONTROL  
ALIGNMENT LAYOUT - SURVEY CONTROL  
DETOUR  
SIGNING AND MARKING  
WATER MARKERS

GENERAL NOTES

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

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

EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT APPROXIMATE LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S EROSION CONTROL IMPLEMENTATION PLAN (ECIP) AND APPROVED BY THE ENGINEER. MAINTAIN EROSION CONTROL MEASURES UNTIL SUCH A TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, OR COVERED IN RIPRAP, SHALL BE FERTILIZED, SEEDED AND COVERED WITH EROSION MAT.

ALL GRADED OR DISTURBED AREAS THAT WILL NOT BE PERMANENTLY RESTORED WITHIN 5 DAYS, SHALL RECEIVE TEMPORARY SEED AND MULCH WITHIN 24 HOURS OF ANY DISTURBANCE.

TEMPORARY CAUSEWAY RESTORATION IS INCIDENTAL TO THE BID ITEM TEMPORARY CAUSEWAY.

PAVEMENT REMOVAL WILL BE TO A SAWED EDGE.

SAWCUTS, AS SHOWN ON THE PLANS, ARE SUGGESTED LOCATIONS AND MAY BE ADJUSTED AT THE DISCRETION OF THE ENGINEER TO BETTER SUIT FIELD CONDITIONS.

PRIOR TO PLACEMENT OF BEAM GUARD THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED.

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

DO NOT DRIVE OR STORE EQUIPMENT, OR STORE CONSTRUCTION MATERIALS IN ENVIRONMENTALLY SENSITIVE AREAS, WETLANDS OR WATERWAYS.

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LBS/SY/IN.

APPLY TACK COAT AT A RATE OF 0.07 GAL/SY TO AGGREGATE SURFACES AND 0.05 GAL/SY BETWEEN LAYERS OF HMA PAVEMENT.

A CONVERSION FACTOR OF 2.1 TONS/CY IS USED TO ESTIMATE BASE AGGREGATE DENSE 3/4-INCH AND BASE AGGREGATE DENSE 1 1/4-INCH.

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

WHEN THE QUANTITY OF THE ITEMS OF BASE AGGREGATE, SUBBASE OR HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON OR CUBIC YARD, THE DEPTH OR THICKNESS OF THE LAYERS SHOWN ON THE PLAN IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER..

PIPE ELEVATIONS, LENGTHS AND LOCATIONS AS SHOWN ON THE PLANS, MAY BE ADJUSTED TO FIT EXISTING FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR'S PAVING OPERATION SHALL BE CONSISTENT WITH THE TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, PASSING, OR PARKING LANE.

SAW CUT SLURRY SHALL BE SQUEEGEED TO AGGREGATE SHOULDER OR SHOVELED UP AND REMOVED FROM THE PAVEMENT BEFORE MOVING ONTO THE NEXT SAW CUT LOCATION.

DIGGERSHOTLINE

Dial 811 or (800)242-8511

www.DiggersHotline.com

UTILITIES CONTACTS

WE ENERGIES  
ELECTRICITY  
STEVE KING  
S13 W33800 HWY 18  
DELAFIELD, WI 53018  
PHONE: 414-940-0570  
EMAIL: STEVE.KING@WE-ENERGIES.COM

SPECTRUM  
COMMUNICATION LINE  
DAVE YOPPS  
1320 N. DR. MARTIN LUTHER KING JR DRIVE  
MILWAUKEE, WI 53212  
PHONE: 414-277-4281  
EMAIL: CHTR\_WI\_CONST@CHARTER.COM

VILLAGE OF VERNON

KAREN SCHUH  
VILLAGE PRESIDENT  
W249 S8910 CENTER DR  
VERNON, WI 53103  
PHONE: 262-662-2039  
EMAIL: KSCHUH@VILLAGEOFVERNONWI.ORG

DESIGN PROJECT LEADER

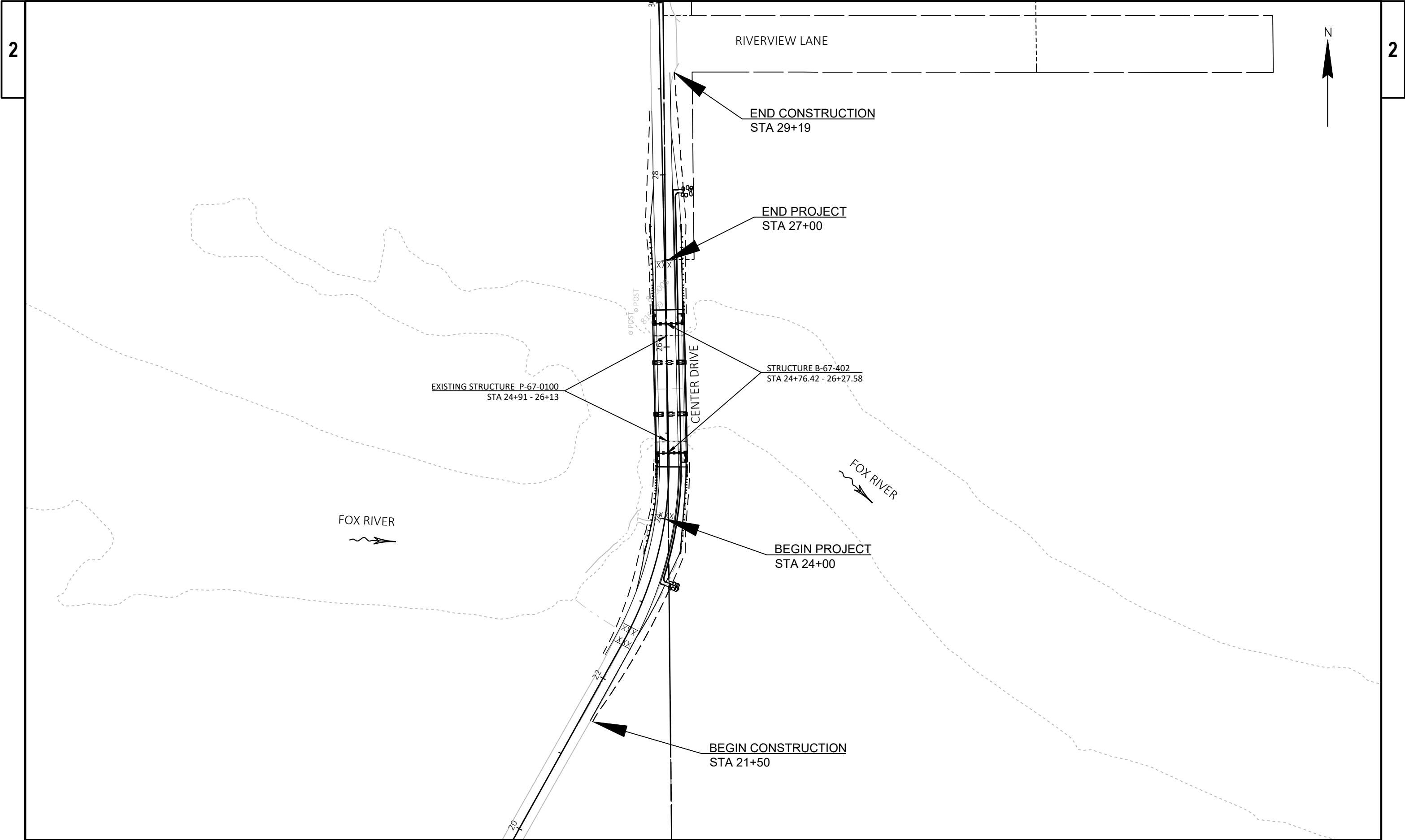
CHRIS SAXBY  
FOTH INFRASTRUCTURE & ENVIRONMENT, LLC  
5117 WEST TERRACE DRIVE, SUITE 401  
MADISON, WI 53718  
PHONE: 608-242-5942  
EMAIL: CHRIS.SAXBY@FOTH.COM

DESIGN PROJECT MANAGER

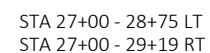
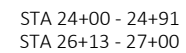
JOSEPH JELACIC  
WISDOT SOUTHEAST REGION  
141 NW BARSTOW ST  
WAUKESHA, WI 53188  
PHONE: 262-548-6762  
EMAIL: JOSEPH.JELACIC@DOT.WI.GOV

WISCONSIN DNR LIAISON

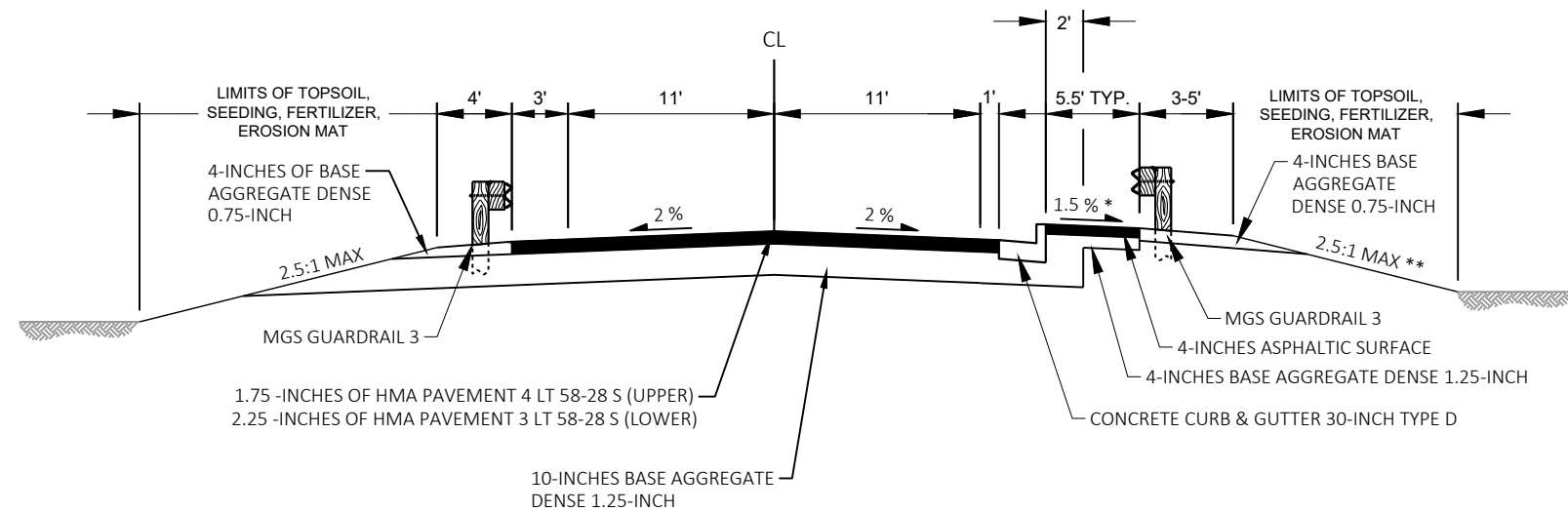
CRAIG WEBSTER  
SOUTHEAST REGION  
141 NW BARSTOW ST, ROOM 180  
WAUKESHA, WI 53188  
PHONE: 262-574-2141  
EMAIL: CRAIG.WEBSTER@WI.GOV



PROJECT NO: 2719-00-01	HWY: CENTER DRIVE	COUNTY: WAUKESHA	PROJECT OVERVIEW	SHEET	E
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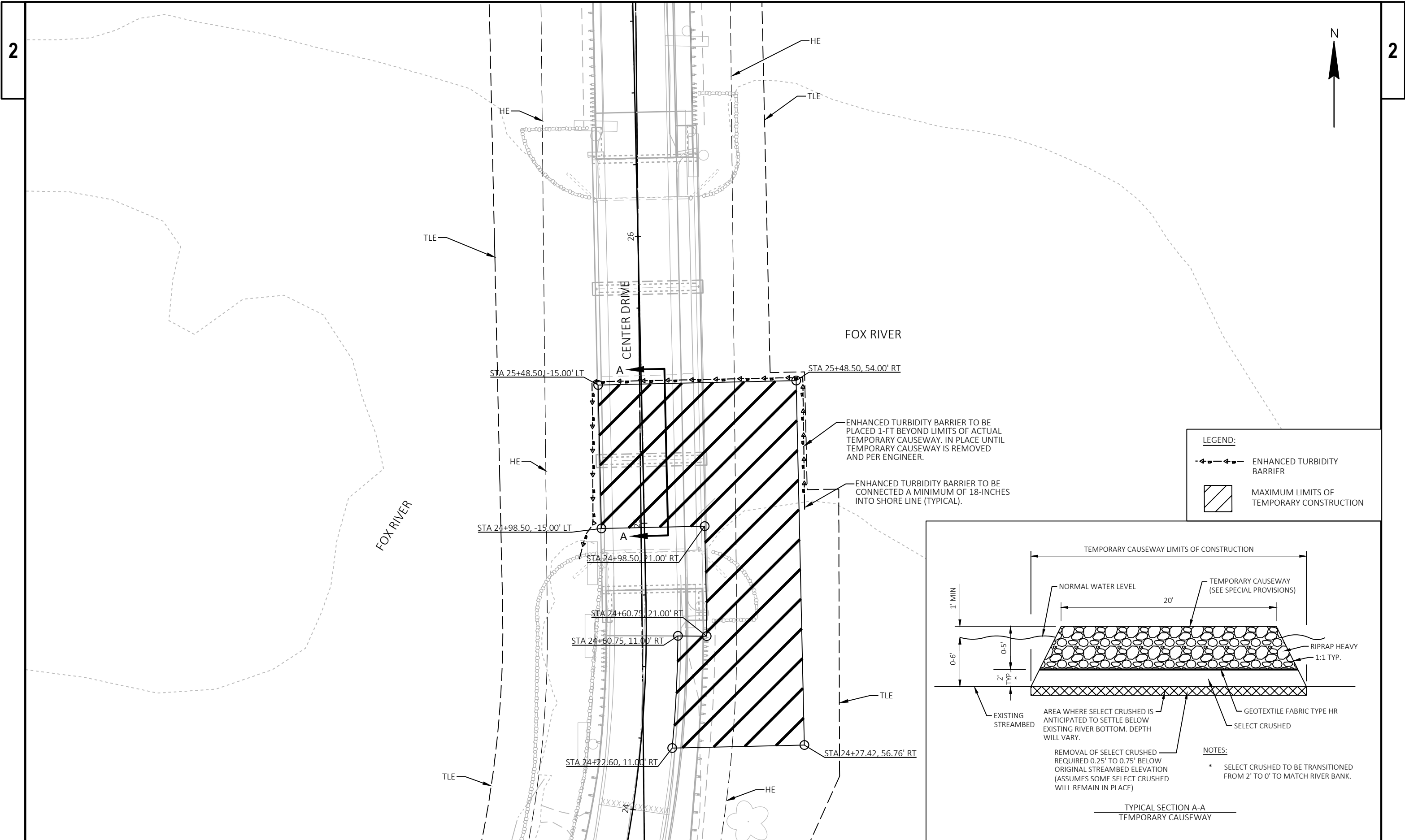


**NOTES:**

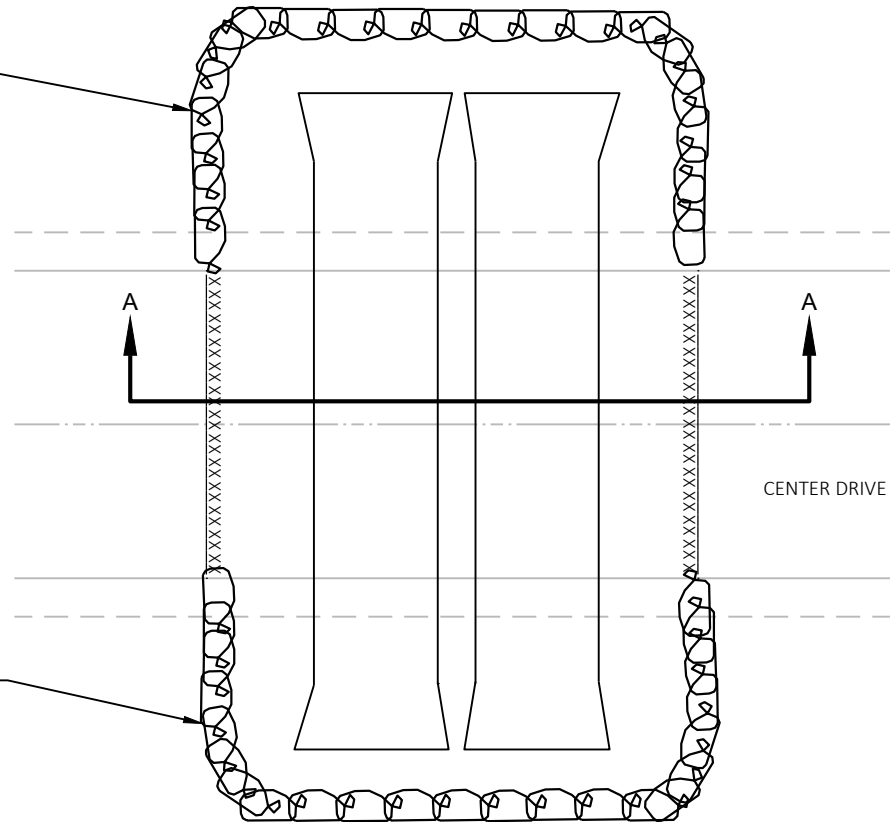
- \* SIDEWALK SLOPE ON CONCRETE APPROACH / BRIDGE IS + 1.5%. TRANSITION SIDEWALK SLOPE AFTER CONCRETE APPROACH OVER 15-FT FROM +1.5% TO -1.5%.
- \*\* FROM STA 26+15 - 26+60 RT 1.5:1 SLOPES WILL OCCUR, SEE CROSS SECTIONS.

**FINISHED TYPICAL SECTION**

STA 24+00 - 24+60  
STA 26+43 - 27+00

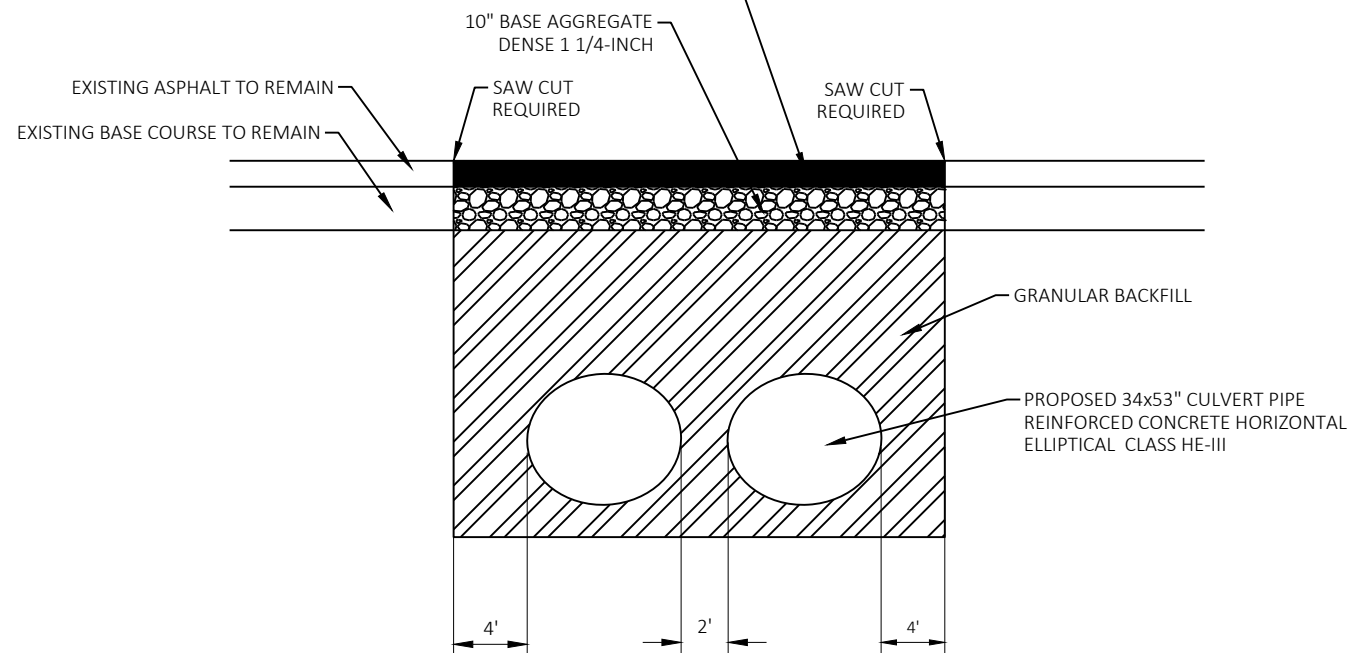


SAND BAGS REQUIRED TO ISOLATE WORK AREA AND PREVENT WATER FROM FLOWING INTO PIPE TRENCH. NUMBER OF BAGS TO BE DETERMINED BASED ON FIELD CONDITIONS



SAND BAGS REQUIRED TO ISOLATE WORK AREA AND PREVENT WATER FROM FLOWING INTO PIPE TRENCH. NUMBER OF BAGS TO BE DETERMINED BASED ON FIELD CONDITIONS

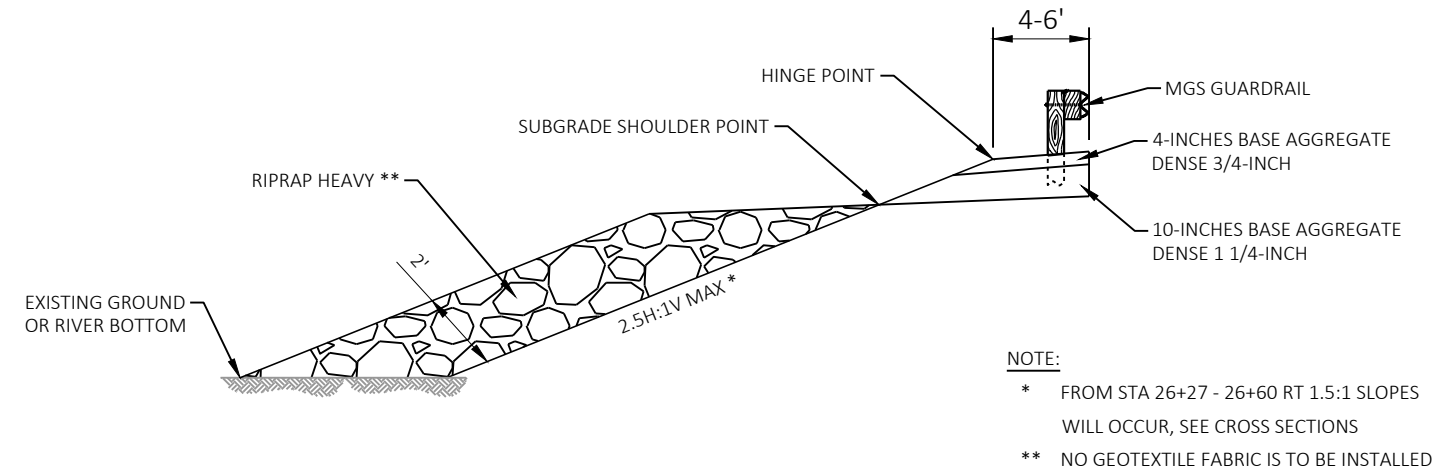
1.75 -INCHES OF HMA PAVEMENT 4 LT 58-28 S (UPPER)  
2.25 -INCHES OF HMA PAVEMENT 3 LT 58-28 S (LOWER)



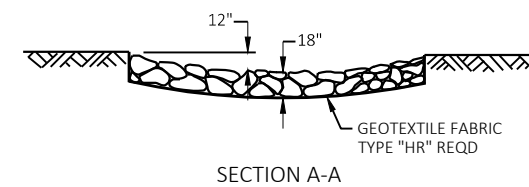
SECTION A-A

DETAIL FOR CULVERT PIPE INSTALLATION  
STA 22+50

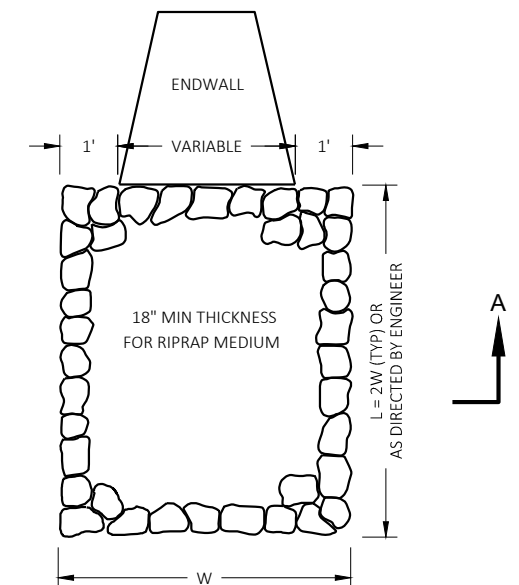
NOTES:  
- SAND BAGS INCIDENTAL TO CULVERT PIPE INSTALLATION

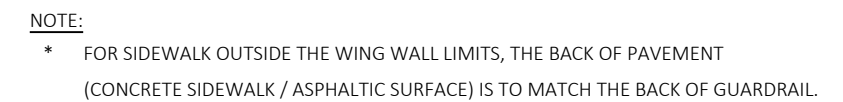


DETAIL FOR RIPRAP  
STA 23+90 - 24+76.42 LT  
STA 26+27 - 26+60 RT

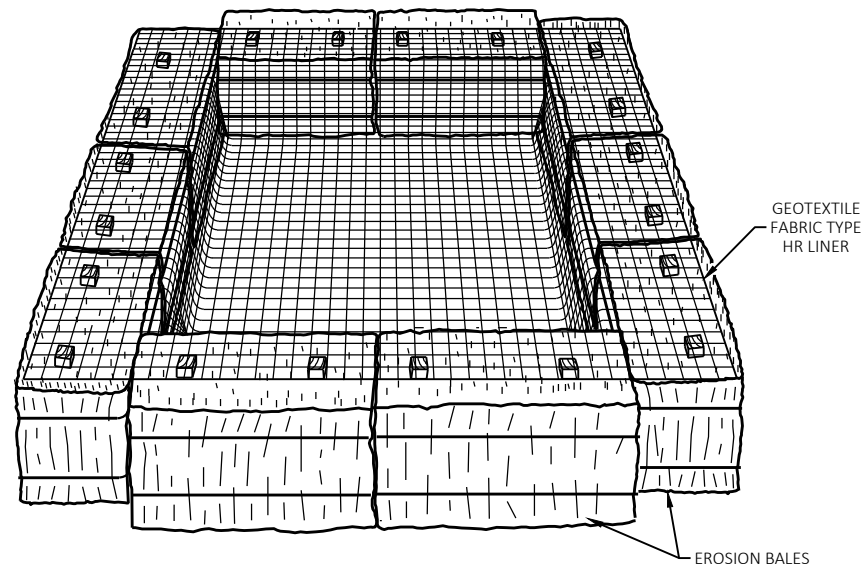


RIPRAP MEDIUM TREATMENT AT CULVERTS





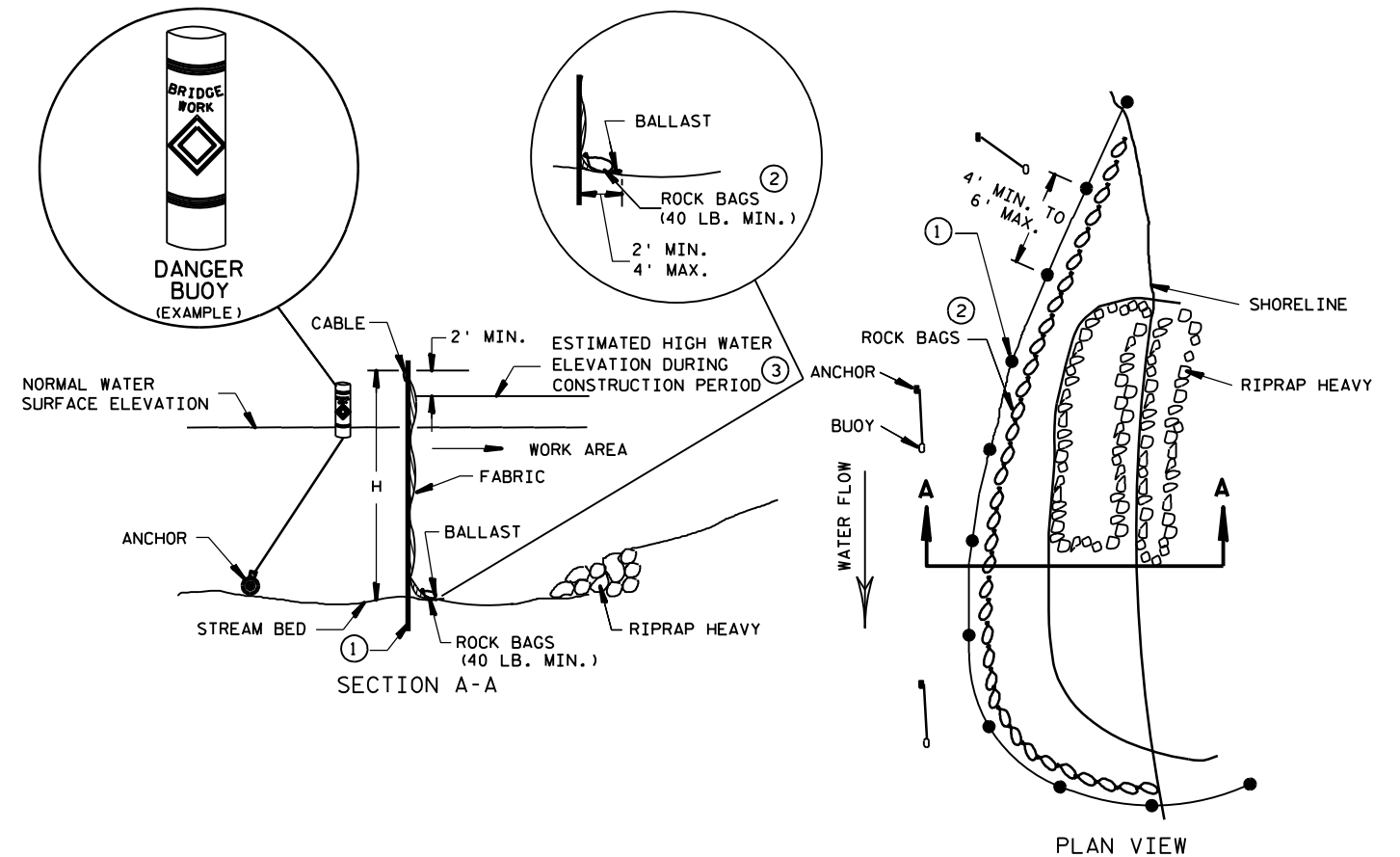
### DETAIL FOR CONCRETE SIDEWALK AT CONCRETE PAVEMENT APPROACH SLABS



EXAMPLE TEMPORARY SETTLING BASIN DETAIL FOR DEWATERING

NOTES

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



ENHANCED TURBIDITY BARRIER DETAIL

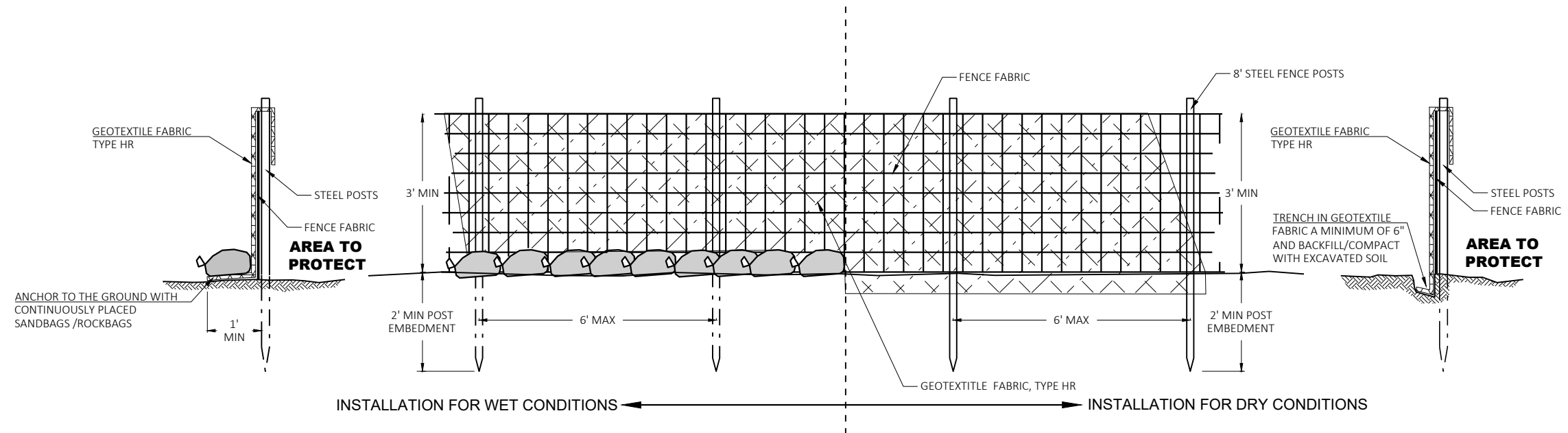
NOTES:

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. SEE SDD 08E11-02 TURBIDITY BARRIER FOR ADDITIONAL INFORMATION.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEER'S DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② INSTALL A CONTINUOUS LINE OF ROCK BAGS TO ANCHOR THE BARRIER TO THE STREAM BED.
- ③ ESTIMATE HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2 FEET GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.

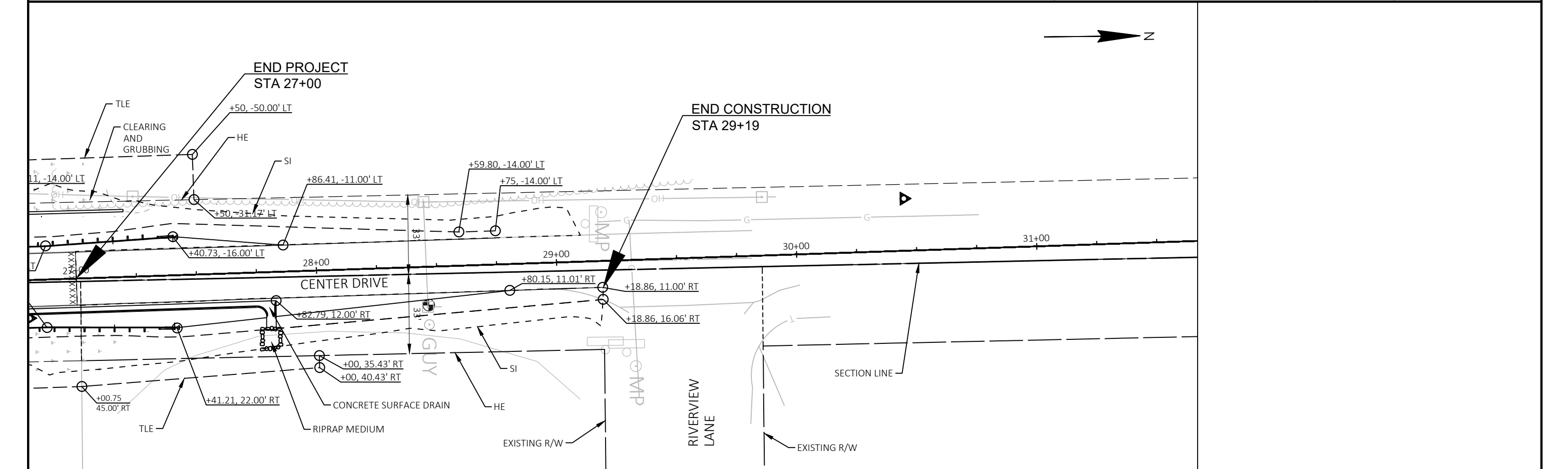
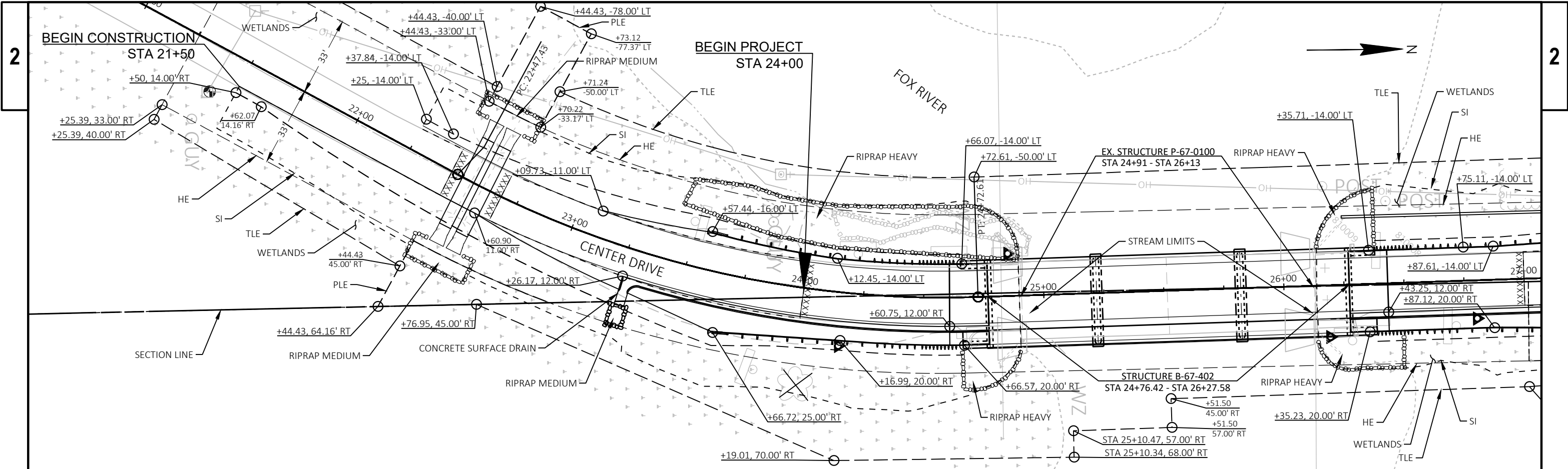




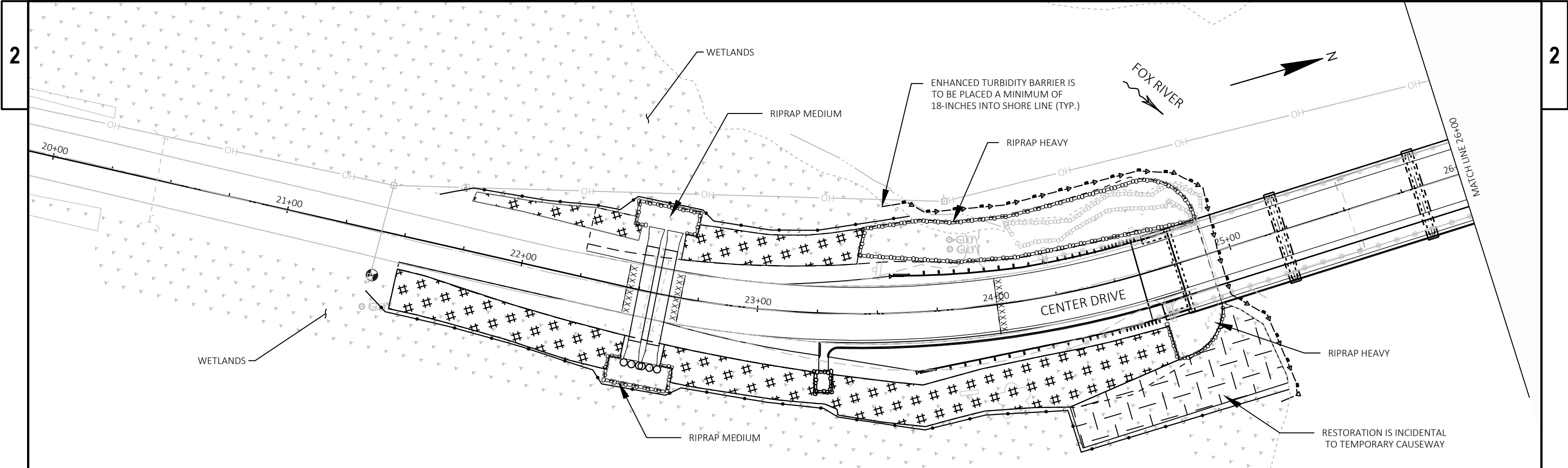
### HEAVY DUTY SILT FENCE

#### GENERAL NOTES:

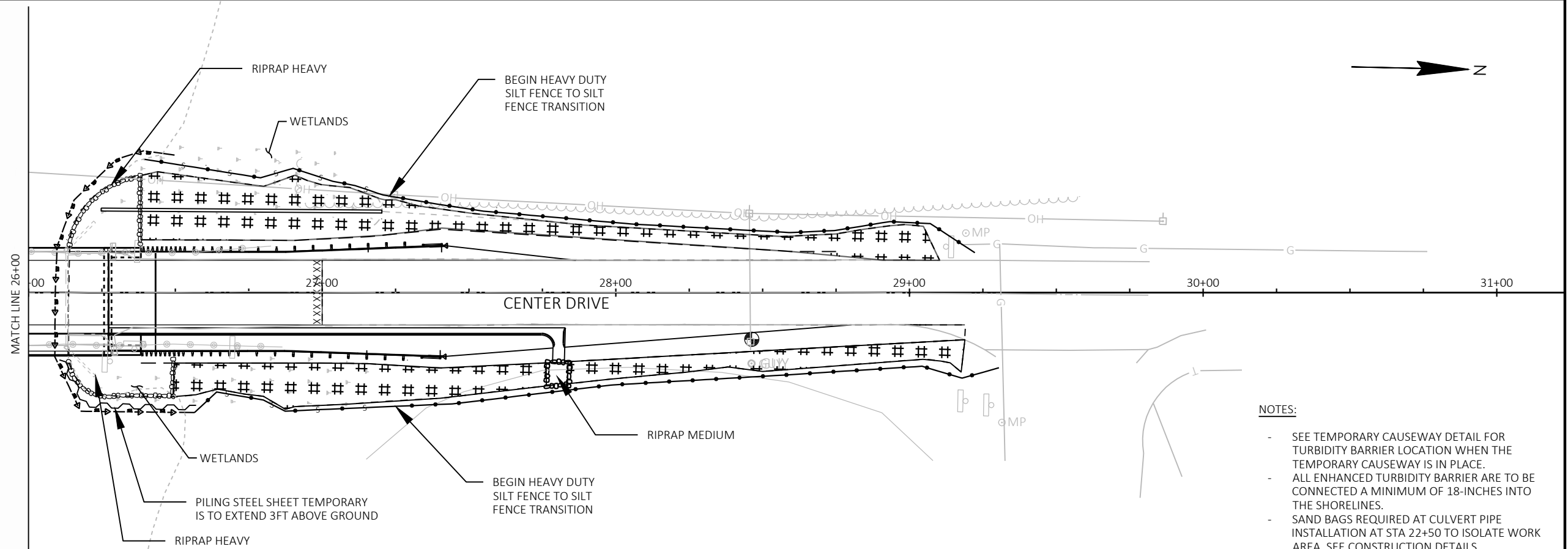
1. ATTACH FENCE FABRIC TO POSTS A MINIMUM OF 3 TIES PER POST (TOP, MIDDLE, BOTTOM)
2. ATTACH GEOTEXTILE FABRIC TO FENCE FABRIC AND/OR POSTS AT A MAXIMUM SPACING OF EVERY 2 FEET ALONG THE TOP AND ADDITIONALLY AS NECESSARY TO PREVENT DISPLACEMENT BY WIND AND WAVE ACTIONS.



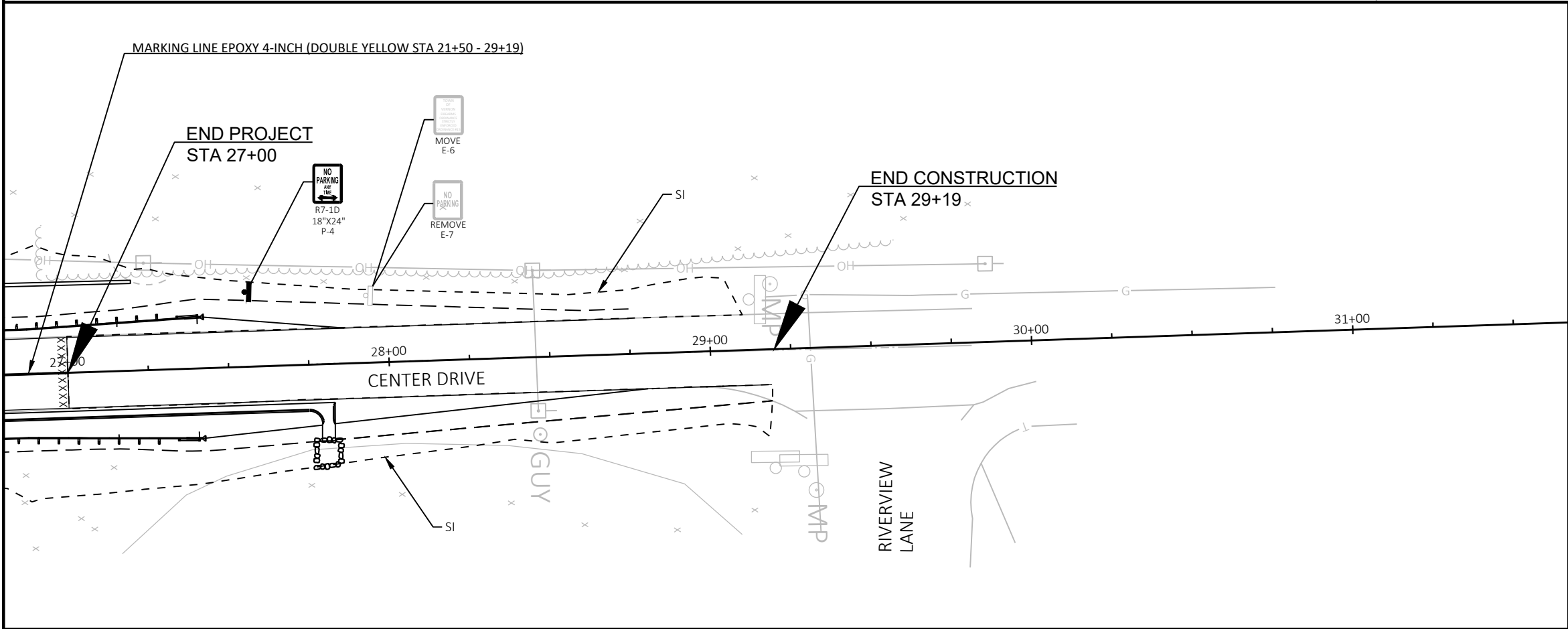
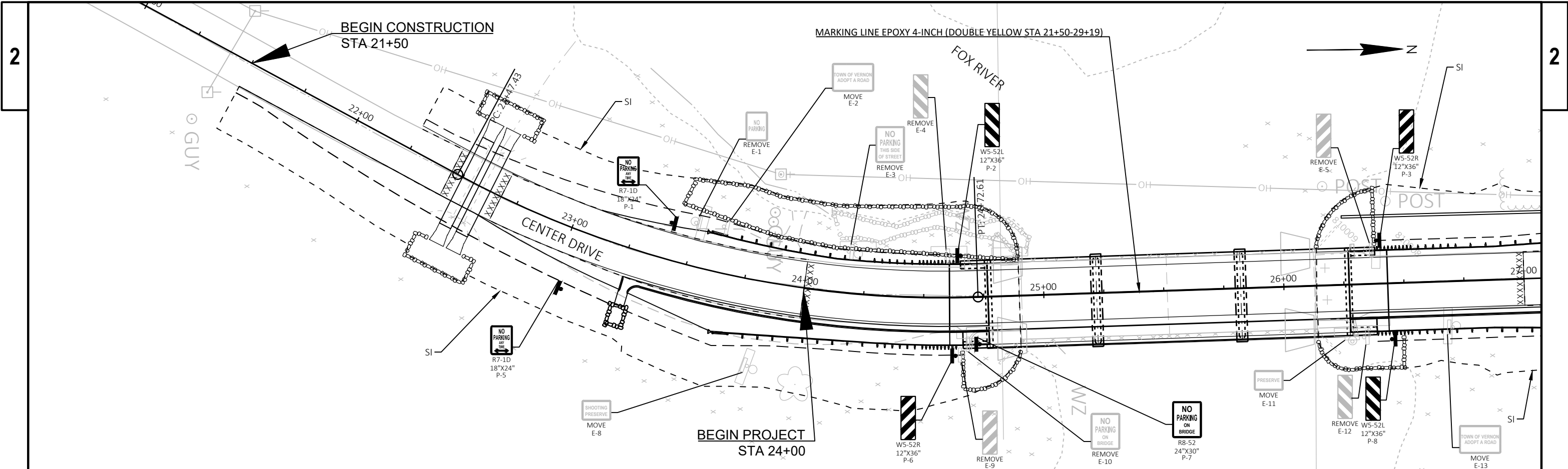
PROJECT NO: 2719-00-01	HWY: CENTER DRIVE	COUNTY: WAUKESHA	PLAN DETAILS	SHEET	E
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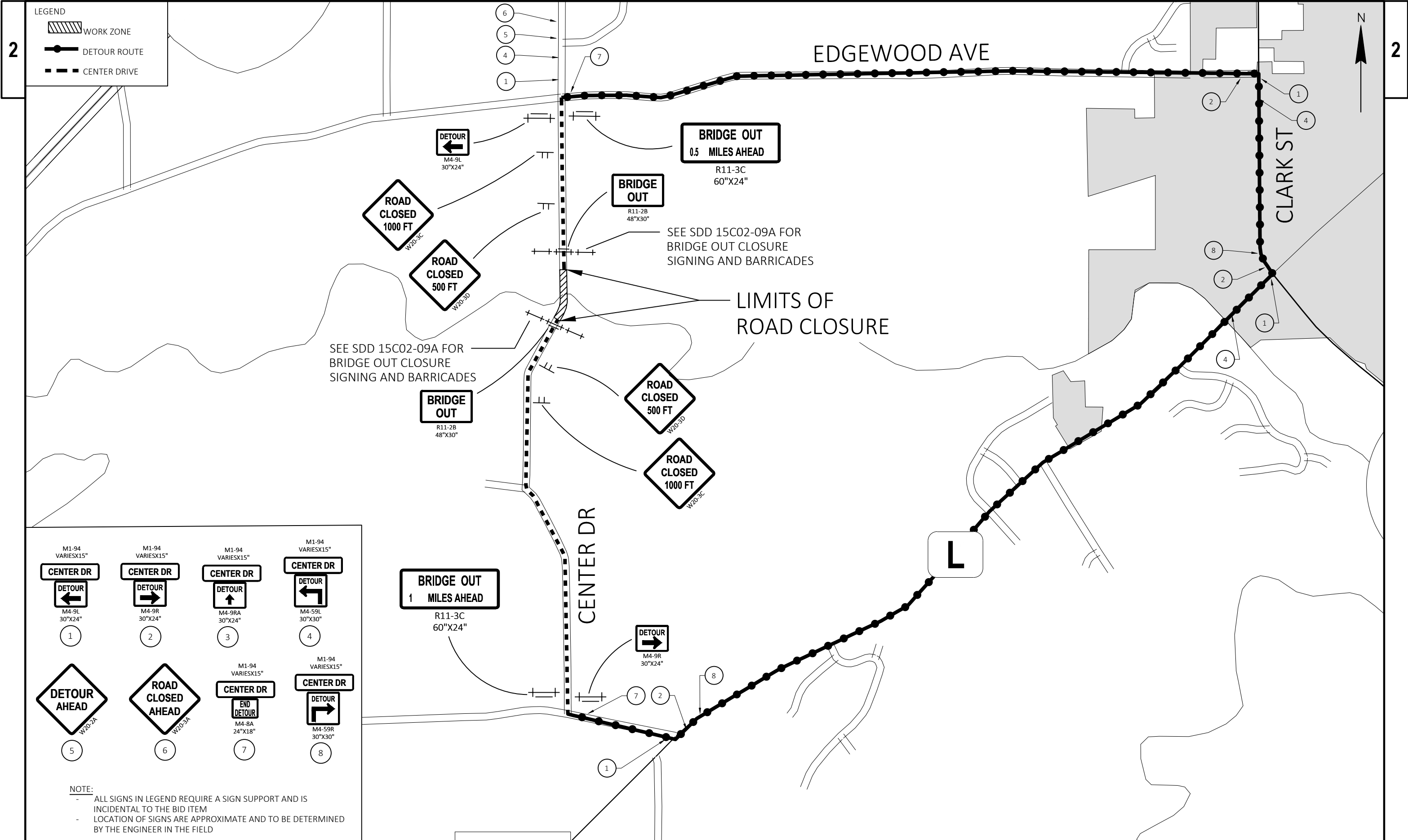
- LEGEND**
- ##### EROSION MAT CLASS II TYPE C
  - SILT FENCE
  - HEAVY DUTY SILT FENCE
  - RIP RAP
  - PILING STEEL SHEET TEMPORARY
  - ENHANCED TURBIDITY BARRIER
  - CULVERT PIPE CHECK
  - > SURFACE WATER FLOW



- NOTES:**
- SEE TEMPORARY CAUSEWAY DETAIL FOR TURBIDITY BARRIER LOCATION WHEN THE TEMPORARY CAUSEWAY IS IN PLACE.
  - ALL ENHANCED TURBIDITY BARRIER ARE TO BE CONNECTED A MINIMUM OF 18-INCHES INTO THE SHORELINES.
  - SAND BAGS REQUIRED AT CULVERT PIPE INSTALLATION AT STA 22+50 TO ISOLATE WORK AREA. SEE CONSTRUCTION DETAILS.



PROJECT NO: 2719-00-01	HWY: CENTER DRIVE	COUNTY: WAUKESHA	SIGNING AND MARKING	SHEET E
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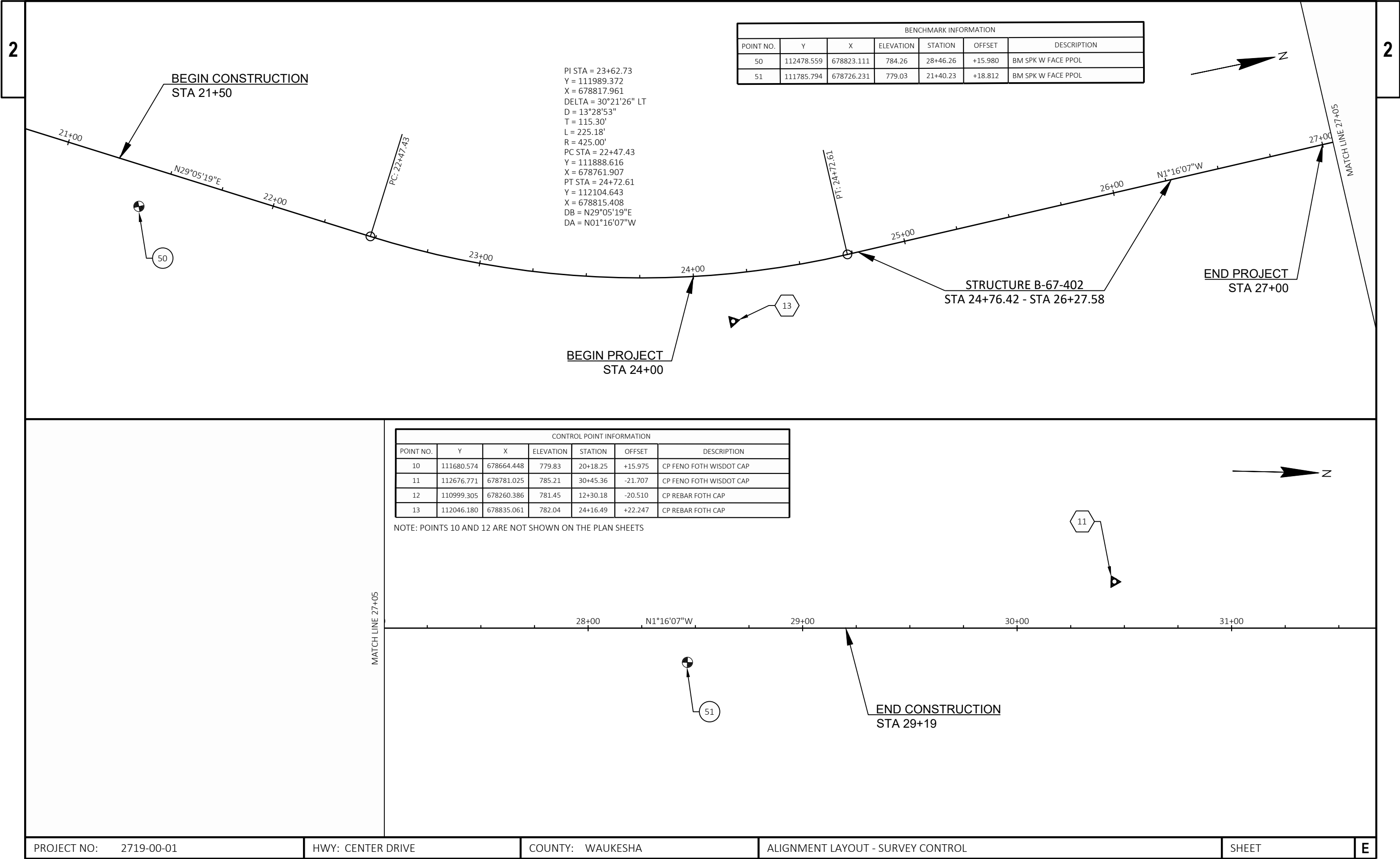


<p>M1-94 VARIESX15"</p> <p><b>CENTER DR</b></p> <p><b>DETOUR</b></p> <p>M4-9L 30"x24"</p> <p>1</p>	<p>M1-94 VARIESX15"</p> <p><b>CENTER DR</b></p> <p><b>DETOUR</b></p> <p>M4-9R 30"x24"</p> <p>2</p>	<p>M1-94 VARIESX15"</p> <p><b>CENTER DR</b></p> <p><b>DETOUR</b></p> <p>M4-9RA 30"x24"</p> <p>3</p>	<p>M1-94 VARIESX15"</p> <p><b>CENTER DR</b></p> <p><b>DETOUR</b></p> <p>M4-59L 30"x30"</p> <p>4</p>
<p><b>DETOUR AHEAD</b></p> <p>W20-2A</p> <p>5</p>	<p><b>ROAD CLOSED AHEAD</b></p> <p>W20-2A</p> <p>6</p>	<p>M1-94 VARIESX15"</p> <p><b>CENTER DR</b></p> <p><b>END DETOUR</b></p> <p>M4-8A 24"x18"</p> <p>7</p>	<p>M1-94 VARIESX15"</p> <p><b>CENTER DR</b></p> <p><b>DETOUR</b></p> <p>M4-59R 30"x30"</p> <p>8</p>

NOTE:

- ALL SIGNS IN LEGEND REQUIRE A SIGN SUPPORT AND IS INCIDENTAL TO THE BID ITEM
- LOCATION OF SIGNS ARE APPROXIMATE AND TO BE DETERMINED BY THE ENGINEER IN THE FIELD



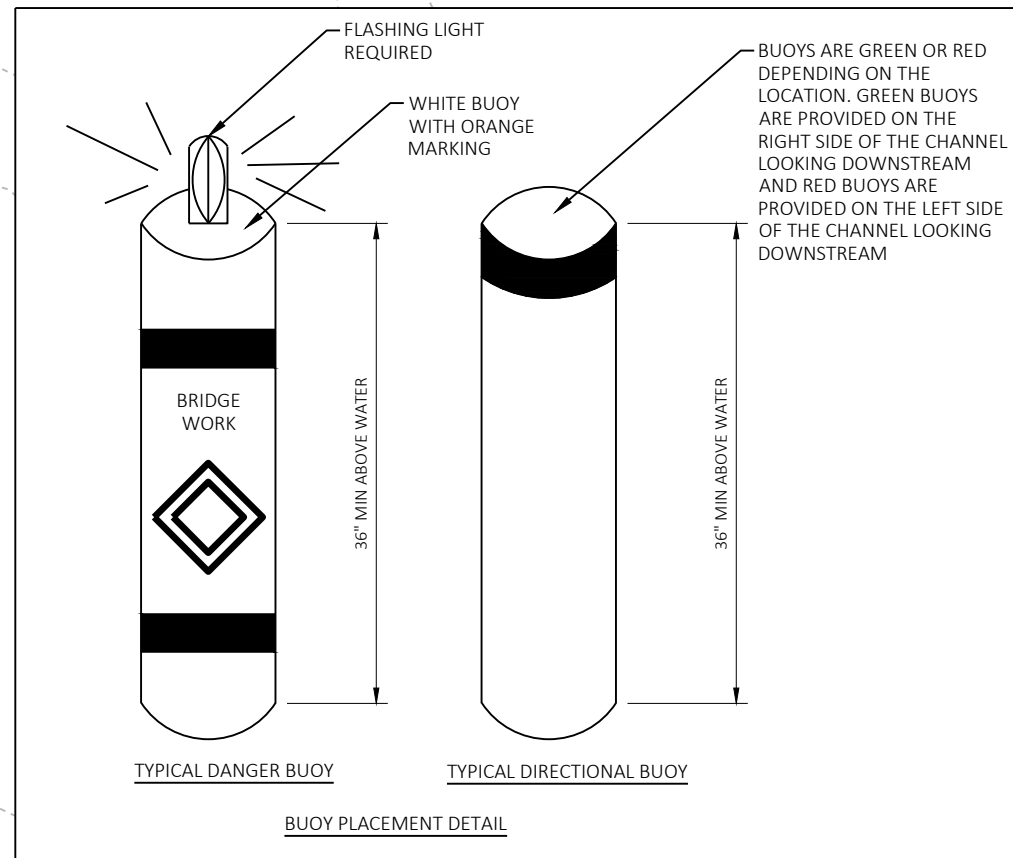


BENCHMARK INFORMATION						
POINT NO.	Y	X	ELEVATION	STATION	OFFSET	DESCRIPTION
50	112478.559	678823.111	784.26	28+46.26	+15.980	BM SPK W FACE PPOL
51	111785.794	678726.231	779.03	21+40.23	+18.812	BM SPK W FACE PPOL

PI STA = 23+62.73  
Y = 111989.372  
X = 678817.961  
DELTA = 30°21'26" LT  
D = 13°28'53"  
T = 115.30'  
L = 225.18'  
R = 425.00'  
PC STA = 22+47.43  
Y = 111888.616  
X = 678761.907  
PT STA = 24+72.61  
Y = 112104.643  
X = 678815.408  
DB = N29°05'19"E  
DA = N01°16'07"W

CONTROL POINT INFORMATION						
POINT NO.	Y	X	ELEVATION	STATION	OFFSET	DESCRIPTION
10	111680.574	678664.448	779.83	20+18.25	+15.975	CP FENO FOTH WISDOT CAP
11	112676.771	678781.025	785.21	30+45.36	-21.707	CP FENO FOTH WISDOT CAP
12	110999.305	678260.386	781.45	12+30.18	-20.510	CP REBAR FOTH CAP
13	112046.180	678835.061	782.04	24+16.49	+22.247	CP REBAR FOTH CAP

NOTE: POINTS 10 AND 12 ARE NOT SHOWN ON THE PLAN SHEETS



## LEGEND

- (D) DANGER BUOY
- (G) GREEN DIRECTIONAL BUOY
- (R) RED DIRECTIONAL BUOY
- TEMPORARY CAUSEWAY LIMITS OF CONSTRUCTION
- PROPOSED PIER

FOX RIVER

CENTER DRIVE

FOX RIVER

N

## NOTES

- BUOYS TO REMAIN IN THE WATER AT ALL TIMES DURING BRIDGE REMOVAL AND BRIDGE CONSTRUCTION.
- BUOY LOCATIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER.
- ONCE EXISTING PIER IN THE MIDDLE HAS BEEN REMOVED, BUOYS CAN BE MOVED ACCORDINGLY TO PROVIDE WIDER ACCESS, AS DIRECTED BY THE ENGINEER.

Estimate Of Quantities

2719-00-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	1.000	1.000
0004	201.0120	Clearing	ID	20.000	20.000
0006	201.0205	Grubbing	STA	1.000	1.000
0008	201.0220	Grubbing	ID	20.000	20.000
0010	203.0100	Removing Small Pipe Culverts	EACH	2.000	2.000
0012	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. P-67-0100	EACH	1.000	1.000
0014	204.0150	Removing Curb & Gutter	LF	40.000	40.000
0016	204.0165	Removing Guardrail	LF	540.000	540.000
0018	204.0190	Removing Surface Drains	EACH	4.000	4.000
0020	205.0100	Excavation Common	CY	343.000	343.000
0022	206.1001	Excavation for Structures Bridges (structure) 01. B-67-402	EACH	1.000	1.000
0024	206.5001	Cofferdams (structure) 01. B-67-402	EACH	3.000	3.000
0026	208.0100	Borrow	CY	392.000	392.000
0028	210.1500	Backfill Structure Type A	TON	140.000	140.000
0030	213.0100	Finishing Roadway (project) 01. 2719-00-71	EACH	1.000	1.000
0032	305.0110	Base Aggregate Dense 3/4-Inch	TON	157.000	157.000
0034	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	795.000	795.000
0036	415.0100	Concrete Pavement 10-Inch	SY	10.000	10.000
0038	415.0410	Concrete Pavement Approach Slab	SY	80.000	80.000
0040	455.0605	Tack Coat	GAL	60.000	60.000
0042	460.2000	Incentive Density HMA Pavement	DOL	70.000	70.000
0044	460.5223	HMA Pavement 3 LT 58-28 S	TON	57.000	57.000
0046	460.5224	HMA Pavement 4 LT 58-28 S	TON	45.000	45.000
0048	465.0105	Asphaltic Surface	TON	48.000	48.000
0050	502.0100	Concrete Masonry Bridges	CY	589.900	589.900
0052	502.3200	Protective Surface Treatment	SY	773.000	773.000
0054	502.9000.S	Underwater Substructure Inspection (structure) 01. B-67-402	EACH	2.000	2.000
0056	505.0400	Bar Steel Reinforcement HS Structures	LB	8,820.000	8,820.000
0058	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	85,080.000	85,080.000
0060	512.1000	Piling Steel Sheet Temporary	SF	495.000	495.000
0062	513.4061	Railing Tubular Type M	LF	179.000	179.000
0064	513.7084	Railing Steel Type NY4	LF	179.000	179.000
0066	516.0500	Rubberized Membrane Waterproofing	SY	22.000	22.000
0068	522.2334	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 34x53-Inch	LF	80.000	80.000
0070	522.2634	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 34x53-Inch	EACH	4.000	4.000
0072	530.0112	Culvert Pipe Corrugated Polyethylene 12-Inch	LF	96.000	96.000
0074	550.0010	Pre-Boring Unconsolidated Materials	LF	140.000	140.000
0076	550.0500	Pile Points	EACH	32.000	32.000
0078	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	735.000	735.000
0080	550.1120	Piling Steel HP 12-Inch X 53 Lb	LF	1,125.000	1,125.000
0082	601.0409	Concrete Curb & Gutter 30-Inch Type A	LF	33.000	33.000
0084	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	262.000	262.000
0086	602.0405	Concrete Sidewalk 4-Inch	SF	177.000	177.000
0088	602.3010	Concrete Surface Drains	CY	2.000	2.000
0090	606.0200	Riprap Medium	CY	46.000	46.000
0092	606.0300	Riprap Heavy	CY	360.000	360.000
0094	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	200.000	200.000
0096	614.2300	MGS Guardrail 3	LF	52.000	52.000
0098	614.2500	MGS Thrie Beam Transition	LF	160.000	160.000

Estimate Of Quantities

2719-00-71

Line	Item	Item Description	Unit	Total	Qty
0100	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0102	618.0100	Maintenance and Repair of Haul Roads (project) 01. 2719-00-71	EACH	1.000	1.000
0104	619.1000	Mobilization	EACH	1.000	1.000
0106	624.0100	Water	MGAL	120.000	120.000
0108	625.0500	Salvaged Topsoil	SY	1,200.000	1,200.000
0110	627.0200	Mulching	SY	1,200.000	1,200.000
0112	628.1504	Silt Fence	LF	408.000	408.000
0114	628.1520	Silt Fence Maintenance	LF	408.000	408.000
0116	628.1530.S	Silt Fence Heavy Duty	LF	778.000	778.000
0118	628.1535.S	Silt Fence Heavy Duty Maintenance	LF	778.000	778.000
0120	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0122	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0124	628.2027	Erosion Mat Class II Type C	SY	1,200.000	1,200.000
0126	628.7555	Culvert Pipe Checks	EACH	20.000	20.000
0128	629.0210	Fertilizer Type B	CWT	0.800	0.800
0130	630.0130	Seeding Mixture No. 30	LB	22.000	22.000
0132	630.0200	Seeding Temporary	LB	22.000	22.000
0134	630.0500	Seed Water	MGAL	27.000	27.000
0136	633.5200	Markers Culvert End	EACH	5.000	5.000
0138	634.0814	Posts Tubular Steel 2x2-Inch X 14-FT	EACH	4.000	4.000
0140	634.0816	Posts Tubular Steel 2x2-Inch X 16-FT	EACH	4.000	4.000
0142	637.2210	Signs Type II Reflective H	SF	14.000	14.000
0144	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0146	638.2602	Removing Signs Type II	EACH	8.000	8.000
0148	638.3000	Removing Small Sign Supports	EACH	8.000	8.000
0150	638.4000	Moving Small Sign Supports	EACH	4.000	4.000
0152	642.5001	Field Office Type B	EACH	1.000	1.000
0154	643.0420	Traffic Control Barricades Type III	DAY	2,576.000	2,576.000
0156	643.0705	Traffic Control Warning Lights Type A	DAY	3,680.000	3,680.000
0158	643.0900	Traffic Control Signs	DAY	7,360.000	7,360.000
0160	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0162	643.5000	Traffic Control	EACH	1.000	1.000
0164	645.0111	Geotextile Type DF Schedule A	SY	72.000	72.000
0166	645.0120	Geotextile Type HR	SY	315.000	315.000
0168	646.1020	Marking Line Epoxy 4-Inch	LF	1,538.000	1,538.000
0170	650.4500	Construction Staking Subgrade	LF	652.000	652.000
0172	650.5000	Construction Staking Base	LF	618.000	618.000
0174	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	295.000	295.000
0176	650.6000	Construction Staking Pipe Culverts	EACH	3.000	3.000
0178	650.6501	Construction Staking Structure Layout (structure) 01. B-67-402	EACH	1.000	1.000
0180	650.9911	Construction Staking Supplemental Control (project) 01. 2719-00-71	EACH	1.000	1.000
0182	650.9920	Construction Staking Slope Stakes	LF	618.000	618.000
0184	690.0150	Sawing Asphalt	LF	584.000	584.000
0186	715.0502	Incentive Strength Concrete Structures	DOL	3,539.400	3,539.400
0188	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0190	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 25+50	EACH	1.000	1.000
0192	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,600.000	1,600.000
0194	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	3,200.000	3,200.000
0196	SPV.0060	Special 01. Temporary Causeway	EACH	1.000	1.000

Estimate Of Quantities

2719-00-71

Line	Item	Item Description	Unit	Total	Qty
0198	SPV.0090	Special 01. Flashing Stainless Steel	LF	153.000	153.000
0200	SPV.0180	Special 01. Enhanced Turbidity Barrier	SY	387.000	387.000



CLEARING AND GRUBBING								
CATEGORY	STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0120 CLEARING ID	201.0205 GRUBBING STA	201.0220 GRUBBING ID
0010	24+02	-	-	RT	-	20	-	20
0010	26+50	-	27+90	LT	1	-	1	-
TOTAL					1	20	1	20

REMOVING ITEMS									
CATEGORY	STATION	TO	STATION	LOCATION	203.0100 REMOVING SMALL PIPE CULVERTS EACH	204.0150 REMOVING CURB & GUTTER LF	204.0165 REMOVING GUARDRAIL LF	204.0190 REMOVING SURFACE DRAINS EACH	REMARKS
0010	22+54	-	-	LT & RT	1	-	-	-	PIPE ARCH CORRUGATED STEEL 36X54
0010	22+59	-	-	LT & RT	1	-	-	-	PIPE ARCH CORRUGATED STEEL 36X54
0010	24+17	-	24+82	LT & RT	-	-	126	-	
0010	24+81	-	24+91	LT & RT	-	20	144	-	
0010	26+13	-	26+23	LT & RT	-	20	126	-	
0010	26+12	-	26+83	LT & RT	-	-	144	-	
0010	24+68	-	-	LT & RT	-	-	-	2	
0010	26+28	-	-	LT & RT	-	-	-	2	
TOTAL					2	40	540	4	

EARTHWORK QUANTITIES

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	208.0100 BORROW	COMMENT
			CUT (2)			FACTOR 1.00				
DIVISION 1										
South of Bridge	21+42.93/24+65.49	Center Drive	200	200	464	464	-264	0	264	
North of Bridge	26+43.25/29+18.85	Center Drive	143	143	271	271	-128	0	128	
DIVISION 1 SUBTOTAL			343	343	735	735	-392	0	392	
GRAND TOTAL			343	343	735	735	-392	0	392	

NOTES:  
(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100  
(2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.  
(5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL  
(6) MARSH EXCAVATION - TO BE BACKFILLED WITH SELECT BORROW MATERIAL. NOTE: THIS IS DESIGNERS CHOICE, CAN BE BACKFILLED WITH BORROW, OR CUT AS WELL. ITEM NUMBER 205.0500  
(7) ROCK EXCAVATION ITEM NUMBER 205.0200  
(13) EXPANDED FILL FACTOR = 1.00  
DEPENDING ON SELECTIONS:  
OR  
OR  
OR  
**EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED MARSH - REDUCED EBS) \* FILL FACTOR**  
EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED EBS) \* FILL FACTOR  
EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED MARSH) \* FILL FACTOR  
EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK) \* FILL FACTOR  
(14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.  
(15) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

BASE AGGREGATE DENSE

CATEGORY	STATION	TO	STATION	LOCATION	305.0110	305.0120	624.0100
					BASE AGGREGATE DENSE 3/4- INCH TON	BASE AGGREGATE DENSE 1 1/4-INCH TON	WATER MGAL
0010	21+50	-	24+00	LT & RT	76	240	36
0010	24+00	-	24+76.42	LT & RT	20	170	26
0010	26+27.58	-	27+00	LT & RT	18	165	25
0010	27+00	-	29+19	LT & RT	43	220	33
TOTAL					157	795	120

CONCRETE PAVEMENT

CATEGORY	STATION	TO	STATION	LOCATION	415.0100	415.0410
					CONCRETE PAVEMENT 10- INCH SY	CONCRETE PAVEMENT APPROACH SLAB SY
0010	24+60.	-	24+76.42	LT & RT	5	40
0010	26+27.58	-	26+43	LT & RT	5	40
TOTAL 0000					10	80

ASPHALT

CATEGORY	STATION	TO	STATION	LOCATION	455.0605	460.5223	460.5224	465.0105
					TACK COAT GAL	HMA PAVEMENT 3 LT 58-28 S TON	HMA PAVEMENT 4 LT 58-28 S TON	ASPHALTIC SURFACE TON
0010	21+50	-	24+00	LT & RT	10	8	6	16
0010	24+00	-	24+76.42	LT & RT	25	23	18	9
0010	26+27.58	-	27+00	LT & RT	20	21	17	8
0010	27+00	-	29+19	LT & RT	5	5	4	15
TOTAL					60	57	45	48

Y	STATION	TO	STATION	LOCATION	601.0409	601.0411	602.0405	602.3010
					CONCRETE CURB & GUTTER 30- INCH TYPE A	CONCRETE CURB & GUTTER 30- INCH TYPE D	CONCRETE SIDEWALK 4-INCH	CONCRETE SURFACE DRAINS
					LF	LF	SF	CY
	23+28	-	-	RT	-	-	-	2
	23+34	-	24+60	RT	-	131	-	-
	24+60	-	24+76.42	LT & RT	17	-	90	-
	26+27.58	-	26+43	LT & RT	16	-	87	-
	26+43	-	27+75	RT	-	131	-	-
	27+80	-	-	RT	-	-	-	2
				TOTAL	33	262	177	2

\* QUANTITY SHOWN ELSEWHERE IN THE PLANS

GUARDRAIL

CATEGORY	STATION	TO	STATION	LOCATION	614.2300	614.2500	614.2610
					MGS GUARDRAIL 3 LF	MGS THRIE BEAM TRANSITION LF	MGS GUARDRAIL TERMINAL EAT EACH
0010	23+57.44	-	24+66.07	LT	13	40	1
0010	23+66.71	-	24+66.57	RT	13	40	1
0010	26+35.71	-	27+40.73	LT	13	40	1
0010	26+35.23	-	27+41.21	RT	13	40	1
TOTAL					52	160	4

RESTORATION ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	625.0500	627.0200	628.2027	629.0210	630.0130	630.0200	630.0500	REMARKS
					SALVAGED TOPSOIL SY	MULCHING SY	EROSION MAT CLASS II TYPE C SY	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 30 LB	SEEDING TEMPORARY LB	SEED WATER MGAL	
0010	21+50	-	25+00	LT	160	-	160	0.10	3	-	4	TO BE USED WHEN PERMANENT SEEDING NOT PLACED WITHIN 5 DAYS OF DISTURBANCE
0010	21+50	-	25+00	RT	566	-	566	0.36	10	-	13	
0010	26+00	-	29+19	LT	314	-	314	0.20	6	-	7	
0010	26+00	-	29+19	RT	160	-	160	0.10	3	-	4	
0010	21+50	-	29+19	UNDISTRIBUTED	-	1,200	-	-	-	22	-	
TOTAL					1,200	1,200	1,200	0.8	22	22	27	

DETOUR									
		643.0420		643.0705		643.0900		643.1050	
		TRAFFIC CONTROL BARRICADES TYPE III		TRAFFIC CONTROL WARNING LIGHTS TYPE A		TRAFFIC CONTROL SIGNS		TRAFFIC CONTROL SIGNS PCMS	
CATEGORY	DAYS	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY
0010	184	14	2,576	20	3,680	40	7,360	2	14
TOTAL			2,576		3,680		7,360		14

PAVEMENT MARKING						
CATEGORY	STATION	TO	STATION	LOCATION	646.1020 MARKING LINE EPOXY 4-INCH LF	REMARKS
0010	21+50	-	29+19	CENTER DR	1,538	DOUBLE YELLOW
TOTAL					1,538	

STAKING ITEMS											
					650.4500	650.5000	650.5500	650.6000	650.6501.01	650.9911.01	650.9920
					CONSTRUCTION		CONSTRUCTION		CONSTRUCTION	CONSTRUCTION	
					STAKING	CONSTRUCTION	STAKING CURB	CONSTRUCTION	STRUCTURE	SUPPLEMENTAL	
					SUBGRADE	STAKING BASE	GUTTER AND CURB	STAKING PIPE	(STRUCTURE) (01.	CONTROL	CONSTRUCTION
CATEGORY	STATION	TO	STATION	LOCATION	LF	LF	& GUTTER	CULVERTS	B-67-402)	(PROJECT) (01.	STAKING SLOPE
								EACH	EACH	EACH	LF
0010	22+54	-	-	LT & RT	-	-	-	1	-	-	-
0010	22+59	-	-	LT & RT	-	-	-	1	-	-	-
0010	26+75	-	-	LT	-	-	-	1	-	-	-
0010	21+50	-	24+76.52	LT & RT	326	326	-	-	-	-	326
0010	24+76.52	-	26+27.58	LT & RT	-	-	-	-	-	-	-
0010	26+27.58	-	29+19	LT & RT	326	292	-	-	-	-	292
0010	23+34	-	24+76.42	RT	-	-	148	-	-	-	-
0010	26+27.58	-	27+75	RT	-	-	147	-	-	-	-
0010	-	-	-	CENTER DR	-	-	-	-	1	1	-
TOTAL					652	618	295	3	1	1	618



## 690.0150

					SAWING ASPHALT
CATEGORY	STATION	TO	STATION	LOCATION	LF
0010	22+44.70	-	-	LT & RT	22
0010	22+67.86	-	-	LT & RT	22
0010	22+60	-	24+00	RT	140
0010	23+10	-	24+00	LT	90
0010	24+00	-	-	LT & RT	22
0010	27+00	-	-	LT & RT	22
0010	27+00	-	27+86	LT	86
0010	27+00	-	28+80	RT	180
TOTAL 0000					584

634.0814	634.0816	637.2210	637.2230	638.2602	638.3000	638.4000
POSTS TUBULAR	POSTS TUBULAR					
STEEL 2X2-INCH X	STEEL 2X2-INCH X	SIGNS TYPE II	SIGNS TYPE II	REMOVING SIGNS	REMOVING SMALL	MOVING SMALL
14-FT	16-FT	REFLECTIVE H	REFLECTIVE F	TYPE II	SIGN SUPPORTS	SIGN SUPPORTS
EACH	EACH	SF	SF	EACH	EACH	EACH

0010	E-1	-	23+50	LT	-	X	-	-	-	-	-	1	1	-	NO PARKING
0010	E-2	-	23+62	LT	-	X	-	-	-	-	-	-	-	1	TOWN OF VERNON SIGN
0010	E-3	-	24+17	LT	-	X	-	-	-	-	-	1	1	-	NO PARKING THIS SIDE OF STREET
0010	E-4	-	24+62	LT	-	X	-	-	-	-	-	1	1	-	-
0010	E-5	-	26+38	LT	-	X	-	-	-	-	-	1	1	-	-
0010	E-6	-	27+56	LT	-	X	-	-	-	-	-	-	-	1	TOWN OF VERNON SIGN
0010	E-7	-	27+94	LT	-	X	-	-	-	-	-	1	1	-	NO PARKING
0010	E-8	-	23+82	RT	-	X	-	-	-	-	-	-	-	1	SHOOTING PRESERVE
0010	E-9	-	24+64	RT	-	X	-	-	-	-	-	1	1	-	-
0010	E-10	-	24+70	RT	-	X	-	-	-	-	-	1	1	-	NO PARKING ON BRIDGE
0010	E-11	-	26+28	RT	-	X	-	-	-	-	-	-	-	-	PRESERVE
0010	E-12	-	26+34	RT	-	X	-	-	-	-	-	1	1	-	-
0010	E-13	-	26+45	RT	-	X	-	-	-	-	-	-	-	1	TOWN OF VERNON SIGN
0010	P-1	R7-1D	23+39	LT	18"	X	24"	1	-	3	-	-	-	-	NO PARKING ANYTIME
0010	P-2	W5-52L	24+17	LT	12"	X	36"	-	1	-	3	-	-	-	-
0010	P-3	W5-52R	26+38	LT	12"	X	36"	-	1	-	3	-	-	-	-
0010	P-4	R7-1D	27+56	LT	18"	X	24"	1	-	3	-	-	-	-	NO PARKING ANYTIME
0010	P-5	R7-1D	23+05	RT	18"	X	24"	1	-	3	-	-	-	-	NO PARKING ANYTIME
0010	P-6	W5-52R	24+64	RT	12"	X	36"	-	1	-	3	-	-	-	-
0010	P-7	R8-52	24+70	RT	24"	X	30"	1	-	5	-	-	-	-	NO PARKING ON BRIDGE
0010	P-8	W5-52L	26+45	RT	12"	X	36"	-	1	-	3	-	-	-	-
TOTAL								4	4	14	12	8	8	4	

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
TRANSPORTATION PROJECT PLAT TITLE SHEET  
2719-00-01  
V VERNON - CENTER DRIVE

BRIDGE OVER FOX RIVER, P-67-0100

CENTER DRIVE  
WAUKESHA 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)	IP ●
NEW REFERENCE LINE	---	SIXTEENTH CORNER MONUMENT		OFF-PREMISE SIGN	
NEW R/W LINE	---	SIGN		COMPENSABLE	
EXISTING R/W OR HE LINE	---	ELECTRIC POLE		NON-COMPENSABLE	
PROPERTY LINE	---	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		UTILITY NUMBER	
EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)	---	PARALLEL OFFSETS			
TRANSMISSION STRUCTURES	---				
BUILDING					
TO BE REMOVED					
BRIDGE					
CULVERT					

CONVENTIONAL ABBREVIATIONS

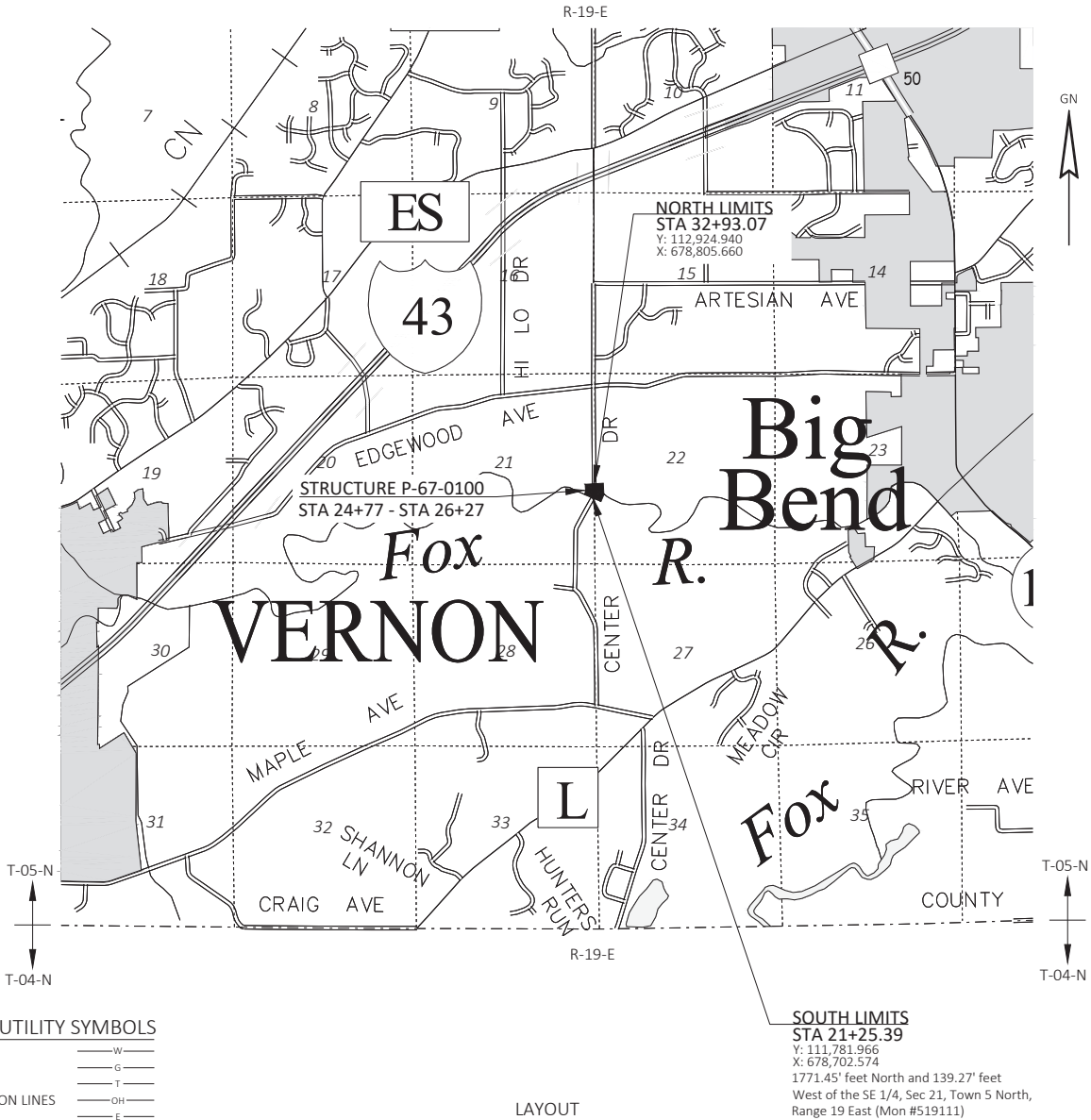
ACCESS RIGHTS	AR	POINT OF CURVATURE	PC
ACRES	AC	POINT OF COMPOUND CURVE	PCC
AHEAD	AH	POINT OF INTERSECTION	PI
ALUMINUM	ALUM	PROPERTY LINE	PL
AND OTHERS	ET AL	RECORDED AS	(100')
BACK	BK	REEL / IMAGE	R/I
BLOCK	BLK	REFERENCE LINE	R/L
BUILDING	B	REMAINING	REM
CENTERLINE	C/L	RESTRICTIVE DEVELOPMENT EASEMENT	RDE
CERTIFIED SURVEY MAP	CSM	RIGHT	RT
CONCRETE	CONC	RIGHT OF WAY	R/W
COUNTY	CO	SECTION	SEC
COORDINATE	CRD	SEPTIC VENT	SEPV
COUNTY TRUNK HIGHWAY	CTH	SHED OR POLE BARN	S
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
GARAGE	G	TRANSPORTATION PROJECT PLAT	TPP
GAS VALVE	GV	UNITED STATES HIGHWAY	USH
GRID NORTH	GN	VOLUME	V
HIGHWAY EASEMENT	HE		
IDENTIFICATION	ID		
LAND CONTRACT	LC		
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY	NGS		
NUMBER	NO		
OUTLOT	OL		
PAGE	P		
POINT OF TANGENCY	PT		
PERMANENT LIMITED EASEMENT	PLE		
POINT OF BEGINNING	POB		

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

CONVENTIONAL UTILITY SYMBOLS

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



THE NOTES, CONVENTIONAL SIGNS, AND ABBREVIATIONS ARE ASSOCIATED WITH EACH TRANSPORTATION PROJECT PLAT FOR PROJECT 2719-00-01

NOTES:

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

ALL NEW RIGHT-OF-WAY AND PERMANENT EASEMENT MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4" X 24" IRON REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

ALL RIGHT-OF-WAY LINES DEPICTED IN THE NON-ACQUISITION AREAS ARE INTENDED TO RE-ESTABLISH EXISTING RIGHT-OF-WAY LINES AS DETERMINED FROM PREVIOUS PROJECTS, OTHER RECORDED DOCUMENTS, CENTERLINE OF EXISTING PAVEMENTS AND/OR EXISTING OCCUPATIONAL LINES.

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.

DIMENSIONING 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.

A PERMANENT LIMITED EASEMENT (PLE) IS A RIGHT FOR CONSTRUCTION AND MAINTENANCE PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND 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, BUT WITHOUT PREJUDICE TO THE OWNER'S RIGHTS TO MAKE OR CONSTRUCT IMPROVEMENTS ON SAID LANDS OR TO FLATTEN THE SLOPES, PROVIDING SAID ACTIVITIES WILL NOT IMPAIR OR OTHERWISE ADVERSELY AFFECT THE HIGHWAY FACILITIES.

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.

THIS PLAT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSES ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES AND ACCESS RIGHTS.

PROPERTY LINES SHOWN ON THIS PLAT FOR PROPERTIES BEING IMPACTED ARE DRAWN FROM DATA DERIVED FROM FILED/RECORDED MAPS AND DOCUMENTS OF PUBLIC RECORD. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT-OF-WAY, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY. SOUTHEAST REGION, CITY OF WAUKESHA

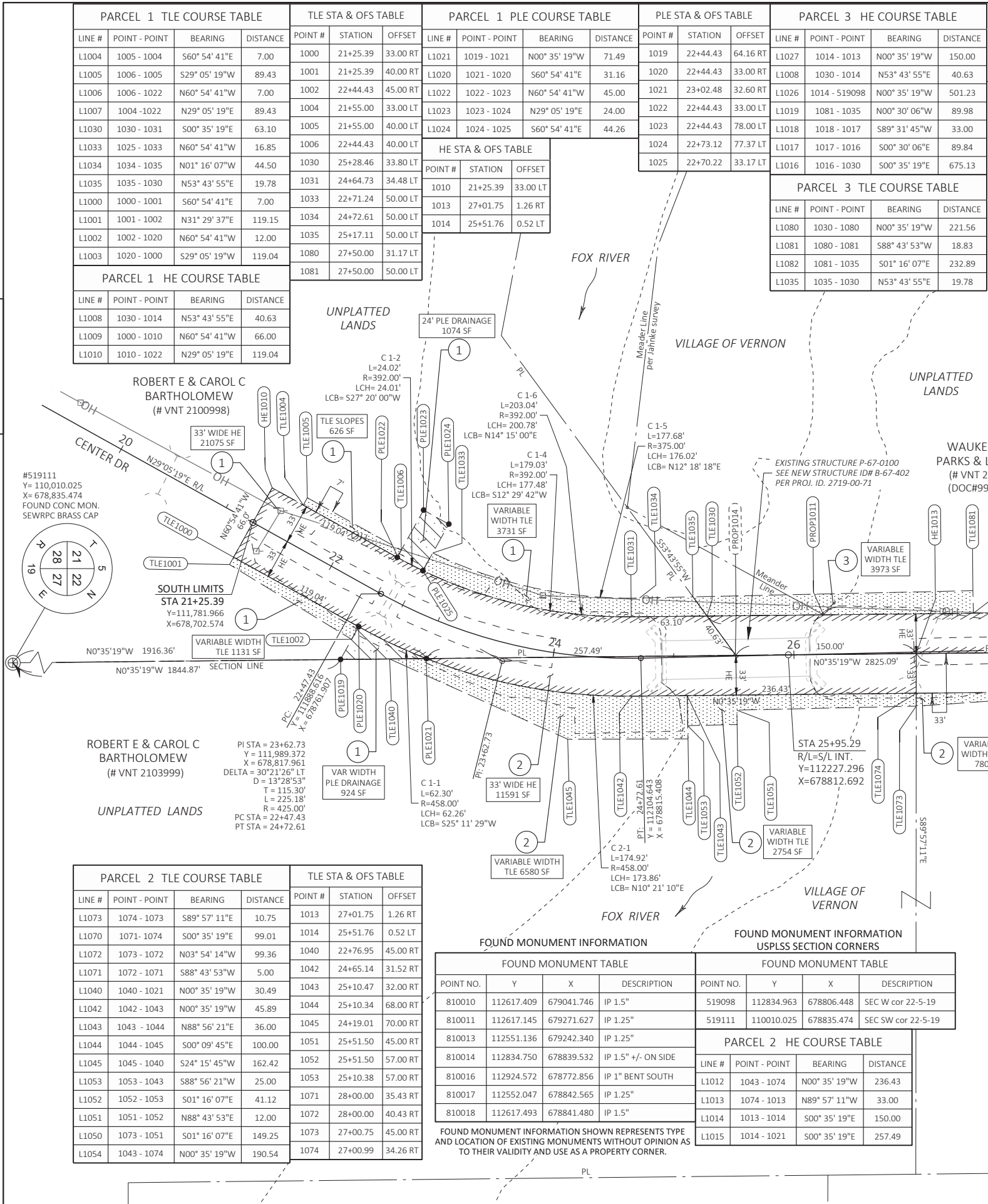
FOR THE CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT THE PLANNING UNIT OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION OFFICE IN

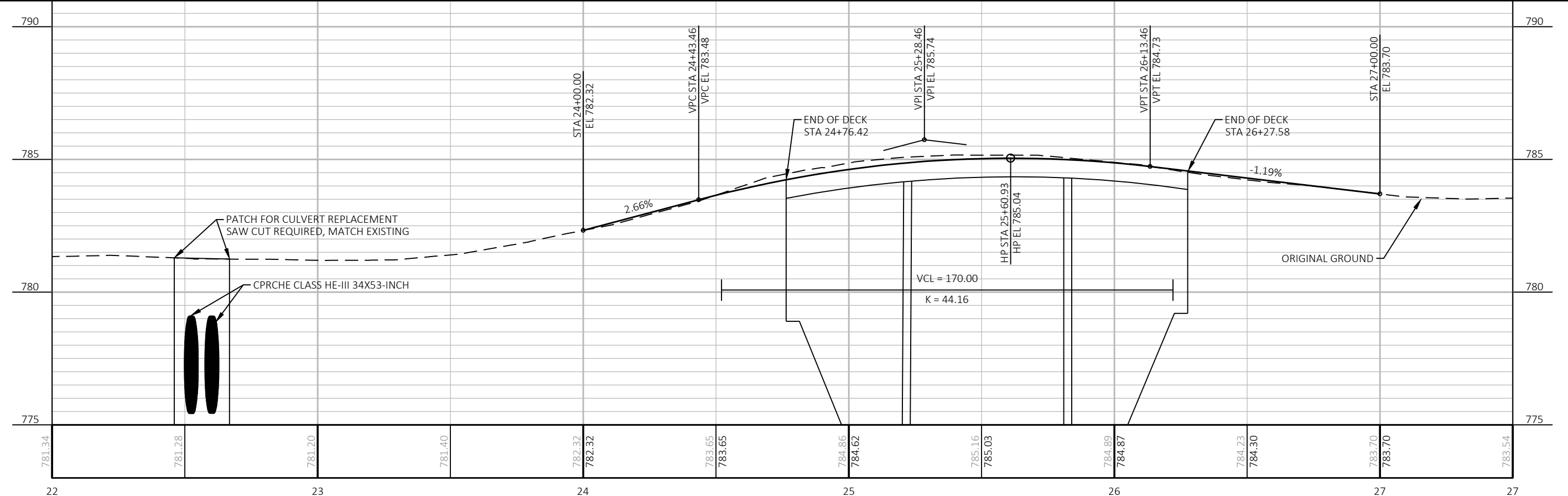
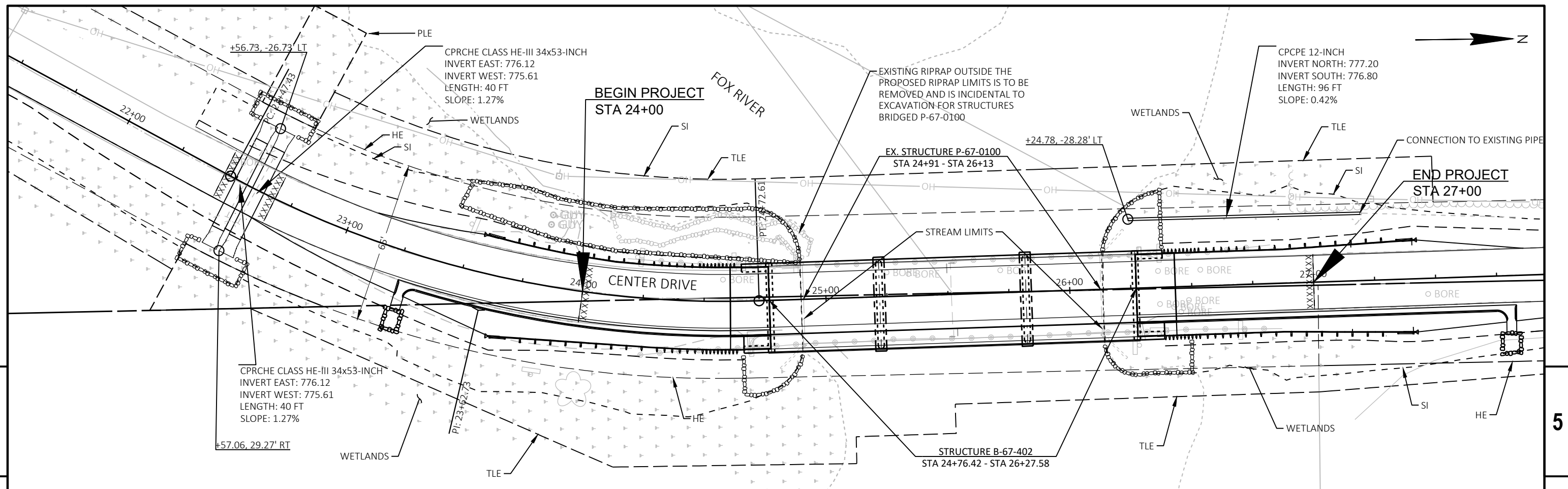
PARCEL AND UTILITY IDENTIFICATION NUMBERS MAY NOT POINT TO ALL AREAS OF ACQUISITION, AS NOTED ON THE TPP DETAIL PAGES.

INFORMATION FOR THE BASIS OF EXISTING HIGHWAY RIGHT-OF-WAY POINTS OF REFERENCE AND ACCESS CONTROL ARE LISTED ON THE TPP DETAIL PAGES.

Refer to the Detail Sheet, recorded as Sheet 1 of 2, in Volume \_\_\_ of Transportation Project Plats, Page 4.01, as Document No. \_\_\_\_\_ for detailed information.

PROJECT NUMBER 2719-00-01 -4.00  
SHEET 2 OF 2





Standard Detail Drawing List

08D01-23A	CONCRETE CURB & GUTTER
08D01-23B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D04-07	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E09-06	SILT FENCE
08E15-01	CULVERT PIPE CHECK
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10	NAME PLATE (STRUCTURES)
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13C19-03	HMA LONGITUDINAL JOINTS
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS

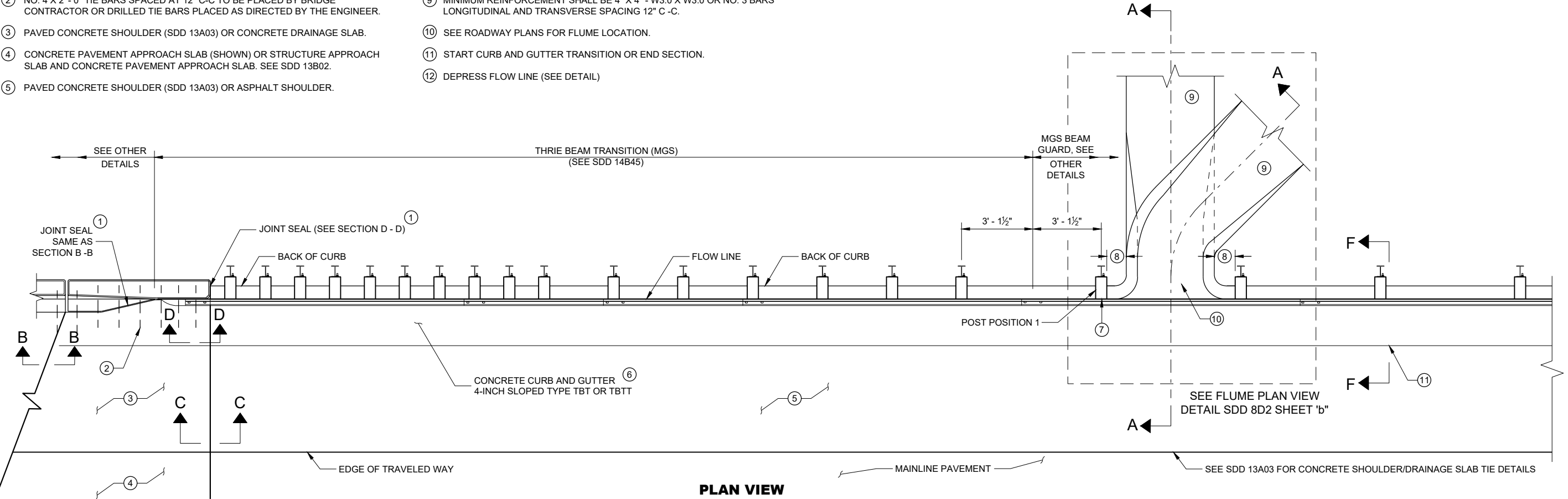
GENERAL NOTES

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

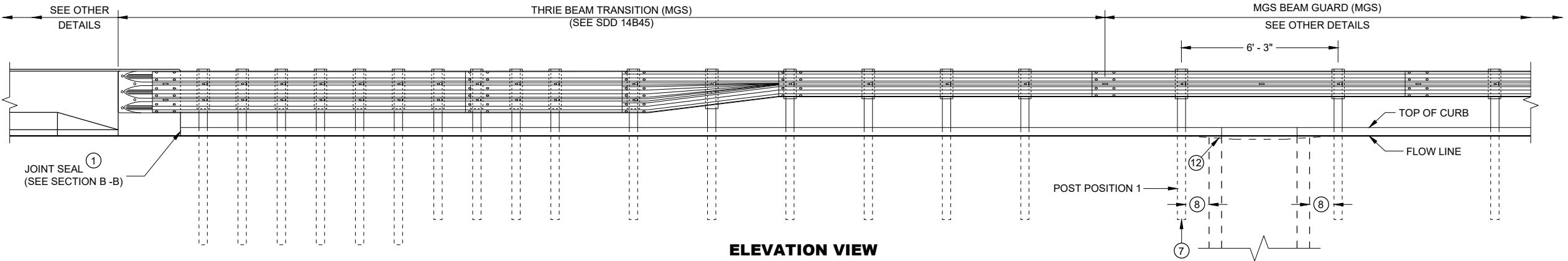
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- 1 USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- 2 NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- 3 PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- 4 CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- 5 PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.

- 6 CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- 7 PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- 8 CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- 9 MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- 10 SEE ROADWAY PLANS FOR FLUME LOCATION.
- 11 START CURB AND GUTTER TRANSITION OR END SECTION.
- 12 DEPRESS FLOW LINE (SEE DETAIL)



PLAN VIEW

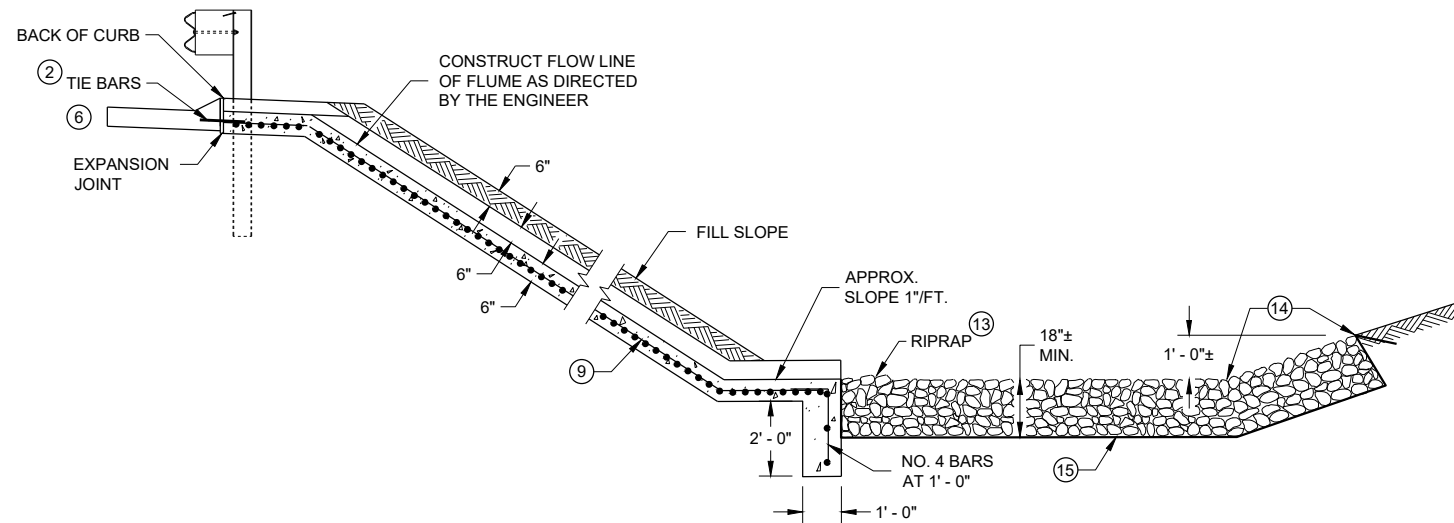


ELEVATION VIEW

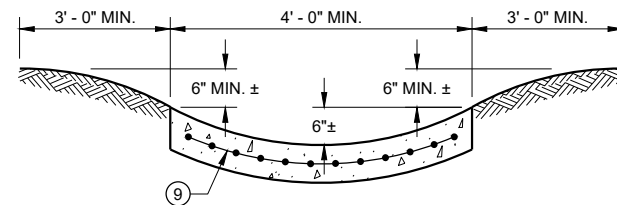
CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

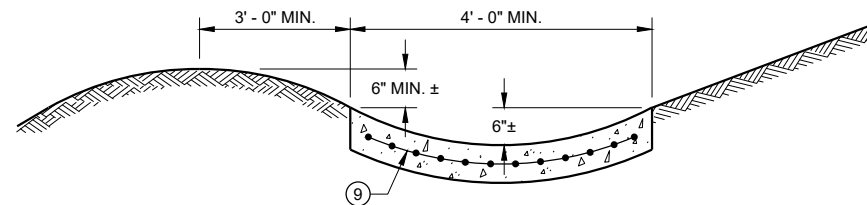




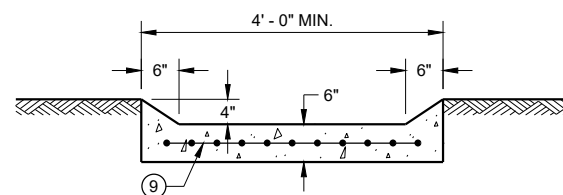
SECTION A - A



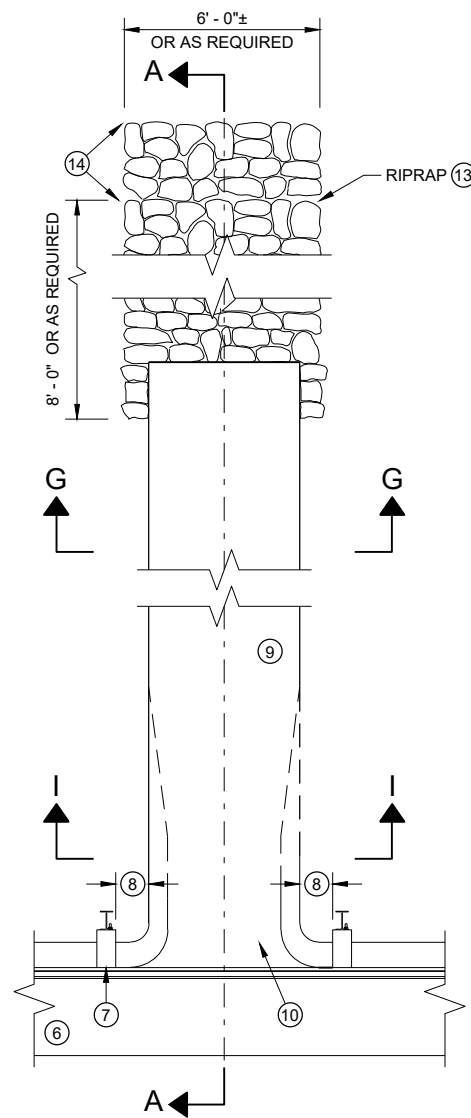
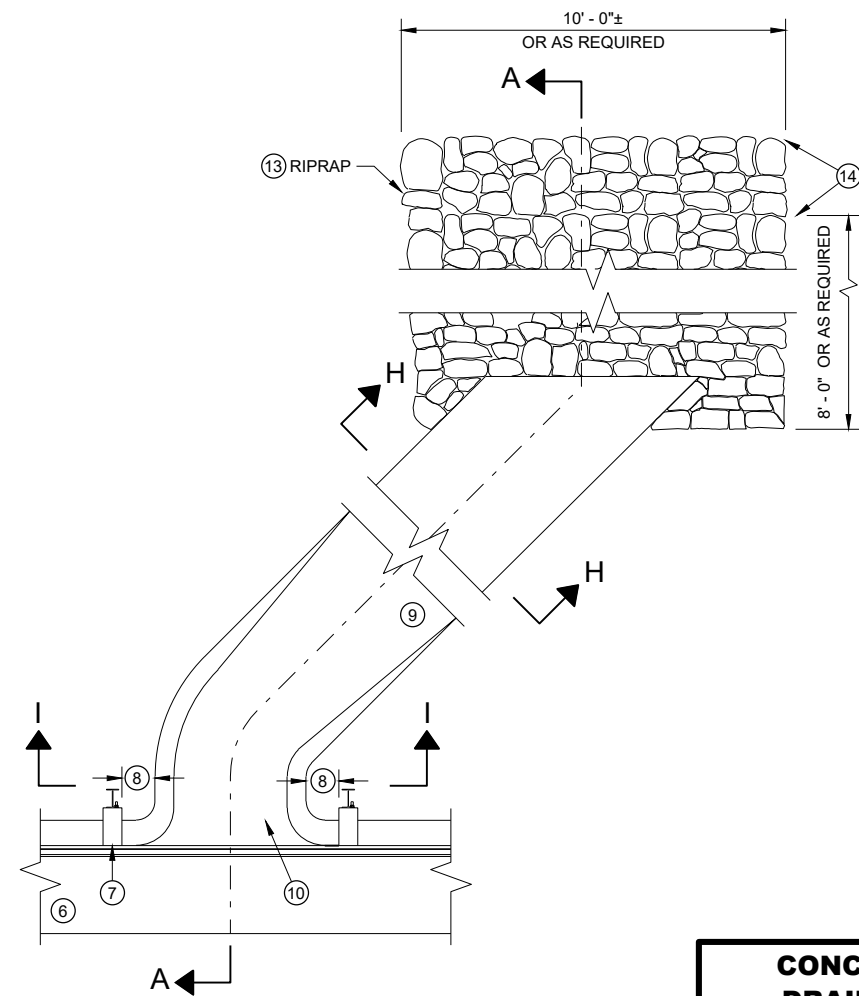
SECTION G - G



SECTION H - H



SECTION I - I

PLAN VIEW  
PERPENDICULAR FLUMEPLAN VIEW  
SKEWED FLUME

## 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.

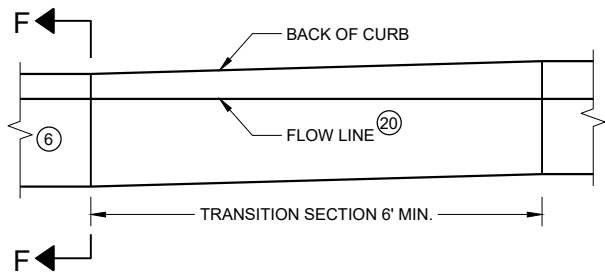
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- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBT. USE TYPE TBT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

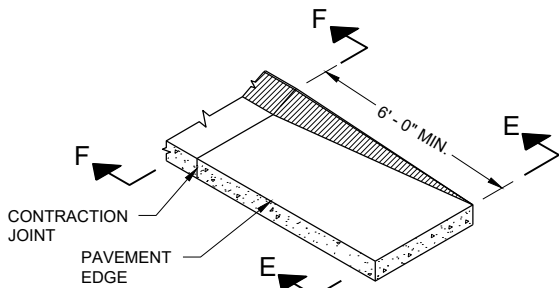
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH AS REQUIRED.
- ⑮ GEOTEXTILE TYPE HR.

**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

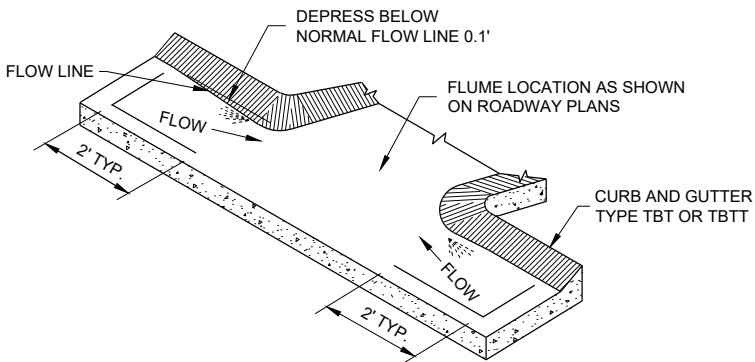
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



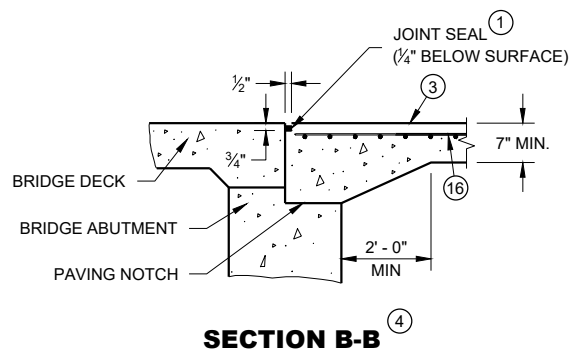
**CURB AND GUTTER TRANSITION SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



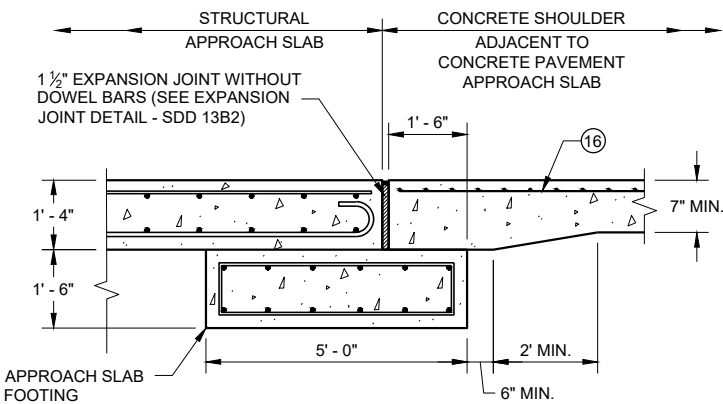
**CURB AND GUTTER END SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



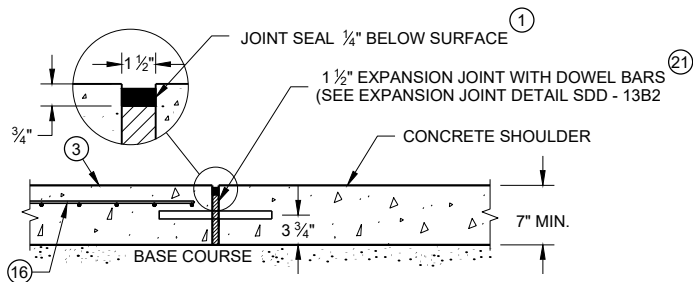
**CURB AND GUTTER FLOW LINE DEPRESSION  
AT FLUMES CONCRETE CURB AND GUTTER  
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**



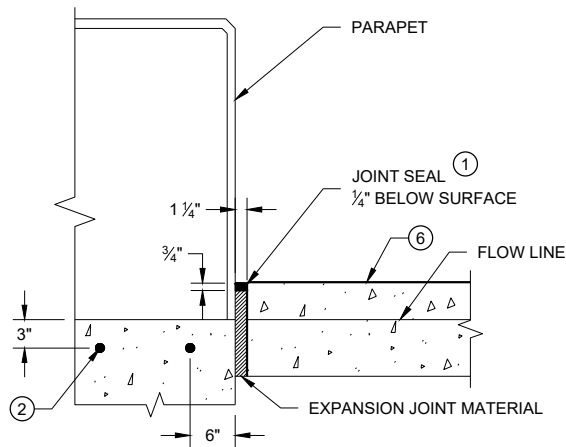
**SECTION B-B**



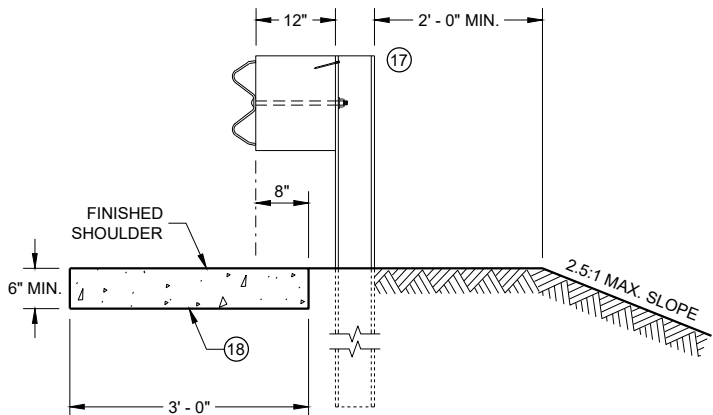
**SECTION C - C  
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL  
APPROACH SLAB AND CONCRETE APPROACH SLAB**



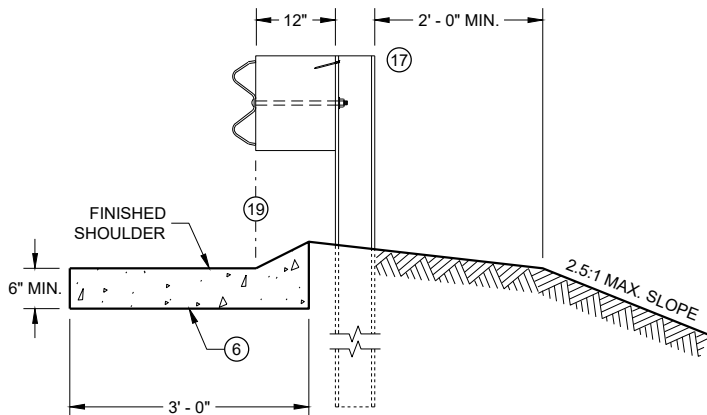
**SECTION C - C  
JOINT DETAIL FOR BRIDGE APPROACH  
WITH CONCRETE SHOULDERS**



**SECTION D - D**



**SECTION E - E**



**SECTION F - F**

# GENERAL NOTES

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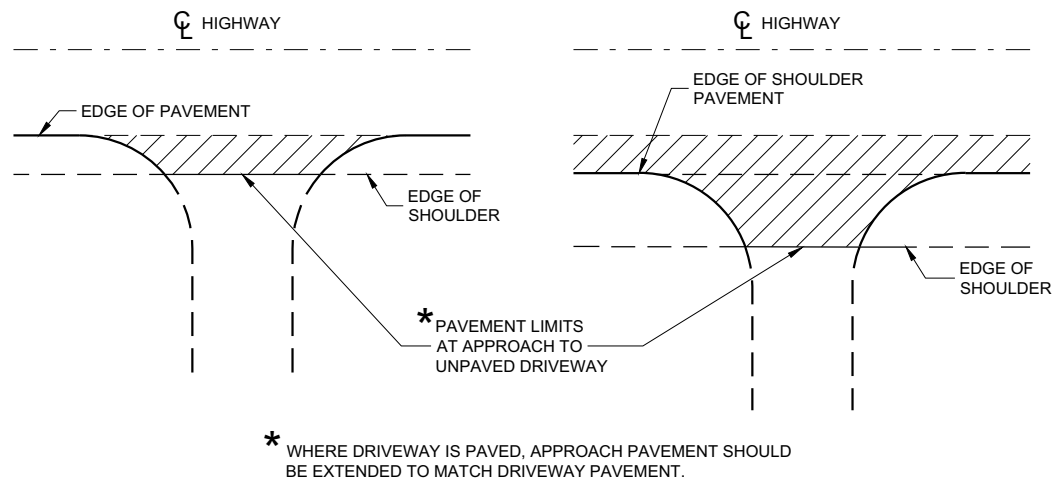
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- CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- SEE ROADWAY PLANS FOR FLUME LOCATION.
- START CURB AND GUTTER TRANSITION OR END SECTION.
- DEPRESS FLOW LINE (SEE DETAIL)
- MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- GEOTEXTILE TYPE HR.
- MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

## CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

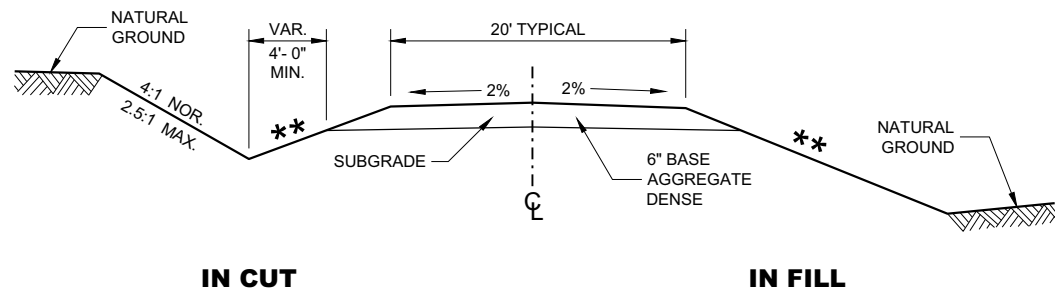




**PLAN VIEW**  
(UNPAVED SHOULDER ON HIGHWAY)

**PLAN VIEW**  
(PAVED SHOULDER ON HIGHWAY)

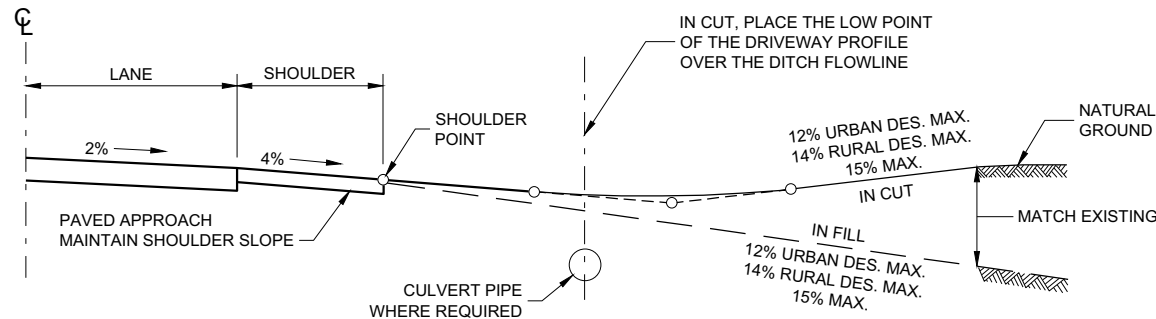
**RURAL DRIVEWAY INTERSECTION DETAIL  
(NO CURB AND GUTTER OR SIDEWALK)**



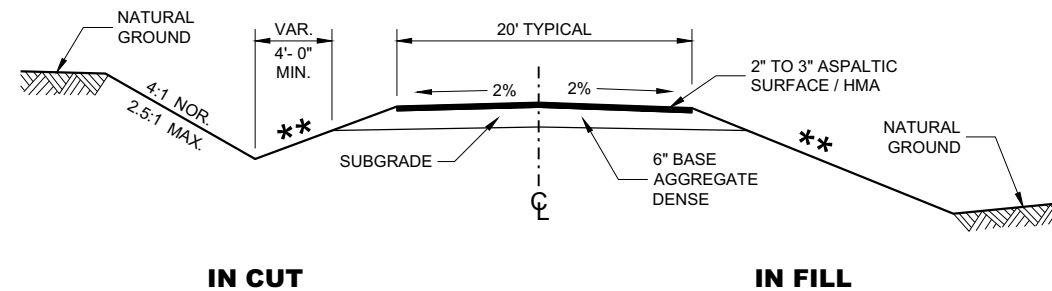
**TYPICAL CROSS SECTION FOR  
PRIVATE DRIVE OR FIELD ENTRANCE  
AGGREGATE SURFACE**

**\*\*** SLOPE CAN VARY WITH SPEED. SEE 11-45-30.6.2

POSTED SPEED MPH	MAX. SLOPE
<35	4:1
≥ 35 TO < 60	6:1
≥60	10:1



**TYPICAL DRIVEWAY PROFILES**



**TYPICAL CROSS SECTION FOR  
PRIVATE DRIVE OR FIELD ENTRANCE  
ASPHALTIC SURFACE**

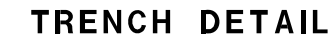
**DRIVEWAYS WITHOUT  
CURB AND GUTTER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

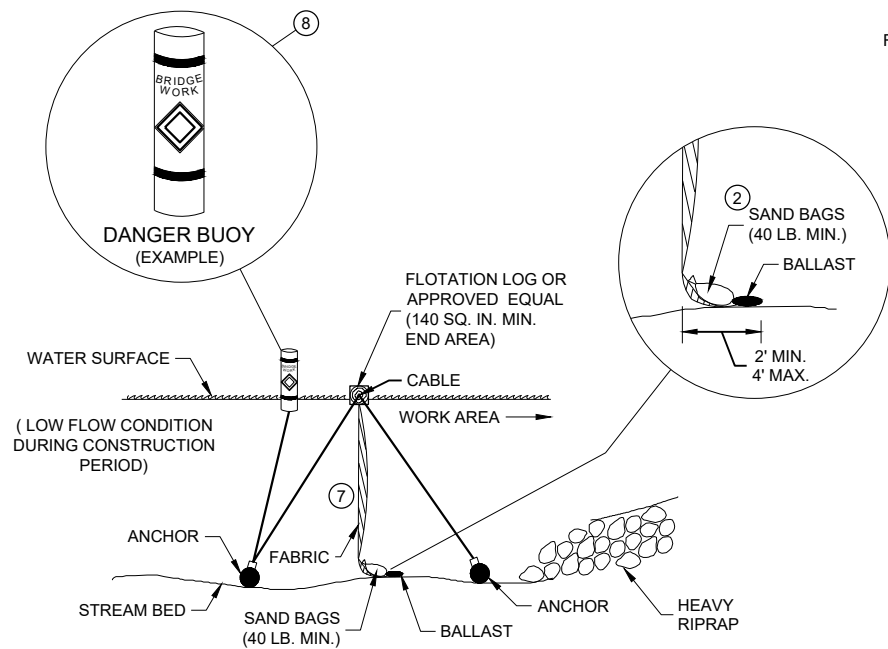
APPROVED  
December 2017  
DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



- 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 1½" X 1½" 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.

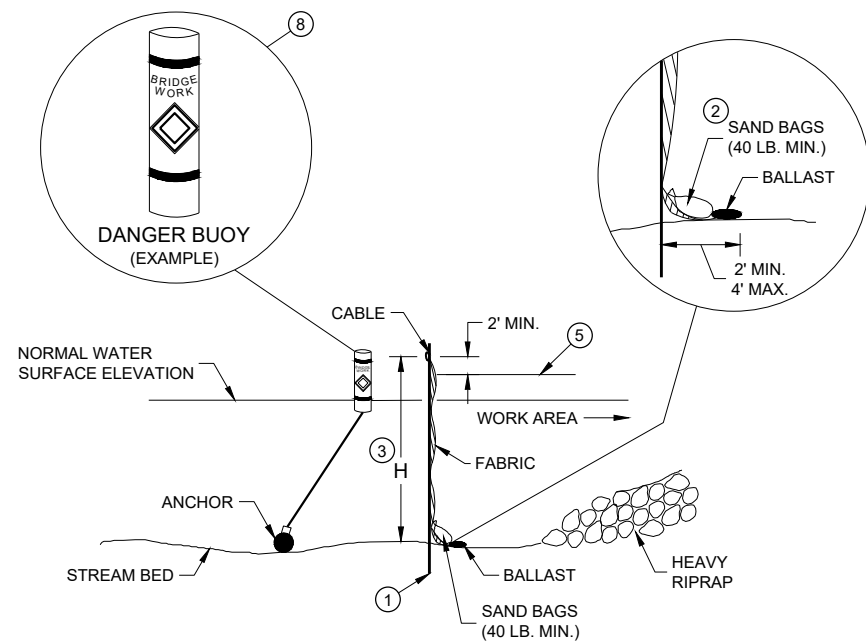


<b>SILT FENCE</b>	
<b>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</b>	
<b>APPROVED</b> <u>4-29-05</u> DATE	<u>/S/ Beth Cannestra</u> CHIEF ROADWAY DEVELOPMENT ENGINEER



SECTION B - B

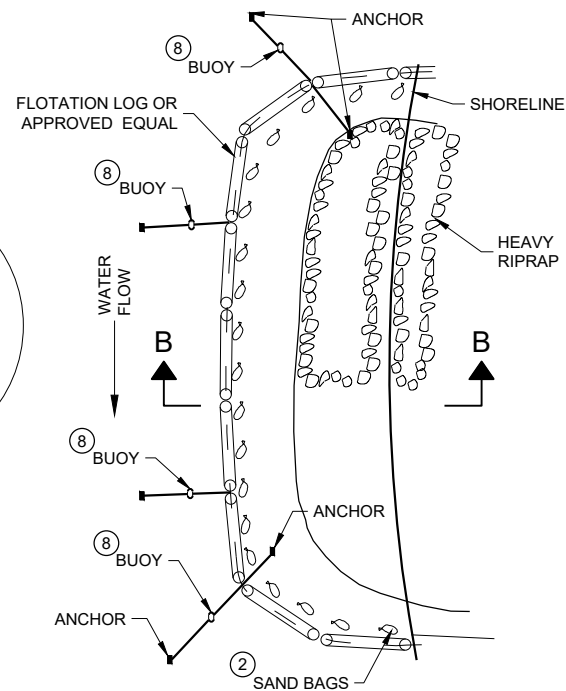
**TURBIDITY BARRIER - FLOAT ALTERNATIVE  
CAUTION - SEE NOTE 6**



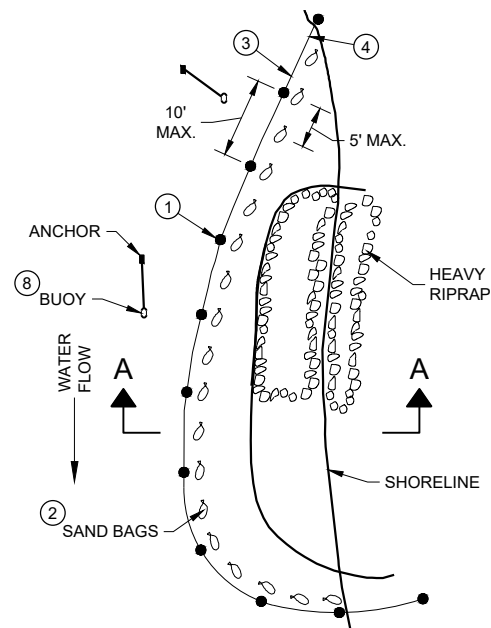
SECTION A - A

**TURBIDITY BARRIER - STANDARD POST INSTALLATION**

**TURBIDITY BARRIER PLACEMENT DETAILS**



PLAN VIEW



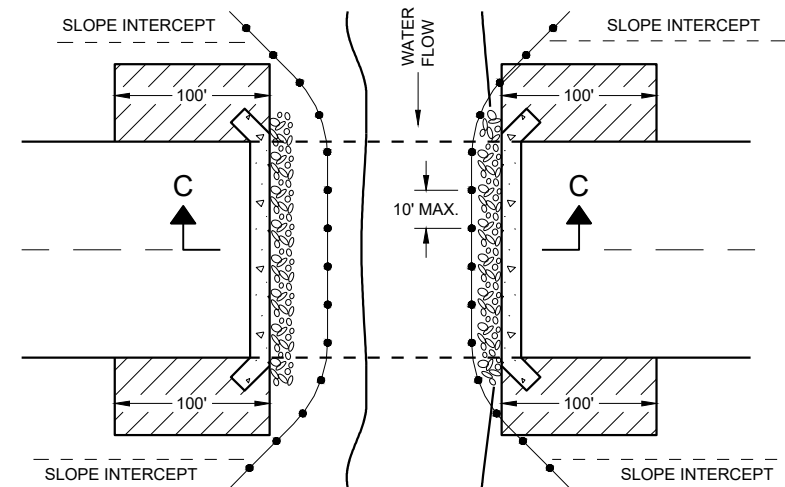
PLAN VIEW

**GENERAL NOTES**

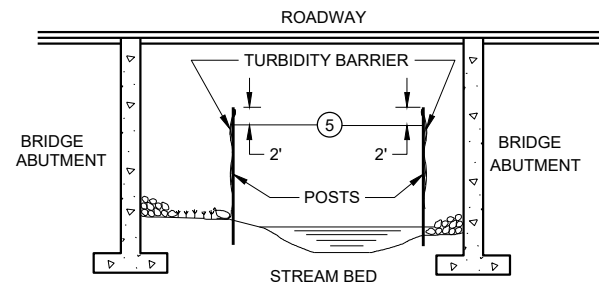
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- 1 DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- 2 SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- 3 WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- 4 IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- 5 ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- 6 FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- 7 ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- 8 USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



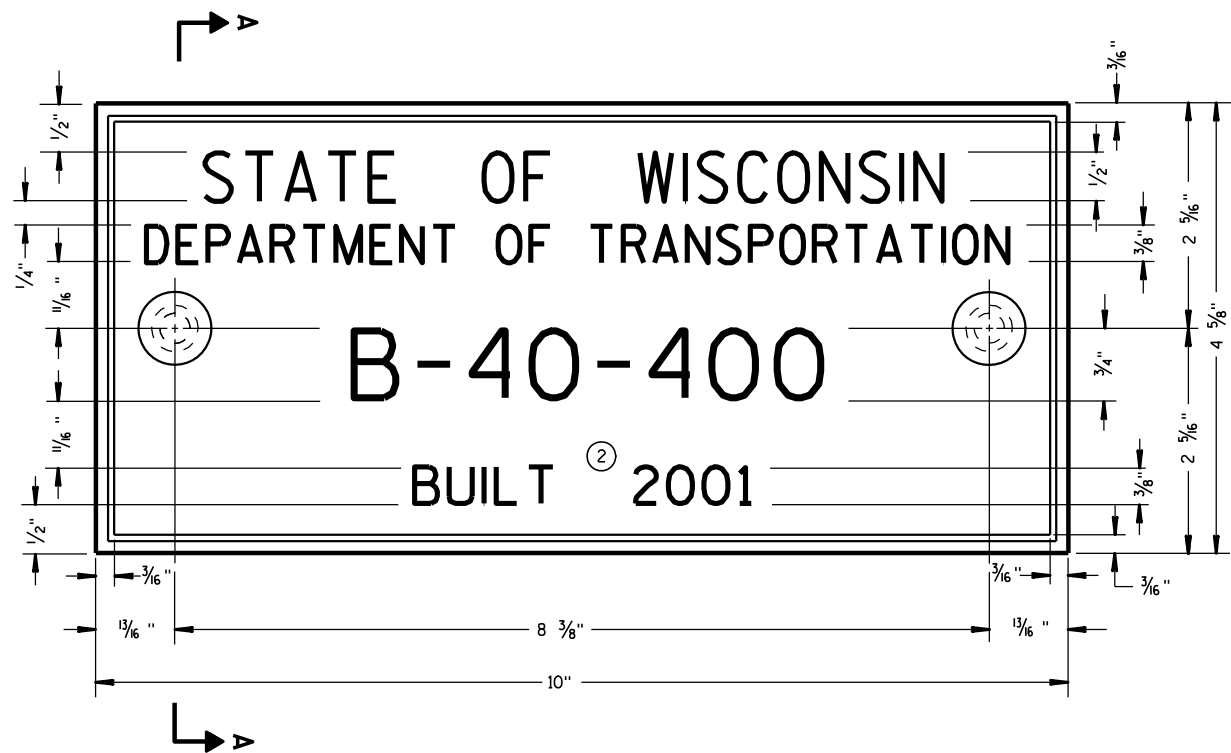
SECTION C - C

**TURBIDITY BARRIER DETAIL SHOWING  
TYPICAL PLACEMENT AT STRUCTURES**

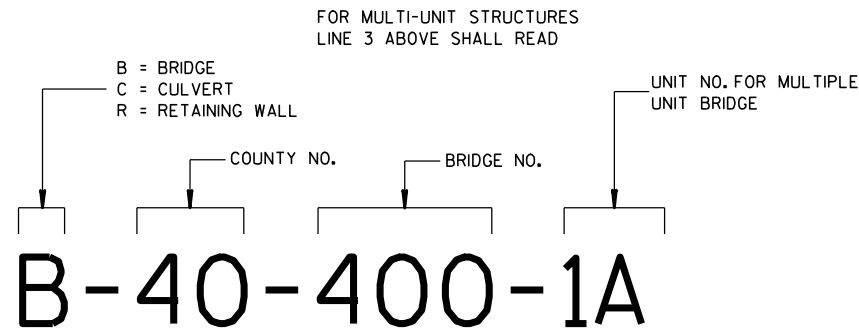
**TURBIDITY BARRIER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/4/02 DATE /S/ Beth Canestra  
DATE CHIEF ROADWAY DEVELOPMENT  
ENGINEER  
FHWA



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



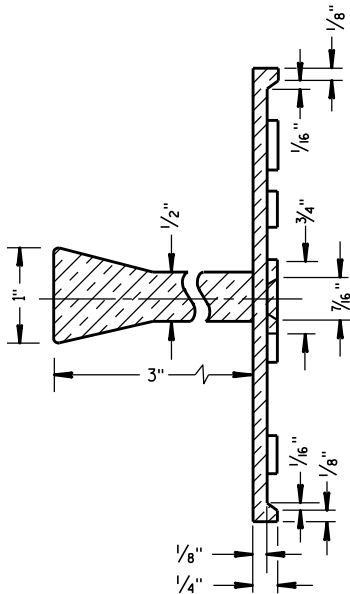
NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES

GENERAL NOTES

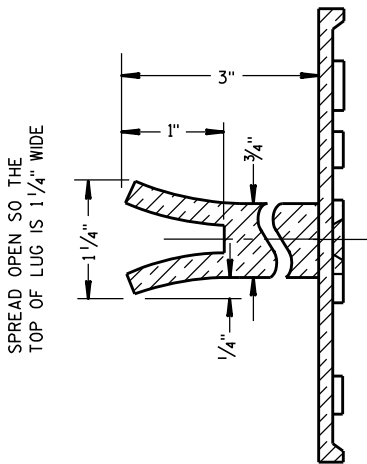
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

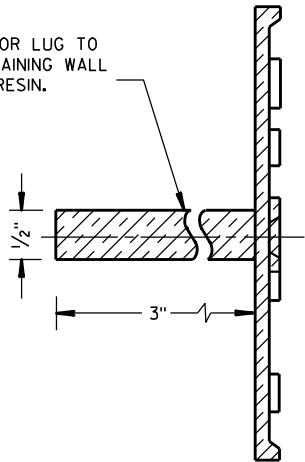


SECTION A-A



ALTERNATE LUG

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

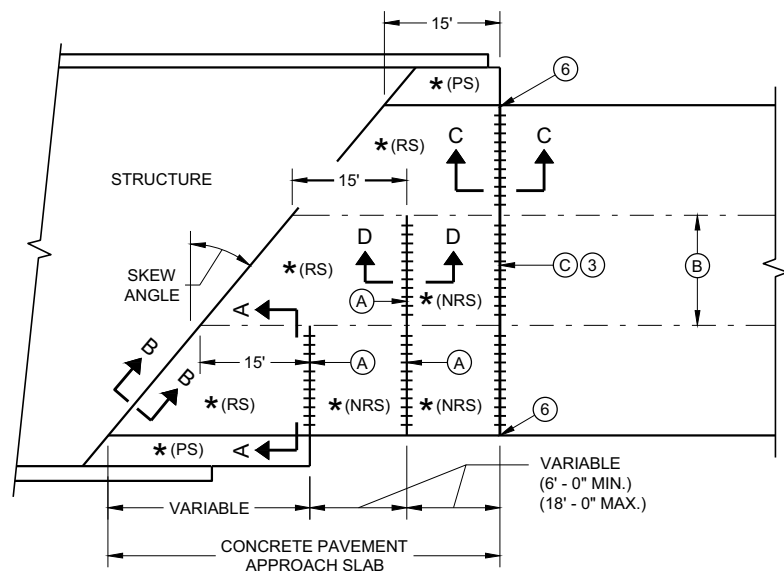


ALTERNATE LUG  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

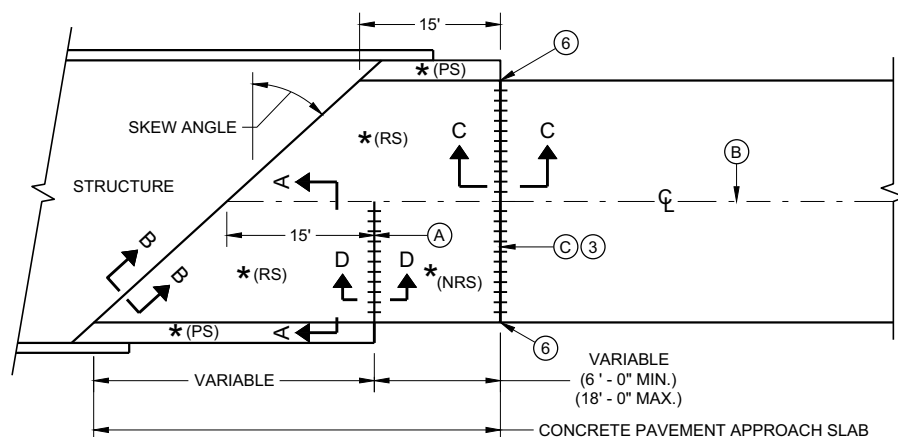
NAME PLATE  
(STRUCTURES)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

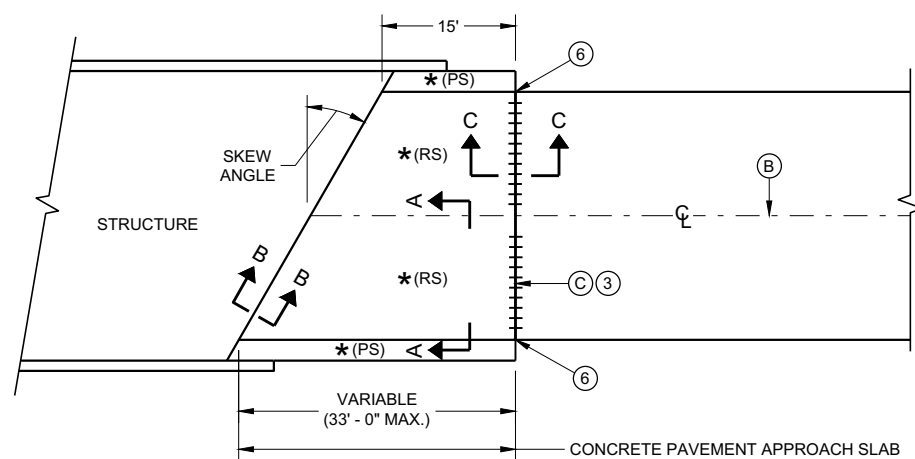
APPROVED  
3/26/10  
DATE  
/S/ Scot Becker  
CHIEF STRUCTURAL DEVELOPMENT ENGINEER  
FHWA



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



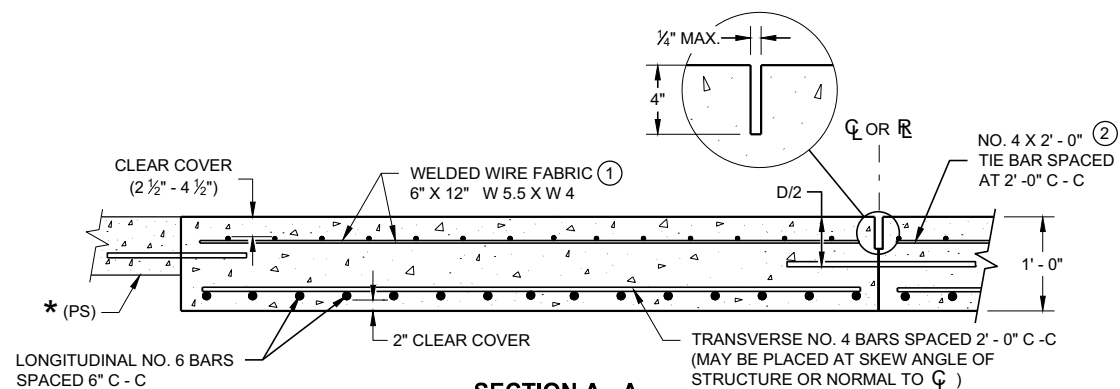
**SKews > 20°  
(PAVEMENT WIDTH ≤ 30')**



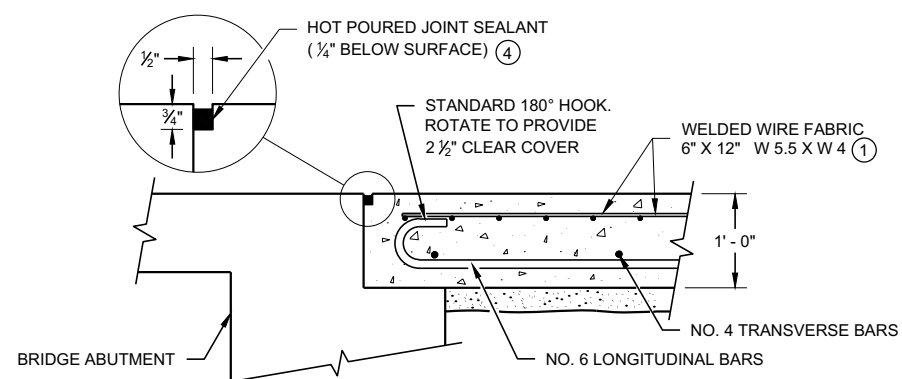
**SKews ≤ 20°  
(PAVEMENT WIDTH ≤ 30')**

**APPROACH SLAB AND ADJACENT PAVEMENT**

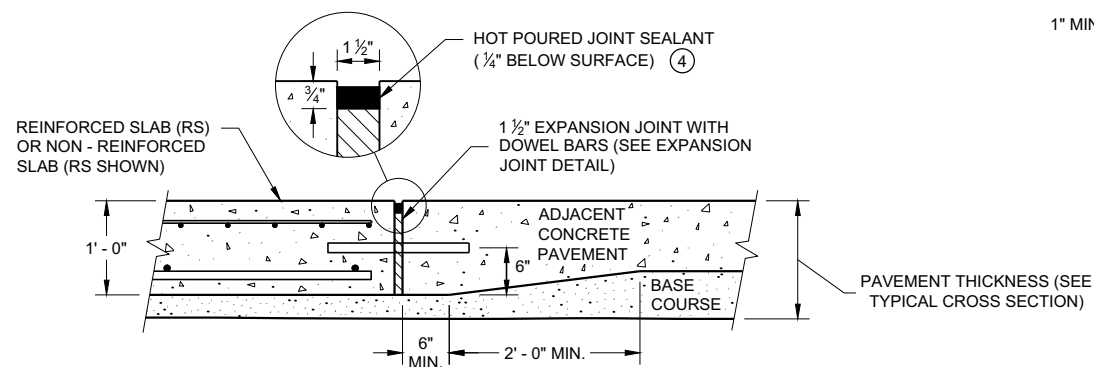
- \* (RS) = REINFORCED CONCRETE SLAB
- \* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- \* (NRS) = NON - REINFORCED CONCRETE SLAB
- \*\*\* STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A  
REINFORCEMENT POSITIONING DETAIL**



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



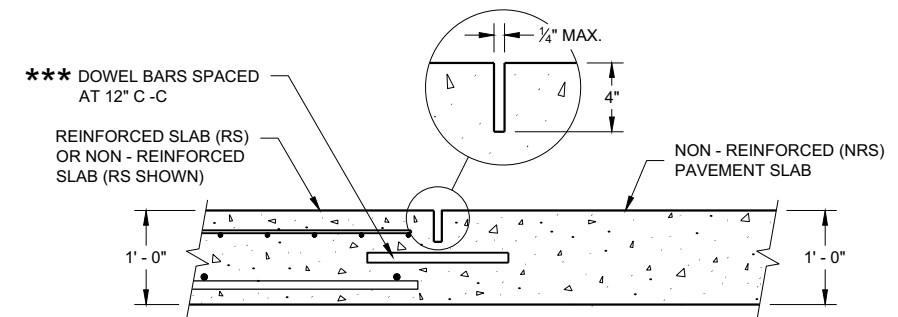
**SECTION C - C  
TRANSITION DETAIL  
APPROACH SLAB TO ADJACENT PAVEMENT**

## GENERAL NOTES

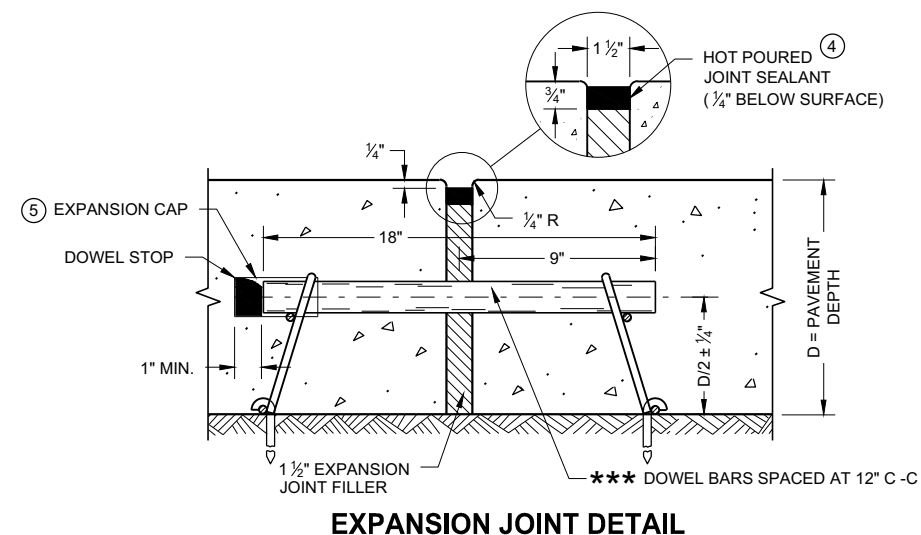
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

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



**SECTION D - D  
CONTRACTION JOINT**



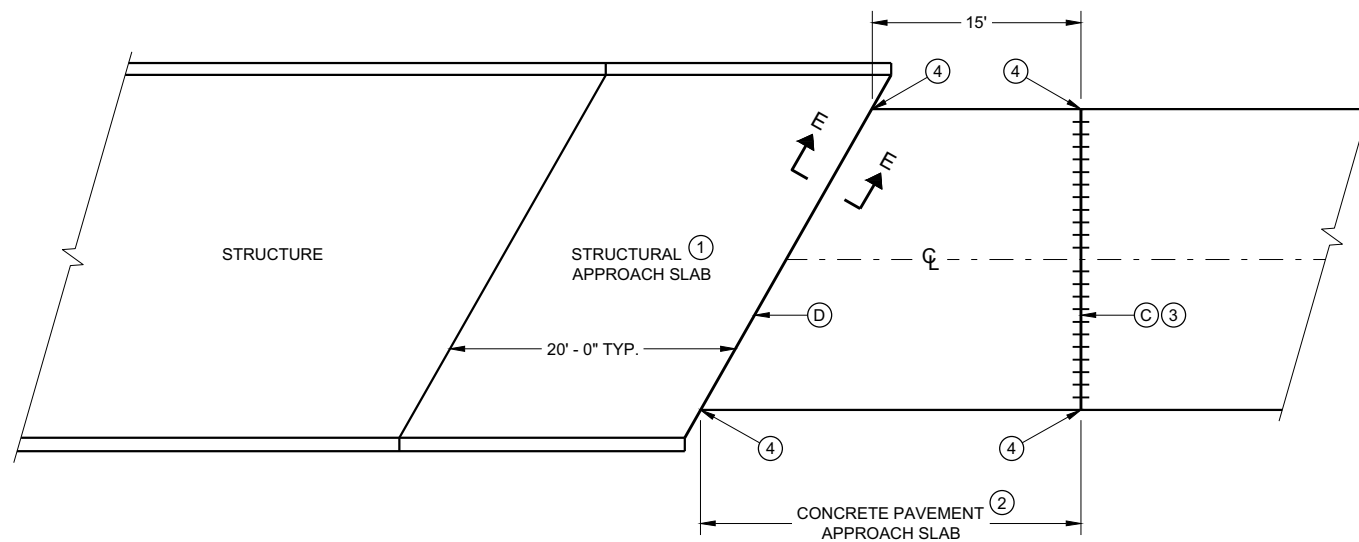
**EXPANSION JOINT DETAIL**

## CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA

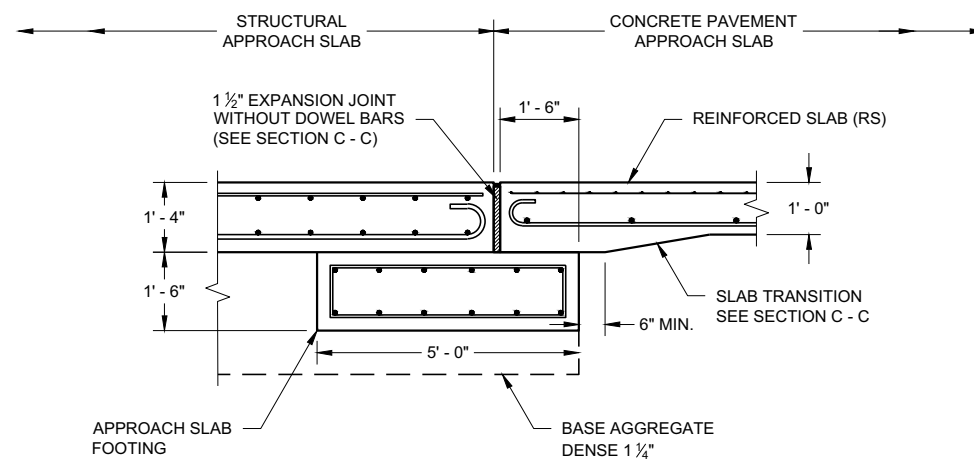


## GENERAL NOTES

ALL PROJECTS THAT INVOLVE A STRUCTURAL APPROACH SLAB WILL ALSO HAVE A CONCRETE PAVEMENT APPROACH SLAB.

- ① SEE BRIDGE PLAN.
- ② CONFORM TO SDD 13B02 SHEET A FOR CONCRETE PAVEMENT APPROACH SLAB DETAILS
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- Ⓒ 1 ½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $\overline{CL}$  OR  $\overline{RL}$ .
- Ⓓ 1 ½" EXPANSION JOINT (NO DOWELS)

## BRIDGE APPROACHES



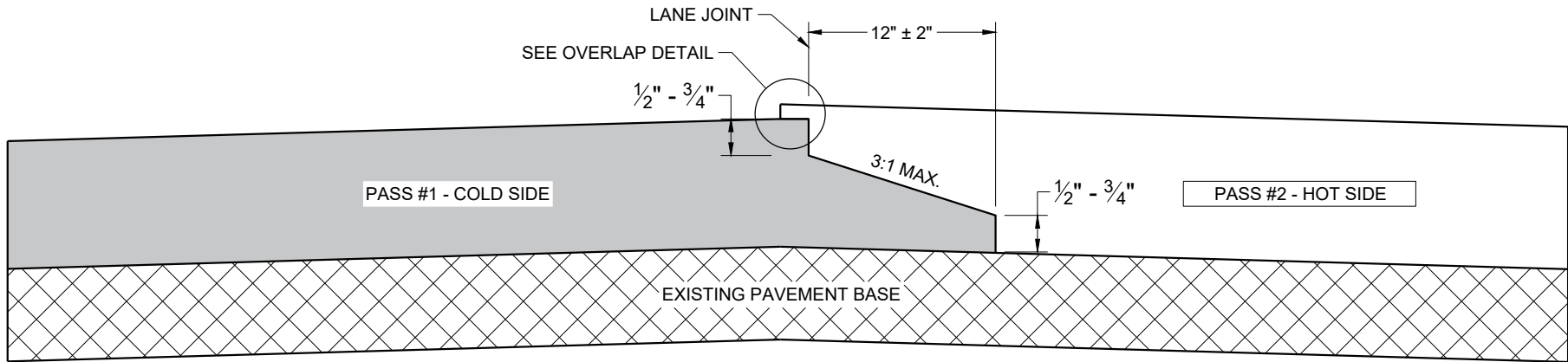
## SECTION E - E FOOTING DETAIL STRUCTURAL APPROACH SLAB TO CONCRETE BRIDGE APPROACH

## STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB

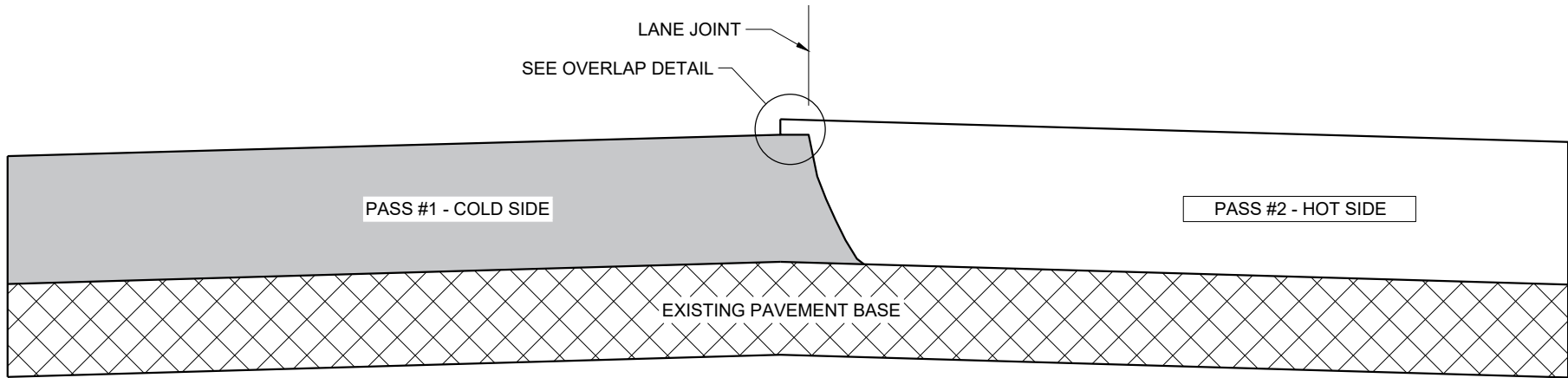
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

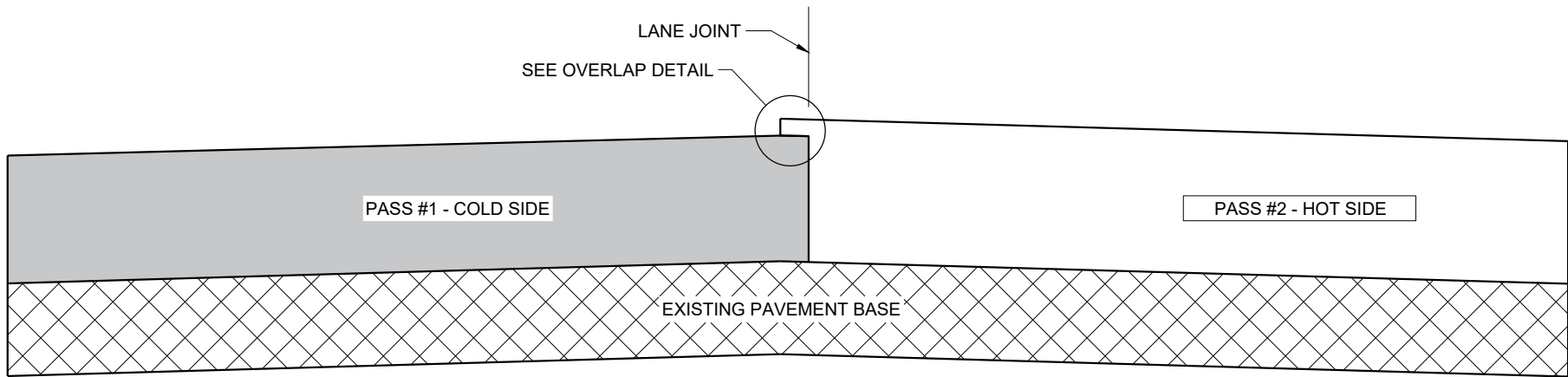
FHWA



TYPICAL PAVEMENT CROSS SECTION  
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT (MILLED)

GENERAL NOTES

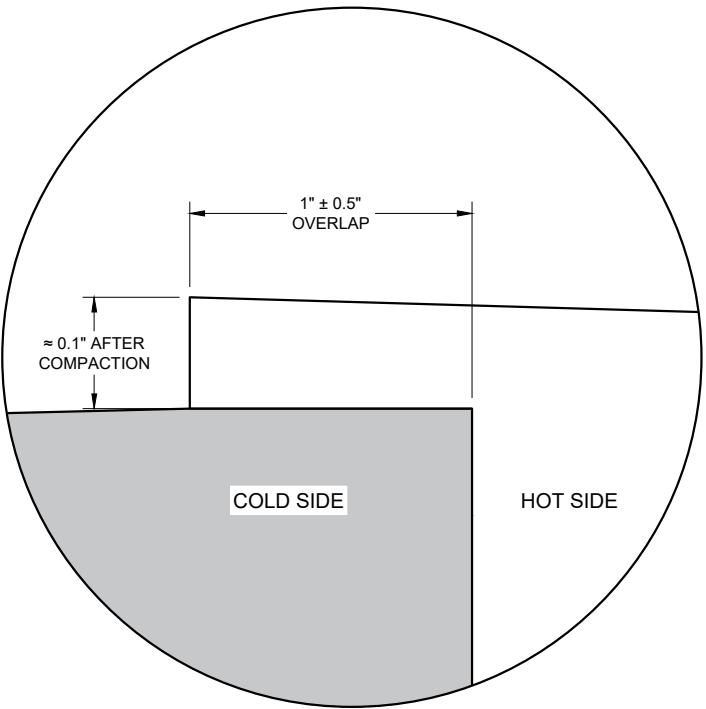
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



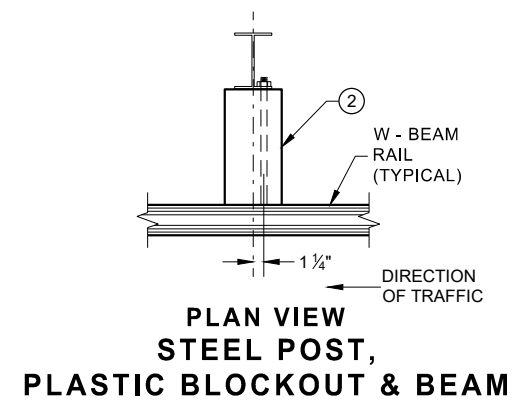
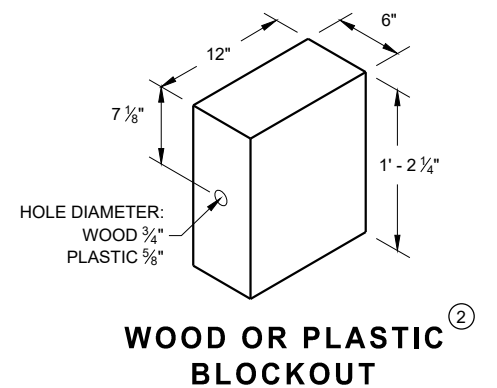
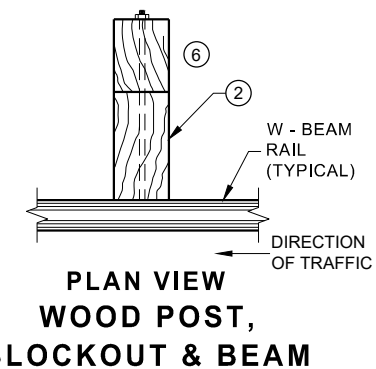
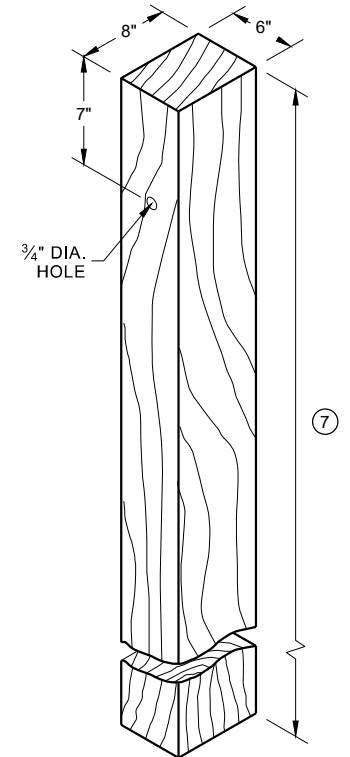
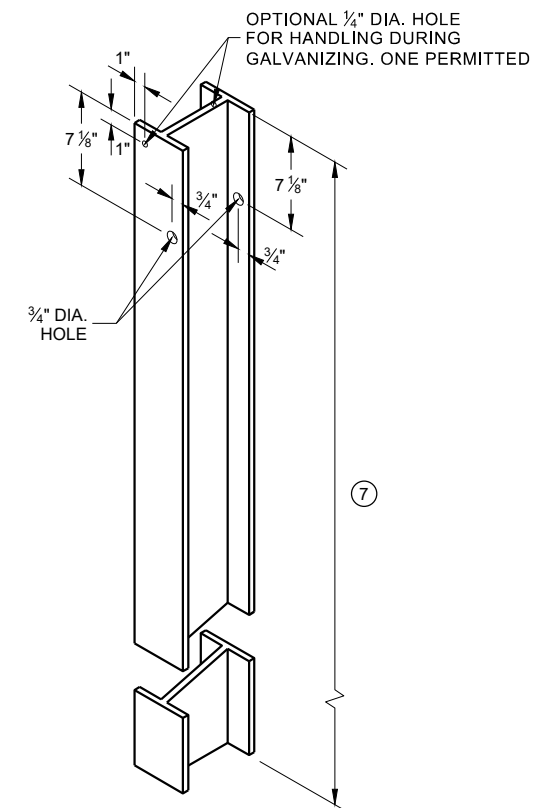
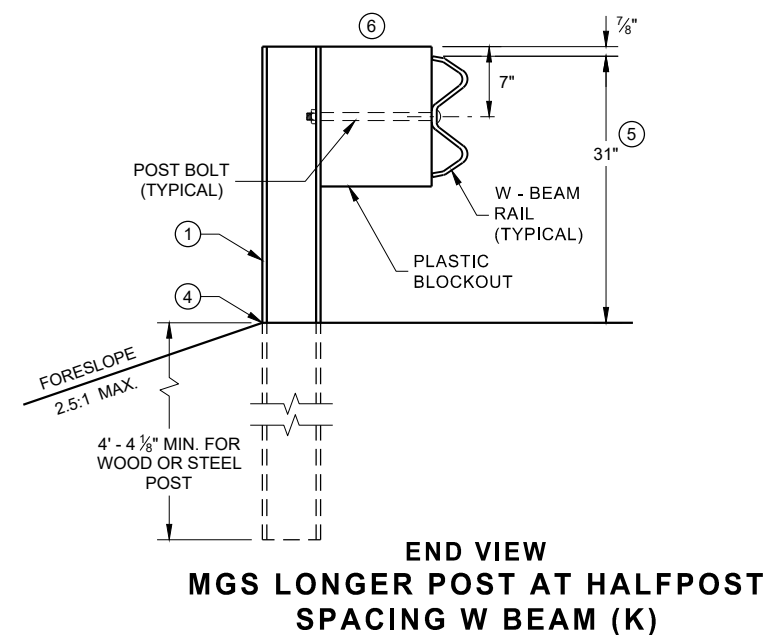
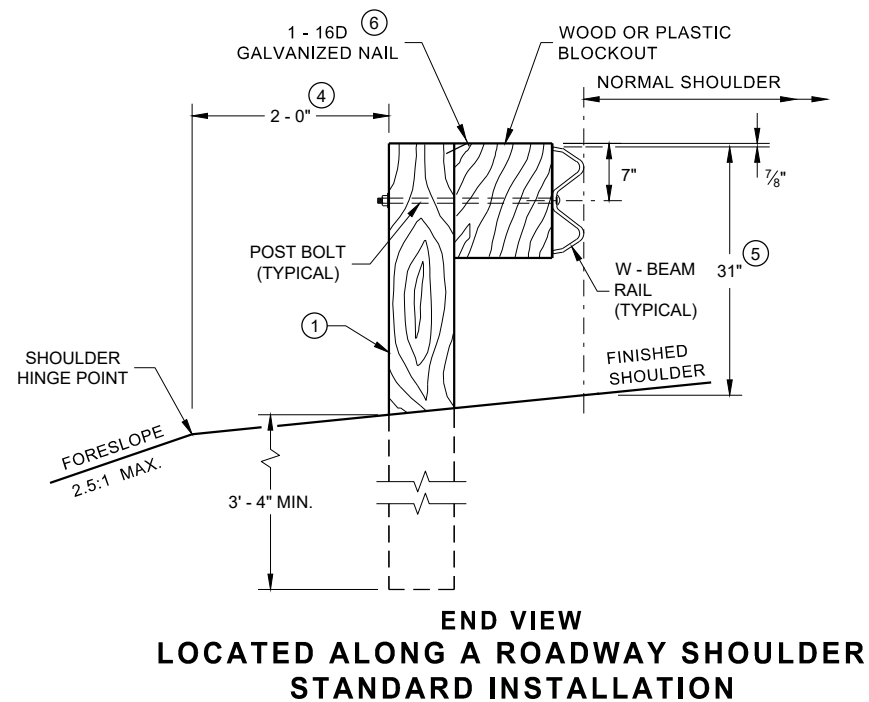
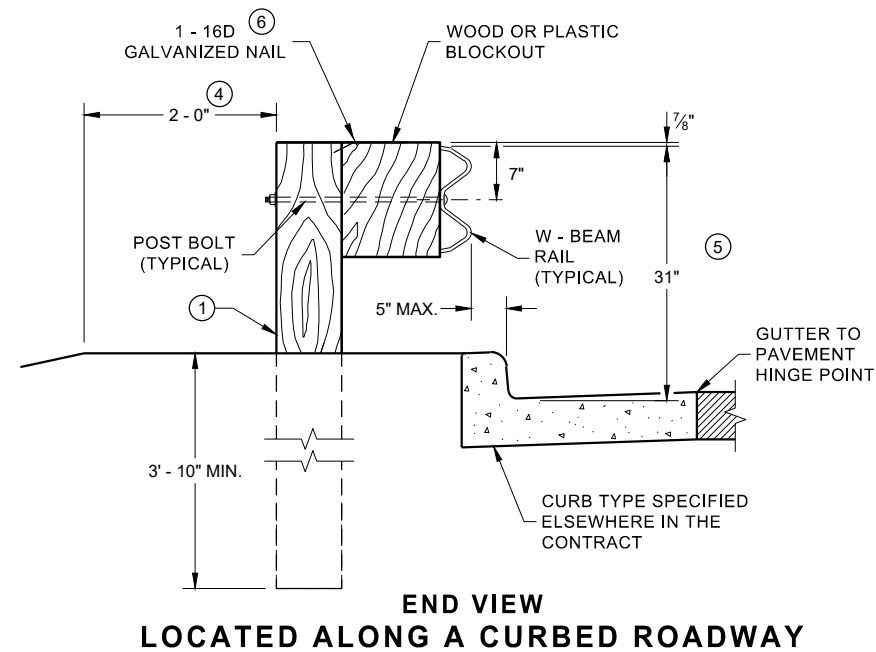
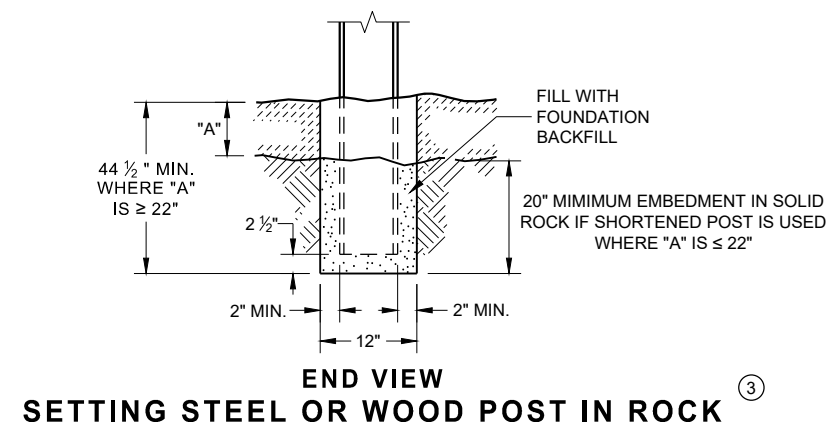
OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

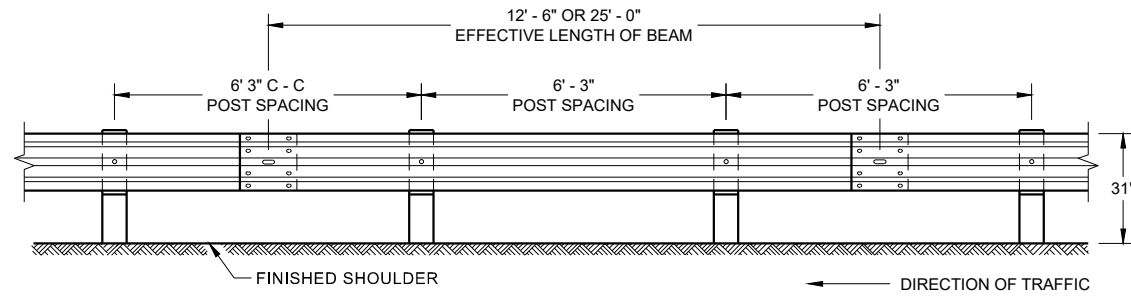
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS  $\pm 1"$ . FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".  
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



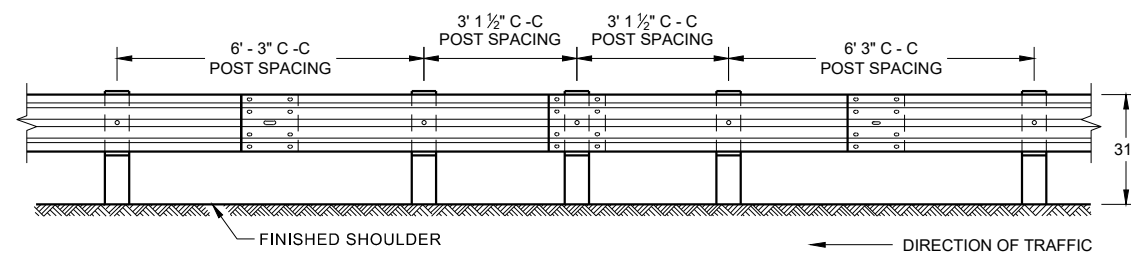
**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

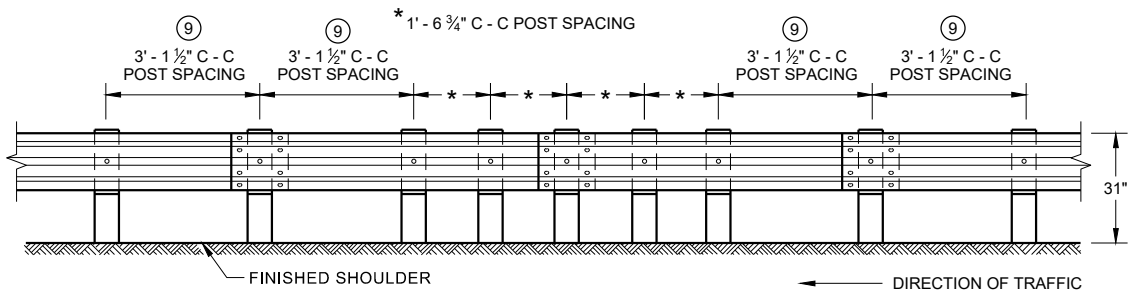




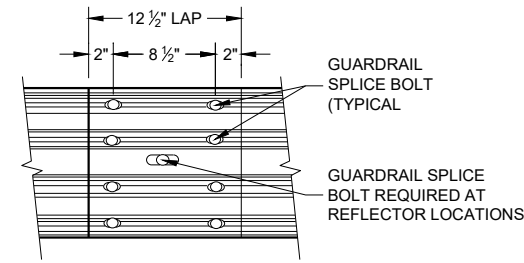
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



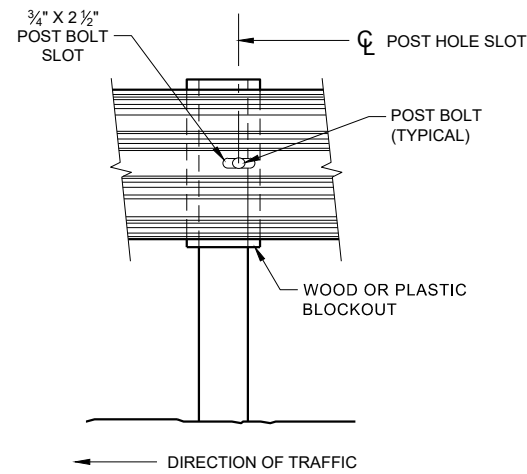
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



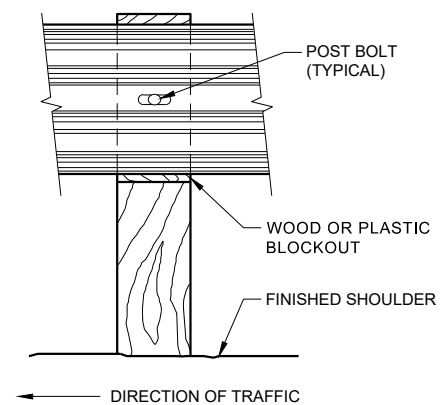
**FRONT VIEW  
QUARTER POST SPACING (QS)**



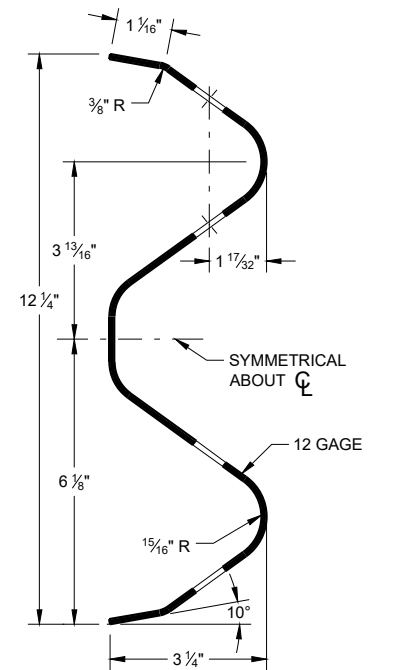
**FRONT VIEW  
MID-SPAN BEAM SPLICE**



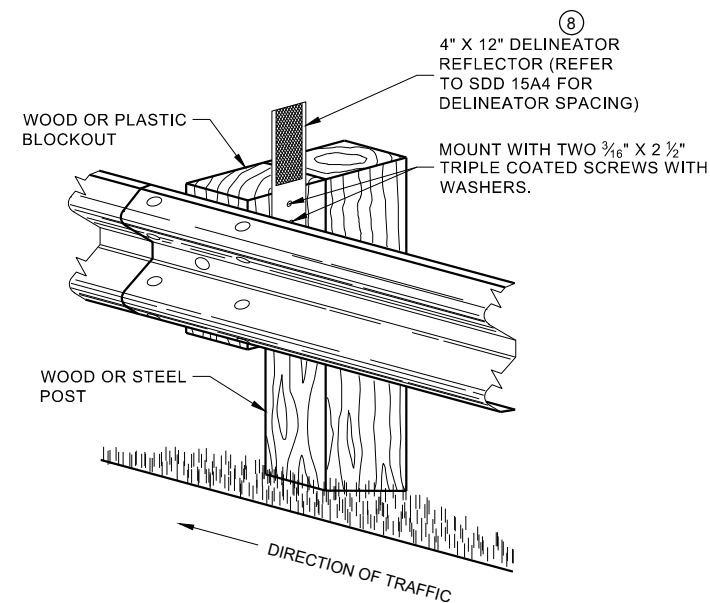
**FRONT VIEW AT STEEL POST**



**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



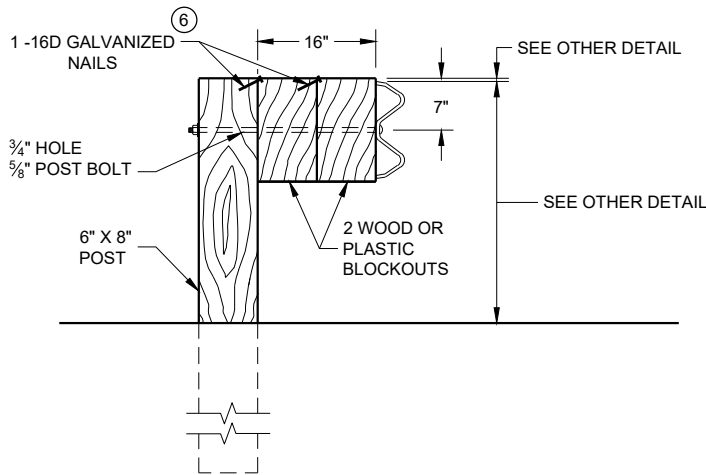
**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**GENERAL NOTES**

- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

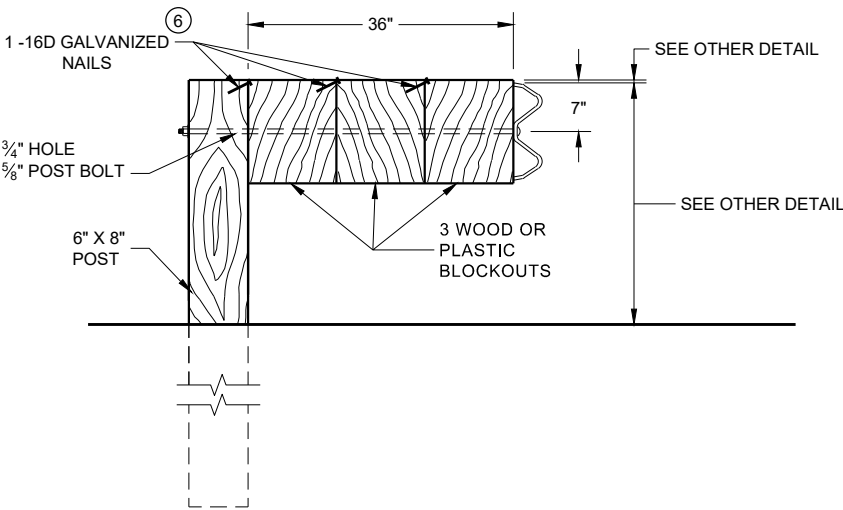
**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

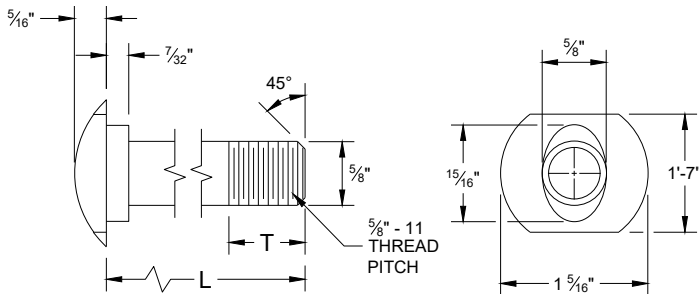
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

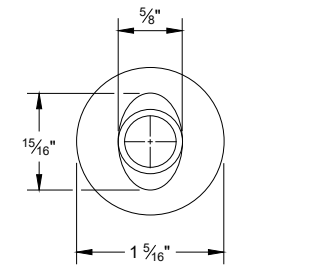
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.  
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

- NOTE:
- 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
  - 2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

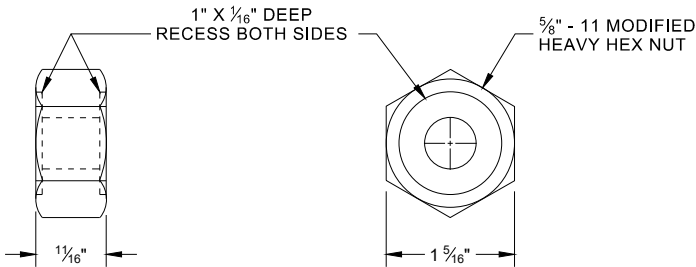


POST BOLT TABLE

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

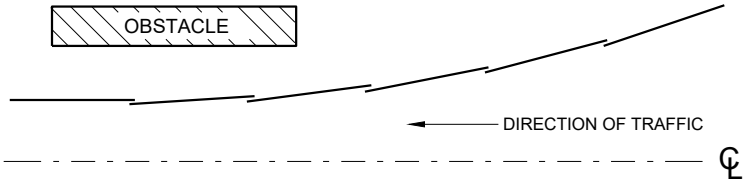


ALTERNATE BOLT HEAD

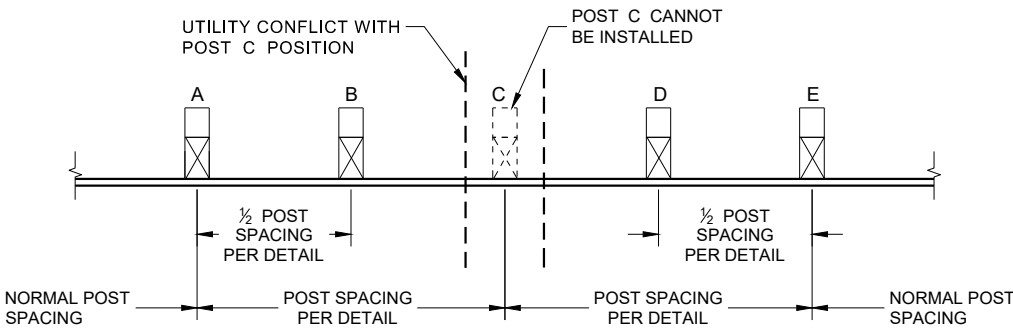


POST BOLT, SPLICE BOLT AND RECESS NUT

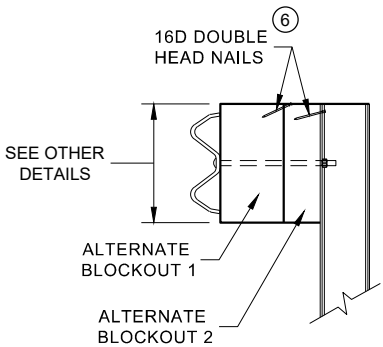
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



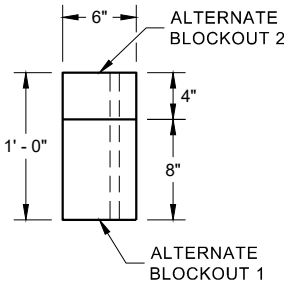
PLAN VIEW  
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION



SIDE VIEW

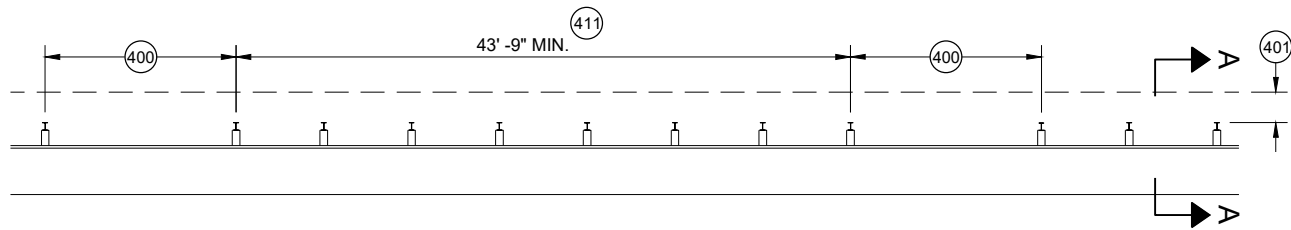


PLAN VIEW

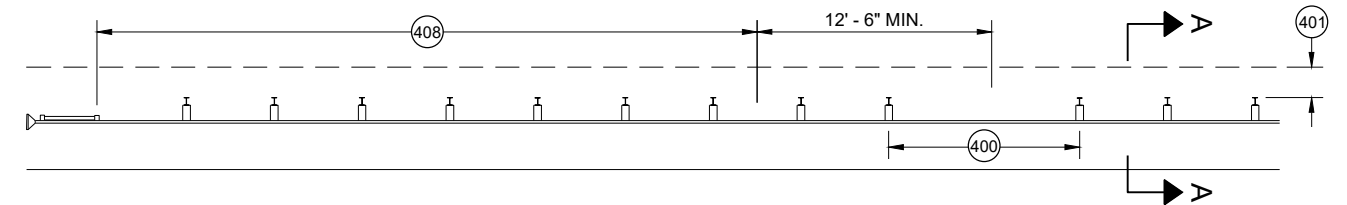
ALTERNATE WOOD  
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL

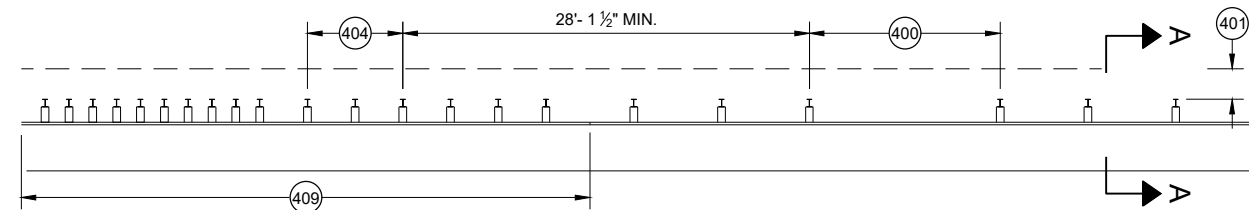
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



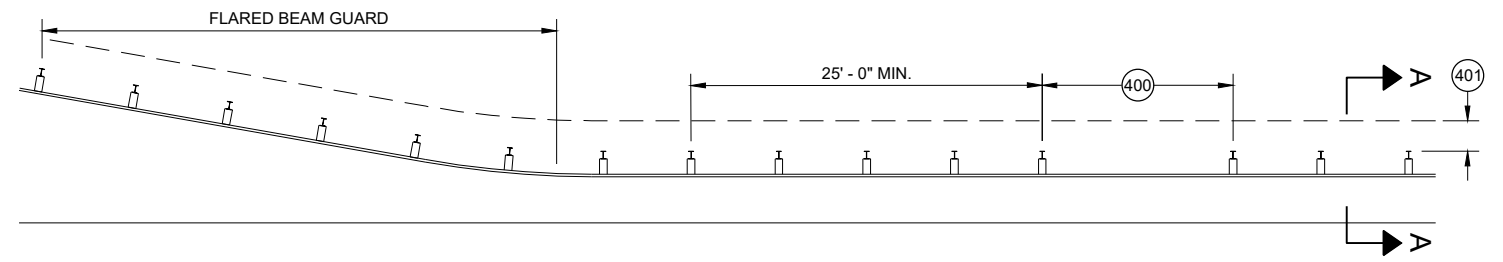
**MISSING POST IN MGS GUARDRAIL**



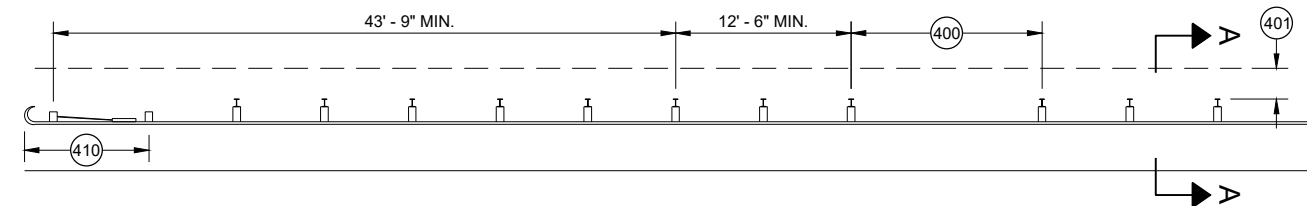
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



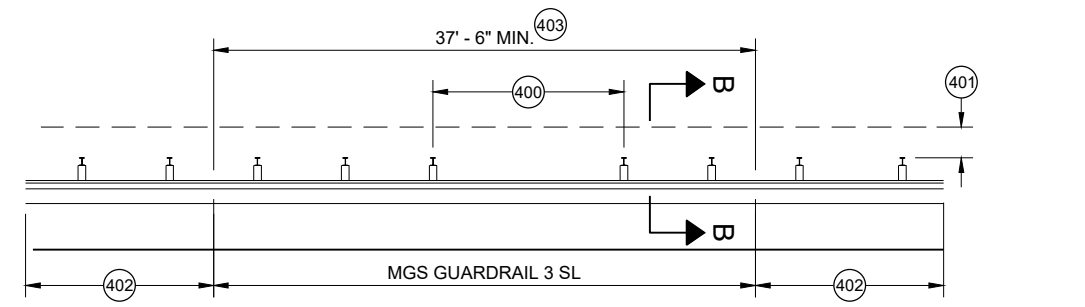
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



**MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD**

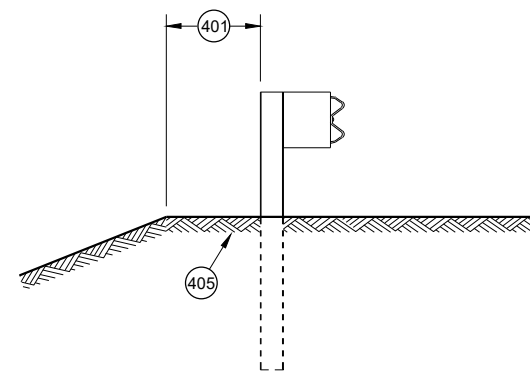


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

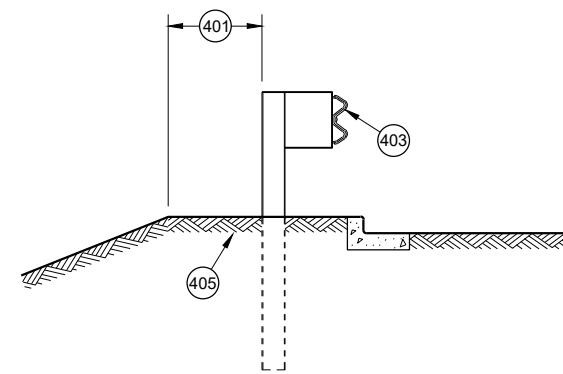


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

- (400) MAX SPAN 12' - 6"
- (401) 2' MIN.
- (402) MGS GUARDRAIL 3
- (403) NESTING BEAM GUARD
- (404) ASYMMETRIC TRANSITION
- (405) SOIL WELL DRAINED AND COMPACTED
- (406) SEE OTHER DRAWINGS IN THIS SDD
- (407) SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- (408) SEE SDD 14B44
- (409) SEE SDD 14B45
- (410) SEE SDD 14B47
- (411) MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



**SECTION A - A**



**SECTION B - B**

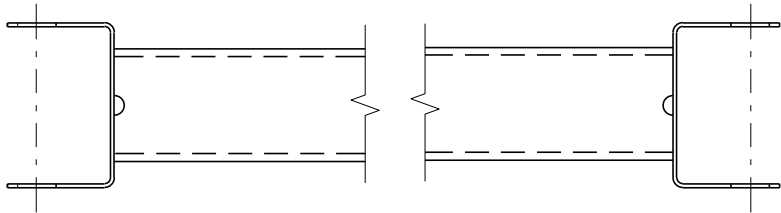
**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2021  
DATE  
/S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR

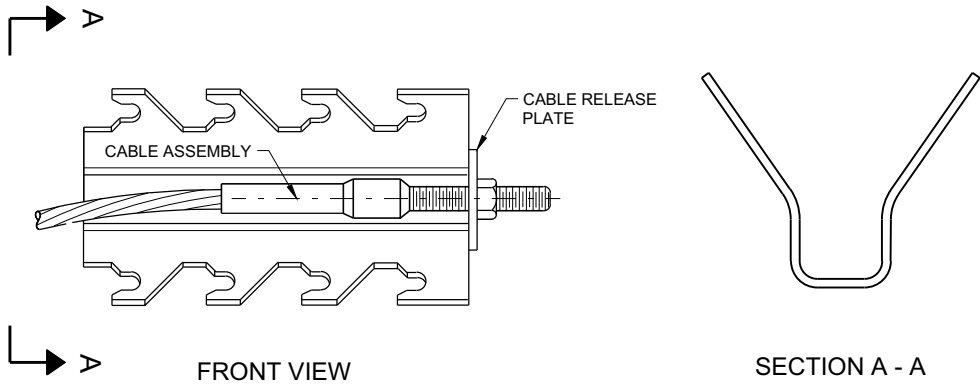
FHWA

**SDD14B44 - 04a**

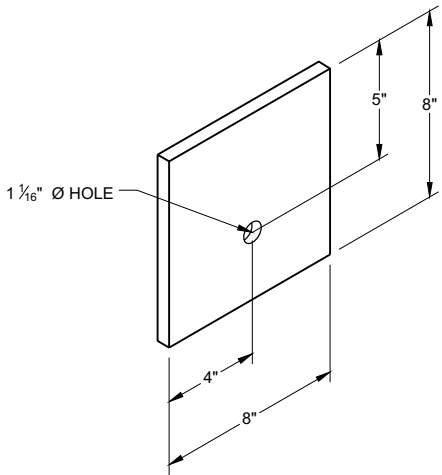


GENERIC GROUND STRUT<sup>⑨</sup> <sup>Ⓔ</sup>

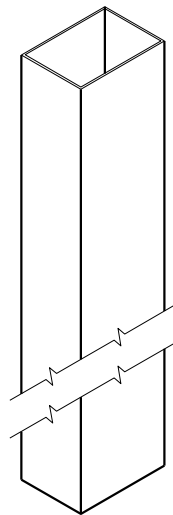
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



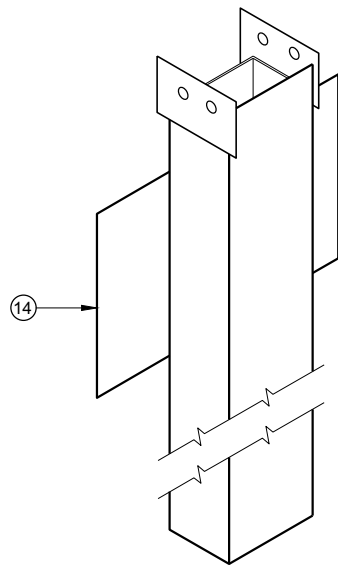
GENERIC ANCHOR CABLE BOX<sup>⑨</sup> <sup>Ⓔ</sup>



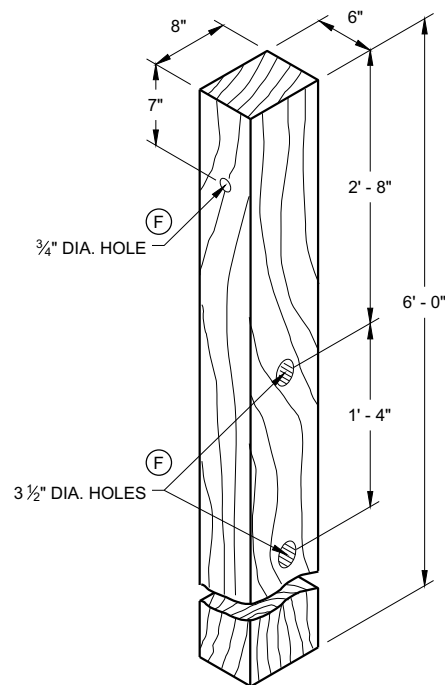
BEARING PLATE<sup>⑥</sup> <sup>Ⓔ</sup>



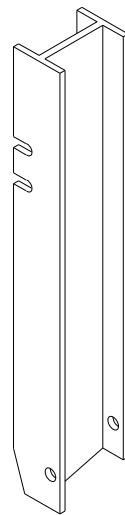
UPPER POST NO. 1 <sup>(1)</sup> (E)



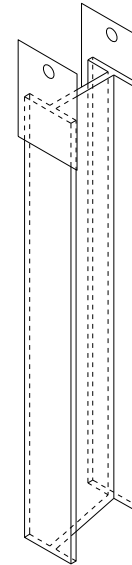
LOWER POST NO. 1 <sup>(2)</sup> (E)



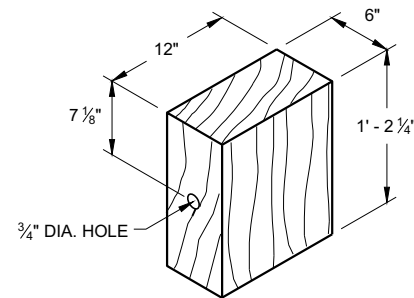
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



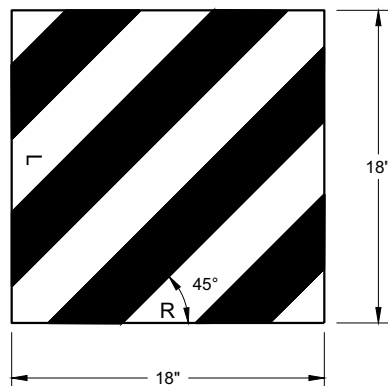
UPPER POST NO. 2 <sup>(15)</sup> (E)



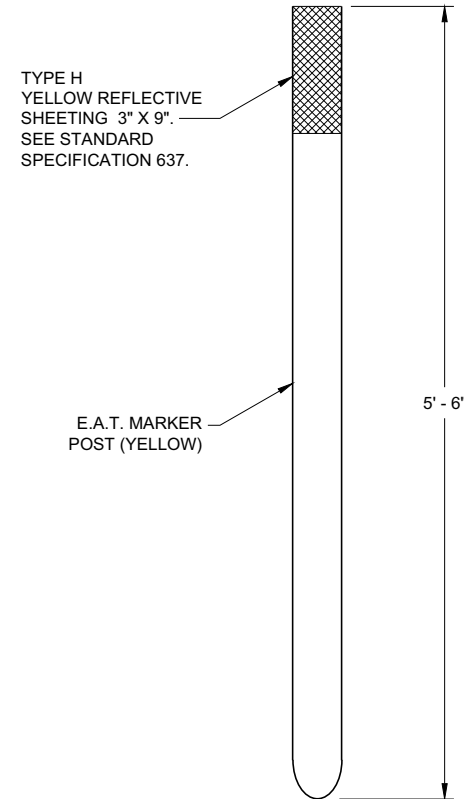
LOWER POST NO. 2 <sup>(16)</sup> (E)



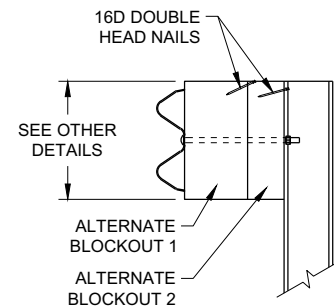
WOOD BLOCKOUT <sup>(4)</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



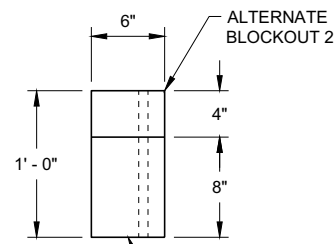
REFLECTIVE SHEETING DETAIL <sup>(E)</sup>



E.A.T. MARKER POST <sup>(13)</sup>



SIDE VIEW



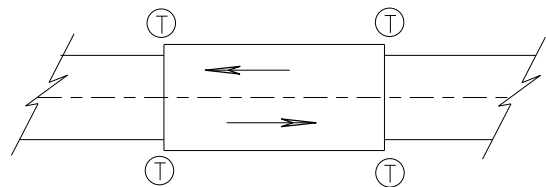
TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

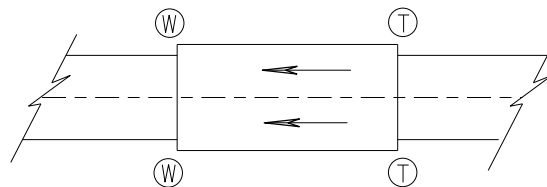
**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
7/2018 DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

### GENERAL NOTES

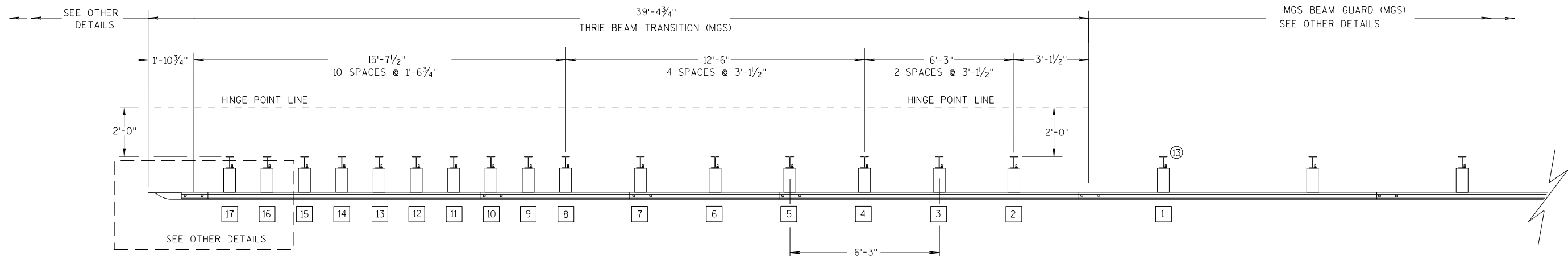
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

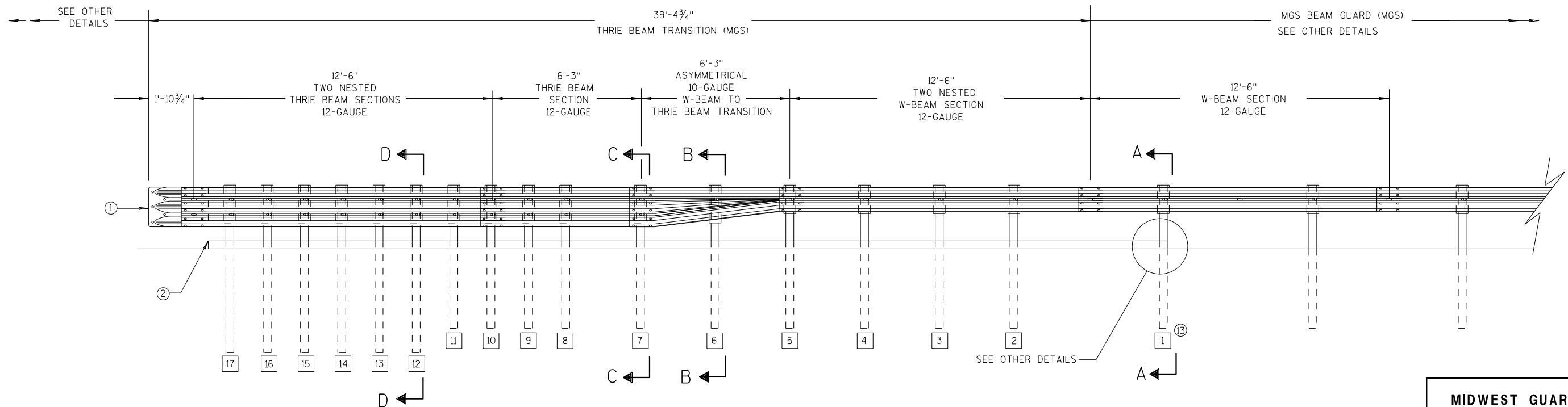
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



**PLAN VIEW**



**ELEVATION VIEW**

## MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

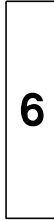
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

- S.D.D. 14 B 45-5b**



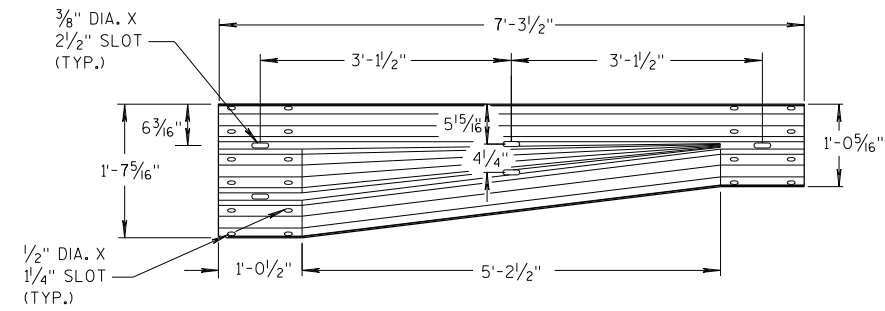
**S.D.D. 14 B 45-5b**



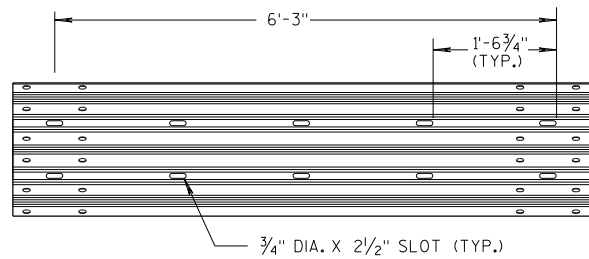
**S.D.D. 14 B 45-5b**



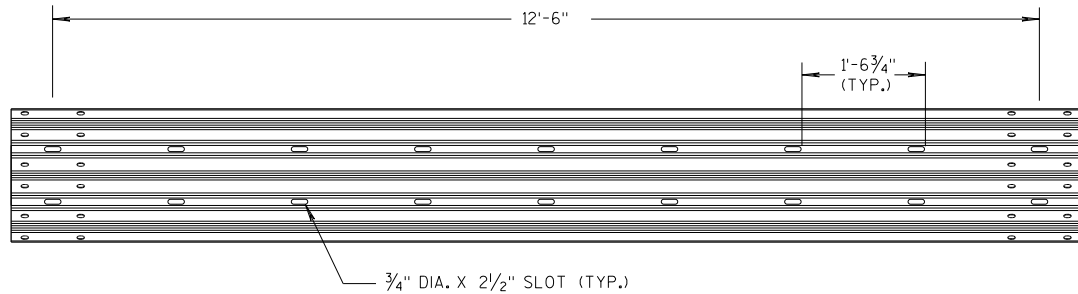




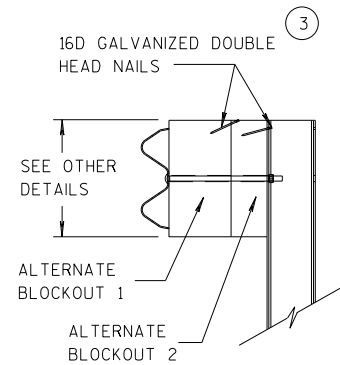
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



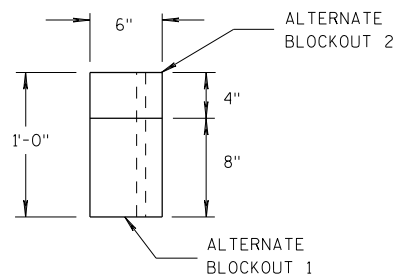
**6'-3" THRIE BEAM SECTION**



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

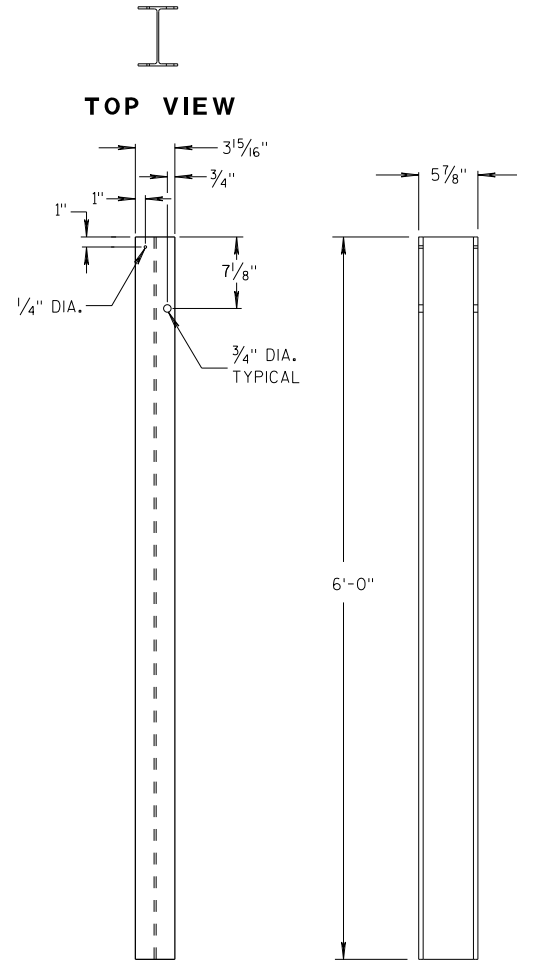


**SIDE VIEW**



**TOP VIEW**

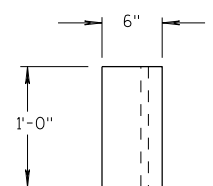
**ALTERNATE WOOD BLOCKOUT DETAIL**



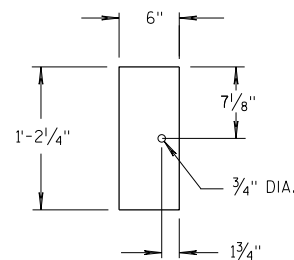
**FRONT VIEW**

**SIDE VIEW**

**STEEL POSTS 1-5**

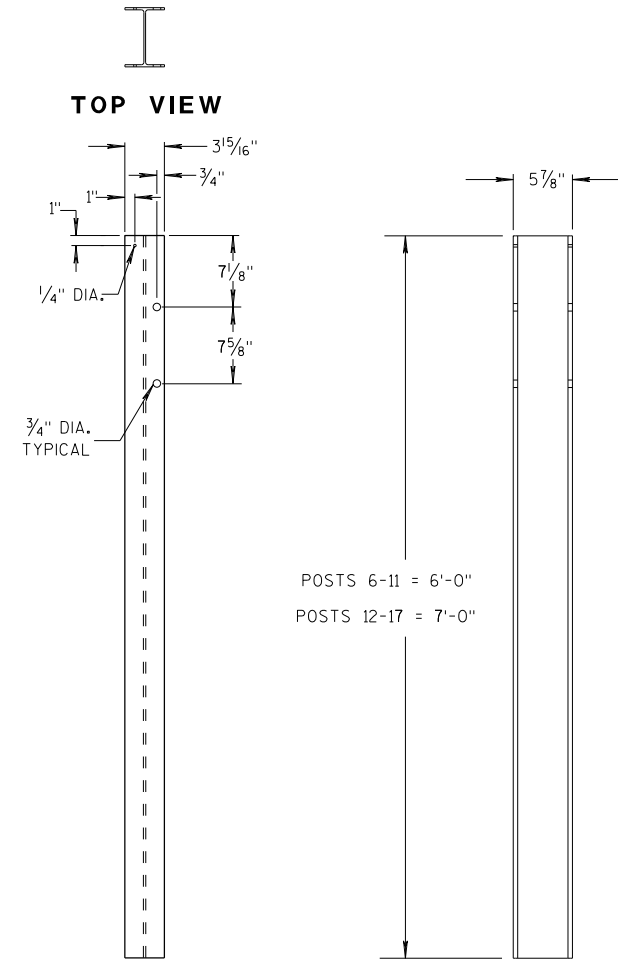


**TOP VIEW**



**FRONT VIEW**

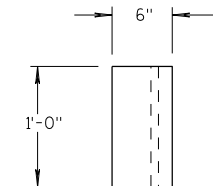
**BLOCKOUT POSTS 1-5**



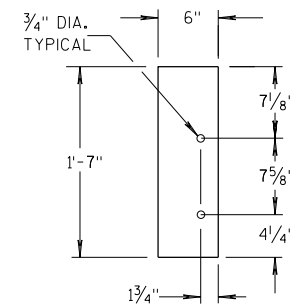
**FRONT VIEW**

**SIDE VIEW**

**STEEL POSTS 6-17**



**TOP VIEW**



**FRONT VIEW**

**BLOCKOUT POSTS 6-17**

**GENERAL NOTES**

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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

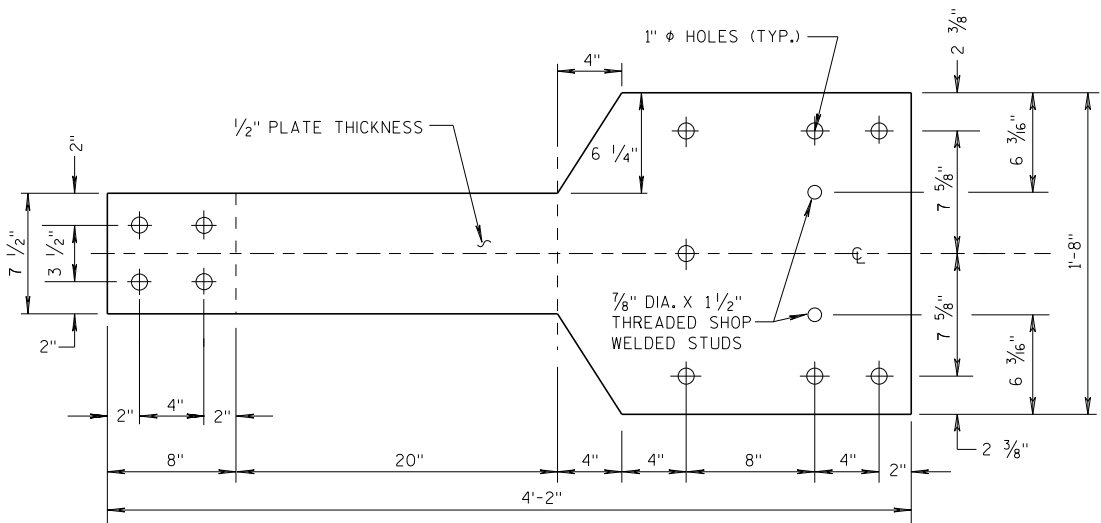
⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

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

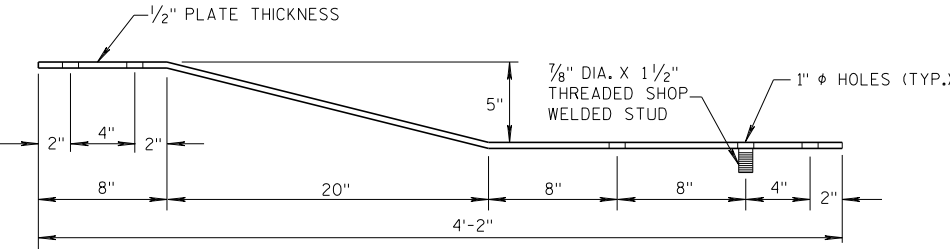
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

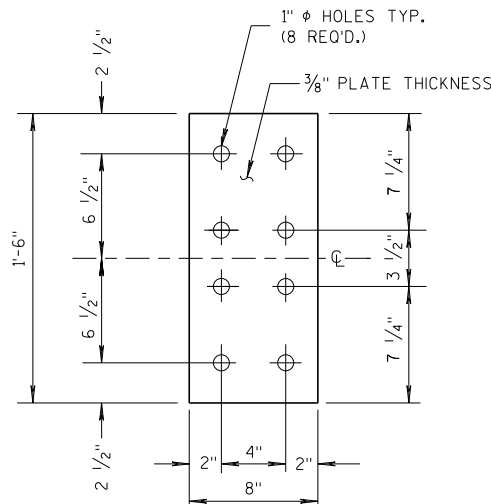
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



FRONT VIEW

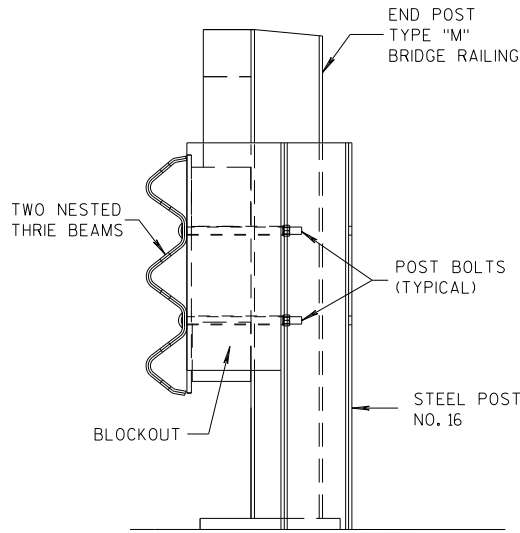


PLAN VIEW  
BACK-UP PLATE DETAIL, TYPE "M"

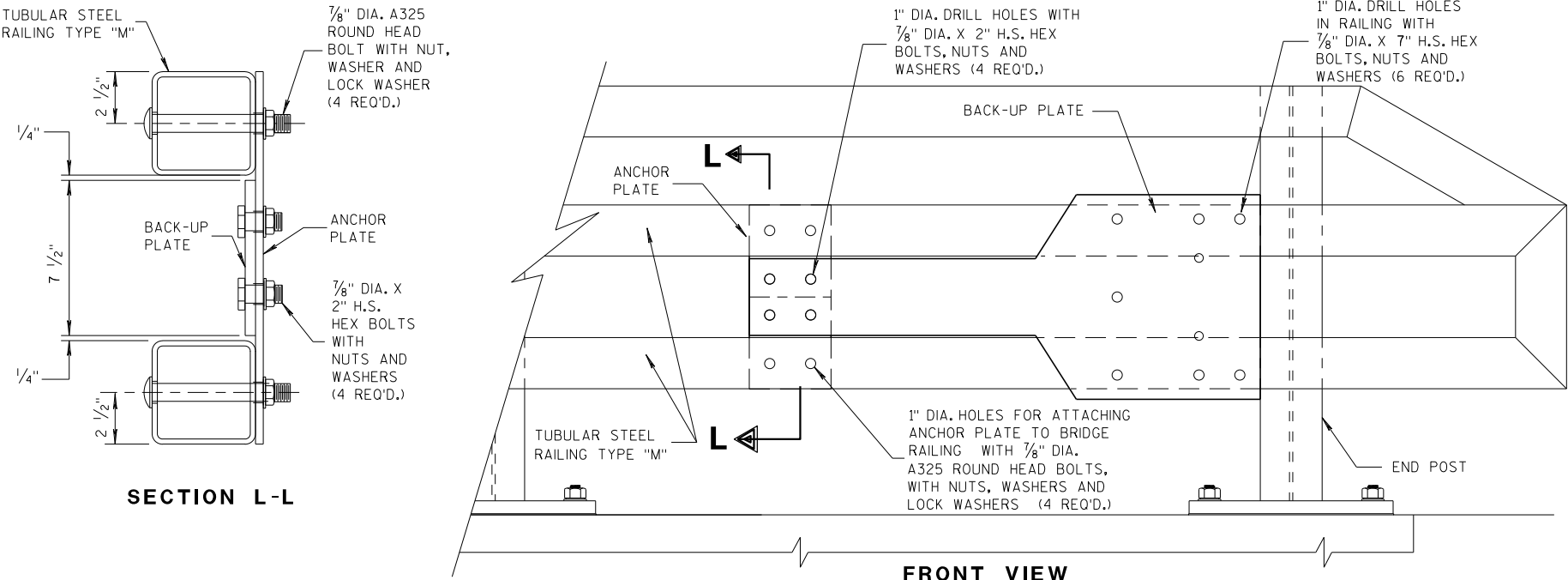


FRONT VIEW

ANCHOR  
PLATE DETAIL,  
TYPE "M"



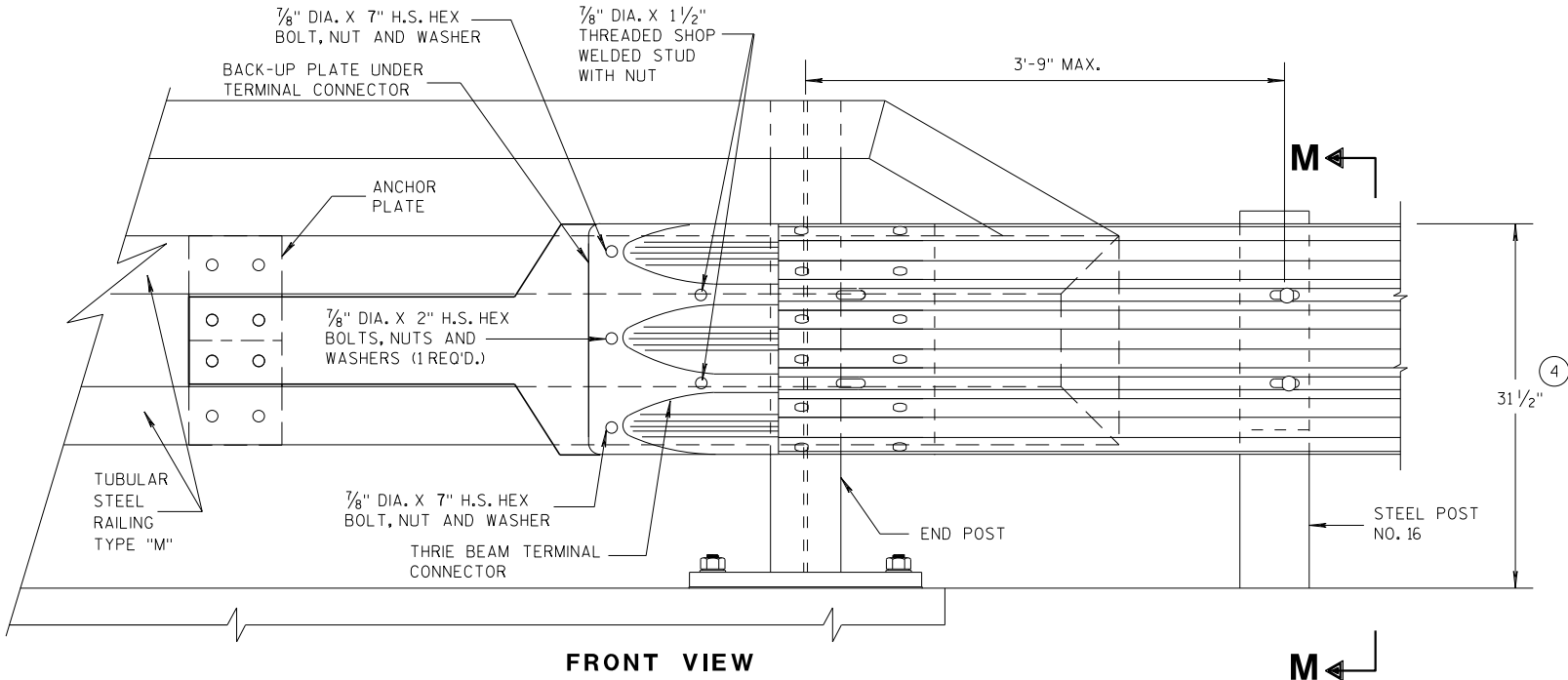
SECTION M-M



SECTION L-L

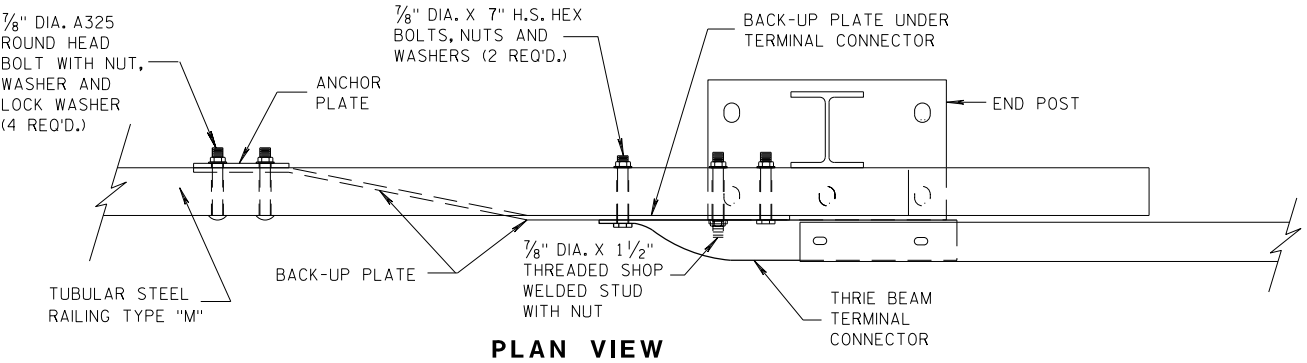
FRONT VIEW

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



FRONT VIEW

M



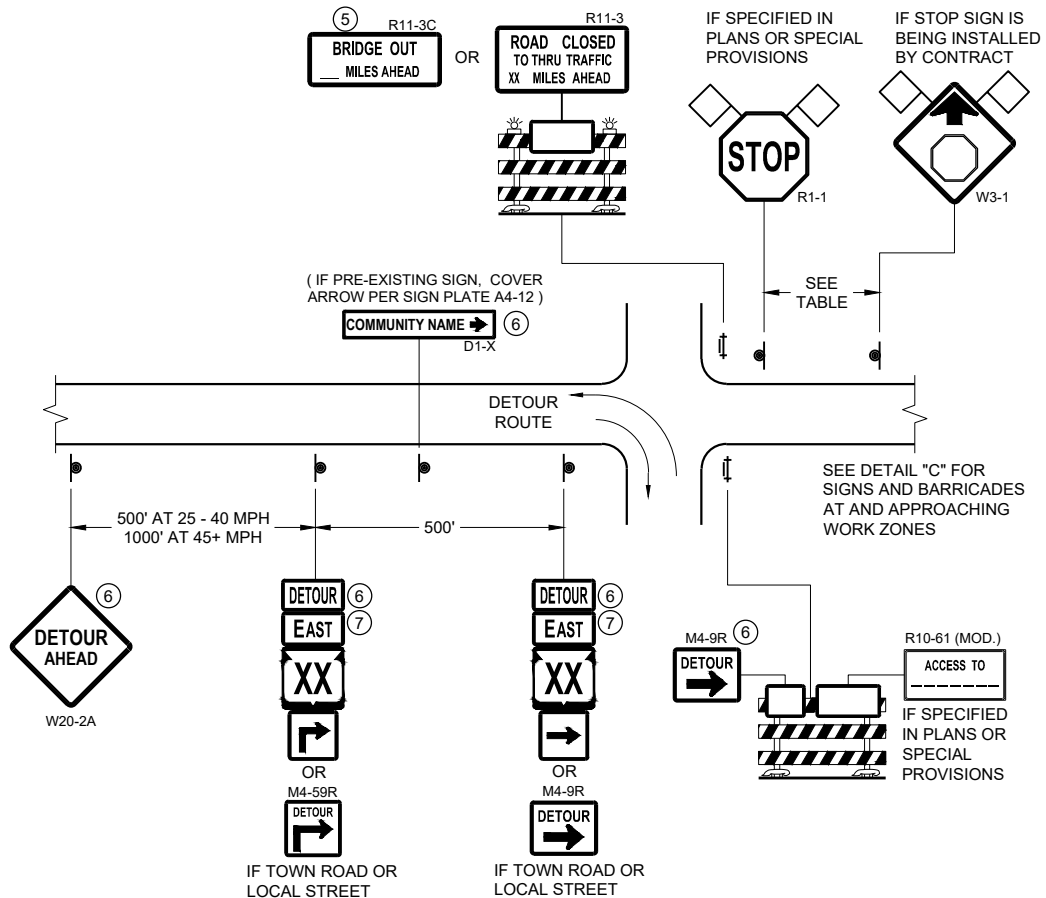
PLAN VIEW

THREE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

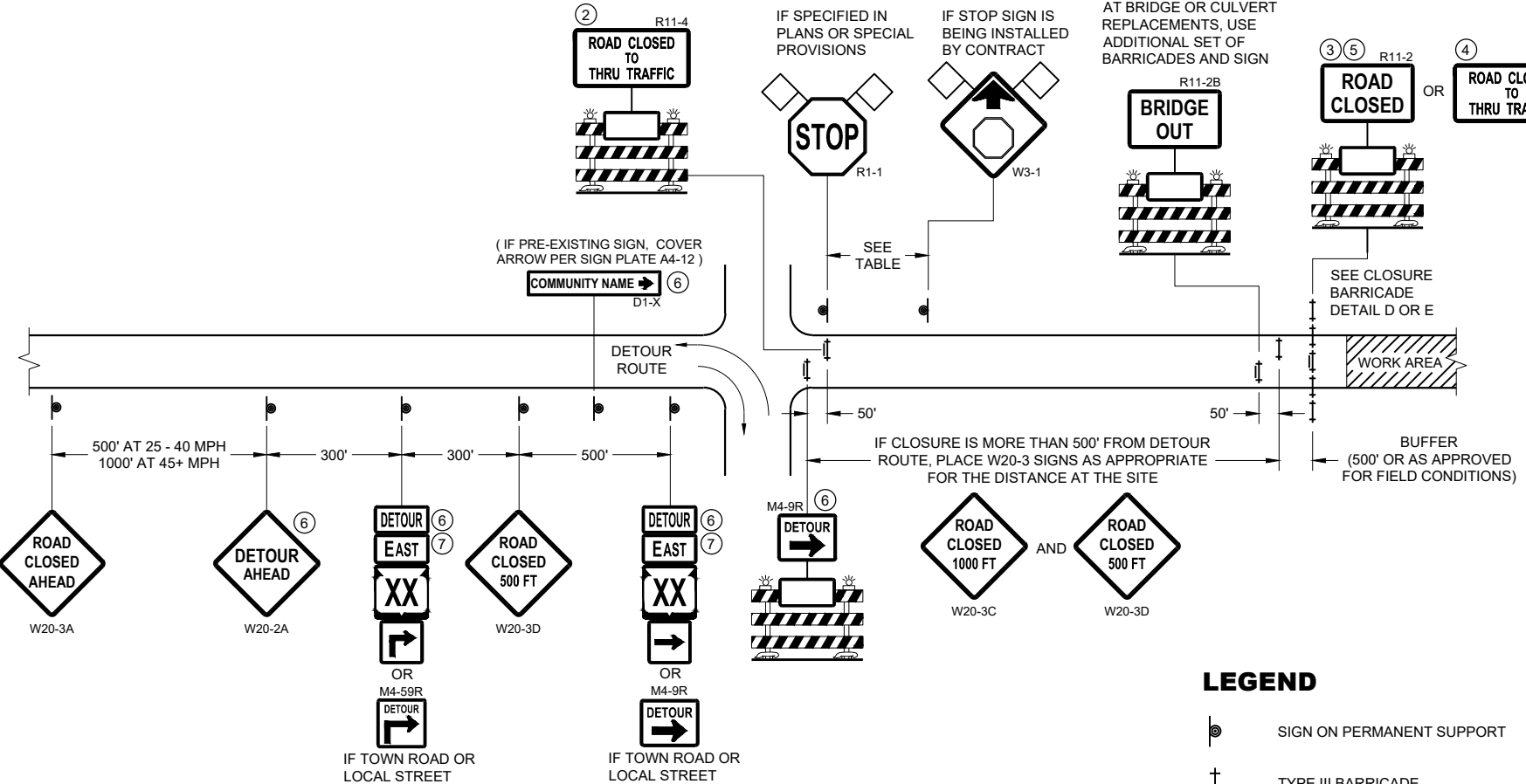
MIDWEST GUARDRAIL SYSTEM  
THREE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
07/2018  
DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



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



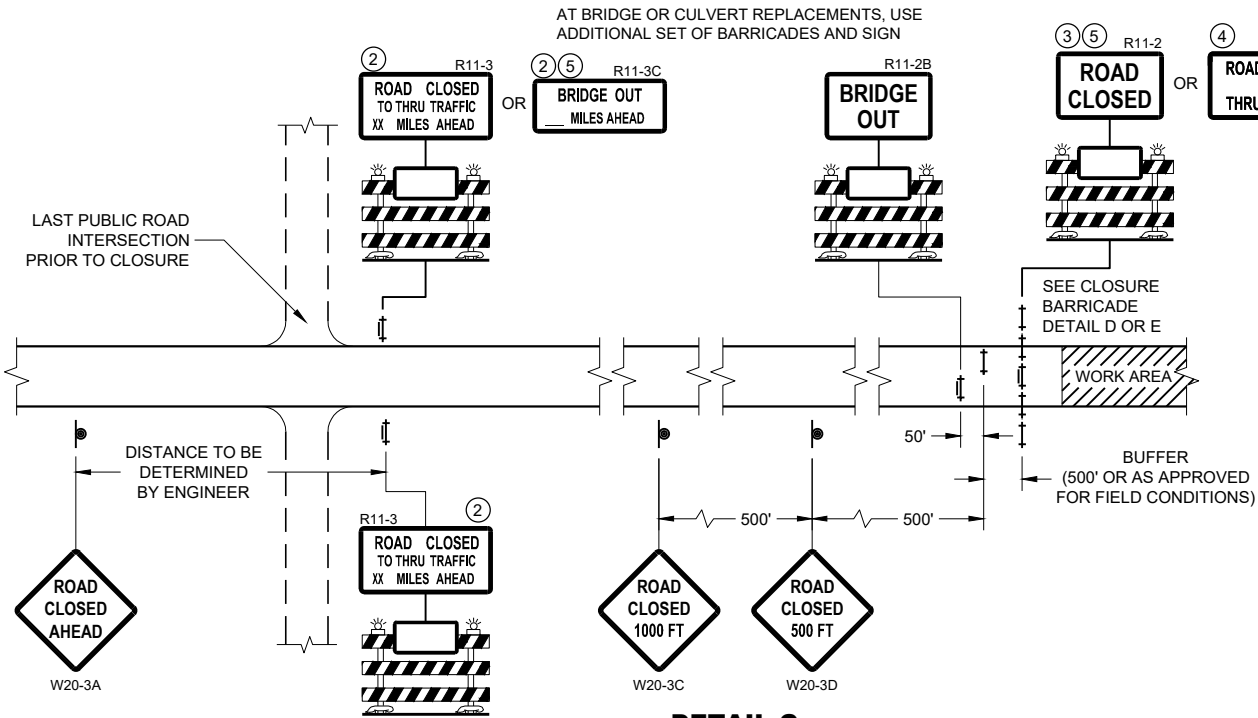
**DETAIL B**  
**MAINLINE CLOSURE WITH POSTED DETOUR**  
WORK ZONE LESS THAN ½ MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

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

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

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

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



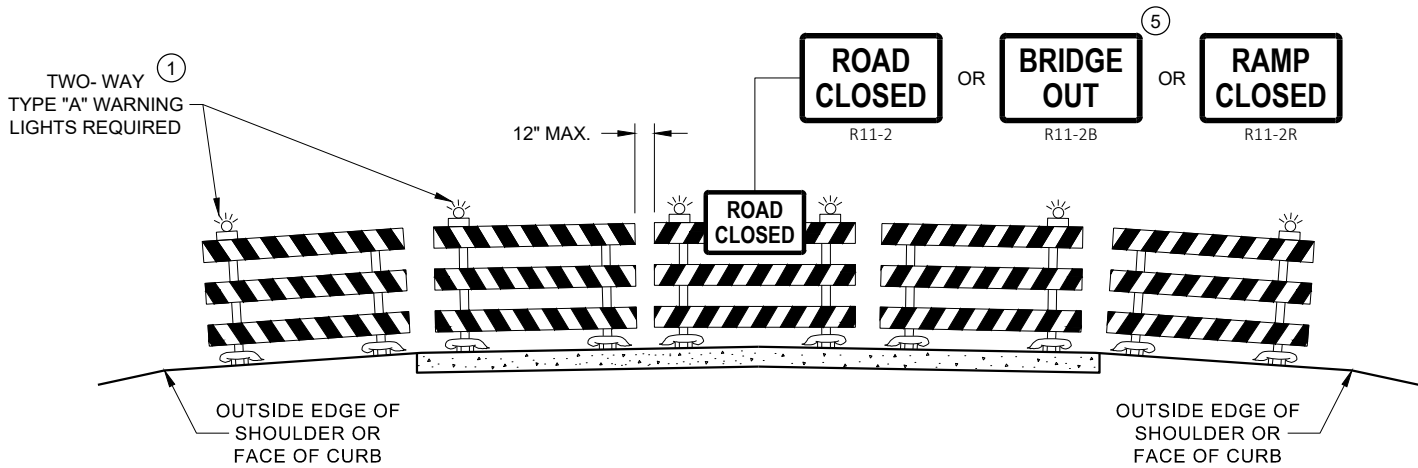
**DETAIL C**  
**MAINLINE CLOSURE, NO POSTED DETOUR**

**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

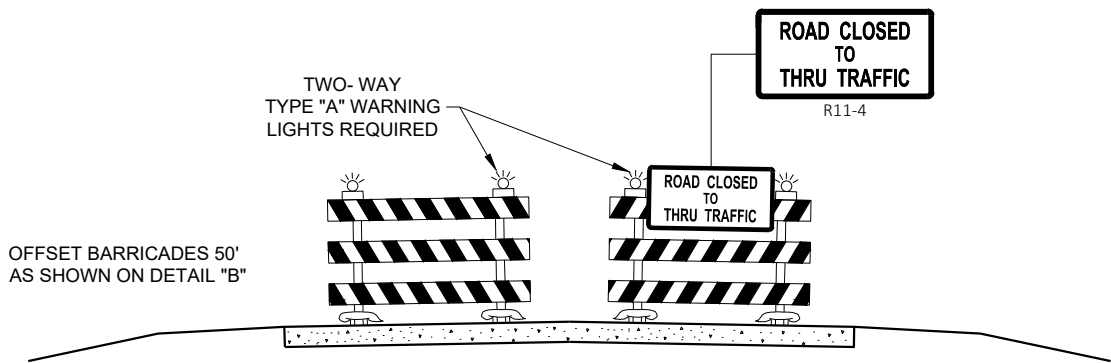
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



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



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

SEE SDD 15C2 - SHEET "a" FOR LEGEND

**GENERAL NOTES**

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

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

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

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

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

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

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

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

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

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

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

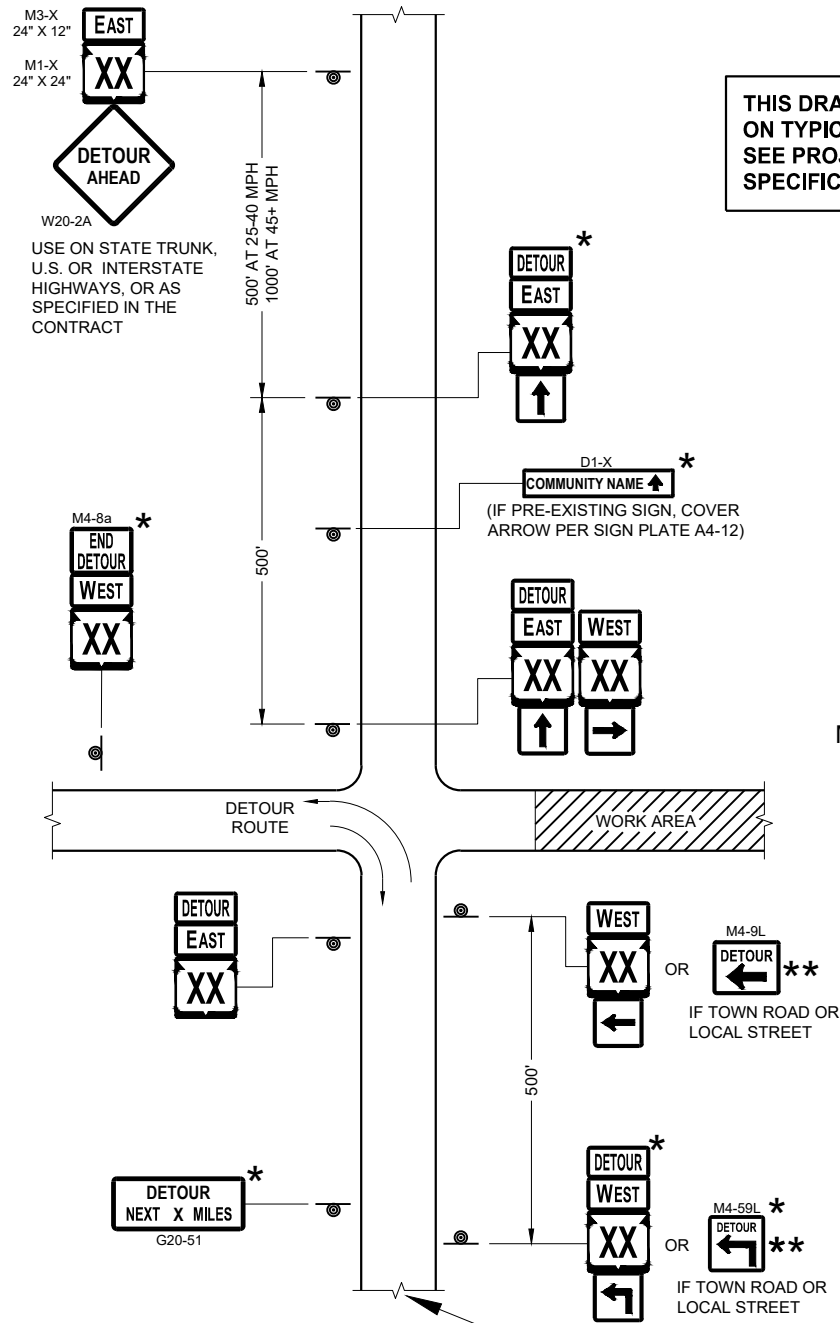
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS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

**BARRICADES AND SIGNS**  
**FOR**  
**VARIOUS CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

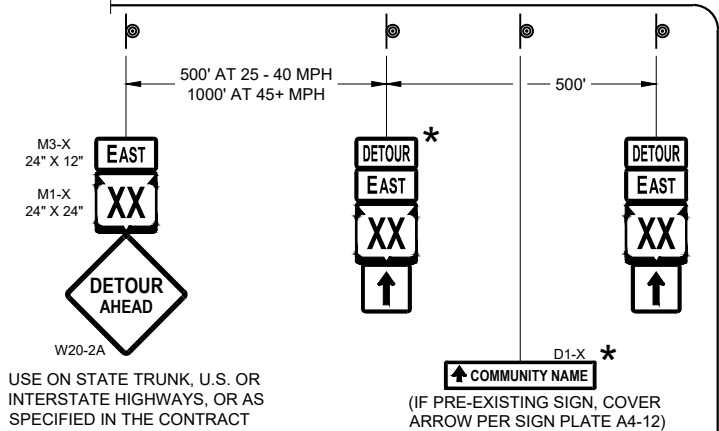
FHWA



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

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

MATCH POINT



DETAIL F  
DETOUR SIGNING

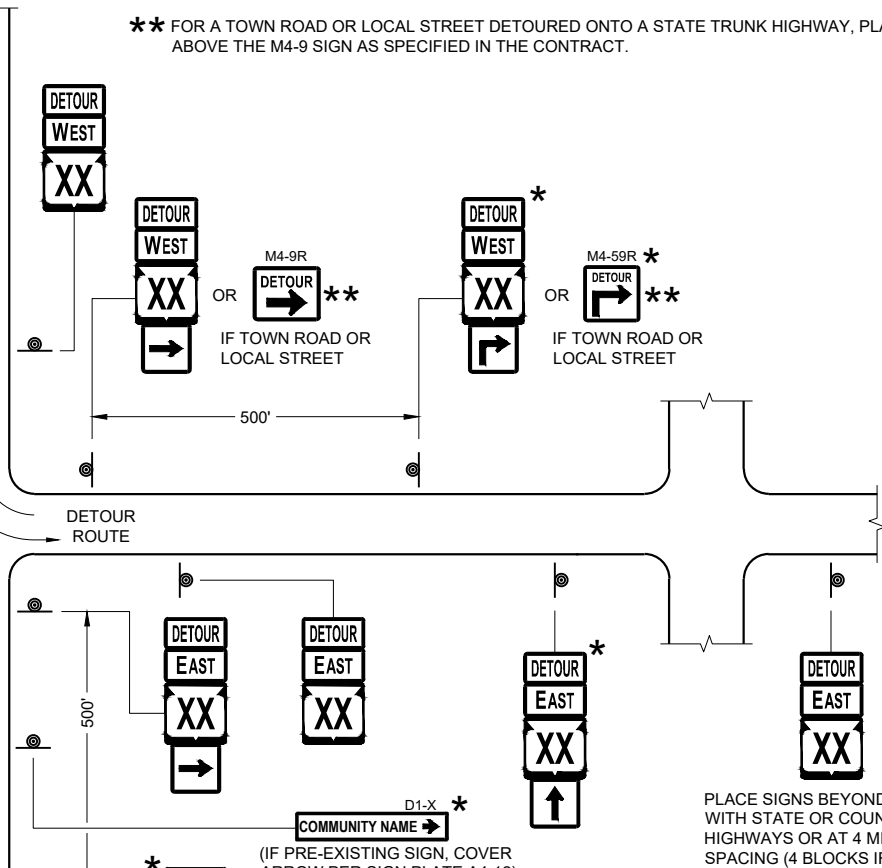
LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR EAST M4 - 8
- DETOUR WEST M3 - X
- DETOUR AHEAD M1 - 4 OR M1 - 6 OR M1 - 5A
- DETOUR NEXT X MILES M05 - 1 OR M06 - 1 OR M06 - 1

GENERAL NOTES

- THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.
- THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.
- SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- SIGN SIZES SHALL BE AS FOLLOWS:
  - M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
  - M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
  - M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
  - M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
  - M4-9 AND M4-9R SHALL BE 30" X 24"
  - M4-8a SHALL BE 24" X 18"
  - G20-51 SHALL BE 60" X 24"
  - W20-2A SHALL BE 48" X 48"
  - D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

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

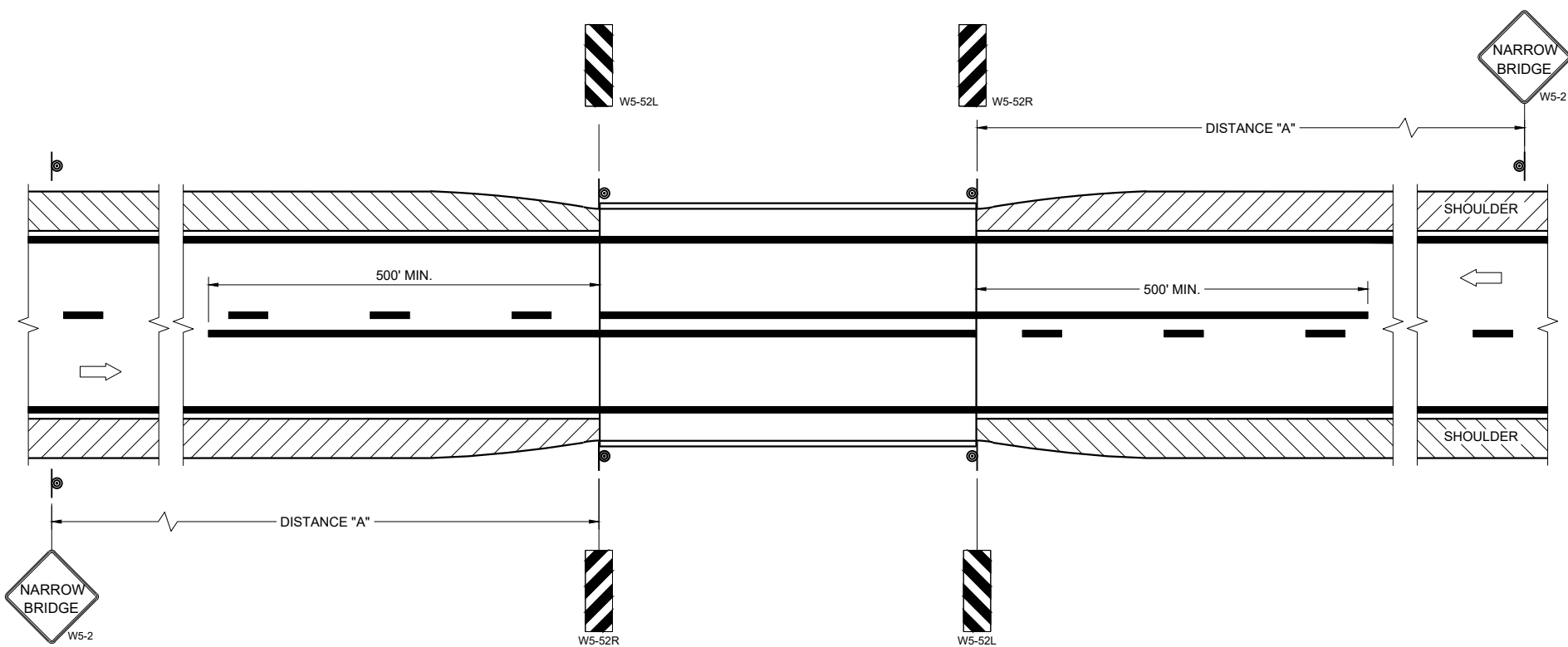


PLACE SIGNS BEYOND INTERSECTIONS  
WITH STATE OR COUNTY TRUNK  
HIGHWAYS OR AT 4 MILE MAXIMUM  
SPACING (4 BLOCKS IF URBAN AREA)

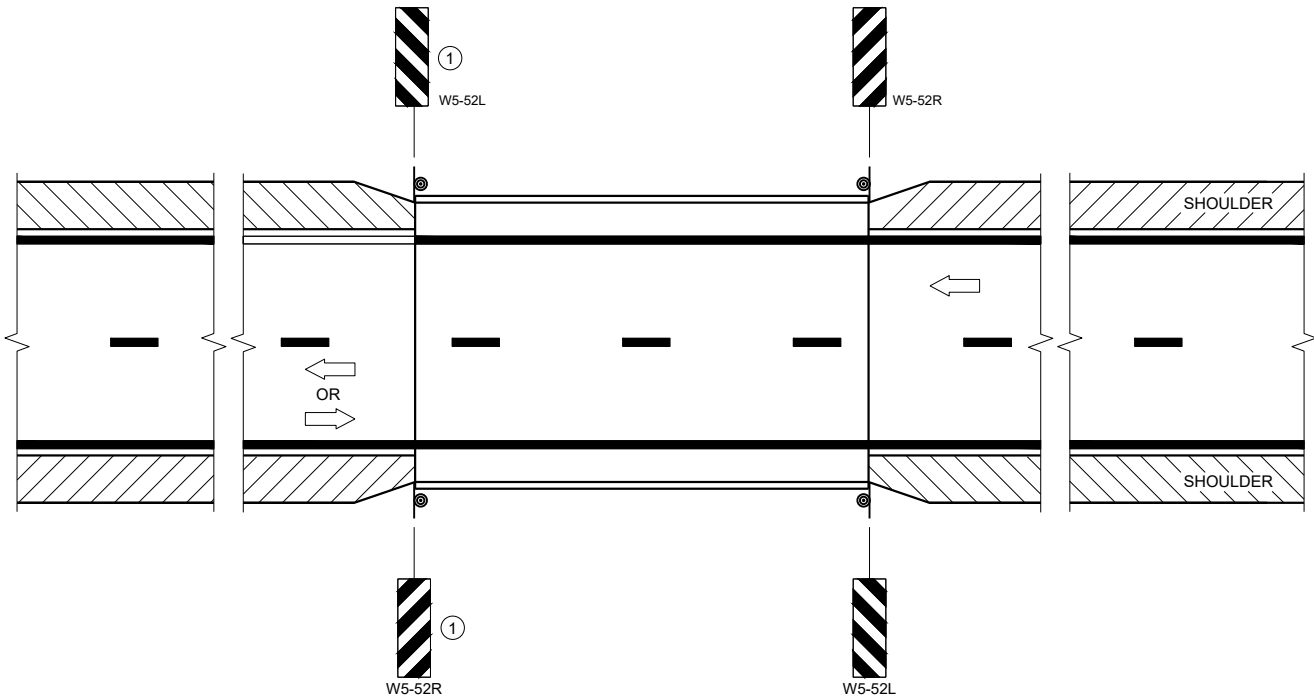
DETOUR SIGNING  
FOR MAINLINE CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**SITUATION 1**  
WARRANTING CRITERIA:  
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



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

**GENERAL NOTES**

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

**LEGEND**

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

**DISTANCE TABLE**




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

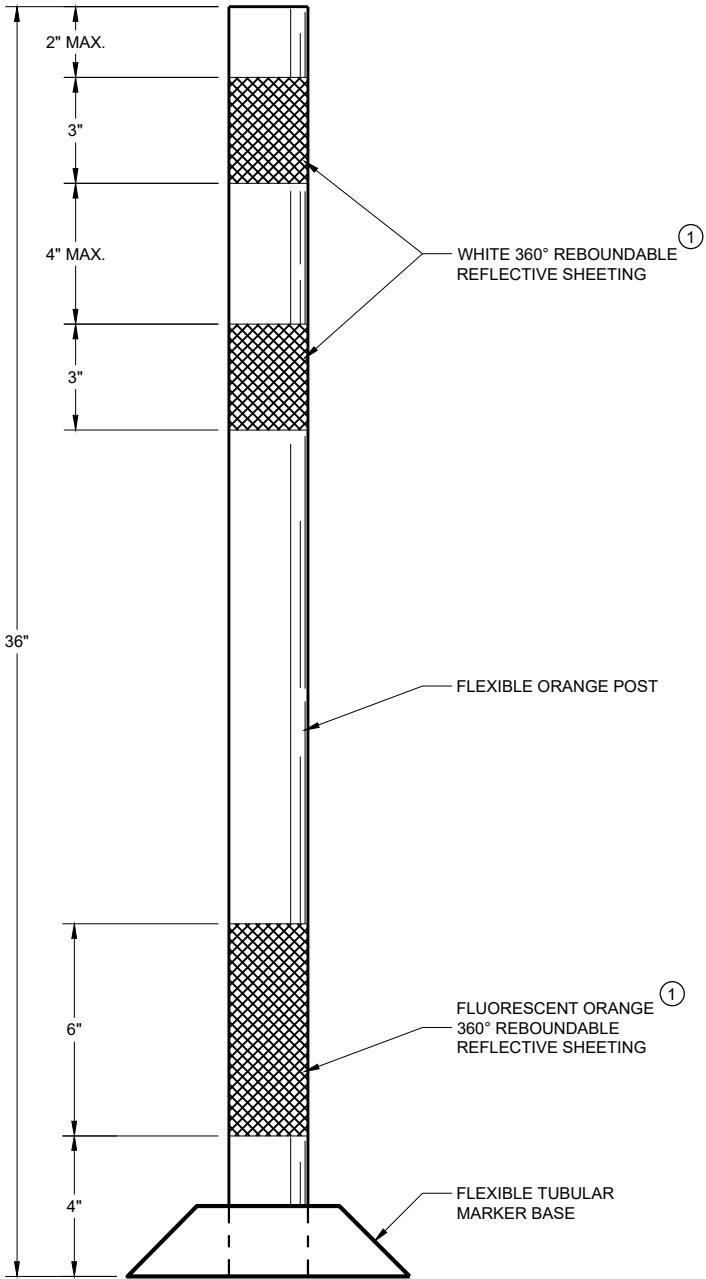
**SIGNING AND MARKING  
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Jeannie Silver  
DATE Statewide Pavement Marking Engineer  
FHWA



 "T" MARKING  
 SIGN ON PERMANENT SUPPORT  
 DIRECTION OF TRAFFIC



FLEXIBLE TUBULAR  
MARKER POST  
WORK ZONE

GENERAL NOTES

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

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

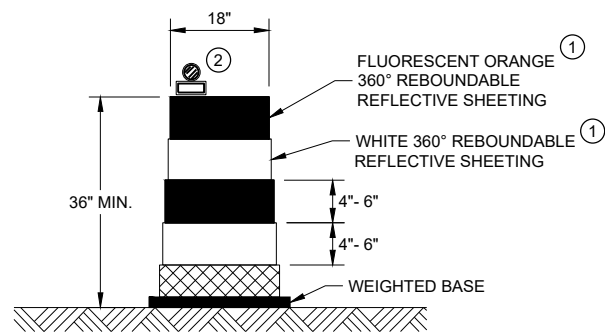
CHANNELIZING DEVICES  
FLEXIBLE TUBULAR  
MARKER POST

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2022 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

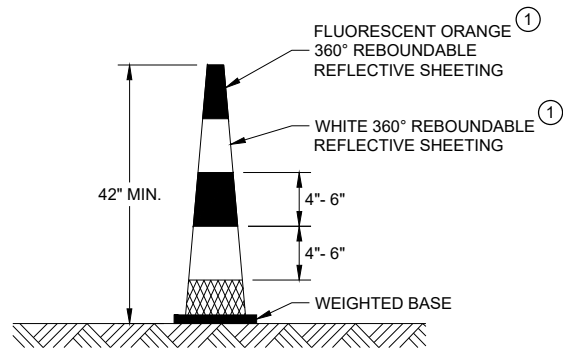
FHWA





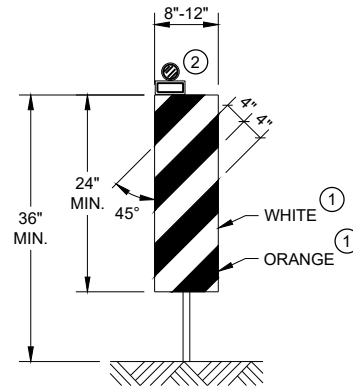
**DRUM**

BALLAST WIDTHS  
RANGE FROM 24"-36"



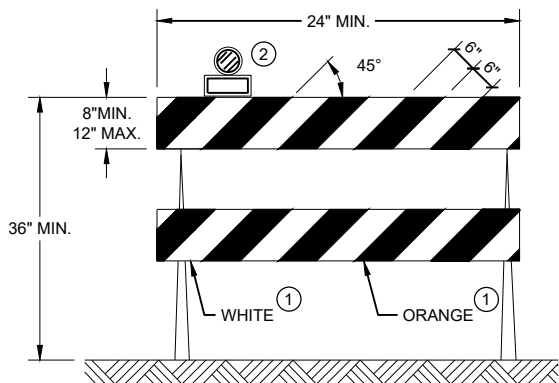
**42" CONE**

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



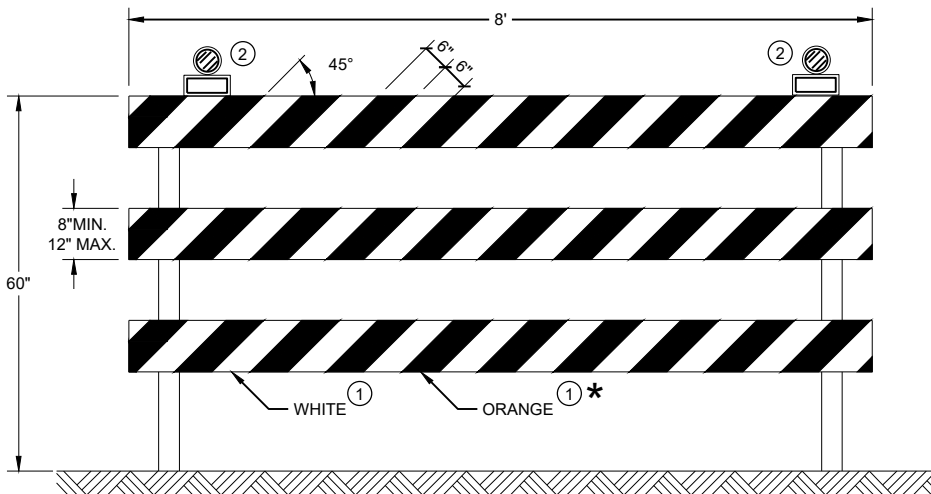
**VERTICAL PANEL**

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



**TYPE II BARRICADE**

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



**TYPE III BARRICADE**

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

\* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

**GENERAL NOTES**

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

**CHANNELIZING DEVICES  
DRUMS, CONES, BARRICADES  
AND VERTICAL PANELS**

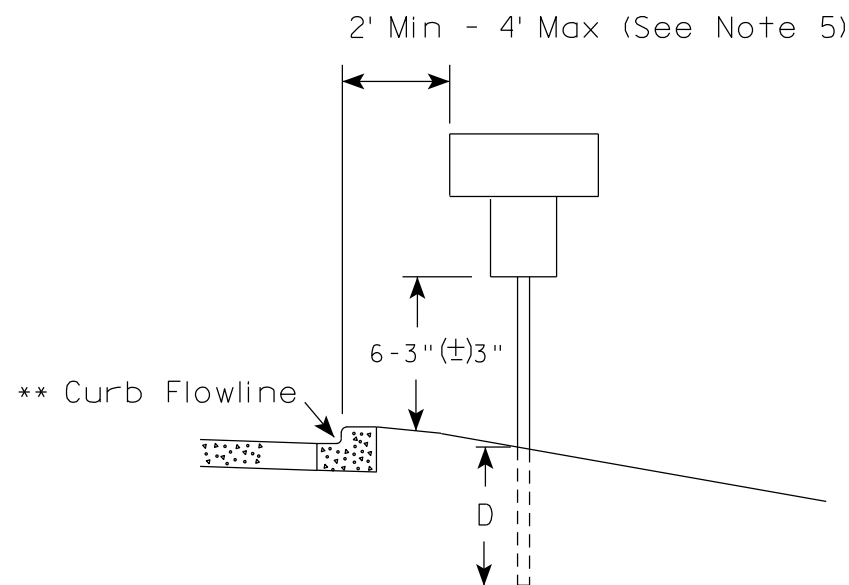
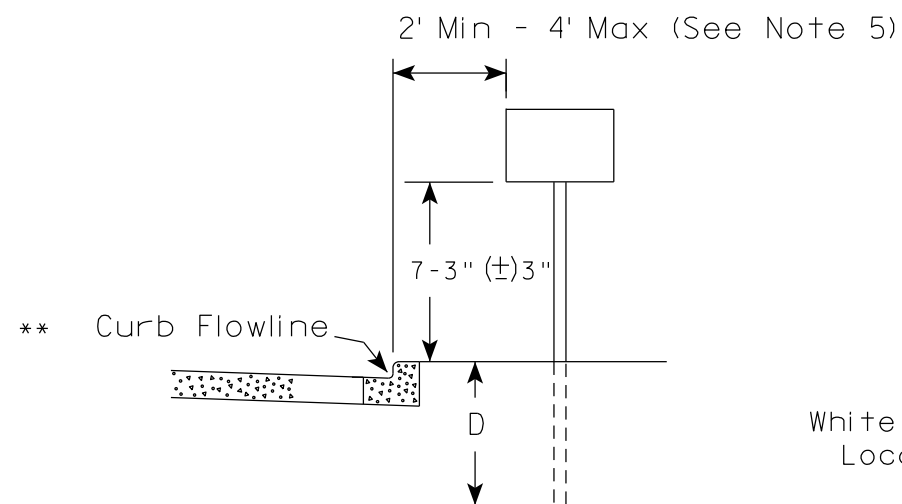
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2022 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA

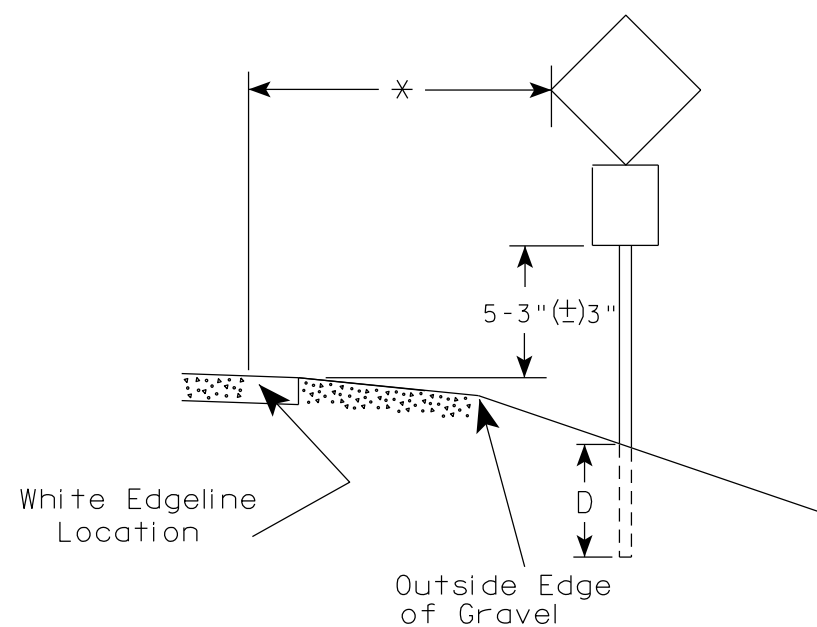
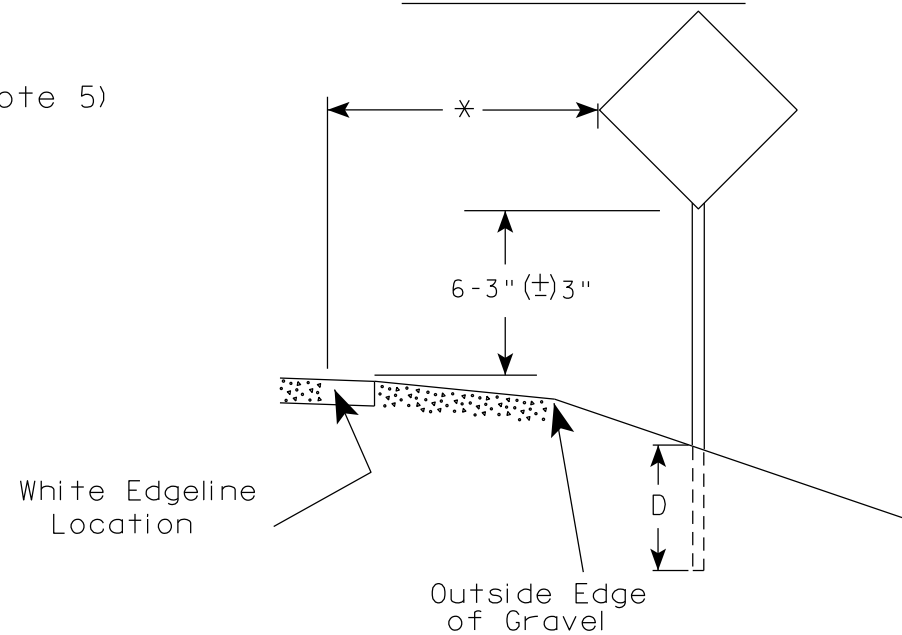


## URBAN AREA



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

## RURAL AREA (See Note 2)



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

### POST EMBEDMENT DEPTH

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

### GENERAL NOTES

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

TYPICAL INSTALLATION  
OF PERMANENT TYPE II  
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/6/23

PLATE NO. A4-3.23

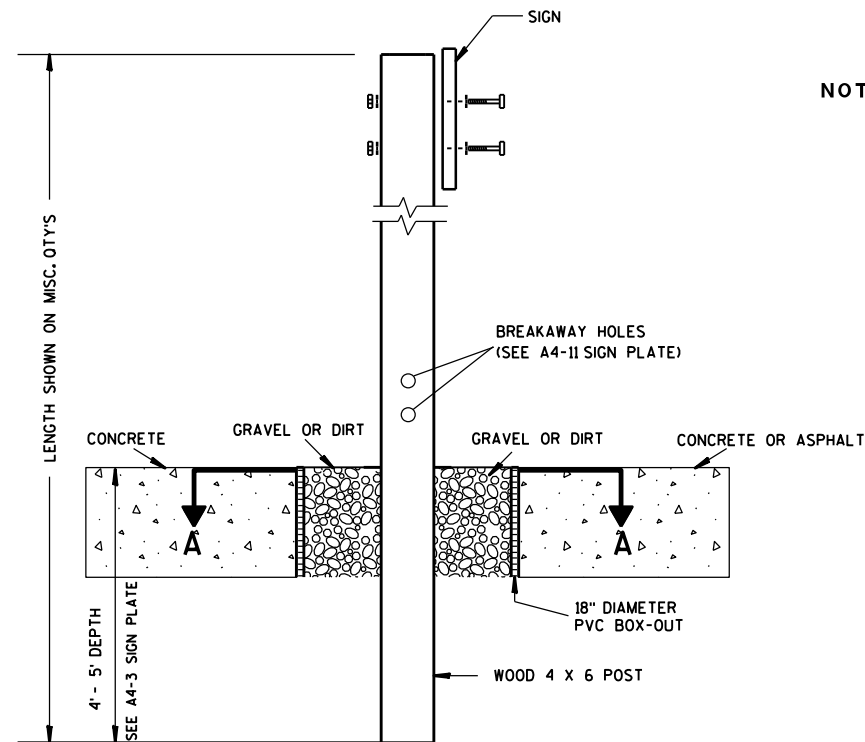
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

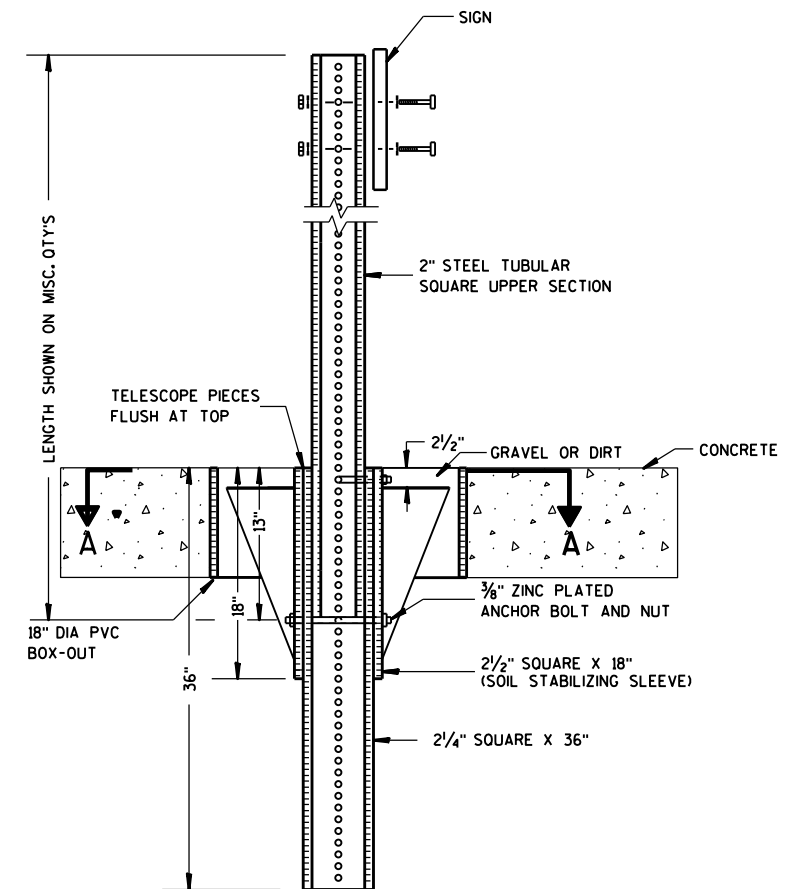
E



### ELEVATION VIEW

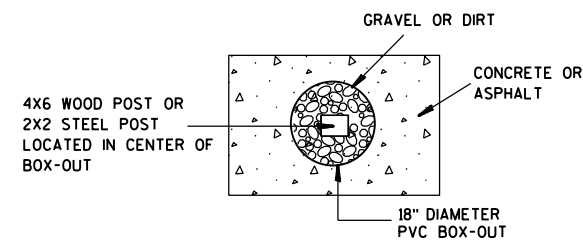
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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

PROJECT NO:

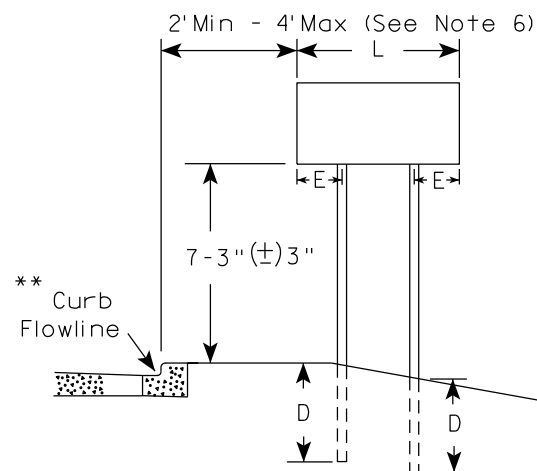
HWY:

COUNTY:

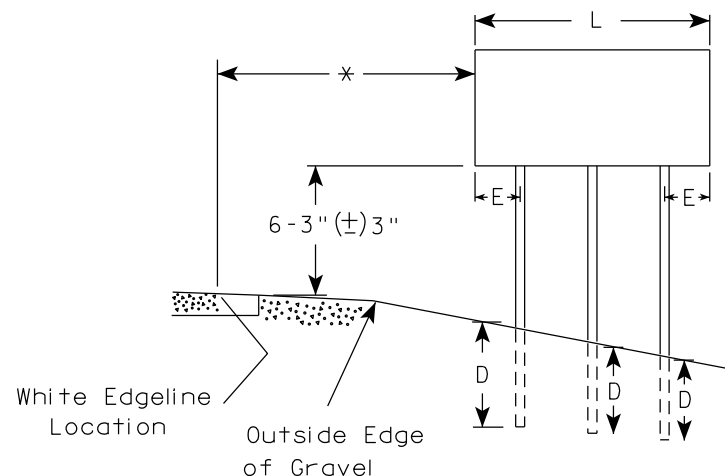
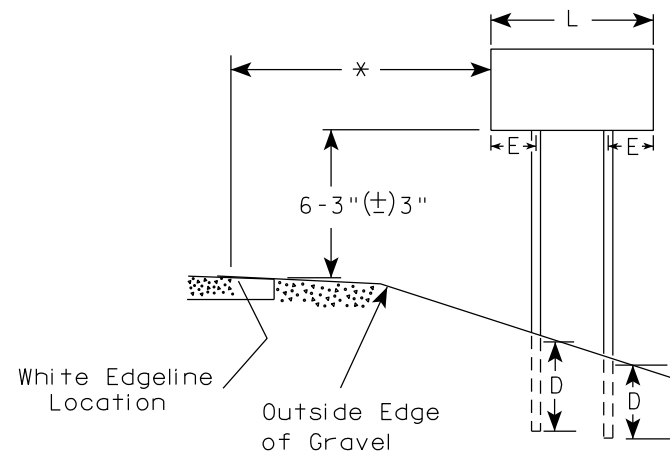
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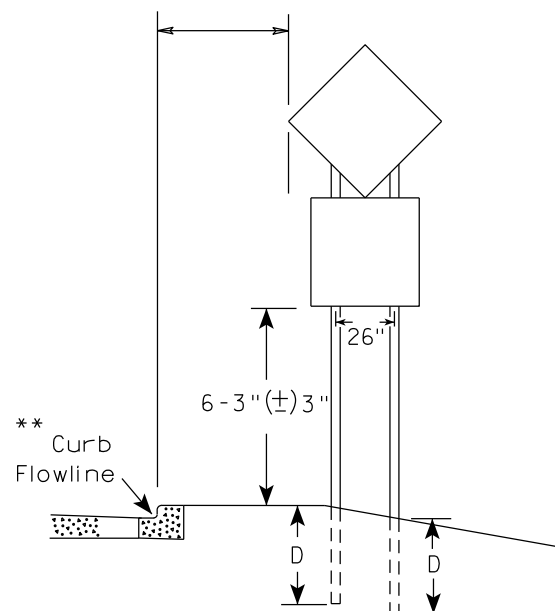
URBAN AREA



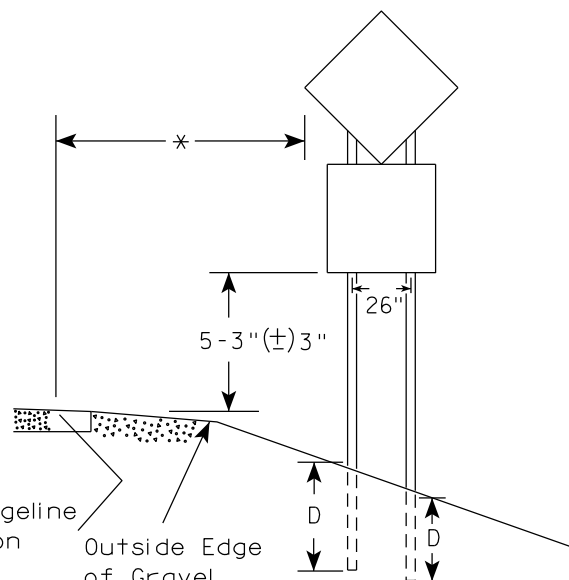
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

\*\*\*

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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION  
OF TYPE II SIGNS  
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16

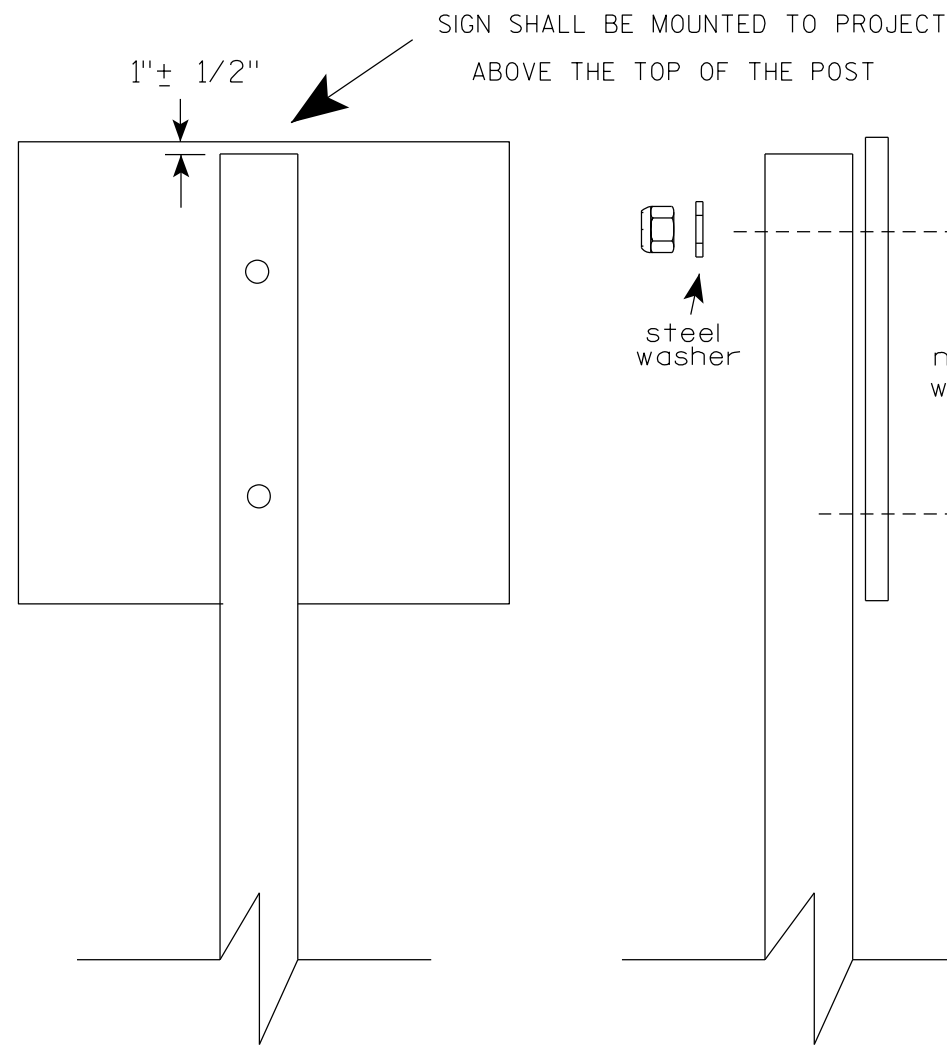
GENERAL NOTES

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

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

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

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



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

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

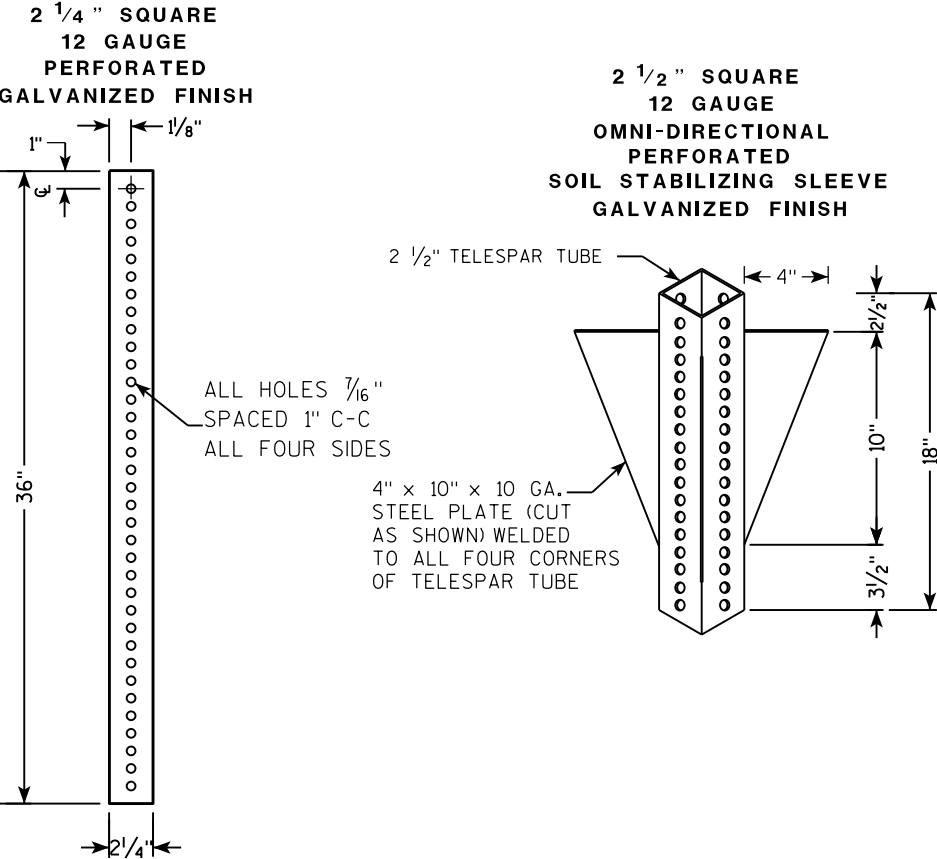
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS -  $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS -  $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)  
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS -  $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)  
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS -  $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL  
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X  $\frac{1}{16}$ " STEEL
  - 1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X .080 NYLON

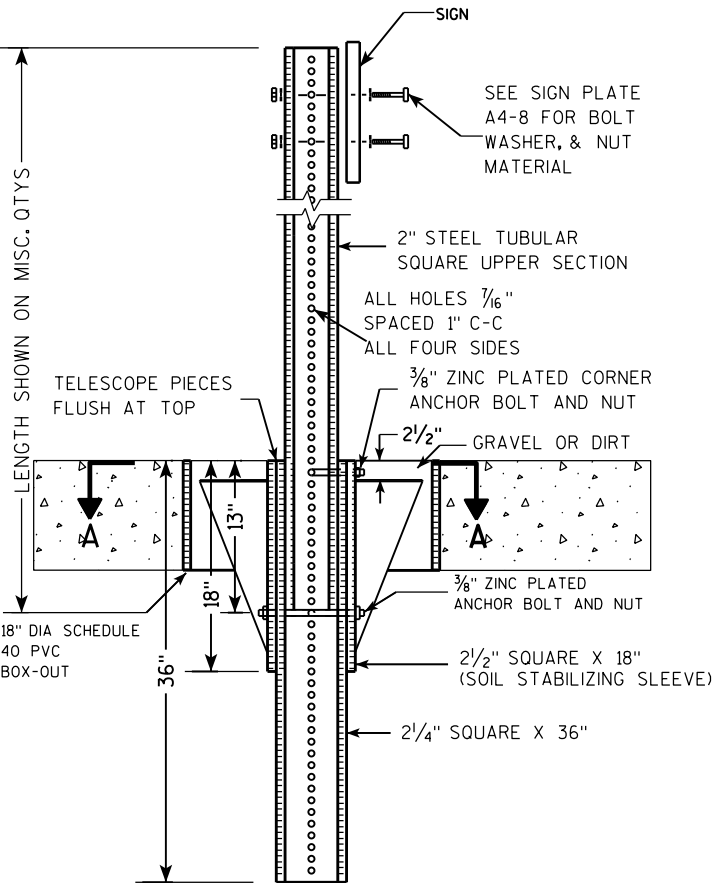
\* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

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

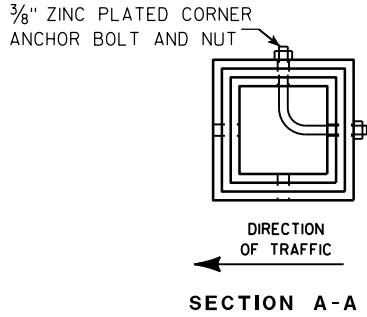
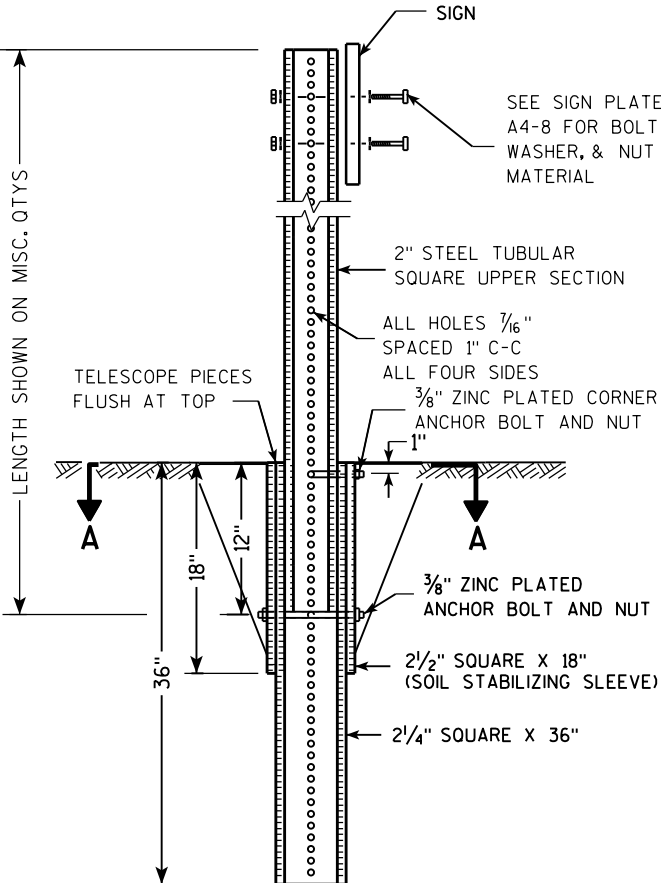
TELESCOPIC TUBING ANCHORS  
TWO PIECE SYSTEM



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



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



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

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

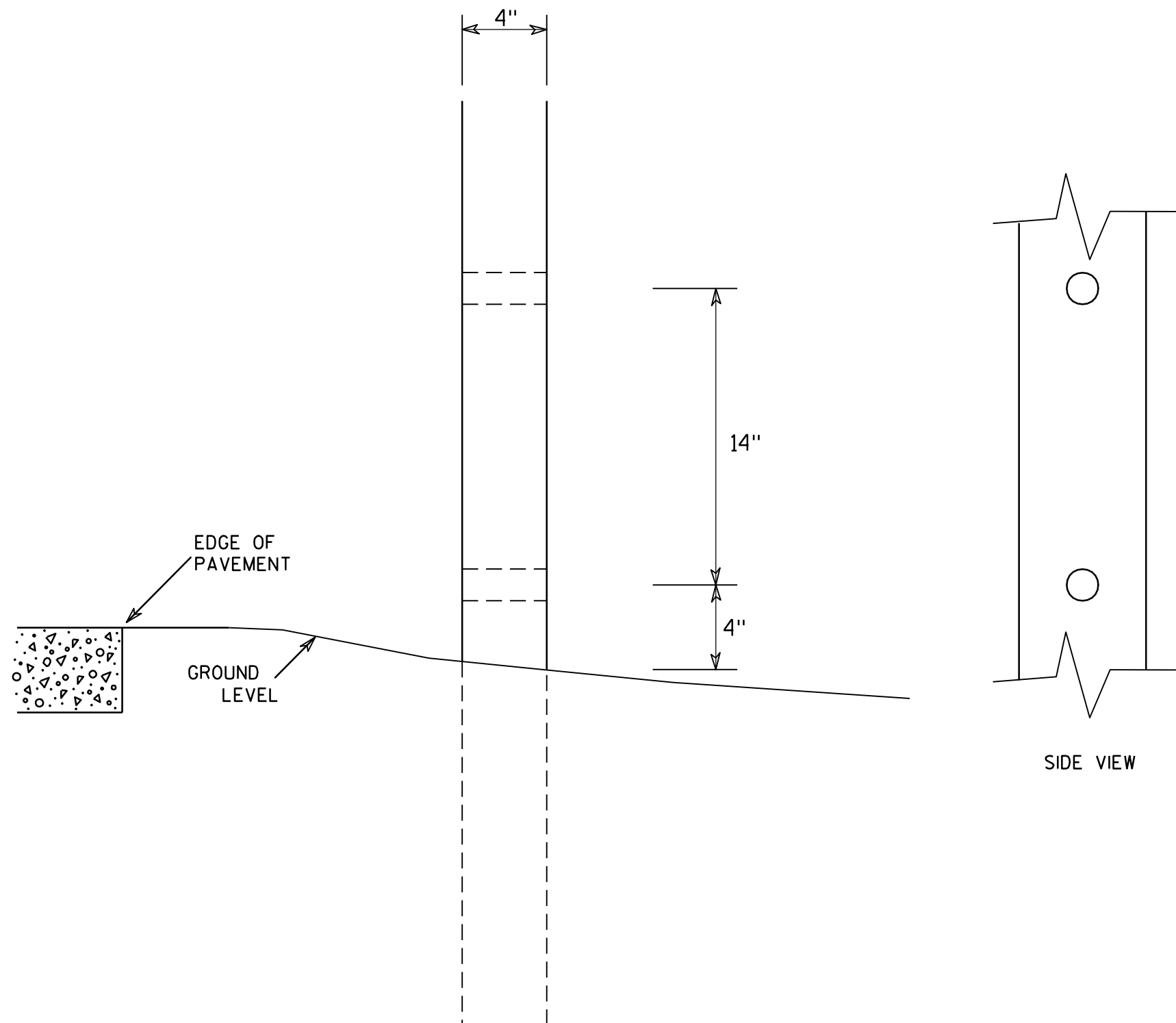
TUBULAR STEEL  
SIGN POST  
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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

7



### GENERAL NOTES

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

7

### 4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Chester J. Spang*  
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

COUNTY:

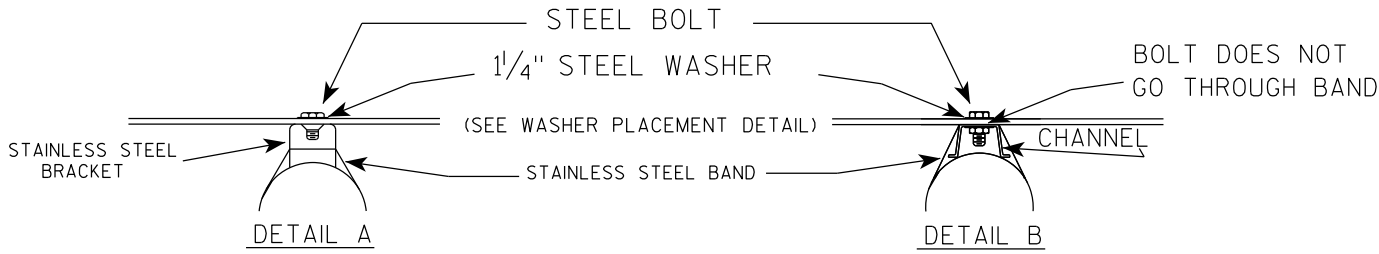
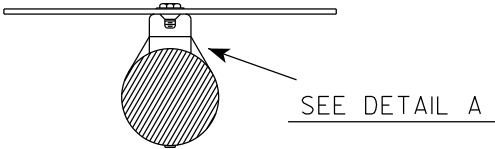
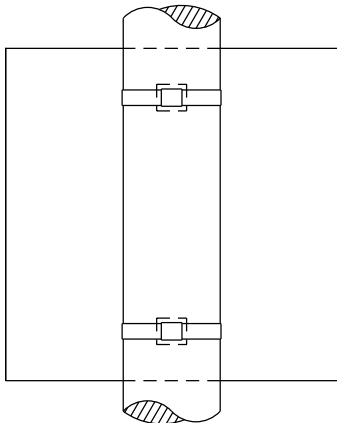
SHEET NO:

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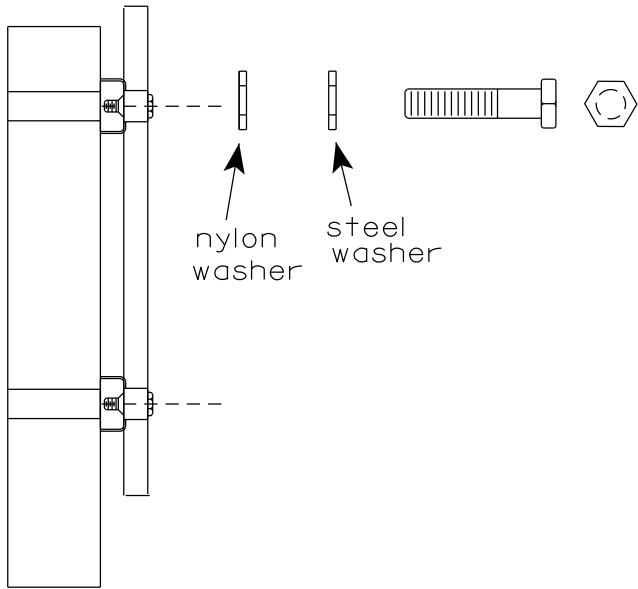


BANDING

SINGLE SIGN



WASHER PLACEMENT

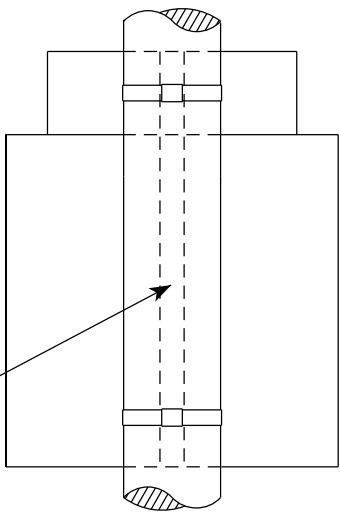


WASHERS (ALL POSTS) -  
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL  
1-1/4" O.D. X 3/8" I.D. X .080 NYLON  
FOR ALL TYPE H SIGNS

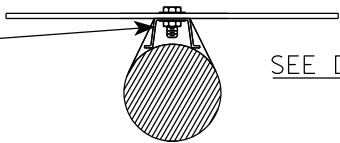
GENERAL NOTES

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

"J" ASSEMBLY



CHANNEL  
SEE TYPICAL PANEL  
INSTALLATION SHEET



STANDARD SIGN  
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

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

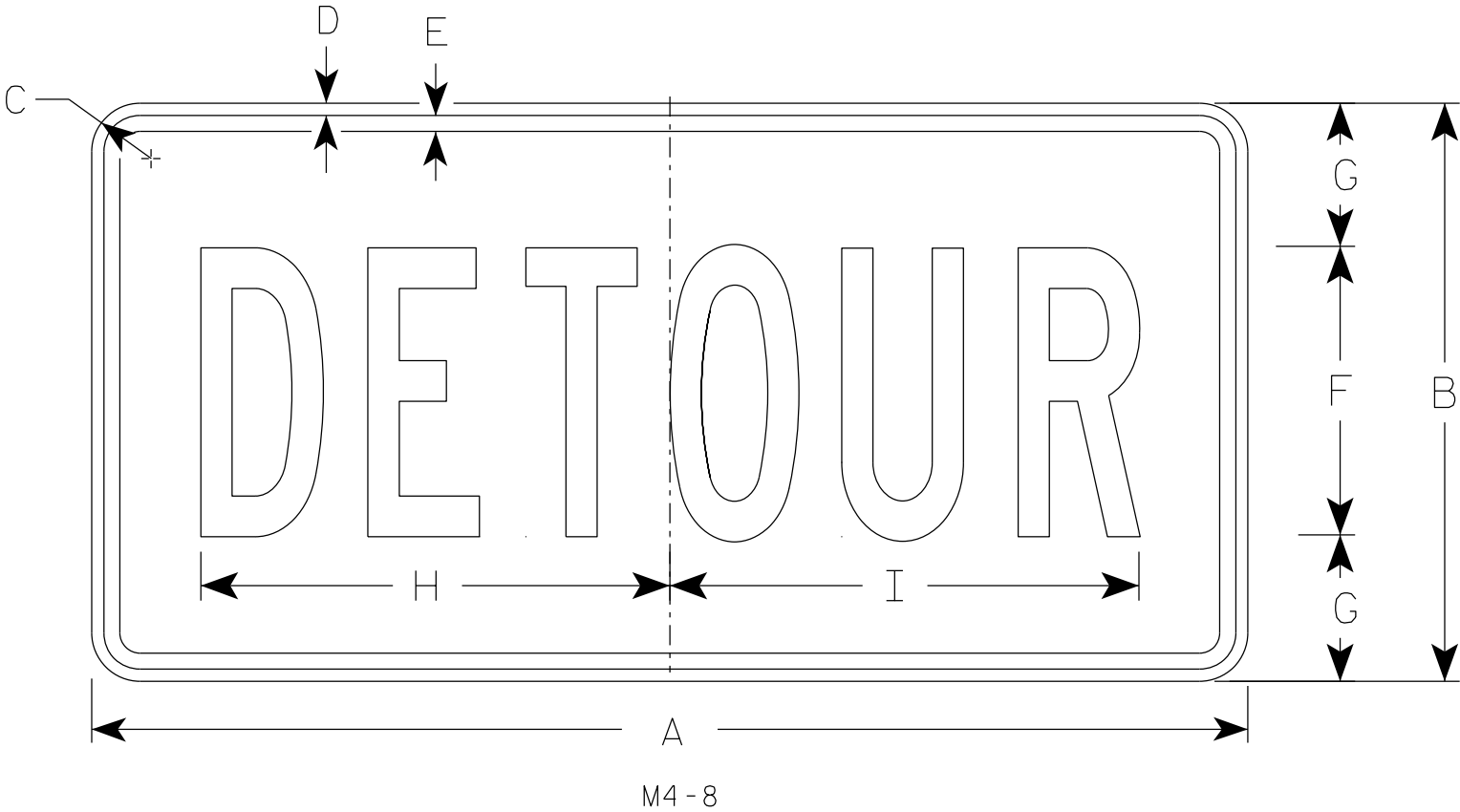


NOTES

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

Background - Orange

Message - Black
3. Message Series - B
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



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

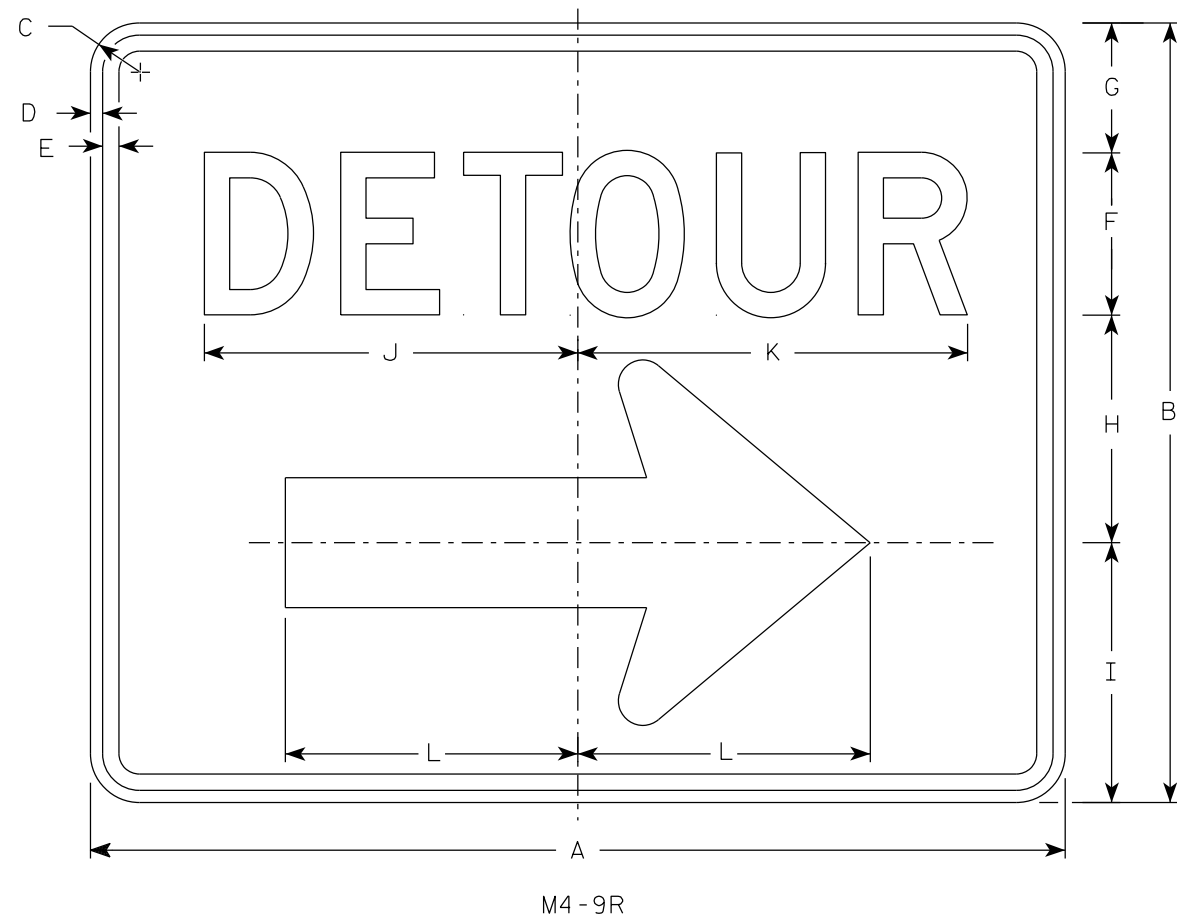
STANDARD SIGN

M4-8

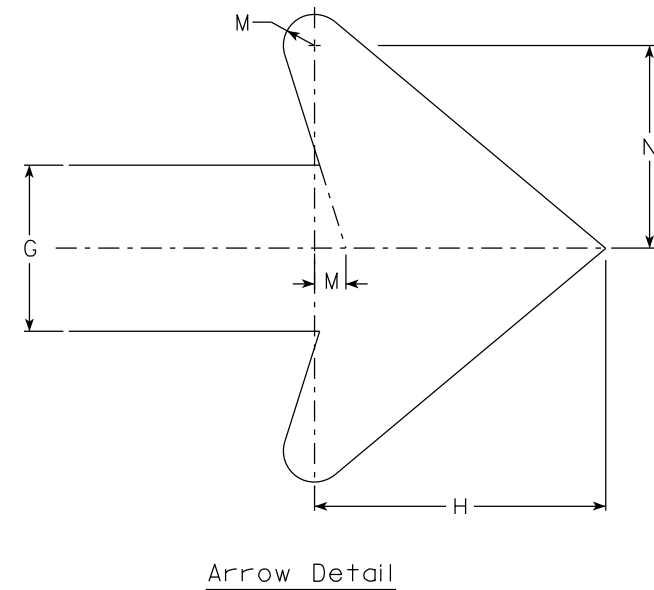
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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



- NOTES
1. Sign is Type II - Type F Reflective
  2. Color:  
Background - Orange  
Message - Black
  3. Message Series - D
  4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
  4. M4-9L is the same as M4-9R except the arrow is reversed.



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

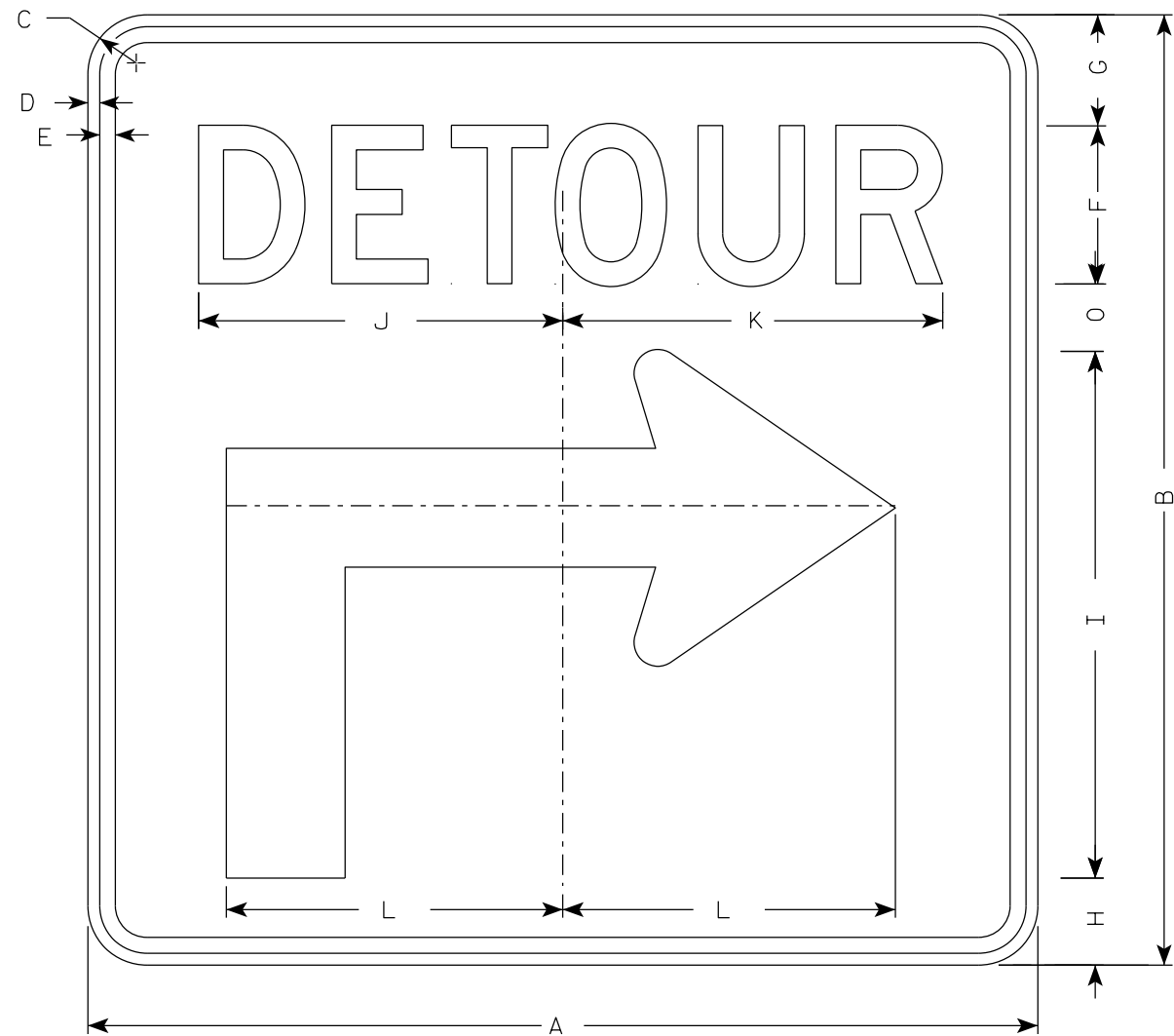
STANDARD SIGN  
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-9R.6

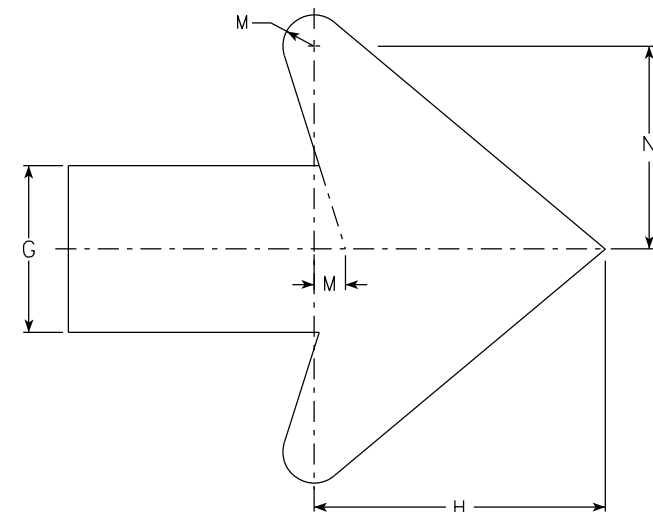
7



M4-59R

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
  - Background - Orange
  - Message - Black
- 3. Message Series - D
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown when base material is metal.
- 5. M4-59L is the same as M4-59R except the arrow is reversed.



Arrow Detail

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30	30	1 7/8	3/8	1/2	5	3 1/2	2 3/4	16 5/8	11 1/2	12	10 1/2	3/4	4 7/8	2 1/8												6.25
2M	30	30	1 7/8	3/8	1/2	5	3 1/2	2 3/4	16 5/8	11 1/2	12	10 1/2	3/4	4 7/8	2 1/8												6.25
3	30	30	1 7/8	3/8	1/2	5	3 1/2	2 3/4	16 5/8	11 1/2	12	10 1/2	3/4	4 7/8	2 1/8												6.25
4	48	48	2 1/4	1/2	5/8	8	5 5/8	4 3/8	26 5/8	20 5/8	20 1/2	17	1 1/8	6 7/8	3 3/8												16.0
5	48	48	2 1/4	1/2	5/8	8	5 5/8	4 3/8	26 5/8	20 5/8	20 1/2	17	1 1/8	6 7/8	3 3/8												16.0

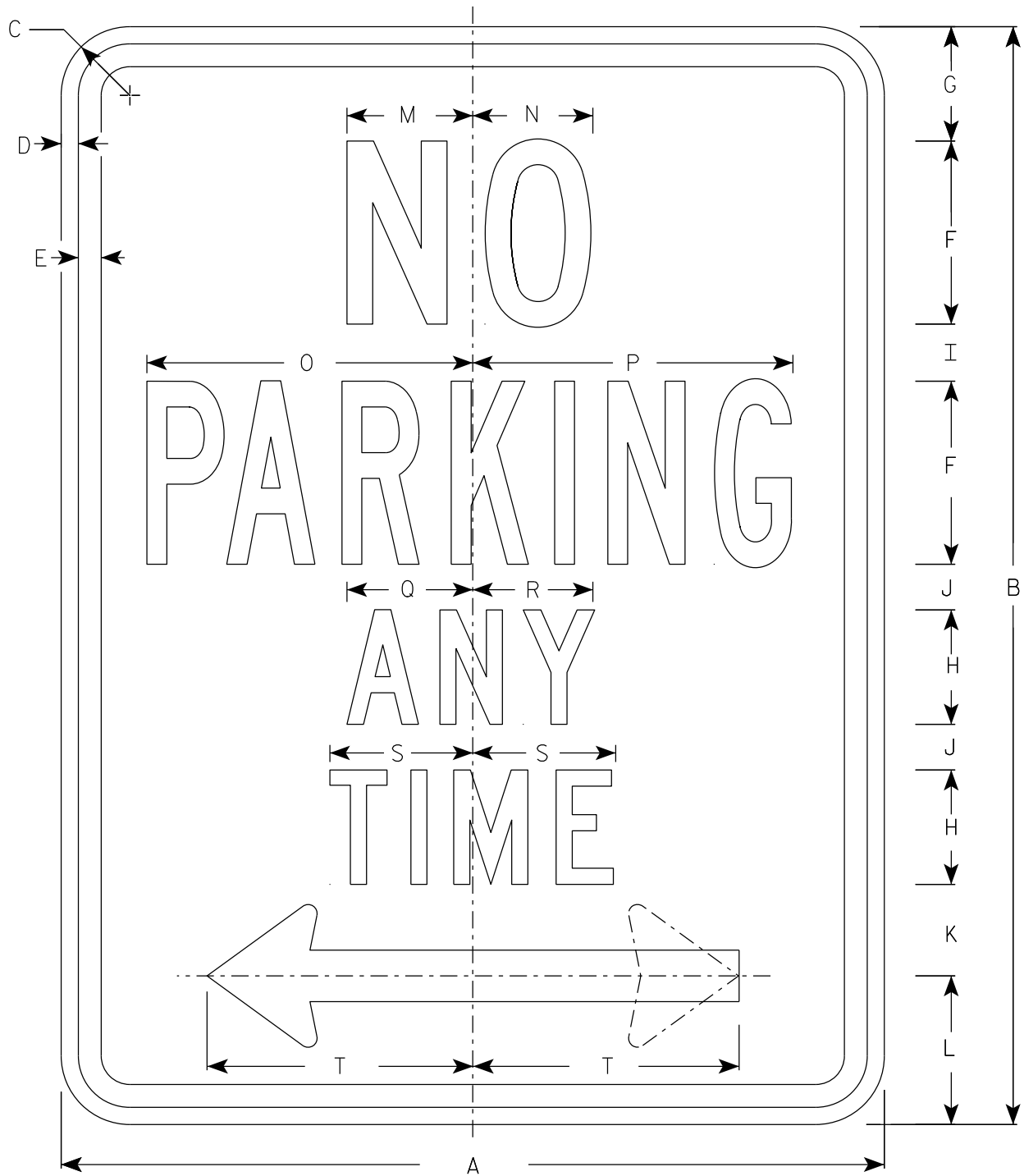
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

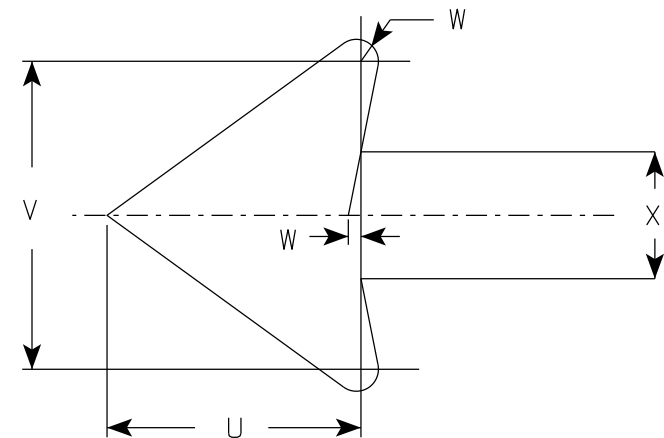


R7-1

NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - White  
Message - Red
3. Message Series - See Note 4
4. Lines 1, 3 and 4 are series C, line 2 is series B.
5. R7-1D (double arrow)  
R7-1L (left arrow)  
R7-1R (right arrow)

ARROW DETAIL



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

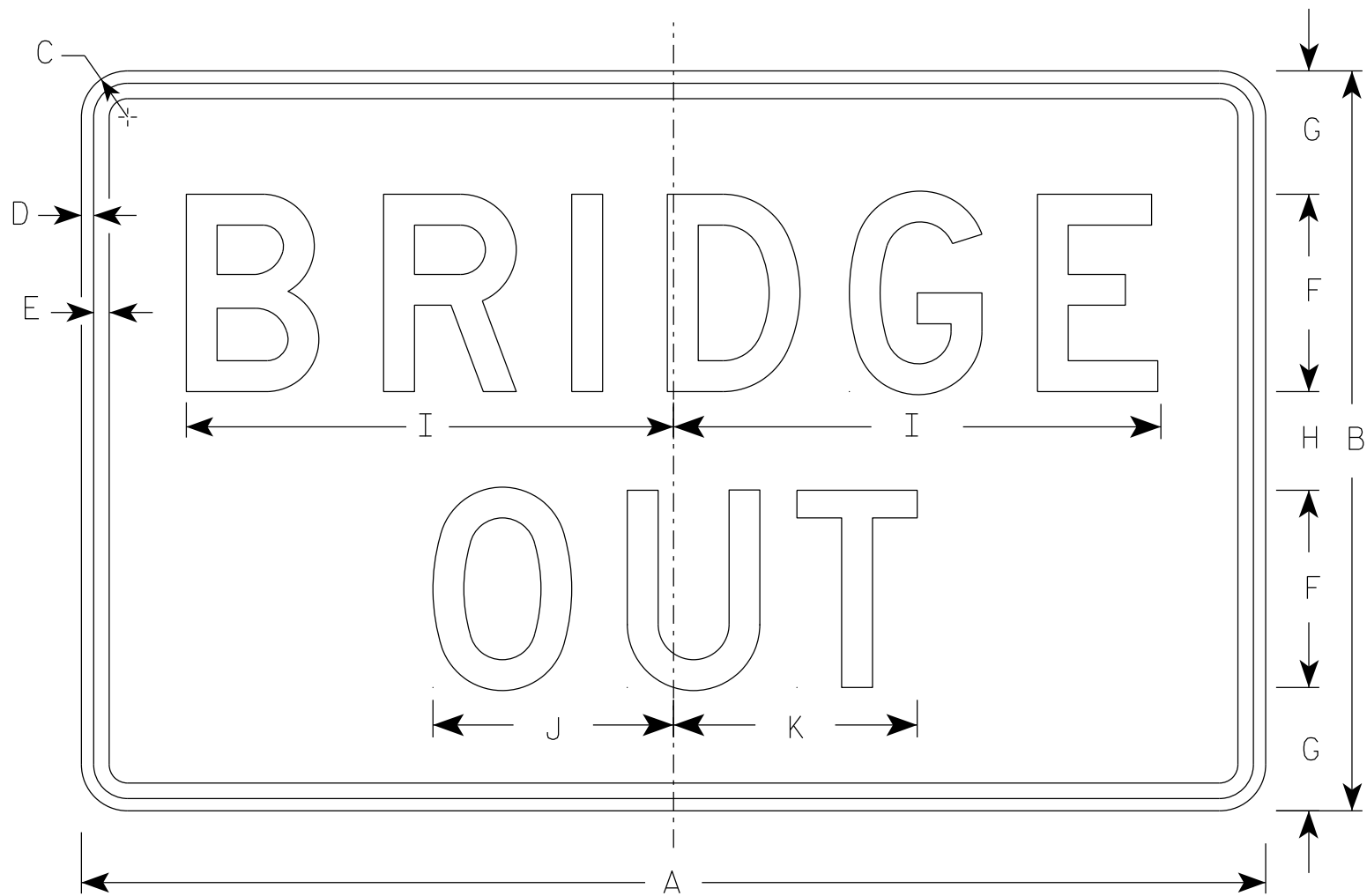
STANDARD SIGN  
R7-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 10/26/23 PLATE NO. R7-1.11

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E
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R11-2B

NOTES

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

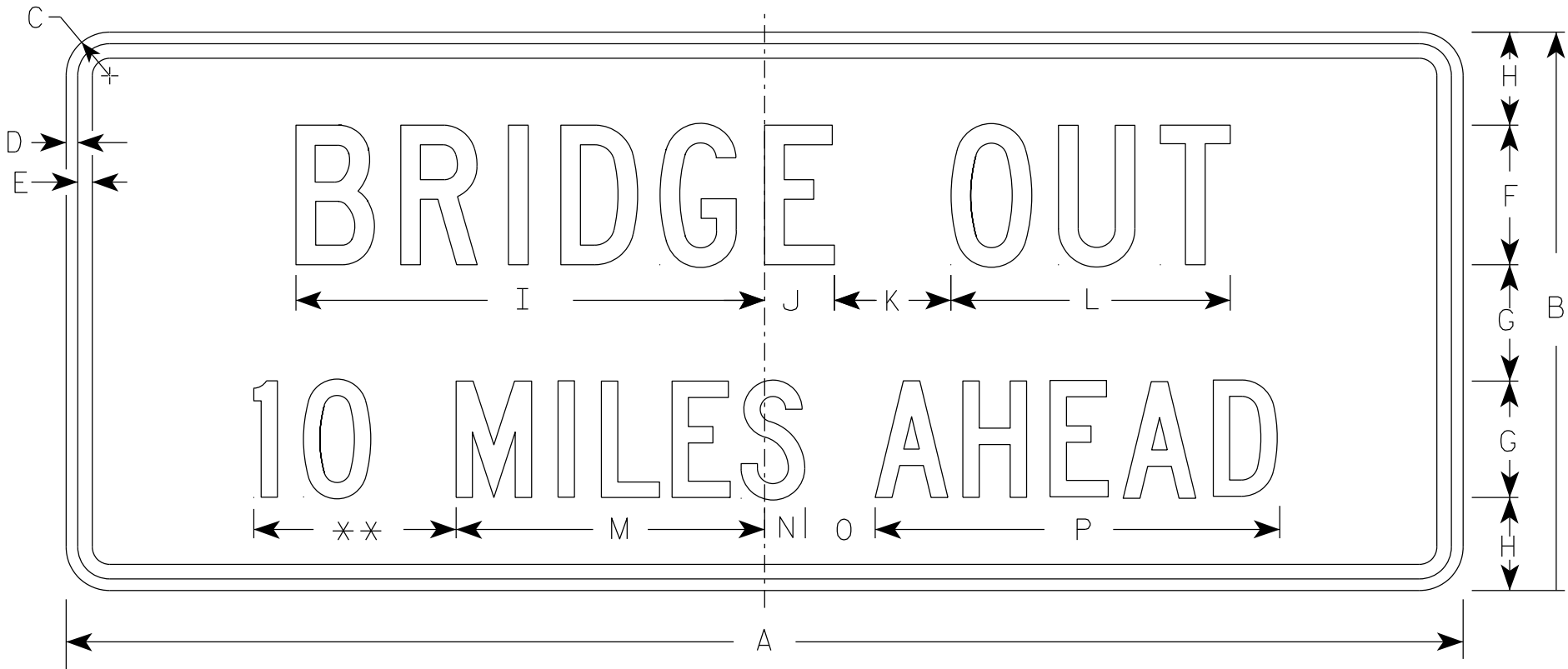
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0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

NOTES

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

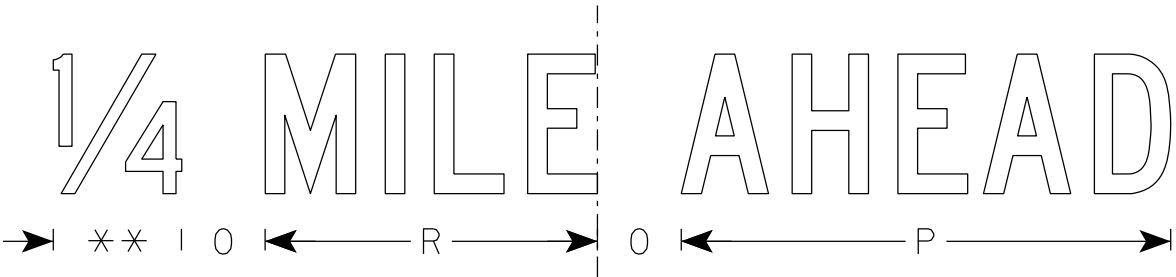
Background - White

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



R11-3C

\*\* See Note 5



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	15	1 1/2	1/2	5/8	4	3	2 1/2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4		7 1/8									3.75
2S	60	24	1 7/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
2M	60	24	1 7/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
3																											
4																											
5																											

STANDARD SIGN  
R11-3C

WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
for State Traffic Engineer

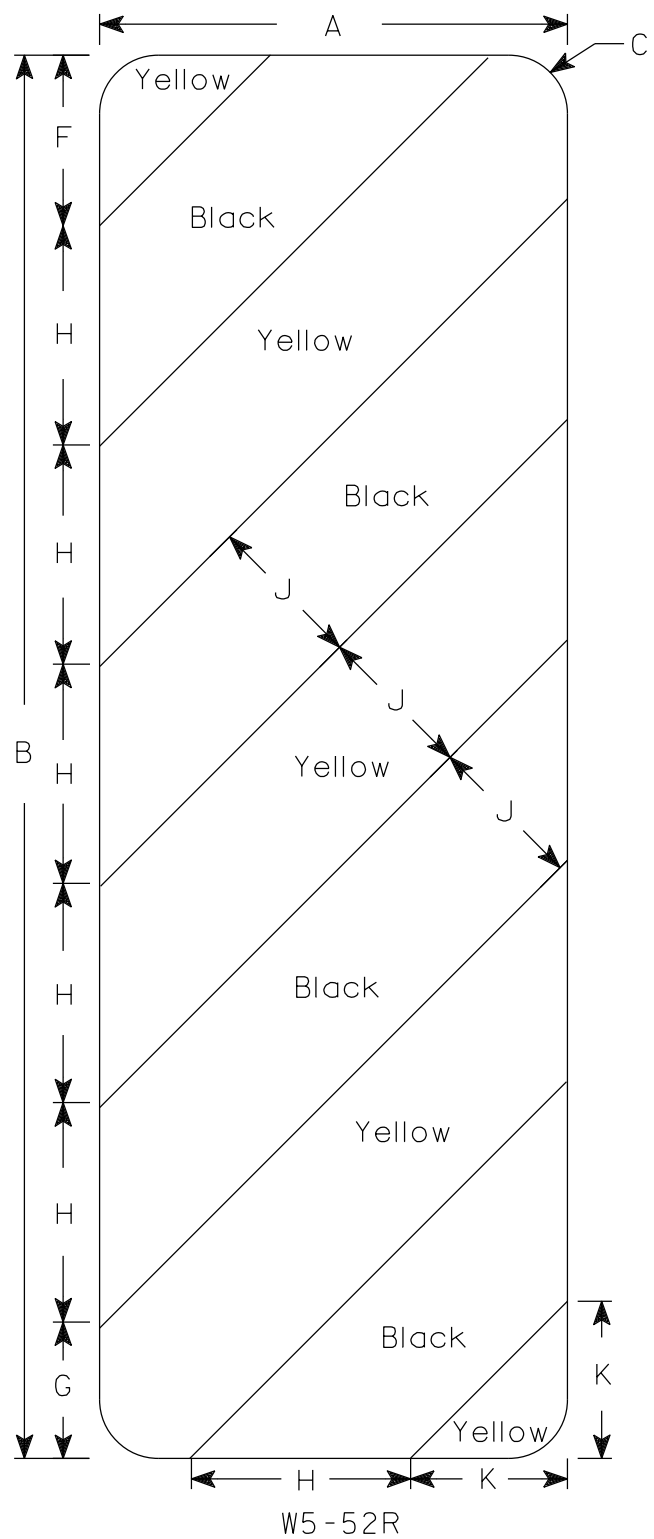
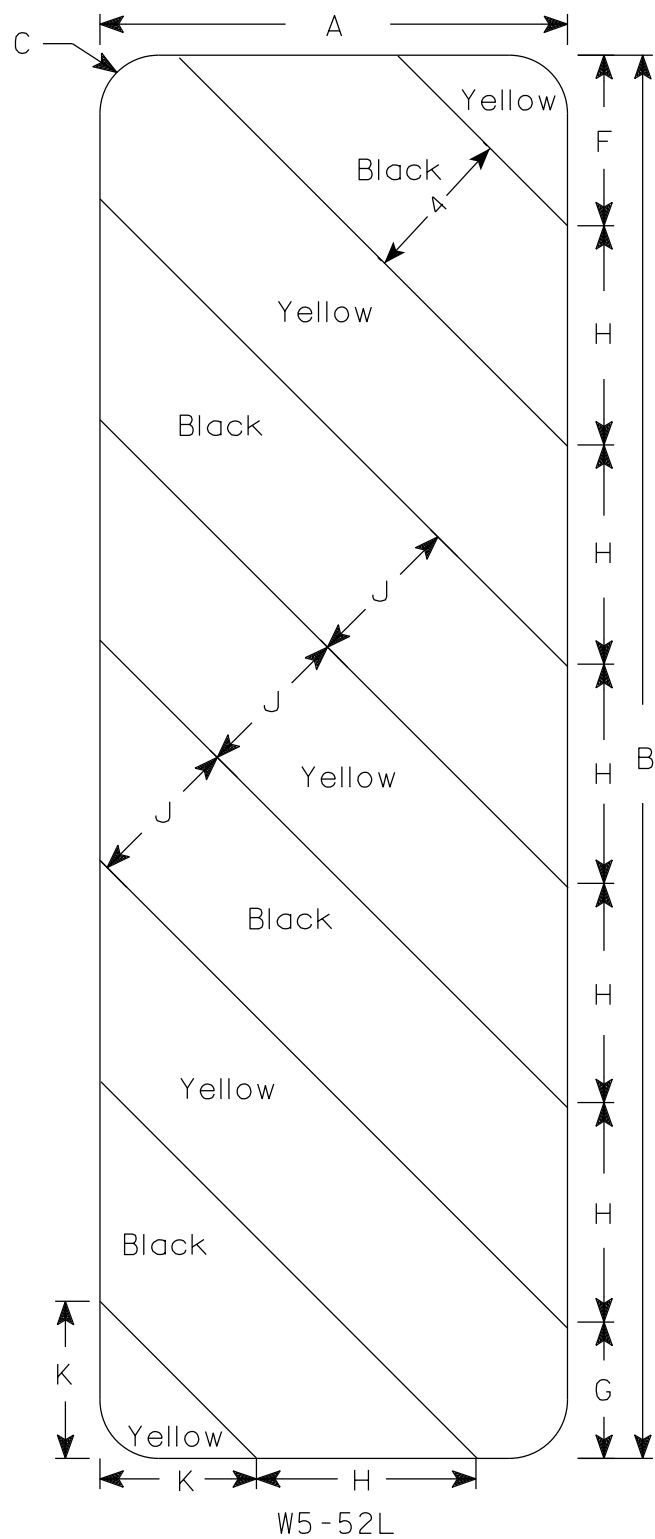
DATE 2/5/24 PLATE NO. R11-3C.4

PROJECT NO:

SHEET NO:

E





NOTES

1. Sign is Type II - Type F Reflective
2. Color:  
Background - Yellow  
Message - Black
3. Alternate colors of stripes as shown.

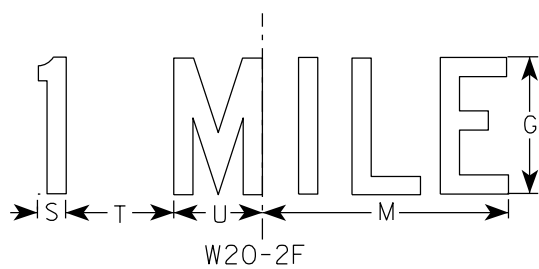
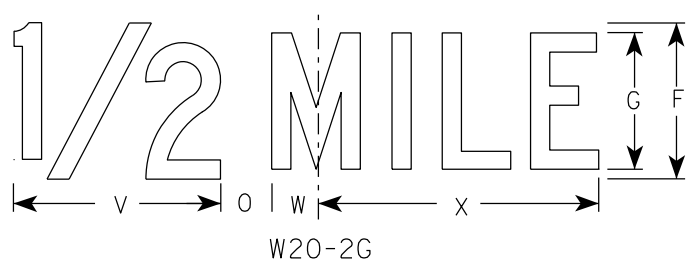
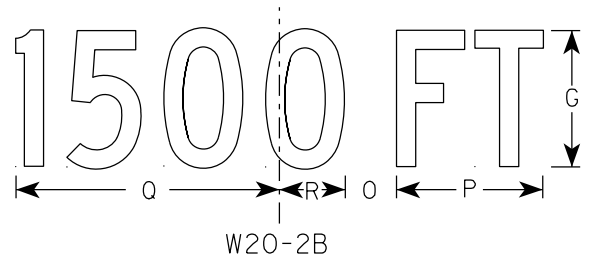
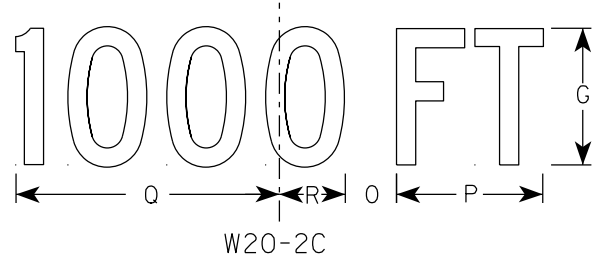
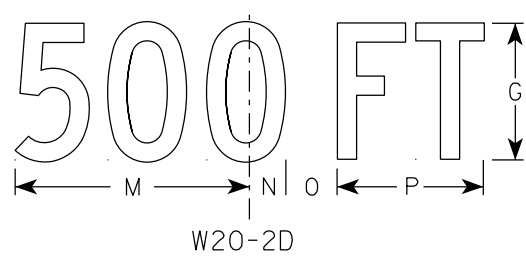
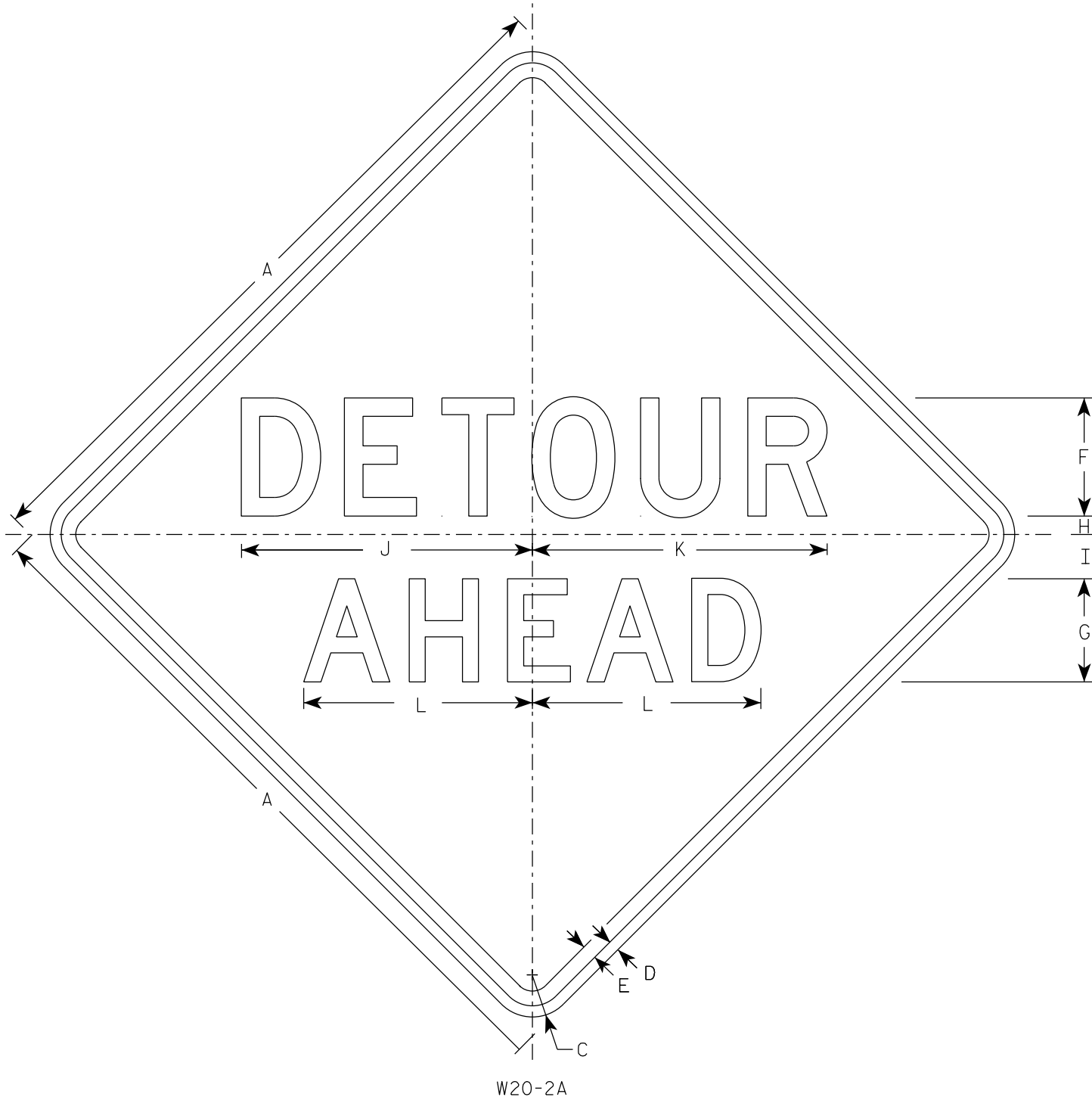
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN  
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 3/4/2024 PLATE NO. W5-52.10



NOTES

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

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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-2.7

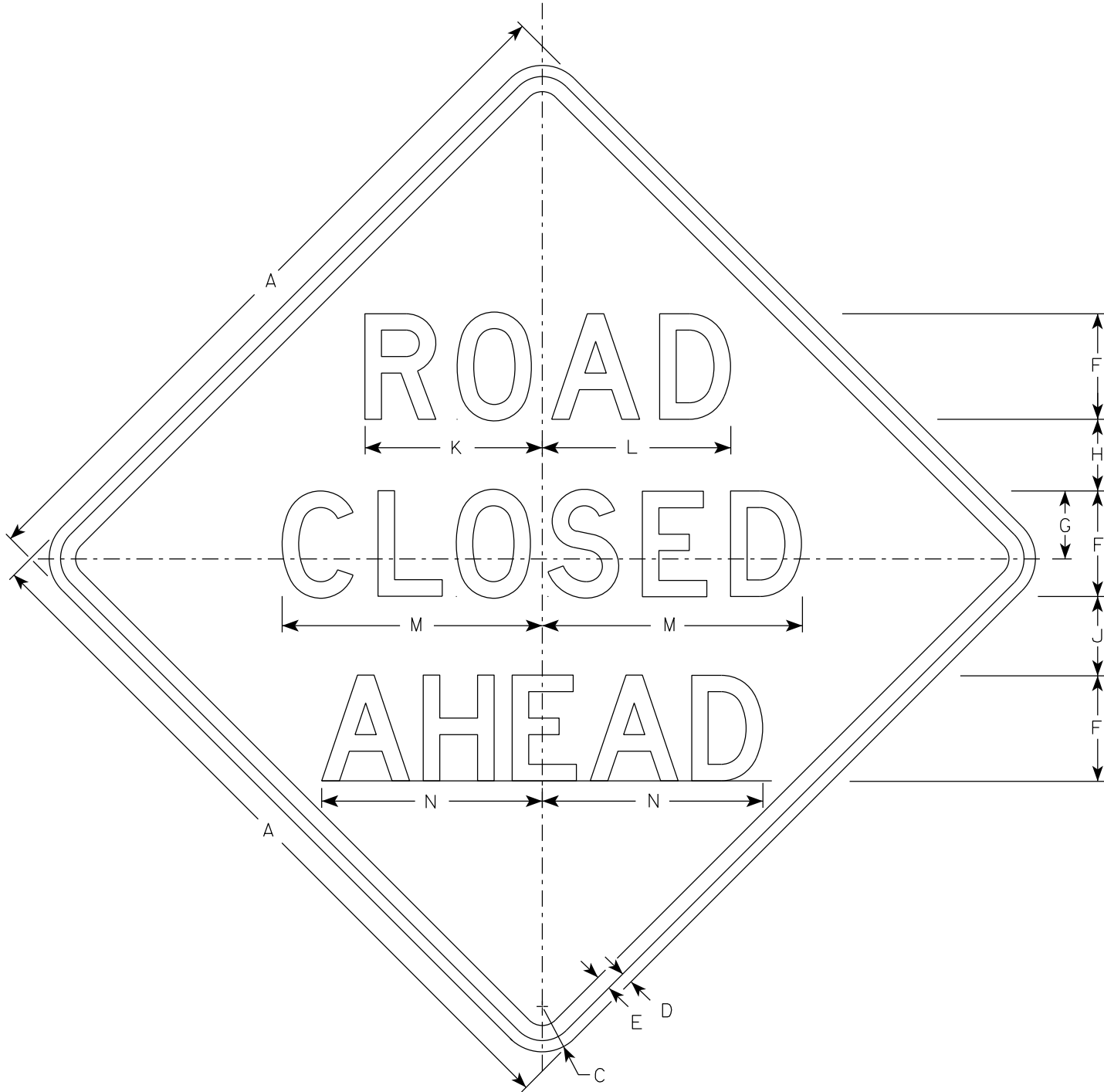
PROJECT NO:

HWY:

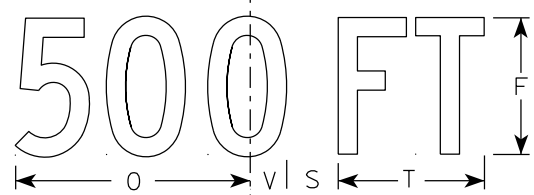
COUNTY:

SHEET NO:

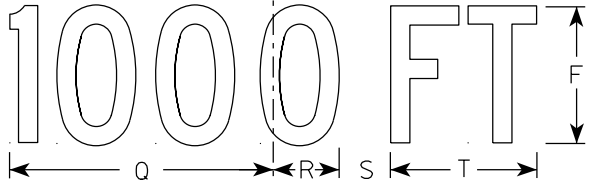
E



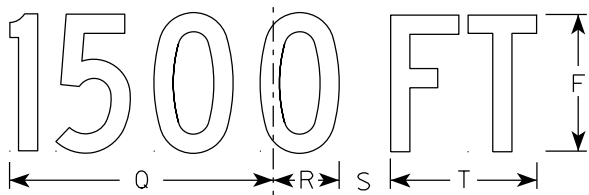
W20-3A



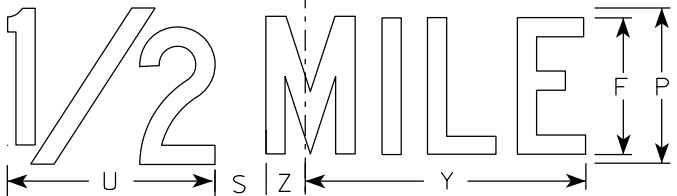
W20-3D



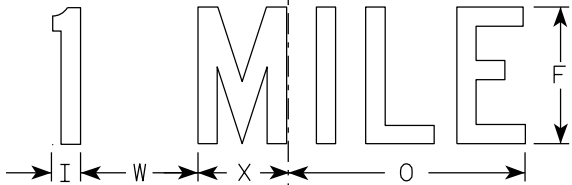
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

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

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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-3.8

**LIVE LOAD:**

DESIGN LOADING: HL-93  
INVENTORY RATING: RF = 1.07  
OPERATING RATING: RF = 1.39  
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)

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

**MATERIAL PROPERTIES:**

CONCRETE MASONRY:

SUPERSTRUCTURE _____	$f'_c = 4,000$ PSI
ALL OTHER _____	$f'_c = 3,500$ PSI

BAR STEEL REINFORCEMENT  
GRADE 60 \_\_\_\_\_  $f_v = 60,000$  PSI

HP STEEL PILING:  
GRADE 50 \_\_\_\_\_  $f_v = 50,000$  PSI

ABUTMENTS TO BE SUPPORTED ON HP 10X42 PILING (WITH PILE POINTS)  
DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS \*\* PER PILE AS  
DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.  
NORTH ABUTMENT PILES ESTIMATED 60'-0" LONG.  
SOUTH ABUTMENT PILES ESTIMATED 45'-0" LONG.

PIERS TO BE SUPPORTED ON HP 12X53 PILING (WITH PILE POINTS) DRIVEN  
TO A REQUIRED DRIVING RESISTANCE OF 205 TONS \*\* PER PILE AS  
DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.  
PIER 1 PILES ESTIMATED 60'-0" LONG.  
PIER 2 PILES ESTIMATED 65'-0" LONG.

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

**100-YEAR FREQUENCY:**

$Q_{100} = 3747 \text{ C.F.S.}$   
 $Q_{\text{BRIDGE}} = 3635 \text{ C.F.S.}$   
 $Q_{\text{ROAD}} = 112 \text{ C.F.S.}$   
 $V_{100} = 2.85 \text{ F.P.S.}$   
 $HW_{100} = \text{EL. } 782.08$   
 WATERWAY AREA = 1275 SQ. FT.  
 DRAINAGE AREA = 289 SQ. MI.  
 SCOUR CRITICAL CODE = 5  
 DATUM = NAVD88 (2012)

**2-YEAR FREQUENCY:**

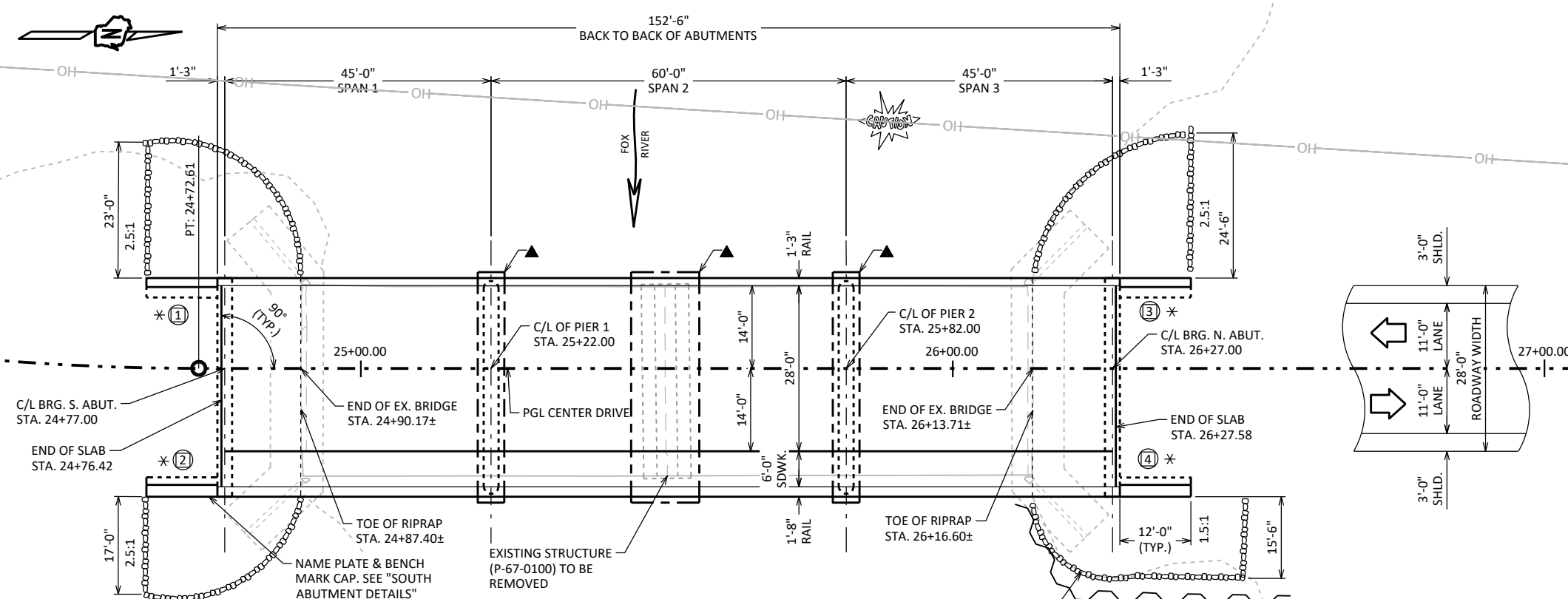
Q<sub>2</sub> = 915 C.F.S.  
V<sub>2</sub> = 1.17 F.P.S.  
HW<sub>2</sub> = EL. 778.51  
**ROADWAY OVERT**  
FREQUENCY = 50  
Q<sub>50</sub> = 2976 C.F.S.  
HW<sub>50</sub> = EL. 781.27

**CENTER DRIVE:**

ADT = 490 (2025)  
ADT = 600 (2042)  
R.D.S. = 40 MPH



1	GENERAL PLAN
2	CROSS SECTION & QUANTITIES
3	SUBSURFACE EXPLORATION
4	SOUTH ABUTMENT
5	SOUTH ABUTMENT DETAILS
6	SOUTH ABUTMENT DETAILS
7	NORTH ABUTMENT
8	NORTH ABUTMENT DETAILS
9	NORTH ABUTMENT DETAILS
10	PIER 1
11	PIER 2
12	SUPERSTRUCTURE
13	SUPERSTRUCTURE SECTIONS
14	SUPERSTRUCTURE DETAILS
15	SUPERSTRUCTURE DETAILS
16	TUBULAR STEEL RAILING TYPE NY4
17	TUBULAR STEEL RAILING TYPE NY4
18	TUBULAR STEEL RAILING TYPE M



\* ATTACHMENT FOR THRIE BEAM TYPE GUARDRAIL.

 DENOTES WING NUMBER.

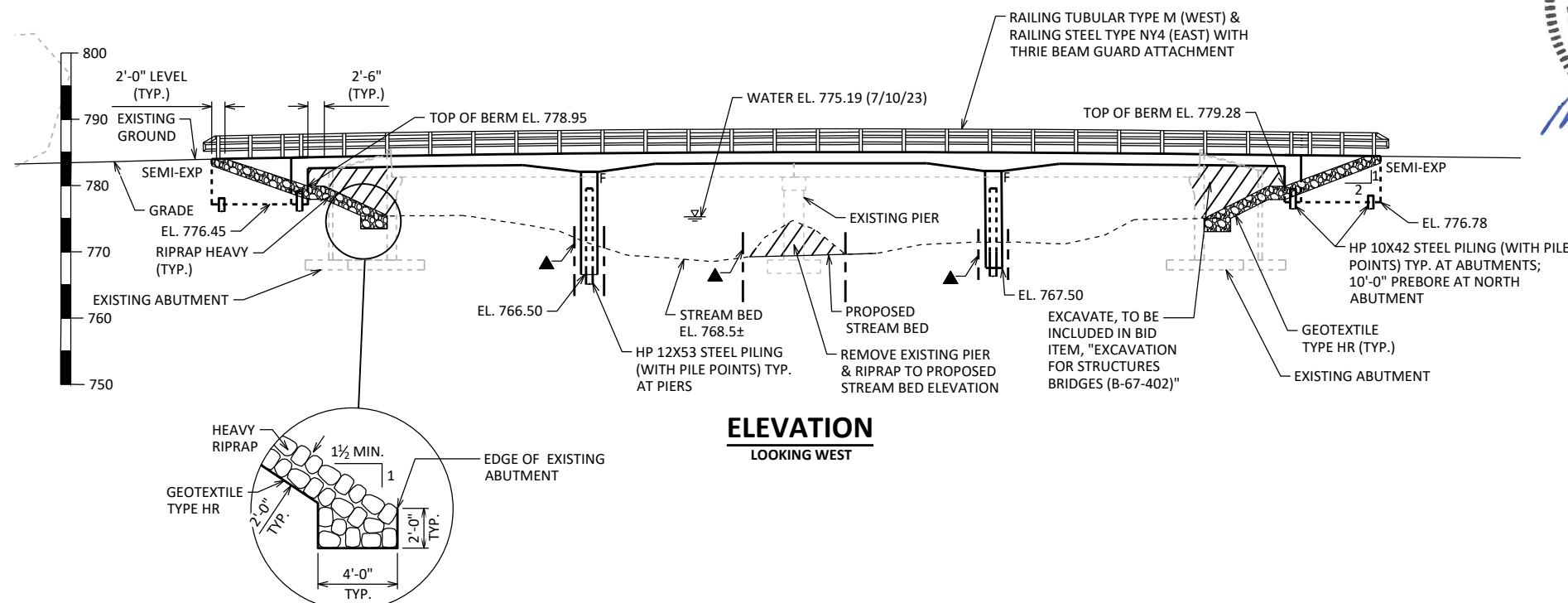
▲ COFFERDAMS (TYP.)

## PLAN

### THREE-SPAN CONCRETE HAUNCHED SLAB BRIDGE

LIMITS OF RIPRAP —  
HEAVY AND  
GEOTEXTILE TYPE HR  
(TYP.)

PILING STEEL SHEET -  
TEMPORARY  
IS TO EXTEND 3FT  
ABOVE GROUND



## ELEVATION

## LOOKING WEST

**DESIGN CONTACT:**  
MATT BUSKA, P.E.  
(414) 336-7928

**BRIDGE OFFICE CONTACT:**  
AARON BONK, P.E.  
(608) 261-0261

NO.	DATE	REVISION	BY
-----	------	----------	----



STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

ACCEPTED  SDR 11/01/24  
CHIEF STRUCTURES DESIGN ENGINEER DATE

**STRUCTURE B-67-402**

CENTER DRIVE OVER FOX RIVER	
COUNTY	WAUKESHA VILLAGE VERNON

DESIGN SPEC.		AASHTO LRFD BRIDGE DESIGN SPECIFICATION	
DESIGNED BY	DESIGNED CK'D	DRAWN BY	PLANS CK'D
TIC	MIR	AMS	MIR

<b>GENERAL PLAN</b>	SHEET 1 OF 18

I.D.

DATE: \_\_\_\_\_

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.  
THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.  
BEVEL EXPOSED EDGES OF THE CONCRETE ¾" UNLESS OTHERWISE NOTED.

EXCAVATION BELOW THE ABUTMENT AND USE OF ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF THE EXCAVATION AND EXTEND 2'-0" ABOVE THE BOTTOM OF ABUTMENT.

THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAILS SHOWN IN THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OF EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE LIMITS SHOWN ON SHEET 13, TOP AND EXTERIOR EXPOSED FACE OF WINGS, THE END 1'-0" OF THE FRONT FACE OF ABUTMENTS, AND TO THE VERTICAL AND HORIZONTAL SURFACES OF THE PAVING NOTCHES.

AT PIERS COFFERDAM REQUIRED. CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH, UNLESS APPROVED OTHERWISE.

CONSTRUCTION ACCESS WILL BE PROVIDED VIA A CAUSEWAY. FOR DETAILS AND PAY ITEMS, SEE ROADWAY PLANS.



■ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.



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

NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION					
<b>STRUCTURE      B-67-402</b>					
		DRAWN BY	AMS	PLANS CK'D	MJB
<b>CROSS SECTION &amp; QUANTITIES</b>			SHEET 2 OF 18		

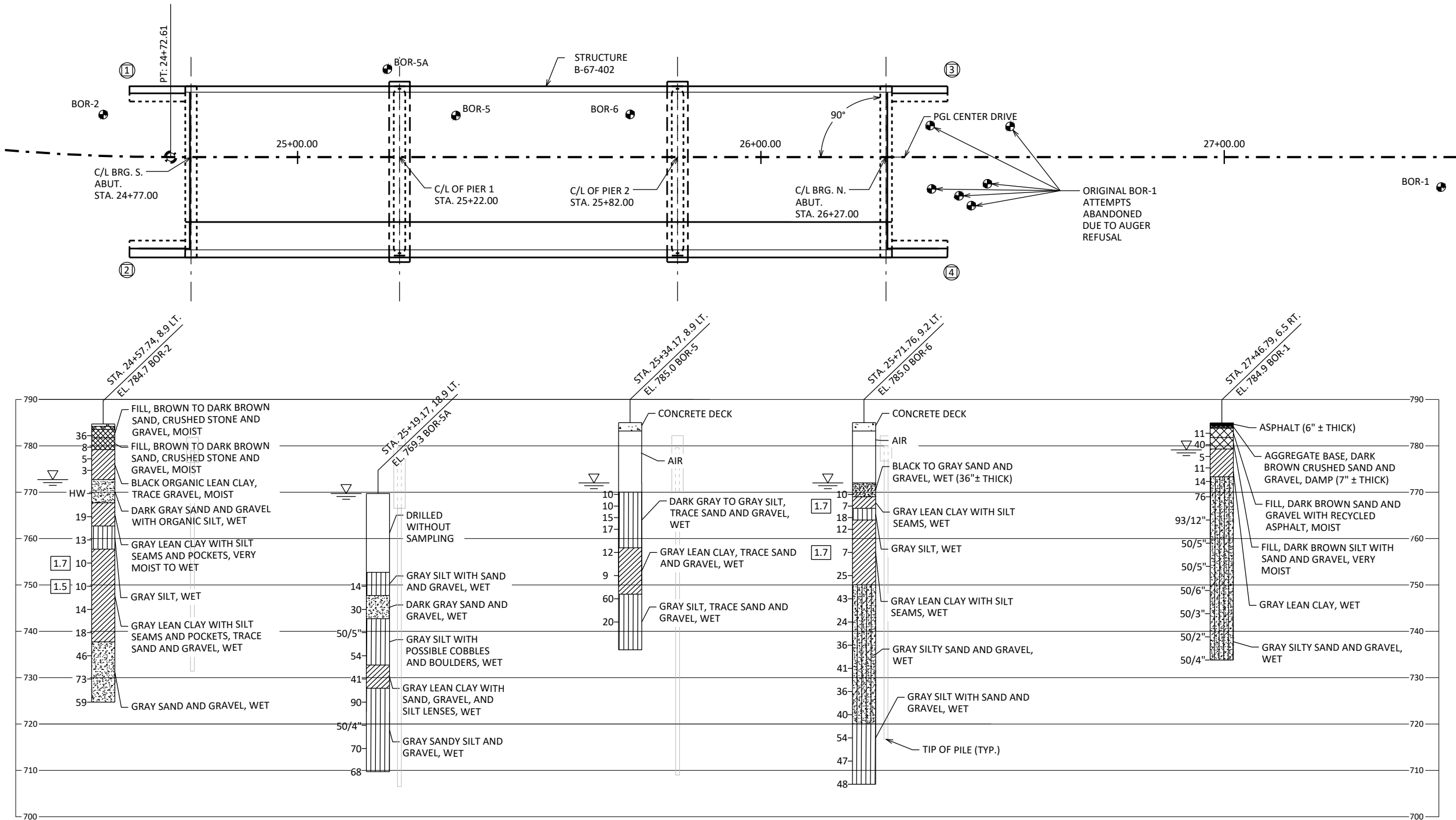


BORING #	DATE COMPLETED	NORTHING (X)	EASTING (Y)
1	7/25/23	112452.6	679673.9
2	6/20/23	112163.7	679664.7
5	6/21/23	112239.8	679663.3
5A	7/27/23	112225.5	679656.6
6	6/21/23	112277.3	679662.2

BORINGS COMPLETED BY: PSI, INC.

REPORT COMPLETED BY: PSI, INC.

ALL COORDINATES REFERENCED TO WCCS NAD 83(91) WAUKESHA COUNTY



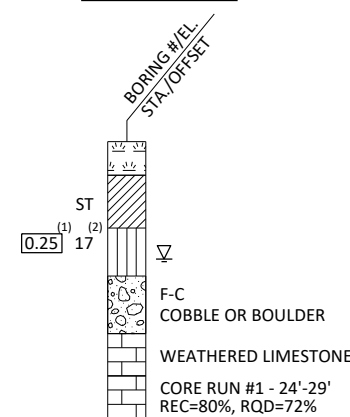
STATE PROJECT NUMBER

2719-00-71

## MATERIAL SYMBOLS

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

## LEGEND OF BORING



<sup>(1)</sup> UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

<sup>(2)</sup> 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
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STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

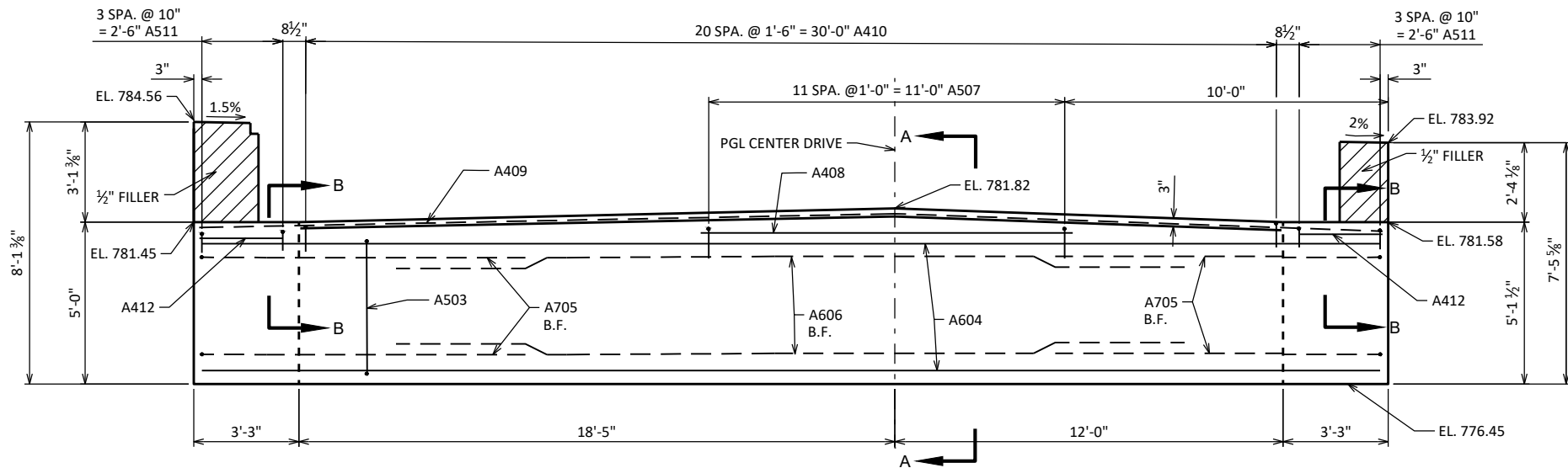
STRUCTURE B-67-402

DRAWN BY AMS PLANS CK'D MJB

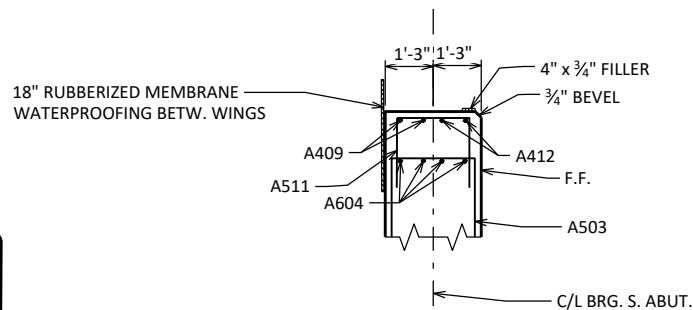
SUBSURFACE  
EXPLORATION

SHEET 3 OF 18

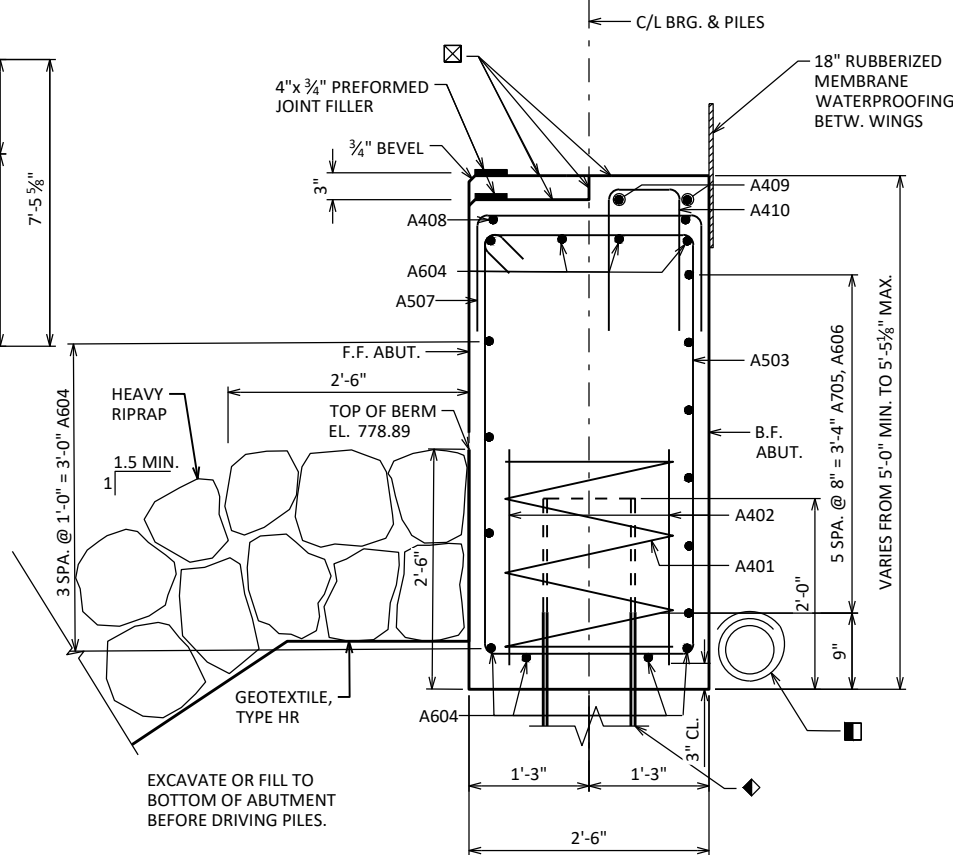
SCALE = NTS



**ELEVATION**  
(LOOKING SOUTH)



**SECTION B-B**



**SECTION A-A**

ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQ'D. DRIVING RESISTANCE OF 130 TONS PER PILE. ESTIMATED LENGTH 45'-0".

3/4" CORK FILLER ON VERTICAL FACE ONLY.

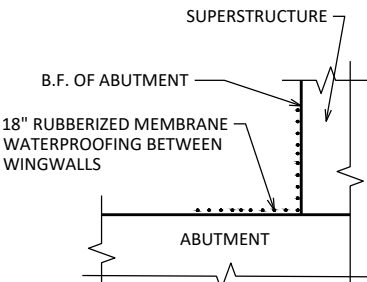
PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

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".

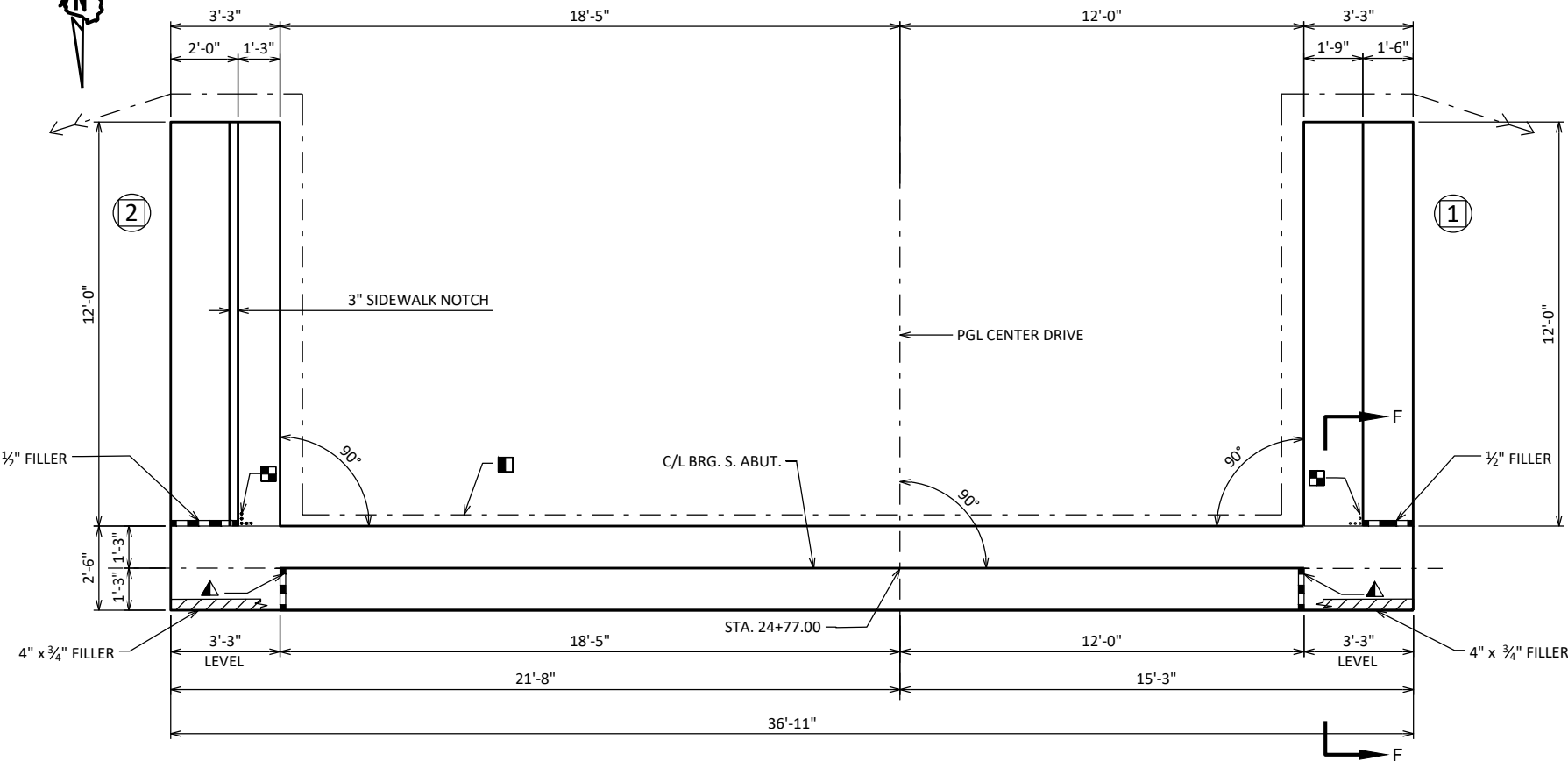
VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WINGWALL.

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

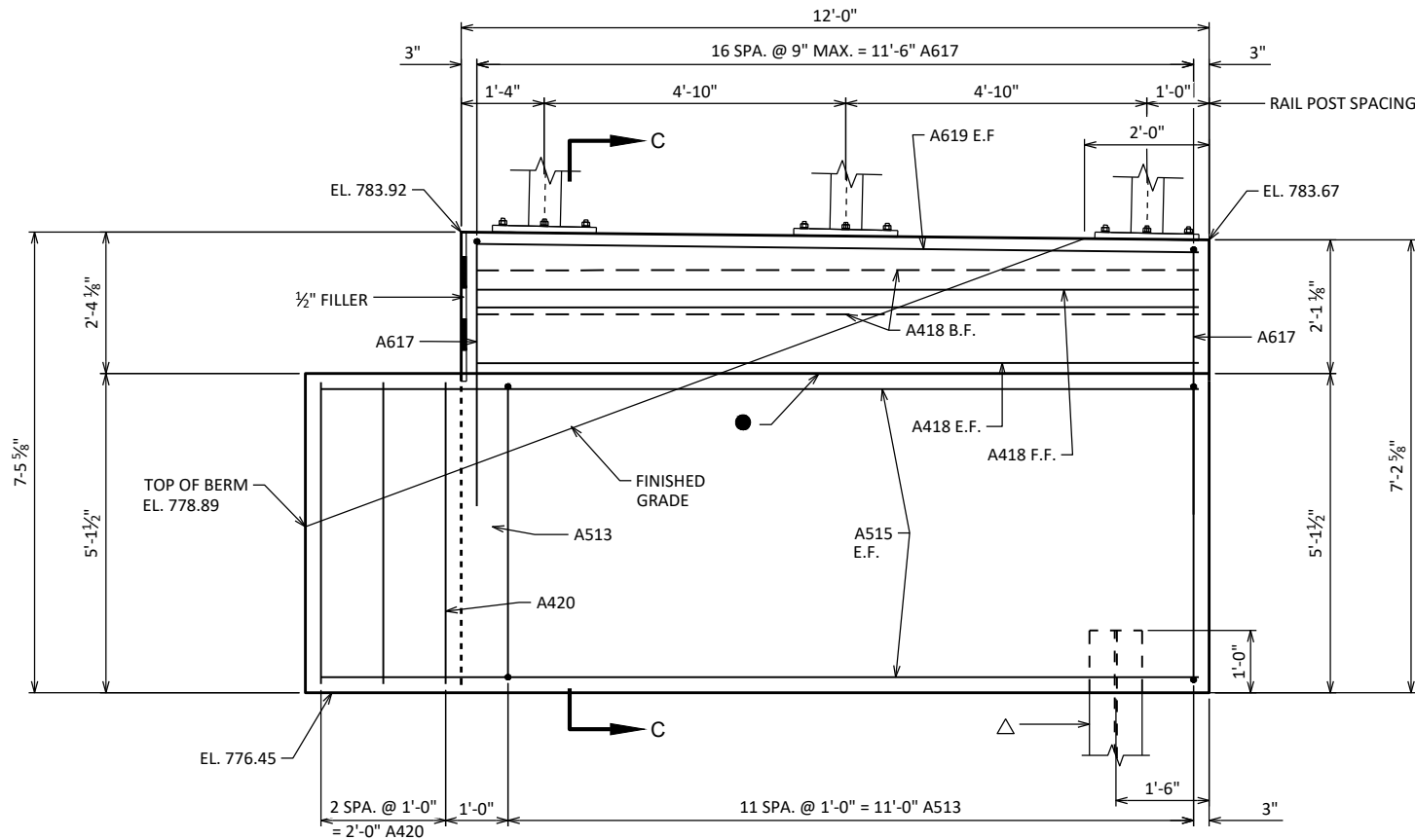


**SECTION F-F**



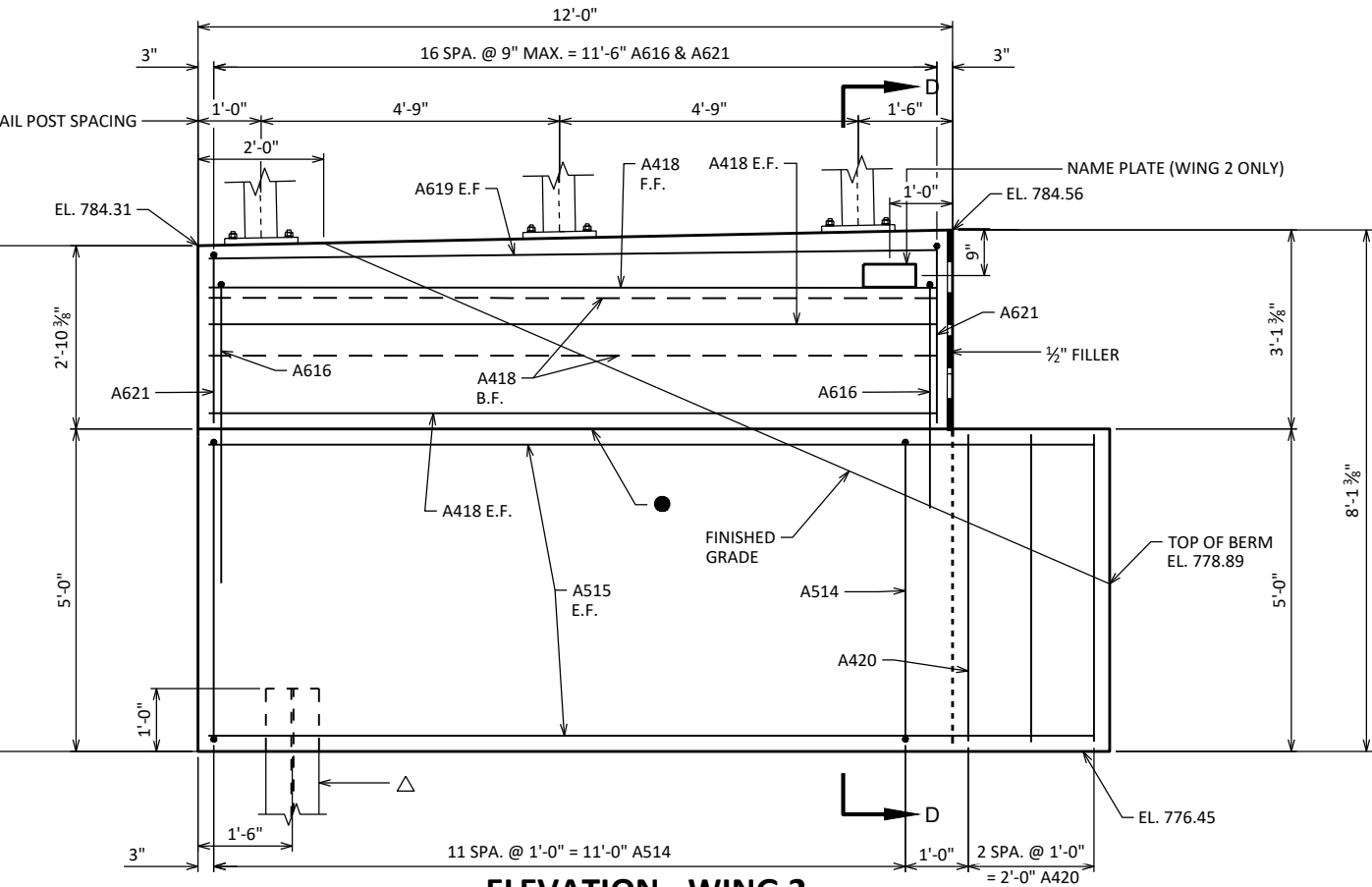
**PLAN**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-402</b>			
DRAWN BY		AMT	PLANS CK'D MJB
<b>SOUTH ABUTMENT</b>		SHEET 4 OF 18	



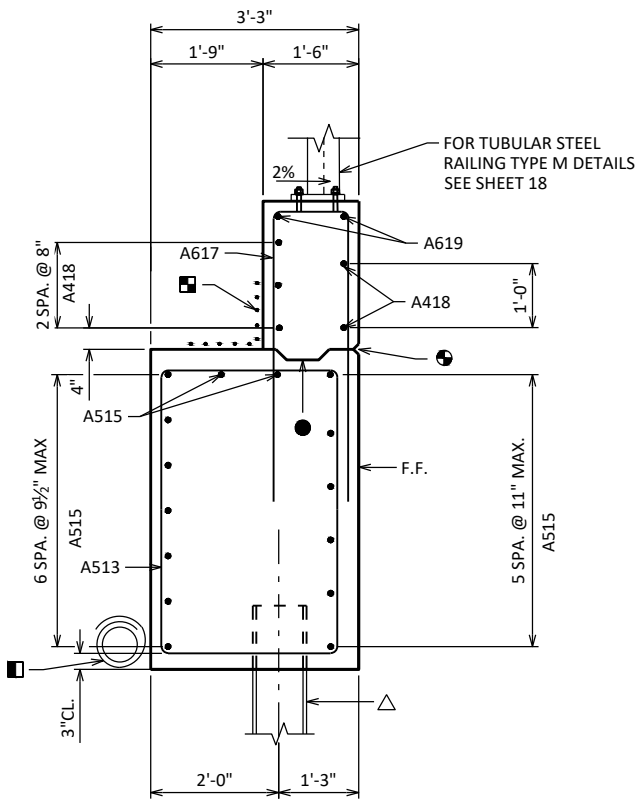
ELEVATION - WING 1

(FRONT FACE)

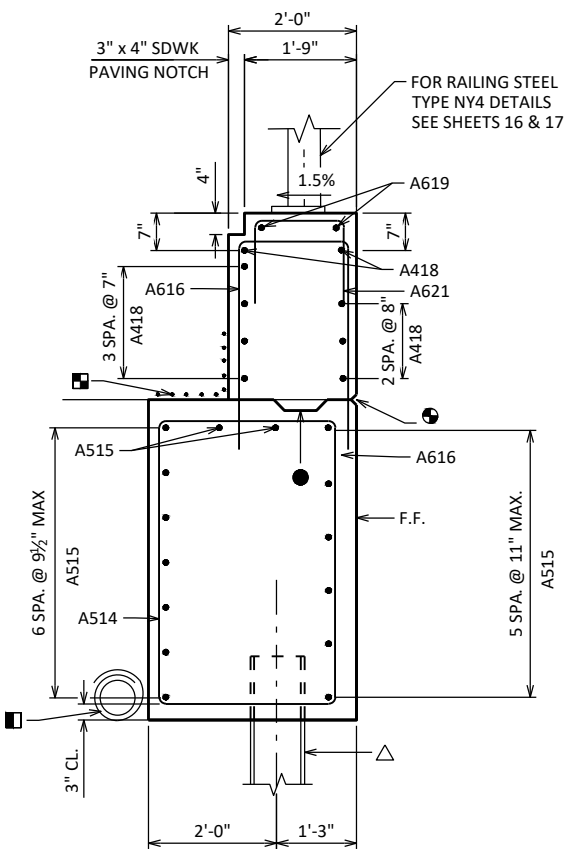


ELEVATION - WING 2

(FRONT FACE)



SECTION C-C



SECTION D-D

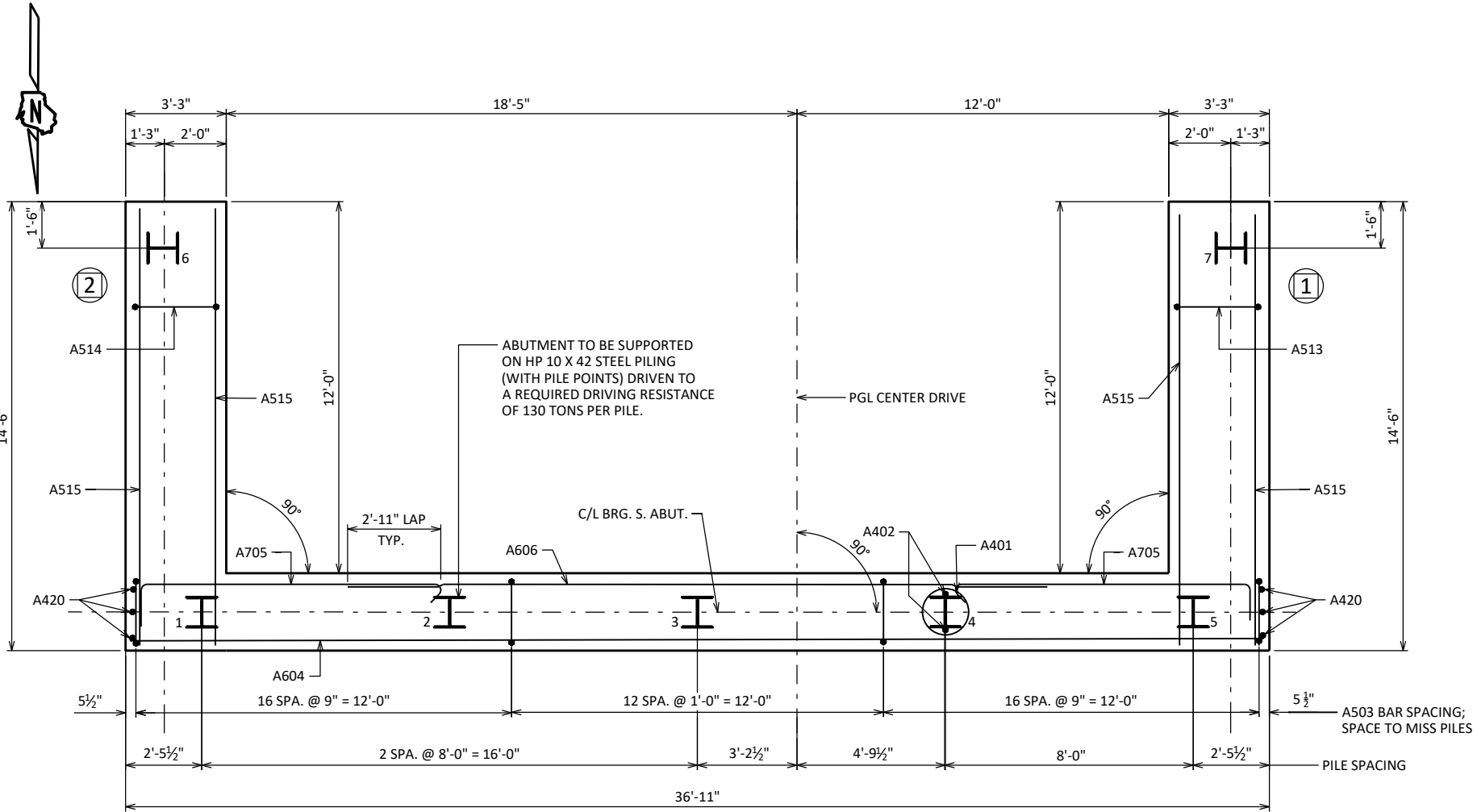
- △ SUPPORT ABUTMENT ON HP 10X42 STEEL PILING, ESTIMATED 45'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE.
- PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".
- ⊙ 3/4" "V" GROOVE ON FRONT FACE OF WINGWALL. ONLY REQUIRED IF OPTIONAL CONSTRUCTION JOINT IS USED.
- OPTIONAL CONST. JOINT FORMED BY A BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACK FACE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- B.F. DENOTES BACK FACE.
- F.F. DENOTES FRONT FACE.
- E.F. DENOTES EACH FACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-402			
DRAWN BY		AMT	PLANS CK'D MJB
SOUTH ABUTMENT DETAILS			SHEET 5 OF 18

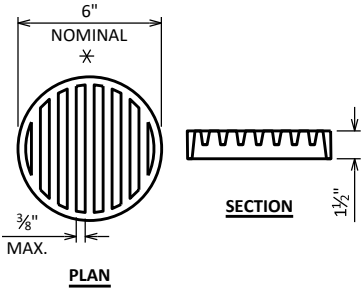


BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	1650 # COATED; 2090 # UNCOATED
						LOCATION
A401		5	28'-0"	X		BODY AT PILES
A402		10	2'-3"			BODY AT PILES
A503		45	13'-6"	X		BODY VERT.
A604		11	36'-7"			BODY HORIZ.
A705		12	13-0	X		BODY HORIZ. AT WING B.F.
A606		6	18'-5"			BODY HORIZ. BETW. WINGS B.F
A507		12	4'-11"	X		BODY VERT. TOP
A408		3	11'-4"			BODY HORIZ. TOP
A409		2	36'-7"			BODY HORIZ. TOP
A410		21	3'-9"	X		BODY VERT. TOP
A511		8	4'-11"	X		BODY VERT. TOP AT ENDS
A412		4	2'-11"			BODY HORIZ. TOP AT ENDS
A513	X	12	15'-10"	X		WING 1 VERT.
A514	X	12	15'-8"	X		WING 2 VERT
A515	X	30	14'-2"			WINGS 1 & 2 HORIZ. B.F., F.F. & TOP
A616	X	17	10'-10"	X		WING 2 VERT.
A617	X	17	9'-4"	X		WING 1 VERT.
A418	X	14	11'-8"			WINGS 1 & 2 HORIZ. E.F.
A619	X	4	11'-8"			WINGS 1 & 2 HORIZ. E.F.
A420		6	4'-7"			BODY VERT. END AT WINGS 1 & 2
A621	X	17	4'-5"	X		WING 2 VERT.



PILE LAYOUT

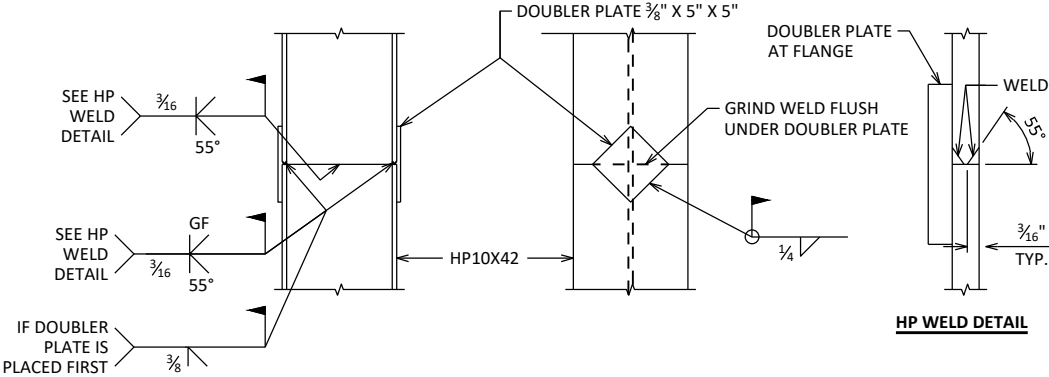


RODENT SHIELD DETAIL

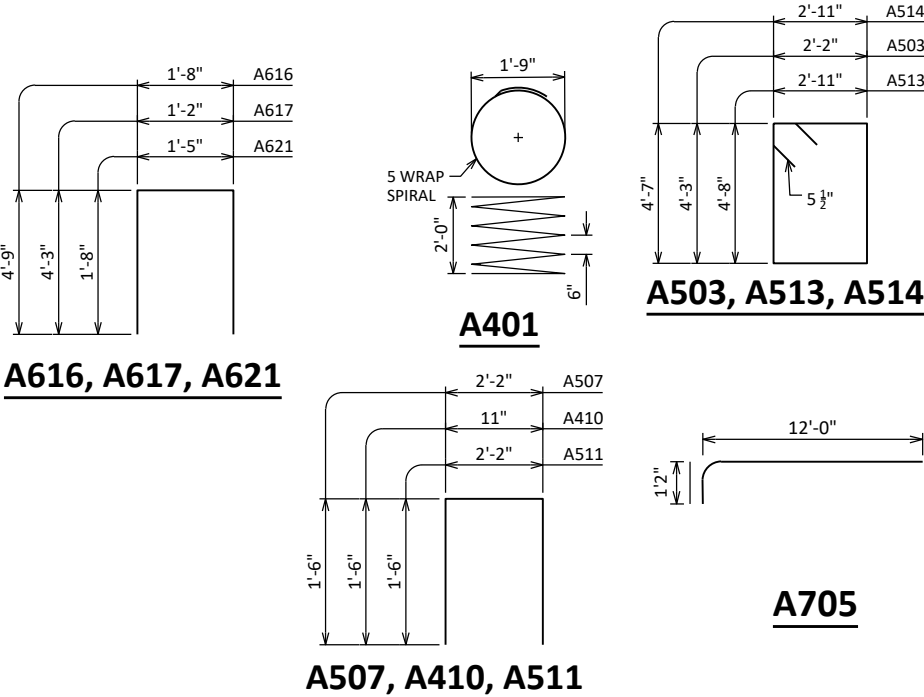
✱ DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

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



'HP' PILE DETAILS



A616, A617, A621

A401

A503, A513, A514

A507, A410, A511

A705

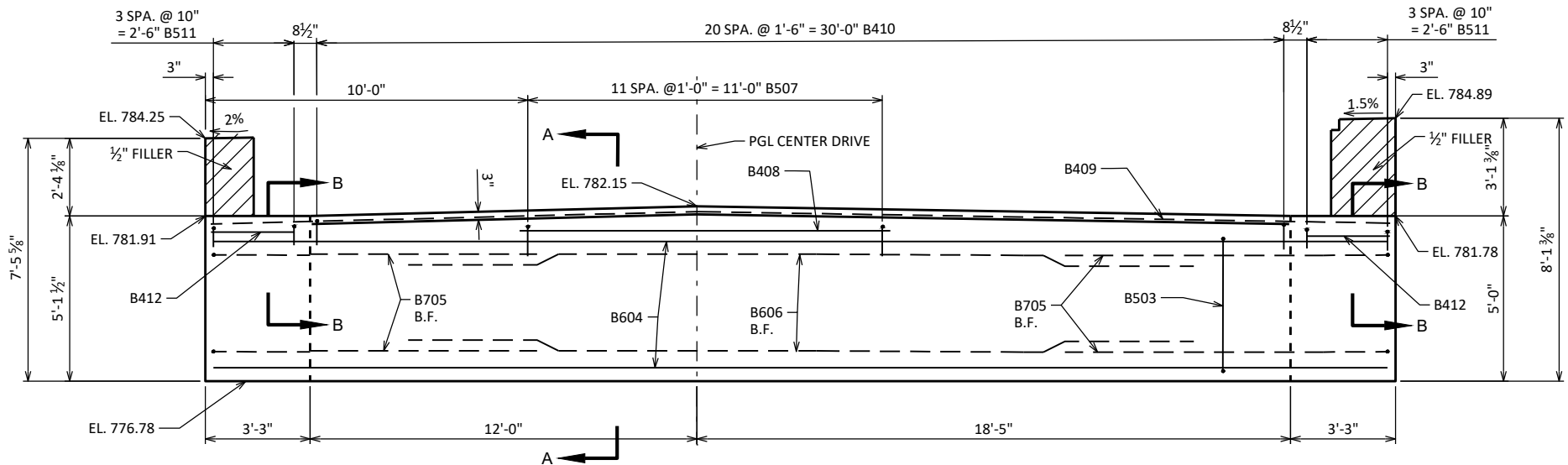
B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

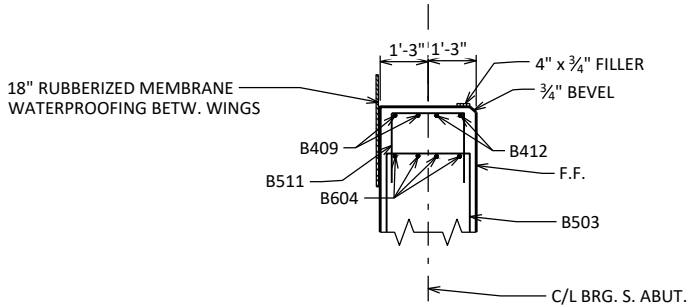
E.F. DENOTES EACH FACE.

○ DENOTES WING NUMBER

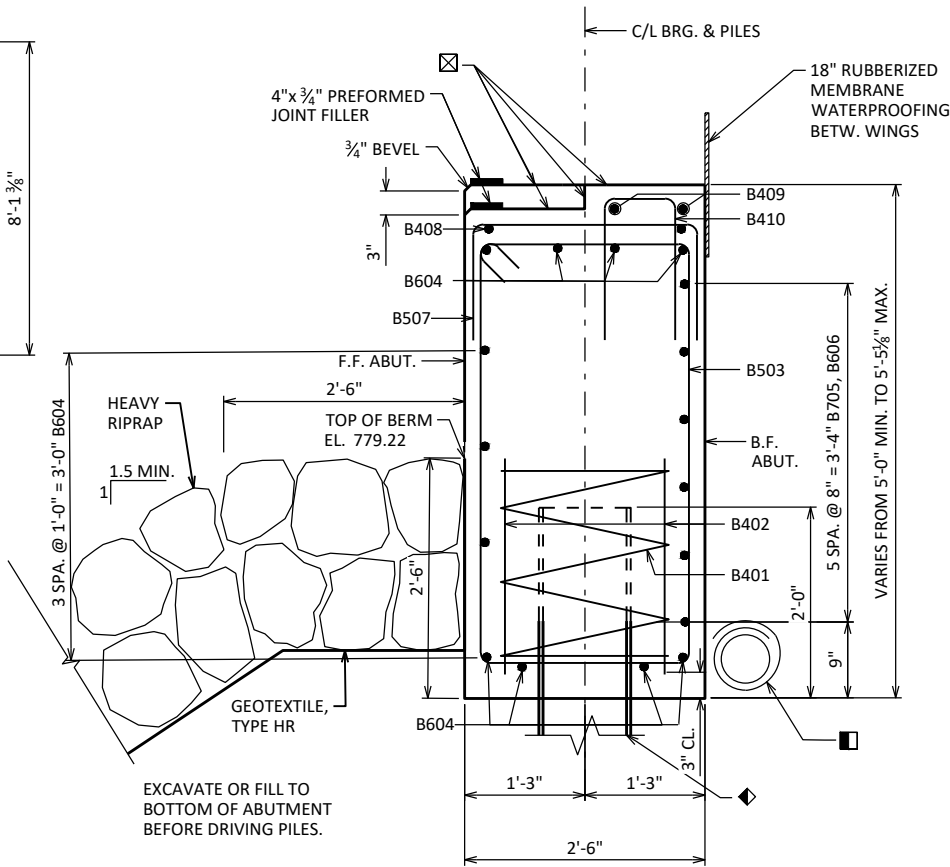
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-402			
DRAWN BY		AMT	PLANS CK'D MJB
SOUTH ABUTMENT DETAILS			SHEET 6 OF 18



ELEVATION  
(LOOKING NORTH)



SECTION B-B



SECTION A-A

ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQ'D. DRIVING RESISTANCE OF 130 TONS PER PILE. ESTIMATED LENGTH 60'-0".

3/4" CORK FILLER ON VERTICAL FACE ONLY.

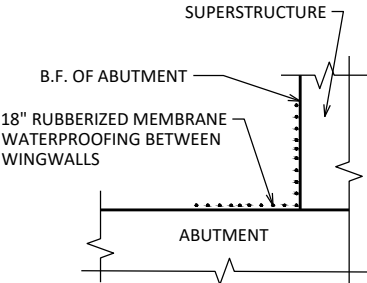
PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

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".

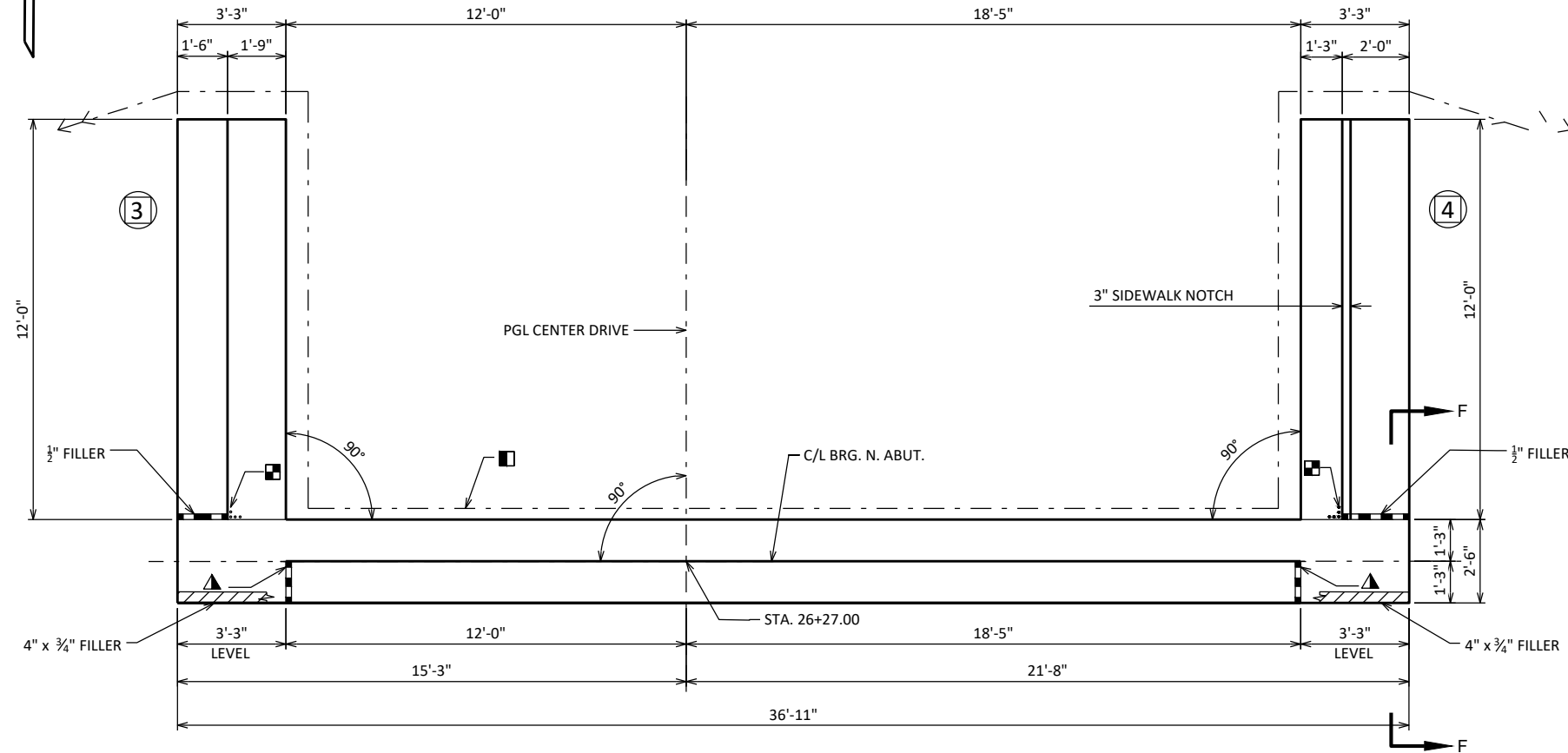
VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WINGWALL.

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

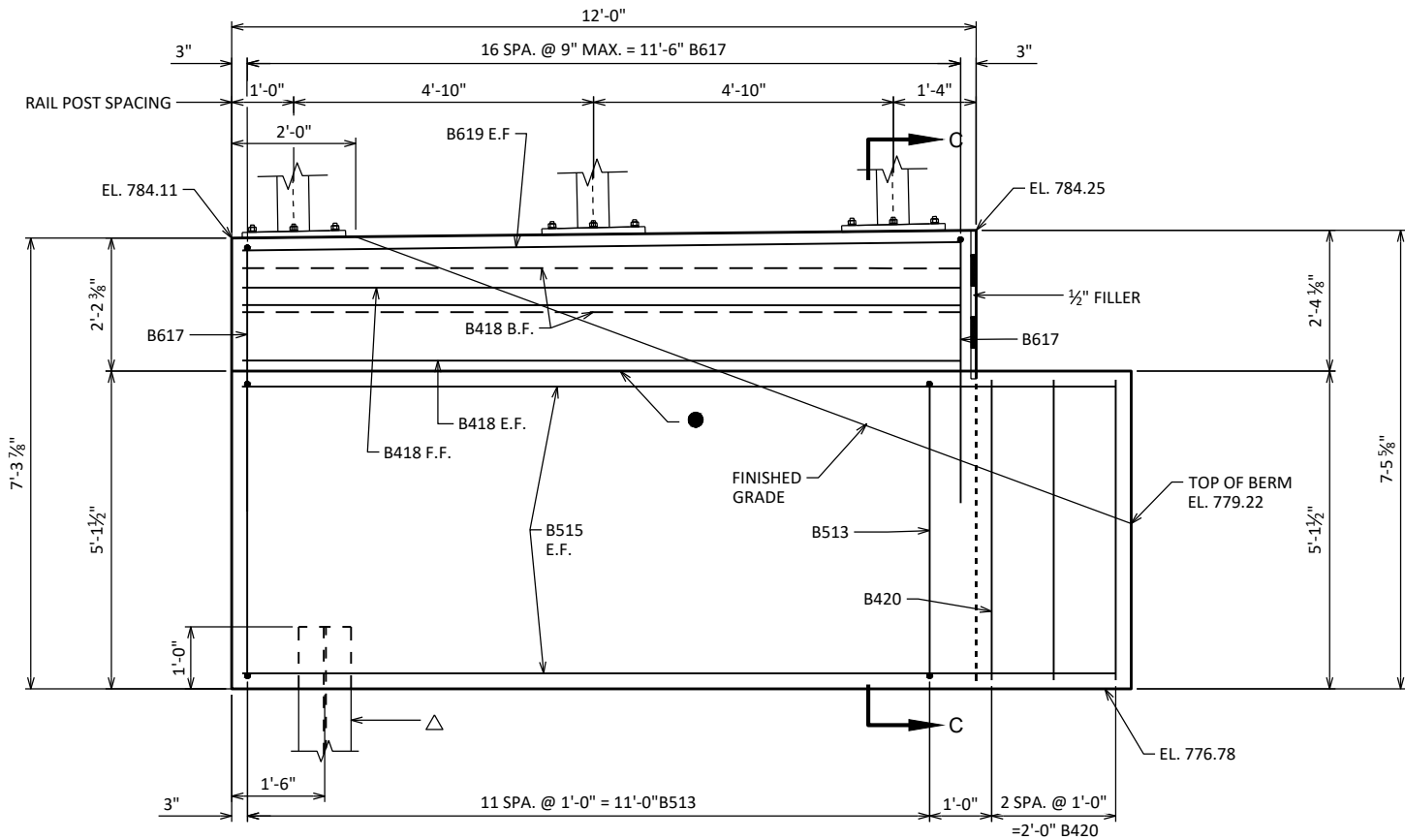


SECTION F-F



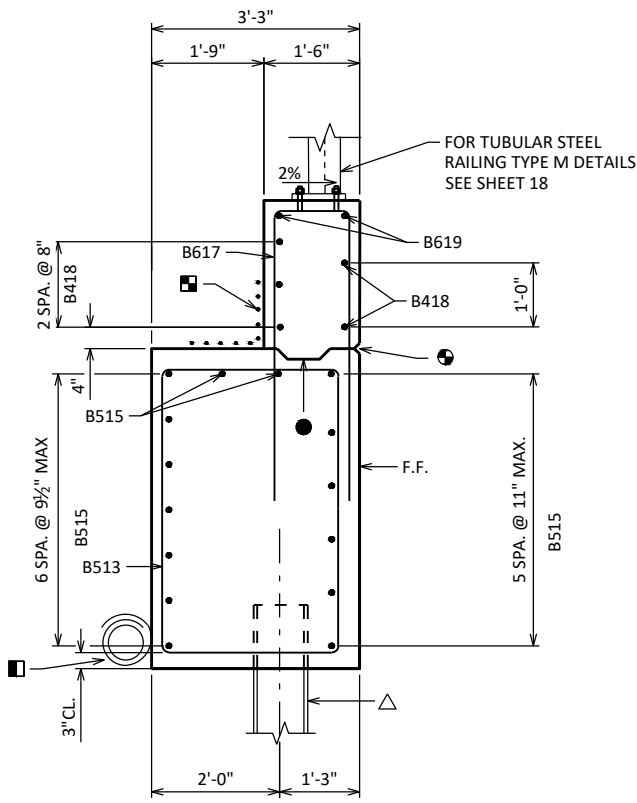
PLAN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-402			
DRAWN BY		AMT	PLANS CK'D MJB
NORTH ABUTMENT			SHEET 7 OF 18

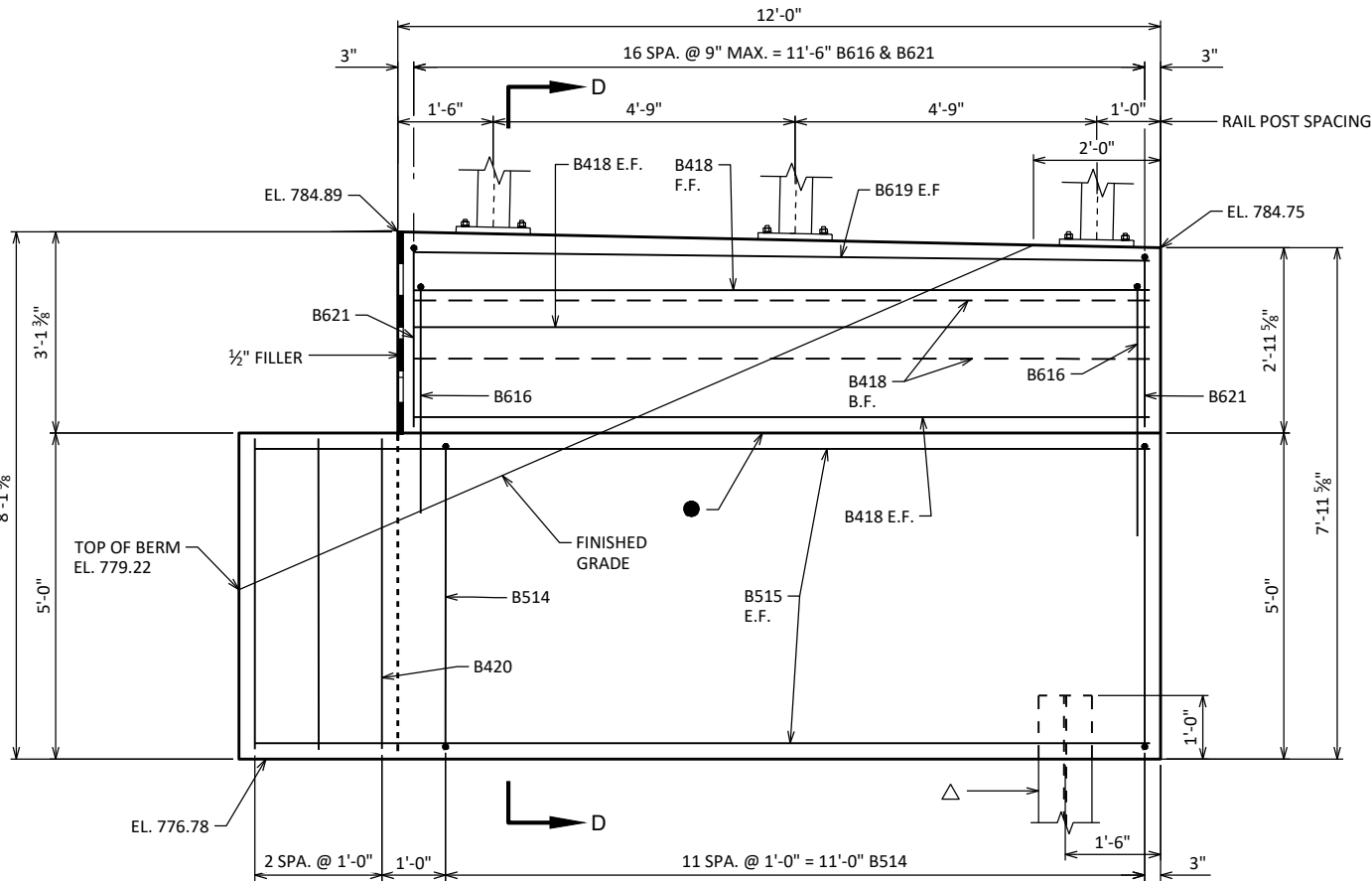


ELEVATION - WING 3

(FRONT FACE)

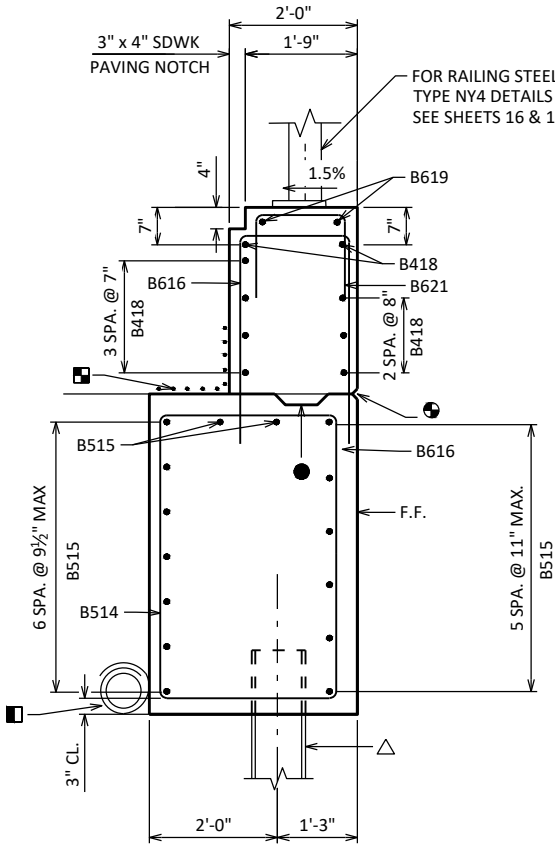


SECTION C-C



ELEVATION - WING 4

(FRONT FACE)



SECTION D-D

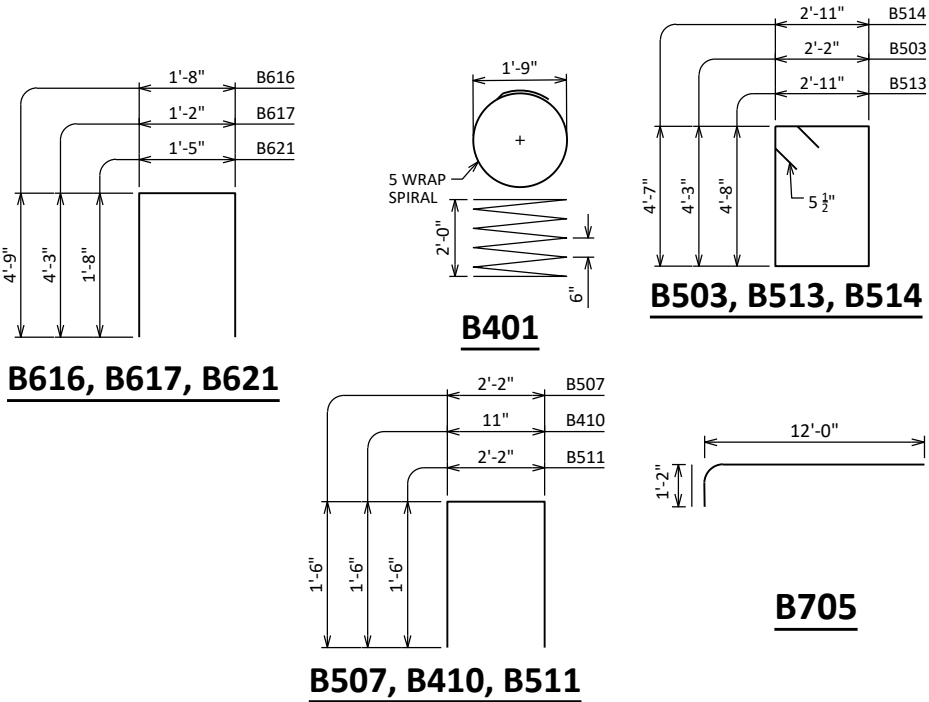
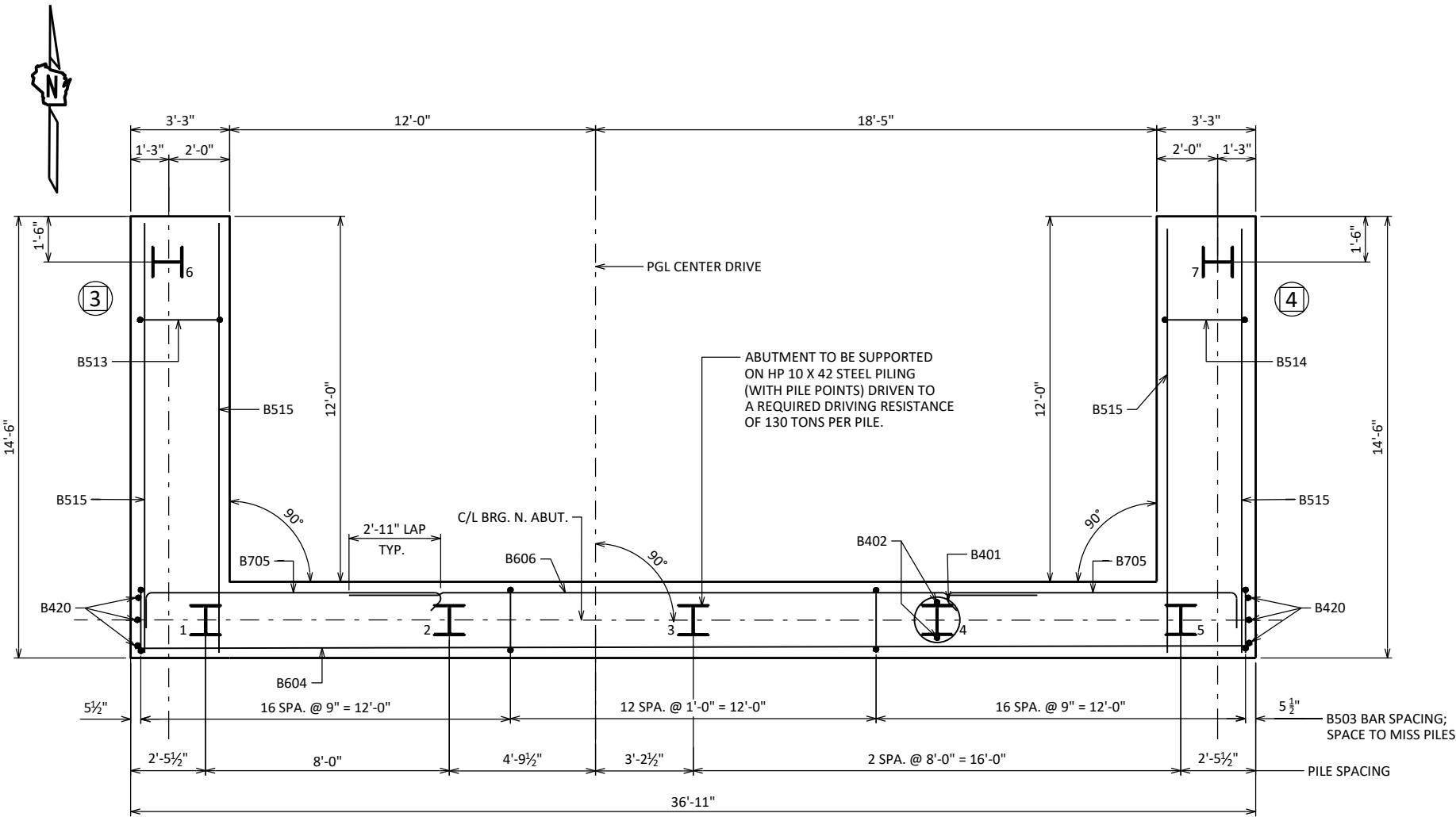
- △ SUPPORT ABUTMENT ON HP 10X42 STEEL PILING, ESTIMATED 45'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE.
- PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".
- ⊕ 3/4" "V" GROOVE ON FRONT FACE OF WINGWALL. ONLY REQUIRED IF OPTIONAL CONSTRUCTION JOINT IS USED.
- OPTIONAL CONST. JOINT FORMED BY A BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACK FACE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- B.F. DENOTES BACK FACE.
- F.F. DENOTES FRONT FACE.
- E.F. DENOTES EACH FACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-402			
DRAWN BY		AMT	PLANS CK'D MJB
NORTH ABUTMENT DETAILS		SHEET 8 OF 18	

BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	1650 # COATED; 2090 # UNCOATED
						LOCATION
B401		5	28'-0"	X		BODY AT PILES
B402		10	2'-3"			BODY AT PILES
B503		45	13'-6"	X		BODY VERT.
B604		11	36'-7"			BODY HORIZ.
B705		12	13'-0"	X		BODY HORIZ. AT WING B.F.
B606		6	18'-5"			BODY HORIZ. BETW. WINGS B.F
B507		12	4'-11"	X		BODY VERT. TOP
B408		3	11'-4"			BODY HORIZ. TOP
B409		2	36'-7"			BODY HORIZ. TOP
B410		21	3'-9"	X		BODY VERT. TOP
B511		8	4'-11"	X		BODY VERT. TOP AT ENDS
B412		4	2'-11"			BODY HORIZ. TOP AT ENDS
B513	X	12	15'-10"	X		WING 3 VERT.
B514	X	12	15'-8"	X		WING 4 VERT.
B515	X	30	14'-2"			WINGS 3 & 4 HORIZ. B.F., F.F. & TOP
B616	X	17	10'-10"	X		WING 4 VERT.
B617	X	17	9'-4"	X		WING 3 VERT.
B418	X	14	11'-8"			WINGS 3 & 4 HORIZ. E.F.
B619	X	4	11'-8"			WINGS 3 & 4 HORIZ. E.F.
B420		6	4'-7"			BODY VERT. END AT WINGS 3 & 4
B621	X	17	4'-5"	X		WING 4 VERT.

PILE LAYOUT



NOTE

FOR PILE SPlice AND RODENT SHIELD DETAILS SEE SHEET 6.

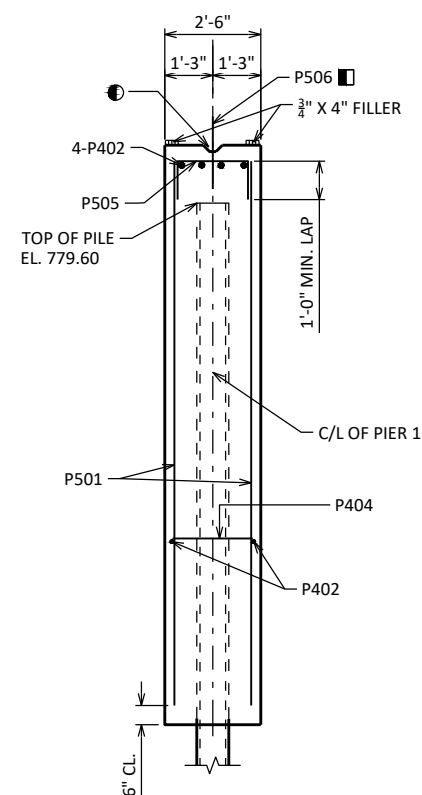
B.F. DENOTES BACK FACE.

F.F DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.

⊙ DENOTES WING NUMBER

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-402			
DRAWN BY		AMT	PLANS CK'D MJB
NORTH ABUTMENT DETAILS		SHEET 9 OF 18	



BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	70 # COATED; 2,390 # UNCOATED
						LOCATION
P501		76	14'-5"			COLUMN VERT.
P402		34	33'-5"			COLUMN HORZ.
P403		32	6'-1"	X		COLUMN HORZ. - ENDS
P404		135	2'-11"	X		COLUMN TIES
P505		18	4'-9"	X		COLUMN TOP
P506	X	33	2'-0"			COLUMN DOWELS

Partial view of a rectangular object with dimensions 1'-6" and 2'-0".

**P403**

2'-1"

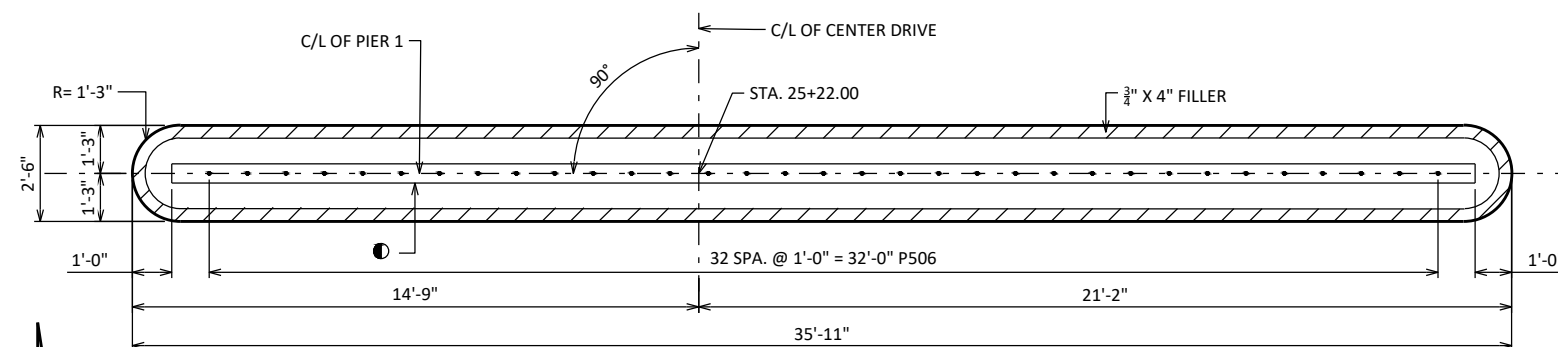
1'-5"

R = 1'-0  $\frac{1}{2}$ "

180° STD. HOOK

**P403**

**P404**



SEE HP WELD DETAIL  $\frac{3}{16}$  55°

SEE HP WELD DETAIL GF  $\frac{3}{16}$  55°

IF DOUBLER PLATE IS PLACED FIRST  $\frac{3}{8}$

DOUBLER PLATE  $\frac{7}{16}$ " X 8" X 8"

HP12X53

DOUBLER PLATE AT FLANGE

GRIND WELD FLUSH UNDER DOUBLER PLATE  $\frac{5}{16}$

WELD  $\frac{3}{16}$  TYP

**HP WELD DETAIL**

**PLAN**

35'-11"

8 1/2"

32 SPA. @ 1'-0" = 32'-0" P501 E.F.

C/L OF PIER 1

2 1/2" CL.

90°

C/L OF CENTER DRIVE

1'-5" MIN. LAP

2'-6"

1'-3" 1'-3"

P404 △

1 2 3 4 5 6 7 8 9

P403

3 SPA. @ 4'-2" = 12'-6"

11 1/2"

3'-2 1/2"

P402

4 SPA. @ 4'-2" = 16'-8"

— P501 BARS  
@ 4 EQ. SPA'S.  
@ ENDS

AT PIER 1, COFFERDAM REQUIRED. CONCRETE  
POURED UNDERWATER WILL BE ALLOWED AND SHALL BE  
DONE IN ACCORDANCE WITH STANDARD SPEC 502.3.5.3.  
CONCRETE POURED UNDERWATER SHALL NOT EXCEED  
10.0 FEET IN DEPTH. UNLESS APPROVED OTHERWISE.

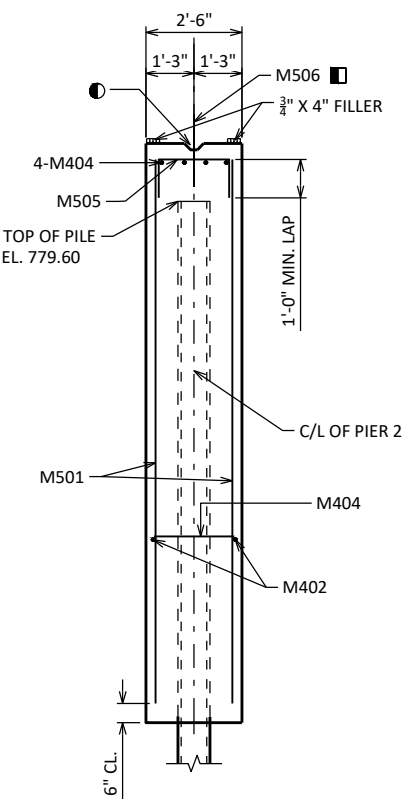
- I** P506 DOWELS MAY BE PLACED AFTER CONCRETE HAS BEEN POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. EMBED BARS 1'-0".
- △** PLACE P404 BARS ADJACENT TO EACH PILE ONLY. TIE TO NEAREST VERT. #5 BAR. VERTICAL SPA. @ 1'-0" TO MATCH #4 OUTSIDE BARS. ALTERNATE THE POSITION OF THE 90 DEG. AND 180 DEG. HOOKS AT EACH VERTICAL LAYER OF TIES.
- KEYED CONST. JOINT - FORMED BY A BEVELED 2" X 6"
- E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE</b>		<b>B-67-402</b>	
DRAWN BY		AMT	PLANS CK'D MJB
<b>PIER 1</b>		SHEET 10 OF 18	

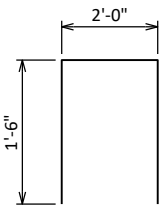
BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	70 # COATED; 2,250 # UNCOATED
						LOCATION
M501		76	13'-6"			COLUMN VERT.
M402		32	33'-5"			COLUMN HORZ.
M403		30	6'-1"	X		COLUMN HORZ.
M404		126	2'-11"	X		COLUMN TIES - ENDS
M505		18	4'-9"	X		COLUMN TOP
M506	X	33	2'-0"			COLUMN DOWELS

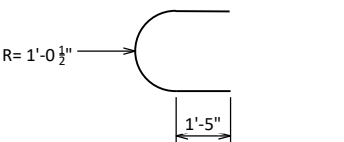
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



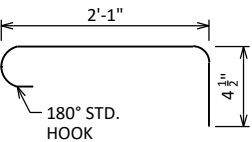
SECTION A-A



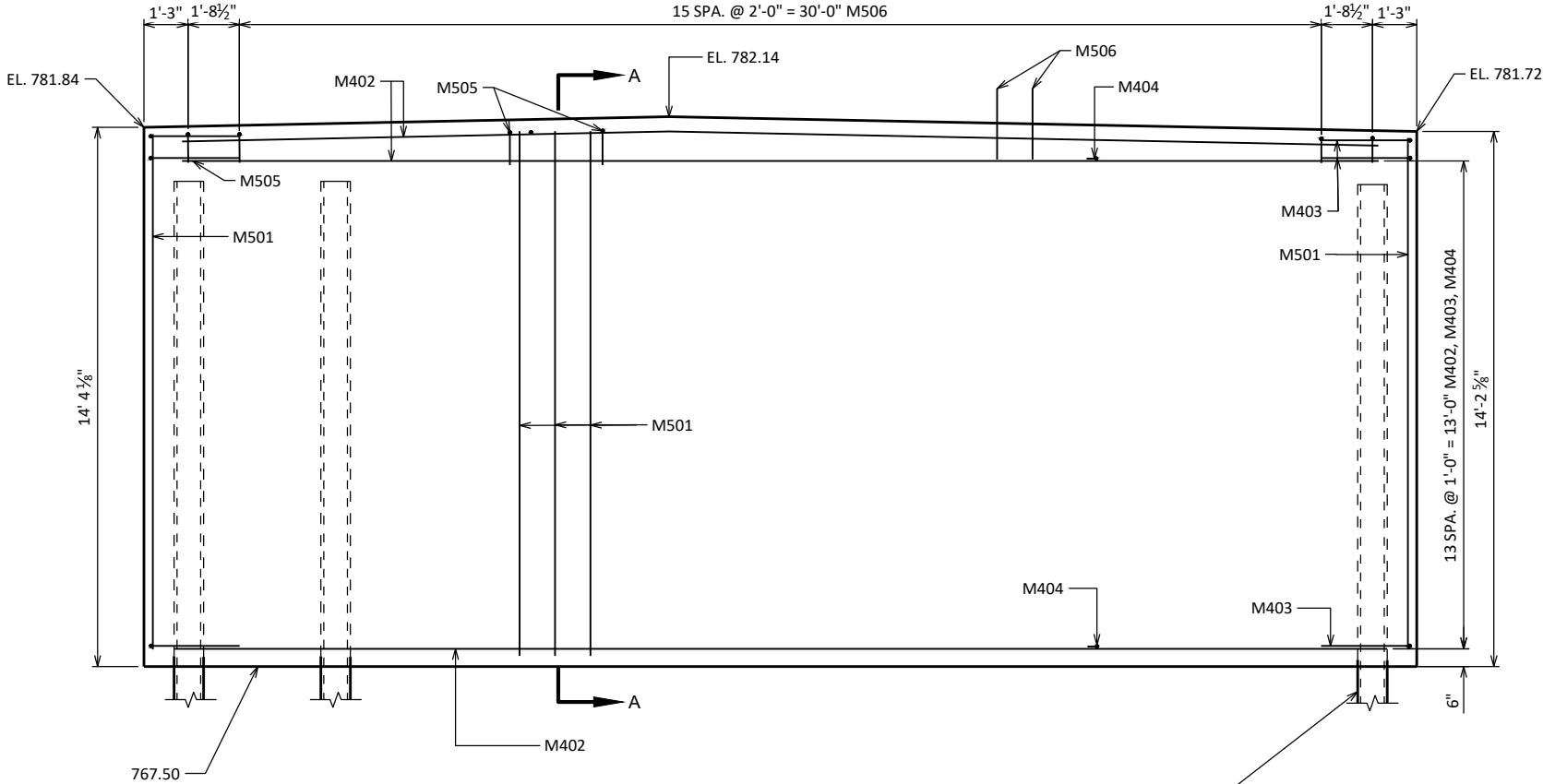
M505



M403



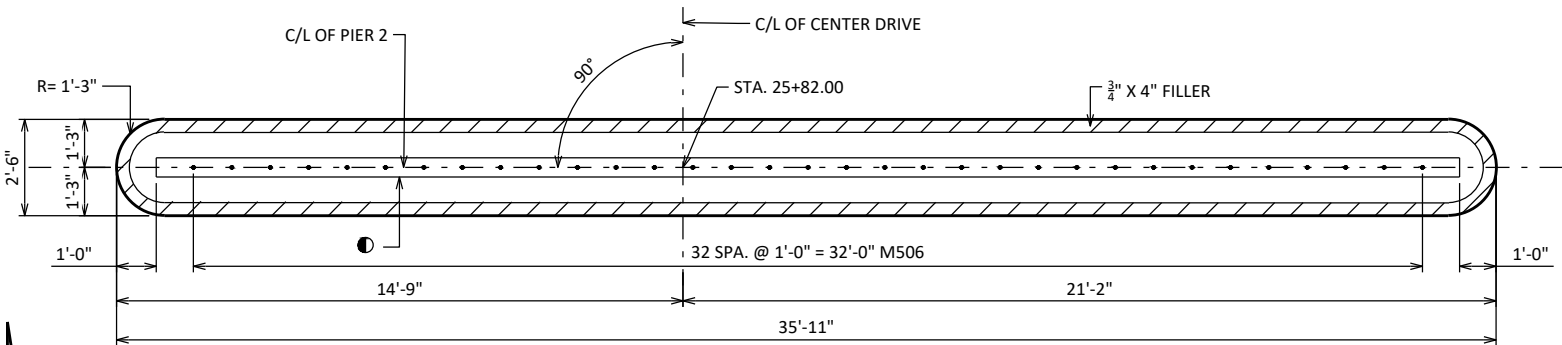
M404



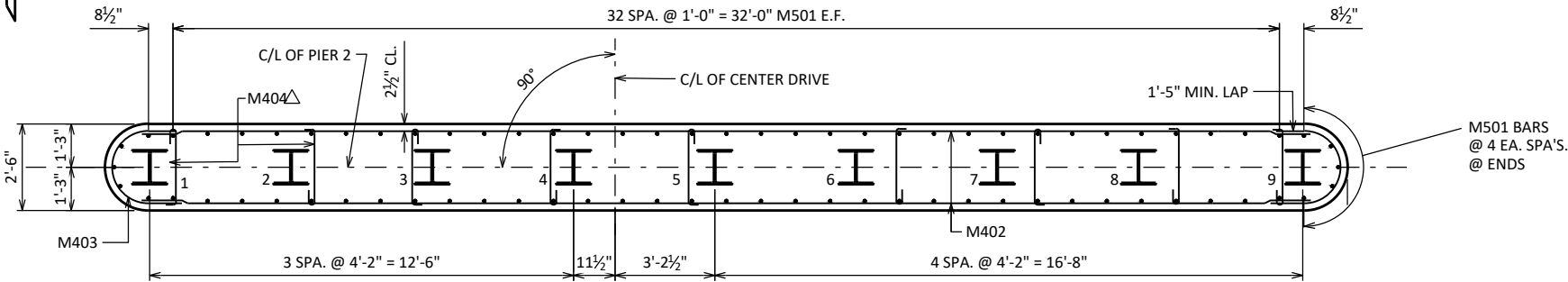
ELEVATION

(LOOKING NORTH)

PIER TO BE SUPPORTED ON HP 12 X 53 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQ'D. DRIVING RESISTANCE OF 205 TONS PER PILE.



PLAN



PILE LAYOUT

NOTES

AT PIER 2, COFFERDAM REQUIRED. CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH STANDARD SPEC 502.3.5.3. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH, UNLESS APPROVED OTHERWISE.

FOR PILE SPLICE DETAIL SEE SHEET 10.

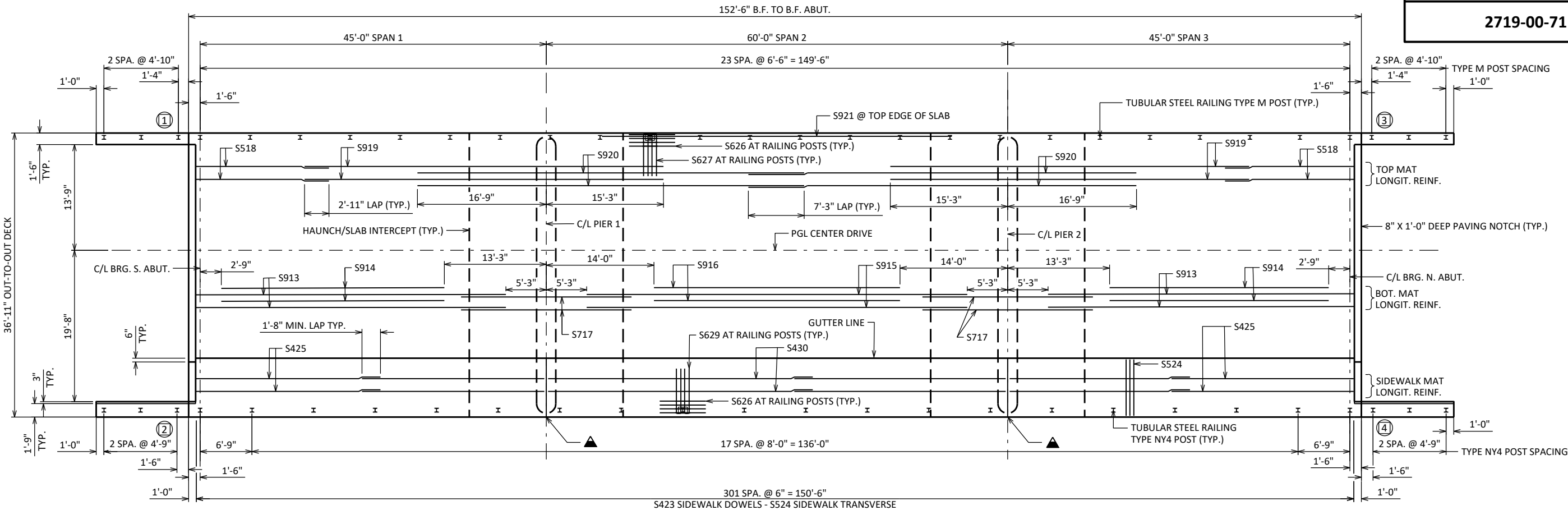
■ M506 DOWELS MAY BE PLACED AFTER CONCRETE HAS BEEN POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. EMBED BARS 1'-0".

△ PLACE M404 BARS ADJACENT TO EACH PILE ONLY. TIE TO NEAREST VERT. #5 BAR. VERTICAL SPA. @ 1'-0" TO MATCH #4 OUTSIDE BARS. ALTERNATE THE POSITION OF THE 90 DEG. AND 180 DEG. HOOKS AT EACH VERTICAL LAYER OF TIES.

● KEYED CONST. JOINT - FORMED BY A BEVELED 2" X 6"

E.F. DENOTES EACH FACE

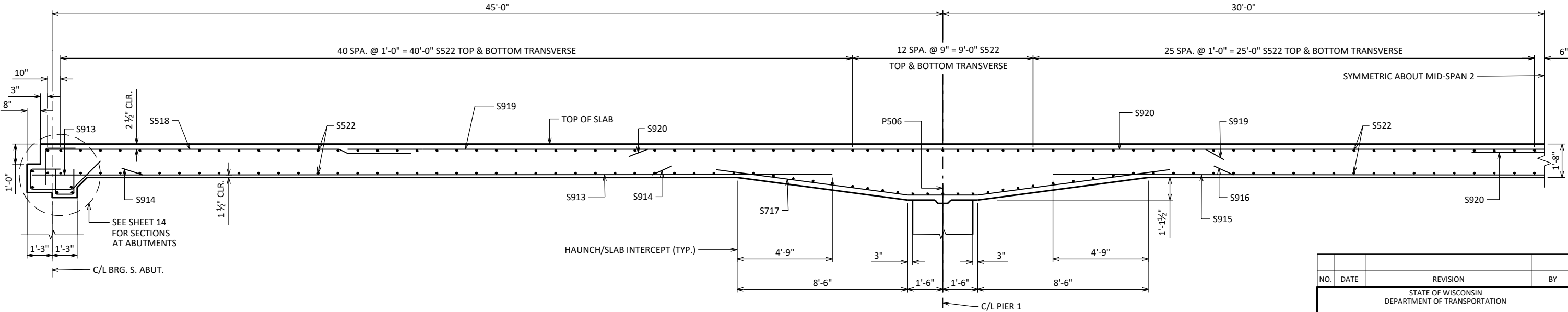
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-402			
DRAWN BY		AMT	PLANS CK'D MJB
PIER 2			SHEET 11 OF 18



PLAN

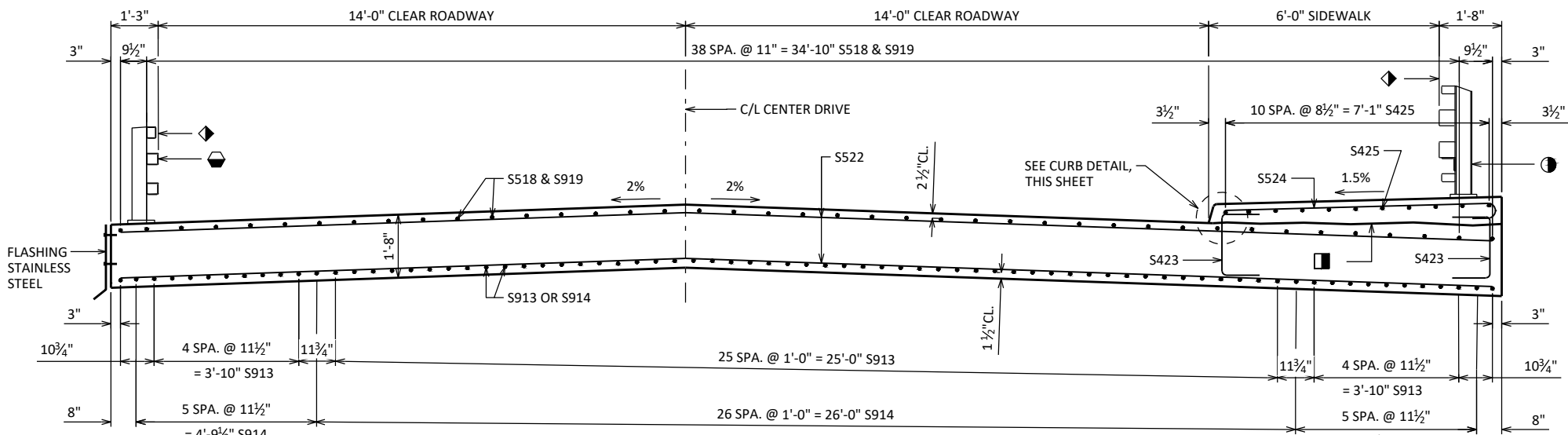
LEGEND

▲ DEFLECTION JOINT IN SIDEWALK. PLACE NORMAL TO REF. LINE OVER EACH PIER LOCATION. SEE DETAIL ON SHEET 15.



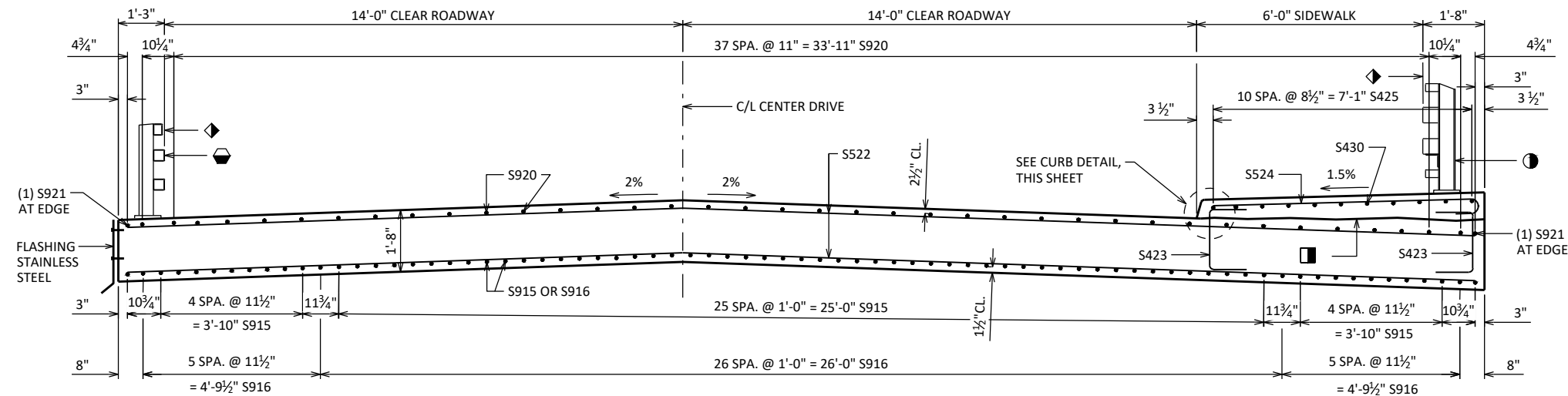
PARTIAL LONGITUDINAL SECTION THRU BRIDGE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-402			
DRAWN BY		AMT	PLANS CK'D MJB
SUPERSTRUCTURE		SHEET 12 OF 18	



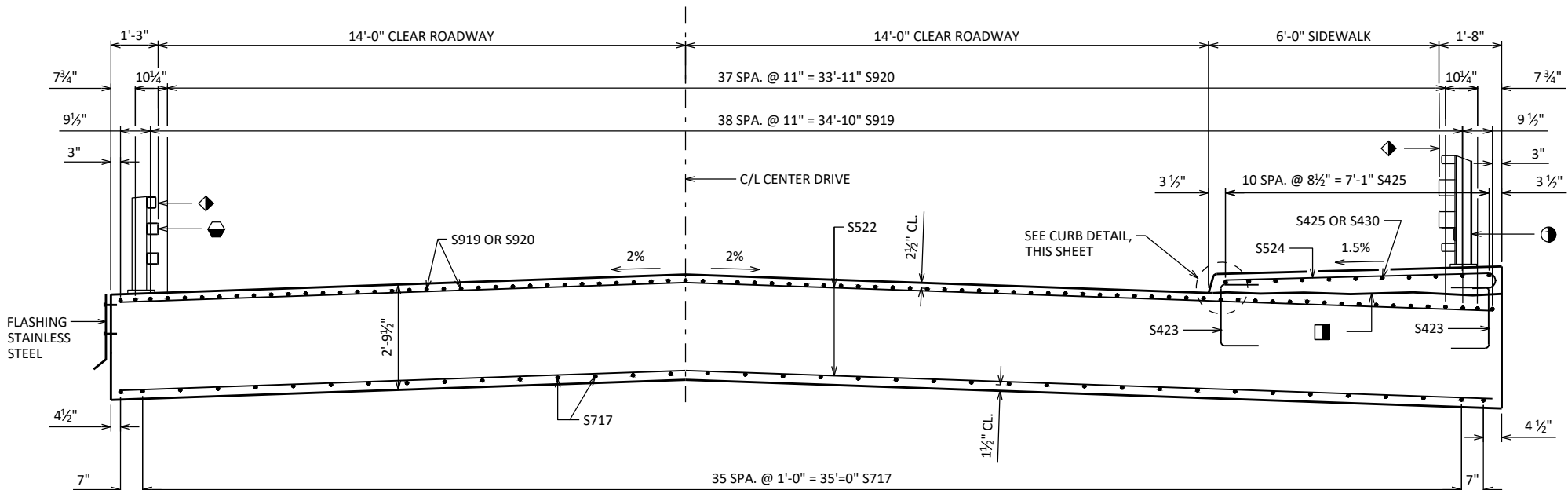
CROSS SECTION THRU BRIDGE

SPANS 1 & 3 (IN SPAN LOOKING NORTH)



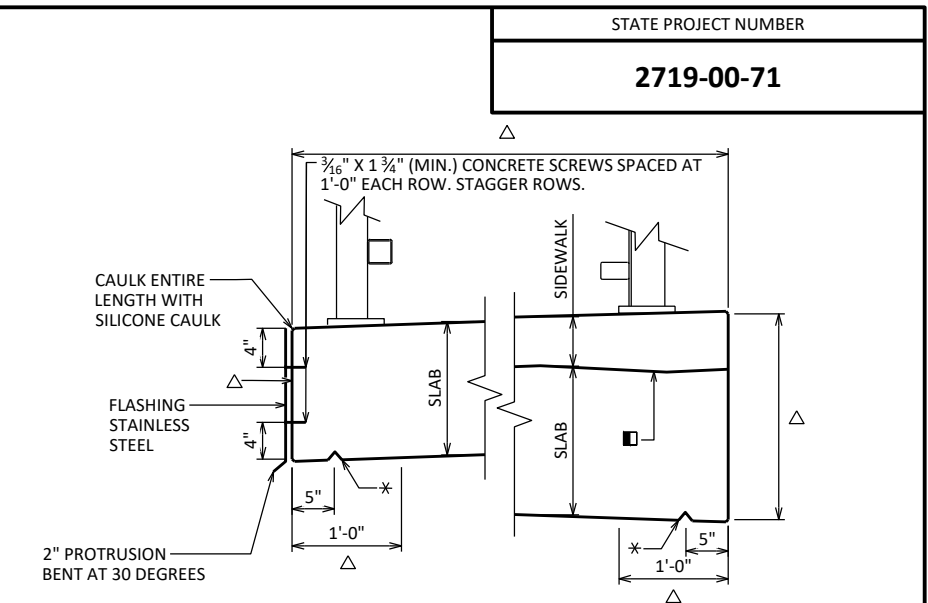
CROSS SECTION THRU BRIDGE

SPAN 2 (IN SPAN LOOKING NORTH)



CROSS SECTION THRU BRIDGE

AT PIERS (LOOKING NORTH)



EDGE OF DECK DETAIL

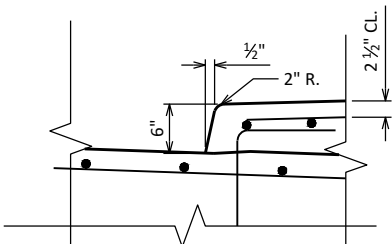
SHOWING PROTECTIVE SURFACE LIMITS AND FLASHING STAINLESS STEEL

LEGEND

- \* 3/4" V-GROOVE REQ'D. EXTEND TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGM.
- △ COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS. APPLY PRIOR TO INSTALLING FLASHING. SEE NOTES.
- CONST. JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH. FOR SLAB POUR, MATCH BRIDGE CROSS SLOPE.
- TUBULAR STEEL RAILING TYPE NY4, SEE SHEET 16 FOR DETAILS.
- ⬢ TUBULAR STEEL RAILING TYPE M, SEE SHEET 18 FOR DETAILS.
- ◆ FACE OF RAIL

NOTES

- SEE SHEET 15 FOR BILL OF BARS.
- 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 (+).
- SIDEWALK ON TOP OF SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.
- THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK, AND 3/16" CONCRETE SCREWS.
- FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.
- CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.
- EXTEND FLASHING TO BACK OF ABUT. HAUNCH.
- TOP OF FLASHING TO BEGIN APPROX. 1-INCH BELOW TOP OF SLAB SURFACE.
- THE FLASHING IS TO BE A CONSTANT HEIGHT BASED ON THE THINNEST SLAB DEPTH OVER THE BRIDGE LENGTH.
- PROVIDE 2" MINIMUM FLASHING OVERLAP



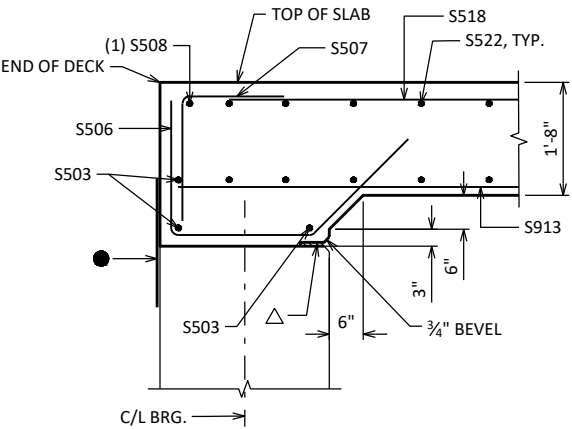
CURB DETAIL

STATE PROJECT NUMBER			
2719-00-71			
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-402			
DRAWN BY		AMT	PLANS CK'D MJB
SUPERSTRUCTURE SECTIONS		SHEET 13 OF 18	

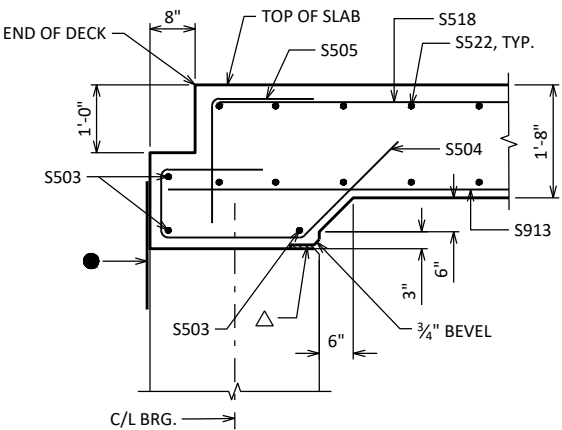


LEGEND

- △ 4" X 3/4" PREFORMED JOINT FILLER. SEE ABUTMENT SHEETS FOR ADDITIONAL DETAILS.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. AND VERT. JOINTS ON BACKFACE.



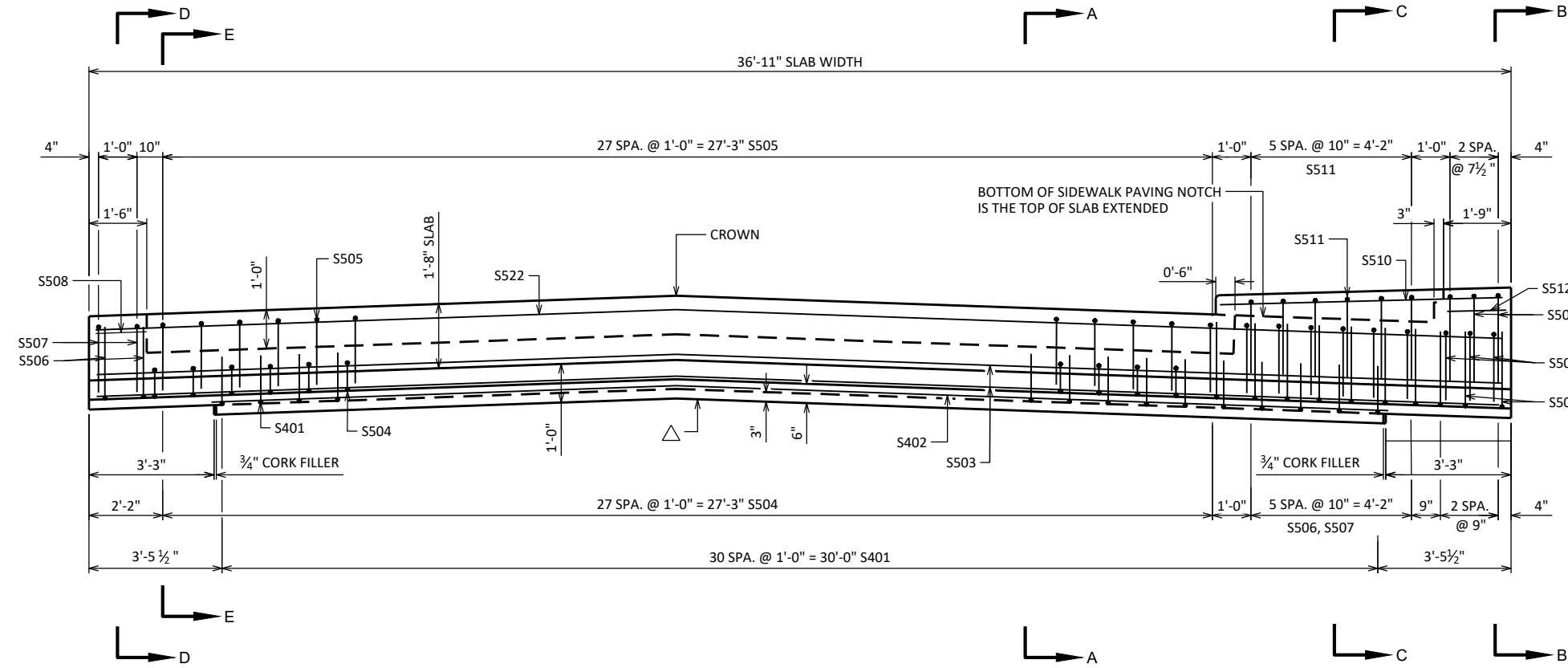
SECTION D-D



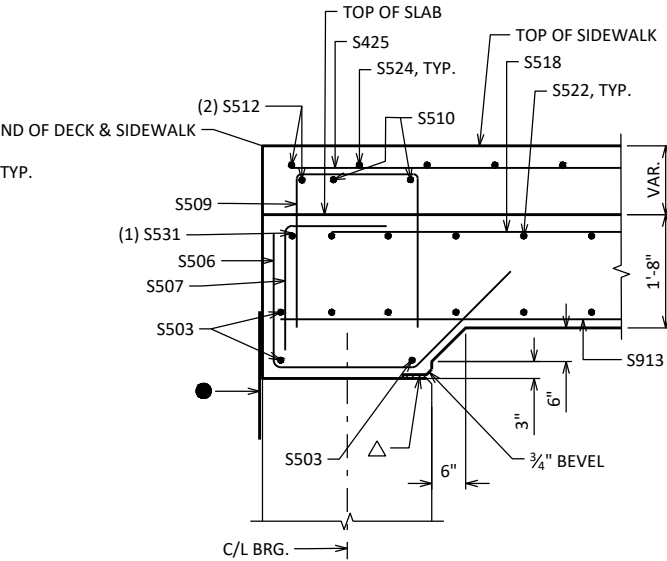
SECTION E-E

SECTION THRU HAUNCH - NORTH ABUTMENT

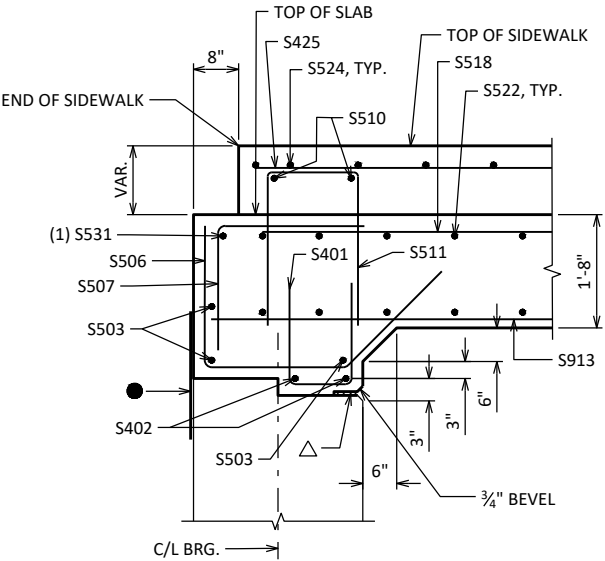
LOOKING NORTH AT NORTH ABUTMENT, FRONT FACE  
SOUTH ABUTMENT FRONT FACE IS OPPOSITE HAND



SECTION A-A

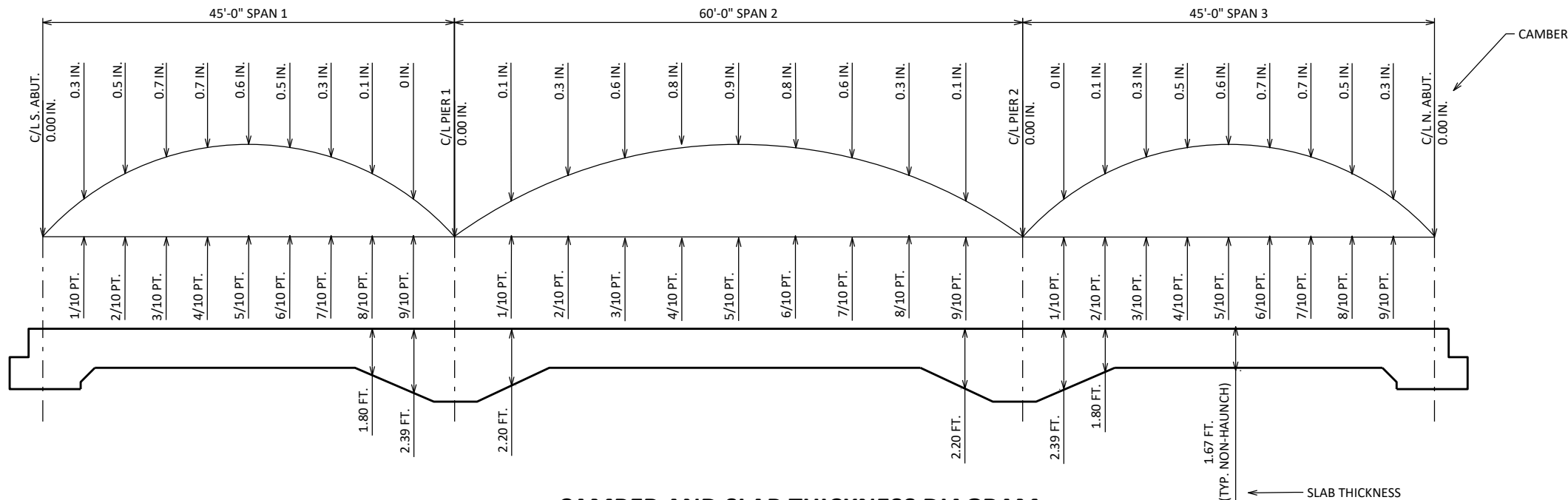


SECTION B-B



SECTION C-C

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-402			
DRAWN BY		AMT	PLANS CK'D MJB
SUPERSTRUCTURE DETAILS		SHEET 14 OF 18	



### CAMBER AND SLAB THICKNESS DIAGRAM

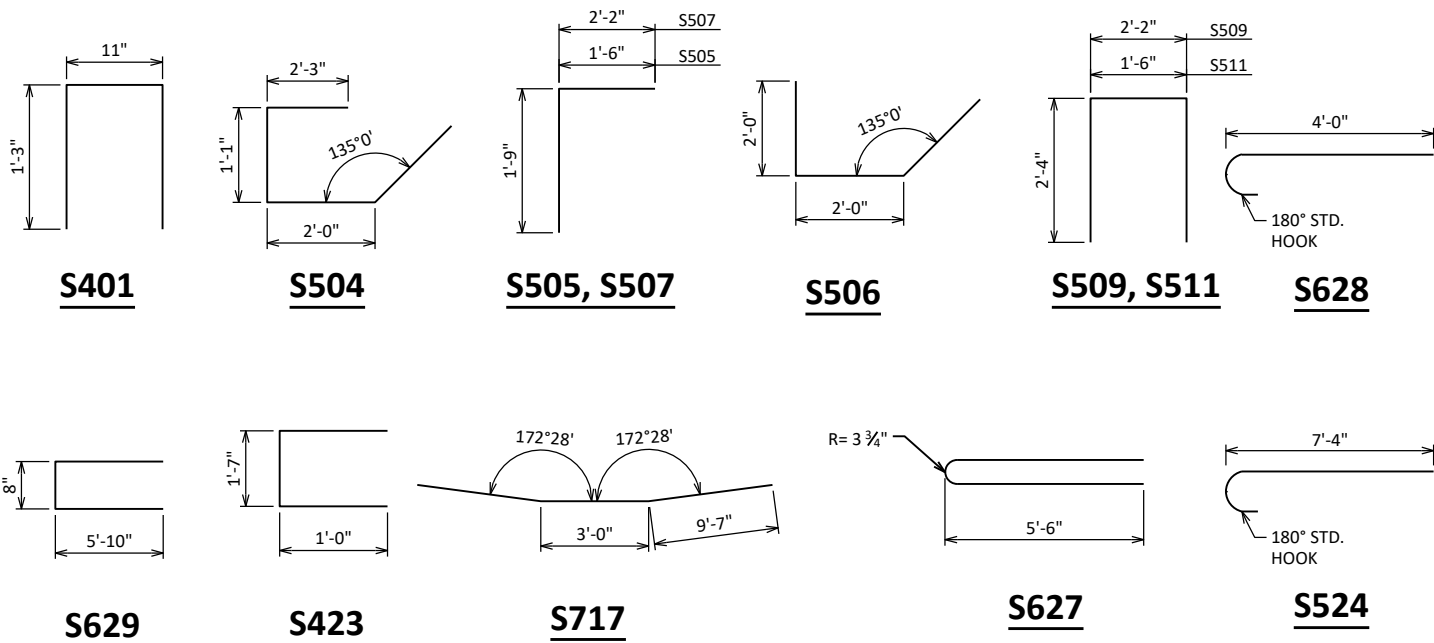
CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT, PARAPETS, SIDEWALKS AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

### TOP OF SLAB ELEVATIONS

LOCATION	WEST EDGE OF SLAB *	PGL CENTER DRIVE	EAST EDGE OF SLAB *
	15.25' LT	-	21.67' RT
C/L S. ABUT.	783.94	784.24	783.81
0.1L POINT	784.02	784.33	783.89
0.2L POINT	784.10	784.41	783.97
0.3L POINT	784.17	784.48	784.05
0.4L POINT	784.24	784.55	784.12
0.5L POINT	784.31	784.61	784.18
0.6L POINT	784.37	784.67	784.24
0.7L POINT	784.43	784.73	784.30
0.8L POINT	784.48	784.78	784.35
0.9L POINT	784.52	784.83	784.39
C/L PIER 1	784.56	784.87	784.44
0.1L POINT	784.61	784.92	784.49
0.2L POINT	784.65	784.96	784.53
0.3L POINT	784.69	784.99	784.56
0.4L POINT	784.71	785.02	784.58
0.5L POINT	784.73	785.03	784.60
0.6L POINT	784.74	785.04	784.61
0.7L POINT	784.74	785.04	784.61
0.8L POINT	784.73	785.03	784.60
0.9L POINT	784.71	785.02	784.58
C/L PIER 2	784.69	784.99	784.56
0.1L POINT	784.66	784.97	784.53
0.2L POINT	784.63	784.94	784.51
0.3L POINT	784.60	784.91	784.47
0.4L POINT	784.56	784.87	784.43
0.5L POINT	784.52	784.83	784.39
0.6L POINT	784.47	784.78	784.35
0.7L POINT	784.42	784.73	784.29
0.8L POINT	784.37	784.67	784.24
0.9L POINT	784.32	784.62	784.19
C/L N. ABUT.	784.26	784.57	784.13

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

MINUS  
PLUS  
PLUS  
EQUALS  
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.



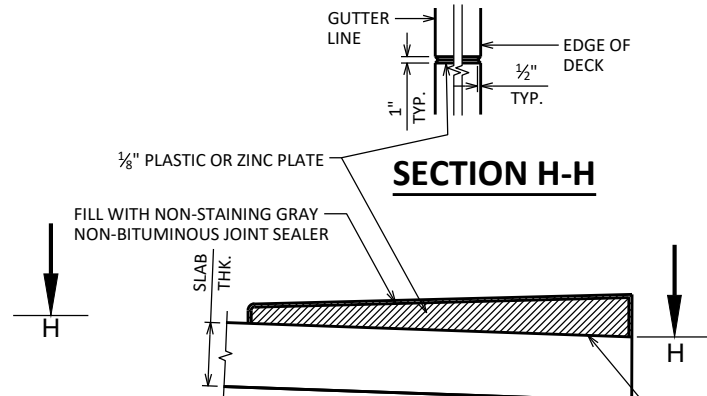
### SURVEY TOP OF SLAB ELEVATIONS

	C/L BRG. S. ABUT.	5/10 PT.	C/L PIER 1	5/10 PT.	C/L PIER 2	5/10 PT.	C/L BRG. N. ABUT.
WEST EDGE OF SLAB							
PGL CENTER DRIVE/ CROWN PT.							
EAST EDGE OF SLAB							

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

### BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	81,640 # COATED; 0 # UNCOATED
						LOCATION
S401	X	62	3'-3"	X		ABUT. DIAPH. - VERT.
S402	X	4	30'-1"			ABUT. DIAPH. - HORIZ.
S503	X	6	36'-7"			ABUT. DIAPH. - HORIZ.
S504	X	56	7'-3"	X		ABUT. DIAPH. - VERT.
S505	X	56	3'-2"	X		ABUT. DIAPH. - VERT.
S506	X	22	5'-11"	X		ABUT. DIAPH. - VERT.
S507	X	22	3'-10"	X		ABUT. DIAPH. - VERT.
S508	X	2	1'-2"			ABUT. DIAPH. - HORIZ.
S509	X	6	6'-7"	X		ABUT. DIAPH. - VERT. AT SIDEWALK
S510	X	4	7'-4"			ABUT. DIAPH. - HORIZ. AT SIDEWALK
S511	X	12	5'-11"	X		ABUT. DIAPH. - VERT. AT SIDEWALK
S512	X	4	1'-5"			ABUT. DIAPH. - HORIZ.
S913	X	76	40'-2"			SLAB - BOTTOM - LONGIT. AT SPANS 1 & 3
S914	X	74	29'-0"			SLAB - BOTTOM - LONGIT. AT SPANS 1 & 3
S915	X	38	49'-6"			SLAB - BOTTOM - LONGIT. AT SPAN 2
S916	X	37	32'-0"			SLAB - BOTTOM - LONGIT. AT SPAN 2
S717	X	76	22'-2"	X		SLAB - BOTTOM - LONGIT. AT PIER HAUNCHES
S518	X	82	17'-1"			SLAB - TOP - LONGIT. AT SPANS 1 & 3
S919	X	82	46'-6"			SLAB - TOP - LONGIT. AT SPANS 1 & 3 AND OVER PIERS
S920	X	80	50'-5"			SLAB - TOP - LONGIT. AT SPAN 2 AND OVER PIERS
S921	X	2	45'-6"			SLAB - TOP - LONGIT. AT SPAN 2 EDGE
S522	X	316	36'-7"			SLAB - TOP & BOTTOM TRANSV.
S423	X	604	3'-5"	X		SLAB - SIDEWALK DOWELS
S524	X	302	7'-11"	X		SIDEWALK - TRANSV.
S425	X	44	23'-11"			SIDEWALK - LONGIT., SPAN 1 & 3
S626	X	160	6'-0"			SLAB - UNDER RAILING POSTS, 4 PER POST
S627	X	48	11'-8"	X		SLAB - UNDER RAILING POSTS, 2 PER POST
S628	X	16	4'-8"	X		SLAB - ALL CORNERS - UNDER RAILING POSTS
S629	X	40	12'-0"	X		SLAB - UNDER RAILING POSTS, 2 PER POST
S430	X	22	30'-8"			SIDEWALK - LONGIT., SPAN 2
S531	X	2	6'-8"			ABUT. DIAPH. - HORIZ. AT SIDEWALK



### SIDEWALK DEFLECTION JOINT DETAIL

PLACE NORMAL TO REF. LINE OVER PIERS

### LEGEND

CONST. JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH FOR SLAB POUR. MATCH BRIDGE CROSS SLOPE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-402			
DRAWN BY		AMT	PLANS CK'D MJB
SUPERSTRUCTURE DETAILS		SHEET 15 OF 18	

\* EDGE OF SLAB ELEVATION IS TOP OUTER EDGE OF THE SLAB BENEATH SIDEWALK.

- ④  $\frac{3}{8}$ " X 10" X 1'-2" ANCHOR PLATE (GALVANIZED) WITH  $1\frac{1}{2}$ " DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- ⑤ TS 6 X 6 X  $\frac{3}{16}$ " STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 (FRONT & BACK) &  $\frac{7}{8}$ " DIA. HOLES FOR BOLT NO. 6A (TOP & BOTTOM).
- ⑤A TS 5 X 3 X  $\frac{3}{4}$ " STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 IN TOP RAIL (FRONT & BACK). USE  $1\frac{1}{8}$ " X  $1\frac{1}{8}$ " HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.
- ⑥  $\frac{7}{8}$ " DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT,  $\frac{3}{16}$ " X  $1\frac{3}{4}$ " X  $1\frac{3}{4}$ " WASHER, AND SPRING LOCK WASHER (2 REQUIRED AT RAIL TO POST LOCATIONS SHOWN).
- ⑥A  $\frac{3}{4}$ " DIA. A325 BOLT WITH HEX NUT & SPRING LOCK WASHER (1 REQUIRED AT RAIL TO ANGLE & 2 REQUIRED AT ANGLE TO POST LOCATIONS SHOWN WITH  $\frac{3}{16}$ " X  $1\frac{3}{4}$ " X  $1\frac{3}{4}$ " WASHER).
- ⑦ L 5 X 5 X  $\frac{5}{8}$ " STRUCTURAL ANGLE. ATTACH TO NO. 1 AND NO. 5 AS SHOWN.
- ⑧ TS 5 X 5 X  $\frac{5}{16}$ " X 2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.
- ⑧A  $4\frac{1}{4}$ " X  $2\frac{1}{8}$ " X 2'-4" LONG SPLICE BAR. 1 PER RAIL. USED IN NO. 5A.
- ⑨  $\frac{3}{4}$ " DIA. A325 FULLY THREADED BOLTS,  $7\frac{1}{2}$ " LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5.
- ⑨A  $\frac{3}{4}$ " DIA. A325 FULLY THREADED BOLTS,  $4\frac{1}{2}$ " LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5A.
- ⑩ SPLICE SLEEVE FABRICATED FROM  $\frac{1}{4}$ " PLATE. PROVIDE "SLIDING FIT".

■  $\frac{1}{2}$ " OPENING FOR A1 ABUTMENT AND FIELD JOINTS.

▲ PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE RAILS, SPLICE TUBES AND FILL PLATES.

● S629 BARS TIE TO TOP MAT OF STEEL. SEE SUPERSTRUCTURE SHEET FOR BENT BAR DETAIL.

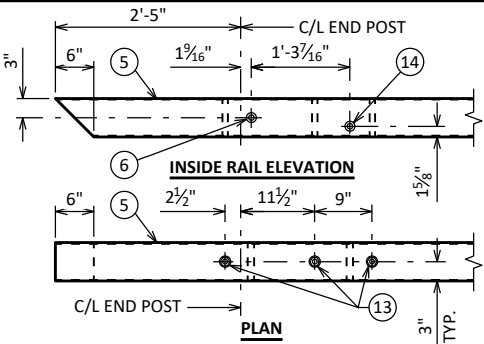
○ SEE SHEET 12 FOR POST SPACING.

LEGEND

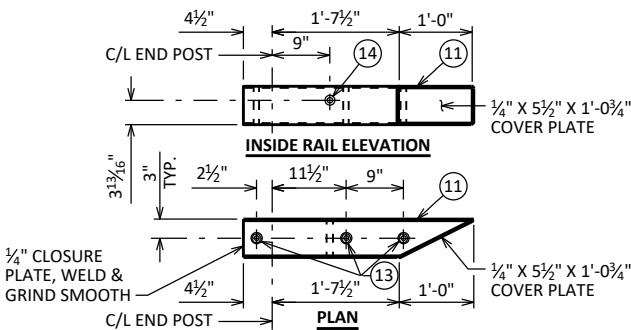
- 1 W6 X 25 WITH 1 1/8" X 1 3/8" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT NO. 5 & AT TOP RAIL NO. 5A. USE 1" DIA. HOLE FOR BOLT NO. 6 AT NO. 5A BOTTOM RAIL. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- 2 PLATE 1 1/4" X 10" X 1'-2". SEE SHEET 16 FOR MORE INFORMATION.
- 5 TS 6 X 6 X 3/16" STRUCTURAL TUBING. USE 7/8" DIA. HOLES IN TOP AND BOTTOM OF RAILS FOR BOLT NO. 13 AS SHOWN IN PLAN DETAILS. USE 1" DIA. HOLES IN FRONT AND BACK OF RAILS FOR BOLTS NO. 6 & NO. 14 AS SHOWN IN ELEVATION DETAILS.
- 5A TS 5 X 3 X 1/4" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR TOP RAIL NO. 5A (FRONT & BACK). USE 1 1/8" X 1 3/8" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.
- 6 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3/16" X 1 3/4" X 1 3/4" WASHER, AND SPRING LOCK WASHER (1 REQUIRED AT RAIL NO. 5 TO POST NO. 1 CONNECTION LOCATIONS SHOWN. 2 REQUIRED AT RAIL NO. 5A TO POST NO. 1 CONNECTION LOCATIONS SHOWN).
- 11 TS 6 X 6 X 3/16" STRUCTURAL TUBING. USE 1" DIA. HOLES IN FRONT AND BACK FOR BOLT NO. 14 & 7/8" DIA. HOLES IN TOP & BOTTOM FOR BOLT NO. 13.
- 12 L 6 X 6 X 1/2" STRUCTURAL ANGLE. USE 7/8" DIA. HOLES IN TOP FLANGE FOR BOLT NO. 13.
- 13 3/4" DIA. A325 FULLY THREADED BOLTS, 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. 3 BOLTS AT EACH END POST.
- 14 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT AND 3/16" X 2" X 2" WASHER FOR CONNECTION OF THRIE BEAM (4 REQUIRED).

NOTES

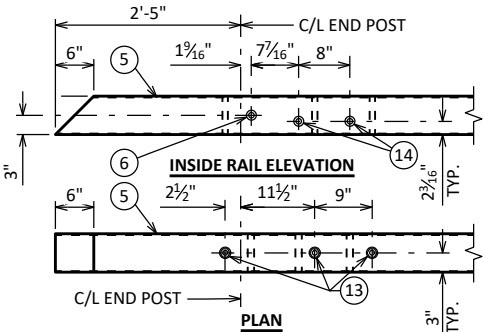
STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED  $f_y = 50$  KSI. STRUCTURAL ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50.



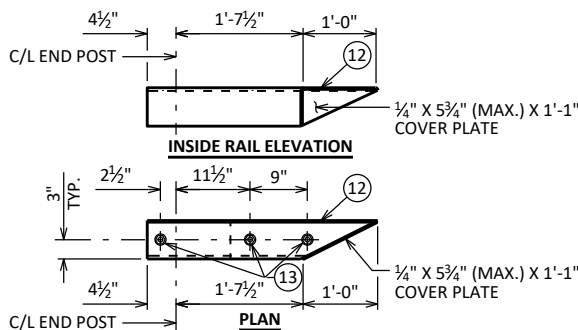
TOP RAIL (5) DETAILS



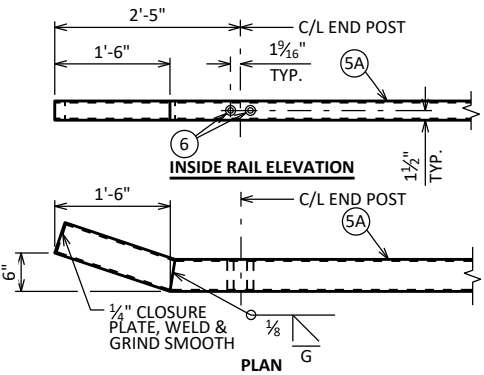
TUBE (11) DETAILS



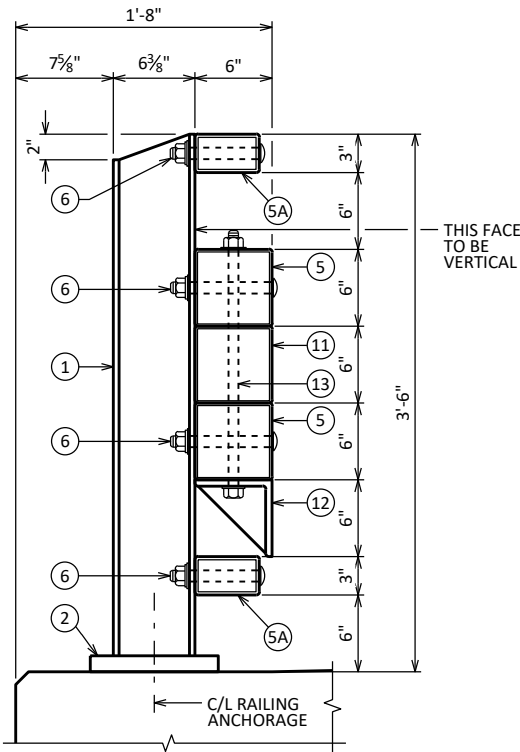
BOTTOM RAIL (5) DETAILS



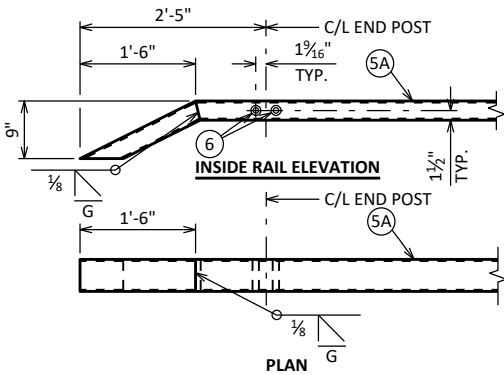
ANGLE (12) DETAILS



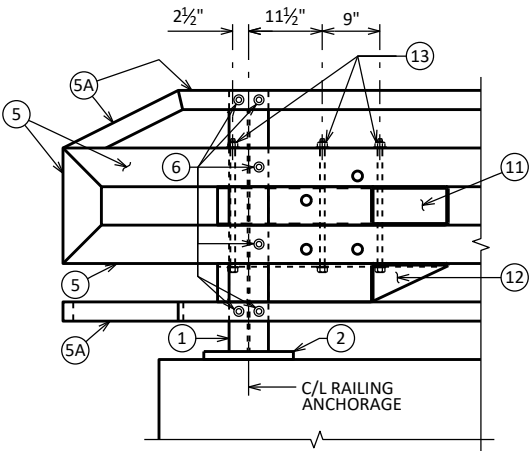
BOTTOM RAIL (5A) DETAILS



SECTION THRU RAILING END POST

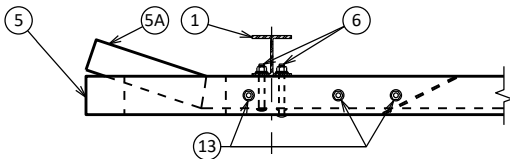


TOP RAIL (5A) DETAILS

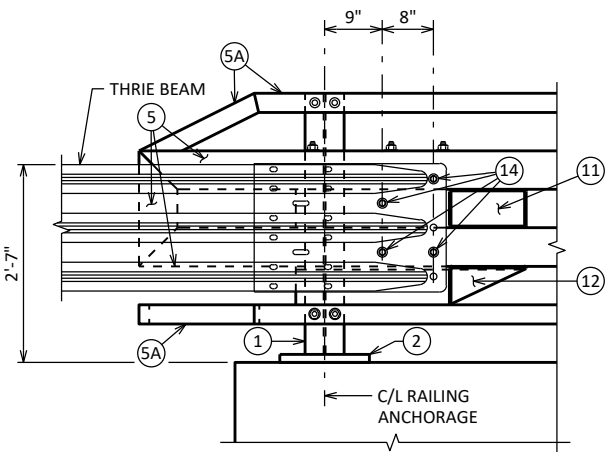


ELEVATION DETAIL AT END POST

INTERIOR ELEVATION

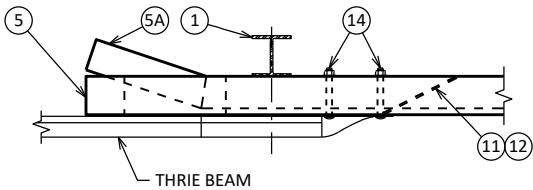


PLAN OF DETAIL AT END POST



ELEVATION DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT



PLAN OF DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT

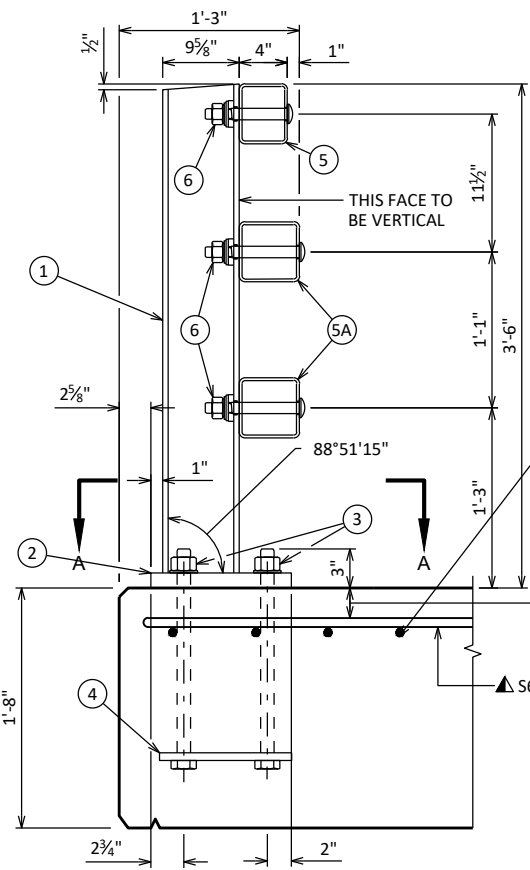
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-67-402			
DRAWN BY		AMT	PLANS CK'D MJB
TUBULAR STEEL RAILING TYPE NY4		SHEET 17 OF 18	

LEGEND

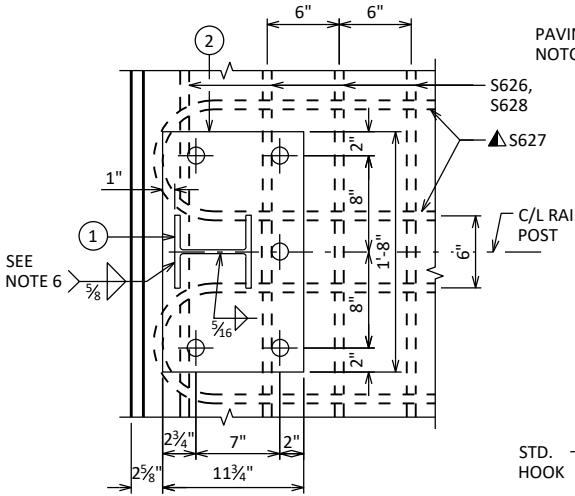
- 1 W6 X 25 WITH 1 1/8" X 1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- 2 PLATE 1 1/4" X 11 3/4" X 1'-8" WITH 1 1/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- 3 ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
- 4 5/8" X 11" X 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- 5 TS 5 X 4 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- 5A TS 5 X 5 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- 6 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1 5/8" X 1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- 7 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" X 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- 8 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- 9 SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- 10 3/8" X 3 3/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- 10A 3/8" X 2 5/8" X 2'-4" PLATE USED IN NO. 5, 3/8" X 3 3/8" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- 11 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/16" X 1 1/4" LONGIT. SLOTTED HOLES IN PLATE NO. 10A. AT FIELD JOINTS PROVIDE 1 1/16" DIA. ROUND HOLES IN TUBES NO. 5 AND NO. 5A.
- 12 7/8" DIA. X 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D.).
- 13 3/8" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- 14 7/8" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- 15 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

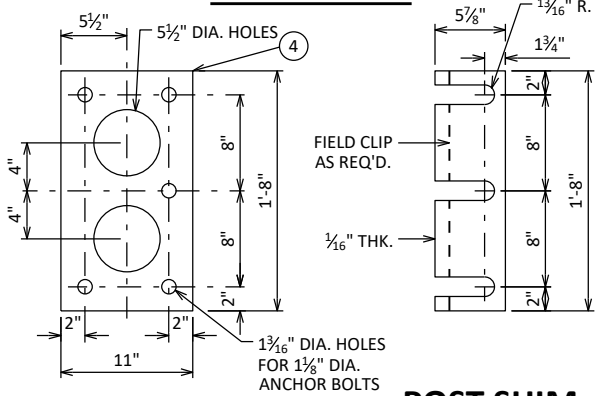
1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
10. PAINTING IS NOT REQUIRED.



SECTION THRU RAILING ON DECK

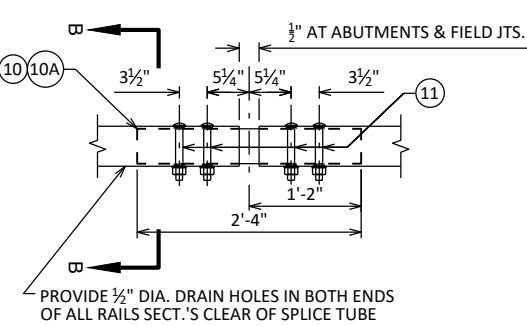


SECTION A-A

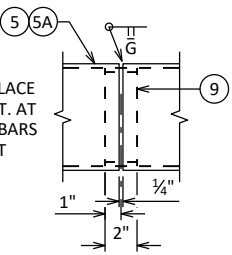


ANCHOR PLATE  
AT RAIL TO DECK CONNECTION

POST SHIM  
DETAIL



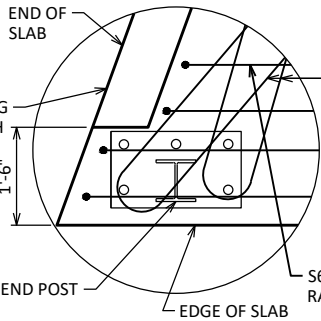
FIELD ERECTION JOINT DETAIL



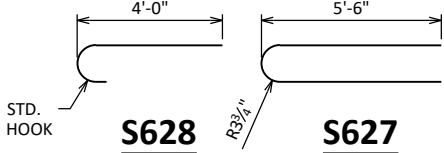
SHOP RAIL SPLICE DETAIL

LOCATION MUST BE SHOWN ON SHOP DRAWINGS

2 1/2" FOR SLABS ON GIRDERS; FOR OTHER STRUCTURES, PLACE BELOW TOP MAT SLAB REINFORCEMENT

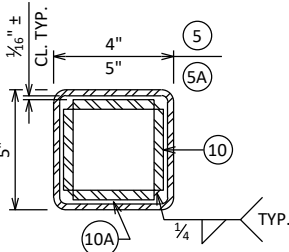


END POST DETAIL  
REINFORCEMENT AT CORNERS

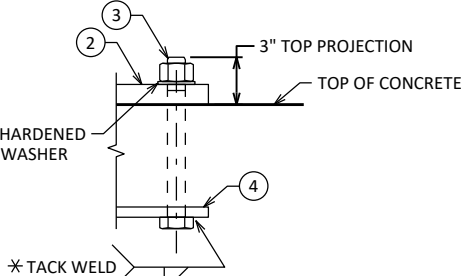


S628

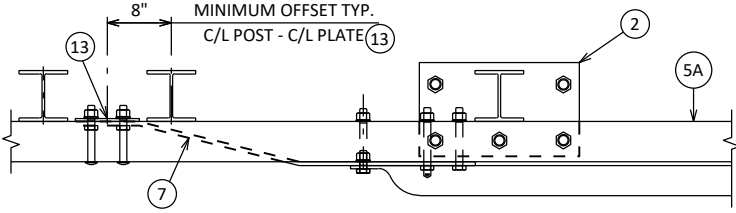
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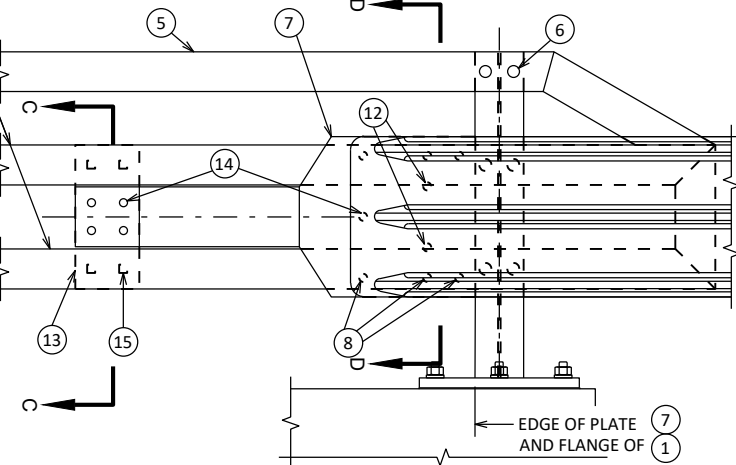
SECTION B-B



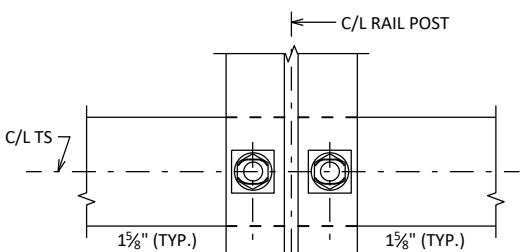
ANCHOR BOLTS



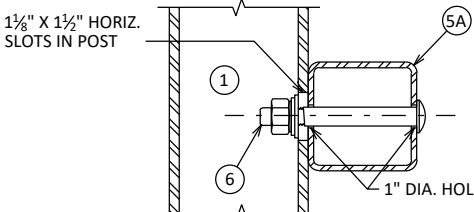
TOP VIEW AT END POST  
THRIE BEAM RAIL ATTACHMENT



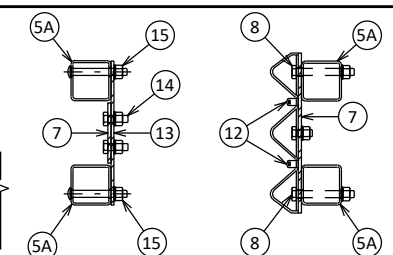
DETAIL AT END POST  
THRIE BEAM RAIL ATTACHMENT



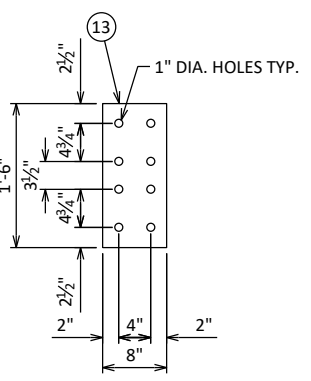
SECTION THRU POST WEB



SECTION THRU RAIL  
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

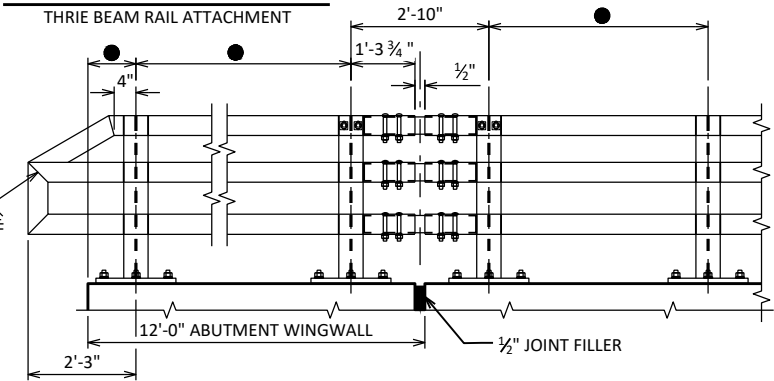


SECTION C-C SECTION D-D



ANCHOR PLATE  
AT BEAM GUARD ATTACHMENT

DETAIL AT END POST  
THRIE BEAM RAIL ATTACHMENT



PART ELEVATION OF RAILING

- SEE SHEET 12 FOR POST SPACING.
- ▲ TIE TO TOP MAT OF STEEL.
- \* ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-67-402			
DRAWN BY		AMT	PLANS CK'D MJB
TUBULAR STEEL RAILING TYPE "M"		SHEET 18 OF 18	

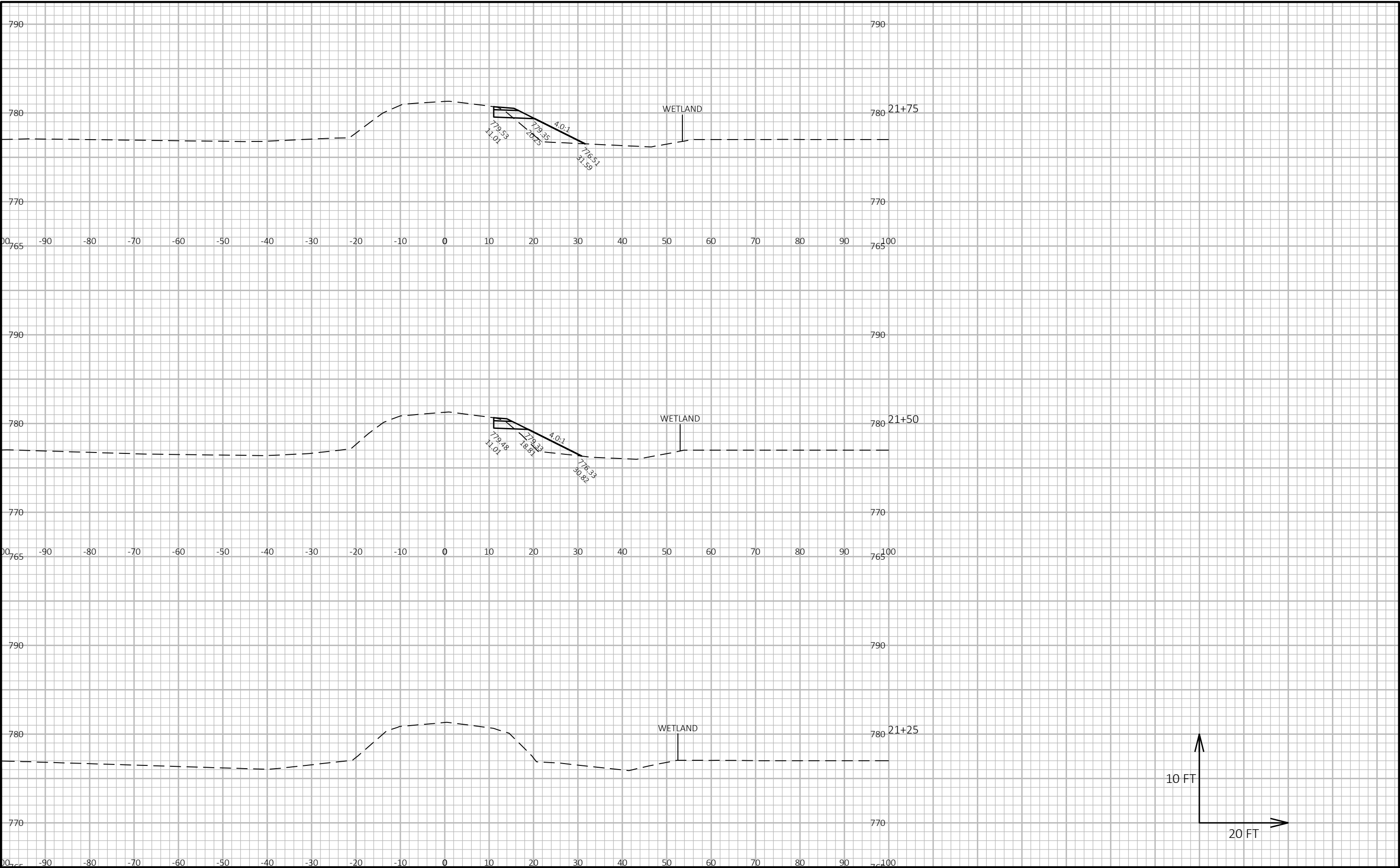
DIVISION 1 - SOUTH OF BRIDGE

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
							1.00	1.00	
					NOTE 1	NOTE 3	NOTE 1		NOTE 8
21+42.93	2142.93	0.00	2.83	16.36	0	0	0	0	0
21+50.00	2150.00	7.07	3.14	15.82	1	4	1	4	-3
21+75.00	2175.00	25.00	3.24	18.78	3	16	4	20	-16
22+00.00	2200.00	25.00	4.01	19.90	3	18	7	38	-31
22+23.99	2223.99	23.99	3.66	25.57	3	20	10	58	-48
22+24.00	2224.00	0.01	8.07	37.04	0	0	10	58	-48
22+44.79	2244.79	20.79	4.90	50.61	5	34	15	92	-77
22+44.80	2244.80	0.01	17.81	50.65	0	0	15	92	-77
22+52.40	2252.40	7.60	25.62	84.28	6	19	21	111	-90
22+67.69	2267.69	15.29	23.05	61.43	14	41	35	152	-117
22+67.72	2267.72	0.03	5.30	61.30	0	0	35	152	-117
22+75.00	2275.00	7.28	8.62	42.60	2	14	37	166	-129
23+00.00	2300.00	25.00	18.56	22.16	13	30	50	196	-146
23+25.00	2325.00	25.00	21.01	16.73	18	18	68	214	-146
23+50.00	2350.00	25.00	13.38	50.40	16	31	84	245	-161
23+59.63	2359.63	9.63	15.56	47.14	5	17	89	262	-173
23+68.12	2368.12	8.49	18.20	39.38	5	14	94	276	-182
23+75.00	2375.00	6.88	19.03	23.60	5	8	99	284	-185
23+99.99	2399.99	24.99	7.05	36.94	12	28	111	312	-201
24+00.00	2400.00	0.01	35.93	36.99	0	0	111	312	-201
24+25.00	2425.00	25.00	33.83	67.17	32	48	143	360	-217
24+50.00	2450.00	25.00	34.31	78.11	32	67	175	427	-252
24+65.49	2465.49	15.49	52.63	52.30	25	37	200	464	-264

DIVISION 1 - NORTH OF BRIDGE

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
							1.00	1.00	
					NOTE 1	NOTE 3	NOTE 1		NOTE 8
26+43.25	2643.25	0.00	36.56	84.84	0	0	0	0	0
26+50.00	2650.00	6.75	35.38	82.05	9	21	9	21	-12
26+75.00	2675.00	25.00	32.83	82.02	32	76	41	97	-56
26+99.99	2699.99	24.99	31.16	72.44	30	71	71	168	-97
27+00.00	2700.00	0.01	5.73	66.44	0	0	71	168	-97
27+15.73	2715.73	15.73	5.96	66.59	3	39	74	207	-133
27+25.00	2725.00	9.27	6.54	40.25	2	18	76	225	-149
27+40.73	2740.73	15.73	6.50	25.08	4	19	80	244	-164
27+50.00	2750.00	9.27	7.05	16.95	2	7	82	251	-169
27+75.00	2775.00	25.00	5.71	10.03	6	12	88	263	-175
28+00.00	2800.00	25.00	8.24	3.44	6	6	94	269	-175
28+25.00	2825.00	25.00	11.17	0.57	9	2	103	271	-168
28+50.00	2850.00	25.00	13.65	0.00	11	0	114	271	-157
28+75.00	2875.00	25.00	13.14	0.00	12	0	126	271	-145
29+00.00	2900.00	25.00	13.15	0.00	12	0	138	271	-133
29+04.65	2904.65	4.65	12.02	0.00	2	0	140	271	-131
29+04.66	2904.66	0.01	6.35	0.00	0	0	140	271	-131
29+18.85	2918.85	14.19	4.50	0.00	3	0	143	271	-128

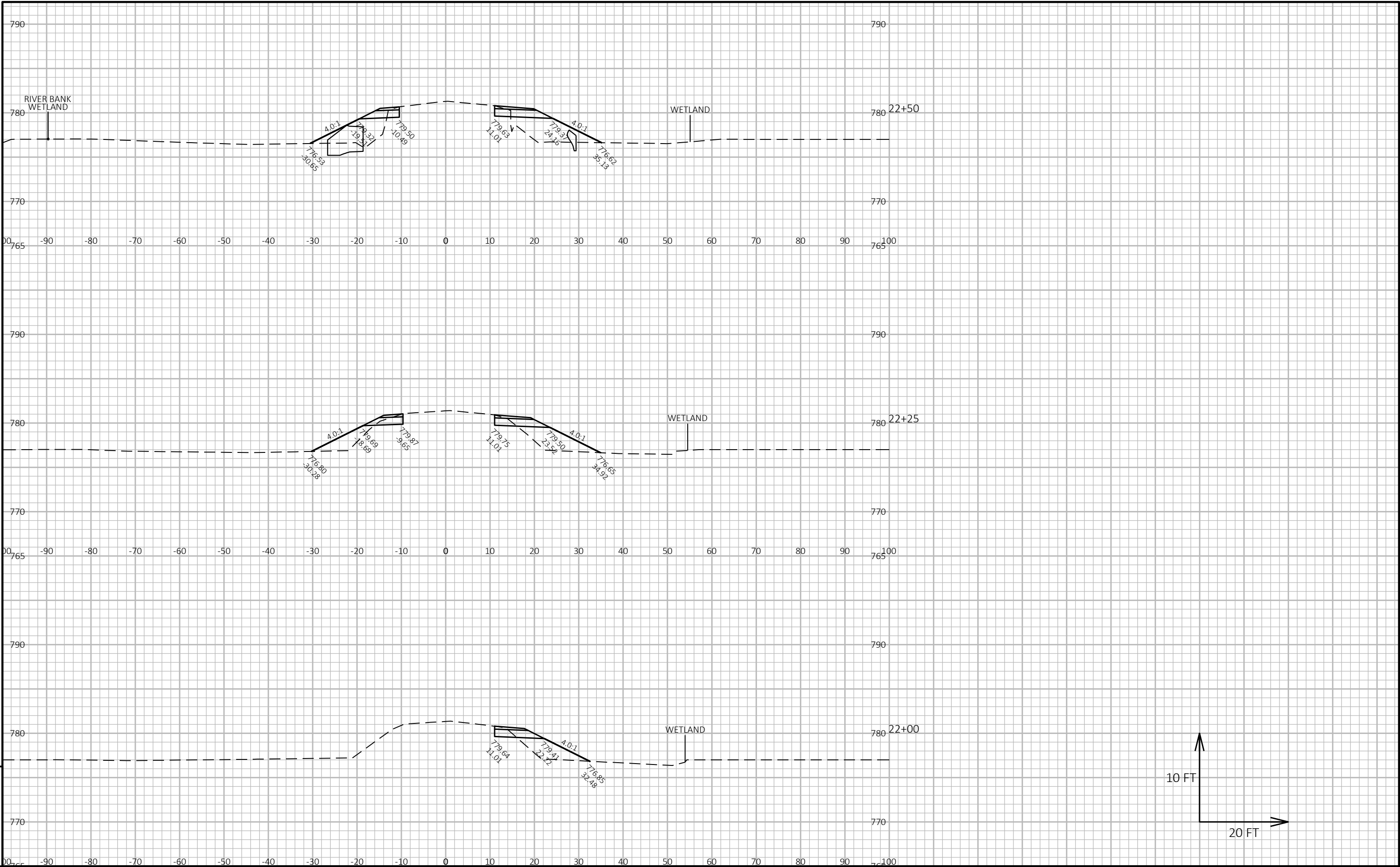
NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH OR EBS TO BE BACKFILLED WITH COMMON OR BORROW: [(CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR)]



9

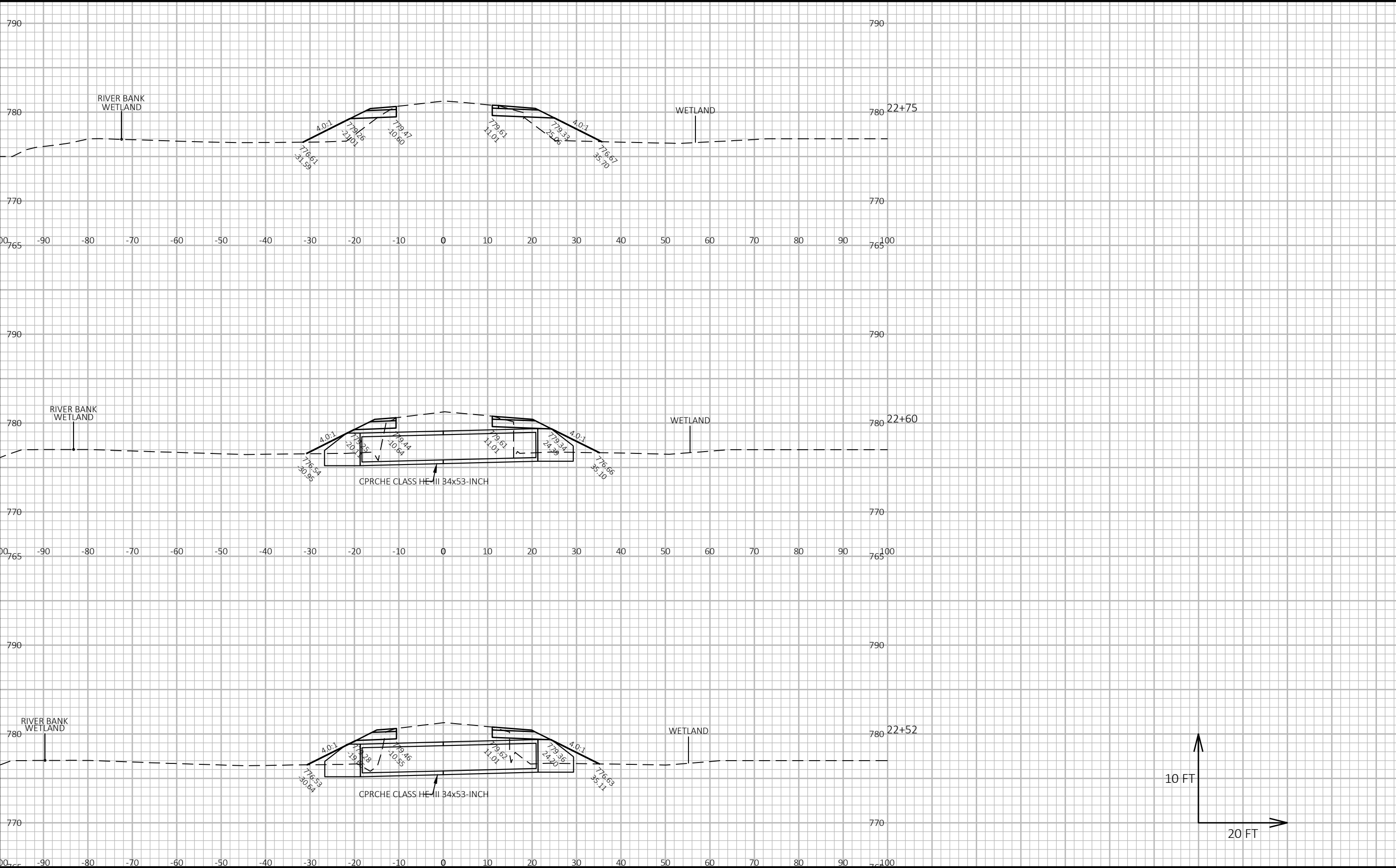
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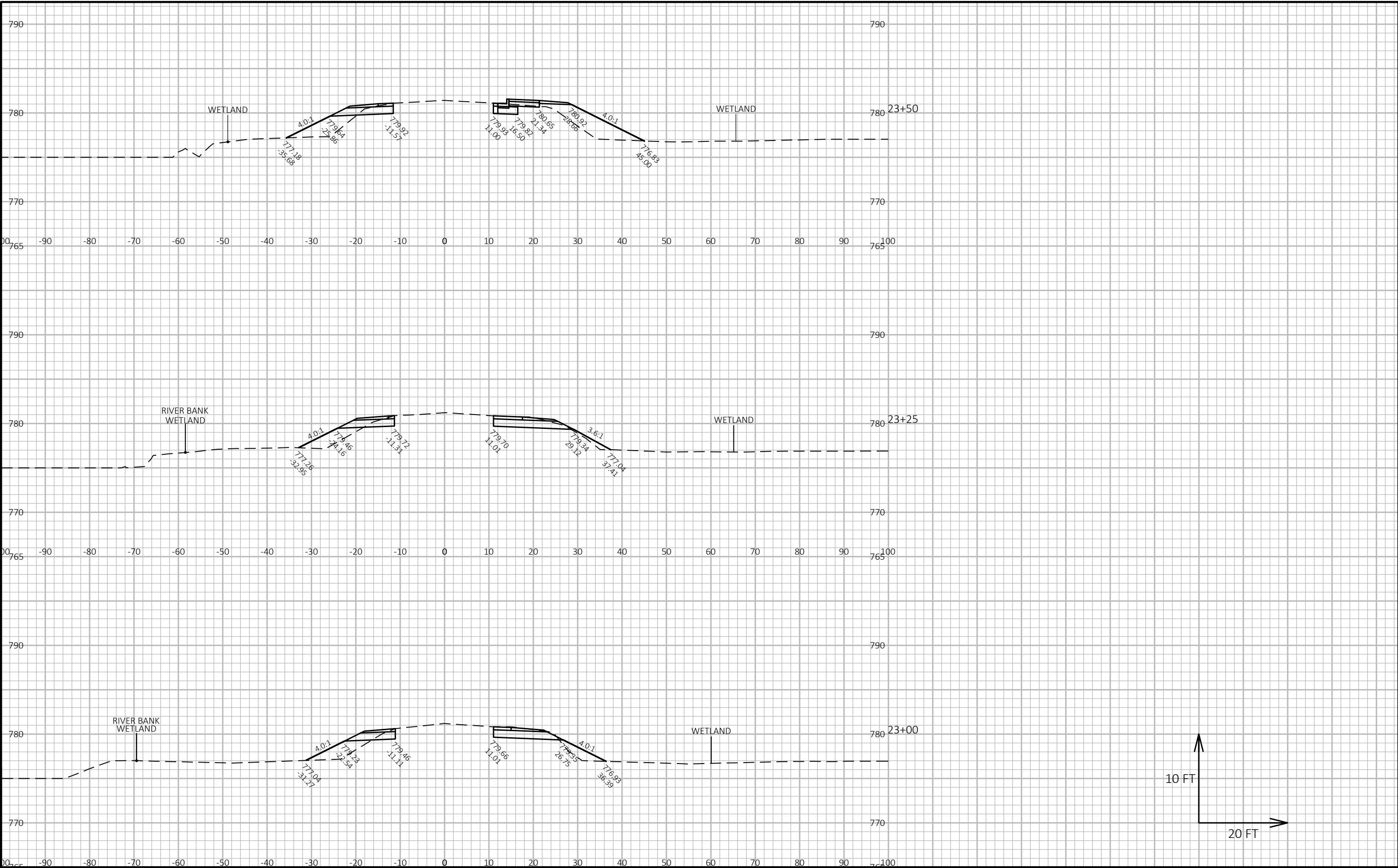
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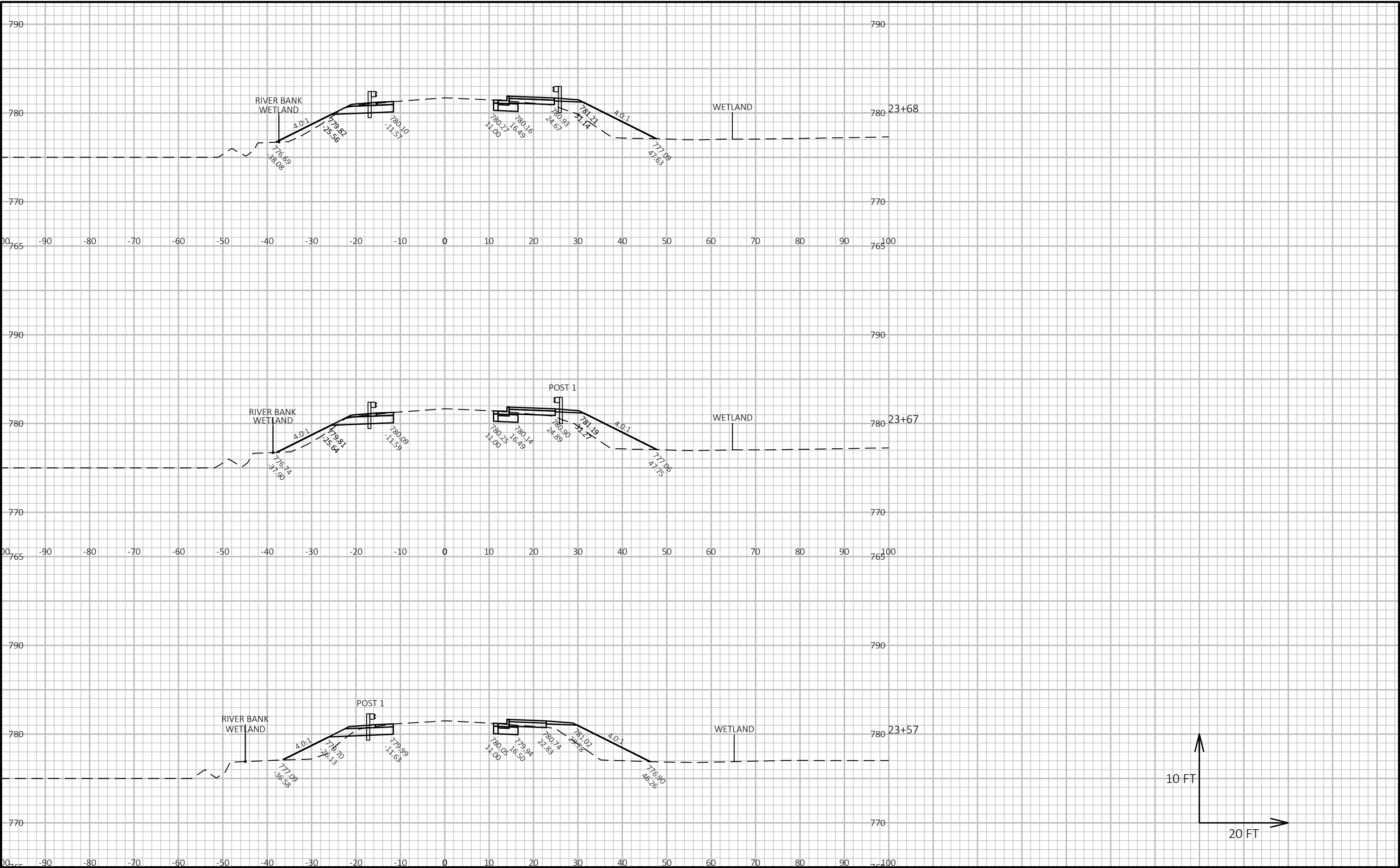


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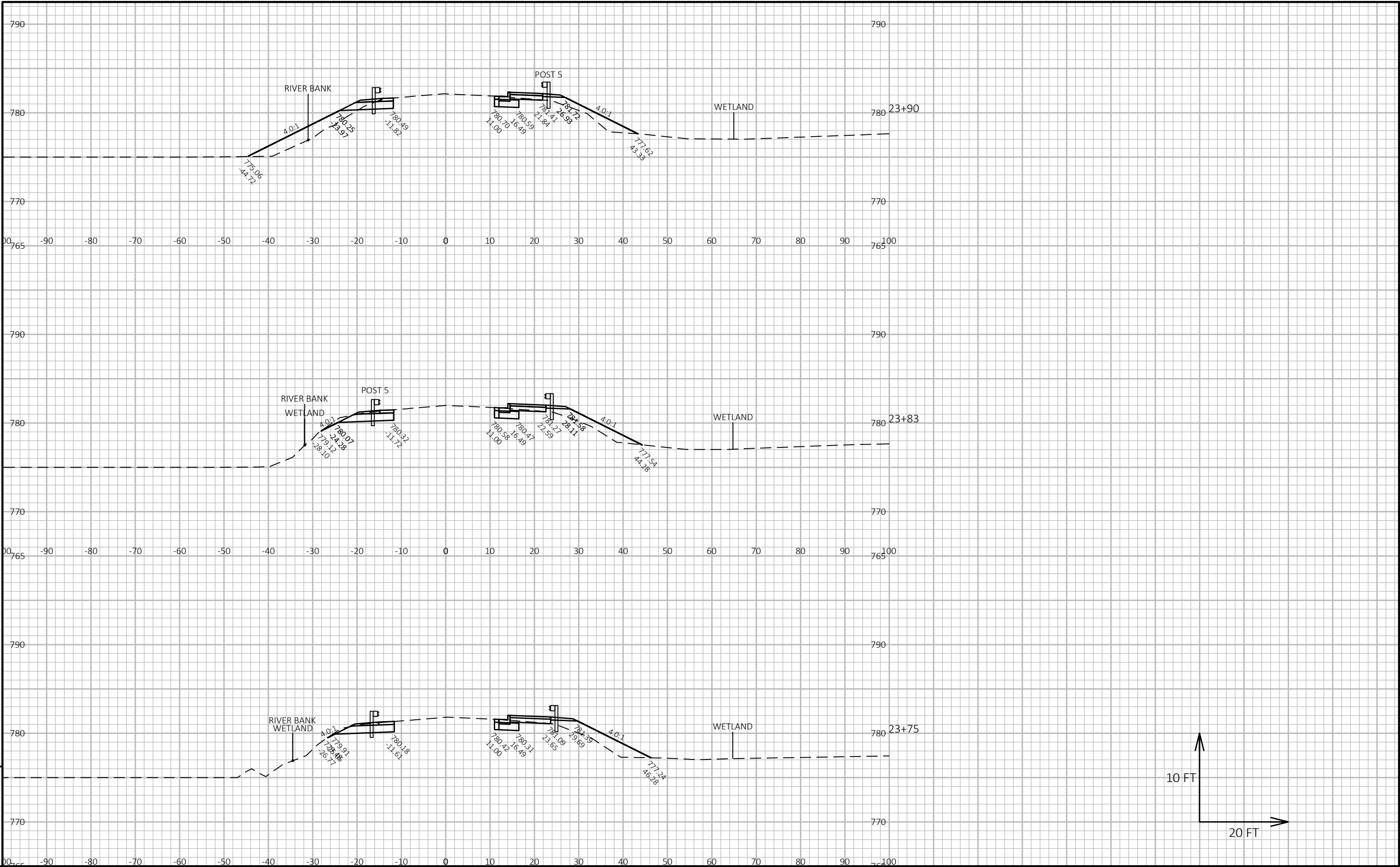


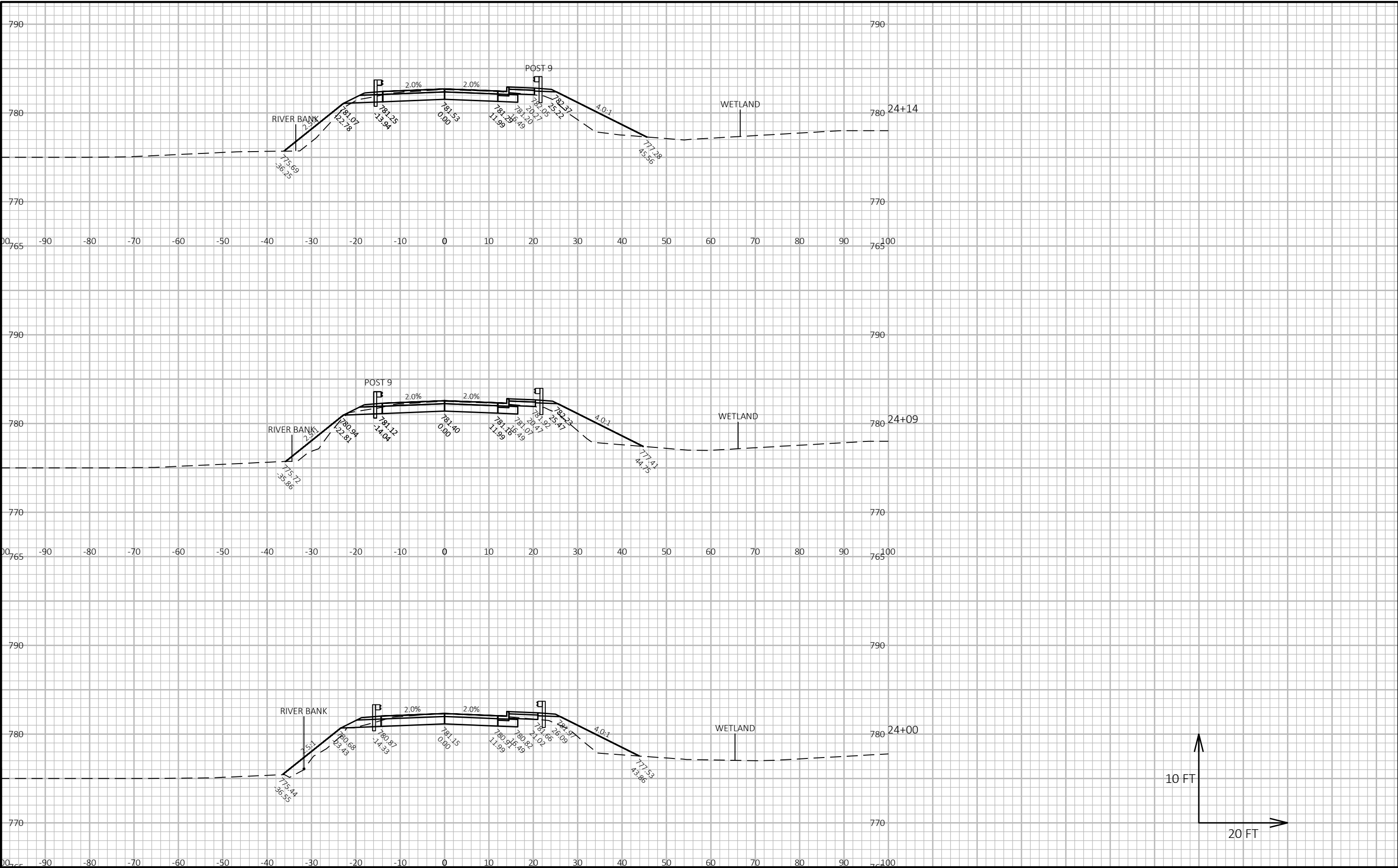


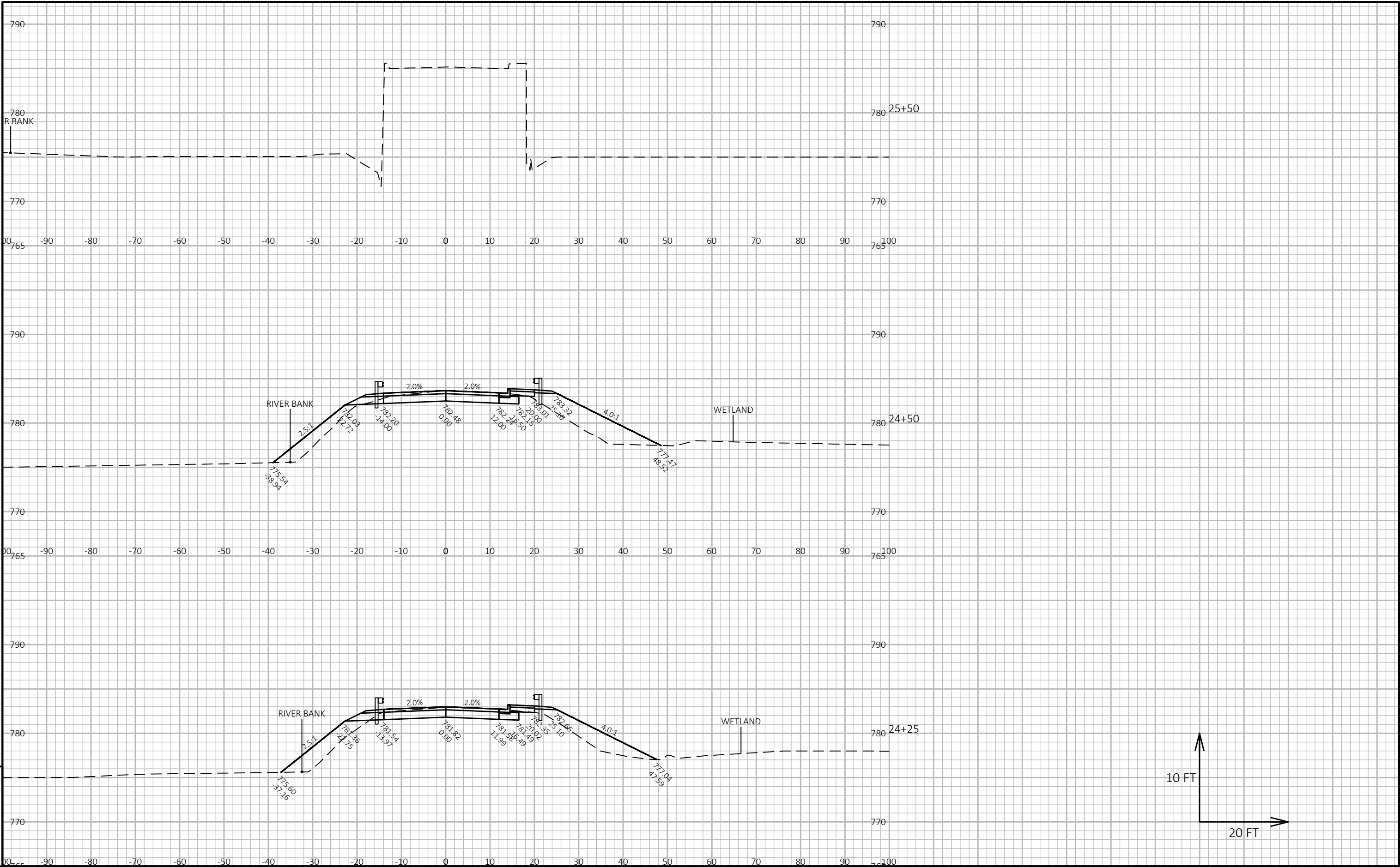


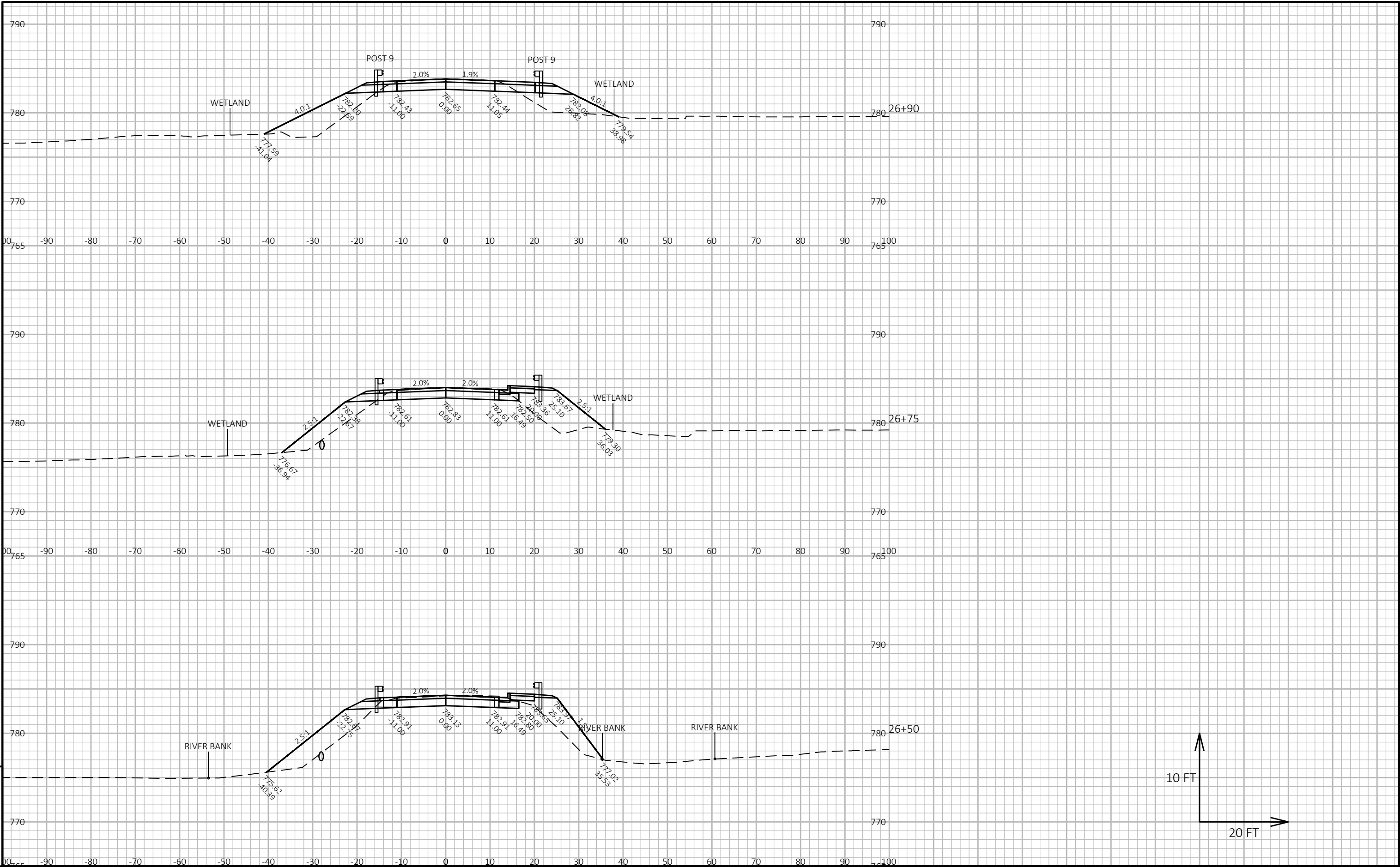


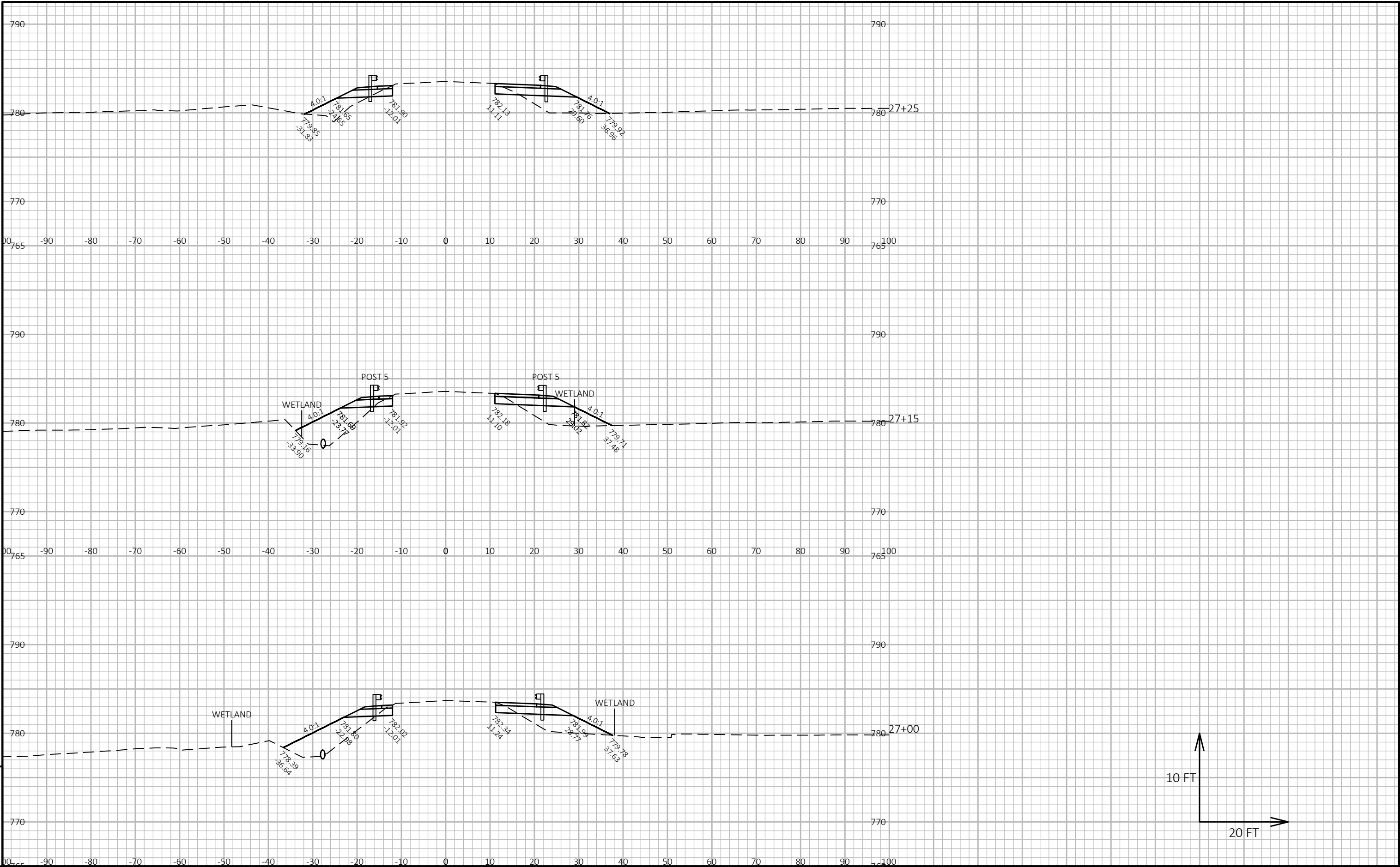
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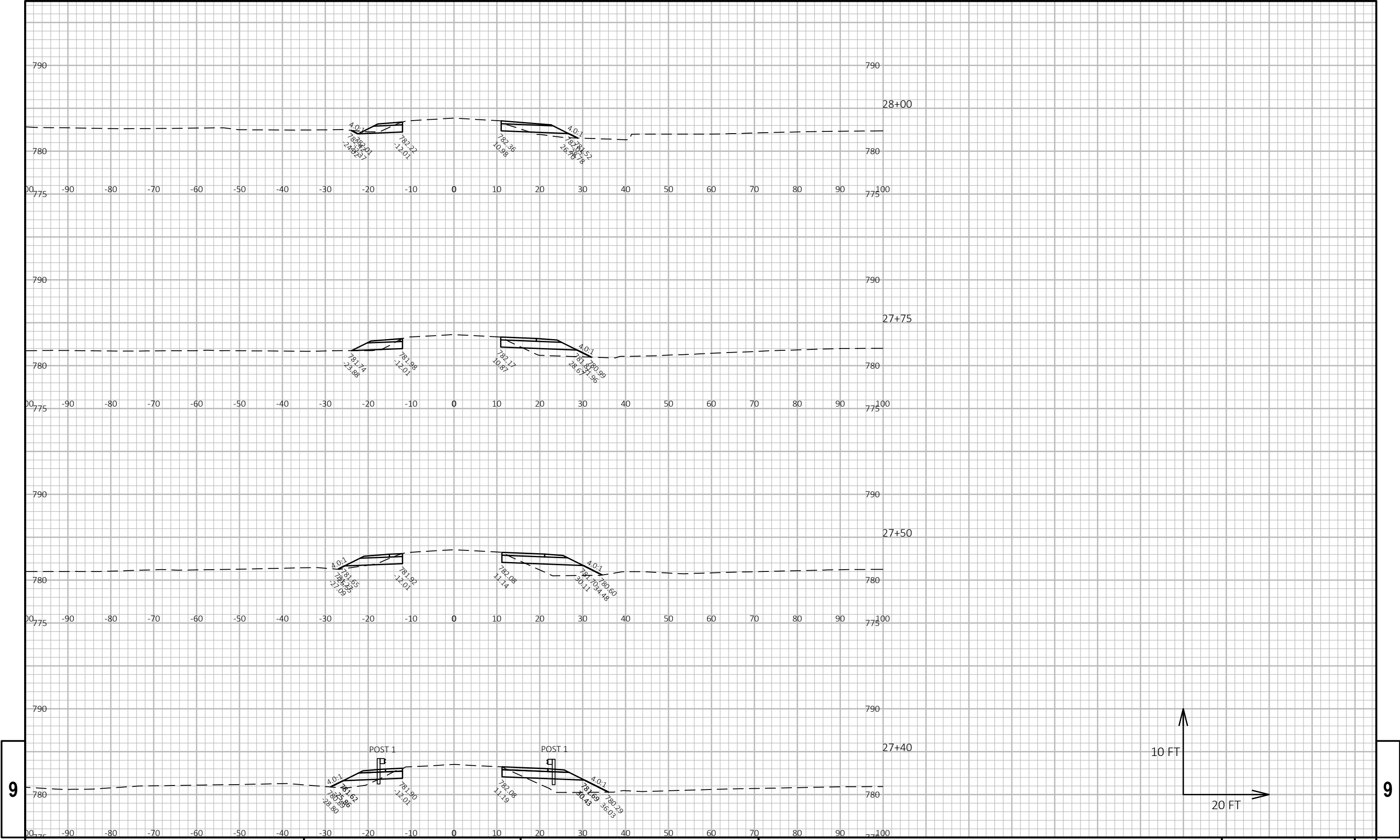


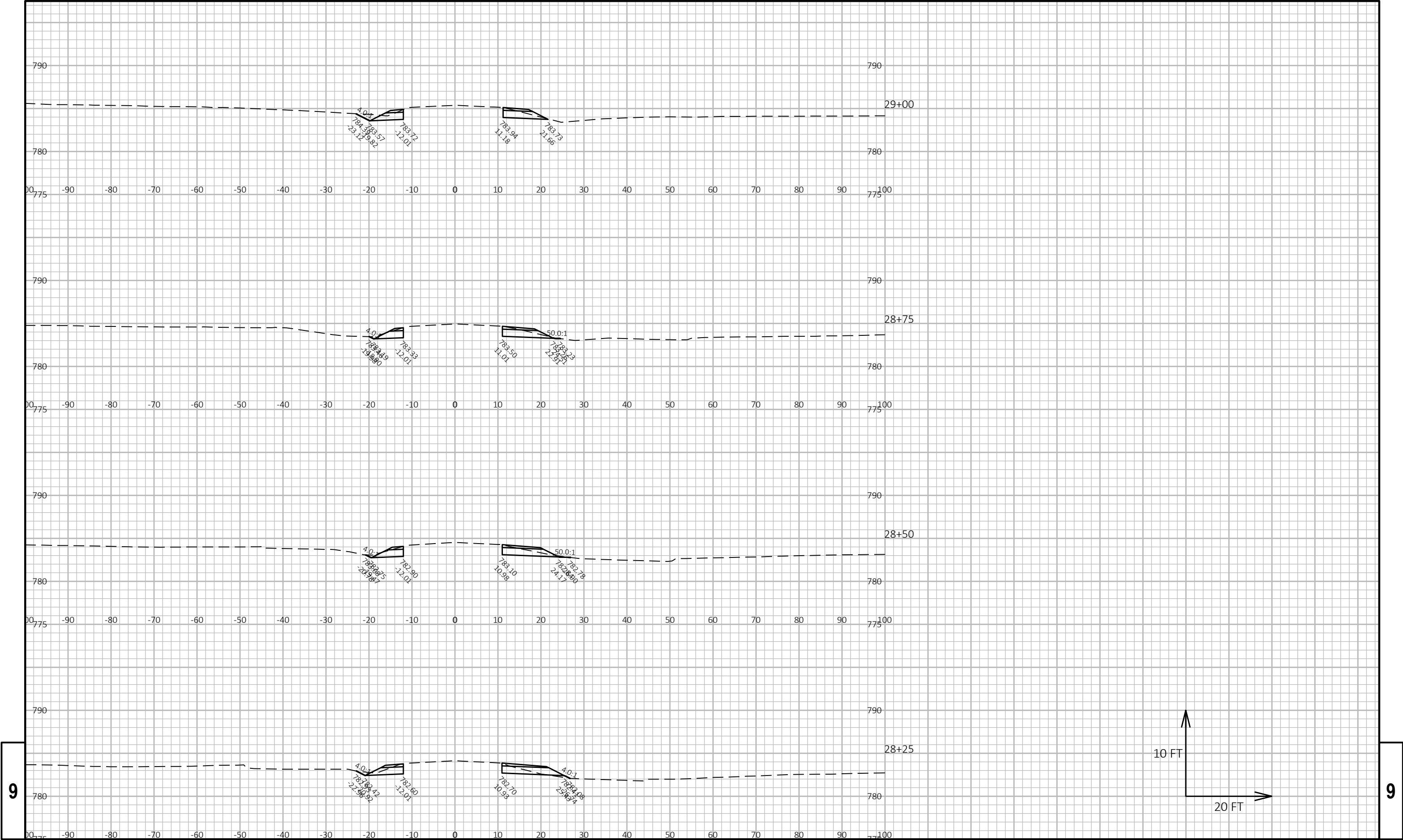








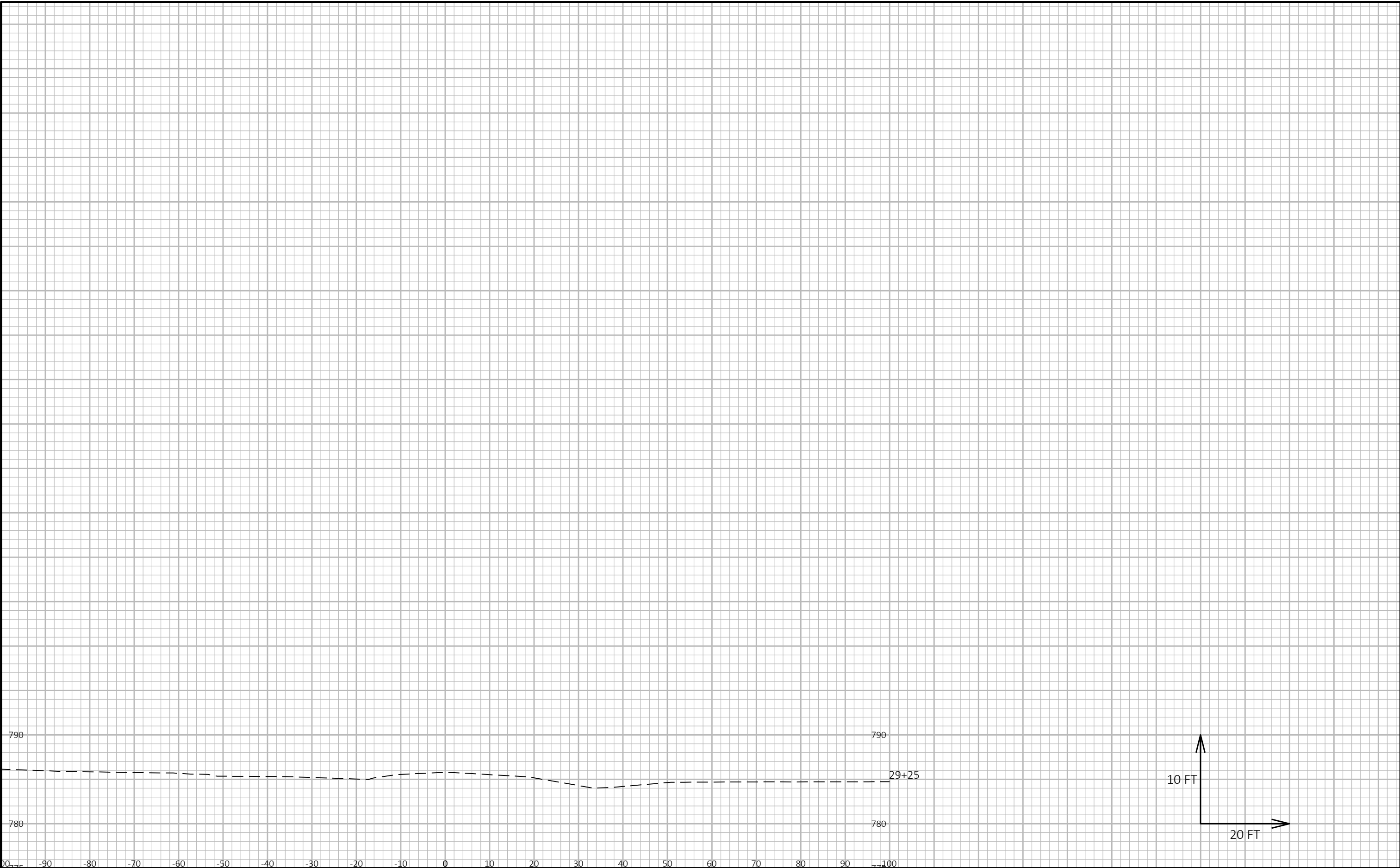




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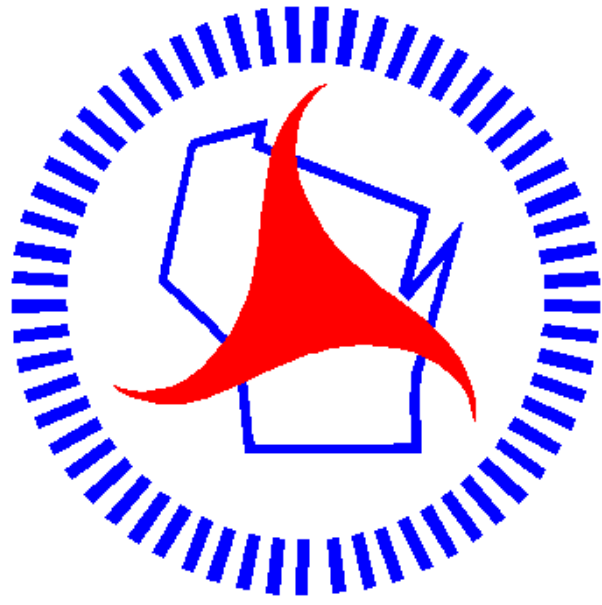
PROJECT NO: 2719-00-01				HWY: CENTER DRIVE				COUNTY: WAUKESHA				CROSS SECTIONS: CROSS SECTIONS				SHEET				E
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PROJECT NO: 2719-00-01	HWY: CENTER DRIVE	COUNTY: WAUKESHA	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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