

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.

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

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

RIGHT OF WAY INFORMATION SHOWN ON THE PLANS IS APPROXIMATE.

THE CONTRACTOR IS TO WORK WITH UTMOST CARE AND PROTECT ALL SURVEY MARKERS. REMOVAL OF ANY SURVEY MARKER IS TO BE WITH 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.

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.

PAVEMENT REMOVAL WILL BE TO THE NEAREST JOINT OR A SAWED EDGE WILL BE REQUIRED AS DIRECTED BY THE ENGINEER.

PRIOR TO PLACING THE NEW BASE AGGREGATE DENSE COURSE OR PAVED SHOULDERS EXISTING UNCOMPACTED SHOULDER MATERIAL SHALL BE REMOVED OR DEPOSITED ON THE OUTER PORTION OF THE EXISTING SHOULDER OR AS DIRECTED BY THE ENGINEER.

PIPE AND INLET ELEVATIONS AS SHOWN ON THE PLANS MAY BE ADJUSTED BY THE ENGINEER TO FIT EXISTING FIELD CONDITIONS

CURB AND GUTTER PLAN GRADES ARE AT THE FLANGE LINE UNLESS OTHERWISE NOTED.

THE PROPOSED SHOULDER WIDTH SHOWN IN THE TYPICAL SECTIONS ARE MINIMUM WIDTH. PERPETUATE EXISTING SHOULDERS THAT ARE WIDER THAN WHAT IS SHOWN IN THE TYPICAL SECTIONS.

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

CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES EXCEPT WHEN PAVING OR PIPE LAYING OPERATIONS REQUIRE THE DRIVEWAY TO BE CLOSED. ACCESS TO DRIVEWAYS SHALL BE RE-ESTABLISHED IMMEDIATELY AFTER OPERATIONS ARE COMPLETED. ACCESS SHALL BE PROVIDED DURING ALL NON-WORKING HOURS.

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.

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 = 1.0 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.0 ACRES

UTILITIES CONTACTS

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ORDER OF SECTION 2 DETAIL SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
DETOUR ROUTE

DIGGERSHOTLINE

Dial 811 or (800)242-8511

www.DiggersHotline.com

STANDARD ABBREVIATIONS

ABUT	ABUTMENT	LT	LEFT
AC	ACRE	LHF	LEFT HAND FORWARD
AGG	AGGREGATE	L	LENGTH OF CURVE
AH	AHEAD	LF	LINEAR FOOT
∠	ANGLE	LC	LONG CHORD OF CURVE
AADT	ANNUAL AVERAGE DAILY TRAFFIC	LS	LUMP SUM
AEW	APRON ENDWALL	MGAL	ONE THOUSAND GALLONS
ASPH	ASPHALTIC	MH	MANHOLE
BK	BACK	ML OR M/L	MATCH LINE
BC	BACK OF CURB	NOM	NOMINAL
BAD	BASE AGGREGATE DENSE	NC	NORMAL CROWN
BL OR B/L	BASE LINE	NB	NORTHBOUND
BM	BENCH MARK	NO	NUMBER
CB	CATCH BASIN	OD	OUTSIDE DIAMETER
CL OR C/L	CENTER LINE	PAVT	PAVEMENT
Δ	CENTRAL ANGLE OR DELTA	PLE	PERMANENT LIMITED EASEMENT
CE	COMMERCIAL ENTRANCE	PC	POINT OF CURVATURE
CONC	CONCRETE	PI	POINT OF INTERSECTION
CSW	CONCRETE SIDEWALK	PT	POINT OF TANGENCY
CONST	CONSTRUCTION	PCC	PORTLAND CEMENT CONCRETE
CP	CONTROL POINT	LB	POUND
CO	COUNTY	PSI	POUNDS PER SQUARE INCH
CTH	COUNTY TRUCK HIGHWAY	PE	PRIVATE ENTRANCE
CY	CUBIC YARD	PROJ	PROJECT
CP	CULVERT PIPE	PL	PROPERTY LINE
CPCA	CULVERT PIPE CORRUGATED ALUMINUM	PRW	PROPOSED RIGHT OF WAY
CPCPE	CULVERT PIPE CORRUGATED POLYETHYLENE	R	RADIUS
CPCPP	CULVERT PIPE CORRUGATED POLYPROPYLENE	RL OR R/L	REFERENCE LINE
CPCS	CULVERT PIPE CORRUGATED STEEL	REQD	REQUIRED
CPCSAC	CULVERT PIPE CORRUGATED STEEL ALUMINUM COATED	RT	RIGHT
CPCSPC	CULVERT PIPE CORRUGATED STEEL POLYMER COATED	RHF	RIGHT HAND FORWARD
CPRC	CULVERT PIPE REINFORCED CONCRETE	R/W	RIGHT OF WAY
CPRCHE	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL	RD	ROAD
CPS	CULVERT PIPE SALVAGED	RDWY	ROADWAY
CPT	CULVERT PIPE TEMPORARY	SHLDR	SHOULDER
C & G	CURB AND GUTTER	SW	SIDEWALK
D	DEGREE OF CURVE	SB	SOUTHBOUND
DHV	DESIGN HOUR VOLUME	SPECS	SPECIFICATIONS
DIA	DIAMETER	SF	SQUARE FEET
DD	DIRECTIONAL DISTRIBUTION	SY	SQUARE YARD
DE	DRAINAGE EASEMENT	SDD	STANDARD DETAIL DRAWINGS
DWY	DRIVEWAY	STH	STATE TRUNK HIGHWAY
EA	EACH	STA	STATION
EB	EASTBOUND	SSPC	STORM SEWER PIPE COMPOSITE
EL OR ELEV	ELEVATION	SSCPE	STORM SEWER PIPE CORRUGATED POLYETHYLENE
EMB	EMBANKMENT	SSCPP	STORM SEWER PIPE CORRUGATED POLYPROPYLENE
EW	ENDWALL	SSPNRC	STORM SEWER PIPE NON-REINFORCED CONCRETE
EAT	ENERGY ABSORBING TERMINAL	SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
ESALS	EQUIVALENT SINGLE AXLE LOADS	SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
EXC	EXCAVATION	SSPRCHE	STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
EBS	EXCAVATION BELOW SUBGRADE	SE	SUPERELEVATION
EXIST	EXISTING	SL OR S/L	SURVEY LINE
FERT	FERTILIZER	TEMP	TEMPORARY
FE	FIELD ENTRANCE	TI	TEMPORARY INTEREST
FL OR F/L	FLOW LINE	TLE	TEMPORARY LIMITED EASEMENT
FT	FOOT	TC	TOP OF CURB
FTMS	FREE TRAFFIC MANAGEMENT SYSTEM	TL OR T/L	TRANSIT LINE
HES	HIGH EARLY STRENGTH	T	TRUCKS (PERCENT OF)
HE	HIGHWAY EASEMENT	TYP	TYPICAL
CWT	HUNDRED WEIGHT	USH	UNITED STATES HIGHWAY
IN DIA	INCH DIAMETER	VAR	VARIABLE
INL	INLET	VC	VERTICAL CURVE
ID	INSIDE DIAMETER	VPC	VERTICAL POINT OF CURVATURE
INTERS	INTERSECTION	VPI	VERTICAL POINT OF INTERSECTION
IH	INTERSTATE HIGHWAY	VPT	VERTICAL POINT OF TANGENCY
INV	INVERT	W	WEST
JT	JOINT	WB	WESTBOUND

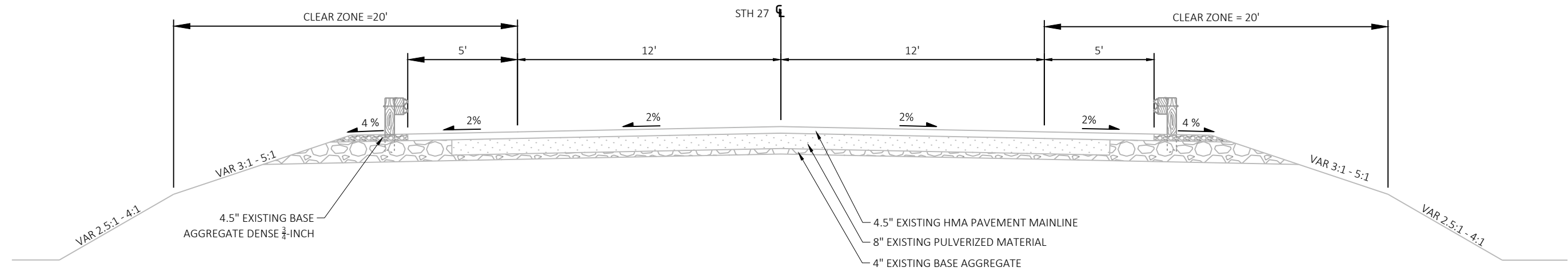
PROJECT NO: 8150-00-72

HWY: STH 27

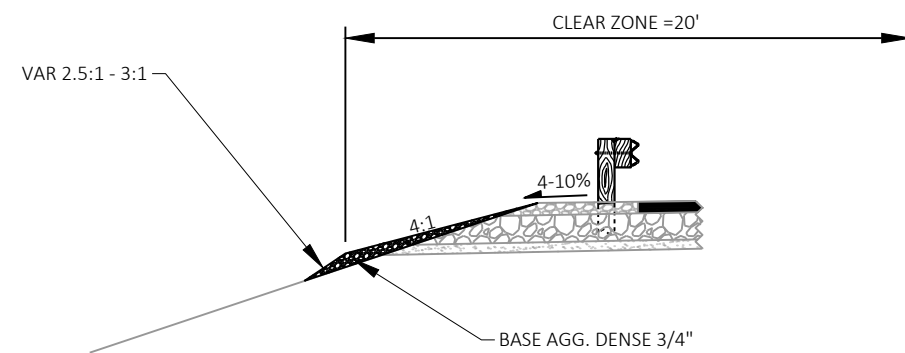
COUNTY: DOUGLAS

GENERAL NOTES

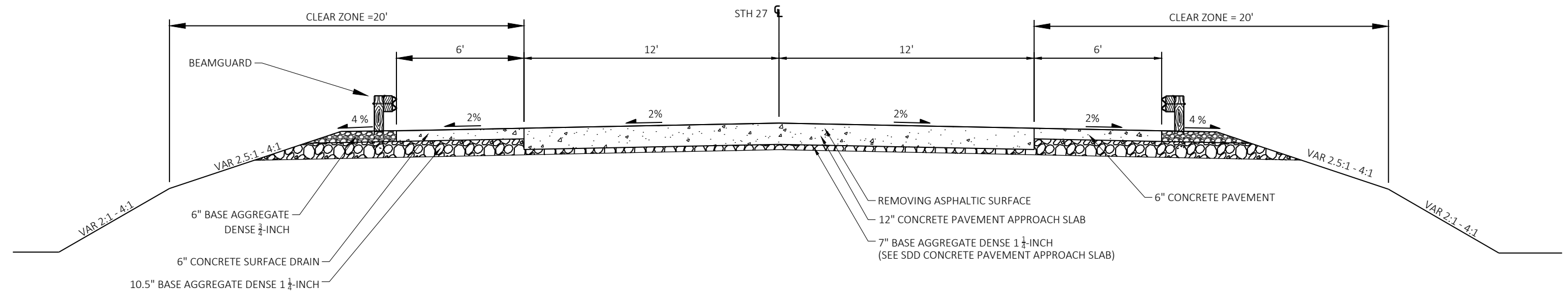
SHEET



TYPICAL EXISTING SECTION: INSIDE BEAMGUARD
STA 782+60.5 - STA 784+88.0



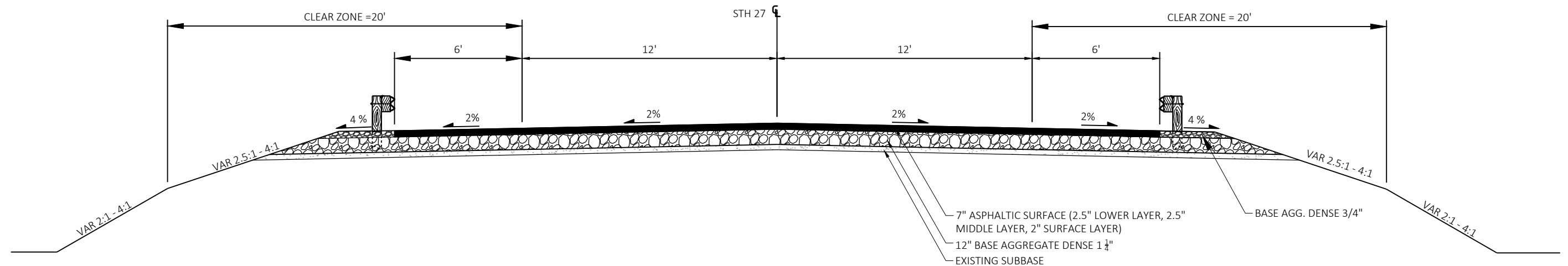
TYPICAL PROPOSED SECTION: BEAMGUARD AREAS REQUIRING EXTENDED SHOULDER GRAVEL
STA 781+31 - STA 781+81 LT
STA 781+77 - STA 782+50 RT
STA 784+47 - STA 784+97 LT
STA 785+17 - STA 785+67 RT



TYPICAL PROPOSED SECTION: INSIDE BEAMGUARD & APPROACH

STA 782+60.5 - STA 782+81.5

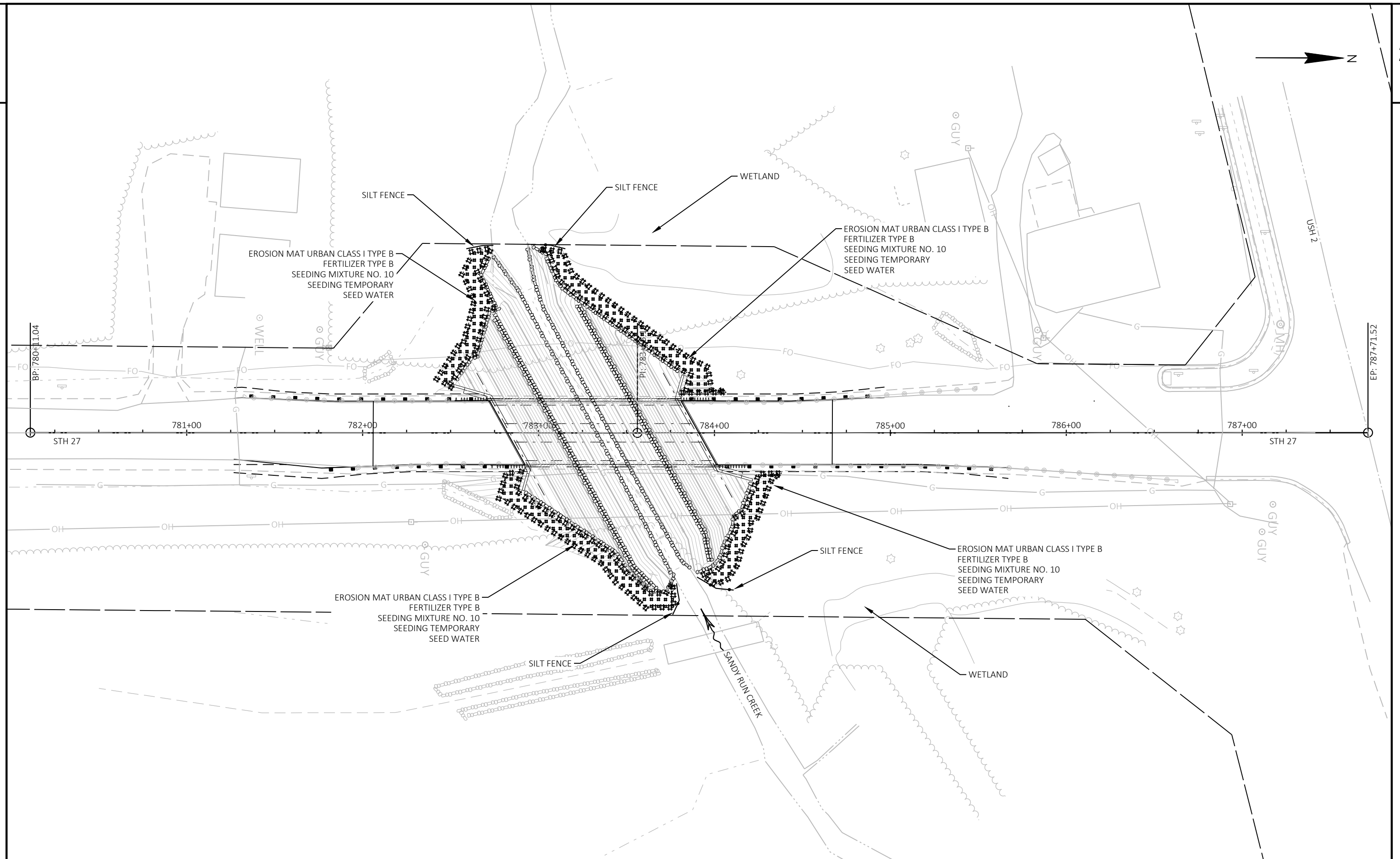
STA 783+92.0 - STA 784+13.0



TYPICAL PROPOSED SECTION: BETWEEN SAW CUT AND APPROACH SLAB

STA 782+06.0 - STA 782+60.5

STA 784+13.0 - STA 784+67.0



PROJECT NO: 8150-00-72

HWY: STH 27

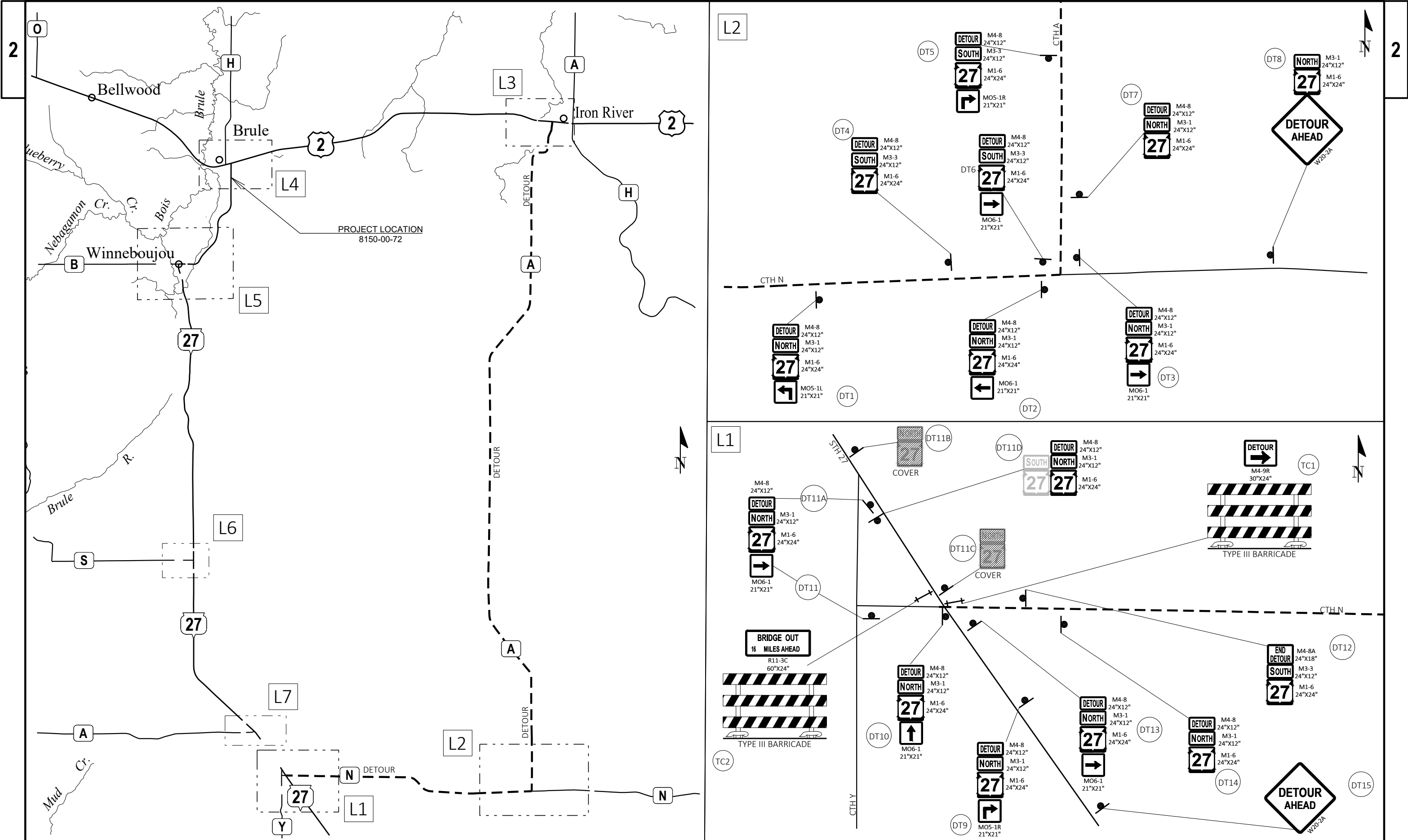
COUNTY: DOUGLAS

EROSION CONTROL

SHEET

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Estimate Of Quantities

8150-00-72

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	3.000	3.000
0004	201.0205	Grubbing	STA	3.000	3.000
0006	203.0250	Removing Structure Over Waterway Remove Debris (structure) 01. STA. 783+37	EACH	1.000	1.000
0008	204.0165	Removing Guardrail	LF	884.000	884.000
0010	205.0100	Excavation Common	CY	12,855.000	12,855.000
0012	206.1001	Excavation for Structures Bridges (structure) 01. B-16-157	EACH	1.000	1.000
0014	210.1500	Backfill Structure Type A	TON	1,160.000	1,160.000
0016	213.0100	Finishing Roadway (project) 01. 8150-00-72	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	96.000	96.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	452.000	452.000
0022	415.0060	Concrete Pavement 6-Inch	SY	30.000	30.000
0024	415.0410	Concrete Pavement Approach Slab	SY	116.000	116.000
0026	455.0605	Tack Coat	GAL	60.000	60.000
0028	465.0105	Asphaltic Surface	TON	170.000	170.000
0030	465.0110	Asphaltic Surface Patching	TON	300.000	300.000
0032	502.0100	Concrete Masonry Bridges	CY	363.000	363.000
0034	502.3200	Protective Surface Treatment	SY	453.000	453.000
0036	502.3210	Pigmented Surface Sealer	SY	109.000	109.000
0038	503.0155	Prestressed Girder Type I 54W-Inch	LF	428.000	428.000
0040	505.0400	Bar Steel Reinforcement HS Structures	LB	7,110.000	7,110.000
0042	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	38,920.000	38,920.000
0044	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	8.000	8.000
0046	506.4000	Steel Diaphragms (structure) 01. B-16-157	EACH	6.000	6.000
0048	516.0500	Rubberized Membrane Waterproofing	SY	30.000	30.000
0050	520.1012	Apron Endwalls for Culvert Pipe 12-Inch	EACH	1.000	1.000
0052	520.3412	Culvert Pipe Class III-A Non-metal 12-Inch	LF	87.000	87.000
0054	550.2126	Piling CIP Concrete 12 3/4 X 0.375-Inch	LF	2,150.000	2,150.000
0056	601.0590	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBTT	LF	44.000	44.000
0058	602.3010	Concrete Surface Drains	CY	3.000	3.000
0060	606.0200	Riprap Medium	CY	3.000	3.000
0062	606.0300	Riprap Heavy	CY	1,230.000	1,230.000
0064	611.0654	Inlet Covers Type V	EACH	2.000	2.000
0066	611.3220	Inlets 2x2-FT	EACH	2.000	2.000
0068	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	200.000	200.000
0070	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0072	614.2300	MGS Guardrail 3	LF	175.000	175.000
0074	614.2500	MGS Thrie Beam Transition	LF	160.000	160.000
0076	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0078	618.0100	Maintenance and Repair of Haul Roads (project) 01. 8150-00-72	EACH	1.000	1.000
0080	619.1000	Mobilization	EACH	1.000	1.000
0082	624.0100	Water	MGAL	2.000	2.000
0084	628.1504	Silt Fence	LF	75.000	75.000
0086	628.1520	Silt Fence Maintenance	LF	75.000	75.000
0088	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0090	628.1910	Mobilizations Emergency Erosion Control	EACH	1.000	1.000
0092	628.2008	Erosion Mat Urban Class I Type B	SY	389.000	389.000
0094	629.0210	Fertilizer Type B	CWT	0.240	0.240
0096	630.0110	Seeding Mixture No. 10	LB	18.000	18.000
0098	630.0200	Seeding Temporary	LB	11.000	11.000

Estimate Of Quantities

8150-00-72

Line	Item	Item Description	Unit	Total	Qty
0100	630.0500	Seed Water	MGAL	9.000	9.000
0102	638.2102	Moving Signs Type II	EACH	1.000	1.000
0104	638.4000	Moving Small Sign Supports	EACH	1.000	1.000
0106	642.5001	Field Office Type B	EACH	1.000	1.000
0108	643.0420	Traffic Control Barricades Type III	DAY	1,260.000	1,260.000
0110	643.0705	Traffic Control Warning Lights Type A	DAY	1,800.000	1,800.000
0112	643.0900	Traffic Control Signs	DAY	11,700.000	11,700.000
0114	643.0920	Traffic Control Covering Signs Type II	EACH	23.000	23.000
0116	643.5000	Traffic Control	EACH	1.000	1.000
0118	645.0111	Geotextile Type DF Schedule A	SY	84.000	84.000
0120	645.0120	Geotextile Type HR	SY	1,990.000	1,990.000
0122	646.2005	Marking Line Paint 6-Inch	LF	261,876.000	261,876.000
0124	650.4000	Construction Staking Storm Sewer	EACH	2.000	2.000
0126	650.4500	Construction Staking Subgrade	LF	152.000	152.000
0128	650.5000	Construction Staking Base	LF	152.000	152.000
0130	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	44.000	44.000
0132	650.6501	Construction Staking Structure Layout (structure) 01. B-16-157	EACH	1.000	1.000
0134	650.9911	Construction Staking Supplemental Control (project) 01. 8150-00-72	EACH	1.000	1.000
0136	690.0150	Sawing Asphalt	LF	74.000	74.000
0138	715.0502	Incentive Strength Concrete Structures	DOL	2,238.000	2,238.000
0140	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0142	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000
0144	SPV.0060	Special 01. Stream Boulder Clusters	EACH	5.000	5.000
0146	SPV.0060	Special 02. Temporary Flow Diversion	EACH	1.000	1.000
0148	SPV.0180	Special 01. Gravel Above Riprap	SY	511.000	511.000
0150	SPV.0195	Special 01. Rounded Stone for Travel Corridor	TON	72.000	72.000

CLEARING & GRUBBING

CATEGORY	STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
0010	782+00	-	784+00	LT	2	2
0010	783+00	-	784+00	RT	1	1
TOTAL 0010					3	3

EARTHWORK SUMMARY

					205.0100 EXCAVATION COMMON CY	AVAILABLE MATERIAL CY	TOTAL EXPANDED FILL (XX%) CY	UNUSABLE PAVEMENT MATERIAL CY	WASTE CY
CATEGORY	STATION	TO	STATION	LOCATION					
0010	782+06	-	784+67	PROJECT	12,855	12,154	0	701.4	12,855
TOTAL 0010					12,855				

AGGREGATE

CATEGORY	STATION	TO	STATION	LOCATION	305.0110	305.0120	624.0100	SPV.0180.01 SPECIAL (01. GRAVEL ABOVE RIPRAP)
					BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4-INCH TON	WATER MGAL	SY
0010	782+61	-	782+82	SOUTH APPROACH		44		
0010	783+92	-	784+13	NORTH APPROACH		44		
0010	782+06	-	782+61	SOUTH PAVEMENT STRUCTURE		182		
0010	784+13	-	784+67	NORTH PAVEMENT STRUCTURE		181		
0010	781+29	-	782+74	SW QUADRANT	25			120
0010	781+75	-	782+94	SE QUADRANT	21			128
0010	783+79	-	784+99	NW QUADRANT	21			130
0010	783+99	-	785+69	NE QUADRANT	29			133
PROJECT WIDE							2	
TOTAL 0010					96	452	2	511

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HMA							
CATEGORY	STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON	465.0110 ASPHALTIC SURFACE PATCHING TON
0010	782+06	-	782+60	ML	30	85	
0010	784+13	-	784+67	ML	30	85	
0010		-		DETOUR			300
TOTAL 0010					60	170	300

CONCRETE PAVEMENT									
CATEGORY	STATION	TO	STATION	LOCATION	415.0060 CONCRETE PAVEMENT 6- INCH SY	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY	601.0590 CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE TBTT LF	602.3010 CONCRETE SURFACE DRAINS CY	REMARKS
0010	782+60	-	782+82	LT & RT	30	58			6IN Thickness
0010	783+91	-	784+13	LT & RT		58		3	6IN Thickness
0010	783+82	-	784+13	LT			31		
0010	784+00	-	784+13	RT			13		
TOTAL 0010					30	116	44	3	

DRAINAGE										
CATEGORY	STATION	TO	STATION	LOCATION	520.1012 APRON ENDWALLS FOR CULVERT PIPE 12-INCH EACH	520.3412 CULVERT PIPE CLASS III-A NON- METAL 12-INCH LF	606.0200 RIPRAP MEDIUM CY	611.0654 INLET COVERS TYPE V EACH	611.3220 INLETS 2X2-FT EACH	REMARKS
0010	784+06	-		LT	1	52	3	1	1	INLETS 6FT Depth Min
0010	784+06	-		LT & RT		35		1	1	INLETS 6FT Depth Min
TOTAL 0010					1	87	3	2	2	

GUARDRAIL

CATEGORY	STATION	TO	STATION	LOCATION	204.0165 REMOVING GUARDRAIL LF	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
0010	781+32	-	785+49	LT	417			
0010	781+96	-	786+63	RT	467			
0010	781+29	-	782+74	SW		50	40	1
0010	781+75	-	782+94	SE		25	40	1
0010	783+79	-	784+99	NW		25	40	1
0010	783+99	-	785+69	NE		75	40	1
TOTAL 0010					884	175	160	4

EROSION CONTROL

CATEGORY	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.2004 EROSION MAT CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0110 SEEDING MIXTURE NO. 10 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL
0010					2	1					
0010	782+67	SW	17	17			79	0.05	4	2	2
0010	782+96	NW	15	15			130	0.08	6	4	3
0010	783+78	SE	20	20			115	0.07	5	3	3
0010	784+00	NE	23	23			65	0.04	3	2	1
TOTAL 0010			75	75	2	1	389	0.24	18	11	9

SIGNS

CATEGORY	STATION	LOCATION	638.2102 MOVING SIGNS TYPE II EACH	638.4000 MOVING SMALL SIGN SUPPORTS EACH	REMARKS
0010	784+00	LT	1	1	ADOPT-A-HIGHWAY
TOTAL 0010			1	1	

3

TRAFFIC CONTROL						
		643.0420	643.0705	643.0900	643.0920	
		TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	
		BARRICADES TYPE	WARNING LIGHTS	TRAFFIC CONTROL	COVERING SIGNS	
CATEGORY	LOCATION	III DAY	TYPE A DAY	SIGNS DAY	TYPE II EACH	REMARKS
0010	L1	120				
0010	L1			480		SIGN TYPE (MO4-8 24"X12")
0010	L1			420		SIGN TYPE (MO3-1 24"X12")
0010	L1			60		SIGN TYPE (MO3-3 24"X12")
0010	L1			60		SIGN TYPE (MO4-6 24"X12")
0010	L1			480		SIGN TYPE (MO1-6 24"X24")
0010	L1			240		SIGN TYPE (MO6-1 21"X21")
0010	L1			60		SIGN TYPE (MO5-1R 21"X21")
0010	L1			60		SIGN TYPE (MO4-9R 30"X24")
0010	L1			60		SIGN TYPE (R11-3C 60"X24") (16 MILES)
0010	L1			60		SIGN TYPE (W20-2A)
0010	L1				4	
0010	L2			480		SIGN TYPE (MO4-8 24"X12")
0010	L2			300		SIGN TYPE (MO3-1 24"X12")
0010	L2			180		SIGN TYPE (MO3-3 24"X12")
0010	L2			60		SIGN TYPE (MO2-1 21"X15")
0010	L2			480		SIGN TYPE (MO1-6 24"X24")
0010	L2			180		SIGN TYPE (MO6-1 21"X21")
0010	L2			120		SIGN TYPE (MO5-1R 21"X21")
0010	L3	60				
0010	L3			480		SIGN TYPE (MO4-8 24"X12")
0010	L3			180		SIGN TYPE (MO3-1 24"X12")
0010	L3			420		SIGN TYPE (MO3-3 24"X12")
0010	L3			600		SIGN TYPE (MO1-6 24"X24")
0010	L3			180		SIGN TYPE (MO6-1 21"X21")
0010	L3			180		SIGN TYPE (MO5-1R 21"X21")
0010	L3			60		SIGN TYPE (R11-3C 60"X24") (9 MILES)
0010	L3			60		SIGN TYPE (W20-2A)
0010	L4	900				
0010	L4		1800			
0010	L4			240		SIGN TYPE (MO4-8 24"X12")
0010	L4			60		SIGN TYPE (MO3-1 24"X12")
0010	L4			360		SIGN TYPE (MO3-3 24"X12")
0010	L4			60		SIGN TYPE (MO4-6 24"X12")
0010	L4			420		SIGN TYPE (MO1-6 24"X24")
0010	L4			120		SIGN TYPE (MO6-1 21"X21")

TRAFFIC CONTROL						
		643.0420	643.0705	643.0900	643.0920	
		TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	
		BARRICADES TYPE	WARNING LIGHTS	TRAFFIC CONTROL	COVERING SIGNS	
CATEGORY	LOCATION	III DAY	TYPE A DAY	SIGNS DAY	TYPE II EACH	REMARKS
0010	L4			60		SIGN TYPE (MO4-9L 30"X24")
0010	L4			240		SIGN TYPE (R11-2B 48"X30")
0010	L4			60		SIGN TYPE (W20-2A)
0010	L4			180		SIGN TYPE (W20-3A)
0010	L4			60		SIGN TYPE (W20-3C)
0010	L4			180		SIGN TYPE (W20-3D)
0010	L4				10	
0010	L5	60				
0010	L5			180		SIGN TYPE (MO4-8 24"X12")
0010	L5			120		SIGN TYPE (MO3-1 24"X12")
0010	L5			60		SIGN TYPE (MO3-3 24"X12")
0010	L5			180		SIGN TYPE (MO1-6 24"X24")
0010	L5			180		SIGN TYPE (MO6-1 21"X21")
0010	L5			60		SIGN TYPE (R11-3C 60"X24") (3 MILES)
0010	L5			60		SIGN TYPE (W20-2A)
0010	L5				5	
0010	L6	60				
0010	L6			120		SIGN TYPE (MO4-8 24"X12")
0010	L6			120		SIGN TYPE (MO3-1 24"X12")
0010	L6			120		SIGN TYPE (MO1-6 24"X24")
0010	L6			60		SIGN TYPE (MO6-1 21"X21")
0010	L6			60		SIGN TYPE (R11-3C 60"X24") (10 MILES)
0010	L6			60		SIGN TYPE (W20-2A)
0010	L6				2	
0010	L7	60				
0010	L7			120		SIGN TYPE (MO4-8 24"X12")
0010	L7			120		SIGN TYPE (MO3-1 24"X12")
0010	L7			120		SIGN TYPE (MO1-6 24"X24")
0010	L7			60		SIGN TYPE (MO6-1 21"X21")
0010	L7			60		SIGN TYPE (R11-3C 60"X24") (10 MILES)
0010	L7			60		SIGN TYPE (W20-2A)
0010	L7				2	
0010	REASSURANCES			600		SIGN TYPE (MO4-8 24"X12")
0010	REASSURANCES			300		SIGN TYPE (MO3-1 24"X12")
0010	REASSURANCES			300		SIGN TYPE (MO3-3 24"X12")
0010	REASSURANCES			600		SIGN TYPE (MO1-6 24"X24")

TOTAL 0100	1,260	1,800	11,700	23
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3

3

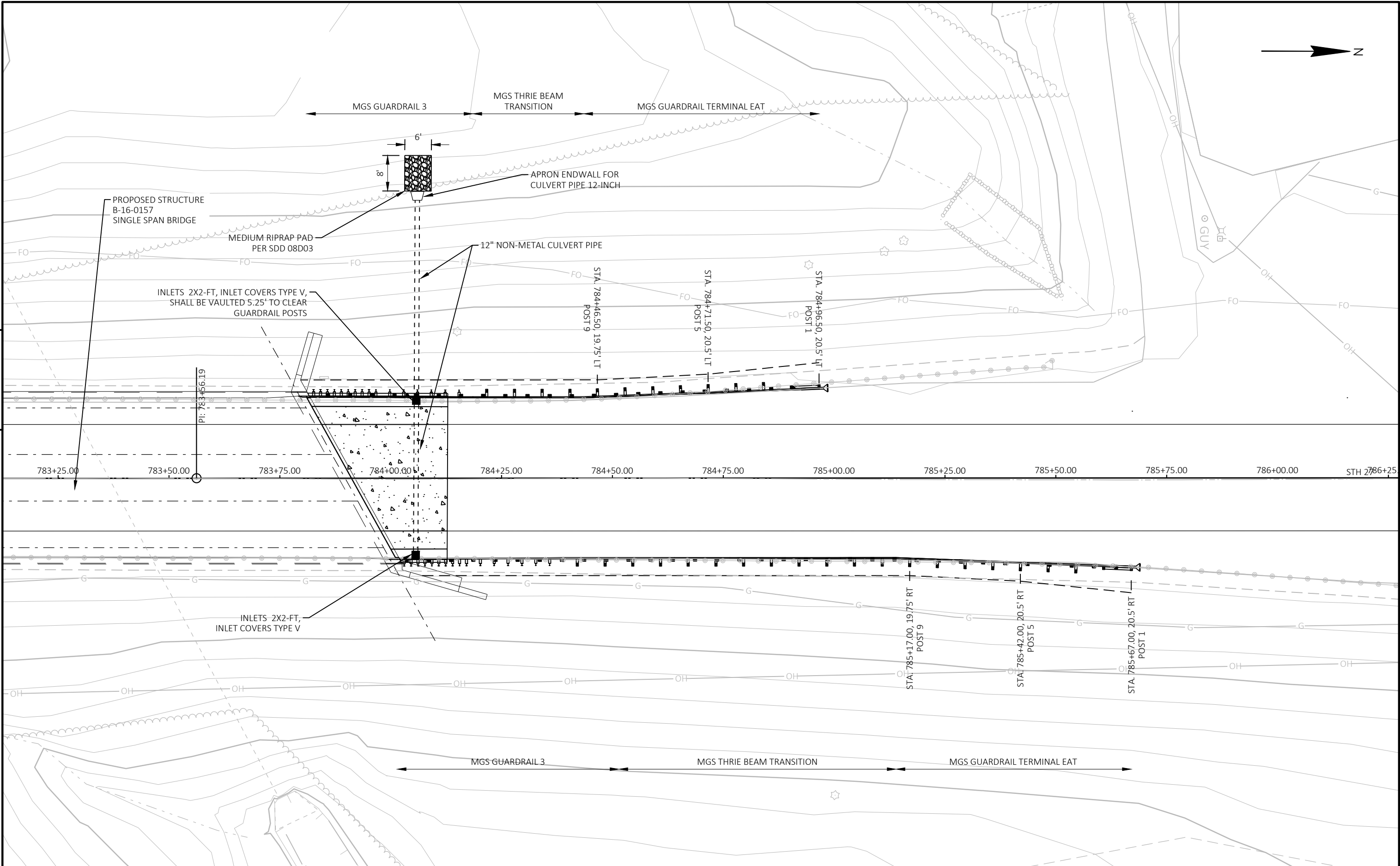
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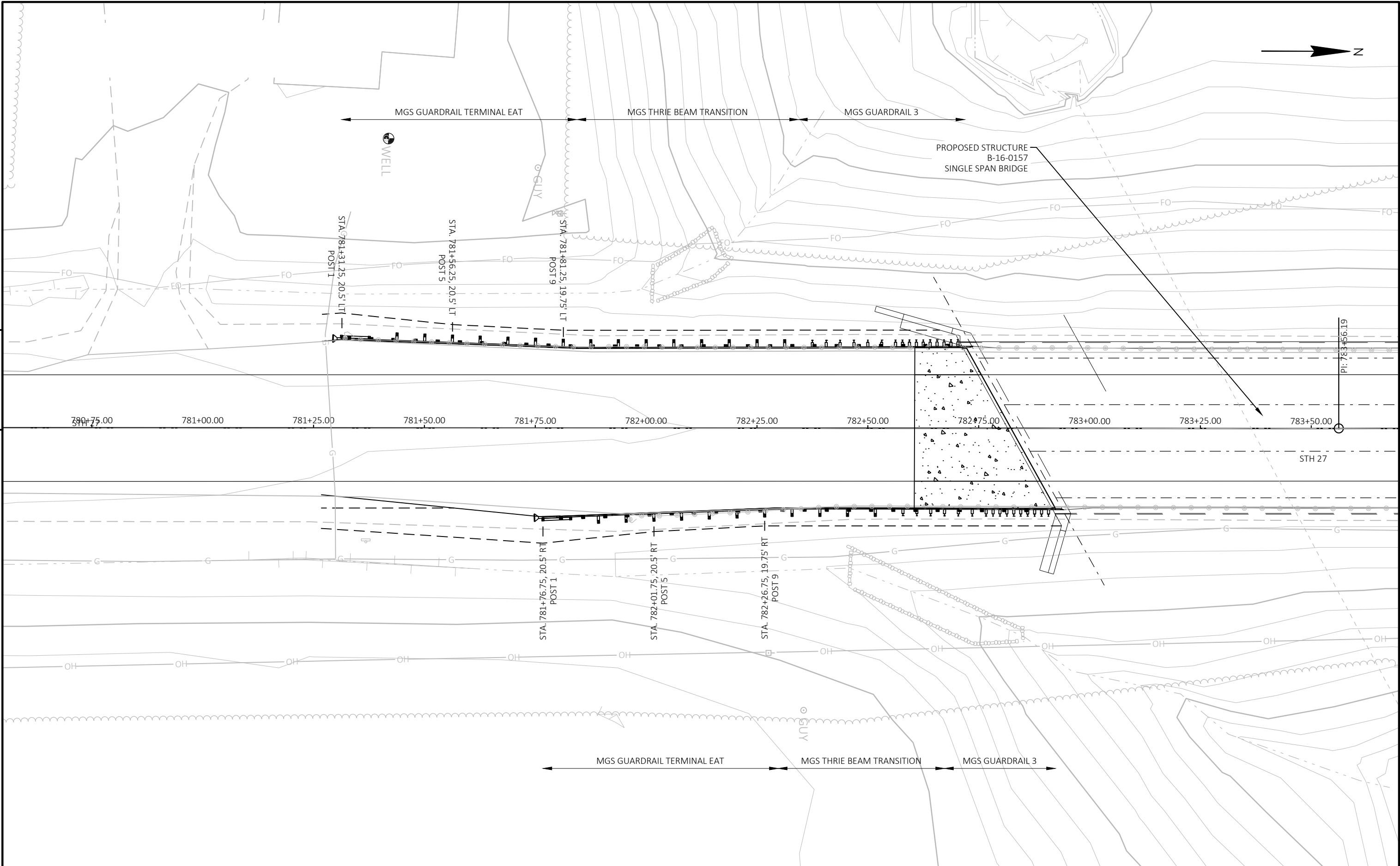
PAVEMENT MARKING						
646.2005 MARKING LINE PAINT 6-INCH LF						
CATEGORY	STATION	TO	STATION	LOCATION	LF	REMARKS
0010	782+06	-	784+67	ML	522	CENTERLINE (DOUBLE YELLOW)
0010	782+06	-	784+67	ML	522	EDGELINES
0010		-		DETOUR	160,512	CTH A (KELLY LAKE RD TO USH2) CENTERLINE
0010		-		DETOUR	100,320	CTH A (KELLY LAKE RD TO USH2) FOG LINES
TOTAL 0010					261,876	

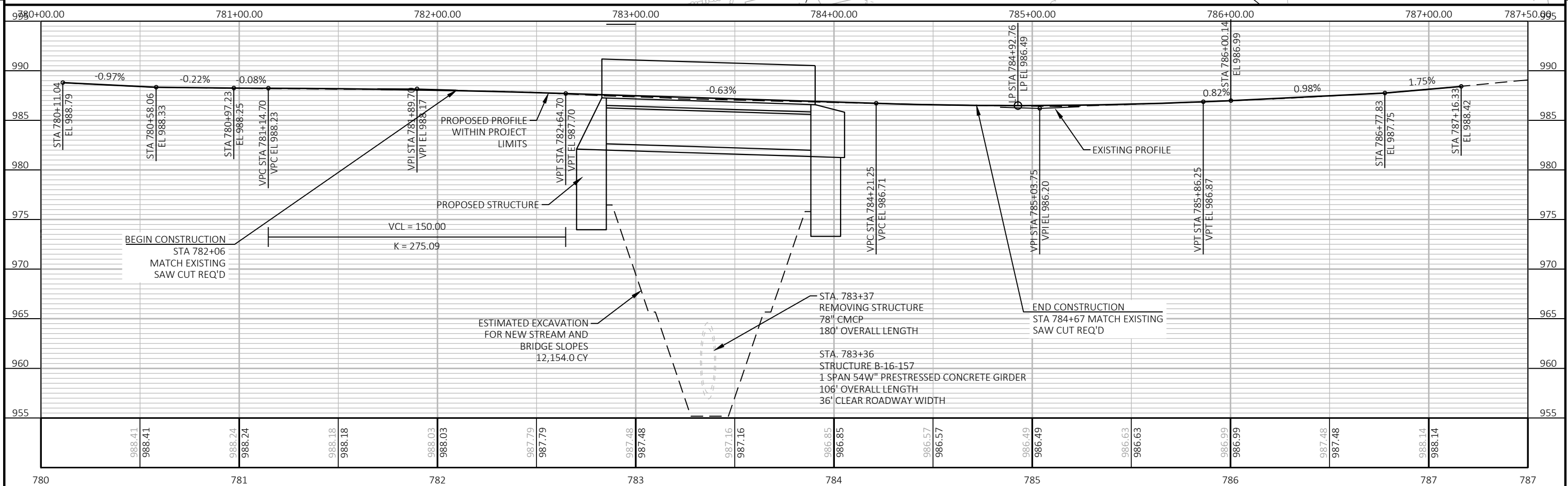
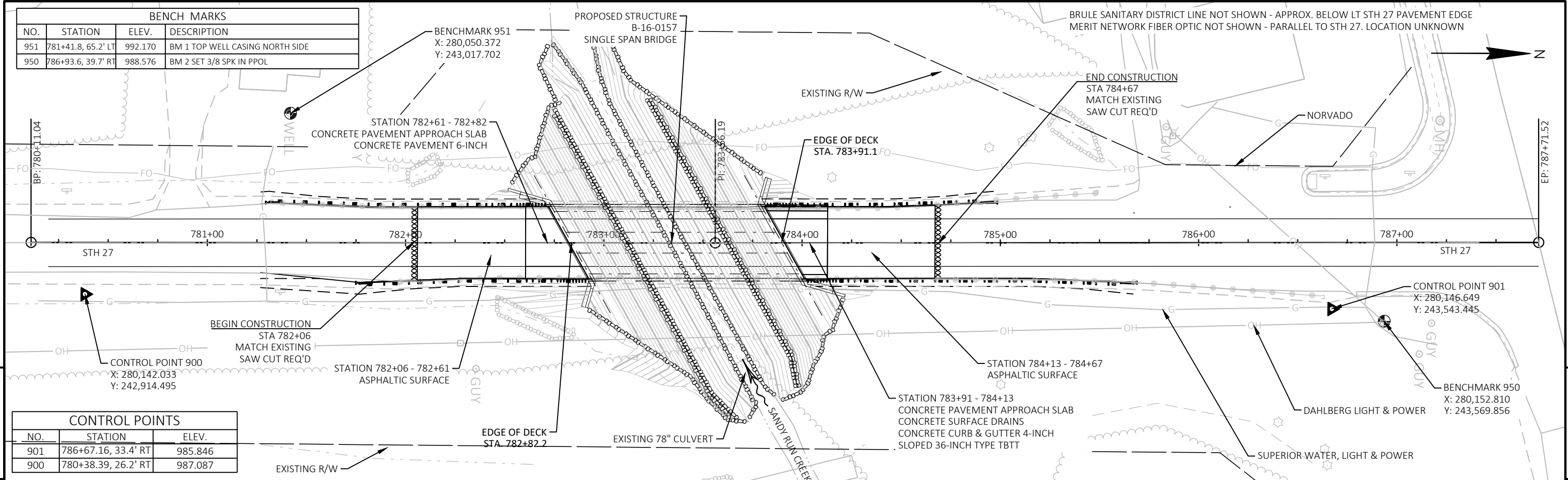
CONSTRUCTION STAKING										
650.4000 650.4500 650.5000 650.5500 650.6501.01 CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (01. B-16-157) EACH 650.9911.01 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 8150-00-72) EACH										
CATEGORY	STATION	TO	STATION	LOCATION	CONSTRUCTION STAKING STORM SEWER EACH	CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING BASE LF	CONSTRUCTION STAKING CURB GUTTER AND LF		REMARKS
0010		-		PROJECT					1	1
0010	783+82	-	784+13	LT				31		
0010	784+00	-	784+13	RT				13		
0010	782+06	-	782+82	ML		76	76			SOUTH SIDE
0010	783+91	-	784+67	ML		76	76			NORTH SIDE
0010	784+06	-		LT & RT	2					
TOTAL 0010					2	152	152	44	1	1

SAWING			
690.0150 SAWING ASPHALT LF			
CATEGORY	STATION	LOCATION	LF
0010	784+67	ML	37
0010	782+06	ML	37
TOTAL 0010			74

TEMP WATER DIV.			
SPV.0060.01 SPECIAL (01. STREAM BOULDER CLUSTERS) EACH SPV.0160.02 SPECIAL (02. TEMPORARY WATER DIVERSION) EACH			
CATEGORY	LOCATION		
0010		5	1
TOTAL 0010		5	1







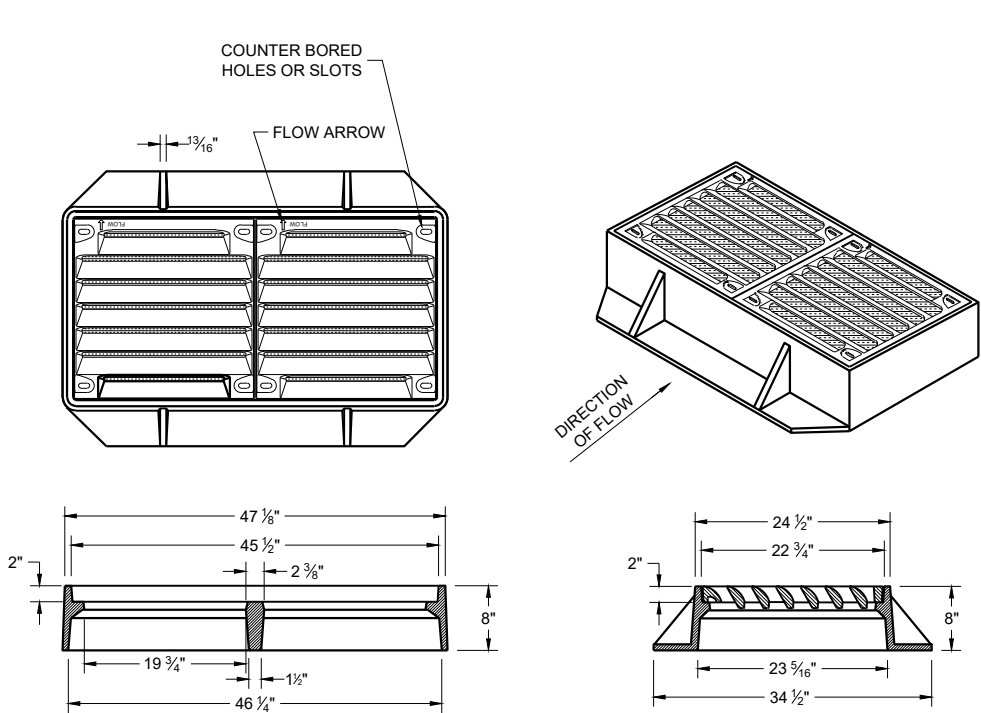
Standard Detail Drawing List

08A05-22D	INLET COVERS TYPE V, V-B, & VV-B
08C07-03	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT, 2.5X3-FT & 2X3.5-FT
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D03-09A	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08D03-09B	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
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)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C02-09H	MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS

GENERAL NOTES

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

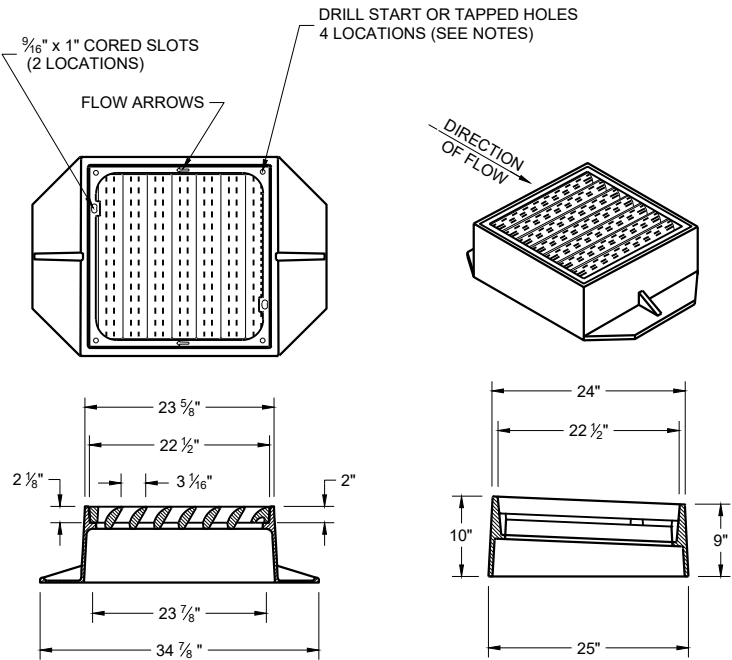
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.



TYPE "VV-B"

NOTES: ALL HARDWARE TO BE SUPPLIED BY CASTING MANUFACTURER
ALL DRILLING AND TAPPING GRATES AND FRAMES BY CASTING MANUFACTURER

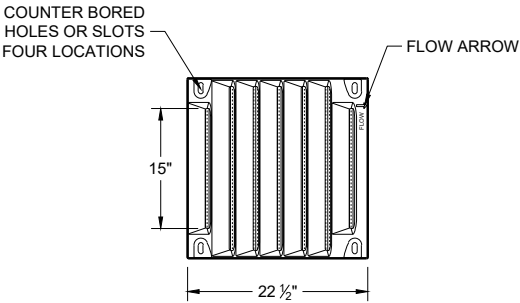
TYPE V
FRAME - CAST GRAY IRON ASTM A48 CLASS 35B
3/8" DIA. X 1/16" DRILL START IN 8 LOCATIONS
GRATE - CAST GRAY IRON ASTM A-48, CLASS 35B



TYPE "V"

NOTES: ALL HARDWARE TO BE SUPPLIED BY CASTING MANUFACTURER ALL DRILLING AND TAPPING GRATES AND FRAMES BY CASTING MANUFACTURER

TYPE V
FRAME - CAST GRAY IRON ASTM A48 CLASS 40A
3/8" DIA. X 1/16" DRILL START IN 4 LOCATIONS
GRATE - CAST GRAY IRON ASTM A-48, CLASS 35B



BOLT DOWN GRATE FOR
TYPE "V" AND "VV-B" COVER

NOTES: ALL HARDWARE TO BE SUPPLIED BY CASTING MANUFACTURER
NOTED AS TYPE "V-B" OR "VV-B" (FOR DOUBLE GRATE) ON DRAINAGE TABLE

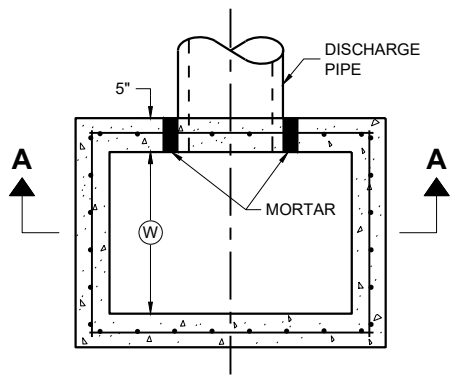
TAP 1/2" -13 HOLES IN FOUR LOCATIONS PER GRATE IN FRAME TO BOLT GRATE(S).
FRAME - CAST GRAY IRON ASTM A48 CLASS 40A

GRATE - CAST DUCTILE IRON ASTM A536, 55+KSI YIELD
BOLTS - 1/2" -13 STAINLESS STEEL BOLTS WITH WASHERS
TORQUE BOLTS TO MANUFACTURER SPECIFICATION DO NOT OVERTIGHTEN.

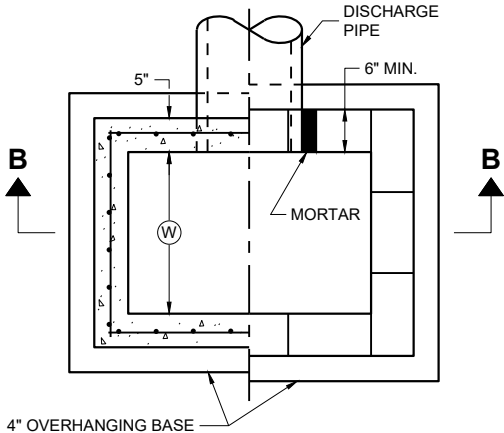
INLET COVERS
TYPES V, V-B, AND VV-B

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

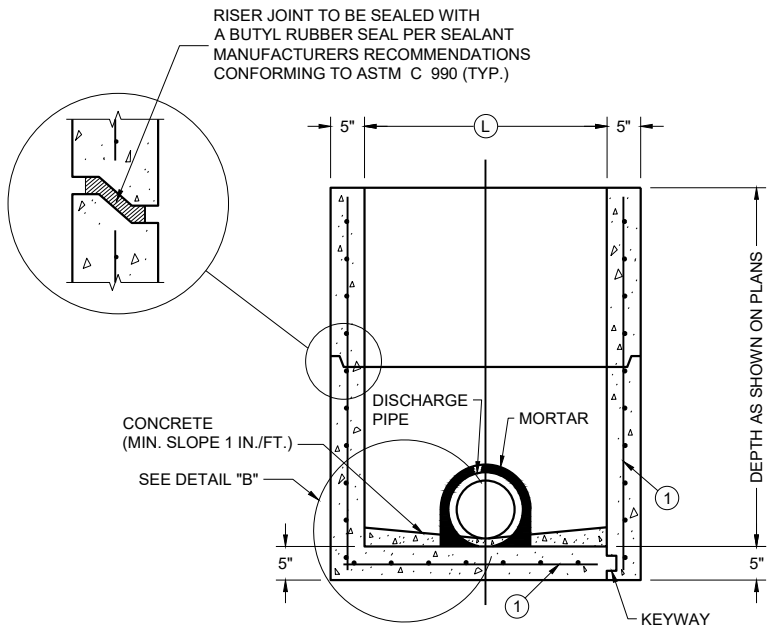
APPROVED
February 2025 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



PLAN VIEW



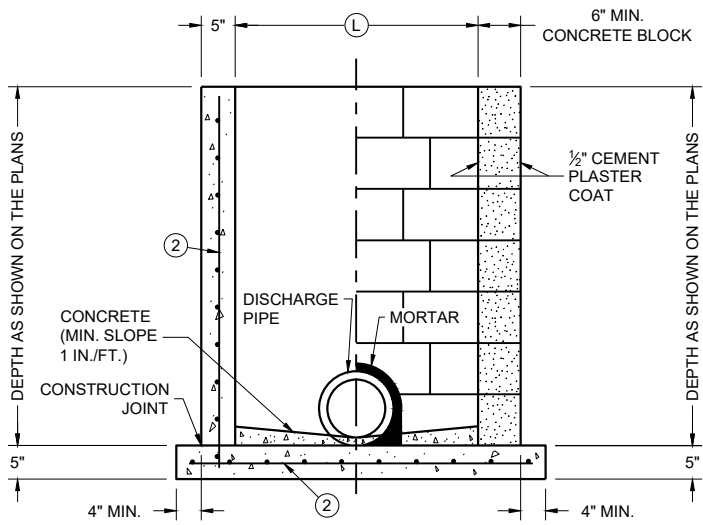
PLAN VIEW



PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

PRECAST REINFORCED
CONCRETE WITH
INTEGRAL BASE

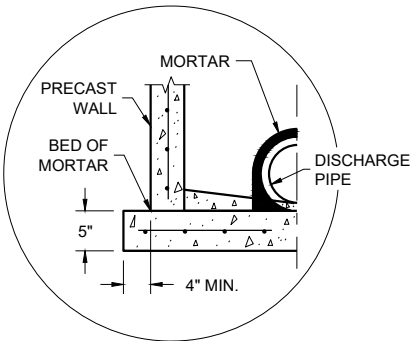
SECTION A - A



CAST IN PLACE
REINFORCED
CONCRETE

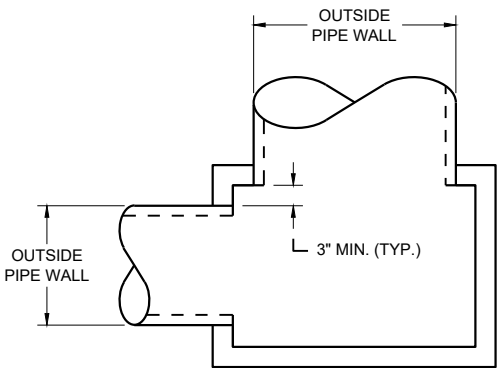
CONCRETE BLOCK WITH
CAST IN PLACE OR
PRECAST REINFORCED
CONCRETE BASE ①

SECTION B - B



SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION

DETAIL "B"



DETAIL "A"

INLETS 2 X 2-FT, 2 X 2.5-FT, 2 X 3-FT, 2.5 X 3-FT AND 2X3.5-FT

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

- ① FOR PRECAST INLETS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

CATCH BASIN COVER MATRIX

INLET SIZE	WIDTH (W) (FT.)	LENGTH (L) (FT.)	INLET COVER TYPE									
			ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM	V V-B
2 X 2-FT	2	2	X	X				X				
2 X 2.5-FT	2	2.5			X			X	X	X	X	
2 X 3-FT	2	3					X					
2.5 X 3-FT	2.5	3				X						
2 X 3.5-FT	2	3.5										X

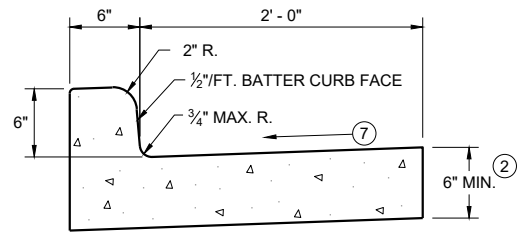
PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	WIDTH (IN)	LENGTH (IN)
2 X 2-FT	12	12
2 X 2.5-FT	12	18
2 X 3-FT	12	24
2.5 X 3-FT	18	24
2 X 3.5-FT	12	30

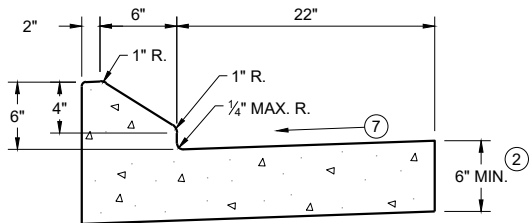
INLETS 2 X 2-FT, 2 X 2.5-FT,
2 X 3-FT, 2.5 X 3-FT
AND 2 X 3.5-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

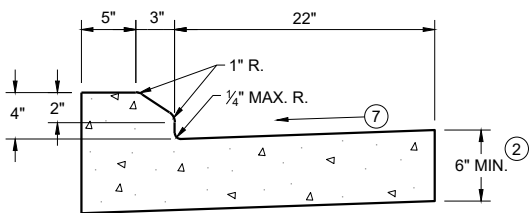
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



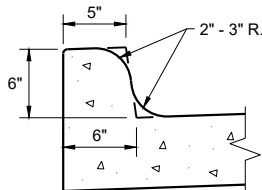
TYPES A^① & D



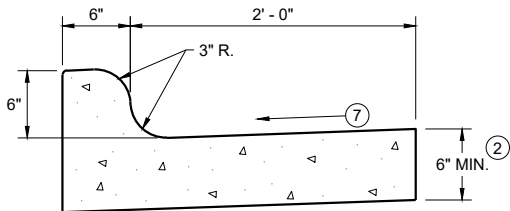
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

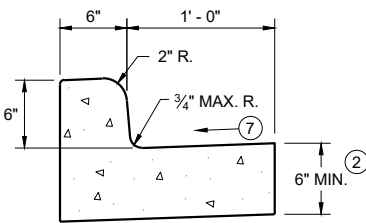


TYPES K^① & L
(OPTIONAL CURB SHAPE)



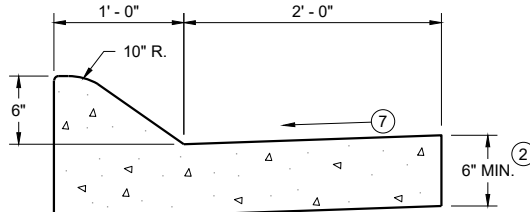
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

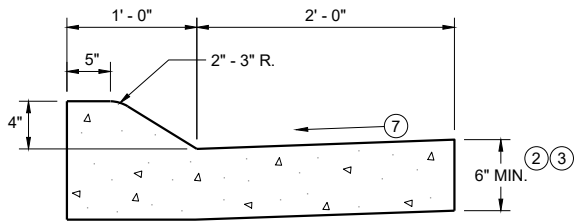


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

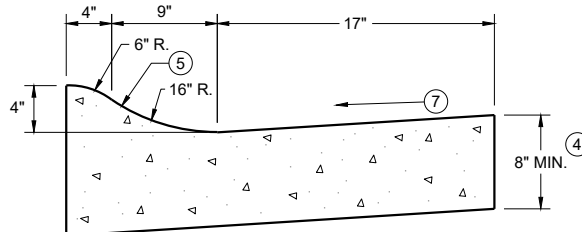


6" SLOPED CURB TYPES A^① & D



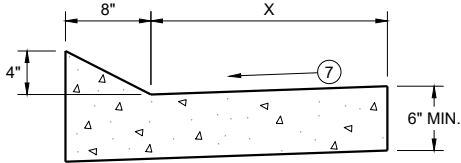
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



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

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

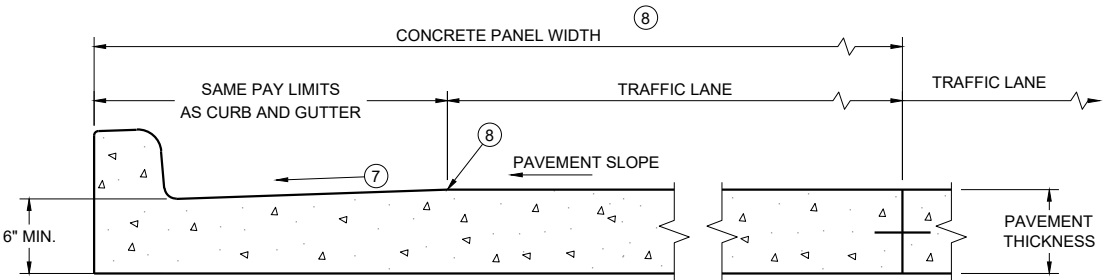


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

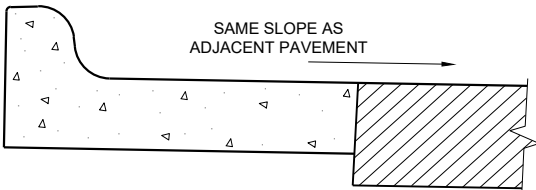
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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

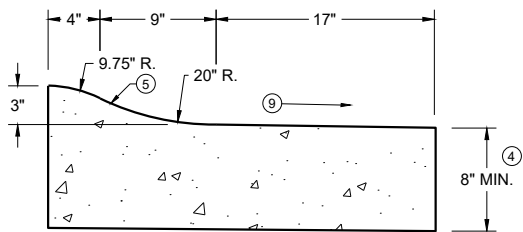


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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



3" SLOPED CURB TYPES R^① & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

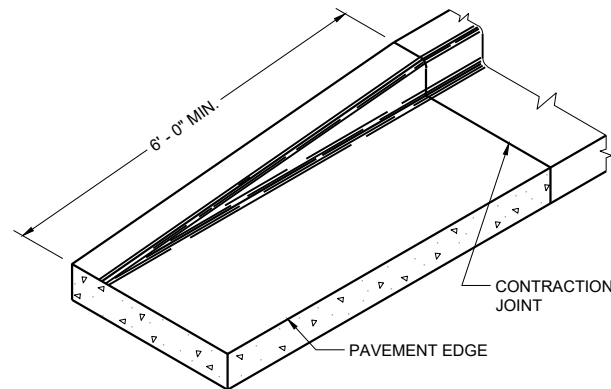
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

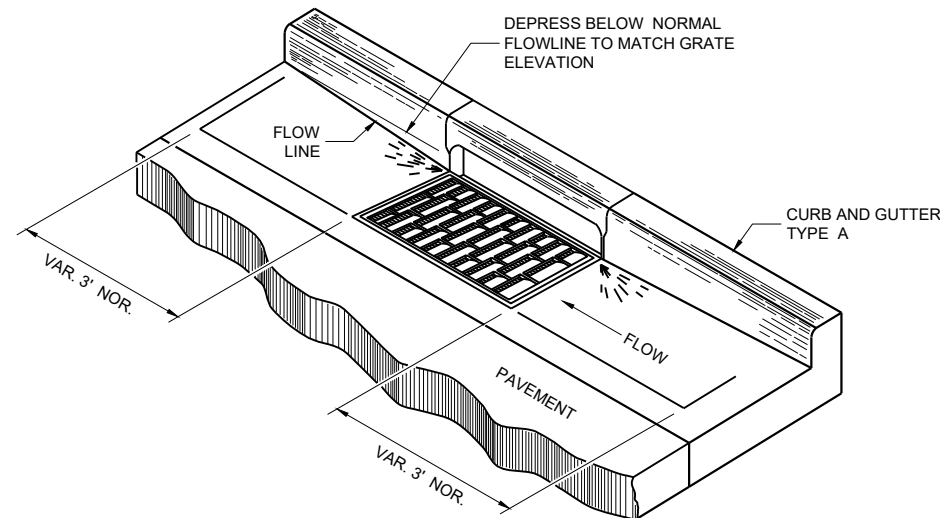
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

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

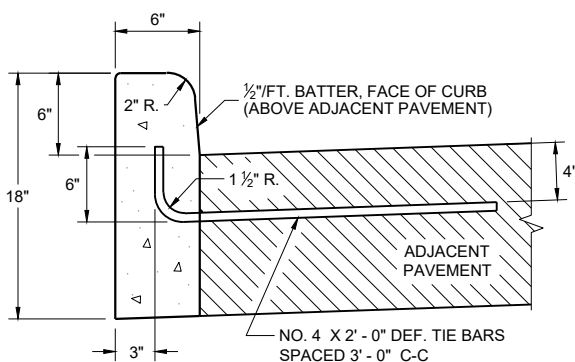


END SECTION CURB AND GUTTER

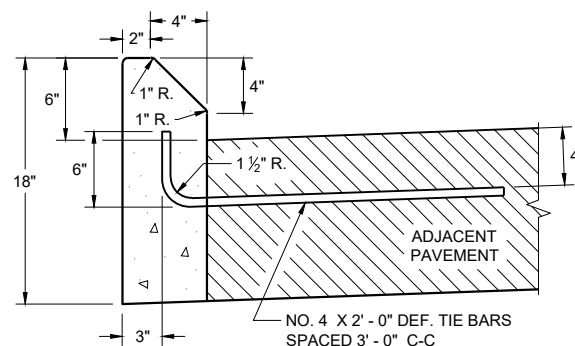


DETAIL OF CURB AND GUTTER AT INLETS

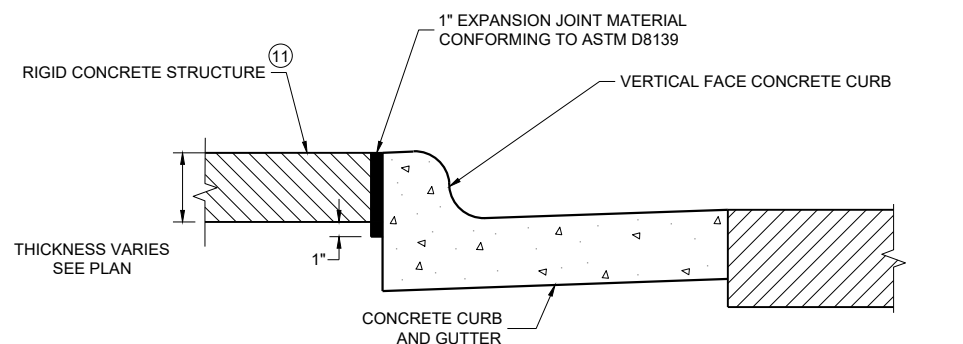
(TYPICAL H INLET COVER SHOWN)



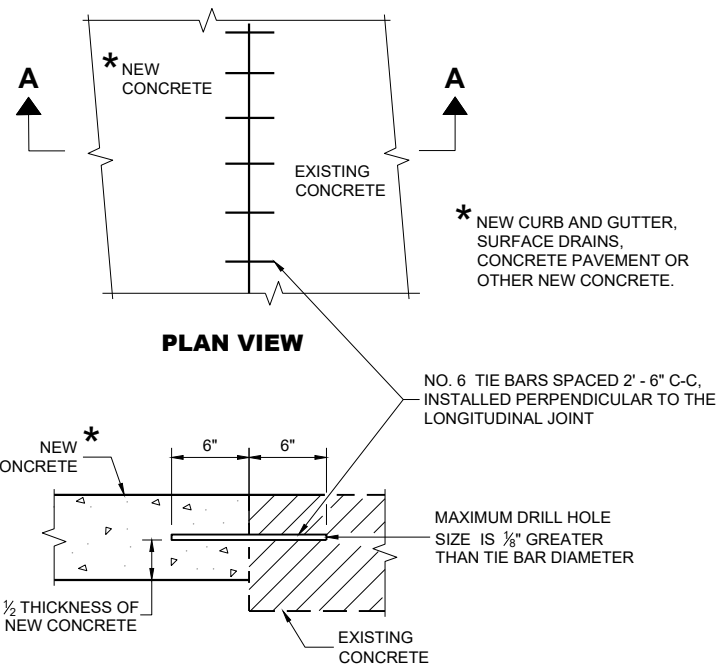
TYPES A^① & D



**TYPES G^① & J
CONCRETE CURB**



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



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

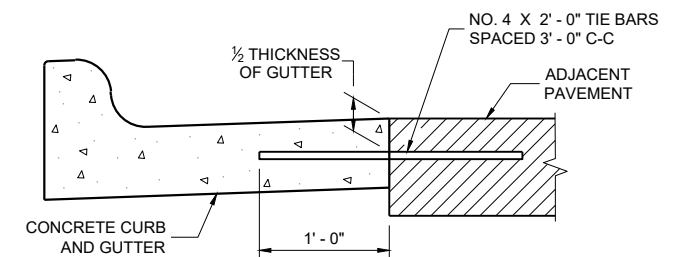
GENERAL NOTES

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

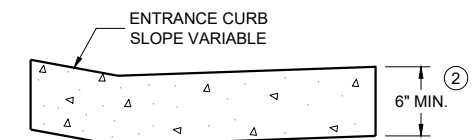
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.
- ⑪ PLACE 1" THICK EXPANSION JOINT MATERIAL BETWEEN VERTICAL FACE CURB TYPES EXTENDING FROM THE TOP OF CURB TO 1 INCH BELOW THE ADJOINING CONCRETE SURFACE. RIGID CONCRETE STRUCTURES INCLUDE RAISED CONCRETE MEDIANS, CONCRETE SAFETY ISLANDS, SPLITTER ISLANDS, OR LOCATIONS IDENTIFIED ON THE PLANS.



TYPICAL TIE BAR LOCATION^①



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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

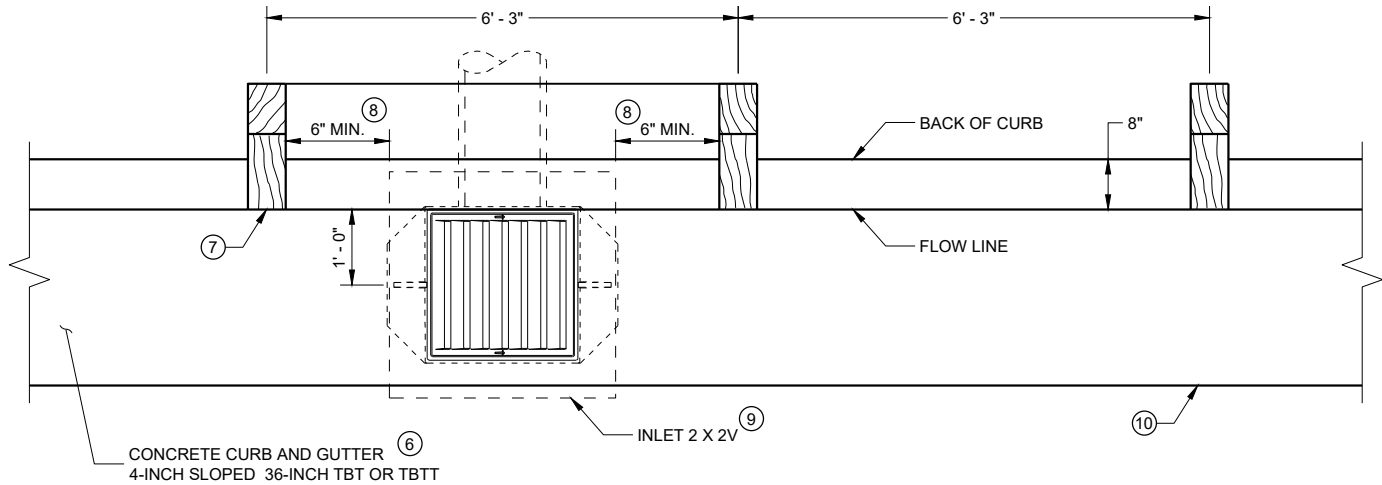
APPROVED
February 2025 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

GENERAL NOTES

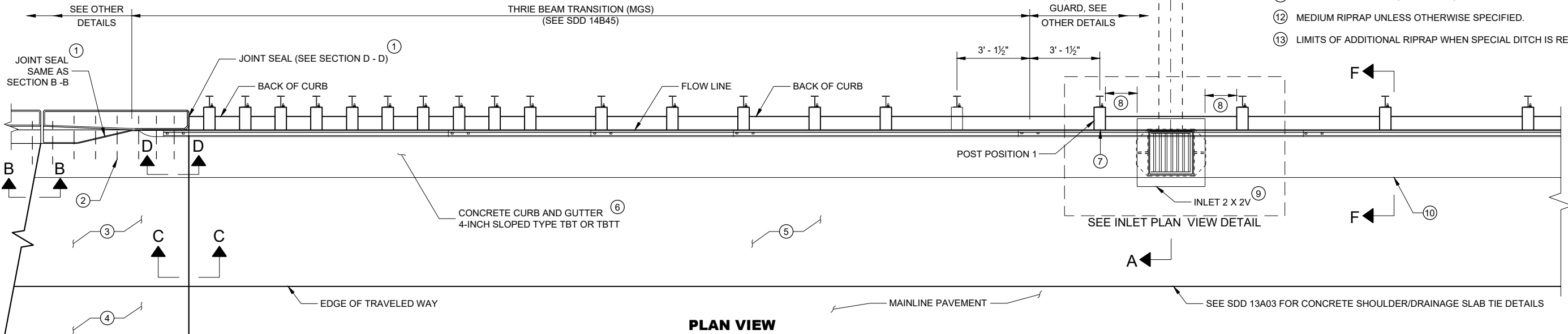
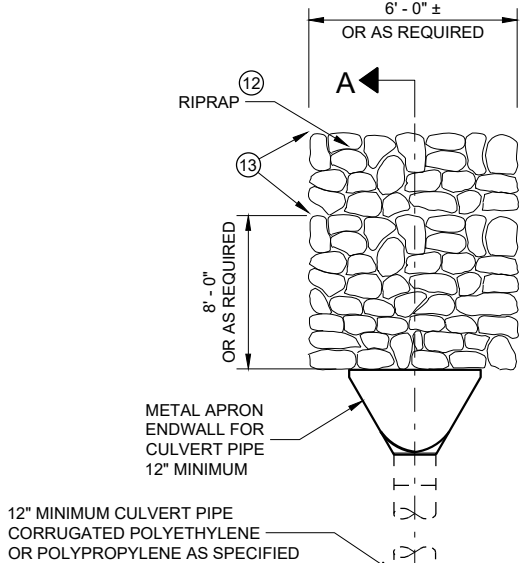
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

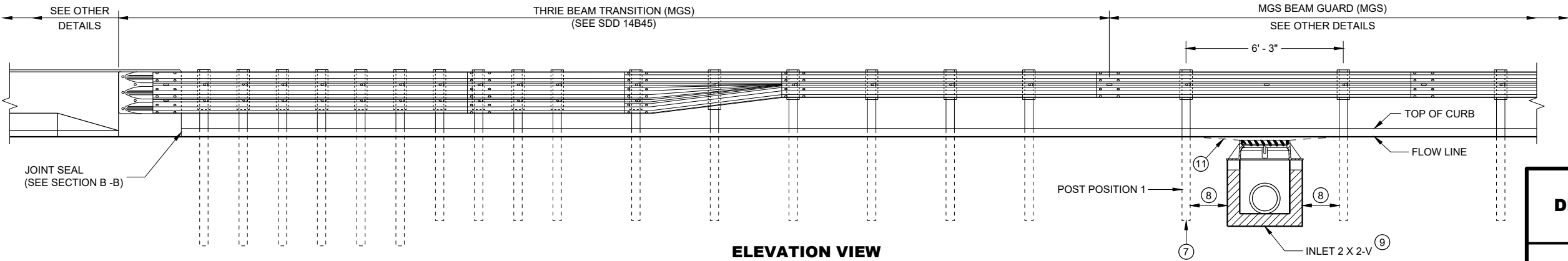
- 1 USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- 2 NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- 3 PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- 4 CONCRETE PAVEMENT APPROACH 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 DRAINAGE STRUCTURE BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- 8 CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- 9 SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- 10 START CURB AND GUTTER TRANSITION OR END SECTION.
- 11 DEPRESS FLOW LINE (SEE DETAIL)
- 12 MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- 13 LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.



INLET PLAN VIEW
(NOTE: RAIL NOT SHOWN FOR CLARITY)



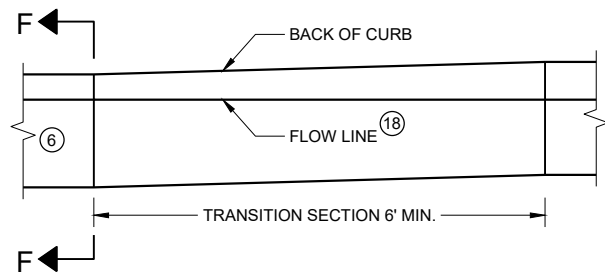
PLAN VIEW



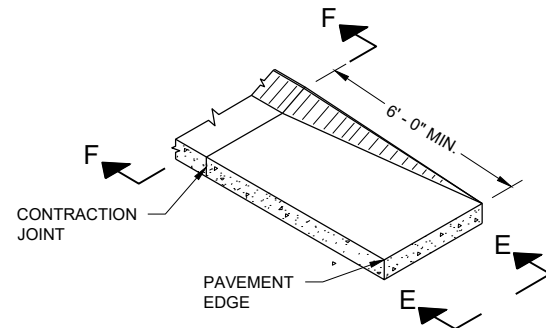
ELEVATION VIEW

CONCRETE SURFACE
DRAINS DROP INLET TYPE
AT STRUCTURES

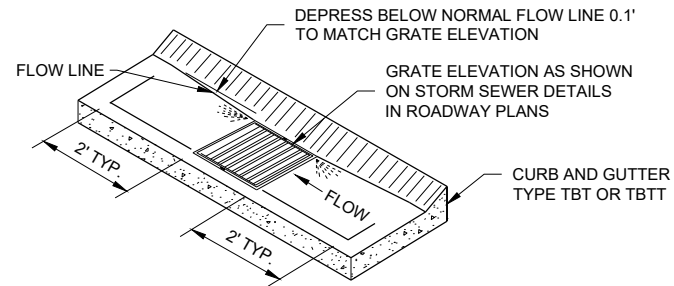
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



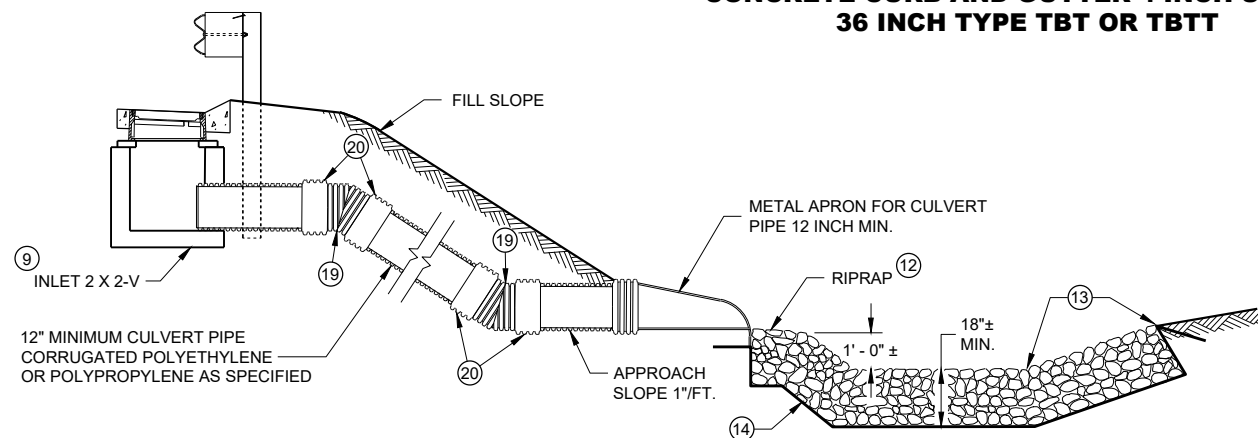
**CURB AND GUTTER TRANSITION SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBT**



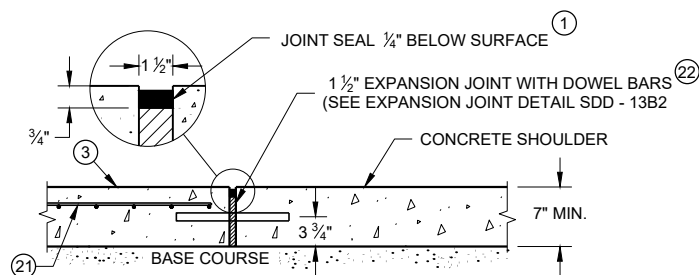
**CURB AND GUTTER END SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBT**



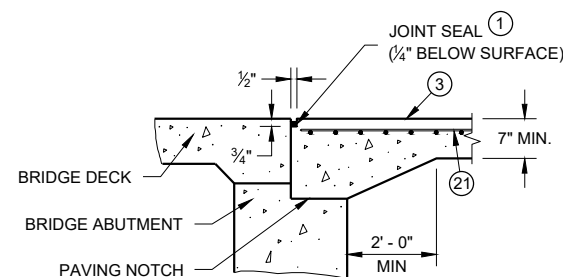
**CURB AND GUTTER FLOW LINE DEPRESSION
AT INLETS CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBT**



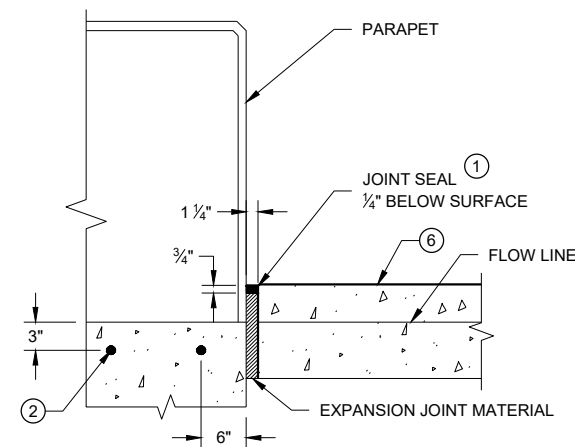
SECTION A - A



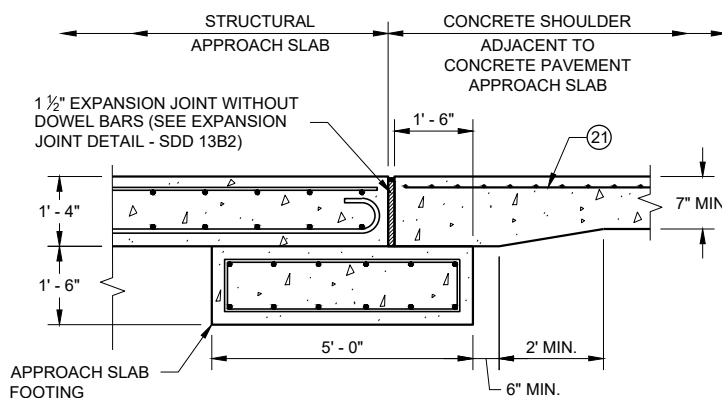
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



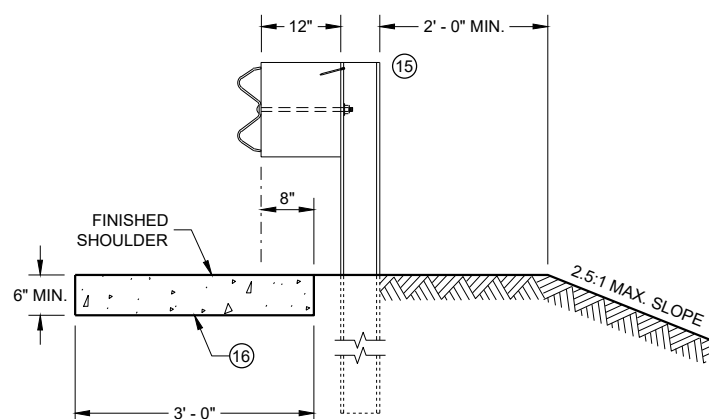
SECTION B-B



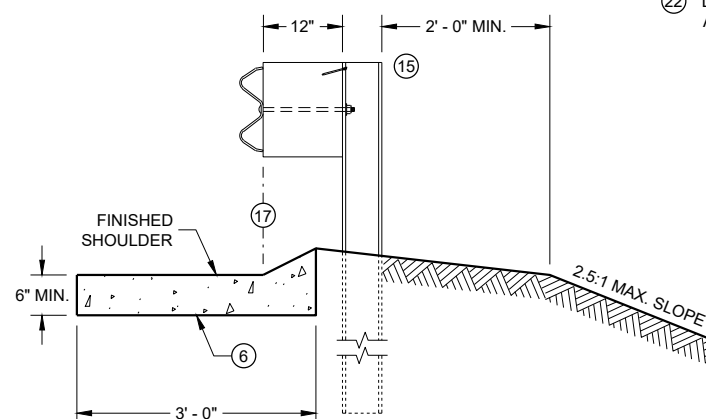
SECTION D - D



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



SECTION E - E



SECTION F - F

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.

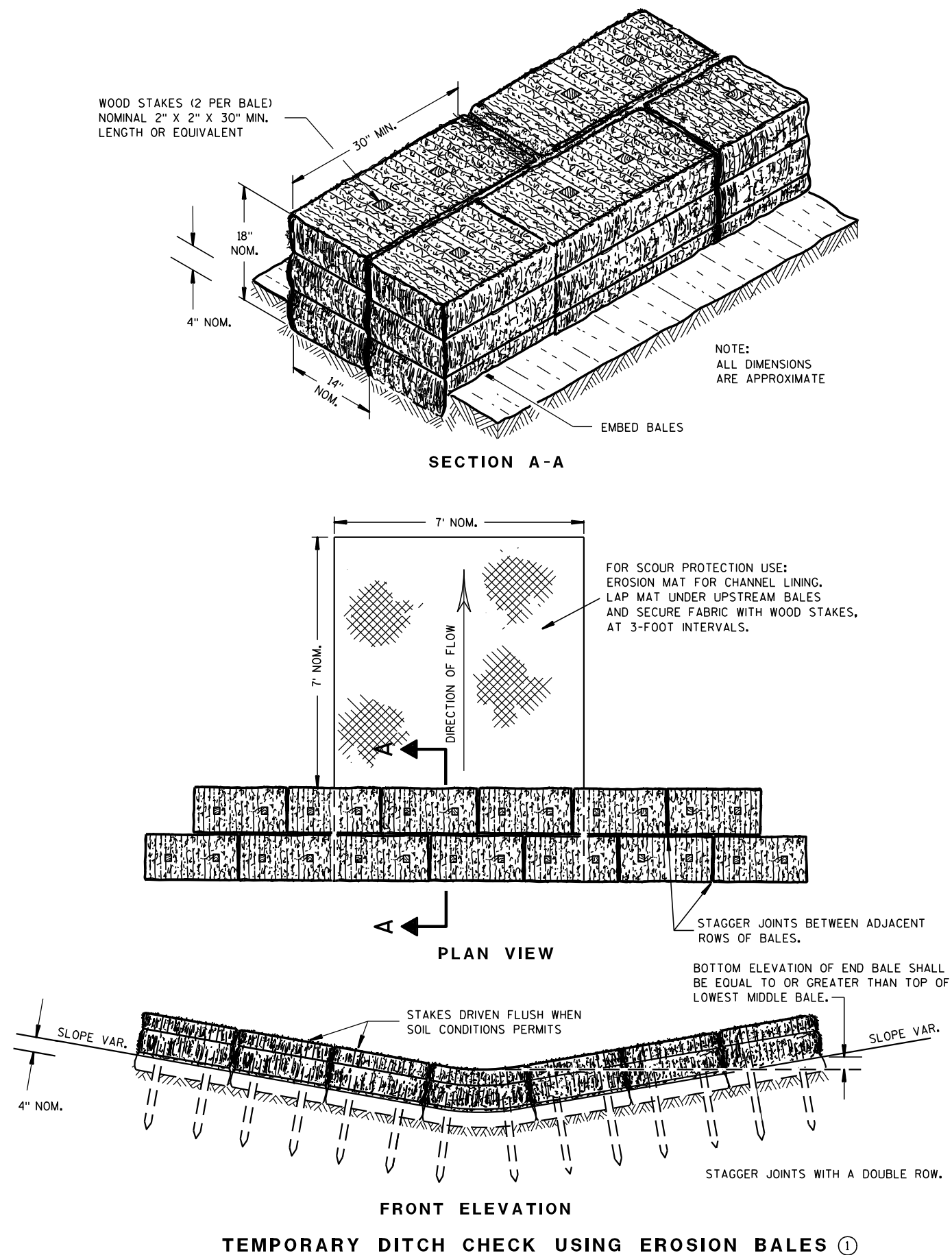
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- 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 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- 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 DRAINAGE STRUCTURE BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- ⑨ SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- ⑩ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑪ DEPRESS FLOW LINE (SEE DETAIL)
- ⑫ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑬ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑭ GEOTEXTILE TYPE HR.
- ⑮ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑯ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑰ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑱ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ⑲ MANUFACTURER SUPPLIED BEND.
- ⑳ MANUFACTURER SUPPLIED EXTERNAL MECHANICAL COUPLING OR A MANUFACTURER RECOMMENDED COUPLING WITH A MASTIC IMPREGNATED GEOTEXTILE WRAP AND MECHANICAL FASTENING BANDS.
- ㉑ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ㉒ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

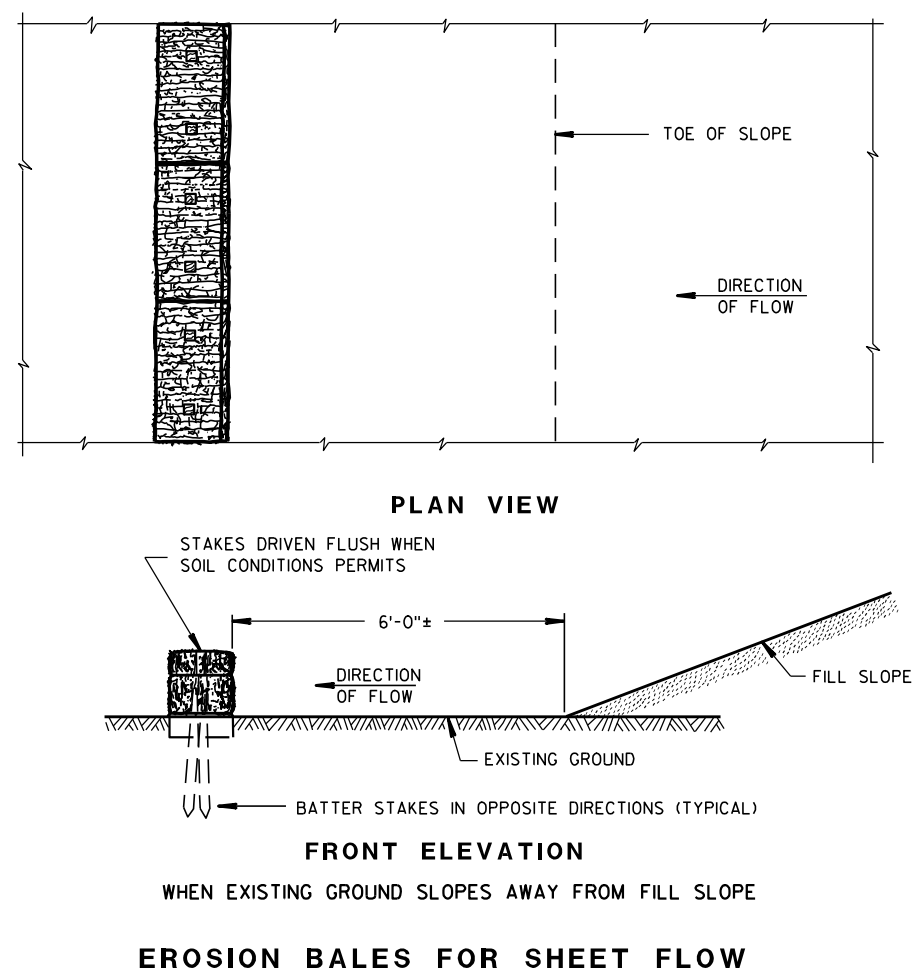
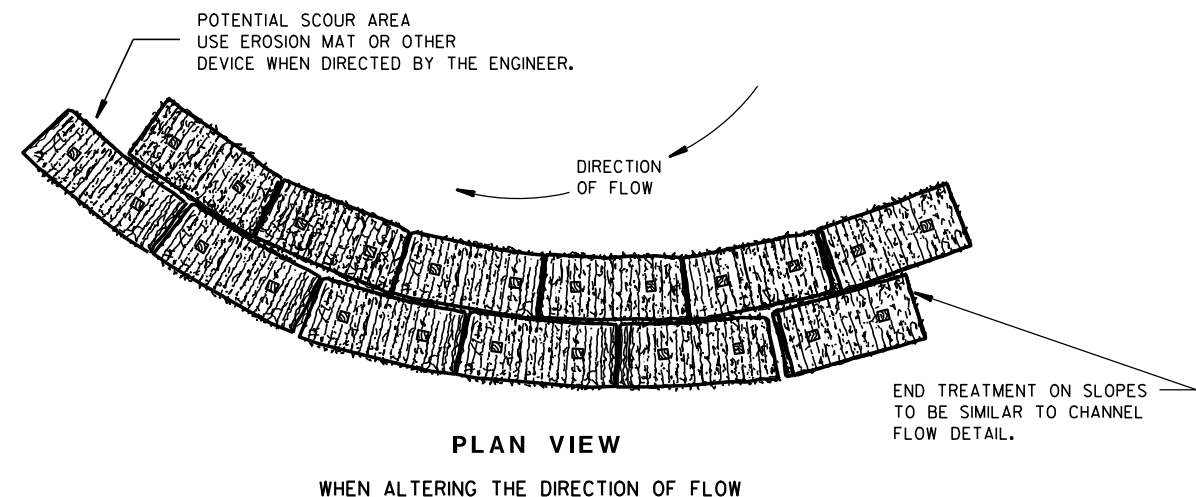
APPROVED
May 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 26
FHWA



GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

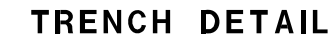
APPROVED

6/04/02
DATE/S/ Beth Conn-----
CHIEF ROADWAY DEVELOP 27 ENGINEER

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.



SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05
DATE

/S/ Beth Connolly
CHIEF ROADWAY DEVELOPMENT

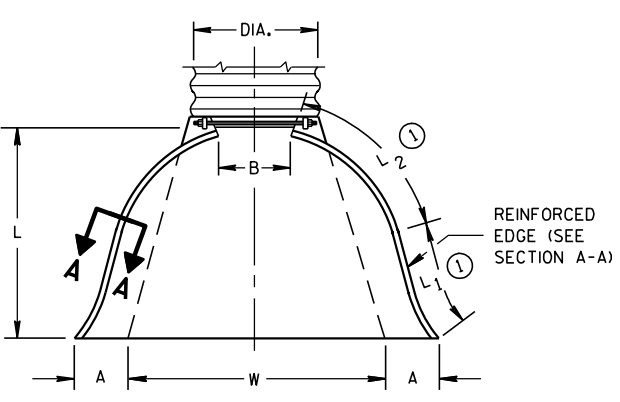
28

ENGINEER

FHWA

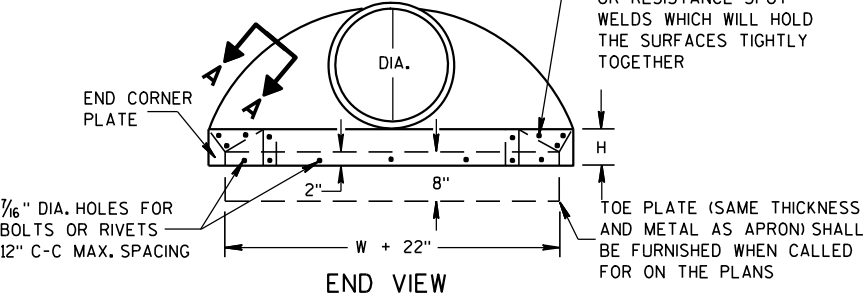
METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY	
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L ₁ ①	L ₂ ①	W (±2")			
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.	
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.	
18	.064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

* EXCEPT CENTER PANEL
SEE GENERAL NOTES



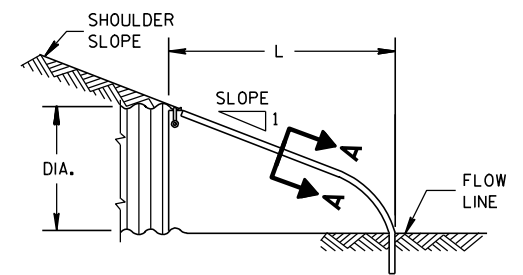
PLAN VIEW

REINFORCED
EDGE (SEE
SECTION A-A)



END VIEW

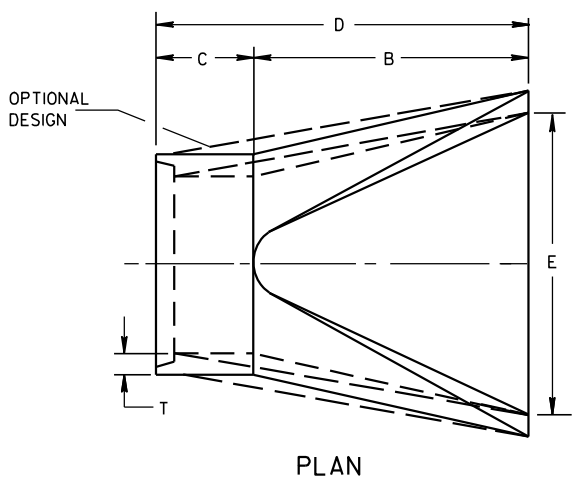
TOE PLATE (SAME THICKNESS
AND METAL AS APRON) SHALL
BE FURNISHED WHEN CALLED
FOR ON THE PLANS



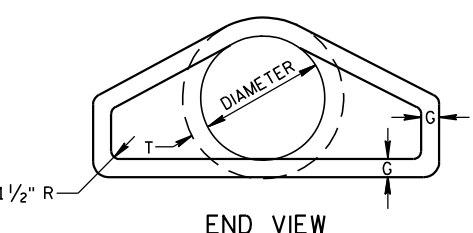
SIDE ELEVATION
METAL ENDWALLS

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

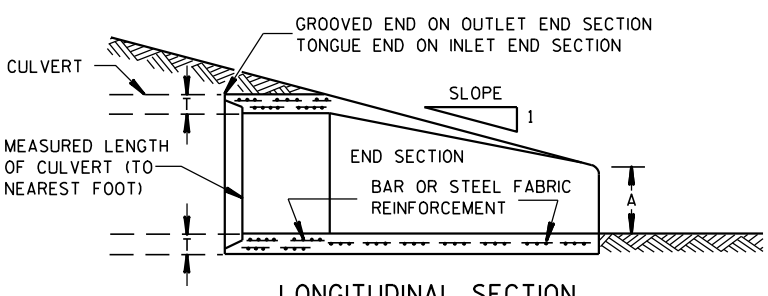
*MINIMUM
**MAXIMUM



PLAN

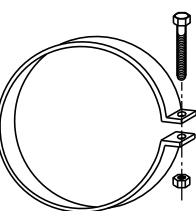


END VIEW

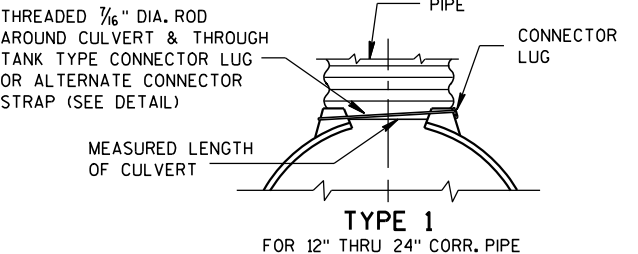


LONGITUDINAL SECTION
CONCRETE ENDWALLS

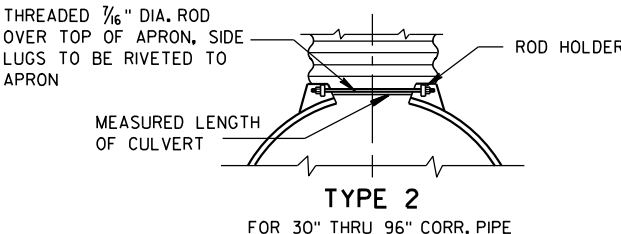
1" WIDE, 12 GA. (0.109"
THICK) GALVANIZED STRAP
WITH STANDARD 6" X 1/2"
BAND BOLT AND NUT



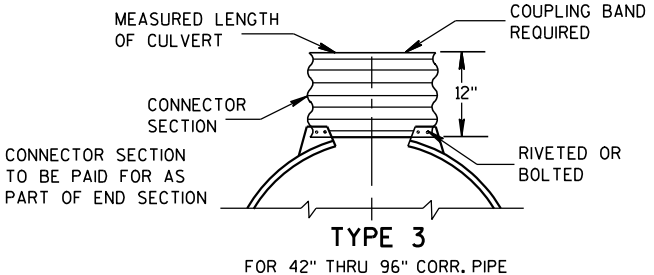
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



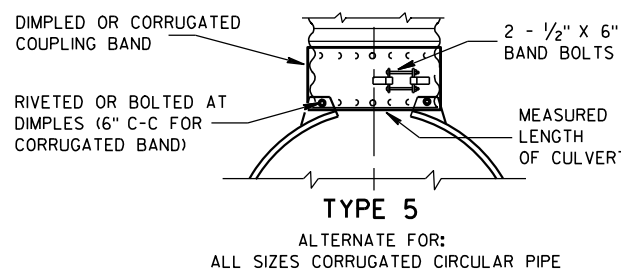
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



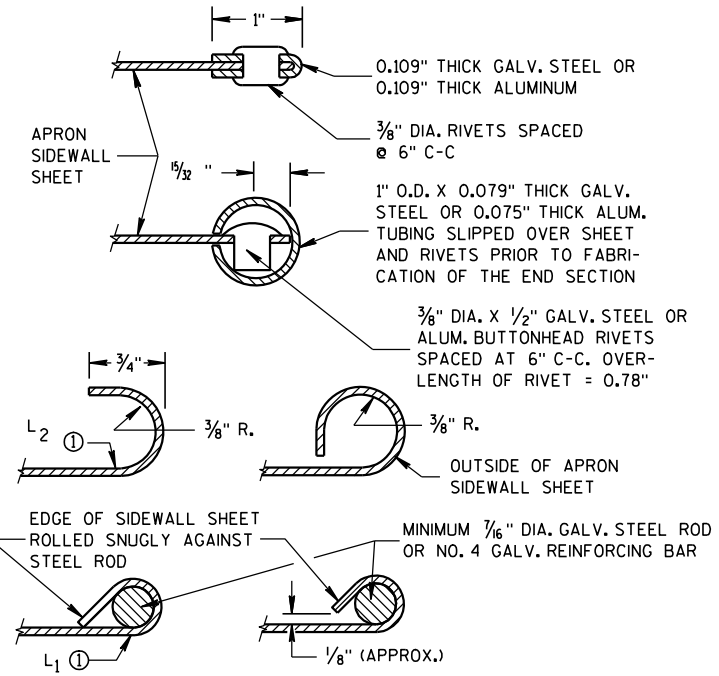
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

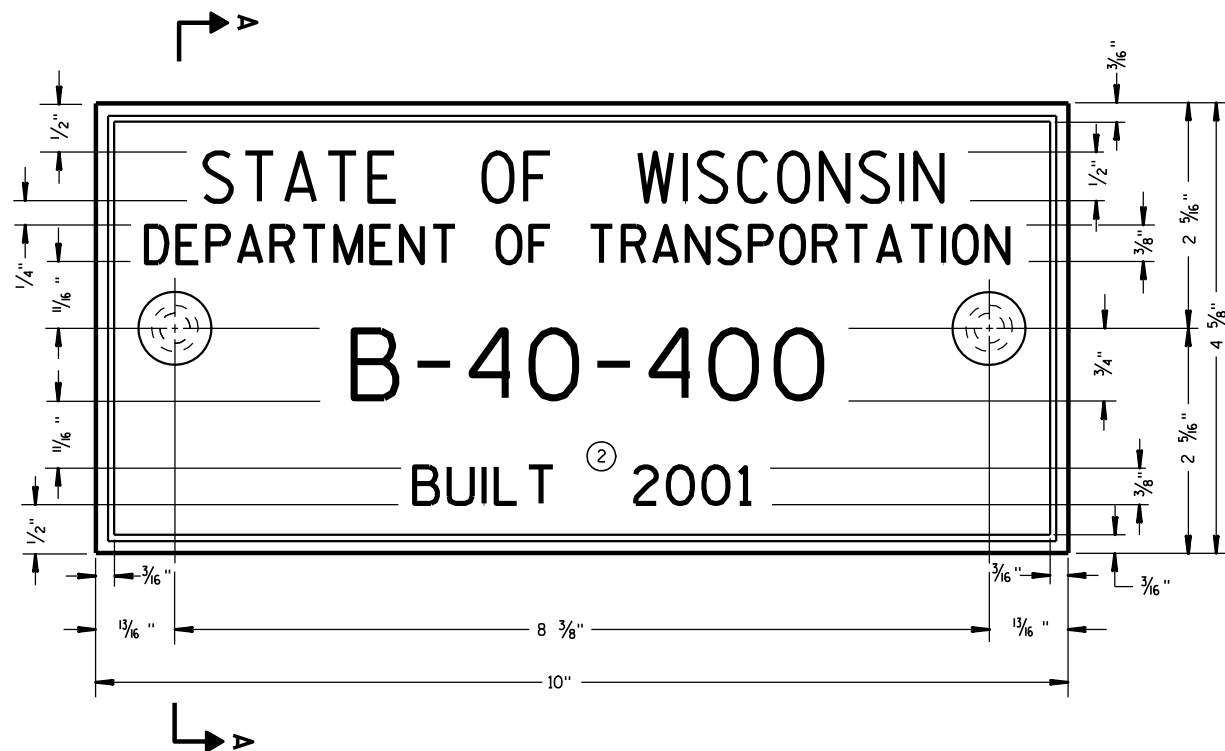
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL
THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH
OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

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

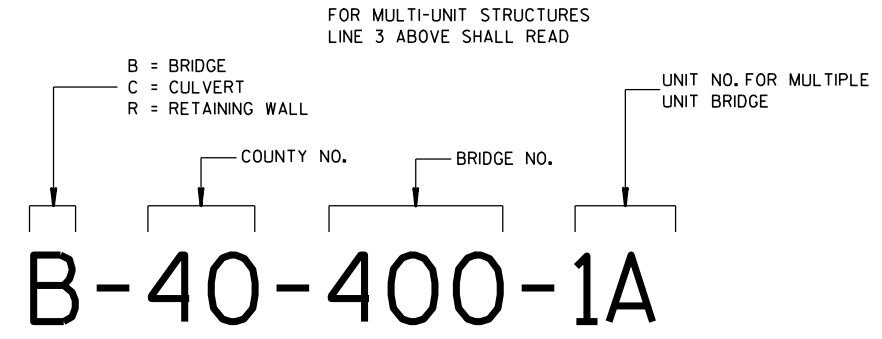
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT
TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT
TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR CULVERT PIPE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED	11/30/94	/S/ Rory L. Rhinehart	NEER
DATE		CHIEF ROADWAY DEVELOP	29
FHWA			



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



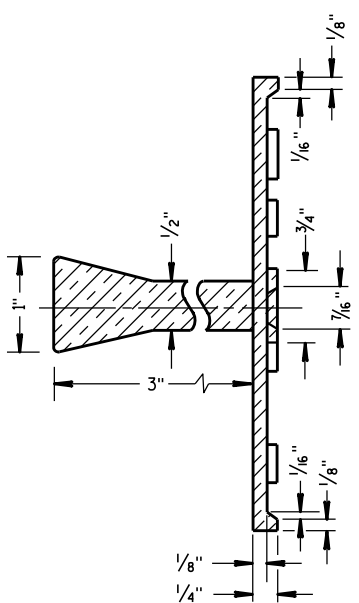
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

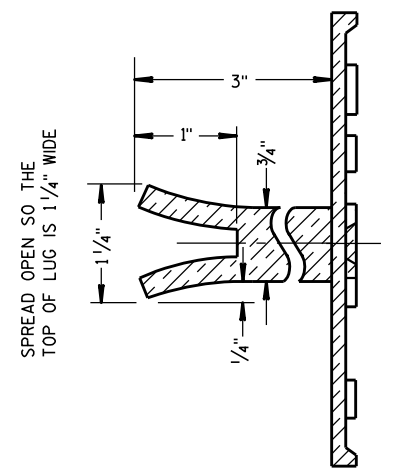
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

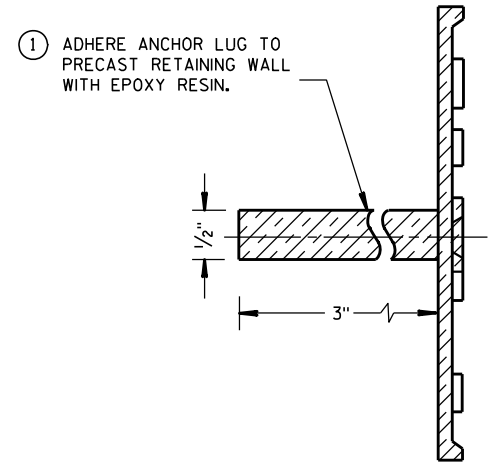
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A

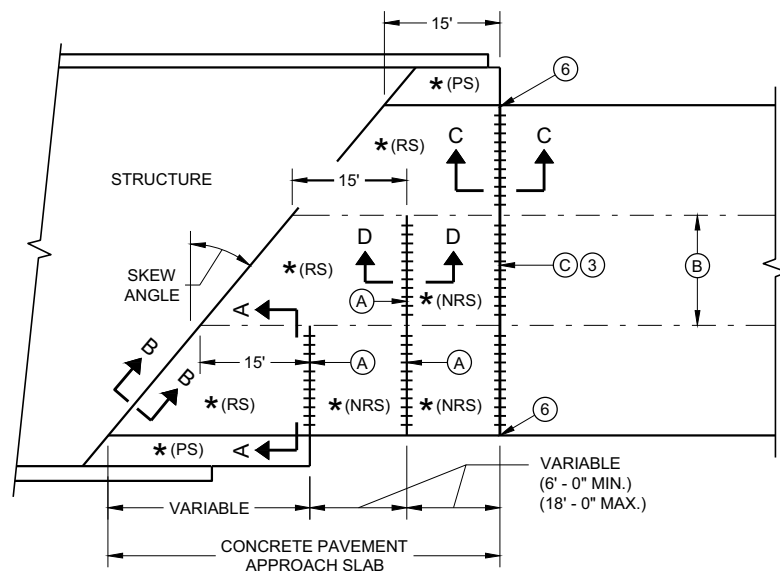


ALTERNATE LUG

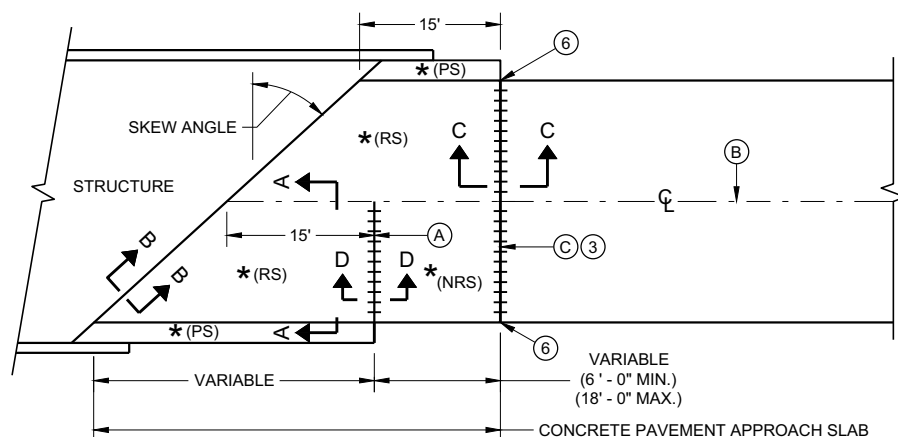


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

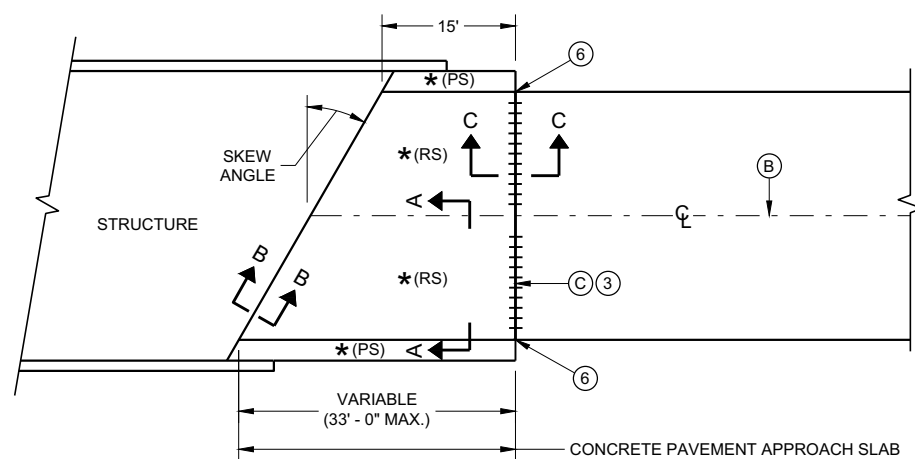
NAME PLATE (STRUCTURES)		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED DATE 3/26/10	CHIEF STRUCTURAL DEVELOPER /S/ Scot Beck 30	JEER



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



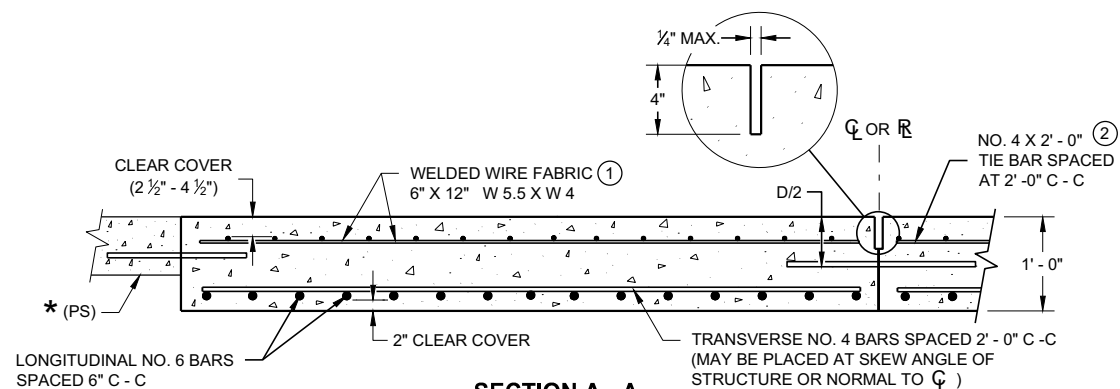
**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**



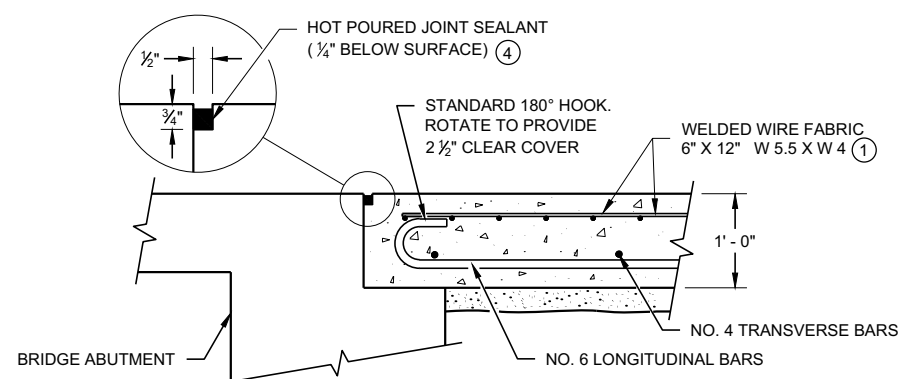
**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')**

APPROACH SLAB AND ADJACENT PAVEMENT

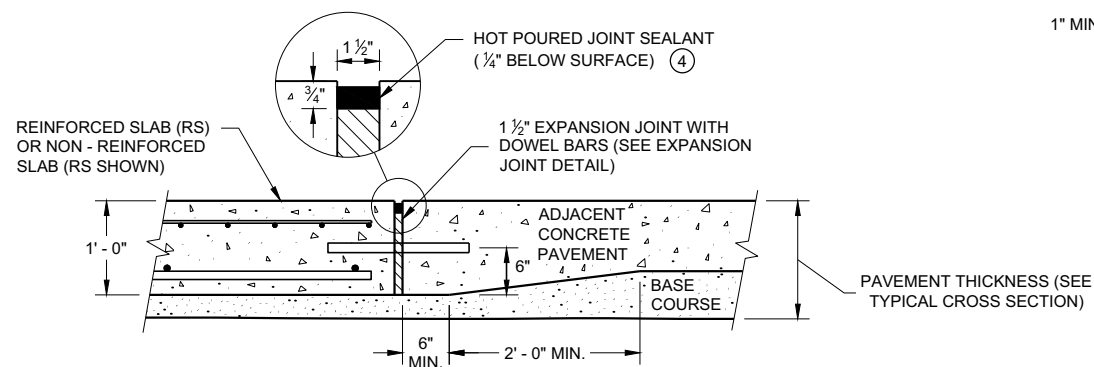
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



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



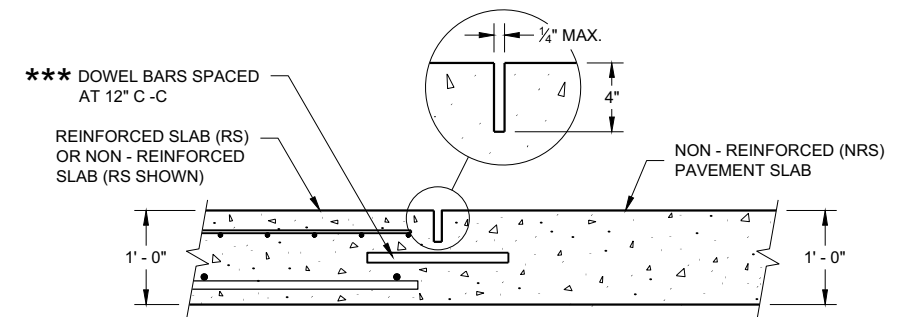
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

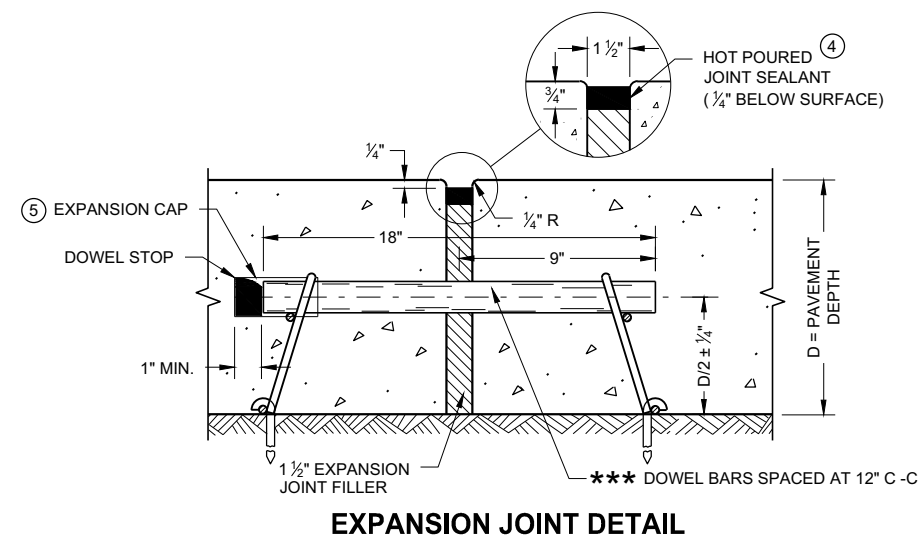
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

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**



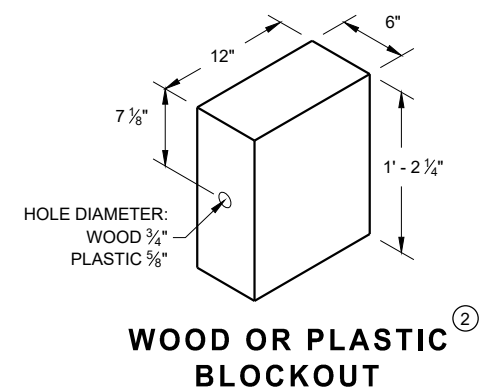
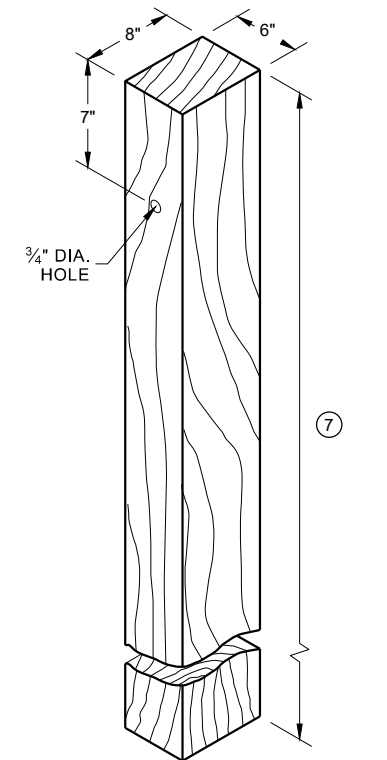
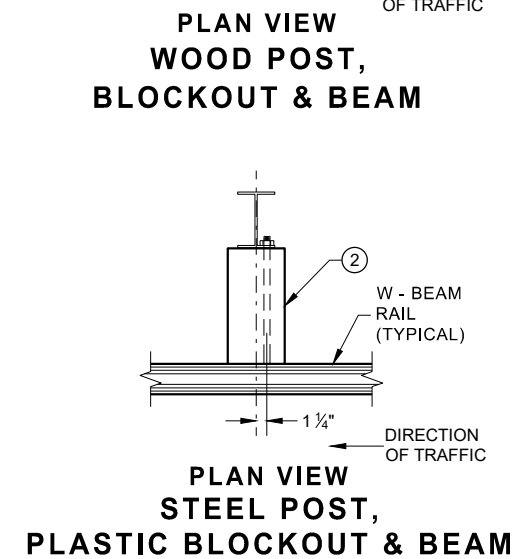
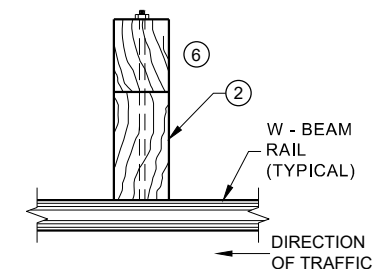
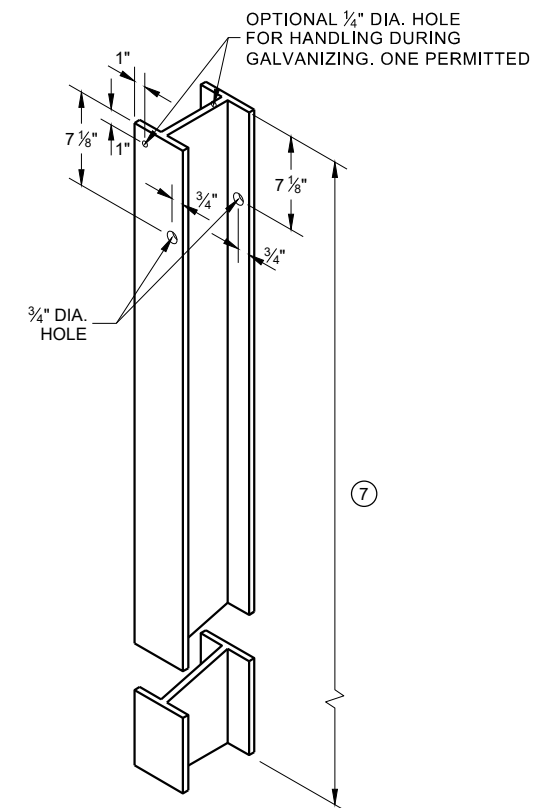
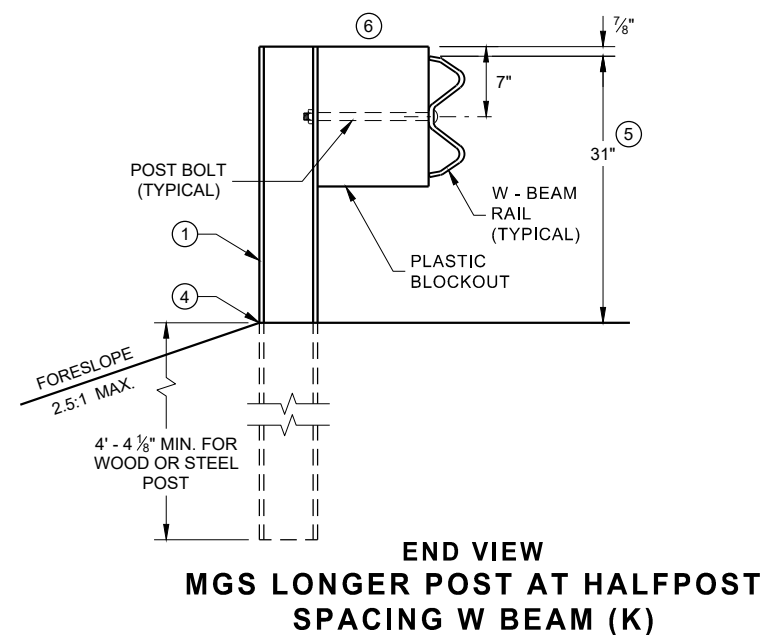
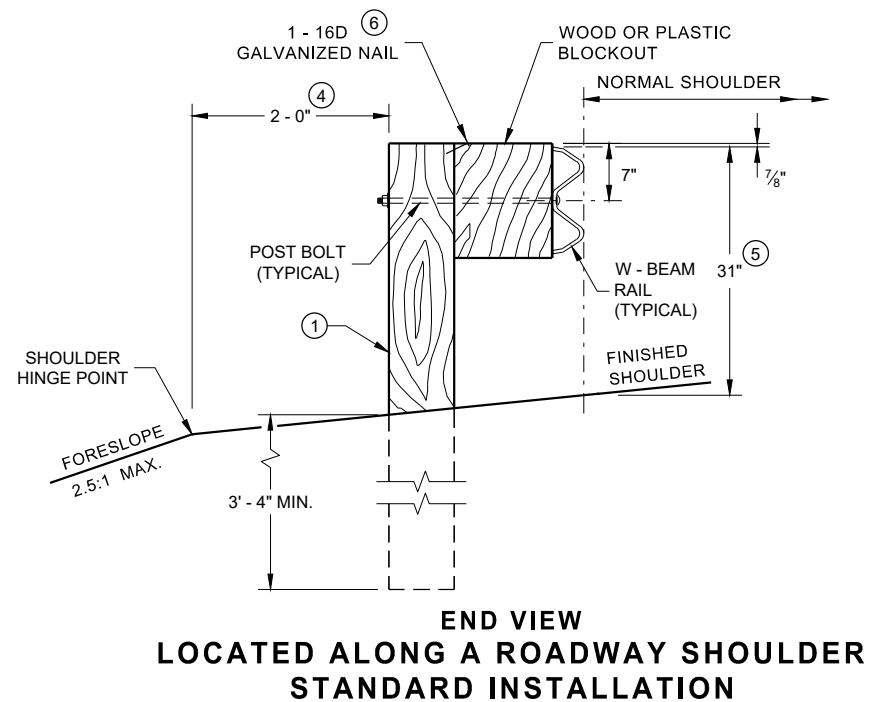
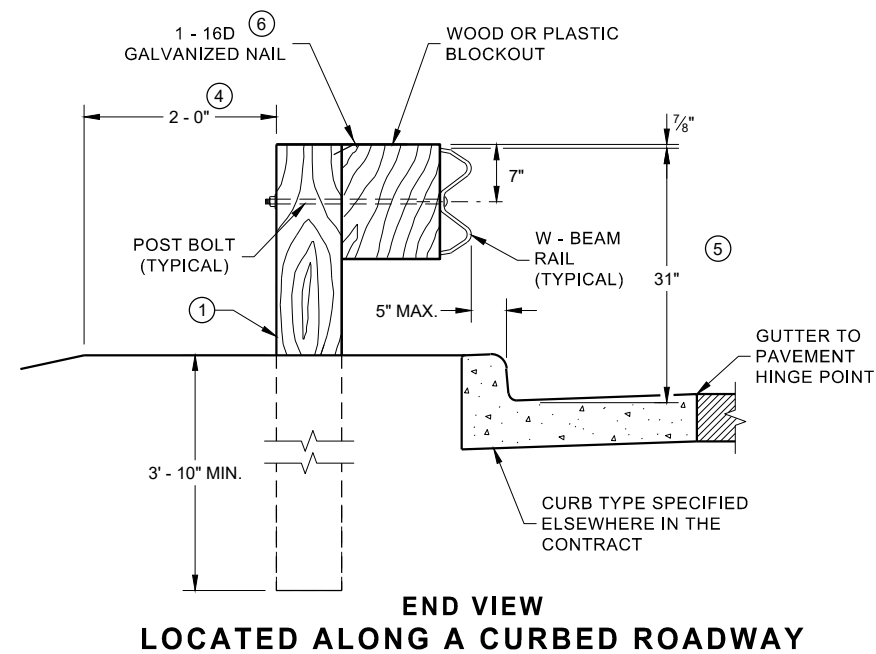
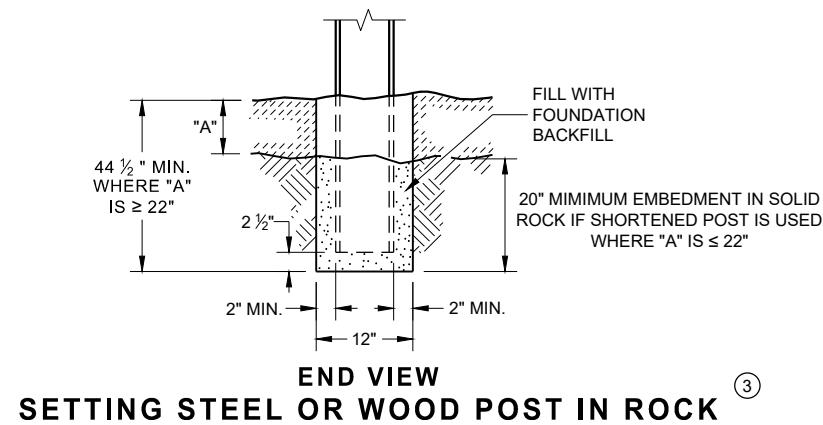
EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

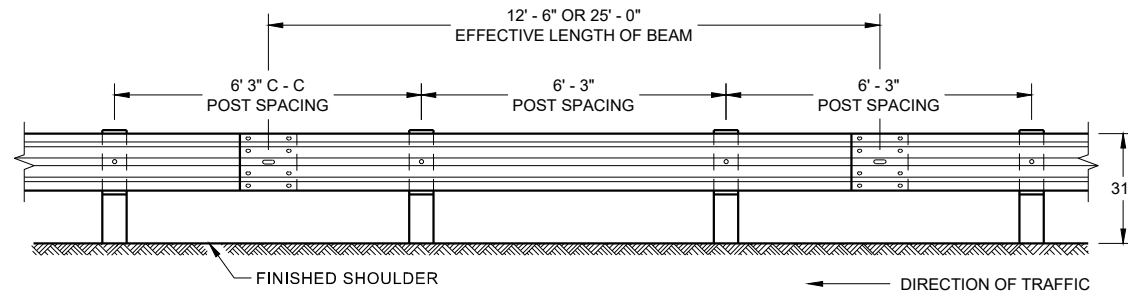
APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR
FHWA

- 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 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".

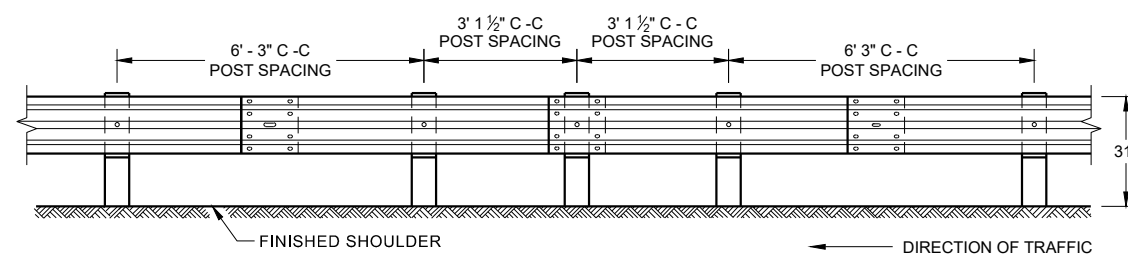


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

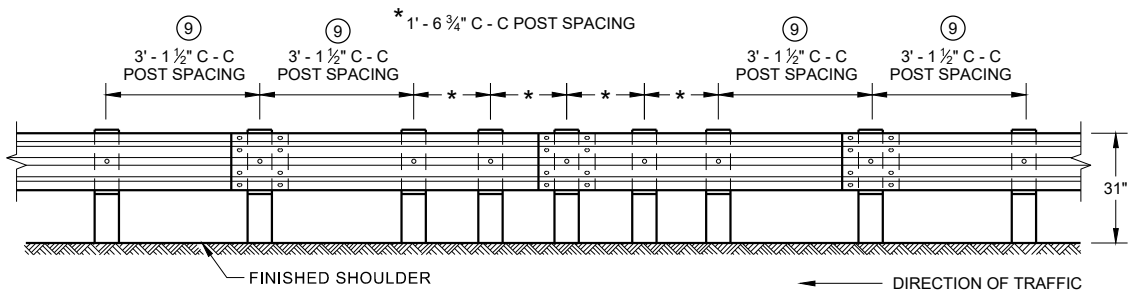
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 32



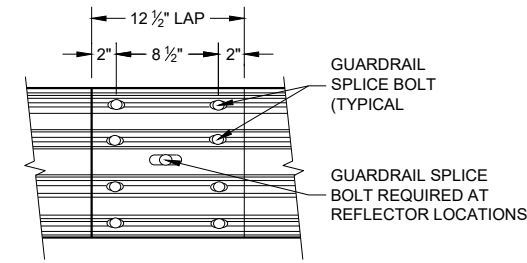
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



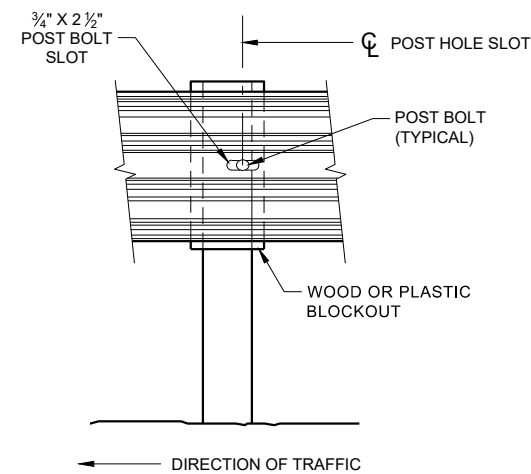
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



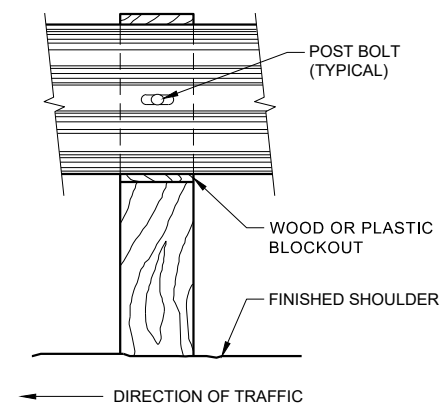
**FRONT VIEW
QUARTER POST SPACING (QS)**



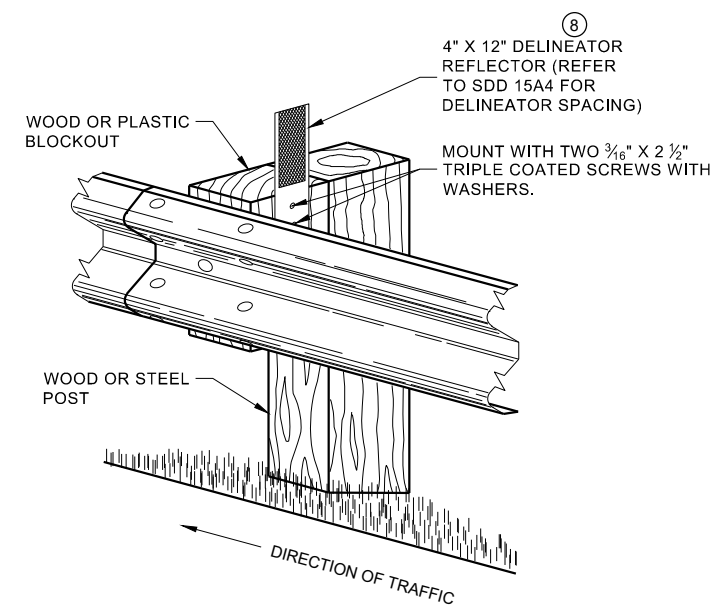
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



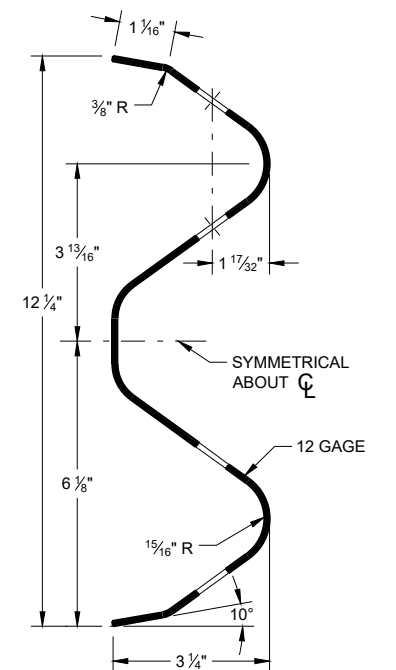
FRONT VIEW AT WOOD POST



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

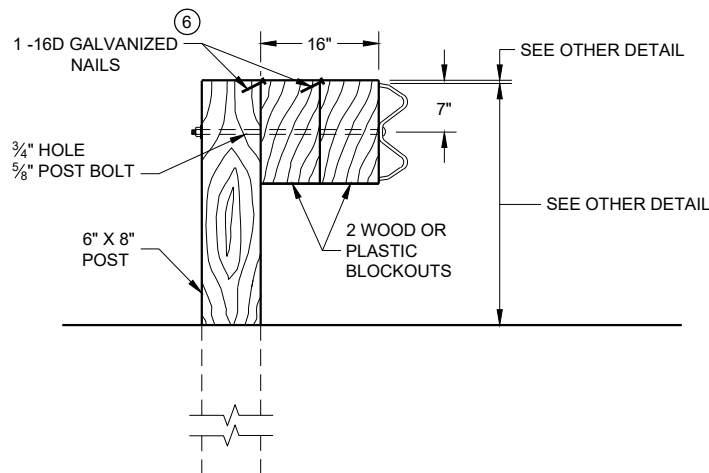
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/8" DIAMETER 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.



SECTION THRU W-BEAM RAIL

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

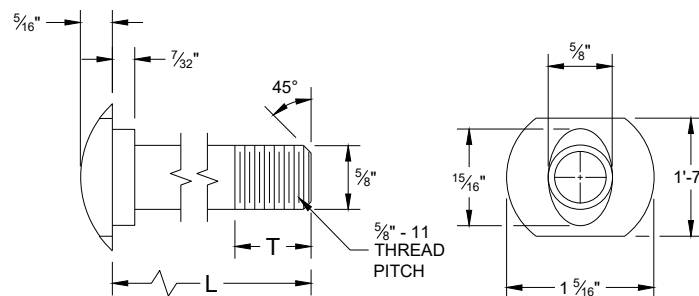
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

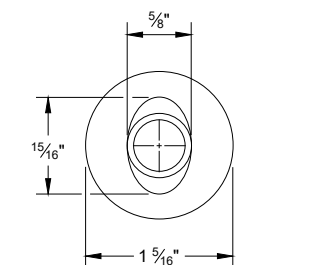
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

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

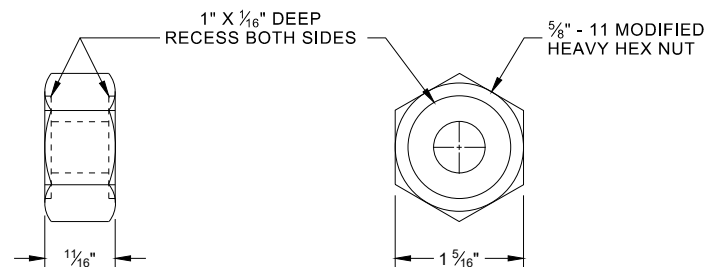


POST BOLT TABLE

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"

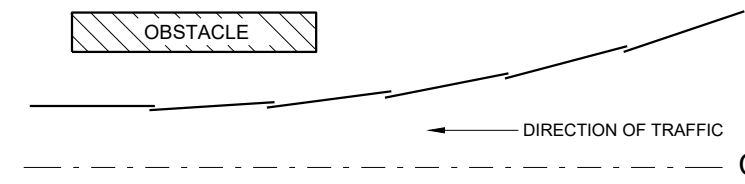


ALTERNATE BOLT HEAD

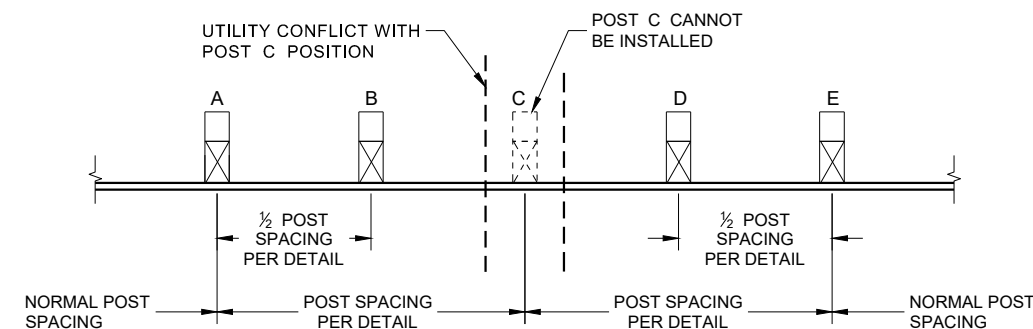


POST BOLT, SPLICE BOLT
AND RECESS NUT

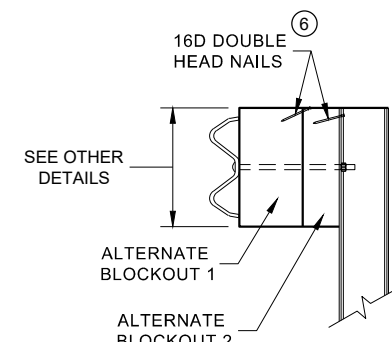
- ⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



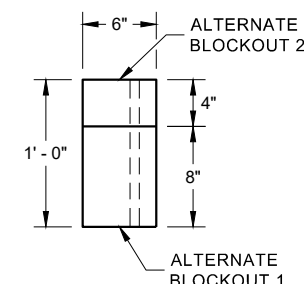
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



PLAN VIEW

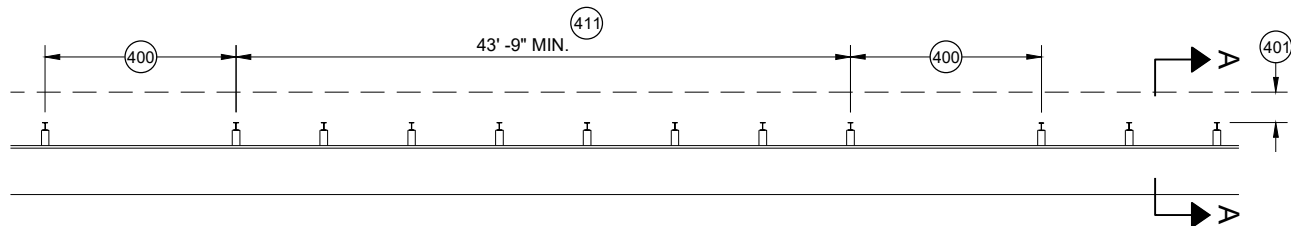
ALTERNATE WOOD
BLOCKOUT DETAIL

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.

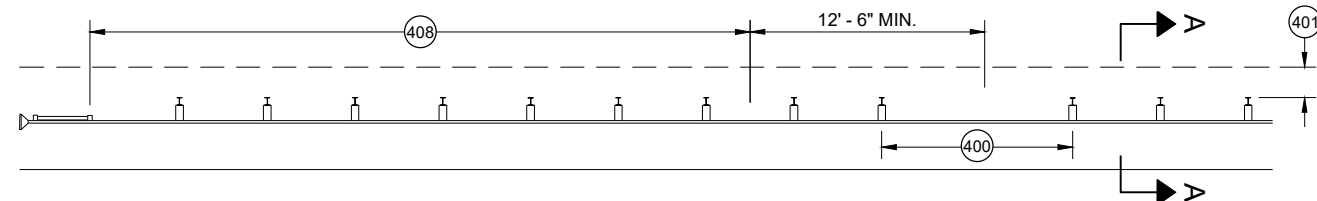
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

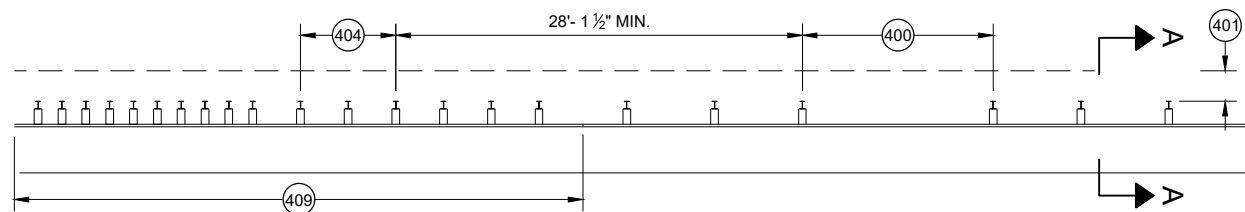
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



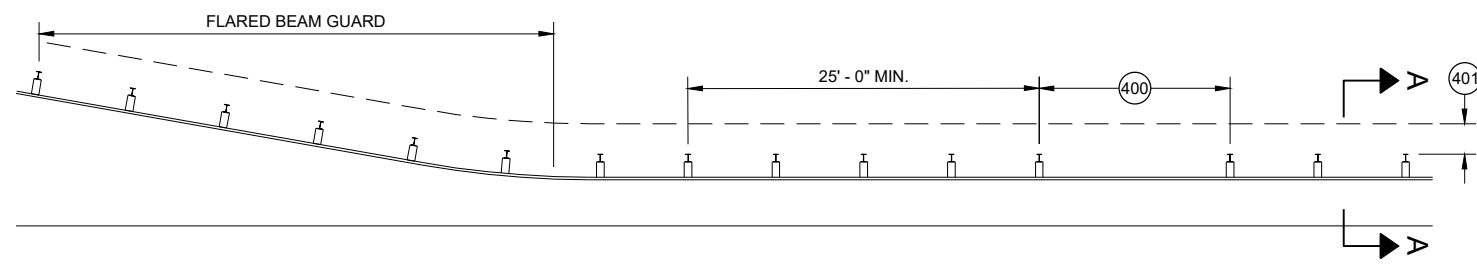
MISSING POST IN MGS GUARDRAIL



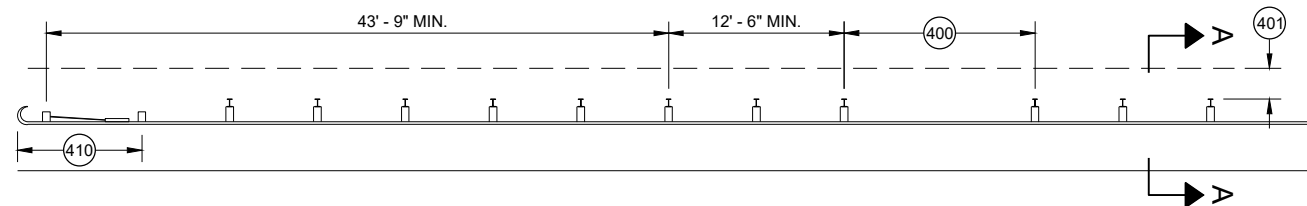
MISSING POST IN MGS GUARDRAIL NEAR EAT



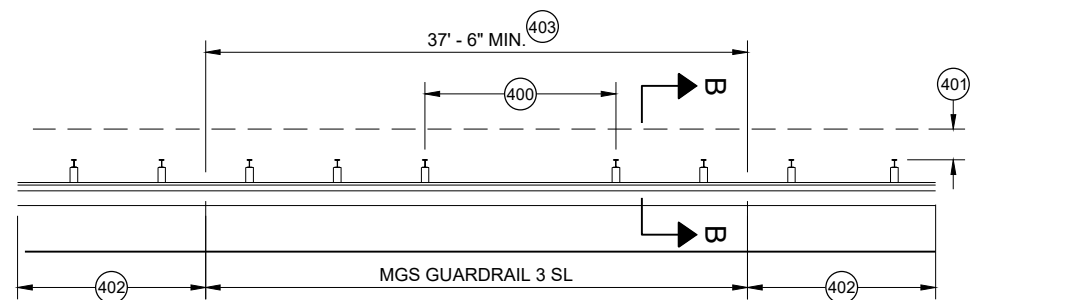
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

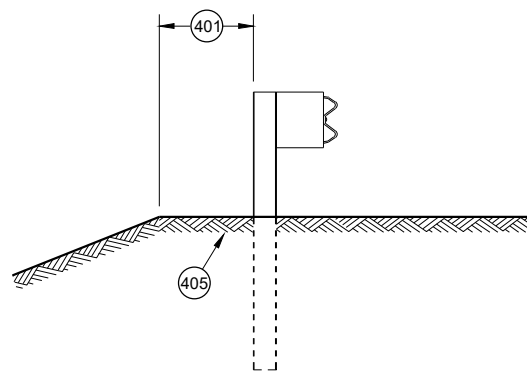


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

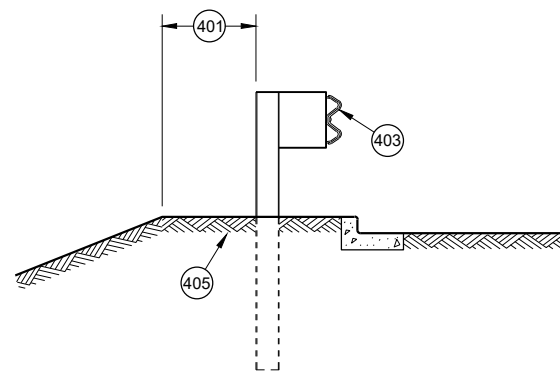


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (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

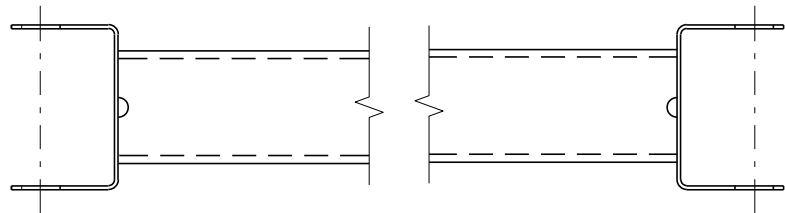
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
- (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
- (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

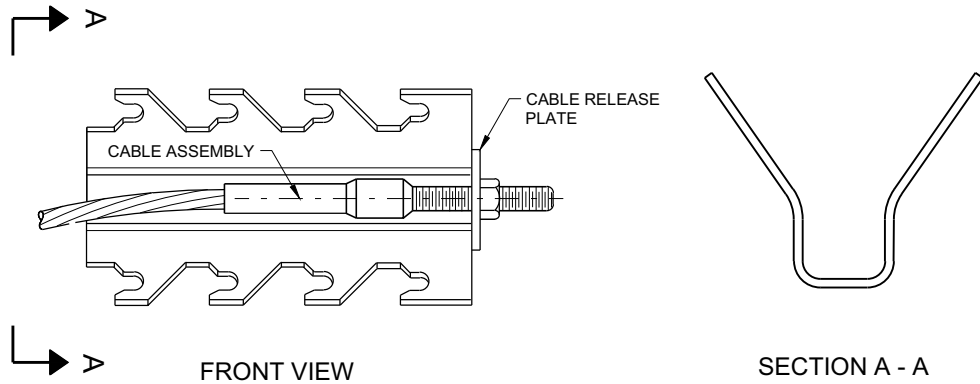


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 36

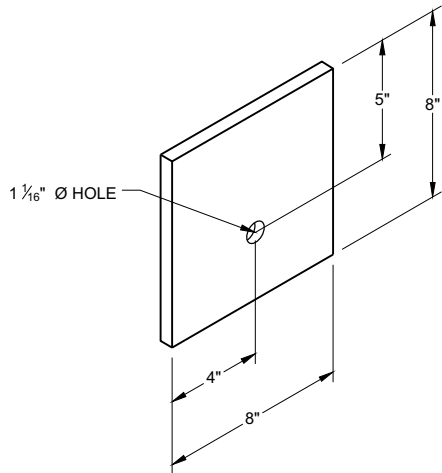


GENERIC GROUND STRUT⁹ ^E

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



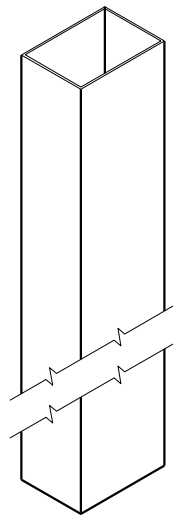
GENERIC ANCHOR CABLE BOX⁹ ^E



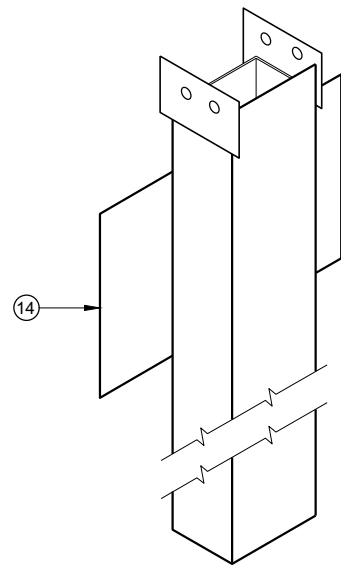
BEARING PLATE⁶ ^E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

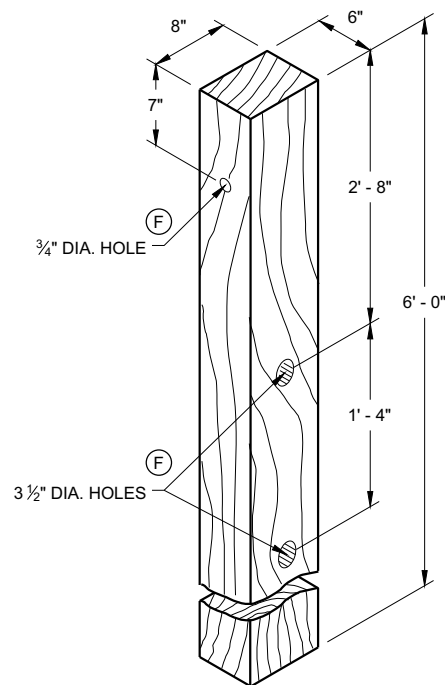
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



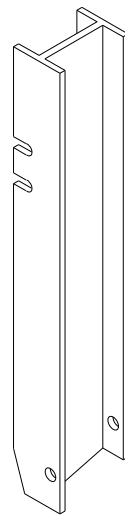
UPPER POST NO. 1 ⁽¹⁾ (E)



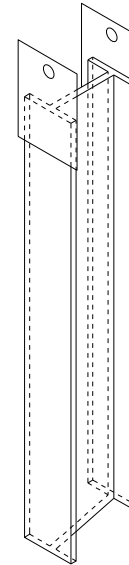
LOWER POST NO. 1 ⁽²⁾ (E)



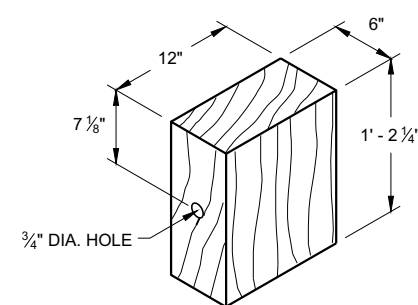
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



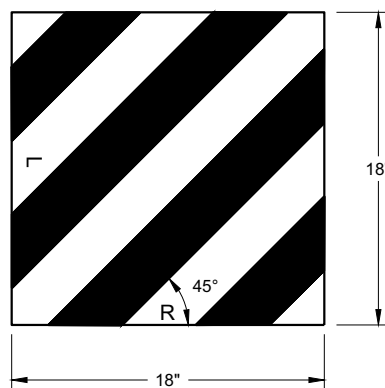
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



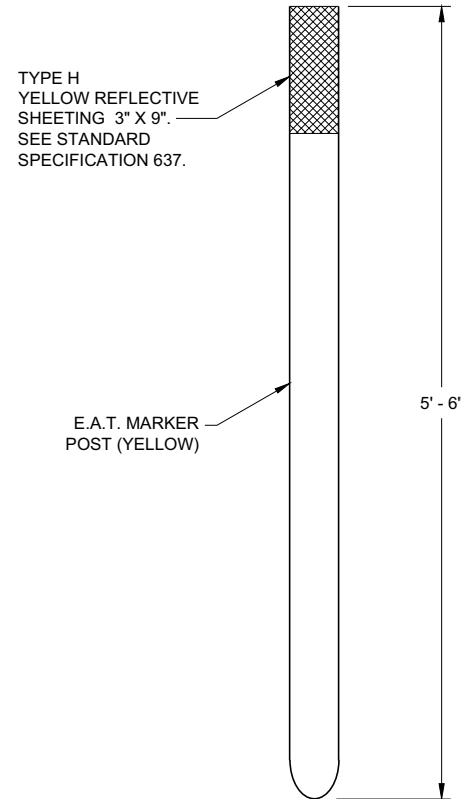
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



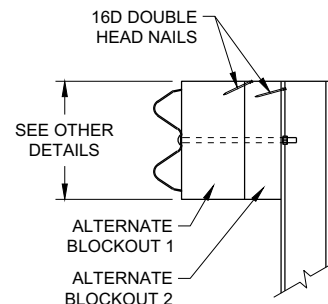
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



REFLECTIVE SHEETING DETAIL ^(E)

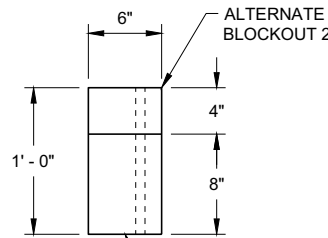


E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

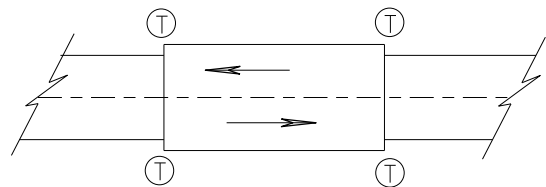


TOP VIEW

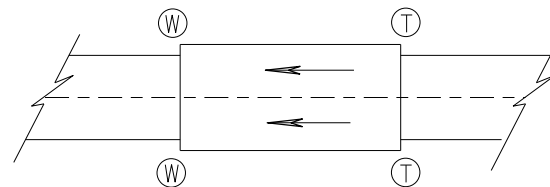
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

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

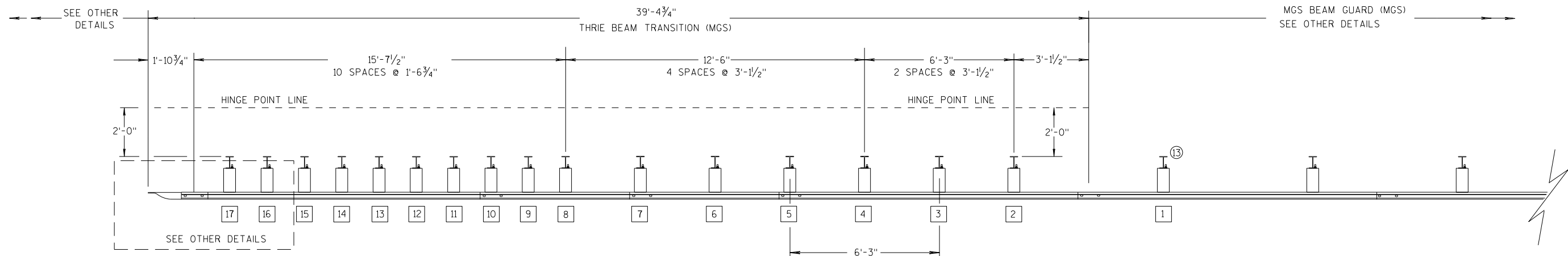
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

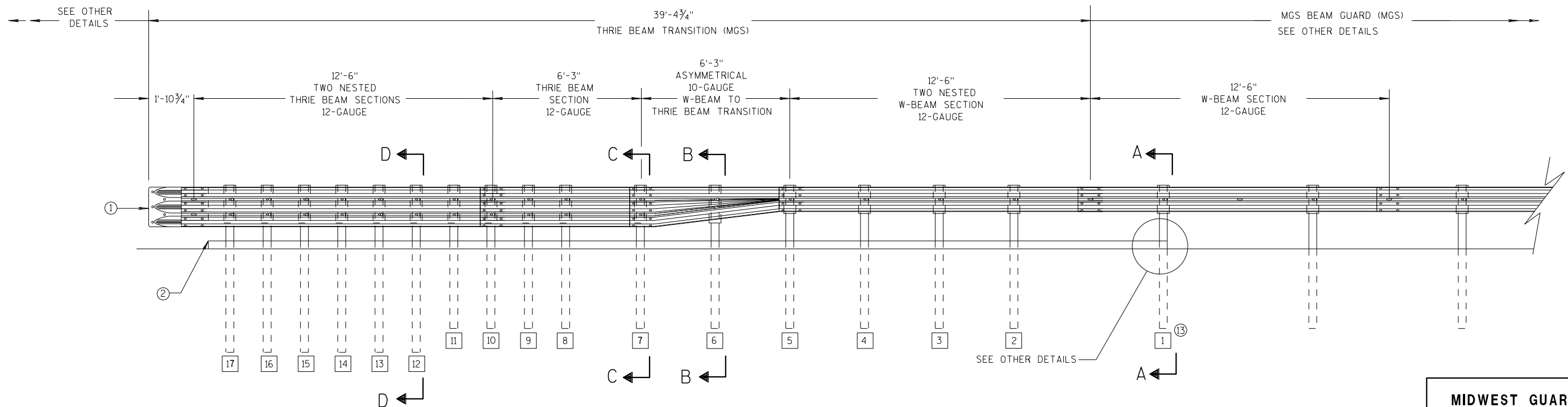
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

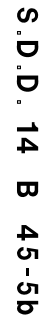
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

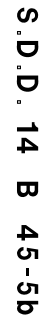
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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



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



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



POST BOLT (TYPICAL)

GUARDRAIL SPLICE BOLTS (TYPICAL)

POST BOLT (TYPICAL)

SPLICE BOLT REQUIRED AT LOCATIONS WITH REFLECTOR

FINISHED SHOULDER

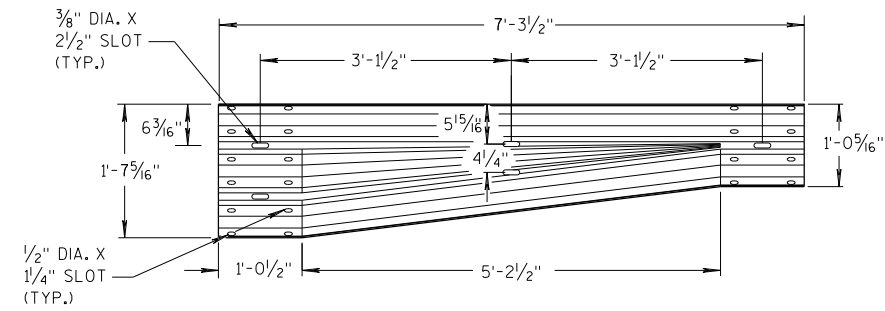


Technical drawing of a square plate with a central hole. The plate is 2 inches square and 3/8 inch thick. The hole is 1 5/16 inches in diameter. The hole is centered 1 inch from the bottom and 1 inch from the right edge. The plate is made of A36 steel.

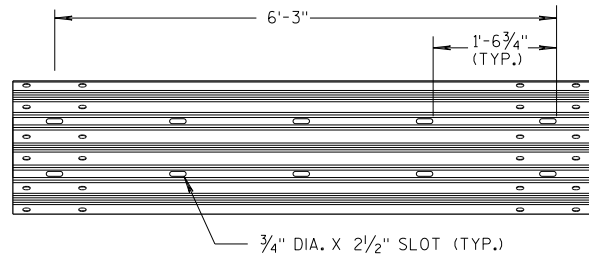


Technical drawing of a wavy metal strip, 20" long and 3 1/4" wide. The drawing shows a cross-section of the strip with various dimensions and radii. The top edge has a 1/16" thickness and a 3/8" R radius. The bottom edge has a 10° angle and a 3 1/4" width. The strip is divided into sections with radii of 15/16" R and 1 17/32". The vertical dimensions are 20" total length, with sections of 3 1/4", 1 1/8", 3 1/4", and 2 3/8".

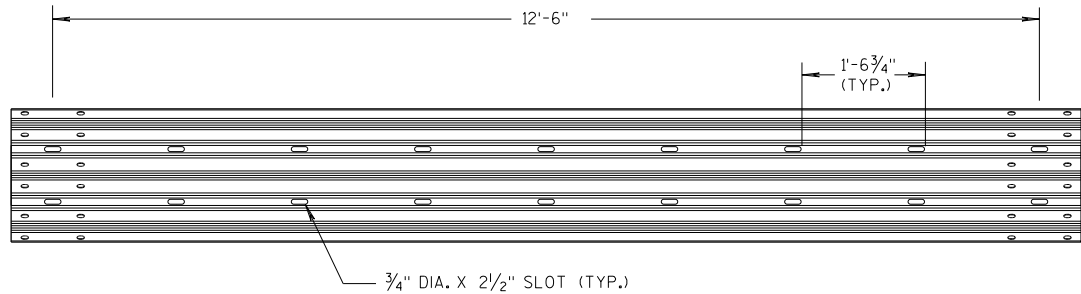
S.D.D. 14 B 45-5b



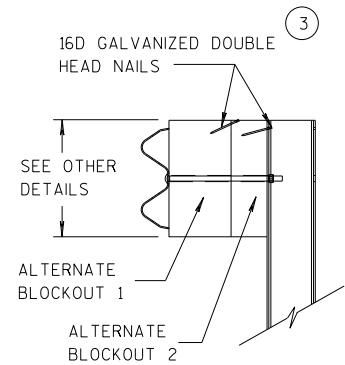
W-BEAM TO THRIE BEAM TRANSITION SECTION



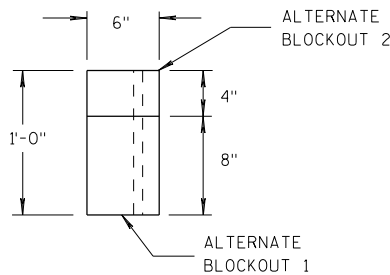
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

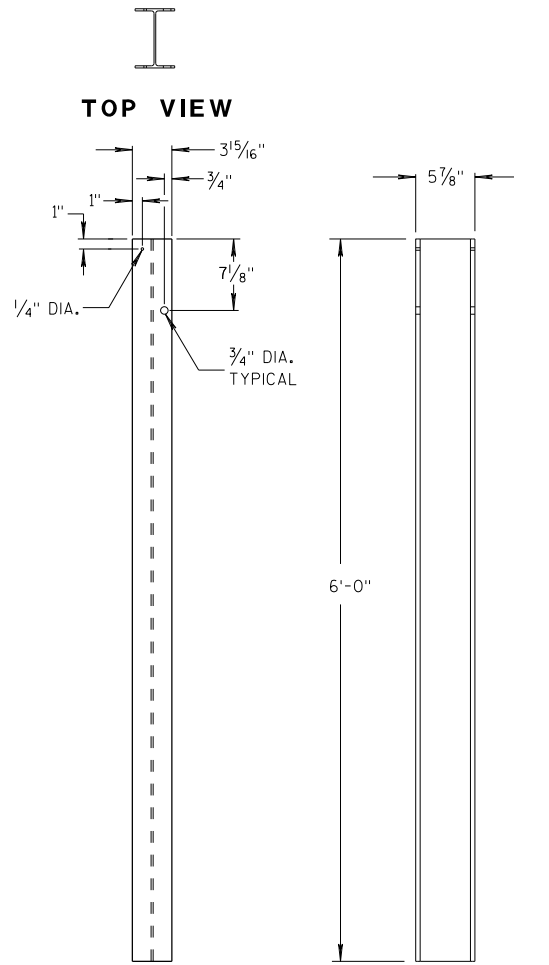


SIDE VIEW



TOP VIEW

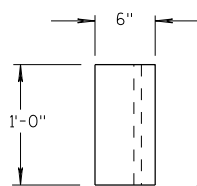
ALTERNATE WOOD BLOCKOUT DETAIL



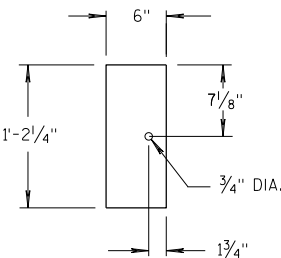
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

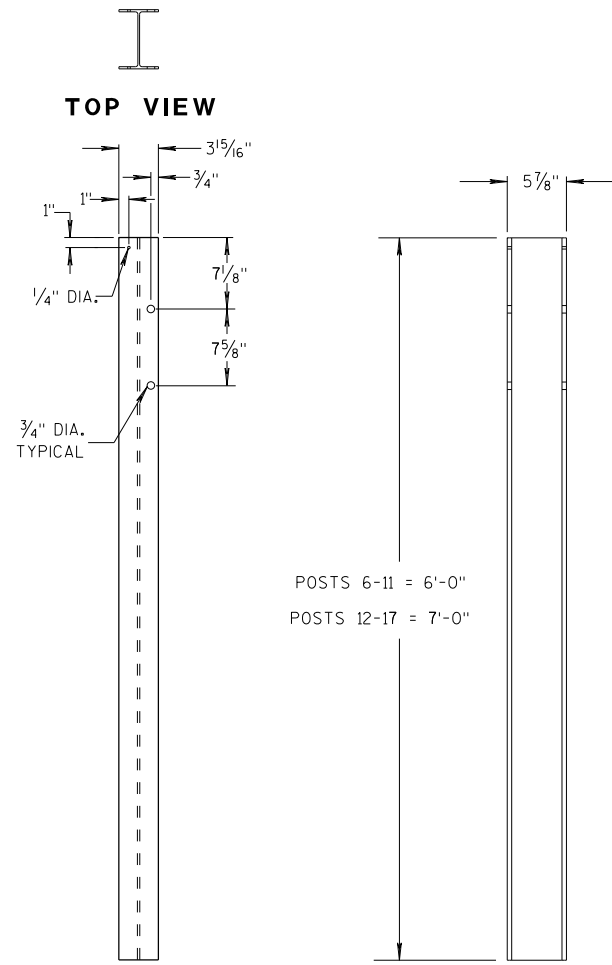


TOP VIEW



FRONT VIEW

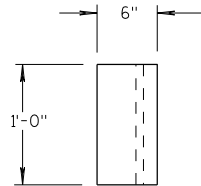
BLOCKOUT POSTS 1-5



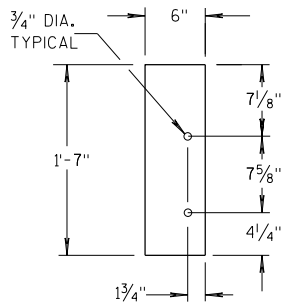
FRONT VIEW

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.

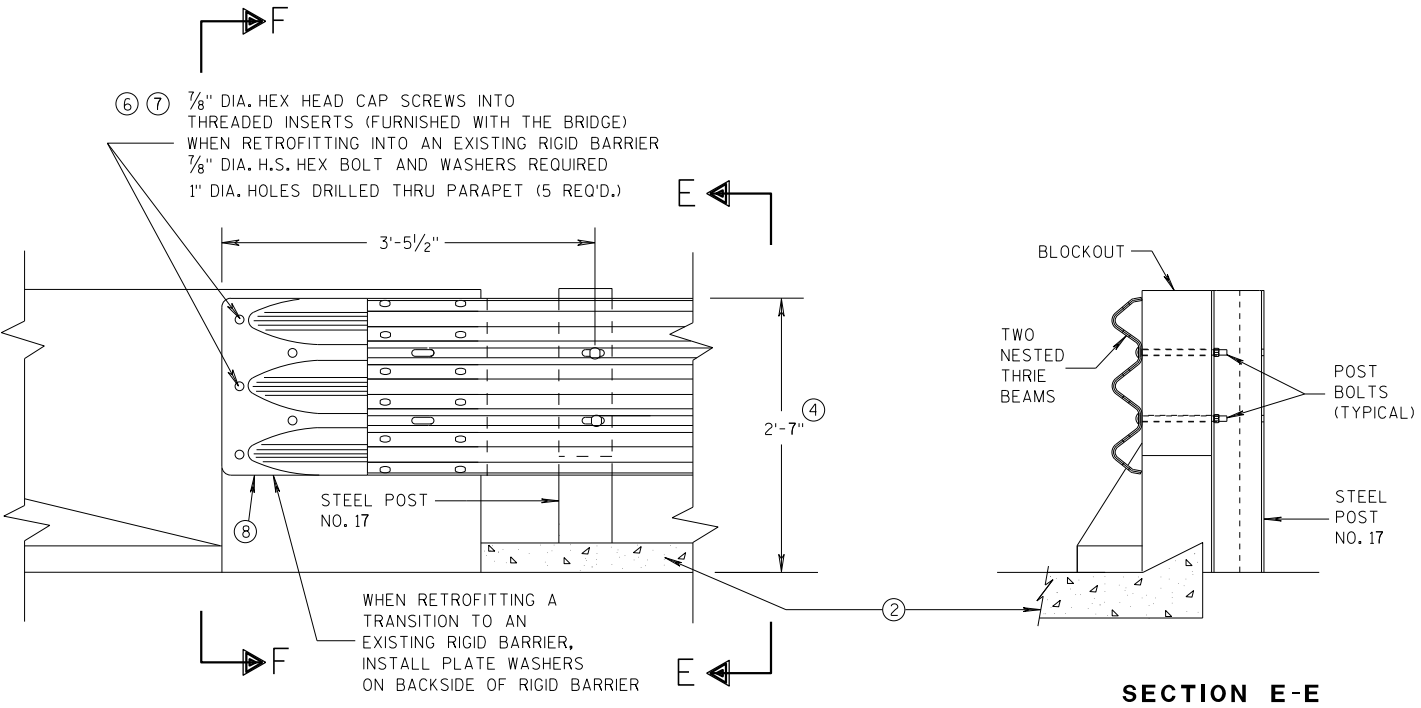
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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.

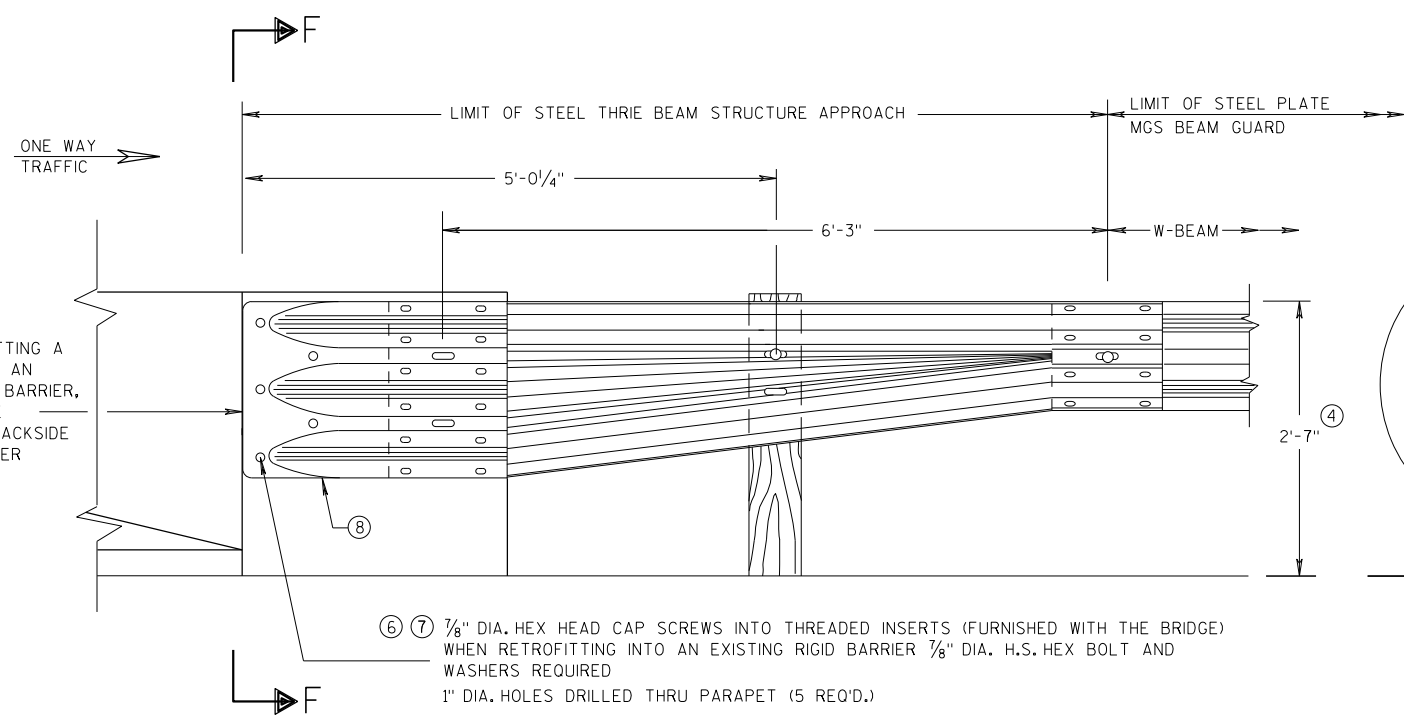
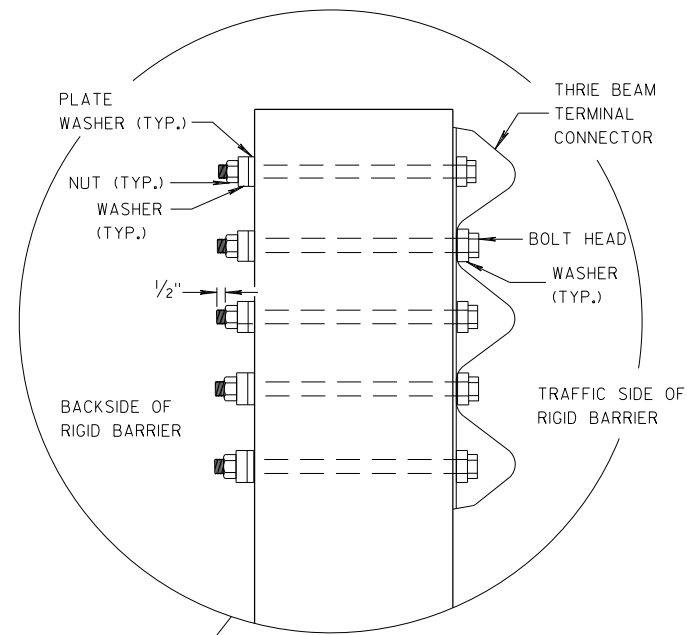
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

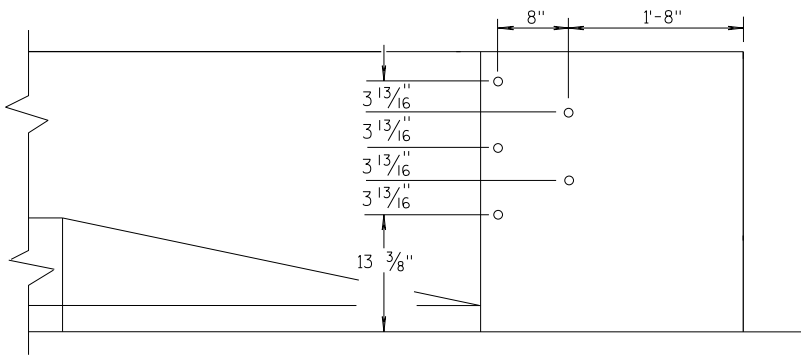


GENERAL NOTES

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

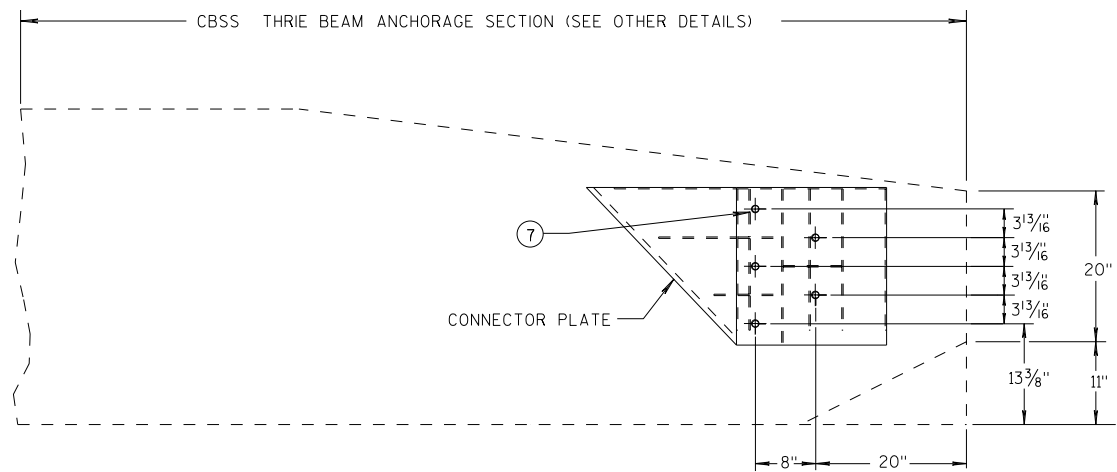
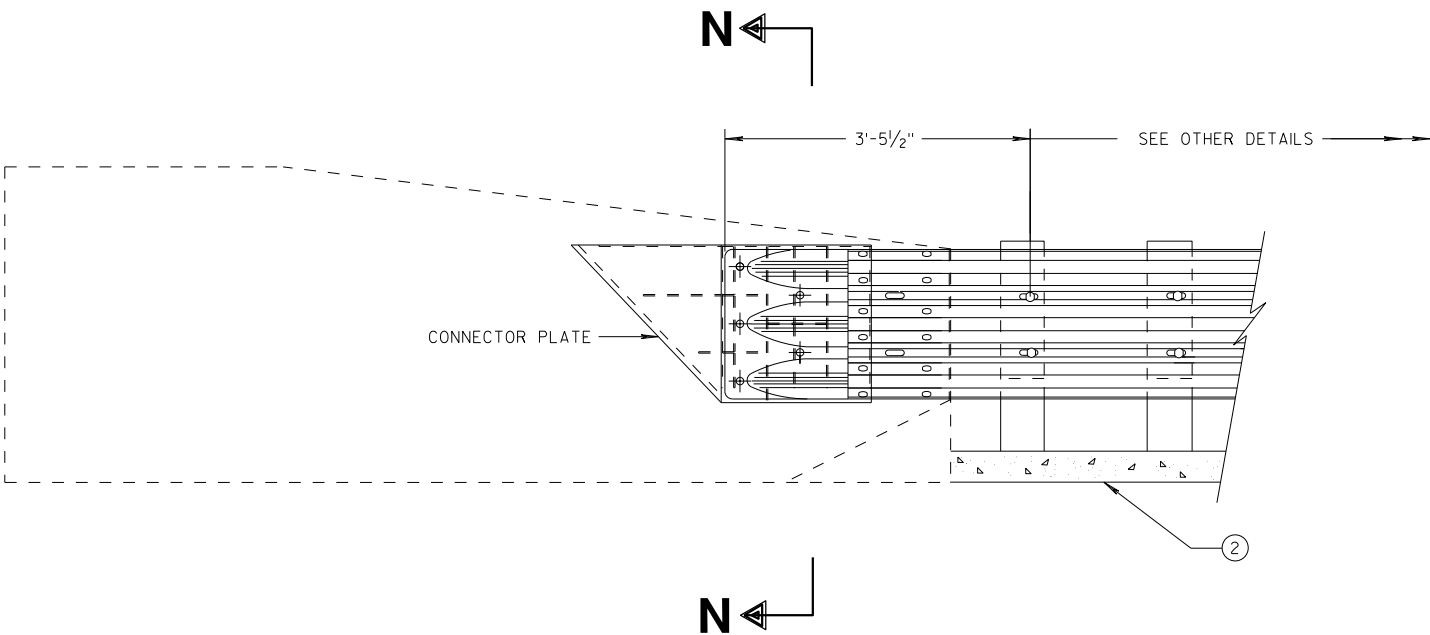


SECTION F-F



MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 07/2018	/S/ Rodney Taylor		
DATE	ROADWAY STANDARDS	42	NT
FHWA	UNIT SUPERVISOR		

THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



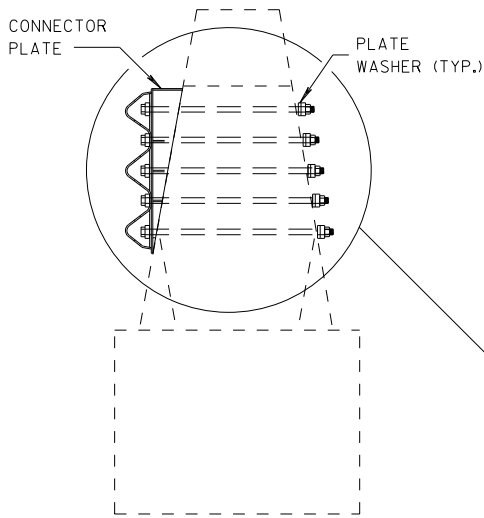
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

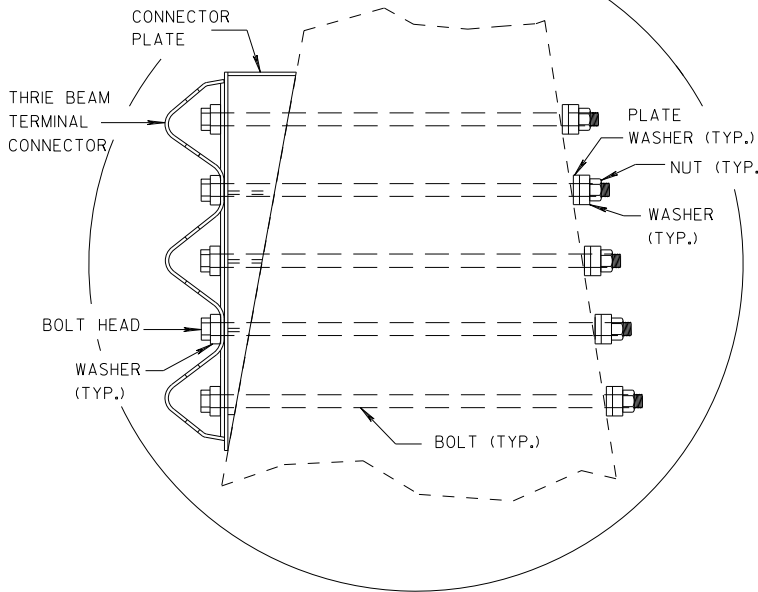
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTION PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N

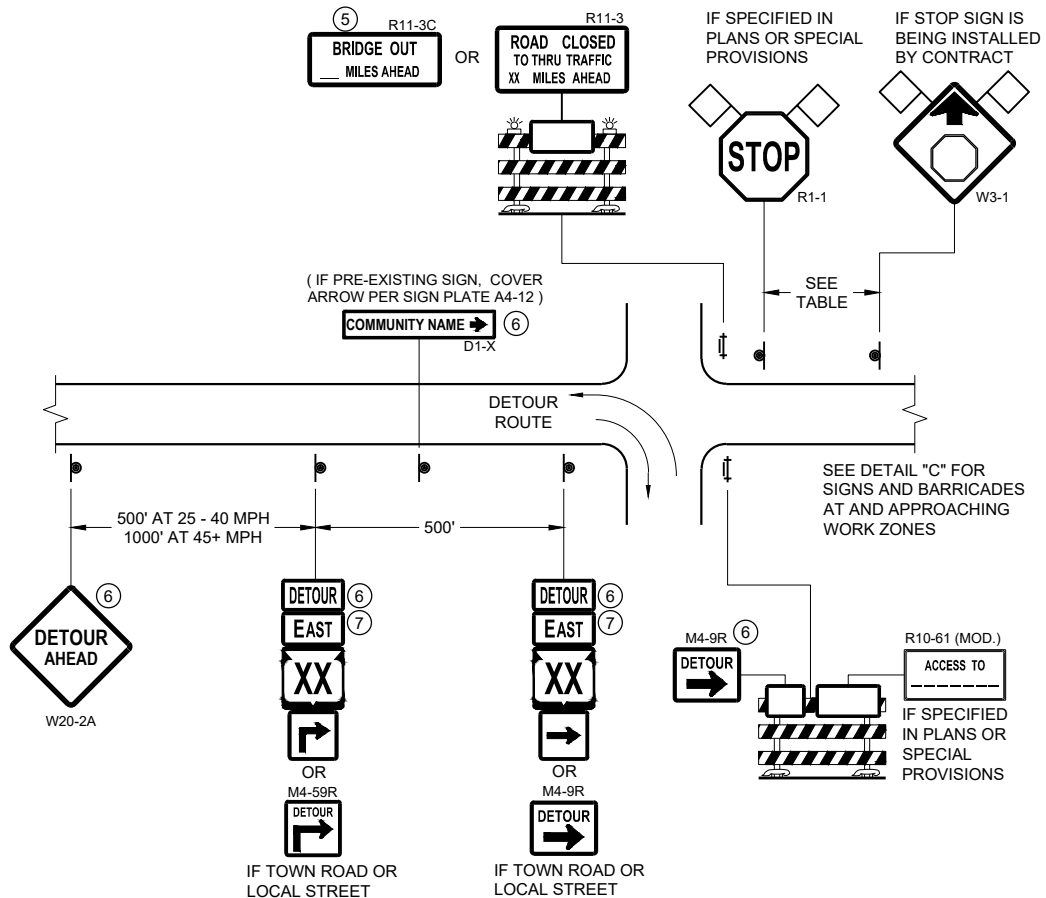


MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

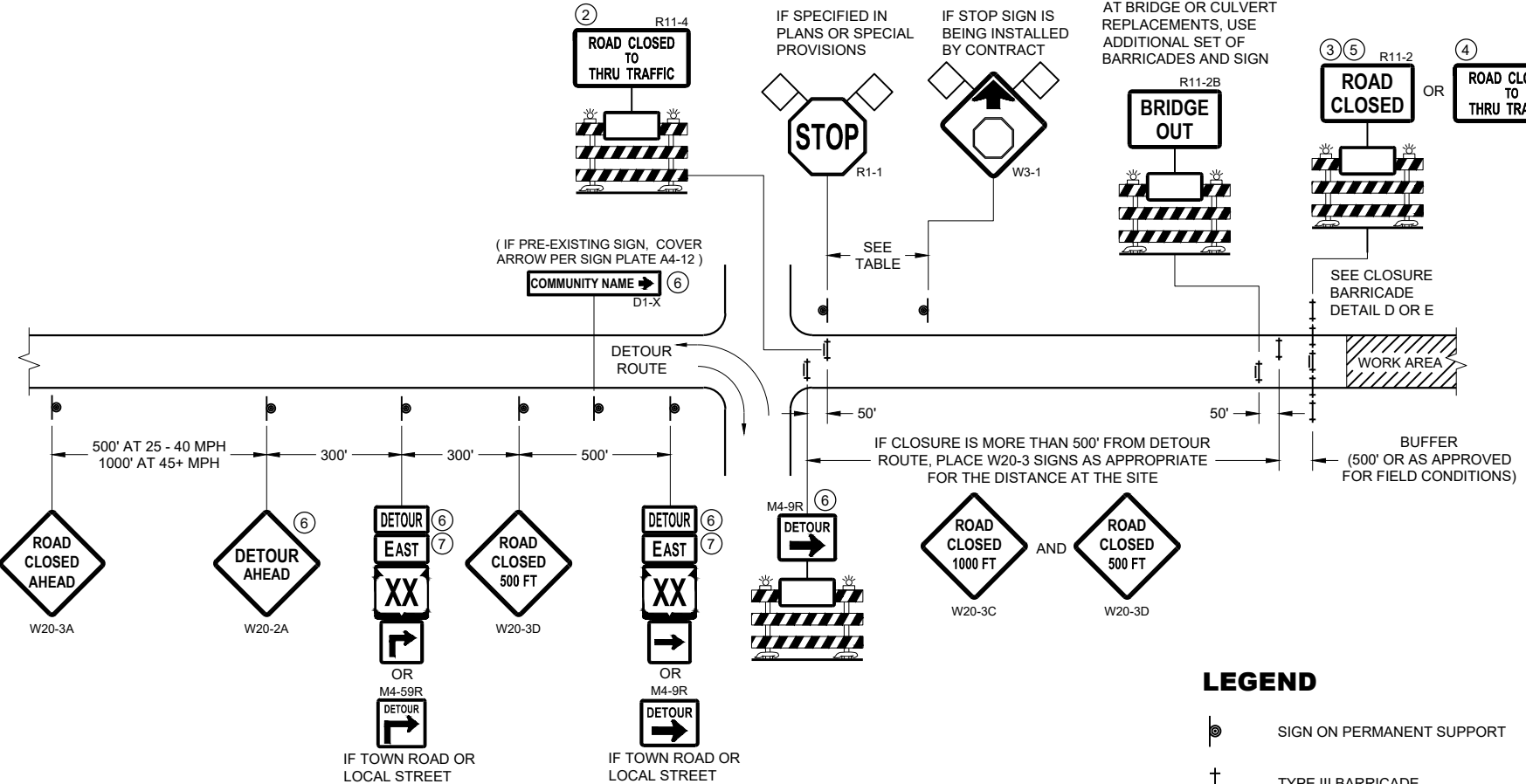
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 7/2018
FHWA

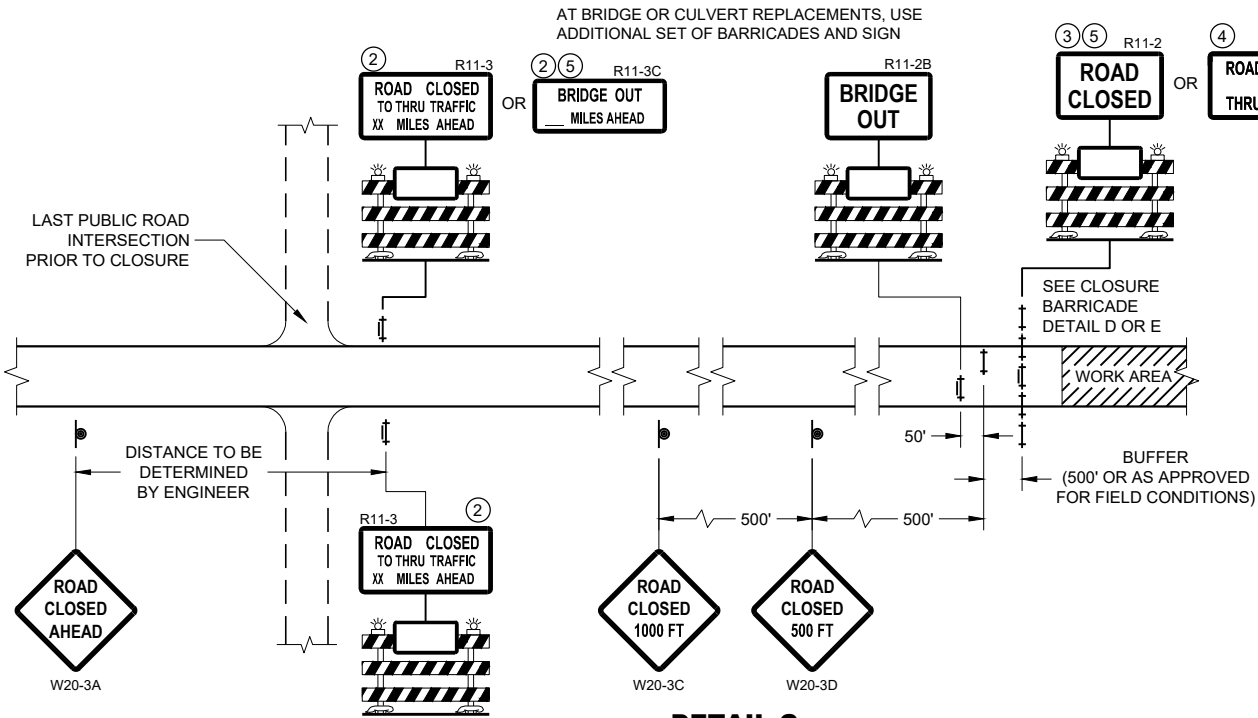
/S/ Rodney Taylor
ROADWAY STANDARDS DISTRICT UNIT SUPERVISOR 43



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)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

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
- OR M05 - 1 OR M06 - 1

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 44
FHWA



SEE SDD 15C2 - SHEET "a" FOR LEGEND

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.

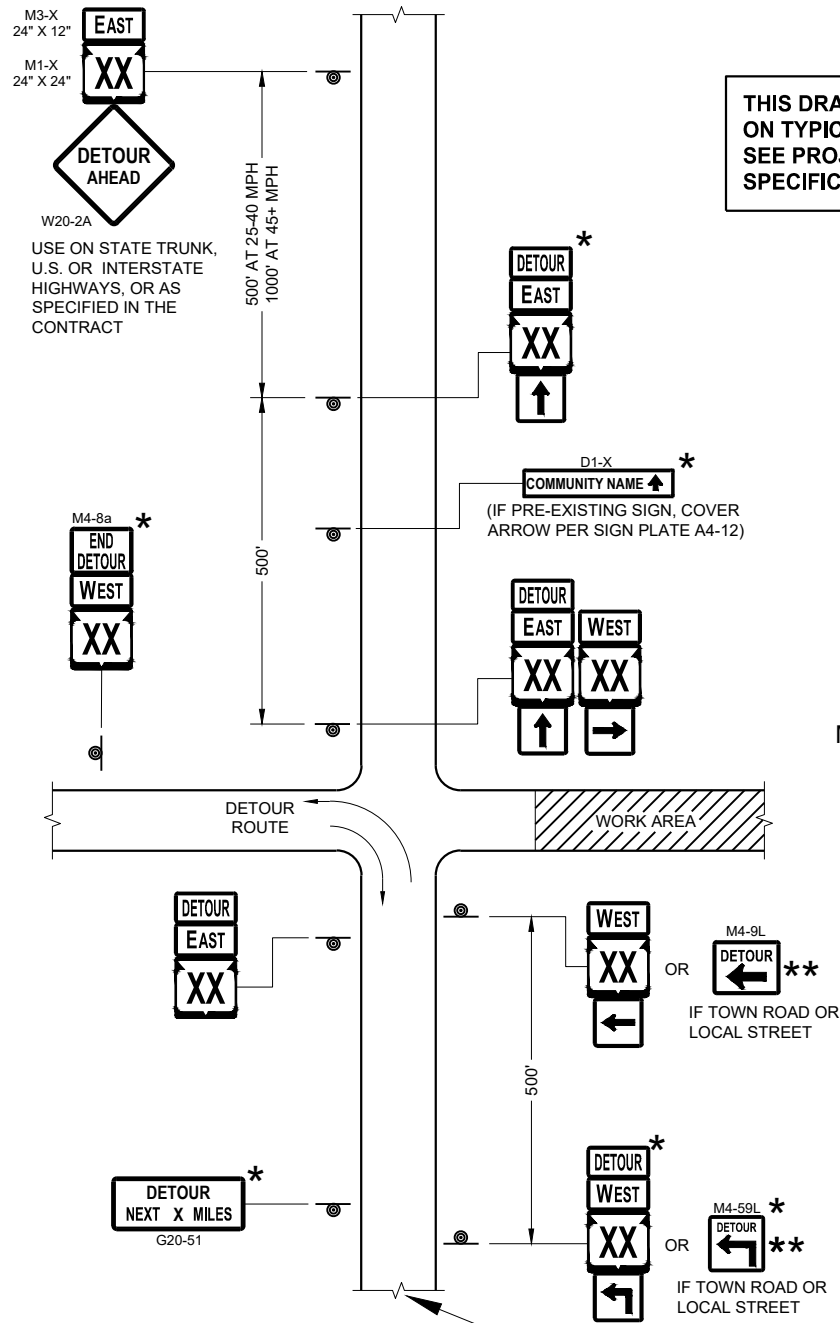
THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

"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"

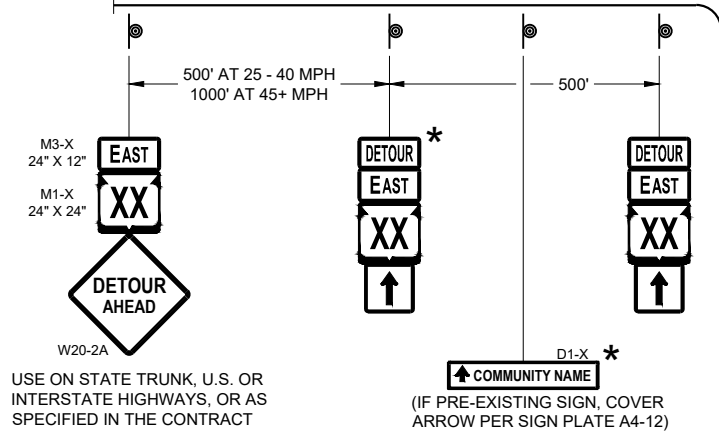
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS 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.



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 (M4 - 8)
- DETOUR AHEAD (M1 - 4)
- DETOUR NEXT X MILES (M1 - 6)
- DETOUR END (M1 - 5A)
- DETOUR WEST (M05 - 1)
- DETOUR EAST (M06 - 1)
- DETOUR AHEAD (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.

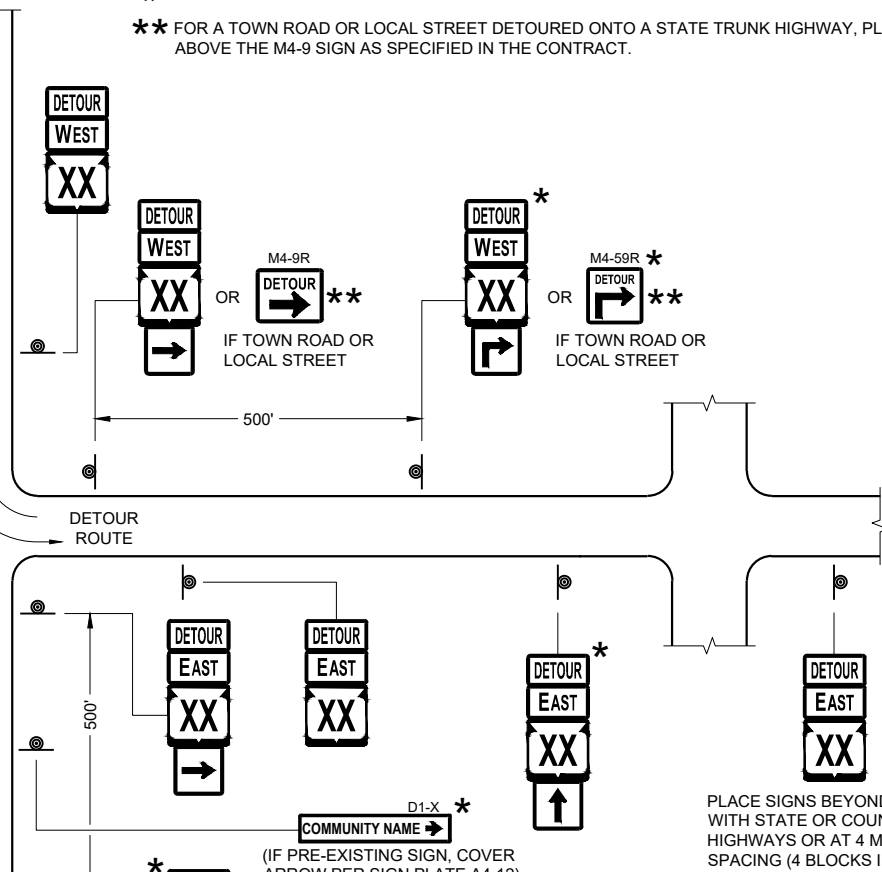
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

"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.



**DETOUR SIGNING
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

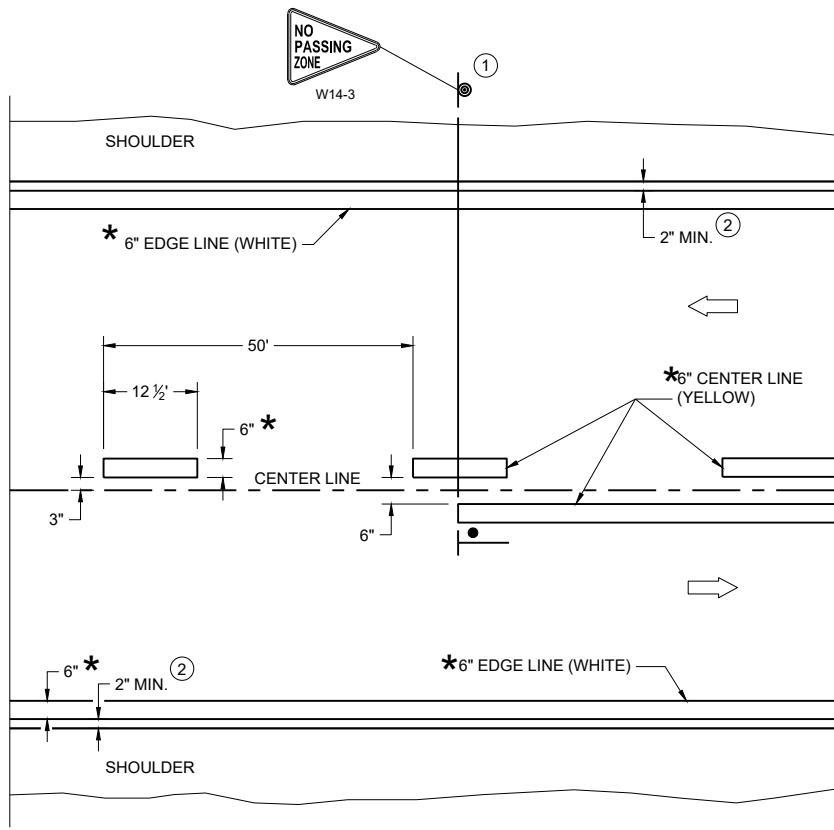
APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 46

FHWA

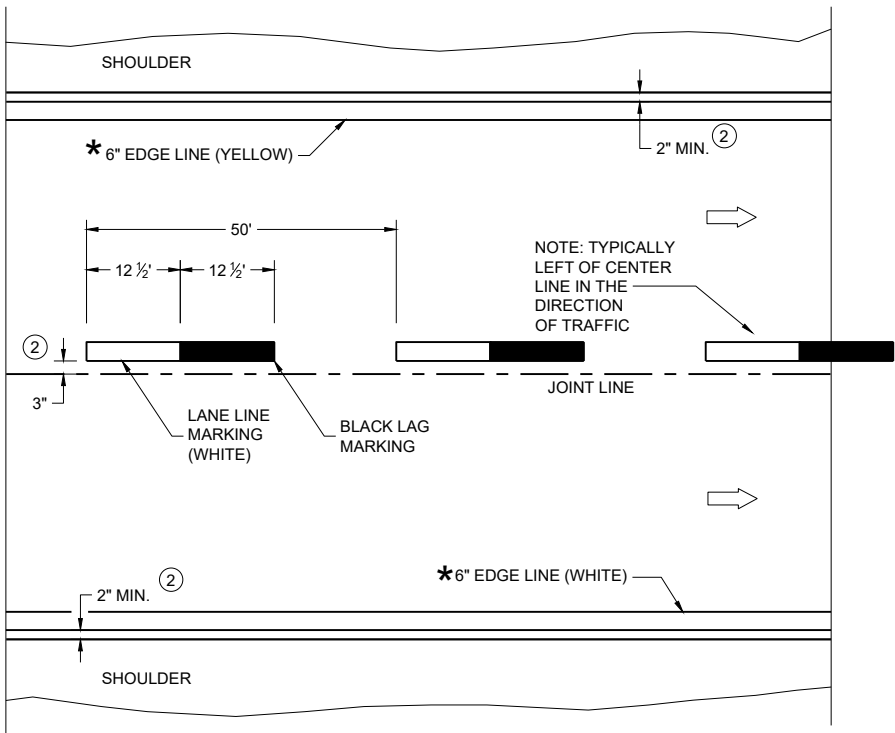


WASHERS:
1-1/4" O.D. x 3/8" I.D. x 1/16" STEEL
1-1/4" O.D. x 3/8" I.D. x .080 NYLON

MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>May 2023</u> DATE	<u>/S/ Andrew Heidtke</u> ROADWAY STANDARDS DEVELOPMENT ENGINEER



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

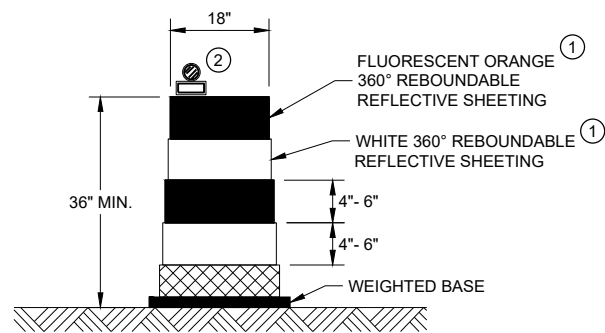
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

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

LEGEND

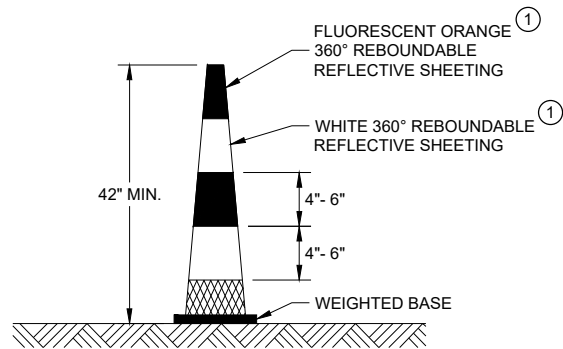
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

PERMANENT LONGITUDINAL PAVEMENT MARKINGS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA 48	



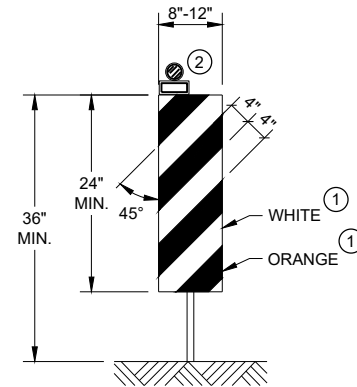
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



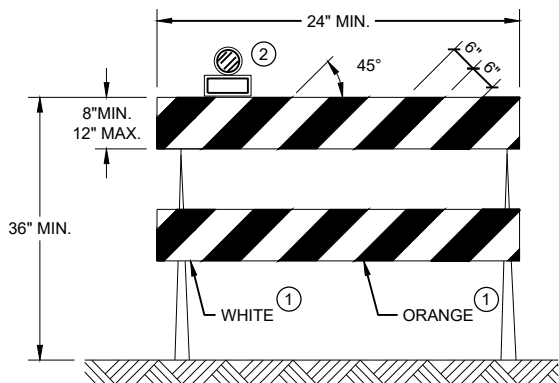
42" CONE

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



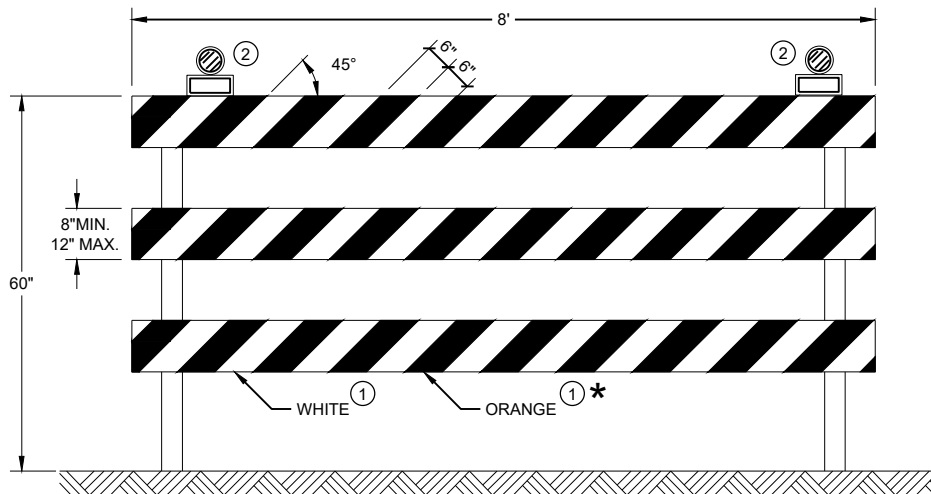
VERTICAL PANEL

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

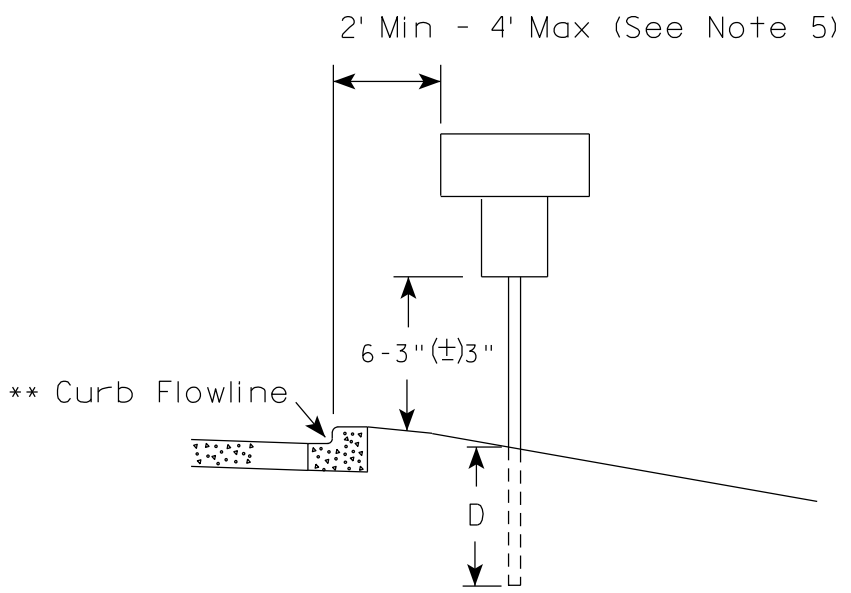
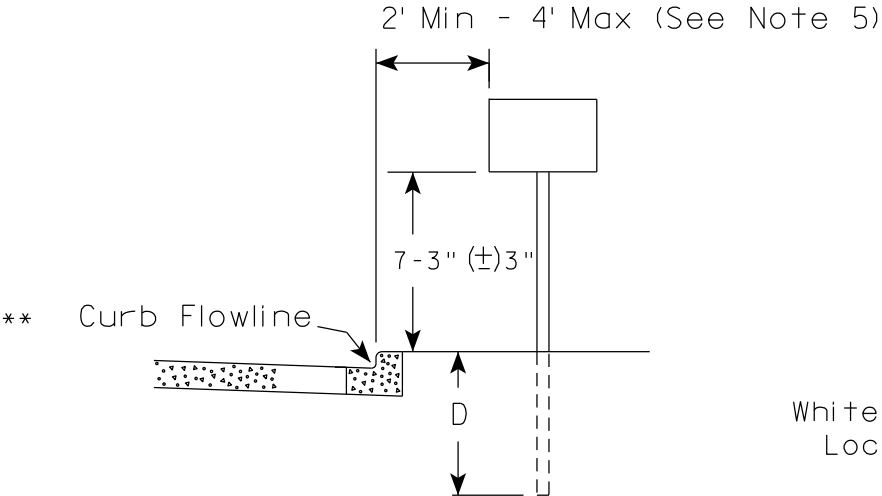
- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

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

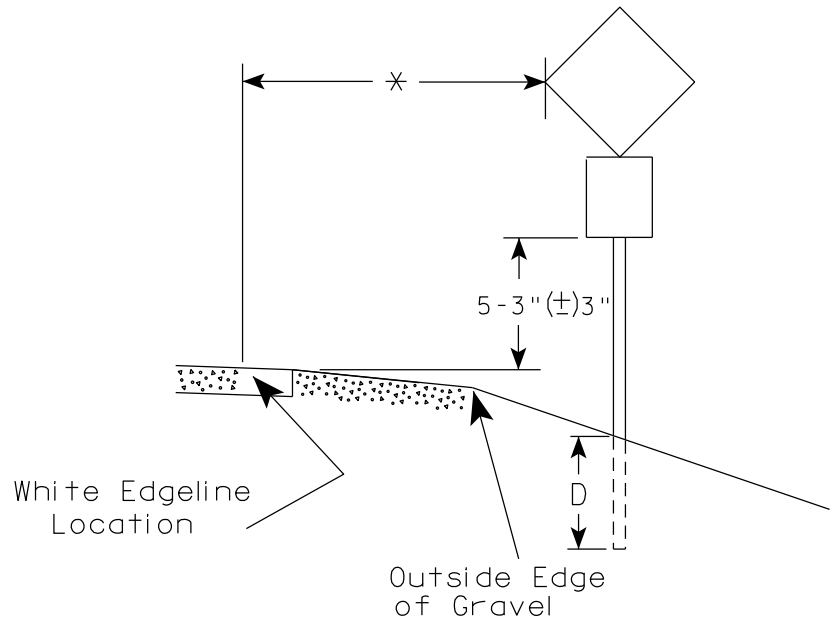
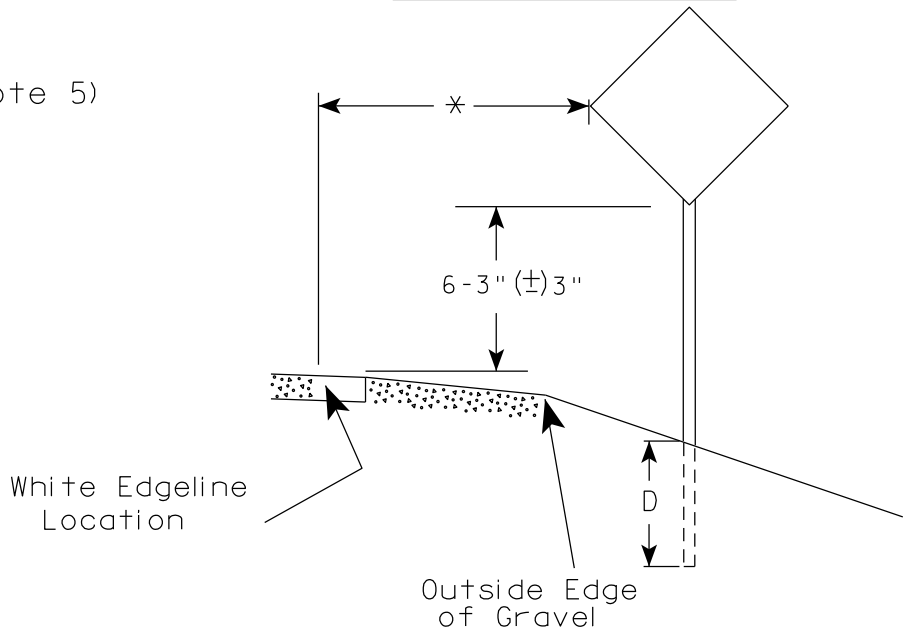
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 49
FHWA

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

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

POST EMBEDMENT DEPTH

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

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

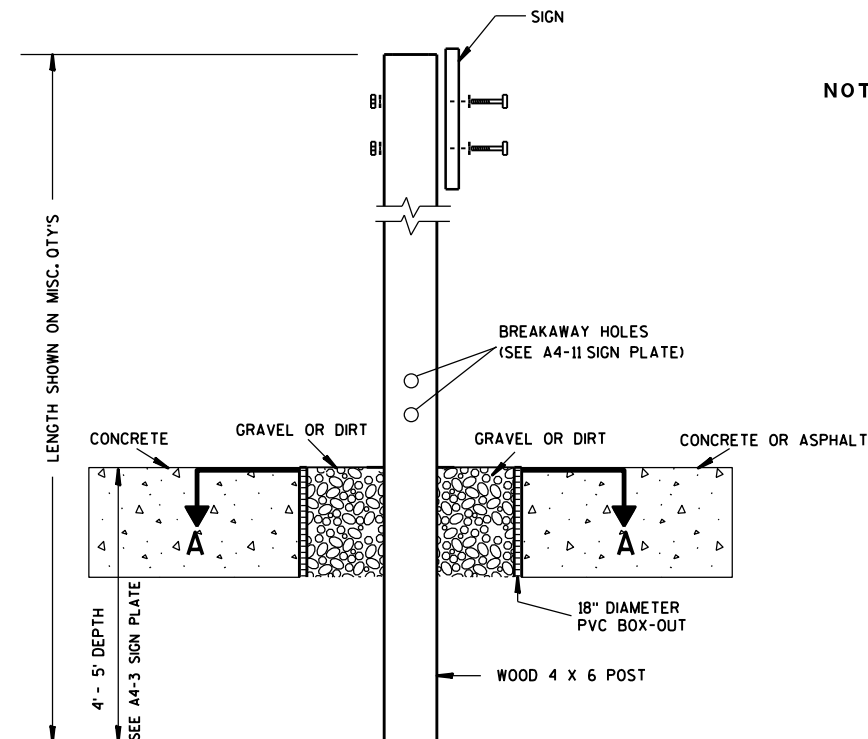
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

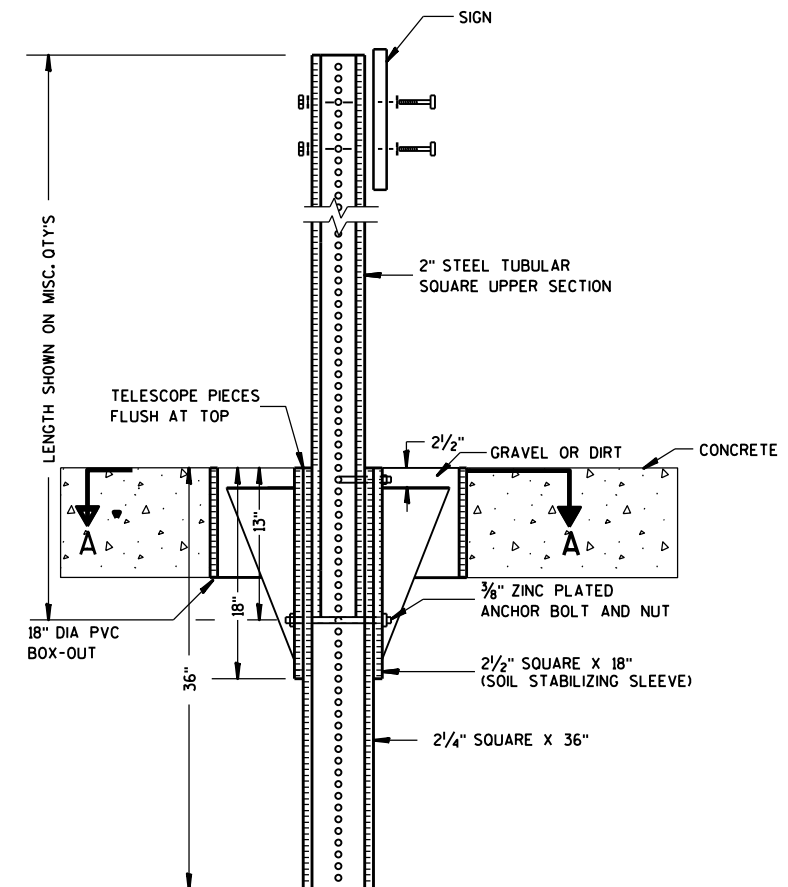
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

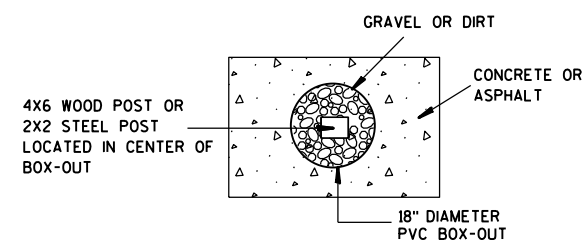
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

**SIGN POST
BOX-OUTS
A4-3B**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 51 A4-3B.1

PROJECT NO:

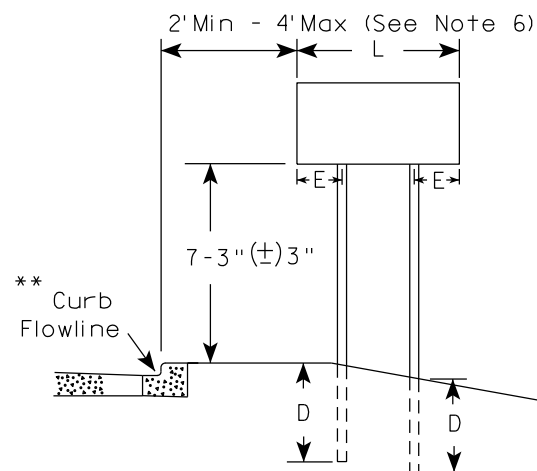
HWY:

COUNTY:

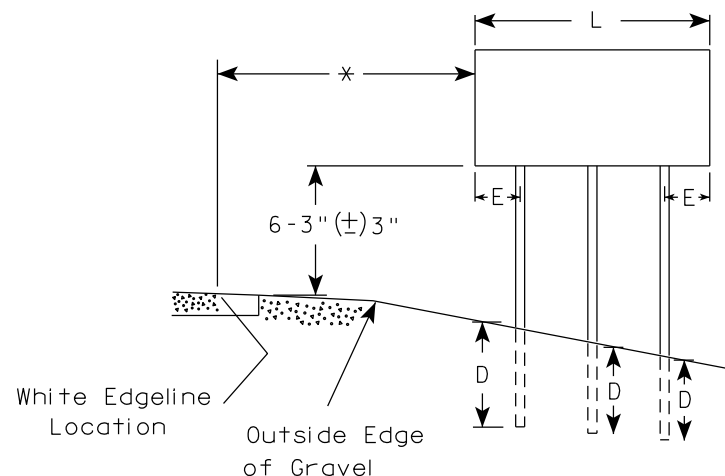
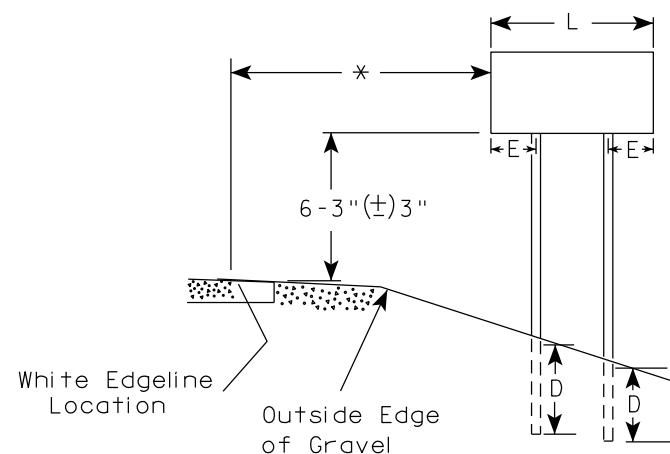
SHEET NO:

E

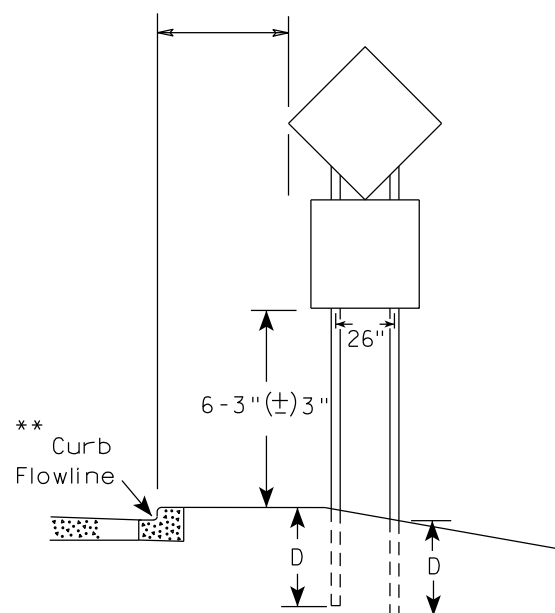
URBAN AREA



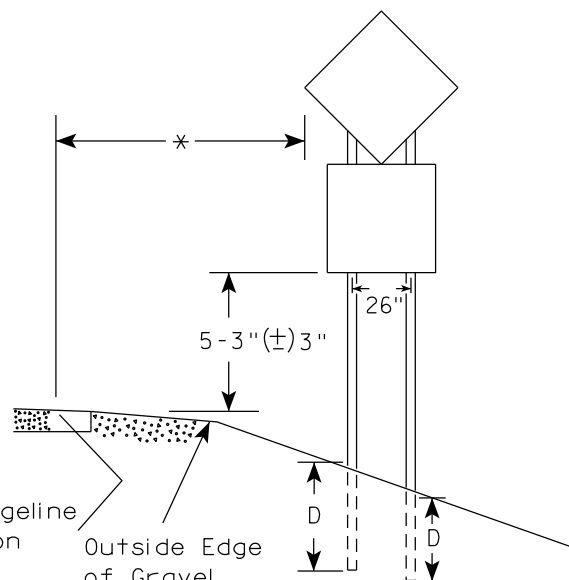
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

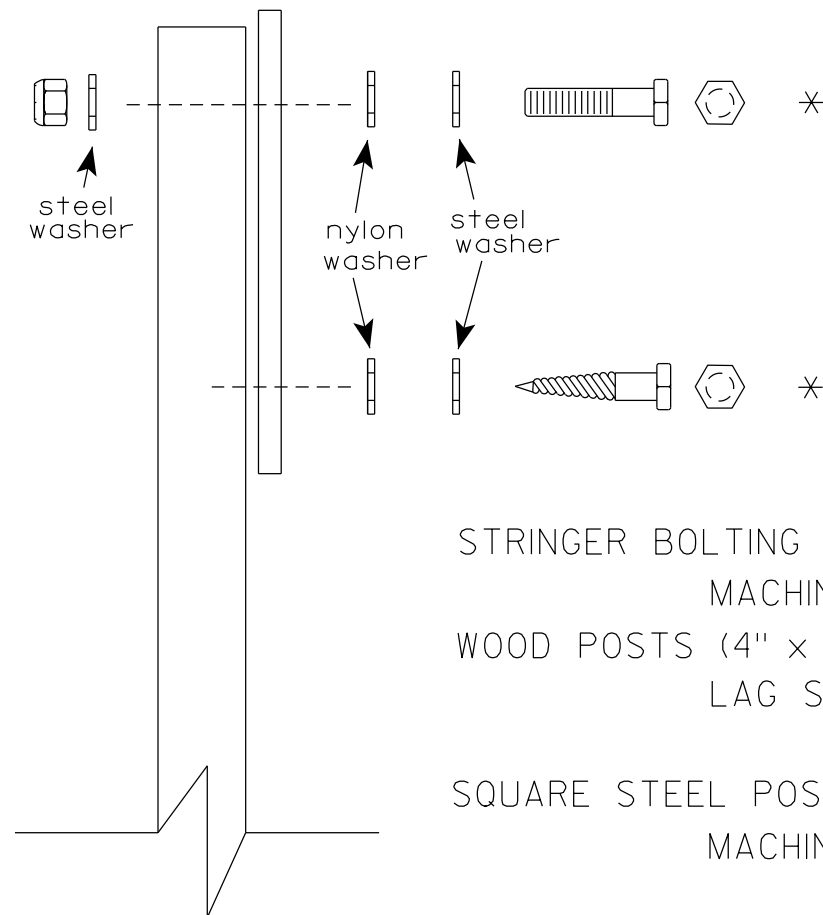
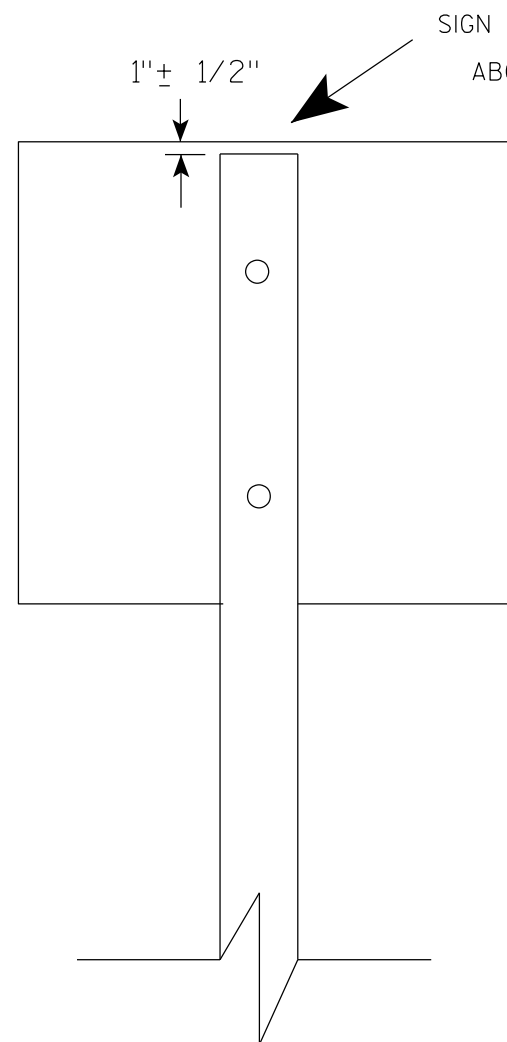
GENERAL NOTES

- 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.

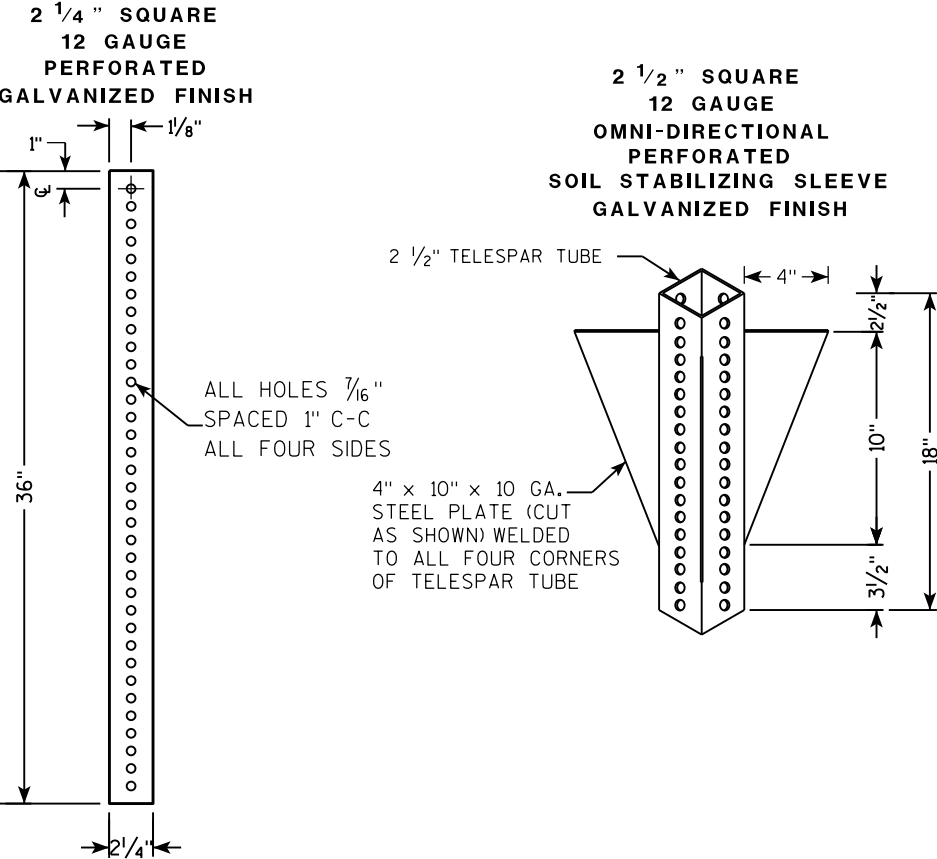
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- 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

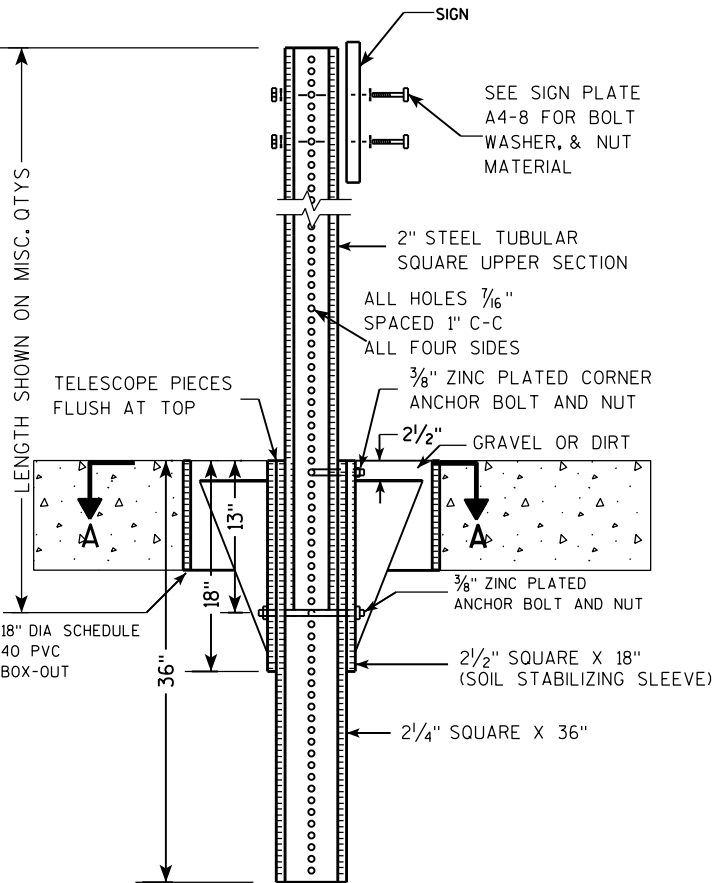
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

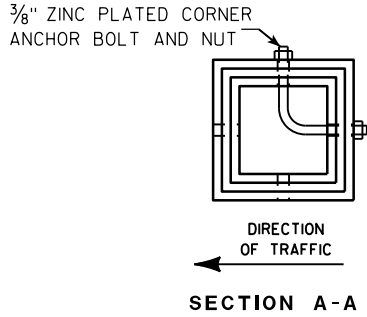
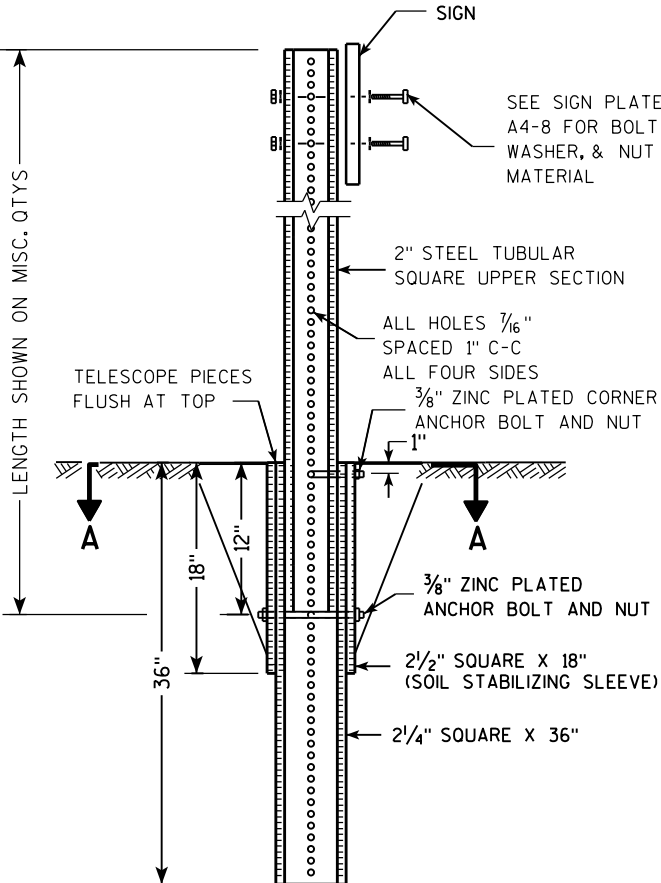
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



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).

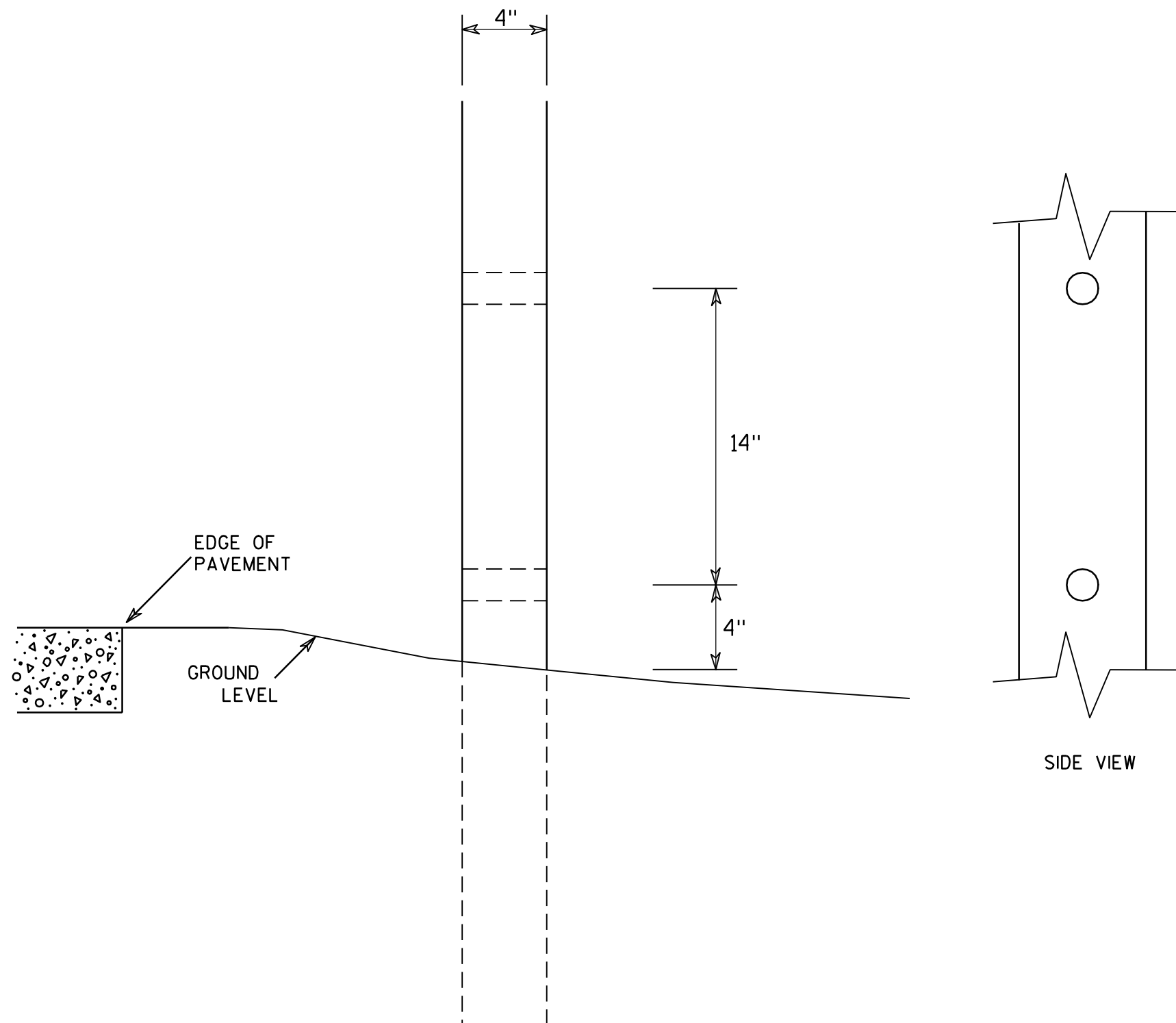
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLAT 54 14-9.9

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

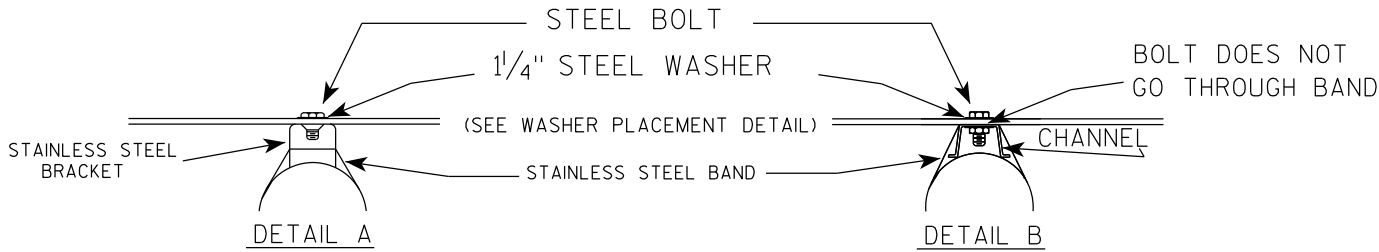
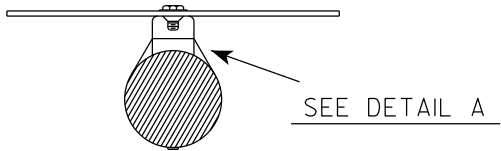
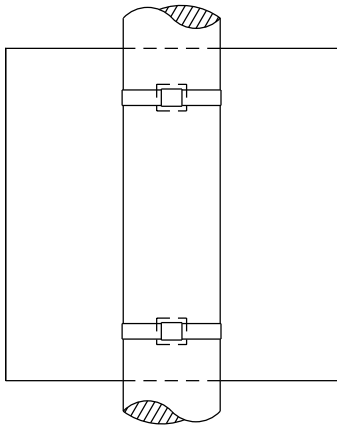
COUNTY:

SHEET NO: 55

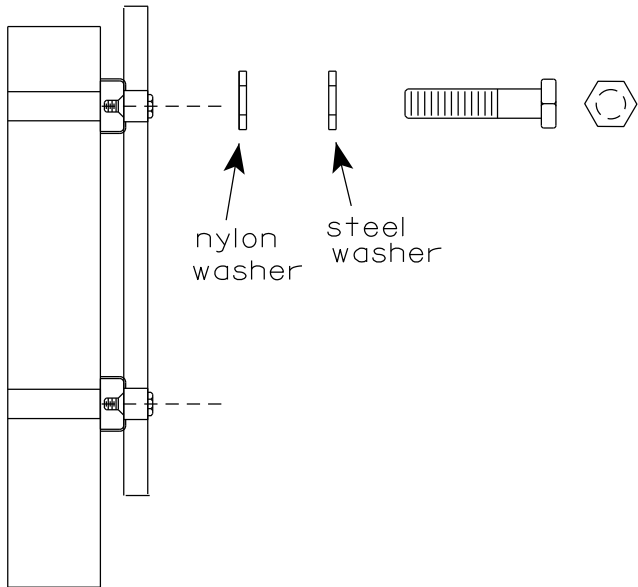
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

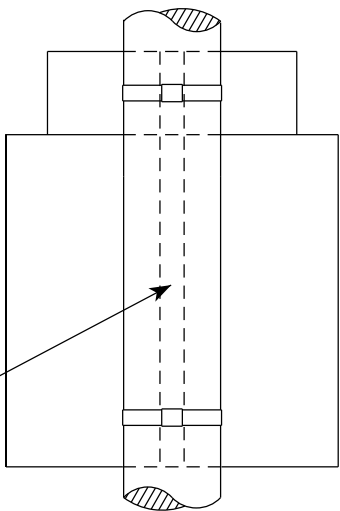


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

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

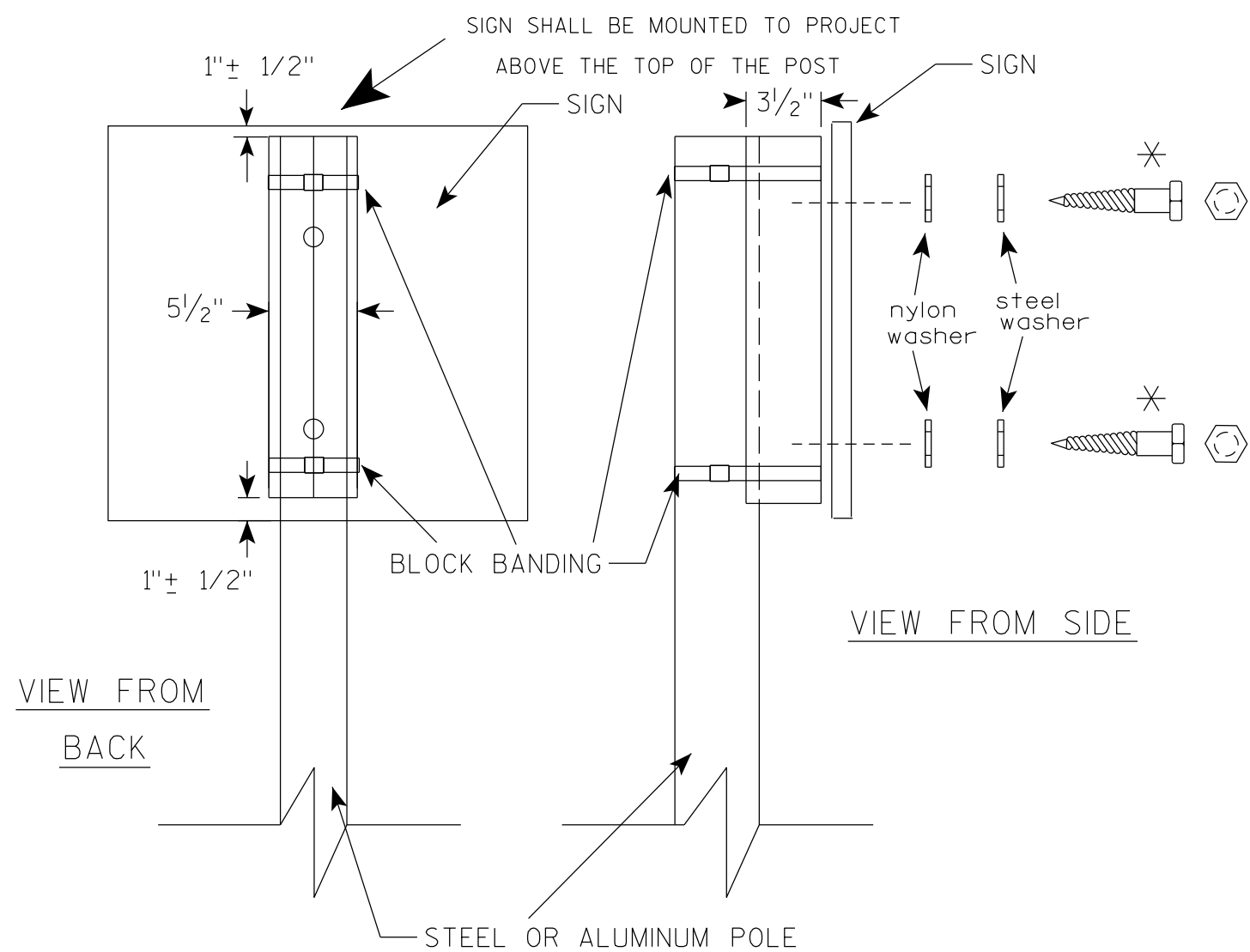


SEE DETAIL B

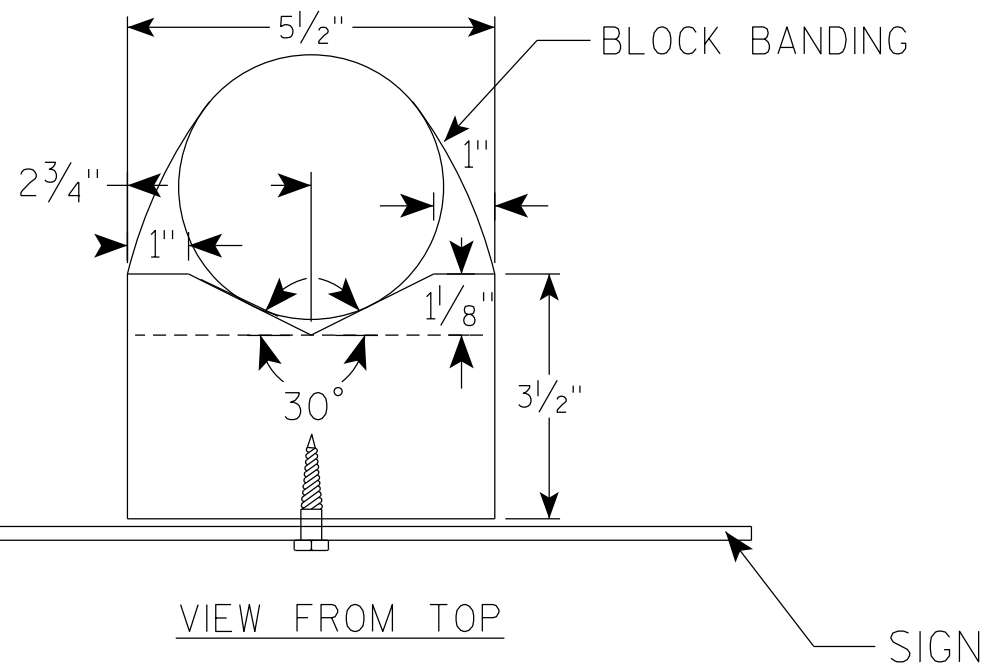
STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

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



VIEW FROM
BACK



GENERAL NOTES

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

✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

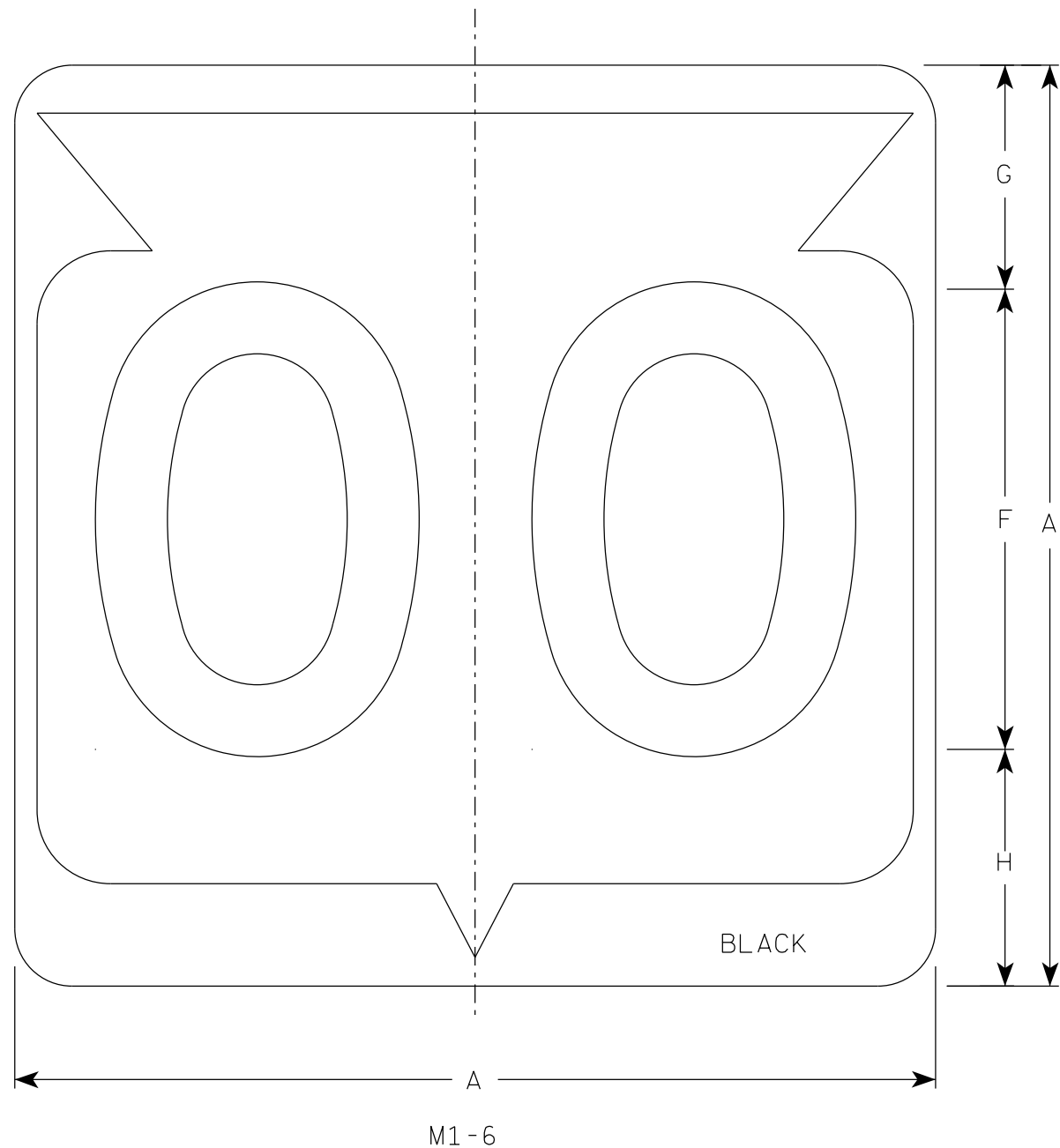
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO: 57

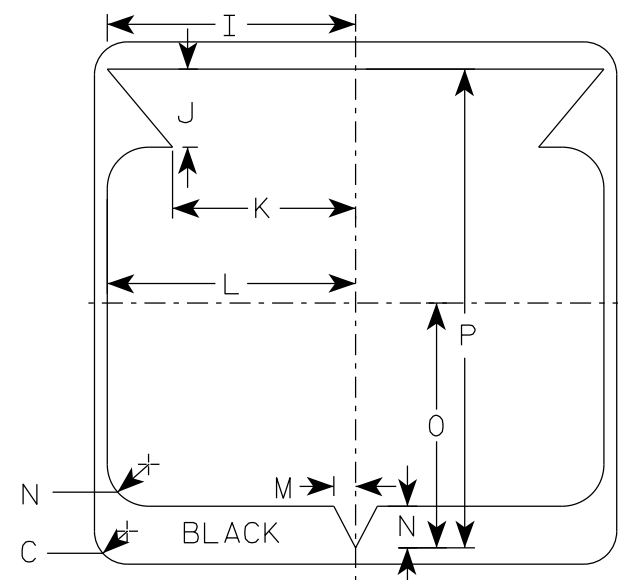
E

7



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - D except 3 number signs Series C



7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
2M	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0

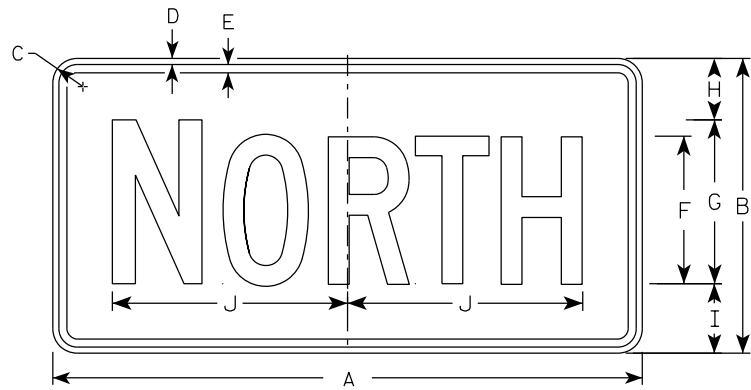
STATE ROUTE MARKER
M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

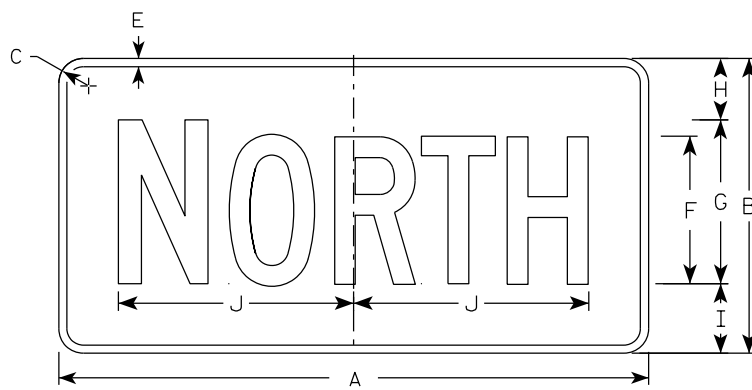
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/8/2022 PLATE NO. M1-6.11

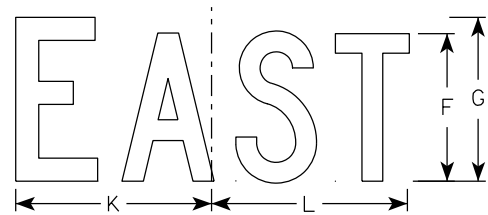
PROJECT NO: HWY: COUNTY: SHEET NO: 58 E



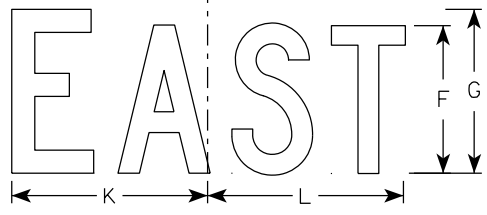
M3-1
MM3-1
MP3-1



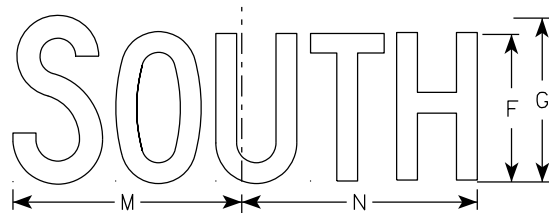
MB3-1
MK3-1
MN3-1



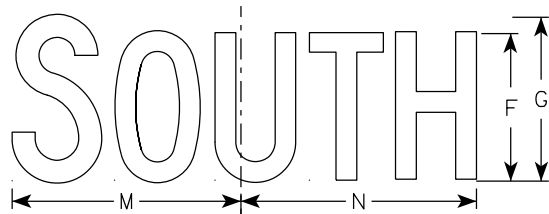
M3-2
MM3-2
MP3-2



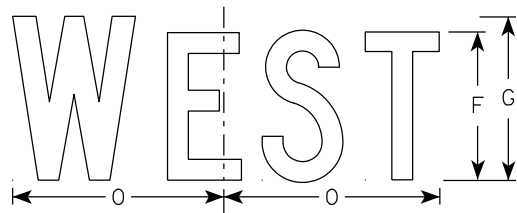
MB3-2
MK3-2
MN3-2



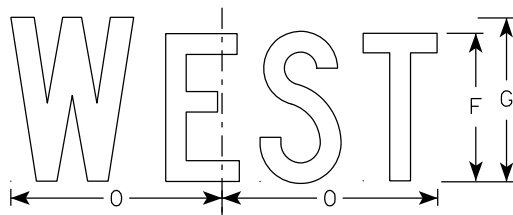
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

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

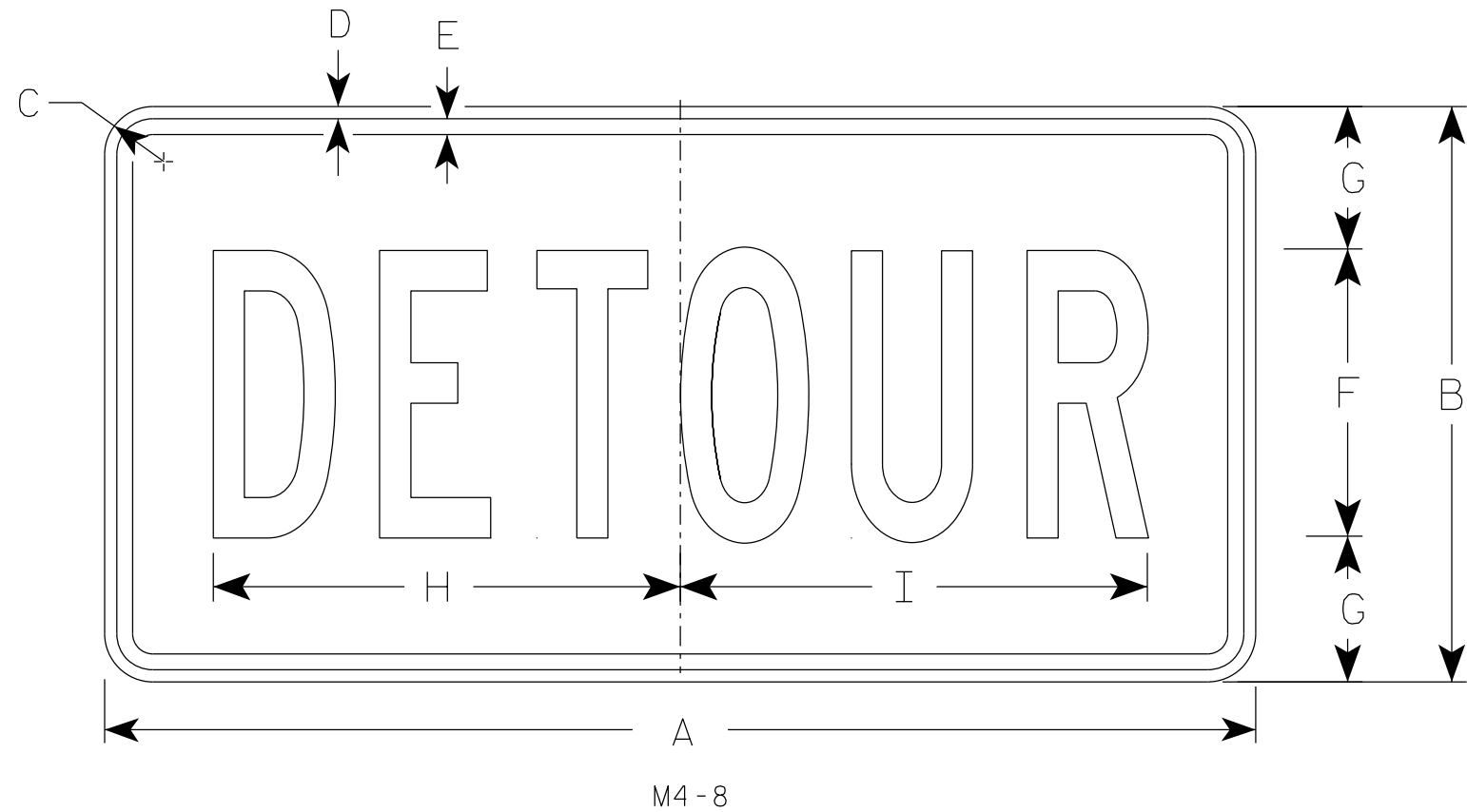
7

7

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

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 59	E
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7



NOTES

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

7

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

STANDARD SIGN

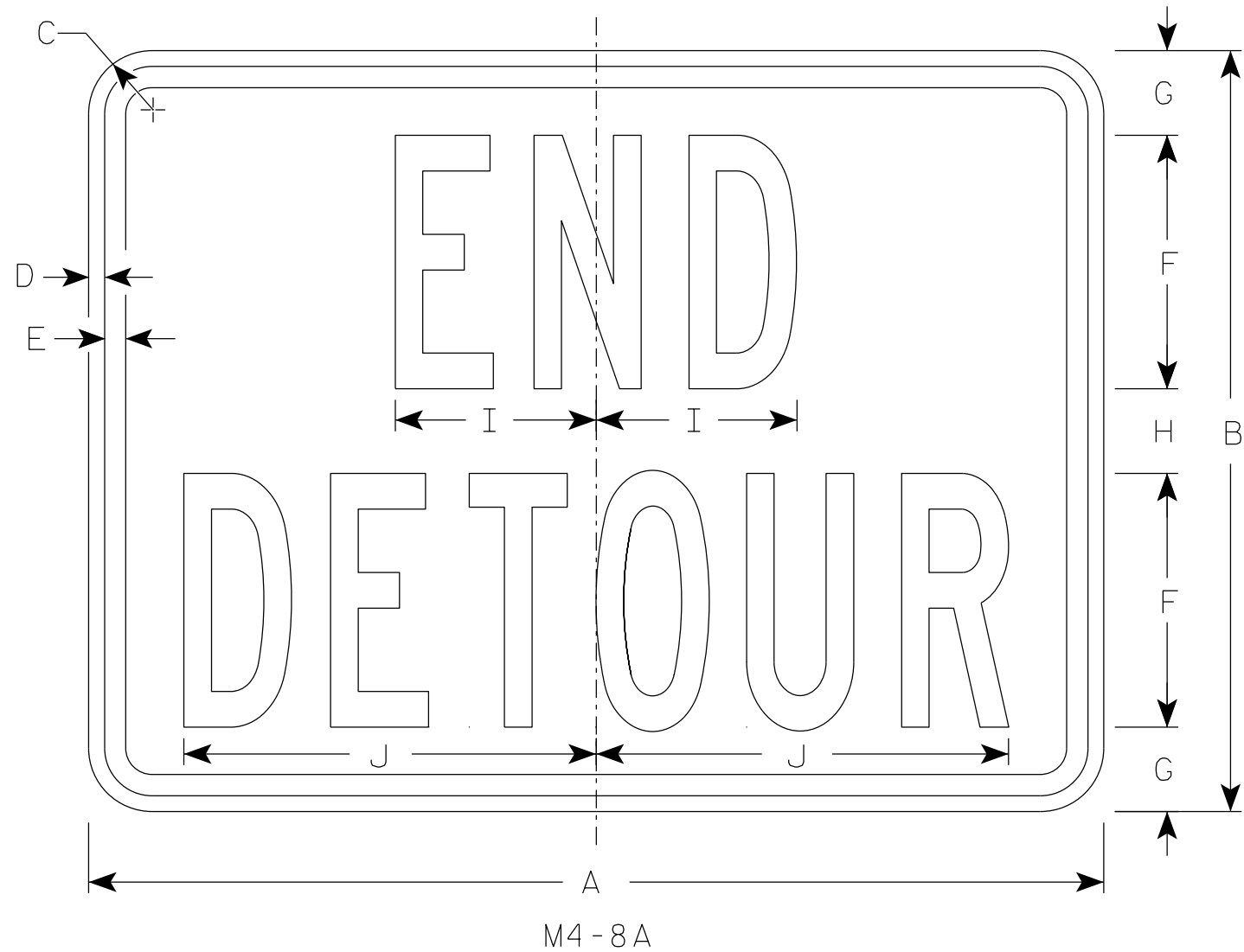
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7



NOTES

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

7

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

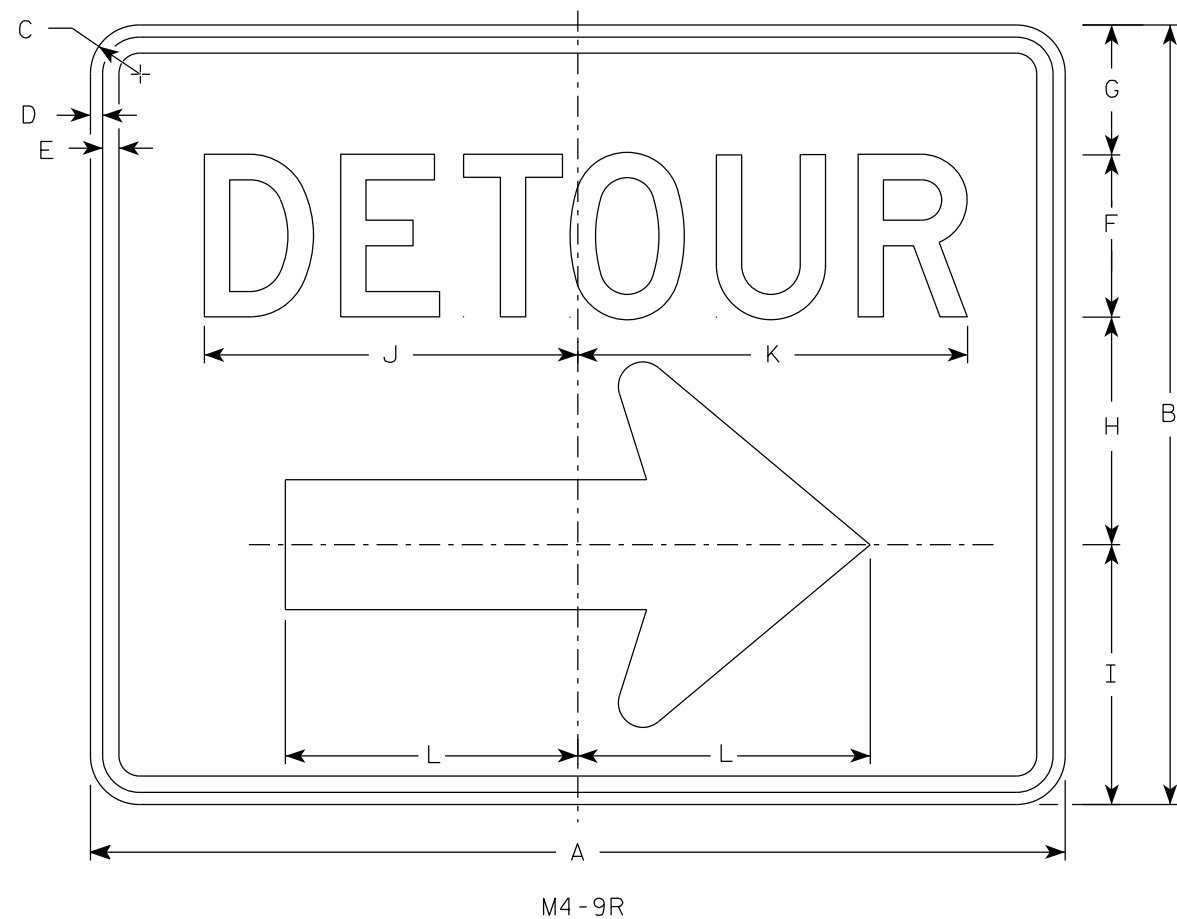
STANDARD SIGN

M4-8A

WISCONSIN DEPT OF TRANSPORTATION

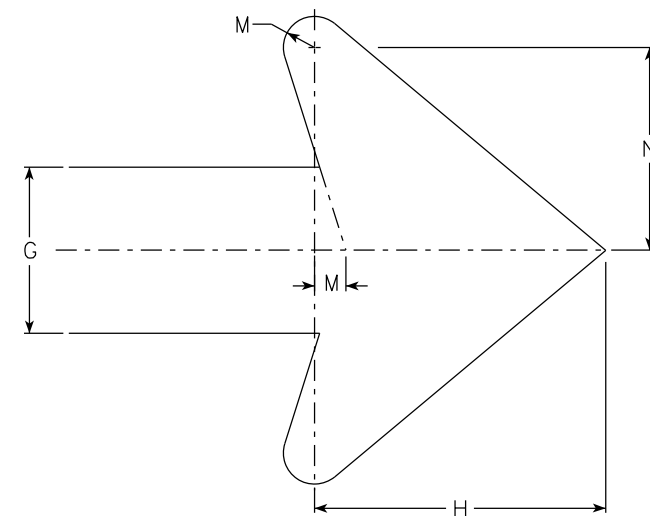
APPROVED *Matthew R Rauch*
For State Traffic Engineer

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



NOTES

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



Arrow Detail

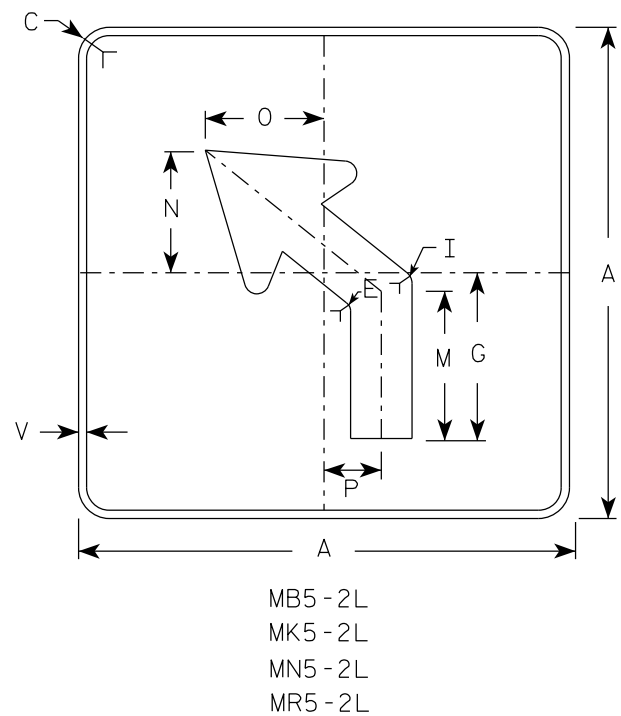
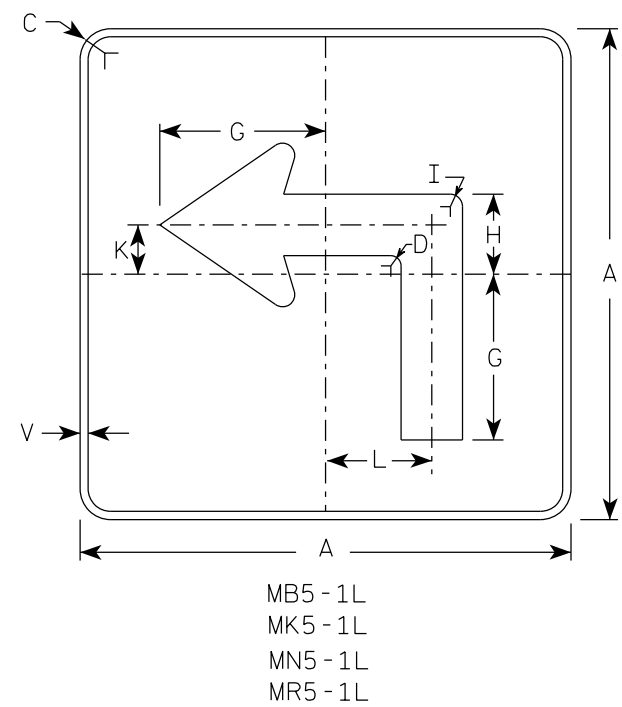
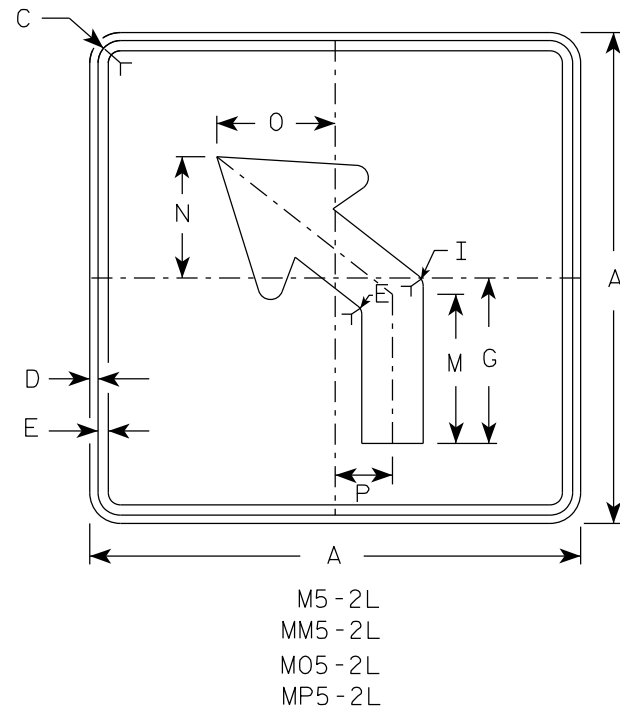
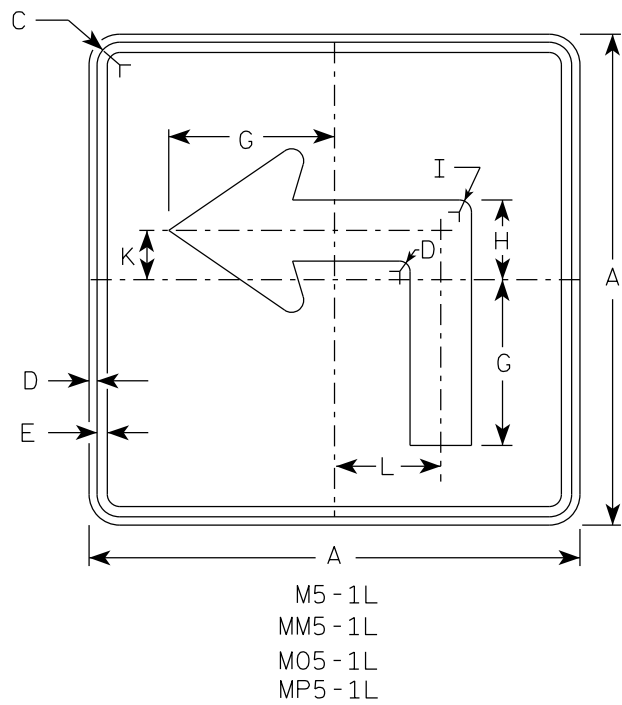
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
2M	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8											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

STANDARD SIGN
M4-9 R & L

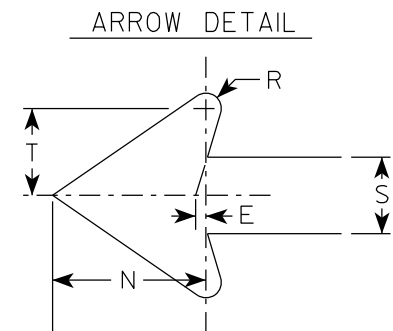
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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

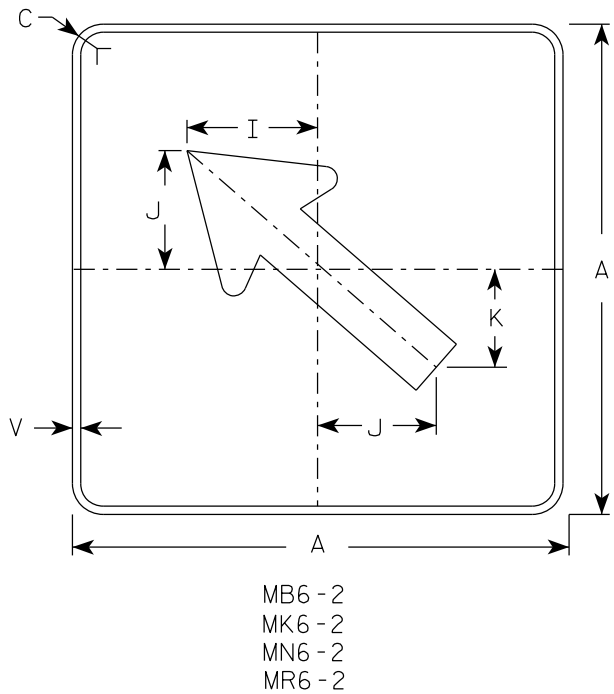
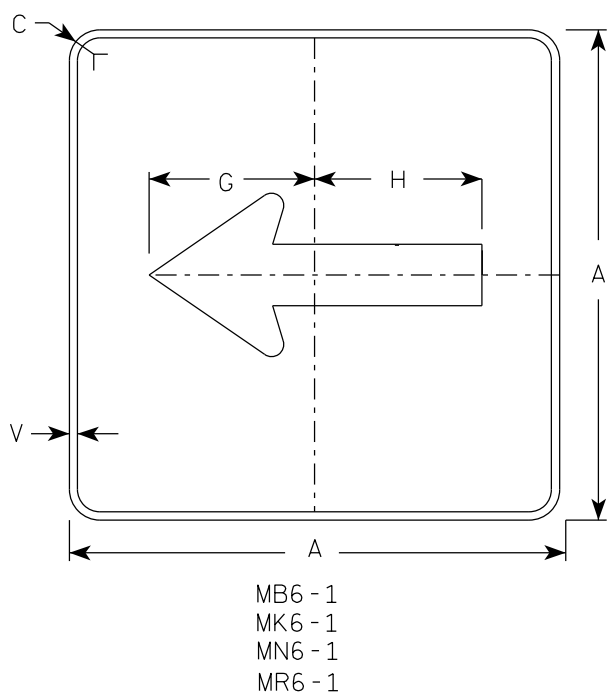
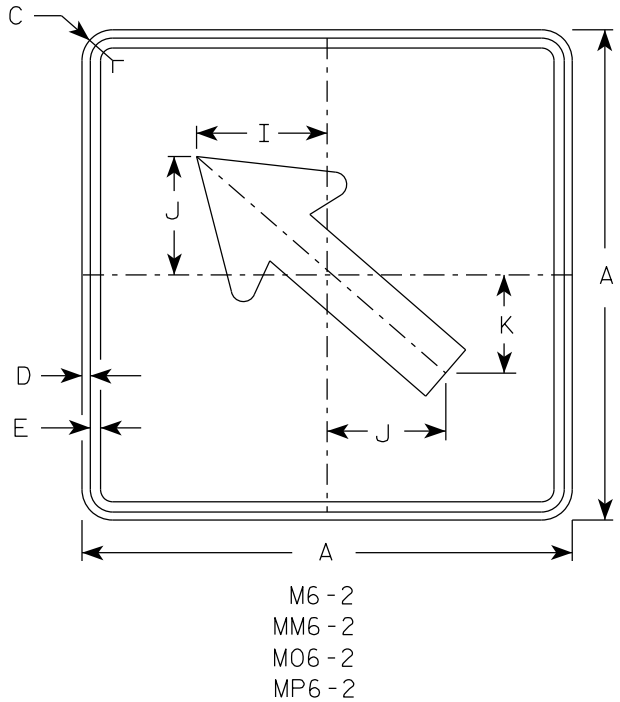
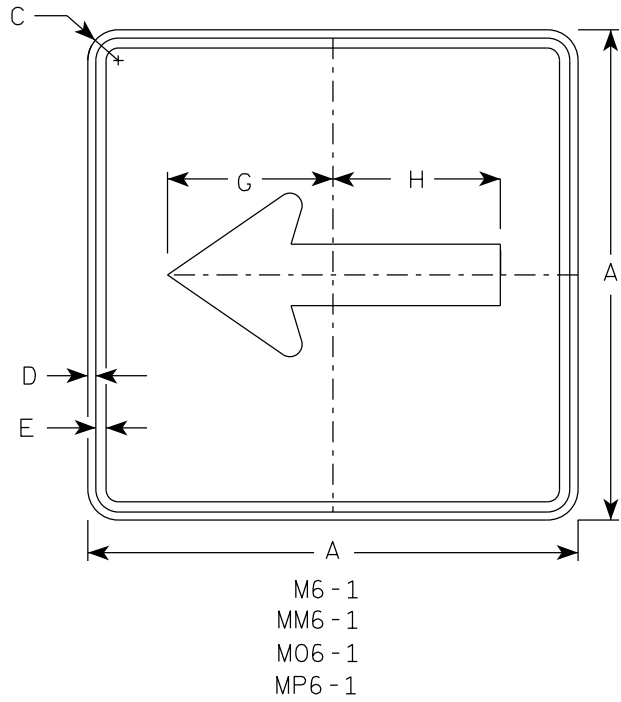


- NOTES
- Signs are Type II - Type H reflective except as shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - | |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

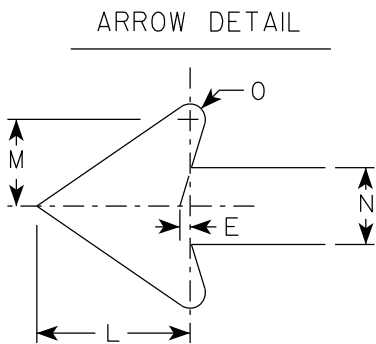


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2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

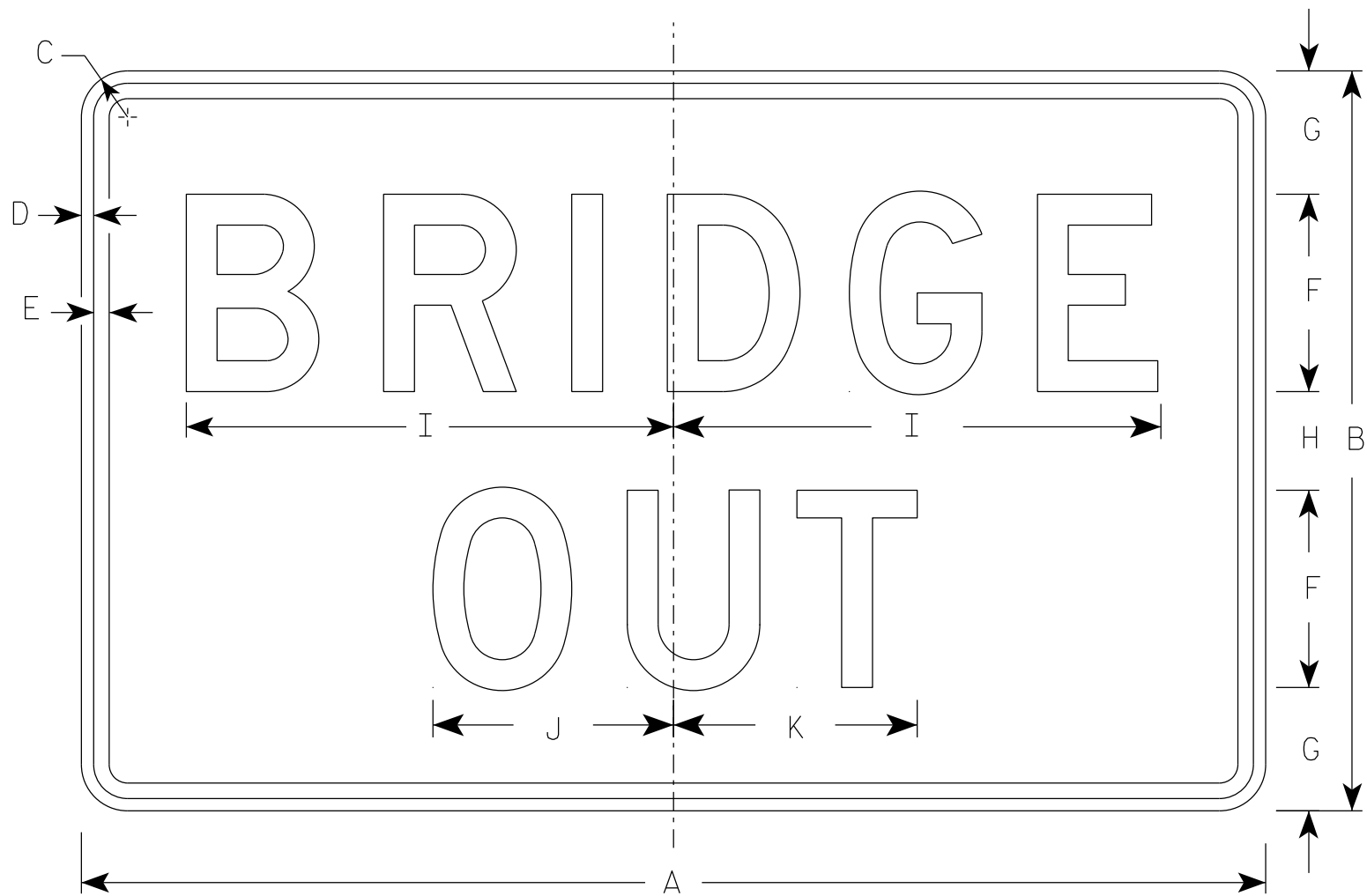
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 63	E
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- NOTES**
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow



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	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2						3.06
2M	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2						3.06
3	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2						6.25
4	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2						6.25
5	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2						6.25



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.

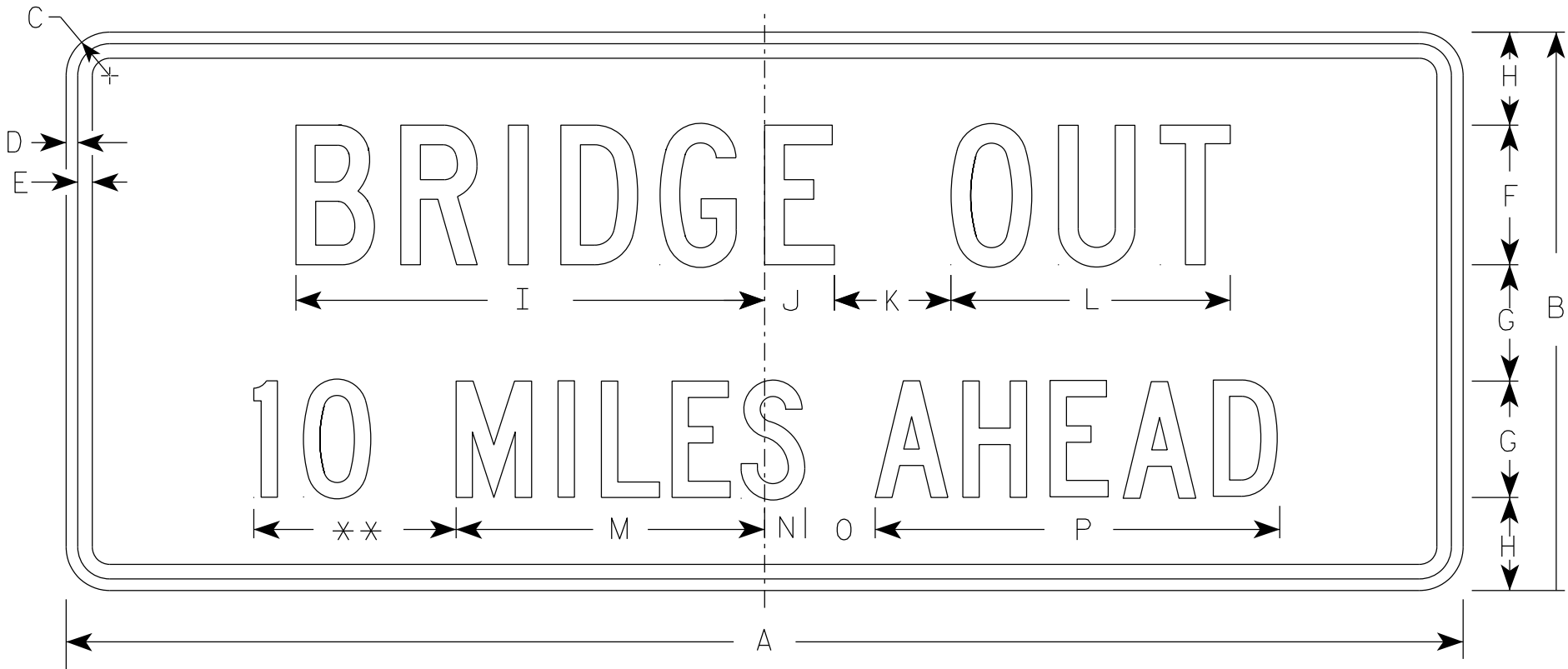
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0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

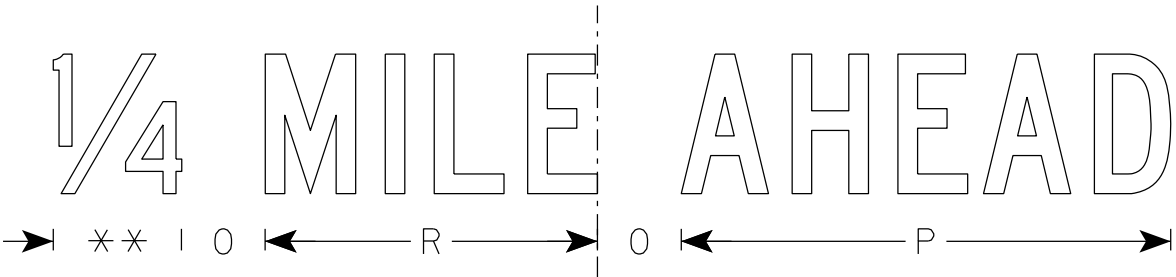
Background - White

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.

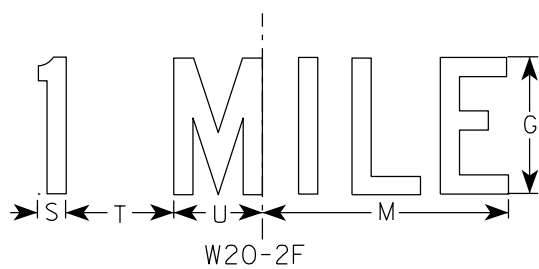
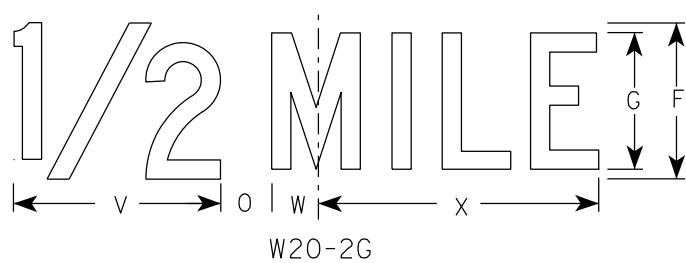
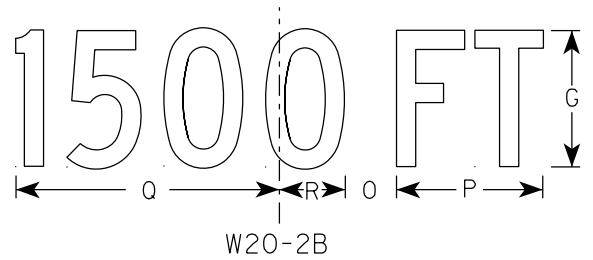
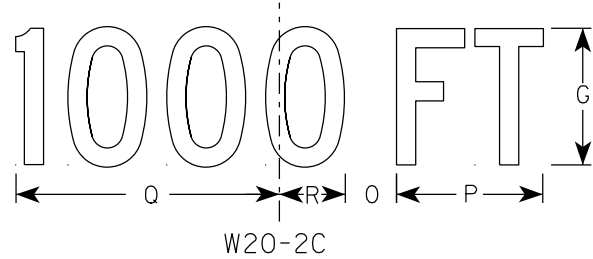
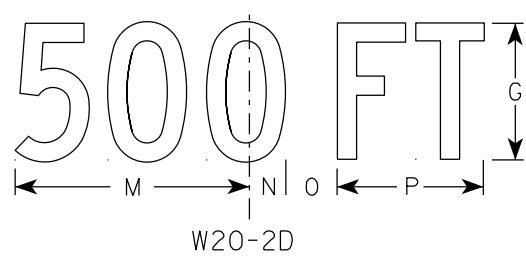
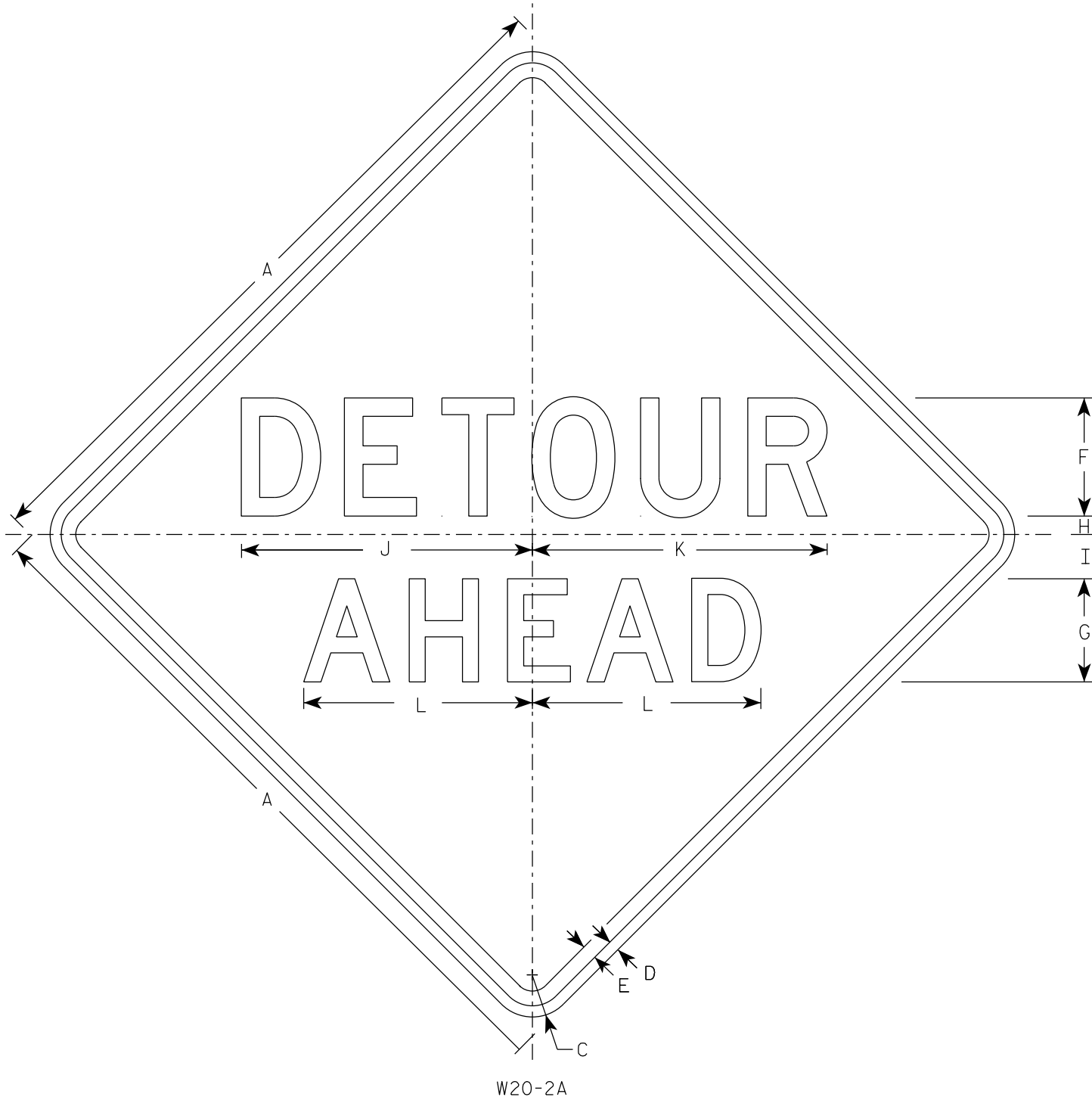


R11-3C

** 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																											



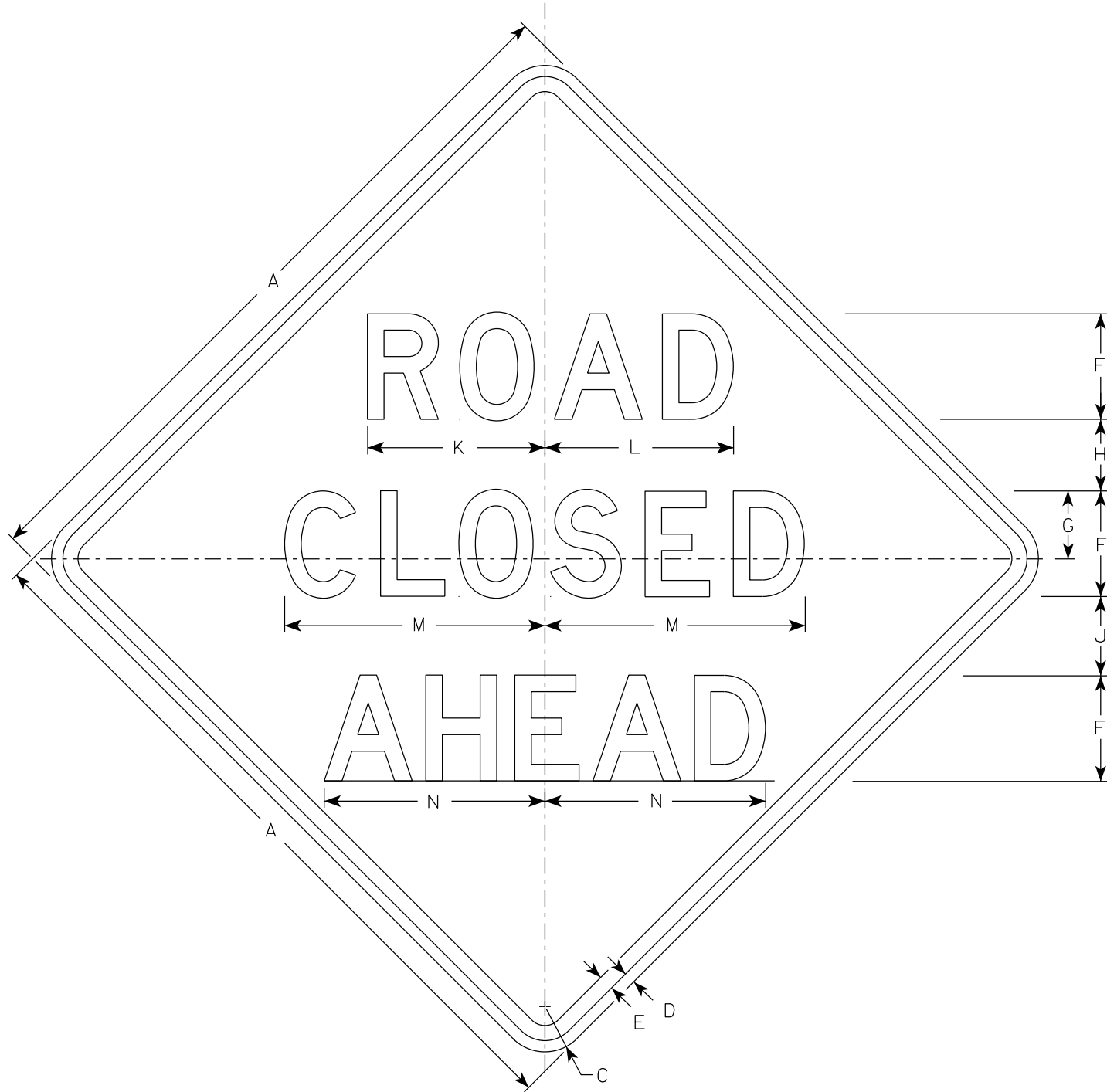
NOTES

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

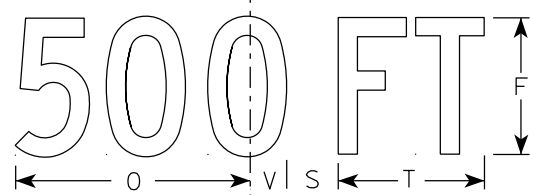
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	w	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8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

STANDARD SIGN W20-2A,B,C,D,F & G	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 1/10/2024	PLATE NO. W20-2.7

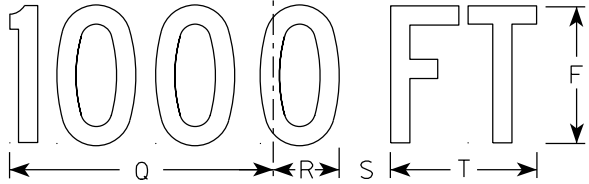
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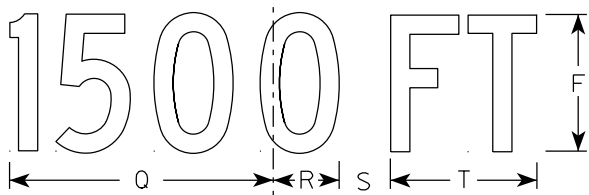
W20-3A



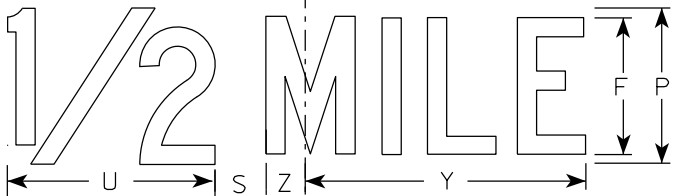
W20-3D



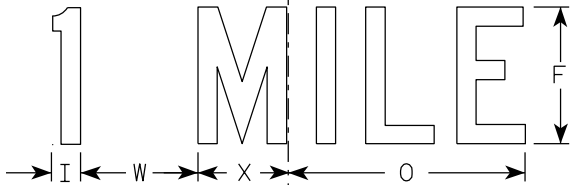
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

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

7

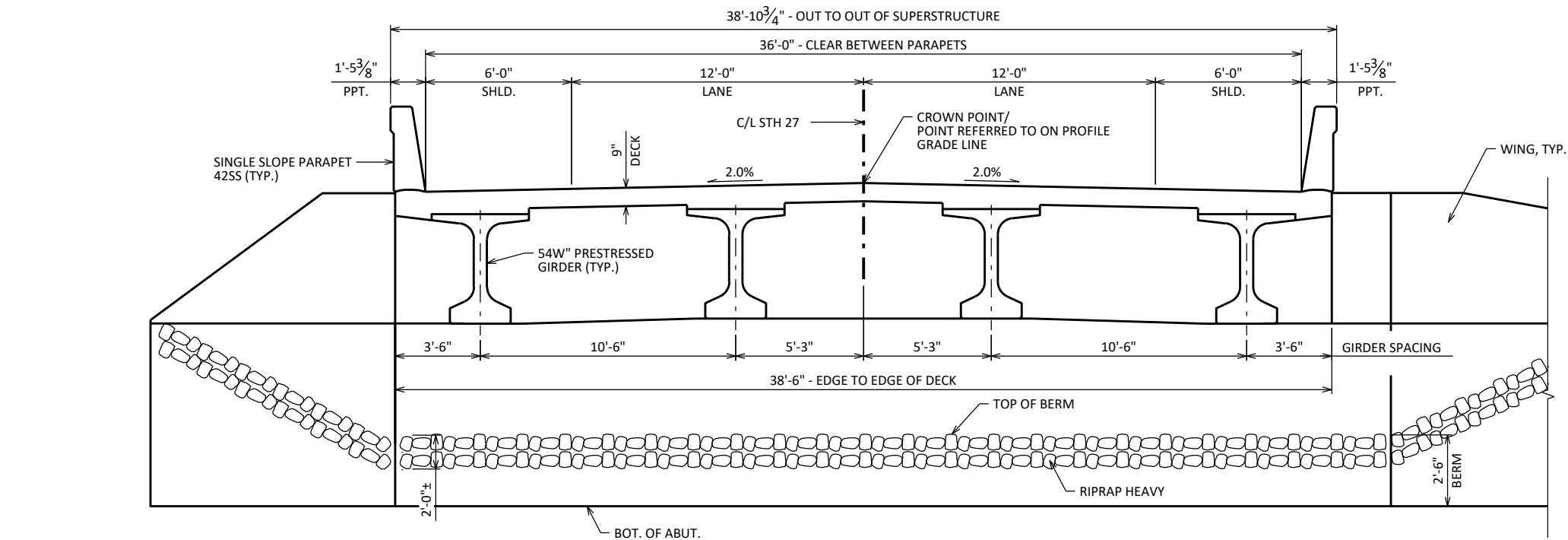
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10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

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

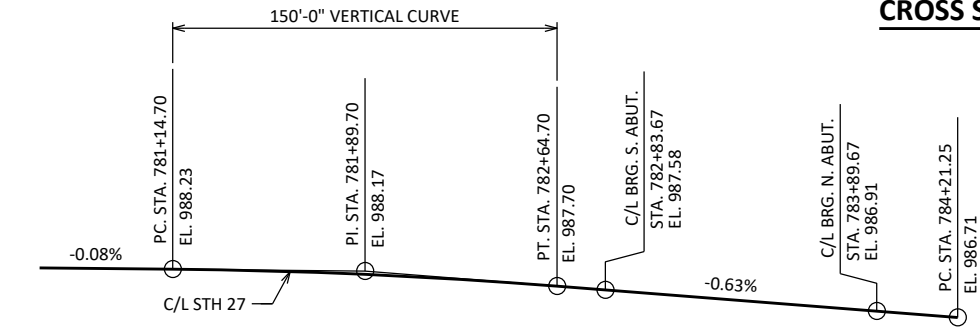
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



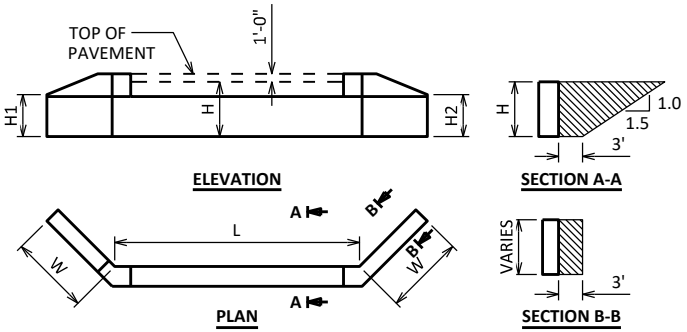
CROSS SECTION THRU ROADWAY LOOKING NORTH



PROFILE GRADE LINE - STH 27

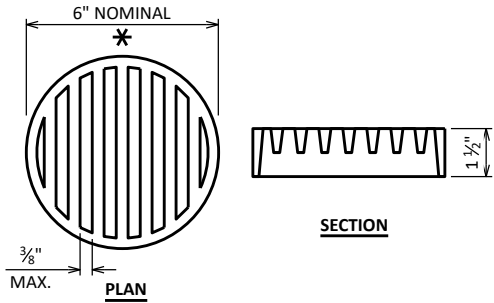
TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	NORTH ABUT.	TOTALS
203.0250	REMOVING STRUCTURE OVER WATERWAY REMOVE DEBRIS (STA. 783+37)	EACH	—	—	—	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-16-157	EACH	—	—	—	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	—	580	580	1,160
502.0100	CONCRETE MASONRY BRIDGES	CY	214.0	74.5	74.5	363
502.3200	PROTECTIVE SURFACE TREATMENT	SY	453	—	—	453
502.3210	PIGMENTED SURFACE SEALER	SY	109	—	—	109
503.0155	PRESTRESSED GIRDER TYPE I 54W-INCH	LF	428	—	—	428
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	—	3,555	3,555	7,110
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	33,280	2,830	2,810	38,920
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	8	—	—	8
506.4000	STEEL DIAPHRAGMS B-16-157	EACH	6	—	—	6
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	—	15	15	30
550.2126	PIILING CIP CONCRETE 12 3/4 X 0.375-INCH	LF	—	1,300	1,150	2,450
606.0300	RIPRAP HEAVY	CY	—	620	610	1,230
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	—	100	100	200
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4	—	—	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	—	42	42	84
645.0120	GEOTEXTILE TYPE HR	SY	—	1,000	990	1,990
SPV.0195	ROUNDED STONE FOR TRAVEL CORRIDOR	TON	—	37	35	72
	NON-BID ITEMS					
	FILLER	SIZE	—	—	—	1/2", 3/4"



ABUTMENT BACKFILL DIAGRAM

L = ABUTMENT BODY LENGTH AT BACKFACE (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
H1 = WING 1 HEIGHT AT TIP (FT)
H2 = WING 2 HEIGHT AT TIP (FT)
W = WING LENGTH (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
 $V_{cf} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H) + (3')(0.5)(H1+H2+H+H)(W)$
 $V_{cy} = V_{cf}(EF)/27$
 $V_{ton} = V_{cy}(2.0)$



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.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-16-157" SHALL BE THE EXISTING GROUNDLINE AND STREAMBED ELEVATION.

AT THE BACK FACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.

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

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

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK AND TO THE VERTICAL AND HORIZONTAL SURFACES OF THE PAVING NOTCHES AT ABUTMENT DIAPHRAGMS.

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE PARAPETS.

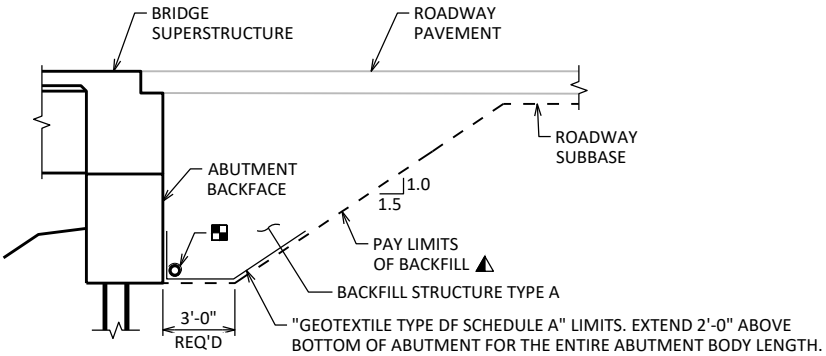
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE "HR" TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE "54W" PRESTRESSED GIRDER DETAILS 2" SHEET.

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

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO "EXCAVATION FOR STRUCTURES BRIDGES B-16-157".

ALL VOIDS BETWEEN "RIPRAP HEAVY" ON THE WILDLIFE TRAVEL PATH SHALL BE FILLED WITH ROUNDED STONE. WORK SHALL BE PAID FOR UNDER THE "ROUNDED STONE FOR TRAVEL CORRIDOR" BID ITEM.



TYPICAL SECTION THRU ABUTMENT

- ▲ BACKFILL PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-16-157		DRAWN BY JPH	PLANS CK'D IDL
CROSS SECTION & QUANTITIES		SHEET 2 70	

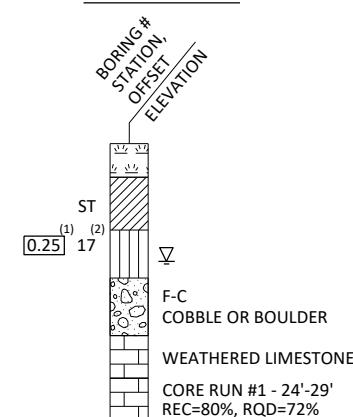
STATE PROJECT NUMBER

8150-00-72

MATERIAL SYMBOLS

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

LEGEND OF BORING



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

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

GROUND WATER ELEVATION

▽ AT TIME OF DRILLING

▼ END OF DRILLING

▼ AFTER DRILLING

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

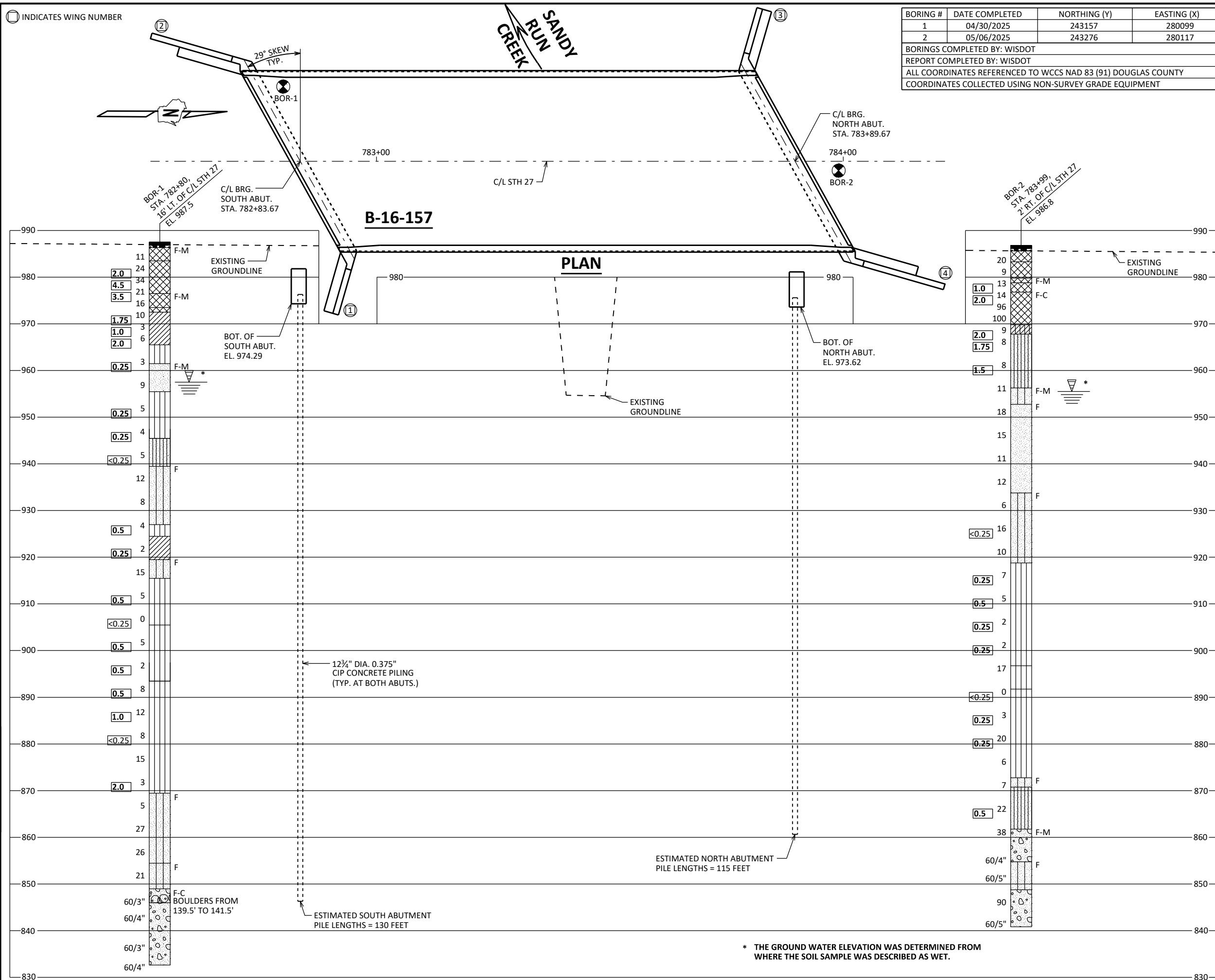
NO.	DATE	REVISION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-16-157

SUBSURFACE EXPLORATION

JPH	PLANS CK'D	ID
SHEET 3		
71		



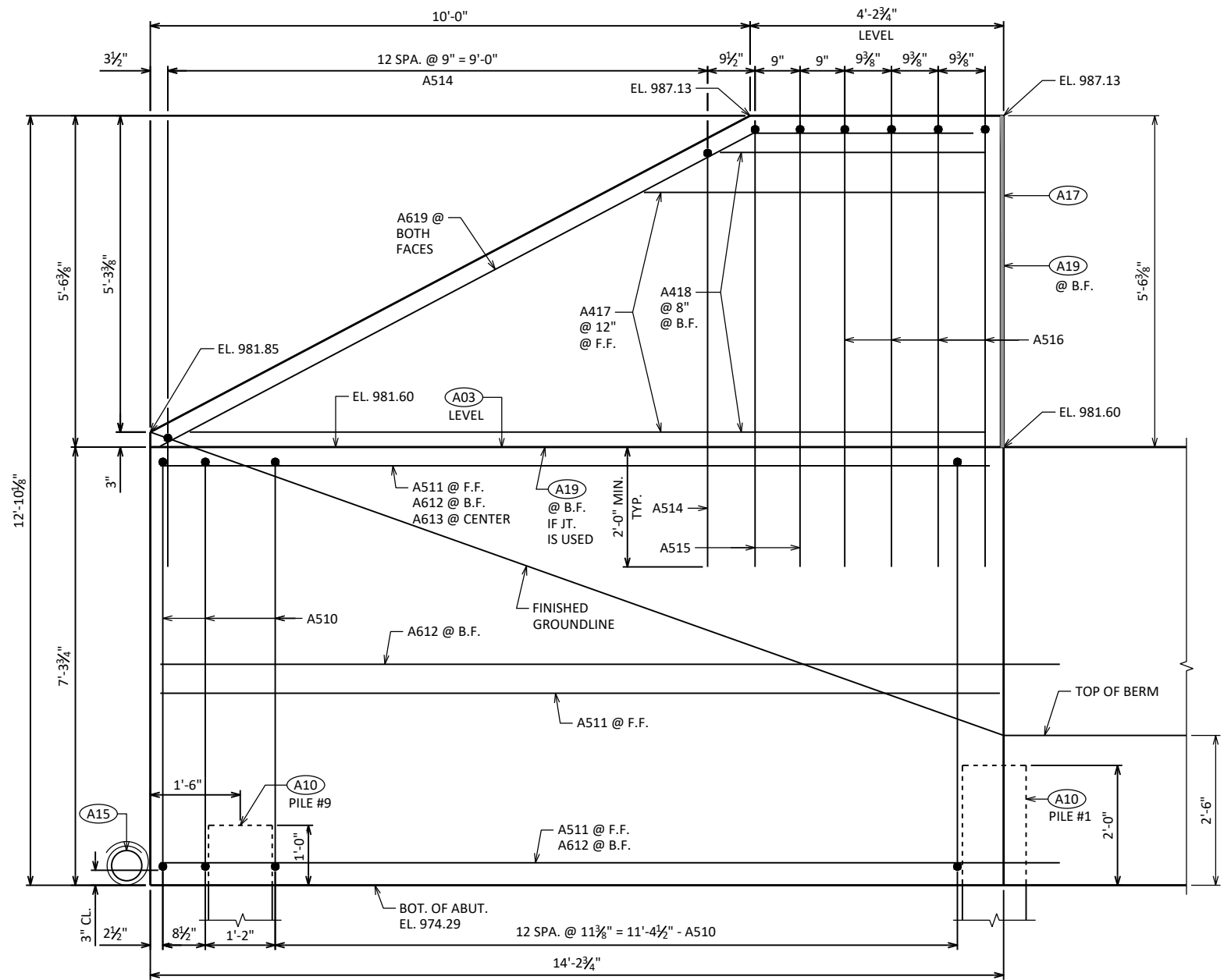
* THE GROUND WATER ELEVATION WAS DETERMINED FROM WHERE THE SOIL SAMPLE WAS DESCRIBED AS WET.



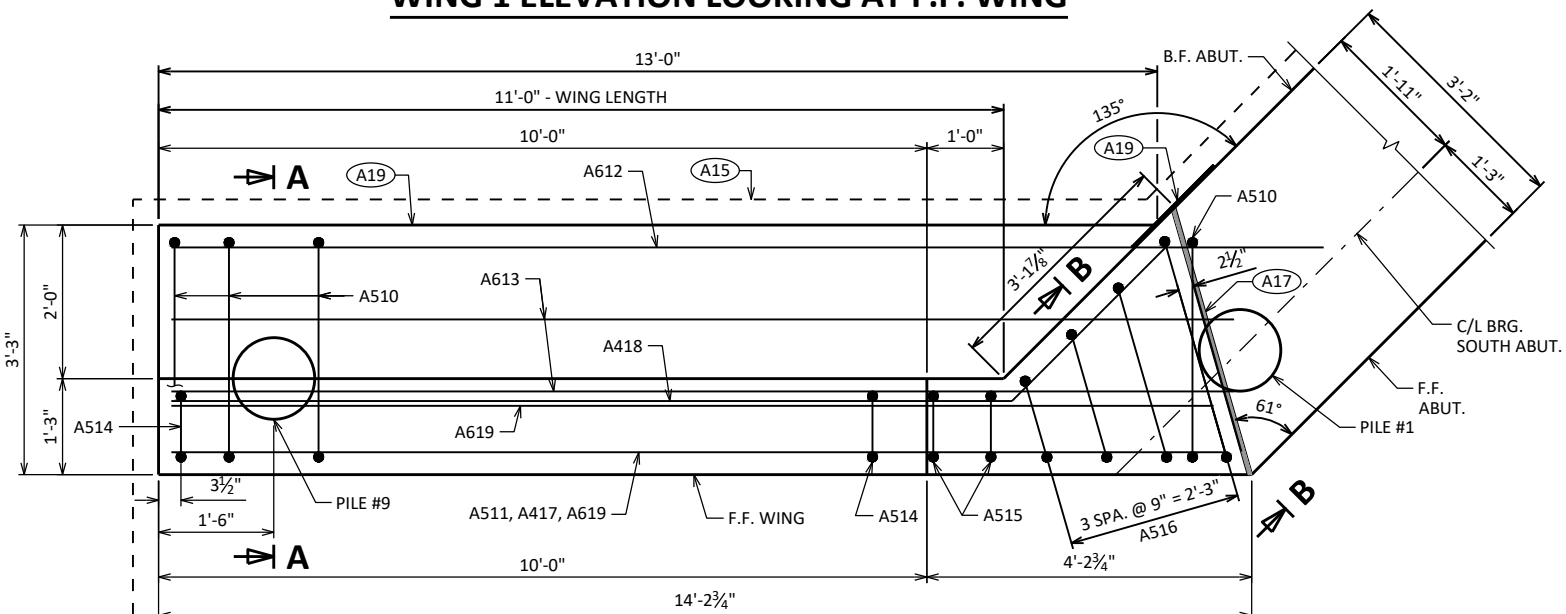
A18 3/4" CORK FILLER UP VERT.
BEAM SEAT FACES THAT
RUN PARALLEL WITH
GIRDER.

A19 18" (RMW) RUBBERIZED
MEMBRANE WATERPROOFING
SEAL ALL HORIZ. & VERT.
JOINTS AT BACKFACE.

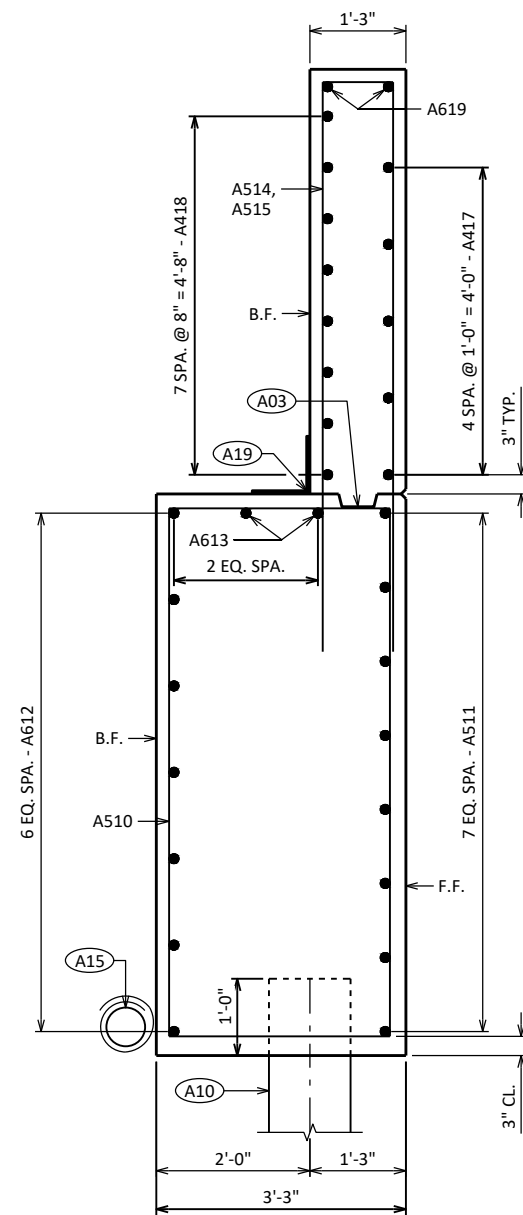
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-16-157	
	DRAWN BY	JPH	PLANS CK'D IDL
SOUTH ABUTMENT		SHEET 4	
		72	



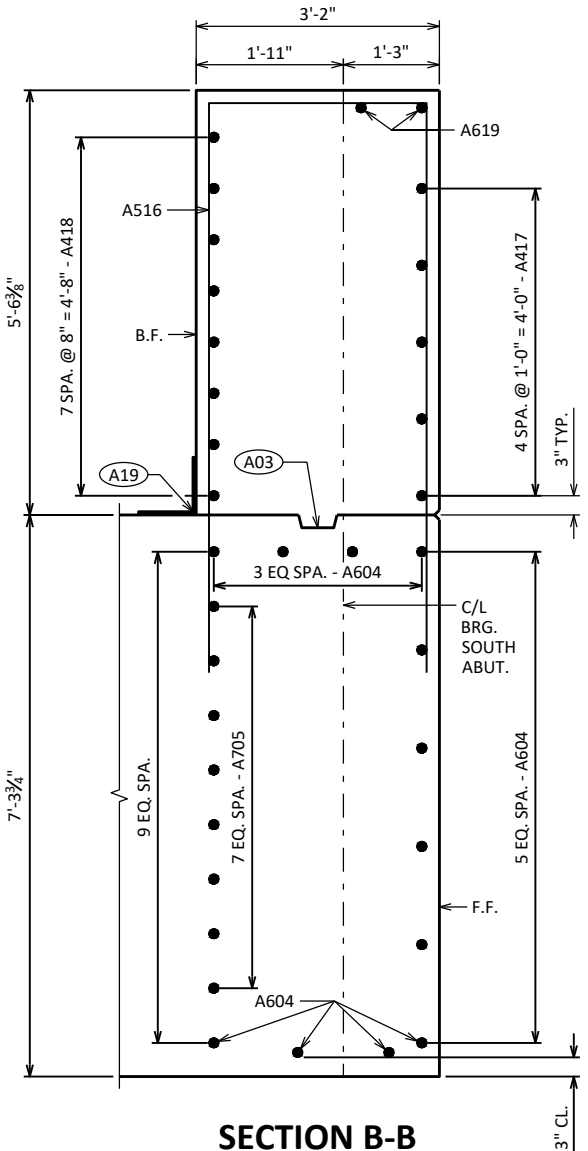
WING 1 ELEVATION LOOKING AT F.F. WING



WING 1 PLAN



WING 1 SECTION A-A

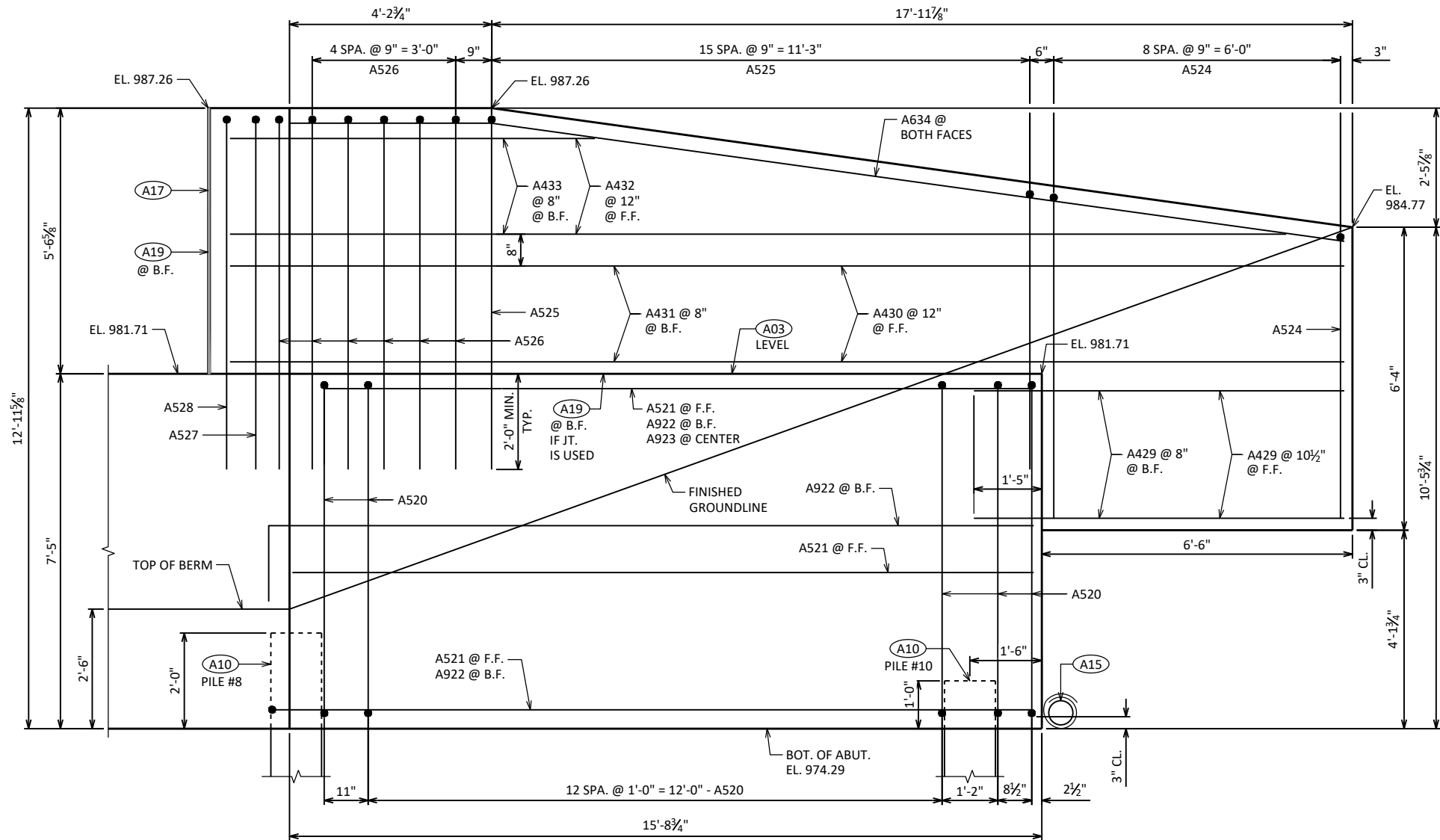


SECTION B-B

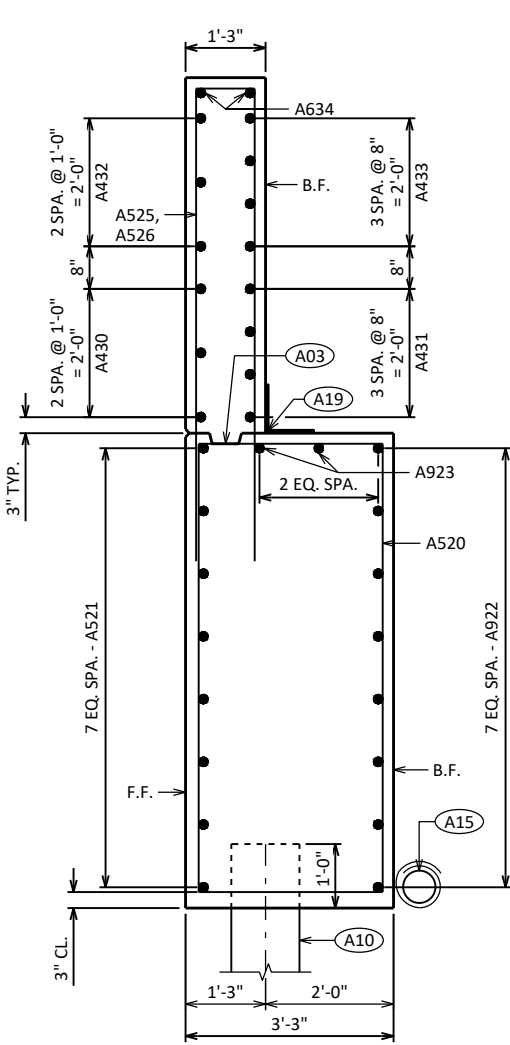
WING REINFORCEMENT A510, A511, A612 AND A613 BARS LOCATED BELOW BEAM SEAT ARE NOT SHOWN IN THIS VIEW FOR CLARITY, SEE "WING 1 SECTION A-A" VIEW FOR THESE REBAR DETAILS.

- A03 OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2" x 6". (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- A10 SUPPORT ABUTMENT ON 12 3/4" DIA. X 0.375" CIP CONCRETE PILING, ESTIMATED 130'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 210 TONS PER PILE.
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/2" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

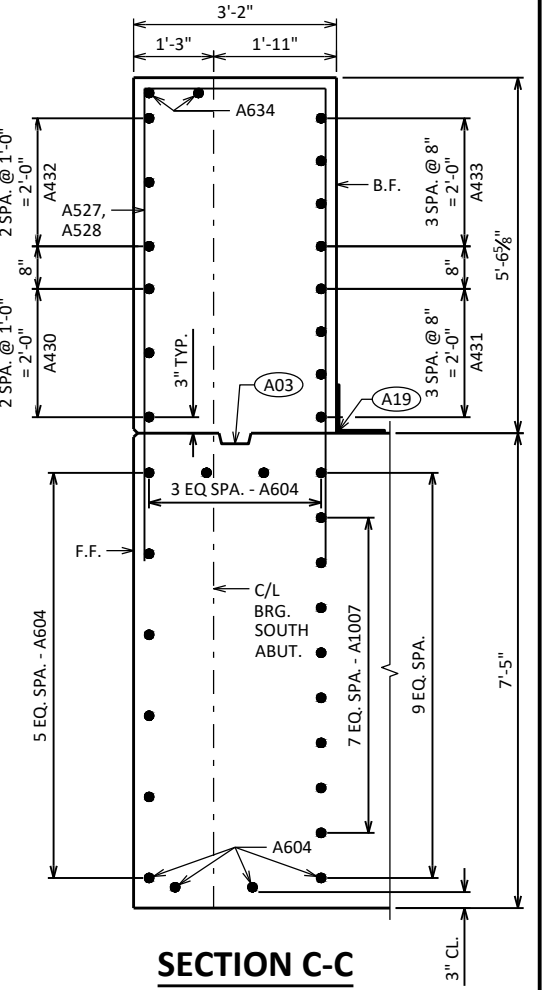
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-16-157			
DRAWN BY JPH		PLANS CK'D IDL	
SOUTH ABUTMENT WING 1 DETAILS		SHEET 5 73	



WING 2 ELEVATION LOOKING @ F.F. WING

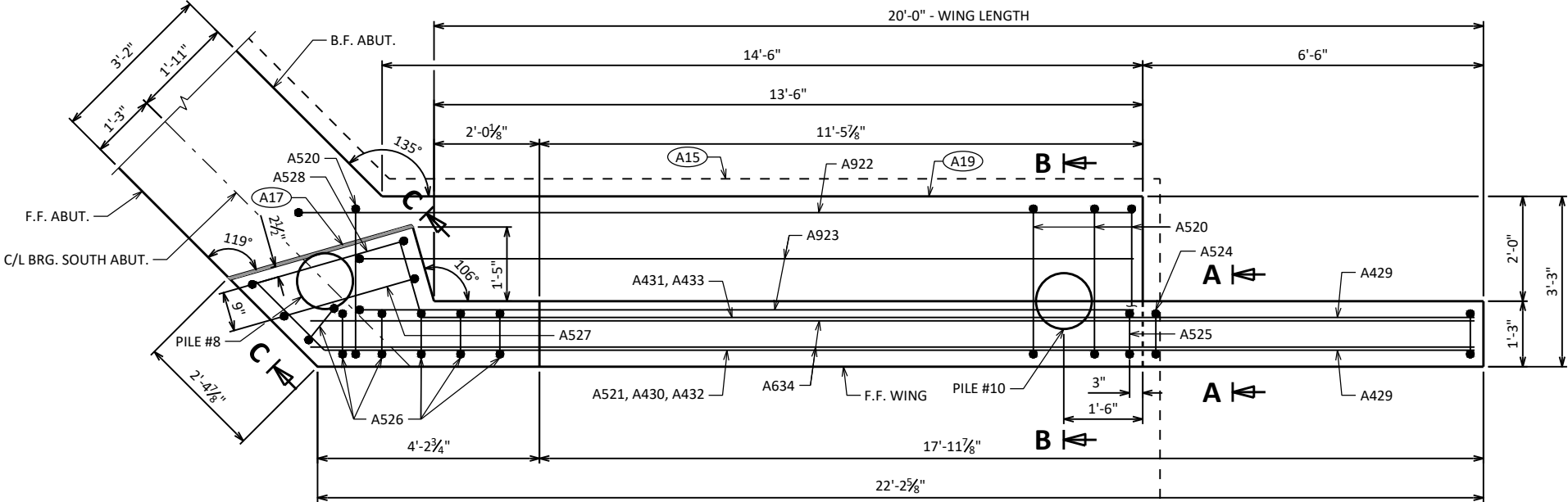


WING 2 SECTION B-B

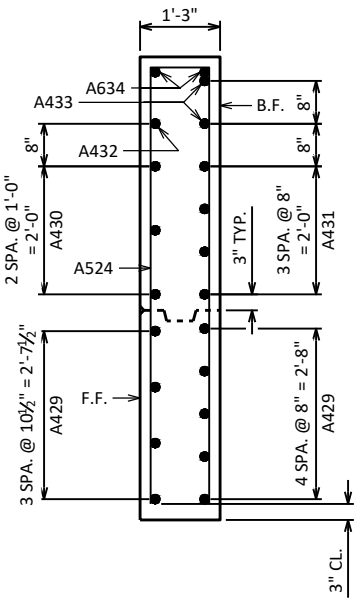


SECTION C-C

WING REINFORCEMENT A520, A521, A922 AND A923 BARS LOCATED BELOW BEAM SEAT ARE NOT SHOWN IN THIS VIEW FOR CLARITY, SEE "WING 2 SECTION B-B" VIEW FOR THESE REBAR DETAILS. ALSO NOT SHOWN IS BODY PILE #8.



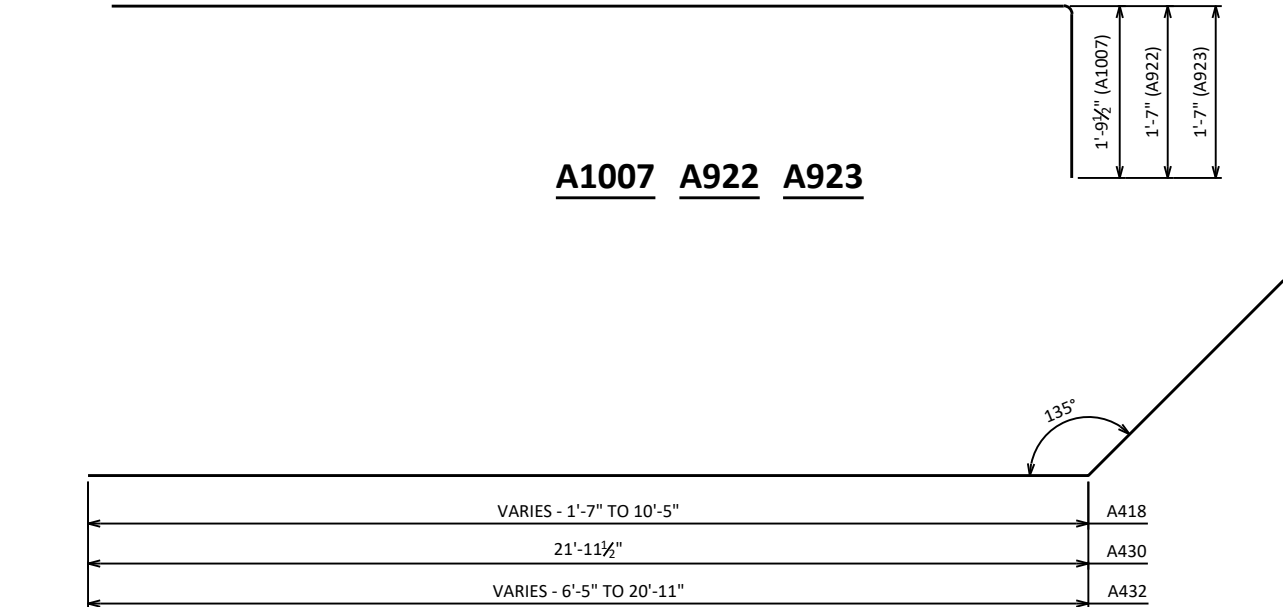
WING 2 PLAN



WING 2 SECTION A-A

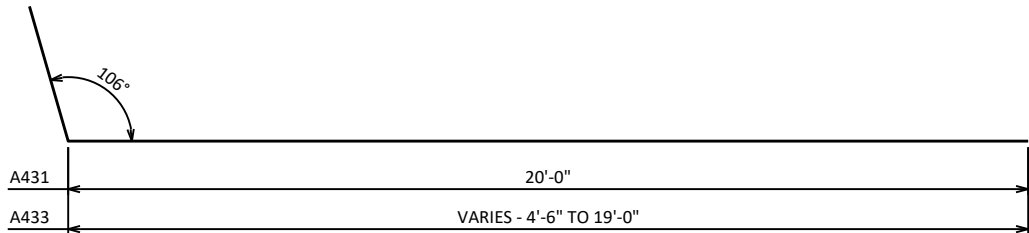
- A03 OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2" x 6". (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- A10 SUPPORT ABUTMENT ON 12 3/4" DIA. X 0.375" CIP CONCRETE PILING, ESTIMATED 130'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 210 TONS PER PILE.
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 3/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-16-157			
DRAWN BY JPH		PLANS CK'D IDL	
SOUTH ABUTMENT WING 2 DETAILS		SHEET 6 74	

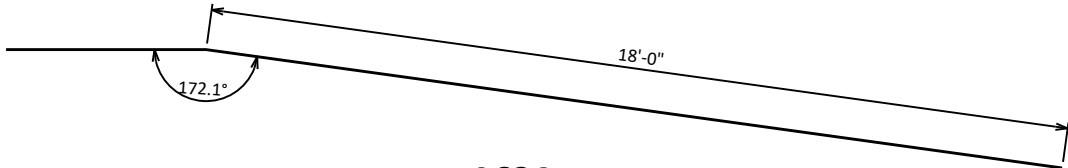


A1007 **A922** **A923**

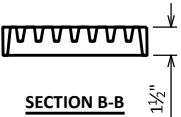
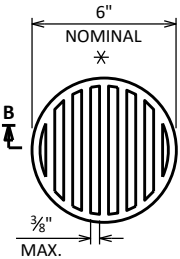
A418 **A430** **A432**



A431 **A433**



A634

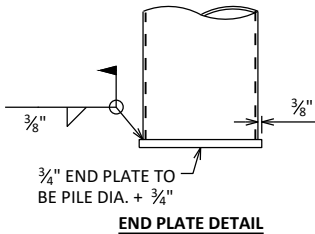


RODENT SHIELD DETAIL

* 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".

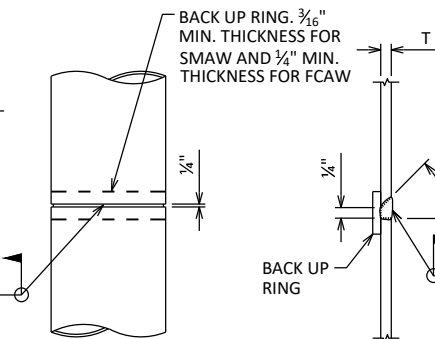
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH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



B-U4a
OR
B-U4a-GF

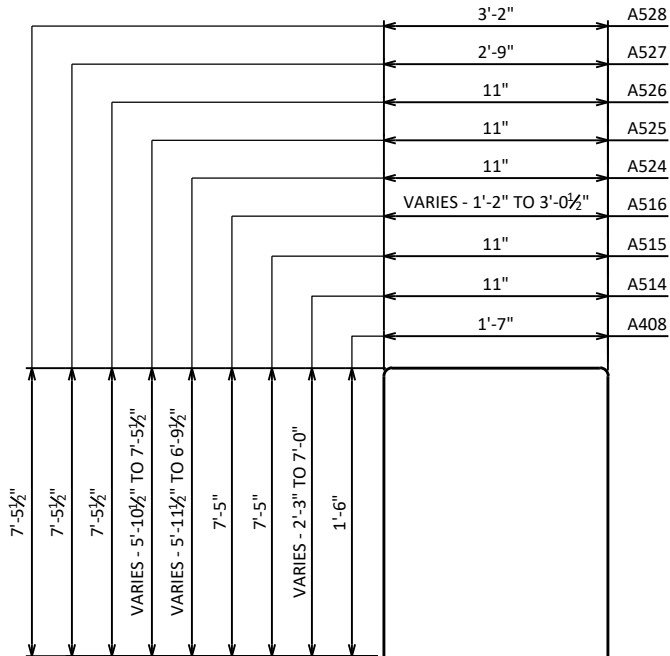
CAST-IN-PLACE 'PIPE' PILE

CIP PILE DETAILS



C.I.P. PILE WELD DETAIL

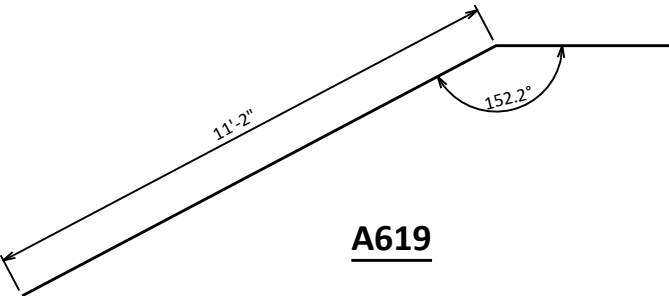
B-U4a
OR
B-U4a-GF



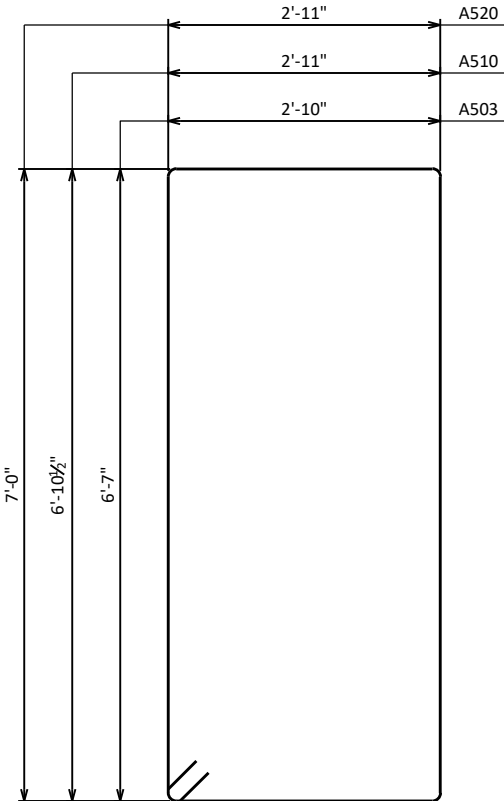
A408 **A514** **A515**

A516 **A524** **A525**

A526 **A527** **A528**



A619



A503 **A510** **A520**

BILL OF BARS

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

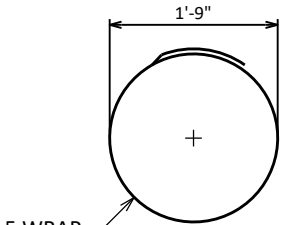
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A401		8	28'-0"	X		BODY-BOTTOM-SPIRAL-1 PER PILE-VERTICAL
A402		16	2'-3"			BODY-BOTTOM-2 PER PILE-VERTICAL
A503		54	19'-6"	X		BODY-STIRRUPS-VERTICAL
A604		24	27'-5"			BODY-HORIZONTAL
A705		8	12'-0"			BODY-HORIZONTAL-B.F.-AT WING 1 END
A606		8	21'-11"			BODY-HORIZONTAL-B.F.-AT CENTER
A1007		8	21'-6"	X		BODY-HORIZONTAL-B.F.-AT WING 2 END
A408		18	4'-5"	X		BODY-TOP-VERTICAL-BETWEEN BEAM SEATS
A409		6	10'-0"			BODY-TOP-HORIZONTAL-BETWEEN BEAM SEATS
A510	X	15	20'-3"	X		WING 1-BOTTOM-STIRRUP-VERTICAL
A511	X	8	14'-0"			WING 1-BOTTOM-HORIZONTAL-F.F.
A612	X	7	15'-0"			WING 1-BOTTOM-HORIZONTAL-B.F.
A613	X	2	13'-10"			WING 1-BOTTOM-HORIZONTAL-CENTER
A514	X	13	9'-11"	X	▲	WING 1-TOP-VERTICAL-UNDER TAPERED AREA
A515	X	2	15'-6"	X		WING 1-TOP-VERTICAL-UNDER LEVEL AREA
A516	X	4	16'-9"	X	▲	WING 1/BODY-TOP-VERTICAL-UNDER LEVEL AREA
A417	X	5	9'-5"		▲	WING 1-TOP-HORIZONTAL-F.F.
A418	X	8	8'-10"	X	▲	WING 1-TOP-HORIZONTAL-B.F.
A619	X	2	14'-10"	X		WING 1-TOP-VERTICAL-B.F. & F.F.
A520	X	16	20'-6"	X		WING 2-BOTTOM-STIRRUP-VERTICAL
A521	X	8	15'-6"			WING 2-BOTTOM-HORIZONTAL-F.F.
A922	X	8	17'-4"	X		WING 2-BOTTOM-HORIZONTAL-B.F.
A923	X	2	16'-2"	X		WING 2-BOTTOM-HORIZONTAL-CENTER
A524	X	9	13'-5"	X	▲	WING 2-TOP-VERTICAL-UNDER TAPERED AREA-AT END
A525	X	16	14'-0"	X	▲	WING 2-TOP-VERTICAL-UNDER TAPERED AREA-AT CENTER
A526	X	6	15'-7"	X		WING 2-TOP-VERTICAL-UNDER LEVEL AREA
A527	X	1	17'-5"	X		WING 2/BODY-TOP-VERTICAL-UNDER LEVEL AREA
A528	X	1	17'-10"	X		WING 2/BODY-TOP-VERTICAL-UNDER LEVEL AREA
A429	X	9	7'-9"			WING 2-BOTTOM-HORIZONTAL-F.F. & B.F.
A430	X	3	23'-10"	X		WING 2-TOP-HORIZONTAL-F.F.
A431	X	4	21'-5"	X		WING 2-TOP-HORIZONTAL-B.F.
A432	X	3	15'-7"	X	▲	WING 2-TOP-HORIZONTAL-F.F.
A433	X	4	13'-2"	X	▲	WING 2-TOP-HORIZONTAL-B.F.
A634	X	2	22'-2"	X		WING 2-TOP-VERTICAL-B.F. & F.F.

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

BAR SERIES TABLE

BAR MARK	NUMBER REQUIRED	TOTAL BAR LENGTH
A514	1 SERIES OF 13 BARS	5'-2" TO 14'-8"
A516	1 SERIES OF 4 BARS	15'-9" TO 17'-8"
A417	1 SERIES OF 5 BARS	5'-8" TO 13'-2"
A418	1 SERIES OF 8 BARS	4'-5" TO 13'-3"
A524	1 SERIES OF 9 BARS	12'-7" TO 14'-3"
A525	1 SERIES OF 16 BARS	12'-5" TO 15'-7"
A432	1 SERIES OF 3 BARS	8'-4" TO 22'-10"
A433	1 SERIES OF 4 BARS	5'-11" TO 20'-5"

BUNDLE AND TAG EACH SERIES SEPARATELY.

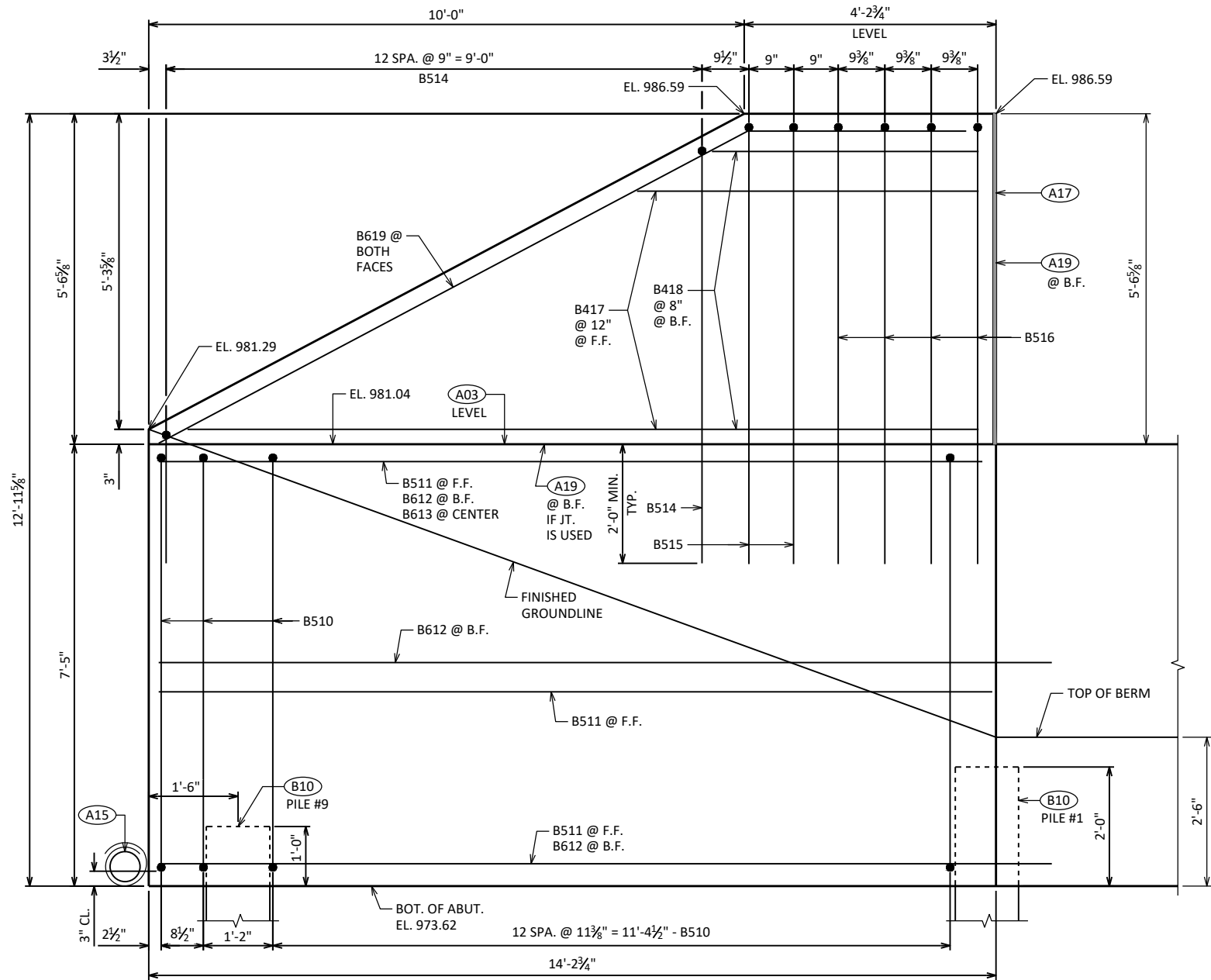


A401

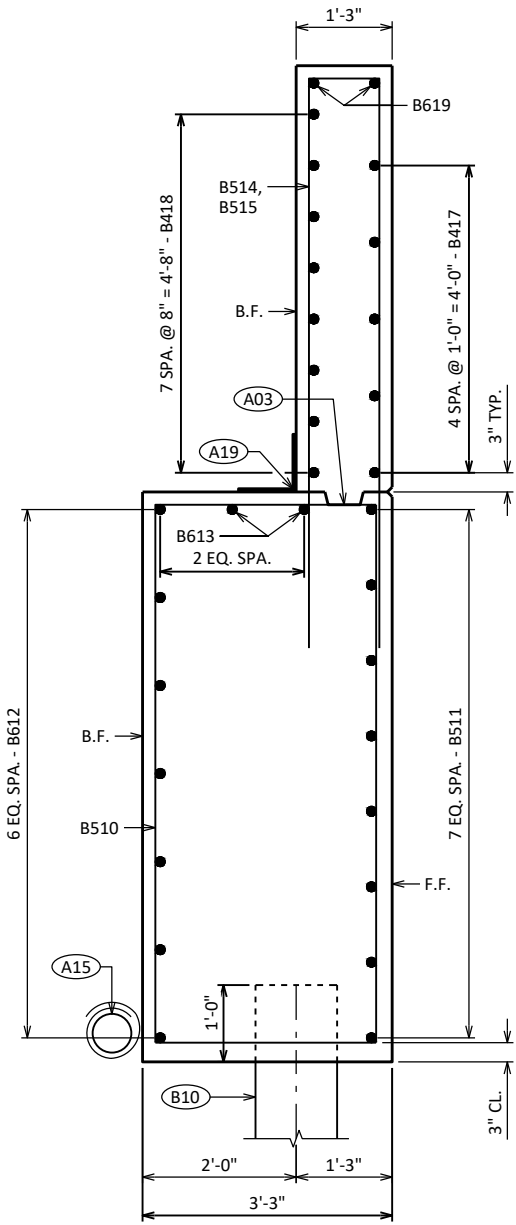
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-16-157	
DRAWN BY		JPH	PLANS CK'D IDL
SOUTH ABUTMENT & BAR DETAILS		SHEET 7 75	



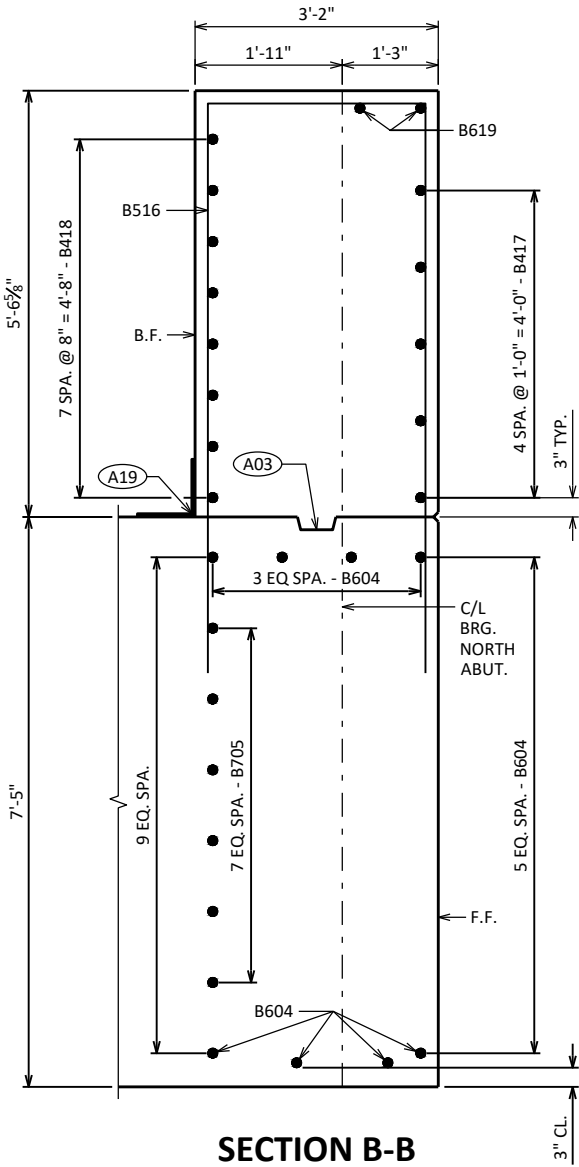
- | | | | |
|---|-------------|---------------|----------------------|
| | | | |
| NO. | DATE | REVISION | BY |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION | | | |
| STRUCTURE B-16-157 | | | |
| | DRAWN
BY | JPH | PLANS
CK'D
IDL |
| NORTH
 ABUTMENT | | SHEET 8
76 | |



WING 3 ELEVATION LOOKING AT F.F. WING

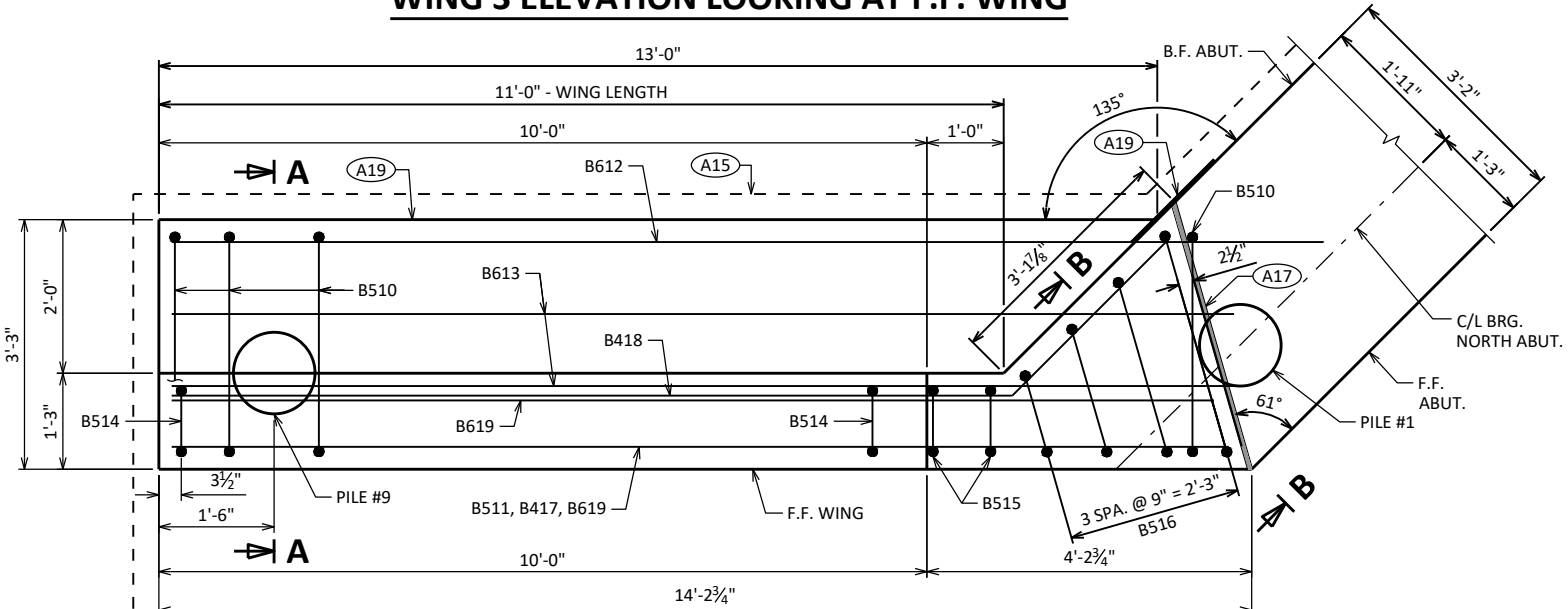


WING 3 SECTION A-A



SECTION B-B

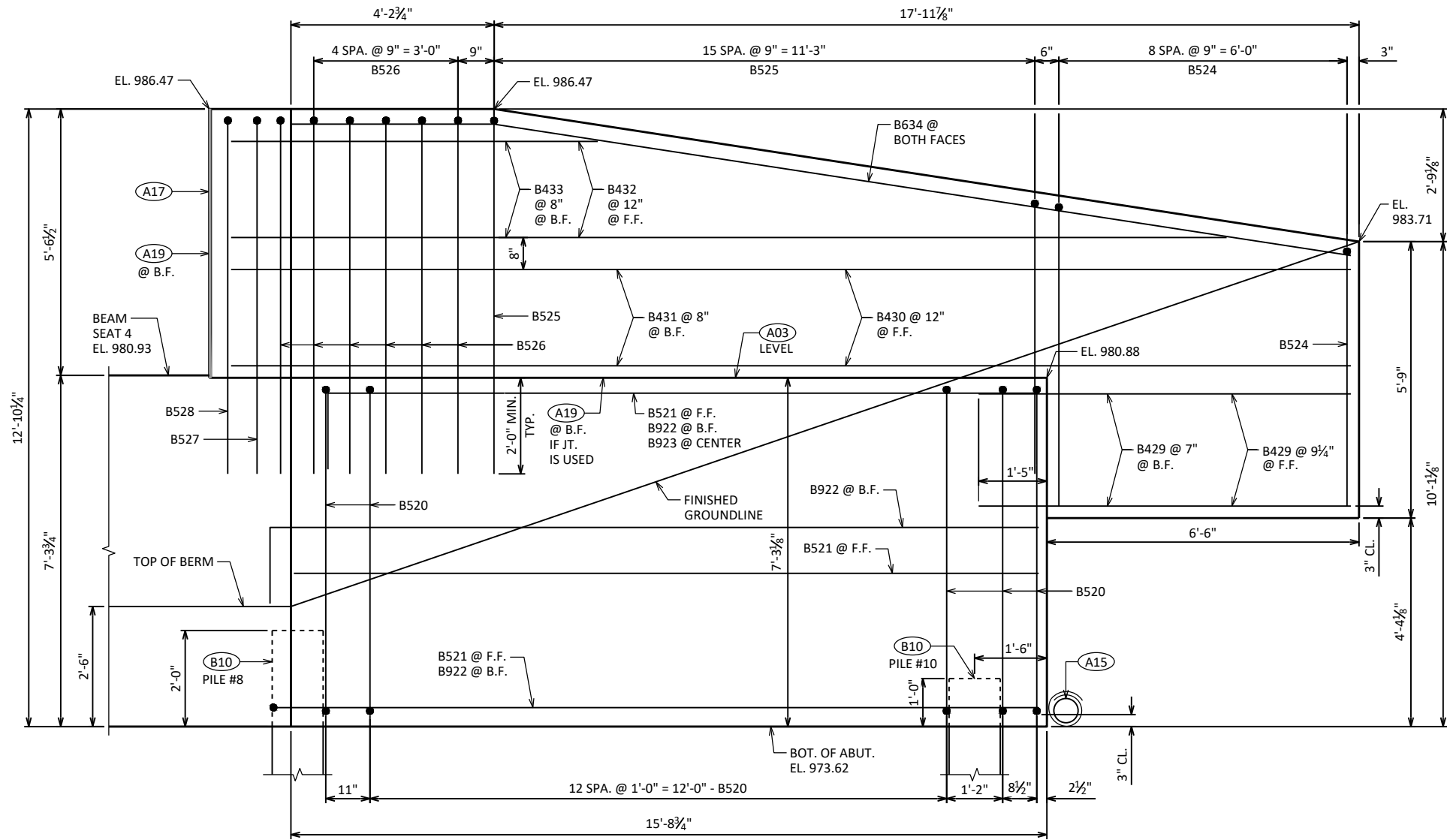
WING REINFORCEMENT B510, B511, B612 AND B613 BARS LOCATED BELOW BEAM SEAT ARE NOT SHOWN IN THIS VIEW FOR CLARITY, SEE "WING 3 SECTION A-A" VIEW FOR THESE REBAR DETAILS.



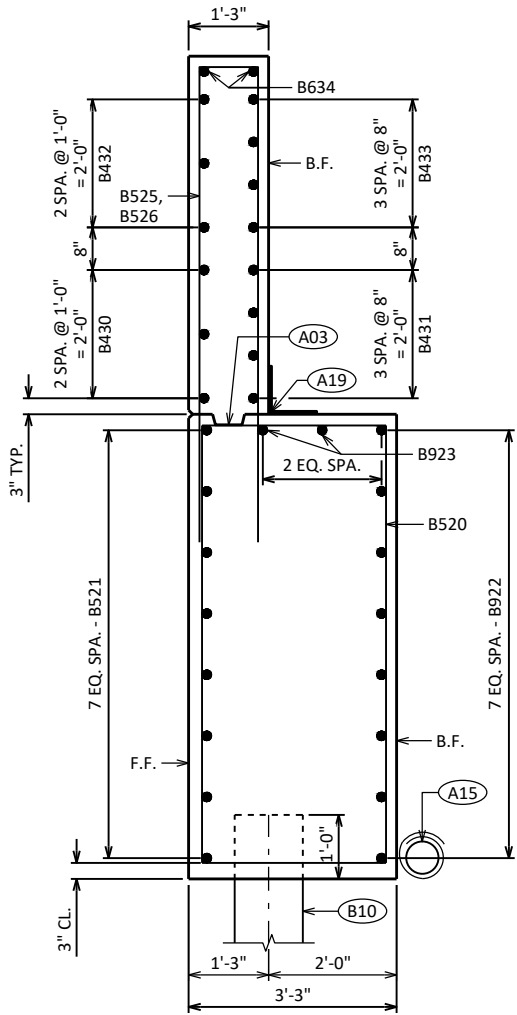
WING 3 PLAN

- A03 OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2" x 6". (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- B10 SUPPORT ABUTMENT ON 12 3/4" DIA. X 0.375" CIP CONCRETE PILING, ESTIMATED 115'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 210 TONS PER PILE.
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/2" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

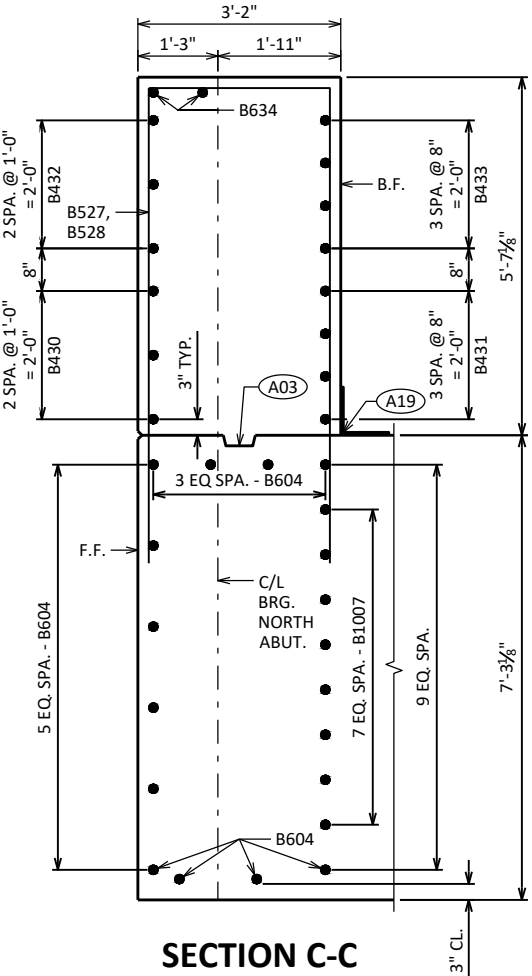
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-16-157			
DRAWN BY JPH		PLANS CK'D IDL	
NORTH ABUTMENT WING 3 DETAILS		SHEET 9	77



WING 4 ELEVATION LOOKING @ F.F. WING

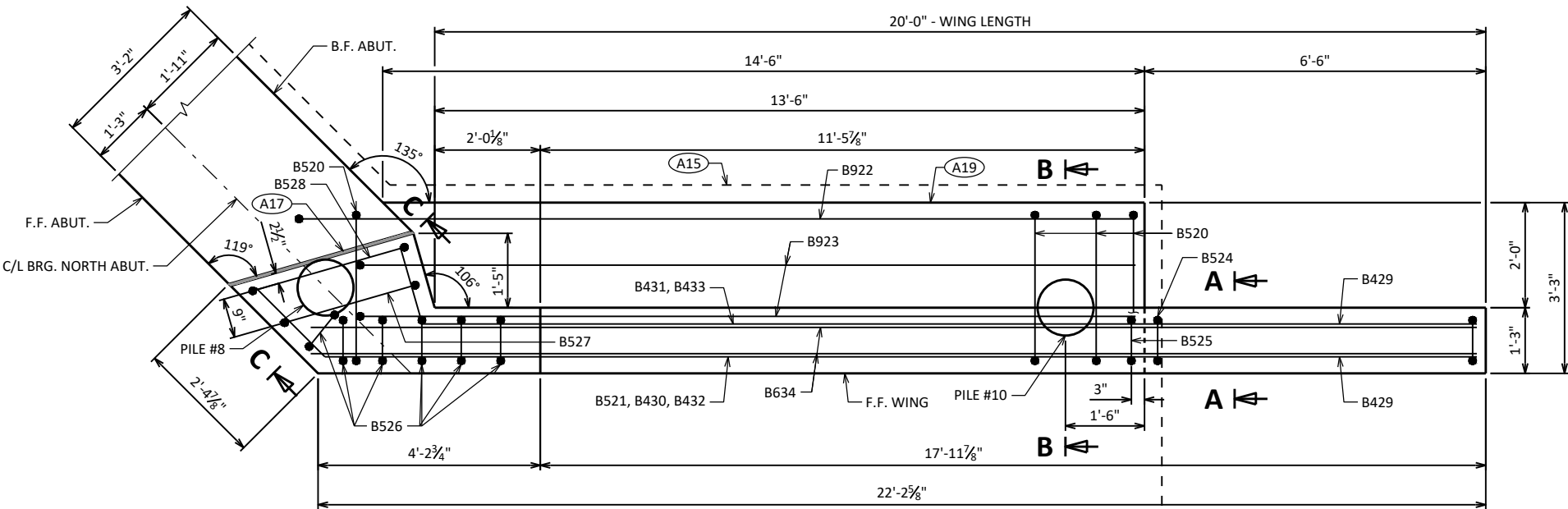


WING 4 SECTION B-B

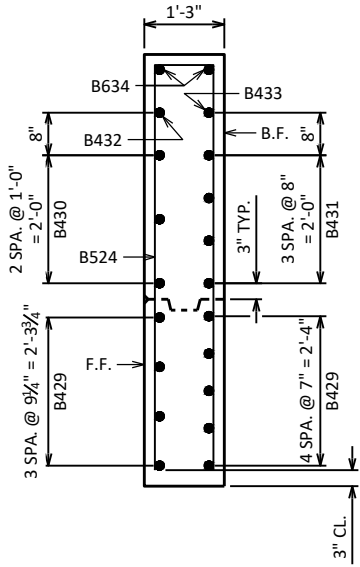


SECTION C-C

WING REINFORCEMENT B520, B521, B922 AND B923 BARS LOCATED BELOW BEAM SEAT ARE NOT SHOWN IN THIS VIEW FOR CLARITY, SEE "WING 4 SECTION B-B" VIEW FOR THESE REBAR DETAILS. ALSO NOT SHOWN IS BODY PILE #8.



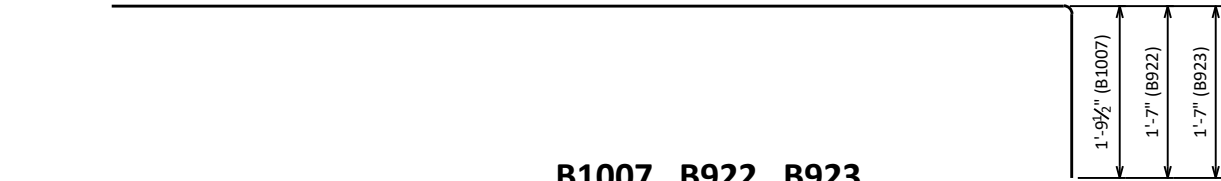
WING 4 PLAN



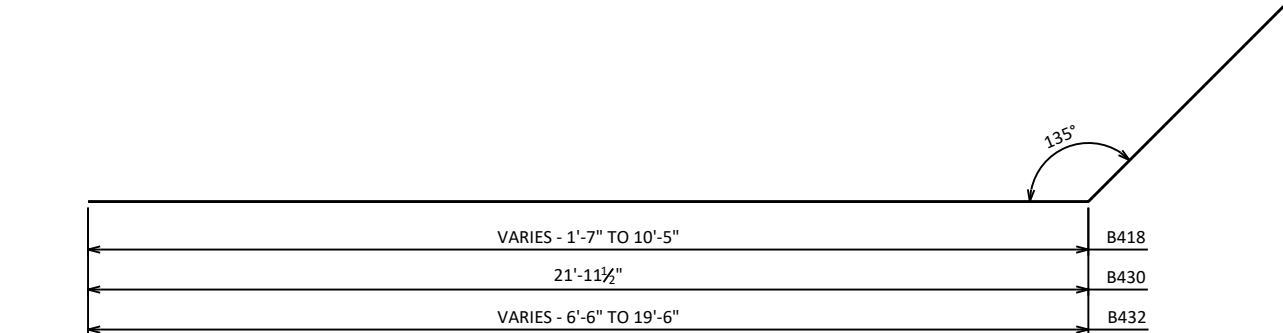
WING 4 SECTION A-A

- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2" x 6". (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- (B10) SUPPORT ABUTMENT ON 12 3/4" DIA. X 0.375" CIP CONCRETE PILING, ESTIMATED 115'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 210 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/2" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

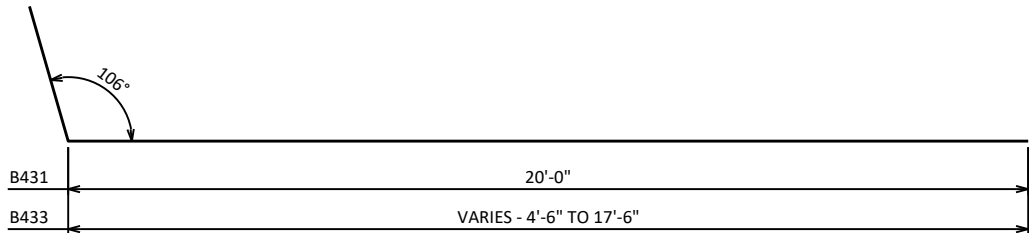
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-16-157			
DRAWN BY JPH		PLANS CK'D IDL	
NORTH ABUTMENT WING 4 DETAILS		SHEET 10	78



B1007 B922 B923



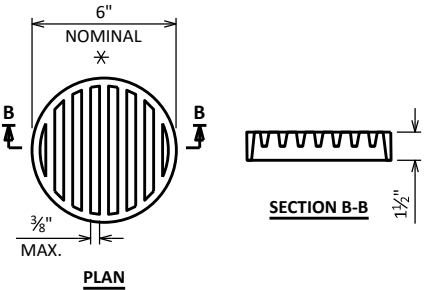
B418 B430 B432



B431 B433



B634

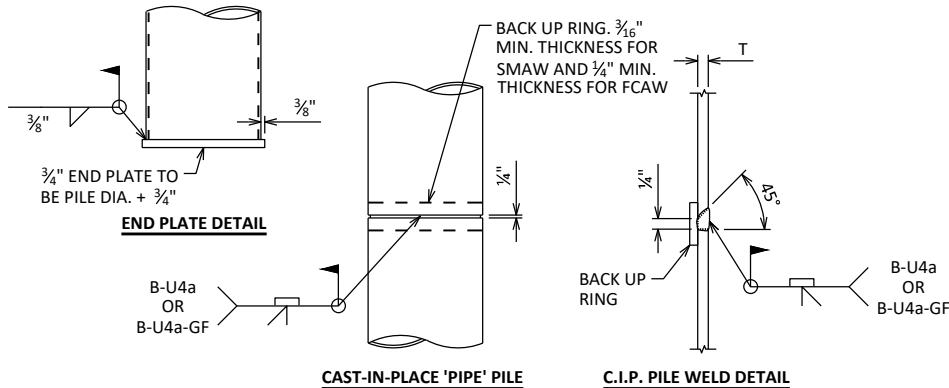


RODENT SHIELD DETAIL

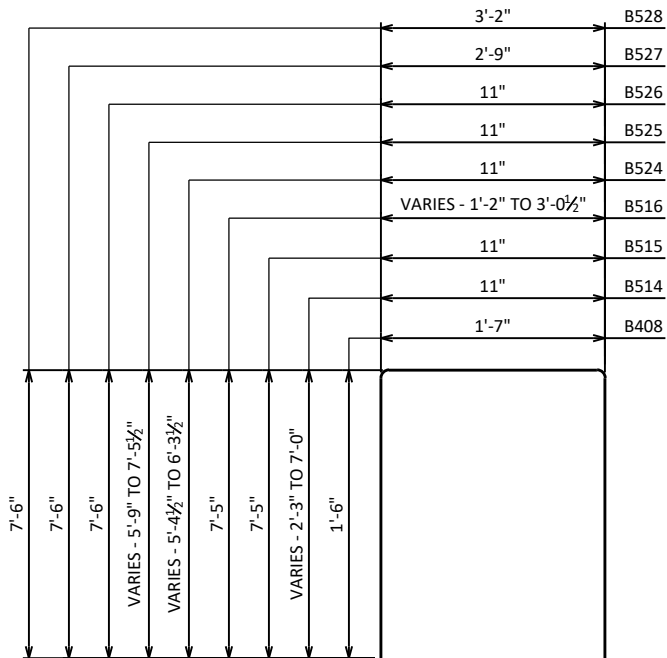
* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

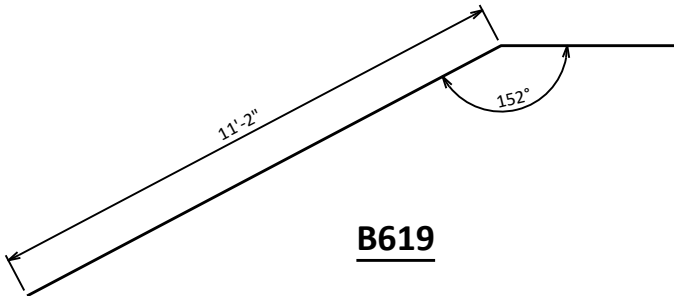
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH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



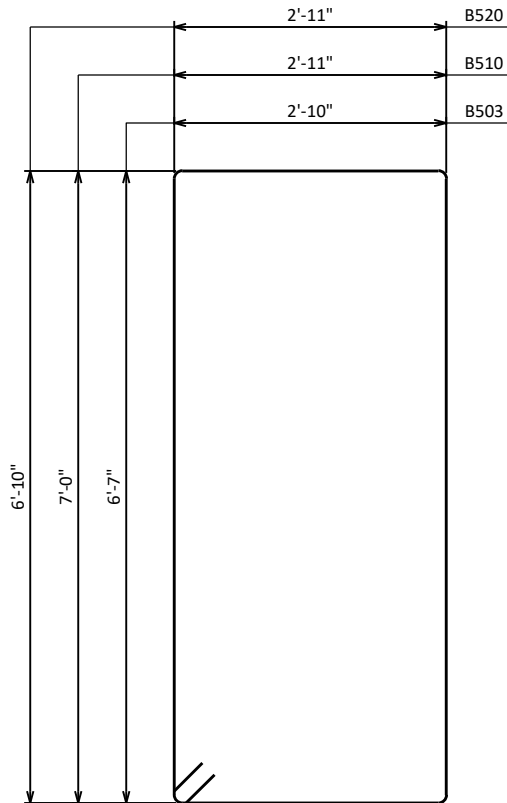
CIP PILE DETAILS



**B408 B514 B515
B516 B524 B525
B526 B527 B528**



B619



B503 B510 B520

BILL OF BARS

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

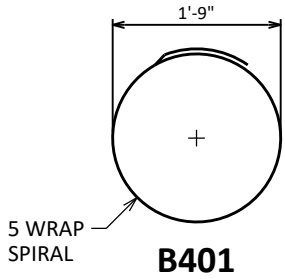
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B401		8	28'-0"	X		BODY-BOTTOM-SPIRAL-1 PER PILE-VERTICAL
B402		16	2'-3"			BODY-BOTTOM-2 PER PILE-VERTICAL
B503		54	19'-6"	X		BODY-STIRRUPS-VERTICAL
B604		24	27'-5"			BODY-HORIZONTAL
B705		8	12'-0"			BODY-HORIZONTAL-B.F.-AT WING 3 END
B606		8	21'-11"			BODY-HORIZONTAL-B.F.-AT CENTER
B1007		8	21'-6"	X		BODY-HORIZONTAL-B.F.-AT WING 4 END
B408		18	4'-5"	X		BODY-TOP-VERTICAL-BETWEEN BEAM SEATS
B409		6	10'-0"			BODY-TOP-HORIZONTAL-BETWEEN BEAM SEATS
B510	X	15	20'-6"	X		WING 3-BOTTOM-STIRRUP-VERTICAL
B511	X	8	14'-0"			WING 3-BOTTOM-HORIZONTAL-F.F.
B612	X	7	15'-0"			WING 3-BOTTOM-HORIZONTAL-B.F.
B613	X	2	13'-10"			WING 3-BOTTOM-HORIZONTAL-CENTER
B514	X	13	9'-11"	X	▲	WING 3-TOP-VERTICAL-UNDER TAPERED AREA
B515	X	2	15'-6"	X		WING 3-TOP-VERTICAL-UNDER LEVEL AREA
B516	X	4	16'-9"	X	▲	WING 3/BODY-TOP-VERTICAL-UNDER LEVEL AREA
B417	X	5	9'-6"		▲	WING 3-TOP-HORIZONTAL-F.F.
B418	X	8	8'-10"	X	▲	WING 3-TOP-HORIZONTAL-B.F.
B619	X	2	14'-10"	X		WING 3-TOP-VERTICAL-B.F. & F.F.
B520	X	16	20'-2"	X		WING 4-BOTTOM-STIRRUP-VERTICAL
B521	X	8	15'-6"			WING 4-BOTTOM-HORIZONTAL-F.F.
B922	X	8	17'-4"	X		WING 4-BOTTOM-HORIZONTAL-B.F.
B923	X	2	16'-2"	X		WING 4-BOTTOM-HORIZONTAL-CENTER
B524	X	9	12'-4"	X	▲	WING 4-TOP-VERTICAL-UNDER TAPERED AREA-AT END
B525	X	16	13'-11"	X	▲	WING 4-TOP-VERTICAL-UNDER TAPERED AREA-AT CENTER
B526	X	6	15'-8"	X		WING 4-TOP-VERTICAL-UNDER LEVEL AREA
B527	X	1	17'-6"	X		WING 4/BODY-TOP-VERTICAL-UNDER LEVEL AREA
B528	X	1	17'-11"	X		WING 4/BODY-TOP-VERTICAL-UNDER LEVEL AREA
B429	X	9	7'-9"			WING 4-BOTTOM-HORIZONTAL-F.F. & B.F.
B430	X	3	23'-10"	X		WING 4-TOP-HORIZONTAL-F.F.
B431	X	4	21'-5"	X		WING 4-TOP-HORIZONTAL-B.F.
B432	X	3	14'-11"	X	▲	WING 4-TOP-HORIZONTAL-F.F.
B433	X	4	12'-5"	X	▲	WING 4-TOP-HORIZONTAL-B.F.
B634	X	2	22'-2"	X		WING 4-TOP-VERTICAL-B.F. & F.F.

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

BAR SERIES TABLE

BAR MARK	NUMBER REQUIRED	TOTAL BAR LENGTH
B514	1 SERIES OF 13 BARS	5'-2" TO 14'-8"
B516	1 SERIES OF 4 BARS	15'-9" TO 17'-8"
B417	1 SERIES OF 5 BARS	5'-8" TO 13'-3"
B418	1 SERIES OF 8 BARS	4'-5" TO 13'-3"
B524	1 SERIES OF 9 BARS	11'-5" TO 13'-3"
B525	1 SERIES OF 16 BARS	12'-2" TO 15'-7"
B432	1 SERIES OF 3 BARS	8'-5" TO 21'-5"
B433	1 SERIES OF 4 BARS	5'-11" TO 18'-11"

BUNDLE AND TAG EACH SERIES SEPARATELY.



B401

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-16-157	
DRAWN BY		PLANS CK'D	IDL
NORTH ABUTMENT & BAR DETAILS		SHEET 11	79

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 15" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 15" OF THE TOP FLANGE.

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

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

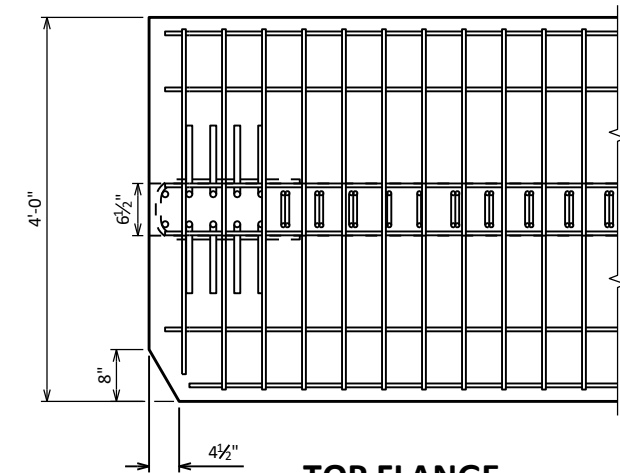
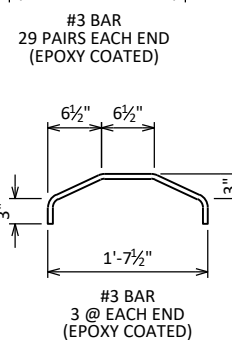
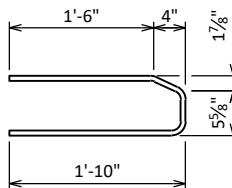
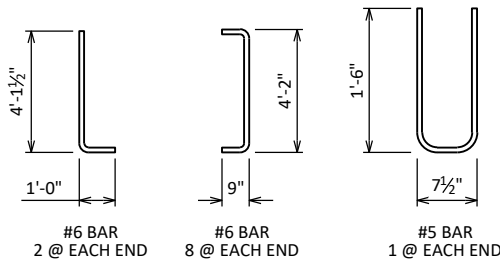
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

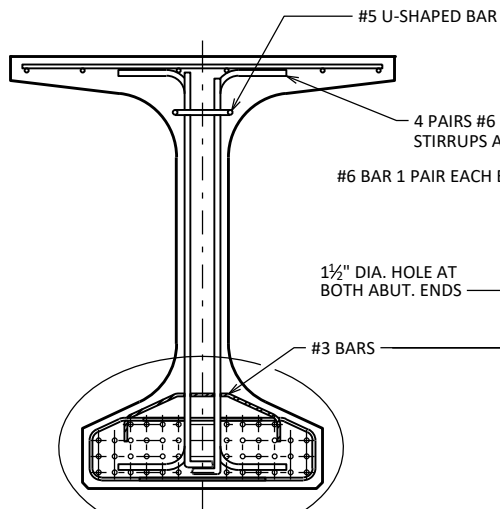
AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DESIGN SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

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

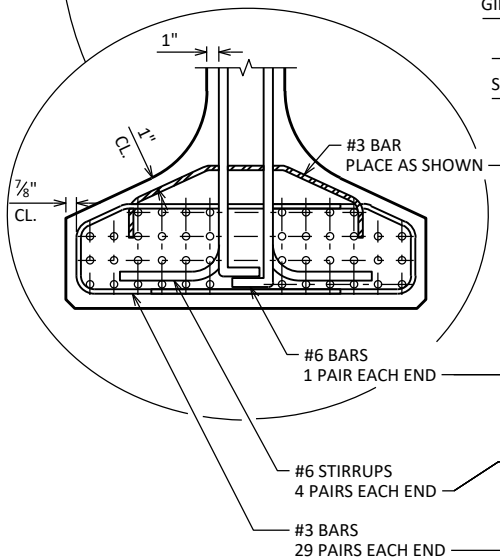
FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.



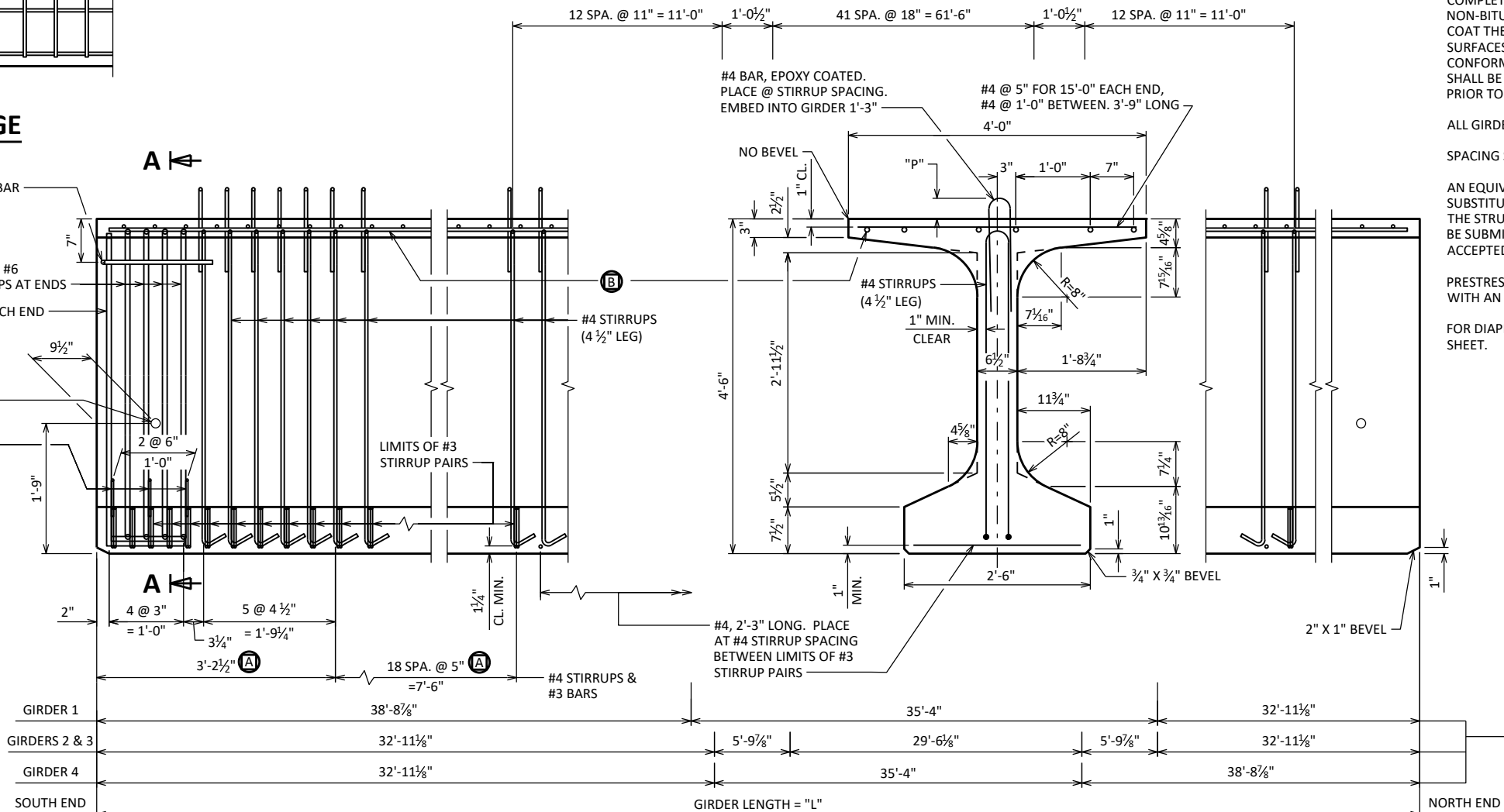
TOP FLANGE



SECTION A-A



BOTTOM FLANGE



SIDE VIEW & TYP. SECTION IN SPAN

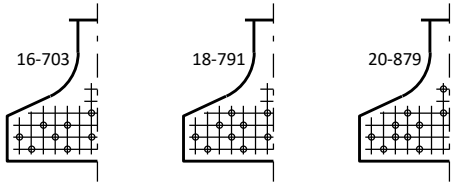
- (A) DETAIL TYP. AT EACH END
(B) SIX #4 BARS @ FULL LENGTH WITH 1'-11" MIN. LAPS

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

GIRDER DATA

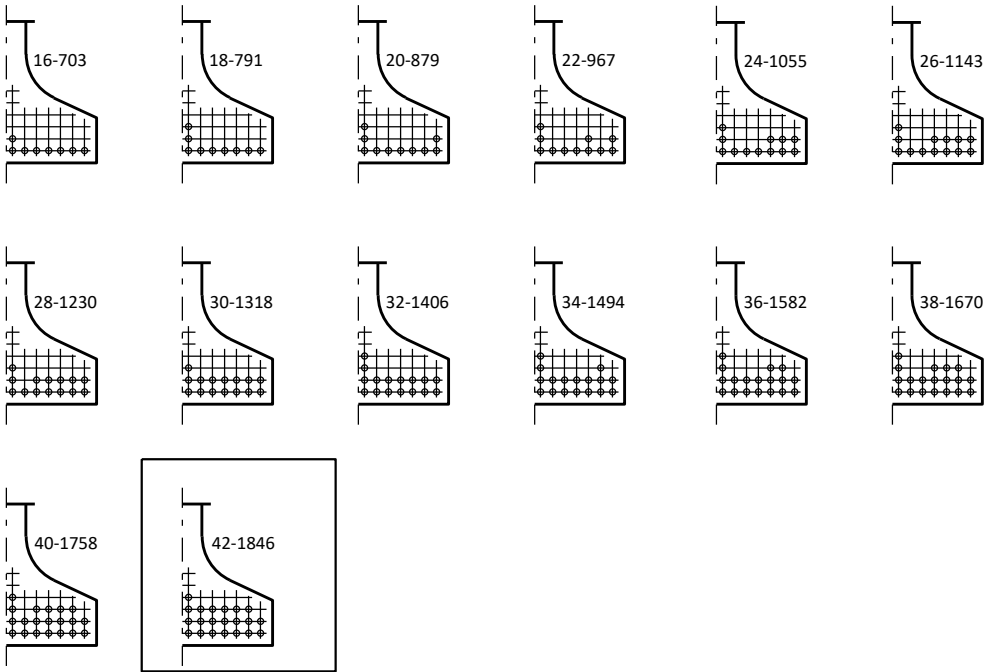
SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.)								CONC. STRGTH. f'c (P.S.I.)	"P" (IN.)			DIA. OF STRAND (IN.)	TOTAL NO. OF STRANDS	F _{cl} (P.S.I.) *	DRAPED PATTERN (IN.)				UNDRAPED PATTERN TOTAL NO. OF STRANDS	f _{cl} (P.S.I.) *
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10		1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER	END 1/3 OF GIRDER				"A"	"B" MIN.	"B" MAX.	"C"		
106'-0"	1 & 4	107'-0"	0.6	1.1	1.5	1.8	1.9	1.8	1.5	1.1	0.6	8.5	7.0	8.5	0.6	42	6800	49	16	19	5		
106'-0"	2 & 3	107'-0"	0.7	1.2	1.7	2.0	2.1	2.0	1.7	1.2	0.7	8.5	7.0	8.5	0.6	42	6800	49	16	19	5		

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-16-157			
DRAWN BY JPH		PLANS CK'D IDL	
54W" PRESTRESSED GIRDER DETAILS 1		SHEET 12	80



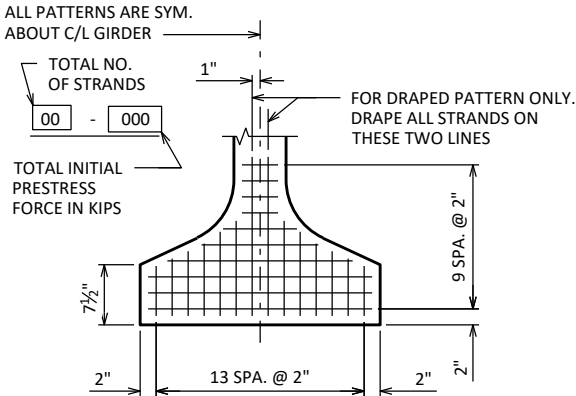
STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY
TO AVOID DRAPING OF STRANDS

0.6" DIA. STRANDS

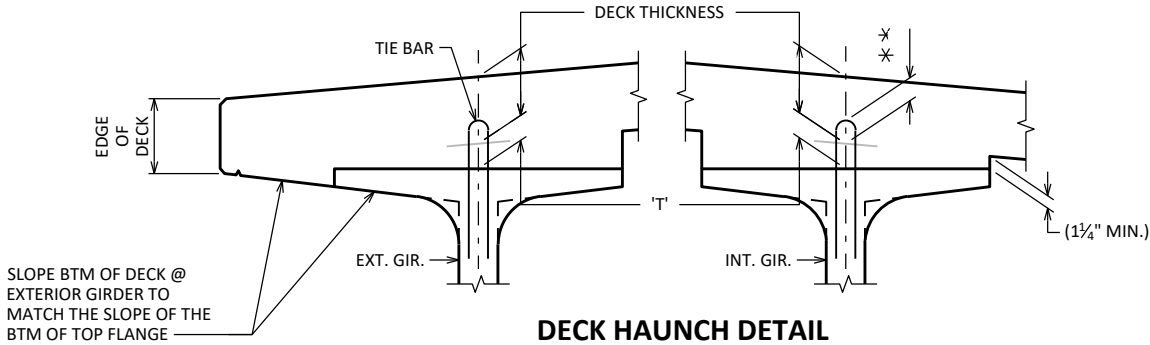


ARRANGEMENT AT C/L SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6" DIA. STRANDS



TYP. STRAND PATTERN



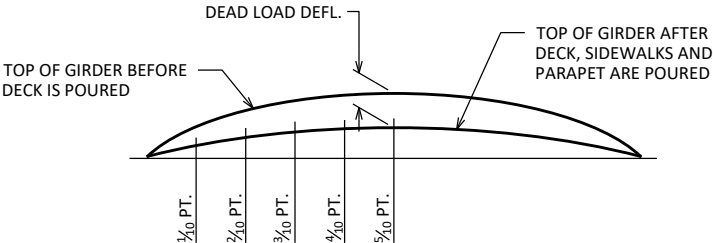
DECK HAUNCH DETAIL

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

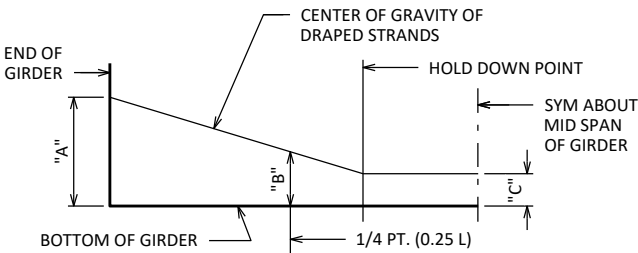
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT C/L OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

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

NOTE:
AN AVERAGE HAUNCH ('T') OF 3.08" WAS USED FOR COMPUTING THE SUPERSTRUCTURE QUANTITY "CONCRETE MASONRY BRIDGES".



DEAD LOAD DEFLECTION DIAGRAM



DRAPED STRAND PROFILE

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

SPAN	CAMBER (IN.) *
1	4.1

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

THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-16-157			
DRAWN BY JPH		PLANS CK'D IDL	
54W" PRESTRESSED GIRDER DETAILS 2		SHEET 13 81	

NOTES

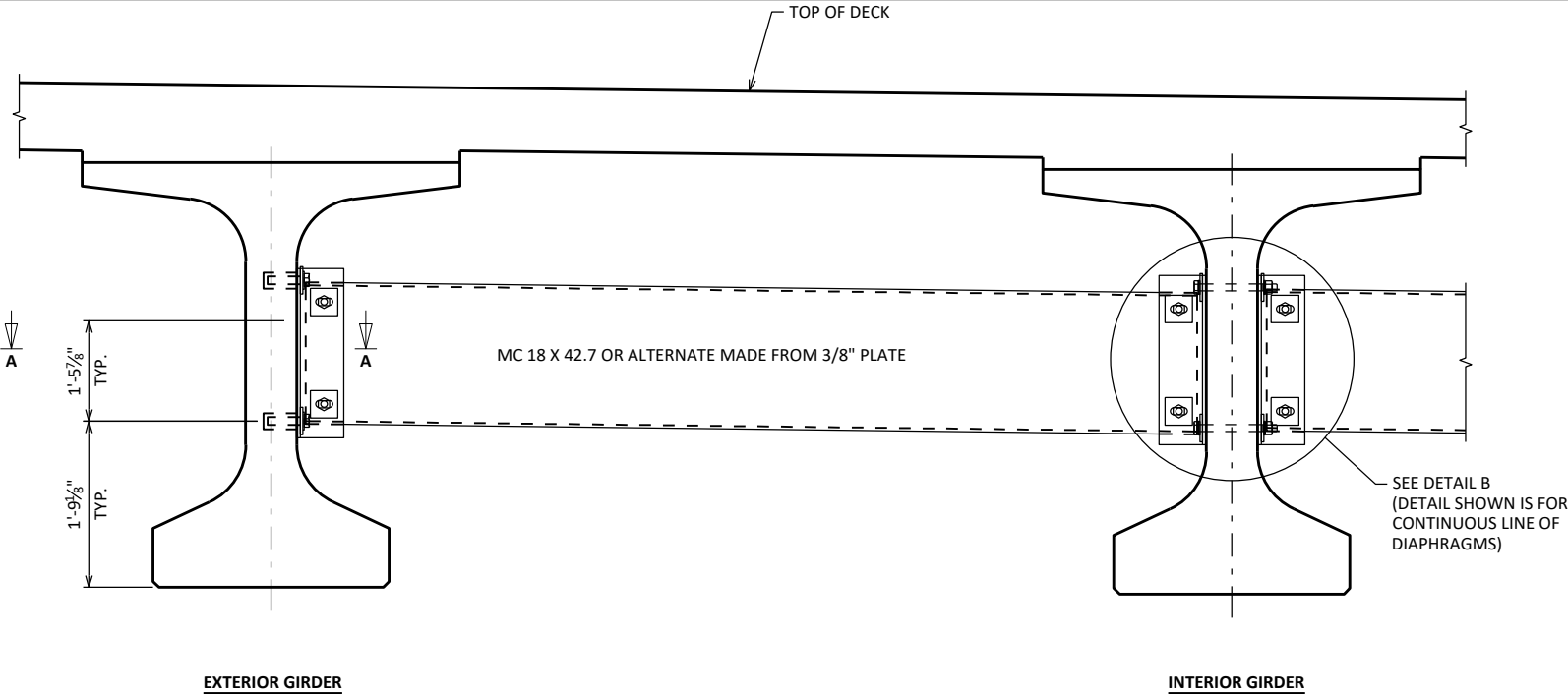
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-16-157", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

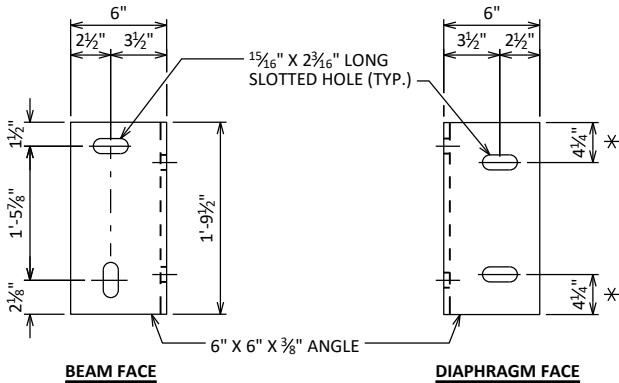
ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

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

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

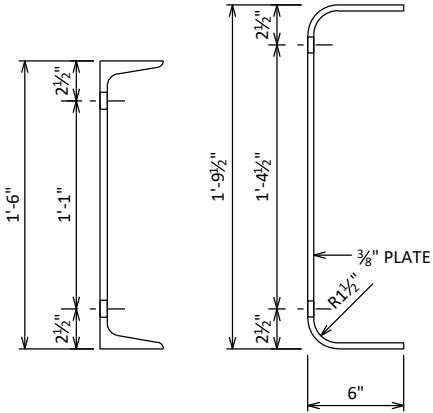


PART TRANSVERSE SECTION AT DIAPHRAGM

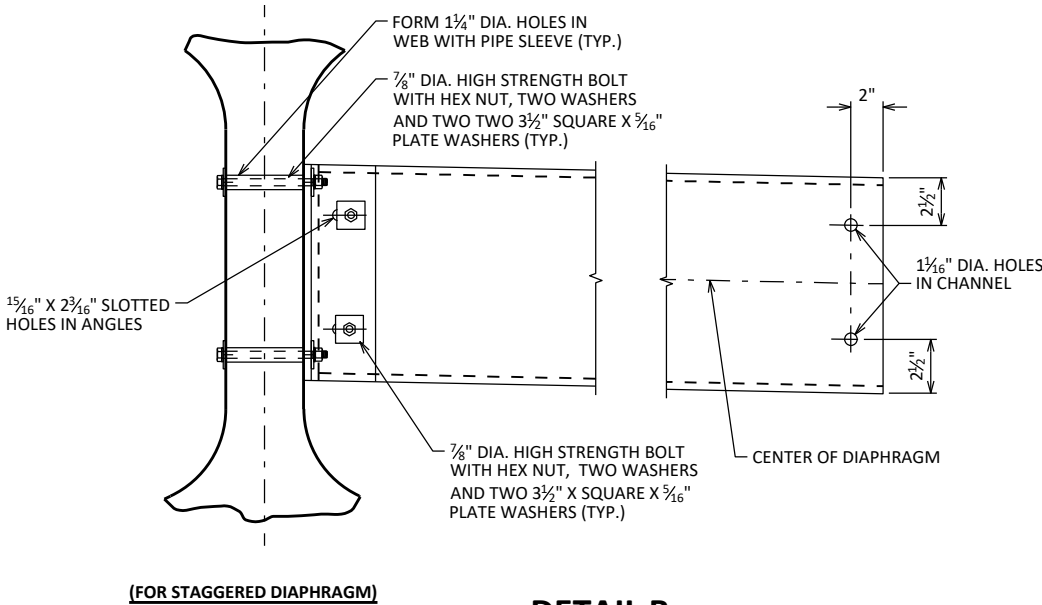
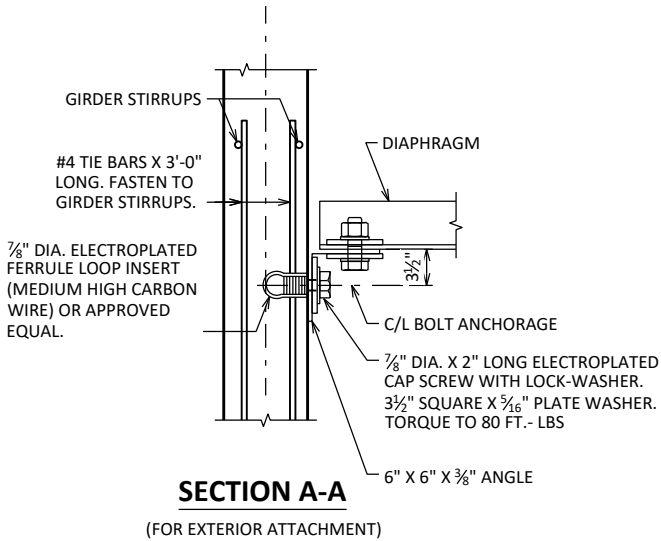


DIAPHRAGM SUPPORT

* 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM



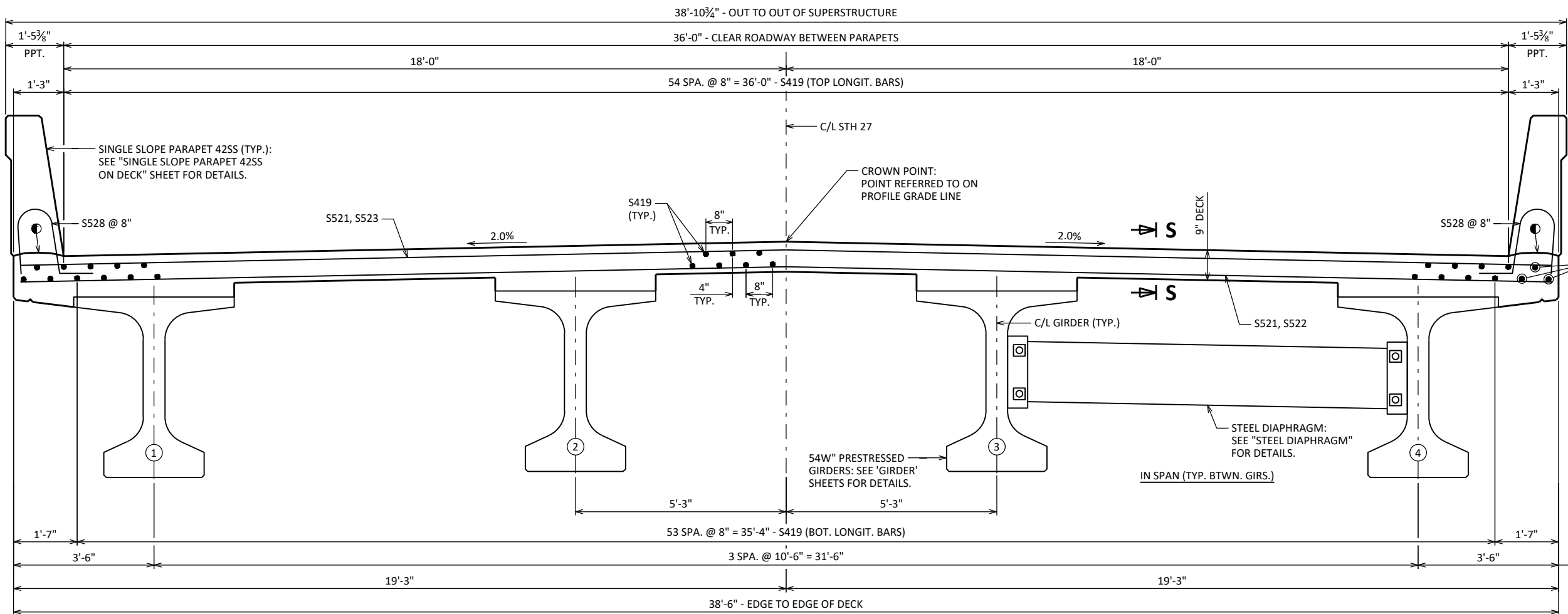
SECTION THRU DIAPHRAGM



DETAIL B

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-16-157			
DRAWN BY JPH		PLANS CK'D IDL	
STEEL DIAPHRAGM		SHEET 14 82	

SCALE = 2.00



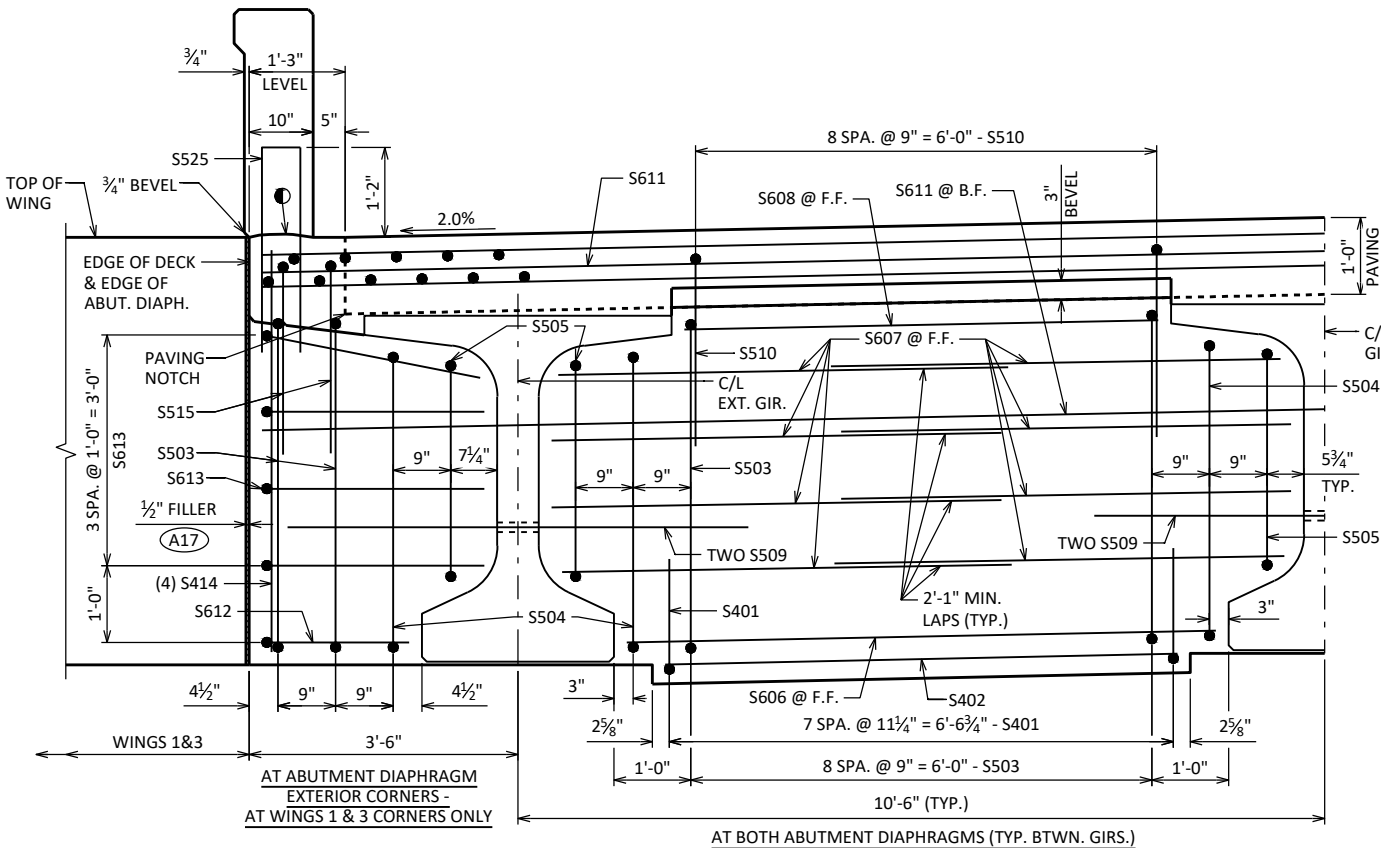
S420 BARS TO EXTEND TO 2" CLEAR OF B.F. ABUTMENT DIAPHRAGMS AT BOTH ENDS (TYP.)

○ INDICATES GIRDER NUMBER

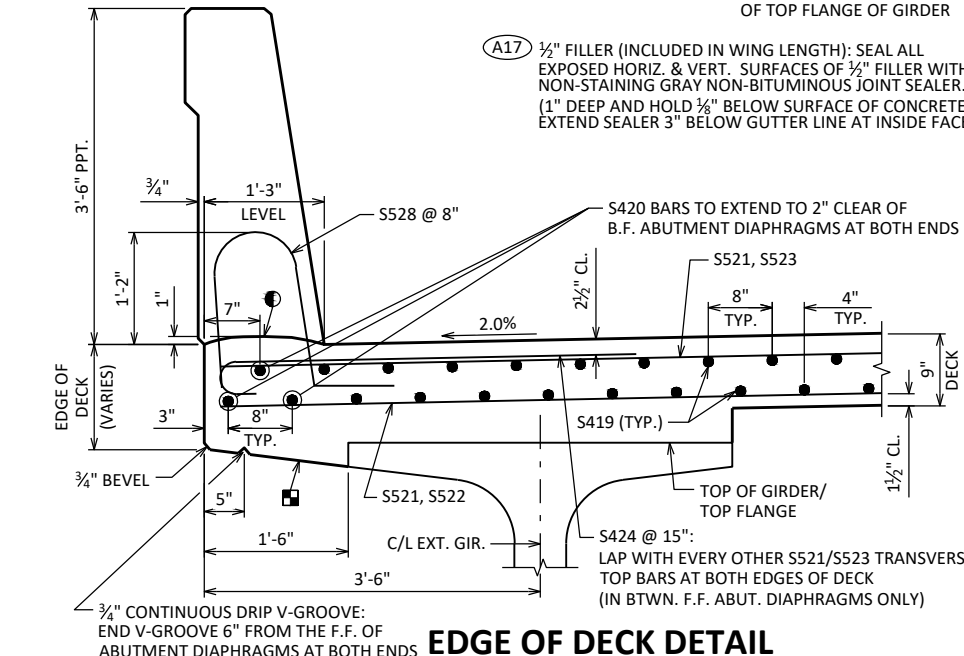
● HORIZ. CONST. JOINT: STRIKE OFF AND LEAVE ROUGH AS SHOWN

■ SLOPE BOTTOM OF DECK AT EXTERIOR GIRDER TO MATCH THE SLOPE OF THE BOTTOM OF TOP FLANGE OF GIRDER

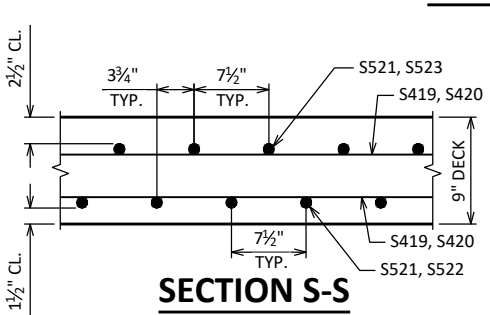
CROSS SECTION THRU BRIDGE LOOKING NORTH



PARTIAL CROSS SECTION THRU BRIDGE AT ABUTMENT DIAPHRAGMS



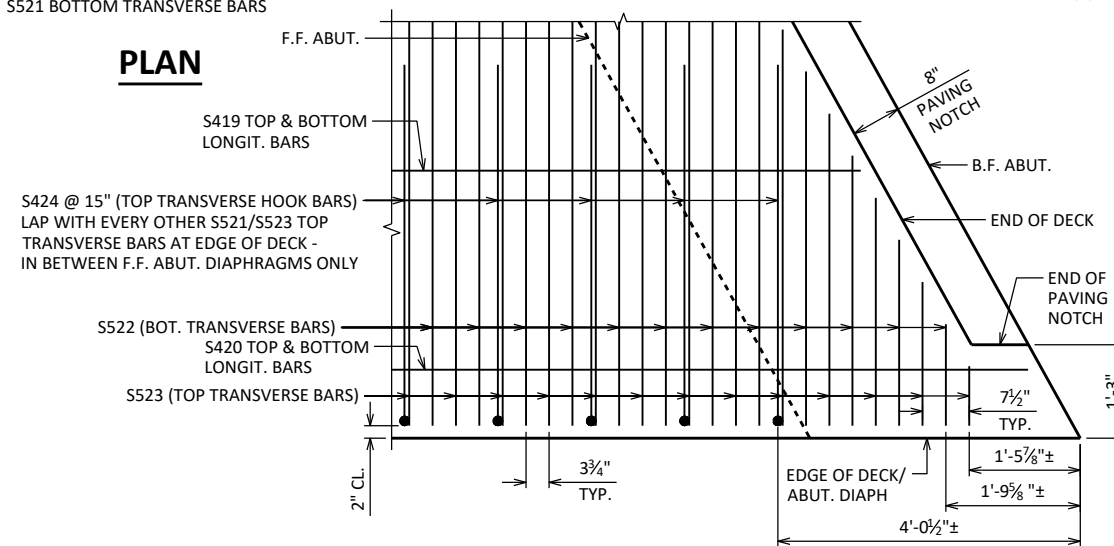
EDGE OF DECK DETAIL



SECTION S-S

TYP. AT BOTH EDGES			
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-16-157			
DRAWN BY JPH		PLANS CK'D IDL	
SUPERSTRUCTURE CROSS SECTIONS		SHEET 15 83	

PLAN



PARTIAL PLAN VIEW OF NW & SE DECK CORNERS REINFORCEMENT

TOP OF DECK ELEVATIONS

EOD = EDGE OF DECK

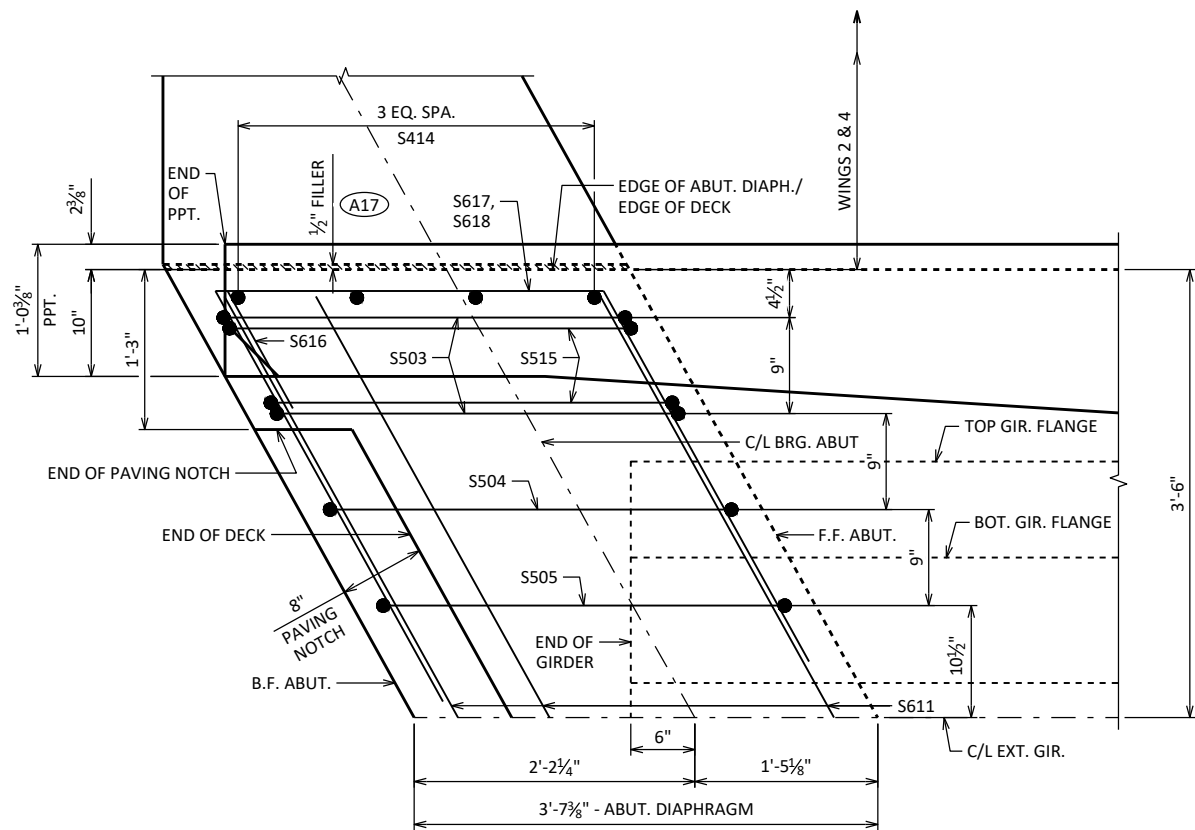
LOCATION	C/L BRG. S. ABUT.	$\frac{1}{10}$ PT.	$\frac{2}{10}$ PT.	$\frac{3}{10}$ PT.	$\frac{4}{10}$ PT.	$\frac{5}{10}$ PT.	$\frac{6}{10}$ PT.	$\frac{7}{10}$ PT.	$\frac{8}{10}$ PT.	$\frac{9}{10}$ PT.	C/L BRG. N. ABUT.
WEST EOD	987.28	987.22	987.15	987.08	987.02	986.95	986.88	986.82	986.75	986.68	986.62
C/L GIRDER 1	987.32	987.25	987.19	987.12	987.05	986.99	986.92	986.85	986.79	986.72	986.65
C/L GIRDER 2	987.49	987.43	987.36	987.29	987.23	987.16	987.09	987.03	986.96	986.89	986.83
C/L STH 27	987.58	987.51	987.45	987.38	987.31	987.25	987.18	987.11	987.05	986.98	986.91
C/L GIRDER 3	987.46	987.39	987.32	987.26	987.19	987.12	987.06	986.99	986.92	986.86	986.79
C/L GIRDER 4	987.21	987.14	987.08	987.01	986.94	986.88	986.81	986.74	986.68	986.61	986.54
EAST EOD	987.16	987.09	987.02	986.96	986.89	986.82	986.76	986.69	986.62	986.56	986.49

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-16-157	
	DRAWN BY	JPH	PLANS CK'D IDL
SUPERSTRUCTURE PLAN		SHEET 16 84	

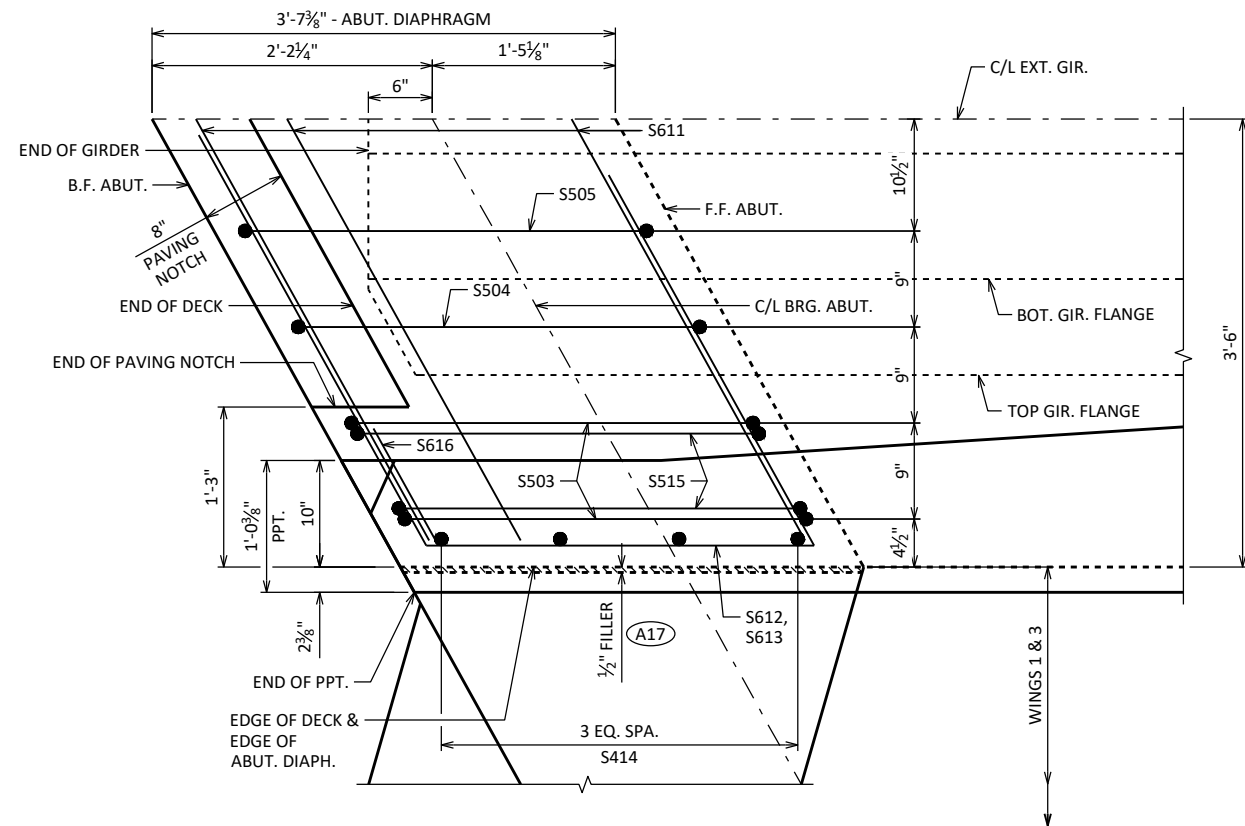


NOTE:
SEE "SUPERSTRUCTURE BAR DETAILS" SHEET
FOR THE 'BILL OF BARS' AND BAR DETAILS.

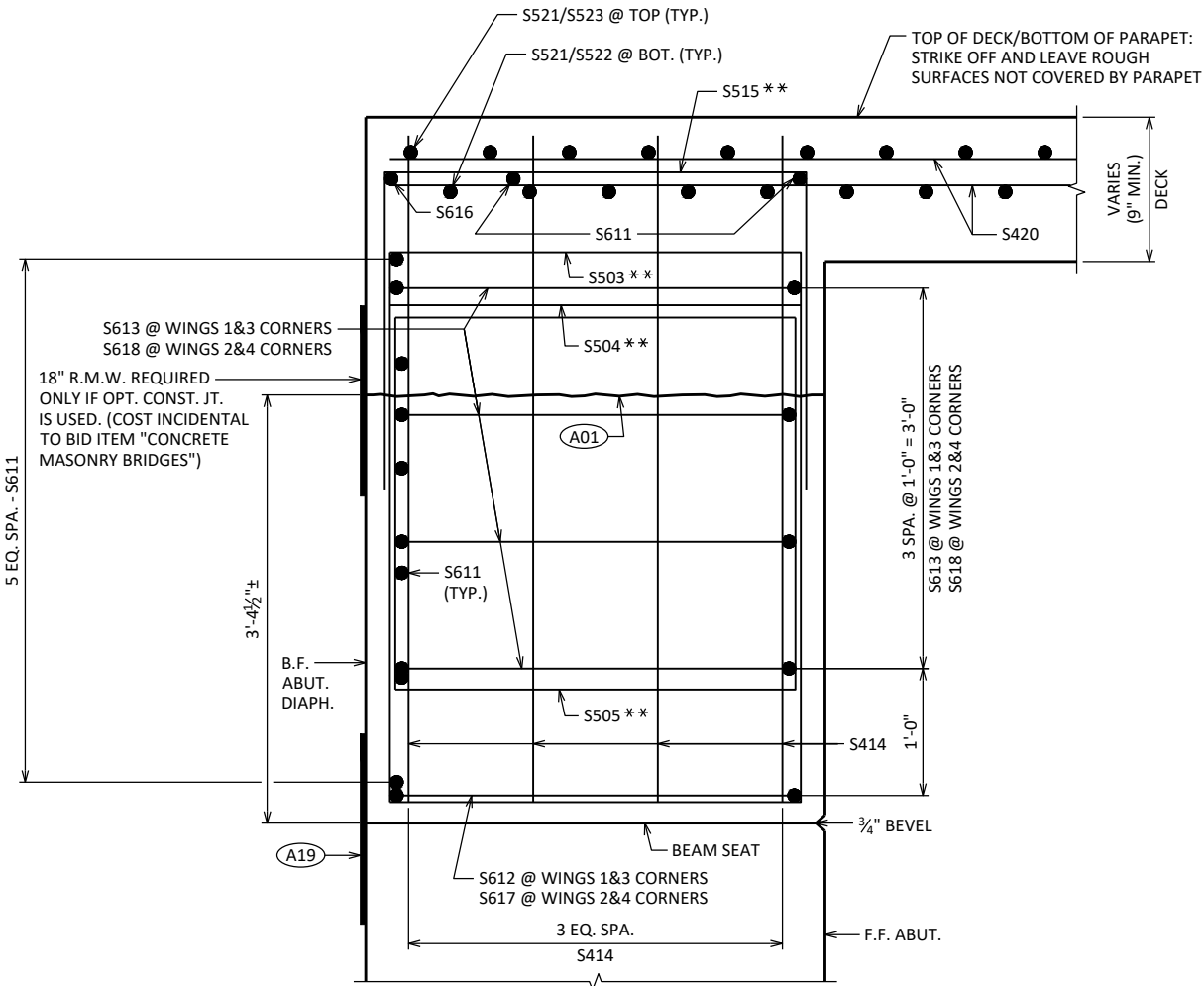
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-16-157			
		DRAWN BY JPH	PLANS CK'D IDL
ABUTMENT DIAPHRAGM DETAILS		SHEET 17 85	



WINGS 2&4 ABUTMENT DIAPHRAGM CORNERS DETAIL
PLAN VIEW AT GIRDER EXTERIOR



WINGS 1&3 ABUTMENT DIAPHRAGM CORNERS DETAIL
PLAN VIEW AT GIRDER EXTERIOR



CROSS SECTION THRU ABUTMENT DIAPHRAGMS
AT ALL FOUR GIRDER EXTERIOR CORNERS

** DIMENSION IS TAKEN PARALLEL TO C/L GIRDERS.
BARS PLACED PARALLEL TO C/L GIRDERS AND
SPACED PERPENDICULAR TO C/L GIRDERS

(A01) OPTIONAL CONSTRUCTION JOINT 1'-2" BELOW
TOP OF GIRDER. IF USED, DECK POUR
MUST BE WITHIN 2 WEEKS FROM THE TIME
OF THE DIAPHRAGM POUR.

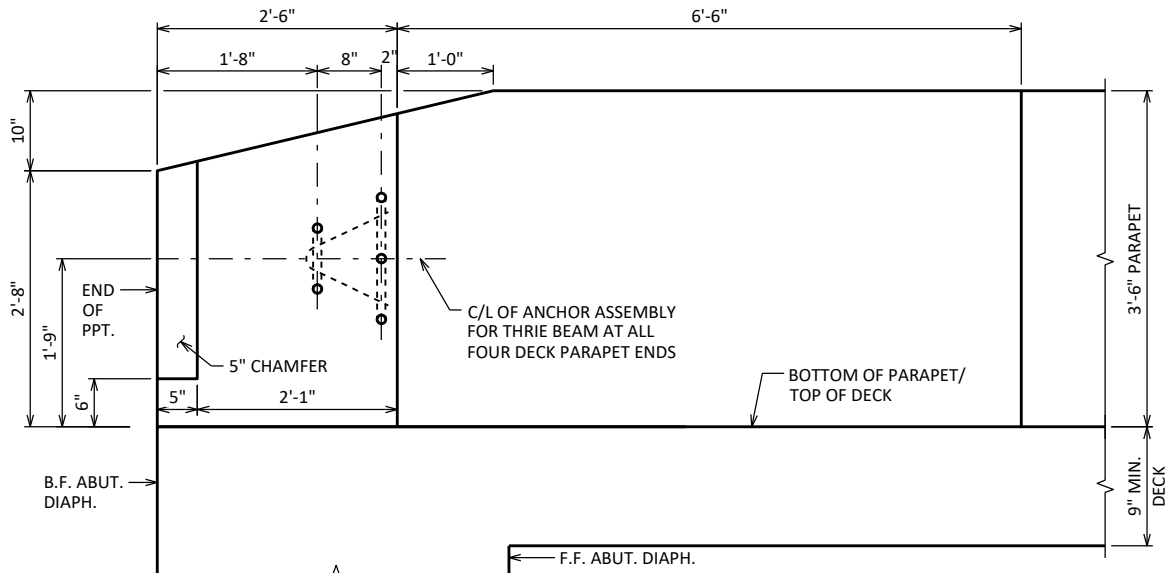
(A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL
EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER
WITH NON-STAINING, GRAY, NON-BITUMINOUS
JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW
SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW
GUTTER LINE AT INSIDE FACE.

(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING
SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NOTE:
SEE "SUPERSTRUCTURE BAR DETAILS" SHEET
FOR THE 'BILL OF BARS' AND BAR DETAILS.

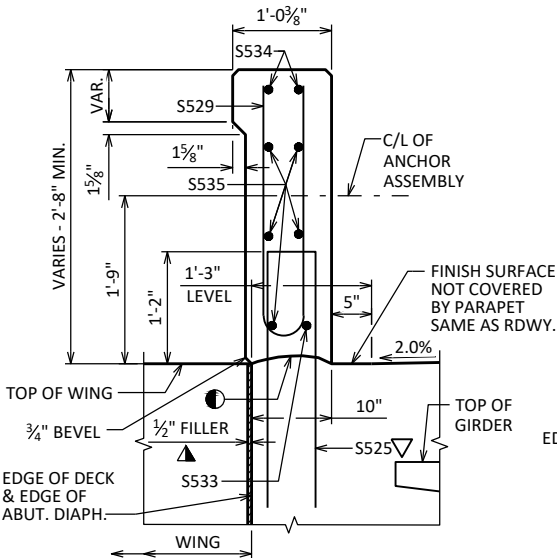
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-16-157			
DRAWN BY JPH		PLANS CK'D IDL	
ABUTMENT DIAPHRAGM CORNER DETAILS		SHEET 18	86

NOTE:
SEE THE "SUPERSTRUCTURE BAR DETAILS"
SHEET FOR THE 'BILL OF BARS' AND BAR
DETAILS FOR THE DECK PARAPET S-BARS.

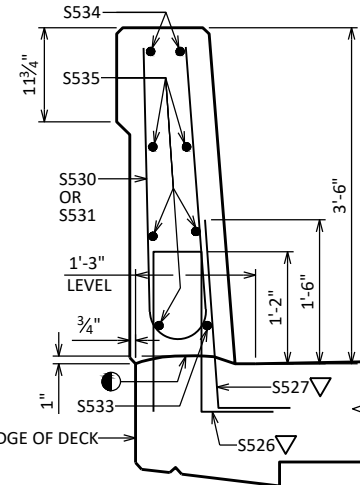


INSIDE ELEVATION

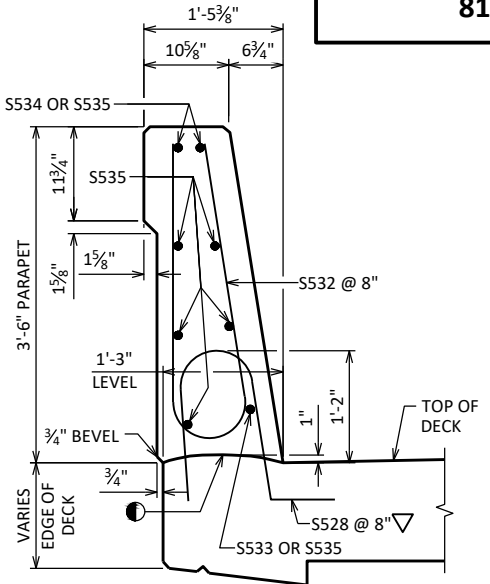
WINGS 2&4 CORNERS SHOWN, WING CORNERS 1&3 SIMILAR



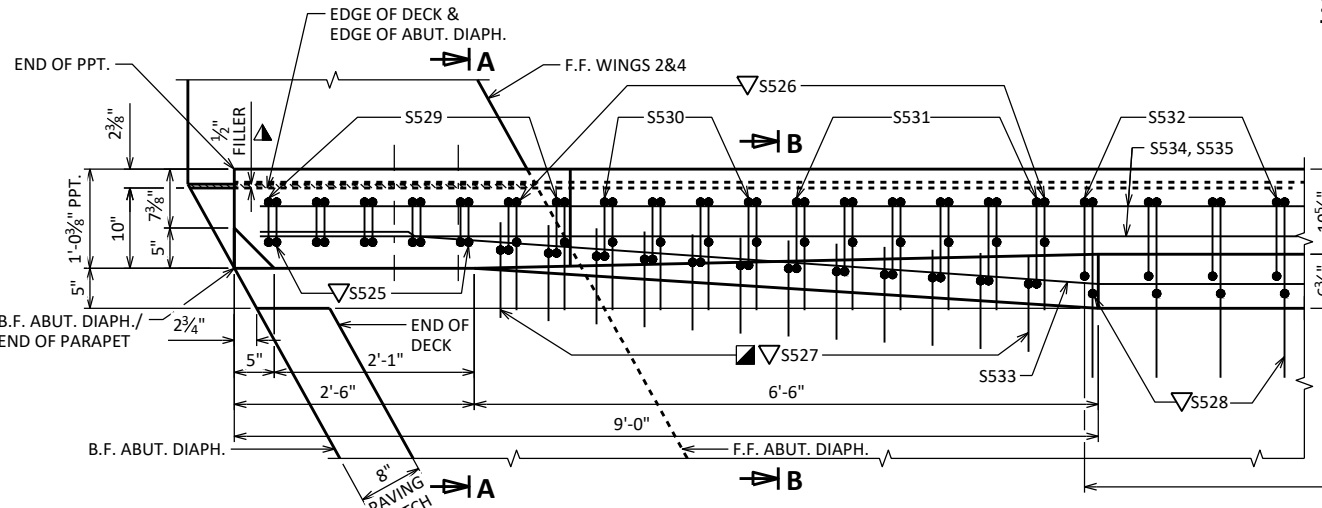
SECTION A-A (OVER ABUT. DIAPH.)



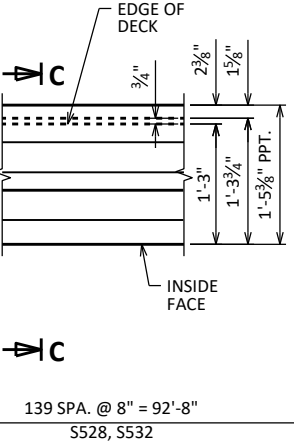
SECTION B-B



SECTION C-C

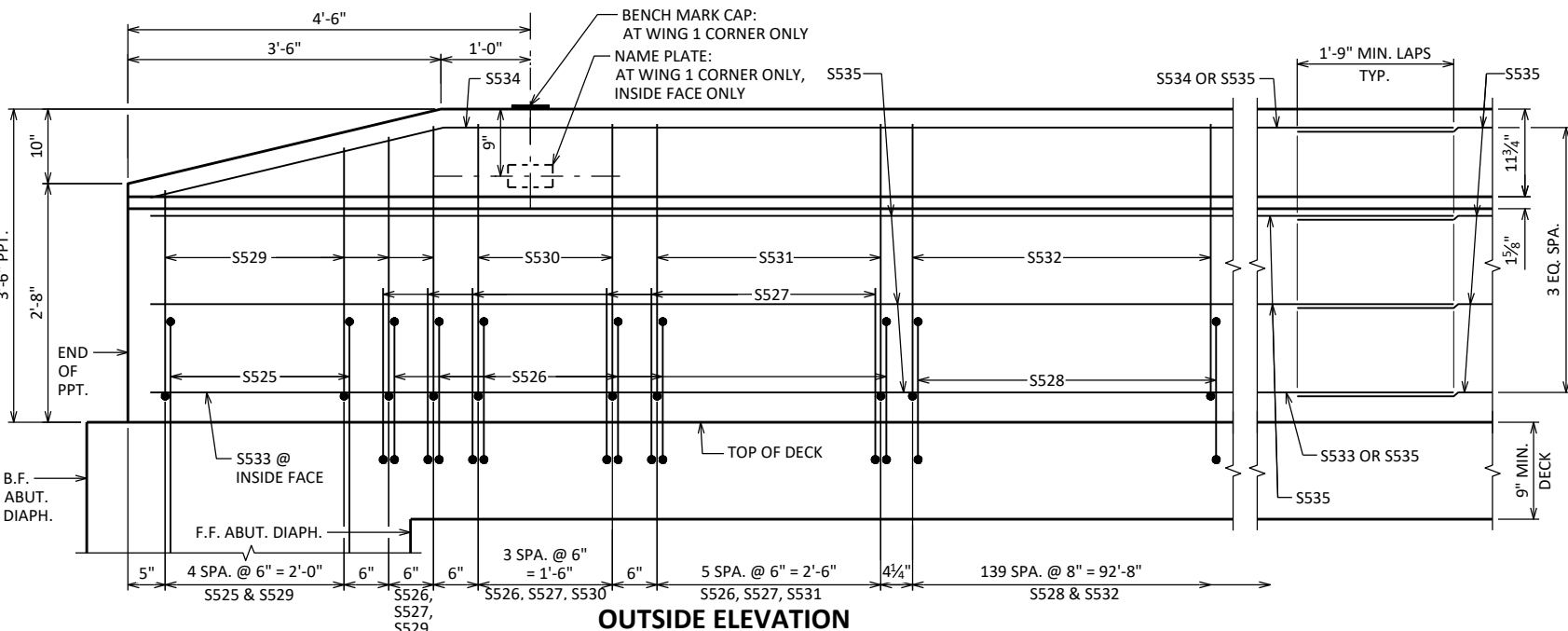


PARTIAL PLAN OF PARAPET AT WINGS 2&4 CORNERS



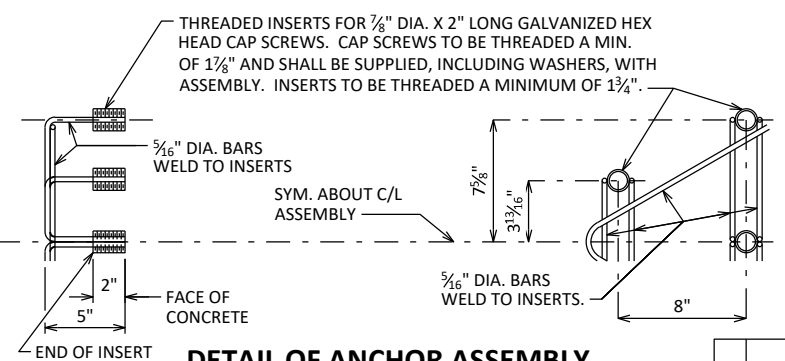
PARTIAL PLAN OF PARAPET AT WINGS 1&3 CORNERS

SEE "PARTIAL PLAN OF PARAPET AT WINGS 2&4 CORNERS" FOR ENTIRE REINFORCEMENT DETAILS



OUTSIDE ELEVATION

WING NOT SHOWN FOR CLARITY
(WINGS 1&3 CORNERS SHOWN, WING 2&4 CORNERS SIMILAR)



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED
IN ACCORDANCE WITH ASTM F2329.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES
FOR STEEL PLATE BEAM GUARD", EACH.

▲ SEAL ALL EXPOSED HORIZONTAL AND
VERTICAL SURFACES OF 1/2" FILLER WITH
NON-STAINING, GRAY, NON-BITUMINOUS JOINT
SEALER. (1" DEEP AND HOLD 1/2" BELOW
SURFACE OF CONCRETE). EXTEND SEALER
3" BELOW GUTTER LINE AT INSIDE FACE.

● HORIZ. CONST. JOINT - STRIKE OFF
AS SHOWN AND LEAVE ROUGH.

■ USE CARE TO PLACE S527 BARS
CORRECTLY ALONG TRANSITION OF
PARAPET.

▽ S525, S526, S527, & S528
PARAPET BARS TO BE TIED TO
DECK STEEL BEFORE DECK IS POURED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-16-157			
DRAWN BY JPH		PLANS CK'D IDL	
SINGLE SLOPE PARAPET 42SS ON DECK		SHEET 19 87	

BILL OF BARS

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

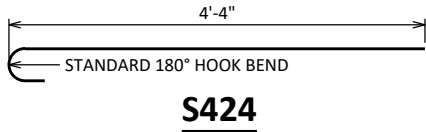
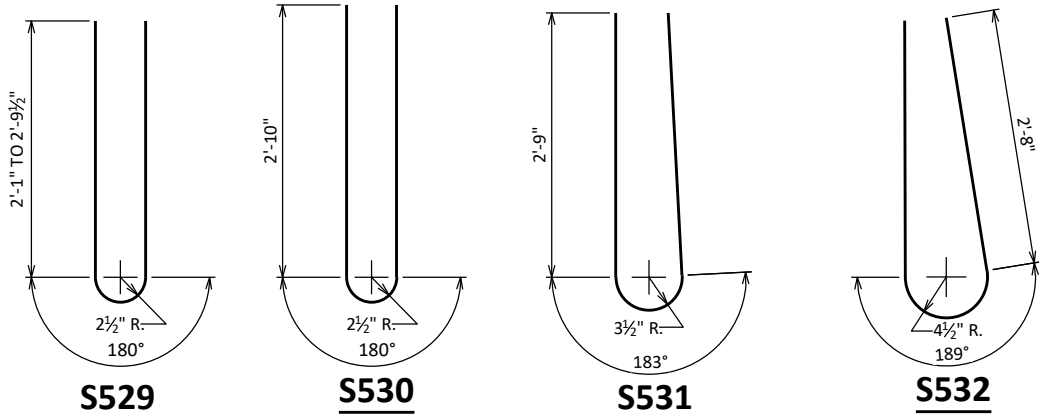
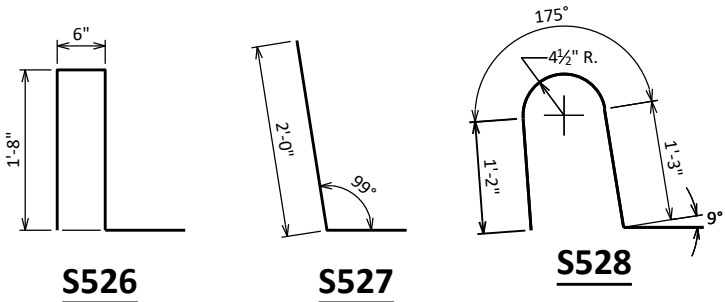
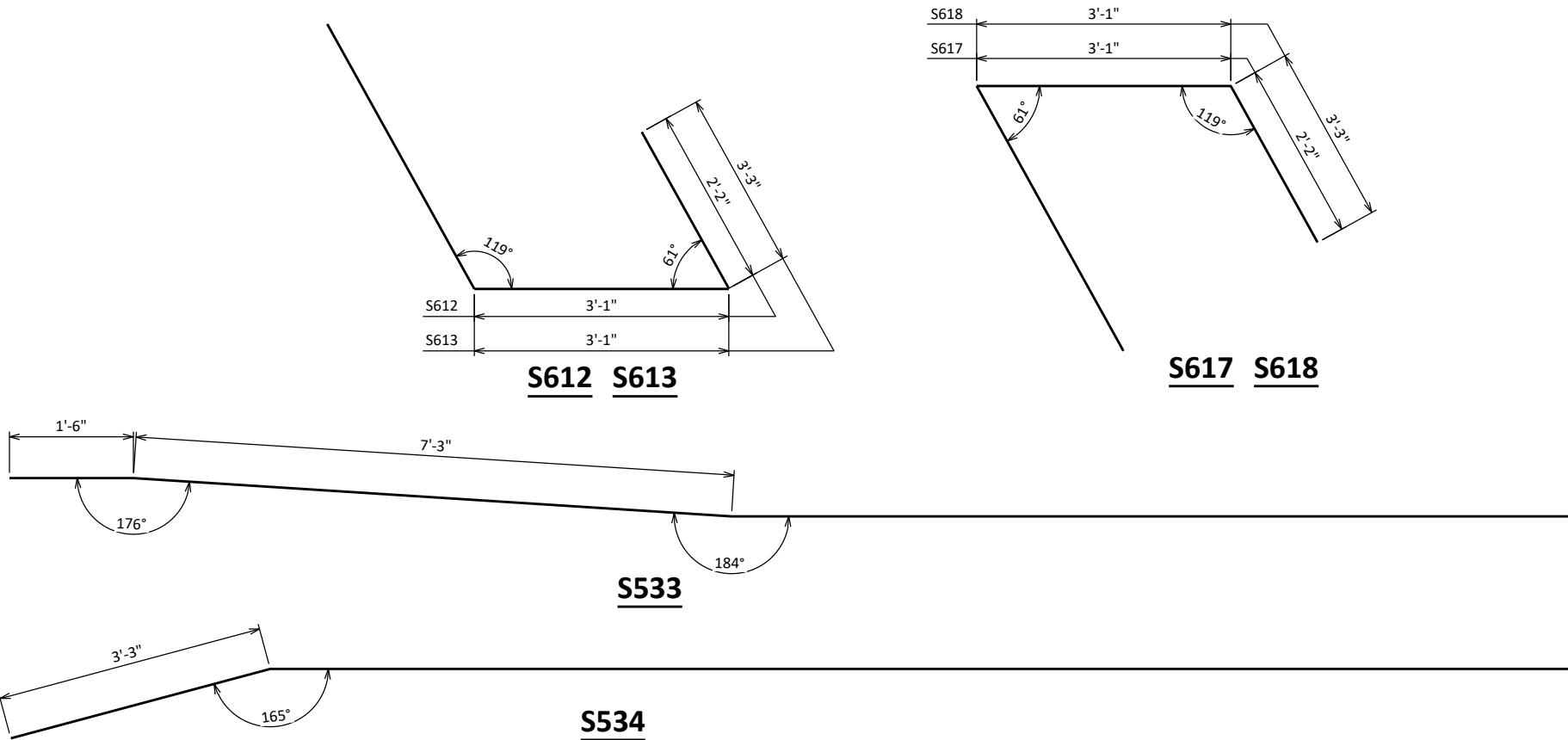
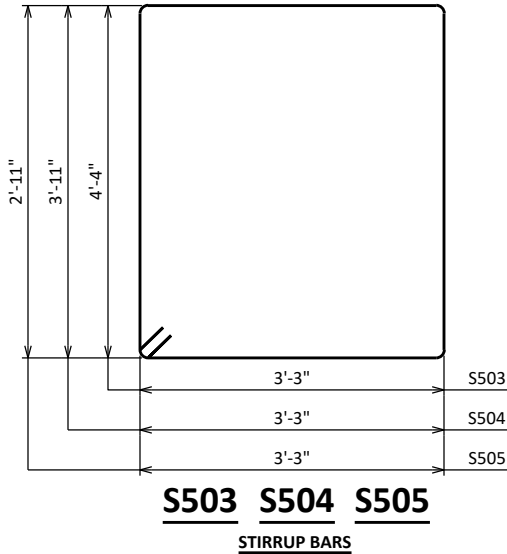
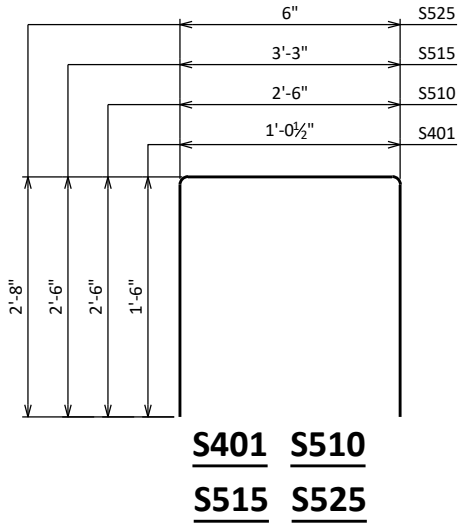
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	48	3'-10"	X		ABUT. DIAPHS.-F.F.-BOT.-VERT.-BTWN. BEAM SEATS
S402	X	12	7'-8"			ABUT. DIAPHS.-F.F.-BOT.-HORIZ.-BTWN. BEAM SEATS
S503	X	62	15'-10"	X		ABUT. DIAPHS.-VERTICAL
S504	X	16	15'-0"	X		ABUT. DIAPHS.-VERT.-UNDER GIR. TOP FLANGES
S505	X	16	13'-0"	X		ABUT. DIAPHS.-VERT.-UNDER GIR. TOP FLANGES
S606	X	6	8'-9"			ABUT. DIAPHS.-F.F.-BOT.-HORIZ.-BTWN. GIRS. ONLY
S607	X	48	6'-7"			ABUT. DIAPHS.-F.F.-HORIZ.-BTWN. GIRS. ONLY
S608	X	6	7'-1"			ABUT. DIAPHS.-F.F.-TOP-HORIZ.-BTWN. GIRS. ONLY
S509	X	16	6'-0"			ABUT. DIAPHS.-HORIZ.-THRU GIRDERS
S510	X	54	7'-3"	X		ABUT. DIAPHS./DECK-VERT.-BTWN. GIRS. ONLY
S611	X	16	43'-6"			ABUT. DIAPHS. B.F. & DECK-HORIZ.
S612	X	2	8'-8"	X		ABUT. DIAPHS.-BOT.-HORIZ.-AT GIR. EXTERIORS-AT WINGS 1&3 CORNERS ONLY
S613	X	8	9'-9"	X		ABUT. DIAPHS.-HORIZ.-AT GIR. EXTERIORS-AT WINGS 1&3 CORNERS ONLY
S414	X	16	5'-3"			ABUT. DIAPHS.-VERT.-AT ALL FOUR GIR. EXT. CORNERS
S515	X	8	8'-0"	X		ABUT. DIAPHS./DECK-VERT.-AT ALL FOUR GIR. EXT. CORNERS
S616	X	4	1'-0"			ABUT. DIAPHS. B.F./DECK-TOP-HORIZ.-AT ALL FOUR GIR. EXT. CORNERS
S617	X	2	8'-8"	X		ABUT. DIAPHS.-BOT.-HORIZ.-AT GIR. EXTERIORS-AT WINGS 2&4 CORNERS ONLY
S618	X	8	9'-9"	X		ABUT. DIAPHS.-HORIZ.-AT GIR. EXTERIORS-AT WINGS 2&4 CORNERS ONLY
S419	X	327	37'-4"			DECK-TOP & BOT.-HORIZ.-LONGIT.-BTWN. PARAPETS ONLY
S420	X	18	37'-10"			DECK-TOP & BOT.-HORIZ.-LONGIT.-UNDER PARAPETS ONLY
S521	X	285	38'-2"			DECK-TOP & BOT.-HORIZ.-TRANSVERSE
S522	X	64	18'-10"	▲		DECK-BOT.-HORIZ.-TRANSVERSE-AT SW & NE CORNERS ONLY
S523	X	64	18'-3"	▲		DECK-TOP-HORIZ.-TRANSVERSE-AT SW & NE CORNERS ONLY
S424	X	170	4'-10"	X		DECK-TOP-VERT.-TRANS.-AT BOTH EDGES OF DECK-IN BTWN. F.F. ABUT. DIAPHRAGMS
S525	X	20	5'-7"	X		PARAPETS/DECK/ABUT. DIAPH.-VERTICAL-TRANSVERSE-AT ALL FOUR DECK CORNERS
S526	X	48	4'-4"	X		PARAPETS/DECK-VERTICAL-TRANSVERSE-AT ALL FOUR DECK CORNERS
S527	X	48	2'-9"	X		PARAPETS/DECK-INSIDE FACE-VERTICAL-TRANSVERSE-AT ALL FOUR DECK CORNERS
S528	X	280	4'-5"	X		PARAPETS/DECK-VERTICAL-TRANSVERSE
S529	X	28	5'-8"	X	▲	PARAPETS-UNDER TAPER-VERTICAL-TRANSVERSE-AT ALL FOUR DECK CORNERS
S530	X	16	6'-5"	X		PARAPETS-VERTICAL-TRANSVERSE-AT ALL FOUR DECK CORNERS
S531	X	24	6'-6"	X		PARAPETS-VERTICAL-TRANSVERSE-AT ALL FOUR DECK CORNERS
S532	X	280	6'-8"	X		PARAPETS-VERTICAL-TRANSVERSE
S533	X	4	37'-10"	X		PARAPETS-BOT.-INSIDE FACE-HORIZONTAL-LONGITUDINAL-AT ALL FOUR DECK CORNERS
S534	X	8	37'-10"	X		PARAPETS-TOP-BOTH FACES-VERTICAL-LONGITUDINAL-AT ALL FOUR DECK CORNERS
S535	X	36	37'-10"	X		PARAPETS-BOTH FACES-HORIZ.-LONGIT.-END TO END

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

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

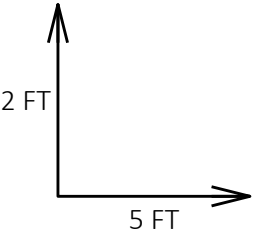
BAR MARK	NUMBER REQUIRED	TOTAL BAR LENGTHS
S522	2 SERIES OF 32 BARS	1'-4" TO 36'-4"
S523	2 SERIES OF 32 BARS	0'-9" TO 35'-9"
S529	4 SERIES OF 7 BARS	4'-11" TO 6'-4"

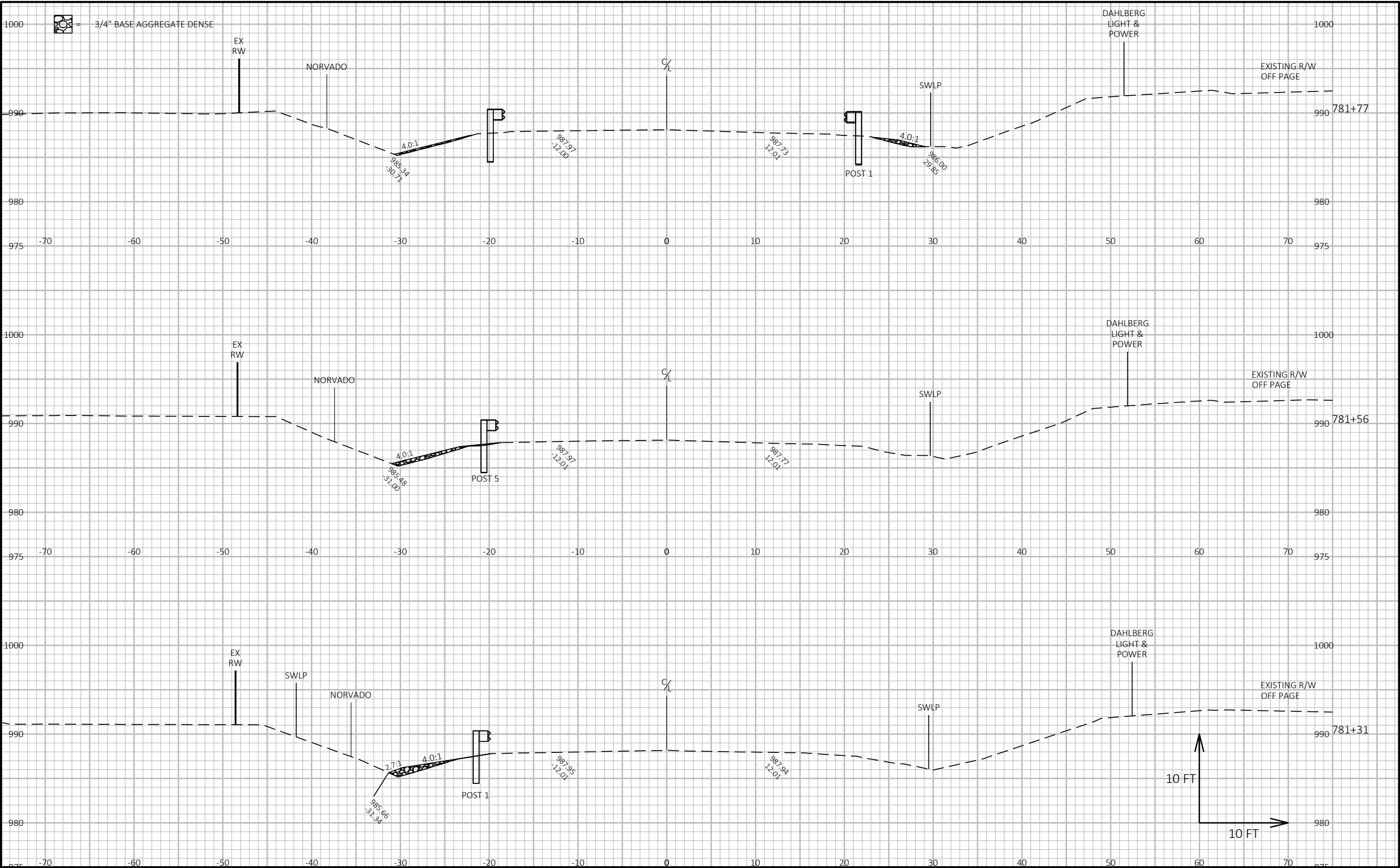


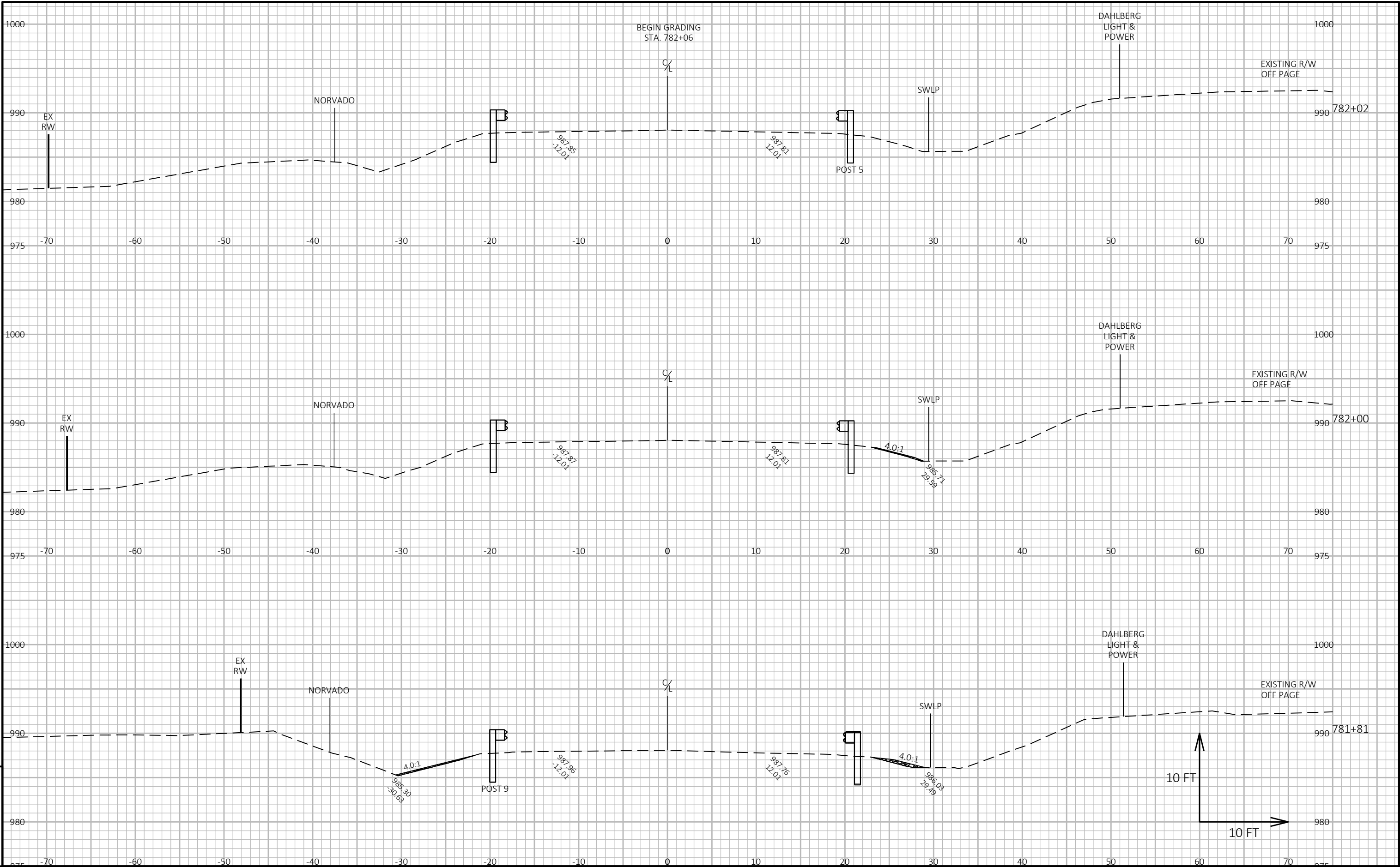
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-16-157	
DRAWN BY		JPH	PLANS CK'D IDL
SUPERSTRUCTURE BAR DETAILS		SHEET 20 88	

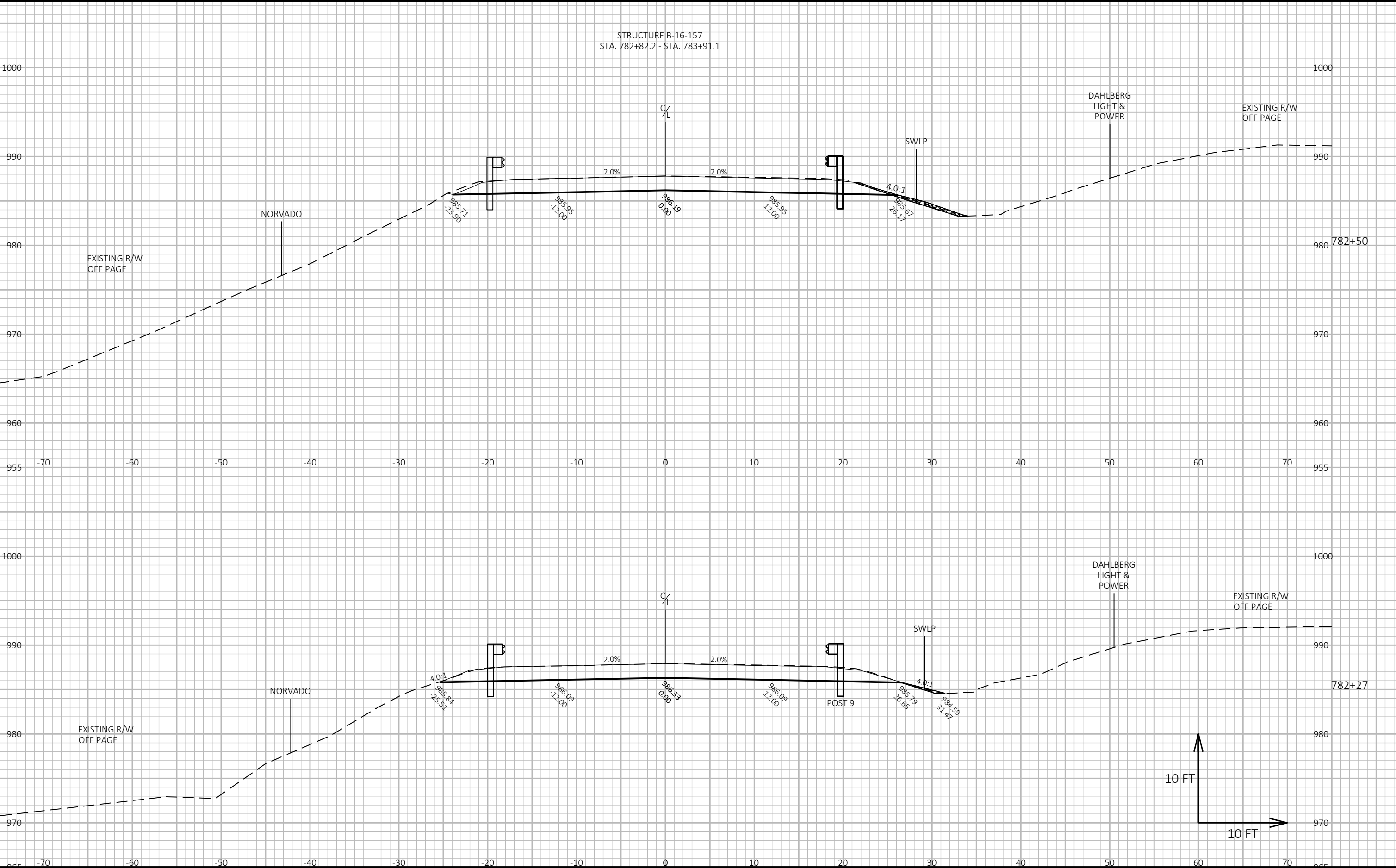
EARTHWORK SUMMARY

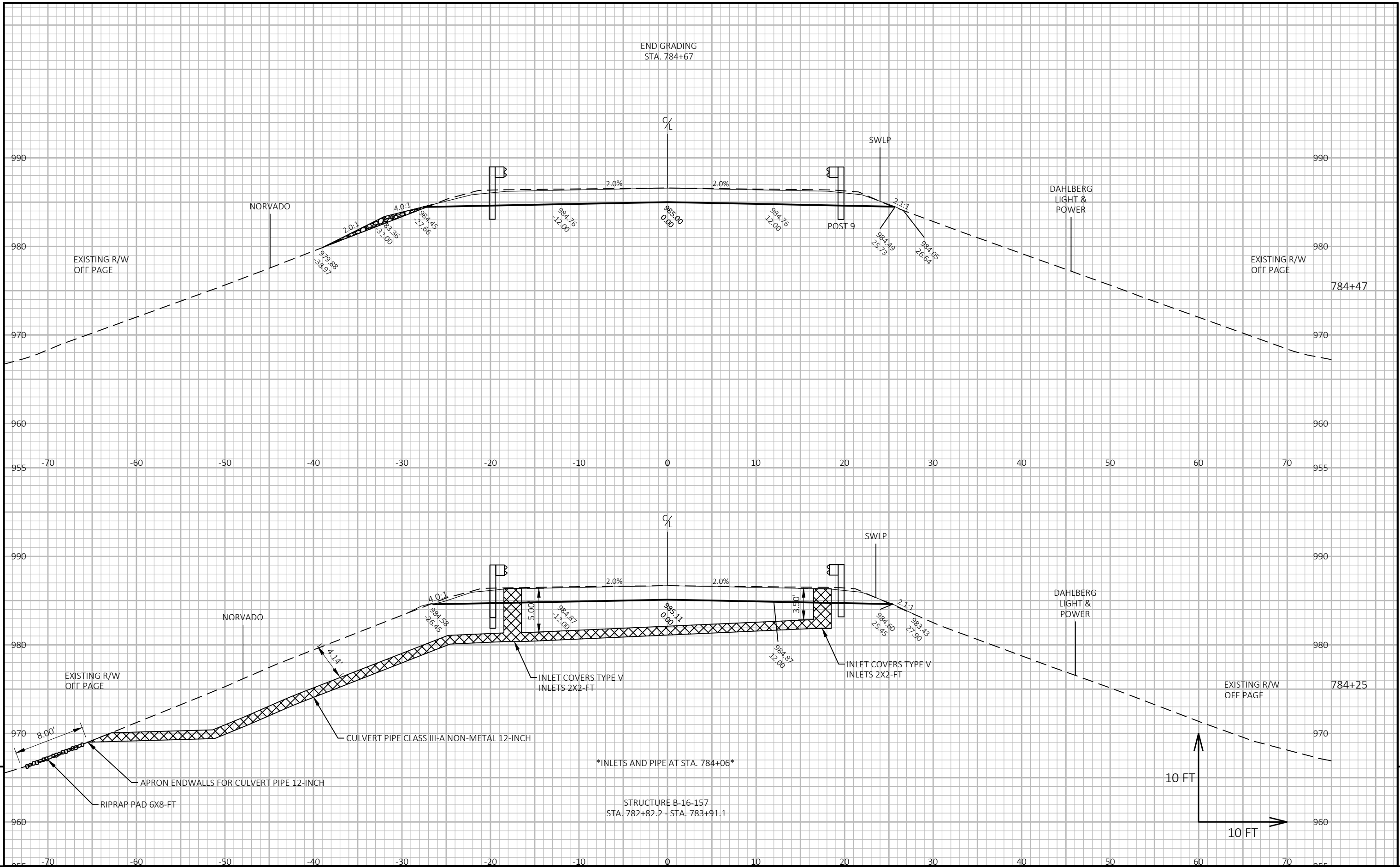
STATION	DISTANCE	AREA (SF)		INCREMENTAL VOLUME (CY)		CUMULATIVE VOLUME (CY)		WASTE (CY)
		CUT	FILL	CUT	AVAILABLE MATERIAL	CUT	AVAILABLE MATERIAL	
782+06	0.00	72.58	0.00	0.00	0.00	0.00	0.00	0.00
782+27	21.00	73.63	0.00	56.86	0.00	56.86	0.00	56.86
782+50	23.00	70.88	0.00	61.55	0.00	118.41	0.00	61.55
782+82	32.00	70.88	0.00	84.01	0.00	202.42	0.00	84.01
783+91	109.00	73.37	0.00	291.17	0.00	493.59	0.00	291.17
784+25	34.00	73.37	0.00	92.39	0.00	585.98	0.00	92.39
784+47	22.00	74.49	0.00	60.24	0.00	646.22	0.00	60.24
784+67	20.00	74.49	0.00	55.18	0.00	701.40	0.00	55.18
782+83.67 - 783+91.10	CHANNEL EXCAVATION/CULVERT REMOVAL BELOW EXISTING SUBGRADE					12154.00	12154.00	12154.00
					TOTAL EXCAVATION:		12855.40	12855.40











PROJECT NO: 8150-00-72

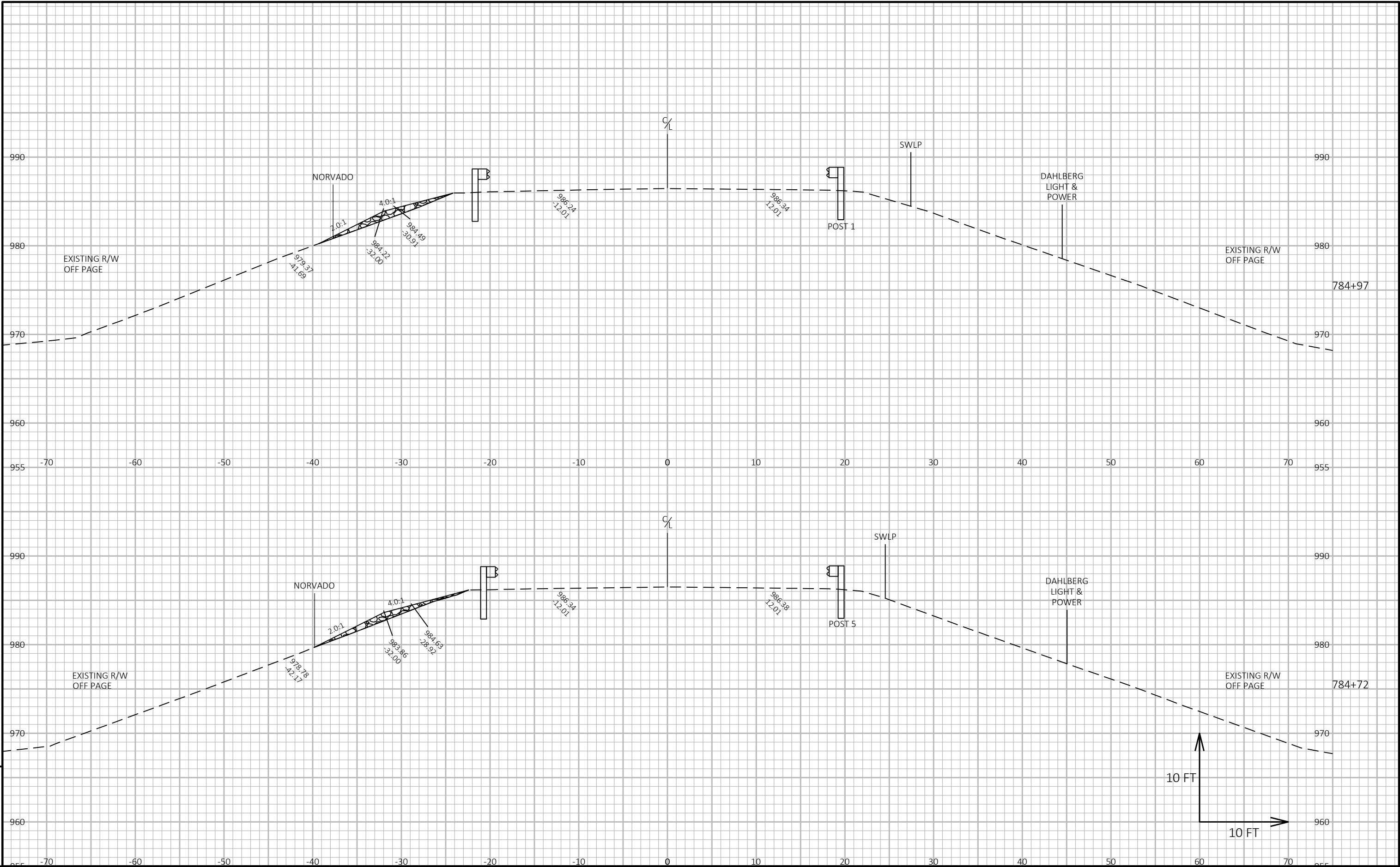
HWY: STH 27

COUNTY: DOUGLAS

CROSS SECTIONS: CROSS SECTIONS

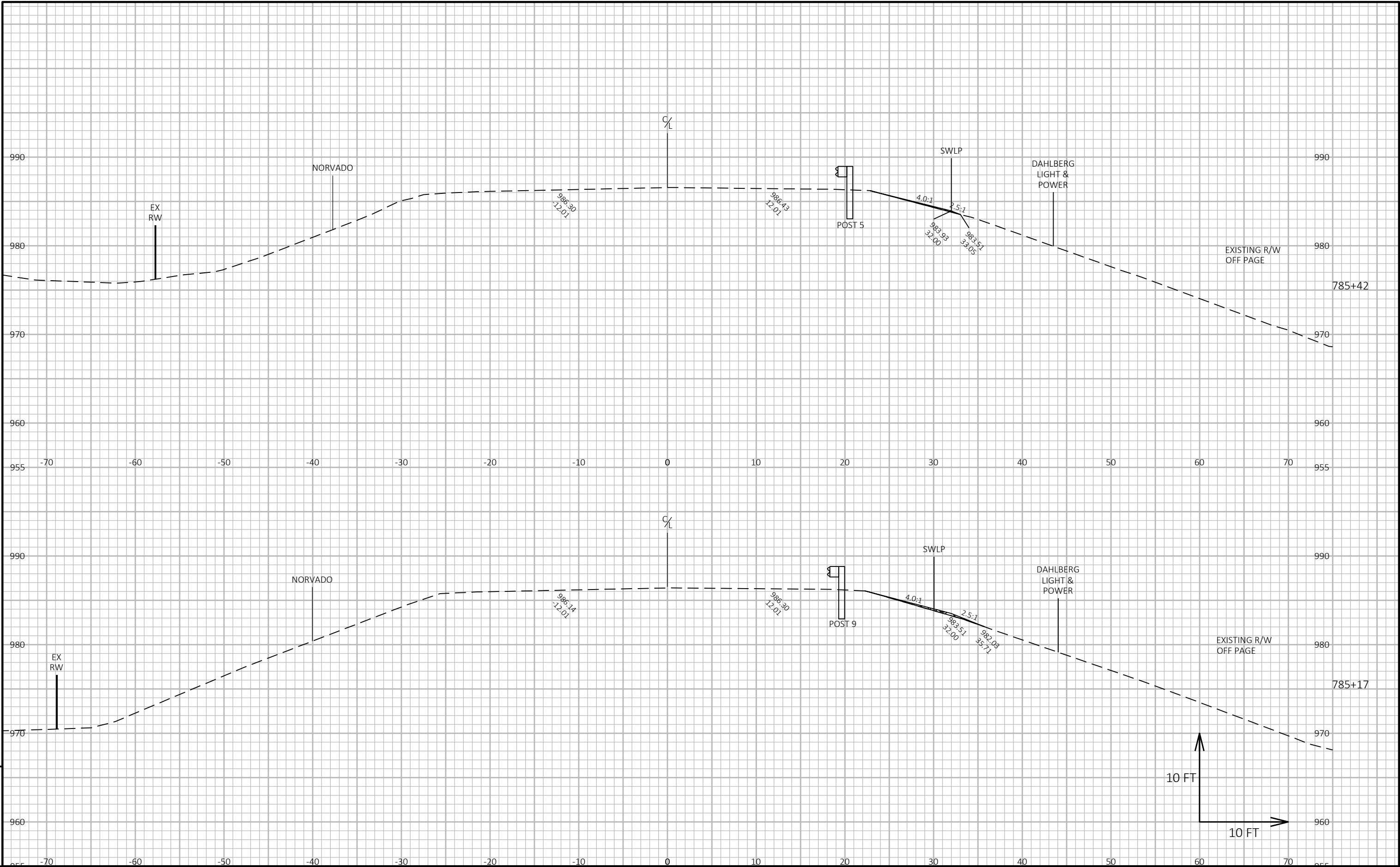
SHEET 93

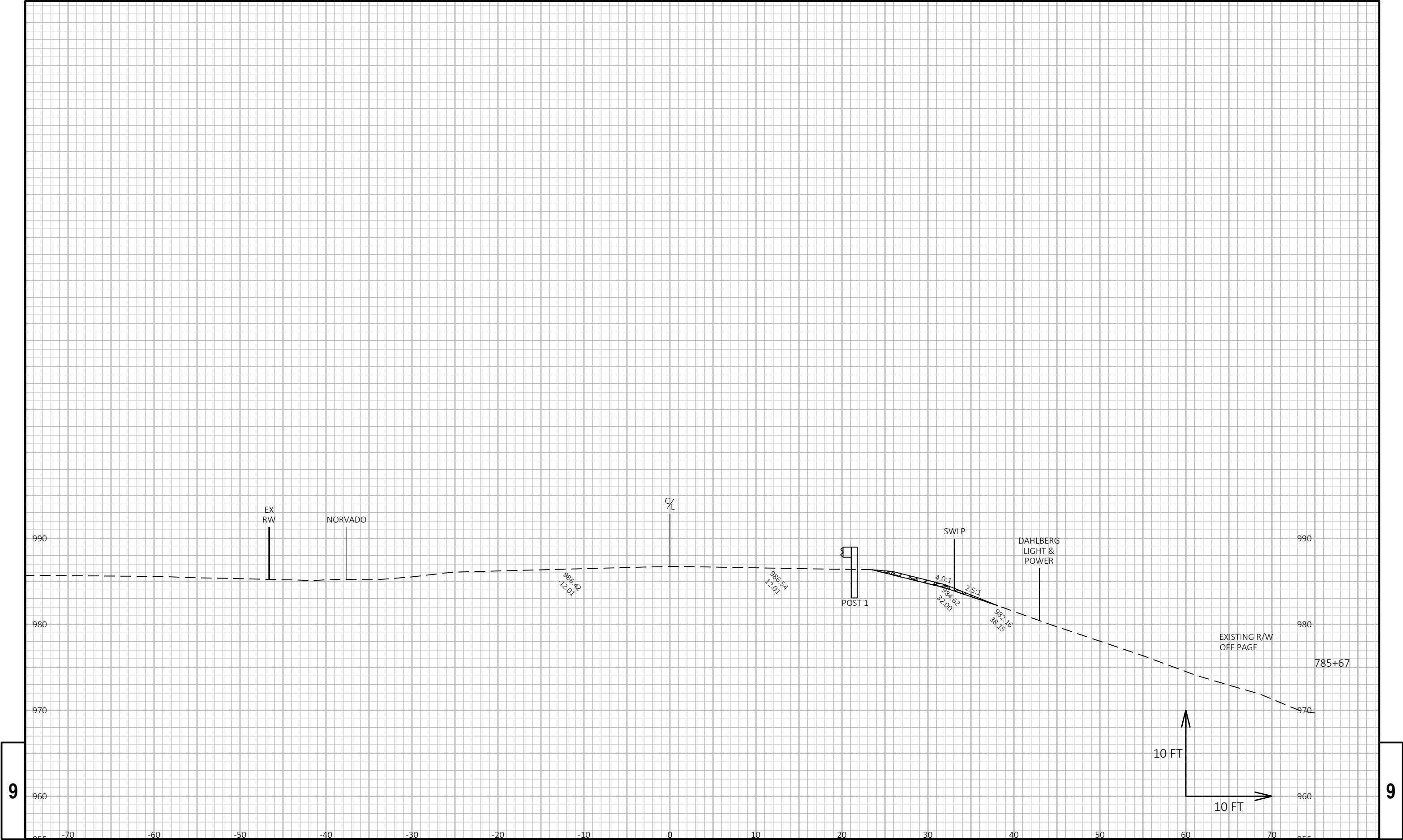
E



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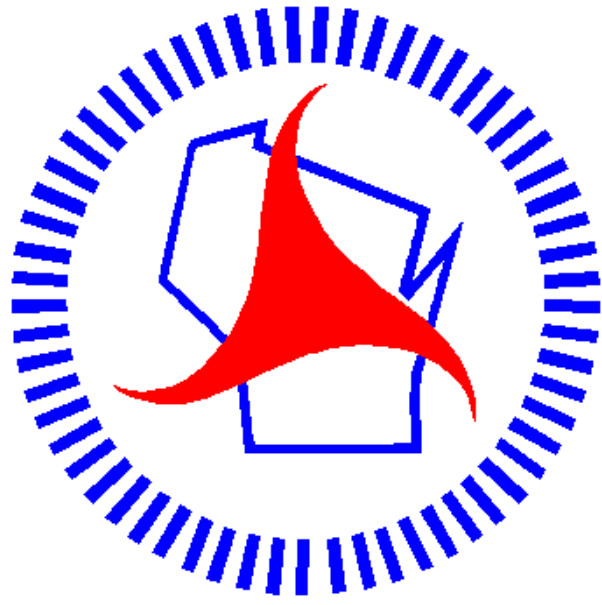




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Notes



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