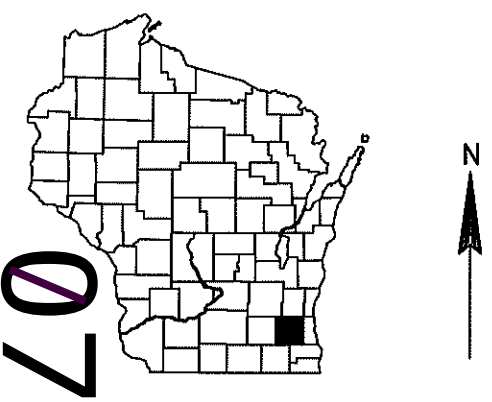


WKE
PROJECT ID: 1090-35-71
COUNTY: WAUKESHA COUNTY

JUNE 2020

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

TOTAL SHEETS = 210



DESIGN DESIGNATION	IH 43	CTU U GUTHRIE RD
A.A.D.T. 2020	= 43900	1700
A.A.D.T. 2040	= 53100	2050
D.H.V. 2040	= 3558	-
D.D.	= 56-44	-
T.	= 8.2%	-
DESIGN SPEED	= 75 MPH	35 MPH
ESALS	= 16,500,000	-

CONVENTIONAL SYMBOLS

PLAN		PROFILE	
CORPORATE LIMITS		GRADE LINE	
PROPERTY LINE		ORIGINAL GROUND	
LOT LINE		MARSH OR ROCK PROFILE (To be noted as such)	
LIMITED HIGHWAY EASEMENT		SPECIAL DITCH	
EXISTING RIGHT OF WAY		GRADE ELEVATION	
PROPOSED OR NEW R/W LINE		CULVERT (Profile View)	
SLOPE INTERCEPT		UTILITIES	
REFERENCE LINE		ELECTRIC	
EXISTING CULVERT		FIBER OPTIC	
PROPOSED CULVERT (Box or Pipe)		GAS	
COMBUSTIBLE FLUIDS		SANITARY SEWER	
MARSH AREA		STORM SEWER	
WOODED OR SHRUB AREA		TELEPHONE	
		WATER	
		UTILITY PEDESTAL	
		POWER POLE	
		TELEPHONE POLE	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

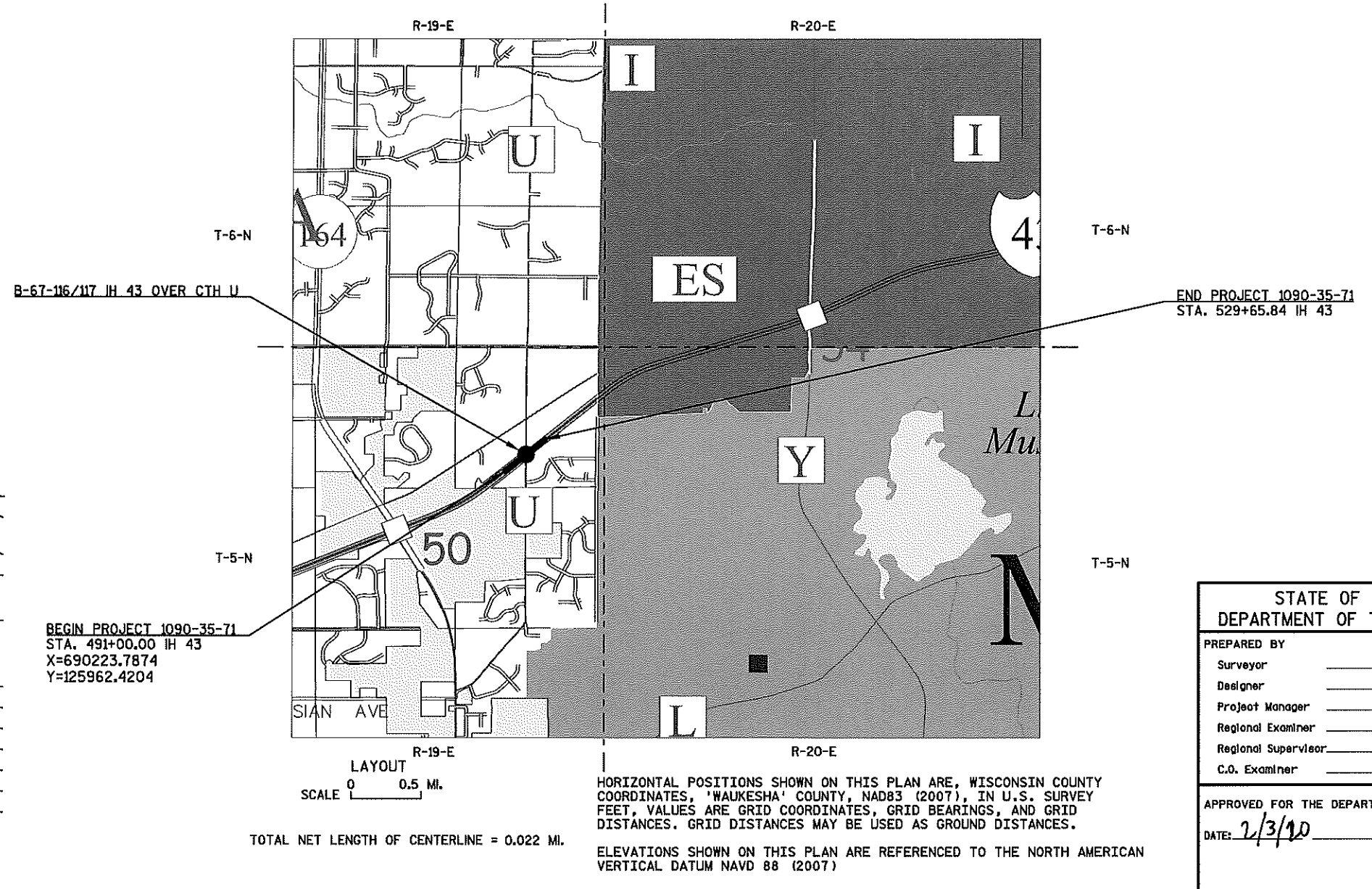
PLAN OF PROPOSED IMPROVEMENT

IH 43 ROCK FREEWAY

CTH U B-67-116 & B-67-117

IH 43
WAUKESHA COUNTY

STATE PROJECT NUMBER
1090-35-71



STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1090-35-71	WISC 2020320	1

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	
Surveyor	WISDOT
Designer	LANCE PARVE
Project Manager	WAF A ELQAO, PE
Regional Examiner	
Regional Supervisor	
C.O. Examiner	
APPROVED FOR THE DEPARTMENT	
DATE: 2/3/10	

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN SHALL BE IN ACCORDANCE WITH THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

UNLESS NOTED ON THE PLAN, ALL STATIONS AND OFFSETS ARE BASED OFF OF THE IH 43 REFERENCE LINE.

DIMENSIONS GIVEN FOR EXISTING FEATURES SHALL BE CONSIDERED AS APPROXIMATE AND MEASURED IN THE FIELD FOR MATCHING PURPOSES.

THE LOCATION OF EXISTING OR PROPOSED UTILITIES, AS NOTED IN THE PLANS, ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS AND SERVICES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPALITY OR PUBLIC AGENCY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

A SAW JOINT IS REQUIRED WHERE NEW PAVEMENT MEETS EXISTING PAVEMENT.

ALL DISTURBED AREAS WITHIN THE RIGHT OF WAY THAT ARE NOT THE RESULT OF CONTRACT ITEMS SHALL BE RESTORED, SEEDED, FERTILIZED, AND MULCHED AT THE CONTRACTOR'S EXPENSE.

EROSION CONTROL DEVICES ARE AT SUGGESTED LOCATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL BMP'S SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINES THAT THE BMP IS NO LONGER REQUIRED.

RESTORE AREAS, AS DESIGNATED BY THE ENGINEER, IMMEDIATELY AFTER GRADING IS COMPLETED WITHIN THOSE AREAS. SEED, FERTILIZE, AND MULCH/EROSION MAT TOPSOILED AREAS, AS DESIGNATED BY THE ENGINEER, WITHIN FIVE (5) CALENDAR DAYS AFTER PLACEMENT OF TOPSOIL. IF GRADED AREAS ARE LEFT EXPOSED FOR MORE THAN FOURTEEN (14) CALENDAR DAYS, SEED THOSE AREAS WITH TEMPORARY SEED AND MULCH.

STOCKPILE EXCESS MATERIAL OR SPOILS ON UPLAND AREAS AWAY FROM WETLANDS, FLOODPLAINS AND WATERWAYS. STOCKPILED MATERIAL SHALL BE PROTECTED AGAINST EROSION. IF STOCKPILED MATERIAL IS LEFT FOR MORE THAN FOURTEEN (14) CALENDAR DAYS, APPLY TEMPORARY SEED AND MULCH TO THE STOCKPILE.

INLET PROTECTION IS REQUIRED AT ALL INLETS AS PER DETAIL OR AS DIRECTED BY THE ENGINEER.

BASE AGGREGATE DENSE 1 1/4-INCH WAS CALCULATED USING 1.9 TONS/CY
BREAKER RUN WAS CALCULATED USING 1.75 TONS/CY.

HMA PAVEMENT QUANTITIES WERE CALCULATED USING 118 LBS/SY-IN.

PAVEMENT LOCATION	PAVEMENT TYPE	TOTAL PAVEMENT THICKNESS	LAYERS
IH 43 MEDIAN SHOULDER	ASPHALT SURFACE TEMPORARY	5"	5"
IH 43 OUTSIDE SHOULDER	ASPHALT SURFACE	1 ¾"	1 ¾"

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES & UTILITY CONTACTS
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- REMOVAL PLAN
- PLAN DETAILS
- EROSION CONTROL
- PERMANENT SIGNING
- PAVEMENT MARKING
- TRAFFIC CONTROL
- DETOUR PLAN
- ALIGNMENT LAYOUT & SURVEY CONTROL

UTILITY CONTACTS

AT&T WISCONSIN - COMMUNICATIONS

MATTHEW DINNAUER
2005 PEWAUKEE RD
WAUKESHA, WI 53188-2443
PHONE: (262) 896-7690
md9542@att.com

CHARTER COMMUNICATIONS - COMMUNICATION LINE

SCOTT DIETRICH
1320 N DR MARTIN LUTHER KING JR DR
MILWAUKEE, WI 53212
(414) 277-4283
Scott.Dietrich@charter.com

CITY OF NEW BERLIN - ROAD FACILITY

TAMARA SIMONSON
3805 S CASPER DRIVE
NEW BERLIN, WI 53151
PHONE: (262) 754-1735
tsimonson@newberlin.org

CITY OF NEW BERLIN - WATER

JIM HART
3805 S CASPER DRIVE
NEW BERLIN, WI 53151
PHONE: (262) 786-7086
jhart@newberlin.org

MCI METRO ACCESS TRANS SERVICE LLC - COMMUNICATION

MIKE HOFFMAN
8365 N 76TH STREET
MILWAUKEE, WI 53223
PHONE: (262) 599-1966
mike.hoffman@telcomconstruction.com

WE ENERGIES - ELECTRICITY

BRYAN STOEHR
333 W EVERETT ST
MILWAUKEE, WI 53203
PHONE: (414) 416-6059
bryan.stoehr@we-energies.com

WE ENERGIES - GAS/PETROLEUM

KELLY JAECK
333 W EVERETT ST
MILWAUKEE, WI 53203
PHONE: (262) 968-5721
kelly.jaeck@we-energies.com

WISDOT ATR PULL BOXES - ELECTRICAL

RUSSELL LEWIS
TRAVEL SURVEY SHOP, 3633 PIERSTORFF ST
P.O. BOX 2583
MADISON, WI 53704-2583
PHONE: (608) 516-5754
russell.lewis@dot.wi.gov

OTHER CONTACTS

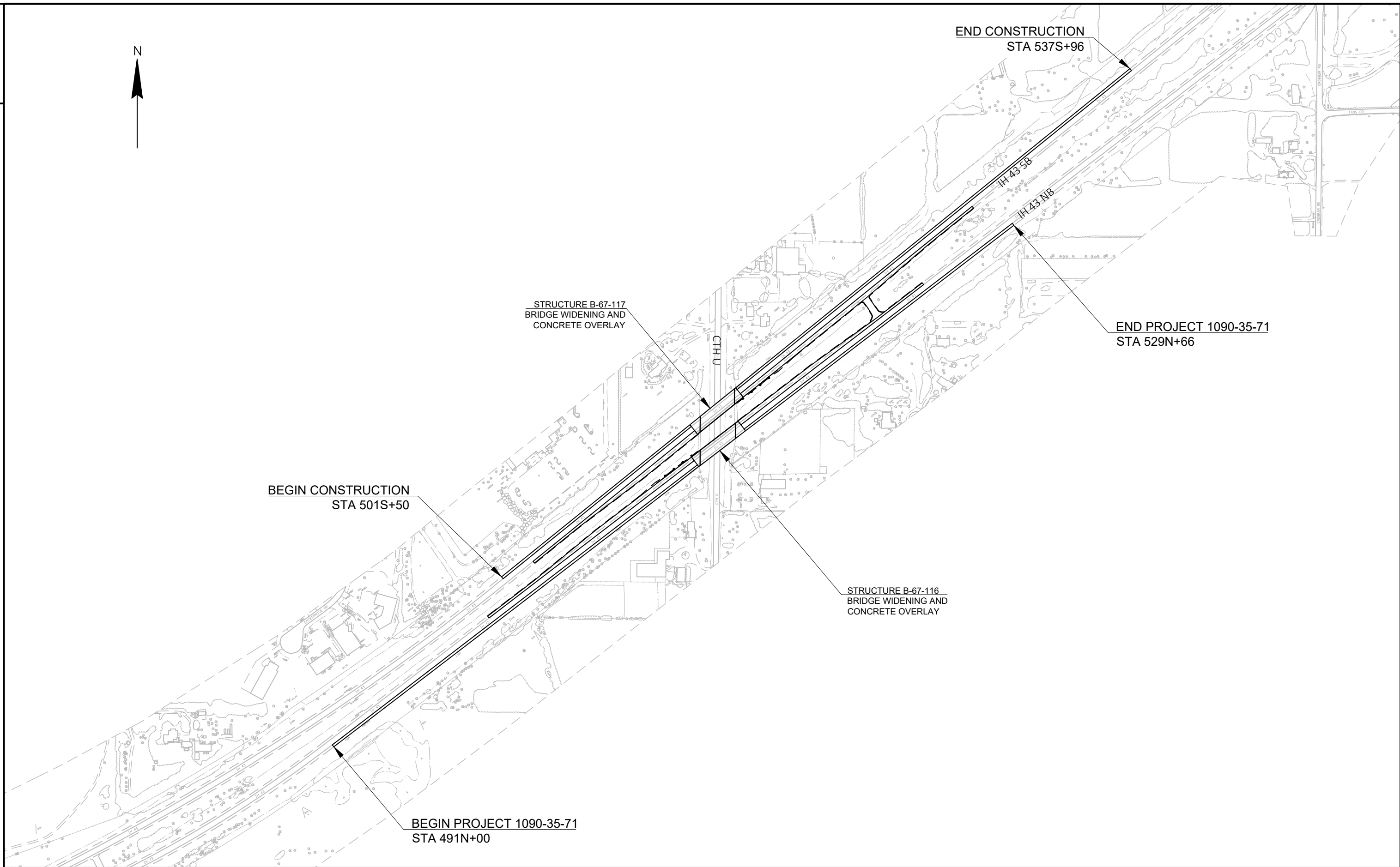
WISCONSIN DEPT OF TRANSPORTATION

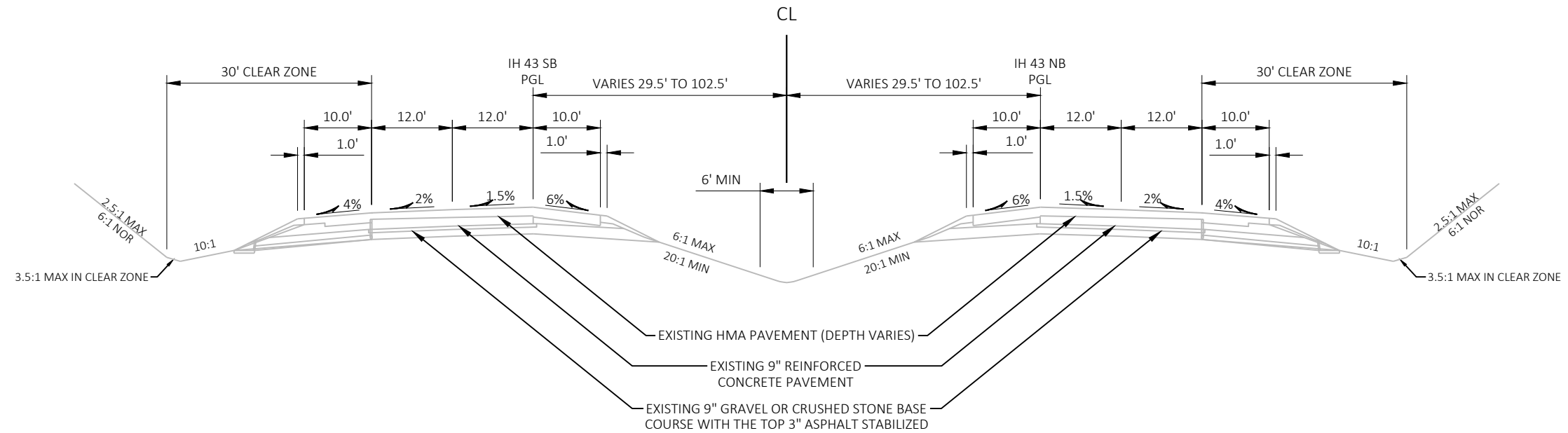
LANCE PARVE - PROJECT MANAGER
141 NW BARSTOW ST
WAUKESHA, WI 53187
PHONE: (414) 731-5375
lance.parve@dot.wi.gov

WISCONSIN DEPT OF NATURAL RESOURCES

CRAIG WEBSTER
141 NW BARSTOW ST, RM 208
WAUKESHA, WI 53188
PHONE: (262) 574-2141
CELL: (414) 303-3011
craig.webster@wi.gov

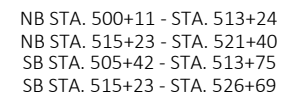


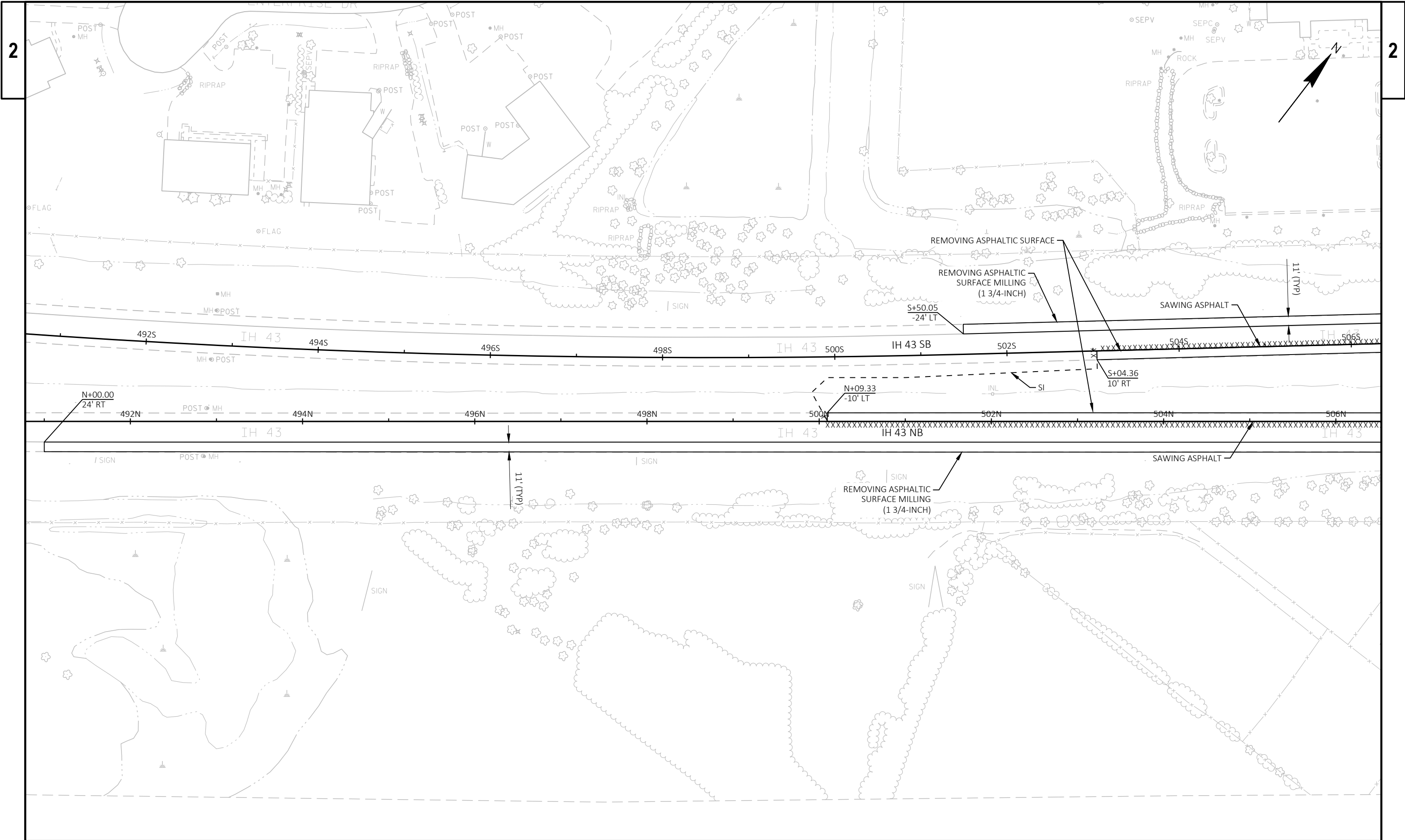




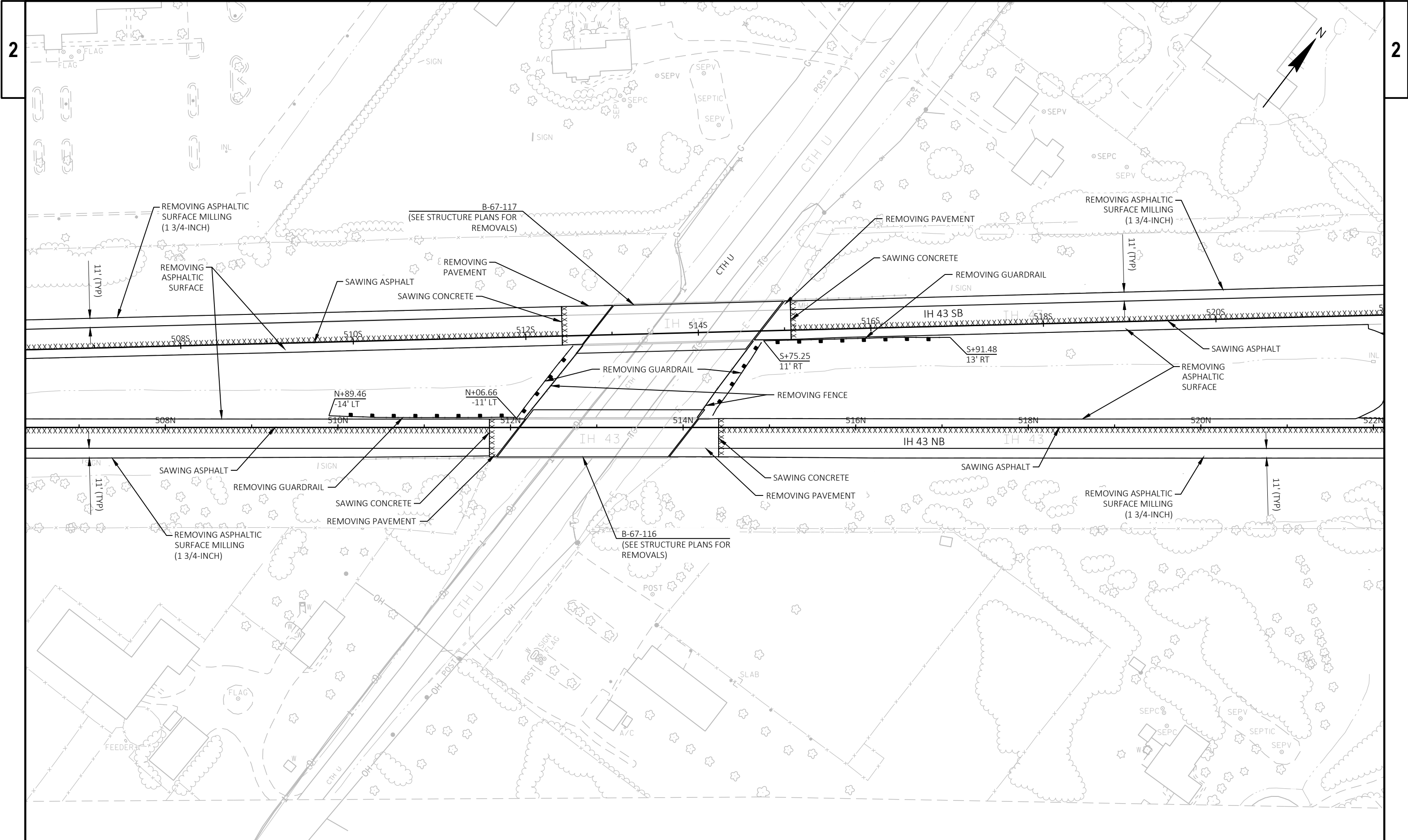
TYPICAL EXISTING CROWNED SECTION (IH-43)

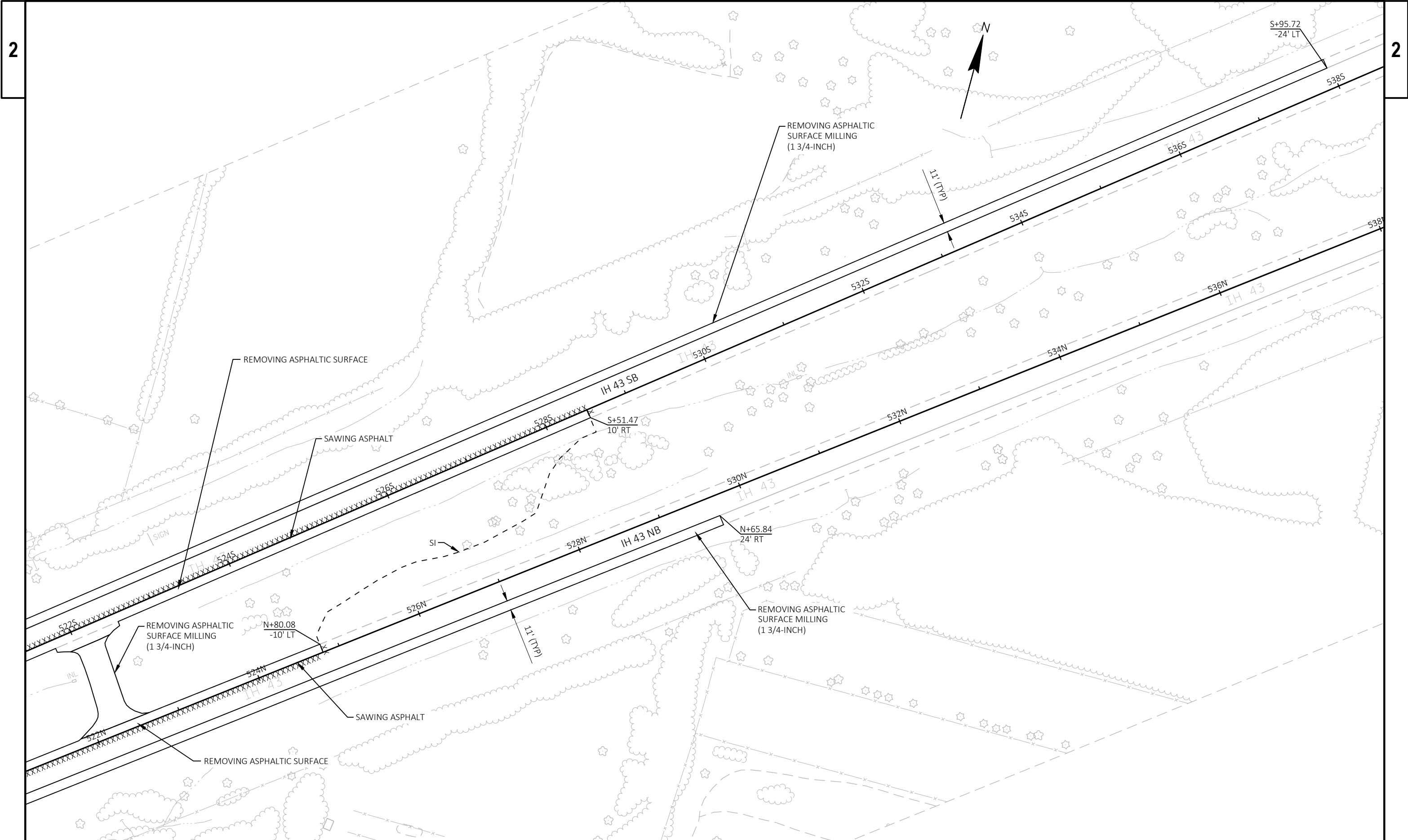
NB STA. 500+11 - STA. 513+24
NB STA. 515+23 - STA. 521+40
SB STA. 505+42 - STA. 513+75
SB STA. 515+23 - STA. 526+69





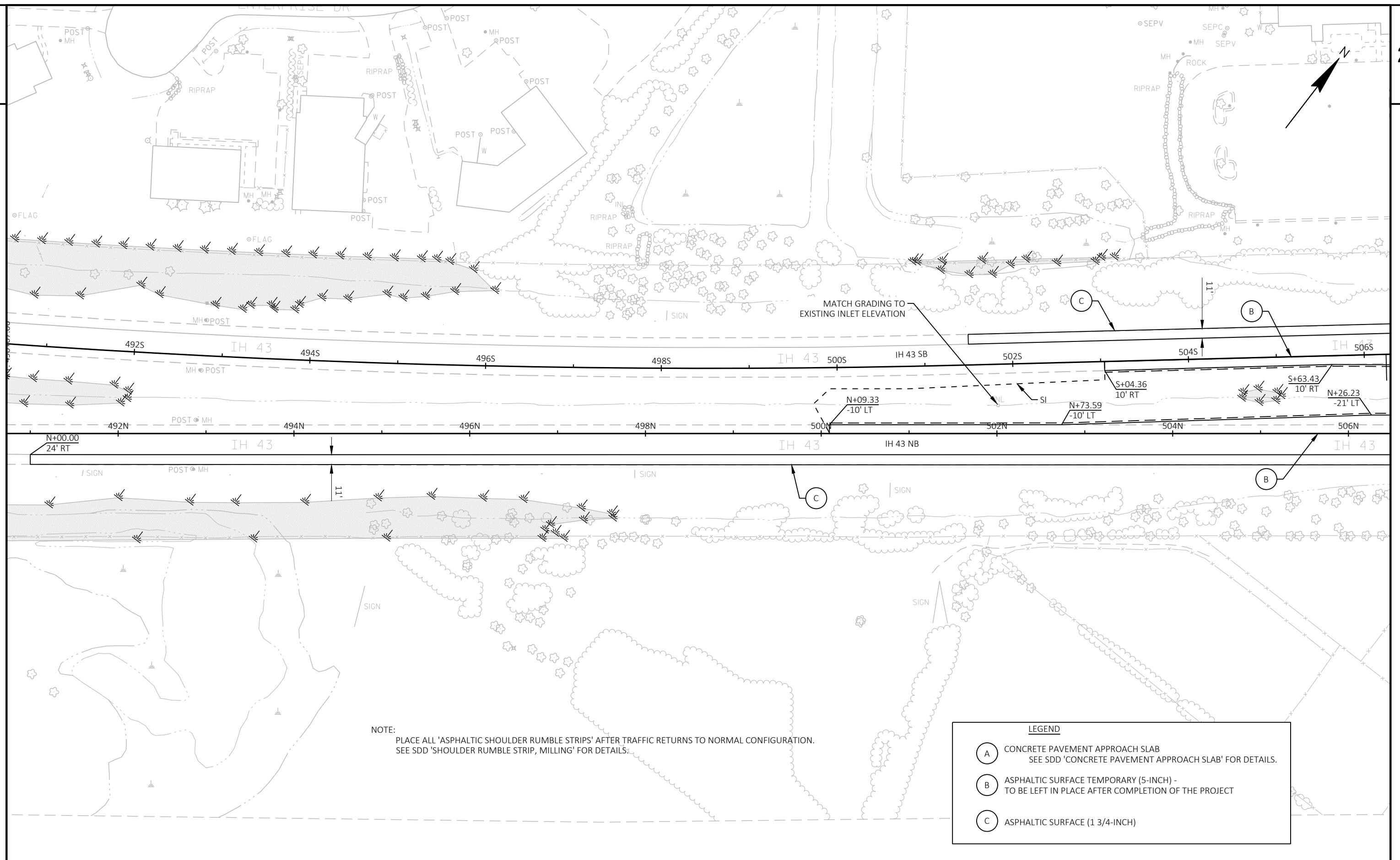
PROJECT NO: 1090-35-71	HWY: IH 43	COUNTY: WAUKESHA	REMOVAL PLAN	SHEET 6	E
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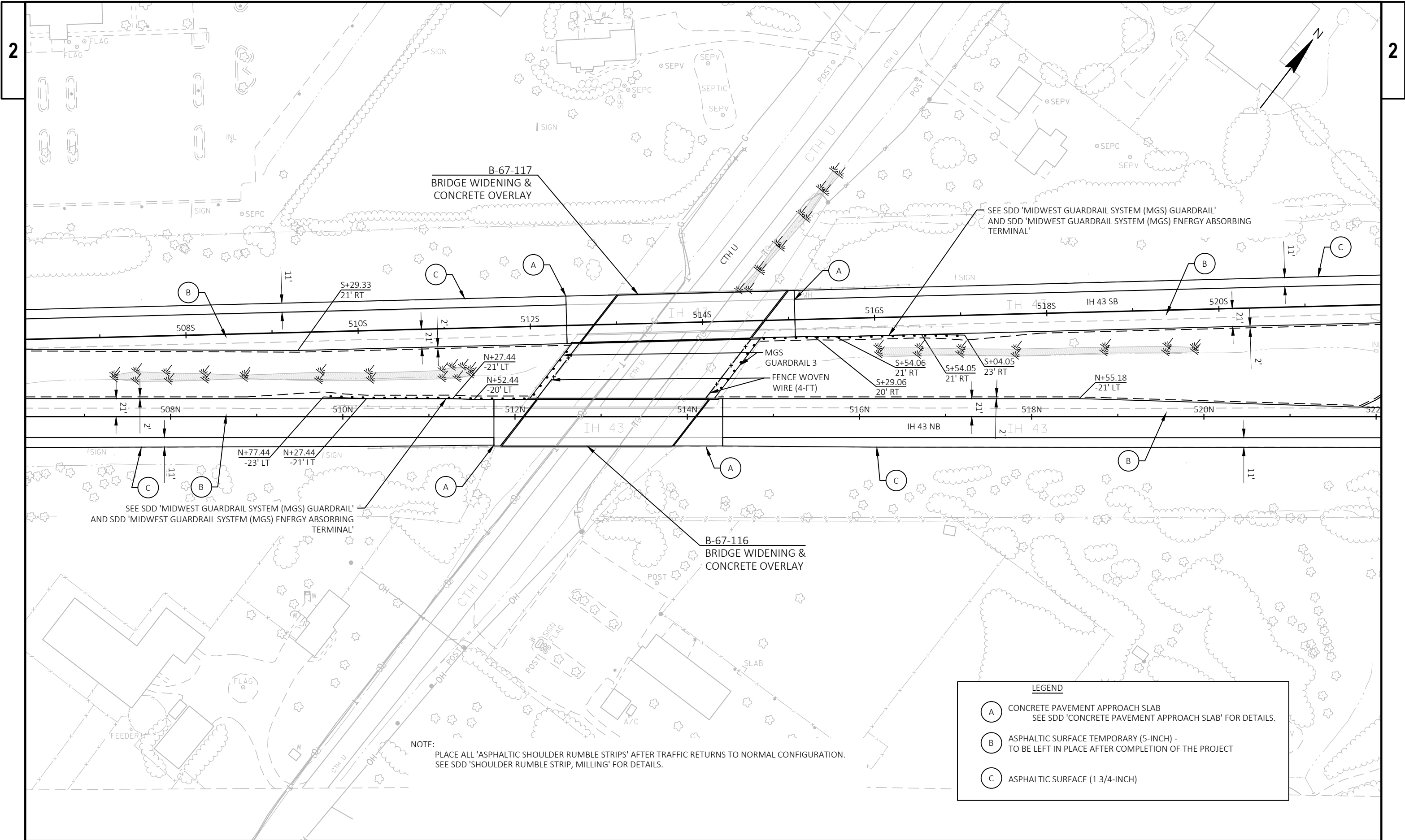
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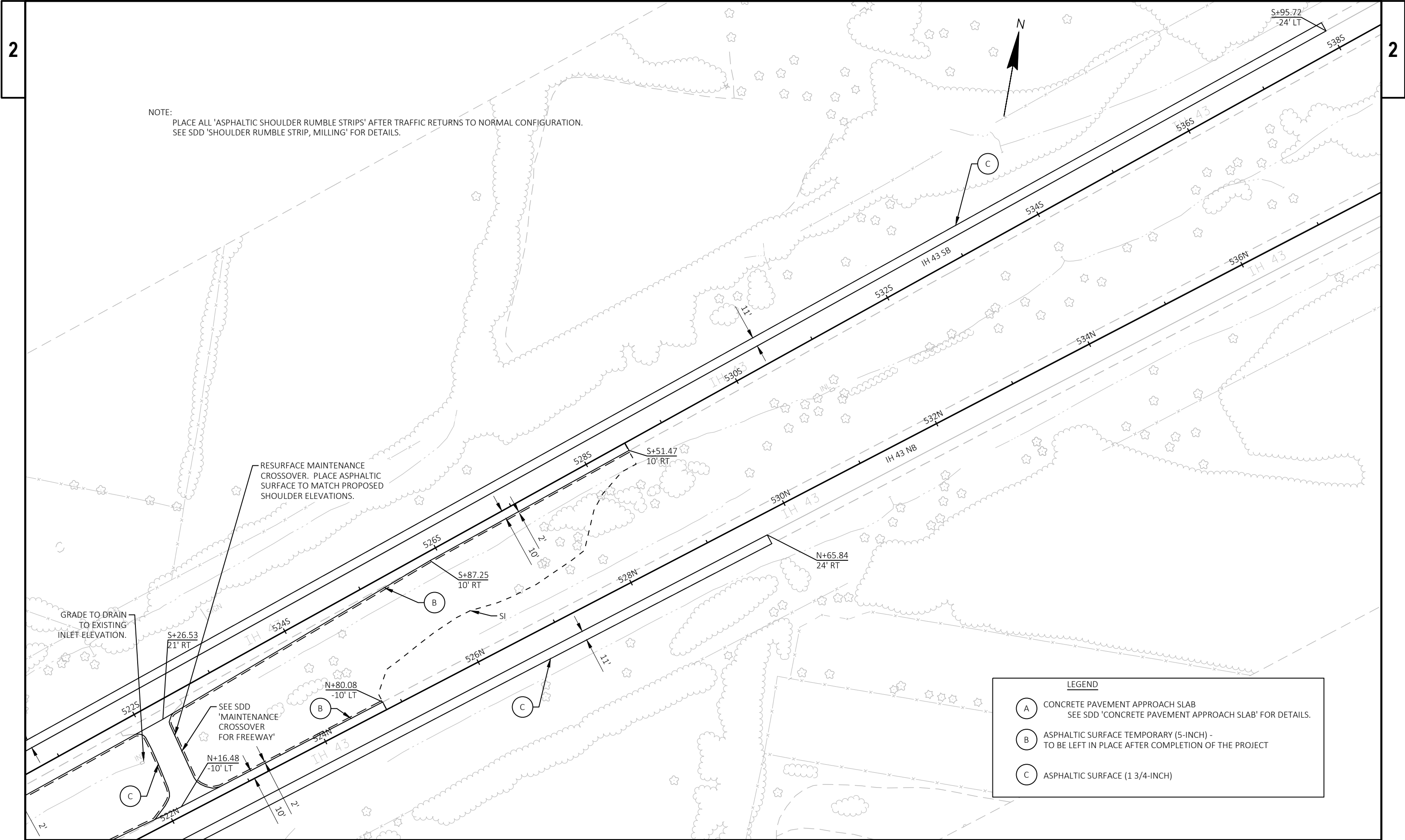
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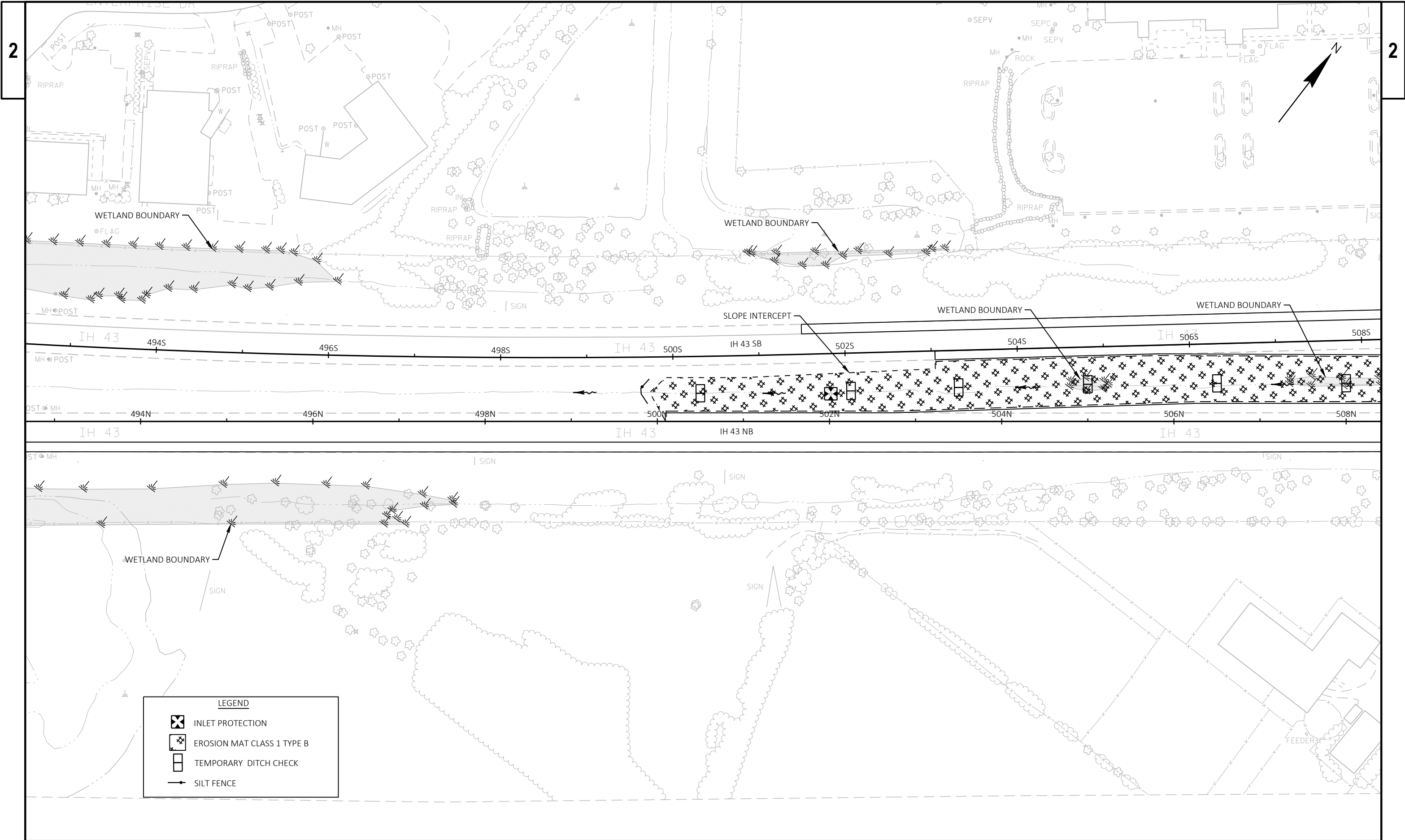


9

WISDOT/CADDS SHEET 42

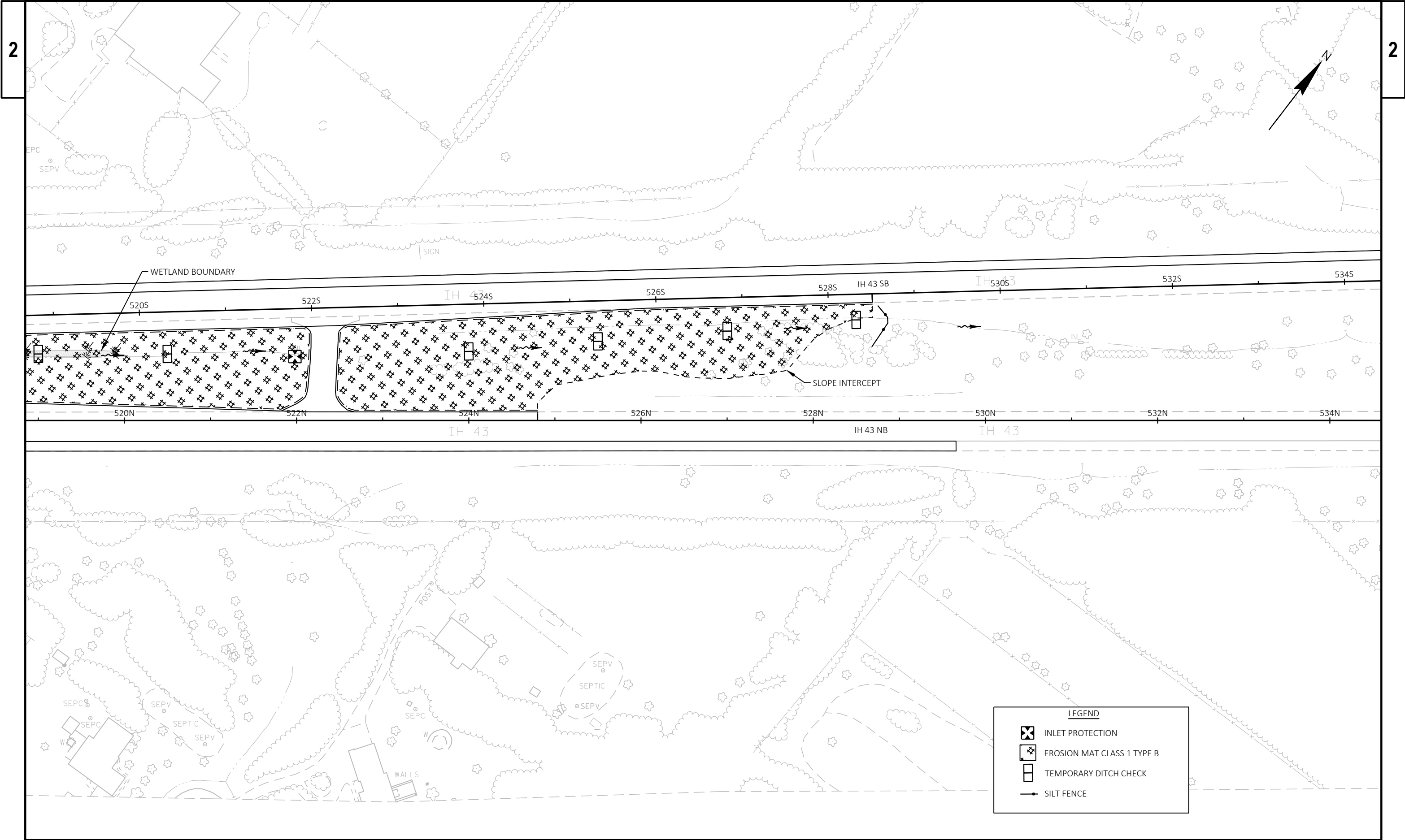


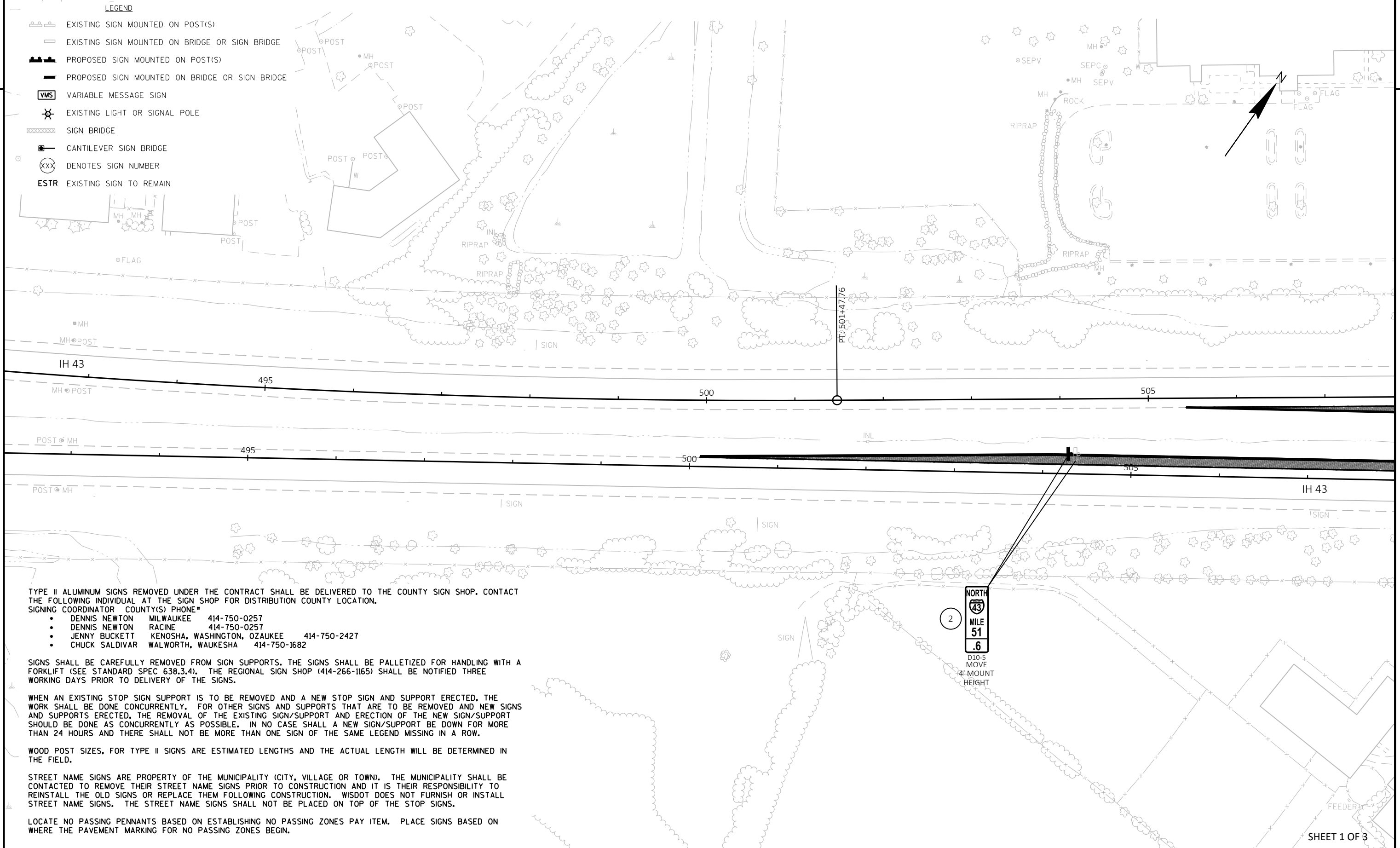


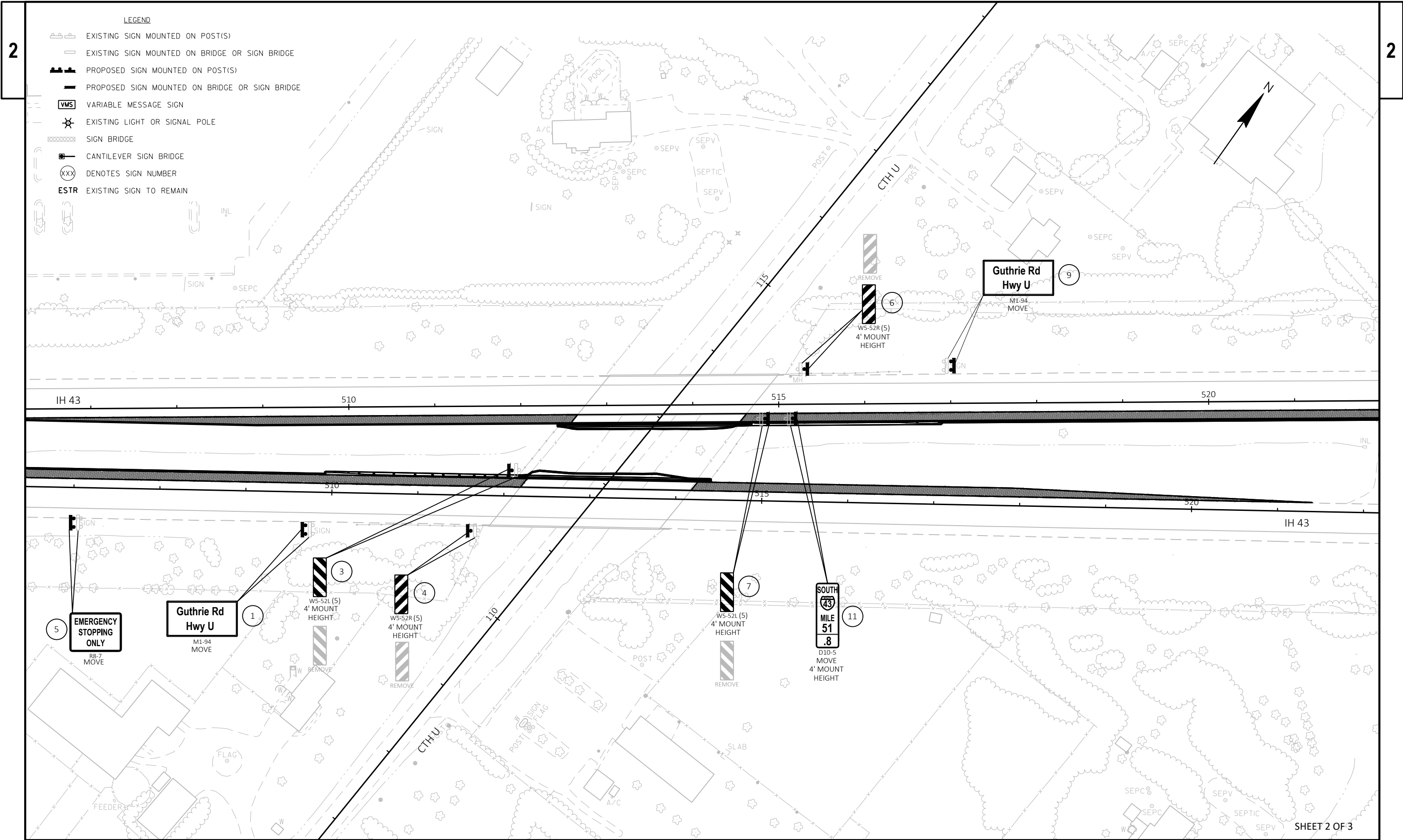


2









PROJECT NO: 1090-35-71

HWY: IH 43

COUNTY: WAUKESHA

PERMANENT SIGNING PLAN

SHEET

16

E

FILE NAME : N:\PDS\C3D\CAD\10903500\SIGN\023201_PS_18.DWG
LAYOUT NAME - 023202_PS

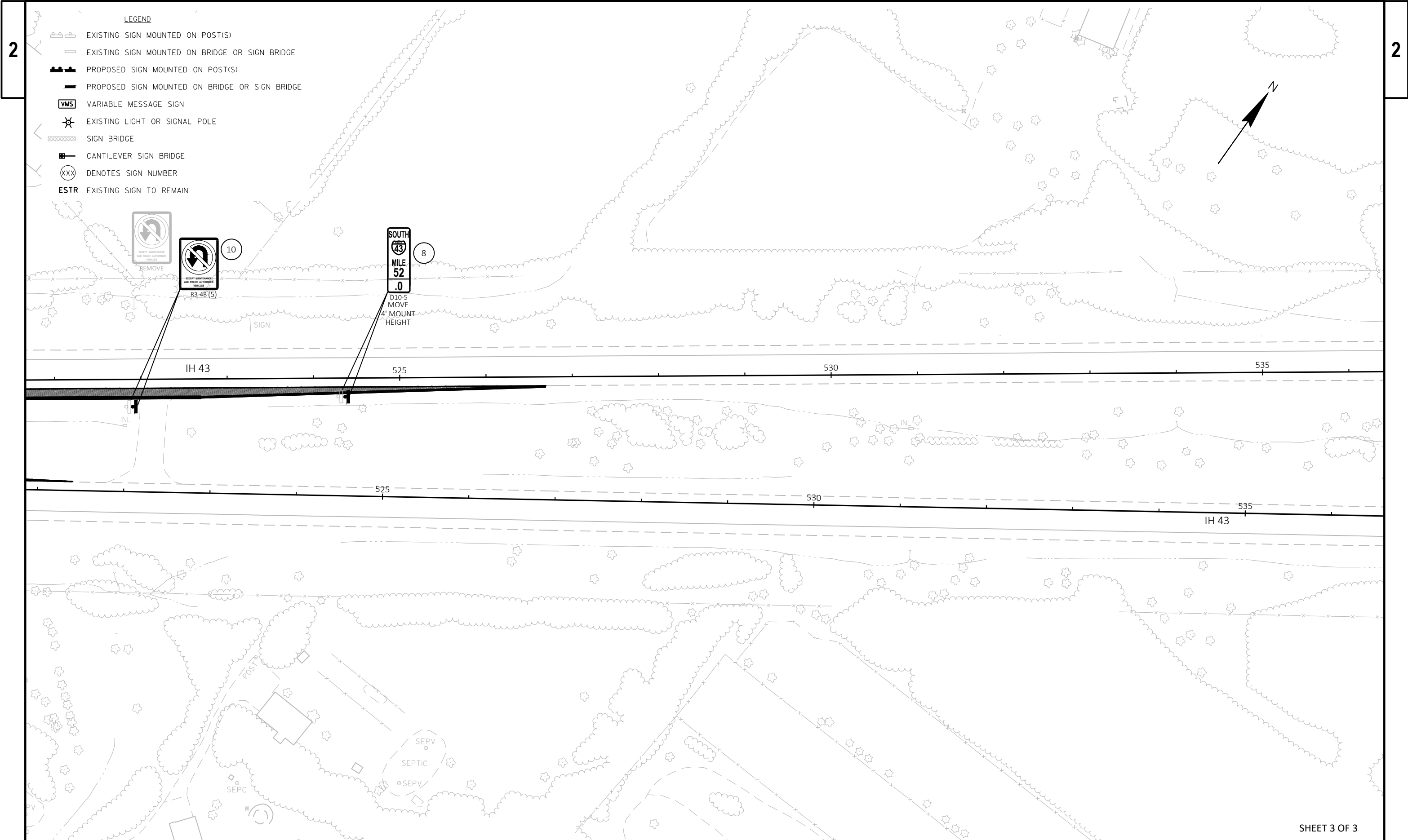
PLOT DATE : 12/20/2019 9:41 AM

PLOT BY : MARTENS, KAREN L

PLOT NAME :

PLOT SCALE : 1 IN:100 FT

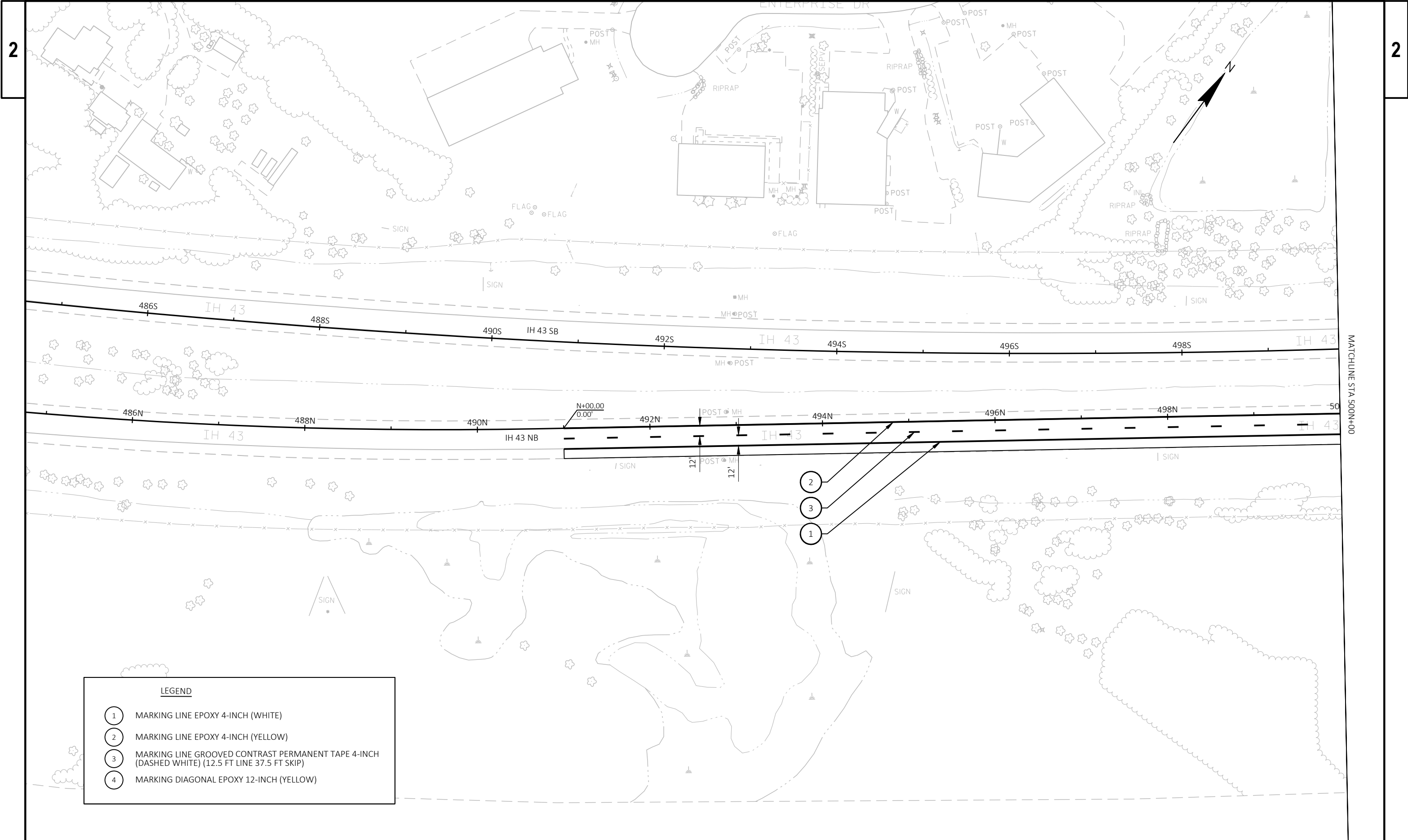
WISDOT/CADDs SHEET 42



- LEGEND**
- EXISTING SIGN MOUNTED ON POST(S)
 - EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
 - PROPOSED SIGN MOUNTED ON POST(S)
 - PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
 - VMS VARIABLE MESSAGE SIGN
 - EXISTING LIGHT OR SIGNAL POLE
 - SIGN BRIDGE
 - CANTILEVER SIGN BRIDGE
 - DENOTES SIGN NUMBER
 - ESTR EXISTING SIGN TO REMAIN

SHEET 3 OF 3

PROJECT NO: 1090-35-71	HWY: IH 43	COUNTY: WAUKESHA	PERMANENT SIGNING PLAN	SHEET 17	E
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LEGEND

1

MARKING LINE EPOXY 4-INCH (WHITE)

2

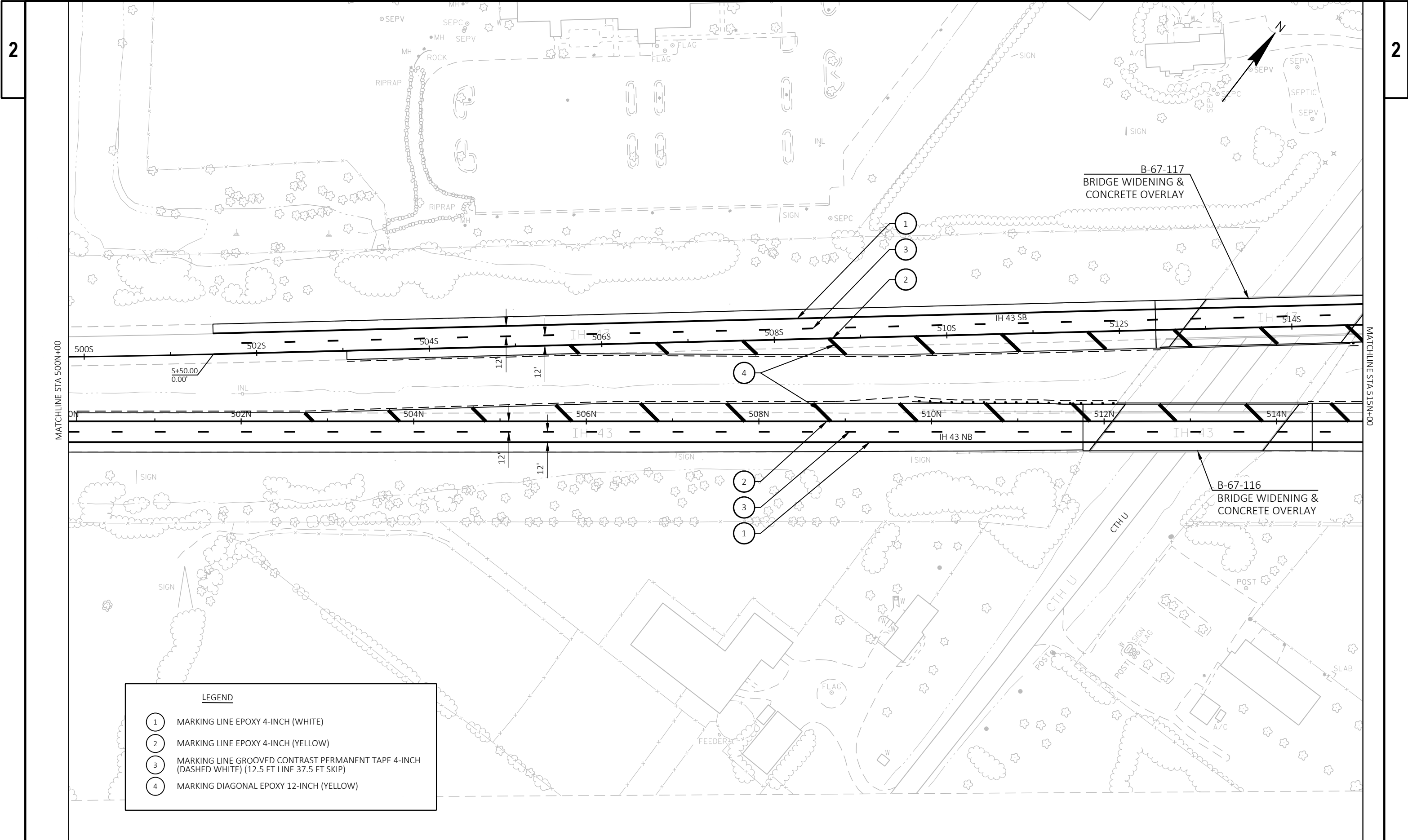
MARKING LINE EPOXY 4-INCH (YELLOW)

3

MARKING LINE GROOVED CONTRAST PERMANENT TAPE 4-INCH (DASHED WHITE) (12.5 FT LINE 37.5 FT SKIP)

4

MARKING DIAGONAL EPOXY 12-INCH (YELLOW)



LEGEND

1

MARKING LINE EPOXY 4-INCH (WHITE)

2

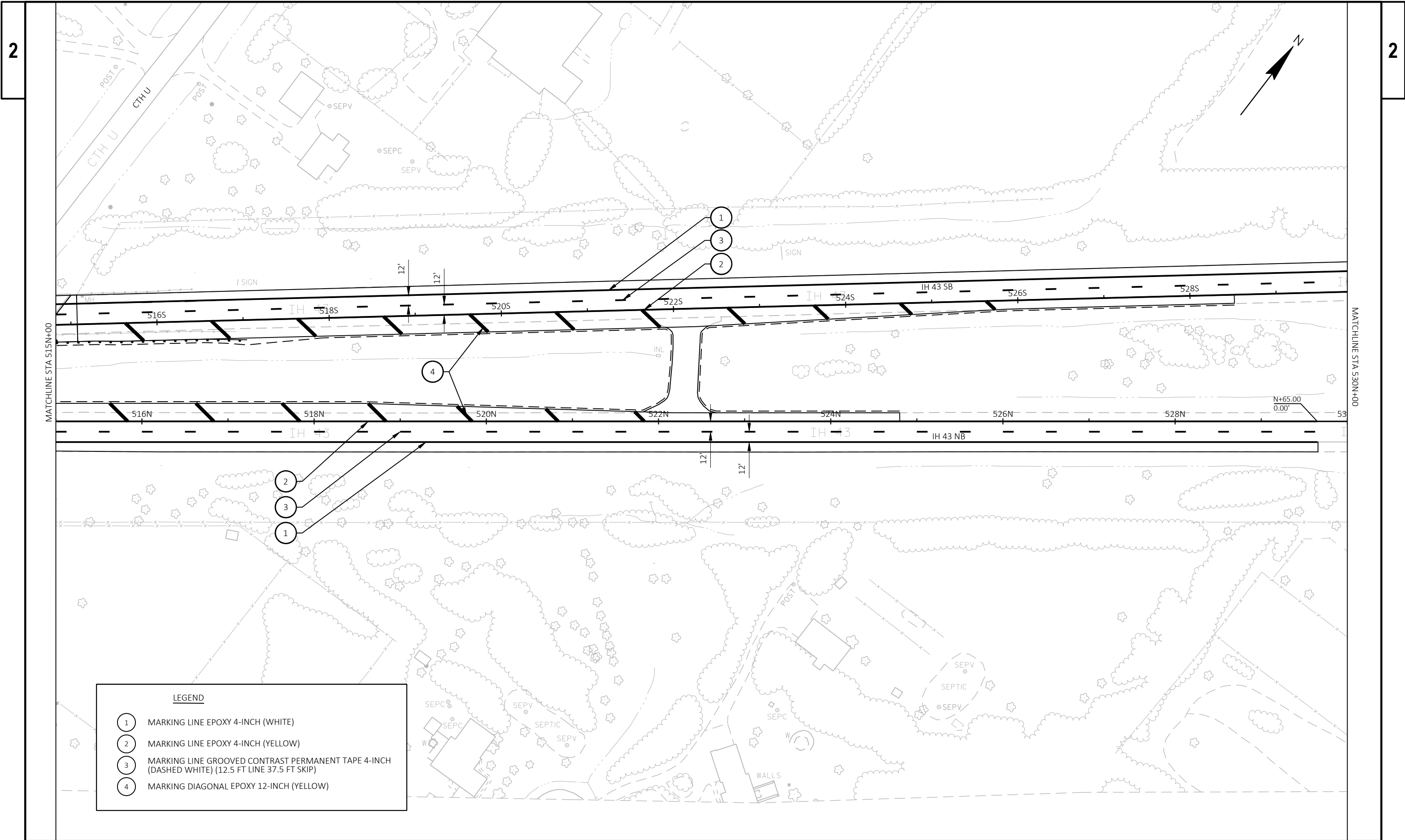
MARKING LINE EPOXY 4-INCH (YELLOW)

3

MARKING LINE GROOVED CONTRAST PERMANENT TAPE 4-INCH (DASHED WHITE) (12.5 FT LINE 37.5 FT SKIP)

4

MARKING DIAGONAL EPOXY 12-INCH (YELLOW)



LEGEND

1

MARKING LINE EPOXY 4-INCH (WHITE)

2

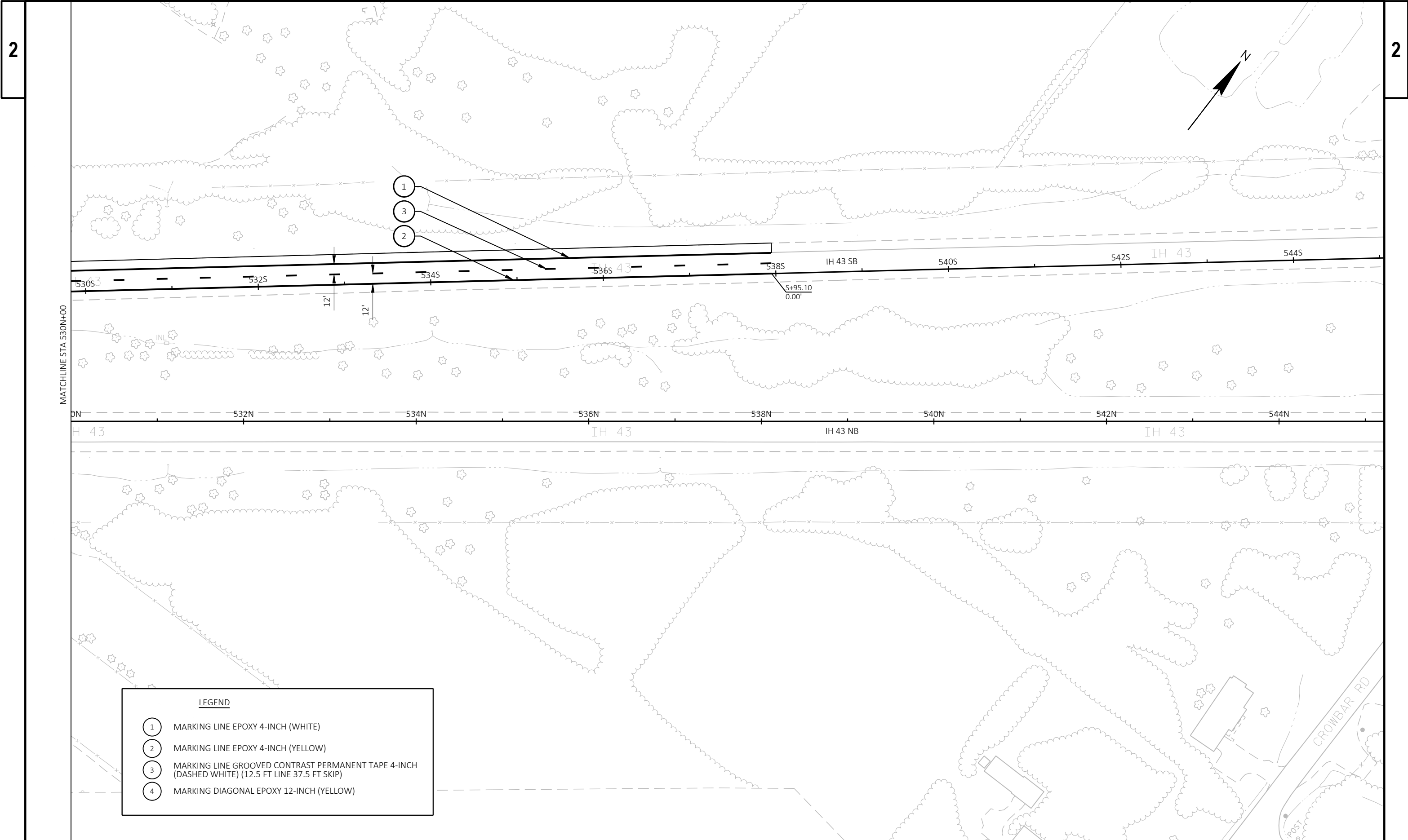
MARKING LINE EPOXY 4-INCH (YELLOW)

3

MARKING LINE GROOVED CONTRAST PERMANENT TAPE 4-INCH (DASHED WHITE) (12.5 FT LINE 37.5 FT SKIP)

4

MARKING DIAGONAL EPOXY 12-INCH (YELLOW)



LEGEND

1

MARKING LINE EPOXY 4-INCH (WHITE)

2

MARKING LINE EPOXY 4-INCH (YELLOW)

3

MARKING LINE GROOVED CONTRAST PERMANENT TAPE 4-INCH (DASHED WHITE) (12.5 FT LINE 37.5 FT SKIP)

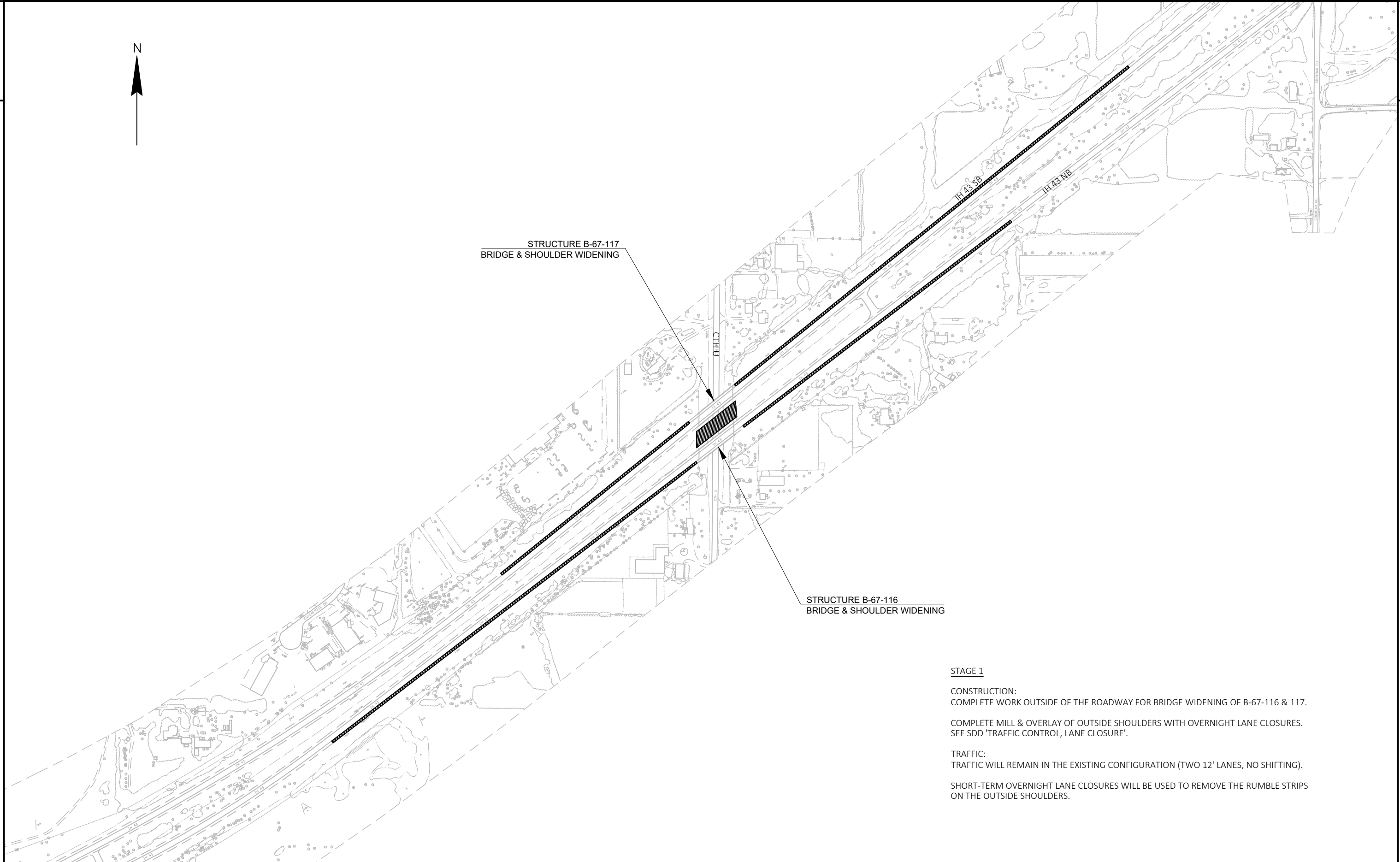
4

MARKING DIAGONAL EPOXY 12-INCH (YELLOW)

LEGEND	
	TYPE III BARRICADE WITH TWO TYPE A LIGHTS
	TYPE III BARRICADE WITH TWO TYPE A LIGHTS WITH ATTACHED SIGN
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
	FLASHING ARROW BOARD
	SIGN ON PERMANENT SUPPORT
	SIGN ON TEMPORARY SUPPORT
	TYPE A WARNING LIGHT (FLASHING)
	TYPE B WARNING LIGHT (HIGH INTENSITY FLASHING)
	TYPE C WARNING LIGHT (STEADY BURN)
	CONCRETE BARRIER TEMPORARY PRECAST
	WORK AREA
	FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF
	DIRECTION OF TRAFFIC
	PORTABLE CHANGEABLE MESSAGE BOARD

TEMPORARY MARKING LEGEND	
	TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)
	TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)
	TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (WHITE) (12.5 FT LINE 37.5 FT SKIP)

MARKING REMOVAL LEGEND	
	MARKING REMOVAL LINE WATER BLASTING 4-INCH
	REMOVE PAVEMENT MARKING GROOVED TAPE 4"



PROJECT NO: 1090-35-71	HWY: IH 43	COUNTY: WAUKESHA	TRAFFIC CONTROL - STAGE 1	SHEET 23	E
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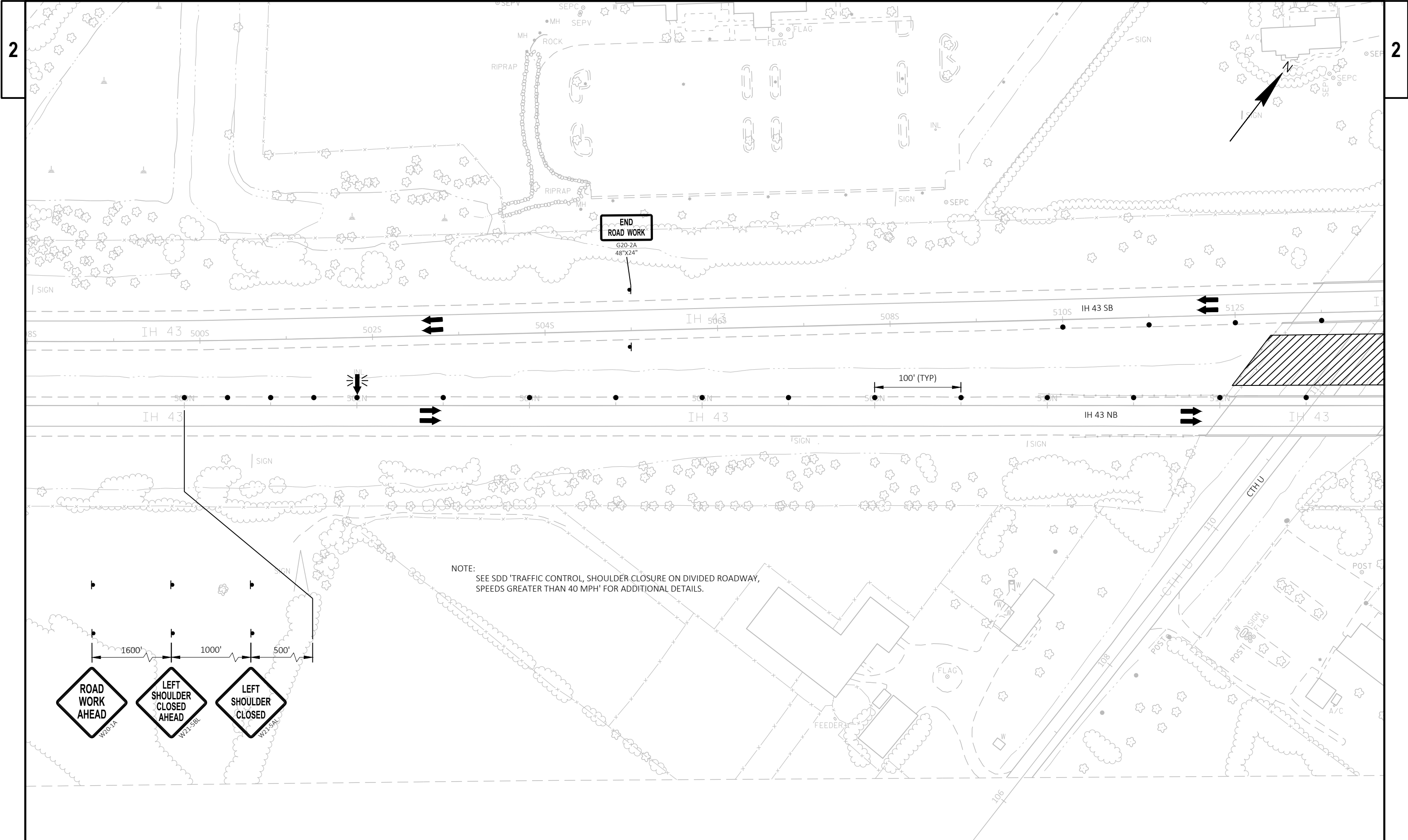
STAGE 1

CONSTRUCTION:
COMPLETE WORK OUTSIDE OF THE ROADWAY FOR BRIDGE WIDENING OF B-67-116 & 117.

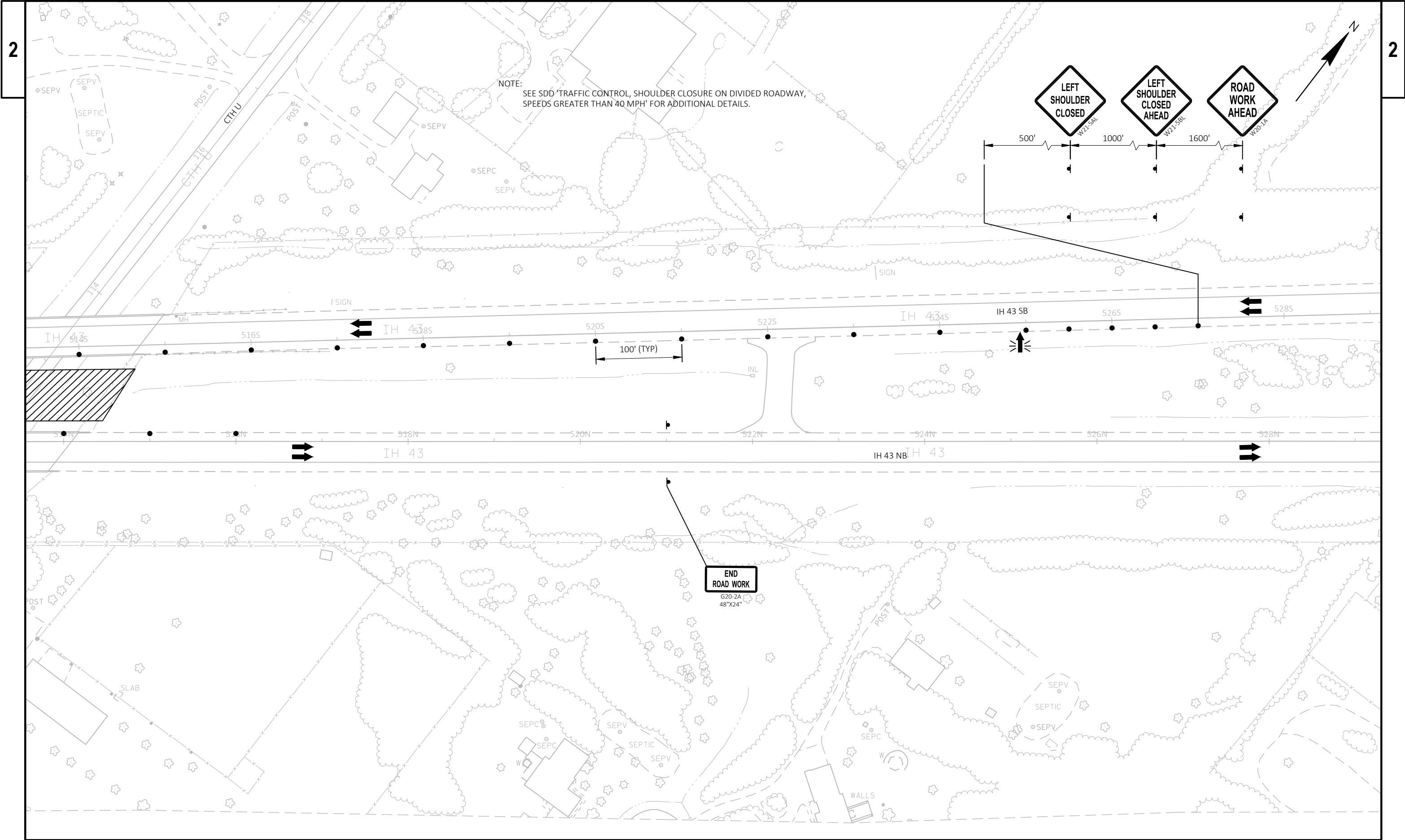
COMPLETE MILL & OVERLAY OF OUTSIDE SHOULDERS WITH OVERNIGHT LANE CLOSURES.
SEE SDD 'TRAFFIC CONTROL, LANE CLOSURE'.

TRAFFIC:
TRAFFIC WILL REMAIN IN THE EXISTING CONFIGURATION (TWO 12' LANES, NO SHIFTING).

SHORT-TERM OVERNIGHT LANE CLOSURES WILL BE USED TO REMOVE THE RUMBLE STRIPS
ON THE OUTSIDE SHOULDERS.



NOTE:
SEE SDD 'TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY,
SPEEDS GREATER THAN 40 MPH' FOR ADDITIONAL DETAILS.



STRUCTURE B-67-117
BRIDGE WIDENING &
CONCRETE OVERLAY

STRUCTURE B-67-116
BRIDGE WIDENING &
CONCRETE OVERLAY

STAGE 2

CONSTRUCTION:
COMPLETE BRIDGE WIDENING, JOINT REPAIR & DECK REPAIR OF B-67-116 & 117.
COMPLETE SHOULDER WIDENING OF IH 43 NB & SB.
COMPLETE THE REPLACEMENT OF THE CONCRETE PAVEMENT APPROACH SLABS OF THE INSIDE LANES OF IH 43 NB & SB.
COMPLETE CONCRETE OVERLAY OF INSIDE LANES OF B-67-116 & 117.

TRAFFIC:
TRAFFIC IS SHIFTED TO OUTSIDE SHOULDER, AND LANES ARE NARROWED TO 11 FT.

PROJECT NO: 1090-35-71

HWY: IH 43

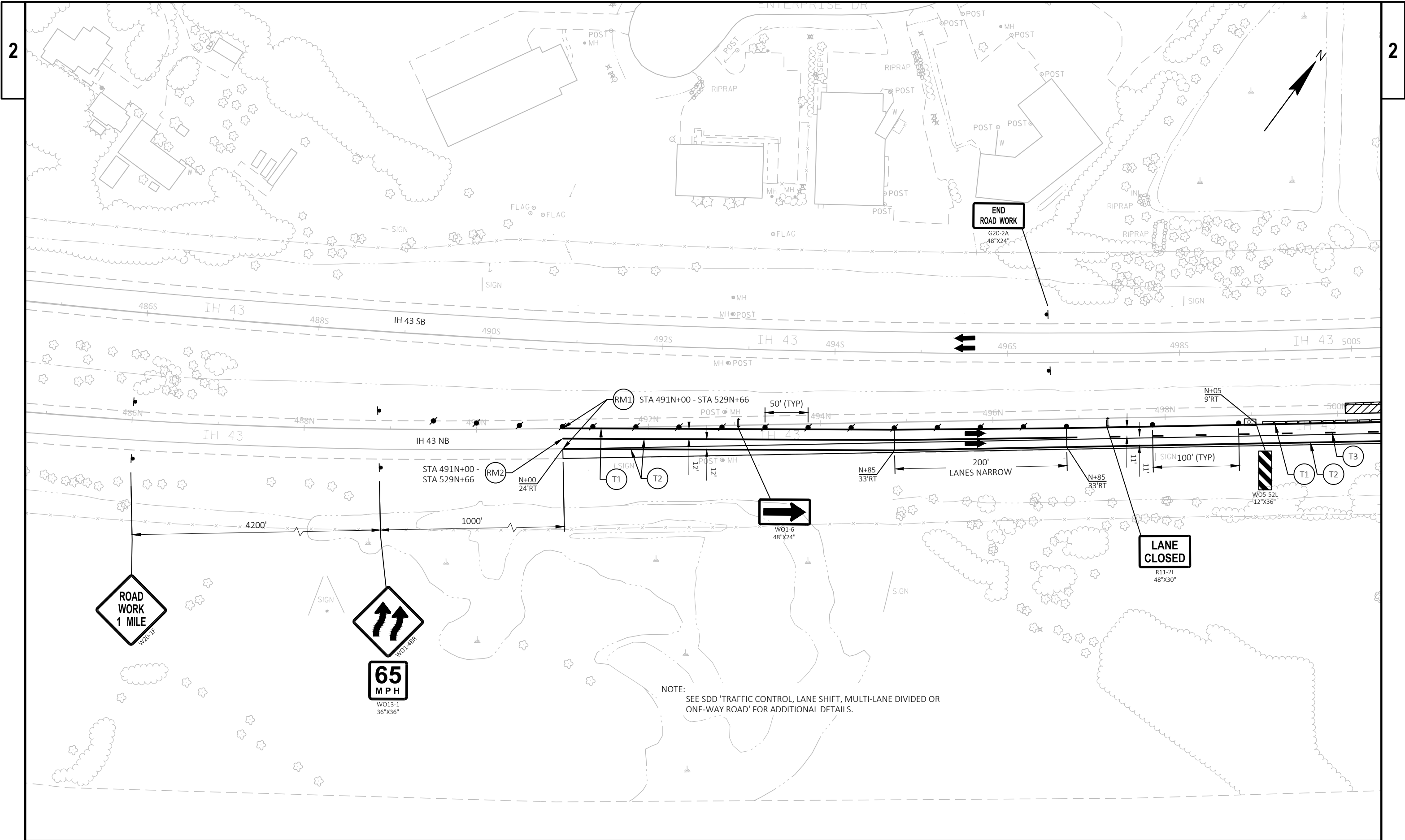
COUNTY: WAUKESHA

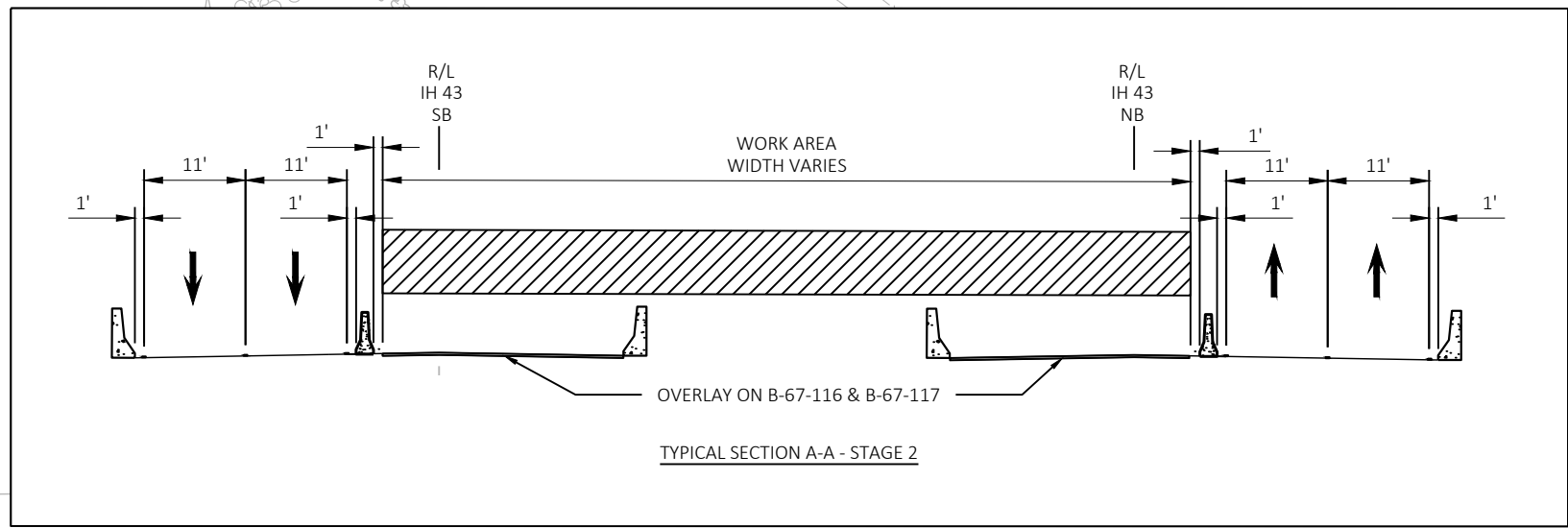
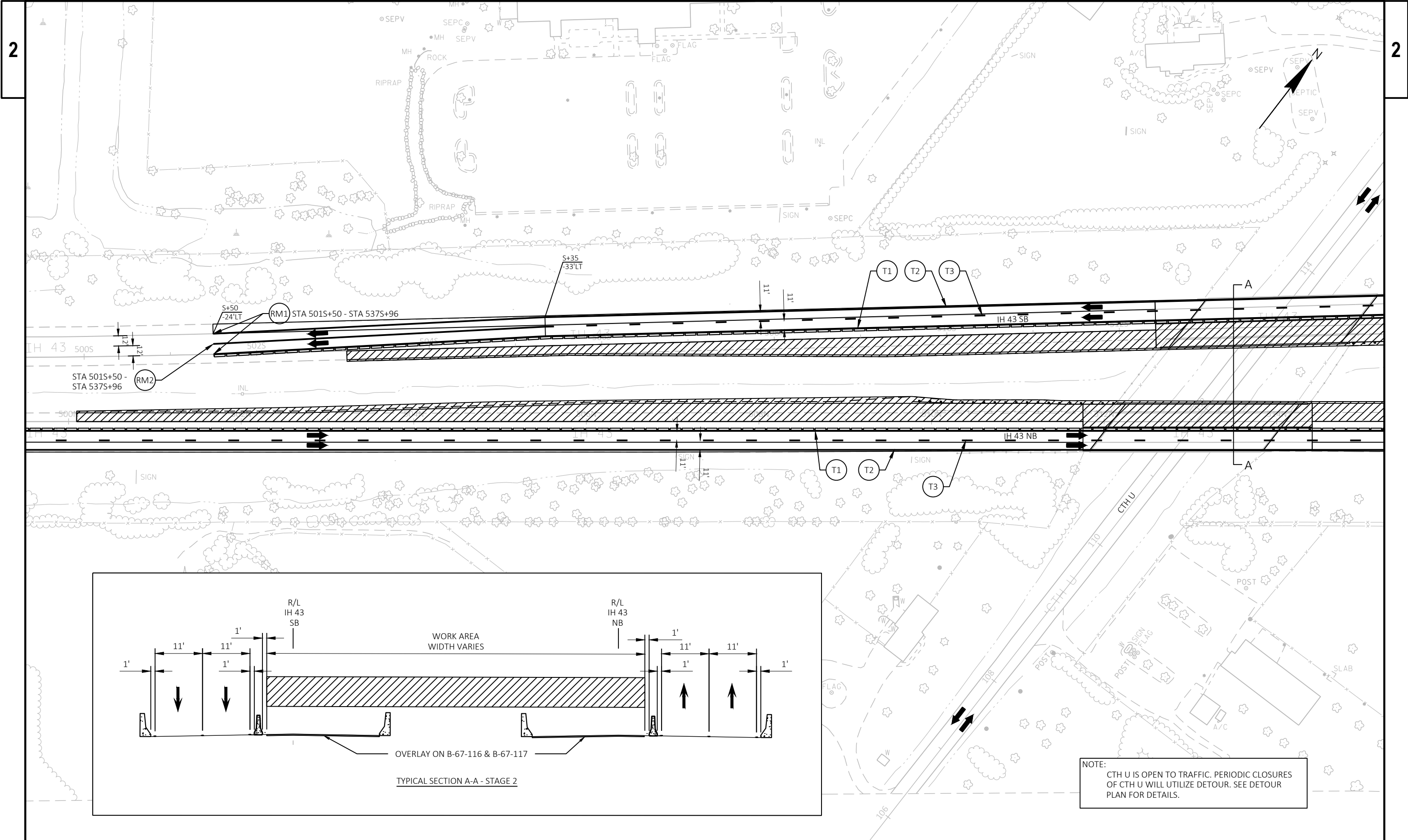
TRAFFIC CONTROL - STAGE 2

SHEET

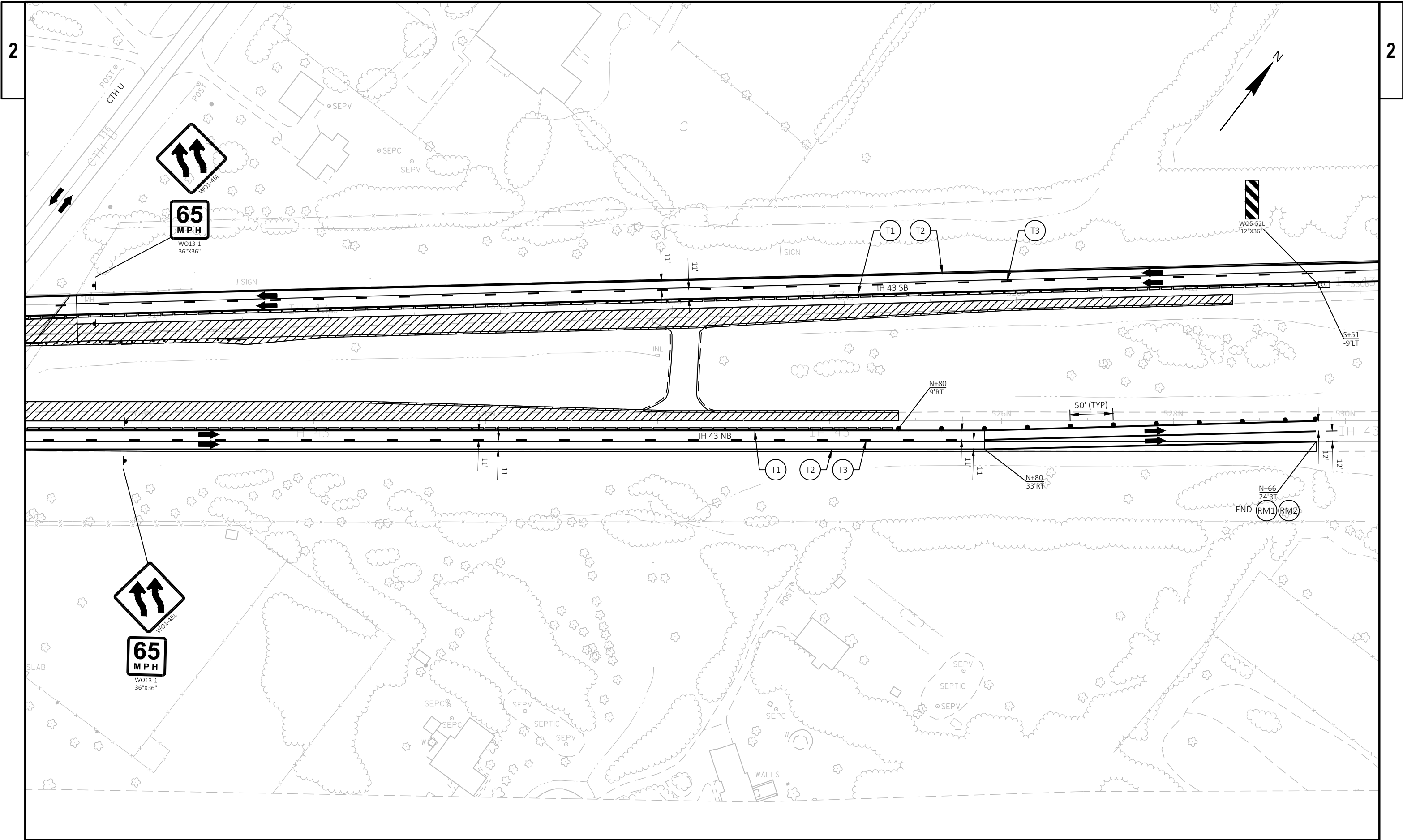
26

E



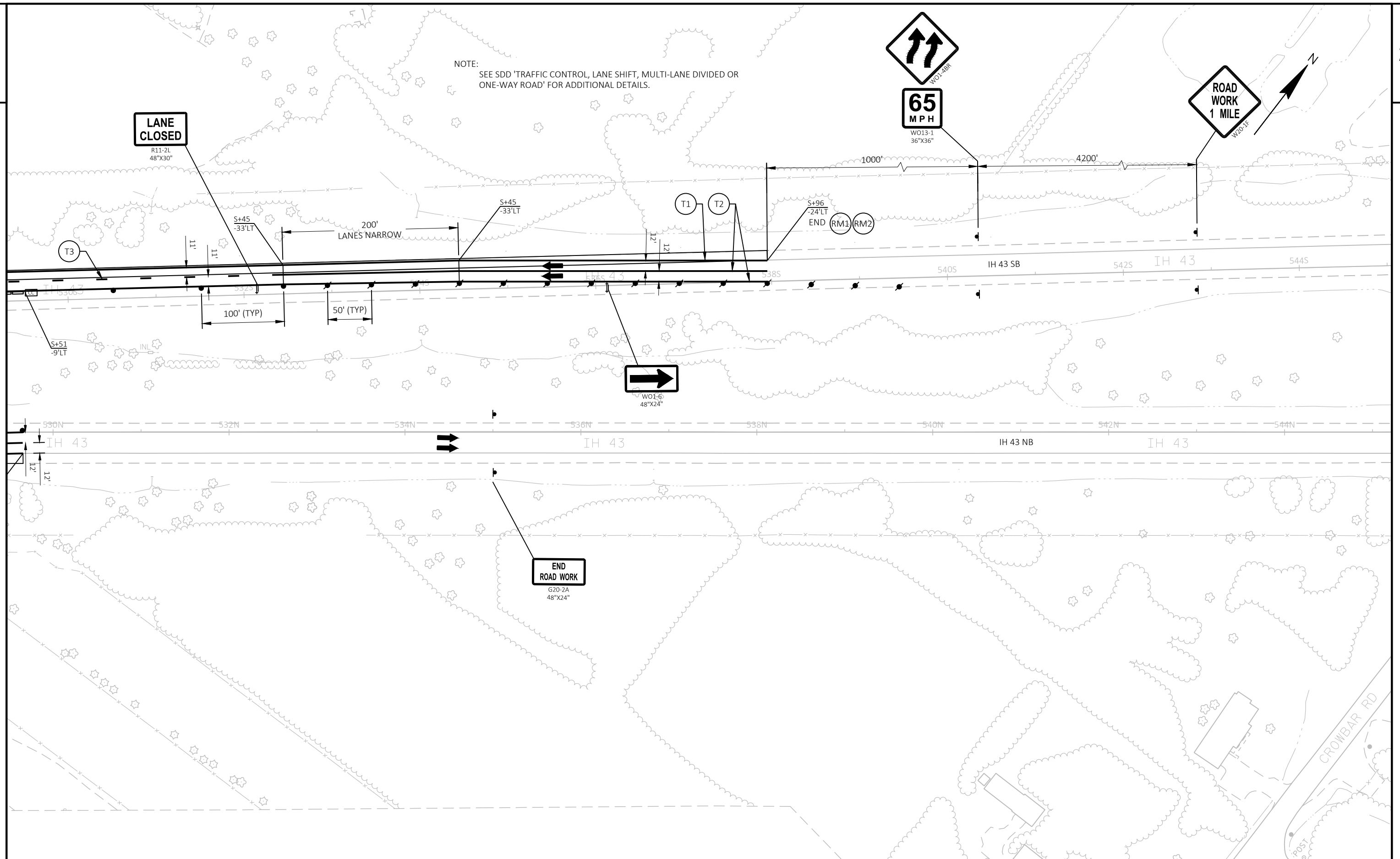


NOTE:
CTH U IS OPEN TO TRAFFIC. PERIODIC CLOSURES
OF CTH U WILL UTILIZE DETOUR. SEE DETOUR
PLAN FOR DETAILS.



2

2 |



PROJECT NO:	1090-35-71
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HWY: IH 43

COUNTY: WAUKESHA

TRAFFIC CONTROL - STAGE 2

SHEET

30

I

FILE NAME : N:\PDS\C3D\10903500\71\SPAETH\025121_TC.DWG
LAYOUT NAME - 025124_tc

PLOT DATE : 1/29/2020 3:28 PM

PLOT BY : SPAETH, MICHELE L

PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42



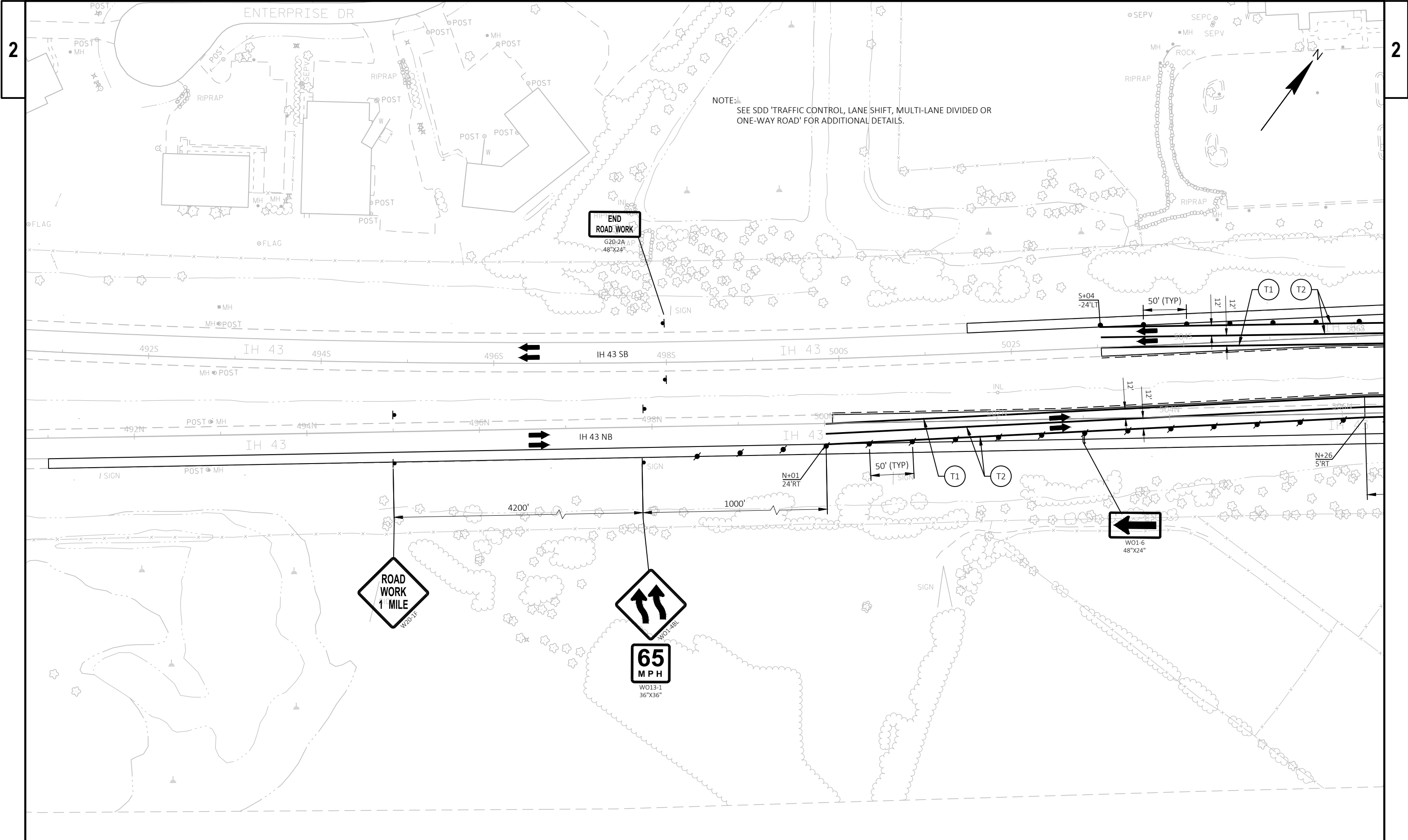
STRUCTURE B-67-117
CONCRETE OVERLAY

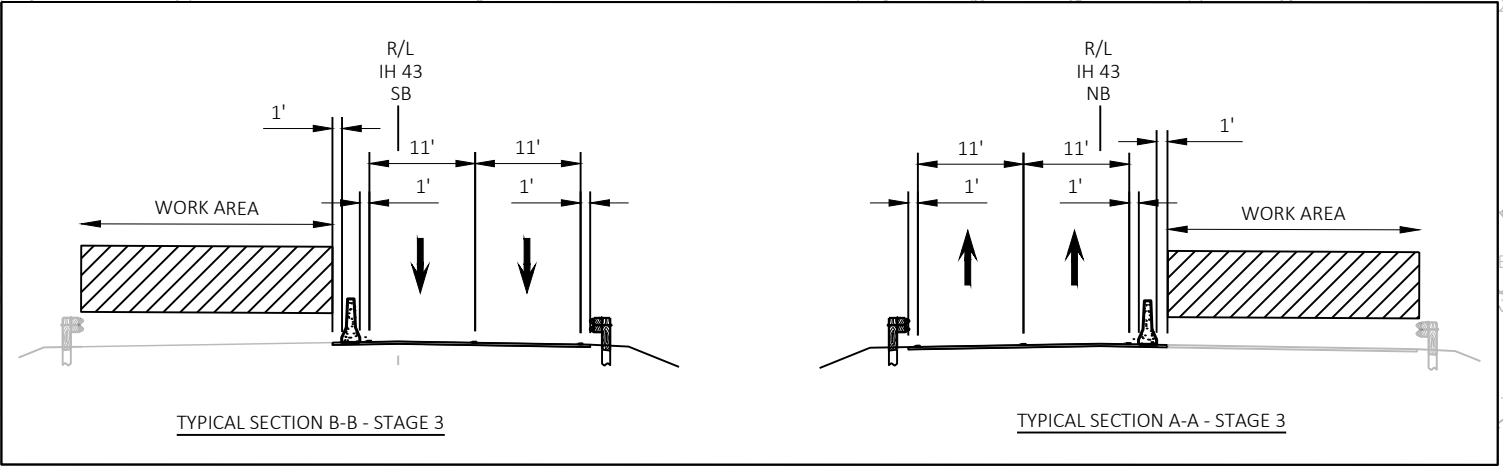
STRUCTURE B-67-116
CONCRETE OVERLAY

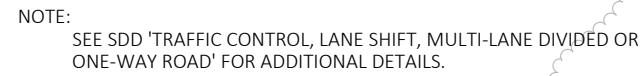
STAGE 3

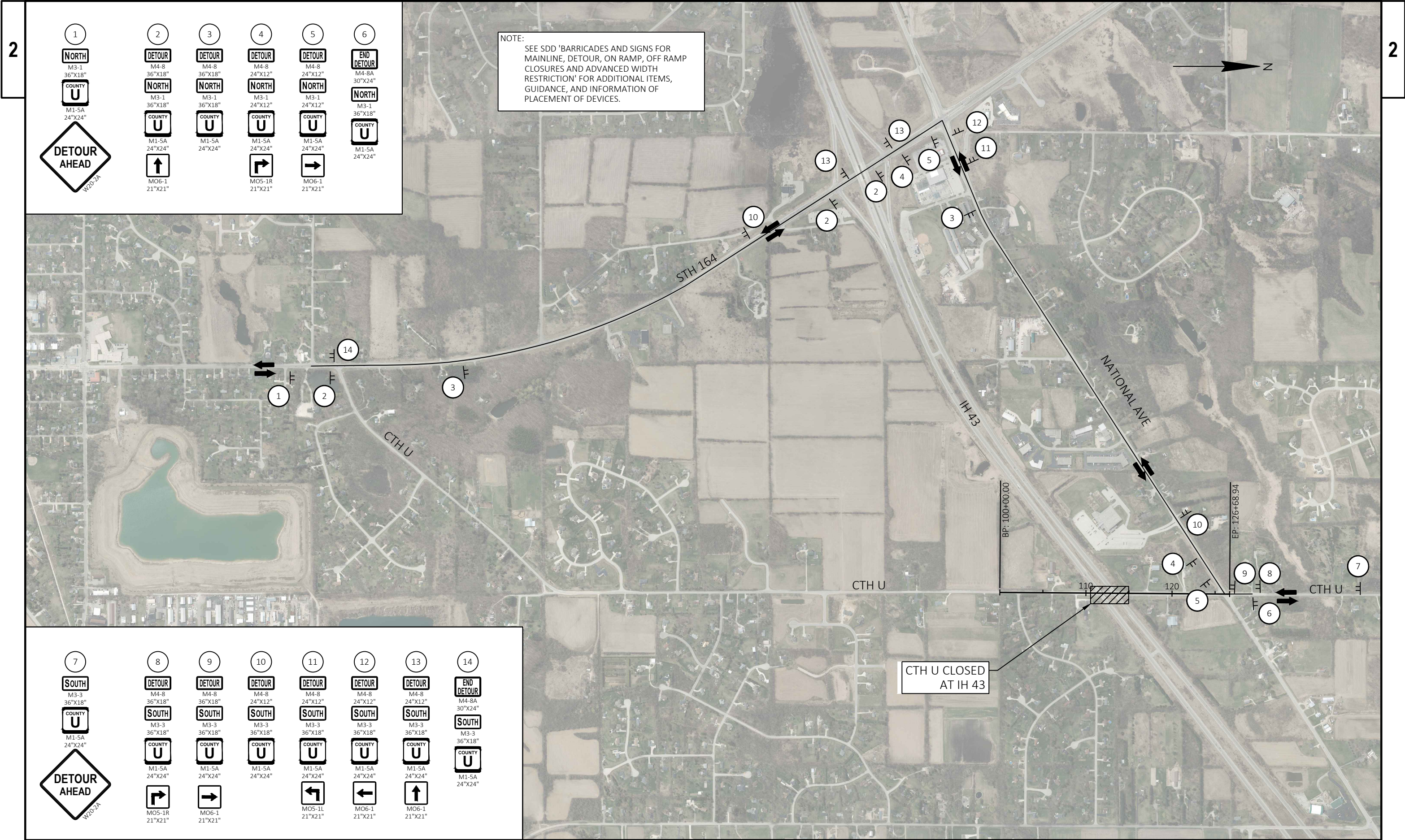
CONSTRUCTION:
COMPLETE CONCRETE OVERLAY OF OUTSIDE LANES OF B-67-116 & 117.

TRAFFIC:
TRAFFIC IS SHIFTED TO INSIDE SHOULDER, AND LANES ARE NARROWED TO 11 FT.







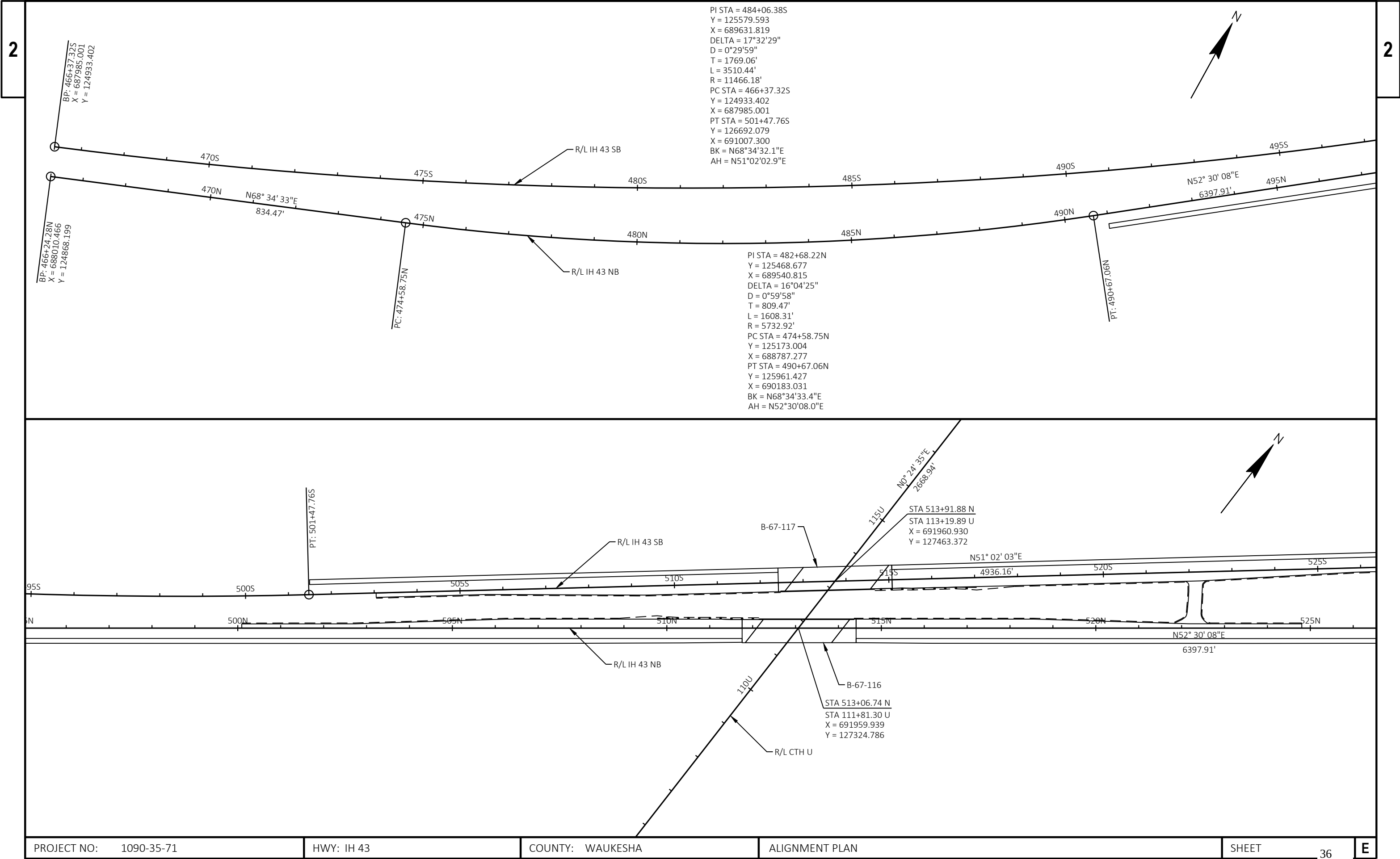


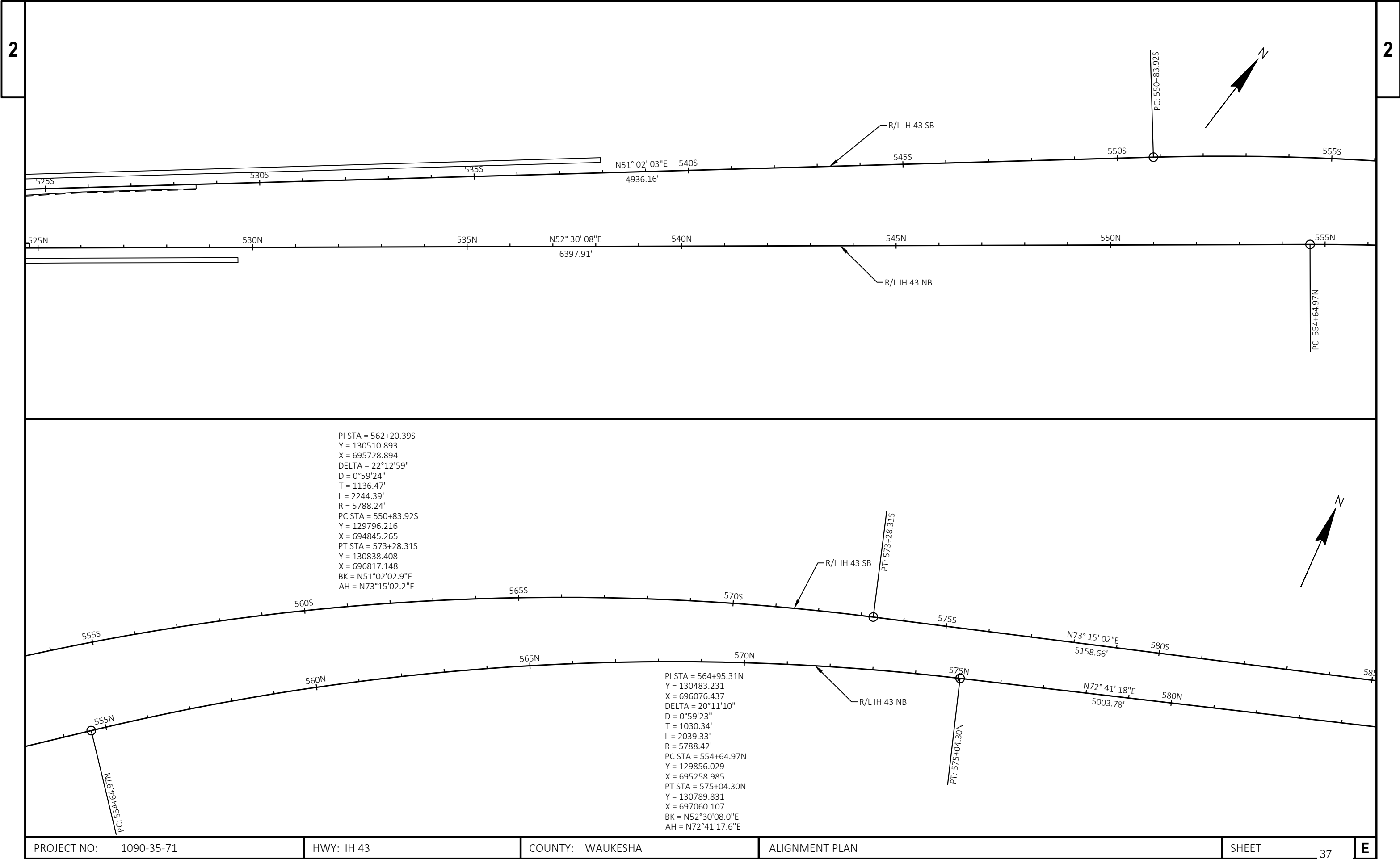
NOTE:
SEE SDD 'BARRICADES AND SIGNS FOR
MAINLINE, DETOUR, ON RAMP, OFF RAMP
CLOSURES AND ADVANCED WIDTH
RESTRICTION' FOR ADDITIONAL ITEMS,
GUIDANCE, AND INFORMATION OF
PLACEMENT OF DEVICES.

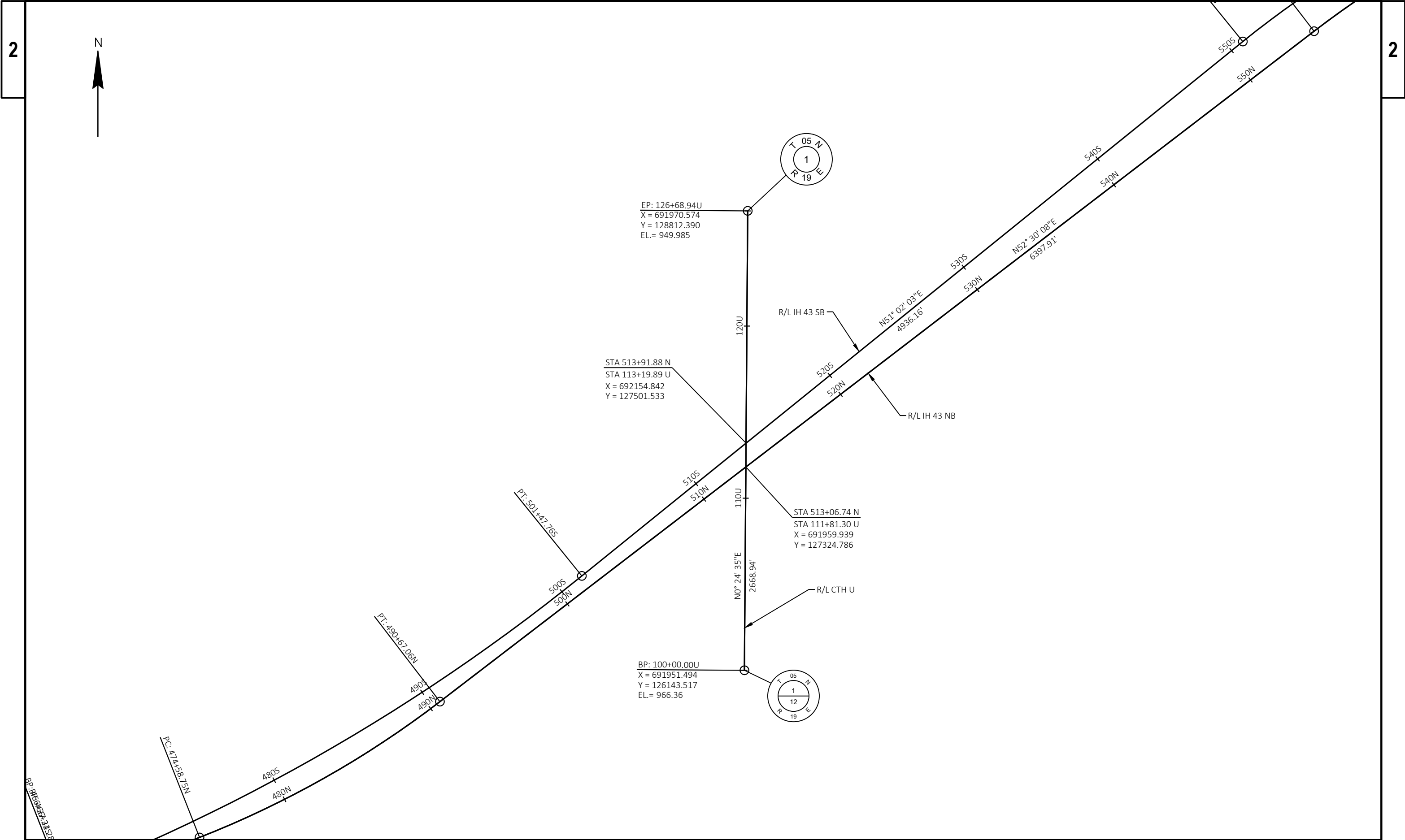
CTH U CLOSED
AT IH 43

7	8	9	10	11	12	13	14
SOUTH M3-3 36"x18" COUNTY U M1-5A 24"x24"	DETOUR M4-8 36"x18" SOUTH M3-3 36"x18" COUNTY U M1-5A 24"x24"	DETOUR M4-8 36"x18" SOUTH M3-3 36"x18" COUNTY U M1-5A 24"x24"	DETOUR M4-8 24"x12" SOUTH M3-3 36"x18" COUNTY U M1-5A 24"x24"	DETOUR M4-8 24"x12" SOUTH M3-3 36"x18" COUNTY U M1-5A 24"x24"	DETOUR M4-8 24"x12" SOUTH M3-3 36"x18" COUNTY U M1-5A 24"x24"	DETOUR M4-8 24"x12" SOUTH M3-3 36"x18" COUNTY U M1-5A 24"x24"	END DETOUR M4-8A 30"x24" SOUTH M3-3 36"x18" COUNTY U M1-5A 24"x24"
DETOUR AHEAD W20-2A	MO5-1R 21"x21"	MO6-1 21"x21"	MO5-1L 21"x21"	MO6-1 21"x21"	MO6-1 21"x21"	MO6-1 21"x21"	

1	2	3	4	5	6
NORTH M3-1 36"x18" COUNTY U M1-5A 24"x24"	DETOUR M4-8 36"x18" NORTH M3-1 36"x18" COUNTY U M1-5A 24"x24"	DETOUR M4-8 36"x18" NORTH M3-1 36"x18" COUNTY U M1-5A 24"x24"	DETOUR M4-8 24"x12" NORTH M3-1 24"x12" COUNTY U M1-5A 24"x24"	DETOUR M4-8 24"x12" NORTH M3-1 24"x12" COUNTY U M1-5A 24"x24"	END DETOUR M4-8A 30"x24" NORTH M3-1 36"x18" COUNTY U M1-5A 24"x24"
DETOUR AHEAD W20-2A	MO6-1 21"x21"	MO5-1R 21"x21"	MO6-1 21"x21"		







Estimate Of Quantities

1090-35-71					
Line	Item	Item Description	Unit	Total	Qty
0002	203.0200	Removing Old Structure (station) 0001. Sta. 513+07	LS	1.000	1.000
0004	203.0200	Removing Old Structure (station) 0002. STA. 513+74	LS	1.000	1.000
0006	203.0210.S	Abatement of Asbestos Containing Material (structure) 0001. B-67-0116	LS	1.000	1.000
0008	203.0210.S	Abatement of Asbestos Containing Material (structure) 0002. B-67-0117	LS	1.000	1.000
0010	204.0100	Removing Pavement	SY	639.000	639.000
0012	204.0120	Removing Asphaltic Surface Milling	SY	8,865.000	8,865.000
0014	204.0165	Removing Guardrail	LF	641.000	641.000
0016	204.0170	Removing Fence	LF	218.000	218.000
0018	205.0100	Excavation Common	CY	9,611.000	9,611.000
0020	206.1000	Excavation for Structures Bridges (structure) 0001. B-67-0116	LS	1.000	1.000
0022	206.1000	Excavation for Structures Bridges (structure) 0002. B-67-0117	LS	1.000	1.000
0024	210.1500	Backfill Structure Type A	TON	687.000	687.000
0026	213.0100	Finishing Roadway (project) 0001. 1090-35-71	EACH	1.000	1.000
0028	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	6,289.000	6,289.000
0030	311.0110	Breaker Run	TON	6,984.000	6,984.000
0032	415.0410	Concrete Pavement Approach Slab	SY	784.000	784.000
0034	465.0105	Asphaltic Surface	TON	915.000	915.000
0036	465.0125	Asphaltic Surface Temporary	TON	2,448.000	2,448.000
0038	465.0400	Asphaltic Shoulder Rumble Strips	LF	11,467.000	11,467.000
0040	502.0100	Concrete Masonry Bridges	CY	440.000	440.000
0042	502.3101	Expansion Device	LF	277.000	277.000
0044	502.3200	Protective Surface Treatment	SY	2,401.000	2,401.000
0046	502.3210	Pigmented Surface Sealer	SY	348.000	348.000
0048	502.3215.S	Protective Surface Treatment Reseal	SY	59.000	59.000
0050	502.4204	Adhesive Anchors No. 4 Bar	EACH	24.000	24.000
0052	502.4205	Adhesive Anchors No. 5 Bar	EACH	220.000	220.000
0054	502.4206	Adhesive Anchors No. 6 Bar	EACH	56.000	56.000
0056	502.4208	Adhesive Anchors No. 8 Bar	EACH	20.000	20.000
0058	505.0400	Bar Steel Reinforcement HS Structures	LB	71,400.000	71,400.000
0060	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	16,530.000	16,530.000
0062	506.0105	Structural Steel Carbon	LB	8,820.000	8,820.000
0064	506.0605	Structural Steel HS	LB	98,170.000	98,170.000
0066	506.3020	Welded Stud Shear Connectors 7/8x7-Inch	EACH	495.000	495.000
0068	506.5000	Bearing Assemblies Fixed (structure) 0001. B-67-0116	EACH	1.000	1.000
0070	506.5000	Bearing Assemblies Fixed (structure) 0002. B-67-0117	EACH	1.000	1.000
0072	506.6000	Bearing Assemblies Expansion (structure) 0001. B-67-0116	EACH	3.000	3.000

Estimate Of Quantities

1090-35-71

Line	Item	Item Description	Unit	Total	Qty
0074	506.6000	Bearing Assemblies Expansion (structure) 0002. B-67-0117	EACH	3.000	3.000
0076	509.0301	Preparation Decks Type 1	SY	598.000	598.000
0078	509.0302	Preparation Decks Type 2	SY	380.000	380.000
0080	509.0505.S	Cleaning Decks to Reapply Concrete Masonry Overlay	SY	1,786.000	1,786.000
0082	509.1000	Joint Repair	SY	91.000	91.000
0084	509.1200	Curb Repair	LF	115.000	115.000
0086	509.1500	Concrete Surface Repair	SF	245.000	245.000
0088	509.2000	Full-Depth Deck Repair	SY	2.000	2.000
0090	509.2500	Concrete Masonry Overlay Decks	CY	339.000	339.000
0092	509.9005.S	Removing Concrete Masonry Deck Overlay (structure) 0002. B-67-0117	SY	920.000	920.000
0094	509.9010.S	Removing Asphaltic Concrete Deck Overlay (structure) 0002. B-67-0117	SY	920.000	920.000
0096	511.1200	Temporary Shoring (structure) 0001. B-67-0116	SF	742.000	742.000
0098	511.1200	Temporary Shoring (structure) 0002. B-67-0117	SF	742.000	742.000
0100	516.0500	Rubberized Membrane Waterproofing	SY	36.000	36.000
0102	517.0600	Painting Epoxy System (structure) 0001. B-67-0116	LS	1.000	1.000
0104	517.0600	Painting Epoxy System (structure) 0002. B-67-0117	LS	1.000	1.000
0106	517.1800.S	Structure Repainting Recycled Abrasive (structure) 0001. B-67-0116	LS	1.000	1.000
0108	517.1800.S	Structure Repainting Recycled Abrasive (structure) 0002. B-67-0117	LS	1.000	1.000
0110	517.4500.S	Negative Pressure Containment and Collection of Waste Materials (structure) 0001. B-67-0116	LS	1.000	1.000
0112	517.4500.S	Negative Pressure Containment and Collection of Waste Materials (structure) 0002. B-67-0117	LS	1.000	1.000
0114	517.6001.S	Portable Decontamination Facility	EACH	1.000	1.000
0116	550.2106	Piling CIP Concrete 10 3/4 X 0.365-Inch	LF	3,020.000	3,020.000
0118	603.8000	Concrete Barrier Temporary Precast Delivered	LF	6,298.000	6,298.000
0120	603.8125	Concrete Barrier Temporary Precast Installed	LF	6,298.000	6,298.000
0122	604.0400	Slope Paving Concrete	SY	334.000	334.000
0124	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	2.000	2.000
0126	614.0905	Crash Cushions Temporary	EACH	4.000	4.000
0128	614.2300	MGS Guardrail 3	LF	280.000	280.000
0130	614.2500	MGS Thrie Beam Transition	LF	78.000	78.000
0132	614.2610	MGS Guardrail Terminal EAT	EACH	2.000	2.000
0134	616.0100	Fence Woven Wire (height) 0001. 4-FT	LF	166.000	166.000
0136	618.0100	Maintenance And Repair of Haul Roads (project) 0001. 1090-35-71	EACH	1.000	1.000
0138	619.1000	Mobilization	EACH	1.000	1.000

Estimate Of Quantities

1090-35-71

Line	Item	Item Description	Unit	Total	Qty
0140	625.0500	Salvaged Topsoil	SY	19,583.000	19,583.000
0142	628.1504	Silt Fence	LF	118.000	118.000
0144	628.1520	Silt Fence Maintenance	LF	14.000	14.000
0146	628.1905	Mobilizations Erosion Control	EACH	28.000	28.000
0148	628.1910	Mobilizations Emergency Erosion Control	EACH	14.000	14.000
0150	628.2004	Erosion Mat Class I Type B	SY	19,583.000	19,583.000
0152	628.7020	Inlet Protection Type D	EACH	2.000	2.000
0154	628.7504	Temporary Ditch Checks	LF	240.000	240.000
0156	629.0210	Fertilizer Type B	CWT	13.000	13.000
0158	630.0130	Seeding Mixture No. 30	LB	352.000	352.000
0160	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	16.000	16.000
0162	637.2210	Signs Type II Reflective H	SF	32.000	32.000
0164	637.2230	Signs Type II Reflective F	SF	24.000	24.000
0166	638.2102	Moving Signs Type II	EACH	6.000	6.000
0168	638.2602	Removing Signs Type II	EACH	7.000	7.000
0170	638.3000	Removing Small Sign Supports	EACH	16.000	16.000
0172	642.5401	Field Office Type D	EACH	1.000	1.000
0174	643.0300	Traffic Control Drums	DAY	21,938.000	21,938.000
0176	643.0420	Traffic Control Barricades Type III	DAY	1,010.000	1,010.000
0178	643.0705	Traffic Control Warning Lights Type A	DAY	2,020.000	2,020.000
0180	643.0715	Traffic Control Warning Lights Type C	DAY	7,763.000	7,763.000
0182	643.0800	Traffic Control Arrow Boards	DAY	375.000	375.000
0184	643.0900	Traffic Control Signs	DAY	10,586.000	10,586.000
0186	643.1050	Traffic Control Signs PCMS	DAY	93.000	93.000
0188	643.4100.S	Traffic Control Interim Lane Closure	EACH	8.000	8.000
0190	643.5000	Traffic Control	EACH	1.000	1.000
0192	646.1020	Marking Line Epoxy 4-Inch	LF	15,460.000	15,460.000
0194	646.1555	Marking Line Grooved Contrast Permanent Tape 4-Inch	LF	1,888.000	1,888.000
0196	646.7120	Marking Diagonal Epoxy 12-Inch	LF	1,075.000	1,075.000
0198	646.9010	Marking Removal Line Water Blasting 4-Inch	LF	15,460.000	15,460.000
0200	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	32,133.000	32,133.000
0202	690.0150	Sawing Asphalt	LF	4,527.000	4,527.000
0204	690.0250	Sawing Concrete	LF	178.000	178.000
0206	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0208	715.0502	Incentive Strength Concrete Structures	DOL	4,674.000	4,674.000
0210	SPV.0060	Special 0001. Embedded Galvanic Anodes	EACH	65.000	65.000
0212	SPV.0060	Special 0002. Mobilizations Emergency Pavement Repair	EACH	4.000	4.000
0214	SPV.0075	Special 0001. Pavement Cleanup Project 1090-35-71	HRS	40.000	40.000
0216	SPV.0090	Special 0001. Remove Pavement Marking Grooved	LF	1,888.000	1,888.000

Estimate Of Quantities

1090-35-71					
Line	Item	Item Description	Unit	Total	Qty
		Tape 4"			
0218	SPV.0090	Special 0002. Steel Thrie Beam Railing Retrofit	LF	446.000	446.000
0220	SPV.0105	Special 0001. Vegetation Removal B-67-0116	LS	1.000	1.000
0222	SPV.0105	Special 0002. Vegetation Removal B-67-0117	LS	1.000	1.000
0224	SPV.0105	Special 0003. Survey Project 1090-35-71	LS	1.000	1.000
0226	SPV.0180	Special 0001. Removing Asphaltic Concrete Deck Overlay Special	SY	929.000	929.000

REMOVING PAVEMENT

CATEGORY	ROADWAY	STATION	TO	STATION	OFFSET	204.0100	204.0120	
							REMOVING	
						REMOVING PAVEMENT SY	REMOVING ASPHALTIC SURFACE MILLING SY	
1000	IH 43 NB	491N+00		512N+17		119	2,575	
		513N+84		529N+66		195	1,890	
		501S+50		513S+02		203	1,300	
		514S+65		537S+96		122	2697	
		522N+30			MEDIAN	--	403	
TOTALS:							639	8,865

SAWING

						690.0150	690.0250
						SAWING	SAWING
						ASPHALT	CONCRETE
CATEGORY	ROADWAY	STATION	TO	STATION	OFFSET	LF	LF
1000	IH 43	500N+09		511N+75		1176	44
		514N+41		524N+80		1049	44
		503S+22		512S+60		948	45
		515S+25		528S+69		1354	45
TOTAL:						4,527	178

REMOVING GUARDRAIL

						204.0165
						REMOVING
						GUARDRAIL
CATEGORY	ROADWAY	STA	TO	STA	OFFSET	LF
1000	IH 43	509N+89		512N+07	LT	323
		514S+75		516S+91	RT	318
TOTAL:						641

REMOVING FENCE

				204.0170
				REMOVING
				FENCE
CATEGORY	ROADWAY	STA	OFFSET	LF
1000	IH 43	512N+54	LT	108
		514N+51	LT	110
TOTAL:				218

FINISHING ROADWAY PROJECT ID 1090-35-71

CATEGORY	STAGE	LOCATION	213.0100
			FINISHING ROADWAY (1090-35-71) EACH
1000	ALL	PROJECT	1
TOTAL:			1

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)		SALVAGED/ UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	EXPANDED EBS BACKFILL (6)	UNEXPANDED FILL	EXPANDED FILL (7)	MASS ORDINATE +/- (8)	WASTE	BORROW	COMMENT:
			CUT (2)	EBS EXCAVATION (3)			FACTOR 1.10		FACTOR 1.20				
DIVISION 1													
IH 43	500+00/528+70		8,562	1,049	0	8,562	1,154	3,203	3,844	4,717	4,717	0	
DIVISION 1 SUBTOTAL			8,562	1,049	0	8,562	1,154	3,203	3,844	4,717	4,717	0	SEE NOTE 15
GRAND TOTAL			8,562	1,049	0	8,562	1,154	3,203	3,844	4,717	4,717	0	
TOTAL COMMON EXC			9,611										

NOTES:

(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100

(2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.

(3) EBS EXCAVATION TO BE INCLUDED IN WASTE MATERIAL.

(4) SALVAGED/UNUSABLE PAVEMENT MATERIAL

(5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL

(6) EXPANDED EBS BACKFILL - THIS IS TO BE FILLED WITH BREAKER RUN MATERIAL. UNDISTRIBUTED QUANTITY OF BREAKER RUN MATERIAL INCLUDED ON 'BASE AGGREGATE ITEMS TABLE'. EBS BACKFILL FACTOR = 1.1. ITEM NUMBER 311.011

(7) EXPANDED FILL FACTOR = 1.2

EXPANDED FILL = (UNEXPANDED FILL) * FILL FACTOR

(8) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

BASE AGGREGATE ITEMS

				305.0120	311.0110
				BASE	BREAKER
				AGGREGATE	RUN
				DENSE 1 1/4-INCH	
CATEGORY	ROADWAY	STATION	TO STATION	TON	TON
1000	IH 43 NB	491N+00	512N+17	1,677	1,547
	IH 43 NB	513N+84	529N+66	1,407	1,313
	IH 43 SB	501S+50	513S+02	1,240	1,162
	IH 43 SB	514S+65	537S+96	1,966	1,808
	UNDISTRIBUTED			--	1,154
TOTALS:				6,289	6,984

ASPHALTIC PAVEMENT ITEMS

				465.0105	465.0125	465.0400
				ASPHALTIC SURFACE	ASPHALTIC SURFACE TEMPORARY	ASPHALT SHOULDER RUMBLE STRIPS
CATEGORY	STATION	TO	STATION	TON	TON	LF
1000	491N+00		512N+17	266	646	3241
	513N+84		529N+66	195	553	2564
	501S+50		513S+02	134	484	2030
	514S+65		537S+96	278	765	3,632
	522N+30		--	42	--	--
TOTALS:				915	2,448	11,467

CONCRETE PAVEMENT APPROACH SLAB

				415.0410	715.0415
				CONCRETE PAVEMENT APPROACH SLAB	INCENTIVE STRENGTH CONCRETE PAVEMENT
CATEGORY	STAGE	ROADWAY	LOCATION	SY	DOL
1000		IH 43 NB	512N+17	171	--
		IH 43 NB	513N+84	217	--
		IH 43 SB	513S+02	224	--
		IH 43 SB	514S+65	172	--
		UNDISTRIBUTED		--	500
TOTAL:				784	500

MIDWEST GUARDRAIL SYSTEM

						614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
CATEGORY	ROADWAY	STATION	TO	STATION	OFFSET			
1000	IH 43	509N+77		512N+15	LT	150	39	1
		514S+85		517S+04	RT	130	39	1
	TOTALS:					280	78	2

3

FENCING ITEMS

616.0100				
FENCE WOVEN WIRE				
CATEGORY	ROADWAY	STATION	OFFSET	4-FT LF
1000	IH 43	512N+54	LT	80
		514N+51	LT	86
TOTALS:				166

MOBILIZATION

619.1000 MOBILIZATION EACH			
CATEGORY	STAGE	LOCATION	EACH
1000	ALL	PROJECT	1
TOTAL:			1

INLET PROTECTION

628.7020 TYPE D EACH				
CATEGORY	ROADWAY	STATION	OFFSET	EACH
1000	IH 43	502N+00	MEDIAN	1
	IH 43	522N+00	MEDIAN	1
TOTALS:				2

MAINTENANCE AND REPAIR OF HAUL ROADS

618.0100 MAINTENANCE AND REPAIR OF HAUL ROADS (1090-35-71) EACH			
CATEGORY	STAGE	LOCATION	EACH
1000	ALL	PROJECT	1
TOTAL:			1

RESTORATION ITEMS

						625.0500 SALVAGED TOPSOIL SY	628.2004 EROSION MAT CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB
CATEGORY	ROADWAY	STATION	TO	STATION	LOCATION	SY	SY	CWT	LB
1000	IH 43 NB	500N+00		512N+63	MEDIAN	7013	7013	5	126
	IH 43 NB	514N+36		528N+69	MEDIAN	12570	12570	8	226
TOTALS:						19,583	19,583	13	352

EROSION CONTROL ITEMS

						628.1504	628.1520	628.1905	628.1910	628.7504
								MOBILIZATIONS	MOBILIZATIONS	TEMPORARY
						SILT	SILT	EROSION	EROSION	DITCH
CATEGORY	ROADWAY	STATION	TO	STATION	LOCATION	FENCE	MAINTENANCE	CONTROL	CONTROL	CHECKS
						LF	LF	EACH	EACH	LF
1000	IH 43	500N+00		529N+00	MEDIAN	93	11	22	11	192
				UNDISTRIBUTED		25	3	6	3	48
TOTALS:						118	14	28	14	240

PROJECT NO: 1090-35-71

HWY: IH 43

COUNTY: WAUKESHA

MISCELLANEOUS QUANTITIES

SHEET:

E

FILE NAME : _____

PLOT DATE : _____

PLOT BY : _____

PLOT NAME : _____

PLOT SCALE : 1:1

3

TRAFFIC CONTROL PROJECT ID 1090-35-71

643.5000 TRAFFIC CONTROL (1090-35-71)			
CATEGORY	STAGE	LOCATION	EACH
1000	ALL	PROJECT	1
TOTAL:			1

TRAFFIC CONTROL LANE CLOSURE

643.4100.S TRAFFIC CONTROL INTERIM LANE CLOSURE		
CATEGORY	ROADWAY	EACH
1000	IH 43 NB	3
	IH 43 SB	3
	UNDISTRIBUTED	2
TOTALS:		8

TRAFFIC CONTROL ITEMS

				643.0300		643.0420		643.0705		643.0715		643.0800		643.0900	
				TRAFFIC CONTROL DRUMS		TRAFFIC CONTROL BARRICADES TYPE III		TRAFFIC CONTROL WARNING LIGHTS TYPE A		TRAFFIC CONTROL WARNING LIGHTS TYPE C		TRAFFIC CONTROL ARROW BOARDS		TRAFFIC CONTROL SIGNS	
CATEGORY	STAGE	LOCATION	STAGE DURATION DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS
1000	1	NB/SB	150	39	5850	--	--	--	--	--	--	2	300	16	2400
	2	NB/SB	90	46	4140	4	360	8	720	29	2610	--	--	30	2700
	3	NB/SB	90	84	7560	4	360	8	720	40	3600	--	--	30	2700
	UNDISTRIBUTED				4388		180		360		1553		75		1950
TOTALS:				21,938		900		1,800		7,763		375		9,750	

* ADDITIONAL QUANTTTIES LISTED ELSEWHERE IN PLAN.

3

TRAFFIC CONTROL ITEMS (DETOUR)

			*		*		*				
			643.0420		643.0705		643.0900		643.1050		
			TRAFFIC		TRAFFIC						
			CONTROL		CONTROL				TRAFFIC		
			WARNING		WARNING		TRAFFIC		CONTROL		
STAGE			BARRICADES		LIGHTS		CONTROL		SIGNS		
DURATION			TYPE III		TYPE A		SIGNS		PCMS		
CATEGORY	STAGE	LOCATION	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS
1000		CTH U NB	10	5	50	10	100	40	400	2	42
		CTH U SB	10	5	50	10	100	36	360	2	42
		UNDISTRIBUTED			10		20		76		9
	TOTALS:			110		220		836		93	

* ADDITIONAL QUANTITIES LISTED ELSEWHERE

FIELD FACILITIES

			642.5401
			FIELD OFFICE
			TYPE D
CATEGORY	STAGE	LOCATION	EACH
1000	ALL	1090-35-70	1
	TOTAL:		1

TEMPORARY CONCRETE BARRIER ITEMS

							603.8000	603.8125	
							CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	
CATEGORY	STAGE	LOCATION	STATION	TO	STATION	OFFSET			
1000	2	IH 43 NB	499N+05		524N+80		2575	2575	
	2	IH 43 SB	501S+50		529S+51		2802	2802	
	3	IH 43 NB	510N+79		515N+00		421	421	
	3	IH 43 SB	511S+78		516S+78		500	500	
TOTALS:							6,298	6,298	

TEMPORARY CONCRETE BARRIER ITEMS

614.0905										
CATEGORY	STAGE	LOCATION	STATION	CRASH CUSHIONS	BACK WIDTH	OBJECT MARKING	CRASH TEST	TRAFFIC DIRECTION	TRAFFIC LOCATION	CRASH CUSHION SHIELDS
				TEMPORARY EACH						
1000	2	IH 43 NB	499N+05	1	2	OM-3L (WO5-52L)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY BARRIER
	2	IH 43 SB	529S+51	1	2	OM-3L (WO5-52L)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY BARRIER
	3	IH 43 NB	510N+79	1	2	OM-3R (WO-52R)	TL-3	UNIDIRECTIONAL	LEFT	TEMPORARY BARRIER
	3	IH 43 SB	516S+78	1	2	OM-3R (WO-52R)	TL-3	UNIDIRECTIONAL	LEFT	TEMPORARY BARRIER
TOTALS:				4						

PAVEMENT MARKING ITEMS

				646.1020		646.1555		646.7120	
				MARKING LINE		MARKING LINE		MARKING	
				EPOXY		GROOVED CONTRAST		DIAGONAL	
				4-INCH		PERMANENT TAPE		EPOXY	
						4-INCH		12-INCH	
				WHITE	YELLOW	WHITE (12.5 FT LINE 37.5 FT SKIP)		YELLOW	
CATEGORY	LOCATION	STATION	STATION	LF	LF	LF		LF	
1000	IH 43 NB	491N+00	529N+65	3,865	3,865	975		527	
	IH 43 SB	501S+50	537S+95	3,865	3,865	913		548	
TOTALS:				7,730	7,730	1,888		1,075	
				15,460		1,888		1,075	

MOBILIZATIONS EMERGENCY PAVEMENT REPAIR

				SPV.0060.0002	
				MOBILIZATIONS	
				EMERGENCY	
				PAVEMENT REPAIR	
CATEGORY	STAGE	LOCATION		EACH	
1000	ALL	PROJECT		4	
TOTAL:				4	

TEMPORARY PAVEMENT MARKING ITEMS

						646.9010		SPV.0090.0001		649.0150	
						MARKING		REMOVE		TEMPORARY	
						REMOVAL LINE		PAVEMENT		MARKING LINE	
						WATER BLASTING		MARKING		REMOVABLE TAPE	
						4-INCH		GROOVED TAPE		4-INCH	
								4"			
CATEGORY	STAGE	LOCATION	STATION	TO	STATION	LF	LF	WHITE	YELLOW	WHITE	
1000	2	IH 43 NB	491N+00		529N+65	7730	975	4835	3866	725	
	2	IH 43 SB	501S+50		537S+95	7730	913	4580	3646	688	
	3	IH 43 NB	491N+00		529N+65	--	--	4129	2480	213	
	3	IH 43 SB	501S+50		537S+95	--	--	4198	2548	225	
SUBTOTALS:						15460	1888	17742	12540	1851	
TOTALS:						15460	1888		32133		

PAVEMENT CLEANUP PROJECT

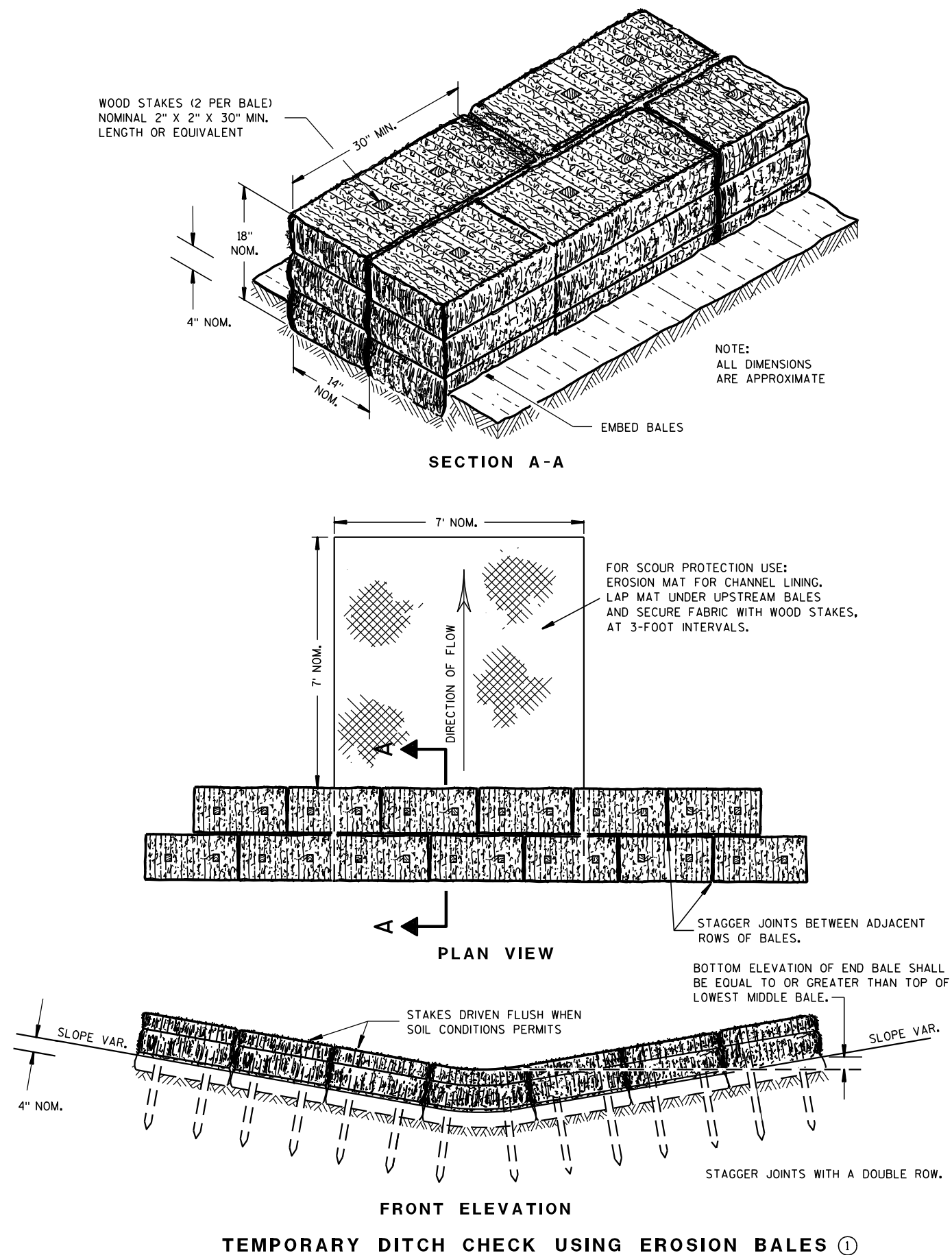
				SPV.0075.0001	
				PAVEMENT CLEANUP	
				PROJECT 1090-35-71	
CATEGORY	STAGE	LOCATION		HR	
1000	ALL	PROJECT		40	
TOTAL:				40	

TYPE II PERMANENT SIGNING -

SIGN NO.	SIGN CODE & SIZE	SIGN MESSAGE	TYPE II SIGN SIZE W x H [IN.] x [IN.]	637.2210 SIGNS TYPE II REFLC H [SF]	637.2230 SIGNS TYPE II REFLC F [SF]	638.2602 REMOVING SIGNS TYPE II [EA]	638.3000 REMOVING SMALL SIGN SUPPORTS [EA]	634.0618 POSTS WOOD 4"X 6"x18' [EA]	638.2102 MOVE SIGNS TYPE II [EA]	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION
1	M1-94						2	2	1		
2	D10-5						1	1	1		4 FOOT MOUNTING HEIGHT
3	W5-52L(5)		12 X 36		6.000	1	1	1			4 FOOT MOUNTING HEIGHT
4	W5-52R(5)		12 X 36		6.000	1	1	1			4 FOOT MOUNTING HEIGHT
5	R8-7						2	2	1		
6	W5-52R(5)		12 X 36		6.000	1	1	1			4 FOOT MOUNTING HEIGHT
7	W5-52L(5)		12 X 36		6.000	1	1	1			4 FOOT MOUNTING HEIGHT
8	D10-5						1	1	1		4 FOOT MOUNTING HEIGHT
9	M1-94						2	2	1		
10	R3-4B(5)		36 X 48	12.000		1	1	1			
11	D10-5 UNDISTRIBUTED			20.000		2	1 2	1 2	1		4 FOOT MOUNTING HEIGHT
TOTALS				32.000	24.000	7	16	16	6		

Standard Detail Drawing List

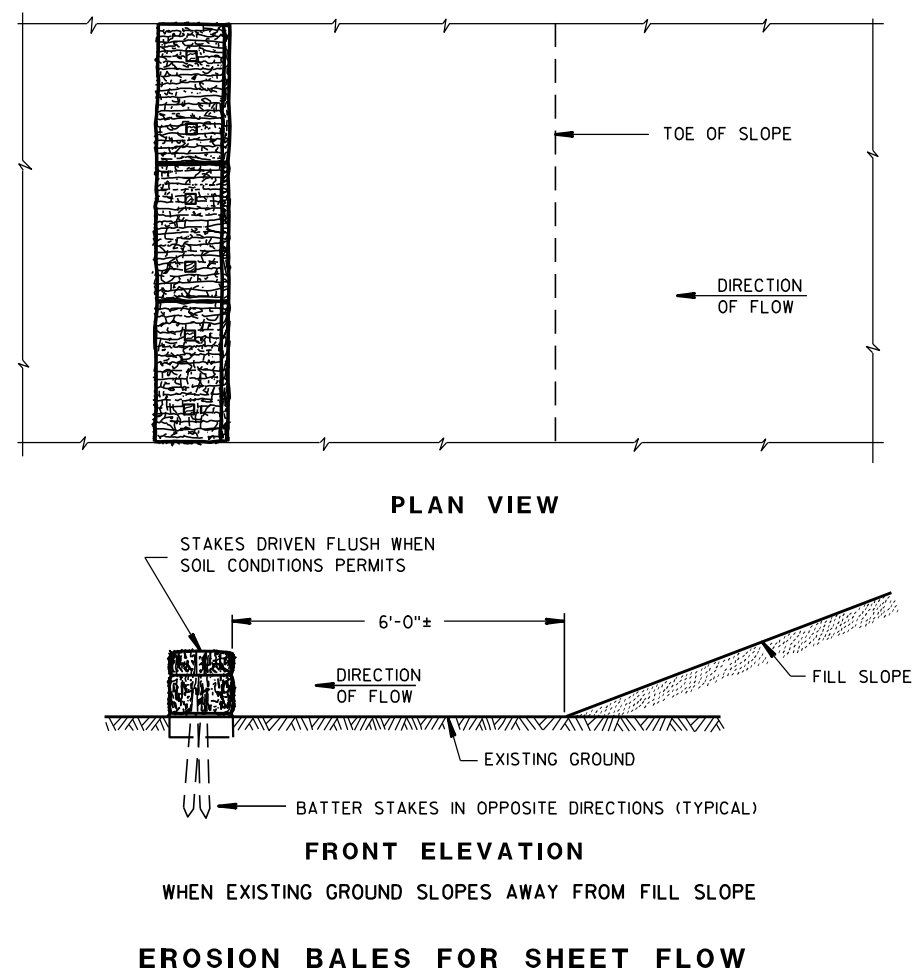
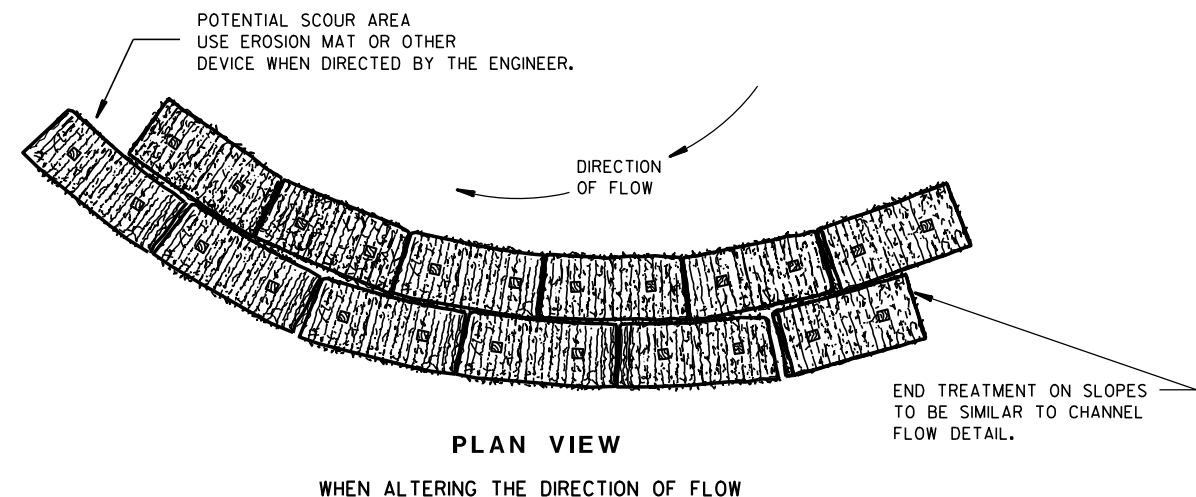
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
11A01-06	MAINTENANCE CROSSOVER FOR FREEWAYS
12A03-10	NAME PLATE (STRUCTURES)
13A05-05A	SHOULDER RUMBLE STRIP, MILLING
13A05-05B	SHOULDER RUMBLE STRIP, MILLING
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15I	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	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)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C02-07A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-07B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-07C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C02-07D	ON RAMP LANE CLOSURE
15C02-07E	OFF RAMP LANE CLOSURE
15C02-07F	ADVANCED WIDTH RESTRICTION SIGNING
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D12-07A	TRAFFIC CONTROL, LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
15D40-01	TRAFFIC CONTROL, LANE SHIFT, MULTILANE DIVIDED OR ONE WAY ROAD
15D41-01	TRAFFIC CONTROL, MULTIPLE LANE SHIFT, MULTILANE DIVIDED ROAD



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 DEVELOPER 52 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.

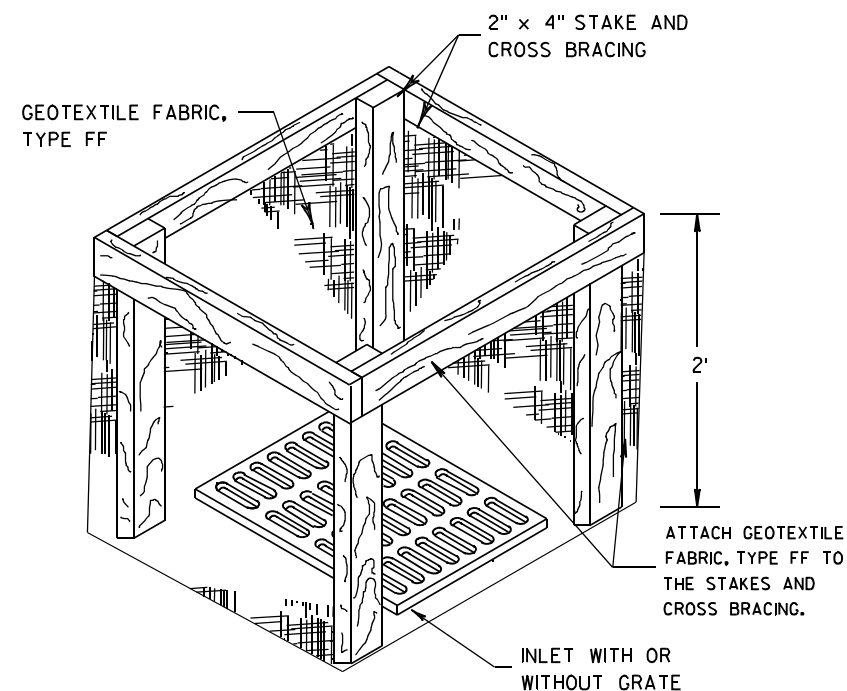
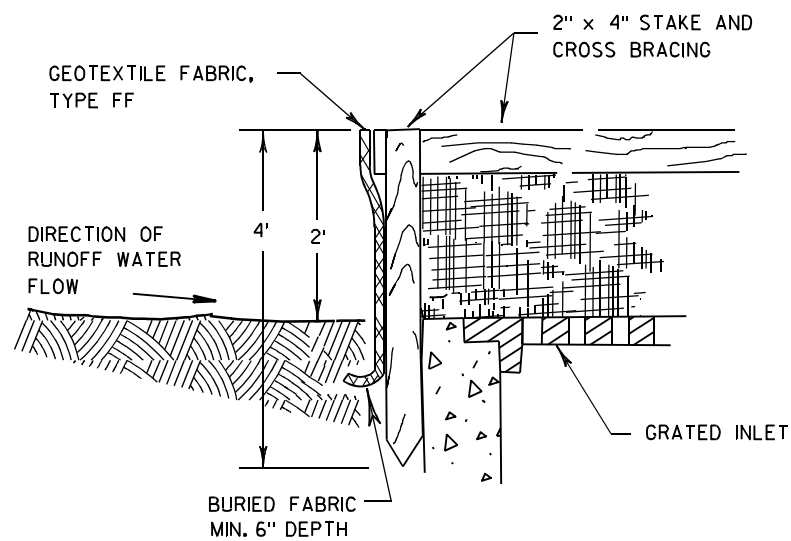


SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



INLET PROTECTION, TYPE A

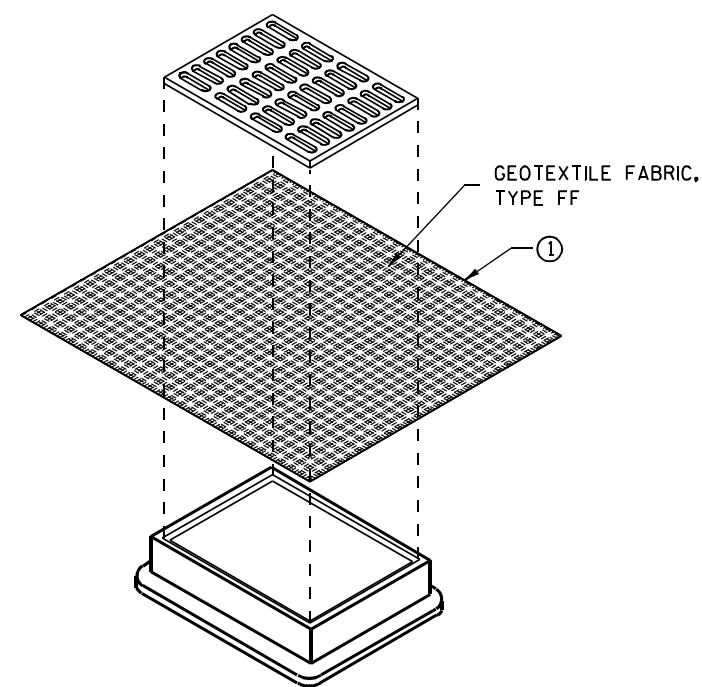
GENERAL NOTES

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

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

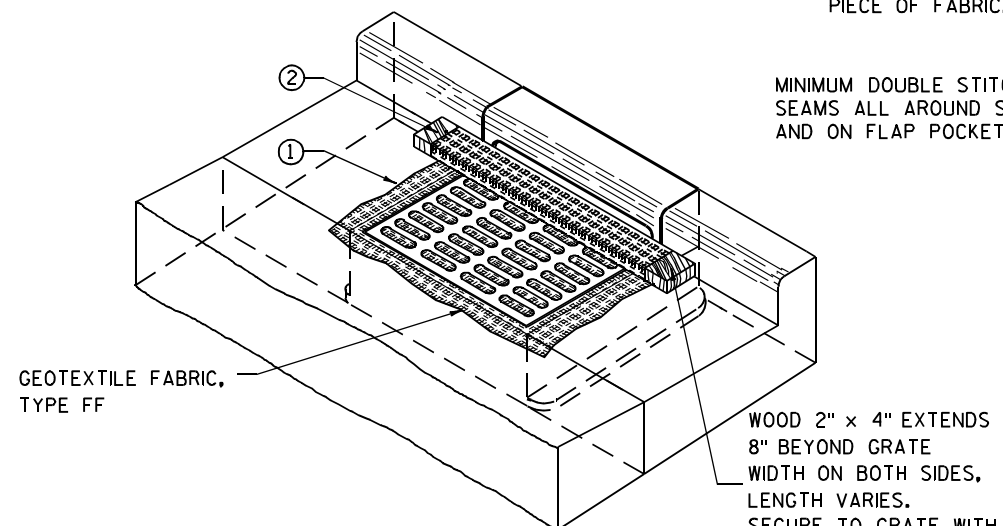
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

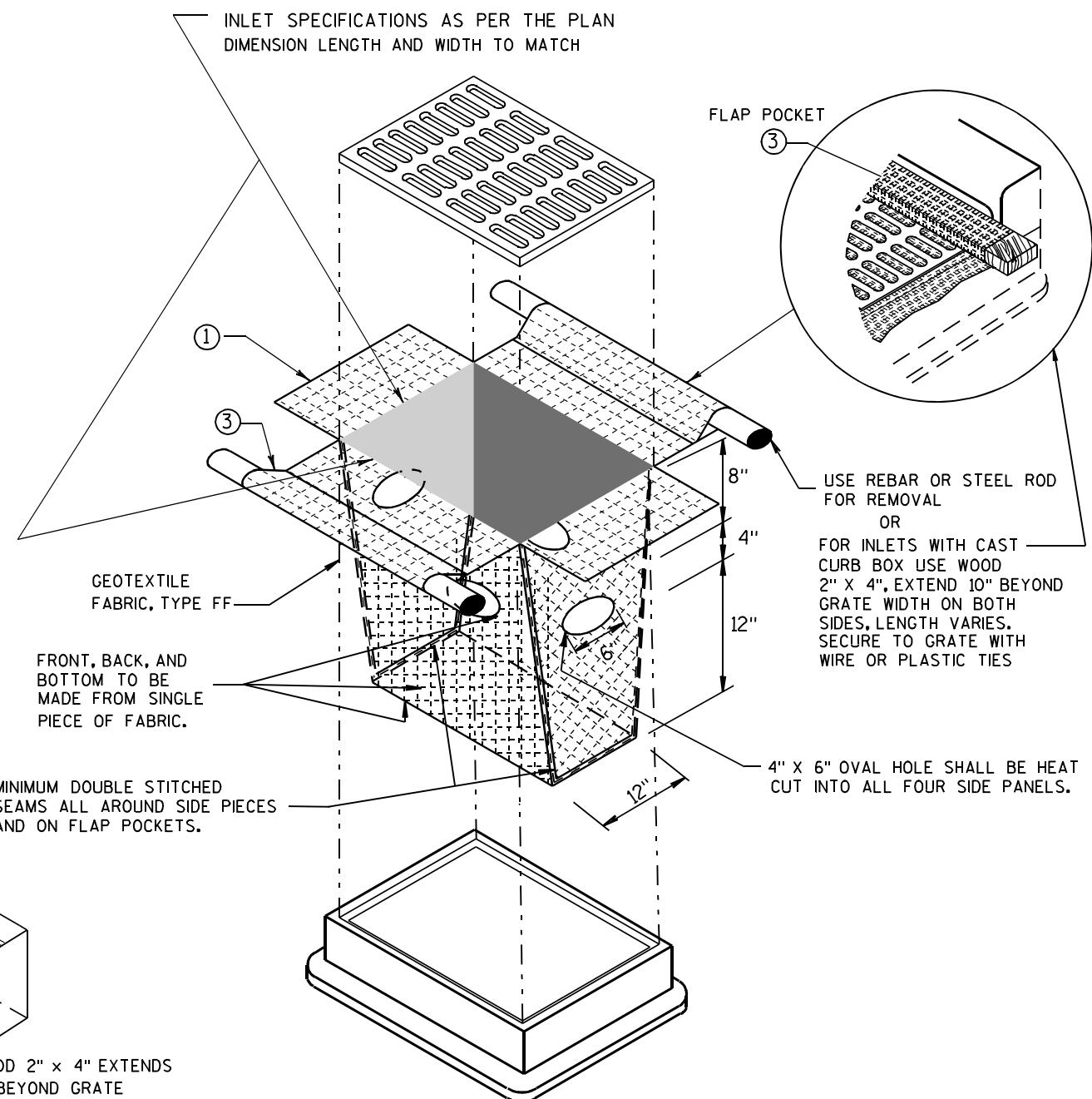
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



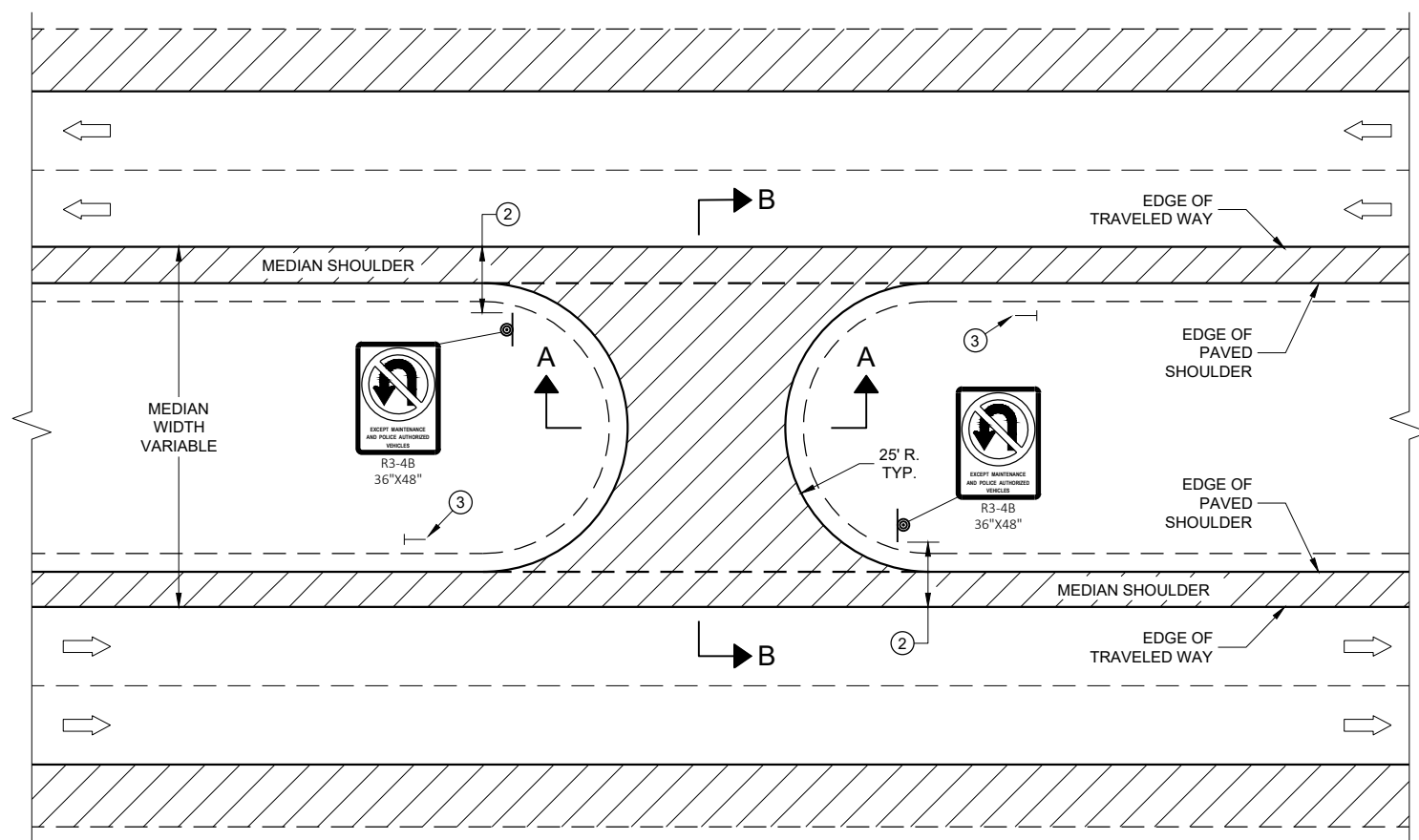
INLET PROTECTION, TYPE D

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

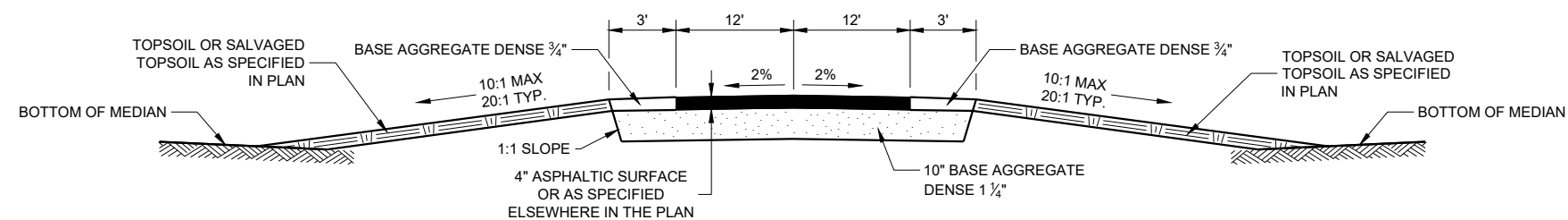
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

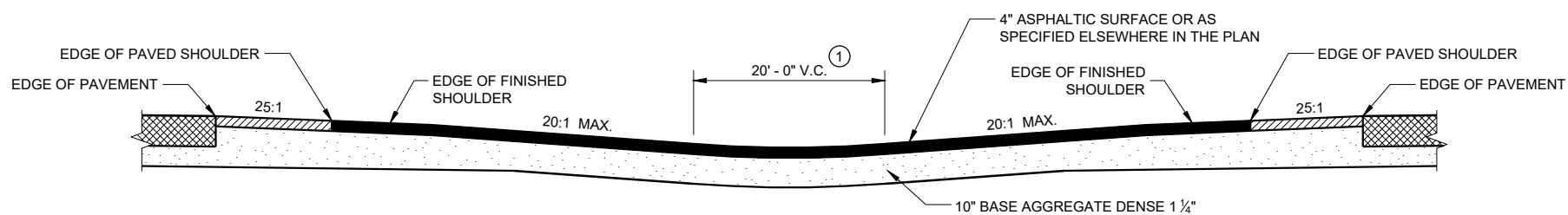
APPROVED
10/16/02 /S/ Beth Connolly
DATE 54
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER



PLAN VIEW



SECTION A-A



SECTION B-B

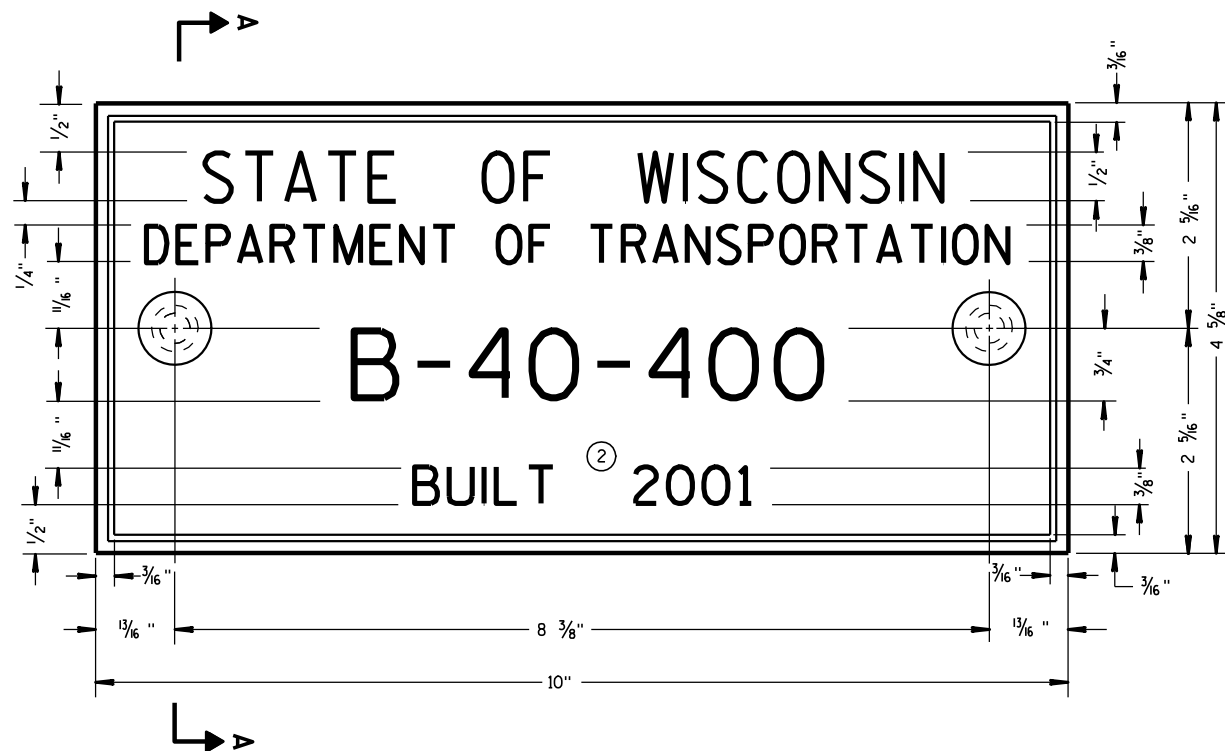
GENERAL NOTES

- ① ADJUST VERTICAL CURVE LOCATION LATERALLY TO MAINTAIN 20:1 MAX.
- ② SIGNING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.
- ③ INSTALL DELINEATOR. SEE STANDARD DETAIL DRAWING 15A4.

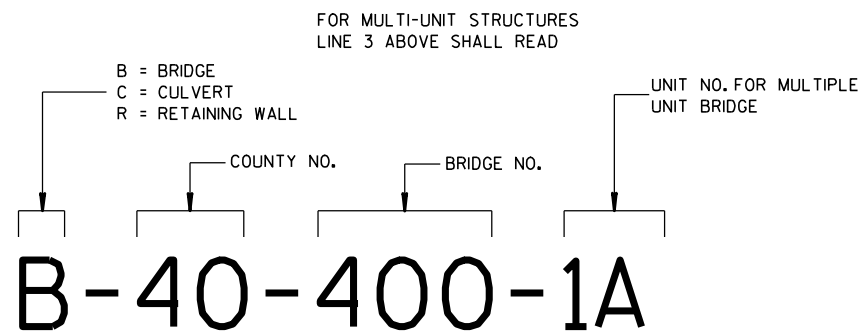
LEGEND

- SIGN ON PERMANENT SUPPORT
- DELINEATOR
- DIRECTION OF TRAFFIC

MAINTENANCE CROSSOVER
FOR FREEWAYSSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATIONAPPROVED
November 2019 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 55
FHWA



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



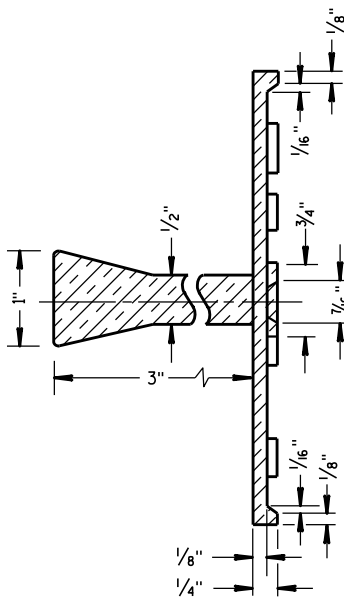
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

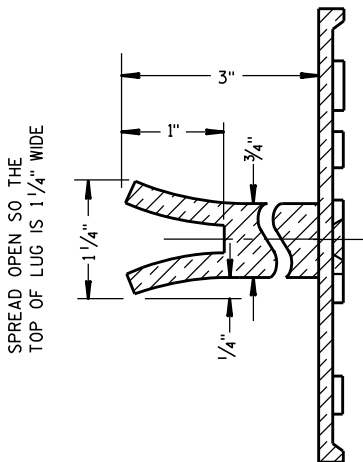
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

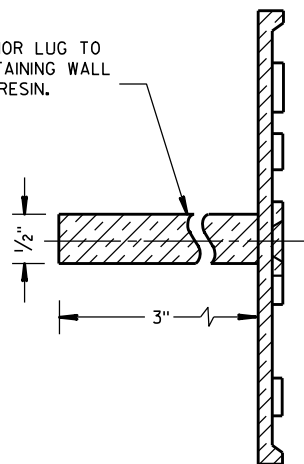


SECTION A-A



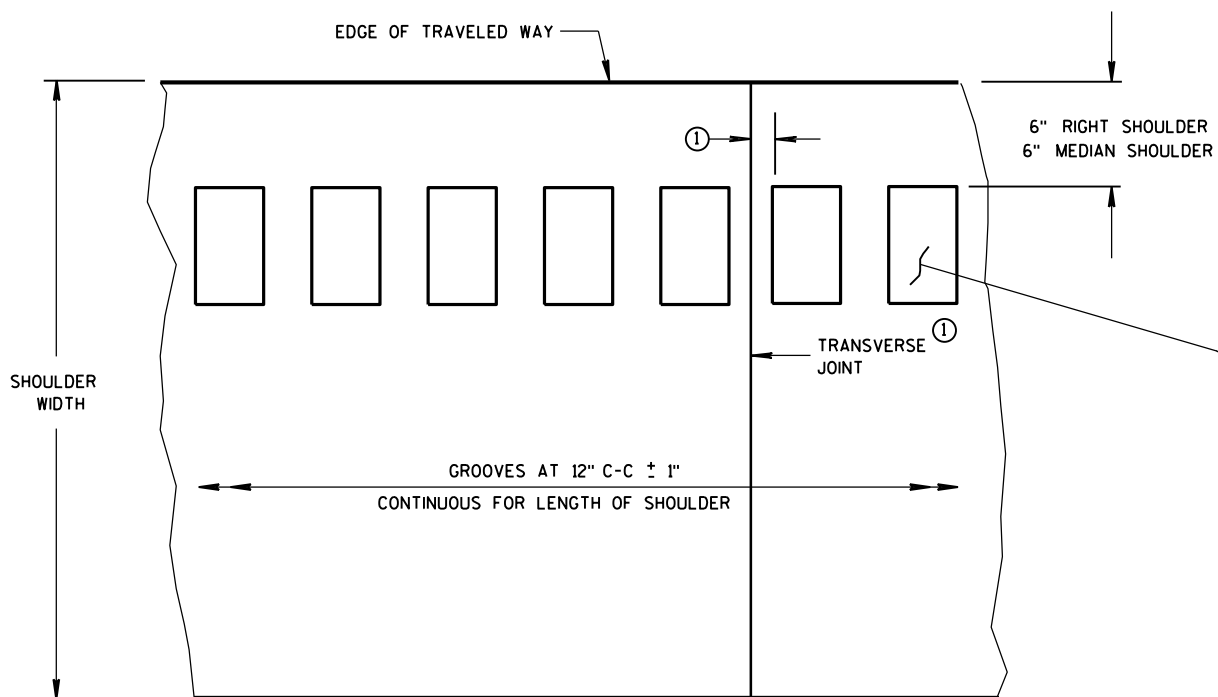
ALTERNATE LUG

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

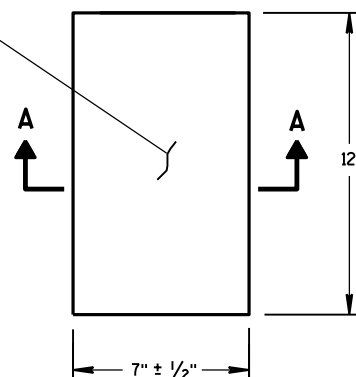


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED DATE 3/26/10	CHIEF STRUCTURAL DEVELOPER /S/ Scot Beck 56	JEER
FHWA		



PLAN VIEW
SHOULDER WITH GROOVES



PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

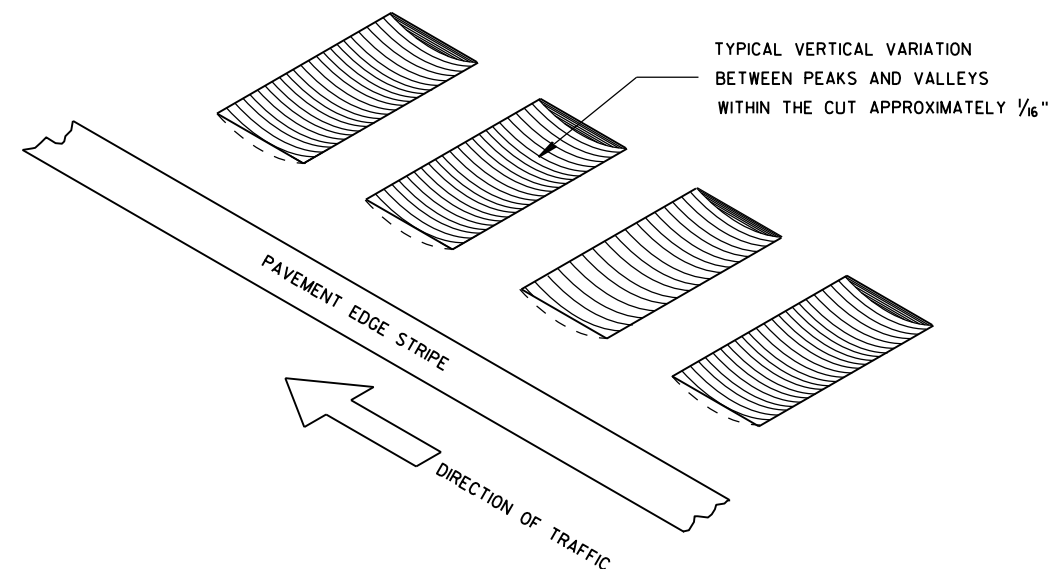
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

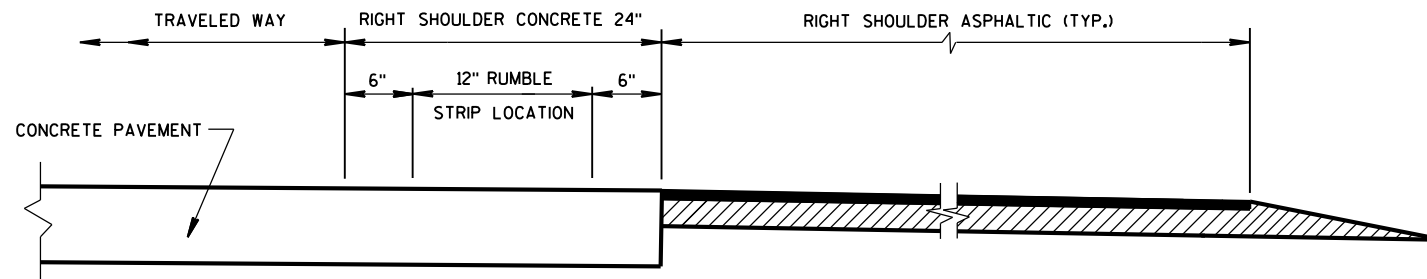
RUMBLE STRIPS ON EXPRESSWAYS

DO NOT INSTALL RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL DRIVEWAYS, PRIVATE DRIVEWAYS OR ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, BRIDGE DECKS, BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSING. THE ATTACHED STANDARD DETAIL DRAWING SHOWS THE LOCATION OF THE RUMBLE STRIPS AT INTERCHANGE AREAS.

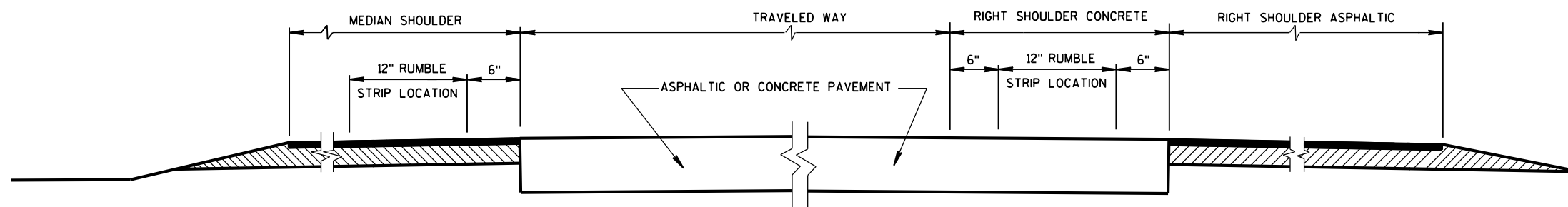
① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6" AWAY FROM TRANSVERSE JOINTS.



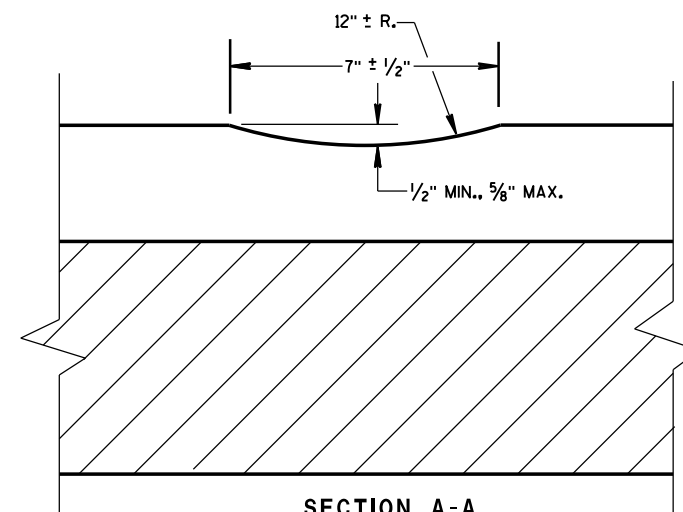
ISOMETRIC



SECTION VIEW
(CONCRETE PAVEMENT EXTENDS INTO RIGHT SHOULDER)



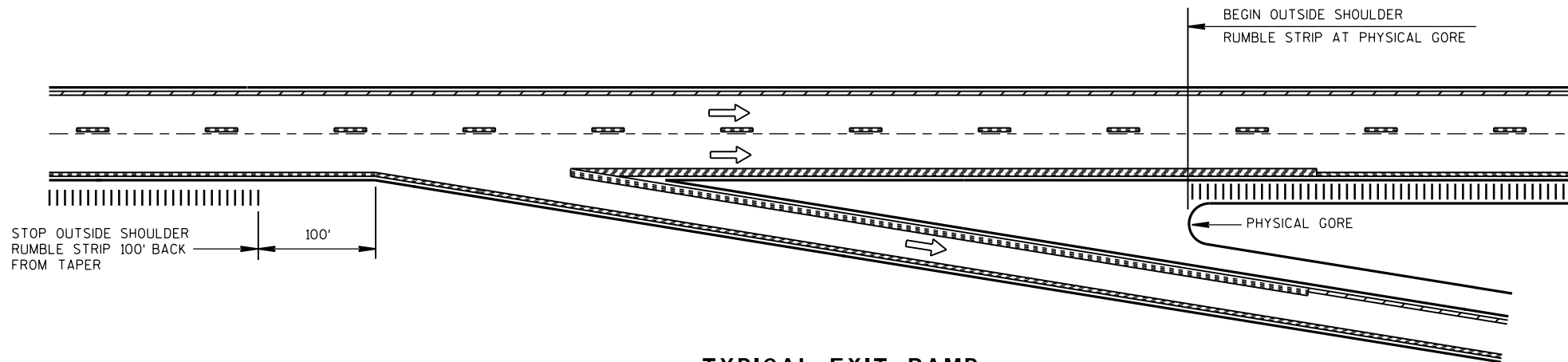
SECTION VIEW
TYPICAL LOCATIONS OF SHOULDER RUMBLE STRIPS
IN RURAL DIVIDED HIGHWAYS
(ONE ROADWAY IS SHOWN)



SECTION A-A

SHOULDER RUMBLE STRIP,
MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



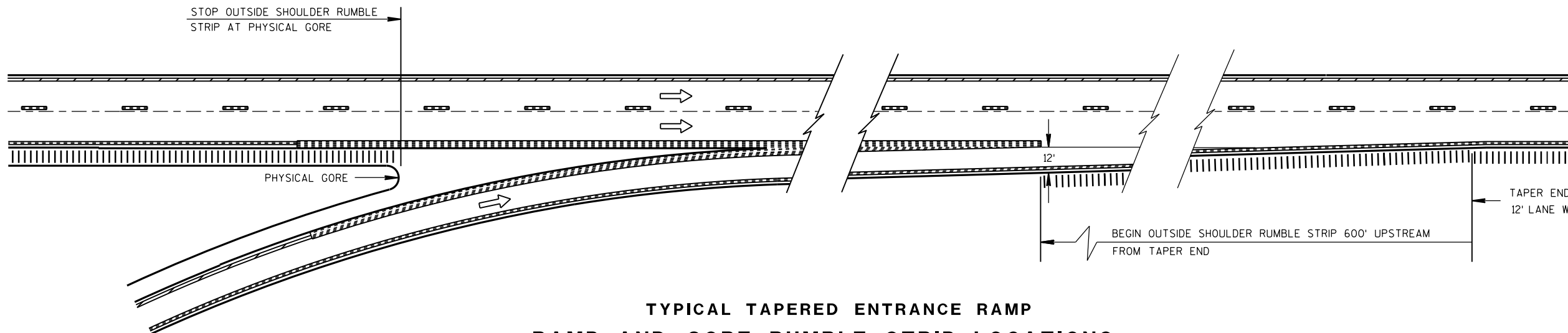
TYPICAL EXIT RAMP

NOTES:

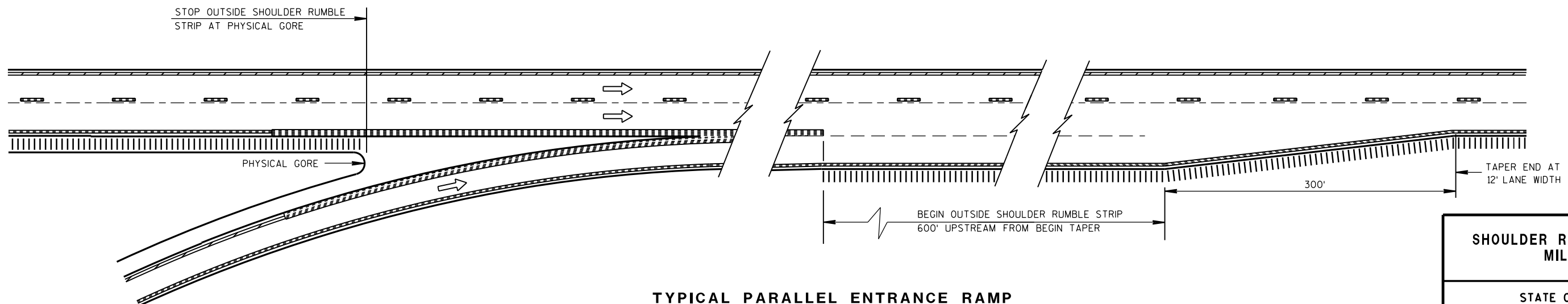
NO RUMBLE STRIP ON EXIT, DIRECTIONAL, OR ENTRANCE RAMPS, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

NOTE:
ARROW SYMBOL (→)
SHOWS DIRECTION OF TRAVEL



**TYPICAL TAPERED ENTRANCE RAMP
RAMP AND GORE RUMBLE STRIP LOCATIONS**



**TYPICAL PARALLEL ENTRANCE RAMP
RAMP AND GORE RUMBLE STRIP LOCATIONS**

**SHOULDER RUMBLE STRIP,
MILLING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

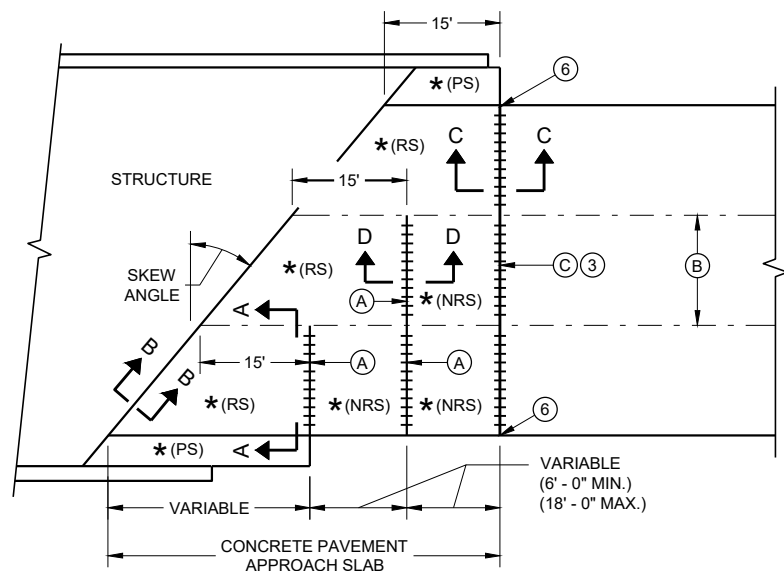
APPROVED

12/17/2012
DATE

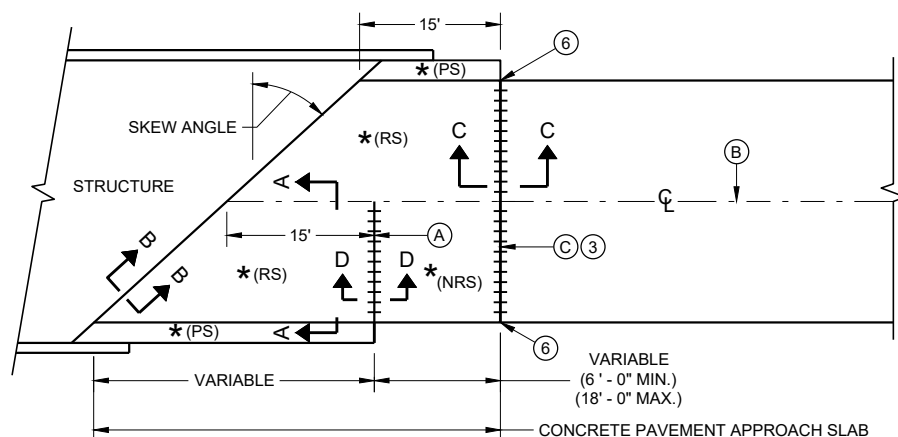
FHWA

/S/ Jerry H. Zoag
ROADWAY STANDARDS 158
ENGINEER

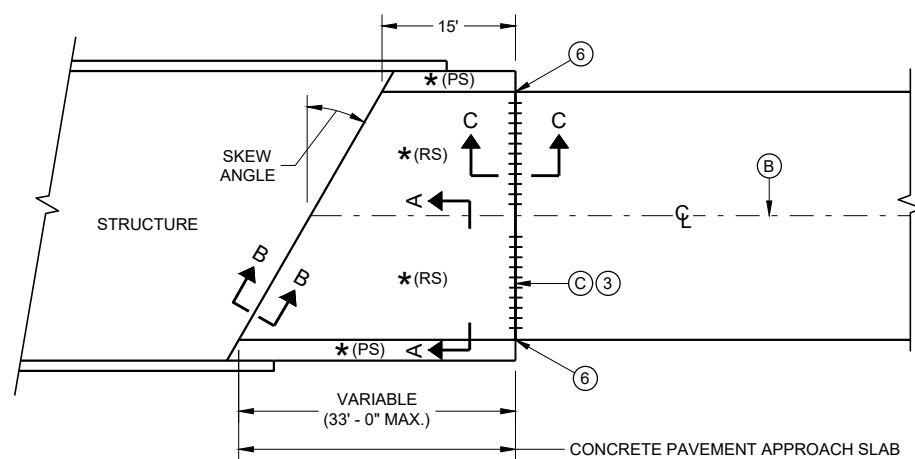
ENT



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



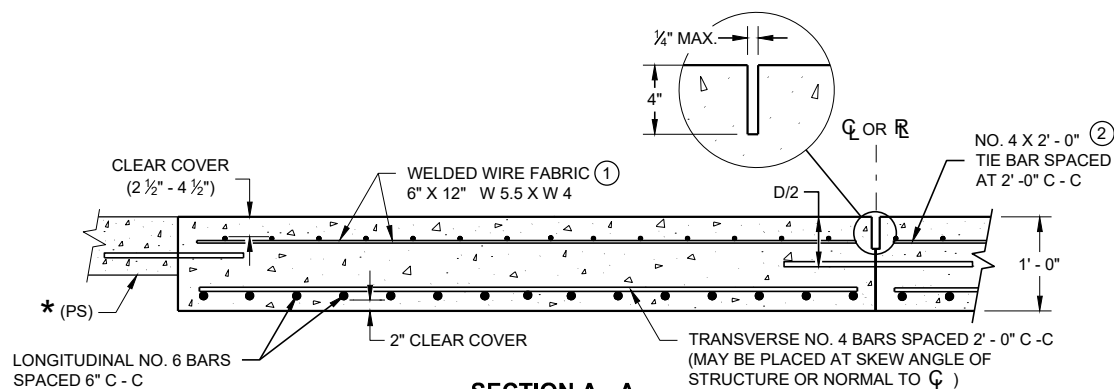
**SKEDS > 20°
(PAVEMENT WIDTH ≤ 30')**



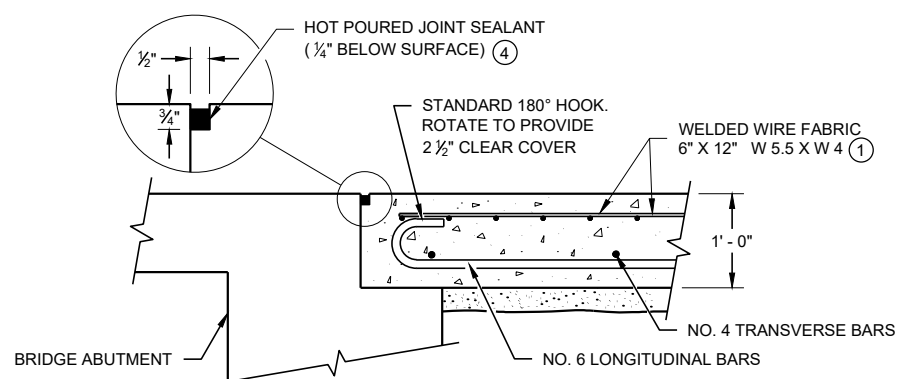
**SKEDS ≤ 20°
(PAVEMENT WIDTH ≤ 30')**

APPROACH SLAB AND ADJACENT PAVEMENT

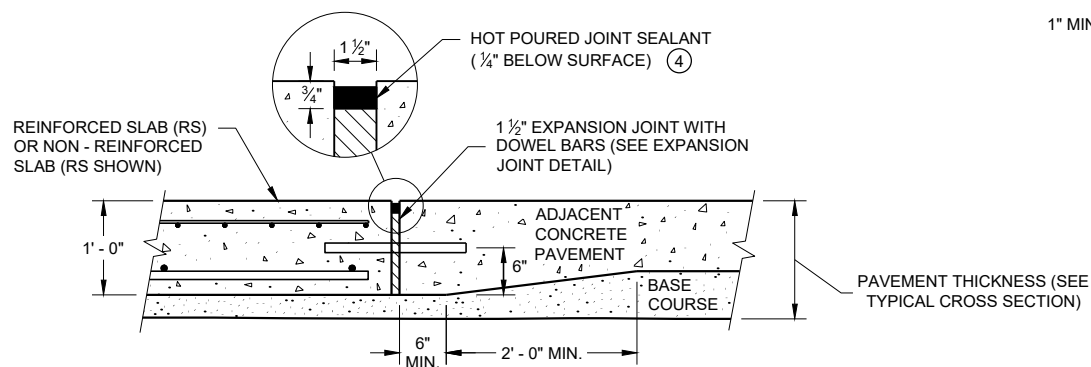
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



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



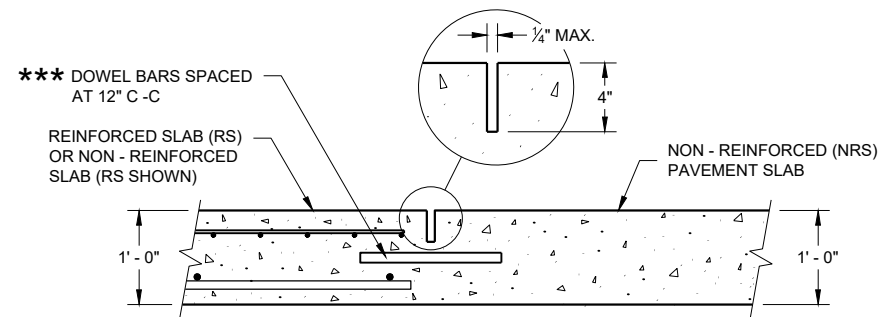
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

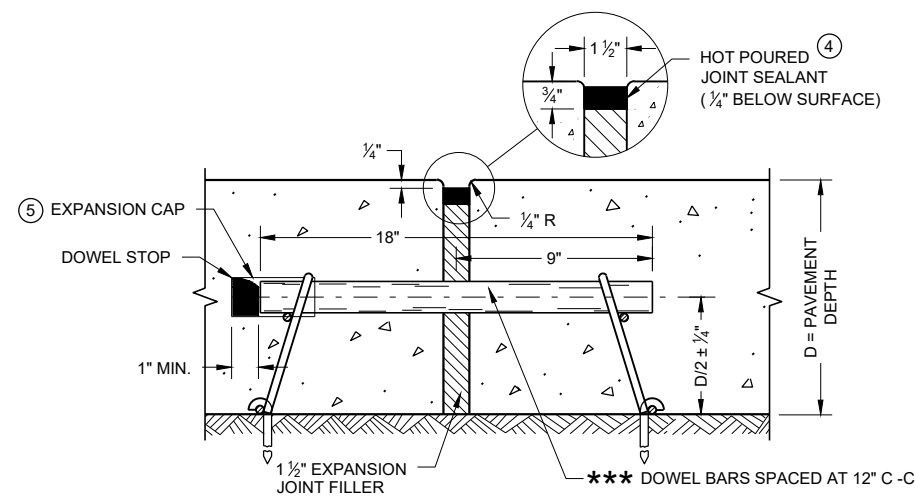
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

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**



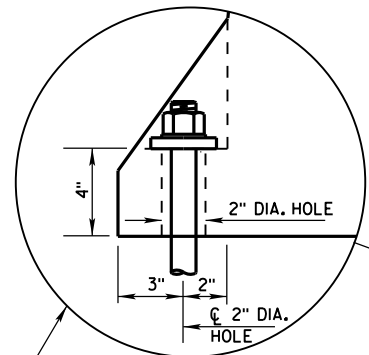
EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

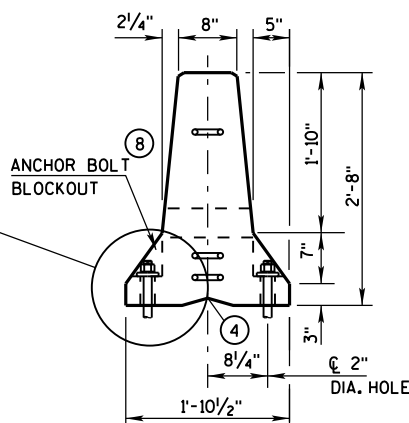
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR 59

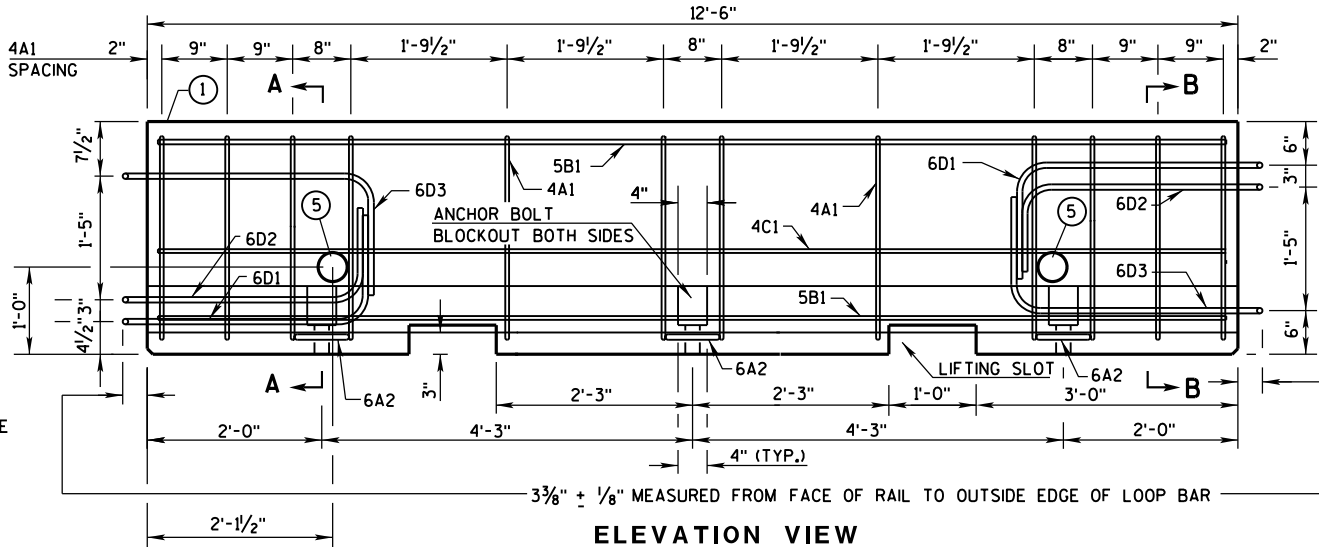
FHWA



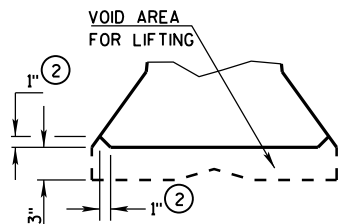
ANCHOR ON TRAFFIC SIDE
ONLY WHEN REQUIRED
(SEE SHEET D FOR ADDITIONAL
ANCHOR DETAIL)



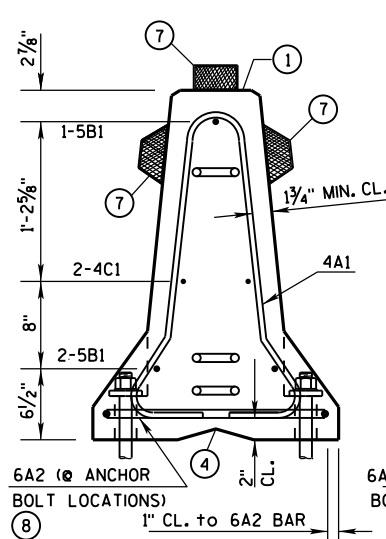
END VIEW



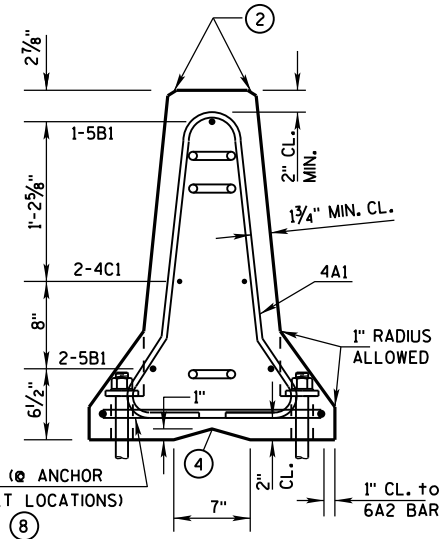
ELEVATION VIEW



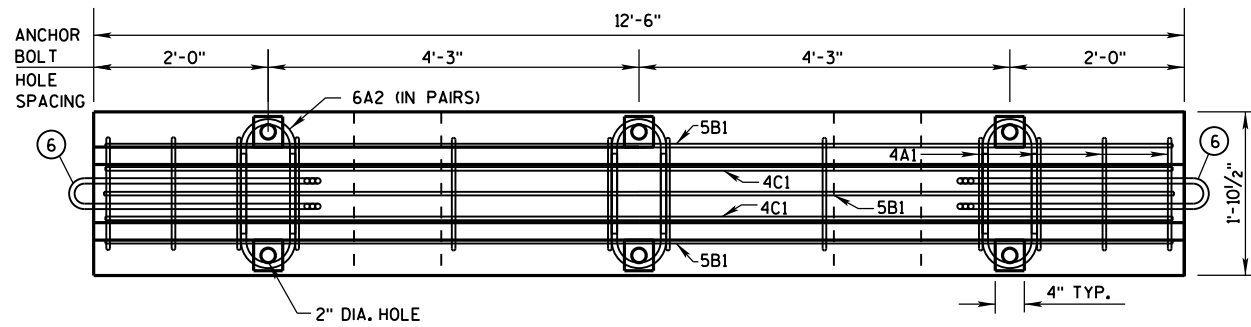
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

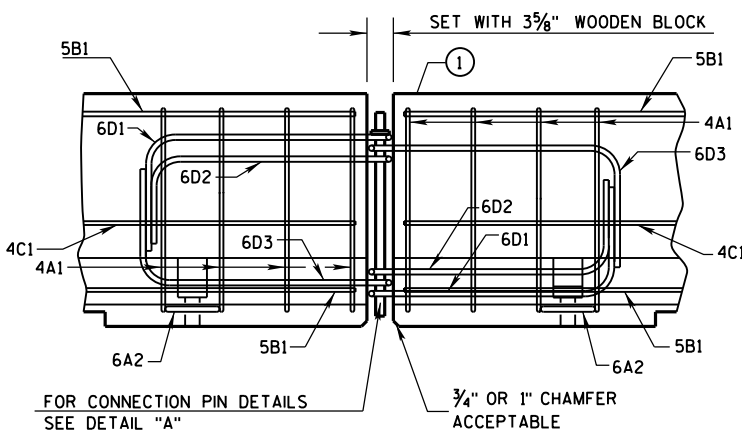


SECTION B-B
(STIRRUP PLACEMENT)

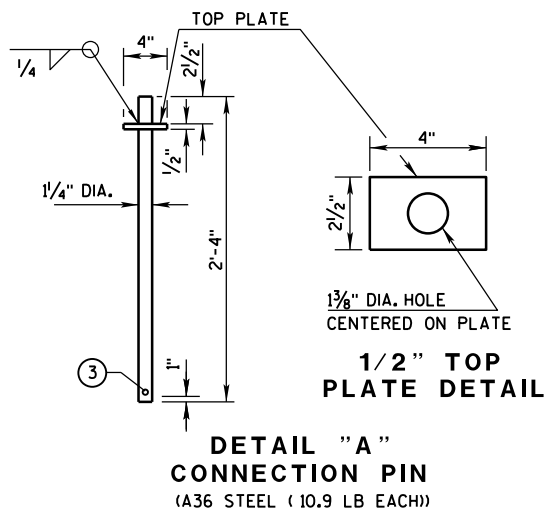


PLAN VIEW

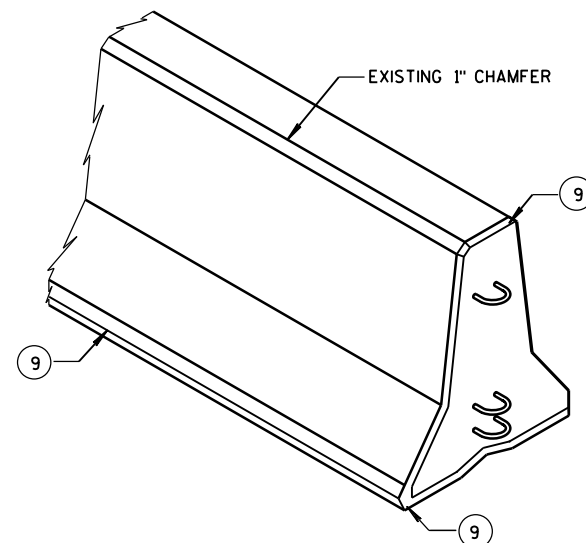
DETAILS OF BARRIER SECTION



DETAILS OF BARRIER CONNECTION



DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(a) THRU 14B7-15(i).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

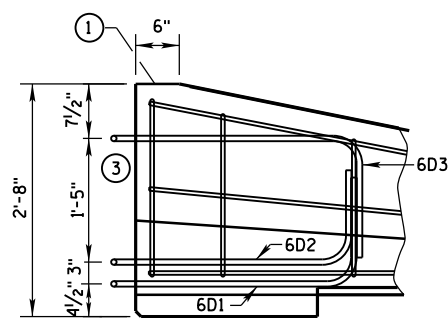
INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - TYPE: WICBTP
 - MANUFACTURER
 - DATE MANUFACTURED (MONTH AND YEAR)
- 1" CHAMFER TO PREVENT SPALLING.
- A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- "V" NOTCH IS OPTIONAL.
- THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.
- 1" CHAMFER OPTIONAL.

f'c = 4,000 psi

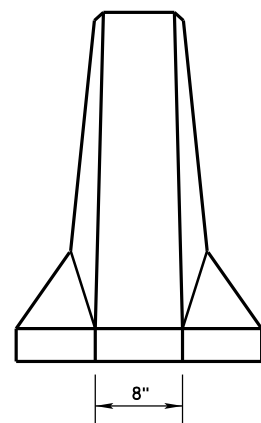
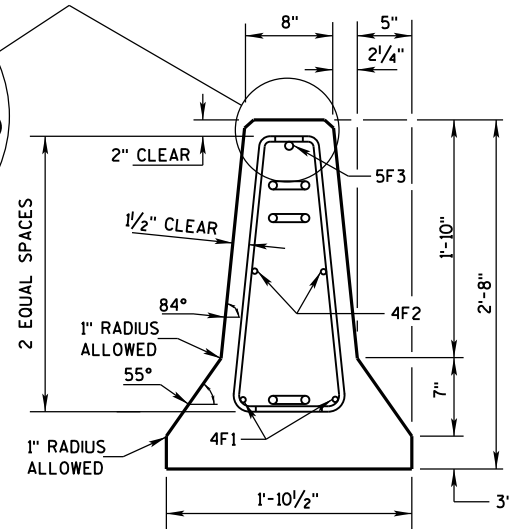
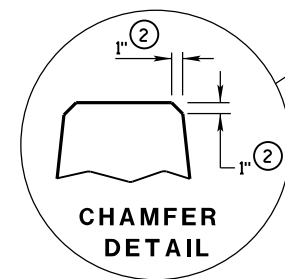
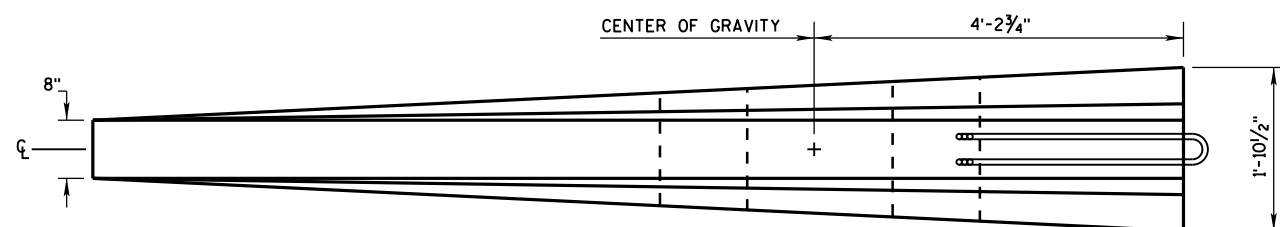
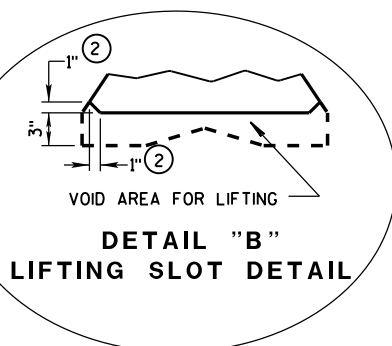
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

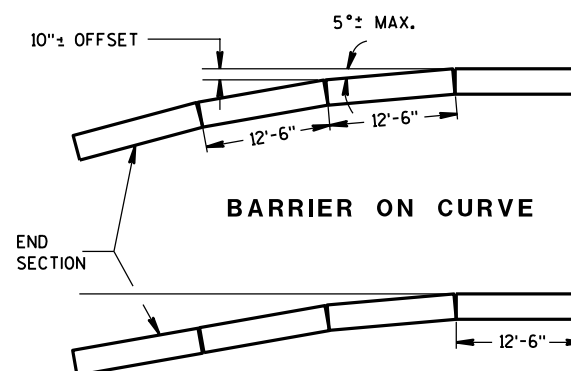


- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)



FRONT ELEVATION



FLARE AT BARRIER END

POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

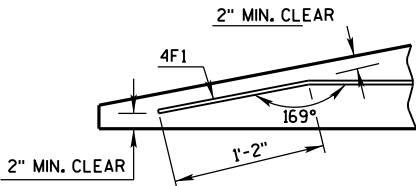
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION⁶¹

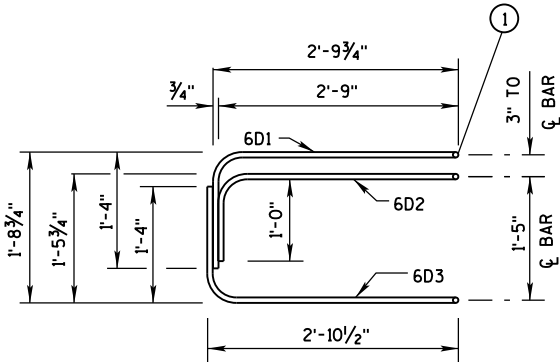
BARRIER TAPER SECTION
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

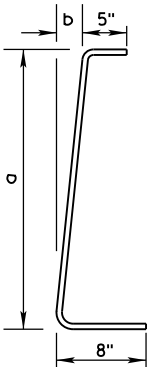
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

TAPER BARRIER SECTION

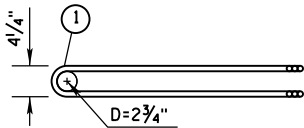
GENERAL NOTES

① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

BARRIER SECTION
BILL OF MATERIALS

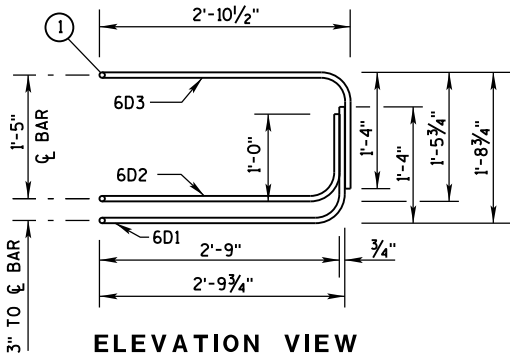
(PER 12'-6" BARRIER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"

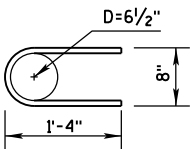


PLAN VIEW
LOOP BAR ASSEMBLY

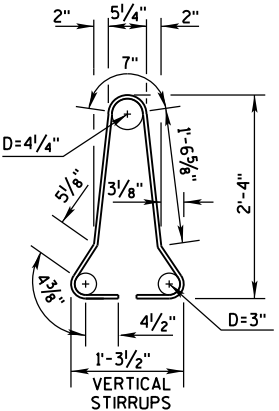
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

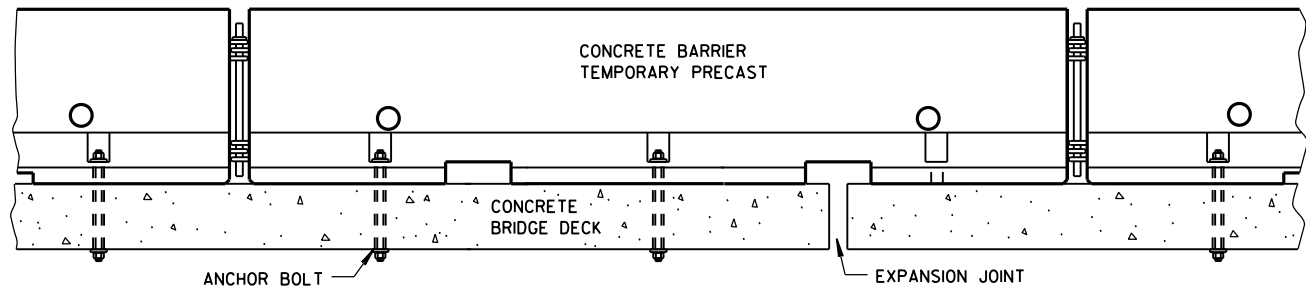
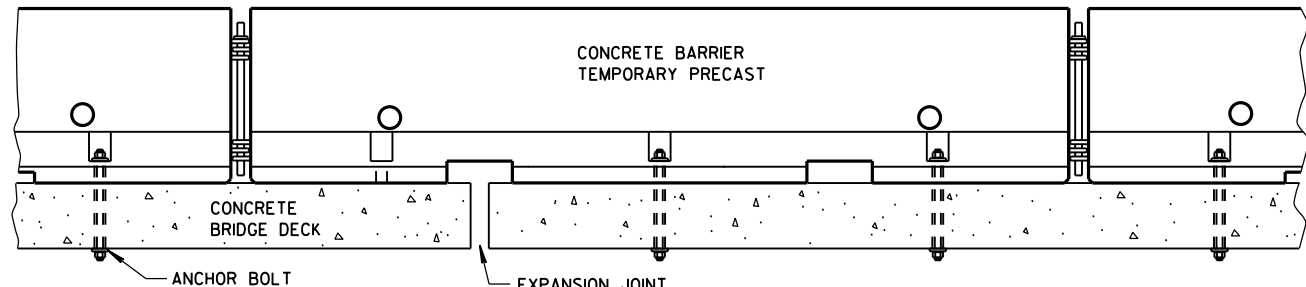


4A1

BARRIER SECTION

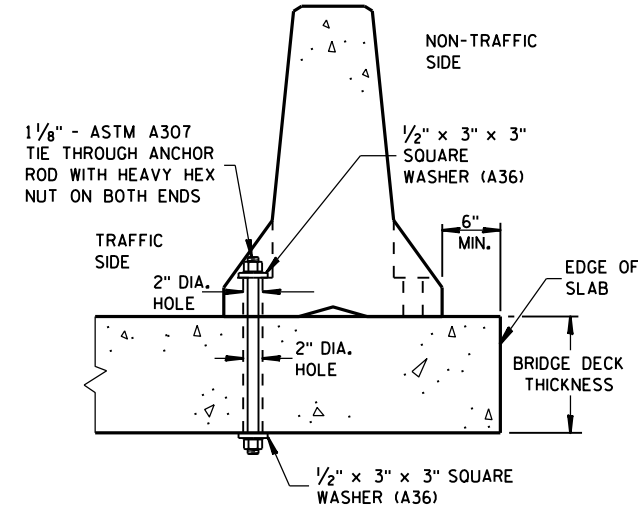
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



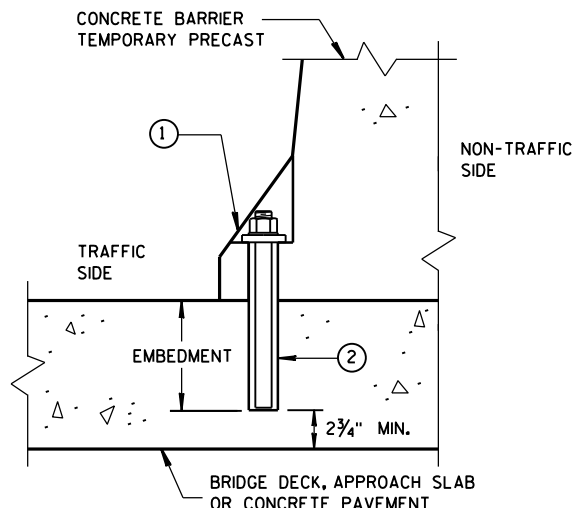
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



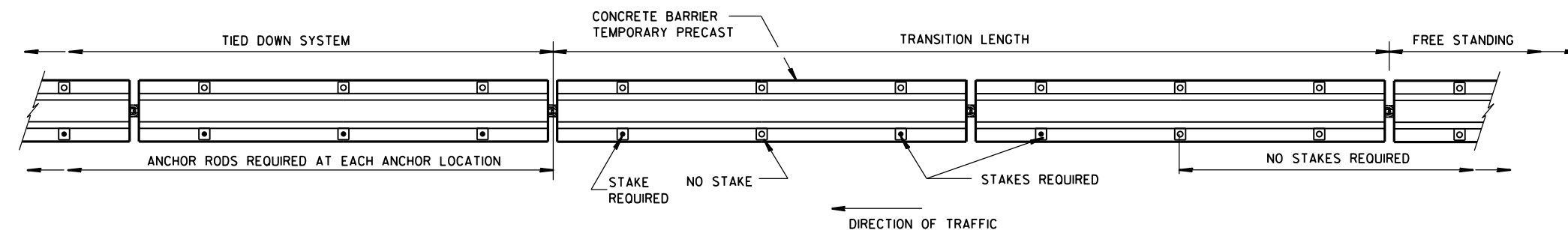
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



PLAN VIEW FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

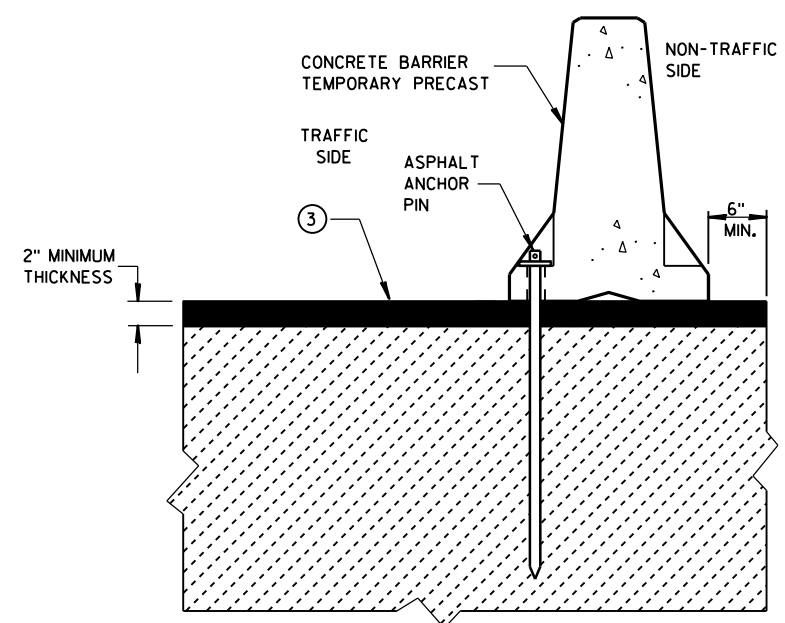
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

GENERAL NOTES

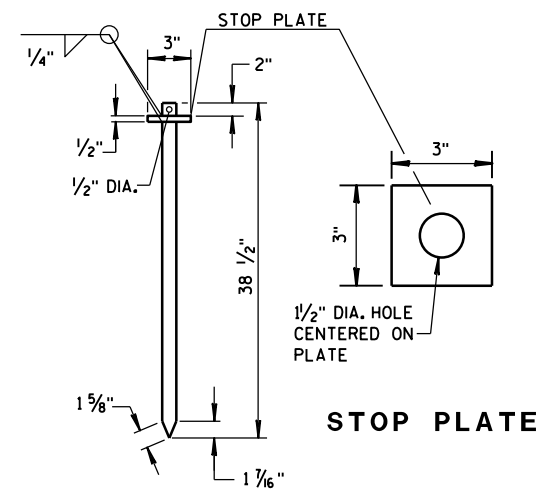
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.12 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- ③ ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THEN DRIVE ASPHALT ANCHOR PIN.



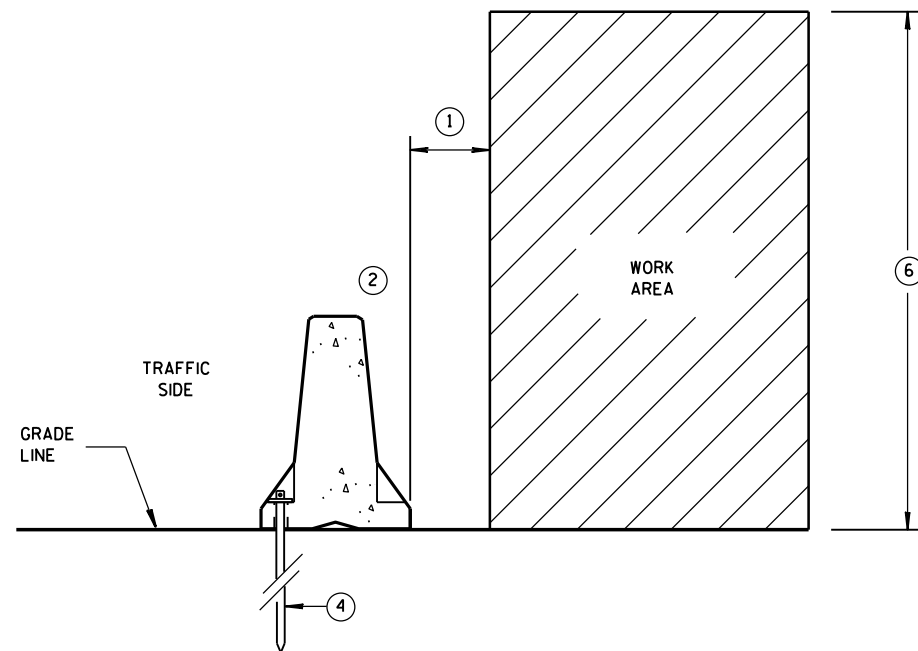
STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE



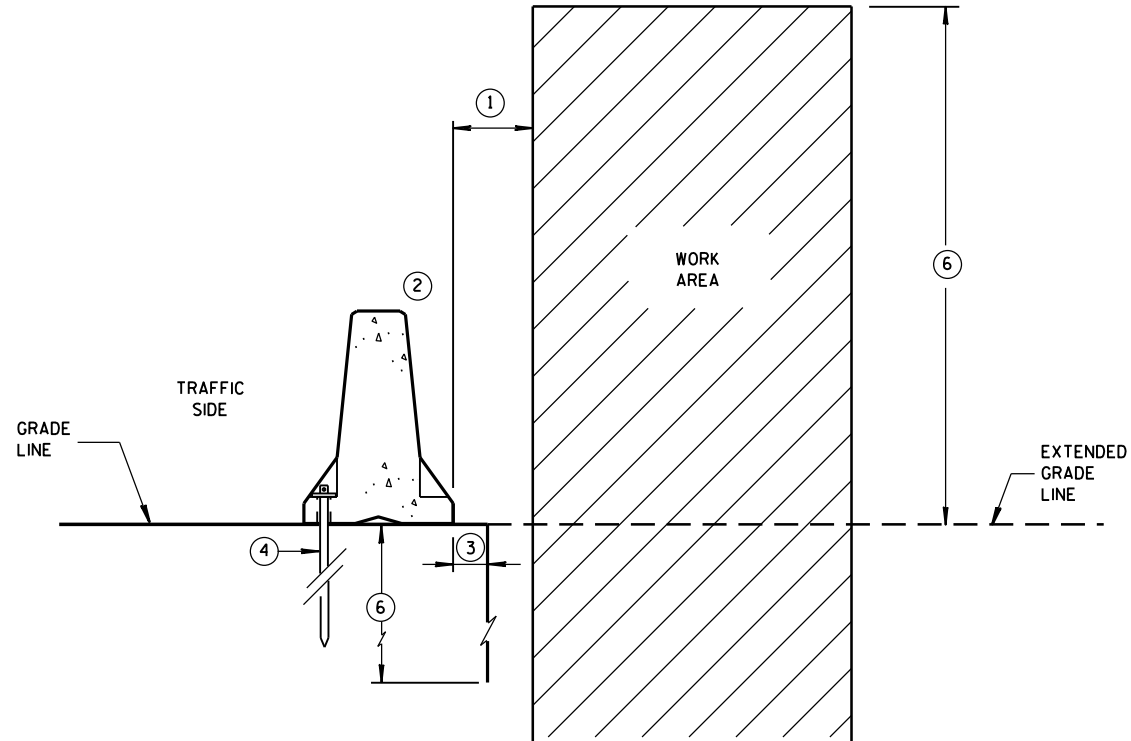
ASPHALT ANCHOR PIN (ASTM A36 STEEL)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**ANCHORED BARRIER SPACE REQUIREMENTS
FOR HAZARDS EXTENDED
ABOVE THE GRADE LINE**

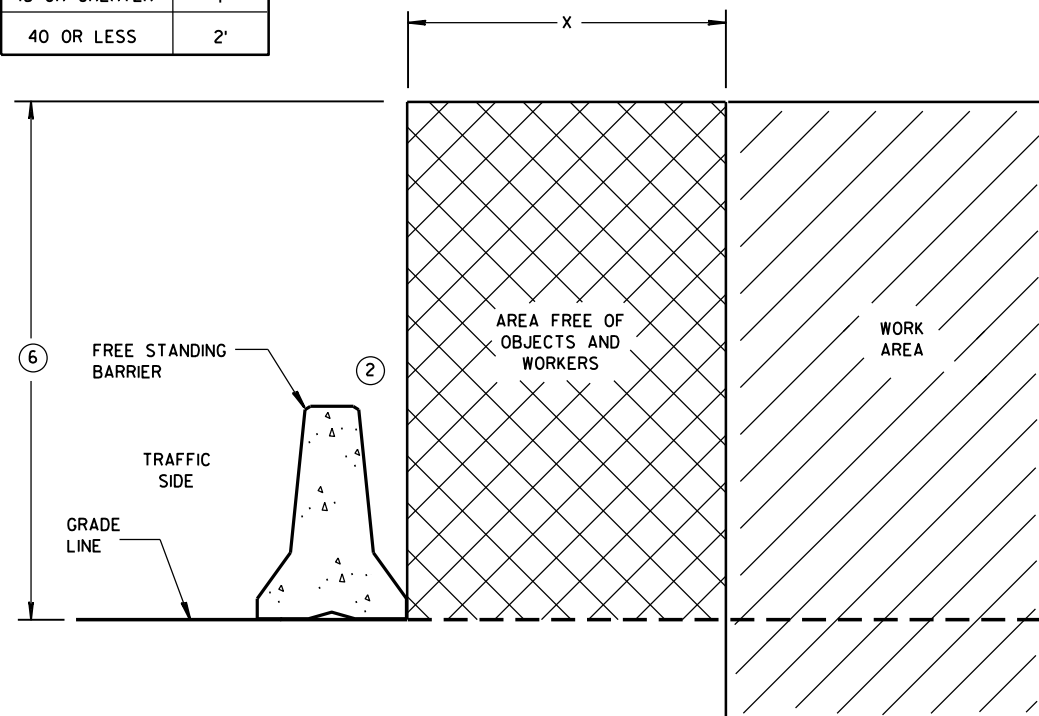


**ANCHORED BARRIER SPACE REQUIREMENTS
ON VERTICAL DROP OFFS**

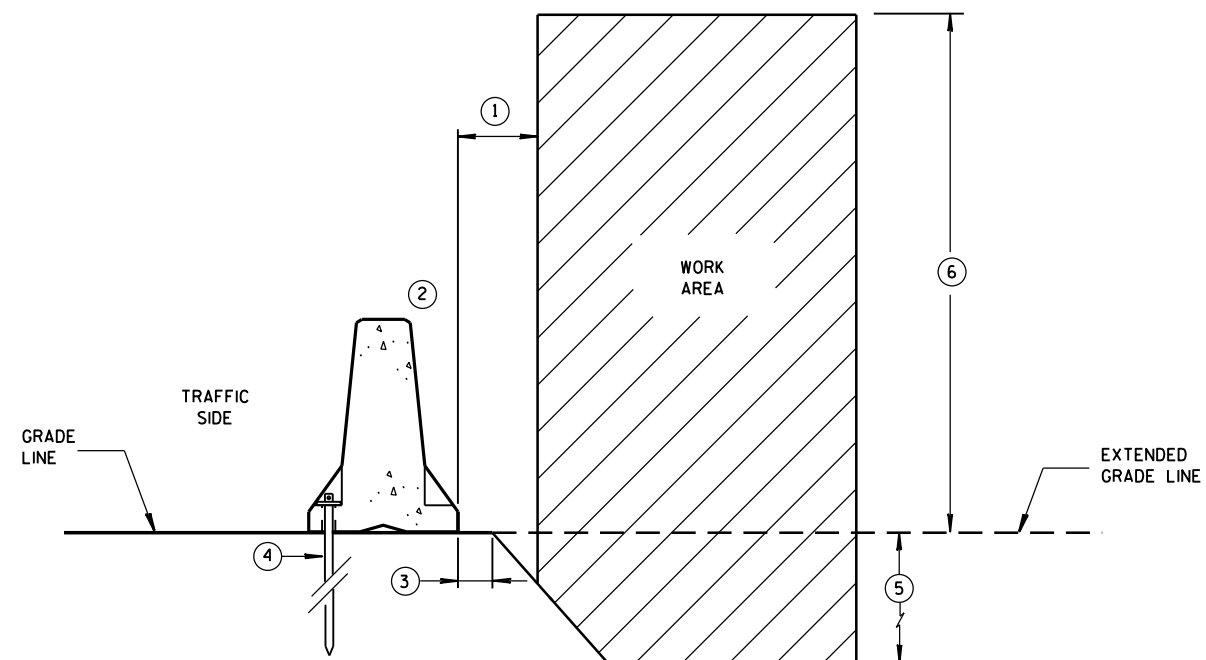
GENERAL NOTES

- ① WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
- ② OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
- ③ SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
- ④ SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
- ⑤ DEPTH OF 3 FEET OR MORE.
- ⑥ Y = 6'-6".

POSTED SPEED MPH	X
45 OR GREATER	4'
40 OR LESS	2'



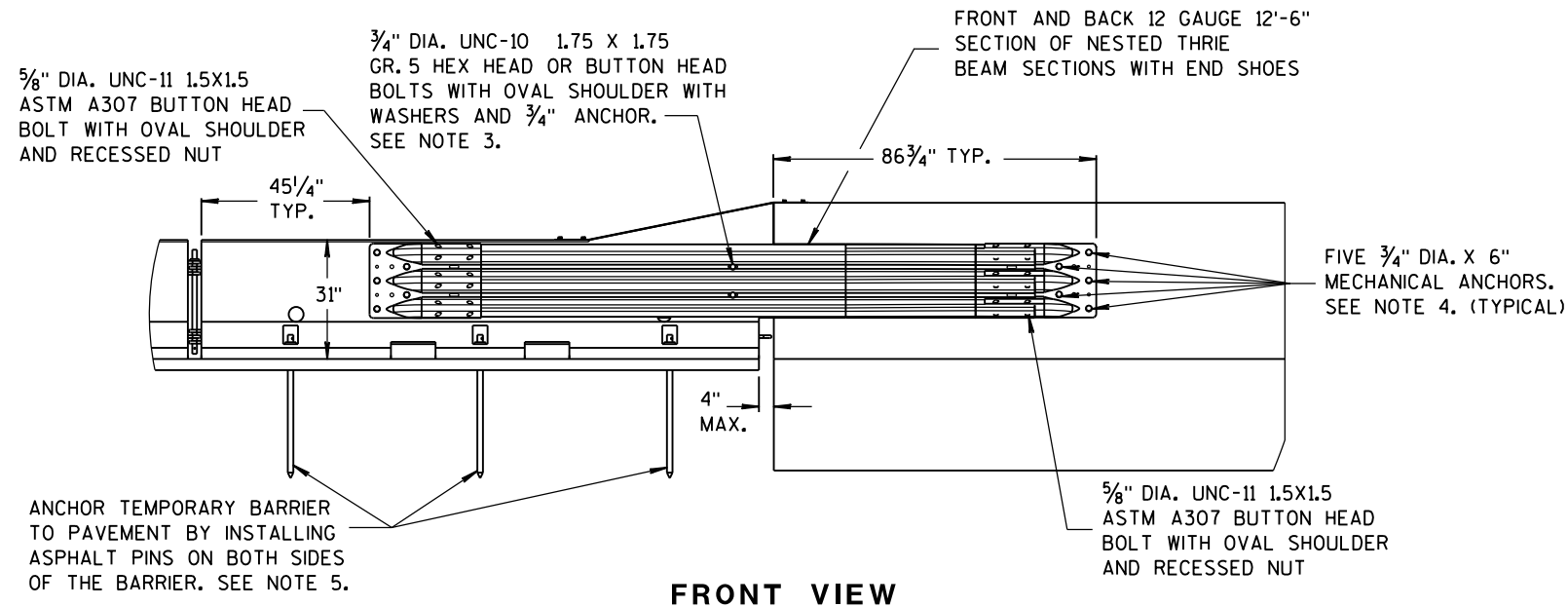
FREE STANDING BARRIER SPACE REQUIREMENTS



**ANCHORED BARRIER SPACE REQUIREMENTS
ON SLOPES**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FRONT VIEW

NOTES

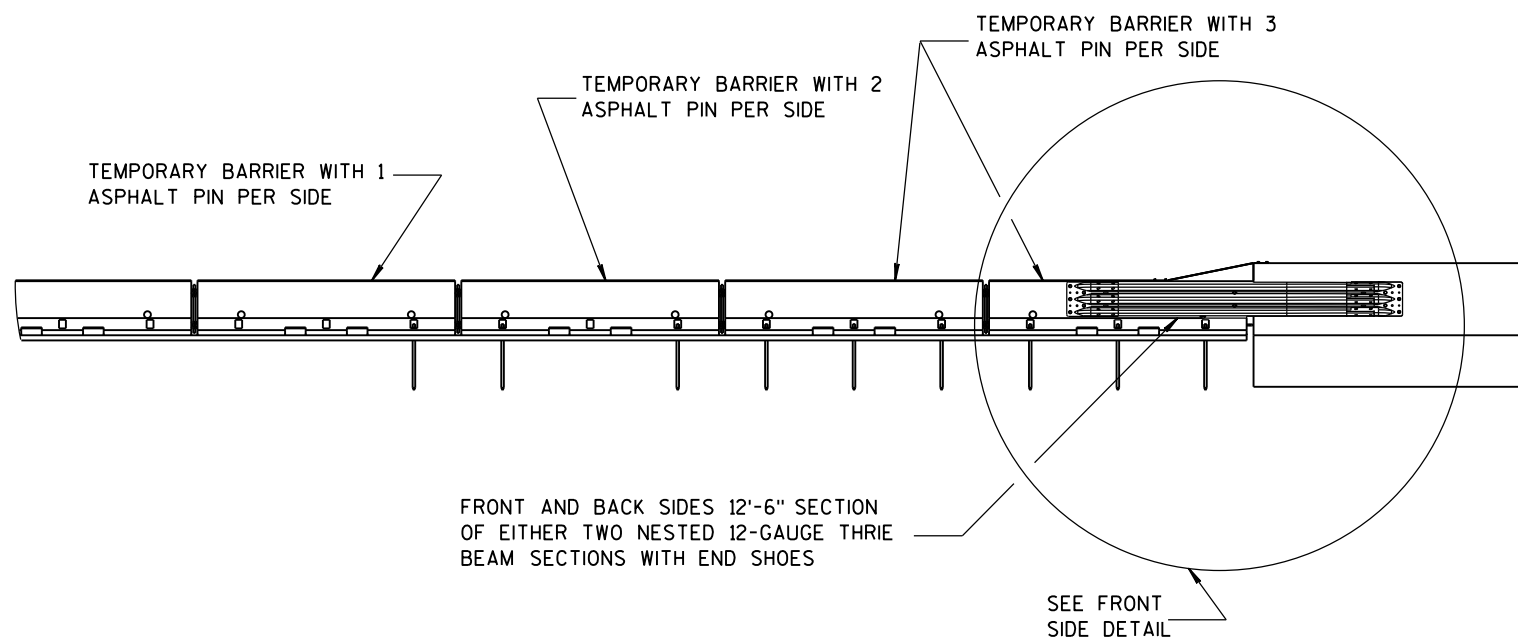
NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS REGARDLESS OF TRAFFIC.

1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.

4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.

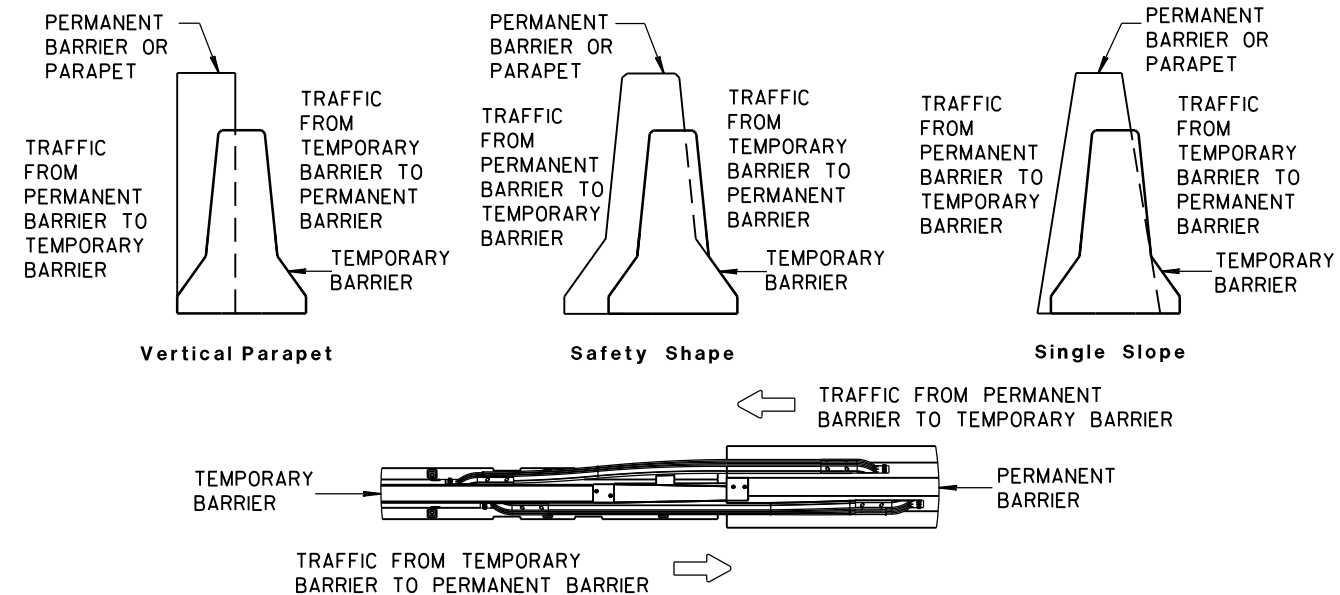
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.

6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.

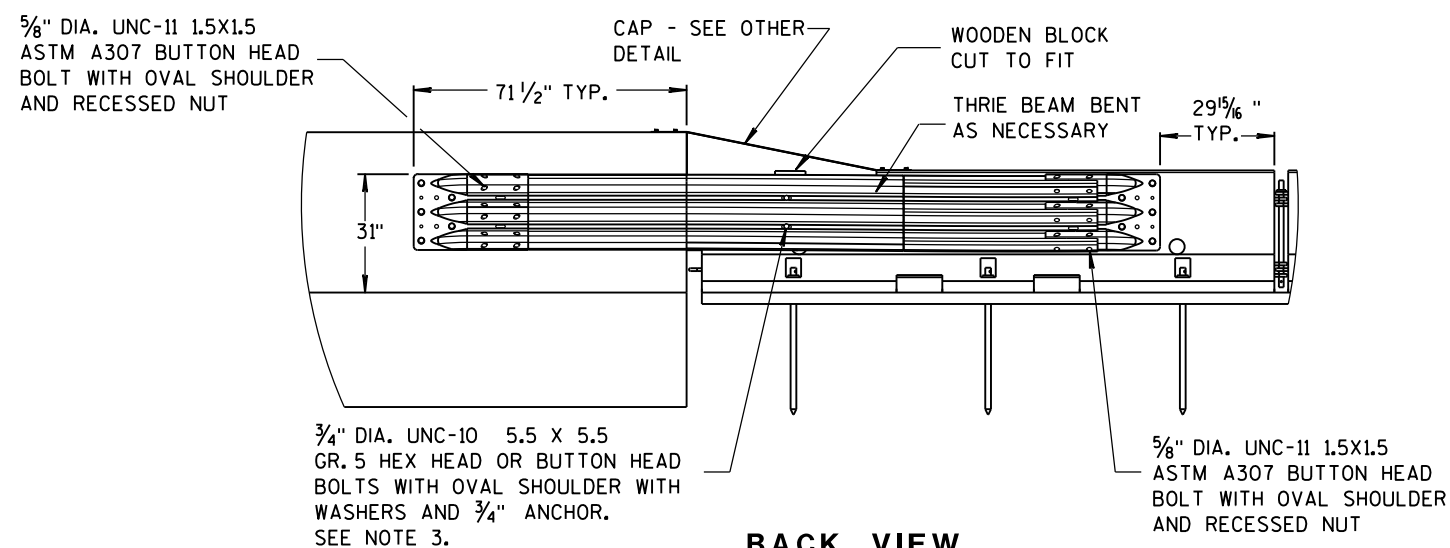


FRONT VIEW

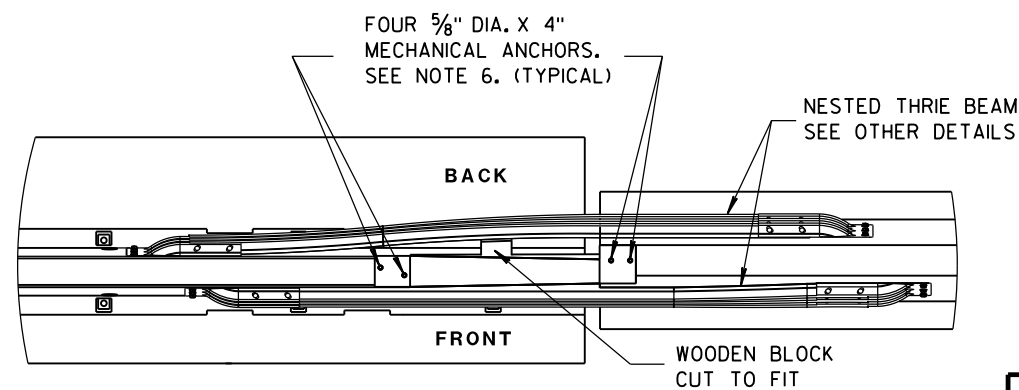
BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



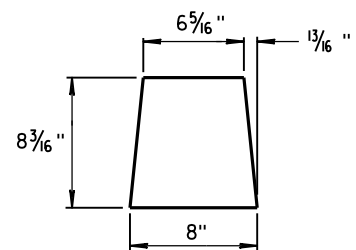
BACK VIEW



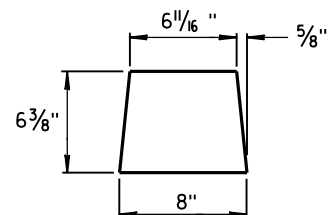
PLAN VIEW

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

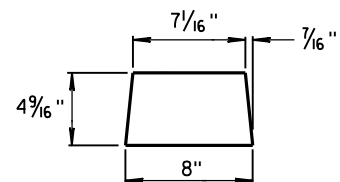
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



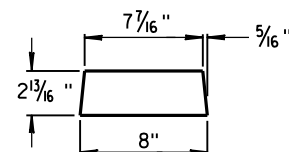
GUSSET 1



GUSSET 2

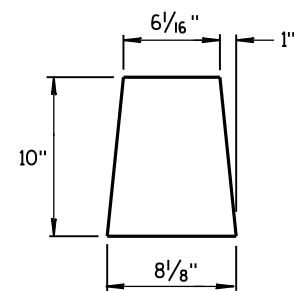


GUSSET 3

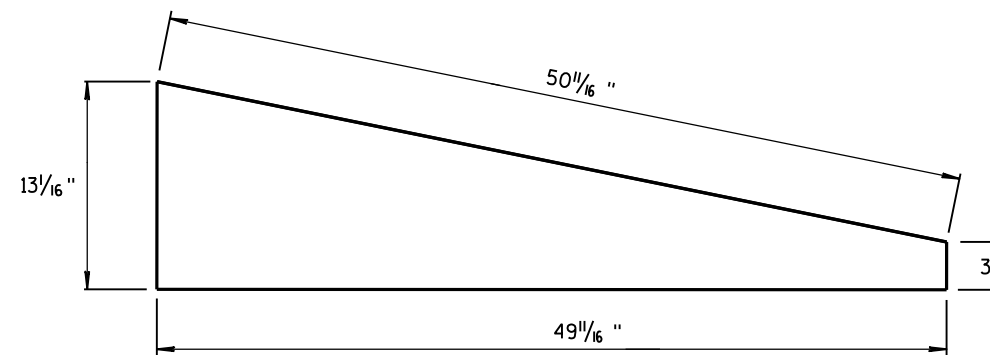


GUSSET 4

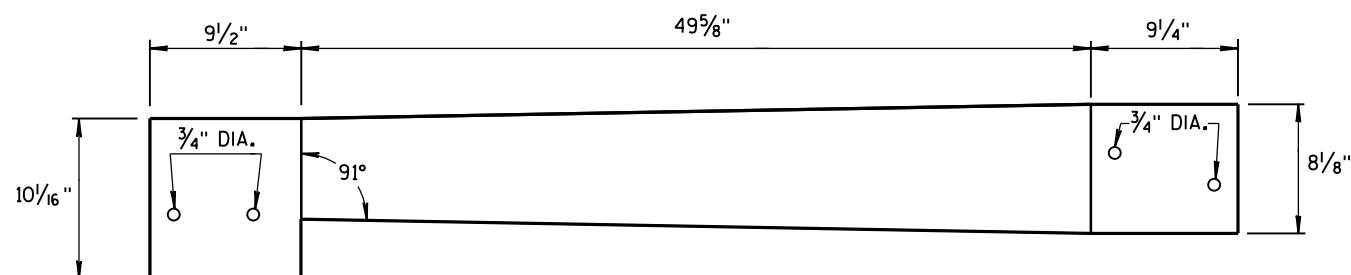
GUSSETS



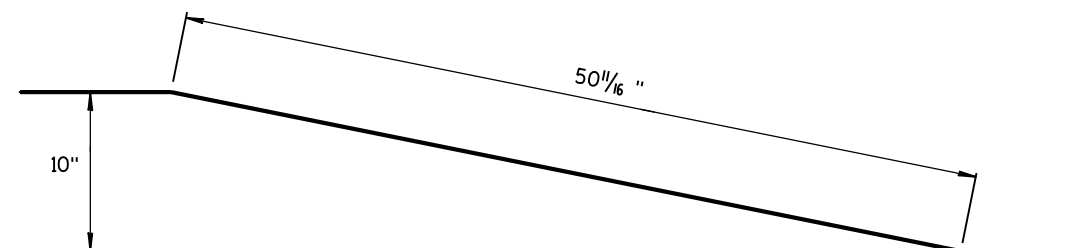
END PLATE



SIDE PLATE

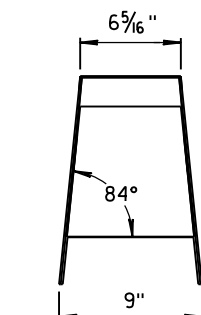
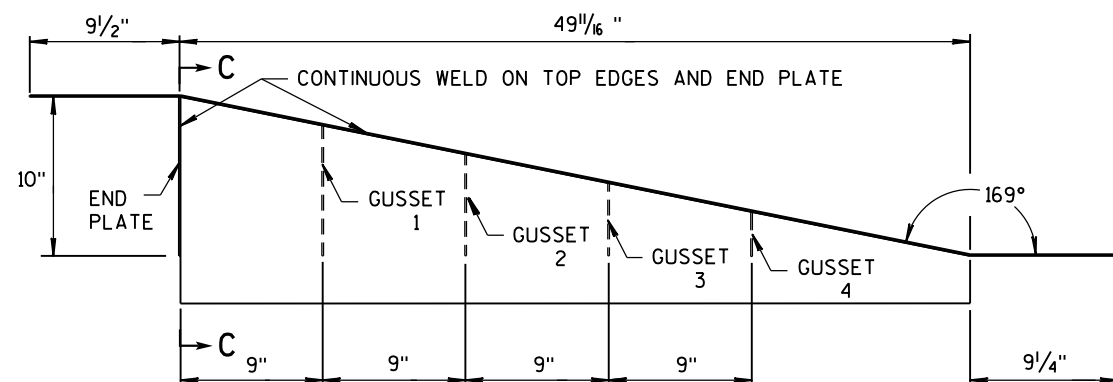
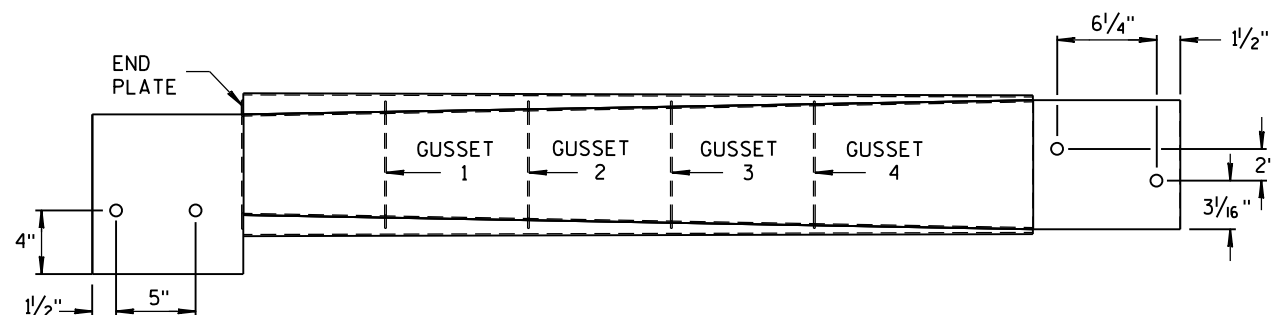


TOP PLATE



**SIDE, TOP AND END PLATES FOR CAP
FROM TEMPORARY CONCRETE BARRIER
TO 42" PERMANENT CONCRETE BARRIER**

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



SECTION C-C

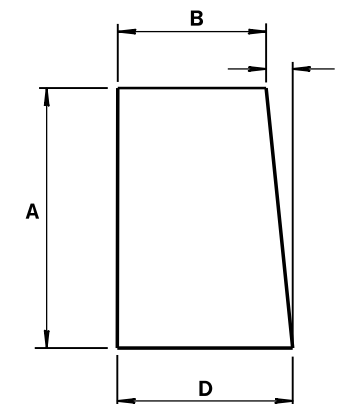
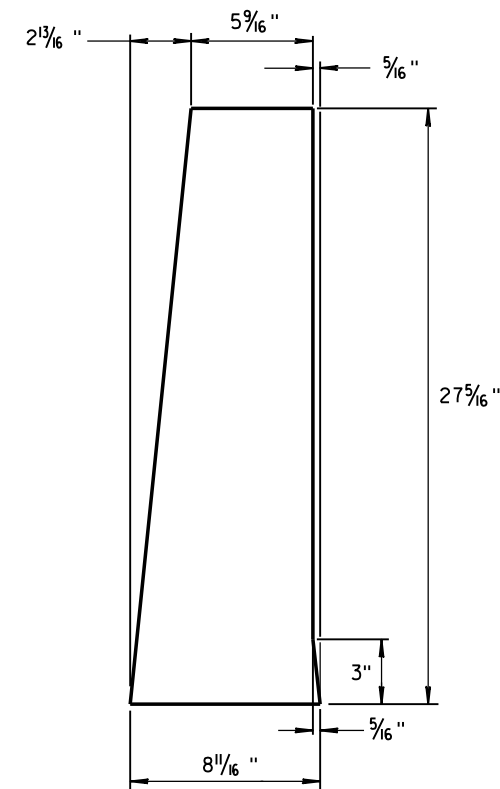
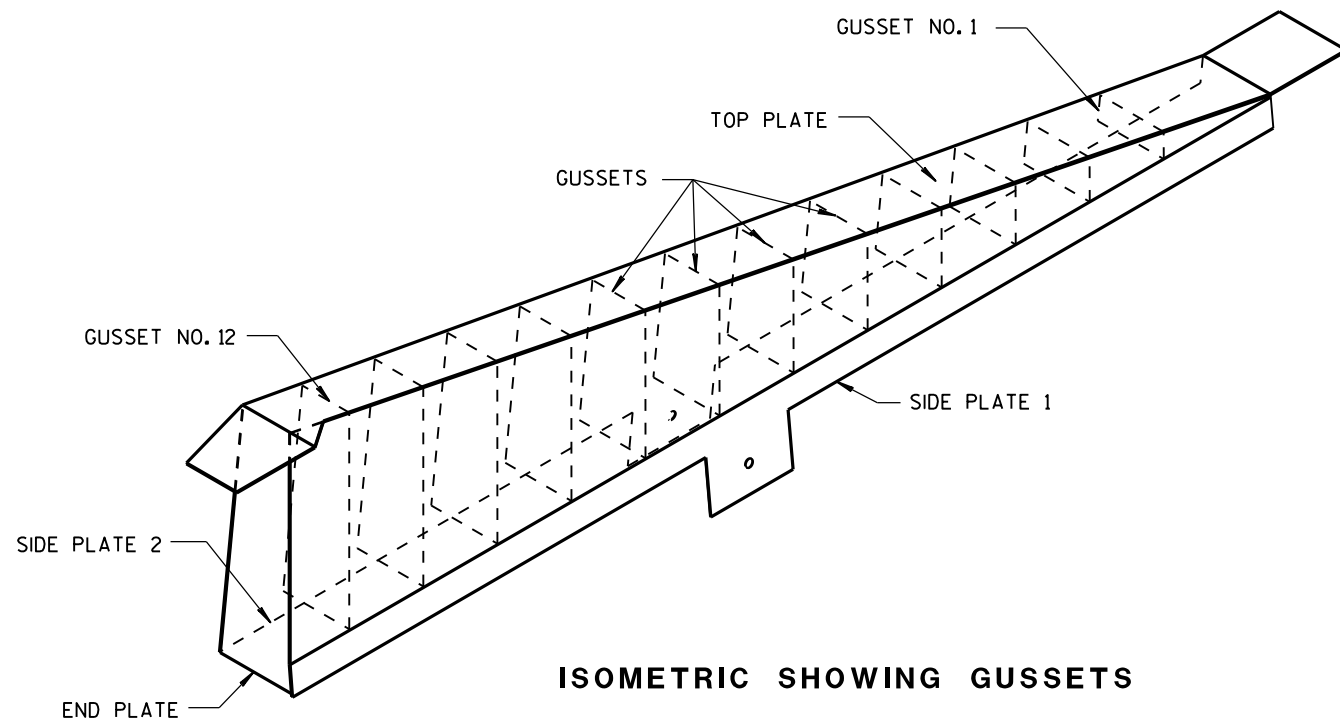
NOTES

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 42" PERMANENT CONCRETE BARRIER**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

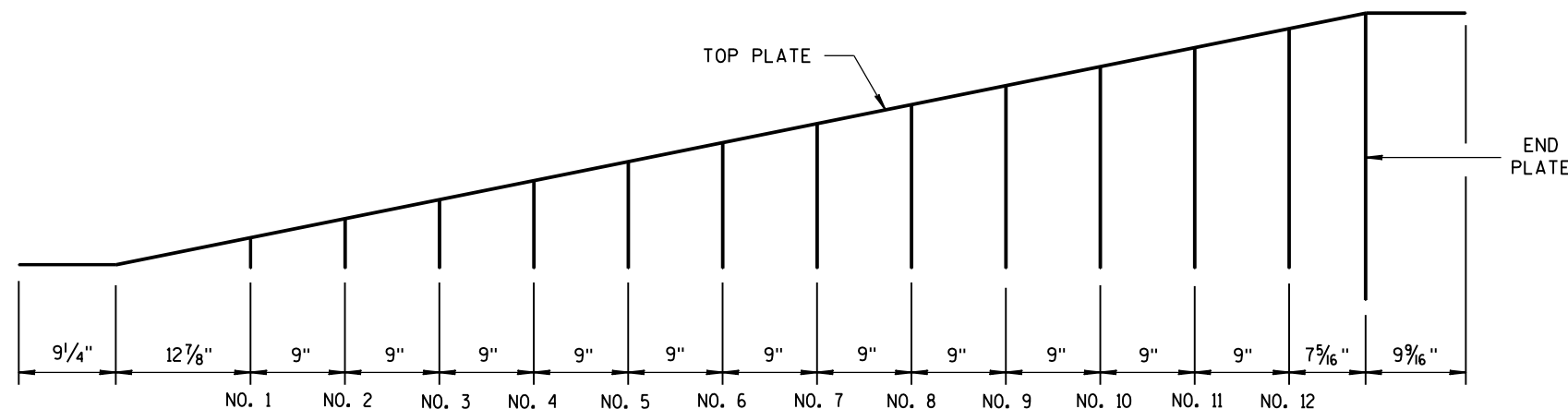


GUSSETS 1 - 12
ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 1/16"	7 9/16"	1/2"	8
3	6 1/2"	7 3/8"	1 1/16"	8 1/16"
4	8 5/16"	7 3/16"	7/8"	8 1/16"
5	10 1/8"	7"	1 1/16"	8 1/16"
6	11 5/16"	6 13/16"	1 1/4"	8 1/16"
7	13 3/4"	6 5/8"	1 7/16"	8 1/16"
8	15 9/16"	6 7/16"	1 9/16"	8 1/16"
9	17 3/8"	6 1/4"	1 13/16"	8 1/16"
10	19 3/16"	6 1/16"	1 15/16"	8 1/16"
11	21"	5 7/8"	2 3/16"	8 1/16"
12	22 13/16"	5 11/16"	2 5/16"	8 1/16"

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.

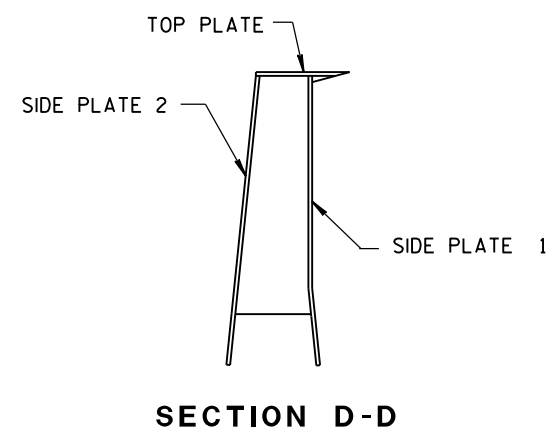
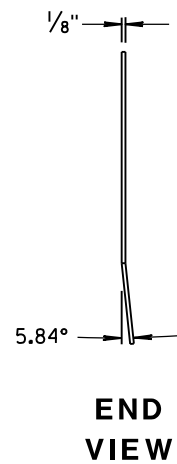
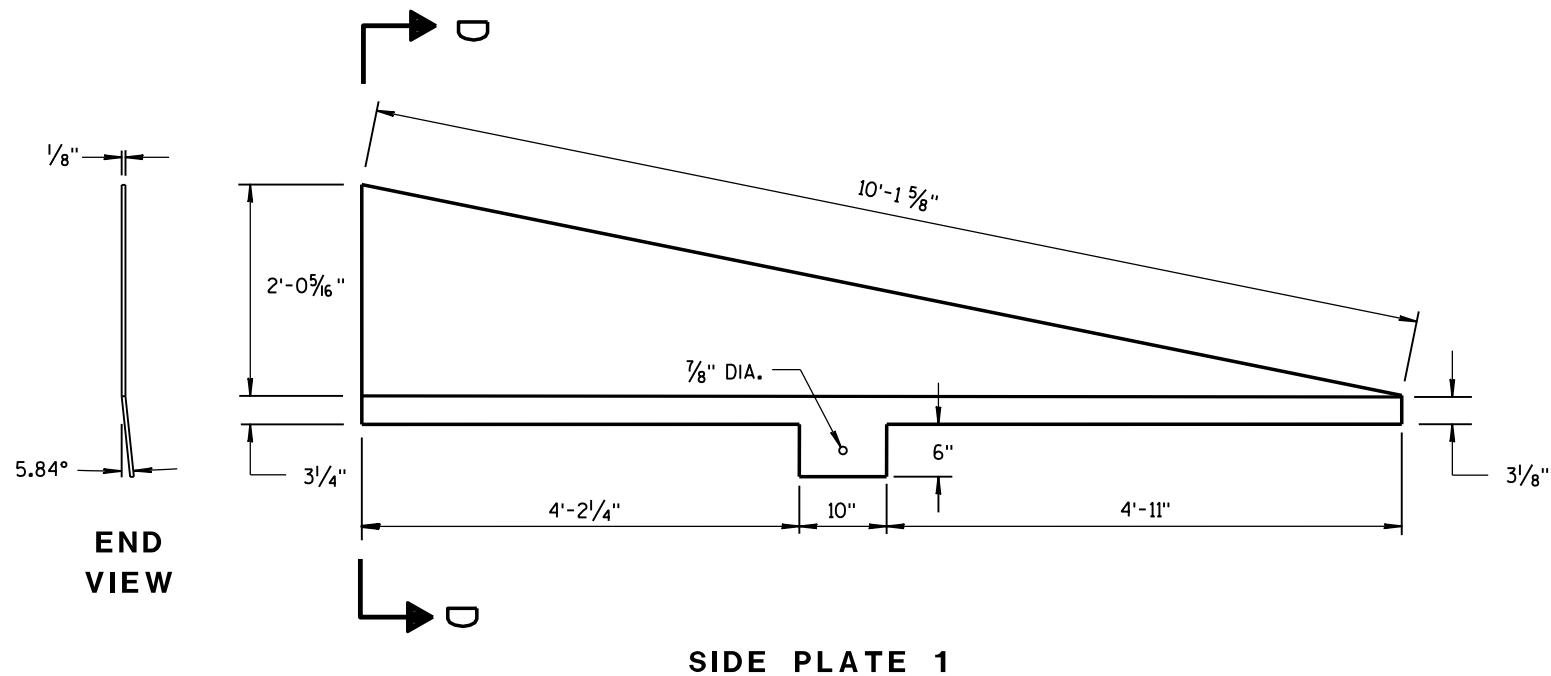
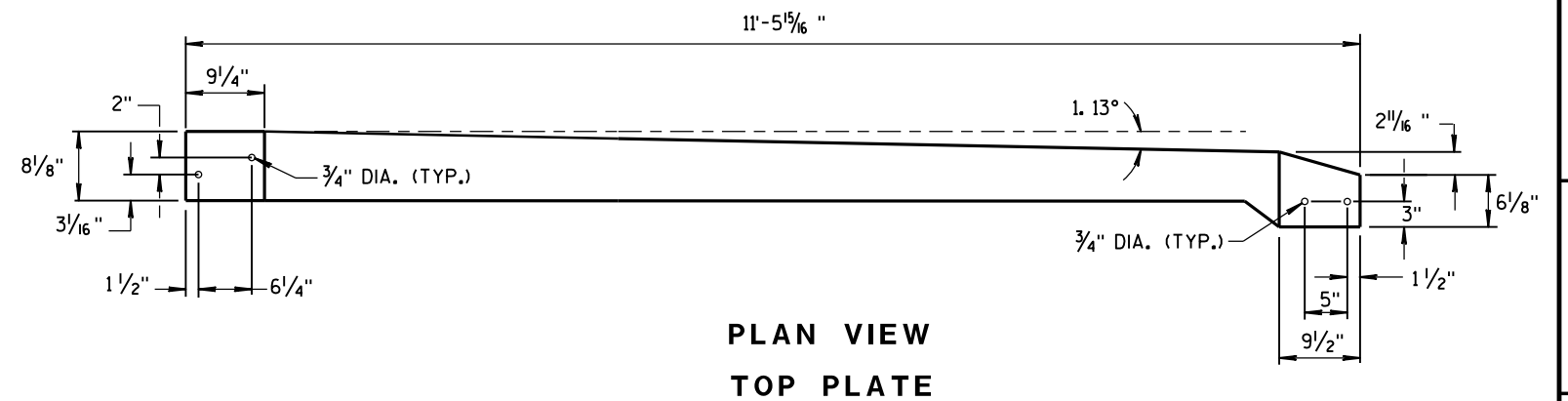
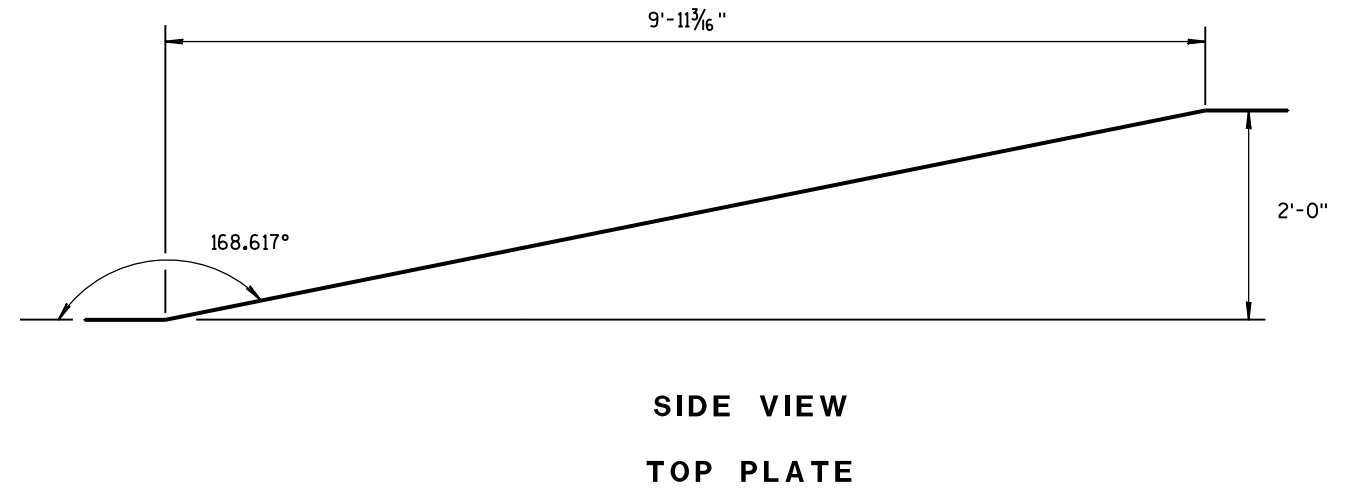
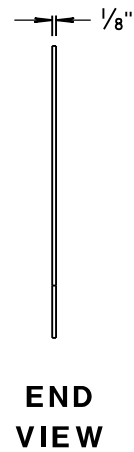
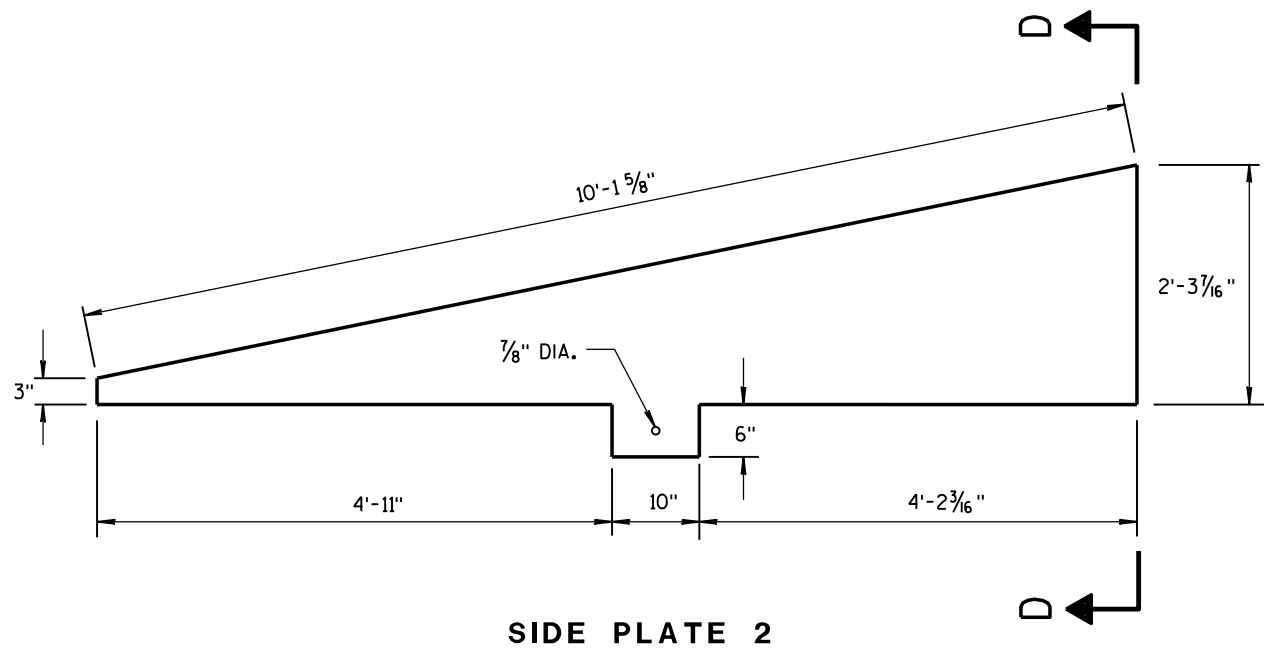


GUSSET LOCATION

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

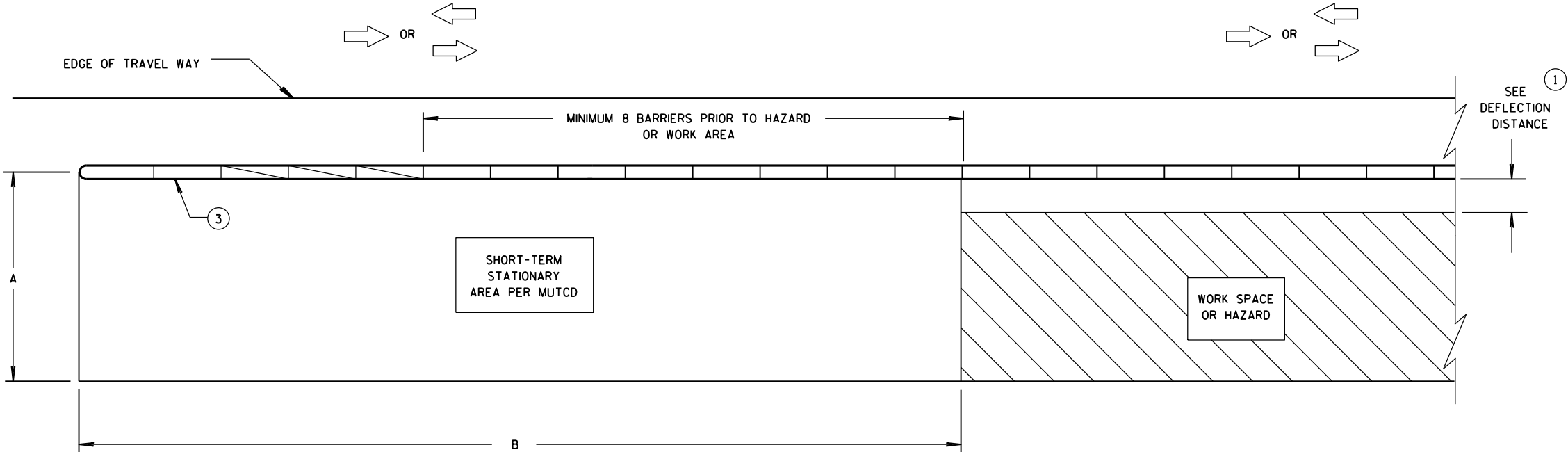
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

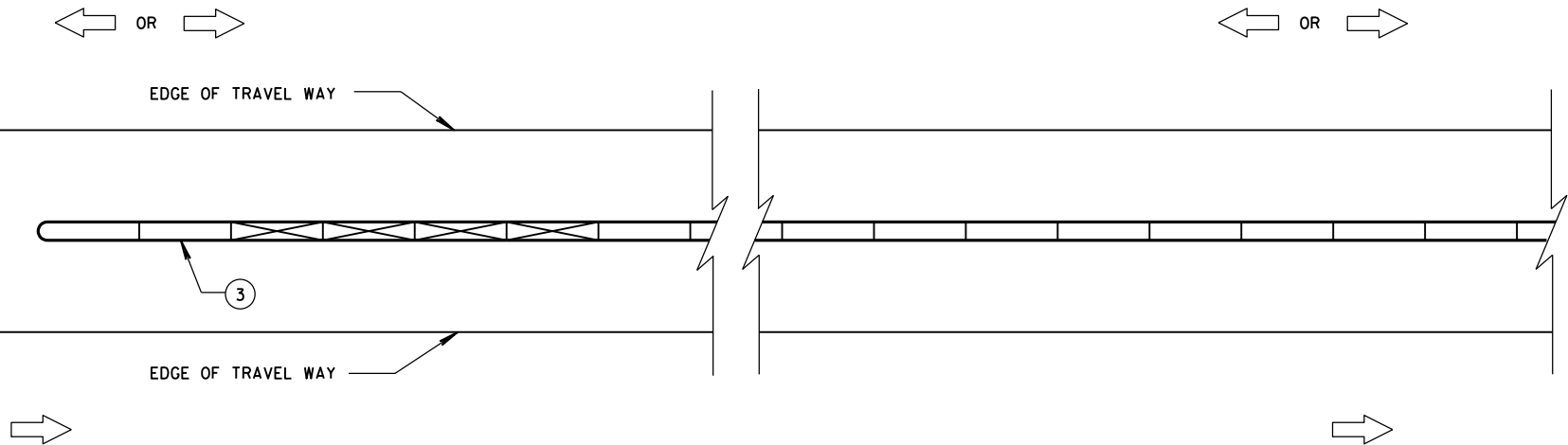


**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 56" PERMANENT CONCRETE BARRIER**

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED June 2017	/S/ Rodney Taylor		
DATE	ROADWAY STANDARD	68	ENT
FHWA	UNIT SUPERV		



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

- ① FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- ② VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- ③ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

DIMENSION A TABLE ②

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

DIMENSION B TABLE ②

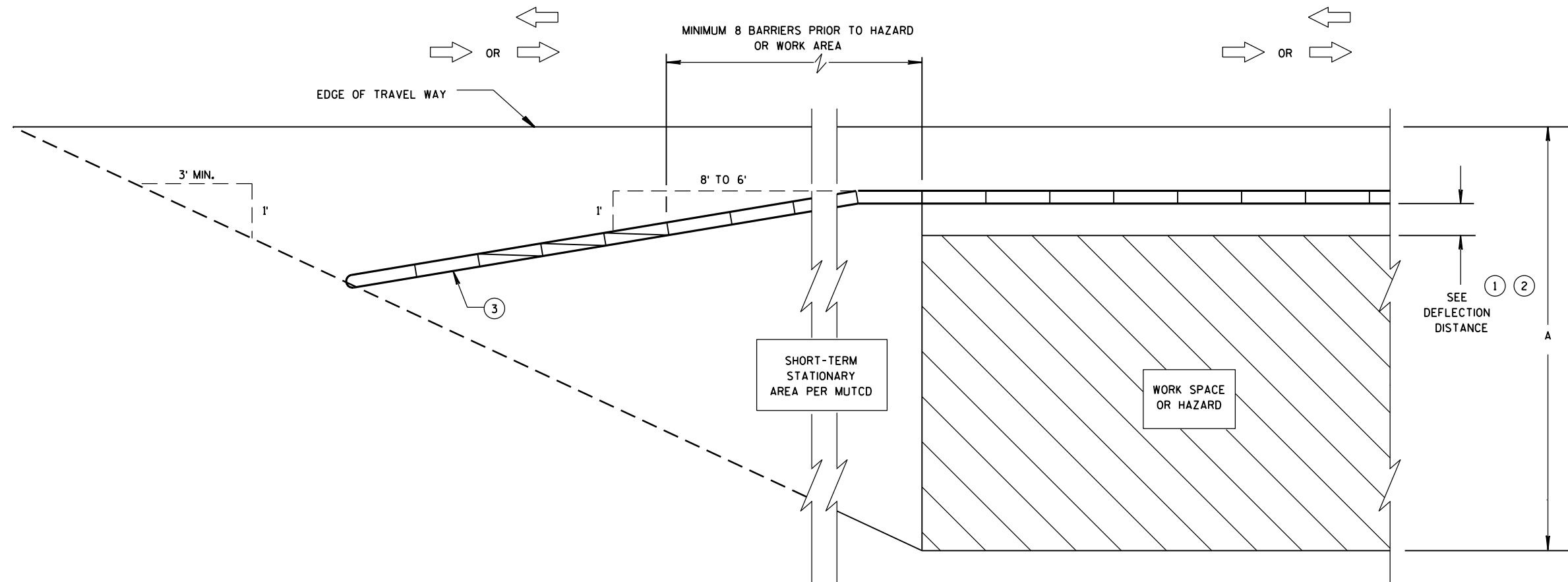
POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

LEGEND

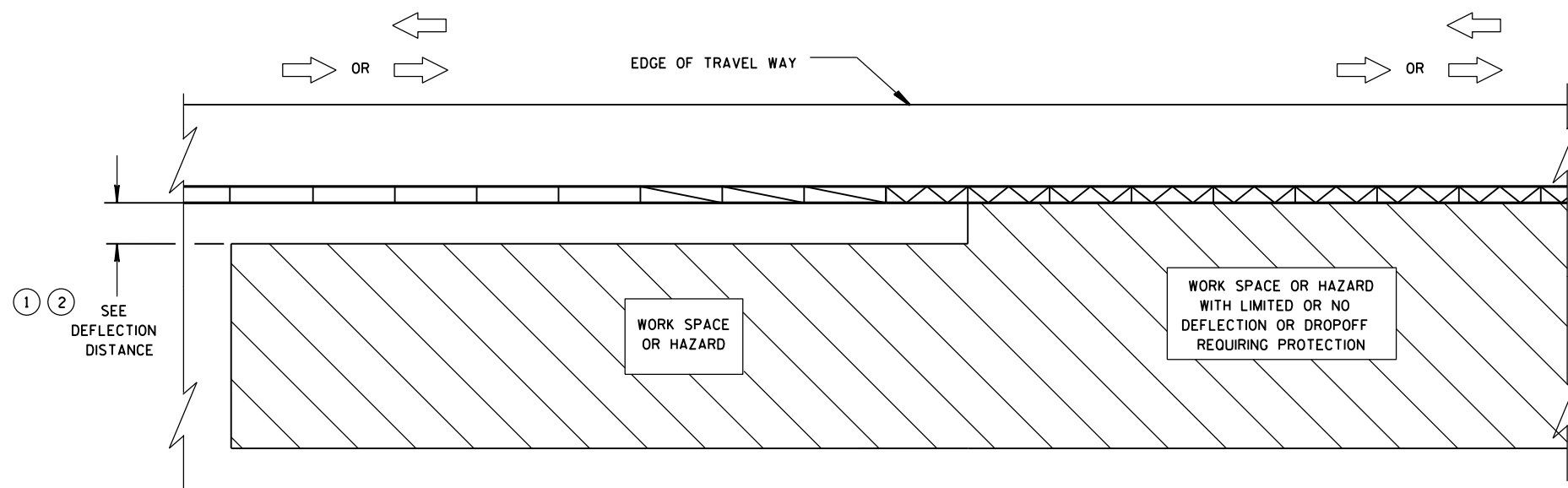
- DIRECTION OF TRAVEL →
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



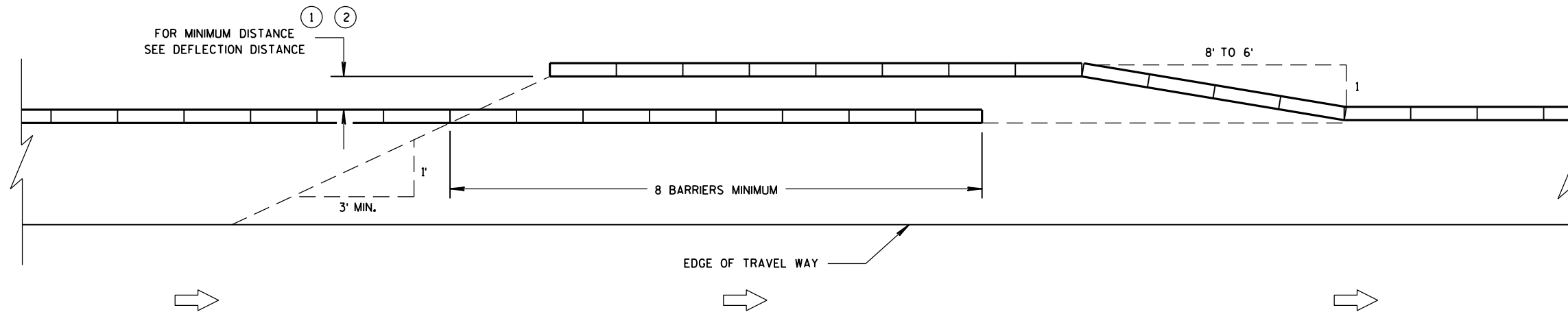
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER
TO ANCHORED BARRIER**

LEGEND

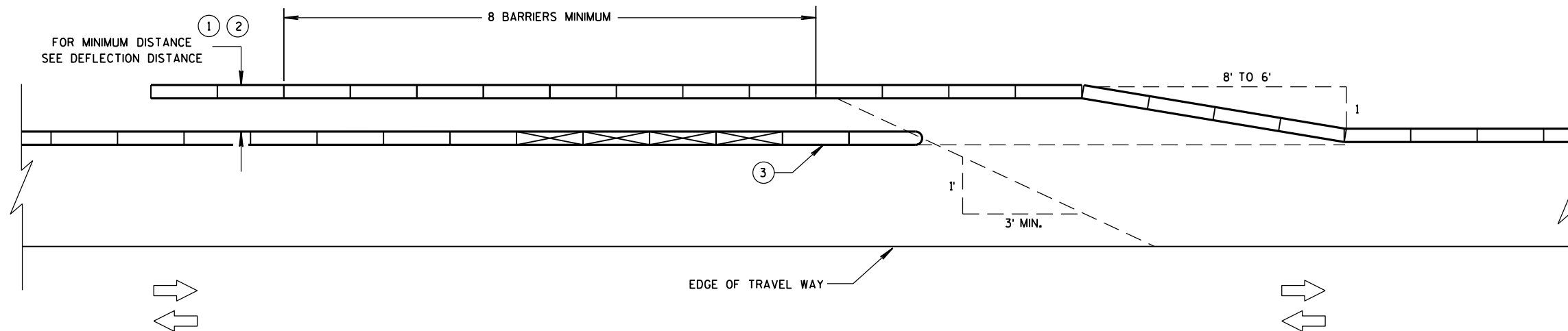
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

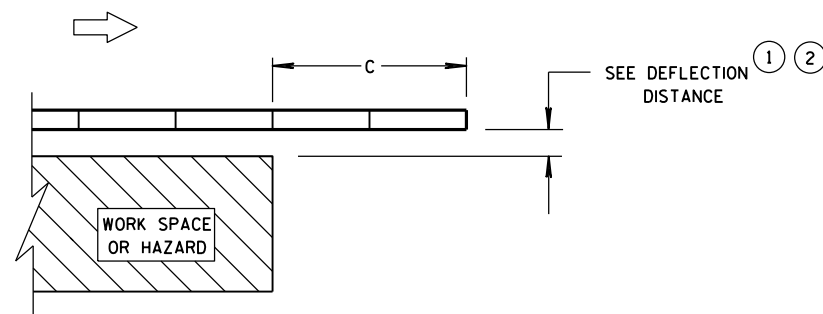
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



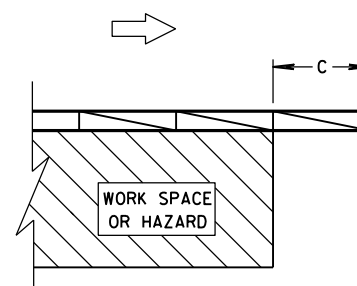
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



**ENDING TEMPORARY BARRIER
DOWNSTREAM - UNANCHORED**



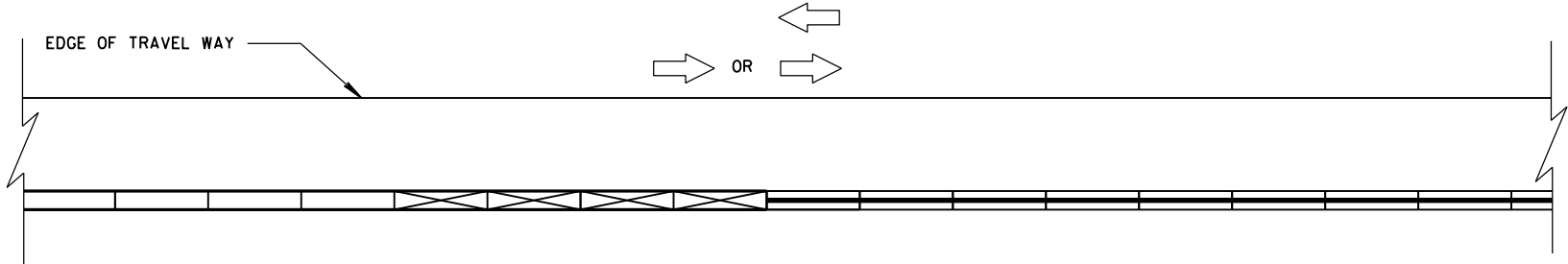
**ENDING TEMPORARY BARRIER
DOWNSTREAM - ANCHORED**

LEGEND

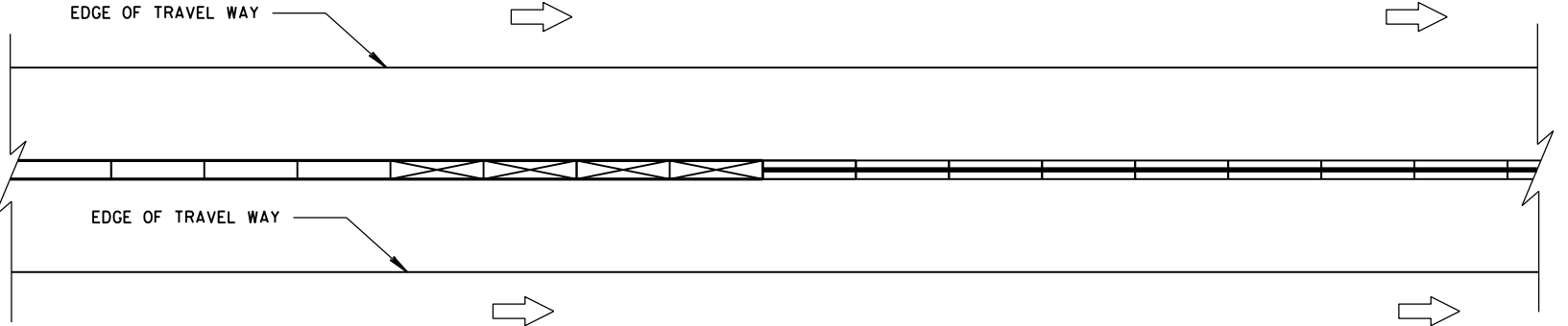
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

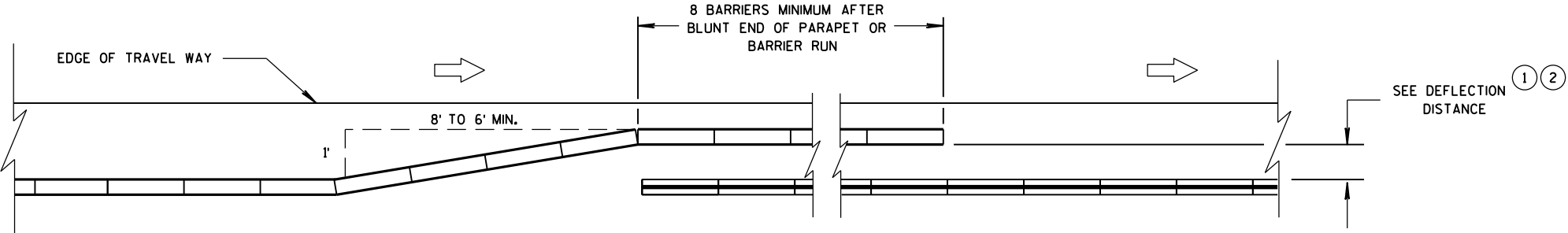


CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON ONE SIDE

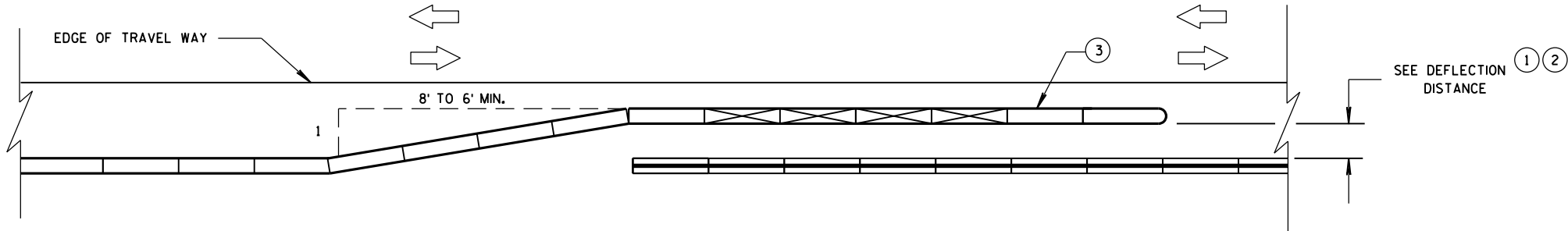


CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

LEGEND	
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
TWO WAY TRAFFIC

CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

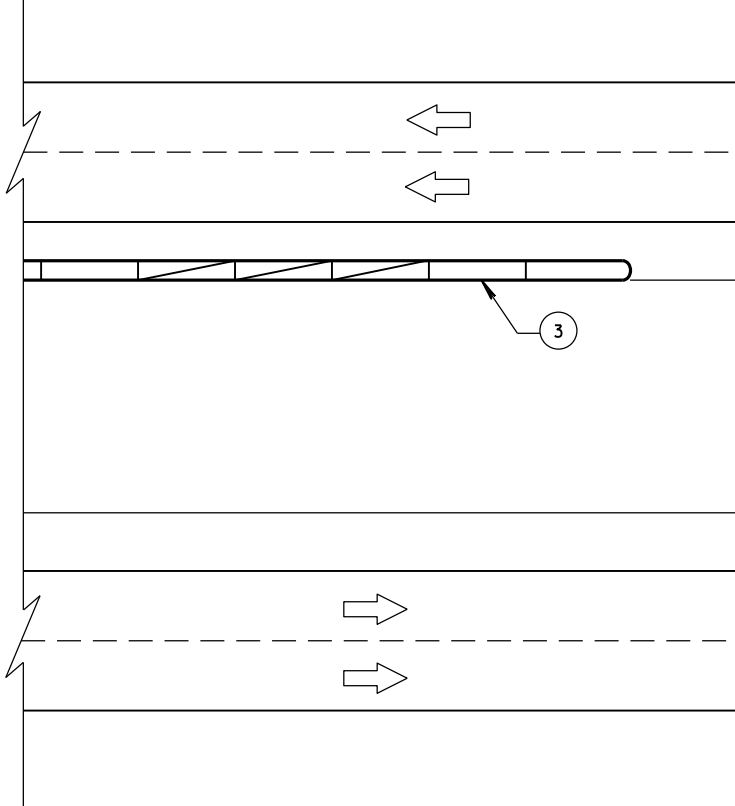
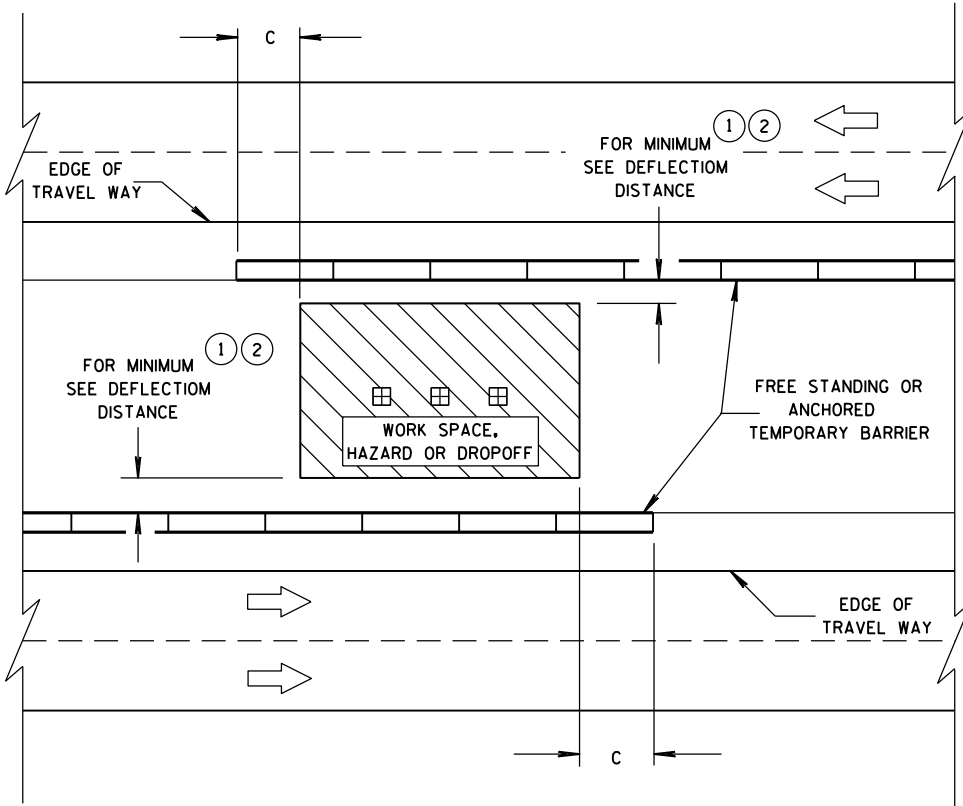
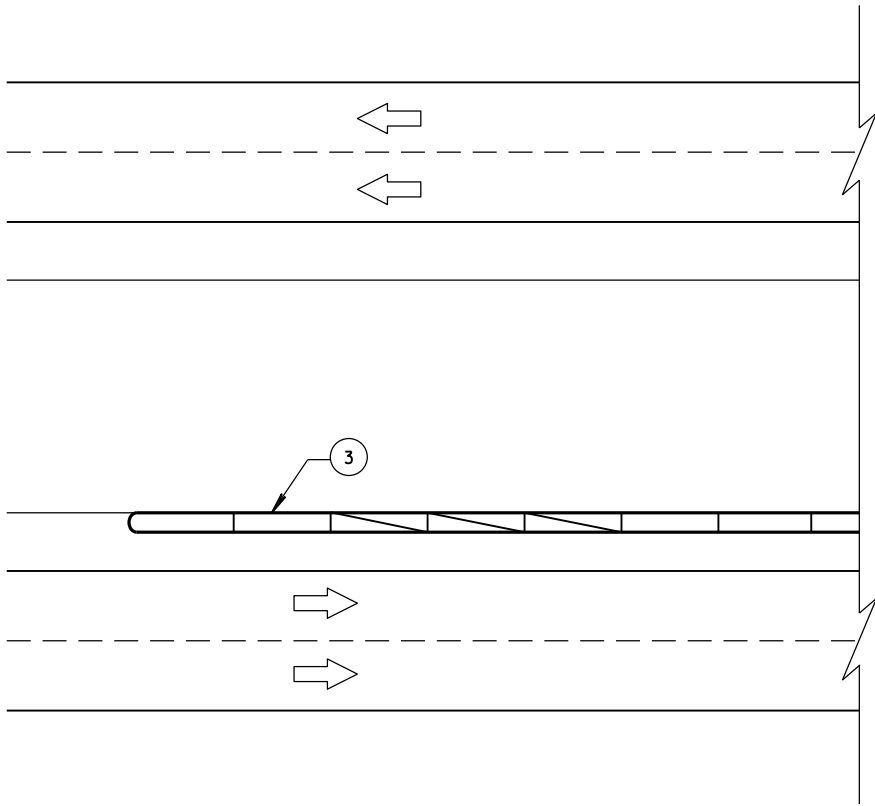
LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100

6



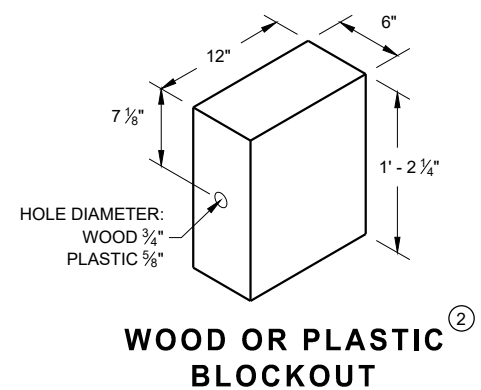
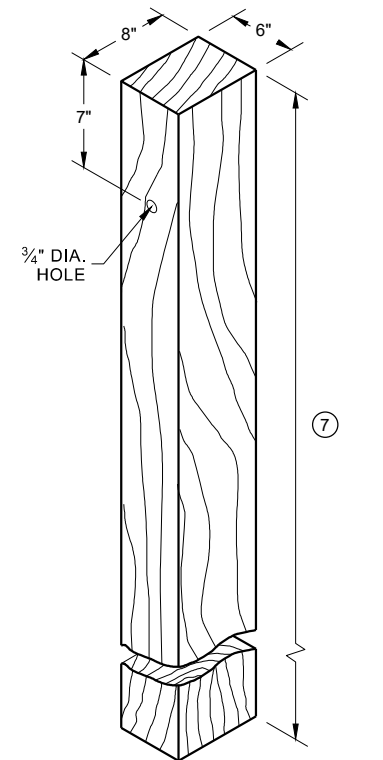
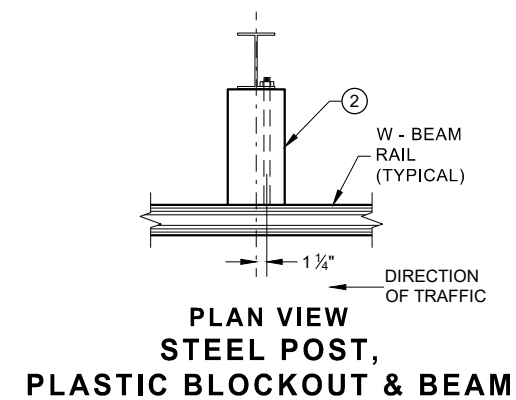
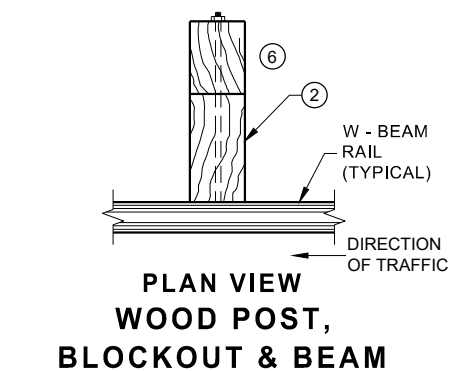
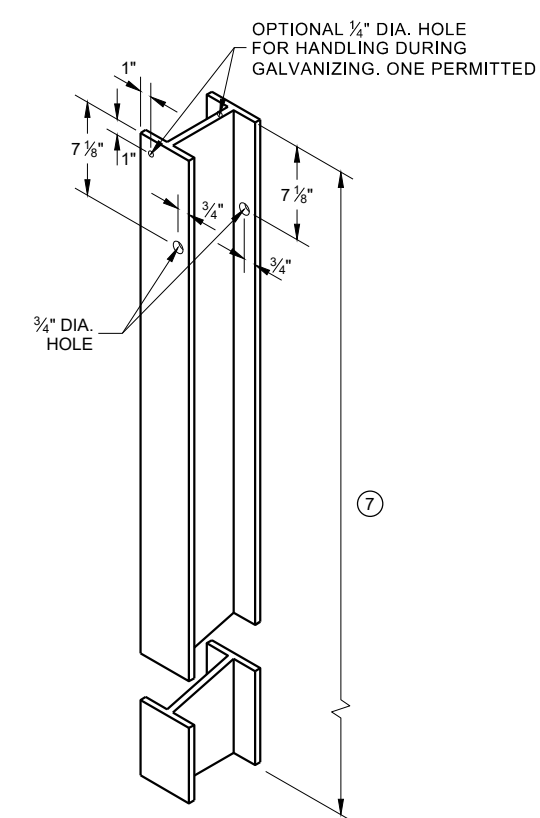
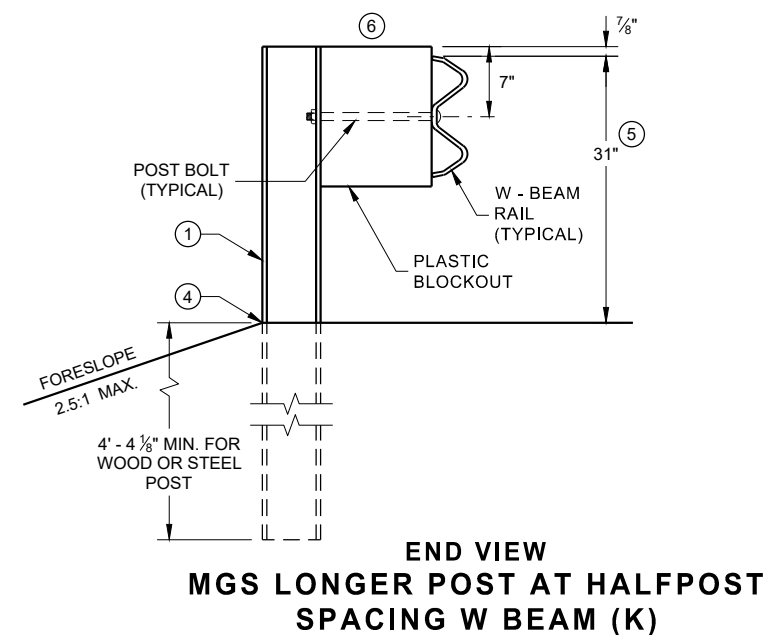
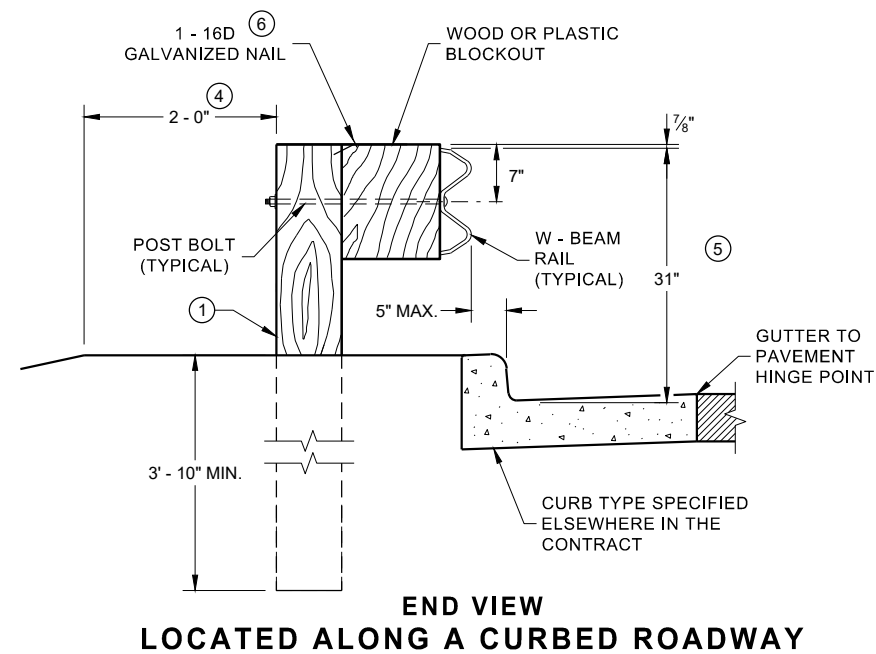
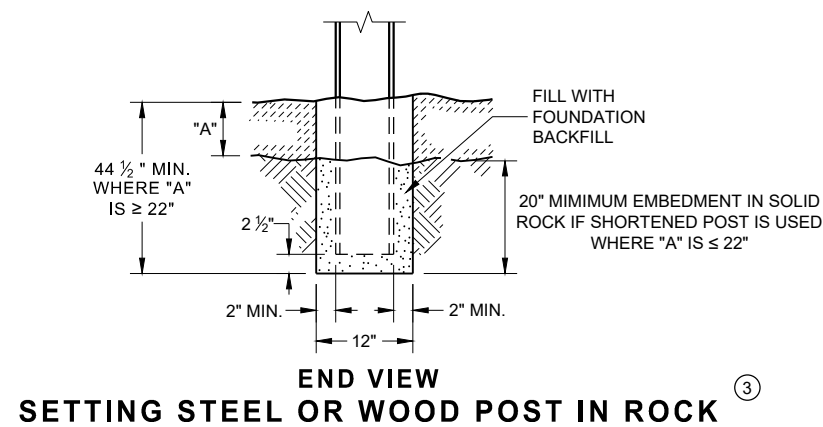
6

CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

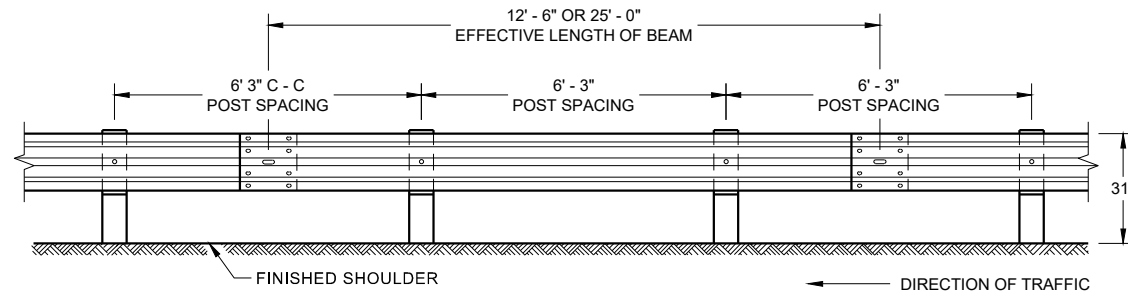
APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS 73 ENT
FHWA ENGINEER

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD 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 +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".

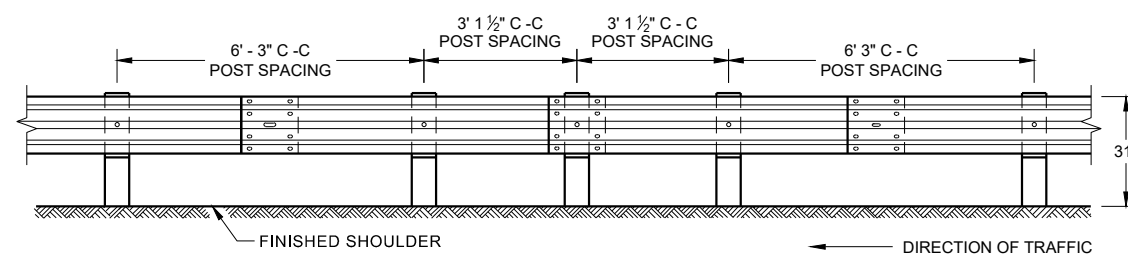


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

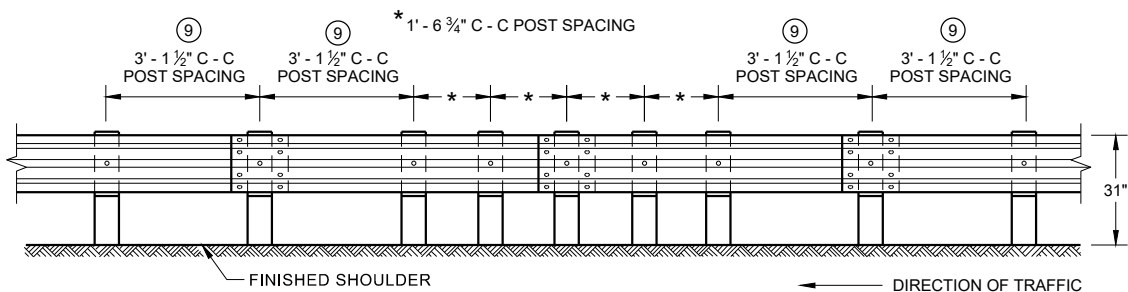
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 74



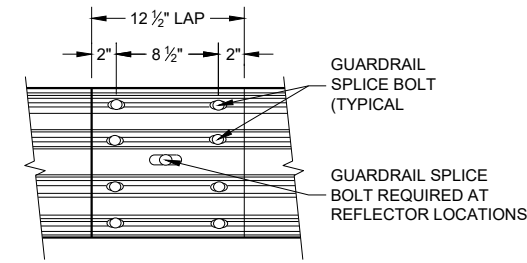
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



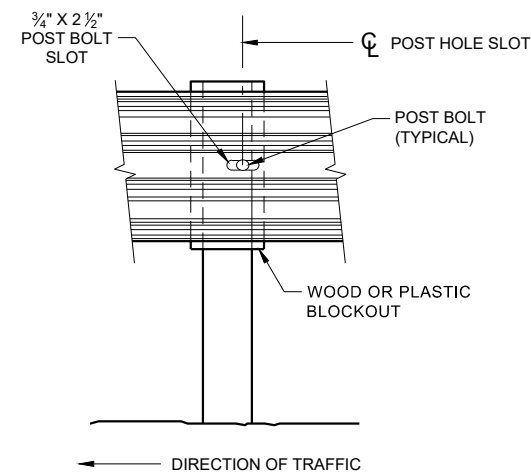
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



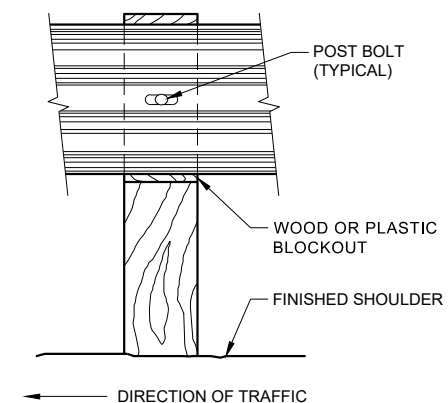
**FRONT VIEW
QUARTER POST SPACING (QS)**



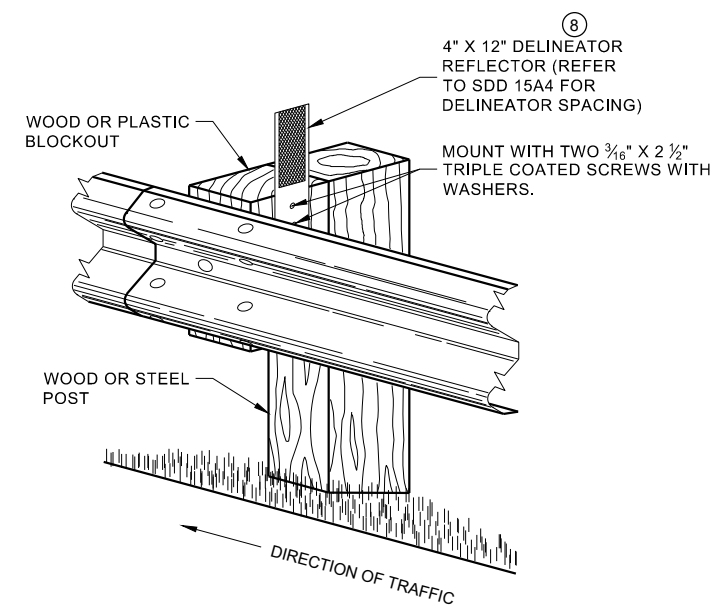
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



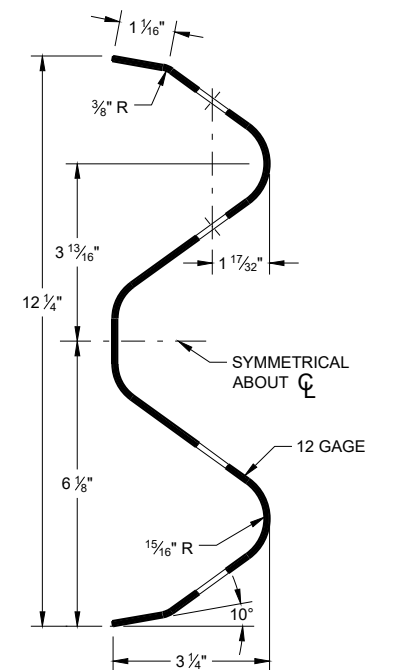
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

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 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

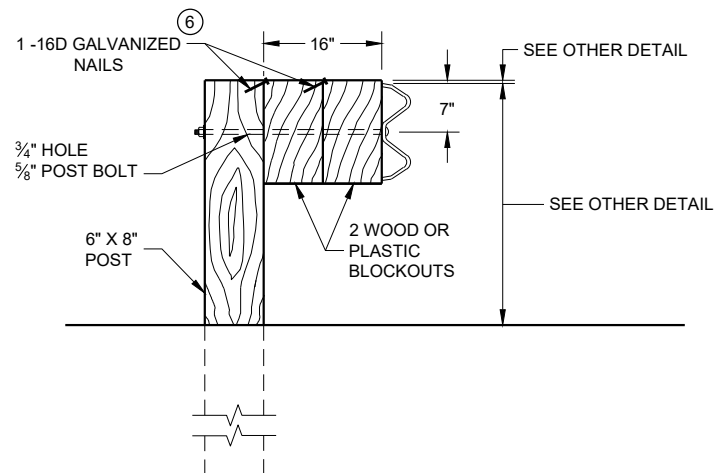
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

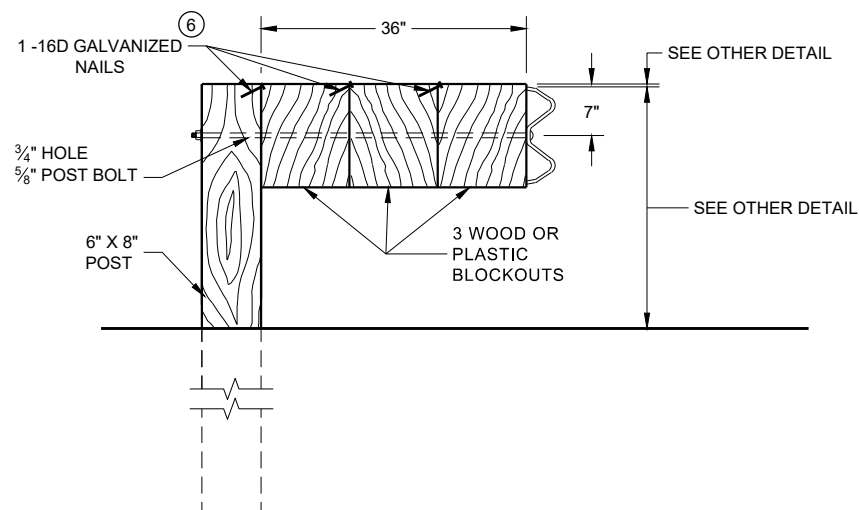
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

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DEPARTMENT OF TRANSPORTATION 75



DETAIL FOR 16" BLOCKOUT DEPTH

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



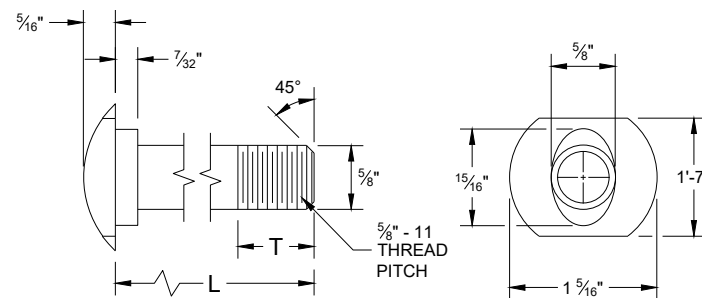
DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

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

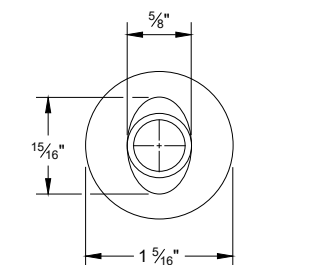
NOTE:

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

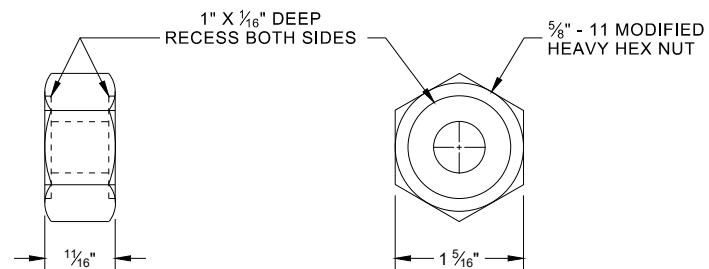


POST BOLT TABLE

L	T (MIN.)
1 $\frac{1}{4}$ "	1 $\frac{1}{8}$ "
2"	1 $\frac{3}{4}$ "
10"	4"
14"	4 $\frac{1}{16}$ "
18"	4"
21"	4 $\frac{1}{16}$ "
25"	4"

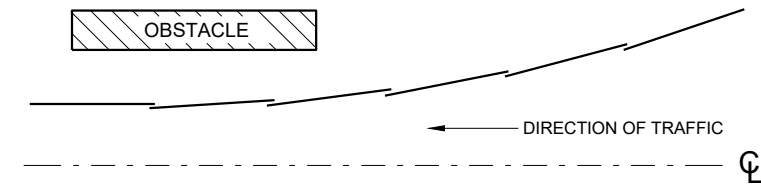


ALTERNATE BOLT HEAD

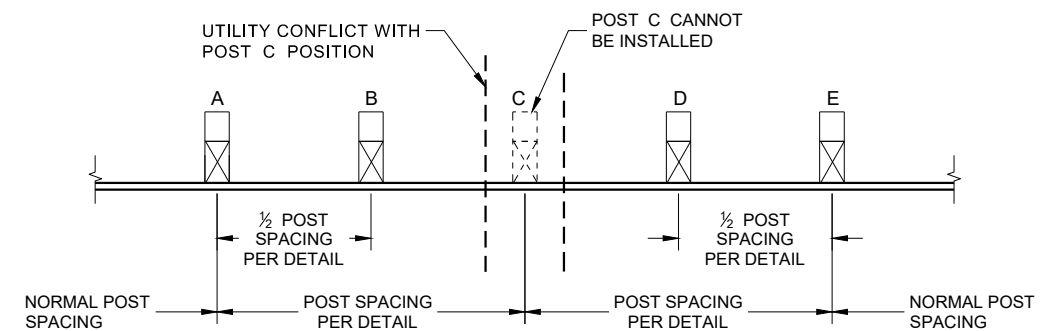


POST BOLT, SPLICE BOLT AND RECESS NUT

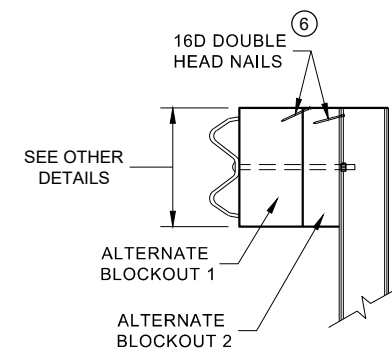
- ⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



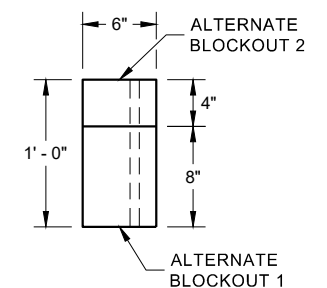
PLAN VIEW BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW

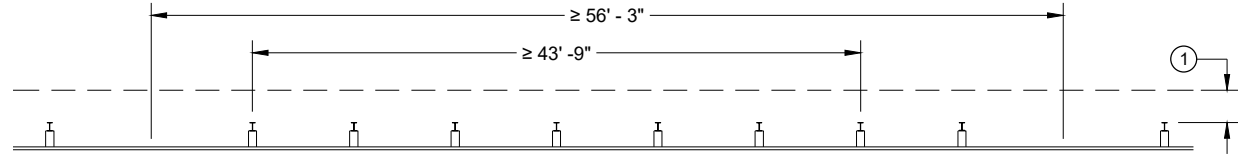


PLAN VIEW

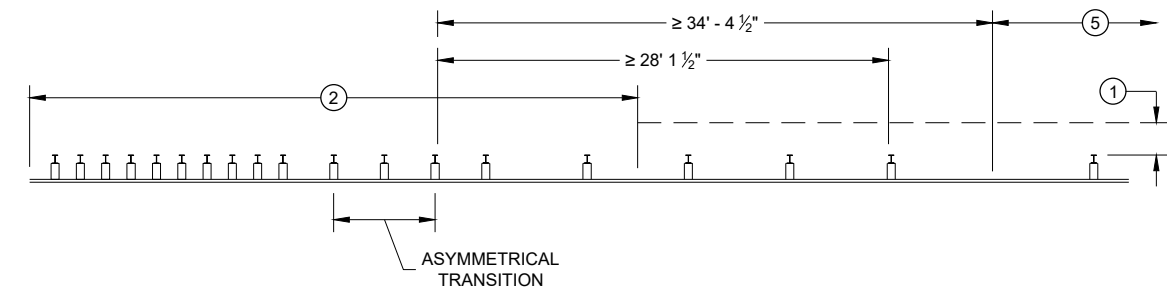
ALTERNATE WOOD BLOCKOUT DETAIL

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

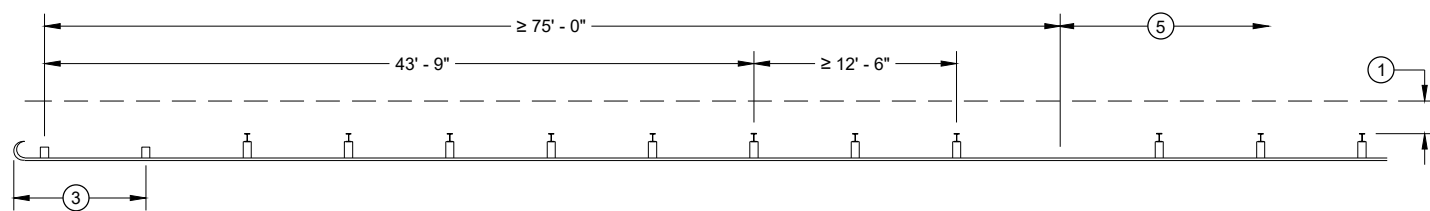
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 76



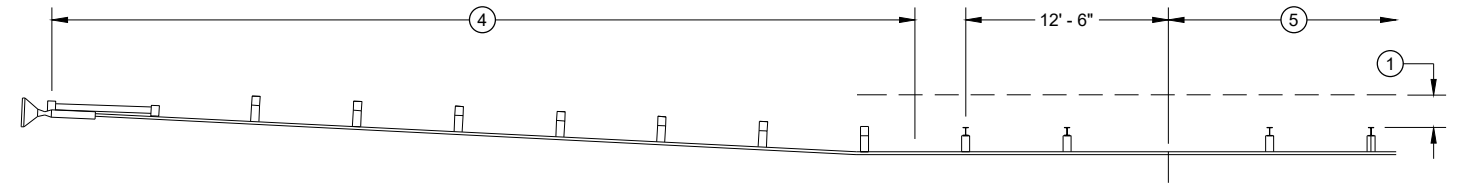
MISSING POST IN NORMAL BEAM GUARD RUN



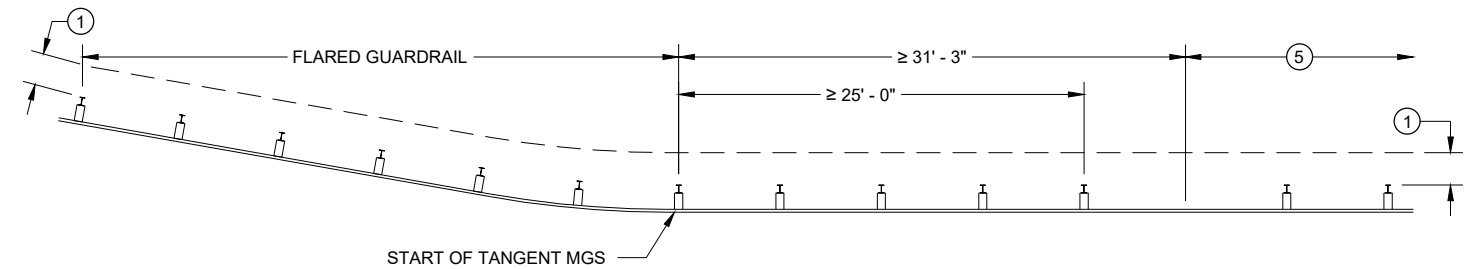
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



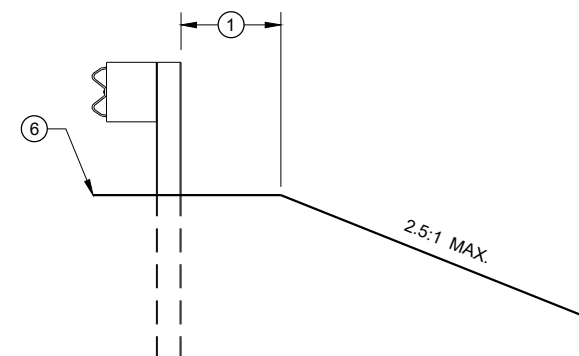
MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL



MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



CROSS SECTION VIEW

- (1) MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- (2) SEE SDD 14B45 FOR MORE DETAILS.
- (3) SEE SDD 14B47 FOR MORE DETAILS.
- (4) SEE SDD 14B44 FOR MORE DETAILS.
- (5) SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- (6) SEE PLAN FOR SHOULDER DESIGN.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

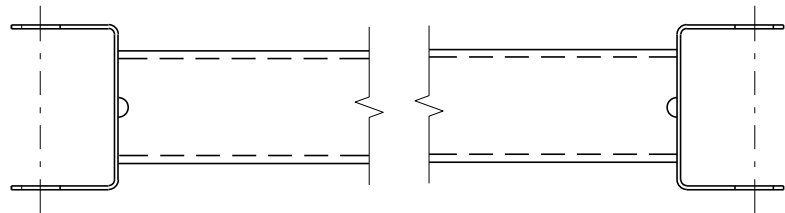
APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
77
FHWA

- 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.

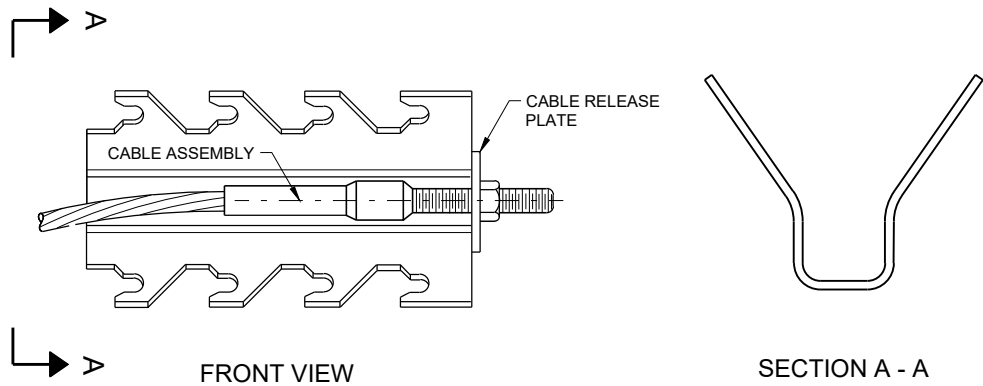
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 78

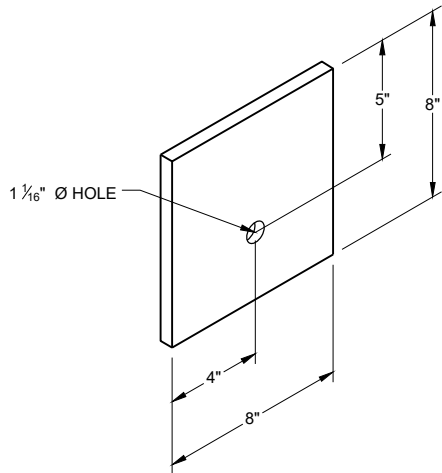


GENERIC GROUND STRUT^⑨ [Ⓔ]

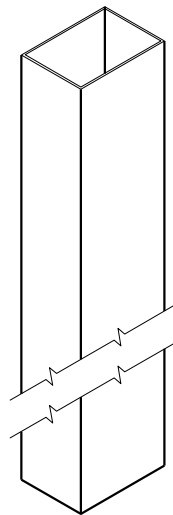
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED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



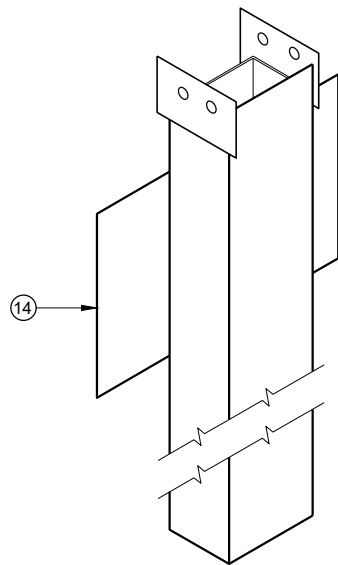
GENERIC ANCHOR CABLE BOX^⑨ [Ⓔ]



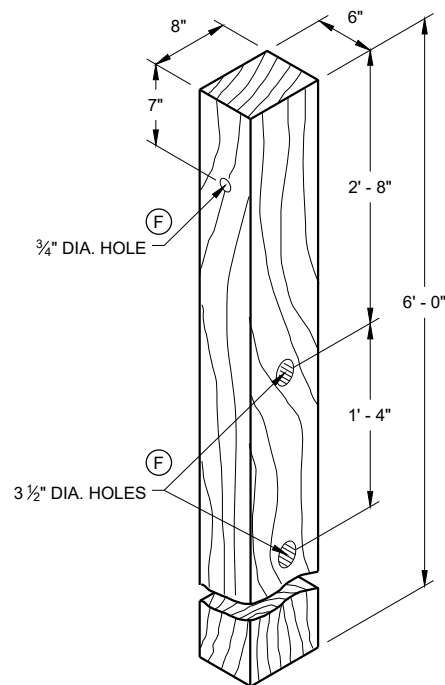
BEARING PLATE^⑥ [Ⓔ]



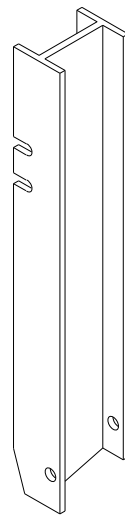
UPPER POST NO. 1 ⁽¹⁾ (E)



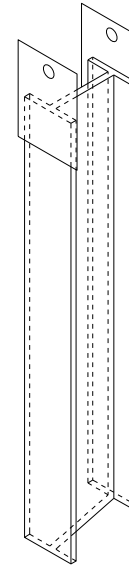
LOWER POST NO. 1 ⁽²⁾ (E)



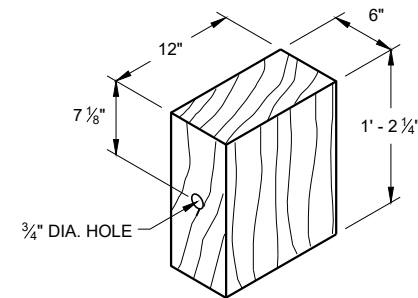
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



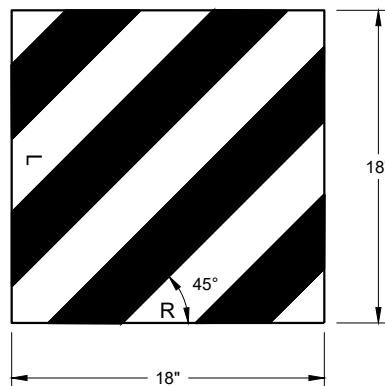
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



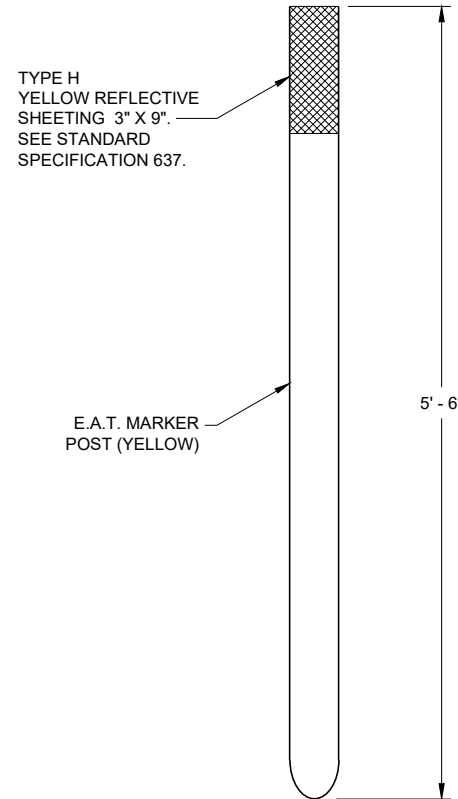
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



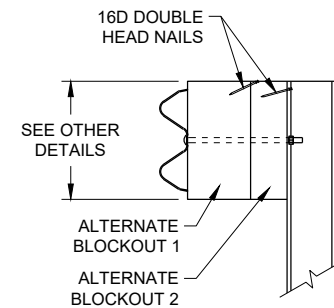
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



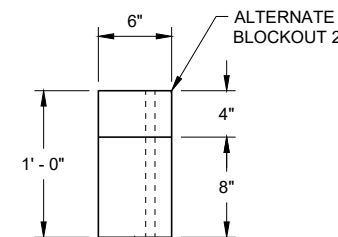
REFLECTIVE SHEETING DETAIL ^(E)



E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



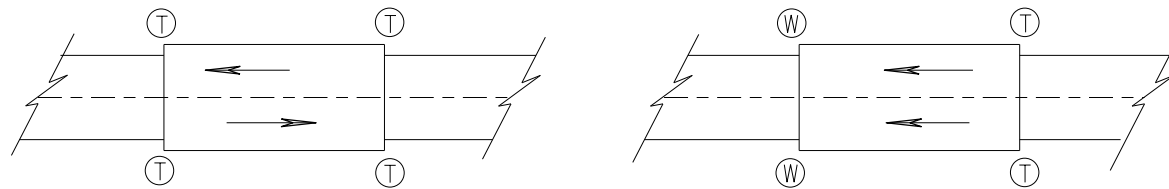
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC

ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

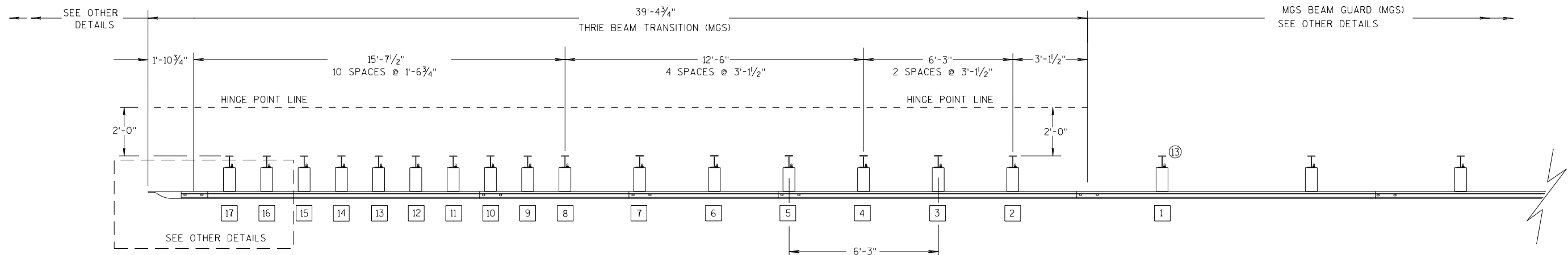
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

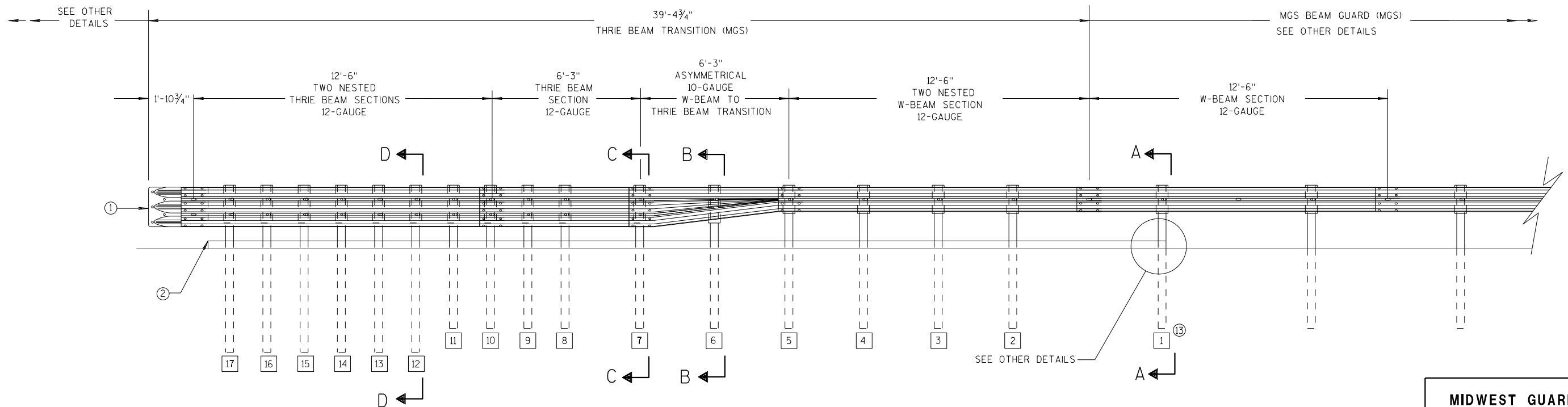
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

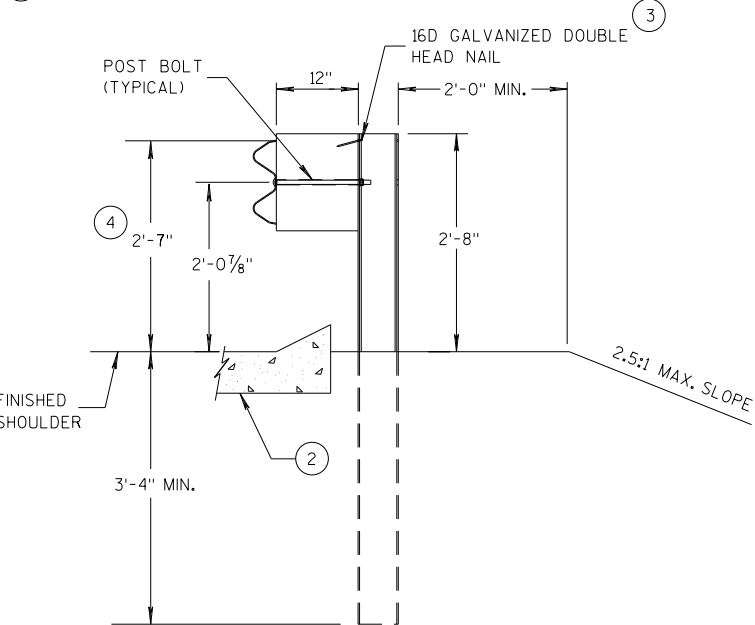
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

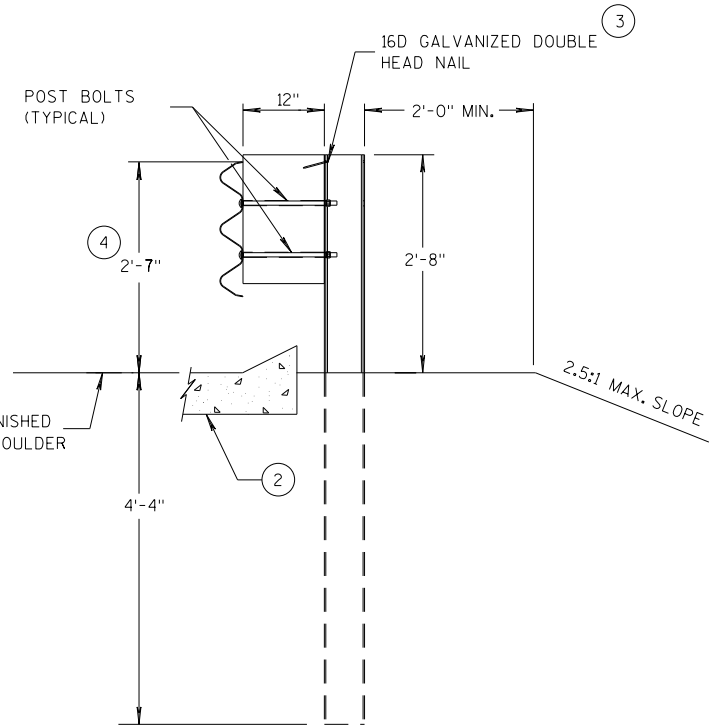
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

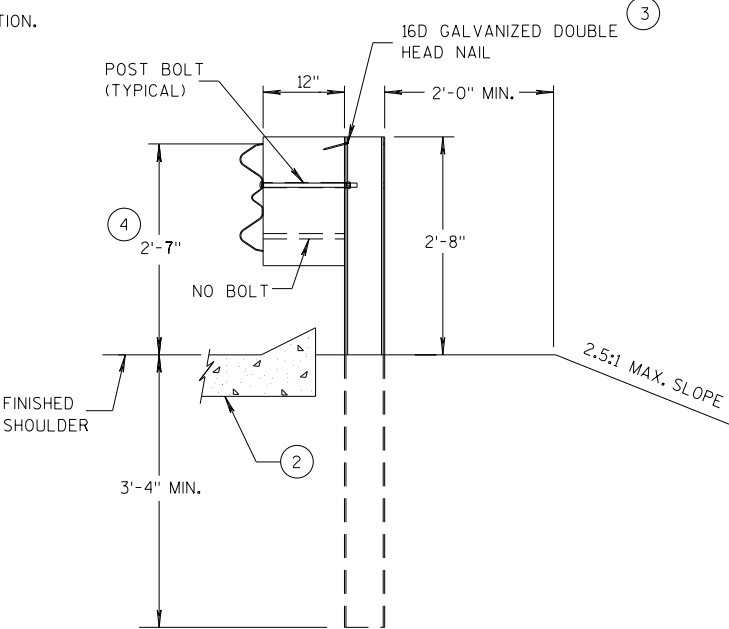
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.
- 13 STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



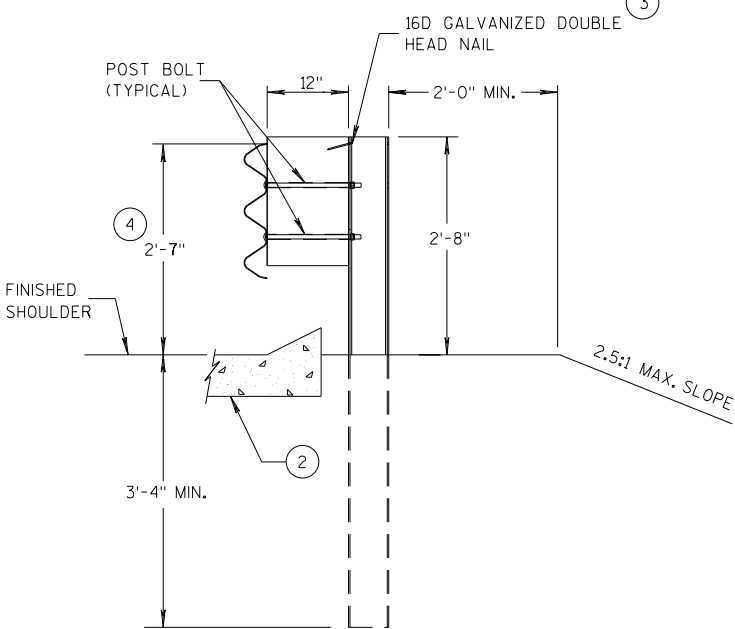
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

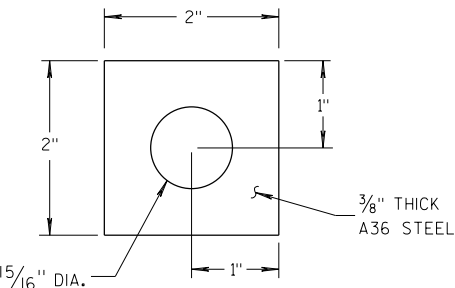
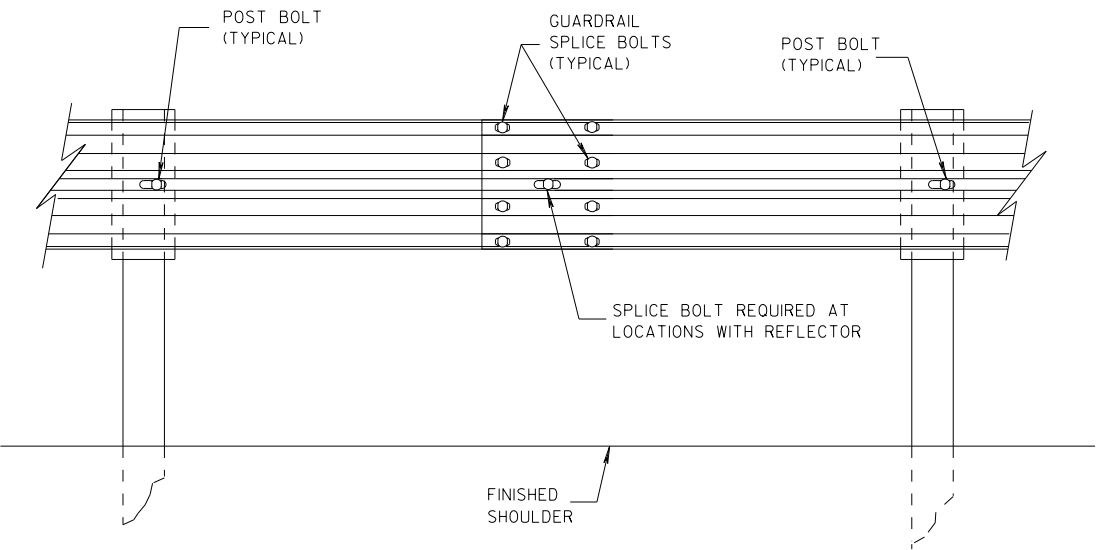
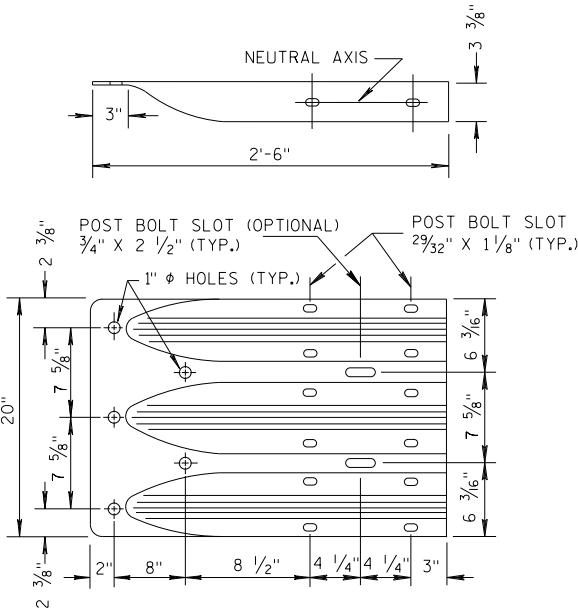


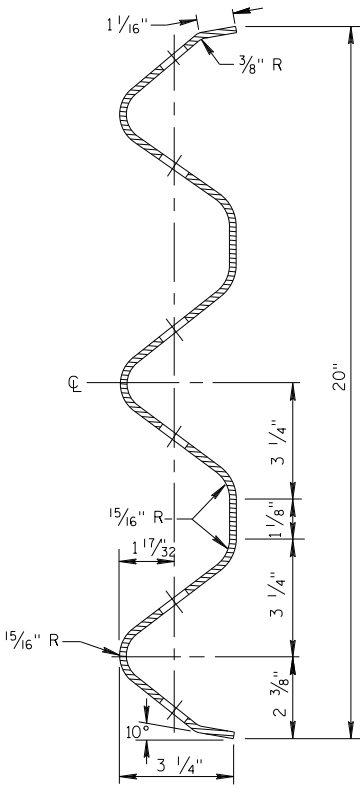
PLATE WASHER DETAIL



SPlice DETAIL



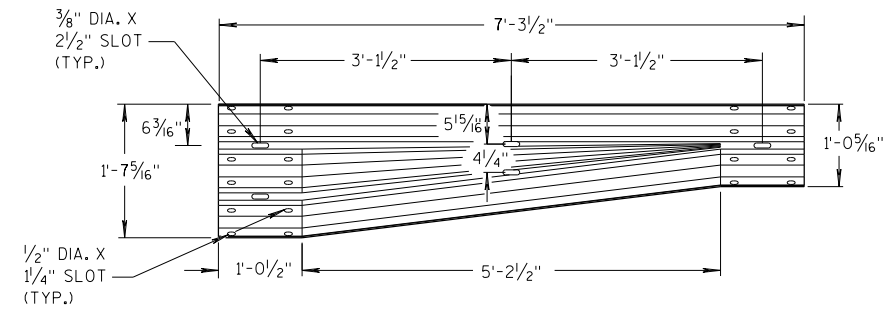
THRIE BEAM
TERMINAL CONNECTOR



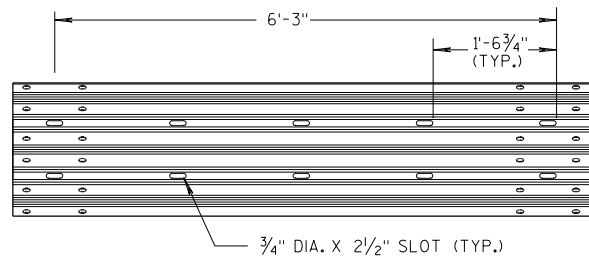
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

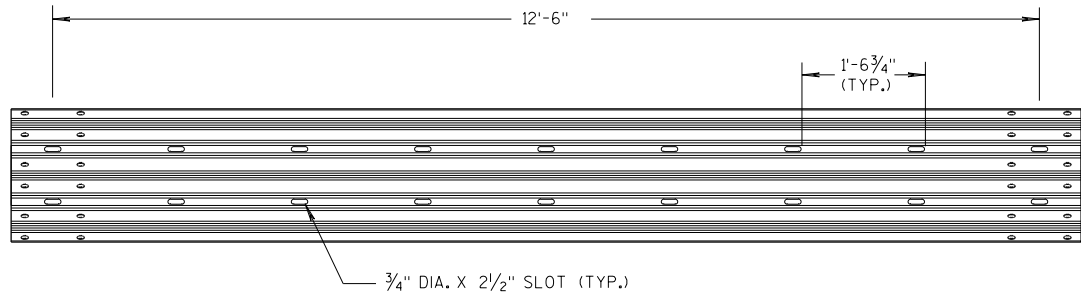
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



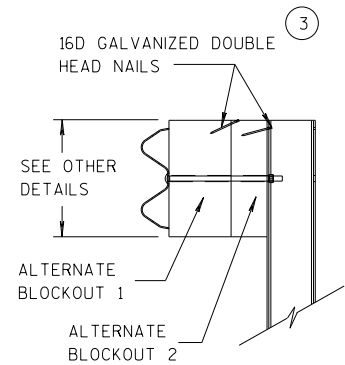
W-BEAM TO THRIE BEAM TRANSITION SECTION



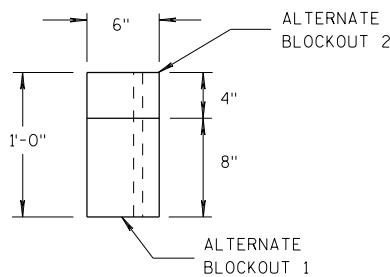
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

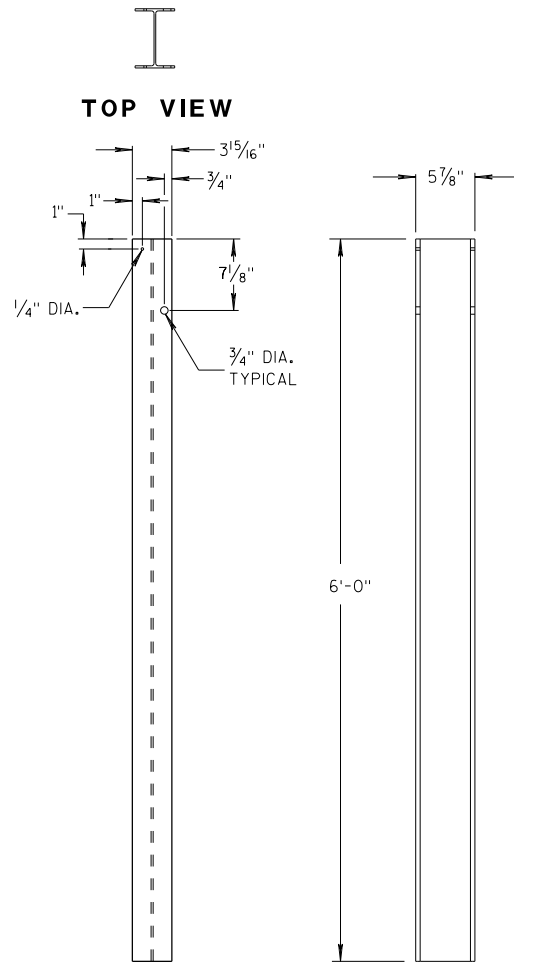


SIDE VIEW



TOP VIEW

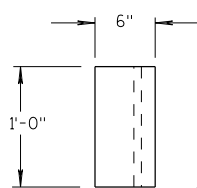
ALTERNATE WOOD BLOCKOUT DETAIL



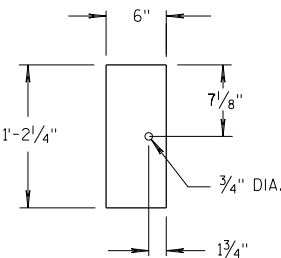
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

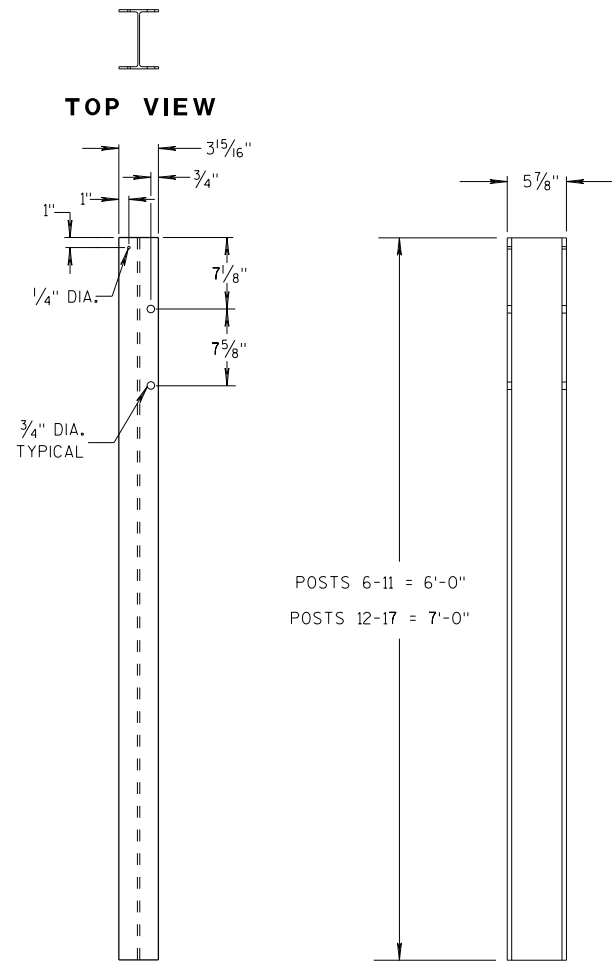


TOP VIEW



FRONT VIEW

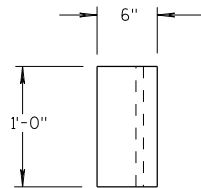
BLOCKOUT POSTS 1-5



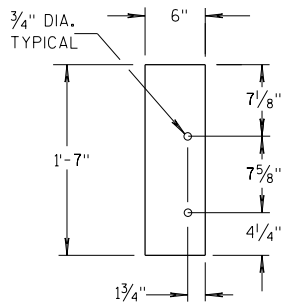
FRONT VIEW

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.

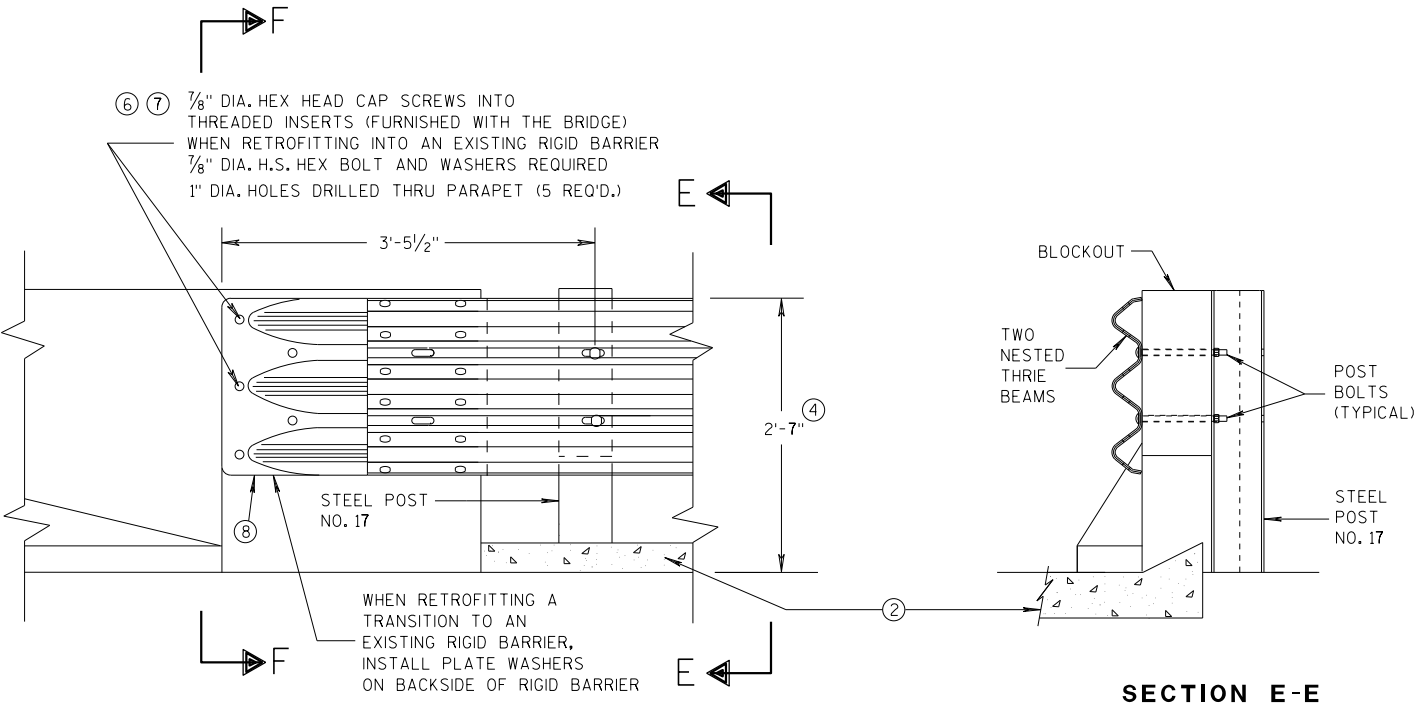
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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.

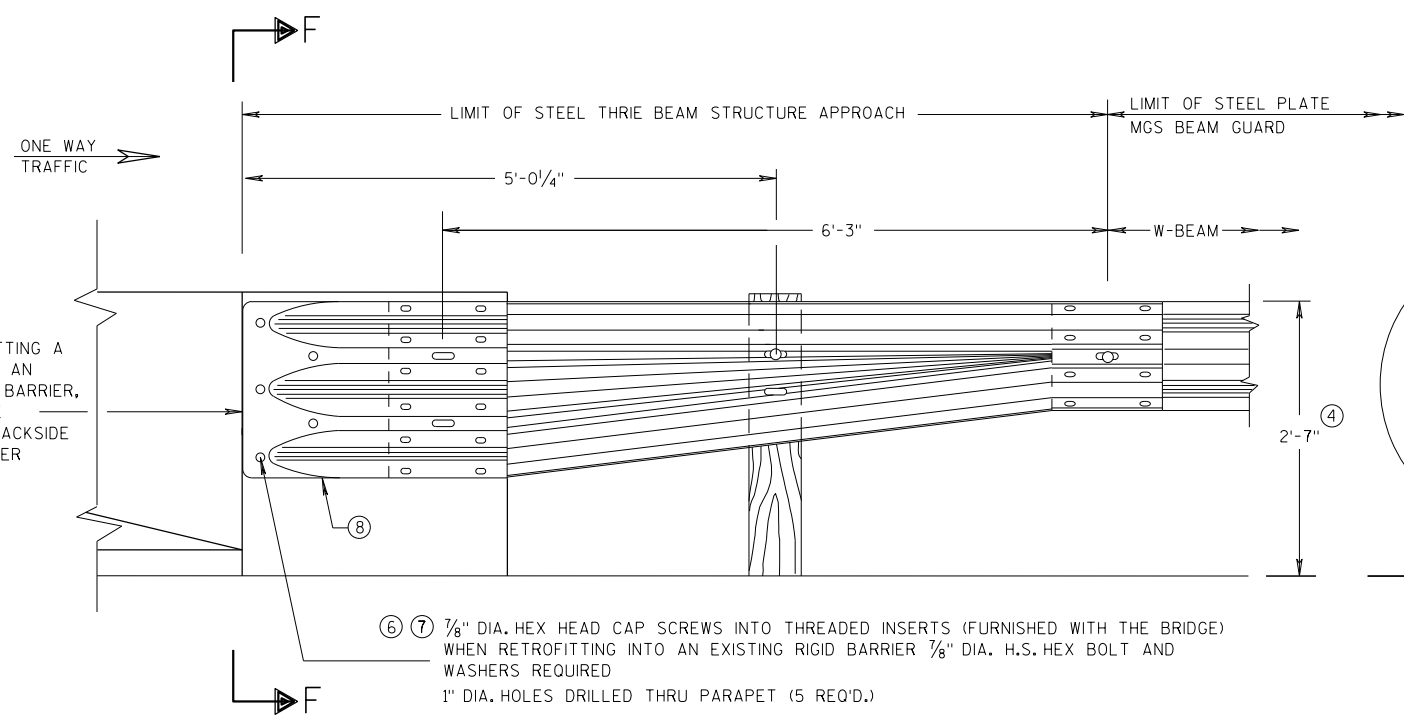
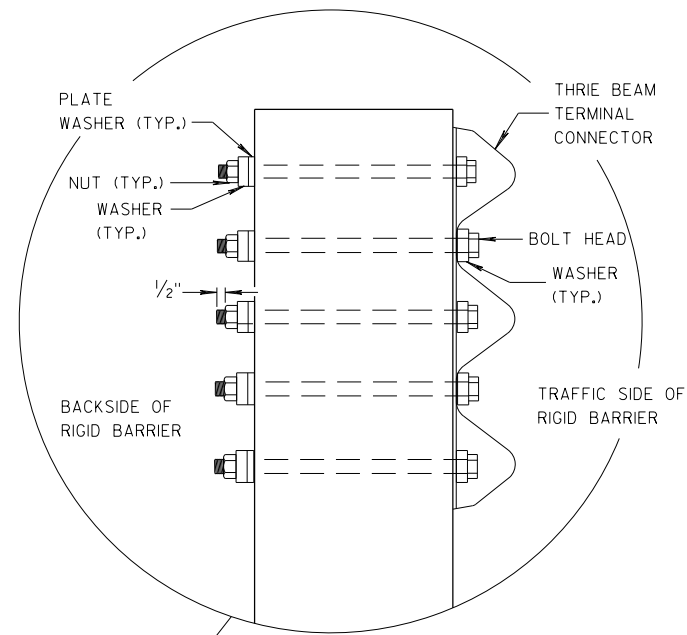
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

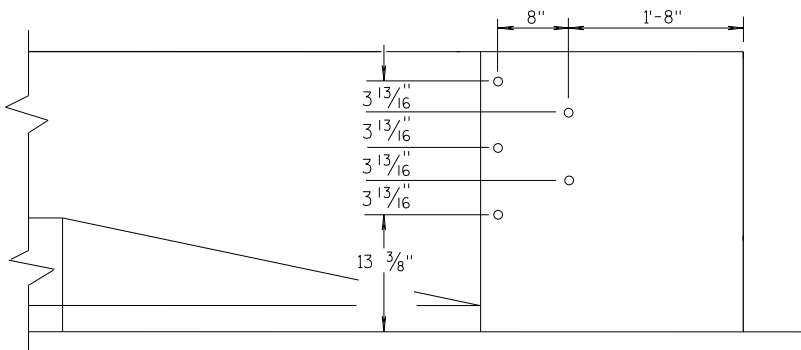


GENERAL NOTES

- 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 5/8" 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

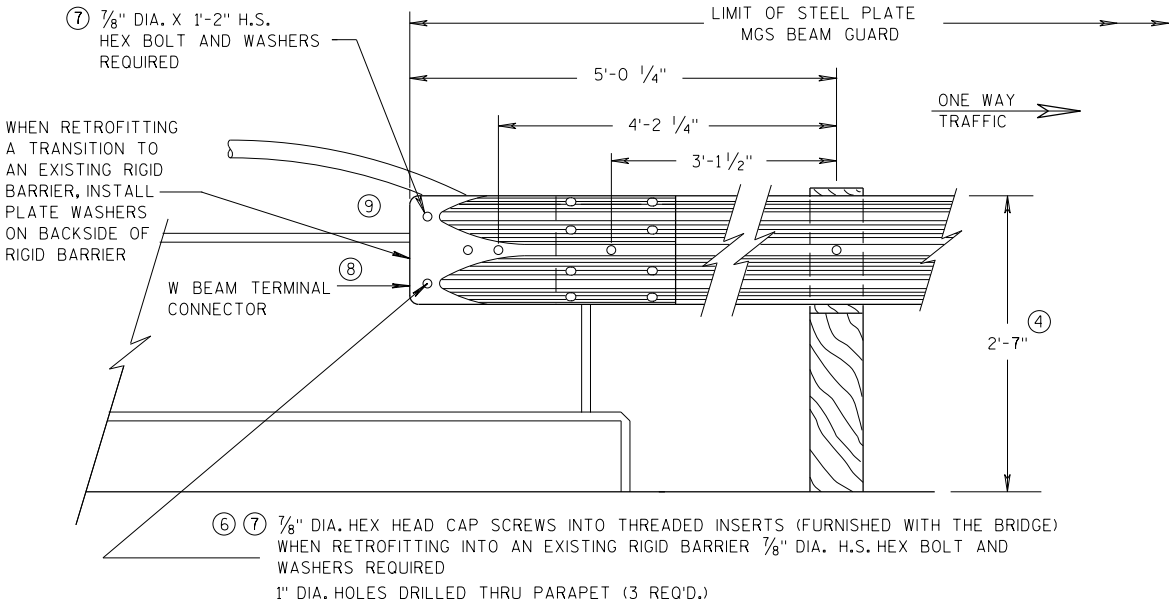


MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS UNIT SUPERVISOR		
FHWA	84	NT	

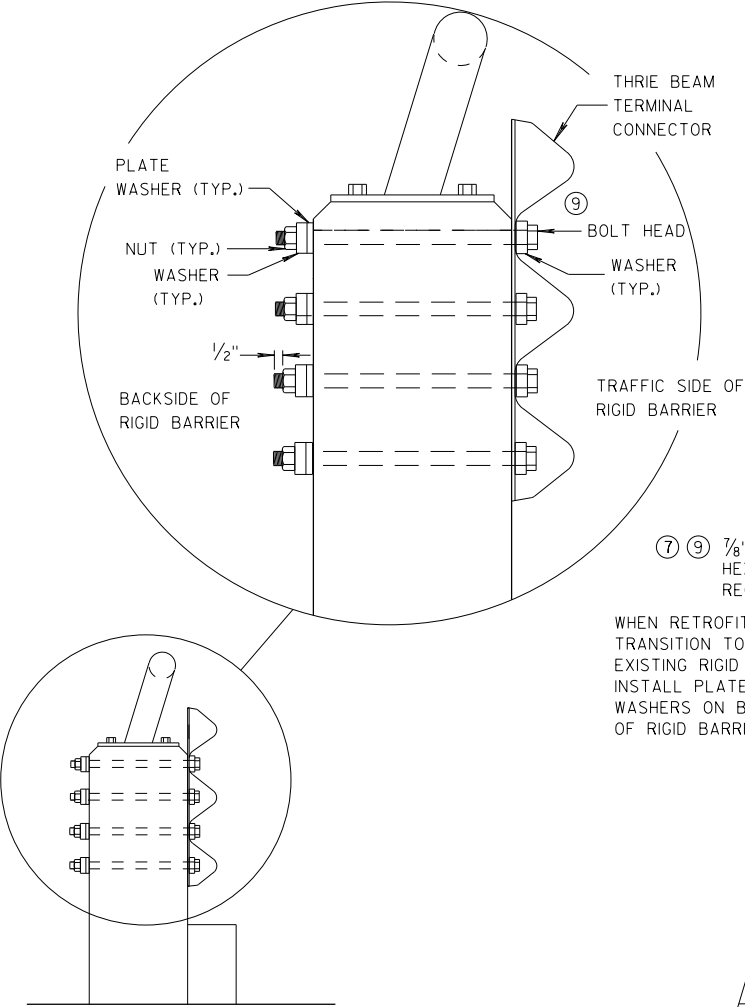
GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

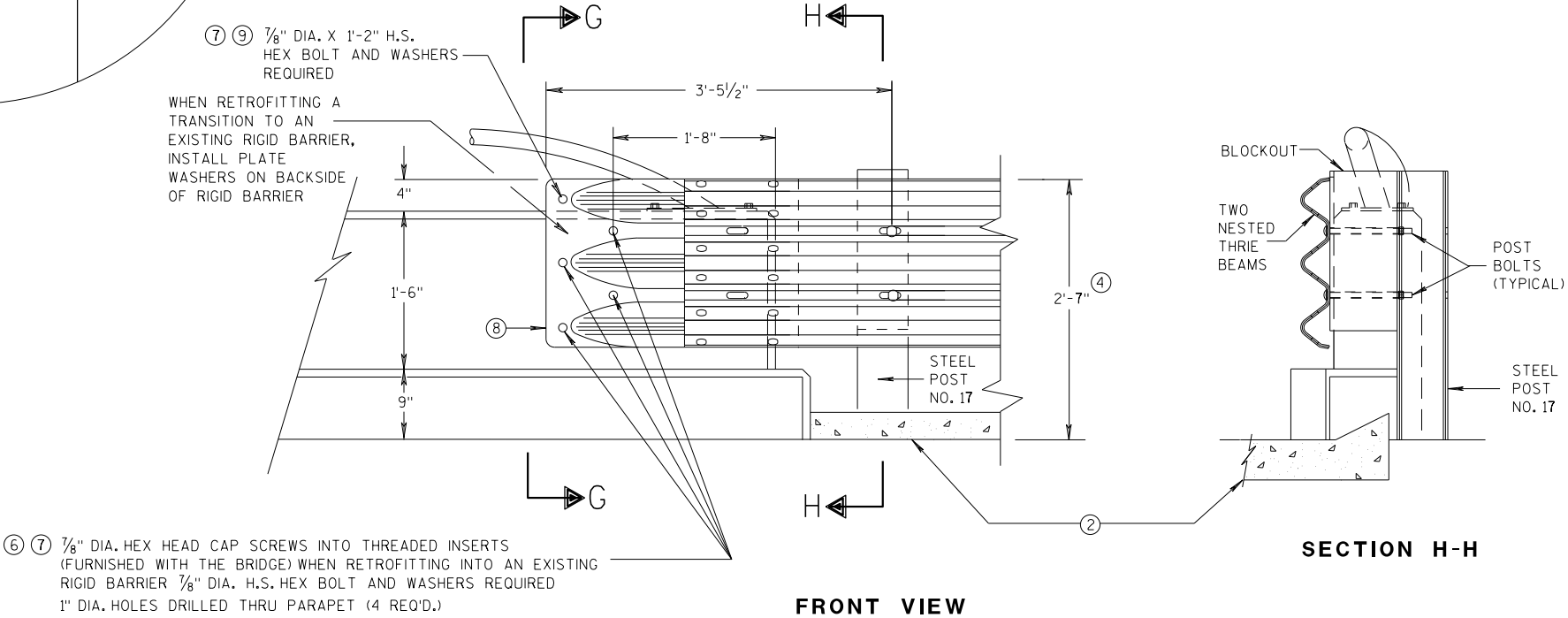
- ②
- OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④
- TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑥
- DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦
- BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH 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 5/8" 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".
- ⑨
- BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.



FRONT VIEW
W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION G-G



FRONT VIEW

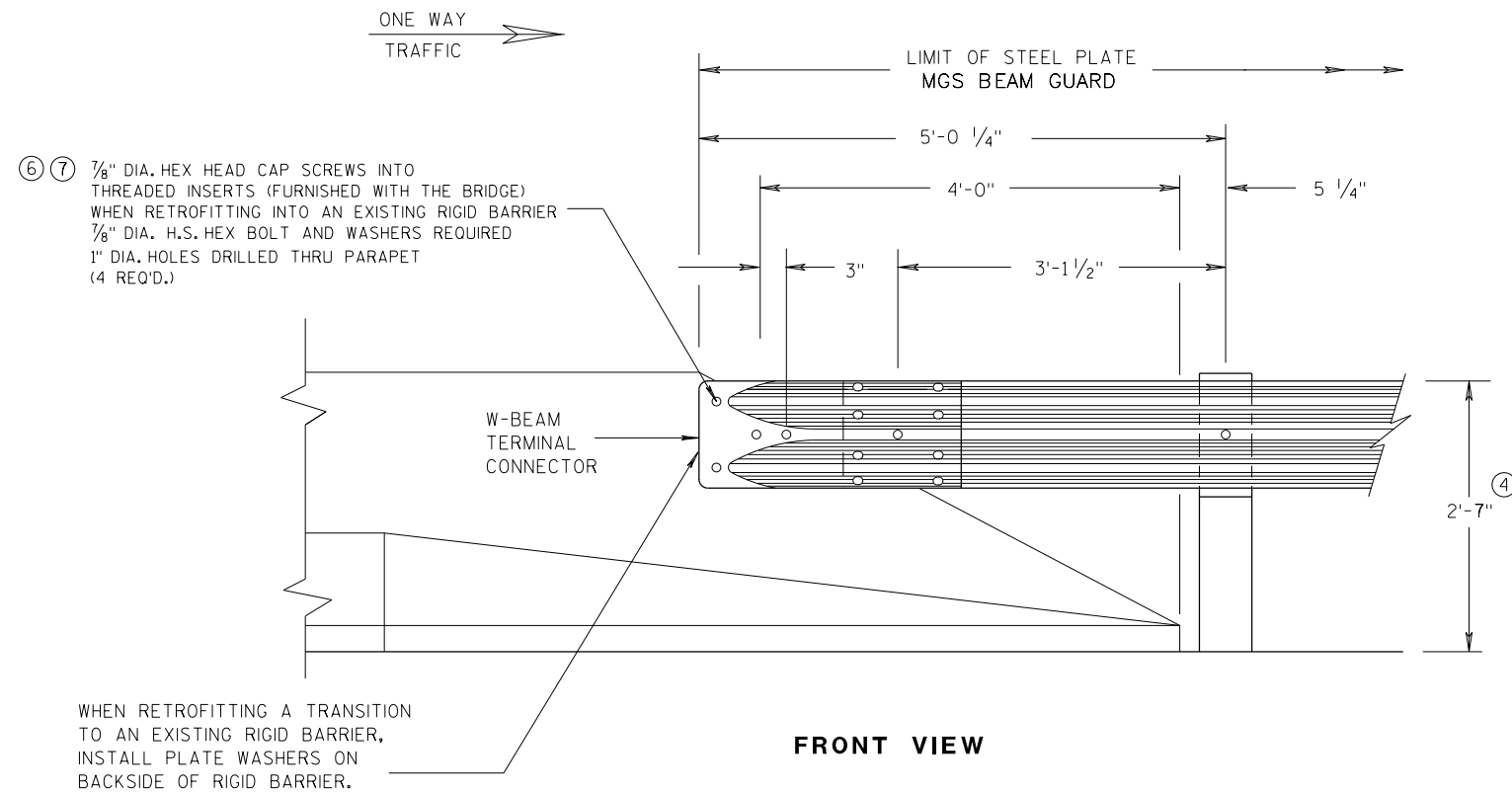
SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

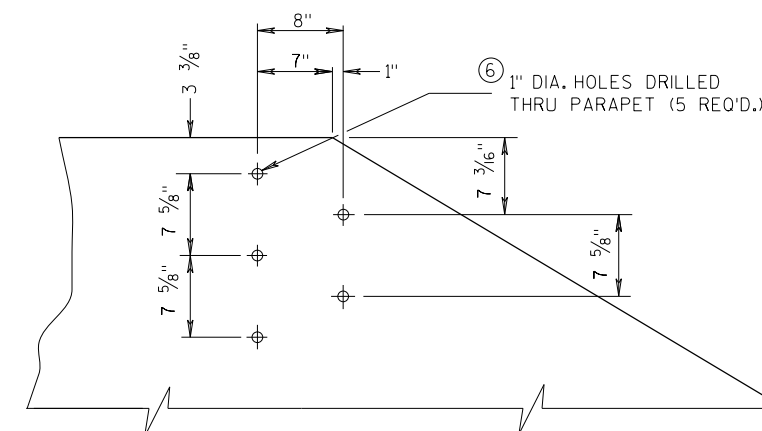
APPROVED
07/2018 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERVISOR
FHWA 85



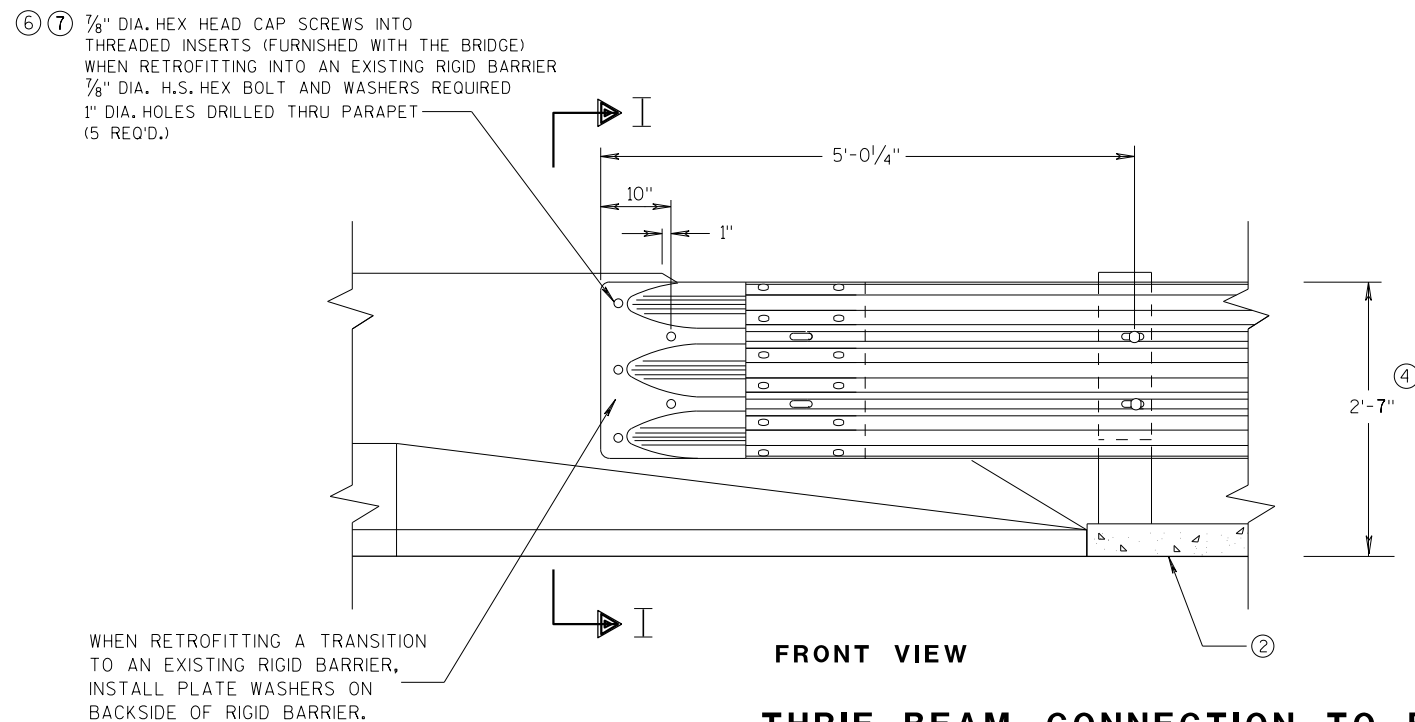
**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

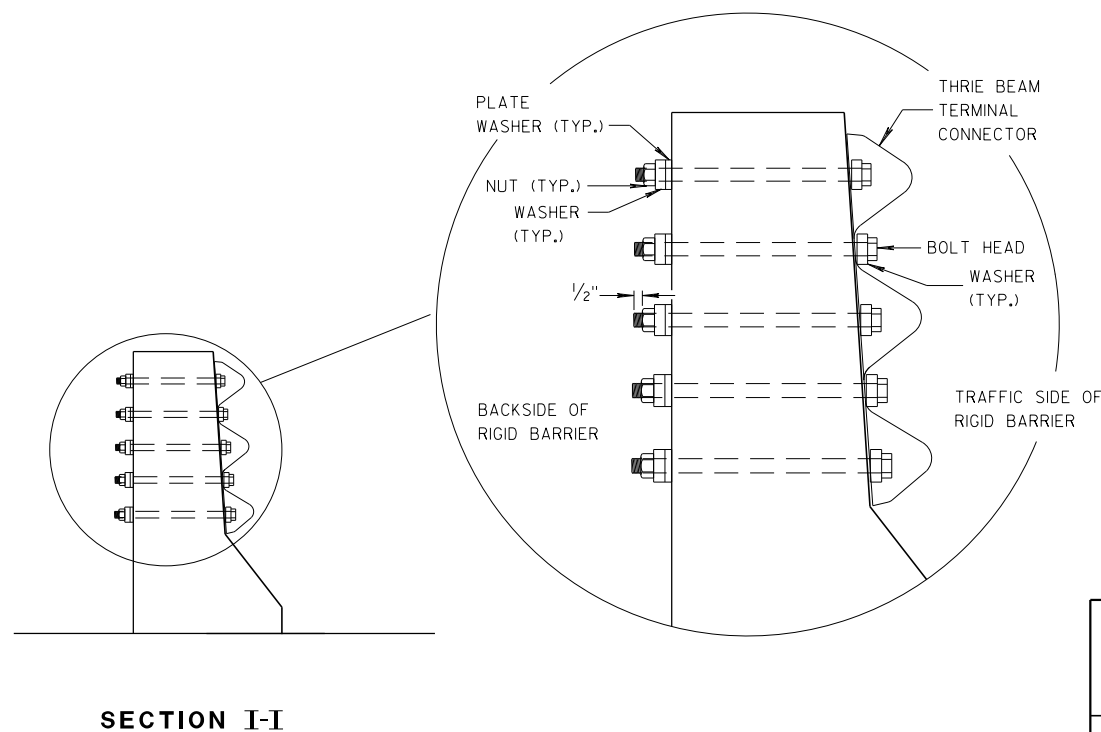
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH 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 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



**DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION**



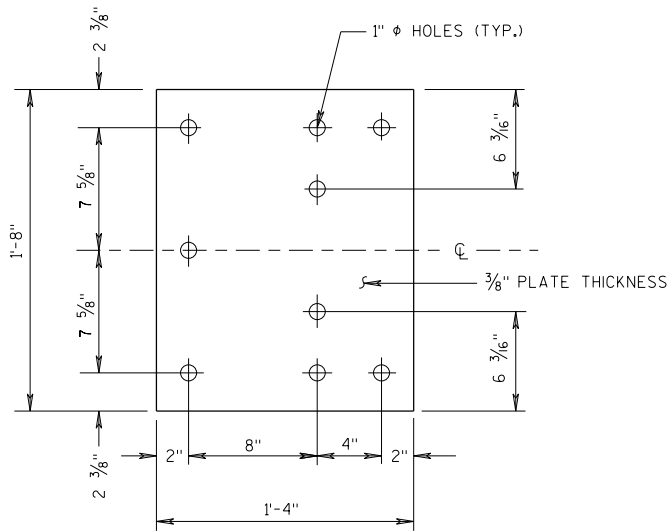
**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



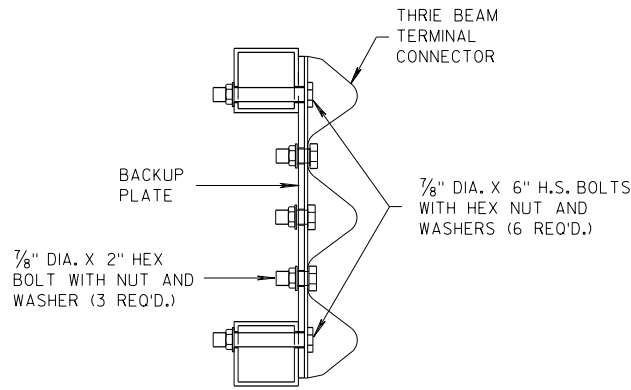
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

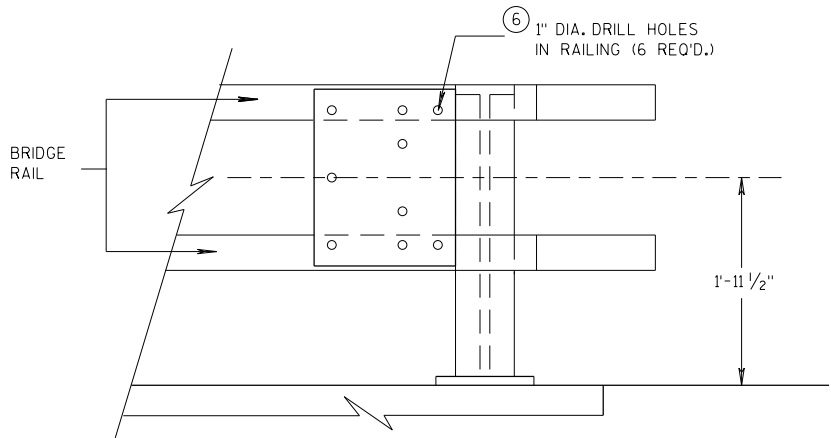
APPROVED
DATE 07/2018 /S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR
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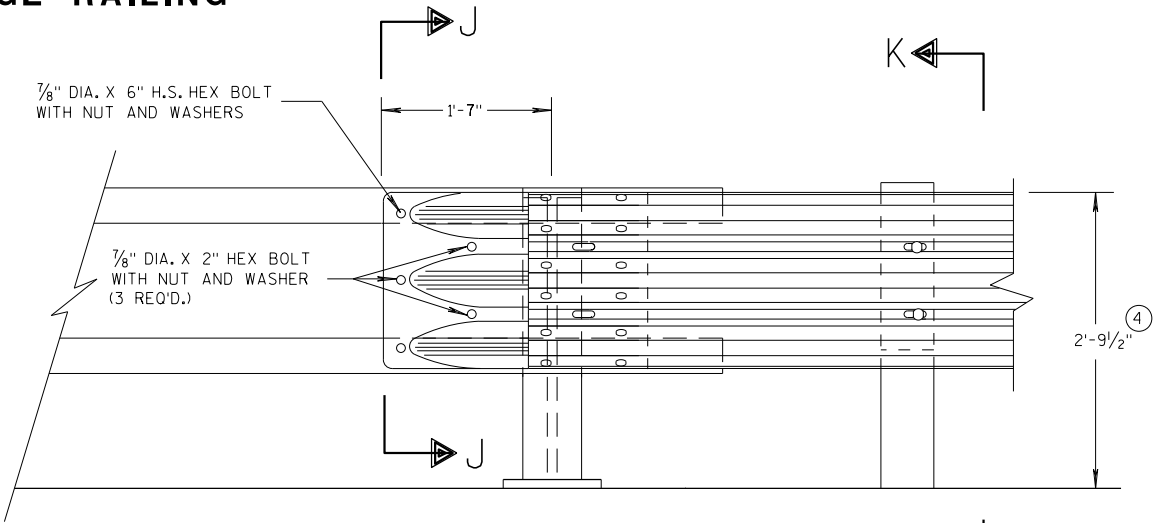
BACK-UP PLATE DETAIL



SECTION J-J

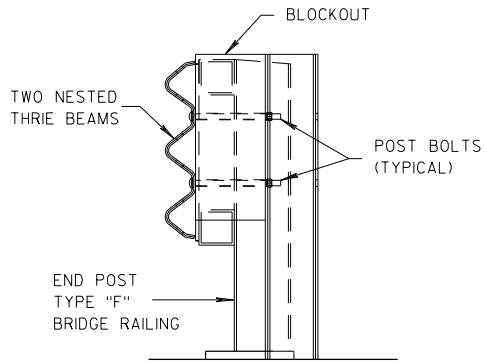


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

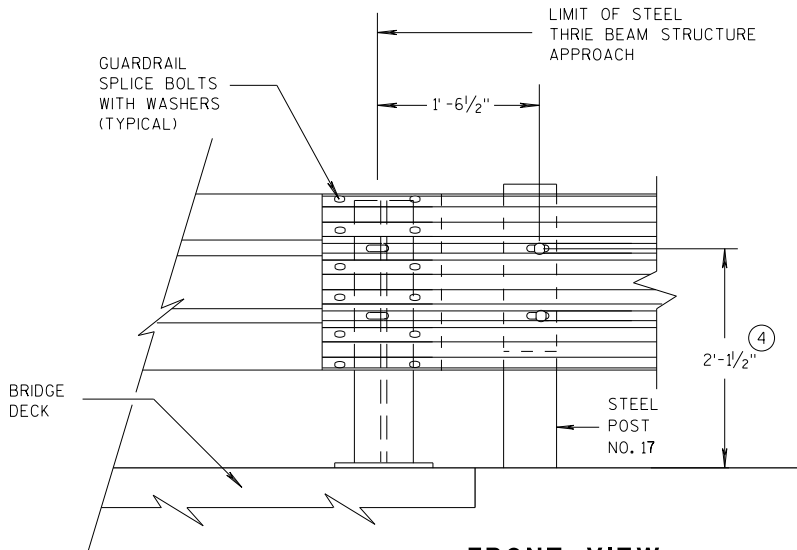
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.



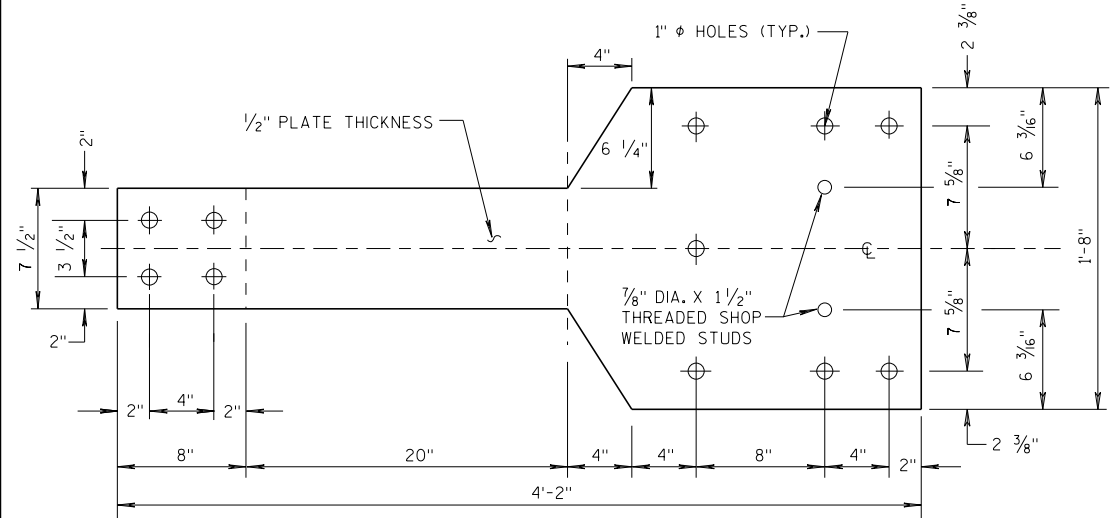
FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

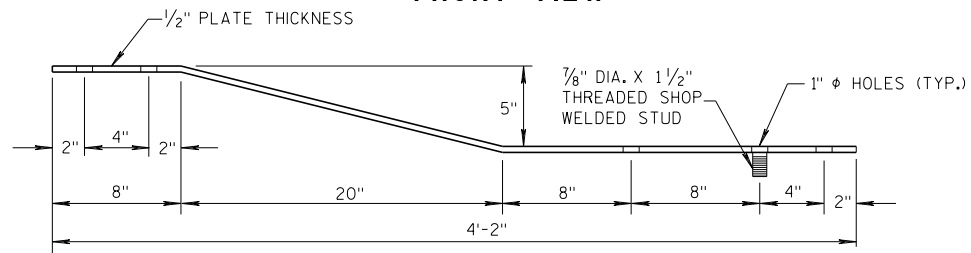
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
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FHWA	

GENERAL NOTES

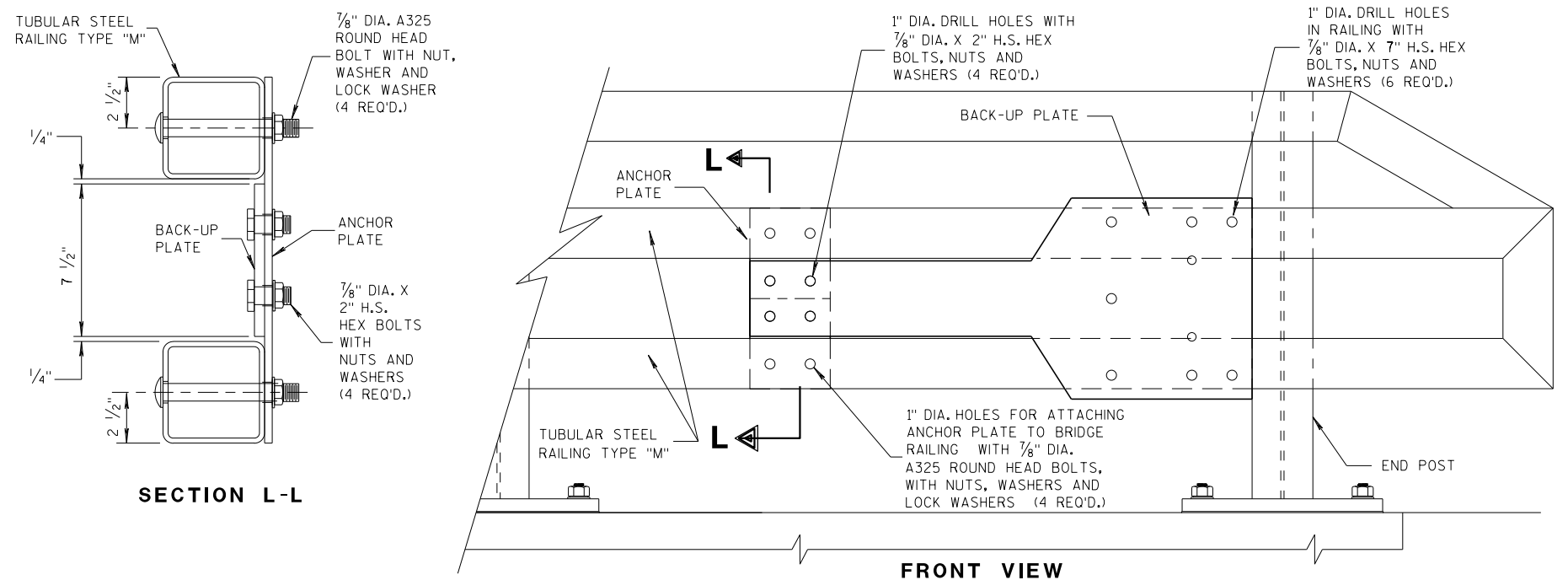
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



FRONT VIEW



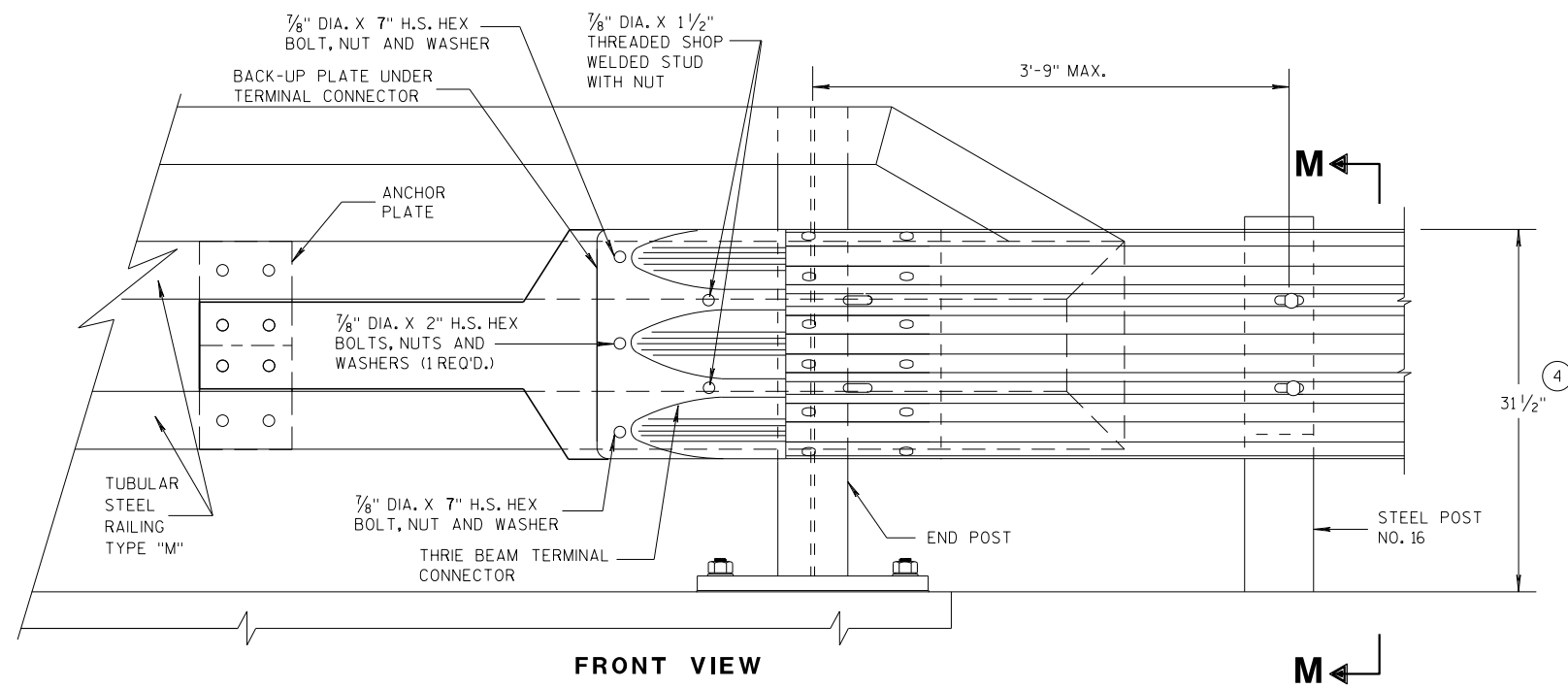
PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"



SECTION L-L

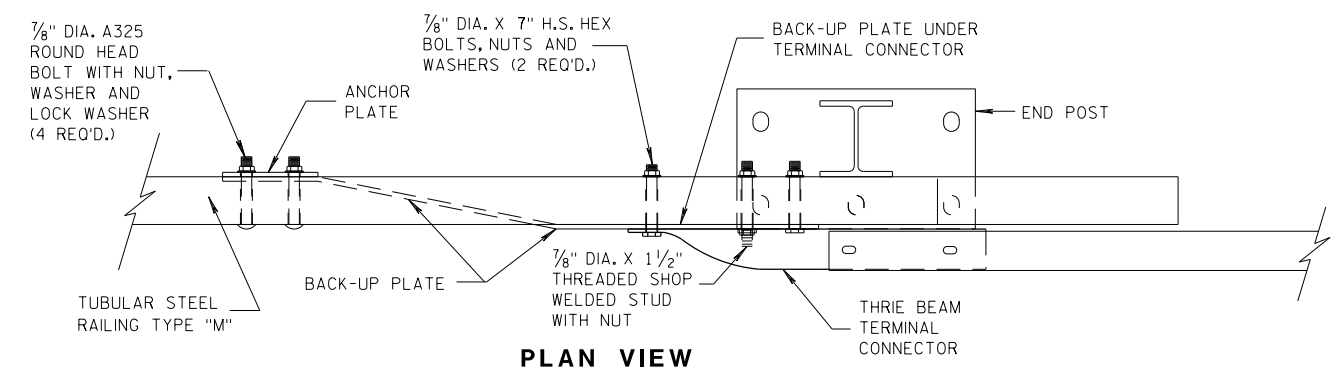
FRONT VIEW

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



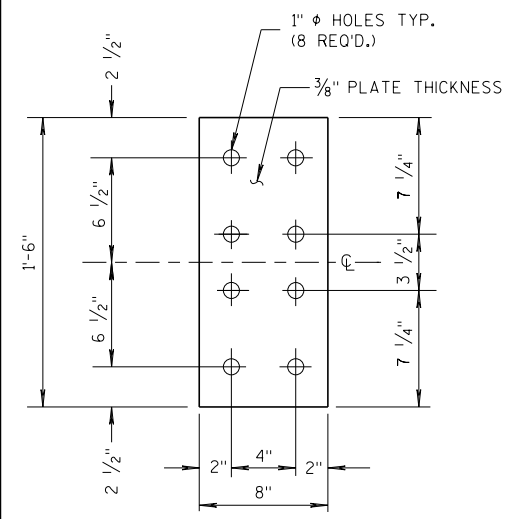
FRONT VIEW

M



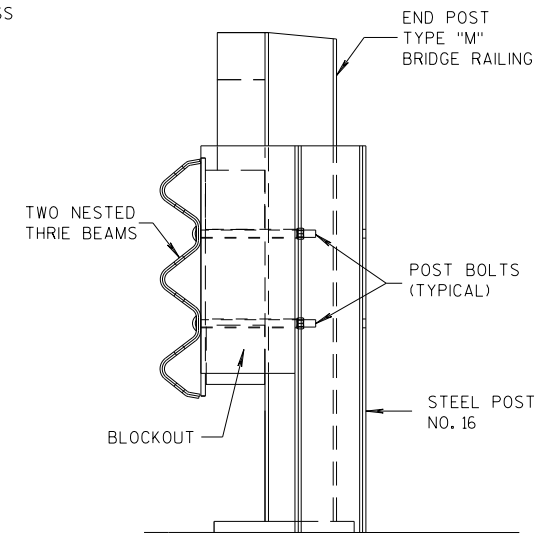
PLAN VIEW

THREE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"



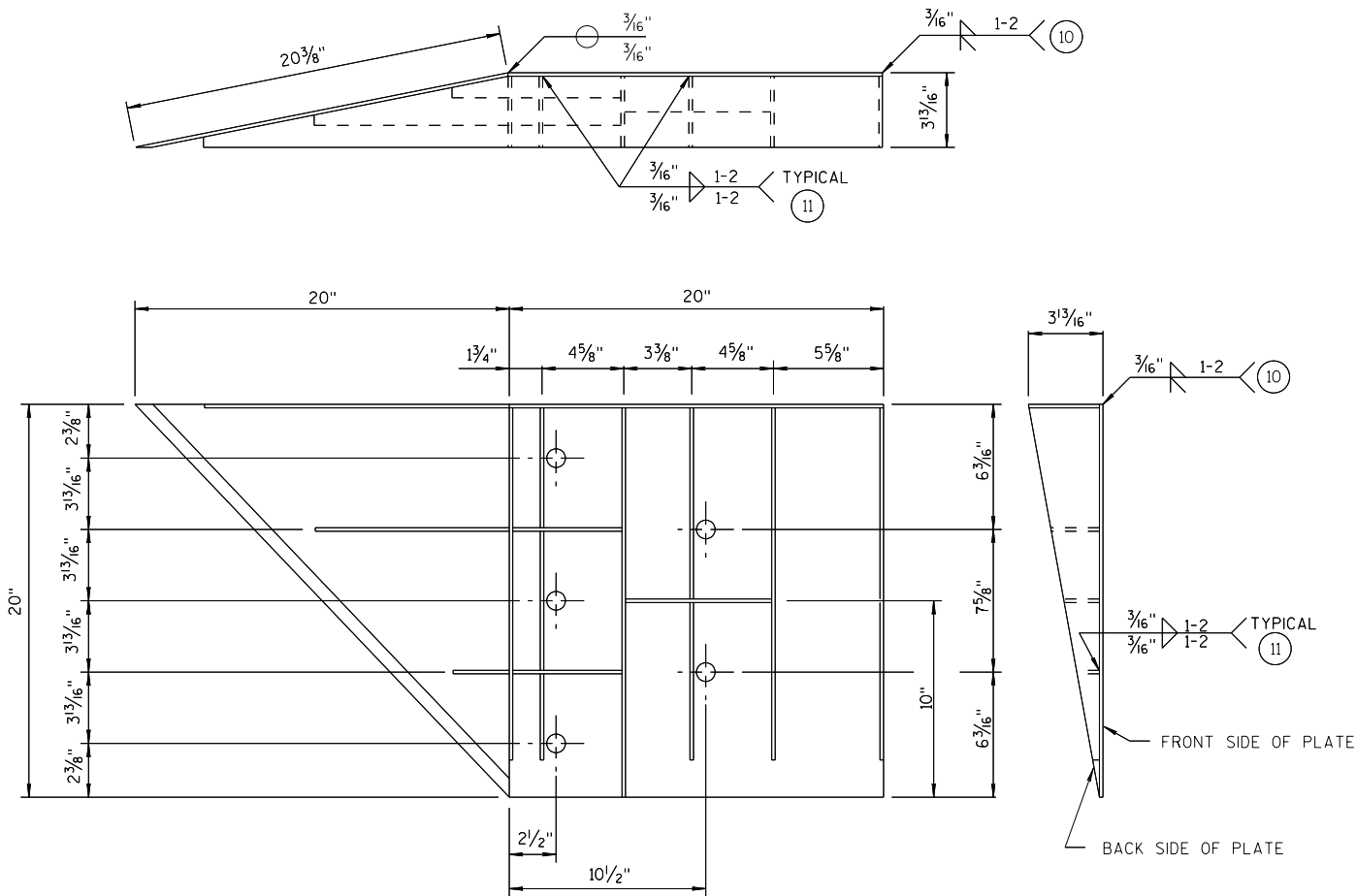
FRONT VIEW

ANCHOR
PLATE DETAIL,
TYPE "M"



SECTION M-M

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

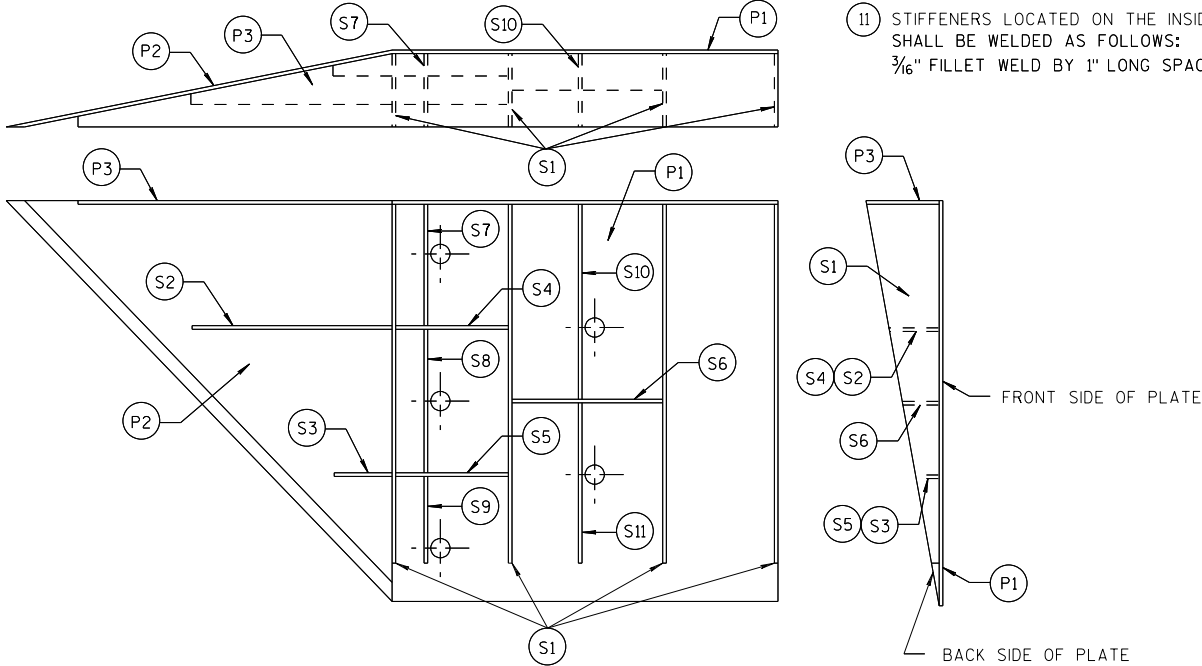


WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

SINGLE SLOPE CONNECTION PLATE

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)



GENERAL NOTES

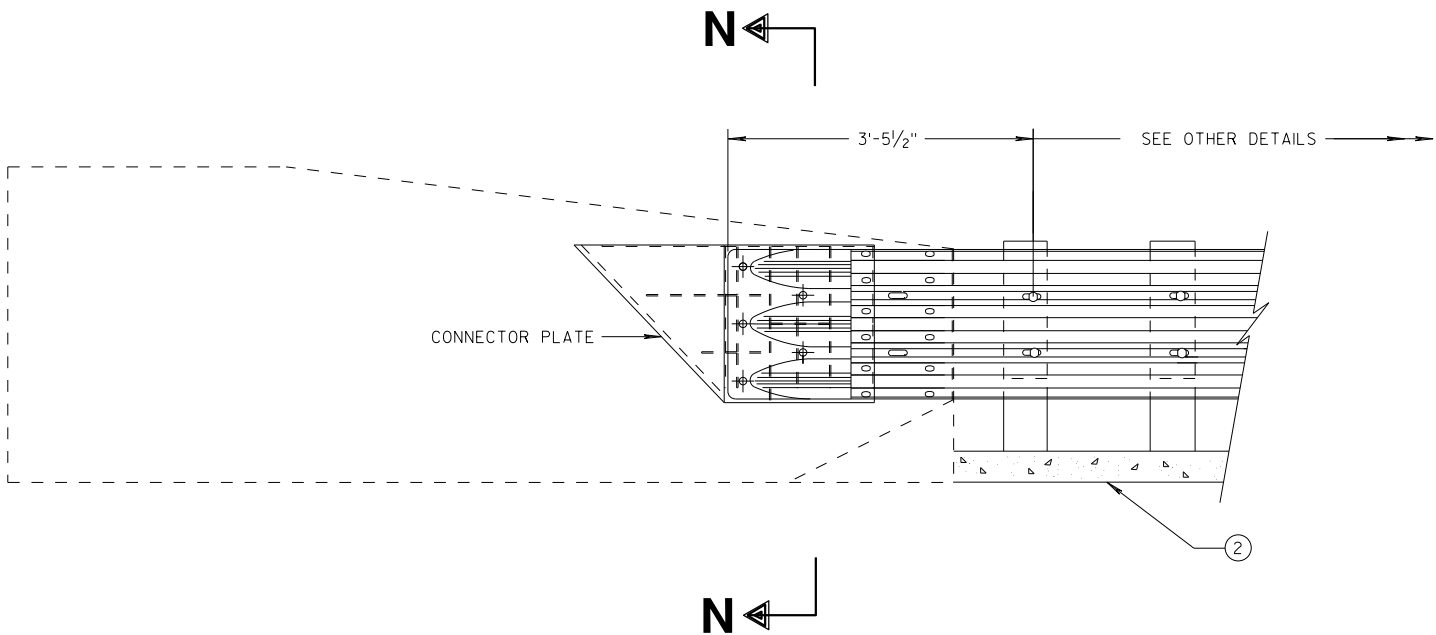
- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

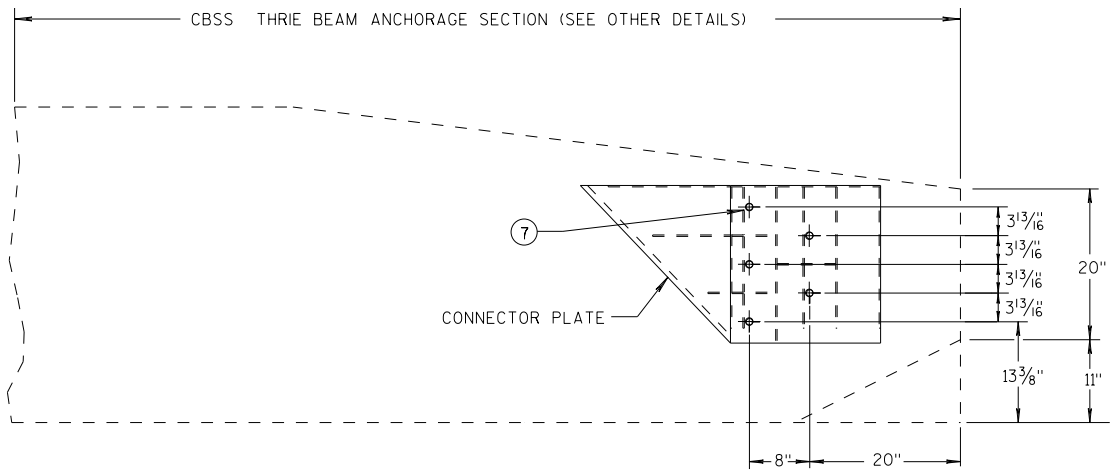
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERVISOR
FHWA 89 ENT



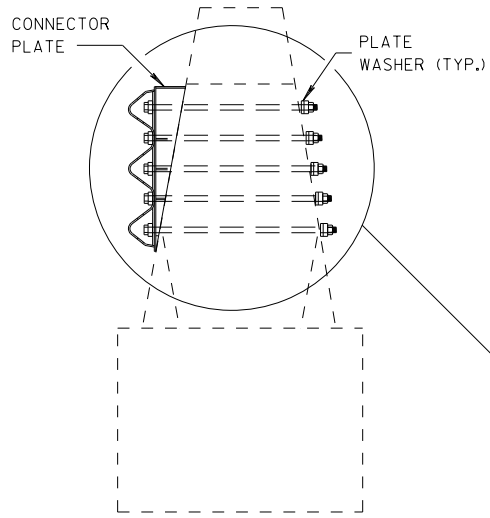
THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



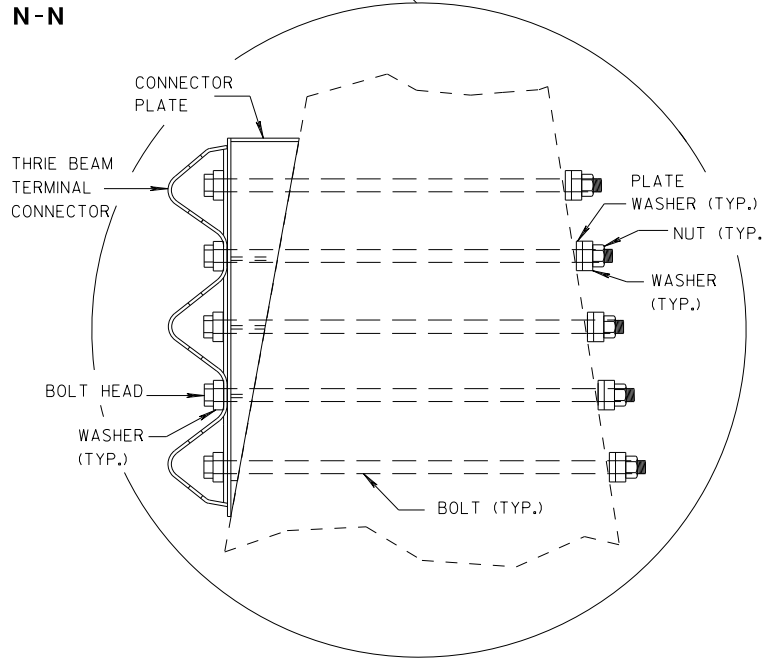
SINGLE SLOPE CONNECTION PLATE PLACEMENT

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 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 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



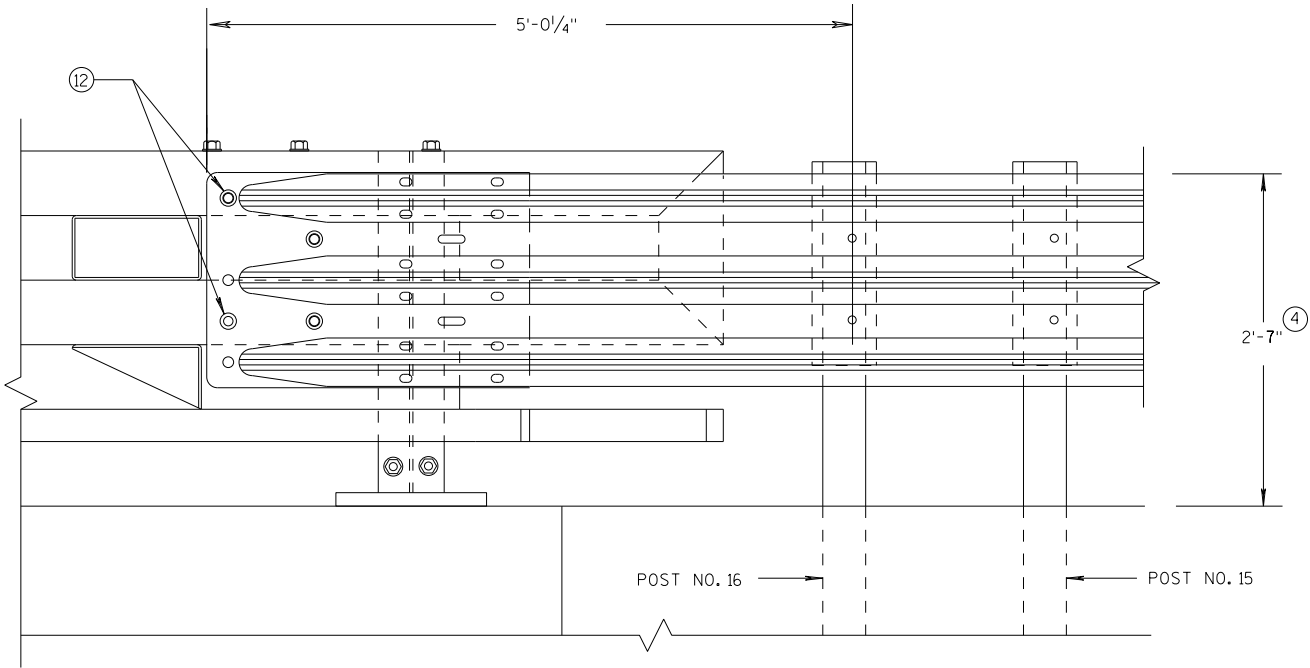
SECTION N-N



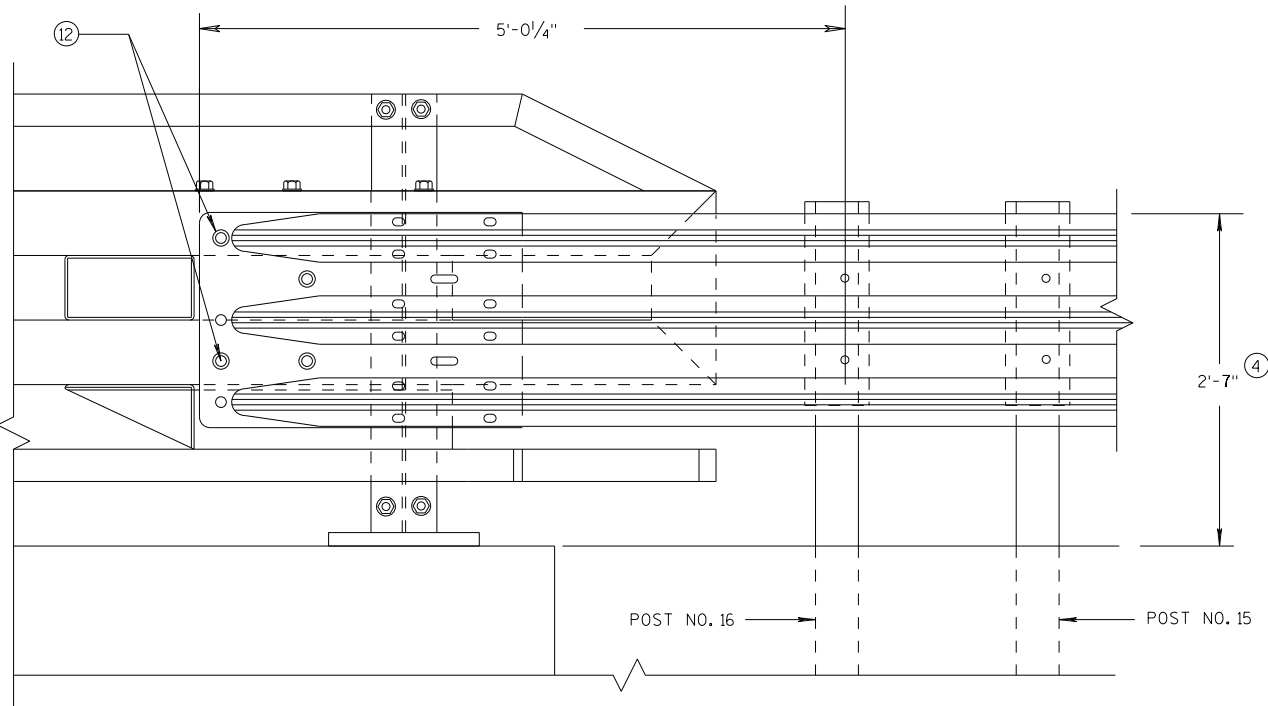
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED			
7/2018	/S/ Rodney Taylor		
DATE	ROADWAY STANDARDS	0190	UNIT SUPERVIS
FHWA			

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑫ 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. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.



ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT

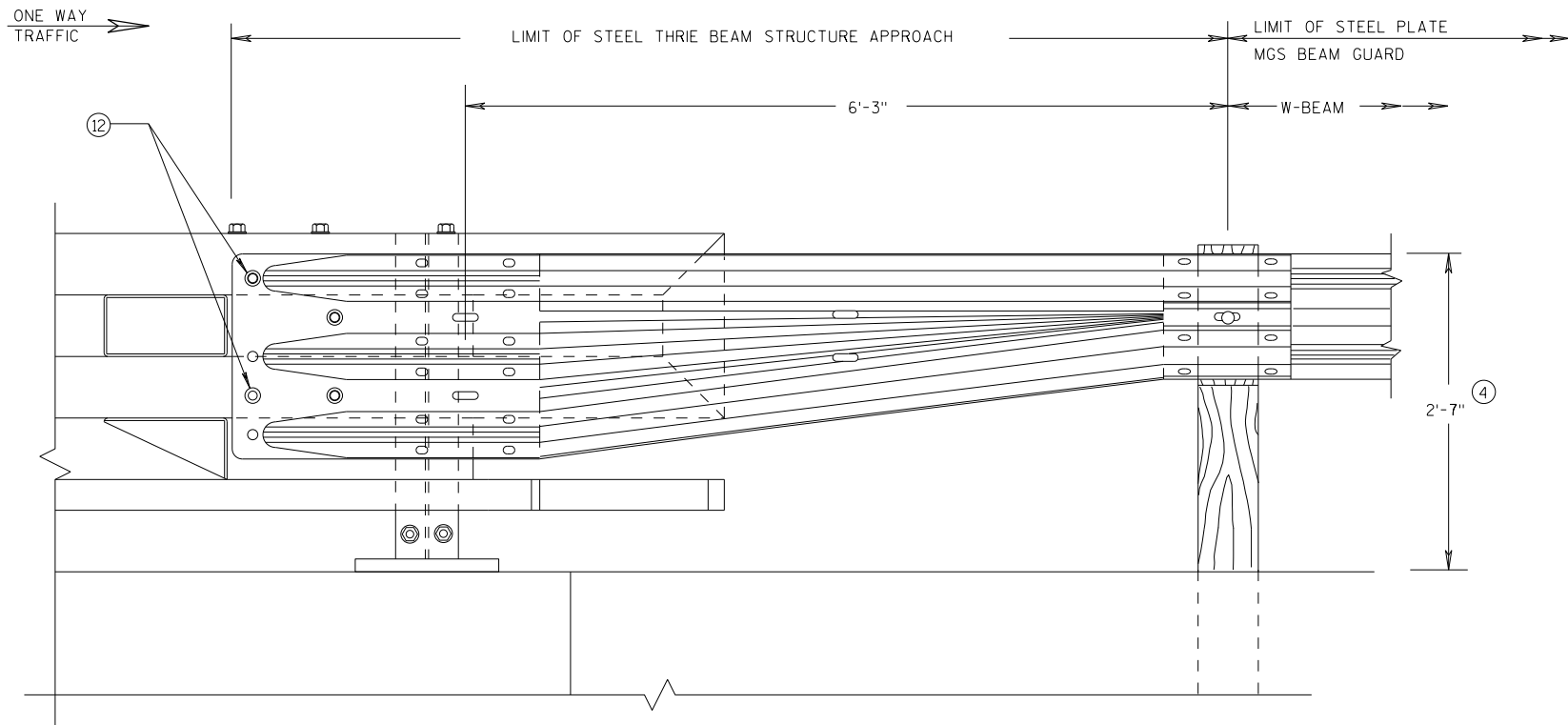


ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

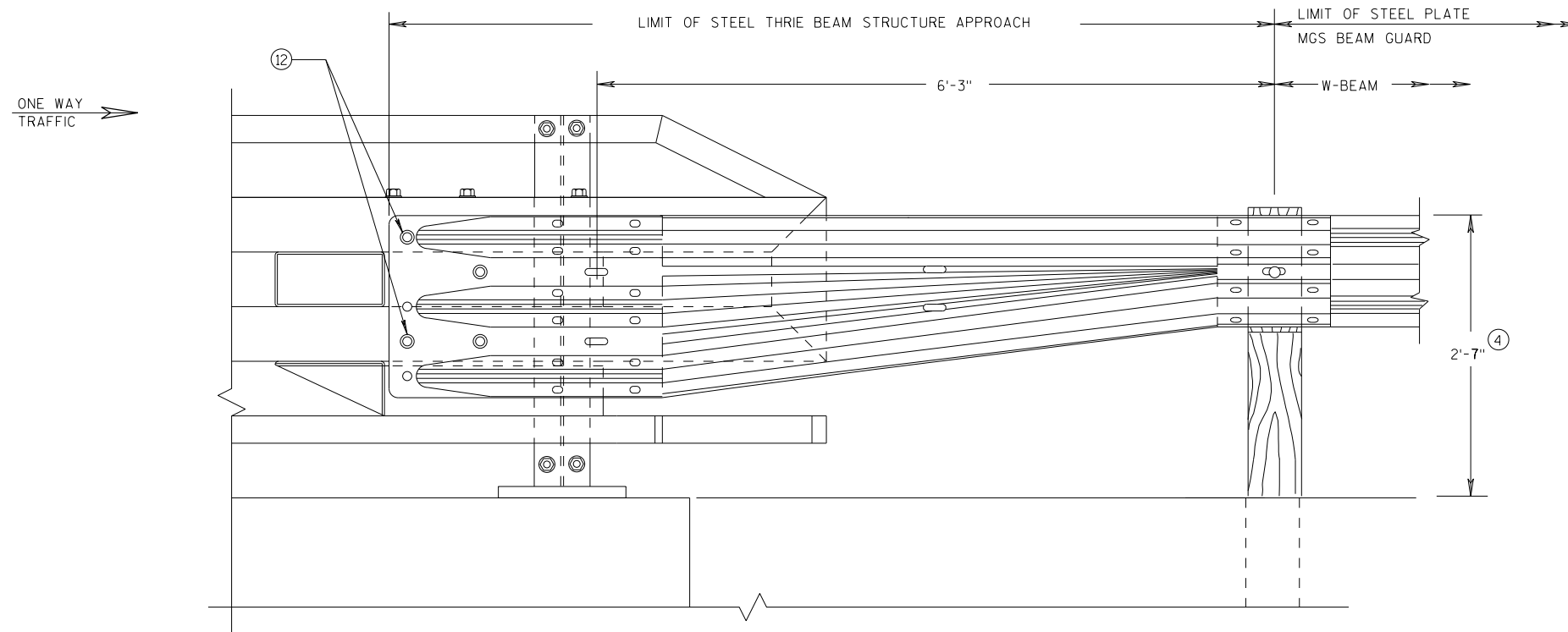
APPROVED	/S/ Rodney Taylor	NT
DATE	7/2018	91
FHWA	ROADWAY STANDARDS	UNIT SUPERVISOR



GENERAL NOTES

- (4) TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- (12) 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. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.

FRONT VIEW
W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY3"
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



FRONT VIEW
W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY4"
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

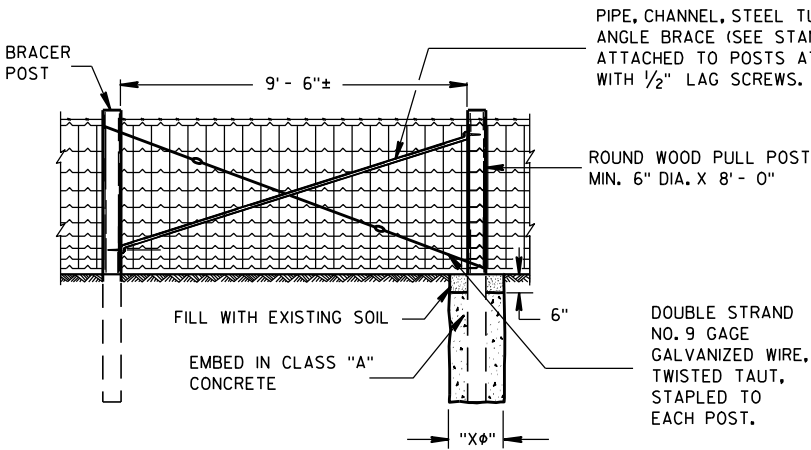
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

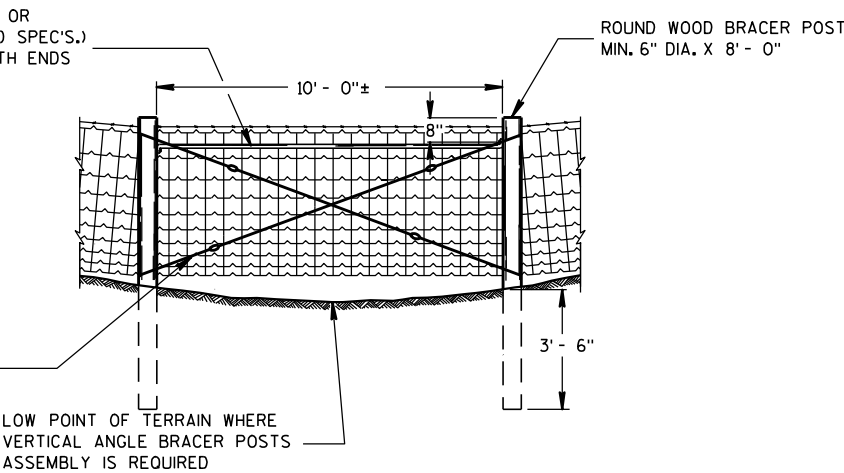
APPROVED
 7/2018
 DATE
 /S/ Rodney Taylor
 ROADWAY STANDARDS C 92
 UNIT SUPERVISOR
 FHWA

NOTE: PULL OR STRETCHER POST ASSEMBLIES SHALL BE PLACED MIDWAY BETWEEN END POSTS AND CORNER POSTS WHERE A RUN OF FENCE EXCEEDS 660' BUT IS LESS THAN 1,320'. FOR RUNS OF FENCE IN EXCESS OF 1,320' MAXIMUM SPACING OF PULL OR STRETCHER POST ASSEMBLIES SHALL BE 660'± C-C.

ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



PULL OR STRETCHER POSTS ASSEMBLY



VERTICAL ANGLE BRACER POSTS ASSEMBLY

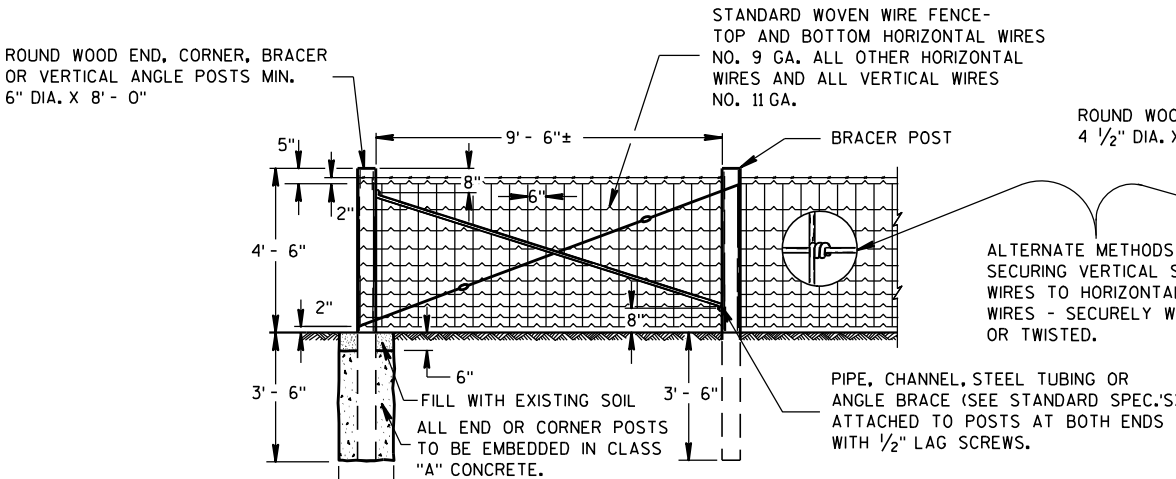
GENERAL NOTES

"Xφ" = DIAMETER OF THE POST PLUS 12".

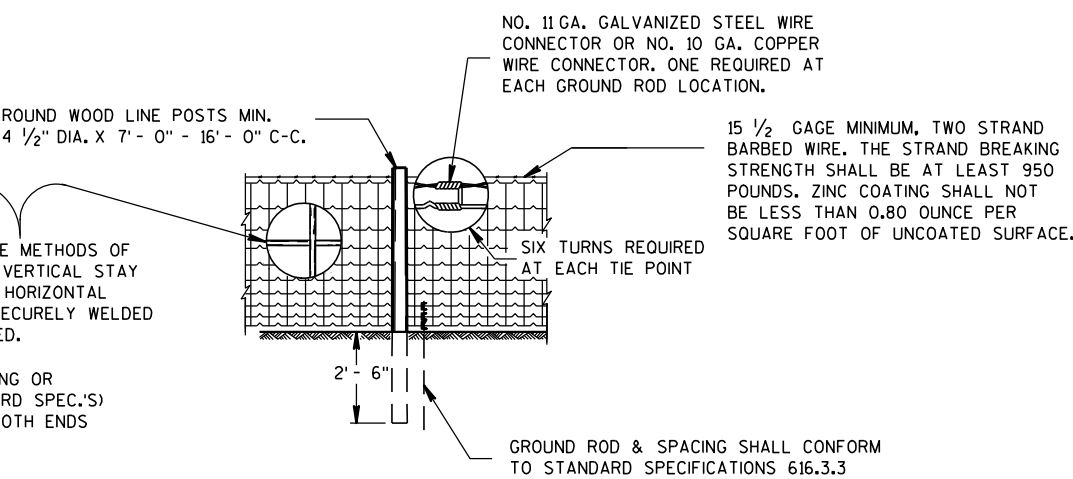
FENCE STAPLES SHOULD NEVER BE DRIVEN VERTICALLY INTO WOOD POSTS (WITH BOTH LEGS PARALLEL WITH THE WOOD GRAIN). DOING SO CAN SEPARATE THE GRAIN AND SIGNIFICANTLY REDUCE THE HOLDING POWER. ROTATING THE STAPLES SLIGHTLY OFF VERTICAL STRADDLES THE GRAIN AND PROVIDES MORE RESISTANCE TO PULL-OUT.

DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

FENCE SHALL BE LOCATED 3'-0" INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE INDICATED ON THE PLANS.

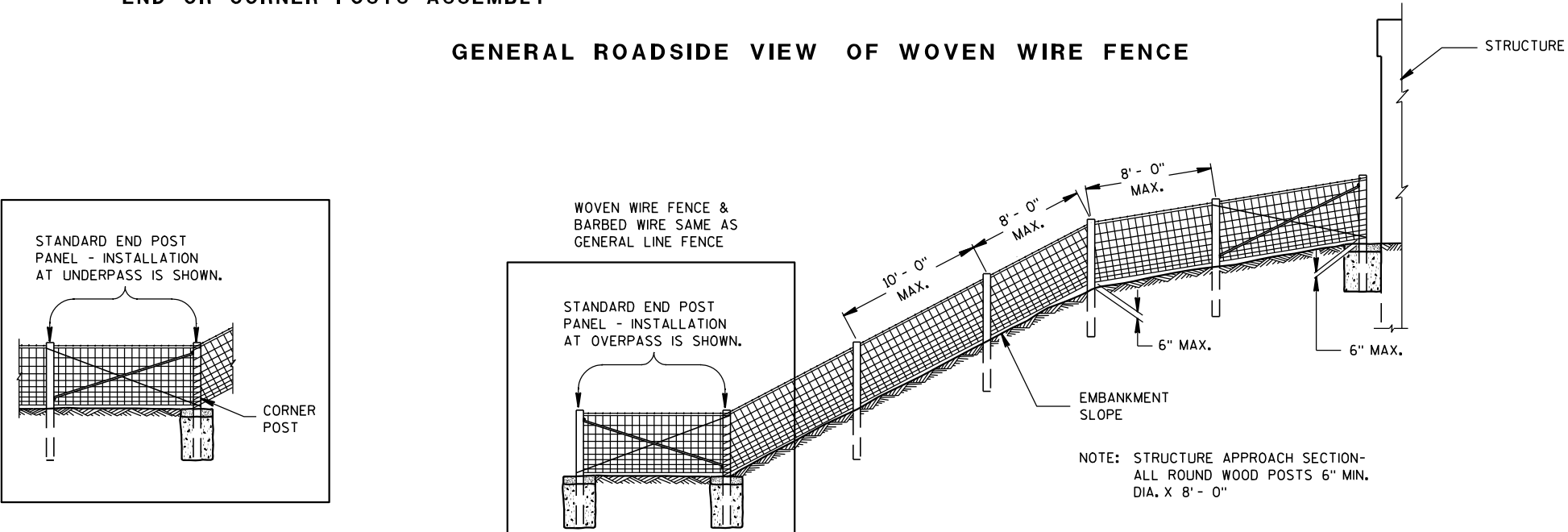


END OR CORNER POSTS ASSEMBLY



LINE FENCE CONSTRUCTION

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



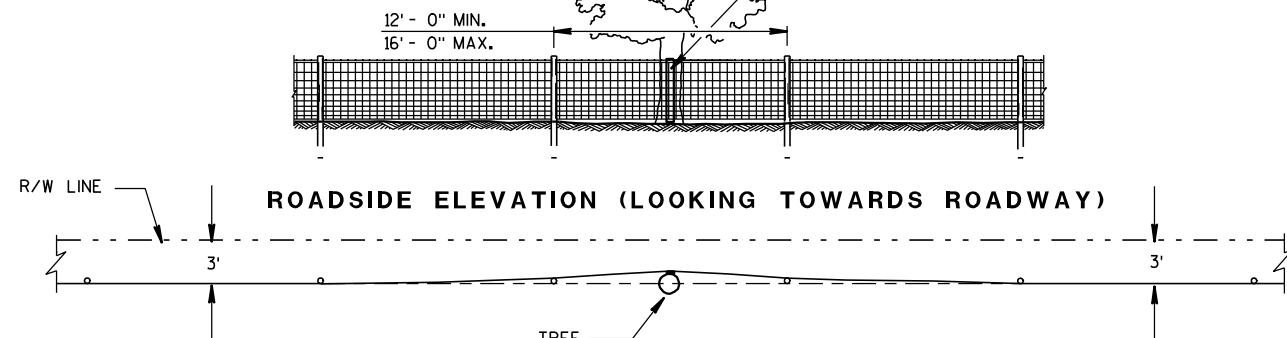
FENCE DESIGN AT STRUCTURE APPROACH

FENCE WOVEN WIRE

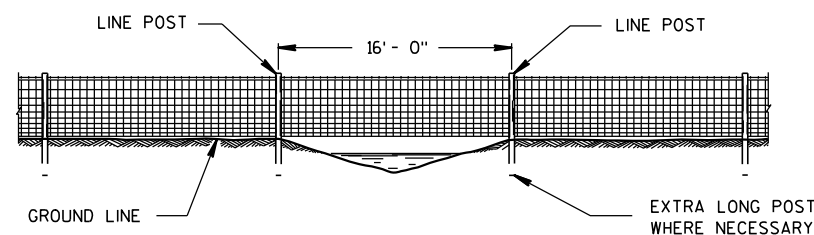
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

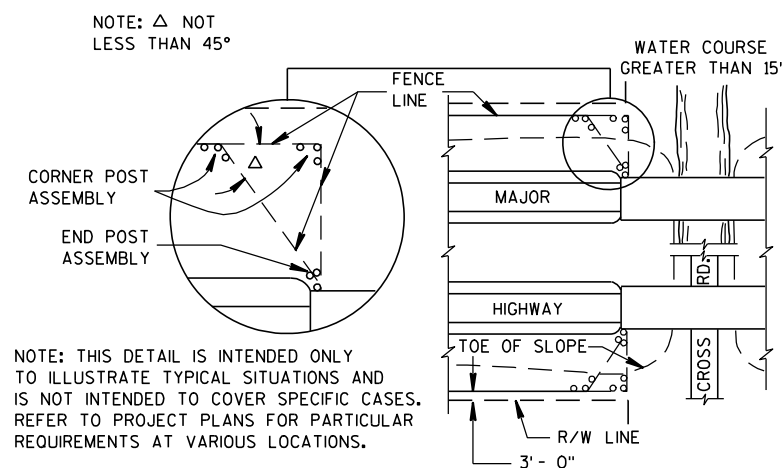
2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



PLAN VIEW
FENCE DESIGN AT TREES REMAINING
IN NORMAL FENCE LINE

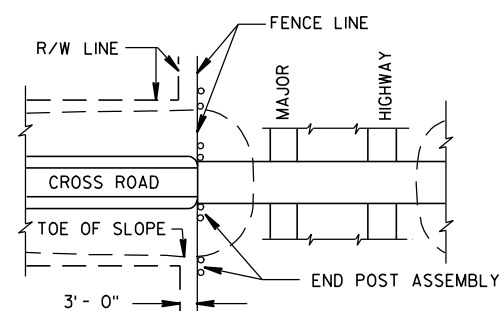


FENCE CONSTRUCTION OVER STREAM
COURSES OF 15 FT. OR LESS IN WIDTH

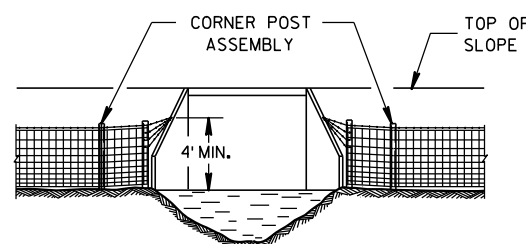


PLAN VIEW
MAJOR HIGHWAY OVERPASS OR STREAM COURSE
CROSSING OF GREATER THAN 15 FT. IN WIDTH

FENCE LOCATION AT STRUCTURES



PLAN VIEW
MAJOR HIGHWAY UNDERPASS



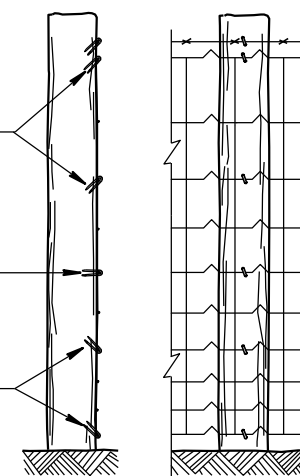
FENCE INSTALLATION TO WINGWALLS

NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.

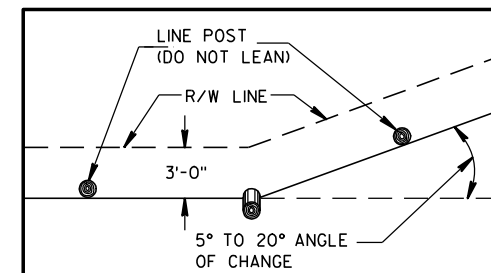
STAPLES SLOPED DOWNWARD FOR SUSTAINED GRADES AND OVER KNOLLS.

STAPLES LEVEL FOR LEVEL GROUND.

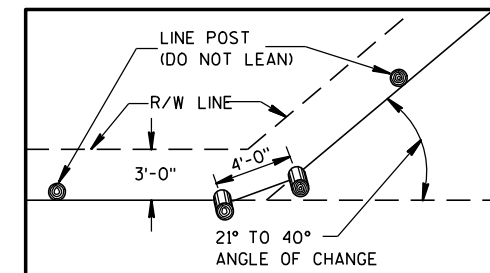
SLOPE UPWARDS WHEN FENCE TENDS TO LIFT.



END ELEVATION
FARM SIDE ELEVATION
FENCE MOUNTING DETAIL



PLAN VIEW
SINGLE POST CORNER

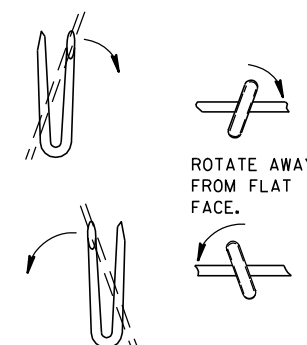


PLAN VIEW
DOUBLE POST CORNER

RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



LINE POST

FENCE WOVEN WIRE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4/4/2008

DATE

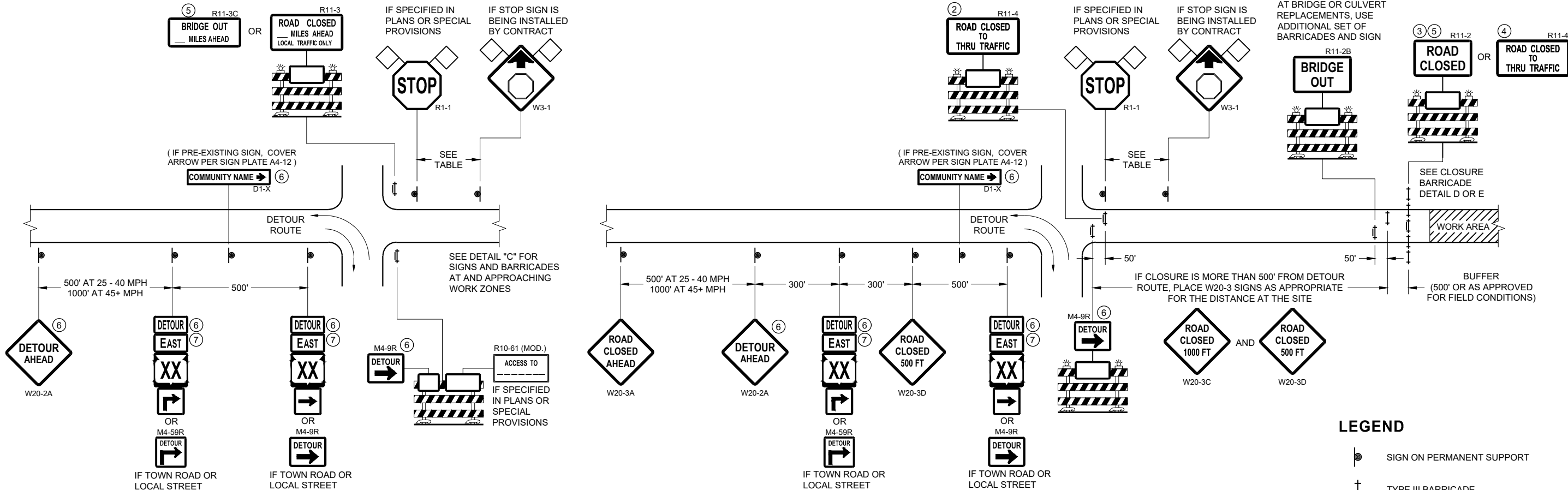
FHWA

/S/ Jerry H. 7----

ROADWAY STANDARDS 194

ENGINEER

ENT

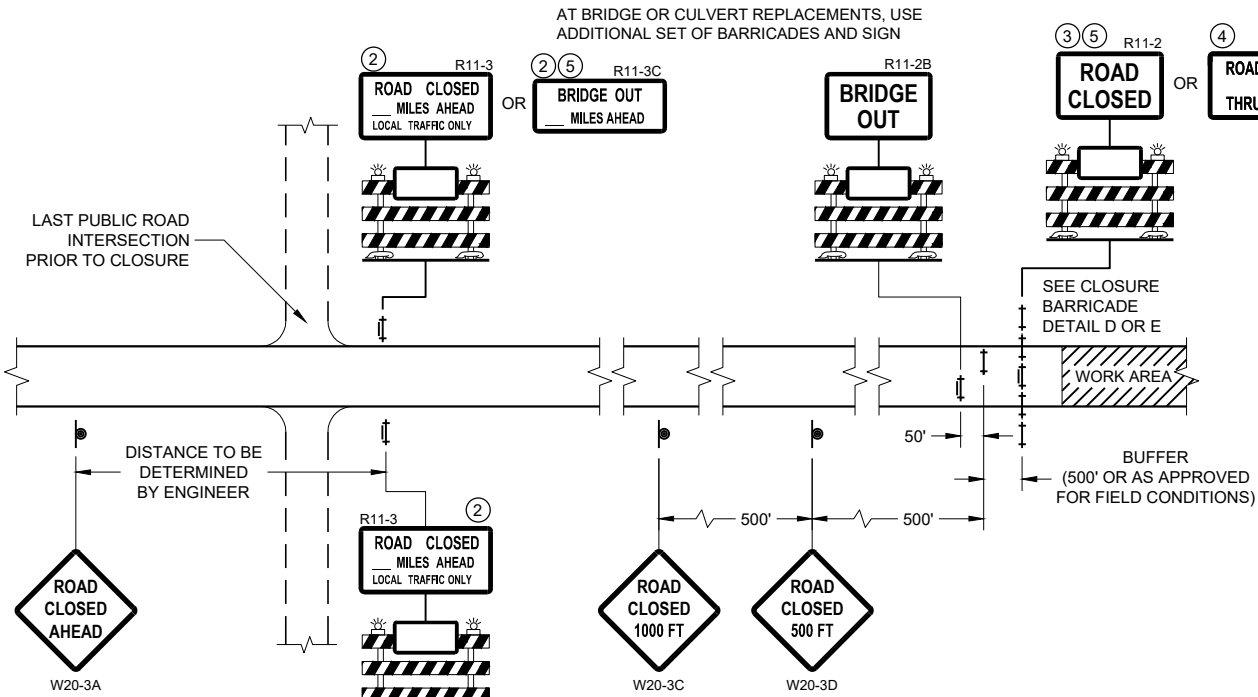
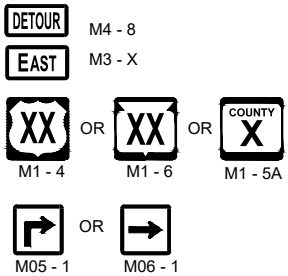


DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

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

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

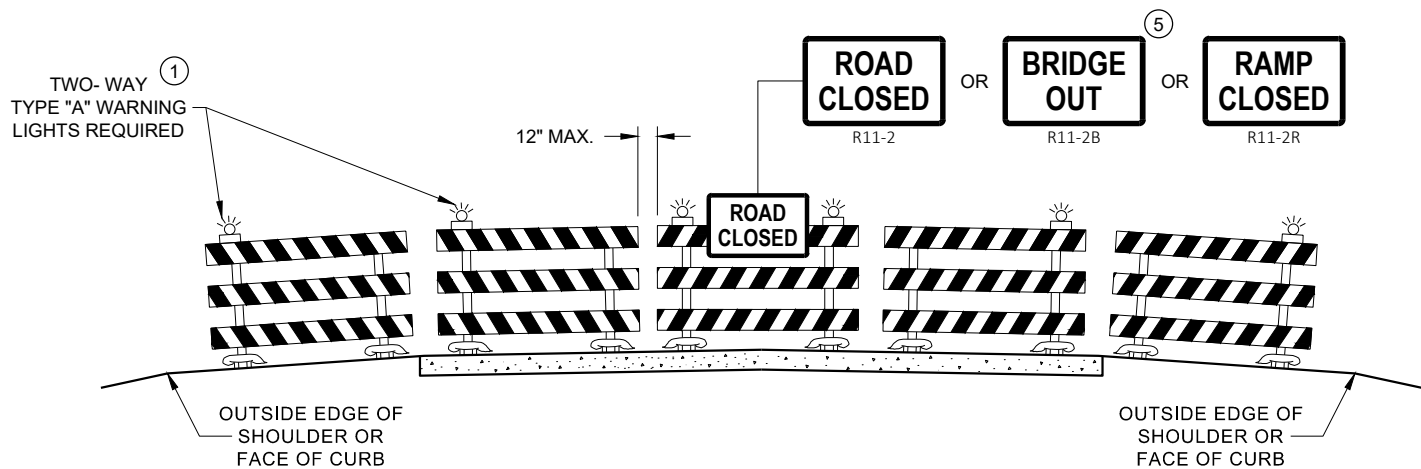
SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

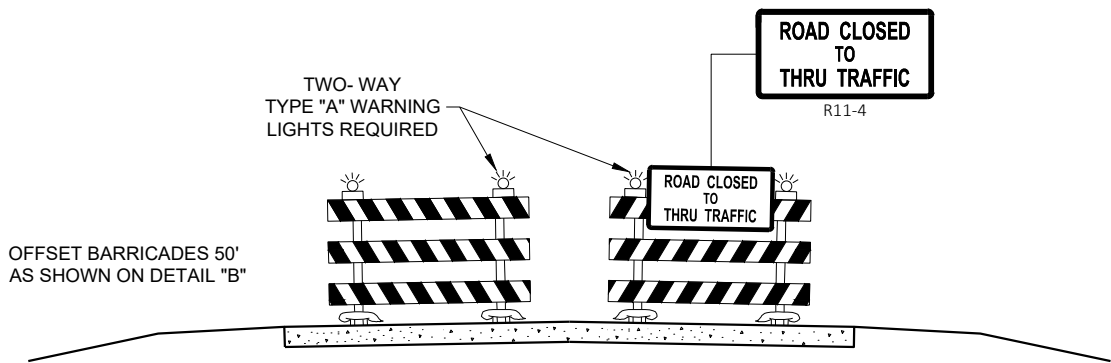
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November 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 95

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DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

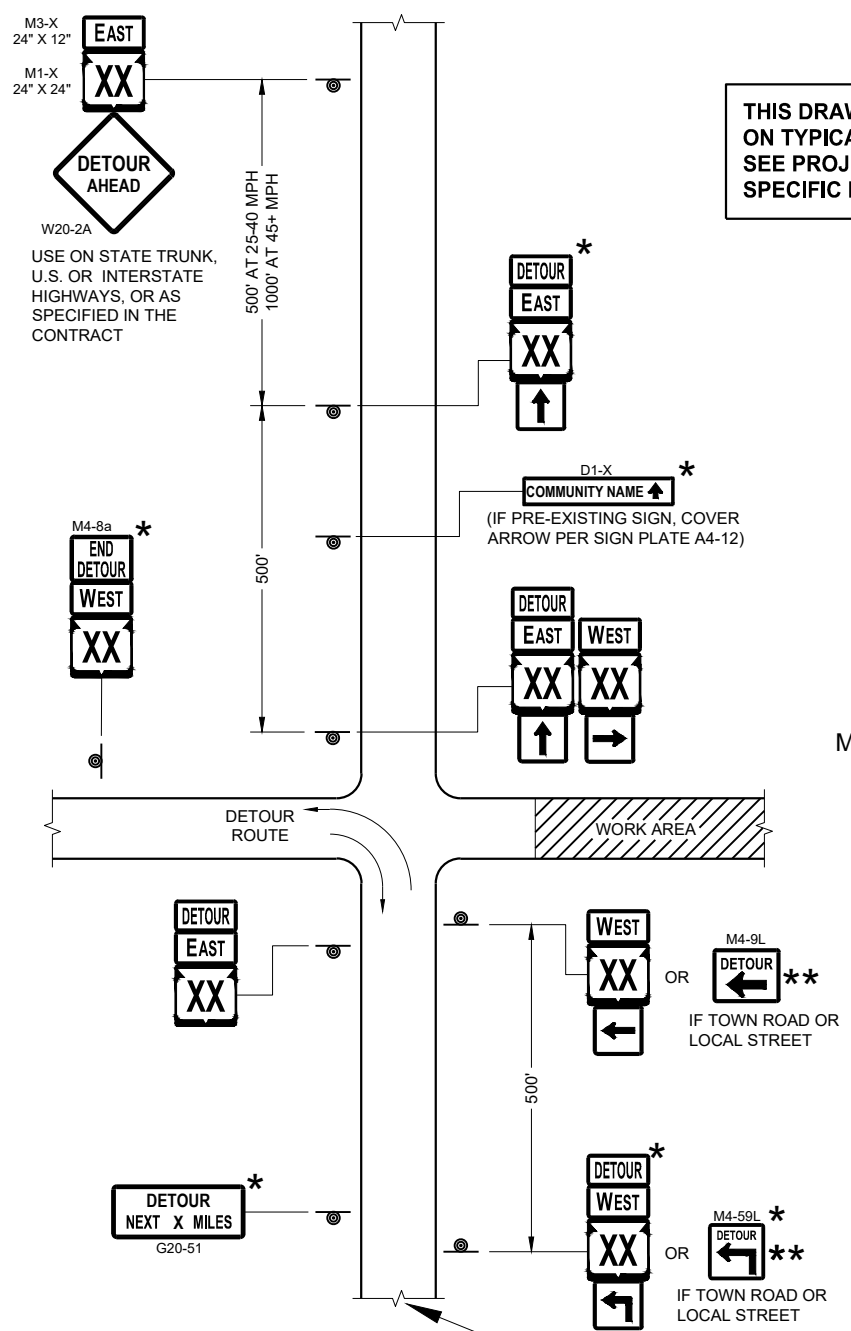
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE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

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

BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES

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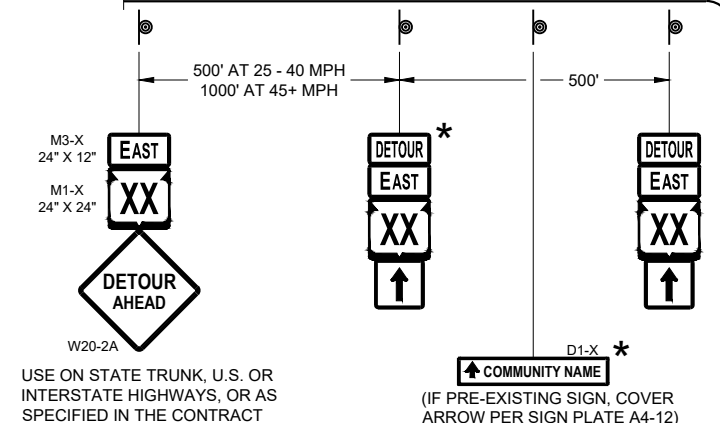
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SEE SPECIFIC PROJECT DETOUR
SIGNING DETAIL SHEETS AND
DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

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 EAST (M3 - X)
- DETOUR WEST (M3 - X)
- DETOUR EAST (M1 - 4)
- DETOUR WEST (M1 - 6)
- DETOUR EAST (M1 - 5A)
- DETOUR WEST (M1 - 5A)
- DETOUR EAST (M05 - 1)
- DETOUR WEST (M06 - 1)
- DETOUR EAST (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.

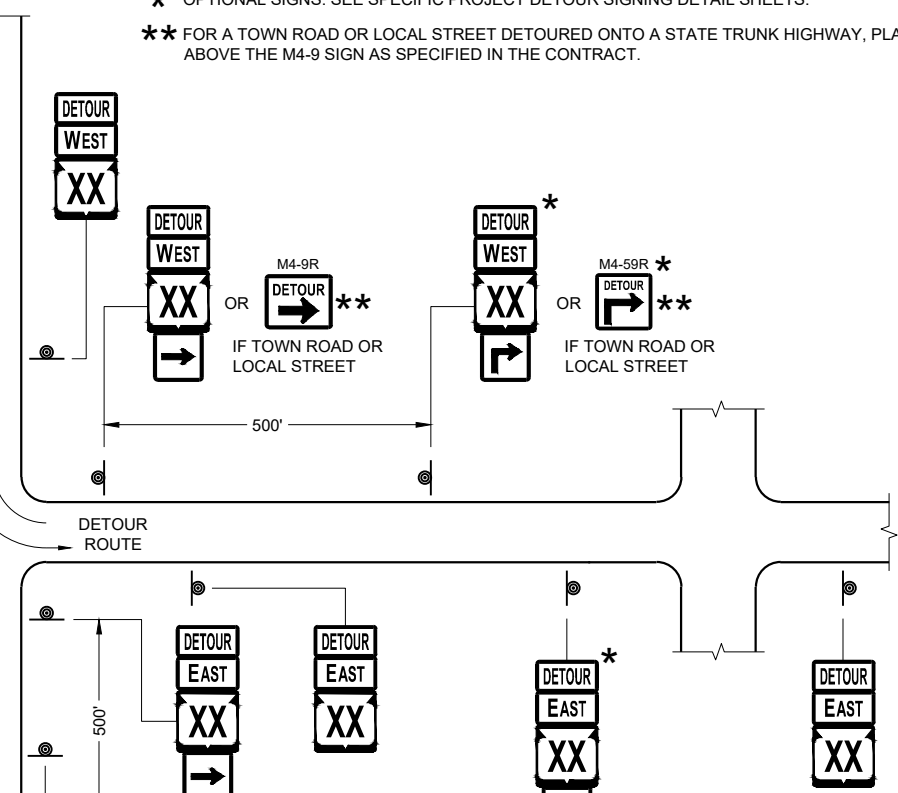
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

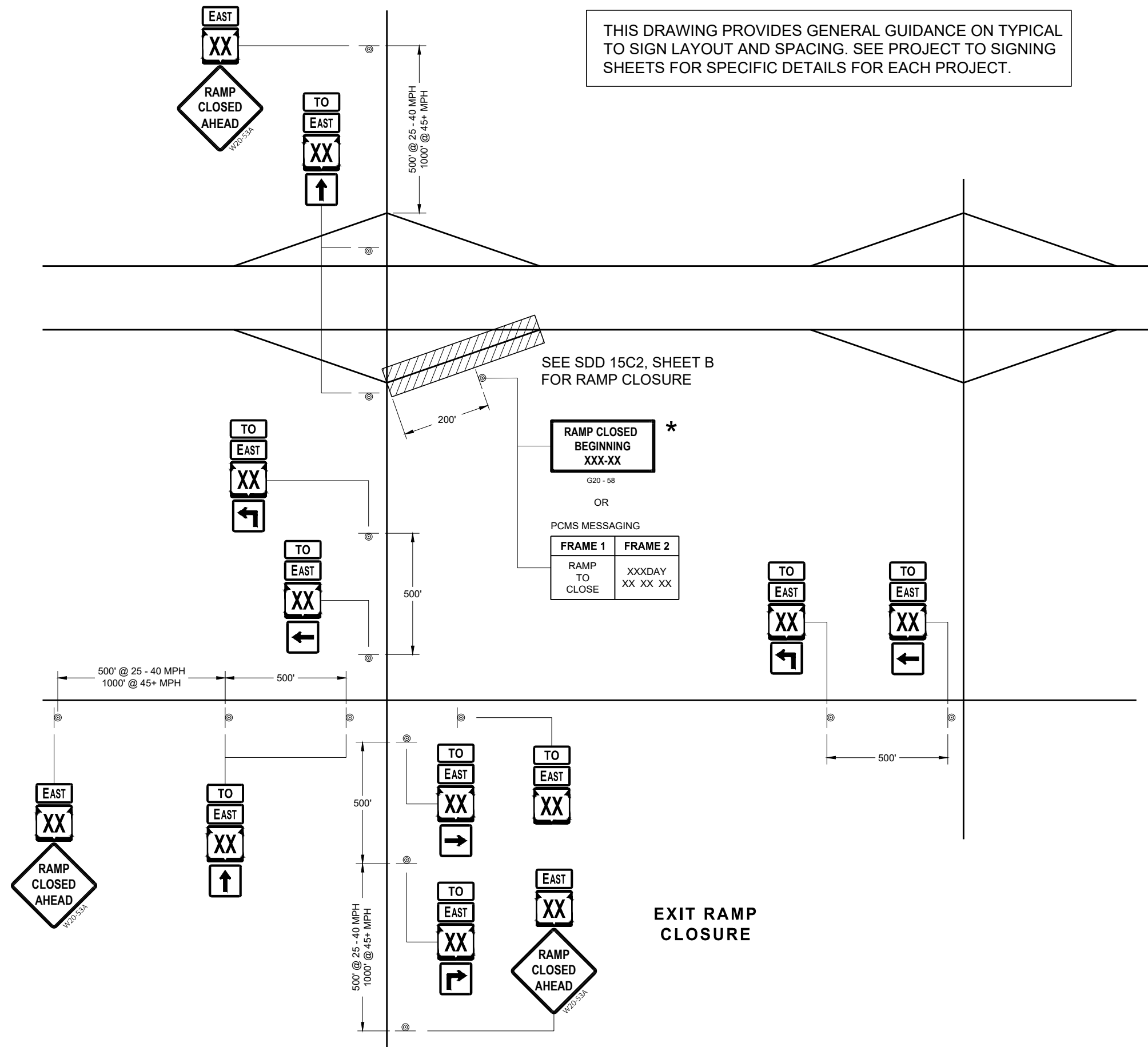


PLACE SIGNS BEYOND INTERSECTIONS
WITH STATE OR COUNTY TRUNK
HIGHWAYS OR AT 4 MILE MAXIMUM
SPACING (4 BLOCKS IF URBAN AREA)

DETOUR SIGNING
FOR MAINLINE CLOSURES

STATE OF WISCONSIN
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DATE WORK ZONE ENGINEER 97
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LEGEND

 SIGN ON PERMANENT SUPPORT

TO MO4 - 5
EAST M3 - X


 OR
 
 OR
 

M1-6 M1-4 M1-1


 OR
 
 OR
 

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

THE SPACING BETWEEN TRAFFIC CONTROL AND TO 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 SHALL 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 FOLLOW:

M3 - X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS).

MO4 - 5 SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS).

M1 - 1, M1 - 4, AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS).

MO5 - 1, MO5 - 2, AND MO6 - 1, SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS).

W20 - 53A SHALL BE 48" X 48"

* PLACE "RAMP CLOSED BEGINNING" SIGN 7 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES

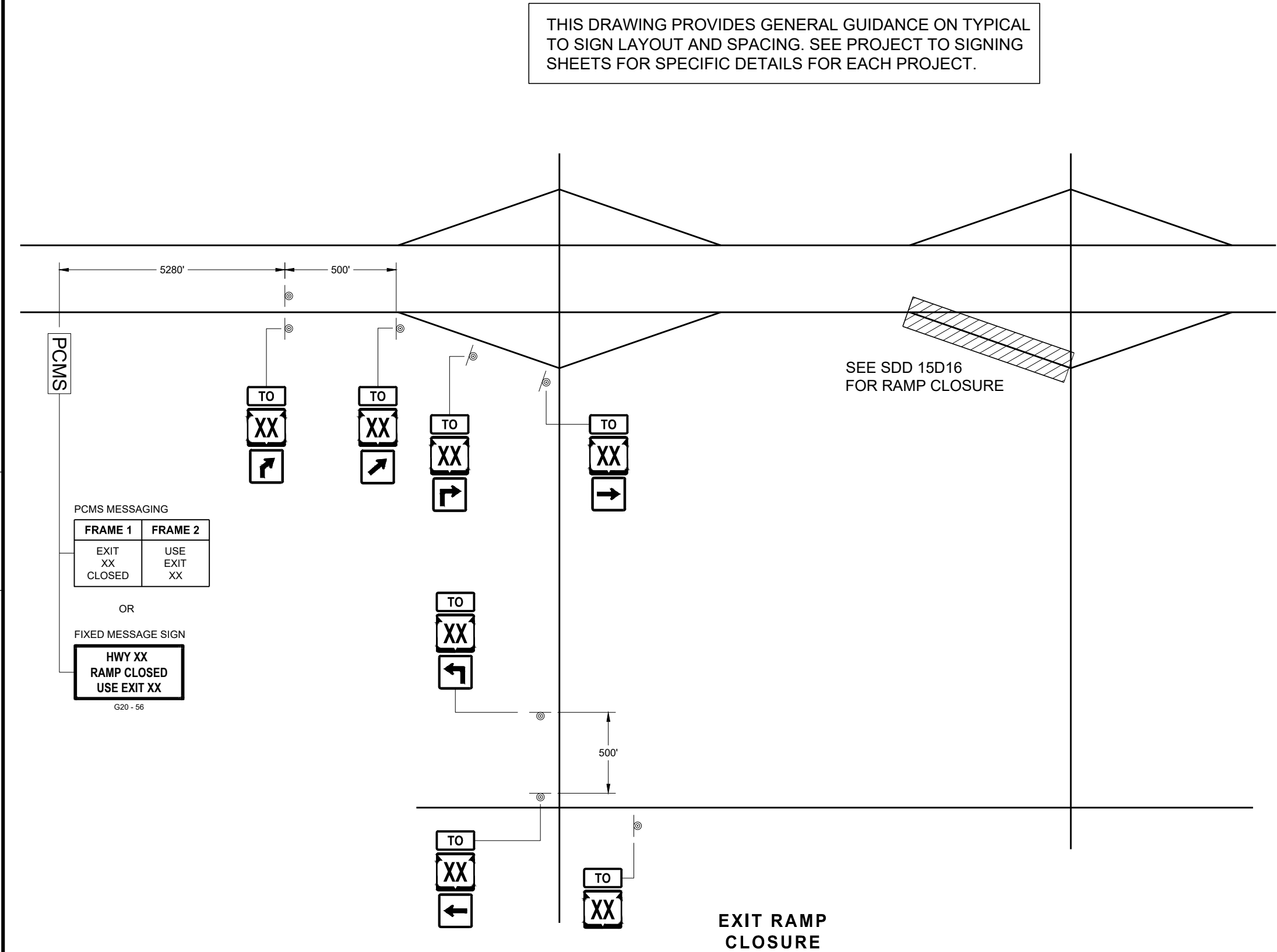
ON RAMP LANE CLOSURE

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DATE WORK ZONE ENGINEER 98

SDD 15C02 - 07d

SDD15C02 - 07d



LEGEND

- SIGN ON PERMANENT SUPPORT
- PORTABLE CHANGEABLE MESSAGE SIGN

- MO4 - 5
- M1 - 4
- OR
- M1 - 6
- OR
- M1 - 5A
- OR
- MO5 - 1
- OR
- MO5 - 2
- OR
- MO6 - 1
- OR
- MO6 - 2

GENERAL NOTES

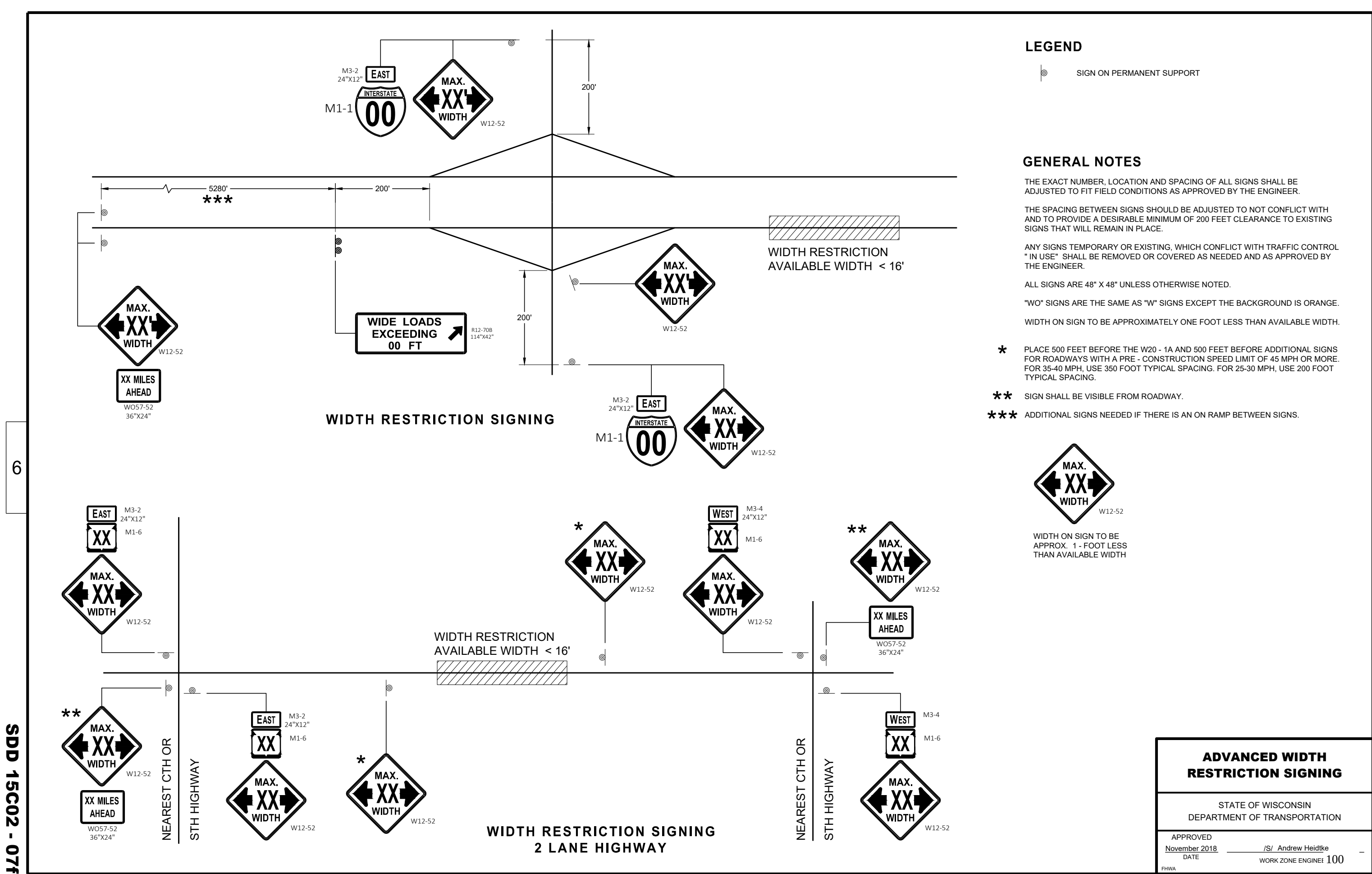
- SEE SDD 15D16 "TRAFFIC CONTROL, EXIT RAMP CLOSURE" DETAIL FOR TRAFFIC CONTROL AT EXIT RAMP CLOSURE.
- THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- IF THERE ARE ANY ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE TO ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT TO SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.
- THE SPACING BETWEEN TRAFFIC CONTROL AND TO 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 SHALL 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 FOLLOW:
MO4 - 5 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, MO5 - 2, AND MO6 - 1, SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS).

OFF RAMP
LANE CLOSURE

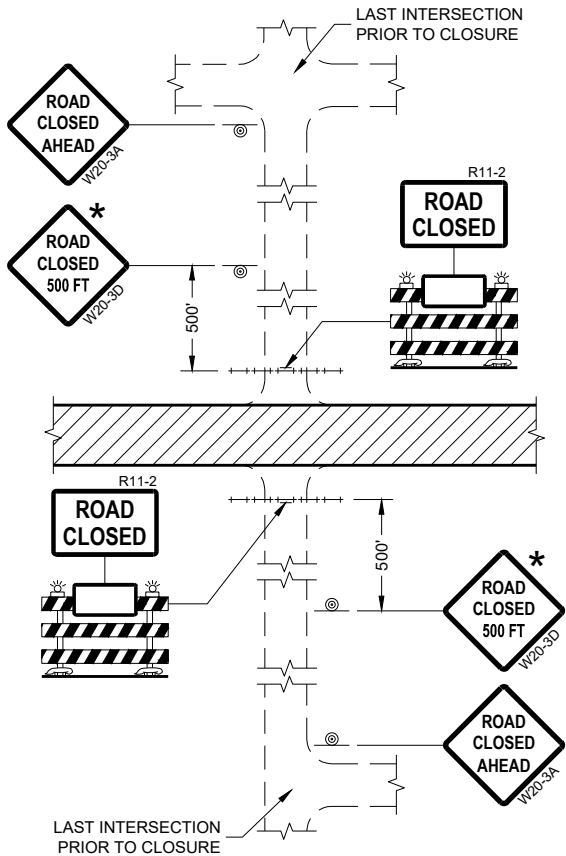
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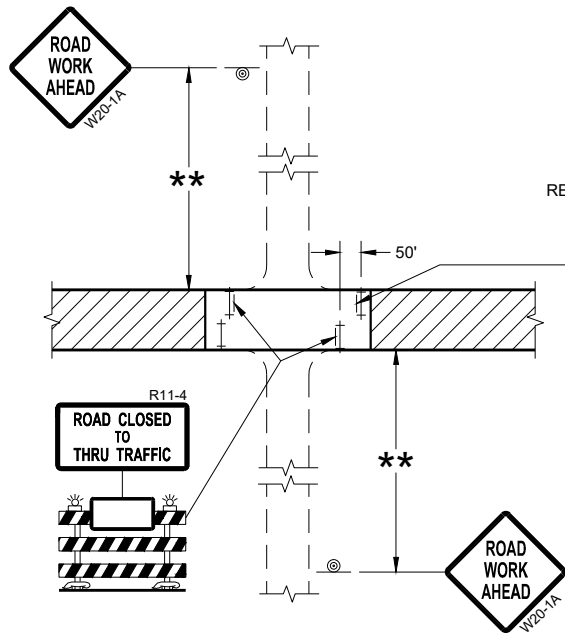
FHWA



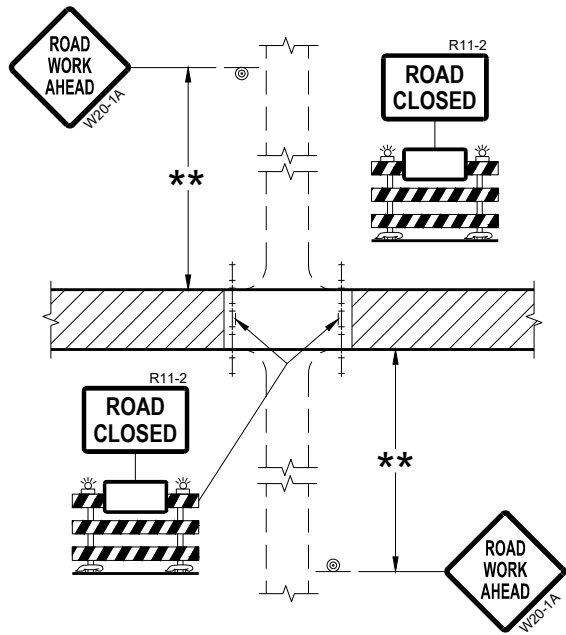
ADVANCED WIDTH RESTRICTION SIGNING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2018 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER 100
FHWA	



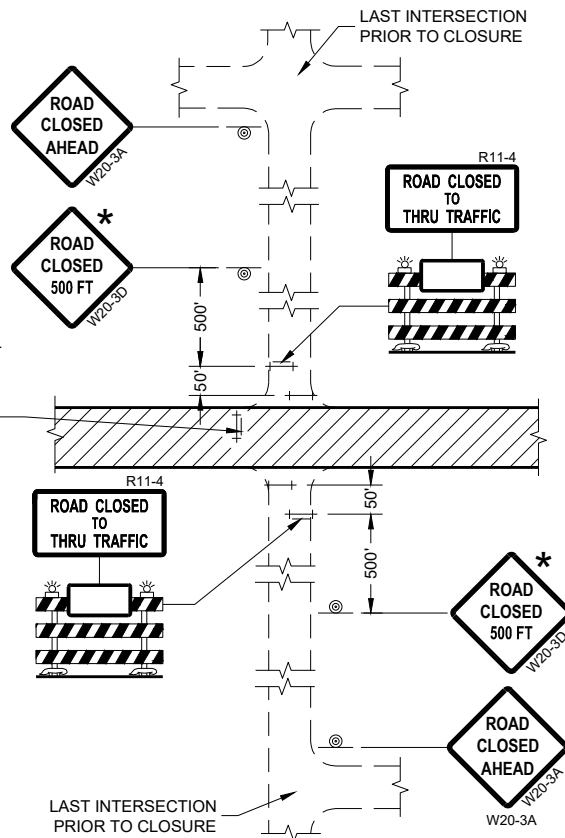
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

- * OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.
- ** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

LEGEND

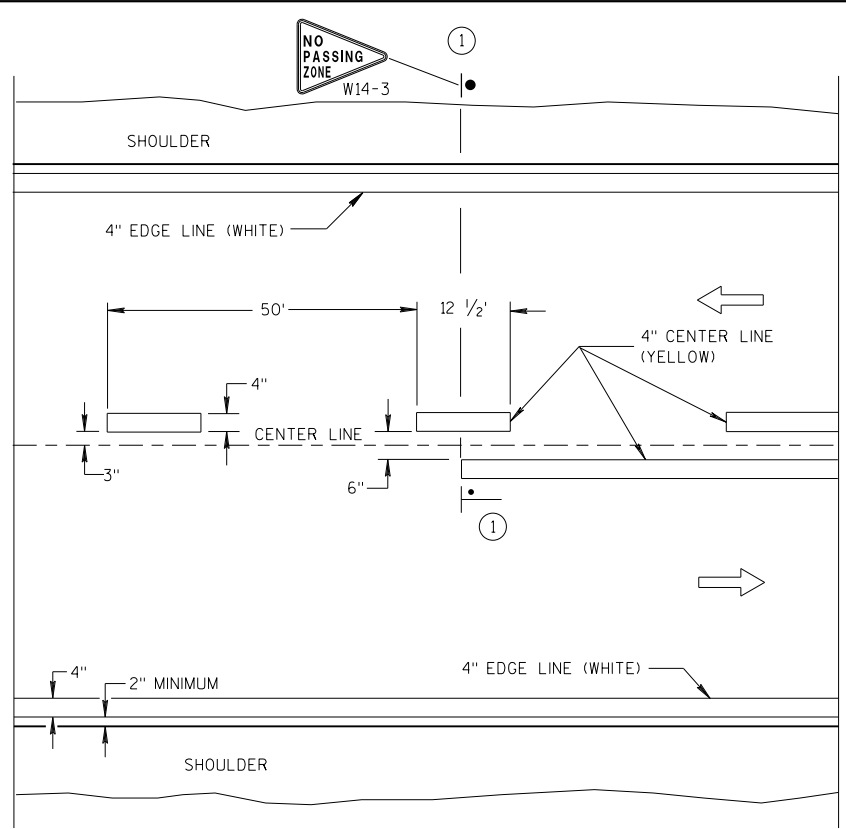
- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

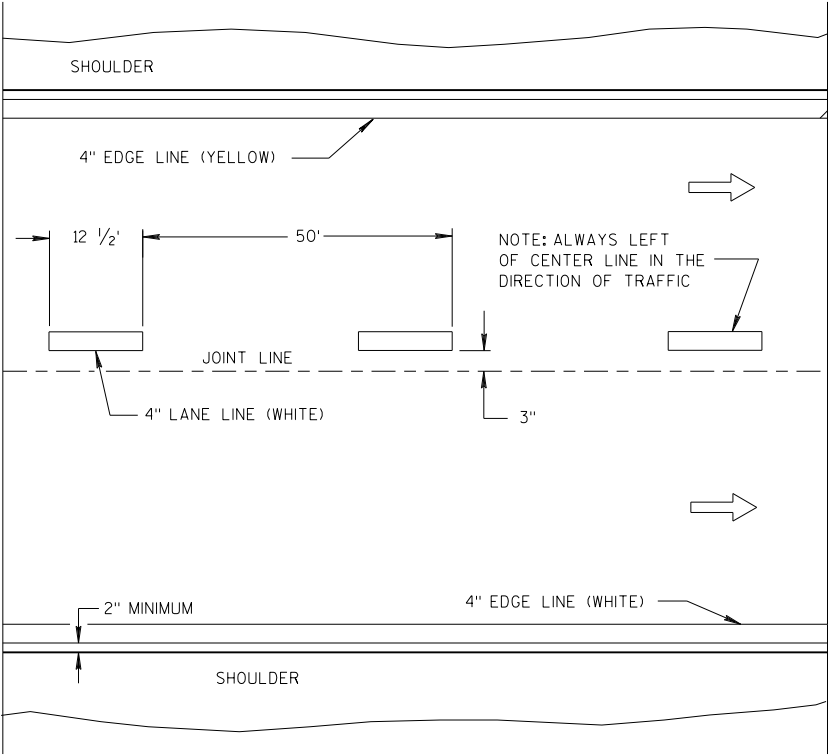
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DATE WORK ZONE ENGINEER 101

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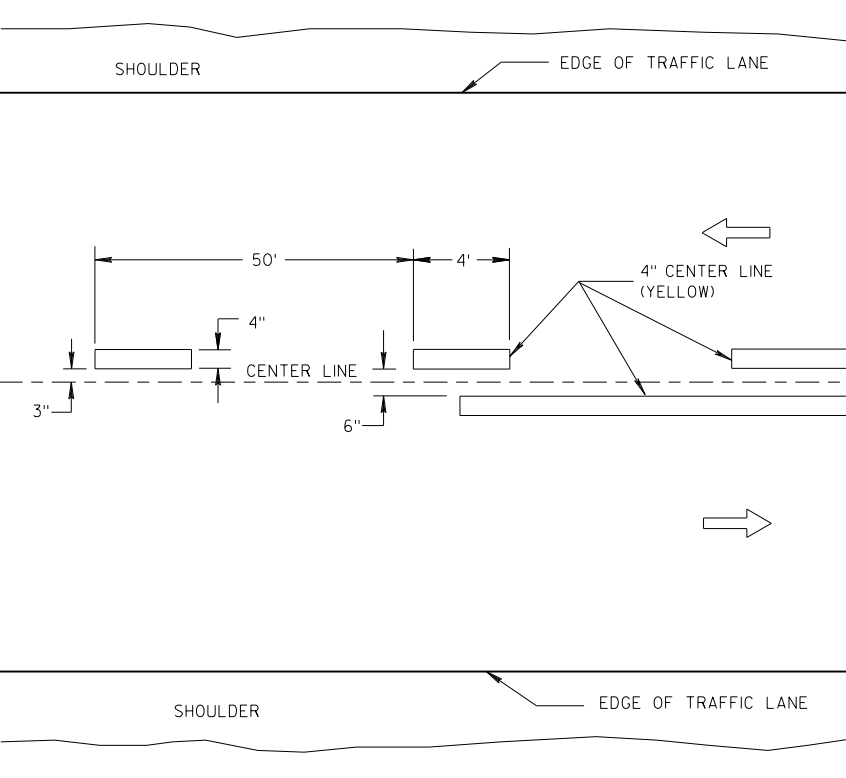


TWO WAY TRAFFIC

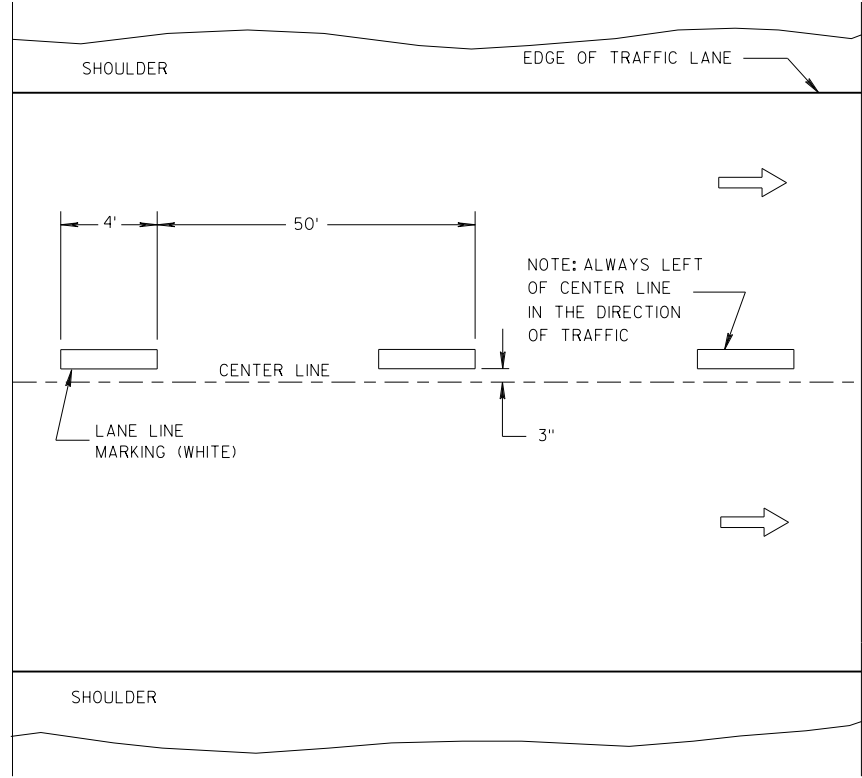


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

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

① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

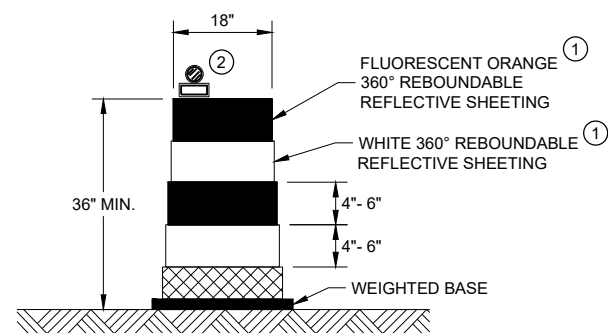
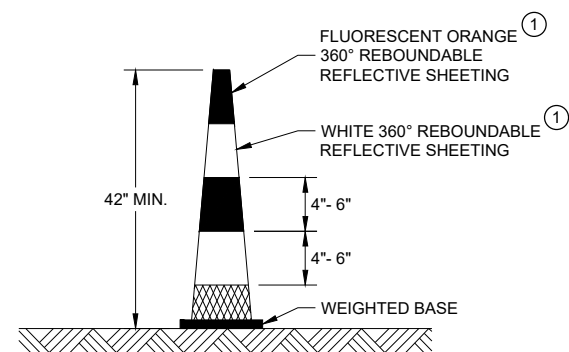
NOTE

ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL

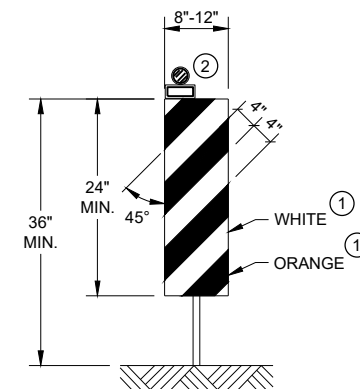
LEGEND

- "T" MARKING
- POST MOUNTED SIGN

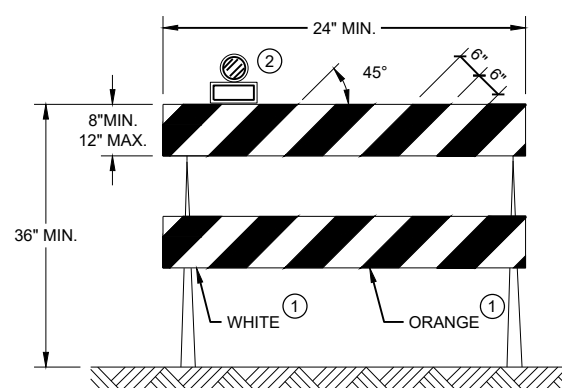
LONGITUDINAL MARKING (MAINLINE)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED			
7/2018	/S/ Matthew R. Rauch		
DATE	STATE SIGNING AND MAR 102		
FHWA	INEER		

**DRUM****42" CONE**

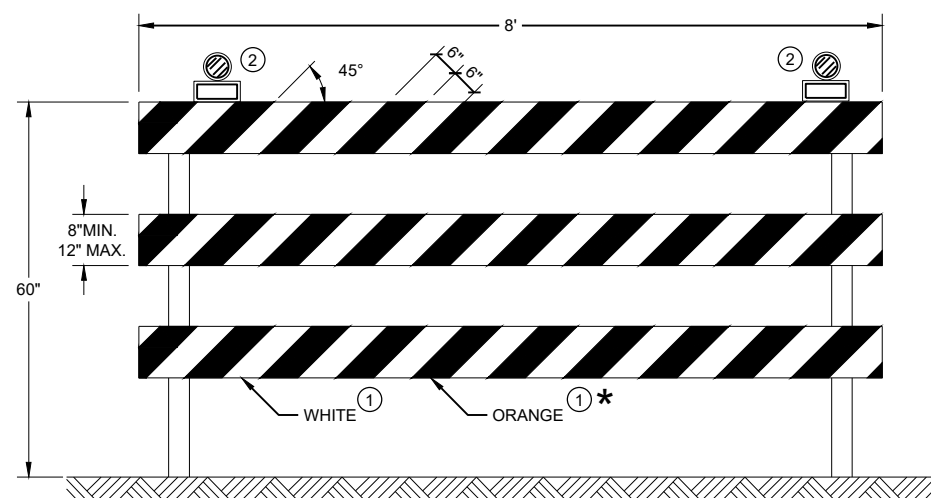
DO NOT USE IN TAPERS
½ SPACING OF DRUMS

**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
June 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 103

FHWA

GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

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

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

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

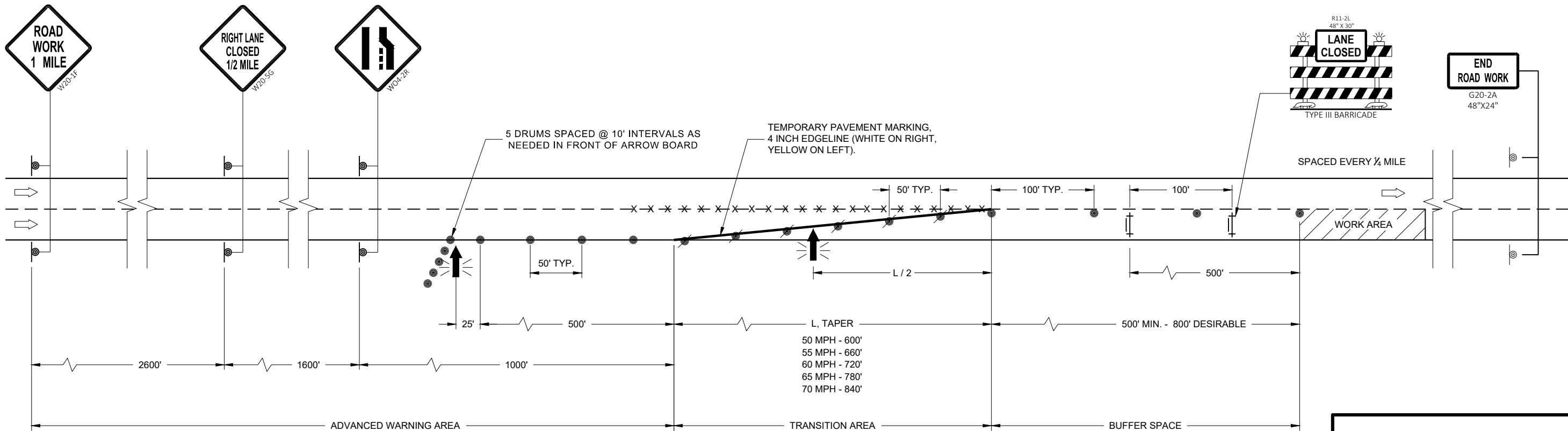
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS

NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA
- FLASHING ARROW BOARD



TRAFFIC CONTROL
LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 104
FHWA

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

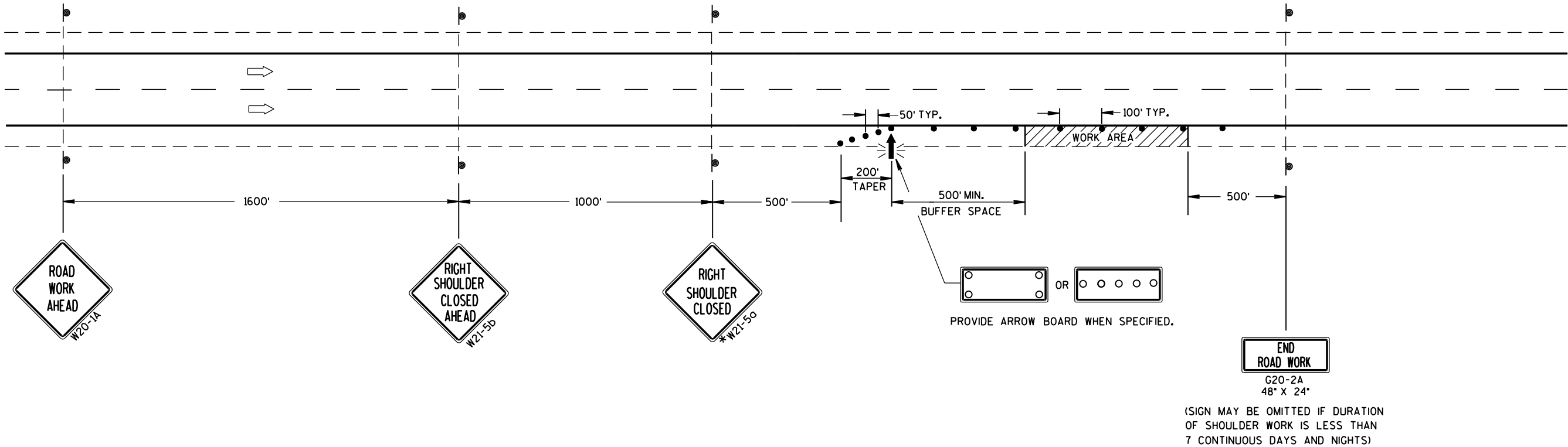
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



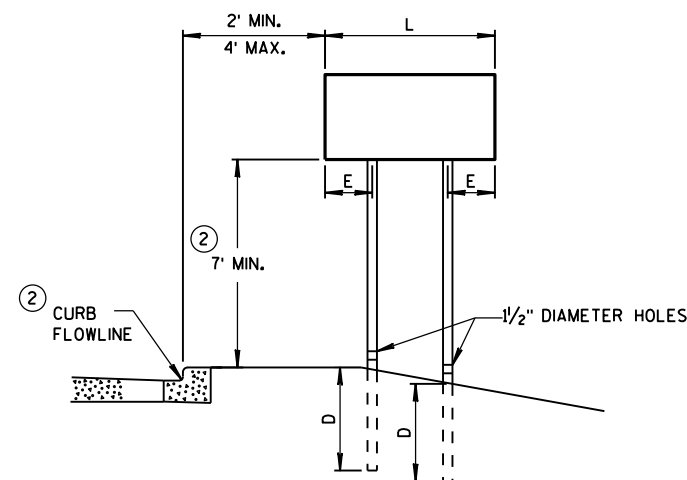
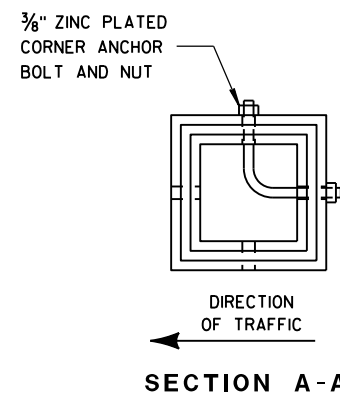
TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2016 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE SAFETY ENGINEER 105
FHWA	IC



TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL 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 LARGER THAN 27 SQ.FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

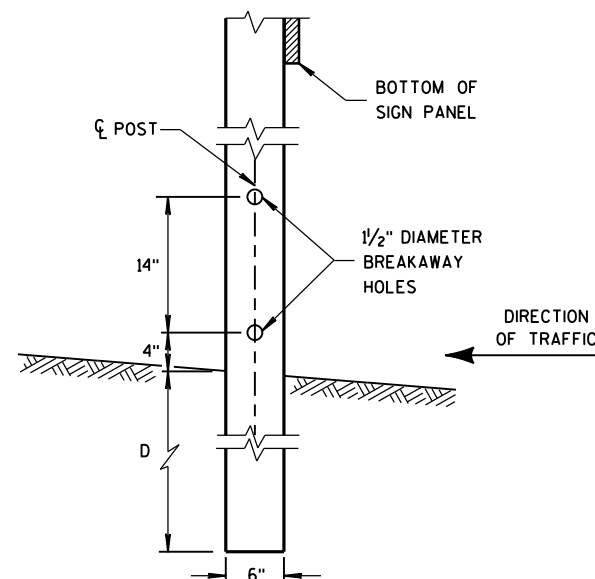


URBAN AREA

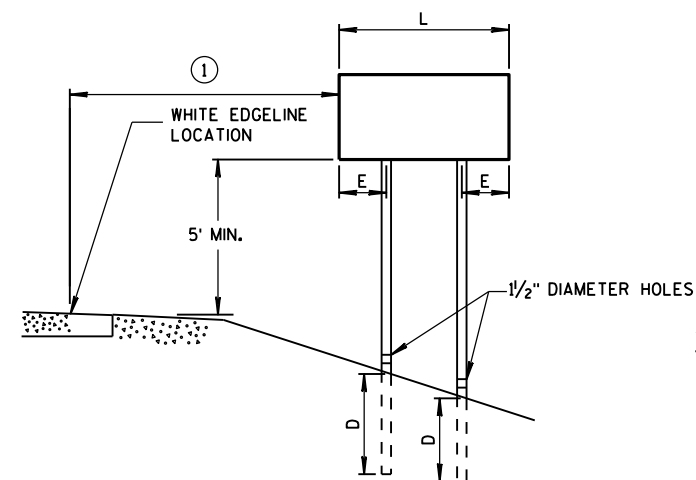
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST
EMBEDMENT DEPTH

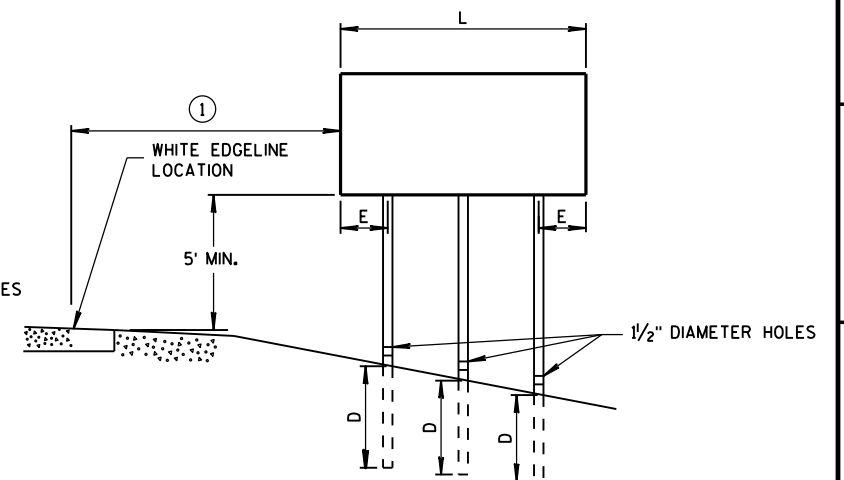
AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



4" x 6" WOOD POST MODIFICATION



RURAL AREA



GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② 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. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

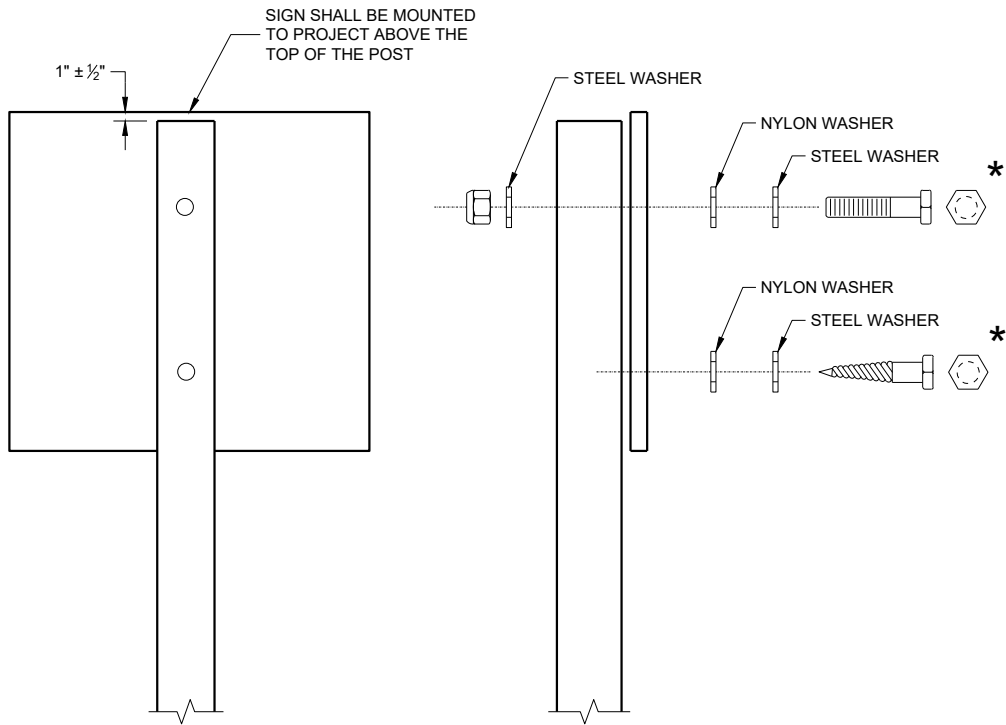
4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 106



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.

WOOD POST (4" x 6")
LAG SCREWS - ¾" x 3"
MACHINE BOLTS - ⅝" x 6 ½" OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")
MACHINE BOLTS - ¾" x 3 ¼" LENGTH W/NUTS
RIVETS - ⅝" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM
BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,
GRIP RANGE 0.042 - 0.375 INCH

WASHERS (ALL POSTS) -
1 ¼" O.D. x ⅜" I.D. x ⅛" STEEL
1 ¼" O.D. x ⅜" I.D. x 0.080 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. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER 107

FHWA

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)

GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR SHIFTING RIGHT LANE - REVERSE FOR SHIFTING LEFT LANE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

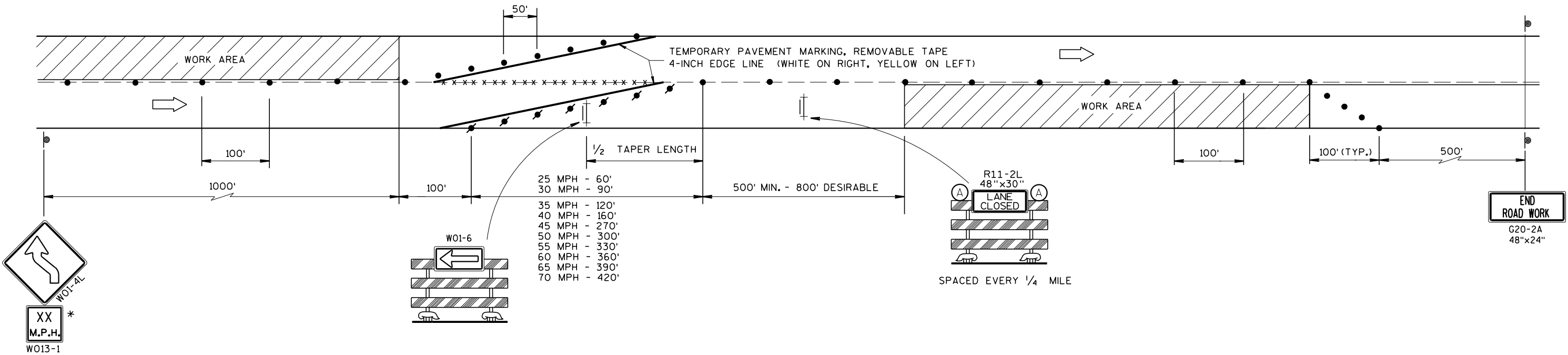
FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

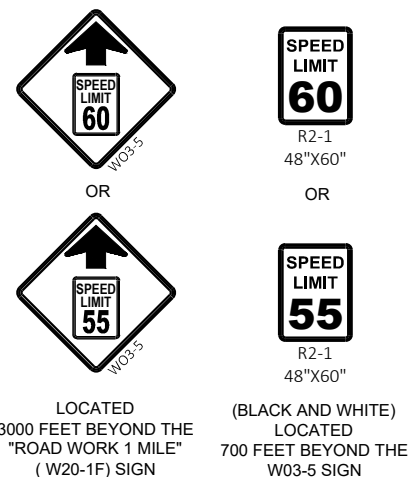


LANE SHIFT MULTI-LANE DIVIDED OR ONE WAY ROAD

* USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED

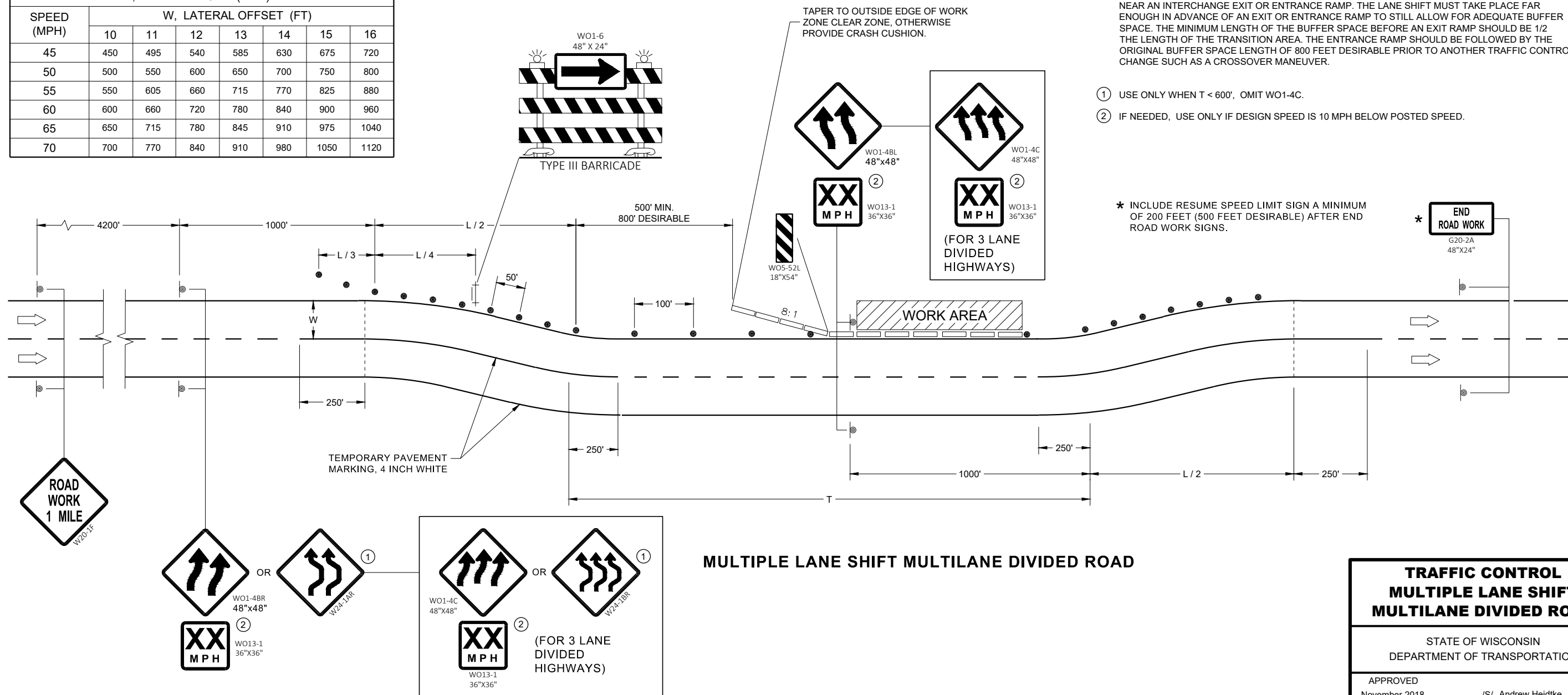
TRAFFIC CONTROL, LANE SHIFT, MULTI-LANE DIVIDED OR ONE WAY ROAD	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2018 DATE	/S/ Andrew J. WORK ZONE ET 108
FHWA	

WORK AREA



IF THE REGULATORY SPEED HAS BEEN REDUCED, A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 3 MILES.

L, TAPER LENGTH (MPH)							
SPEED (MPH)	W, LATERAL OFFSET (FT)						
	10	11	12	13	14	15	16
45	450	495	540	585	630	675	720
50	500	550	600	650	700	750	800
55	550	605	660	715	770	825	880
60	600	660	720	780	840	900	960
65	650	715	780	845	910	975	1040
70	700	770	840	910	980	1050	1120



ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE SHIFT OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE SHIFT MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

- ① USE ONLY WHEN T < 600', OMIT WO1-4C.
- ② IF NEEDED, USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.

* INCLUDE RESUME SPEED LIMIT SIGN A MINIMUM OF 200 FEET (500 FEET DESIRABLE) AFTER END ROAD WORK SIGNS.

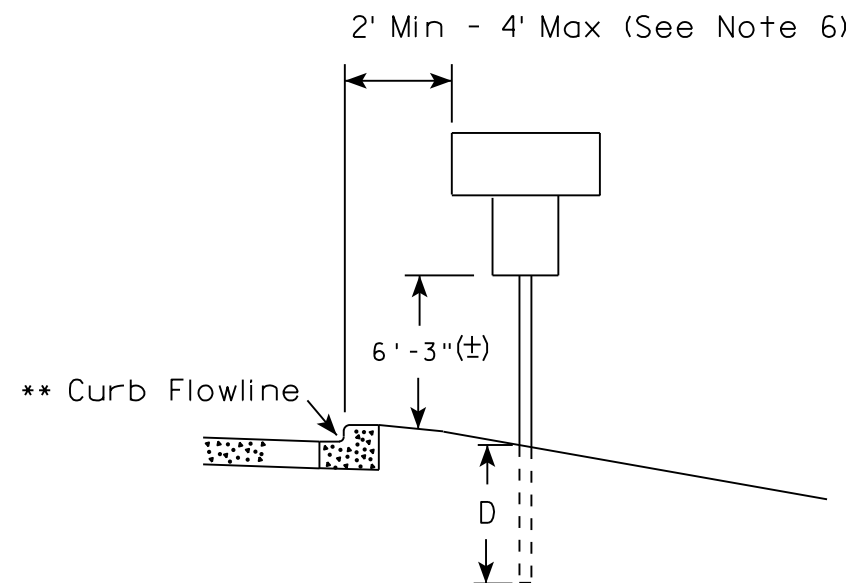
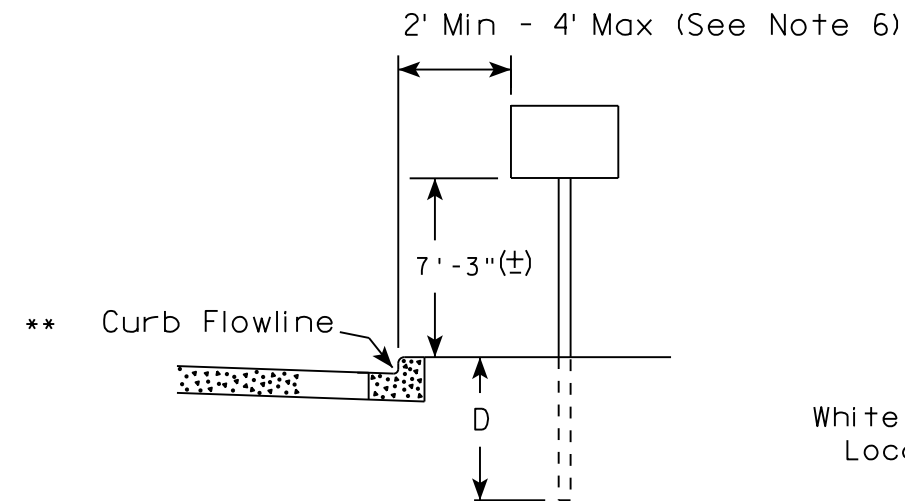
* **END
ROAD WORK**
G20-2A
48"X24"

**TRAFFIC CONTROL
MULTIPLE LANE SHIFT
MULTILANE DIVIDED ROAD**

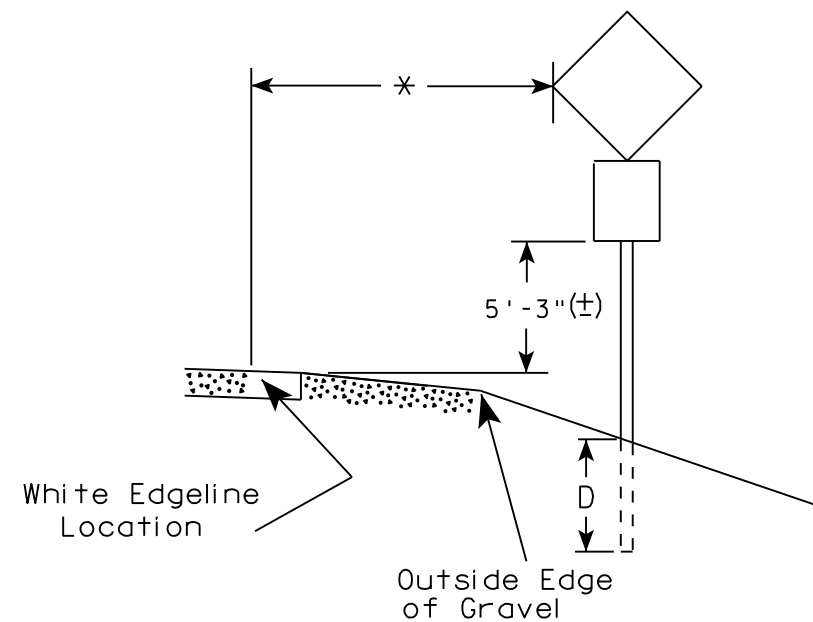
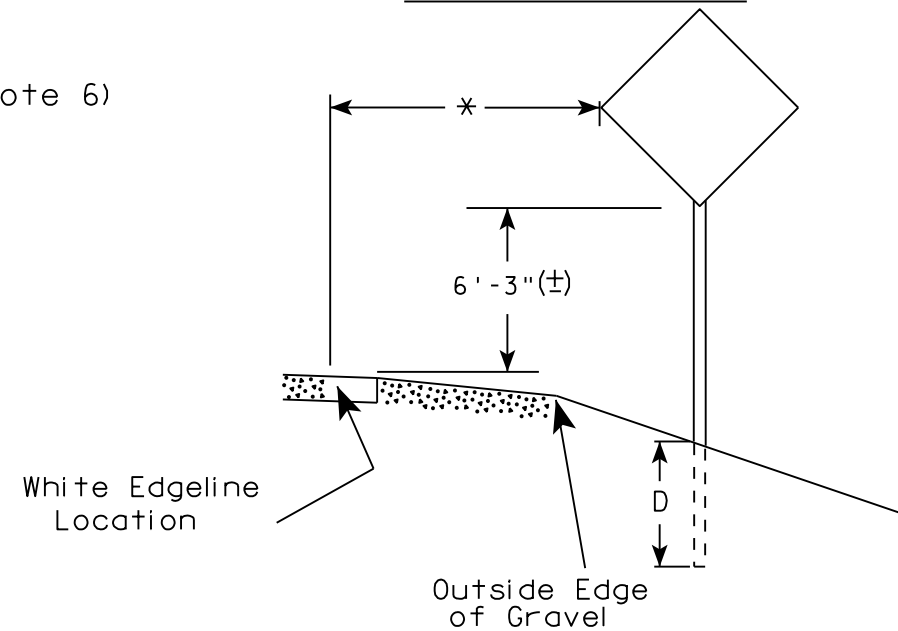
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 109

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

* 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.

GENERAL NOTES

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

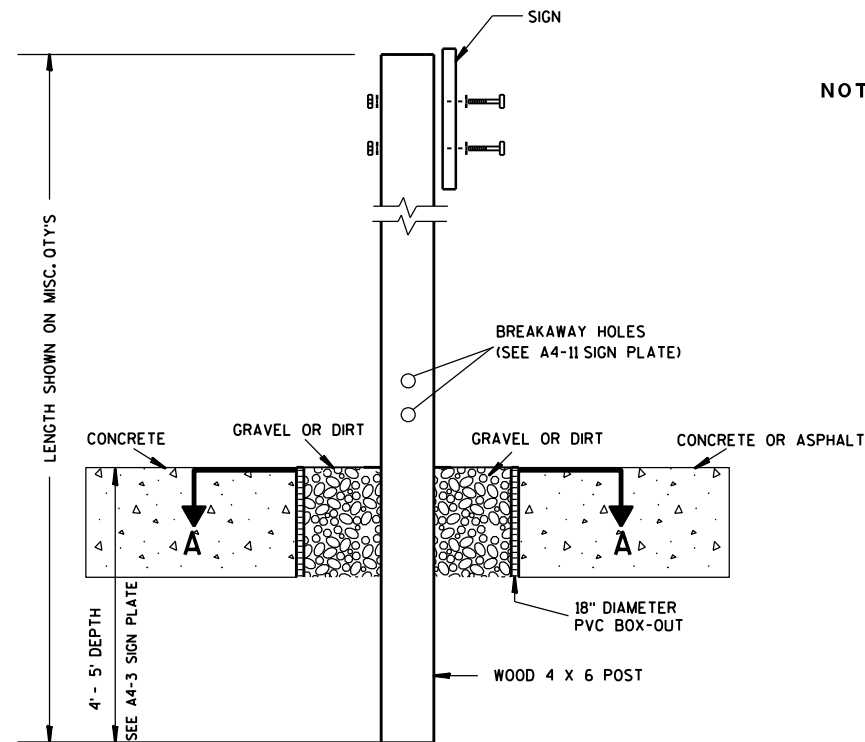
** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

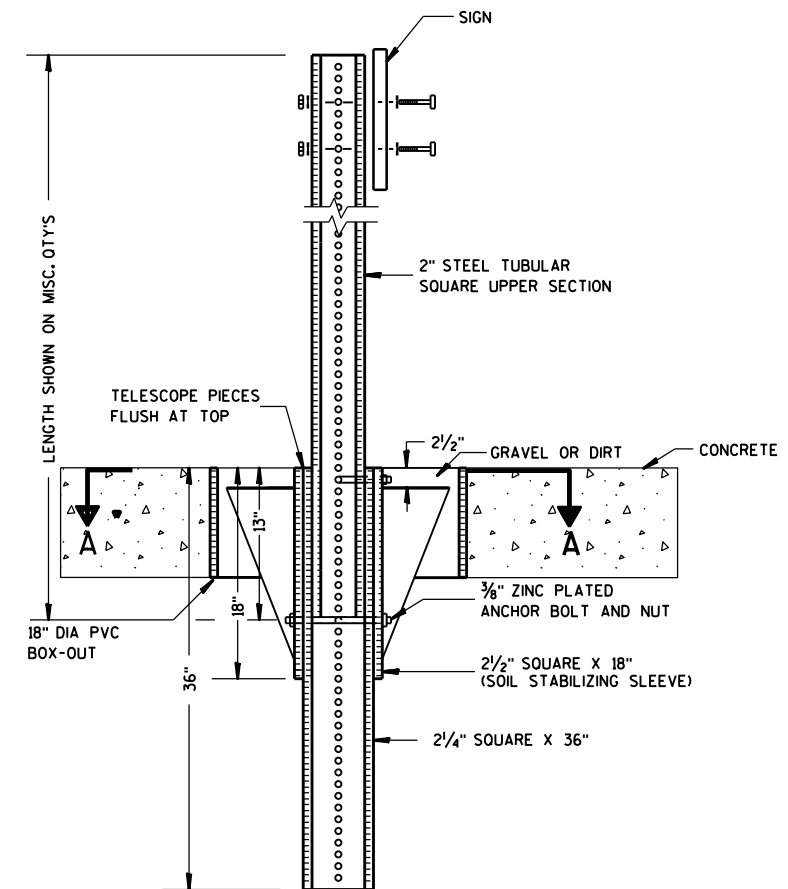
DATE 8/21/17 PLATE NO. A4-3.21



ELEVATION VIEW

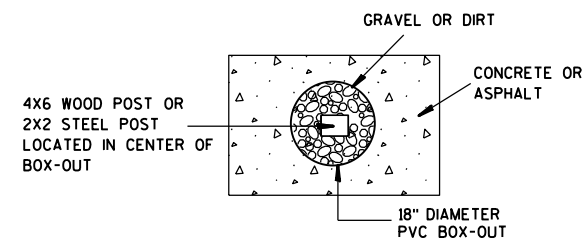
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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 111 A4-3B.1

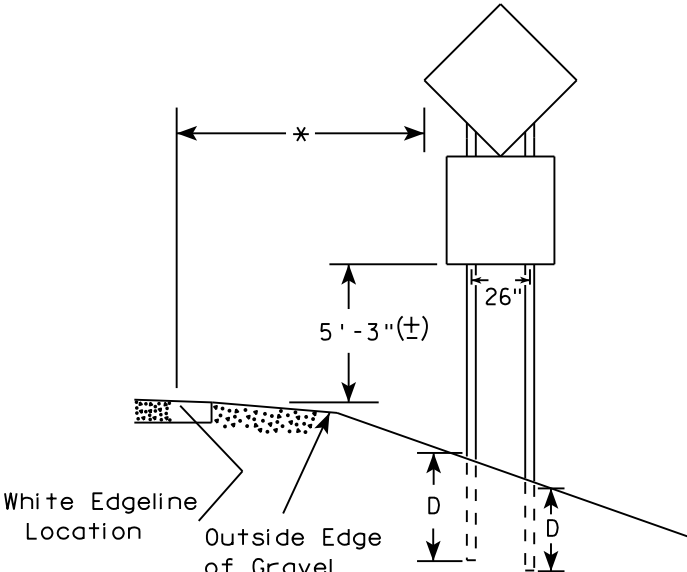
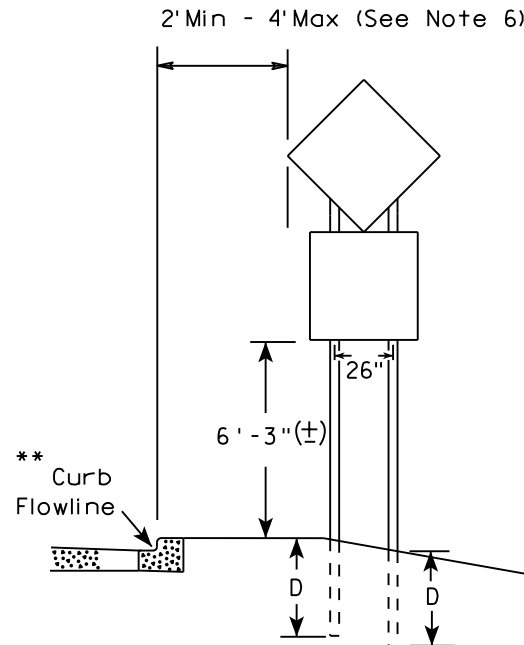
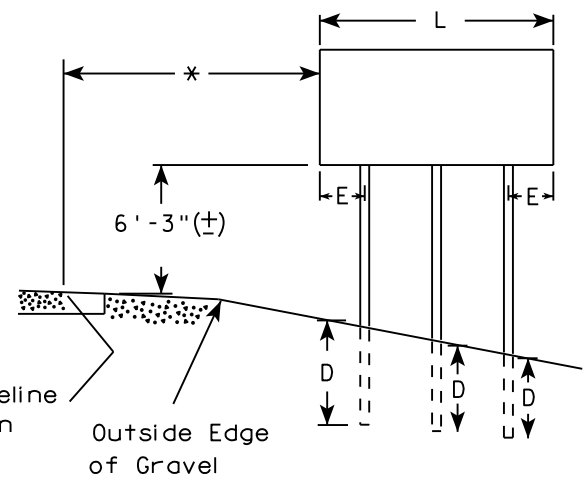
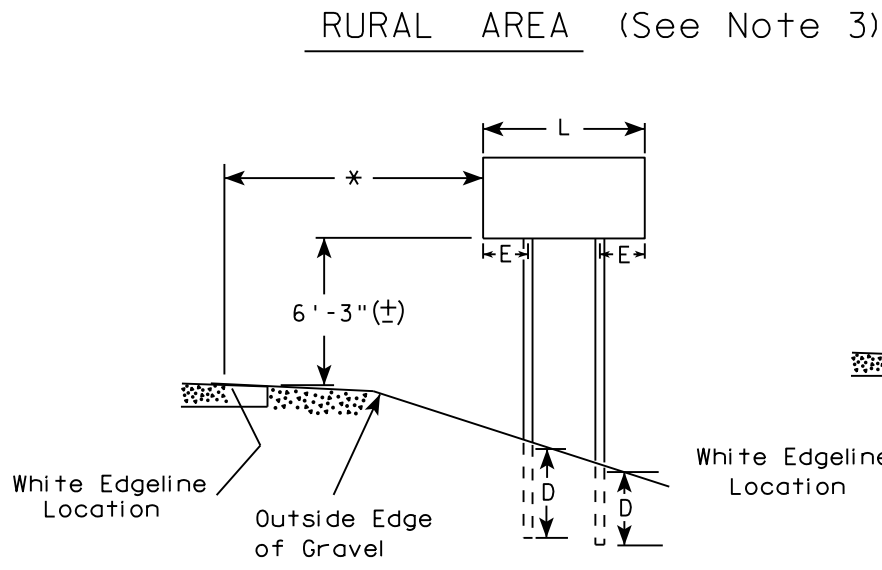
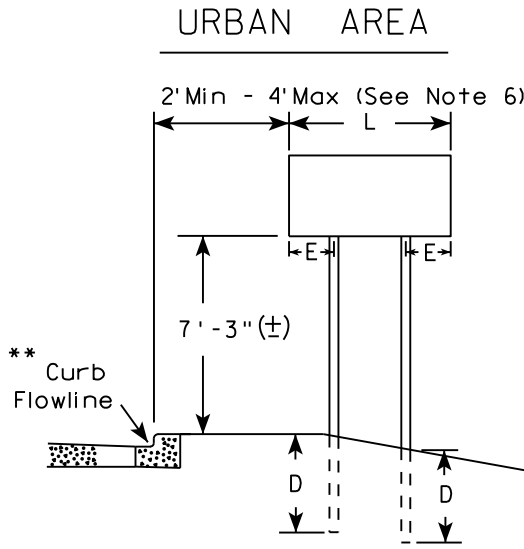
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



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

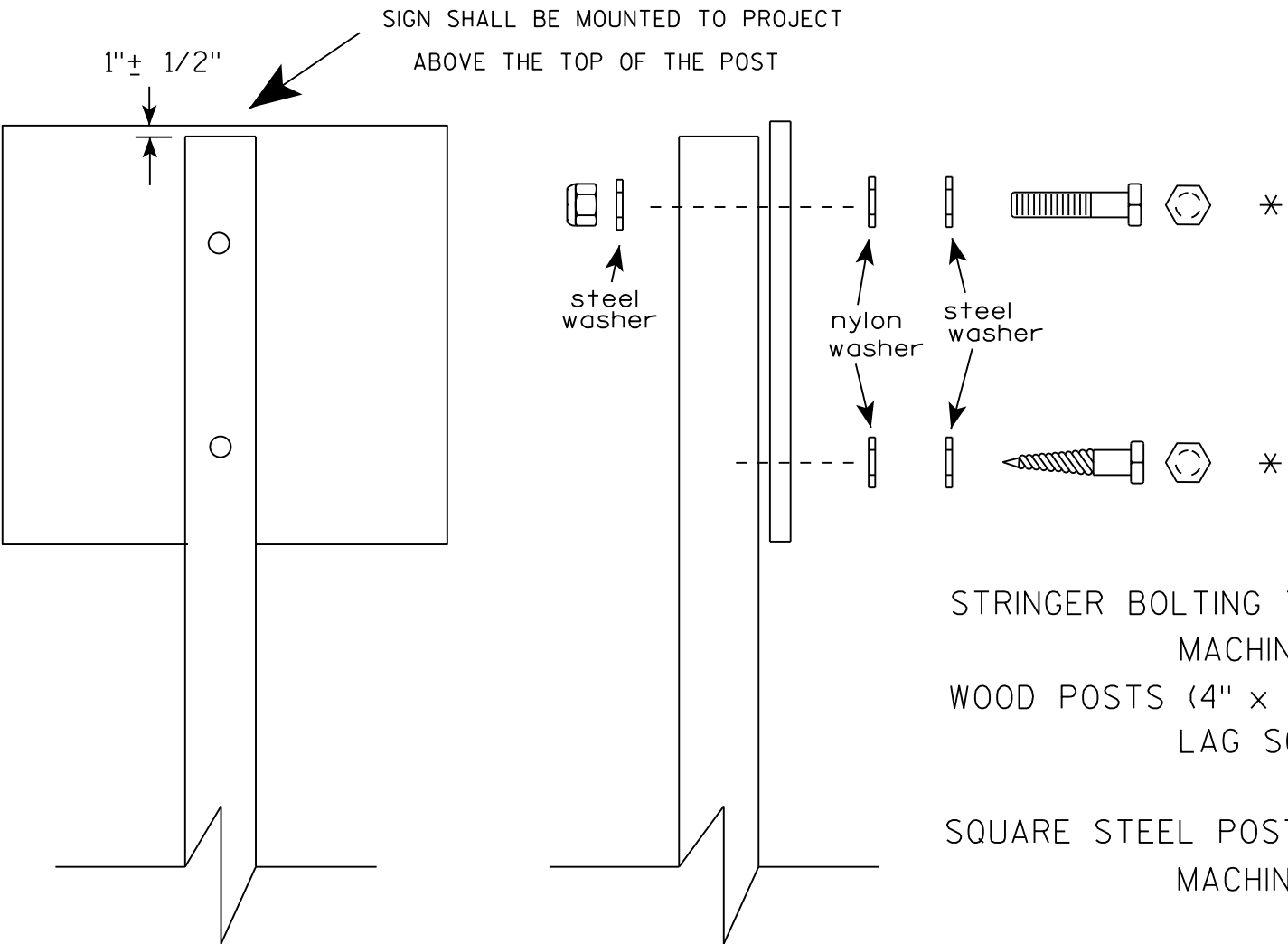
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

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

- * 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.

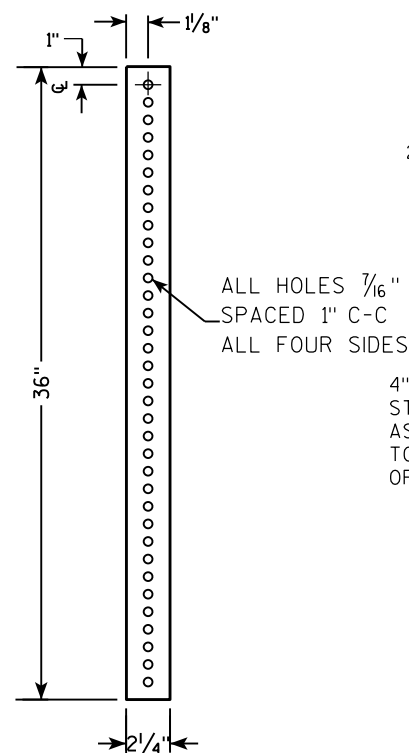
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

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

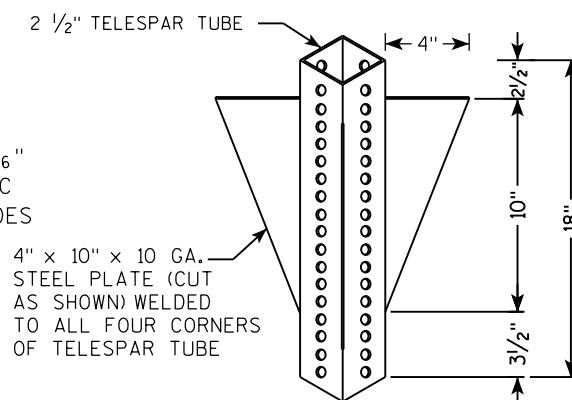
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 8/11/16	PLATE NO. A4-8.8 113

**2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH**



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



TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY.

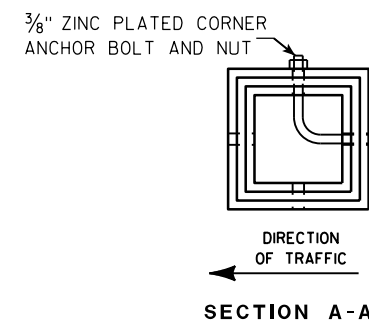
Labels and Dimensions:

- 18" DIA SCHEDULE 40 PVC BOX-OUT** (Sign)
- 13"** (Sign height)
- 18"** (Sign width)
- 36"** (Post length)
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)**
- 2 1/4" SQUARE X 36"** (Post)
- 2" STEEL TUBULAR SQUARE UPPER SECTION**
- 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT**
- 3/8" ZINC PLATED ANCHOR BOLT AND NUT**
- 2 1/2" GRAVEL OR DIRT**
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL**
- SIGN**
- ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES**
- TELESCOPE PIECES FLUSH AT TOP**

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY.

Labels and Dimensions:

- TELESCOPE PIECES FLUSH AT TOP** (indicated by a bracket on the left side view)
- 2" STEEL TUBULAR SQUARE UPPER SECTION** (indicated by a bracket on the right side view)
- ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES** (indicated by a bracket on the right side view)
- $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT** (indicated by a bracket on the right side view)
- $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT** (indicated by a bracket on the right side view)
- $2\frac{1}{2}$ " SQUARE X 18" (SOIL STABILIZING SLEEVE)** (indicated by a bracket on the right side view)
- $2\frac{1}{4}$ " SQUARE X 36"** (indicated by a bracket on the right side view)
- SIGN** (indicated by a bracket on the right side view)
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL** (indicated by a bracket on the right side view)
- LENGTH SHOWN ON MISC. QTY'S** (indicated by a bracket on the left side view)
- 36"** (dimension for the main post length)
- 18"** (dimension for the soil stabilizing sleeve length)
- 12"** (dimension for the upper section length)
- 1"** (dimension for the corner anchor bolt offset)
- A** (dimension for the main post diameter)
- B** (dimension for the corner anchor bolt offset)



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 Matthaeus R. Rauch

for State Traffic Engineer

DATE 2/05/15 PLATI 114 14-9.9

PROJECT NO:

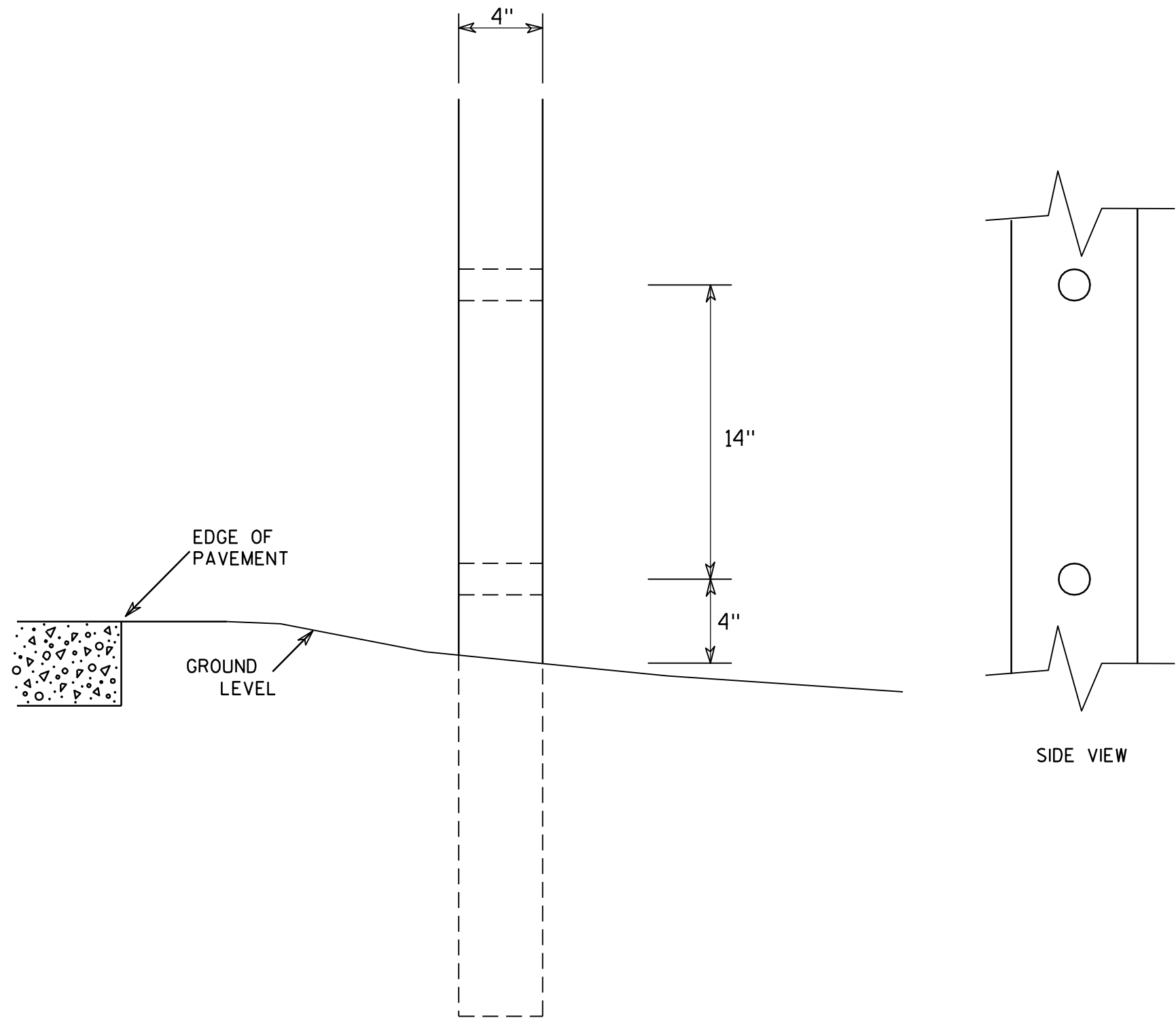
HWY:

COUNTY:

SHEET NO:

1

7



GENERAL NOTES

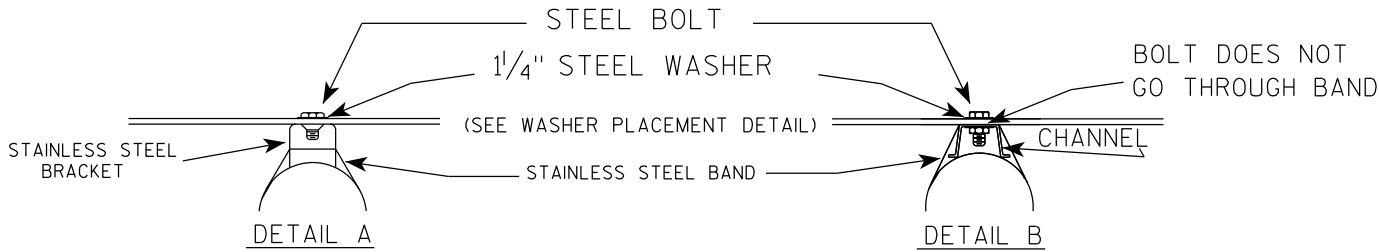
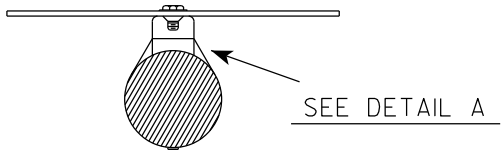
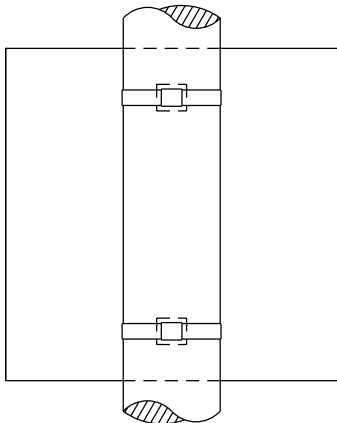
1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

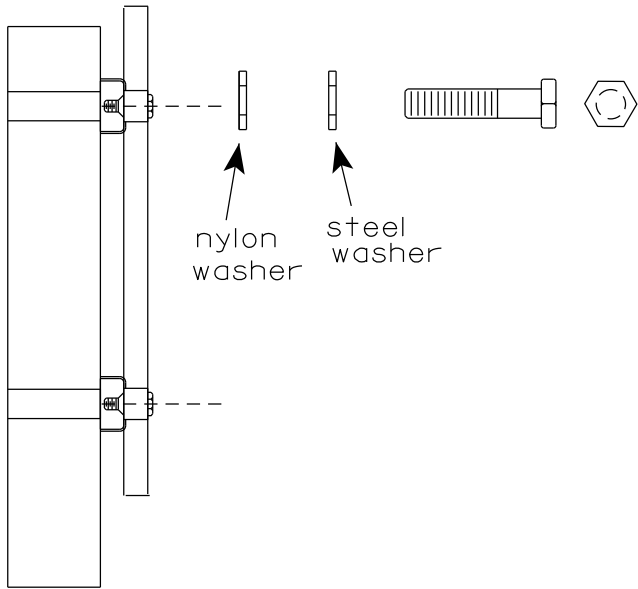
4 X 6 WOOD POST MODIFICATIONS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Chester J. Spang</i> for State Traffic Engineer
DATE 3/27/97	PLATE NO. A4-11.2

BANDING

SINGLE SIGN



WASHER PLACEMENT

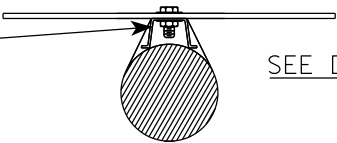
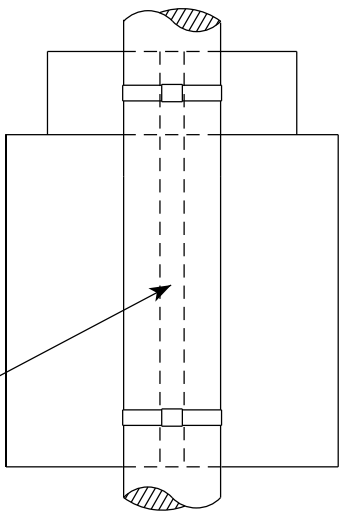


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

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

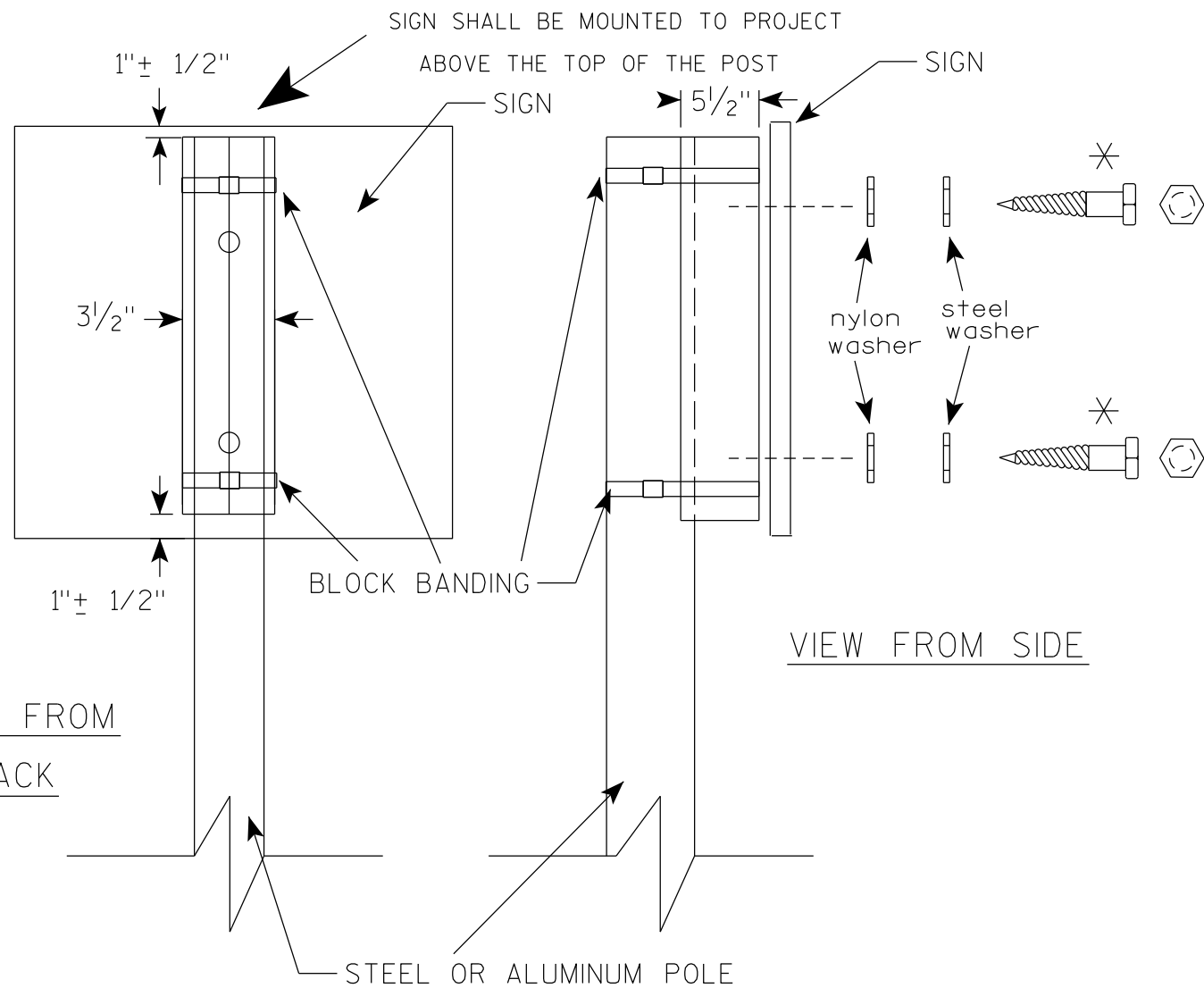


STANDARD SIGN
SIGN BANDING DETAILS

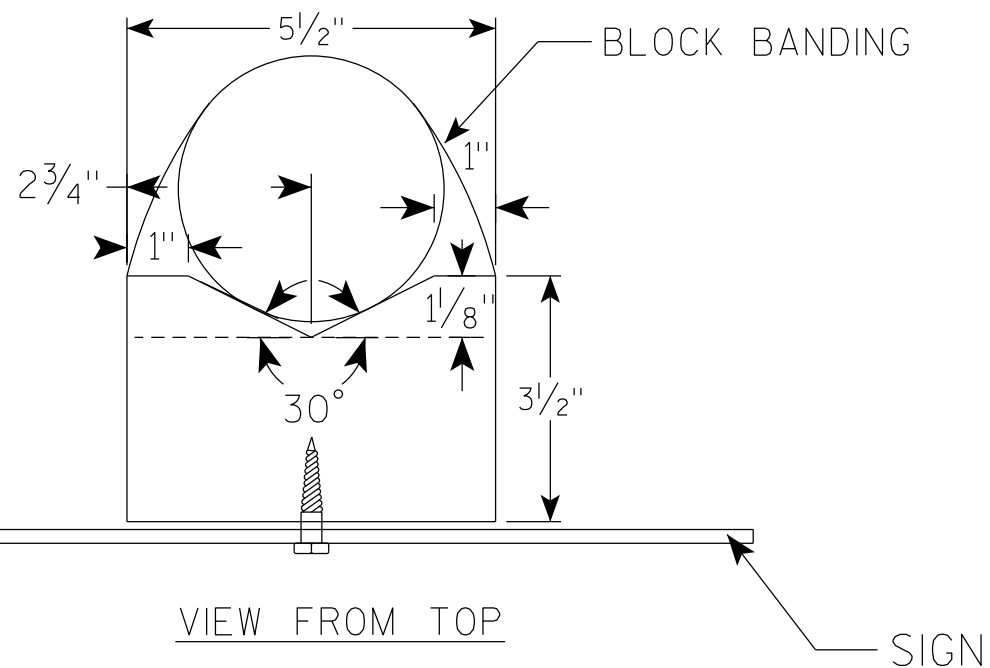
WISCONSIN DEPT OF TRANSPORTATION

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

VIEW FROM
BACK



VIEW FROM SIDE



GENERAL NOTES

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

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

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

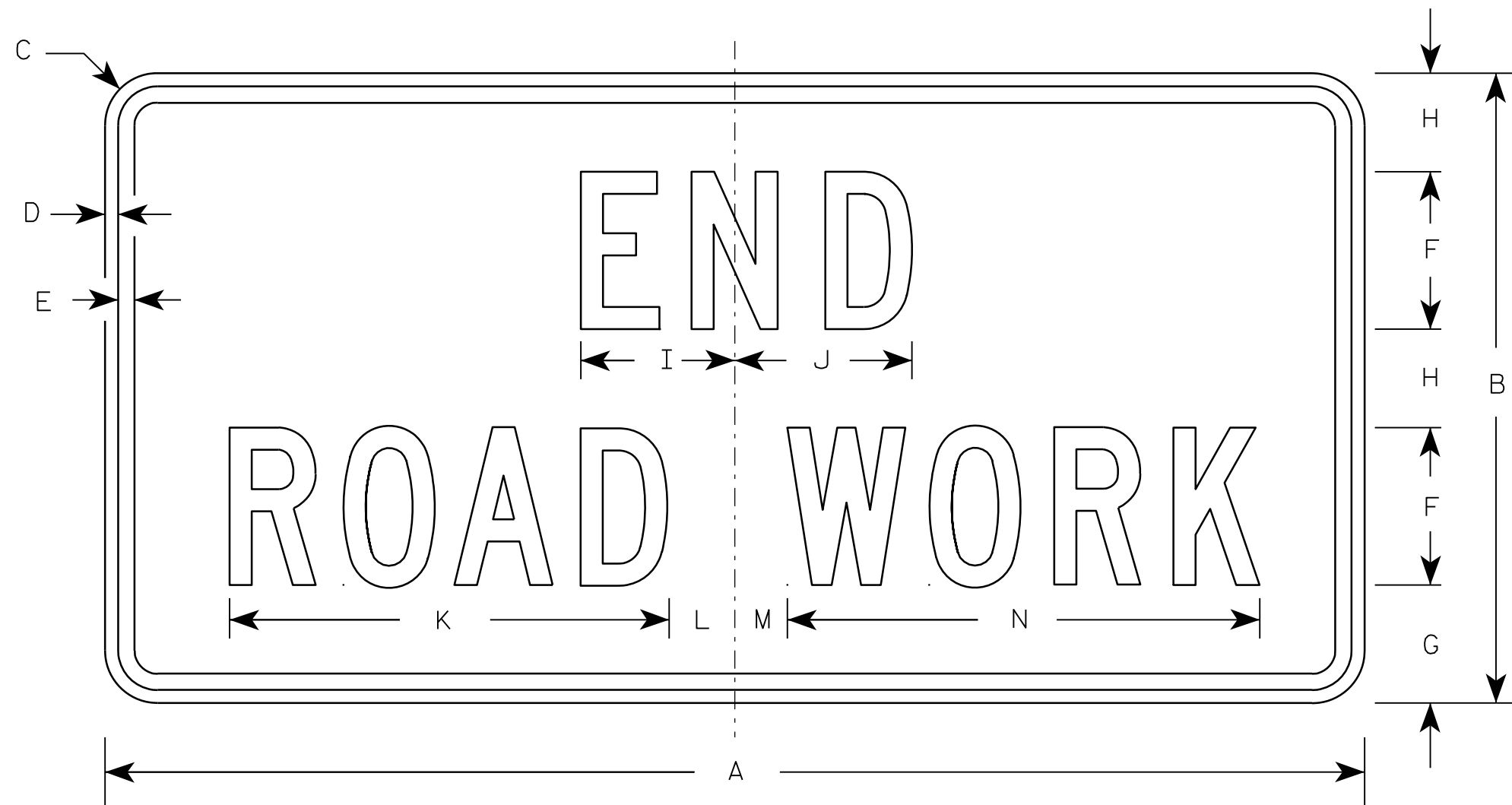
DATE 6/10/19 PLATE NO. A5-10.2

PROJECT NO:

SHEET NO: 117

E

7



G20-2A

NOTES

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

Metric equivalent
for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

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.	Area m ²
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

STANDARD SIGN

G20-2A

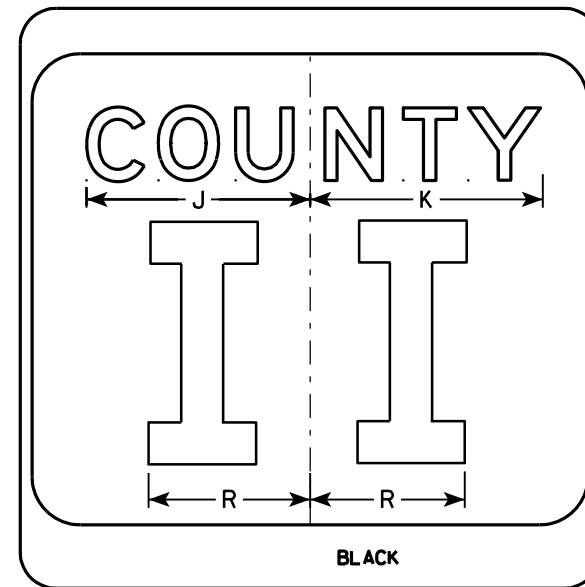
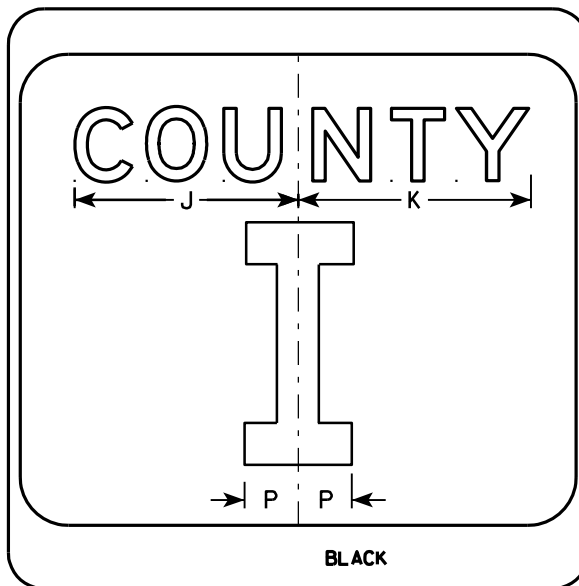
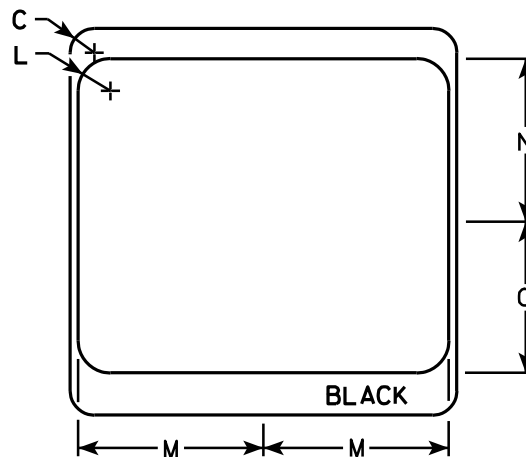
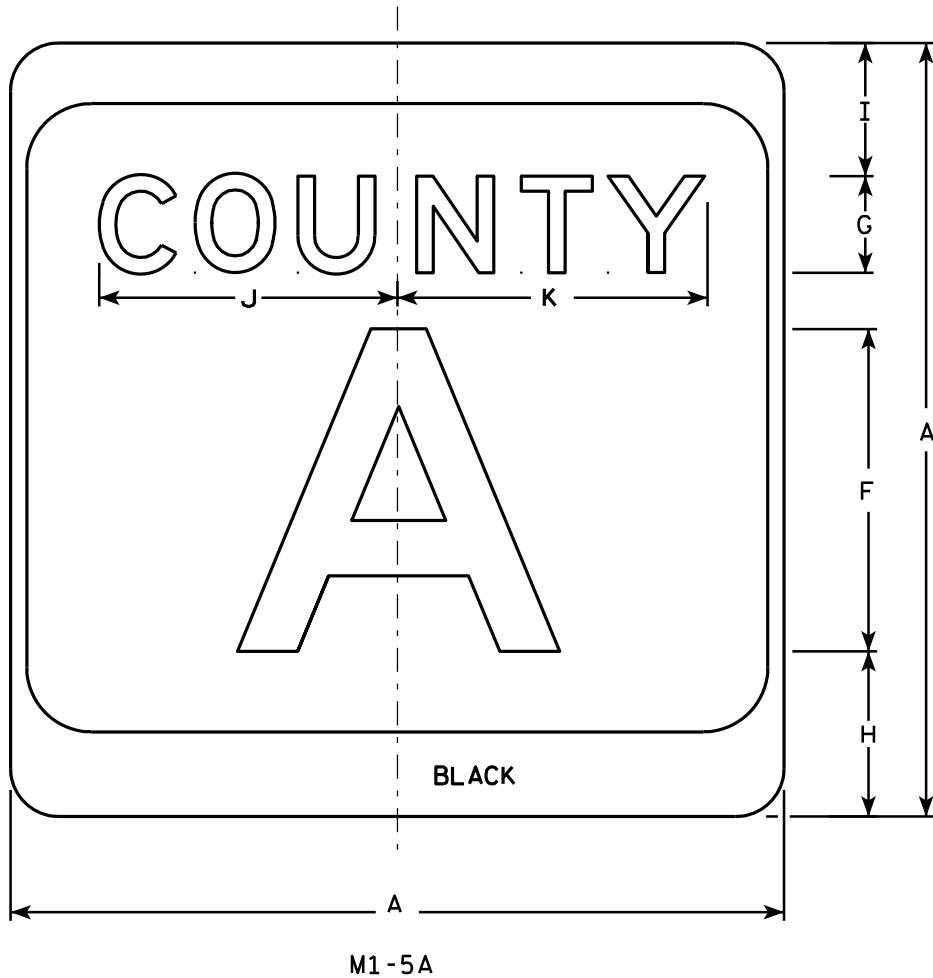
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/30/09 PLATE NO. G20-2A.8

7

7



NOTES

- Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - White & Black - See Note 7
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.
- Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
- Substitute appropriate letters & optically center to achieve proper balance.
- Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective

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			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

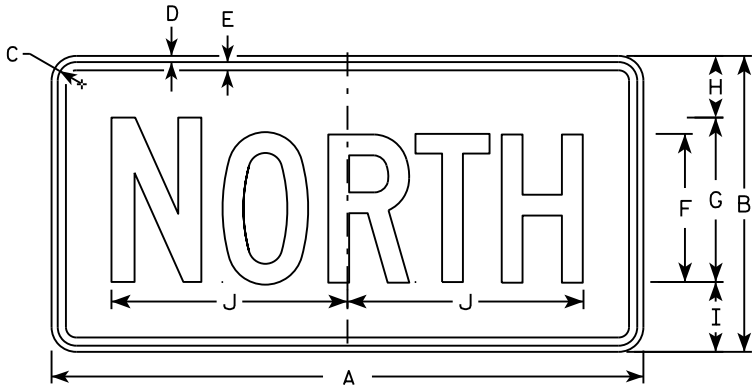
PROJECT NO:			HWY:			COUNTY:													SHEET NO: 119			E
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CTH MARKER
M1-5A FOR ASSEMBLIES

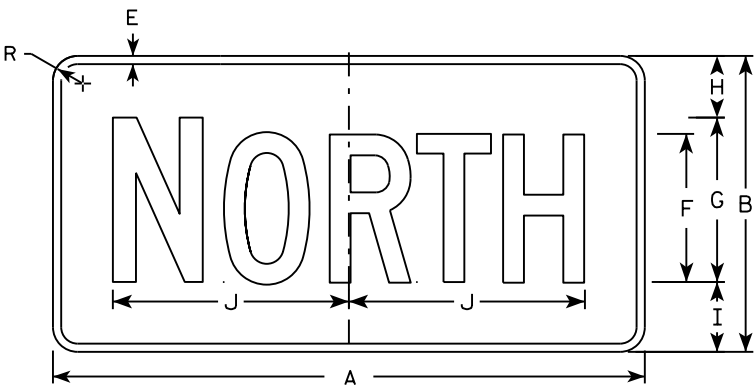
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/27/11 PLATE NO. M1-5A.8



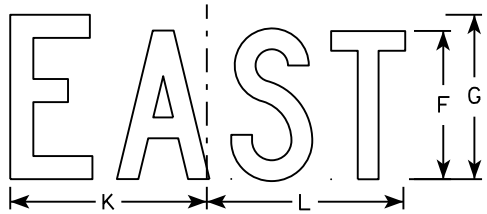
M3-1
MM3-1
MP3-1



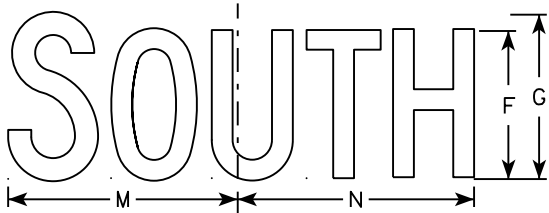
MB3-1
MK3-1
MN3-1



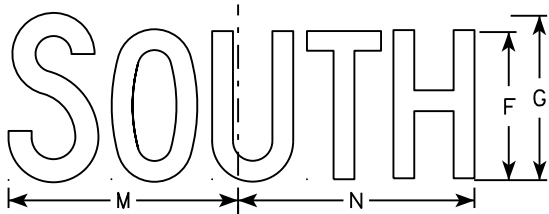
M3-2
MM3-2
MP3-2



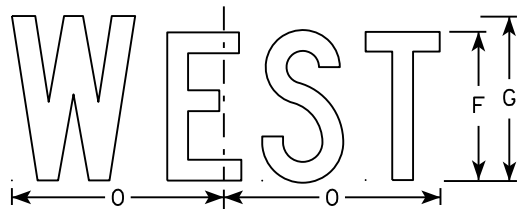
MB3-2
MK3-2
MN3-2



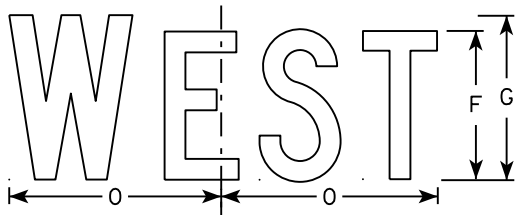
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

1. All Signs Type II - Type H
2. Color:
Background - See note 5
Message - See note 5
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. 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
6. Note the first letter of each direction is larger than the remainder of the message.

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

STANDARD SIGNS
M3-1 thru M3-4
SERIES

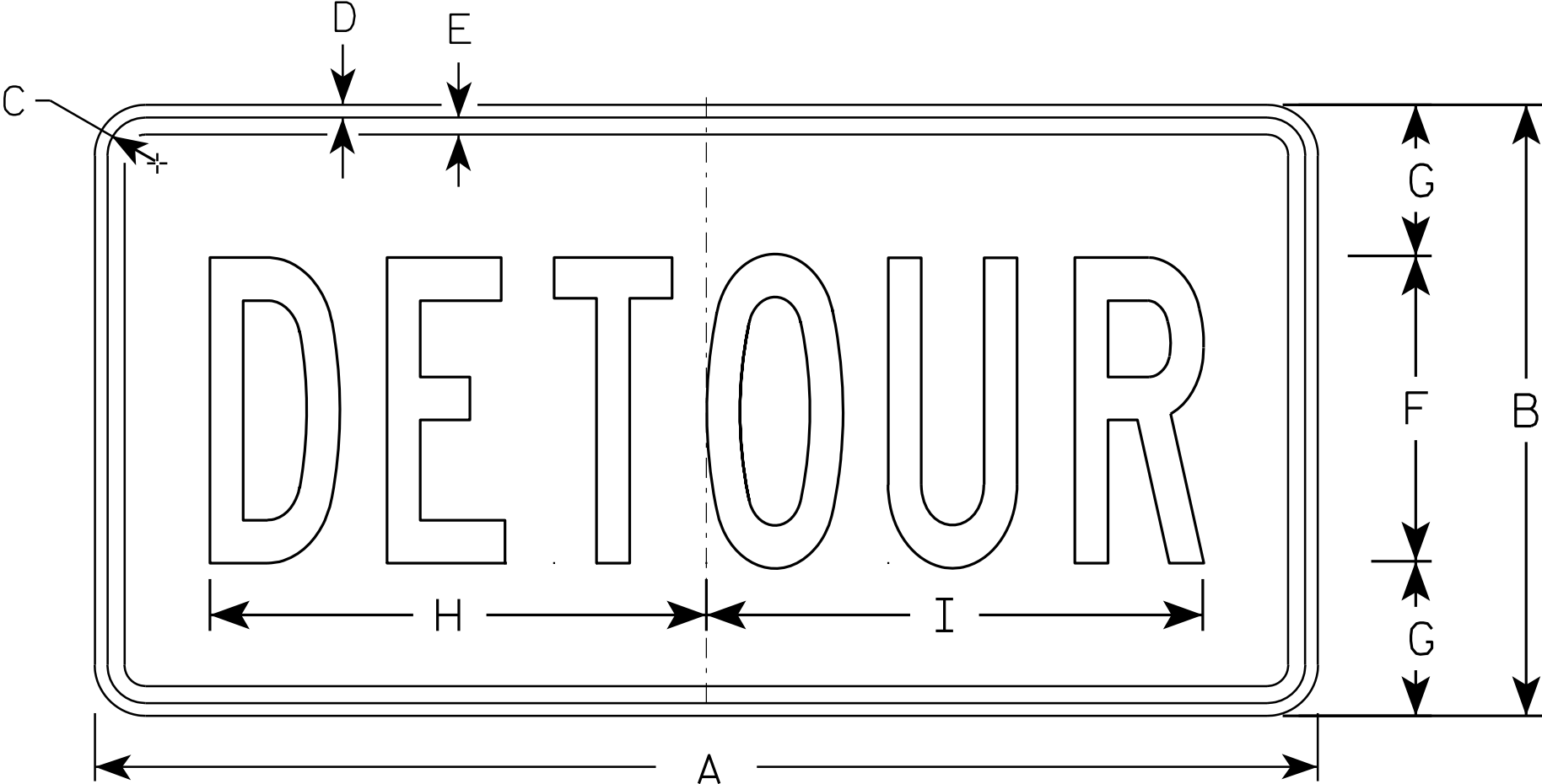
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE NO. 120 M3-1.14

NOTES

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



M4 - 8

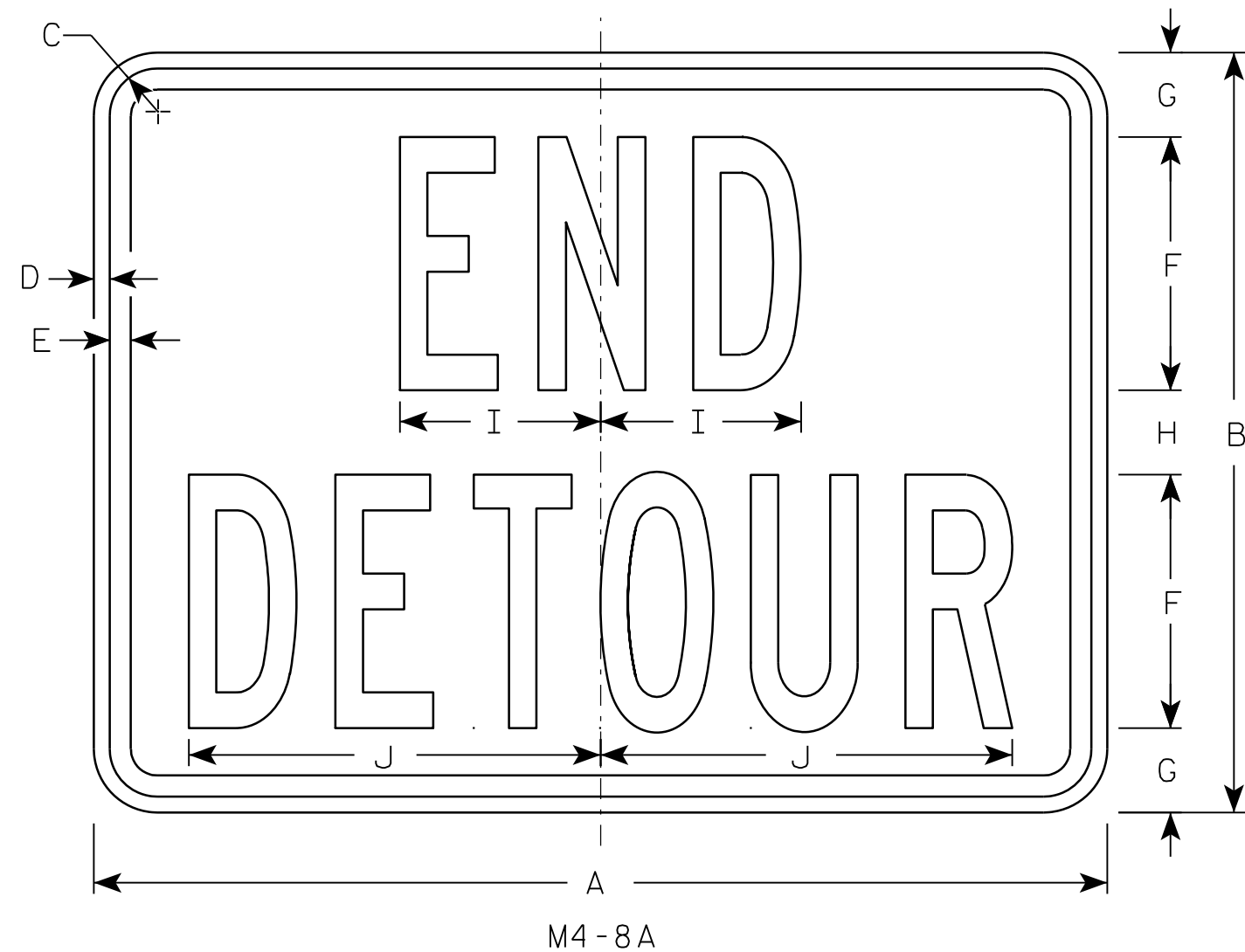
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

STANDARD SIGN
M4 - 8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

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



NOTES

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

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

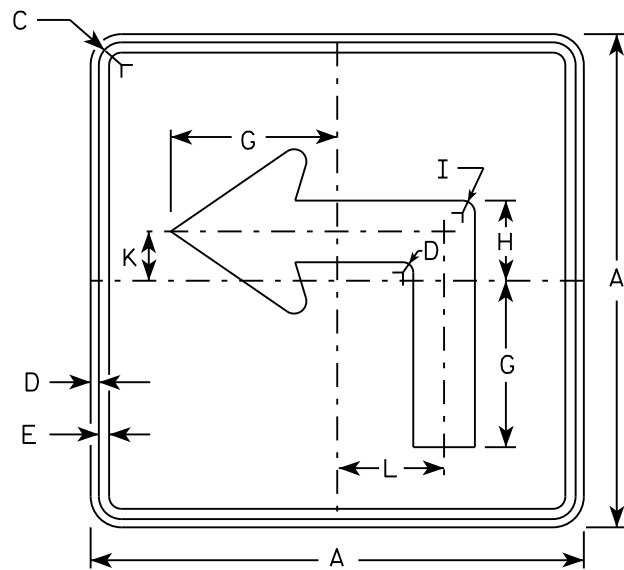
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 122	E
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STANDARD SIGN
M4-8A

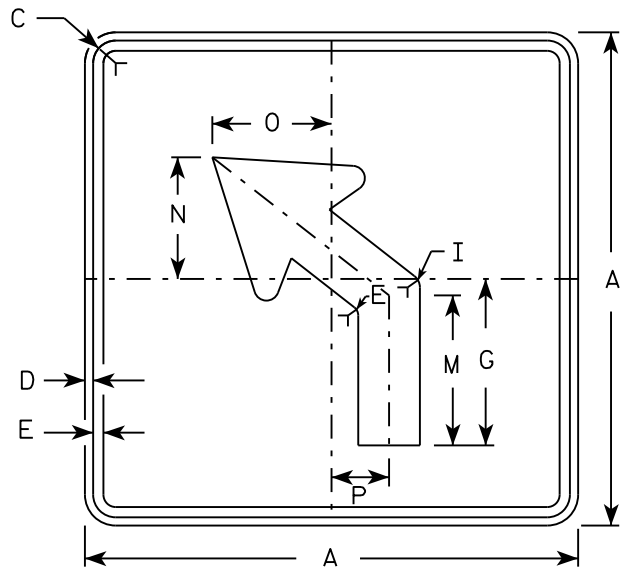
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

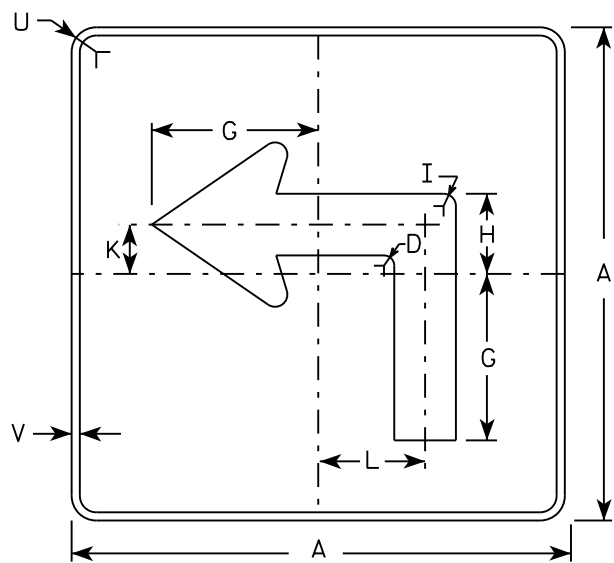
DATE 3/9/11 PLATE NO. M4-8A.2



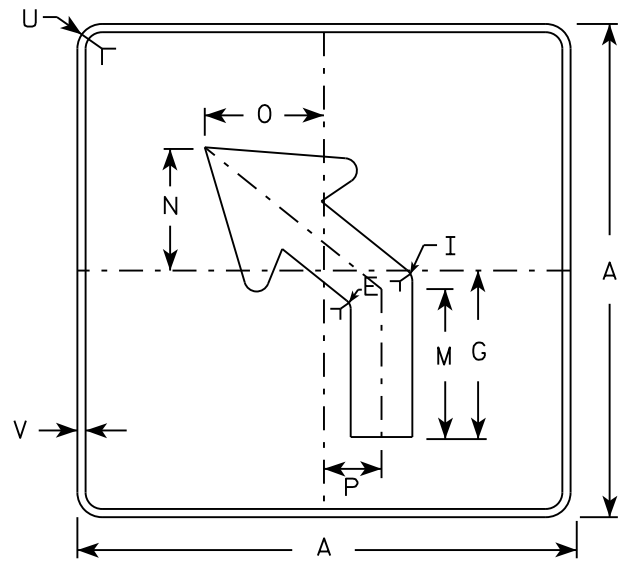
M5-1L
MM5-1L
M05-1L
MP5-1L



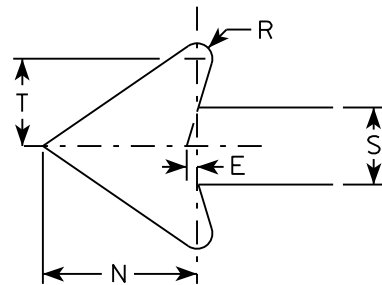
M5-2L
MM5-2L
M05-2L
MP5-2L



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



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



NOTES

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

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

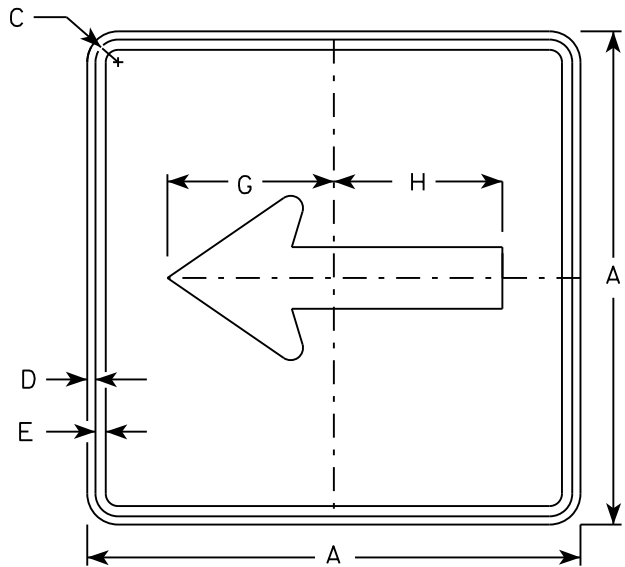
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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STANDARD SIGN
M5-1 & M5-2

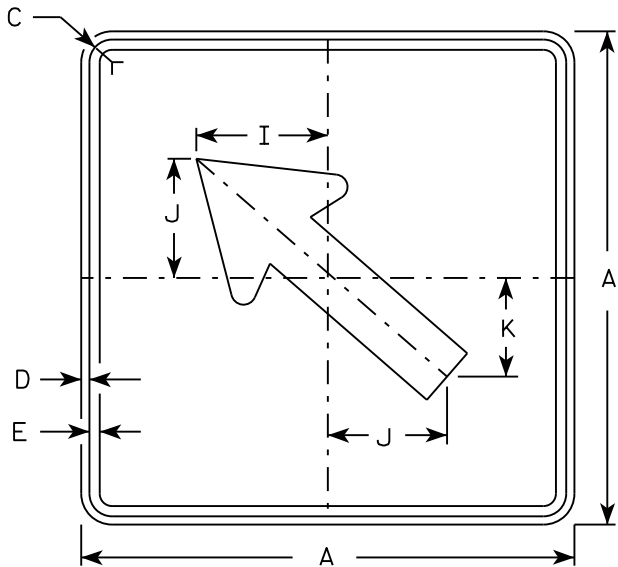
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

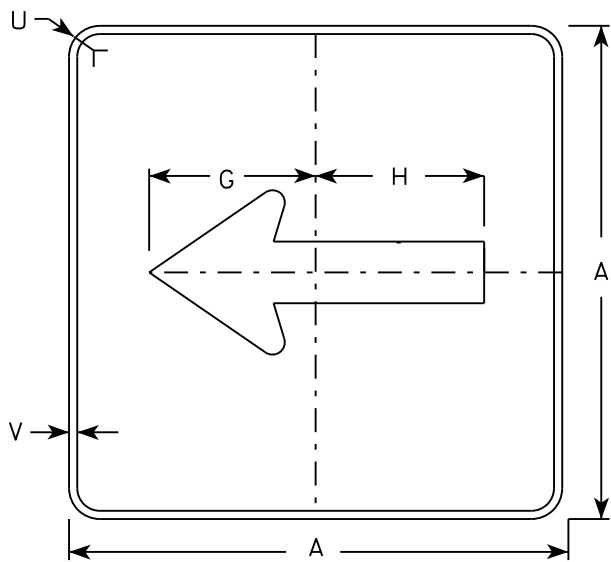
DATE 10/15/15 PLATF 123 M5-1.13



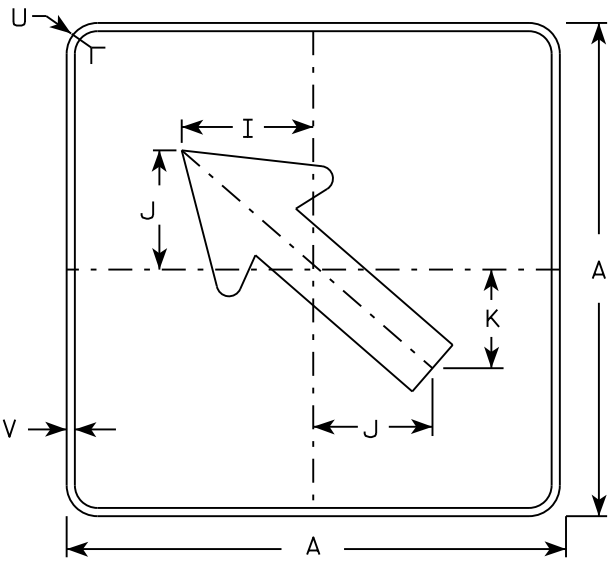
M6 - 1
MM6 - 1
M06 - 1
MP6 - 1



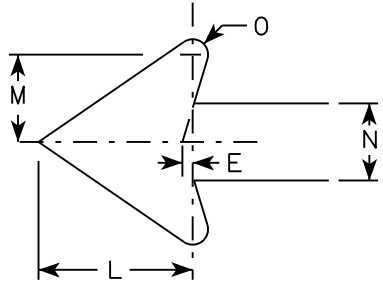
M6 - 2
MM6 - 2
M06 - 2
MP6 - 2



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



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



NOTES

- 1. Signs are Type II - Type H except as Shown
- 2. Color:
 - Background - See note 4
 - Message - See note 4
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 4. 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																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

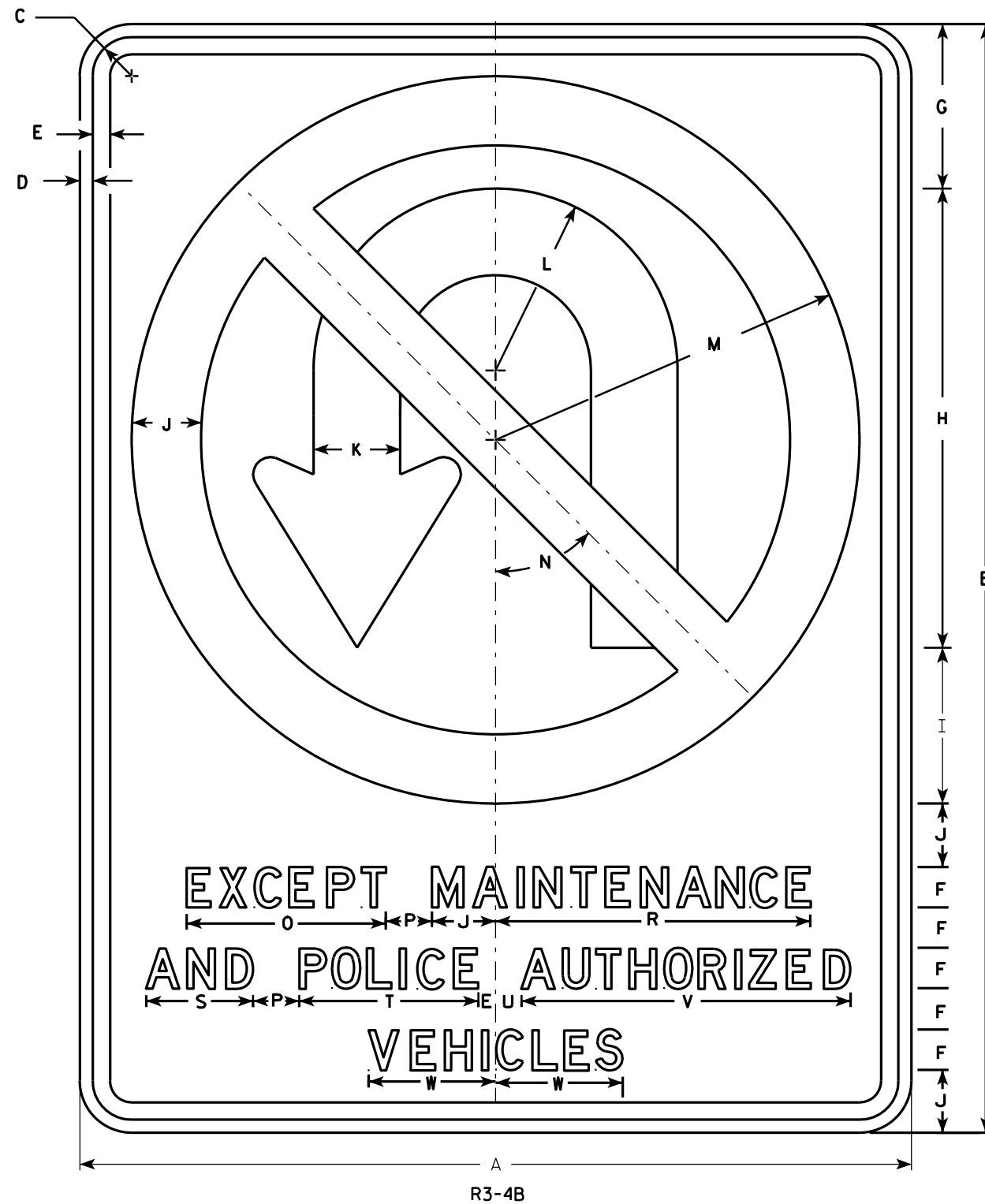
E

STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

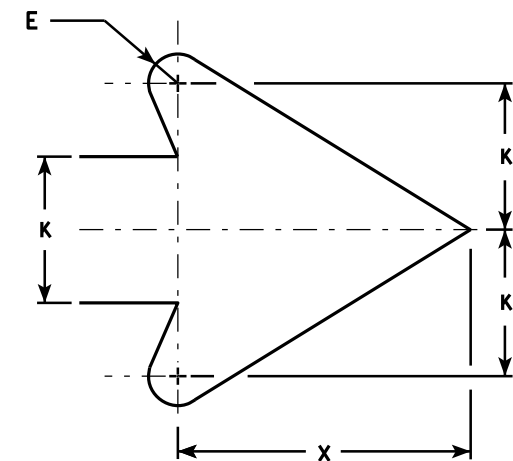
APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 10/15/15 PLAT 124 M6-1.15



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S																											
2M																											
3																											
4	36	48	1 5⁄8	5⁄8	3⁄4	1 3⁄4	7 1⁄8	19 7⁄8	6 3⁄4	2 3⁄4	3 3⁄4	7 7⁄8	15 3⁄4	45°	8 5⁄8	2		13 5⁄8	4 5⁄8	7 3⁄4	1 1⁄8	14 1⁄4	5 1⁄2	7 5⁄8			12.0
5	36	48	1 5⁄8	5⁄8	3⁄4	1 3⁄4	7 1⁄8	19 7⁄8	6 3⁄4	2 3⁄4	3 3⁄4	7 7⁄8	15 3⁄4	45°	8 5⁄8	2		13 5⁄8	4 5⁄8	7 3⁄4	1 1⁄8	14 1⁄4	5 1⁄2	7 5⁄8			12.0

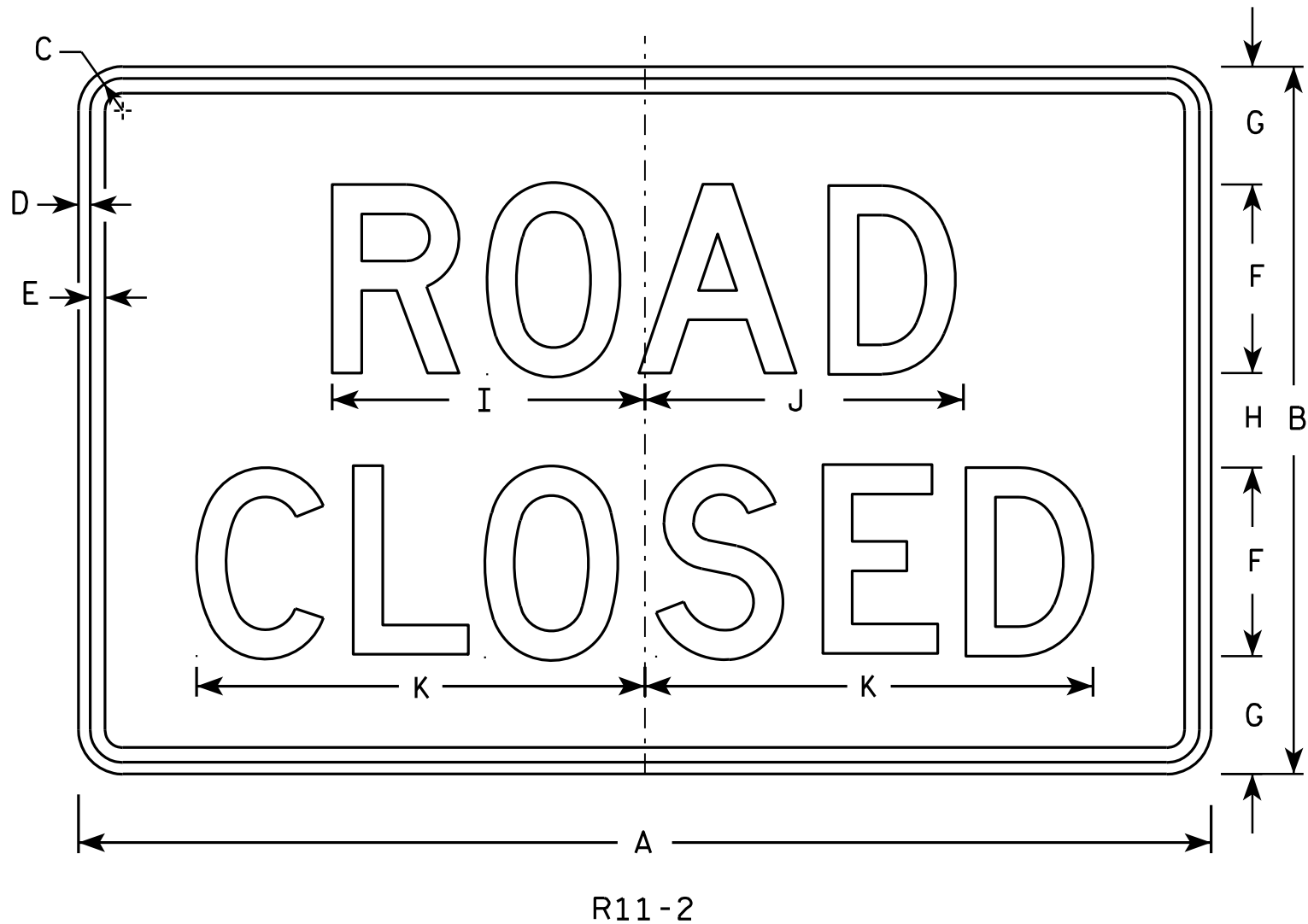
STANDARD SIGN R3-4B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

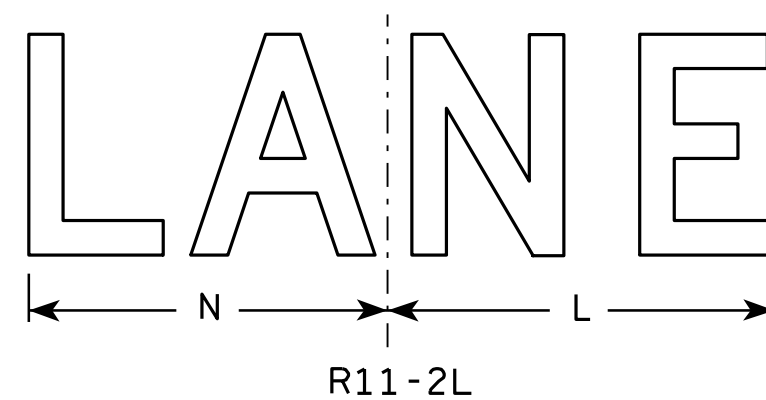
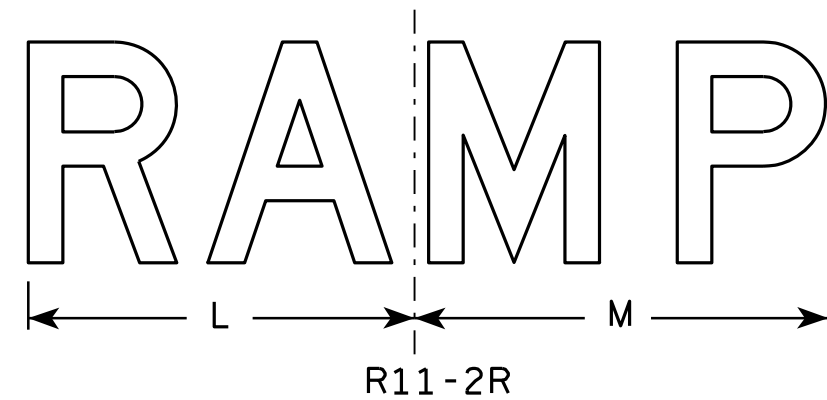
DATE 3/17/2011 PLATE NO. R3-4B.2

PROJECT NO: HWY: COUNTY: SHEET NO: 125



NOTES

- Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - White
Message - Black
- Message Series - D
- 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.
- Modify the message as required.



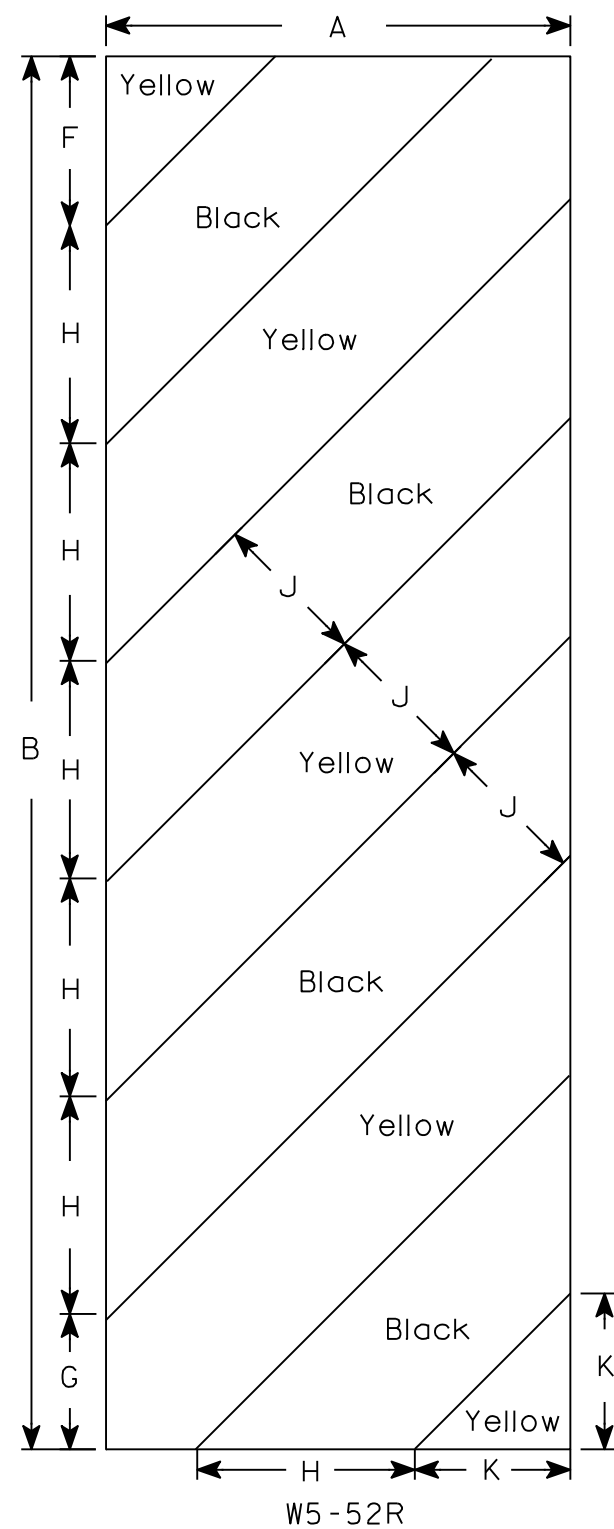
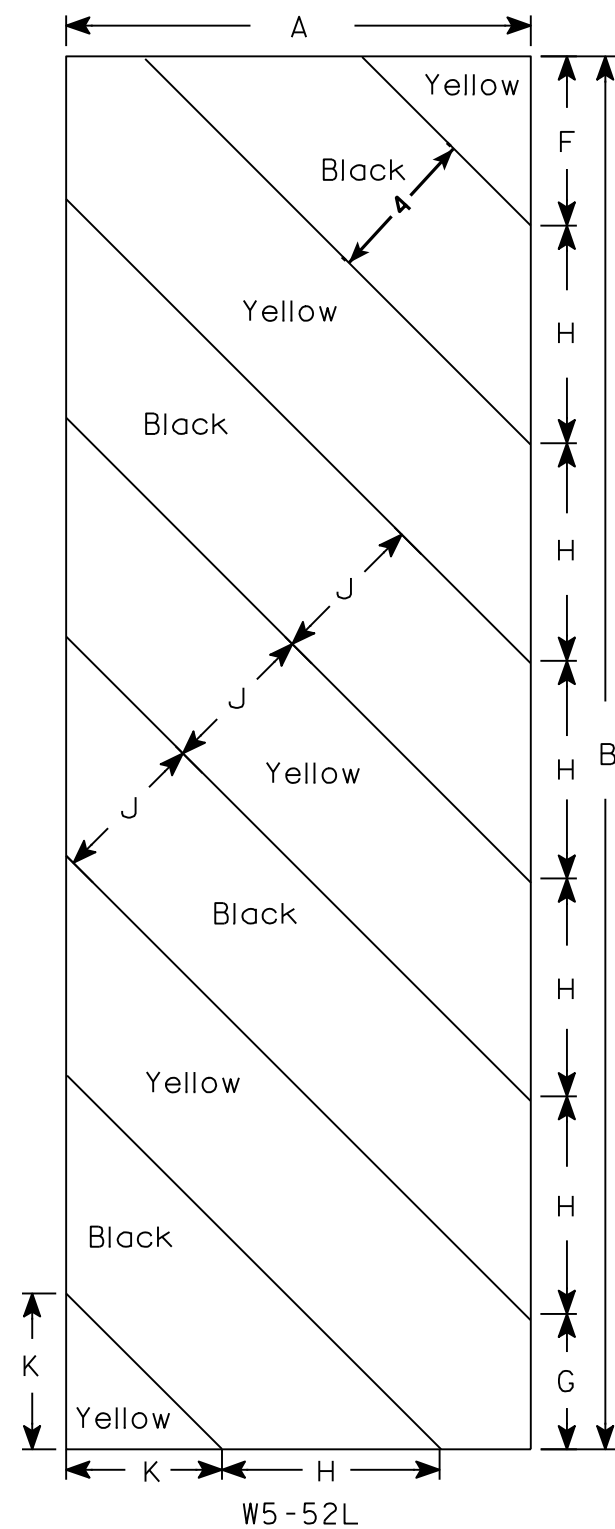
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
2M	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
3	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13				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

STANDARD SIGN
R11-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 4/1/11 PLATE NO. R11-2.10

PROJECT NO: HWY: COUNTY: SHEET NO: 126 E



NOTES

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

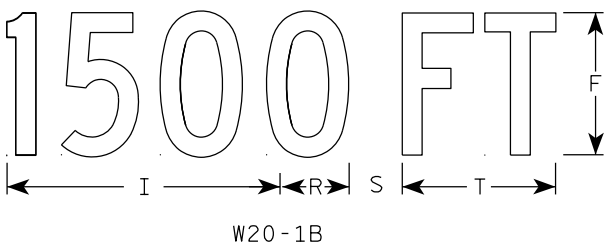
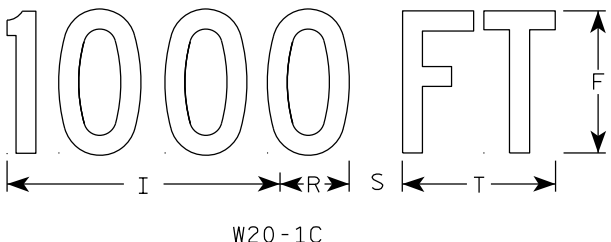
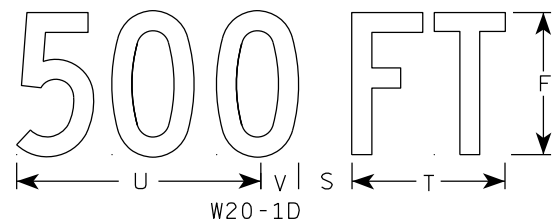
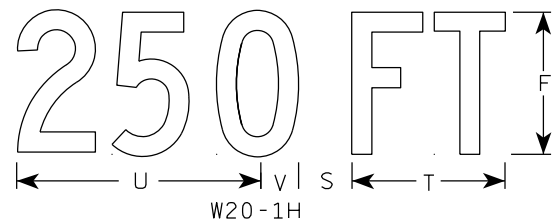
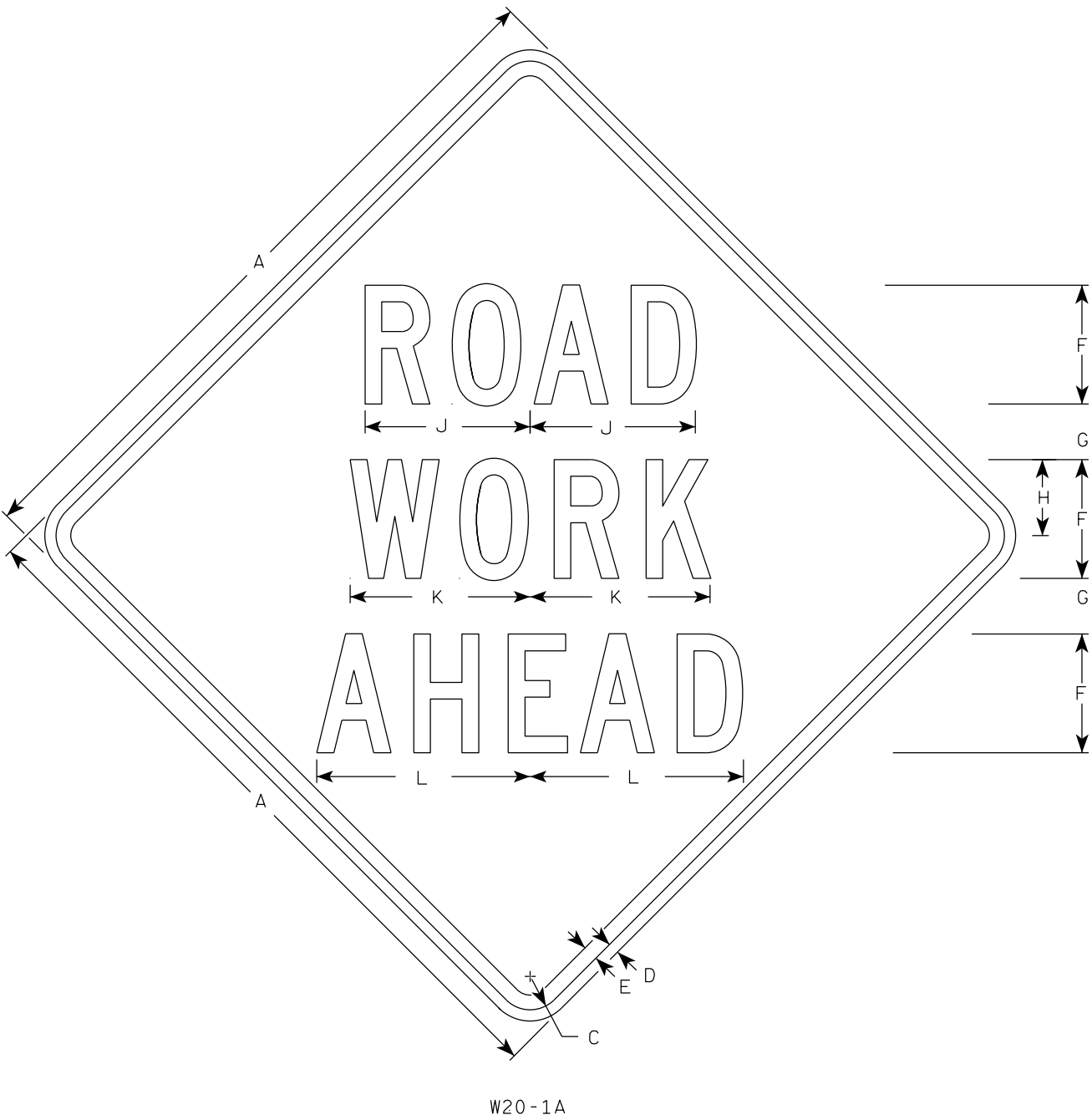
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3⁄8	3 1⁄2	5 5⁄8	45°	4	4																3.0
2M	12	36				4 3⁄8	3 1⁄2	5 5⁄8	45°	4	4																3.0
3	18	54				6	5 1⁄2	8 1⁄2	45°	6	6 9⁄16																6.75
4																											
5																											

STANDARD SIGN
W5-52L & W5-52R

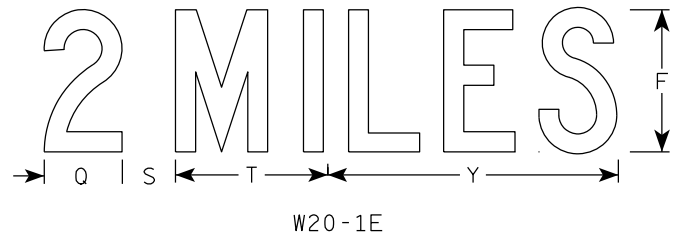
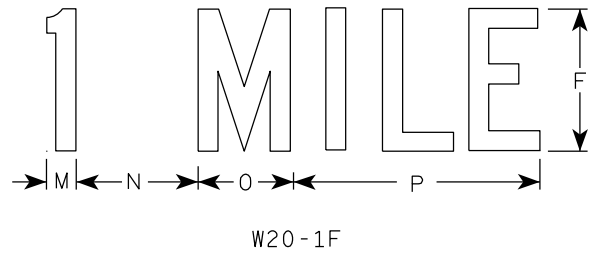
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9



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



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

STANDARD SIGN

W20-1A, B, C, D, F & G

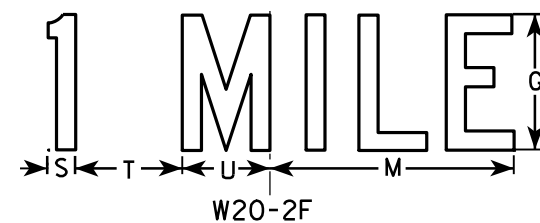
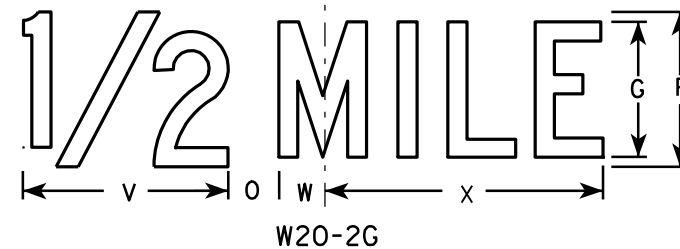
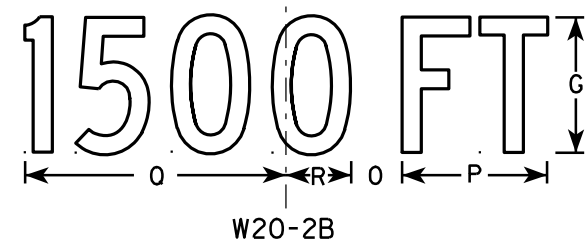
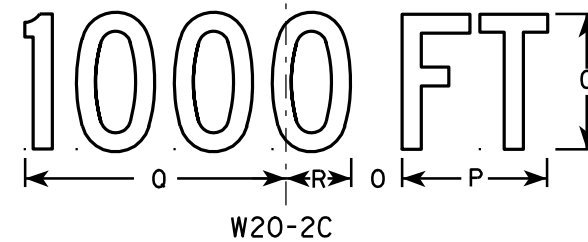
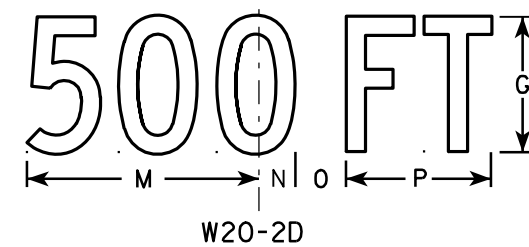
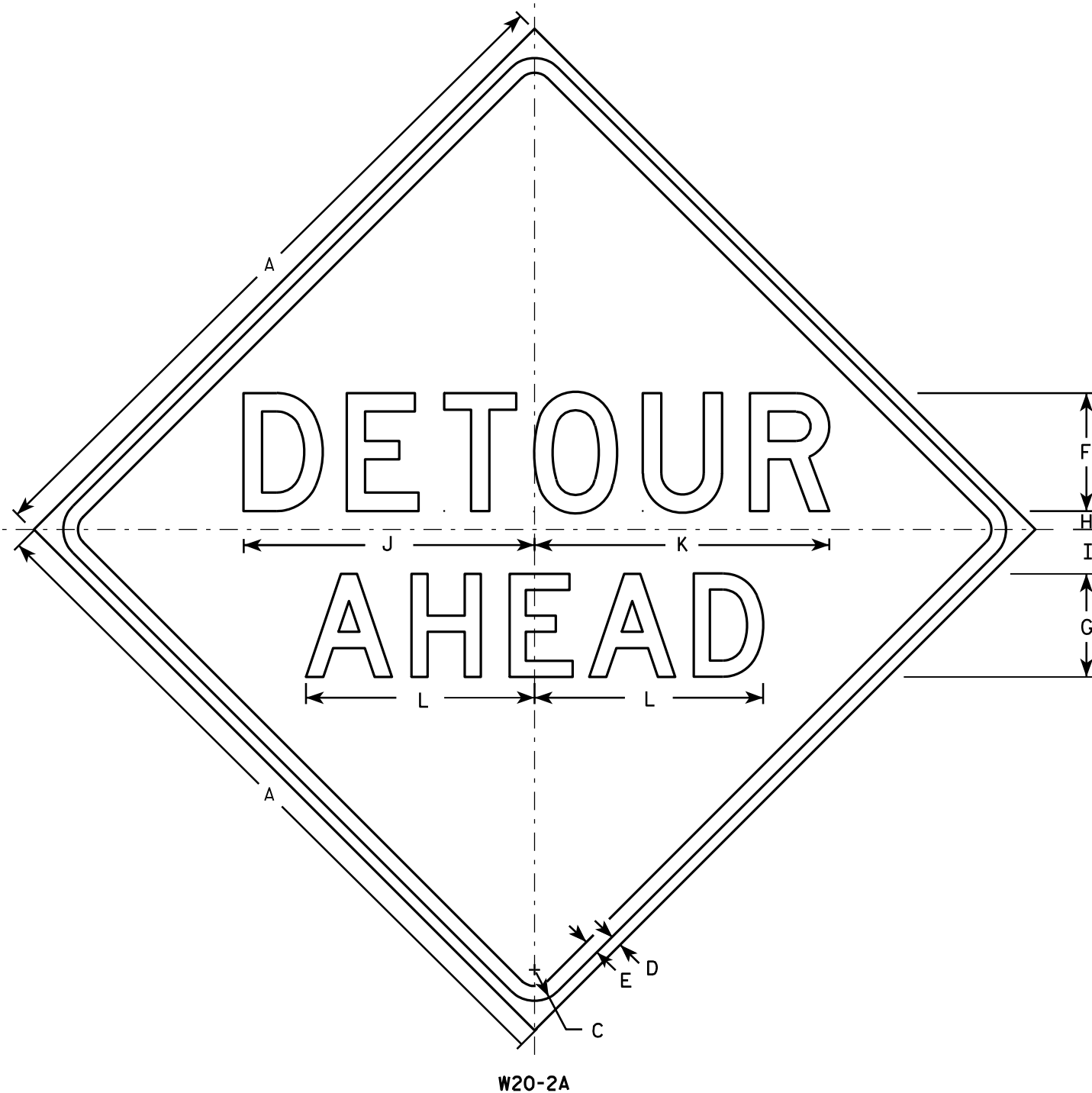
WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 9/25/19

PLATE NO. W20-1.11

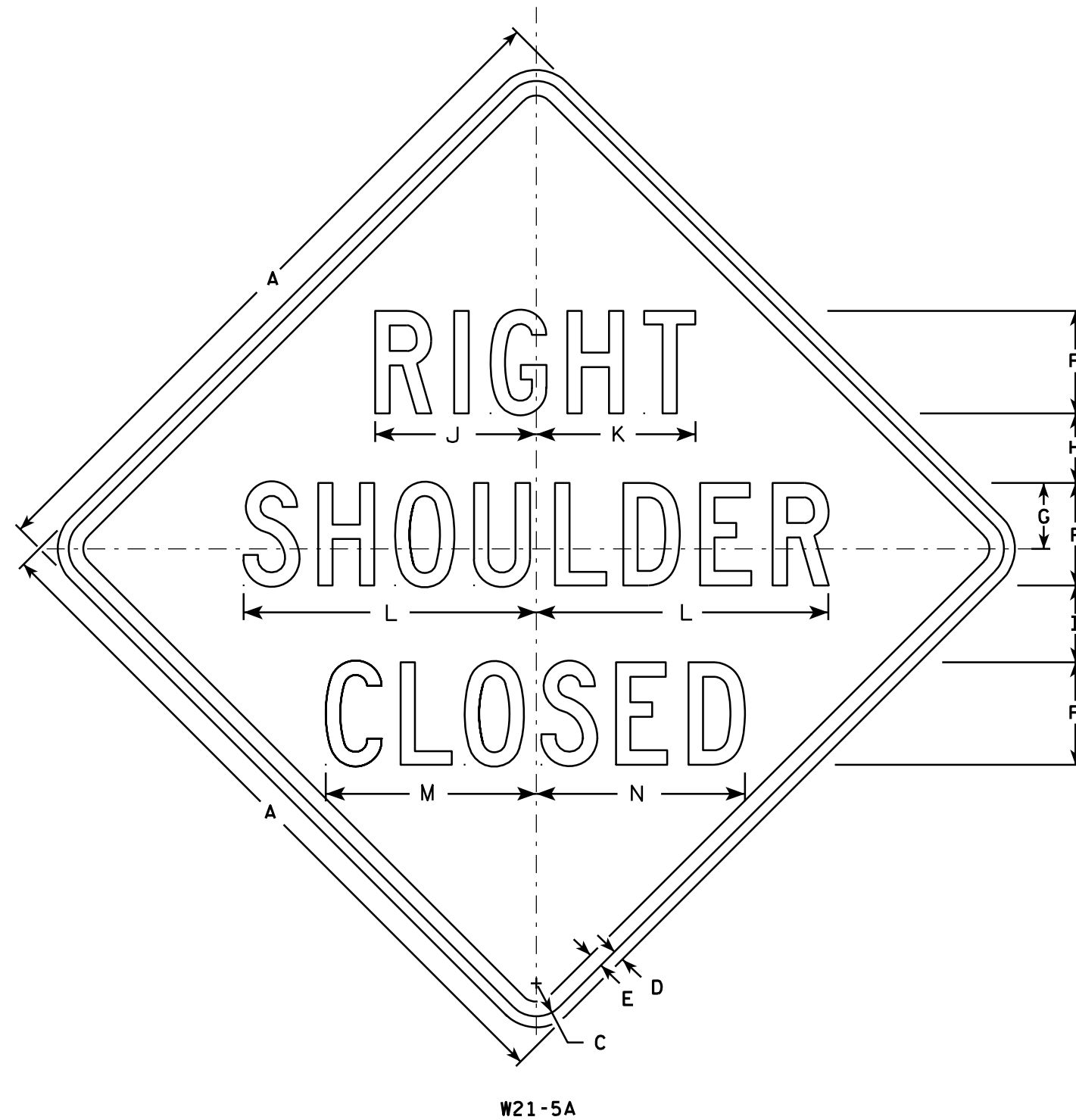


NOTES

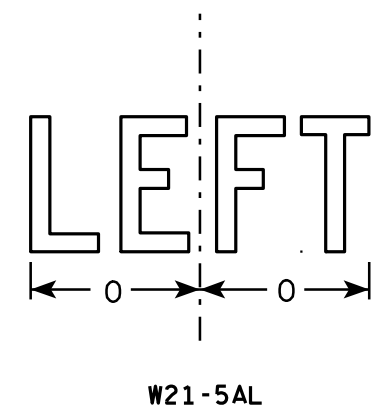
- Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - Orange
Message - Black
- Message Series - See note 5
- Corners may be square or rounded when base material is plywood but borders shall be rounded 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		1 5/8	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN	
W20-2A,B,C,D,F & G	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 3/18/11	PLATE NO. W20-2.6



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



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

STANDARD SIGN
W21-5A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/21/11 PLATE NO. W21-5A.3

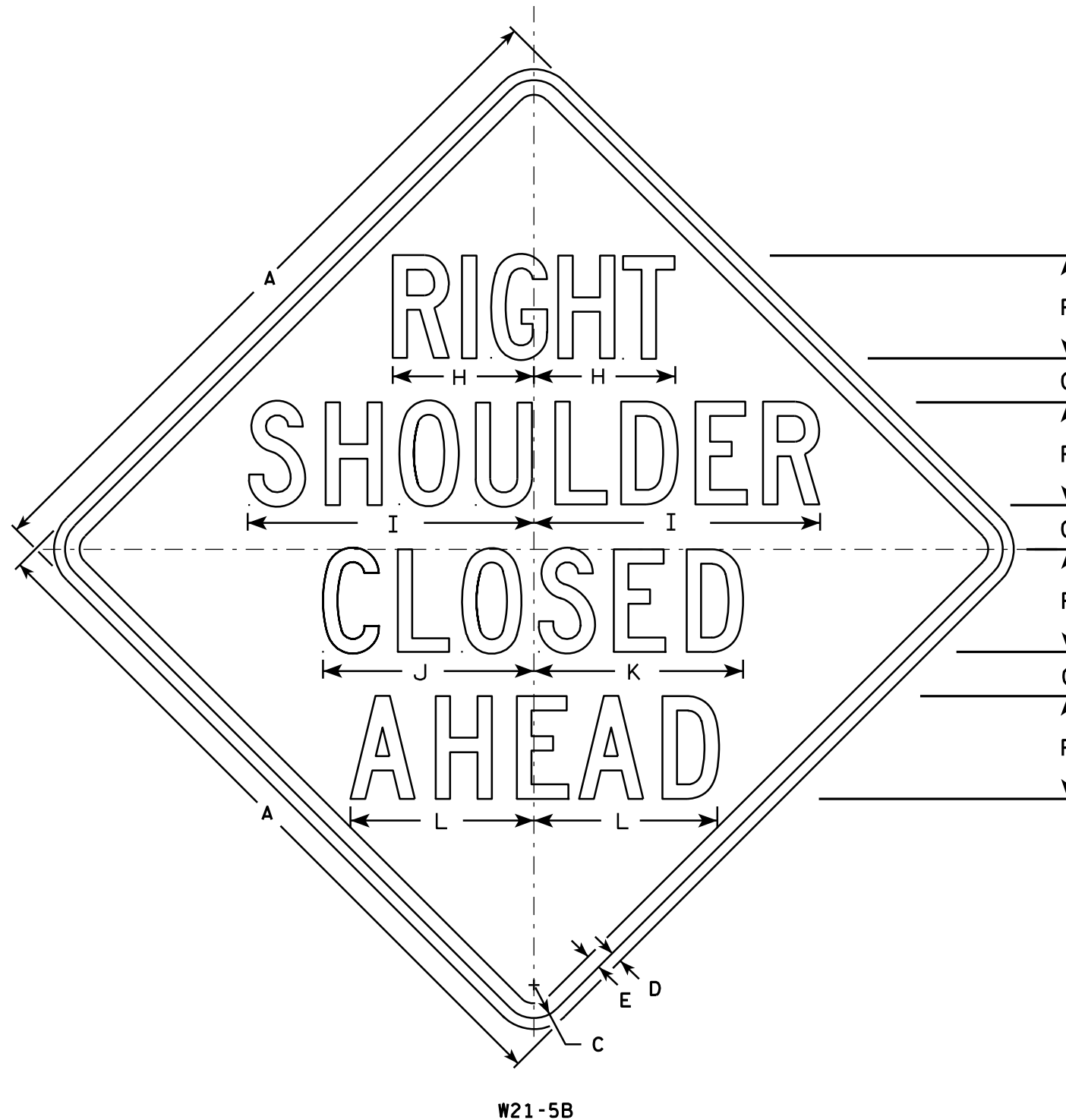
PROJECT NO:

HWY:

COUNTY:

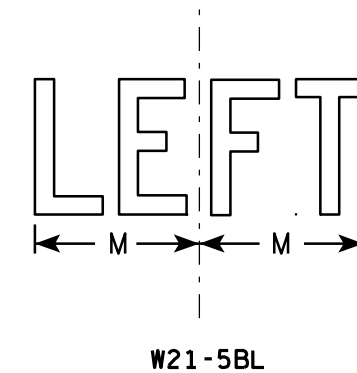
SHEET NO: 130

E



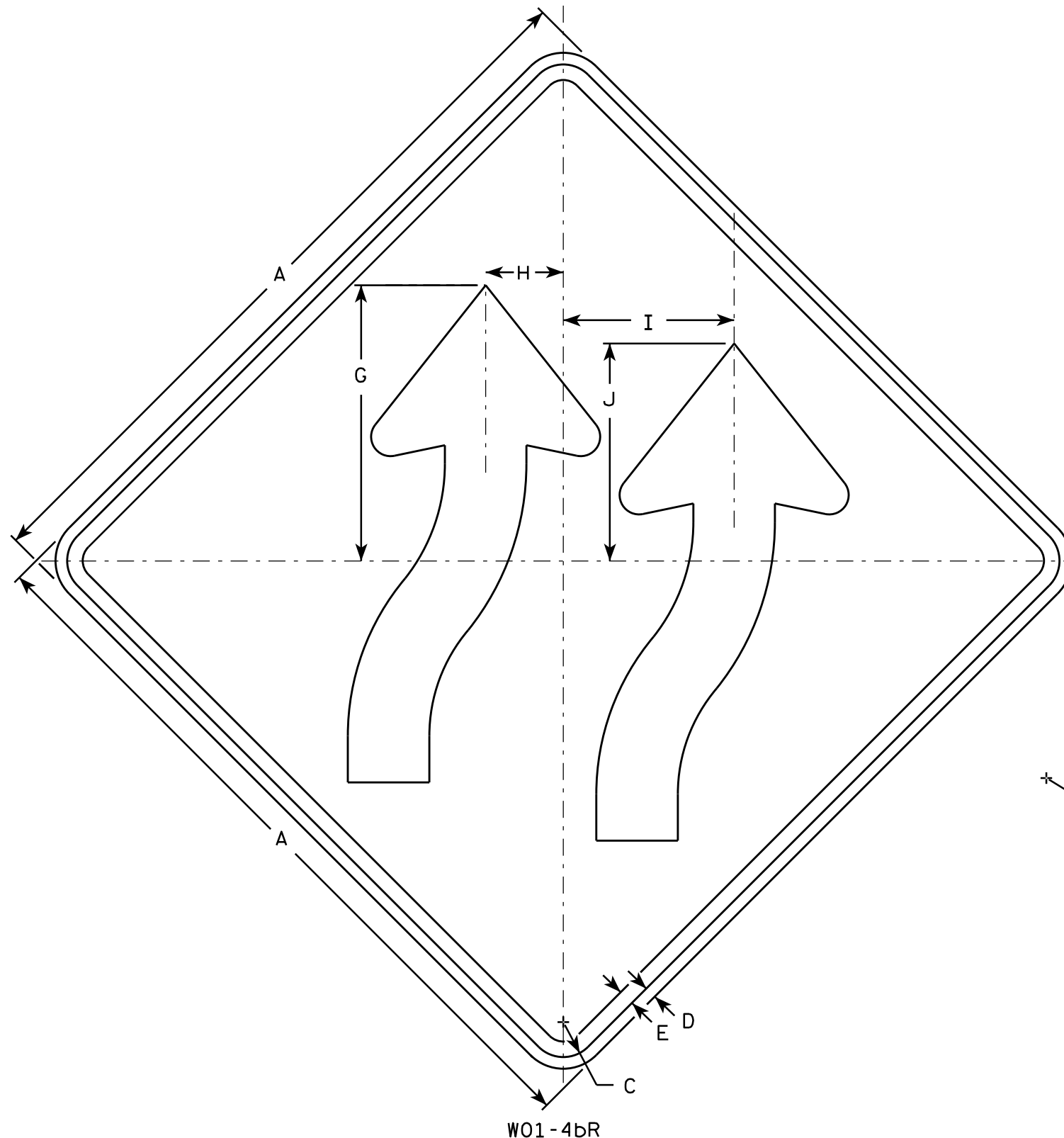
NOTES

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



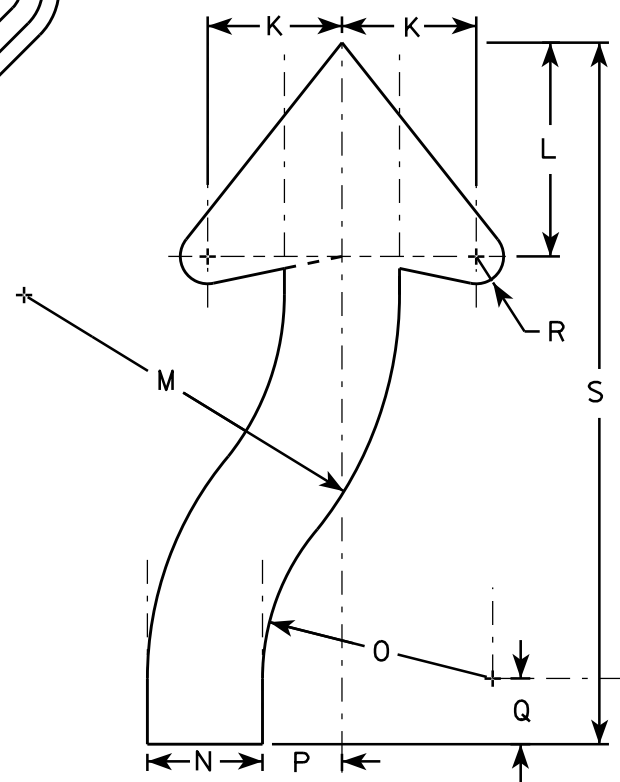
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 1/4	7 3/8	14 1/4	10 1/4	10 1/8	8 7/8	6 1/4														9.0
2S	48		2 1/4	3/4	1	7	3	9 5/8	19 1/2	14 3/8	14 1/4	12 1/2	8 1/2														16.0
2M	48		2 1/4	3/4	1	7	3	9 5/8	19 1/2	14 3/8	14 1/4	12 1/2	8 1/2			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

STANDARD SIGN W21-5B	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 3/21/11	PLATE NO. W21-5B.3



W01-4bR

- NOTES**
1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
 2. Color:
Background - Orange
Message - Black
 3. 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. W01-4bL is the same as W014-bR exept arrows are reversed along the vertical centerline



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4		13 3/8	3 3/4	8 1/4	10 1/2	4 5/8	7 3/8	12 7/8	3 7/8	7 7/8	2 3/4	2 1/4	7/8	24								9.0
2S	48		2 1/4	3/4	1		17 3/4	5	11	14	6 1/8	9 3/4	17 1/8	5 1/4	10 1/2	3 5/8	3	1 1/4	32								16.0
2M	48		2 1/4	3/4	1		17 3/4	5	11	14	6 1/8	9 3/4	17 1/8	5 1/4	10 1/2	3 5/8	3	1 1/4	32								16.0
3	48		2 1/4	3/4	1		17 3/4	5	11	14	6 1/8	9 3/4	17 1/8	5 1/4	10 1/2	3 5/8	3	1 1/4	32								16.0
4	48		2 1/4	3/4	1		17 3/4	5	11	14	6 1/8	9 3/4	17 1/8	5 1/4	10 1/2	3 5/8	3	1 1/4	32								16.0
5	48		2 1/4	3/4	1		17 3/4	5	11	14	6 1/8	9 3/4	17 1/8	5 1/4	10 1/2	3 5/8	3	1 1/4	32								16.0

STANDARD SIGN

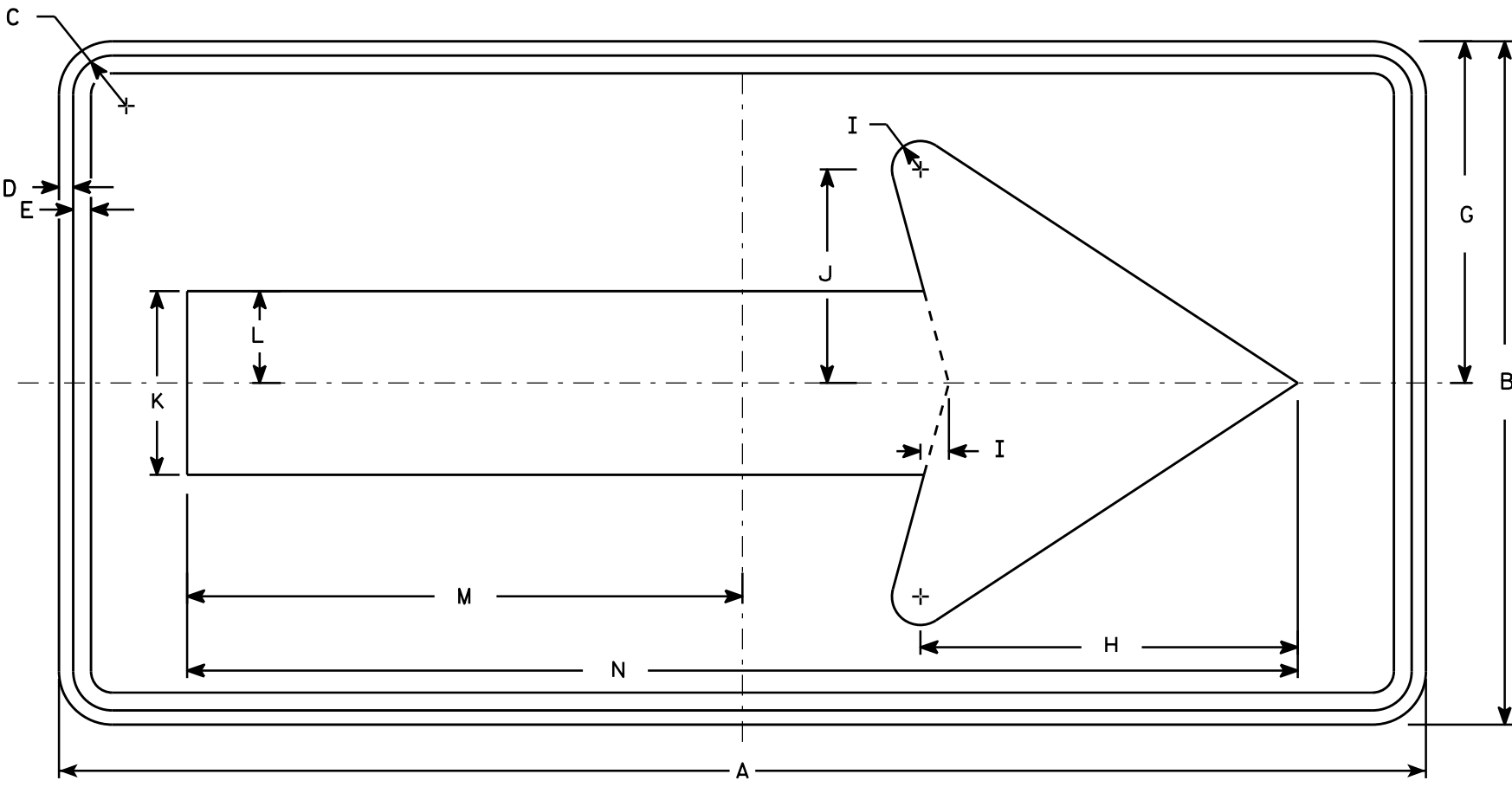
W01-4b

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/18/13 PLATE 132 W01-4b.1

7



W01-6

NOTES

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

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

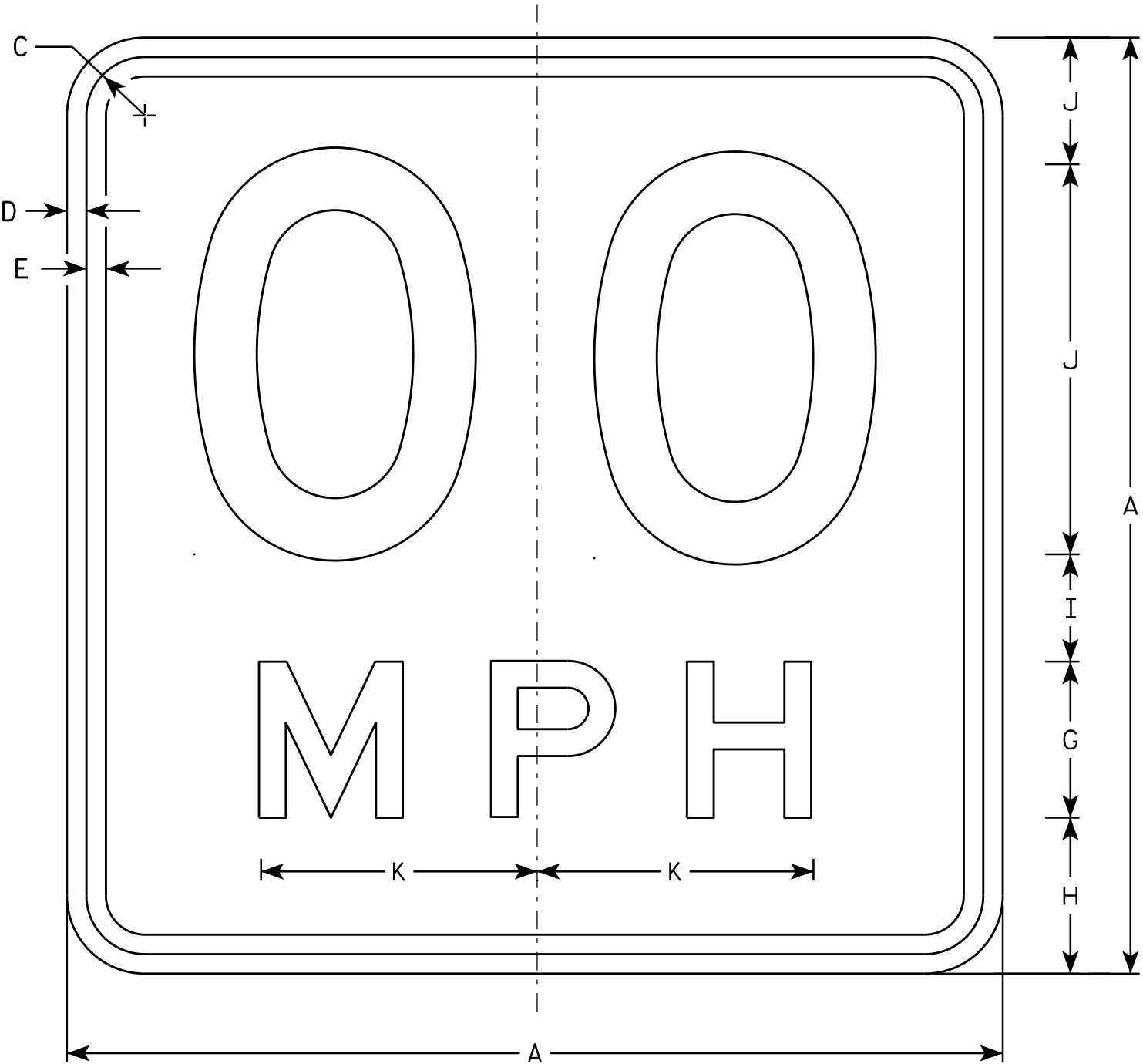
E

STANDARD SIGN
W01-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 11/18/13 PLATE NO. 133 W01-6.1



W013-1

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - See Note 6
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
- 6. Line 1 is Series D
Line 2 is Series E

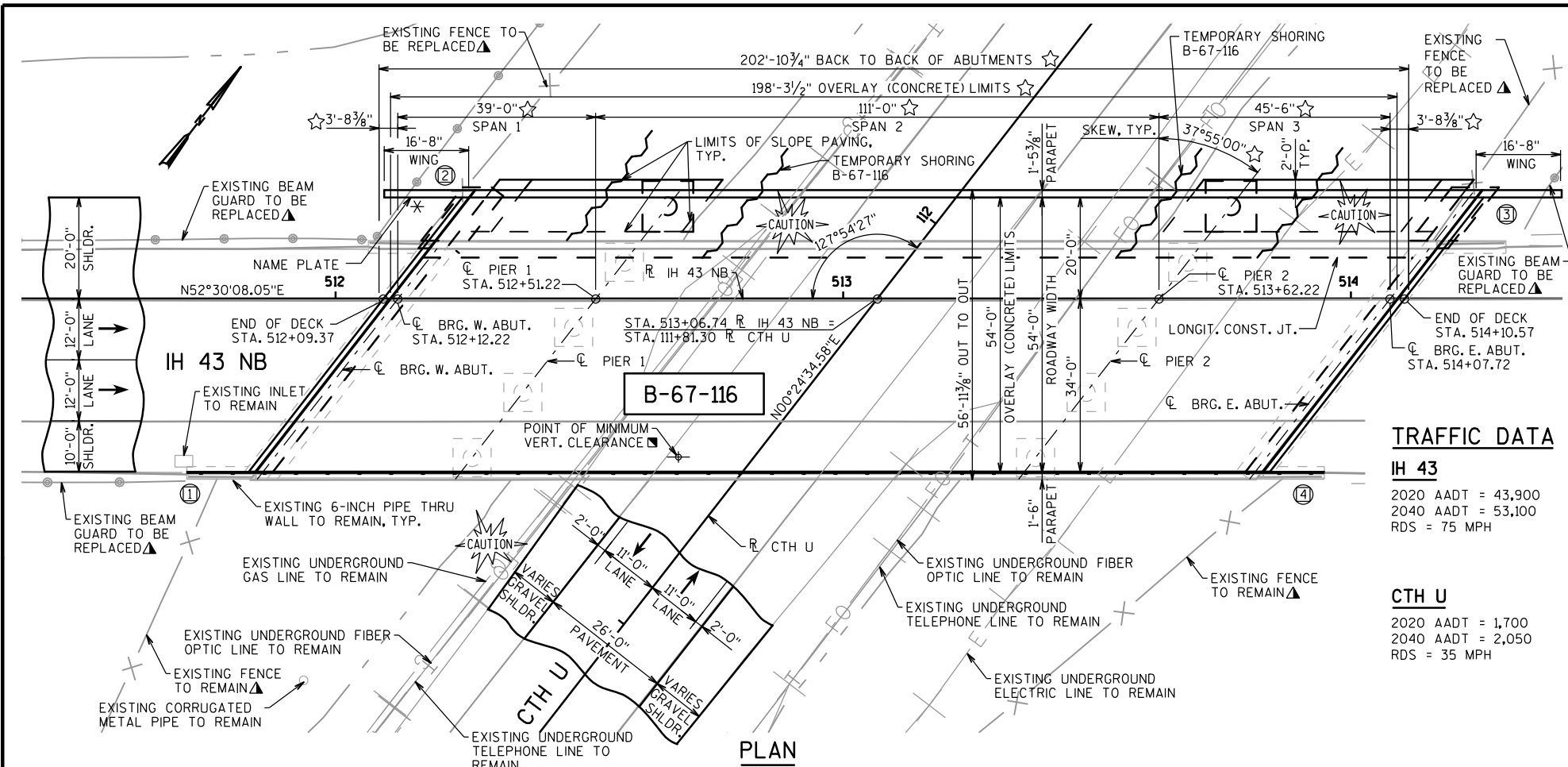
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10	4	4	2 3/4	3 1/4	7 1/8																4.00
2S	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
2M	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
3	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
4	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
5	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00

STANDARD SIGN
W013-1

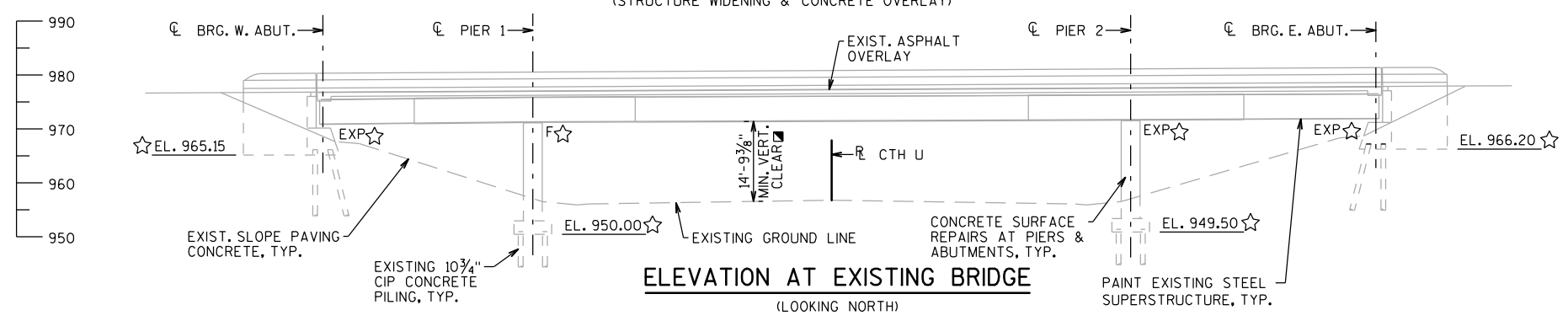
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
For State Traffic Engineer

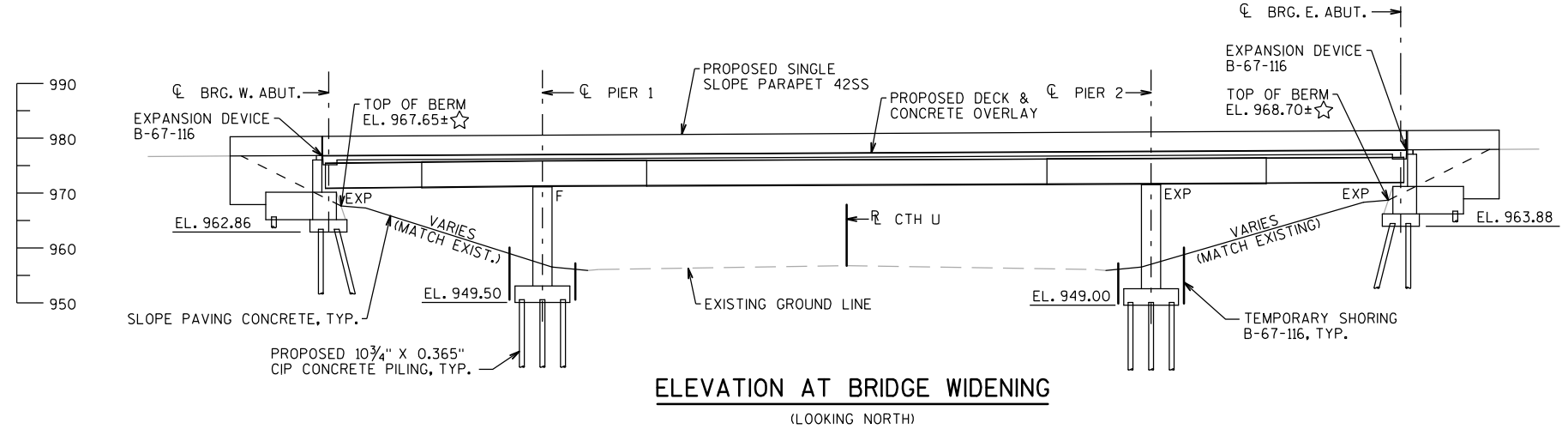
DATE 11/21/13 PLATE 134 W013-1.1



PLAN



ELEVATION AT EXISTING BRIDGE
(LOOKING NORTH)



ELEVATION AT BRIDGE WIDENING
(LOOKING NORTH)

LEGEND

- ➔ DIRECTION OF TRAFFIC
- ☆ TAKEN FROM EXISTING AS-BUILT STRUCTURE PLAN
- ⊗ WINGWALL NUMBER
- DIMENSION AND LOCATION TAKEN FROM THE INSPECTION REPORT DATED JULY 13, 2017. MIN. VERT. CLR. REMAINS UNCHANGED DUE TO WIDENING.
- ✱ LOCATION OF STEEL PLATE BEAM GUARD ATTACHMENT
- ▲ ROADWAY ITEM (SEE ROADWAY PLANS)

TRAFFIC DATA

IH 43
 2020 AADT = 43,900
 2040 AADT = 53,100
 RDS = 75 MPH

CTH U
 2020 AADT = 1,700
 2040 AADT = 2,050
 RDS = 35 MPH

LIST OF DRAWINGS

- GENERAL PLAN & ELEVATION
- TYPICAL SECTION & GENERAL NOTES
- QUANTITIES, BENCH MARK DATA & PROFILE GRADE LINES
- SUBSURFACE EXPLORATION
- REMOVAL DETAILS
- CONSTRUCTION STAGING (1 OF 2)
- CONSTRUCTION STAGING (2 OF 2)
- DECK REHABILITATION AREAS
- WEST ABUTMENT
- WEST ABUT. WING DETAILS
- WEST ABUT. DETAILS
- EAST ABUTMENT
- EAST ABUT. WING DETAILS
- EAST ABUT. DETAILS
- PIERS 1 & 2
- PIER BILL OF BARS
- BEARING DETAILS
- HOLD DOWN DEVICE
- FRAMING PLAN & GIRDER ELEVATION
- GIRDER DETAILS
- SUPERSTRUCTURE DECK PLAN
- SUPERSTRUCTURE SECTION
- TOP OF DECK ELEVATIONS & DEFLECTIONS
- JOINT REPLACEMENT (1 OF 4)
- JOINT REPLACEMENT (2 OF 4)
- JOINT REPLACEMENT (3 OF 4)
- JOINT REPLACEMENT (4 OF 4)
- SINGLE SLOPE PARAPET 42SS
- RAILING DETAILS
- SUPERSTRUCTURE BILL OF BARS
- SLOPE PAVING DETAILS
- GALVANIC ANODES

NOTES

- FOR BENCH MARK DATA, SEE SHEET 3

DESIGN DATA

LIVE LOAD: LFD
 (EXISTING GIRDERS 1 THRU 4)
 DESIGN RATING: HS-20
 INVENTORY RATING: HS-16
 OPERATING RATING: HS-27
 WISCONSIN STANDARD PERMIT (WIS-SPV): 220 KIPS

LIVE LOAD: LRFD
 (NEW GIRDER 1A)
 DESIGN RATING: HL-93
 INVENTORY RATING FACTOR: RF=1.50
 OPERATING RATING FACTOR: RF=1.95
 WISCONSIN STANDARD PERMIT (WIS-SPV): 250 KIPS

STRUCTURE IS RATED FOR A CONCRETE OVERLAY OF 36 PSF.

MATERIAL PROPERTIES:

CONCRETE MASONRY OVERLAY DECKS.....f'c = 4,000 PSI
 CONCRETE MASONRY:
 SUPERSTRUCTURE.....f'c = 4,000 PSI
 CIP CONCRETE PILING.....f'c = 4,000 PSI
 ALL OTHER.....f'c = 3,500 PSI

HIGH STRENGTH BAR STEEL
 REINFORCEMENT GRADE 60.....fy = 60,000 PSI
 STEEL PILE SHELL (ASTM A252, GRADE 3).....fy = 45,000 PSI
 STRUCTURAL STEEL (ASTM A709, GRADE 50).....fy = 50,000 PSI
 CARBON STEEL (ASTM A709, GRADE 36).....fy = 36,000 PSI

FOUNDATION DATA

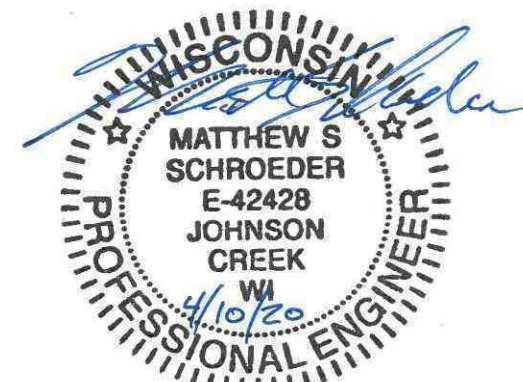
USING THE MODIFIED GATES ACCEPTANCE METHOD:
 ABUTMENTS SHALL BE SUPPORTED ON 10 3/4" X 0.365" CIP CONCRETE PILING DRIVEN TO REQUIRED DRIVING RESISTANCE OF 100 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

PIERS SHALL BE SUPPORTED ON 10 3/4" X 0.365" CIP CONCRETE PILING DRIVEN TO REQUIRED DRIVING RESISTANCE OF 100 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

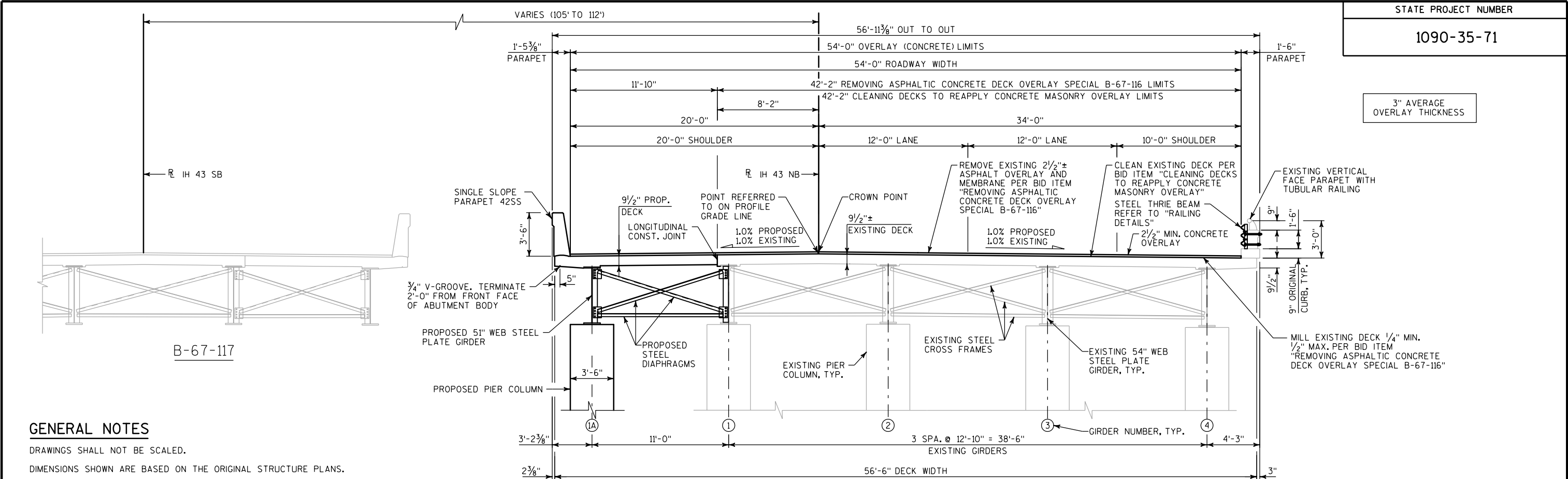
* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.50 USING MODIFIED GATES DYNAMIC FORMULA TO DETERMINE DRIVEN PILE CAPACITY.

ESTIMATED PILE LENGTHS:
 WEST ABUTMENT.....40 FEET
 PIER 1.....45 FEET
 PIER 2.....50 FEET
 EAST ABUTMENT.....40 FEET

STRUCTURES DESIGN CONTACTS
 BRIDGE OFFICE:
 AARON BONK (608) 261-0261
 CONSULTANT:
 PAT CASHIN (414) 359-2300



NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
HNTB (414) 359-2300			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	SDR 04/13/20		DATE
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-67-116			
IH 43 NB OVER CTH U			
COUNTY	WAUKESHA	TOWN/CITY/VILLAGE	VERNON
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	MSS	DESIGN CK'D.	JWC
DRAWN BY	BPV	PLANS CK'D.	MSS
GENERAL PLAN & ELEVATION			SHEET 1 OF 32



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

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.

"PIGMENTED SURFACE SEALER" SHALL BE APPLIED TO THE TOP AND INSIDE FACES OF THE PROPOSED PARAPETS AND TO THE TOP AND INSIDE FACE OF EXISTING VERTICAL FACED PARAPET ONLY.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY, THE TOP OF THE NEW PAVING BLOCK, AND TOP AND INSIDE FACE OF NEW BRUSH CURB AT THE JOINT REPAIR AREA.

"PROTECTIVE SURFACE TREATMENT RESEAL" SHALL BE APPLIED TO THE TOP AND VERTICAL FACE OF EXISTING CURB.

"REMOVING OLD STRUCTURE STA. 513+07" SHALL INCLUDE PARTIALLY REMOVING THE EXISTING DECK, CURB, PARAPET, TUBULAR RAILING, AND SLOPE PAVING.

THE EXISTING STRUCTURE (B-67-116) IS A 3-SPAN STEEL GIRDER BRIDGE, 2012' LONG x 47.0' WIDE. THE SUBSTRUCTURE AND SUPERSTRUCTURE SHALL BE WIDENED BY ADDING 1 GIRDER LINE TO THE INSIDE MEDIAN SHOULDER.

ALL FIELD CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER FRICTION TYPE HIGH-TENSILE STRENGTH BOLTS UNLESS SHOWN OR NOTED OTHERWISE.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-67-116" SHALL BE THE EXISTING GROUND LINE.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), WAUKESHA COUNTY ZONE, NAD 83 (2011)

ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM NAVD88 (2012).

BEVEL EXPOSED EDGES OF CONCRETE TO MATCH EXISTING BEVELS UNLESS OTHERWISE NOTED.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

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

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1 INCH DEEP SAWCUT.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

"PREPARATION DECKS TYPE 1", "PREPARATION DECKS TYPE 2" & "FULL-DEPTH DECK REPAIR" AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

EXPECTED AVERAGE OVERLAY THICKNESS IS 3". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

AT THE BACKFACE 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.

TYPICAL SECTION

(LOOKING EAST)

GENERAL NOTES CONTINUED

THE QUANTITY FOR BACKFILL STRUCTURE TYPE A IS CALCULATED BASED ON THE "BACKFILL STRUCTURE LIMITS" DETAIL ON THE "WEST ABUTMENT DETAILS" SHEET.

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

AT CURB REPAIR EXPOSE EXISTING REINFORCEMENT A MINIMUM OF 1 1/2" CLEAR.

THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS 1/2" TO ACCOUNT FOR VARIATIONS IN DECK SURFACE.

THE EXISTING ASPHALT OVERLAY SHALL BE REMOVED FROM THE BRIDGE DECK UNDER THE BID ITEM "REMOVING ASPHALTIC CONCRETE DECK OVERLAY SPECIAL B-67-116".

EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID FOR PER LINEAR FOOT AS "EXPANSION DEVICE B-67-116".

HOLD DOWN DEVICES AT THE ABUTMENTS ARE INCLUDED IN THE BID ITEM "BEARING ASSEMBLIES EXPANSION B-67-116".

THE MINIMUM CONCRETE HAUNCH SHALL BE 2" FOR DESIGN CALCULATIONS AND THE HAUNCH CONCRETE QUANTITY IS BASED ON A MINIMUM DEPTH OF 1/4" WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.

CLEAN AND PAINT ALL EXPOSED STEEL SUPERSTRUCTURE SURFACES UNDERNEATH THE BRIDGE. THE SURFACES INCLUDE GIRDERS, DIAPHRAGMS, CONNECTIONS, ETC.

CLEAN AND PAINT ALL EXISTING STEEL BEARINGS AT THE PIERS AND ABUTMENTS. CLEANING AND PAINTING STEEL BEARINGS TO BE INCLUDED IN THE BID ITEM "STRUCTURE REPAINTING RECYCLED ABRASIVE B-67-116". PAINT APPLICATION ON THE BEARINGS SHALL BE BRUSHED ON.

EXISTING AND PROPOSED STEEL SUPERSTRUCTURE SHALL BE PAINTED GRAY (AMS STANDARD COLOR NUMBER 26293).

PROPOSED NEW GIRDER AND NEW DIAPHRAGMS PAINTING ARE INCLUDED IN THE BID ITEM "PAINTING EPOXY SYSTEM B-67-116". EXISTING GIRDERS AND EXISTING DIAPHRAGMS PAINTING ARE INCLUDED IN THE BID ITEM "STRUCTURE REPAINTING RECYCLED ABRASIVE B-67-116".

ALL STRUCTURAL STEEL FOR GIRDERS, SPLICE PLATES, CONNECTION PLATES, BEARING STIFFENERS, AND TRANSVERSE STIFFENERS SHALL BE HIGH-STRENGTH STRUCTURAL STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A709 GRADE 50. ALL OTHER STRUCTURAL STEEL BE STRUCTURAL CARBON STEEL, ASTM A709 GRADE 36.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH SLOPE PAVING CONCRETE TO THE EXTENT SHOWN ON SHEET 1 AND IN THE "SLOPE PAVING DETAILS" SHEET.

FOR PILE SPLICE DETAIL SEE "EAST ABUTMENT DETAILS" SHEET.

GENERAL NOTES CONTINUED

LOCATIONS OF THE FOLLOWING BID ITEMS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. QUANTITIES SHOWN FOR THESE BID ITEMS ARE APPROXIMATE.

- PREPARATION DECKS TYPE 1
- PREPARATION DECKS TYPE 2
- CURB REPAIR
- CONCRETE SURFACE REPAIR
- FULL DEPTH DECK REPAIR
- SLOPE PAVING CONCRETE
- EMBEDDED GALVANIC ANODES
- VEGETATION REMOVAL B-67-116

NOTES

ALL EXISTING STRUCTURE DIMENSIONS WERE TAKEN FROM THE ORIGINAL STRUCTURE PLANS

FOR CONSTRUCTION STAGING, SEE SHEETS 6 & 7

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
		DRAWN BY BPV	PLANS CKD. MSS
TYPICAL SECTION & GENERAL NOTES			SHEET 2 OF 32
			136

TOTAL ESTIMATED QUANTITIES

STATE PROJECT NUMBER
1090-35-71

ITEM NO.	BID ITEMS	UNIT	WEST ABUTMENT	PIER 1	PIER 2	EAST ABUTMENT	SUPER.	TOTAL
203.0200.0001	REMOVING OLD STRUCTURE STA. 513+07	LS						1
203.0210.S.0001	ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-67-116	LS						1
206.1000.0001	EXCAVATION FOR STRUCTURES BRIDGES B-67-116	LS						1
210.1500	BACKFILL STRUCTURE TYPE A	TON	172			164		336
502.0100	CONCRETE MASONRY BRIDGES	CY	35	18	18	35	114	220
502.3101	EXPANSION DEVICE B-67-116	LF					137	137
502.3200	PROTECTIVE SURFACE TREATMENT	SY					1,206	1,206
502.3210	PIGMENTED SURFACE SEALER	SY					175	175
502.3215.S	PROTECTIVE SURFACE TREATMENT RESEAL	SY					30	30
502.4204	ADHESIVE ANCHORS NO. 4 BAR	EACH	6			6		12
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	55			55		110
502.4206	ADHESIVE ANCHORS NO. 6 BAR	EACH	14			14		28
503.4208	ADHESIVE ANCHORS NO. 8 BAR	EACH	5			5		10
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1,420	2,290	2,290	1,420	27,800	35,220
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,930	1,600	1,630	1,810	1,120	8,090
506.0105	STRUCTURAL STEEL CARBON	LB					4,400	4,400
506.0605	STRUCTURAL STEEL HS	LB					49,270	49,270
506.3020	WELDED STUD SHEAR CONNECTORS 7/8X7-INCH	EACH					246	246
506.5000.0001	BEARING ASSEMBLIES FIXED B-67-116	EACH					1	1
506.6000.0001	BEARING ASSEMBLIES EXPANSION B-67-116	EACH					3	3
509.0301	PREPARATION DECKS TYPE 1	SY					276	276
509.0302	PREPARATION DECKS TYPE 2	SY					138	138
509.0505.S	CLEANING DECKS TO REAPPLY CONCRETE MASONRY OVERLAY	SY					898	898
509.1000	JOINT REPAIR	SY					46	46
509.1200	CURB REPAIR	LF					48	48
509.1500	CONCRETE SURFACE REPAIR	SF	16	50	5	4	48	123
509.2000	FULL-DEPTH DECK REPAIR	SY					1	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY					139	139
511.1200.0001	TEMPORARY SHORING B-67-116	SF		371	371			742
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	9			9		18
517.0600.0001	PAINTING EPOXY SYSTEM B-67-116	LS						1
517.1800.S.0001	STRUCTURE REPAINTING RECYCLED ABRASIVE B-67-116	LS						1
517.4500.S.0001	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-67-116	LS						1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH					1	1
550.2106	PIILING CIP CONCRETE 10 3/4 X 0.365-INCH	LF	280	450	500	280		1,510
604.0400	SLOPE PAVING CONCRETE	SY	81			93		174
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH					1	1
SPV.0060.0001	EMBEDDED GALVANIC ANODES	EACH	10			25		35
SPV.0090.0002	STEEL THRIE BEAM RAILING RETROFIT	LF					224	224
SPV.0105.0001	VEGETATION REMOVAL B-67-116	LS						1
SPV.0180.0001	REMOVING ASPHALTIC CONCRETE DECK OVERLAY SPECIAL B-67-116	SY					929	929
	NON-BID ITEMS							
	NAME PLATE	EACH						1

ALL ITEMS ARE CATEGORY 2100

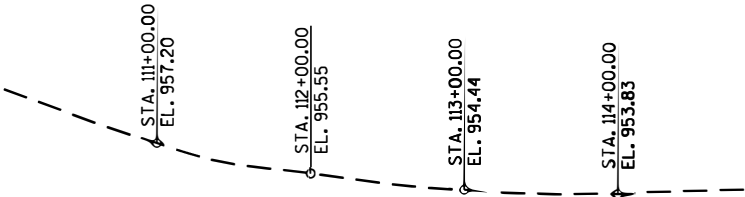
001

LEGEND

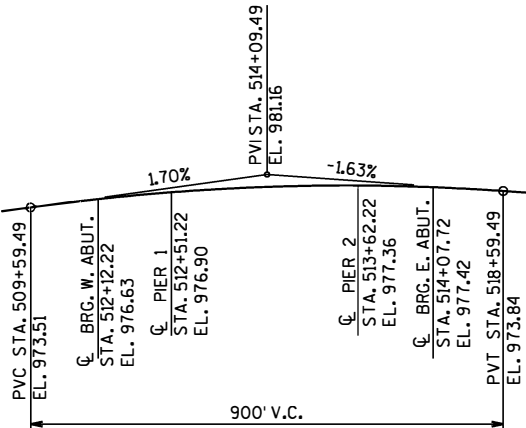
001 BID ITEM INCLUDES PORTABLE DECONTAMINATION FACILITY FOR BRIDGE B-67-117

BENCH MARK DATA

BM NO.	DESCRIPTION	NORTHING	EASTING	ELEVATION
BM 202	STA. 512+91.39, 34.93' LT (SB) NW BOLT @ NW COR. "U" & I-43 BRIDGE RAIL BOLT	127438.42	691874.53	977.22
BM 203	STA. 514+27.99, 11.10' LT (NB) NE BOLT @ E. END NORTHBOUND CEN. LANE RAIL WALL	127407.40	692049.38	979.76
BM 206	STA. 108+66.89, 35.27' RT (CTH U) RR SPIKE W. FACE PPOL *15-00788	127010.13	691992.96	965.44
BM 209	STA. 116+54.56, 68.17' RT (CTH U) RR SPIKE S. FACE PPOL *15-00638	127797.54	692031.49	956.97
CP 502	STA. 509+41.76, 52.72' LT (SB) BERNTSEN FENO WITH CAP STAMPED WISDOT CONTROL	127232.39	691591.50	970.89
CP 503	STA. 514+93.45, 45.72' LT (NB) BERNTSEN FENO WITH CAP STAMPED WISDOT CONTROL	127474.71	692080.24	970.69



CTH U PROFILE GRADE LINE



IH 43 NB PROFILE GRADE LINE

PGL GIVEN AT TOP OF EXISTING ORIGINAL DECK ELEVATION

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		BPV	PLANS CKD. MSS
QUANTITIES, BENCH MARK DATA & PROFILE GRADE LINES			SHEET 3 OF 32

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	AUGUST 14, 2019	127324	691862
2	AUGUST 13, 2019	127394	691938
3	AUGUST 12, 2019	127410	691983
4	AUGUST 13, 2019	127464	692061

BORINGS COMPLETED BY: GESTRA
REPORT COMPLETED BY: GESTRA
ALL COORDINATES REFERENCED TO WISCRS WAUKESHA COUNTY

NOTES

THE SUBSURFACE INFORMATION PRESENTED HEREIN IS AN ABBREVIATED VERSION OF THE INFORMATION PRESENTED IN THE GEOTECHNICAL ENGINEERING REPORT. REVIEW THE APPROPRIATE GEOTECHNICAL REPORT AND SOIL BORING LOGS FOR ADDITIONAL SUBSURFACE INFORMATION.

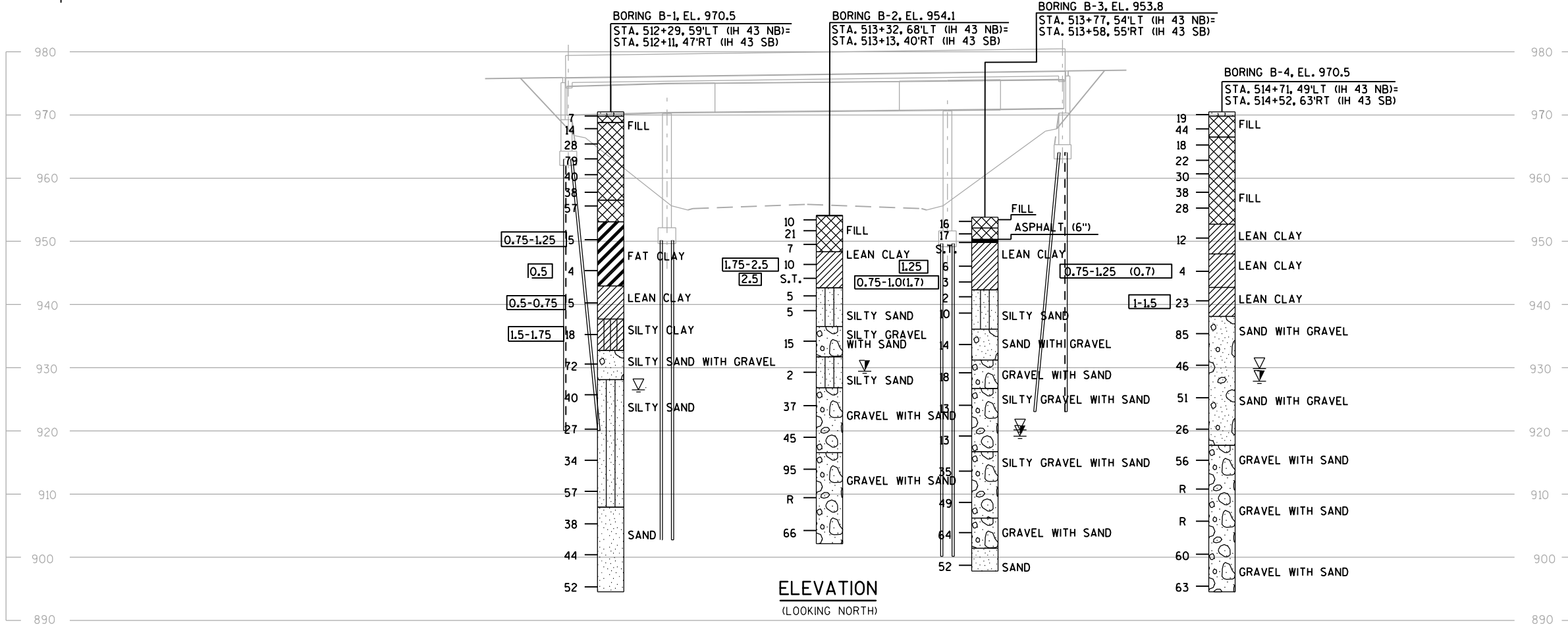
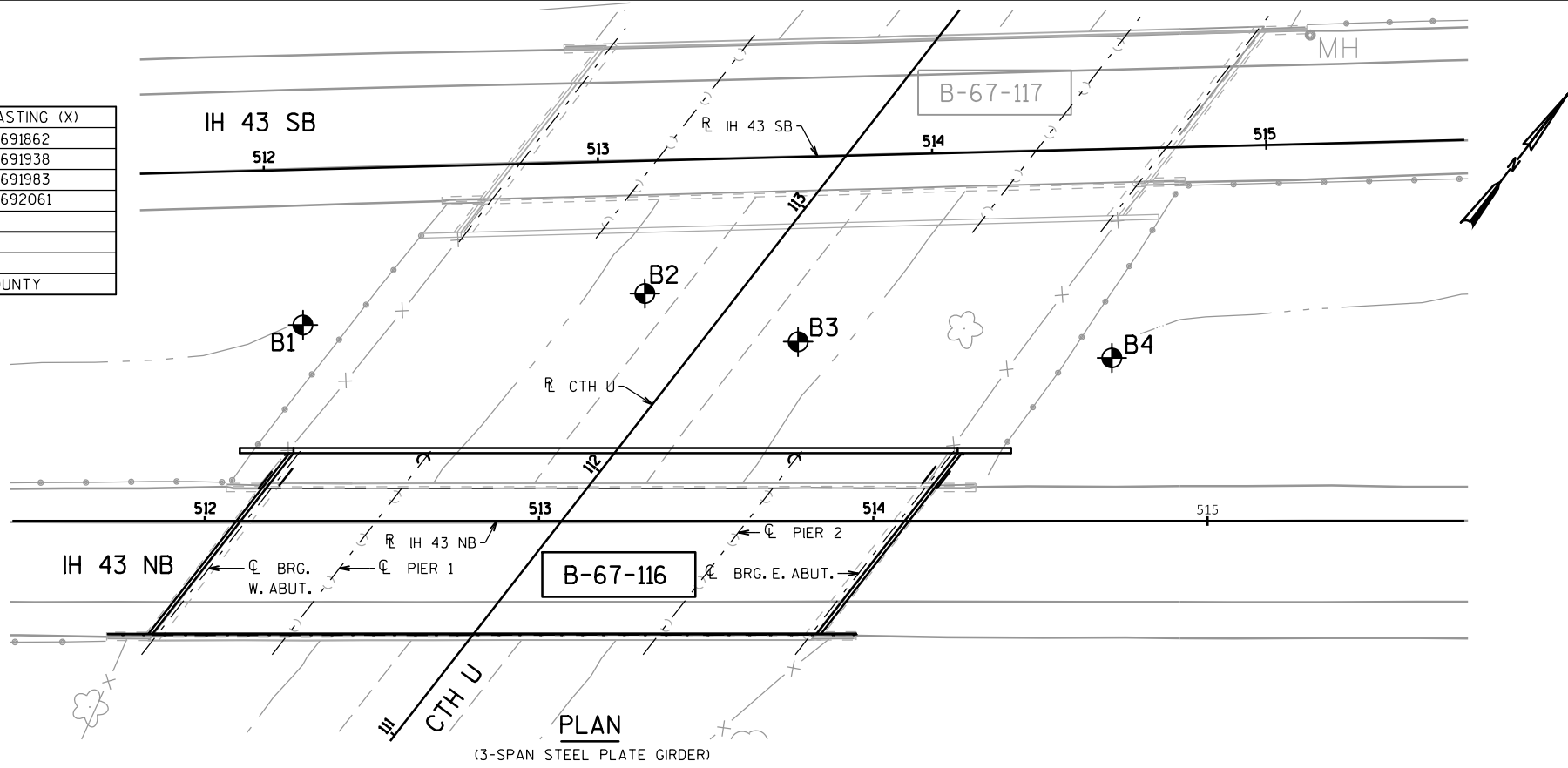
BORING STATIONS AND OFFSETS ARE BASED ON IH 43NB.

SOIL BORINGS COMPLETED BY:
GESTRA ENGINEERING, INC.

SOIL BORING TAKEN:
BETWEEN AUGUST 12, 2019 AND
AUGUST 14, 2019

LEGEND

⊙ DENOTES SOIL BORING LOCATION



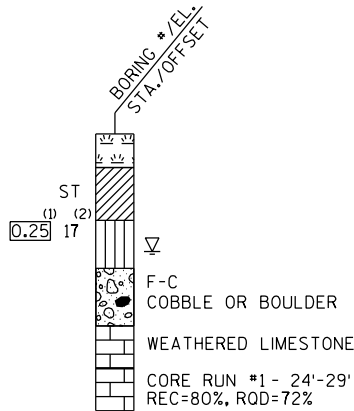
STATE PROJECT NUMBER

1090-35-71

MATERIAL SYMBOLS

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

LEGEND OF BORING



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

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

GROUND WATER ELEVATION

▽ AT TIME OF DRILLING
▽ END OF DRILLING
▽ AFTER DRILLING

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

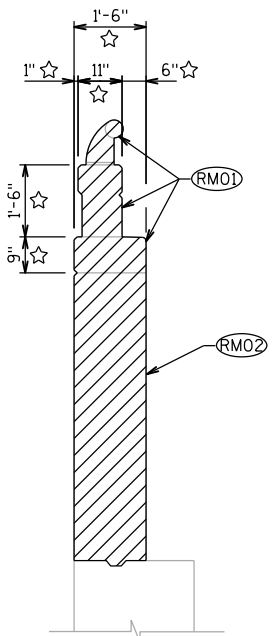
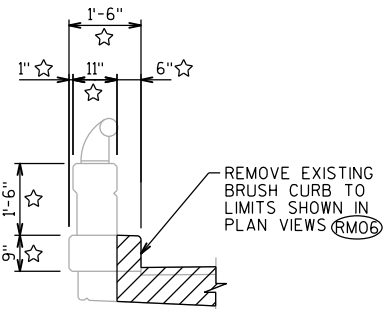
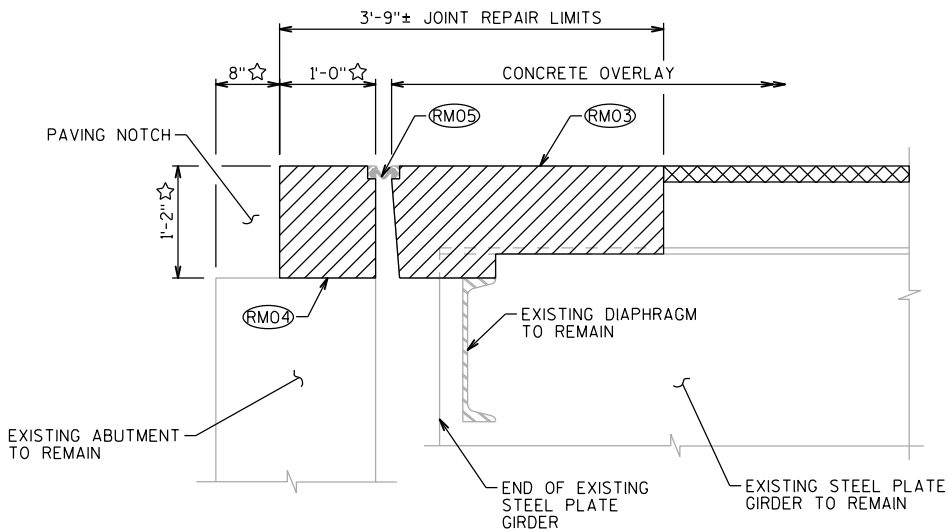
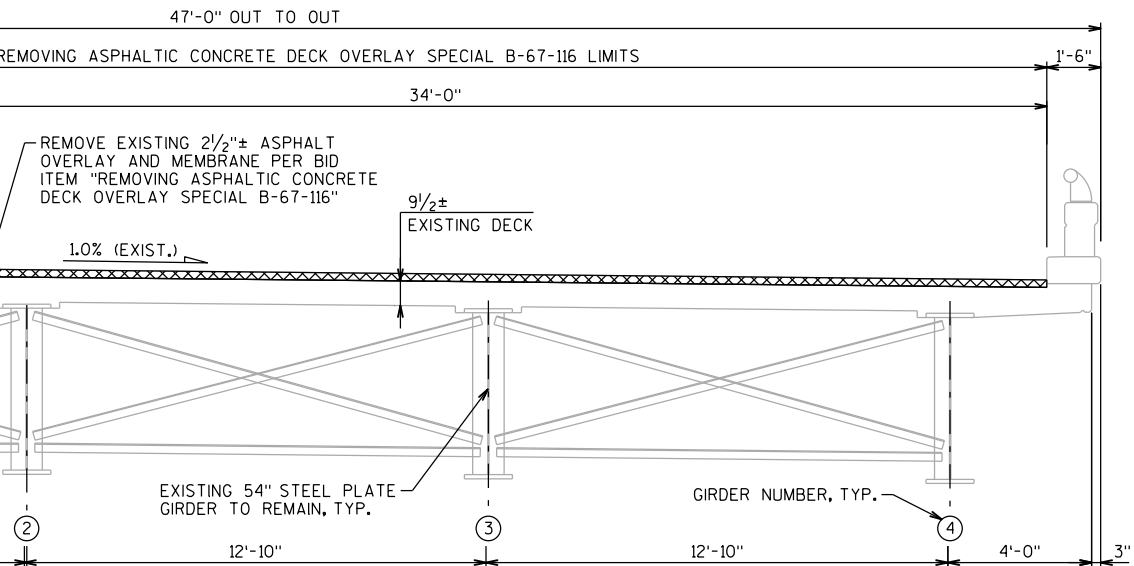
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		AJA	PLANS CKD. MHZ
SUBSURFACE EXPLORATION			SHEET 4 OF 32

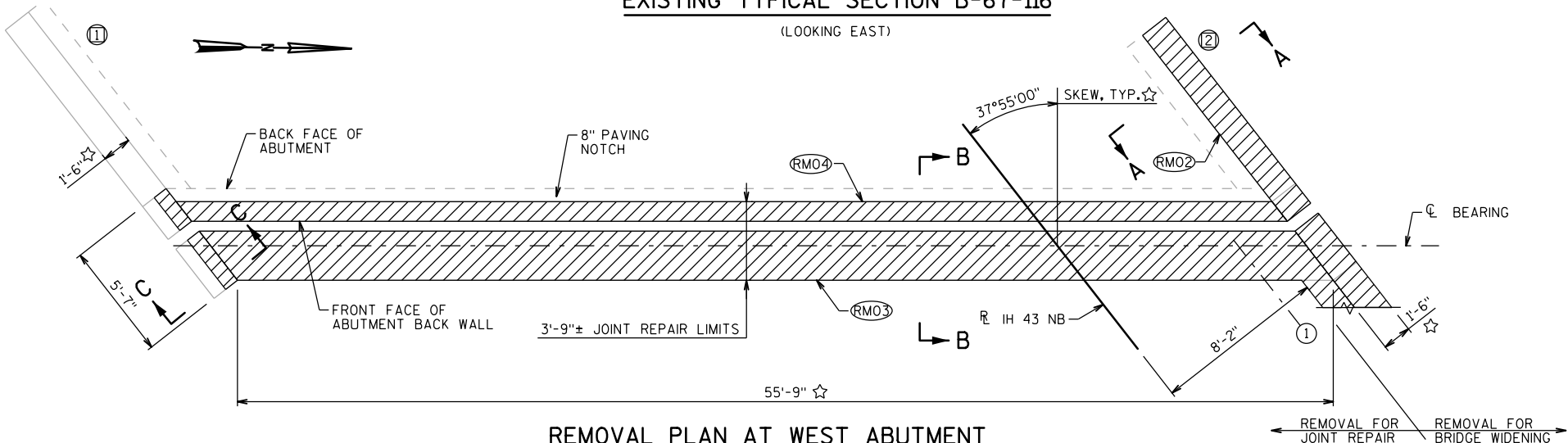
138

LEGEND

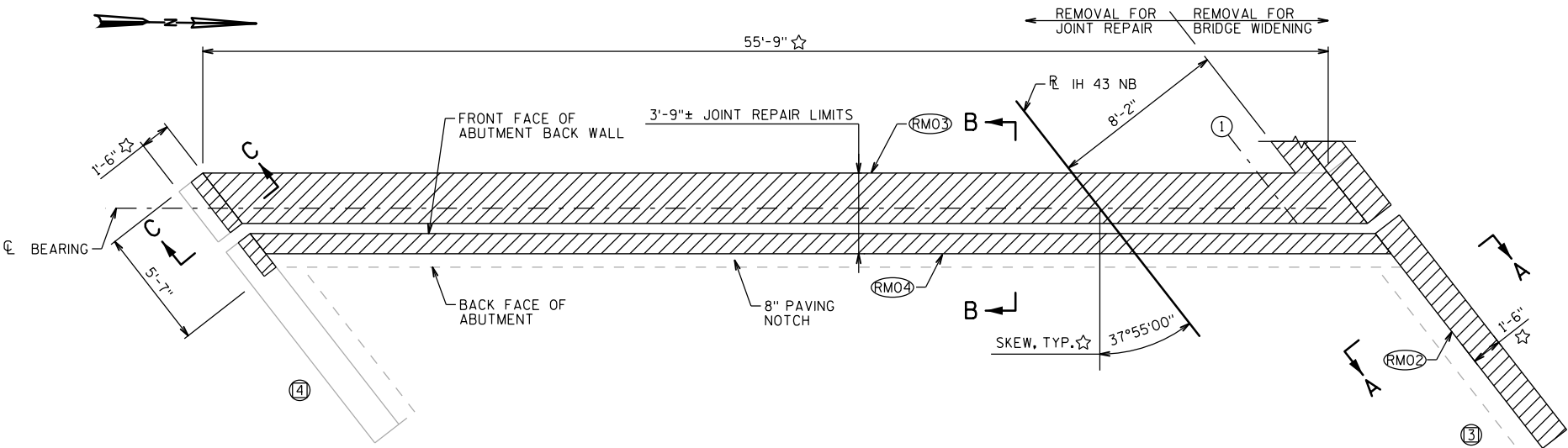
- (RM01) REMOVE EXISTING TUBULAR RAILING, VERTICAL FACE PARAPET AND CURB.
- (RM02) REMOVE EXISTING CONCRETE WING WALL TO EXISTING HORIZONTAL CONSTRUCTION JOINT.
- (RM03) REMOVE EXISTING BRIDGE DECK.
- (RM04) REMOVE EXISTING CONCRETE PAVING BLOCK TO EXISTING HORIZONTAL CONSTRUCTION JOINT.
- (RM05) REMOVE EXISTING EXPANSION DEVICE.
- (RM06) PRESERVE AND REUSE EXISTING REINFORCEMENT, NOT SHOWN FOR CLARITY.
- ☆ DIMENSIONS ARE TAKEN FROM THE EXISTING STRUCTURE PLAN.
- (X) WINGWALL NUMBER

**SECTION A-A****SECTION C-C****SECTION B-B****EXISTING TYPICAL SECTION B-67-116**

(LOOKING EAST)

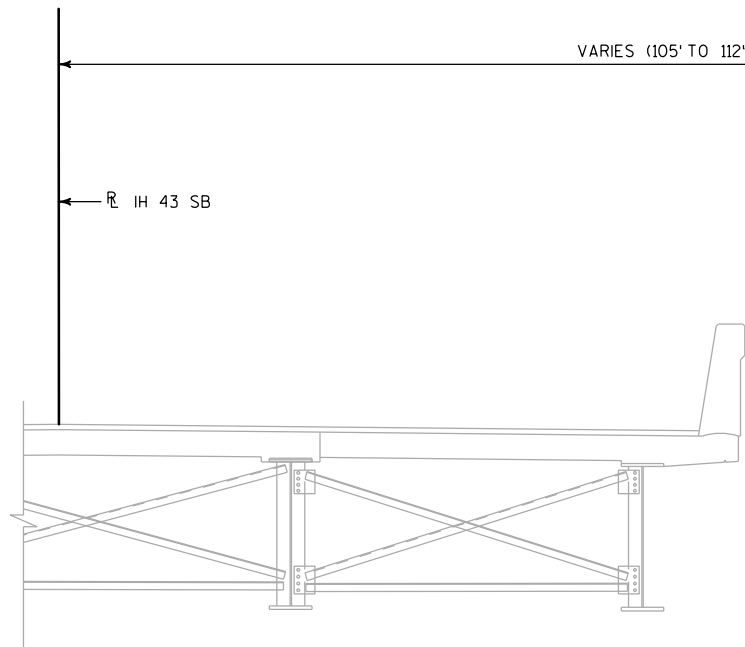
**REMOVAL PLAN AT WEST ABUTMENT**

(DIMENSIONS GIVEN ALONG CL BEARING)

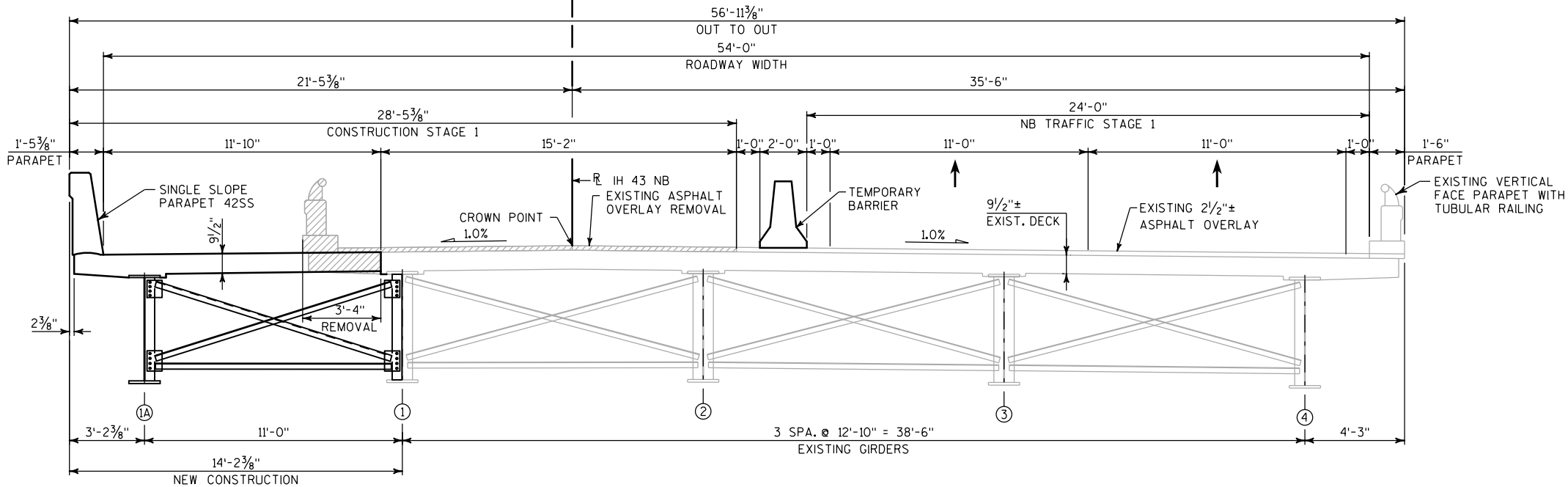
**REMOVAL PLAN AT EAST ABUTMENT**

(DIMENSIONS GIVEN ALONG CL BEARING)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		BPV	PLANS CKD. MSS
REMOVAL DETAILS			SHEET 5 OF 32

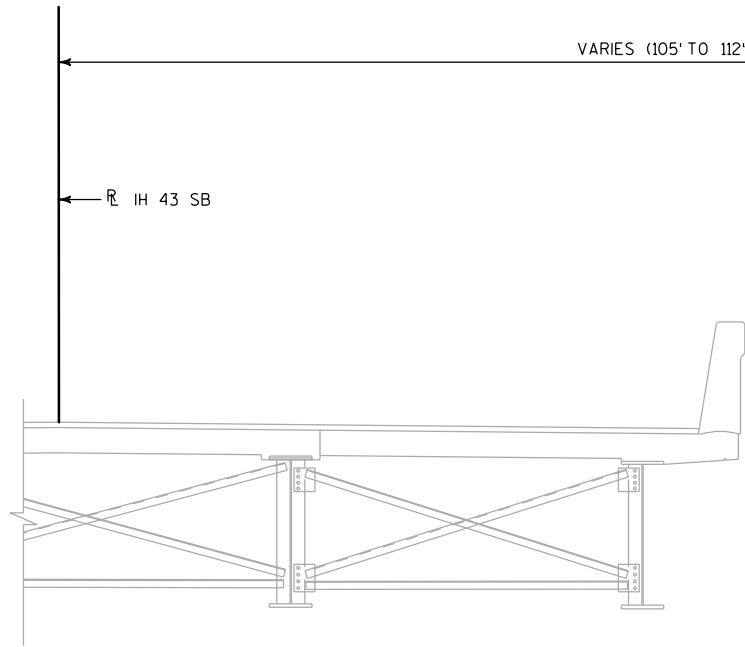


B-67-117

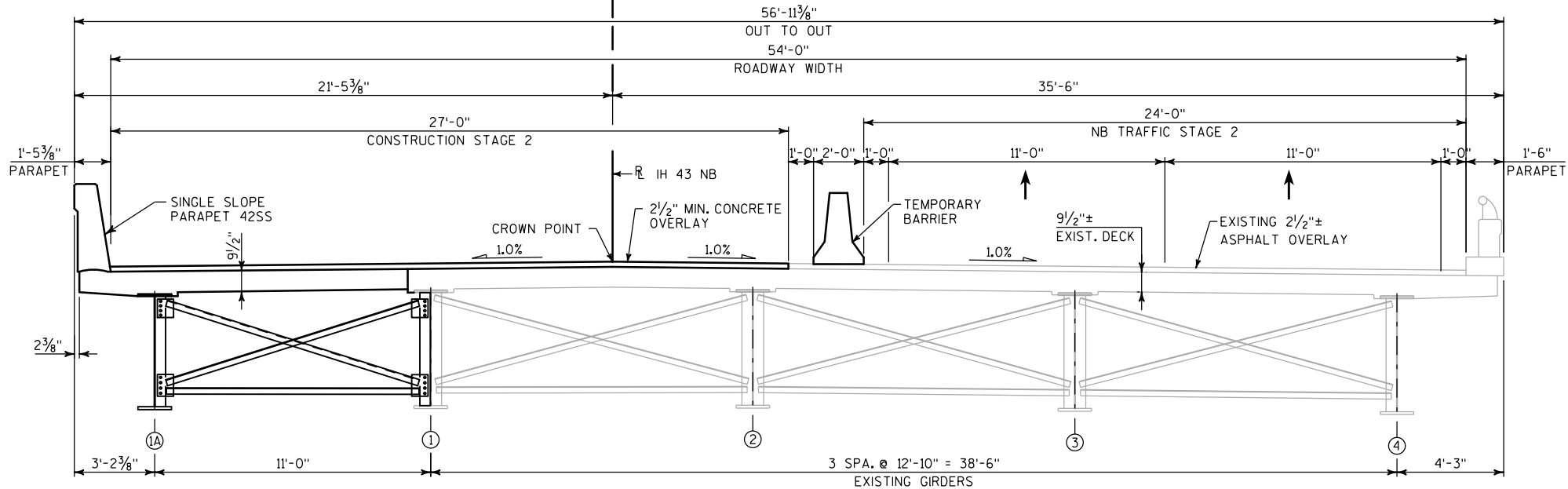


CONSTRUCTION STAGE 1

(LOOKING EAST)



B-67-117



CONSTRUCTION STAGE 2

(LOOKING EAST)

LEGEND

→ DIRECTION OF TRAFFIC

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		BPV	PLANS CK'D. MSS
CONSTRUCTION STAGING (1 OF 2)			SHEET 6 OF 32
			140



→ DIRECTION OF TRAFFIC

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
	DRAWN BY	BPV	PLANS CK'D. MSS
CONSTRUCTION STAGING (2 OF 2)		SHEET 7 OF 3	
		141	

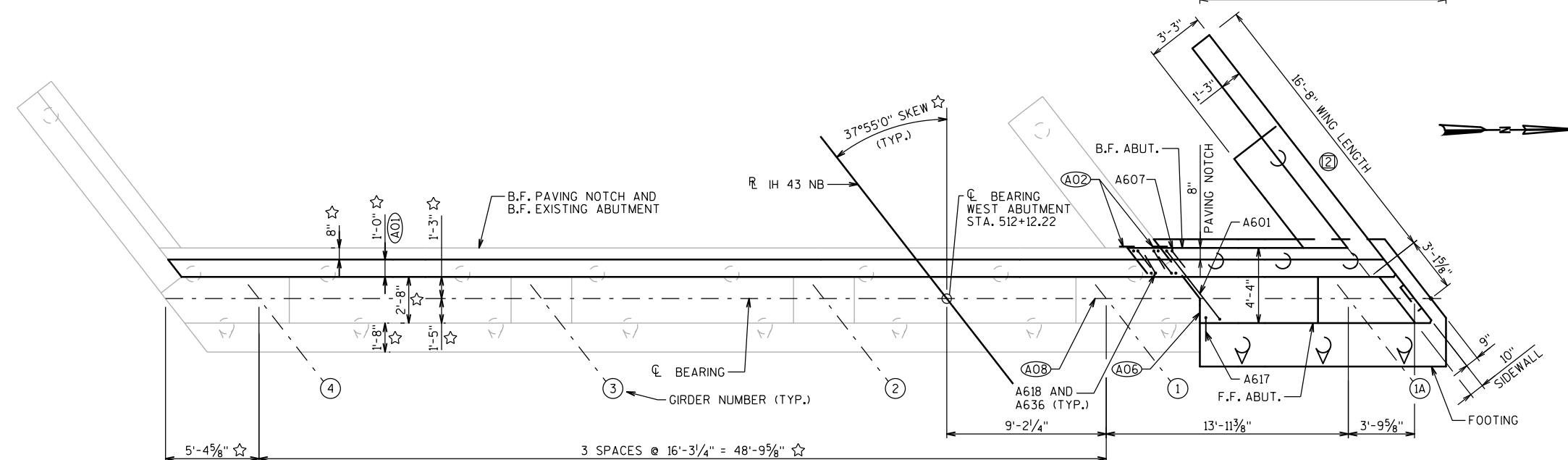


SURFACE TYPE: PMA OVERLAY
INFRARED INSPECTION DATE: 10/9/19

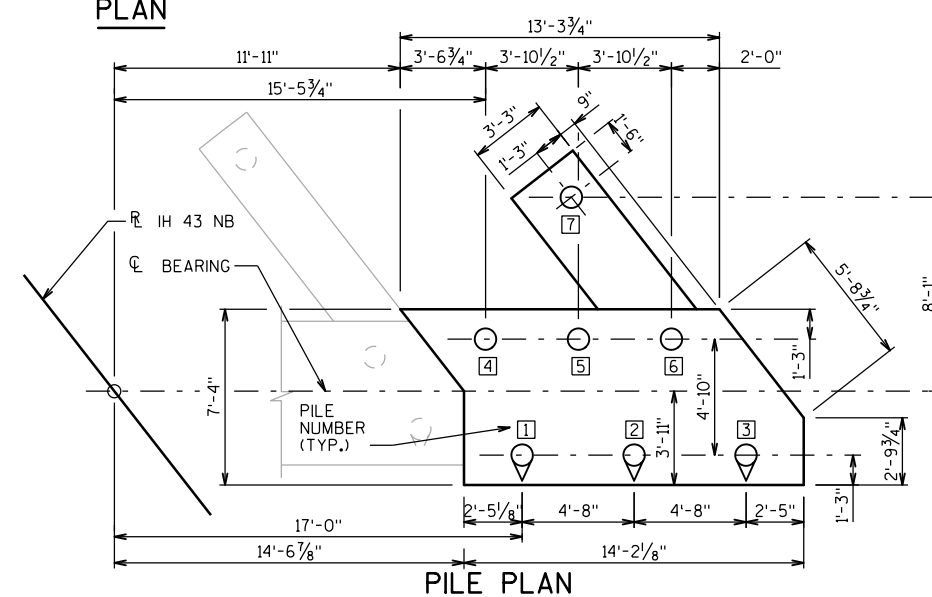
PLOT SCALE : 26:1

EXCAVATION BELOW THE EXISTING FOUNDATION SHALL BE FILLED WITH CONCRETE.

B.F. - BACK FACE



FOOTING REINFORCEMENT PLAN



PILE PLAN

NOTES

FOR ABUTMENT ELEVATION AND PLAN, SEE "WEST ABUTMENT" SHEET.

FOR ABUTMENT DETAILS, SEE "WEST ABUTMENT DETAILS" SHEET.

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

EXCAVATION BELOW THE EXISTING FOUNDATION SHALL BE FILLED WITH CONCRETE.

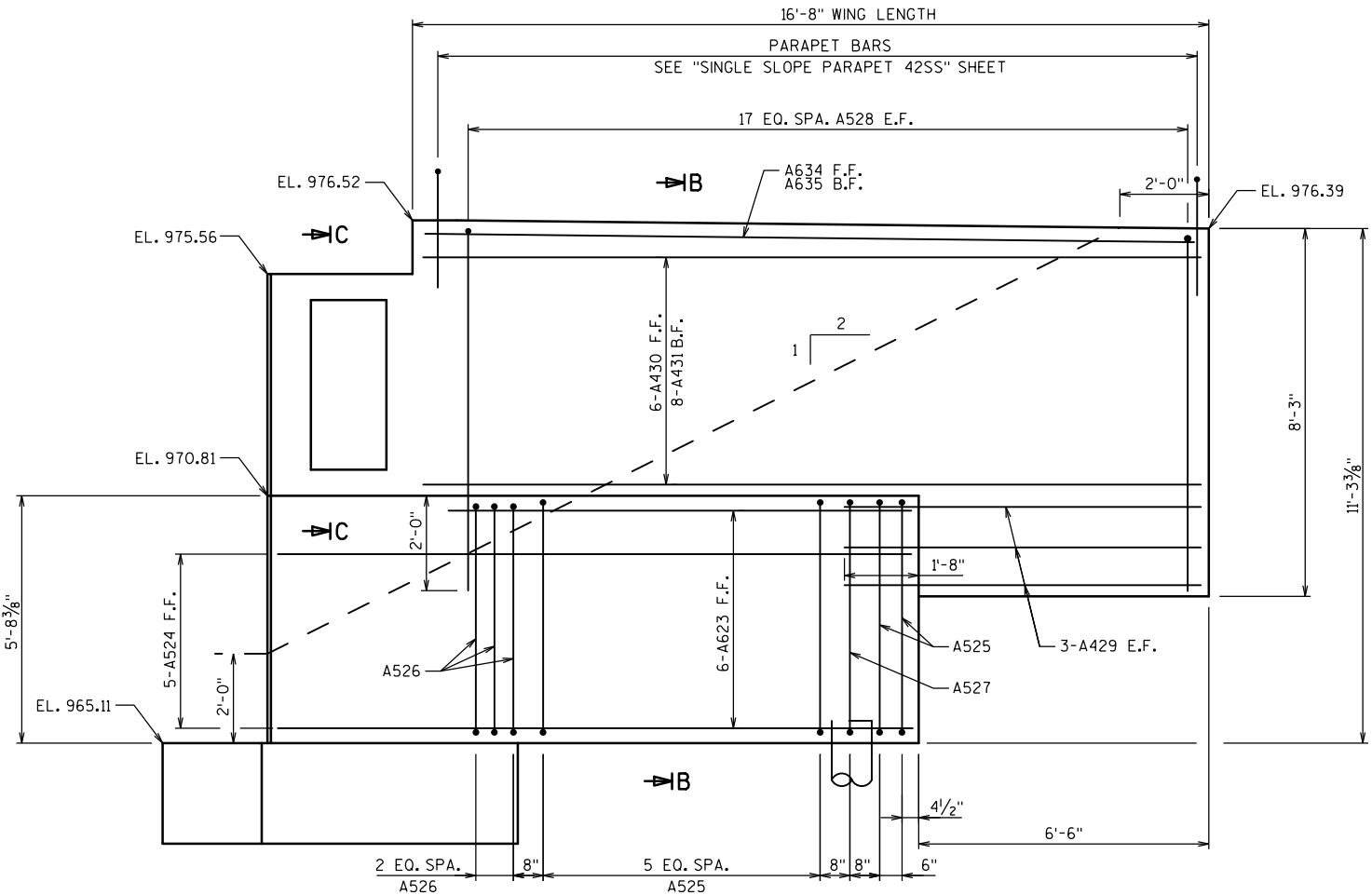
LEGEND

(A02) 18" RUBBERIZED MEMBRANE WATERPROOFING, SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENTS.

(A03) KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2"x6" KEYWAY.

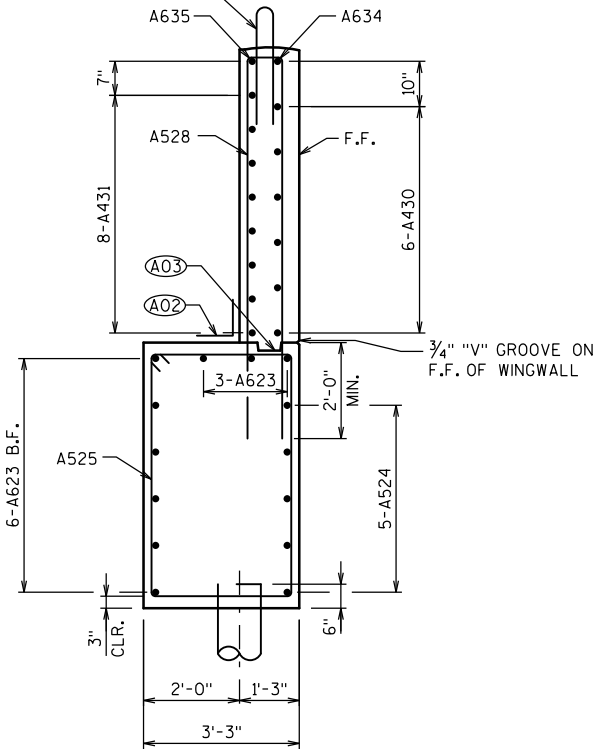
F.F. - FRONT FACE

B.F. - BACK FACE

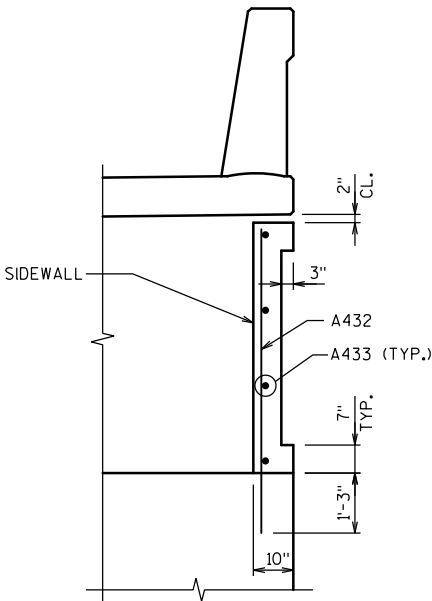


PARAPET REINFORCEMENT
FOR DETAILS, SEE "SINGLE
SLOPE PARAPET 42SS" SHEET

WING 2 ELEVATION
(FRONT FACE)



SECTION B-B



SECTION C-C

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY JGJ		PLANS CK'D. HS	
WEST ABUTMENT WING DETAILS			SHEET 10 OF 32
			144

NOTES

FOR ABUTMENT ELEVATION AND PLAN, SEE "WEST ABUTMENT" SHEET.

FOR WING DETAILS, SEE "WEST ABUTMENT WING DETAILS" SHEET.

SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF $\frac{1}{2}$ " FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD $\frac{1}{8}$ " BELOW SURFACE OF CONCRETE).

EXCAVATION BELOW THE EXISTING FOUNDATION SHALL BE FILLED WITH CONCRETE.

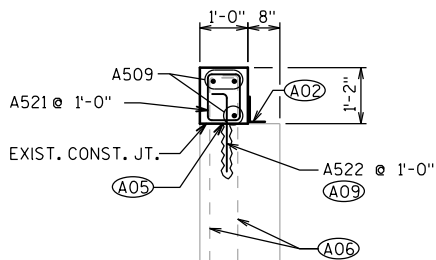
LEGEND

- (A01) TO MATCH EXISTING ABUTMENT PAVING NOTCH WIDTH AND DEPTH.
- (A02) 18" RUBBERIZED MEMBRANE WATERPROOFING, SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENTS.
- (A03) KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2"x6" KEYWAY.
- (A04) CONST. JOINT - POUR CONCRETE ABOVE THIS JOINT AFTER SUPERSTRUCTURE IS IN PLACE (STRIKE OFF AND LEAVE ROUGH).
- (A05) ROUGHEN SURFACE OF CONCRETE $\frac{1}{4}$ " DEEP MINIMUM AT AREAS WHERE NEW CONCRETE CONTACTS EXISTING CONCRETE.
- (A06) SALVAGE EXISTING REINFORCEMENT AND EXTEND FULL LENGTH INTO NEW WORK.
- (A07) ADHESIVE ANCHORS:
NO. 4 BARS EMBED 0'-10", MIN. EDGE DISTANCE 3"
NO. 5 BARS EMBED 1'-1", MIN. EDGE DISTANCE 4"
NO. 6 BARS EMBED 1'-3", MIN. EDGE DISTANCE $4\frac{1}{2}$ "
NO. 8 BARS EMBED 1'-8", MIN. EDGE DISTANCE 6"
- (A09) ADHESIVE ANCHORS NO. 5 BAR, EMBED 1'-6" IN CONCRETE. SPACE AT 1'-0", TURN 10" LEG AS NECESSARY TO FIT.

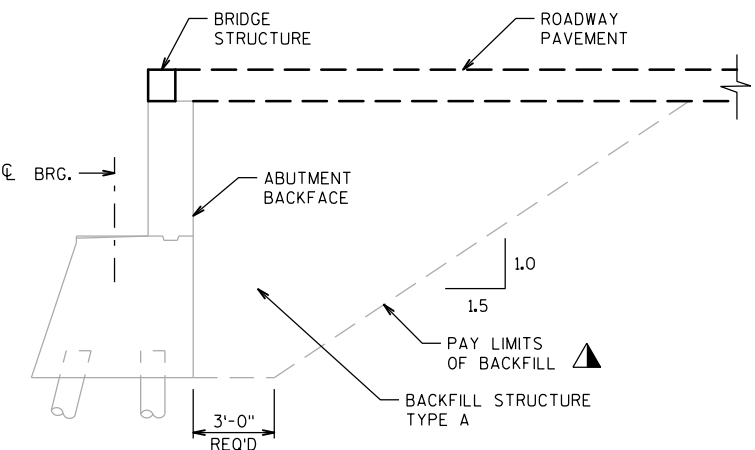
F.F. - FRONT FACE

B.F. - BACK FACE

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

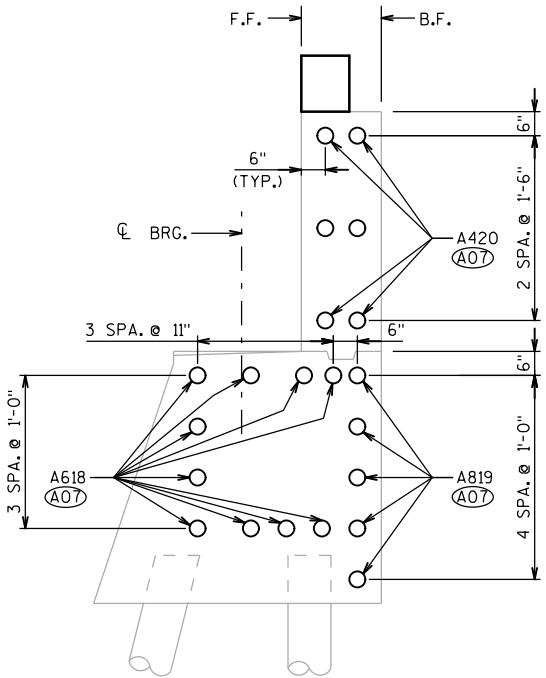


SECTION A-A



BACKFILL STRUCTURE LIMITS

SECTION THRU EDGE OF EXISTING ABUTMENT
(AT BRIDGE WIDENING)

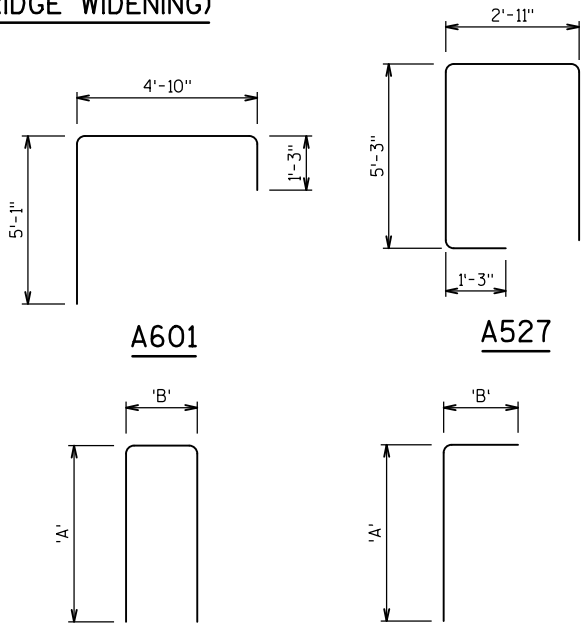
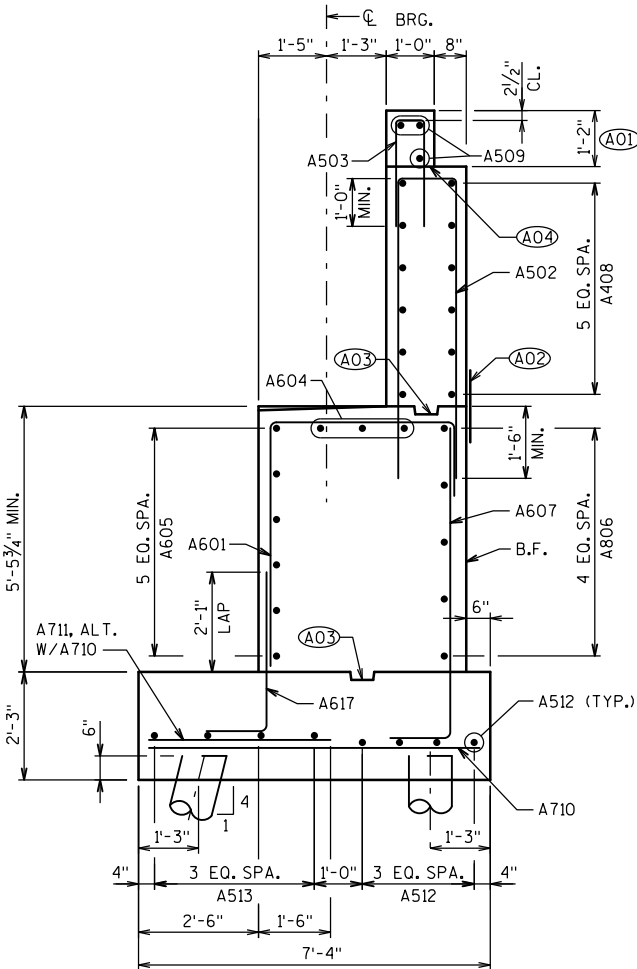


BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
△ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
A601		13	10'-10"	X		ABUTMENT BODY - VERT.
A502	X	13	13'-5"	X		BACKWALL - VERT.
A503	X	15	4'-5"	X		BACKWALL & PAVING BLOCK - BOTH ENDS
A604		3	11'-9"			ABUTMENT BODY - LONG.
A605		6	12'-9"			ABUTMENT BODY - LONG. (F.F. & TOP)
A806		5	11'-9"			ABUTMENT BODY - LONG. (B.F.)
A607		12	7'-7"	X		ABUTMENT BODY - VERT. (B.F.)
A408	X	12	13'-9"			BACKWALL - LONG.
A509	X	30	7'-9"			PAVING BLOCK - LONG.
A710		12	6'-10"			FOOTING - TRANS.
A711		12	4'-0"			FOOTING - TRANS.
A512		4	12'-9"			FOOTING - LONG.
A513		4	13'-8"			FOOTING - LONG.
A714		4	1'-7"	△		FOOTING - CORNER.
A715		6	4'-1"	△		FOOTING - CORNER.
A716		2	5'-6"			FOOTING - CORNER.
A617		14	4'-4"	X		FOOTING - VERT.
A618		14	4'-9"			ABUTMENT BODY - ADHESIVE ANCHORS
A819		5	7'-1"			ABUTMENT BODY - ADHESIVE ANCHORS
A420	X	6	2'-6"			BACKWALL - ADHESIVE ANCHORS
A521	X	55	3'-4"	X		PAVING BLOCK - STIRRUPS
A522	X	55	2'-4"	X		PAVING BLOCK - ADHESIVE ANCHORS
A623	X	9	7'-7"			WING BODY - LONG. (B.F.)
A524	X	5	13'-6"			WING BODY - LONG. (F.F.)
A525	X	8	17'-0"	X		WING BODY - STIRRUPS
A526	X	3	18'-6"	X		WING BODY - STIRRUPS
A527	X	1	14'-3"	X		WING BODY - STIRRUPS
A528	X	18	16'-2"	X		WING WALL - VERT.
A429	X	6	8'-8"	X		WING WALL - HORIZ. BOTTOM
A430	X	6	17'-2"	X		WING WALL - HORIZ. TOP (F.F.)
A431	X	8	16'-4"			WING WALL - HORIZ. TOP (B.F.)
A432	X	4	5'-10"			WING WALL - SIDE WALL
A433	X	4	4'-5"			WING WALL - SIDE WALL
A634	X	1	17'-2"			WING WALL - HORIZ. TOP (F.F.)
A635	X	1	16'-4"			WING WALL - HORIZ. TOP (B.F.)
A636	X	4	5'-6"	X		BACKWALL - VERT.

SECTION THRU ABUTMENT BODY
(AT BRIDGE WIDENING)



BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
A714	1 SET OF 4	8" TO 2'-5"
A715	1 SET OF 6	2'-6" TO 5'-8"

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	DIMENSION 'A'	DIMENSION 'B'
A502	6'-2"	1'-4"
A503	2'-0"	0'-8"
A528	7'-9"	11"

BAR MARK	DIMENSION 'A'	DIMENSION 'B'
A607	6'-9"	1'-0"
A617	3'-6"	1'-0"
A522	1'-6"	0'-10"
A636	4'-8"	1'-0"

BAR MARK	DIMENSION 'A'	DIMENSION 'B'
A521	0'-8"	0'-8"
A525	2'-11"	5'-3"
A526	3'-8"	5'-3"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
		DRAWN BY JGJ	PLANS CKD. HS
WEST ABUTMENT DETAILS			SHEET 11 OF 32
			145

EXCAVATION BELOW THE EXISTING FOUNDATION SHALL BE FILLED WITH CONCRETE.

B.F. - BACK FACE

146

NOTES

FOR ABUTMENT ELEVATION AND PLAN, SEE "EAST ABUTMENT" SHEET.

FOR ABUTMENT DETAILS, SEE "EAST ABUTMENT DETAILS" SHEET.

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

EXCAVATION BELOW THE EXISTING FOUNDATION SHALL BE FILLED WITH CONCRETE.

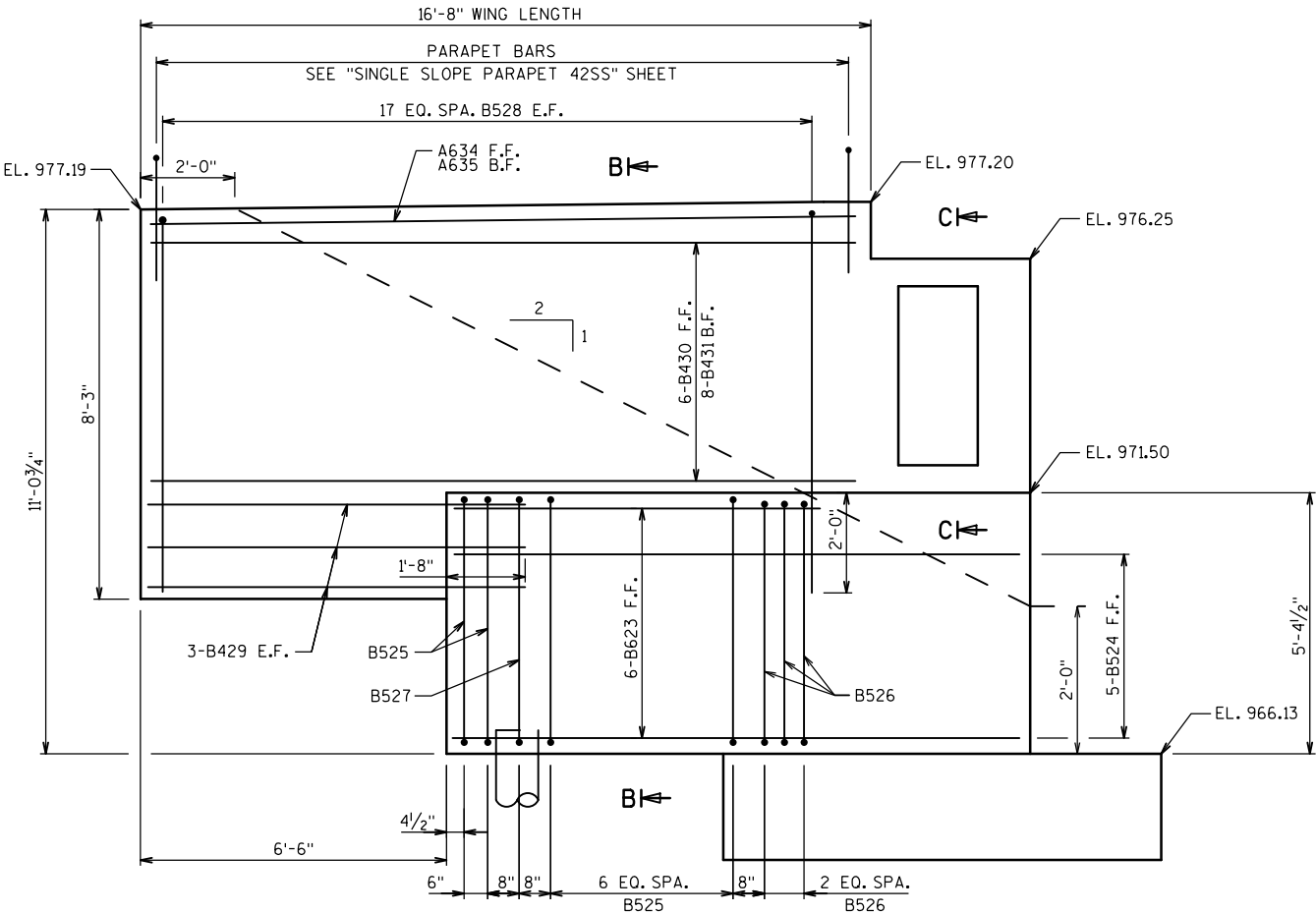
LEGEND

(B02) 18" RUBBERIZED MEMBRANE WATERPROOFING, SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENTS.

(B03) KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2"x6" KEYWAY.

F.F. - FRONT FACE

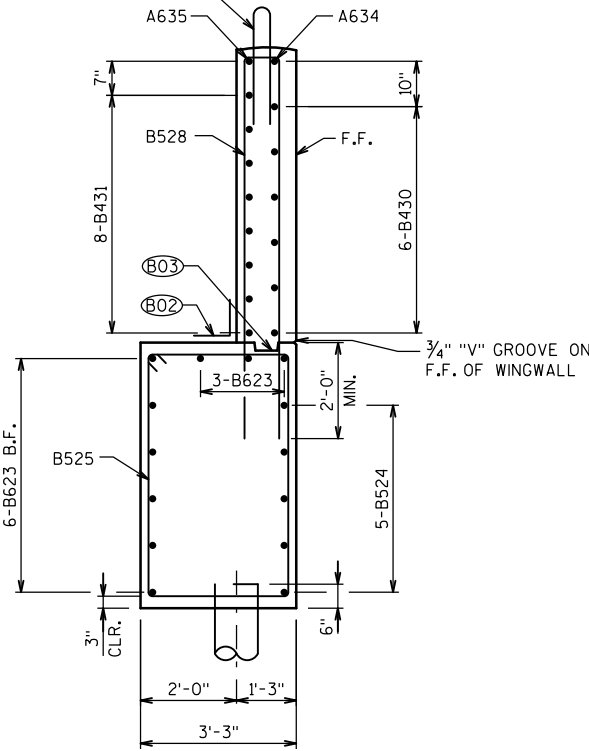
B.F. - BACK FACE



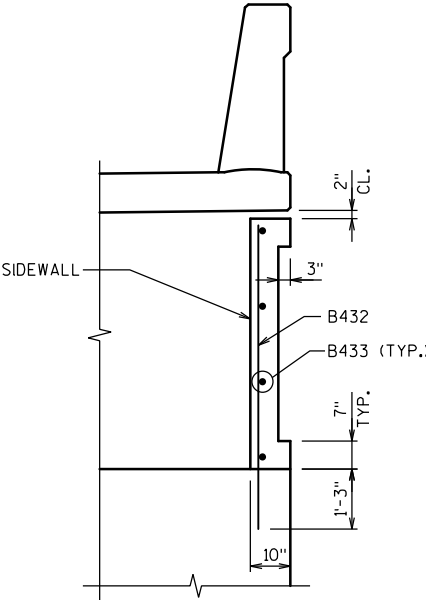
WING 3 ELEVATION

(FRONT FACE)

PARAPET REINFORCEMENT
FOR DETAILS, SEE "SINGLE
SLOPE PARAPET 42SS" SHEET



SECTION B-B

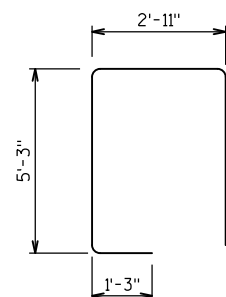
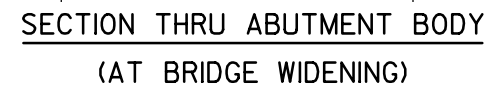


SECTION C-C

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY JGJ		PLANS CK'D. HS	
EAST ABUTMENT WING DETAILS			SHEET 13 OF 32
			147

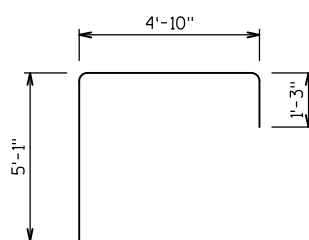
EXCAVATION BELOW THE EXISTING FOUNDATION SHALL BE FILLED WITH CONCRETE.

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

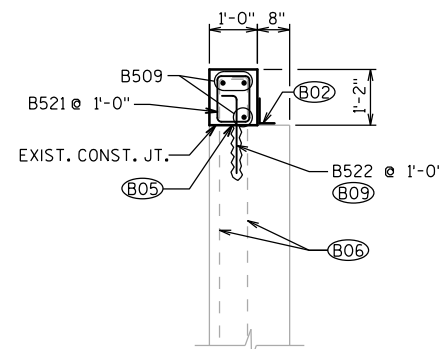
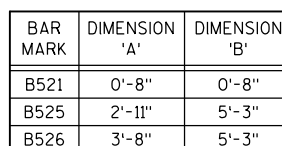
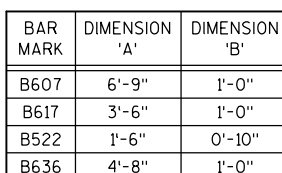
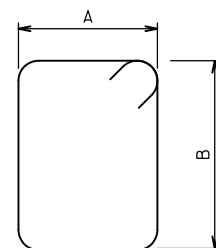
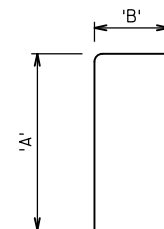


B527

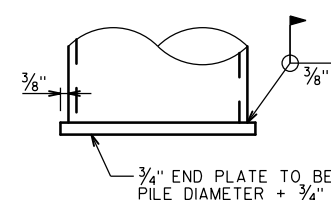
A diagram of a rectangular object. The vertical dimension is labeled 'A' and the horizontal dimension is labeled 'B'.



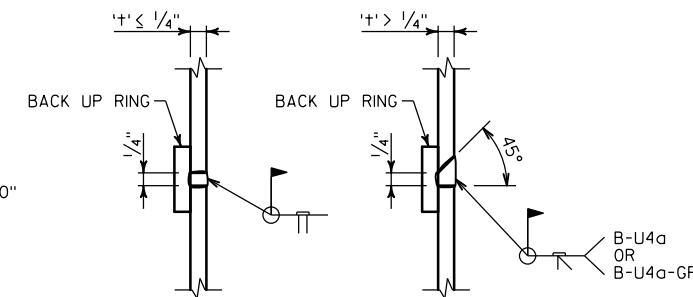
B601



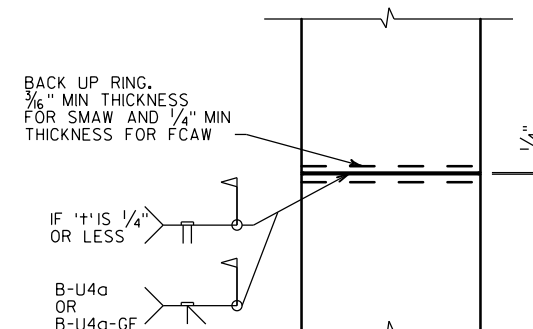
SECTION A-A



END PLATE DETAIL
FOR CIP PILING



CIP PILE WELD DETAIL



CAST-IN-PLACE 'PIPE PILE'

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
B601		13	10'-10"	X		ABUTMENT BODY - VERT
B502	X	13	13'-5"	X		BACKWALL - VERT.
B503	X	15	4'-5"	X		BACKWALL & PAVING BLOCK - BOTH ENDS
B604		3	12'-0"			ABUTMENT BODY - LONG.
B605		6	12'-0"			ABUTMENT BODY - LONG. (F.F. & TOP)
B806		5	12'-0"			ABUTMENT BODY - LONG. (B.F.)
B607		12	7'-7"	X		ABUTMENT BODY - VERT. (B.F.)
B408	X	12	13'-9"			BACKWALL - LONG.
B509	X	30	7'-9"			PAVING BLOCK - LONG.
B710		9	6'-10"			FOOTING - TRANS.
B711		9	4'-0"			FOOTING - TRANS.
B512		8	12'-9"			FOOTING - LONG.
- - -						
B714		10	3'-7"		△	FOOTING - CORNER
B715		9	3'-2"		△	FOOTING - CORNER
B716		2	8'-9"			FOOTING - CORNER
B617		13	4'-4"	X		FOOTING - VERT.
B618		14	4'-9"			ABUTMENT BODY - ADHESIVE ANCHORS
B819		5	7'-1"			ABUTMENT BODY - ADHESIVE ANCHORS
B420	X	6	2'-6"			BACKWALL - ADHESIVE ANCHORS
B521	X	55	3'-4"	X		PAVING BLOCK - STIRRUPS
B522	X	55	2'-4"	X		PAVING BLOCK - ADHESIVE ANCHORS
B623	X	9	7'-8"			WING BODY - LONG. (B.F.)
B524	X	5	11'-4"			WING BODY - LONG. (F.F.)
B525	X	9	17'-0"	X		WING BODY - STIRRUPS
B526	X	3	18'-6"	X		WING BODY - STIRRUPS
B527	X	1	14'-3"	X		WING BODY - STIRRUPS
B528	X	18	16'-2"	X		WING WALL - VERT.
B429	X	6	11'-0"			WING WALL - HORIZ. BOTTOM
B430	X	6	16'-4"			WING WALL - HORIZ. TOP (F.F.)
B431	X	8	15'-4"			WING WALL - HORIZ. TOP (B.F.)
B432	X	4	5'-10"			WING WALL - SIDE WALL
B433	X	4	4'-5"			WING WALL - SIDE WALL
B634	X	1	16'-4"			WING WALL - HORIZ. TOP (F.F.)
B635	X	1	15'-4"			WING WALL - HORIZ. TOP (B.F.)
B636	X	4	5'-6"	X		BACKWALL - VERT.

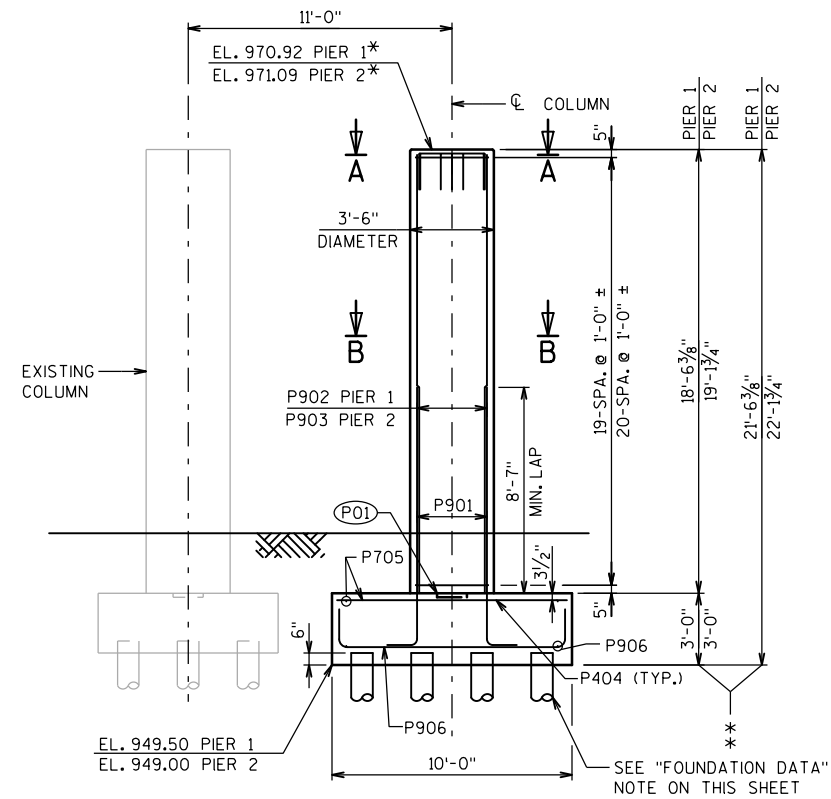
BAR MARK	NO. REQ'D.	LENGTH
B714	1 SET OF 10	8" TO 6'-3"
B715	1 SET OF 9	8" TO 5'-8"

BUNDLE AND TAG EACH
SERIES SEPARATELY.

BAR MARK	DIMENSION 'A'	DIMENSION 'B'
B502	6'-2"	1'-4"
B503	2'-0"	0'-8"
B528	7'-9"	11"

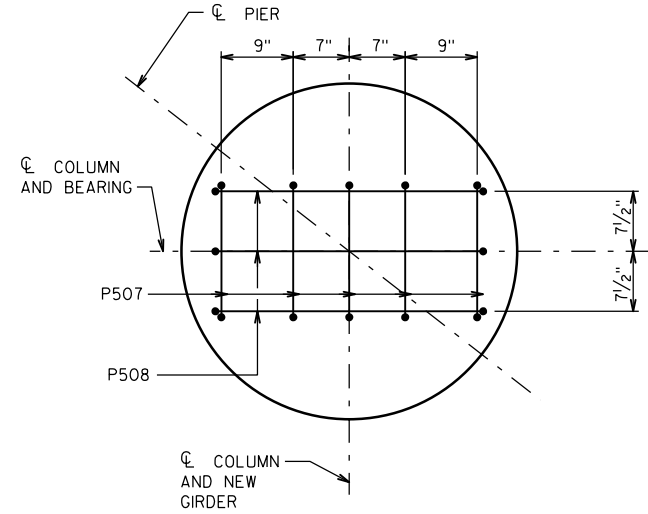
BAR MARK	DIMENSION 'A'	DIMENSION 'B'
B607	6'-9"	1'-0"
B617	3'-6"	1'-0"
B522	1'-6"	0'-10"
B636	4'-8"	1'-0"

BAR MARK	DIMENSION 'A'	DIMENSION 'B'
B521	0'-8"	0'-8"
B525	2'-11"	5'-3"
B526	3'-8"	5'-3"

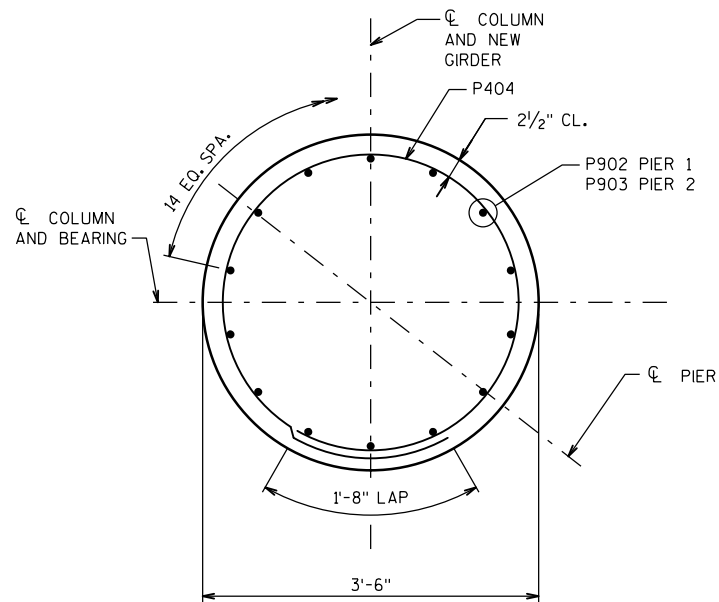


ELEVATION

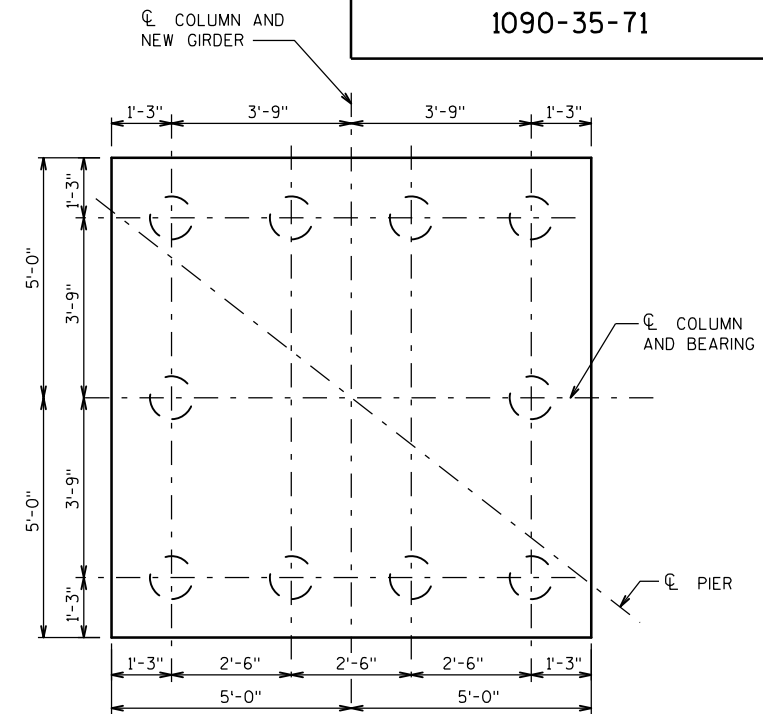
(LOOKING WEST)



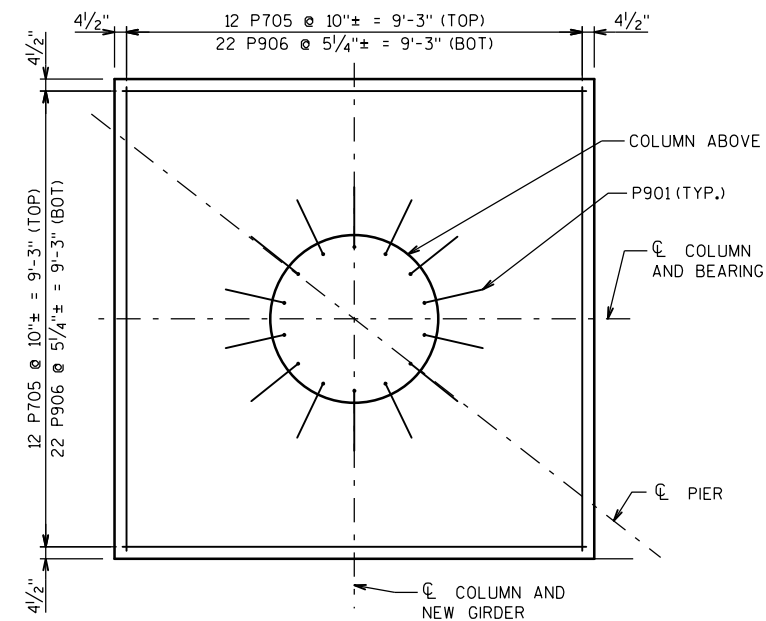
SECTION A-A



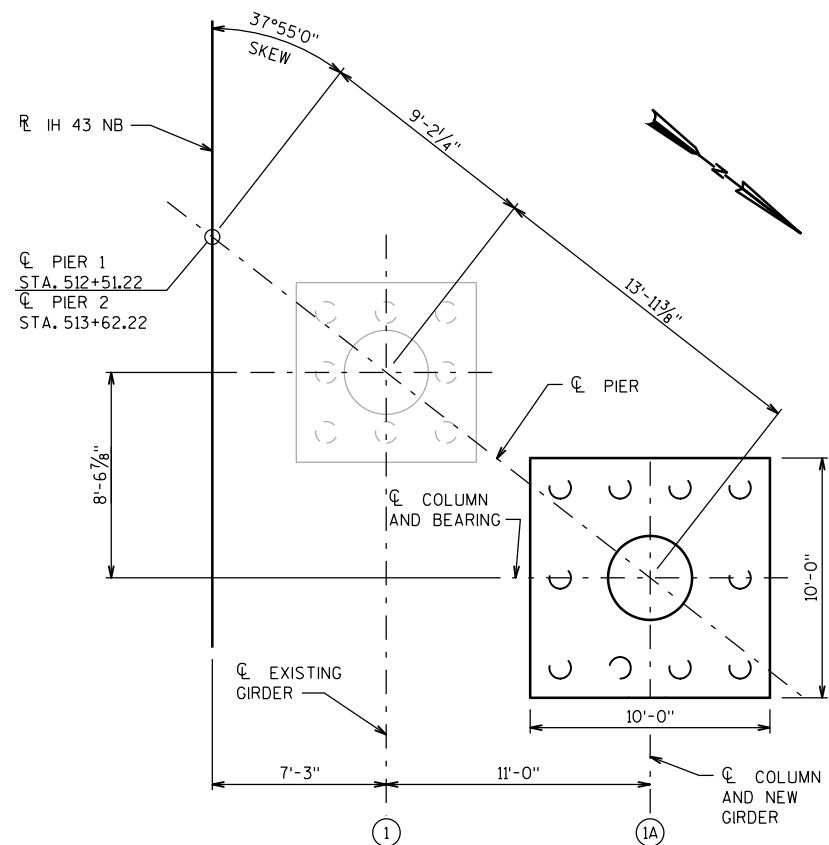
SECTION B-B



PILE LAYOUT



FOOTING BARS



PLAN

LEGEND

* ELEVATIONS ARE GIVEN AT THE TOP OF CONCRETE AT THE CL OF PIER.

** DIMENSIONS ARE GIVEN AT CL OF COLUMN.

(P01) 1'-3" x 1'-3" x 2" CONSTRUCTION JOINT FORMED BY A BEVELED KEYWAY.

FOUNDATION DATA

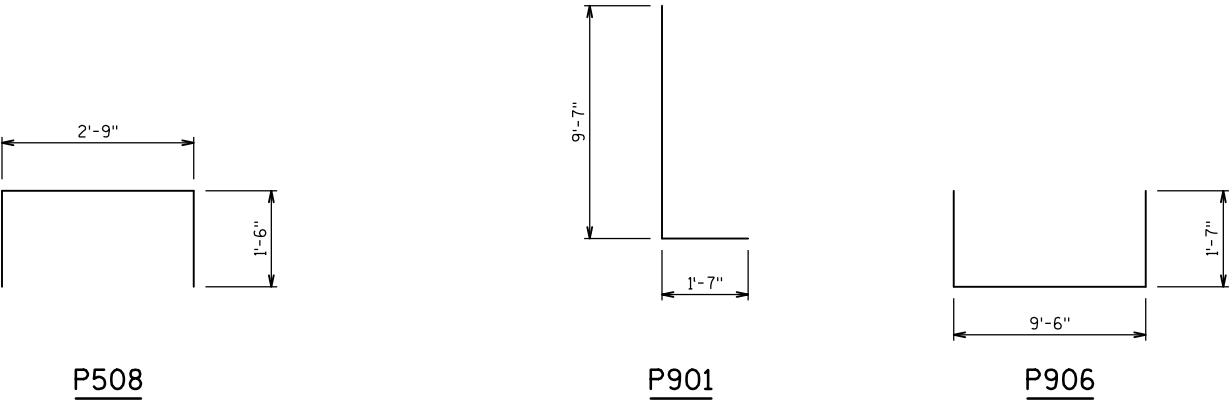
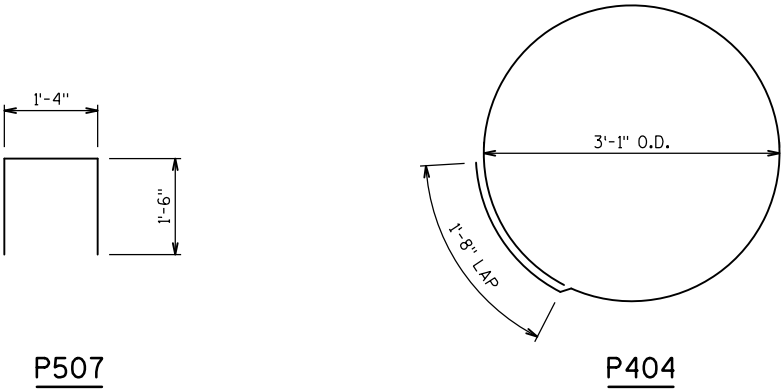
PIERS TO BE SUPPORTED ON 10 3/4" x 0.365" CIP CONCRETE PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH = 45 FEET AT PIER 1 AND 50 FEET AT PIER 2.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		BPV	PLANS CKD. HS
PIERS 1 & 2			SHEET 15 OF 32
149			

BILL OF BARS

NOTE:
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
P901	X	28	11'-6"	X		PIER 1 & 2 FOOTING DOWELS
P902	X	14	18'-1"			PIER 1 COLUMN VERTICALS
P903	X	14	18'-9"			PIER 2 COLUMN VERTICALS
P404	X	39	11'-5"	X		PIER 1 & 2 COLUMN HOOP BARS
P705		48	9'-6"			PIER 1 & 2 FOOTING TOP
P906		88	12'-2"	X		PIER 1 & 2 FOOTING BOTTOM
P507	X	10	4'-1"	X		PIER 1 & 2 PEDESTAL BARS NE
P508	X	6	5'-6"	X		PIER 1 & 2 PEDESTAL BARS NW



BENDING DIAGRAMS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		BPV	PLANS CK'D. HS
PIER BILL OF BARS			SHEET 16 OF 32
			150

BEARING NOTES

ALL BEARINGS ARE SYMMETRICAL ABOUT C OF GIRDER AND C OF BEARING.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

MASONRY PLATE "D" SHALL BE GALVANIZED. TOP PLATE "A" ANDN STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A". DO NOT PAINT STAINLESS STEEL OR TEFLON SURFACES.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, BUT EXCLUDING STAINLESS STEEL SHEET, TEFLON SURFACE, PINTLES, ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.

IN LIEU OF USING SHIM PLATES, FABRICATOR MAY INCREASE THICKNESS OF TOP PLATE "A" OR MASONRY PLATE "D" BY THE SHIM PLATE THICKNESS.

ALL MATERIAL IN TYPE "A" BEARINGS, INCLUDING SHIM PLATES AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES FIXED B-67-116", EACH.

ALL MATERIAL IN TYPE "A-T" BEARINGS, INCLUDING SHIM PLATES AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-67-116", EACH.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

PROVIDE 1/8" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + 2 1/4", ABOVE TOP OF CONCRETE.

CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.

STEEL PINTLES SHALL CONFORM TO ASTM A449 OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 36, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

AT INSTALLATION, ENSURE STAINLESS STEEL SLIDING FACE OF THE UPPER ELEMENT AND THE TFE SLIDING FACE OF THE LOWER ELEMENT HAVE THE SURFACE FINISH SPECIFIED AND ARE CLEAN AND FREE OF ALL DUST, MOISTURE, AND OTHER FOREIGN MATTER.

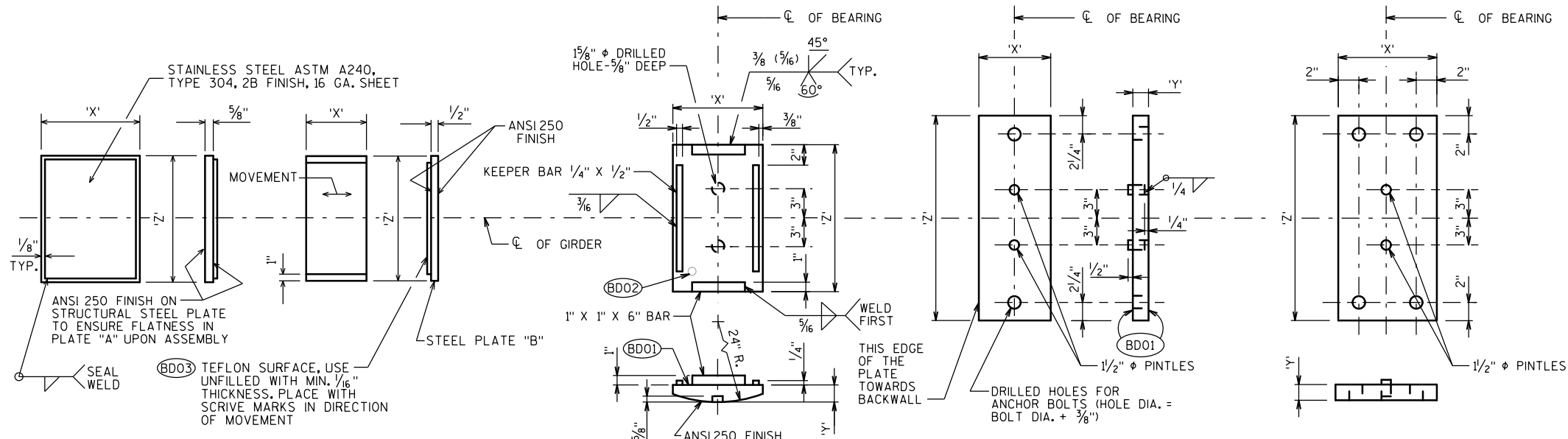
PLACE SHIM PLATES BETWEEN BEARING PAD AND MASONRY PLATE "D". PLATES SHALL HAVE 'X' AND 'Z' DIMENSIONS THAT MATCH MASONRY PLATE "D".

FOR EXPANSION BEARINGS, ROCKER PLATE "C" SHALL BE GALVANIZED. FOR FIXED BEARINGS, ROCKER PLATE "C" SHALL BE SHOP PAINTED WITH A WELDABLE PRIMER.

(BD01) FINISH THESE SURFACES TO ANSI250 IF 'Y' DIMENSION IS GREATER THAN 2".

(BD02) PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.

(BD03) BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING REQUIREMENTS FOUND IN THE STANDARD SPECIFICATION.



TOP PLATE "A"

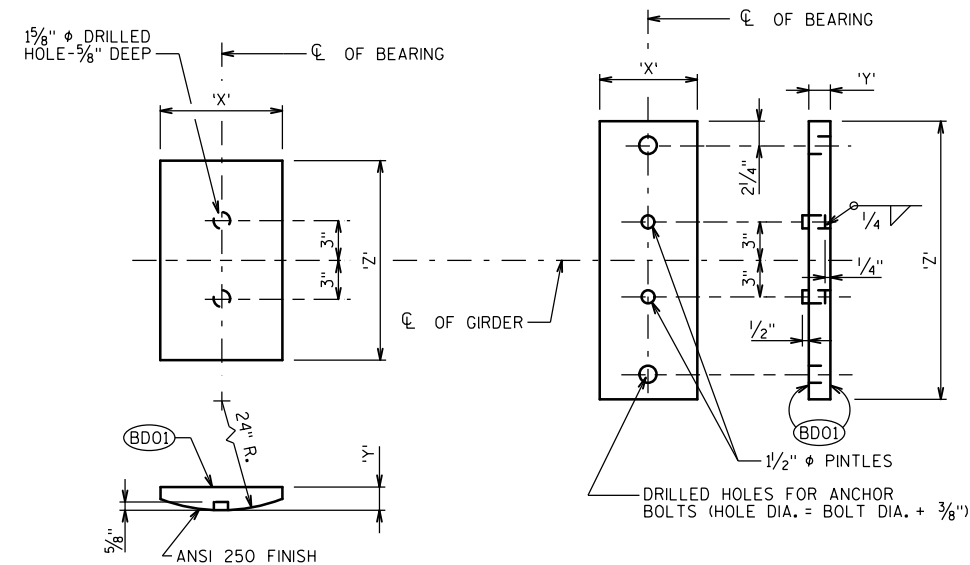
TEFLON SURFACE ON PLATE "B"

ROCKER PLATE "C"

EXPANSION BEARING

MASONRY PLATE "D" TYPE I

MASONRY PLATE "D" TYPE II

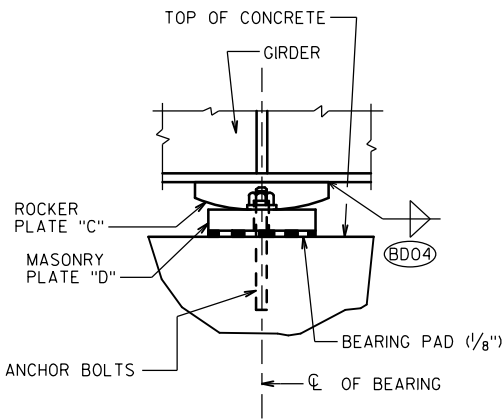


ROCKER PLATE "C"

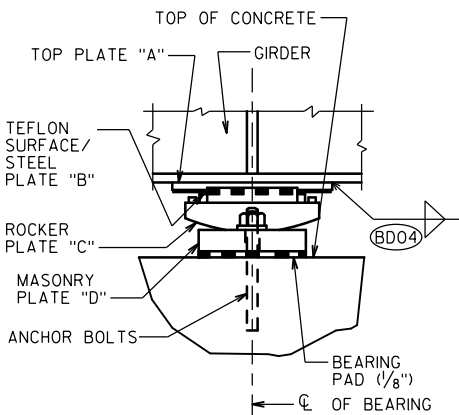
MASONRY PLATE "D"

FIXED BEARING

PIER 1



FIXED BEARING ASSEMBLY



EXPANSION BEARING ASSEMBLY

TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	(BD05) MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	(BD06) 5/16"
OVER 1 1/2"	(BD06) 3/8"

(BD05) EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

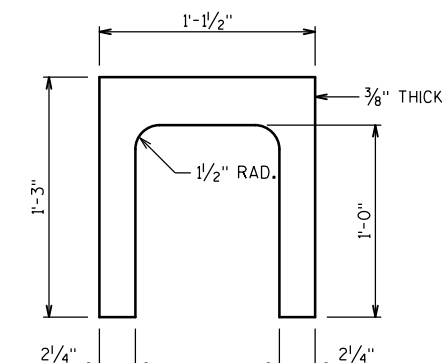
(BD06) MIN. PASS SIZE IS 5/16"

EXPANSION BEARING	PLATE "A"		PLATE "B"		PLATE "C"			PLATE "D"			PLATE "D" TYPE	ANCHOR BOLT SIZE	NO. OF BRG'S REQ'D.	LOCATION	CAPACITY KIPS
	'X'	'Z'	'X'	'Z'	'X'	'Y'	'Z'	'X'	'Y'	'Z'					
	11"	1'-6"	7"	1'-6"	9"	1½"	1'-8¼"	8"	2"	2'-8"					
	1'-7"	1'-6"	1'-3"	1'-6"	1'-5"	3⅞"	1'-8¼"	1'-5"	3⅞"	2'-5"					
FIXED BEARING				PLATE "C"			PLATE "D"			PLATE "D" TYPE	ANCHOR BOLT SIZE	NO. OF BRG'S REQ'D.	LOCATION	CAPACITY KIPS	
				'X'	'Y'	'Z'	'X'	'Y'	'Z'						
				5"	2⅜"	1'-6"	1'-4"	3⅞"	2'-4"						I

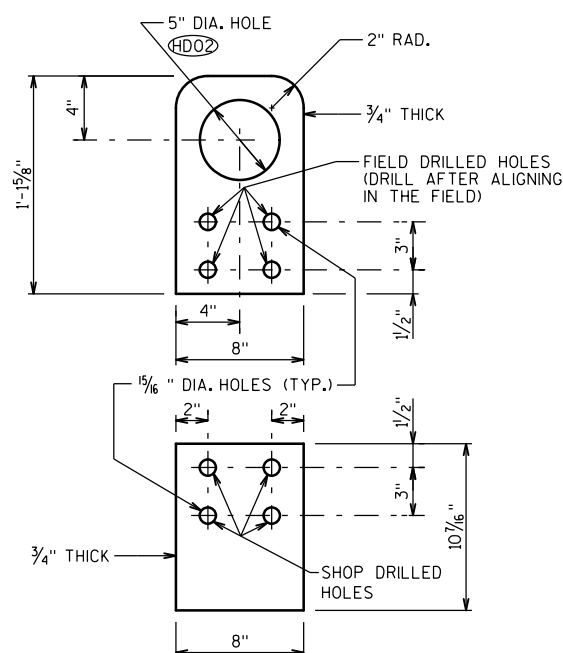
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		BPV	PLANS CK'D. MSS
BEARING DETAILS			SHEET 17 OF 32

△ MIN. PASS SIZE IS 5/16"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
		DRAWN BY	BPV
		PLANS CK'D.	MSS
HOLD DOWN DEVICE		SHEET 18 OF 3	
		152	

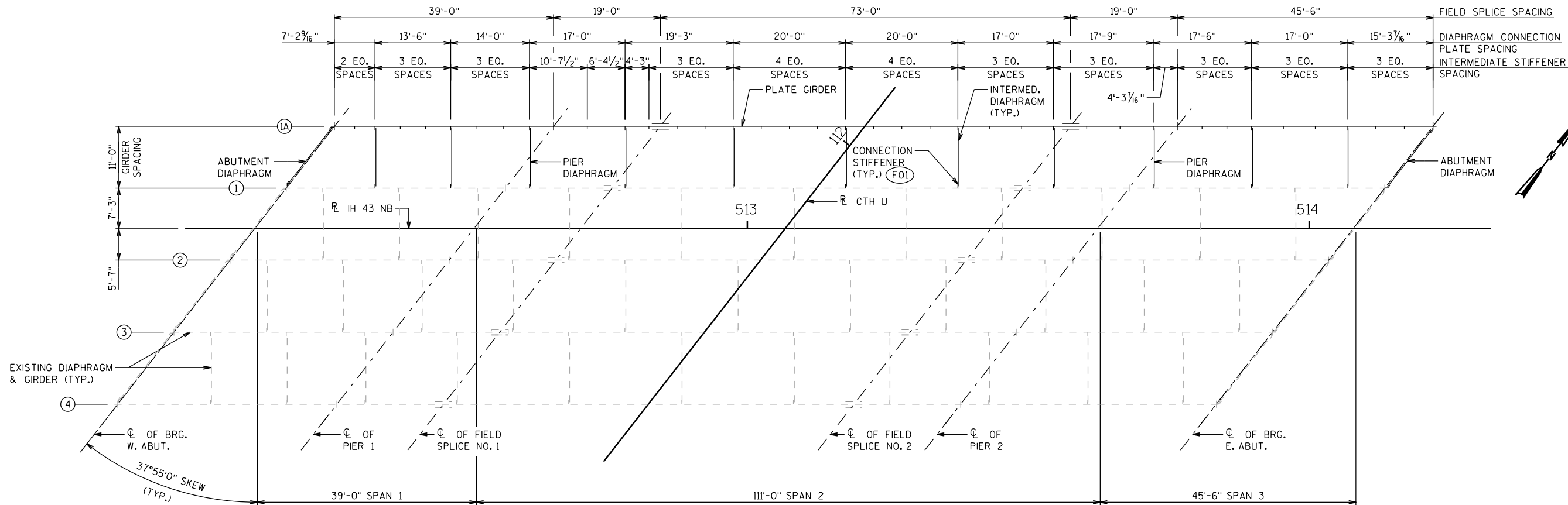


STIFFENER PLATE



HOLD-DOWN PLATES

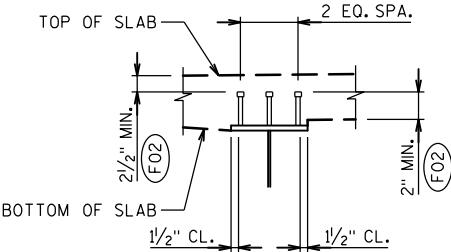




LEGEND

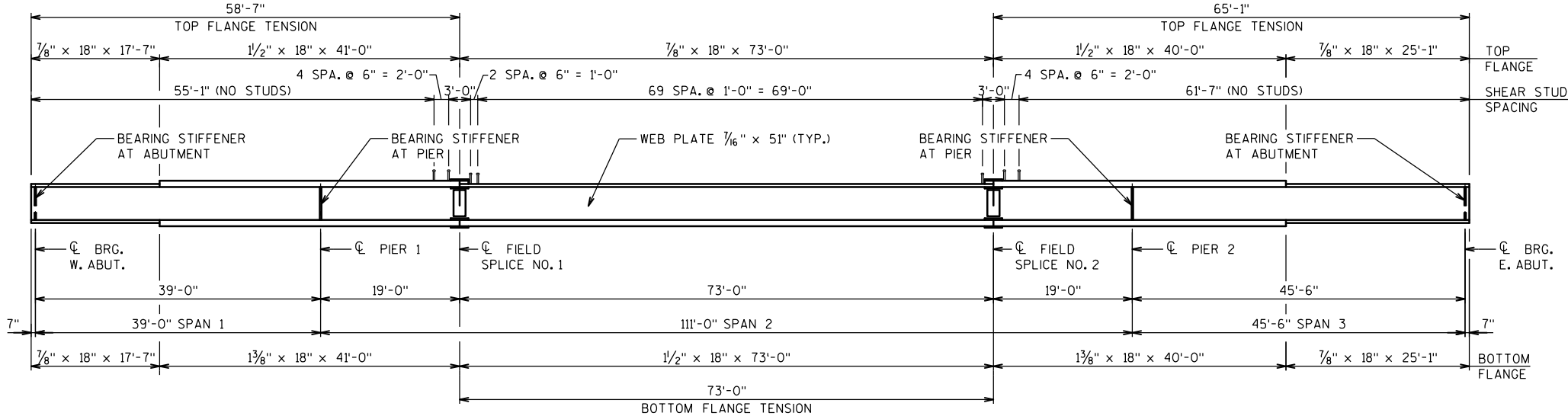
- (F01) 6" x 1/2" CONNECTION STIFFENER REQUIRED AT THESE LOCATIONS ON EXISTING GIRDER 1.
- (F02) USE DIFFERENT LENGTH STUDS IF 2 1/2" MIN. CLEARANCE OR 2" EXTENSION CRITERIA IS VIOLATED.

FRAMING PLAN



SHEAR CONNECTOR DETAIL

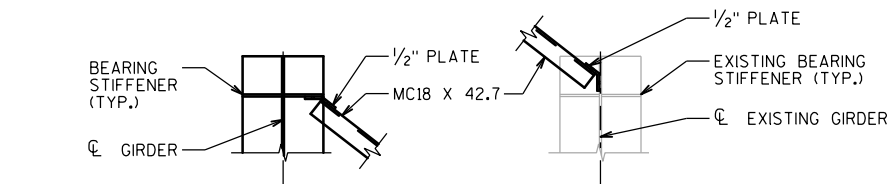
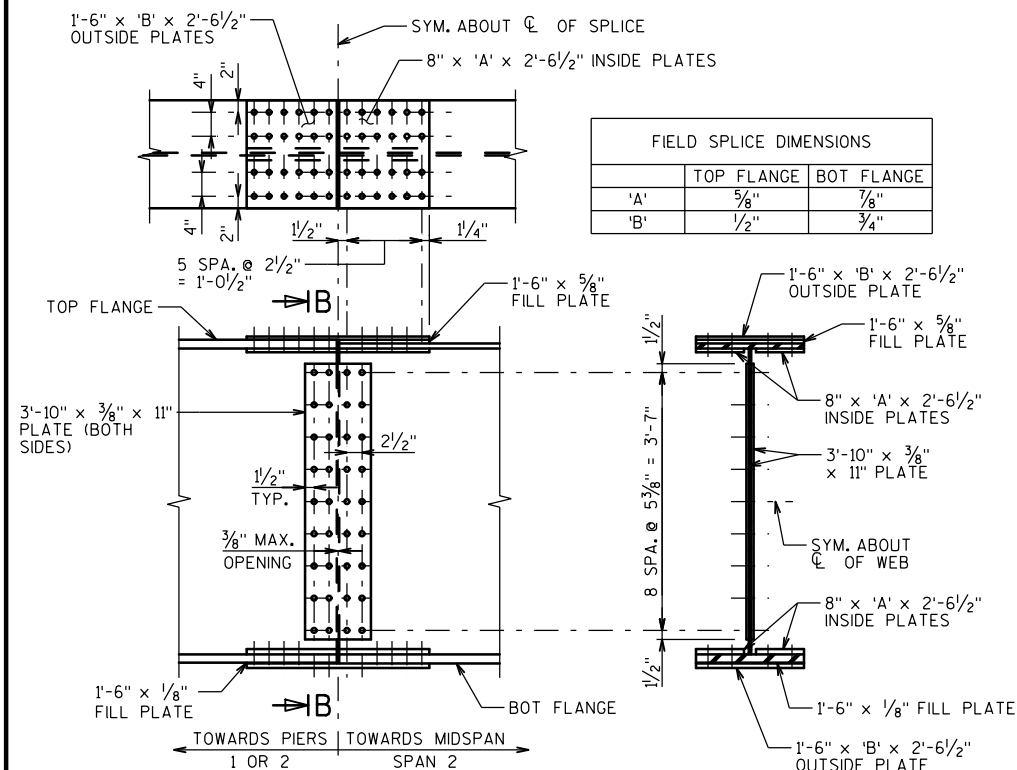
NOTE:
USE THREE SHOP OR FIELD WELDED 7/8" DIA. x 7" LONG STUDS EQUALLY SPACED WITH A MINIMUM OF 1 1/2" CLEAR FROM THE FLANGE EDGE. STUDS SHALL NOT BE PLACED OVER FIELD SPLICE PLATES.



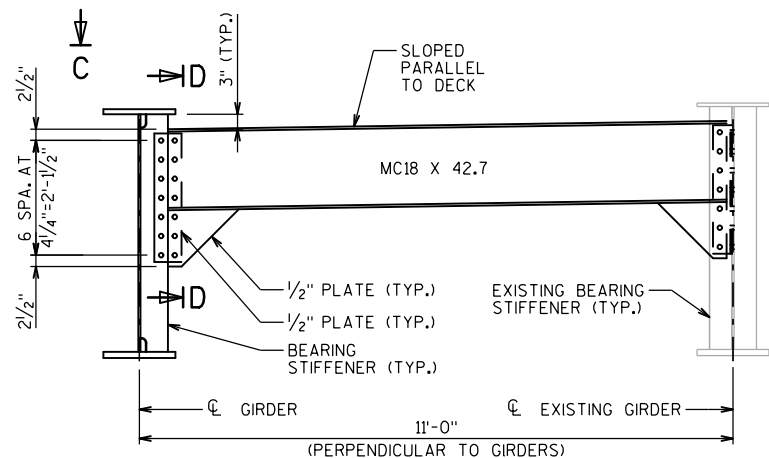
GIRDER ELEVATION

CONNECTION/INTERMEDIATE STIFFENERS NOT SHOWN FOR CLARITY

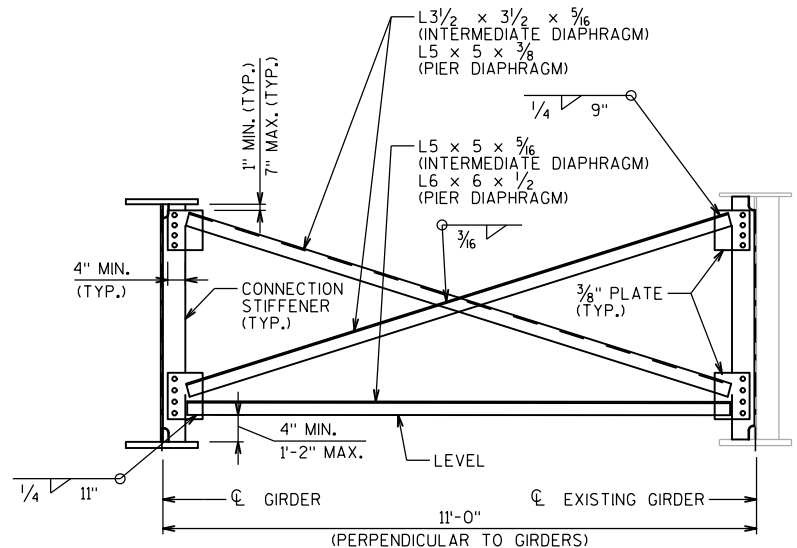
NO.	DATE	REVISION	BY
		STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
		STRUCTURE B-67-116	
		DRAWN BY BPV PLANS CKD. MSS	
		FRAMING PLAN & GIRDER ELEVATION	SHEET 19 OF 32



SECTION C-C



ABUTMENT DIAPHRAGM



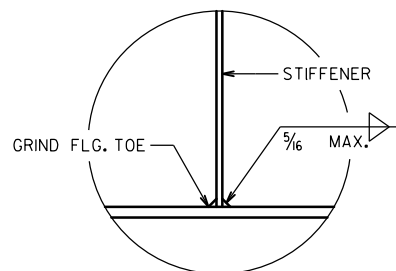
INTERMEDIATE DIAPHRAGM & PIER DIAPHRAGM

G01 TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	G02 MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	G03 5/16"
OVER 1 1/2"	G03 3/8"

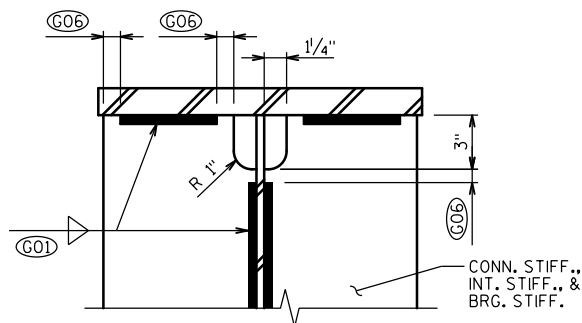
G02 EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

G03 MIN. PASS SIZE IS 5/16"

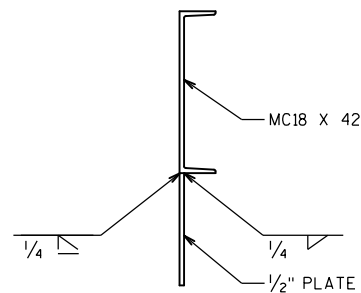


DETAIL A

G04 CONNECTION STIFFENER DETAIL @ TENSION FLANGE



STIFF. & CONN. STIFF. TO WEB/FLANGE CONN. WELDS



SECTION D-D

LEGEND

G04 SEE "FRAMING PLAN & GIRDER ELEVATION" SHEET FOR LOCATIONS OF TENSION FLANGE.

G05 FILLET WELD INTER. STIFF. TO COMPRESSION FLG. AND TIGHT FIT TO TENSION FLANGE (CAULK TIGHT FIT TO TENSION FLG. WITH PAINTABLE SILICONIZED CAULK).

G06 1/8" MIN., 1/4" MAX. TYP.

NOTES

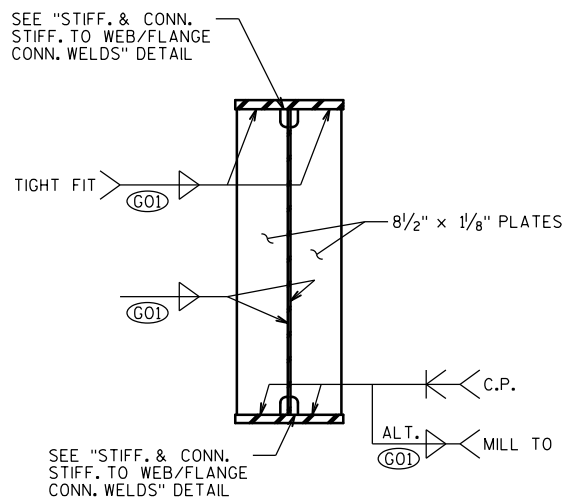
ALL STRUCTURAL STEEL FOR GIRDERS, SPLICE PLATES, CONNECTION PLATES, BEARING STIFFENERS, AND TRANSVERSE STIFFENERS SHALL BE HIGH-STRENGTH STRUCTURAL STEEL ASTM A709, GRADE 50. ALL OTHER STRUCTURAL STEEL SHALL BE STRUCTURAL CARBON STEEL, ASTM A709, GRADE 36.

ALL FIELD CONNECTIONS SHALL BE MADE WITH ASTM F3125, A325 3/4" DIAMETER FRICTION TYPE HIGH-TENSILE STRENGTH BOLTS UNLESS SHOWN OR NOTED OTHERWISE.

HOLES FOR BOLTED CONNECTIONS SHALL NOT BE MORE THAN 1/16" GREATER THAN THE NOMINAL BOLT DIAMETER.

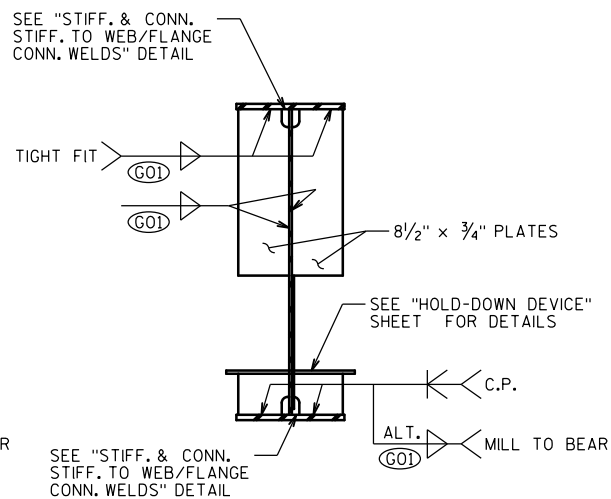
OPTIONAL WELDED SHOP SPLICES MAY BE USED FOR ALL FLANGE AND WEB PLATES OVER 60'-0" LONG. IF USED, THE LOCATION OF THE SPLICE SHALL BE SHOWN ON SHOP DRAWINGS AND WILL BE SUBJECT TO THE APPROVAL OF THE STRUCTURES DESIGN SECTION.

PRIOR TO STEEL BLAST, ALL FLAME CUT EDGES OF PLATE THAT ARE TO BE PAINTED SHALL BE GROUND OR PLANED TO REMOVE THE HARDENED SURFACE CAUSE BY THE FLAME, AND CORNERS CHAMFERED 1/16" MIN.



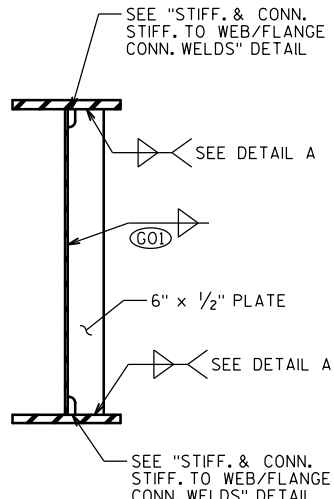
BEARING STIFFENER DETAIL

(TYP. AT PIERS)

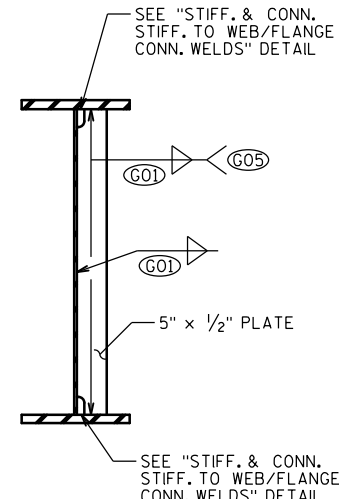


BEARING STIFFENER DETAIL

(TYP. AT ABUTMENTS)



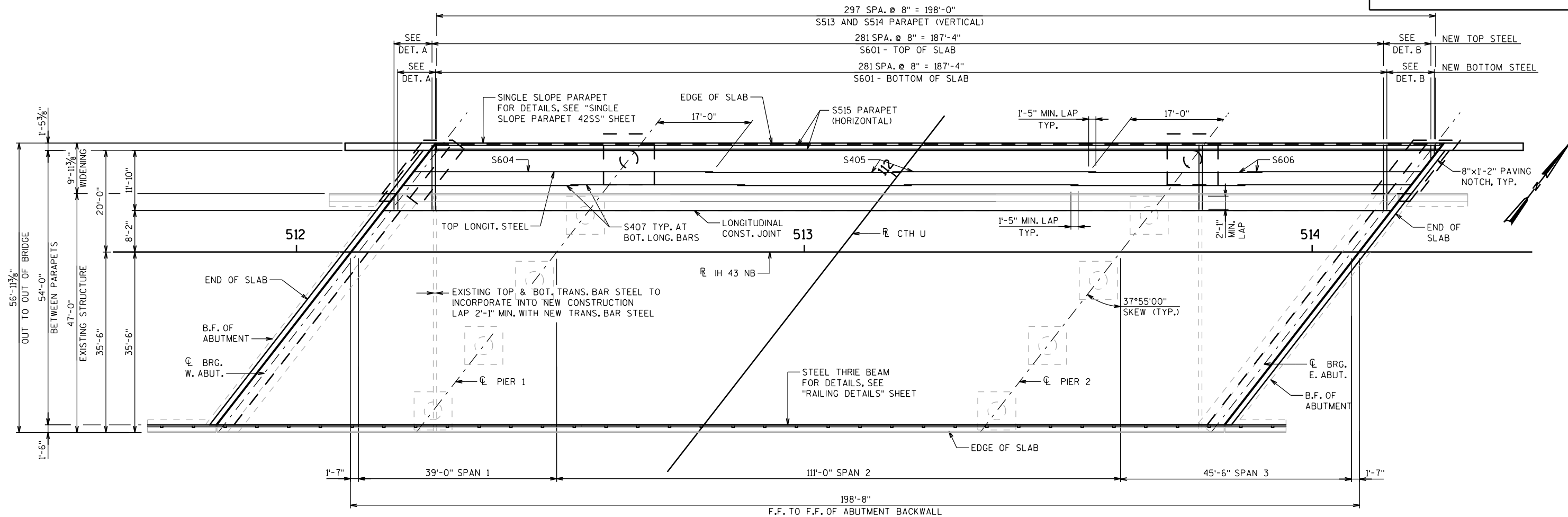
CONNECTION STIFF. DETAIL



INTERMEDIATE STIFF. DETAIL

PLACE ON INTERIOR FACE OF GIRDER

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		BPV	PLANS CKD. MSS
GIRDER DETAILS			SHEET 20 OF 32

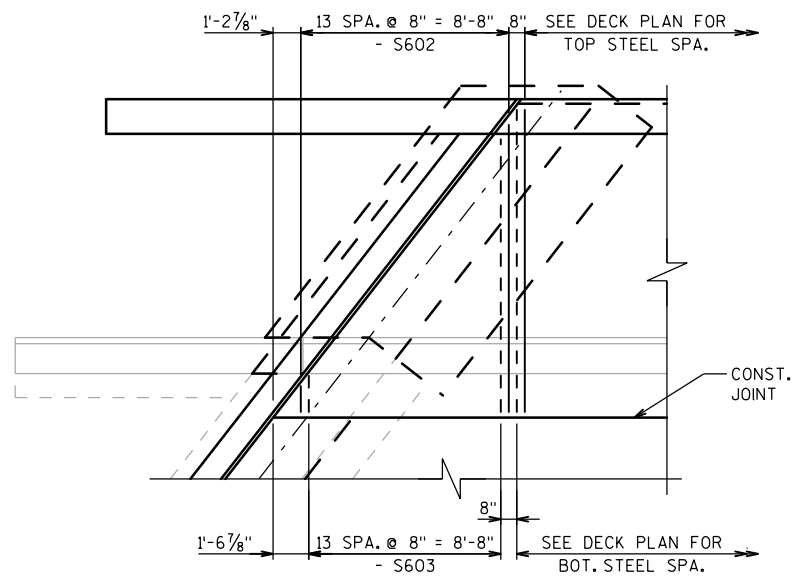


DECK PLAN

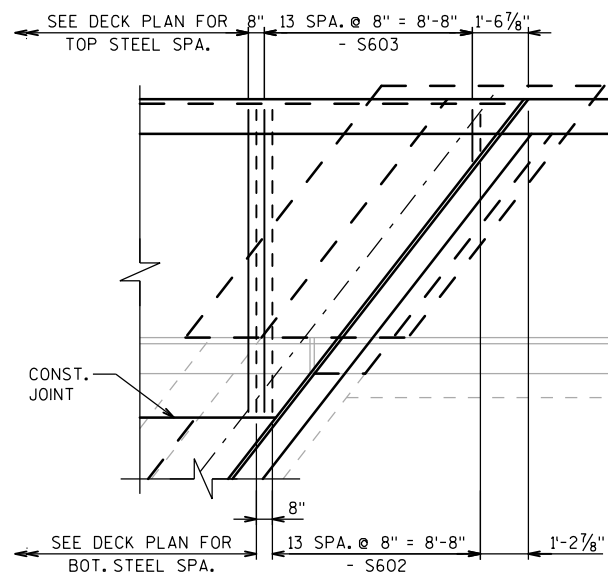
NOTES

ALL TRANSVERSE BAR STEEL REINFORCEMENT SHALL BE PLACED PERPENDICULAR TO THE R.

LAP LONGITUDINAL S515 BARS IN SINGLE SLOPE PARAPET 42SS 1'-9" MIN.

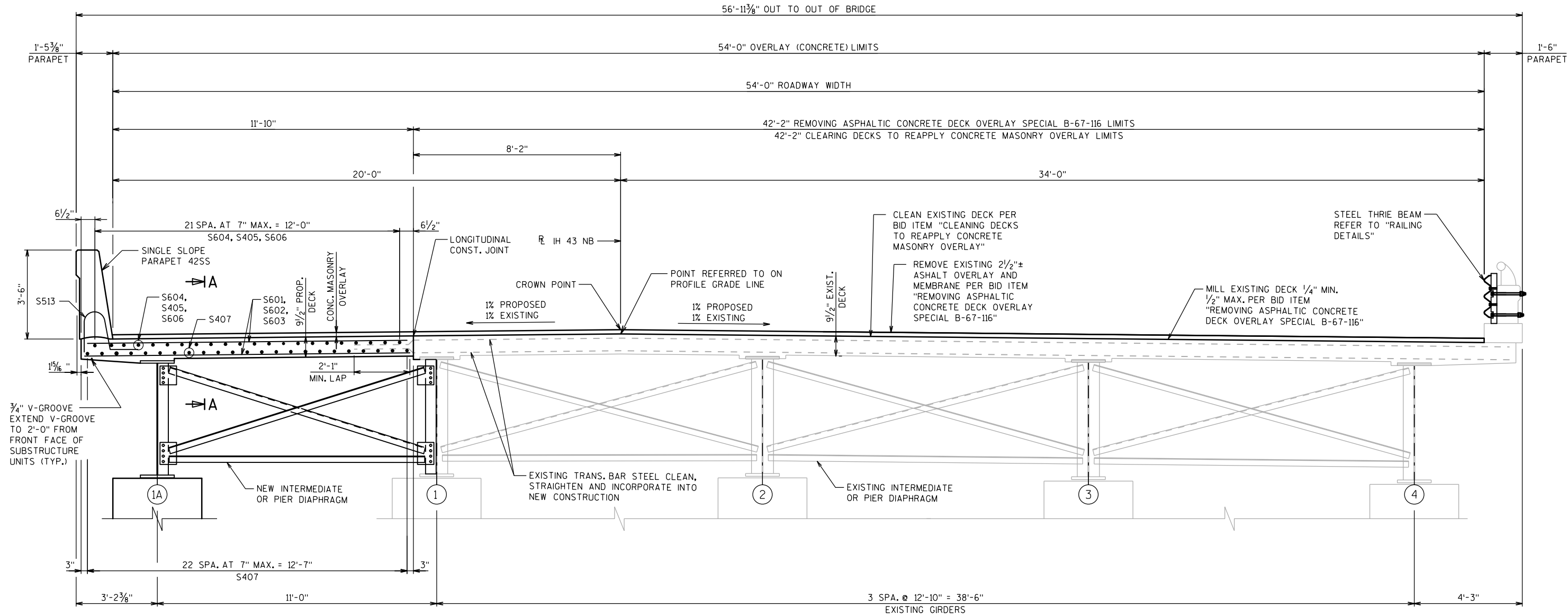


DETAIL A

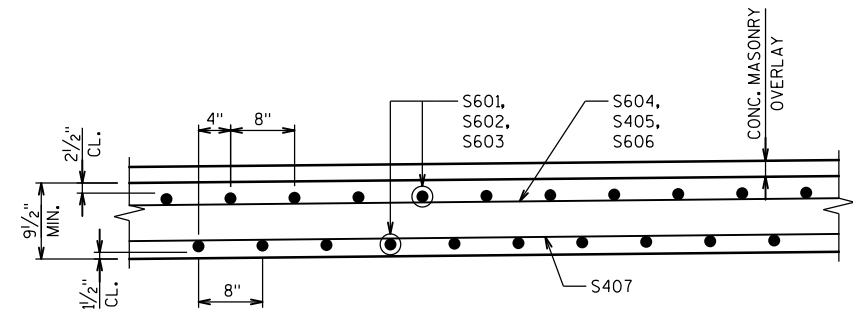


DETAIL B

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY JGJ		PLANS CKD. MSS	
SUPERSTRUCTURE DECK PLAN			SHEET 21 OF 32
155			

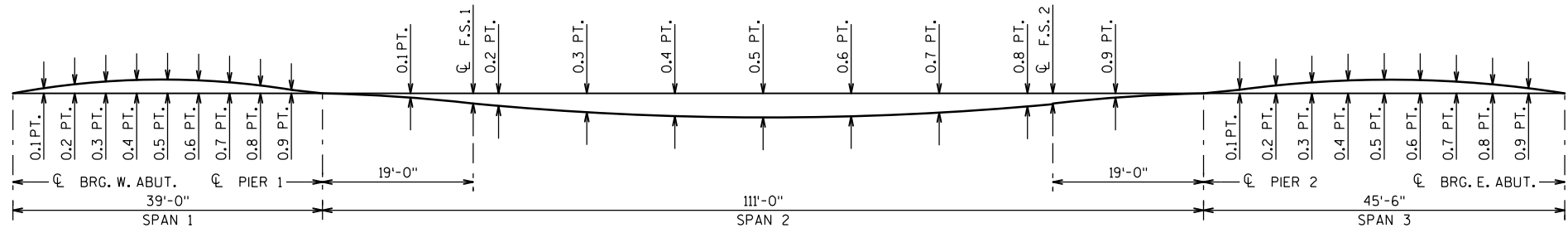


CROSS SECTION THRU ROADWAY
LOOKING EAST



SECTION A-A
TRANSVERSE BAR STEEL LAYOUT

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		BPV	PLANS CKD. MSS
SUPERSTRUCTURE SECTION			SHEET 22 OF 32
			156



DEFLECTION DIAGRAM

SEE TABLE FOR CONCRETE DEFLECTIONS AT TENTH POINTS

TOP OF DECK ELEVATIONS & DEFLECTION

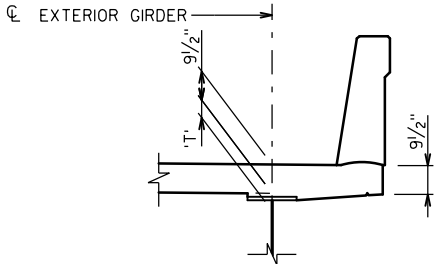
LOCATION	CL BRG. W. ABUT.	SPAN 1									CL PIER 1	SPAN 2										CL PIER 2	
		0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.		0.1 PT.	CL F.S. 1	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	CL F.S. 2		0.9 PT.
NORTH COPING T.O.D	976.54	976.56	976.59	976.62	976.64	976.67	976.69	976.71	976.74	976.76	976.78	976.84		976.90	976.95	976.99	977.04	977.07	977.11	977.13		977.16	977.18
NORTH GUTTERLINE T.O.D	976.54	976.57	976.60	976.62	976.65	976.67	976.70	976.72	976.74	976.77	976.79	976.85		976.91	976.96	977.00	977.05	977.08	977.12	977.14		977.17	977.19
GIRDER 1A T.O.D	976.55	976.58	976.60	976.63	976.66	976.68	976.71	976.73	976.75	976.78	976.80	976.86	976.90	976.92	976.97	977.02	977.06	977.10	977.13	977.16	977.17	977.18	977.20
SOUTH DECK LIMIT T.O.D	976.59	976.62	976.65	976.68	976.70	976.73	976.76	976.78	976.81	976.83	976.85	976.92		976.98	977.03	977.08	977.13	977.17	977.21	977.24		977.27	977.29
CONC. DEFL. (IN.)	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.3	0.6	0.8	1.2	1.4	1.5	1.4	1.2	0.8	0.6	0.3	0.0
TOTAL DEFL. (IN.)	0.0	0.0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	0.0	0.4	0.7	0.9	1.3	1.7	1.8	1.7	1.3	0.9	0.7	0.4	0.0

SPAN 3									CL BRG. E. ABUT.
0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	
977.18	977.19	977.19	977.20	977.20	977.20	977.21	977.21	977.21	977.21
977.19	977.20	977.21	977.21	977.21	977.22	977.22	977.22	977.22	977.22
977.21	977.22	977.22	977.23	977.23	977.23	977.24	977.24	977.24	977.24
977.30	977.31	977.31	977.32	977.32	977.33	977.33	977.33	977.34	977.34
-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0.0	0.0
-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	0.0

TOP OF STEEL ELEVATION

LOCATION	CL BRG. ABUT. 1	CL PIER 1	CL F.S. 1	CL F.S. 2	CL PIER 2	CL BRG. ABUT. 2
CL PROPOSED GIRDER 1A	975.65	975.90	976.05	976.31	976.30	976.33

NOTE: TOP OF STEEL ELEVATIONS AT CL OF FIELD SPLICE INCLUDE BEAM DEFLECTIONS. THESE ELEVATIONS ARE TO TOP OF STEEL (SPlice & COVER PLATE THICKNESS, IF APPLICABLE, ARE ACCOUNTED FOR) AND THEY ARE FOR THE MATERIAL AS ERECTED. THE ELEVATION OF THE TOP OF STEEL AT THE FIELD SPLICE POINTS SHALL BE CHECKED, AND CORRECTED, IF POSSIBLE, AFTER ERECTION AND BEFORE PERMANENTLY BOLTING THE DIAPHRAGMS IN PLACE.



SLAB HAUNCH DETAIL

'T' = HAUNCH HEIGHT AT CENTERLINE OF GIRDER

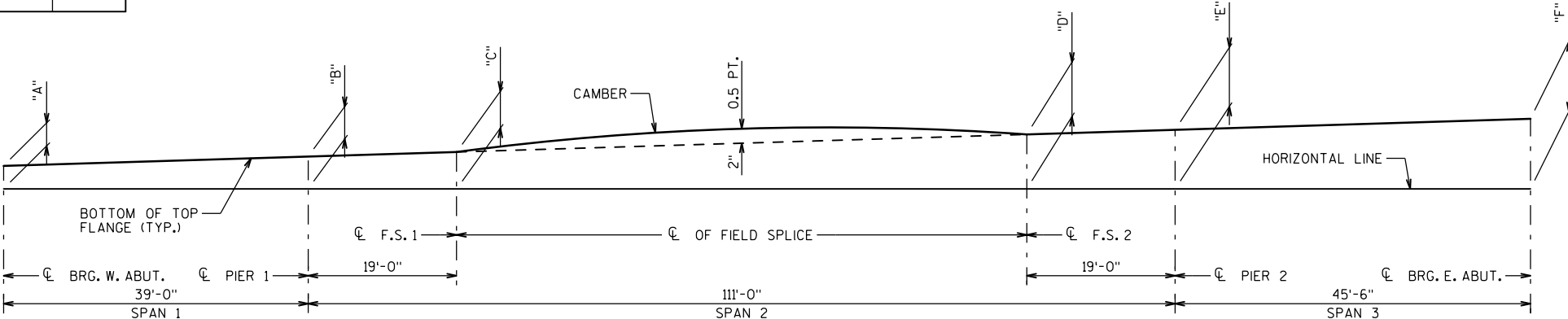
TO DETERMINE 'T':
AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED, ELVATIONS OF THE TOP FLANGE OR TOP OF SPLICE PLATES SHALL BE TAKEN AT CENTERLINES OF BEARINGS, CENTERLINE OF FIELD SPLICES, AND AT 0.1 POINTS OF THE SPAN. THE PROCESS IS SHOWN BELOW AND IN THE DETAILS ABOVE:

TOP OF DECK ELEVATION AT FINAL GRADE
- TOP OF STEEL ELEVATION AFTER STEEL ERECTION
+ CONC. ONLY DEFLECTION: DOWNWARD DEFLECTION IS ADDED, UPWARD DEFLECTION IS SUBTRACTED

- SLAB THICKNESS (9 1/2")

= 'T' VALUE FOR SETTING HAUNCH

NOTE: MINIMUM HAUNCH SHALL BE 1/4".



BLOCKING DIAGRAM

BLOCKING DIMENSIONS

LOCATION	"A"	"B"	"C"	"D"	"E"	"F"
CL PROPOSED GIRDER 1A	0"	2 3/8"	4 3/16"	7 7/16"	7 1/4"	8 1/4"

NOTE: DEFLECTIONS NOT INCLUDED.

LEGEND

T.O.D. = TOP OF DECK

T.O.S. = TOP OF STEEL

NOTES

- ALL TABULATED VALUES ARE IN DECIMALS OF A FOOT, UNLESS NOTED OTHERWISE.
- NEGATIVE DEFLECTION VALUE DENOTES UPWARD DEFLECTION
- CONCRETE DEFLECTION INCLUDE WEIGHT OF CONCRETE SLAB, HAUNCHES, PARAPETS, AND 3" OVERLAY.
- DEFLECTIONS ARE THEORETICAL AND MAY VARY IN FIELD
- THE RATE OF PLACING CONCRETE SHALL EQUAL OR EXCEED 1/2 SPAN LENGTH PER HOUR BUT NEED NOT EXCEED 100 C.Y. PER HOUR

NO.	DATE	REVISION	BY
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TOP OF DECK ELEVATIONS & DEFLECTIONS			SHEET 23 OF 32
			157

ONE FIELD SPlice PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE
REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING
REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO
SPlicing PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

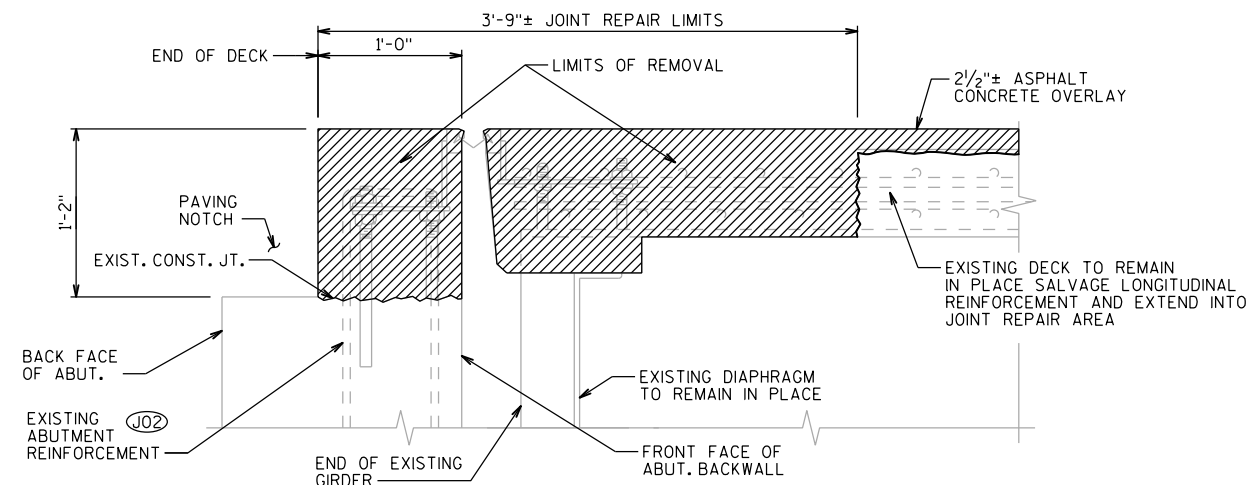
FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS & EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP.*6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE B-67-116". I.F.

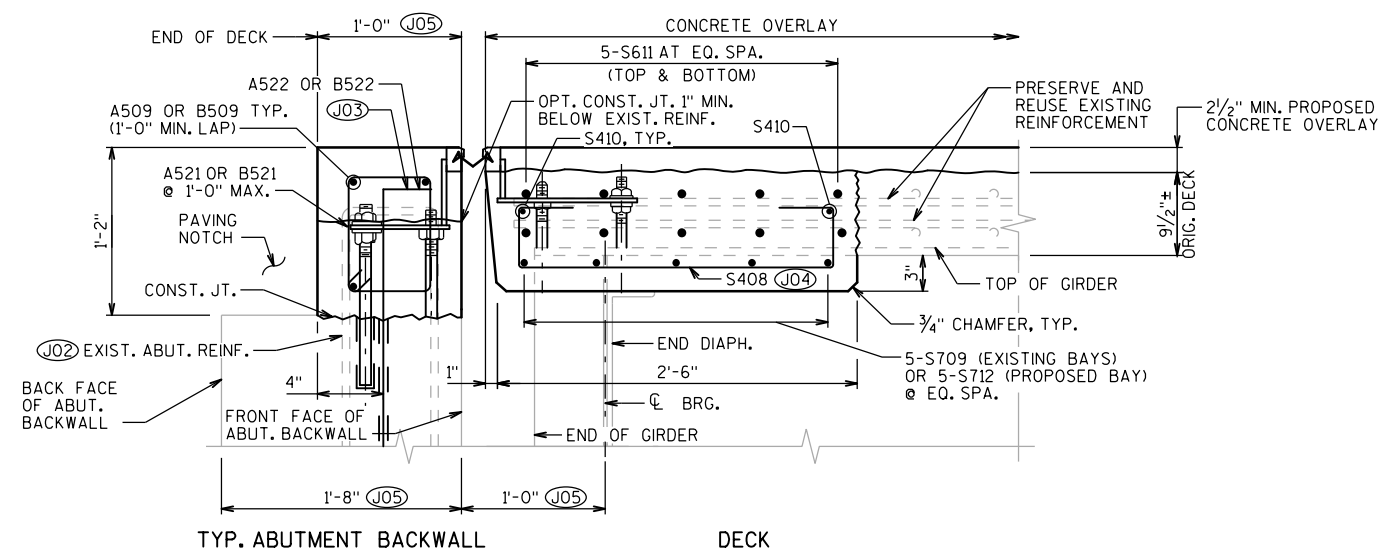
- ① NEOPRENE STRIP SEAL (4 - INCH) & STEEL EXTRUSIONS.
- ②A 1/2" THICK ANCHOR PLATE WITH 5/8" DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PL. TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③ 3/4" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE.
- ③A 3/4" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. GROUT THREADED ROD INTO FIELD DRILLED HOLE IN ABUTMENT BACKWALL AS SHOWN.
- ④ 3/4" DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" x 1/2" BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.
- ⑥J01 SET JOINT OPENING AT 1 3/4"
- ⑥J02 EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS INDICATED BY ⑥J03.
- ⑥J03 ADHESIVE ANCHORS, NO. 5 BARS, EMBED A MINIMUM OF 1'-0" INTO CONCRETE. SPACE AT 1'-0" MAX. AND AVOID EXPANSION JOINT HARDWARE. TURN 10" LEG AS NECESSARY TO FIT. ANCHORS SHALL BE APPROVED FOR USE IN CRACKED CONCRETE.
- ⑥J04 BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO C OF GIRDERS.
- ⑥J05 DIMENSIONS SHOWN MATCH EXISTING PLANS.
- ⑥J06 OPT. CONST. JT. 1" MIN. BELOW EXIST. REINF.

REFER TO "JOINT REPLACEMENT (2 OF 4)", "JOINT REPLACEMENT (3 OF 4)",
AND "JOINT REPLACEMENT (4 OF 4)" SHEETS FOR ADDITIONAL INFORMATION
AND DETAILS.



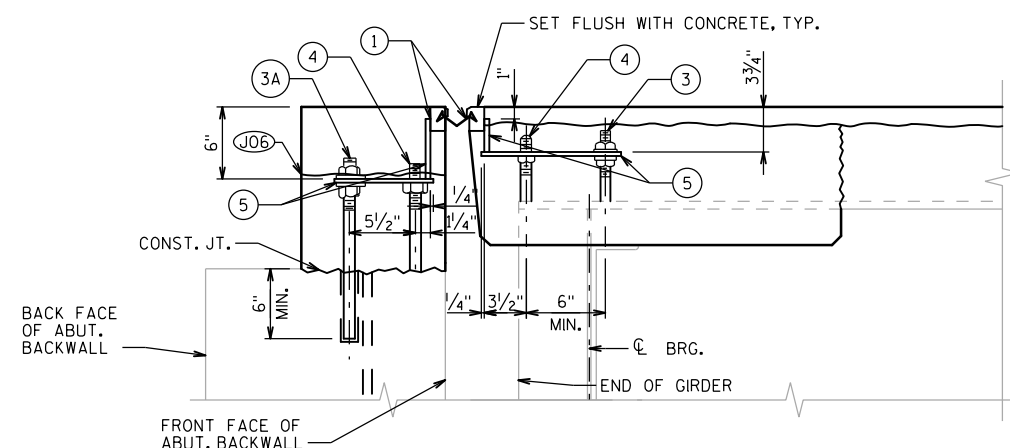
EXISTING SECTION AT ABUTMENT BETWEEN CURBS

NORMAL TO $\mathbb{C}$ SUBSTRUCTURE



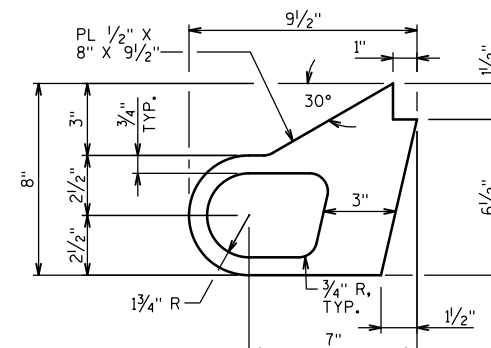
PROPOSED SECTION AT ABUTMENT BETWEEN CURBS (REINF. DETAILS)

DIMENSIONS TAKEN NORMAL TO $\mathcal{C}$ SUBSTRUCTURE
(EXISTING JOINT AT BRUSH CURB NOT SHOWN)
(DIAPHRAGM TO EXTEND BETWEEN EXTERIOR GIRDER WEBS)

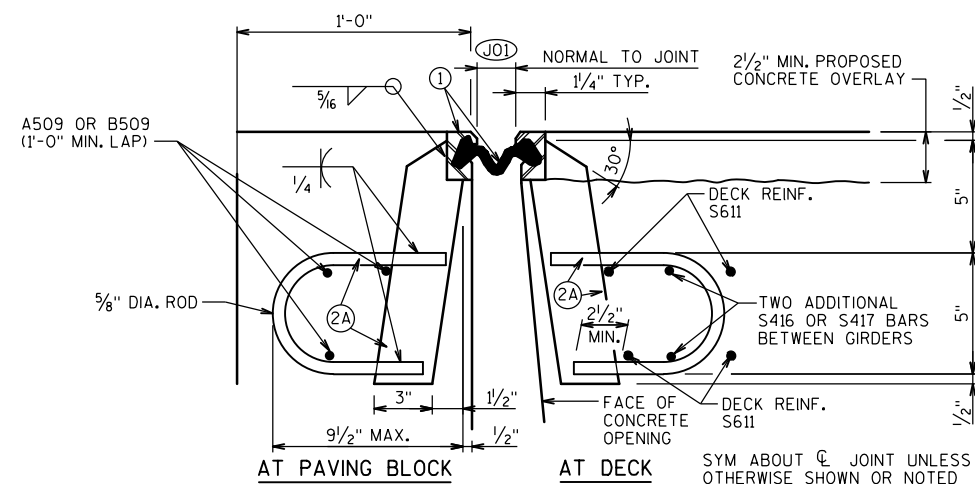


TYP. ABUTMENT BACKWALL DECK
PROPOSED SECTION AT ABUTMENT BETWEEN CURBS (EXPANSION
DEVICE COMPONENTS)

DIMENSIONS TAKEN NORMAL TO $\mathcal{C}$ SUBSTRUCTURE
(PROPOSED JOINT AT BRUSH CURB NOT SHOWN)

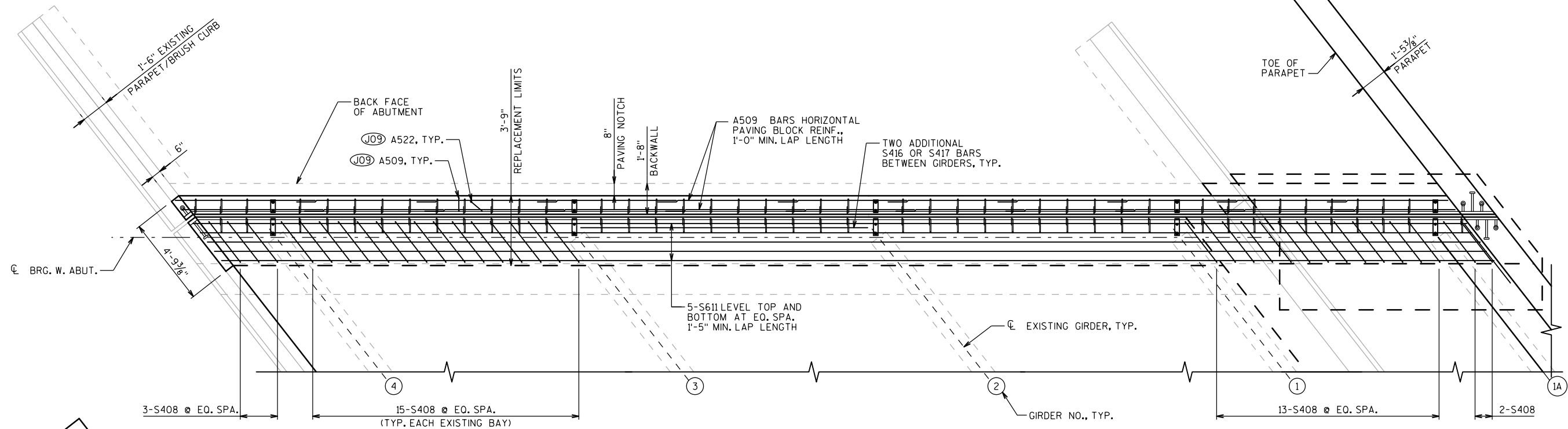


ALTERNATE STRIP SEAL ANCHOR

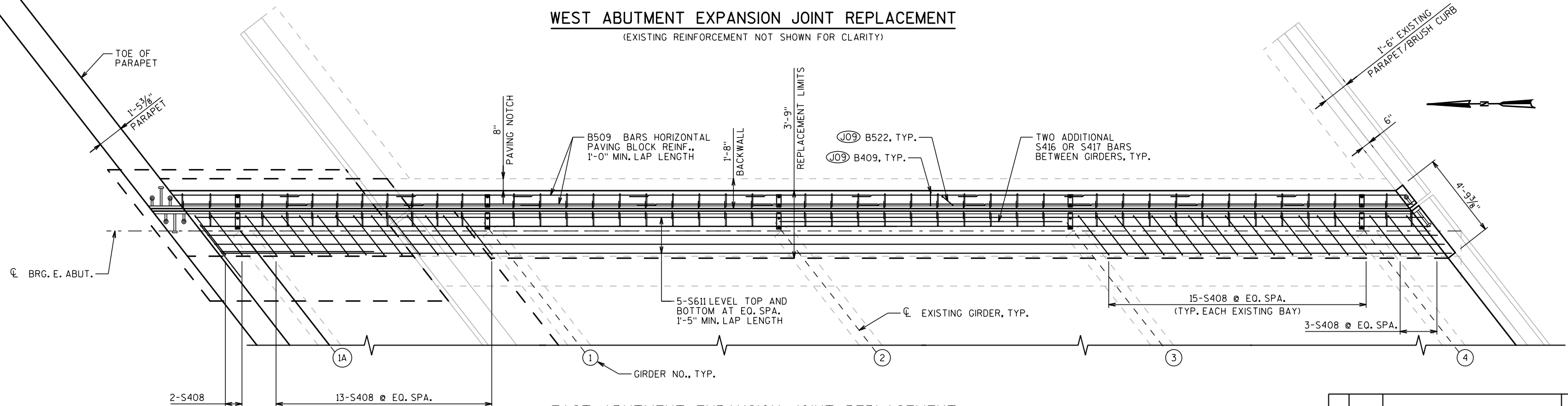


SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS
DIMENSIONS TAKEN NORMAL TO C SUBSTRUCTURE UNIT

**WEST ABUTMENT EXPANSION JOINT REPLACEMENT**

(EXISTING REINFORCEMENT NOT SHOWN FOR CLARITY)

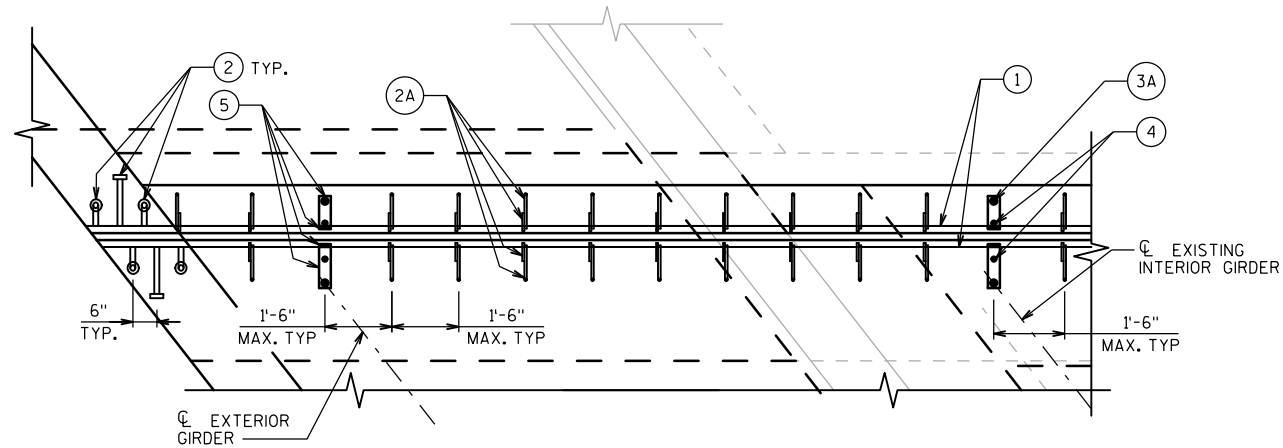
**EAST ABUTMENT EXPANSION JOINT REPLACEMENT**

(EXISTING REINFORCEMENT NOT SHOWN FOR CLARITY)

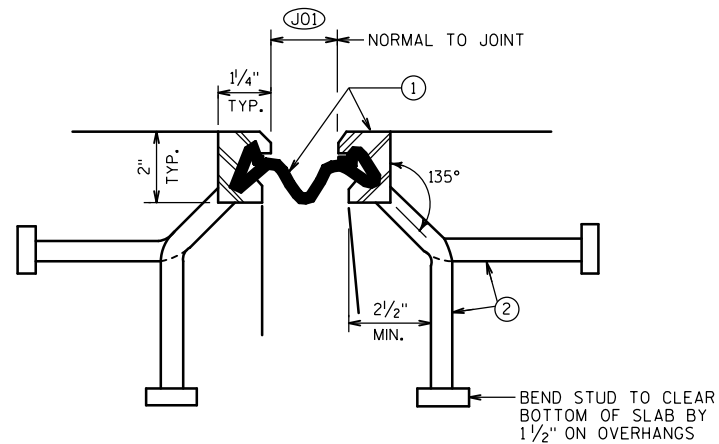
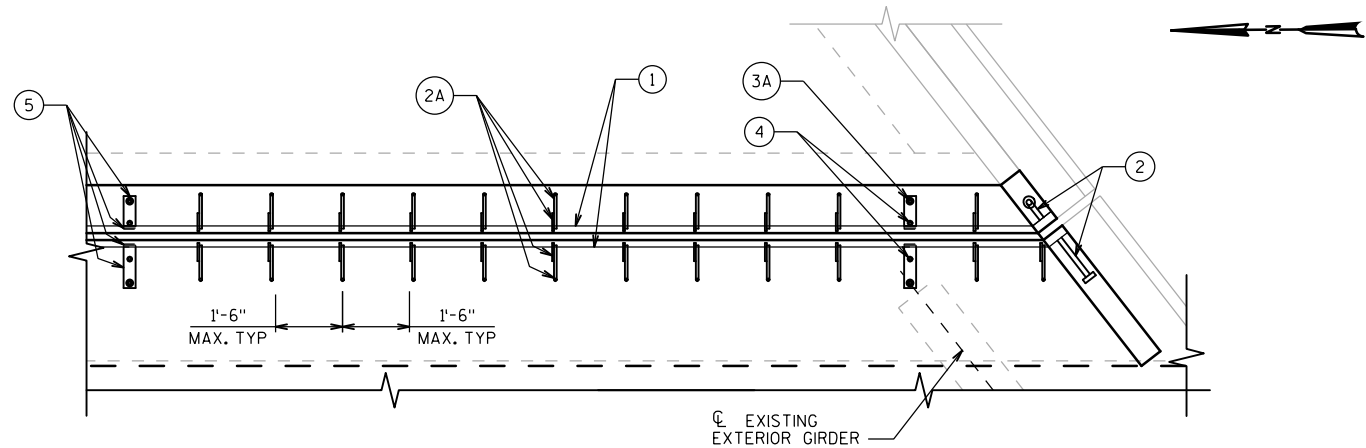
LEGEND

(B09) SPACE AT 1'-0" MAX. AND TO AVOID EXPANSION JOINT HARDWARE

NO.	DATE	REVISION	BY
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JOINT REPLACEMENT (2 OF 4)			SHEET 25 OF 32

**PART PLAN**

(EAST SIDE SHOWN, WEST SIDE SIMILAR)

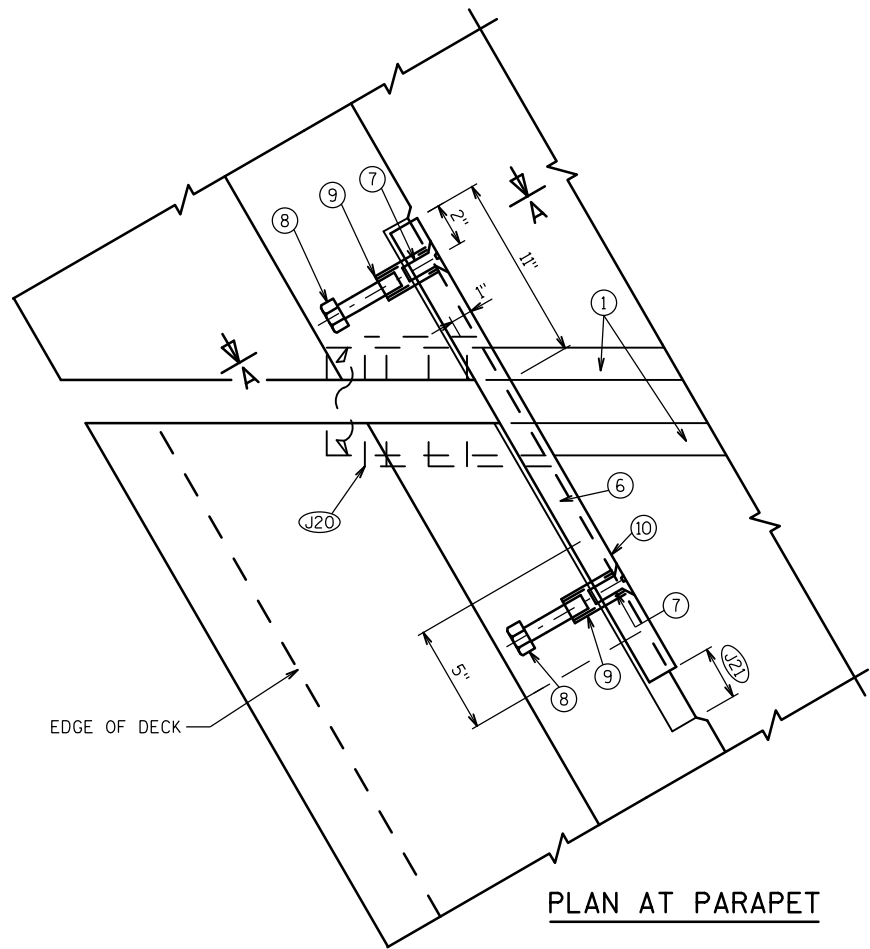
**SECTION THRU JOINT****LEGEND**

- ① NEOPRENE STRIP SEAL (4 - INCH) & STEEL EXTRUSIONS.
- ② STUDS $\frac{5}{8}$ " DIA. $\times$ $6\frac{3}{8}$ " LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A $\frac{1}{2}$ " THICK ANCHOR PLATE WITH $\frac{5}{8}$ " DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PL. TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③ $\frac{3}{4}$ " DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE.
- ③A $\frac{3}{4}$ " DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. GROUT THREADED ROD INTO FIELD DRILLED HOLE IN ABUTMENT BACKWALL AS SHOWN.
- ④ $\frac{3}{4}$ " DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" $\times$ $\frac{1}{2}$ " BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE $\frac{1}{2}$ " DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.
- ① JO1 SET JOINT OPENING AT $1\frac{3}{4}$ "

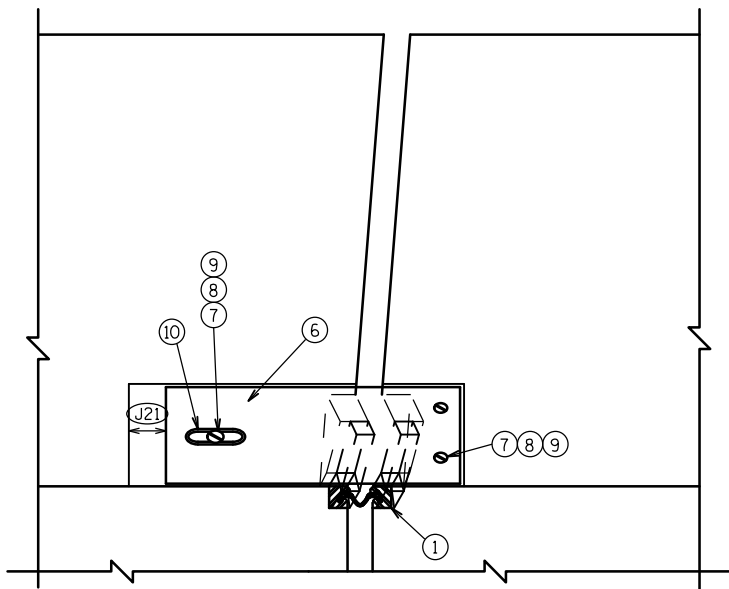
NOTE

BID ITEM "JOINT REPAIR" INCLUDES THE REMOVAL OF THE EXISTING JOINT, DECK, AND PAVING BLOCK AND SHALL BE MEASURED FROM THE LONGITUDINAL CONSTRUCTION JOINT TO THE FRONT FACE OF EXISTING SOUTH VERT. FACED PARAPET.

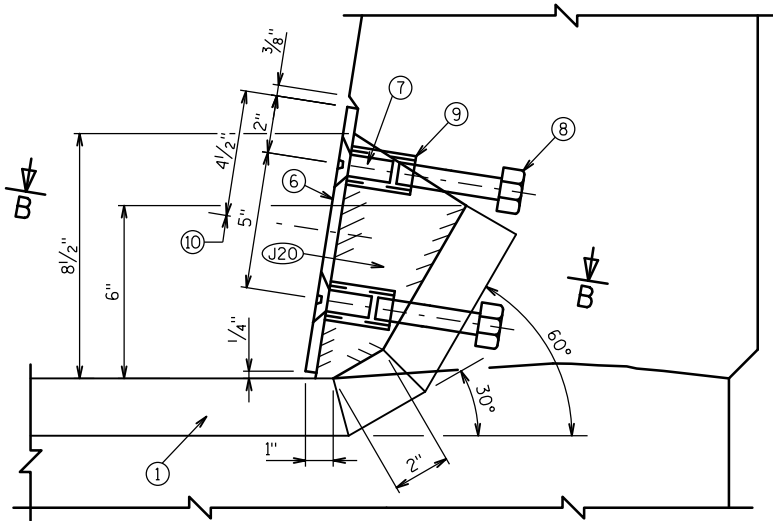
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY BPV		PLANS CKD. MSS	
JOINT REPLACEMENT (3 OF 4)			SHEET 26 OF 32
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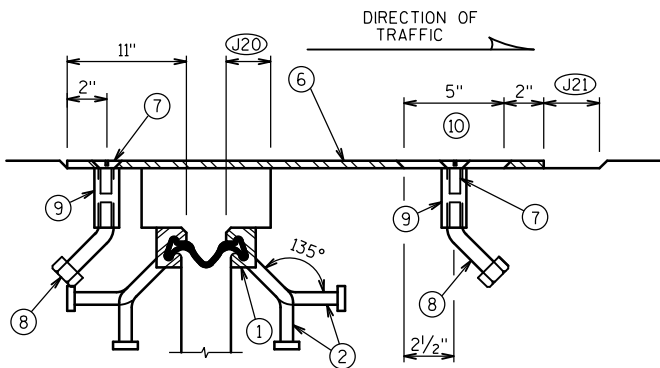
PLAN AT PARAPET



VIEW OF PARAPET PLATES
FROM ROADWAY



SECTION A-A



SECTION B-B

LEGEND

- ① NEOPRENE STRIP SEAL (4 - INCH) & STEEL EXTRUSIONS.
- ② STUDS $\frac{5}{8}$ " DIA. x $6\frac{3}{8}$ " LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ⑥ GALVANIZED PLATE $\frac{3}{8}$ " X 10" X 2'-2" LONG WITH HOLES FOR NO. 7.
- ⑦ $\frac{3}{4}$ " ϕ X $1\frac{1}{2}$ " STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS $\frac{1}{16}$ " BELOW PLATE SURFACE.
- ⑧ $\frac{3}{4}$ " ϕ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨ $\frac{3}{4}$ " ϕ X $2\frac{1}{4}$ " GALVANIZED THREADED COUPLING.
- ⑩ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
- J20 BLOCK OUT CONCRETE 2" EACH SIDE FOR JOINT OPENING.
- J21 JOINT OPENING DIM. ALONG SKEW PLUS $\frac{1}{2}$ ".

NOTE

SEE "JOINT REPLACEMENT (1 OF 4)", "JOINT REPLACEMENT (2 OF 4)", AND "JOINT REPLACEMENT (3 OF 4)" FOR ADDITIONAL INFORMATION AND DETAILS.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		BPV	PLANS CK'D. MSS
JOINT REPLACEMENT (4 OF 4)			SHEET 27 OF 32

BILL OF BARS

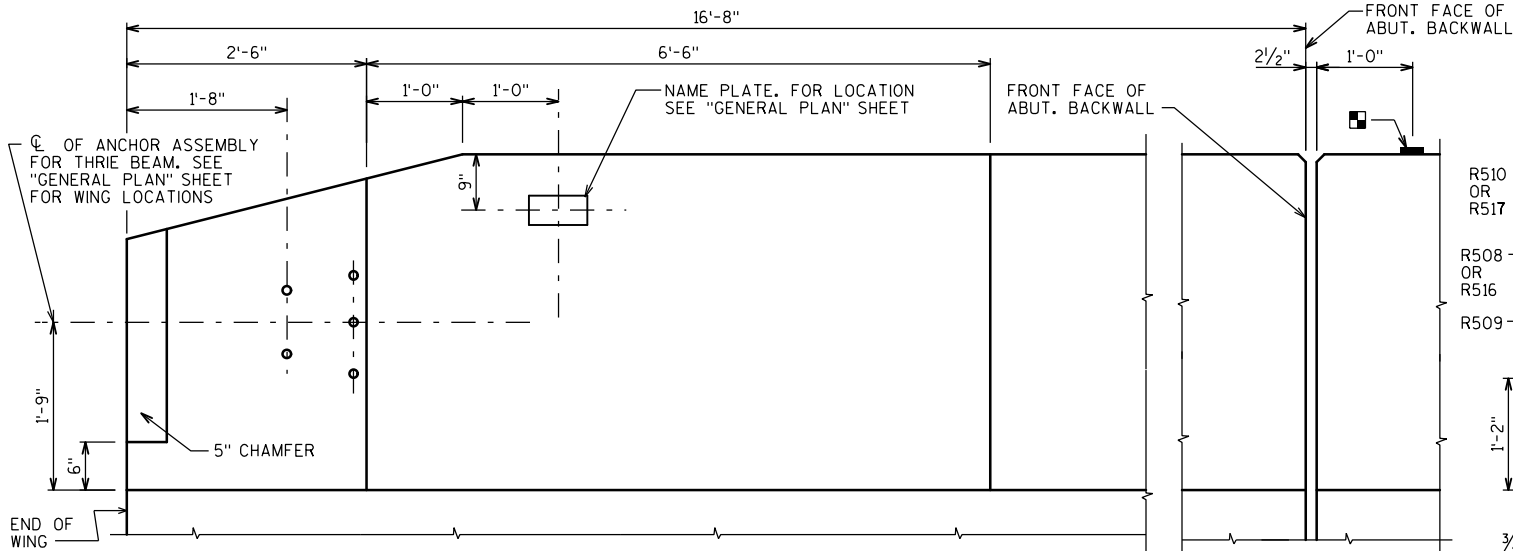
FOR ABUTMENT PARAPETS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR. Δ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR MARK	C047	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
R501	X	28	5'-10"	X		PARAPET - VERT.
R502	X	28	6'-8"	X		PARAPET - VERT.
R503	X	24	3'-0"	X		PARAPET - VERT.
R504	X	34	5'-7"	X		PARAPET - VERT.
R505	X	10	6'-5"	X		PARAPET - VERT.
R506	X	12	6'-6"	X		PARAPET - VERT.
R507	X	1	15'-11"	X		**
R508	X	3	17'-1"			*
R509	X	12	5'-5"	X	Δ	PARAPET - VERT.
R510	X	1	15'-5"	X		**
R511	X	1	15'-8"	X		**
R512	X	2	15'-7"			**
R513	X	1	16'-10"	X		*
R514	X	2	16'-8"			*
R515	X	1	16'-4"	X		*
R516	X	3	15'-4"			**
R517	X	1	17'-3"	X		*

* WEST ABUTMENT WING PARAPET ONLY

** EAST ABUTMENT WING PARAPET ONLY



BAR SERIES TABLE

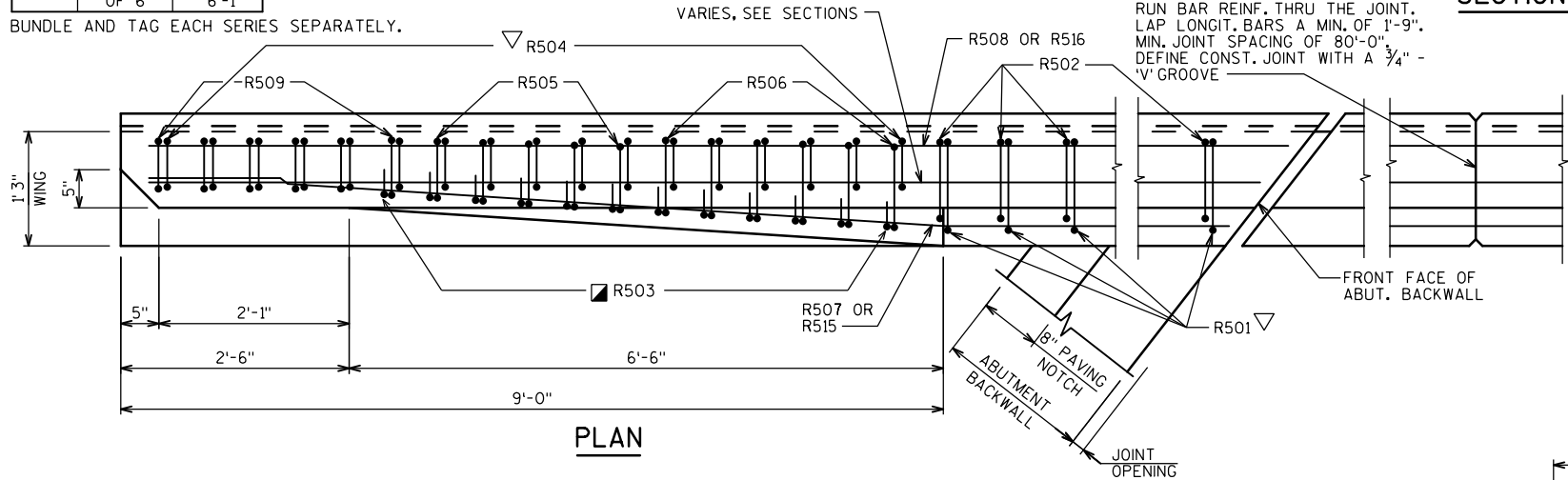
BAR MARK	NO. REQ'D.	LENGTH
R509	2 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.

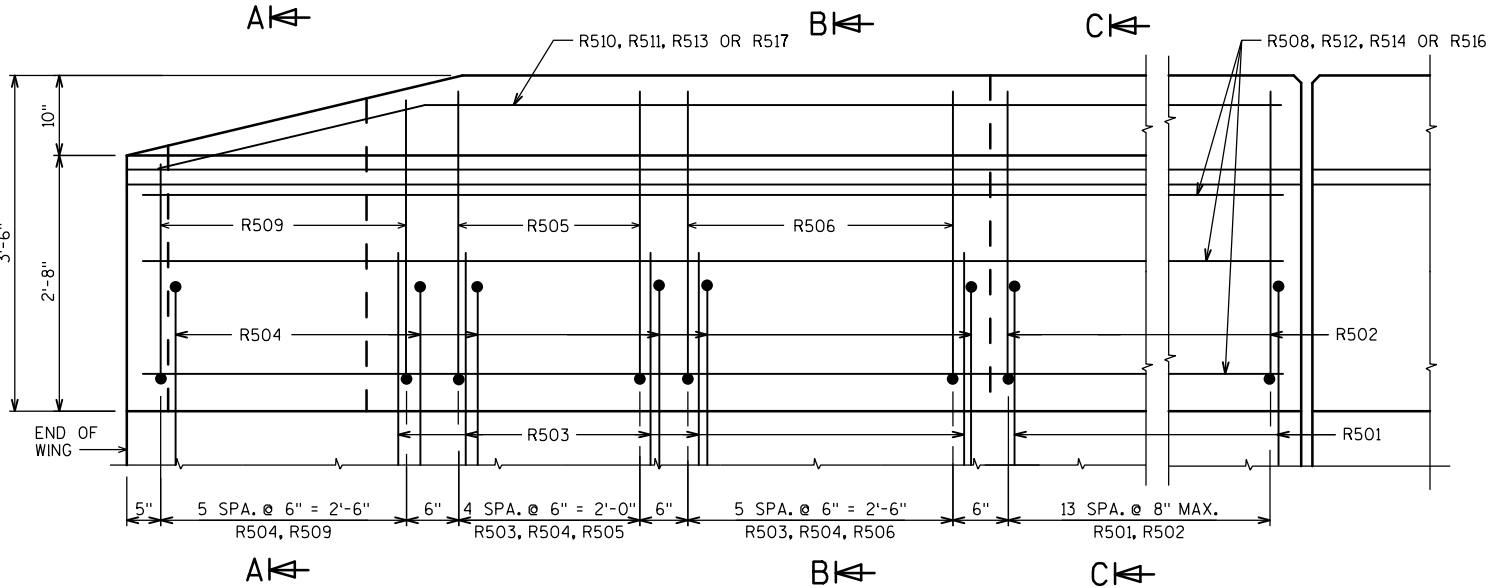
INSIDE ELEVATION

■ BENCH MARK CAP (SUPPLIED BY WISDOT). FOR LOCATION SEE "GENERAL PLAN" SHT. AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - "V" GROOVE



PLAN

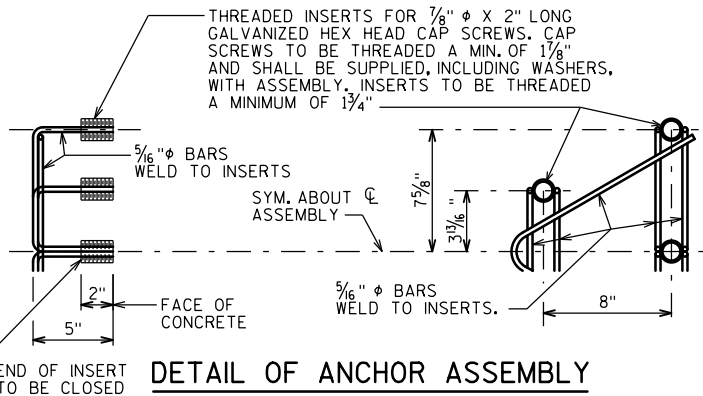
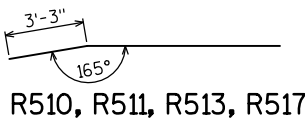
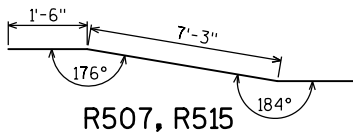
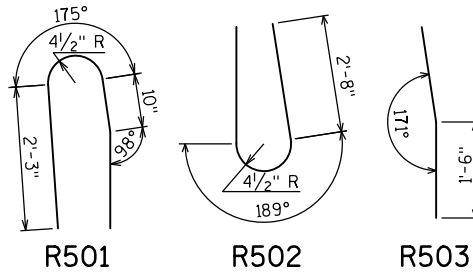


OUTSIDE ELEVATION

SECTION A

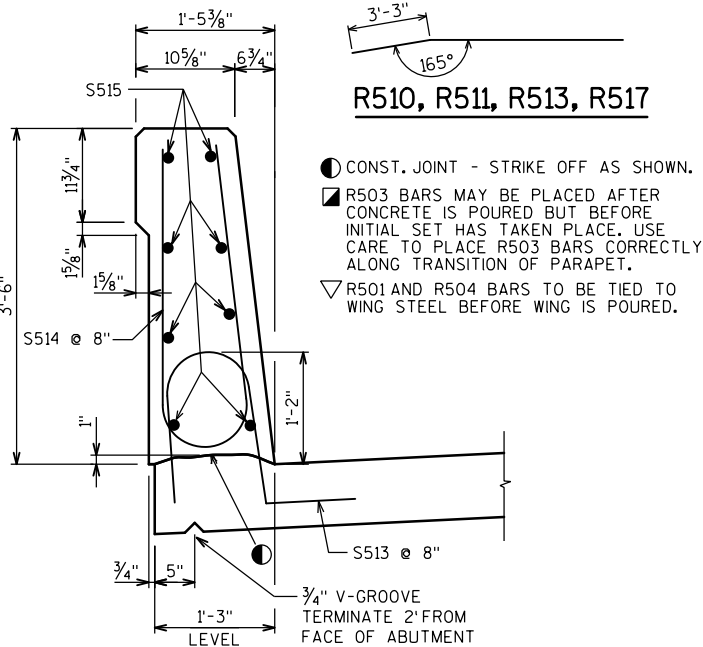
SECTION B

SECTION C



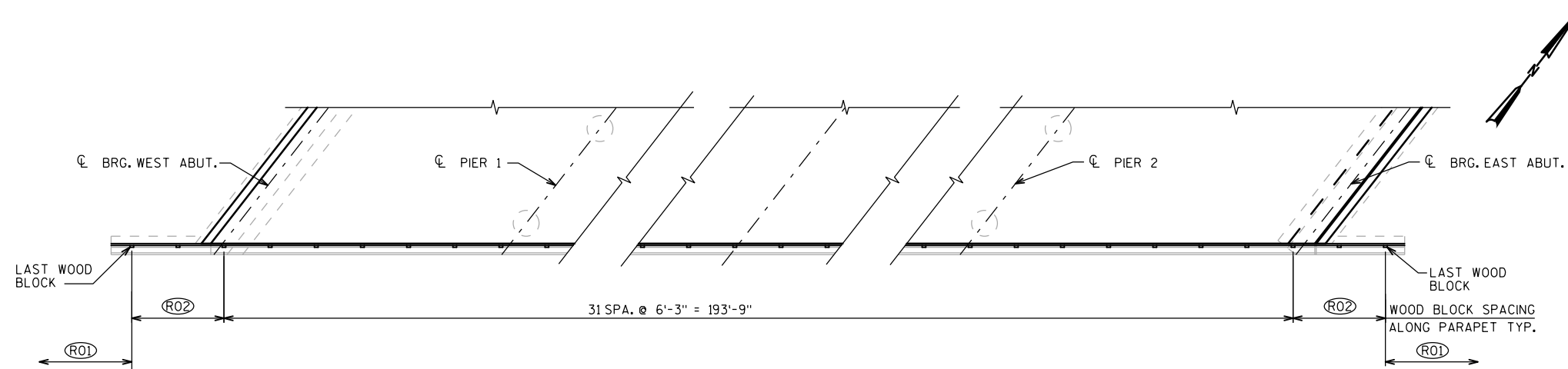
DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C. ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

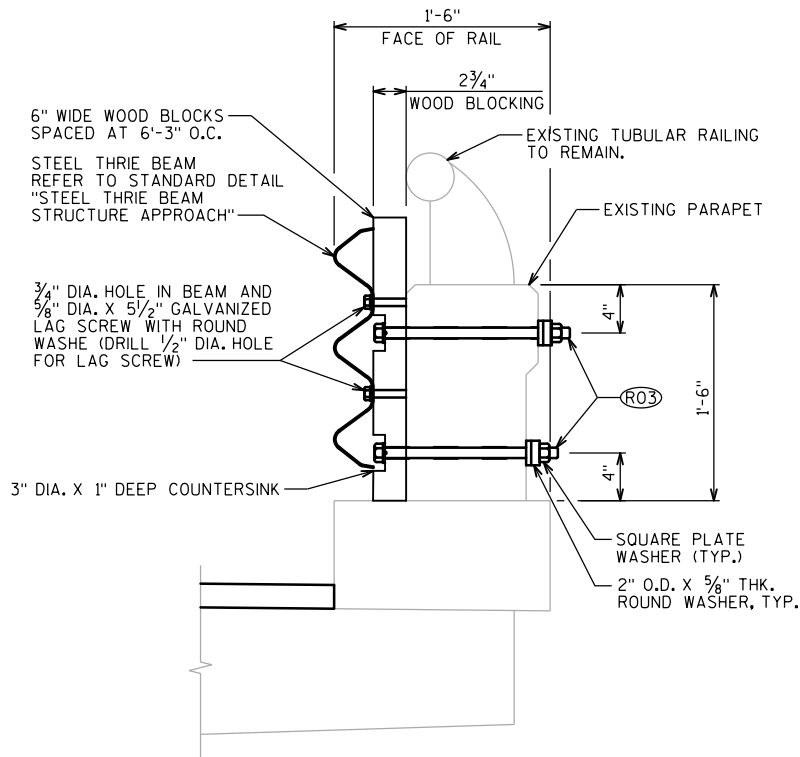


SECTION THRU PARAPET ON BRIDGE

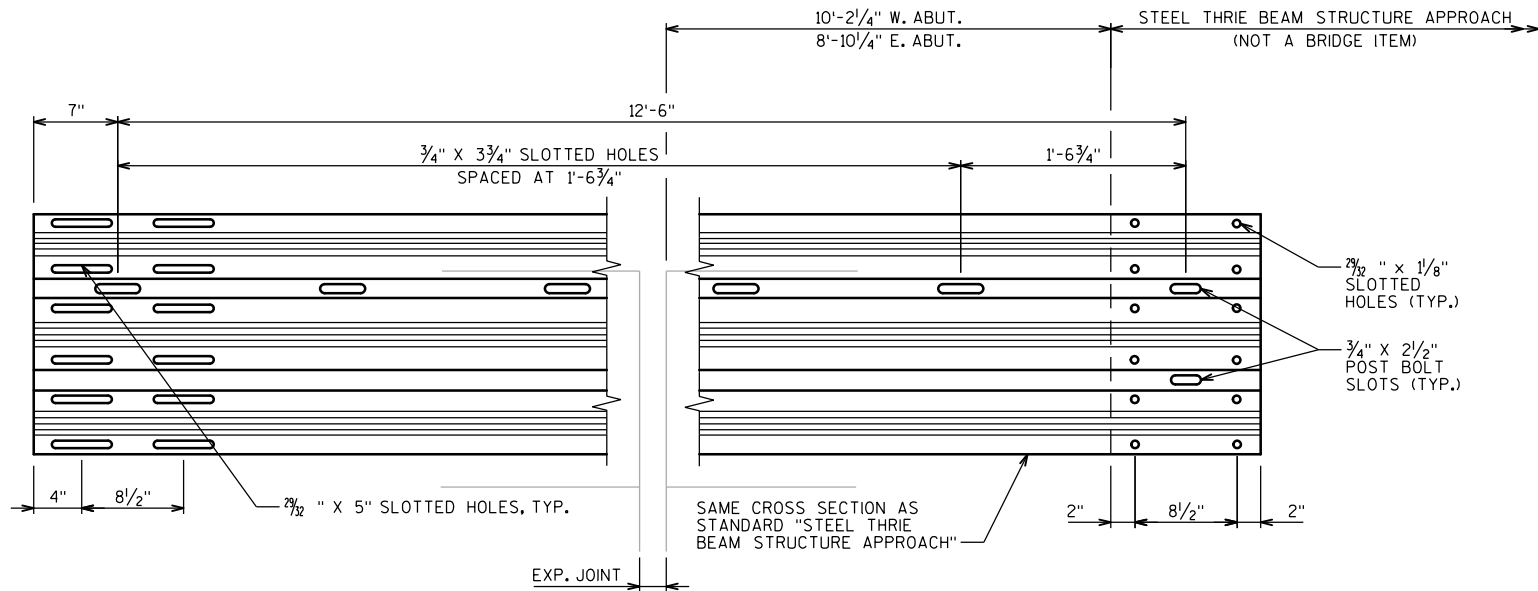
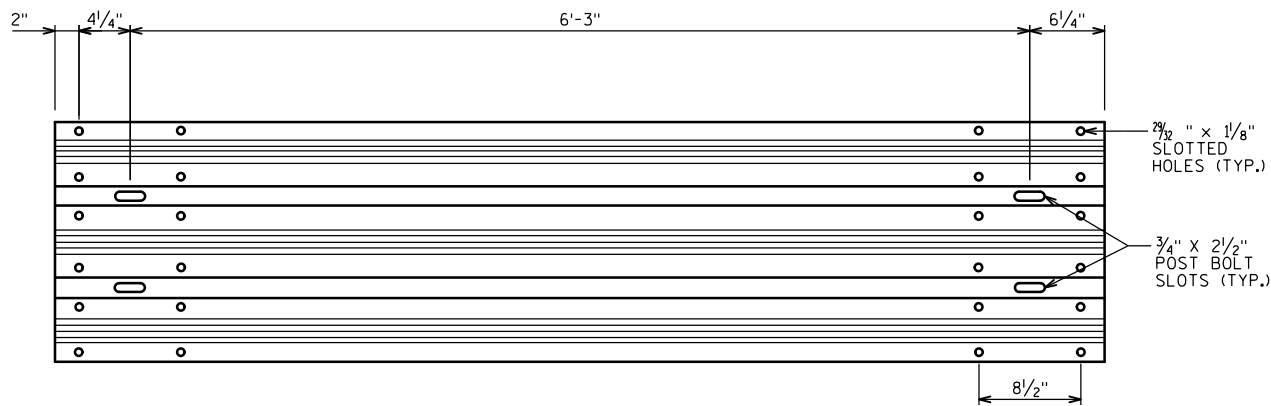
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		BPV	PLANS CKD. MSS
SINGLE SLOPE PARAPET 42SS		SHEET 28 OF 32	



THRIE BEAM & WOOD BLOCKING LAYOUT



SECTION THRU SOUTH PARAPET RAILING

THRIE BEAM EXPANSION SECTION
(REQ'D AT BRIDGE CORNERS)

TYPICAL THRIE BEAM SECTION

NOTES

SEE SDD 14 B 20-11A FOR ADDITIONAL STEEL THRIE BEAM DETAILS.
INSTALL RAIL WITH CAP SPLICES IN DIRECTION OF TRAFFIC. FIELD VERIFY BOLT LENGTH AND THREADED LENGTH.

LEGEND

- (R01) SPLICE TO STEEL THRIE BEAM STRUCTURE APPROACH. SEE ROADWAY PLANS FOR DETAILS.
(R02) THRIE BEAM EXPANSION SECTION TO BE USED. SEE DETAIL THIS SHEET.
(R03) DRILL 1" DIA. HOLE IN WOOD BLOCKING AND BRIDGE RAILING. 7/8" DIA. THREADED BOLTS WITH ROUND WASHERS (2" O.D. X 5/8" THK.) UNDER WELDED NUTS AND SQUARE WASHERS PLACED AGAINST CONCRETE. ONE ROUND WASHER UNDER BOLT HEAD.

NO.	DATE	REVISION	BY
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STRUCTURE B-67-116			
DRAWN BY		BPV	PLANS CKD. MSS
RAILING DETAILS			SHEET 29 OF 32
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BILL OF BARS

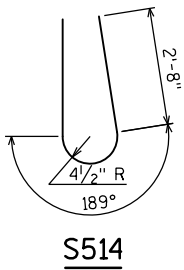
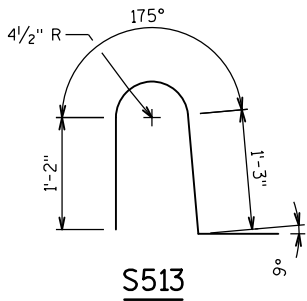
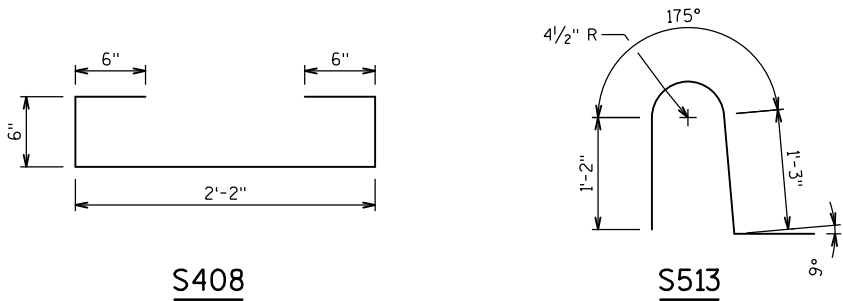
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
△ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR
BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR MARK	COUNT	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
S601		564	12'- 8"			DECK - TOP & BOTTOM TRANS.
S602		28	6'- 9"		△	DECK - SKEW SECTION TRANS.
S603		28	7'- 2"		△	DECK - SKEW SECTION TRANS.
S604		22	57'- 5"			DECK - TOP LONG.
S405		44	40'- 9"			DECK - TOP LONG.
S606		22	32'- 1"			DECK - TOP LONG.
S407		138	34'- 3"			DECK - BOTTOM LONG.
S408		126	4'- 2"	X		CONCRETE DIAPHRAGM TRANS.
S709		30	14'- 0"			CONCRETE DIAPHRAGM LONG.
S410		12	35'- 11"			CONCRETE DIAPHRAGM LONG.
S611		40	35'- 11"			CONCRETE DIAPHRAGM LONG.
S712		10	11'- 8"			CONCRETE DIAPHRAGM LONG.
S513		298	4'- 5"	X		PARAPET VERT.
S514		298	6'- 8"	X		PARAPET VERT.
S515		32	50'- 8"			PARAPET HORIZ.
S416		12	14'- 0"			CONCRETE DIAPHRAGM LONG. - BETWEEN G1 THRU G4
S417		4	11'- 8"			CONCRETE DIAPHRAGM LONG. - BETWEEN G1A AND G1

BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
S602	2 SETS OF 14	1'-2" TO 12'-3"
S603	2 SETS OF 14	1'-7" TO 12'-8"

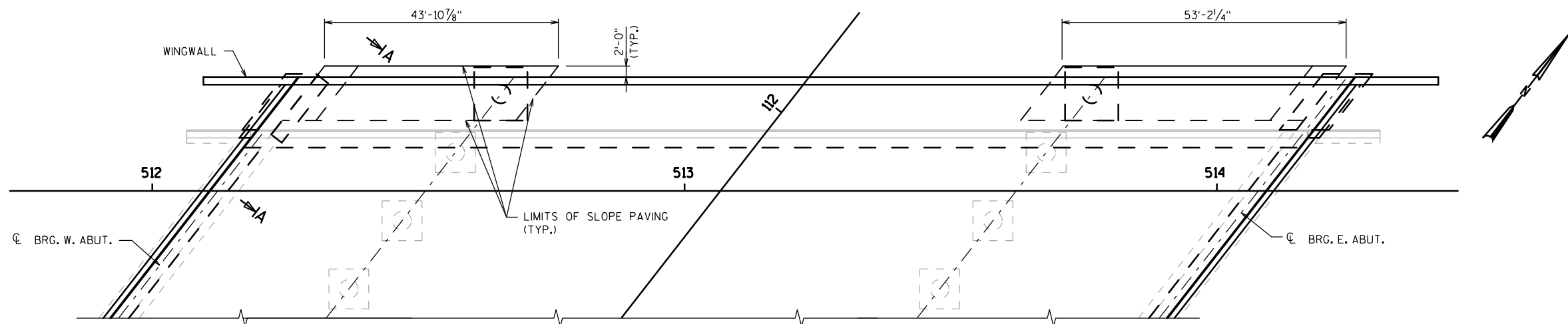
BUNDLE AND TAG EACH SERIES SEPARATELY.



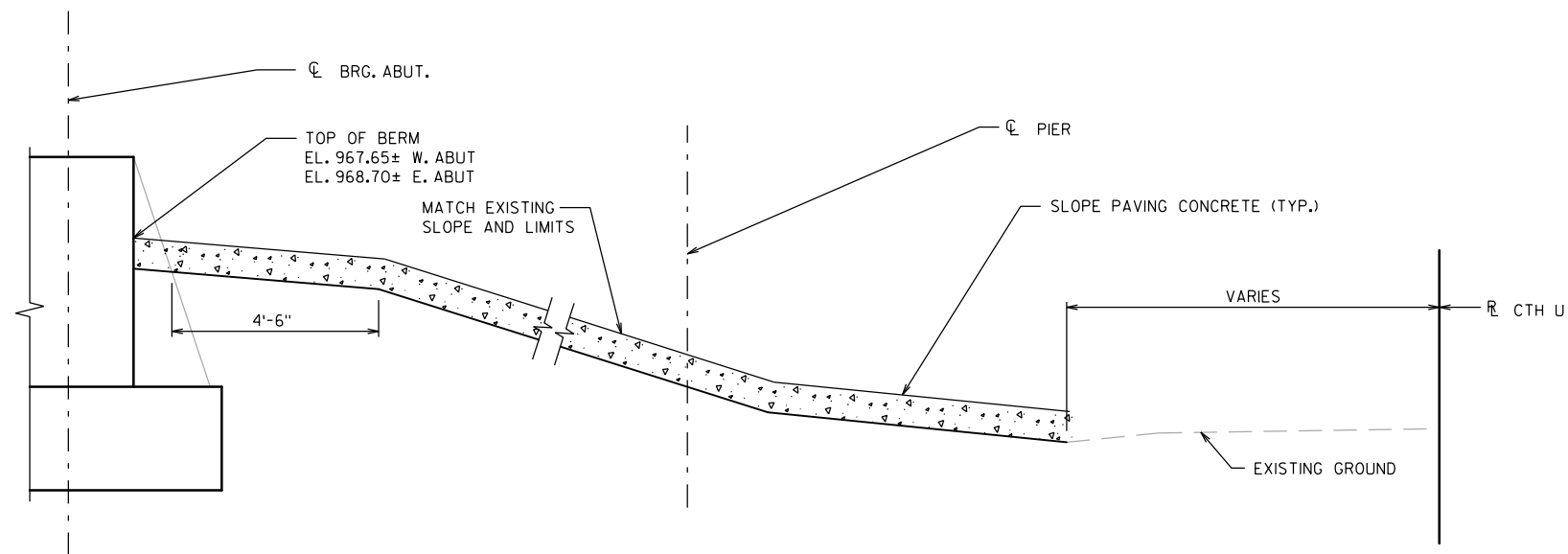
STATE PROJECT NUMBER

1090-35-71

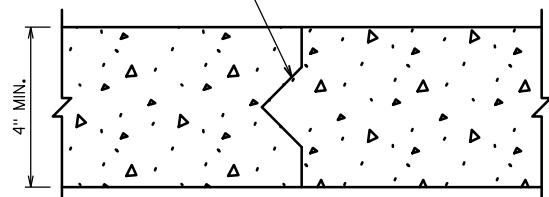
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY BPV		PLANS CK'D. HS	
SUPERSTRUCTURE BILL OF BARS		SHEET 30 OF 32	
		164	



PLAN



TYPICAL SECTION

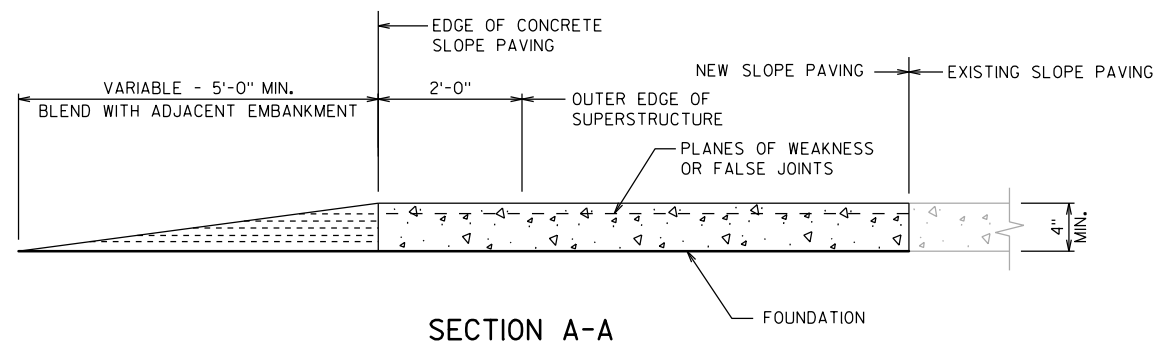
KEYED CONST. JOINT
FORMED BY 2" X 2"

CONSTRUCTION JOINT

NOTES

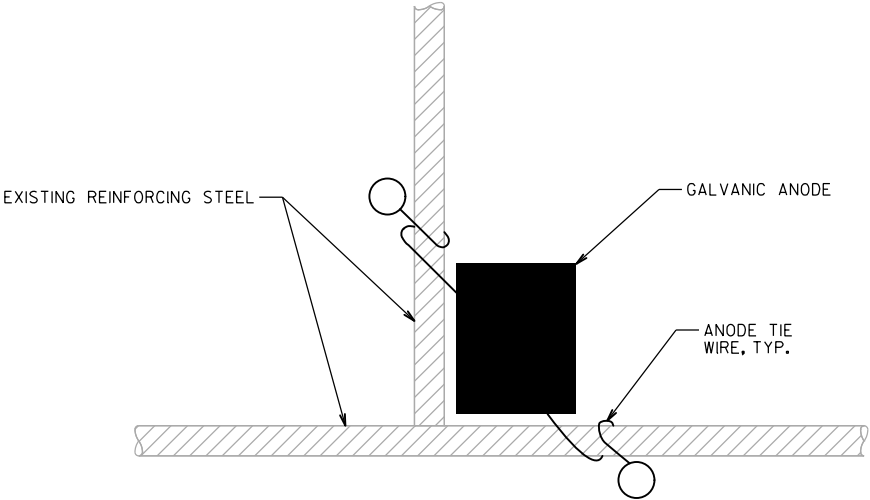
DETAILS OF CONSTRUCTION NOT SHOWN HEREIN SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

FORM PLANES OF WEAKNESS OR FALSE JOINTS IN THE CONCRETE BY SCORING THE FINISHED SURFACE AT LEAST 1/2" DEEP WITH A JOINT TOOL. MATCH EXISTING SLOPE PAVING JOINT SPACING.

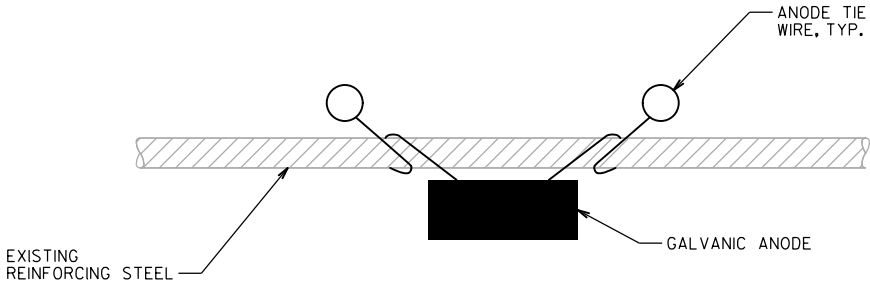


SECTION A-A

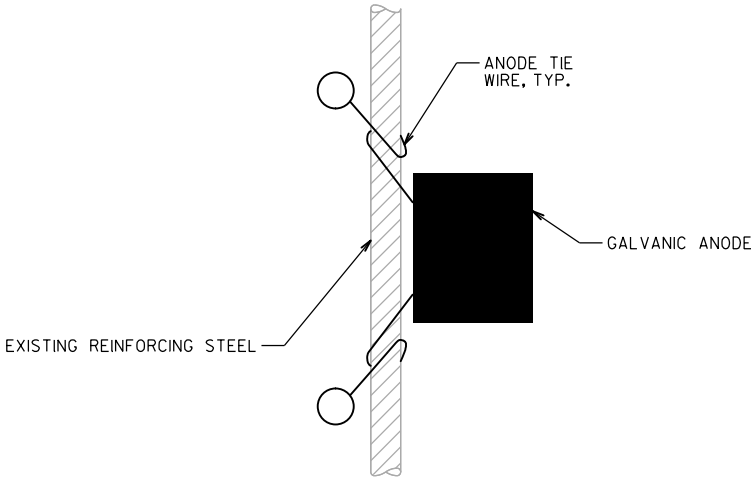
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		BPV	PLANS CK'D. MSS
SLOPE PAVING DETAILS			SHEET 31 OF 32
			165



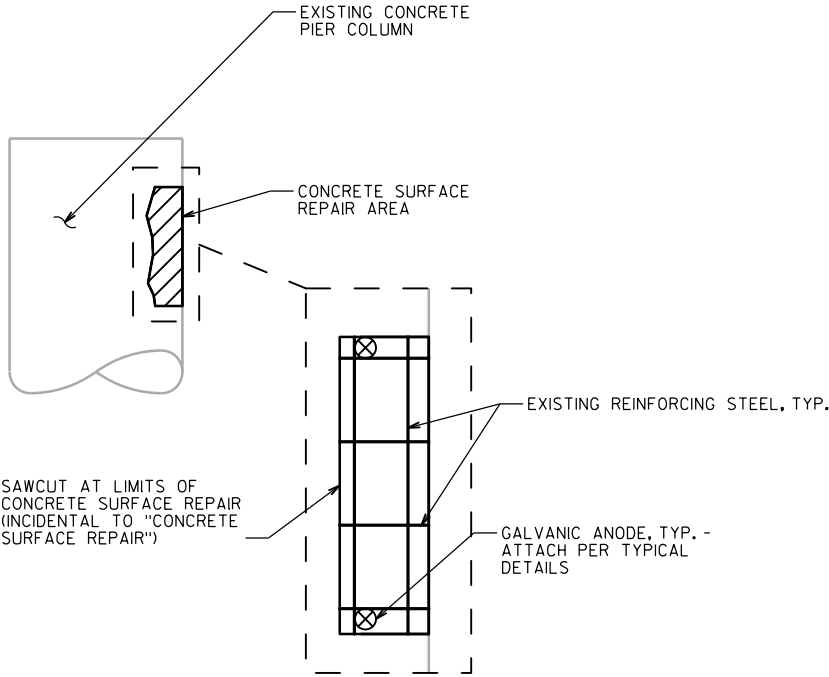
**TYPICAL INSTALLATION AT
BAR STEEL INTERSECTION**



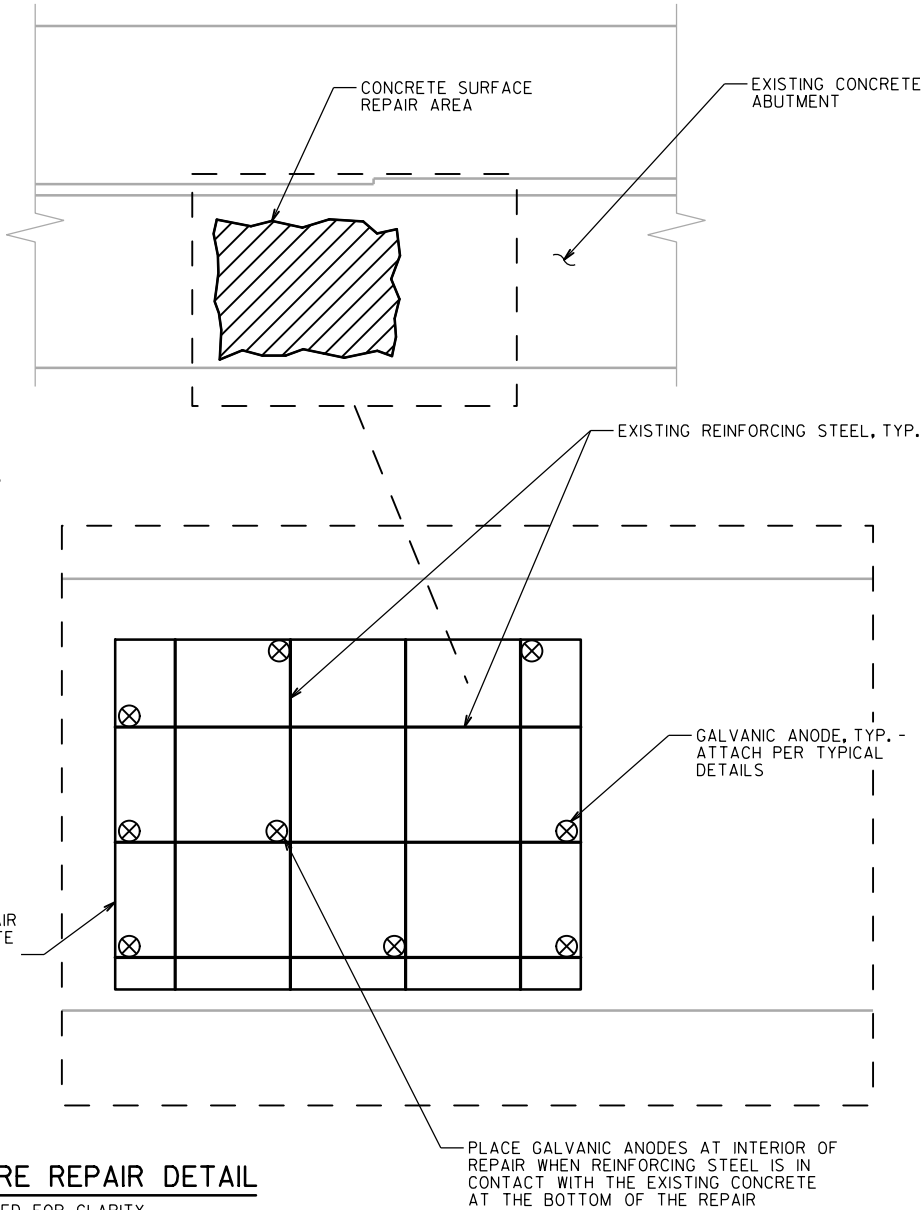
**TYPICAL INSTALLATION
BELOW BAR STEEL
(HORIZONTAL)**



**TYPICAL INSTALLATION
BESIDE BAR STEEL
(VERTICAL)**



SAWCUT AT LIMITS OF
CONCRETE SURFACE REPAIR
(INCIDENTAL TO "CONCRETE
SURFACE REPAIR")



TYPICAL SUBSTRUCTURE REPAIR DETAIL
SUPERSTRUCTURE OMITTED FOR CLARITY.
VERTICAL SURFACE REPAIR SHOWN, HORIZONTAL SURFACE REPAIR SIMILAR.

NOTES

SEE SPECIAL PROVISION "EMBEDDED GALVANIC ANODES" FOR DESCRIPTION, MATERIALS, CONSTRUCTION, MEASUREMENT AND PAYMENT INFORMATION.

EXISTING REINFORCING STEEL TO BE COMPLETELY CLEANED OF CORRODED MATERIAL PRIOR TO INSTALLATION OF GALVANIC ANODES.

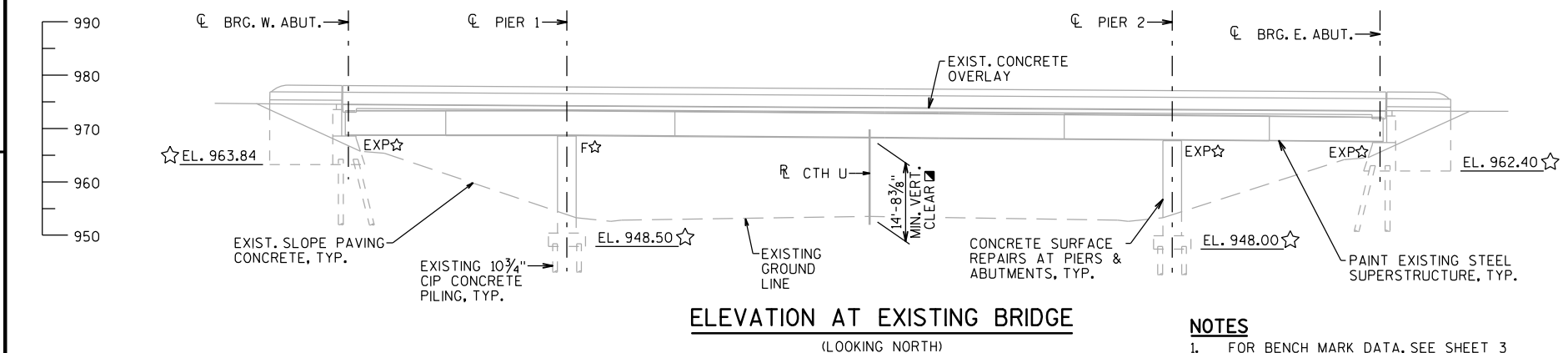
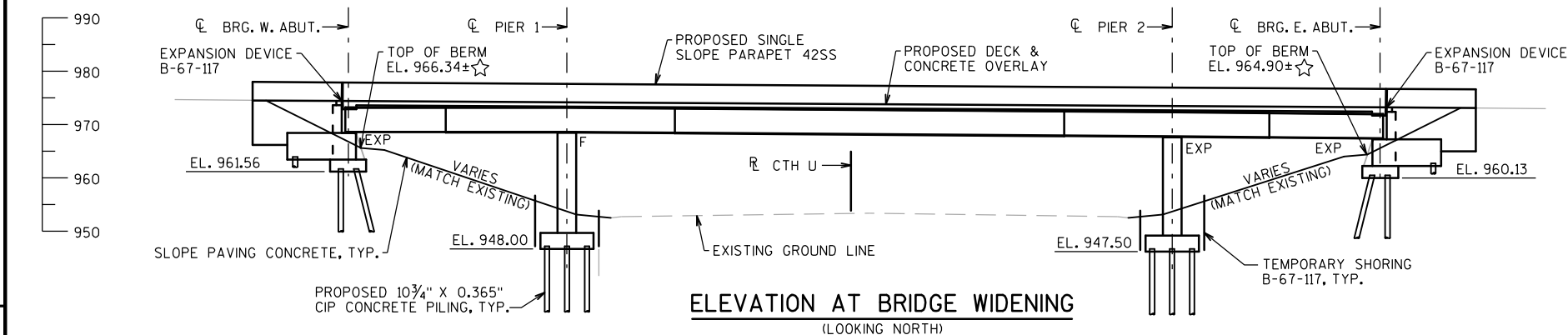
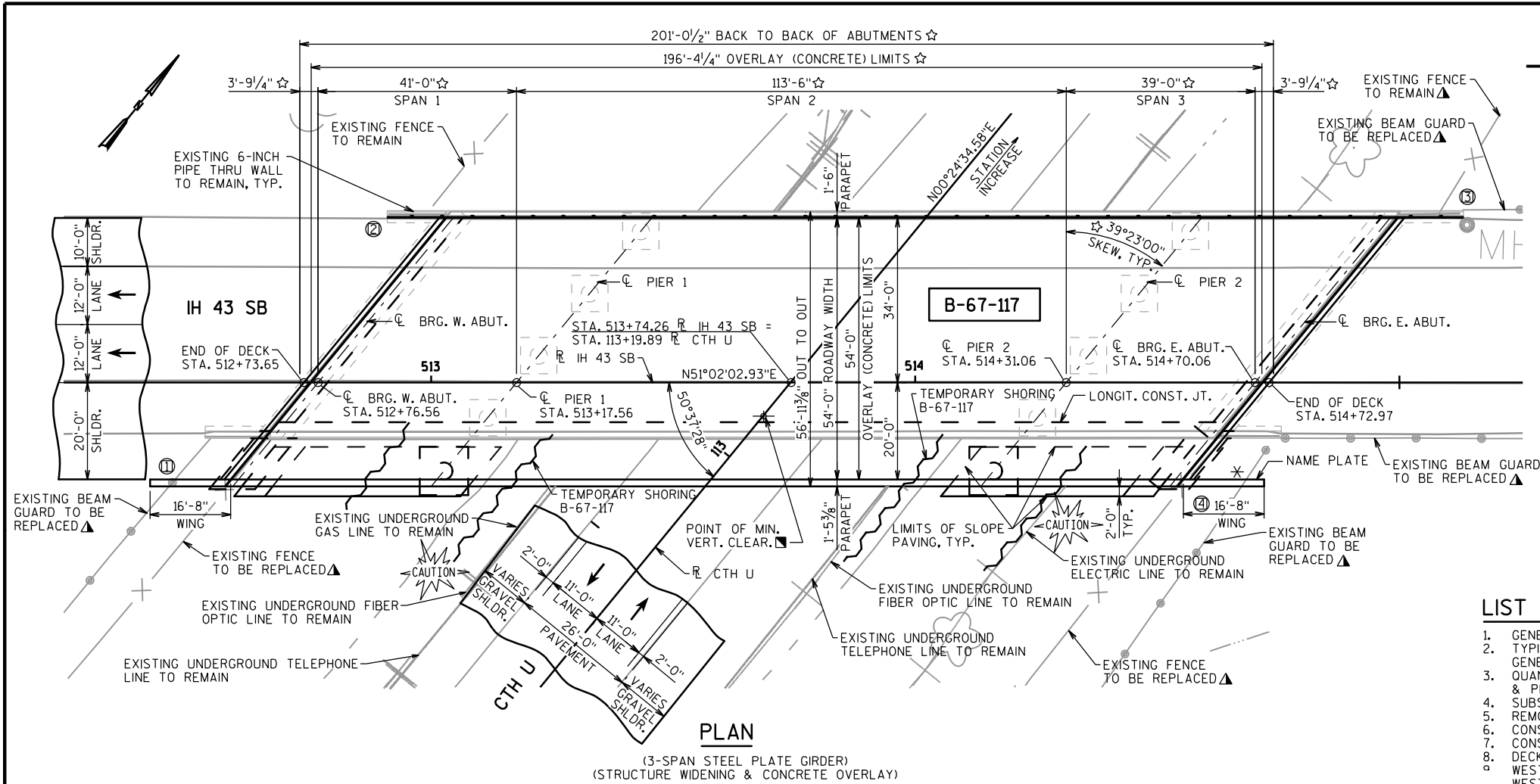
LOCATIONS OF GALVANIC ANODES SHOULD BE WITHIN 6" OF THE EDGE OF THE REPAIR AREA.

AFTER PLACEMENT, GALVANIC ANODES SHOULD MAINTAIN A MINIMUM COVER OF 1 1/2" AND A MINIMUM BOTTOM COVER OF 3/4".

PROVIDE GALVANIC ANODES IN CONCRETE SURFACE REPAIR AREAS IN SUBSTRUCTURE ONLY.

ESTIMATED ANODE QUANTITY ON PLANS IS BASED ON A MAXIMUM SPACING OF 24" AROUND PERIMETER OF CONCRETE SURFACE REPAIR AREA. PLACE ADDITIONAL ANODES AT THE INTERIOR OF REPAIRED AREA SO CENTER TO CENTER SPACING OF ANODES IS NOT GREATER THAN 24" IN ANY DIRECTION.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-116			
DRAWN BY		CVH	PLANS CK'D. MSS
GALVANIC ANODES			SHEET 32 OF 32
			166



NOTES
1. FOR BENCH MARK DATA, SEE SHEET 3

LEGEND

- DIRECTION OF TRAFFIC
- ☆ TAKEN FROM EXISTING AS-BUILT STRUCTURE PLAN
- ⓧ WINGWALL NUMBER
- DIMENSION AND LOCATION TAKEN FROM THE INSPECTION REPORT DATED MAY 7, 2018. MIN. VERT. CLR. REMAINS UNCHANGED DUE TO WIDENING.
- * LOCATION OF STEEL PLATE BEAM GUARD ATTACHMENT
- ▲ ROADWAY ITEM (SEE ROADWAY PLANS)

TRAFFIC DATA

IH 43
2020 AADT = 43,900
2040 AADT = 53,100
RDS = 75 MPH

CTH U
2020 AADT = 1,700
2040 AADT = 2,050
RDS = 35 MPH

LIST OF DRAWINGS

1. GENERAL PLAN & ELEVATION
2. TYPICAL SECTION & GENERAL NOTES
3. QUANTITIES, BENCH MARK DATA & PROFILE GRADE LINES
4. SUBSURFACE EXPLORATION
5. REMOVAL DETAILS
6. CONSTRUCTION STAGING (1 OF 2)
7. CONSTRUCTION STAGING (2 OF 2)
8. DECK REHABILITATION AREAS
9. WEST ABUTMENT
10. WEST ABUT. WING DETAILS
11. WEST ABUT. DETAILS
12. EAST ABUTMENT
13. EAST ABUT. WING DETAILS
14. EAST ABUT. DETAILS
15. PIERS 1 & 2
16. PIER BILL OF BARS
17. BEARING DETAILS
18. HOLD DOWN DEVICE
19. FRAMING PLAN & GIRDER ELEVATION
20. GIRDER DETAILS
21. SUPERSTRUCTURE DECK PLAN
22. SUPERSTRUCTURE SECTION
23. TOP OF DECK ELEVATIONS & DEFLECTIONS
24. JOINT REPLACEMENT (1 OF 4)
25. JOINT REPLACEMENT (2 OF 4)
26. JOINT REPLACEMENT (3 OF 4)
27. JOINT REPLACEMENT (4 OF 4)
28. SINGLE SLOPE PARAPET 42SS
29. RAILING DETAILS
30. SUPERSTRUCTURE BILL OF BARS
31. SLOPE PAVING DETAILS
32. GALVANIC ANODES

DESIGN DATA

LIVE LOAD: LFD
(EXISTING GIRDERS 1 THRU 4)
DESIGN RATING: HS-20
INVENTORY RATING: HS-14
OPERATING RATING: HS-24
WISCONSIN STANDARD PERMIT (WIS-SPV): 200 KIPS

LIVE LOAD: LRFD
(NEW GIRDER 5)
DESIGN RATING: HL-93
INVENTORY RATING FACTOR: RF = 1.73
OPERATING RATING FACTOR: RF = 2.24
WISCONSIN STANDARD PERMIT (WIS-SPV): 250 KIPS

STRUCTURE IS RATED FOR A CONCRETE OVERLAY OF 60 PSF.

MATERIAL PROPERTIES:

CONCRETE MASONRY OVERLAY DECKSf'c = 4,000 PSI
CONCRETE MASONRY:
SUPERSTRUCTUREf'c = 4,000 PSI
CIP CONCRETE PILINGf'c = 4,000 PSI
ALL OTHERf'c = 3,500 PSI
HIGH STRENGTH BAR STEEL
REINFORCEMENT GRADE 60fy = 60,000 PSI
STEEL PILE SHELL (ASTM A252, GRADE 3)fy = 45,000 PSI
STRUCTURAL STEEL (ASTM A709, GRADE 50)fy = 50,000 PSI
CARBON STEEL (ASTM A709, GRADE 36)fy = 36,000 PSI

FOUNDATION DATA

USING THE MODIFIED GATES ACCEPTANCE METHOD:
ABUTMENTS SHALL BE SUPPORTED ON 10 3/4" X 0.365" CIP CONCRETE PILING DRIVEN TO REQUIRED DRIVING RESISTANCE OF 100 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

PIERS SHALL BE SUPPORTED ON 10 3/4" X 0.365" CIP CONCRETE PILING DRIVEN TO REQUIRED DRIVING RESISTANCE OF 100 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

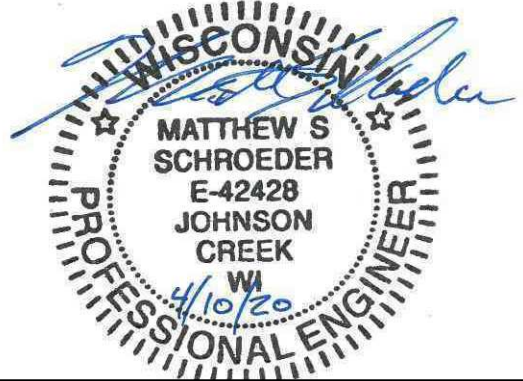
* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.50 USING MODIFIED GATES DYNAMIC FORMULA TO DETERMINE DRIVEN PILE CAPACITY.

ESTIMATED PILE LENGTHS:
WEST ABUTMENT40 FEET
PIER 145 FEET
PIER 250 FEET
EAST ABUTMENT40 FEET

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
AARON BONK (608) 261-0261
CONSULTANT:
PAT CASHIN (414) 359-2300

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
HNTB (414) 359-2300			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	<i>[Signature]</i>	SDR	04/13/20
CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-67-117			
IH 43 SB OVER CTH U			
COUNTY	WAUKESHA	TOWN/CITY/VILLAGE	VERNON
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	MSS	DESIGN CK'D.	JWC
DRAWN BY	BPV	PLANS CK'D.	MSS
GENERAL PLAN & ELEVATION			SHEET 1 OF 32



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

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.

"PIGMENTED SURFACE SEALER" SHALL BE APPLIED TO THE TOP AND INSIDE FACES OF THE PROPOSED PARAPETS AND TO THE TOP AND INSIDE FACE OF EXISTING VERTICAL FACED PARAPET ONLY.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY, THE TOP OF THE NEW PAVING BLOCK, AND TOP AND INSIDE FACE OF NEW BRUSH CURB AT THE JOINT REPAIR AREA.

"PROTECTIVE SURFACE TREATMENT RESEAL" SHALL BE APPLIED TO THE TOP AND VERTICAL FACE OF EXISTING CURB.

"REMOVING OLD STRUCTURE STA. 513+74" SHALL INCLUDE PARTIALLY REMOVING THE EXISTING DECK, CURB, PARAPET, TUBULAR RAILING AND SLOPE PAVING.

THE EXISTING STRUCTURE (B-67-117) IS A 3-SPAN STEEL GIRDER BRIDGE, 199.5' LONG x 47.0' WIDE. THE SUBSTRUCTURE AND SUPERSTRUCTURE SHALL BE WIDENED BY ADDING 1 GIRDER LINE TO THE INSIDE MEDIAN SHOULDER.

ALL FIELD CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER FRICTION TYPE HIGH-TENSILE STRENGTH BOLTS UNLESS SHOWN OR NOTED OTHERWISE.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-67-117" SHALL BE THE EXISTING GROUND LINE.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), WAUKESHA COUNTY ZONE, NAD 83 (2011)

ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM NAVD88 (2012).

BEVEL EXPOSED EDGES OF CONCRETE TO MATCH EXISTING BEVELS UNLESS OTHERWISE NOTED.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

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

GENERAL NOTES CONTINUED

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1 INCH DEEP SAWCUT.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

"PREPARATION DECKS TYPE 1", "PREPARATION DECKS TYPE 2" & "FULL-DEPTH DECK REPAIR" AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

EXPECTED AVERAGE OVERLAY THICKNESS IS SHOWN IN THE TYPICAL SECTION. IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.10 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

AT THE BACKFACE 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.

THE QUANTITY FOR BACKFILL STRUCTURE TYPE A IS CALCULATED BASED ON THE "BACKFILL STRUCTURE LIMITS" DETAIL ON THE "WEST ABUTMENT DETAILS" SHEET.

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

AT CURB REPAIR EXPOSE EXISTING REINFORCEMENT A MINIMUM OF 1 1/2" CLEAR.

THE EXISTING CONCRETE OVERLAY SHALL BE REMOVED FROM THE BRIDGE DECK UNDER THE BID ITEM "REMOVING CONCRETE MASONRY DECK OVERLAY B-67-117".

THE EXISTING ASPHALTIC CONCRETE OVERLAY SHALL BE REMOVED FROM THE BRIDGE DECK UNDER THE BID ITEM "REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-67-117".

EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID FOR PER LINEAR FOOT AS "EXPANSION DEVICE B-67-117".

HOLD DOWN DEVICES AT THE ABUTMENTS ARE INCLUDED IN THE BID ITEM "BEARING ASSEMBLIES EXPANSION B-67-117".

GENERAL NOTES CONTINUED

THE MINIMUM CONCRETE HAUNCH SHALL BE 2" FOR DESIGN CALCULATIONS AND THE HAUNCH CONCRETE QUANTITY IS BASED ON A MINIMUM DEPTH OF 1/4" WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.

CLEAN AND PAINT ALL EXPOSED STEEL SUPERSTRUCTURE SURFACES UNDERNEATH THE BRIDGE. THE SURFACES INCLUDE GIRDERS, DIAPHRAGMS, CONNECTIONS, ETC.

CLEAN AND PAINT ALL EXISTING STEEL BEARINGS AT THE PIERS AND ABUTMENTS. CLEANING AND PAINTING STEEL BEARINGS TO BE INCLUDED IN THE BID ITEM "STRUCTURE REPAINTING RECYCLED ABRASIVE B-67-117". PAINT APPLICATION ON THE BEARINGS SHALL BE BRUSHED ON.

EXISTING AND PROPOSED STEEL SUPERSTRUCTURE SHALL BE PAINTED GRAY (AMS STANDARD COLOR NUMBER 26293).

PROPOSED NEW GIRDER AND NEW DIAPHRAGMS PAINTING ARE INCLUDED IN THE BID ITEM "PAINTING EPOXY SYSTEM B-67-117". EXISTING GIRDERS AND EXISTING DIAPHRAGMS PAINTING ARE INCLUDED IN THE BID ITEM "STRUCTURE REPAINTING RECYCLED ABRASIVE B-67-117".

ALL STRUCTURAL STEEL FOR GIRDERS, SPLICE PLATES, CONNECTION PLATES, BEARING STIFFENERS, AND TRANSVERSE STIFFENERS SHALL BE HIGH-STRENGTH STRUCTURAL STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A709 GRADE 50. ALL OTHER STRUCTURAL STEEL SHALL BE STRUCTURAL CARBON STEEL, ASTM A709 GRADE 36.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH SLOPE PAVING CONCRETE TO THE EXTENT SHOWN ON SHEET 1 AND IN THE "SLOPE PAVING DETAILS" SHEET.

FOR PILE SPLICE DETAIL SEE "EAST ABUTMENT DETAILS" SHEET.

BID ITEM "PORTABLE DECONTAMINATION FACILITY" IS INCLUDED IN BRIDGE B-67-116.

LOCATIONS OF THE FOLLOWING BID ITEMS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. QUANTITIES SHOWN FOR THESE BID ITEMS ARE APPROXIMATE.

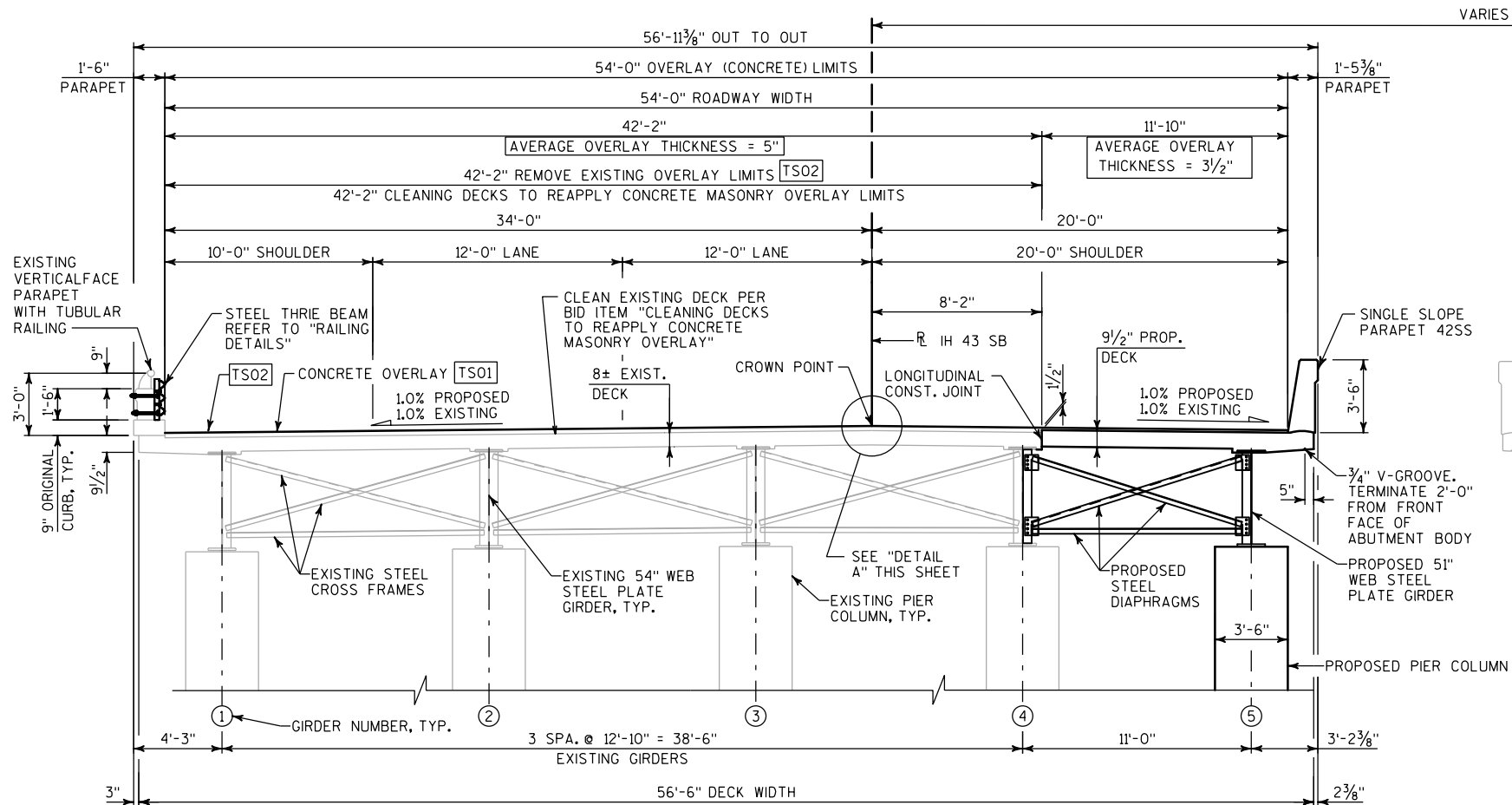
- PREPARATION DECKS TYPE 1
- PREPARATION DECKS TYPE 2
- CURB REPAIR
- CONCRETE SURFACE REPAIR
- FULL DEPTH DECK REPAIR
- SLOPE PAVING CONCRETE
- EMBEDDED GALVANIC ANODES
- VEGETATION REMOVAL B-67-117

NOTES

ALL EXISTING STRUCTURE DIMENSIONS WERE TAKEN FROM THE ORIGINAL STRUCTURE PLANS.

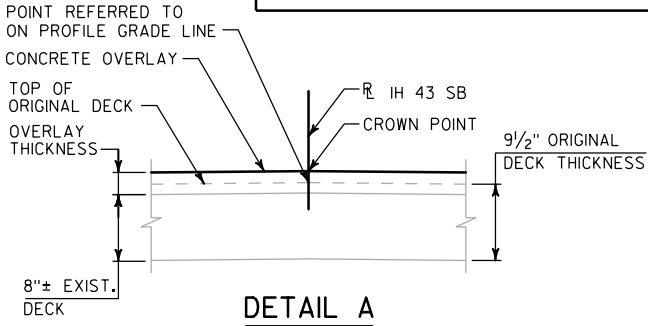
FOR CONSTRUCTION STAGING, SEE SHEETS 6 & 7.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
		DRAWN BY BPV	PLANS CKD. MSS
TYPICAL SECTION & GENERAL NOTES			SHEET 2 OF 32
			168



TYPICAL SECTION

(LOOKING EAST)



LEGEND

- TS01 MINIMUM CONCRETE OVERLAY OVER EXISTING DECK = 4 1/2" MINIMUM CONCRETE OVERLAY OVER PROPOSED DECK = 3"
- TS02 PER EXISTING AS-BUILT STRUCTURE PLANS DATED FEBRUARY 18, 1985, THE BRIDGE DECK RECEIVED AN AVERAGE 2 1/4" CONCRETE OVERLAY. PER THE EXISTING AS-BUILT STRUCTURE PLANS DATED MAY 15, 2000 A 2 1/2" ASPHALTIC CONCRETE OVERLAY AND MEMBRANE WAS ADDED ON TOP OF THE EXISTING CONCRETE OVERLAY. A CORING SAMPLE TAKEN OCTOBER 9, 2019 AS PART OF THE THERMOGRAPHIC DECK SCAN ALSO INDICATES A 2 1/2" ASPHALTIC CONCRETE OVERLAY ON TOP OF A 2" CONCRETE OVERLAY. THE EXISTING 2 1/2" ASPHALTIC CONCRETE OVERLAY AND MEMBRANE IS TO BE REMOVED PER BID ITEM "REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-67-117". THE EXISTING CONCRETE OVERLAY IS TO BE REMOVED PER BID ITEM "REMOVING CONCRETE MASONRY DECK OVERLAY B-67-117".

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEMS	UNIT	WEST ABUTMENT	PIER 1	PIER 2	EAST ABUTMENT	SUPER.	TOTAL
203.0200.0002	REMOVING OLD STRUCTURE STA. 513+74	LS						1
203.0210.S.0002	ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-67-117	LS						1
206.1000.0002	EXCAVATION FOR STRUCTURES BRIDGES B-67-117	LS						1
210.1500	BACKFILL STRUCTURE TYPE A	TON	172			179		351
502.0100	CONCRETE MASONRY BRIDGES	CY	36	18	18	36	112	220
502.3101	EXPANSION DEVICE B-67-117	LF					140	140
502.3200	PROTECTIVE SURFACE TREATMENT	SY					1,195	1,195
502.3210	PIGMENTED SURFACE SEALER	SY					173	173
502.3215.S	PROTECTIVE SURFACE TREATMENT RESEAL	SY					29	29
502.4204	ADHESIVE ANCHORS NO. 4 BAR	EACH	6			6		12
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	55			55		110
502.4206	ADHESIVE ANCHORS NO. 6 BAR	EACH	14			14		28
503.4208	ADHESIVE ANCHORS NO. 8 BAR	EACH	5			5		10
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1,490	2,290	2,290	1,440	28,670	36,180
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2,240	1,590	1,570	1,920	1,120	8,440
506.0105	STRUCTURAL STEEL CARBON	LB					4,420	4,420
506.0605	STRUCTURAL STEEL HS	LB					48,900	48,900
506.3020	WELDED STUD SHEAR CONNECTORS 7/8X7-INCH	EACH					249	249
506.5000.0002	BEARING ASSEMBLIES FIXED B-67-117	EACH					1	1
506.6000.0002	BEARING ASSEMBLIES EXPANSION B-67-117	EACH					3	3
509.0301	PREPARATION DECKS TYPE 1	SY					322	322
509.0302	PREPARATION DECKS TYPE 2	SY					242	242
509.0505.S	CLEANING DECKS TO REAPPLY CONCRETE MASONRY OVERLAY	SY					888	888
509.1000	JOINT REPAIR	SY					45	45
509.1200	CURB REPAIR	LF					67	67
509.1500	CONCRETE SURFACE REPAIR	SF	48	4	3	0	67	122
509.2000	FULL-DEPTH DECK REPAIR	SY					1	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY					200	200
509.9005.S.0002	REMOVING CONCRETE MASONRY DECK OVERLAY B-67-117	SY					920	920
509.9010.S.0002	REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-67-117	SY					920	920
511.1200.0002	TEMPORARY SHORING B-67-117	SF		371	371			742
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	9			9		18
517.0600.0002	PAINTING EPOXY SYSTEM B-67-117	LS						1
517.1800.S.0002	STRUCTURE REPAINTING RECYCLED ABRASIVE B-67-117	LS						1
517.4500.S.0002	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-67-117	LS						1
550.2106	PIILING CIP CONCRETE 10 3/4 X 0.365-INCH	LF	280	450	500	280		1,510
604.0400	SLOPE PAVING CONCRETE	SY	81			79		160
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH					1	1
SPV.0060.0001	EMBEDDED GALVANIC ANODES	EACH	25			5		30
SPV.0090.0002	STEEL THRIE BEAM RAILING RETROFIT	LF					222	222
SPV.0105.0002	VEGETATION REMOVAL B-67-117	LS						1
	NON-BID ITEMS							
	NAME PLATE	EACH						1

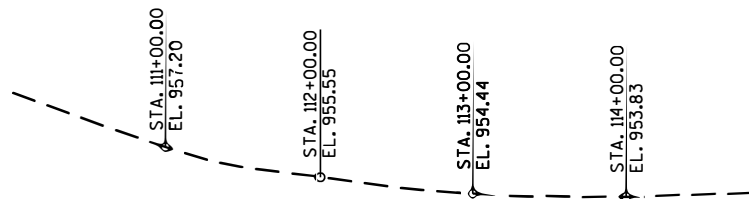
ALL ITEMS ARE CATEGORY 2110

STATE PROJECT NUMBER

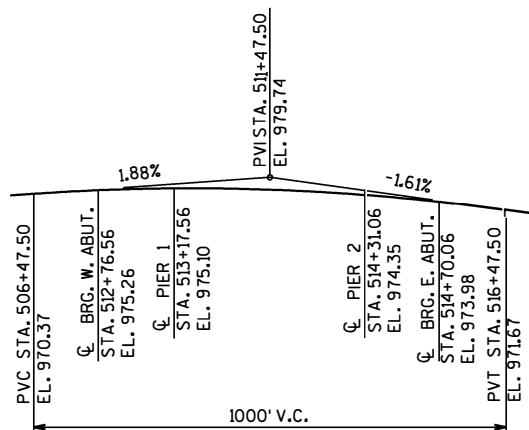
1090-35-71

BENCH MARK DATA

BM NO.	DESCRIPTION	NORTHING	EASTING	ELEVATION
BM 202	STA. 512+91.39, 34.93' LT (SB) NW BOLT @ NW COR. "U" & I-43 BRIDGE RAIL BOLT	127438.42	691874.53	977.22
BM 203	STA. 514+27.99, 11.10' LT (NB) NE BOLT @ E. END NORTHBOUND CEN. LANE RAIL WALL	127407.40	692049.38	979.76
BM 206	STA. 108+66.89, 35.27' RT (CTH U) RR SPIKE W. FACE PPOL *15-00788	127010.13	691992.96	965.44
BM 209	STA. 116+54.56, 68.17' RT (CTH U) RR SPIKE S. FACE PPOL *15-00638	127797.54	692031.49	956.97
CP 502	STA. 509+41.76, 52.72' LT (SB) BERNTSEN FENO WITH CAP STAMPED WISDOT CONTROL	127232.39	691591.50	970.89
CP 503	STA. 514+93.45, 45.72' LT (NB) BERNTSEN FENO WITH CAP STAMPED WISDOT CONTROL	127474.71	692080.24	970.69



CTH U PROFILE GRADE LINE



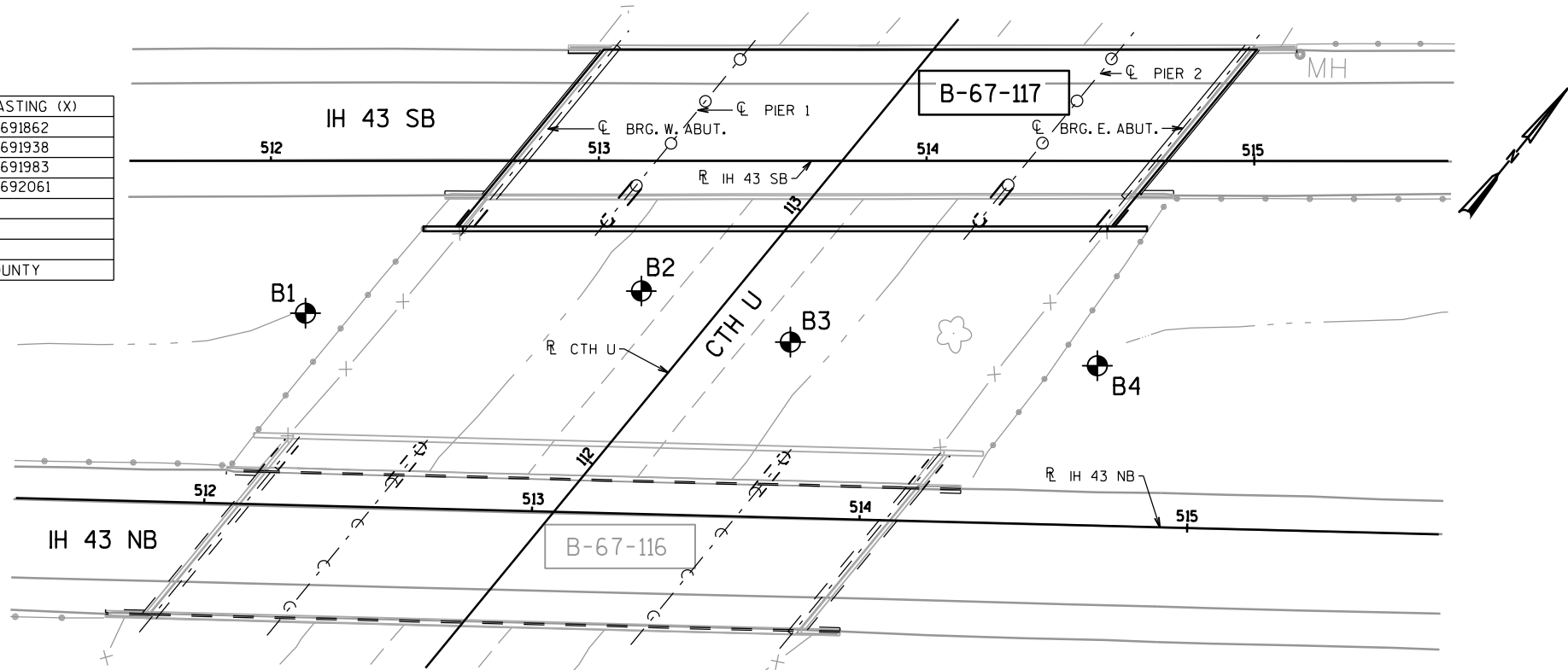
IH 43 SB PROFILE GRADE LINE

PGL GIVEN AT TOP OF EXISTING ORIGINAL DECK ELEVATION

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
DRAWN BY		BPV	PLANS CKD. MSS
QUANTITIES, BENCH MARK DATA & PROFILE GRADE LINES			SHEET 3 OF 32

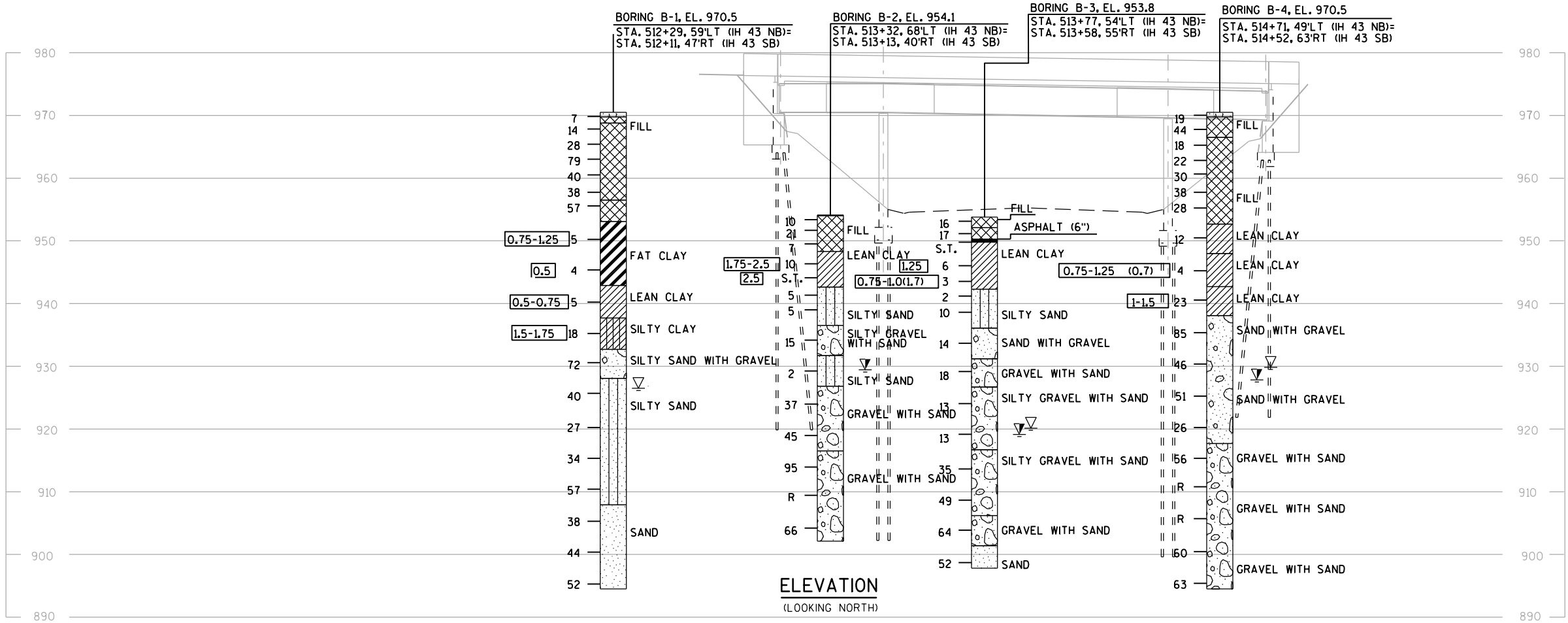
BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	AUGUST 14, 2019	127324	691862
2	AUGUST 13, 2019	127394	691938
3	AUGUST 12, 2019	127410	691983
4	AUGUST 13, 2019	127464	692061
BORINGS COMPLETED BY: GESTRA			
REPORT COMPLETED BY: GESTRA			
ALL COORDINATES REFERENCED TO WISCRS WAUKESHA COUNTY			

⊙ DENOTES SOIL BORING LOCATION



PLAN

(3-SPAN STEEL PLATE GIRDER)



ELEVATION
(LOOKING NORTH)

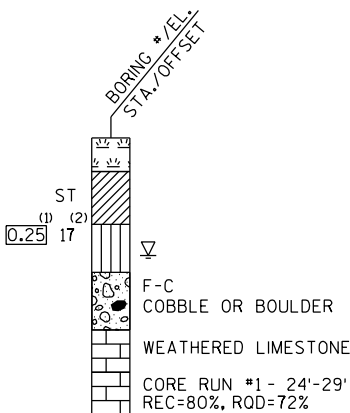
STATE PROJECT NUMBER

1090-35-71

MATERIAL SYMBOLS

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

LEGEND OF BORING



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

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

GROUND WATER ELEVATION

▽	AT TIME OF DRILLING
▼	END OF DRILLING
▽	AFTER DRILLING

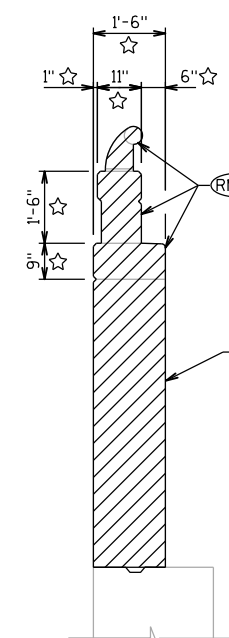
ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

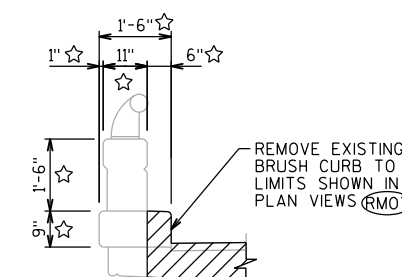
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
DRAWN BY		AJA	PLANS CKD. MHZ
SUBSURFACE EXPLORATION			SHEET 4 OF 32
			170

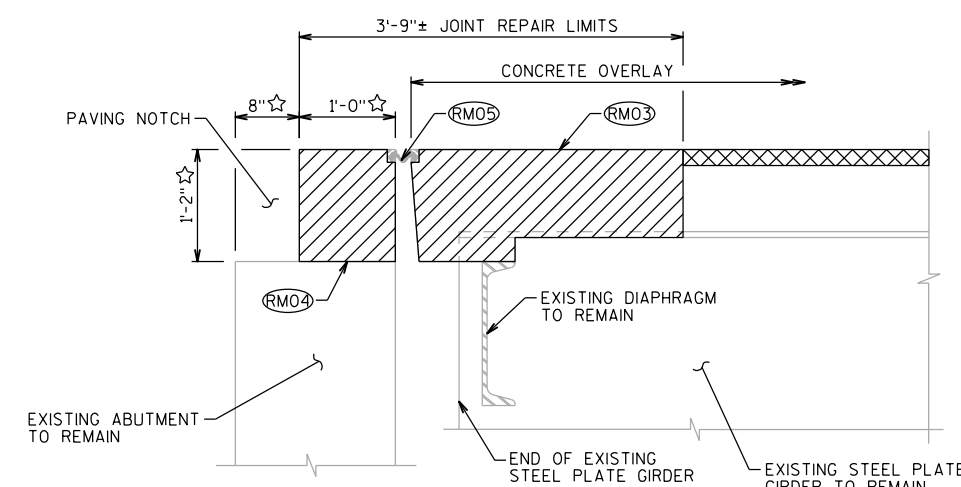


(LOOKING EAST)

SECTION A-A

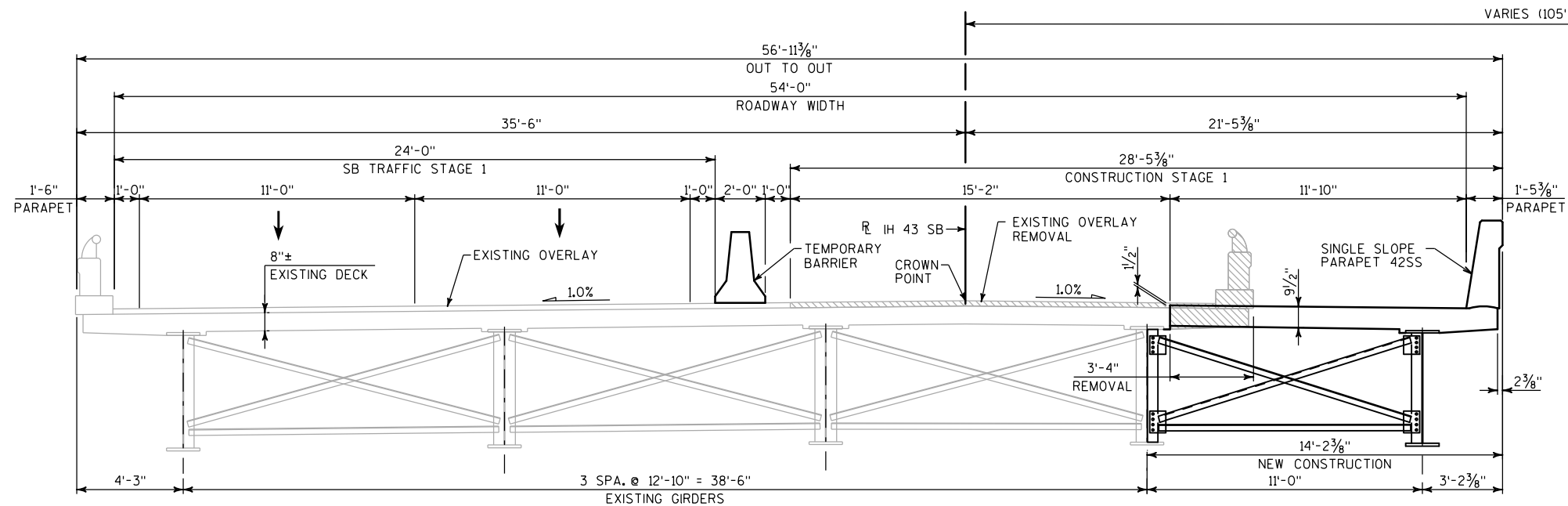


SECTION C-C

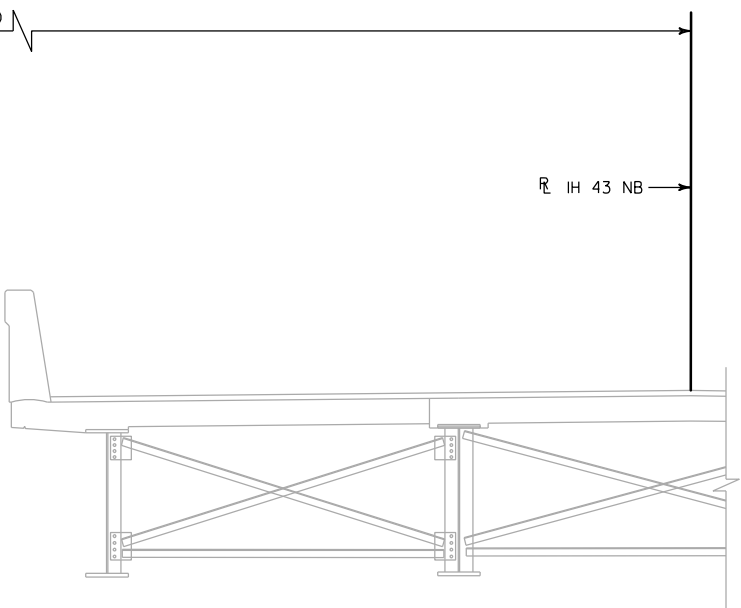
(DIMENSIONS GIVEN ALONG $\angle$ BEARING)

SECTION B-B

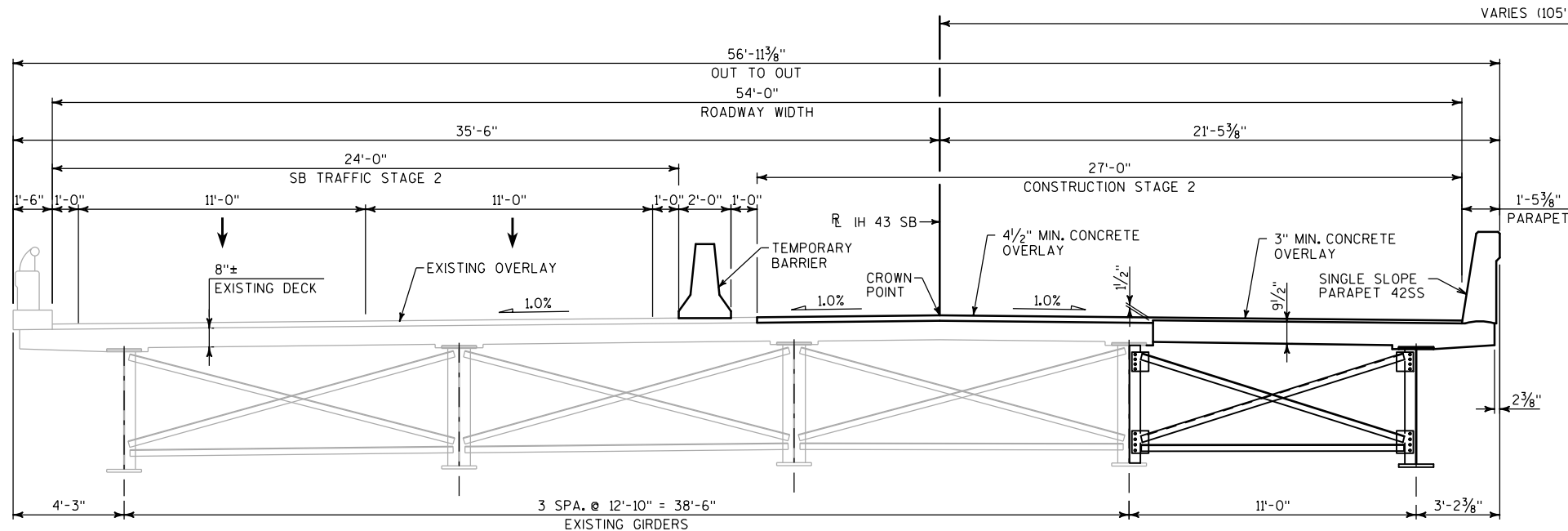
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
		DRAWN BY	BPV
		PLANS CK'D.	MSS
REMOVAL DETAILS		SHEET 5 OF 3	
		171	

**CONSTRUCTION STAGE 1**

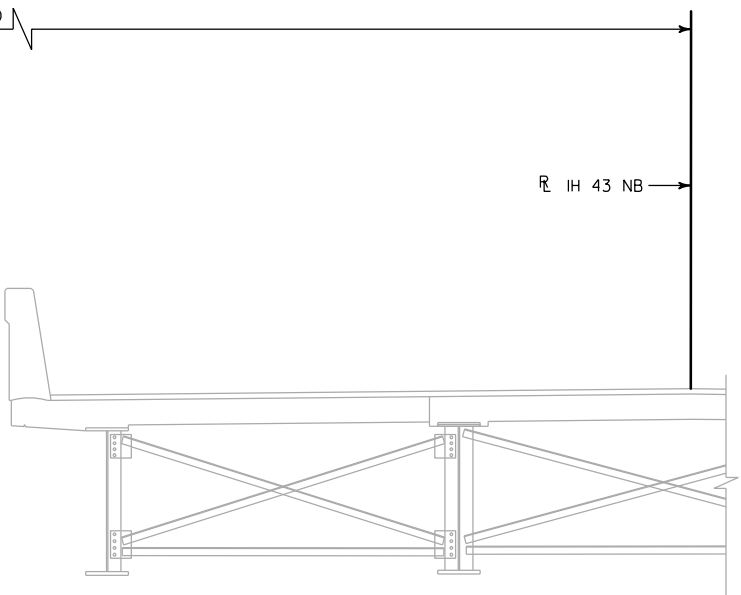
(LOOKING EAST)



B-67-116

**CONSTRUCTION STAGE 2**

(LOOKING EAST)



B-67-116

LEGEND

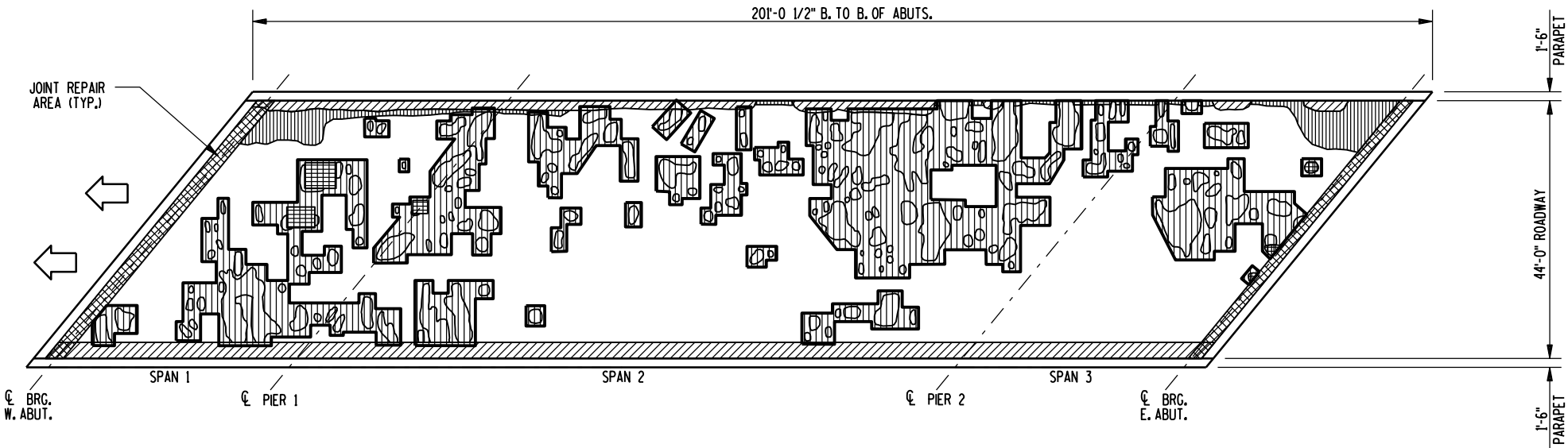
→ DIRECTION OF TRAFFIC

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
DRAWN BY		BPV	PLANS CK'D. MSS
CONSTRUCTION STAGING (1 OF 2)		SHEET 6 OF 32	
		172	



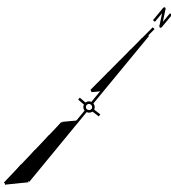
→ DIRECTION OF TRAFFIC

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
	DRAWN BY	BPV	PLANS CK'D. MSS
CONSTRUCTION STAGING (2 OF 2)		SHEET 7 OF 3	
		173	

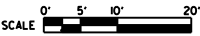


PLAN

PROPOSED REHABILITATION AREAS



REHABILITATION AREA SUMMARY		STRUCTURE NO. B-67-117		LEGEND	
ITEM	UNIT	QUANT.	%		
TOTAL AREA	y ^d	975.3		DECK PREPARATION AREA	
SHADE/DEBRIS	y ^d	83.0		SHADE/DEBRIS	
PREPARATION, DECKS, TYPE 1	y ^d	322.4	36.1	DELAMINATION	
PREPARATION, DECKS, TYPE 2	y ^d	241.8	27.1	SPALL	
FULL DEPTH DECK REPAIR	y ^d	1.0	0.1	DEBOND/SCALING	
				ASPHALT PATCH	
				CONCRETE PATCH	



SURFACE TYPE: PMA OVERLAY
INFRARED INSPECTION DATE: 10/9/19

PROPOSED REHABILITATION AREAS FOR
IH 43 SB OVER CTH U-RACINE AVE
STRUCTURE NO. B-67-117

10/17/19

60605668

B-67-117-REHAB.DGN

1 OF 1

NOTE

REHABILITATION AREAS SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY. THE FIELD ENGINEER WILL SOUND THE DECK AND MARK AREAS IN THE FIELD. THE ESTIMATED QUANTITIES FOR THE DECK PREPARATION AND DECK REPAIR BID ITEMS ARE ADAPTED FROM THE ABOVE INFRARED THERMOGRAPHY SURVEY RESULTS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
		DRAWN BY	PLANS CK'D. MHZ
DECK REHABILITATION AREAS		SHEET 8 OF 32	
		174	

EXCAVATION BELOW THE EXISTING FOUNDATION SHALL BE FILLED WITH CONCRETE.

B.F. - BACK FACE



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
		DRAWN BY JGJ	PLANS CK'D. HS
WEST ABUTMENT		SHEET 9 OF 3	
		175	

NOTES

FOR ABUTMENT ELEVATION AND PLAN, SEE "WEST ABUTMENT" SHEET.

FOR ABUTMENT DETAILS, SEE "WEST ABUTMENT DETAILS" SHEET.

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

EXCAVATION BELOW THE EXISTING FOUNDATION SHALL BE FILLED WITH CONCRETE.

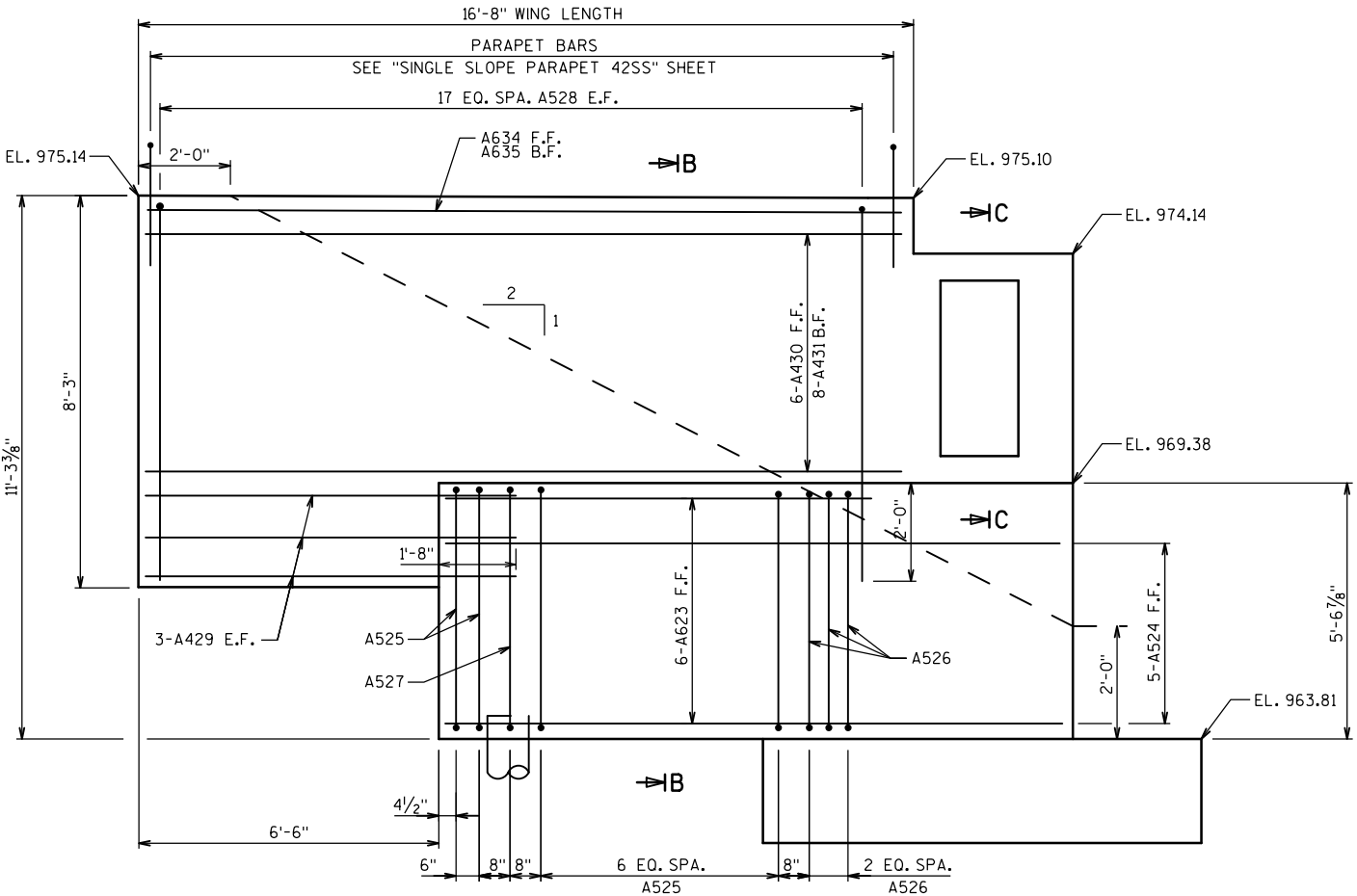
LEGEND

(A02) 18" RUBBERIZED MEMBRANE WATERPROOFING, SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENTS.

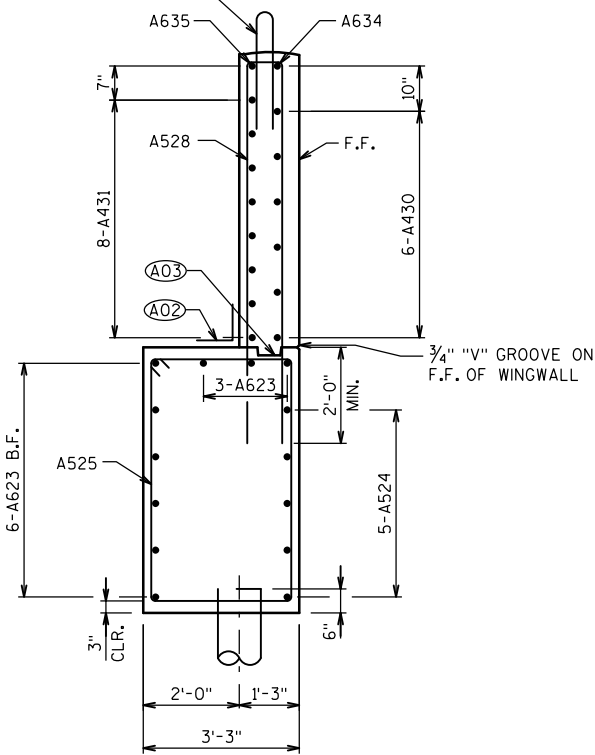
(A03) KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2"x6" KEYWAY.

F.F. - FRONT FACE

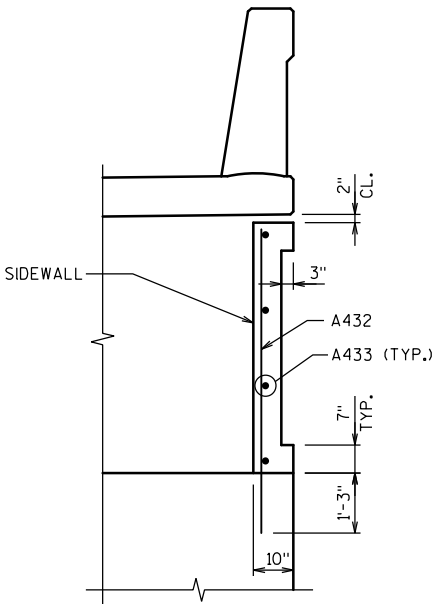
B.F. - BACK FACE



PARAPET REINFORCEMENT
FOR DETAILS, SEE "SINGLE
SLOPE PARAPET 42SS" SHEET



SECTION B-B



SECTION C-C

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
DRAWN BY JGJ		PLANS CK'D. HS	
WEST ABUTMENT WING DETAILS			SHEET 10 OF 32
			176

NOTES

FOR ABUTMENT ELEVATION AND PLAN, SEE "WEST ABUTMENT" SHEET.

FOR WING DETAILS, SEE "WEST ABUTMENT WING DETAILS" SHEET.

SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF $\frac{1}{2}$ " FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD $\frac{1}{8}$ " BELOW SURFACE OF CONCRETE).

EXCAVATION BELOW THE EXISTING FOUNDATION SHALL BE FILLED WITH CONCRETE.

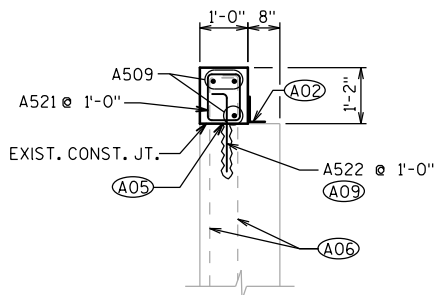
LEGEND

- (A01) TO MATCH EXISTING ABUTMENT PAVING NOTCH WIDTH AND DEPTH.
- (A02) 18" RUBBERIZED MEMBRANE WATERPROOFING, SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENTS.
- (A03) KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2"x6" KEYWAY.
- (A04) CONST. JOINT - POUR CONCRETE ABOVE THIS JOINT AFTER SUPERSTRUCTURE IS IN PLACE (STRIKE OFF AND LEAVE ROUGH).
- (A05) ROUGHEN SURFACE OF CONCRETE $\frac{1}{4}$ " DEEP MINIMUM AT AREAS WHERE NEW CONCRETE CONTACTS EXISTING CONCRETE.
- (A06) SALVAGE EXISTING REINFORCEMENT AND EXTEND FULL LENGTH INTO NEW WORK.
- (A07) ADHESIVE ANCHORS:
NO. 4 BARS EMBED 0'-10", MIN. EDGE DISTANCE 3"
NO. 5 BARS EMBED 1'-1", MIN. EDGE DISTANCE 4"
NO. 6 BARS EMBED 1'-3", MIN. EDGE DISTANCE $4\frac{1}{2}$ "
NO. 8 BARS EMBED 1'-8", MIN. EDGE DISTANCE 6"
- (A09) ADHESIVE ANCHORS NO. 5 BAR, EMBED 1'-6" IN CONCRETE. SPACE AT 1'-0", TURN 10" LEG AS NECESSARY TO FIT.

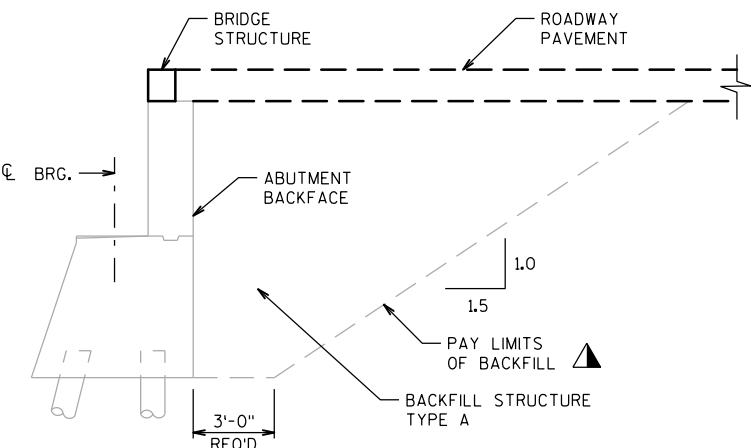
F.F. - FRONT FACE

B.F. - BACK FACE

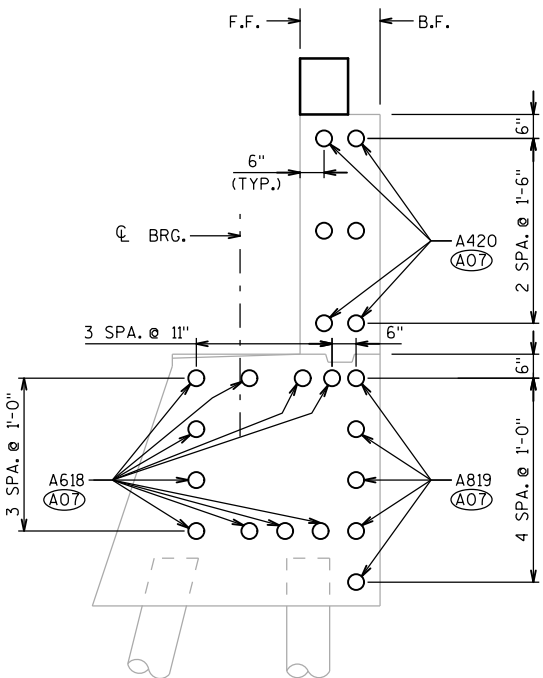
BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.



SECTION A-A



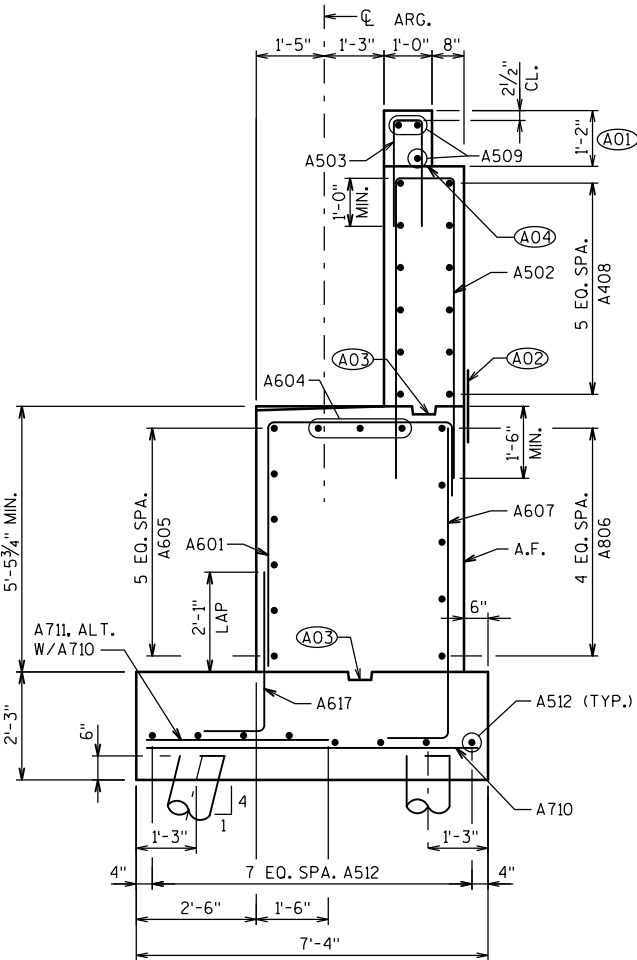
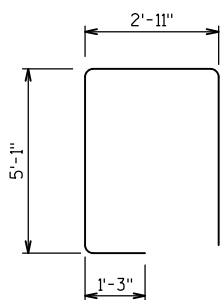
BACKFILL STRUCTURE LIMITS

SECTION THRU EDGE OF EXISTING ABUTMENT
(AT BRIDGE WIDENING)

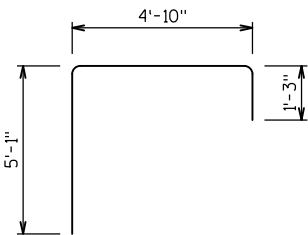
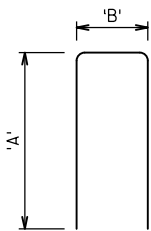
BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
△ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

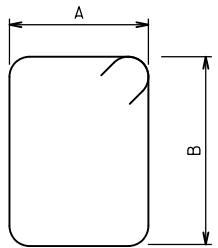
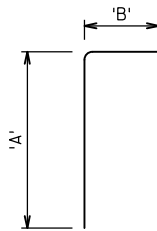
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
A601		13	10'-10"	X		ABUTMENT BODY - VERT.
A502	X	13	13'-5"	X		BACKWALL - VERT.
A503	X	15	4'-5"	X		BACKWALL & PAVING BLOCK - BOTH ENDS
A604		3	12'-3"			ABUTMENT BODY - LONG.
A605		6	12'-3"			ABUTMENT BODY - LONG. (F.F. & TOP)
A806		5	12'-3"			ABUTMENT BODY - LONG. (B.F.)
A607		12	7'-7"	X		ABUTMENT BODY - VERT. (B.F.)
A408	X	12	14'-2"			BACKWALL - LONG.
A509	X	30	7'-11"			PAVING BLOCK - LONG.
A710		12	6'-10"			FOOTING - TRANS.
A711		12	4'-0"			FOOTING - TRANS.
A512		8	13'-1"			FOOTING - LONG.
- - -						
A714		10	3'-6"		△	FOOTING - CORNER.
A715		9	3'-3"		△	FOOTING - CORNER.
A716		2	8'-11"			FOOTING - CORNER.
A617		14	4'-4"	X		FOOTING - VERT.
A618		14	4'-9"			ABUTMENT BODY - ADHESIVE ANCHORS
A819		5	7'-1"			ABUTMENT BODY - ADHESIVE ANCHORS
A420	X	6	2'-6"			BACKWALL - ADHESIVE ANCHORS
A521	X	55	3'-4"	X		PAVING BLOCK - STIRRUPS
A522	X	55	2'-4"	X		PAVING BLOCK - ADHESIVE ANCHORS
A623	X	9	8'-7"			WING BODY - LONG (B.F.)
A524	X	5	14'-8"			WING BODY - LONG (F.F.)
A525	X	9	16'-8"	X		WING BODY - STIRRUPS
A526	X	3	18'-2"	X		WING BODY - STIRRUPS
A527	X	1	14'-0"	X		WING BODY - STIRRUPS
A528	X	18	16'-2"	X		WING WALL - VERT.
A429	X	6	8'-0"			WING WALL - HORIZ. BOTTOM
A430	X	6	16'-4"			WING WALL - HORIZ. TOP (F.F.)
A431	X	8	15'-4"			WING WALL - HORIZ. TOP (B.F.)
A432	X	4	5'-10"			WING WALL - SIDE WALL
A433	X	4	4'-5"			WING WALL - SIDE WALL
A634	X	1	16'-4"			WING WALL - HORIZ. TOP (F.F.)
A635	X	1	15'-4"			WING WALL - HORIZ. TOP (B.F.)
A636	X	4	5'-6"	X		BACKWALL - VERT.

SECTION THRU ABUTMENT BODY
(AT BRIDGE WIDENING)

A527



A601



BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
A714	1 SET OF 10	9" TO 6'-4"
A715	1 SET OF 9	9" TO 5'-9"

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	DIMENSION 'A'	DIMENSION 'B'
A502	6'-2"	1'-4"
A503	2'-0"	0'-8"
A528	7'-9"	11"

BAR MARK	DIMENSION 'A'	DIMENSION 'B'
A607	6'-9"	1'-0"
A617	3'-6"	1'-0"
A522	1'-6"	0'-10"
A636	4'-8"	1'-0"

BAR MARK	DIMENSION 'A'	DIMENSION 'B'
A521	0'-8"	0'-8"
A525	2'-11"	5'-1"
A526	3'-8"	5'-1"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
		DRAWN BY JGJ	PLANS CKD. HS
WEST ABUTMENT DETAILS			SHEET 11 OF 32

NOTES

FOR ABUTMENT ELEVATION AND PLAN, SEE "EAST ABUTMENT" SHEET.

FOR ABUTMENT DETAILS, SEE "EAST ABUTMENT DETAILS" SHEET.

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

EXCAVATION BELOW THE EXISTING FOUNDATION SHALL BE FILLED WITH CONCRETE.

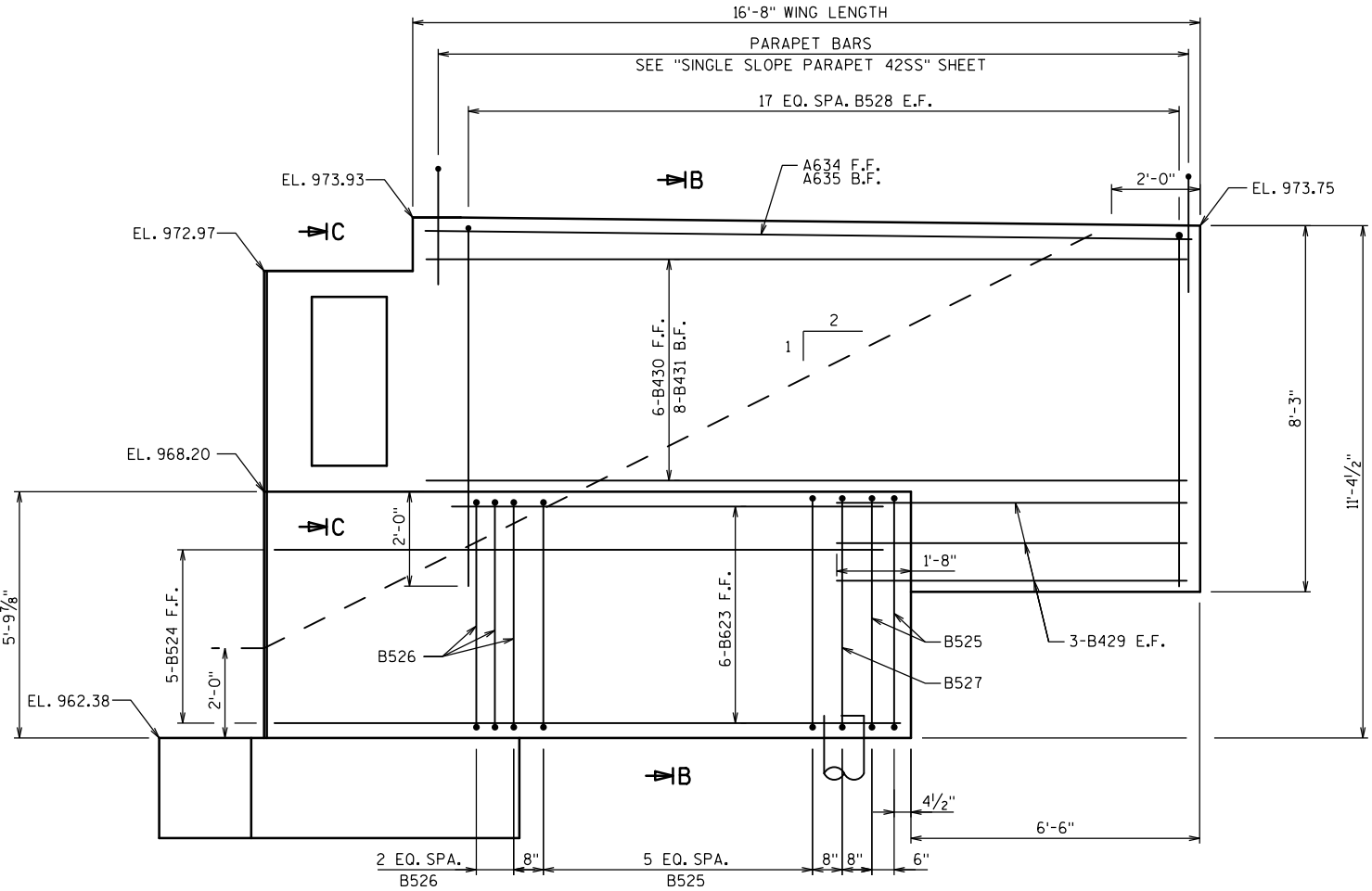
LEGEND

(B02) 18" RUBBERIZED MEMBRANE WATERPROOFING, SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENTS.

(B03) KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2"x6" KEYWAY.

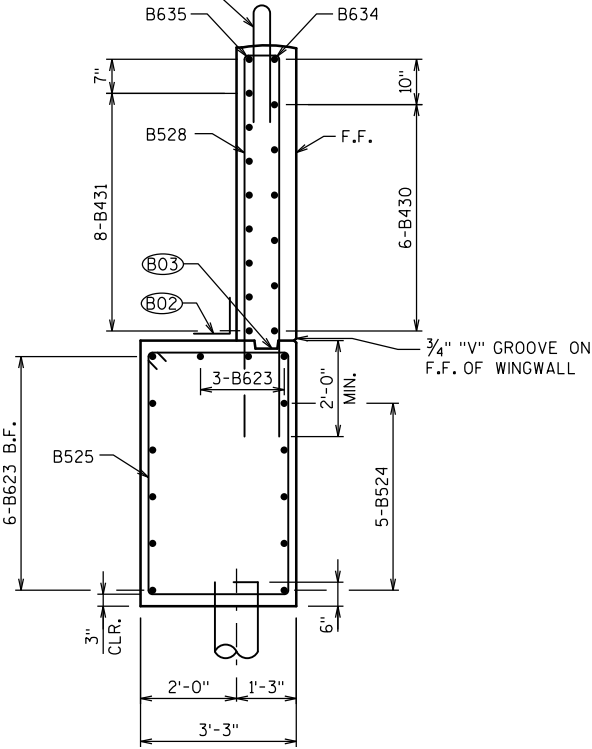
F.F. - FRONT FACE

B.F. - BACK FACE

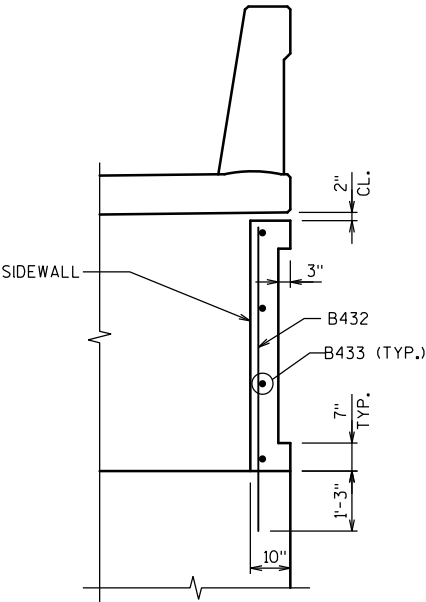


PARAPET REINFORCEMENT
FOR DETAILS, SEE "SINGLE
SLOPE PARAPET 42SS" SHEET

WING 4 ELEVATION
(FRONT FACE)



SECTION B-B



SECTION C-C

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
DRAWN BY JGJ		PLANS CK'D. HS	
EAST ABUTMENT WING DETAILS			SHEET 13 OF 32
			179

NOTES

FOR ABUTMENT ELEVATION AND PLAN, SEE "EAST ABUTMENT" SHEET.

FOR WING DETAILS, SEE "EAST ABUTMENT WING DETAILS" SHEET.

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

EXCAVATION BELOW THE EXISTING FOUNDATION SHALL BE FILLED WITH CONCRETE.

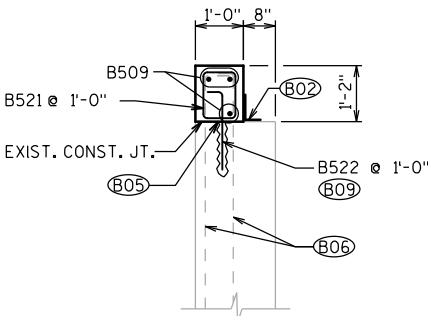
LEGEND

- (B01) TO MATCH EXISTING ABUTMENT PAVING NOTCH WIDTH AND DEPTH.
- (B02) 18" RUBBERIZED MEMBRANE WATERPROOFING, SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENTS.
- (B03) KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2"x6" KEYWAY.
- (B04) CONST. JOINT - POUR CONCRETE ABOVE THIS JOINT AFTER SUPERSTRUCTURE IS IN PLACE (STRIKE OFF AND LEAVE ROUGH).
- (B05) ROUGHEN SURFACE OF CONCRETE 1/4" DEEP MINIMUM AT AREAS WHERE NEW CONCRETE CONTACTS EXISTING CONCRETE.
- (B06) SALVAGE EXISTING REINFORCEMENT AND EXTEND FULL LENGTH INTO NEW WORK.
- (B07) ADHESIVE ANCHORS:
NO. 4 BARS EMBED 0'-10", MIN. EDGE DISTANCE 3"
NO. 5 BARS EMBED 1'-1", MIN. EDGE DISTANCE 4"
NO. 6 BARS EMBED 1'-3", MIN. EDGE DISTANCE 4 1/2"
NO. 8 BARS EMBED 1'-8", MIN. EDGE DISTANCE 6"
- (B09) ADHESIVE ANCHORS NO. 5 BAR, EMBED 1'-6" IN CONCRETE. SPACE AT 1'-0", TURN 10" LEG AS NECESSARY TO FIT.

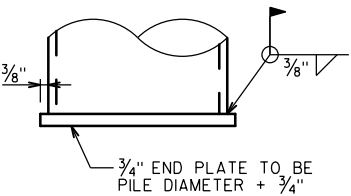
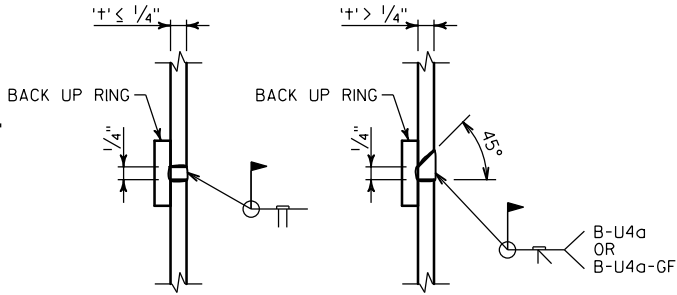
F.F. - FRONT FACE

B.F. - BACK FACE

SECTION A-A

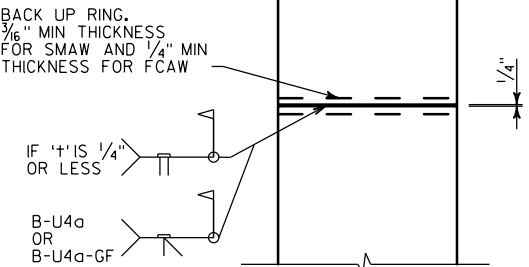


CIP PILE WELD DETAIL



END PLATE DETAIL
FOR CIP PILING

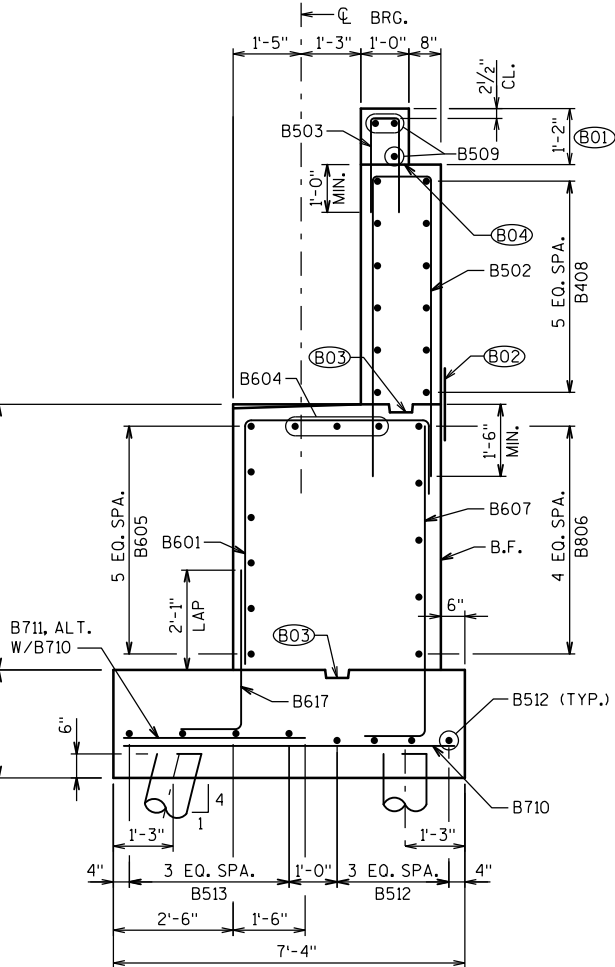
CAST-IN-PLACE 'PIPE PILE'



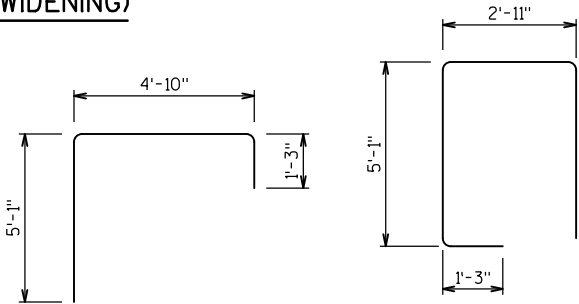
BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
△ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

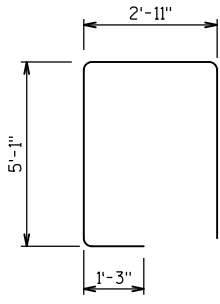
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
B601		13	10'-10"	x		ABUTMENT BODY - VERT.
B502	X	13	13'-5"	X		BACKWALL - VERT.
B503	X	15	4'-5"	X		BACKWALL & PAVING BLOCK - BOTH ENDS
B604		3	12'-3"			ABUTMENT BODY - LONG.
B605		6	13'-4"			ABUTMENT BODY - LONG. (F.F. & TOP)
B806		5	12'-3"			ABUTMENT BODY - LONG (B.F.)
B607		12	7'-7"	X		ABUTMENT BODY - VERT. (B.F.)
B408	X	12	14'-2"			BACKWALL - LONG.
B509	X	30	7'-11"			PAVING BLOCK - LONG.
B710		12	6'-10"			FOOTING - TRANS.
B711		12	4'-0"			FOOTING - TRANS.
B512		4	13'-1"			FOOTING - LONG.
B513		4	14'-1"			FOOTING - LONG.
B714		5	1'-10"		△	FOOTING - CORNER.
B715		6	4'-3"		△	FOOTING - CORNER.
B716		2	5'-6"			FOOTING - CORNER.
B617		14	4'-4"	X		FOOTING - VERT.
B618		14	4'-9"			ABUTMENT BODY - ADHESIVE ANCHORS
B819		5	7'-1"			ABUTMENT BODY - ADHESIVE ANCHORS
B420	X	6	2'-6"			BACKWALL - ADHESIVE ANCHORS
B521	X	55	3'-4"	X		PAVING BLOCK - STIRRUPS
B522	X	55	2'-4"	X		PAVING BLOCK - ADHESIVE ANCHORS
B623	X	9	8'-0"			WING BODY - LONG. (B.F.)
B524	X	5	14'-0"			WING BODY - LONG. (F.F.)
B525	X	9	16'-8"	X		WING BODY - STIRRUPS
B526	X	1	18'-2"	X		WING BODY - STIRRUPS
B527	X	1	14'-0"	X		WING BODY - STIRRUPS
B528	X	18	16'-2"	X		WING WALL - VERT.
B429	X	6	8'-0"			WING WALL - HORIZ. BOTTOM
B430	X	6	17'-2"			WING WALL - HORIZ. TOP (F.F.)
B431	X	8	16'-4"			WING WALL - HORIZ. TOP (B.F.)
B432	X	4	5'-10"			WING WALL - SIDE WALL
B433	X	4	4'-5"			WING WALL - SIDE WALL
B634	X	1	17'-2"			WING WALL - HORIZ. TOP (F.F.)
B635	X	1	16'-4"			WING WALL - HORIZ. TOP (B.F.)
B636	X	4	5'-6"	X		BACKWALL - VERT.



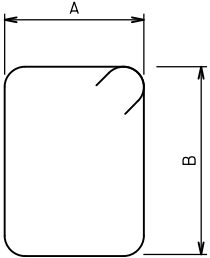
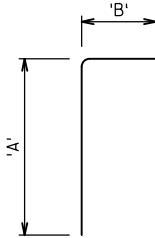
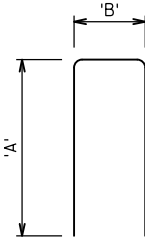
SECTION THRU ABUTMENT BODY
(AT BRIDGE WIDENING)



B601



B527



BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
B714	1 SET OF 5	8" TO 3'-0"
B715	1 SET OF 6	2'-8" TO 5'-9"

BUNDLE AND TAG EACH SERIES SEPARATELY.

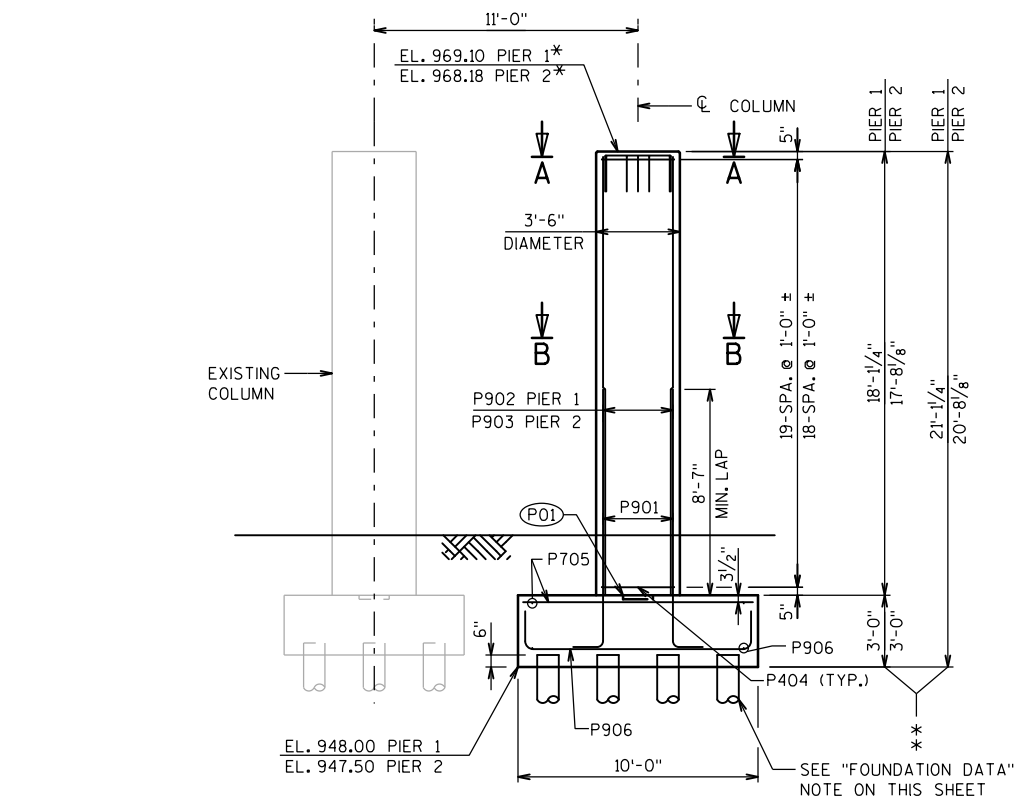
BAR MARK	DIMENSION 'A'	DIMENSION 'B'
B502	6'-2"	1'-4"
B503	2'-0"	0'-8"
B528	7'-9"	11"

BAR MARK	DIMENSION 'A'	DIMENSION 'B'
B607	6'-9"	1'-0"
B617	3'-6"	1'-0"
B522	1'-6"	0'-10"
B636	4'-8"	1'-0"

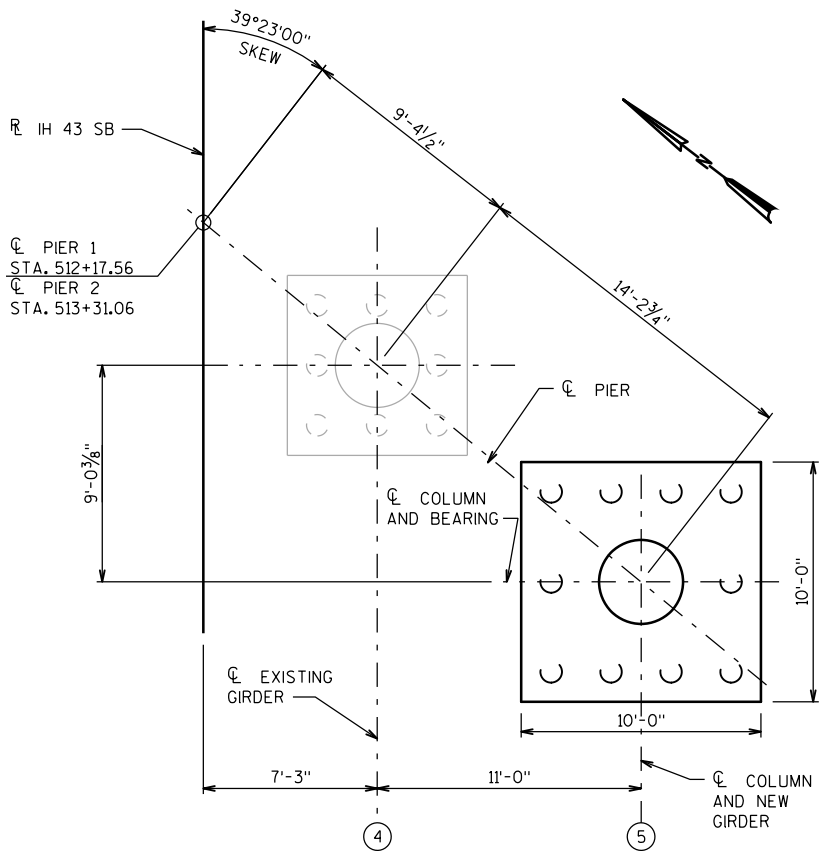
BAR MARK	DIMENSION 'A'	DIMENSION 'B'
B521	0'-8"	0'-8"
B525	2'-11"	5'-1"
B526	3'-8"	5'-1"

NO.	DATE	REVISION	BY
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STRUCTURE B-67-117			
		DRAWN BY JGJ	PLANS CKD. HS
EAST ABUTMENT DETAILS			SHEET 14 OF 32
			180

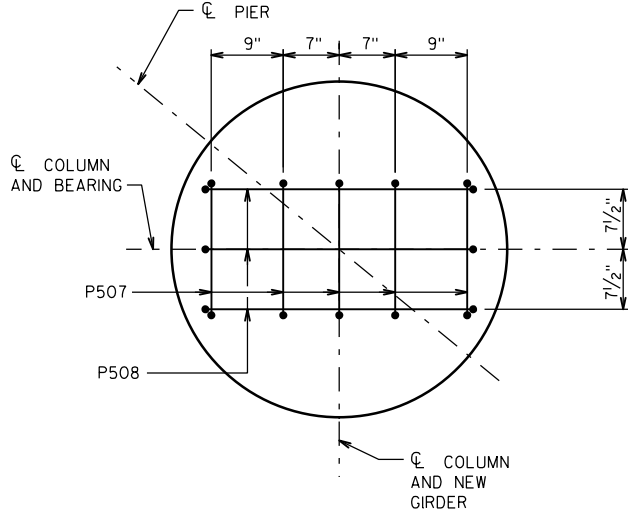
8



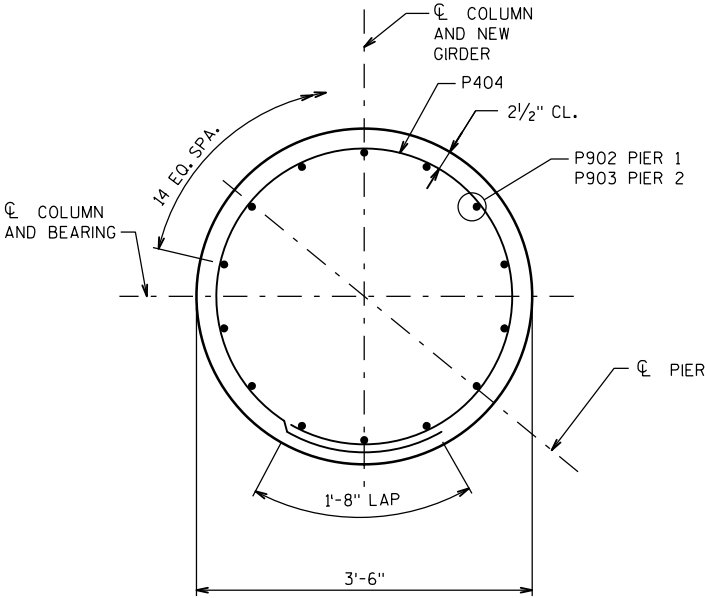
ELEVATION
(LOOKING EAST)



PLAN



SECTION A-A



SECTION B-B

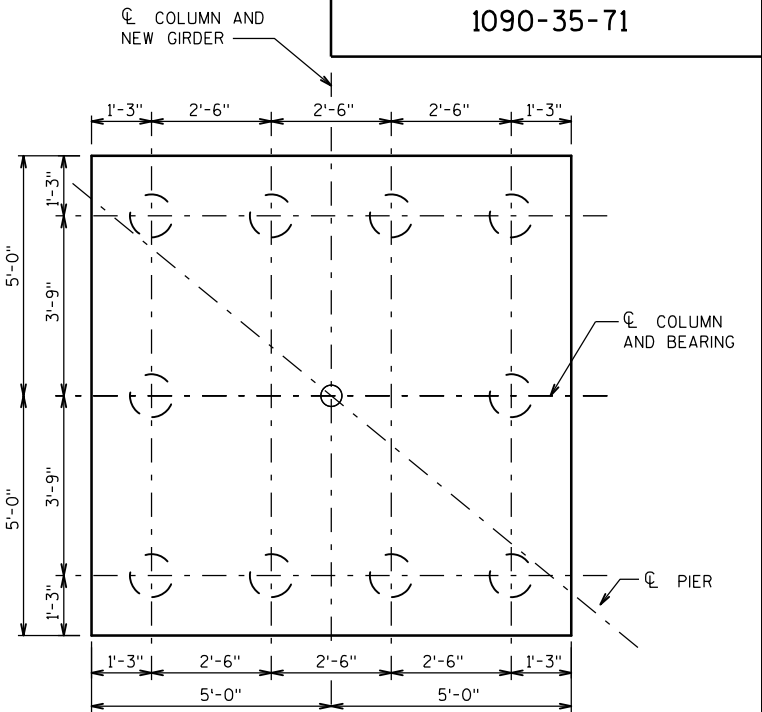
LEGEND

- * ELEVATIONS ARE GIVEN AT THE TOP OF CONCRETE AT THE CL OF PIER.
- ** DIMENSIONS ARE GIVEN AT CL OF COLUMN.
- (P01) 1'-3" x 1'-3" x 2" CONSTRUCTION JOINT FORMED BY A BEVELED KEYWAY.

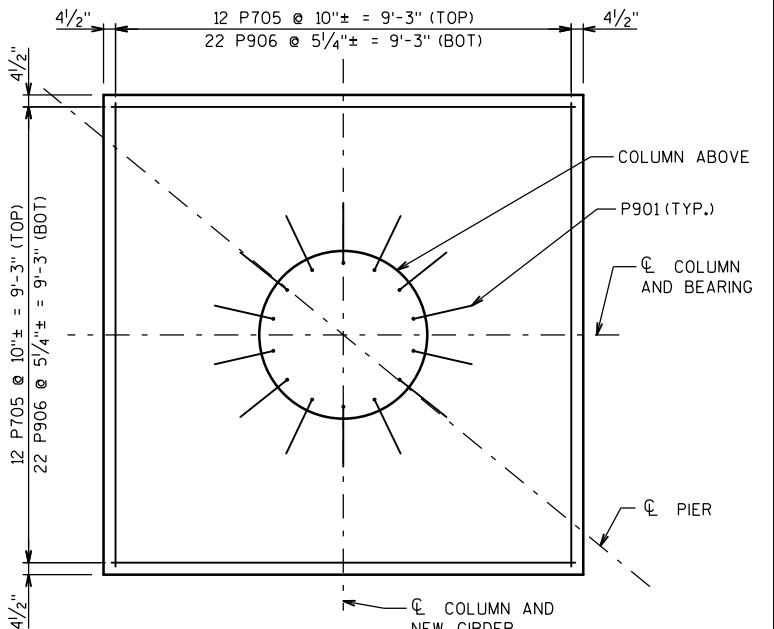
FOUNDATION DATA

PIERS TO BE SUPPORTED ON 10 3/4" x 0.365" CIP CONCRETE PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH = 45 FEET AT PIER 1 AND 50 FEET AT PIER 2.

STATE PROJECT NUMBER
1090-35-71



PILE LAYOUT



FOOTING BARS

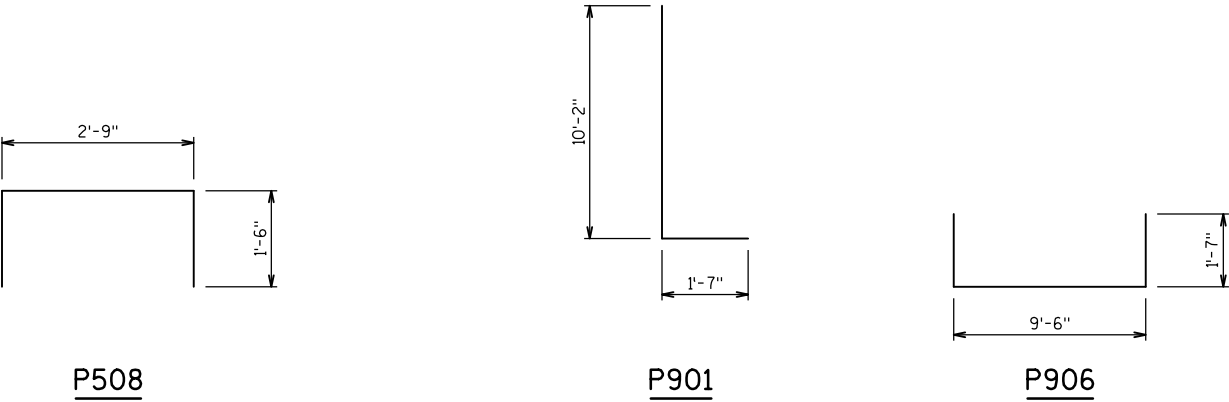
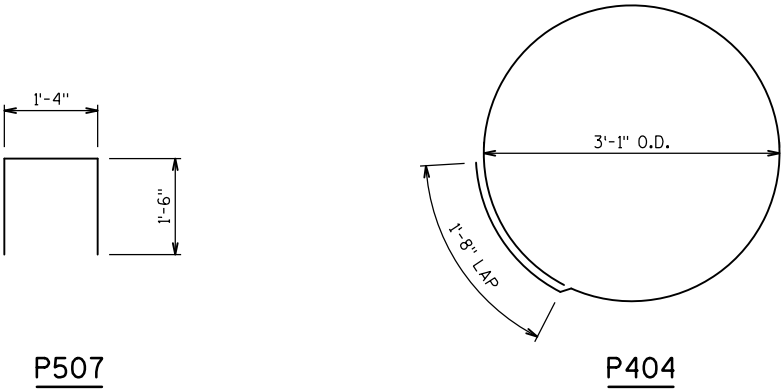
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
DRAWN BY JGJ		PLANS CK'D. HS	
PIERS 1 & 2			SHEET 15 OF 32

8

BILL OF BARS

NOTE:
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
P901	X	28	11'-9"	X		PIER 1 & 2 FOOTING DOWELS
P902	X	14	17'-9"			PIER 1 COLUMN VERTICALS
P903	X	14	17'-4"			PIER 2 COLUMN VERTICALS
P404	X	39	11'-5"	X		PIER 1 & 2 COLUMN HOOP BARS
P705		48	9'-6"			PIER 1 & 2 FOOTING TOP
P906		88	12'-2"	X		PIER 1 & 2 FOOTING BOTTOM
P507	X	10	4'-1"	X		PIER 1 & 2 PEDESTAL BARS NE
P508	X	6	5'-6"	X		PIER 1 & 2 PEDESTAL BARS NW



BENDING DIAGRAMS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
DRAWN BY JGJ		PLANS CK'D. HS	
PIER BILL OF BARS			SHEET 16 OF 32
			182

BEARING NOTES

ALL BEARINGS ARE SYMMETRICAL ABOUT C OF GIRDER AND C OF BEARING.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

MASONRY PLATE "D" SHALL BE GALVANIZED. TOP PLATE "A" ANDN STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A". DO NOT PAINT STAINLESS STEEL OR TEFLON SURFACES.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, BUT EXCLUDING STAINLESS STEEL SHEET, TEFLON SURFACE, PINTLES, ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.

IN LIEU OF USING SHIM PLATES, FABRICATOR MAY INCREASE THICKNESS OF TOP PLATE "A" OR MASONRY PLATE "D" BY THE SHIM PLATE THICKNESS.

ALL MATERIAL IN TYPE "A" BEARINGS, INCLUDING SHIM PLATES AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES FIXED B-67-117", EACH.

ALL MATERIAL IN TYPE "A-T" BEARINGS, INCLUDING SHIM PLATES AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-67-117", EACH.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

PROVIDE 1/8" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + 2 1/4", ABOVE TOP OF CONCRETE.

CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.

STEEL PINTLES SHALL CONFORM TO ASTM A449 OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 36, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

AT INSTALLATION, ENSURE STAINLESS STEEL SLIDING FACE OF THE UPPER ELEMENT AND THE TFE SLIDING FACE OF THE LOWER ELEMENT HAVE THE SURFACE FINISH SPECIFIED AND ARE CLEAN AND FREE OF ALL DUST, MOISTURE, AND OTHER FOREIGN MATTER.

PLACE SHIM PLATES BETWEEN BEARING PAD AND MASONRY PLATE "D". PLATES SHALL HAVE 'X' AND 'Z' DIMENSIONS THAT MATCH MASONRY PLATE "D".

FOR EXPANSION BEARINGS, ROCKER PLATE "C" SHALL BE GALVANIZED. FOR FIXED BEARINGS, ROCKER PLATE "C" SHALL BE SHOP PAINTED WITH A WELDABLE PRIMER.

(BD01) FINISH THESE SURFACES TO ANSI250 IF 'Y' DIMENSION IS GREATER THAN 2".

(BD02) PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.

(BD03) BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING REQUIREMENTS FOUND IN THE STANDARD SPECIFICATION.

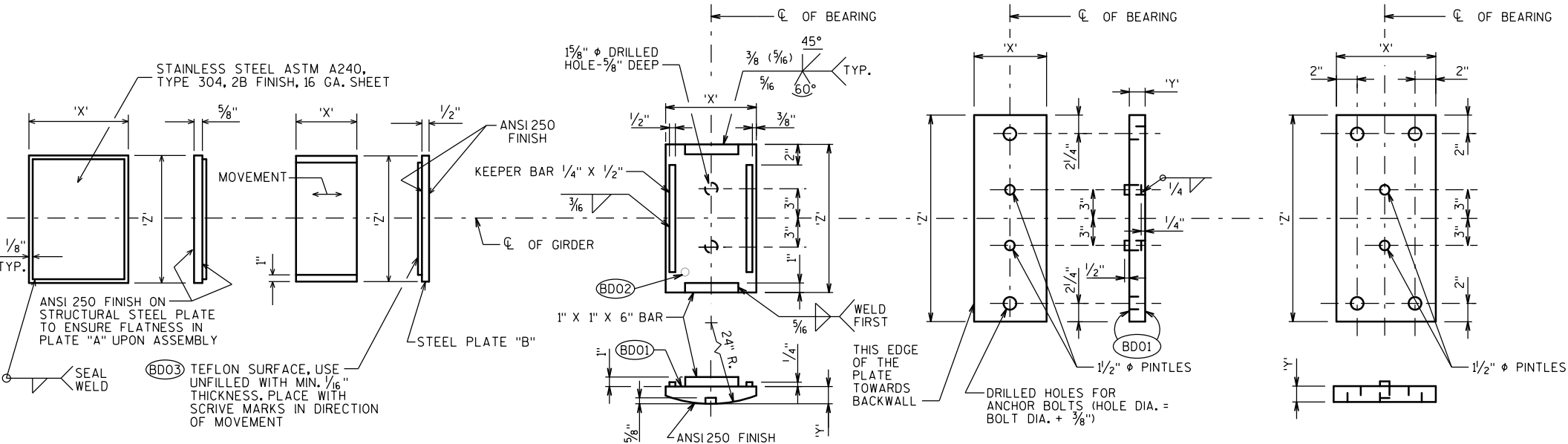
(BD04)

TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	(BD05) MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	(BD06) 5/16"
OVER 1 1/2"	(BD06) 3/8"

(BD05) EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

(BD06) MIN. PASS SIZE IS 5/16"



TOP PLATE "A"

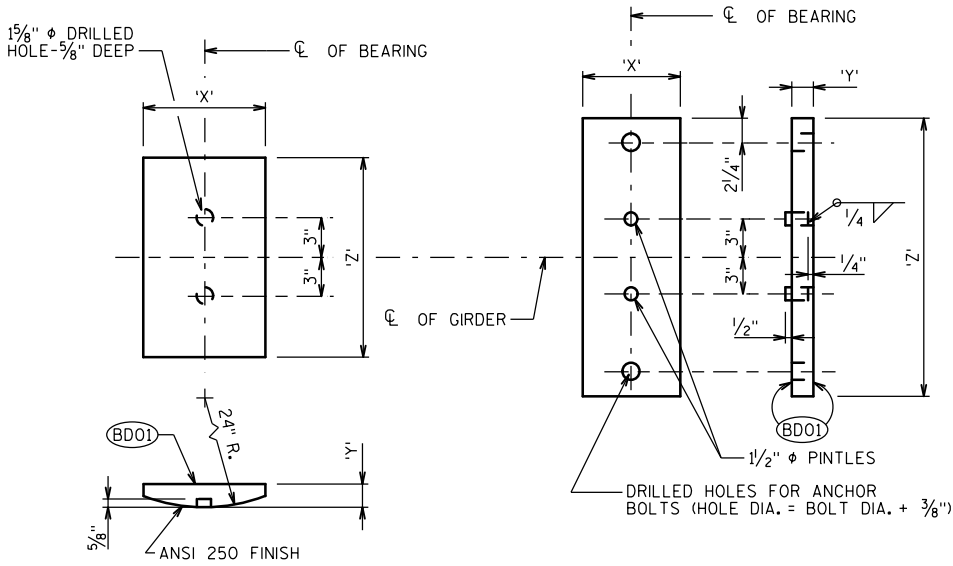
TEFLON SURFACE ON PLATE "B"

ROCKER PLATE "C"

EXPANSION BEARING

MASONRY PLATE "D" TYPE I

MASONRY PLATE "D" TYPE II

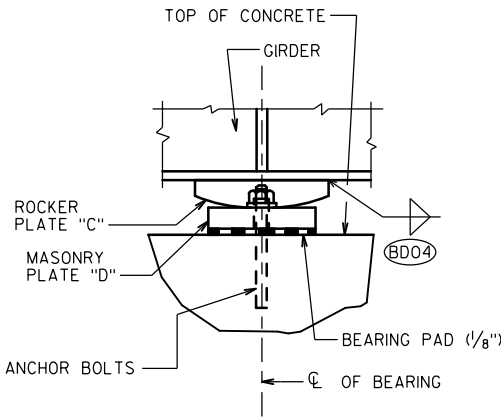


ROCKER PLATE "C"

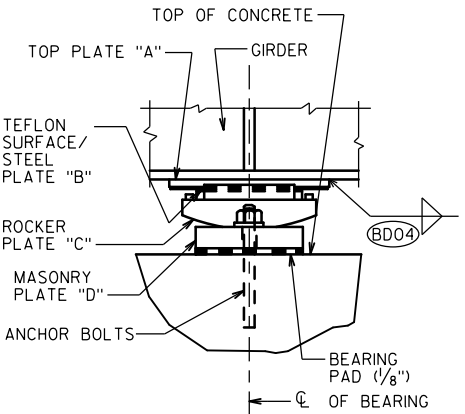
MASONRY PLATE "D"

FIXED BEARING

PIER 1



FIXED BEARING ASSEMBLY



EXPANSION BEARING ASSEMBLY

EXPANSION BEARING	PLATE "A"		PLATE "B"		PLATE "C"			PLATE "D"			PLATE "D" TYPE	ANCHOR BOLT SIZE	NO. OF BRG'S REQ'D.	LOCATION	CAPACITY KIPS
	'X'	'Z'	'X'	'Z'	'X'	'Y'	'Z'	'X'	'Y'	'Z'					
	11"	1'-6"	7"	1'-6"	9"	1½"	1'-8¼"	8"	2"	2'-8"	II	(2) - 1¼"φ × 3'-0" LONG	2	EAST & WEST ABUTMENTS	280
	1'-7"	1'-6"	1'-3"	1'-6"	1'-5"	3⅞"	1'-8¼"	1'-5"	3⅜"	2'-5"	I	(2) - 1½"φ × 1'-10" LONG	1	PIER 2	600
FIXED BEARING				PLATE "C"			PLATE "D"			PLATE "D" TYPE	ANCHOR BOLT SIZE	NO. OF BRG'S REQ'D.	LOCATION	CAPACITY KIPS	
				'X'	'Y'	'Z'	'X'	'Y'	'Z'						
					5"	2⅜"	1'-6"	1'-4"	3⅜"	2'-4"	I	(2) - 1½"φ × 1'-10" LONG	1	PIER 1	560

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DRAWN BY		BPV	PLANS CKD. MSS
BEARING DETAILS			SHEET 17 OF 32
			183

HOLD DOWN DEVICE NOTES

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. CHAMFER TOP OF ANCHOR BOLTS PRIOR TO THREADING.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

THE MATERIAL FOR THE HOLD-DOWN PLATES SHALL CONFORM TO ASTM A709 GRADE 50W.

ALL MATERIAL WELDED TO THE GIRDERS, WHICH INCLUDES BEARING STIFFENERS, STIFFENER PLATE, AND PIN BEARING PLATE, SHALL MATCH THE STEEL REQUIREMENTS OF THE WEB AT THAT LOCATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 36 OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ALL MATERIAL IN HOLD DOWN DEVICES, WHICH INCLUDES HOLD-DOWN PLATES, HIGH TENSILE STRENGTH BOLTS, PINS AND ANCHOR BOLTS, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-67-117".

ALL MATERIAL WELDED TO THE GIRDERS, WHICH INCLUDES BEARING STIFFENERS, STIFFENER PLATE, AND PIN BEARING PLATE, SHALL BE INCLUDED IN THE BID ITEM USED FOR THE STEEL GIRDER QUANTITIES.

(HD01) PROJECT ANCHOR BOLTS, PLATE "D" THICKNESS + 2 1/4", ABOVE TOP OF CONCRETE.

(HD02) HOLES FOR PIN IN HOLD-DOWN PLATES AND PLATE WASHERS SHALL BE AS STATED IN THE STANDARD SPECIFICATION 506.3.17.

(HD03) SHOP DRILL HOLES IN HOLD-DOWN PLATE ATTACHED TO PLATE "D". FIELD DRILL HOLES IN UPPER HOLD-DOWN PLATE AFTER ALIGNING IN THE FIELD.

(HD04) SEE "GIRDER DETAILS" SHEET FOR WELD DETAILS SHOWING BEARING STIFFENER CONNECTION TO WEB AND FLANGE.

☆

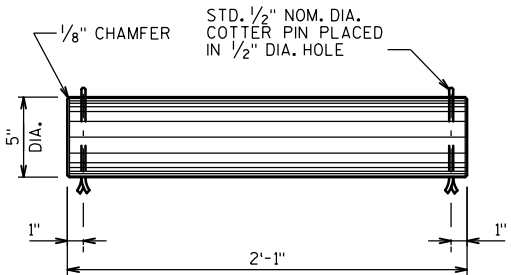
TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	△ 5/16"
OVER 1 1/2" TO 2 1/4"	△ 3/8"
OVER 2 1/4" TO 6"	△ 1/2"

† EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

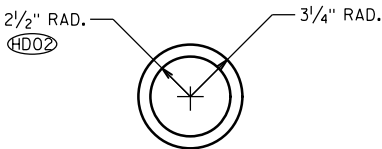
△ MIN. PASS SIZE IS 3/16"

NO.	DATE	REVISION	BY
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STRUCTURE B-67-117			
DRAWN BY		BPV	PLANS CKD. MSS
HOLD DOWN DEVICE			SHEET 18 OF 32

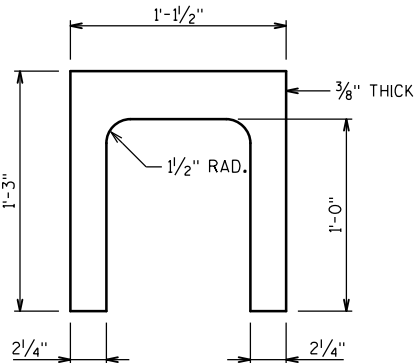


PIN DETAIL

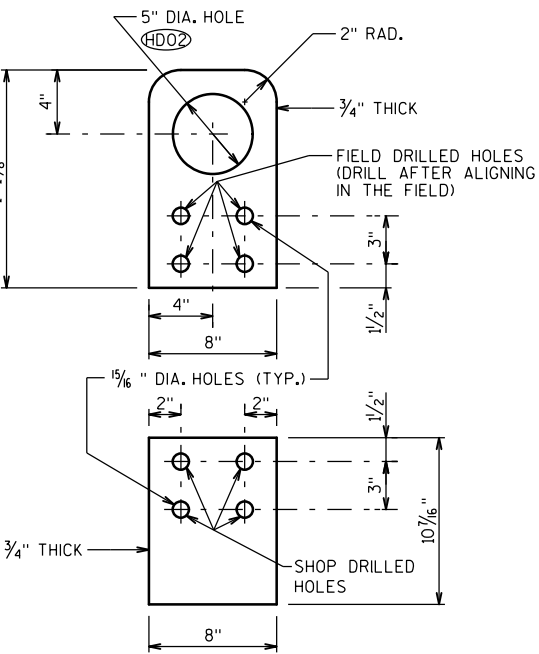
COLD ROLLED STEEL OR CARBON STEEL FORGING.



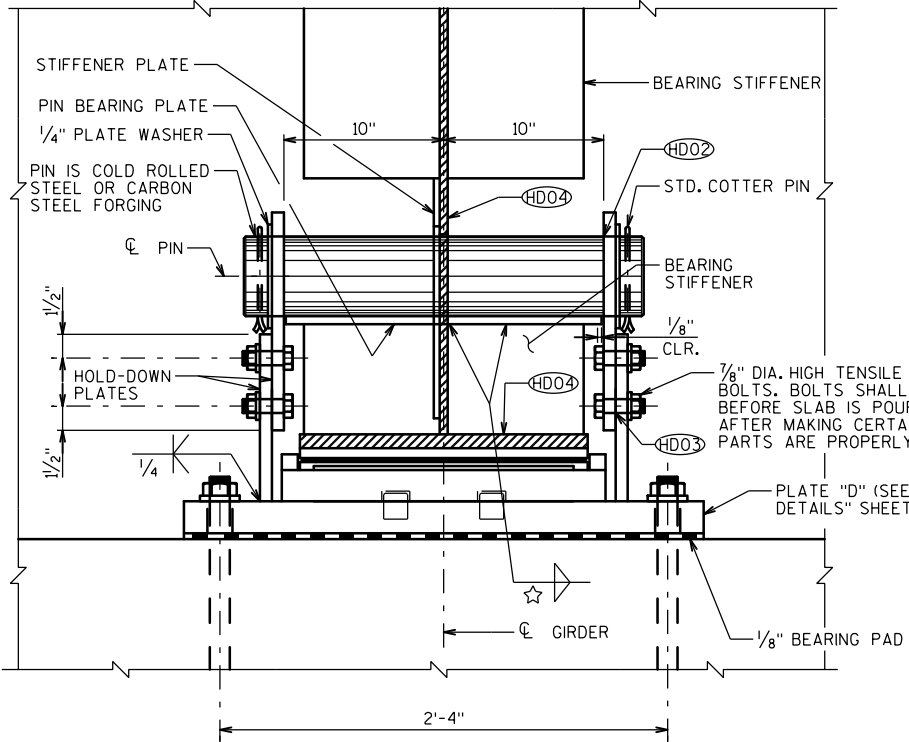
1/4" PLATE WASHER



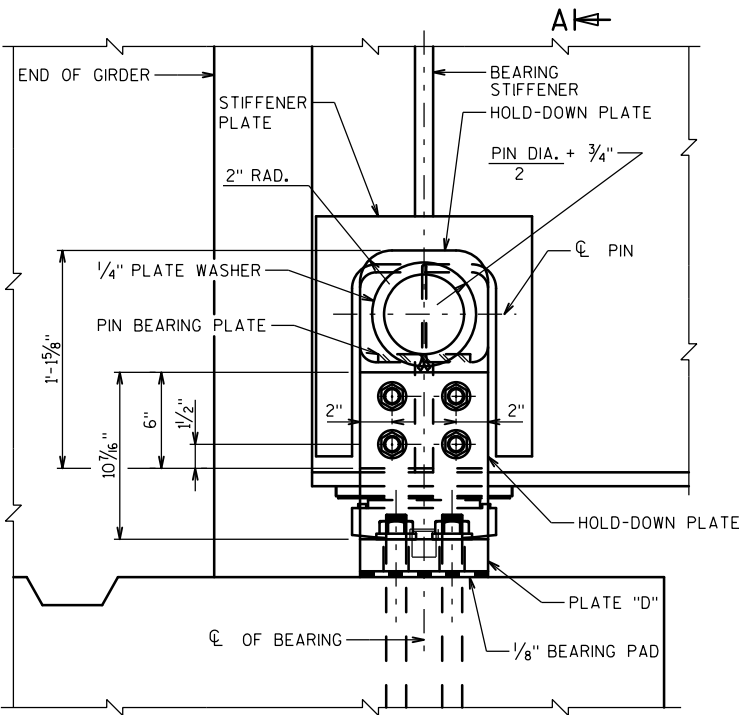
STIFFENER PLATE



HOLD-DOWN PLATES

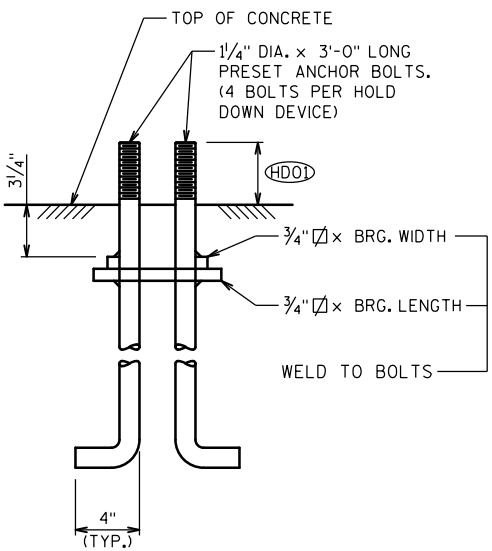


SECTION A-A

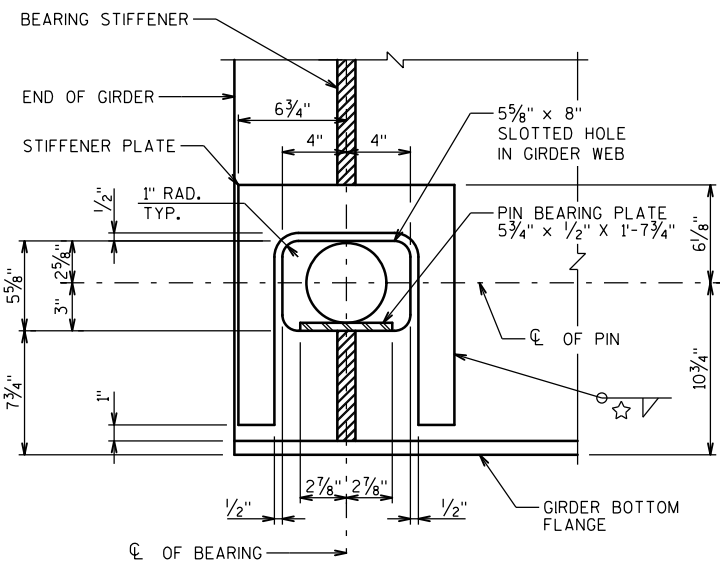


ELEVATION

PERMANENT HOLD DOWN DEVICE



ANCHOR BOLT DETAIL

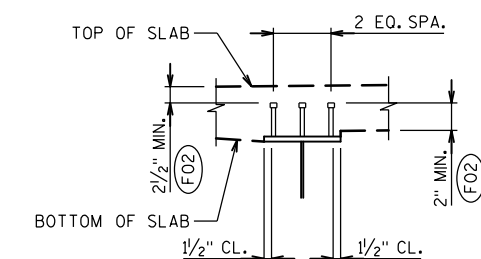


GIRDER DETAIL



(F01) 6" X 1/2" CONNECTION STIFFENER REQUIRED AT THESE LOCATIONS ON EXISTING GIRDER 4.

(F02) USE DIFFERENT LENGTH STUDS IF 2 1/2" MIN. CLEARANCE OR 2" EXTENSION CRITERIA IS VIOLATED.

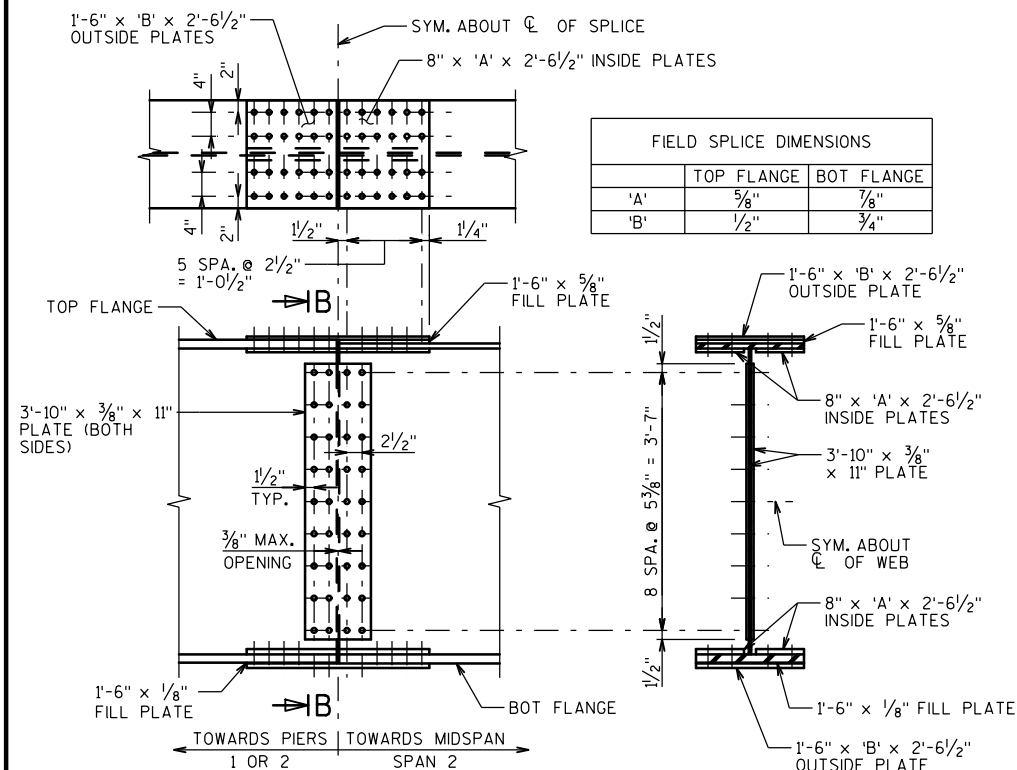


NOTE:
USE THREE SHOP OR FIELD WELDED $\frac{7}{8}$ " DIA. x 7" LONG
STUDS EQUALLY SPACED WITH A MINIMUM OF $1\frac{1}{2}$ " CLEAR
FROM THE FLANGE EDGE. STUDS SHALL NOT BE PLACED
OVER FIELD SPLICE PLATES.



CONNECTION/INTERMEDIATE STIFFENERS NOT SHOWN FOR CLARITY

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		PLANS CK'D.	MSS
FRAMING PLAN & GIRDER ELEVATION		SHEET 19 OF 3	
		185	



FIELD SPLICE DETAIL

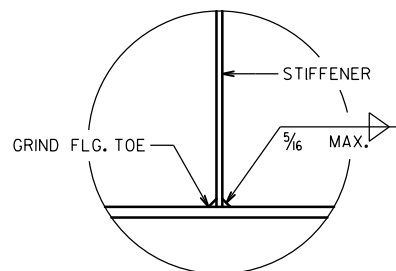
SECTION B-B

G01 TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	G02 MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	G03 5/16"
OVER 1 1/2"	G03 3/8"

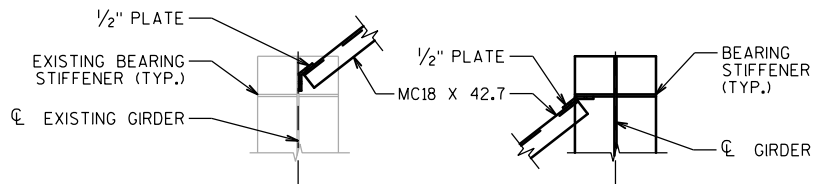
G02 EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

G03 MIN. PASS SIZE IS 5/16"

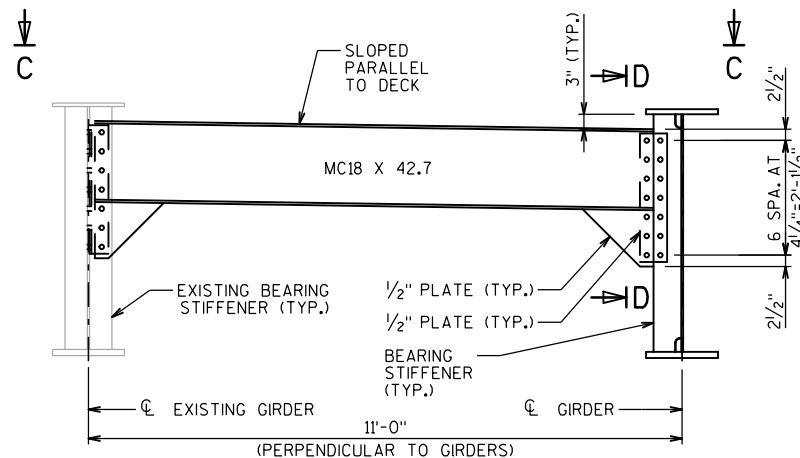


DETAIL A

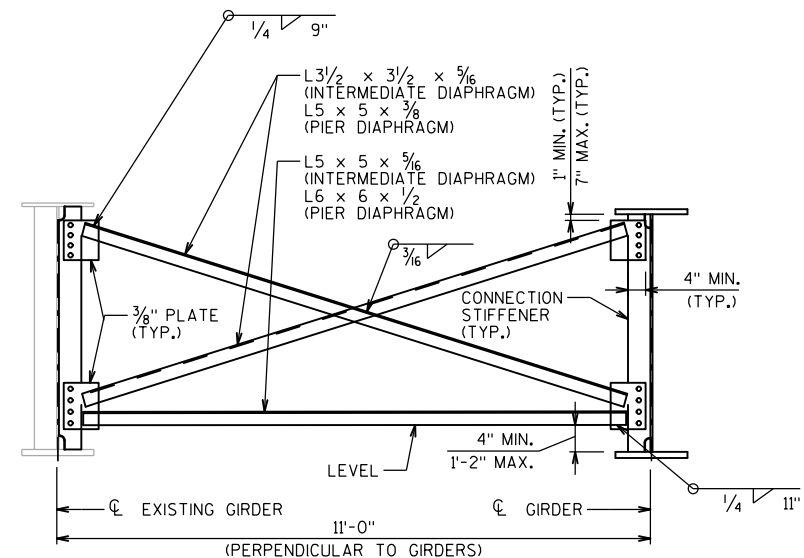
G04 CONNECTION STIFFENER DETAIL @ TENSION FLANGE



SECTION C-C



ABUTMENT DIAPHRAGM



INTERMEDIATE DIAPHRAGM & PIER DIAPHRAGM

LEGEND

G04 SEE "FRAMING PLAN & GIRDER ELEVATION" SHEET FOR LOCATIONS OF TENSION FLANGE.

G05 FILLET WELD INTER. STIFF. TO COMPRESSION FLG. AND TIGHT FIT TO TENSION FLANGE (CAULK TIGHT FIT TO TENSION FLG. WITH PAINTABLE SILICONIZED CAULK).

G06 1/8" MIN., 1/4" MAX, TYP.

NOTES

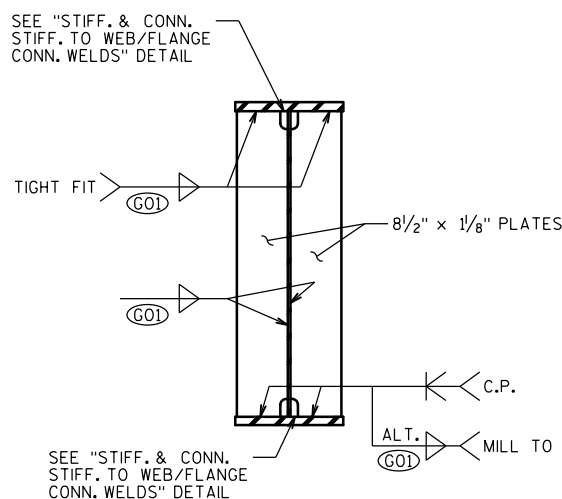
ALL STRUCTURAL STEEL FOR GIRDERS, SPLICE PLATES, CONNECTION PLATES, BEARING STIFFENERS, AND TRANSVERSE STIFFENERS SHALL BE HIGH-STRENGTH STRUCTURAL STEEL ASTM A709, GRADE 50. ALL OTHER STRUCTURAL STEEL SHALL BE STRUCTURAL CARBON STEEL, ASTM A709, GRADE 36.

ALL FIELD CONNECTIONS SHALL BE MADE WITH ASTM F3125, A325 3/4" DIAMETER FRICTION TYPE HIGH-TENSILE STRENGTH BOLTS UNLESS SHOWN OR NOTED OTHERWISE.

HOLES FOR BOLTED CONNECTIONS SHALL NOT BE MORE THAN 1/16" GREATER THAN THE NOMINAL BOLT DIAMETER.

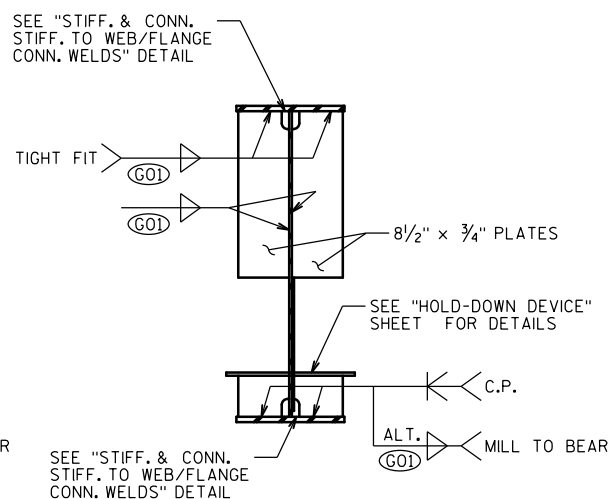
OPTIONAL WELDED SHOP SPLICES MAY BE USED FOR ALL FLANGE AND WEB PLATES OVER 60'-0" LONG. IF USED, THE LOCATION OF THE SPLICE SHALL BE SHOWN ON SHOP DRAWINGS AND WILL BE SUBJECT TO THE APPROVAL OF THE STRUCTURES DESIGN SECTION.

PRIOR TO STEEL BLAST, ALL FLAME CUT EDGES OF PLATE THAT ARE TO BE PAINTED SHALL BE GROUND OR PLANED TO REMOVE THE HARDENED SURFACE CAUSE BY THE FLAME, AND CORNERS CHAMFERED 1/16" MIN.



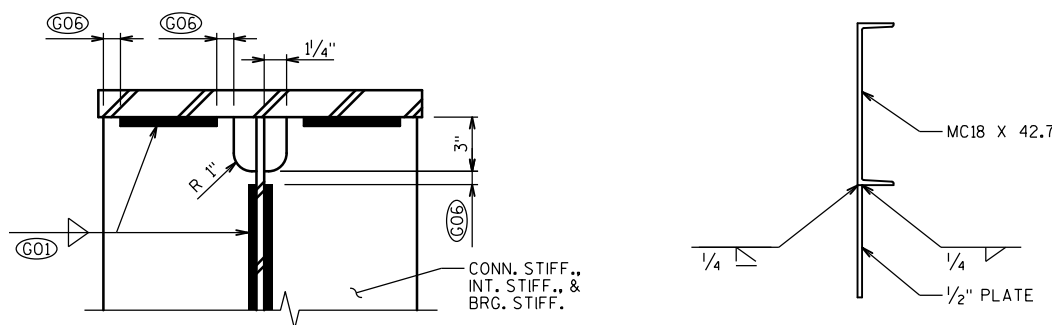
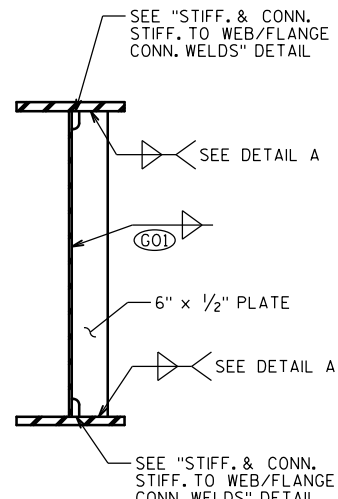
BEARING STIFFENER DETAIL

(TYP. AT PIERS)

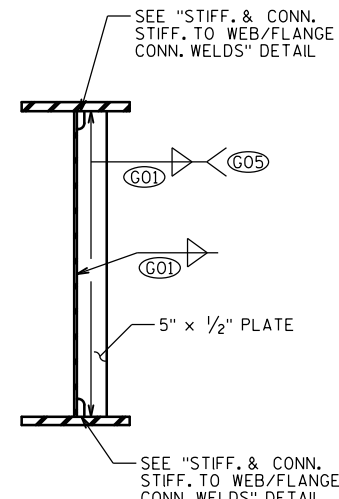


BEARING STIFFENER DETAIL

(TYP. AT ABUTMENTS)

STIFF. & CONN. STIFF. TO
WEB/FLANGE CONN. WELDS

CONNECTION STIFF. DETAIL



INTERMEDIATE STIFF. DETAIL

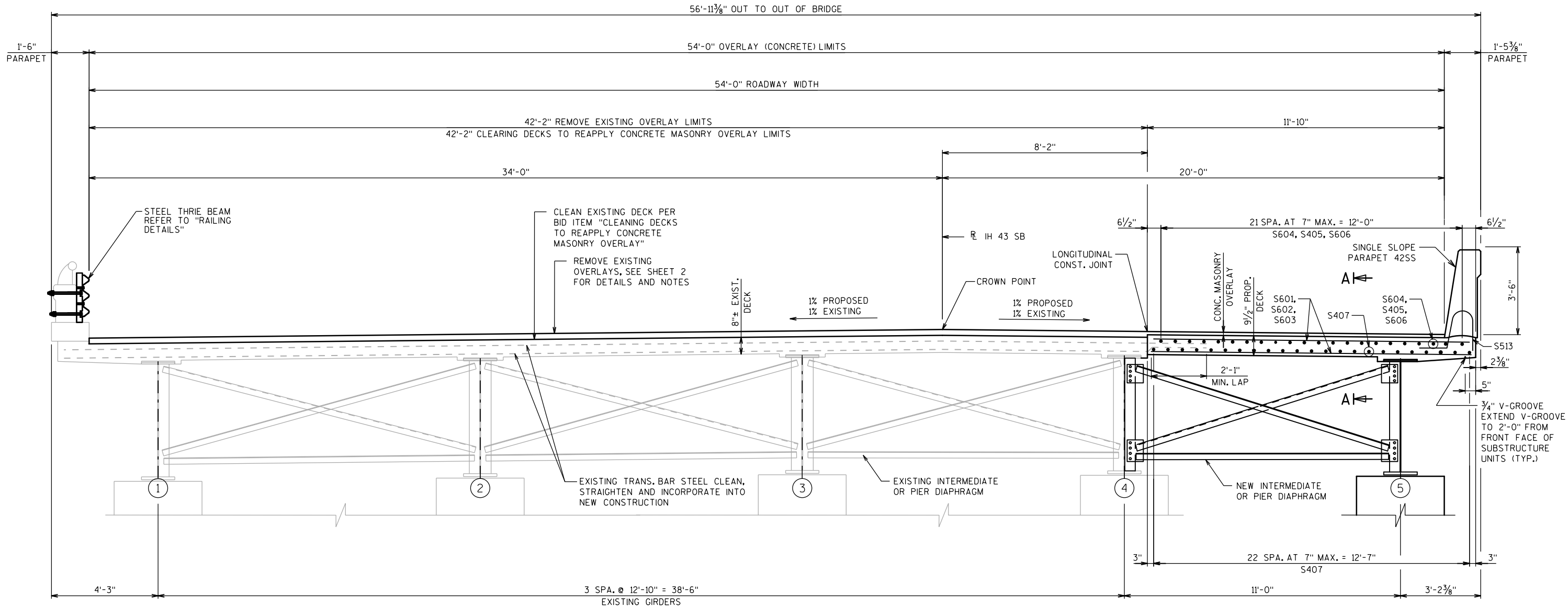
PLACE ON INTERIOR FACE OF GIRDER

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
DRAWN BY		BPV	PLANS CKD. MSS
GIRDER DETAILS			SHEET 20 OF 32

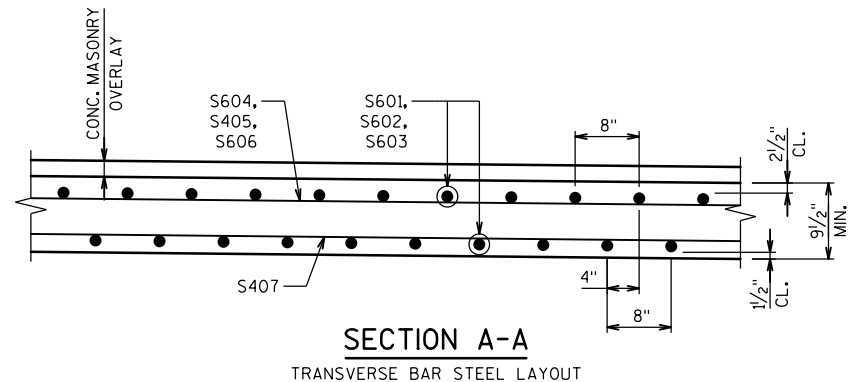


LAP LONGITUDINAL S515 BARS IN SINGLE SLOPE PARAPET 42SS
1'-9" MIN.

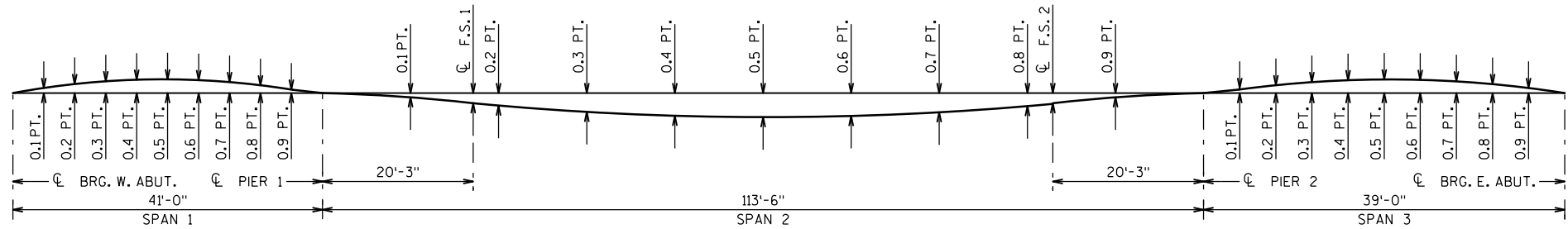
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
		DRAWN BY	JGJ
		PLANS CK'D.	MSS
SUPERSTRUCTURE DECK PLAN		SHEET 21 OF 3	
		187	



CROSS SECTION THRU ROADWAY
LOOKING EAST



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STRUCTURE B-67-117			
DRAWN BY		BPV	PLANS CK'D. MSS
SUPERSTRUCTURE SECTION			SHEET 22 OF 32
			188



DEFLECTION DIAGRAM

SEE TABLE FOR CONCRETE DEFLECTIONS AT TENTH POINTS

TOP OF DECK ELEVATIONS & DEFLECTION

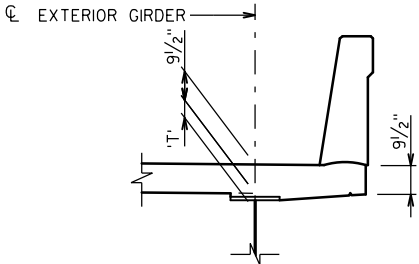
LOCATION	CL BRG. W. ABUT.	SPAN 1									CL PIER 1	SPAN 2											CL PIER 2
		0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.		0.1 PT.	CL F.S. 1	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	CL F.S. 2	0.9 PT.	
SOUTH COPING T.O.D	975.09	975.08	975.07	975.06	975.05	975.03	975.02	975.01	974.99	974.97	974.96	974.91		974.86	974.80	974.74	974.67	974.60	974.53	974.45		974.37	974.28
SOUTH GUTTERLINE T.O.D	975.10	975.09	975.08	975.07	975.06	975.04	975.03	975.01	975.00	974.98	974.97	974.92		974.87	974.81	974.75	974.68	974.61	974.53	974.46		974.37	974.28
GIRDER 5 T.O.D	975.12	975.11	975.09	975.08	975.07	975.06	975.04	975.03	975.01	975.00	974.98	974.93	974.89	974.88	974.82	974.76	974.69	974.62	974.54	974.46	974.44	974.38	974.29
NORTH DECK LIMIT T.O.D	975.19	975.18	975.17	975.16	975.14	975.13	975.11	975.10	975.08	975.06	975.04	974.99		974.94	974.87	974.81	974.74	974.66	974.59	974.50		974.41	974.32
CONC. DEFL. (IN.)	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.4	0.7	0.8	1.2	1.5	1.6	1.5	1.2	0.8	0.7	0.4	0.0
TOTAL DEFL. (IN.)	0.0	0.0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	0.0	0.4	0.8	0.9	1.4	1.7	1.9	1.7	1.4	0.9	0.8	0.4	0.0

SPAN 3									CL BRG. E. ABUT.
0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	
974.25	974.21	974.18	974.15	974.12	974.08	974.05	974.01	973.98	973.94
974.25	974.22	974.19	974.15	974.12	974.09	974.05	974.02	973.98	973.94
974.26	974.22	974.19	974.16	974.12	974.09	974.05	974.02	973.98	973.95
974.29	974.25	974.22	974.19	974.15	974.12	974.08	974.04	974.01	973.97
-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	0.0	0.0
-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0.0	0.0

TOP OF STEEL ELEVATION

LOCATION	CL BRG. ABUT. 1	CL PIER 1	CL F.S. 1	CL F.S. 2	CL PIER 2	CL BRG. ABUT. 2
CL PROPOSED GIRDER 5	974.21	974.08	974.04	973.59	973.38	973.04

NOTE: TOP OF STEEL ELEVATIONS AT CL OF FIELD SPLICE INCLUDE BEAM DEFLECTIONS. THESE ELEVATIONS ARE TO TOP OF STEEL (SPlice & COVER PLATE THICKNESS, IF APPLICABLE, ARE ACCOUNTED FOR) AND THEY ARE FOR THE MATERIAL AS ERECTED. THE ELEVATION OF THE TOP OF STEEL AT THE FIELD SPLICE POINTS SHALL BE CHECKED, AND CORRECTED, IF POSSIBLE, AFTER ERECTION AND BEFORE PERMANENTLY BOLTING THE DIAPHRAGMS IN PLACE.



SLAB HAUNCH DETAIL

'T' = HAUNCH HEIGHT AT CENTERLINE OF GIRDER

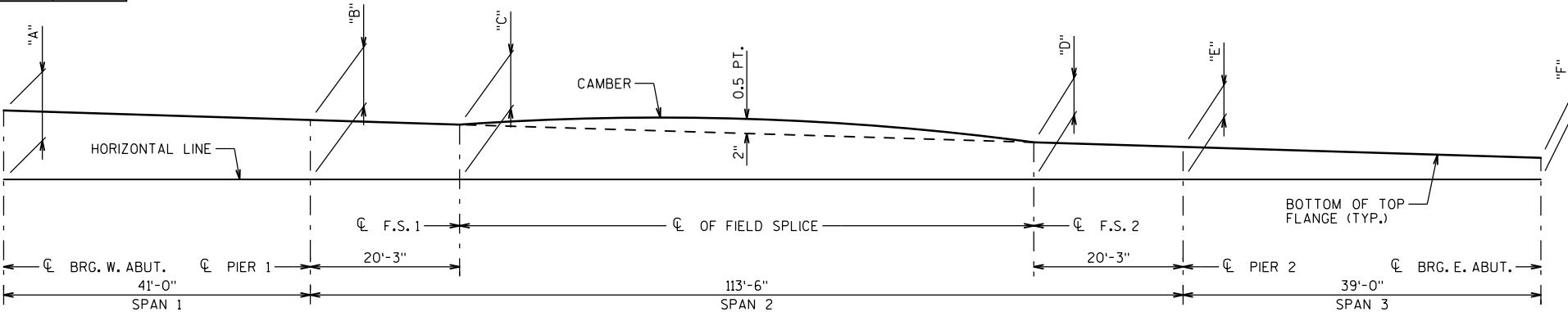
TO DETERMINE 'T':
AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED, ELVATIONS OF THE TOP FLANGE OR TOP OF SPLICE PLATES SHALL BE TAKEN AT CENTERLINES OF BEARINGS, CENTERLINE OF FIELD SPLICES, AND AT 0.1 POINTS OF THE SPAN. THE PROCESS IS SHOWN BELOW AND IN THE DETAILS ABOVE:

- TOP OF DECK ELEVATION AT FINAL GRADE
- TOP OF STEEL ELEVATION AFTER STEEL ERECTION
- + CONC. ONLY DEFLECTION: DOWNWARD DEFLECTION IS ADDED, UPWARD DEFLECTION IS SUBTRACTED

- SLAB THICKNESS (9 1/2")

= 'T' VALUE FOR SETTING HAUNCH

NOTE: MINIMUM HAUNCH SHALL BE 1/4".



BLOCKING DIAGRAM

BLOCKING DIMENSIONS

LOCATION	"A"	"B"	"C"	"D"	"E"	"F"
CL PROPOSED GIRDER 5	14 1/16"	11 3/4"	11 5/16"	5 5/16"	3 3/16"	0"

NOTE: DEFLECTIONS NOT INCLUDED.

LEGEND

T.O.D. = TOP OF DECK

T.O.S. = TOP OF STEEL

NOTES

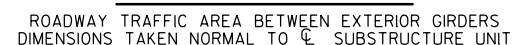
- ALL TABULATED VALUES ARE IN DECIMALS OF A FOOT, UNLESS NOTED OTHERWISE.
- NEGATIVE DEFLECTION VALUE DENOTES UPWARD DEFLECTION
- CONCRETE DEFLECTION INCLUDE WEIGHT OF CONCRETE SLAB, HAUNCHES, PARAPETS, AND 3/2" OVERLAY.
- DEFLECTIONS ARE THEORETICAL AND MAY VARY IN FIELD
- THE RATE OF PLACING CONCRETE SHALL EQUAL OR EXCEED 1/2 SPAN LENGTH PER HOUR BUT NEED NOT EXCEED 100 C.Y. PER HOUR

NO.	DATE	REVISION	BY
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DRAWN BY JGJ		PLANS CKD. HS	
TOP OF DECK ELEVATIONS & DEFLECTIONS			SHEET 23 OF 32

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE B-67-117", LF.

- ① NEOPRENE STRIP SEAL (4 - INCH) & STEEL EXTRUSIONS.
- ②A 1/2" THICK ANCHOR PLATE WITH 5/8" DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PL. TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③ 3/4" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE.
- ③A 3/4" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. GROUT THREADED ROD INTO FIELD DRILLED HOLE IN ABUTMENT BACKWALL AS SHOWN.
- ④ 3/4" DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" x 1/2" BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.
- ⑥J01 SET JOINT OPENING AT 1 3/4"
- ⑥J02 EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS INDICATED BY ⑥J03.
- ⑥J03 ADHESIVE ANCHORS, NO. 5 BARS. EMBED A MINIMUM OF 1'-0" INTO CONCRETE. SPACE AT 1'-0" MAX. AND AVOID EXPANSION JOINT HARDWARE. TURN 10" LEG AS NECESSARY TO FIT. ANCHORS SHALL BE APPROVED FOR USE IN CRACKED CONCRETE.
- ⑥J04 BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO C OF GIRDERS.
- ⑥J05 DIMENSIONS SHOWN MATCH EXISTING PLANS.
- ⑥J06 OPT. CONST. JT. 1" MIN. BELOW EXIST. REINF.

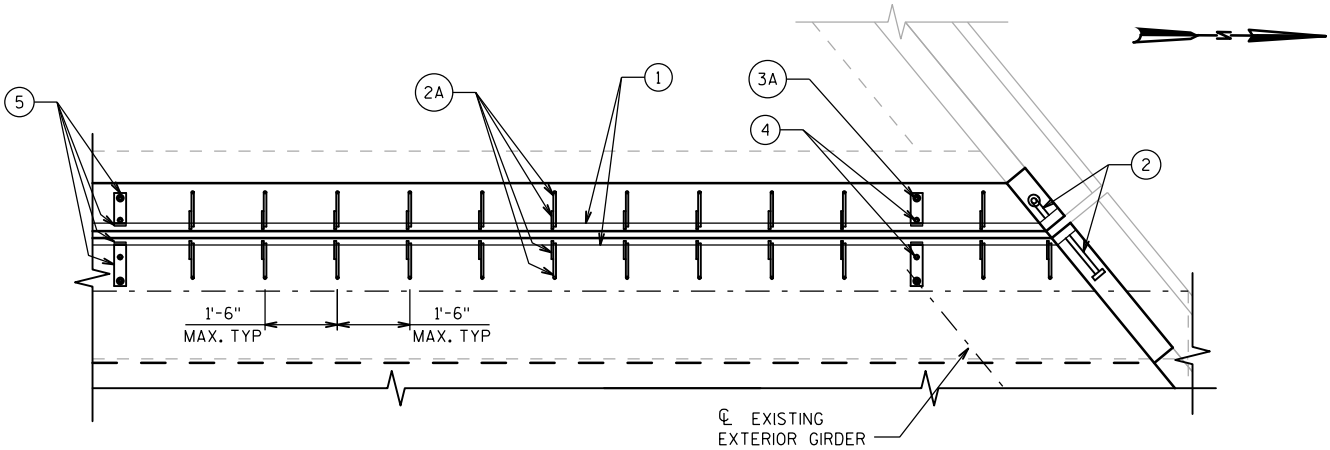
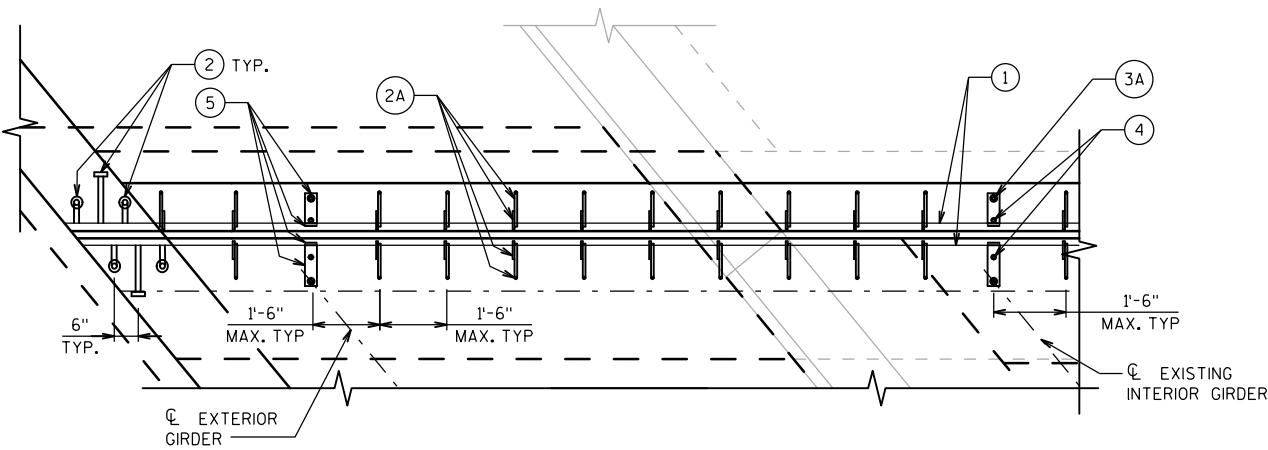
REFER TO "JOINT REPLACEMENT (2 OF 4)", "JOINT REPLACEMENT (3 OF 4)",
AND "JOINT REPLACEMENT (4 OF 4)" SHEETS FOR ADDITIONAL INFORMATION
AND DETAILS.





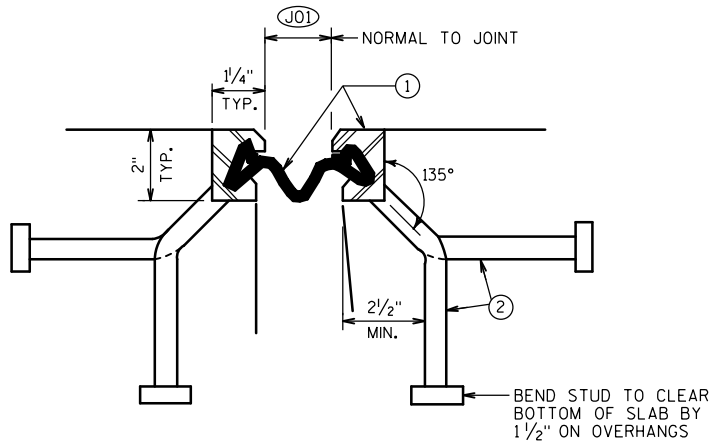
(B09) SPACE AT 1'-0" MAX. AND TO AVOID
EXPANSION JOINT HARDWARE

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PART PLAN

(WEST SIDE SHOWN, EAST SIDE SIMILAR)



SECTION THRU JOINT

LEGEND

- ① NEOPRENE STRIP SEAL (4 - INCH) & STEEL EXTRUSIONS.
- ② STUDS $\frac{5}{8}$ " DIA. $\times$ $6\frac{3}{8}$ " LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A $\frac{1}{2}$ " THICK ANCHOR PLATE WITH $\frac{5}{8}$ " DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PL. TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③ $\frac{3}{4}$ " DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE.
- ③A $\frac{3}{4}$ " DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. GROUT THREADED ROD INTO FIELD DRILLED HOLE IN ABUTMENT BACKWALL AS SHOWN.
- ④ $\frac{3}{4}$ " DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" $\times$ $\frac{1}{2}$ " BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE $\frac{1}{2}$ " DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.
- ① SET JOINT OPENING AT $1\frac{3}{4}$ "

NOTES

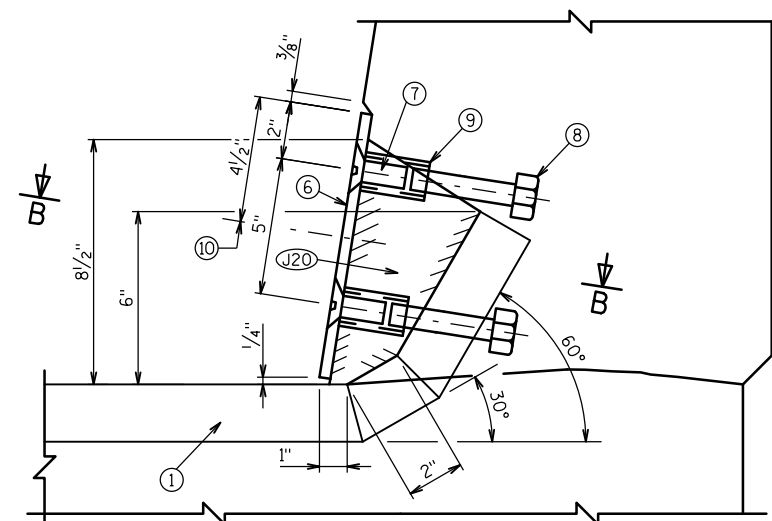
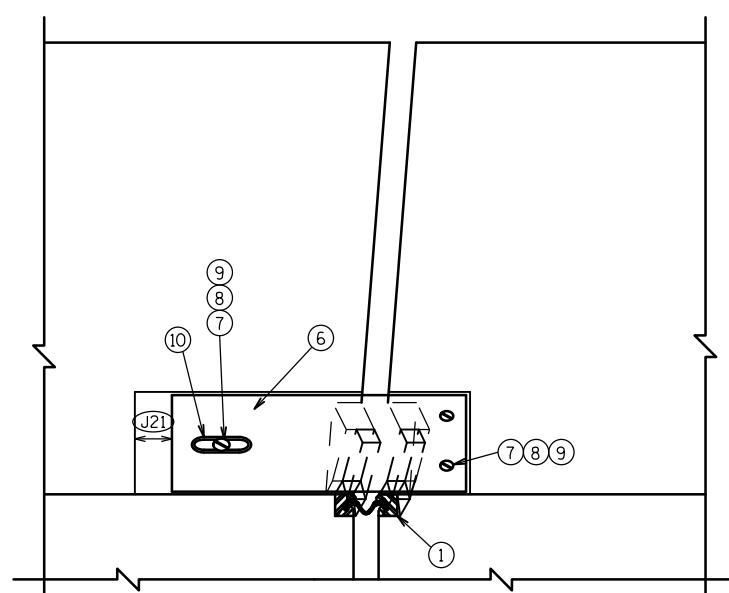
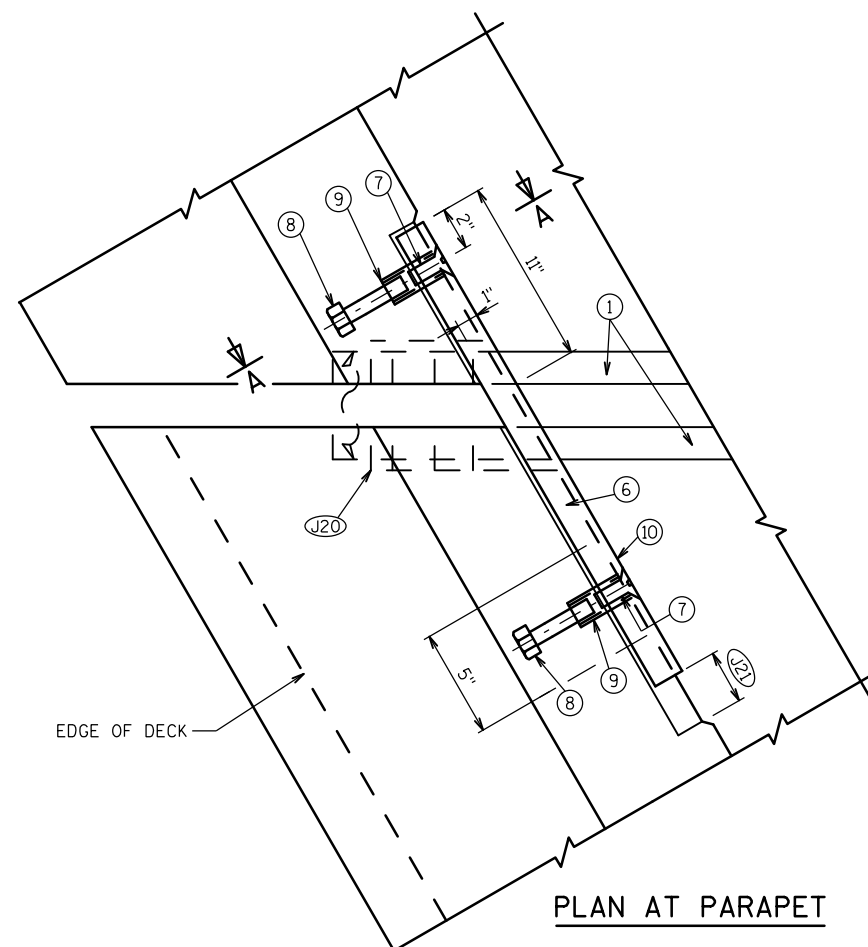
BID ITEM "JOINT REPAIR" INCLUDES THE REMOVAL OF THE EXISTING JOINT, DECK, AND PAVING BLOCK AND SHALL BE MEASURED FROM LONGITUDINAL CONST. JT. TO FRONT FACE OF EXISTING NORTH VERT. FACED PARAPET.

SEE "JOINT REPLACEMENT (1 OF 4)", "JOINT REPLACEMENT (2 OF 4)", AND "JOINT REPLACEMENT (4 OF 4)" SHEETS FOR ADDITIONAL INFORMATION AND DETAILS.

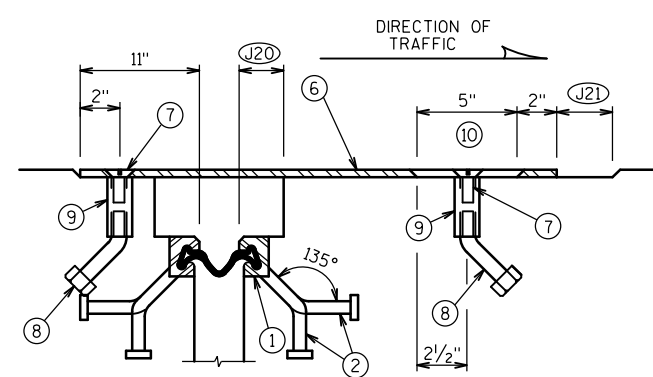
WING AND WING PARAPET REINFORCEMENT NOT SHOWN, SEE "WEST ABUTMENT WING DETAILS" AND "EAST ABUTMENT WING DETAILS" SHEETS.

BRIDGE PARAPET REINFORCEMENT NOT SHOWN SEE "SINGLE SLOPE PARAPET 42SS" AND "RAILING DETAILS" SHEETS.

NO.	DATE	REVISION	BY
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STRUCTURE B-67-117			
DRAWN BY JGJ		PLANS CKD. MSS	
JOINT REPLACEMENT (3 OF 4)			SHEET 26 OF 32
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SECTION A-A



SECTION B-B

LEGEND

- ① NEOPRENE STRIP SEAL (4 - INCH) & STEEL EXTRUSIONS.
- ② STUDS $\frac{5}{8}$ " DIA. x $6\frac{3}{8}$ " LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ③ GALVANIZED PLATE $\frac{3}{8}$ " X 10" x 2'-2" LONG WITH HOLES FOR NO. 7.
- ④ $\frac{3}{4}$ "- ϕ X $1\frac{1}{2}$ " STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS $\frac{1}{16}$ " BELOW PLATE SURFACE.
- ⑤ $\frac{3}{4}$ "- ϕ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑥ $\frac{3}{4}$ "- ϕ X 2 $\frac{1}{4}$ " GALVANIZED THREADED COUPLING.
- ⑦ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
- ⑧ J20 BLOCK OUT CONCRETE 2" EACH SIDE FOR JOINT OPENING.
- ⑨ J21 JOINT OPENING DIM. ALONG SKEW PLUS $\frac{1}{2}$ ".

NOTE

SEE "JOINT REPLACEMENT (1 OF 4)", "JOINT REPLACEMENT (2 OF 4)",
AND "JOINT REPLACEMENT (3 OF 4)" FOR ADDITIONAL INFORMATION
AND DETAILS.

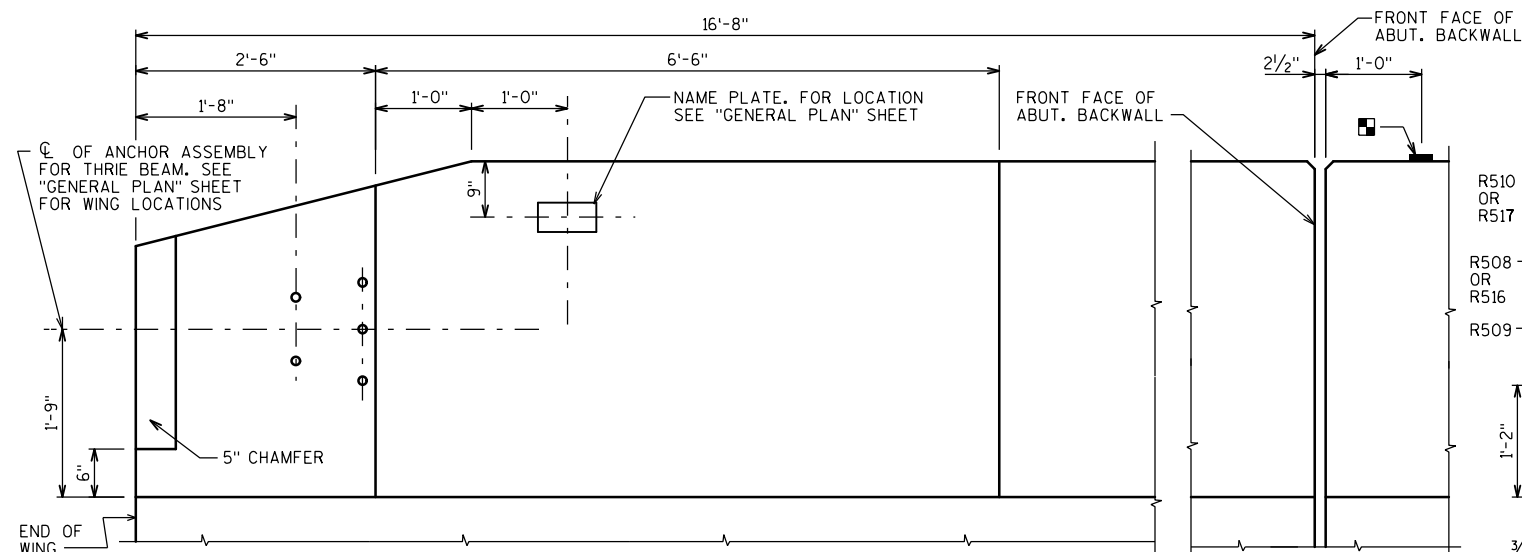
ANCHOR SYSTEM NO.8 AND NO.9 SHALL CONFORM TO ASTM A307
AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS
C AND D.

NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION					
STRUCTURE B-67-117					
		DRAWN BY	BPV	PLANS CK'D.	MSS
JOINT REPLACEMENT (4 OF 4)			SHEET 27 OF 31		
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△ DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR. LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
R501	X	28	5'-10"	X		PARAPET - VERT.
R502	X	28	6'-8"	X		PARAPET - VERT.
R503	X	24	3'-0"	X		PARAPET - VERT.
R504	X	34	5'-7"	X		PARAPET - VERT.
R505	X	10	6'-5"	X		PARAPET - VERT.
R506	X	12	6'-6"	X		PARAPET - VERT.
R507	X	1	15'-11"	X		*
R508	X	3	17'-1"			**
R509	X	12	5'-5"	X	△	PARAPET - VERT.
R510	X	1	15'-5"	X		*
R511	X	1	15'-8"	X		*
R512	X	2	15'-7"			*
R513	X	1	16'-10"	X		**
R514	X	2	16'-8"			**
R515	X	1	16'-4"	X		**
R516	X	3	15'-4"			*
R517	X	1	17'-3"	X		**

** EAST ABUTMENT WING PARAPET ONLY

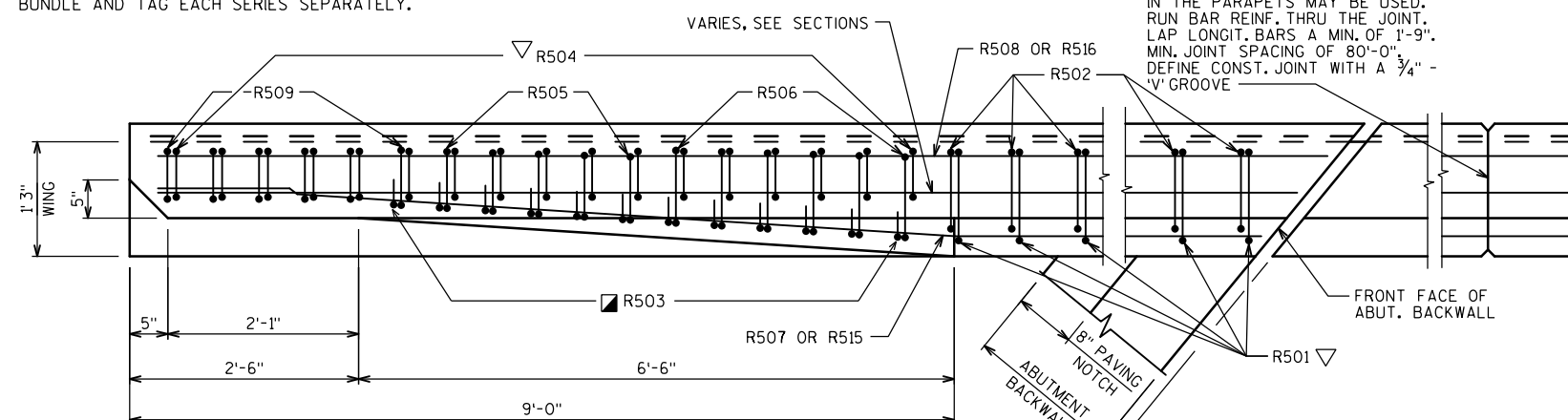


INSIDE ELEVATION

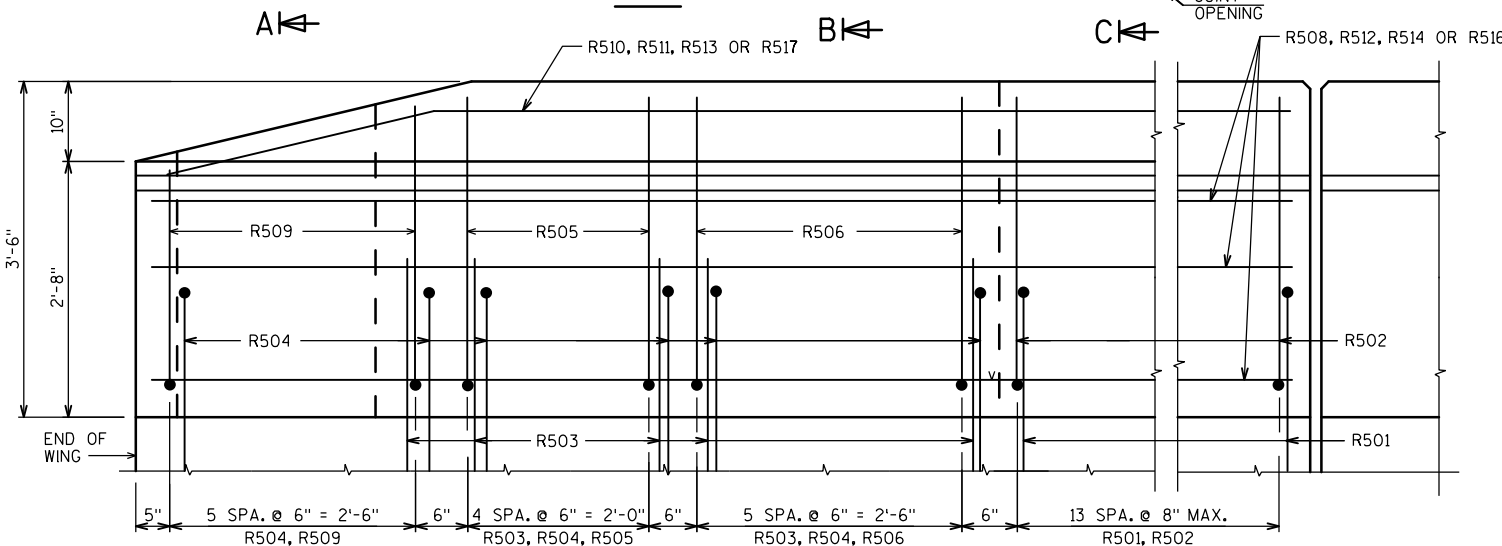
BAR MARK	NO. REQ'D.	LENGTH
R509	2 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.

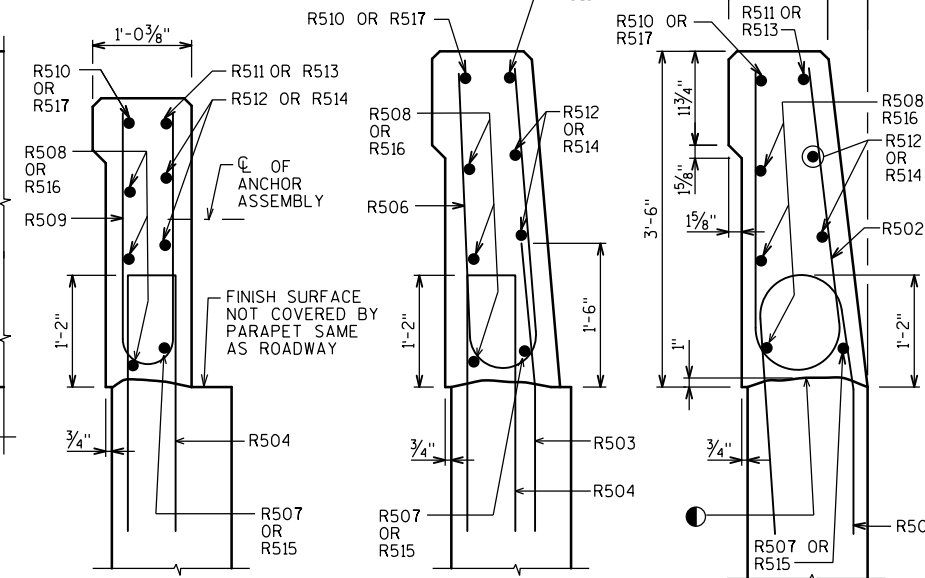
■ BENCH MARK CAP (SUPPLIED BY WISDOT).
FOR LOCATION SEE "GENERAL PLAN" SHT.
AVOID PLACING A BENCH MARK CAP BELOW
A RAIL OR FENCE SYSTEM THAT IS ATTACHED
TO THE TOP OF THE PARAPEL.



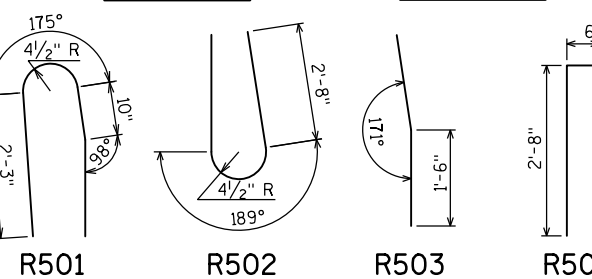
PLAN



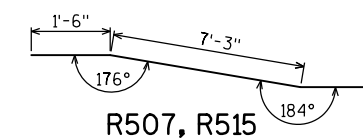
OUTSIDE ELEVATION



SECTION A



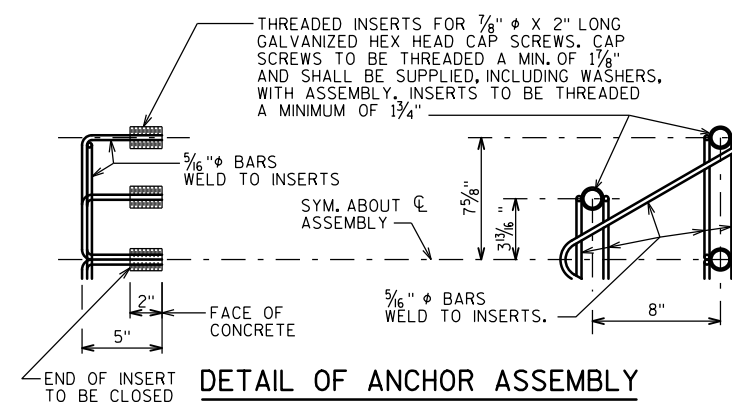
SECTION B



R507, R515



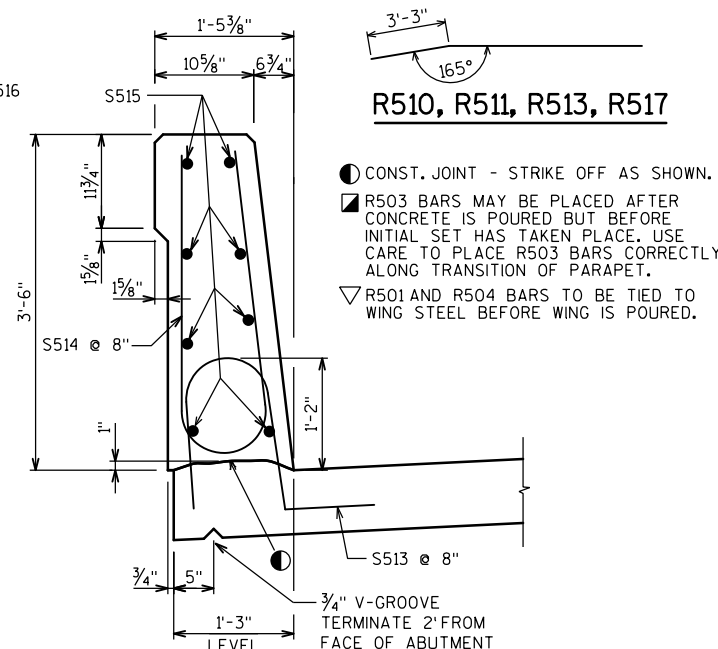
R510, R511, R513, R517



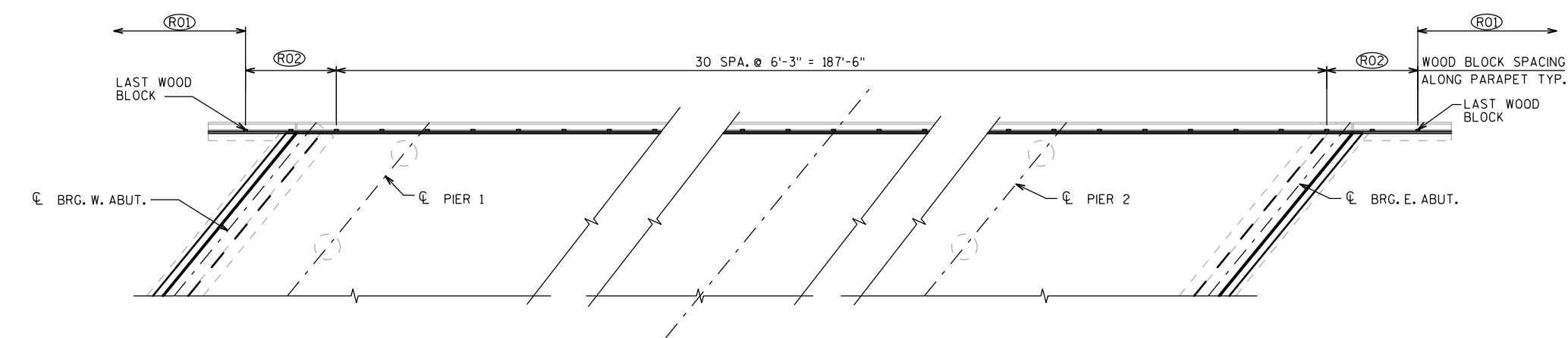
DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED
IN ACCORDANCE WITH AASHTO M232 CLASS C.

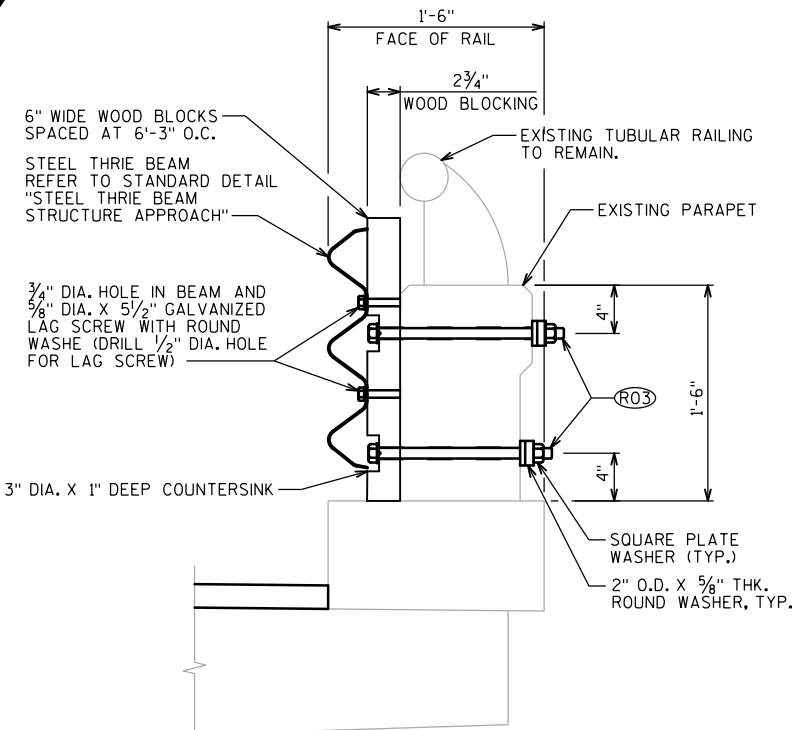
ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.



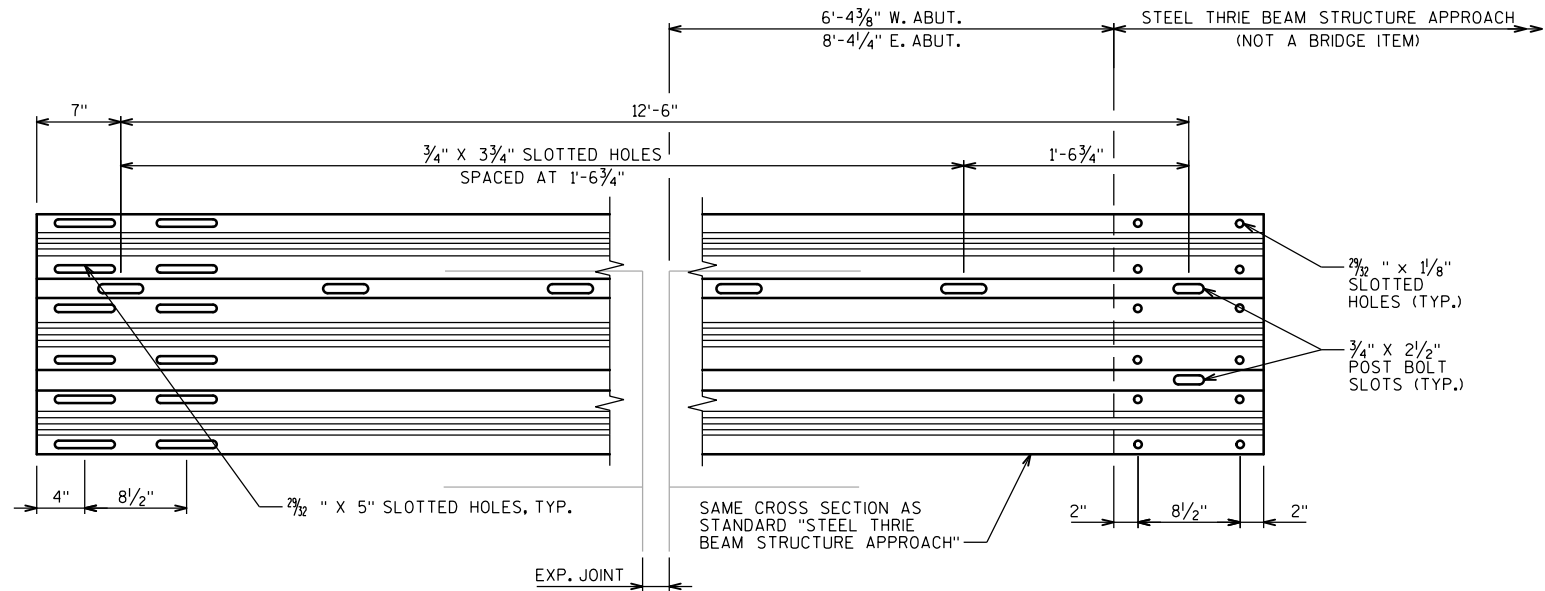
SECTION THRU PARAPET ON BRIDGE



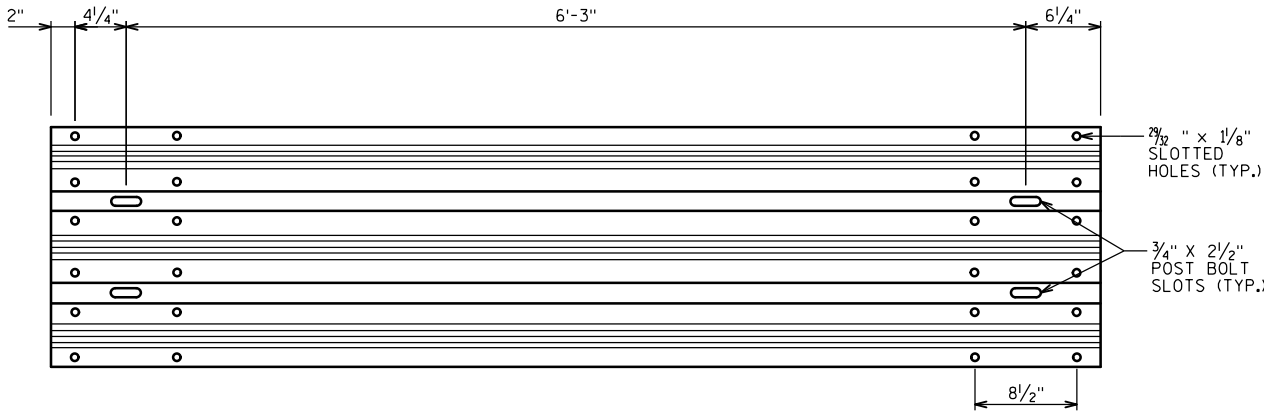
THRIE BEAM & WOOD BLOCKING LAYOUT



SECTION THRU NORTH PARAPET RAILING



THRIE BEAM EXPANSION SECTION
(REQ'D AT BRIDGE CORNERS)



TYPICAL THRIE BEAM SECTION

NOTES

SEE SDD 14 B 20-11A FOR ADDITIONAL STEEL THRIE BEAM DETAILS.
INSTALL RAIL WITH CAP SPLICES IN DIRECTION OF TRAFFIC. FIELD VERIFY BOLT LENGTH AND THREADED LENGTH.

LEGEND

- (R01)** SPLICE TO STEEL THRIE BEAM STRUCTURE APPROACH. SEE ROADWAY PLANS FOR DETAILS.
- (R02)** THRIE BEAM EXPANSION SECTION TO BE USED. SEE DETAIL THIS SHEET.
- (R03)** DRILL 1" DIA. HOLE IN WOOD BLOCKING AND BRIDGE RAILING. 7/8" DIA. THREADED BOLTS WITH ROUND WASHERS (2" O.D. X 5/8" THK.) UNDER WELDED NUTS AND SQUARE WASHERS PLACED AGAINST CONCRETE. ONE ROUND WASHER UNDER BOLT HEAD.

NO.	DATE	REVISION	BY
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STRUCTURE B-67-117			
DRAWN BY		BVP	PLANS CK'D. MSS
RAILING DETAILS			SHEET 29 OF 32
			195

BILL OF BARS

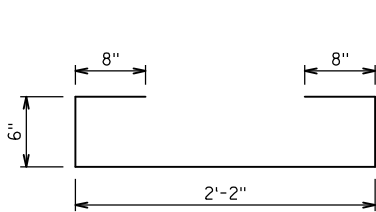
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
△ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR
BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
S601		556	12'-8"			DECK - TOP & BOTTOM TRANS.
S602		30	6'-10"		△	DECK - SKEW SECTION TRANS.
S603		30	6'-10"		△	DECK - SKEW SECTION TRANS.
S604		22	58'-3"			DECK - TOP LONG.
S405		44	41'-3"			DECK - TOP LONG.
S606		44	31'-7"			DECK - TOP LONG.
S407		138	33'-11"			DECK - BOTTOM LONG.
S408		126	4'-2"	X		CONCRETE DIAPHRAGM TRANS.
S709		30	14'-0"			CONCRETE DIAPHRAGM LONG.
S410		12	35'-11"			CONCRETE DIAPHRAGM LONG.
S611		40	35'-11"			CONCRETE DIAPHRAGM LONG.
S712		10	11'-8"			CONCRETE DIAPHRAGM LONG.
S513		295	4'-5"	X		PARAPET VERTICAL
S514		295	6'-8"	X		PARAPET VERTICAL
S515		32	50'-5"			PARAPET HORIZONTAL
S416		12	14'-0"			CONCRETE DIAPHRAGM LONG. - BETWEEN G1 THRU G4
S417		4	11'-8"			CONCRETE DIAPHRAGM LONG. - BETWEEN G4 AND G5

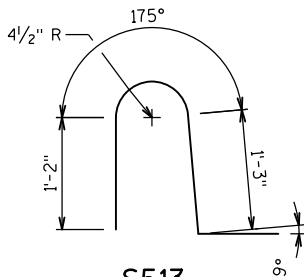
BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
S602	2 SETS OF 15	1'-6" TO 12'-1"
S603	2 SETS OF 15	1'-1" TO 12'-6"

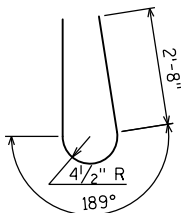
BUNDLE AND TAG EACH SERIES SEPARATELY.



S408



S513



S514

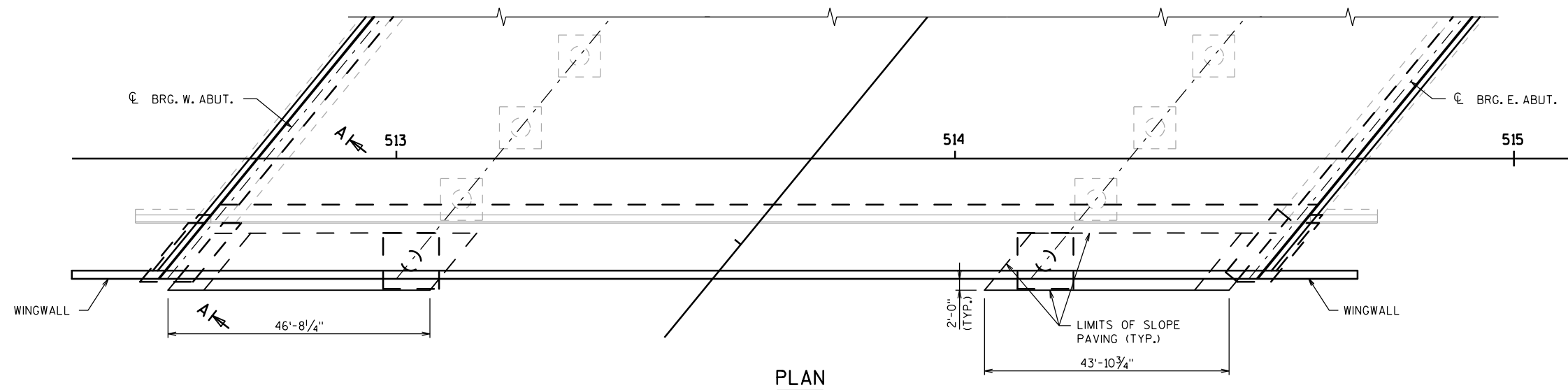
STATE PROJECT NUMBER

1090-35-71

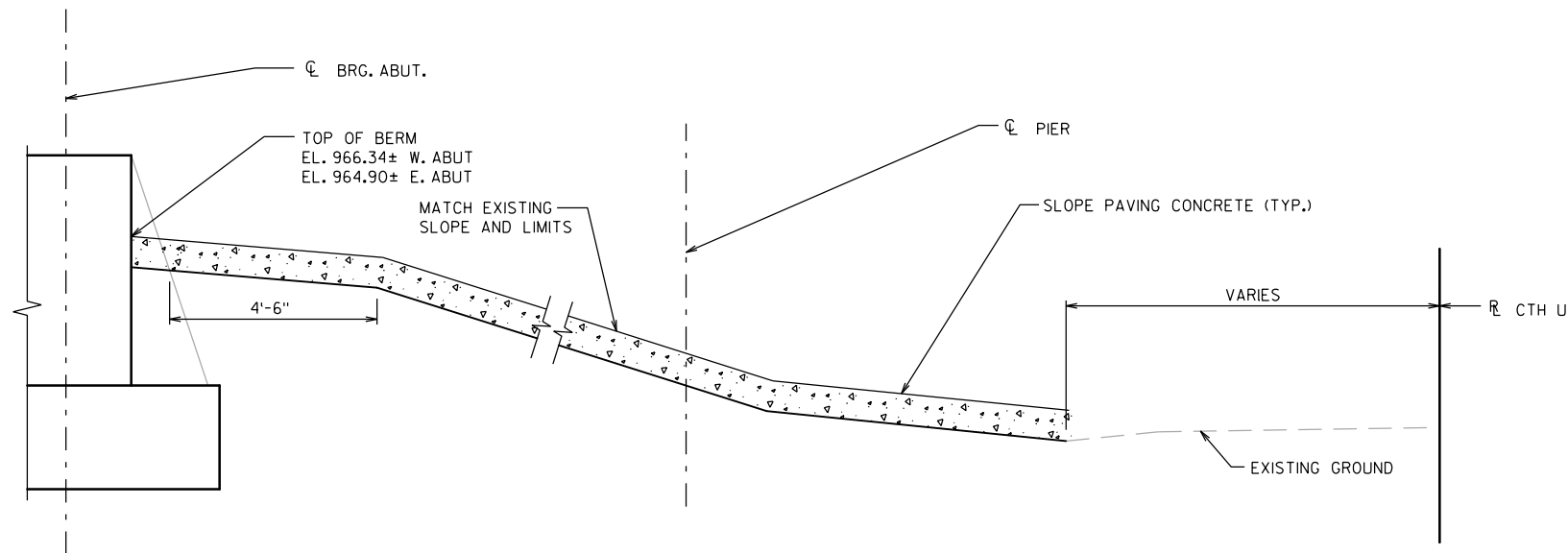
8

8

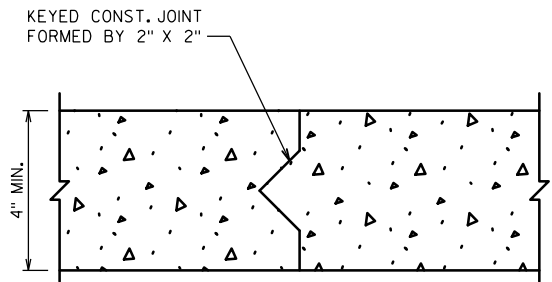
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
DRAWN BY		BPV	PLANS CK'D. HS
SUPERSTRUCTURE BILL OF BARS			SHEET 30 OF 32
			196



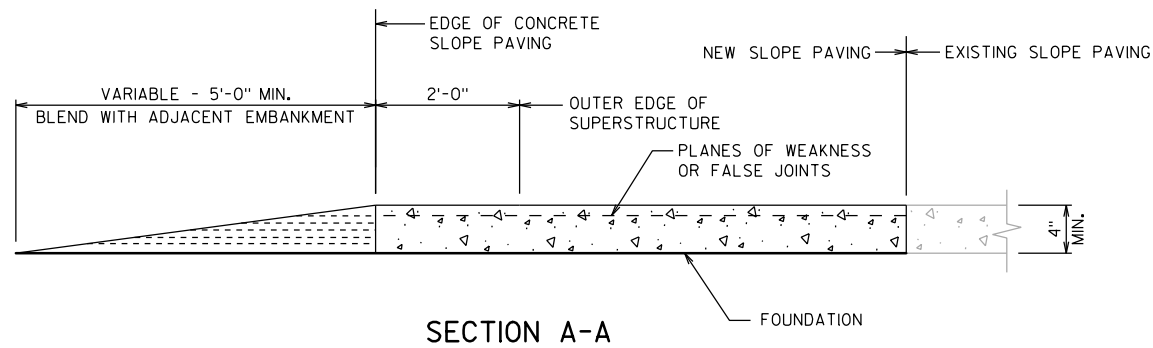
PLAN



TYPICAL SECTION



CONSTRUCTION JOINT



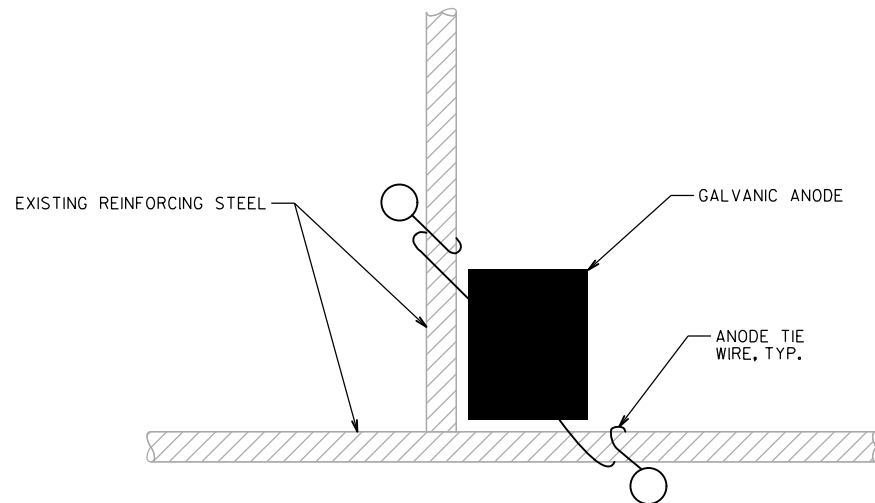
SECTION A-A

NOTES

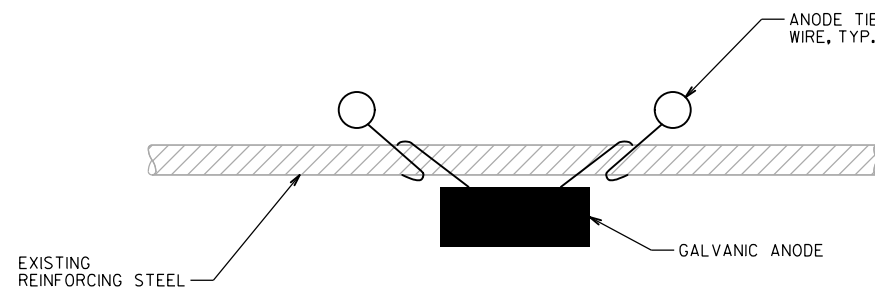
DETAILS OF CONSTRUCTION NOT SHOWN HEREIN SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

FORM PLANES OF WEAKNESS OR FALSE JOINTS IN THE CONCRETE BY SCORING THE FINISHED SURFACE AT LEAST 1/2" DEEP WITH A JOINT TOOL. MATCH EXISTING SLOPE PAVING JOINT SPACING.

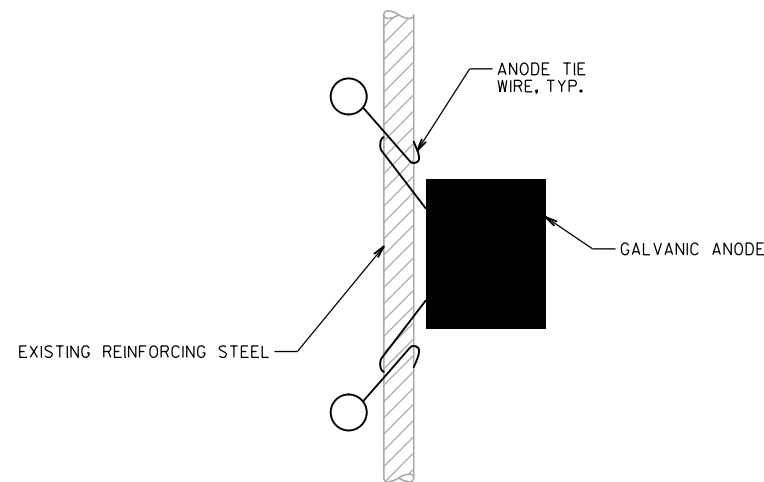
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
DRAWN BY		BPV	PLANS CKD. MSS
SLOPE PAVING DETAILS			SHEET 31 OF 32
			197



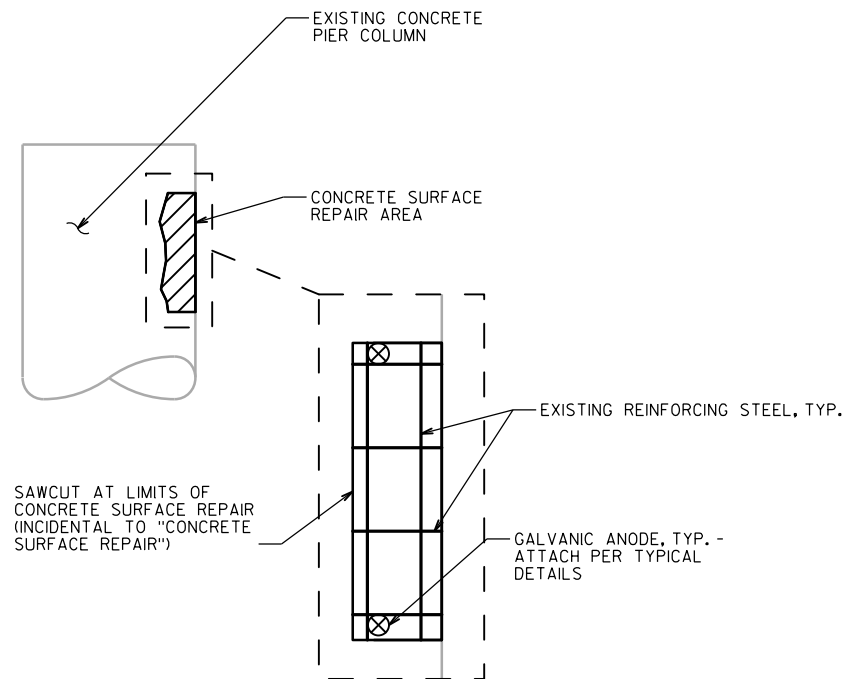
**TYPICAL INSTALLATION AT
BAR STEEL INTERSECTION**



**TYPICAL INSTALLATION
BELOW BAR STEEL
(HORIZONTAL)**

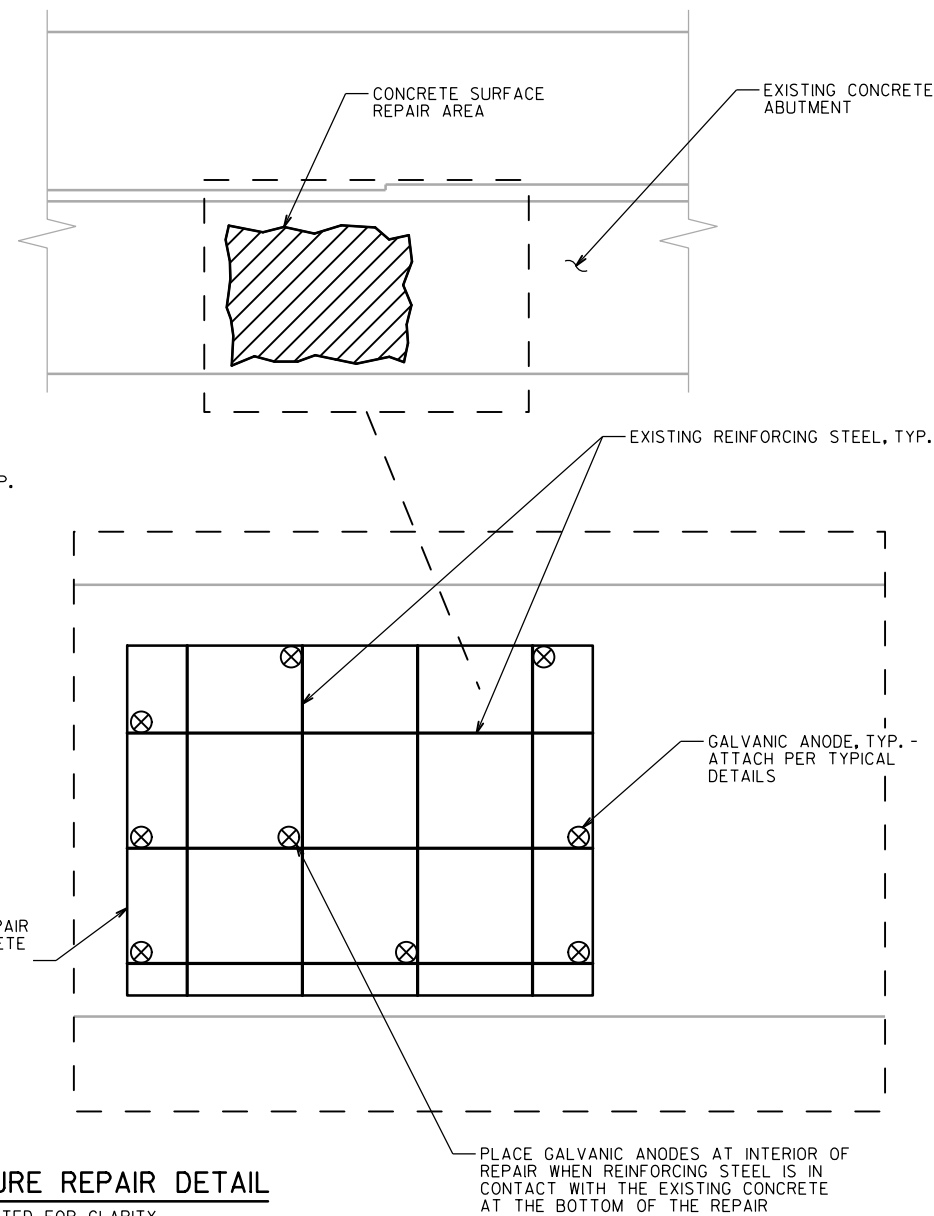


**TYPICAL INSTALLATION
BESIDE BAR STEEL
(VERTICAL)**



SAWCUT AT LIMITS OF
CONCRETE SURFACE REPAIR
(INCIDENTAL TO "CONCRETE
SURFACE REPAIR")

TYPICAL SUBSTRUCTURE REPAIR DETAIL
SUPERSTRUCTURE OMITTED FOR CLARITY.
VERTICAL SURFACE REPAIR SHOWN, HORIZONTAL SURFACE REPAIR SIMILAR.



NOTES

SEE SPECIAL PROVISION "EMBEDDED GALVANIC ANODES" FOR DESCRIPTION, MATERIALS, CONSTRUCTION, MEASUREMENT AND PAYMENT INFORMATION.

EXISTING REINFORCING STEEL TO BE COMPLETELY CLEANED OF CORRODED MATERIAL PRIOR TO INSTALLATION OF GALVANIC ANODES.

LOCATIONS OF GALVANIC ANODES SHOULD BE WITHIN 6" OF THE EDGE OF THE REPAIR AREA.

AFTER PLACEMENT, GALVANIC ANODES SHOULD MAINTAIN A MINIMUM COVER OF 1 1/2" AND A MINIMUM BOTTOM COVER OF 3/4".

PROVIDE GALVANIC ANODES IN CONCRETE SURFACE REPAIR AREAS IN SUBSTRUCTURE ONLY.

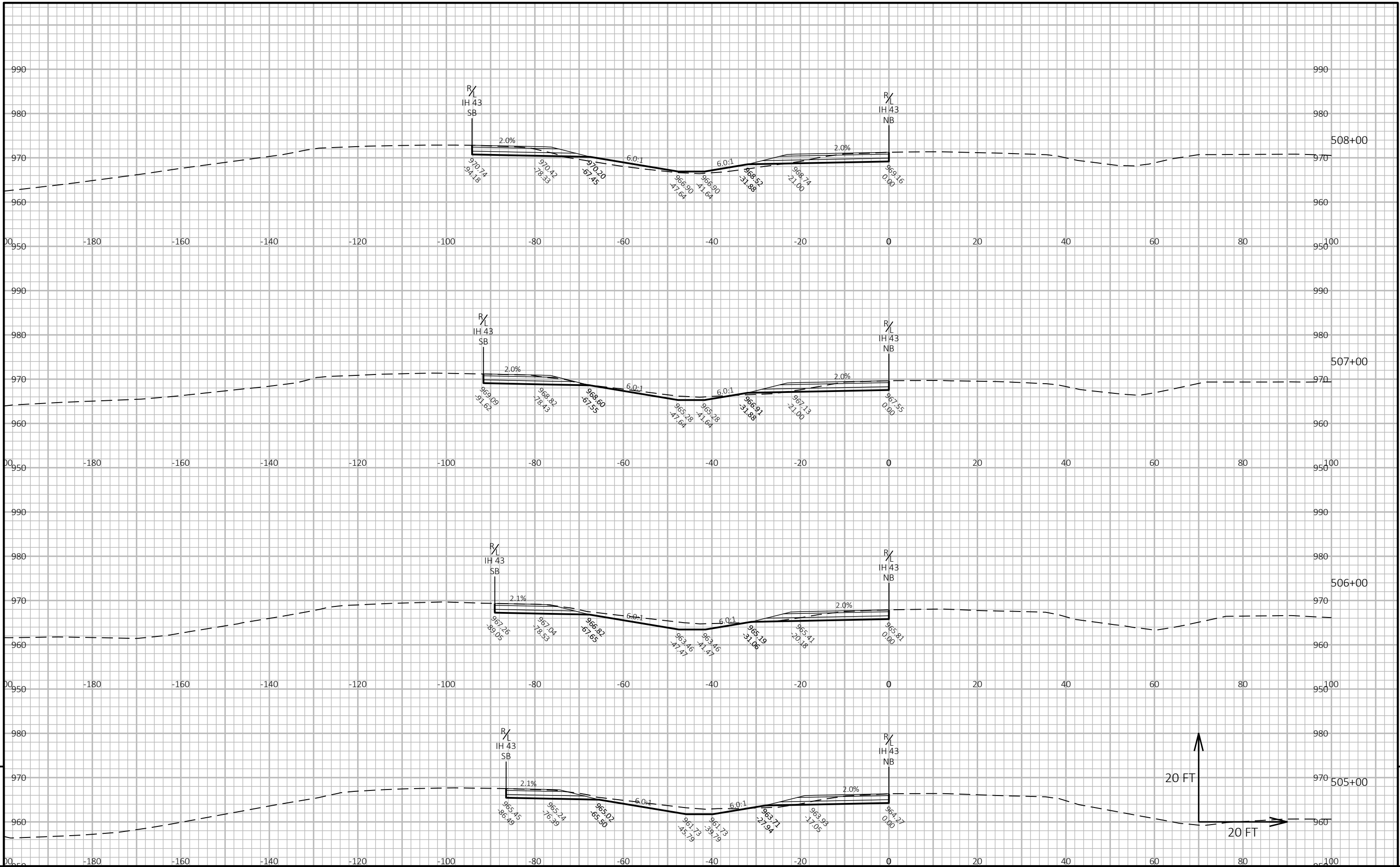
ESTIMATED ANODE QUANTITY ON PLANS IS BASED ON A MAXIMUM SPACING OF 24" AROUND PERIMETER OF CONCRETE SURFACE REPAIR AREA. PLACE ADDITIONAL ANODES AT THE INTERIOR OF REPAIRED AREA SO CENTER TO CENTER SPACING OF ANODES IS NOT GREATER THAN 24" IN ANY DIRECTION.

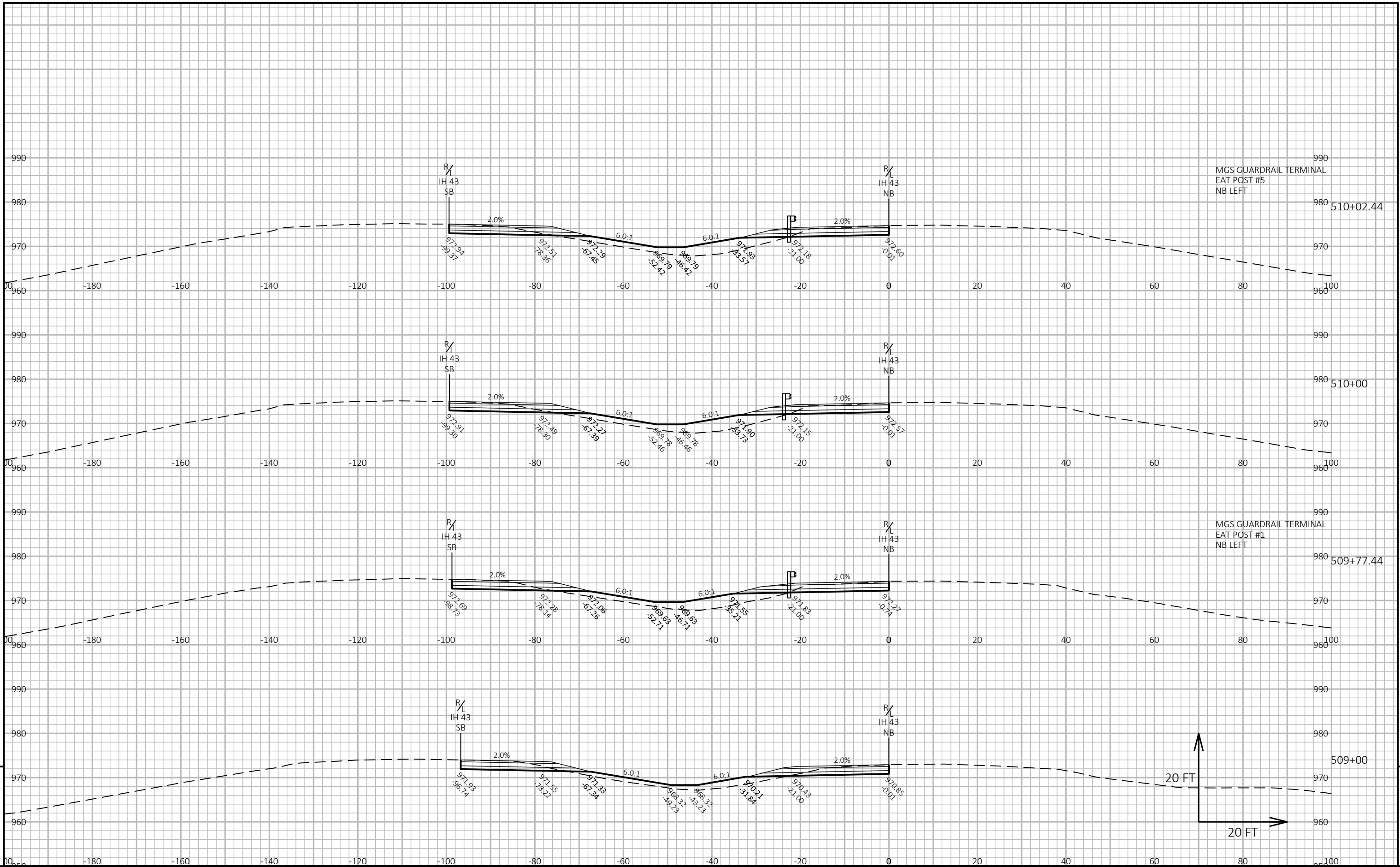
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-67-117			
DRAWN BY		BPV	PLANS CK'D. MSS
GALVANIC ANODES			SHEET 32 OF 32
			198

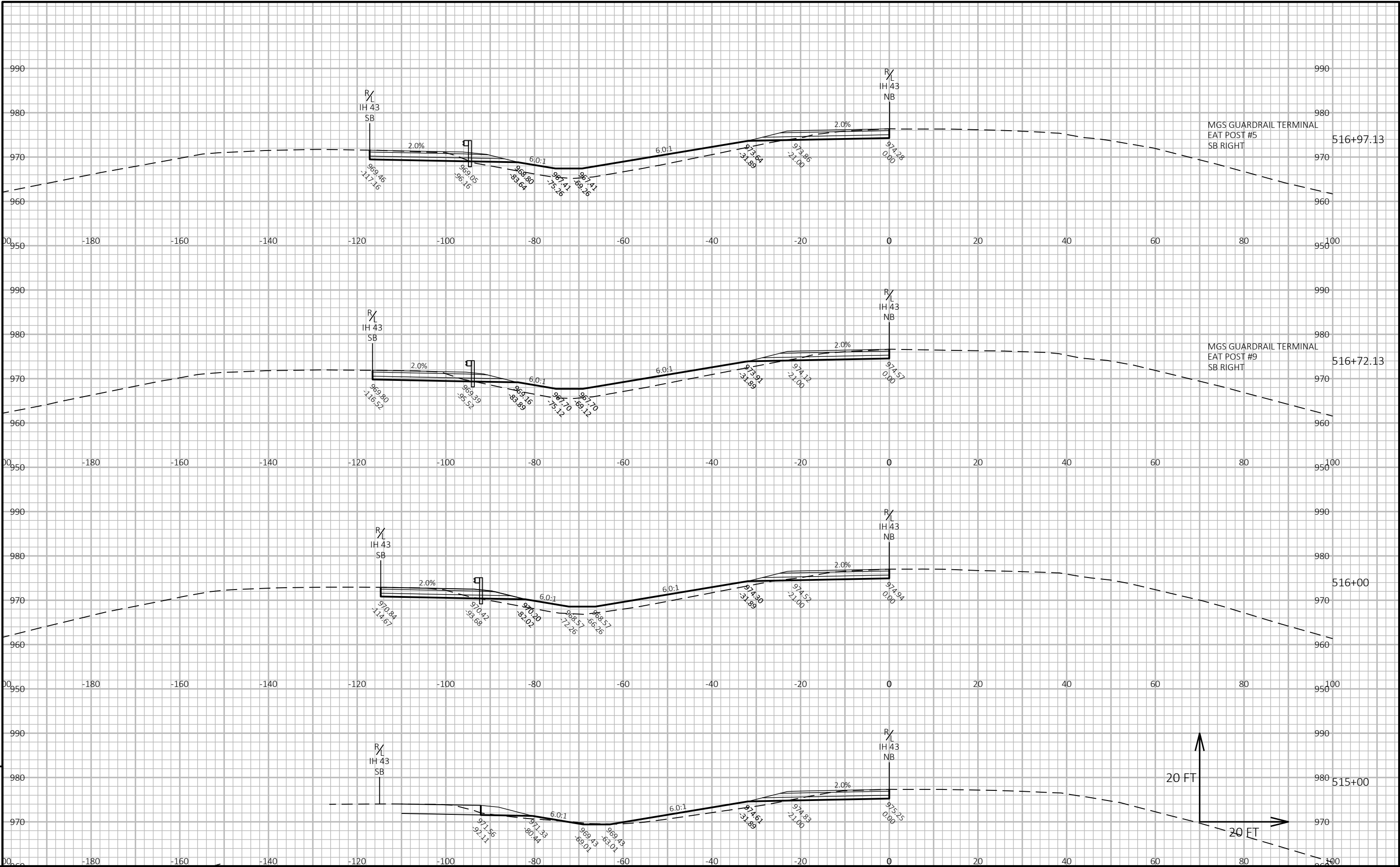
DIVISION 1 - Ali-I43-EB

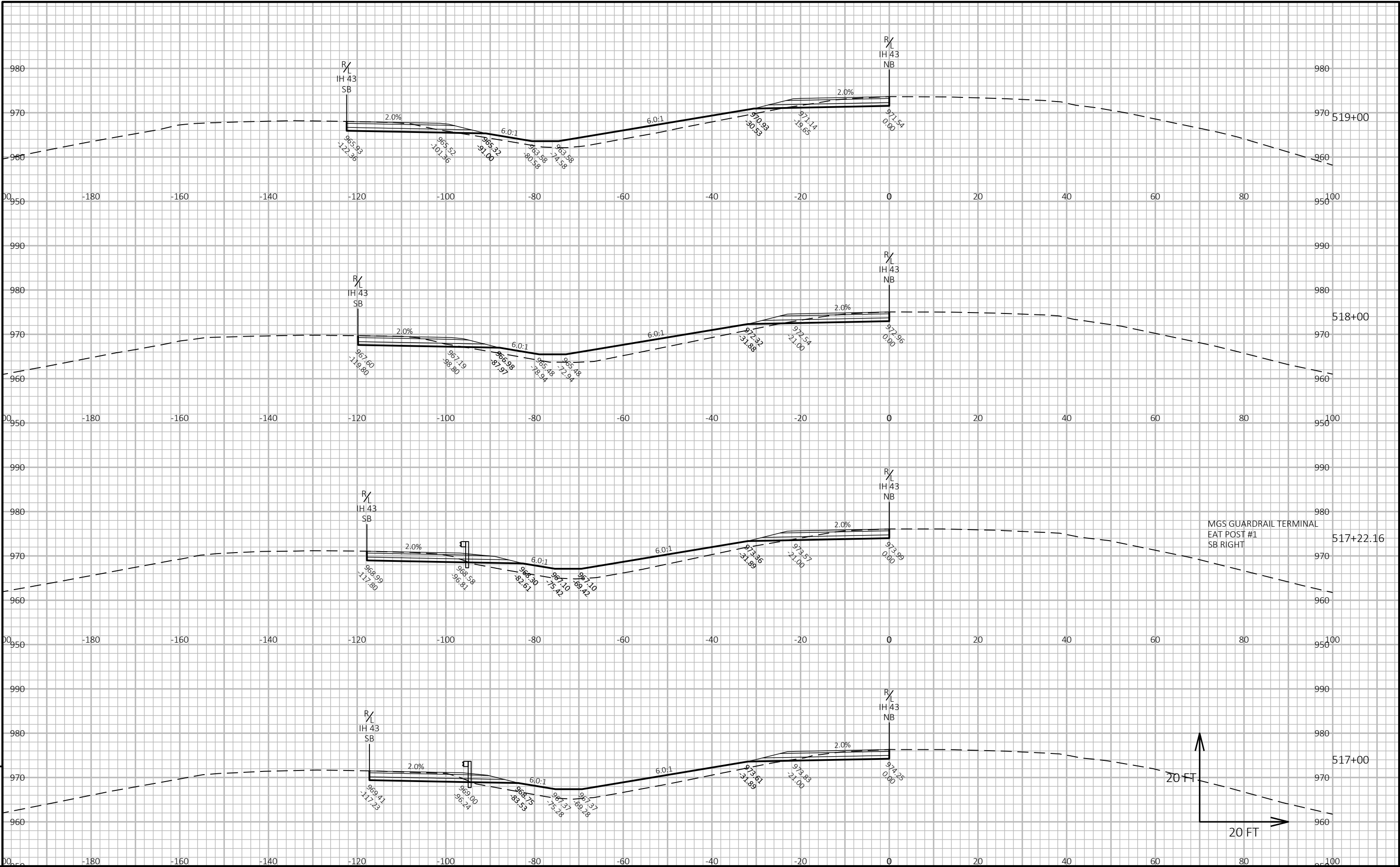
STATION	REAL STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)							
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL		FILL	EBS	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL		FILL	EBS	CUT 1.00	EXPANDED	EXPANDED	REDUCED EBS	MASS ORDINATE	
														FILL	EBS/BACKFILL	IN FILL		
500+00	50000.00	0.00	2.77	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0
501+00	50100.00	100.00	40.17	0.00	0.00	0.00	80	0	0	0	80	0	0	0	0	0	80	80
502+00	50200.00	100.00	36.60	0.00	1.28	0.00	142	0	2	0	222	3	0	0	0	0	219	219
503+00	50300.00	100.00	40.35	0.00	1.06	0.00	142	0	4	0	364	8	0	0	0	0	356	356
504+00	50400.00	100.00	94.60	0.00	0.72	0.00	250	0	3	0	614	12	0	0	0	0	602	602
505+00	50500.00	100.00	97.20	0.00	3.11	0.00	355	0	7	0	969	20	0	0	0	0	948	948
506+00	50600.00	100.00	111.85	0.00	0.24	0.00	387	0	6	0	1,356	28	0	0	0	0	1,327	1,327
507+00	50700.00	100.00	87.61	0.00	3.33	0.00	369	0	7	0	1,726	36	0	0	0	0	1,688	1,688
508+00	50800.00	100.00	65.82	0.00	32.59	0.00	284	0	67	0	2,010	116	0	0	0	0	1,889	1,889
509+00	50900.00	100.00	71.23	0.00	49.70	0.00	254	0	152	0	2,264	299	0	0	0	0	1,953	1,953
509+77.44	50977.44	77.44	71.78	0.00	75.49	0.00	205	0	180	0	2,469	514	0	0	0	0	1,933	1,933
510+00	51000.00	22.56	72.20	0.00	81.03	0.00	60	0	65	0	2,529	592	0	0	0	0	1,912	1,912
510+02.44	51002.44	2.44	71.94	0.00	81.07	0.00	7	0	7	0	2,535	601	0	0	0	0	1,909	1,909
510+27.44	51027.44	25.00	72.14	0.00	79.57	0.00	67	0	74	0	2,602	690	0	0	0	0	1,883	1,883
511+00	51100.00	72.56	71.41	0.00	88.46	0.00	193	0	226	0	2,795	961	0	0	0	0	1,794	1,794
512+00	51200.00	100.00	35.88	0.00	50.56	0.00	199	0	257	0	2,994	1,270	0	0	0	0	1,670	1,670
512+50	51250.00	50.00	34.52	0.00	7.80	0.00	65	0	54	0	3,059	1,335	0	0	0	0	1,668	1,668
514+00	51400.00	150.00	0.00	0.00	0.00	0.00	96	0	22	0	3,155	1,361	0	0	0	0	1,737	1,737
514+50	51450.00	50.00	33.24	0.00	15.04	0.00	31	0	14	0	3,186	1,378	0	0	0	0	1,750	1,750
515+00	51500.00	50.00	36.09	0.00	37.62	0.00	64	0	49	0	3,250	1,436	0	0	0	0	1,754	1,754
516+00	51600.00	100.00	69.77	0.00	88.60	0.00	196	0	234	0	3,446	1,717	0	0	0	0	1,657	1,657
516+72.13	51672.13	72.13	71.81	0.00	115.87	0.00	189	0	273	0	3,635	2,045	0	0	0	0	1,505	1,505
516+97.13	51697.13	25.00	72.13	0.00	122.55	0.00	67	0	110	0	3,702	2,177	0	0	0	0	1,434	1,434
517+00	51700.00	2.87	72.74	0.00	121.07	0.00	8	0	13	0	3,709	2,193	0	0	0	0	1,425	1,425
517+22.16	51722.16	22.16	71.64	0.00	127.82	0.00	59	0	102	0	3,768	2,315	0	0	0	0	1,357	1,357
518+00	51800.00	77.84	71.03	0.00	117.31	0.00	206	0	353	0	3,974	2,739	0	0	0	0	1,121	1,121
519+00	51900.00	100.00	70.36	0.00	99.34	0.00	262	0	401	0	4,236	3,221	0	0	0	0	881	881
520+00	52000.00	100.00	69.60	0.00	52.22	0.00	259	0	281	0	4,495	3,557	0	0	0	0	790	790
521+00	52100.00	100.00	76.81	0.00	13.01	0.00	271	0	121	0	4,766	3,702	0	0	0	0	910	910
522+00	52200.00	100.00	87.52	0.00	16.00	0.00	304	0	54	0	5,071	3,767	0	0	0	0	1,147	1,147
523+00	52300.00	100.00	146.33	0.00	4.24	0.00	433	0	37	0	5,504	3,812	0	0	0	0	1,533	1,533
524+00	52400.00	100.00	246.10	0.00	3.18	0.00	727	0	14	0	6,230	3,828	0	0	0	0	2,243	2,243
525+00	52500.00	100.00	223.25	0.00	1.96	0.00	869	0	10	0	7,100	3,840	0	0	0	0	3,100	3,100
526+00	52600.00	100.00	130.65	0.00	0.00	0.00	655	0	4	0	7,755	3,844	0	0	0	0	3,751	3,751
527+00	52700.00	100.00	106.19	0.00	0.00	0.00	439	0	0	0	8,194	3,844	0	0	0	0	4,189	4,189
528+00	52800.00	100.00	54.42	0.00	0.00	0.00	297	0	0	0	8,491	3,844	0	0	0	0	4,487	4,487
528+70	52870.00	70.00	0.00	0.00	0.00	0.00	71	0	0	0	8,562	3,844	0	0	0	0	4,557	4,557

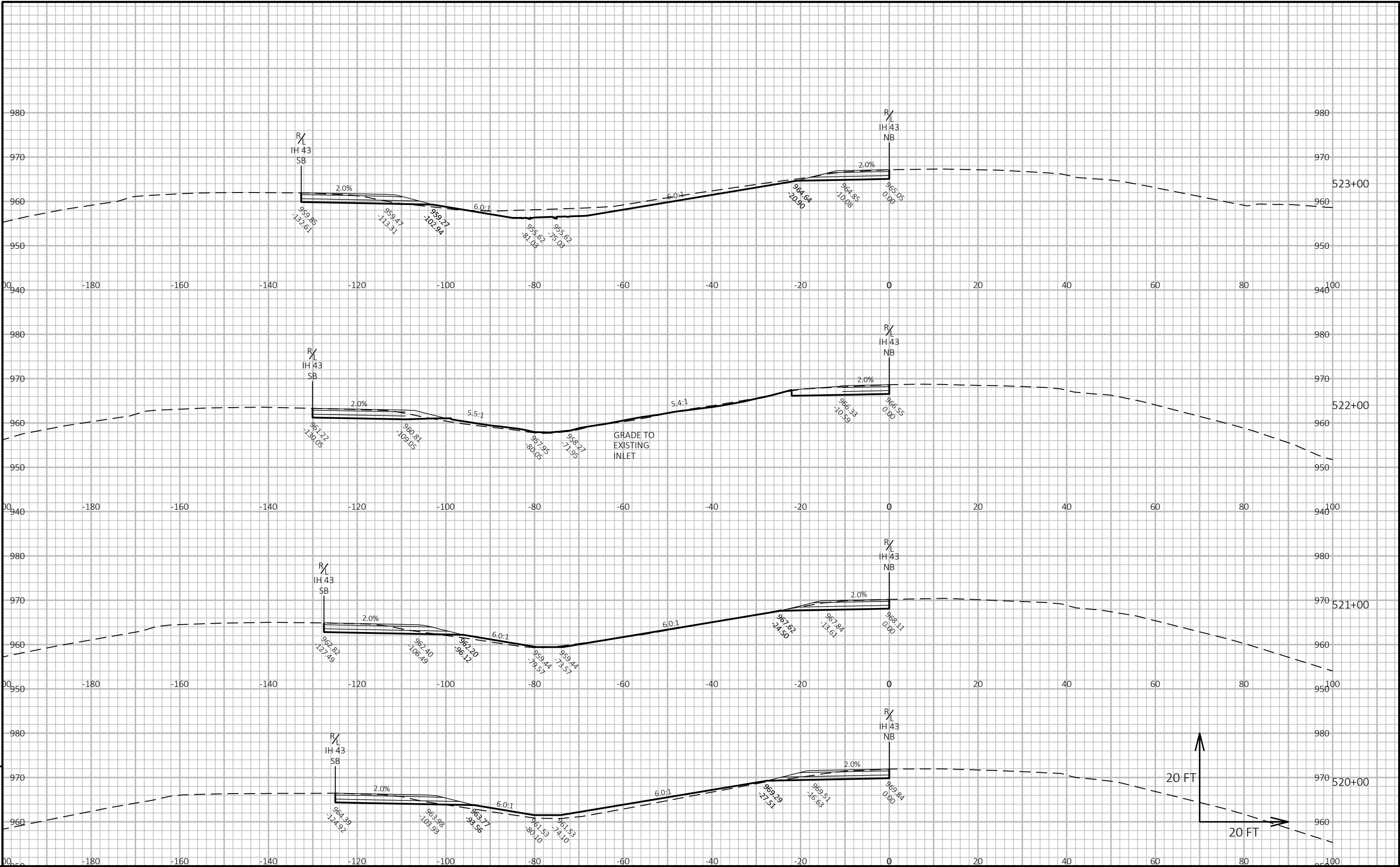


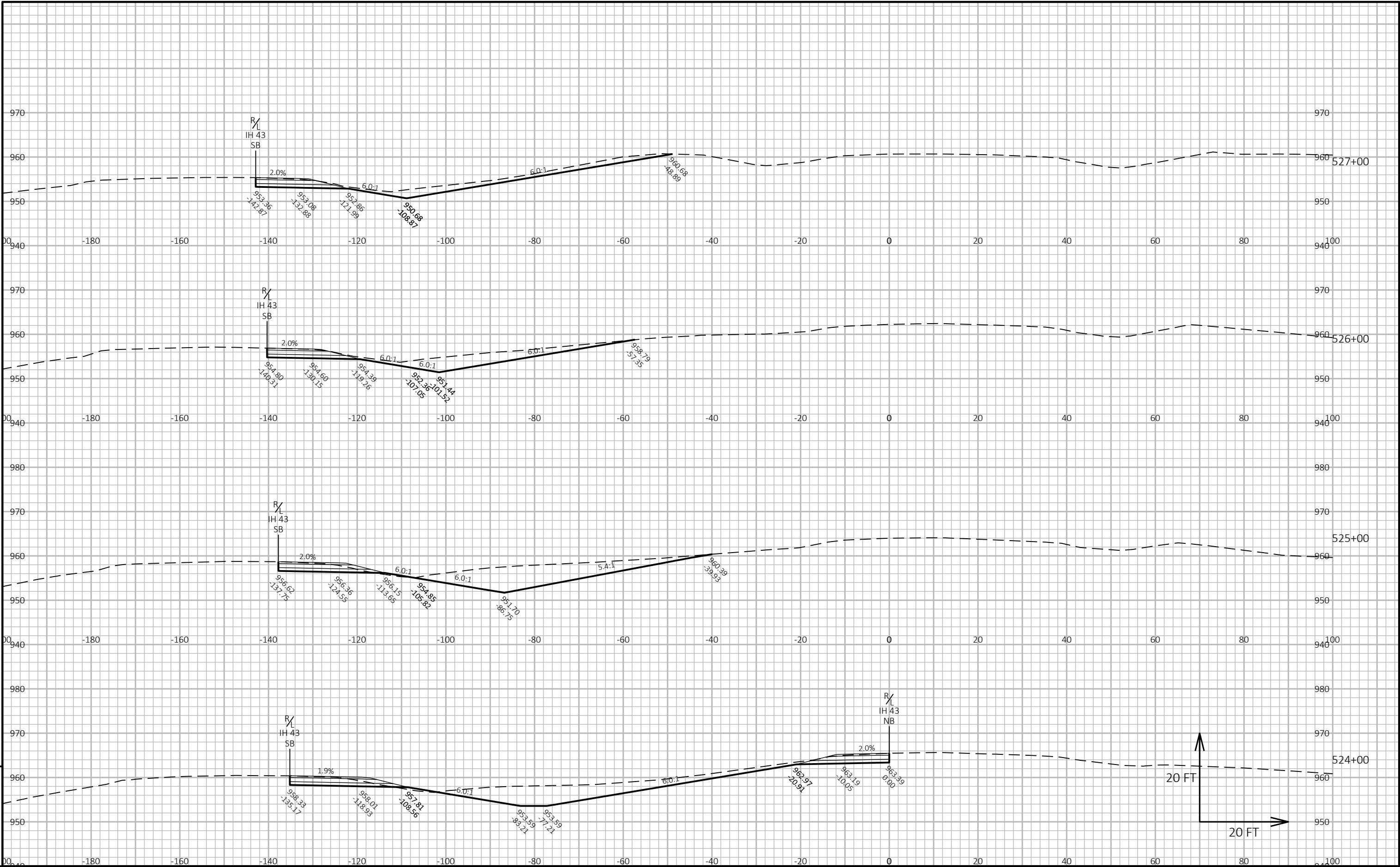


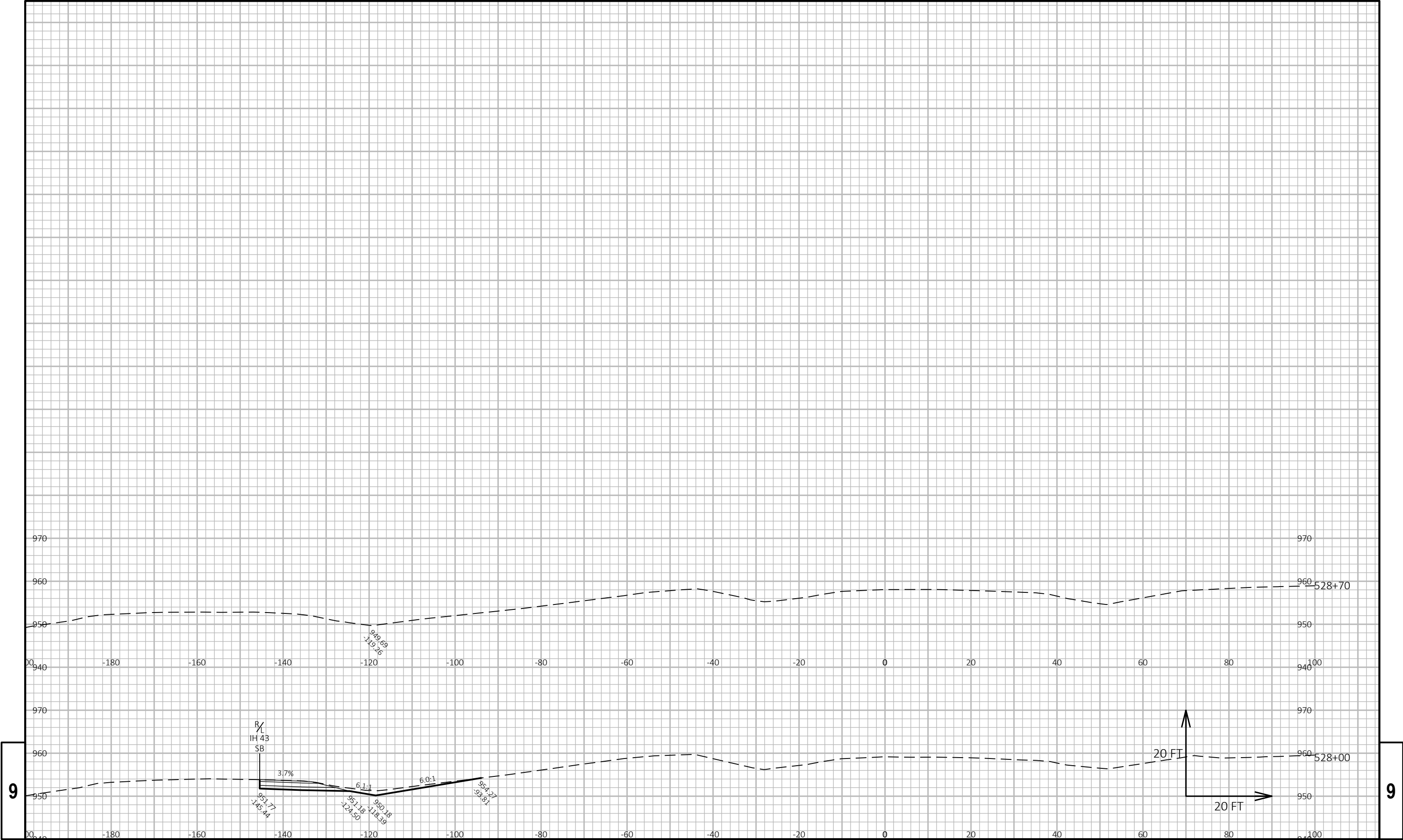




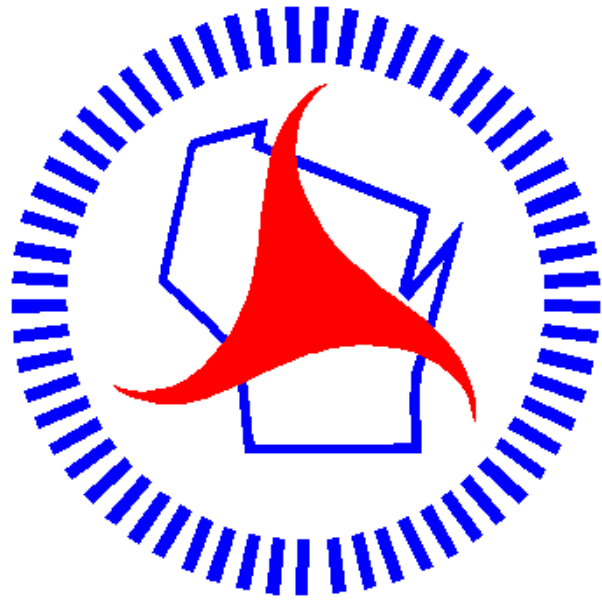








Notes



Wisconsin Department of Transportation

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<http://www.dot.wisconsin.gov>