

EAU
PROJECT ID:
WITH: N/A

1050-01-81

COUNTY:
CHIPPEWA & CLARK

NOVEMBER 2021

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 Plan
Section No.	5	Plan and Profile (Includes Erosion Control Details)
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	Gross Sections

TOTAL SHEETS = 114



DESIGN DESIGNATION

A.A.D.T.	(2022)	=	9,350
A.A.D.T.	(2042)	=	11,300
D.H.V.		=	12.0
D.D.		=	60/40
T.		=	14.2
DESIGN SPEED		=	70 MPH
ESALS		=	N/A

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

CHIPPEWA FALLS - ABBOTSFORD

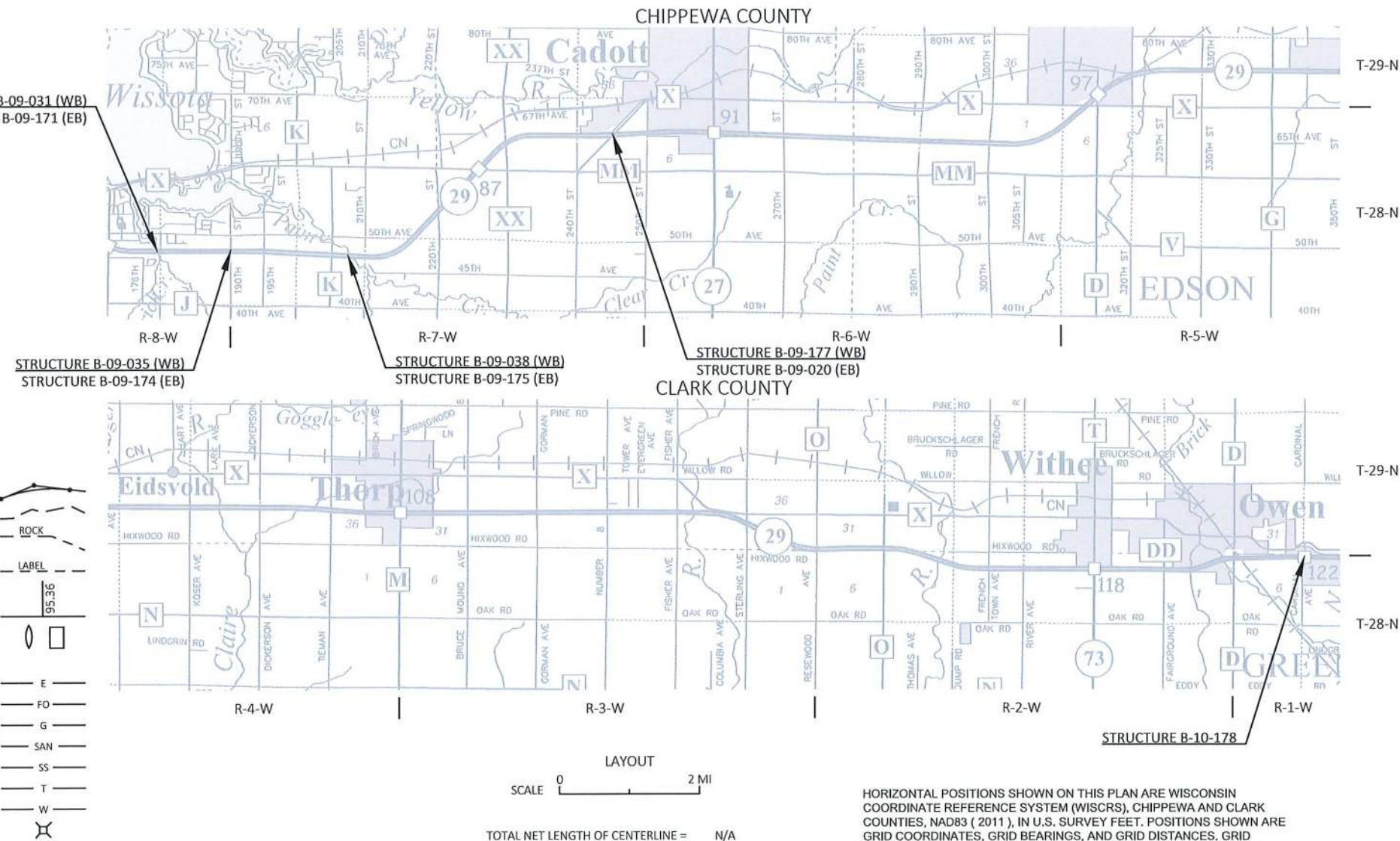
STILLSON CREEK TO CARDINAL AVENUE

STH 29

CHIPPEWA & CLARK

STATE PROJECT NUMBER

1050-01-81



HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), CHIPPEWA AND CLARK COUNTIES, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT

1050-01-81

FEDERAL PROJECT

PROJECT
WISC 2022018

CONTRACT
1

ORIGINAL PLANS PREPARED BY



146 North Central Ave. Marshfield, WI 54449
715-384-2133 1-877-204-0572 Fax: 715-384-9787



7/26/2021

DATE: (Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	MSA PROFESSIONAL SERVICES INC.
Designer	MSA PROFESSIONAL SERVICES INC.
Project Manager	JESSE LARSON, PE
Regional Examiner	TOU YANG, PE
Regional Supervisor	NICOLE PASSUELLO, PE

APPROVED FOR THE DEPARTMENT
DATE: 7/27/21 Jesse Larson (Signature)

E

GENERAL NOTES

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE BEEN DESIGNATED FOR REMOVAL BY THE ENGINEER.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE ARE UTILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO UTILITIES THAT HAVE FACILITIES IN THE AREA.

R/W APPROXIMATED ON PLAN SHEETS BASED ON AS-BUILTS.

SECTION 2 ORDER

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
SITE OVERVIEW
TRAFFIC CONTROL

AS-BUILTS

PROJECT: 1050-01-61 (2016)
PROJECT: 1052-01-62 (2016)
PROJECT: 1050-00-64 (2012)

DNR LIAISON

DEPARTMENT OF NATURAL RESOURCES
LEAH NICOL
1300 W CLAIREMONT AVENUE
EAU CLAIRE, WI, 54701
PHONE: (715) 934-9014
EMAIL: leah.nicol@wisconsin.gov

GAS/PETROLEUM

LARRY KOCH
WE ENERGIES
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WISCONSIN RAPIDS, WI 54494
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(715) 421-9293 (MOBILE)
larry.koch@we-energies.com

WATER/ SEWER

*CHAD J SMITH
OWEN MUN WATER UTILITY
P.O BOX 67
951 E 3RD STREET
OWEN, WI 54460
(715) 229-4612 (OFFICE)
(715) 965-2673 (MOBILE)
owengarage@cityofowen.com

*NOT DIGGERS HOTLINE MEMBERS

COMMUNICATION

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(715) 410-0656 (MOBILE)
rp4514@att.com

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ALTOONA, WI 54720
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RUSS RYAN
FRONTIER COMMUNICATIONS OF WI LLC
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OAKFIELD, WI 53605
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russell.w.ryan@ftr.com

ELECTRIC

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david.j.melsness@xcelenergy.com

RUNOFF COEFFICIENT TABLE

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

EROSION CONTROL NOTES

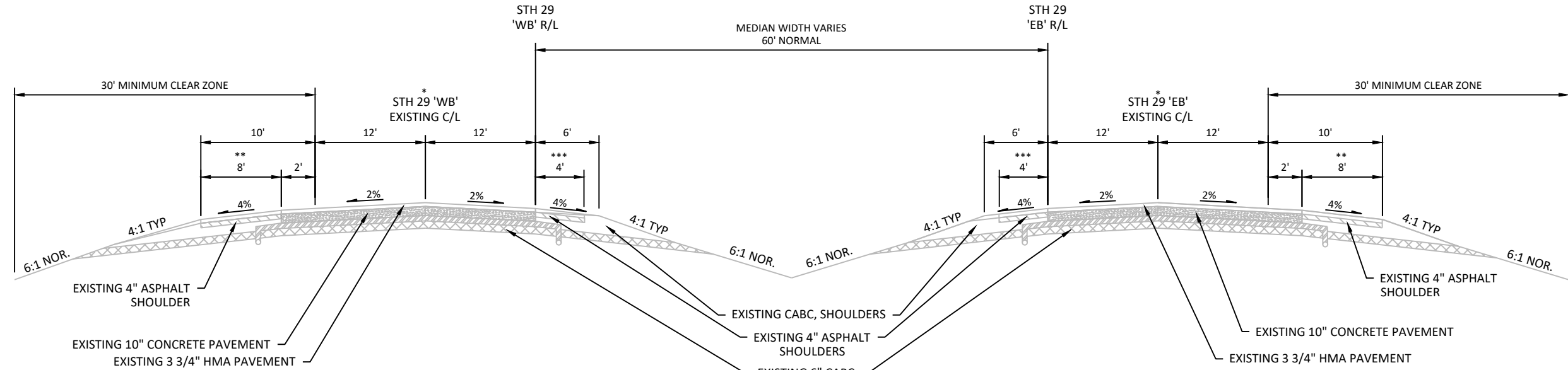
RUNOFF COEFFICIENTS FOR THIS PROJECT: EXISTING SIDE SLOPES 0.30, PROPOSED SIDE SLOPES 0.30, EXISTING PAVEMENT 0.95, PROPOSED PAVEMENT 0.95.

TOTAL PROJECT AREA - 4.50 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES - 0.20 ACRES



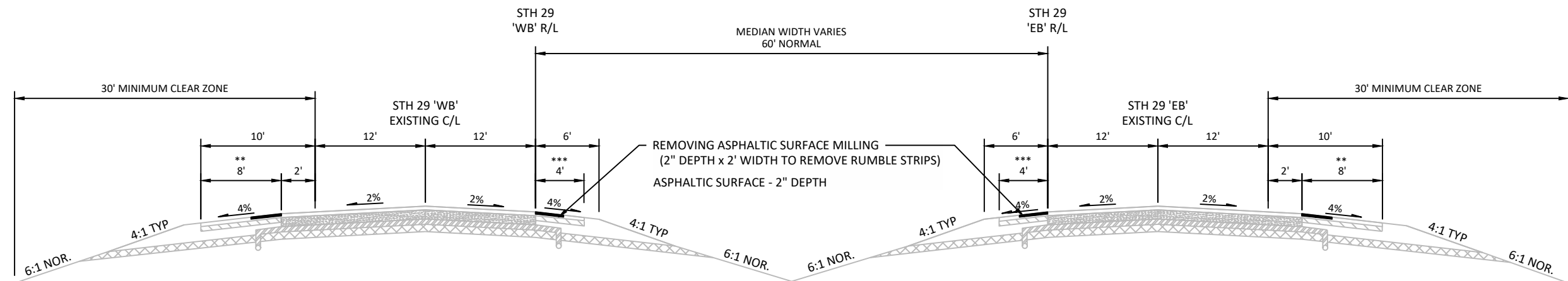






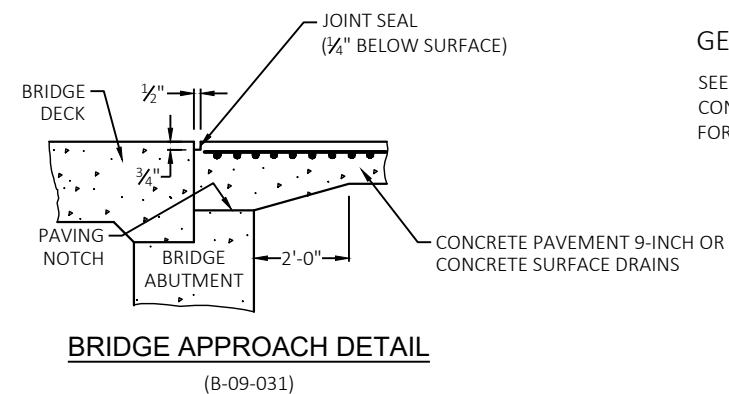
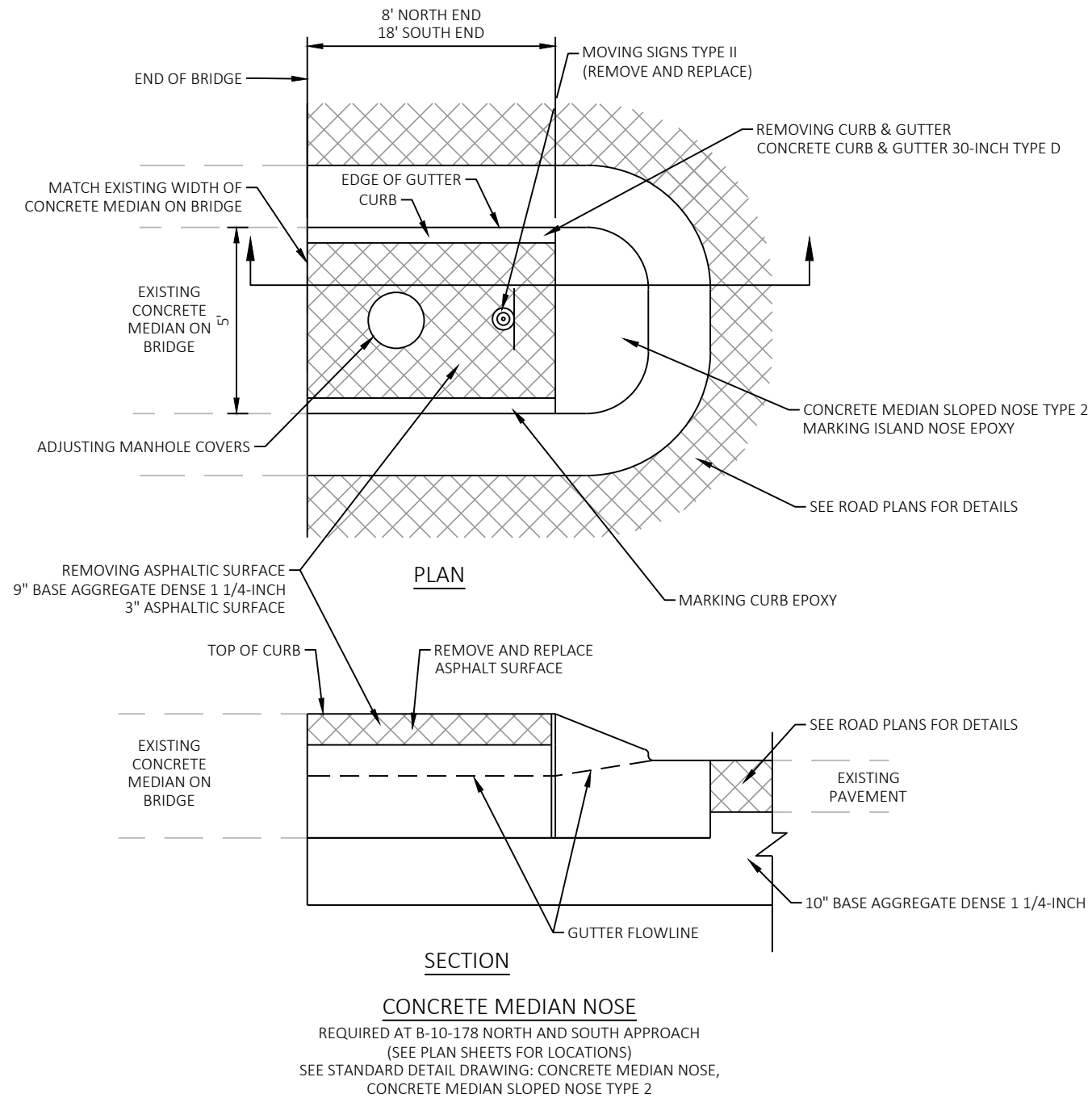
- * NOTE B-09-31, B-09-171, B-10-178 SAME PAVEMENT STRUCTURE WITHOUT 3 3/4" HMA PAVEMENT, OVERLAY OF CONCRETE PAVEMENT, AND NO UNDERDRAIN.
** 6' FOR B-09-031, B-09-171, B-10-178
*** 3' FOR B-09-031, B-09-171, B-10-178

EXISTING TYPICAL SECTION
STH 29
B-09-031
B-09-171
B-09-035
B-09-174
B-09-038
B-09-175
B-09-177
B-09-020
(LOOKING EAST)

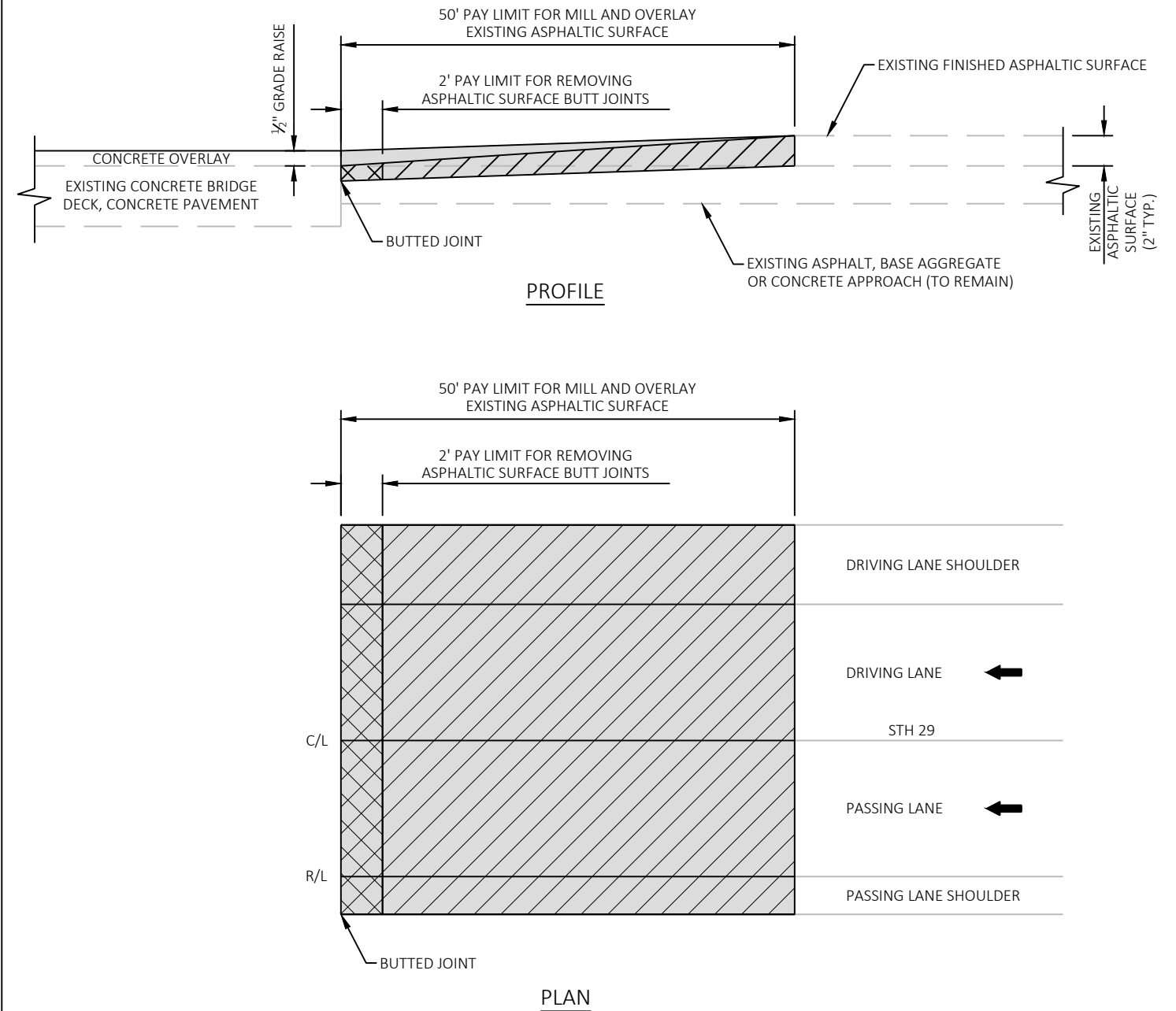


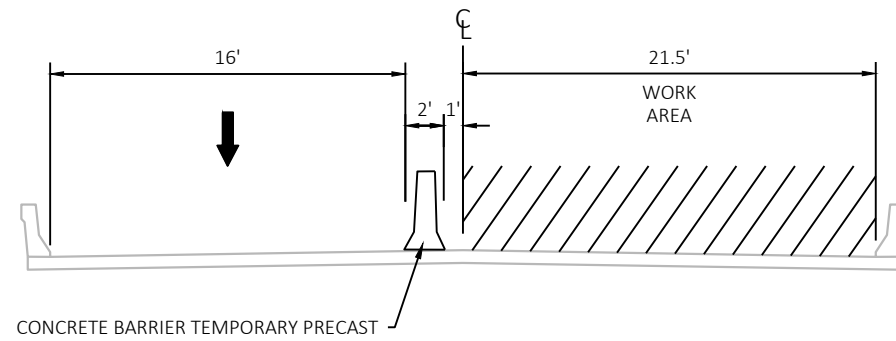
PROPOSED TYPICAL SECTION
STH 29
(LOOKING EAST)

STA. 149"WB"+50 - STA. 160"WB"+61 (B-09-031)
STA. 149"EB"+50 - STA. 161"EB"+13 (B-09-171)
STA. 204"WB"+87 - STA. 215"WB"+83 (B-09-035)
STA. 204"EB"+86 - STA. 215"EB"+82 (B-09-174)
STA. 293"WB"+70 - STA. 304"WB"+66 (B-09-038)
STA. 293"EB"+71 - STA. 304"EB"+77 (B-09-175)
STA. 529"WB"+29 - STA. 540"WB"+99 (B-09-177)
STA. 528"EB"+64 - STA. 540"EB"+36 (B-09-020)

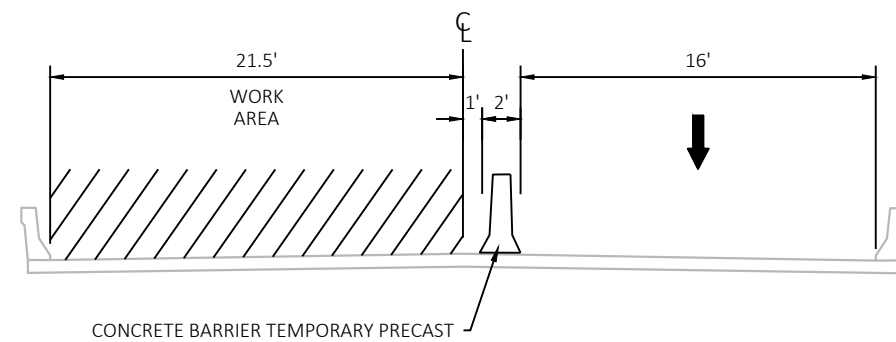
**GENERAL NOTES**

SEE STANDARD DETAIL DRAWING
CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
FOR ADDITIONAL DETAILS AND NOTES.

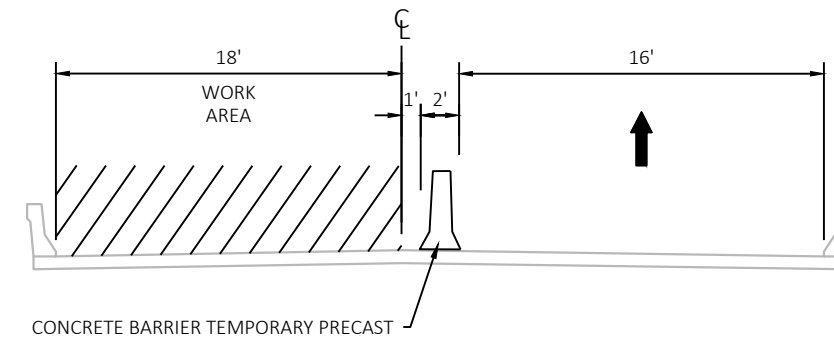




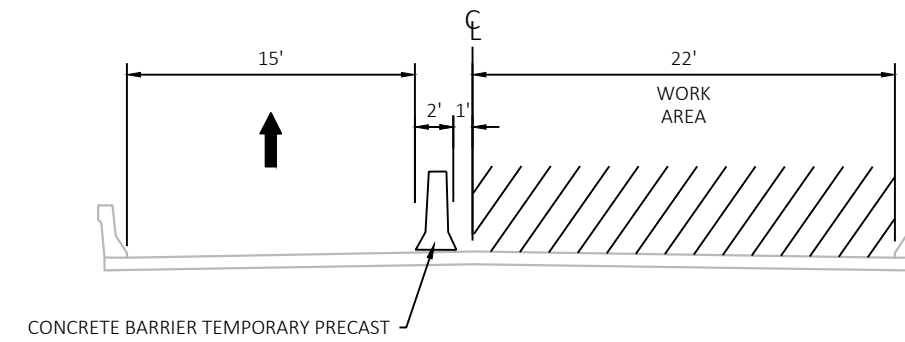
TRAFFIC CONTROL STAGE 1 - B-09-031
(LOOKING EAST)



TRAFFIC CONTROL STAGE 2 - B-09-031
(LOOKING EAST)

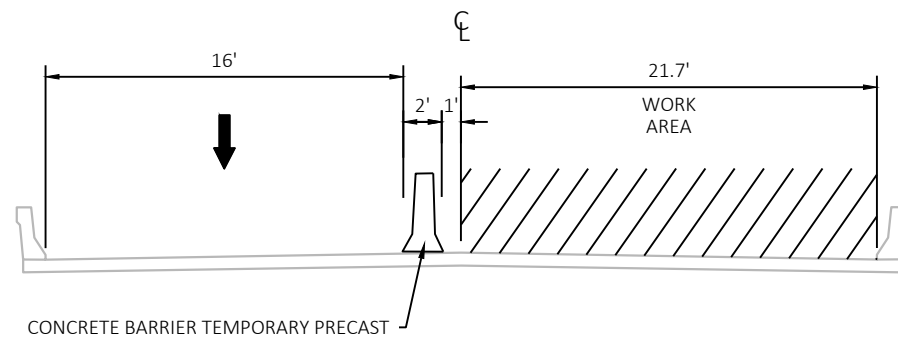


TRAFFIC CONTROL STAGE 1 - B-09-171
(LOOKING EAST)

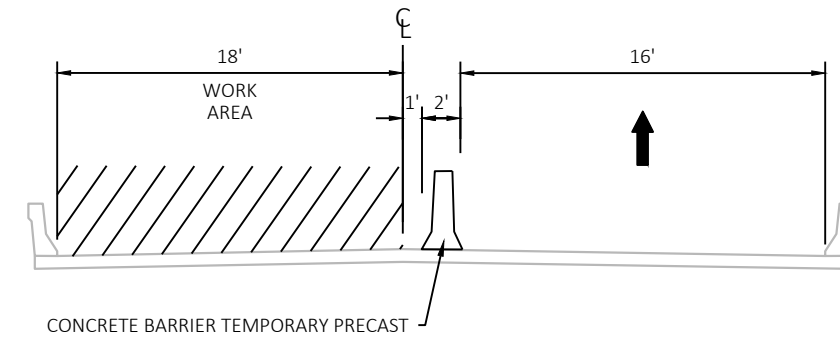


TRAFFIC CONTROL STAGE 2 - B-09-171
(LOOKING EAST)

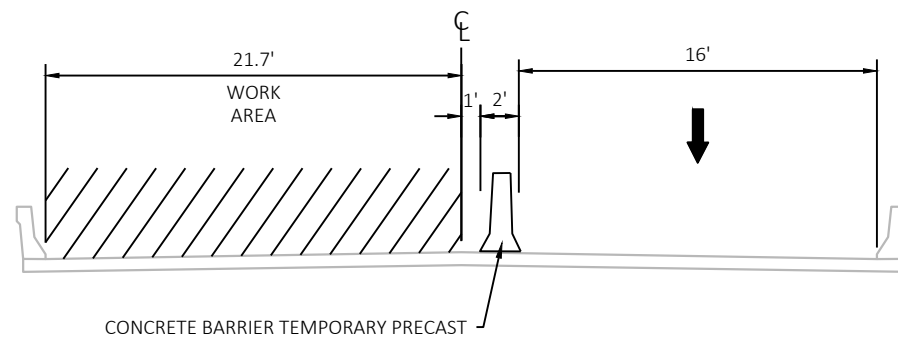
NOTE:
PLACE BARRELS OUTSIDE OF WORK AREA
TO MAINTAIN EXISTING 12' WIDE LANES



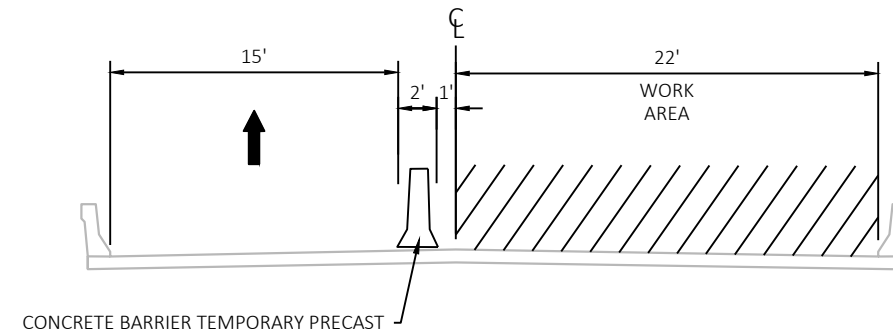
TRAFFIC CONTROL STAGE 1 - B-09-035
(LOOKING EAST)



TRAFFIC CONTROL STAGE 1 - B-09-174
(LOOKING EAST)

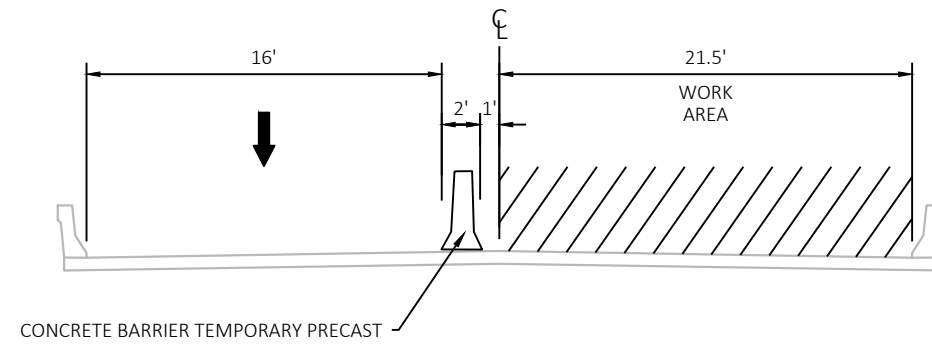


TRAFFIC CONTROL STAGE 2 - B-09-035
(LOOKING EAST)

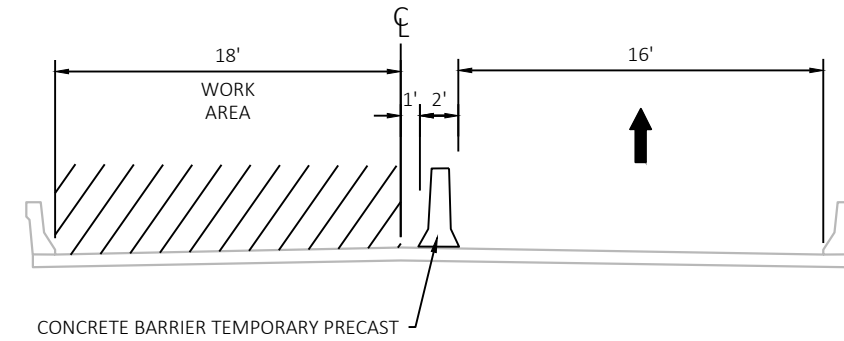


TRAFFIC CONTROL STAGE 2 - B-09-174
(LOOKING EAST)

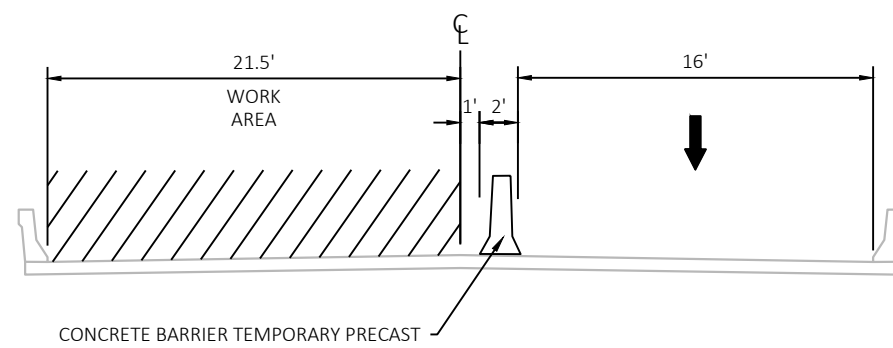
NOTE:
PLACE BARRELS OUTSIDE OF WORK AREA
TO MAINTAIN EXISTING 12' WIDE LANES



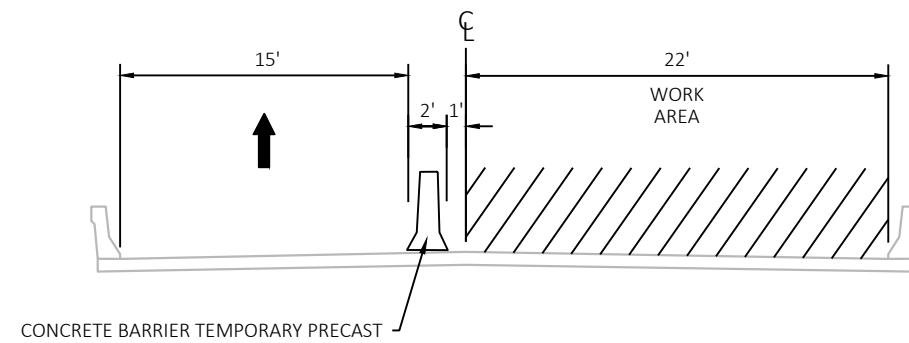
TRAFFIC CONTROL STAGE 1 - B-09-038
(LOOKING EAST)



TRAFFIC CONTROL STAGE 1 - B-09-175
(LOOKING EAST)

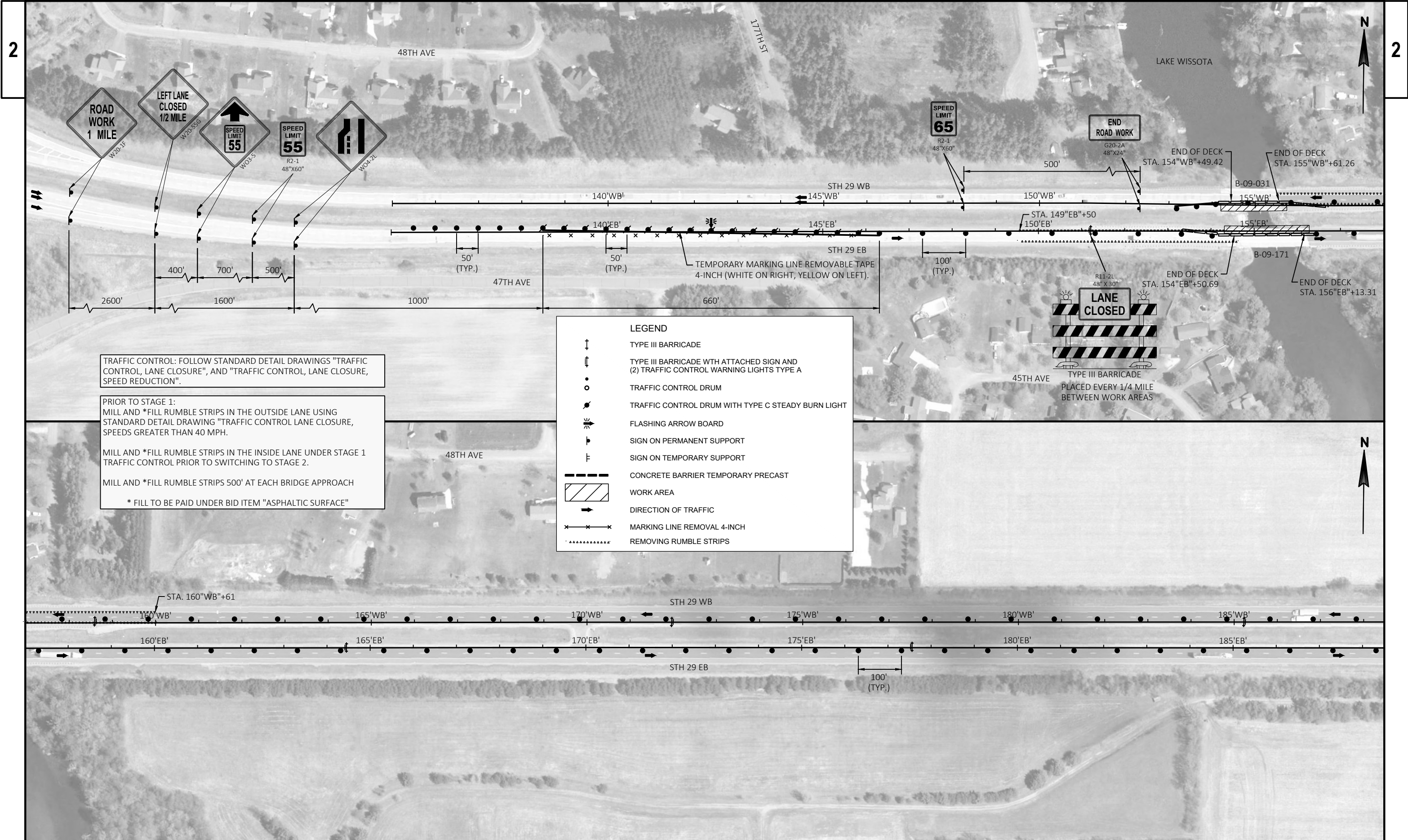


TRAFFIC CONTROL STAGE 2 - B-09-038
(LOOKING EAST)



TRAFFIC CONTROL STAGE 2 - B-09-175
(LOOKING EAST)

NOTE:
PLACE BARRELS OUTSIDE OF WORK AREA
TO MAINTAIN EXISTING 12' WIDE LANES



TRAFFIC CONTROL: FOLLOW STANDARD DETAIL DRAWINGS "TRAFFIC CONTROL, LANE CLOSURE", AND "TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION".

PRIOR TO STAGE 1:
MILL AND *FILL RUMBLE STRIPS IN THE OUTSIDE LANE USING STANDARD DETAIL DRAWING "TRAFFIC CONTROL LANE CLOSURE, SPEEDS GREATER THAN 40 MPH.

MILL AND *FILL RUMBLE STRIPS IN THE INSIDE LANE UNDER STAGE 1
TRAFFIC CONTROL PRIOR TO SWITCHING TO STAGE 2.

MILL AND *FILL RUMBLE STRIPS 500' AT EACH BRIDGE APPROACH
* FILL TO BE PAID UNDER BID ITEM "ASPHALTIC SURFACE"

LEGEND

⋮

TYPE III BARRICADE

⋮

TYPE III BARRICADE WITH ATTACHED SIGN AND (2) TRAFFIC CONTROL WARNING LIGHTS TYPE A

•

TRAFFIC CONTROL DRUM

⚡

TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

↔

FLASHING ARROW BOARD

⚡

SIGN ON PERMANENT SUPPORT

⚡

SIGN ON TEMPORARY SUPPORT

CONCRETE BARRIER TEMPORARY PRECAST

▨

WORK AREA

➡

DIRECTION OF TRAFFIC

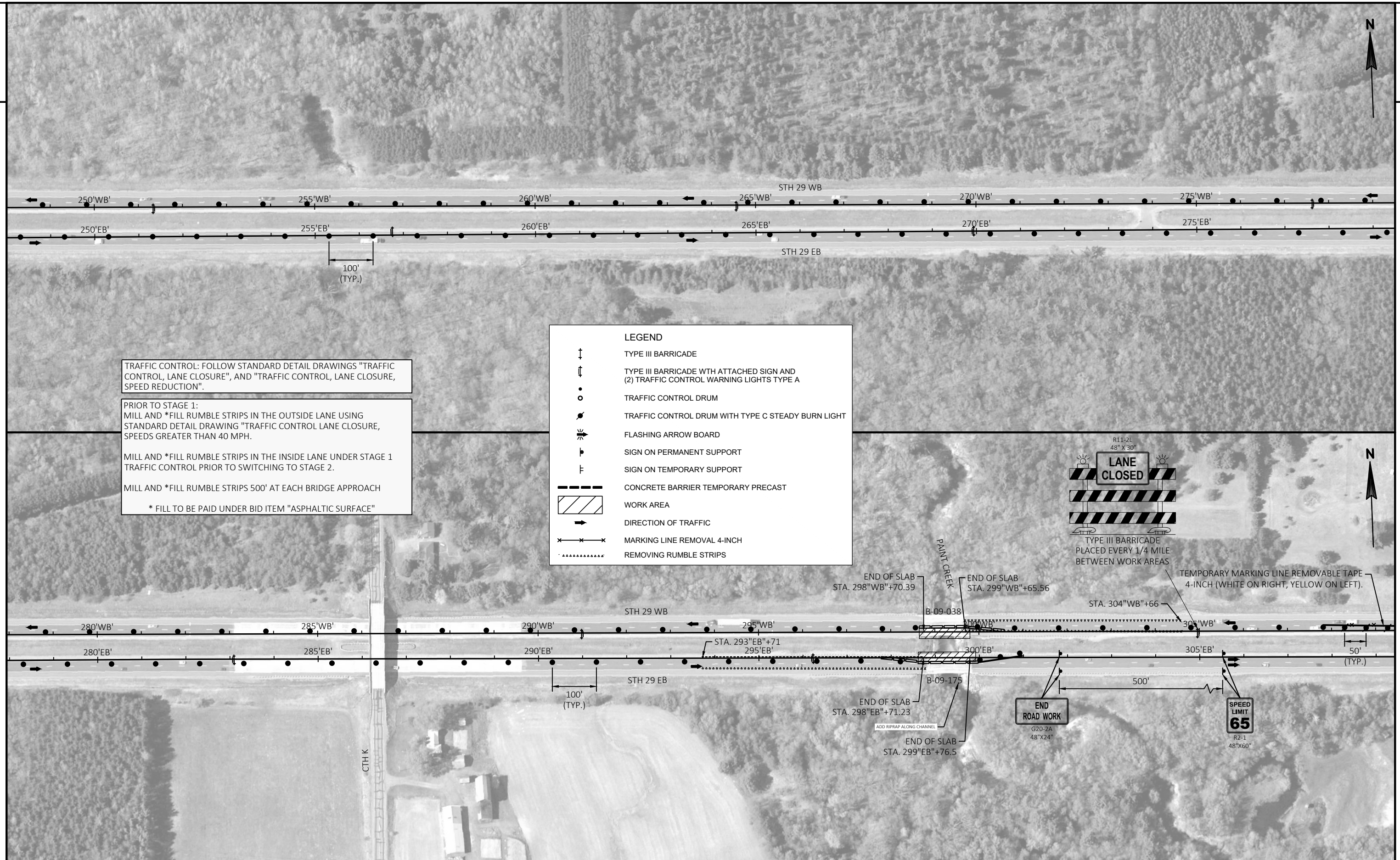
×-×-×

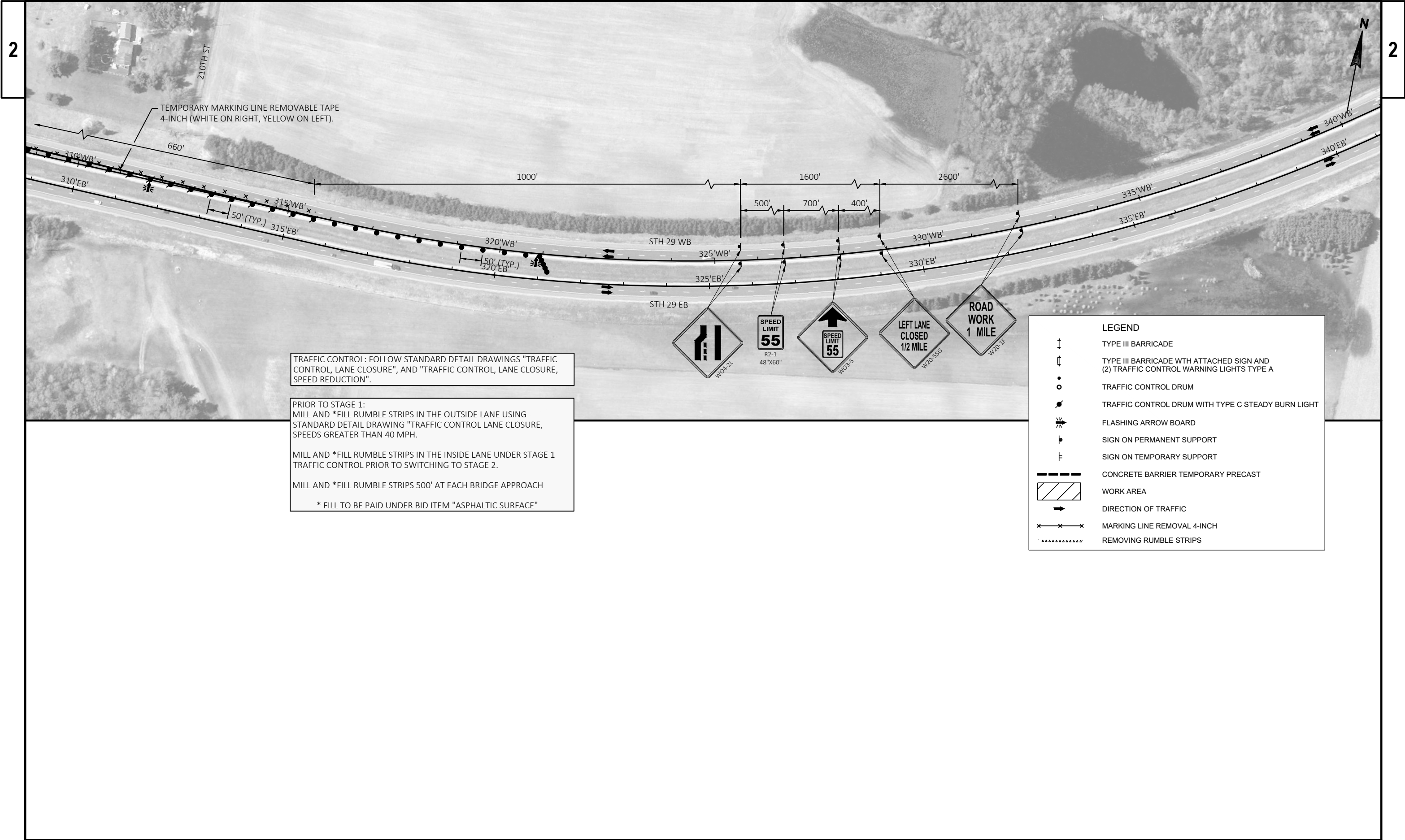
MARKING LINE REMOVAL 4-INCH

.....

REMOVING RUMBLE STRIPS







TRAFFIC CONTROL: FOLLOW STANDARD DETAIL DRAWINGS "TRAFFIC CONTROL, LANE CLOSURE", AND "TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION".

PRIOR TO STAGE 1:
MILL AND *FILL RUMBLE STRIPS IN THE OUTSIDE LANE USING STANDARD DETAIL DRAWING "TRAFFIC CONTROL LANE CLOSURE, SPEEDS GREATER THAN 40 MPH.

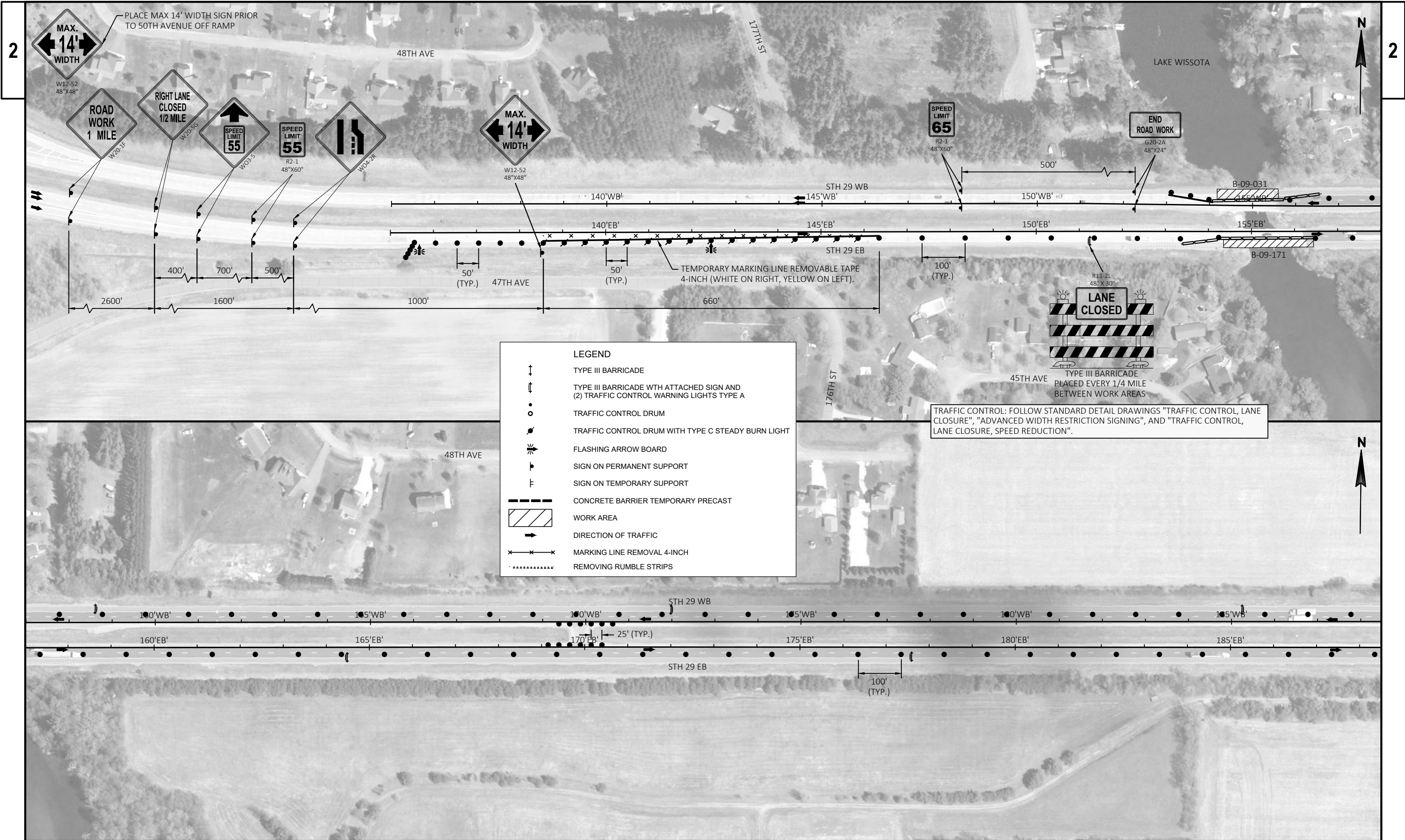
MILL AND *FILL RUMBLE STRIPS IN THE INSIDE LANE UNDER STAGE 1
TRAFFIC CONTROL PRIOR TO SWITCHING TO STAGE 2.

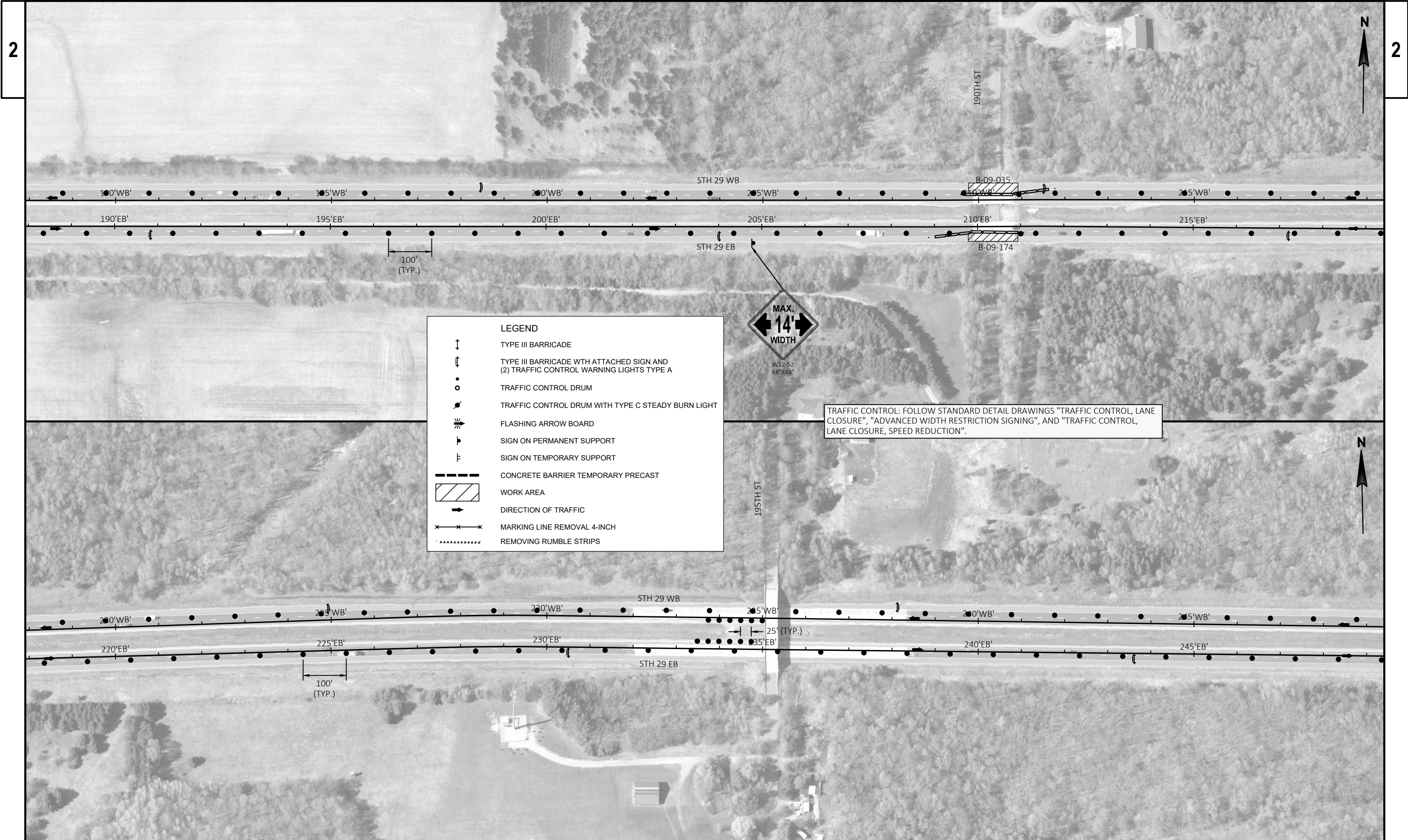
MILL AND *FILL RUMBLE STRIPS 500' AT EACH BRIDGE APPROACH

* FILL TO BE PAID UNDER BID ITEM "ASPHALTIC SURFACE"

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN AND (2) TRAFFIC CONTROL WARNING LIGHTS TYPE A
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA
- DIRECTION OF TRAFFIC
- MARKING LINE REMOVAL 4-INCH
- REMOVING RUMBLE STRIPS



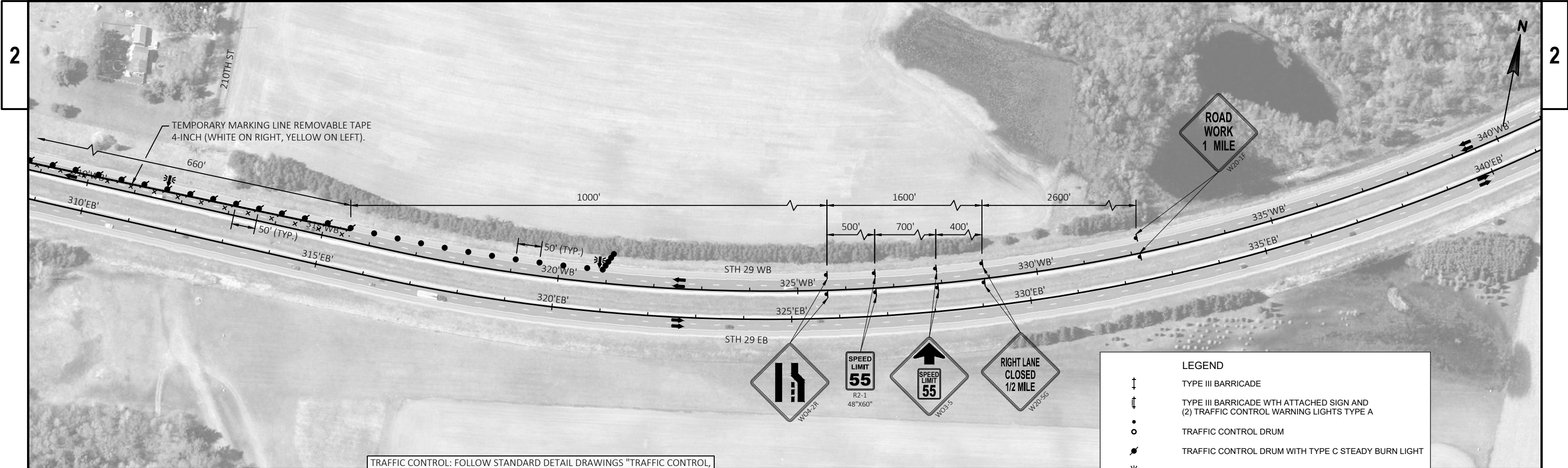


LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN AND (2) TRAFFIC CONTROL WARNING LIGHTS TYPE A
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA
- DIRECTION OF TRAFFIC
- MARKING LINE REMOVAL 4-INCH
- REMOVING RUMBLE STRIPS

TRAFFIC CONTROL: FOLLOW STANDARD DETAIL DRAWINGS "TRAFFIC CONTROL, LANE CLOSURE", "ADVANCED WIDTH RESTRICTION SIGNING", AND "TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION".





TRAFFIC CONTROL: FOLLOW STANDARD DETAIL DRAWINGS "TRAFFIC CONTROL, LANE CLOSURE", AND "TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION".

LEGEND

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⋮

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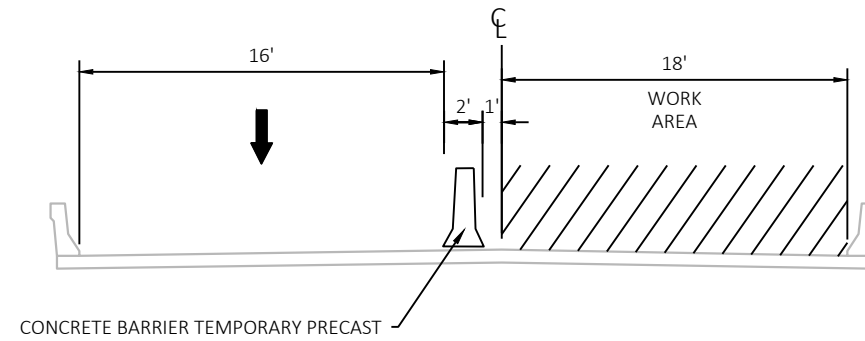
▨

➡

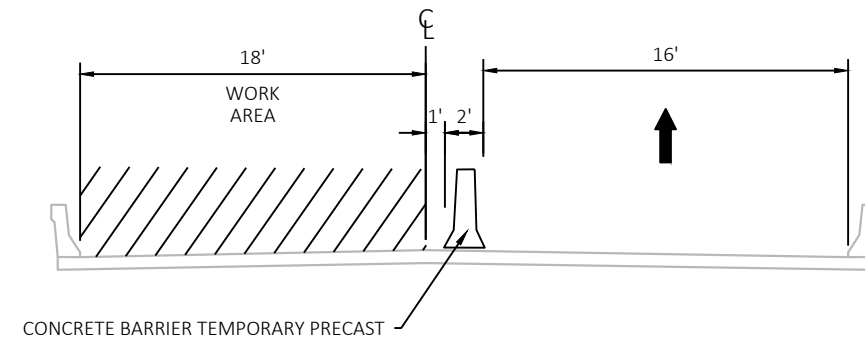
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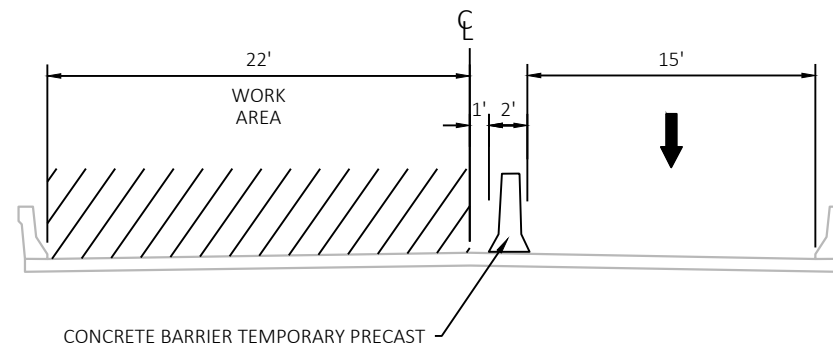
TYPE III BARRICADE
TYPE III BARRICADE WTH ATTACHED SIGN AND (2) TRAFFIC CONTROL WARNING LIGHTS TYPE A
TRAFFIC CONTROL DRUM
TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
FLASHING ARROW BOARD
SIGN ON PERMANENT SUPPORT
SIGN ON TEMPORARY SUPPORT
CONCRETE BARRIER TEMPORARY PRECAST
WORK AREA
DIRECTION OF TRAFFIC
MARKING LINE REMOVAL 4-INCH
REMOVING RUMBLE STRIPS



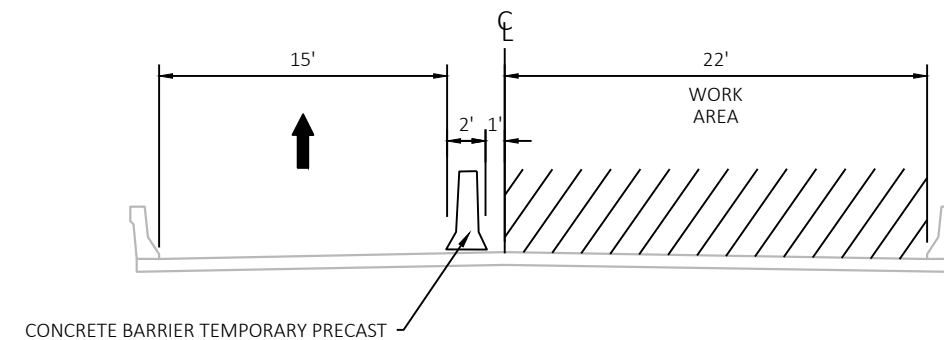
TRAFFIC CONTROL STAGE 1 - B-09-177
(LOOKING EAST)



TRAFFIC CONTROL STAGE 1 - B-09-020
(LOOKING EAST)

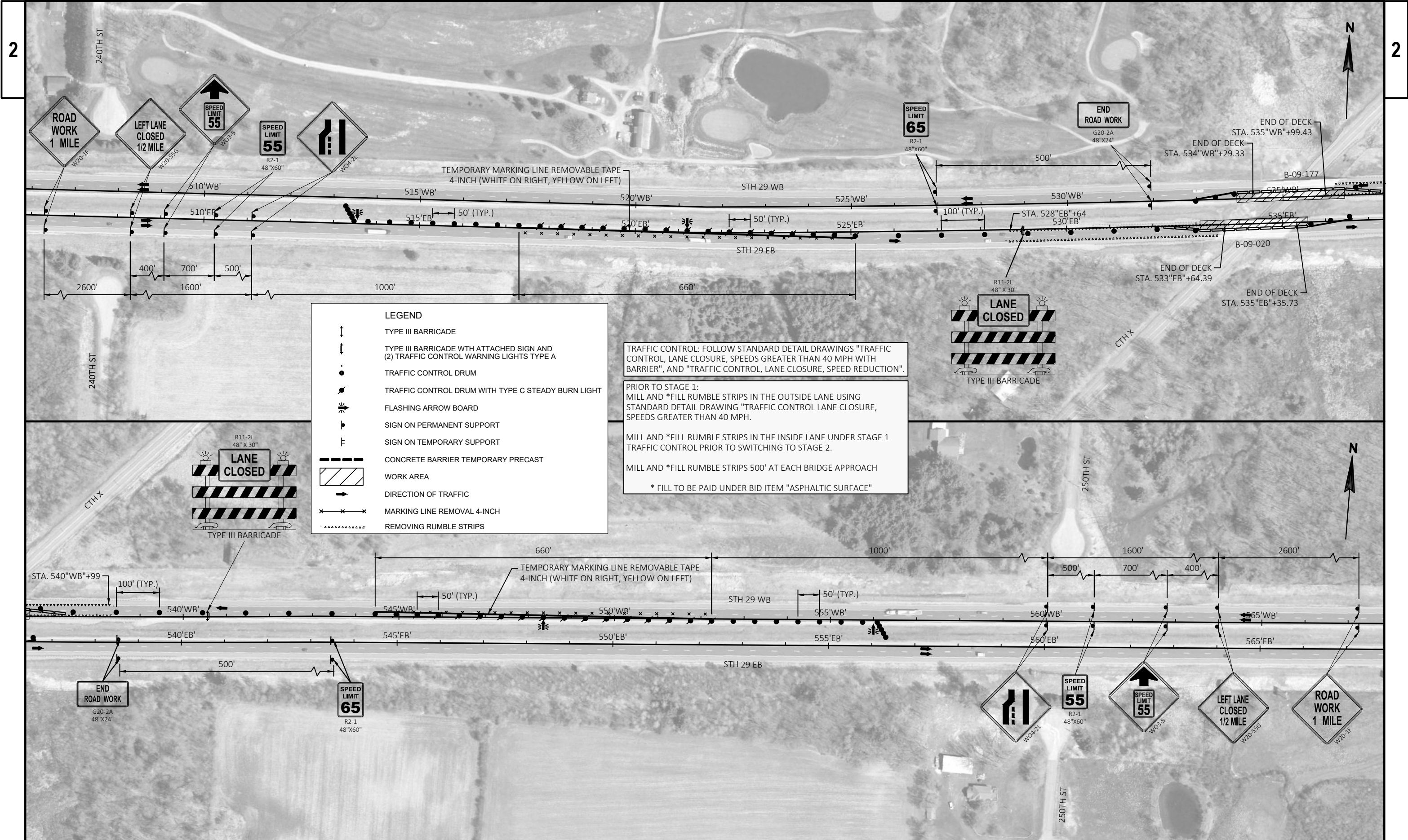


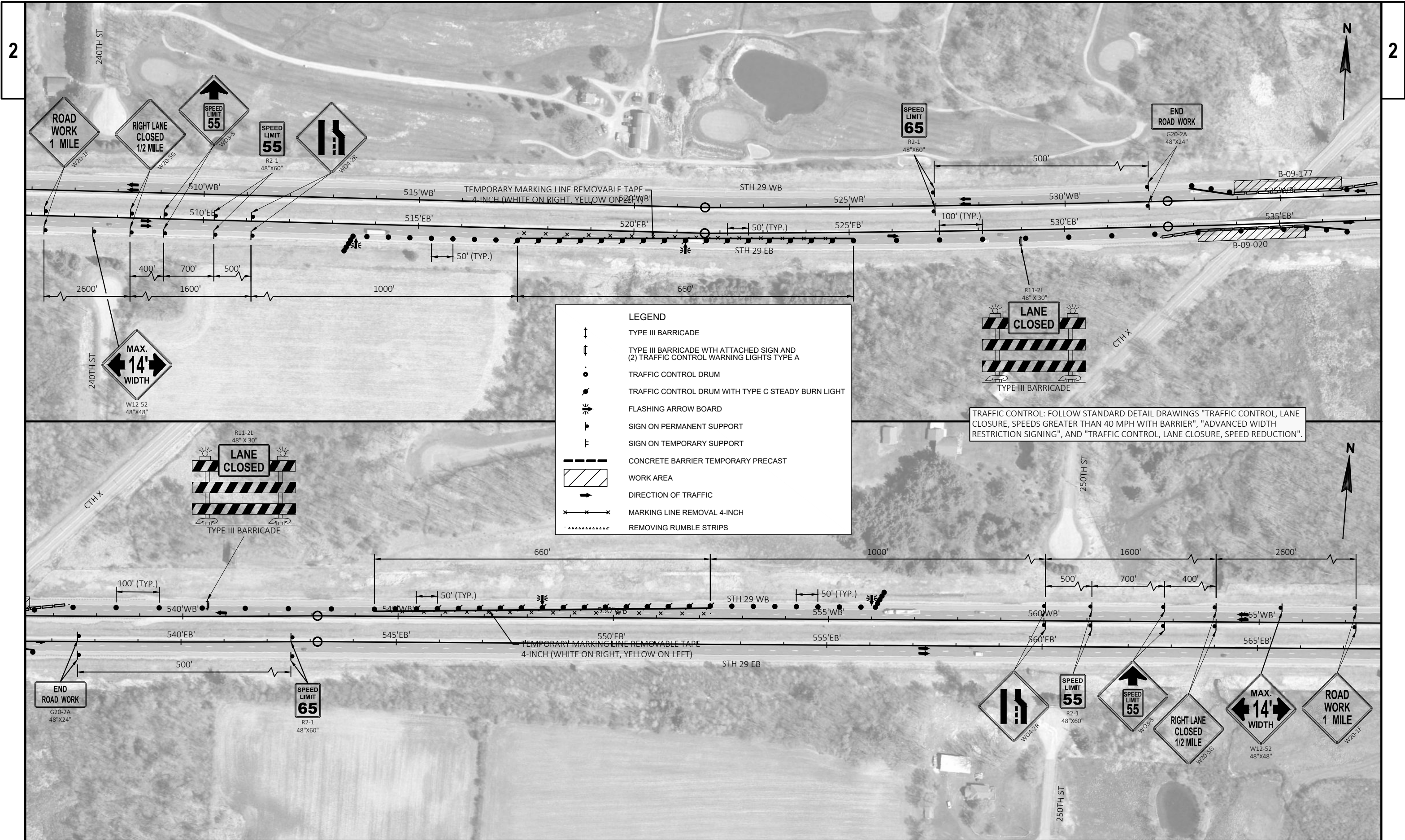
TRAFFIC CONTROL STAGE 2 - B-09-177
(LOOKING EAST)



TRAFFIC CONTROL STAGE 2 - B-09-020
(LOOKING EAST)

NOTE:
PLACE BARRELS OUTSIDE OF WORK AREA
TO MAINTAIN EXISTING 12' WIDE LANES





PROJECT NO: 1050-01-81

HWY: STH 29

COUNTY: CHIPPEWA

TRAFFIC CONTROL (B-09-020/177) - STAGE 2

SHEET

20

E

FILE NAME : P:\905\93\00093481\CADD\SHEETPLAN\B-09-177(020)\025004_TC B-09-177(020).DWG
LAYOUT NAME - B-09-177(020) - Stage 2

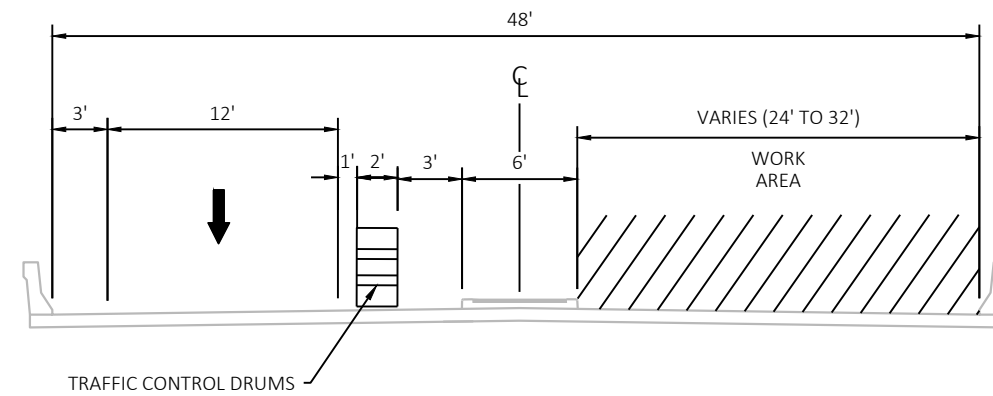
PLOT DATE : 7/31/2021 11:12 AM

PLOT BY : COURTNEY ROOYAKKERS

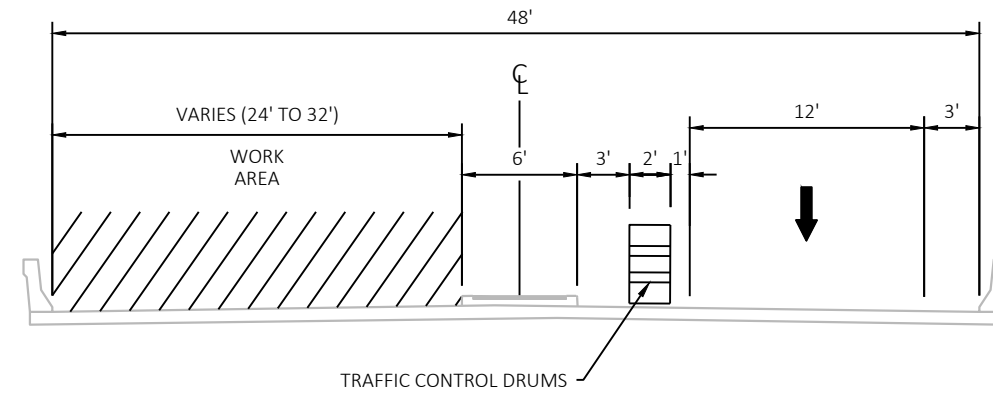
PLOT NAME :

PLOT SCALE : 1 IN=200 FT

WISDOT/CADDs SHEET 44



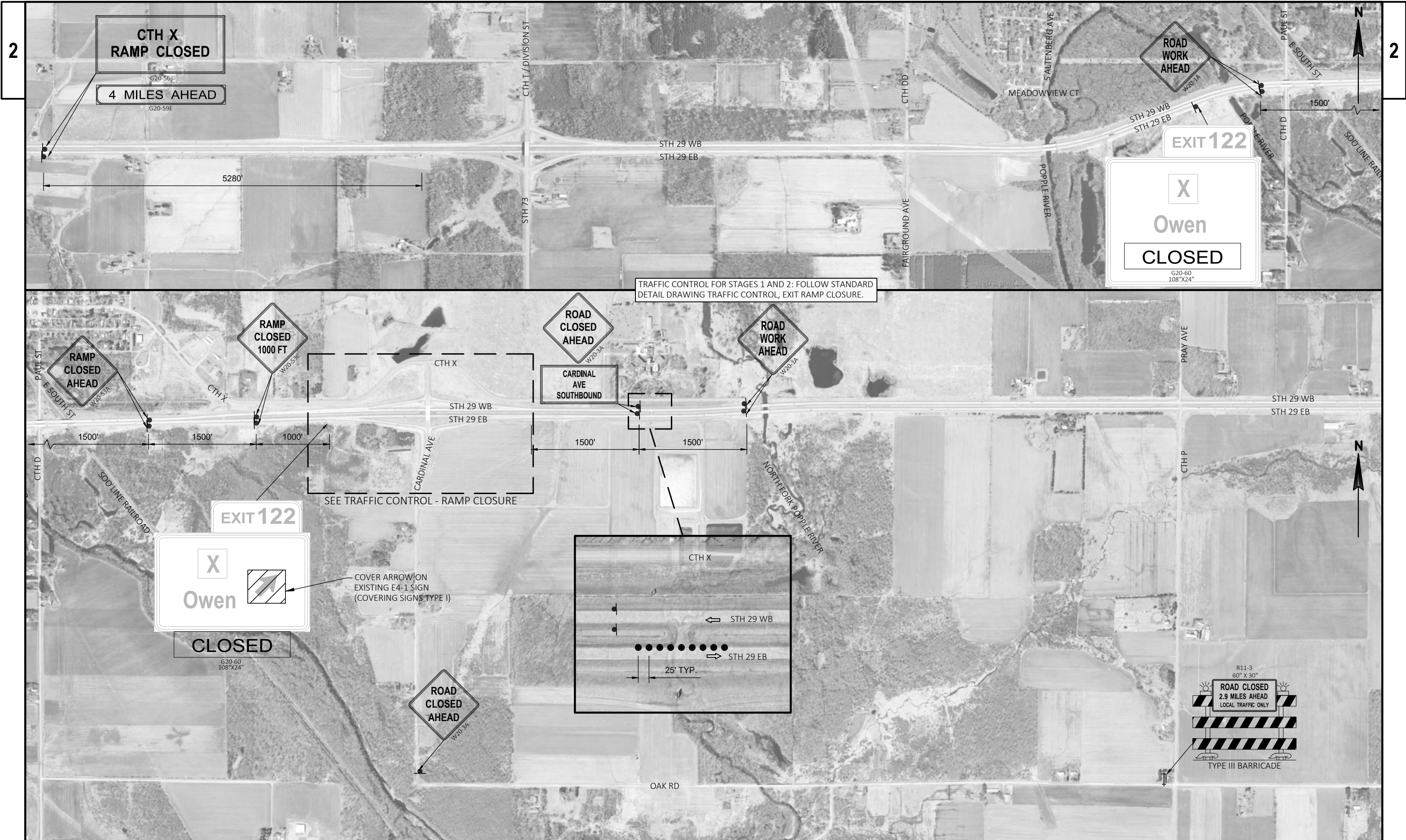
TRAFFIC CONTROL - STAGE 1
(LOOKING NORTH)

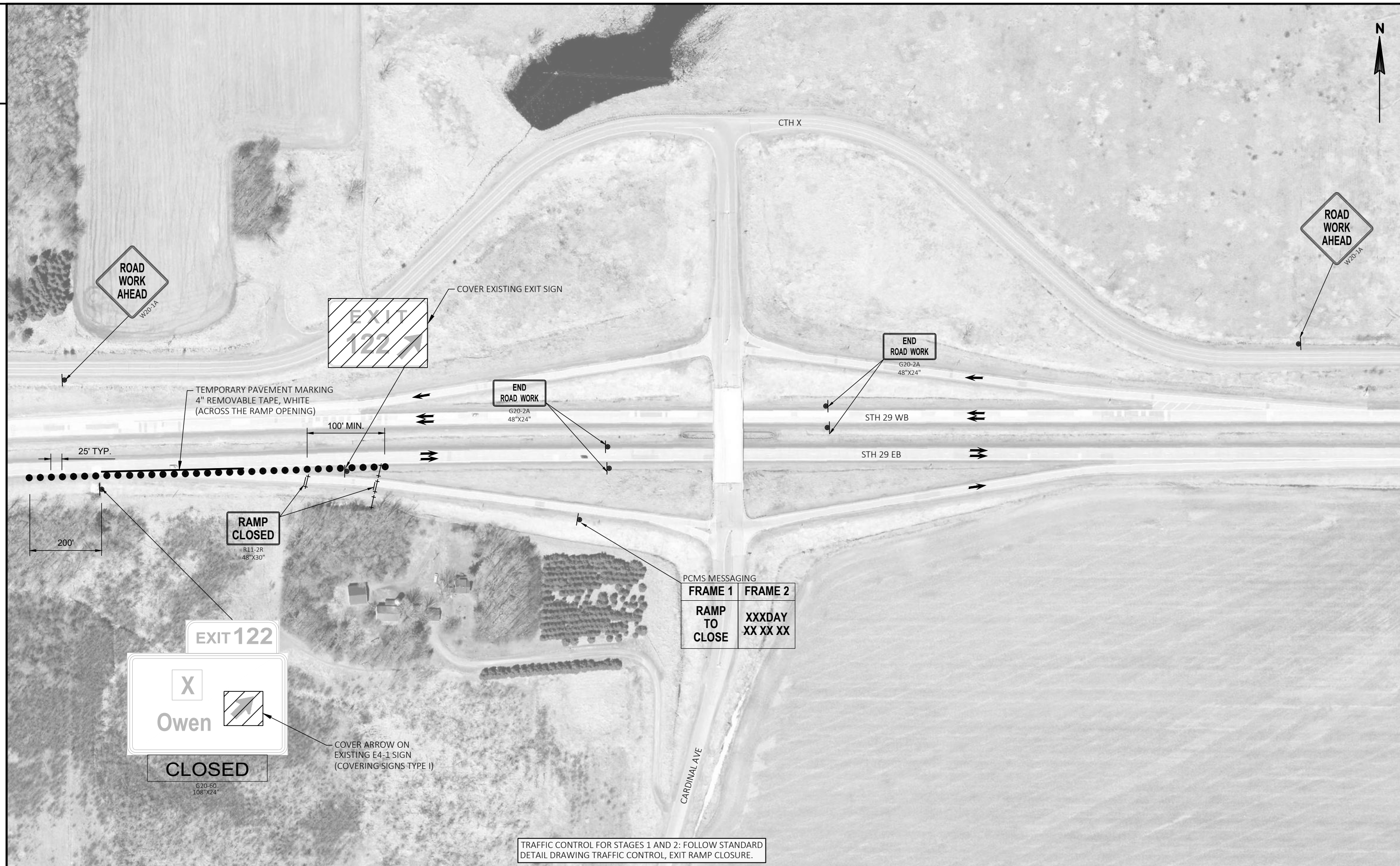


TRAFFIC CONTROL - STAGE 2
(LOOKING NORTH)

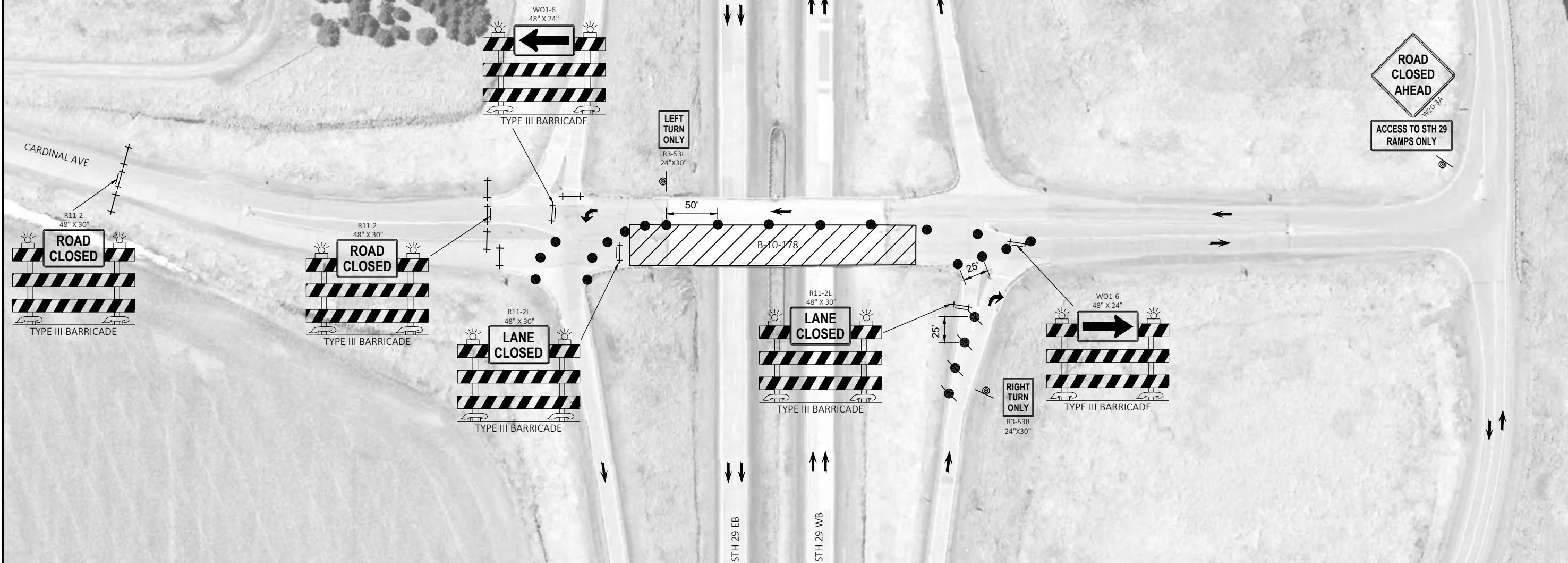


TRAFFIC CONTROL - STAGE 3
STH 29 LOOKING NORTH





PCMS MESSAGING	
FRAME 1	FRAME 2
RAMP TO CLOSE	XXXDAY XX XX XX



STAGE 1

1. CLOSE THE EASTBOUND OFF RAMP AT CARDINAL AVENUE (CTH X) AND SOUTHBOUND CARDINAL AVENUE.
2. CLOSE NORTHBOUND LANE OF CARDINAL AVENUE (CTH X) BETWEEN RAMPS.
3. REPLACE WINGWALLS, PARAPETS AND ASSOCIATED WORK ALONG EAST SIDE OF BRIDGE.
4. PLACE NORTHBOUND ASPHALT AND OPEN TO TRAFFIC.

PROJECT NO: 1050-01-81

HWY: STH 29

COUNTY: CHIPPEWA & CLARK

TRAFFIC CONTROL (B-10-178) - STAGE 1

SHEET

24

E

FILE NAME : P:\905\93\00093481\CADD\SHEETPLAN\B-10-178\025005_TC B-10-178.DWG
LAYOUT NAME - 025005_tc B-10-178 - Stage 1

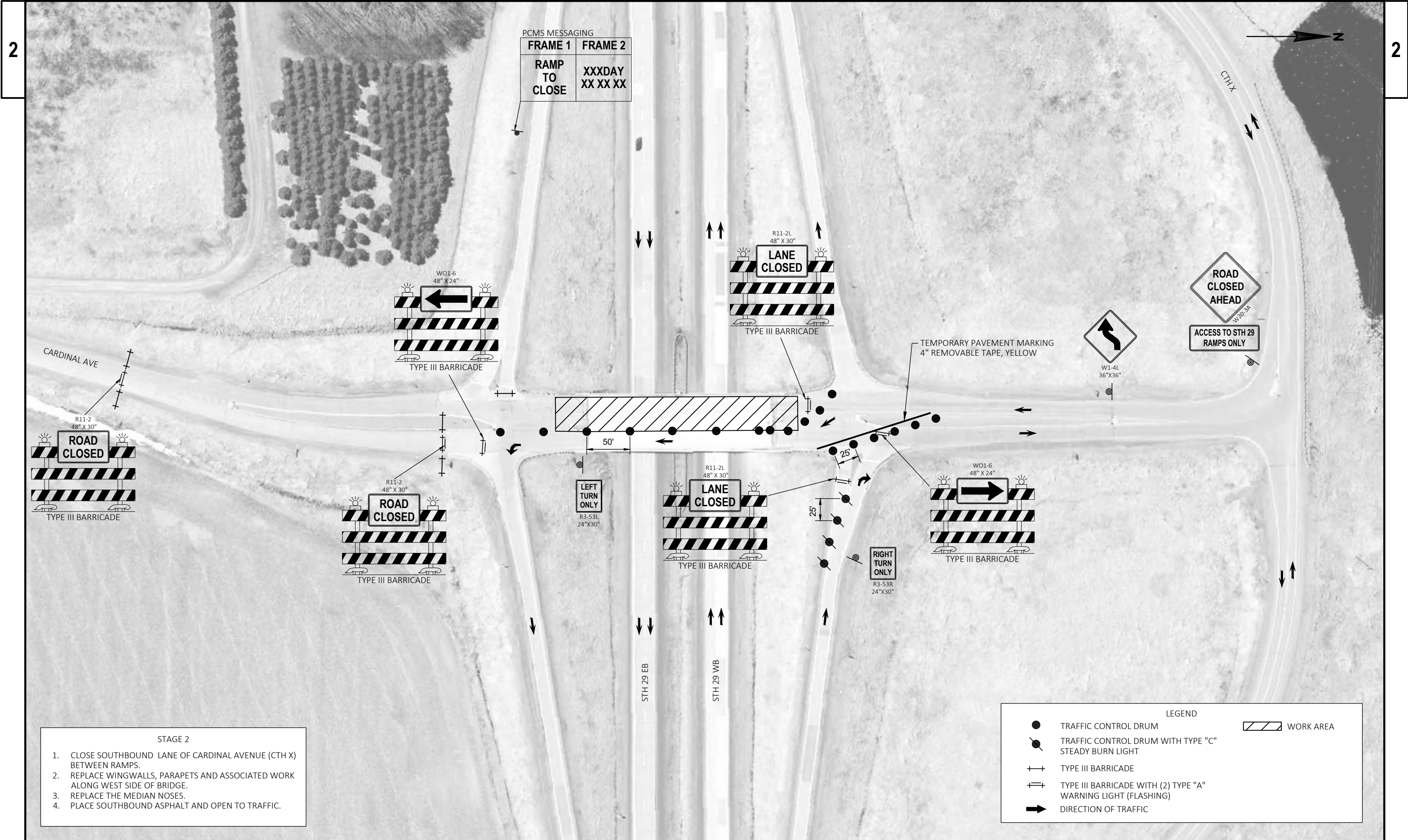
PLOT DATE : 7/31/2021 11:13 AM

PLOT BY : COURTNEY ROOYAKKERS

PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDs SHEET 42



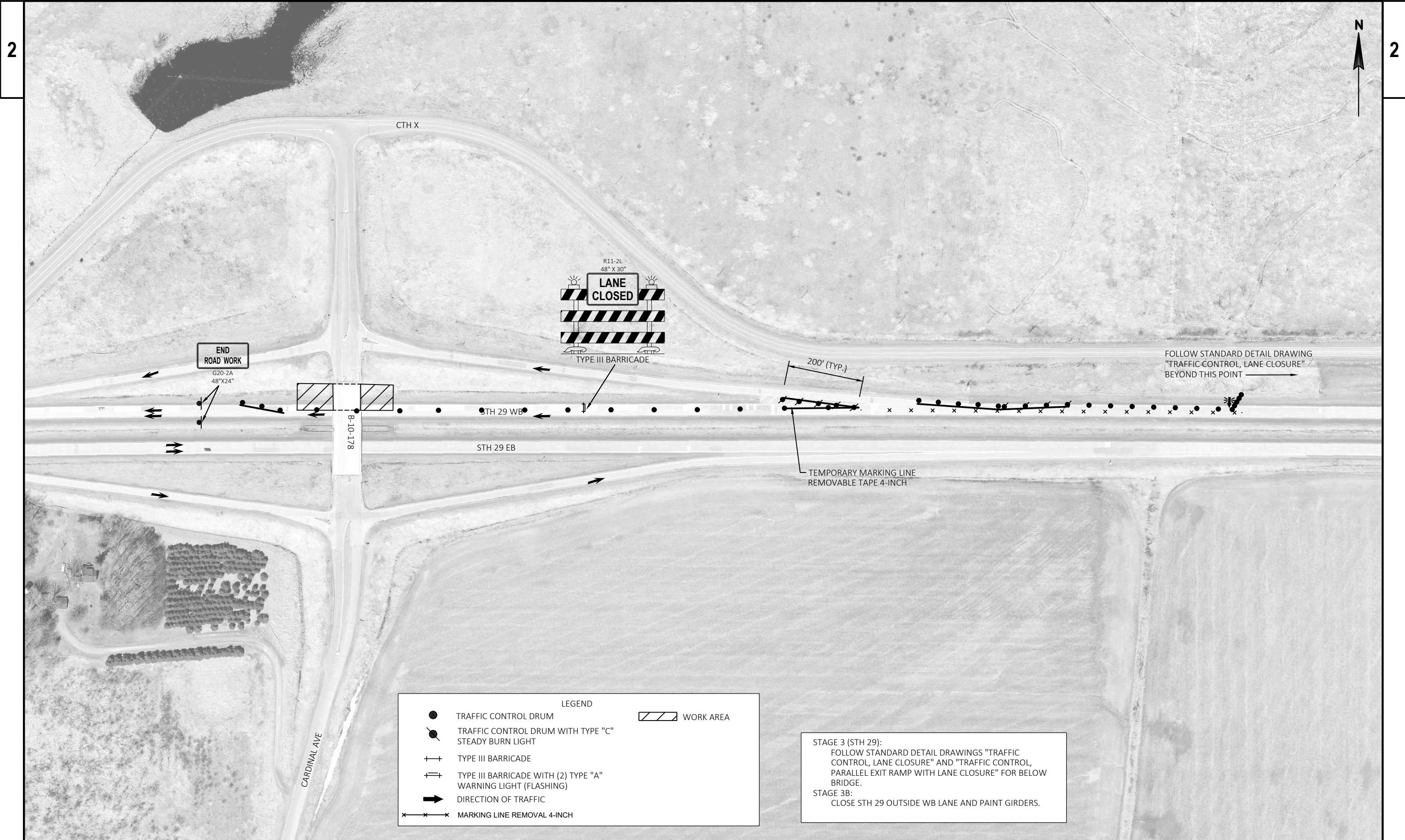
PCMS MESSAGING

FRAME 1	FRAME 2
RAMP TO CLOSE	XXXDAY XX XX XX

- STAGE 2
1. CLOSE SOUTHBOUND LANE OF CARDINAL AVENUE (CTH X) BETWEEN RAMPS.
 2. REPLACE WINGWALLS, PARAPETS AND ASSOCIATED WORK ALONG WEST SIDE OF BRIDGE.
 3. REPLACE THE MEDIAN NOSES.
 4. PLACE SOUTHBOUND ASPHALT AND OPEN TO TRAFFIC.

LEGEND

●	TRAFFIC CONTROL DRUM	▨	WORK AREA
⦿	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT		
⊕	TYPE III BARRICADE		
⊕⊕	TYPE III BARRICADE WITH (2) TYPE "A" WARNING LIGHT (FLASHING)		
➡	DIRECTION OF TRAFFIC		



Estimate Of Quantities

1050-01-81

Line	Item	Item Description	Unit	Total	Qty
0002	203.0220	Removing Structure (structure) 01. B-09-0031	EACH	1.000	1.000
0004	203.0220	Removing Structure (structure) 02. B-10-0178	EACH	1.000	1.000
0006	203.0335	Debris Containment Over Waterway (structure) 01. B-09-0031	EACH	1.000	1.000
0008	203.0335	Debris Containment Over Waterway (structure) 02. B-09-0038	EACH	1.000	1.000
0010	203.0335	Debris Containment Over Waterway (structure) 03. B-09-0171	EACH	1.000	1.000
0012	203.0335	Debris Containment Over Waterway (structure) 04. B-09-0175	EACH	1.000	1.000
0014	204.0100	Removing Concrete Pavement	SY	75.000	75.000
0016	204.0110	Removing Asphaltic Surface	SY	445.000	445.000
0018	204.0115	Removing Asphaltic Surface Butt Joints	SY	140.000	140.000
0020	204.0120	Removing Asphaltic Surface Milling	SY	5,005.000	5,005.000
0022	204.0150	Removing Curb & Gutter	LF	185.000	185.000
0024	204.0170	Removing Fence	LF	20.000	20.000
0026	205.0100	Excavation Common	CY	140.000	140.000
0028	206.1000	Excavation for Structures Bridges (structure) 01. B-09-0031	LS	1.000	1.000
0030	206.1000	Excavation for Structures Bridges (structure) 02. B-10-0178	LS	1.000	1.000
0032	210.1500	Backfill Structure Type A	TON	192.000	192.000
0034	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 1050-01-81	LS	1.000	1.000
0036	211.0200	Prepare Foundation for Concrete Pavement (project) 01. 1050-01-81	LS	1.000	1.000
0038	213.0100	Finishing Roadway (project) 01. 1050-01-81	EACH	1.000	1.000
0040	305.0110	Base Aggregate Dense 3/4-Inch	TON	20.000	20.000
0042	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	210.000	210.000
0044	415.0090	Concrete Pavement 9-Inch	SY	75.000	75.000
0046	416.0610	Drilled Tie Bars	EACH	45.000	45.000
0048	416.1010	Concrete Surface Drains	CY	8.000	8.000
0050	455.0605	Tack Coat	GAL	676.000	676.000
0052	465.0105	Asphaltic Surface	TON	725.000	725.000
0054	502.0100	Concrete Masonry Bridges	CY	35.000	35.000
0056	502.3101	Expansion Device	LF	236.000	236.000
0058	502.3200	Protective Surface Treatment	SY	4,549.000	4,549.000
0060	502.3205	Pigmented Surface Sealer Reseal	SY	932.000	932.000
0062	502.3210	Pigmented Surface Sealer	SY	37.000	37.000
0064	502.4205	Adhesive Anchors No. 5 Bar	EACH	464.000	464.000
0066	502.4206	Adhesive Anchors No. 6 Bar	EACH	8.000	8.000
0068	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	12,200.000	12,200.000
0070	509.0200	Preparation Approaches	SY	12.000	12.000
0072	509.0301	Preparation Decks Type 1	SY	303.000	303.000
0074	509.0302	Preparation Decks Type 2	SY	120.000	120.000
0076	509.0310.S	Sawing Pavement Deck Preparation Areas	LF	760.000	760.000
0078	509.0500	Cleaning Decks	SY	4,086.000	4,086.000
0080	509.0505.S	Cleaning Decks to Reapply Concrete Masonry Overlay	SY	463.000	463.000
0082	509.0600	Cleaning Approaches	SY	230.000	230.000
0084	509.1000	Joint Repair	SY	98.000	98.000
0086	509.1500	Concrete Surface Repair	SF	100.000	100.000
0088	509.2000	Full-Depth Deck Repair	SY	9.000	9.000
0090	509.2100.S	Concrete Masonry Deck Repair	CY	6.000	6.000
0092	509.2500	Concrete Masonry Overlay Decks	CY	291.000	291.000
0094	509.2600	Concrete Masonry Overlay Approaches	CY	13.000	13.000
0096	509.9005.S	Removing Concrete Masonry Deck Overlay (structure) 01. B-09-0035	SY	463.000	463.000
0098	511.1200	Temporary Shoring (structure) 01. B-09-0031	SF	400.000	400.000

Estimate Of Quantities

1050-01-81

Line	Item	Item Description	Unit	Total	Qty
0100	511.1200	Temporary Shoring (structure) 02. B-10-0178	SF	728.000	728.000
0102	516.0500	Rubberized Membrane Waterproofing	SY	22.000	22.000
0104	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	52.000	52.000
0106	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	60.000	60.000
0108	603.8000	Concrete Barrier Temporary Precast Delivered	LF	2,210.000	2,210.000
0110	603.8125	Concrete Barrier Temporary Precast Installed	LF	4,420.000	4,420.000
0112	604.0500	Slope Paving Crushed Aggregate	SY	25.000	25.000
0114	606.0300	Riprap Heavy	CY	195.000	195.000
0116	611.8110	Adjusting Manhole Covers	EACH	2.000	2.000
0118	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	240.000	240.000
0120	614.0010	Barrier System Grading Shaping Finishing	EACH	8.000	8.000
0122	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	8.000	8.000
0124	614.0215	Steel Thrie Beam Structure Approach Retrofit Span	EACH	7.000	7.000
0126	614.0216	Steel Thrie Beam Structure Approach Retrofit Post	EACH	42.000	42.000
0128	614.0920	Salvaged Rail	LF	91.000	91.000
0130	616.0100	Fence Woven Wire (height) 01. 4 FT	LF	20.000	20.000
0132	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1050-01-81	EACH	1.000	1.000
0134	619.1000	Mobilization	EACH	1.000	1.000
0136	620.0300	Concrete Median Sloped Nose	SF	78.000	78.000
0138	624.0100	Water	MGAL	15.000	15.000
0140	628.1504	Silt Fence	LF	720.000	720.000
0142	628.1520	Silt Fence Maintenance	LF	720.000	720.000
0144	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0146	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0148	638.2102	Moving Signs Type II	EACH	2.000	2.000
0150	642.5201	Field Office Type C	EACH	1.000	1.000
0152	643.0300	Traffic Control Drums	DAY	77,076.000	77,076.000
0154	643.0420	Traffic Control Barricades Type III	DAY	4,059.000	4,059.000
0156	643.0705	Traffic Control Warning Lights Type A	DAY	7,128.000	7,128.000
0158	643.0715	Traffic Control Warning Lights Type C	DAY	9,060.000	9,060.000
0160	643.0800	Traffic Control Arrow Boards	DAY	1,900.000	1,900.000
0162	643.0900	Traffic Control Signs	DAY	15,169.000	15,169.000
0164	643.0910	Traffic Control Covering Signs Type I	EACH	8.000	8.000
0166	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0168	643.5000	Traffic Control	EACH	1.000	1.000
0170	646.1020	Marking Line Epoxy 4-Inch	LF	3,150.000	3,150.000
0172	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	325.000	325.000
0174	646.3020	Marking Line Epoxy 8-Inch	LF	70.000	70.000
0176	646.8120	Marking Curb Epoxy	LF	52.000	52.000
0178	646.8220	Marking Island Nose Epoxy	EACH	2.000	2.000
0180	646.9000	Marking Removal Line 4-Inch	LF	6,570.000	6,570.000
0182	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	5,730.000	5,730.000
0184	649.0250	Temporary Marking Line Removable Tape 8-Inch	LF	1,040.000	1,040.000
0186	650.4500	Construction Staking Subgrade	LF	60.000	60.000
0188	650.5000	Construction Staking Base	LF	60.000	60.000
0190	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	172.000	172.000
0192	650.6500	Construction Staking Structure Layout (structure) 01. B-09-0031	LS	1.000	1.000
0194	650.6500	Construction Staking Structure Layout (structure) 02. B-10-0178	LS	1.000	1.000
0196	650.7000	Construction Staking Concrete Pavement	LF	100.000	100.000

Estimate Of Quantities

1050-01-81					
Line	Item	Item Description	Unit	Total	Qty
0198	650.9910	Construction Staking Supplemental Control (project) 01. 1050-01-81	LS	1.000	1.000
0200	690.0150	Sawing Asphalt	LF	130.000	130.000
0202	690.0250	Sawing Concrete	LF	270.000	270.000
0204	715.0502	Incentive Strength Concrete Structures 01. B-09-0031	DOL	500.000	500.000
0206	715.0502	Incentive Strength Concrete Structures 09. B-10-0178	DOL	500.000	500.000
0208	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0210	999.2000.S	Installing and Maintaining Bird Deterrent System (Station) 01. B-09-0031 (Station 155"WB"+05)	EACH	1.000	1.000
0212	999.2000.S	Installing and Maintaining Bird Deterrent System (Station) 02. B-09-0171 (Station 534"WB"+65)	EACH	1.000	1.000
0214	999.2000.S	Installing and Maintaining Bird Deterrent System (Station) 03. B-09-0035 (Station 210"WB"+20)	EACH	1.000	1.000
0216	999.2000.S	Installing and Maintaining Bird Deterrent System (Station) 04. B-09-0174 (Station 210"EB"+30)	EACH	1.000	1.000
0218	999.2000.S	Installing and Maintaining Bird Deterrent System (Station) 05. B-09-0038 (Station 299"WB"+20)	EACH	1.000	1.000
0220	999.2000.S	Installing and Maintaining Bird Deterrent System (Station) 06. B-09-0175 (Station 299"EB"+25)	EACH	1.000	1.000
0222	999.2000.S	Installing and Maintaining Bird Deterrent System (Station) 07. B-09-0177 (Station 534"WB"+65)	EACH	1.000	1.000
0224	999.2000.S	Installing and Maintaining Bird Deterrent System (Station) 08. B-09-0020 (Station 534"EB"+00)	EACH	1.000	1.000
0226	999.2000.S	Installing and Maintaining Bird Deterrent System (Station) 09. B-10-0178 (Station 100"L"+30)	EACH	1.000	1.000
0228	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0230	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000
0232	SPV.0060	Special 01. Pile Rehabilitation	EACH	18.000	18.000

TRAFFIC CONTROL																		
STRUCTURE	DURATION	643.0300		643.0420		643.0705		643.0715		643.0800		643.0900		**643.091	643.1050		643.5000	
		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL	TRAFFIC CONTROL		TRAFFIC CONTROL	
		DRUMS		BARRICADES TYPE III		WARNING LIGHTS TYPE A		WARNING LIGHTS TYPE C		ARROW BOARDS		SIGNS		COVERING SIGNS TYPE I	SIGNS PCMS		TRAFFIC CONTROL	
		EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	EACH	DAY	EACH	REMARKS
PROJECT 1050-01-81		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	
B-09-0171, B-09-0174, B-09-0175*	STAGE 1	70	201	14,070	9	630	18	1,260	13	910	2	140	21	1,470	3	--	--	COVER EXISTING 65 MPH SPEED LIMIT SIGNS ALONG STH 29 WIITHIN WORK ZONE
	STAGE 2	70	178	12,460	8	560	16	1,120	13	910	2	140	26	1,820	--	--	--	
B-09-0031, B-09-0035, B-09-0038'	STAGE 1	90	202	18,180	9	810	18	1,620	13	1,170	2	180	23	2,070	3	--	--	COVER EXISTING 65 MPH SPEED LIMIT SIGNS ALONG STH 29 WITHIN WORK ZONE
	STAGE 2	90	179	16,110	9	810	18	1,620	13	1,170	2	180	23	2,070	--	--	--	
B-09-0020	STAGE 1	90	34	3,060	1	90	2	180	13	1,170	2	180	15	1,350	--	--	--	
	STAGE 2	90	36	3,240	1	90	2	180	13	1,170	2	180	15	1,350	--	--	--	
B-09-0177	STAGE 1	90	35	3,150	1	90	2	180	13	1,170	2	180	15	1,350	--	--	--	
	STAGE 2	90	34	3,060	1	90	2	180	13	1,170	8	720	17	1,530	--	--	--	
	OVERVIEW	55	9	495	1	55	2	110	--	--	--	--	20	1,100	1	--	--	COVER ARROW ON EXISITING EXIT SIGN. SEE TRAFFIC CONTROL, STH 29 (B-10-(178) OVERVIEW CONSTRUCTION DETAIL
B-10-0178	RAMP CLOSURE	55	33	1,815	4	220	--	--	--	--	--	--	8	440	1	1	14	COVER EXISTING EXIT 122 SIGN. SEE TRAFFIC CONTROL, STH 29 (B-10-(178) RAMP CLOSURE CONSTRUCTION DETAIL
	STAGE 1	25	23	575	11	275	12	300	4	100	--	--	10	250	--	--	--	
	STAGE 2	30	22	660	11	330	12	360	4	120	--	--	11	330	--	--	--	
	STAGE 3	3	67	201	3	9	6	18	21	--	2	--	13	39	--	--	--	
TOTAL		1,053	77,076	69	4,059	110	7,128	133	9,060	24	1,900	217	15,169	8	1	14	1	

* FOR STRUCTURES ON STH 29, TRAFFIC CONTROL ITEMS REFLECT ONE CONTINUOUS LANE CLOSURE, PER STAGE.
**COVERING SIGNS TYPE 1 FOR ONE CYCLE EACH

BASE AGGREGATE				
STRUCTURE	305.0110	305.0120	624.0100	REMARKS
	BASE	BASE		
	AGGREGATE	AGGREGATE		
	DENSE	DENSE		
	3/4-INCH	1 1/4-INCH	WATER	
STRUCTURE	TON	TON	MGAL	REMARKS
B-10-0178	--	210	14	
B-10-0178	20	--	1	BEHIND CURB & GUTTER
TOTAL	20	210	15	

SURFACING		
STRUCTURE	455.0605	465.0105
	TACK	ASPHALTIC
	COAT	SURFACE
	GAL	TON
B-09-0031	17	27
B-09-0171	16	25
B-09-0035	34	54
B-09-0174	32	50
B-09-0038	34	54
B-09-0175	32	50
B-09-0177	32	50
B-09-0020	32	50
B-10-0178	31	114
RUMBLE STRIPS	416	251
TOTAL	676	725

CONCRETE BARRIER			
PROJECT	STRUCTURE	603.8000	603.8125
		CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED
		LF	LF
1050-01-81	B-09-0031	255	510
1050-01-81	B-09-0171	310	620
1050-01-81	B-09-0035	220	440
1050-01-81	B-09-0174	225	450
1050-01-81	B-09-0038	225	450
1050-01-81	B-09-0175	270	540
1050-01-81	B-09-0177	345	690
1050-01-81	B-09-0020	360	720
TOTALS		2,210	4,420

*ALL ITEMS CATEGORY 0010

3

TEMPORARY MARKING					
		646.9000	649.0150 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)	649.0150 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)	649.0250 TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH (WHITE)
STRUCTURE		LF	LF	LF	LF
B-09-0171, B-09-0174, B-09-0175	STAGE 1	660	--	660	--
	STAGE 2	660	660	--	--
B-09-0031, B-09-0035, B-09-0038	STAGE 1	660	660	--	--
	STAGE 2	660	--	660	--
B-09-0020	STAGE 1	660	--	660	--
	STAGE 2	660	660	--	--
B-09-0177	STAGE 1	660	--	660	--
	STAGE 2	660	660	--	--
B-09-0178	RAMP CLOSURE	--	350	--	--
	STAGE 2	--	--	100	--
	STAGE 3	1290	1040	--	1040
SUBTOTAL			2990.00	2740.00	
TOTAL		6,570	5,730		1,040

CONCRETE PAVEMENT		
		416.0610
		CONCRETE PAVEMENT 9-INCH SY
STRUCTURE		DRILLED TIE BARS EACH
B-09-0031	75	45
TOTAL		45

PAVEMENT MARKING					
		646.1020 MARKING LINE EPOXY 4-INCH (WHITE)	646.1020 MARKING LINE EPOXY 4-INCH (YELLOW)	646.1040 MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE)	646.3020 MARKING LINE EPOXY 8-INCH
STRUCTURE		LF	LF	LF	REMARKS
B-09-0031	--	--	--	60	CENTERLINE
	230	250	--	--	EDGELINES
B-09-0171	--	--	--	70	CENTERLINE
	275	295	--	--	EDGELINES
B-09-0035	--	--	--	25	CENTERLINE
	100	100	--	--	EDGELINES
B-09-0174	--	--	--	25	CENTERLINE
	100	100	--	--	EDGELINES
B-09-0038	--	--	--	25	CENTERLINE
	100	100	--	--	EDGELINES
B-09-0175	--	--	--	30	CENTERLINE
	110	110	--	--	EDGELINES
B-09-0177	--	--	--	45	CENTERLINE
	170	170	--	--	EDGELINES
B-09-0020	--	--	--	45	CENTERLINE
	170	170	--	--	EDGELINES
B-10-0178	--	--	--	70	TURN LANES
	600	--	--	--	EDGELINES
SUBTOTAL		1,855	1,295		
TOTAL		3,150		325	70

REMOVALS								
		204.0100 REMOVING CONCRETE PAVEMENT SY	204.0110 REMOVING ASPHALTIC SURFACE SY	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	204.0150 REMOVING CURB & GUTTER LF	204.0170 REMOVING FENCE LF	690.0150 SAWING ASPHALT LF
STRUCTURE								690.0250 SAWING CONCRETE LF
B-09-0031	75	--	10	240	--	20	-	140
B-09-0171	--	--	10	225	--	--	-	-
B-09-0035	--	--	20	485	--	--	-	-
B-09-0174	--	--	20	445	--	--	-	-
B-09-0038	--	--	20	480	--	--	-	-
B-09-0175	--	--	20	445	--	--	-	-
B-09-0177	--	--	20	445	--	--	-	-
B-09-0020	--	--	20	445	--	--	-	-
B-10-0178	--	445	-	-	185	--	130	130
RUMBLE STRIPS	--	--	--	1,795	--	--	--	--
TOTAL		75	445	140	5,005	185	20	270

*ALL ITEMS CATEGORY 0010

3

3

BEAMGUARD							
	416.1010	601.0588	*614.0010	614.0920	614.0215	614.0216	616.0100
		CONCRETE			STEEL THRIE	STEEL THRIE	
		CURB &	BARRIER		BEAM	BEAM	
		GUTTER 4-	SYSTEM	SALVAGED	STRUCTURE	STRUCTURE	FENCE
	CONCRETE	INCH SLOPED	GRADING	RAIL	APPROACH	APPROACH	WOVEN
	SURFACE	36-INCH	SHAPING		RETROFIT	RETROFIT	WIRE (4
	DRAINS	TYPE TBT	FINISHING		SPAN	POST	FEET)
STRUCTURE	CY	LF	EACH	LF	EACH	EACH	LF
B-09-0031	4	--	4	39	3	18	20
B-10-0178	4	60	4	52	4	24	--
TOTAL	8	60	8	91	7	42	20

* BARRIER SYSTEM IS OUTSIDE THE CONTRACT GRADING LIMITS-FINISHING ITEMS INCIDENTAL TO ITEM

EROSION CONTROL					
	628.1504	628.1520	630.0140	625.0100	627.0200
			*SEEDING		
		SILT FENCE	MIXTURE		
		MAINTENANCE	NO. 40	*TOPSOIL	*MULCHING
LOCATION	LF	LF	LB	SY	SY
B-09-0031	300	300	5	300	300
B-09-0035	50	50	--	--	--
B-09-0038	50	50	--	--	--
B-09-0171	50	50	--	--	--
B-09-0174	50	50	--	--	--
B-09-0175	50	50	--	--	--
B-09-0020	50	50	--	--	--
B-10-0178	120	120	5	300	300
TOTAL	720	720	10	600	600

* FOR INFORMATIONAL PURPOSES ONLY. INCIDENTAL TO BARRIER SYSTEM GRADING SHAPING FINISHING

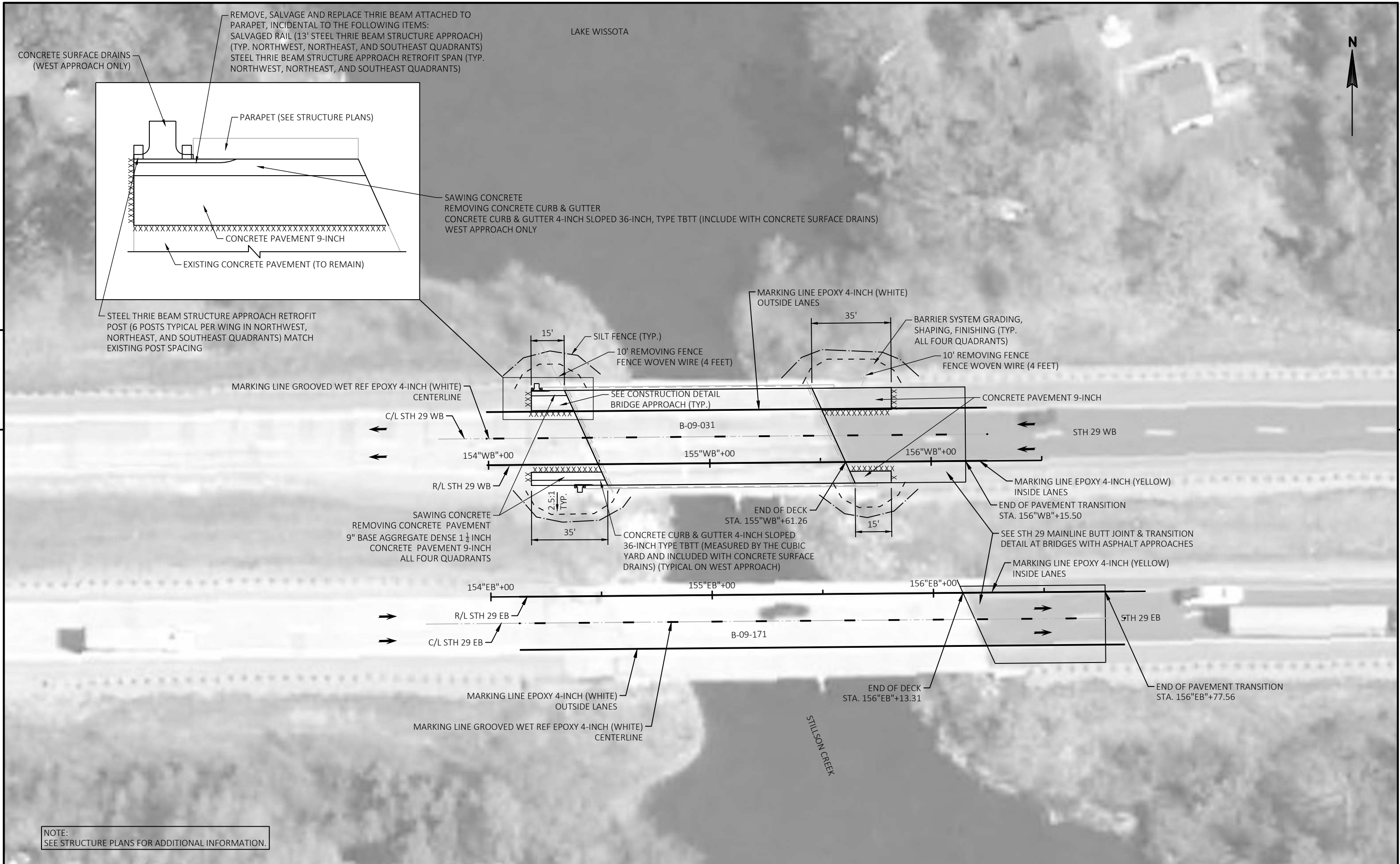
*ALL ITEMS CATEGORY 0010

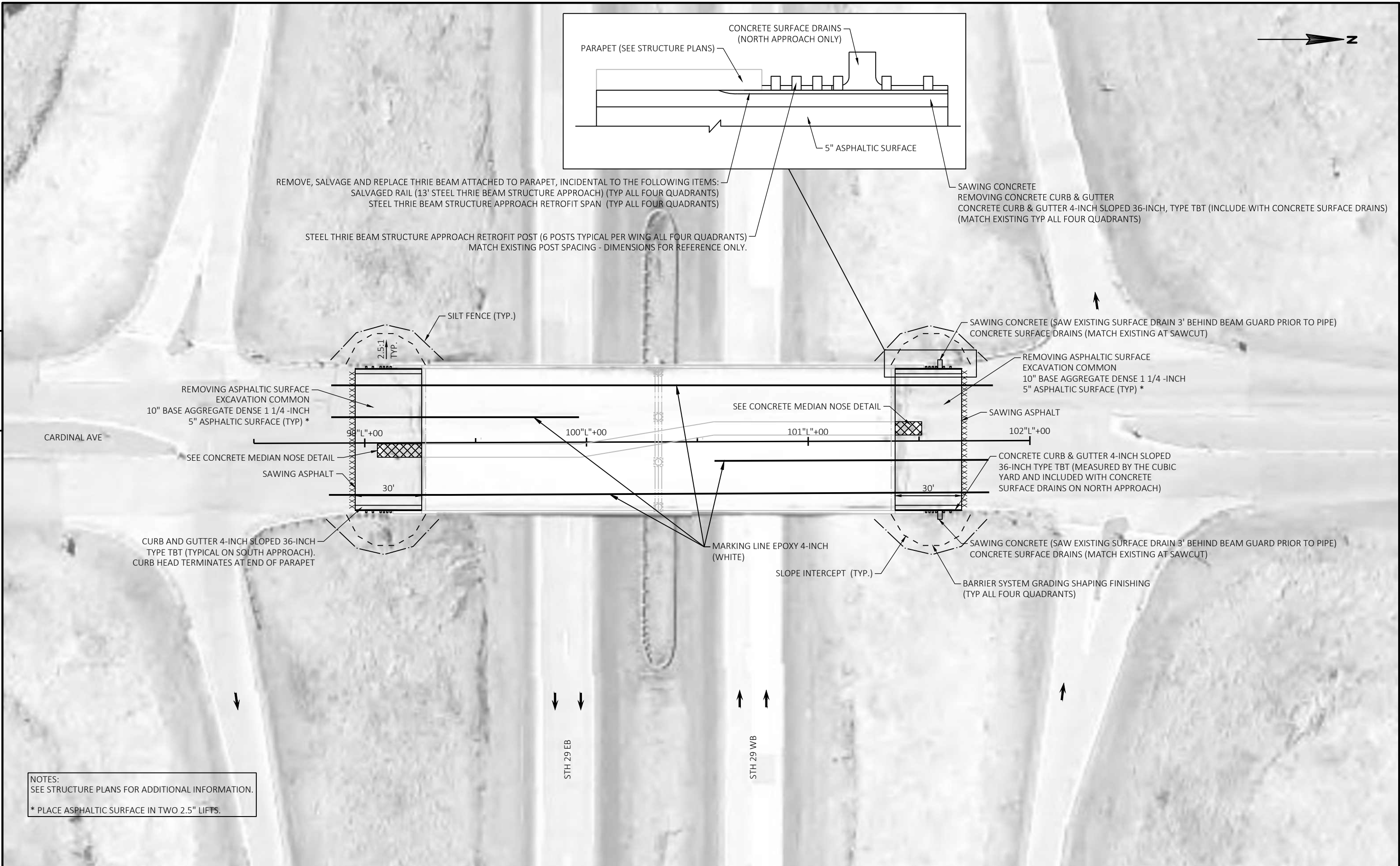
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CONSTRUCTION STAKING					
	650.4500	650.5000	650.5500	650.7000	650.9910
			CONSTRUCTION	CONSTRUCTION	CONSTRUCTION
	CONSTRUCTION		STAKING CURB	STAKING	STAKING
	STAKING	CONSTRUCTION	GUTTER AND CURB	CONCRETE	SUPPLEMENTAL
	SUBGRADE	STAKING BASE	& GUTTER	PAVEMENT	CONTROL
STRUCTURE	LF	LF	LF	LF	LS
PROJECT 1050-01-82	--	--	--	--	1
B-09-0031	--	--	52	100	--
B-10-0178	60	60	120	--	--
TOTAL	60	60	172	100	1

CONCRETE MEDIAN NOSE						
	601.0411	611.8110	620.0300	638.2102	646.8120	646.8220
	CONCRETE		CONCRETE			
	CURB & GUTTER	ADJUSTING	MEDIAN			MARKING
	30-INCH	MANHOLE	SLOPED NOSE	MOVING	MARKING	ISLAND NOSE
	TYPE D	COVERS	TYPE 2	SIGNS TYPE II	CURB EPOXY	EPOXY
STRUCTURE	LF	EACH	SF	EACH	LF	EACH
B-10-0178	52	2	78	2	52	2
TOTAL	52	2	78	2	52	2

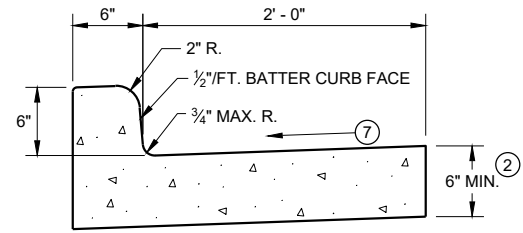
EXCAVATION COMMON		
	205.0100	
	EXCAVATION	
	COMMON	
LOCATION	CY	REMARKS
B-09-0031	70	SOUTH APPROACH
B-09-0031	70	NORTH APPROACH
TOTAL	140	



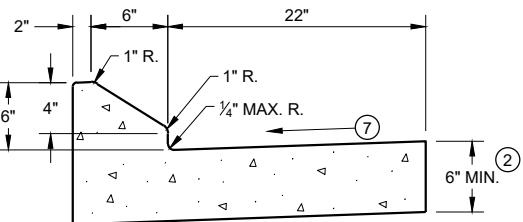


Standard Detail Drawing List

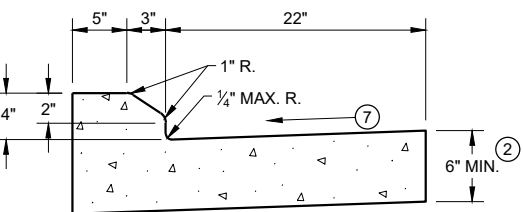
08D01-22A	CONCRETE CURB & GUTTER
08D01-22B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D02-07A	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-07B	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-07C	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08E09-06	SILT FENCE
11B02-02	CONCRETE MEDIAN NOSE
12A03-10	NAME PLATE (STRUCTURES)
13C09-15A	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-15B	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-15C	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
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"
14B20-11B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B20-11C	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS
14B20-11D	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SLOPED END PARAPETS
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08F	ADVANCED WIDTH RESTRICTION SIGNING
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C08-20C	PAVEMENT MARKING (TURN LANES)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C18-05	MEDIAN ISLAND MARKING
15D12-09A	TRAFFIC CONTROL, LANE CLOSURE
15D12-09B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D15-05A	TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-05B	TRAFFIC CONTROL, ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-05C	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-05D	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-05E	TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



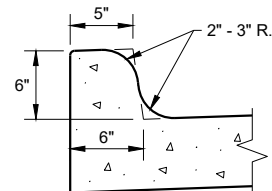
TYPES A⁽¹⁾ & D



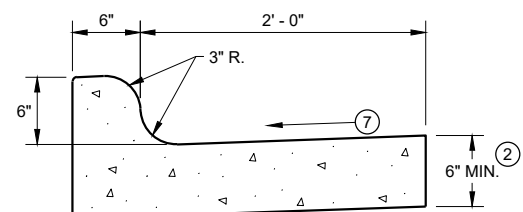
6" SLOPED CURB TYPES G⁽¹⁾ & J



4" SLOPED CURB TYPES G⁽¹⁾ & J

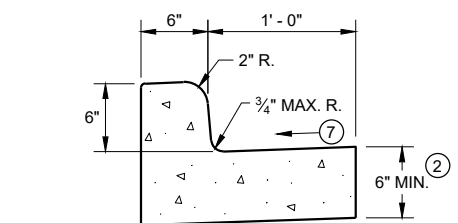


TYPES K⁽¹⁾ & L
(OPTIONAL CURB SHAPE)



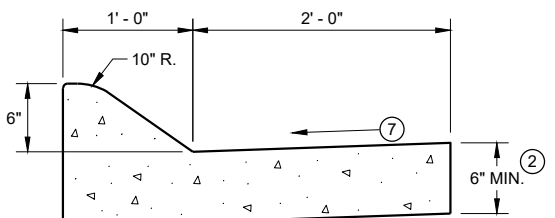
TYPES K⁽¹⁾ & L

CONCRETE CURB AND GUTTER 30"

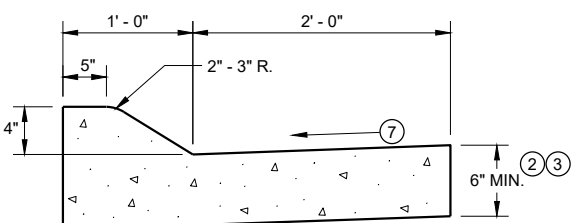


TYPES A⁽¹⁾ & D

CONCRETE CURB AND GUTTER 18"

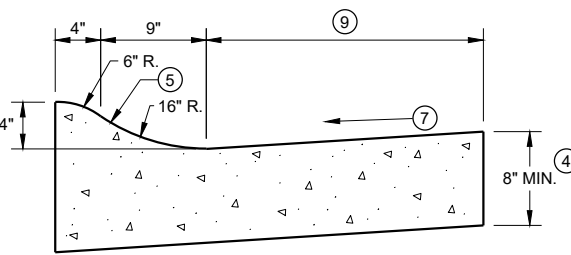


6" SLOPED CURB TYPES A⁽¹⁾ & D



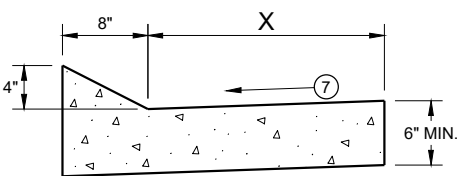
4" SLOPED CURB TYPES A⁽¹⁾ & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R⁽¹⁾ & T

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

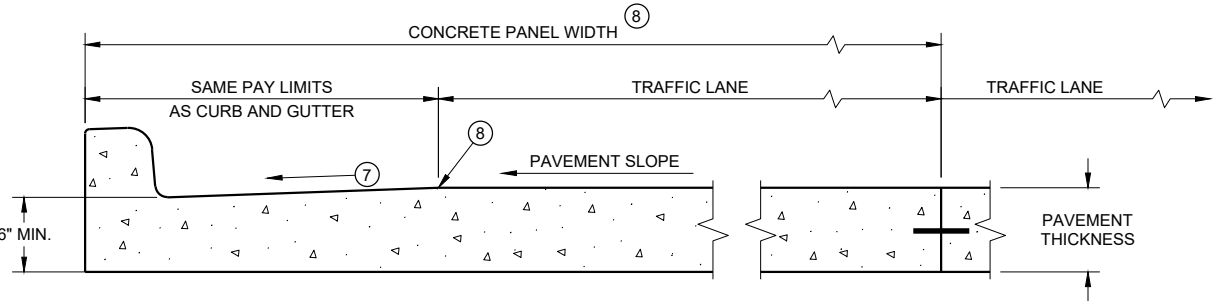


TYPES TBT & TBTT⁽¹⁾

CONCRETE CURB AND GUTTER

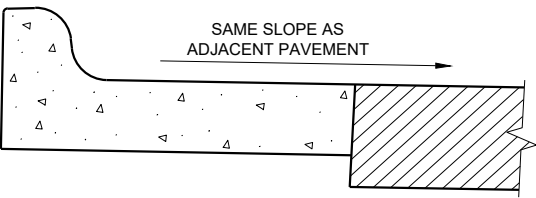
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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



PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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

GENERAL NOTES

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

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

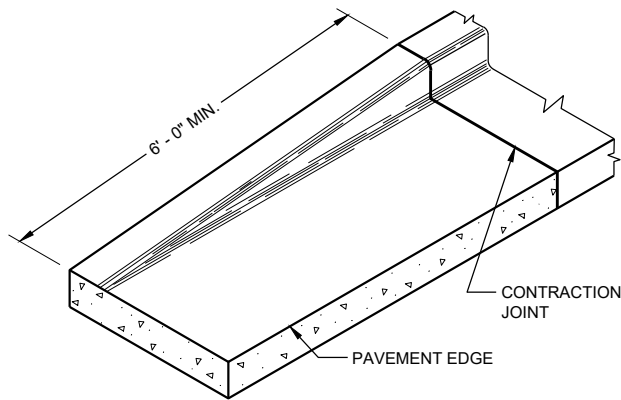
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

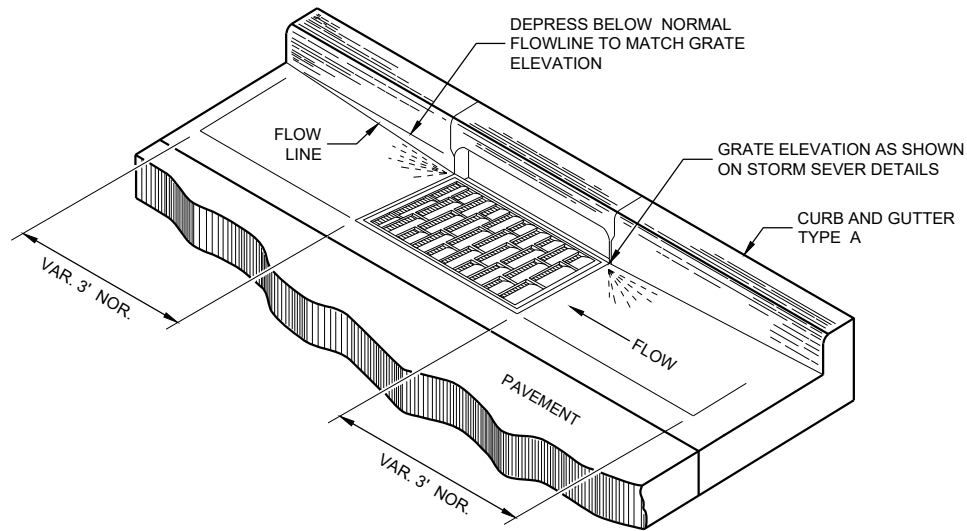
- (1) TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- (2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- (3) USE 8" MINIMUM GUTTER THICKNESS WHEN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

CONCRETE CURB AND GUTTER

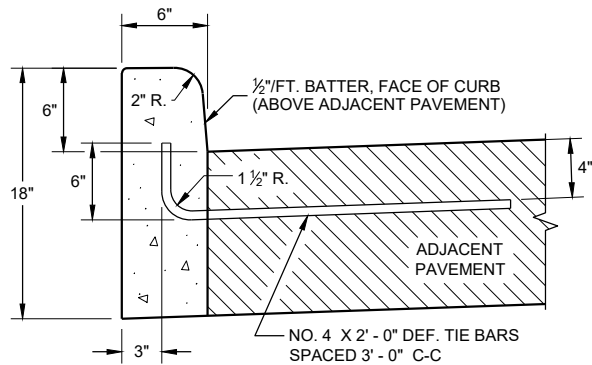
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 36



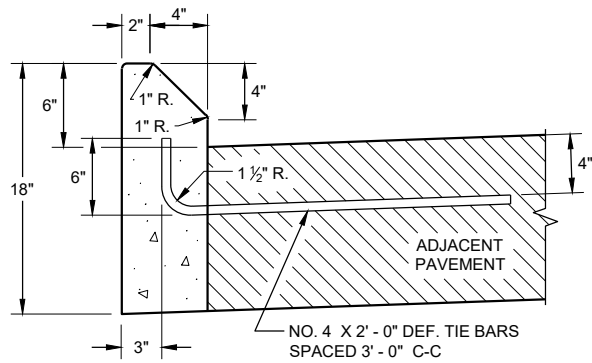
END SECTION CURB AND GUTTER



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

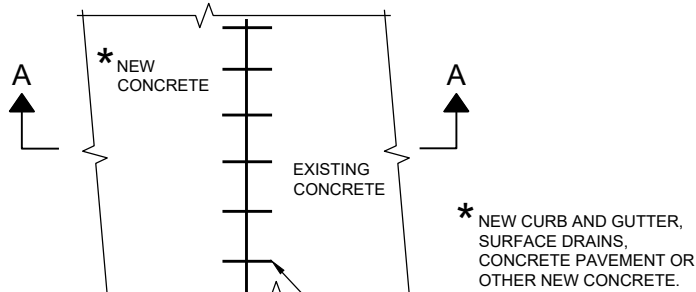


TYPES A^① & D

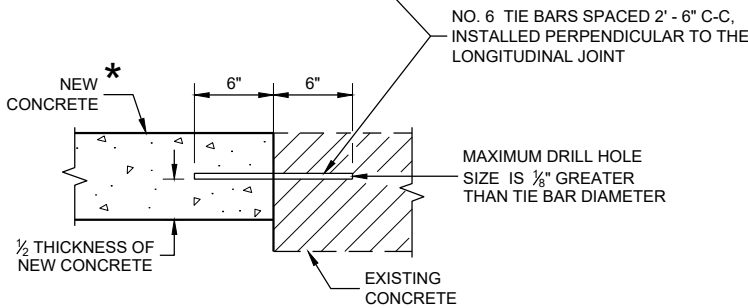


TYPES G^① & J

CONCRETE CURB



PLAN VIEW



SECTION A - A

TIE BARS DRILLED
INTO EXISTING PAVEMENT

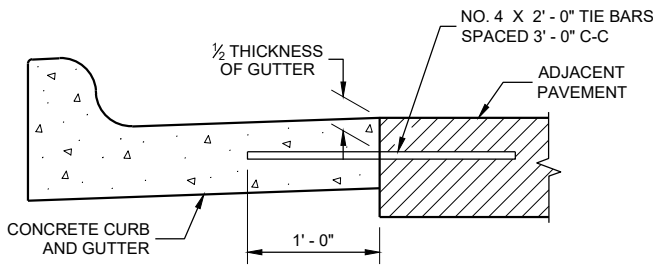
GENERAL NOTES

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

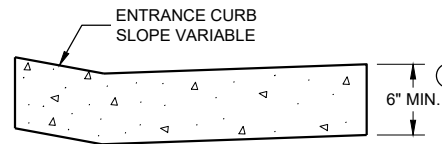
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

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



TYPICAL TIE BAR LOCATION^①



DRIVEWAY ENTRANCE CURB^⑨
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 37
FHWA

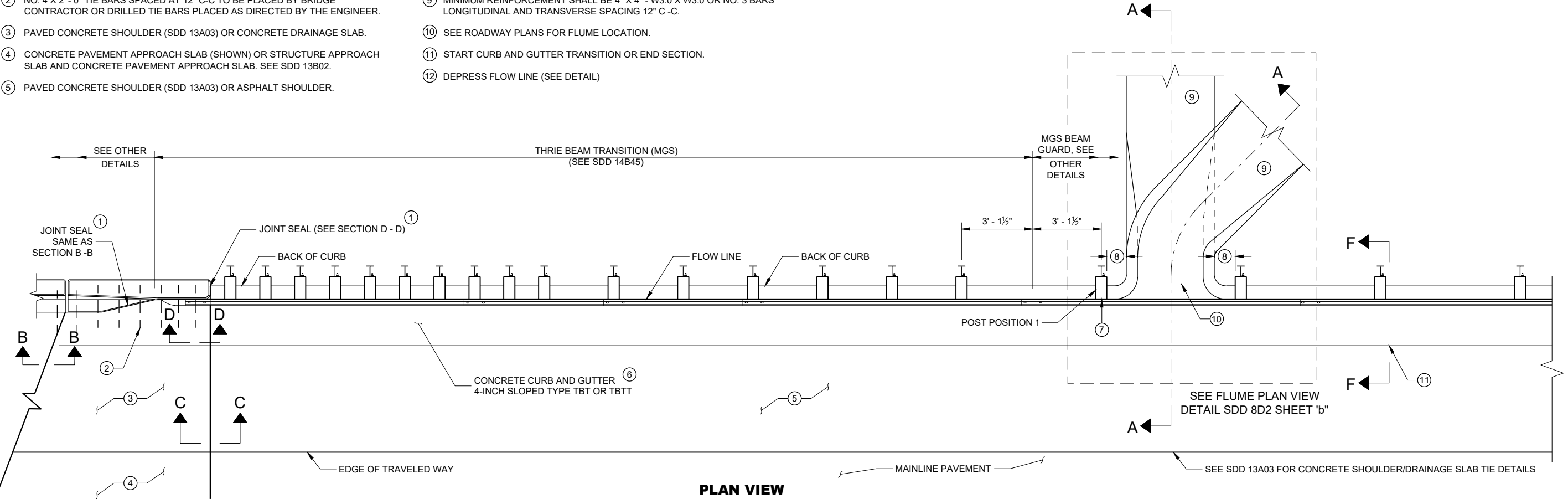
GENERAL NOTES

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

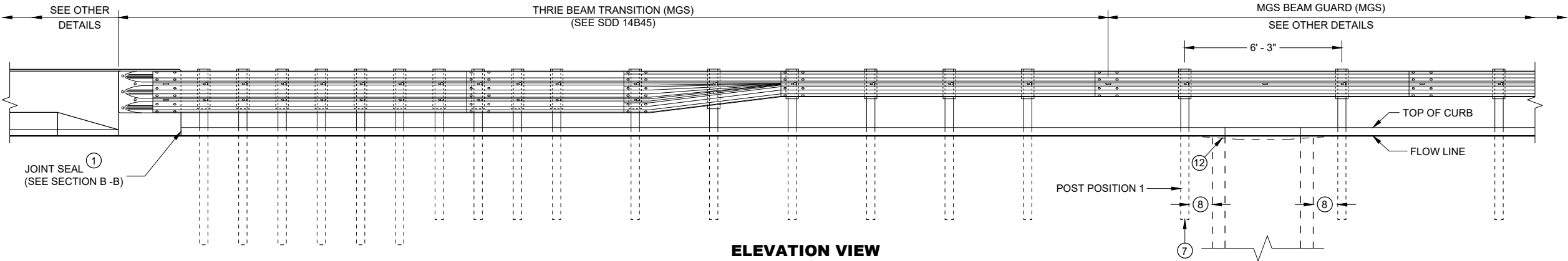
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

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

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



PLAN VIEW

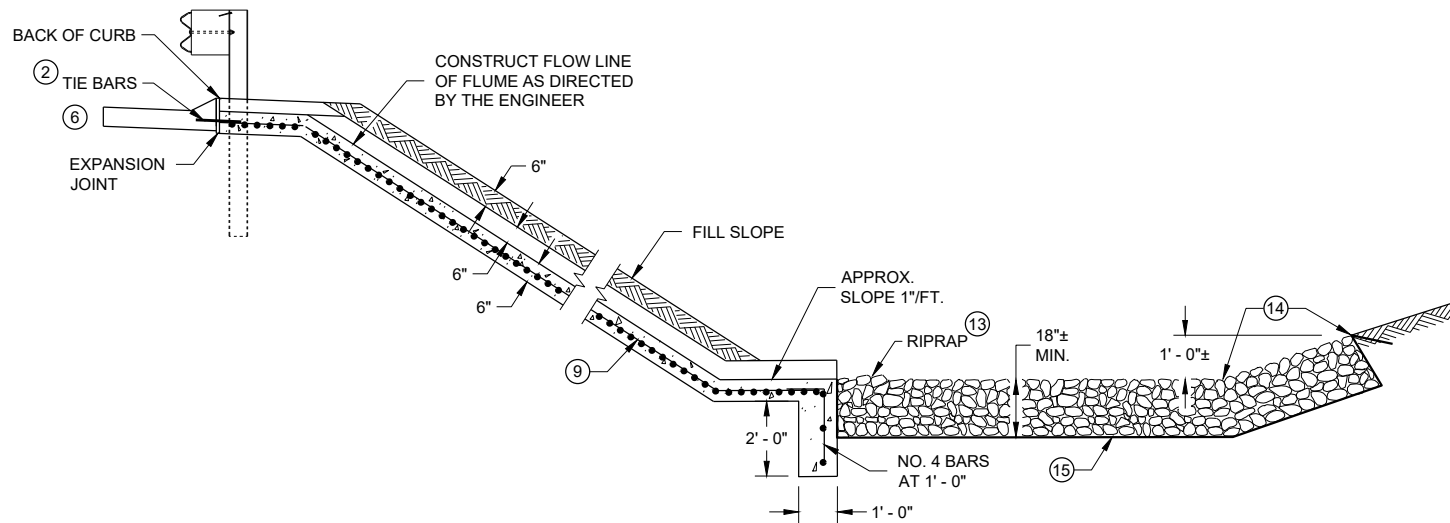


ELEVATION VIEW

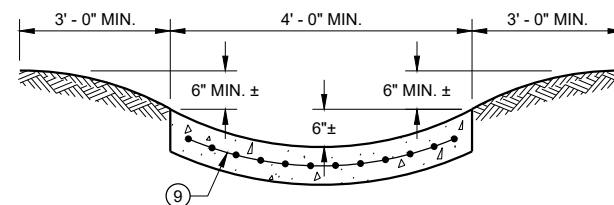
CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

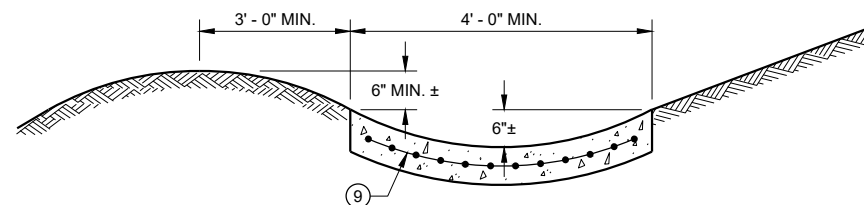
38



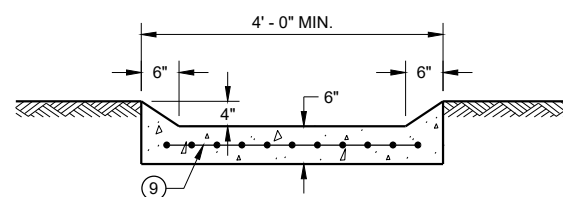
SECTION A - A



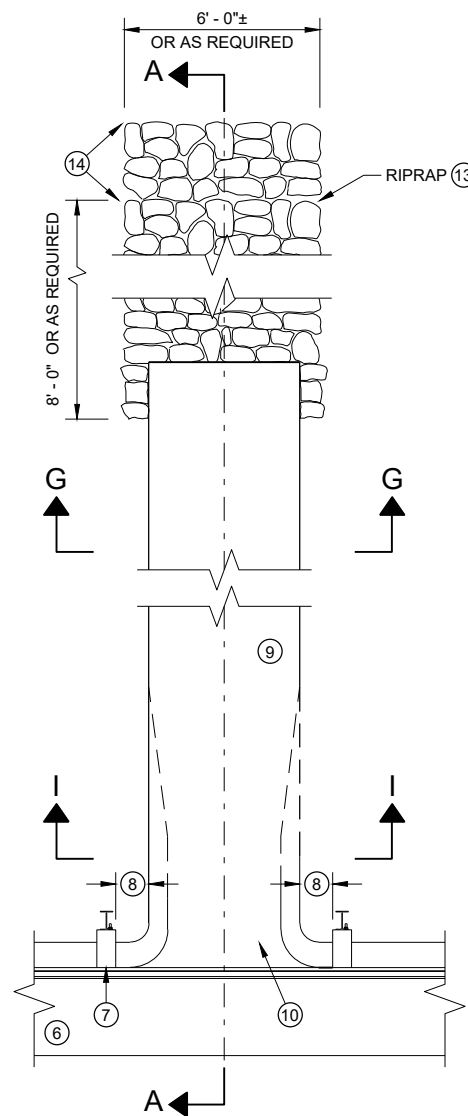
SECTION G - G



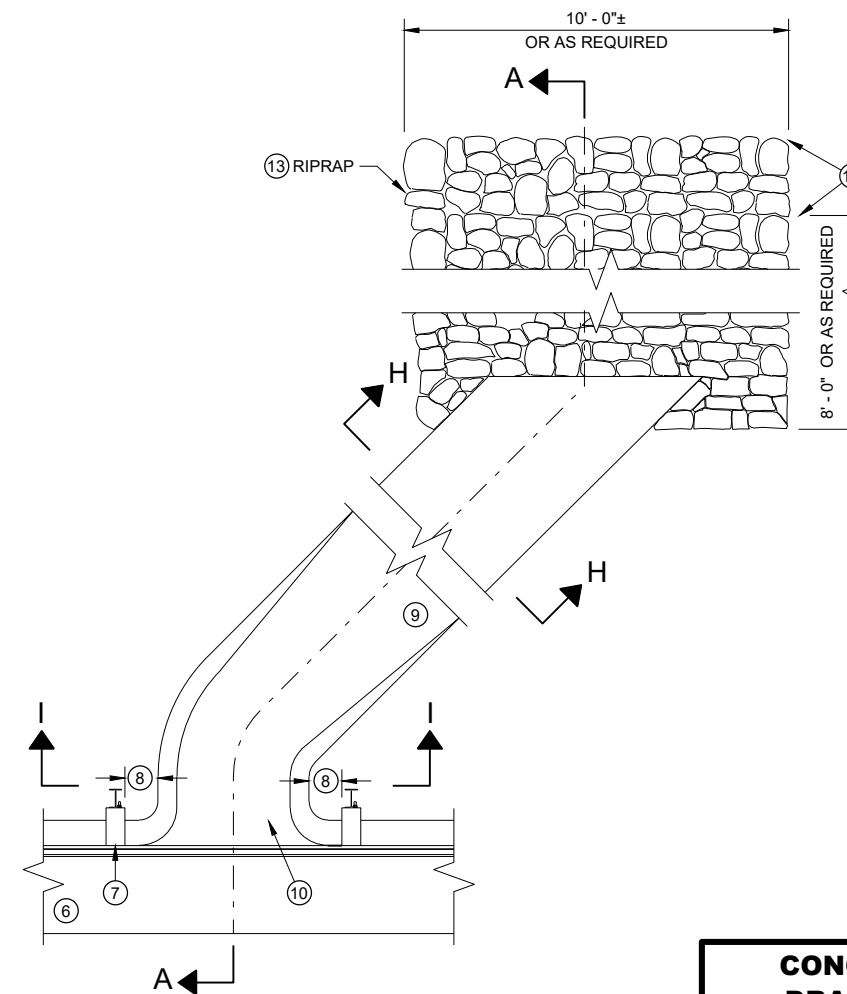
SECTION H - H



SECTION I - I



**PLAN VIEW
PERPENDICULAR FLUME**



**PLAN VIEW
SKEWED FLUME**

GENERAL NOTES

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

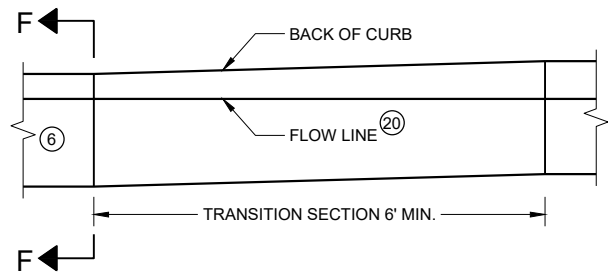
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBT. USE TYPE TBT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

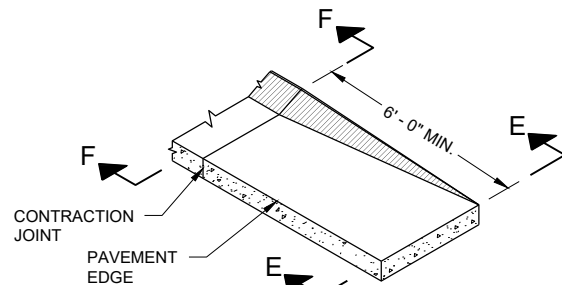
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C -C.
- ⑩ SEE ROADWAY PLANS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

**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

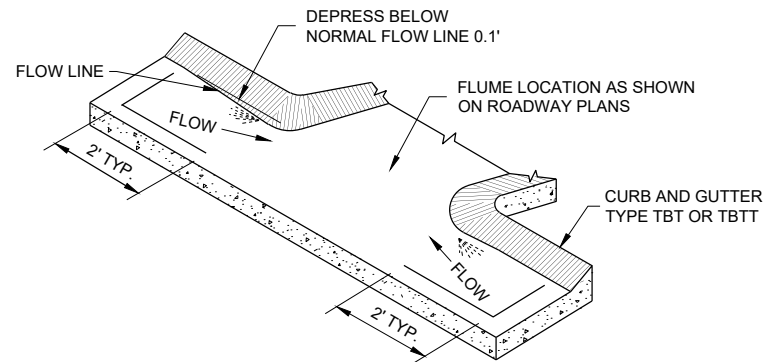
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 39



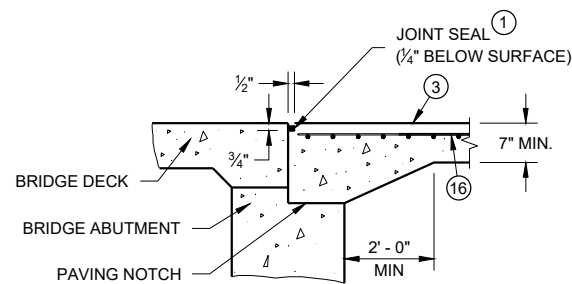
**CURB AND GUTTER TRANSITION SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



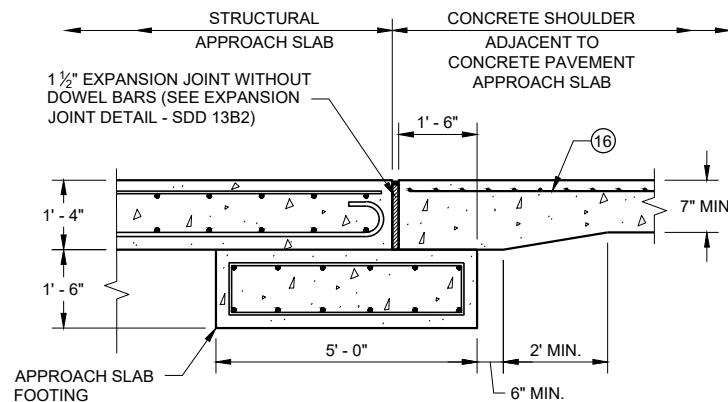
**CURB AND GUTTER END SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



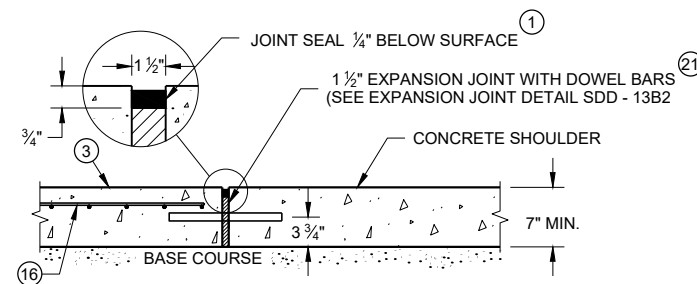
**CURB AND GUTTER FLOW LINE DEPRESSION
AT FLUMES CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**



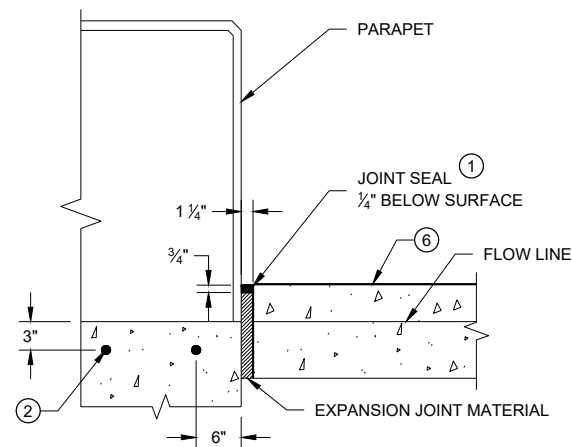
SECTION B-B



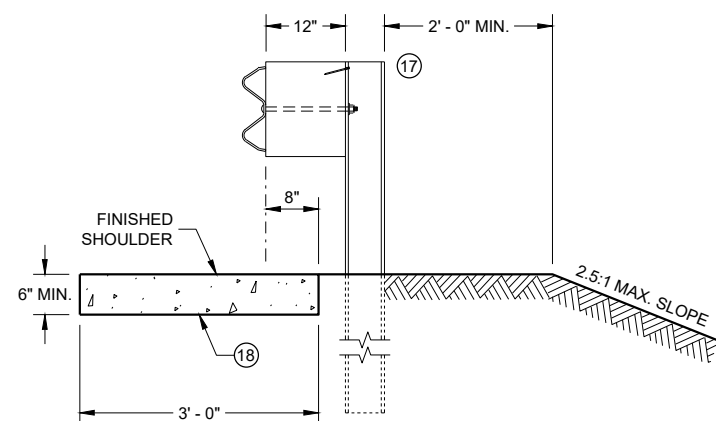
**SECTION C - C
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL
APPROACH SLAB AND CONCRETE APPROACH SLAB**



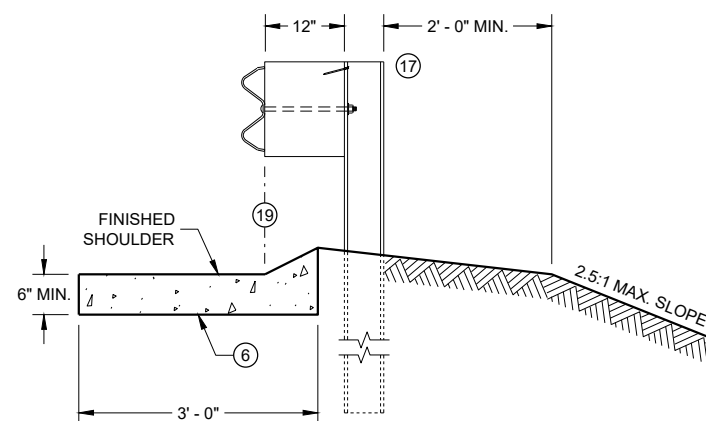
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



SECTION D - D



SECTION E - E



SECTION F - F

GENERAL NOTES

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

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

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑮ GEOTEXTILE FABRIC TYPE HR.
- ⑯ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑰ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑱ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑲ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑳ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ㉑ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

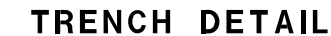
CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVE 40
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 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

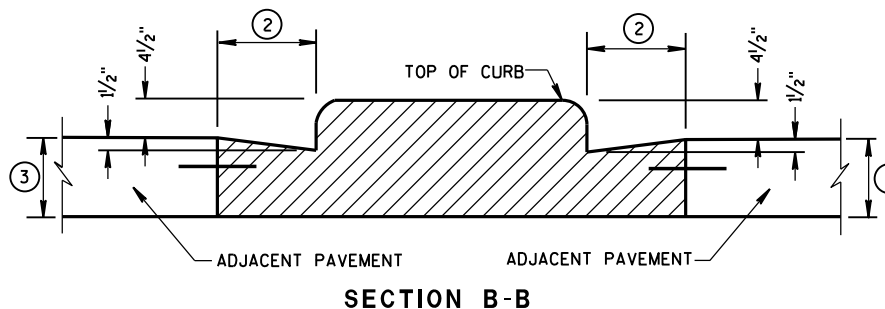
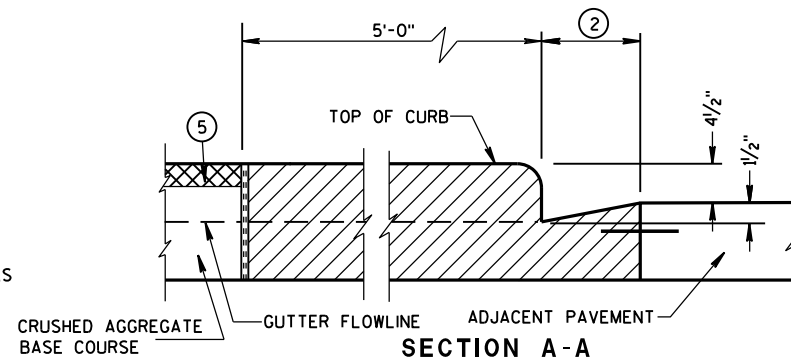
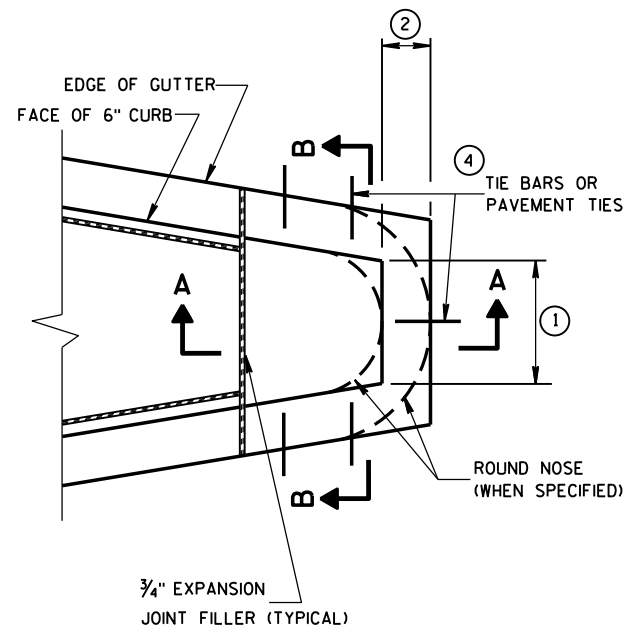
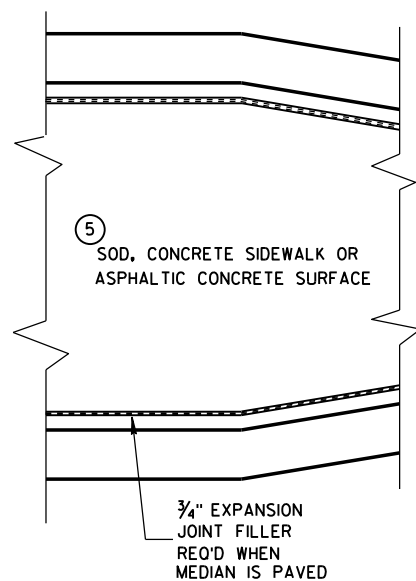


SILT FENCE

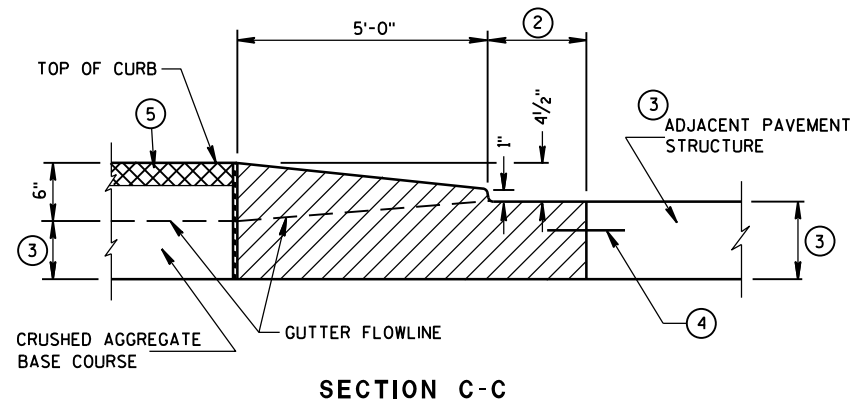
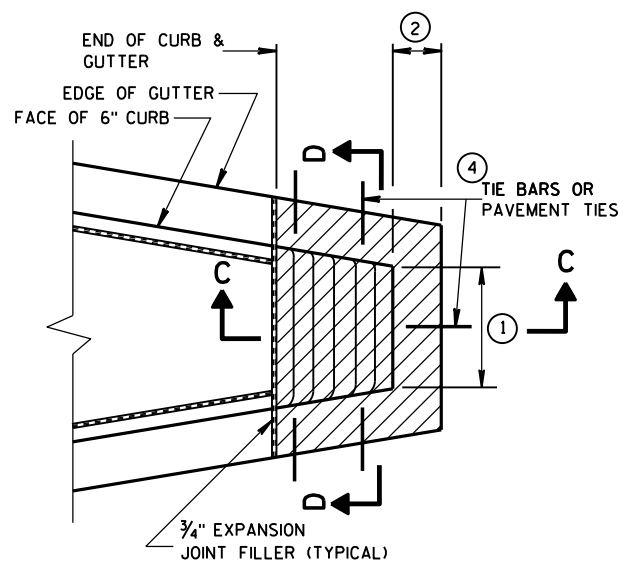
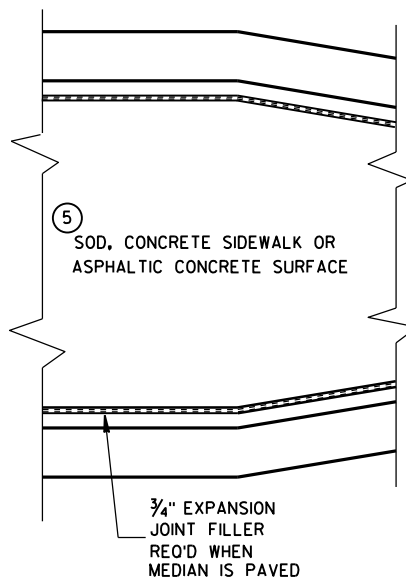
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

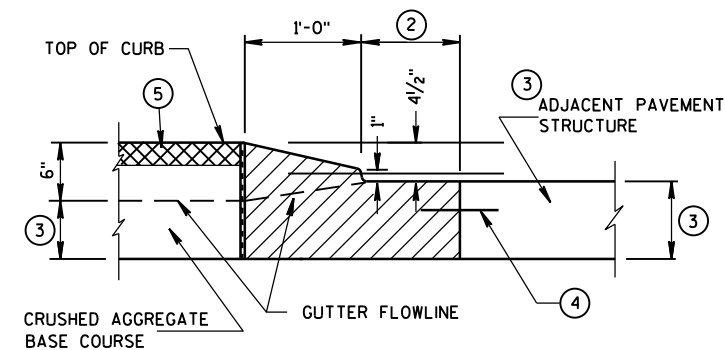
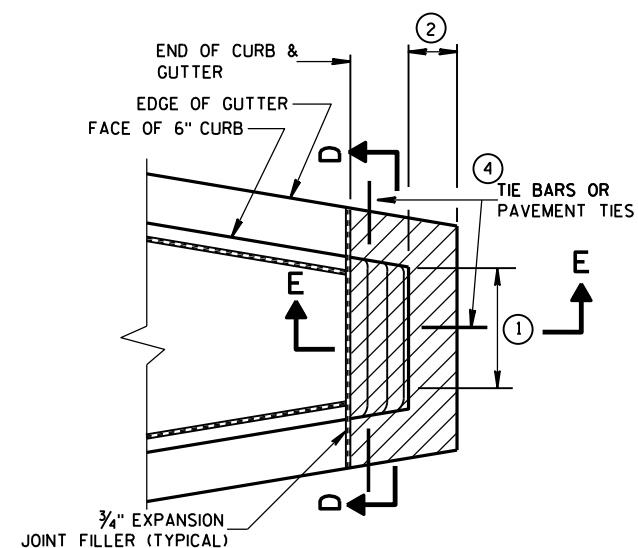
FHWA



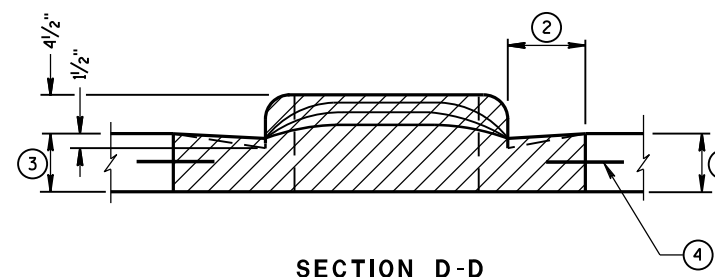
CONCRETE MEDIAN BLUNT NOSE DETAIL



CONCRETE MEDIAN SLOPED NOSE TYPE 1



CONCRETE MEDIAN SLOPED NOSE TYPE 2



GENERAL NOTES

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

- ① SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).
- ② WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.
- ③ DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:
 - (1) NEW OR EXISTING CONCRETE PAVEMENT.
 - (2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.
 - (3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

- ④ TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.

PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

- ⑤ SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

CONCRETE MEDIAN NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

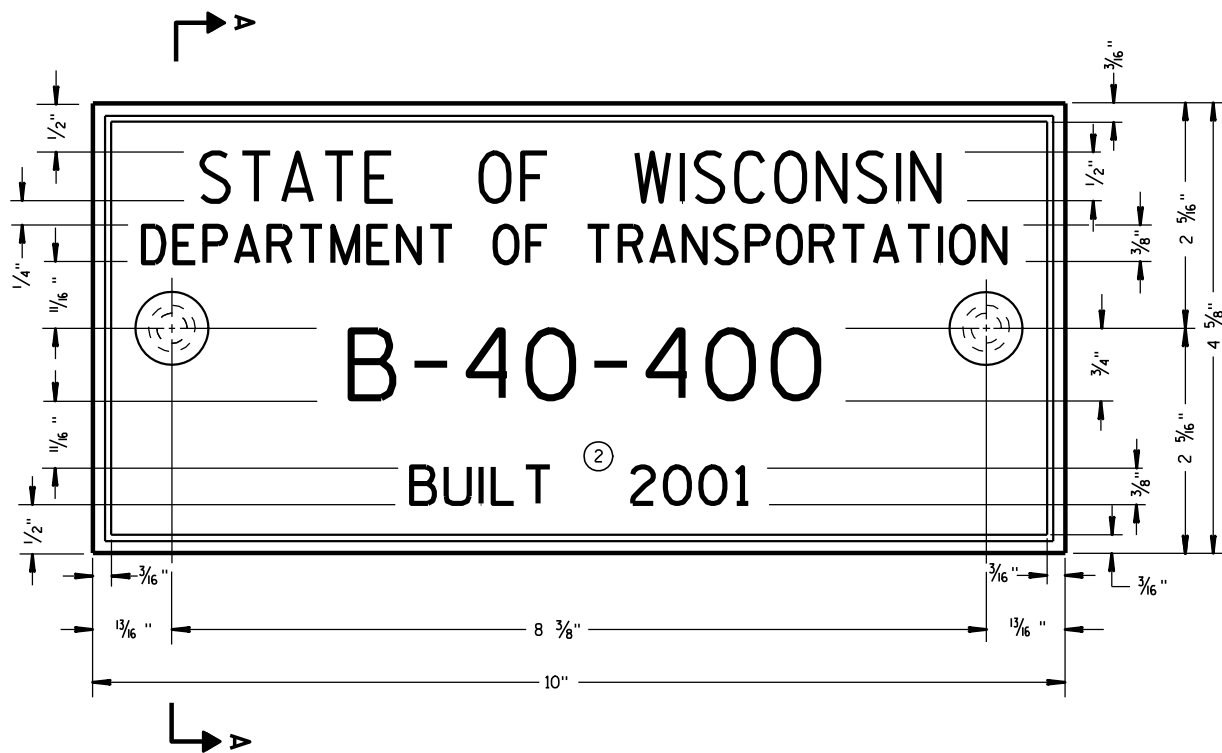
6/8/2006

DATE

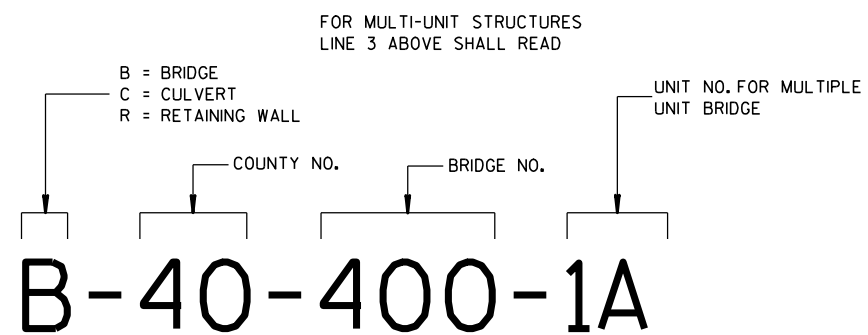
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS & ENGINEER

4T



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



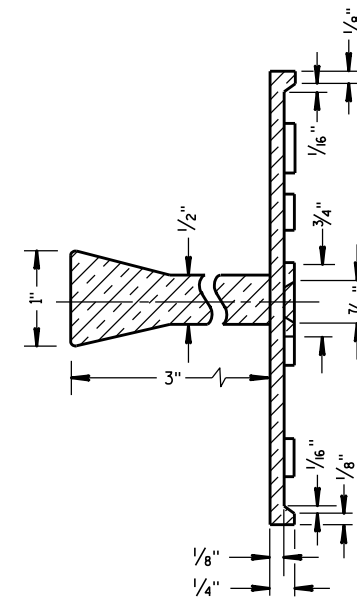
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

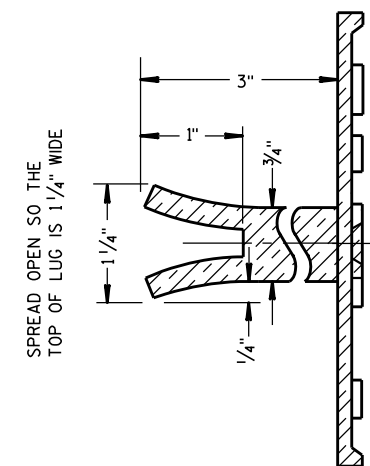
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

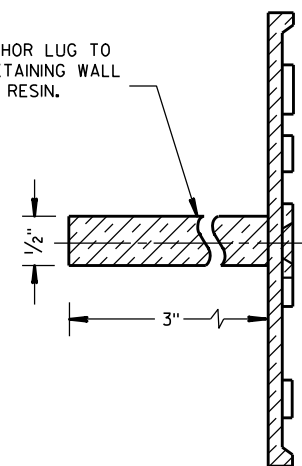


SECTION A-A



ALTERNATE LUG

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



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

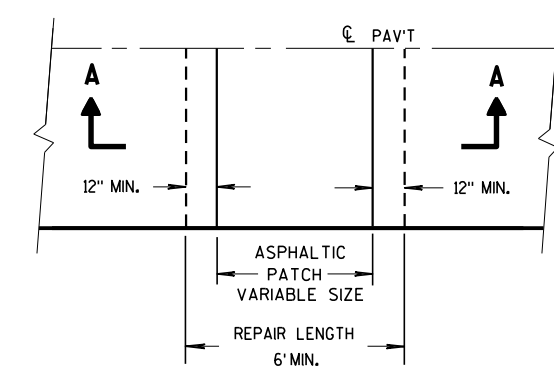
APPROVED

3/26/10
DATE

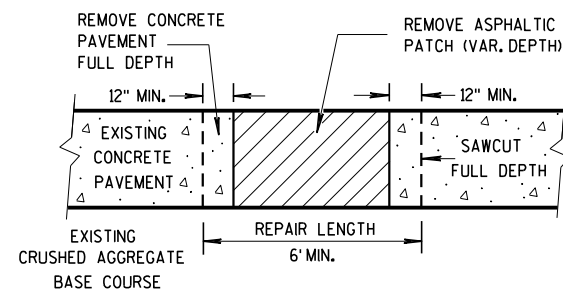
FHWA

/S/ Scot Beck
CHIEF STRUCTURAL DEVELOPER

JEER

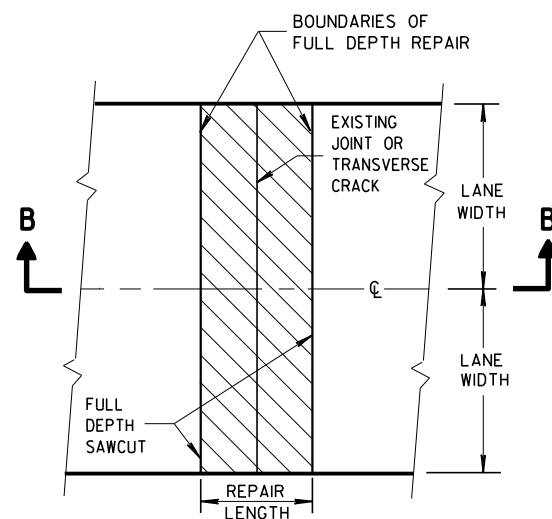
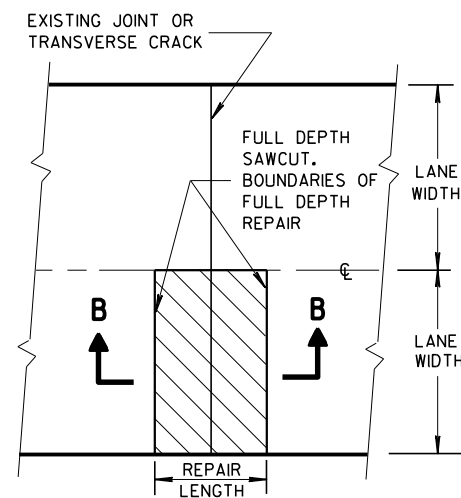


PLAN VIEW



SECTION A-A

HMA PATCH REMOVAL

PLAN VIEW
(DOUBLE LANE REPAIR)PLAN VIEW
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL

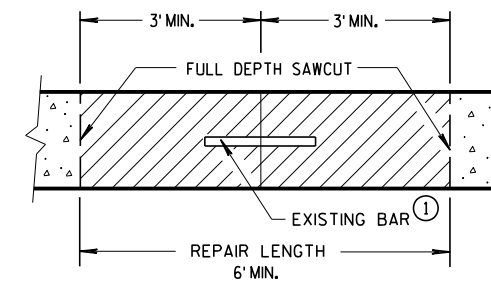
GENERAL NOTES

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

PROVIDE A 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK IN THE SAME LANE.

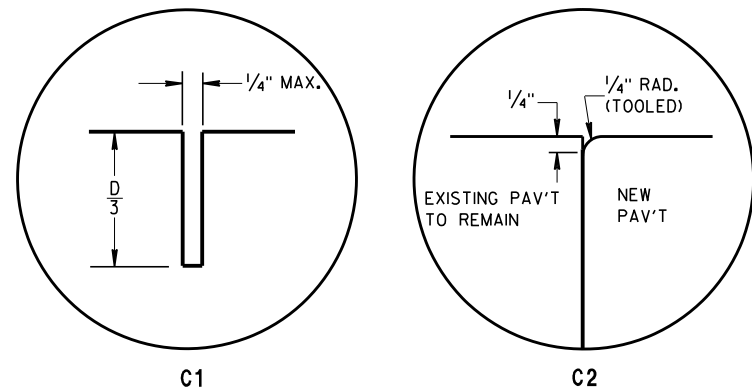
THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NONDOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

① DOWEL BARS MIGHT NOT EXIST.

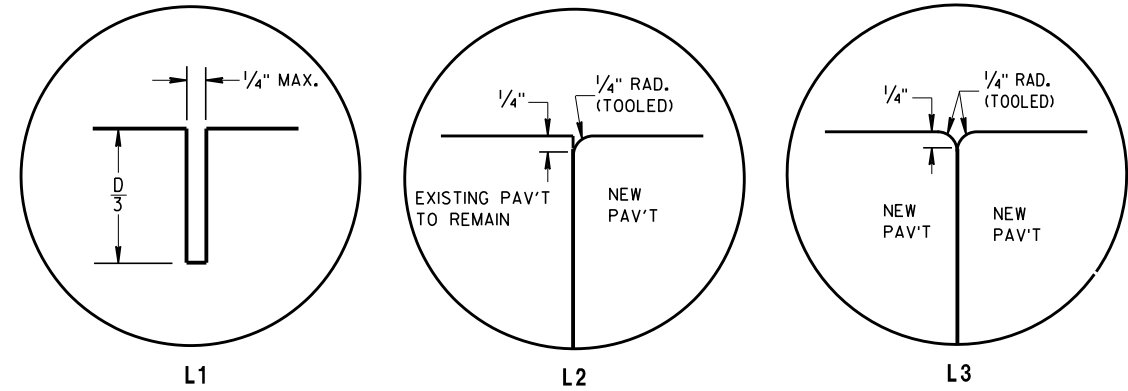
SECTION B-B
CONCRETE REMOVAL

CONCRETE PAVEMENT REPAIR
AND REPLACEMENT

STATE OF WISCONSIN⁴⁴
DEPARTMENT OF TRANSPORTATION



TRANSVERSE JOINTS

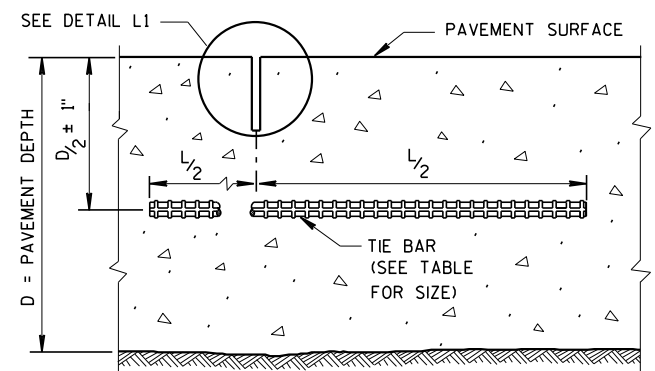


LONGITUDINAL JOINTS

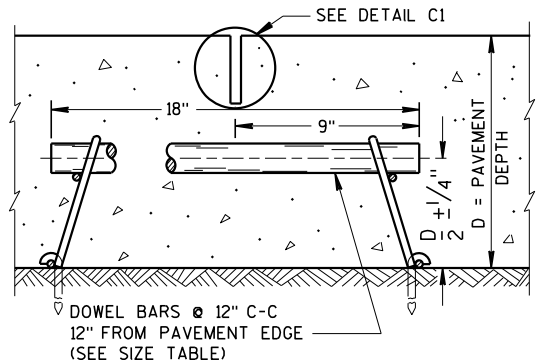
TIE BAR TABLE			
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

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

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



SECTION C-C
SAWED LONGITUDINAL JOINT



SECTION F-F
CONTRACTION JOINT

GENERAL NOTES

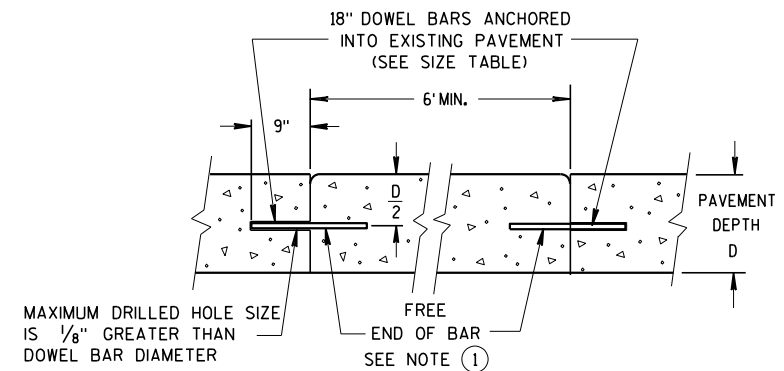
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE PAVEMENT REPAIRS OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

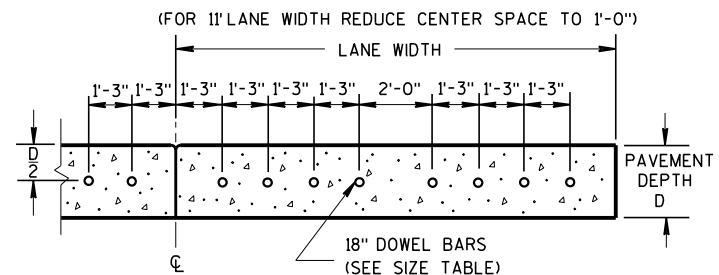
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

FOR MULTI-LANE CONCRETE PAVEMENT REPLACEMENTS, PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

① APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



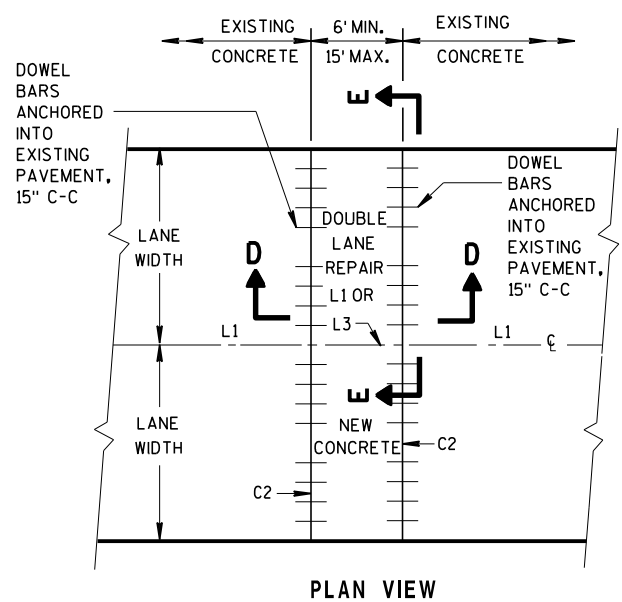
SECTION D-D



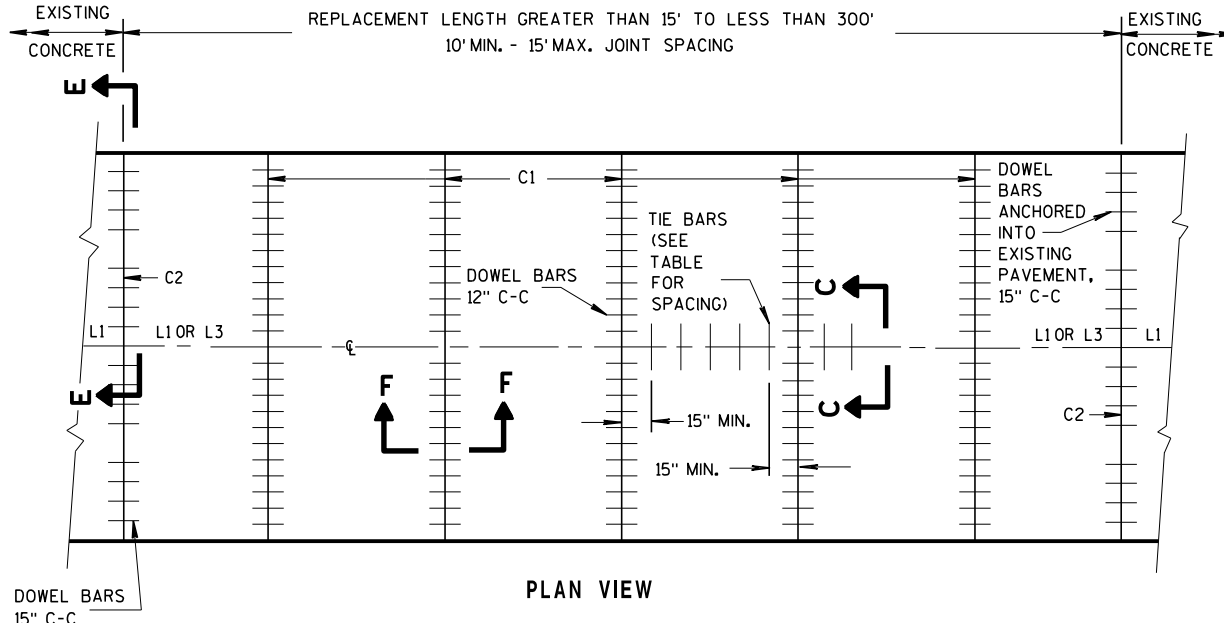
SECTION E-E
DRILLED DOWEL BAR CONSTRUCTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	DRILLED DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	NONE	12'
7", 7 1/2"	1"	1"	14'
8", 8 1/2"	1 1/4"	1 1/4"	15'
9", 9 1/2"	1 1/4"	1 1/4"	15'
10" & ABOVE	1 1/2"	1 1/4"	15'



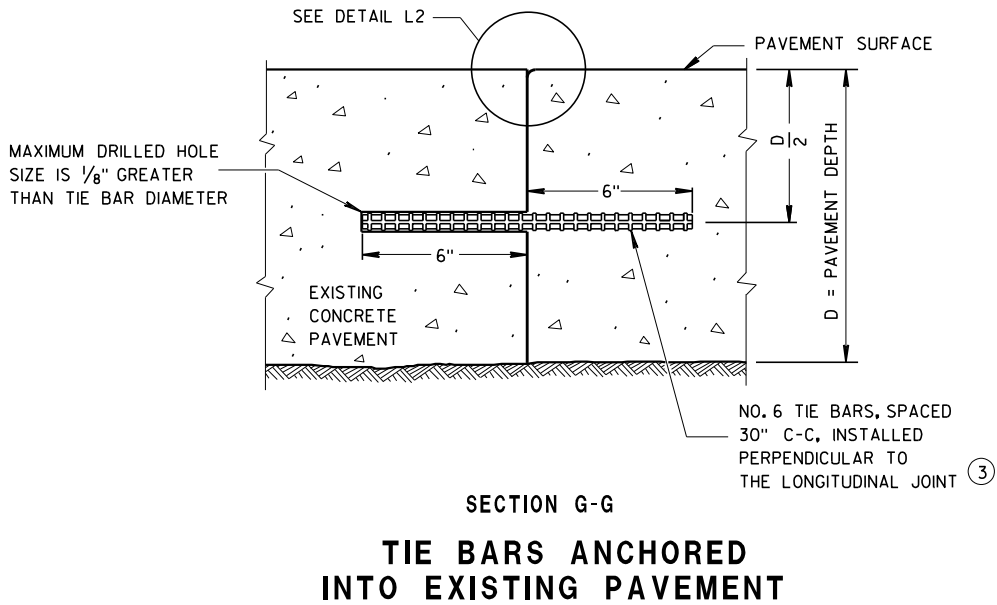
PLAN VIEW
MULTI-LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW
MULTI-LANE CONCRETE PAVEMENT REPLACEMENT

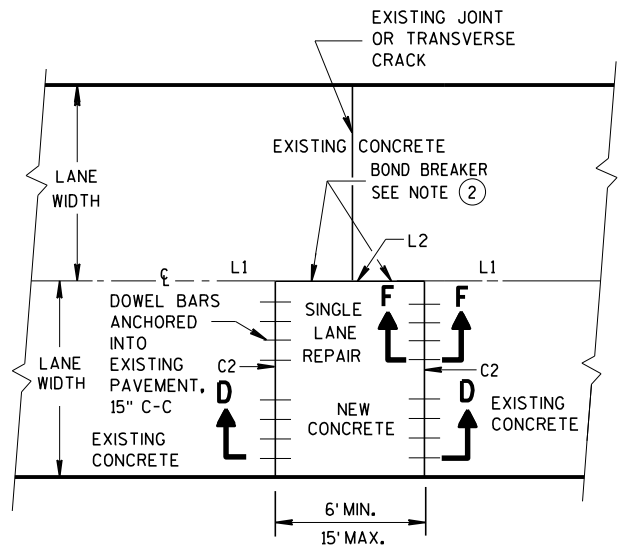
CONCRETE PAVEMENT
REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

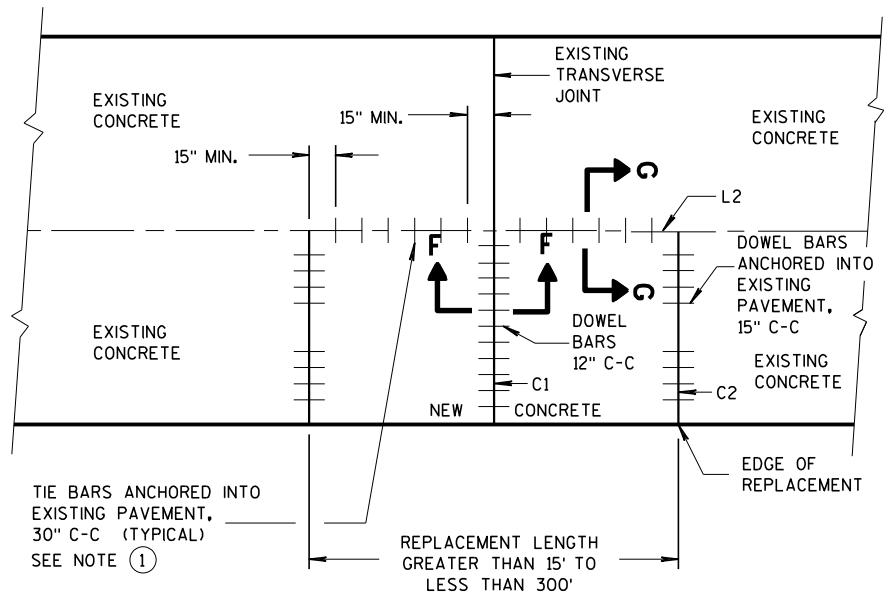


GENERAL NOTES

- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- ③ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

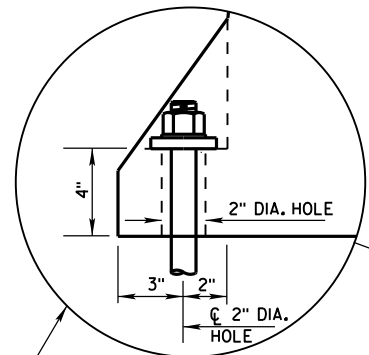


PLAN VIEW
SINGLE LANE
CONCRETE PAVEMENT REPAIR

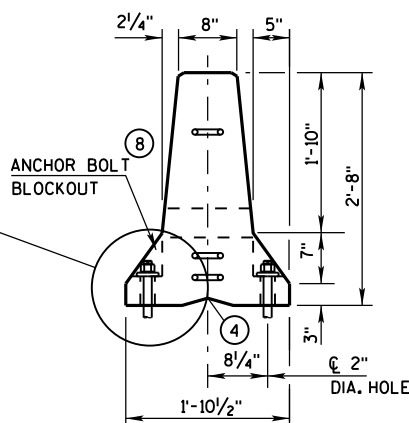


PLAN VIEW
SINGLE LANE
CONCRETE PAVEMENT REPLACEMENT

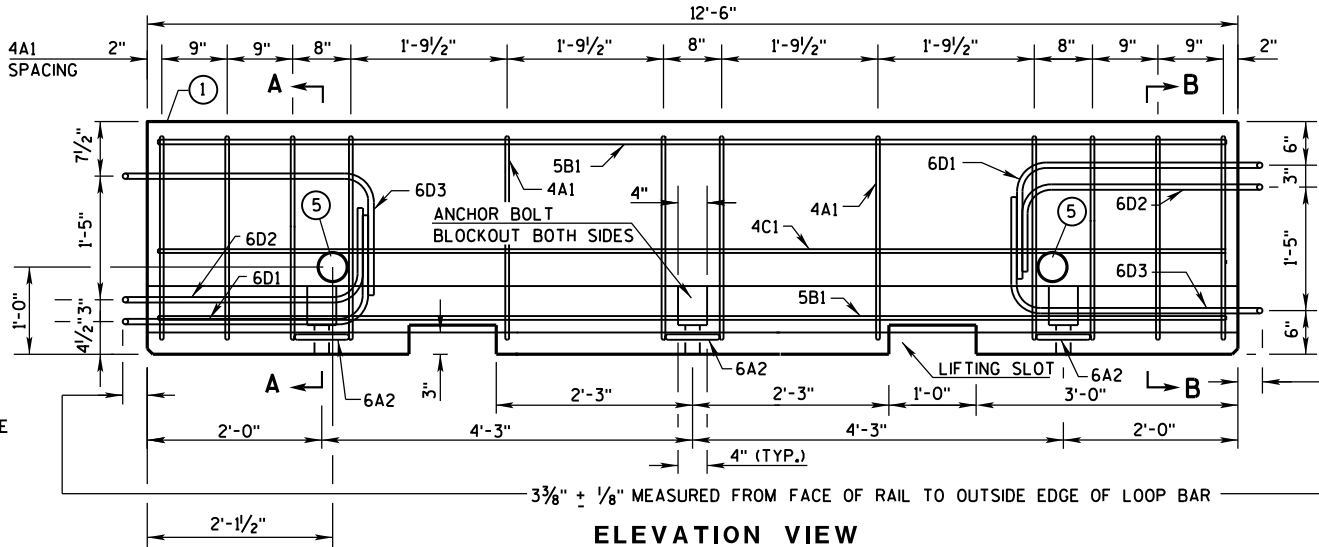
CONCRETE PAVEMENT REPAIR AND REPLACEMENT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2018 DATE	/S/ Peter Kenney PAVEMENT SUPERVISOR 46
FHWA	



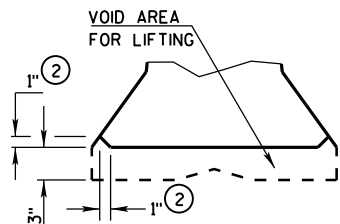
ANCHOR ON TRAFFIC SIDE
ONLY WHEN REQUIRED
(SEE SHEET D FOR ADDITIONAL
ANCHOR DETAIL)



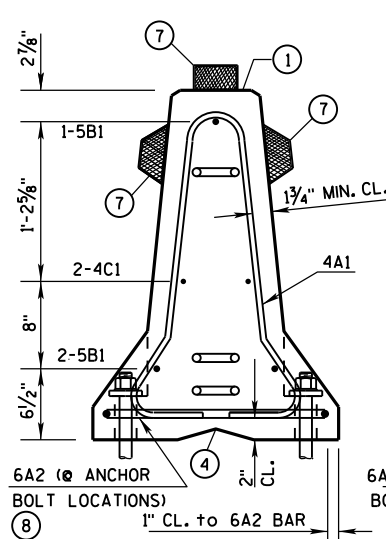
END VIEW



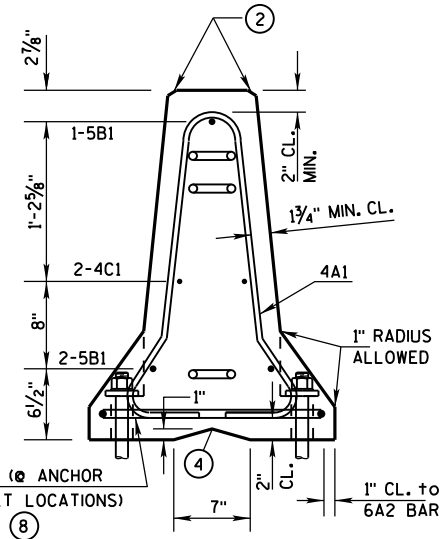
ELEVATION VIEW



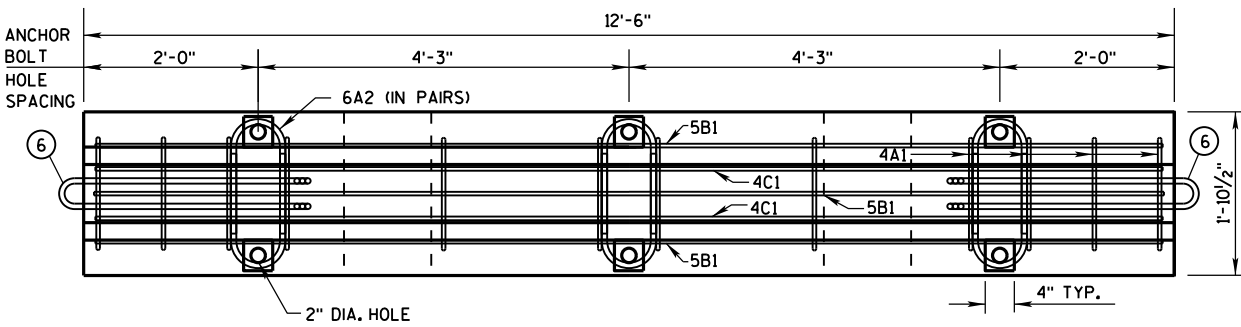
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

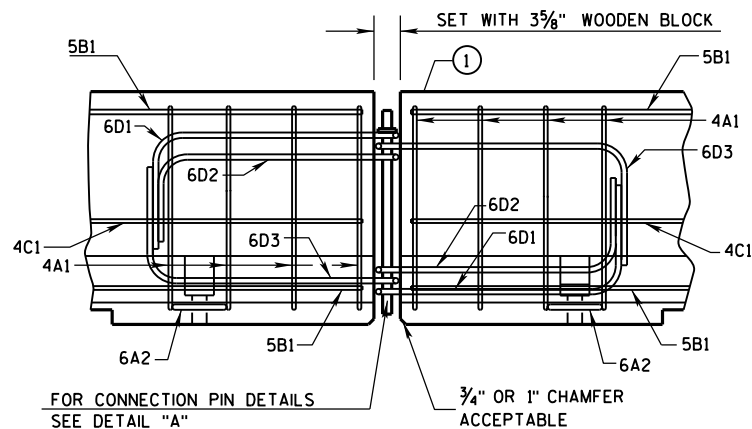


SECTION B-B
(STIRRUP PLACEMENT)

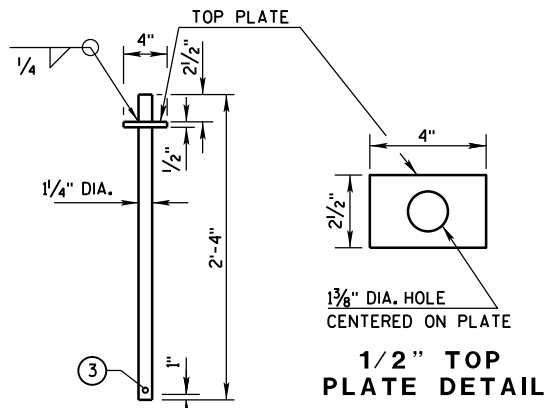


PLAN VIEW

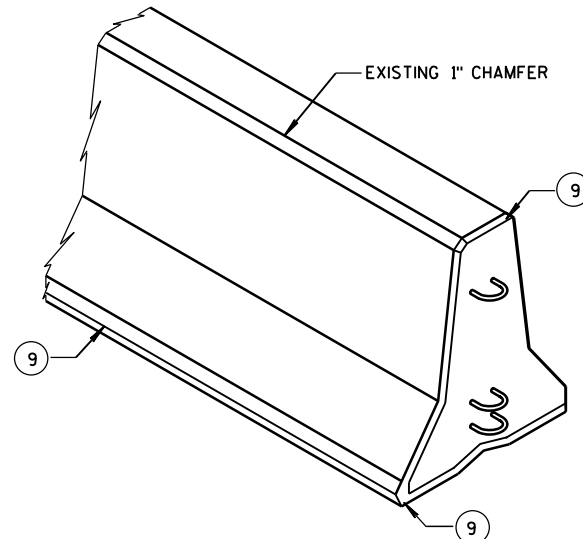
DETAILS OF BARRIER SECTION



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.

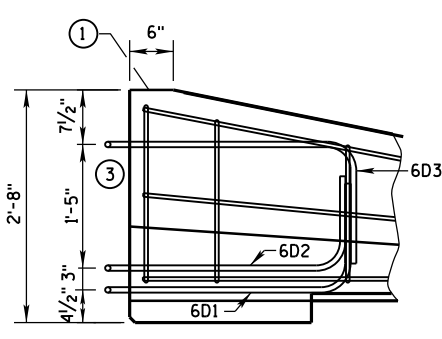
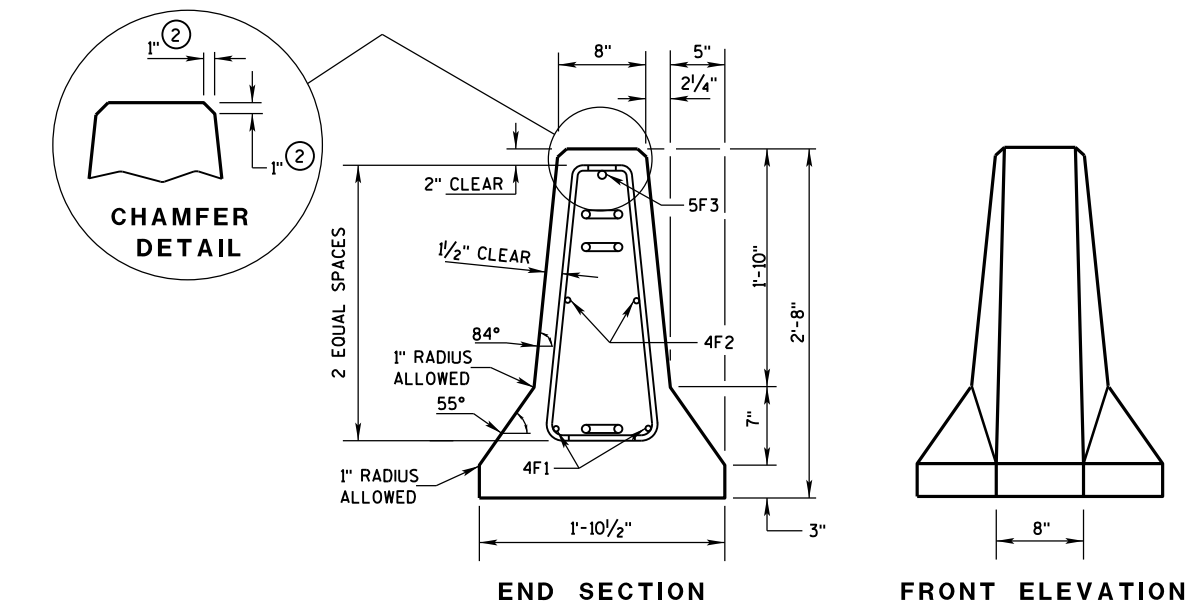
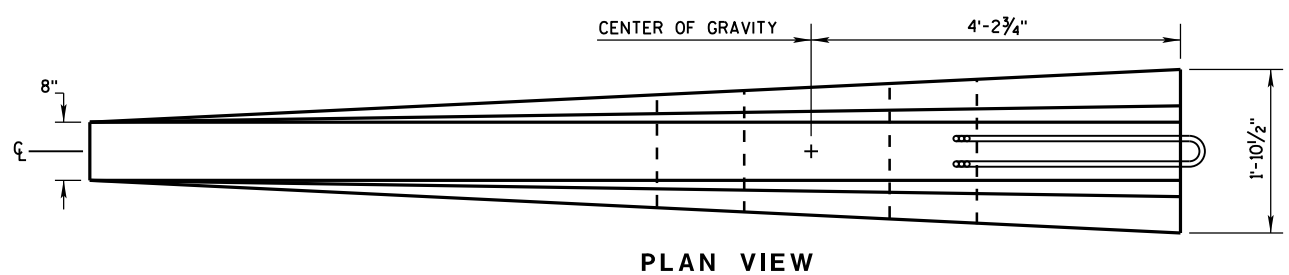
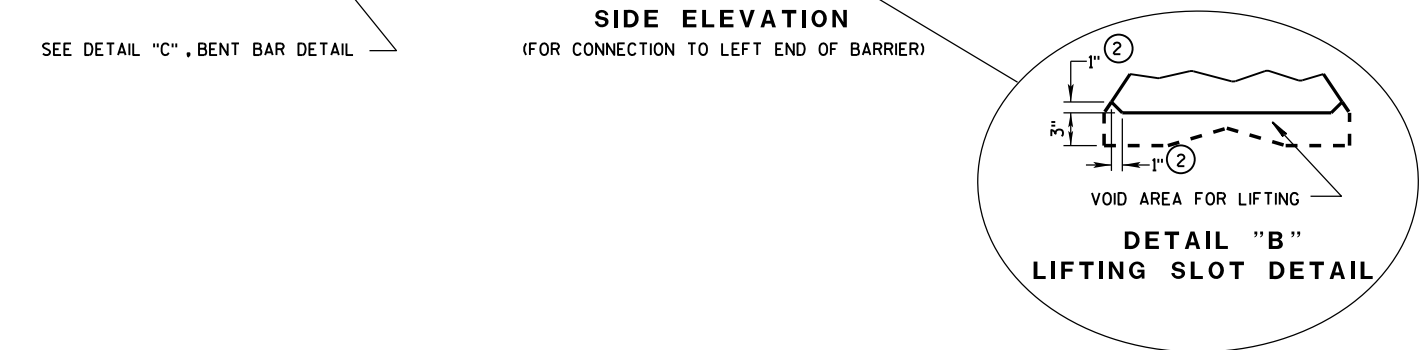
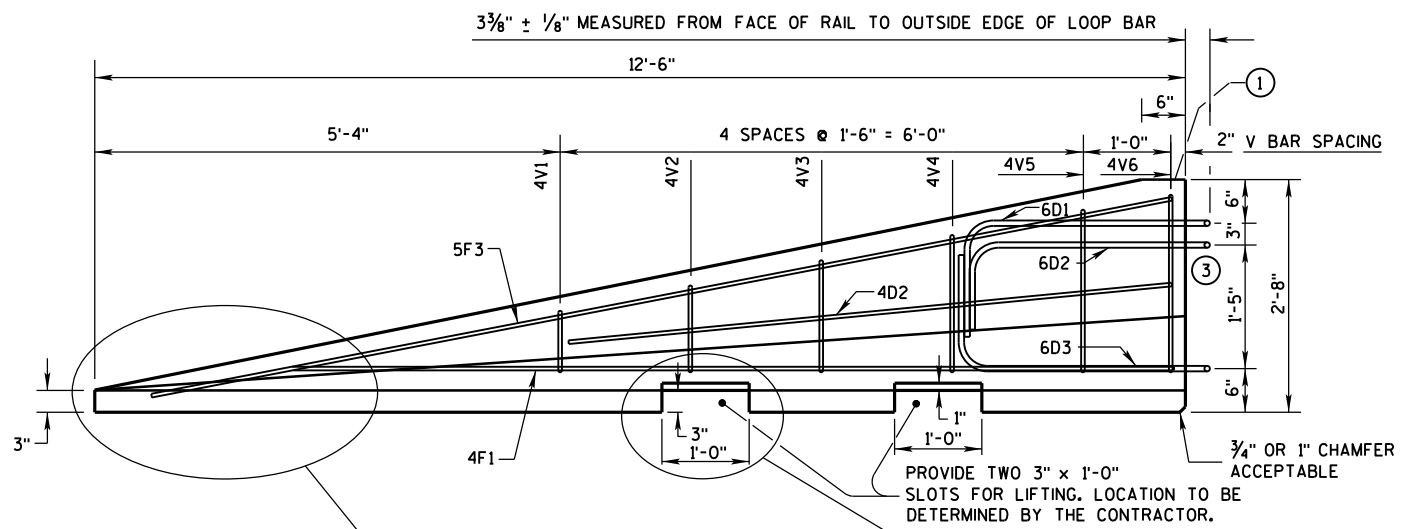
INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- 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"

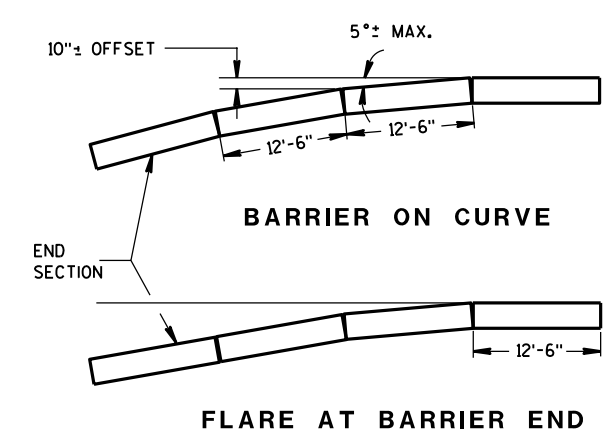
STATE OF WISCONSIN
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SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

- 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.



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

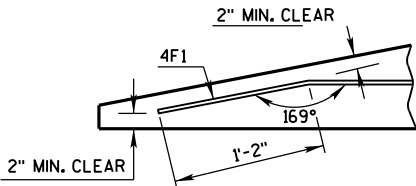
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

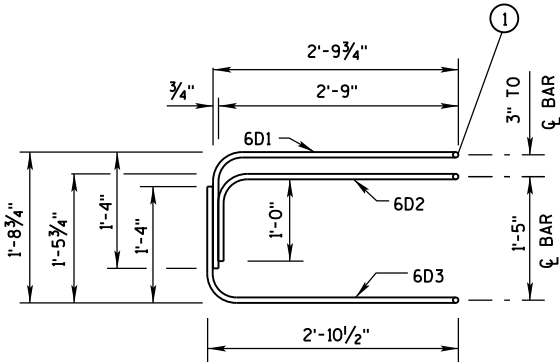
BARRIER TAPER SECTION
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

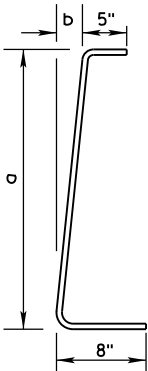
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



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

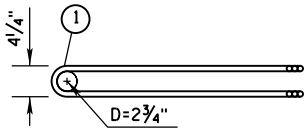
GENERAL NOTES

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

BARRIER SECTION
BILL OF MATERIALS

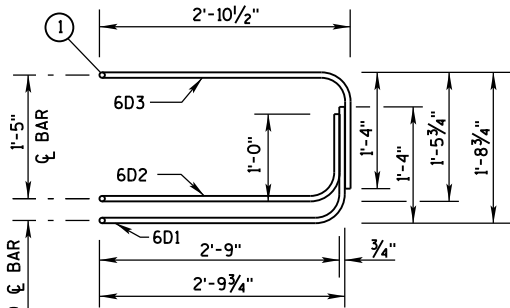
(PER 12'-6" BARRIER SECTION)

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"

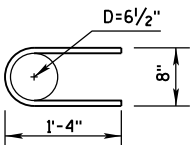


PLAN VIEW
LOOP BAR ASSEMBLY

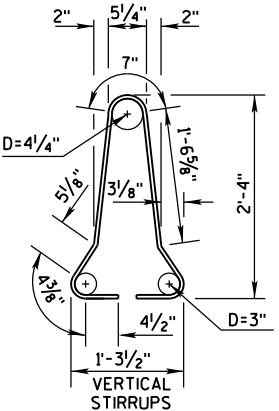
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

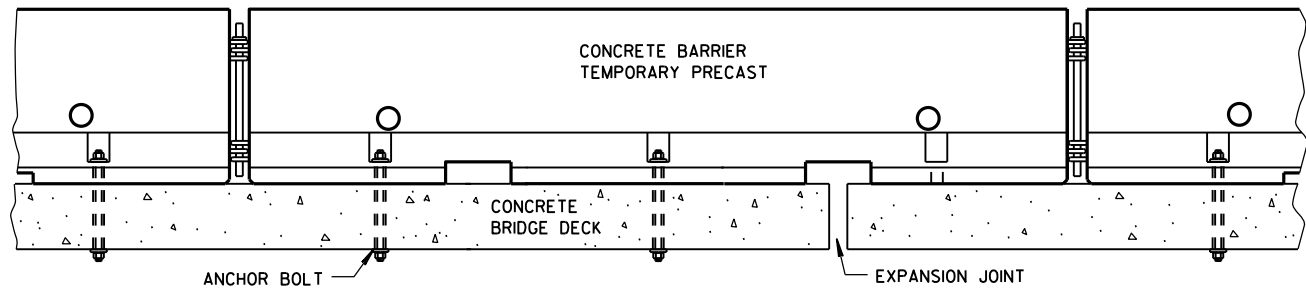
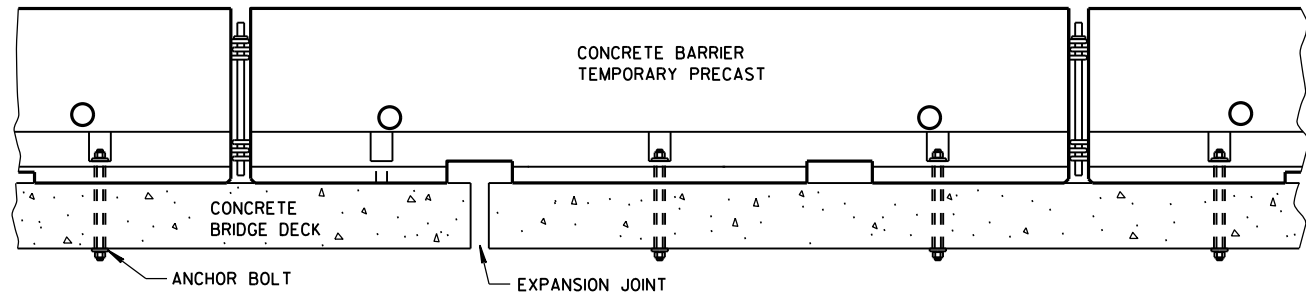


4A1

BARRIER SECTION

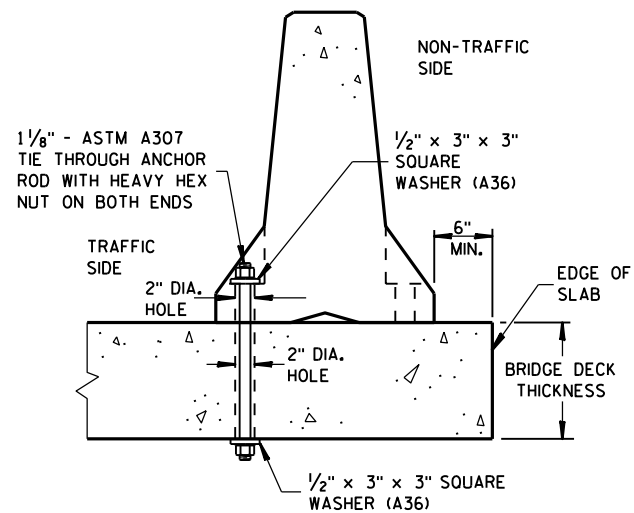
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



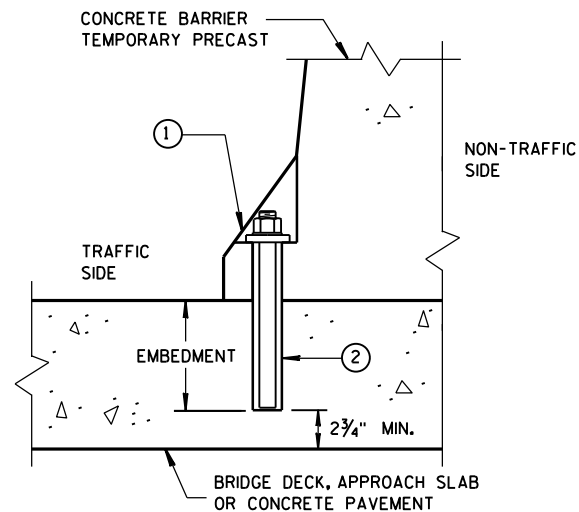
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(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.)



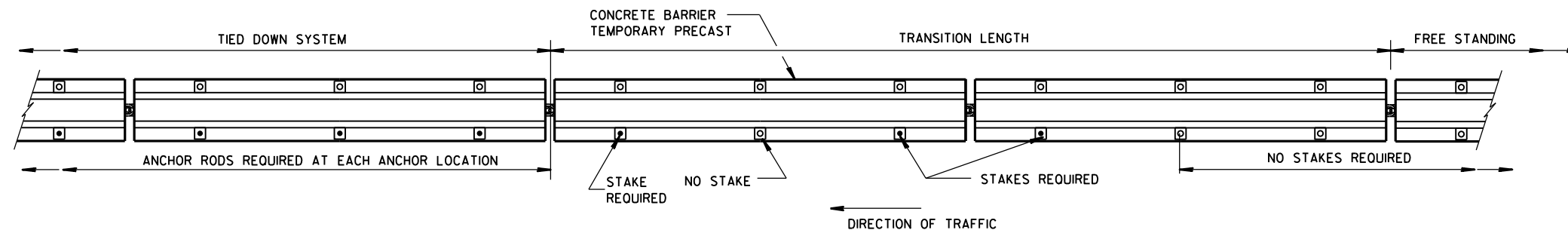
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(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

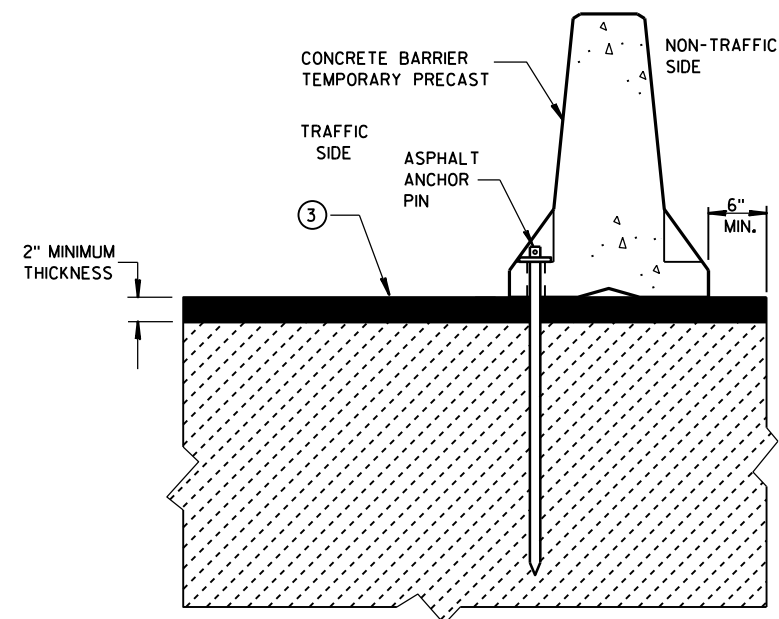
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

GENERAL NOTES

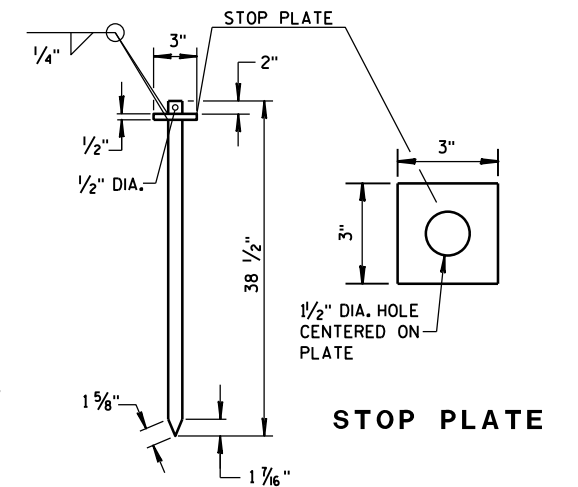
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

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

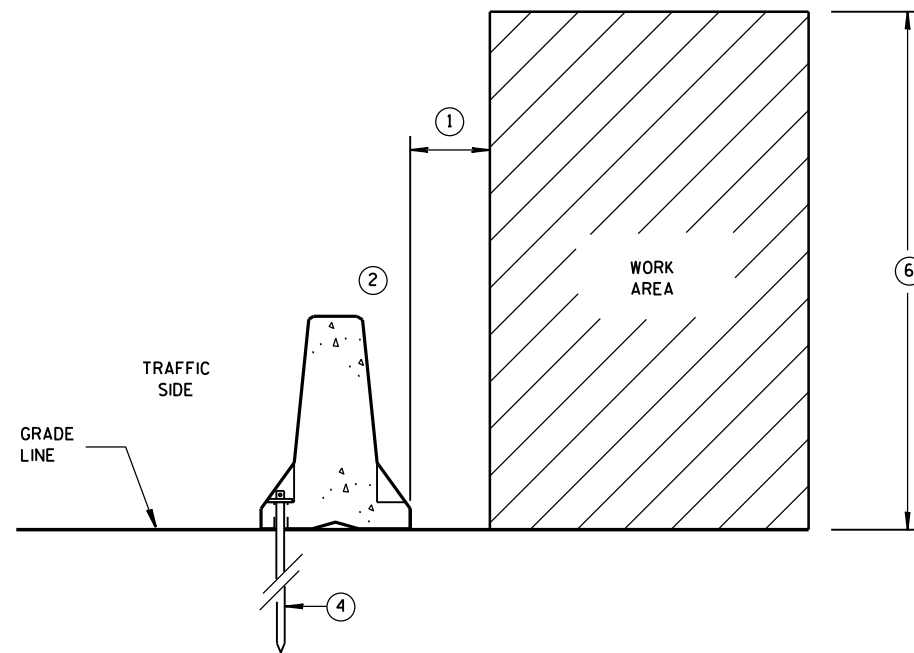


ASPHALT ANCHOR PIN

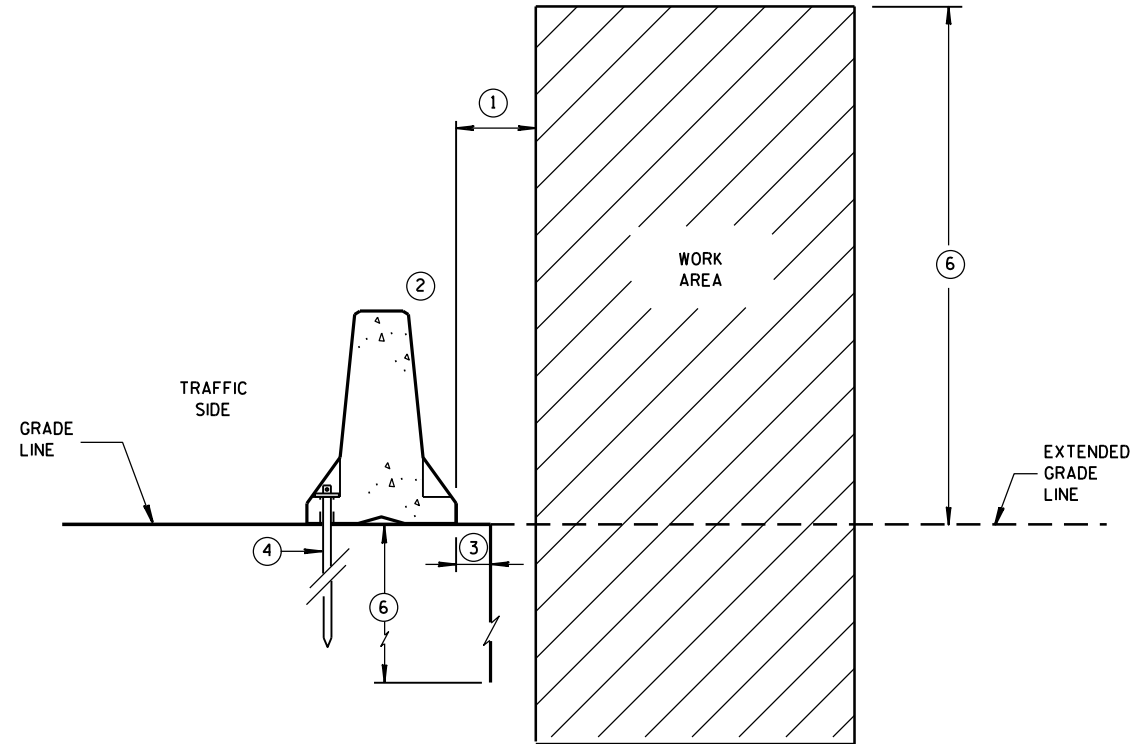
(ASTM A36 STEEL)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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

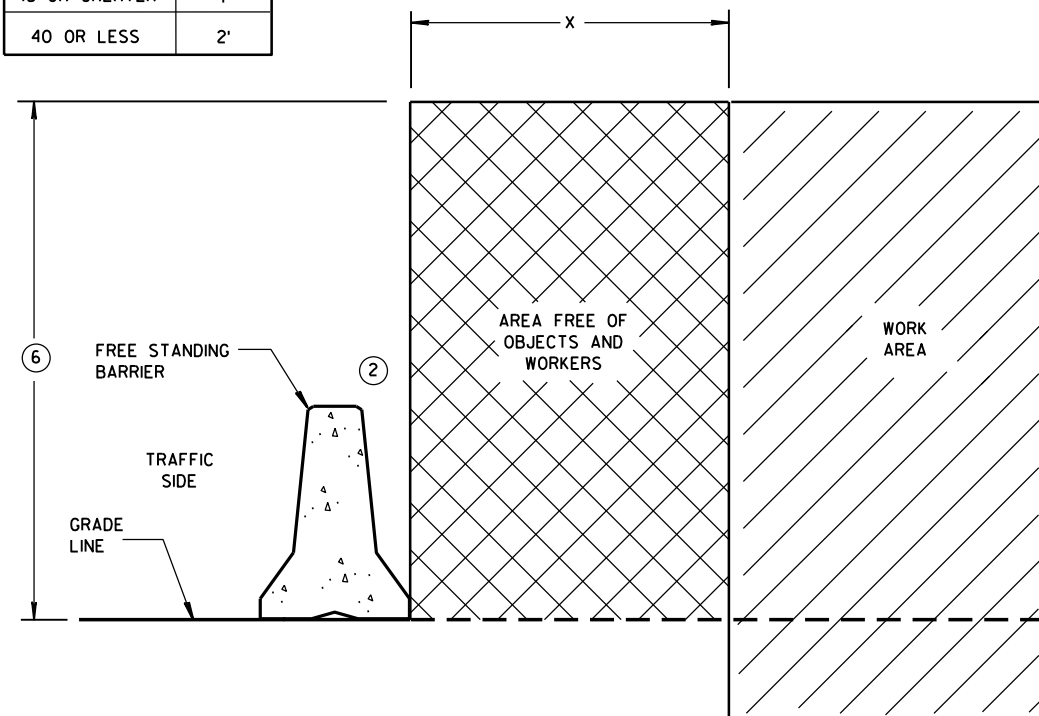


**ANCHORED BARRIER SPACE REQUIREMENTS
ON VERTICAL DROP OFFS**

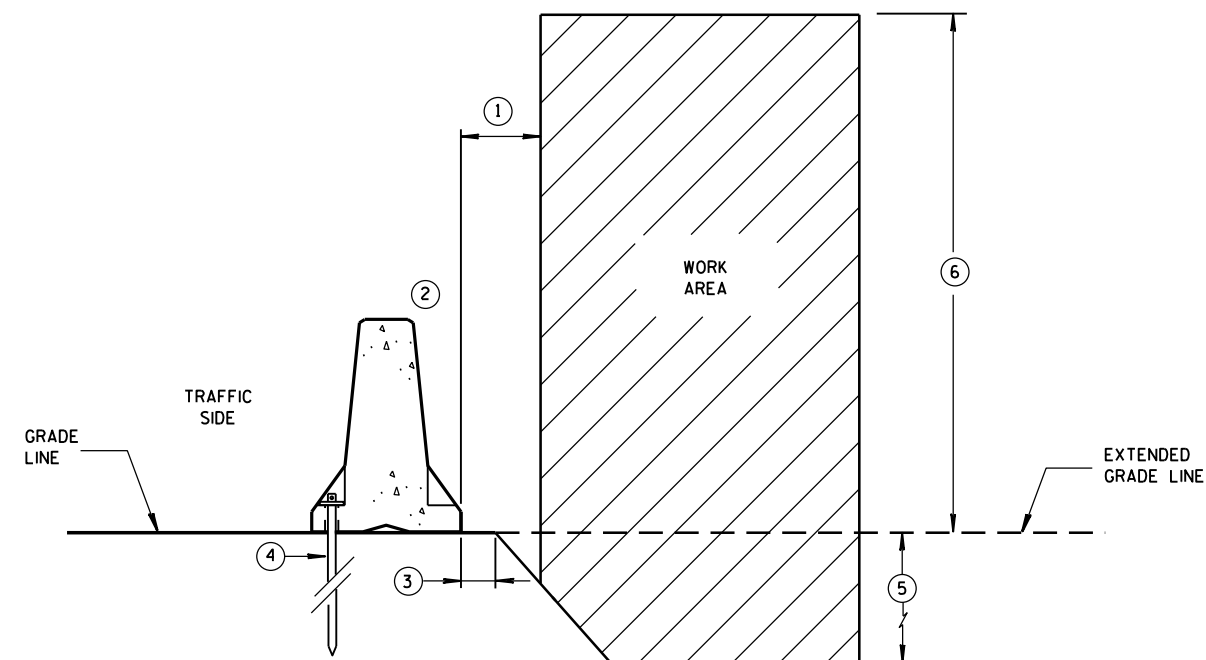
GENERAL NOTES

- ① WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR 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'



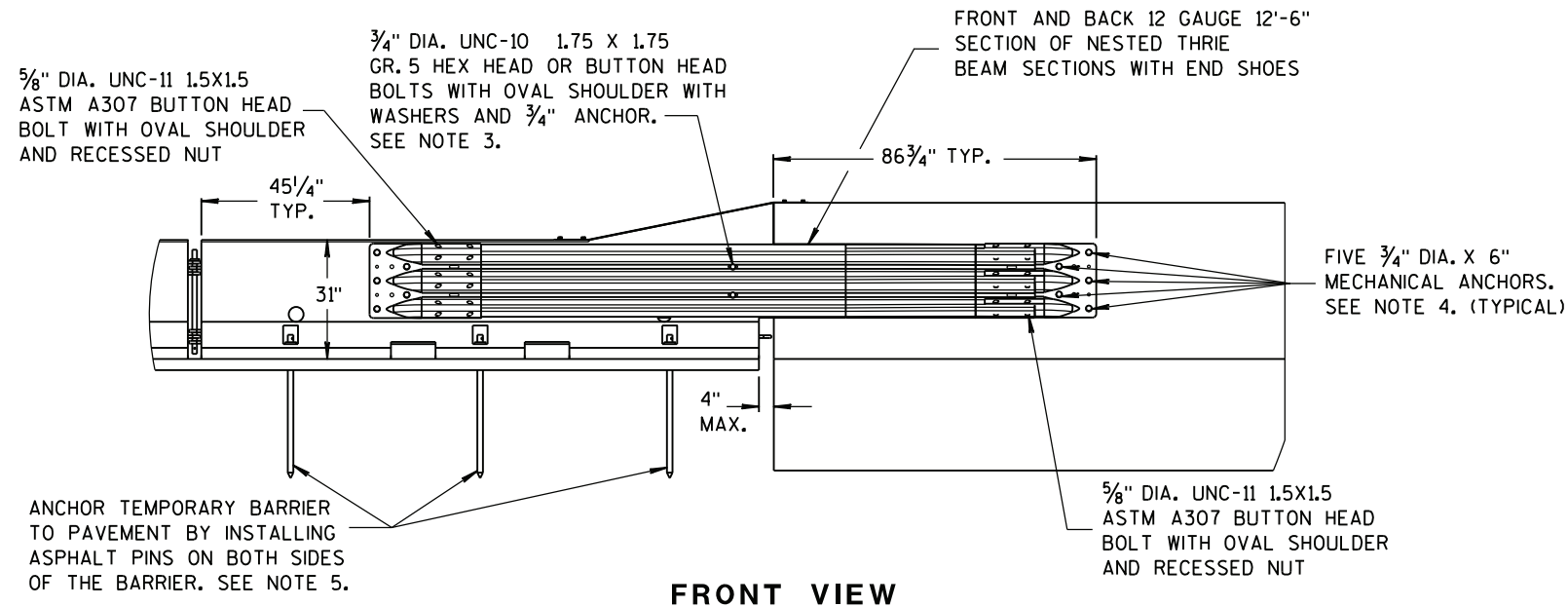
FREE STANDING BARRIER SPACE REQUIREMENTS



**ANCHORED BARRIER SPACE REQUIREMENTS
ON SLOPES**

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FRONT VIEW

NOTES

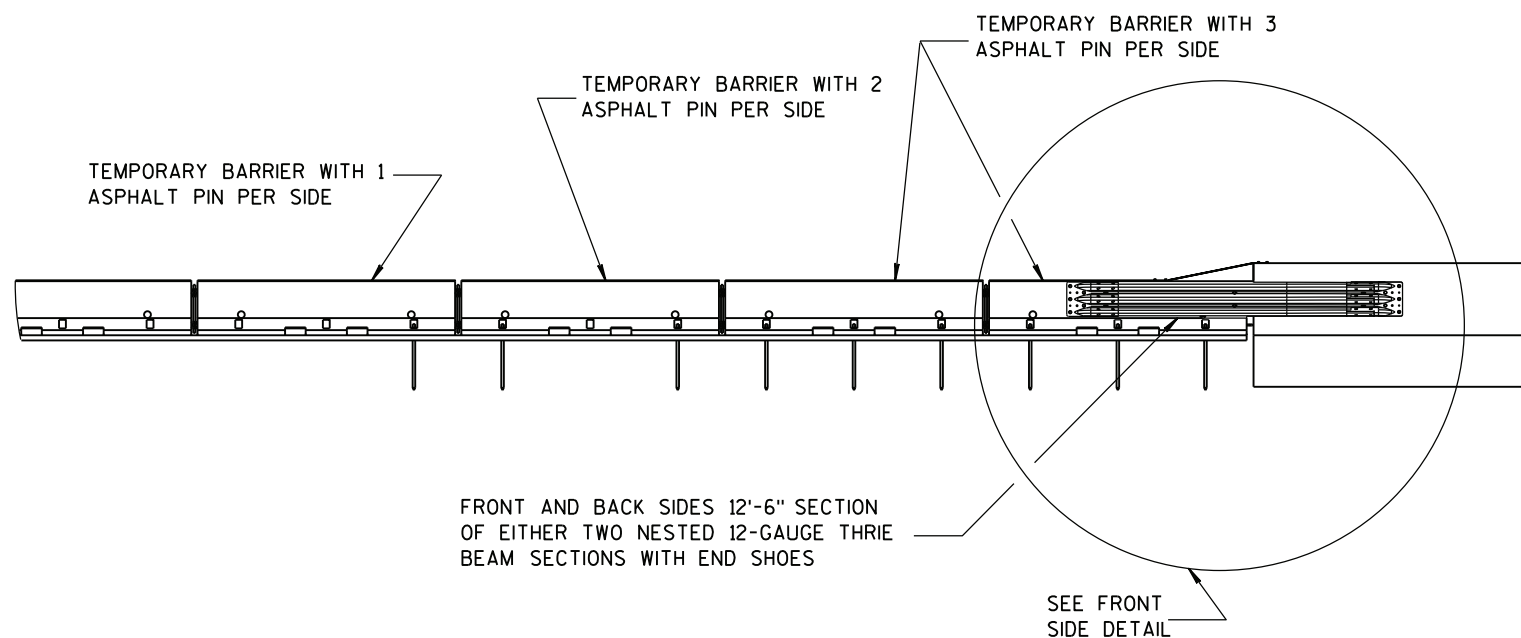
NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS REGARDLESS OF TRAFFIC.

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.

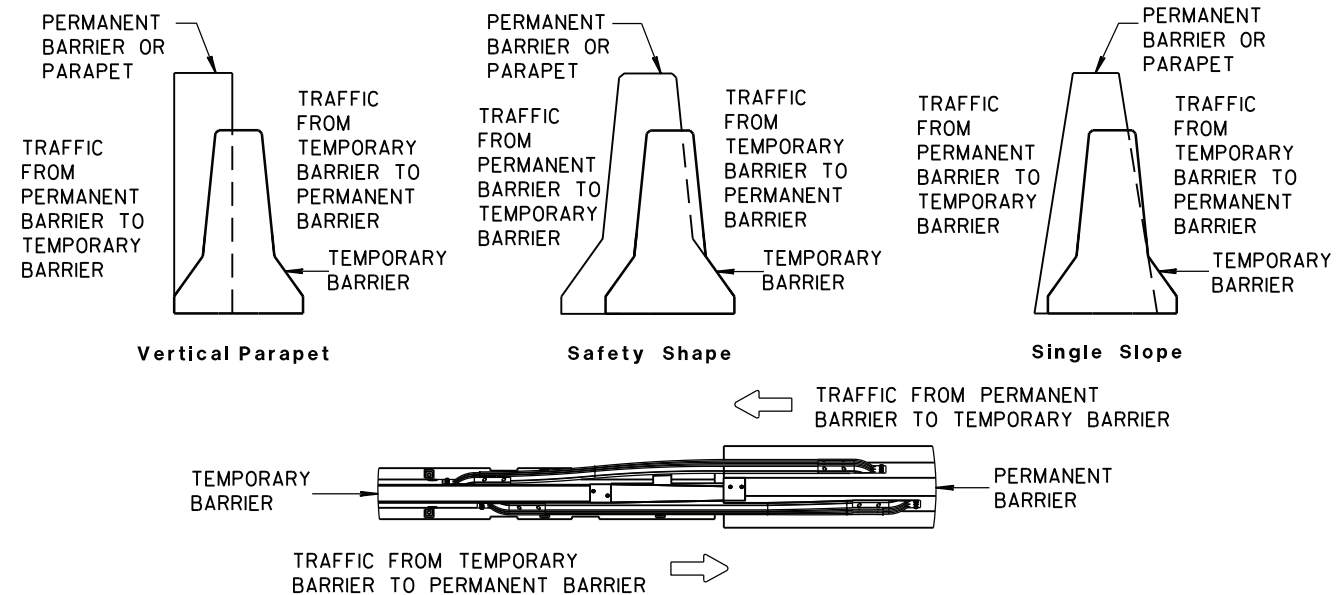
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.

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

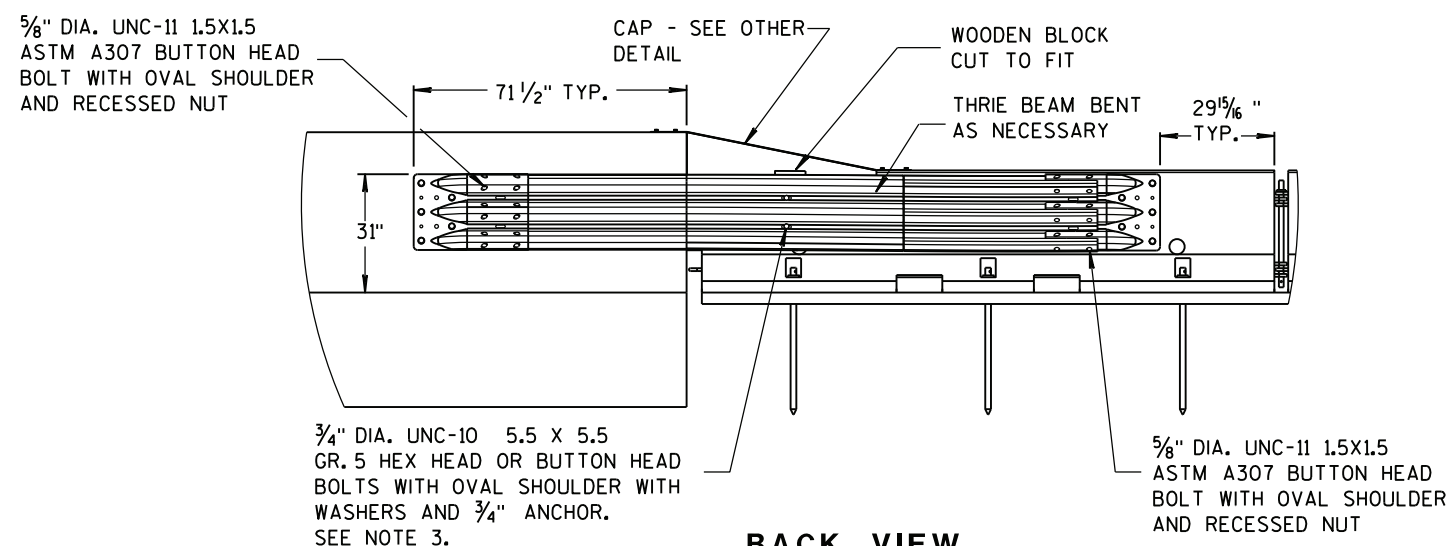


FRONT VIEW

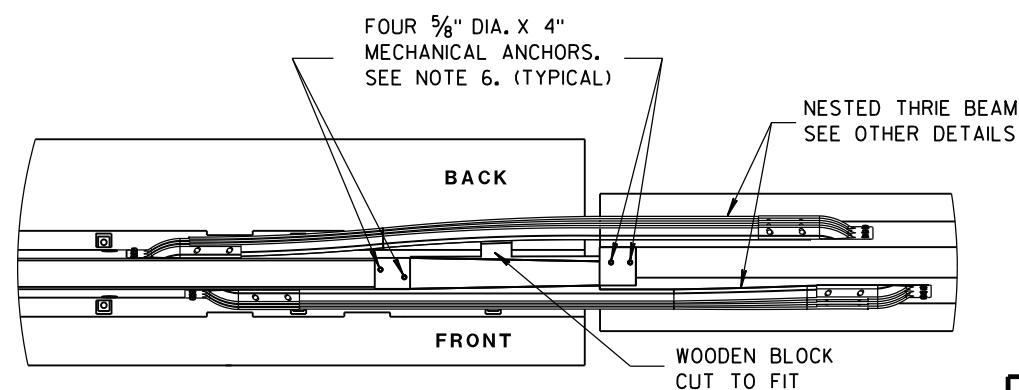
TRANSITION TO TIED DOWN SYSTEM



TEMPORARY BARRIER PLACEMENT FOR TRANSITION TO TIED DOWN SYSTEM



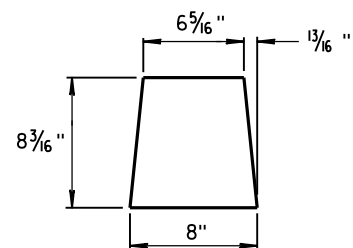
BACK VIEW



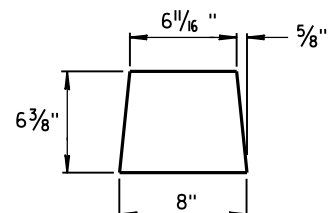
PLAN VIEW

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

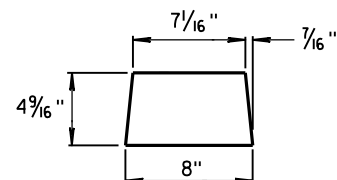
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



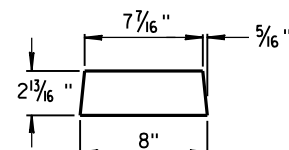
GUSSET 1



GUSSET 2

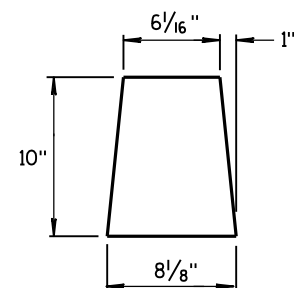


GUSSET 3

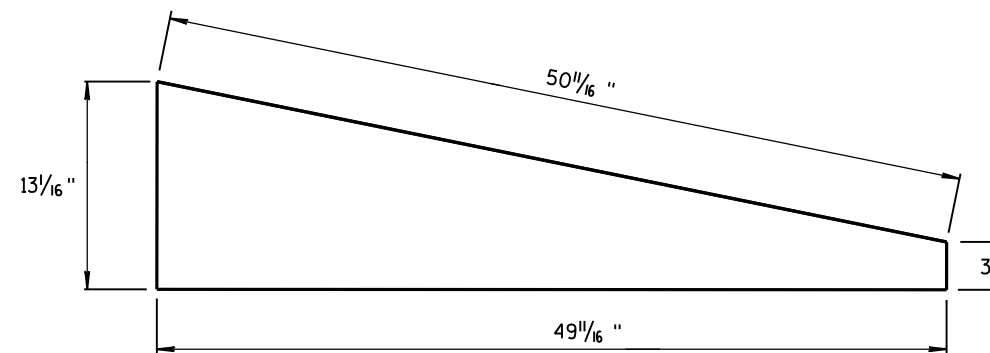


GUSSET 4

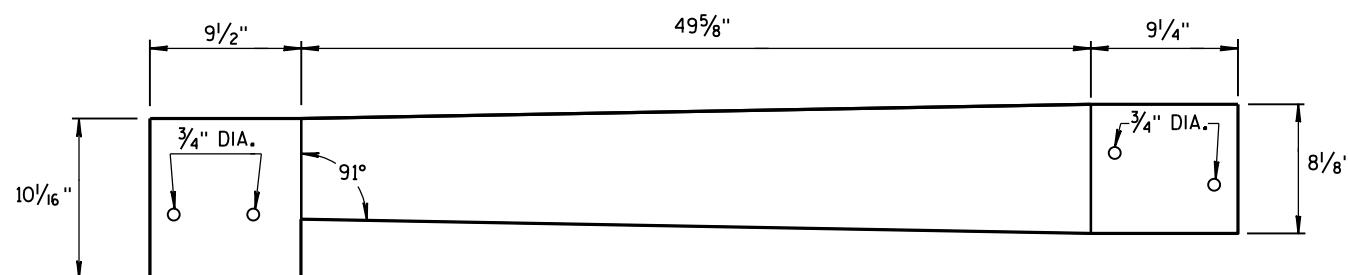
GUSSETS



END PLATE



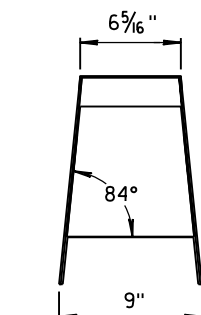
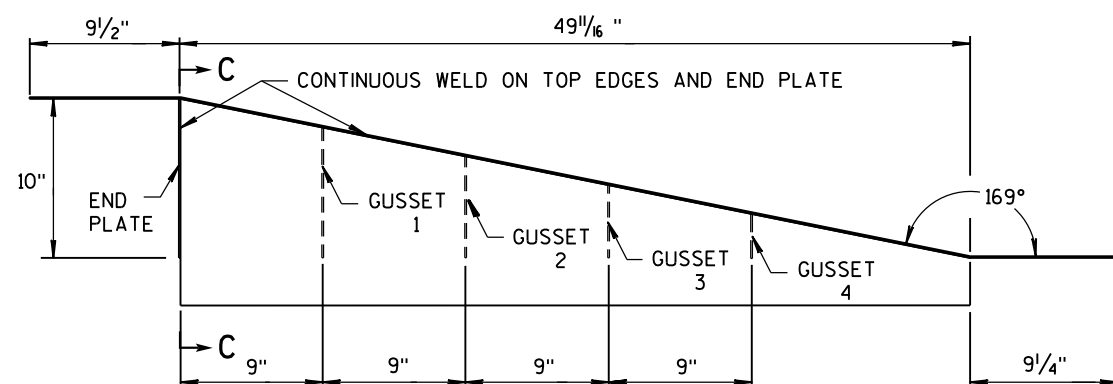
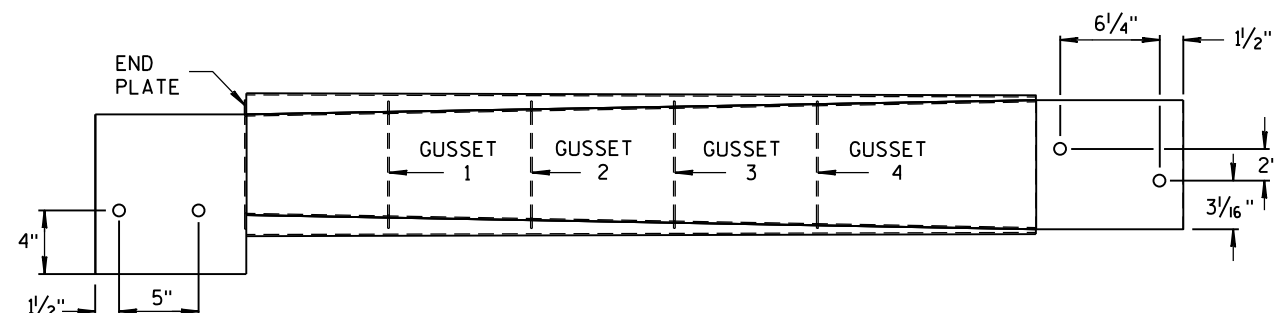
SIDE PLATE



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

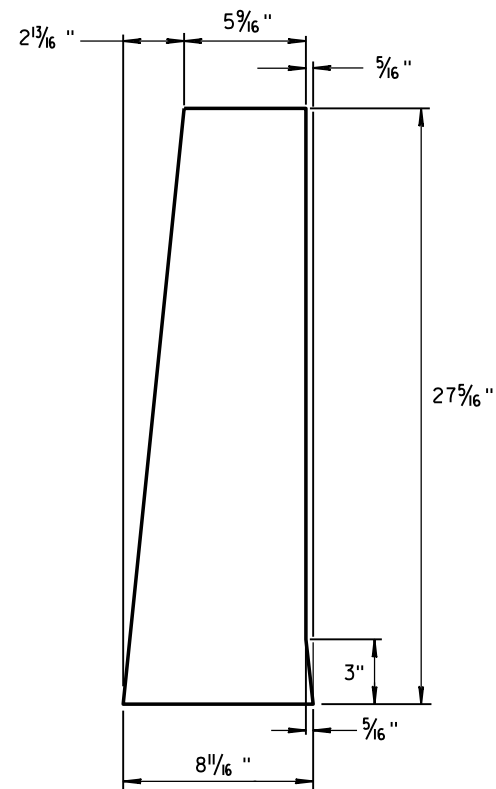
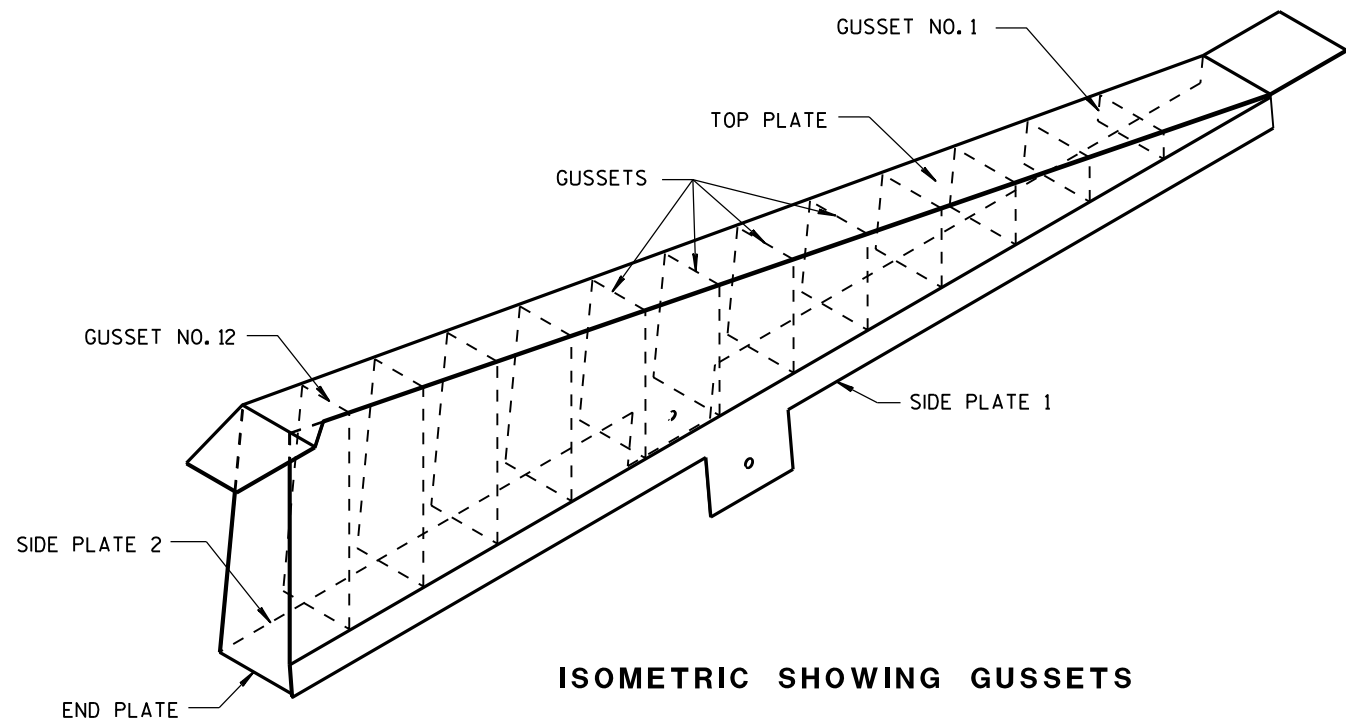
1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

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

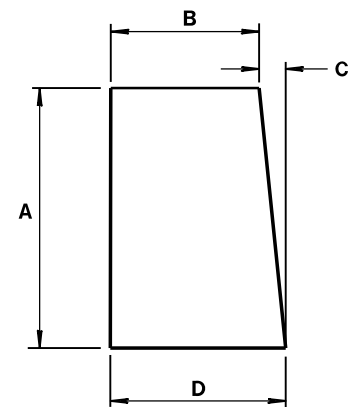
**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

53



END PLATE
1/8" STEEL PLATE

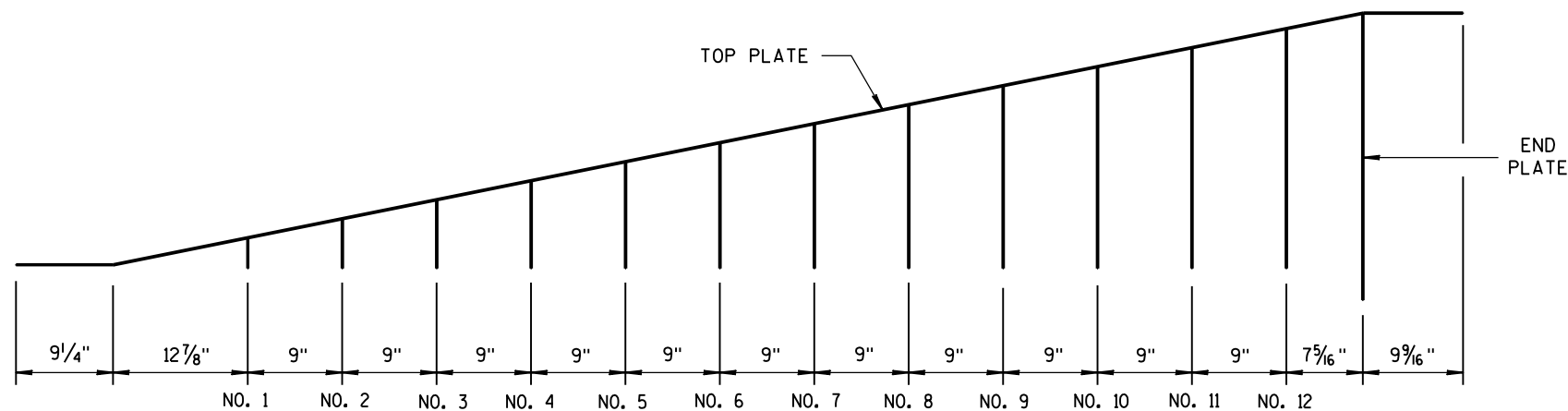


GUSSETS 1 - 12
ALL GUSSETS 1/8" STEEL PLATE

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 "	11/16 "	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.

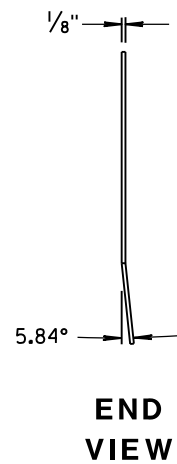
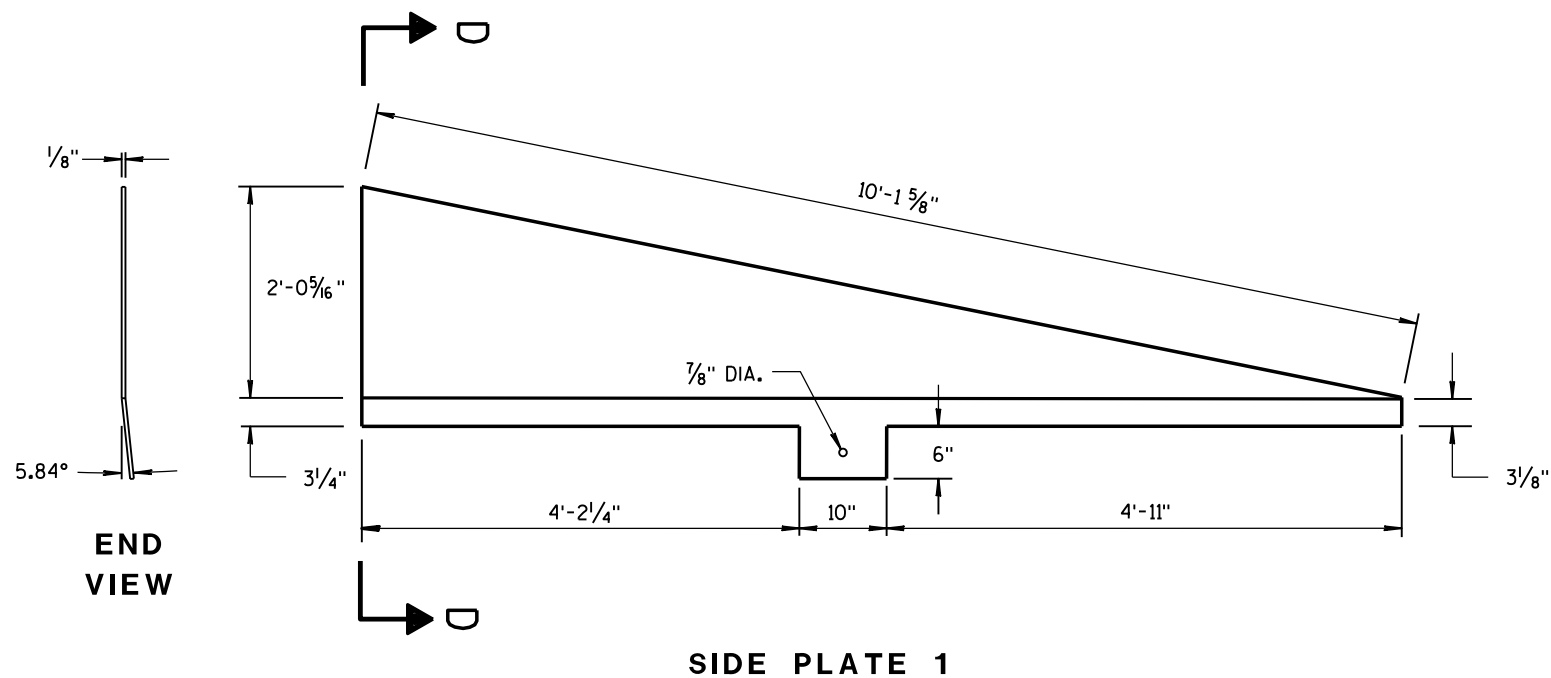
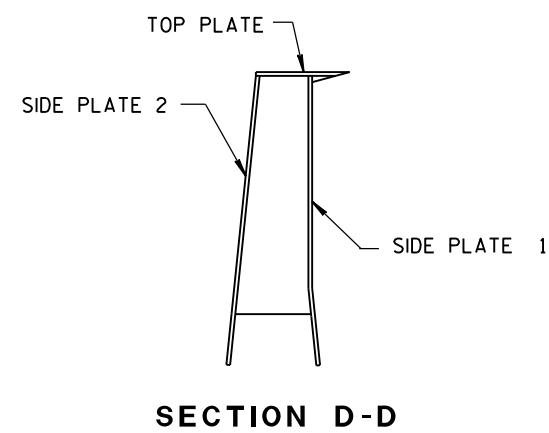
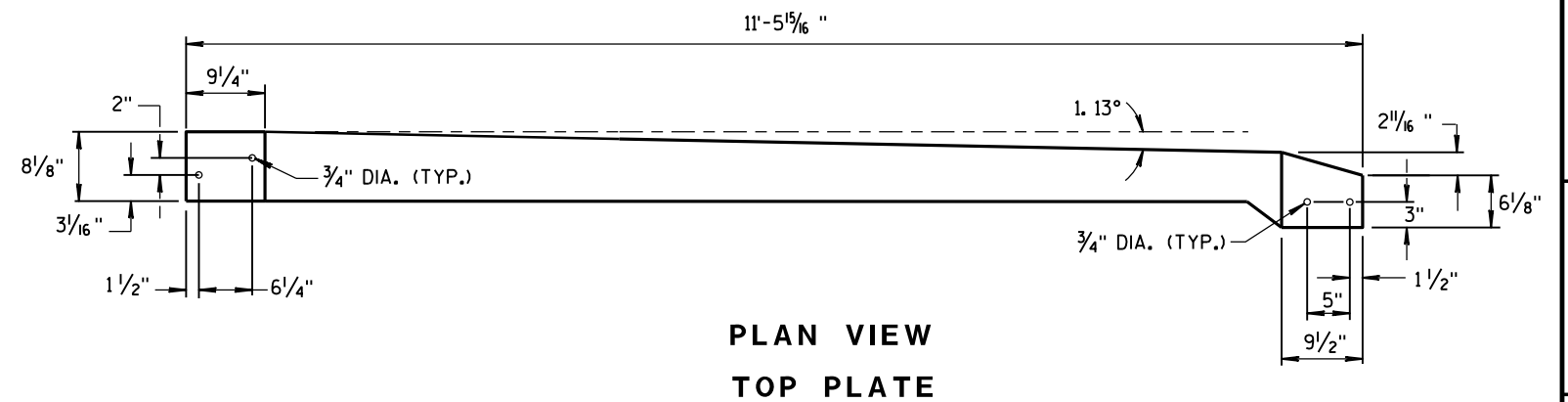
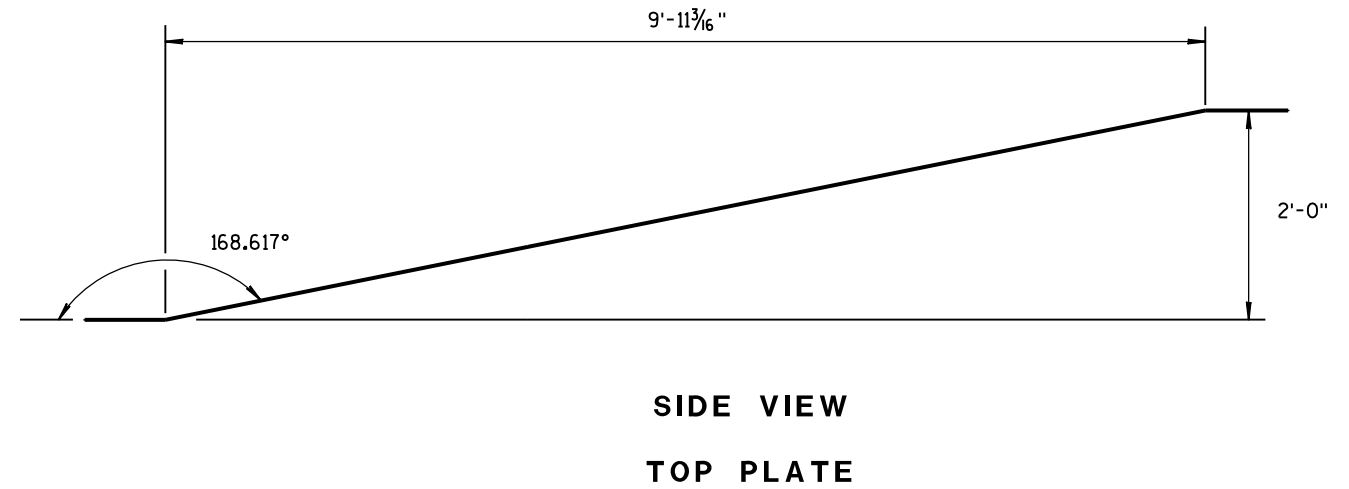
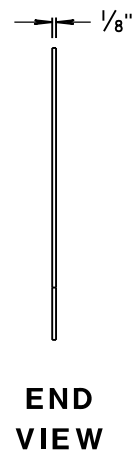
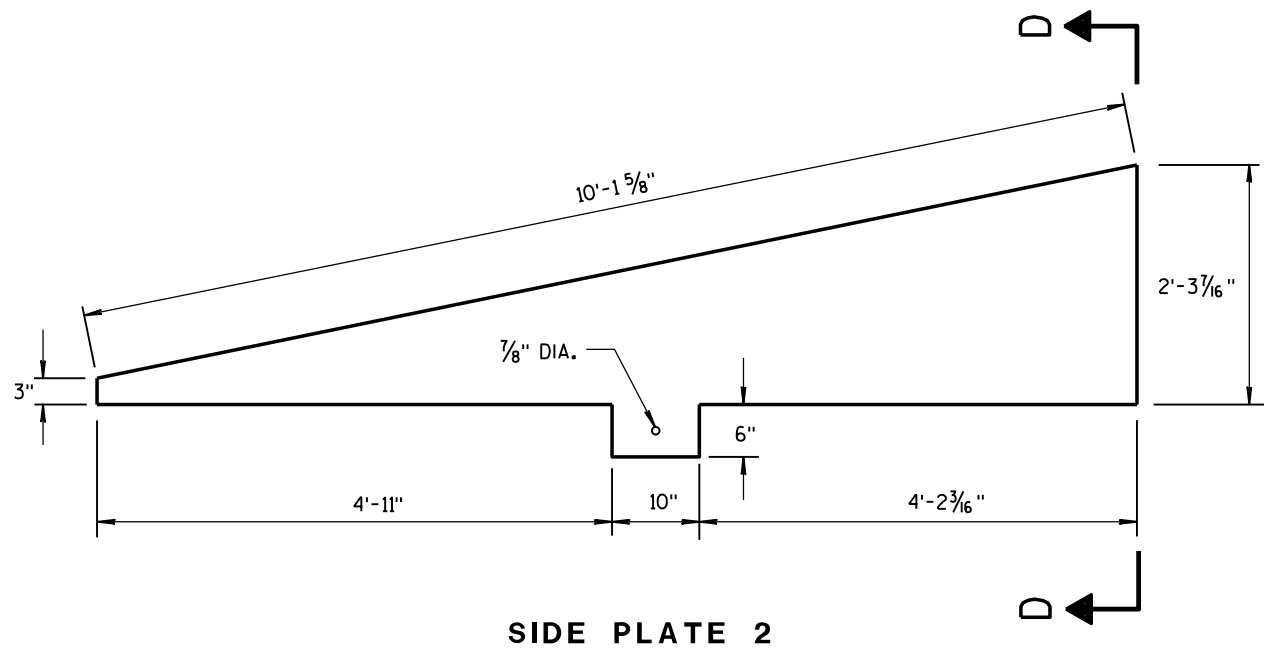


GUSSET LOCATION

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

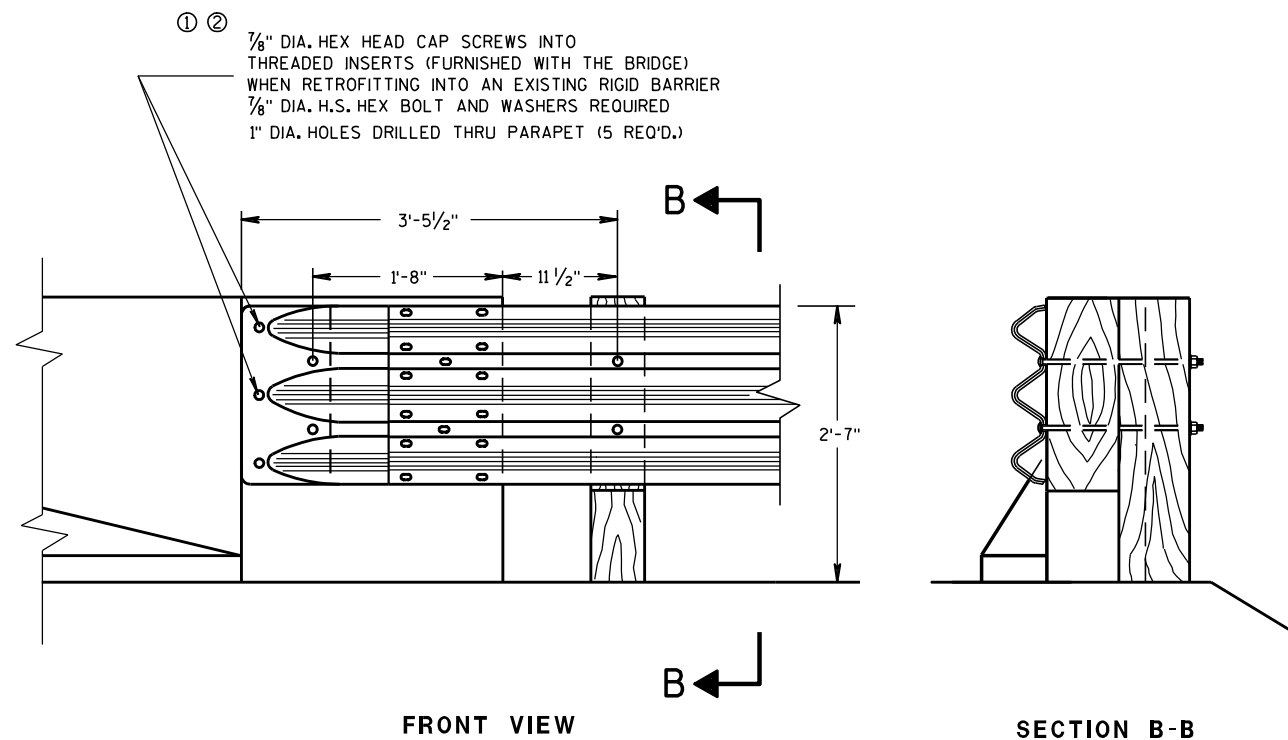
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

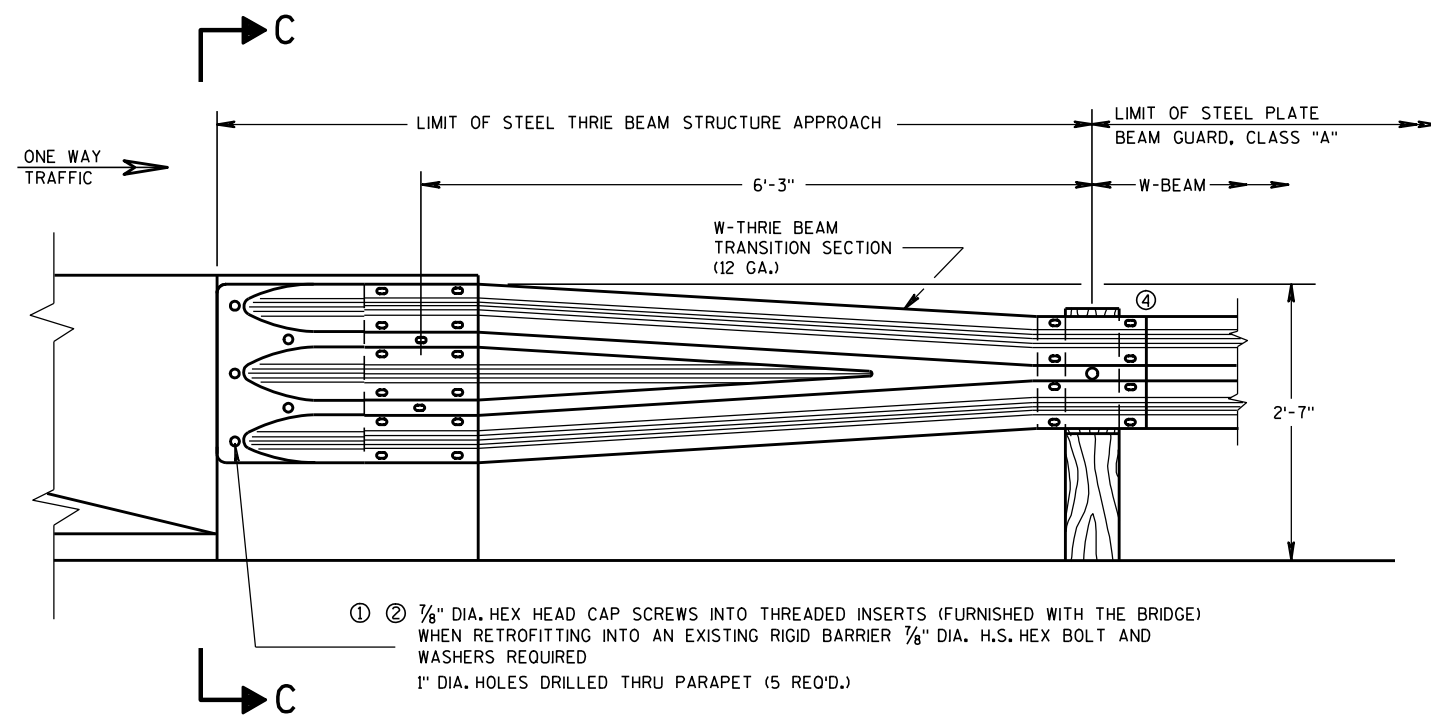


**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 56" PERMANENT CONCRETE BARRIER**

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED June 2017	/S/ Rodney Taylor		
DATE	ROADWAY STANDARD	55	ENT
FHWA	UNIT SUPERV		



THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS



W BEAM TRANSITION AND CONNECTION TO
BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

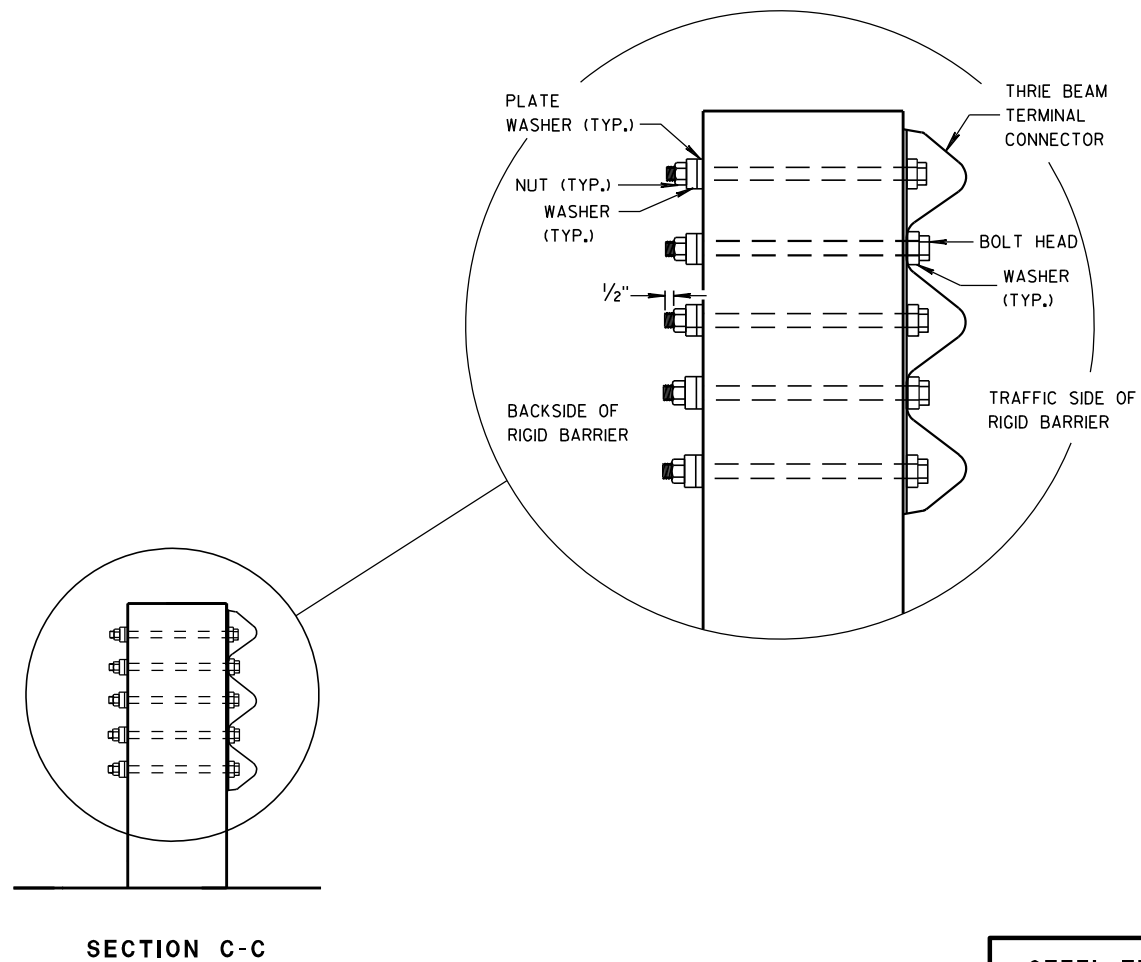
GENERAL NOTES

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

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② 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 TERMINAL CONNECTOR. 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.
- ③ 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".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012
DATE

FHWA

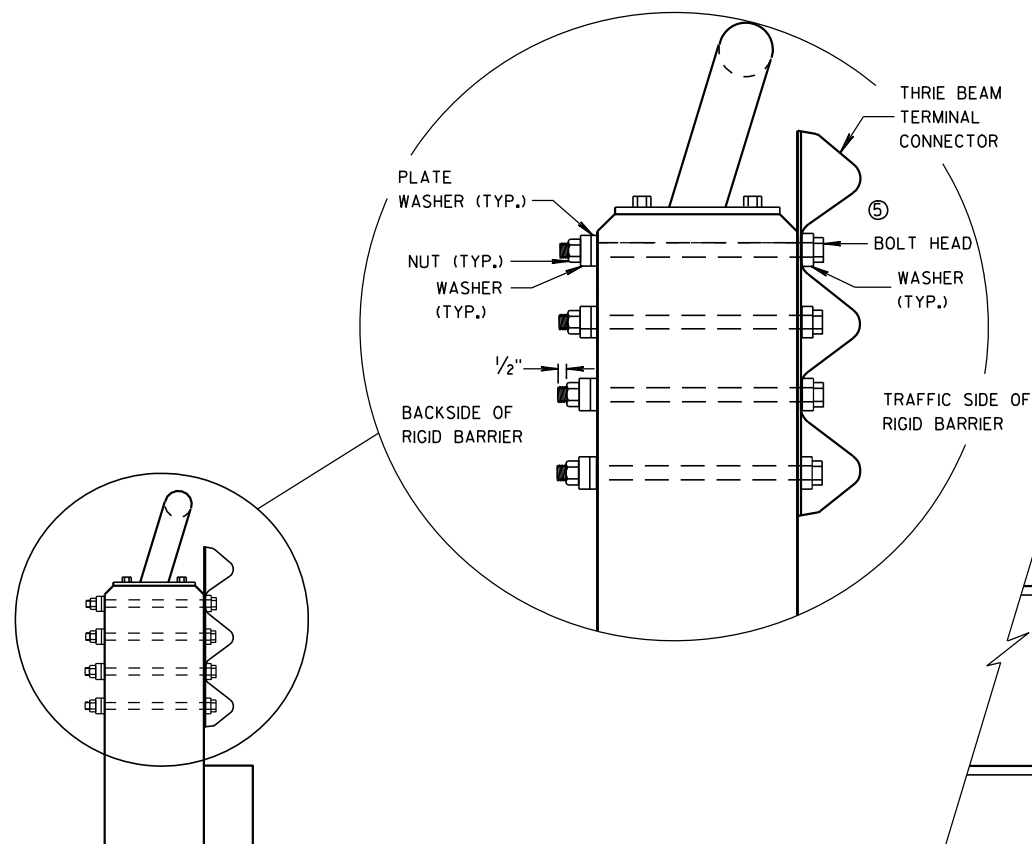
/S/ Jerry H. Zapp
ROADWAY STANDARDS (56) ENT
ENGINEER

GENERAL NOTES

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

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
 - ② 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 TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X $\frac{5}{8}$ " THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
 - ③ 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 $\frac{1}{2}$ ".
 - ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.
 - ⑤ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PARAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.
- DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

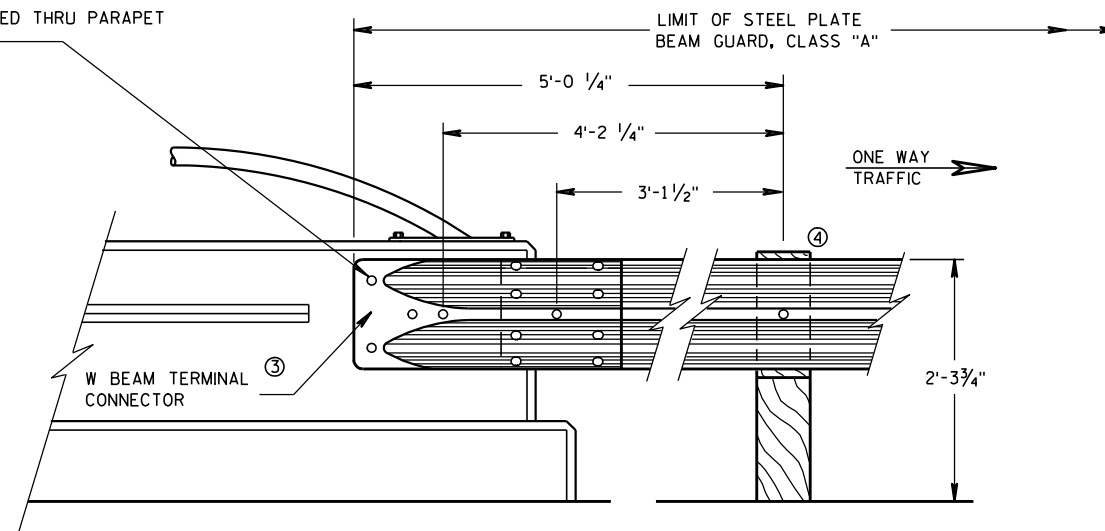


SECTION E-E

- ① ② $\frac{7}{8}$ " DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER $\frac{7}{8}$ " DIA. H.S. HEX BOLT AND WASHERS REQUIRED
- 1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)

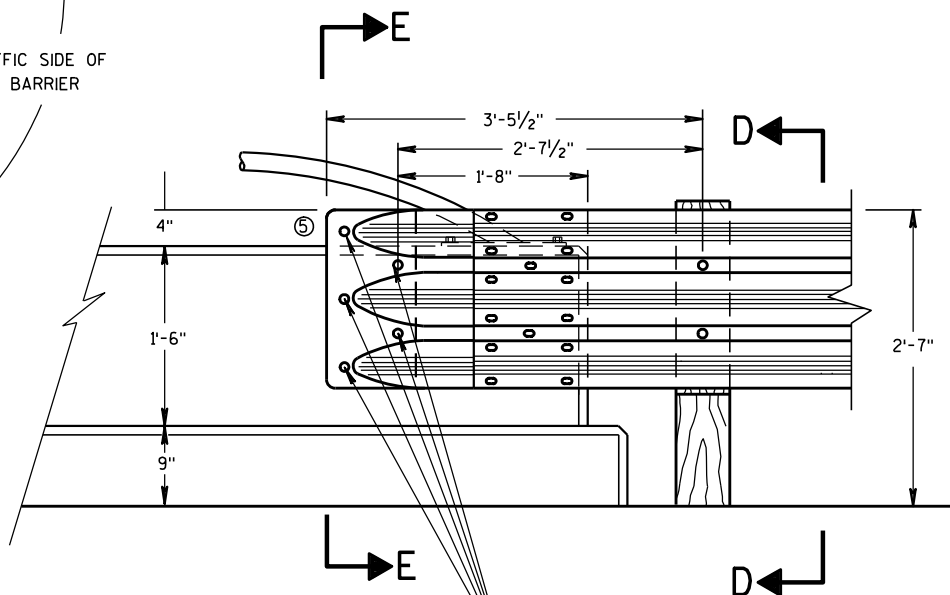
THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

- ① ② $\frac{7}{8}$ " DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER $\frac{7}{8}$ " DIA. H.S. HEX BOLT AND WASHERS REQUIRED
- 1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)

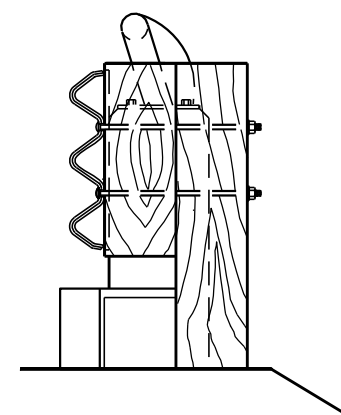


FRONT VIEW

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



FRONT VIEW

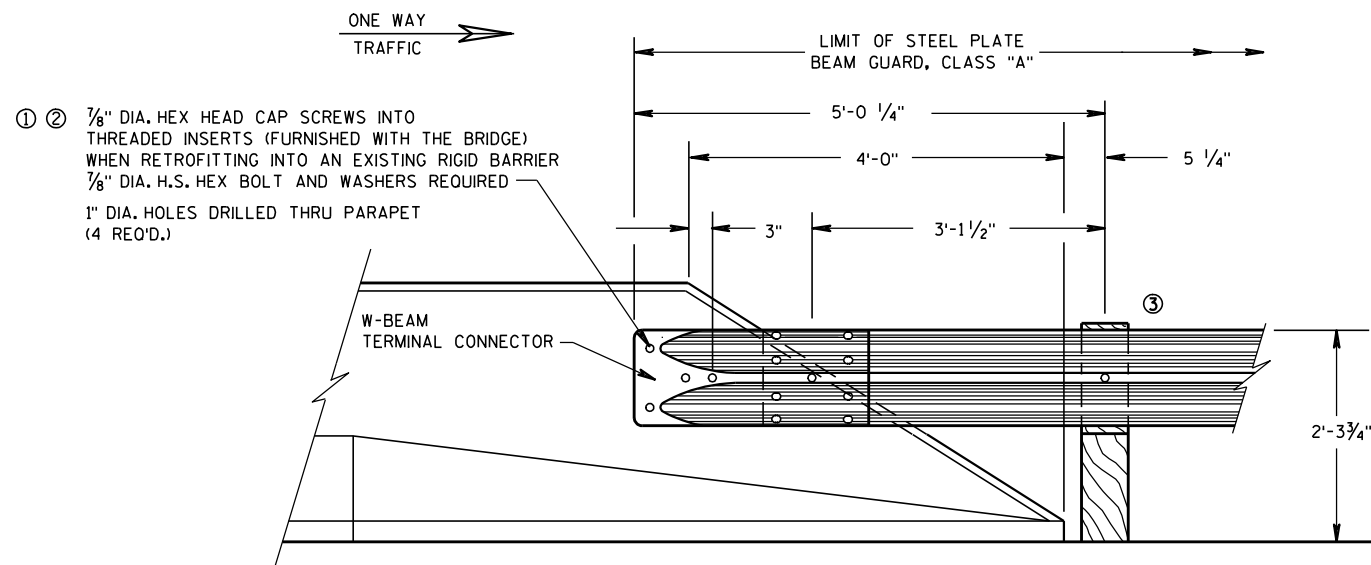


SECTION D-D

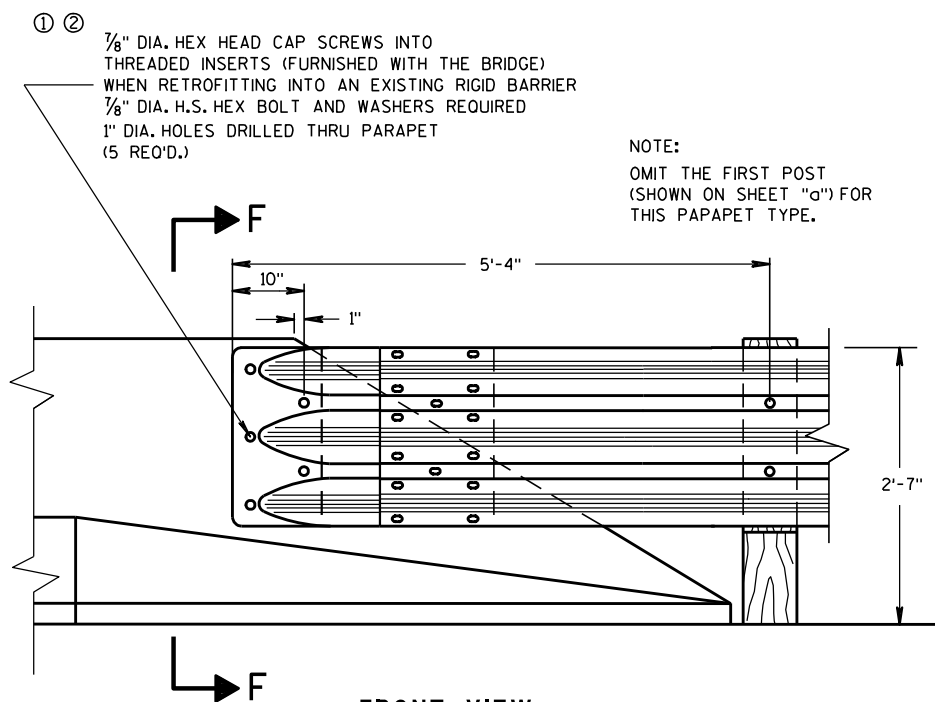
STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO
VERTICAL FACED PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

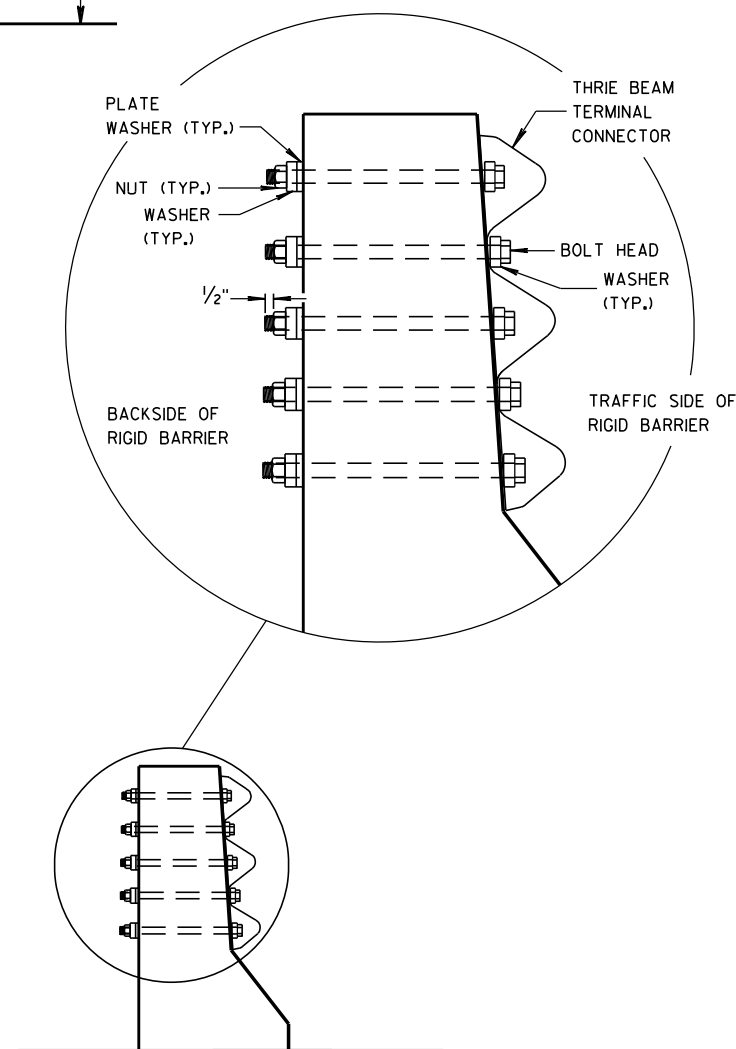
APPROVED
8/31/2012 DATE /S/ Jerry H. Zoon
DATE ROADWAY STANDARDS 157 INT
FHWA ENGINEER



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



FRONT VIEW
THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS



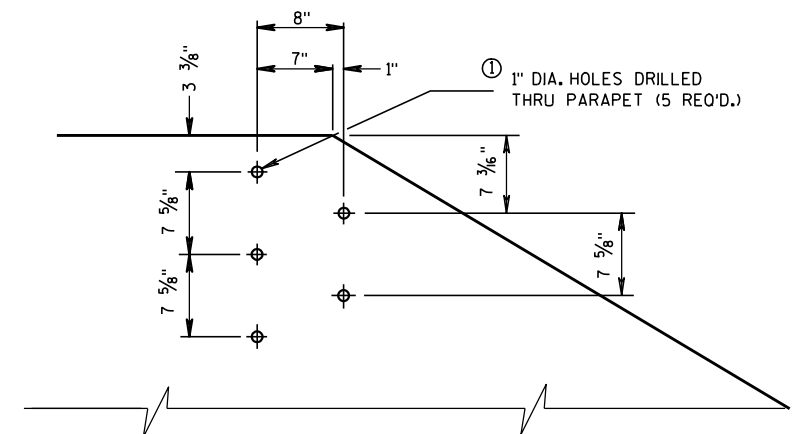
SECTION F-F

GENERAL NOTES

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

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② 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 TERMINAL CONNECTOR. 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.
- ③ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.
 DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION

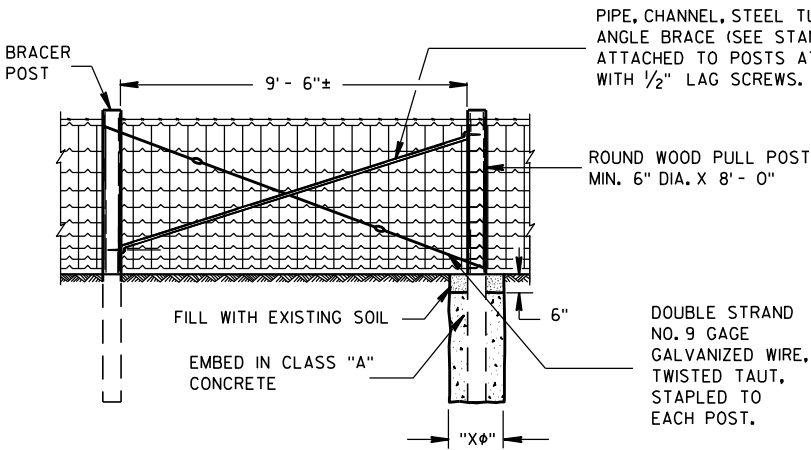
STEEL THRIE BEAM STRUCTURE
APPROACH CONNECTION TO
SLOPED END PARAPETS

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

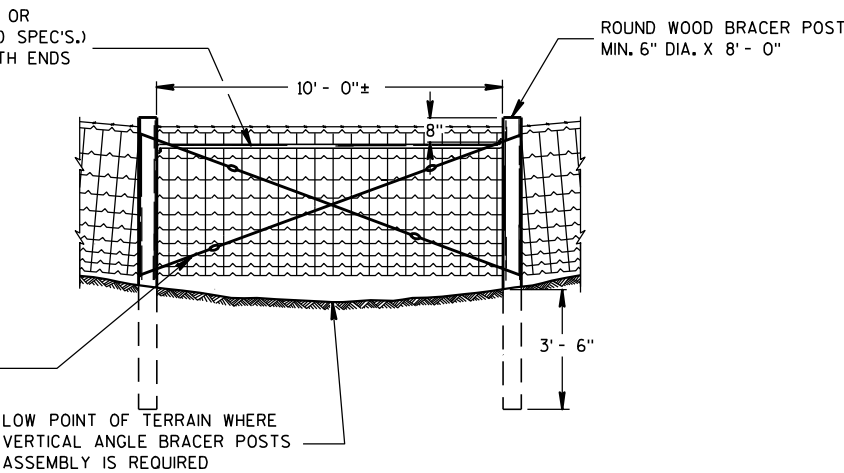
APPROVED
 8/31/2012 DATE /S/ Jerry H. Zeng
 ROADWAY STANDARDS (58) ENGINEER
 FHWA

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

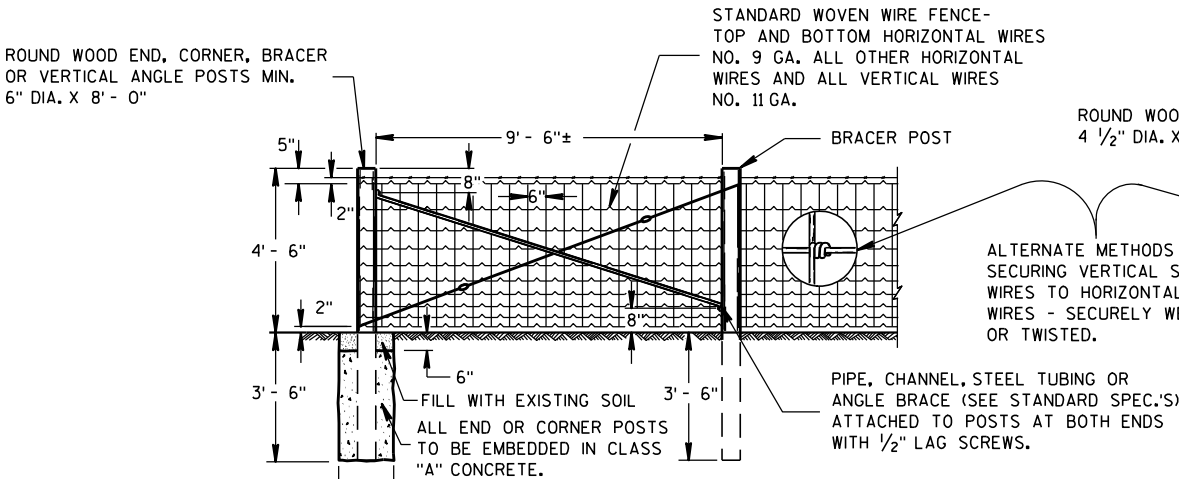
GENERAL NOTES

"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.

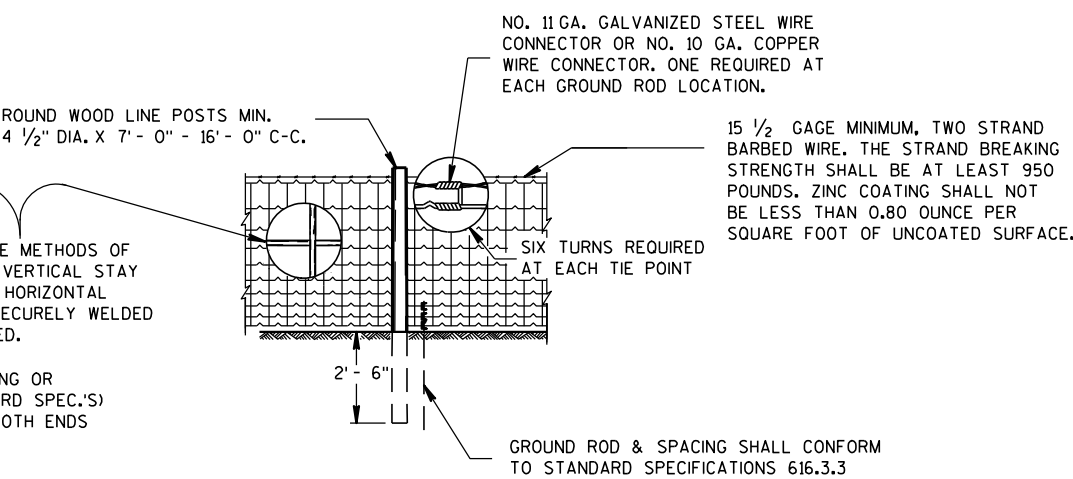
DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED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



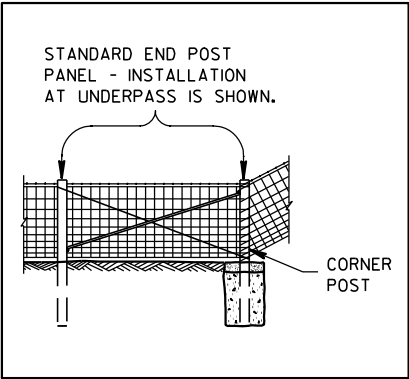
NOTE: FENCE CORNERS - ABOVE ILLUSTRATION SHOWS ONE LEG OF FENCE CONSTRUCTION AT FENCE CORNER. THE CONTIGUOUS LEG TO BE IDENTICAL CONSTRUCTION.

END OR CORNER POSTS ASSEMBLY

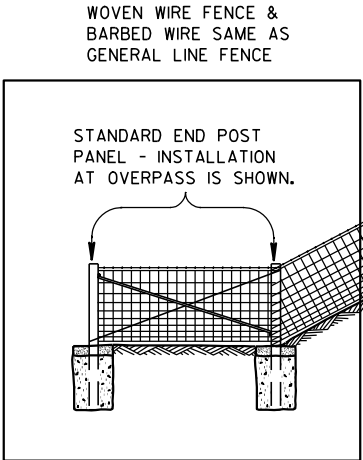


LINE FENCE CONSTRUCTION

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



ALTERNATE FENCE DESIGN AT STRUCTURE



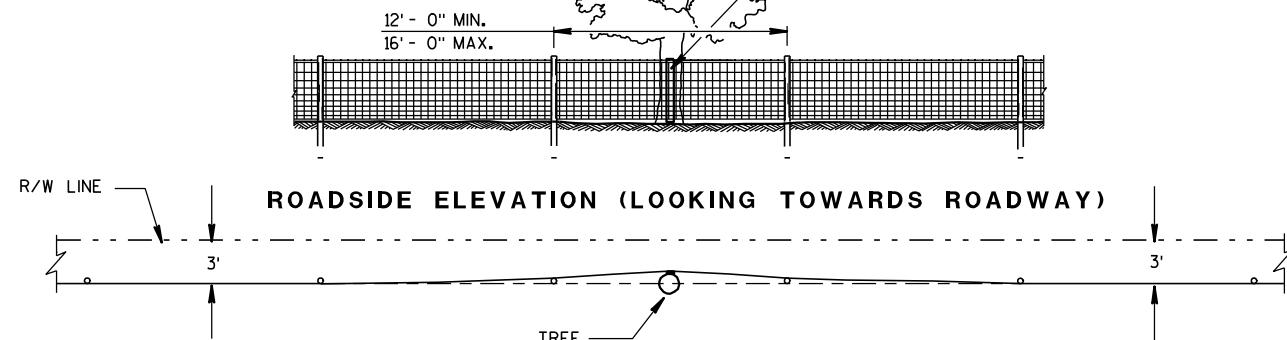
FENCE DESIGN AT STRUCTURE APPROACH

FENCE WOVEN WIRE

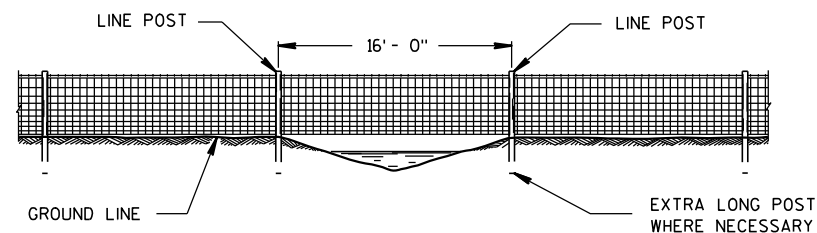
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

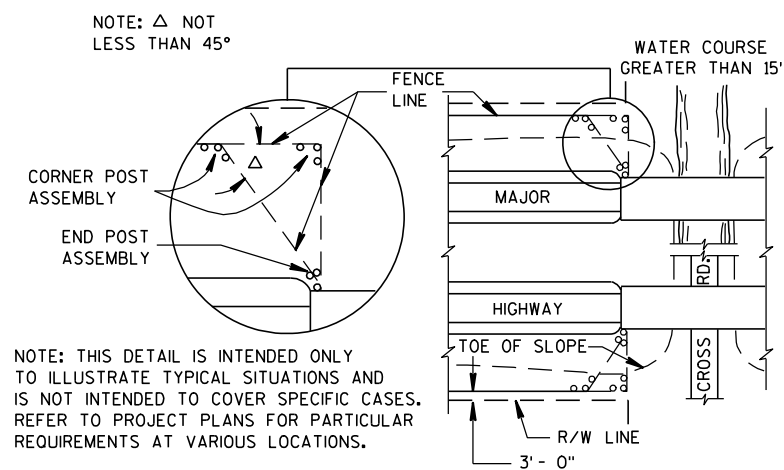
2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



PLAN VIEW
FENCE DESIGN AT TREES REMAINING
IN NORMAL FENCE LINE

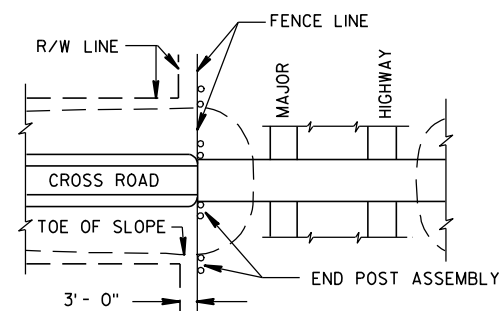


FENCE CONSTRUCTION OVER STREAM
COURSES OF 15 FT. OR LESS IN WIDTH

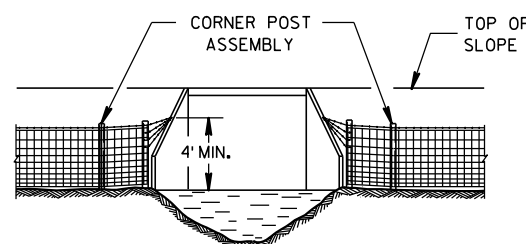


PLAN VIEW
MAJOR HIGHWAY OVERPASS OR STREAM COURSE
CROSSING OF GREATER THAN 15 FT. IN WIDTH

FENCE LOCATION AT STRUCTURES

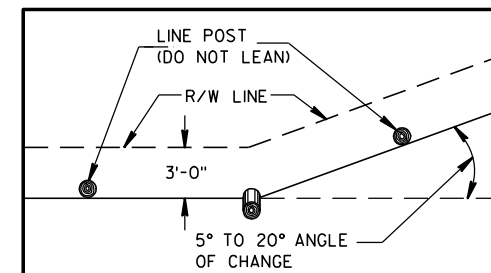
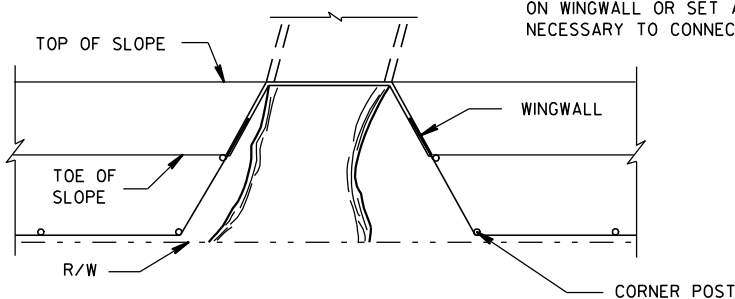


PLAN VIEW
MAJOR HIGHWAY UNDERPASS

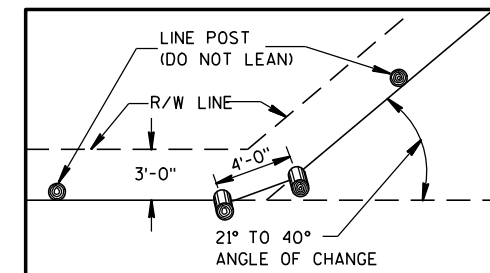


FENCE INSTALLATION TO WINGWALLS

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.



PLAN VIEW
SINGLE POST CORNER

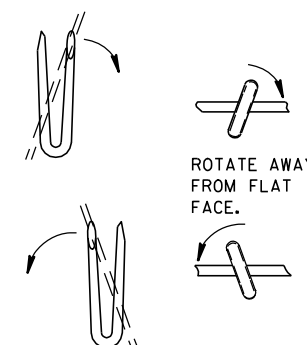


PLAN VIEW
DOUBLE POST CORNER

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.



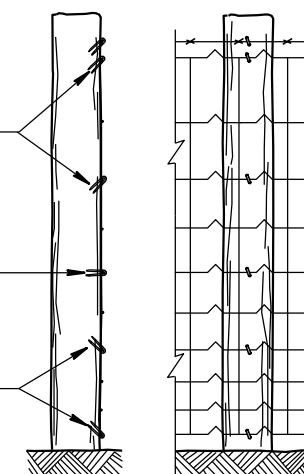
LINE POST

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.

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

FENCE WOVEN WIRE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4/4/2008

DATE

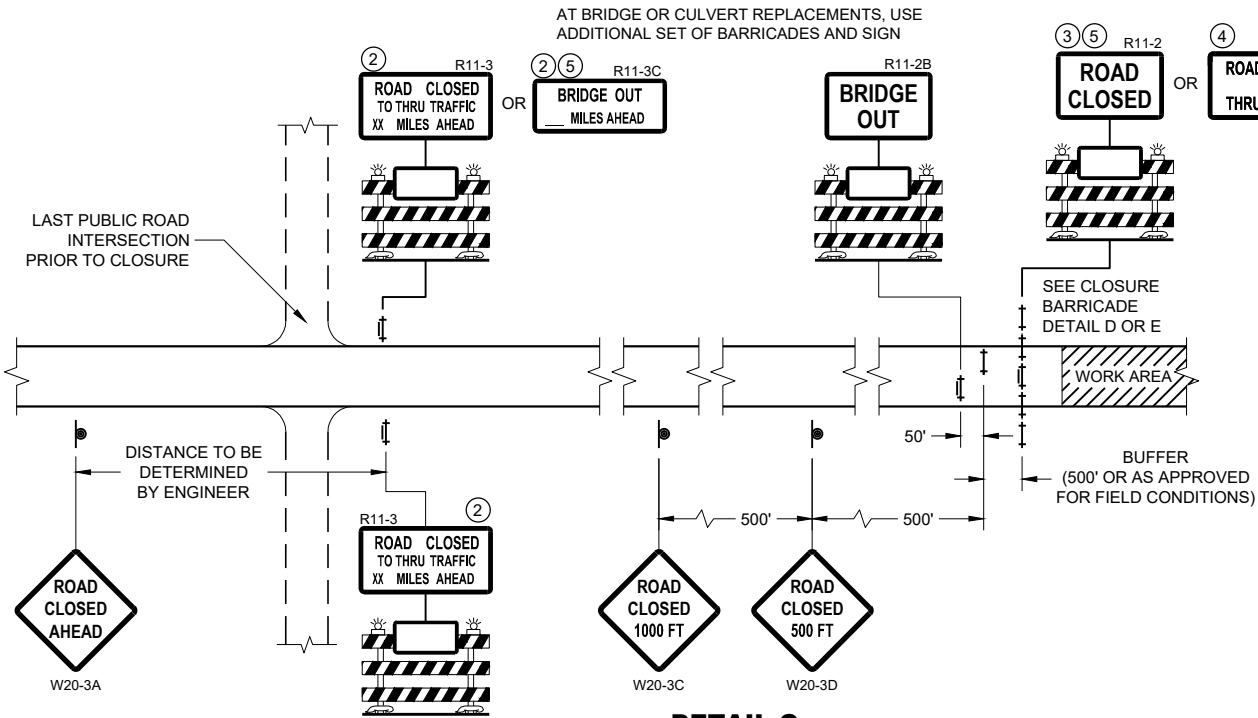
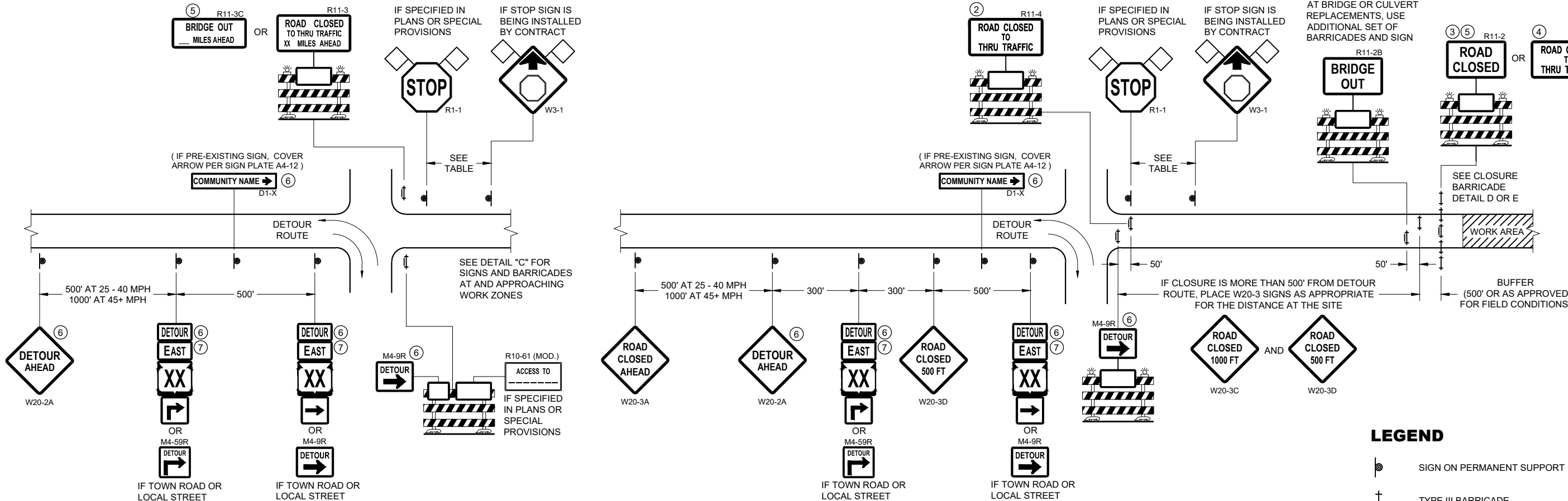
FHWA

/S/ Jerry H. 7----

ROADWAY STANDARDS 60

ENGINEER

ENT



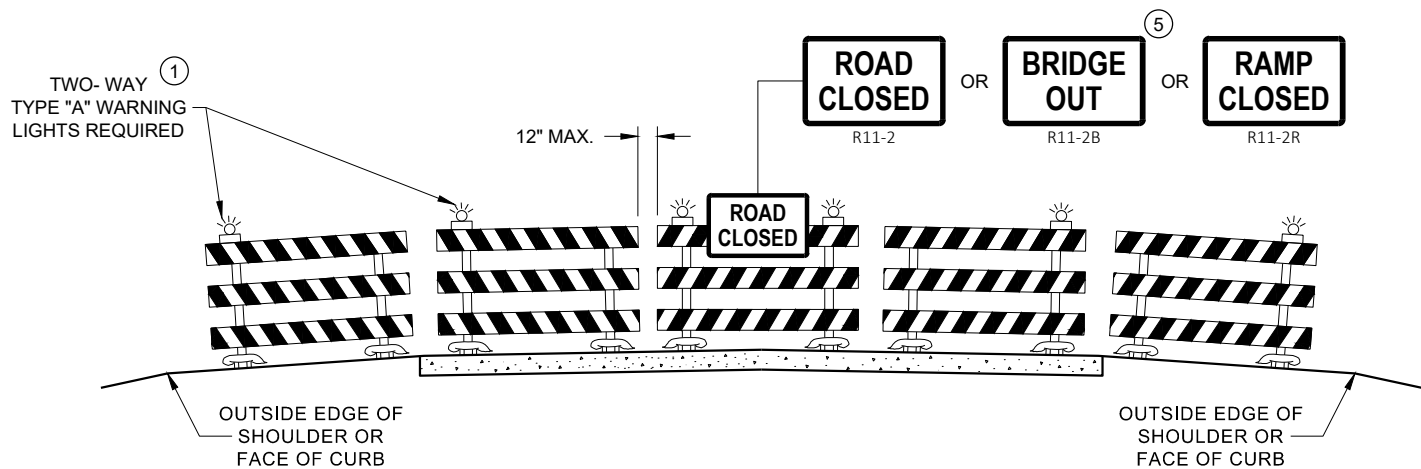
SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

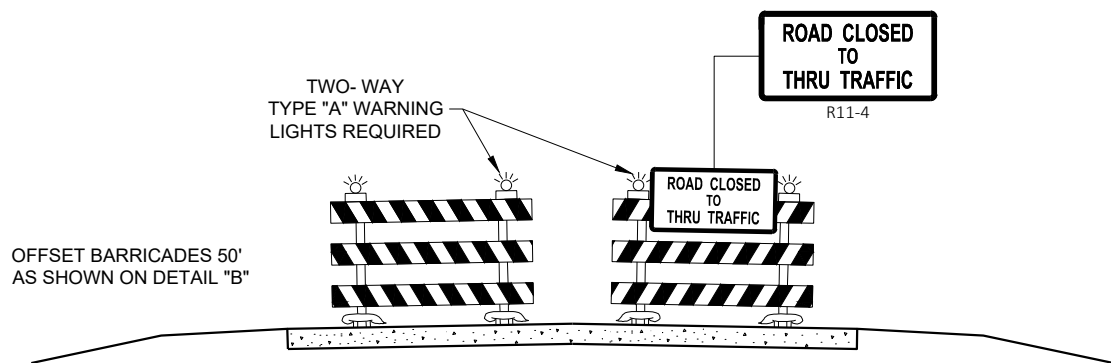
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APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 61

FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

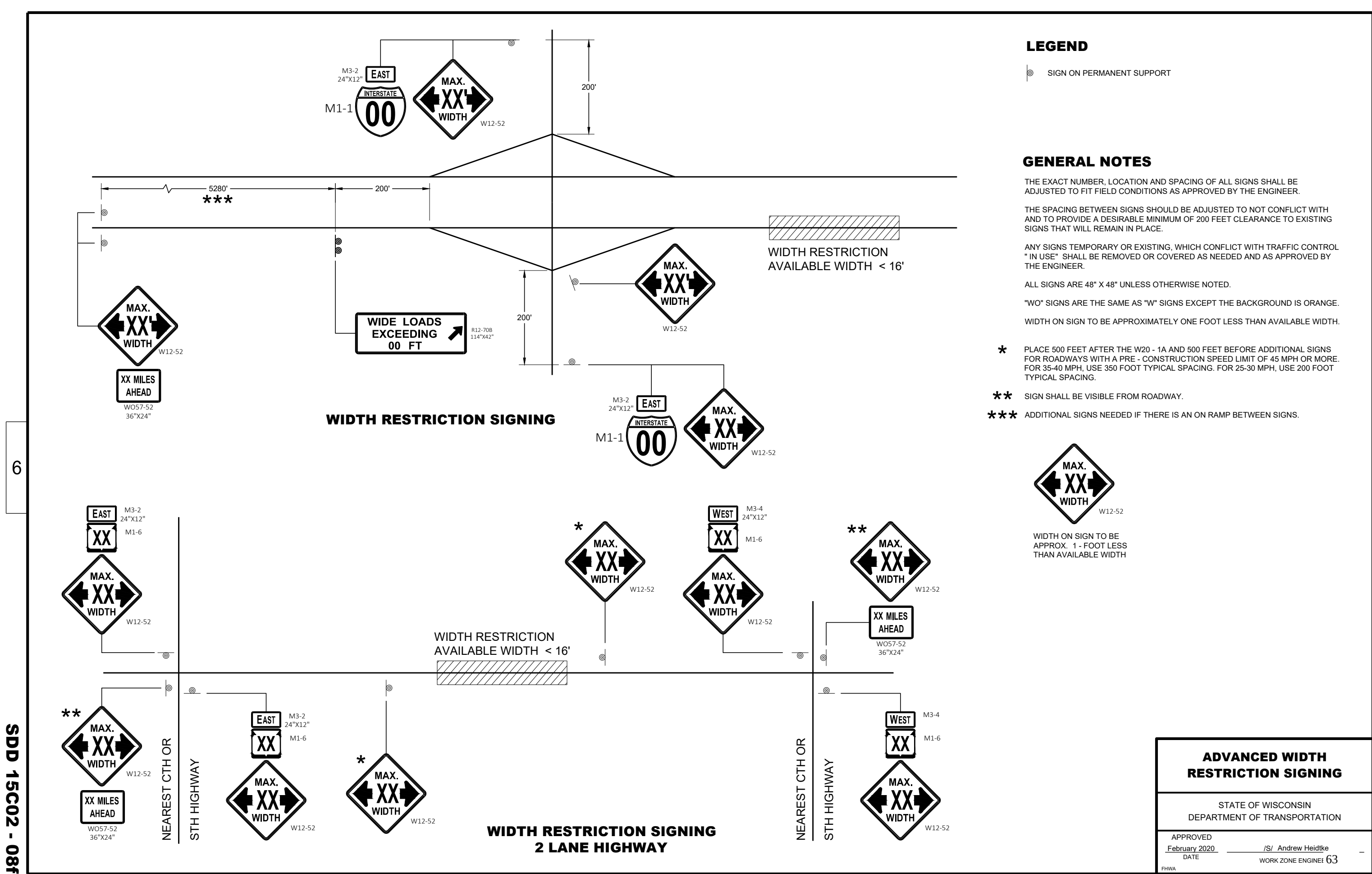
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE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

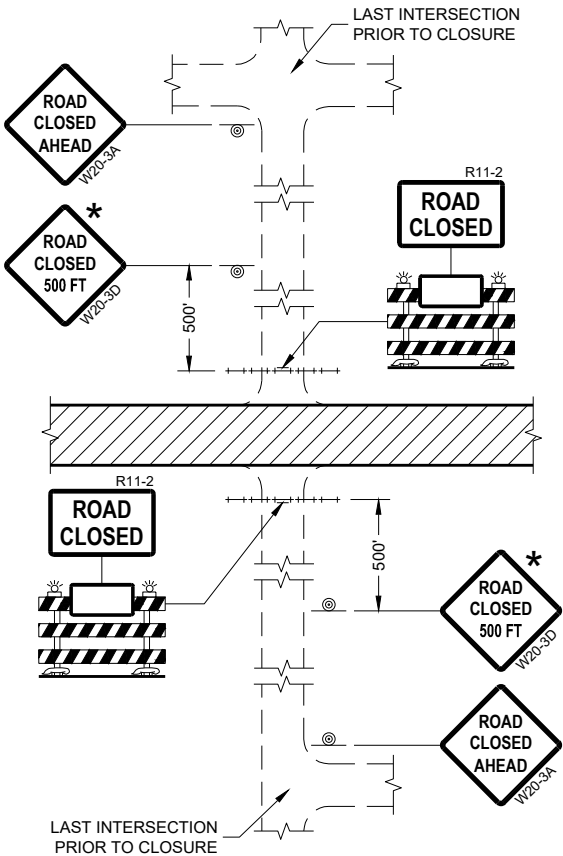
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS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

BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES

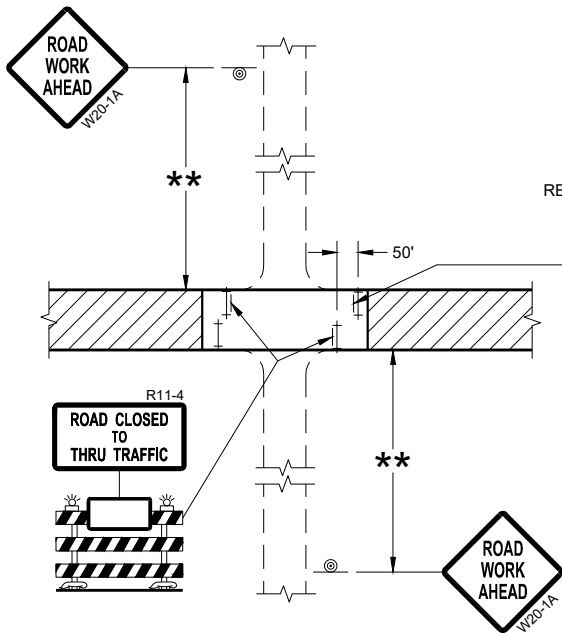
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 62
FHWA

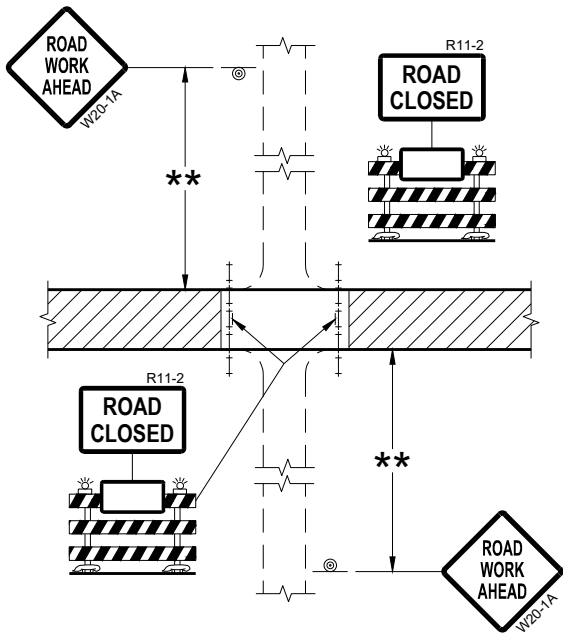




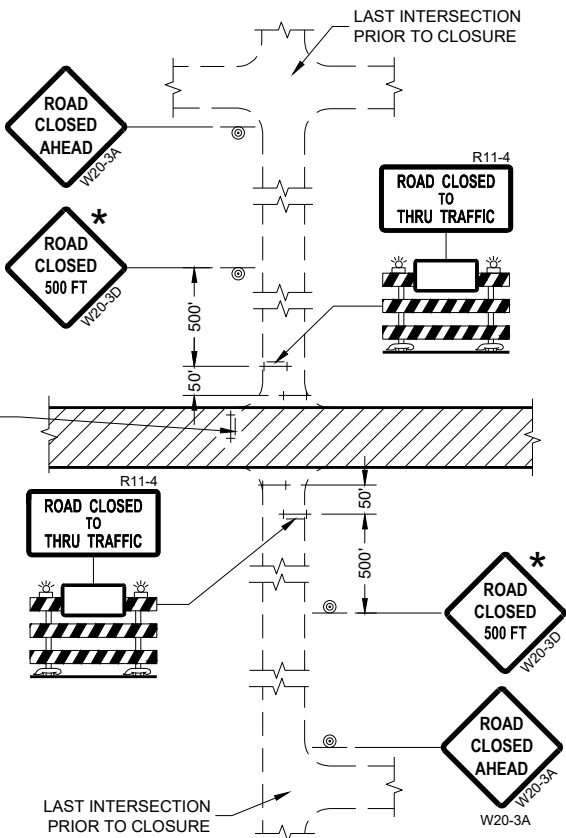
DETAIL 1
(NO ACCESS TO PROJECT)



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

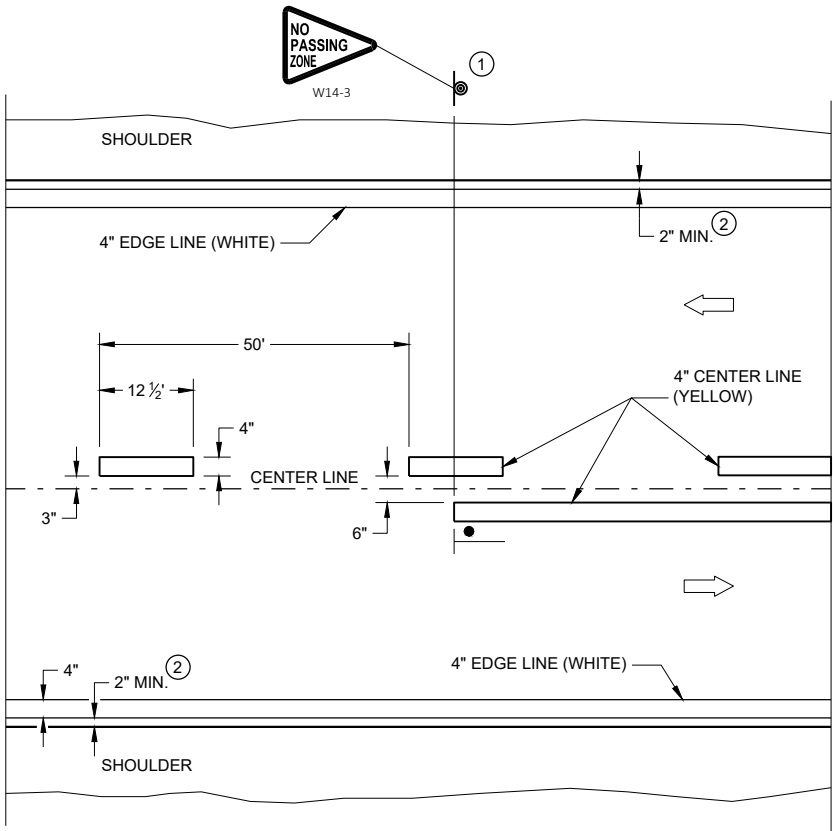
- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

**BARRICADES AND SIGNS
FOR
SIDEROAD CLOSURES**

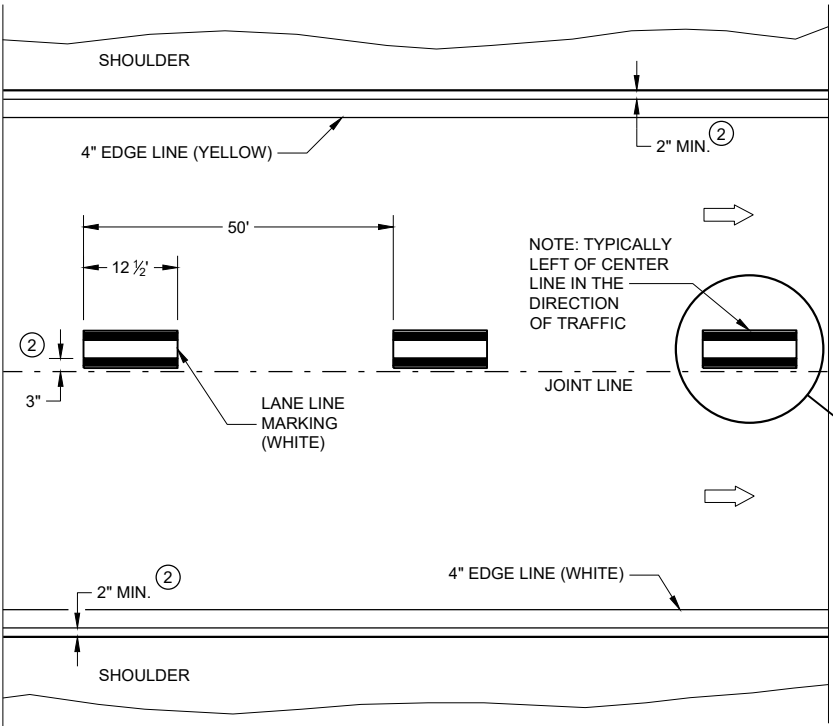
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 64

FHWA

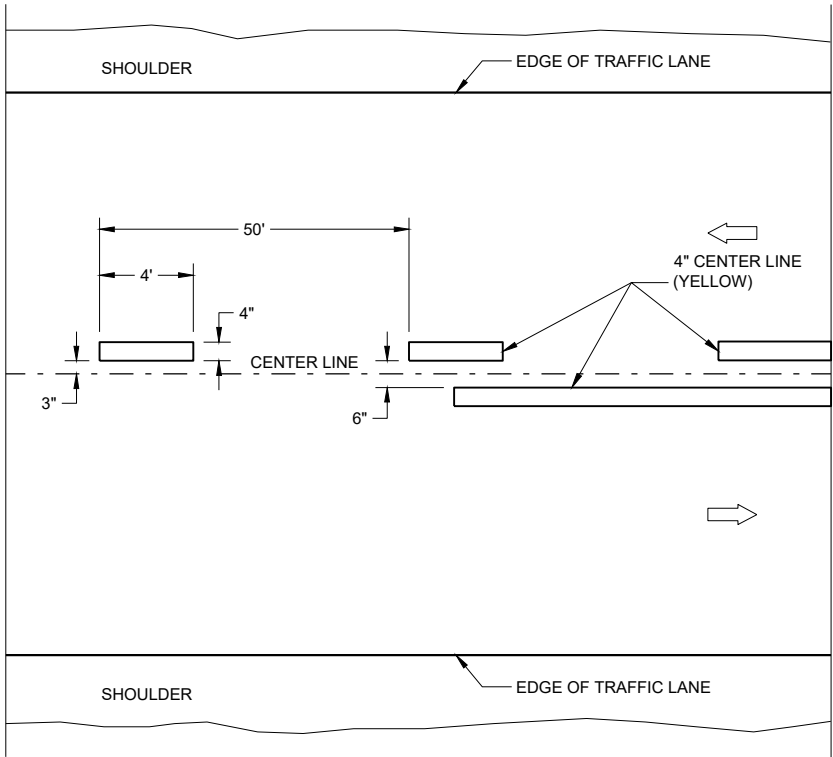


TWO WAY TRAFFIC

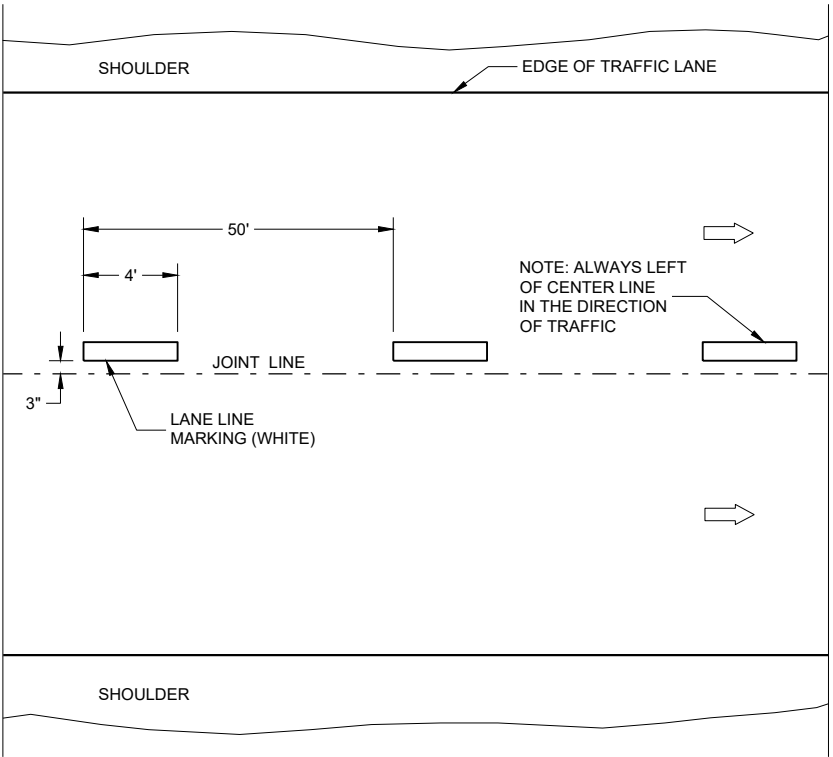


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

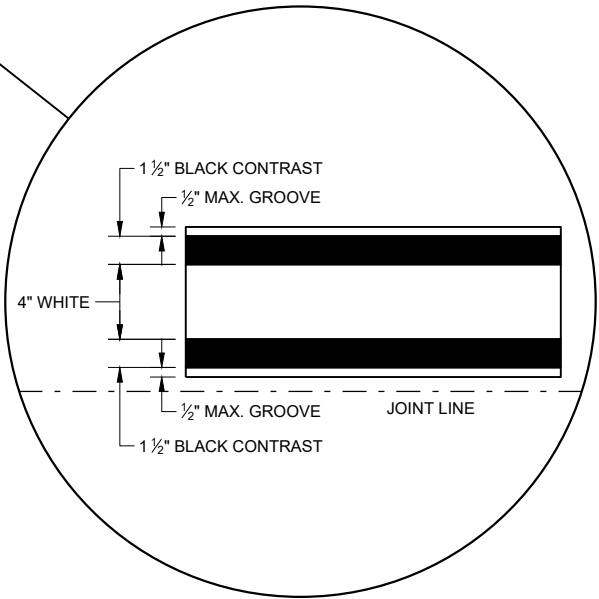
GENERAL NOTES

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
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

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



LONGITUDINAL MARKING
(MAINLINE)

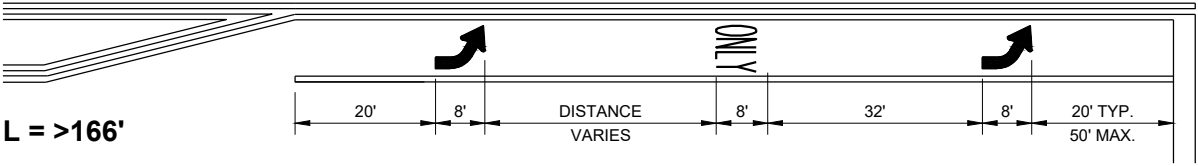
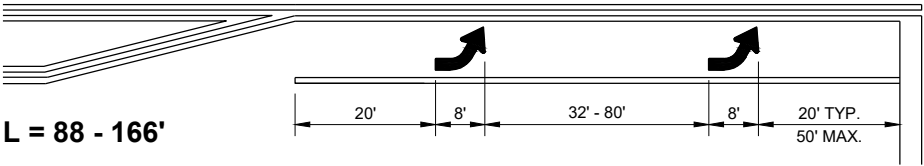
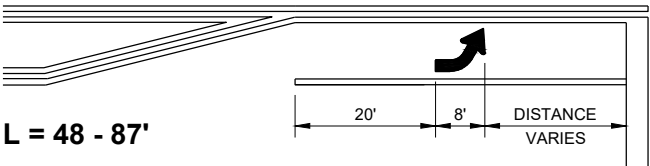
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE
/S/ Matthew Rauch
STATEWIDE SIGNING AND MARKING
ENGINEER 65

FHWA

TURN LANE OPTIONS

LENGTH OF TURN BAY (L) OF 0 - 47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



*(SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

GENERAL NOTES

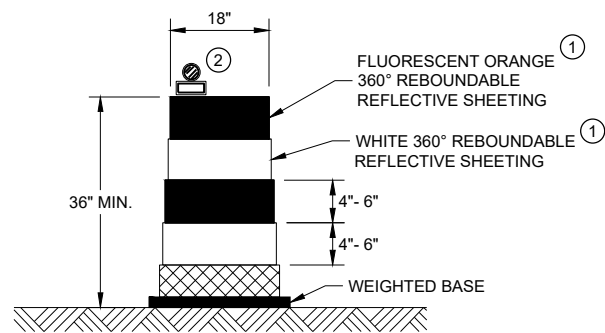
- ① 8" WHITE
- ② QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

➡ DIRECTION OF TRAFFIC

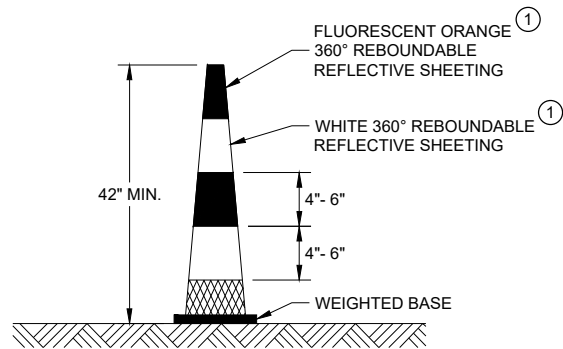
L = LENGTH OF TURN BAY

PAVEMENT MARKING (TURN LANES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

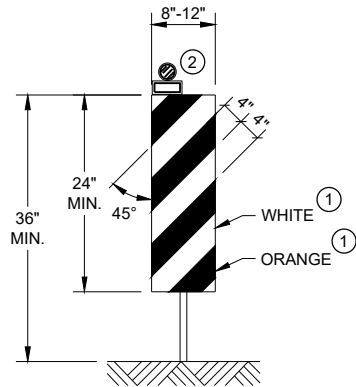


DRUM



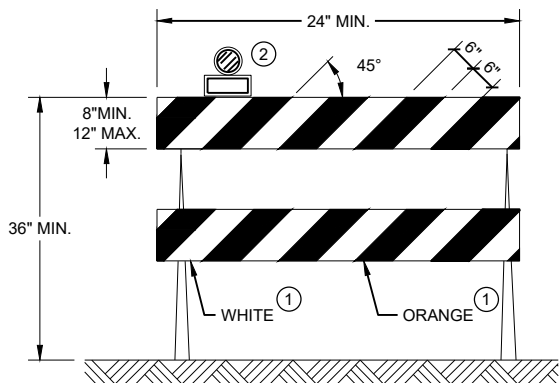
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



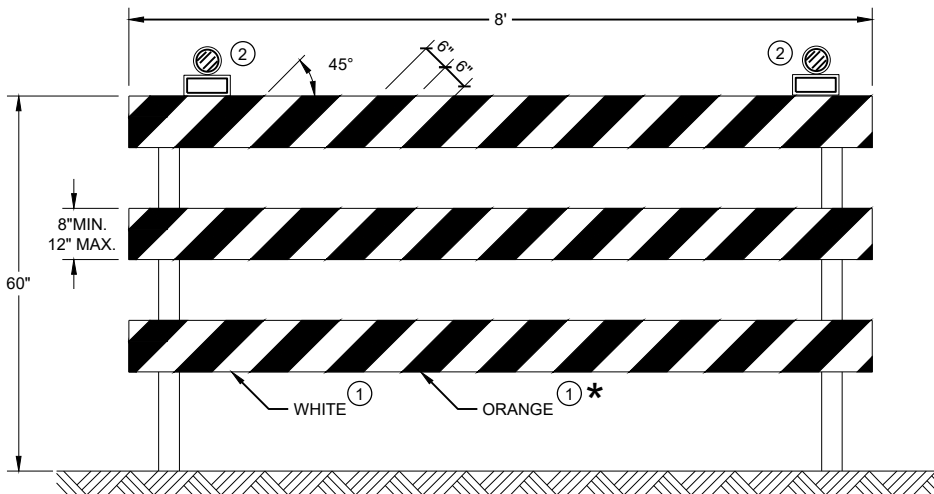
VERTICAL PANEL

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
May 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 67
FHWA

LEGEND

-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  TEMPORARY PORTABLE RUMBLE STRIP ARRAY
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

GENERAL NOTES

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

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

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

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR 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.

FLAGGING

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

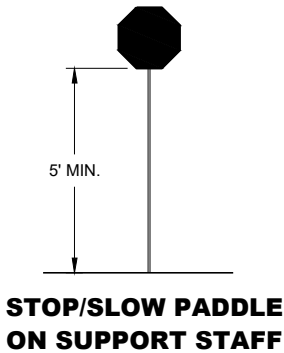
③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FOR THE APPROVED PRODUCTS LIST.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

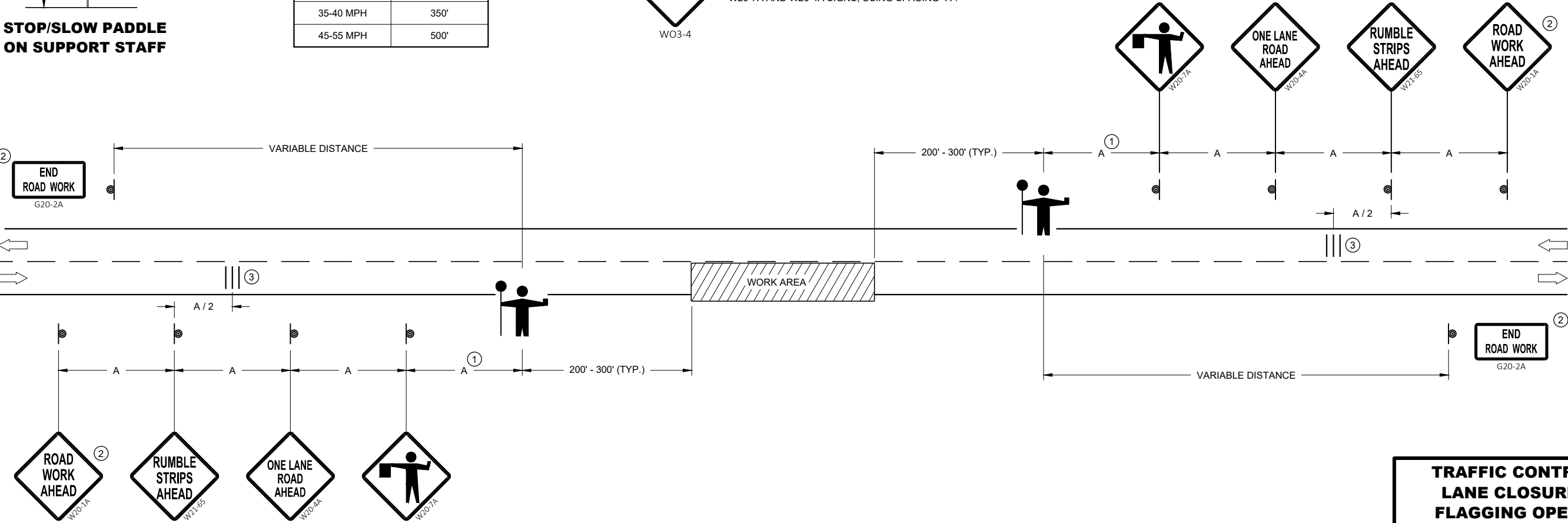


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 68

FHWA

GENERAL NOTES

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

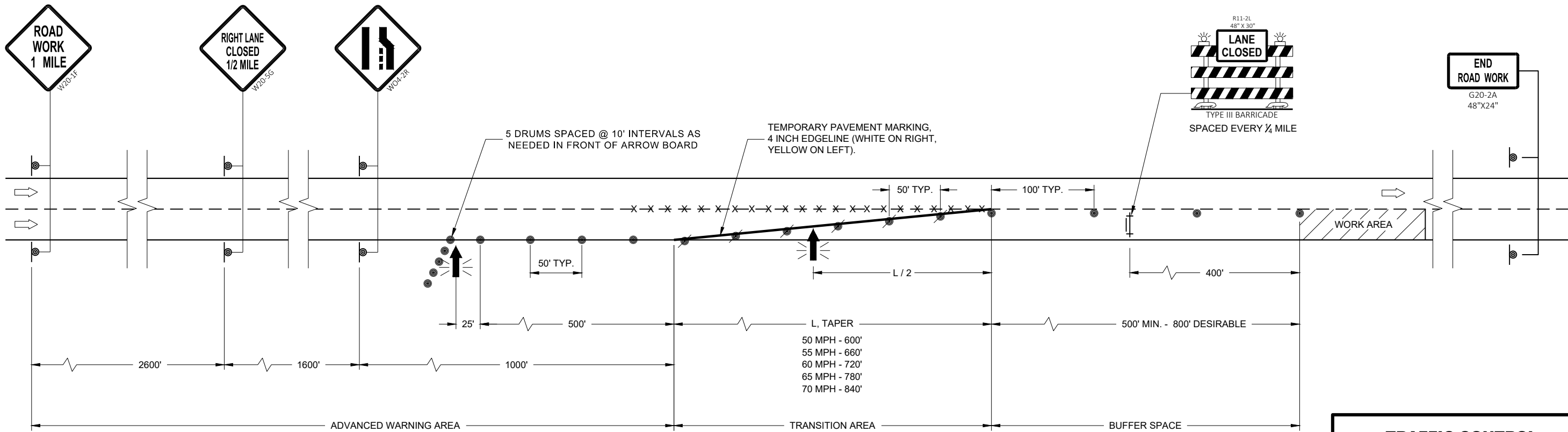
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS

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

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



TRAFFIC CONTROL LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2020 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER 70
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" SIGNS ARE THE SAME AS "W" SIGNS 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.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE 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 4 OR MORE CONTINUOUS 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 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.

* 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 A MINIMUM OF EVERY 3 MILES. INCLUDE A RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIRABLE) BEYOND THE "END OF ROADWORK" SIGN.

LEGEND

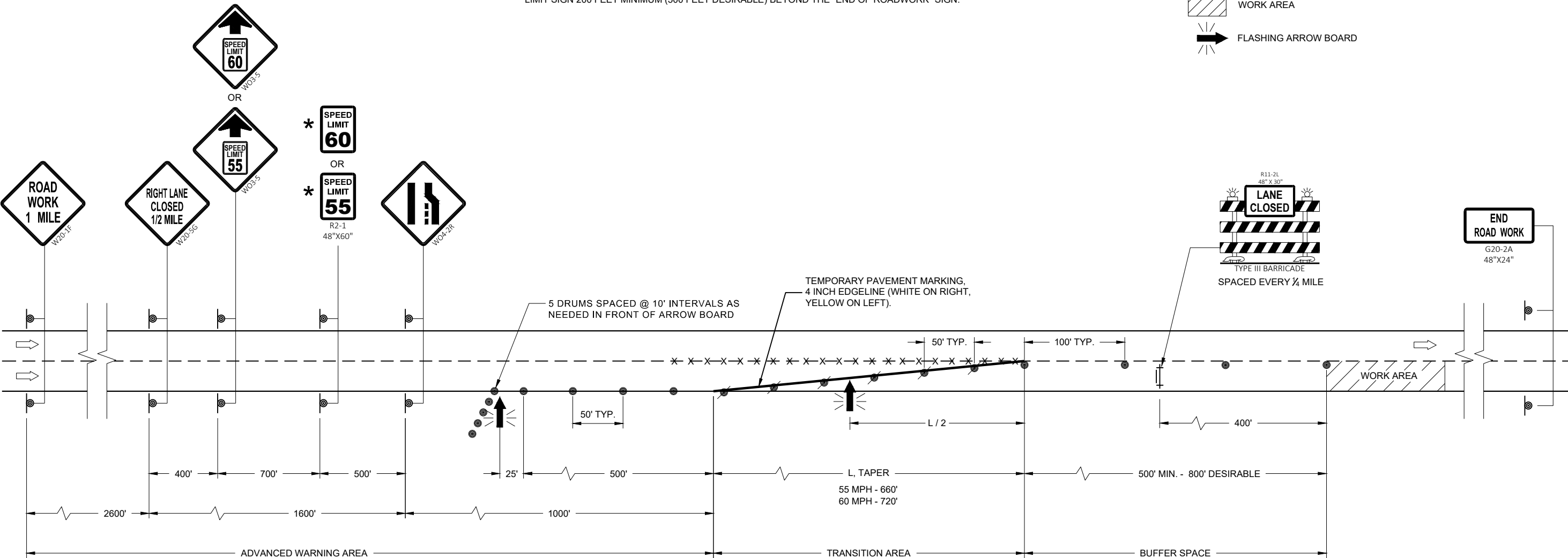
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)

✕ ✕ ✕ REMOVING PAVEMENT MARKINGS

➡ DIRECTION OF TRAFFIC

WORK AREA

FLASHING ARROW BOARD



TRAFFIC CONTROL,
LANE CLOSURE,
SPEED REDUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 71

FHWA

LEGEND

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

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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

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

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

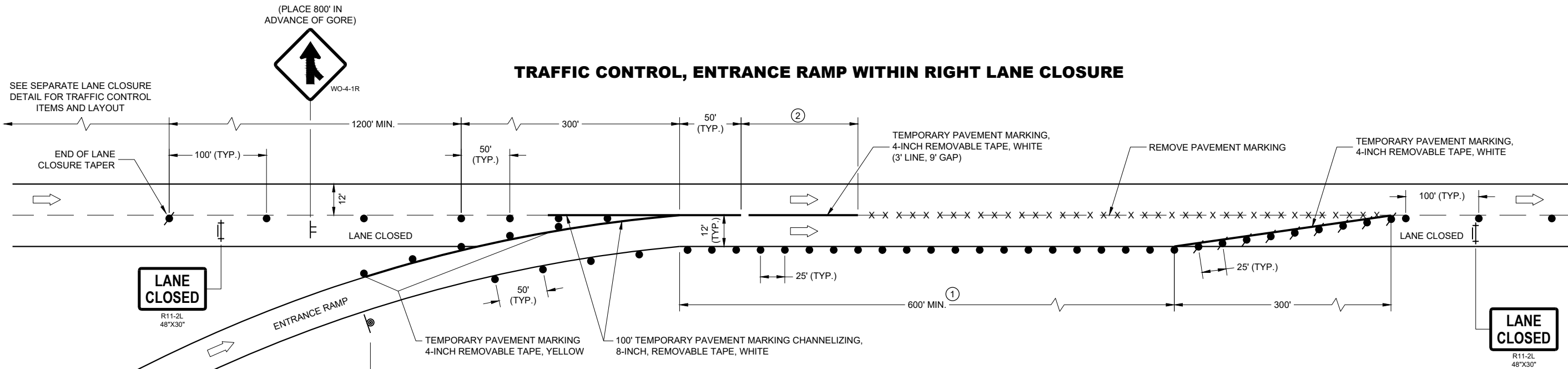
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

- ① EXTEND THE LENGTH OF THE MERGE ARE IF THE ENTERING (DESIGN) SPEED IS LESS THAN 50MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY MARKING AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.

TRAFFIC CONTROL, ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE



PARALLEL EXIT RAMP

TRAFFIC CONTROL,
PARALLEL ENTRANCE RAMP
WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 72

FHWA

LEGEND

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

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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

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

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS /OR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

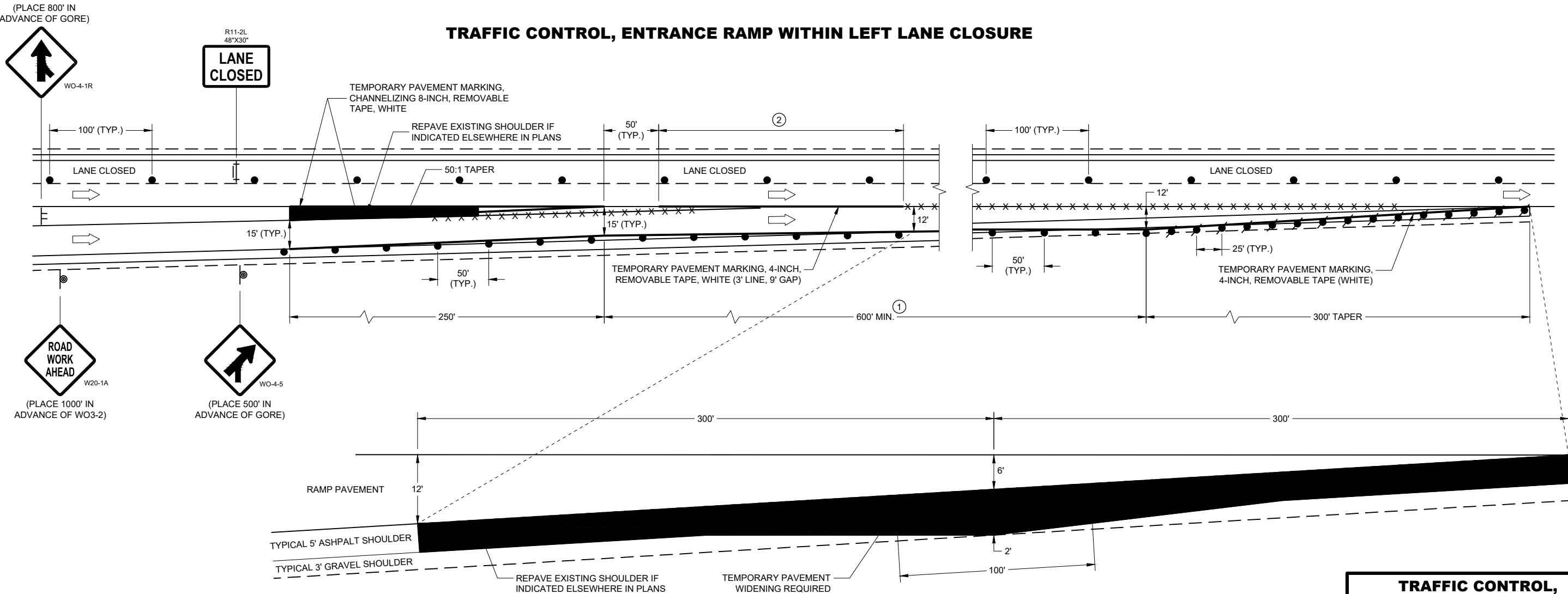
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

- ① EXTEND THE LENGTH OF THE MERGE AREA IF THE ENTERING (DESIGN) SPEED OF THE RAMP IS LESS THAN 50 MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY MARKING AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.

TRAFFIC CONTROL, ENTRANCE RAMP WITHIN LEFT LANE CLOSURE



TEMPORARY PAVEMENT DETAIL

(EXISTING RAMP DIMENSIONS MAY VARY, ADJUST TEMPORARY PAVEMENT ACCORDINGLY)

TRAFFIC CONTROL,
ENTRANCE RAMP
WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 73

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE WITH ATTACHED SIGN
- FLAGS, 16" X 16" MIN., ORANGE
- DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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

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

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

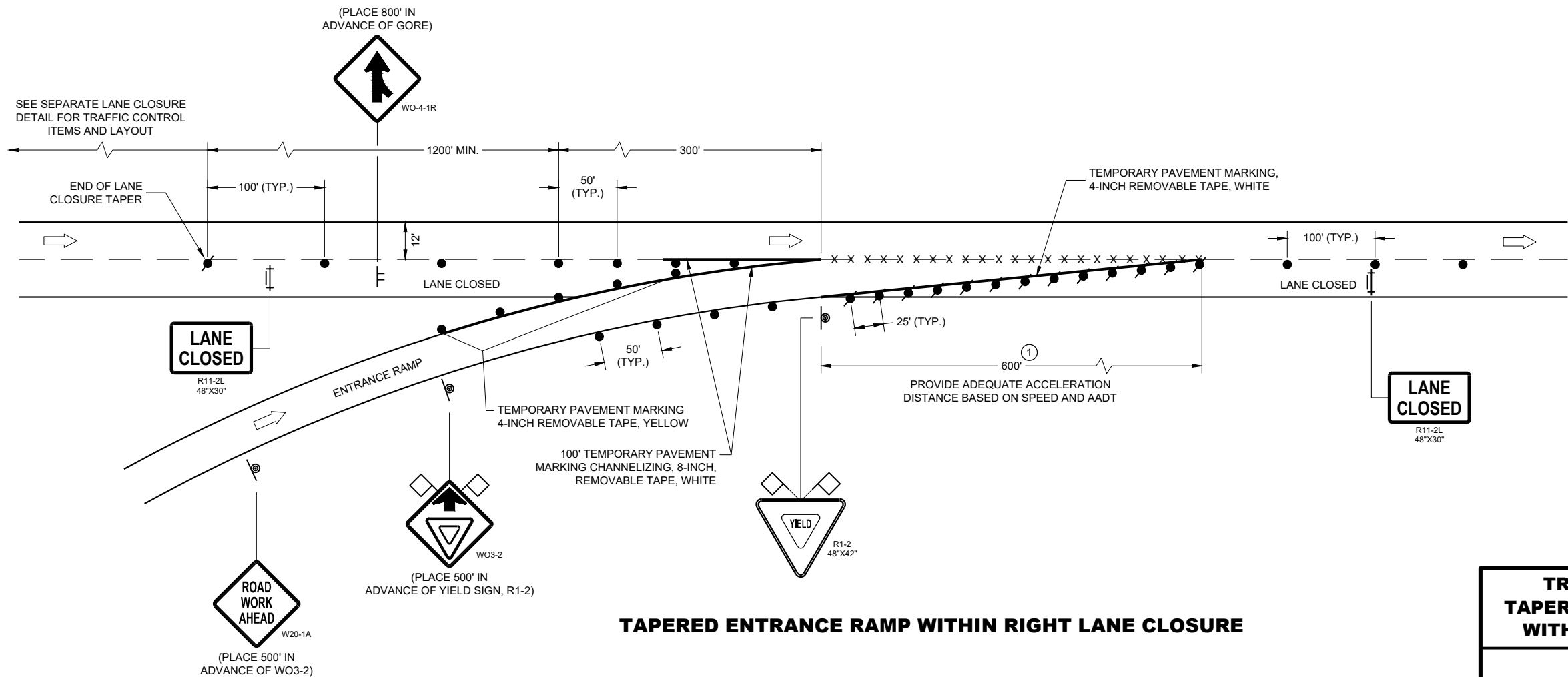
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

① CONSULT WITH REGIONAL WORK ZONE ENGINEER IF NEED TO REDUCE LENGTH EXISTS.



TAPERED ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE

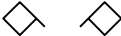
**TRAFFIC CONTROL,
TAPERED ENTRANCE RAMP
WITHIN LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 74

FHWA

LEGEND

- | | |
|---|--|
|  | SIGN ON PERMANENT SUPPORT |
|  | SIGN ON TEMPORARY SUPPORT |
|  | TRAFFIC CONTROL DRUM |
|  | TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT |
|  | TYPE III BARRICADE WITH ATTACHED SIGN |
|  | FLAGS, 16" X 16" MIN., ORANGE |
|  | DIRECTION OF TRAFFIC |

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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

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

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

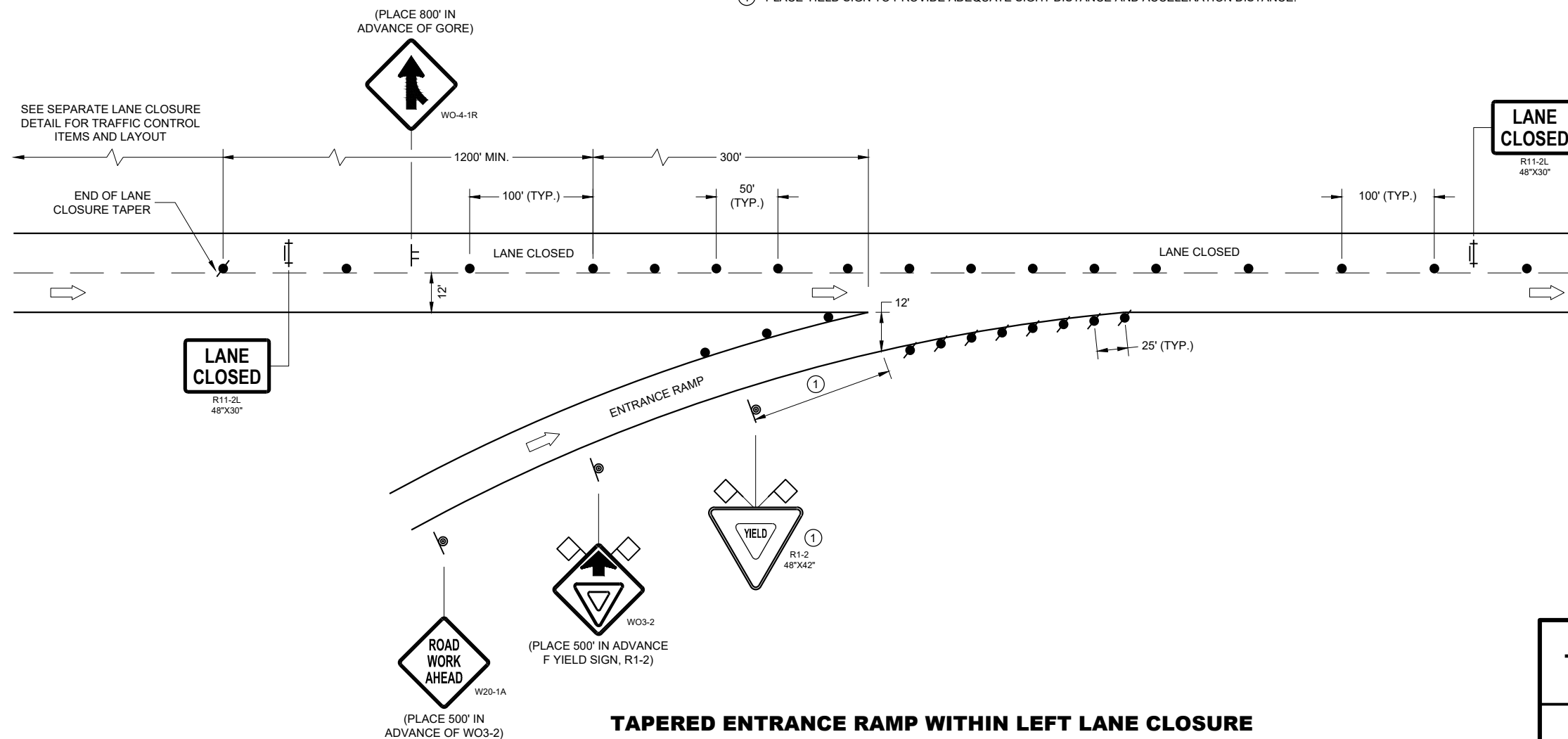
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

- ① PLACE YIELD SIGN TO PROVIDE ADEQUATE SIGHT DISTANCE AND ACCELERATION DISTANCE.



**TRAFFIC CONTROL,
TAPERED ENTRANCE RAMP
WITHIN LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019
 DATE

/S/ Andrew Heidtke
 WORK ZONE ENGINEER

75

FHWA

LEGEND

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

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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

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

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

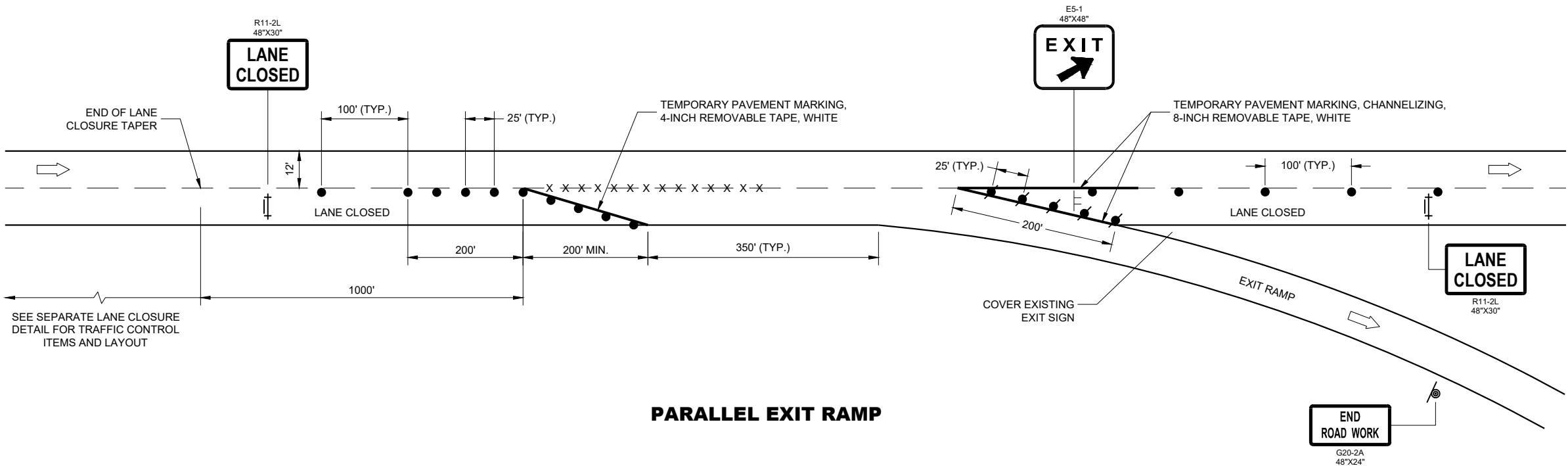
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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



PARALLEL EXIT RAMP

**TRAFFIC CONTROL,
PARALLEL EXIT RAMP
WITHIN LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 76

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.

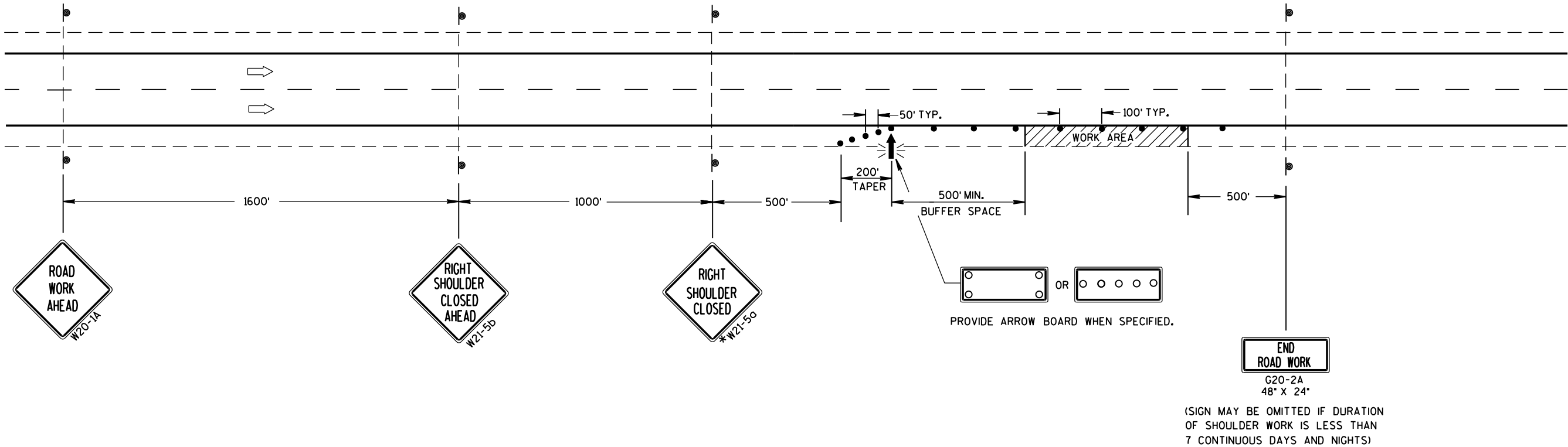
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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	/S/ Peter Amakobe Atepe	
DATE	STATEWIDE WORK ZONE	IC
FHWA	SAFETY ENGINEER	

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  WORK ZONE

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.

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

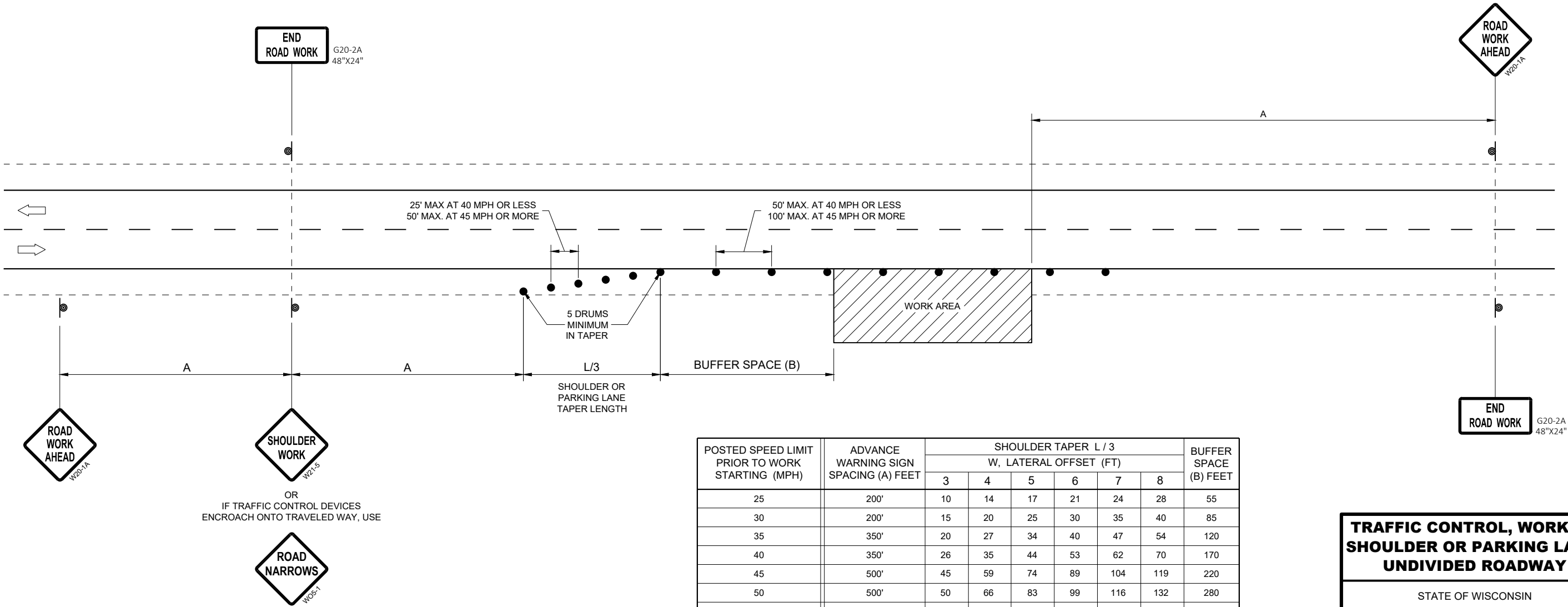
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

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

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

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

W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.



POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3 W, LATERAL OFFSET (FT)						BUFFER SPACE (B) FEET
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	55
30	200'	15	20	25	30	35	40	85
35	350'	20	27	34	40	47	54	120
40	350'	26	35	44	53	62	70	170
45	500'	45	59	74	89	104	119	220
50	500'	50	66	83	99	116	132	280
55	500'	54	73	91	109	127	145	335'

TRAFFIC CONTROL, WORK ON
SHOULDER OR PARKING LANE,
UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

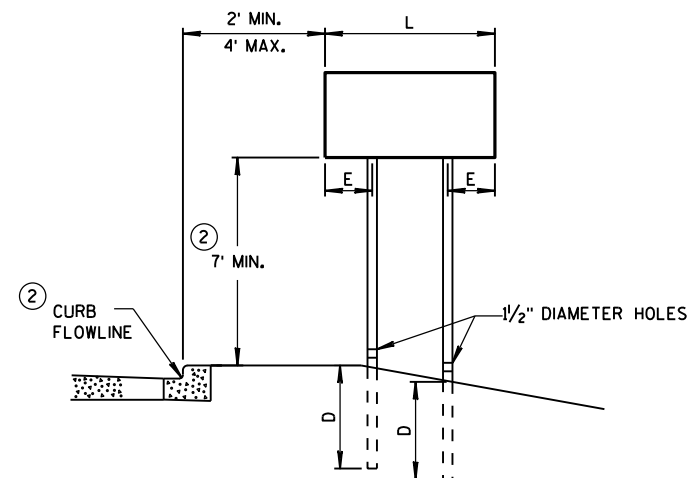
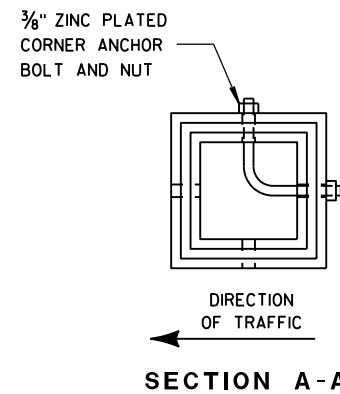
APPROVED
May 2020
DATE
/S/ Andrew Heidtke
STATEWIDE WORK ZONE T
SAFETY ENGINEER 78
FHWA



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.

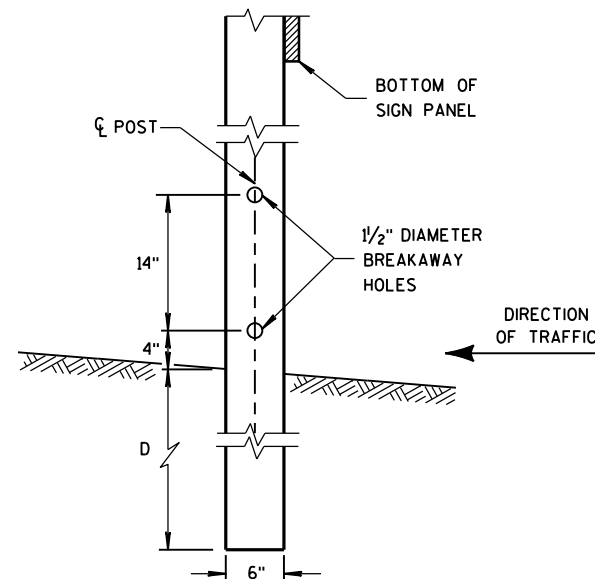


URBAN AREA

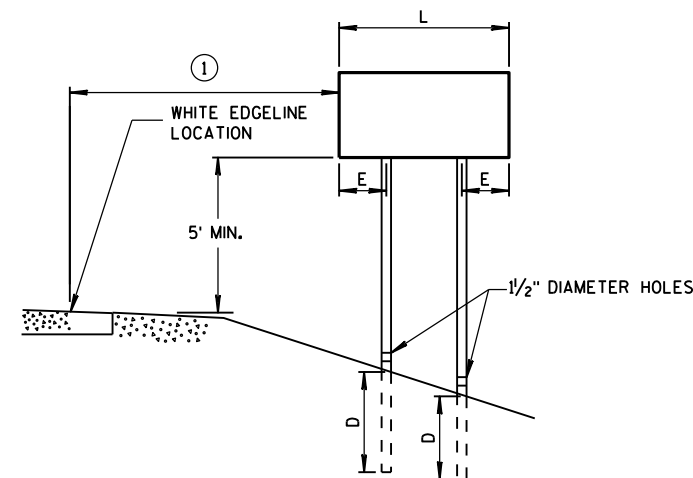
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST
EMBEDMENT DEPTH

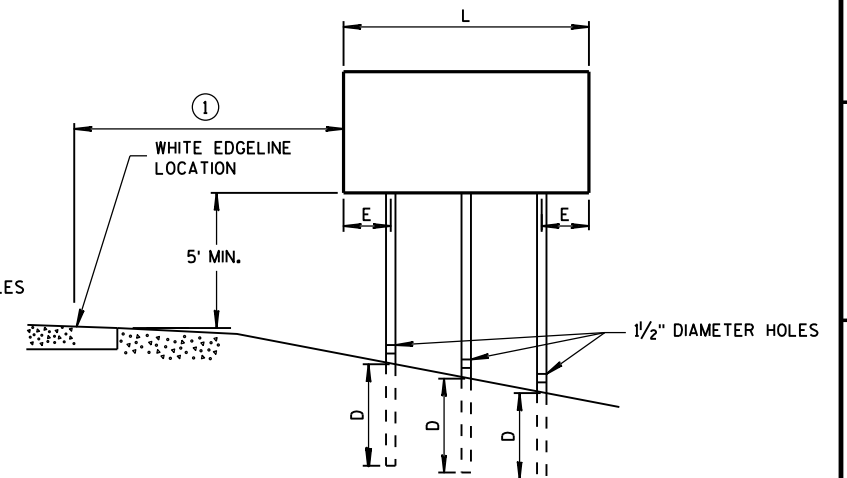
AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



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.

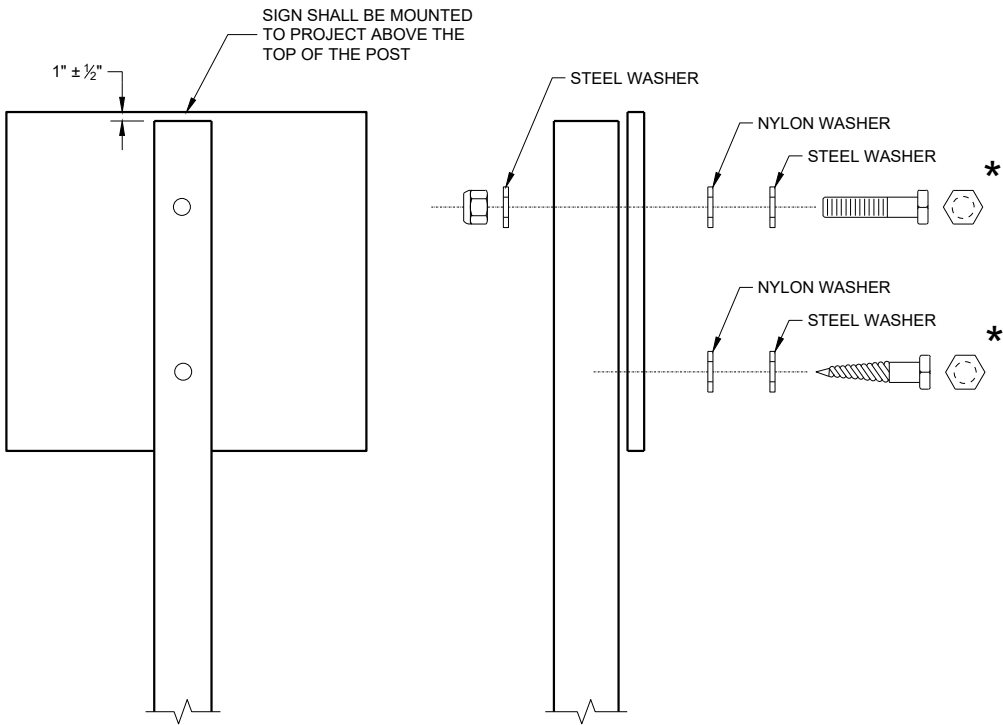
4" X 6" WOOD POST

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 79



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

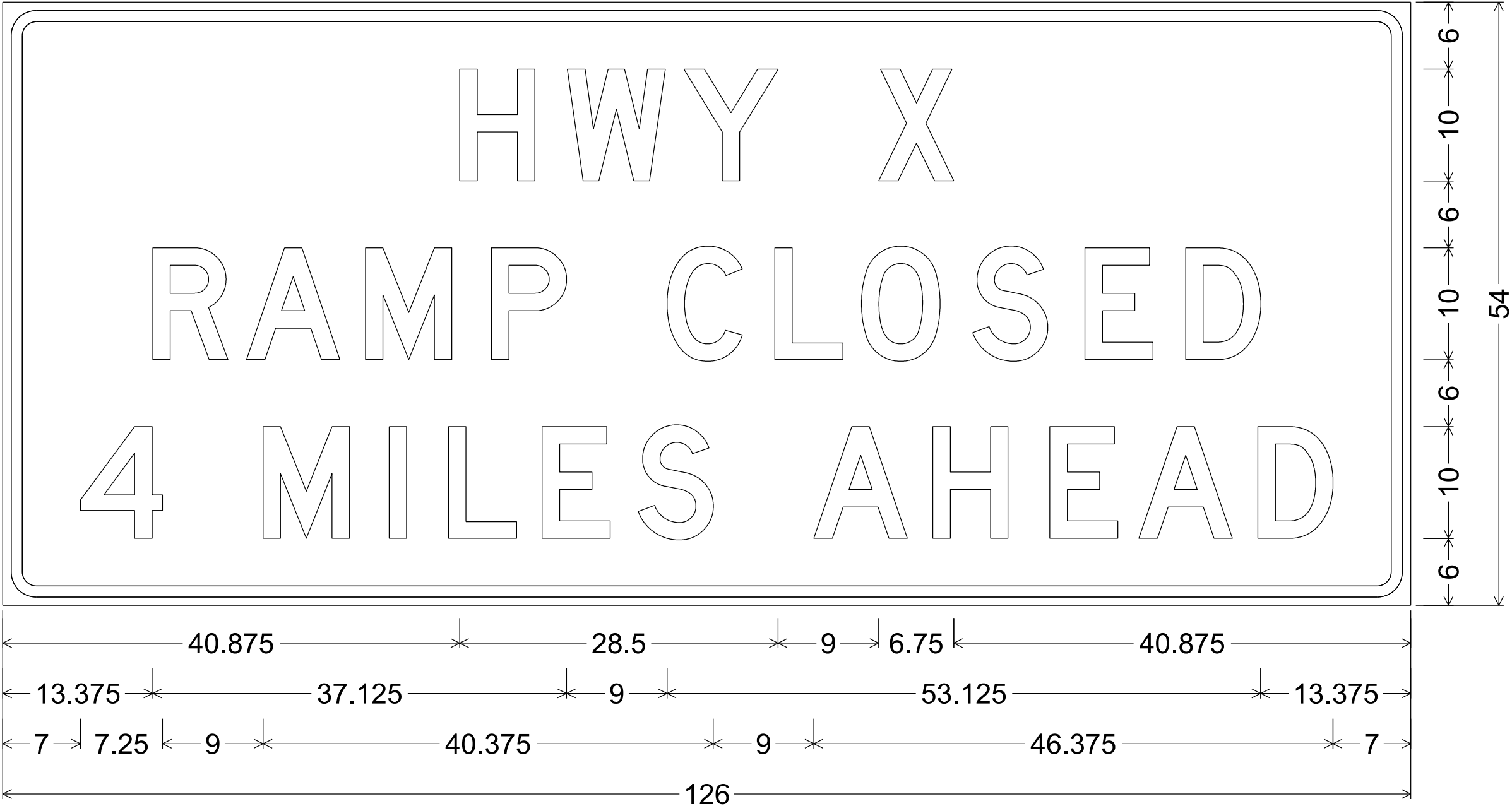
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER 80

FHWA

NOTES

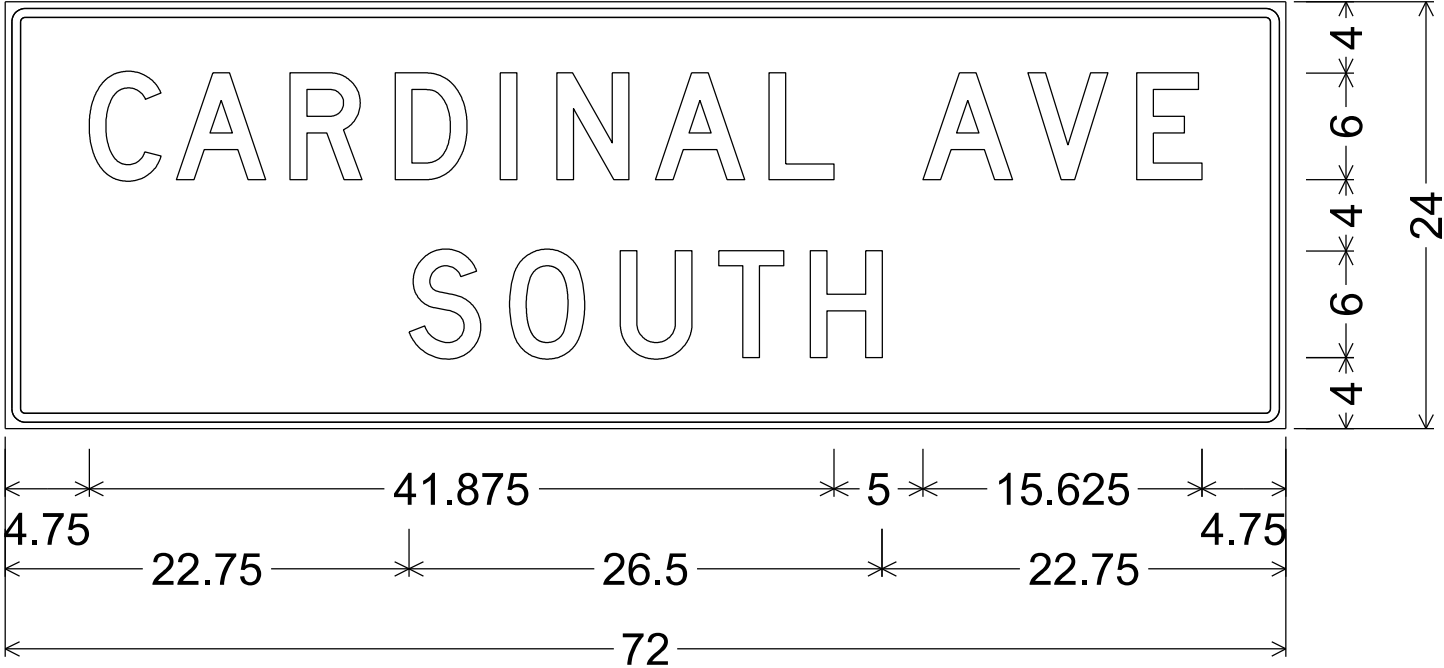
- 1. Fixed Message Sign Type II- Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - D



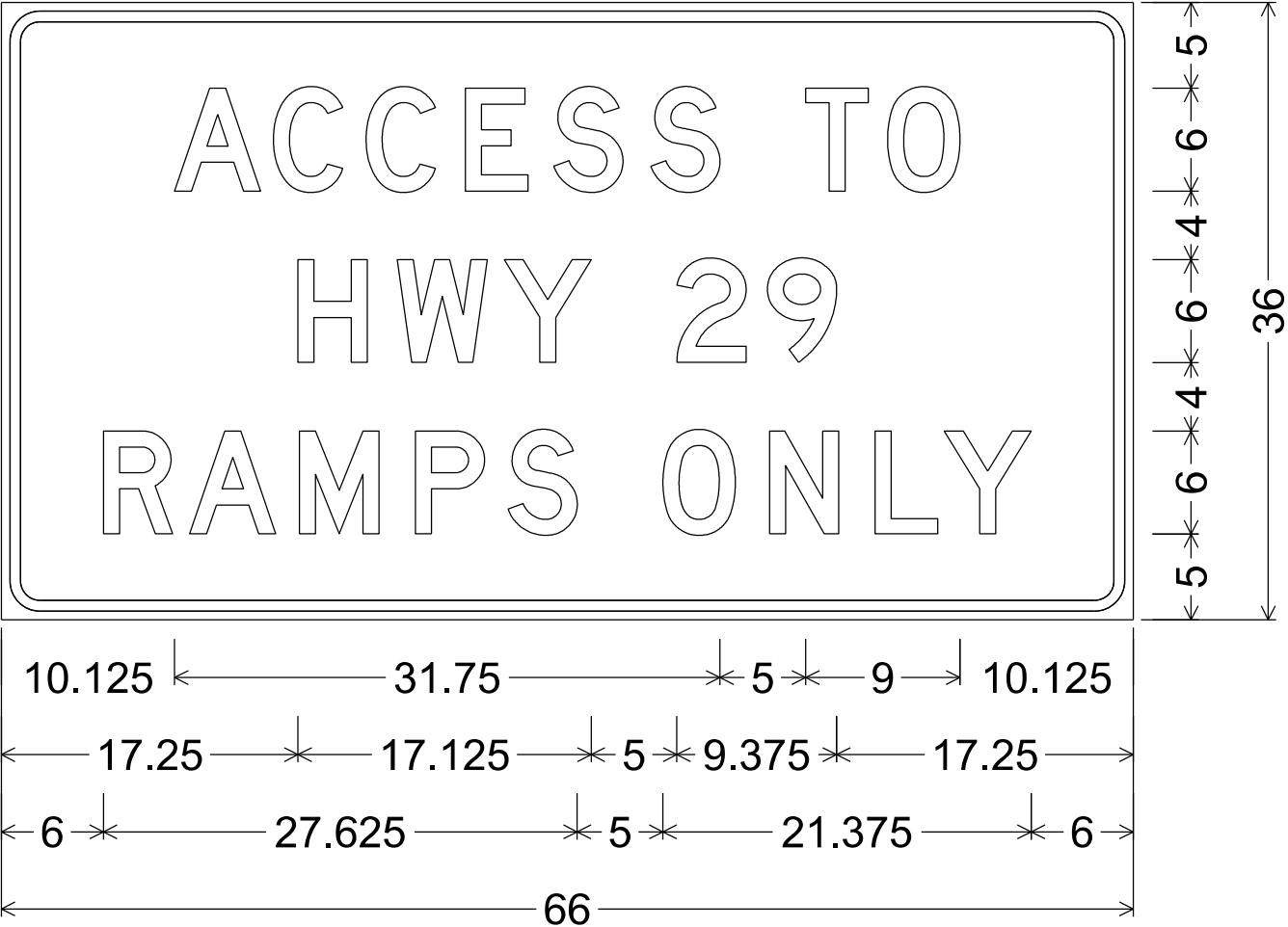
3.000" Radius, 1.000" Border, 0.750" Indent

NOTES

- 1. Fixed Message Sign Type II- Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - D



1.125" Radius, 0.500" Border, 0.375" Indent



2.250" Radius, 0.625" Border, 0.500" Indent

DESIGN DATA

LIVE LOAD:

DESIGN LOADING _____ HS20
INVENTORY RATING _____ HS-30
OPERATIONAL RATING _____ HS-50
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) _____ 250 KIPS

TRAFFIC DATA:

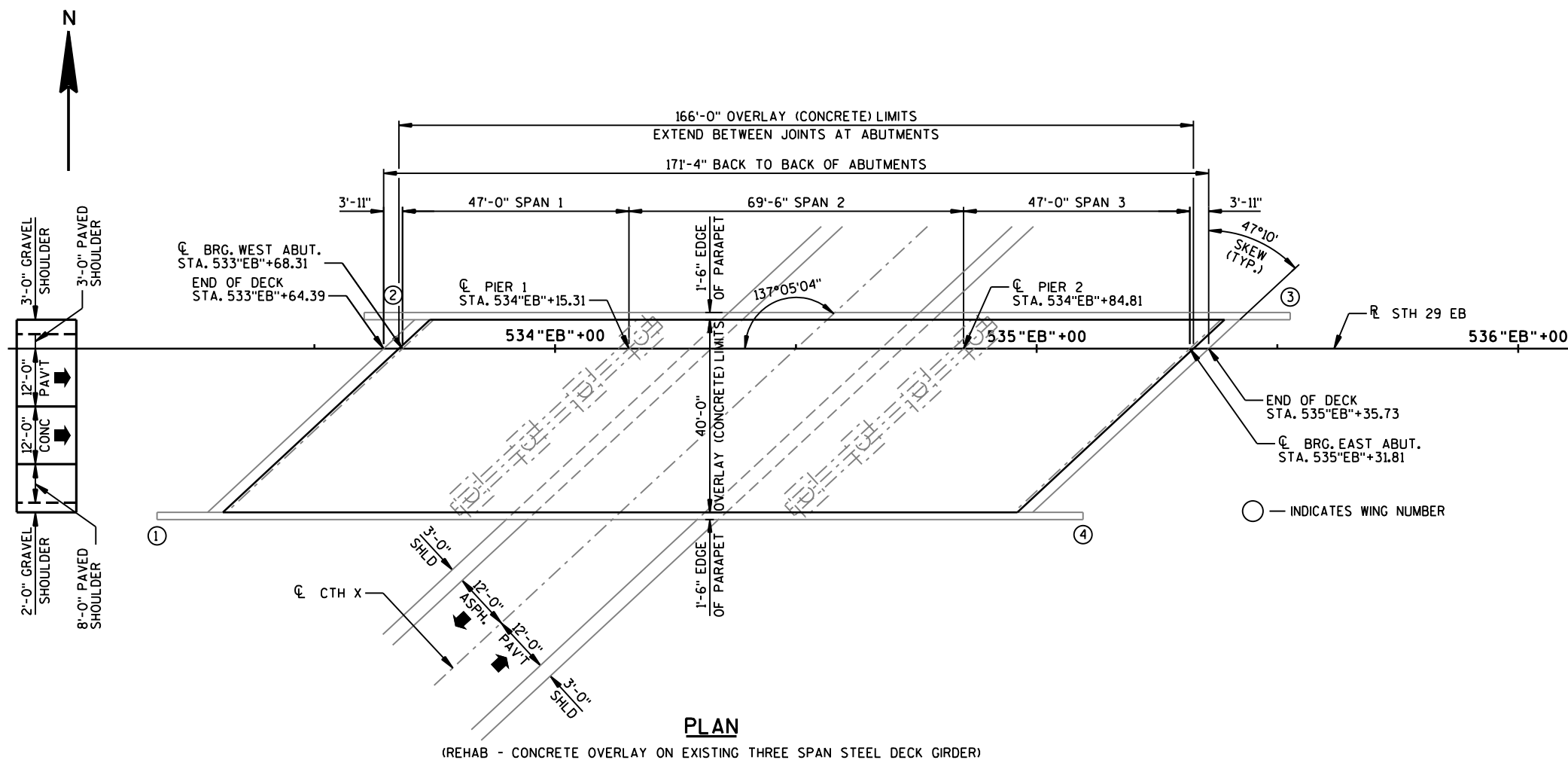
A.A.D.T. (2022) = 9,350
A.A.D.T. (2042) = 11,300

MATERIAL PROPERTIES:

CONCRETE MASONRY - OVERLAY DECKS _____ f'_c = 4,000 P.S.I.
- ALL OTHER _____ f'_c = 4,000 P.S.I.
HIGH STRENGTH BAR STEEL
REINFORCEMENT, GRADE 60 _____ f'_y = 60,000 P.S.I.

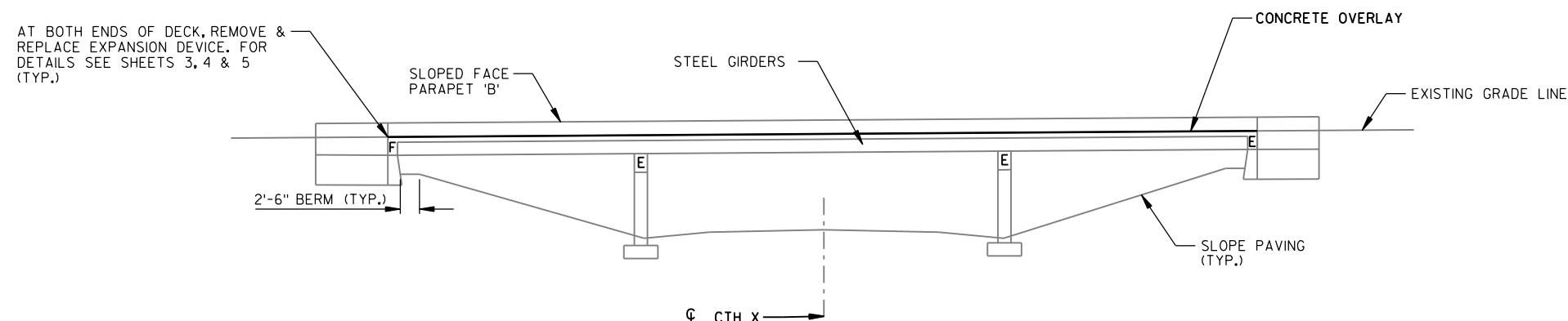
LIST OF DRAWINGS

1. REHAB GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES & NOTES
3. REMOVAL DETAILS
4. STRIP SEAL EXPANSION JOINT
5. STRIP SEAL EXPANSION JOINT DETAILS



PLAN

(REHAB - CONCRETE OVERLAY ON EXISTING THREE SPAN STEEL DECK GIRDER)



ELEVATION

(LOOKING NORTH)

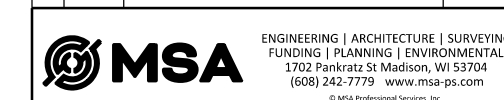
DESIGN CONTACT:

KYLE BUSCH
(608) 216-2063

BRIDGE OFFICE CONTACT:

AARON BONK
(608) 261-0261

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



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED *[Signature]* SDR 08/09/21
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-9-20

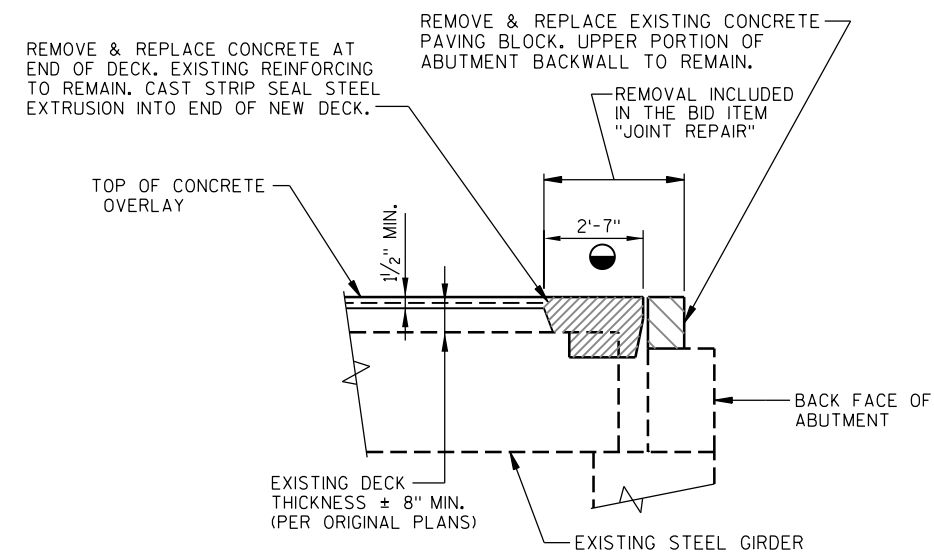
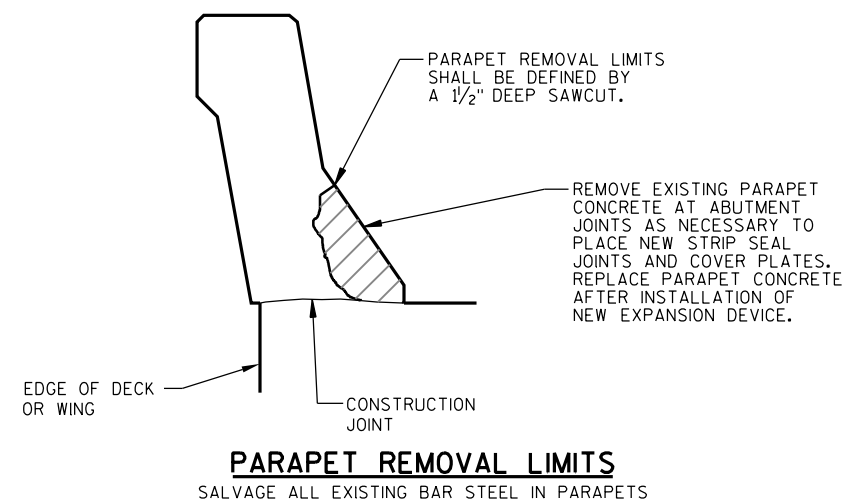
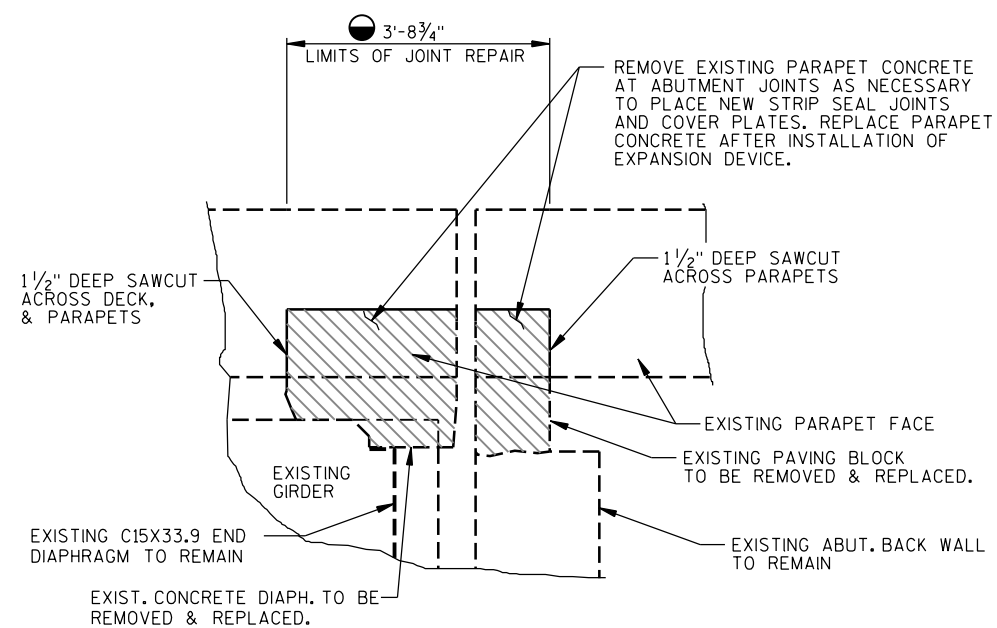
STH 29 EB OVER CTH X

COUNTY CHIPPEWA TOWN/CITY/VILLAGE SIGEL

DESIGN SPEC.
REHABILITATION - N/A
DESIGNED BY JFM DESIGN CK'D. KHB DRAWN BY RLR PLANS CK'D. KHB

REHAB
GENERAL PLAN
SHEET 1 OF 5
83

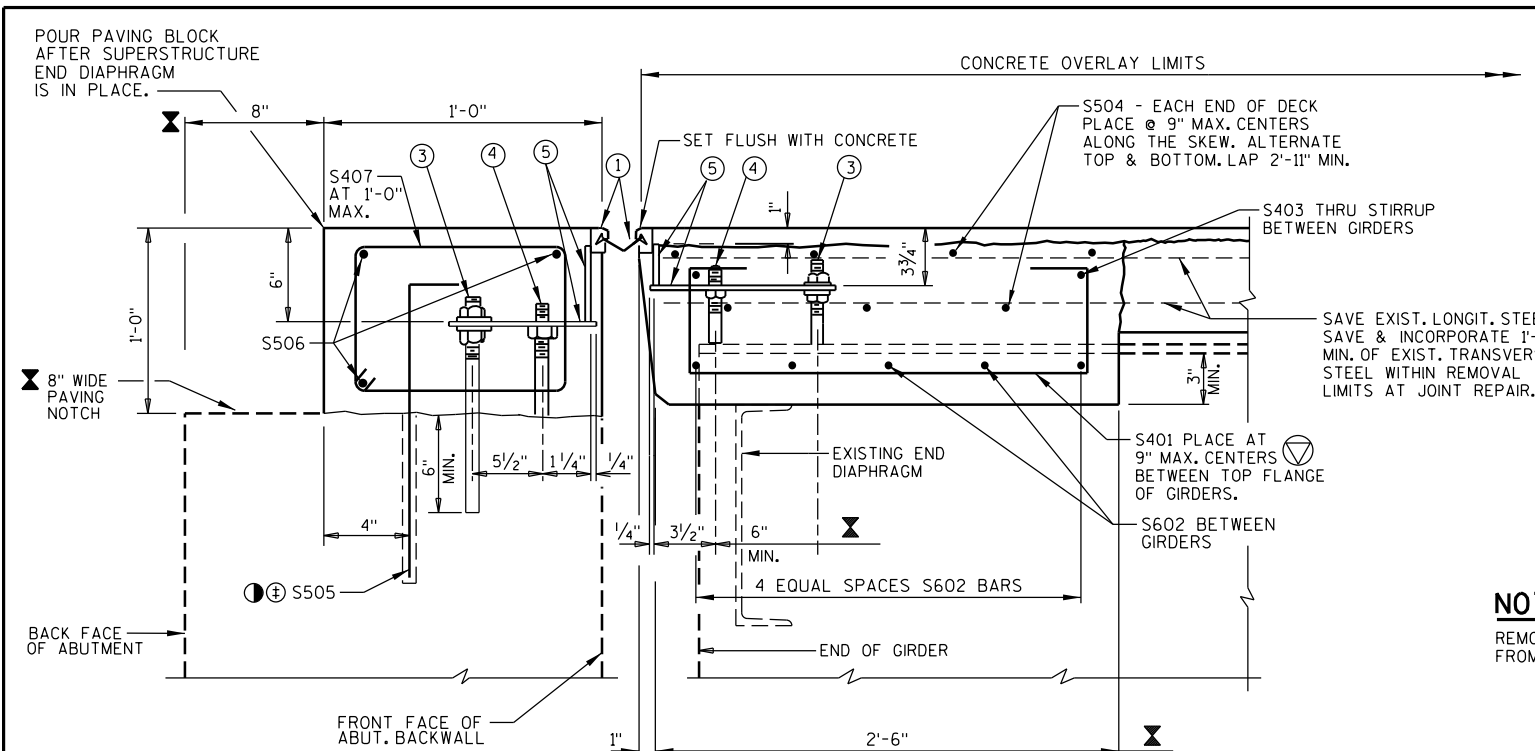


**PART LONGITUDINAL SECTION****REMOVAL DETAIL**

— DIMENSION GIVEN NORMAL TO ϕ OF ABUTMENT

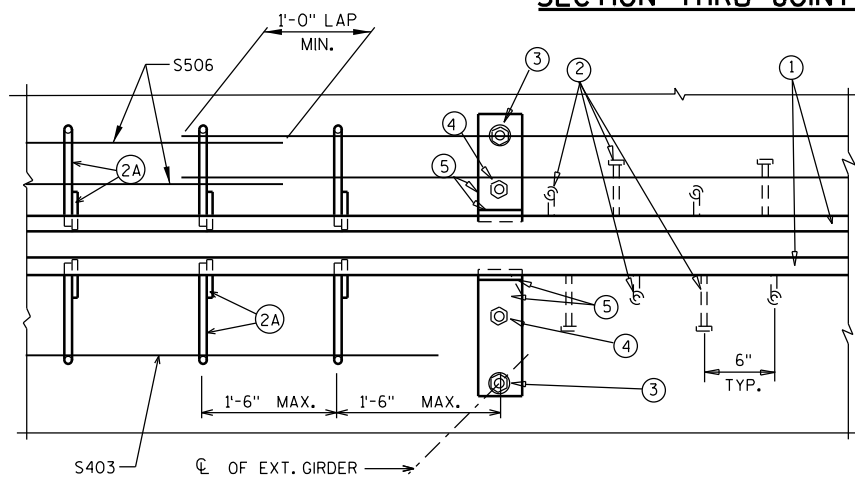
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-20			
DRAWN BY RLR		PLANS CK'D. KHB	
REMOVAL DETAILS			SHEET 3 OF 5 85

FILE= 93481.B-09-020_03.DGN
DATE= 2/17/2021

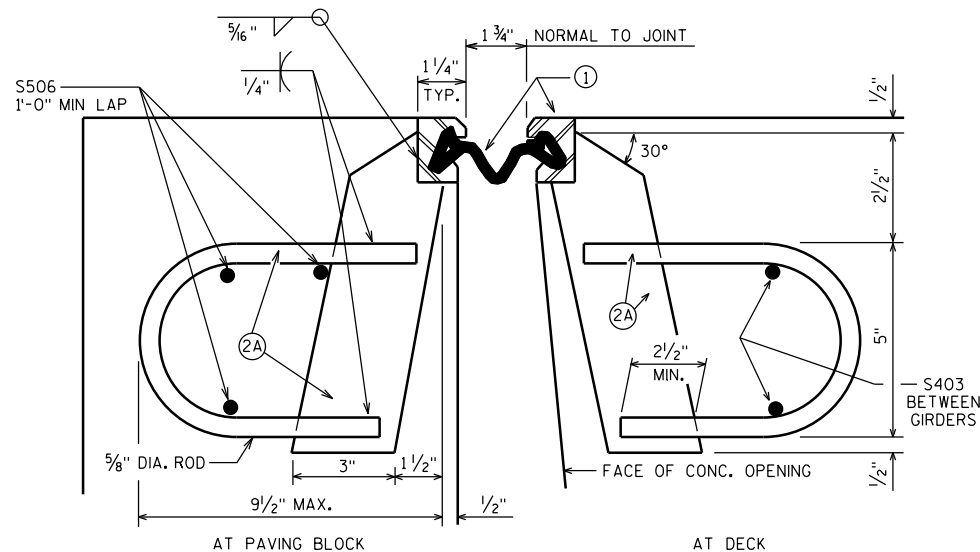


NOTE:
REMOVE ALL EXISTING EXPANSION JOINT COMPONENTS FROM THE TOPS OF THE EXISTING GIRDERS.

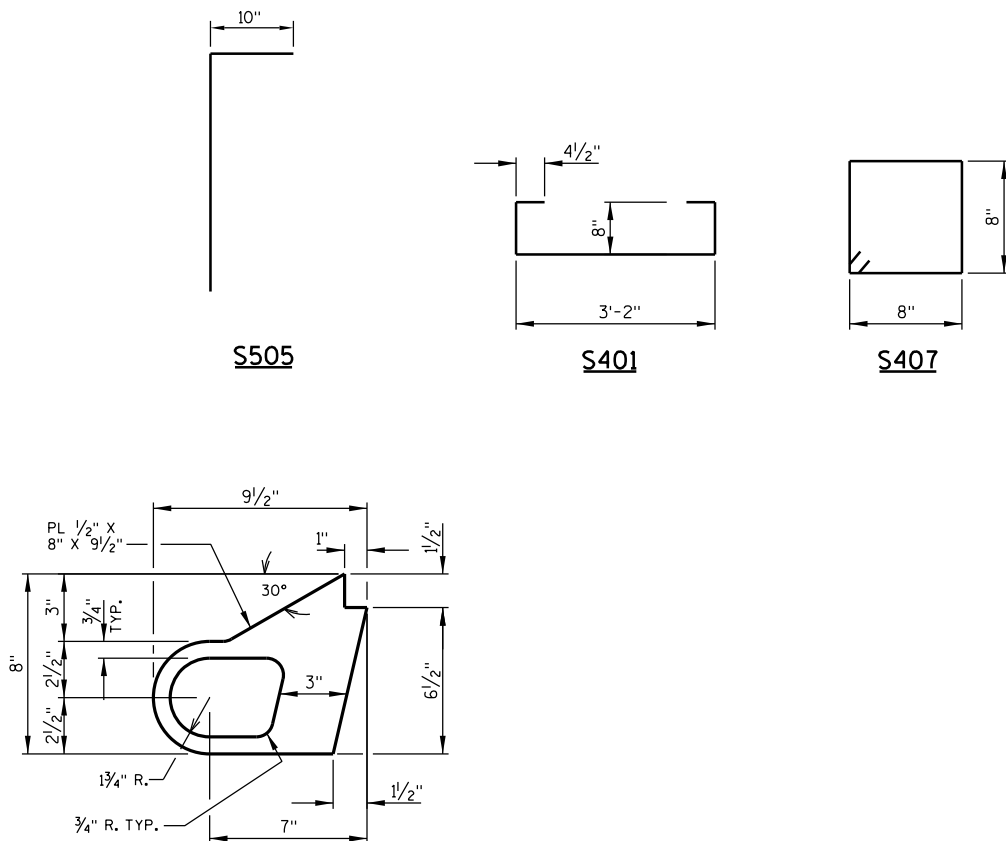
SECTION THRU JOINT AT ABUTMENTS



PART PLAN



SECTION THRU JOINT
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.



ALTERNATE STRIP SEAL ANCHOR

STATE PROJECT NUMBER

1050-01-81

BILL OF BARS (COATED)

3220 LBS.

MARK	NO. REQ'D	LENGTH	BENT	LOCATION
S401	96	4'-11"	X	DIAPH @ ABUT. - STIRRUP - VERT.
S602	60	7'-5"		DIAPH @ ABUT. - BETWEEN GIRDERS - TRANS.
S403	48	7'-5"		DECK ENDS BETWEEN GIRDERS - THRU STRIP SEAL & STIRRUPS - TRANS.
S504	28	32'-2"		DECK ENDS - ABOVE DIAPHRAGM - TRANS.
S505	128	2'-7"	X	ABUTMENT BACKWALL TOP - VERT. ANCHOR
S506	54	7'-10"		ABUTMENT BACKWALL TOP - TRANS.
S407	128	3'-2"	X	ABUTMENT BACKWALL TOP - STIRRUP

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

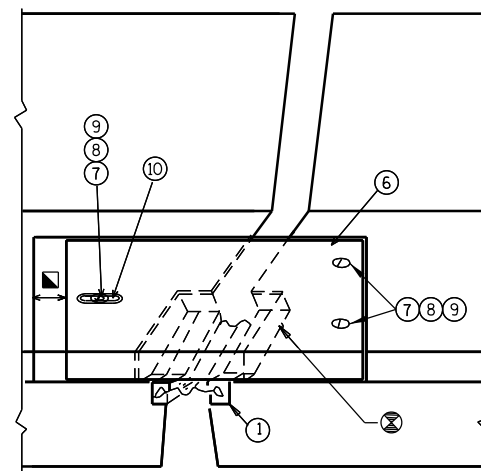
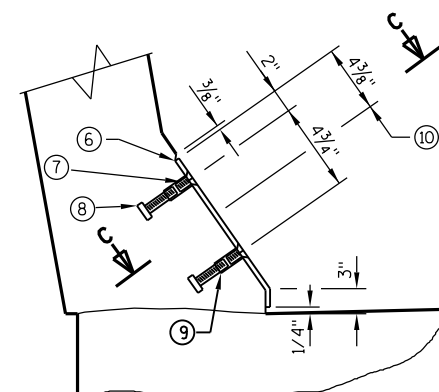
EPOXY COAT ALL BARSTEEL REINFORCEMENT.

S403 BARS THROUGH STRIP SEAL NOT SHOWN IN SECTION THRU JOINT AT ABUTMENTS DETAIL. SEE PART PLAN AND SECTION THRU JOINT DETAILS.

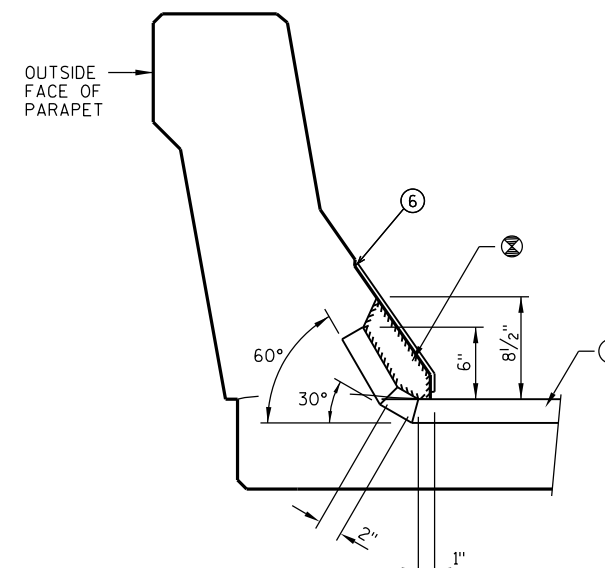
LEGEND

- ③ - REMOVE EXISTING VERTICAL REINFORCING BARS DURING REMOVAL OF PAVING BLOCK. REPLACE WITH "ADHESIVE ANCHORS NO.5 BAR" SPACED AT 1'-0".
- - ADHESIVE ANCHORS NO.5 BAR EMBED 1'-0" IN CONCRETE. ANCHOR HOLES SHALL BE 4" CLEAR MIN. TO FACE OF EXISTING CONCRETE, TURN 10" HORIZONTAL LEG OF S505 BARS AS NECESSARY TO FIT.
- ⊙ - DIMENSION IS GIVEN NORMAL TO C. OF GIRDER. BARS PLACED PARALLEL TO GIRDERS.
- ⊗ - DIMENSION IS GIVEN NORMAL TO THE C. OF ABUTMENT.
- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 1 3/4". JOINT OPENING GIVEN NORMAL TO JOINT.
- ② STUDS 5/8" DIA. X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS & BEND AS SHOWN AFTER WELDING.
- ②A 1/2" THICK ANCHOR PLATE WITH 5/8" DIA. ROD OR ALTERNATE STRIP SEAL ANCHOR. WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO.1 AT 1'-6" CTRS. BETWEEN GIRDERS.
- ③ 3/4" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. FIELD WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE, GROUT THREADED ROD INTO FIELD DRILLED HOLES 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. FIELD OR SHOP WELD TO NO.1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" DIA. HOLE FOR NO. 3 & 1" DIA. HOLE FOR NO. 4.

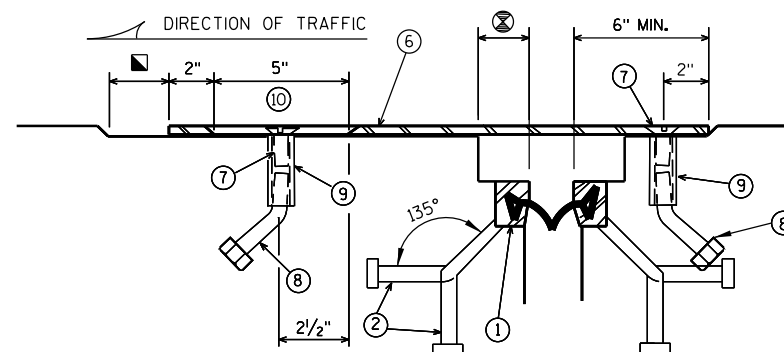
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-20			
DRAWN BY RLR		PLANS CK'D. KHB	
STRIP SEAL EXPANSION JOINT		SHEET 4 OF 5 86	

VIEW OF PARAPET PLATES
FROM ROADWAY

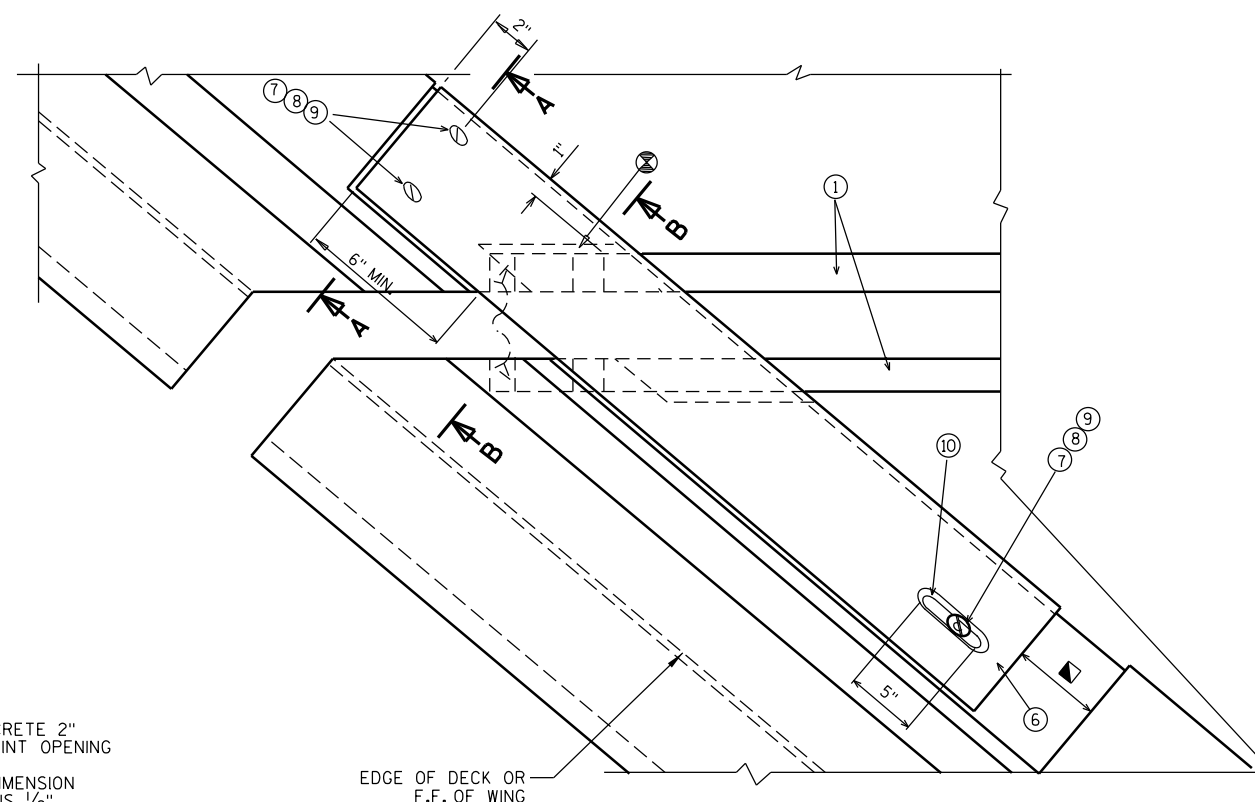
SECTION A-A



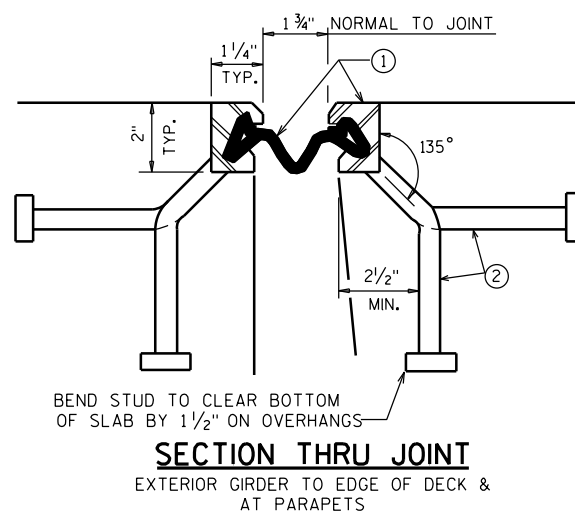
SECTION B-B



SECTION C-C



PLAN AT PARAPET

SECTION THRU JOINT
EXTERIOR GIRDER TO EDGE OF DECK &
AT PARAPETS

- ⊗ — BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING
- ◻ — JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2"

LEGEND

- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 1 3/4". JOINT OPENING GIVEN NORMAL TO JOINT.
- ② STUDS 5/8" DIA. X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS & BEND AS SHOWN AFTER WELDING.
- ⑥ GALVANIZED PLATE 3/8" X 10" X 2'-2" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- ⑦ 3/4" DIA. X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- ⑧ 3/4" DIA. X 4" GALV. HEX HEAD BOLT. BEND 45°.
- ⑨ 3/4" DIA. X 2 1/4" GALV. THREADED COUPLING.
- ⑩ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE NEEDED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED ANCHOR PLATES SHALL BE PROVIDED 3" FROM EACH SIDE OF THE FIELD SPLICE. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING IN NEOPRENE STRIP SEAL.

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

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

SANDBLAST PLATES, SUPPORTS AND 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.

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

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE B-9-20", LF.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-20			
DRAWN BY RLR		PLANS CK'D. KHB	
STRIP SEAL EXPANSION JOINT DETAILS		SHEET 5 OF 5 87	

DESIGN DATA

LIVE LOAD:

DESIGN LOADING _____ HS20
INVENTORY RATING _____ HS-18
OPERATIONAL RATING _____ HS-30
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) _____ 200 KIPS

TRAFFIC DATA:

STH 29
A.A.D.T. (2022) = 9,350
A.A.D.T. (2042) = 11,300

MATERIAL PROPERTIES:

CONCRETE MASONRY - OVERLAY DECKS _____ $f'_c = 4,000$ P.S.I.
CONCRETE MASONRY - PARAPET _____ $f'_c = 4,000$ P.S.I.
CONCRETE MASONRY - OVERLAY APPROACHES _____ $f'_c = 4,000$ P.S.I.
CONCRETE MASONRY - ALL OTHER _____ $f'_c = 3,500$ P.S.I.

HIGH-STRENGTH BAR STEEL _____ $f_y = 60,000$ P.S.I.
REINFORCEMENT, GRADE 60

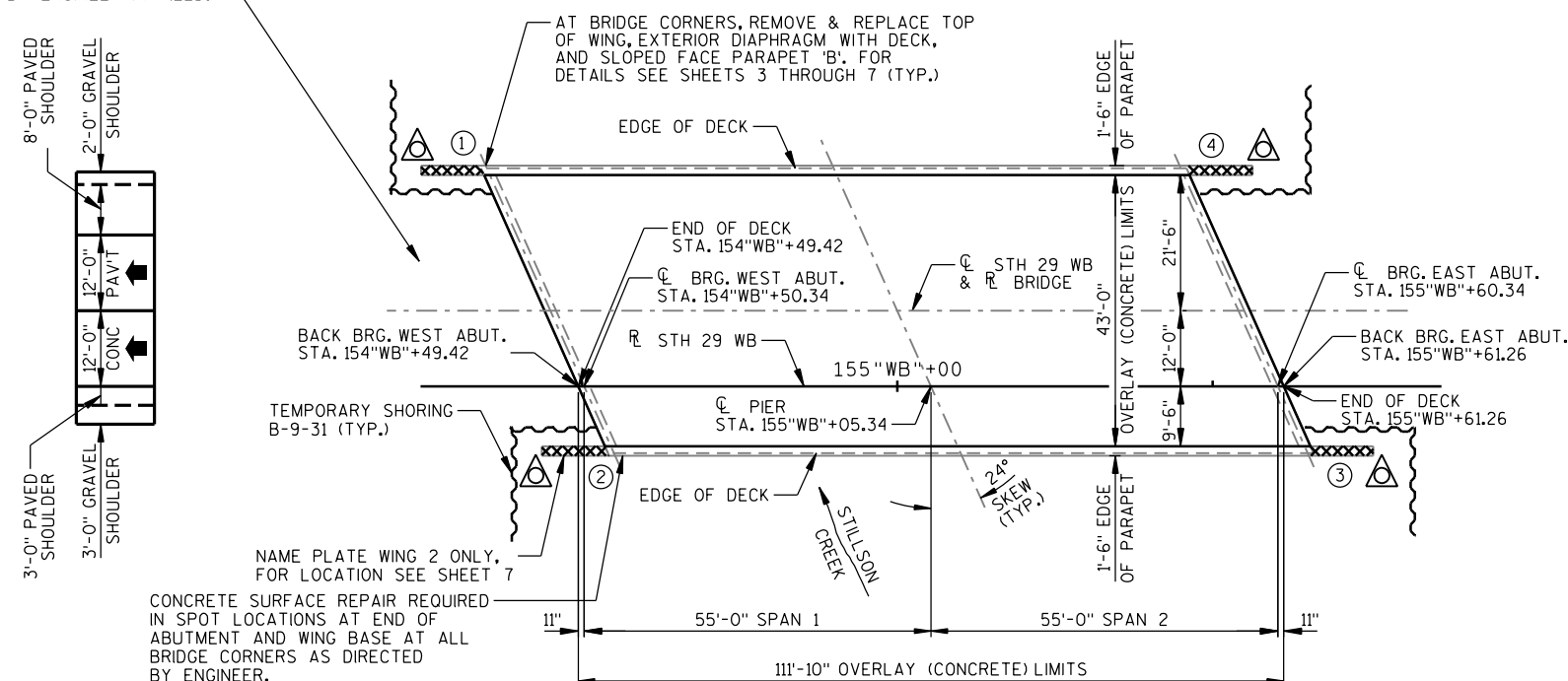
LIST OF DRAWINGS

1. REHAB GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES, & NOTES
3. REMOVAL DETAILS
4. DIAPHRAGM DETAILS
5. WINGS 1 & 3, WING TOP REPLACEMENT
6. WINGS 2 & 4, WING TOP REPLACEMENT
7. SLOPED FACE PARAPET 'B'

○ — INDICATES WING NUMBER

△ — INDICATES LOCATION OF PROVISION FOR THRIE BEAM GUARD ATTACHMENT AT WINGS. THE EXISTING THRIE BEAM ATTACHMENT PIECE AT THE WING TOP REPLACEMENTS SHALL BE SALVAGED AND REINSTALLED. WORK IS INCIDENTAL TO "CONCRETE MASONRY BRIDGES" BID ITEM.

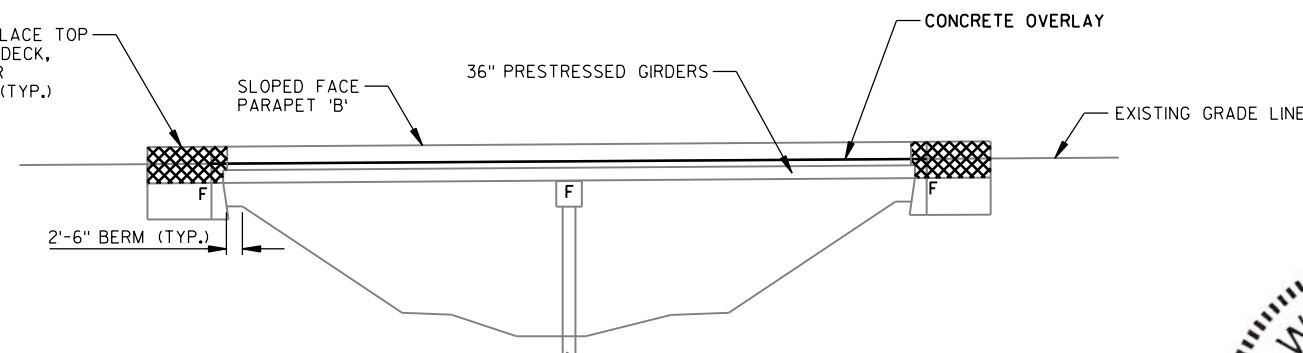
CONCRETE OVERLAY AT WEST APPROACH SLAB, MATCH PROPOSED GRADE AT ENDS. LIMITS TO BE VERIFIED BY ENGINEER IN FIELD.



PLAN

(REHAB - CONCRETE OVERLAY AND WING REPAIRS ON EXISTING TWO SPAN PRESTRESSED CONCRETE GIRDER)

AT BRIDGE CORNERS, REMOVE & REPLACE TOP OF WING, EXTERIOR DIAPHRAGM WITH DECK, AND SLOPED FACE PARAPET 'B'. FOR DETAILS SEE SHEETS 3 THROUGH 7 (TYP.)



ELEVATION

(LOOKING NORTH)

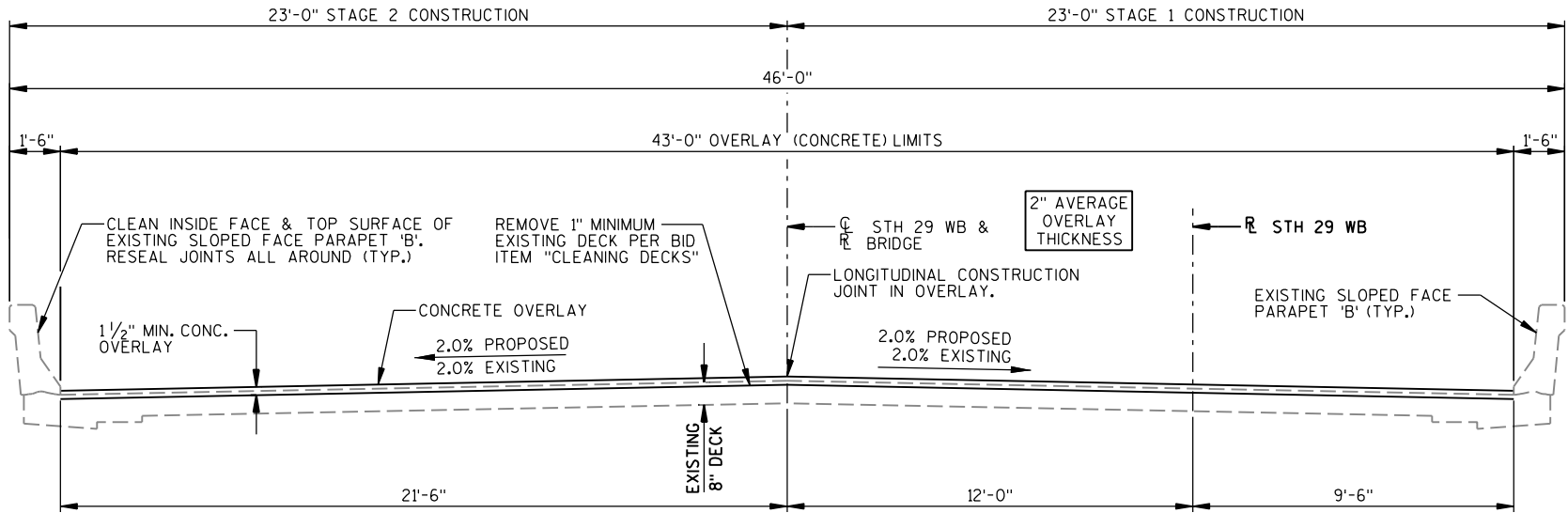
DESIGN CONTACT:
KYLE BUSCH
(608) 216-2063

BRIDGE OFFICE CONTACT:
AARON BONK
(608) 261-0261

NO.	DATE	REVISION	BY
MSA ENGINEERING ARCHITECTURE SURVEYING FUNDING PLANNING ENVIRONMENTAL 1702 Pankratz St Madison, WI 53704 (608) 242-7779 www.msa-ps.com © MSA Professional Services, Inc.			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION ACCEPTED <i>[Signature]</i> SDR 08/09/21 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-9-31			
STH 29 WB OVER STILLSON CREEK			
COUNTY	CHIPPewa	TOWN/CITY/VILLAGE	LAFAYETTE
DESIGN SPEC. REHABILITATION - N/A			
DESIGNED BY	JFM	DESIGN CK'D.	KHB
DRAWN BY	RLR	PLANS CK'D.	KHB
REHAB GENERAL PLAN			SHEET 1 OF 7 88



5/27/2021



CROSS SECTION THRU ROADWAY
(LOOKING EAST)

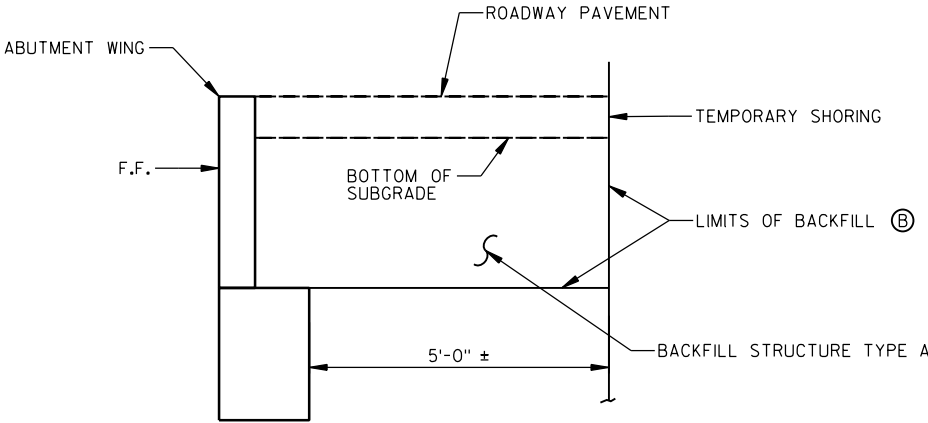
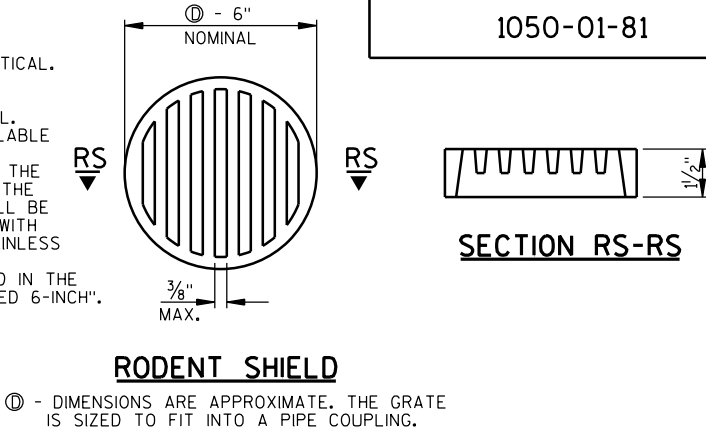
GENERAL NOTES

- DRAWINGS SHALL NOT BE SCALED.
- SEE ROAD PLANS FOR TRAFFIC CONTROL.
- DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.
- THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE NOT SHOWN.
- ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY AT THE ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".
- "DEBRIS CONTAINMENT OVER WATERWAY" TO BE USED ONLY IF FULL-DEPTH DECK REPAIR IS REQUIRED AS DIRECTED BY THE ENGINEER.
- ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1" DEEP SAWCUT UNLESS NOTED OTHERWISE.
- UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.
- IMPROVEMENTS INCLUDE DECK REPAIRS, EXTERIOR DIAPHRAGM REPLACEMENTS, ABUTMENT SURFACE REPAIRS, REPLACEMENT OF THE WING TOP AND PARAPET AT ALL WINGS, RESEALING PARAPETS, CONCRETE DECK OVERLAY, AND CONCRETE APPROACH OVERLAY AT THE WEST APPROACH.
- THIS PROJECT WILL REHABILITATE THE EXISTING STRUCTURE, B-9-31, A TWO SPAN, 111.83' PRESTRESSED CONCRETE GIRDER BRIDGE SET ON CONCRETE SILL ABUTMENTS AND A CONCRETE COLUMN BENT PIER.
- PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2 AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".
- PREPARATION APPROACHES ARE AS DETERMINED BY THE ENGINEER AND SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY APPROACHES".
- PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY.
- SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".
- A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".
- A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE WEST APPROACH SLAB UNDER THE BID ITEM "CLEANING APPROACHES".
- THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS 1/2-INCH TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE.
- PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1 1/2" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.
- THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES BAR SIZE.
- ⓑ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- AT THE BACK FACE OF WING, ALL VOLUME EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.
- THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE SHALL SHOW THE ORIGINAL CONSTRUCTION YEAR OF 1966. SUPPLYING AND INSTALLING NAME PLATE IS INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES".
- "PIGMENTED SURFACE SEALER" BID ITEM SHALL BE APPLIED TO THE TOP AND ROADWAY FACE OF THE NEW PARAPET AT WING TOP REPLACEMENT LOCATIONS.
- "PIGMENTED SURFACE SEALER RESEAL" BID ITEM SHALL BE APPLIED TO THE TOP AND ROADWAY FACE OF THE EXISTING PARAPET ON THE DECK. SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "PIGMENTED SURFACE SEALER RESEAL."
- THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE ABUTMENTS.
- F.F. - FRONT FACE B.F. - BACK FACE

RODENT SHIELD NOTES:

ORIENT SHIELD SO SLOTS ARE VERTICAL.

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



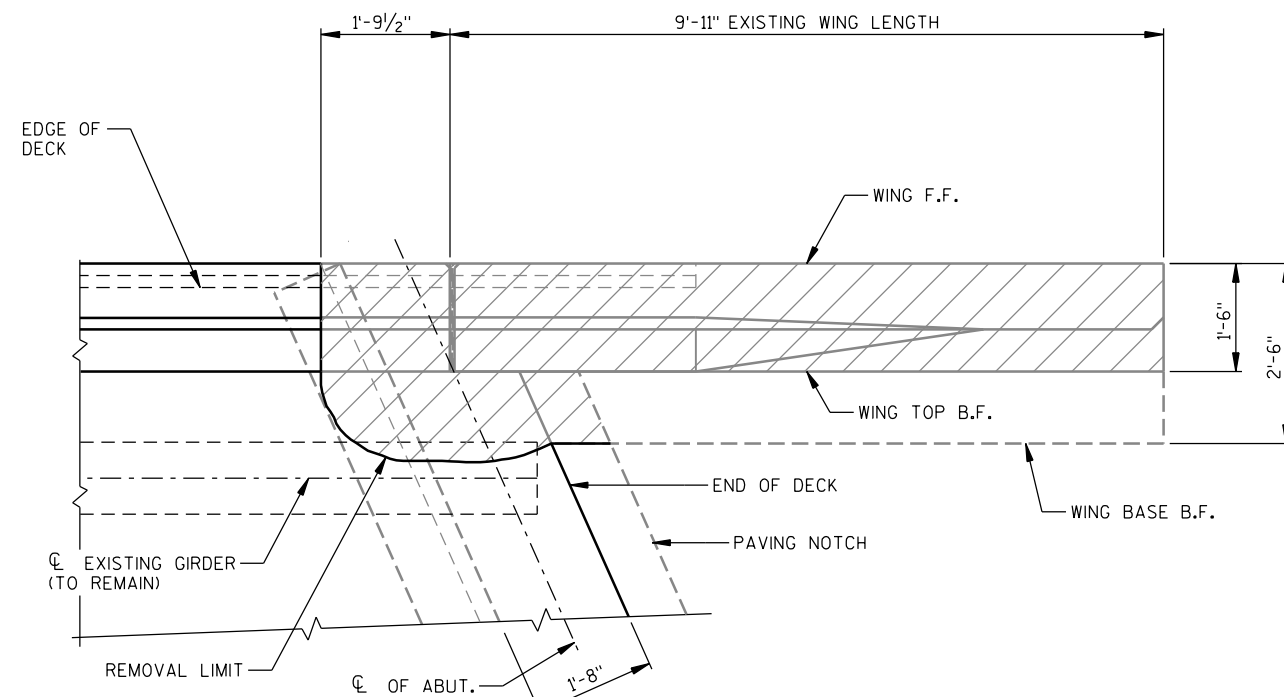
STRUCTURE BACKFILL DETAIL

TOTAL ESTIMATED QUANTITIES

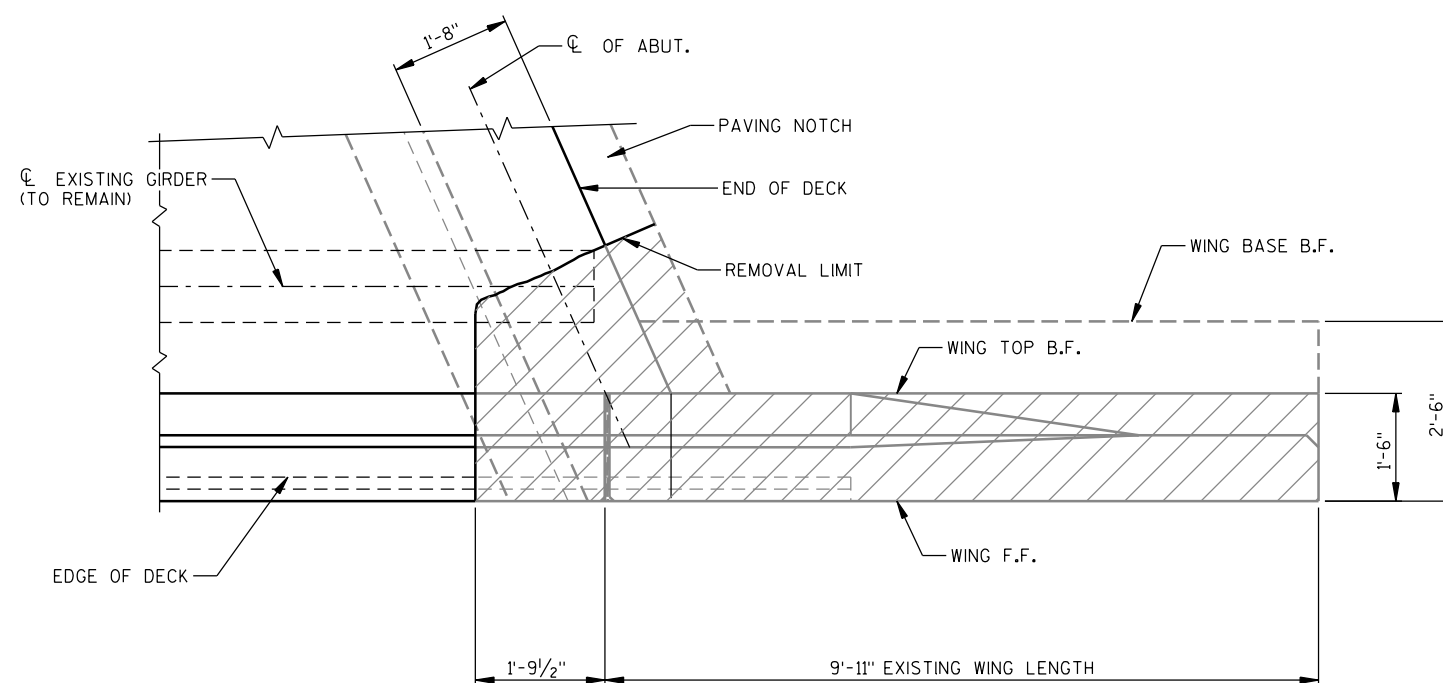
ITEM NUMBER	BID ITEM	UNIT	WEST ABUT.	EAST ABUT.	SUPER	TOTAL
203.0220.01	REMOVING STRUCTURE (B-9-31)	EACH	-	-	-	1
203.0335.01	DEBRIS CONTAINMENT OVER WATERWAY (B-9-31)	EACH	-	-	-	1
206.1000.01	EXCAVATION FOR STRUCTURES BRIDGES (B-9-31)	LS	-	-	-	1
ⓑ 210.1500	BACKFILL STRUCTURE TYPE A	TON	26	26	-	52
502.0100	CONCRETE MASONRY BRIDGES	CY	4	4	8	16
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	-	534	534
502.3205	PIGMENTED SURFACE SEALER RESEAL	SY	-	-	89	89
502.3210	PIGMENTED SURFACE SEALER	SY	-	-	14	14
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	48	48	-	96
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	570	570	1350	2490
* 509.0200	PREPARATION APPROACHES	SY	6	-	-	6
* 509.0301	PREPARATION DECKS TYPE 1	SY	-	-	27	27
* 509.0302	PREPARATION DECKS TYPE 2	SY	-	-	11	11
509.0500	CLEANING DECKS	SY	-	-	534	534
509.0600	CLEANING APPROACHES	SY	119	-	-	119
** 509.1500	CONCRETE SURFACE REPAIR	SF	20	20	-	40
* 509.2000	FULL-DEPTH DECK REPAIR	SY	-	-	1	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	-	-	32	32
509.2600	CONCRETE MASONRY OVERLAY APPROACHES	CY	7	-	-	7
511.1200.01	TEMPORARY SHORING B-9-31	SF	200	200	-	400
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	5	5	-	10
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	48	48	-	96
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	-	-	4	4
NON-BID ITEMS						
	FILLER	SIZE				1/2"

- * QUANTITY LISTED IS AN ESTIMATE. CONTRACTOR SHALL COORDINATE THE FIELD IDENTIFICATION OF ALL DECK AND APPROACH REPAIR LOCATIONS WITH THE ENGINEER.
- ** CONCRETE SURFACE REPAIR SHALL BE USED FOR NEEDED REPAIRS. LOCATIONS AND LIMITS OF REPAIR SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

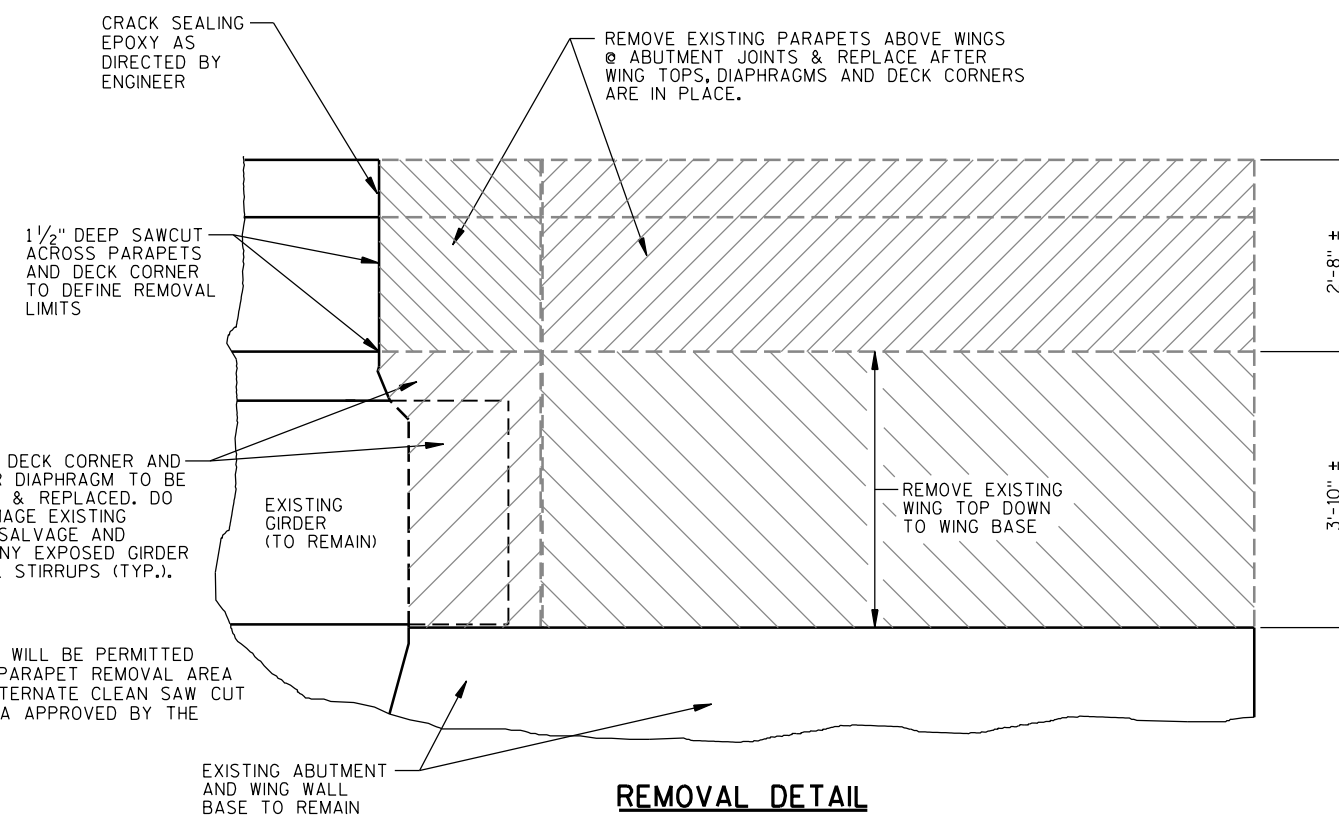
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-9-31	
		DRAWN BY RLR	PLANS CK'D. KHB
TYPICAL SECTION, QUANTITIES, & NOTES		SHEET 2 OF 7 89	



REMOVAL PLAN @ WINGS 2 & 4



REMOVAL PLAN @ WINGS 1 & 3



REMOVAL DETAIL

LEGEND

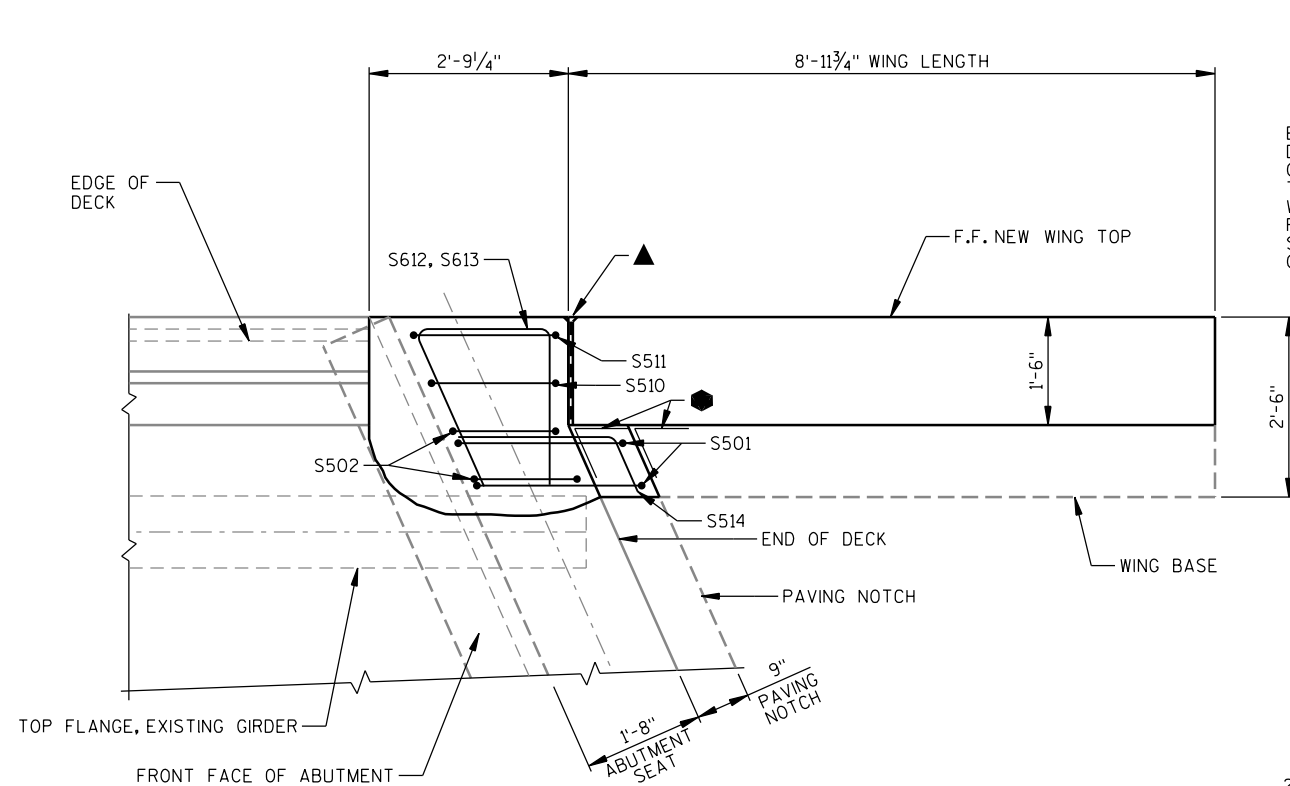


- MINIMUM REMOVAL LIMITS

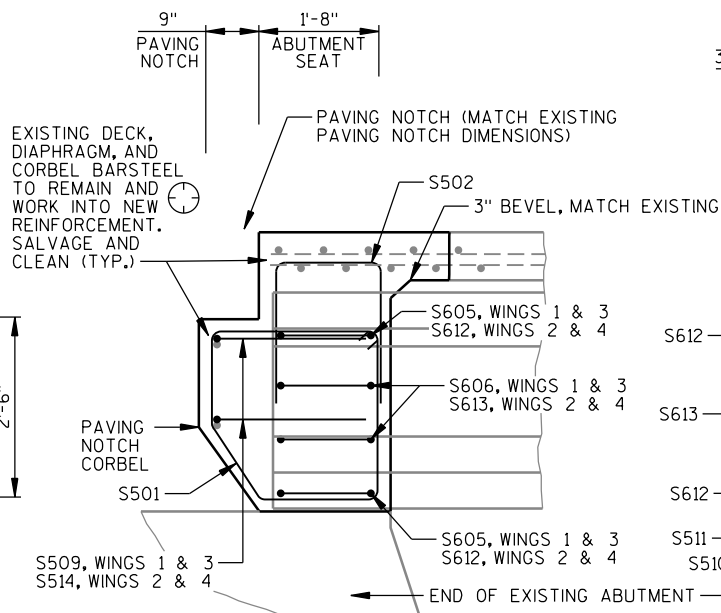
F.F. - FRONT FACE

B.F. - BACK FACE

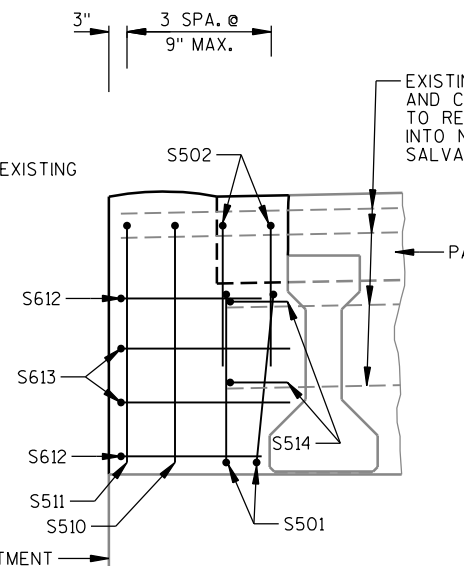
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-31			
DRAWN BY RLR		PLANS CK'D. KHB	
REMOVAL DETAILS			SHEET 3 OF 7
			90



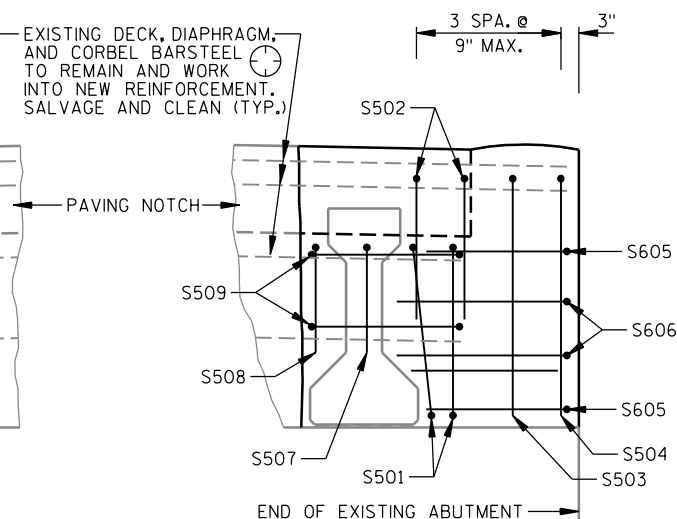
DIAPHRAGM PLAN @ WINGS 2 & 4



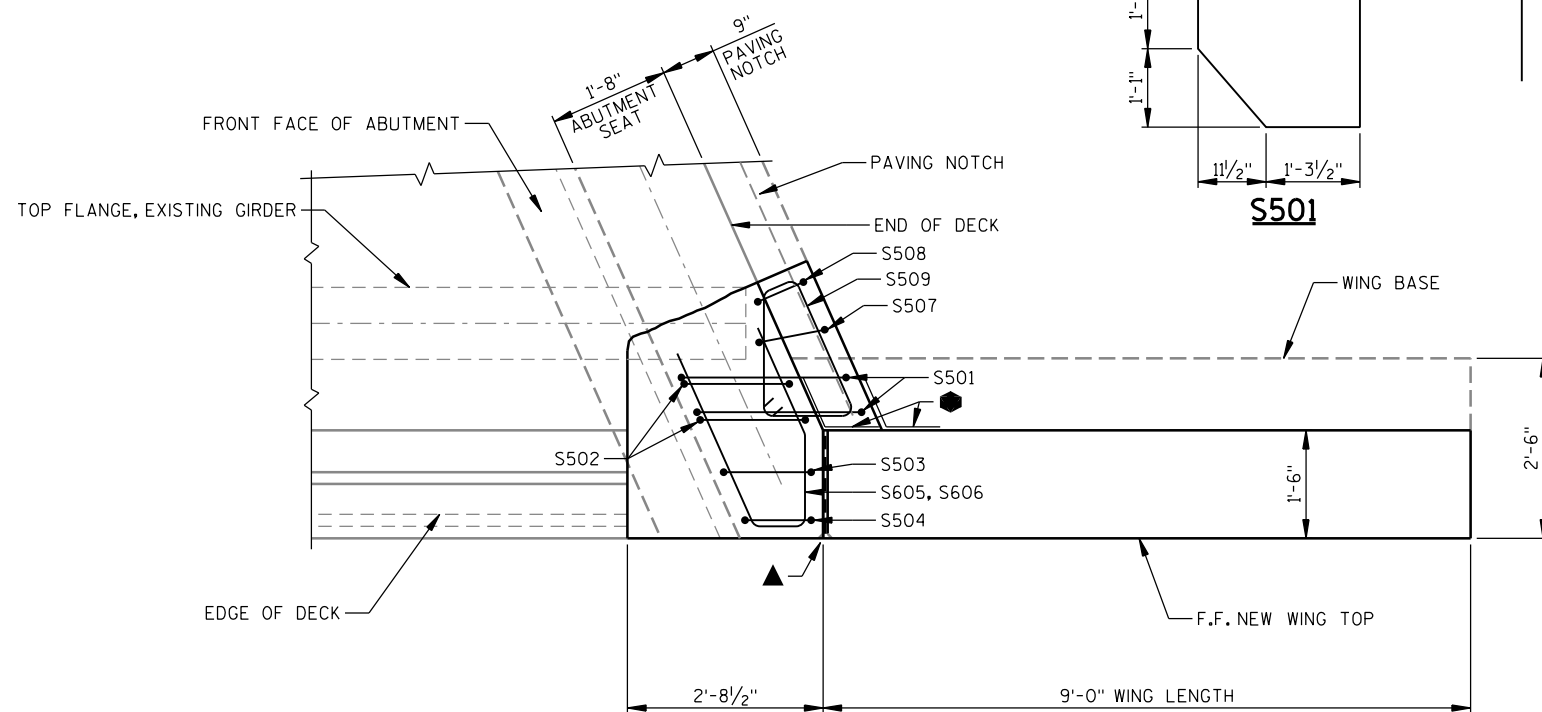
DIAPHRAGM - ELEVATION



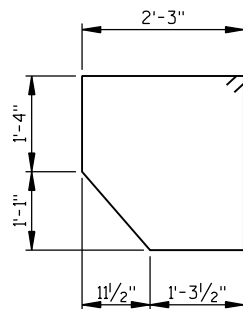
DIAPHRAGM @ WINGS 2 & 4



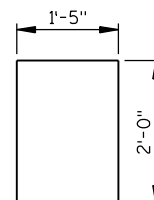
DIAPHRAGM @ WINGS 1 & 3



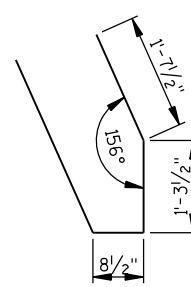
DIAPHRAGM PLAN @ WINGS 1 & 3



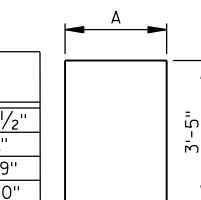
S501



S502



S605, S606



S507

MARK	A
S503	1'-2 1/2"
S504	11"
S510	1'-9"
S511	2'-0"

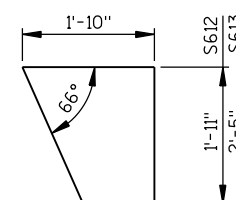
BILL OF BARS

390 LBS. (COATED)

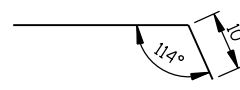
MARK	NO. REQ'D	LENGTH	BENT	LOCATION
S501	8	9'-5"	X	DIAPHRAGM @ WINGS - STIRRUP - VERT.
S502	8	5'-2"	X	DIAPHRAGM @ WINGS - STIRRUP - VERT.
S503	2	7'-9"	X	DIAPHRAGM @ WINGS 1 & 3 - STIRRUP - VERT.
S504	2	7'-6"	X	DIAPHRAGM @ WINGS 1 & 3 - STIRRUP - VERT.
S605	4	5'-4"	X	DIAPHRAGM @ WINGS 1 & 3 - HORIZ.
S606	4	5'-11"	X	DIAPHRAGM @ WINGS 1 & 3 - HORIZ.
S507	2	6'-7"	X	DIAPHRAGM @ WINGS 1 & 3 - CORBEL - VERT.
S508	2	4'-1"	X	DIAPHRAGM @ WINGS 1 & 3 - CORBEL - VERT.
S509	4	6'-3"	X	DIAPHRAGM @ WINGS 1 & 3 - CORBEL - HORIZ.
S510	2	8'-4"	X	DIAPHRAGM @ WINGS 2 & 4 - STIRRUP - VERT.
S511	2	8'-7"	X	DIAPHRAGM @ WINGS 2 & 4 - STIRRUP - VERT.
S612	4	5'-6"	X	DIAPHRAGM @ WINGS 2 & 4 - HORIZ.
S613	4	6'-6"	X	DIAPHRAGM @ WINGS 2 & 4 - HORIZ.
S514	4	2'-11"	X	DIAPHRAGM @ WINGS 2 & 4 - HORIZ.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

EPOXY COAT ALL BARSTEEL REINFORCEMENT.



S612, S613



S514

LEGEND

F.F. - FRONT FACE B.F. - BACK FACE

● - 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERTICAL JOINTS AT BACK FACE.

▲ - 1/2" FILLER (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZONTAL & VERTICAL SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE).

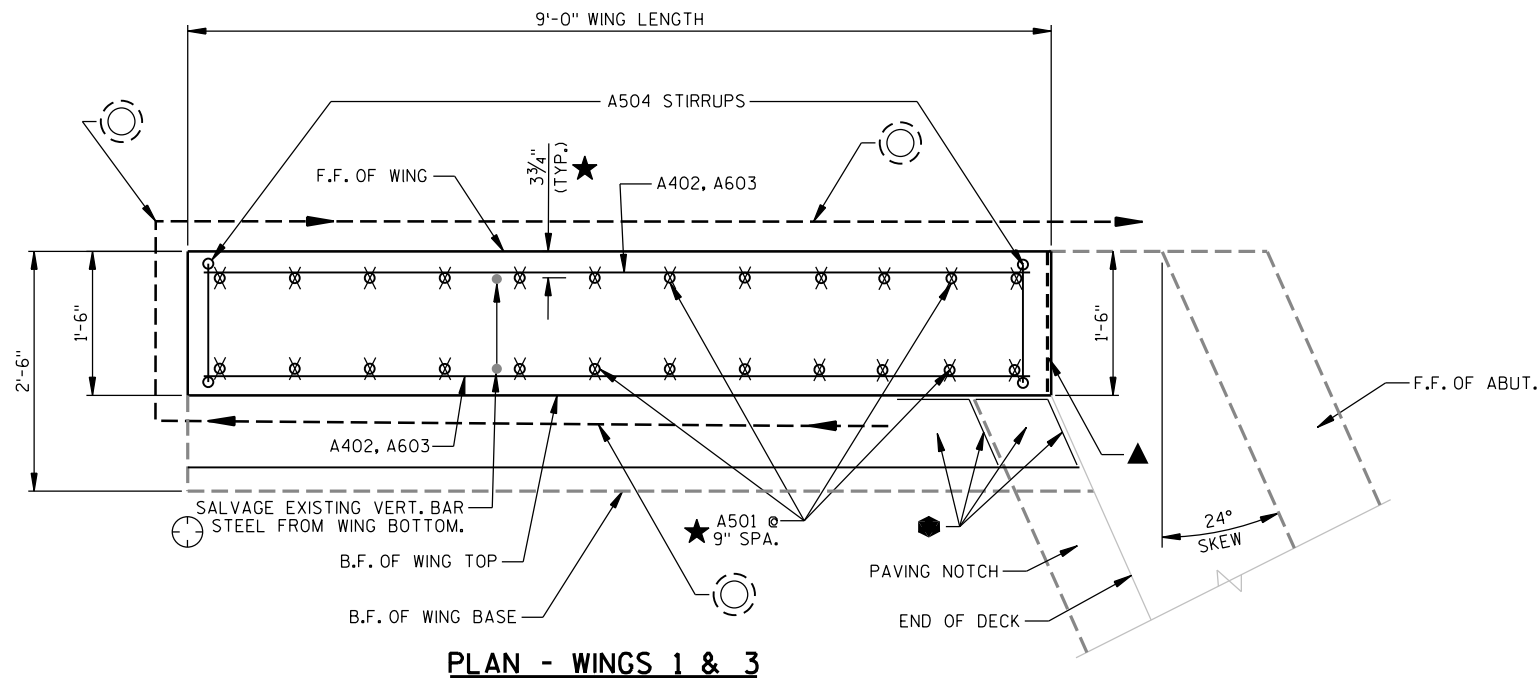
⊕ - EXISTING DIAPHRAGM BAR STEEL IS UNCOATED. COAT EXPOSED BAR STEEL WITH EPOXY IN ACCORDANCE WITH SECTION 505.2.4.2 OF THE STANDARD SPECIFICATION. INCIDENTAL TO CONCRETE MASONRY BRIDGES.

BILL OF BARS

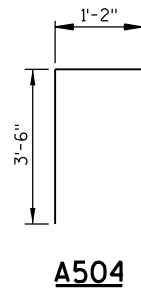
(COATED) 285 LBS.

MARK	NUMBER REQ'D.	LENGTH	BENT	LOCATION
A501	24	3'-9"		WING 1 - VERT. ANCHOR
A402	8	8'-7"		WING 1 - F.F. & B.F. - HORIZ.
A603	2	8'-7"		WING 1 - F.F. & B.F. - HORIZ.
A504	13	7'-11"	X	WING 1 - STIRRUP - VERT.
A405	10	1'-9"		WING 1 - TOP - DOWEL

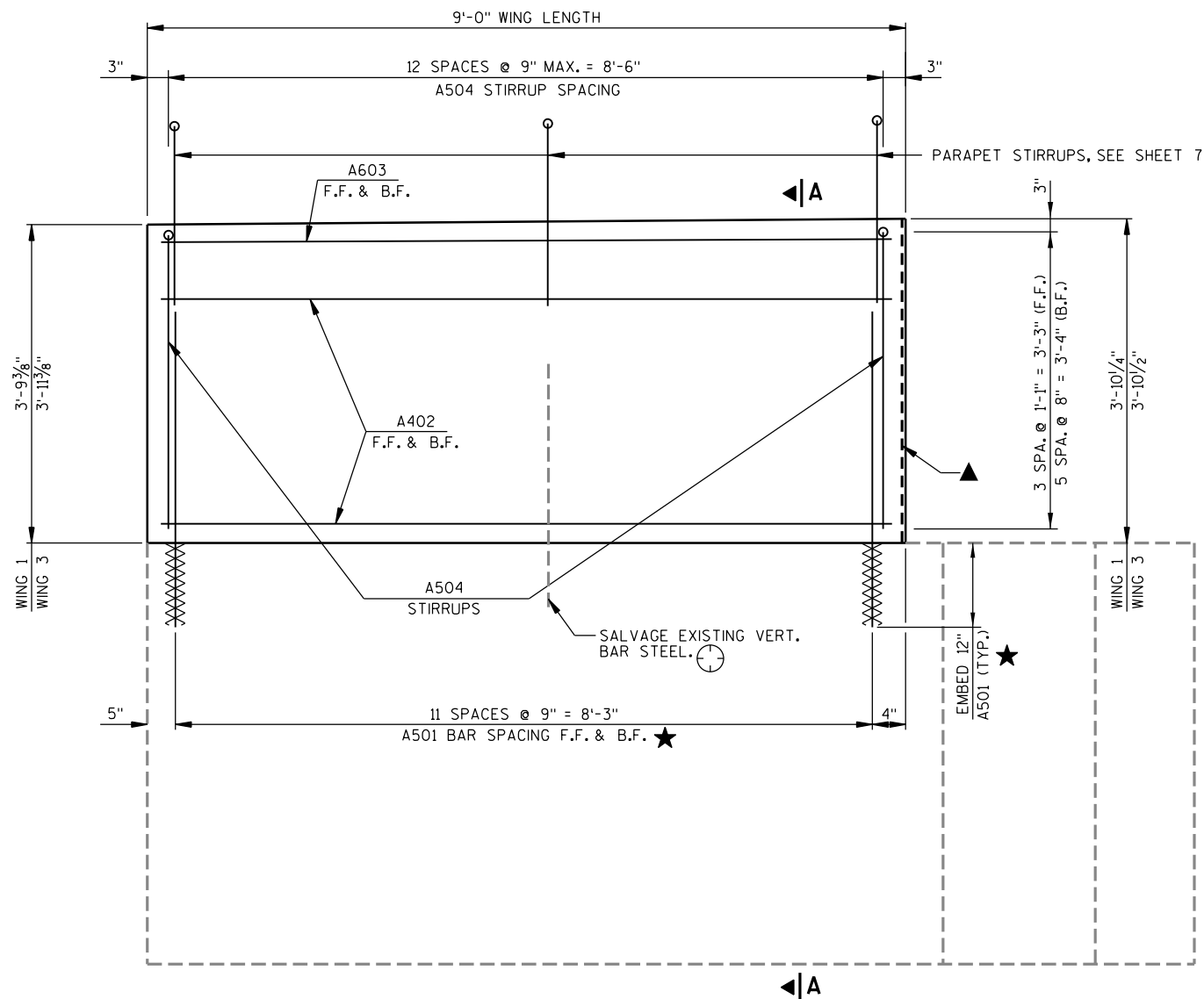
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
EPOXY COAT ALL BARSTEEL REINFORCEMENT.
BAR MARKS FOR WING 1 ARE SHOWN.
LABEL AND BUNDLE WING 3 BARS WITH C MARK (C501 THRU C405).



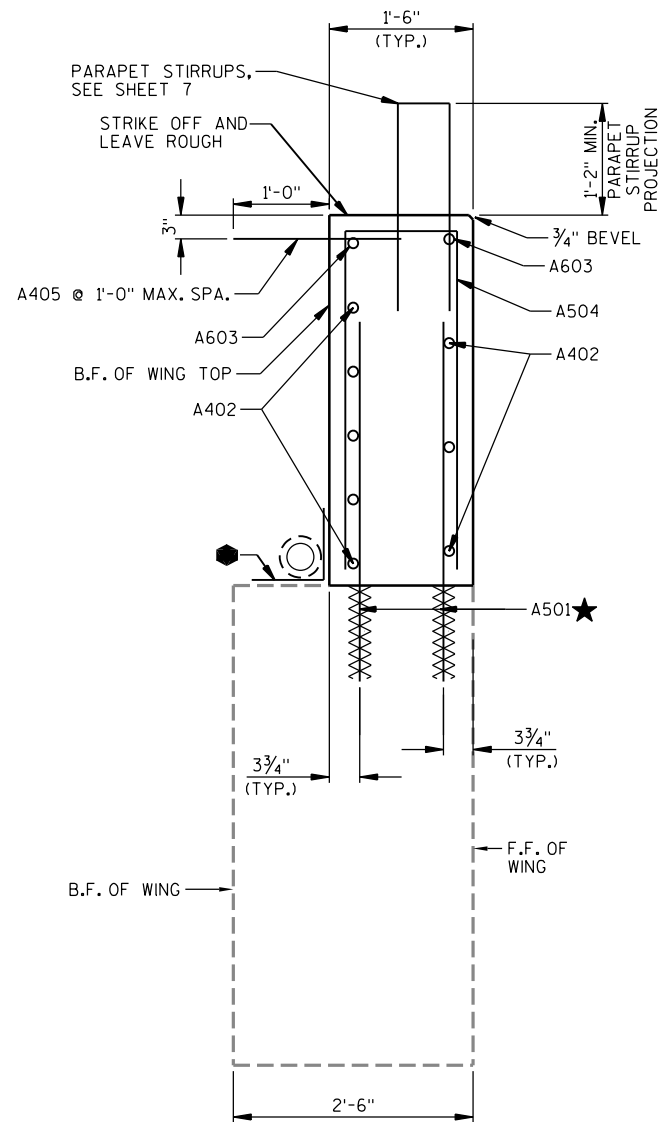
PLAN - WINGS 1 & 3



A504



ELEVATION - WINGS 1 & 3

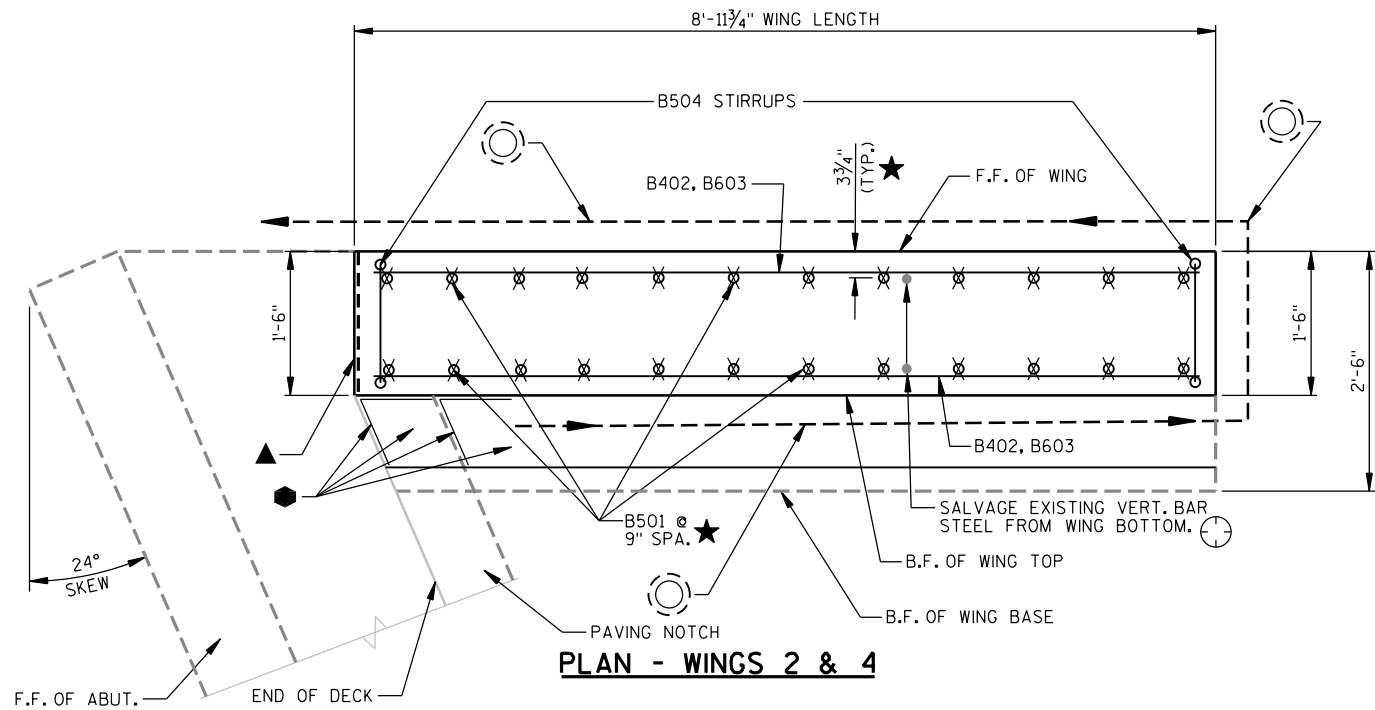


SECTION A-A THRU WINGS 1 & 3

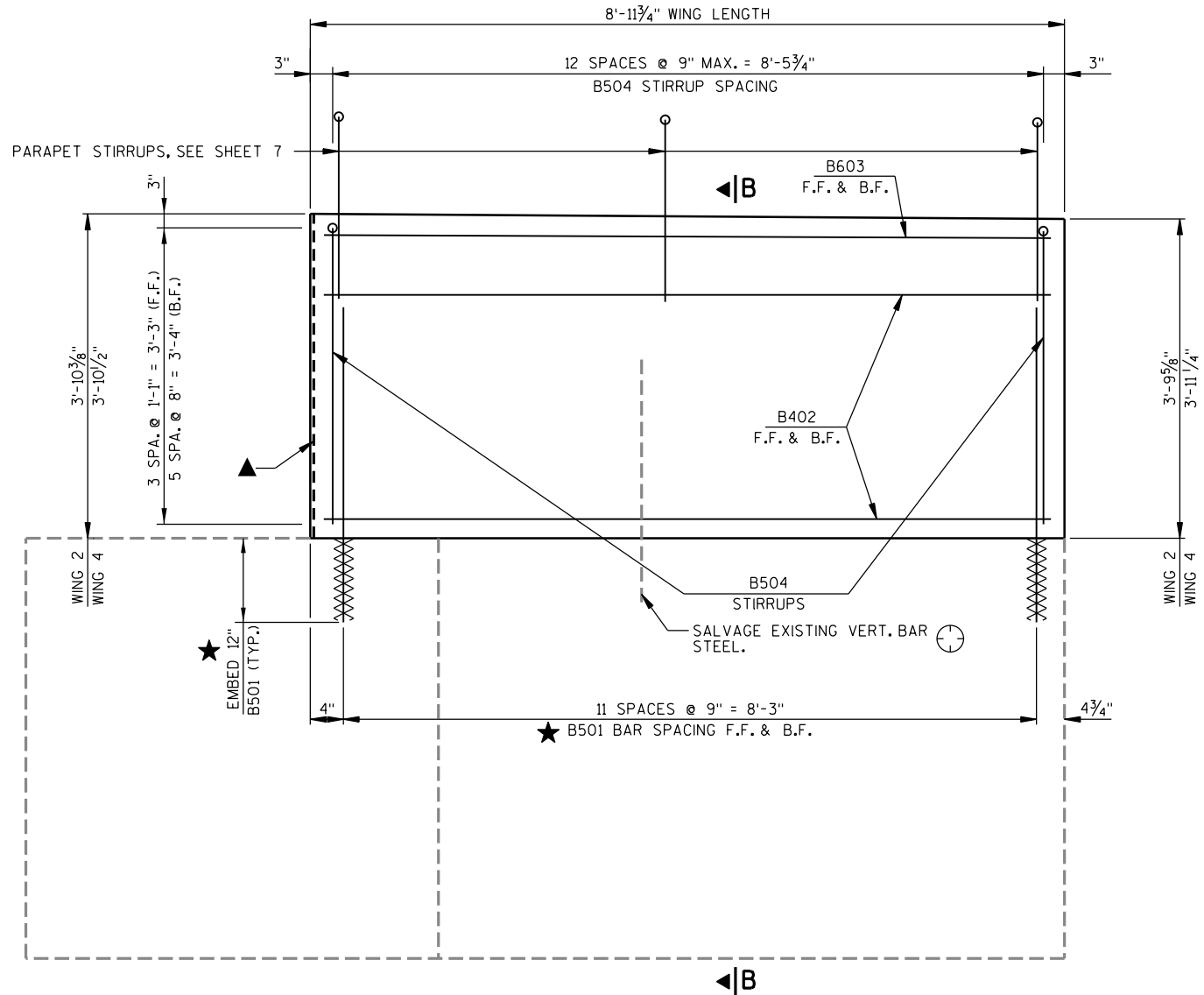
LEGEND

- ★ - ADHESIVE ANCHORS NO. 5 BAR. EMBED 12" IN CONCRETE. ANCHORS SHALL BE APPROVED FOR USE IN CRACKED CONCRETE.
 - - 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERTICAL JOINTS AT BACK FACE.
 - ▲ - 1/2" FILLER (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZONTAL & VERTICAL SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE).
 - ⊙ - PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN. SEE DETAIL, SHEET 2.
 - ⊕ - EXISTING BAR STEEL IS UNCOATED. COAT EXPOSED BAR STEEL WITH EPOXY IN ACCORDANCE WITH SECTION 505.2.4.2 OF THE STANDARD SPECIFICATION. INCIDENTAL TO CONCRETE MASONRY BRIDGES.
- F.F. - FRONT FACE B.F. - BACK FACE

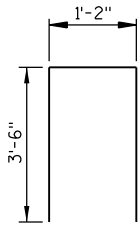
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-31			
DRAWN BY RLR		PLANS CK'D. KHB	
WINGS 1 & 3, WING TOP REPLACEMENT			SHEET 5 OF 7 92



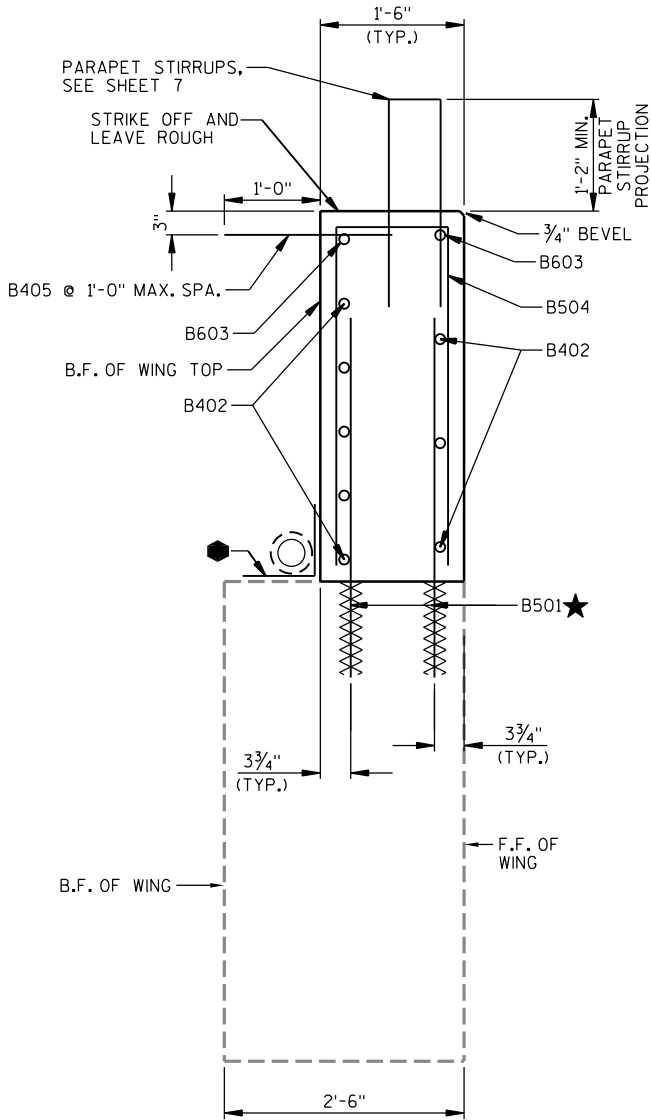
PLAN - WINGS 2 & 4



ELEVATION - WINGS 2 & 4



B504



SECTION B-B THRU WINGS 2 & 4

STATE PROJECT NUMBER
1050-01-81

BILL OF BARS (COATED) 285 LBS.

MARK	NUMBER REQ'D.	LENGTH	BENT	LOCATION
B501	24	3'-9"		WING 2 - VERT. ANCHOR
B402	8	8'-7"		WING 2 - F.F. & B.F. - HORIZ.
B603	2	8'-7"		WING 2 - F.F. & B.F. - HORIZ.
B504	13	7'-11"	X	WING 2 - STIRRUP - VERT.
B405	10	1'-9"		WING 2 - TOP - DOWEL

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
EPOXY COAT ALL BARSTEEL REINFORCEMENT.
BAR MARKS FOR WING 2 ARE SHOWN.
LABEL AND BUNDLE WING 4 BARS WITH D MARK (D501 THRU D405).

LEGEND

- ★ - ADHESIVE ANCHORS NO. 5 BAR. EMBED 12" IN CONCRETE. ANCHORS SHALL BE APPROVED FOR USE IN CRACKED CONCRETE.
 - - 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERTICAL JOINTS AT BACK FACE.
 - ▲ - 1/2" FILLER (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZONTAL & VERTICAL SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE).
 - ⊙ - PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN. SEE DETAIL, SHEET 2.
 - ⊕ - EXISTING BAR STEEL IS UNCOATED. COAT EXPOSED BAR STEEL WITH EPOXY IN ACCORDANCE WITH SECTION 505.2.4.2 OF THE STANDARD SPECIFICATION. INCIDENTAL TO CONCRETE MASONRY BRIDGES.
- F.F. - FRONT FACE B.F. - BACK FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-31			
DRAWN BY RLR		PLANS CK'D. KHB	
WINGS 2 & 4, WING TOP REPLACEMENT		SHEET 6 OF 7 93	

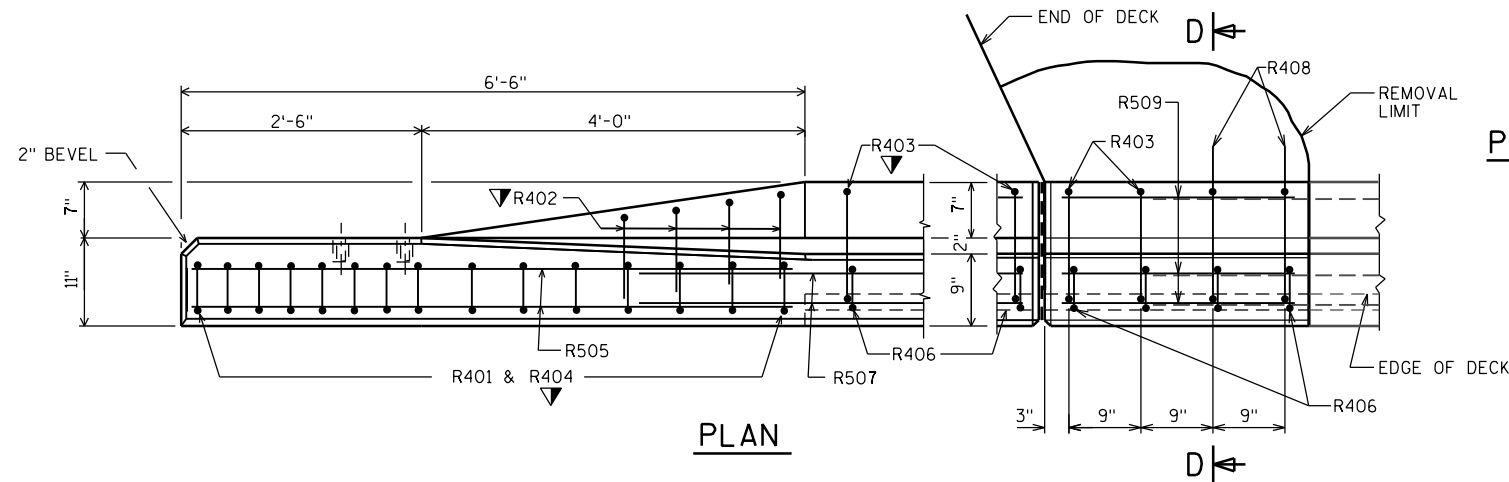
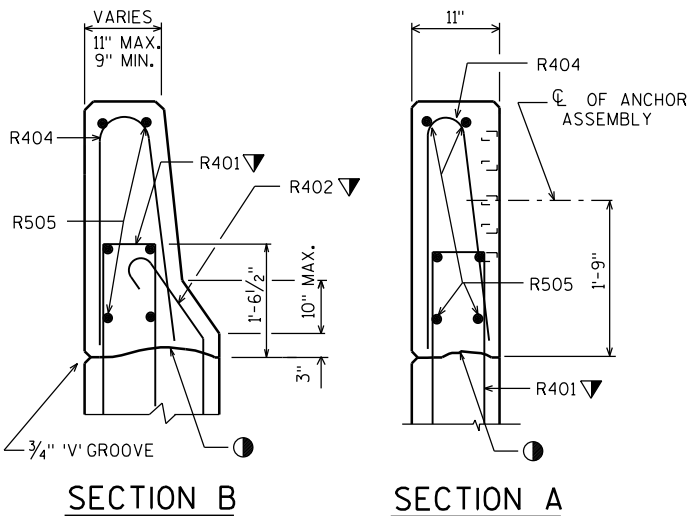
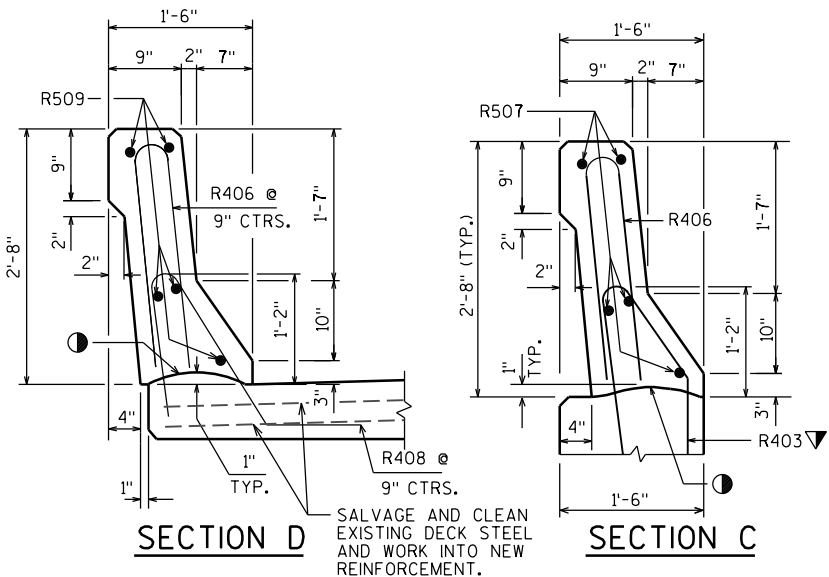
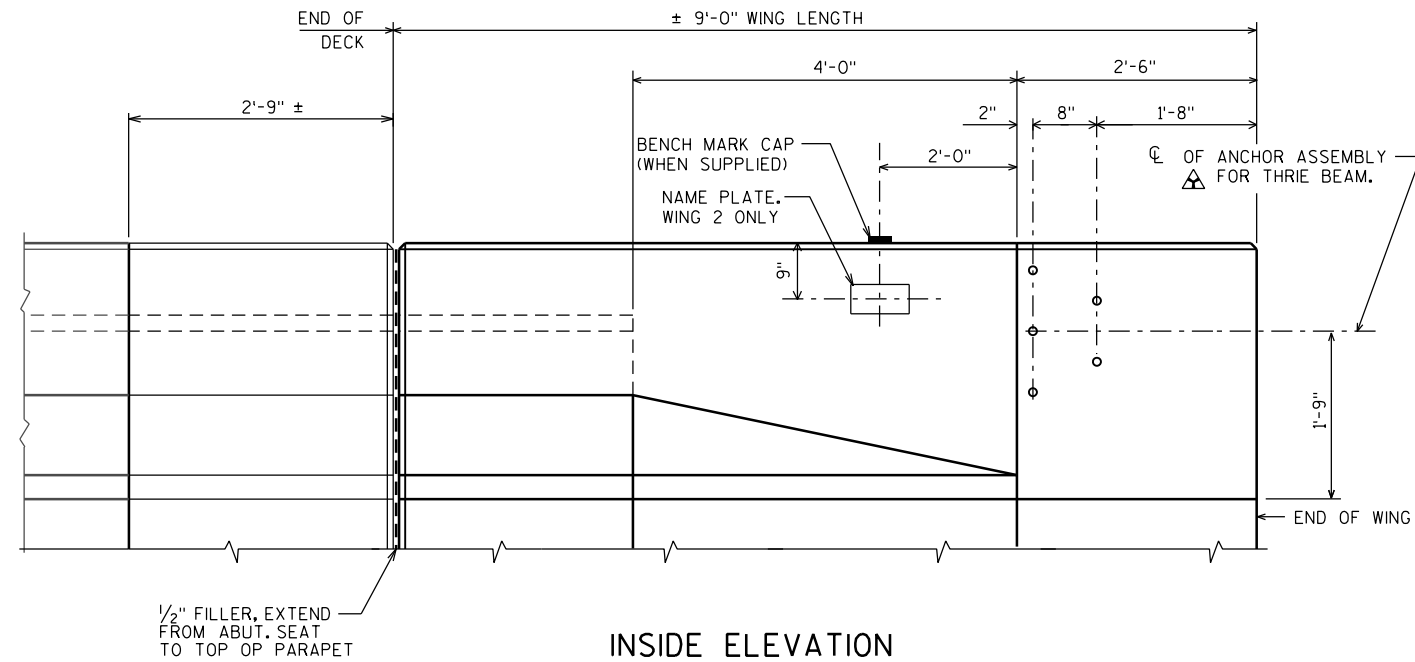
● CONST. JOINT - STRIKE OFF AS SHOWN.

▼ R401, R402, AND R403 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

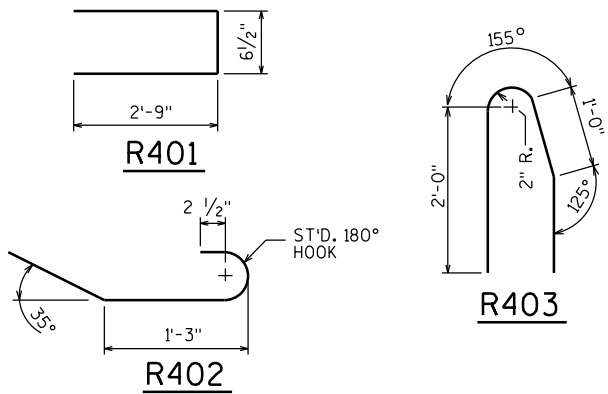
▲ SALVAGE AND REINSTALL EXISTING THRIE BEAM ATTACHMENT. WORK IS INCIDENTAL TO "CONCRETE MASONRY BRIDGES" BID ITEM.

STATE PROJECT NUMBER

1050-01-81



PARAPET AT WING 2 SHOWN
PARAPETS AT WINGS 1, 3 & 4 SIMILAR



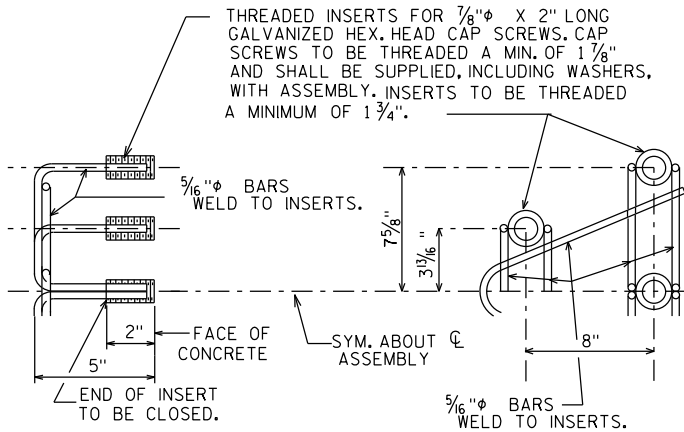
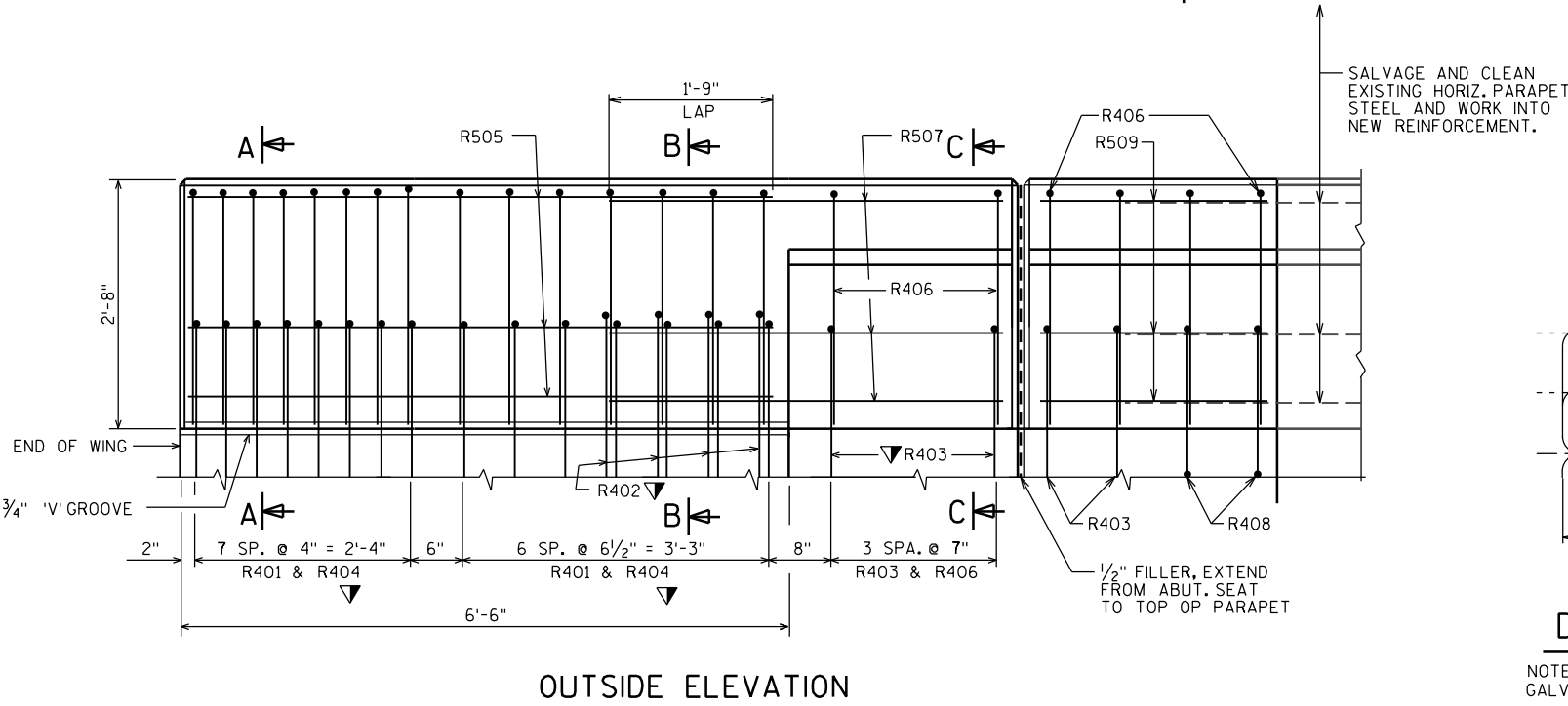
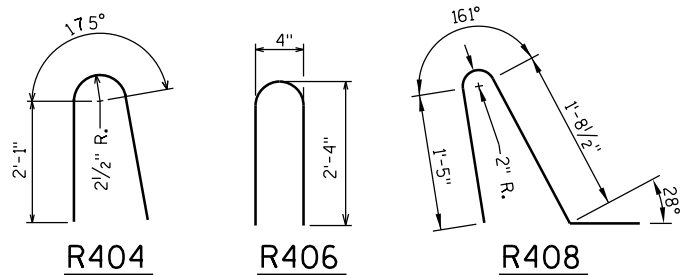
BILL OF BARS
PARAPET AT WING 2 240 LBS. (COATED)

MARK	NO. REQ'D	LENGTH	BENT	LOCATION
R401	15	5'-10"	X	PARAPET BOTTOM - STIRRUP - VERT.
R402	4	3'-1"	X	PARAPET BOTTOM - TIE - VERT.
R403	6	4'-7"	X	PARAPET BOTTOM - STIRRUP - VERT.
R404	15	4'-9"	X	PARAPET - END - TOP - STIRRUP - VERT.
R505	6	6'-2"		PARAPET - WING END - LONGIT.
R406	8	4'-10"	X	PARAPET - TOP - STIRRUP - VERT.
R507	5	4'-3"		PARAPET - WING - LONGIT.
R408	2	4'-3"	X	PARAPET - INTO DECK - STIRRUP - VERT.
R509	5	2'-5"		PARAPET - END OF DECK - LONGIT.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

EPOXY COAT ALL BARSTEEL REINFORCEMENT.

DETAILS AND BILL OF BARS FOR PARAPET AT WING 2 ARE SHOWN. PARAPETS AT WINGS 1, 3 & 4 ALSO REQUIRED.



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX. HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-31			
DRAWN BY RLR		PLANS CK'D. KHB	
SLOPED FACE PARAPET 'B'		SHEET 7 OF 7 94	

DESIGN DATA

LIVE LOAD:

DESIGN LOADING _____ HS20
INVENTORY RATING _____ HS-16
OPERATIONAL RATING _____ HS-27
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) _____ 250 KIPS

TRAFFIC DATA:

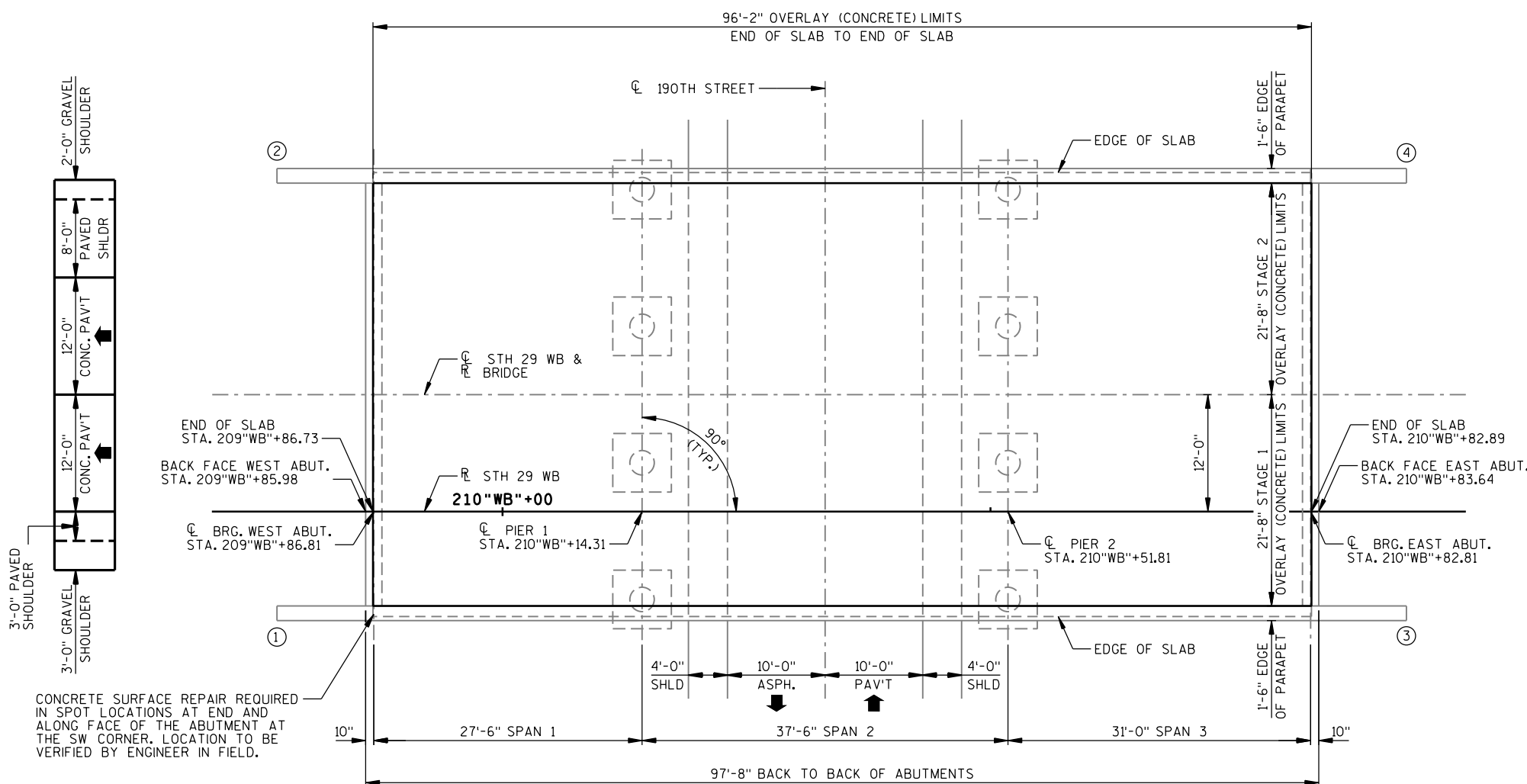
A.A.D.T. (2022) = 9,350
A.A.D.T. (2042) = 11,300

MATERIAL PROPERTIES:

CONCRETE MASONRY - OVERLAY DECKS _____ $f'_c = 4,000$ P.S.I.

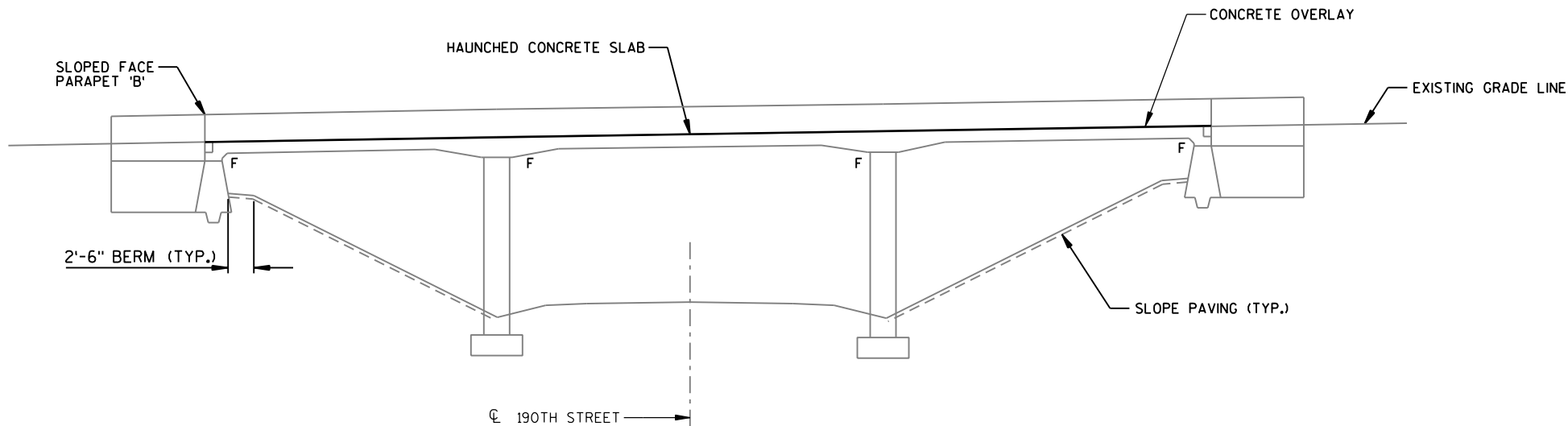
LIST OF DRAWINGS

1. REHAB GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES & NOTES



PLAN

(REHAB - CONCRETE OVERLAY ON EXISTING THREE SPAN HAUNCHED SLAB)

ELEVATION
(LOOKING NORTH)

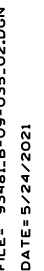
DESIGN CONTACT:

KYLE BUSCH
(608) 216-2063

BRIDGE OFFICE CONTACT:

AARON BONK
(608) 261-0261

NO.	DATE	REVISION	BY
MSA ENGINEERING ARCHITECTURE SURVEYING FUNDING PLANNING ENVIRONMENTAL 1702 Parkside St. Madison, WI 53704 (608) 242-7779 www.msa-ps.com © MSA Professional Services, Inc.			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	DATE		08/09/21
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-9-35			
STH 29 WB OVER 190TH STREET			
COUNTY	CHIPPEWA	TOWN/CITY/VILLAGE	LAFAYETTE
DESIGN SPEC. REHABILITATION - N/A			
DESIGNED BY	JFM	DESIGN CK'D.	KHB
DRAWN BY	RLR	PLANS CK'D.	KHB
REHAB GENERAL PLAN			SHEET 1 OF 2 95



DESIGN DATA

LIVE LOAD:

DESIGN LOADING _____ HS20
INVENTORY RATING _____ HS-24
OPERATIONAL RATING _____ HS-41
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) _____ 250 KIPS

TRAFFIC DATA:

A.A.D.T. (2022) = 9,350
A.A.D.T. (2042) = 11,300

MATERIAL PROPERTIES:

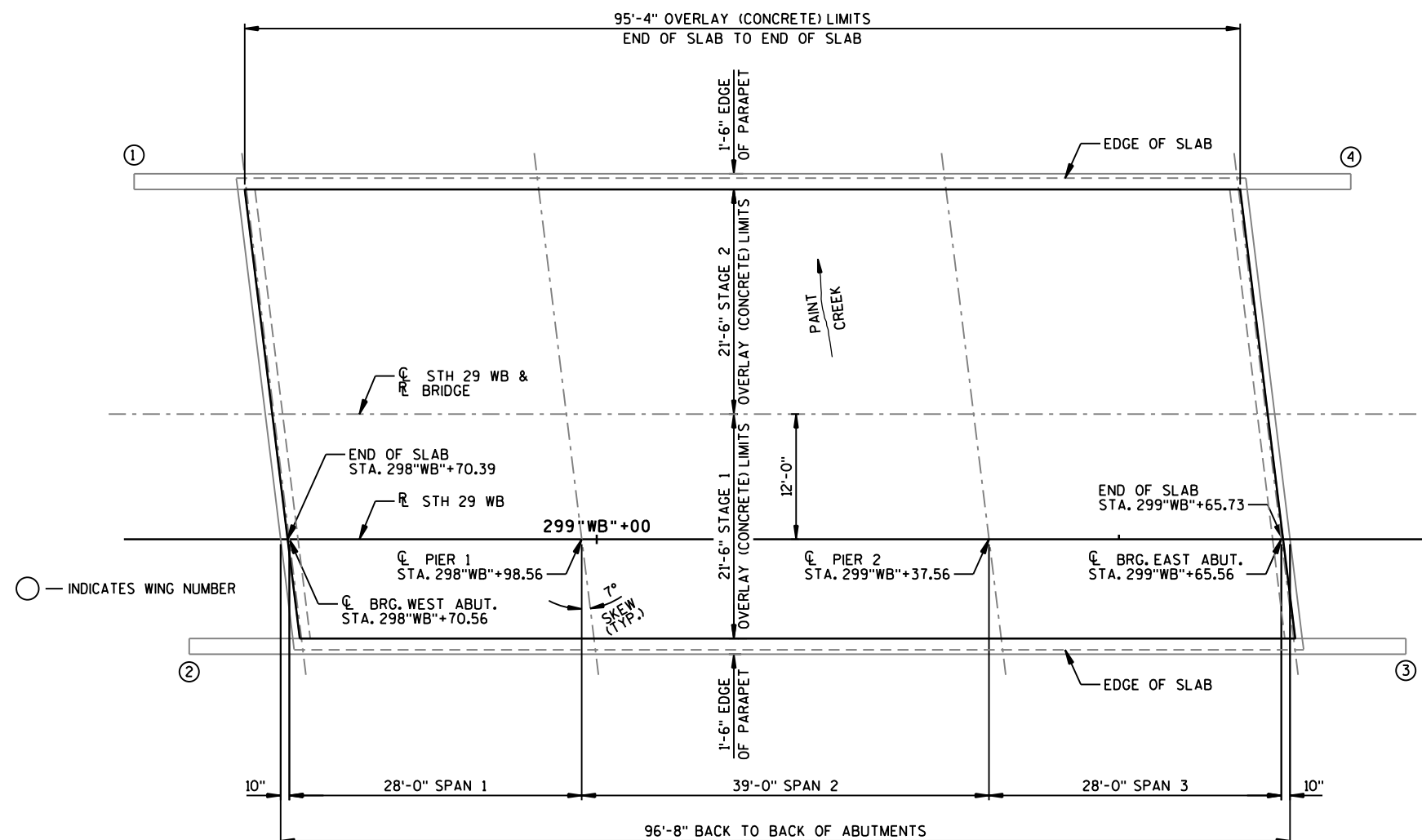
CONCRETE MASONRY - OVERLAY DECKS _____ $f'_c = 4,000$ P.S.I.

LIST OF DRAWINGS

1. REHAB GENERAL PLAN
2. TYPICAL SECTION, DETAILS, QUANTITIES & NOTES

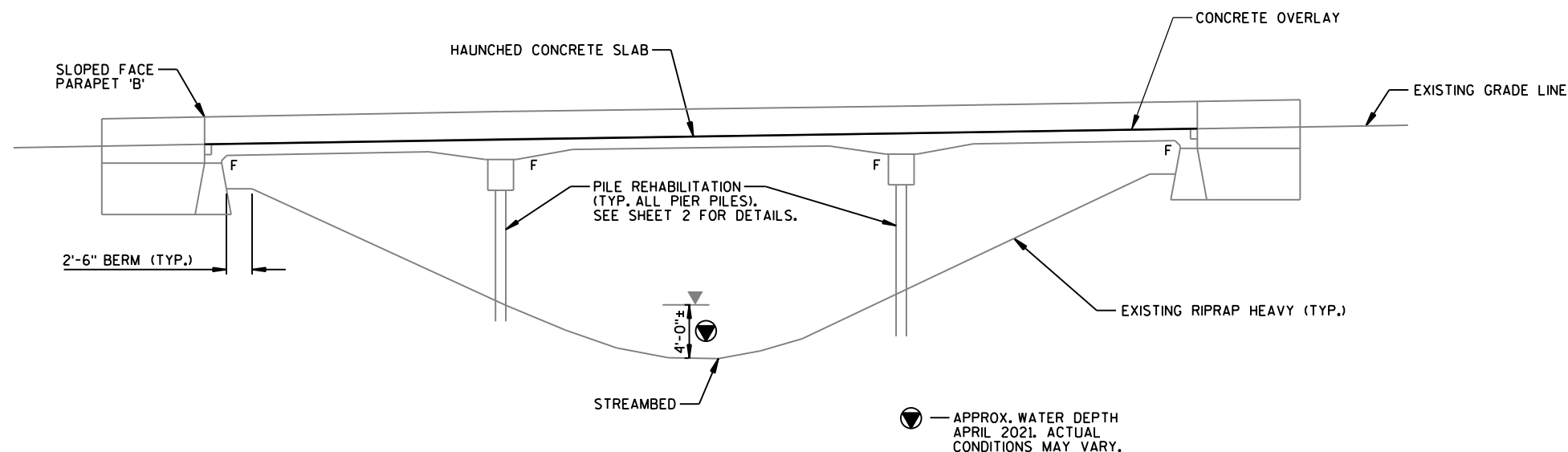


5/27/2021



PLAN

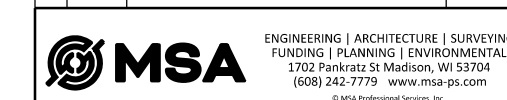
(REHAB - CONCRETE OVERLAY ON EXISTING THREE SPAN HAUNCHED SLAB)

ELEVATION
(LOOKING NORTH)

DESIGN CONTACT:
KYLE BUSCH
(608) 216-2063

BRIDGE OFFICE CONTACT:
AARON BONK
(608) 261-0261

NO.	DATE	REVISION	BY



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED  SDR 08/09/21
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-9-38

STH 29 WB OVER PAINT CREEK

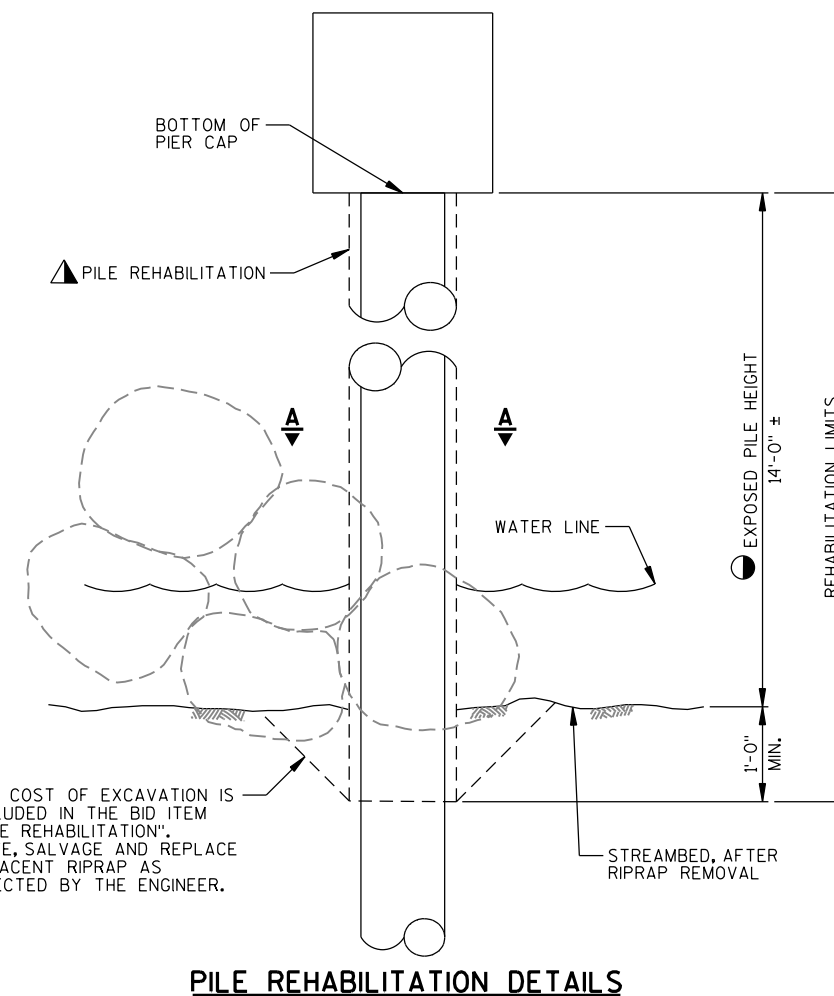
COUNTY CHIPPEWA TOWN/CITY/VILLAGE LAFAYETTE

DESIGN SPEC. REHABILITATION - N/A

DESIGNED BY JFM DESIGN CK'D. KHB DRAWN BY RLR PLANS CK'D. KHB

REHAB GENERAL PLAN

SHEET 1 OF 2
97



LEGEND

● —DIMENSIONS ARE BASED ON THE ORIGINAL
STRUCTURE PLANS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-9-38	
DRAWN BY RLR		PLANS CK'D. KHB	
TYPICAL SECTION, DETAILS, QUANTITIES & NOTES		SHEET 2 OF 2 — 98 —	

* QUANTITY LISTED IS AN ESTIMATE. CONTRACTOR SHALL COORDINATE THE FIELD IDENTIFICATION OF ALL DECK REPAIR LOCATIONS WITH THE ENGINEER.

DESIGN DATA

LIVE LOAD:

DESIGN LOADING _____ HS20
INVENTORY RATING _____ HS-22
OPERATIONAL RATING _____ HS-45
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) _____ 250 KIPS

TRAFFIC DATA:

A.A.D.T. (2022) = 9,350
A.A.D.T. (2042) = 11,300

MATERIAL PROPERTIES:

CONCRETE MASONRY - OVERLAY DECKS _____ $f'_c = 4,000$ P.S.I.
CONCRETE MASONRY - OVERLAY APPROACHES _____ $f'_c = 4,000$ P.S.I.

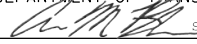
LIST OF DRAWINGS

1. REHAB GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES & NOTES

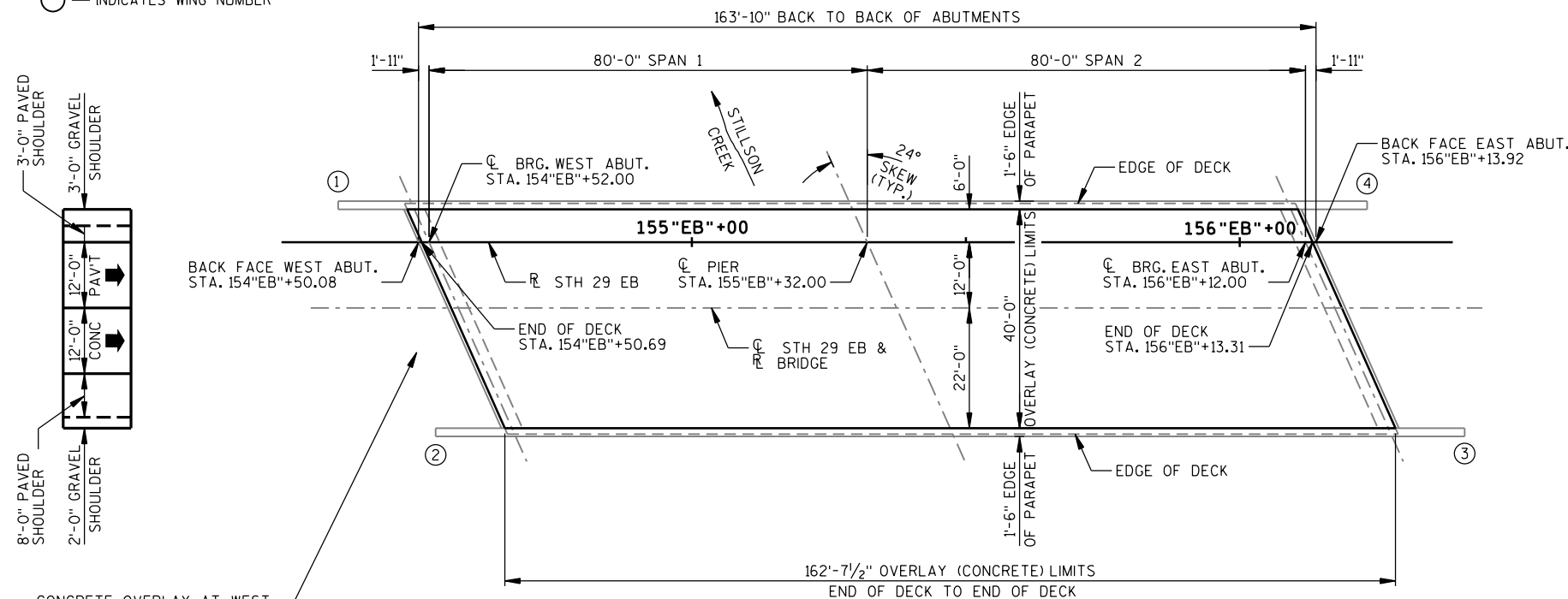


DESIGN CONTACT:
KYLE BUSCH
(608) 216-2063

BRIDGE OFFICE CONTACT:
AARON BONK
(608) 261-0261

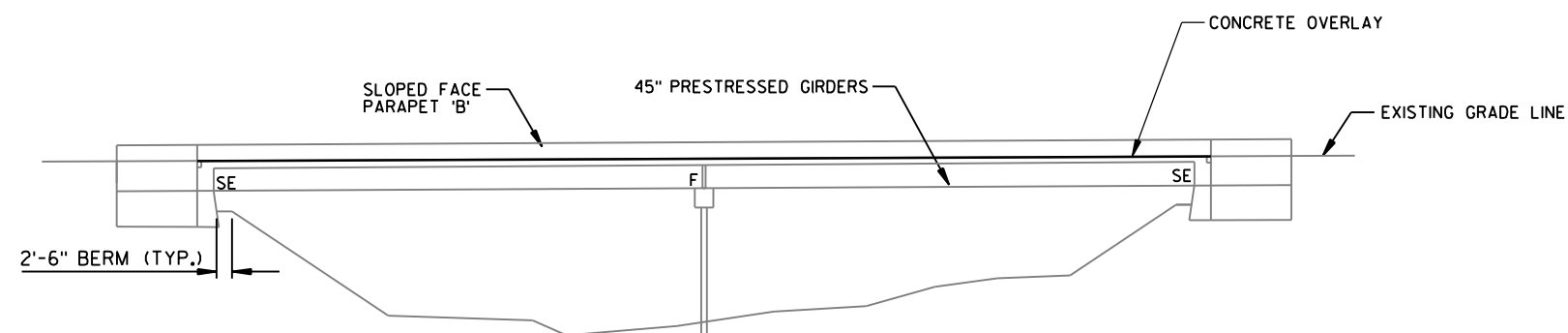
NO.	DATE	REVISION	BY
 ENGINEERING ARCHITECTURE SURVEYING FUNDING PLANNING ENVIRONMENTAL 1702 Parkside St Madison, WI 53704 (608) 242-7779 www.msa-ps.com © MSA Professional Services, Inc.			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED  SDR		08/11/21 DATE	
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-9-171			
STH 29 EB OVER STILLSON CREEK			
COUNTY	CHIPPewa	TOWN/CITY/VILLAGE	LAFAYETTE
DESIGN SPEC. REHABILITATION - N/A			
DESIGNED BY	JFM	DESIGN CK'D.	KHB
DRAWN BY	RLR	PLANS CK'D.	KHB
REHAB GENERAL PLAN			SHEET 1 OF 2 99

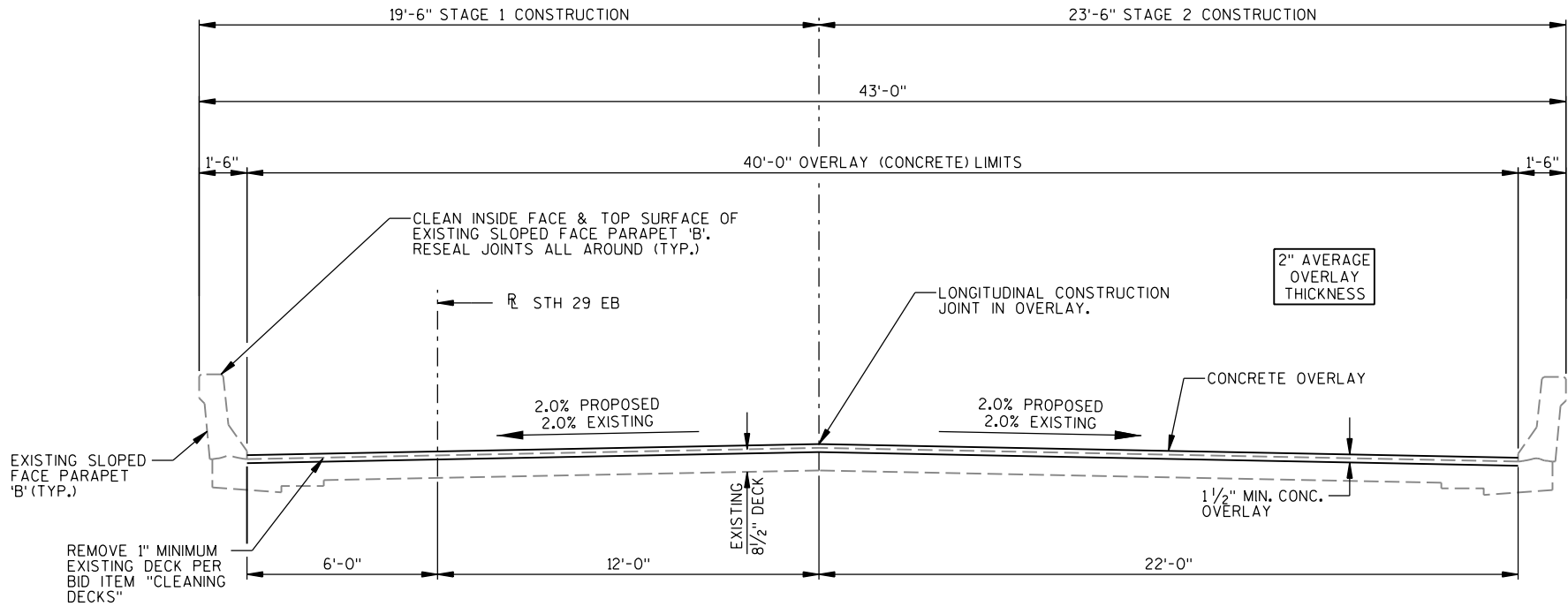
○ — INDICATES WING NUMBER

**PLAN**

(REHAB - CONCRETE OVERLAY ON EXISTING TWO SPAN PRESTRESSED CONCRETE GIRDER)

CONCRETE OVERLAY AT WEST
APPROACH SLAB. MATCH
PROPOSED GRADE AT ENDS.
LIMITS TO BE VERIFIED
BY ENGINEER IN FIELD.

**ELEVATION**
LOOKING NORTH



CROSS SECTION THRU ROADWAY

(LOOKING EAST)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

SEE ROAD PLANS FOR TRAFFIC CONTROL.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE NOT SHOWN.

IMPROVEMENTS INCLUDE A CONCRETE DECK OVERLAY OF THE BRIDGE DECK, DECK REPAIRS, RESEALING PARAPETS, AND CONCRETE OVERLAY AT THE WEST APPROACH.

THIS PROJECT WILL REHABILITATE THE EXISTING STRUCTURE, B-9-171, A TWO SPAN, 163.83' PRESTRESSED CONCRETE GIRDER BRIDGE SET ON CONCRETE SILL ABUTMENTS AND A CONCRETE COLUMN BENT PIER.

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

APPLY PIGMENTED SURFACE SEALER TO THE TOP AND ROADWAY FACE OF THE PARAPET. SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "PIGMENTED SURFACE SEALER RESEAL."

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY.

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

A MINIMUM OF 1-INCH CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE WEST APPROACH SLAB UNDER THE BID ITEM "CLEANING APPROACHES".

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

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1 1/2" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY AT THE ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

"DEBRIS CONTAINMENT OVER WATERWAY" TO BE USED ONLY IF FULL-DEPTH DECK REPAIR IS REQUIRED AS DIRECTED BY THE ENGINEER.

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEM	UNIT	WEST ABUT.	EAST ABUT.	SUPER	TOTAL
203.0335.03	DEBRIS CONTAINMENT OVER WATERWAY (B-9-171)	EACH	-	-	-	1
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	-	723	723
502.3205	PIGMENTED SURFACE SEALER RESEAL	SY	-	-	150	150
* 509.0200	PREPARATION APPROACHES	SY	6	-	-	6
* 509.0301	PREPARATION DECKS TYPE 1	SY	-	-	36	36
* 509.0302	PREPARATION DECKS TYPE 2	SY	-	-	14	14
509.0500	CLEANING DECKS	SY	-	-	723	723
509.0600	CLEANING APPROACHES	SY	111	-	-	111
* 509.2000	FULL-DEPTH DECK REPAIR	SY	-	-	1	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	-	-	43	43
509.2600	CONCRETE MASONRY OVERLAY APPROACHES	CY	6	-	-	6

* QUANTITY LISTED IS AN ESTIMATE. CONTRACTOR SHALL COORDINATE THE FIELD IDENTIFICATION OF ALL DECK AND APPROACH REPAIR LOCATIONS WITH THE ENGINEER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-171			
DRAWN BY SSS		PLANS CK'D. KHB	
TYPICAL SECTION, QUANTITIES & NOTES		SHEET 2 OF 2 100	

DESIGN LOADING _____	HS20
INVENTORY RATING _____	HS-25
OPERATIONAL RATING _____	HS-42
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) _____	250 KIPS

A.A.D.T. (2022) = 9,350
A.A.D.T. (2042) = 11,300

CONCRETE MASONRY - OVERLAY DECKS ————— $f'_c = 4,000$ P.S.I.

1. REHAB GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES & NOTES

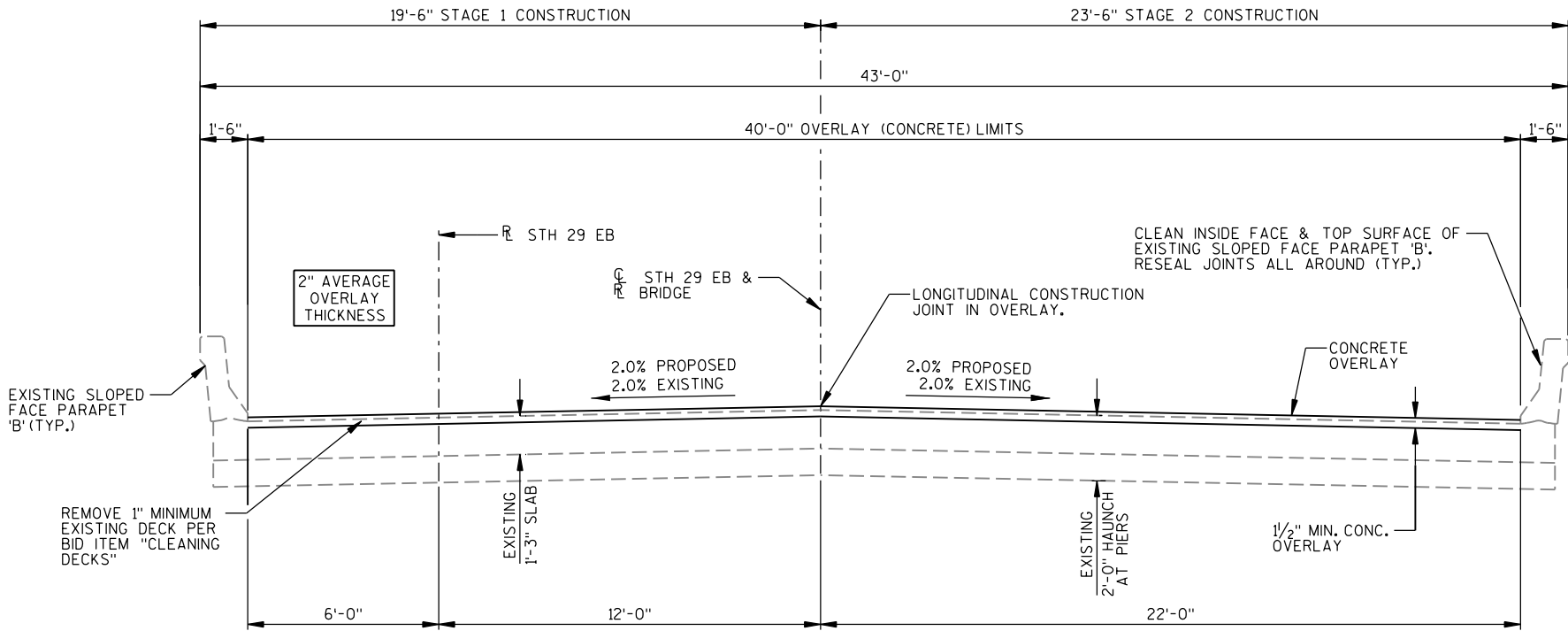


(REHAB - CONCRETE OVERLAY ON EXISTING THREE SPAN HAUNCHED SLAB)



DESIGN CONTACT:	BRIDGE OFFICE CONTACT:
KYLE BUSCH	AARON BONK
(608) 216-2063	(608) 261-0261

[illegible]



CROSS SECTION THRU ROADWAY

(LOOKING EAST)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

SEE ROAD PLANS FOR TRAFFIC CONTROL.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE NOT SHOWN.

IMPROVEMENTS INCLUDE A CONCRETE DECK OVERLAY OF THE BRIDGE DECK, DECK REPAIRS, AND RESEALING PARAPETS.

THIS PROJECT WILL REHABILITATE THE EXISTING STRUCTURE, B-9-174, A THREE SPAN, 97.83' HAUNCHED CONCRETE SLAB BRIDGE SET ON CONCRETE SILL ABUTMENTS AND CONCRETE COLUMN PIERS.

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

APPLY PIGMENTED SURFACE SEALER TO THE TOP AND ROADWAY FACE OF THE PARAPET. SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "PIGMENTED SURFACE SEALER RESEAL."

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY.

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

A MINIMUM OF 1-INCH CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".

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

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1 1/2" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY AT THE ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEM	UNIT	TOTAL
502.3200	PROTECTIVE SURFACE TREATMENT	SY	429
502.3205	PIGMENTED SURFACE SEALER RESEAL	SY	92
* 509.0301	PREPARATION DECKS TYPE 1	SY	21
* 509.0302	PREPARATION DECKS TYPE 2	SY	8
509.0500	CLEANING DECKS	SY	429
* 509.2000	FULL-DEPTH DECK REPAIR	SY	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	26

* QUANTITY LISTED IS AN ESTIMATE. CONTRACTOR SHALL COORDINATE THE FIELD IDENTIFICATION OF ALL DECK REPAIR LOCATIONS WITH THE ENGINEER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-9-174	
DRAWN BY RLR		PLANS CK'D. KHB	
TYPICAL SECTION, QUANTITIES & NOTES		SHEET 2 OF 2 102	

DESIGN DATA

LIVE LOAD:

DESIGN LOADING _____ HS20
INVENTORY RATING _____ HS-21
OPERATIONAL RATING _____ HS-35
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) _____ 250 KIPS

TRAFFIC DATA:

A.A.D.T. (2022) = 9,350
A.A.D.T. (2042) = 11,300

MATERIAL PROPERTIES:

CONCRETE MASONRY - OVERLAY DECKS _____ $f'c = 4,000$ P.S.I.

LIST OF DRAWINGS

1. REHAB GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES & NOTES

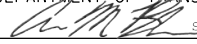


DESIGN CONTACT:
KYLE BUSCH
(608) 216-2063

BRIDGE OFFICE CONTACT:
AARON BONK
(608) 261-0261

NO.	DATE	REVISION	BY



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED  SDR **08/11/21**
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-9-175

STH 29 EB OVER PAINT CREEK

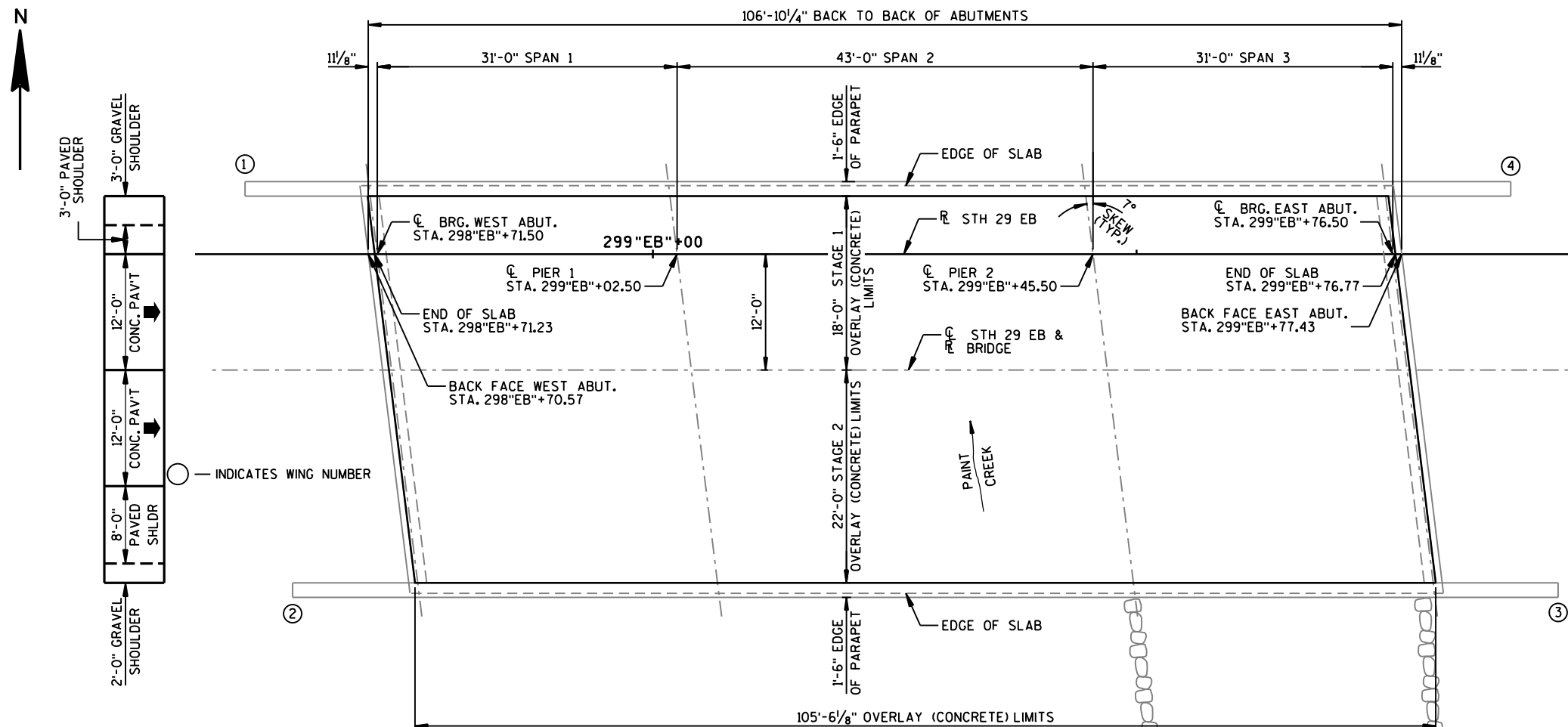
COUNTY CHIPPEWA TOWN/CITY/VILLAGE LAFAYETTE

DESIGN SPEC.
REHABILITATION - N/A

DESIGNED BY JFM DESIGN CK'D. KHB DRAWN BY RLR PLANS CK'D. KHB

REHAB GENERAL PLAN

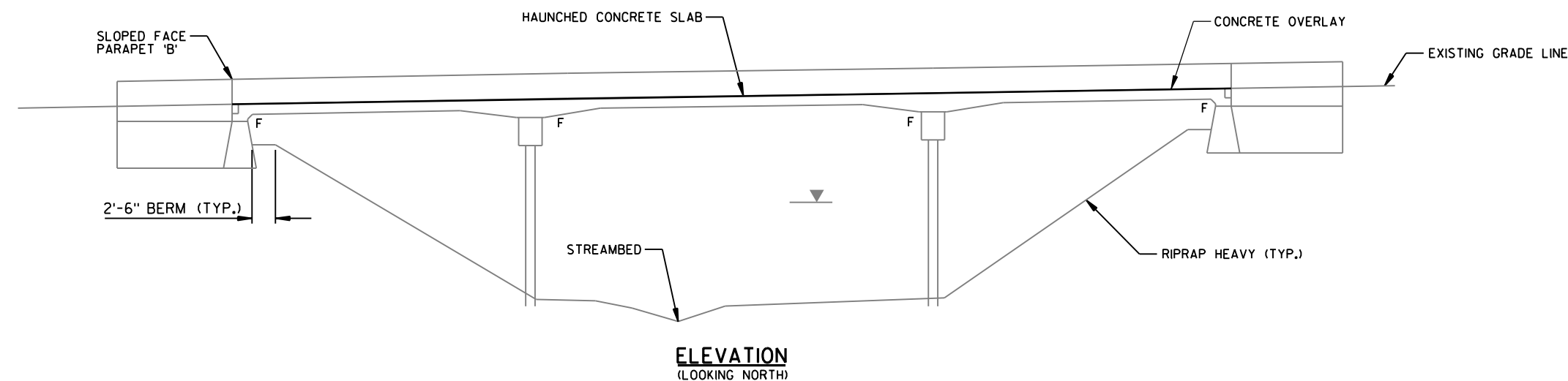
SHEET 1 OF 2
103

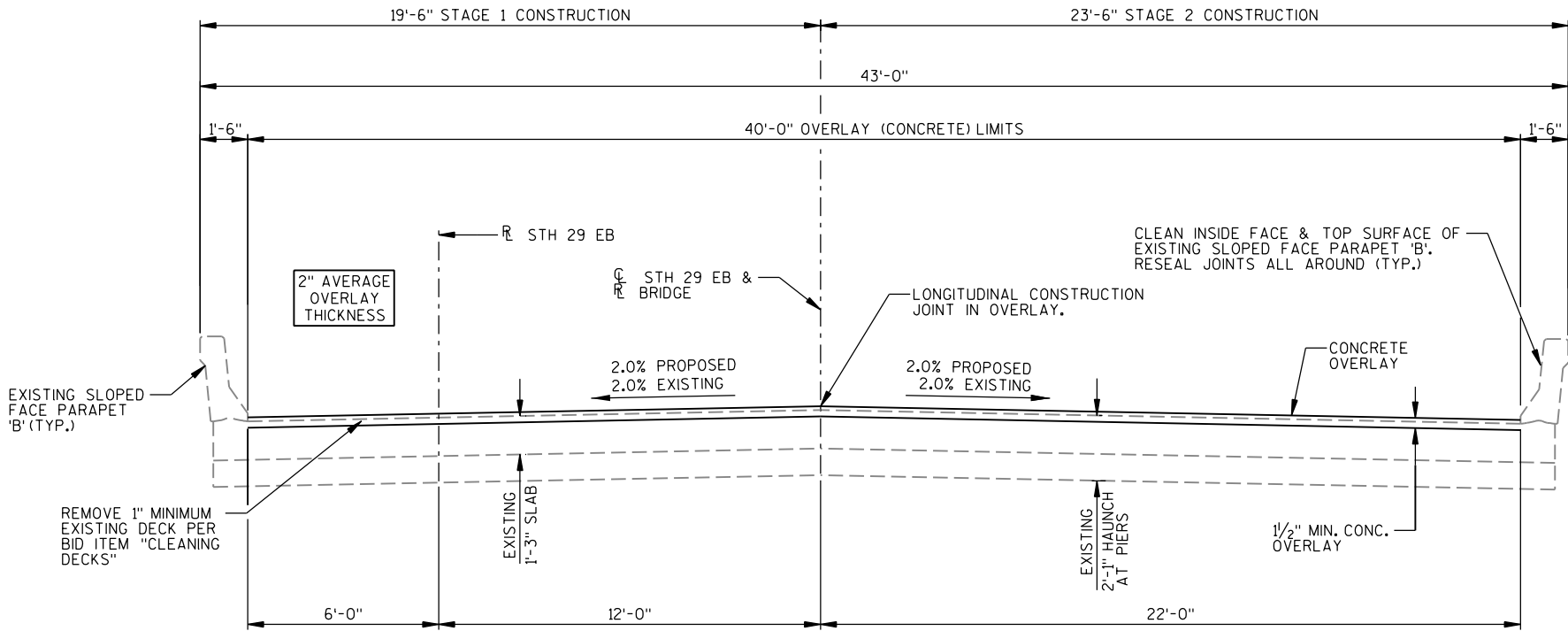


PLAN

(REHAB - CONCRETE OVERLAY ON EXISTING THREE SPAN HAUNCHED SLAB)

INSTALL RIPRAP HEAVY TO STREAMBANK TO FILL SCOUR HOLE AS DIRECTED BY ENGINEER AT SE CORNER APPROX. 60' RT OF R STH 29 EB. INTENT IS TO RESTORE THE CROSS-SECTION ADJACENT TO THE BRIDGE TO WHAT IS SHOWN ON THE AS-BUILT PLANS.

ELEVATION
(LOOKING NORTH)



CROSS SECTION THRU ROADWAY

(LOOKING EAST)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

SEE ROAD PLANS FOR TRAFFIC CONTROL.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE NOT SHOWN.

IMPROVEMENTS INCLUDE A CONCRETE DECK OVERLAY OF THE BRIDGE DECK, DECK REPAIRS, RESEALING PARAPETS, AND RIPRAP PLACEMENT.

THIS PROJECT WILL REHABILITATE THE EXISTING STRUCTURE, B-9-175, A THREE SPAN, 106.85' HAUNCHED CONCRETE SLAB BRIDGE SET ON CONCRETE SILL ABUTMENTS AND CONCRETE COLUMN BENT PIERS.

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

APPLY PIGMENTED SURFACE SEALER TO THE TOP AND ROADWAY FACE OF THE PARAPET. SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "PIGMENTED SURFACE SEALER RESEAL."

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY.

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

A MINIMUM OF 1-INCH CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".

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

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1 1/2" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY AT THE ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

"DEBRIS CONTAINMENT OVER WATERWAY" TO BE USED ONLY IF FULL-DEPTH DECK REPAIR IS REQUIRED AS DIRECTED BY THE ENGINEER.

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEM	UNIT	WEST ABUT.	EAST ABUT.	SUPER	TOTAL
203.0335.04	DEBRIS CONTAINMENT OVER WATERWAY (B-9-175)	EACH	-	-	-	1
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	-	469	469
502.3205	PIGMENTED SURFACE SEALER RESEAL	SY	-	-	105	105
* 509.0301	PREPARATION DECKS TYPE 1	SY	-	-	23	23
* 509.0302	PREPARATION DECKS TYPE 2	SY	-	-	9	9
509.0500	CLEANING DECKS	SY	-	-	469	469
* 509.2000	FULL-DEPTH DECK REPAIR	SY	-	-	1	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	-	-	28	28
606.0300	RIPRAP HEAVY	CY	-	195	-	195

* QUANTITY LISTED IS AN ESTIMATE. CONTRACTOR SHALL COORDINATE THE FIELD IDENTIFICATION OF ALL DECK REPAIR LOCATIONS WITH THE ENGINEER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-175			
DRAWN BY RLR		PLANS CK'D. KHB	
TYPICAL SECTION, QUANTITIES & NOTES		SHEET 2 OF 2	104

DESIGN DATA

LIVE LOAD:

DESIGN LOADING ————— HS20
INVENTORY RATING ————— HS-35
OPERATIONAL RATING ————— HS-59
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) — 250 KIPS

TRAFFIC DATA:

A.A.D.T. (2022) = 9,350
A.A.D.T. (2042) = 11,300

MATERIAL PROPERTIES:

CONCRETE MASONRY - OVERLAY DECKS ————— f'c = 4,000 P.S.I.
- ALL OTHER ————— f'c = 4,000 P.S.I.
HIGH STRENGTH BAR STEEL
REINFORCEMENT, GRADE 60 ————— f'y = 60,000 P.S.I.

LIST OF DRAWINGS

1. REHAB GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES & NOTES
3. REMOVAL DETAILS
4. STRIP SEAL EXPANSION JOINT
5. STRIP SEAL EXPANSION JOINT DETAILS



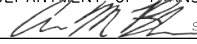
5/27/2021

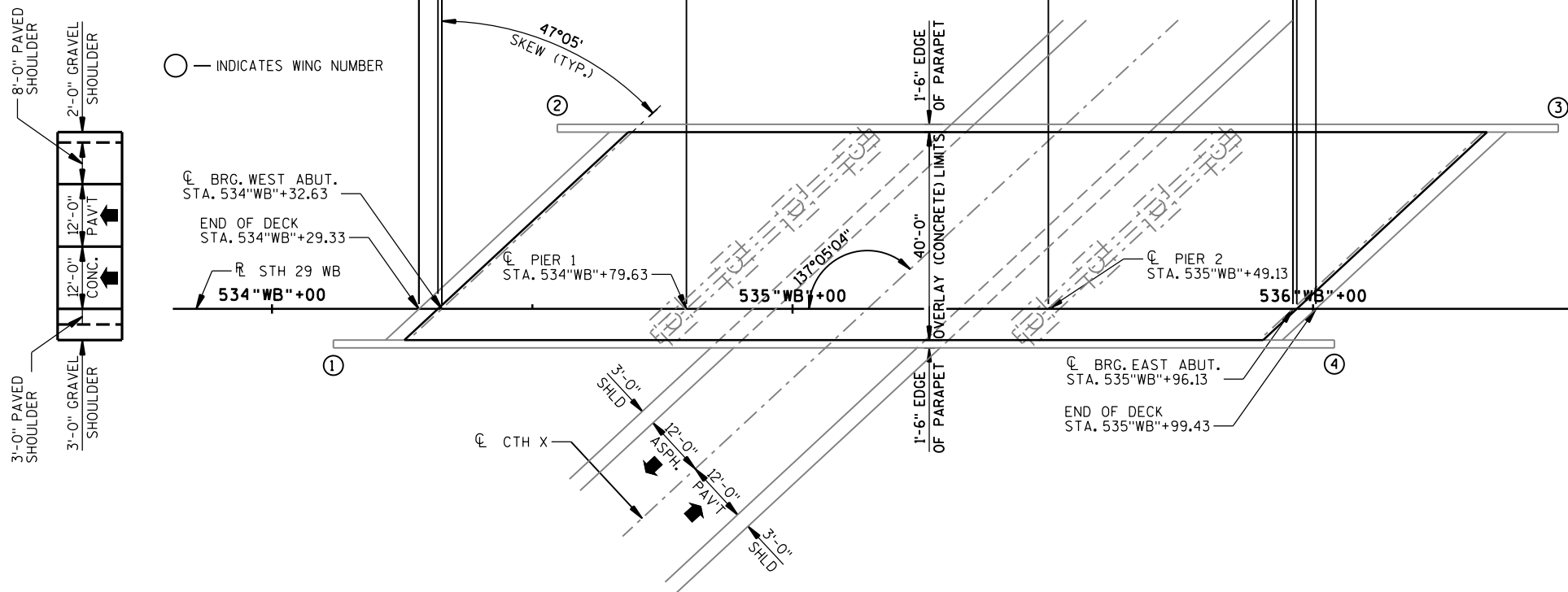
DESIGN CONTACT:

KYLE BUSCH
(608) 216-2063

BRIDGE OFFICE CONTACT:

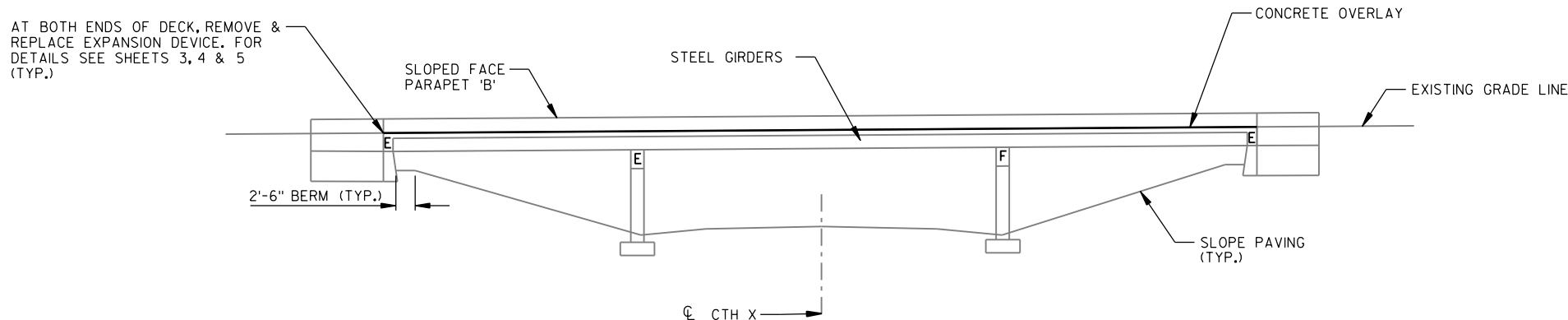
AARON BONK
(608) 261-0261

NO.	DATE	REVISION	BY
 ENGINEERING ARCHITECTURE SURVEYING FUNDING PLANNING ENVIRONMENTAL 1702 Parkside St. Madison, WI 53704 (608) 242-7779 www.msa-ps.com © MSA Professional Services, Inc.			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED  SDR		08/11/21 DATE	
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-9-177			
STH 29 WB OVER CTH X			
COUNTY	CHIPPEWA	TOWN/CITY/VILLAGE	SIGEL
DESIGN SPEC. REHABILITATION - N/A			
DESIGNED BY	JFM	DESIGN CK'D.	KHB
DRAWN BY	RLR	PLANS CK'D.	KHB
REHAB GENERAL PLAN			SHEET 1 OF 5 105



PLAN

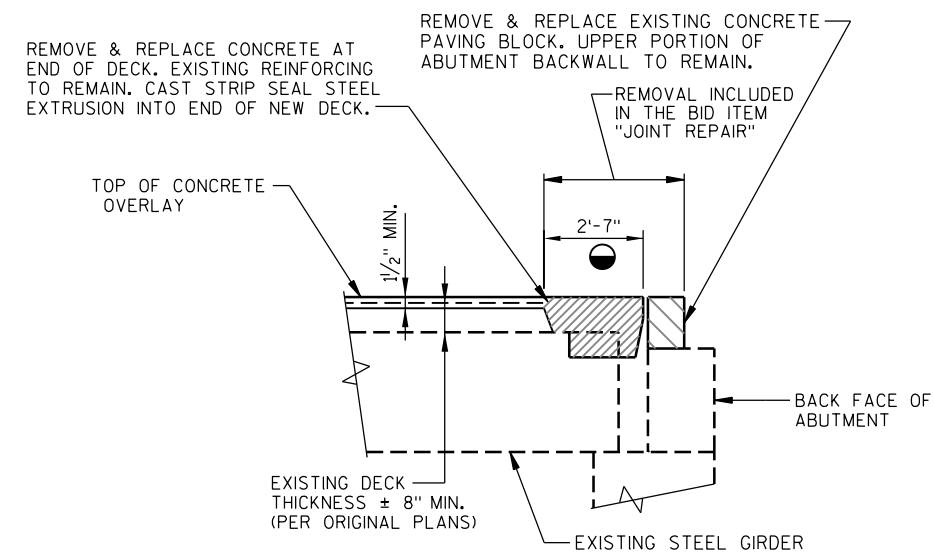
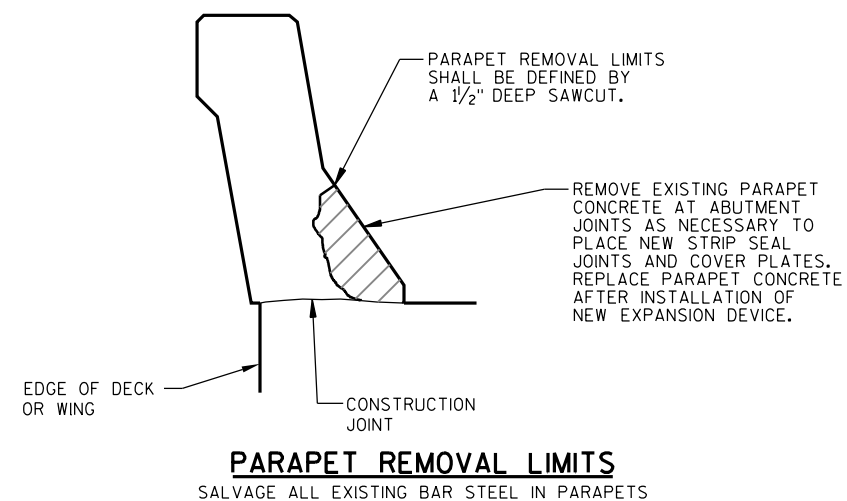
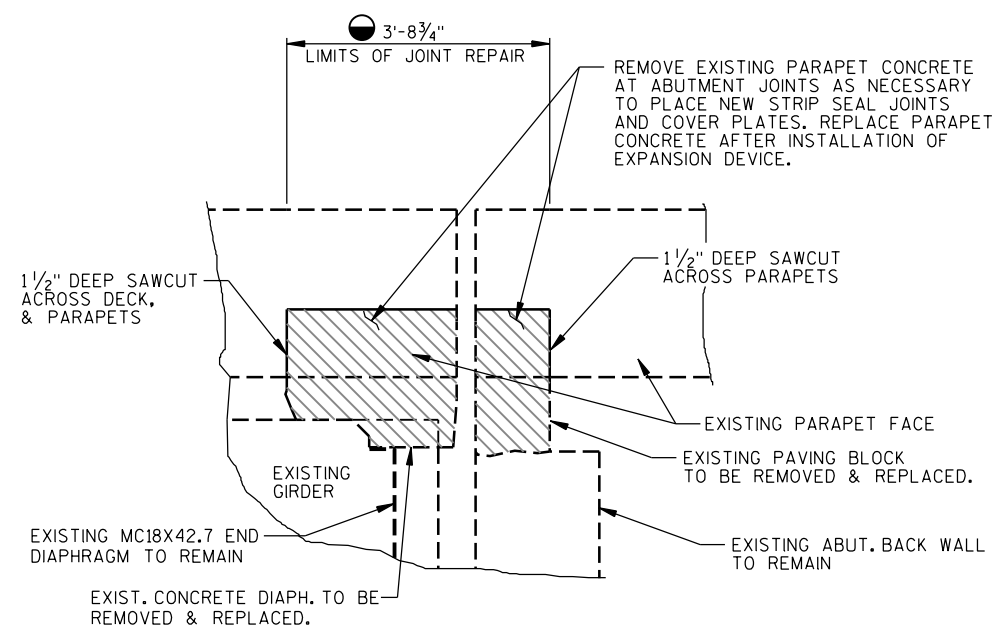
(REHAB - CONCRETE OVERLAY ON EXISTING THREE SPAN STEEL DECK GIRDER)



ELEVATION

(LOOKING NORTH)

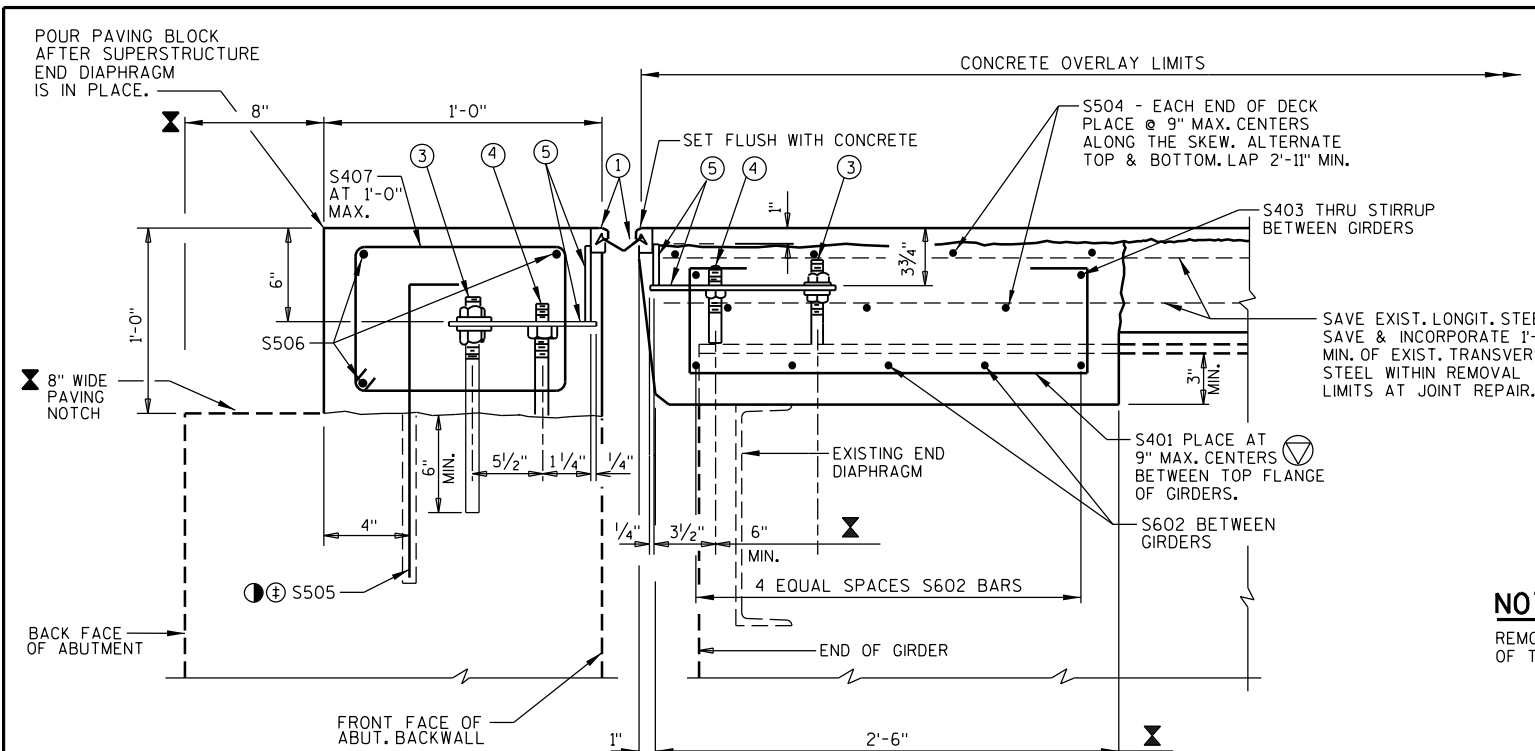


**PART LONGITUDINAL SECTION****REMOVAL DETAIL**

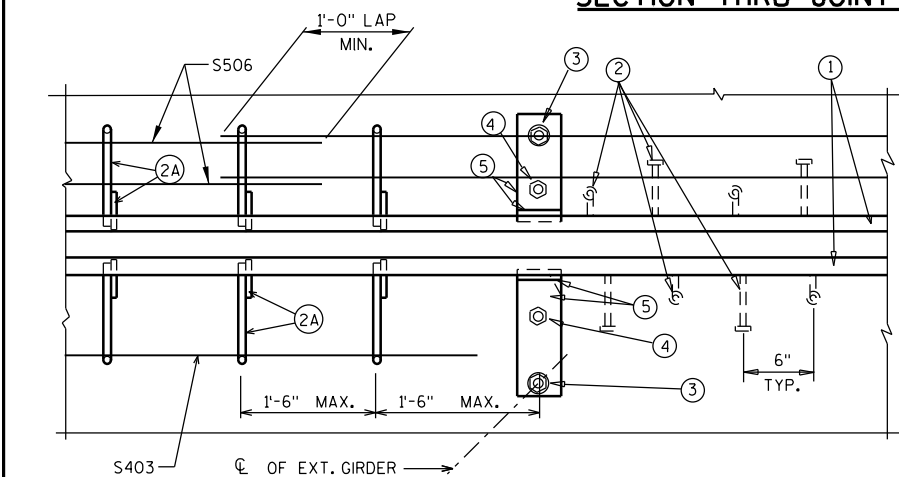
— DIMENSION GIVEN NORMAL TO ϕ OF ABUTMENT

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-9-177	
DRAWN BY RLR		PLANS CK'D. KHB	
REMOVAL DETAILS		SHEET 3 OF 5 107	

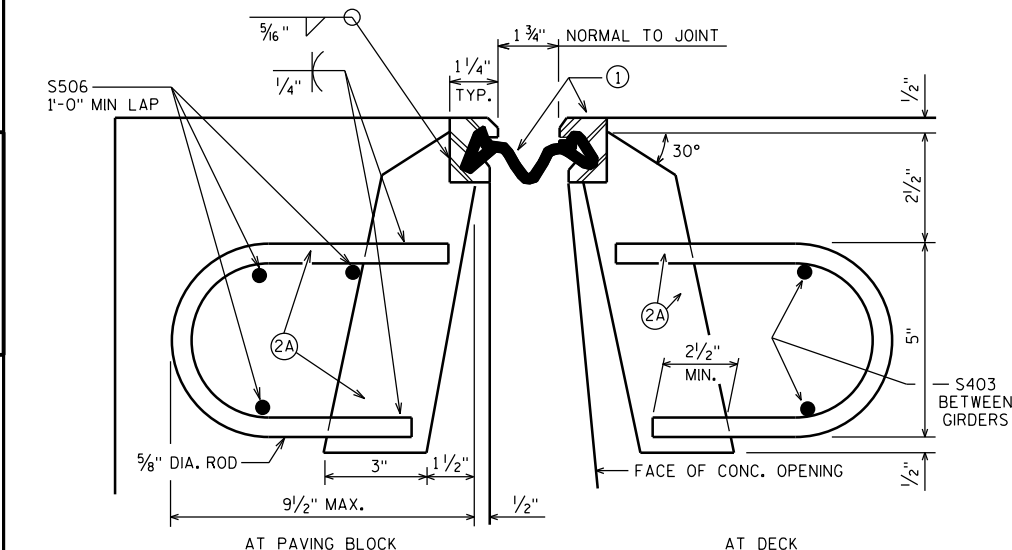
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DATE= 2/15/2021



SECTION THRU JOINT AT ABUTMENTS



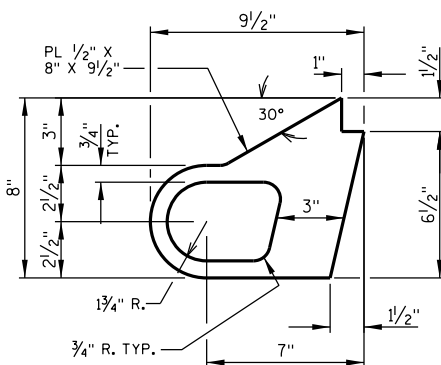
PART PLAN



SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

ALTERNATE STRIP SEAL ANCHOR



NOTE:

REMOVE ALL EXISTING EXPANSION JOINT COMPONENTS FROM THE TOPS OF THE EXISTING GIRDERS.

STATE PROJECT NUMBER

1050-01-81

BILL OF BARS (COATED)

3170 LBS.

MARK	NO. REQ'D	LENGTH	BENT	LOCATION
S401	90	4'-11"	X	DIAPH @ ABUT. - STIRRUP - VERT.
S602	50	8'-7"		DIAPH @ ABUT. - BETWEEN GIRDERS - TRANS.
S403	40	8'-7"		DECK ENDS BETWEEN GIRDERS - THRU STRIP SEAL & STIRRUPS - TRANS.
S504	28	32'-2"		DECK ENDS - ABOVE DIAPHRAGM - TRANS.
S505	128	2'-7"	X	ABUTMENT BACKWALL TOP - VERT. ANCHOR
S506	54	7'-10"		ABUTMENT BACKWALL TOP - TRANS.
S407	128	3'-2"	X	ABUTMENT BACKWALL TOP - STIRRUP

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

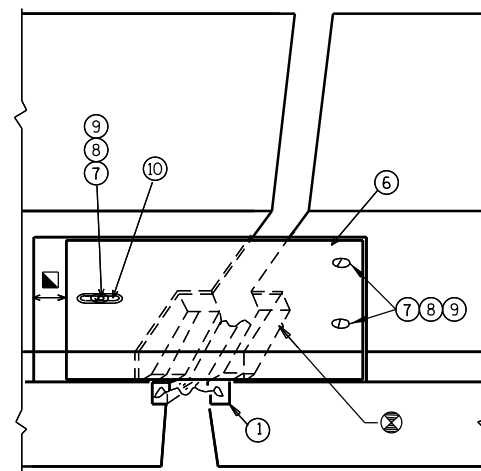
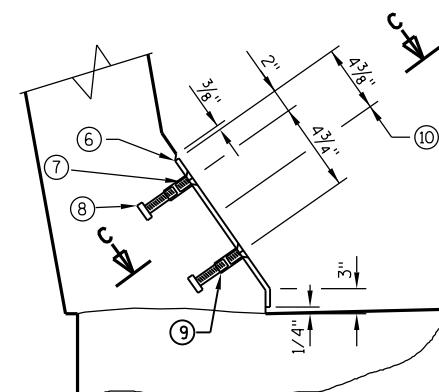
EPOXY COAT ALL BARSTEEL REINFORCEMENT.

S403 BARS THROUGH STRIP SEAL NOT SHOWN IN SECTION THRU JOINT AT ABUTMENTS DETAIL. SEE PART PLAN AND SECTION THRU JOINT DETAILS.

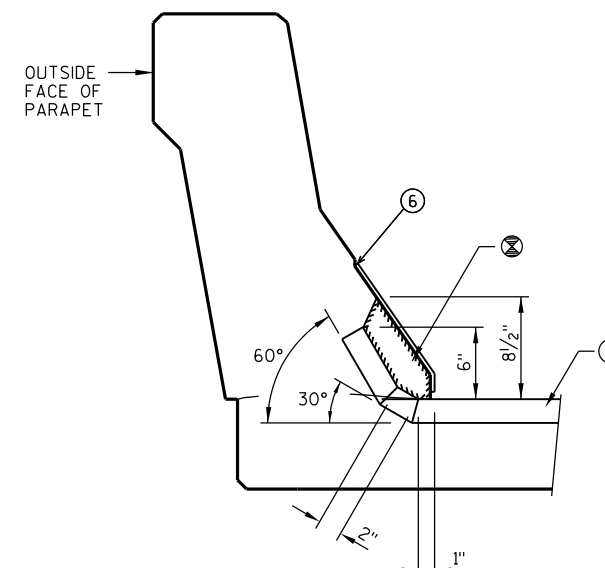
LEGEND

- ③ - REMOVE EXISTING VERTICAL REINFORCING BARS DURING REMOVAL OF PAVING BLOCK. REPLACE WITH "ADHESIVE ANCHORS NO. 5 BAR" SPACED AT 1'-0".
- ① - ADHESIVE ANCHORS NO. 5 BAR EMBED 1'-0" IN CONCRETE. ANCHOR HOLES SHALL BE 4" CLEAR MIN. TO FACE OF EXISTING CONCRETE, TURN 10" HORIZONTAL LEG OF S505 BARS AS NECESSARY TO FIT.
- ⊙ - DIMENSION IS GIVEN NORMAL TO ϕ OF GIRDER. BARS PLACED PARALLEL TO GIRDERS.
- ⊗ - DIMENSION IS GIVEN NORMAL TO THE ϕ OF ABUTMENT.
- ① - NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 1 3/4". JOINT OPENING GIVEN NORMAL TO JOINT.
- ② - STUDS 5/8" DIA. X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS & BEND AS SHOWN AFTER WELDING.
- ②A - 1/2" THICK ANCHOR PLATE WITH 5/8" DIA. ROD OR ALTERNATE STRIP SEAL ANCHOR. WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CTRS. BETWEEN GIRDERS.
- ③ - 3/4" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. FIELD WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE, GROUT THREADED ROD INTO FIELD DRILLED HOLES 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. FIELD OR SHOP WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" DIA. HOLE FOR NO. 3 & 1" DIA. HOLE FOR NO. 4.

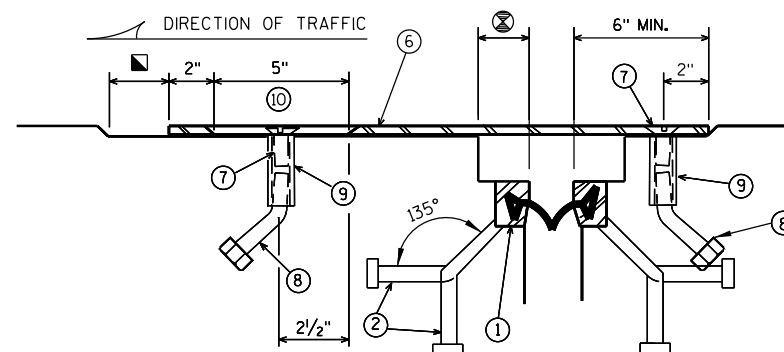
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-177			
DRAWN BY RLR		PLANS CK'D. KHB	
STRIP SEAL EXPANSION JOINT		SHEET 4 OF 5 108	

VIEW OF PARAPET PLATES
FROM ROADWAY

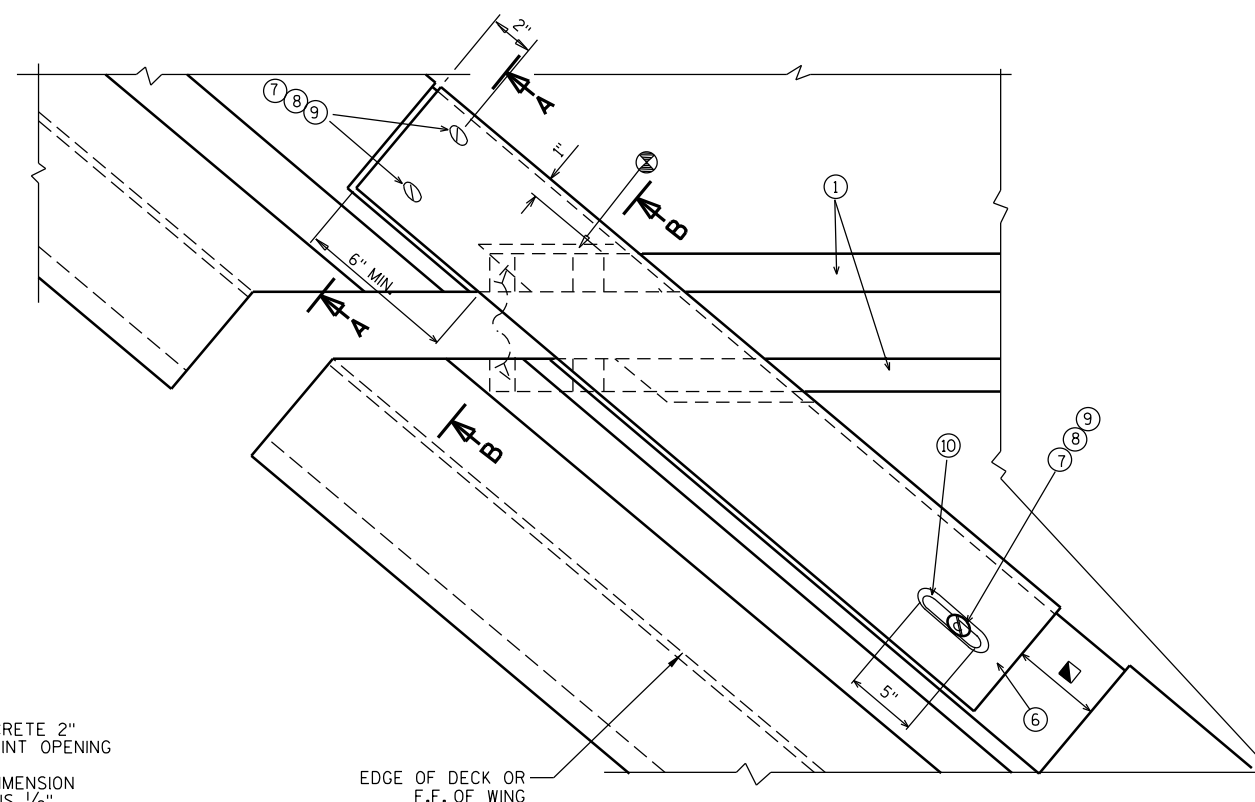
SECTION A-A



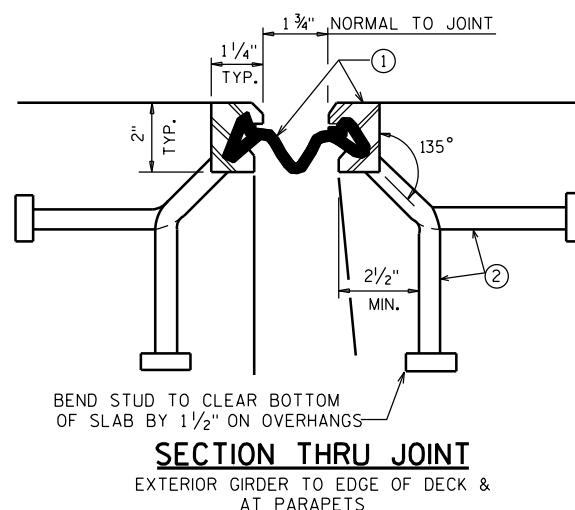
SECTION B-B



SECTION C-C



PLAN AT PARAPET

SECTION THRU JOINT
EXTERIOR GIRDER TO EDGE OF DECK &
AT PARAPETS

- ⊗ — BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING
- ◻ — JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2"

LEGEND

- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 1 3/4". JOINT OPENING GIVEN NORMAL TO JOINT.
- ② STUDS 5/8" DIA. X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS & BEND AS SHOWN AFTER WELDING.
- ⑥ GALVANIZED PLATE 3/8" X 10" X 2'-2" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- ⑦ 3/4" DIA. X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- ⑧ 3/4" DIA. X 4" GALV. HEX HEAD BOLT. BEND 45°.
- ⑨ 3/4" DIA. X 2 1/4" GALV. THREADED COUPLING.
- ⑩ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

NOTES

ONE FIELD SPlice PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE NEEDED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED ANCHOR PLATES SHALL BE PROVIDED 3" FROM EACH SIDE OF THE FIELD SPlice. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPlicing IN NEOPRENE STRIP SEAL.

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

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

SANDBLAST PLATES, SUPPORTS AND 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.

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

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE B-9-177", LF.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-9-177	
DRAWN BY		RLR	PLANS CK'D. KHB
STRIP SEAL EXPANSION JOINT DETAILS		SHEET 5 OF 5 109	

DESIGN DATA

LIVE LOAD: $\oplus$ - TAKEN FROM HSI, 03/19/2021
DESIGN LOADING _____ HS20 $\oplus$
INVENTORY RATING _____ HS-23 $\oplus$
OPERATIONAL RATING _____ HS-46 $\oplus$
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) _____ 250 KIPS $\oplus$

TRAFFIC DATA:

STH 29 _____
A.A.D.T. (2022) = 9,350
A.A.D.T. (2042) = 11,300
CARDINAL AVENUE
A.A.D.T. (2022) = 2,300
A.A.D.T. (2042) = 3,400

MATERIAL PROPERTIES:

CONCRETE MASONRY - DECK REPAIR _____ f'_c = 4,000 P.S.I.
CONCRETE MASONRY - PARAPET _____ f'_c = 4,000 P.S.I.
CONCRETE MASONRY - ALL OTHER _____ f'_c = 3,500 P.S.I.

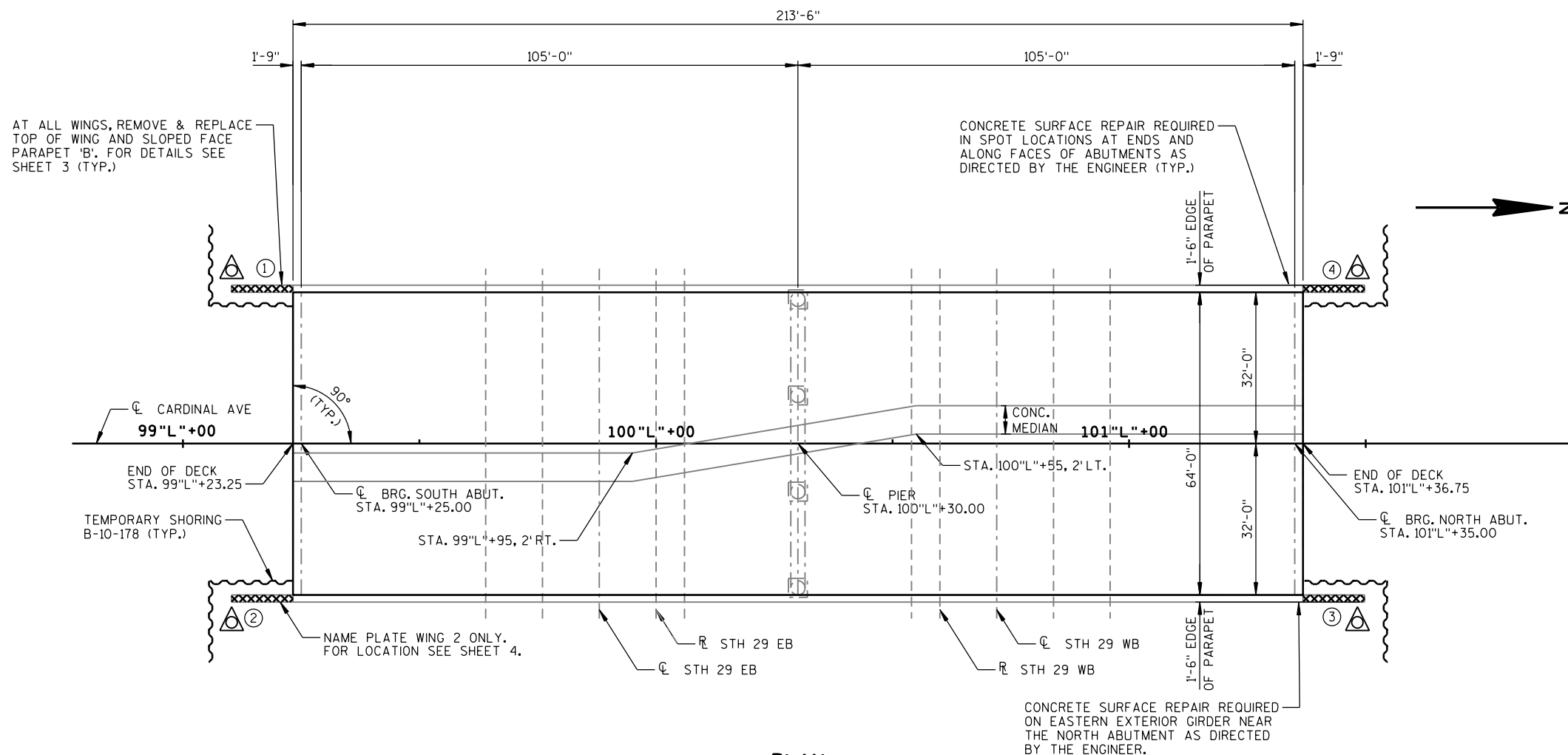
HIGH STRENGTH BAR STEEL
REINFORCEMENT GRADE 60 _____ f_y = 60,000 P.S.I.

LIST OF DRAWINGS

1. REHAB GENERAL PLAN
2. QUANTITIES & NOTES
3. WING TOP REPLACEMENT
4. SLOPED FACE PARAPET 'B'

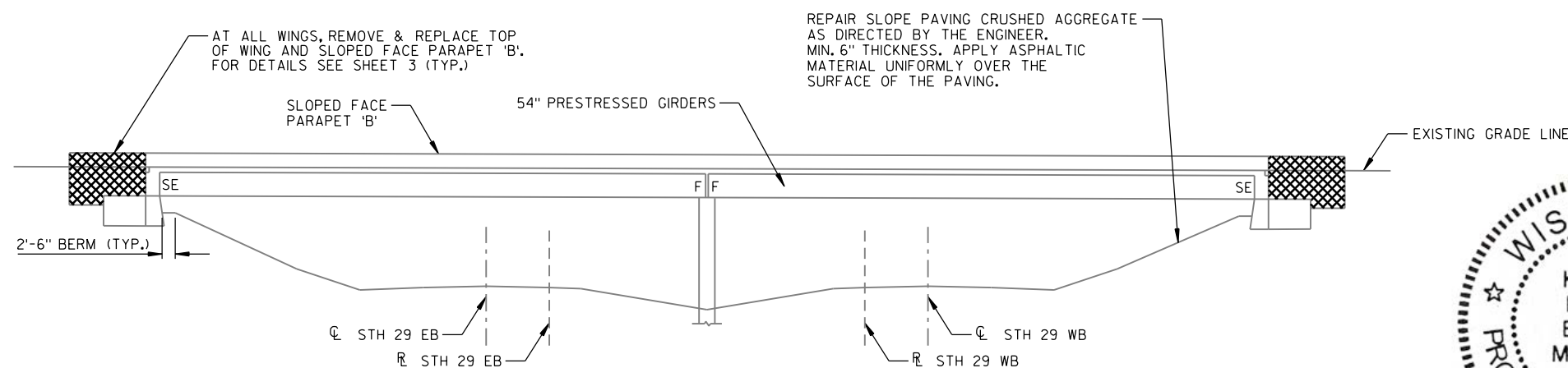
○ — INDICATES WING NUMBER

△ — INDICATES LOCATION OF PROVISION FOR THRIE BEAM GUARD ATTACHMENT AT WINGS. THE EXISTING THRIE BEAM ATTACHMENT PIECE AT THE WING TOP REPLACEMENTS SHALL BE SALVAGED AND REINSTALLED. WORK IS INCIDENTAL TO "CONCRETE MASONRY BRIDGES" BID ITEM.



PLAN

(REHAB - CONCRETE DECK REPAIRS AND WING REPAIRS ON EXISTING TWO SPAN PRESTRESSED CONCRETE GIRDER)

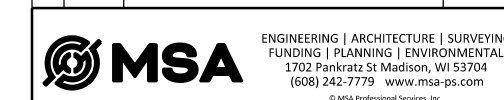


ELEVATION

(LOOKING WEST)

DESIGN CONTACT: KYLE BUSCH (608) 216-2063
BRIDGE OFFICE CONTACT: AARON BONK (608) 261-0261

NO.	DATE	REVISION	BY



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED _____ SDR 08/11/21
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-10-178

CARDINAL AVENUE OVER STH 29 WB & EB

COUNTY CLARK TOWN/CITY/VILLAGE GREEN GROVE

DESIGN SPEC. REHABILITATION - N/A

DESIGNED BY KHB DESIGN CK'D. JFM DRAWN BY RLR PLANS CK'D. KHB

REHAB GENERAL PLAN SHEET 1 OF 4
110



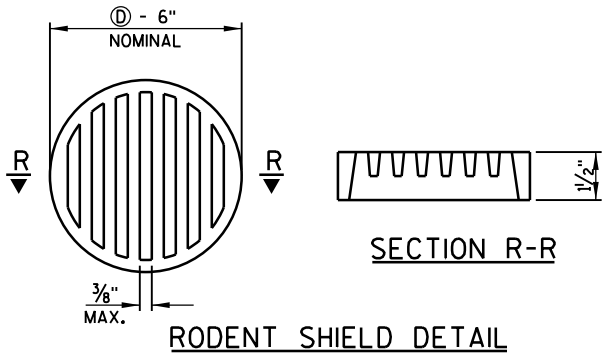
TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEM	UNIT	SOUTH ABUT.	NORTH ABUT.	SUPER	TOTAL
203.0220.02	REMOVING STRUCTURE (B-10-178)	EACH	-	-	-	1
206.1000.02	EXCAVATION FOR STRUCTURES BRIDGES (B-10-178)	LS	-	-	-	1
② 210.1500	BACKFILL STRUCTURE TYPE A	TON	70	70	-	140
502.0100	CONCRETE MASONRY BRIDGES	CY	7	7	5	19
502.3210	PIGMENTED SURFACE SEALER	SY	-	-	23	23
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	56	56	-	112
502.4206	ADHESIVE ANCHORS NO. 6 BAR	EACH	4	4	-	8
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1120	1120	1080	3320
* 509.0301	PREPARATION DECKS TYPE 1	SY	-	-	76	76
* 509.0302	PREPARATION DECKS TYPE 2	SY	-	-	30	30
509.0310.S	SAWING PAVEMENT DECK PREPARATION AREAS	LF	-	-	760	760
* * 509.1500	CONCRETE SURFACE REPAIR	SF	20	20	5	45
* 509.2000	FULL-DEPTH DECK REPAIR	SY	-	-	1	1
509.2100.S	CONCRETE MASONRY DECK REPAIR	CY	-	-	6	6
511.1200.02	TEMPORARY SHORING B-10-178	SF	364	364	-	728
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	6	6	-	12
604.0500	SLOPE PAVING CRUSHED AGGREGATE	SY	-	25	-	25
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	72	72	-	144
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	-	-	4	4
NON-BID ITEMS						
	FILLER	SIZE				1/2"

- * QUANTITY LISTED IS AN ESTIMATE. CONTRACTOR SHALL COORDINATE THE FIELD IDENTIFICATION OF ALL DECK REPAIR LOCATIONS WITH THE ENGINEER.
- * * CONCRETE SURFACE REPAIR SHALL BE USED FOR NEEDED REPAIRS. LOCATIONS AND LIMITS OF REPAIR SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

GENERAL NOTES

- DRAWINGS SHALL NOT BE SCALED.
- SEE ROAD PLANS FOR TRAFFIC CONTROL.
- DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.
- THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE NOT SHOWN.
- IMPROVEMENTS INCLUDE DECK REPAIRS, ABUTMENT AND GIRDER SURFACE REPAIRS, REPLACEMENT OF THE WING TOP AND PARAPET AT ALL WINGS, AND SLOPE PAVING REPAIRS AT THE NORTH ABUTMENT.
- THIS PROJECT WILL REHABILITATE THE EXISTING STRUCTURE, B-10-178, A TWO SPAN, 213.50' PRESTRESSED CONCRETE GIRDER BRIDGE SET ON CONCRETE SILL ABUTMENTS AND A CONCRETE COLUMN BENT PIER.
- PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY DECK REPAIR".
- ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1" DEEP SAWCUT.
- UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.
- THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES BAR SIZE.
- ② BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- AT THE BACK FACE OF WING, ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.
- THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE SHALL SHOW THE ORIGINAL CONSTRUCTION YEAR OF 1995. SUPPLYING AND INSTALLING NAME PLATE IS INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES".
- "PIGMENTED SURFACE SEALER" BID ITEM SHALL BE APPLIED TO THE TOP AND ROADWAY FACE OF THE NEW PARAPET AT WING TOP REPLACEMENT LOCATIONS.
- THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE ABUTMENTS.
- F.F. - FRONT FACE B.F. - BACK FACE

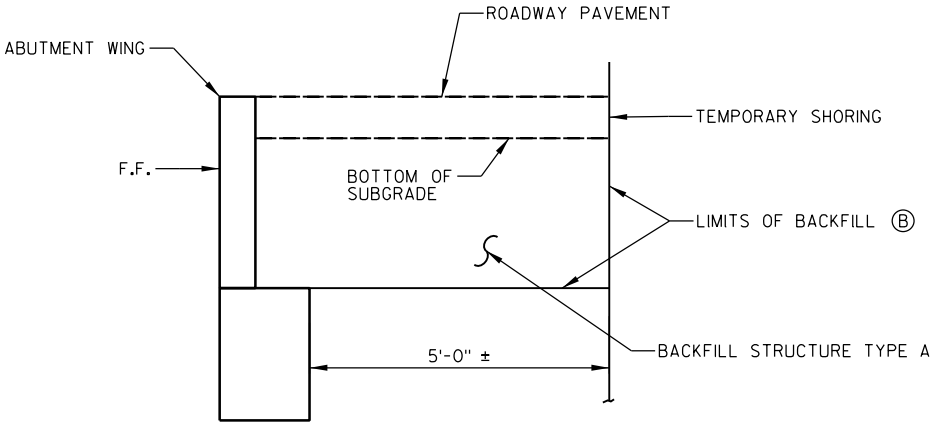


Ø - DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

RODENT SHIELD NOTES:

ORIENT SHIELD SO SLOTS ARE VERTICAL.

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



STRUCTURE BACKFILL DETAIL

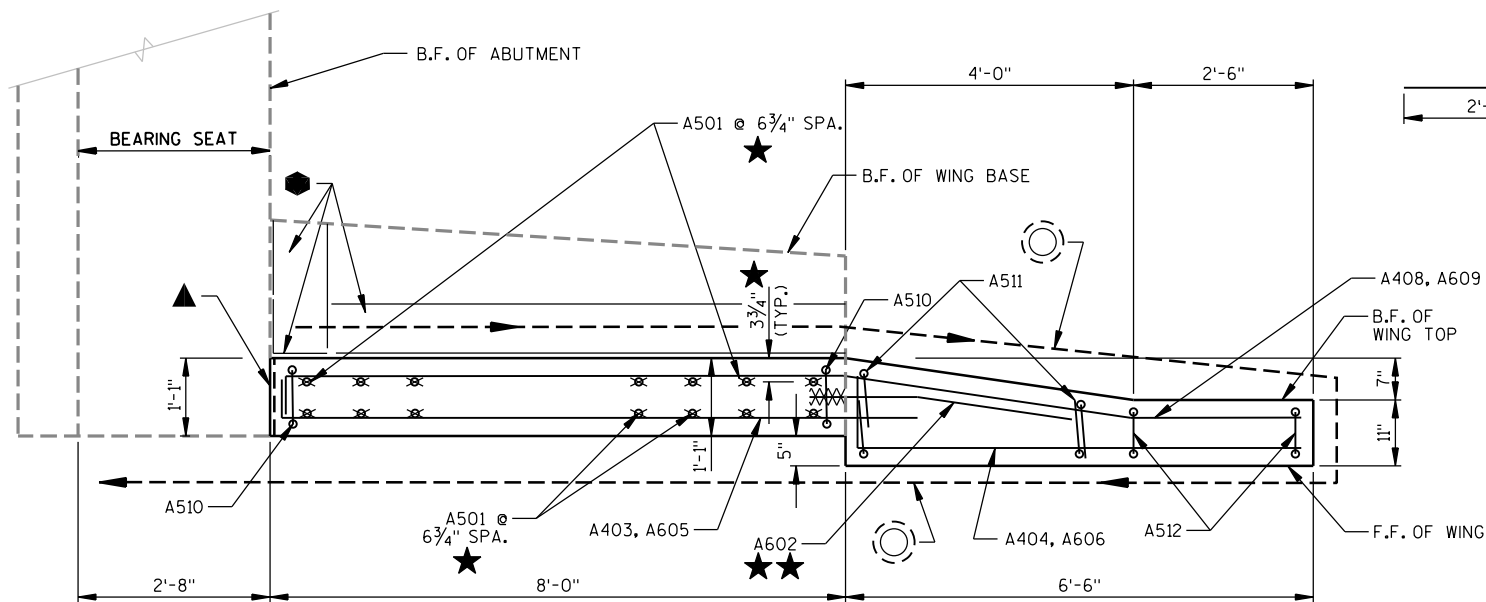
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-10-178	
DRAWN BY		SSD	PLANS CK'D. KHB
TYPICAL SECTION, QUANTITIES & NOTES		SHEET 2 OF 4 111	

BILL OF BARS - WING 1 560 LBS. (COATED)

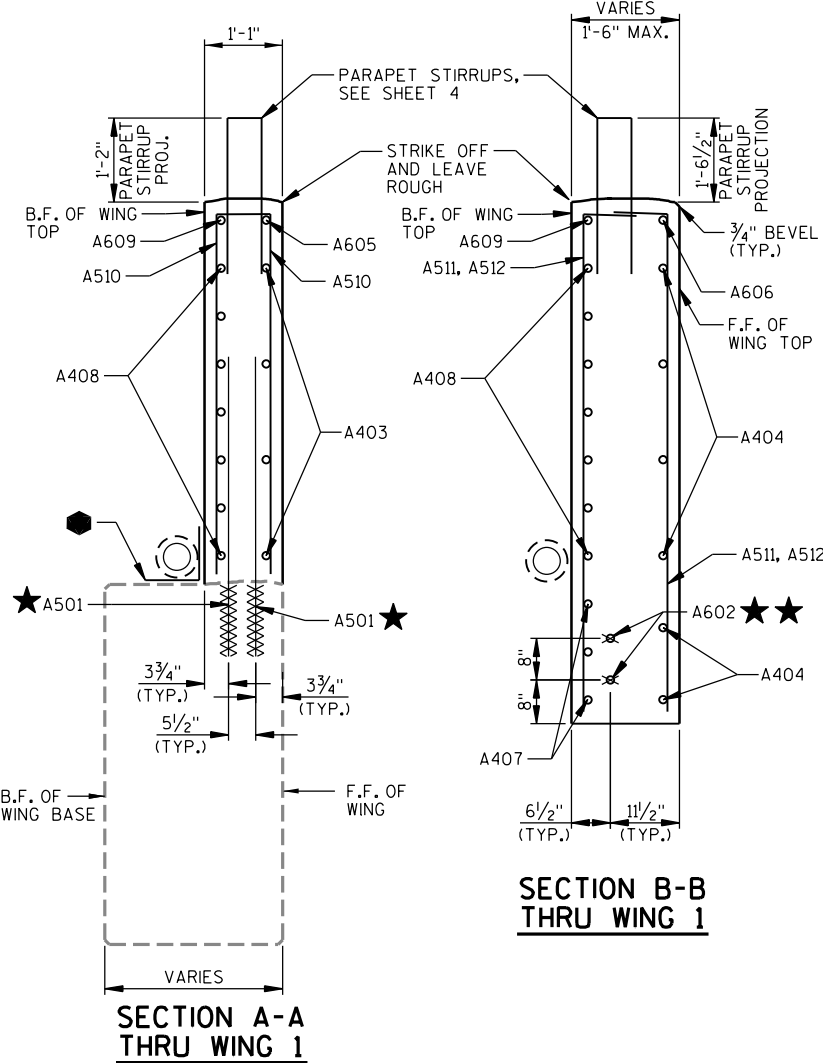
MARK	NUMBER REQ'D.	LENGTH	BENT	LOCATION
A501	28	3'-9"		WING 1 - F.F. & B.F. - VERT. ANCHOR
A602	2	3'-8"	X	WING 1 - HORIZ. ANCHOR
A403	4	9'-5"	X	WING 1 - F.F. - HORIZ.
A404	6	7'-1"	X	WING 1 - F.F. - HORIZ.
A605	1	9'-4"	X	WING 1 - F.F. - TOP - HORIZ.
A606	1	7'-0"	X	WING 1 - F.F. - TOP - HORIZ.
A407	3	7'-1"	X	WING 1 - B.F. - HORIZ.
A408	7	14'-8"	X	WING 1 - B.F. - HORIZ.
A609	1	14'-7"	X	WING 1 - B.F. - TOP - HORIZ.
A510	11	10'-10"	X	WING 1 - STIRRUP - VERT.
A511	10	7'-6"	X	WING 1 - F.F. & B.F. - VERT.
A512	4	14'-2"	X	WING 1 - STIRRUP - VERT.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

EPOXY COAT ALL BARSTEEL REINFORCEMENT.

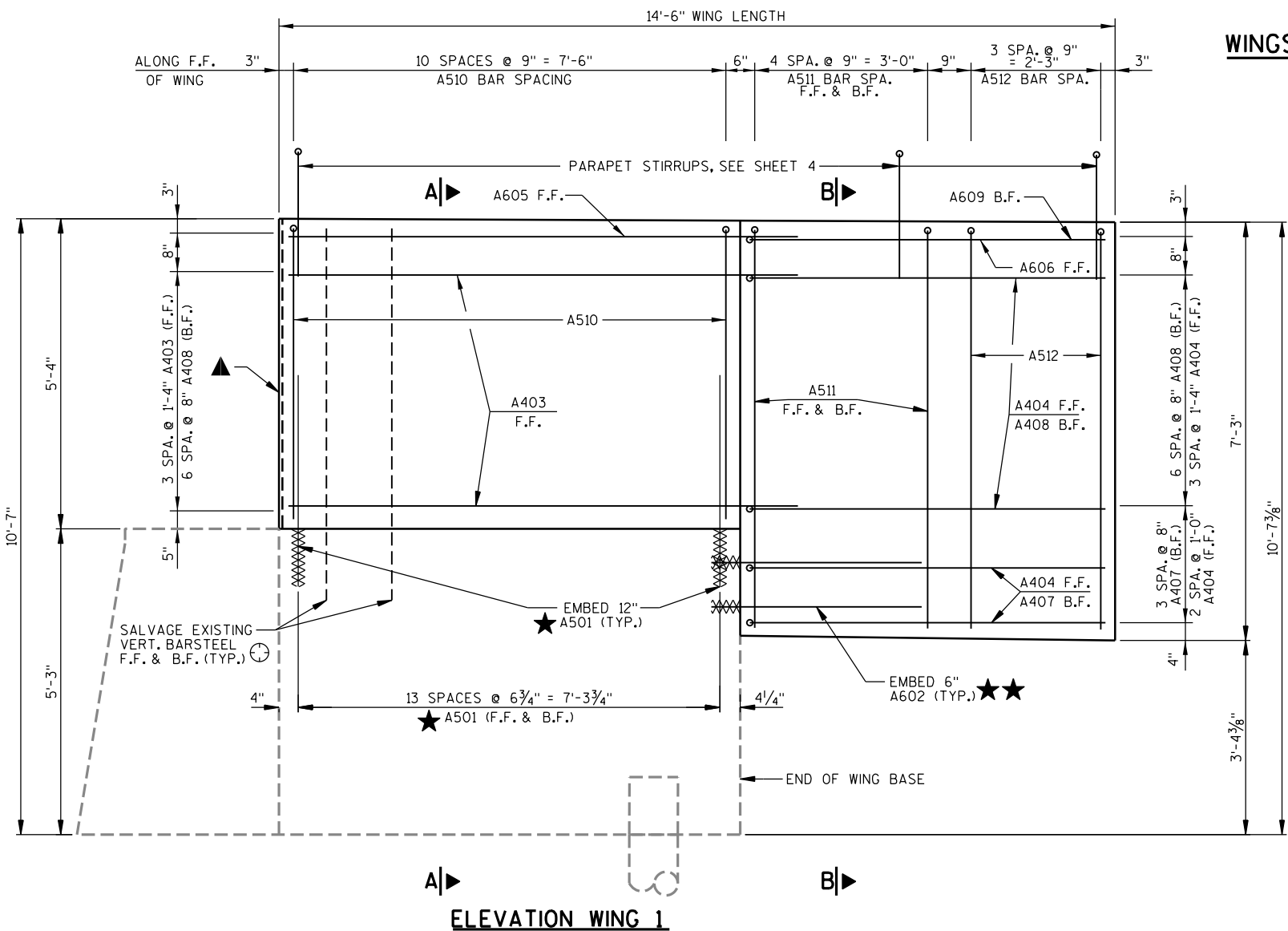
DETAILS AND BILL OF BARS FOR WING 1 ARE SHOWN.
WING TOP REPLACEMENT AT WINGS 2, 3 & 4 ALSO REQUIRED.

PLAN WING 1

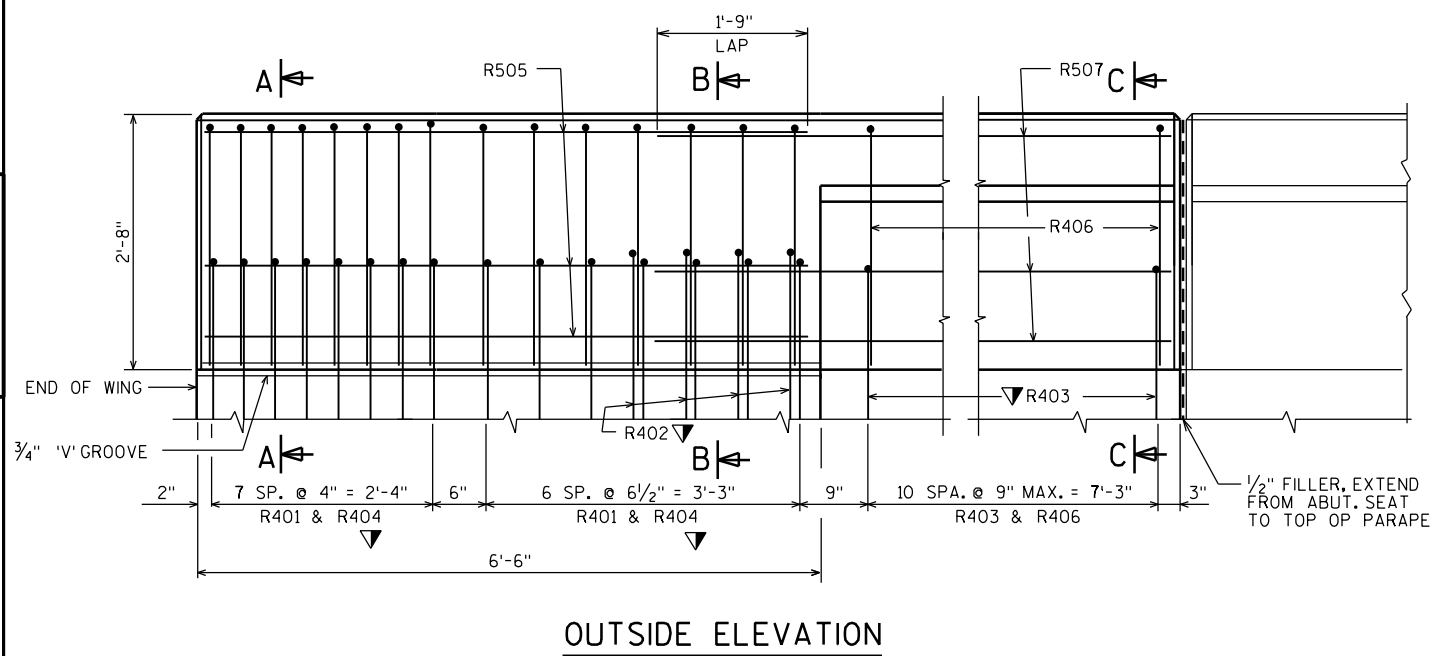
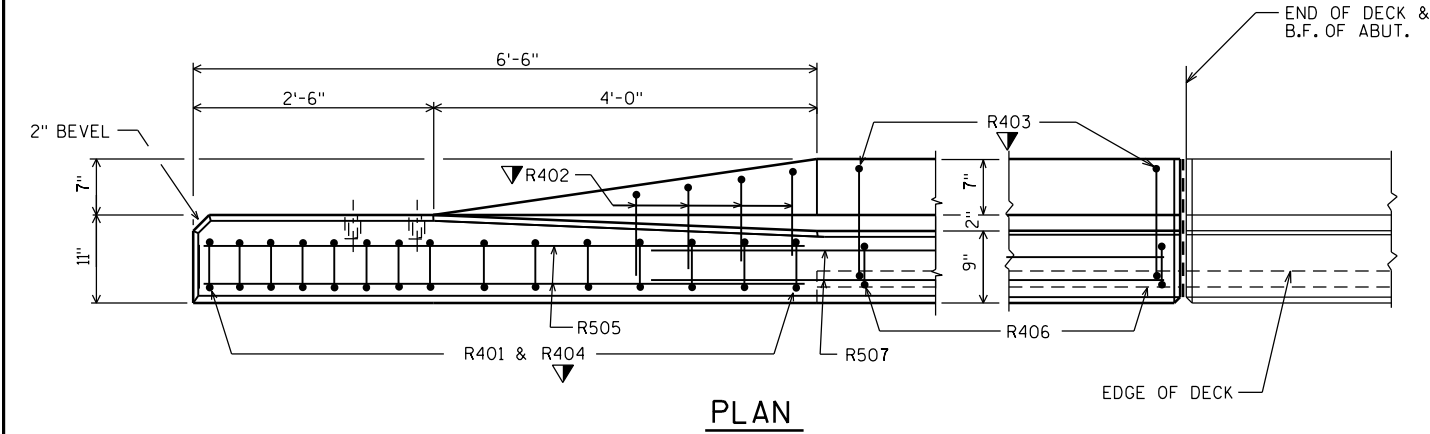
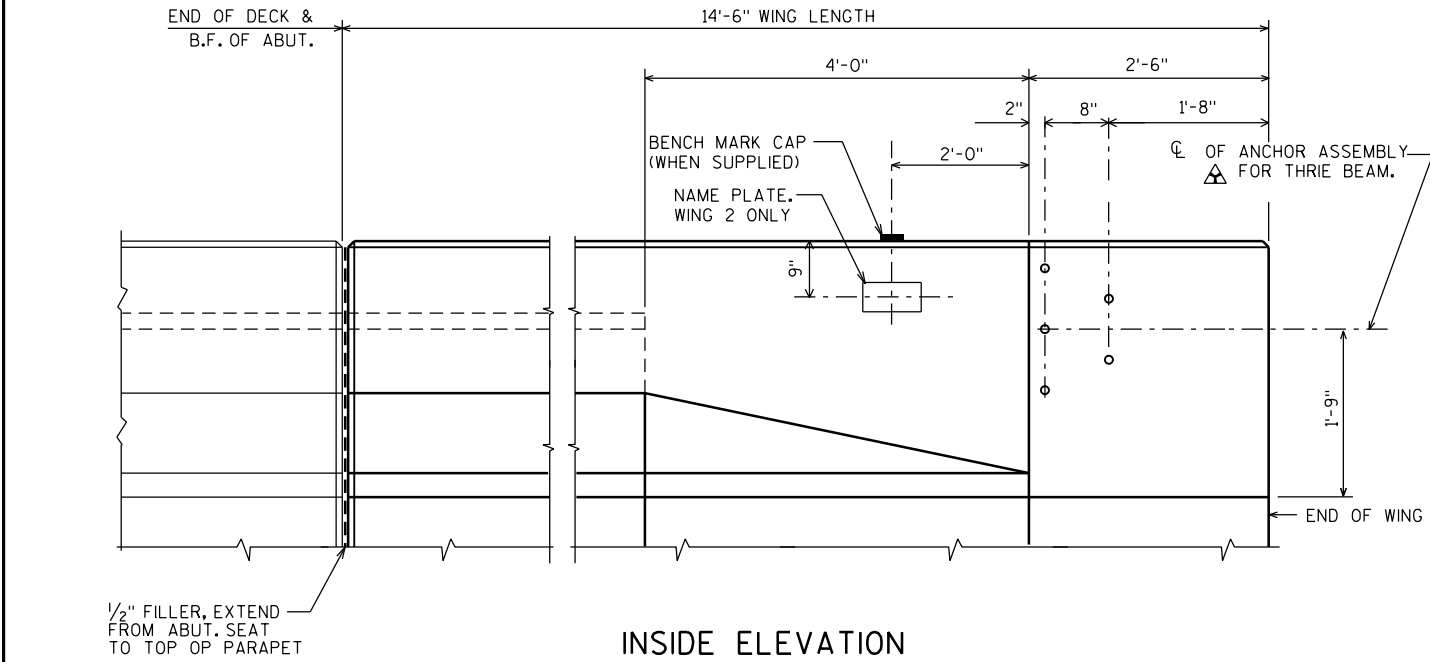
WING 1 SHOWN
WINGS 2, 3 & 4 SIMILAR

LEGEND

- 1/2" FILLER (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZONTAL & VERTICAL SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER, (1" DEEP & HOLD 1"8" BELOW SURFACE OF CONCRETE).
 - PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN. SEE DETAIL, SHEET 2.
 - ADHESIVE ANCHORS NO. 5 BAR. EMBED 12" IN CONCRETE. ANCHORS SHALL BE APPROVED FOR USE IN CRACKED CONCRETE.
 - ADHESIVE ANCHORS NO. 6 BAR. EMBED 6" IN CONCRETE. ANCHORS SHALL BE APPROVED FOR USE IN CRACKED CONCRETE.
 - 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERTICAL JOINTS AT B.F.
 - EXISTING BAR STEEL IS UNCOATED. COAT EXPOSED BAR STEEL WITH EPOXY IN ACCORDANCE WITH SECTION 505.2.4.2 OF THE STANDARD SPECIFICATION. INCIDENTAL TO CONCRETE MASONRY BRIDGES.
- F.F. - FRONT FACE B.F. - BACK FACE



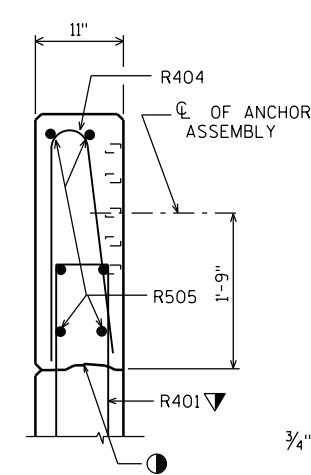
ELEVATION WING 1



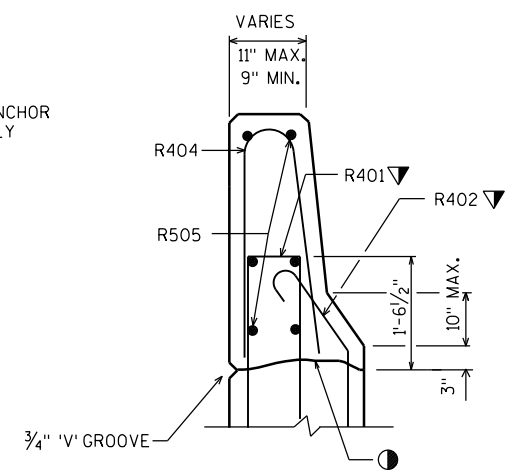
● CONST. JOINT - STRIKE OFF AS SHOWN.
▼ R401, R402, AND R403 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

△ SALVAGE AND REINSTALL EXISTING THRIE BEAM ATTACHMENT. WORK IS INCIDENTAL TO "CONCRETE MASONRY BRIDGES" BID ITEM.

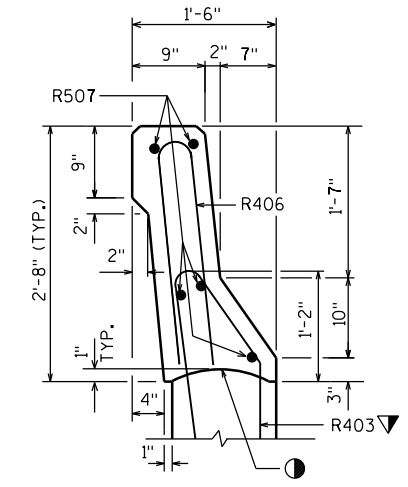
STATE PROJECT NUMBER
1050-01-81



SECTION A



SECTION B



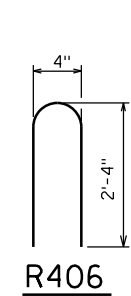
SECTION C

PARAPET AT WING 2 SHOWN
PARAPETS AT WINGS 1, 3 & 4 SIMILAR

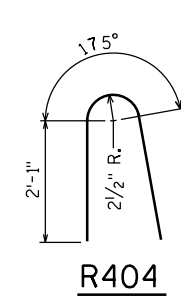
BILL OF BARS
PARAPET AT WING 2 270 LBS. (COATED)

MARK	NO. REQ'D	LENGTH	BENT	LOCATION
R401	15	5'-10"	X	PARAPET BOTTOM - STIRRUP - VERT.
R402	4	3'-1"	X	PARAPET BOTTOM - TIE - VERT.
R403	11	4'-7"	X	PARAPET BOTTOM - STIRRUP - VERT.
R404	15	4'-9"	X	PARAPET - END - TOP - STIRRUP - VERT.
R505	6	6'-2"		PARAPET - END - LONGIT.
R406	11	4'-10"	X	PARAPET - TOP - STIRRUP - VERT.
R507	5	9'-9"		PARAPET - LONGIT.

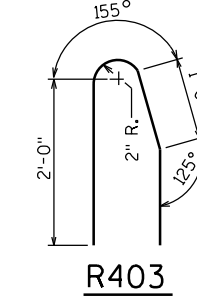
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
EPOXY COAT ALL BARSTEEL REINFORCEMENT.
DETAILS AND BILL OF BARS FOR PARAPET AT WING 2 ARE SHOWN. PARAPETS AT WINGS 1, 3 & 4 ALSO REQUIRED.



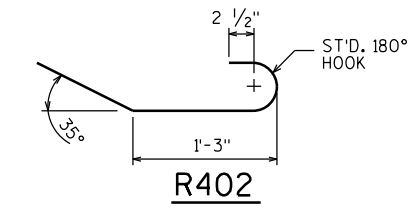
R406



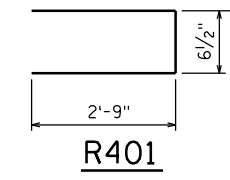
R404



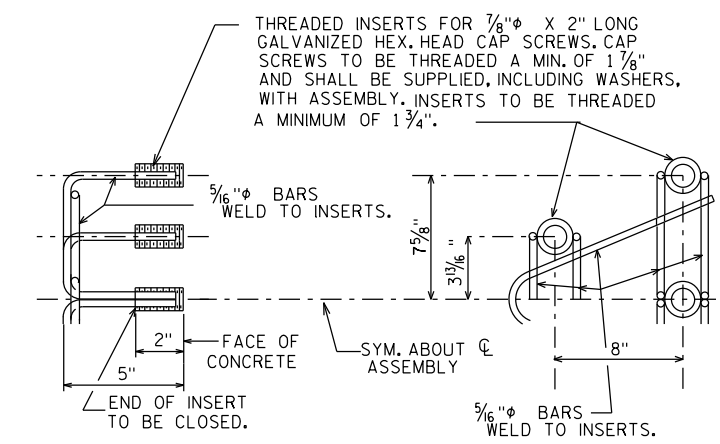
R403



R402



R401



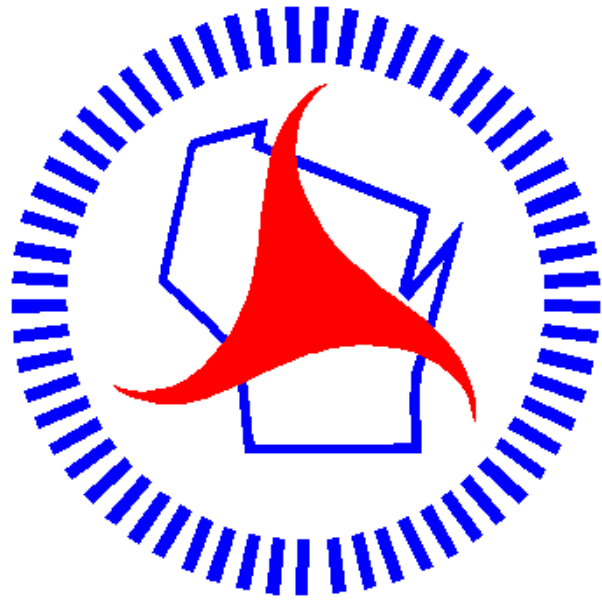
DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX. HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-10-178			
DRAWN BY RLR		PLANS CK'D. KHB	
SLOPED FACE PARAPET 'B'		SHEET 4 OF 4 113	



Wisconsin Department of Transportation

Dedicated people creating transportation solutions through innovation and exceptional service.

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