

MAD MAY 2013

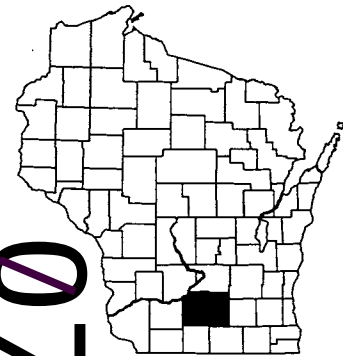
PROJECT ID: 1204-05-60  
WITH:

COUNTY: IOWA

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. 5 Plan~~  
Section No. 6 Standard Detail Drawings  
Section No. 7 Sign Plates  
~~Section No. 8 Structure Plans~~

TOTAL SHEETS = 56

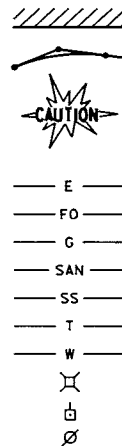


DESIGN DESIGNATION

A.A.D.T. 2009 = 16,900  
A.A.D.T. 2013 = 17,900  
D.H.V. =  
D.D. = 62/38  
T. = 8.0%  
DESIGN SPEED = 70 MPH  
ESALS = 4,620,900

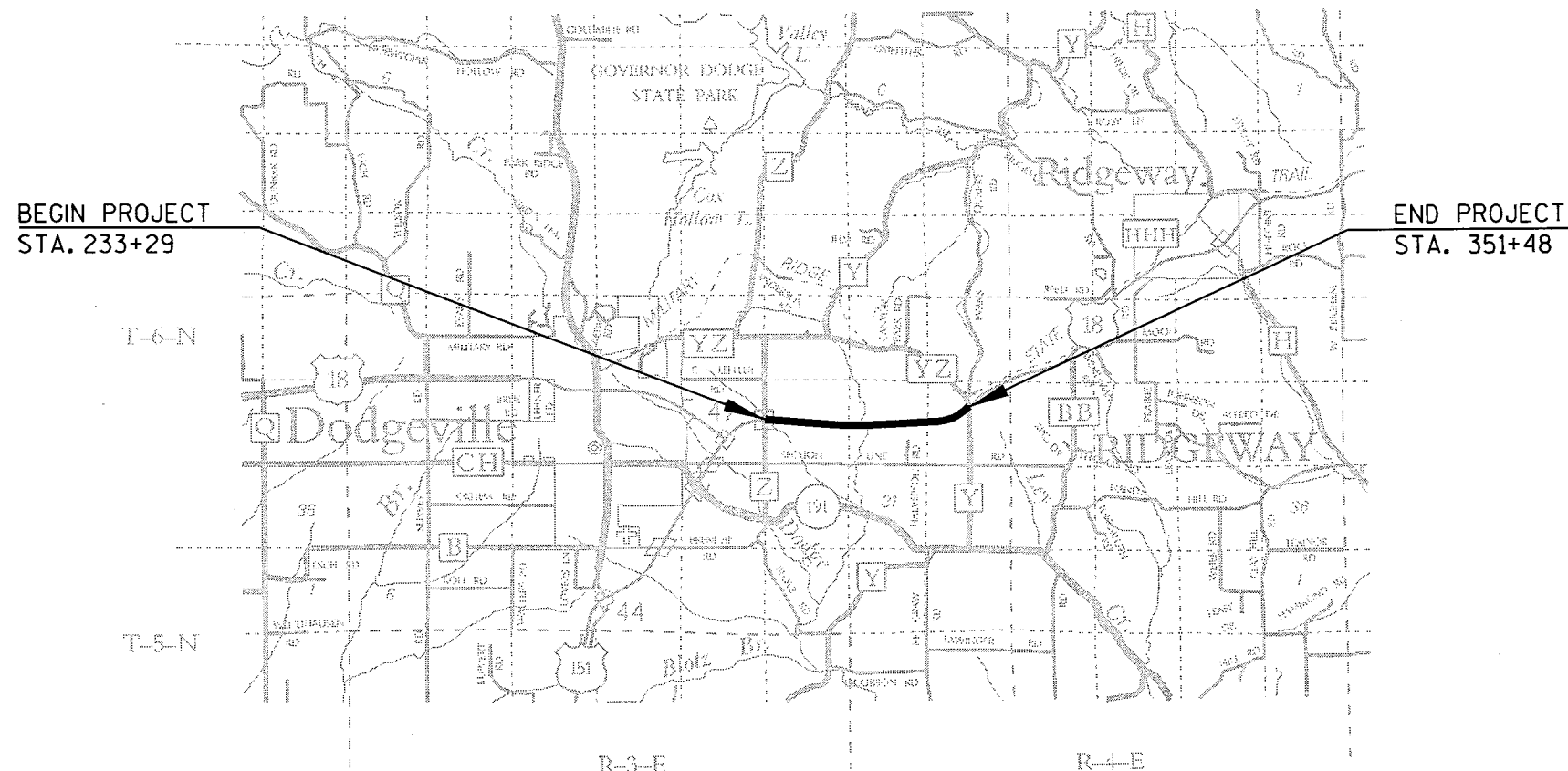
CONVENTIONAL SYMBOLS

- PLAN  
CORPORATE LIMITS  
REFERENCE LINE  
COMBUSTIBLE FLUIDS  
UTILITIES  
ELECTRIC  
FIBER OPTIC  
GAS  
SANITARY SEWER  
STORM SEWER  
TELEPHONE  
WATER  
UTILITY PEDESTAL  
POWER POLE  
TELEPHONE POLE



STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY REHABILITATION-MAINTENANCE PROJECT  
**DODGEVILLE-MOUNT HOREB**  
CTH Z TO CTH Y  
USH 18  
IOWA COUNTY

STATE PROJECT NUMBER  
**1204-05-60**



LAYOUT  
SCALE 0 1.0 MI.

TOTAL NET LENGTH OF CENTERLINE = 2.25 MI.

ALIGNMENTS ON THE PLAN ARE FOR  
REFERENCE PURPOSES ONLY.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY  
COORDINATE SYSTEM (WCCS), 'IOWA' COUNTY."

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1204-05-60		

ORIGINAL PLANS PREPARED BY



PEOPLE WHO CARE,  
CREATING QUALITY TRANSPORTATION  
TODAY AND TOMORROW

WISDOT SOUTHWEST REGION - MADISON OFFICE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor  
Designer  
Project Manager  
Regional Examiner  
Regional Supervisor  
C.O. Examiner

APPROVED FOR THE DEPARTMENT

DATE: 1/29/13  
(Signature)

E

GENERAL NOTES

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

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

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

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

HMA PAVEMENT TYPE E-10 IS TO BE PLACED IN 2 LAYERS. THE LEVELING LAYER IS 1.00-INCHES USING 9.5mm NOMINAL SIZE AGGREGATE. THE UPPER LAYER IS 2.00-INCHES USING 12.5mm NOMINAL SIZE AGGREGATE.

EROSION CONTROL FEATURES SHOWN ON THE PLAN SHEETS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY. REMOVE ITEMS AT THE ENGINEERS DIRECTION.

EXACT LOCATIONS FOR THE BASE PATCHING CONCRETE SHES AND CONCRETE PAVEMENT REPAIR AND REPLACEMENT SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, PASSING, OR PARKING LANE.

Utilities

Jason Hogan  
Alliant Energy - Electricity  
Suite 1000  
4902 N Biltmore Lane  
Madison, WI 53718  
(608) 395-7395  
jasonhogan@alliantenergy.com

Robert Church  
Frontier North Inc  
118 Division St  
Plymouth, WI 53073  
(608) 837-1881  
robert.church@ftr.com

Randy Simms  
Packerland Broadband  
State Construction Manager  
105 Kent St.  
Iron Mountain, MI 49801  
(800) 236-8424 Office  
(906) 282-3802 Mobile  
randy.simms@ccisystems.com

Wayne Cretton  
Packerland Broadband  
105 Kent St.  
Iron Mountain, MI 49801  
(906) 282-3768

WISCONSIN DNR LIAISON

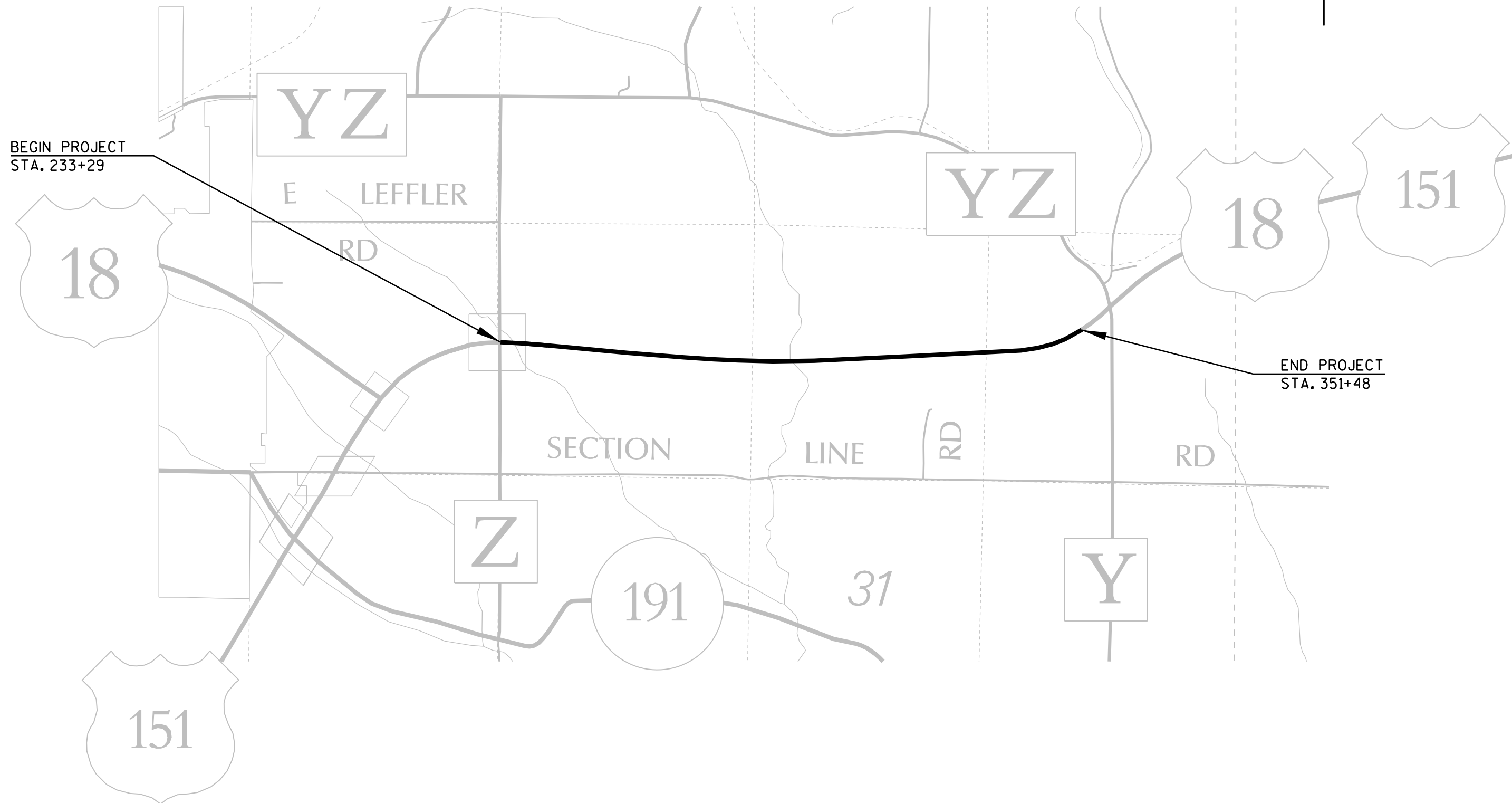
South Central Region  
Amanda Cushman  
3911 Fish Hatchery Rd  
Fitchburg, WI 53711  
phone:(608)275-3485  
fax:(608)275-3338  
amanda.cushman@wisconsin.gov

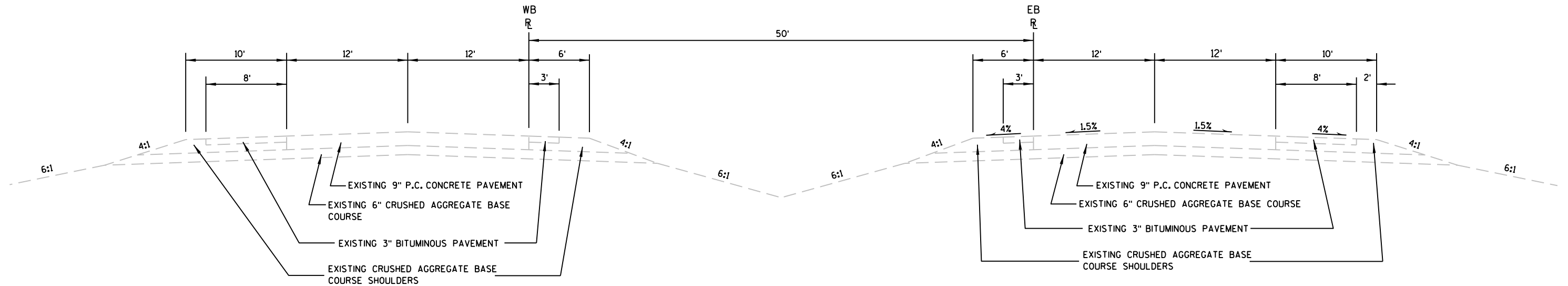
DIGGERS



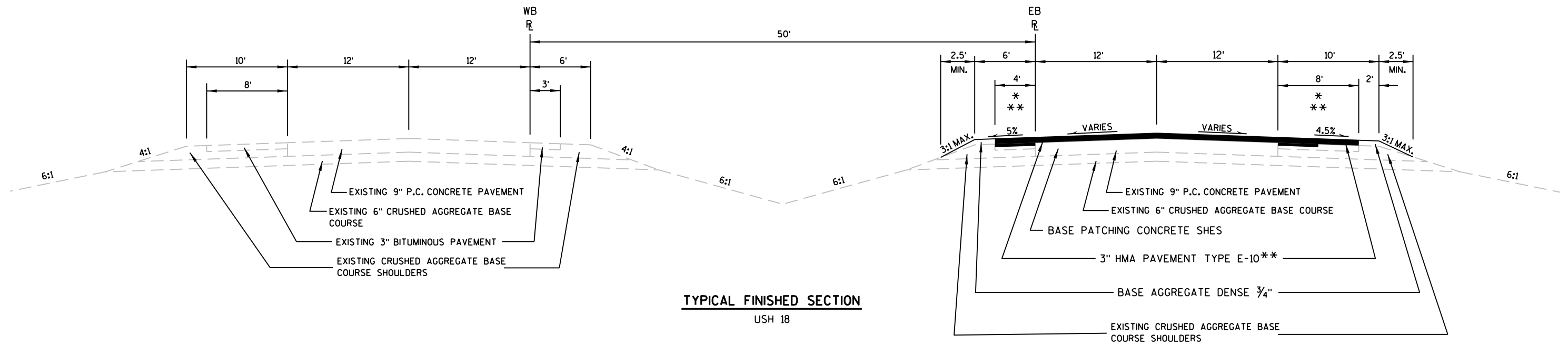
HOTLINE

Call 811 3 Work Days Before You Dig  
or Toll Free (800) 242-8511  
Hearing Impaired TDD (800) 542-2289  
www.DiggersHotline.com





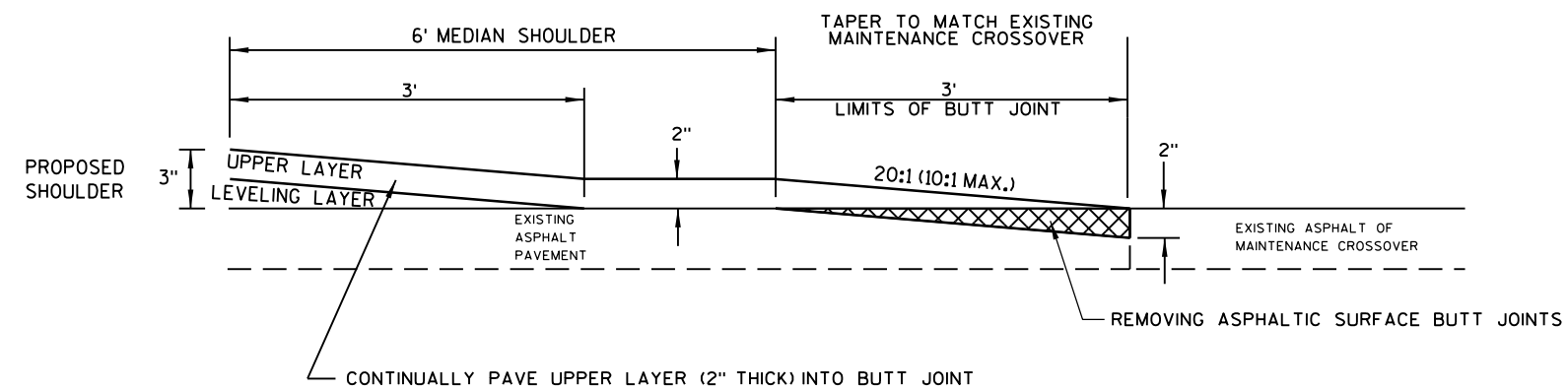
**TYPICAL EXISTING SECTION**  
USH 18



**TYPICAL FINISHED SECTION**  
USH 18

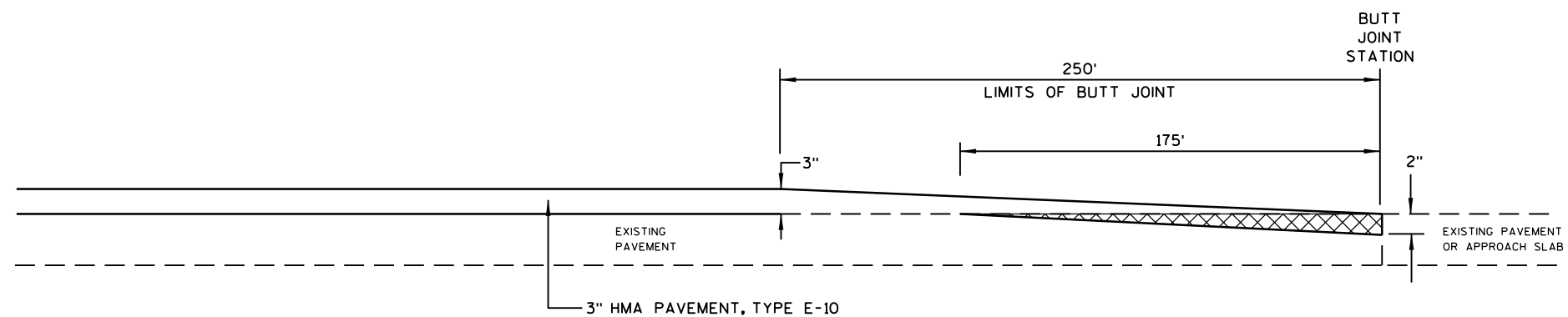
\* LANE CLOSURE PREPARATION: 4 FT WIDE PARTIAL DEPTH MILL AND OVERLAY OF ASPHALTIC SHOULDERS. MILL 1.75" BELOW TOP OF CONCRETE PAVEMENT AND REPLACE WITH 1.75" HMA PAVEMENT TYPE E-10.

\*\* TAPER HMA PAVEMENT 3" AT TRAVEL LANE TO 2.5" AT OUTSIDE OF SHOULDER.



### MAINTENANCE CROSSOVER BUTT JOINT DETAIL

STA. 244+77  
STA. 253+77  
STA. 284+62  
STA. 301+58

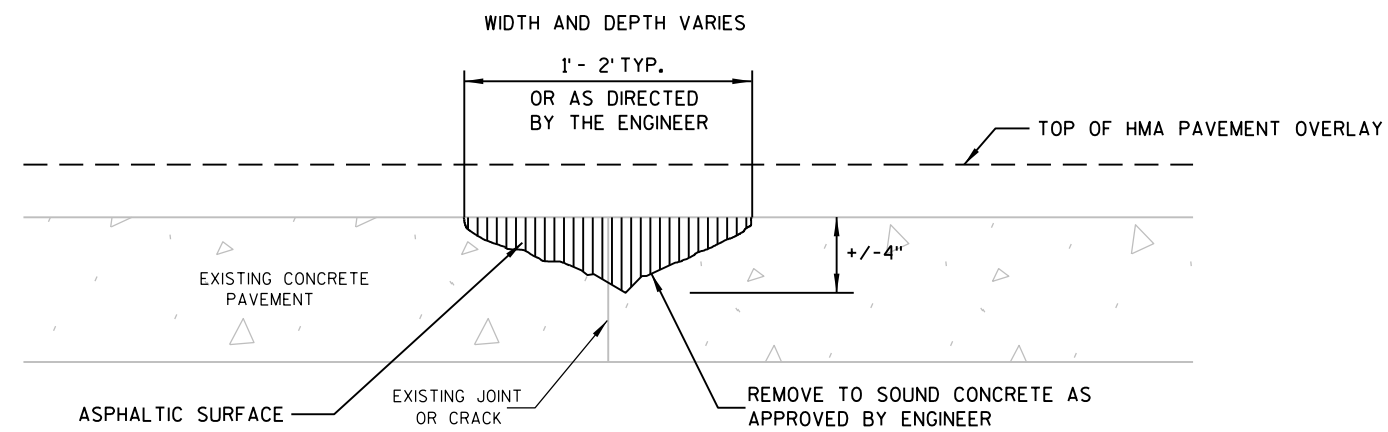


### BUTT JOINT DETAIL

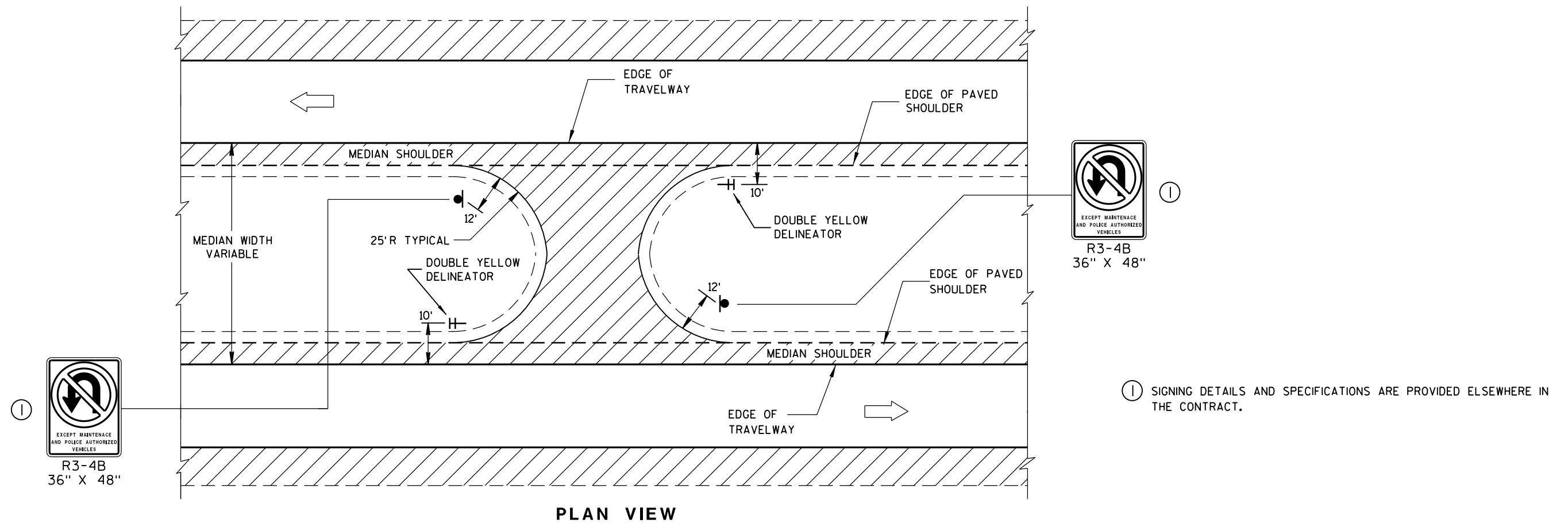
STA. 233+29  
STA. 348+98

REMOVING PAVEMENT BUTT JOINTS AND  
REMOVING ASPHALTIC SURFACE BUTT JOINTS.

NOTE:  
LEVELING LAYER TO BE FEATHERED OUT.  
MAINTAIN THE 2" THICKNESS OF THE UPPER LAYER.



### CONCRETE JOINT AND CRACK REPAIR

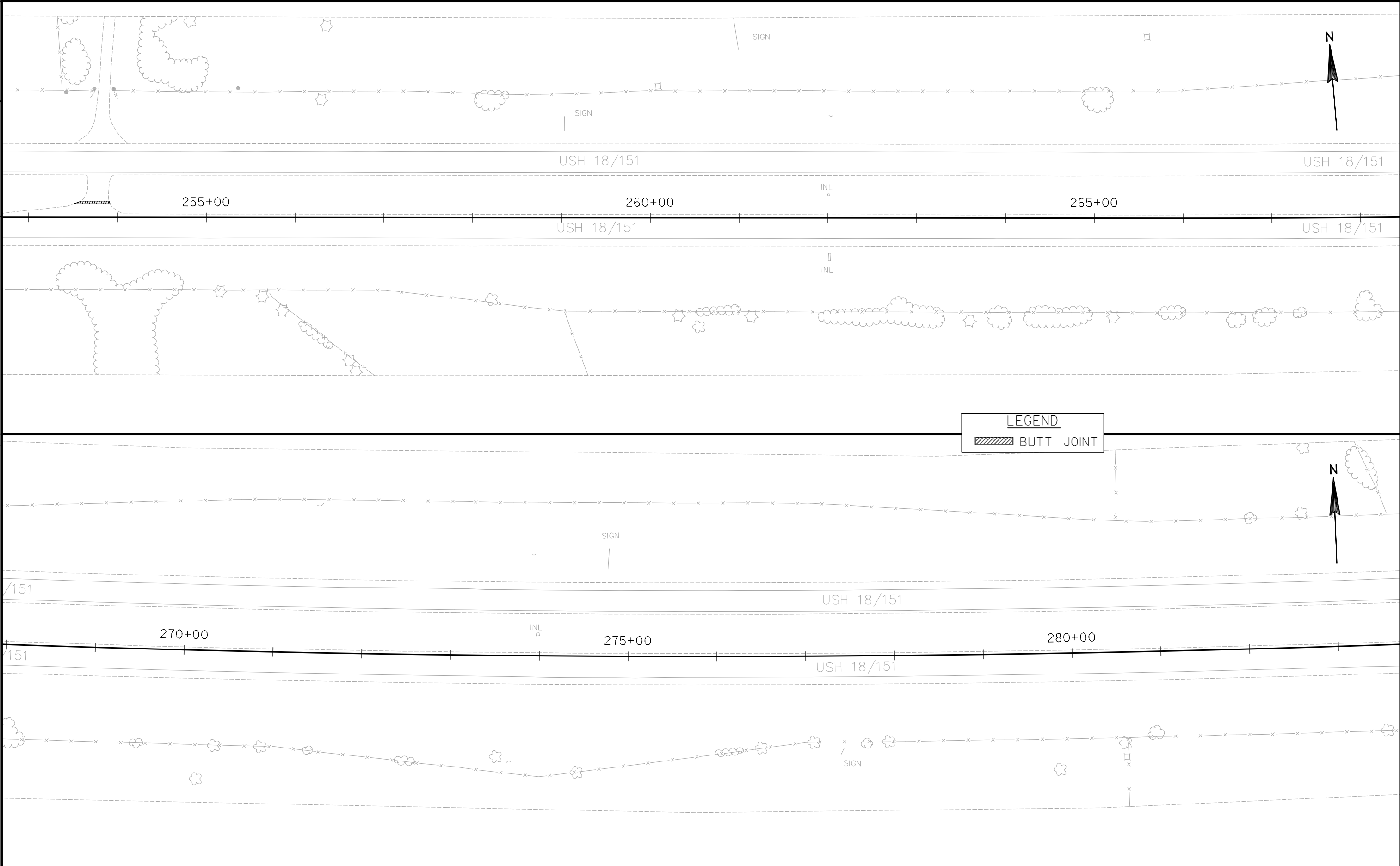


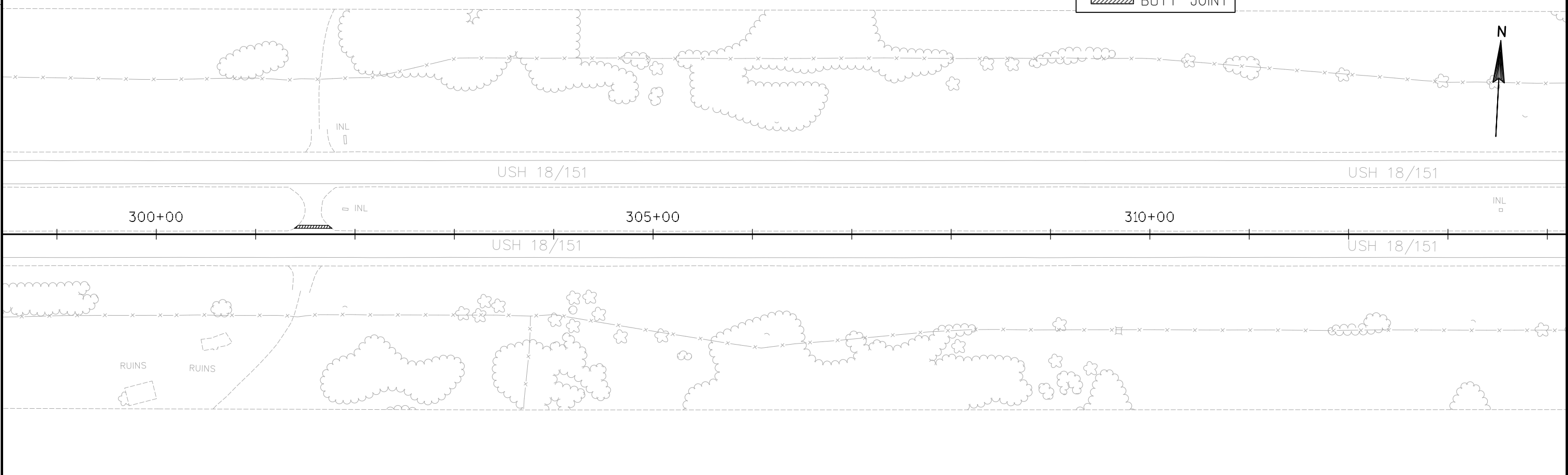
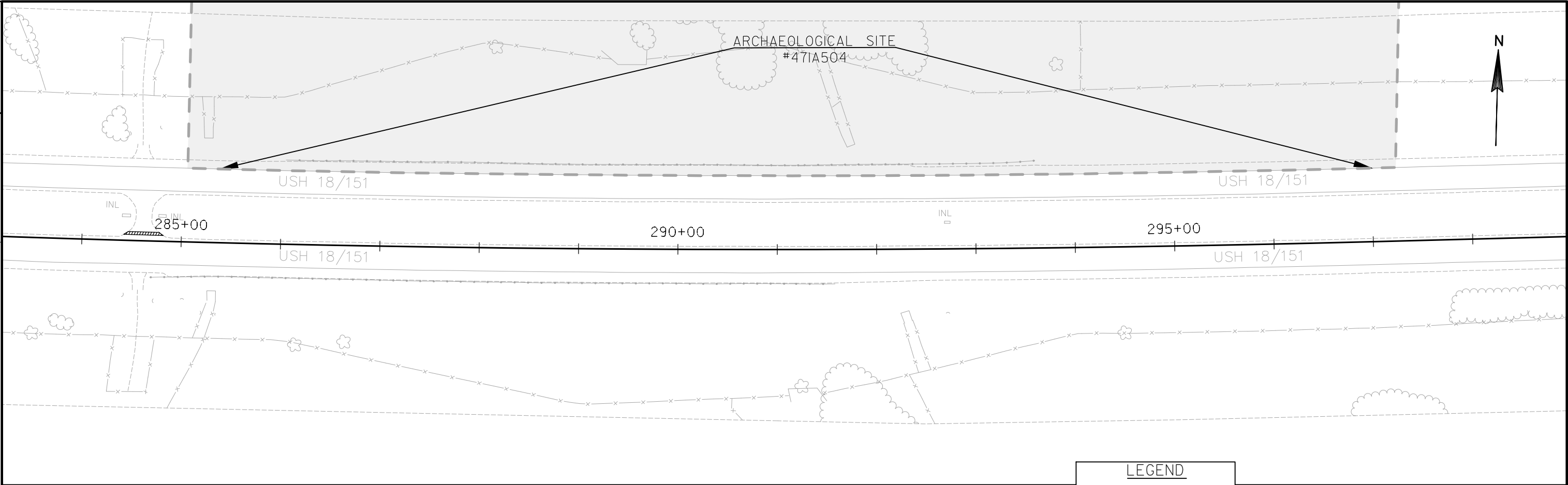


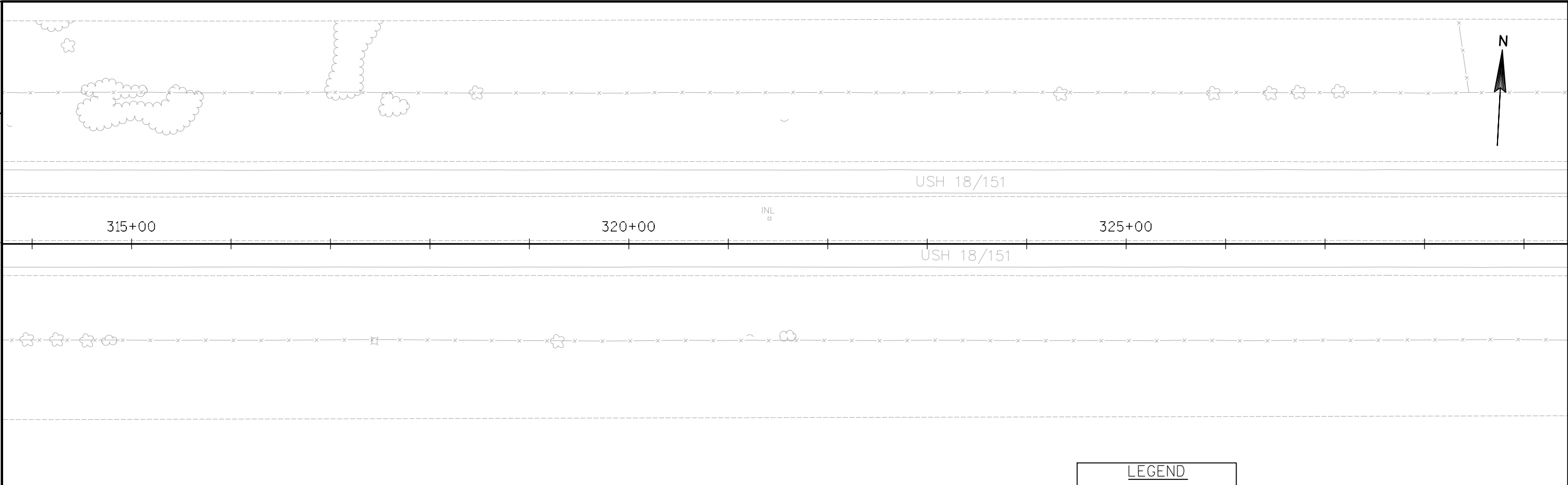


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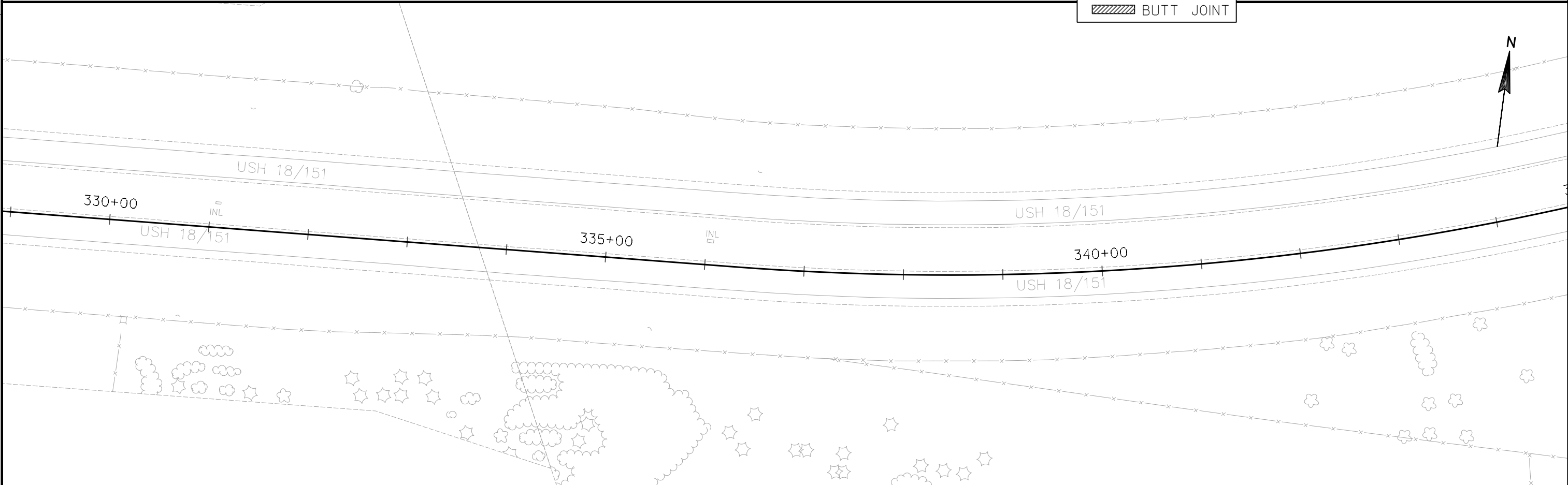
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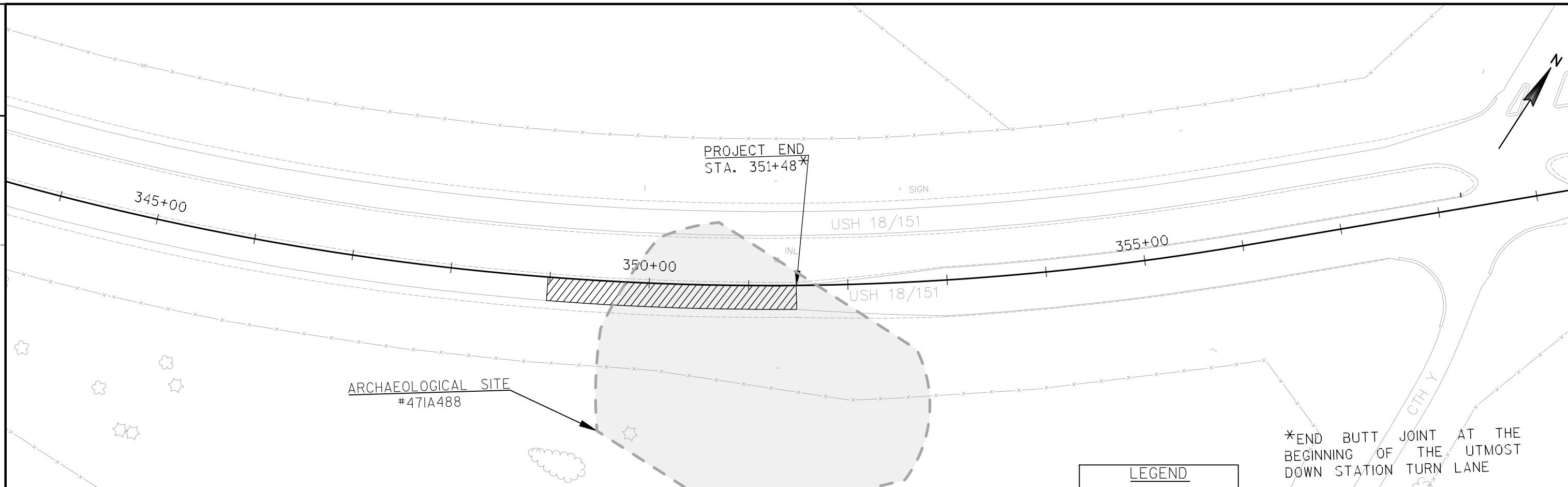


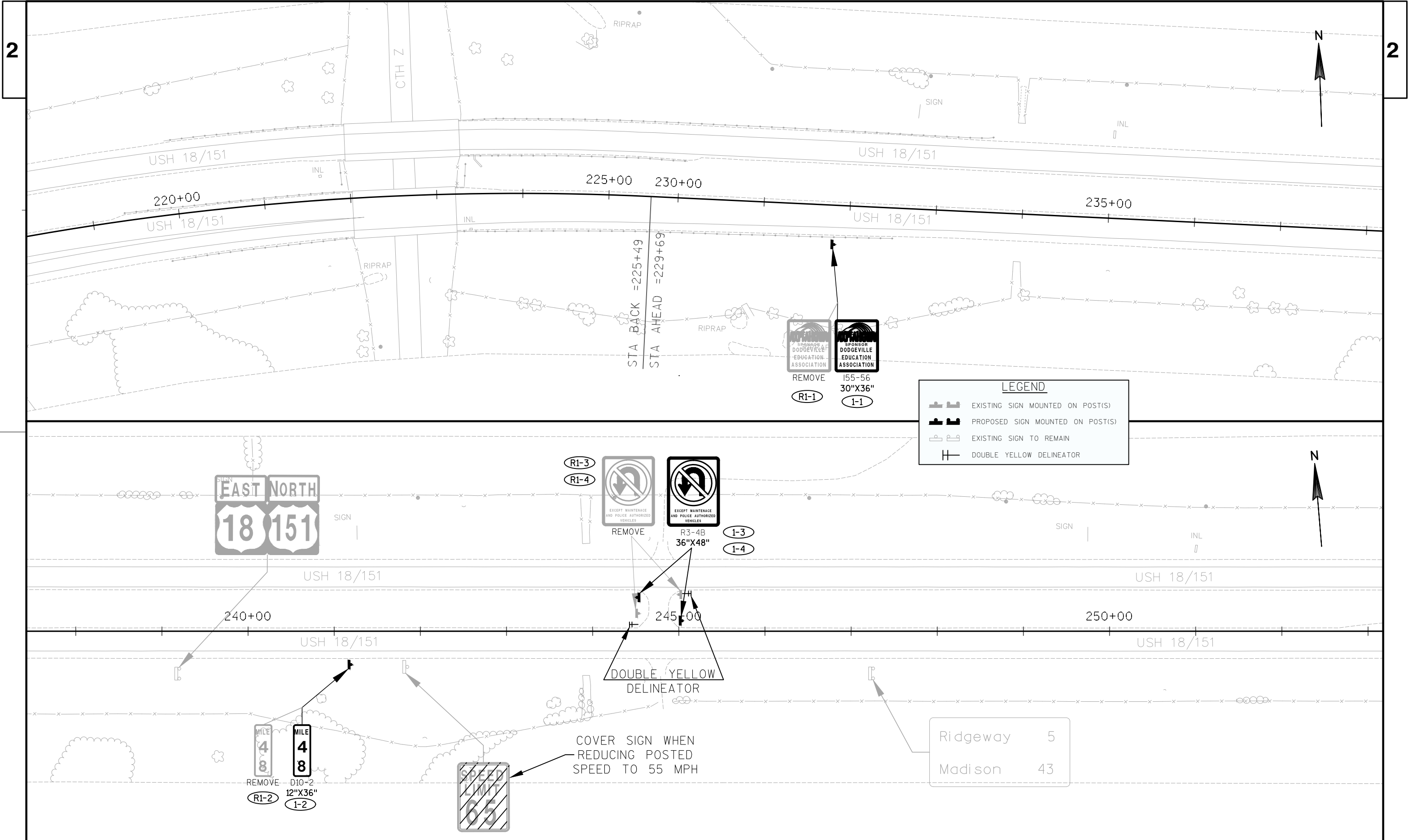
**LEGEND**  
[Hatched Box] BUTT JOINT



2

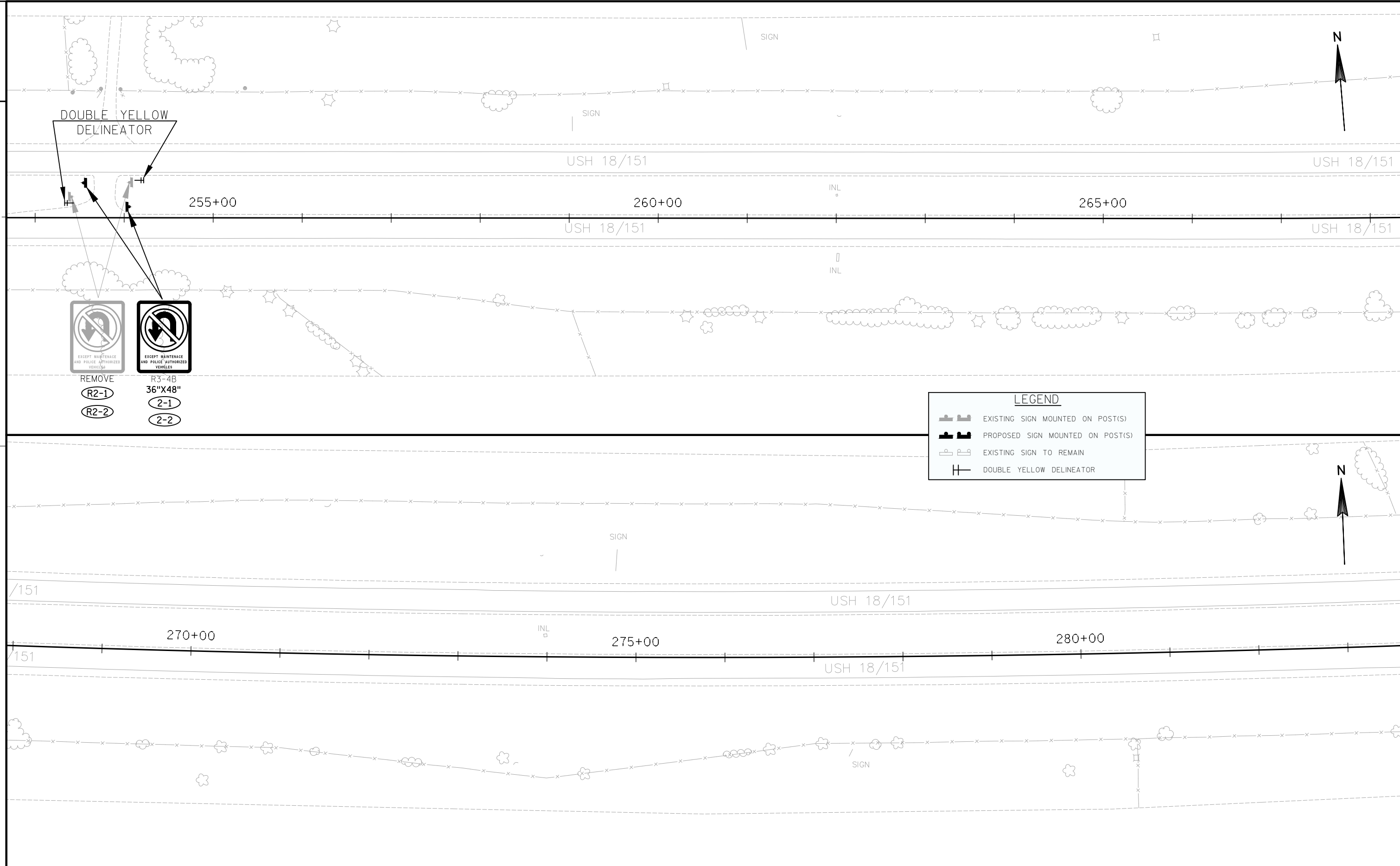
2





2

2



PROJECT NO: 1204-05-60
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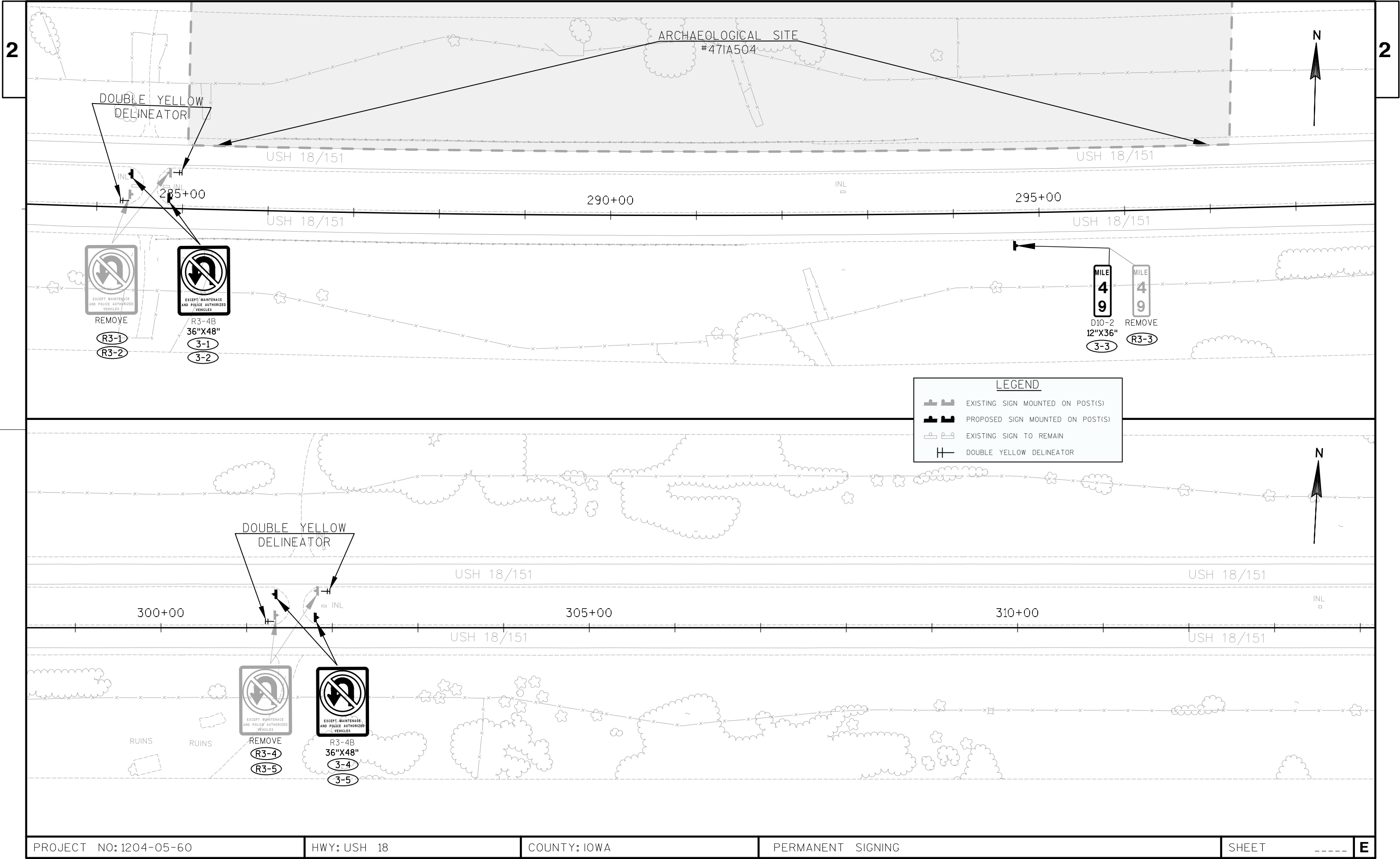
HWY: USH 18
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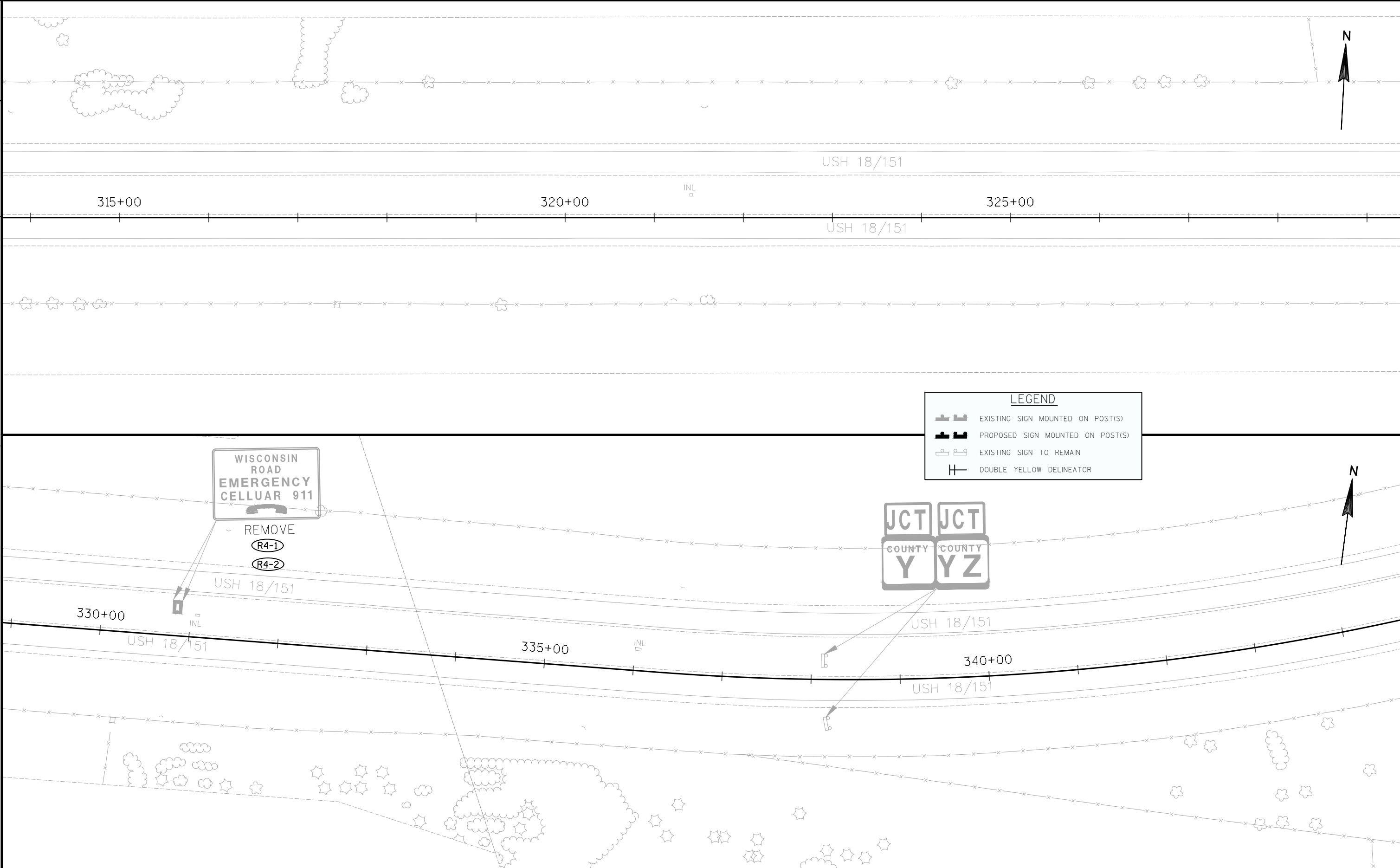
COUNTY: IOWA
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PERMANENT SIGNING
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SHEET \_\_\_\_\_

**E**

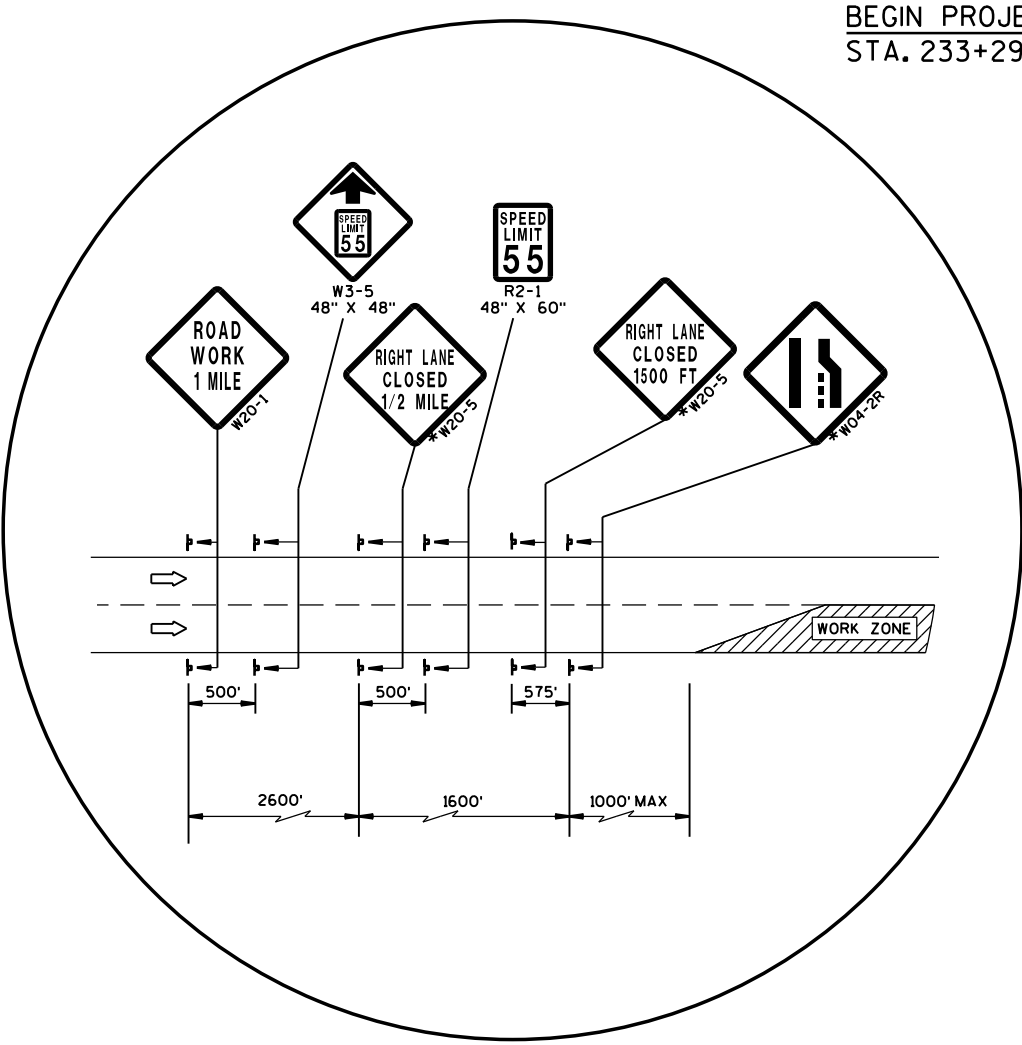




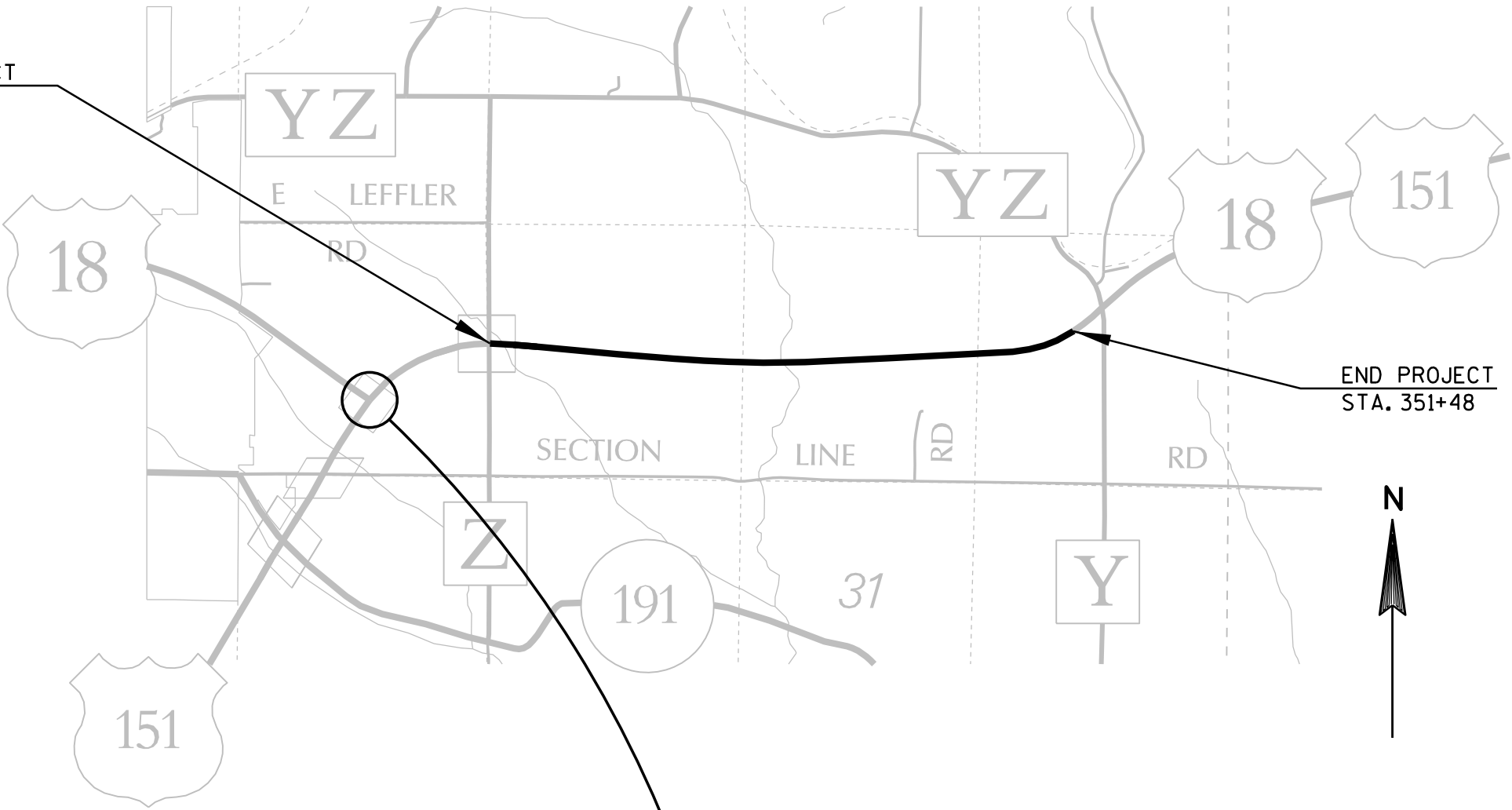


NOTES :

SEE S.D.D "TRAFFIC CONTROL LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H." AND S.D.D, "TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITH LANE CLOSURE" FOR ADDITIONAL NOTES, DETAILS, AND LEGEND.

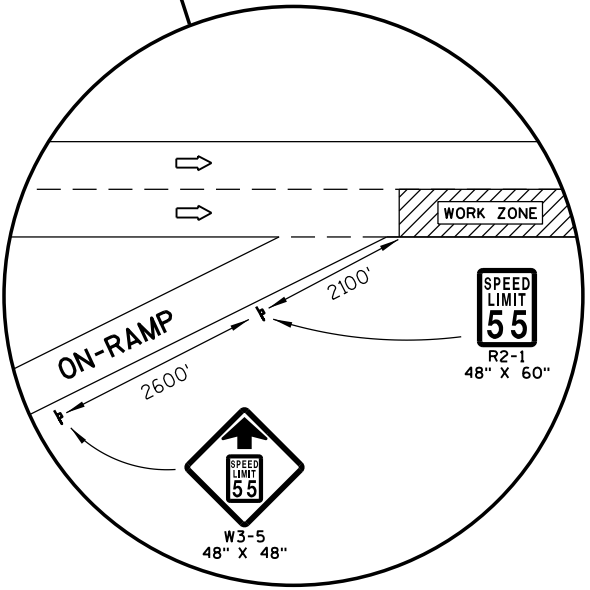


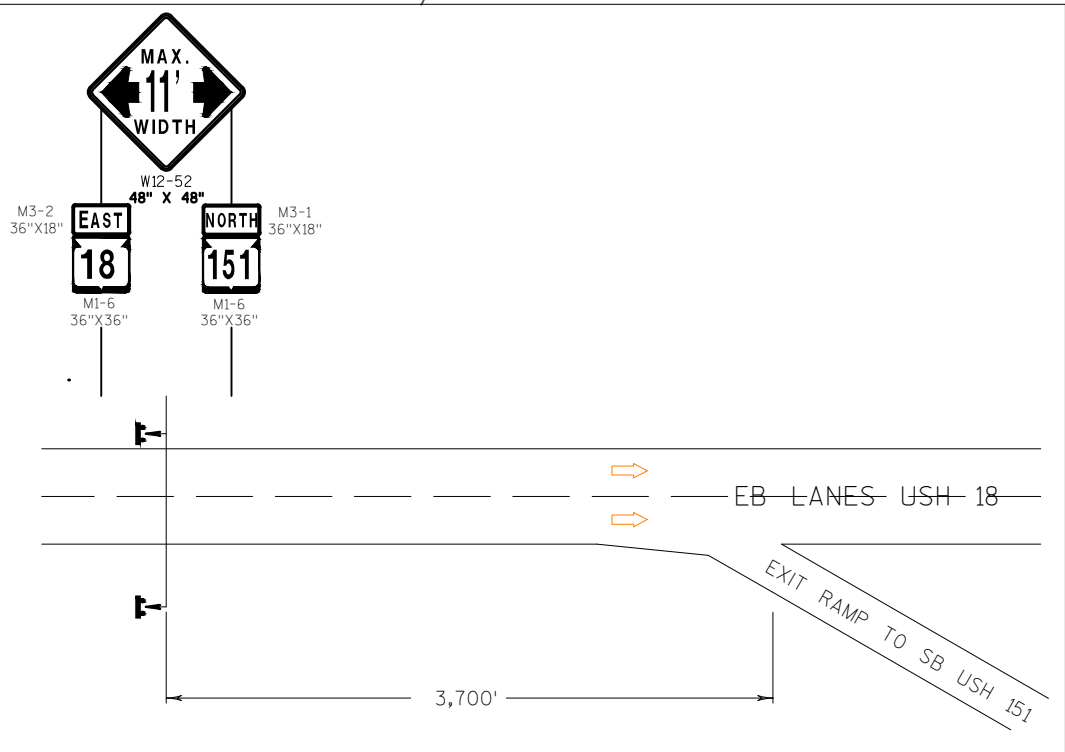
BEGIN PROJECT  
STA. 233+29



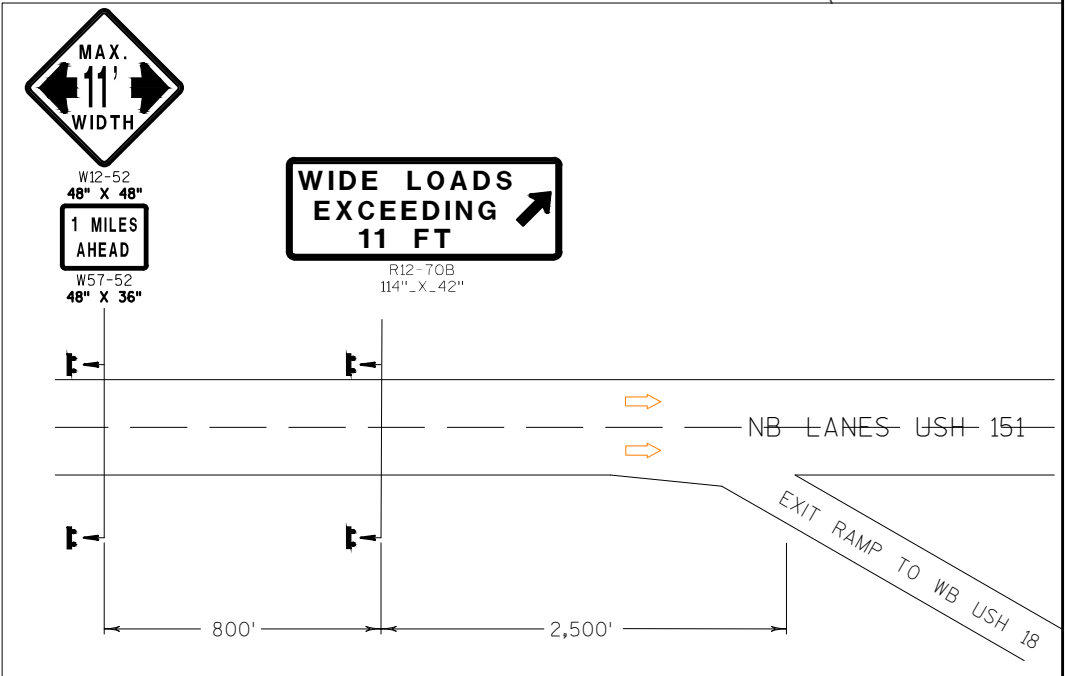
END PROJECT  
STA. 351+48

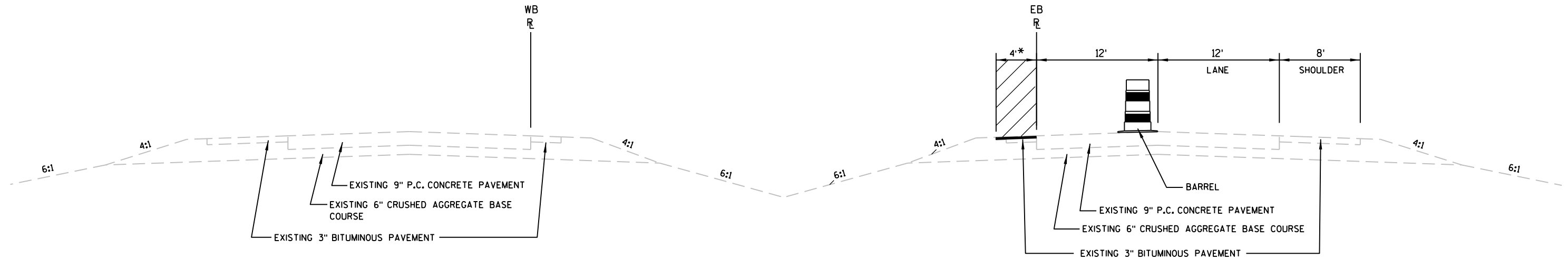
\*SIGNS SHOWN FOR RIGHT LANE CLOSURE  
FOR LEFT LANE CLOSURE USE THE SIGNS BELOW





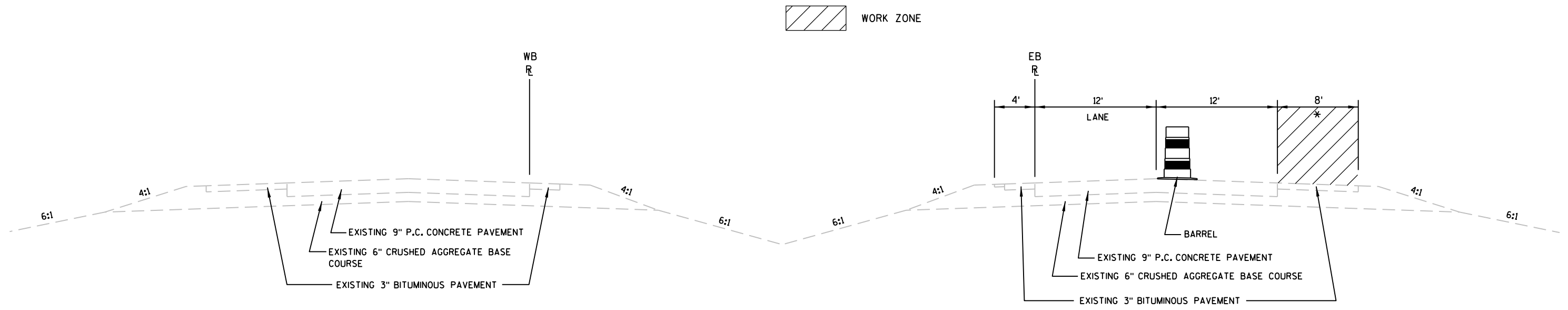
OVERSIZE / OVERWEIGHT SIGNS MUST BE COVERED UP ON WEEKENDS OR WHENEVER ROAD LANE WIDTH RESTRICTION DO NOT APPLY



 WORK ZONE

**CONSTRUCTION STAGE 1 TYPICAL SECTION**  
MILL AND OVERLAY MEDIAN SHOULDER

\* LANE CLOSURE PREPARATION: 3 FT WIDE PARTIAL DEPTH MILL AND OVERLAY OF ASPHALTIC SHOULDERS PLUS A 1 FT SHOULDER WIDENING. MILL 1.75" BELOW TOP OF CONCRETE PAVEMENT AND REPLACE WITH 1.75" HMA PAVEMENT TYPE E-10.

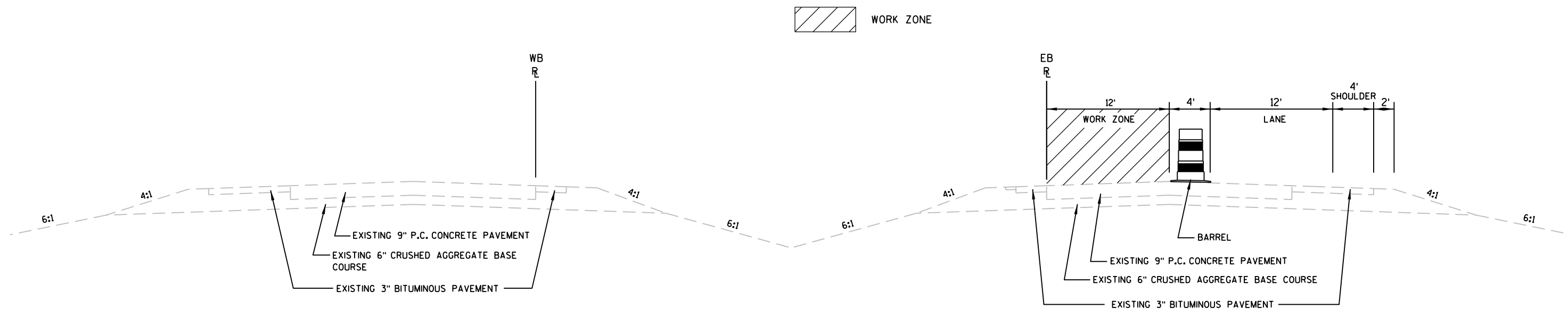
**CONSTRUCTION STAGE 2 TYPICAL SECTION**

MILL AND OVERLAY OUTSIDE SHOULDER

\* LANE CLOSURE PREPARATION: 4 FT WIDE PARTIAL DEPTH MILL AND OVERLAY OF ASPHALTIC SHOULDERS. MILL 1.75" BELOW TOP OF CONCRETE PAVEMENT AND REPLACE WITH 1.75" HMA PAVEMENT TYPE E-10.

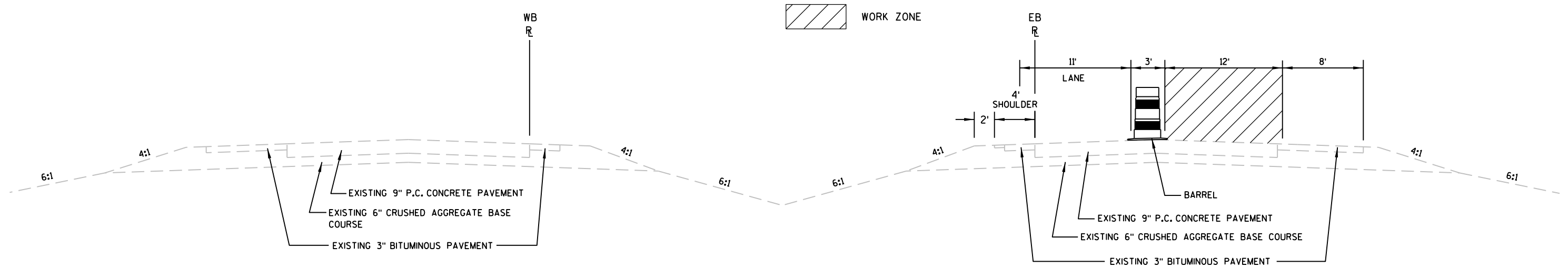
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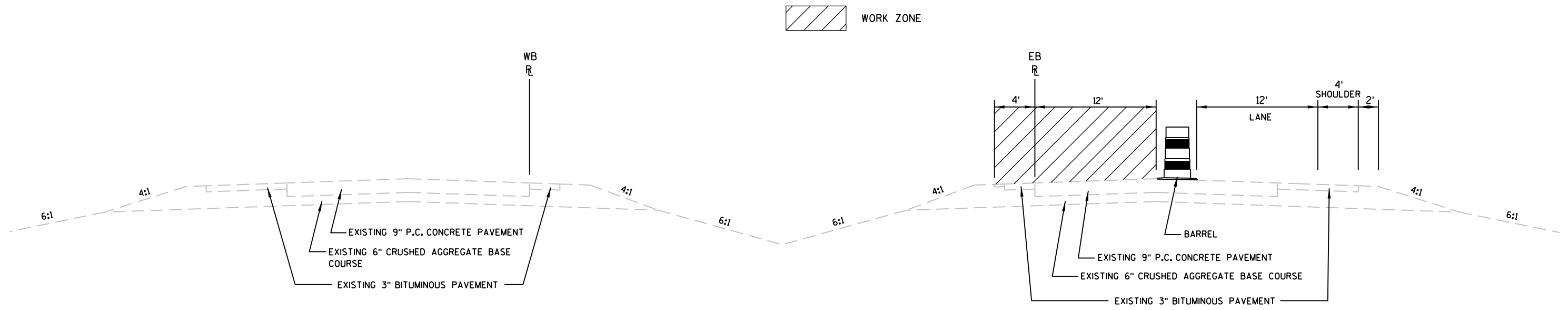


### CONSTRUCTION STAGE 3 TYPICAL SECTION

BASE PATCHING & PAVEMENT REPAIR



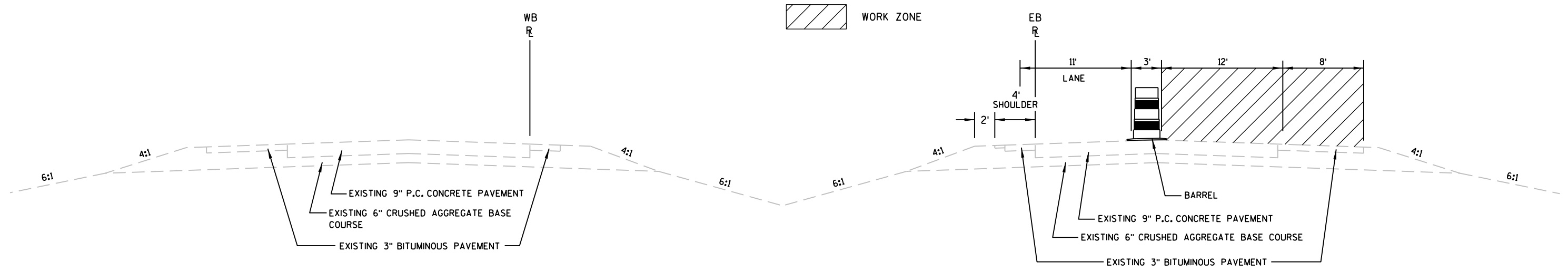
**CONSTRUCTION STAGE 4 TYPICAL SECTION**  
BASE PATCHING & PAVEMENT REPAIR



**CONSTRUCTION STAGE 5 TYPICAL SECTION**  
PAVING INSIDE LANE & MEDIAN SHOULDER, LEVELING LAYER

2

2

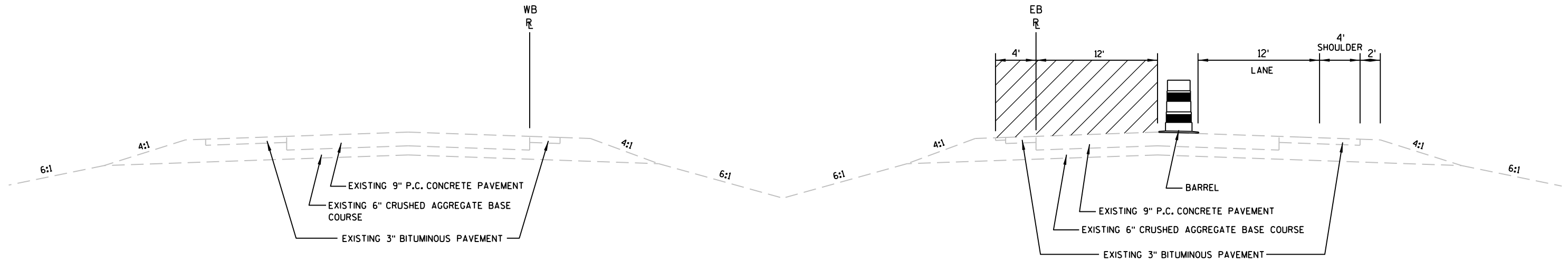


### CONSTRUCTION STAGE 6 TYPICAL SECTION

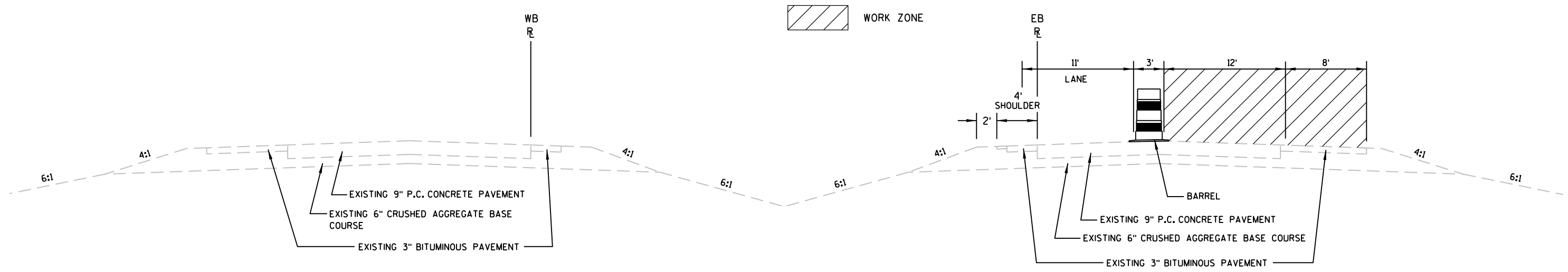
PAVING OUTSIDE LANE &amp; SHOULDER, LEVELING LAYER



 WORK ZONE



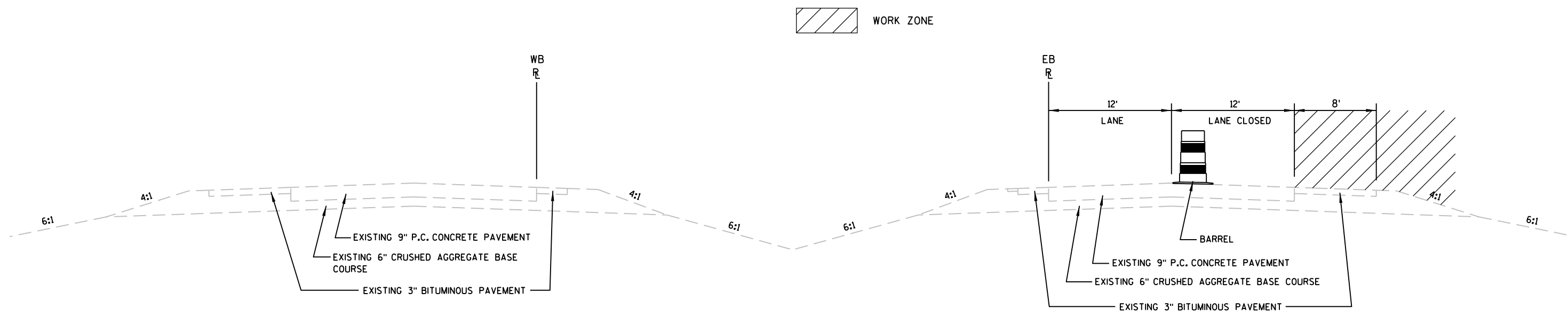
**CONSTRUCTION STAGE 7 TYPICAL SECTION**  
PAVING INSIDE LANE & MEDIAN SHOULDER, UPPER LAYER



**CONSTRUCTION STAGE 8 TYPICAL SECTION**  
PAVING OUTSIDE LANE & SHOULDER, UPPER LAYER

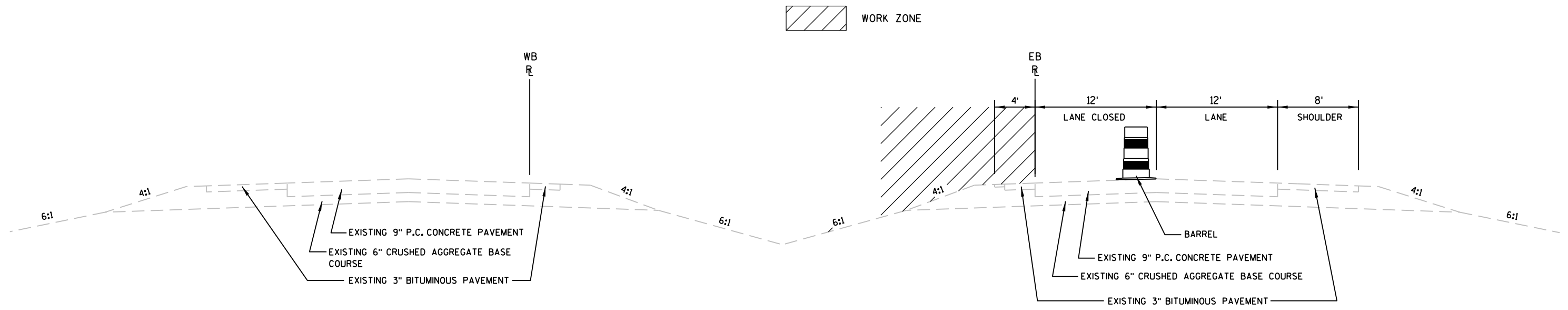
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2



### CONSTRUCTION STAGE 9 TYPICAL SECTION

OUTSIDE SHOULDER OPERATION



**CONSTRUCTION STAGE 10 TYPICAL SECTION**  
MEDIAN SHOULDER OPERATION

DATE 12MAR13		E S T I M A T E O F Q U A N T I T I E S			
LINE				1204-05-60	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	204.0105	REMOVING PAVEMENT BUTT JOINTS	SY	940.000	940.000
0020	204.0115	REMOVING ASPHALTIC SURFACE BUTT JOINTS	SY	488.000	488.000
0030	204.0120	REMOVING ASPHALTIC SURFACE MILLING	SY	9,235.000	9,235.000
0040	211.0400	PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS	STA	115.000	115.000
0050	213.0100	FINISHING ROADWAY (PROJECT) 01. 1204-05-60	EACH	1.000	1.000
0060	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	1,535.000	1,535.000
0070	390.0403	BASE PATCHING CONCRETE SHES	SY	1,600.000	1,600.000
0080	416.0610	DRILLED TIE BARS	EACH	216.000	216.000
0090	416.0620	DRILLED DOWEL BARS	EACH	1,916.000	1,916.000
0100	440.4410.S	INCENTIVE IRI RIDE	DOL	9,000.000	9,000.000
0110	455.0105	ASPHALTIC MATERIAL PG58-28	TON	522.000	522.000
0120	455.0605	TACK COAT	GAL	2,610.000	2,610.000
0130	460.1110	HMA PAVEMENT TYPE E-10	TON	9,412.000	9,412.000
0140	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	6,030.000	6,030.000
0150	465.0400	ASPHALTIC SHOULDER RUMBLE STRIP	LF	23,660.000	23,660.000
0160	614.0400	ADJUSTING STEEL PLATE BEAM GUARD	LF	700.000	700.000
0170	614.0950	REPLACING GUARDRAIL POSTS AND BLOCKS	EACH	4.000	4.000
0180	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 01. 1204-05-60	EACH	1.000	1.000
0190	619.1000	MOBILIZATION	EACH	1.000	1.000
0200	633.0100	DELINEATOR POSTS STEEL	EACH	8.000	8.000
0210	633.0500	DELINEATOR REFLECTORS	EACH	16.000	16.000
0220	634.0612	POSTS WOOD 4X6-INCH X 12-FT	EACH	2.000	2.000
0230	634.0616	POSTS WOOD 4X6-INCH X 16-FT	EACH	9.000	9.000
0240	637.0202	SIGNS REFLECTIVE TYPE II	SF	110.000	110.000
0250	638.2602	REMOVING SIGNS TYPE II	EACH	13.000	13.000
0260	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	13.000	13.000
0270	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0280	643.0100	TRAFFIC CONTROL (PROJECT) 01. 1204-05-60	EACH	1.000	1.000
0290	643.0300	TRAFFIC CONTROL DRUMS	DAY	6,217.000	6,217.000
0300	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	325.000	325.000
0310	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	1,339.000	1,339.000
0320	643.0800	TRAFFIC CONTROL ARROW BOARDS	DAY	31.000	31.000
0330	643.0900	TRAFFIC CONTROL SIGNS	DAY	810.000	810.000
0340	643.0920	TRAFFIC CONTROL COVERING SIGNS TYPE II	EACH	6.000	6.000
0350	643.1050	TRAFFIC CONTROL SIGNS PCMS	DAY	59.000	59.000
0360	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	23,700.000	23,700.000
0370	646.0881.S	PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 4-INCH	LF	2,970.000	2,970.000
0380	649.0200	TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH	LF	1,920.000	1,920.000
0390	650.8000	CONSTRUCTION STAKING RESURFACING REFERENCE	LF	11,850.000	11,850.000
0400	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 1204-05-60	LS	1.000	1.000
0410	690.0250	SAWING CONCRETE	LF	3,500.000	3,500.000
0420	SPV.0090	SPECIAL 01. CONCRETE JOINT AND CRACK REPAIR	LF	1,500.000	1,500.000

CONSTRUCTION STAKING RESURFACING REFERENCE

LOCATION	650.8000
EB MAINLINE	11,850
TOTAL =	11,850

REMOVING ASPHALTIC SURFACE MILLING

STATION		204.0120
		SY
233+29 - 351+48	RT	5250
233+29 - 244+52	LT	380
244+52 - 245+02	LT	25
245+02 - 252+62	LT	260
252+62 - 254+14	LT	70
254+14 - 284+37	LT	1000
284+37 - 284+87	LT	25
284+87 - 301+33	LT	550
301+33 - 301+83	LT	25
301+83 - 351+48	LT	1650
TOTAL =		9,235

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

STATION		211.0400
		STA
233+29 - 244+52	LT	11
245+02 - 252+62	LT	7
254+14 - 284+37	LT	30
284+87 - 301+33	LT	17
301+83 - 351+48	LT	50
TOTAL =		115

REMOVING JOINTS

STATION	204.0105	204.0115	
	REMOVING PAVEMENT BUTT JOINTS	REMOVING ASPHALTIC SURFACE BUTT JOINTS	REMARKS
	SY	SY	
224+21	LT/RT	470	BEGIN PROJECT
244+77	LT	—	MAINTENANCE CROSSOVER
253+77	LT	—	MAINTENANCE CROSSOVER
284+62	LT	—	MAINTENANCE CROSSOVER
301+58	LT	—	MAINTENANCE CROSSOVER
348+98	LT/RT	470	END PROJECT
TOTAL=	940	488	

CONCRETE BASE PATCHING AND CONCRETE JOINT REPAIR

LOCATION	390.0403	416.0610	416.0620	690.0250	SPV.0090.01
	BASE PATCHING CONCRETE SHES	DRILLED TIE BARS	DRILLED DOWEL BARS	SAWING CONCRETE	CONCRETE JOINT AND CRACK REPAIR
	SY	EACH	EACH	LF	LF
EB MAINLINE INSIDE LANE	800	108	608	1,750	
EB MAINLINE OUTSIDE LANE	800	108	608	1,750	
UNDISTRIBUTED			700		1500
TOTAL =	1,600	216	1,916	3,500	1500

HMA PAVEMENT

		455.0105	455.0605	460.1110
		ASPHALTIC MATERIAL	TACK COAT	HMA PAVEMENT
STATION		PG58-28		TYPE E-10
		TON	GAL	TON
<u>EB MAINLINE AND SHOULDER</u>				
233+29 - 351+48		420	2,350	7,620
<u>SHOULDER MILL AND OVERLAY (STAGE 1 &amp; 2)</u>				
233+29 - 351+48	LT	30	130	515
233+29 - 351+48	RT	30	130	515
<u>UNDISTRIBUTED</u>				
		42		762
TOTAL =		522	2,610	9,412

ASPHALTIC SHOULDER RUMBLE STRIP

LOCATION	465.0400
	LF
EB MAINLINE INSIDE SHOULDER	11,820
EB MAINLINE OUTSIDE SHOULDER	11,840
TOTAL =	23,660

3

BASE AGGREGATE DENSE 3/4 - INCH		
STATION		305.0110 TON
233+29 - 351+48	RT	750
233+29 - 244+64	LT	75
244+90 - 253+64	LT	55
253+90 - 284+49	LT	200
284+75 - 301+45	LT	110
301+71 - 351+48	LT	320
UNDISTRIBUTED		25
TOTAL =		1,535

ADJUSTING BEAM GUARD			
STATION		614.0400 ADJUSTING STEEL PLATE BEAM GUARD LF	614.0950 REPLACING GUARDRAIL POSTS AND BLOCKS EACH
284+70 - 291+60	RT	700	4
TOTAL =		700	4

3

REMOVING SIGNS AND SIGN SUPPORTS					
		638.2602	638.3000		
SIGN NO.	STATION	REMOVING SIGNS TYPE II		REMOVING SMALL SIGN SUPPORTS	SIGN MESSAGE
		EACH		EACH	
R1-1	231+85	RT	1	1	ADOPT A HWY: DODGEVILLE EDUCATION ASSOCIATION
R1-2	241+20	RT	1	1	MILE 48
R1-3	244+53	LT	1	1	NO U-TURN
R1-4	245+00	LT	1	1	NO U-TURN
R2-1	253+41	LT	1	1	NO U-TURN
R2-2	254+06	LT	1	1	NO U-TURN
R3-1	284+41	LT	1	1	NO U-TURN
R3-2	284+83	LT	1	1	NO U-TURN
R3-3	294+73	RT	1	1	MILE 49
R3-4	301+36	LT	1	1	NO U-TURN
R3-5	301+80	LT	1	1	NO U-TURN
R4-1	330+83	LT	1	2	WISCONSIN ROAD EMERGENCY INFORMATION
R4-2	330+83	LT	1	—	WISCONSIN ROAD EMERGENCY INFORMATION
TOTAL =		13		13	

SIGN AND SIGN SUPPORTS									
		637.0202	POSTS WOOD		634.0612	634.0616			
SIGN NO.	STATION	SIGN CODE	SIGN SIZE			SIGNS REFLECTIVE TYPE II	4 X 6 INCH 12 FT	4 X 6 INCH 16 FT	SIGN MESSAGE
			INCH	X	INCH	SF	EACH	EACH	
1-1	231+83	RT	I55-56	30	X	36	8		ADOPT A HWY: DODGEVILLE EDUCATION ASSOCIATION
1-2	241+20	RT	D10-2	12	X	36	3	1	MILE 48
1-3	244+51	LT	R3-4B	36	X	48	12	1	NO U-TURN
1-4	245+04	LT	R3-4B	36	X	48	12	1	NO U-TURN
2-1	253+54	LT	R3-4B	36	X	48	12	1	NO U-TURN
2-2	254+06	LT	R3-4B	36	X	48	12	1	NO U-TURN
3-1	284+38	LT	R3-4B	36	X	48	12	1	NO U-TURN
3-2	284+86	LT	R3-4B	36	X	48	12	1	NO U-TURN
3-3	294+73	RT	D10-2	12	X	36	3	1	MILE 49
3-4	301+32	LT	R3-4B	36	X	48	12	1	NO U-TURN
3-5	301+82	LT	R3-4B	36	X	48	12	1	NO U-TURN
TOTAL =						110	2	9	

DELINEATORS

STATION		633.0100 DELINEATOR POSTS STEEL EACH	633.0500 DELINEATOR REFLECTORS YELLOW EACH
244+54	LT	1	2
245+04	LT	1	2
253+43	LT	1	2
253+98	LT	1	2
284+37	LT	1	2
284+83	LT	1	2
301+32	LT	1	2
301+80	LT	1	2
TOTAL =		8	16

TRAFFIC CONTROL ITEMS

STAGE	LENGTH CALENDAR DAYS	643.0300 TRAFFIC CONTROL DRUMS DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY	643.0800 TRAFFIC CONTROL ARROW BOARDS DAY	643.0900 TRAFFIC CONTROL SIGNS DAY	643.1050 TRAFFIC CONTROL SIGNS PCMS DAY
	DAYS	DAY	DAY	DAY	DAY	DAY	DAY
PREWARNING	7	—	—	—	—	—	14
STAGE 1	4	688	40	136	4	80	4
STAGE 2	3	693	33	159	3	66	3
STAGE 3	6	1,032	60	204	6	120	6
STAGE 4	7	1,617	77	371	7	266	21
STAGE 5	1	172	10	34	1	20	1
STAGE 6	1	231	11	53	1	38	1
STAGE 7	2	344	20	68	2	40	2
STAGE 8	2	462	22	106	2	76	2
STAGE 9	2	462	22	106	2	44	2
STAGE 10	3	516	30	102	3	60	3
TOTAL =	38	6,217	325	1,339	31	810	59

643.0920

TRAFFIC CONTROL COVERING SIGNS TYPE II

STAGE	EACH	NUMBER OF CYCLES	NUMBER OF SIGNS	MESSAGE
STAGE 1 & 2	1	1	1	SPEED LIMIT 65
STAGE 3	1	1	1	SPEED LIMIT 65
STAGE 4	1	1	1	SPEED LIMIT 65
STAGE 5 & 6	1	1	1	SPEED LIMIT 65
STAGE 7 & 8	1	1	1	SPEED LIMIT 65
STAGE 9 & 10	1	1	1	SPEED LIMIT 65
TOTAL =	6			

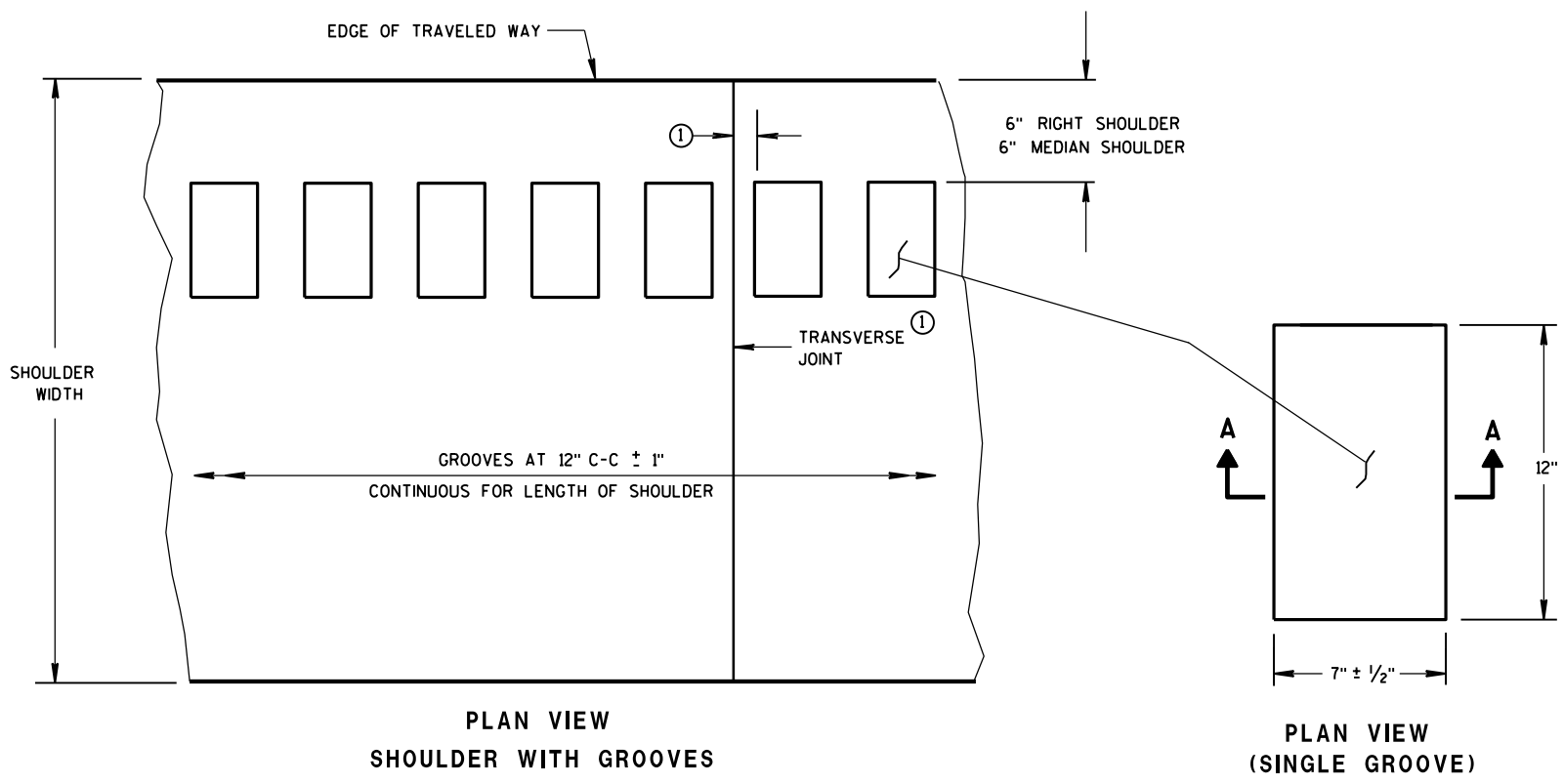
PAVEMENT MARKING

LOCATION	646.0106 PAVEMENT MARKING EPOXY 4-INCH (WHITE EDGELINE) LF	646.0106 PAVEMENT MARKING EPOXY 4-INCH (YELLOW EDGELINE) LF	646.0881.S PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 4-INCH (LANELINE) LF	649.0200 TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH (LANELINE) LF
	LF	LF	LF	LF
EB MAINLINE	11,850	11,850	2,970	1,920
TOTAL =		23,700	2,970	1,920



Standard Detail Drawing List

13A05-05A	SHOULDER RUMBLE STRIP, MILLING
13A05-05B	SHOULDER RUMBLE STRIP, MILLING
13C14-04A	BASE PATCHING CONCRETE
13C14-04B	BASE PATCHING CONCRETE
13C14-04C	BASE PATCHING CONCRETE
14B15-07A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
15A02-07	DELINEATOR POST, DELINEATOR BRACKET AND DELINEATOR
15C08-15A	PAVEMENT MARKING (MAINLINE)
15D12-02	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H.
15D15-01	TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE
15D27-01	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH



PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

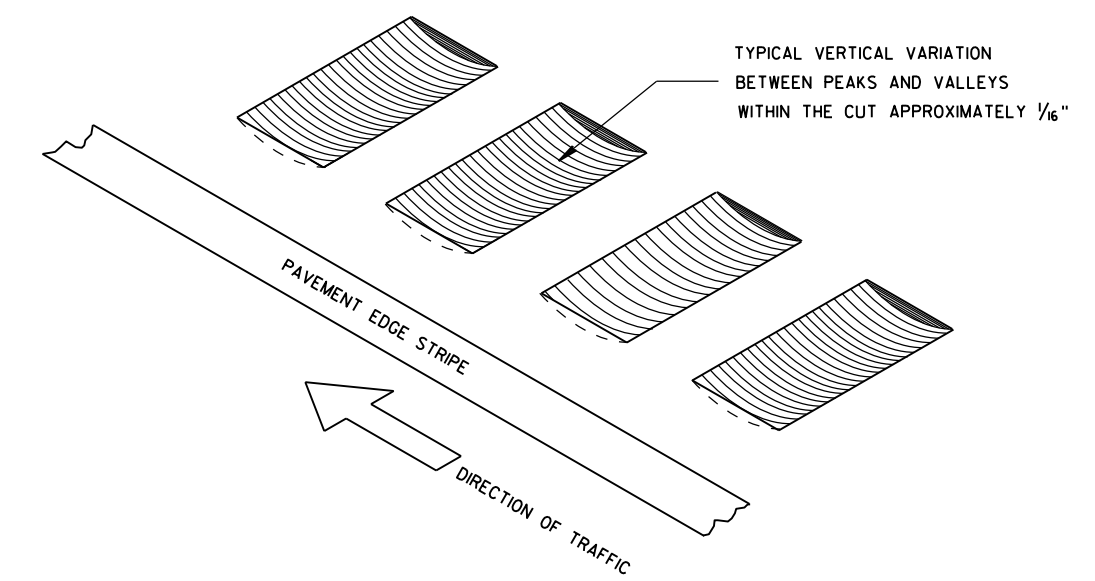
GENERAL NOTES

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

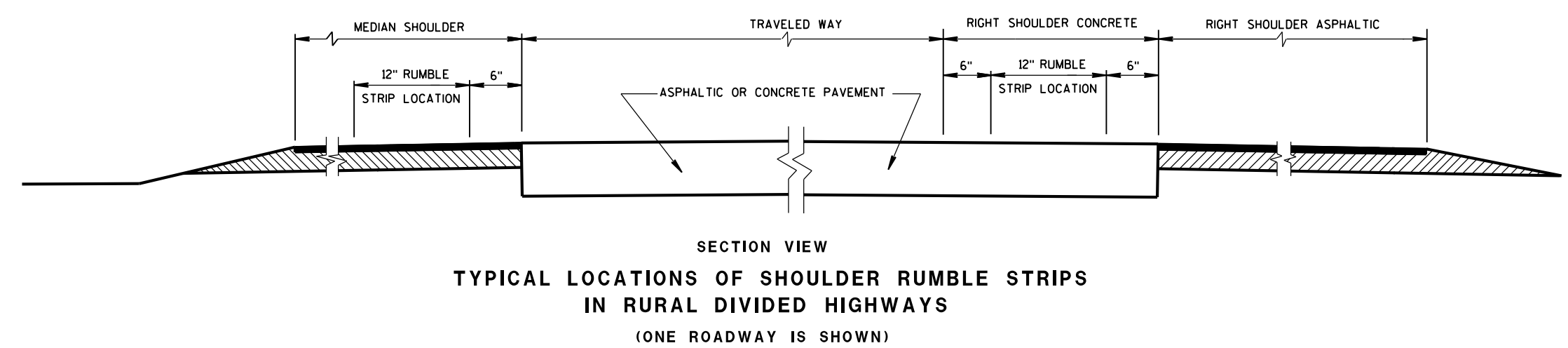
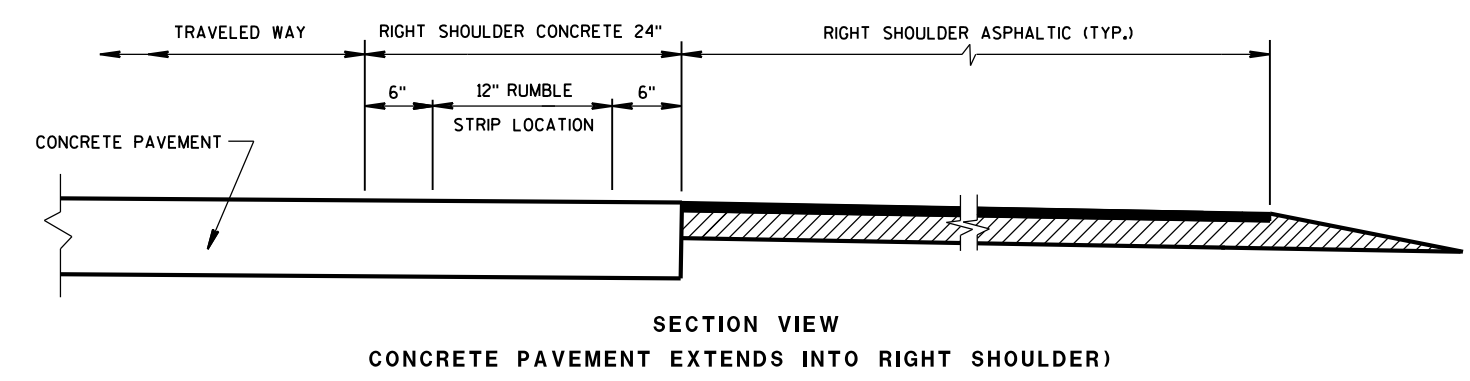
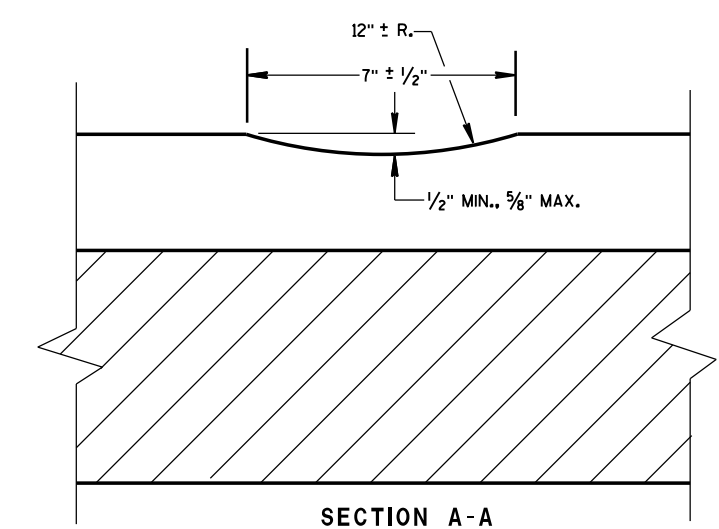
RUMBLE STRIPS ON EXPRESSWAYS

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

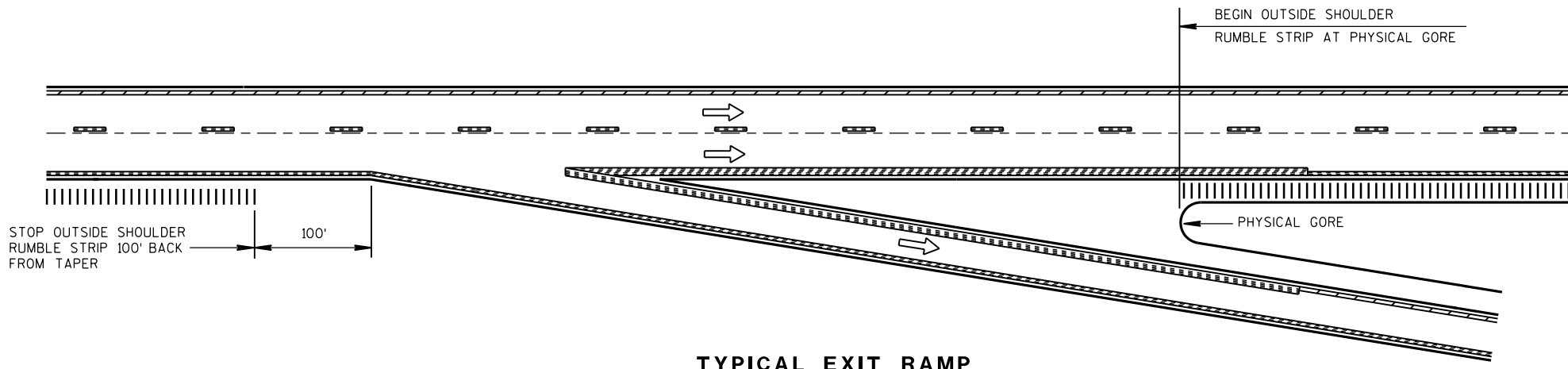
① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6" AWAY FROM TRANSVERSE JOINTS.



ISOMETRIC



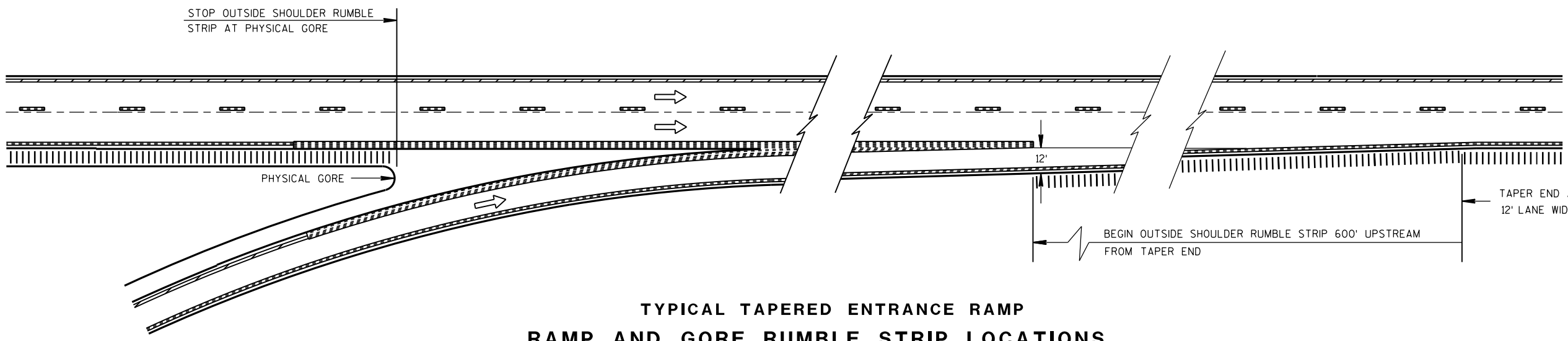
SHOULDER RUMBLE STRIP, MILLING
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



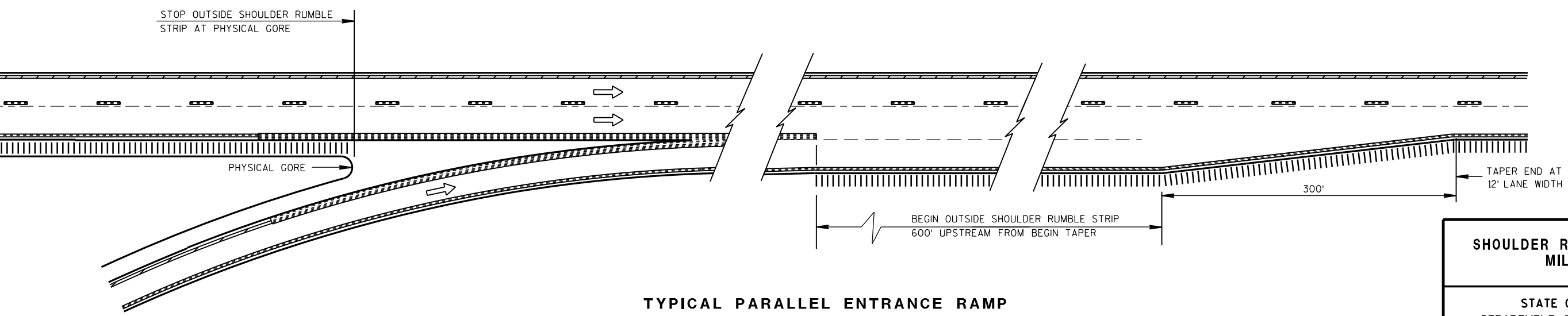
TYPICAL EXIT RAMP

**NOTES:**  
NO RUMBLE STRIP ON EXIT, DIRECTIONAL, OR ENTRANCE RAMPS, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.  
PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

NOTE:  
ARROW SYMBOL (→)  
SHOWS DIRECTION OF TRAVEL

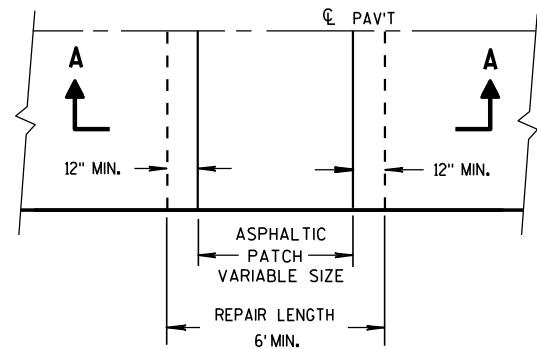


TYPICAL TAPERED ENTRANCE RAMP  
RAMP AND GORE RUMBLE STRIP LOCATIONS

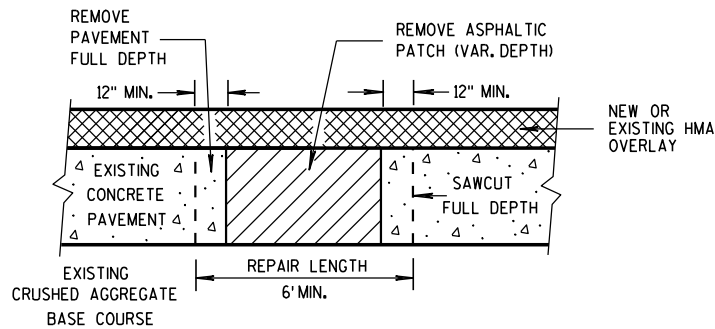


TYPICAL PARALLEL ENTRANCE RAMP  
RAMP AND GORE RUMBLE STRIP LOCATIONS

<b>SHOULDER RUMBLE STRIP, MILLING</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 12/17/2012 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

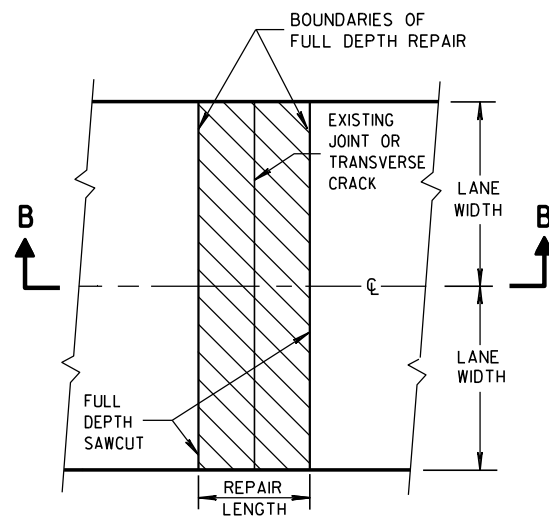


PLAN VIEW

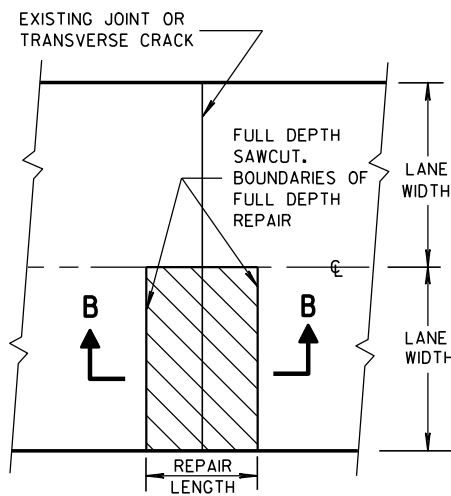


SECTION A-A

HMA PATCH REMOVAL



PLAN VIEW  
(DOUBLE LANE REPAIR)



PLAN VIEW  
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL

(SEE NOTE)

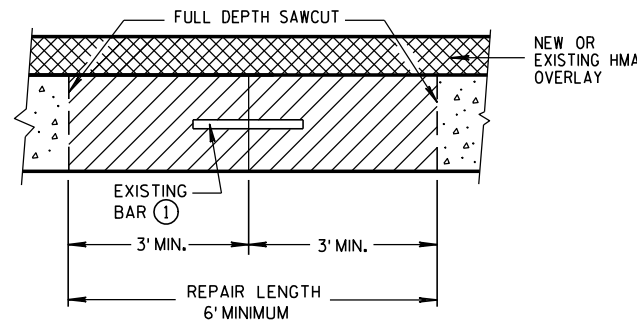
GENERAL NOTES

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. ADDITIONAL SAW CUTS ARE NOT PAID FOR BY THE DEPARTMENT.

PROVIDE 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK.

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.

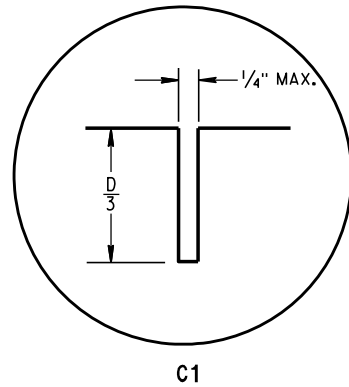
① DOWEL BARS MIGHT NOT EXIST.



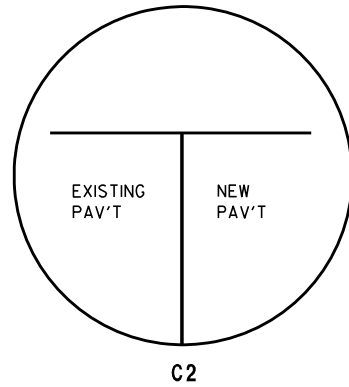
SECTION B-B  
CONCRETE REMOVAL

BASE PATCHING CONCRETE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

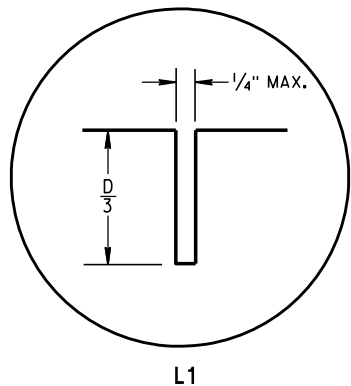


C1

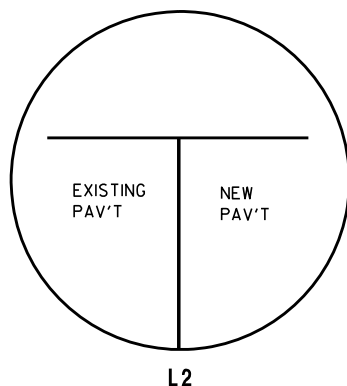


C2

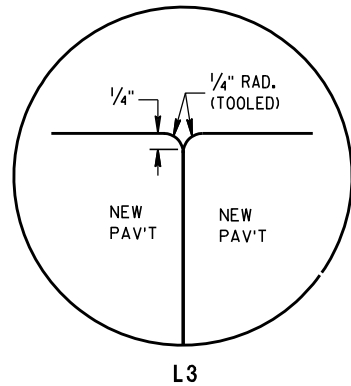
### TRANSVERSE JOINTS



L1

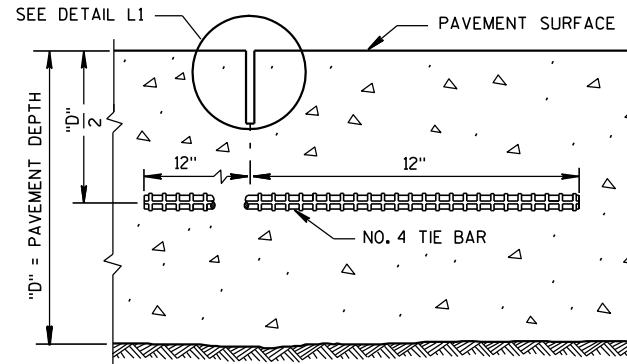


L2

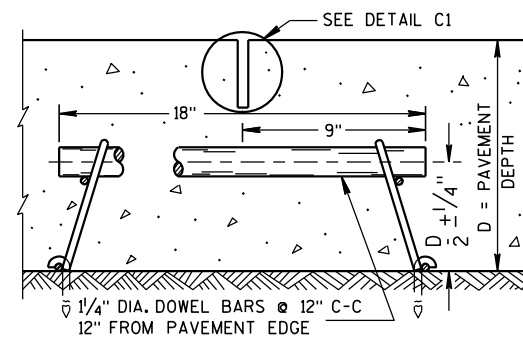


L3

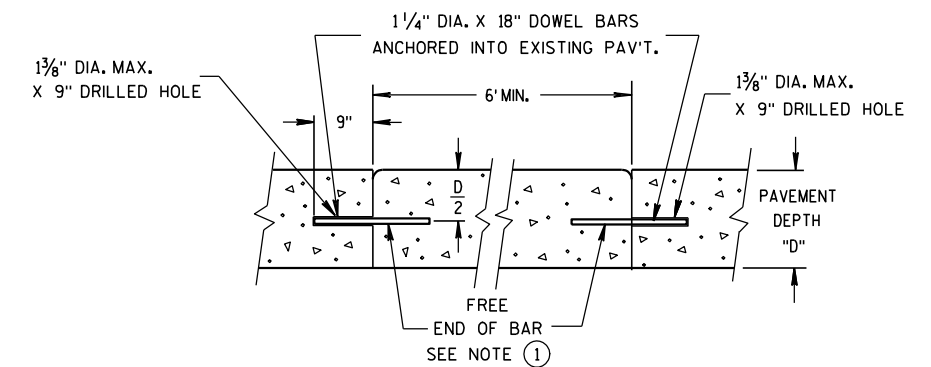
### LONGITUDINAL JOINTS



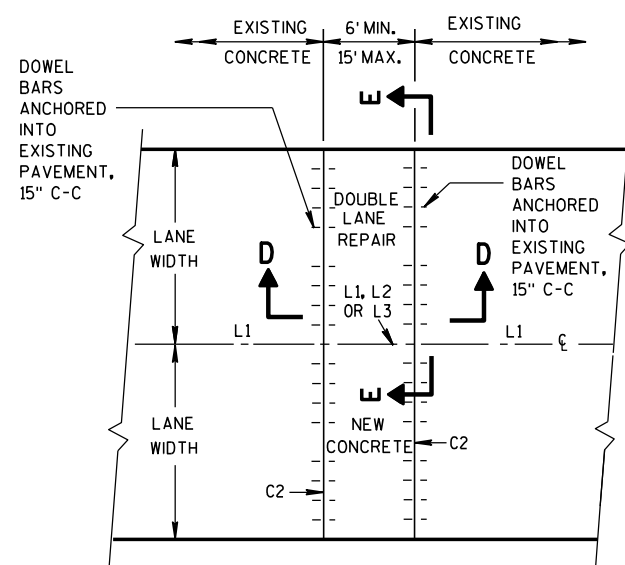
SECTION C-C  
SAWED LONGITUDINAL JOINT



SECTION F-F  
CONTRACTION JOINT

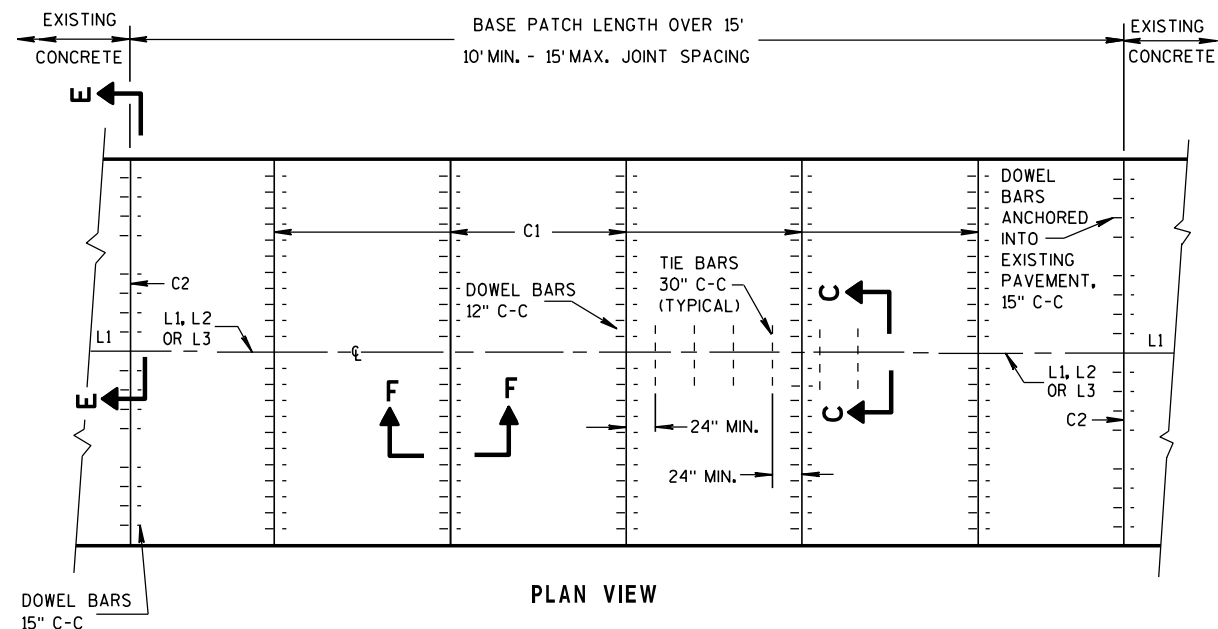


SECTION D-D



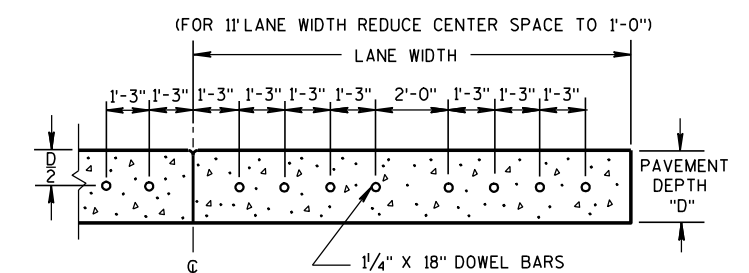
PLAN VIEW

MULTI-LANE CONCRETE BASE PATCH  
15' MAXIMUM LENGTH



PLAN VIEW

MULTI-LANE CONCRETE BASE PATCH  
GREATER THAN 15' IN LENGTH



SECTION E-E  
SPACING OF DOWEL BARS  
ANCHORED INTO EXISTING PAVEMENT

BASE PATCHING CONCRETE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

### GENERAL NOTES

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

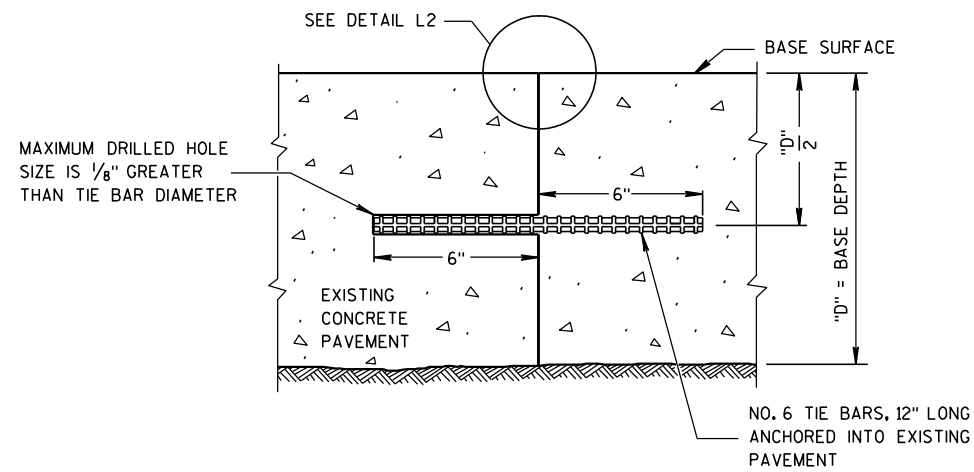
CONCRETE BASE PATCHES OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

DO NOT SEAL OR FILL JOINTS.

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

PROVIDE A MINIMUM DISTANCE OF 24 INCHES FROM AN EXISTING TRANSVERSE JOINT OR THE EDGE OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

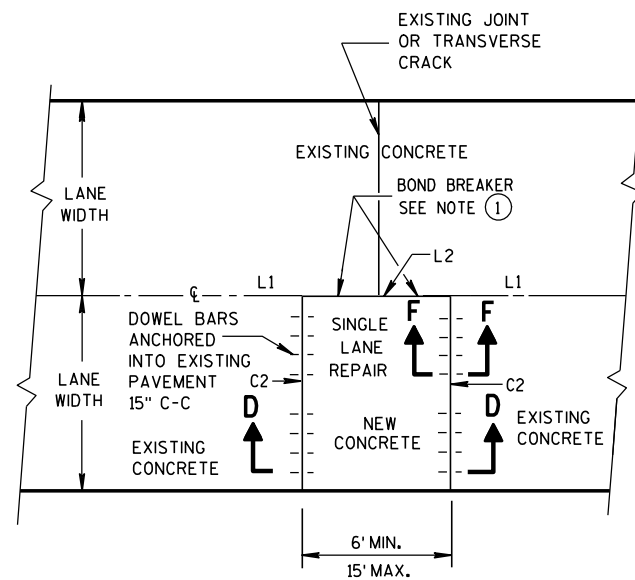
- APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



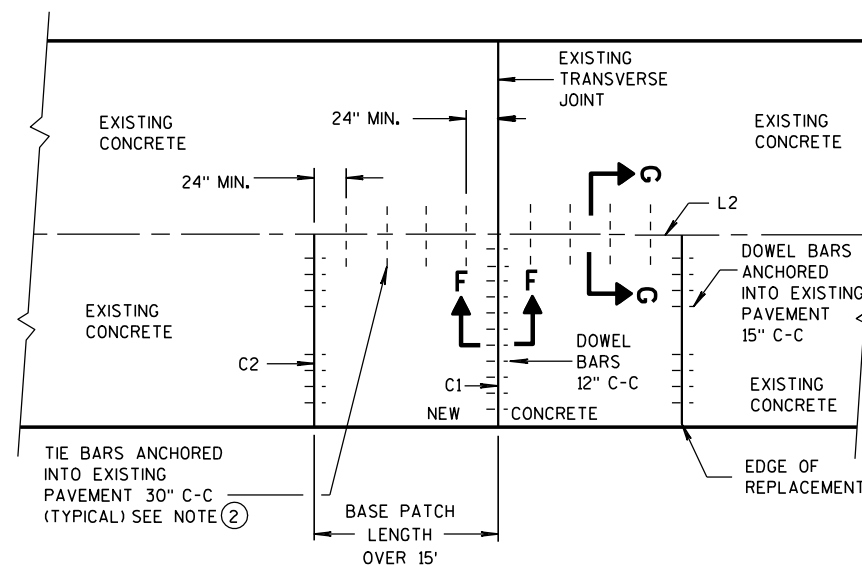
SECTION G-G  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT

## GENERAL NOTES

- ① USE AN ENGINEER-APPROVED BOND BREAKER FOR SINGLE LANE BASE PATCHES UP TO 15 FEET IN LENGTH.
- ② WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, DRILLED TIE BARS MAY BE INSTALLED ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES AND TO SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.



PLAN VIEW  
SINGLE LANE CONCRETE BASE PATCH  
15' MAXIMUM LENGTH



PLAN VIEW  
SINGLE LANE CONCRETE BASE PATCH  
GREATER THAN 15' IN LENGTH

## BASE PATCHING CONCRETE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

12-11-2009  
DATE

FHWA

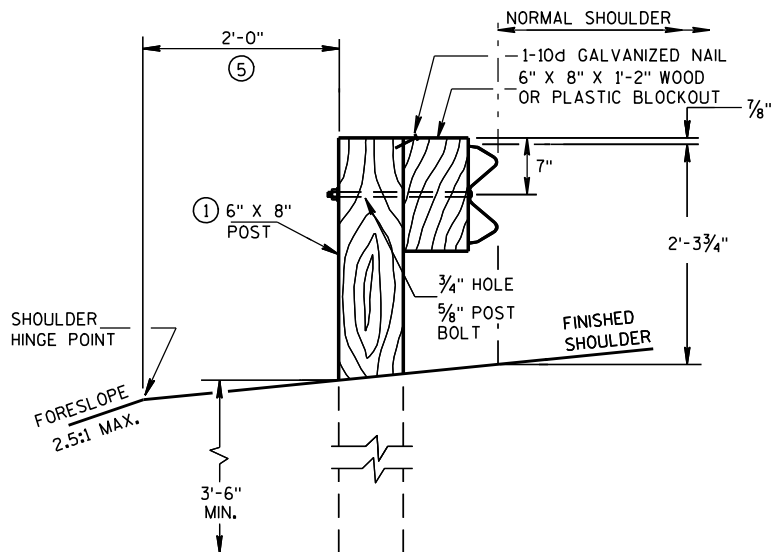
/S/ Deb Bischoff  
PAVEMENT POLICY & DESIGN ENGINEER

## GENERAL NOTES

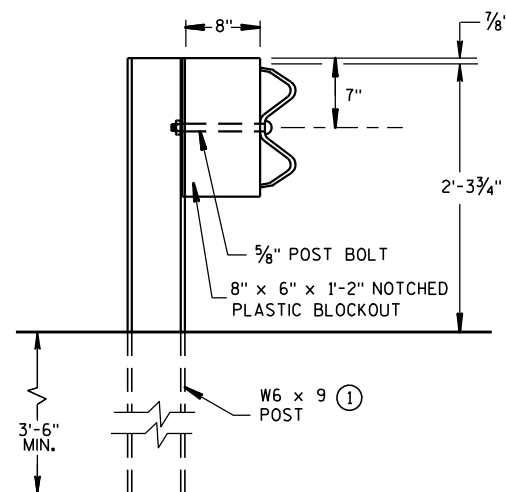
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, AND THE APPLICABLE SPECIAL PROVISIONS.

- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS.  
DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
- ② USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111 EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPALTER COATING ON GALVANIZED POSTS.
- ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- ⑤ IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
- ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.

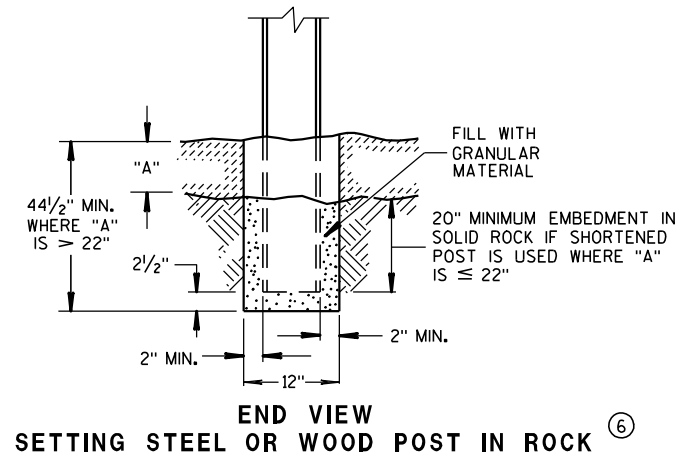
INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



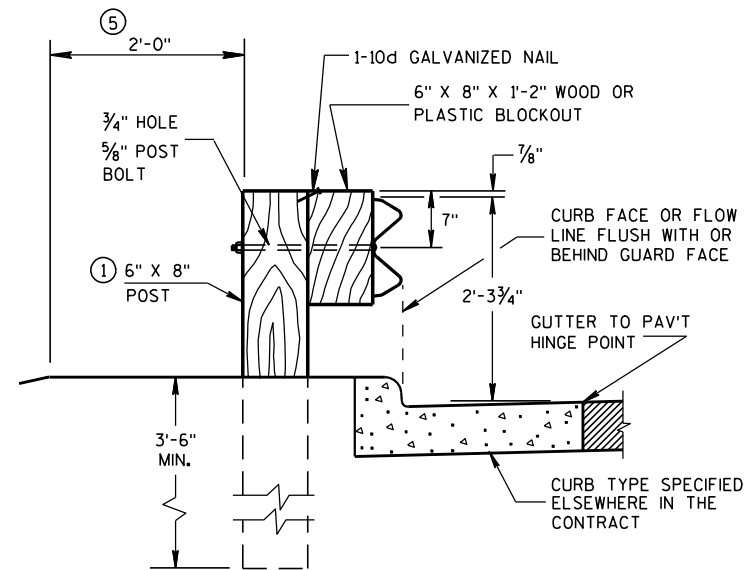
END VIEW  
LOCATED ALONG A ROADWAY SHOULDER  
STANDARD INSTALLATION



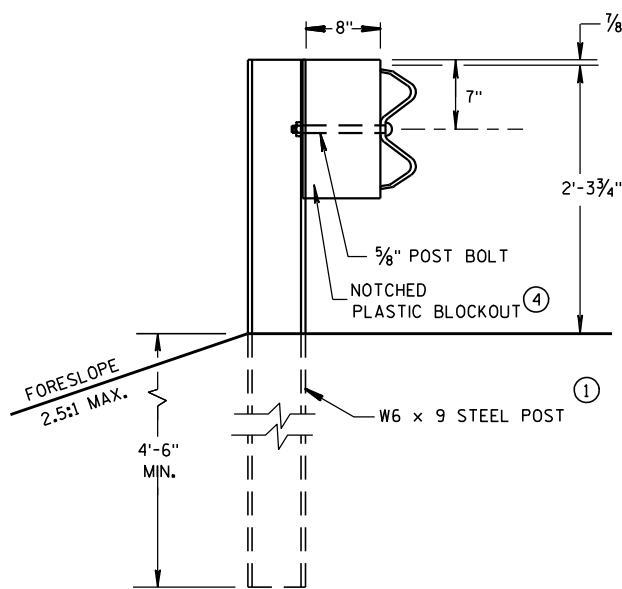
END VIEW  
STEEL POST & NOTCHED  
PLASTIC BLOCKOUT ALTERNATIVE  
STANDARD INSTALLATION



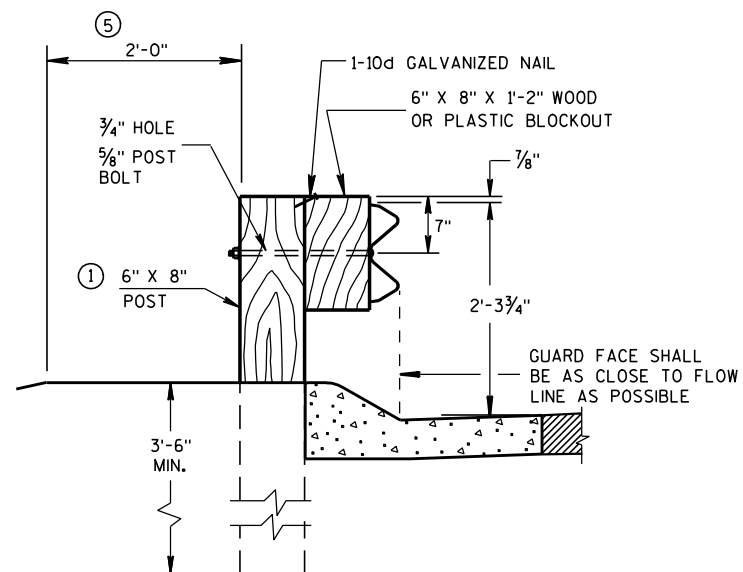
END VIEW  
SETTING STEEL OR WOOD POST IN ROCK ⑥



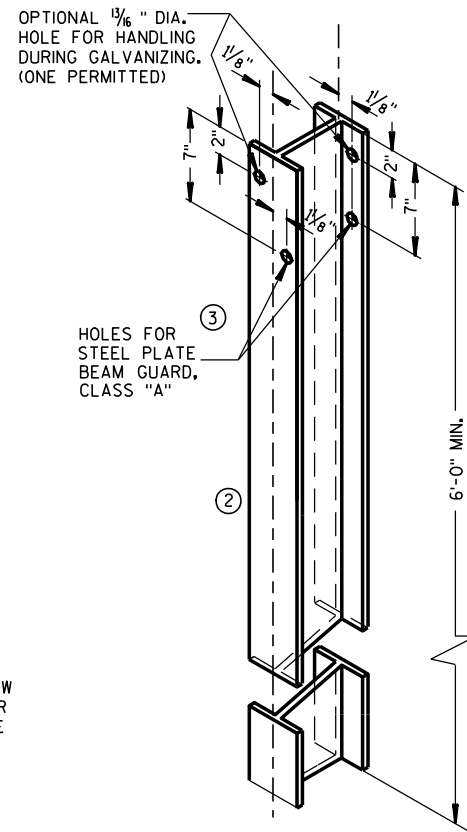
END VIEW  
LOCATED ALONG A CURBED ROADWAY



END VIEW  
LONGER POST AT HALF  
POST SPACING W BEAM  
(LHW)

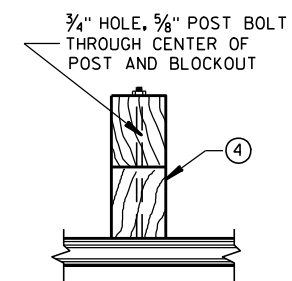


END VIEW  
LOCATED ALONG A  
MOUNTABLE CURBED ROADWAY

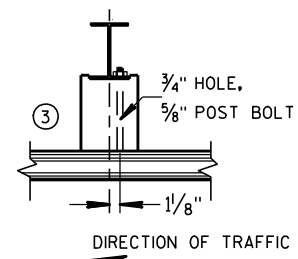


STEEL POST &  
HOLE PUNCHING DETAIL  
(W6 X 9) ①

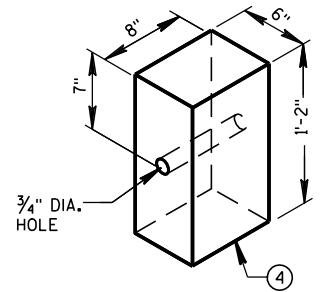
ALL HOLES 1 3/8" DIAMETER EXCEPT AS NOTED



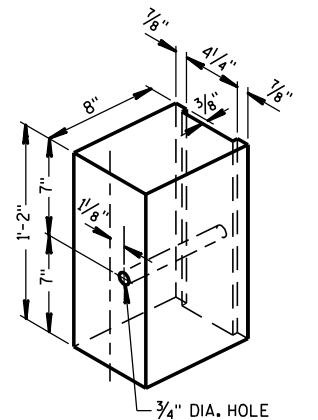
PLAN VIEW  
WOOD POST,  
BLOCKOUT & BEAM



PLAN VIEW  
STEEL POST, NOTCHED  
PLASTIC BLOCKOUT & BEAM



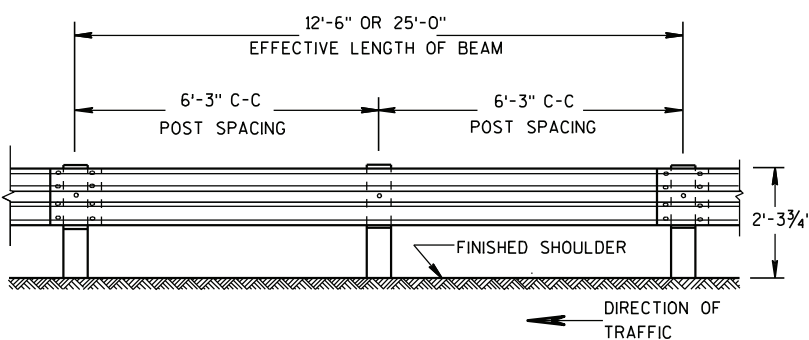
WOOD OR PLASTIC  
BLOCKOUT FOR  
WOOD POSTS



TYPICAL NOTCHED  
PLASTIC BLOCKOUT  
FOR STEEL POSTS ①

STEEL PLATE BEAM GUARD,  
CLASS "A"  
INSTALLATION & ELEMENTS

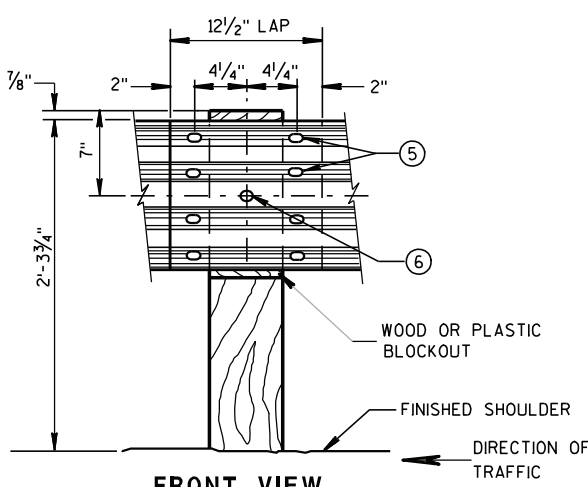
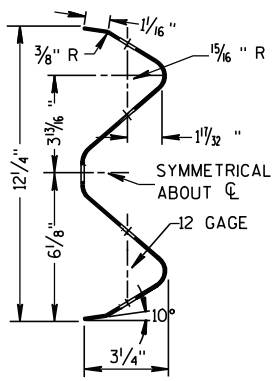
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



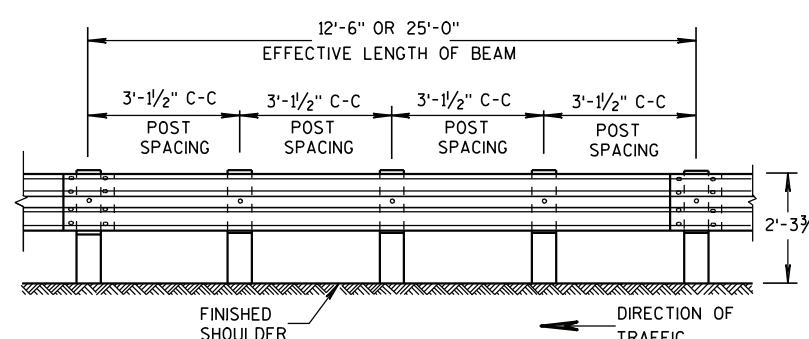
FRONT VIEW

POST SPACING STANDARD INSTALLATION

SECTION THRU W BEAM

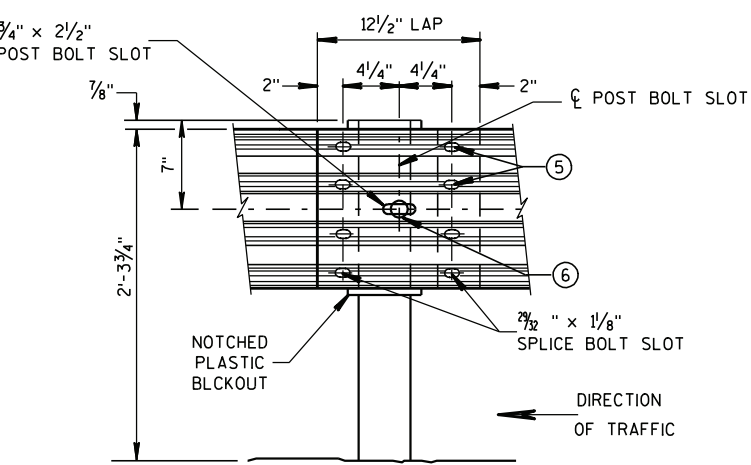


FRONT VIEW  
BEAM SPLICE AT WOOD POST  
AND POST MOUNTING DETAIL



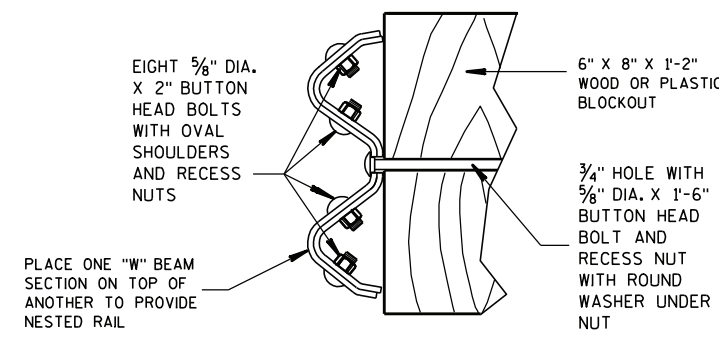
FRONT VIEW

POST SPACING FOR LONGER POST  
AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW  
BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS  
OF STEEL PLATE BEAM GUARD

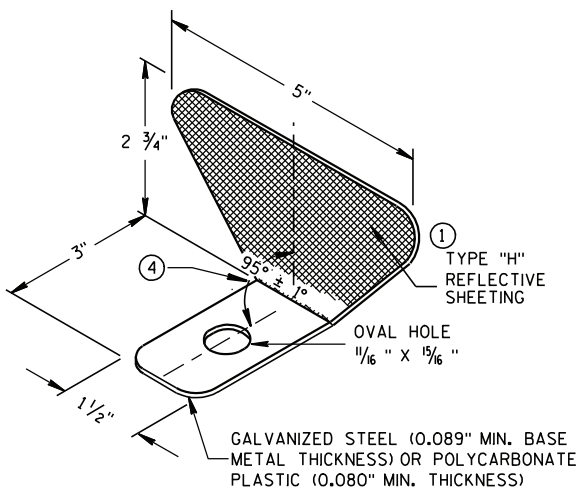
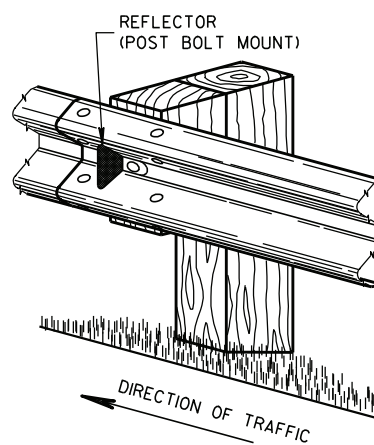


NESTED W BEAM (NW)

USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR  
CONSTRUCTING NESTED W BEAM (NW)

REFLECTOR SPACING<sup>②</sup>

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ③	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ④	3
	> 200'	100' C-C	2	



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

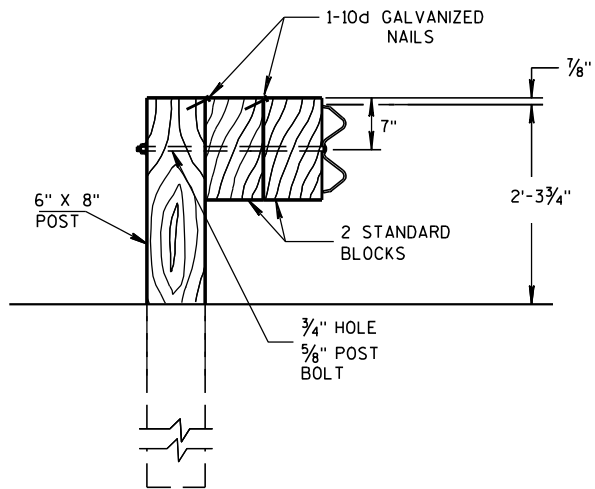
GENERAL NOTES

- ① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
- ② DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- ③ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ④ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
- ⑤ 8 - 5/8"  $\phi$  X 2 " BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑥ 5/8"  $\phi$  X 1'-6" BUTTON HEAD BOLT AND AND RECESS NUT WITH ROUND WASHER UNDER NUT.

STEEL PLATE BEAM GUARD,  
CLASS "A",  
INSTALLATION & ELEMENTS

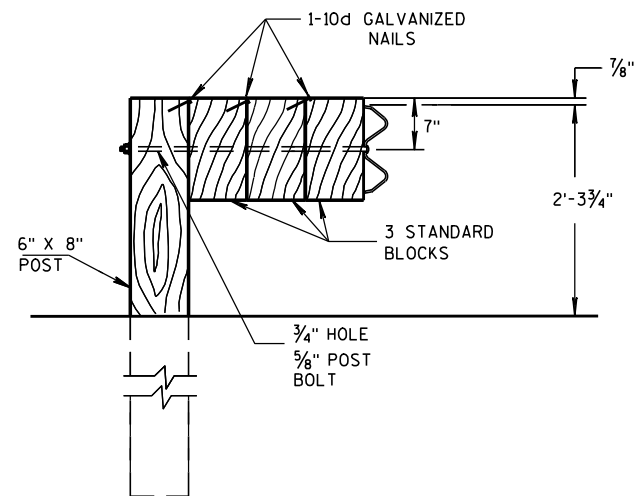
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





#### DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS  
WITHIN A BARRIER RUN IS UNLIMITED

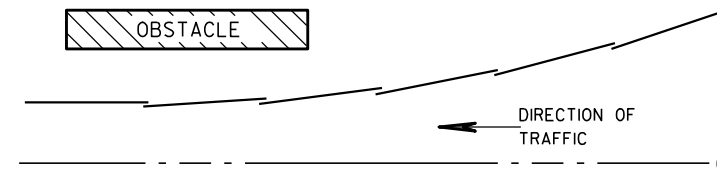


#### DETAIL FOR TRIPLE BLOCKS

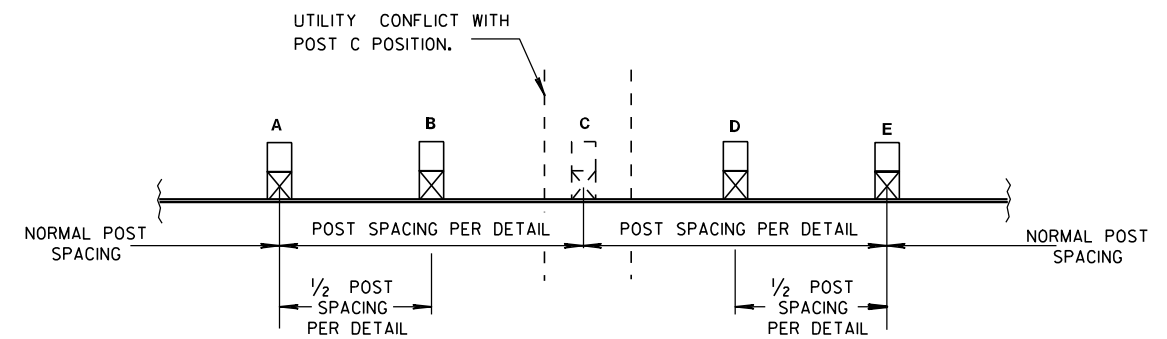
TRIPLE BLOCK DETAIL IS LIMITED TO ONE  
LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES  
PREVENT THE POST FROM BEING INSTALLED.

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



#### PLAN VIEW BEAM LAPPING DETAIL



#### POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

#### STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

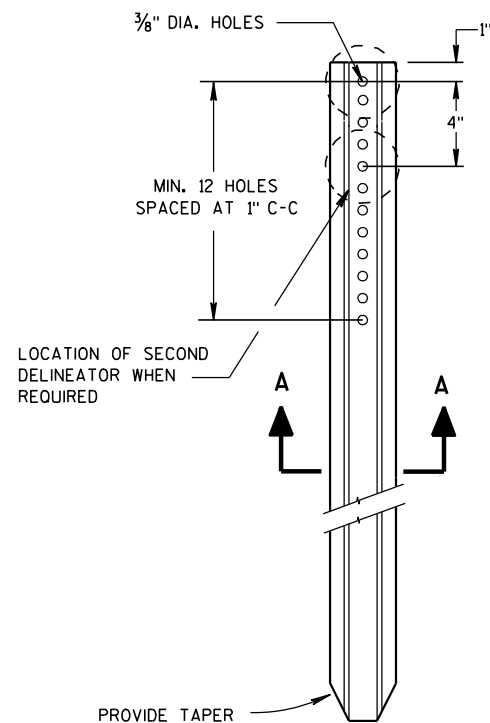
APPROVED

5/23/11

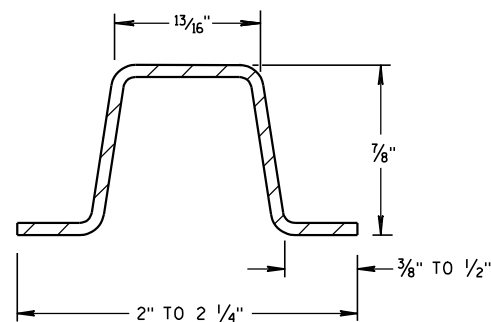
DATE

FHWA

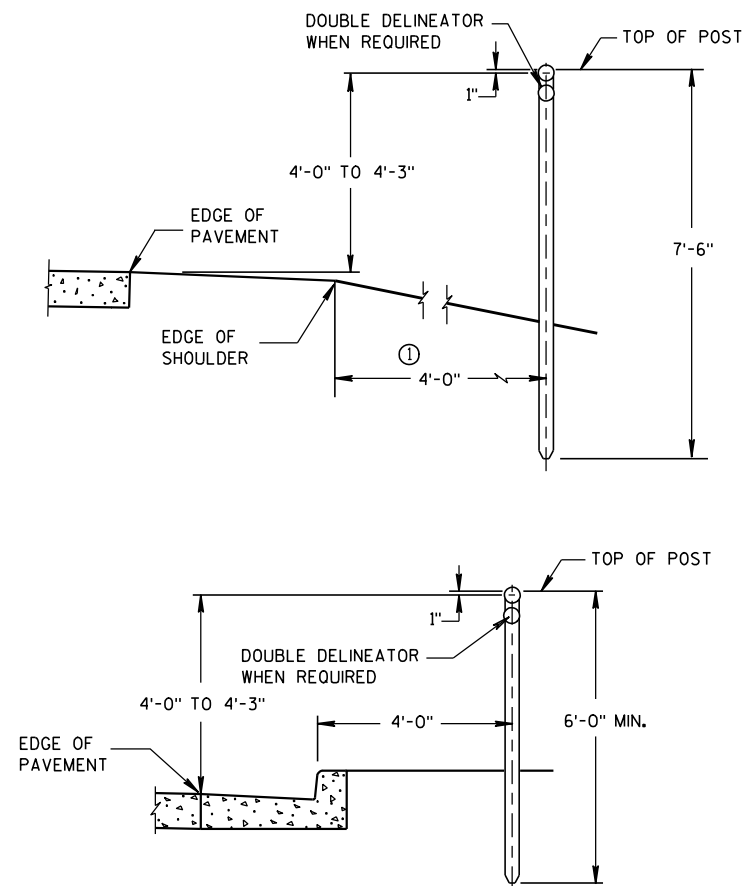
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



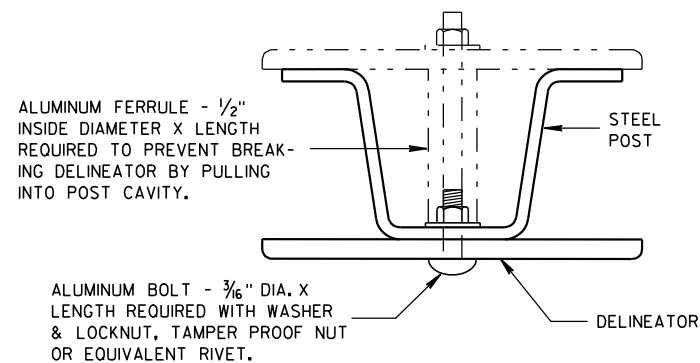
DELINEATOR POST



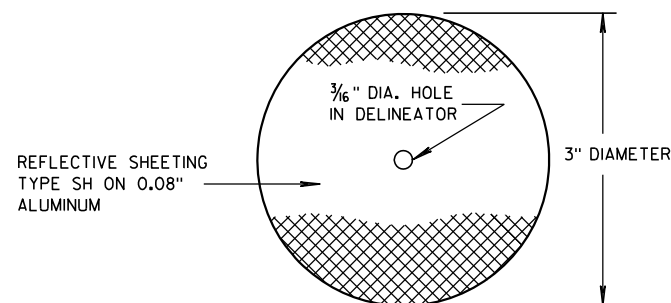
SECTION A-A

WEIGHT 1.12 LBS PER FT.  $\pm$  0.1 LB.

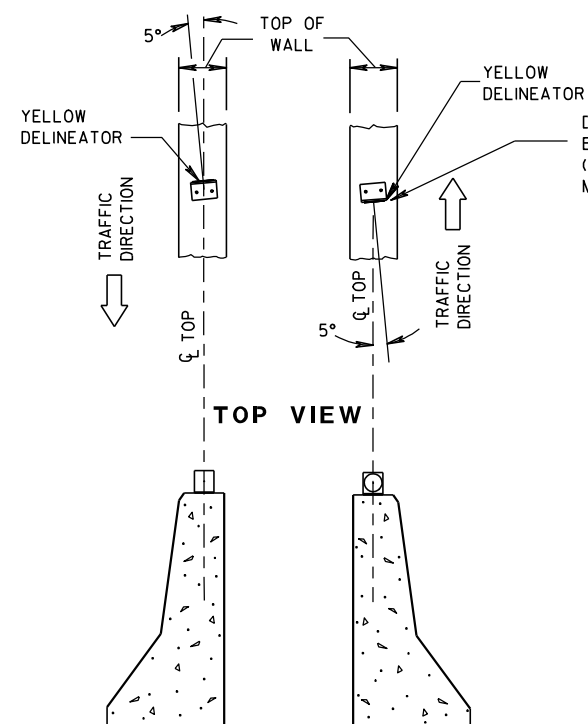
TYPICAL INSTALLATIONS OF DELINEATOR POSTS



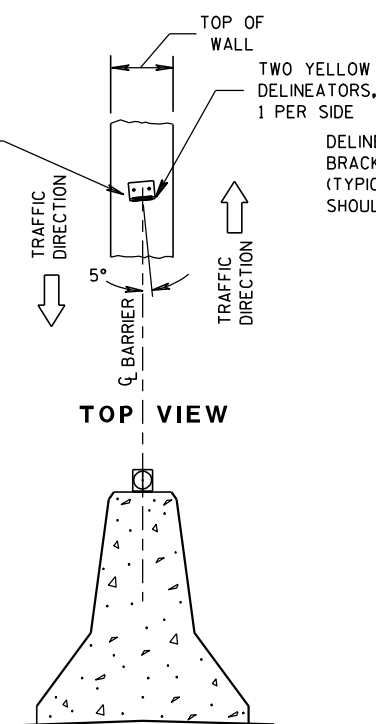
MOUNTING DETAIL FOR DELINEATOR



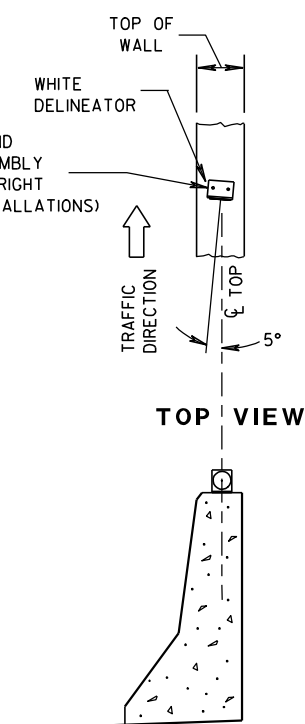
DELINEATOR



DOUBLE BARRIERS IN MEDIAN



MEDIAN BARRIER

BARRIER LOCATED  
TO RT. OF TRAFFIC FLOW

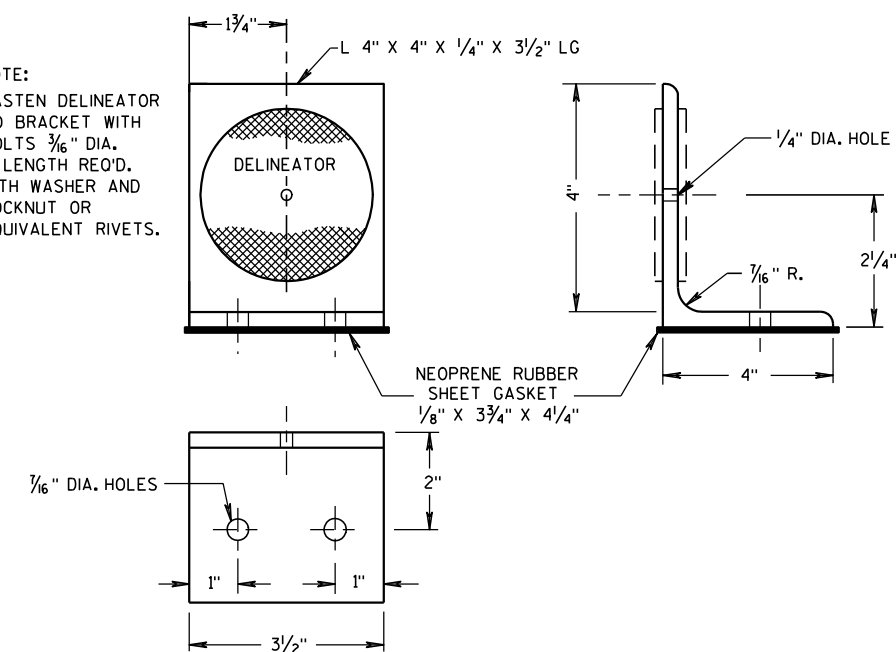
LOCATION AND AIMING DETAILS FOR DELINEATORS MOUNTED ON CONCRETE BARRIERS

## GENERAL NOTES

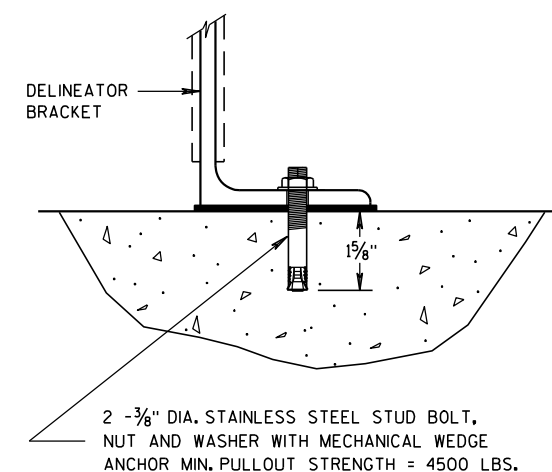
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.

NOTE:  
FASTEN DELINEATOR  
TO BRACKET WITH  
BOLTS  $\frac{3}{16}$ " DIA.  
X LENGTH REQ'D.  
WITH WASHER AND  
LOCKNUT OR  
EQUIVALENT RIVETS.



DELINEATOR BRACKET



DELINEATOR BRACKET MOUNTING DETAIL

DELINEATOR POST, DELINEATOR  
BRACKET AND DELINEATOR

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

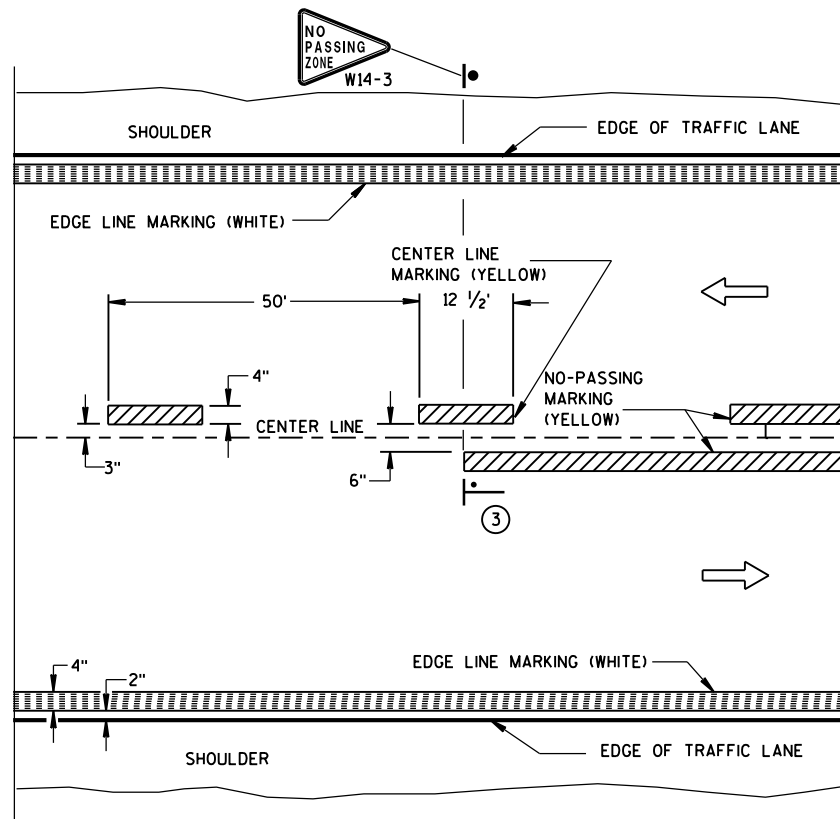
APPROVED

1/25/2011

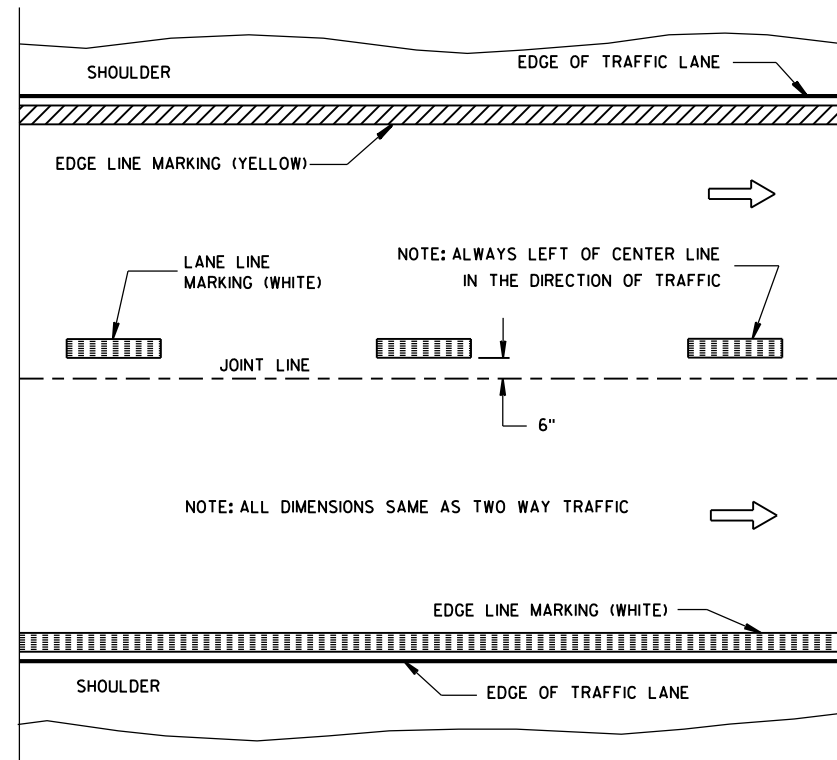
DATE

FHWA

/S/ Thomas N. Notbohm  
STATE TRAFFIC ENGINEER OF DESIGN

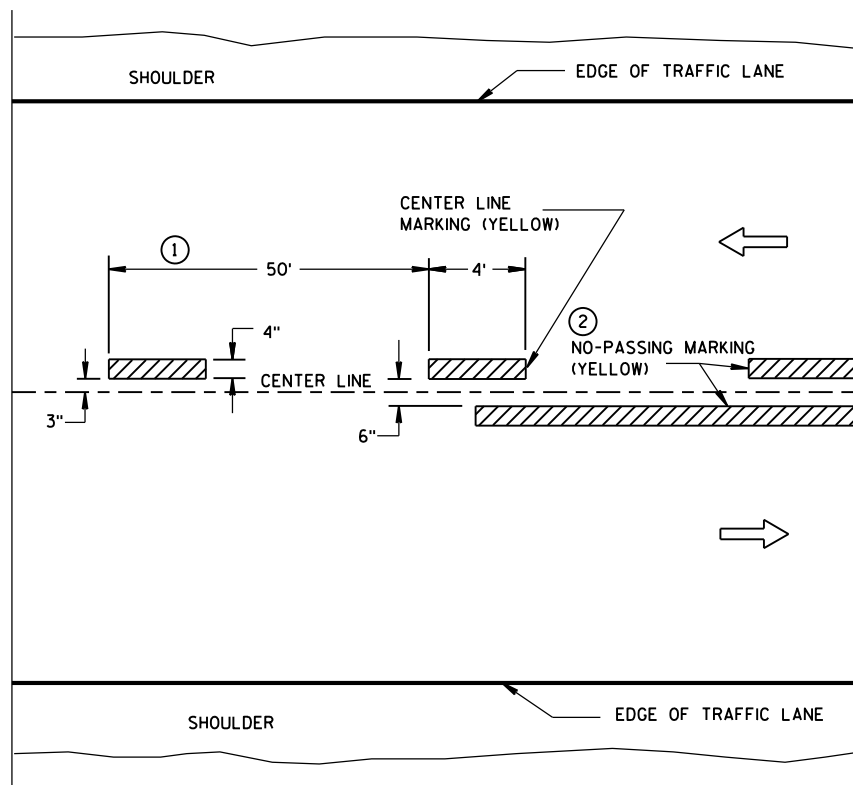


TWO WAY TRAFFIC

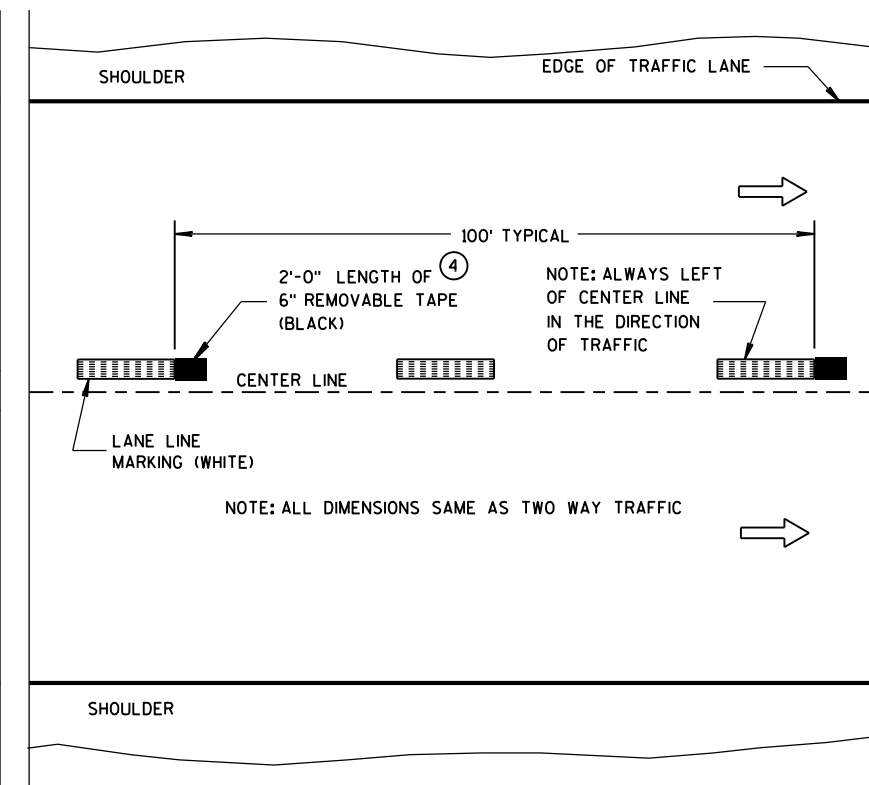


ONE WAY TRAFFIC

## PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING  
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

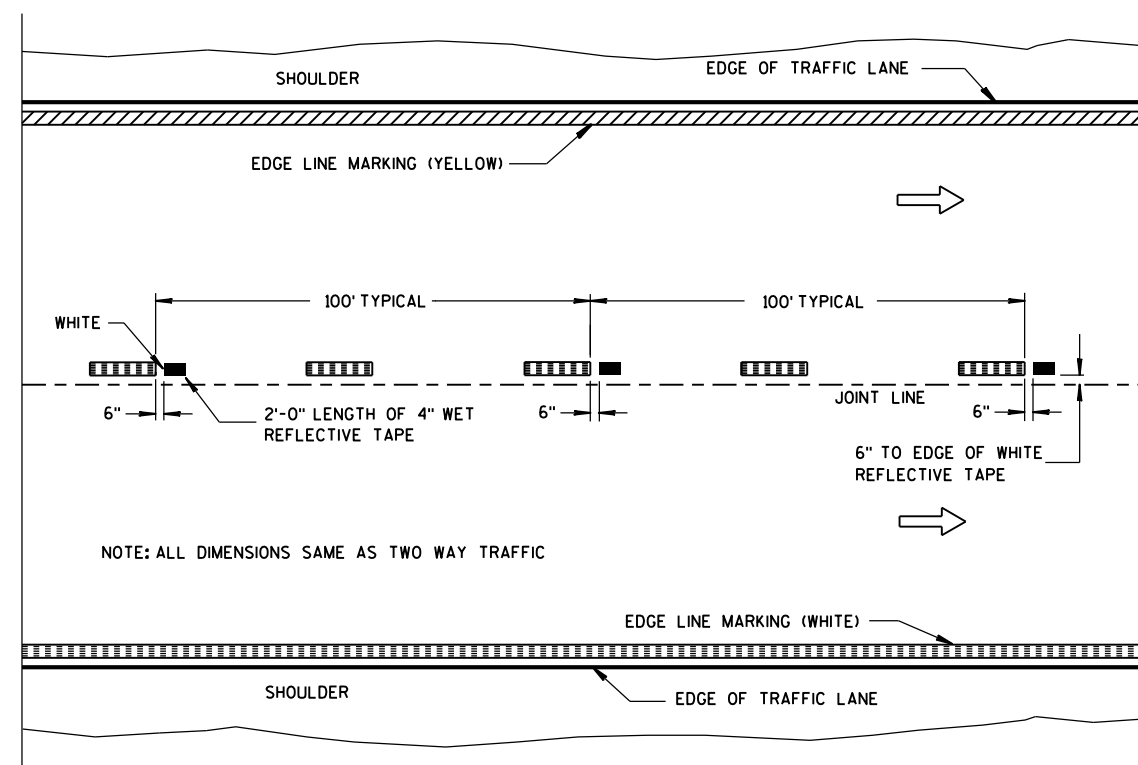
## GENERAL NOTES

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

- ① HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- ② NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- ③ NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
- ④ CONCRETE ONLY.

## NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO  
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

## LEGEND

- "T" MARKING
- POST MOUNTED SIGN

PAVEMENT MARKING  
(MAINLINE)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
10-1-2012 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER OF DESIGN  
FHWA

LEGEND

- POST WITH ATTACHED SIGN
- POST WITH ATTACHED SIGN IN DRUM
- DRUM WITH WARNING LIGHT (TYPE C)
- DRUM
- ARROW BOARD
- 8' TYPE III BARRICADE
- \*-x-\* REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC

GENERAL NOTES :

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

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

- ① CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

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

GENERAL NOTES CONTINUED:

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 7 CONTINUOUS DAYS AND NIGHTS.

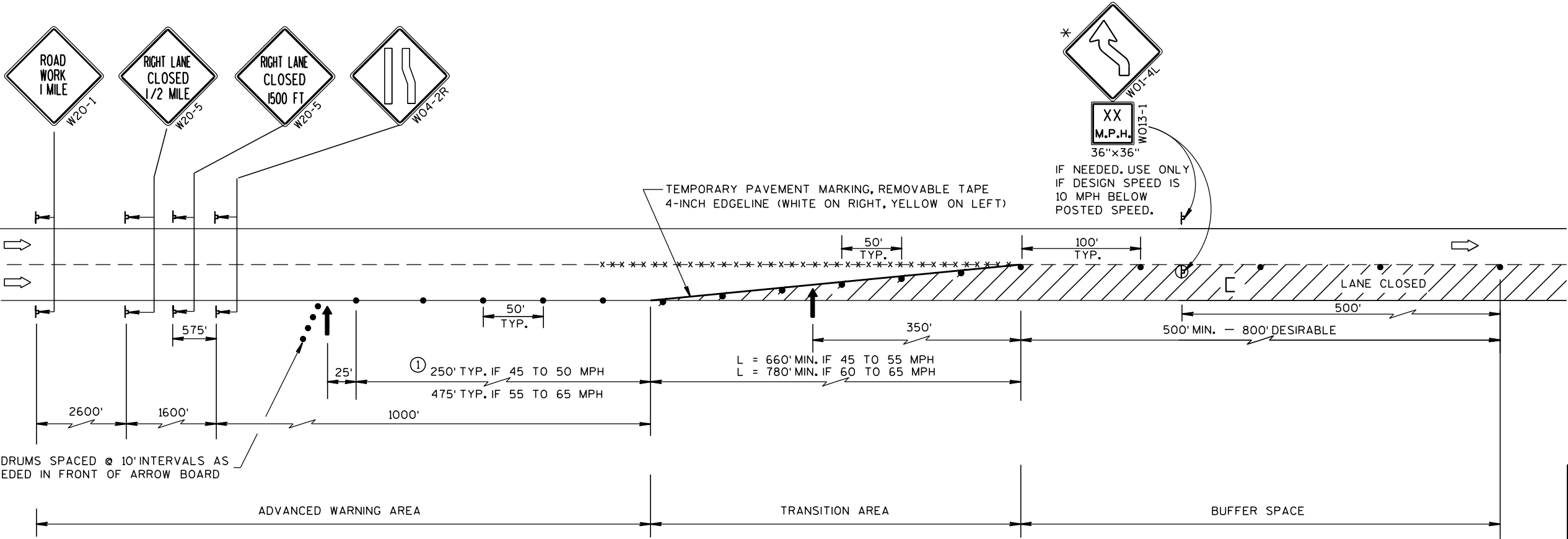
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

IF LANE CLOSURE IS MORE THAN 1 MILE, PLACE A TYPE III BARRICADE APPROXIMATELY EVERY 1/4 MILE ACROSS THE CLOSED LANE TO HELP ENFORCE THE DRUM LINE.

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

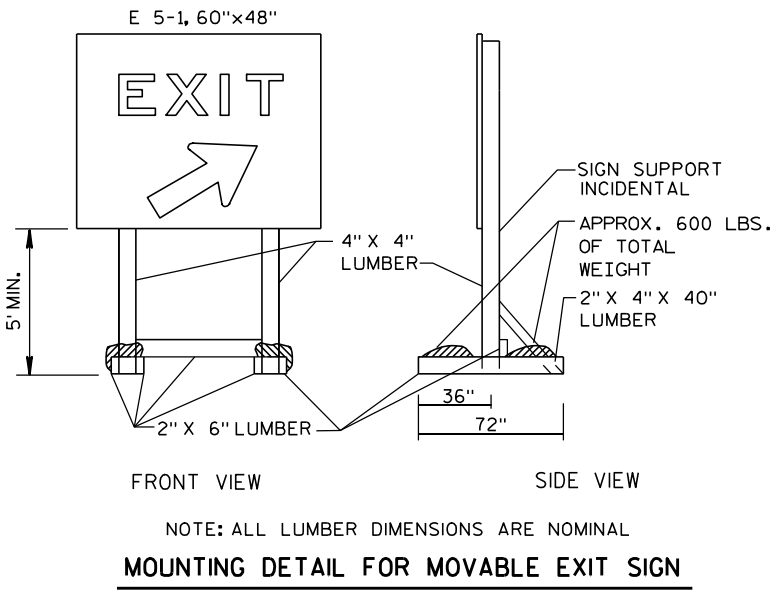
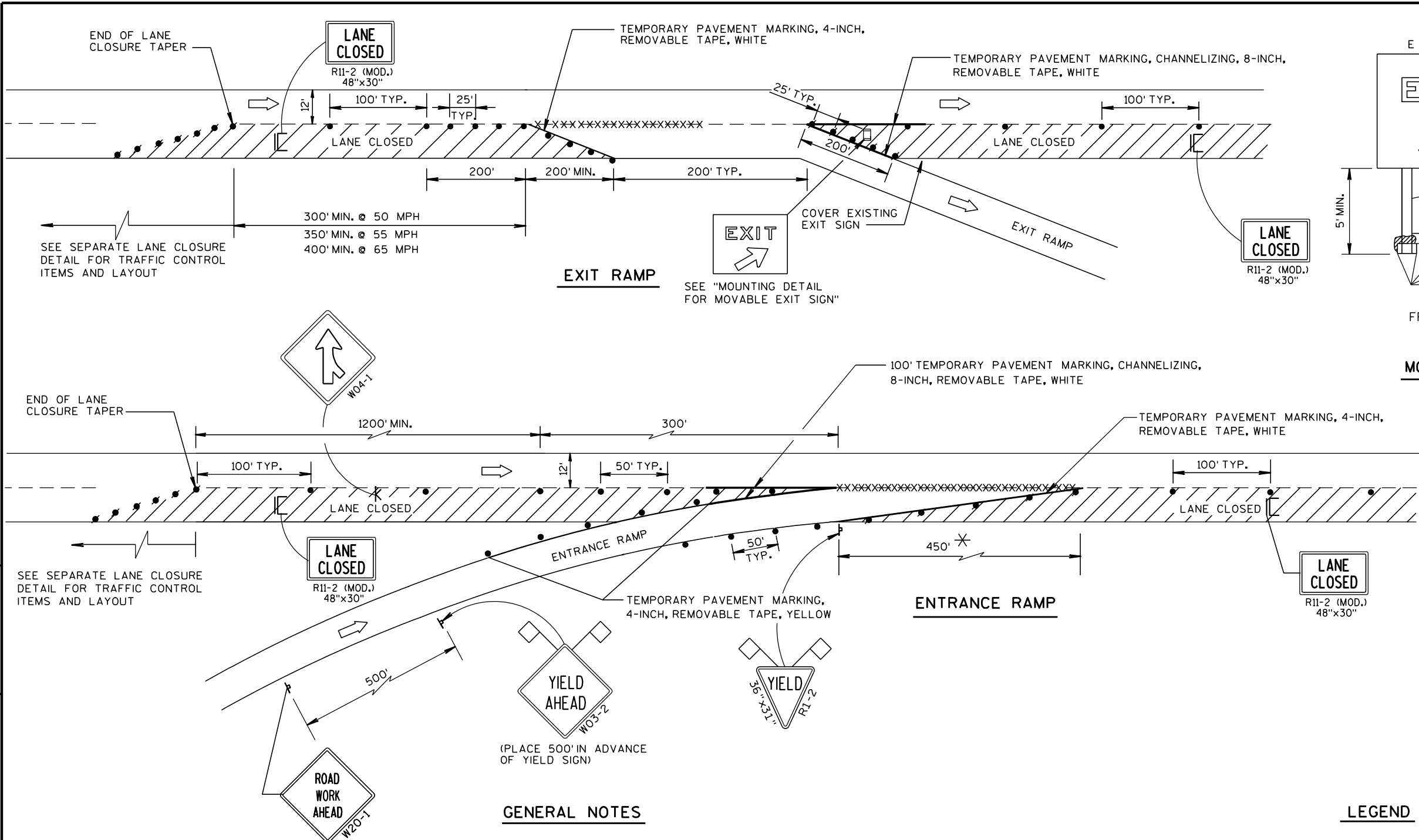
- \* THE LEFT REVERSE CURVE SIGN (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



TRAFFIC CONTROL,  
LANE CLOSURE, SPEEDS  
GREATER THAN 40 M.P.H.

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8-7-95  
DATE /S/ Chester J. Spang  
DIRECTOR, OFFICE OF TRAFFIC  
FHWA



**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"x48" 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 R11-2 (MOD.) "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 CONTINUOUS 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 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 7 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

\* LENGTH OF OPENING MAY BE REDUCED TO 150 FEET DURING STAGING OF WORK IN IMMEDIATE AREA OF RAMP TAPER.

**LEGEND**

- POST MOUNTED SIGN
- SIGN ON PORTABLE SUPPORT
- TRAFFIC CONTROL, DRUM
- TRAFFIC CONTROL, DRUM WITH WARNING LIGHT, TYPE C (STEADY-BURN)
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE (8' EQUIVALENT) WITH SIGN
- FLAGS, 16"x16" MIN., ORANGE
- DIRECTION OF TRAFFIC FLOW

TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5/24/2000 DATE	/S/ Chester J. Spang CHIEF SIGNS AND MARKING ENGINEER
FHWA	

SYMBOLS

- TRAFFIC CONTROL DRUM
- ┐ POST MOUNTED SIGN
- ➡ DIRECTION OF TRAFFIC FLOW
- ⏏ ARROW BOARD IN CAUTION MODE

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.

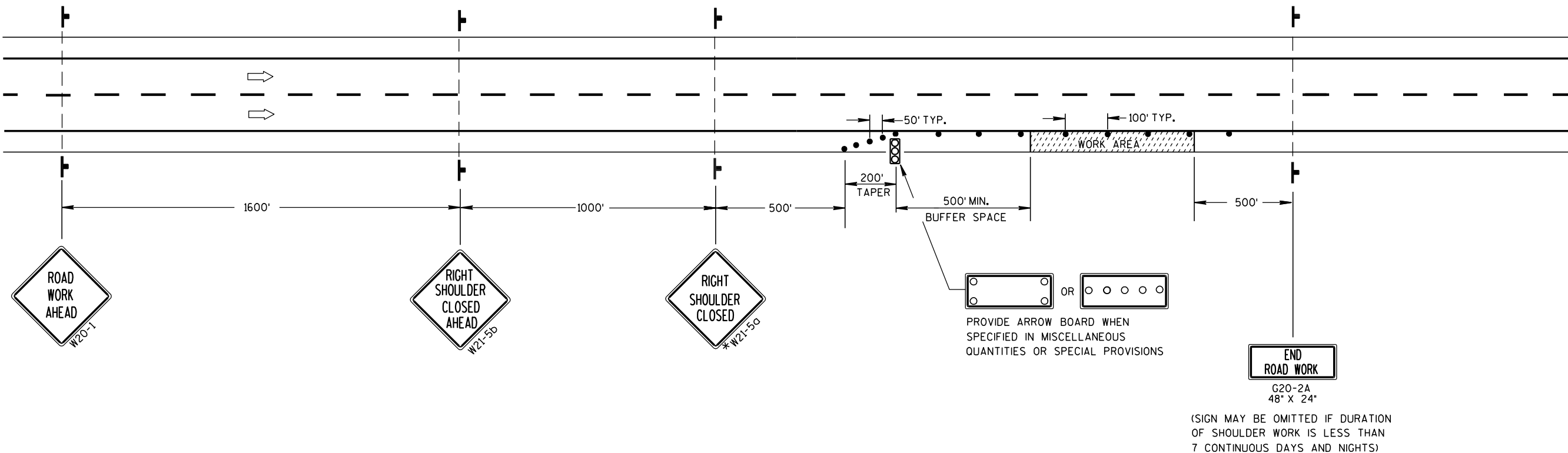
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

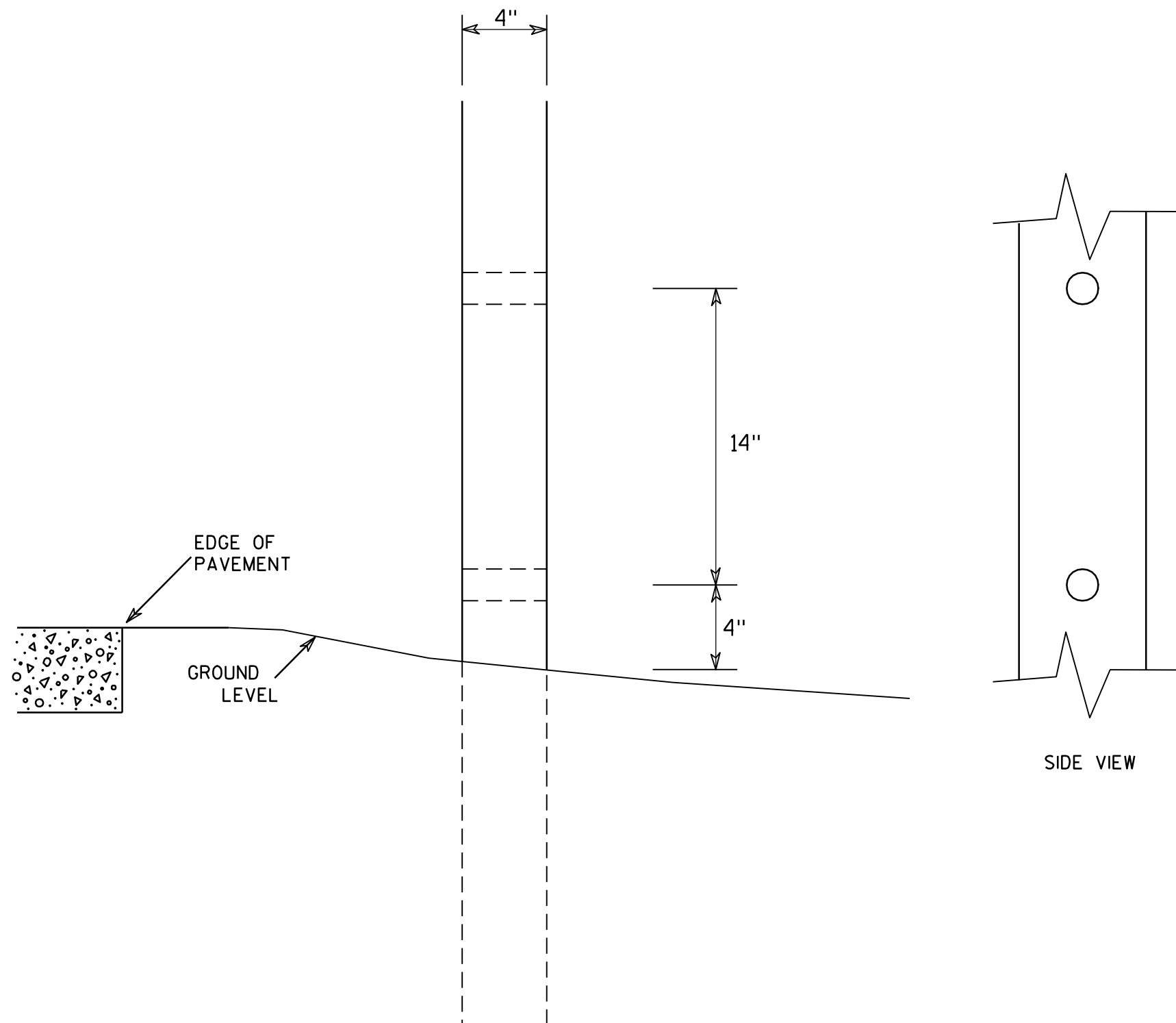


TRAFFIC CONTROL  
SHOULDER CLOSURE ON DIVIDED  
ROADWAY, SPEEDS GREATER  
THAN 40 MPH

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
5/23/00 /S/ Chester J. Spang  
DATE CHIEF SIGNS AND MARKING ENGINEER  
FHWA

7



### GENERAL NOTES

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

7

### 4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Chester J. Spang*  
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

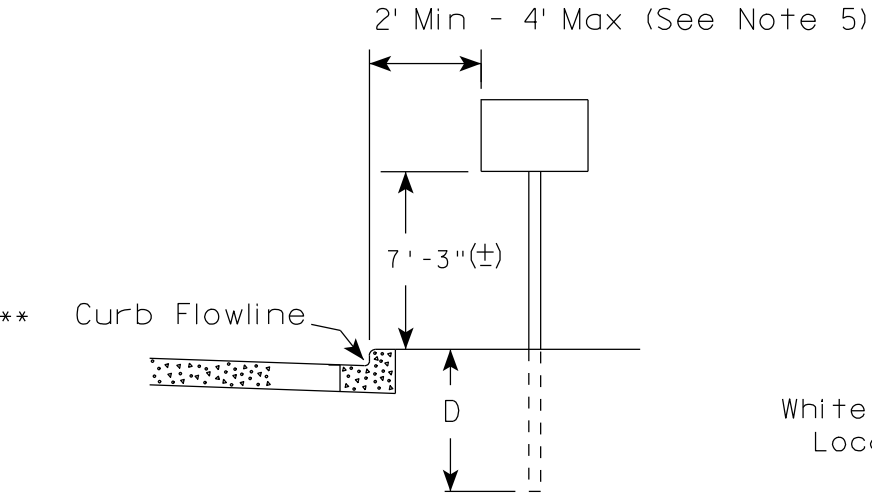
HWY:

COUNTY:

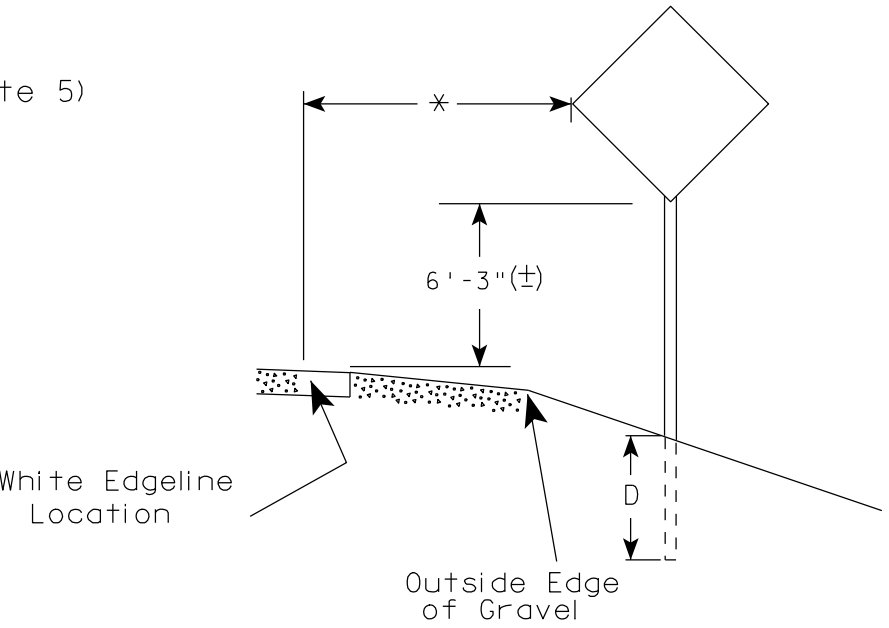
SHEET NO:

E

URBAN AREA

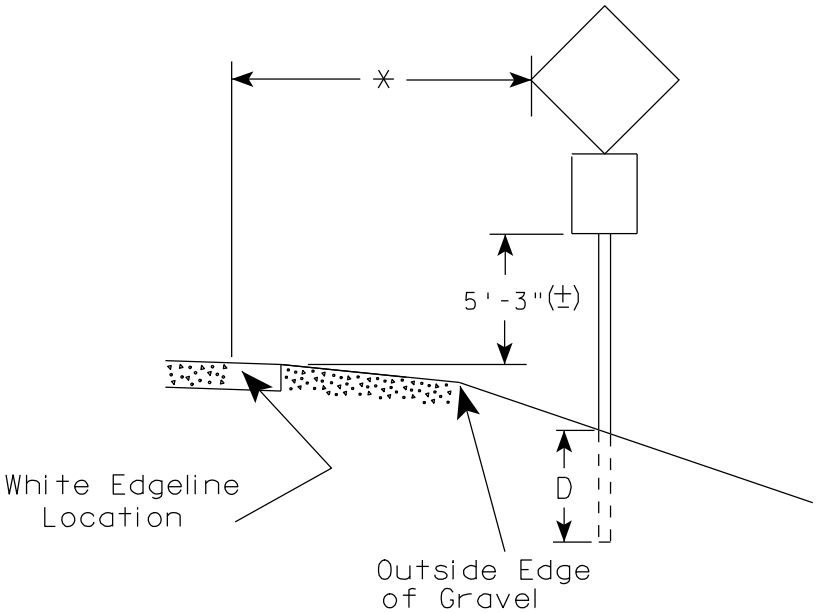
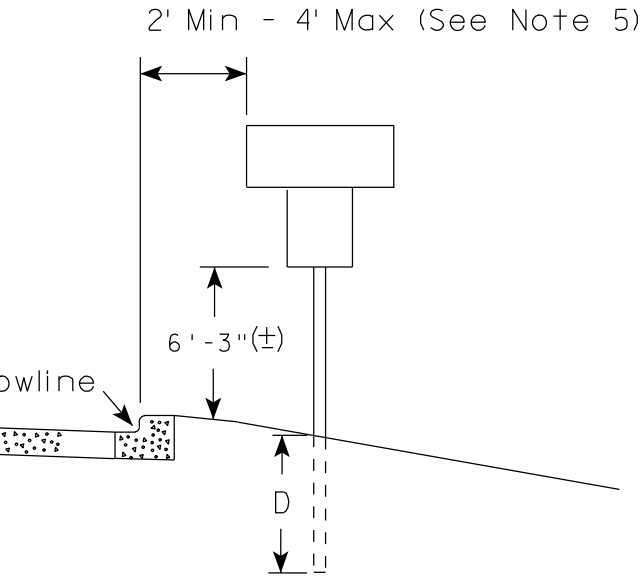


RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or larger than 20 sq. ft. shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'-3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).



POST EMBEDMENT DEPTH

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

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

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

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 9/21/2011 PLATE NO. A4-3.16



# GENERAL NOTES

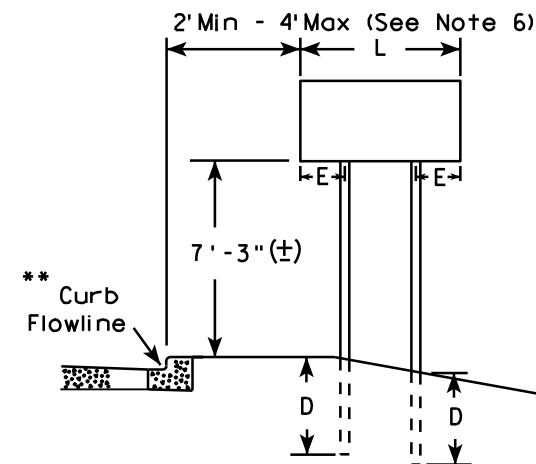
- For multiple post installations, individual post spacing shall be greater than 3'-6".
- See tables below for required number of posts.
- For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
- The (±) tolerance for mounting height is 3 inches.
- Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
- Offset distance shall be consistent with existing signs or consistent throughout length of project.
- Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
- The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).

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

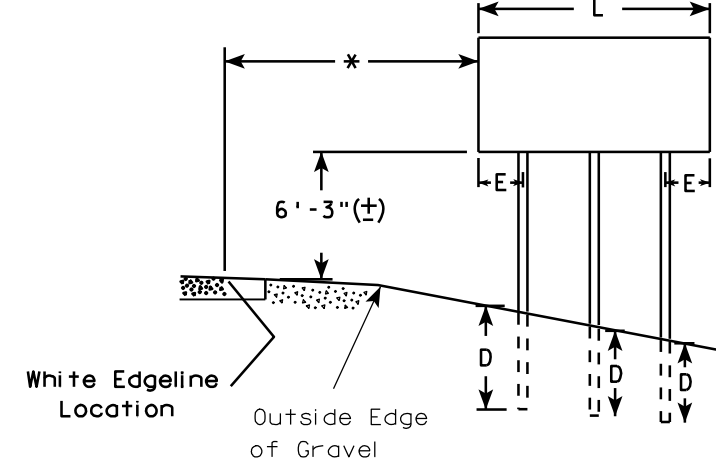
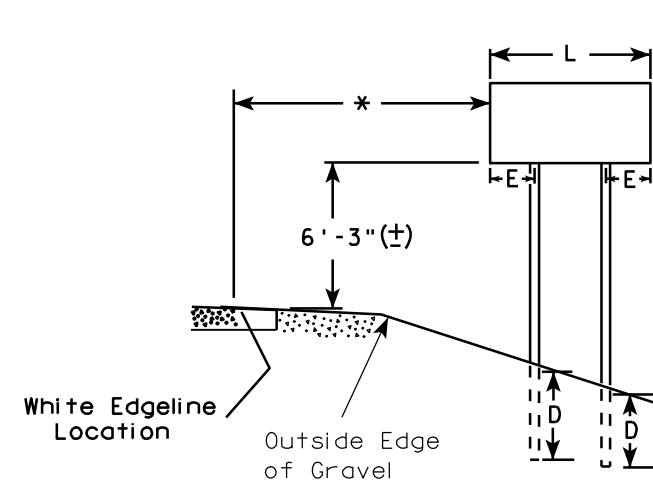
\*\* The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of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

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

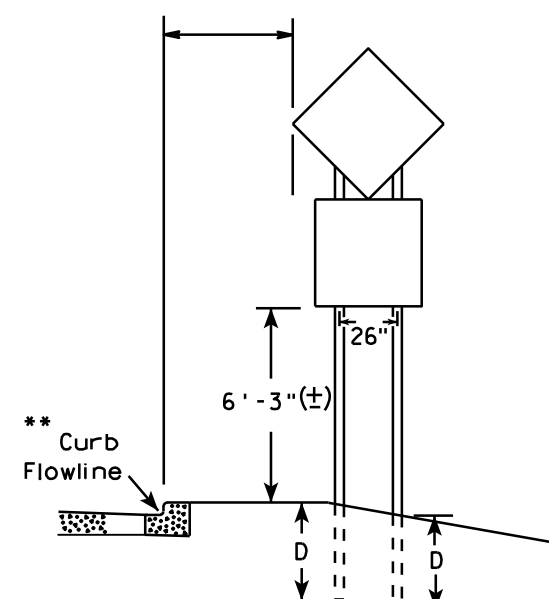
## URBAN AREA



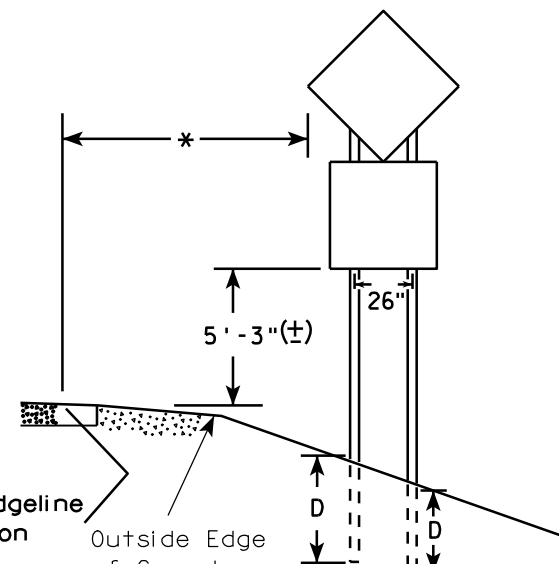
## RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

\*\*\*

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

## POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION  
OF TYPE II SIGNS  
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 9/21/2011 PLATE NO. A4-4.11

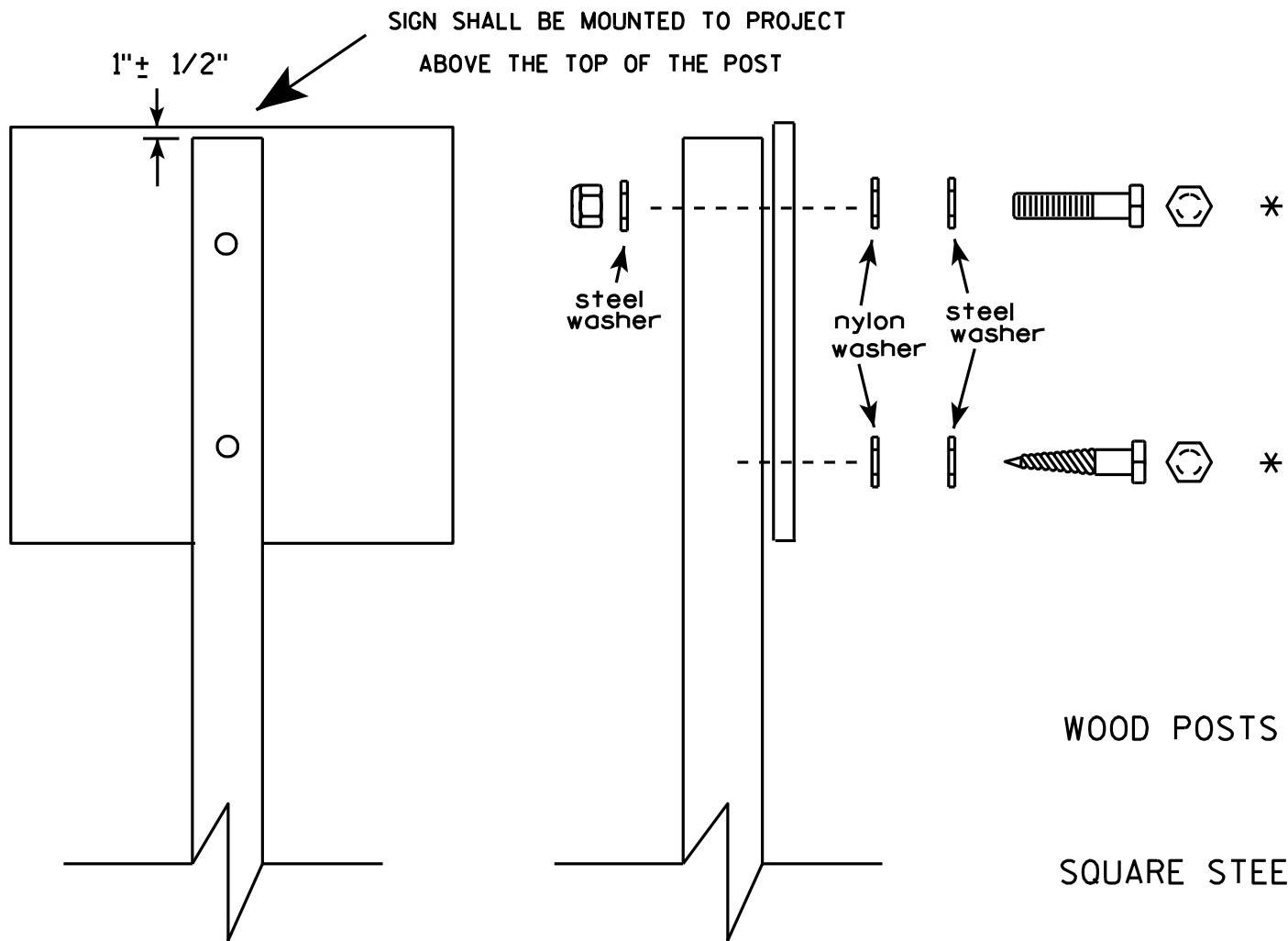
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

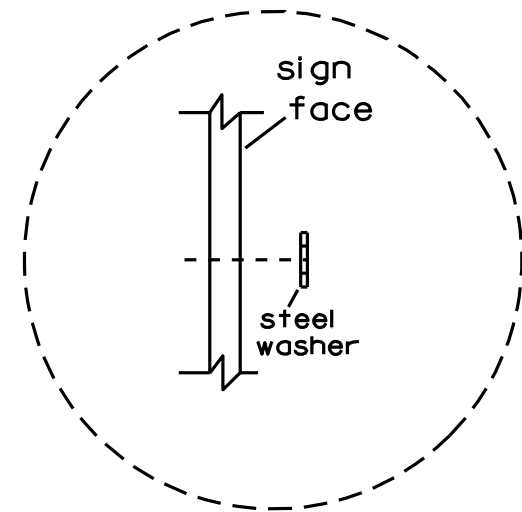


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- 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.

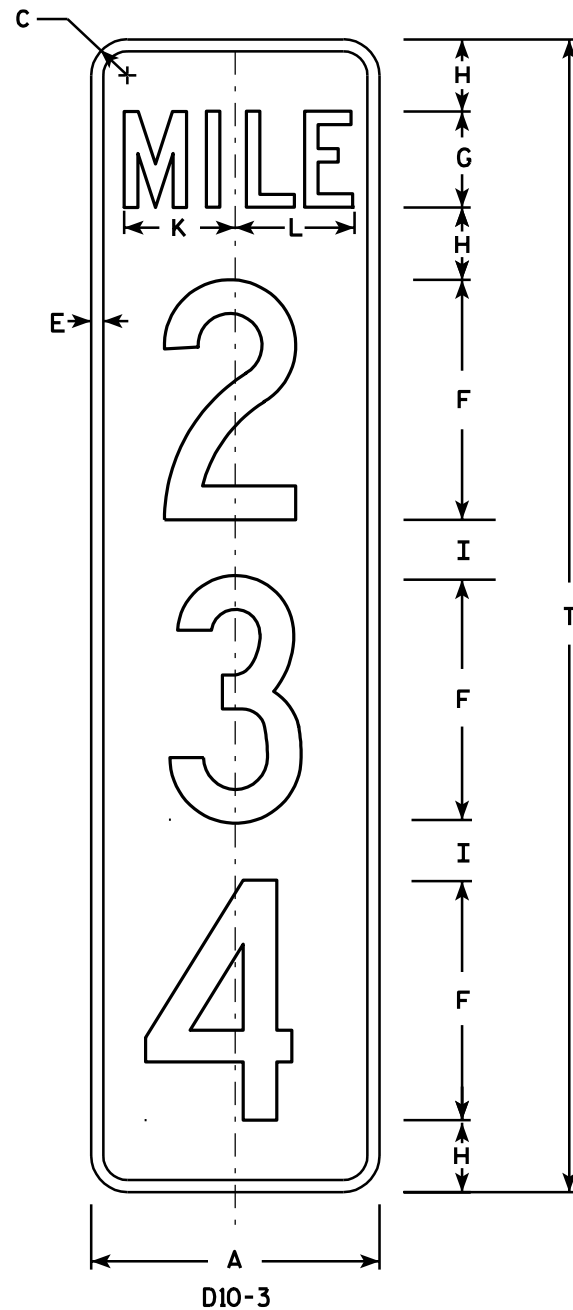
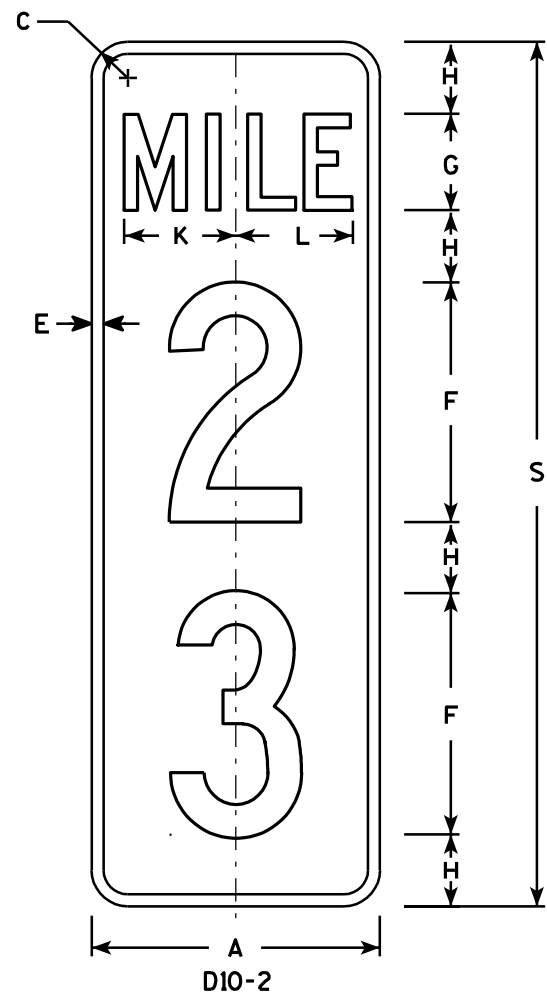
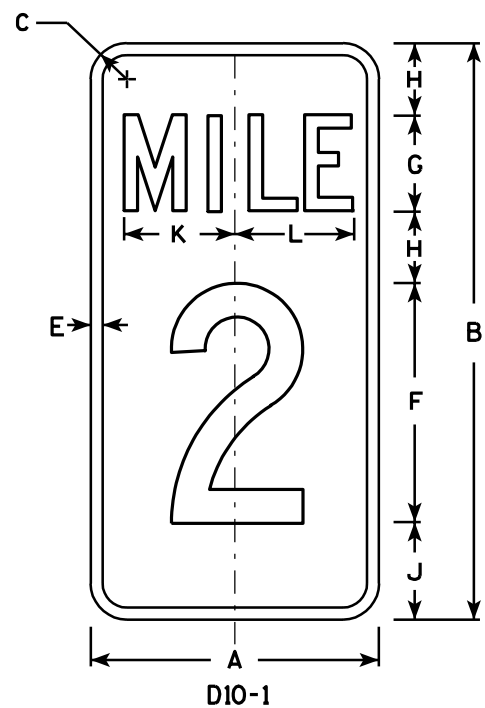
- WOOD POSTS (4" x 4" or 4" x 6")  
LAG SCREWS - 3/8" X 3"  
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")  
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts  
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL  
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -  
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL  
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



Washer Placement when Sign Has Other Than Type H or Type F Face

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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7



#### NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Green  
Message - White - Type H Reflective
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Optically adjust numerals about the centerline of the sign to achieve proper balance.

7

Metric equivalent  
for this sign is:

PHY. SIZE	
12 X 24	300 mm X 600 mm
12 X 36	300 mm X 900 mm
12 X 48	300 mm X 1200 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1																										
2																										
3																										
4	12	24	1 1/2		1/2	10	4	3	2 1/2	4	4 5/8	4 7/8							36	48						
5	12	24	1 1/2		1/2	10	4	3	2 1/2	4	4 5/8	4 7/8							36	48						

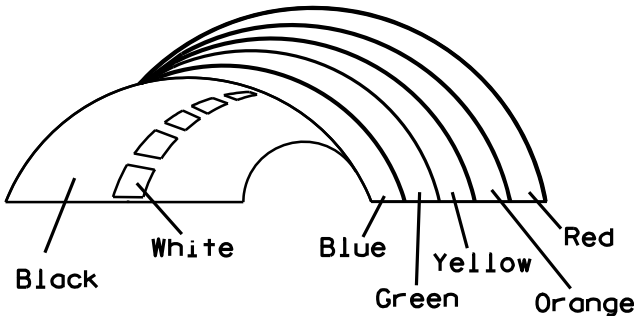
D10-1	D10-2	D10-3
Area sq. ft.	Area sq. ft.	Area sq. ft.
2.0	3.0	4.0
Area m2	Area m2	Area m2
.19	.28	.38

STANDARD SIGN D10-1 , D10-2 & D10-3	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Chester J. Spore</i> for Director, Office of Traffic
DATE 1/16/02	PLATE NO. D10-3.2

PROJECT NO:				SHEET NO:	E
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Background Colors of Symbol\*



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:  
Background - White  
Message - (See Note 5)
- 3. Message Series - (See Note 6)
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. Border - Blue  
Line 1 - Red  
Line 2 - Black  
Line 3-5 - Blue
- 6. Line 1 - Dutch 8011L  
Line 2 - Series E  
Line 3-5 - Series C
- 7. Contractor shall provide and install a new post bracket in accordance with the I55-56B sign detail.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	36	1 1/2	1/2	5/8	3	2	3 1/2	2 7/8	1	8	2 1/8	11 1/4	11 1/8	9 3/8	1 1/4		3/4	12 5/8	7 1/2							7.5
3																											
4																											
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

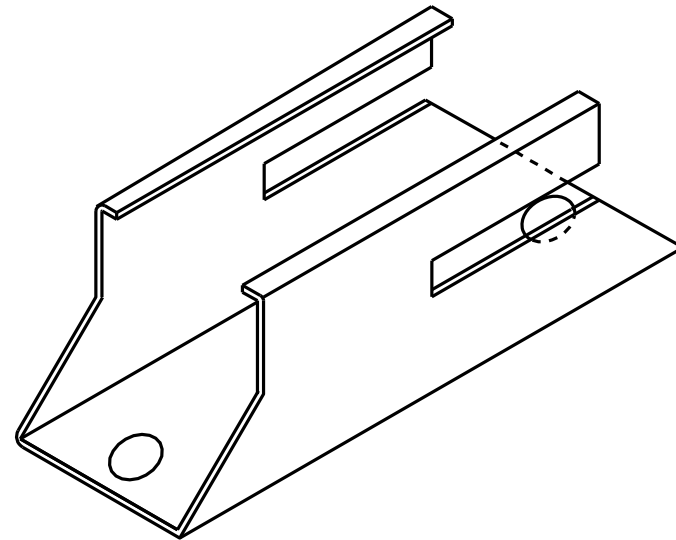
STANDARD SIGN  
I55-56

WISCONSIN DEPT OF TRANSPORTATION

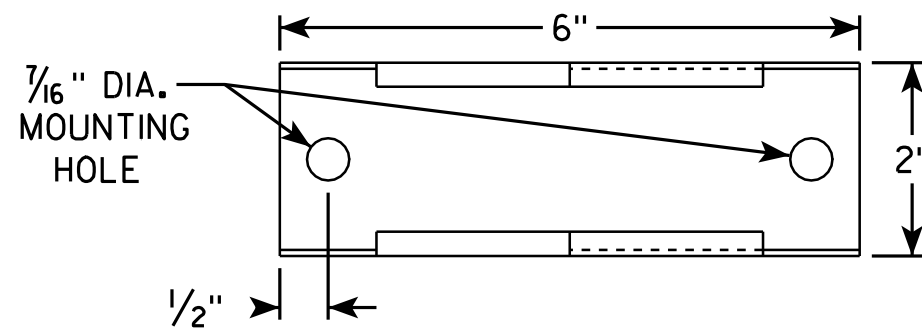
APPROVED  
*Matthew R. Rauch*  
For State Traffic Engineer

DATE 4/27/11 PLATE NO. I55-56.3

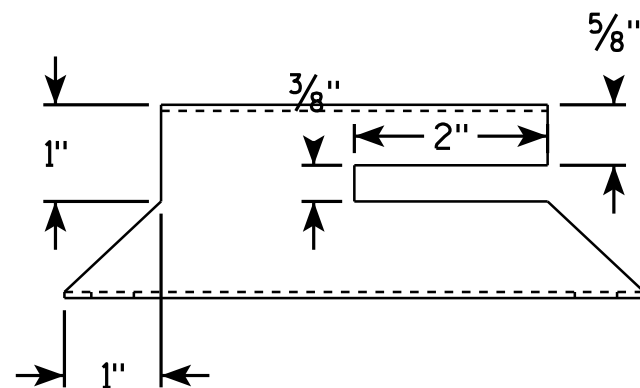
# ISOMETRIC VIEW



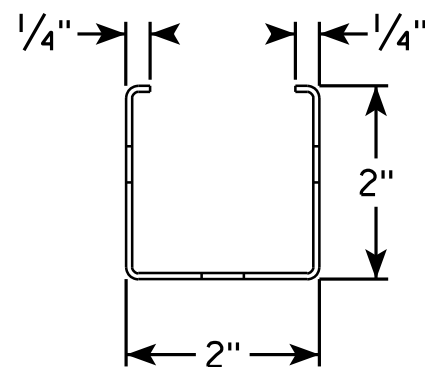
# TOP VIEW



# SIDE VIEW



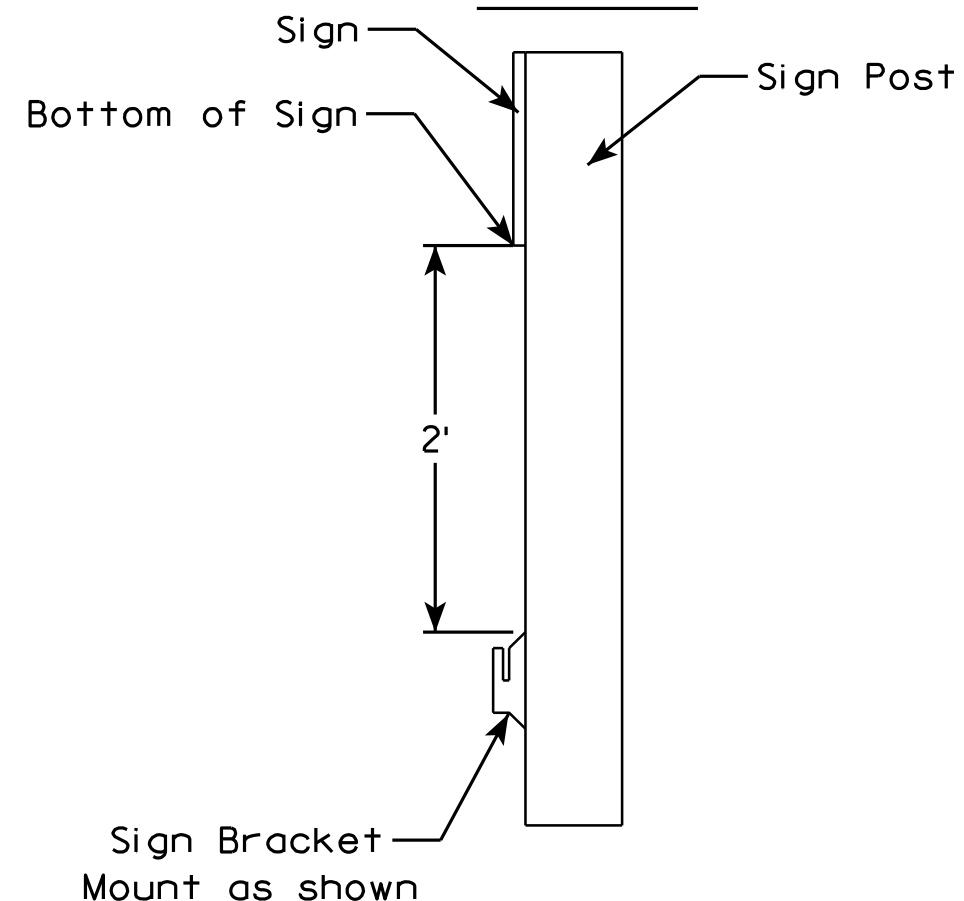
# END VIEW



# NOTES

1. Must be capable of permanent attachment to a wood or steel channel sign post utilizing the fastening hardware specified on the A4-8 sign plate.
2. Shall be entirely primed and painted with two coats of a black powder coated enamel paint.
3. Shall be made with 12 gauge steel, and incorporate no welds, no hinged components, no threaded lock-type components, and no parts which are loose or can be separated from the main body.
4. Shall have rounded edges with at least 1/8" radii.
5. Shall not have unrounded and uncoated metal edges which can contact the back surface of the roll-up sign.
6. Top of bracket shall be mounted 2' below the bottom of the I55-56 sign.
7. Cost of bracket and fastening hardware shall be incidental to the I55-56 sign.

# SIDE VIEW



ROLLUP SIGN BRACKET  
I55-56B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 2/5/10 PLATE NO. I55-56B.1

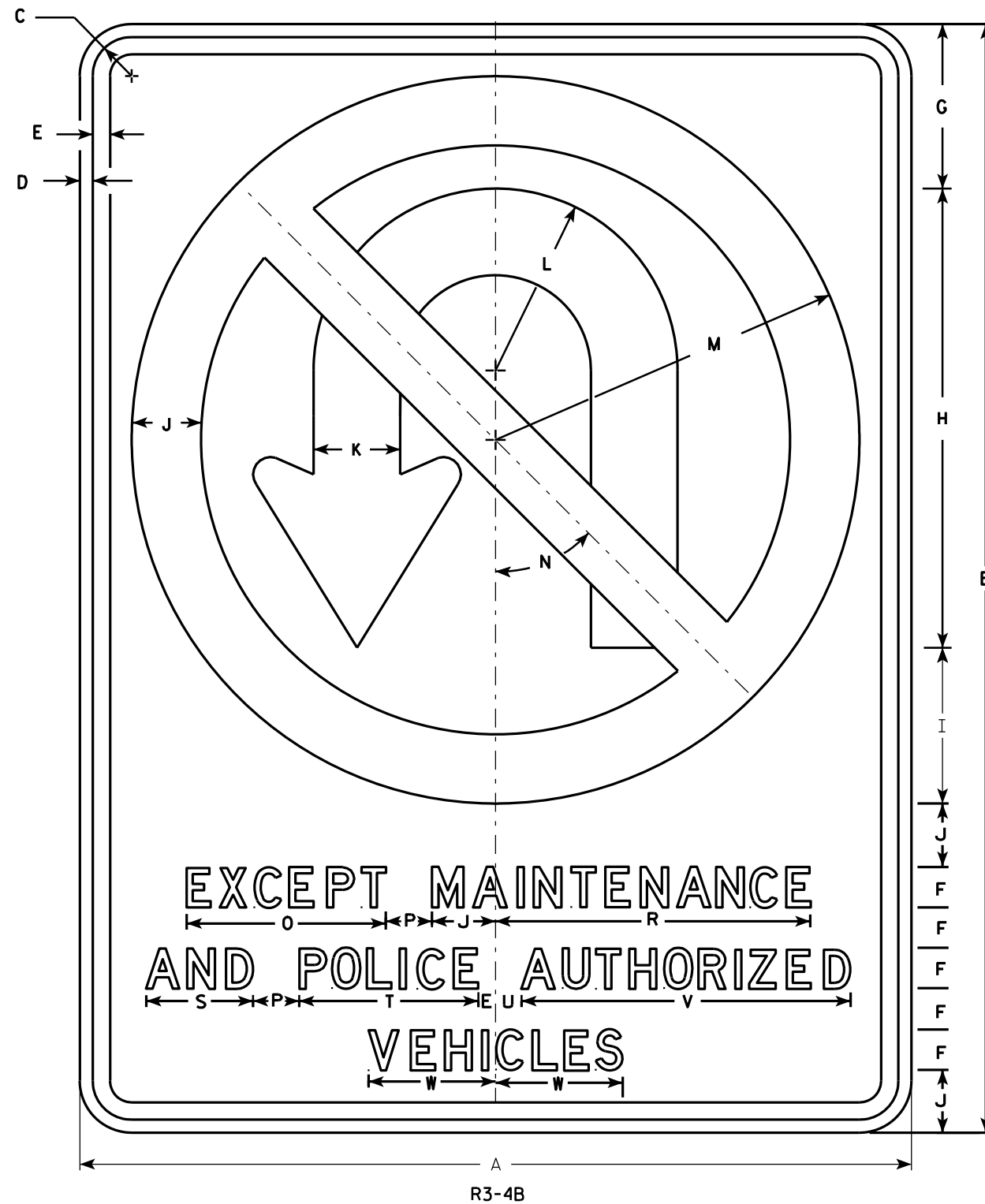
PROJECT NO:

HWY:

COUNTY:

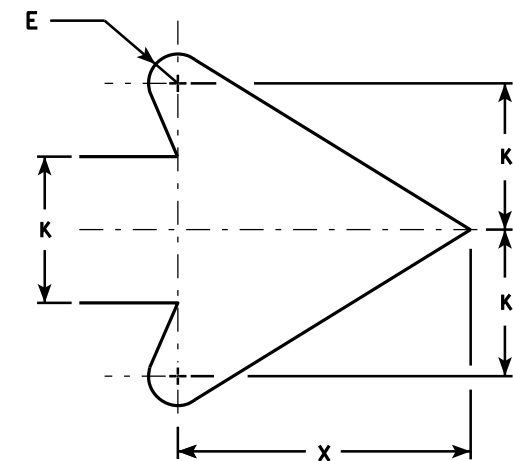
SHEET NO:

E



### NOTES

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



ARROW DETAIL

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

### STANDARD SIGN R3-4B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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

PROJECT NO: HWY: COUNTY: SHEET NO: E

## Notes



## *Wisconsin Department of Transportation*

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