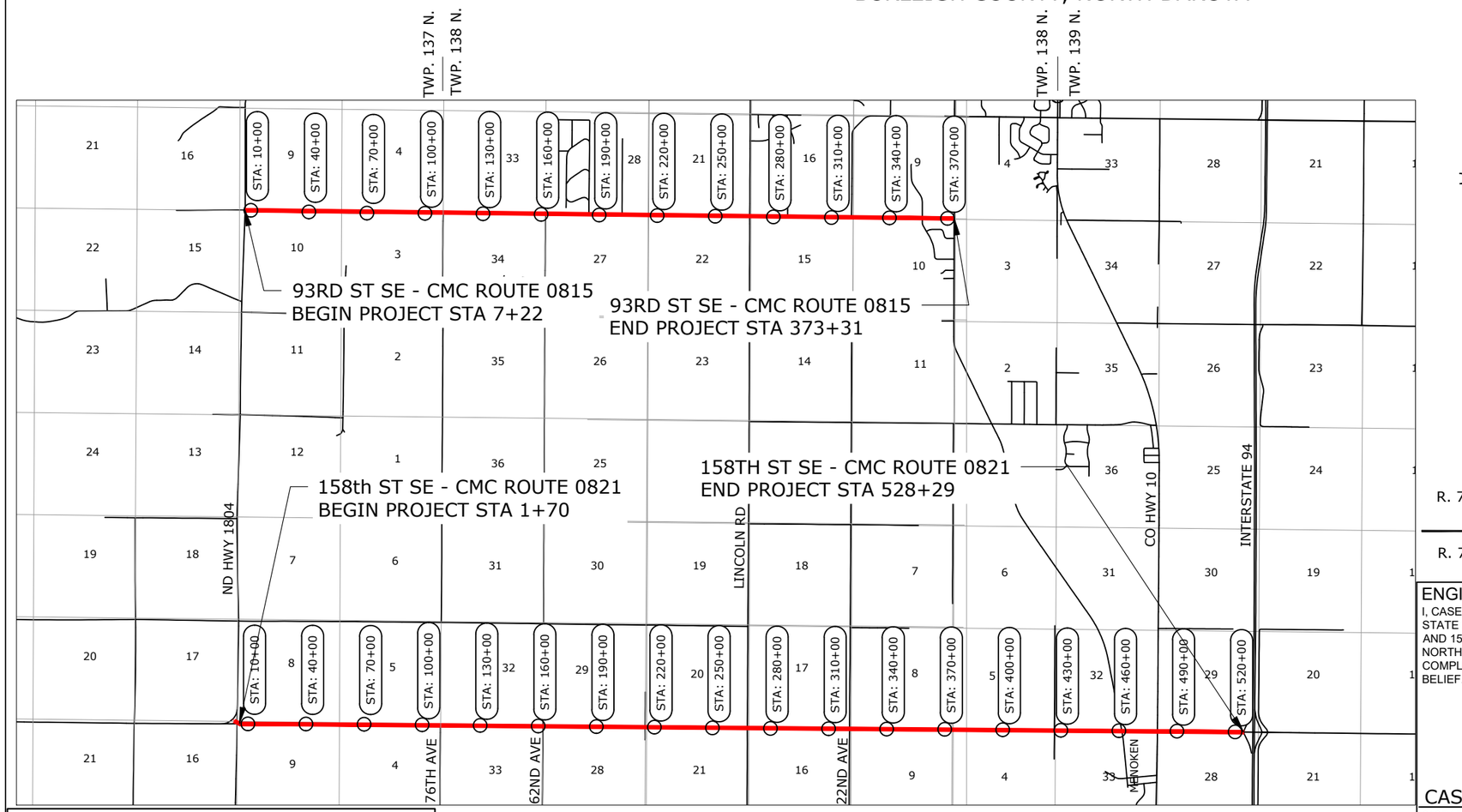
DESIGN DATA			
158TH ST SE			
TRAFFIC	**AVERAGE DAILY**		
CURRENT: 2019	PASS: 640	TRUCKS: NA	TOTAL: 640
93RD ST SE			
TRAFFIC	**AVERAGE DAILY**		
CURRENT: 2019	PASS: 800	TRUCKS: NA	TOTAL: 800

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SC-0800(005)
93RD ST SE & 158TH ST SE
93RD ST SE FROM ND HWY 1804 TO APPLE CREEK ROAD
158TH ST SE FROM ND HWY 1804 TO INTERSTATE 94
2" MILL AND 2" HMA OVERLAY, SEAL COAT, AND INCIDENTALS
BURLEIGH COUNTY, NORTH DAKOTA

STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
ND	SC-0800(005)	25555	1	1

GOVERNING SPECIFICATIONS	Date Published and Adopted by the North Dakota Department of Transportation
Standard Specifications	08/01/2026
Supplemental Specifications	NONE



PROJECT NUMBER:	NET MILES	GROSS MILES
MILL AND HMA OVERLAY PROJECT SC-0800(005)	6.93	6.93
MILL AND HMA OVERLAY PROJECT SC-0800(005)	9.97	9.97

BASIS OF SURVEY:
ALL COORDINATES ARE BURLEIGH COUNTY GROUND COORDINATES DERIVED FROM THE "NORTH DAKOTA COORDINATE SYSTEM OF 1983," NAD83 (CORS96), SOUTH ZONE COMBINATION FACTOR (CF)=0.9998515, INTERNATIONAL FOOT. ALL VERTICAL CONTROL IS NAVD88. ALL UNITS ARE ENGLISH.

ENGINEER'S CERTIFICATE:
I, CASEY EINREM, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA, HEREBY CERTIFY THAT THE 93RD ST SE AND 158TH ST SE MILL AND HMA OVERLAY PLAN, BURLEIGH COUNTY, NORTH DAKOTA WERE PREPARED UNDER MY SUPERVISION AND ARE COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

CASEY EINREM /s/ DATE: 8/31/2026
CASEY EINREM, PE
REGISTERED PROFESSIONAL ENGINEER
NORTH DAKOTA REGISTRATION NO. PE-5835

REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE 8/31/2026
NORTH DAKOTA

APPROVAL OF COUNTY ENGINEER:
I, DANIEL L. SCHRIOCK, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA, HEREBY CERTIFY THAT I HAVE REVIEWED THESE PLANS FOR GENERAL CONSISTENCY WITH ESTABLISHED POLICIES AND REQUIREMENTS FOR THIS CONSTRUCTION PROJECT IN BURLEIGH COUNTY, NORTH DAKOTA, AS SHOWN ON THE ACCOMPANYING PLANS.

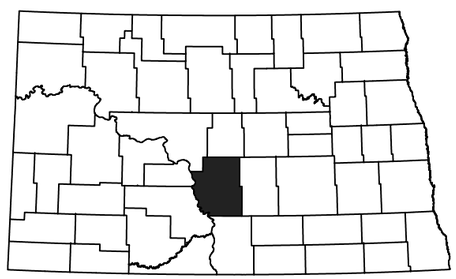
DANIEL L. SCHRIOCK /s/ DATE: 8/31/2026
DANIEL L. SCHRIOCK, PE
REGISTERED PROFESSIONAL ENGINEER
NORTH DAKOTA REGISTRATION NO. PE-7126

REGISTERED PROFESSIONAL ENGINEER
DANIEL L. SCHRIOCK
PE-7126
DATE 8/31/2026
NORTH DAKOTA

DESIGNERS

TIM JACOBS, EI

CASEY EINREM, PE



STATE OF NORTH DAKOTA
BURLEIGH COUNTY

STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	2	1

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010	1-5	BASIS OF ESTIMATE
020	1	GENERAL DETAILS
030	1-2	TYPICAL SECTIONS
100	1-5	WORK ZONE TRAFFIC CONTROL

SPECIAL PROVISIONS

NUMBER	DESCRIPTION
SP 394(26)	INTELLIGENT COMPACTION FOR HMA
SP 388(26)	WARRANTY CHIP SEAL
SSP 3	LOCAL AGENCY CONTRACTS
SSP 4	LONGITUDINAL JOINT DENSITY

LIST OF STANDARD DRAWINGS

STANDARD NO.	DESCRIPTION
D-704-02	TRAFFIC CONTROL FOR CORING OF HOT BITUMINOUS PAVEMENT
D-704-03	LANE MARKERS (SPOTTING TAB FOR SEAL PROJECTS ONLY)
D-704-07	BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS - PERFORATED TUBE
D-704-08	BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS - U-CHANNEL POST
D-704-09	CONSTRUCTION SIGN DETAILS - TERMINAL AND GUIDE SIGNS
D-704-10	CONSTRUCTION SIGN DETAILS - REGULATORY SIGNS
D-704-11, 11A	CONSTRUCTION SIGN DETAILS - WARNING SIGNS
D-704-13	BARRICADE AND CHANNELIZING DEVICE DETAILS
D-704-14	CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS
D-704-15	ROAD CLOSURE LAYOUTS
D-704-17	SIGN LAYOUT FOR ONE LANE CLOSURE TWO LANE ROADWAY
D-704-20	TERMINAL AND SEAL COAT SIGN LAYOUTS
D-704-22	CONSTRUCTION TRUCK AND TEMPORARY DETOUR LAYOUTS
D-704-26	MISCELLANEOUS SIGN LAYOUTS
D-704-27	MOBILE OPERATION (PAVEMENT MARKING)
D-704-33	TWO-LANE ROADWAY PORTABLE RUMBLE STRIPS
D-704-50	PORTABLE SIGN SUPPORT ASSEMBLY
D-760-05	SAW SLOTTED RUMBLE STRIPS AT INTERSECTIONS
D-762-01	PAVEMENT MARKING MESSAGE DETAILS
D-762-04	PAVEMENT MARKING
D-762-11	SHORT-TERM PAVEMENT MARKING

NO.	REVISION	DATE	BY

GOVERNING SPECIFICATIONS
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED BY THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION AUGUST 2026; STANDARD DRAWINGS CURRENTLY IN EFFECT; AND OTHER CONTRACT PROVISIONS SUBMITTED HEREIN.

BURLEIGH COUNTY HIGHWAY DEPARTMENT



BURLEIGH COUNTY
P: 701.204.7748
F: 701.204.7749

DRAWN BY	DATE
TJ	6/10/2026
CHECKED BY	SCALE
CE	NONE

93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

TABLE OF CONTENTS
PROJECT NO. 0195 & 0196

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2	1

STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	4	1

I-94

CO HWY 10

APPLE CREEK RD

22ND AVE SE

66TH ST SE

LINCOLN RD

62ND AVE SE

76TH AVE SE

ND HWY 1804

MOFFIT RD

SECTION 29 T139N R78W

SECTION 28 T139N R78W

SECTION 32 T139N R78W

SECTION 33 T139N R78W

SECTION 4 T138N R79W

SECTION 3 T138N R79W

SECTION 5 T138N R78W

SECTION 4 T138N R78W

SECTION 9 T138N R79W

SECTION 10 T138N R79W

SECTION 8 T138N R78W

SECTION 9 T138N R78W

SECTION 16 T138N R79W

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SECTION 21 T138N R79W

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SECTION 4 T137N R78W

SECTION 9 T137N R79W

SECTION 10 T137N R79W

SECTION 8 T137N R78W

SECTION 9 T137N R78W

SECTION 17 T137N R78W

SECTION 16 T137N R78W

END PROJECT SC-0800(005)
MILL & OVERLAY
158TH ST STA 528+29

END PROJECT SC-0800(005)
MILL & OVERLAY
93RD ST SE STA 373+31

BEGIN MILL AND OVERLAY
PROJECT SC-0800(005)
93RD ST SE STA 7+22

BEGIN MILL AND OVERLAY
PROJECT SC-0800(005)
158TH ST STA 1+70

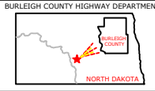
N

REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE 8/31/2026
NORTH DAKOTA

NO.	REVISION	DATE	BY

GOVERNING SPECIFICATIONS
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED BY THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION AUGUST 2026; STANDARD DRAWINGS CURRENTLY IN EFFECT; AND OTHER CONTRACT PROVISIONS SUBMITTED HEREIN.

BURLEIGH COUNTY HIGHWAY DEPARTMENT



BURLEIGH COUNTY
P: 701.204.7748
F: 701.204.7749

DRAWN BY TJ | DATE 6/10/2026
CHECKED BY CE | SCALE AS SHOWN

93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

SCOPE OF WORK
PROJECT NO. 0195 & 0196

SECTION NO.	SHEET NO.
4	1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SC-0800(005)	6	1

NOTES

100-P01 PAVEMENT PROTECTION: Exercise care in construction operations to ensure that no damage is done to the existing facilities that remain in place. Costs to repair damage will be at the Contractors expense.

105-110 PAVEMENT SWEEPING: Sweep paved areas that were used by construction traffic before opening these areas to public traffic. Sweep all newly constructed pavement no more than 24 hours before a scheduled final inspection. Use a vacuum or pickup type sweeper to perform this work.

108-100 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required.

117-115 RAILROAD PROTECTIVE LIABILITY: This project crosses the BNSF Railway Company at RP 0187.650 and at RP 0182.170. The type of work that will be performed within the railroad right-of-way is Mill and Overlay and Seal Coat. Direct inquiries regarding protective liability insurance to:

Rosa Martinez
Marsh USA Inc.
4400 Comerica Bank Tower
1717 Main Street
Dallas, TX 75201-7357, USA
214-303-8519
Rosa.M.Martinez@marsh.com

Obtain information regarding crossing numbers 087658C and 087649D from the Federal Railroad Administration website: http://safetydata.fra.dot.gov/Officeofsafety/

401-P01 FOG SEAL: Apply the Fog Seal with the following requirements:

1. Apply the Fog Seal after the final sweeping of the Chip Seal.
2. Apply the Fog Seal at a dilution rate of 50% water and 50% CSS-1H.

411-P01 TEMPORARY ASPHALT WEDGES: Place temporary asphalt wedges at the beginning and ends of this project, ends of milled sections, intersecting driveways, and intersecting routes to allow smooth passage of vehicles at these milled locations. Place wedges at these milled areas prior to the traffic being allowed back on the milled roadway section. Millings may be used instead of asphalt for all wedges. Include all costs associated with labor, materials, and equipment for the installation, maintenance and removal of the wedges in the contract price bid for "MILLING PAVEMENT SURFACE."

411-P02 MILLING PAVEMENT SURFACE: Haul asphalt millings to the Mills Gravel Pit located off of 223rd Street SE in Section 29 of Morton Township in Burleigh County. Include these costs in the price bid for "MILLING PAVEMENT SURFACE".

430-P01 CONTRACTOR CORING: Before placing bituminous material into core holes, apply a tack coat on all sides of the core holes as specified in Section 401.

704-100 TRAFFIC CONTROL SUPERVISOR: Provide a Traffic Control Supervisor.

704-500 PORTABLE RUMBLE STRIPS (PRS): Use PRS made of rubber or engineered polymers. Install PRS as part of the temporary traffic control when the following signs are also part of the required traffic control set up:

- "Be Prepared to Stop" (W3-4)
- "Flagger" symbol (W20-7)

Install PRS that meet the following criteria:

- Have no adhesives or fasteners required for placement;
- Have a manufacture's speed rating that meets or exceeds the posted speed limit; and
- Each strip in the array must weigh a minimum of 100 pounds.

Use individual PRS constructed in one of the following manners:

- A single piece;
- Interlocking segments; or
- Two pieces hinged at the midpoint.

An installed array of PRS consists of a minimum of 3 individual strips. Move rumble strips with the flagging operation. Do not place rumble strips on horizontal curves. The Engineer will count and measure each array as one unit. Include the cost of providing, installing, maintaining, and relocating PRS in the unit price bid for "PORTABLE RUMBLE STRIPS."

704-P01 TRAFFIC CONTROL PHASING: Complete the construction for 93rd St. SE & 158th St. SE Mill and Overlay and Seal Coat as detailed in the following phases.

Phase 1:
Construct Mill and Overlay on 93rd St SE Sta 7+22 to Sta 373+31. Use Sheet 100-2 for layout of traffic control.

Phase 2:
Construct Mill and Overlay on 158th St SE Sta 1+70 to Sta 528+29. Use Sheet 100-3 for layout of traffic control.

Phase 3:
Construct Seal Coat on 93rd St SE Sta 7+22 to Sta 373+31. Use Sheet 100-4 for layout of traffic control.

Phase 4:
Construct Seal Coat on 158th St SE Sta 1+70 to Sta 528+29. Use Sheet 100-5 for layout of traffic control.

704-P02 TRAFFIC CONTROL FOR MILL & HMA: Provide traffic control consisting of a temporary lane closure, flagging, and a pilot car.

REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE 8/31/2026
NORTH DAKOTA

NOTES

Traffic control device quantities are based on a 6-mile limitation and the list below. Provide additional devices at no additional cost.

1. Standard D-704-15; Layout A
2. Standard D-704-20; Layout G (See Section 100 Sheet 2 for project layout)
3. Standard D-704-22; Layouts K & L
4. Standard D-704-26; Layouts Type EE and Type GG
5. Standard D-704-33

Place flaggers and traffic control as shown on Standard D-704-15, layout A at all intersections as needed.

Quantities are based on the Standard Drawings listed above. The required traffic control signs and devices are included in the “Traffic Control Devices List” and will be measured and paid at the Contract Unit price for each device.

704-P03 **TRAFFIC CONTROL FOR SEAL COATS:** Provide traffic control consisting of a temporary lane closure, flagging, and a pilot car.

Traffic control device quantities are based on a 6-mile limitation and the list below. Provide additional devices at no additional cost.

1. Standard D-704-20; Layouts G, and H. See Sheet 100-3 for locations.
2. Standard D-704-22; Layouts K & L
3. Standard D-704-33

Place flaggers and traffic control as shown on Standard D-704-15, layout A at all intersections as needed.

Quantities are based on the Standard Drawings listed above. The required traffic control signs and devices are included in the “Traffic Control Devices List” and will be measured and paid at the Contract Unit price for each device.

704-P04 **TRAFFIC CONTROL FOR SEAL COAT:** Install a 45 mph Speed Limit during and after the chip seal application. Re-establish the speed limit to pre-construction condition after the fog seal.

762-050 **PAVEMENT MARKING:** If the Engineer and Contractor agree, plan quantity will be used as the measurement for pavement marking items.

REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE 8/31/2026
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SC-0800(005)	6	3

ENVIRONMENTAL NOTES

ENVIRONMENTAL NOTES (EN): No additional permits or environmental commitments have been identified beyond what is required by the NDDOT's Standard Specifications for Road and Bridge Construction.

REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE 8/31/2026
NORTH DAKOTA

PROJECT SC-0800(005), PCN 25555

BURLEIGH COUNTY PROJECT #0195 & #0196

TOTAL ESTIMATED QUANTITIES

SPEC	CODE	DESCRIPTION	UNIT	PROJECT #0195 93RD ST SE	PROJECT #0196 158TH ST SE	TOTAL ESTIMATED QUANTITY
103	0100	CONTRACT BOND	L SUM	0.41	0.59	1
107	0100	RAILWAY PROTECTION INSURANCE	L SUM	0.50	0.50	1
401	0050	TACK COAT	GAL	5,187	7,168	12,355
411	0105	MILLING PAVEMENT SURFACE	SY	101,692	140,424	242,116
420	0405	SEAL COAT	SY	103,726	143,350	247,076
430	0045	SUPERPAVE FAA 45	TON	11,361	15,661	27,022
430	0400	HMA INTELLIGENT COMPACTION	L SUM	0.41	0.59	1
430	1000	CORED SAMPLE	EA	229	328	557
430	5818	PG 58H-34 ASPHALT CEMENT	TON	681	940	1,621
702	0100	MOBILIZATION	L SUM	0.41	0.59	1
704	0100	FLAGGING	MHR	450	600	1,050
704	1000	TRAFFIC CONTROL SIGNS	UNIT	1,439	1,650	3,089
704	1048	PORTABLE RUMBLE STRIPS	EA	4	4	8
704	1067	TUBULAR MARKERS	EA	50	50	100
704	1070	DELINEATOR	EA	20	20	40
704	1185	PILOT CAR	HR	225	300	525
762	0103	PVMT MK PAINTED-MESSAGE	SF	265	265	530
762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	33,195	38,941	72,136
762	1104	PVMT MK PAINTED 4IN LINE	LF	106,209	143,935	250,144
762	1124	PVMT MK PAINTED 24IN LINE	LF	26	57	83



BURLEIGH COUNTY
P: 701.204.7748
F: 701.204.7749

STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	10	1

BASIS OF ESTIMATE

MAINLINE							
		93RD ST SE STA 7+22 TO STA 373+31			158TH ST SE STA 1+70 TO STA 528+29		
MATERIAL	UNIT	WIDTH (FT)	AVERAGE QUANTITY PER MILE	TOTAL	WIDTH (FT)	AVERAGE QUANTITY PER MILE	TOTAL
MAINLINE TACK COAT @ 0.05 GAL/SY (1 LIFTS)	GAL	25.50	748.1	5,187	24.5	719	7,168
MAINLINE SUPERPAVE FAA 45 @ 2 TON/CY	TON	25	1,630	11,299	24	1,565	15,603
MAINLINE PG 58H-34 ASPHALT CEMENT @ 6%	TON	25	98	678	24	94	936
2" MILL	SY	25	14,080	101,692	24	14,080	140,424

BASIS OF ESTIMATE - SEAL COAT

LOCATION	APPLICATION RATE	LENGTH (FT)	AVERAGE WIDTH (FT)	TOTAL AREA (SY)
93RD ST SE MAINLINE: STA 7+22 TO STA 373+31				
CRS2P CL 41 Fog Seal	0.38-0.43 Gal/SY 20-25 lb/SY 0.12 Gal/SY	36,609	25.5	103,726
158TH ST SE MAINLINE: STA 1+70 TO STA 528+29				
CRS2P CL 41 Fog Seal	0.38-0.43 Gal/SY 20-25 lb/SY 0.12 Gal/SY	52,659	24.5	143,350
PROJECT TOTAL				247,075

HBP CORED SAMPLES: 93RD ST SE STA 7+22 TO STA 373+31							
	A	B	C	D			
SPECIFICATION SECTION	DISTANCE (FT) / 1000	LANES	LIFTS	SUBLOTS (A x B x C)	QUANTITY PAID (D x2)	QUANTITY (1 PER MILE)	UNIT
430.04 I.2.b(1), "General"	37	2	1	74	148	NA	EA
LONGITUDINAL JOINT DENSITY	37	NA	1	37	74	NA	EA
430.04 I.2.b(2), "Pavement Thickness Determination Cores"					NA	7	EA
				Total	222	7	EA
				Project Total	229		EA

HBP CORED SAMPLES: 158TH ST SE STA 1+70 TO STA 528+29							
	A	B	C	D			
SPECIFICATION SECTION	DISTANCE (FT) / 1000	LANES	LIFTS	SUBLOTS (A x B x C)	QUANTITY PAID (D x2)	QUANTITY (1 PER MILE)	UNIT
430.04 I.2.b(1), "General"	53	2	1	106	212	NA	EA
LONGITUDINAL JOINT DENSITY	53	NA	1	53	106	NA	EA
430.04 I.2.b(2), "Pavement Thickness Determination Cores"					NA	10	EA
				Total	318	10	EA
				Project Total	328		EA

TEMPORARY PAVEMENT MARKING 93RD ST SE: STA 7+22 TO STA 373+31

SHORT TERM 4IN LINE TYPE NR		
LOCATION	BASIS	QUANTITY
CENTERLINE (YELLOW)	CENTERLINE SKIP: 1,320 LF/MILE BARRIER STRIPE: 25,098 LF	33,195 LF

TEMPORARY PAVEMENT MARKING 158TH ST SE: STA 1+70 TO STA 528+29

SHORT TERM 4IN LINE TYPE NR		
LOCATION	BASIS	QUANTITY
CENTERLINE (YELLOW)	CENTERLINE SKIP: 1,320 LF/MILE BARRIER STRIPE: 26,478 LF	38,941 LF

PERMANENT PAVEMENT MARKING 93RD ST SE: STA 7+22 TO STA 373+31

PERMANENT PAVEMENT MARKING		
LOCATION-TYPE	BASIS	QUANTITY
CENTERLINE- PVMT MK PAINTED 4IN LINE (YELLOW)	CENTERLINE SKIP: 1,320 LF/MILE BARRIER STRIPE: 28,098 LF	33,195 LF
EDGE LINE-PVMT MK PAINTED 4IN LINE (WHITE)	10,560 LF/MILE	73,014
STOP LINE-PVMT MK PAINTED 24IN LINE (WHITE)	STA 7+59 STA 373+00	26 LF
PVMT MK PAINTED-MESSAGE (WHITE)	STA 347+93 STA 355+93	265 SF

PERMANENT PAVEMENT MARKING 158TH ST SE: STA 1+70 TO STA 528+29

PERMANENT PAVEMENT MARKING		
LOCATION-TYPE	BASIS	QUANTITY
CENTERLINE- PVMT MK PAINTED 4IN LINE (YELLOW)	CENTERLINE SKIP: 1,320 LF/MILE BARRIER STRIPE: 26,478 LF	38,941 LF
EDGE LINE-PVMT MK PAINTED 4IN LINE (WHITE)	10,560 LF/MILE	104,994
STOP LINE-PVMT MK PAINTED 24IN LINE (WHITE)	STA 1+95 STA 479+51 STA 480+40	57 LF
PVMT MK PAINTED-MESSAGE (WHITE)	STA 453+95 STA 465+71	265 SF

REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE 8/31/2026
NORTH DAKOTA

NO.	REVISION	DATE	BY

GOVERNING SPECIFICATIONS
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED BY THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION AUGUST 2026; STANDARD DRAWINGS CURRENTLY IN EFFECT; AND OTHER CONTRACT PROVISIONS SUBMITTED HEREIN.

BURLEIGH COUNTY HIGHWAY DEPARTMENT

BURLEIGH COUNTY
P: 701.204.7748
F: 701.204.7749

DRAWN BY TJ | DATE 6/11/2026
CHECKED BY CE | SCALE NONE

93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

BASIS OF ESTIMATE
PROJECT NO. 0195 & 0196

SECTION NO. 10 | SHEET NO. 1

R:\Projects & Survey\Projects\Project No. 0195 --HIR Asphalt 93rd St SE No. 0196 - HIR 158th St SE\CAD\Millions0verlay\195_196_0108E_001.dwg-Basis of Estimate-8/31/2026 9:30 AM-(Emj)

STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	10	2

PAVEMENT MARKING QUANTITIES - 93RD ST. SE

STATION/ RANGE	NORTHBOUND		SOUTHBOUND		CENTERLINE SKIP (LF)	WHITE 4" EDGE LINE (LF)	WHITE 24" EDGE LINE (LF)	PAINTED MESSAGE (SY)	TOTAL 4" MARK (LF)
	BARRIER (LF)	SKIP (LF)	BARRIER (LF)	SKIP (LF)					
7+59							14		
7+59 TO 12+89	529		529			1058			2116
12+89 TO 16+66	377			377		754			1226
16+66 TO 17+33	67		67			134			268
17+33 TO 23+32		599	599			1198			1947
23+32 TO 29+86					654	1308			1472
29+86 TO 36+56	670			670		1340			2178
36+56 TO 43+12		656	656			1312			2132
43+12 TO 59+16					1604	3208			3609
59+16 TO 65+26	610			610		1220			1983
65+26 TO 66+59					133	266			300
66+59 TO 72+80		621	621			1242			2019
72+80 TO 106+02					3322	6644			7475
106+02 TO 109+79	377			377		754			1226
109+79 TO 156+00					4621	9242			10398
156+00 TO 166+05	1005			1005		2010			3267
166+05 TO 170+72	467		467			934			1868
170+72 TO 181+10		1038	1038			2076			3374
181+10 TO 185+91					481	962			1083
185+91 TO 193+79	788			788		1576			2561
193+79 TO 195+45	166		166			332			664
195+45 TO 202+35		690	690			1380			2243
202+35 TO 208+97					662	1324			1490
208+97 TO 221+07	1210			1210		2420			3933
221+07 TO 231+15		1008	1008			2016			3276
231+15 TO 234+35					320	640			720
234+35 TO 240+93	658			658		1316			2139
240+93 TO 248+27		734	734			1468			2386
248+27 TO 250+47					220	440			495
250+47 TO 259+32	885			885		1770			2877
259+32 TO 262+76		344	344			688			1118
262+76 TO 268+28	552		552			1104			2208
268+28 TO 273+71		543	543			1086			1765
273+71 TO 283+85					1014	2028			2282
283+85 TO 290+13	628			628		1256			2040
290+13 TO 291+40	127		127			254			508

REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE 8/31/2026
NORTH DAKOTA

NO.	REVISION	DATE	BY

GOVERNING SPECIFICATIONS
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED BY THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION AUGUST 2026; STANDARD DRAWINGS CURRENTLY IN EFFECT; AND OTHER CONTRACT PROVISIONS SUBMITTED HEREIN.

BURLEIGH COUNTY HIGHWAY DEPARTMENT

BURLEIGH COUNTY
P: 701.204.7748
F: 701.204.7749

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93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

BASIS OF ESTIMATE
PROJECT NO. 0195 & 0196

SECTION NO. 10 | SHEET NO. 2

R:\Projects & Survey\Projects\Project No. 0195 -HIR Asphalt 93rd St SE No. 0196 - HIR 158th St SE\CAD\MillandOverlay\195_196_01085E_001.dwg-Basis of Estimate (2)-8/31/2026 9:51 AM-(tmj)

STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	10	3

PAVEMENT MARKING QUANTITIES - 93RD ST. SE

STATION/ RANGE	NORTHBOUND		SOUTHBOUND		CENTERLINE SKIP (LF)	WHITE 4" EDGE LINE (LF)	WHITE 24" EDGE LINE (LF)	PAINTED MESSAGE (SF)	TOTAL 4" MARK (LF)
	BARRIER (LF)	SKIP (LF)	BARRIER (LF)	SKIP (LF)					
291+40 TO 299+03		763	763			1,526			2,480
299+03 TO 319+58					2,055	4,110			4,624
319+58 TO 326+40	682			682		1,364			2,217
326+40 TO 326+99	59		59			118			236
326+99 TO 342+63		1,564	1,564			3,128			5,083
342+63 TO 347+56					493	986			1,110
347+56 TO 350+64	308			308		616			1,001
347+93 RAILROAD WARNING								132.5	
350+97 TO 373+00	2,203		2,203			4,406			8,812
355+93 RAILROAD WARNING								132.5	
373+00							12		
TOTAL						73,014	26	265	106,209

R:\Projects & Survey\Projects\Project No. 0195 -HIR Asphalt 93rd St SE No. 0196 - HIR 158th St SE\CAD\MillandOverlay\195_196_01GBE_001.dwg-Basis of Estimate (3)-8/31/2026 9:51 AM-(bmj)

REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE 8/31/2026
NORTH DAKOTA

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93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

BASIS OF ESTIMATE
PROJECT NO. 0195 & 0196

SECTION NO.	SHEET NO.
10	3

STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	10	4

PAVEMENT MARKING QUANTITIES - 158TH ST. SE

STATION/ RANGE	NORTHBOUND		SOUTHBOUND		CENTERLINE SKIP (LF)	WHITE 4" EDGE LINE (LF)	WHITE 24" EDGE LINE (LF)	PAINTED MESSAGE (SY)	TOTAL 4" MARK (LF)
	BARRIER (LF)	SKIP (LF)	BARRIER (LF)	SKIP (LF)					
1+95							25		
1+95 TO 7+88	593		593			1186			2372
7+88 TO 15+02		714	714			1428			2321
15+02 TO 21+41					639	1278			1438
21+41 TO 27+92	651			651		1302			2116
27+92 TO 28+43	51		51			102			204
28+43 TO 34+28		585	585			1170			1902
34+28 TO 40+19					591	1182			1330
40+19 TO 51+52	1133			1133		2266			3683
51+52 TO 53+13	161		161			322			644
53+13 TO 62+17		904	904			1808			2938
62+17 TO 108+95					4678	9356			10526
108+95 TO 119+66	1071			1071		2142			3481
119+66 TO 127+17		751	751			1502			2441
127+17 TO 179+28					5211	10422			11725
179+28 TO 191+13	1185			1185		2370			3852
191+13 TO 192+43	130		130			260			520
192+43 TO 201+77		934	934			1868			3036
201+77 TO 217+86					1609	3218			3621
217+86 TO 226+08	822			822		1644			2672
226+08 TO 227+58	150		150			300			600
227+58 TO 235+42		784	784			1568			2548
235+42 TO 246+71					1129	2258			2541
246+71 TO 253+72	701			701		1402			2279
253+72 TO 256+24					252	504			567
256+24 TO 261+89	565			565		1130			1837
261+89 TO 266+47					458	916			1031
266+47 TO 271+41		494	494			988			1606
271+41 TO 282+11	1070			1070		2140			3478
282+11 TO 284+03	192		192			384			768
284+03 TO 295+04		1101	1101			2202			3579
295+04 TO 362+56					6752	13504			15192
362+56 TO 372+85	1029			1029		2058			3345
372+85 TO 376+73	388		388			776			1552
376+73 TO 384+91		818	818			1636			2659
384+91 TO 388+27					336	672			756
388+27 TO 399+56	1129			1129		2258			3670

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93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

BASIS OF ESTIMATE
PROJECT NO. 0195 & 0196

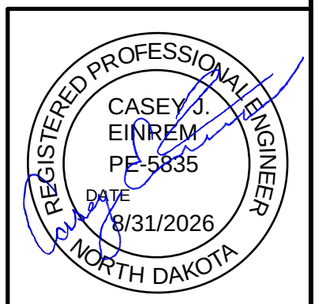
SECTION NO.	SHEET NO.
10	4

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STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	10	5

PAVEMENT MARKING QUANTITIES - 158TH ST. SE

STATION/ RANGE	NORTHBOUND		SOUTHBOUND		CENTERLINE SKIP (LF)	WHITE 4" EDGE LINE (LF)	WHITE 24" EDGE LINE (LF)	PAINTED MESSAGE (SY)	TOTAL 4" MARK (LF)
	BARRIER (LF)	SKIP (LF)	BARRIER (LF)	SKIP (LF)					
399+56 TO 401+53	197		197			394			788
401+53 TO 412+71		1118	1118			2236			3,634
412+71 TO 451+74					3903	7806			8,782
451+74 TO 459+49	775			775		1550			2,519
453+95 RAILROAD WARNING								132.5	
459+97 TO 469+65		968	968			1936			3,146
465+71 RAILROAD WARNING								132.5	
469+65 TO 472+40					275	550			619
472+40 TO 479+51	711			711		1422			2,311
479+51							16		
480+40							16		
480+40 TO 486+24		584	584			1168			1,898
486+24 TO 515+18					2894	5788			6,512
515+18 TO 519+83	465			465		930			1,512
519+83 TO 528+29	846		846			1692			3,384
TOTAL						104,994	57	265	143,935



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CE	NONE

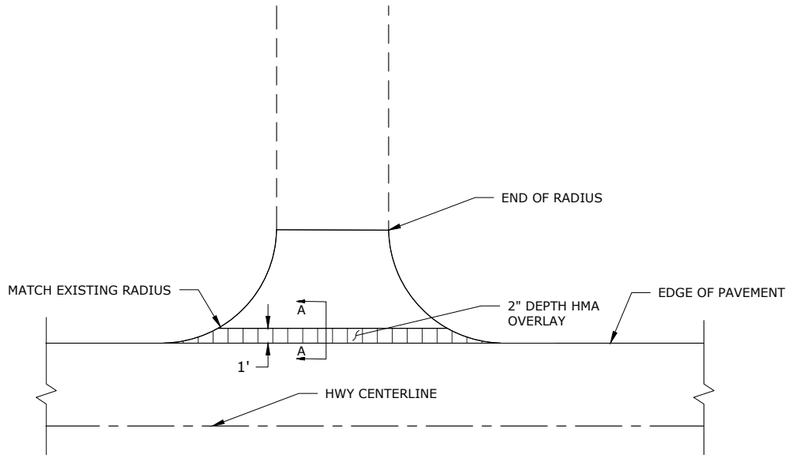
93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

BASIS OF ESTIMATE
PROJECT NO. 0195 & 0196

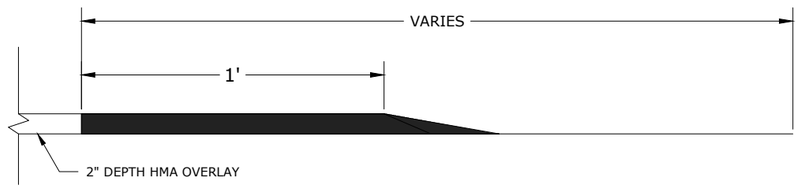
SECTION NO.	SHEET NO.
10	5

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STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	20	1



APPROACH DETAIL



SECTION A-A

BASIS OF ESTIMATE		93RD ST SE				158TH ST SE			
ITEM	UNIT	PAVED SECTION LINE	GRAVEL SECTION LINE/ GRAVEL ROADWAY	GRAVEL FIELD/ PRIVATE DRIVE	TOTAL	PAVED SECTION LINE	GRAVEL SECTION LINE/ GRAVEL ROADWAY	GRAVEL FIELD/ PRIVATE DRIVE	TOTAL
NUMBER OF LOCATIONS	#	1	9	53	63	6	10	53	69
SUPERPAVE FAA 45	TON	1.0	9.0	52.4	62	6.0	10.0	42.4	58
ASPHALT CEMENT	TON	0.06	0.54	2.54	3.2	0.36	0.60	2.54	3.5

REGISTERED PROFESSIONAL ENGINEER
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SCALE: NONE

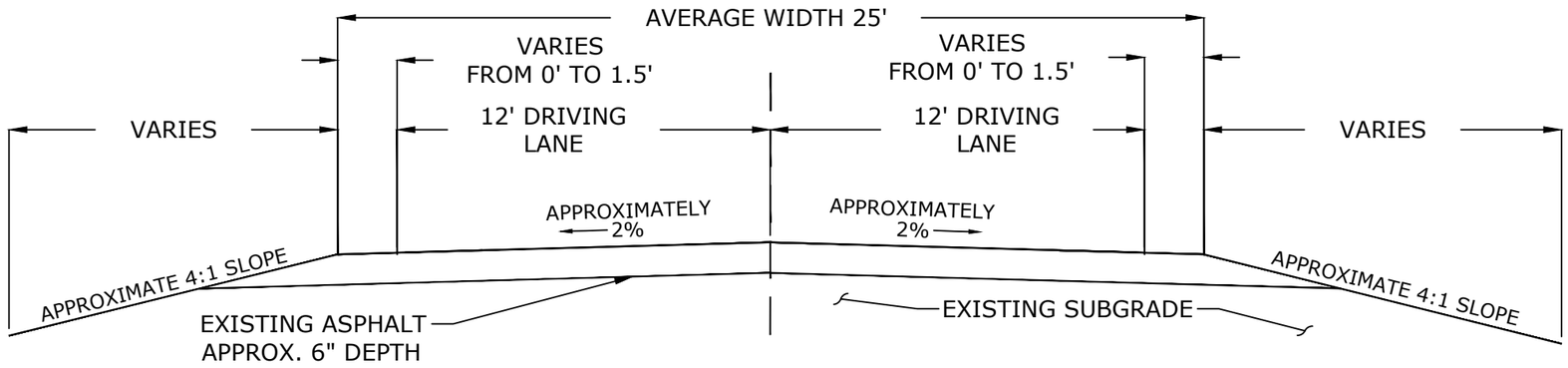
93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVENUE NE, BISMARCK, ND 58503

GENERAL DETAILS
PROJECT NO. 0195 & 0196

SECTION NO. 20
SHEET NO. 1

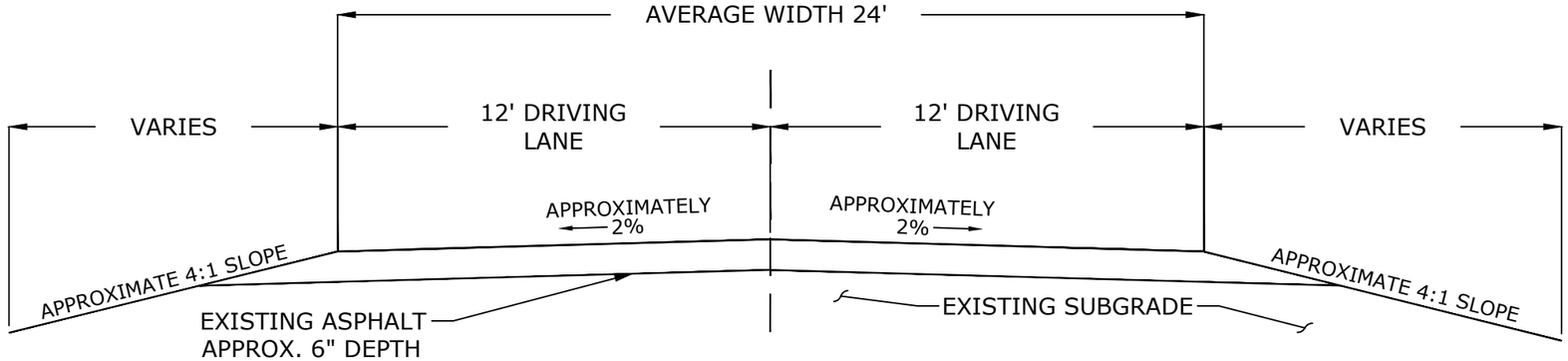
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STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	30	1



EXISTING TYPICAL SECTION 93RD ST SE STA 7+22 TO STA 373+31

NOT TO SCALE



EXISTING TYPICAL SECTION 158TH ST SE STA 1+70 TO STA 528+29

NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE 8/31/2026
NORTH DAKOTA

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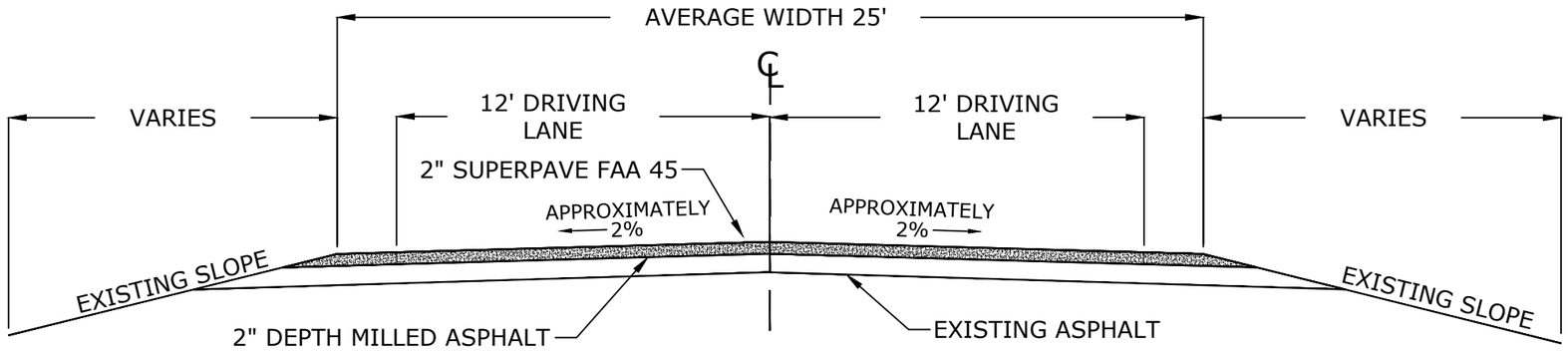
93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

TYPICAL SECTION
93RD ST SE & 158TH ST SE
PROJECT NO. 0195 & 0196

SECTION NO.	SHEET NO.
30	1

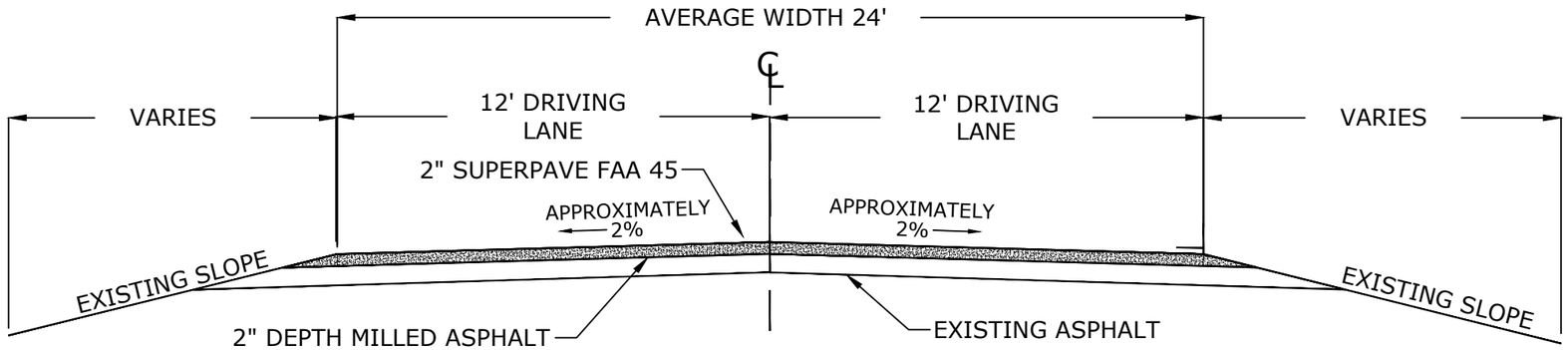
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STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	30	2



PROPOSED TYPICAL SECTION 93RD ST SE STA 7+22 TO 373+31

NOT TO SCALE



PROPOSED TYPICAL SECTION 158TH ST SE STA 1+70 TO 528+29

NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
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93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

TYPICAL SECTION
93RD ST SE & 158TH ST SE
PROJECT NO. 0195 & 0196

SECTION NO. 30 | SHEET NO. 2

R:\Projects & Survey\Projects\Project No. 0195 --HIR Asphalt 93rd St SE No. 0196 -- HIR 158th St SE\CAD\BillionsOverlay\195_196_ 030TP_001.dwg--Typical Sections--2--8/31/2026 9:31 AM--(Emj)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SC-0800(005)	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3	4		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
E5-1-48	48"x48"	EXIT GORE							35	
G20-1-60	**60"x24"**	**ROAD WORK NEXT __ MILES**	**2**	**2**	**2**	**2**		**2**	**28**	**56**
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)							18	
G20-2-48	**48"x24"**	**END ROAD WORK**	**2**	**2**	**2**	**2**		**2**	**26**	**52**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)							18	
G20-4b-36	36"x30"	WAIT FOR PILOT CAR							18	
G20-50a-72	**72"x36"**	**ROAD WORK NEXT __ MILES RT & LT ARROWS**	**11**	**11**	**11**	**11**		**11**	**43**	**473**
G20-52a-72	**72"x24"**	**ROAD WORK NEXT __ MILES RT or LT ARROW**	**4**	**5**				**5**	**36**	**180**
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $150 WHEN WORKERS PRESENT**	**2**	**2**	**2**	**2**		**2**	**59**	**118**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)							11	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)							10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)							10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)							7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)							7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)							7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)							7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)							7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT							15	
M4-10-48	48"x18"	DETOUR (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)							7	
M5-1-21	21"x15"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)							7	
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)							9	
M6-1-21	21"x15"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)							7	
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)							9	
M6-3-21	21"x15"	DIRECTIONAL ARROW UP (Mounted on route marker post)							7	
R1-1-48	48"x48"	STOP							32	
R1-2-60	60"x60"	YIELD							29	
R2-1-36	**36"x48"**	**SPEED LIMIT __ (Portable only)**	**2**	**2**	**2**	**2**		**2**	**30**	**60**
R2-1-48	**48"x60"**	**SPEED LIMIT __**			**6**	**6**		**6**	**39**	**234**
R2-1aP-24	**24"x18"**	**MINIMUM FEE $150 (Mounted on Speed Limit post)**	**2**	**2**	**6**	**6**		**6**	**10**	**60**
R3-2-48	48"x48"	NO LEFT TURN							35	
R4-1-48	**48"x60"**	**DO NOT PASS**			**6**	**6**		**6**	**39**	**234**
R4-7-48	48"x60"	KEEP RIGHT							39	
R5-1-48	48"x48"	DO NOT ENTER							35	
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)							14	
R7-1-12	12"x18"	NO PARKING ANY TIME							11	
R10-6-24	24"x36"	STOP HERE ON RED							16	
R11-2-48	48"x30"	ROAD CLOSED (Mounted on barricade)							12	
R11-2a-48	48"x30"	STREET CLOSED (Mounted on barricade)							12	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)							15	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)							15	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)							15	
W1-3-48	48"x48"	REVERSE TURN RIGHT or LEFT							35	
W1-4-48	48"x48"	REVERSE CURVE RIGHT or LEFT							35	
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT							35	
W1-6-48	48"x24"	ONE DIRECTION LARGE ARROW							26	
W3-1-48	48"x48"	STOP AHEAD							35	
W3-3-48	48"x48"	SIGNAL AHEAD							35	
W3-4-48	**48"x48"**	**BE PREPARED TO STOP**	**2**	**2**	**2**	**2**		**2**	**35**	**70**
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**2**	**2**	**2**	**2**		**2**	**35**	**70**
W4-2-48	48"x48"	LANE ENDS RIGHT or LEFT							35	
W5-1-48	48"x48"	ROAD NARROWS							35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE							35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW							35	
W6-3-48	48"x48"	TWO WAY TRAFFIC							35	
W8-1-48	**48"x48"**	**BUMP**	**6**	**8**				**8**	**35**	**280**
W8-3-48	48"x48"	PAVEMENT ENDS							35	
W8-7-48	48"x48"	LOOSE GRAVEL							35	
W8-11-48	**48"x48"**	**UNEVEN LANES**	**4**	**4**				**4**	**35**	**140**
W8-12-48	**48"x48"**	**NO CENTER LINE**	**4**	**4**	**6**	**6**		**6**	**35**	**210**
W8-17-48	48"x48"	SHOULDER DROP-OFF SYMBOL							35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY							35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or __ FT or _ MILE							35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT or _ MILE							35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY							35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL							35	
W13-1P-30	30"x30"	__ MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)							14	
W14-3-64	64"x48"	NO PASSING ZONE							28	
W16-2P-30	30"x24"	__ FEET PLAQUE (Mounted on warning sign post)							10	
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**4**	**5**	**2**	**8**		**8**	**35**	**280**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT or _ MILE							35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT or _ MILE							35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT or _ MILE							35	
W20-5-48	48"x48"	RIGHT or CENTER or LEFT LANE CLOSED AHEAD or __ FT or _ MILE							35	
W20-7-48	**48"x48"**	**FLAGGER**	**2**	**2**	**2**	**2**		**2**	**35**	**70**
W20-8-18	**18"x18"**	**STOP - SLOW PADDLE Back to Back**	**2**	**2**	**2**	**2**		**2**	**5**	**10**
W20-52P-54	**54"x12"**	**NEXT __ MILES (Mounted on warning sign post)**			**6**	**6**		**6**	**12**	**72**
W21-1-48	48"x48"	WORKERS							35	
W21-2-48	**48"x48"**	**FRESH OIL**	**4**	**4**				**4**	**35**	**140**
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT or _ MILE							35	
W21-5-48	48"x48"	SHOULDER WORK							35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED							35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT or _ MILE							35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3	4		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-6-48	48"x48"	SURVEY CREW							35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT							35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY							35	
W21-52-48	48"x48"	PAVEMENT BREAKS							35	
W21-53-48	**48"x48"**	**RUMBLE STRIPS AHEAD**	**2**	**2**	**2**	**2**		**2**	**35**	**70**
W22-8-48	**48"x48"**	**FRESH OIL LOOSE ROCK**			**6**	**6**		**6**	**35**	**210**
W24-1-48	48"x48"	DOUBLE REVERSE CURVE							35	

SPECIAL SIGNS

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS 3089**

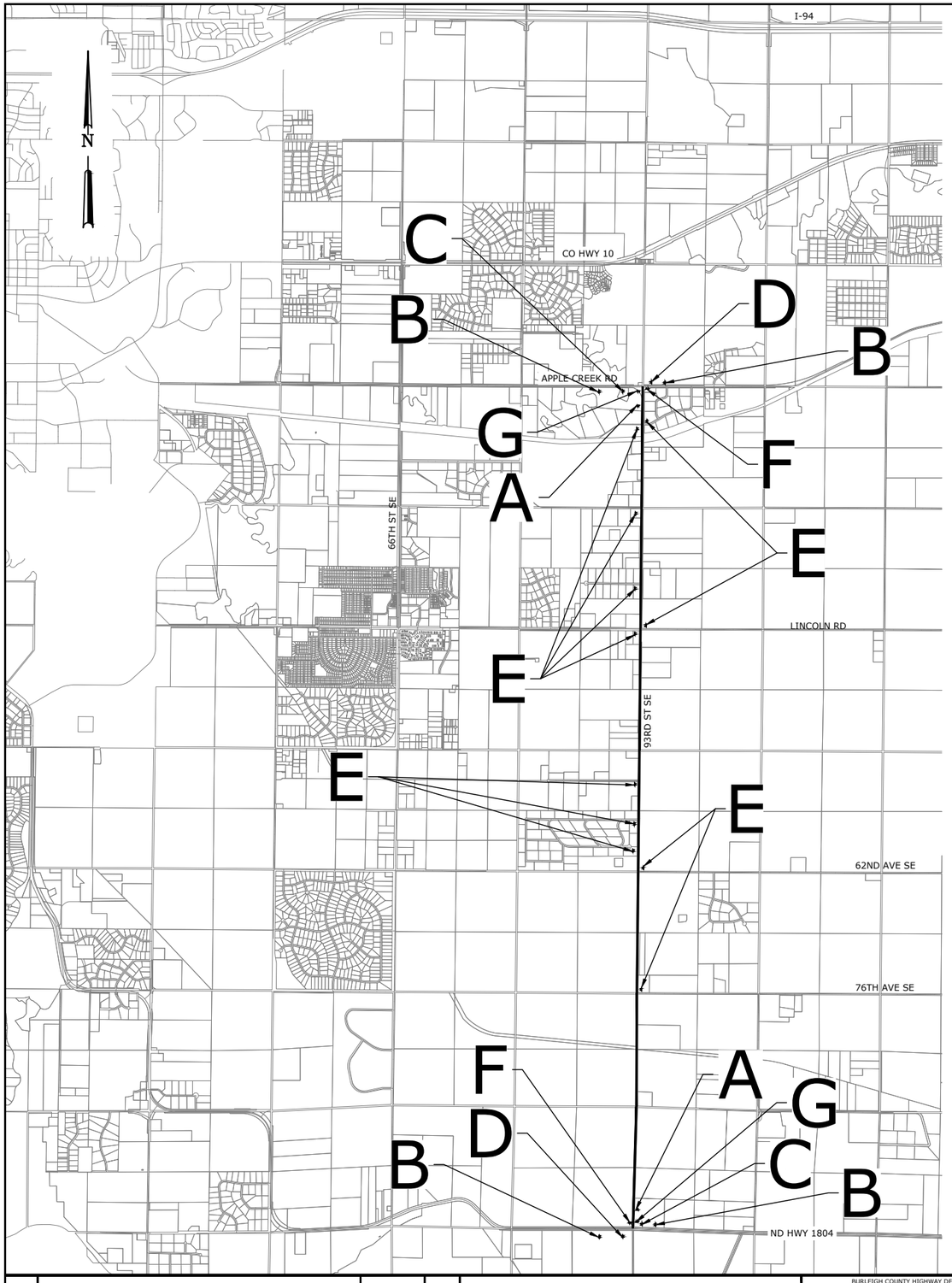
SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO. 1	2	3	4		TOTAL QUANTITY
704-0100	**FLAGGING**	MHR	**350**	**480**	**100**	**120**		**1050**
704-1048	**PORTABLE RUMBLE STRIPS**	EACH	**4**	**4**	**4**	**4**		**4**
704-1050	TYPE I BARRICADES	EACH						
704-1052	TYPE III BARRICADES	EACH						
704-1060	DELINEATOR DRUMS	EACH						
704-1065	TRAFFIC CONES	EACH						
704-1067	**TUBULAR MARKERS**	EACH	**50**	**50**	**50**	**50**		**50**
704-1070	**DELINEATOR**	EACH	**20**	**20**				**20**
704-1072	FLEXIBLE DELINEATORS	EACH						
704-1080	STACKABLE VERTICAL PANELS	EACH						
704-1081	VERTICAL PANELS - BACK TO BACK	EACH						
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH						
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH						
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH						
704-1500	OBLITERATION OF PVMT MK	SF						
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF						
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH						
762-0200	RAISED PAVEMENT MARKERS	EACH						
762-0420	SHORT TERM 4IN LINE - TYPE R	LF						
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF						

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
http://www.dot.nd.gov/

REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE
8/31/2026
NORTH DAKOTA

Traffic Control Devices List

STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	100	2



A



G20-1-60

B



W20-1-48

C



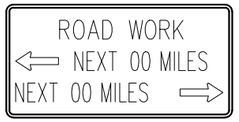
G20-52aR-72

D



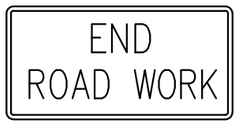
G20-52aL-72

E



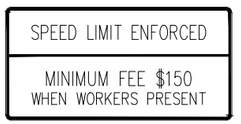
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F

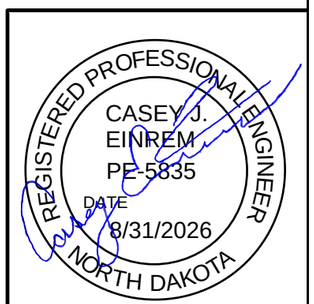


G20-2-48

G



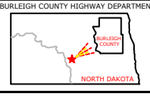
G20-55-96



NO.	REVISION	DATE	BY

GOVERNING SPECIFICATIONS
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED BY THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION AUGUST 2026; STANDARD DRAWINGS CURRENTLY IN EFFECT; AND OTHER CONTRACT PROVISIONS SUBMITTED HEREIN.

BURLEIGH COUNTY HIGHWAY DEPARTMENT



BURLEIGH COUNTY
P: 701.204.7748
F: 701.204.7749

DRAWN BY	DATE
TJ	6/18/2026
CHECKED BY	SCALE
CE	AS SHOWN

93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

WORK ZONE TRAFFIC CONTROL
93RD ST SE MILL & OVERLAY
PROJECT NO. 0195 & 0196

SECTION NO.	SHEET NO.
100	2

STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	100	3

A



G20-1-60

B



W20-1-48

C



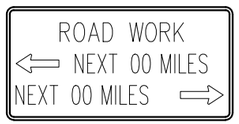
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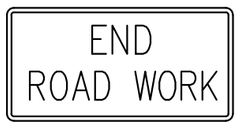
G20-52aL-72

E



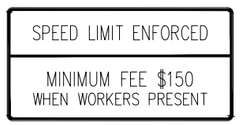
G20-50A-72

F



G20-2-48

G



G20-55-96

H

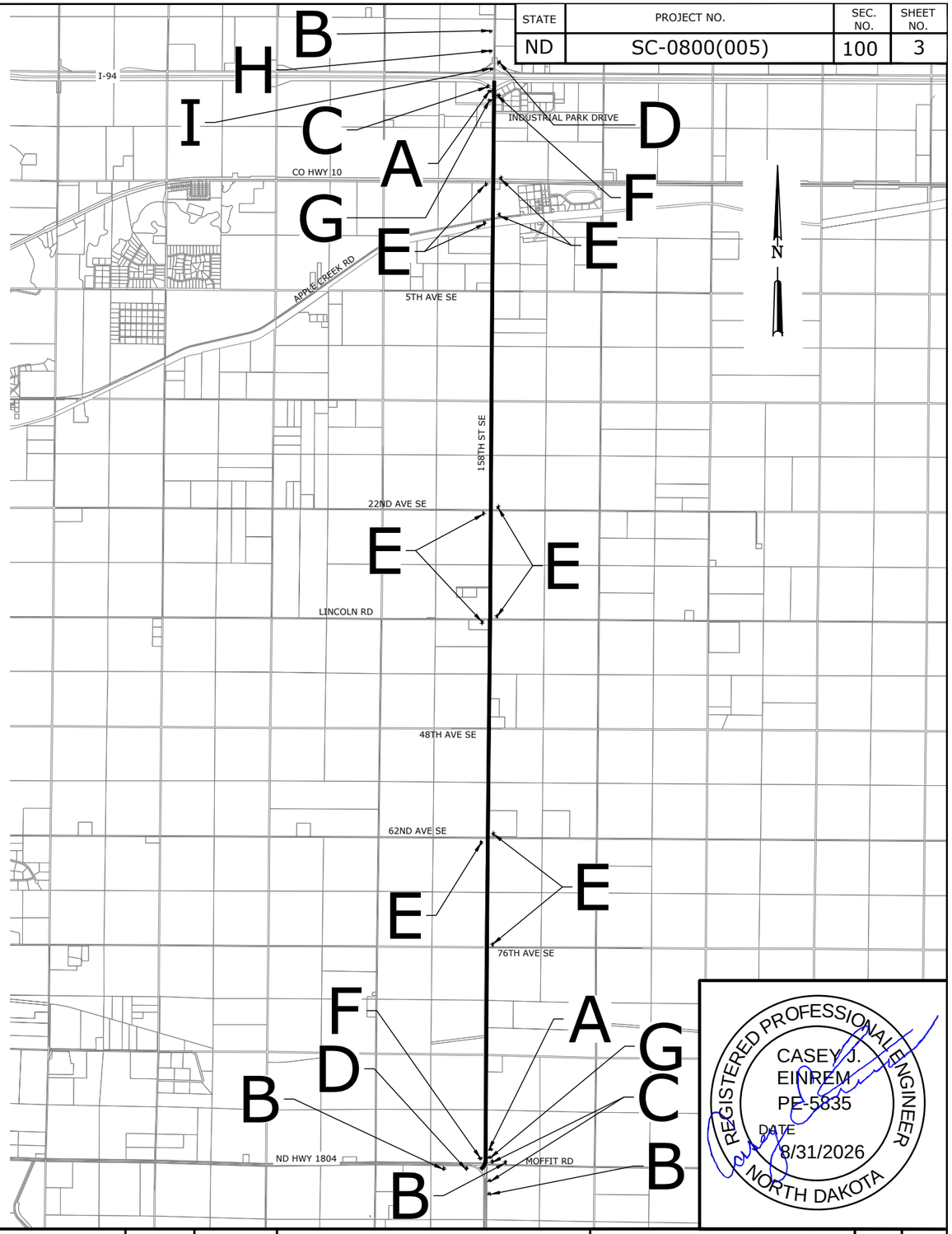


W20-1-48

I



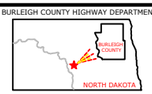
W20-1-48



REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE 8/31/2026
NORTH DAKOTA

NO.	REVISION	DATE	BY

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BURLEIGH COUNTY
P: 701.204.7748
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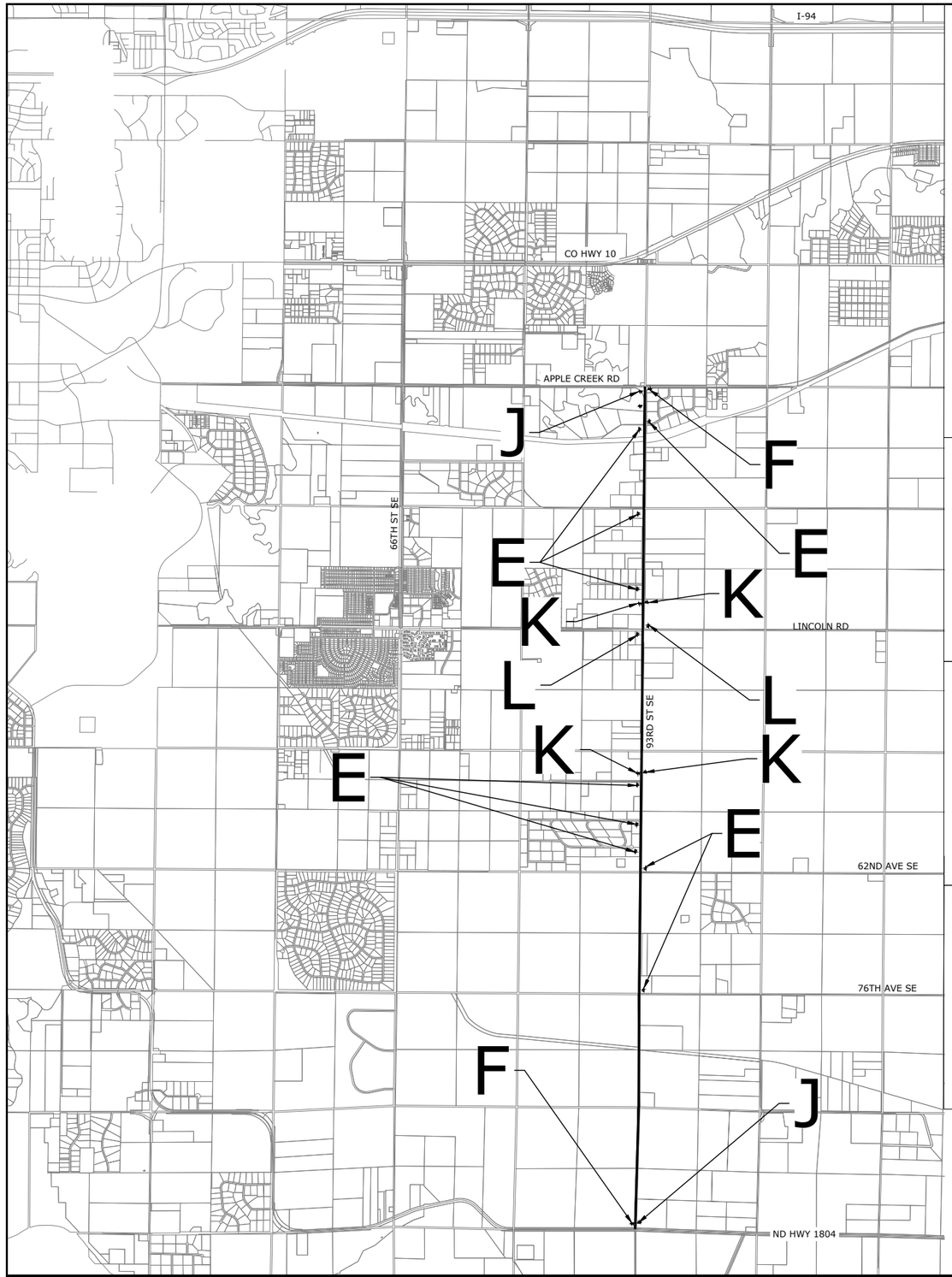
DRAWN BY	DATE
TJ	6/18/2026
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CE	AS SHOWN

93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

WORK ZONE TRAFFIC CONTROL
158TH ST SE MILL & OVERLAY
PROJECT NO. 0195 & 0196

SECTION NO.	SHEET NO.
100	3

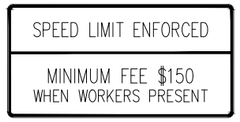
STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	100	4



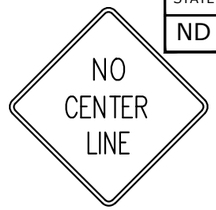
SIGN GROUP J
(2 LOCATIONS)



G20-1a-60



G20-55-96



W8-12-48



R4-1-48



W3-5-48



W22-8-48



W20-52-54



R2-1-48



R2-1A-24

SIGN GROUP K
(4 LOCATIONS)



W8-12-48



R4-1-48



W22-8-48

W20-52-54



R2-1-48

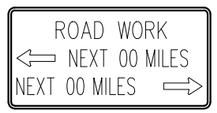


R2-1A-24

SIGN GROUP L
(2 LOCATIONS)

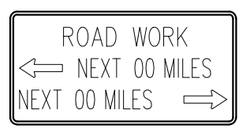


W20-1-48



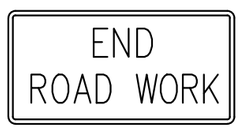
G20-50A-72

SIGN E
(9 LOCATIONS)



G20-50A-72

SIGN F
(2 LOCATIONS)



G20-2-48

REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE 8/31/2026
NORTH DAKOTA

NO.	REVISION	DATE	BY

GOVERNING SPECIFICATIONS
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BURLEIGH COUNTY HIGHWAY DEPARTMENT

BURLEIGH COUNTY
P: 701.204.7748
F: 701.204.7749

DRAWN BY TJ | DATE 6/22/2026
CHECKED BY CE | SCALE AS SHOWN

93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

WORK ZONE TRAFFIC CONTROL
93RD ST SE SEAL COAT
PROJECT NO. 0195 & 0196

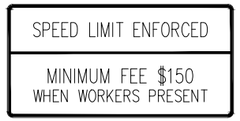
SECTION NO.	SHEET NO.
100	4

STATE	PROJECT NO.	SEC. NO.	SHEET NO.
ND	SC-0800(005)	100	5

SIGN GROUP J
(2 LOCATIONS)



G20-1a-60



G20-55-96



W8-12-48



R4-1-48



W3-5-48



W22-8-48



W20-52-54



R2-1-48



R2-1A-24

SIGN GROUP K
(4 LOCATIONS)



W8-12-48



R4-1-48



W22-8-48



W20-52-54



R2-1-48

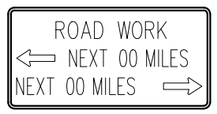


R2-1A-24

SIGN GROUP L
(8 LOCATIONS)

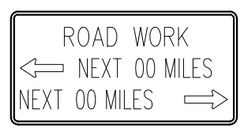


W20-1-48



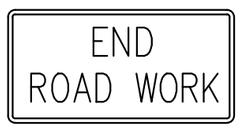
G20-50A-72

SIGN E
(3 LOCATIONS)

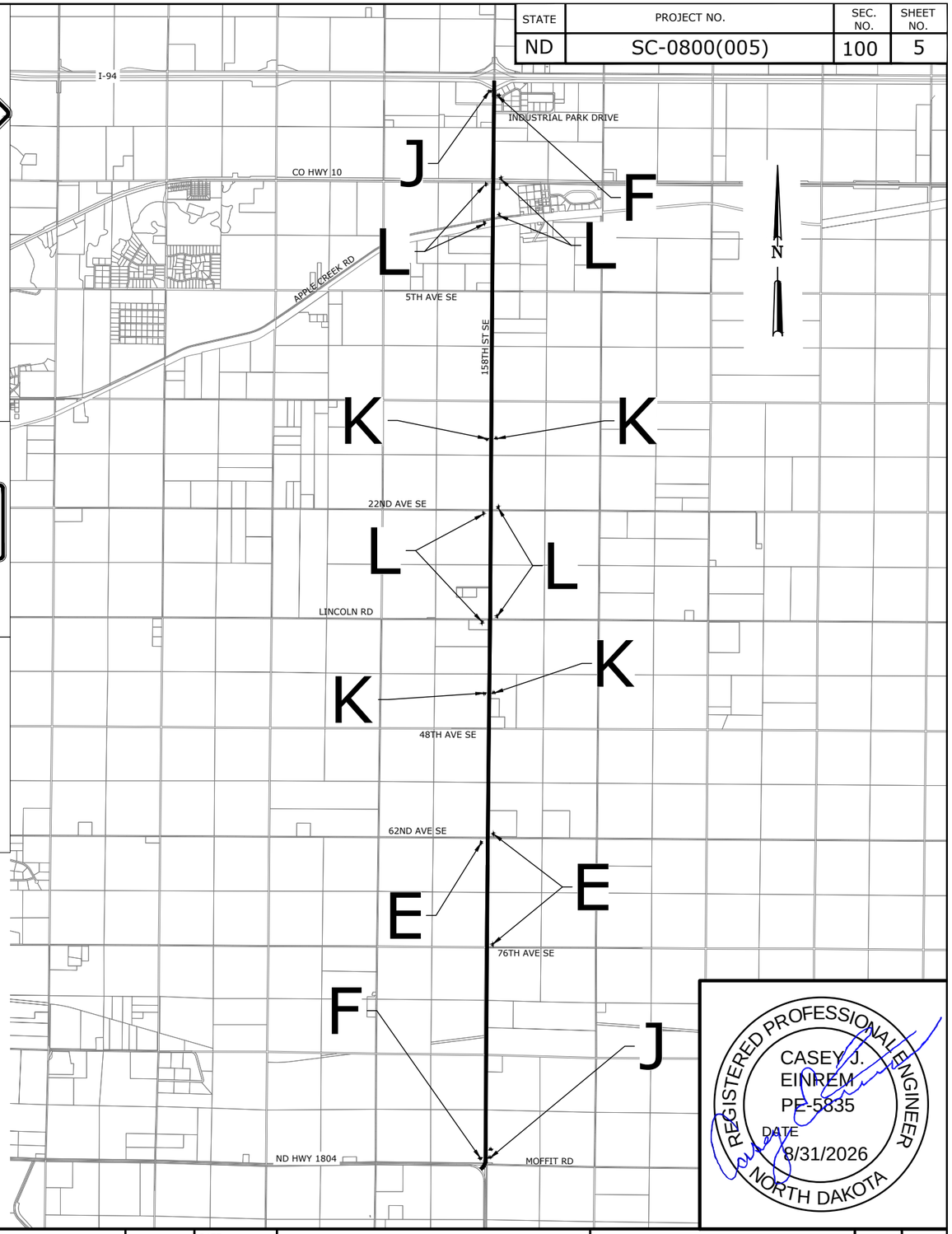


G20-50A-72

SIGN F
(8 LOCATIONS)



G20-2-48

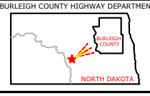


REGISTERED PROFESSIONAL ENGINEER
CASEY J. EINREM
PE-5835
DATE 8/31/2026
NORTH DAKOTA

NO.	REVISION	DATE	BY

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BURLEIGH COUNTY HIGHWAY DEPARTMENT



BURLEIGH COUNTY
P: 701.204.7748
F: 701.204.7749

DRAWN BY	DATE
TJ	6/22/2026
CHECKED BY	SCALE
CE	AS SHOWN

93RD ST SE & 158TH ST SE MILL & OVERLAY
BURLEIGH COUNTY HIGHWAY DEPARTMENT
8100 43RD AVE NE, BISMARCK, ND 58503

WORK ZONE TRAFFIC CONTROL
158TH ST SE SEAL COAT
PROJECT NO. 0195 & 0196

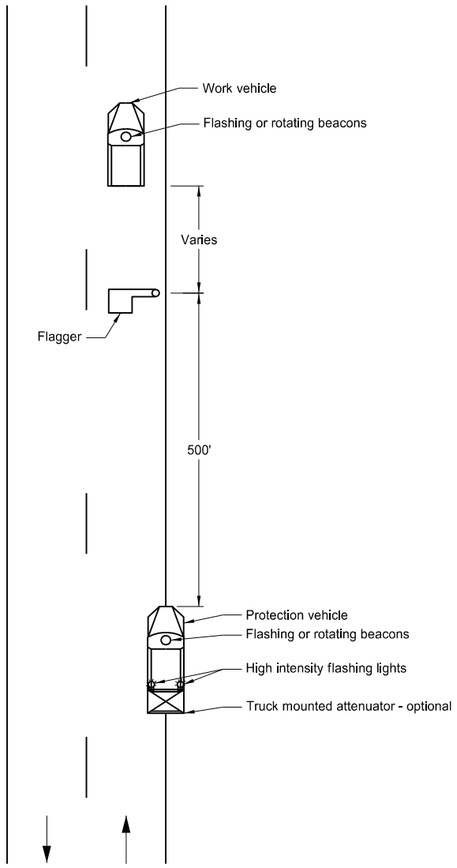
SECTION NO.	SHEET NO.
100	5

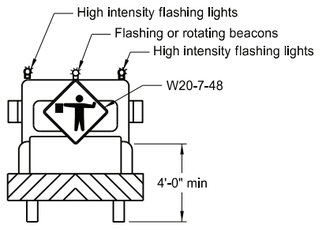
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TRAFFIC CONTROL FOR CORING OF HOT BITUMINOUS PAVEMENT

D-704-2

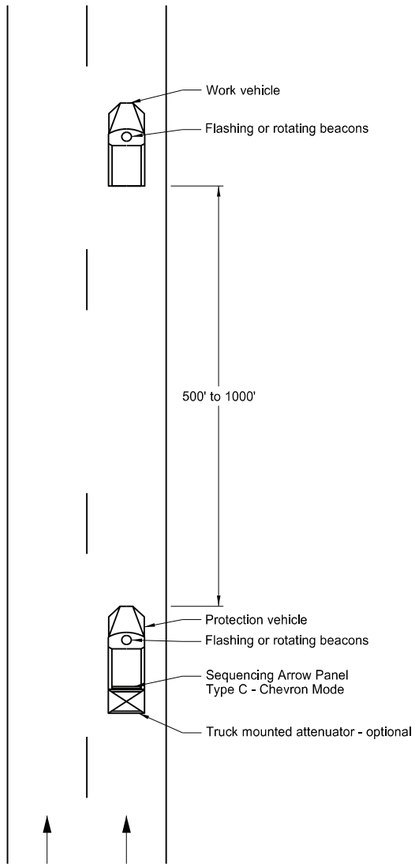
Two Lane, Two Way Roadways

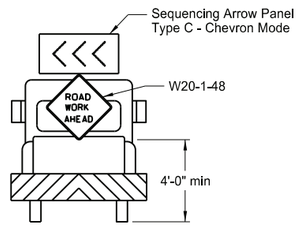




Typical Protection Vehicle

Multilane Roadways





Typical Protection Vehicle

Notes:

1. Display a 360 degree rotating, flashing, oscillating or strobe light on the working vehicle.

2. Display a 360 degree rotating, flashing, oscillating or strobe light on the shadow vehicle. Operate a sequencing arrow panel Type C in chevron mode on the shadow vehicle for Multilane Roadway.

3. Use these layouts during daylight hours and in areas of good visibility only.

4. Use flagger to protect the work area and warn oncoming traffic for two lane, two way roadway.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-25-12	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature

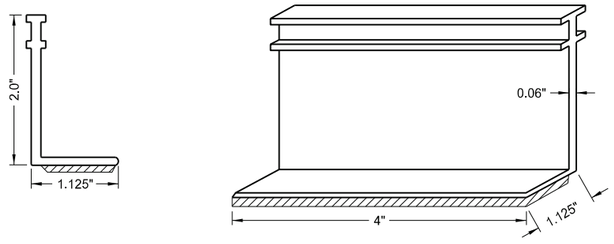
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/01/24

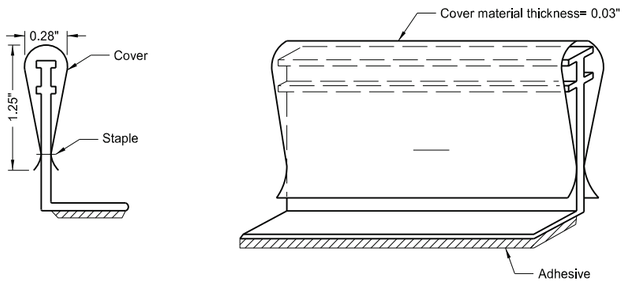
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LANE MARKERS
(Spotting Tab for Seal Projects only)

D-704-3



Marker Body



Marker Body with Protective Cover

Notes:

1. Install lane line markers as shown, prior to beginning the seal coat.
2. Attach cover to vertical part of marker so traffic does not cause it to detach, but it can be easily removed manually.
3. Remove protective covers immediately after seal coat is applied.
4. Remove markers after permanent pavement marking is installed.
5. Use marker body and cover manufactured from polyurethane material.
6. Marker types:
   Type Y - Yellow body and cover with yellow reflective tape on both sides.
   Type W - White body and cover with white reflective tape on one side.
7. Use retroreflective tape with a minimum reflectance of 1200 candle power per foot-candle per square foot, using a .1 degree observation angle and 0 degree entrance angle.
8. Use adhesive conforming to AASHTO M 237.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature

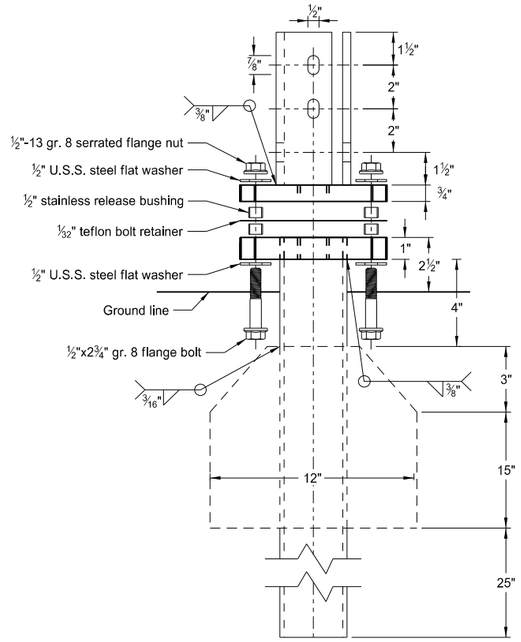
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/01/24

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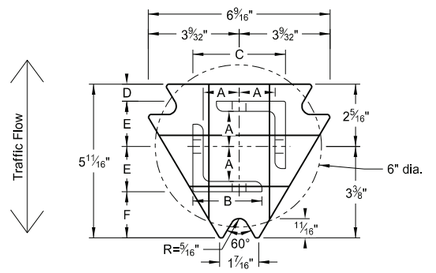
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-7

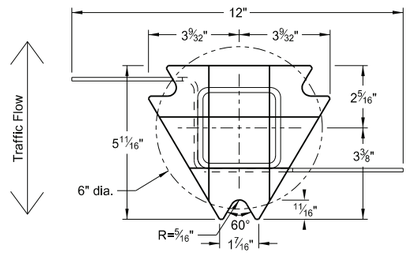


Multi-Directional
Slip Base Assembly

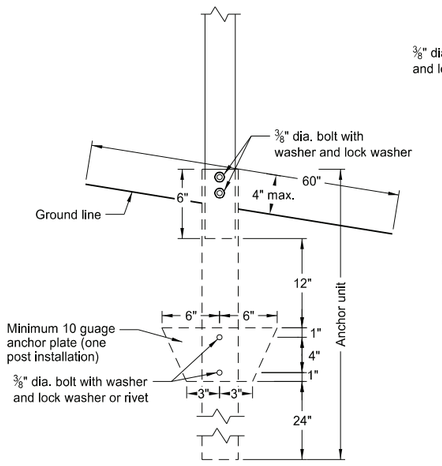
Perforated Tube



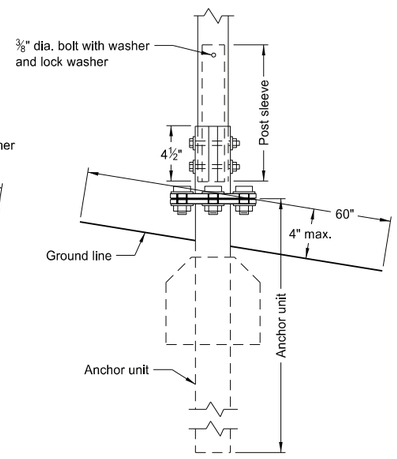
Top Post Receiver
Plate - ASTM A572 grade 50
Angle Receiver - 2½"x2½"x⅜" ASTM A36 structural angle



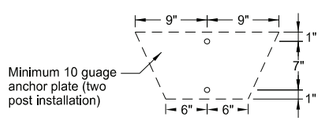
Bottom Soil Stub
Tube - 3"x3"x7 gauge ASTM A500 grade B tube
Stabilizing Wing - 7 gauge H.R.P.O. ASTM A1011
Plate - ASTM A572 grade 50

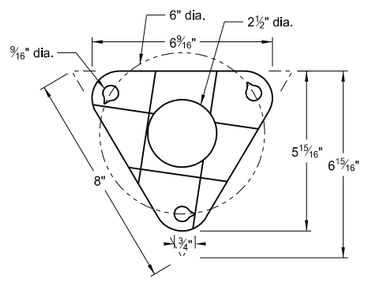


Anchor Unit and Post Assembly



Multi-Directional
Slip Base Anchor Unit
and Post Sleeve Assembly





Bolt Retainer for Base Connection
Bolt Retainer- 1/32" Reprocessed Teflon

Notes:

1. Torque slip base bolts as specified by manufacturer.
2. Use anchor with 43.9 KSI yield strength and 59.3 KSI tensile strength.
3. Provide 4" vertical clearance for anchor or breakaway base. Measure the 4"x60" measurement above and below post location and back and ahead of post.
4. In concrete sidewalk, use same anchor without wings.
5. Provide more than 7' between the first and fourth posts of a four post sign.

Telescoping Perforated Tube						
Number of Posts	Post Size in.	Wall Thick-ness Gauge	Sleeve Size in.	Wall Thick-ness Gauge	Slip Base	Anchor Size without Slip Base in.
1	2	12			No	2¼
1	2¼	12			No	2½
1	2½	12			(A)	3
1	2½	10			Yes	
1	2¼	12	2	12	Yes	
1	2½	12	2¼	12	Yes	
2	2	12			No	2¼
2	2¼	12			No	2½
2	2½	12			Yes	
2	2½	12			Yes	
2	2¼	10	2	12	Yes	
2	2½	12	2¼	12	Yes	
3 & 4	2½	12			Yes	
3 & 4	2½	10			Yes	
3 & 4	2½	12	2¼	12	Yes	
3 & 4	2¼	12	2	12	Yes	
3 & 4	2½	10	2 3/16	10	Yes	

Properties of Telescoping Perforated Tube						
Tube Size in.	Wall Thickness in.	U.S. Standard Gauge	Weight per Foot lbs.	Moment of Inertia in.⁴	Cross Sec. Area in.²	Section Modulus in.³
1½ x 1½	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2¼ x 2¼	0.105	12	2.773	0.561	0.695	0.499
2 3/16 x 2 3/16	0.135	10	3.432	0.605	0.841	0.590
2½ x 2½	0.105	12	3.141	0.804	0.803	0.643
2½ x 2½	0.135	10	4.006	0.979	1.010	0.785

Top Post Receiver Data Table						
Square Post Sizes (B)	A	B	C	D	E	F
2 3/16"x10 ga.	1 9/64"	2½"	3 1/32"	25/32"	1 33/64"	1 7/8"
2½"x10 ga.	1 9/32"	2½"	3 5/16"	⅝"	1 21/32"	1¾"

(A) Use breakaway base when support is placed in weak soils. Engineer determines if soils are weak.

(B) For additional wind load, insert the 2 3/16"x10 ga. into 2½"x10 ga.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature

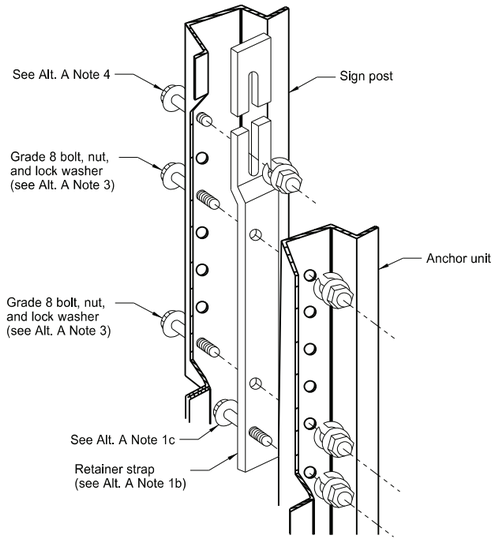
KIRK J. HOFF
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PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA
08/01/24

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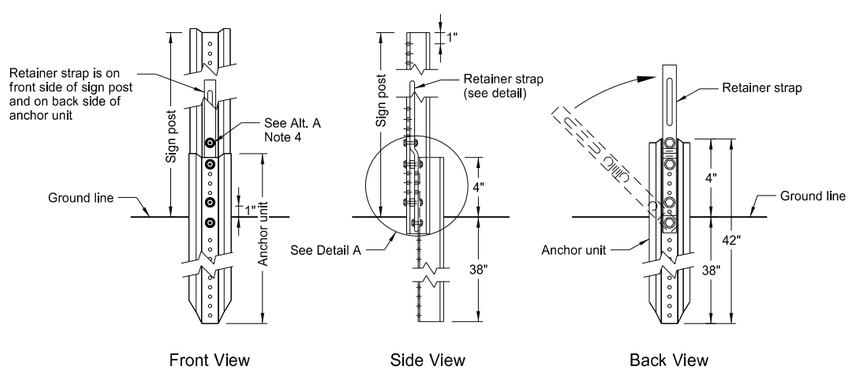
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-8

U-Channel Post



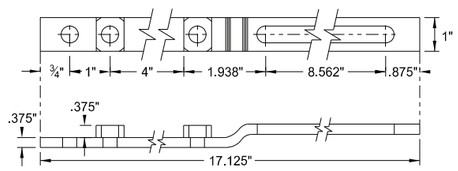
Detail A



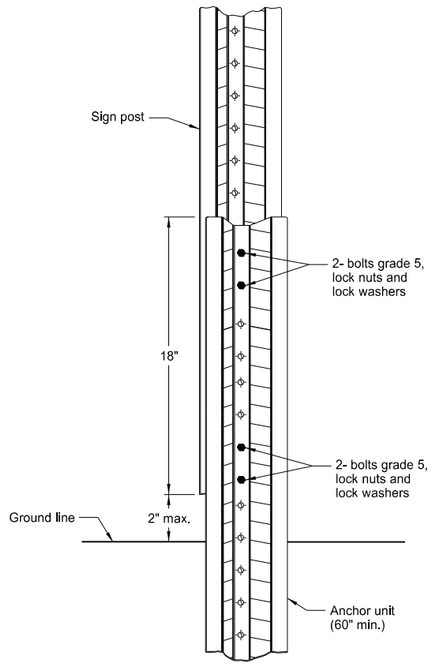
Front View | Side View | Back View

Breakaway U-Channel Detail Alternate A

Install a maximum of 2 posts within 7'.

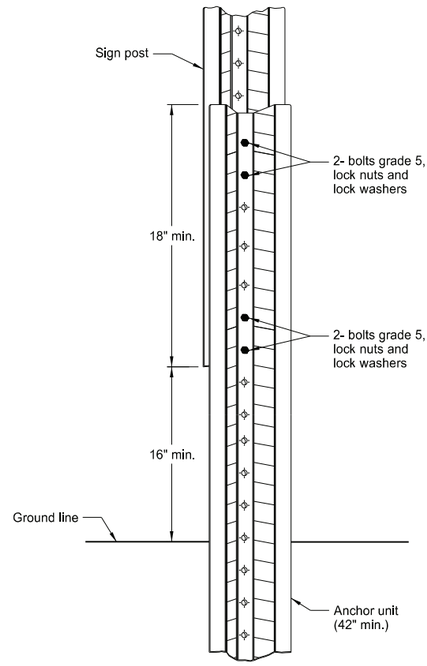


Retainer Strap Detail



Breakaway U-Channel Splice Detail Alternate B (2.5 and 3 lb/ft)

Install a maximum of 3 posts within 7'.



Breakaway U-Channel Splice Detail Alternate C (2.5 and 3 lb/ft)

Install a maximum of 3 posts within 7'.

Alternate A Steps of Installation:

1. a) Drive anchor unit to within 12" of ground level.
   b) Establish proper assembly by lining up bottom hole of retainer strap with 6th hole from the top of the anchor unit.
   c) Assemble strap to back of anchor unit using 5/16"x2" bolt, lock washer and nut.
   d) Rotate strap 90° to left.
2. a) Drive anchor unit to 4" above ground.
   b) Rotate strap to vertical position.
3. a) Place 5/16"x2" bolt, lock washer and nut in bottom of sign post to facilitate alignment of sign post with proper hole in anchor unit.
   b) Alternately tighten two connector bolts.
4. Complete assembly by tightening 5/16"x2" bolt (this fastens sign post to retainer strap).
5. Properly nest base post, strap, and sign post. Proper nesting occurs when all flat surfaces of the base post, strap, and sign post at the bolts have full contact across the entire width.

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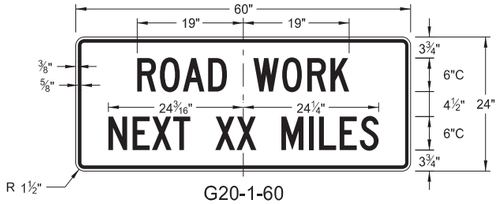
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ENGINEER
NORTH DAKOTA

08/01/24

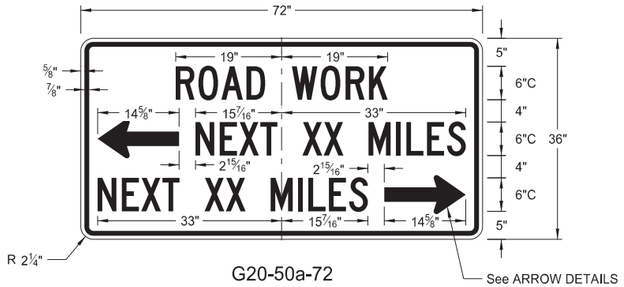
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CONSTRUCTION SIGN DETAILS
TERMINAL AND GUIDE SIGNS

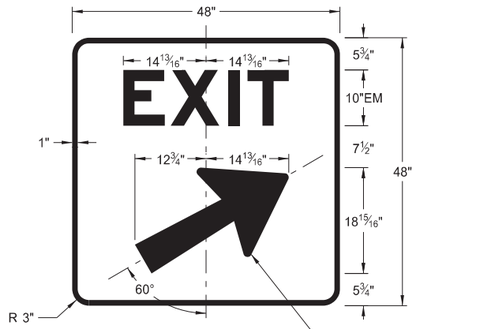
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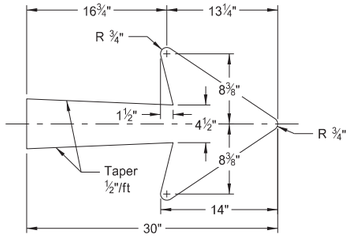
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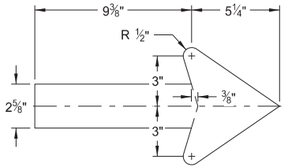
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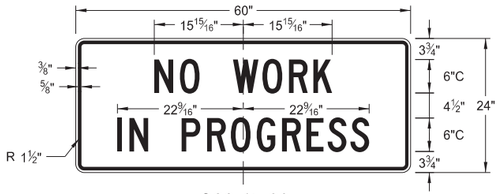
E5-1(L or R)-48
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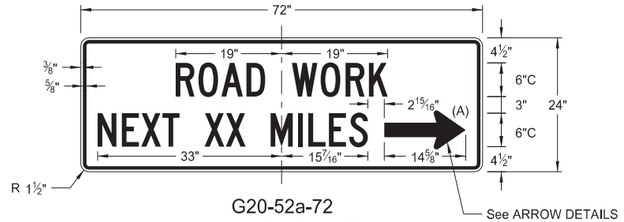
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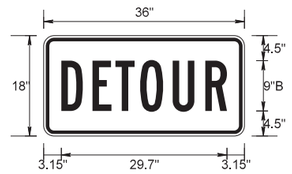
G20-50a-72
G20-52a-72



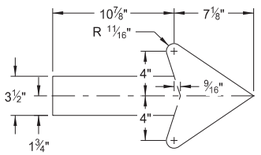
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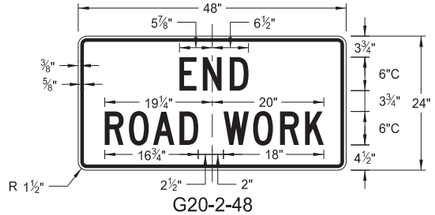
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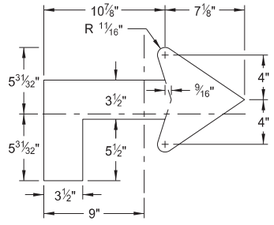
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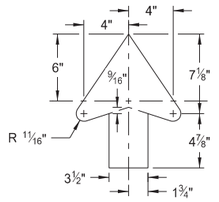
M4-9(L or R)-30
Right or Left



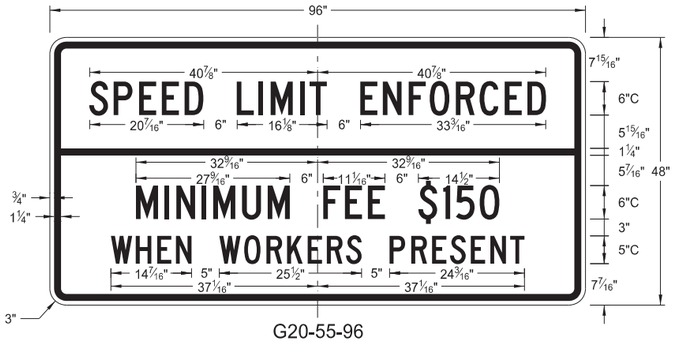
G20-2-48
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M4-9(L or R)-30
Advanced Right or Left



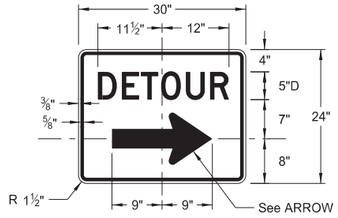
M4-9-30
Straight



G20-55-96
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Background: orange



G20-4b-36
Legend: black (non-refl)
Background: orange



M4-9(L or R)-30 &
M4-9-30
Legend: black (non-refl)
Background: orange

ARROW DETAILS

NOTES:

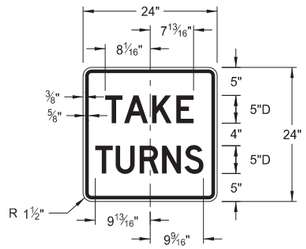
(A) Arrow may be right or left of the legend to indicate construction to the right or left.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
08-17-17	Added sign & background color
10-03-19	New Design Engineer PE Stamp
08-01-24	Electronic Stamp/Signature
06-30-25	Legislative Changes

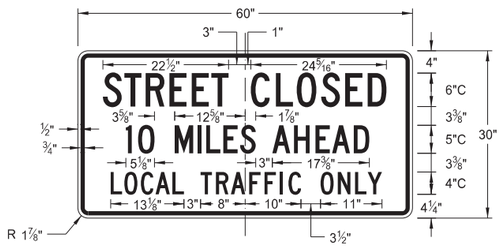
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PE-4683
06/30/25
ENGINEER
NORTH DAKOTA

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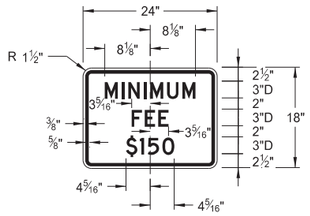
CONSTRUCTION SIGN DETAILS
REGULATORY SIGNS



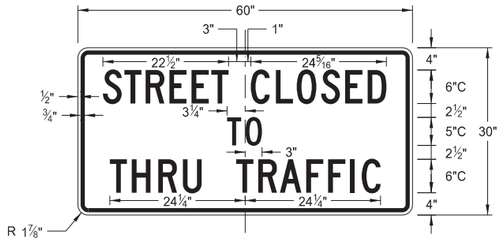
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Background: white



R11-3c-60
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Background: white



R2-1aP-24
Legend: black (non-refl)
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R11-4a-60
Legend: black (non-refl)
Background: white



R11-2a-48
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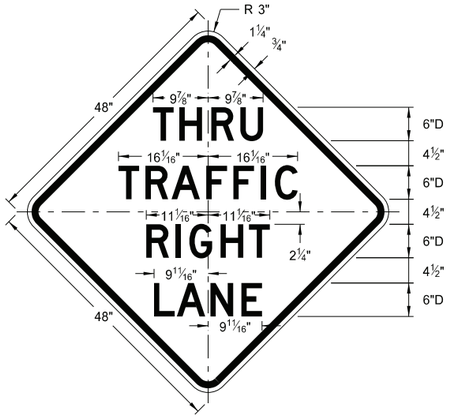
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
08-17-17	Revised sign number
10-03-19	New Design Engineer PE Stamp
08-01-24	Electronic Stamp/Signature
06-30-25	Legislative Changes

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PE-4683
06/30/25
ENGINEER
NORTH DAKOTA

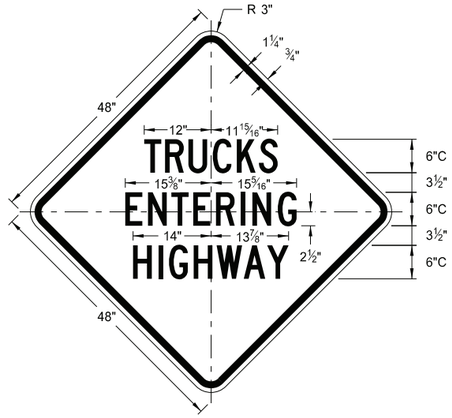
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CONSTRUCTION SIGN DETAILS
WARNING SIGNS

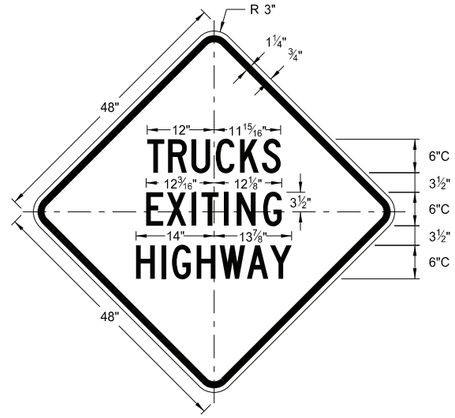
D-704-11



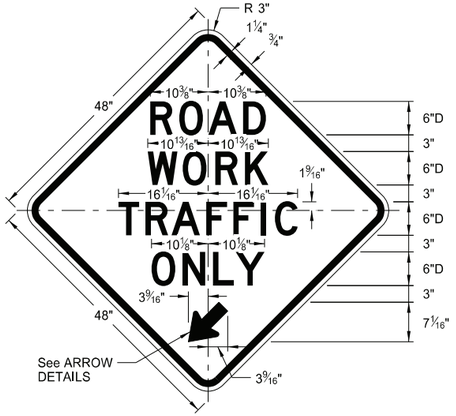
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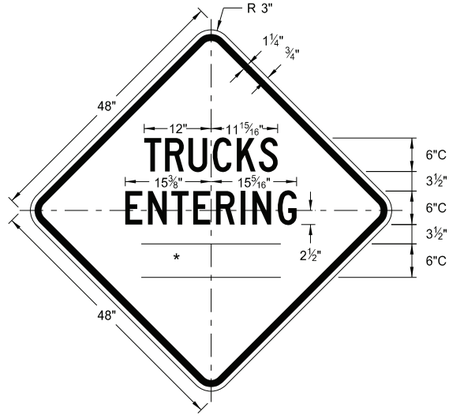
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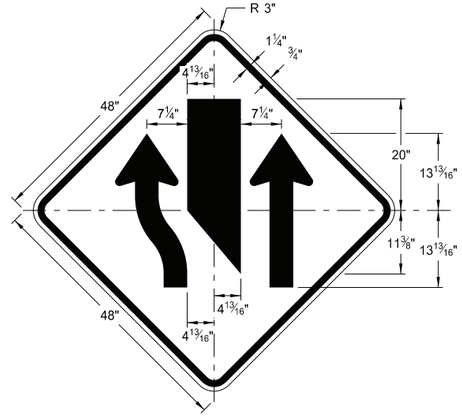
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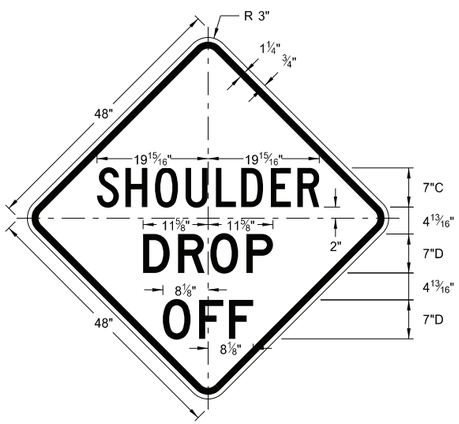
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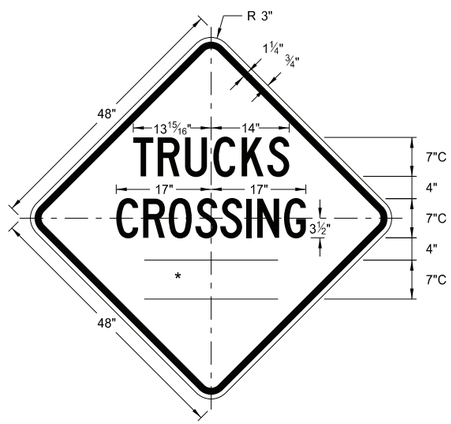
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W9-3a-48
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Background: orange



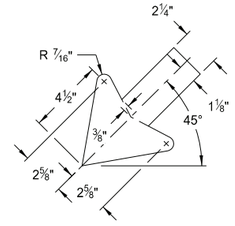
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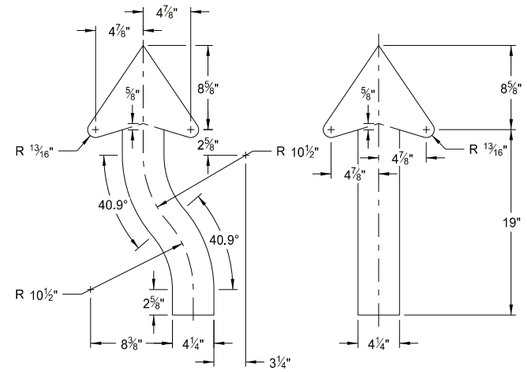
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WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
½ MILE	Reduce 50%
1 MILE	Standard

* DISTANCE MESSAGES



W5-9-48



W9-3a-48

ARROW DETAILS

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated sign number
5-31-18	Revised sign and arrow details
10-03-19	New Design Engineer PE Stamp
8-01-24	Electronic Stamp/Signature

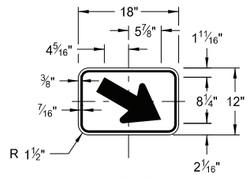
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/01/24

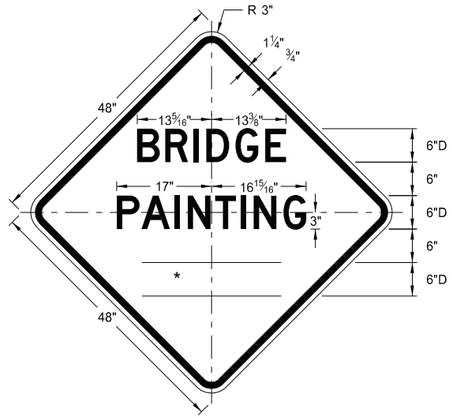
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CONSTRUCTION SIGN DETAILS
WARNING SIGNS

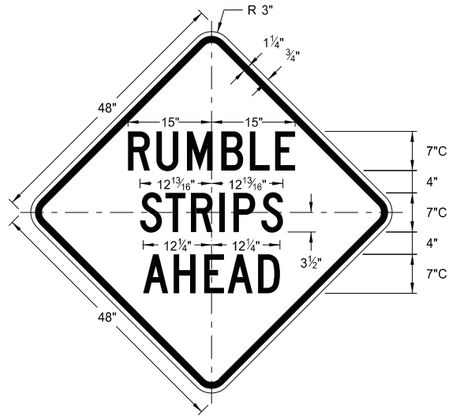
D-704-11A



W16-7aP-18
Legend: black (non-refl)
Background: orange



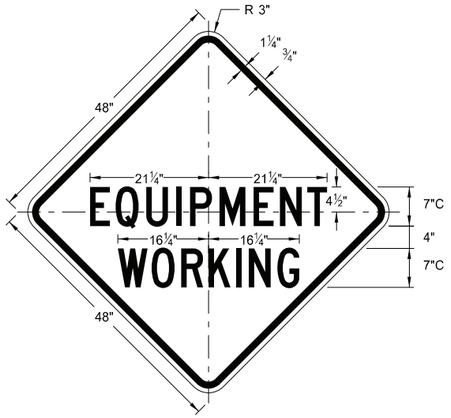
W21-50-48
Legend: black (non-refl)
Background: orange



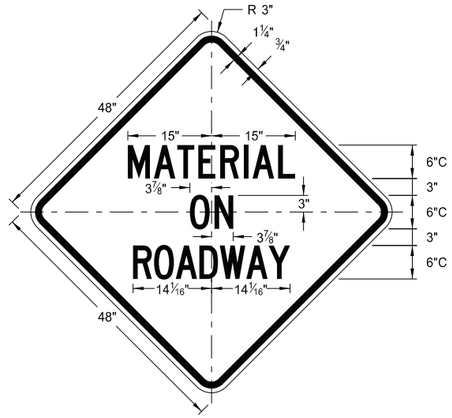
W21-53-48
Legend: black (non-refl)
Background: orange

WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
½ MILE	Reduce 50%
1 MILE	Standard

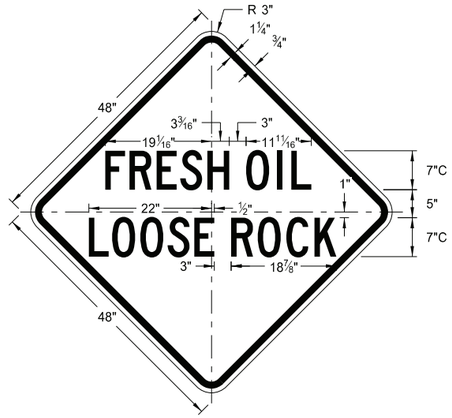
* DISTANCE MESSAGES



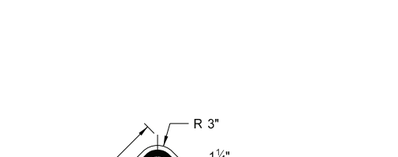
W20-51-48
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Background: orange



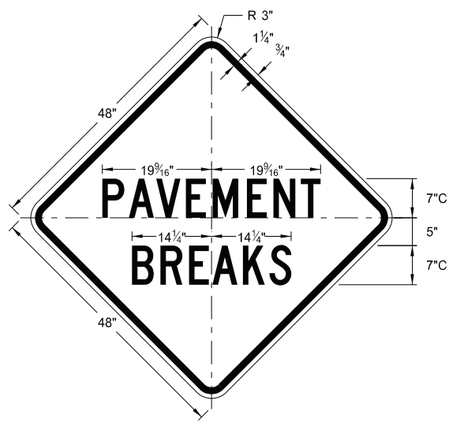
W21-51-48
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Background: orange



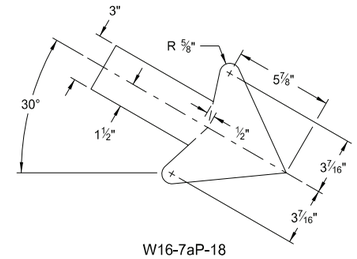
W22-8-48
Legend: black (non-refl)
Background: orange



W20-52P-54
Legend: black (non-refl)
Background: orange



W21-52-48
Legend: black (non-refl)
Background: orange



W16-7aP-18

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
5-31-18	
REVISIONS	
DATE	CHANGE
11-01-19	Added details for sign W16-7aP-18.
8-01-24	Electronic Stamp/Signature.

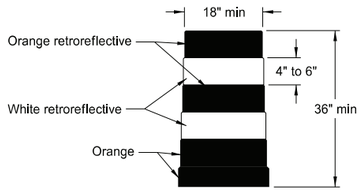
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/01/24

DocuSign Envelope ID: B6D1C72A-6E5E-4E5C-A02F-4D3D1C582775

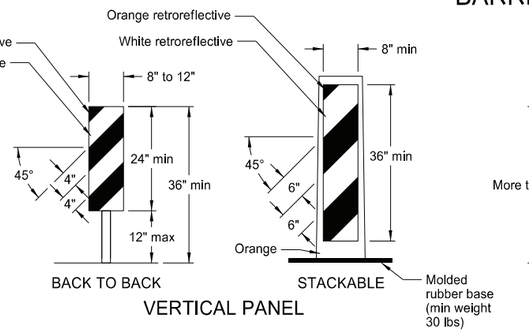
BARRICADE AND CHANNELIZING DEVICE DETAILS

D-704-13



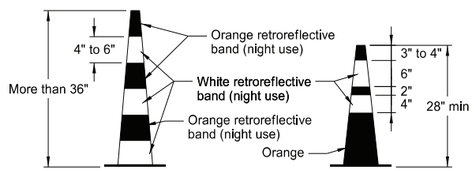
DELINEATOR DRUM

Provide horizontal, circumferential, alternating orange and white retroreflective stripes 4" to 6" wide for drum markings. Use a minimum of two orange and two white stripes with the top stripe being orange for each drum. Do not exceed 3" nonretroreflectorized spaces between the horizontal orange and white stripes. Avoid placement of stripes on drum ribs or indentations. Use closed top drums that will not allow collection of debris. Do not place ballast on the top of drum.



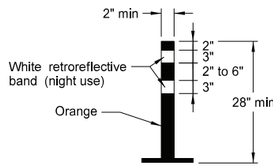
VERTICAL PANEL

Provide alternating orange and white retroreflective stripes, sloping downward in direction vehicular traffic is to pass. Place retroreflective sheeting on both sides of panel with a minimum of 270 square inches of retroreflective area facing vehicular traffic. Where the height of the retroreflective material on the vertical panel is 36 inches or more, use a stripe width of 6 inches.



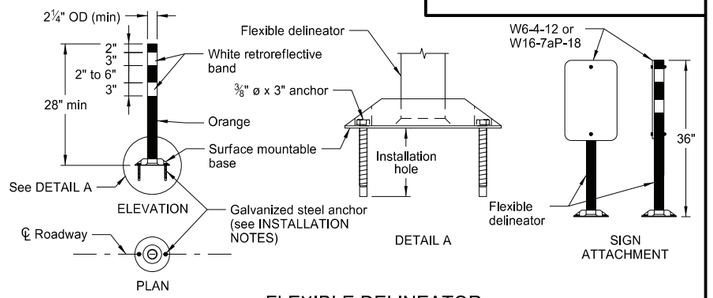
TRAFFIC CONE

Provide retroreflectorization of cones more than 36" in height by alternating orange and white retroreflective stripes. Use a minimum of two orange and two white stripes for each cone with the top stripe being orange. Use maximum 3" nonretroreflectorized space between the orange and white stripes.



TUBULAR MARKER

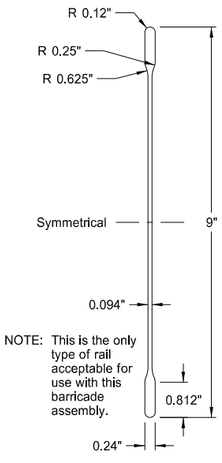
Provide retroreflectorization of tubular markers more than 42" in height by alternating four 4" to 6" wide orange and white stripes with the top stripe being orange.



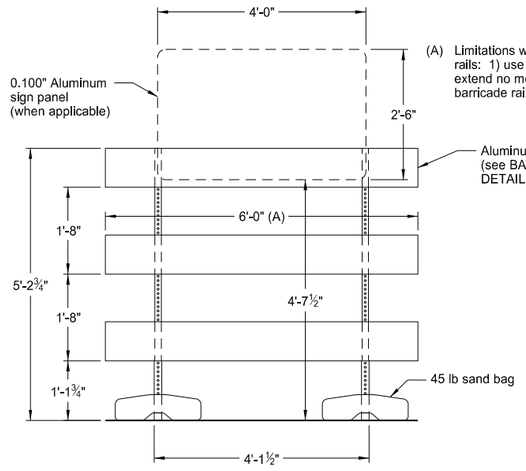
FLEXIBLE DELINEATOR

INSTALLATION NOTES:

1. Drill installation holes to diameter and depth required by manufacturer's specifications.
2. For removal, remove anchors and fill installation hole with an epoxy designed to bond to pavement surface.
3. In lieu of bolted down base, use an 8" x 8" butyl pad or hot melt butyl. Remove butyl as close as possible to pavement surface.

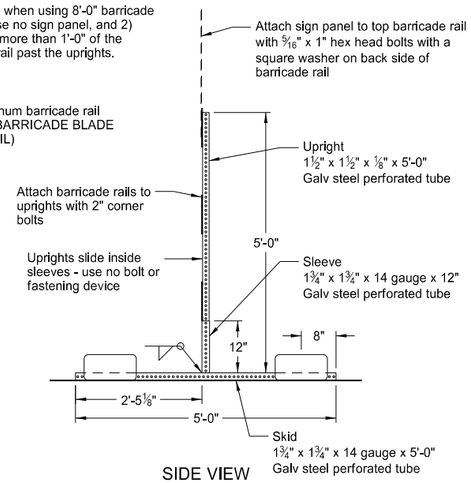


BARRICADE BLADE DETAIL



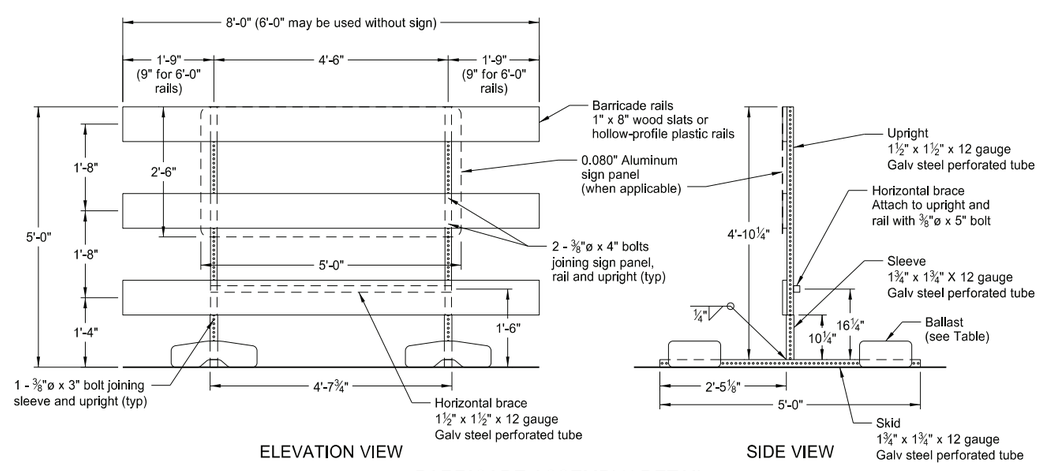
ELEVATION VIEW

(A) Limitations when using 8'-0" barricade rails: 1) use no sign panel, and 2) extend no more than 1'-0" of the barricade rail past the uprights.



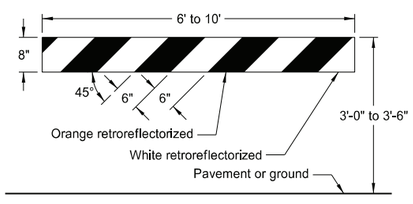
SIDE VIEW

BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)

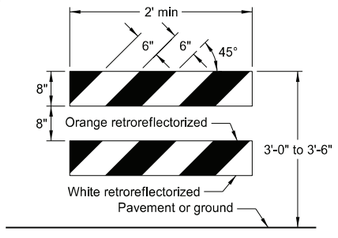


BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)

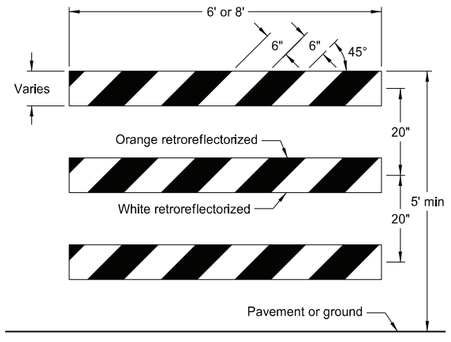
NOTE: For barricade markings use alternating orange and white retroreflective stripes, sloping downward in the direction traffic is to pass. Place retroreflective sheeting on both sides of the rails with a minimum of 270 square inches of visible retroreflective area facing vehicular traffic. When the barricade length is less than 36", use a rail stripe width of 4".



TYPE I BARRICADE

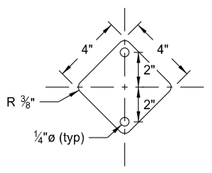


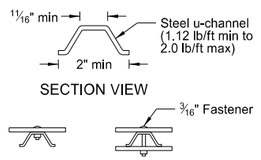
TYPE II BARRICADE

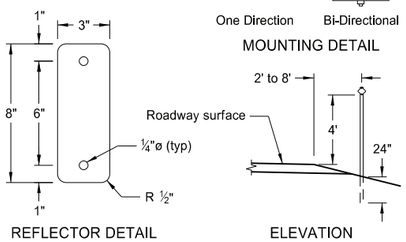


TYPE III BARRICADE

BARRICADE RAIL DETAILS







DELINEATORS

MINIMUM BALLAST
(For each side of barricade support)

Without Sign	4 - 25 lb sandbags
With Sign	6 - 25 lb sandbags

Note: Number of sandbags based on a wind speed of 55 MPH. Sandbags assumed to be placed at or near the ends of the skids.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
11-01-19	Revised details for Flexible Delineator
8-01-24	Electronic Stamp/Signature

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NORTH DAKOTA

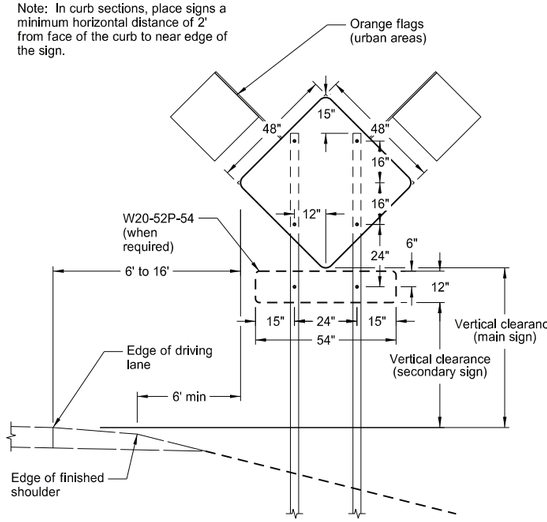
08/01/24

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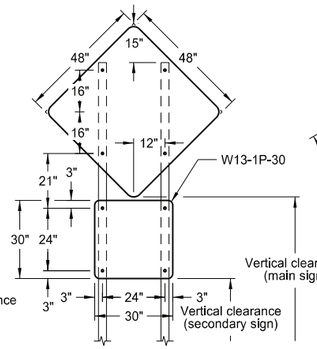
CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

D-704-14

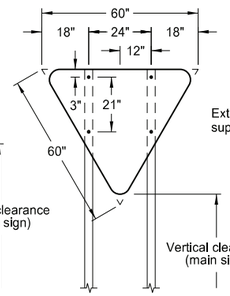
Note: In curb sections, place signs a minimum horizontal distance of 2' from face of the curb to near edge of the sign.



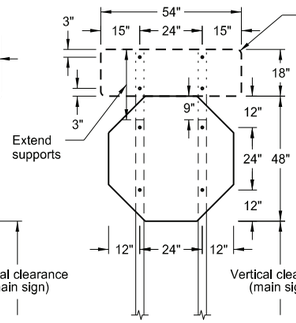
TYPICAL SECTION
(48" x 48" diamond warning sign shown)



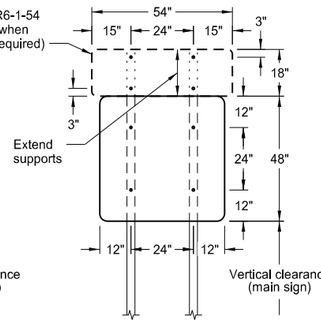
48" x 48" DIAMOND SIGN
(with 30" x 30" secondary sign)



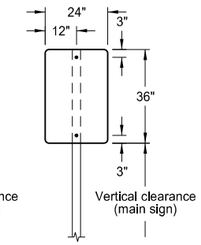
R1-2-60 - YIELD SIGN



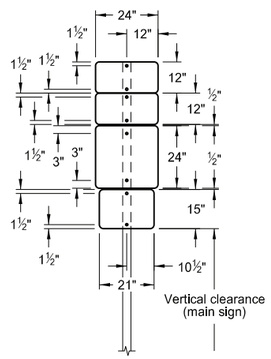
R1-1-48 - STOP SIGN
(with R6-1-54 sign as required)



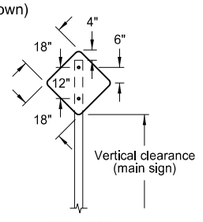
48" x 48" SIGN
(with R6-1-54 sign as required)



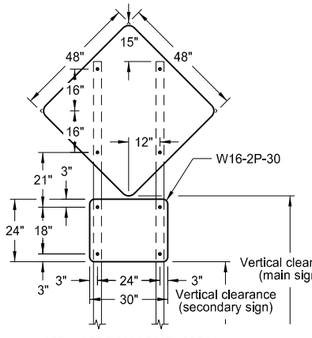
24" x 36" SIGN



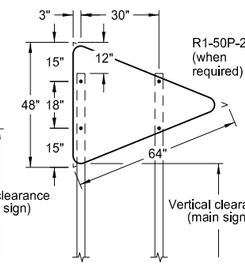
24" x 24"
ROUTE MARKER
ASSEMBLY



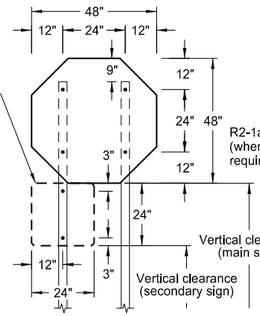
18" x 18"
DIAMOND SIGN



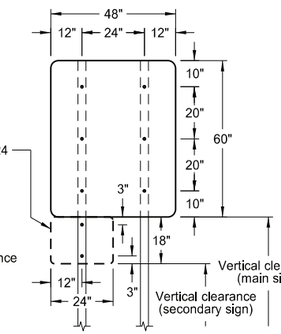
48" x 48" DIAMOND SIGN
(with 30" x 24" secondary sign)



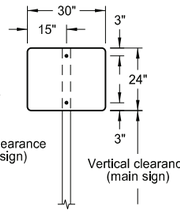
W14-3-64 - PENNANT SIGN



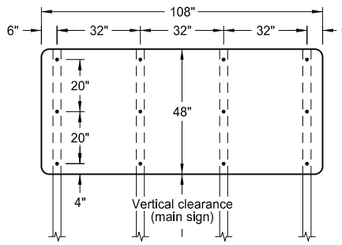
R1-1-48 - STOP SIGN
(with R1-50P-24 sign as required)



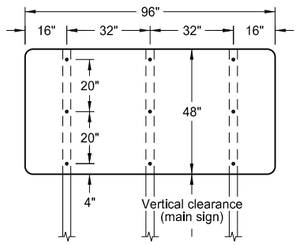
48" x 48" SIGN
(with R2-1aP-24 sign as required)



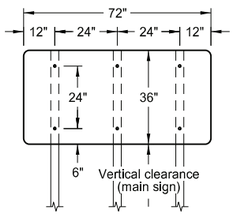
30" x 24" SIGN



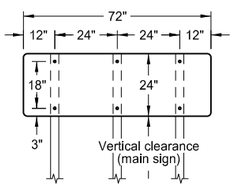
108" x 48" SIGN



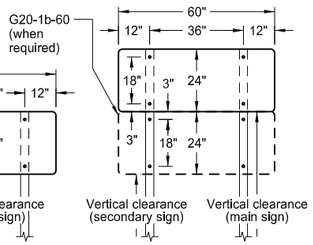
96" x 48" SIGN



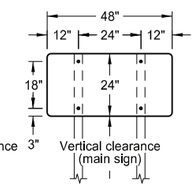
72" x 36" SIGN



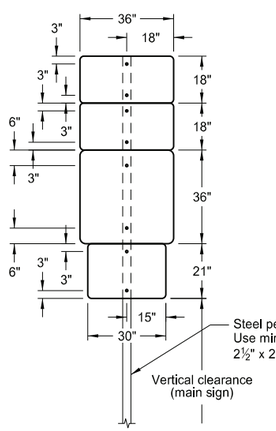
72" x 24" SIGN



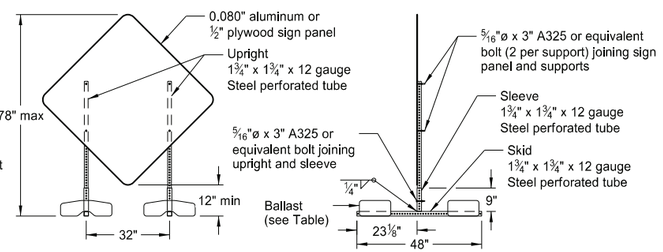
60" x 24" SIGN



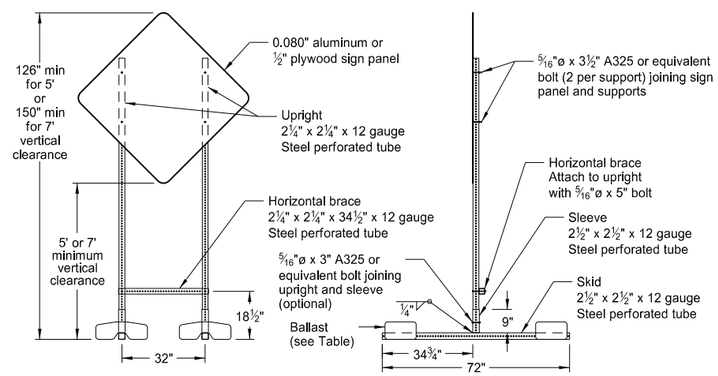
48" x 24" SIGN



36" x 36"
ROUTE MARKER
ASSEMBLY



PORTABLE SIGN SUPPORT
LOW-MOUNTING HEIGHT



PORTABLE SIGN SUPPORT
HIGH-MOUNTING HEIGHT

NOTES:

1. Sign Supports: Galvanize or paint supports. Minimum post sizes are 2.5 lb/ft u-channel or 2" x 2" x 12 gauge steel perforated tube, except where noted. When installing signs on u-channel, minimum post size for assemblies containing a secondary sign is 3.0 lb/ft. Post sizes based on a wind speed of 55 MPH.

   Place signs over 50 square feet on 2½" x 2½" perforated tube supports as a minimum.

   Do not attach guy wires to sign supports. Attach wind beams behind sign panels when used with u-posts.

2. Sign Panels: Provide sign panels made of 0.100" aluminum, ½" plywood, or other approved material, except where noted. Punch all holes round for ⅜" bolts.

3. Alternate Messages: Install and remove alternate message signs on reflectorized plate (without borders) as required. (i.e. "Left" and "Right" message on lane closure sign)

4. Route Marker Auxiliary Signs: Provide route marker auxiliary signs, such as the cardinal direction and directional arrows, with a background and legend that match the route marker they are used with:

   Interstate - white legend on blue background
   Interstate Business Loop - white legend on green background
   US and State - black legend on white background
   County - yellow legend on blue background

5. Vertical Clearance: Install signs with a vertical clearance of 5'-0" (see TYPICAL SECTION.) In areas where parking or pedestrian movements are likely or the view of the sign may be obstructed, install signs with a vertical clearance of 7'-0" from the top of the curb or from the near edge of the driving lane in absence of a curb.

   The vertical clearance to secondary signs is 1'-0" less than the vertical clearance stated above.

   Provide a minimum clearance of 7'-0" from the ground at the post for signs with an area exceeding 50 square feet.

6. Portable Signs: Provide portable signs that meet the vertical clearance stated above when it is necessary to place signs within the pavement surface.

   Use of low-mounting height (minimum 12" vertical clearance) portable signs for 5 days or less, is allowed as long as the view of the sign is not obstructed. Time delays caused by unforseen circumstances, such as equipment breakdown, rain, subgrade failures, etc., will not accrue towards the 5 day period. Use of R9-8 through R9-11a series, W1-6 through W1-8 series, M4-10, and E5-1 is allowed for longer than 5 days.

   Restrict signs mounted on portable sign supports shown in the LOW-MOUNTING HEIGHT and HIGH-MOUNTING HEIGHT details to a maximum surface area of 16 square feet.

MINIMUM BALLAST
(For each side of sign support base)

Sign Panel Mounting Height (ft)	Number of 25 lb sandbags for 4' x 4' sign panel
1'	6
5'	8
7'	10

Note: The number of sandbags are based on a wind speed of 55 MPH. Place sandbags at or near the ends of skids.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

10-4-13

REVISIONS

DATE	CHANGE
11-14-13	Revised Note 6
9-27-17	Updated to active voice
11-01-19	Revised 60"x24" sign detail
8-01-24	Electronic Stamp/Signature

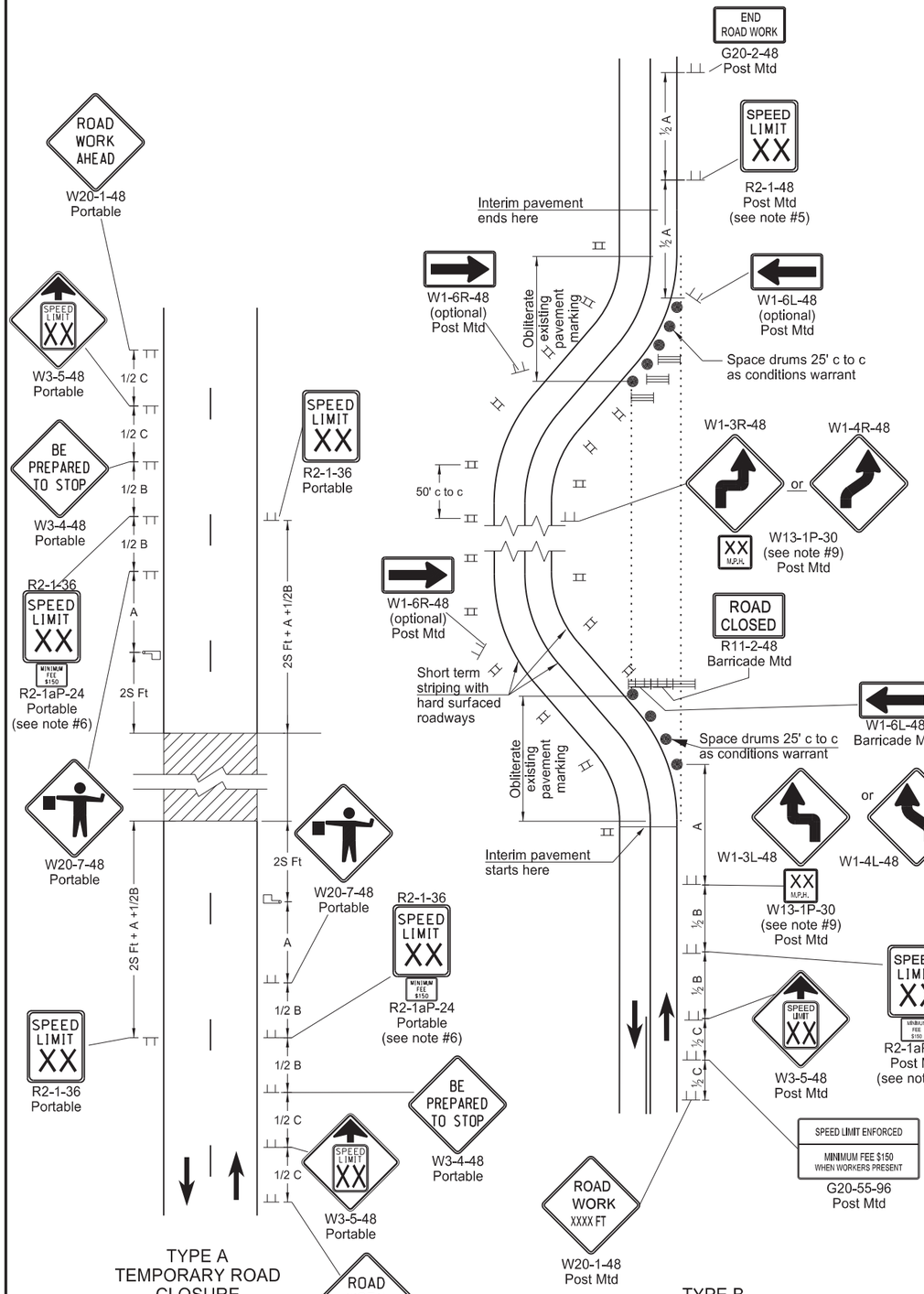
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/01/24

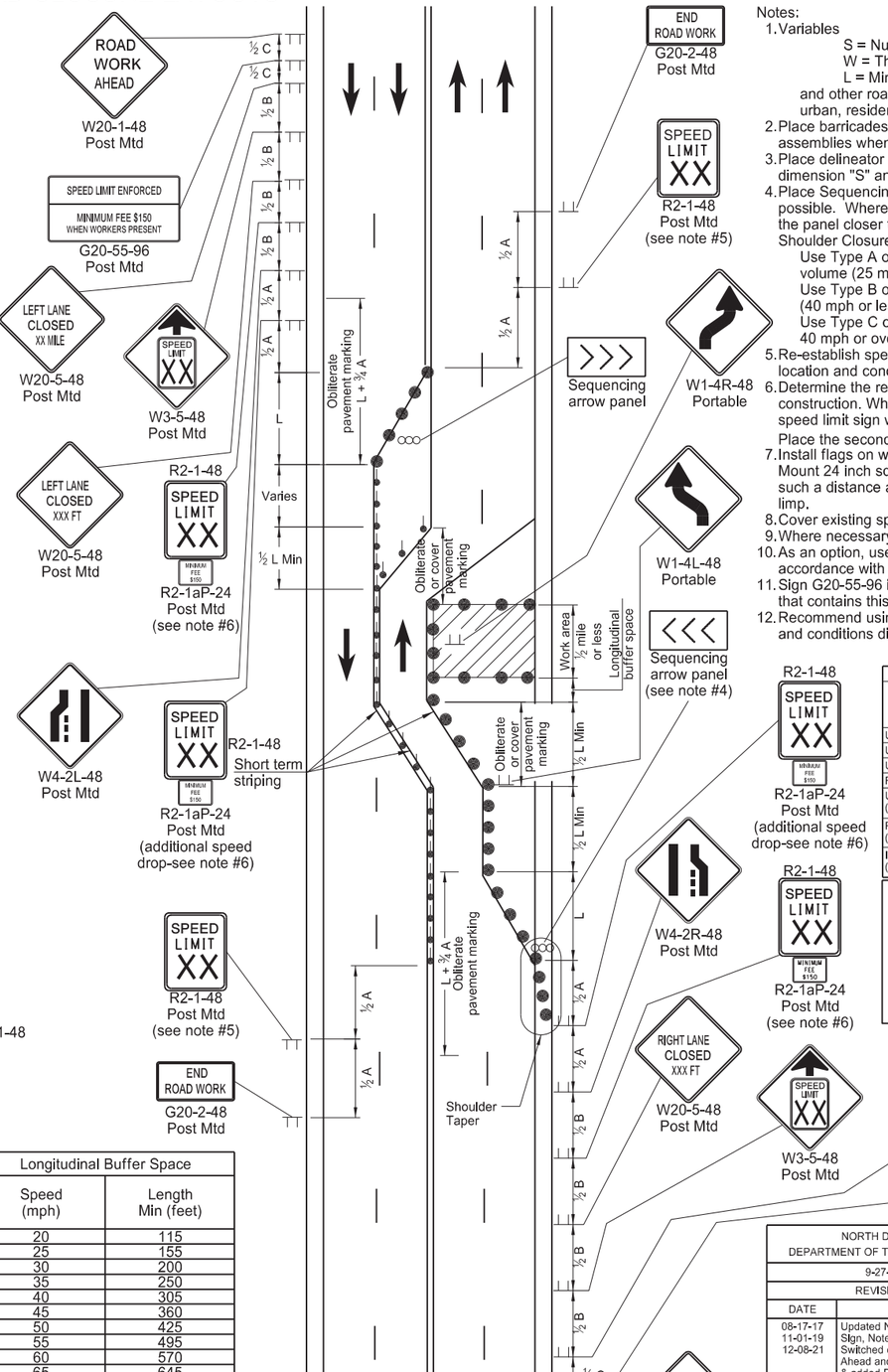
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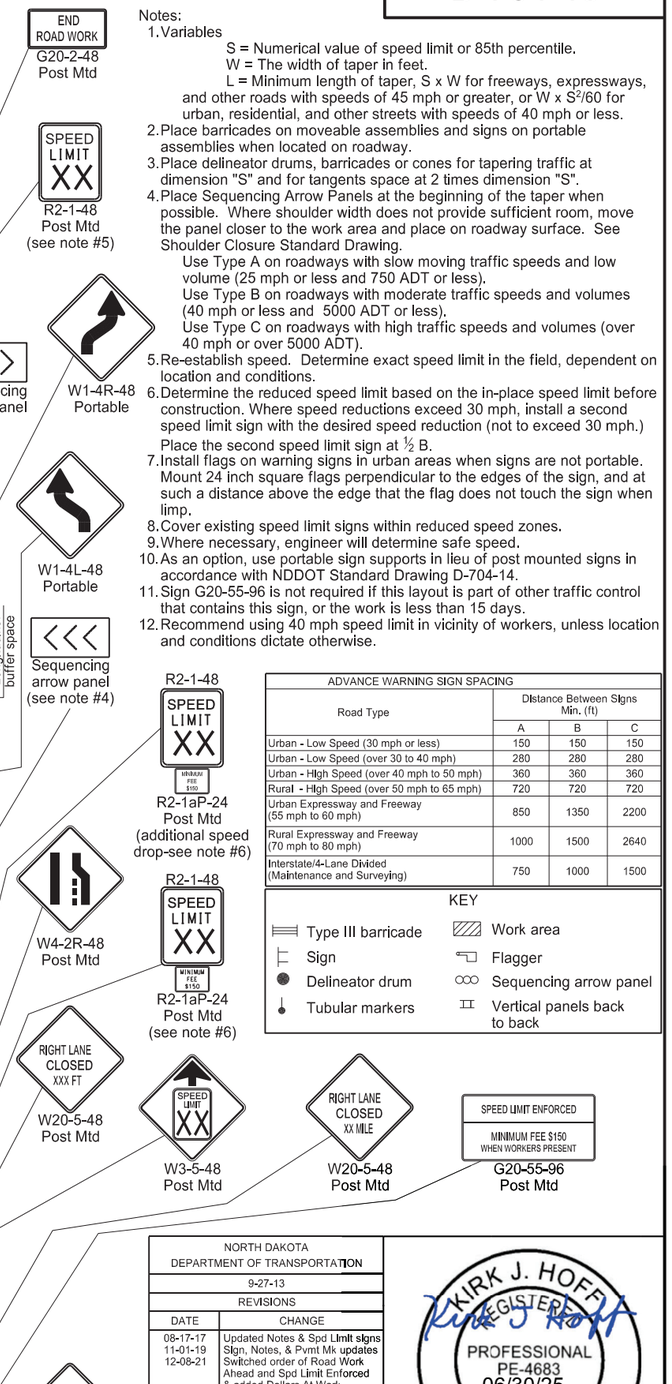
ROAD CLOSURE LAYOUTS

D-704-15



Longitudinal Buffer Space	
Speed (mph)	Length Min (feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820
80	910





Notes:

1. Variables
   S = Numerical value of speed limit or 85th percentile.
   W = The width of taper in feet.
   L = Minimum length of taper, S x W for freeways, expressways, and other roads with speeds of 45 mph or greater, or W x $S^2/60$ for urban, residential, and other streets with speeds of 40 mph or less.
2. Place barricades on moveable assemblies and signs on portable assemblies when located on roadway.
3. Place delineator drums, barricades or cones for tapering traffic at dimension "S" and for tangents space at 2 times dimension "S".
4. Place Sequencing Arrow Panels at the beginning of the taper when possible. Where shoulder width does not provide sufficient room, move the panel closer to the work area and place on roadway surface. See Shoulder Closure Standard Drawing.
   Use Type A on roadways with slow moving traffic speeds and low volume (25 mph or less and 750 ADT or less).
   Use Type B on roadways with moderate traffic speeds and volumes (40 mph or less and 5000 ADT or less).
   Use Type C on roadways with high traffic speeds and volumes (over 40 mph or over 5000 ADT).
5. Re-establish speed. Determine exact speed limit in the field, dependent on location and conditions.
6. Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½ B.
7. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
8. Cover existing speed limit signs within reduced speed zones.
9. Where necessary, engineer will determine safe speed.
10. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
11. Sign G20-55-96 is not required if this layout is part of other traffic control that contains this sign, or the work is less than 15 days.
12. Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

KEY

- Type III barricade
- Sign
- Delineator drum
- Tubular markers
- Work area
- Flagger
- Sequencing arrow panel
- Vertical panels back to back

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

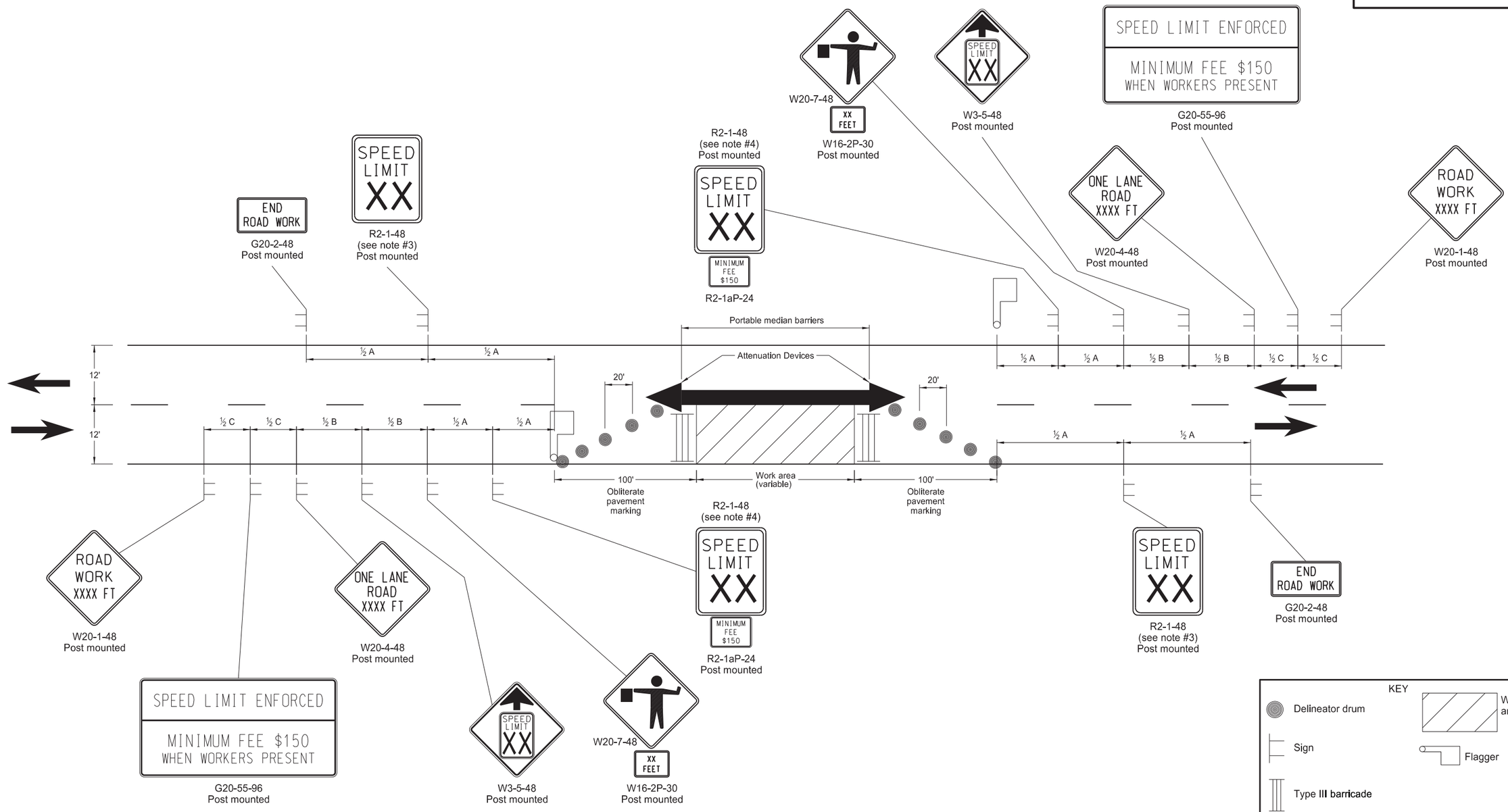
DATE	CHANGE
08-17-17	Updated Notes & Spd Limit signs
11-01-19	Sign, Notes, & Pvmt Mk updates
12-08-21	Switched order of Road Work Ahead and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work
06-30-25	Legislative Changes

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Docusign Envelope ID: 2F5C9714-A0E1-42BB-B36B-42204844BFCB

SIGN LAYOUT FOR ONE LANE CLOSURE TWO LANE ROADWAY

D-704-17



ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

Notes:
1. Place barricades on moveable assemblies and signs on portable assemblies when located on roadway.
2. Remove existing striping as required. Use back to back delineators when inslope is 4:1 or flatter and roadway alignment is visible to approaching vehicles. Place back to back vertical panels when roadways have steep slopes and alignment is not visible to approaching traffic.
3. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
4. Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 MPH, install a second speed limit sign with the desired speed reduction (not to exceed 30 MPH.) Place the second speed limit sign at ½B.
5. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
6. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
7. Cover existing speed limit signs within a reduced speed zone.
8. Sign G20-55-96 is not required if this layout is part of other traffic control that contains this sign, or if work is less than 15 days.
9. Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

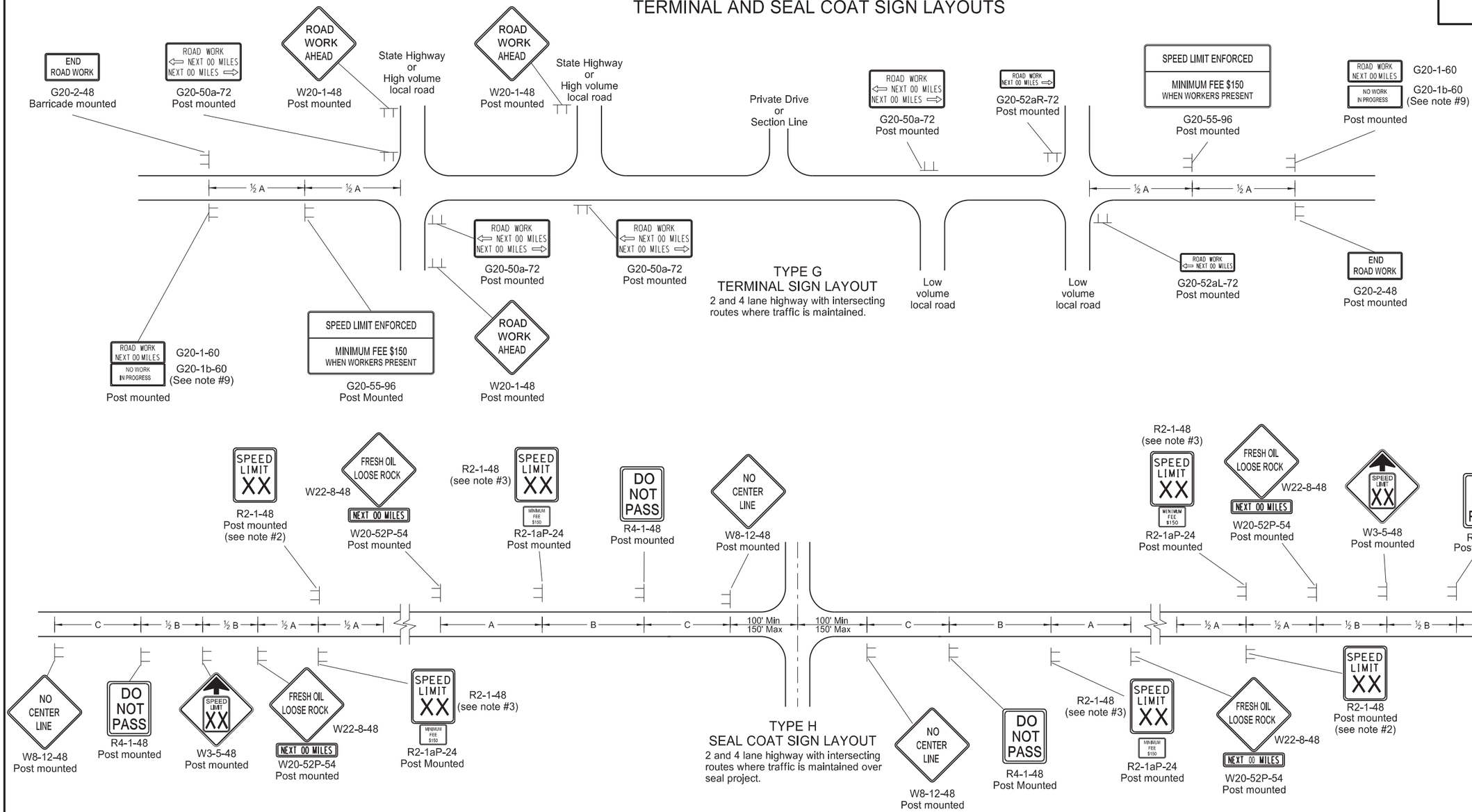
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
08-17-17	Note update & sign numbers
11-01-19	Removed signs & revised note
12-08-21	Switched order of Road Work XXXX and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work
08-21-24	Pvmt Mkg Width & Med Barrier
06-30-25	Legislative Changes

KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 06/30/25 ENGINEER NORTH DAKOTA

Docusign Envelope ID: 2F5C9714-A0E1-42BB-B36B-42204844BFCB

TERMINAL AND SEAL COAT SIGN LAYOUTS

D-704-20



Notes:

1. Place barricades on moveable assemblies and signs on portable assemblies when located on roadway.
2. Determine the exact speed limit in the field, based on location and conditions.
3. Determine the reduced speed limit based on the in place speed limit before construction. Where speed limit reductions exceed 30 MPH, install a second speed limit sign with the desired speed reduction (not to exceed 30 MPH.) Place the second speed limit sign at ½ B.
4. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
5. Cover existing speed limit signs within a reduced speed zone.
6. On seal coat projects, place signs R2-1-48, R2-1aP-24, R4-1-48, W22-8-48 and W20-52P-54 after all important intersections and at five mile intervals. Place sign W8-12-48 after all important intersections and at 2 mile intervals until short term center line pavement marking is placed.
7. As an option, use portable sign supports in lieu of post mounted signs in accordance with the NDDOT Standard Drawing D-704-14.
8. Cover or remove speed limit signs from layout Type H when loose aggregate is removed.
9. Install sign G20-1b-60 when work is suspended for winter.
10. Use other traffic control layouts in immediate work areas. Place sign R2-1aP-24 below speed limit signs in reduced speed limit work areas.
11. Sign G20-55-96 is not required if this layout is part of other traffic control that contains this sign, or the work is less than 15 days.
12. Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

DATE	CHANGE
08-17-17	Updated notes & sign numbers
11-01-19	Updated note & sign
12-08-21	Switched order of Road Work and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work
06-30-25	Legislative Changes

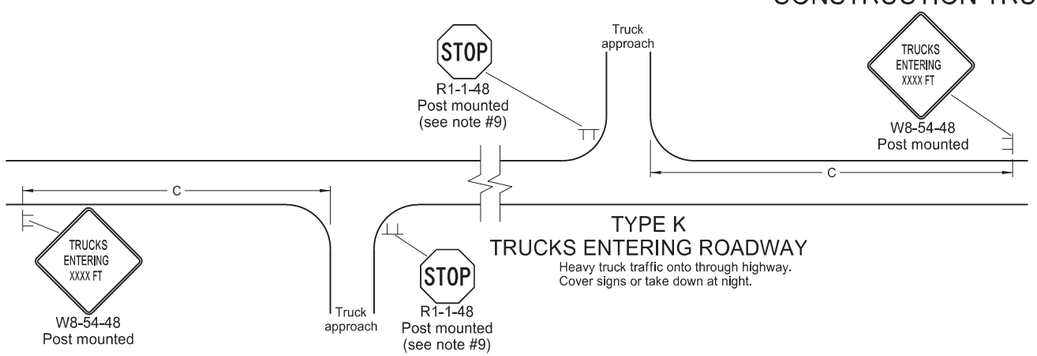
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 06/30/25 ENGINEER NORTH DAKOTA

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CONSTRUCTION TRUCK AND TEMPORARY DETOUR LAYOUTS

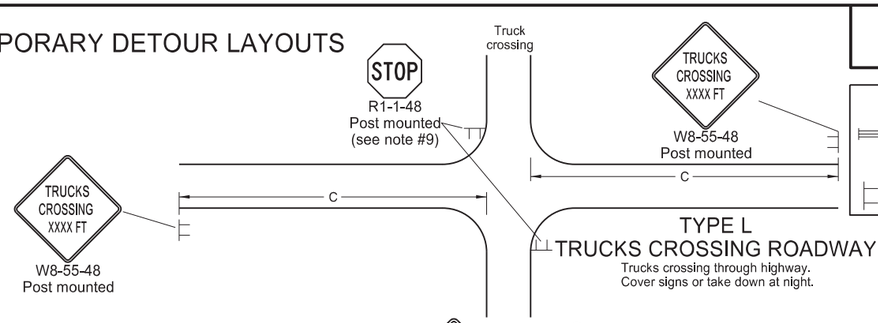
D-704-22

KEY: Type III barricade; Work area; Sign; Flagger



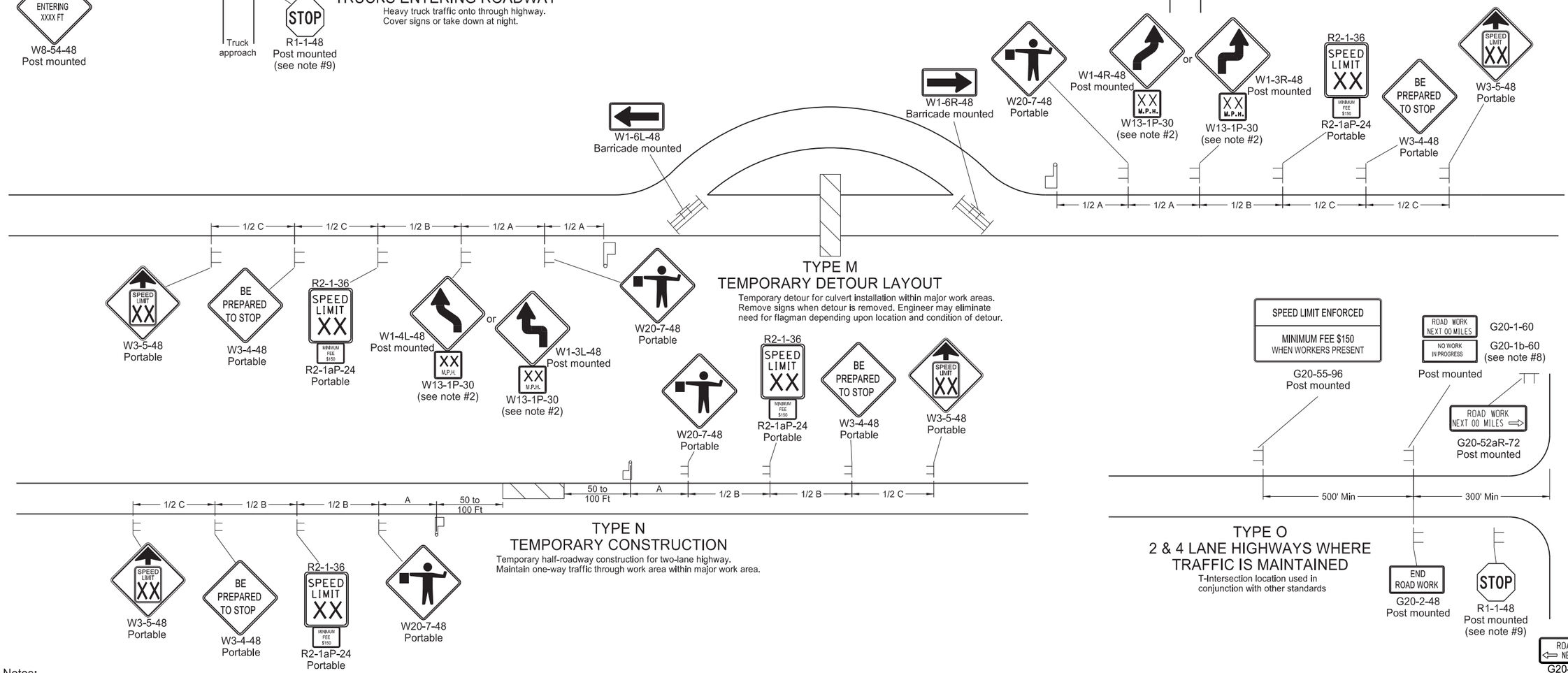
TYPE K
TRUCKS ENTERING ROADWAY

Heavy truck traffic onto through highway.
Cover signs or take down at night.



TYPE L
TRUCKS CROSSING ROADWAY

Trucks crossing through highway.
Cover signs or take down at night.



TYPE M
TEMPORARY DETOUR LAYOUT

Temporary detour for culvert installation within major work areas.
Remove signs when detour is removed. Engineer may eliminate need for flagman depending upon location and condition of detour.

TYPE N
TEMPORARY CONSTRUCTION

Temporary half-roadway construction for two-lane highway.
Maintain one-way traffic through work area within major work areas.

TYPE O
2 & 4 LANE HIGHWAYS WHERE TRAFFIC IS MAINTAINED

T-Intersection location used in conjunction with other standards

Notes:

1. Place barricades on a moveable assemblies and signs on portable assemblies when located on roadway.
2. Where necessary, safe speed to be determined by the Engineer.
3. Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½ B.
4. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
5. Cover existing speed limit signs within a reduced speed zone.
6. Covered (when approved by engineer) or obliterated pavement marking measured as Obliteration of Pavement Marking.
7. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
8. Install sign G20-1b-60 when work is suspended for winter.
9. If existing stop sign is in place, a 48" stop sign is not required.
10. Sign G20-55-96 is not required if layout is part of other traffic control that contains this sign, or if work is less than 15 days.
11. Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

ADVANCE WARNING SIGN SPACING

Road Type	Distance Between Signs Min. (ft) A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

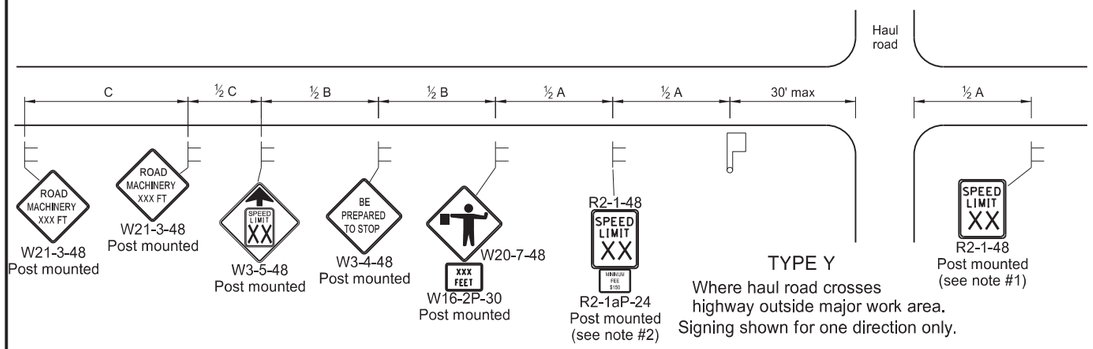
DATE	CHANGE
08-17-17	Update notes & sign numbers
11-01-19	Revised sign numbers & note 7
12-09-21	Added Speed Limit Enforced and Dollars At Work signs
11-29-22	Removed Dollars At Work
06-30-25	Legislative Changes

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06/30/25
ENGINEER
NORTH DAKOTA

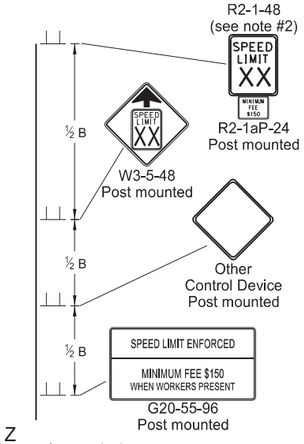
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MISCELLANEOUS SIGN LAYOUTS

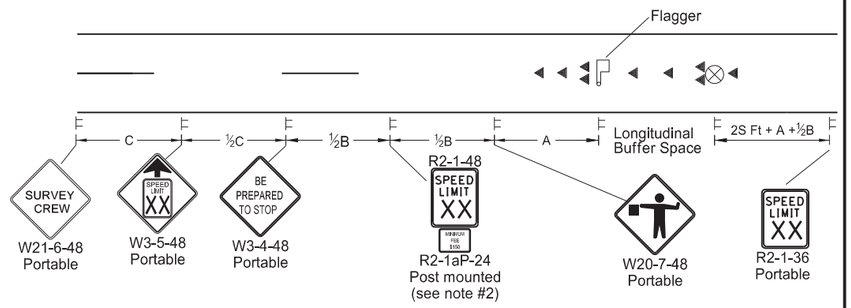
D-704-26



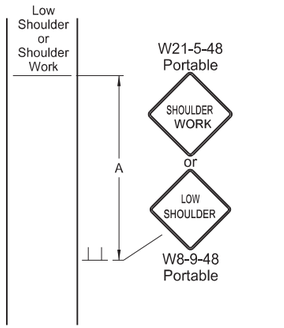
TYPE Y
Where haul road crosses highway outside major work area.
Signing shown for one direction only.



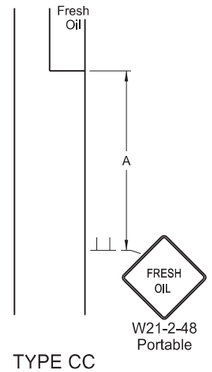
TYPE Z
Where speed zone is needed
Signing shown for one direction only.



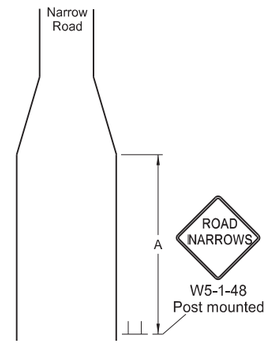
TYPE AA
Where survey crew is used
Signing shown for one direction only.



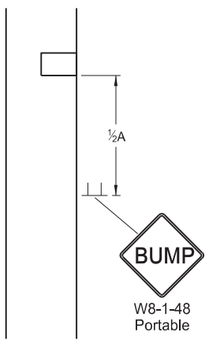
TYPE BB
Within major work area where sign conditions exist



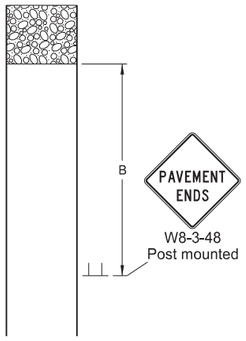
TYPE CC
Where sign conditions exist



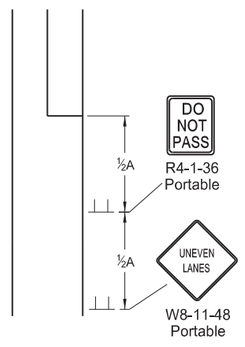
TYPE DD
Where sign conditions exist



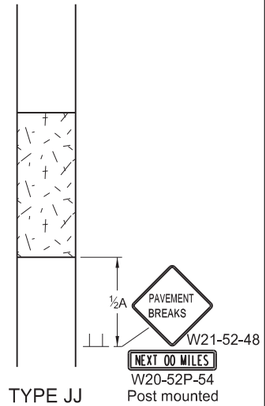
TYPE EE
Where sign conditions exist



TYPE FF
Where sign conditions exist
Signing shown for one direction only.

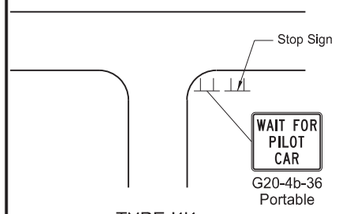


TYPE GG
Where elevation difference exists between lanes



TYPE JJ
For break in pavement.
Install signs when conditions exist and remove when not applicable.
Signing shown for one direction only.

KEY
Flagger
Sign
Cones
Survey Equipment
S = Numerical value of speed limit or 85th percentile.



TYPE KK
At major intersections within pilot car control area

Notes
1. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
2. Determine reduced speed limit based on in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½B.
3. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
4. Cover existing speed limit signs within reduced speed zones.
5. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
6. Sign G20-55-96 is not required if this standard is part of other traffic control layouts, or work is less than 15 days.
7. When pilot car operation is used, place sign G20-4b-36 "Wait For Pilot Car" at major intersections within pilot car control area.
8. Recommend 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.
9. Layouts shown for one direction only.

ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

Longitudinal Buffer Space	
*Speed (mph)	Length Min (feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820
80	910

* Posted speed, off-peak 85th percentile speed prior to work starting, or the anticipated operating speed in mph.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

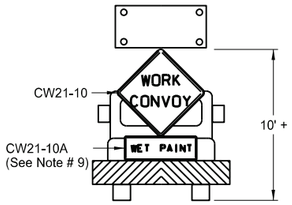
DATE	CHANGE
08-17-17	Added speed limit signs. Updated notes & sign numbers
11-01-19	Revised note 5 & sign numbers
02-23-23	Revised distance & removed signs
06-30-25	Legislative Changes

KIRK J. HOFF
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PE-4683
06/30/25
ENGINEER
NORTH DAKOTA

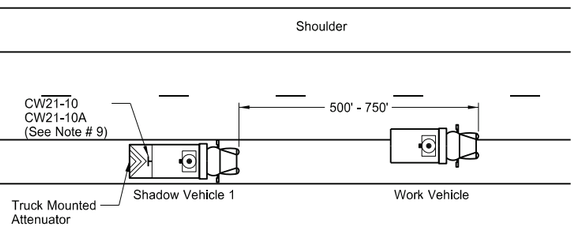
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MOBILE OPERATION
(PAVEMENT MARKING)

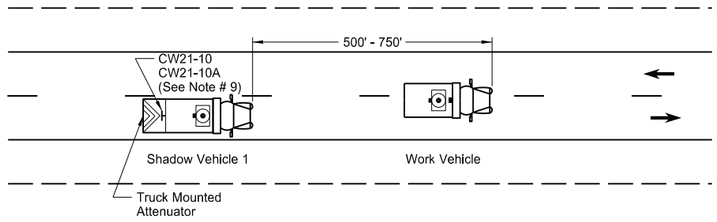
D-704-27



Typical Shadow Vehicle 1
Two-Way Roaday

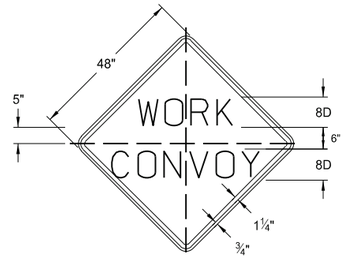


Two-Way Roadway with Paved Shoulders

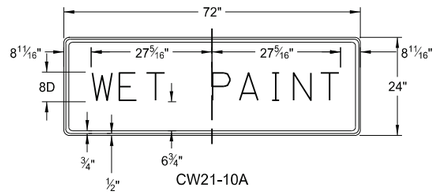


Two-Way Roadway without Paved Shoulders

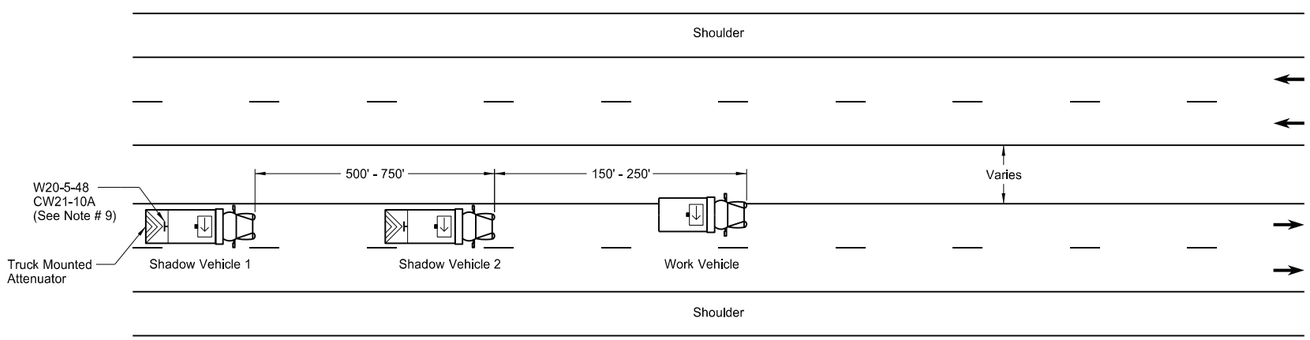
Sign Details



CW21-10

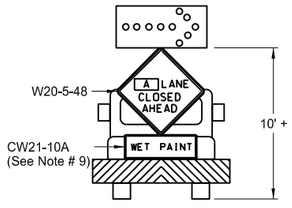


CW21-10A



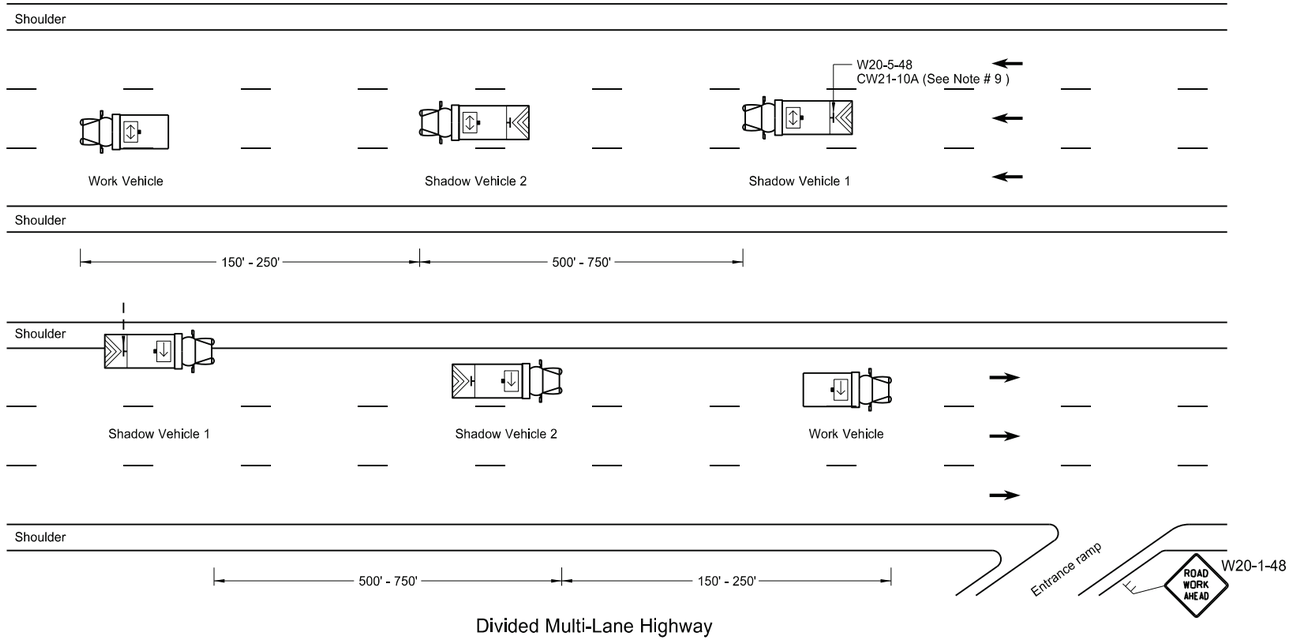
Undivided Multi-Lane Roadway

Notes
1. Use additional vehicles you choose to be in the convoy with truck mounted attenuators, at your own expense.
2. Display yellow rotating beacons or stobe lights on shadow and work vehicles, unless otherwise stated in the plans.
3. Use Type B or Type C flashing arrow panels controlled from inside the vehicle.
4. Provide each vehicle with two-way electronic communication capability.
5. Move shadow vehicle 1 first to shadow other convoy vehicles when convoy changes lane.
6. Vary vehicle spacing between shadow vehicle 1 and shadow vehicle 2 based on sight distance restrictions. Motorists approaching the work convoy need to see trail vehicle in time to slow down and/or change lanes as they approach shadow vehicle.
7. Sign Colors
   Letters = Black
   Border = Black
   Background = Orange
8. As an option, use shadow vehicle 2 the paint tender vehicle.
9. Use sign CW21-10A only during painting operation.
10. Pull over work and shadow vehicles periodically to allow motor vehicle traffic to pass on two lane - two way roadways.



Typical Shadow Vehicle 1 & 2
Multi-Lane Highways

A = Left Right Center



Divided Multi-Lane Highway

KEY

- Sign
- Truck mounted attenuator
- Flashing arrow panels:
  - Right directional
  - Left directional
  - Double arrow directional
  - Caution Mode

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

DATE	CHANGE
6-18-14	Removed shadow vehicle 2 on two lane roadways
9-27-17	Updated to active voice
11-08-19	Changed Standard Heading
8-02-24	Electronic Stamp/Signature.

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/02/24

Docusign Envelope ID: E17899F0-B912-4482-BF85-7148763D5F5D

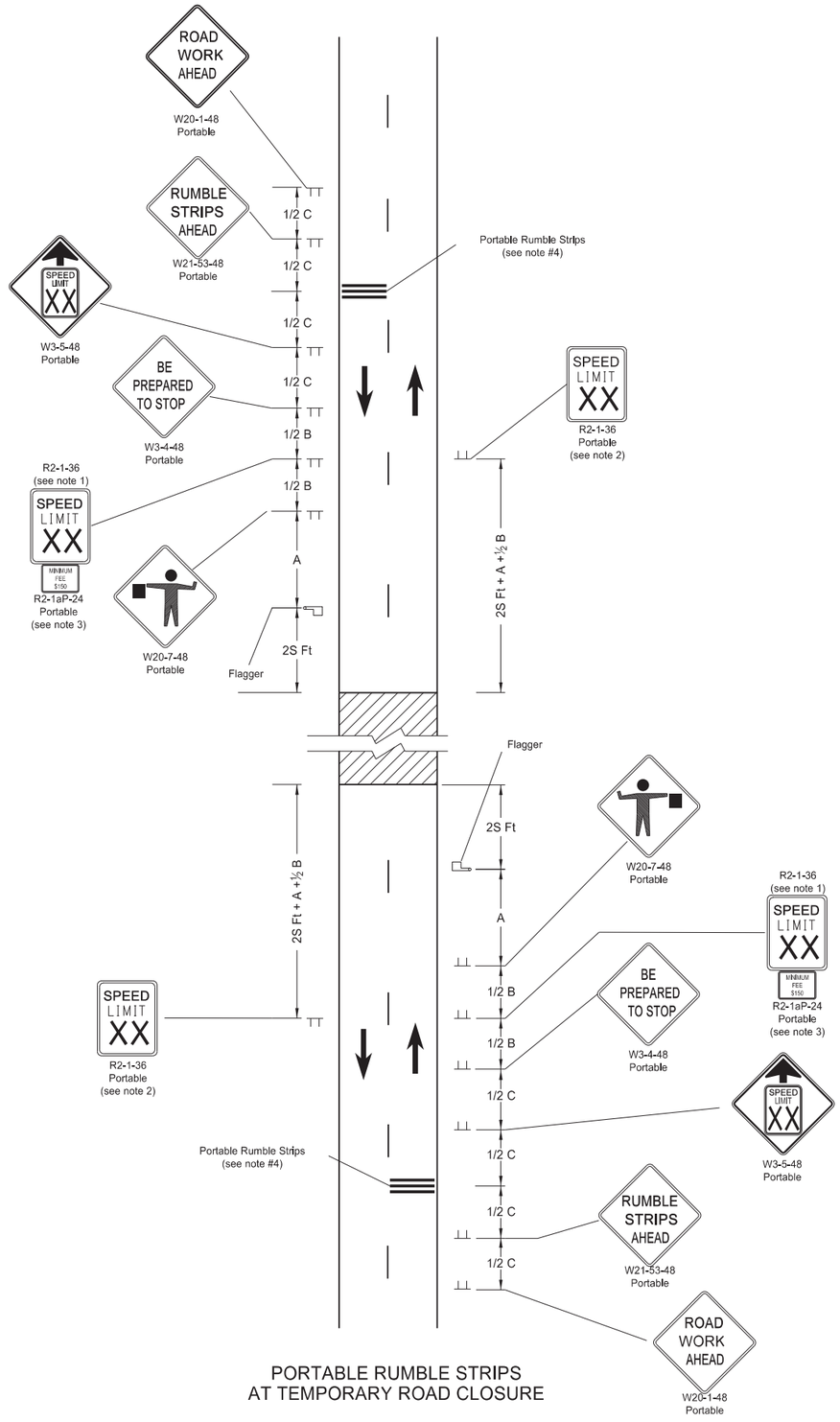
Two-Lane Roadway Portable Rumble Strips

KEY

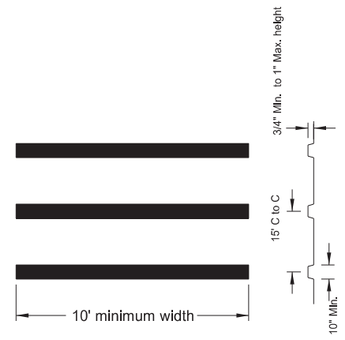
- Work area
- Flagger
- Sign

S = Numerical value of speed limit or 85th percentile.

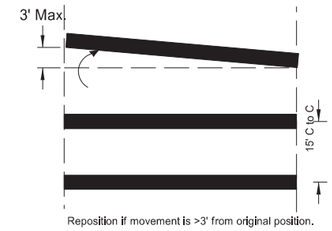
ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - High Speed (over 45 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720



PORTABLE RUMBLE STRIPS
AT TEMPORARY ROAD CLOSURE

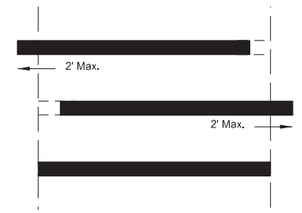


PORTABLE RUMBLE STRIPS ARRAY DETAIL



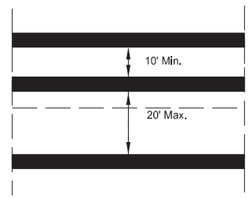
Reposition if movement is >3' from original position.

Skewing



Reposition if movement is >2' from original position.

Lateral



Reposition if distance between strips is <10' or >20'.

Perpendicular to Travel with or against traffic

PORTABLE RUMBLE STRIPS ARRAY TYPES OF MOVEMENT AND MAXIMUM ALLOWANCES

Notes:

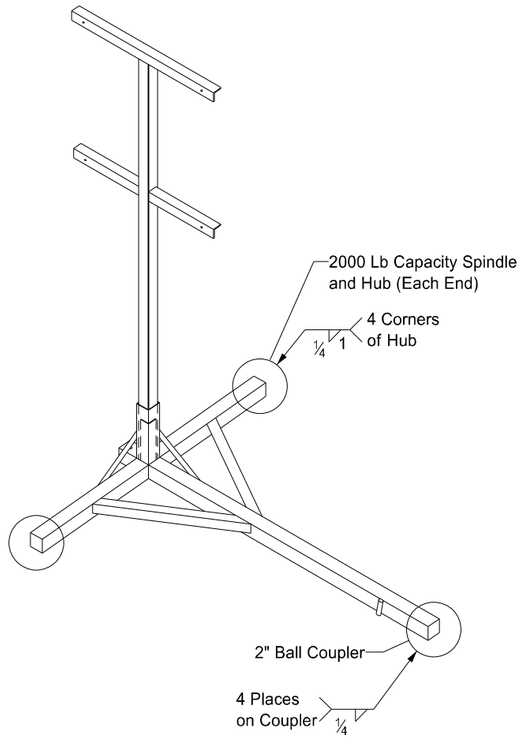
1. Determine speed in the field based on location and conditions.
2. Re-establish the speed limit. Determine the exact speed limit in the field, dependent on location and conditions.
3. Sign R2-1aP-24 is not required when pilot car operation is used.
4. Do not use rumble strips on a non paved surface or in a pre-construction speed zone of 45 mph or less.

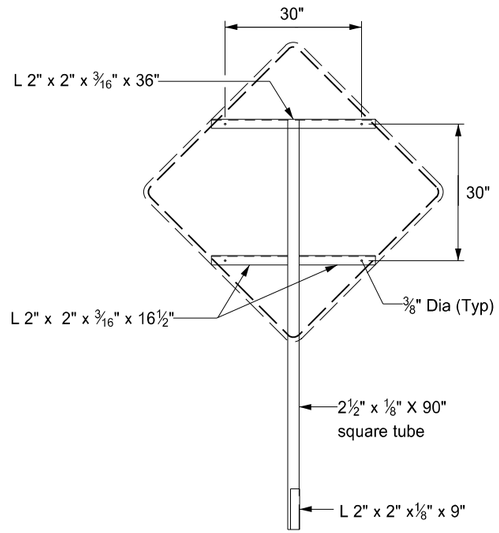
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
02-22-22	
REVISIONS	
DATE	CHANGE
03-07-23	Use changed to min 45 mph
06-30-25	Legislative Changes

KIRK J. HOFF
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06/30/25
ENGINEER
NORTH DAKOTA

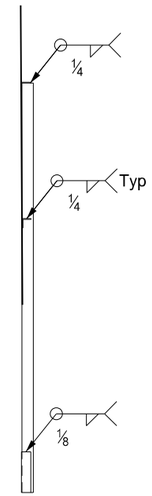
PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50





FRONT

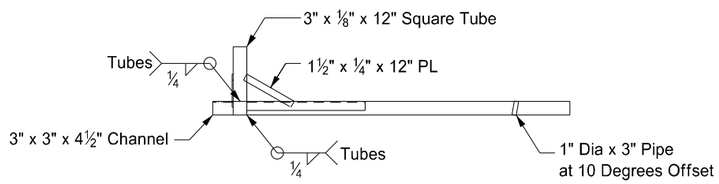


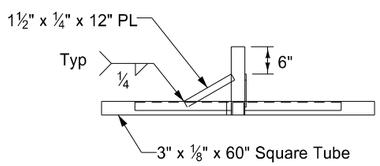
RIGHT

SIGN SUPPORT

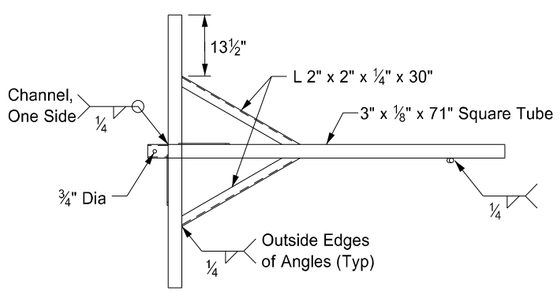
Notes:

1. Maximum 250 pound weight of assembly.
2. Use a 14" wheel and tire.
3. Use no automotive and equipment axle assemblies for trailer-mounted sign supports.
4. Other NCHRP 350 or MASH crash tested assemblies are acceptable.





RIGHT



TOP

TRAILER

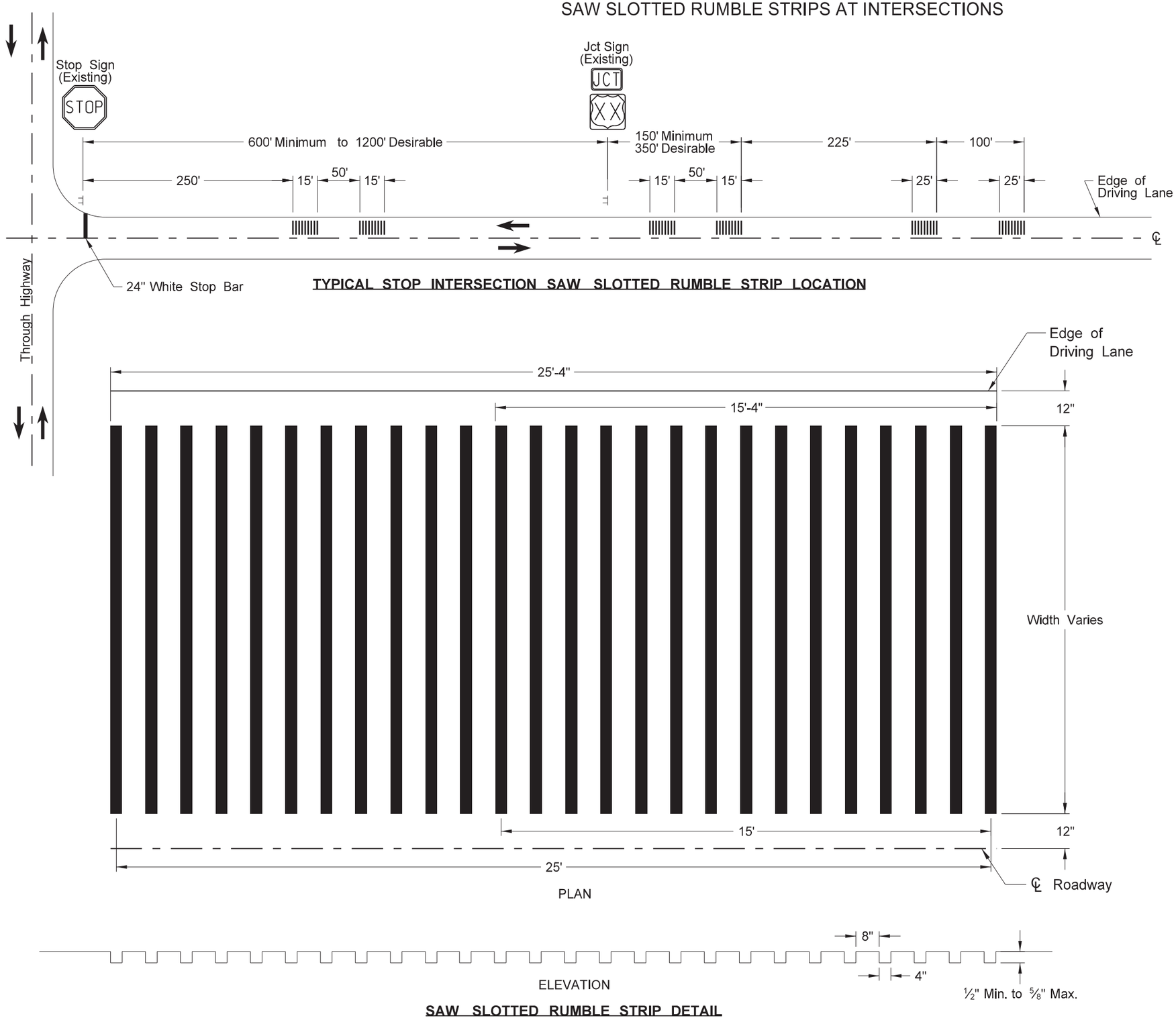
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-23-10	
REVISIONS	
DATE	CHANGE
12/02/2020	Updated Note to active voice.

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ENGINEER
NORTH DAKOTA
Kirk J Hoff
12 02 2020

DocuSign Envelope ID: C174DEDF-0A0D-4A6A-B116-79082F516368

SAW SLOTTED RUMBLE STRIPS AT INTERSECTIONS

D-760-5



SAW SLOTTED RUMBLE STRIP DETAIL

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-29-09	
REVISIONS	
DATE	CHANGE
2-22-10	Saw Slotted width revised.
2-25-10	Note 7 was added.
9-08-11	Revised Notes and D-760-5.
7-07-14	Deleted Notes.
8-27-19	New Design Engr PE Stamp.
8-09-24	Electronic Stamp/Signature.

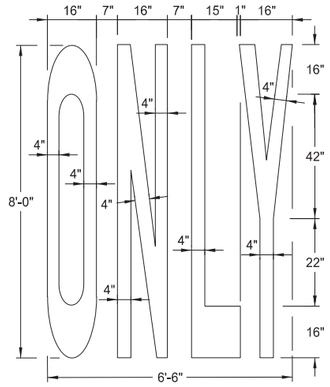
KIRK J. HOFFA
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/09/24

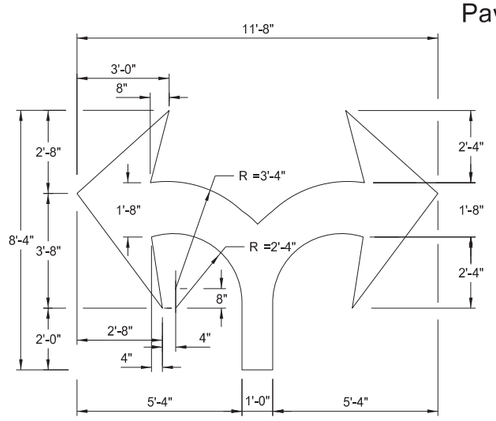
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Pavement Marking Message Details

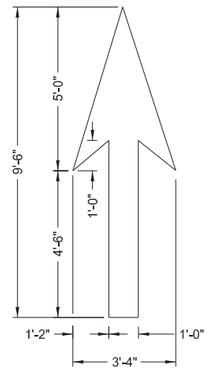
D-762-1



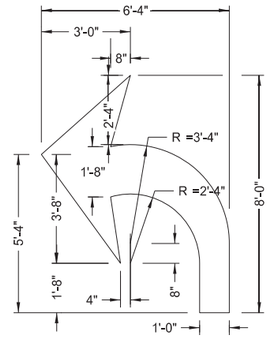
22 S. F.



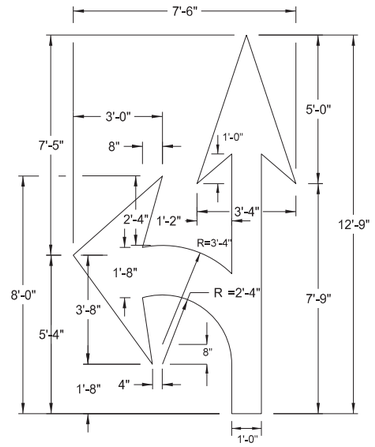
29 S. F.



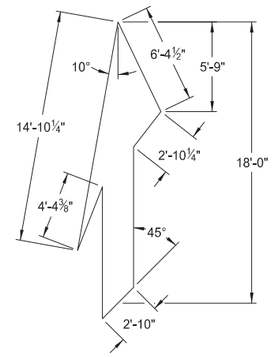
12 S. F.



16 S. F.

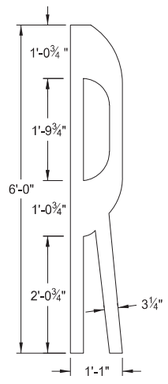


27 S. F.

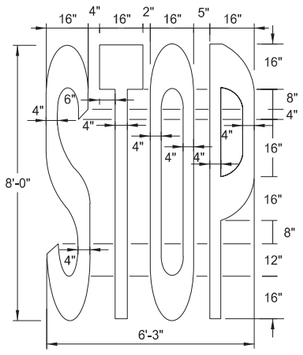


41 S. F.

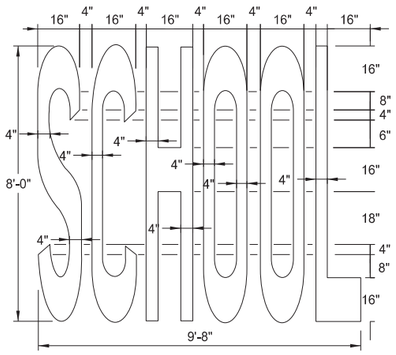
Note: Rotate merge arrow 20° from edge of roadway.



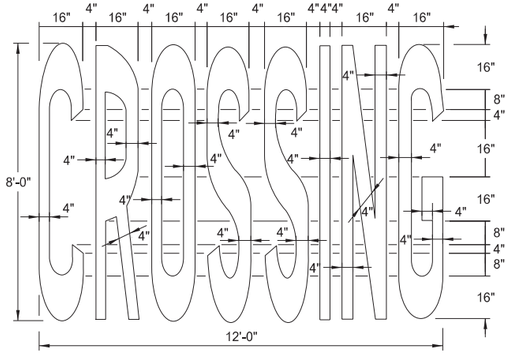
4 S. F.



22 S. F.



34.5 S. F.

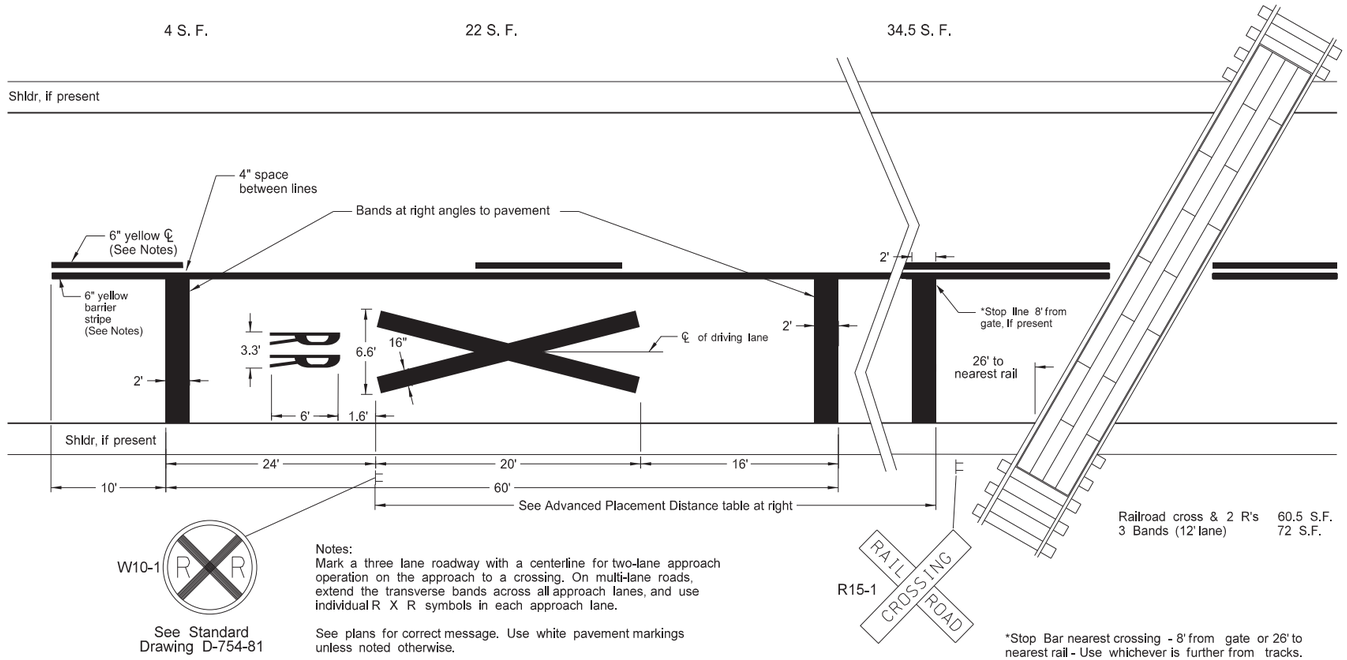


46 S. F.

Speed Limit	Chevron Width	Chevron Spacing 45° to Traffic
0-25 mph	8"	5'
30-40 mph	8"	15'
45 mph and above	12"	25'

Chevron Crosshatching Table

Centerline Pavement Marking Skip Spacing Detail



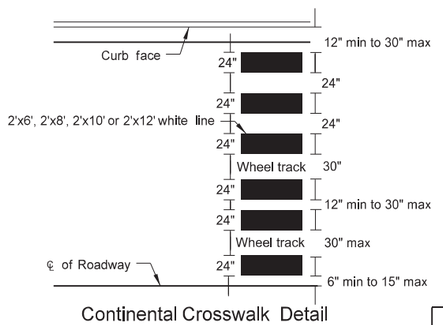
Notes:
Mark a three lane roadway with a centerline for two-lane approach operation on the approach to a crossing. On multi-lane roads, extend the transverse bands across all approach lanes, and use individual R X R symbols in each approach lane.

See plans for correct message. Use white pavement markings unless noted otherwise.

Railroad cross & 2 R's 60.5 S.F.
3 Bands (12' lane) 72 S.F.

*Stop Bar nearest crossing - 8' from gate or 26' to nearest rail - Use whichever is further from tracks.

Advance Placement Distance for Railroad Warning Signs	
Posted or 85th Percentile Speed	Advance Distance
20 mph	min. 100 ft
25 mph	min. 100 ft
30 mph	min. 100 ft
35 mph	min. 100 ft
40 mph	125 ft
45 mph	175 ft
50 mph	250 ft
55 mph	325 ft
60 mph	400 ft
65 mph	475 ft
70 mph	550 ft



Continental Crosswalk Detail

NOTES:

1. Normal width line - 6 inches wide for freeways, expressways, and ramps; 6 inches for all other roadways with speed limits > 40 mph.
2. Use 4 or 6 inch wide pavement marking for all other roadways with speed limits ≤ 40 mph.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

12-6-11

REVISIONS

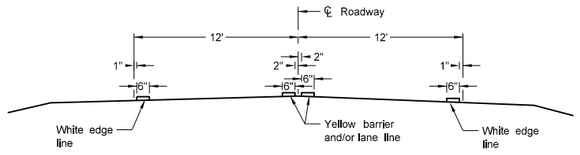
DATE	CHANGE
10-17-17	Updated to active voice.
08-27-19	New Design Engineer PE Stamp.
01-28-2020	Revised min Stop Bar distance to rail.
11-22-2023	Revised pavement marking widths.

KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 11/22/23 ENGINEER NORTH DAKOTA

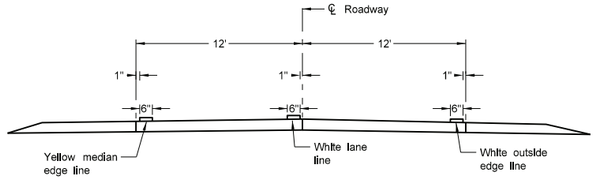
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PAVEMENT MARKING

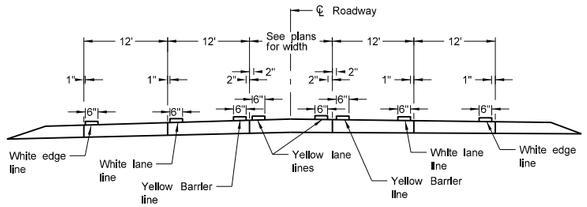
D-762-4



Two Lane Two Way
RURAL ROADWAY



Two Lane Roadway
INTERSTATE HIGHWAY
Concrete Section



RURAL FIVE LANE ROADWAY
Concrete Section

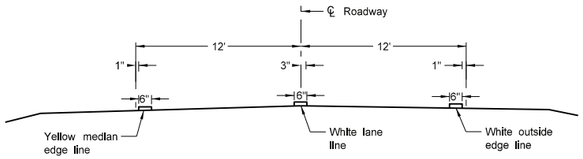
NOTES:

1. Continue edge lines through private drives and field drives. Break edge lines for intersections.

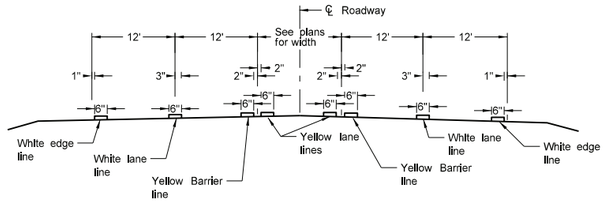
   For section lines, county roads, and street approaches, stripe the radii and edge lines of the paved surface within the right of way except where curb and gutter is present.

2. Normal width line - 6 inches wide for freeways, expressways, and ramps; 6 inches for all other roadways with speed limits > 40 mph,

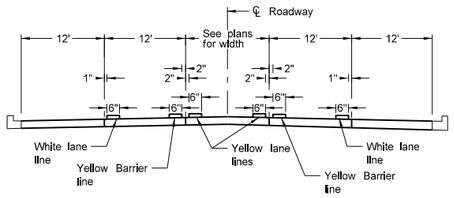
3. Use 4 or 6 inch wide pavement marking for all other roadways with speed limits < 40 mph.



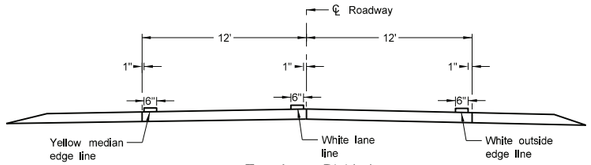
Two Lane Divided
Rural Roadway
PRIMARY HIGHWAY
Asphalt Section



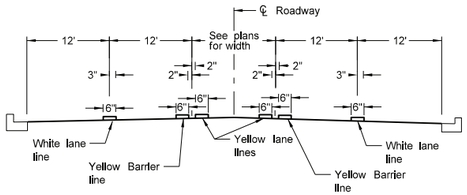
RURAL FIVE LANE ROADWAY
Asphalt Section



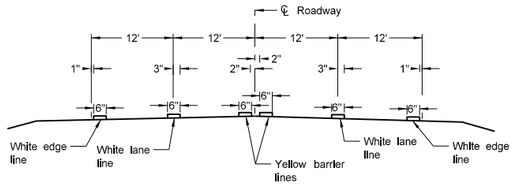
URBAN FIVE LANE SECTION
Concrete Section



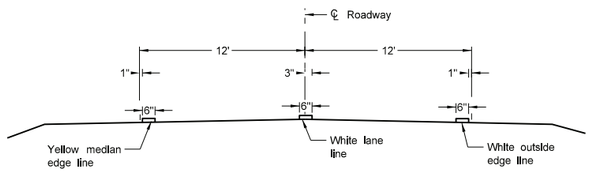
Two Lane Divided
Rural Roadway
PRIMARY HIGHWAY
Concrete Section



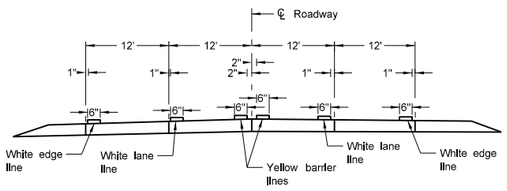
URBAN FIVE LANE SECTION
Asphalt Section



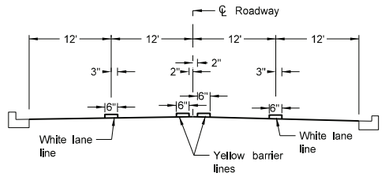
RURAL FOUR LANE ROADWAY
Asphalt Section



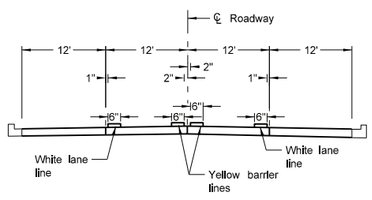
Two Lane Roadway
INTERSTATE HIGHWAY
Asphalt Section



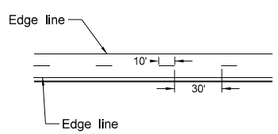
RURAL FOUR LANE ROADWAY
Concrete Section



URBAN FOUR LANE SECTION
Asphalt Section



URBAN FOUR LANE SECTION
Concrete Section



CENTERLINE PAVEMENT MARKING SKIP SPACING DETAIL

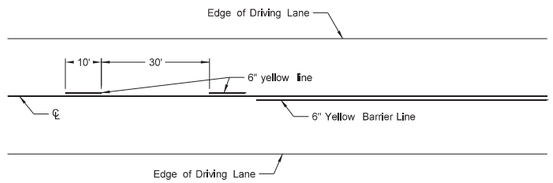
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
10-17-17	Updated to active voice.
08-27-19	New Design Engineer PE Stamp.
11-22-23	Revised pavement marking widths.
07-09-24	Modified Note 1.

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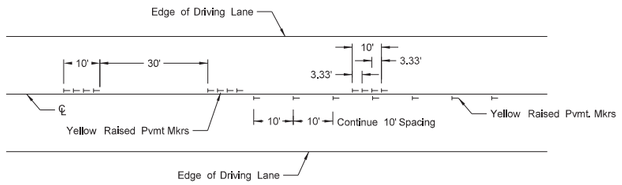
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SHORT-TERM PAVEMENT MARKING

D-762-11

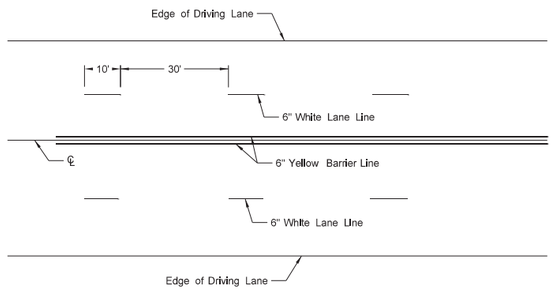


Painted or Tape Lines

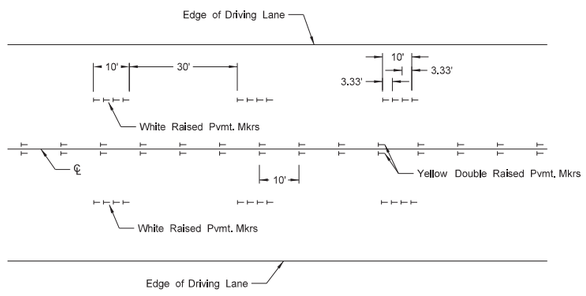


Raised Pavement Markers

TWO-LANE TWO-WAY ROADWAY

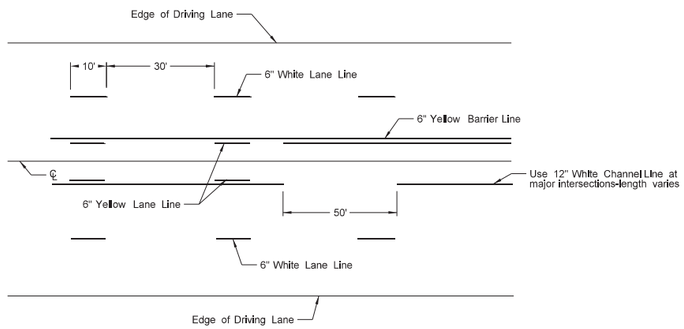


Painted or Tape Lines

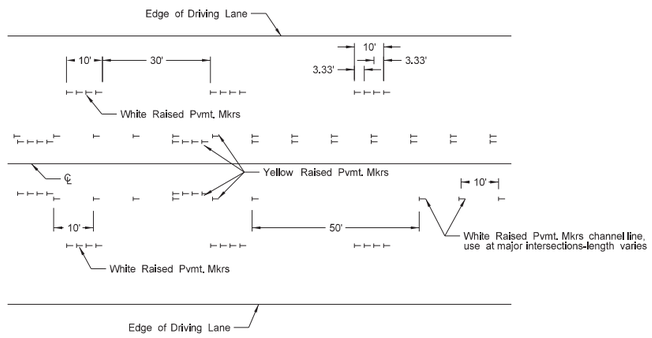


Raised Pavement Markers

FOUR LANE ROADWAY

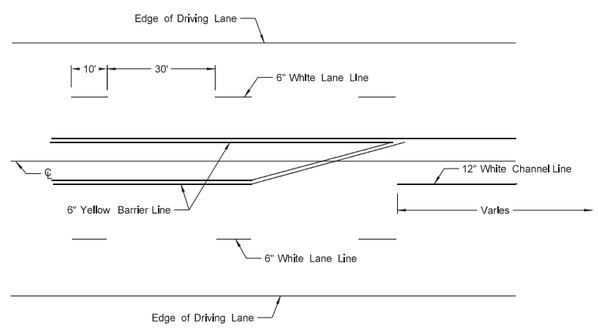


Painted or Tape Lines

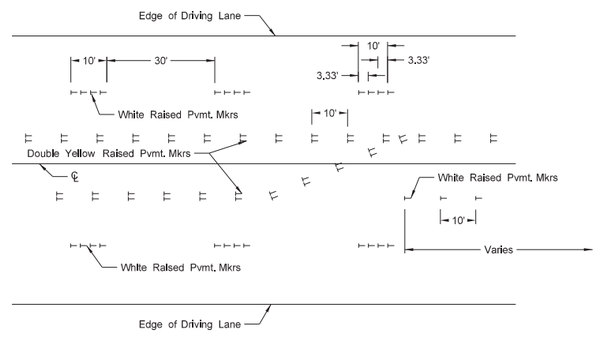


Raised Pavement Markers

FIVE LANE ROADWAY TWO WAY LEFT TURN



Painted or Tape Lines



Raised Pavement Markers

FIVE LANE ROADWAY WITH MARKED ISLANDS

NOTES:

1. Place no passing zones on two-lane two-way roadways as shown. In lieu of short term no passing zone pavement markings, place no passing zone signs. Replace no passing zone signs with short term no passing zone pavement marking within three days.
2. Place short term center line stripe (paint) on top lift to match exact placement of permanent stripe.
3. Remove raised markers and tape markings after permanent pavement marking is installed.
4. Normal width line - 6 inches wide for freeways, expressways, and ramps; 6 inches for all other roadways with speed limits > 40 mph.
5. Use 4 or 6 inch wide pavement marking for all other roadways with speed limits ≤ 40 mph.
6. Wide lines - 8 inches wide if 4 inch normal width lines are used and 12 inches wide if 6 inch normal width lines are used.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
3-29-16	Re-numbered to be D-762-11 (previously was D-762-6)
10-17-17	Updated to active voice.
8-27-19	New Design Engineer PE Stamp.
11-22-23	Revised pavement marking widths.
1-17-24	Revised wide pvmt marking width.

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